

ARCH[®]

Cutting Tools

- Milling
- Drilling
- Finishing
- Contouring
- Slotting
- Turning
- Boring
- Tool Holding
- Custom Solutions

THE
COLLECTION

THE COMPLETE TOOL MAKING AUTHORITY[®]

2022

THE COLLECTION



ARCH Cutting Tools Master Catalog : The Collection

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2nd Edition, 2022

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Completed by ARCH Cutting Tools Marketing

ARCH[®]

Cutting Tools



With great enthusiasm, the team at ARCH[®] Cutting Tools debuts our integrated standard cutting tool collection.

Building on a rich heritage of high-quality domestic manufacturing, ARCH Cutting Tools has significantly expanded our standard solid round tool offering under the trusted KEO[®] brand name and our indexable portfolio under the Ultra-Dex[®] brand. The catalog integrates all heritage KEO products, a full line of micro tools, and a comprehensive offering of Patriot High Performance[®] milling and drilling tools in an *Easy to choose, Easy to use[®]* format designed with the end-user in mind.

We've listened to our customers. You called for ease of doing business and a broader tooling portfolio with new and innovative stocked standards. The refined format includes supplemental technical and application information to make selecting tools intuitive and straightforward and will serve as a platform for planned product expansions.

The newly integrated catalog coincides with the start-up of a new state-of-the-art centralized warehouse that further streamlines our speed and service.

ARCH Cutting Tools ambition is to be, Your Complete Tool Making Authority[®]. And is making significant investments to build a mid-sized, full-service cutting tool company capable of providing nimble, streamlined solutions to our valued customers. Resulting in dynamic, customer-driven enhancements that include an expanded stocked standard tooling offering and an industry-leading breadth of custom tooling capabilities.

Jeff Cederstrom

President, ARCH Cutting Tools

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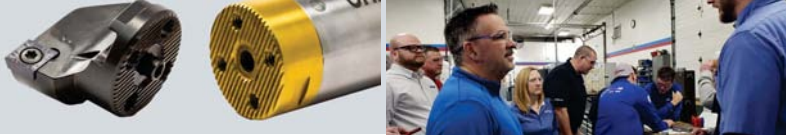


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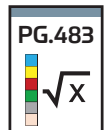
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ARCH[®]
Cutting Tools

CHAPTER 1

ROTATING



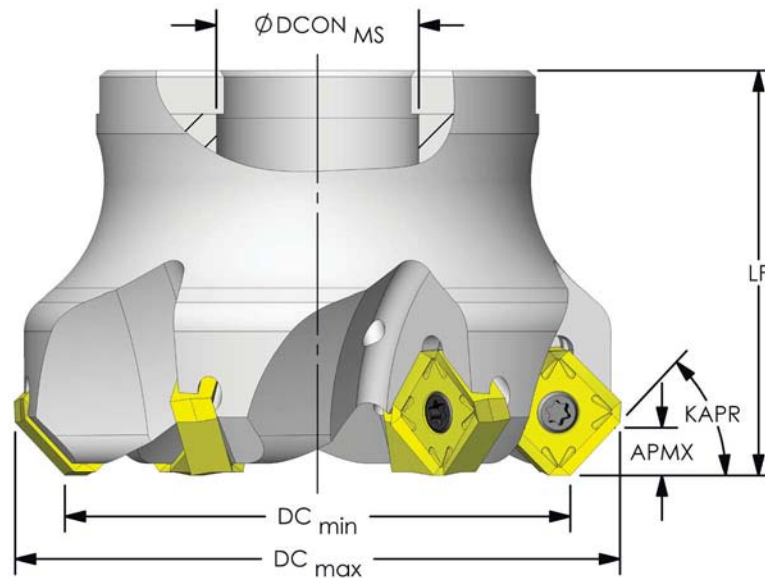
INDEXABLE MILLING

THE COMPLETE TOOL MAKING AUTHORITY®



PM1

- General first choice for face and chamfer milling applications
- Well balanced radial and axial cutting forces
- Smooth entry into cut
- Low vibration tendency when used in long overhang situations
- Face and Chamfer milling applications (in every shop)
- Double-sided insert – 8 cutting edges
- Positive geometry insert – Free cutting
- Efficient cutting parameters due to chip thinning (Hex)
- Directed through coolant at each insert providing excellent chip evacuation



KAPR: 45°

| PRODUCT # | Designation | DCmax | DCmin | APMX | ZC | LF | DCON MS | KAPR | Insert | Screw |
|-------------|---------------------|-------|-------|-------|----|-------|---------|------|----------|-------|
| 970-000-092 | PM1-1.25-3-.500-12 | 1.738 | 1.250 | 0.236 | 3 | 1.750 | 0.500 | 45.0 | PM1 1205 | PM1-4 |
| 970-000-093 | PM1-1.50-4-.500-12 | 1.988 | 1.500 | 0.236 | 4 | 1.750 | 0.500 | 45.0 | PM1 1205 | PM1-4 |
| 970-000-094 | PM1-2.00-5-.750-12 | 2.488 | 2.000 | 0.236 | 5 | 1.750 | 0.750 | 45.0 | PM1 1205 | PM1-4 |
| 970-000-095 | PM1-2.50-6-1.00-12 | 2.988 | 2.500 | 0.236 | 6 | 2.000 | 1.000 | 45.0 | PM1 1205 | PM1-4 |
| 970-000-096 | PM1-3.00-8-1.00-12 | 3.488 | 3.000 | 0.236 | 8 | 2.000 | 1.000 | 45.0 | PM1 1205 | PM1-4 |
| 970-000-097 | PM1-4.00-10-1.25-12 | 4.488 | 4.000 | 0.236 | 10 | 2.000 | 1.250 | 45.0 | PM1 1205 | PM1-4 |



Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



HCX



SCX



| PRODUCT # | Designation | HP470 | HM470 | HS470 | HS480 | HK430 | HN432 |
|-------------|--------------|-------|-------|-------|-------|-------|-------|
| 914-000-104 | PM1 1205-HCX | • | | | | | |
| 914-000-105 | PM1 1205-HCX | | | | | • | |
| 914-000-106 | PM1 1205-SCX | | • | | | | |
| 914-000-107 | PM1 1205-SCX | | | • | | | |

PACKAGE SIZE OF 10

| Part # | Insert Screw |
|-------------|--------------|
| 968-000-119 | PM1-4 |
| 968-000-120 | PM2-3 |
| 968-000-121 | PM2-4 |
| 968-000-122 | PM3-35 |
| 968-000-123 | PM4-4 |

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Medium to roughing applications in steel and cast iron

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|-------------|--------------|------------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 300-800 | .005 - .020 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 220-720 | .003 - .018 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .003 - .0015 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 260-700 | .003 - .015 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 1100 | .005 - .022 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 350 - 850 | .005 - .016 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 80-280 | .004 - .011 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 250 | .003 - .009 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 300 | .004 - .012 |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

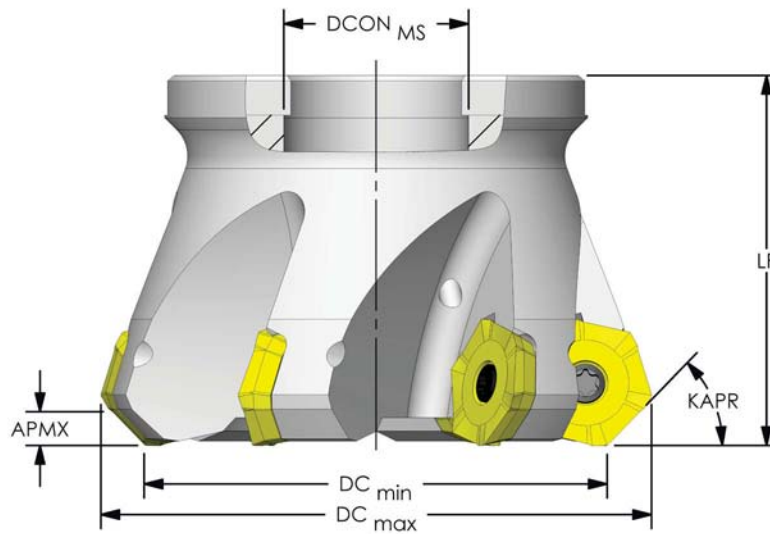
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM4

- Face and chamfer milling in all ISO material applications
- Well balanced radial and axial cutting forces
- Ideal in low-powered machines due to very low cutting forces
- Smooth entry into cut with a true 45° entering angle
- Low vibration tendency when used in long overhang situations
- Cost efficient insert – 6 cutting edges
- Positive geometry insert and cutter body – High shear cutting action
- Efficient cutting parameters due to chip thinning (Hex)
- Directed through coolant at each insert providing excellent chip evacuation



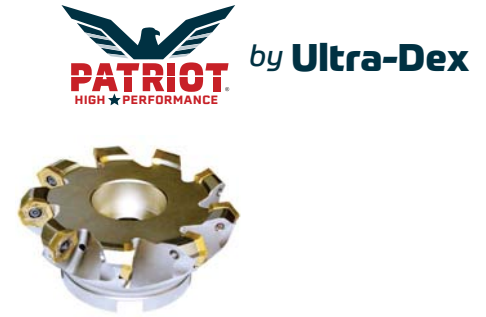
KAPR: 45°



| PRODUCT # | Designation | DCmax | DCmin | APMX | ZC | LF | DCON MS | KAPR | Insert | Screw |
|-------------|--------------------|-------|-------|-------|----|-------|---------|------|----------|-------|
| 970-000-110 | PM4-1.50-4-.500-06 | 1.980 | 1.500 | 0.177 | 4 | 1.750 | 0.500 | 45.0 | PM4 0604 | PM4-4 |
| 970-000-111 | PM4-2.00-5-.750-06 | 2.480 | 2.000 | 0.177 | 5 | 1.750 | 0.750 | 45.0 | | |
| 970-000-112 | PM4-2.50-6-1.00-06 | 2.980 | 2.500 | 0.177 | 6 | 2.000 | 1.000 | 45.0 | | |
| 970-000-113 | PM4-3.00-7-1.00-06 | 3.480 | 3.000 | 0.177 | 7 | 2.000 | 1.000 | 45.0 | | |
| 970-000-114 | PM4-4.00-9-1.25-06 | 4.480 | 4.000 | 0.177 | 9 | 2.000 | 1.250 | 45.0 | | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



| PRODUCT # | Designation | HP470 | HM470 | HS470 | HS480 | HK430 | HN432 |
|-------------|--------------|-------|-------|-------|-------|-------|-------|
| 914-000-125 | PM4 0604-HCX | • | | | | | |
| 914-000-124 | | | | | | • | |
| 914-000-127 | PM4 0604-SCX | | • | | | | |
| 914-000-128 | | | | • | | | |
| 914-000-126 | PM4 0604-LCX | | | | | | • |

PACKAGE SIZE OF 10

| Part # | Insert Screw |
|-------------|--------------|
| 968-000-119 | PM1-4 |
| 968-000-120 | PM2-3 |
| 968-000-121 | PM2-4 |
| 968-000-122 | PM3-35 |
| 968-000-123 | PM4-4 |

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|-------------|--------------|------------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 300-800 | .005 - .018 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 220-720 | .005 - .016 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .003 - .012 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 260-700 | .003 - .014 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 950 | .005 - .020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 350 - 800 | .005 - .016 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | LCX | HK430 | 400 - 1100 | .007 - .020 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 80-250 | .004 - .011 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 200 | .003 - .008 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | | .003 - .010 |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

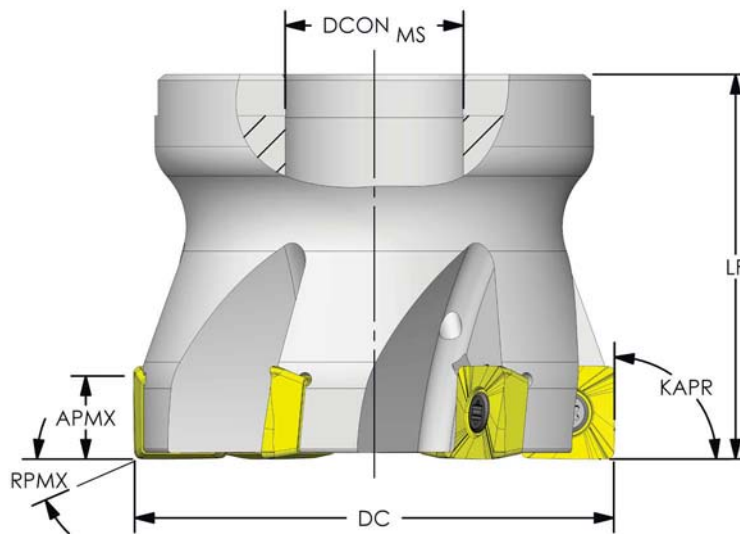
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM2

- General first choice for shoulder and slot milling applications
- Face milling, high feed edge milling, and plunge milling
- Cost efficient insert – 4 cutting edges
- Excellent surface finish and higher utilization of low-powered machines
- Precise insert location providing a true 90° shoulder with minimal mismatch
- Positive geometry insert – Free cutting
- Directed through coolant at each insert providing excellent chip evacuation



KAPR: 90°

| PRODUCT # | Designation | DC | APMX | ZC | LF | DCON MS | RPMX | KAPR | Insert | Screw |
|-------------|--------------------|-------|-------|----|-------|---------|-------|------|------------|-------|
| 970-000-098 | PM2-1.25-4-.500-09 | 1.250 | 0.314 | 4 | 1.750 | 0.500 | 2.20° | 90.0 | PM2 09T308 | PM2-3 |
| 970-000-100 | PM2-1.50-5-.500-09 | 1.500 | 0.314 | 5 | 1.750 | 0.500 | 0.75° | 90.0 | | |
| 970-000-102 | PM2-2.00-6-.750-09 | 2.000 | 0.314 | 6 | 1.750 | 0.750 | 0.50° | 90.0 | | |
| 970-000-104 | PM2-2.50-7-1.00-09 | 2.500 | 0.314 | 7 | 2.000 | 1.000 | 0.35° | 90.0 | | |
| 970-000-106 | PM2-3.00-9-1.00-09 | 3.000 | 0.314 | 9 | 2.000 | 1.000 | 0.25° | 90.0 | | |
| 970-000-099 | PM2-1.50-4-.500-12 | 1.500 | 0.394 | 4 | 1.750 | 0.500 | 0.75° | 90.0 | PM2 120508 | PM2-4 |
| 970-000-101 | PM2-2.00-5-.750-12 | 2.000 | 0.394 | 5 | 1.750 | 0.750 | 0.40° | 90.0 | | |
| 970-000-103 | PM2-2.50-6-1.00-12 | 2.500 | 0.394 | 6 | 2.000 | 1.000 | 0.30° | 90.0 | | |
| 970-000-105 | PM2-3.00-7-1.00-12 | 3.000 | 0.394 | 7 | 2.000 | 1.000 | 0.25° | 90.0 | | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



| PRODUCT # | Designation | HP470 | HM470 | HS470 | HS480 | HK430 | HN432 |
|-------------|----------------|-------|-------|-------|-------|-------|-------|
| 914-000-109 | PM2 09T308-HCX | • | | | | | |
| 914-000-111 | PM2 09T308-SCX | | • | | | | |
| 914-000-112 | | | | • | | | |
| 914-000-113 | | | | | • | | |
| 914-000-108 | PM2 09T308-CCX | | | | | • | |
| 914-000-110 | PM2 09T308-LCX | | | | | | • |
| 914-000-115 | PM2 120508-HCX | • | | | | | |
| 914-000-116 | PM2 120508-SCX | | • | | | | |
| 914-000-117 | | | | • | | | |
| 914-000-118 | | | | | • | | |
| 914-000-114 | PM2 120508-CCX | | | | | • | |

| Part # | Insert Screw |
|-------------|--------------|
| 968-000-119 | PM1-4 |
| 968-000-120 | PM2-3 |
| 968-000-121 | PM2-4 |
| 968-000-122 | PM3-35 |
| 968-000-123 | PM4-4 |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

CCX : Strong cutting edge for cast iron applications

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|------------------|--------------|------------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 230-800 | .003 - .010 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 230-700 | .003 - .008 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 200-600 | .003 - .009 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 200-600 | .003 - .009 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | CCX / HCX | HK430 | 400 - 950 | .004 - .015 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 300 - 700 | .003 - .011 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | LCX | HK430 | 400 - 1000 | .006 - .018 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX / HCX | HS470 | 80-250 | .003 - .009 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 200 | .0025 - .007 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 350 | .003 - .010 |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

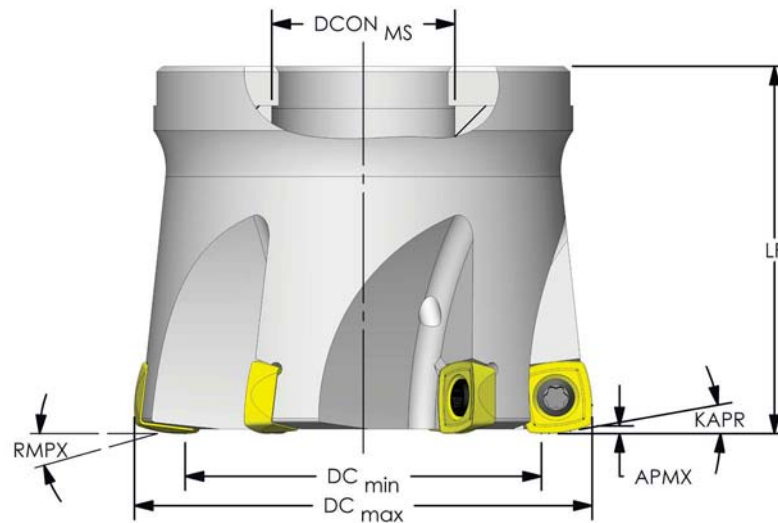
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM3

- General first choice for high feed face and plunge milling applications
- Multipurpose tool with helical boring, ramping and plunging capabilities
- Extremely low radial cutting forces allowing for aggressive feed rates
- Cost efficient insert geometries that excel in HRSA and Stainless steels
- High table feed due to the chip thinning effect – high metal removal rates
- First consideration when face milling in long overhang machining applications
- Positive geometry insert – Free cutting
- Directed through coolant at each insert providing excellent chip evacuation



KAPR: 10°

| PRODUCT # | Designation | DCXmax | DCmin | APMX | ZC | LF | DCON MS | RPMX | KAPR | Insert | Screw |
|-------------|--------------------|--------|-------|-------|----|-------|---------|------|------|------------|---------|
| 970-000-107 | PM3-1.50-4-.500-10 | 1.500 | 1.035 | 0.039 | 4 | 1.750 | 0.500 | 1.2° | 10.0 | PM3 10T308 | PM3-3.5 |
| 970-000-108 | PM3-2.00-5-.750-10 | 2.000 | 1.535 | 0.039 | 5 | 1.750 | 0.750 | 0.9° | 10.0 | | |
| 970-000-109 | PM3-2.50-6-1.00-10 | 2.500 | 2.035 | 0.039 | 6 | 1.750 | 1.000 | 0.8° | 10.0 | | |

Recommendations:

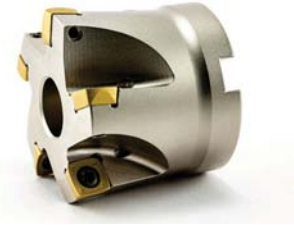
- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, ae, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



HCX



SCX



| PRODUCT # | Designation | HP470 | HM470 | HS470 | HS480 | HK430 | HN432 |
|-------------|----------------|-------|-------|-------|-------|-------|-------|
| 914-000-119 | PM3 10T308-HCX | • | | | | | |
| 914-000-120 | | | | | | • | |
| 914-000-121 | PM3 10T308-SCX | | • | | | | |
| 914-000-122 | | | | • | | | |
| 914-000-123 | | | | | • | | |

PACKAGE SIZE OF 10

| Part # | Insert Screw |
|-------------|--------------|
| 968-000-119 | PM1-4 |
| 968-000-120 | PM2-3 |
| 968-000-121 | PM2-4 |
| 968-000-122 | PM3-35 |
| 968-000-123 | PM4-4 |

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application

SCX : Sharp cutting edge for general stainless steels and super alloy applications

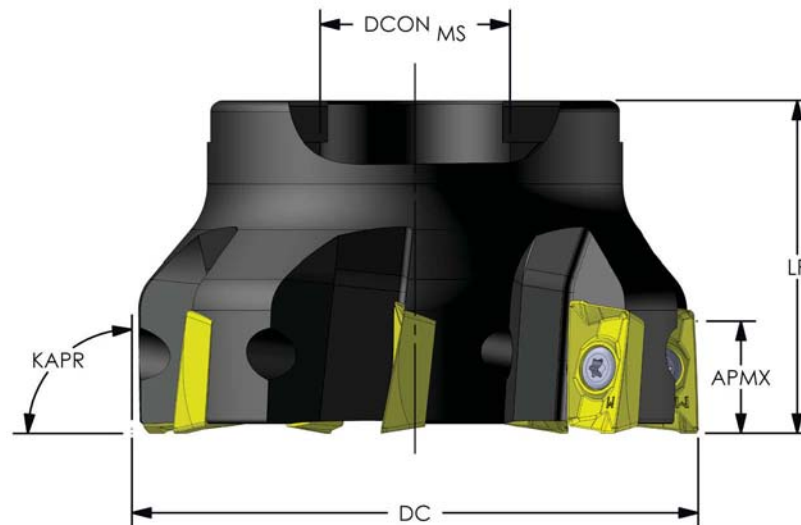
| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|-------------|--------------|-----------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 220 - 820 | .009 - .075 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 220-720 | .009 - .065 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .009 - .045 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 260-700 | .009 - .045 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 900 | .009 - .063 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 300 - 850 | .009 - .055 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 100-350 | .009 - .040 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 220 | .007 - .035 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 400 | .008 - .050 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



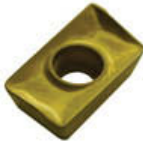
F90AP

- Shoulder and slot milling in all ISO material applications
- Linear and helical ramping capabilities
- Deep shoulder milling based on APMX of insert
- Excellent surface finish and higher utilization of low-powered machines
- Positive geometry insert – Free cutting



KAPR: 95°

| PRODUCT # | Designation | DC | ZC | LF | APMX | DCON MS | KAPR | Inserts | Screw |
|-------------|-----------------------|-------|----|-------|-------|---------|------|-------------|----------|
| 946-000-032 | F90AP D2.00-5-.750-11 | 2.000 | 5 | 1.570 | 0.315 | 0.750 | 95.0 | APKT 11T308 | SR34505L |
| 946-000-035 | F90AP D2.50-7-1.00-11 | 2.500 | 7 | 1.750 | 0.315 | 1.000 | 95.0 | | SR34505L |
| 946-000-038 | F90AP D3.00-8-1.00-11 | 3.000 | 8 | 1.750 | 0.315 | 1.000 | 95.0 | | SR34505L |
| 946-000-033 | F90AP D2.00-5-.750-16 | 2.000 | 5 | 1.570 | 0.472 | 0.750 | 95.0 | APKT 160408 | SR14544 |
| 946-000-034 | F90AP D2.50-5-1.00-16 | 2.500 | 5 | 1.750 | 0.472 | 1.000 | 95.0 | | SR14544 |
| 946-000-036 | F90AP D3.00-5-1.00-16 | 3.000 | 5 | 1.750 | 0.472 | 1.000 | 95.0 | | SR14544 |
| 946-000-037 | F90AP D3.00-7-1.00-16 | 3.000 | 7 | 1.750 | 0.472 | 1.000 | 95.0 | | SR14544 |
| 946-000-039 | F90AP D4.00-7-1.25-16 | 4.000 | 7 | 2.000 | 0.472 | 1.250 | 95.0 | | SR14544 |



| PRODUCT # | Designation | Radius | UD1 | UD204 | UD404 | UD602 |
|-------------|----------------|--------|-----|-------|-------|-------|
| 913-000-029 | | | | • | | |
| 913-000-030 | APKT 11T304-PF | 0.015 | | | • | |
| 913-000-031 | | | | | | • |
| 913-000-039 | APKT 11T308-PF | 0.031 | | • | | |
| 913-000-040 | | | | | • | |
| 913-000-046 | APKT 11T316-PF | 0.062 | | • | | |
| 913-000-047 | | | | | • | |
| 913-000-051 | APKT 160408-PF | 0.031 | | | • | |
| 913-000-052 | | | | | | • |
| 913-000-032 | | | | • | | |
| 913-000-033 | APKT 11T304-PM | 0.015 | | | • | |
| 913-000-034 | | | | | | • |
| 913-000-041 | | | | • | | |
| 913-000-042 | APKT 11T308-PM | 0.031 | | | • | |
| 913-000-043 | | | | | | • |
| 913-000-045 | APKT 11T312-PM | 0.046 | | | • | |
| 913-000-048 | APKT 11T316-PM | 0.062 | | • | | |
| 913-000-049 | | | | | • | |
| 913-000-053 | | | | • | | |
| 913-000-054 | APKT 160408-PM | 0.031 | | | • | |
| 913-000-055 | | | | | | • |
| 913-000-035 | | | | • | | |
| 913-000-036 | APKT 11T304-PR | 0.015 | | | • | |
| 913-000-037 | | | | | | • |
| 913-000-028 | APKT 11T304-AL | 0.015 | • | | | |
| 913-000-038 | APKT 11T308-AL | 0.031 | • | | | |
| 913-000-050 | APKT 160408-AL | 0.031 | • | | | |

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-134 | SR34505 |
| 968-000-133 | SR14544 |
| 968-000-135 | SR34505L |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

APKT 11T308



Feed Per Tooth (inch)

| AP (inch) | Light | Medium | Heavy |
|-----------|-------|--------|-------|
| .315 | .0028 | .0031 | .0039 |
| .236 | .0039 | .0047 | .0059 |
| .157 | .0047 | .0059 | .0079 |

f/t

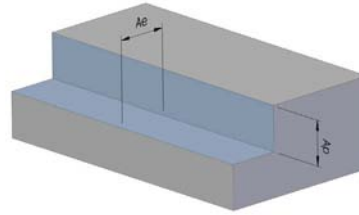
APKT 160408



Feed Per Tooth (inch)

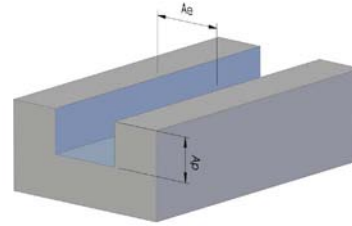
| AP (inch) | Light | Medium | Heavy |
|-----------|-------|--------|-------|
| .472 | .0028 | .0031 | .0039 |
| .315 | .0039 | .0047 | .0059 |
| .197 | .0047 | .0059 | .0079 |

f/t



| | | | | SQUARE SHOULDER MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|---------------|----------|----------|
| | | | | Fz (INCH PER TOOTH)* | | APMX | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.010 | 0.004 - 0.012 | 0.315 | 0.472 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.012 | 0.004 - 0.012 | 0.315 | 0.472 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.014 | 0.004 - 0.016 | 0.315 | 0.472 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.007 | 0.003 - 0.009 | 0.315 | 0.472 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.0085 | 0.003 - 0.010 | 0.315 | 0.472 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



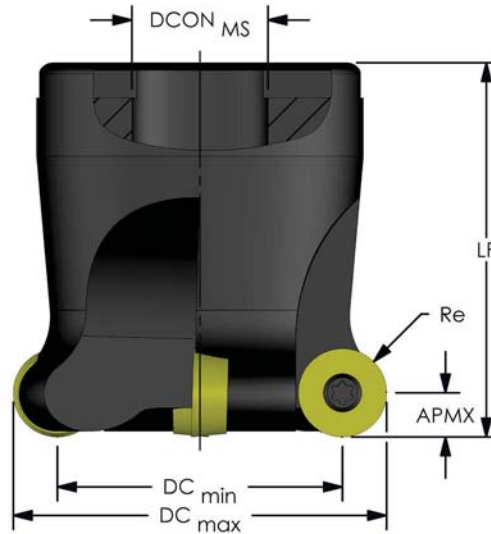
| | | | | SQUARE SLOT MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|----------------|----------|----------|
| | | | | Fz (INCH PER TOOTH)* | | APMX | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.006 | 0.003 - 0.0085 | 0.315 | 0.472 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.007 | 0.003 - 0.010 | 0.315 | 0.472 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.011 | 0.004 - 0.014 | 0.315 | 0.472 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.006 | 0.003 - 0.007 | 0.315 | 0.472 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.006 | 0.003 - 0.008 | 0.315 | 0.472 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



FR ARBOR MOUNT

- Profile, contouring and slot milling in all ISO material applications
- Linear and helical ramping capabilities
- High feed milling capabilities based on programed AP of insert
- Excellent surface finish and higher utilization of low-powered machines
- Positive geometry insert – Free cutting



| PRODUCT # | Designation | DCmax | DCmin | Re | L | DCON MS | APMX | ZC | Insert | Screw |
|-------------|--------------------|-------|-------|-------------|-------|---------|-------------|----|-----------|--------|
| 946-000-041 | FR-D2.00-4-.750-12 | 2.000 | 1.528 | 0.236 (6mm) | 2.000 | 0.750 | 0.236 (6mm) | 4 | RCKT 1204 | MTS-35 |
| 946-000-042 | FR-D2.00-4-.750-4 | 2.000 | 1.500 | 0.250 | 2.000 | 0.750 | 0.250 | 4 | RCMT 43 | MTS-4 |
| 946-000-040 | FR-D2.00-3-.750-16 | 2.000 | 1.370 | 0.315 (8mm) | 2.000 | 0.750 | 0.315 (8mm) | 3 | RCKT 1606 | MTS-4 |
| 946-000-044 | FR-D3.00-5-1.00-4 | 3.000 | 2.500 | 0.250 | 1.750 | 1.000 | 0.250 | 5 | RCMT 43 | MTS-4 |
| 946-000-043 | FR-D3.00-5-1.00-16 | 3.000 | 2.370 | 0.315 (8mm) | 1.750 | 1.000 | 0.315 (8mm) | 5 | RCKT 1606 | MTS-4 |
| 946-000-046 | FR-D4.00-6-1.25-4 | 4.000 | 3.500 | 0.250 | 1.750 | 1.250 | 0.250 | 6 | RCMT 43 | MTS-4 |
| 946-000-045 | FR-D4.00-6-1.25-16 | 4.000 | 3.370 | 0.315 (8mm) | 1.750 | 1.250 | 0.315 (8mm) | 6 | RCKT 1606 | MTS-4 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is recommended to use precision holders i.e. hydraulic, shrink fit



| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-092 | MTS-255 |
| 968-000-082 | MTS-25-DR |
| 968-000-084 | MTS-3-DR |
| 968-000-083 | MTS-35-DR |
| 968-000-085 | MTS-4-DR |

PACKAGE SIZE OF 5



| PRODUCT # | Designation | UD1 | UD404 | UD602 |
|-------------|-------------|-----|-------|-------|
| 913-000-360 | RDKW 0803 | | • | |
| 913-000-361 | | | | • |
| 913-000-337 | RCKT 10T3 | • | | |
| 913-000-338 | | | • | |
| 913-000-339 | | | | • |
| 913-000-340 | RCKT 1204 | • | | |
| 913-000-341 | | | • | |
| 913-000-342 | | | | • |
| 913-000-343 | RCKT 1606 | | • | |
| 913-000-344 | | | | • |

PACKAGE SIZE OF 10

| PRODUCT # | Designation | UD51 | UD52 | UD2 | UD21 | UD22 |
|-------------|-------------|------|------|-----|------|------|
| 913-000-348 | RCMT 21.5 | • | | | | |
| 913-000-349 | | | • | | | |
| 913-000-345 | | | | • | | |
| 913-000-346 | | | | | • | |
| 913-000-347 | | | | | | • |
| 913-000-353 | RCMT 32.5 | • | | | | |
| 913-000-354 | | | • | | | |
| 913-000-350 | | | | • | | |
| 913-000-351 | | | | | • | |
| 913-000-352 | | | | | | • |
| 913-000-358 | RCMT 43 | • | | | | |
| 913-000-359 | | | • | | | |
| 913-000-355 | | | | • | | |
| 913-000-356 | | | | | • | |
| 913-000-357 | | | | | | • |

PACKAGE SIZE OF 10

| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* at 50% insert I.C. APMX** |
|----------|---|-----------------------------|--|-----------|---|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | UD51 UD52 UD404 UD602 | 300-850 | .006 - .018 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 200-700 | .005 - .015 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | UD32 | 200-650 | .003 - .010 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-700 | .003 - .012 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | UD21 | 250-900 | .005 - .020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 200-700 | .005 - .015 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | UD1 UD2 | 400-975 | .006 - .020 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | UD32 UD404 | 80-400 | .004 - .012 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | UD32 UD52 UD404 | 40-250 | .003 - .008 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 100-550 | .003 - .010 |

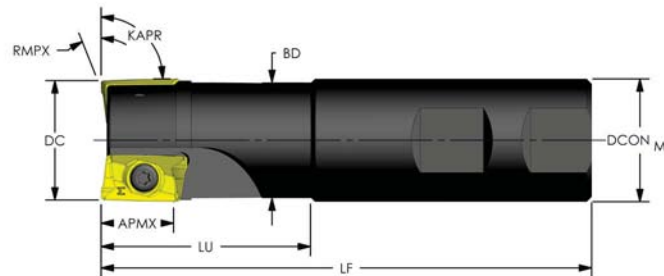
Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.



E90AP

- Shoulder and slot milling in all ISO material applications
- Linear and helical ramping capabilities
- Deep shoulder milling based on APMX of insert
- Excellent surface finish and higher utilization of low-powered machines
- Positive geometry insert – Free cutting
- Directed through coolant at each insert providing excellent chip evacuation



KAPR: 90°

No Coolant

| PRODUCT # | Designation | DC | LF | LU | APMX | DCON MS | BD | RMPX | ZC | KAPR | Insert | Screw |
|-------------|--------------------------|-------|-------|-------|-------|---------|-------|------|----|------|-------------|----------|
| 946-000-001 | E90AP D0.500-1-W.500-11 | 0.500 | 3.375 | 0.975 | 0.315 | 0.500 | 0.455 | 10° | 1 | 90.0 | APKT 11T308 | SR34505 |
| 946-000-002 | E90AP D.625-2-W.625-11 | 0.625 | 3.375 | 0.975 | 0.315 | 0.625 | 0.580 | 10° | 2 | 90.0 | | SR34505 |
| 946-000-003 | E90AP D.750-2-W.750-11 | 0.750 | 3.375 | 0.975 | 0.315 | 0.750 | 0.705 | 5° | 2 | 90.0 | | SR34505L |
| 946-000-005 | E90AP D.750-3-W.750-11 | 0.750 | 3.375 | 0.975 | 0.315 | 0.750 | 0.705 | 5° | 3 | 90.0 | | SR34505L |
| 946-000-007 | E90AP D.750-3-W.750-6-11 | 0.750 | 6.000 | 3.000 | 0.315 | 0.750 | 0.705 | 5° | 3 | 90.0 | | SR34505L |
| 946-000-010 | E90AP D1.00-3-W.750-11 | 1.000 | 4.000 | 1.500 | 0.315 | 0.750 | 0.955 | 5° | 3 | 90.0 | | SR34505L |
| 946-000-011 | E90AP D1.00-3-W1.00-11 | 1.000 | 4.000 | 1.500 | 0.315 | 1.000 | 0.955 | 4.5° | 3 | 90.0 | | SR34505L |
| 946-000-013 | E90AP D1.00-3-W1.00-6-11 | 1.000 | 6.000 | 3.000 | 0.315 | 1.000 | 0.955 | 4.5° | 3 | 90.0 | | SR34505L |
| 946-000-015 | E90AP D1.250-3-W.750-11 | 1.250 | 4.000 | 1.500 | 0.315 | 0.750 | 1.205 | 3° | 3 | 90.0 | | SR34505L |
| 946-000-016 | E90AP D1.250-3-W1.00-11 | 1.250 | 4.000 | 1.500 | 0.315 | 1.000 | 1.205 | 3° | 3 | 90.0 | | SR34505L |
| 946-000-021 | E90AP D1.500-5-W1.00-11 | 1.500 | 4.000 | 1.500 | 0.315 | 1.000 | 1.475 | 2° | 5 | 90.0 | SR34505L | |
| 946-000-008 | E90AP D1.00-2-W1.00-16 | 1.000 | 4.000 | 1.750 | 0.472 | 1.000 | 0.940 | 6° | 2 | 90.0 | APKT 160408 | SR14544 |
| 946-000-009 | E90AP D1.00-2-W1.00-6-16 | 1.000 | 6.000 | 4.000 | 0.472 | 1.000 | 0.940 | 6° | 2 | 90.0 | | SR14544 |
| 946-000-014 | E90AP D1.250-2-W1.00-16 | 1.250 | 4.000 | 1.500 | 0.472 | 1.000 | 1.190 | 4.5° | 2 | 90.0 | | SR14544 |
| 946-000-017 | E90AP D1.250-3-W1.00-16 | 1.250 | 4.000 | 1.500 | 0.472 | 1.000 | 1.190 | 4.5° | 3 | 90.0 | | SR14544 |
| 946-000-019 | E90AP D1.500-3-W1.00-16 | 1.500 | 4.000 | 1.500 | 0.472 | 1.000 | 1.425 | 2.5° | 3 | 90.0 | | SR14544 |

Coolant Thru

| PRODUCT # | Designation | DC | LF | LU | APMX | DCON MS | BD | RMPX | ZC | KAPR | Insert | Screw |
|-------------|---------------------------|-------|-------|-------|-------|---------|-------|------|----|------|-------------|----------|
| 946-000-004 | E90AP D.750-2-W.750-11-C | 0.750 | 3.375 | 0.975 | 0.315 | 0.750 | 0.705 | 5° | 2 | 90.0 | APKT 11T308 | SR34505L |
| 946-000-006 | E90AP D.750-3-W.750-11-C | 0.750 | 3.375 | 0.975 | 0.315 | 0.750 | 0.705 | 5° | 3 | 90.0 | | SR34505L |
| 946-000-012 | E90AP D1.00-3-W1.00-11-C | 1.000 | 4.000 | 1.500 | 0.315 | 1.000 | 0.940 | 4.5° | 3 | 90.0 | | SR34505L |
| 946-000-018 | E90AP D1.250-3-W1.00-16-C | 1.250 | 4.000 | 1.500 | 0.472 | 1.000 | 1.190 | 4.5° | 3 | 90.0 | APKT 160408 | SR14544 |
| 946-000-020 | E90AP D1.500-3-W1.00-16-C | 1.500 | 4.000 | 1.500 | 0.472 | 1.000 | 1.425 | 2.5° | 3 | 90.0 | | SR14544 |



| PRODUCT # | Designation | Radius | UD1 | UD204 | UD404 | UD602 |
|-------------|----------------|--------|-----|-------|-------|-------|
| 913-000-029 | | | | • | | |
| 913-000-030 | APKT 11T304-PF | 0.015 | | | • | |
| 913-000-031 | | | | | | • |
| 913-000-039 | APKT 11T308-PF | 0.031 | | • | | |
| 913-000-040 | | | | | • | |
| 913-000-046 | APKT 11T316-PF | 0.062 | | • | | |
| 913-000-047 | | | | | • | |
| 913-000-051 | APKT 160408-PF | 0.031 | | | • | |
| 913-000-052 | | | | | | • |
| 913-000-032 | | | | • | | |
| 913-000-033 | APKT 11T304-PM | 0.015 | | | • | |
| 913-000-034 | | | | | | • |
| 913-000-041 | | | | • | | |
| 913-000-042 | APKT 11T308-PM | 0.031 | | | • | |
| 913-000-043 | | | | | | • |
| 913-000-045 | APKT 11T312-PM | 0.046 | | | • | |
| 913-000-048 | APKT 11T316-PM | 0.062 | | • | | |
| 913-000-049 | | | | | • | |
| 913-000-053 | | | | • | | |
| 913-000-054 | APKT 160408-PM | 0.031 | | | • | |
| 913-000-055 | | | | | | • |
| 913-000-035 | | | | • | | |
| 913-000-036 | APKT 11T304-PR | 0.015 | | | • | |
| 913-000-037 | | | | | | • |
| 913-000-028 | APKT 11T304-AL | 0.015 | • | | | |
| 913-000-038 | APKT 11T308-AL | 0.031 | • | | | |
| 913-000-050 | APKT 160408-AL | 0.031 | • | | | |

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-134 | SR34505 |
| 968-000-133 | SR14544 |
| 968-000-135 | SR34505L |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

APKT 11T308



Depth of cut ↑

Feed Per Tooth (inch)

| AP (inch) | Light | Medium | Heavy |
|-----------|-------|--------|-------|
| .315 | .0028 | .0031 | .0039 |
| .236 | .0039 | .0047 | .0059 |
| .157 | .0047 | .0059 | .0079 |

f/t →

APKT 160408

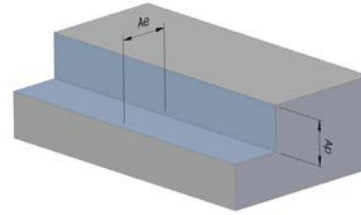


Depth of cut ↑

Feed Per Tooth (inch)

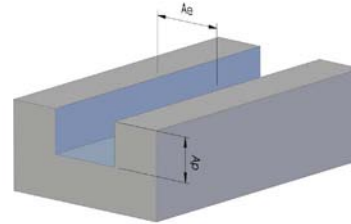
| AP (inch) | Light | Medium | Heavy |
|-----------|-------|--------|-------|
| .472 | .0028 | .0031 | .0039 |
| .315 | .0039 | .0047 | .0059 |
| .197 | .0047 | .0059 | .0079 |

f/t →



| | | | | SQUARE SHOULDER MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|---------------|----------|----------|
| | | | | Fz (INCH PER TOOTH)* | | APMX | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.010 | 0.004 - 0.012 | 0.315 | 0.472 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.012 | 0.004 - 0.012 | 0.315 | 0.472 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.014 | 0.004 - 0.016 | 0.315 | 0.472 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.007 | 0.003 - 0.009 | 0.315 | 0.472 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.0085 | 0.003 - 0.010 | 0.315 | 0.472 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



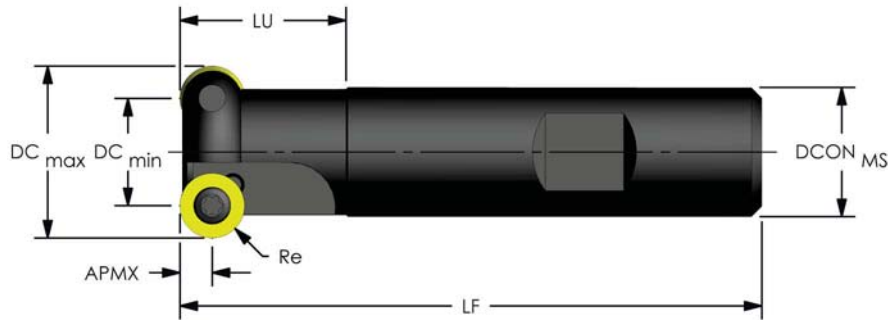
| | | | | | | | | SQUARE SLOT MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|----------------|----------|----------|---------------------|--|--|--|
| | | | | Fz (INCH PER TOOTH)* | | APMX | | | | | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 | | | | |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.006 | 0.003 - 0.0085 | 0.315 | 0.472 | | | | |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.007 | 0.003 - 0.010 | 0.315 | 0.472 | | | | |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 | | | | |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 | | | | |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 | | | | |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.011 | 0.004 - 0.014 | 0.315 | 0.472 | | | | |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.006 | 0.003 - 0.007 | 0.315 | 0.472 | | | | |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 | | | | |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.006 | 0.003 - 0.008 | 0.315 | 0.472 | | | | |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ER WELDON SHANK

- Shoulder and slot milling in all ISO material applications
- Linear and helical ramping capabilities
- Deep shoulder milling based on APMX of insert
- Excellent surface finish and higher utilization of low-powered machines
- Positive geometry insert – Free cutting
- Directed through coolant at each insert providing excellent chip evacuation



| PRODUCT # | Designation | DCmax | DCmin | Re | LF | LU | DCON MS | ZC | APMX | Insert | Screw |
|-------------|--------------------|-------|-------|-------------|-------|-------|---------|----|-------------|-----------|----------|
| 946-000-022 | ER-D.750-2-.750-08 | 0.750 | 0.436 | 0.157 / 4mm | 3.380 | 0.975 | 0.750 | 2 | 0.157 / 4mm | RDKW 0803 | MTS-3-DR |
| 946-000-023 | ER-D.750-2-.750-2 | 0.750 | 0.500 | 0.125 | 3.380 | 0.975 | 0.750 | 2 | 0.125 | RCMT 21.5 | MTS-2.5L |
| 946-000-025 | ER-D1.00-2-.750-10 | 1.000 | 0.606 | 0.197 / 5mm | 3.380 | 1.500 | 0.750 | 2 | 0.197 / 5mm | RCKT 10T3 | MTS-35 |
| 946-000-027 | ER-D1.00-2-.750-3 | 1.000 | 0.625 | 0.188 | 3.380 | 1.500 | 0.750 | 2 | 0.188 | RCMT 32.5 | MTS-4-DR |
| 946-000-024 | ER-D1.00-2-.750-08 | 1.000 | 0.686 | 0.157 / 4mm | 3.380 | 1.500 | 0.750 | 2 | 0.157 / 4mm | RDKW 0803 | MTS-3-DR |
| 946-000-026 | ER-D1.00-2-.750-2 | 1.000 | 0.750 | 0.125 | 3.380 | 1.500 | 0.750 | 2 | 0.125 | RCMT 21.5 | MTS-2.5L |
| 946-000-029 | ER-D1.25-3-1.00-10 | 1.250 | 0.856 | 0.197 / 5mm | 4.000 | 1.500 | 1.000 | 3 | 0.197 / 5mm | RCKT 10T3 | MTS-35 |
| 946-000-028 | ER-D1.25-2-1.00-3 | 1.250 | 0.875 | 0.188 | 4.000 | 1.500 | 1.000 | 2 | 0.188 | RCMT 32.5 | MTS-4-DR |
| 946-000-031 | ER-D1.50-3-1.00-4 | 1.500 | 1.000 | 0.250 | 4.000 | 1.500 | 1.000 | 3 | 0.250 | RCMT 43 | MTS-4 |
| 946-000-030 | ER-D1.50-3-1.00-12 | 1.500 | 1.028 | 0.236 / 6mm | 4.000 | 1.500 | 1.000 | 3 | 0.236 / 6mm | RCKT 1204 | MTS-35 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is recommended to use precision holders i.e. hydraulic, shrink fit



| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-092 | MTS-255 |
| 968-000-082 | MTS-25-DR |
| 968-000-084 | MTS-3-DR |
| 968-000-083 | MTS-35-DR |
| 968-000-085 | MTS-4-DR |

PACKAGE SIZE OF 5



| PRODUCT # | Designation | UD1 | UD404 | UD602 |
|-------------|-------------|-----|-------|-------|
| 913-000-360 | RDKW 0803 | | • | |
| 913-000-361 | | | | • |
| 913-000-337 | RCKT 10T3 | • | | |
| 913-000-338 | | | • | |
| 913-000-339 | | | | • |
| 913-000-340 | RCKT 1204 | • | | |
| 913-000-341 | | | • | |
| 913-000-342 | | | | • |
| 913-000-343 | RCKT 1606 | | • | |
| 913-000-344 | | | | • |

PACKAGE SIZE OF 10

| PRODUCT # | Designation | UD51 | UD52 | UD2 | UD21 | UD22 |
|-------------|-------------|------|------|-----|------|------|
| 913-000-348 | RCMT 21.5 | • | | | | |
| 913-000-349 | | | • | | | |
| 913-000-345 | | | | | • | |
| 913-000-346 | | | | | | • |
| 913-000-347 | | | | | | • |
| 913-000-353 | RCMT 32.5 | • | | | | |
| 913-000-354 | | | • | | | |
| 913-000-350 | | | | | • | |
| 913-000-351 | | | | | | • |
| 913-000-352 | | | | | | • |
| 913-000-358 | RCMT 43 | • | | | | |
| 913-000-359 | | | • | | | |
| 913-000-355 | | | | | • | |
| 913-000-356 | | | | | | • |
| 913-000-357 | | | | | | • |

PACKAGE SIZE OF 10

| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* at 50% insert I.C. APMX** |
|----------|---|-----------------------------|--|-----------|---|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | UD51 UD52 UD404 UD602 | 300-850 | .006 - .018 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 200-700 | .005 - .015 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | UD32 | 200-650 | .003 - .010 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-700 | .003 - .012 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | UD21 | 250-900 | .005 - .020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 200-700 | .005 - .015 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | UD1 UD2 | 400-975 | .006 - .020 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | UD32 UD404 | 80-400 | .004 - .012 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | UD32 UD52 UD404 | 40-250 | .003 - .008 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 100-550 | .003 - .010 |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.



SOLID MILLING

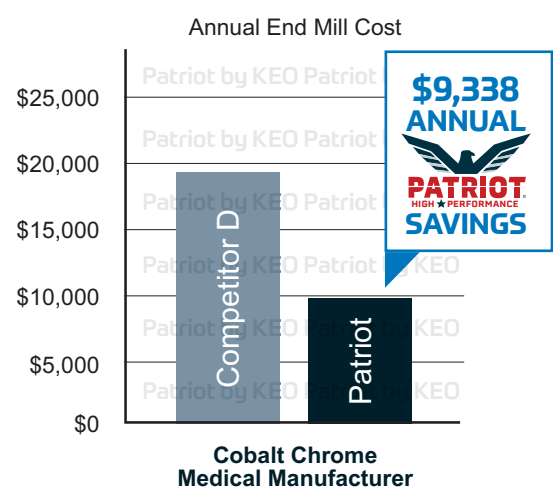
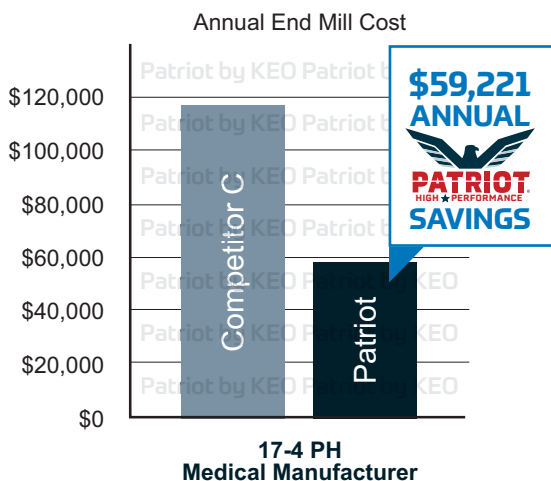
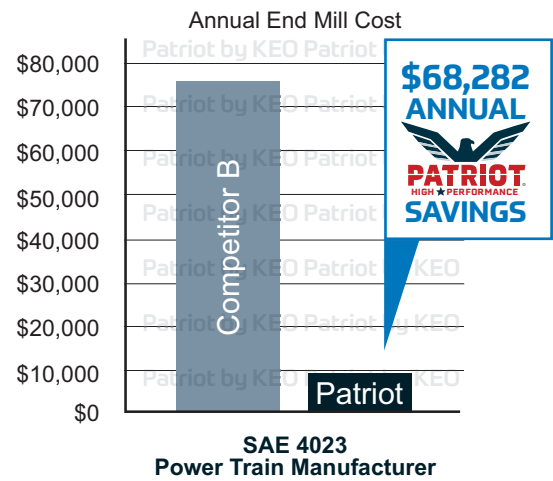
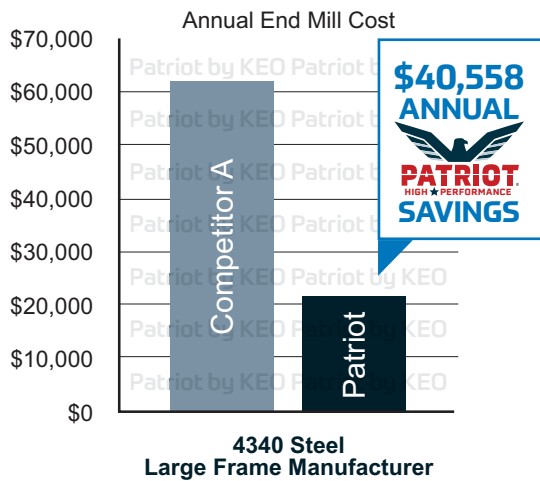
Originally optimized to tackle difficult to machine applications such as in titanium & pre-hardened steels, this High-Performance End Mill has excelled in a wide array of exotic, alloyed and ferrous part materials. The Patriot family of high-performance end mills is designed with advanced proprietary geometry. There is a thin film coating that consistently delivers increased tool life, superior part finish and aggressive metal removal rates. This is all accomplished within a machining environment that generates extreme working temperatures.



TOOL BENEFITS:

- Ranging from 0.125”- 1.00” diameters
- Can be used in roughing, profiling, slotting, and finishing applications
- Increased tool life — high performance coating that offers high wear resistance complimented by toughness and stability at high temperatures
- Significantly reduces chatter and improve surface finish
- Increase material removal rates by increased cutting depth and feed rates

CASE STUDIES



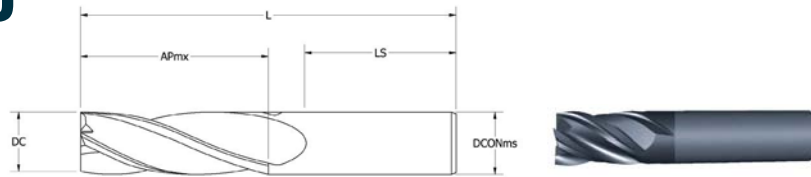
Proprietary to ARCH Cutting Tools

www.archcuttingtools.com

CARBIDE



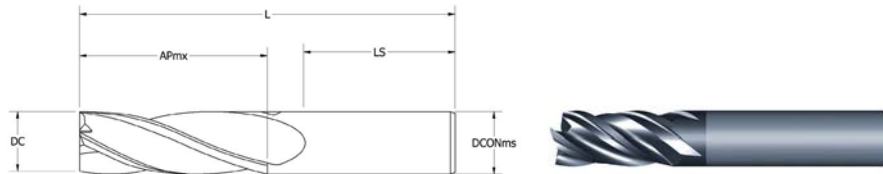
VARIABLE HELIX



4-FLUTE - STUB LENGTH - SQUARE END



| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.2500 | 0.8750 | 1.5000 | 976-000-001 |
| 0.1875 | 0.1875 | 0.3750 | 1.2500 | 2.0000 | 976-000-002 |
| 0.2500 | 0.2500 | 0.5000 | 1.1250 | 2.0000 | 976-000-003 |
| 0.3125 | 0.3125 | 0.5000 | 1.1250 | 2.0000 | 976-000-004 |
| 0.3750 | 0.3750 | 0.6250 | 1.0000 | 2.0000 | 976-000-005 |
| 0.4375 | 0.4375 | 0.6250 | 1.5000 | 2.5000 | 976-000-006 |
| 0.5000 | 0.5000 | 0.7500 | 1.3750 | 2.5000 | 976-000-007 |
| 0.6250 | 0.6250 | 0.7500 | 1.8750 | 3.0000 | 976-000-008 |
| 0.7500 | 0.7500 | 1.0000 | 1.6250 | 3.0000 | 976-000-009 |

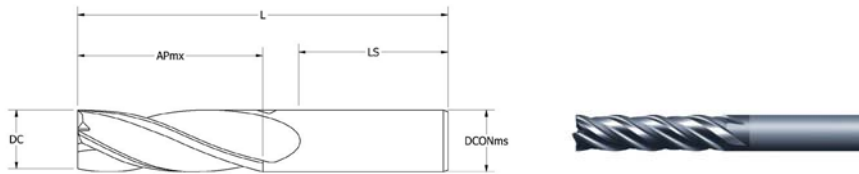


4-FLUTE - STANDARD LENGTH - SQUARE END



| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 976-000-010 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 976-000-011 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 976-000-012 |
| 0.2500 | 0.2500 | 1.0000 | 1.1250 | 2.5000 | 976-000-013 |
| 0.2500 | 0.2500 | 1.2500 | 0.8750 | 2.5000 | 976-000-014 |
| 0.3125 | 0.3125 | 0.8125 | 1.3125 | 2.5000 | 976-000-015 |
| 0.3750 | 0.3750 | 0.8750 | 1.2500 | 2.5000 | 976-000-016 |
| 0.3750 | 0.3750 | 1.0000 | 1.1250 | 2.5000 | 976-000-017 |
| 0.3750 | 0.3750 | 1.2500 | 0.8750 | 2.5000 | 976-000-018 |
| 0.4375 | 0.4375 | 1.0000 | 1.3750 | 2.7500 | 976-000-019 |
| 0.5000 | 0.5000 | 1.0000 | 1.6250 | 3.0000 | 976-000-020 |
| 0.5000 | 0.5000 | 1.2500 | 1.3750 | 3.0000 | 976-000-021 |
| 0.5000 | 0.5000 | 1.5000 | 1.1250 | 3.0000 | 976-000-022 |
| 0.5000 | 0.5000 | 1.5000 | 1.6250 | 3.5000 | 976-000-023 |
| 0.5000 | 0.5000 | 1.7500 | 1.3750 | 3.5000 | 976-000-024 |
| 0.6250 | 0.6250 | 1.5000 | 1.6250 | 3.5000 | 976-000-025 |
| 0.6250 | 0.6250 | 1.7500 | 1.3750 | 3.5000 | 976-000-026 |
| 0.7500 | 0.7500 | 1.7500 | 1.8750 | 4.0000 | 976-000-027 |
| 1.0000 | 1.0000 | 1.7500 | 1.8750 | 4.0000 | 976-000-028 |

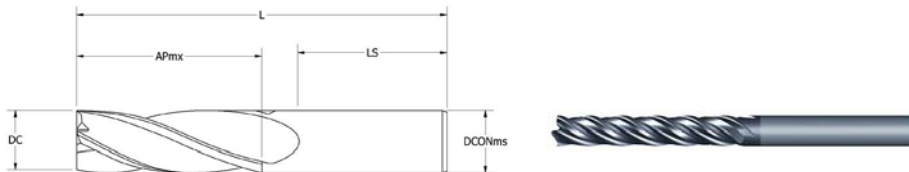
VARIABLE HELIX



4-FLUTE - LONG LENGTH - SQUARE END



| DC | DCONms | APmax | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | 976-000-029 |
| 0.1875 | 0.1875 | 0.7500 | 1.3750 | 2.5000 | 976-000-030 |
| 0.2500 | 0.2500 | 1.1250 | 1.5000 | 3.0000 | 976-000-031 |
| 0.3125 | 0.3125 | 1.1250 | 1.5000 | 3.0000 | 976-000-032 |
| 0.3750 | 0.3750 | 1.2500 | 1.3750 | 3.0000 | 976-000-033 |
| 0.4375 | 0.4375 | 2.0000 | 1.6250 | 4.0000 | 976-000-034 |
| 0.5000 | 0.5000 | 2.0000 | 1.6250 | 4.0000 | 976-000-035 |
| 0.6250 | 0.6250 | 2.2500 | 2.3750 | 5.0000 | 976-000-036 |
| 0.7500 | 0.7500 | 2.2500 | 2.3750 | 5.0000 | 976-000-037 |
| 1.0000 | 1.0000 | 2.2500 | 2.3750 | 5.0000 | 976-000-038 |



4-FLUTE - X LONG LENGTH - SQUARE END

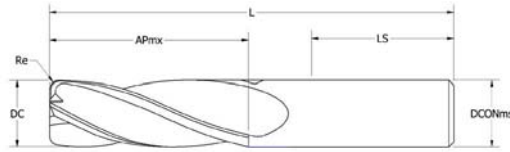


| DC | DCONms | APmax | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 1.0000 | 1.6250 | 3.0000 | 976-000-039 |
| 0.1875 | 0.1875 | 1.1250 | 1.5000 | 3.0000 | 976-000-040 |
| 0.2500 | 0.2500 | 1.5000 | 2.1250 | 4.0000 | 976-000-041 |
| 0.3125 | 0.3125 | 1.6250 | 2.0000 | 4.0000 | 976-000-042 |
| 0.3750 | 0.3750 | 2.0000 | 1.6250 | 4.0000 | 976-000-043 |
| 0.4375 | 0.4375 | 3.0000 | 2.6250 | 6.0000 | 976-000-044 |
| 0.5000 | 0.5000 | 3.0000 | 2.6250 | 6.0000 | 976-000-045 |
| 0.6250 | 0.6250 | 3.0000 | 2.6250 | 6.0000 | 976-000-046 |
| 0.7500 | 0.7500 | 3.0000 | 2.6250 | 6.0000 | 976-000-047 |
| 1.0000 | 1.0000 | 3.0000 | 2.6250 | 6.0000 | 976-000-048 |

CARBIDE

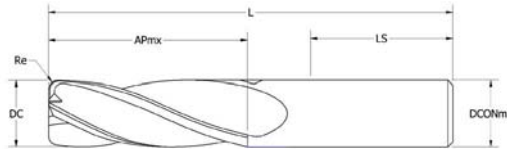


VARIABLE HELIX



4-FLUTE - STUB LENGTH - CORNER RADIUS

| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0100 | 0.2500 | 0.8750 | 1.5000 | 976-000-128 |
| 0.1875 | 0.1875 | 0.0100 | 0.3750 | 1.2500 | 2.0000 | 976-000-129 |
| 0.2500 | 0.2500 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-130 |
| 0.3125 | 0.3125 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-131 |
| 0.3750 | 0.3750 | 0.0200 | 0.6250 | 1.0000 | 2.0000 | 976-000-132 |
| 0.4375 | 0.4375 | 0.0300 | 0.6250 | 1.5000 | 2.5000 | 976-000-133 |
| 0.5000 | 0.5000 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-134 |
| 0.6250 | 0.6250 | 0.0400 | 0.7500 | 1.8750 | 3.0000 | 976-000-135 |
| 0.7500 | 0.7500 | 0.0400 | 1.0000 | 1.6250 | 3.0000 | 976-000-136 |



4-FLUTE - STANDARD LENGTH - CORNER RADIUS

| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0100 | 0.5000 | 0.6250 | 1.5000 | 976-000-137 |
| 0.1250 | 0.1250 | 0.0150 | 0.5000 | 0.6250 | 1.5000 | 976-000-138 |
| 0.1250 | 0.1250 | 0.0200 | 0.5000 | 0.6250 | 1.5000 | 976-000-139 |
| 0.1875 | 0.1875 | 0.0100 | 0.6250 | 1.0000 | 2.0000 | 976-000-140 |
| 0.1875 | 0.1875 | 0.0150 | 0.6250 | 1.0000 | 2.0000 | 976-000-141 |
| 0.1875 | 0.1875 | 0.0200 | 0.6250 | 1.0000 | 2.0000 | 976-000-142 |
| 0.1875 | 0.1875 | 0.0300 | 0.6250 | 1.0000 | 2.0000 | 976-000-143 |
| 0.2500 | 0.2500 | 0.0100 | 0.7500 | 1.3750 | 2.5000 | 976-000-144 |
| 0.2500 | 0.2500 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-145 |
| 0.2500 | 0.2500 | 0.0200 | 0.7500 | 1.3750 | 2.5000 | 976-000-146 |
| 0.2500 | 0.2500 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-147 |
| 0.2500 | 0.2500 | 0.0600 | 0.7500 | 1.3750 | 2.5000 | 976-000-148 |
| 0.2500 | 0.2500 | 0.0100 | 1.0000 | 1.1250 | 2.5000 | 976-000-149 |
| 0.2500 | 0.2500 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-150 |
| 0.2500 | 0.2500 | 0.0200 | 1.0000 | 1.1250 | 2.5000 | 976-000-151 |
| 0.2500 | 0.2500 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-152 |
| 0.2500 | 0.2500 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 976-000-153 |
| 0.2500 | 0.2500 | 0.0100 | 1.2500 | 0.8750 | 2.5000 | 976-000-154 |
| 0.2500 | 0.2500 | 0.0150 | 1.2500 | 0.8750 | 2.5000 | 976-000-155 |
| 0.2500 | 0.2500 | 0.0200 | 1.2500 | 0.8750 | 2.5000 | 976-000-156 |
| 0.2500 | 0.2500 | 0.0300 | 1.2500 | 0.8750 | 2.5000 | 976-000-157 |
| 0.2500 | 0.2500 | 0.0600 | 1.2500 | 0.8750 | 2.5000 | 976-000-158 |
| 0.3125 | 0.3125 | 0.0100 | 0.8125 | 1.3125 | 2.5000 | 976-000-159 |
| 0.3125 | 0.3125 | 0.0150 | 0.8125 | 1.3125 | 2.5000 | 976-000-160 |
| 0.3125 | 0.3125 | 0.0200 | 0.8125 | 1.3125 | 2.5000 | 976-000-161 |

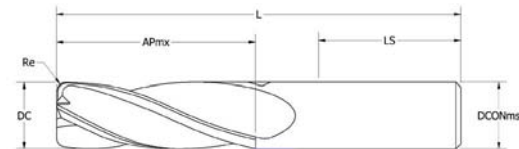


4-FLUTE - STANDARD LENGTH - CORNER RADIUS

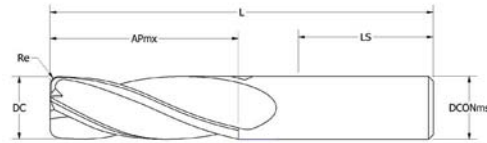


CARBIDE

| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.3125 | 0.3125 | 0.0300 | 0.8125 | 1.3125 | 2.5000 | 976-000-162 |
| 0.3125 | 0.3125 | 0.0600 | 0.8125 | 1.3125 | 2.5000 | 976-000-163 |
| 0.3750 | 0.3750 | 0.0100 | 0.8750 | 1.2500 | 2.5000 | 976-000-164 |
| 0.3750 | 0.3750 | 0.0150 | 0.8750 | 1.2500 | 2.5000 | 976-000-165 |
| 0.3750 | 0.3750 | 0.0200 | 0.8750 | 1.2500 | 2.5000 | 976-000-166 |
| 0.3750 | 0.3750 | 0.0300 | 0.8750 | 1.2500 | 2.5000 | 976-000-167 |
| 0.3750 | 0.3750 | 0.0600 | 0.8750 | 1.2500 | 2.5000 | 976-000-168 |
| 0.3750 | 0.3750 | 0.0100 | 1.0000 | 1.1250 | 2.5000 | 976-000-169 |
| 0.3750 | 0.3750 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-170 |
| 0.3750 | 0.3750 | 0.0200 | 1.0000 | 1.1250 | 2.5000 | 976-000-171 |
| 0.3750 | 0.3750 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-172 |
| 0.3750 | 0.3750 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 976-000-173 |
| 0.3750 | 0.3750 | 0.0100 | 1.2500 | 0.8750 | 2.5000 | 976-000-174 |
| 0.3750 | 0.3750 | 0.0150 | 1.2500 | 0.8750 | 2.5000 | 976-000-175 |
| 0.3750 | 0.3750 | 0.0200 | 1.2500 | 0.8750 | 2.5000 | 976-000-176 |
| 0.3750 | 0.3750 | 0.0300 | 1.2500 | 0.8750 | 2.5000 | 976-000-177 |
| 0.3750 | 0.3750 | 0.0600 | 1.2500 | 0.8750 | 2.5000 | 976-000-178 |
| 0.4375 | 0.4375 | 0.0150 | 1.0000 | 1.3750 | 2.7500 | 976-000-179 |
| 0.4375 | 0.4375 | 0.0200 | 1.0000 | 1.3750 | 2.7500 | 976-000-180 |
| 0.4375 | 0.4375 | 0.0300 | 1.0000 | 1.3750 | 2.7500 | 976-000-181 |
| 0.4375 | 0.4375 | 0.0600 | 1.0000 | 1.3750 | 2.7500 | 976-000-182 |
| 0.5000 | 0.5000 | 0.0100 | 1.0000 | 1.6250 | 3.0000 | 976-000-183 |
| 0.5000 | 0.5000 | 0.0150 | 1.0000 | 1.6250 | 3.0000 | 976-000-184 |
| 0.5000 | 0.5000 | 0.0300 | 1.0000 | 1.6250 | 3.0000 | 976-000-185 |
| 0.5000 | 0.5000 | 0.0600 | 1.0000 | 1.6250 | 3.0000 | 976-000-186 |
| 0.5000 | 0.5000 | 0.0900 | 1.0000 | 1.6250 | 3.0000 | 976-000-187 |
| 0.5000 | 0.5000 | 0.1200 | 1.0000 | 1.6250 | 3.0000 | 976-000-188 |
| 0.5000 | 0.5000 | 0.0100 | 1.2500 | 1.3750 | 3.0000 | 976-000-189 |
| 0.5000 | 0.5000 | 0.0150 | 1.2500 | 1.3750 | 3.0000 | 976-000-190 |
| 0.5000 | 0.5000 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-191 |
| 0.5000 | 0.5000 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-192 |
| 0.5000 | 0.5000 | 0.0900 | 1.2500 | 1.3750 | 3.0000 | 976-000-193 |
| 0.5000 | 0.5000 | 0.1200 | 1.2500 | 1.3750 | 3.0000 | 976-000-194 |
| 0.5000 | 0.5000 | 0.0100 | 1.5000 | 1.1250 | 3.0000 | 976-000-195 |
| 0.5000 | 0.5000 | 0.0150 | 1.5000 | 1.1250 | 3.0000 | 976-000-196 |
| 0.5000 | 0.5000 | 0.0300 | 1.5000 | 1.1250 | 3.0000 | 976-000-197 |
| 0.5000 | 0.5000 | 0.0600 | 1.5000 | 1.1250 | 3.0000 | 976-000-198 |
| 0.5000 | 0.5000 | 0.0900 | 1.5000 | 1.1250 | 3.0000 | 976-000-199 |
| 0.5000 | 0.5000 | 0.1200 | 1.5000 | 1.1250 | 3.0000 | 976-000-200 |
| 0.5000 | 0.5000 | 0.0100 | 1.5000 | 1.6250 | 3.5000 | 976-000-201 |
| 0.5000 | 0.5000 | 0.0150 | 1.5000 | 1.6250 | 3.5000 | 976-000-202 |
| 0.5000 | 0.5000 | 0.0300 | 1.5000 | 1.6250 | 3.5000 | 976-000-203 |
| 0.5000 | 0.5000 | 0.0600 | 1.5000 | 1.6250 | 3.5000 | 976-000-204 |
| 0.5000 | 0.5000 | 0.0900 | 1.5000 | 1.6250 | 3.5000 | 976-000-205 |
| 0.5000 | 0.5000 | 0.1200 | 1.5000 | 1.6250 | 3.5000 | 976-000-206 |
| 0.5000 | 0.5000 | 0.0100 | 1.7500 | 1.3750 | 3.5000 | 976-000-207 |
| 0.5000 | 0.5000 | 0.0150 | 1.7500 | 1.3750 | 3.5000 | 976-000-208 |



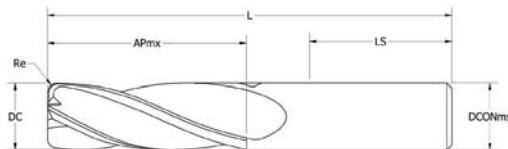
CARBIDE



4-FLUTE - STANDARD LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.5000 | 0.5000 | 0.0300 | 1.7500 | 1.3750 | 3.5000 | 976-000-209 |
| 0.5000 | 0.5000 | 0.0600 | 1.7500 | 1.3750 | 3.5000 | 976-000-210 |
| 0.5000 | 0.5000 | 0.0900 | 1.7500 | 1.3750 | 3.5000 | 976-000-211 |
| 0.5000 | 0.5000 | 0.1200 | 1.7500 | 1.3750 | 3.5000 | 976-000-212 |
| 0.6250 | 0.6250 | 0.0300 | 1.5000 | 1.6250 | 3.5000 | 976-000-213 |
| 0.6250 | 0.6250 | 0.0400 | 1.5000 | 1.6250 | 3.5000 | 976-000-214 |
| 0.6250 | 0.6250 | 0.0600 | 1.5000 | 1.6250 | 3.5000 | 976-000-215 |
| 0.6250 | 0.6250 | 0.0900 | 1.5000 | 1.6250 | 3.5000 | 976-000-216 |
| 0.6250 | 0.6250 | 0.1200 | 1.5000 | 1.6250 | 3.5000 | 976-000-217 |
| 0.6250 | 0.6250 | 0.0300 | 1.7500 | 1.3750 | 3.5000 | 976-000-218 |
| 0.6250 | 0.6250 | 0.0400 | 1.7500 | 1.3750 | 3.5000 | 976-000-219 |
| 0.6250 | 0.6250 | 0.0600 | 1.7500 | 1.3750 | 3.5000 | 976-000-220 |
| 0.6250 | 0.6250 | 0.0900 | 1.7500 | 1.3750 | 3.5000 | 976-000-221 |
| 0.6250 | 0.6250 | 0.1200 | 1.7500 | 1.3750 | 3.5000 | 976-000-222 |
| 0.7500 | 0.7500 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-223 |
| 0.7500 | 0.7500 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-224 |
| 0.7500 | 0.7500 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-225 |
| 0.7500 | 0.7500 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-226 |
| 0.7500 | 0.7500 | 0.1200 | 1.7500 | 1.8750 | 4.0000 | 976-000-227 |
| 1.0000 | 1.0000 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-228 |
| 1.0000 | 1.0000 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-229 |
| 1.0000 | 1.0000 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-230 |
| 1.0000 | 1.0000 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-231 |
| 1.0000 | 1.0000 | 0.1200 | 1.7500 | 1.8750 | 4.0000 | 976-000-232 |



4-FLUTE - STANDARD LENGTH - CORNER RADIUS



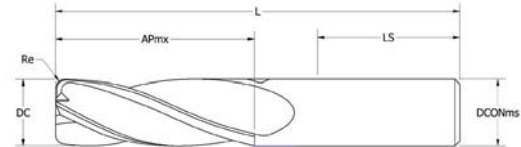
| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.2500 | 0.2500 | 0.0200 | 0.7500 | 1.3750 | 2.5000 | 976-000-529 |
| 0.3750 | 0.3750 | 0.0200 | 0.8750 | 1.2500 | 2.5000 | 976-000-530 |
| 0.5000 | 0.5000 | 0.0300 | 1.0000 | 1.6250 | 3.0000 | 976-000-531 |
| 0.6250 | 0.6250 | 0.0400 | 1.5000 | 1.6250 | 3.5000 | 976-000-532 |
| 0.7500 | 0.7500 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-533 |
| 1.0000 | 1.0000 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-534 |



4-FLUTE - LONG LENGTH - CORNER RADIUS



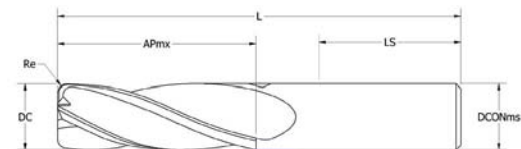
| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-233 |
| 0.1250 | 0.1250 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-234 |
| 0.1875 | 0.1875 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-235 |
| 0.1875 | 0.1875 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-236 |
| 0.2500 | 0.2500 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-237 |
| 0.2500 | 0.2500 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-238 |
| 0.3125 | 0.3125 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-239 |
| 0.3125 | 0.3125 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-240 |
| 0.3750 | 0.3750 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-241 |
| 0.3750 | 0.3750 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-242 |
| 0.4375 | 0.4375 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-243 |
| 0.4375 | 0.4375 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-244 |
| 0.5000 | 0.5000 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-245 |
| 0.5000 | 0.5000 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-246 |
| 0.6250 | 0.6250 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-247 |
| 0.6250 | 0.6250 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-248 |
| 0.7500 | 0.7500 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-249 |
| 0.7500 | 0.7500 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-250 |
| 1.0000 | 1.0000 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-251 |
| 1.0000 | 1.0000 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-252 |



4-FLUTE - X LONG LENGTH - CORNER RADIUS



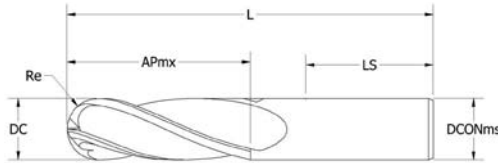
| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0150 | 1.0000 | 1.6250 | 3.0000 | 976-000-253 |
| 0.1250 | 0.1250 | 0.0300 | 1.0000 | 1.6250 | 3.0000 | 976-000-255 |
| 0.1875 | 0.1875 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-256 |
| 0.1875 | 0.1875 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-257 |
| 0.2500 | 0.2500 | 0.0150 | 1.5000 | 2.1250 | 4.0000 | 976-000-258 |
| 0.2500 | 0.2500 | 0.0300 | 1.5000 | 2.1250 | 4.0000 | 976-000-259 |
| 0.3125 | 0.3125 | 0.0300 | 1.6250 | 2.0000 | 4.0000 | 976-000-260 |
| 0.3125 | 0.3125 | 0.0600 | 1.6250 | 2.0000 | 4.0000 | 976-000-262 |
| 0.3750 | 0.3750 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-263 |
| 0.3750 | 0.3750 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-264 |
| 0.4375 | 0.4375 | 0.0300 | 3.0000 | 2.6250 | 6.0000 | 976-000-265 |
| 0.4375 | 0.4375 | 0.0600 | 3.0000 | 2.6250 | 6.0000 | 976-000-267 |
| 0.5000 | 0.5000 | 0.0300 | 3.0000 | 2.6250 | 6.0000 | 976-000-268 |
| 0.5000 | 0.5000 | 0.0600 | 3.0000 | 2.6250 | 6.0000 | 976-000-269 |
| 0.6250 | 0.6250 | 0.0300 | 3.0000 | 2.6250 | 6.0000 | 976-000-270 |
| 0.6250 | 0.6250 | 0.0600 | 3.0000 | 2.6250 | 6.0000 | 976-000-271 |
| 0.7500 | 0.7500 | 0.0300 | 3.0000 | 2.6250 | 6.0000 | 976-000-272 |
| 0.7500 | 0.7500 | 0.0600 | 3.0000 | 2.6250 | 6.0000 | 976-000-273 |
| 1.0000 | 1.0000 | 0.0300 | 3.0000 | 2.6250 | 6.0000 | 976-000-274 |
| 1.0000 | 1.0000 | 0.0600 | 3.0000 | 2.6250 | 6.0000 | 976-000-275 |



CARBIDE



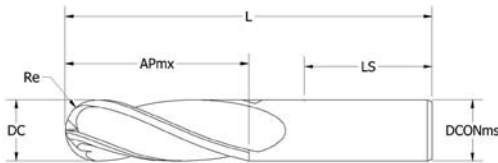
VARIABLE HELIX



4-FLUTE - STUB LENGTH - BALL END



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0625 | 0.2500 | 0.8750 | 1.5000 | 976-000-488 |
| 0.1875 | 0.1875 | 0.0938 | 0.3750 | 1.2500 | 2.0000 | 976-000-489 |
| 0.2500 | 0.2500 | 0.1250 | 0.5000 | 1.1250 | 2.0000 | 976-000-490 |
| 0.3125 | 0.3125 | 0.1563 | 0.5000 | 1.1250 | 2.0000 | 976-000-491 |
| 0.3750 | 0.3750 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 976-000-492 |
| 0.4375 | 0.4375 | 0.2188 | 0.6250 | 1.5000 | 2.5000 | 976-000-493 |
| 0.5000 | 0.5000 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 976-000-494 |
| 0.6250 | 0.6250 | 0.3125 | 0.7500 | 1.8750 | 3.0000 | 976-000-495 |
| 0.7500 | 0.7500 | 0.3750 | 1.0000 | 1.6250 | 3.0000 | 976-000-496 |

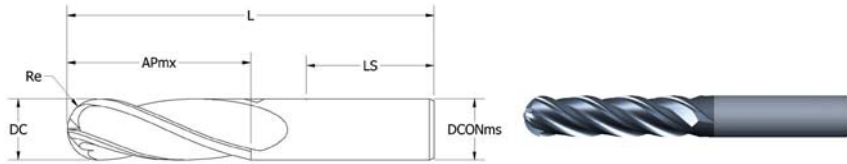


4-FLUTE - STANDARD LENGTH - BALL END



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0625 | 0.5000 | 0.6250 | 1.5000 | 976-000-497 |
| 0.1875 | 0.1875 | 0.0938 | 0.6250 | 1.0000 | 2.0000 | 976-000-498 |
| 0.2500 | 0.2500 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | 976-000-499 |
| 0.3125 | 0.3125 | 0.1563 | 0.8125 | 1.3125 | 2.5000 | 976-000-500 |
| 0.3750 | 0.3750 | 0.1875 | 0.8750 | 1.2500 | 2.5000 | 976-000-501 |
| 0.3750 | 0.3750 | 0.1875 | 1.0000 | 1.1250 | 2.5000 | 976-000-502 |
| 0.4375 | 0.4375 | 0.2188 | 1.0000 | 1.3750 | 2.7500 | 976-000-503 |
| 0.5000 | 0.5000 | 0.2500 | 1.0000 | 1.6250 | 3.0000 | 976-000-504 |
| 0.5000 | 0.5000 | 0.2500 | 1.2500 | 1.3750 | 3.0000 | 976-000-505 |
| 0.6250 | 0.6250 | 0.3125 | 1.5000 | 1.6250 | 3.5000 | 976-000-506 |
| 0.7500 | 0.7500 | 0.3750 | 1.7500 | 1.8750 | 4.0000 | 976-000-507 |
| 1.0000 | 1.0000 | 0.5000 | 1.7500 | 1.8750 | 4.0000 | 976-000-508 |

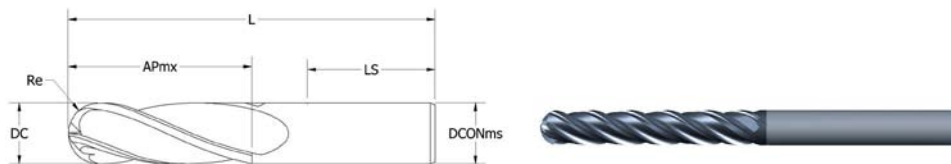
VARIABLE HELIX



4-FLUTE - LONG LENGTH - BALL END



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0625 | 0.7500 | 1.3750 | 2.5000 | 976-000-509 |
| 0.1875 | 0.1875 | 0.0938 | 0.7500 | 1.3750 | 2.5000 | 976-000-510 |
| 0.2500 | 0.2500 | 0.1250 | 1.1250 | 1.5000 | 3.0000 | 976-000-511 |
| 0.3125 | 0.3125 | 0.1563 | 1.1250 | 1.5000 | 3.0000 | 976-000-512 |
| 0.3750 | 0.3750 | 0.1875 | 1.2500 | 1.3750 | 3.0000 | 976-000-513 |
| 0.4375 | 0.4375 | 0.2188 | 2.0000 | 1.6250 | 4.0000 | 976-000-514 |
| 0.5000 | 0.5000 | 0.2500 | 2.0000 | 1.6250 | 4.0000 | 976-000-515 |
| 0.6250 | 0.6250 | 0.3125 | 2.2500 | 2.3750 | 5.0000 | 976-000-516 |
| 0.7500 | 0.7500 | 0.3750 | 2.2500 | 2.3750 | 5.0000 | 976-000-517 |
| 1.0000 | 1.0000 | 0.5000 | 2.2500 | 2.3750 | 5.0000 | 976-000-518 |

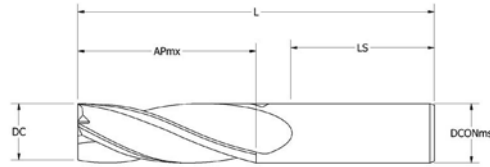


4-FLUTE - X LONG LENGTH - BALL END



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0625 | 1.0000 | 1.6250 | 3.0000 | 976-000-519 |
| 0.1875 | 0.1875 | 0.0938 | 1.1250 | 1.5000 | 3.0000 | 976-000-520 |
| 0.2500 | 0.2500 | 0.1250 | 1.5000 | 2.1250 | 4.0000 | 976-000-521 |
| 0.3125 | 0.3125 | 0.1563 | 1.6250 | 2.0000 | 4.0000 | 976-000-522 |
| 0.3750 | 0.3750 | 0.1875 | 1.7500 | 1.8750 | 4.0000 | 976-000-523 |
| 0.4375 | 0.4375 | 0.2188 | 3.0000 | 2.6250 | 6.0000 | 976-000-524 |
| 0.5000 | 0.5000 | 0.2500 | 3.0000 | 2.6250 | 6.0000 | 976-000-525 |
| 0.6250 | 0.6250 | 0.3125 | 3.0000 | 2.6250 | 6.0000 | 976-000-526 |
| 0.7500 | 0.7500 | 0.3750 | 3.0000 | 2.6250 | 6.0000 | 976-000-527 |
| 1.0000 | 1.0000 | 0.5000 | 3.0000 | 2.6250 | 6.0000 | 976-000-528 |

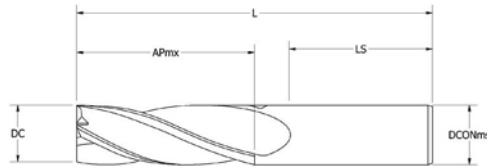
CARBIDE



5-FLUTE - STUB LENGTH - SQUARE END



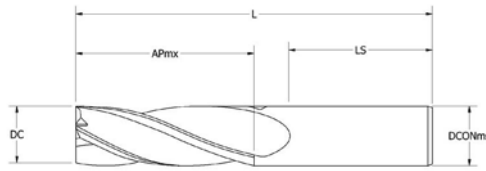
| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.2500 | 0.8750 | 1.5000 | 976-000-049 |
| 0.1875 | 0.1875 | 0.3750 | 1.2500 | 2.0000 | 976-000-050 |
| 0.2500 | 0.2500 | 0.5000 | 1.1250 | 2.0000 | 976-000-051 |
| 0.3125 | 0.3125 | 0.5000 | 1.1250 | 2.0000 | 976-000-052 |
| 0.3750 | 0.3750 | 0.6250 | 1.0000 | 2.0000 | 976-000-053 |
| 0.4375 | 0.4375 | 0.6250 | 1.5000 | 2.5000 | 976-000-054 |
| 0.5000 | 0.5000 | 0.7500 | 1.3750 | 2.5000 | 976-000-055 |
| 0.6250 | 0.6250 | 0.7500 | 1.8750 | 3.0000 | 976-000-056 |
| 0.7500 | 0.7500 | 1.0000 | 1.6250 | 3.0000 | 976-000-057 |



5-FLUTE - STANDARD LENGTH - SQUARE END



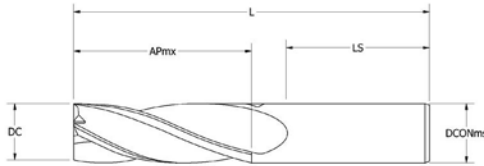
| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 976-000-058 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 976-000-059 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 976-000-060 |
| 0.2500 | 0.2500 | 1.0000 | 1.1250 | 2.5000 | 976-000-061 |
| 0.2500 | 0.2500 | 1.2500 | 0.8750 | 2.5000 | 976-000-062 |
| 0.3125 | 0.3125 | 0.8125 | 1.3125 | 2.5000 | 976-000-063 |
| 0.3750 | 0.3750 | 0.8750 | 1.2500 | 2.5000 | 976-000-064 |
| 0.3750 | 0.3750 | 1.0000 | 1.1250 | 2.5000 | 976-000-065 |
| 0.3750 | 0.3750 | 1.2500 | 0.8750 | 2.5000 | 976-000-066 |
| 0.4375 | 0.4375 | 1.0000 | 1.3750 | 2.7500 | 976-000-067 |
| 0.5000 | 0.5000 | 1.0000 | 1.6250 | 3.0000 | 976-000-068 |
| 0.5000 | 0.5000 | 1.2500 | 1.3750 | 3.0000 | 976-000-069 |
| 0.5000 | 0.5000 | 1.5000 | 1.1250 | 3.0000 | 976-000-070 |
| 0.5000 | 0.5000 | 1.5000 | 1.6250 | 3.5000 | 976-000-071 |
| 0.5000 | 0.5000 | 1.7500 | 1.3750 | 3.5000 | 976-000-072 |
| 0.6250 | 0.6250 | 1.5000 | 1.6250 | 3.5000 | 976-000-073 |
| 0.6250 | 0.6250 | 1.7500 | 1.3750 | 3.5000 | 976-000-074 |
| 0.7500 | 0.7500 | 1.7500 | 1.8750 | 4.0000 | 976-000-075 |
| 1.0000 | 1.0000 | 1.7500 | 1.8750 | 4.0000 | 976-000-076 |



5-FLUTE - LONG LENGTH - SQUARE END



| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | 976-000-077 |
| 0.1875 | 0.1875 | 0.7500 | 1.3750 | 2.5000 | 976-000-078 |
| 0.2500 | 0.2500 | 1.1250 | 1.5000 | 3.0000 | 976-000-079 |
| 0.3125 | 0.3125 | 1.1250 | 1.5000 | 3.0000 | 976-000-080 |
| 0.3750 | 0.3750 | 1.2500 | 1.3750 | 3.0000 | 976-000-081 |
| 0.4375 | 0.4375 | 2.0000 | 1.6250 | 4.0000 | 976-000-082 |
| 0.5000 | 0.5000 | 2.0000 | 1.6250 | 4.0000 | 976-000-083 |
| 0.6250 | 0.6250 | 2.2500 | 2.3750 | 5.0000 | 976-000-084 |
| 0.7500 | 0.7500 | 2.2500 | 2.3750 | 5.0000 | 976-000-085 |
| 1.0000 | 1.0000 | 2.2500 | 2.3750 | 5.0000 | 976-000-086 |

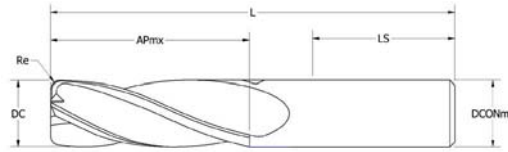


5-FLUTE - X LONG LENGTH - SQUARE END



| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 1.0000 | 1.6250 | 3.0000 | 976-000-087 |
| 0.1875 | 0.1875 | 1.1250 | 1.5000 | 3.0000 | 976-000-088 |
| 0.2500 | 0.2500 | 1.5000 | 2.1250 | 4.0000 | 976-000-089 |
| 0.3125 | 0.3125 | 1.6250 | 2.0000 | 4.0000 | 976-000-090 |
| 0.3750 | 0.3750 | 2.0000 | 1.6250 | 4.0000 | 976-000-091 |
| 0.4375 | 0.4375 | 3.0000 | 2.6250 | 6.0000 | 976-000-092 |
| 0.5000 | 0.5000 | 3.0000 | 2.6250 | 6.0000 | 976-000-093 |
| 0.6250 | 0.6250 | 3.0000 | 2.6250 | 6.0000 | 976-000-094 |
| 0.7500 | 0.7500 | 3.0000 | 2.6250 | 6.0000 | 976-000-095 |
| 1.0000 | 1.0000 | 3.0000 | 2.6250 | 6.0000 | 976-000-096 |

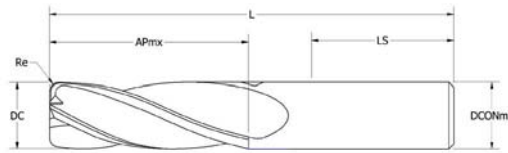
CARBIDE



5-FLUTE - STUB LENGTH - CORNER RADIUS



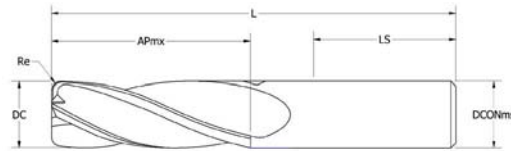
| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0100 | 0.2500 | 0.8750 | 1.5000 | 976-000-276 |
| 0.1875 | 0.1875 | 0.0100 | 0.3750 | 1.2500 | 2.0000 | 976-000-277 |
| 0.2500 | 0.2500 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-278 |
| 0.3125 | 0.3125 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-279 |
| 0.3750 | 0.3750 | 0.0200 | 0.6250 | 1.0000 | 2.0000 | 976-000-280 |
| 0.4375 | 0.4375 | 0.0300 | 0.6250 | 1.5000 | 2.5000 | 976-000-281 |
| 0.5000 | 0.5000 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-282 |
| 0.6250 | 0.6250 | 0.0400 | 0.7500 | 1.8750 | 3.0000 | 976-000-283 |
| 0.7500 | 0.7500 | 0.0400 | 1.0000 | 1.6250 | 3.0000 | 976-000-284 |



5-FLUTE - STANDARD LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0100 | 0.5000 | 0.6250 | 1.5000 | 976-000-285 |
| 0.1250 | 0.1250 | 0.0150 | 0.5000 | 0.6250 | 1.5000 | 976-000-286 |
| 0.1250 | 0.1250 | 0.0200 | 0.5000 | 0.6250 | 1.5000 | 976-000-287 |
| 0.1875 | 0.1875 | 0.0100 | 0.6250 | 1.0000 | 2.0000 | 976-000-288 |
| 0.1875 | 0.1875 | 0.0150 | 0.6250 | 1.0000 | 2.0000 | 976-000-289 |
| 0.1875 | 0.1875 | 0.0200 | 0.6250 | 1.0000 | 2.0000 | 976-000-290 |
| 0.1875 | 0.1875 | 0.0300 | 0.6250 | 1.0000 | 2.0000 | 976-000-291 |
| 0.2500 | 0.2500 | 0.0100 | 0.7500 | 1.3750 | 2.5000 | 976-000-292 |
| 0.2500 | 0.2500 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-293 |
| 0.2500 | 0.2500 | 0.0200 | 0.7500 | 1.3750 | 2.5000 | 976-000-294 |
| 0.2500 | 0.2500 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-295 |
| 0.2500 | 0.2500 | 0.0600 | 0.7500 | 1.3750 | 2.5000 | 976-000-296 |
| 0.2500 | 0.2500 | 0.0100 | 1.0000 | 1.1250 | 2.5000 | 976-000-297 |
| 0.2500 | 0.2500 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-298 |
| 0.2500 | 0.2500 | 0.0200 | 1.0000 | 1.1250 | 2.5000 | 976-000-299 |
| 0.2500 | 0.2500 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-300 |
| 0.2500 | 0.2500 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 976-000-301 |
| 0.2500 | 0.2500 | 0.0100 | 1.2500 | 0.8750 | 2.5000 | 976-000-302 |
| 0.2500 | 0.2500 | 0.0150 | 1.2500 | 0.8750 | 2.5000 | 976-000-303 |
| 0.2500 | 0.2500 | 0.0200 | 1.2500 | 0.8750 | 2.5000 | 976-000-304 |
| 0.2500 | 0.2500 | 0.0300 | 1.2500 | 0.8750 | 2.5000 | 976-000-305 |
| 0.2500 | 0.2500 | 0.0600 | 1.2500 | 0.8750 | 2.5000 | 976-000-306 |



CARBIDE

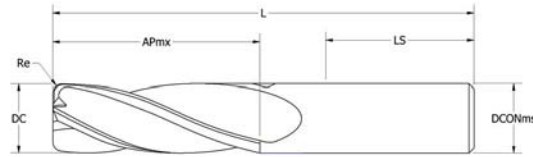


5-FLUTE - STANDARD LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.3125 | 0.3125 | 0.0100 | 0.8125 | 1.3125 | 2.5000 | 976-000-307 |
| 0.3125 | 0.3125 | 0.0150 | 0.8125 | 1.3125 | 2.5000 | 976-000-308 |
| 0.3125 | 0.3125 | 0.0200 | 0.8125 | 1.3125 | 2.5000 | 976-000-309 |
| 0.3125 | 0.3125 | 0.0300 | 0.8125 | 1.3125 | 2.5000 | 976-000-310 |
| 0.3125 | 0.3125 | 0.0600 | 0.8125 | 1.3125 | 2.5000 | 976-000-311 |
| 0.3750 | 0.3750 | 0.0100 | 0.8750 | 1.2500 | 2.5000 | 976-000-312 |
| 0.3750 | 0.3750 | 0.0150 | 0.8750 | 1.2500 | 2.5000 | 976-000-313 |
| 0.3750 | 0.3750 | 0.0200 | 0.8750 | 1.2500 | 2.5000 | 976-000-314 |
| 0.3750 | 0.3750 | 0.0300 | 0.8750 | 1.2500 | 2.5000 | 976-000-315 |
| 0.3750 | 0.3750 | 0.0600 | 0.8750 | 1.2500 | 2.5000 | 976-000-316 |
| 0.3750 | 0.3750 | 0.0100 | 1.0000 | 1.1250 | 2.5000 | 976-000-317 |
| 0.3750 | 0.3750 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-318 |
| 0.3750 | 0.3750 | 0.0200 | 1.0000 | 1.1250 | 2.5000 | 976-000-319 |
| 0.3750 | 0.3750 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-320 |
| 0.3750 | 0.3750 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 976-000-321 |
| 0.3750 | 0.3750 | 0.0100 | 1.2500 | 0.8750 | 2.5000 | 976-000-322 |
| 0.3750 | 0.3750 | 0.0150 | 1.2500 | 0.8750 | 2.5000 | 976-000-323 |
| 0.3750 | 0.3750 | 0.0200 | 1.2500 | 0.8750 | 2.5000 | 976-000-324 |
| 0.3750 | 0.3750 | 0.0300 | 1.2500 | 0.8750 | 2.5000 | 976-000-325 |
| 0.3750 | 0.3750 | 0.0600 | 1.2500 | 0.8750 | 2.5000 | 976-000-326 |
| 0.4375 | 0.4375 | 0.0150 | 1.0000 | 1.3750 | 2.7500 | 976-000-327 |
| 0.4375 | 0.4375 | 0.0200 | 1.0000 | 1.3750 | 2.7500 | 976-000-328 |
| 0.4375 | 0.4375 | 0.0300 | 1.0000 | 1.3750 | 2.7500 | 976-000-329 |
| 0.4375 | 0.4375 | 0.0600 | 1.0000 | 1.3750 | 2.7500 | 976-000-330 |
| 0.5000 | 0.5000 | 0.0100 | 1.0000 | 1.6250 | 3.0000 | 976-000-331 |
| 0.5000 | 0.5000 | 0.0150 | 1.0000 | 1.6250 | 3.0000 | 976-000-332 |
| 0.5000 | 0.5000 | 0.0300 | 1.0000 | 1.6250 | 3.0000 | 976-000-333 |
| 0.5000 | 0.5000 | 0.0600 | 1.0000 | 1.6250 | 3.0000 | 976-000-334 |
| 0.5000 | 0.5000 | 0.0900 | 1.0000 | 1.6250 | 3.0000 | 976-000-335 |
| 0.5000 | 0.5000 | 0.1200 | 1.0000 | 1.6250 | 3.0000 | 976-000-336 |
| 0.5000 | 0.5000 | 0.0100 | 1.2500 | 1.3750 | 3.0000 | 976-000-337 |
| 0.5000 | 0.5000 | 0.0150 | 1.2500 | 1.3750 | 3.0000 | 976-000-338 |
| 0.5000 | 0.5000 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-339 |
| 0.5000 | 0.5000 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-340 |
| 0.5000 | 0.5000 | 0.0900 | 1.2500 | 1.3750 | 3.0000 | 976-000-341 |
| 0.5000 | 0.5000 | 0.1200 | 1.2500 | 1.3750 | 3.0000 | 976-000-342 |
| 0.5000 | 0.5000 | 0.0100 | 1.5000 | 1.1250 | 3.0000 | 976-000-343 |
| 0.5000 | 0.5000 | 0.0150 | 1.5000 | 1.1250 | 3.0000 | 976-000-344 |
| 0.5000 | 0.5000 | 0.0300 | 1.5000 | 1.1250 | 3.0000 | 976-000-345 |
| 0.5000 | 0.5000 | 0.0600 | 1.5000 | 1.1250 | 3.0000 | 976-000-346 |
| 0.5000 | 0.5000 | 0.0900 | 1.5000 | 1.1250 | 3.0000 | 976-000-347 |
| 0.5000 | 0.5000 | 0.1200 | 1.5000 | 1.1250 | 3.0000 | 976-000-348 |

CARBIDE



5-FLUTE - STANDARD LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.5000 | 0.5000 | 0.0100 | 1.5000 | 1.6250 | 3.5000 | 976-000-349 |
| 0.5000 | 0.5000 | 0.0150 | 1.5000 | 1.6250 | 3.5000 | 976-000-350 |
| 0.5000 | 0.5000 | 0.0300 | 1.5000 | 1.6250 | 3.5000 | 976-000-351 |
| 0.5000 | 0.5000 | 0.0600 | 1.5000 | 1.6250 | 3.5000 | 976-000-352 |
| 0.5000 | 0.5000 | 0.0900 | 1.5000 | 1.6250 | 3.5000 | 976-000-353 |
| 0.5000 | 0.5000 | 0.1200 | 1.5000 | 1.6250 | 3.5000 | 976-000-354 |
| 0.5000 | 0.5000 | 0.0100 | 1.7500 | 1.3750 | 3.5000 | 976-000-355 |
| 0.5000 | 0.5000 | 0.0150 | 1.7500 | 1.3750 | 3.5000 | 976-000-356 |
| 0.5000 | 0.5000 | 0.0300 | 1.7500 | 1.3750 | 3.5000 | 976-000-357 |
| 0.5000 | 0.5000 | 0.0600 | 1.7500 | 1.3750 | 3.5000 | 976-000-358 |
| 0.5000 | 0.5000 | 0.0900 | 1.7500 | 1.3750 | 3.5000 | 976-000-359 |
| 0.5000 | 0.5000 | 0.1200 | 1.7500 | 1.3750 | 3.5000 | 976-000-360 |
| 0.6250 | 0.6250 | 0.0300 | 1.5000 | 1.6250 | 3.5000 | 976-000-361 |
| 0.6250 | 0.6250 | 0.0400 | 1.5000 | 1.6250 | 3.5000 | 976-000-362 |
| 0.6250 | 0.6250 | 0.0600 | 1.5000 | 1.6250 | 3.5000 | 976-000-363 |
| 0.6250 | 0.6250 | 0.0900 | 1.5000 | 1.6250 | 3.5000 | 976-000-364 |
| 0.6250 | 0.6250 | 0.1200 | 1.5000 | 1.6250 | 3.5000 | 976-000-365 |
| 0.6250 | 0.6250 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-366 |
| 0.6250 | 0.6250 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-367 |
| 0.6250 | 0.6250 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-368 |
| 0.6250 | 0.6250 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-369 |
| 0.6250 | 0.6250 | 0.1200 | 1.7500 | 1.8750 | 4.0000 | 976-000-370 |
| 0.7500 | 0.7500 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-371 |
| 0.7500 | 0.7500 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-372 |
| 0.7500 | 0.7500 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-373 |
| 0.7500 | 0.7500 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-374 |
| 0.7500 | 0.7500 | 0.1200 | 1.7500 | 1.8750 | 4.0000 | 976-000-375 |
| 1.0000 | 1.0000 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-376 |
| 1.0000 | 1.0000 | 0.0400 | 1.7500 | 1.8750 | 4.0000 | 976-000-377 |
| 1.0000 | 1.0000 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-378 |
| 1.0000 | 1.0000 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-379 |
| 1.0000 | 1.0000 | 0.1200 | 1.7500 | 1.8750 | 4.0000 | 976-000-380 |

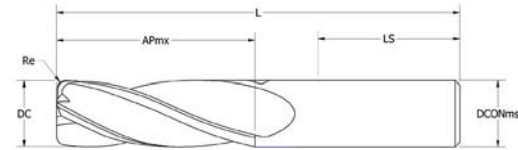


5-FLUTE - LONG LENGTH - CORNER RADIUS



CARBIDE

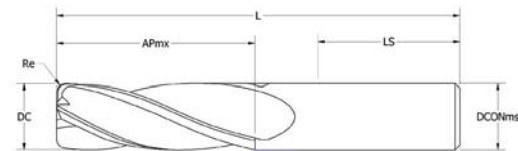
| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-381 |
| 0.1250 | 0.1250 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-382 |
| 0.1875 | 0.1875 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-383 |
| 0.1875 | 0.1875 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-384 |
| 0.2500 | 0.2500 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-385 |
| 0.2500 | 0.2500 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-386 |
| 0.3125 | 0.3125 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-387 |
| 0.3125 | 0.3125 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-388 |
| 0.3750 | 0.3750 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-389 |
| 0.3750 | 0.3750 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-390 |
| 0.4375 | 0.4375 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-391 |
| 0.4375 | 0.4375 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-392 |
| 0.5000 | 0.5000 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-393 |
| 0.5000 | 0.5000 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-394 |
| 0.6250 | 0.6250 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-395 |
| 0.6250 | 0.6250 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-396 |
| 0.7500 | 0.7500 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-397 |
| 0.7500 | 0.7500 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-398 |
| 1.0000 | 1.0000 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-399 |
| 1.0000 | 1.0000 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-400 |



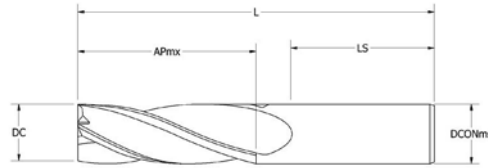
5-FLUTE - X - LONG LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 0.0150 | 1.0000 | 1.3750 | 3.0000 | 976-000-401 |
| 0.1250 | 0.1250 | 0.0300 | 1.0000 | 1.3750 | 3.0000 | 976-000-403 |
| 0.1875 | 0.1875 | 0.0150 | 1.1250 | 1.3750 | 3.0000 | 976-000-404 |
| 0.1875 | 0.1875 | 0.0300 | 1.1250 | 1.3750 | 3.0000 | 976-000-405 |
| 0.2500 | 0.2500 | 0.0150 | 1.5000 | 1.5000 | 4.0000 | 976-000-406 |
| 0.2500 | 0.2500 | 0.0300 | 1.5000 | 1.5000 | 4.0000 | 976-000-407 |
| 0.3125 | 0.3125 | 0.0300 | 1.6250 | 1.5000 | 4.0000 | 976-000-408 |
| 0.3125 | 0.3125 | 0.0600 | 1.6250 | 1.5000 | 4.0000 | 976-000-410 |
| 0.3750 | 0.3750 | 0.0300 | 2.0000 | 1.3750 | 6.0000 | 976-000-411 |
| 0.3750 | 0.3750 | 0.0600 | 2.0000 | 1.3750 | 6.0000 | 976-000-412 |
| 0.4375 | 0.4375 | 0.0300 | 3.0000 | 1.6250 | 6.0000 | 976-000-413 |
| 0.4375 | 0.4375 | 0.0600 | 3.0000 | 1.6250 | 6.0000 | 976-000-415 |
| 0.5000 | 0.5000 | 0.0300 | 3.0000 | 1.6250 | 6.0000 | 976-000-416 |
| 0.5000 | 0.5000 | 0.0600 | 3.0000 | 1.6250 | 6.0000 | 976-000-417 |
| 0.6250 | 0.6250 | 0.0300 | 3.0000 | 2.3750 | 6.0000 | 976-000-418 |
| 0.6250 | 0.6250 | 0.0600 | 3.0000 | 2.3750 | 6.0000 | 976-000-419 |
| 0.7500 | 0.7500 | 0.0300 | 3.0000 | 2.3750 | 6.0000 | 976-000-420 |
| 0.7500 | 0.7500 | 0.0600 | 3.0000 | 2.3750 | 6.0000 | 976-000-421 |
| 1.0000 | 1.0000 | 0.0300 | 3.0000 | 2.3750 | 6.0000 | 976-000-422 |
| 1.0000 | 1.0000 | 0.0600 | 3.0000 | 2.3750 | 6.0000 | 976-000-423 |



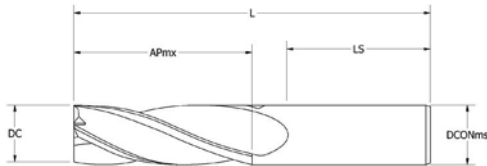
CARBIDE



7-FLUTE - STUB LENGTH - SQUARE END



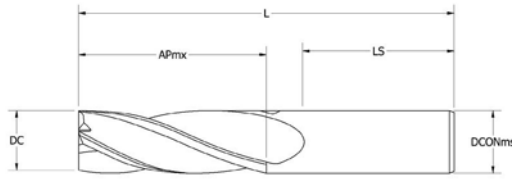
| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.3750 | 2.1250 | 2.0000 | 976-000-097 |
| 0.2500 | 0.2500 | 0.5000 | 1.1250 | 2.0000 | 976-000-098 |
| 0.3125 | 0.3125 | 0.5000 | 1.1250 | 2.0000 | 976-000-099 |
| 0.3750 | 0.3750 | 0.6250 | 1.0000 | 2.0000 | 976-000-100 |
| 0.4375 | 0.4375 | 0.6250 | 1.5000 | 2.5000 | 976-000-101 |
| 0.5000 | 0.5000 | 0.7500 | 1.3750 | 2.5000 | 976-000-102 |
| 0.6250 | 0.6250 | 0.7500 | 1.8750 | 3.0000 | 976-000-103 |
| 0.7500 | 0.7500 | 1.0000 | 1.6250 | 3.0000 | 976-000-104 |



7-FLUTE - STANDARD LENGTH - SQUARE END



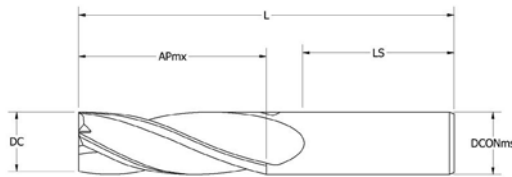
| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 976-000-105 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 976-000-106 |
| 0.2500 | 0.2500 | 1.0000 | 1.1250 | 2.5000 | 976-000-107 |
| 0.3125 | 0.3125 | 0.8125 | 1.3125 | 2.5000 | 976-000-108 |
| 0.3750 | 0.3750 | 0.8750 | 1.2500 | 2.5000 | 976-000-109 |
| 0.3750 | 0.3750 | 1.0000 | 1.1250 | 2.5000 | 976-000-110 |
| 0.4375 | 0.4375 | 1.0000 | 1.3750 | 2.7500 | 976-000-111 |
| 0.5000 | 0.5000 | 1.0000 | 1.6250 | 3.0000 | 976-000-112 |
| 0.5000 | 0.5000 | 1.2500 | 1.3750 | 3.0000 | 976-000-113 |
| 0.5000 | 0.5000 | 1.5000 | 1.6250 | 3.5000 | 976-000-114 |
| 0.5000 | 0.5000 | 1.7500 | 1.3750 | 3.5000 | 976-000-115 |
| 0.6250 | 0.6250 | 1.5000 | 1.6250 | 3.5000 | 976-000-116 |
| 0.7500 | 0.7500 | 1.7500 | 1.8750 | 4.0000 | 976-000-117 |
| 1.0000 | 1.0000 | 1.7500 | 1.8750 | 4.0000 | 976-000-118 |



7-FLUTE - LONG LENGTH - SQUARE END



| DC | DCONms | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.7500 | 1.3750 | 2.5000 | 976-000-119 |
| 0.2500 | 0.2500 | 1.1250 | 1.5000 | 3.0000 | 976-000-120 |
| 0.3125 | 0.3125 | 1.1250 | 1.5000 | 3.0000 | 976-000-121 |
| 0.3750 | 0.3750 | 1.2500 | 1.3750 | 3.0000 | 976-000-122 |
| 0.4375 | 0.4375 | 2.0000 | 1.6250 | 4.0000 | 976-000-123 |
| 0.5000 | 0.5000 | 2.0000 | 1.6250 | 4.0000 | 976-000-124 |
| 0.6250 | 0.6250 | 2.2500 | 2.3750 | 5.0000 | 976-000-125 |
| 0.7500 | 0.7500 | 2.2500 | 2.3750 | 5.0000 | 976-000-126 |
| 1.0000 | 1.0000 | 2.2500 | 2.3750 | 5.0000 | 976-000-127 |

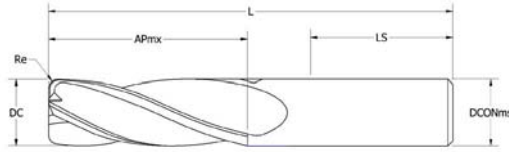


7-FLUTE - STUB LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.0100 | 0.3750 | 1.2500 | 2.0000 | 976-000-424 |
| 0.2500 | 0.2500 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-425 |
| 0.3125 | 0.3125 | 0.0200 | 0.5000 | 1.1250 | 2.0000 | 976-000-426 |
| 0.3750 | 0.3750 | 0.0200 | 0.6250 | 1.0000 | 2.0000 | 976-000-427 |
| 0.4375 | 0.4375 | 0.0300 | 0.6250 | 1.5000 | 2.5000 | 976-000-428 |
| 0.5000 | 0.5000 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-429 |
| 0.6250 | 0.6250 | 0.0400 | 0.7500 | 1.8750 | 3.0000 | 976-000-430 |
| 0.7500 | 0.7500 | 0.0400 | 1.0000 | 1.6250 | 3.0000 | 976-000-431 |

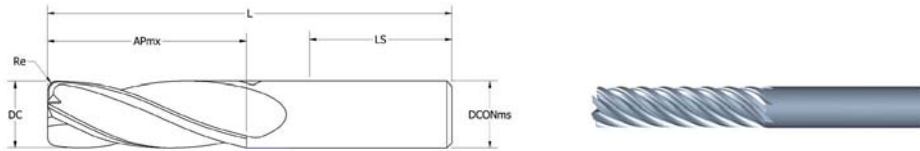
CARBIDE



7-FLUTE - STANDARD LENGTH - CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.0150 | 0.6250 | 1.0000 | 2.0000 | 976-000-432 |
| 0.1875 | 0.1875 | 0.0300 | 0.6250 | 1.0000 | 2.0000 | 976-000-433 |
| 0.2500 | 0.2500 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-434 |
| 0.2500 | 0.2500 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-435 |
| 0.2500 | 0.2500 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-436 |
| 0.2500 | 0.2500 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-437 |
| 0.3125 | 0.3125 | 0.0150 | 0.8125 | 1.3125 | 2.5000 | 976-000-438 |
| 0.3125 | 0.3125 | 0.0300 | 0.8125 | 1.3125 | 2.5000 | 976-000-439 |
| 0.3750 | 0.3750 | 0.0150 | 0.8750 | 1.2500 | 2.5000 | 976-000-440 |
| 0.3750 | 0.3750 | 0.0300 | 0.8750 | 1.2500 | 2.5000 | 976-000-441 |
| 0.3750 | 0.3750 | 0.0600 | 0.8750 | 1.2500 | 2.5000 | 976-000-442 |
| 0.3750 | 0.3750 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 976-000-443 |
| 0.3750 | 0.3750 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 976-000-444 |
| 0.3750 | 0.3750 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 976-000-445 |
| 0.4375 | 0.4375 | 0.0150 | 1.0000 | 1.3750 | 2.7500 | 976-000-446 |
| 0.4375 | 0.4375 | 0.0300 | 1.0000 | 1.3750 | 2.7500 | 976-000-447 |
| 0.4375 | 0.4375 | 0.0600 | 1.0000 | 1.3750 | 2.7500 | 976-000-448 |
| 0.5000 | 0.5000 | 0.0150 | 1.0000 | 1.6250 | 3.0000 | 976-000-449 |
| 0.5000 | 0.5000 | 0.0300 | 1.0000 | 1.6250 | 3.0000 | 976-000-450 |
| 0.5000 | 0.5000 | 0.0600 | 1.0000 | 1.6250 | 3.0000 | 976-000-451 |
| 0.5000 | 0.5000 | 0.0150 | 1.2500 | 1.3750 | 3.0000 | 976-000-452 |
| 0.5000 | 0.5000 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-453 |
| 0.5000 | 0.5000 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-454 |
| 0.5000 | 0.5000 | 0.0150 | 1.5000 | 1.1250 | 3.0000 | 976-000-455 |
| 0.5000 | 0.5000 | 0.0300 | 1.5000 | 1.1250 | 3.0000 | 976-000-456 |
| 0.5000 | 0.5000 | 0.0600 | 1.5000 | 1.1250 | 3.0000 | 976-000-457 |
| 0.5000 | 0.5000 | 0.0150 | 1.7500 | 1.3750 | 3.5000 | 976-000-458 |
| 0.5000 | 0.5000 | 0.0300 | 1.7500 | 1.3750 | 3.5000 | 976-000-459 |
| 0.5000 | 0.5000 | 0.0600 | 1.7500 | 1.3750 | 3.5000 | 976-000-460 |
| 0.6250 | 0.6250 | 0.0300 | 1.5000 | 1.6250 | 3.5000 | 976-000-461 |
| 0.6250 | 0.6250 | 0.0600 | 1.5000 | 1.6250 | 3.5000 | 976-000-462 |
| 0.6250 | 0.6250 | 0.0900 | 1.5000 | 1.6250 | 3.5000 | 976-000-463 |
| 0.7500 | 0.7500 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-464 |
| 0.7500 | 0.7500 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-465 |
| 0.7500 | 0.7500 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-466 |
| 1.0000 | 1.0000 | 0.0300 | 1.7500 | 1.8750 | 4.0000 | 976-000-467 |
| 1.0000 | 1.0000 | 0.0600 | 1.7500 | 1.8750 | 4.0000 | 976-000-468 |
| 1.0000 | 1.0000 | 0.0900 | 1.7500 | 1.8750 | 4.0000 | 976-000-469 |



7-FLUTE - LONG LENGTH - CORNER RADIUS

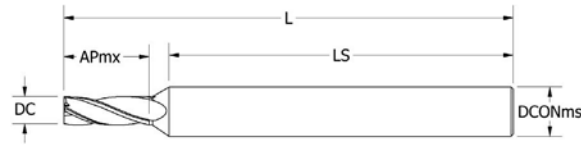


| DC | DCONms | Re | APmx | LS | L | PRODUCT # |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 976-000-470 |
| 0.1875 | 0.1875 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 976-000-471 |
| 0.2500 | 0.2500 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-472 |
| 0.2500 | 0.2500 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-473 |
| 0.3125 | 0.3125 | 0.0150 | 1.1250 | 1.5000 | 3.0000 | 976-000-474 |
| 0.3125 | 0.3125 | 0.0300 | 1.1250 | 1.5000 | 3.0000 | 976-000-475 |
| 0.3750 | 0.3750 | 0.0300 | 1.2500 | 1.3750 | 3.0000 | 976-000-476 |
| 0.3750 | 0.3750 | 0.0600 | 1.2500 | 1.3750 | 3.0000 | 976-000-477 |
| 0.4375 | 0.4375 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-478 |
| 0.4375 | 0.4375 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-479 |
| 0.5000 | 0.5000 | 0.0300 | 2.0000 | 1.6250 | 4.0000 | 976-000-480 |
| 0.5000 | 0.5000 | 0.0600 | 2.0000 | 1.6250 | 4.0000 | 976-000-481 |
| 0.6250 | 0.6250 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-482 |
| 0.6250 | 0.6250 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-483 |
| 0.7500 | 0.7500 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-484 |
| 0.7500 | 0.7500 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-485 |
| 1.0000 | 1.0000 | 0.0300 | 2.2500 | 2.3750 | 5.0000 | 976-000-486 |
| 1.0000 | 1.0000 | 0.0600 | 2.2500 | 2.3750 | 5.0000 | 976-000-487 |

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Ø .005" - .045"

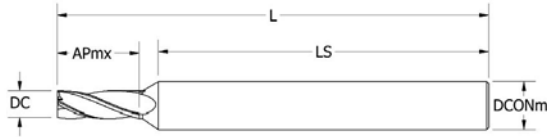


| DC | DCONms | APmx | LS | L | UNCOATED | | | AITIN COATED | |
|--------|--------|--------|--------|--------|-------------|-------------|-------------|--------------|-------------|
| | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0150 | 1.1342 | 1.5000 | 930-000-243 | N/A | N/A | 930-000-527 | N/A |
| 0.0060 | 0.1250 | 0.0180 | 1.1342 | 1.5000 | 930-000-245 | N/A | N/A | 930-000-528 | N/A |
| 0.0070 | 0.1250 | 0.0210 | 1.1342 | 1.5000 | 930-000-246 | N/A | N/A | 930-000-529 | N/A |
| 0.0080 | 0.1250 | 0.0240 | 1.1342 | 1.5000 | 930-000-247 | N/A | N/A | 930-000-530 | N/A |
| 0.0090 | 0.1250 | 0.0270 | 1.1342 | 1.5000 | 930-000-248 | N/A | N/A | 930-000-531 | N/A |
| 0.0100 | 0.1250 | 0.0300 | 1.1742 | 1.5000 | 930-000-249 | 930-002-678 | 930-000-635 | 930-000-532 | 930-001-031 |
| 0.0100 | 0.1250 | 0.0330 | 1.1738 | 1.5000 | 930-000-251 | 930-002-679 | 930-000-637 | 930-000-533 | 930-001-032 |
| 0.0110 | 0.1250 | 0.0360 | 1.1733 | 1.5000 | 930-000-252 | 930-002-680 | 930-000-638 | 930-000-534 | 930-001-033 |
| 0.0120 | 0.1250 | 0.0390 | 1.1729 | 1.5000 | 930-000-253 | 930-002-681 | 930-000-639 | 930-000-535 | 930-001-034 |
| 0.0130 | 0.1250 | 0.0420 | 1.1725 | 1.5000 | 930-000-254 | 930-002-682 | 930-000-640 | 930-000-536 | 930-001-035 |
| 0.0140 | 0.1250 | 0.0450 | 1.1720 | 1.5000 | 930-000-255 | 930-002-683 | 930-000-641 | 930-000-537 | 930-001-036 |
| 0.0150 | 0.1250 | 0.0468 | 1.1718 | 1.5000 | 930-000-362 | 930-002-727 | 930-000-748 | N/A | N/A |
| 0.0160 | 0.1250 | 0.0480 | 1.1716 | 1.5000 | 930-000-257 | N/A | 930-000-643 | 930-000-538 | 930-001-037 |
| 0.0170 | 0.1250 | 0.0510 | 1.1712 | 1.5000 | 930-000-258 | N/A | 930-000-644 | 930-000-539 | 930-001-038 |
| 0.0180 | 0.1250 | 0.0540 | 1.1708 | 1.5000 | 930-000-259 | 930-002-684 | 930-000-645 | 930-000-540 | 930-001-039 |
| 0.0190 | 0.1250 | 0.0570 | 1.1703 | 1.5000 | 930-000-260 | N/A | 930-000-646 | 930-000-541 | 930-001-040 |
| 0.0197 | 0.1250 | 0.0591 | 1.1700 | 1.5000 | 930-000-343 | 930-002-715 | 930-000-729 | N/A | N/A |
| 0.0200 | 0.1250 | 0.0600 | 1.1699 | 1.5000 | 930-000-261 | 930-002-685 | 930-000-647 | 930-000-542 | 930-001-041 |
| 0.0200 | 0.1250 | 0.0600 | 1.2600 | 1.5000 | 930-000-263 | N/A | 930-000-649 | 930-000-543 | 930-001-042 |
| 0.0210 | 0.1250 | 0.0630 | 1.1695 | 1.5000 | 930-000-264 | N/A | 930-000-650 | 930-000-544 | 930-001-043 |
| 0.0220 | 0.1250 | 0.0660 | 1.1691 | 1.5000 | 930-000-265 | 930-002-686 | 930-000-651 | 930-000-545 | 930-001-044 |
| 0.0230 | 0.1250 | 0.0690 | 1.1686 | 1.5000 | 930-000-266 | 930-002-687 | 930-000-652 | 930-000-546 | 930-001-045 |
| 0.0240 | 0.1250 | 0.0720 | 1.1682 | 1.5000 | 930-000-267 | 930-002-688 | 930-000-653 | 930-000-547 | 930-001-046 |
| 0.0250 | 0.1250 | 0.0750 | 1.1678 | 1.5000 | 930-000-269 | 930-002-689 | 930-000-655 | 930-000-548 | 930-001-047 |
| 0.0270 | 0.1250 | 0.0810 | 1.1669 | 1.5000 | 930-000-270 | N/A | 930-000-656 | 930-000-549 | 930-001-048 |
| 0.0280 | 0.1250 | 0.0840 | 1.1665 | 1.5000 | 930-000-271 | N/A | 930-000-657 | 930-000-550 | 930-001-049 |
| 0.0290 | 0.1250 | 0.0870 | 1.1661 | 1.5000 | 930-000-272 | 930-002-690 | 930-000-658 | 930-000-551 | 930-001-050 |
| 0.0300 | 0.1250 | 0.0900 | 1.1656 | 1.5000 | 930-000-273 | 930-002-691 | 930-000-659 | 930-000-552 | 930-001-051 |
| 0.0310 | 0.1250 | 0.0930 | 1.1652 | 1.5000 | 930-000-275 | 930-002-692 | 930-000-661 | 930-000-553 | 930-001-052 |
| 0.0320 | 0.1250 | 0.0960 | 1.1648 | 1.5000 | 930-000-276 | N/A | 930-000-662 | 930-000-554 | 930-001-053 |
| 0.0330 | 0.1250 | 0.0990 | 1.1644 | 1.5000 | 930-000-277 | 930-002-693 | 930-000-663 | 930-000-555 | 930-001-054 |
| 0.0340 | 0.1250 | 0.1020 | 1.1639 | 1.5000 | 930-000-278 | N/A | 930-000-664 | 930-000-556 | 930-001-055 |
| 0.0350 | 0.1250 | 0.1050 | 1.1635 | 1.5000 | 930-000-279 | 930-002-694 | 930-000-665 | 930-000-557 | 930-001-056 |
| 0.0360 | 0.1250 | 0.1080 | 1.1631 | 1.5000 | 930-000-281 | N/A | 930-000-667 | 930-000-558 | 930-001-057 |
| 0.0370 | 0.1250 | 0.1110 | 1.1626 | 1.5000 | 930-000-282 | N/A | 930-000-668 | 930-000-559 | 930-001-058 |
| 0.0380 | 0.1250 | 0.1140 | 1.1622 | 1.5000 | 930-000-283 | N/A | 930-000-669 | 930-000-560 | 930-001-059 |
| 0.0390 | 0.1250 | 0.1170 | 1.1618 | 1.5000 | 930-000-284 | N/A | 930-000-670 | 930-000-561 | 930-001-060 |
| 0.0394 | 0.1250 | 0.1182 | 1.1616 | 1.5000 | 930-000-350 | 930-002-716 | 930-000-736 | 930-000-601 | 930-001-103 |
| 0.0400 | 0.1250 | 0.1200 | 1.1614 | 1.5000 | 930-000-285 | 930-002-695 | 930-000-671 | 930-000-562 | 930-001-061 |
| 0.0410 | 0.1250 | 0.1230 | 1.1609 | 1.5000 | 930-000-287 | N/A | 930-000-673 | 930-000-563 | 930-001-062 |
| 0.0420 | 0.1250 | 0.1260 | 1.1605 | 1.5000 | 930-000-288 | N/A | 930-000-674 | 930-000-564 | 930-001-063 |
| 0.0430 | 0.1250 | 0.1290 | 1.1601 | 1.5000 | 930-000-289 | N/A | 930-000-675 | 930-000-565 | 930-001-064 |
| 0.0440 | 0.1250 | 0.1320 | 1.1596 | 1.5000 | 930-000-290 | N/A | 930-000-676 | 930-000-566 | 930-001-065 |
| 0.0450 | 0.1250 | 0.1350 | 1.1592 | 1.5000 | 930-000-291 | 930-002-696 | 930-000-677 | 930-000-567 | 930-001-066 |

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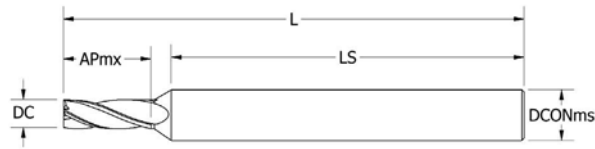


| DC | DCONms | APmx | LS | L | TiAIN COATED | | | AMORPHOUS DIAMOND COATED | | |
|--------|--------|--------|--------|--------|--------------|-------------|-------------|--------------------------|-------------|-------------|
| | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 3 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0150 | 1.1342 | 1.5000 | 930-000-439 | N/A | N/A | 930-000-364 | N/A | N/A |
| 0.0060 | 0.1250 | 0.0180 | 1.1342 | 1.5000 | 930-000-440 | N/A | N/A | 930-000-365 | N/A | N/A |
| 0.0070 | 0.1250 | 0.0210 | 1.1342 | 1.5000 | 930-000-441 | N/A | N/A | 930-000-366 | N/A | N/A |
| 0.0080 | 0.1250 | 0.0240 | 1.1342 | 1.5000 | 930-000-442 | N/A | N/A | 930-000-367 | N/A | N/A |
| 0.0090 | 0.1250 | 0.0270 | 1.1342 | 1.5000 | 930-000-443 | N/A | N/A | 930-000-368 | N/A | N/A |
| 0.0100 | 0.1250 | 0.0300 | 1.1742 | 1.5000 | 930-000-444 | 930-002-750 | 930-000-880 | 930-000-369 | 930-002-729 | 930-000-750 |
| 0.0110 | 0.1250 | 0.0330 | 1.1738 | 1.5000 | 930-000-445 | 930-002-751 | 930-000-881 | 930-000-370 | N/A | 930-000-751 |
| 0.0120 | 0.1250 | 0.0360 | 1.1733 | 1.5000 | 930-000-446 | 930-002-752 | 930-000-882 | 930-000-371 | N/A | 930-000-752 |
| 0.0130 | 0.1250 | 0.0390 | 1.1729 | 1.5000 | 930-000-447 | 930-002-753 | 930-000-883 | 930-000-372 | N/A | 930-000-753 |
| 0.0140 | 0.1250 | 0.0420 | 1.1725 | 1.5000 | 930-000-448 | 930-002-754 | 930-000-884 | 930-000-373 | N/A | 930-000-754 |
| 0.0150 | 0.1250 | 0.0450 | 1.1720 | 1.5000 | 930-000-449 | 930-002-755 | 930-000-885 | 930-000-374 | 930-002-730 | 930-000-755 |
| 0.0156 | 0.1250 | 0.0468 | 1.1718 | 1.5000 | 930-000-525 | 930-002-795 | 930-000-961 | N/A | N/A | N/A |
| 0.0160 | 0.1250 | 0.0480 | 1.1716 | 1.5000 | 930-000-450 | N/A | 930-000-886 | 930-000-375 | N/A | 930-000-756 |
| 0.0170 | 0.1250 | 0.0510 | 1.1712 | 1.5000 | 930-000-451 | N/A | 930-000-887 | 930-000-376 | N/A | 930-000-757 |
| 0.0180 | 0.1250 | 0.0540 | 1.1708 | 1.5000 | 930-000-452 | 930-002-756 | 930-000-888 | 930-000-377 | N/A | 930-000-758 |
| 0.0190 | 0.1250 | 0.0570 | 1.1703 | 1.5000 | 930-000-453 | N/A | 930-000-889 | 930-000-378 | N/A | 930-000-759 |
| 0.0197 | 0.1250 | 0.0591 | 1.1700 | 1.5000 | 930-000-513 | 930-002-783 | 930-000-949 | N/A | N/A | N/A |
| 0.0200 | 0.1250 | 0.0600 | 1.1699 | 1.5000 | 930-000-454 | 930-002-757 | 930-000-890 | 930-000-379 | 930-002-731 | 930-000-760 |
| 0.0210 | 0.1250 | 0.0630 | 1.1695 | 1.5000 | 930-000-455 | N/A | 930-000-891 | 930-000-380 | N/A | 930-000-761 |
| 0.0220 | 0.1250 | 0.0660 | 1.1691 | 1.5000 | 930-000-456 | N/A | 930-000-892 | 930-000-381 | N/A | 930-000-762 |
| 0.0230 | 0.1250 | 0.0690 | 1.1686 | 1.5000 | 930-000-457 | 930-002-758 | 930-000-893 | 930-000-382 | N/A | 930-000-763 |
| 0.0240 | 0.1250 | 0.0720 | 1.1682 | 1.5000 | 930-000-458 | 930-002-759 | 930-000-894 | 930-000-383 | N/A | 930-000-764 |
| 0.0250 | 0.1250 | 0.0750 | 1.1678 | 1.5000 | 930-000-459 | 930-002-760 | 930-000-895 | 930-000-384 | 930-002-732 | 930-000-765 |
| 0.0260 | 0.1250 | 0.0780 | 1.1673 | 1.5000 | 930-000-460 | N/A | 930-000-896 | 930-000-385 | N/A | 930-000-766 |
| 0.0270 | 0.1250 | 0.0810 | 1.1669 | 1.5000 | 930-000-461 | N/A | 930-000-897 | 930-000-386 | N/A | 930-000-767 |
| 0.0280 | 0.1250 | 0.0840 | 1.1665 | 1.5000 | 930-000-462 | N/A | 930-000-898 | 930-000-387 | N/A | 930-000-768 |
| 0.0290 | 0.1250 | 0.0870 | 1.1661 | 1.5000 | 930-000-463 | 930-002-761 | 930-000-899 | 930-000-388 | N/A | 930-000-769 |
| 0.0300 | 0.1250 | 0.0900 | 1.1656 | 1.5000 | 930-000-464 | 930-002-762 | 930-000-900 | 930-000-389 | 930-002-733 | 930-000-770 |
| 0.0310 | 0.1250 | 0.0930 | 1.1652 | 1.5000 | 930-000-465 | 930-002-763 | 930-000-901 | 930-000-390 | 930-002-734 | 930-000-771 |
| 0.0320 | 0.1250 | 0.0960 | 1.1648 | 1.5000 | 930-000-466 | N/A | 930-000-902 | 930-000-391 | N/A | 930-000-772 |
| 0.0330 | 0.1250 | 0.0990 | 1.1644 | 1.5000 | 930-000-467 | N/A | 930-000-903 | 930-000-392 | N/A | 930-000-773 |
| 0.0340 | 0.1250 | 0.1020 | 1.1639 | 1.5000 | 930-000-468 | N/A | 930-000-904 | 930-000-393 | N/A | 930-000-774 |
| 0.0350 | 0.1250 | 0.1050 | 1.1635 | 1.5000 | 930-000-469 | 930-002-764 | 930-000-905 | 930-000-394 | 930-002-735 | 930-000-775 |
| 0.0360 | 0.1250 | 0.1080 | 1.1631 | 1.5000 | 930-000-470 | N/A | 930-000-906 | 930-000-395 | N/A | 930-000-776 |
| 0.0370 | 0.1250 | 0.1110 | 1.1626 | 1.5000 | 930-000-471 | N/A | 930-000-907 | 930-000-396 | N/A | 930-000-777 |
| 0.0380 | 0.1250 | 0.1140 | 1.1622 | 1.5000 | 930-000-472 | N/A | 930-000-908 | 930-000-397 | N/A | 930-000-778 |
| 0.0390 | 0.1250 | 0.1170 | 1.1618 | 1.5000 | 930-000-473 | N/A | 930-000-909 | 930-000-398 | N/A | 930-000-779 |
| 0.0394 | 0.1250 | 0.1182 | 1.1616 | 1.5000 | 930-000-514 | 930-002-784 | 930-000-950 | 930-000-434 | N/A | 930-000-815 |
| 0.0400 | 0.1250 | 0.1200 | 1.1614 | 1.5000 | 930-000-474 | 930-002-765 | 930-000-910 | 930-000-399 | 930-002-736 | 930-000-780 |
| 0.0410 | 0.1250 | 0.1230 | 1.1609 | 1.5000 | 930-000-475 | N/A | 930-000-911 | 930-000-400 | N/A | 930-000-781 |
| 0.0420 | 0.1250 | 0.1260 | 1.1605 | 1.5000 | 930-000-476 | N/A | 930-000-912 | 930-000-401 | N/A | 930-000-782 |
| 0.0430 | 0.1250 | 0.1290 | 1.1601 | 1.5000 | 930-000-477 | N/A | 930-000-913 | 930-000-402 | N/A | 930-000-783 |
| 0.0440 | 0.1250 | 0.1320 | 1.1596 | 1.5000 | 930-000-478 | N/A | 930-000-914 | 930-000-403 | N/A | 930-000-784 |
| 0.0450 | 0.1250 | 0.1350 | 1.1592 | 1.5000 | 930-000-479 | 930-002-766 | 930-000-915 | 930-000-404 | 930-002-737 | 930-000-785 |

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Ø .046" - .1772"

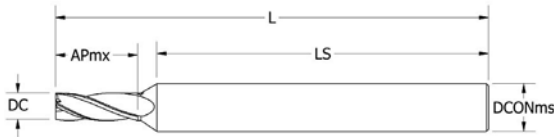


| DC | DCONms | APmx | LS | L | UNCOATED | | | AITIN COATED | |
|--------|--------|--------|--------|--------|-------------|-------------|-------------|--------------|-------------|
| | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0460 | 0.1250 | 0.1380 | 1.1588 | 1.5000 | 930-000-293 | N/A | 930-000-679 | N/A | N/A |
| 0.0470 | 0.1250 | 0.1410 | 1.1584 | 1.5000 | 930-000-294 | 930-000-697 | 930-000-680 | N/A | N/A |
| 0.0480 | 0.1250 | 0.1440 | 1.1579 | 1.5000 | 930-000-295 | N/A | 930-000-681 | N/A | N/A |
| 0.0490 | 0.1250 | 0.1470 | 1.1575 | 1.5000 | 930-000-296 | N/A | 930-000-682 | N/A | N/A |
| 0.0492 | 0.1250 | 0.1476 | 1.1574 | 1.5000 | 930-000-351 | 930-002-717 | 930-000-737 | N/A | N/A |
| 0.0500 | 0.1250 | 0.1500 | 1.1571 | 1.5000 | 930-000-297 | 930-000-698 | 930-000-683 | N/A | N/A |
| 0.0510 | 0.1250 | 0.1530 | 1.1567 | 1.5000 | 930-000-299 | N/A | 930-000-685 | 930-000-573 | 930-001-072 |
| 0.0520 | 0.1250 | 0.1560 | 1.1562 | 1.5000 | 930-000-300 | N/A | 930-000-686 | 930-000-574 | 930-001-073 |
| 0.0530 | 0.1250 | 0.1590 | 1.1558 | 1.5000 | 930-000-301 | N/A | 930-000-687 | 930-000-575 | 930-001-074 |
| 0.0540 | 0.1250 | 0.1620 | 1.1554 | 1.5000 | 930-000-302 | N/A | 930-000-688 | 930-000-576 | 930-001-075 |
| 0.0550 | 0.1250 | 0.1650 | 1.1549 | 1.5000 | 930-000-303 | 930-002-699 | 930-000-689 | 930-000-577 | 930-001-076 |
| 0.0560 | 0.1250 | 0.1680 | 1.1545 | 1.5000 | 930-000-305 | N/A | 930-000-691 | 930-000-578 | 930-001-077 |
| 0.0570 | 0.1250 | 0.1710 | 1.1541 | 1.5000 | 930-000-306 | N/A | 930-000-692 | 930-000-579 | 930-001-078 |
| 0.0580 | 0.1250 | 0.1740 | 1.1537 | 1.5000 | 930-000-307 | N/A | 930-000-693 | 930-000-580 | 930-001-079 |
| 0.0590 | 0.1250 | 0.1770 | 1.1532 | 1.5000 | 930-000-308 | N/A | 930-000-694 | 930-000-581 | 930-001-080 |
| 0.0591 | 0.1250 | 0.1773 | 1.1532 | 1.5000 | 930-000-353 | 930-002-718 | 930-000-739 | 930-000-603 | 930-001-105 |
| 0.0600 | 0.1250 | 0.1800 | 1.1528 | 1.5000 | 930-000-309 | 930-002-700 | 930-000-695 | 930-000-582 | 930-001-081 |
| 0.0620 | 0.1250 | 0.1860 | 1.1519 | 1.5000 | 930-000-311 | 930-002-701 | 930-000-697 | 930-000-583 | 930-001-082 |
| 0.0630 | 0.1250 | 0.1890 | 1.1515 | 1.5000 | 930-000-354 | 930-002-719 | 930-000-740 | N/A | N/A |
| 0.0640 | 0.1250 | 0.1920 | 1.1511 | 1.5000 | 930-000-312 | 930-002-702 | 930-000-698 | N/A | N/A |
| 0.0650 | 0.1250 | 0.1950 | 1.1507 | 1.5000 | 930-000-313 | 930-002-703 | 930-000-699 | 930-000-584 | 930-001-083 |
| 0.0700 | 0.1250 | 0.2100 | 1.1485 | 1.5000 | 930-000-315 | 930-002-704 | 930-000-701 | 930-000-585 | 930-001-084 |
| 0.0709 | 0.1250 | 0.2127 | 1.1481 | 1.5000 | 930-000-355 | 930-002-720 | 930-000-741 | N/A | N/A |
| 0.0750 | 0.1250 | 0.2250 | 1.1464 | 1.5000 | 930-000-317 | 930-002-705 | 930-000-703 | 930-000-586 | 930-001-085 |
| 0.0780 | 0.1250 | 0.2340 | 1.1451 | 1.5000 | 930-000-318 | 930-002-706 | 930-000-704 | 930-000-587 | 930-001-086 |
| 0.0787 | 0.1250 | 0.2361 | 1.1448 | 1.5000 | 930-000-356 | 930-002-721 | 930-000-742 | N/A | N/A |
| 0.0800 | 0.1250 | 0.2400 | 1.1442 | 1.5000 | 930-000-319 | 930-002-707 | 930-000-705 | 930-000-588 | 930-001-087 |
| 0.0850 | 0.1250 | 0.2550 | 1.1421 | 1.5000 | 930-000-321 | 930-002-708 | 930-000-707 | 930-000-589 | 930-001-088 |
| 0.0866 | 0.1250 | 0.2598 | 1.1414 | 1.5000 | 930-000-357 | 930-002-722 | 930-000-743 | N/A | N/A |
| 0.0900 | 0.1250 | 0.2700 | 1.1400 | 1.5000 | 930-000-322 | 930-002-709 | 930-000-708 | 930-000-590 | 930-001-089 |
| 0.0930 | 0.1250 | 0.2790 | 1.1387 | 1.5000 | 930-000-324 | 930-002-710 | 930-000-710 | 930-000-591 | 930-001-090 |
| 0.0950 | 0.1250 | 0.2850 | 1.1378 | 1.5000 | 930-000-325 | 930-002-711 | 930-000-711 | 930-000-592 | 930-001-091 |
| 0.0984 | 0.1250 | 0.2952 | 1.1364 | 1.5000 | 930-000-358 | 930-002-723 | 930-000-744 | N/A | N/A |
| 0.1000 | 0.1250 | 0.3000 | 1.1357 | 1.5000 | 930-000-326 | 930-002-712 | 930-000-712 | 930-000-593 | 930-001-092 |
| 0.1030 | 0.1250 | 0.3090 | 1.1344 | 1.5000 | 930-000-328 | 930-002-713 | 930-000-714 | N/A | N/A |
| 0.1050 | 0.1250 | 0.3150 | 1.1336 | 1.5000 | 930-000-329 | N/A | 930-000-715 | 930-000-594 | 930-001-093 |
| 0.1102 | 0.1250 | 0.3306 | 1.1313 | 1.5000 | 930-000-359 | 930-002-724 | 930-000-745 | 930-000-604 | 930-001-106 |
| 0.1150 | 0.1250 | 0.3450 | 1.1293 | 1.5000 | 930-000-330 | N/A | 930-000-716 | 930-000-595 | 930-001-094 |
| 0.1181 | 0.1250 | 0.3543 | 1.1280 | 1.5000 | 930-000-360 | 930-002-725 | 930-000-746 | 930-000-605 | 930-001-107 |
| 0.1200 | 0.1250 | 0.3600 | 1.1271 | 1.5000 | 930-000-331 | 930-002-714 | 930-000-717 | 930-000-596 | 930-001-095 |
| 0.1378 | 0.1875 | 0.4134 | 1.4588 | 2.0000 | 930-000-361 | 930-002-726 | 930-000-747 | N/A | N/A |
| 0.1772 | 0.1875 | 0.5316 | 1.4419 | 2.0000 | 930-000-363 | 930-002-728 | 930-000-749 | N/A | N/A |

Ø .046" - .1772"



CARBIDE

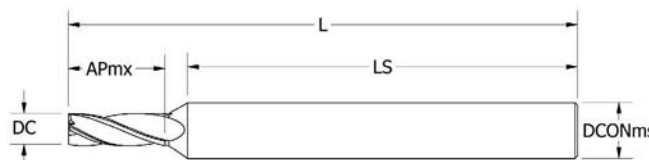


| DC | DCONms | APmx | LS | L | TiAIN COATED | | | AMORPHOUS DIAMOND | | |
|--------|--------|--------|--------|--------|--------------|-------------|-------------|-------------------|-------------|-------------|
| | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 3 FLUTE | 4 FLUTE |
| 0.0460 | 0.1250 | 0.1380 | 1.1588 | 1.5000 | 930-000-480 | N/A | 930-000-916 | 930-000-405 | N/A | 930-000-786 |
| 0.0470 | 0.1250 | 0.1410 | 1.1584 | 1.5000 | 930-000-481 | 930-002-767 | 930-000-917 | 930-000-406 | 930-000-738 | 930-000-787 |
| 0.0480 | 0.1250 | 0.1440 | 1.1579 | 1.5000 | 930-000-482 | N/A | 930-000-918 | 930-000-407 | N/A | 930-000-788 |
| 0.0490 | 0.1250 | 0.1470 | 1.1575 | 1.5000 | 930-000-483 | N/A | 930-000-919 | 930-000-408 | N/A | 930-000-789 |
| 0.0492 | 0.1250 | 0.1476 | 1.1574 | 1.5000 | 930-000-515 | 930-002-785 | 930-000-951 | 930-000-435 | N/A | N/A |
| 0.0500 | 0.1250 | 0.1500 | 1.1571 | 1.5000 | 930-000-484 | 930-002-768 | 930-000-920 | 930-000-409 | 930-000-739 | 930-000-790 |
| 0.0510 | 0.1250 | 0.1530 | 1.1567 | 1.5000 | 930-000-485 | N/A | 930-000-921 | 930-000-410 | N/A | 930-000-791 |
| 0.0520 | 0.1250 | 0.1560 | 1.1562 | 1.5000 | 930-000-486 | N/A | 930-000-922 | 930-000-411 | N/A | 930-000-792 |
| 0.0530 | 0.1250 | 0.1590 | 1.1558 | 1.5000 | 930-000-487 | N/A | 930-000-923 | 930-000-412 | N/A | 930-000-793 |
| 0.0540 | 0.1250 | 0.1620 | 1.1554 | 1.5000 | 930-000-488 | N/A | 930-000-924 | 930-000-413 | N/A | 930-000-794 |
| 0.0550 | 0.1250 | 0.1650 | 1.1549 | 1.5000 | 930-000-489 | 930-002-769 | 930-000-925 | 930-000-414 | 930-000-740 | 930-000-795 |
| 0.0560 | 0.1250 | 0.1680 | 1.1545 | 1.5000 | 930-000-490 | N/A | 930-000-926 | 930-000-415 | N/A | 930-000-796 |
| 0.0570 | 0.1250 | 0.1710 | 1.1541 | 1.5000 | 930-000-491 | N/A | 930-000-927 | 930-000-416 | N/A | 930-000-797 |
| 0.0580 | 0.1250 | 0.1740 | 1.1537 | 1.5000 | 930-000-492 | N/A | 930-000-928 | 930-000-417 | N/A | 930-000-798 |
| 0.0590 | 0.1250 | 0.1770 | 1.1532 | 1.5000 | 930-000-493 | N/A | 930-000-929 | 930-000-418 | N/A | 930-000-799 |
| 0.0591 | 0.1250 | 0.1773 | 1.1532 | 1.5000 | 930-000-516 | 930-002-786 | 930-000-952 | 930-000-436 | N/A N/A | 930-000-815 |
| 0.0600 | 0.1250 | 0.1800 | 1.1528 | 1.5000 | 930-000-494 | 930-002-770 | 930-000-930 | 930-000-419 | 930-000-741 | 930-000-800 |
| 0.0620 | 0.1250 | 0.1860 | 1.1519 | 1.5000 | 930-000-495 | 930-002-771 | 930-000-931 | 930-000-420 | 930-000-742 | 930-000-801 |
| 0.0630 | 0.1250 | 0.1890 | 1.1515 | 1.5000 | 930-000-517 | 930-002-787 | 930-000-953 | N/A | N/A | N/A |
| 0.0650 | 0.1250 | 0.1950 | 1.1507 | 1.5000 | 930-000-496 | 930-002-772 | 930-000-932 | 930-000-421 | 930-000-743 | 930-000-802 |
| 0.0700 | 0.1250 | 0.2100 | 1.1485 | 1.5000 | 930-000-497 | 930-002-773 | 930-000-933 | 930-000-422 | 930-000-744 | 930-000-803 |
| 0.0709 | 0.1250 | 0.2127 | 1.1481 | 1.5000 | 930-000-518 | 930-002-788 | 930-000-954 | N/A | N/A | N/A |
| 0.0750 | 0.1250 | 0.2250 | 1.1464 | 1.5000 | 930-000-498 | 930-002-774 | 930-000-934 | 930-000-423 | N/A | 930-000-804 |
| 0.0780 | 0.1250 | 0.2340 | 1.1451 | 1.5000 | 930-000-499 | 930-002-775 | 930-000-935 | 930-000-424 | 930-000-745 | 930-000-805 |
| 0.0787 | 0.1250 | 0.2361 | 1.1448 | 1.5000 | 930-000-519 | 930-002-789 | 930-000-955 | N/A | N/A | N/A |
| 0.0800 | 0.1250 | 0.2400 | 1.1442 | 1.5000 | 930-000-500 | 930-002-776 | 930-000-936 | 930-000-425 | 930-000-746 | 930-000-806 |
| 0.0850 | 0.1250 | 0.2550 | 1.1421 | 1.5000 | 930-000-501 | 930-002-777 | 930-000-937 | 930-000-426 | N/A | 930-000-807 |
| 0.0866 | 0.1250 | 0.2598 | 1.1414 | 1.5000 | 930-000-520 | 930-002-790 | 930-000-956 | N/A | N/A | N/A |
| 0.0900 | 0.1250 | 0.2700 | 1.1400 | 1.5000 | 930-000-502 | 930-002-778 | 930-000-938 | 930-000-427 | 930-000-747 | 930-000-808 |
| 0.0930 | 0.1250 | 0.2790 | 1.1387 | 1.5000 | 930-000-503 | 930-002-779 | 930-000-939 | 930-000-428 | 930-000-748 | 930-000-809 |
| 0.0950 | 0.1250 | 0.2850 | 1.1378 | 1.5000 | 930-000-504 | 930-002-780 | 930-000-940 | 930-000-429 | N/A | 930-000-810 |
| 0.0984 | 0.1250 | 0.2952 | 1.1364 | 1.5000 | 930-000-521 | 930-002-791 | 930-000-957 | N/A | N/A | N/A |
| 0.1000 | 0.1250 | 0.3000 | 1.1357 | 1.5000 | 930-000-505 | 930-002-781 | 930-000-941 | 930-000-430 | 930-000-749 | 930-000-811 |
| 0.1050 | 0.1250 | 0.3150 | 1.1336 | 1.5000 | N/A | N/A | N/A | 930-000-431 | N/A | 930-000-812 |
| 0.1102 | 0.1250 | 0.3306 | 1.1313 | 1.5000 | 930-000-522 | 930-002-792 | 930-000-958 | 930-000-437 | N/A | 930-000-816 |
| 0.1150 | 0.1250 | 0.3450 | 1.1293 | 1.5000 | N/A | N/A | N/A | 930-000-432 | N/A | 930-000-813 |
| 0.1181 | 0.1250 | 0.3543 | 1.1280 | 1.5000 | 930-000-523 | 930-002-793 | 930-000-959 | 930-000-438 | N/A | 930-000-818 |
| 0.1200 | 0.1250 | 0.3600 | 1.1271 | 1.5000 | 930-000-506 | 930-002-782 | 930-000-942 | 930-000-433 | N/A | 930-000-814 |
| 0.1378 | 0.1875 | 0.4134 | 1.4588 | 2.0000 | 930-000-524 | 930-002-794 | 930-000-960 | N/A | N/A | N/A |
| 0.1772 | 0.1875 | 0.5316 | 1.4419 | 2.0000 | 930-000-526 | 930-002-796 | 930-000-961 | N/A | N/A | N/A |

CARBIDE



Ø .005" - .040"



| DC | DCONms | APmx | LS | L | UNCOATED | | AITIN COATED |
|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0075 | 1.1342 | 1.5000 | 930-001-391 | N/A | 930-001-564 |
| 0.0060 | 0.1250 | 0.0090 | 1.1342 | 1.5000 | 930-001-392 | N/A | 930-001-565 |
| 0.0070 | 0.1250 | 0.0105 | 1.1342 | 1.5000 | 930-001-393 | N/A | 930-001-566 |
| 0.0080 | 0.1250 | 0.0120 | 1.1342 | 1.5000 | 930-001-394 | N/A | 930-001-567 |
| 0.0090 | 0.1250 | 0.0135 | 1.1342 | 1.5000 | 930-001-395 | N/A | 930-001-568 |
| 0.0100 | 0.1250 | 0.0150 | 1.1892 | 1.5000 | 930-001-396 | 930-001-622 | 930-001-569 |
| 0.0110 | 0.1250 | 0.0165 | 1.1903 | 1.5000 | 930-001-397 | 930-001-623 | 930-001-570 |
| 0.0120 | 0.1250 | 0.0180 | 1.1913 | 1.5000 | 930-001-398 | 930-001-624 | 930-001-571 |
| 0.0130 | 0.1250 | 0.0195 | 1.1924 | 1.5000 | 930-001-399 | 930-001-625 | 930-001-572 |
| 0.0140 | 0.1250 | 0.0210 | 1.1935 | 1.5000 | 930-001-400 | 930-001-626 | 930-001-573 |
| 0.0150 | 0.1250 | 0.0225 | 1.1945 | 1.5000 | 930-001-401 | 930-001-627 | 930-001-574 |
| 0.0156 | 0.1250 | 0.0234 | 1.1952 | 1.5000 | 930-001-467 | 930-001-685 | N/A |
| 0.0160 | 0.1250 | 0.0240 | 1.1956 | 1.5000 | 930-001-402 | 930-001-628 | 930-001-575 |
| 0.0170 | 0.1250 | 0.0255 | 1.1967 | 1.5000 | 930-001-403 | 930-001-629 | 930-001-576 |
| 0.0180 | 0.1250 | 0.0270 | 1.1978 | 1.5000 | 930-001-404 | 930-001-630 | 930-001-577 |
| 0.0190 | 0.1250 | 0.0285 | 1.1988 | 1.5000 | 930-001-405 | 930-001-631 | 930-001-578 |
| 0.0197 | 0.1250 | 0.0296 | 1.1996 | 1.5000 | 930-001-454 | 930-001-673 | N/A |
| 0.0200 | 0.1250 | 0.0300 | 1.1999 | 1.5000 | 930-001-406 | 930-001-632 | 930-001-579 |
| 0.0210 | 0.1250 | 0.0315 | 1.2010 | 1.5000 | 930-001-407 | 930-001-633 | 930-001-580 |
| 0.0220 | 0.1250 | 0.0330 | 1.2021 | 1.5000 | 930-001-408 | 930-001-634 | 930-001-581 |
| 0.0230 | 0.1250 | 0.0345 | 1.2031 | 1.5000 | 930-001-409 | 930-001-635 | 930-001-582 |
| 0.0240 | 0.1250 | 0.0360 | 1.2042 | 1.5000 | 930-001-410 | 930-001-636 | 930-001-583 |
| 0.0250 | 0.1250 | 0.0375 | 1.2053 | 1.5000 | 930-001-411 | 930-001-637 | 930-001-584 |
| 0.0260 | 0.1250 | 0.0390 | 1.2063 | 1.5000 | 930-001-412 | 930-001-638 | 930-001-585 |
| 0.0270 | 0.1250 | 0.0405 | 1.2074 | 1.5000 | 930-001-413 | 930-001-639 | 930-001-586 |
| 0.0280 | 0.1250 | 0.0420 | 1.2085 | 1.5000 | 930-001-414 | 930-001-640 | 930-001-587 |
| 0.0290 | 0.1250 | 0.0435 | 1.2096 | 1.5000 | 930-001-415 | 930-001-641 | 930-001-588 |
| 0.0300 | 0.1250 | 0.0450 | 1.2106 | 1.5000 | 930-001-416 | 930-001-642 | 930-001-589 |
| 0.0310 | 0.1250 | 0.0465 | 1.2117 | 1.5000 | 930-001-417 | 930-001-643 | 930-001-590 |
| 0.0320 | 0.1250 | 0.0480 | 1.2128 | 1.5000 | 930-001-418 | 930-001-644 | 930-001-591 |
| 0.0330 | 0.1250 | 0.0495 | 1.2139 | 1.5000 | 930-001-419 | 930-001-645 | 930-001-592 |
| 0.0340 | 0.1250 | 0.0510 | 1.2149 | 1.5000 | 930-001-420 | 930-001-646 | 930-001-593 |
| 0.0350 | 0.1250 | 0.0525 | 1.2160 | 1.5000 | 930-001-421 | 930-001-647 | 930-001-594 |
| 0.0360 | 0.1250 | 0.0540 | 1.2171 | 1.5000 | 930-001-422 | 930-001-648 | 930-001-595 |
| 0.0370 | 0.1250 | 0.0555 | 1.2181 | 1.5000 | 930-001-423 | 930-001-649 | 930-001-596 |
| 0.0380 | 0.1250 | 0.0570 | 1.2192 | 1.5000 | 930-001-424 | 930-001-650 | 930-001-597 |
| 0.0390 | 0.1250 | 0.0585 | 1.2203 | 1.5000 | 930-001-425 | 930-001-651 | 930-001-598 |
| 0.0394 | 0.1250 | 0.0591 | 1.2207 | 1.5000 | 930-001-456 | 930-001-674 | 930-001-619 |
| 0.0400 | 0.1250 | 0.0600 | 1.2214 | 1.5000 | 930-001-426 | 930-001-652 | 930-001-599 |

Ø .005" - .040"



CARBIDE

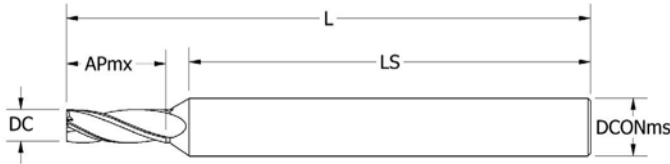


| DC | DCONms | APmx | LS | L | TiAIN COATED | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------------|-------------|-------------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0075 | 1.1342 | 1.5000 | 930-001-523 | N/A | 930-001-468 | N/A |
| 0.0060 | 0.1250 | 0.0090 | 1.1342 | 1.5000 | 930-001-524 | N/A | 930-001-469 | N/A |
| 0.0070 | 0.1250 | 0.0105 | 1.1342 | 1.5000 | 930-001-525 | N/A | 930-001-470 | N/A |
| 0.0080 | 0.1250 | 0.0120 | 1.1342 | 1.5000 | 930-001-526 | N/A | 930-001-471 | N/A |
| 0.0090 | 0.1250 | 0.0135 | 1.1342 | 1.5000 | 930-001-527 | N/A | 930-001-472 | N/A |
| 0.0100 | 0.1250 | 0.0150 | 1.1892 | 1.5000 | 930-001-528 | 930-001-750 | 930-001-473 | 930-001-686 |
| 0.0110 | 0.1250 | 0.0165 | 1.1903 | 1.5000 | 930-001-529 | 930-001-751 | 930-001-474 | 930-001-687 |
| 0.0120 | 0.1250 | 0.0180 | 1.1913 | 1.5000 | 930-001-530 | 930-001-752 | 930-001-475 | 930-001-688 |
| 0.0130 | 0.1250 | 0.0195 | 1.1924 | 1.5000 | 930-001-531 | 930-001-753 | 930-001-476 | 930-001-689 |
| 0.0140 | 0.1250 | 0.0210 | 1.1935 | 1.5000 | 930-001-532 | 930-001-754 | 930-001-477 | 930-001-690 |
| 0.0150 | 0.1250 | 0.0225 | 1.1945 | 1.5000 | 930-001-533 | 930-001-755 | 930-001-478 | 930-001-691 |
| 0.0160 | 0.1250 | 0.0240 | 1.1956 | 1.5000 | 930-001-534 | 930-001-756 | 930-001-479 | 930-001-692 |
| 0.0170 | 0.1250 | 0.0255 | 1.1967 | 1.5000 | 930-001-535 | 930-001-757 | 930-001-480 | 930-001-693 |
| 0.0180 | 0.1250 | 0.0270 | 1.1978 | 1.5000 | 930-001-536 | 930-001-758 | 930-001-481 | 930-001-694 |
| 0.0190 | 0.1250 | 0.0285 | 1.1988 | 1.5000 | 930-001-537 | 930-001-759 | 930-001-482 | 930-001-695 |
| 0.0200 | 0.1250 | 0.0300 | 1.1999 | 1.5000 | 930-001-538 | 930-001-760 | 930-001-483 | 930-001-696 |
| 0.0210 | 0.1250 | 0.0315 | 1.2010 | 1.5000 | 930-001-539 | 930-001-761 | 930-001-484 | 930-001-697 |
| 0.0220 | 0.1250 | 0.0330 | 1.2021 | 1.5000 | 930-001-540 | 930-001-762 | 930-001-485 | 930-001-698 |
| 0.0230 | 0.1250 | 0.0345 | 1.2031 | 1.5000 | 930-001-541 | 930-001-763 | 930-001-486 | 930-001-699 |
| 0.0240 | 0.1250 | 0.0360 | 1.2042 | 1.5000 | 930-001-542 | 930-001-764 | 930-001-487 | 930-001-700 |
| 0.0250 | 0.1250 | 0.0375 | 1.2053 | 1.5000 | 930-001-543 | 930-001-765 | 930-001-488 | 930-001-701 |
| 0.0260 | 0.1250 | 0.0390 | 1.2063 | 1.5000 | 930-001-544 | 930-001-766 | 930-001-489 | 930-001-702 |
| 0.0270 | 0.1250 | 0.0405 | 1.2074 | 1.5000 | 930-001-545 | 930-001-767 | 930-001-490 | 930-001-703 |
| 0.0280 | 0.1250 | 0.0420 | 1.2085 | 1.5000 | 930-001-546 | 930-001-768 | 930-001-491 | 930-001-704 |
| 0.0290 | 0.1250 | 0.0435 | 1.2096 | 1.5000 | 930-001-547 | 930-001-769 | 930-001-492 | 930-001-705 |
| 0.0300 | 0.1250 | 0.0450 | 1.2106 | 1.5000 | 930-001-548 | 930-001-770 | 930-001-493 | 930-001-706 |
| 0.0310 | 0.1250 | 0.0465 | 1.2117 | 1.5000 | 930-001-549 | 930-001-771 | 930-001-494 | 930-001-707 |
| 0.0320 | 0.1250 | 0.0480 | 1.2128 | 1.5000 | 930-001-550 | 930-001-772 | 930-001-495 | 930-001-708 |
| 0.0330 | 0.1250 | 0.0495 | 1.2139 | 1.5000 | 930-001-551 | 930-001-773 | 930-001-496 | 930-001-709 |
| 0.0340 | 0.1250 | 0.0510 | 1.2149 | 1.5000 | 930-001-552 | 930-001-774 | 930-001-497 | 930-001-710 |
| 0.0350 | 0.1250 | 0.0525 | 1.2160 | 1.5000 | 930-001-553 | 930-001-775 | 930-001-498 | 930-001-711 |
| 0.0360 | 0.1250 | 0.0540 | 1.2171 | 1.5000 | 930-001-554 | 930-001-776 | 930-001-499 | 930-001-712 |
| 0.0370 | 0.1250 | 0.0555 | 1.2181 | 1.5000 | 930-001-555 | 930-001-777 | 930-001-500 | 930-001-713 |
| 0.0380 | 0.1250 | 0.0570 | 1.2192 | 1.5000 | 930-001-556 | 930-001-778 | 930-001-501 | 930-001-714 |
| 0.0390 | 0.1250 | 0.0585 | 1.2203 | 1.5000 | 930-001-557 | 930-001-779 | 930-001-502 | 930-001-715 |
| 0.0400 | 0.1250 | 0.0600 | 1.2214 | 1.5000 | 930-001-558 | 930-001-780 | 930-001-503 | 930-001-716 |

CARBIDE



Ø .045"- .1378"

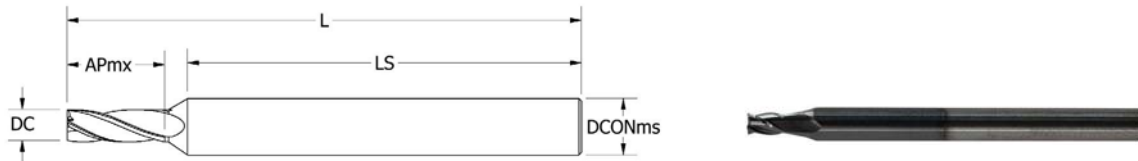


| DC | DCONms | APmx | LS | L | UNCOATED | | AITiN COATED |
|--------|--------|--------------|--------|--------|-------------|-------------|--------------|
| | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0450 | 0.1250 | 0.0675 | 1.2267 | 1.5000 | 930-001-427 | 930-001-653 | 930-001-600 |
| 0.0470 | 0.1250 | 0.0705 | 1.2289 | 1.5000 | 930-001-428 | 930-001-654 | 930-001-601 |
| 0.0492 | 0.1250 | 0.0738 | 1.2312 | 1.5000 | 930-001-457 | 930-001-675 | N/A |
| 0.0500 | 0.1250 | 0.0750 | 1.2321 | 1.5000 | 930-001-429 | 930-001-655 | 930-001-602 |
| 0.0550 | 0.1250 | 0.0825 | 1.2374 | 1.5000 | 930-001-430 | 930-001-656 | 930-001-603 |
| 0.0591 | 0.1250 | 0.0887 | 1.2418 | 1.5000 | 930-001-458 | 930-001-676 | N/A |
| 0.0600 | 0.1250 | 0.0900 | 1.2428 | 1.5000 | 930-001-431 | 930-001-657 | 930-001-604 |
| 0.0620 | 0.1250 | 0.0930 | 1.2449 | 1.5000 | 930-001-432 | 930-001-658 | 930-001-605 |
| 0.0630 | 0.1250 | 0.0945 | 1.2460 | 1.5000 | 930-001-459 | 930-001-677 | N/A |
| 0.0650 | 0.1250 | 0.0975 | 1.2482 | 1.5000 | 930-001-433 | 930-001-659 | 930-001-606 |
| 0.0700 | 0.1250 | 0.1050 | 1.2535 | 1.5000 | 930-001-434 | 930-001-660 | 930-001-607 |
| 0.0709 | 0.1250 | 0.1064 | 1.2545 | 1.5000 | 930-001-460 | 930-001-678 | N/A |
| 0.0740 | 0.1250 | 0.1110 | 1.2578 | 1.5000 | 930-001-435 | 930-001-661 | N/A |
| 0.0750 | 0.1250 | 0.1125 | 1.2589 | 1.5000 | 930-001-436 | 930-001-662 | 930-001-608 |
| 0.0780 | 0.1250 | 0.1170 | 1.2621 | 1.5000 | 930-001-437 | 930-001-663 | 930-001-609 |
| 0.0787 | 0.1250 | 0.1181 | 1.2629 | 1.5000 | 930-001-461 | 930-001-679 | N/A |
| 0.0800 | 0.1250 | 0.1200 | 1.2642 | 1.5000 | 930-001-438 | 930-001-664 | 930-001-610 |
| 0.0850 | 0.1250 | 0.1275 | 1.2696 | 1.5000 | 930-001-439 | 930-001-665 | 930-001-611 |
| 0.0866 | 0.1250 | 0.1299 | 1.2713 | 1.5000 | 930-001-462 | 930-001-680 | N/A |
| 0.0900 | 0.1250 | 0.1350 | 1.2750 | 1.5000 | 930-001-440 | 930-001-666 | 930-001-612 |
| 0.0930 | 0.1250 | 0.1395 | 1.2782 | 1.5000 | 930-001-441 | 930-001-667 | 930-001-613 |
| 0.0950 | 0.1250 | 0.1425 | 1.2803 | 1.5000 | 930-001-442 | 930-001-668 | 930-001-614 |
| 0.0984 | 0.1250 | 0.1476 | 1.2840 | 1.5000 | 930-001-463 | 930-001-681 | N/A |
| 0.1000 | 0.1250 | 0.1500 | 1.2857 | 1.5000 | 930-001-443 | 930-001-669 | 930-001-615 |
| 0.1050 | 0.1250 | 0.1575 (4mm) | 1.2911 | 1.5000 | 930-001-444 | 930-001-670 | 930-001-616 |
| 0.1102 | 0.1250 | 0.1653 | 1.2966 | 1.5000 | 930-001-464 | 930-001-682 | 930-001-620 |
| 0.1150 | 0.1250 | 0.1725 | 1.3018 | 1.5000 | 930-001-445 | 930-001-671 | 930-001-617 |
| 0.1181 | 0.1250 | 0.1772 | 1.3051 | 1.5000 | 930-001-465 | 930-001-683 | 930-001-621 |
| 0.1200 | 0.1250 | 0.1800 | 1.3071 | 1.5000 | 930-001-446 | 930-001-672 | 930-001-618 |
| 0.1378 | 0.1875 | 0.2067 | 1.6655 | 2.0000 | 930-001-466 | 930-001-684 | N/A |

Ø .045" - .120"



CARBIDE

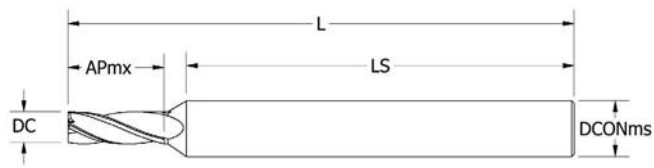


| DC | DCONms | APmx | LS | L | AMORPHOUS DIAMOND | |
|--------|--------|--------------|--------|--------|-------------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE |
| 0.0450 | 0.1250 | 0.0675 | 1.2267 | 1.5000 | 930-001-504 | 930-001-717 |
| 0.0470 | 0.1250 | 0.0705 | 1.2289 | 1.5000 | 930-001-505 | 930-001-718 |
| 0.0500 | 0.1250 | 0.0750 | 1.2321 | 1.5000 | 930-001-506 | 930-001-719 |
| 0.0550 | 0.1250 | 0.0825 | 1.2374 | 1.5000 | 930-001-507 | 930-001-720 |
| 0.0600 | 0.1250 | 0.0900 | 1.2428 | 1.5000 | 930-001-508 | 930-001-721 |
| 0.0620 | 0.1250 | 0.0930 | 1.2449 | 1.5000 | 930-001-509 | 930-001-722 |
| 0.0650 | 0.1250 | 0.0975 | 1.2482 | 1.5000 | 930-001-510 | 930-001-723 |
| 0.0700 | 0.1250 | 0.1050 | 1.2535 | 1.5000 | 930-001-511 | 930-001-724 |
| 0.0750 | 0.1250 | 0.1125 | 1.2589 | 1.5000 | 930-001-512 | 930-001-725 |
| 0.0780 | 0.1250 | 0.1170 | 1.2621 | 1.5000 | 930-001-513 | 930-001-726 |
| 0.0800 | 0.1250 | 0.1200 | 1.2642 | 1.5000 | 930-001-514 | 930-001-727 |
| 0.0850 | 0.1250 | 0.1275 | 1.2696 | 1.5000 | 930-001-515 | 930-001-728 |
| 0.0900 | 0.1250 | 0.1350 | 1.2750 | 1.5000 | 930-001-516 | 930-001-729 |
| 0.0930 | 0.1250 | 0.1395 | 1.2782 | 1.5000 | 930-001-517 | 930-001-730 |
| 0.1000 | 0.1250 | 0.1500 | 1.2857 | 1.5000 | 930-001-518 | 930-001-731 |
| 0.1050 | 0.1250 | 0.1575 (4mm) | 1.2911 | 1.5000 | 930-001-519 | 930-001-732 |
| 0.1181 | 0.1250 | 0.1772 | 1.3051 | 1.5000 | 930-001-520 | 930-001-733 |
| 0.1181 | 0.1250 | 0.1772 | 1.3051 | 1.5000 | 930-001-522 | 930-001-735 |
| 0.1200 | 0.1250 | 0.1800 | 1.3071 | 1.5000 | 930-001-521 | 930-001-734 |

CARBIDE



Ø .010" - .250"

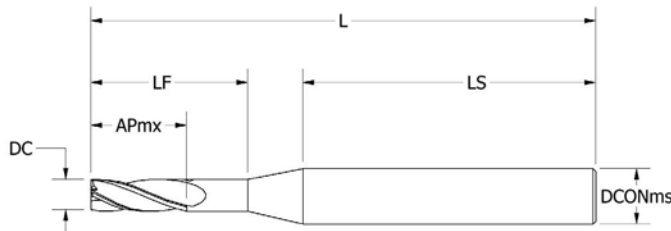


| DC | DCONms | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0150 | 2.1892 | 2.5000 | 930-003-004 | 930-003-569 | 930-003-032 |
| 0.0150 | 0.1250 | 0.0225 | 2.1945 | 2.5000 | 930-003-005 | 930-003-570 | 930-003-033 |
| 0.0200 | 0.1250 | 0.0300 | 2.1999 | 2.5000 | 930-003-006 | 930-003-571 | 930-003-034 |
| 0.0250 | 0.1250 | 0.0375 | 2.2053 | 2.5000 | 930-003-007 | 930-003-572 | 930-003-035 |
| 0.0300 | 0.1250 | 0.0450 | 2.2106 | 2.5000 | 930-003-008 | 930-003-573 | 930-003-036 |
| 0.0310 | 0.1250 | 0.0465 | 2.2117 | 2.5000 | 930-003-009 | 930-003-574 | 930-003-037 |
| 0.0350 | 0.1250 | 0.0525 | 2.2160 | 2.5000 | 930-003-010 | 930-003-575 | 930-003-038 |
| 0.0390 | 0.1250 | 0.0585 | 2.2203 | 2.5000 | 930-003-011 | 930-003-576 | 930-003-039 |
| 0.0400 | 0.1250 | 0.0600 | 2.2214 | 2.5000 | 930-003-012 | 930-003-577 | 930-003-040 |
| 0.0450 | 0.1250 | 0.0675 | 2.2267 | 2.5000 | 930-003-013 | 930-003-578 | 930-003-041 |
| 0.0470 | 0.1250 | 0.0705 | 2.2289 | 2.5000 | 930-003-014 | 930-003-579 | 930-003-042 |
| 0.0500 | 0.1250 | 0.0750 | 2.2321 | 2.5000 | 930-003-015 | 930-003-580 | 930-003-043 |
| 0.0550 | 0.1250 | 0.0825 | 2.2374 | 2.5000 | 930-003-016 | 930-003-581 | 930-003-044 |
| 0.0600 | 0.1250 | 0.0900 | 2.2428 | 2.5000 | 930-003-017 | 930-003-582 | 930-003-045 |
| 0.0620 | 0.1250 | 0.0930 | 2.2449 | 2.5000 | 930-003-018 | 930-003-583 | 930-003-046 |
| 0.0650 | 0.1250 | 0.0975 | 2.2482 | 2.5000 | 930-003-019 | 930-003-584 | 930-003-047 |
| 0.0700 | 0.1250 | 0.1050 | 2.2535 | 2.5000 | 930-003-020 | 930-003-585 | 930-003-048 |
| 0.0750 | 0.1250 | 0.1125 | 2.2589 | 2.5000 | 930-003-021 | 930-003-586 | 930-003-049 |
| 0.0780 | 0.1250 | 0.1170 | 2.2621 | 2.5000 | 930-003-022 | 930-003-587 | 930-003-050 |
| 0.0800 | 0.1250 | 0.1200 | 2.2642 | 2.5000 | 930-003-023 | 930-003-588 | 930-003-051 |
| 0.0850 | 0.1250 | 0.1275 | 2.2696 | 2.5000 | 930-003-024 | 930-003-589 | 930-003-052 |
| 0.0900 | 0.1250 | 0.1350 | 2.2750 | 2.5000 | 930-003-025 | 930-003-590 | 930-003-053 |
| 0.0930 | 0.1250 | 0.1395 | 2.2782 | 2.5000 | 930-003-026 | 930-003-591 | 930-003-054 |
| 0.0950 | 0.1250 | 0.1425 | 2.2803 | 2.5000 | 930-003-027 | 930-003-592 | 930-003-055 |
| 0.1000 | 0.1250 | 0.1500 | 2.2857 | 2.5000 | 930-003-028 | 930-003-593 | 930-003-056 |
| 0.1250 | 0.1250 | 0.1875 | 1.9375 | 2.5000 | 930-003-029 | 931-000-380 | 931-000-345 |
| 0.1875 | 0.1875 | 0.2813 | 2.3438 | 3.0000 | 930-003-030 | 931-000-381 | 931-000-346 |
| 0.2500 | 0.2500 | 0.3750 | 3.2500 | 4.0000 | 930-003-031 | 931-000-382 | 931-000-347 |

Ø .010" - .035"



CARBIDE

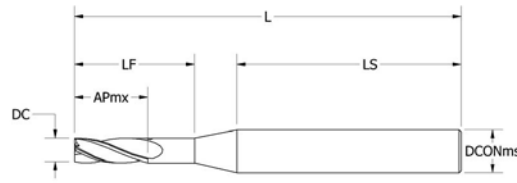


| DC | DCONms | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0150 | 2.3925 | 2.5000 | 0.0500 | 930-003-794 | 930-003-658 | 930-003-114 |
| 0.0100 | 0.1250 | 0.0150 | 2.3625 | 2.5000 | 0.0800 | 930-003-821 | 930-003-685 | 930-003-138 |
| 0.0100 | 0.1250 | 0.0150 | 2.3175 | 2.5000 | 0.1250 | 930-003-730 | 930-003-594 | 930-003-057 |
| 0.0100 | 0.1250 | 0.0150 | 2.2925 | 2.5000 | 0.1500 | 930-003-757 | 930-003-621 | 930-003-081 |
| 0.0150 | 0.1250 | 0.0225 | 2.4000 | 2.5000 | 0.0450 | 930-003-788 | 930-003-652 | 930-003-108 |
| 0.0150 | 0.1250 | 0.0225 | 2.3670 | 2.5000 | 0.0780 | 930-003-795 | 930-003-659 | 930-003-115 |
| 0.0150 | 0.1250 | 0.0225 | 2.3200 | 2.5000 | 0.1250 | 930-003-822 | 930-003-686 | 930-003-139 |
| 0.0150 | 0.1250 | 0.0225 | 2.2575 | 2.5000 | 0.1875 | 930-003-731 | 930-003-595 | 930-003-058 |
| 0.0150 | 0.1250 | 0.0225 | 2.2200 | 2.5000 | 0.2250 | 930-003-758 | 930-003-622 | 930-003-082 |
| 0.0150 | 0.1250 | 0.0225 | 2.1450 | 2.5000 | 0.3000 | 930-003-776 | 930-003-640 | 930-003-097 |
| 0.0200 | 0.1250 | 0.0300 | 2.3475 | 2.5000 | 0.1000 | 930-003-796 | 930-003-660 | 930-003-116 |
| 0.0200 | 0.1250 | 0.0300 | 2.2875 | 2.5000 | 0.1600 | 930-003-823 | 930-003-687 | 930-003-140 |
| 0.0200 | 0.1250 | 0.0300 | 2.1975 | 2.5000 | 0.2500 | 930-003-732 | 930-003-596 | 930-003-059 |
| 0.0200 | 0.1250 | 0.0300 | 2.1475 | 2.5000 | 0.3000 | 930-003-759 | 930-003-623 | 930-003-083 |
| 0.0200 | 0.1250 | 0.0300 | 2.0475 | 2.5000 | 0.4000 | 930-003-777 | 930-003-642 | 930-003-098 |
| 0.0250 | 0.1250 | 0.0375 | 2.3250 | 2.5000 | 0.1250 | 930-003-797 | 930-003-661 | 930-003-117 |
| 0.0250 | 0.1250 | 0.0375 | 2.2500 | 2.5000 | 0.2000 | 930-003-824 | 930-003-688 | 930-003-141 |
| 0.0250 | 0.1250 | 0.0375 | 2.1375 | 2.5000 | 0.3125 | 930-003-733 | 930-003-597 | 930-003-060 |
| 0.0250 | 0.1250 | 0.0375 | 2.0750 | 2.5000 | 0.3750 | 930-003-760 | 930-003-624 | 930-003-084 |
| 0.0250 | 0.1250 | 0.0375 | 1.9500 | 2.5000 | 0.5000 | 930-003-778 | 930-003-642 | 930-003-099 |
| 0.0300 | 0.1250 | 0.0450 | 2.3025 | 2.5000 | 0.1500 | 930-003-798 | 930-003-662 | 930-003-118 |
| 0.0300 | 0.1250 | 0.0450 | 2.2025 | 2.5000 | 0.2500 | 930-003-825 | 930-003-689 | 930-003-142 |
| 0.0300 | 0.1250 | 0.0450 | 2.0775 | 2.5000 | 0.3750 | 930-003-734 | 930-003-598 | 930-003-061 |
| 0.0300 | 0.1250 | 0.0450 | 2.0025 | 2.5000 | 0.4500 | 930-003-761 | 930-003-625 | 930-003-085 |
| 0.0310 | 0.1250 | 0.0465 | 2.3600 | 2.5000 | 0.0930 | 930-003-789 | 930-003-653 | 930-003-109 |
| 0.0310 | 0.1250 | 0.0465 | 2.2980 | 2.5000 | 0.1550 | 930-003-799 | 930-003-663 | 930-003-119 |
| 0.0310 | 0.1250 | 0.0465 | 2.2030 | 2.5000 | 0.2500 | 930-003-826 | 930-003-690 | 930-003-143 |
| 0.0310 | 0.1250 | 0.0465 | 2.0780 | 2.5000 | 0.3750 | 930-003-735 | 930-003-599 | 930-003-062 |
| 0.0310 | 0.1250 | 0.0465 | 1.9830 | 2.5000 | 0.4700 | 930-003-762 | 930-003-626 | 930-003-086 |
| 0.0310 | 0.1250 | 0.0465 | 1.8280 | 2.5000 | 0.6250 | 930-003-779 | 930-003-643 | 930-003-100 |
| 0.0350 | 0.1250 | 0.0525 | 2.2680 | 2.5000 | 0.1870 | 930-003-800 | 930-003-664 | 930-003-120 |
| 0.0350 | 0.1250 | 0.0525 | 2.1750 | 2.5000 | 0.2800 | 930-003-827 | 930-003-691 | 930-003-144 |
| 0.0350 | 0.1250 | 0.0525 | 2.0300 | 2.5000 | 0.4250 | 930-003-736 | 930-003-600 | 930-003-063 |
| 0.0350 | 0.1250 | 0.0525 | 1.9300 | 2.5000 | 0.5250 | 930-003-763 | 930-003-627 | 930-003-087 |
| 0.0350 | 0.1250 | 0.0525 | 1.7550 | 2.5000 | 0.7000 | 930-003-780 | 930-003-644 | 930-003-101 |

CARBIDE



Ø.040"-.075"

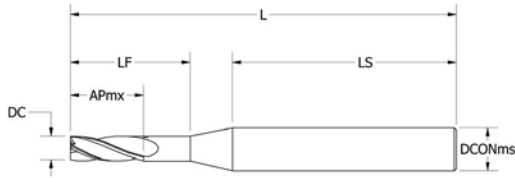


| DC | DCONms | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0400 | 0.1250 | 0.0600 | 2.2575 | 2.5000 | 0.2000 | 930-003-801 | 930-003-665 | 930-003-121 |
| 0.0400 | 0.1250 | 0.0600 | 2.1325 | 2.5000 | 0.3250 | 930-003-692 | 930-003-692 | 930-003-145 |
| 0.0400 | 0.1250 | 0.0600 | 1.9775 | 2.5000 | 0.4800 | 930-003-737 | 930-003-601 | 930-003-064 |
| 0.0400 | 0.1250 | 0.0600 | 1.8575 | 2.5000 | 0.6000 | 930-003-764 | 930-003-628 | 930-003-088 |
| 0.0400 | 0.1250 | 0.0600 | 1.6575 | 2.5000 | 0.8000 | 930-003-781 | 930-003-645 | 930-003-102 |
| 0.0450 | 0.1250 | 0.0675 | 2.2350 | 2.5000 | 0.2250 | 930-003-802 | 930-003-666 | 930-003-122 |
| 0.0450 | 0.1250 | 0.0675 | 2.0850 | 2.5000 | 0.3750 | 930-003-829 | 930-003-693 | 930-003-146 |
| 0.0450 | 0.1250 | 0.0675 | 1.9100 | 2.5000 | 0.5500 | 930-003-738 | 930-003-602 | 930-003-065 |
| 0.0450 | 0.1250 | 0.0675 | 1.7800 | 2.5000 | 0.6800 | 930-003-765 | 930-003-629 | 930-003-089 |
| 0.0450 | 0.1250 | 0.0675 | 1.5600 | 2.5000 | 0.9000 | 930-003-782 | 930-003-646 | 930-003-103 |
| 0.0470 | 0.1250 | 0.0705 | 2.3200 | 2.5000 | 0.1410 | 930-003-790 | 930-003-654 | 930-003-110 |
| 0.0470 | 0.1250 | 0.0705 | 2.2110 | 2.5000 | 0.2500 | 930-003-803 | 930-003-667 | 930-003-123 |
| 0.0470 | 0.1250 | 0.0705 | 2.0860 | 2.5000 | 0.3750 | 930-003-830 | 930-003-694 | 930-003-147 |
| 0.0470 | 0.1250 | 0.0705 | 1.8910 | 2.5000 | 0.5700 | 930-003-739 | 930-003-603 | 930-003-066 |
| 0.0470 | 0.1250 | 0.0705 | 1.7510 | 2.5000 | 0.7100 | 930-003-766 | 930-003-630 | 930-003-090 |
| 0.0470 | 0.1250 | 0.0705 | 1.5110 | 2.5000 | 0.9500 | 930-003-783 | 930-003-647 | 930-003-104 |
| 0.0500 | 0.1250 | 0.0750 | 2.2125 | 2.5000 | 0.2500 | 930-003-804 | 930-003-668 | 930-003-124 |
| 0.0500 | 0.1250 | 0.0750 | 2.0625 | 2.5000 | 0.4000 | 930-003-831 | 930-003-695 | 930-003-148 |
| 0.0500 | 0.1250 | 0.0750 | 1.8625 | 2.5000 | 0.6000 | 930-003-740 | 930-003-604 | 930-003-067 |
| 0.0500 | 0.1250 | 0.0750 | 1.7125 | 2.5000 | 0.7500 | 930-003-767 | 930-003-631 | 930-003-091 |
| 0.0550 | 0.1250 | 0.0825 | 2.1900 | 2.5000 | 0.2750 | 930-003-805 | 930-003-669 | 930-003-125 |
| 0.0550 | 0.1250 | 0.0825 | 2.0150 | 2.5000 | 0.4500 | 930-003-832 | 930-003-696 | 930-003-149 |
| 0.0550 | 0.1250 | 0.0825 | 1.8050 | 2.5000 | 0.6600 | 930-003-741 | 930-003-605 | 930-003-068 |
| 0.0550 | 0.1250 | 0.0825 | 1.6400 | 2.5000 | 0.8250 | 930-003-768 | 930-003-632 | 930-003-092 |
| 0.0600 | 0.1250 | 0.0900 | 2.1555 | 2.5000 | 0.3120 | 930-003-806 | 930-003-670 | 930-003-126 |
| 0.0600 | 0.1250 | 0.0900 | 1.9675 | 2.5000 | 0.5000 | 930-003-833 | 930-003-697 | 930-003-150 |
| 0.0600 | 0.1250 | 0.0900 | 1.7475 | 2.5000 | 0.7200 | 930-003-742 | 930-003-606 | 930-003-069 |
| 0.0600 | 0.1250 | 0.0900 | 1.5675 | 2.5000 | 0.9000 | 930-003-769 | 930-003-633 | 930-003-093 |
| 0.0620 | 0.1250 | 0.0930 | 2.2825 | 2.5000 | 0.1860 | 930-003-791 | 930-003-655 | 930-003-111 |
| 0.0620 | 0.1250 | 0.0930 | 2.1565 | 2.5000 | 0.3120 | 930-003-807 | 930-003-671 | 930-003-127 |
| 0.0620 | 0.1250 | 0.0930 | 1.9685 | 2.5000 | 0.5000 | 930-003-834 | 930-003-698 | 930-003-151 |
| 0.0620 | 0.1250 | 0.0930 | 1.7185 | 2.5000 | 0.7500 | 930-003-743 | 930-003-607 | 930-003-070 |
| 0.0620 | 0.1250 | 0.0930 | 1.5185 | 2.5000 | 0.9500 | 930-003-770 | 930-003-634 | 930-003-094 |
| 0.0620 | 0.1250 | 0.0930 | 1.2185 | 2.5000 | 1.2500 | 930-003-784 | 930-003-648 | 930-003-105 |
| 0.0650 | 0.1250 | 0.0975 | 2.1450 | 2.5000 | 0.3250 | 930-003-808 | 930-003-672 | 930-003-128 |
| 0.0650 | 0.1250 | 0.0975 | 1.9450 | 2.5000 | 0.5250 | 930-003-835 | 930-003-699 | 930-003-152 |
| 0.0650 | 0.1250 | 0.0975 | 1.6700 | 2.5000 | 0.8000 | 930-003-744 | 930-003-608 | 930-003-071 |
| 0.0700 | 0.1250 | 0.1050 | 2.0975 | 2.5000 | 0.3750 | 930-003-809 | 930-003-673 | 930-003-129 |
| 0.0700 | 0.1250 | 0.1050 | 1.9025 | 2.5000 | 0.5700 | 930-003-836 | 930-003-700 | 930-003-153 |
| 0.0700 | 0.1250 | 0.1050 | 1.6225 | 2.5000 | 0.8500 | 930-003-745 | 930-003-609 | 930-003-072 |
| 0.0750 | 0.1250 | 0.1125 | 2.1000 | 2.5000 | 0.3750 | 930-003-810 | 930-003-674 | 930-003-130 |
| 0.0750 | 0.1250 | 0.1125 | 1.8500 | 2.5000 | 0.6250 | 930-003-837 | 930-003-701 | 930-003-154 |
| 0.0750 | 0.1250 | 0.1125 | 1.5750 | 2.5000 | 0.9000 | 930-003-746 | 930-003-610 | 930-003-073 |

Ø .078"- .250"



CARBIDE

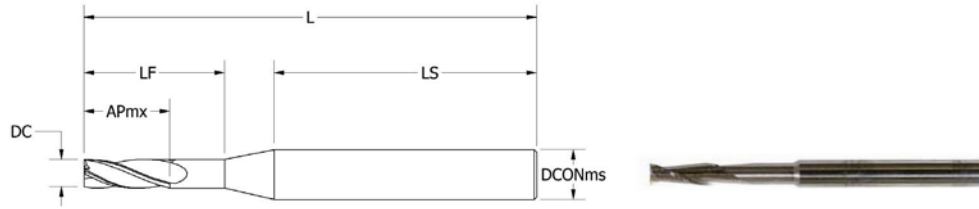


| DC | DCONms | APmx | LS | L | LF | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0780 | 0.1250 | 0.1170 | 2.2425 | 2.5000 | 0.2340 | 930-003-792 | 930-003-656 | 930-003-112 |
| 0.0780 | 0.1250 | 0.1170 | 2.0765 | 2.5000 | 0.4000 | 930-003-811 | 930-003-675 | 930-003-131 |
| 0.0780 | 0.1250 | 0.1170 | 1.8515 | 2.5000 | 0.6250 | 930-003-838 | 930-003-702 | 930-003-155 |
| 0.0780 | 0.1250 | 0.1170 | 1.5365 | 2.5000 | 0.9400 | 930-003-747 | 930-003-611 | 930-003-074 |
| 0.0780 | 0.1250 | 0.1170 | 1.2895 | 2.5000 | 1.1870 | 930-003-771 | 930-003-635 | 930-003-095 |
| 0.0780 | 0.1250 | 0.1170 | 1.4145 | 3.0000 | 1.5620 | 930-003-785 | 930-003-649 | 930-003-106 |
| 0.0800 | 0.1250 | 0.1200 | 2.0775 | 2.5000 | 0.4000 | 930-003-812 | 930-003-676 | 930-003-132 |
| 0.0800 | 0.1250 | 0.1200 | 1.8275 | 2.5000 | 0.6500 | 930-003-839 | 930-003-703 | 930-003-156 |
| 0.0800 | 0.1250 | 0.1200 | 1.5175 | 2.5000 | 0.9600 | 930-003-748 | 930-003-612 | 930-003-075 |
| 0.0850 | 0.1250 | 0.1275 | 2.0550 | 2.5000 | 0.4250 | 930-003-813 | 930-003-677 | 930-003-133 |
| 0.0850 | 0.1250 | 0.1275 | 1.7800 | 2.5000 | 0.7000 | 930-003-840 | 930-003-704 | 930-003-157 |
| 0.0850 | 0.1250 | 0.1275 | 1.4600 | 2.5000 | 1.0200 | 930-003-749 | 930-003-613 | 930-003-076 |
| 0.0900 | 0.1250 | 0.1350 | 2.0325 | 2.5000 | 0.4500 | 930-003-814 | 930-003-678 | 930-003-134 |
| 0.0900 | 0.1250 | 0.1350 | 1.7325 | 2.5000 | 0.7500 | 930-003-841 | 930-003-705 | 930-003-158 |
| 0.0900 | 0.1250 | 0.1350 | 1.4025 | 2.5000 | 1.0800 | 930-003-750 | 930-003-614 | 930-003-077 |
| 0.0930 | 0.1250 | 0.1395 | 2.2140 | 2.5000 | 0.2700 | 930-003-793 | 930-003-657 | 930-003-113 |
| 0.0930 | 0.1250 | 0.1395 | 1.9840 | 2.5000 | 0.5000 | 930-003-815 | 930-003-679 | 930-003-135 |
| 0.0930 | 0.1250 | 0.1395 | 1.7340 | 2.5000 | 0.7500 | 930-003-842 | 930-003-706 | 930-003-159 |
| 0.0930 | 0.1250 | 0.1395 | 1.3590 | 2.5000 | 1.1250 | 930-003-751 | 930-003-615 | 930-003-078 |
| 0.0930 | 0.1250 | 0.1395 | 1.5840 | 3.0000 | 1.4000 | 930-003-772 | 930-003-636 | 930-003-096 |
| 0.0930 | 0.1250 | 0.1395 | 2.1090 | 4.0000 | 1.8750 | 930-003-786 | 930-003-650 | 930-003-107 |
| 0.0950 | 0.1250 | 0.1425 | 1.9850 | 2.5000 | 0.5000 | 930-003-816 | 930-003-680 | 930-003-136 |
| 0.0950 | 0.1250 | 0.1425 | 1.7350 | 2.5000 | 0.7500 | 930-003-843 | 930-003-707 | 930-003-160 |
| 0.0950 | 0.1250 | 0.1425 | 1.3350 | 2.5000 | 1.1500 | 930-003-752 | 930-003-616 | 930-003-079 |
| 0.1000 | 0.1250 | 0.1500 | 1.9875 | 2.5000 | 0.5000 | 930-003-817 | 930-003-681 | 930-003-137 |
| 0.1000 | 0.1250 | 0.1500 | 1.6875 | 2.5000 | 0.8000 | 930-003-844 | 930-003-708 | 930-003-161 |
| 0.1000 | 0.1250 | 0.1500 | 1.2875 | 2.5000 | 1.2000 | 930-003-753 | 930-003-617 | 930-003-080 |
| 0.1250 | 0.1250 | 0.1875 | 1.8750 | 2.5000 | 0.6250 | 930-003-818 | 930-003-682 | 931-000-355 |
| 0.1250 | 0.1250 | 0.1875 | 1.5000 | 2.5000 | 1.0000 | 930-003-845 | 930-003-709 | 931-000-358 |
| 0.1250 | 0.1250 | 0.1875 | 1.5000 | 3.0000 | 1.5000 | 930-003-754 | 930-003-618 | 931-000-348 |
| 0.1250 | 0.1250 | 0.1875 | 1.1250 | 3.0000 | 1.8750 | 930-003-773 | 930-003-637 | 931-000-351 |
| 0.1250 | 0.1250 | 0.1875 | 1.5000 | 4.0000 | 2.5000 | 930-003-787 | 930-003-651 | 931-000-354 |
| 0.1875 | 0.1875 | 0.2813 | 2.0000 | 3.0000 | 1.0000 | 930-003-819 | 930-003-683 | 931-000-356 |
| 0.1875 | 0.1875 | 0.2813 | 1.5000 | 3.0000 | 1.5000 | 930-003-846 | 930-003-710 | 931-000-359 |
| 0.1875 | 0.1875 | 0.2813 | 1.7500 | 4.0000 | 2.2500 | 930-003-755 | 930-003-619 | 931-000-349 |
| 0.1875 | 0.1875 | 0.2813 | 1.1880 | 4.0000 | 2.8120 | 930-003-774 | 930-003-638 | 931-000-352 |
| 0.2500 | 0.2500 | 0.3750 | 2.7500 | 4.0000 | 1.2500 | 930-003-820 | 930-003-684 | 931-000-357 |
| 0.2500 | 0.2500 | 0.3750 | 2.0000 | 4.0000 | 2.0000 | 930-003-847 | 930-003-711 | 931-000-360 |
| 0.2500 | 0.2500 | 0.3750 | 0.3750 | 3.0000 | 6.0000 | 930-003-756 | 930-003-620 | 931-000-350 |
| 0.2500 | 0.2500 | 0.3750 | 2.2500 | 6.0000 | 3.7500 | 930-003-775 | 930-003-639 | 931-000-353 |

CARBIDE



Ø .005" - .100"

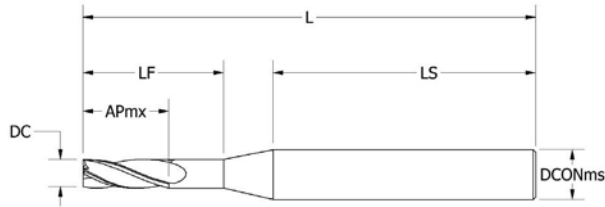


| DC | DCONms | APmx | LS | L | LF | UNCOATED | |
|--------|--------|--------|--------|--------|--------------|-------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0150 | 1.1342 | 1.5000 | 0.0470 | 930-000-244 | N/A |
| 0.0100 | 0.1250 | 0.0300 | 1.3625 | 1.5000 | 0.0800 | 930-000-620 | 930-001-140 |
| 0.0100 | 0.1250 | 0.0300 | 1.3488 | 1.5000 | 0.0937 | 930-000-250 | 930-000-636 |
| 0.0150 | 0.1250 | 0.0450 | 1.3200 | 1.5000 | 0.1250 | 930-000-256 | 930-000-642 |
| 0.0200 | 0.1250 | 0.0600 | 1.2775 | 1.5000 | 0.1700 | 930-000-621 | 930-001-141 |
| 0.0200 | 0.1250 | 0.0600 | 1.2600 | 1.5000 | 0.1875 | 930-000-262 | 930-000-648 |
| 0.0250 | 0.1250 | 0.0750 | 1.2370 | 1.5000 | 0.2130 | 930-000-622 | 930-001-142 |
| 0.0250 | 0.1250 | 0.0750 | 1.2000 | 1.5000 | 0.2500 | 930-000-268 | 930-000-654 |
| 0.0300 | 0.1250 | 0.0900 | 1.2025 | 1.5000 | 0.2500 | 930-000-274 | 930-000-660 |
| 0.0300 | 0.1250 | 0.0900 | 1.1825 | 1.5000 | 0.2700 | 930-000-623 | 930-001-143 |
| 0.0310 | 0.1250 | 0.0930 | 1.1740 | 1.5000 | 0.2790 | 930-000-624 | 930-001-144 |
| 0.0350 | 0.1250 | 0.1050 | 1.2050 | 1.5000 | 0.2500 | 930-000-280 | 930-000-666 |
| 0.0350 | 0.1250 | 0.1050 | 1.1400 | 1.5000 | 0.3150 (8mm) | 930-000-625 | 930-001-145 |
| 0.0400 | 0.1250 | 0.1200 | 1.2075 | 1.5000 | 0.2500 | 930-000-286 | 930-000-672 |
| 0.0400 | 0.1250 | 0.1200 | 1.0975 | 1.5000 | 0.3600 | 930-000-626 | 930-001-146 |
| 0.0450 | 0.1250 | 0.1350 | 1.0550 | 1.5000 | 0.4050 | 930-000-627 | 930-001-147 |
| 0.0450 | 0.1250 | 0.1350 | 0.9600 | 1.5000 | 0.5000 | 930-000-292 | 930-000-678 |
| 0.0470 | 0.1250 | 0.1410 | 1.0380 | 1.5000 | 0.4230 | 930-000-628 | 930-001-148 |
| 0.0500 | 0.1250 | 0.1500 | 0.9625 | 1.5000 | 0.5000 | 930-000-298 | 930-000-684 |
| 0.0550 | 0.1250 | 0.1650 | 0.9650 | 1.5000 | 0.5000 | 930-000-304 | 930-000-690 |
| 0.0600 | 0.1250 | 0.1800 | 0.9675 | 1.5000 | 0.5000 | 930-000-310 | 930-000-696 |
| 0.0620 | 0.1250 | 0.1860 | 0.9685 | 1.5000 | 0.5000 | 930-000-629 | 930-001-149 |
| 0.0650 | 0.1250 | 0.1950 | 0.9700 | 1.5000 | 0.5000 | 930-000-314 | 930-000-700 |
| 0.0700 | 0.1250 | 0.2100 | 0.9725 | 1.5000 | 0.5000 | 930-000-316 | 930-000-702 |
| 0.0780 | 0.1250 | 0.2340 | 0.9765 | 1.5000 | 0.5000 | 930-000-630 | 930-001-150 |
| 0.0800 | 0.1250 | 0.2400 | 0.9775 | 1.5000 | 0.5000 | 930-000-320 | 930-000-706 |
| 0.0900 | 0.1250 | 0.2700 | 0.9825 | 1.5000 | 0.5000 | 930-000-323 | 930-000-709 |
| 0.0900 | 0.1250 | 0.2700 | 0.8575 | 1.5000 | 0.6250 | 930-000-631 | 930-001-151 |
| 0.0930 | 0.1250 | 0.2790 | 0.8590 | 1.5000 | 0.6250 | 930-000-632 | 930-001-152 |
| 0.0950 | 0.1250 | 0.2850 | 0.8600 | 1.5000 | 0.6250 | 930-000-633 | 930-001-153 |
| 0.1000 | 0.1250 | 0.3000 | 0.9875 | 1.5000 | 0.5000 | 930-000-327 | 930-000-713 |
| 0.1000 | 0.1250 | 0.3000 | 0.8625 | 1.5000 | 0.6250 | 930-000-634 | 930-001-154 |

Ø .010" - .250"



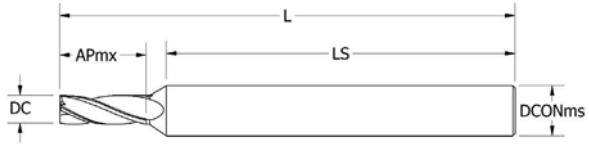
CARBIDE



| DC | DCONms | APmx | LS | L | LF | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0500 | 2.3425 | 2.5000 | 0.1000 | 930-002-966 | N/A | 930-002-797 |
| 0.0150 | 0.1250 | 0.0750 | 2.2950 | 2.5000 | 0.1500 | 930-002-967 | N/A | 930-002-798 |
| 0.0200 | 0.1250 | 0.1000 | 2.2475 | 2.5000 | 0.2000 | 930-002-968 | 930-002-933 | 930-002-799 |
| 0.0250 | 0.1250 | 0.1250 | 2.2000 | 2.5000 | 0.2500 | 930-002-969 | 930-002-934 | 930-002-800 |
| 0.0300 | 0.1250 | 0.1500 | 2.1525 | 2.5000 | 0.3000 | 930-002-970 | 930-002-935 | 930-002-801 |
| 0.0310 | 0.1250 | 0.1550 | 2.1530 | 2.5000 | 0.3000 | 930-002-971 | 930-002-936 | 930-002-802 |
| 0.0350 | 0.1250 | 0.1750 | 2.1050 | 2.5000 | 0.3500 | 930-002-972 | 930-002-937 | 930-002-803 |
| 0.0400 | 0.1250 | 0.2000 | 2.0575 | 2.5000 | 0.4000 | 930-002-973 | 930-002-938 | 930-002-804 |
| 0.0450 | 0.1250 | 0.2250 | 2.0100 | 2.5000 | 0.4500 | 930-002-974 | 930-002-939 | 930-002-805 |
| 0.0470 | 0.1250 | 0.2500 | 1.9610 | 2.5000 | 0.5000 | 930-002-975 | 930-002-940 | 930-002-806 |
| 0.0500 | 0.1250 | 0.3000 | 1.8625 | 2.5000 | 0.6000 | 930-002-976 | 930-002-941 | 930-002-807 |
| 0.0550 | 0.1250 | 0.3850 | 1.6950 | 2.5000 | 0.7700 | 930-002-977 | 930-002-942 | 930-002-808 |
| 0.0600 | 0.1250 | 0.5000 | 1.4675 | 2.5000 | 1.0000 | 930-002-978 | 930-002-943 | 930-002-809 |
| 0.0620 | 0.1250 | 0.5000 | 1.4685 | 2.5000 | 1.0000 | 930-002-979 | N/A | 930-002-810 |
| 0.0650 | 0.1250 | 0.5000 | 1.4700 | 2.5000 | 1.0000 | 930-002-980 | 930-002-944 | 930-002-811 |
| 0.0700 | 0.1250 | 0.5000 | 1.4725 | 2.5000 | 1.0000 | 930-002-981 | 930-002-945 | 930-002-812 |
| 0.0750 | 0.1250 | 0.5000 | 1.4750 | 2.5000 | 1.0000 | 930-002-982 | 930-002-946 | 930-002-813 |
| 0.0780 | 0.1250 | 0.5000 | 1.4765 | 2.5000 | 1.0000 | 930-002-983 | 930-002-947 | 930-002-814 |
| 0.0800 | 0.1250 | 0.7500 | 1.2275 | 2.5000 | 1.2500 | 930-002-984 | 930-002-948 | 930-002-815 |
| 0.0850 | 0.1250 | 0.7500 | 1.2300 | 2.5000 | 1.2500 | 930-002-985 | 930-002-949 | 930-002-816 |
| 0.0900 | 0.1250 | 0.7500 | 1.2325 | 2.5000 | 1.2500 | 930-002-986 | 930-002-950 | 930-002-817 |
| 0.0930 | 0.1250 | 0.7500 | 1.2340 | 2.5000 | 1.2500 | 930-002-987 | 930-002-951 | 930-002-818 |
| 0.0950 | 0.1250 | 0.7500 | 1.2350 | 2.5000 | 1.2500 | 930-002-988 | 930-002-952 | 930-002-819 |
| 0.1000 | 0.1250 | 0.7500 | 1.2375 | 2.5000 | 1.2500 | 930-002-989 | 930-002-953 | 930-002-820 |
| 0.1250 | 0.1250 | 1.0000 | 2.5000 | 2.5000 | N/A | 930-002-990 | 930-002-954 | 931-000-333 |
| 0.1875 | 0.1875 | 1.1250 | 3.0000 | 3.0000 | N/A | 930-002-991 | 930-002-955 | 931-000-334 |
| 0.2500 | 0.2500 | 1.5000 | 2.0000 | 4.0000 | N/A | 930-002-992 | N/A | 931-000-335 |

CARBIDE

Ø .031" - .125"

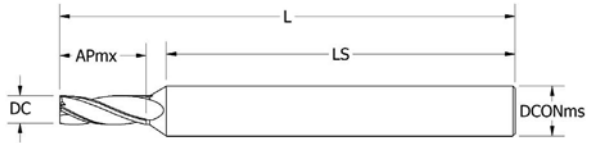


12X FLUTE LENGTH



| DC | DCONms | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0310 | 0.1250 | 0.3750 | 1.8832 | 2.5000 | 930-002-993 | 930-002-956 | 930-002-821 |
| 0.0470 | 0.1250 | 0.5700 | 1.7294 | 2.5000 | 930-002-994 | 930-002-957 | 930-002-822 |
| 0.0620 | 0.1250 | 0.7500 | 1.5879 | 2.5000 | 930-002-995 | 930-002-958 | 930-002-823 |
| 0.0780 | 0.1250 | 0.9400 | 1.4391 | 2.5000 | 930-002-996 | 930-002-959 | 930-002-824 |
| 0.0930 | 0.1250 | 1.1250 | 1.2927 | 2.5000 | 930-002-997 | 930-002-960 | 930-002-825 |
| 0.1250 | 0.1250 | 1.5000 | 1.1250 | 3.0000 | 930-002-998 | 930-002-961 | 930-002-826 |

Ø .062" - .125"

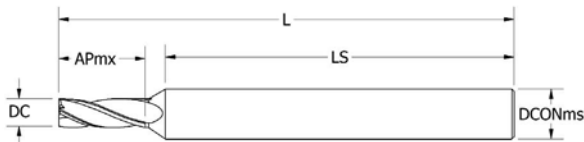


15X FLUTE LENGTH



| DC | DCONms | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0620 | 0.1250 | 0.9500 | 1.3879 | 2.5000 | 930-002-999 | 930-002-962 | 930-002-827 |
| 0.0780 | 0.1250 | 1.1870 | 1.1921 | 2.5000 | 930-003-001 | 930-002-963 | 930-002-828 |
| 0.0930 | 0.1250 | 1.4000 | 1.5177 | 3.0000 | 930-003-002 | 930-002-964 | 930-002-829 |
| 0.1250 | 0.1250 | 1.8750 | 0.7500 | 3.0000 | 930-003-003 | 930-002-965 | 931-000-336 |

Ø .156" - .250"

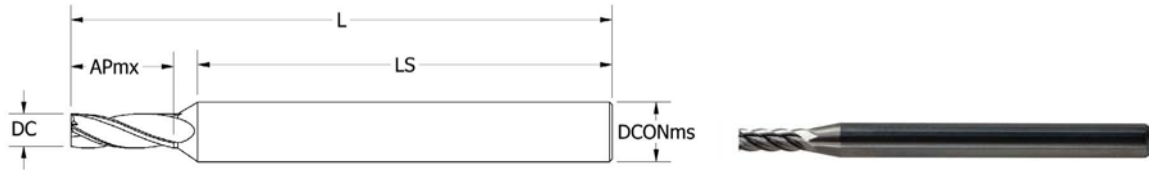


12X FLUTE LENGTH



| DC | DCONms | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.1563 | 0.1875 | 1.8750 | 2.0446 | 4.0000 | 930-001-170 | 930-001-161 | 931-000-256 |
| 0.1875 | 0.1875 | 2.2500 | 1.3750 | 4.0000 | 930-001-171 | 930-001-162 | 931-000-257 |
| 0.2500 | 0.2500 | 3.0000 | 2.6250 | 6.0000 | 930-001-172 | 930-001-163 | 931-000-258 |

Ø .015" - .100"



MULTI - FLUTE



| DC | DCONms | APmx | LS | L | UNCOATED | AITIN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|
| | | | | | 5 FLUTE | 5 FLUTE |
| 0.0310 | 0.1250 | 0.0930 | 1.1652 | 1.5000 | 930-003-848 | 930-003-867 |
| 0.0400 | 0.1250 | 0.1200 | 1.1614 | 1.5000 | 930-003-849 | 930-003-868 |
| 0.0470 | 0.1250 | 0.1410 | 1.1584 | 1.5000 | 930-003-850 | 930-003-869 |
| 0.0500 | 0.1250 | 0.1500 | 1.1571 | 1.5000 | 930-003-851 | 930-003-870 |
| 0.0600 | 0.1250 | 0.1800 | 1.1528 | 1.5000 | 930-003-852 | 930-003-871 |
| 0.0620 | 0.1250 | 0.1860 | 1.1519 | 1.5000 | 930-003-853 | 930-003-872 |
| 0.0700 | 0.1250 | 0.2100 | 1.1485 | 1.5000 | 930-003-854 | 930-003-873 |
| 0.0780 | 0.1250 | 0.2340 | 1.1451 | 1.5000 | 930-003-855 | 930-003-874 |
| 0.0800 | 0.1250 | 0.2400 | 1.1442 | 1.5000 | 930-003-856 | 930-003-875 |
| 0.0930 | 0.1250 | 0.2790 | 1.1387 | 1.5000 | 930-003-857 | 930-003-876 |
| 0.1000 | 0.1250 | 0.3000 | 1.1357 | 1.5000 | 930-003-858 | 930-003-877 |

Ø .093" - .100"



HIGH HELIX

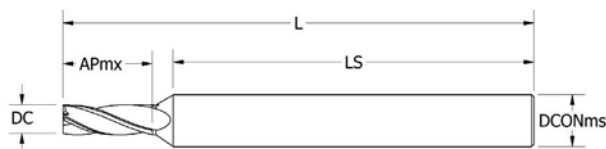


| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 2 FLUTE |
| 0.0150 | 0.1250 | 0.0450 | 1.1720 | 1.5000 | 930-000-606 |
| 0.0310 | 0.1250 | 0.0930 | 1.1652 | 1.5000 | 930-000-607 |
| 0.0470 | 0.1250 | 0.1410 | 1.1584 | 1.5000 | 930-000-608 |
| 0.0620 | 0.1250 | 0.1860 | 1.1519 | 1.5000 | 930-000-609 |
| 0.0780 | 0.1250 | 0.2340 | 1.1451 | 1.5000 | 930-000-610 |
| 0.0930 | 0.1250 | 0.2790 | 1.1387 | 1.5000 | 930-000-611 |

CARBIDE

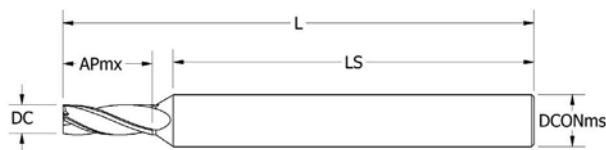


Ø .015" - .093"



| DC | DCONms | APmx | LS | L | CVD COATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 4 FLUTE |
| 0.0150 | 0.1250 | 0.0450 | 1.1720 | 1.5000 | 930-001-025 |
| 0.0200 | 0.1250 | 0.0600 | 1.1699 | 1.5000 | 930-001-026 |
| 0.0310 | 0.1250 | 0.0930 | 1.1652 | 1.5000 | 930-001-027 |
| 0.0470 | 0.1250 | 0.1410 | 1.1584 | 1.5000 | 930-001-028 |
| 0.0620 | 0.1250 | 0.1860 | 1.1519 | 1.5000 | 930-001-029 |
| 0.0930 | 0.1250 | 0.2790 | 1.1387 | 1.5000 | 930-001-030 |

Ø .015" - .093"

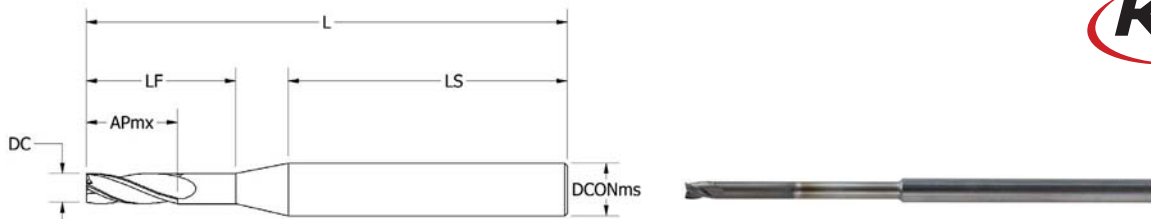


LONG SHANK, STUB



| DC | DCONms | APmx | LS | L | CVD COATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 3 FLUTE |
| 0.0150 | 0.1250 | 0.0225 | 2.1945 | 2.5000 | 930-003-563 |
| 0.0200 | 0.1250 | 0.0300 | 2.1999 | 2.5000 | 930-003-564 |
| 0.0310 | 0.1250 | 0.0465 | 2.2117 | 2.5000 | 930-003-565 |
| 0.0470 | 0.1250 | 0.0705 | 2.2289 | 2.5000 | 930-003-566 |
| 0.0620 | 0.1250 | 0.0930 | 2.2449 | 2.5000 | 930-003-567 |
| 0.0930 | 0.1250 | 0.1395 | 2.2782 | 2.5000 | 930-003-568 |

Ø .015" - .093"

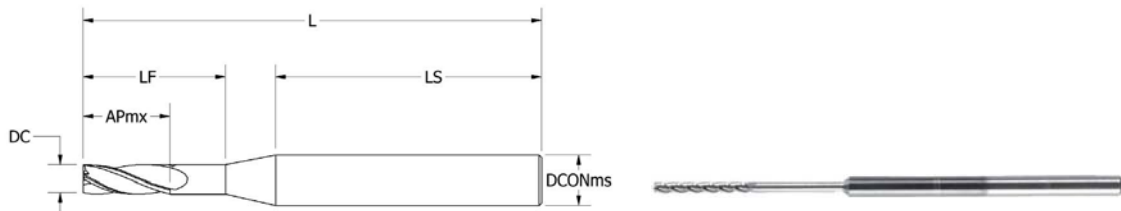


LONG REACH, STUB



| DC | DCONms | APmx | LS | L | LF | CVD COATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 3 FLUTE |
| 0.0150 | 0.1250 | 0.0225 | 2.3670 | 2.5000 | 0.0780 | 930-003-718 |
| 0.0150 | 0.1250 | 0.0225 | 2.3200 | 2.5000 | 0.1250 | 930-003-724 |
| 0.0150 | 0.1250 | 0.0225 | 2.2575 | 2.5000 | 0.1875 | 930-003-712 |
| 0.0200 | 0.1250 | 0.0300 | 2.3475 | 2.5000 | 0.1000 | 930-003-719 |
| 0.0200 | 0.1250 | 0.0300 | 2.2875 | 2.5000 | 0.1600 | 930-003-725 |
| 0.0200 | 0.1250 | 0.0300 | 2.1975 | 2.5000 | 0.2500 | 930-003-713 |
| 0.0310 | 0.1250 | 0.0465 | 2.2980 | 2.5000 | 0.1550 | 930-003-720 |
| 0.0310 | 0.1250 | 0.0465 | 2.2030 | 2.5000 | 0.2500 | 930-003-726 |
| 0.0310 | 0.1250 | 0.0465 | 2.0780 | 2.5000 | 0.3750 | 930-003-714 |
| 0.0470 | 0.1250 | 0.0705 | 2.2110 | 2.5000 | 0.2500 | 930-003-721 |
| 0.0470 | 0.1250 | 0.0705 | 2.0860 | 2.5000 | 0.3750 | 930-003-727 |
| 0.0470 | 0.1250 | 0.0705 | 1.8910 | 2.5000 | 0.5700 | 930-003-715 |
| 0.0620 | 0.1250 | 0.0930 | 2.1565 | 2.5000 | 0.3120 | 930-003-722 |
| 0.0620 | 0.1250 | 0.0930 | 1.9685 | 2.5000 | 0.5000 | 930-003-728 |
| 0.0620 | 0.1250 | 0.0930 | 1.7185 | 2.5000 | 0.7500 | 930-003-716 |
| 0.0930 | 0.1250 | 0.1395 | 1.9840 | 2.5000 | 0.5000 | 930-003-723 |
| 0.0930 | 0.1250 | 0.1395 | 1.7340 | 2.5000 | 0.7500 | 930-003-729 |
| 0.0930 | 0.1250 | 0.1395 | 1.3590 | 2.5000 | 1.1250 | 930-003-717 |

Ø .015" - .093"



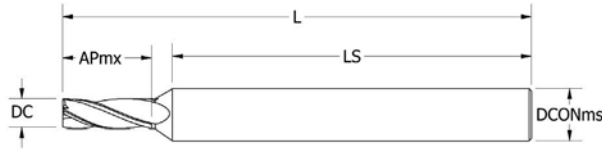
5X FLUTE, 10X REACH



| DC | DCONms | APmx | LS | L | LF | CVD COATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0150 | 0.1250 | 0.0750 | 2.2890 | 2.5000 | 0.1560 | 930-001-164 |
| 0.0310 | 0.1250 | 0.1550 | 2.1410 | 2.5000 | 0.3120 | 930-001-165 |
| 0.0470 | 0.1250 | 0.2350 | 1.9810 | 2.5000 | 0.4800 | 930-001-166 |
| 0.0620 | 0.1250 | 0.3120 | 1.8435 | 2.5000 | 0.6250 | 930-001-167 |
| 0.0780 | 0.1250 | 0.3900 | 1.6765 | 2.5000 | 0.8000 | 930-001-168 |
| 0.0930 | 0.1250 | 0.4650 | 1.5340 | 2.5000 | 0.9500 | 930-001-169 |

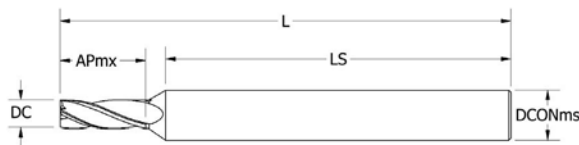
CARBIDE

Ø .0313" - .50"



| DC | DCONms | APmx | LS | L | UNCOATED | | AITIN COATED | |
|--------|--------|--------|--------|--------|-------------|-------------|--------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0938 | 1.1651 | 1.5000 | 930-000-332 | 930-000-718 | N/A | N/A |
| 0.0469 | 0.1250 | 0.1406 | 1.1584 | 1.5000 | 930-000-333 | 930-000-719 | N/A | N/A |
| 0.0625 | 0.1250 | 0.1875 | 1.1517 | 1.5000 | 930-000-334 | 930-000-720 | N/A | N/A |
| 0.0781 | 0.1250 | 0.2344 | 1.1450 | 1.5000 | 930-000-335 | 930-000-721 | N/A | N/A |
| 0.0938 | 0.1250 | 0.2813 | 1.1384 | 1.5000 | 930-000-336 | 930-000-722 | N/A | N/A |
| 0.1094 | 0.1250 | 0.3281 | 1.1317 | 1.5000 | 930-000-337 | 930-000-723 | N/A | N/A |
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 930-000-338 | 930-000-724 | 930-000-597 | 931-000-252 |
| 0.1406 | 0.1875 | 0.4219 | 1.4575 | 2.0000 | 930-000-339 | 930-000-725 | 931-000-247 | 930-001-096 |
| 0.1563 | 0.1875 | 0.4688 | 1.4509 | 2.0000 | 930-000-340 | 930-000-726 | 930-000-598 | 930-001-097 |
| 0.1719 | 0.1875 | 0.5156 | 1.4442 | 2.0000 | 930-000-341 | 930-000-727 | N/A | 930-001-098 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 930-000-342 | 930-000-728 | 930-000-599 | 930-001-099 |
| 0.2031 | 0.2500 | 0.6094 | 1.7700 | 2.5000 | 930-000-344 | 930-000-730 | N/A | 930-001-100 |
| 0.2188 | 0.2500 | 0.6563 | 1.7634 | 2.5000 | 930-000-345 | 930-000-731 | 931-000-248 | 930-001-101 |
| 0.2344 | 0.2500 | 0.7031 | 1.7567 | 2.5000 | 930-000-346 | 930-000-732 | N/A | 930-001-102 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 930-000-347 | 930-000-733 | 930-000-600 | 931-000-253 |
| 0.3125 | 0.3125 | 0.8125 | 1.3125 | 2.5000 | 930-000-348 | 930-000-734 | 931-000-249 | 931-000-254 |
| 0.3750 | 0.3750 | 1.0000 | 1.1250 | 2.5000 | 930-000-349 | 930-000-735 | 931-000-250 | 931-000-255 |
| 0.5000 | 0.5000 | 1.0000 | 1.6250 | 3.0000 | 930-000-352 | 930-000-738 | 931-000-251 | 930-001-104 |

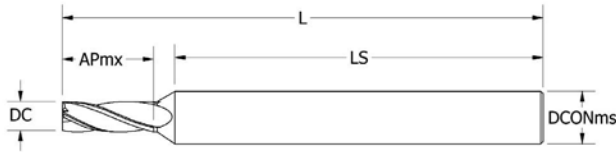
Ø .0313" - .250"



STUB

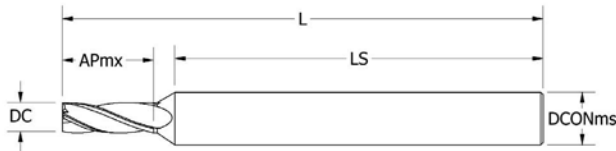
| DC | DCONms | APmx | LS | L | UNCOATED | |
|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0625 | 1.1963 | 1.5000 | 930-001-447 | 931-000-265 |
| 0.0469 | 0.1250 | 0.0625 | 1.2365 | 1.5000 | 930-001-448 | 931-000-266 |
| 0.0625 | 0.1250 | 0.1250 | 1.2142 | 1.5000 | 930-001-449 | 931-000-267 |
| 0.0938 | 0.1250 | 0.1875 | 1.2321 | 1.5000 | 930-001-450 | 931-000-268 |
| 0.1250 | 0.1250 | 0.2500 | 0.8750 | 1.5000 | 930-001-451 | 931-000-269 |
| 0.1563 | 0.1875 | 0.3750 | 1.5446 | 2.0000 | 930-001-452 | 931-000-270 |
| 0.1875 | 0.1875 | 0.3750 | 1.2500 | 2.0000 | 930-001-453 | 931-000-271 |
| 0.2500 | 0.2500 | 0.5000 | 1.1250 | 2.0000 | 930-001-455 | 931-000-272 |

Ø .0313" - .50"



| DC | DCONms | APmx | LS | L | TiAlN COATED | | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------------|-------------|-------------|-------------------|-------------|
| | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0938 | 1.1651 | 1.5000 | 930-000-507 | 931-000-120 | 930-000-943 | 931-000-386 | 931-000-412 |
| 0.0469 | 0.1250 | 0.1406 | 1.1584 | 1.5000 | 930-000-508 | 931-000-123 | 930-000-944 | 931-000-388 | 931-000-414 |
| 0.0625 | 0.1250 | 0.1875 | 1.1517 | 1.5000 | 930-000-509 | 931-000-126 | 930-000-945 | 931-000-390 | 931-000-416 |
| 0.0781 | 0.1250 | 0.2344 | 1.1450 | 1.5000 | 930-000-510 | 931-000-129 | 930-000-946 | 931-000-392 | 931-000-418 |
| 0.0938 | 0.1250 | 0.2813 | 1.1384 | 1.5000 | 930-000-511 | 931-000-132 | 930-000-947 | 931-000-394 | 931-000-420 |
| 0.1094 | 0.1250 | 0.4375 | 1.0223 | 1.5000 | N/A | N/A | N/A | 931-000-396 | 931-000-422 |
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 930-000-512 | 931-000-136 | 930-000-948 | 931-000-398 | 931-000-424 |
| 0.1406 | 0.1875 | 0.5000 | 1.3794 | 2.0000 | N/A | N/A | N/A | 931-000-400 | 931-000-429 |
| 0.1563 | 0.1875 | 0.5625 | 1.3571 | 2.0000 | N/A | N/A | N/A | 931-000-402 | 931-000-431 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | N/A | N/A | N/A | 931-000-404 | 931-000-433 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | N/A | N/A | N/A | 931-000-406 | 931-000-438 |
| 0.3750 | 0.3750 | 1.0000 | 1.1250 | 2.5000 | N/A | N/A | N/A | 931-000-408 | 931-000-445 |
| 0.5000 | 0.5000 | 1.0000 | 1.6250 | 3.0000 | N/A | N/A | N/A | 931-000-410 | 931-000-449 |

Ø .0313" - .125"



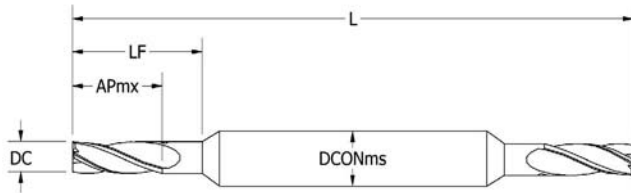
STUB



| DC | DCONms | APmx | LS | L | TiAlN COATED | |
|--------|--------|--------|--------|--------|--------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0625 | 1.1963 | 1.5000 | 930-001-559 | 931-000-273 |
| 0.0469 | 0.1250 | 0.0625 | 1.2365 | 1.5000 | 930-001-560 | 931-000-274 |
| 0.0625 | 0.1250 | 0.1250 | 1.2142 | 1.5000 | 930-001-561 | 931-000-275 |
| 0.0938 | 0.1250 | 0.1875 | 1.2321 | 1.5000 | 930-001-562 | 931-000-276 |
| 0.1250 | 0.1250 | 0.2500 | 0.8750 | 1.5000 | 930-001-563 | 931-000-277 |

CARBIDE

Ø .0313" - .375"

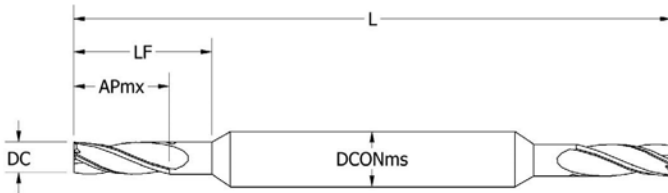


| DC | DCONms | APmx | LS | L | LF | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 2 FLUTE |
| 0.0313 | 0.1250 | 0.0625 | 0.7500 | 1.5000 | 0.0625 | 931-000-217 |
| 0.0469 | 0.1250 | 0.0625 | 0.7500 | 1.5000 | 0.0625 | 931-000-218 |
| 0.0625 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 0.1250 | 931-000-219 |
| 0.0781 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 0.1250 | 931-000-220 |
| 0.0938 | 0.1250 | 0.1875 | 0.7500 | 1.5000 | 0.1875 | 931-000-221 |
| 0.1094 | 0.1250 | 0.2500 | 0.7500 | 1.5000 | 0.2500 | 931-000-222 |
| 0.1250 | 0.1250 | 0.2500 | 0.7500 | 1.5000 | N/A | 931-000-223 |
| 0.1406 | 0.1875 | 0.3125 | 1.0000 | 2.0000 | 0.3125 | 931-000-224 |
| 0.1563 | 0.1875 | 0.3125 | 1.0000 | 2.0000 | 0.3125 | 931-000-225 |
| 0.1719 | 0.1875 | 0.3750 | 1.0000 | 2.0000 | 0.3750 | 931-000-226 |
| 0.1875 | 0.1875 | 0.3750 | 1.0000 | 2.0000 | N/A | 931-000-227 |
| 0.2188 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | 0.5000 | 931-000-228 |
| 0.2500 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-229 |
| 0.3125 | 0.3125 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-230 |
| 0.3750 | 0.3125 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-231 |

Ø .0313" - .375"



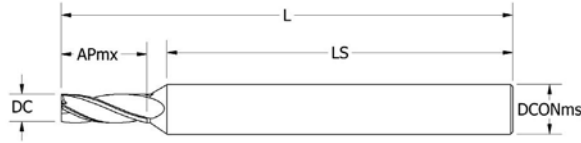
CARBIDE



| DC | DCONms | APmx | LS | L | LF | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0625 | 0.7500 | 1.5000 | 0.0625 | 931-000-232 |
| 0.0469 | 0.1250 | 0.0625 | 0.7500 | 1.5000 | 0.0625 | 931-000-233 |
| 0.0625 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 0.1250 | 931-000-234 |
| 0.0781 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 0.1250 | 931-000-235 |
| 0.0938 | 0.1250 | 0.1875 | 0.7500 | 1.5000 | 0.1875 | 931-000-236 |
| 0.1094 | 0.1250 | 0.2500 | 0.7500 | 1.5000 | 0.2500 | 931-000-237 |
| 0.1250 | 0.1250 | 0.2500 | 0.7500 | 1.5000 | N/A | 931-000-238 |
| 0.1406 | 0.1875 | 0.3125 | 1.0000 | 2.0000 | 0.3125 | 931-000-239 |
| 0.1563 | 0.1875 | 0.3125 | 1.0000 | 2.0000 | 0.3125 | 931-000-240 |
| 0.1719 | 0.1875 | 0.3750 | 1.0000 | 2.0000 | 0.3750 | 931-000-241 |
| 0.1875 | 0.1875 | 0.3750 | 1.0000 | 2.0000 | N/A | 931-000-242 |
| 0.2188 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | 0.5000 | 931-000-243 |
| 0.2500 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-244 |
| 0.3125 | 0.3125 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-245 |
| 0.3750 | 0.3750 | 0.5000 | 1.2500 | 2.5000 | N/A | 931-000-246 |

CARBIDE

Ø .0156"-.125"

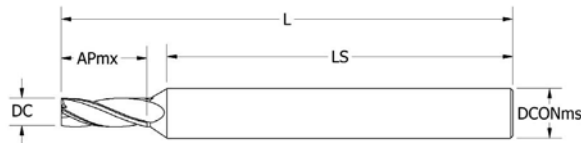


G MILLS



| DC | DCONms | APmx | LS | L | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0156 | 0.1250 | 0.0781 | 2.1405 | 2.5000 | 931-000-193 | 930-000-126 | 931-000-456 |
| 0.0313 | 0.1250 | 0.1563 | 2.1026 | 2.5000 | 931-000-195 | 930-000-127 | 931-000-462 |
| 0.0469 | 0.1250 | 0.2500 | 2.0490 | 2.5000 | 931-000-200 | 930-000-129 | 931-000-474 |
| 0.0625 | 0.1250 | 0.5000 | 1.8392 | 2.5000 | 931-000-202 | 930-000-131 | 931-000-480 |
| 0.0781 | 0.1250 | 0.5000 | 1.8794 | 2.5000 | 931-000-206 | 930-000-132 | 931-000-492 |
| 0.0938 | 0.1250 | 0.7500 | 1.6696 | 2.5000 | 931-000-209 | 930-000-133 | 931-000-498 |
| 0.1250 | 0.1250 | 1.0000 | 1.6250 | 3.0000 | 931-000-214 | 930-000-134 | 931-000-510 |

Ø .0313"-.0938"



STUB

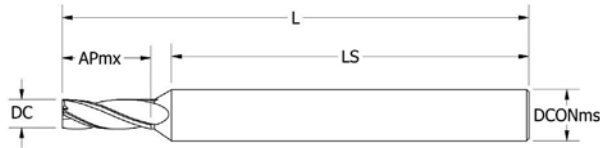


| DC | DCONms | APmx | LS | L | LF | UNCOATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.1250 | 0.0625 | 2.2031 | 2.5000 | 0.2500 | 931-000-198 | 931-000-464 |
| 0.0313 | 0.1250 | 0.0625 | 2.0781 | 2.5000 | 0.3750 | N/A | 931-000-472 |
| 0.0313 | 0.1250 | 0.0625 | 1.9531 | 2.5000 | 0.5000 | N/A | 931-000-468 |
| 0.0625 | 0.1250 | 0.1250 | 1.9688 | 2.5000 | 0.5000 | 931-000-204 | 931-000-482 |
| 0.0625 | 0.1250 | 0.1250 | 1.7188 | 2.5000 | 0.7500 | N/A | 931-000-490 |
| 0.0625 | 0.1250 | 0.1250 | 1.4688 | 2.5000 | 1.0000 | N/A | 931-000-486 |
| 0.0938 | 0.1250 | 0.1875 | 1.7344 | 2.5000 | 0.7500 | 931-000-212 | 931-000-500 |
| 0.0938 | 0.1250 | 0.1875 | 1.4844 | 2.5000 | 1.0000 | N/A | 931-000-508 |
| 0.0938 | 0.1250 | 0.1875 | 1.2344 | 2.5000 | 1.2500 | N/A | 931-000-504 |

Ø .0156" - .250"



CARBIDE



LONG FLUTE



| DC | DCONms | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------------|
| | | | | | | 3 FLUTE |
| 0.0156 | 0.1250 | 0.0781 | 2.2953 | 2.5000 | 0.1500 | 931-000-460 |
| 0.0156 | 0.1250 | 0.0781 | 2.1953 | 2.5000 | 0.2500 | 931-000-458 |
| 0.0313 | 0.1250 | 0.1563 | 2.2031 | 2.5000 | 0.2500 | 931-000-470 |
| 0.0313 | 0.1250 | 0.1563 | 2.0781 | 2.5000 | 0.3750 | 931-000-466 |
| 0.0469 | 0.1250 | 0.2500 | 2.0859 | 2.5000 | 0.3750 | 931-000-478 |
| 0.0469 | 0.1250 | 0.2500 | 1.9609 | 2.5000 | 0.5000 | 931-000-476 |
| 0.0625 | 0.1250 | 0.5000 | 1.7188 | 2.5000 | 0.7500 | 931-000-488 |
| 0.0625 | 0.1250 | 0.5000 | 1.4688 | 2.5000 | 1.0000 | 931-000-484 |
| 0.0781 | 0.1250 | 0.5000 | 1.7266 | 2.5000 | 0.7500 | 931-000-496 |
| 0.0781 | 0.1250 | 0.5000 | 1.4766 | 2.5000 | 1.0000 | 931-000-494 |
| 0.0938 | 0.1250 | 0.7500 | 1.4844 | 2.5000 | 1.0000 | 931-000-506 |
| 0.0938 | 0.1250 | 0.7500 | 1.2344 | 2.5000 | 1.2500 | 931-000-502 |
| 0.1250 | 0.1250 | 1.0000 | 1.7500 | 3.0000 | 1.2500 | 931-000-514 |
| 0.1250 | 0.1250 | 1.0000 | 1.5000 | 3.0000 | 1.5000 | 931-000-512 |



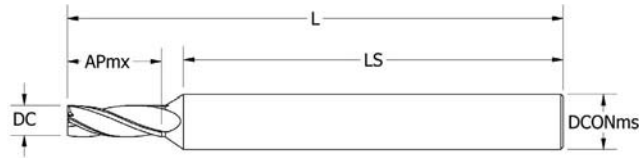
Ø .1875" - .250"



| DC | DCONms | APmx | LS | L | LF | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.1875 | 0.1875 | 1.1250 | 1.5000 | 3.0000 | 1.5000 | 931-000-520 |
| 0.1875 | 0.1875 | 1.1250 | 1.2500 | 3.0000 | 1.7500 | 931-000-518 |
| 0.2500 | 0.2500 | 1.5000 | 2.0000 | 4.0000 | 2.0000 | 931-000-526 |
| 0.2500 | 0.2500 | 1.5000 | 1.5000 | 4.0000 | 2.5000 | 931-000-524 |

CARBIDE

Ø .0313" - .250"

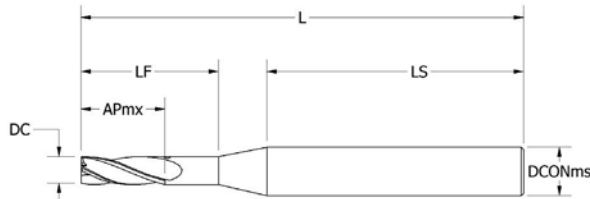


MULTI - FLUTE



| DC | DCONms | APmx | LS | L | UNCOATED | AITIN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|
| | | | | | 5 FLUTE | 5 FLUTE |
| 0.0313 | 0.1250 | 0.0938 | 1.1651 | 1.5000 | 930-003-859 | N/A |
| 0.0469 | 0.1250 | 0.1406 | 1.1584 | 1.5000 | 930-003-860 | N/A |
| 0.0625 | 0.1250 | 0.1875 | 1.1517 | 1.5000 | 930-003-861 | N/A |
| 0.0781 | 0.1250 | 0.1875 | 1.1919 | 1.5000 | 930-003-862 | N/A |
| 0.0938 | 0.1250 | 0.3750 | 1.0446 | 1.5000 | 930-003-863 | N/A |
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 930-003-864 | 931-000-383 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 930-003-865 | 931-000-384 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 930-003-866 | 931-000-385 |

Ø .0313" - .250"

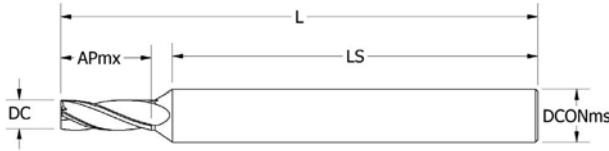


STUB, REACHED



| DC | DCONms | APmx | LS | L | LF | UNCOATED | TICN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.2500 | 0.0625 | 2.2356 | 2.5000 | 0.1550 | 930-002-640 | 931-000-295 |
| 0.0469 | 0.2500 | 0.0938 | 2.1684 | 2.5000 | 0.2300 | 930-002-642 | 931-000-297 |
| 0.0625 | 0.2500 | 0.1250 | 2.0943 | 2.5000 | 0.3120 | 930-002-644 | 931-000-299 |
| 0.0781 | 0.2500 | 0.1563 | 2.0241 | 2.5000 | 0.3900 | 930-002-646 | 931-000-301 |
| 0.0938 | 0.2500 | 0.1875 | 1.9569 | 2.5000 | 0.4650 | 930-002-648 | 931-000-303 |
| 0.1094 | 0.2500 | 0.2188 | 1.8847 | 2.5000 | 0.5450 | 930-002-650 | 931-000-305 |
| 0.1250 | 0.2500 | 0.2500 | 1.8125 | 2.5000 | 0.6250 | 930-002-652 | 931-000-307 |
| 0.1563 | 0.2500 | 0.3750 | 1.6731 | 2.5000 | 0.7800 | 930-002-654 | 931-000-309 |
| 0.1875 | 0.2500 | 0.3750 | 1.5313 | 2.5000 | 0.9375 | 930-002-656 | 931-000-311 |
| 0.2188 | 0.2500 | 0.3750 | 1.3914 | 2.5000 | 1.0930 | 930-002-658 | 931-000-313 |
| 0.2500 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | 1.2500 | 930-002-660 | 931-000-315 |

Ø .0313" - .375"

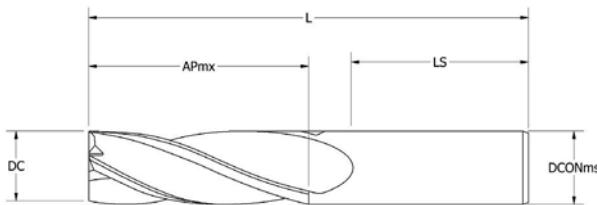


45 DEG. HELIX



| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 2 FLUTE |
| 0.0313 | 0.1250 | 0.0938 | 1.1651 | 1.5000 | 930-000-612 |
| 0.0469 | 0.1250 | 0.1406 | 1.1584 | 1.5000 | 930-000-613 |
| 0.0625 | 0.1250 | 0.1875 | 1.1517 | 1.5000 | 930-000-614 |
| 0.0781 | 0.1250 | 0.1875 | 1.1919 | 1.5000 | 930-000-615 |
| 0.0938 | 0.1250 | 0.3750 | 1.0446 | 1.5000 | 930-000-616 |
| 0.1250 | 0.1250 | 0.3750 | 0.7500 | 1.5000 | 930-000-617 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 930-000-618 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 930-000-619 |

Ø .1250" - .375"



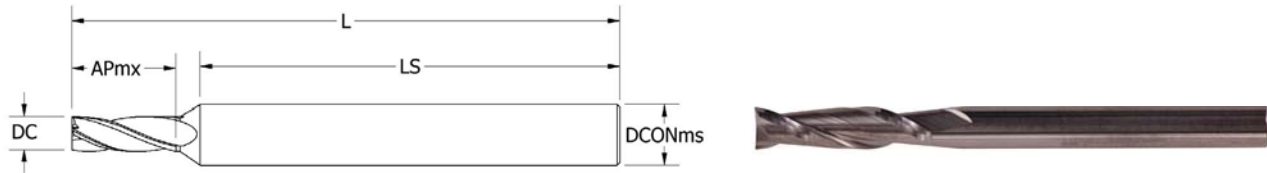
60 DEG. HELIX



| DC | DCONms | APmx | LS | L | UNCOATED | AITiN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|
| | | | | | 3 FLUTE | 3 FLUTE |
| 0.1250 | 0.1250 | 0.5000 | 0.6250 | 1.5000 | 931-000-011 | 931-000-016 |
| 0.1875 | 0.1875 | 0.6250 | 1.0000 | 2.0000 | 931-000-012 | 931-000-017 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 931-000-013 | 931-000-018 |
| 0.3125 | 0.3125 | 0.8125 | 1.3125 | 2.5000 | 931-000-014 | 931-000-019 |
| 0.3750 | 0.3750 | 0.8750 | 1.2500 | 2.5000 | 931-000-015 | 931-000-020 |

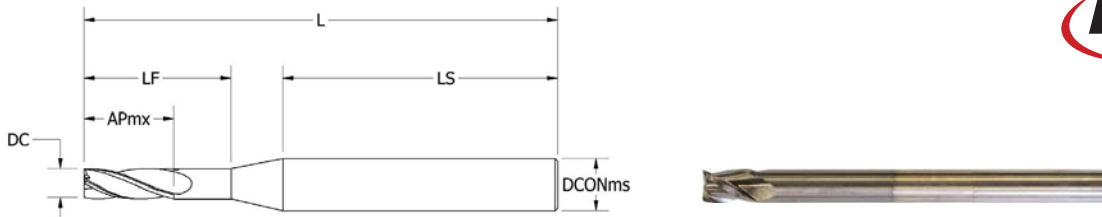
CARBIDE

Ø .5 mm - 12 mm



| DC | DCONms | APmx | LS | L | UNCOATED | |
|-------|--------|-------|-------|-------|-------------|-------------|
| | | | | | 2 FLUTE | 4 FLUTE |
| 0.50 | 3.00 | 1.50 | 30.07 | 38.00 | 930-000-001 | 930-000-033 |
| 1.00 | 3.00 | 3.00 | 29.86 | 38.00 | 930-000-002 | 930-000-034 |
| 1.50 | 3.00 | 4.50 | 29.64 | 38.00 | 930-000-003 | 930-000-035 |
| 3.00 | 3.00 | 6.00 | 29.43 | 38.00 | 930-000-004 | 930-000-036 |
| 2.50 | 3.00 | 8.00 | 28.71 | 38.00 | 930-000-005 | 930-000-037 |
| 3.00 | 3.00 | 10.00 | 18.00 | 38.00 | 930-000-006 | 930-000-038 |
| 3.50 | 4.00 | 12.00 | 36.71 | 50.00 | 930-000-007 | 930-000-039 |
| 4.00 | 4.00 | 12.00 | 28.00 | 50.00 | 930-000-008 | 930-000-040 |
| 4.50 | 5.00 | 14.00 | 34.71 | 50.00 | 930-000-009 | 930-000-041 |
| 5.00 | 5.00 | 15.00 | 25.00 | 50.00 | 930-000-010 | 930-000-042 |
| 6.00 | 6.00 | 18.00 | 35.00 | 63.00 | 930-000-011 | 930-000-043 |
| 7.00 | 8.00 | 20.00 | 40.43 | 63.00 | 930-000-012 | 930-000-044 |
| 8.00 | 8.00 | 20.00 | 33.00 | 63.00 | 930-000-013 | 930-000-045 |
| 9.00 | 10.00 | 22.00 | 38.43 | 63.00 | 930-000-014 | 930-000-046 |
| 10.00 | 10.00 | 22.00 | 31.00 | 63.00 | 930-000-015 | 930-000-047 |
| 12.00 | 12.00 | 25.00 | 40.00 | 75.00 | 930-000-016 | 930-000-048 |

Ø .4 mm - 12 mm



STUB, 8X REACH LENGTH



| DC | DCONms | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|-------|--------|-------|-------|--------|-------|-------------------|
| | | | | | | 3 FLUTE |
| 0.40 | 3.00 | 0.60 | 70.50 | 75.00 | 3.20 | 930-000-095 |
| 0.50 | 3.00 | 0.75 | 69.75 | 75.00 | 4.00 | 930-000-096 |
| 0.60 | 3.00 | 0.90 | 69.00 | 75.00 | 4.80 | 930-000-097 |
| 0.80 | 3.00 | 1.20 | 67.50 | 75.00 | 6.40 | 930-000-098 |
| 1.00 | 3.00 | 1.50 | 66.00 | 75.00 | 8.00 | 930-000-099 |
| 1.50 | 3.00 | 2.25 | 62.25 | 75.00 | 12.00 | 930-000-100 |
| 2.00 | 3.00 | 3.00 | 58.50 | 75.00 | 16.00 | 930-000-101 |
| 2.50 | 3.00 | 3.75 | 54.75 | 75.00 | 20.00 | 930-000-102 |
| 3.00 | 3.00 | 4.50 | 51.00 | 75.00 | 24.00 | 930-000-103 |
| 4.00 | 4.00 | 6.00 | 43.00 | 75.00 | 32.00 | 930-000-104 |
| 6.00 | 6.00 | 9.00 | 52.00 | 100.00 | 48.00 | 930-000-105 |
| 8.00 | 8.00 | 12.00 | 36.00 | 100.00 | 64.00 | 930-000-106 |
| 10.00 | 10.00 | 15.00 | 40.00 | 120.00 | 80.00 | 930-000-107 |
| 12.00 | 12.00 | 18.00 | 54.00 | 150.00 | 96.00 | 930-000-108 |

Ø .4 mm - 12 mm



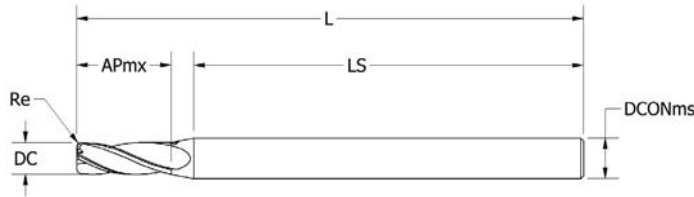
5X FLUTE LENGTH, 10X REACH LENGTH



| DC | DCONms | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|-------|--------|-------|-------|--------|-------|-------------------|
| | | | | | | 3 FLUTE |
| 0.40 | 3.00 | 2.00 | 69.70 | 75.00 | 4.00 | 930-000-065 |
| 0.50 | 3.00 | 2.50 | 68.75 | 75.00 | 5.00 | 930-000-066 |
| 0.60 | 3.00 | 3.00 | 67.80 | 75.00 | 6.00 | 930-000-067 |
| 0.80 | 3.00 | 4.00 | 65.90 | 75.00 | 8.00 | 930-000-068 |
| 1.00 | 3.00 | 5.00 | 64.00 | 75.00 | 10.00 | 930-000-069 |
| 1.20 | 3.00 | 6.00 | 62.10 | 75.00 | 12.00 | 930-000-070 |
| 1.50 | 3.00 | 7.50 | 59.25 | 75.00 | 15.00 | 930-000-071 |
| 2.00 | 3.00 | 10.00 | 54.50 | 75.00 | 20.00 | 930-000-072 |
| 2.50 | 3.00 | 12.50 | 49.75 | 75.00 | 25.00 | 930-000-073 |
| 3.00 | 3.00 | 15.00 | 45.00 | 75.00 | 30.00 | 930-000-074 |
| 4.00 | 4.00 | 20.00 | 35.00 | 75.00 | 40.00 | 930-000-075 |
| 6.00 | 6.00 | 30.00 | 40.00 | 100.00 | 60.00 | 930-000-076 |
| 8.00 | 8.00 | 40.00 | 30.00 | 100.00 | 70.00 | 930-000-077 |
| 10.00 | 10.00 | 50.00 | 40.00 | 120.00 | 80.00 | 930-000-078 |
| 12.00 | 12.00 | 60.00 | 65.00 | 150.00 | 85.00 | 930-000-079 |

CARBIDE

Ø .020" - .100"

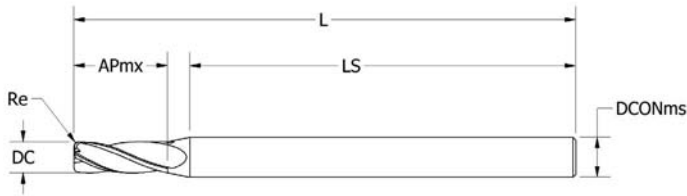


| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.0200 | 0.1250 | 0.0050 | 0.0600 | 1.1699 | 1.5000 | 930-001-003 | 930-001-125 | 930-000-858 |
| 0.0250 | 0.1250 | 0.0050 | 0.0750 | 1.1678 | 1.5000 | 930-001-004 | 930-001-126 | 930-000-859 |
| 0.0300 | 0.1250 | 0.0050 | 0.0900 | 1.1656 | 1.5000 | 930-001-005 | 930-001-127 | 930-000-860 |
| 0.0300 | 0.1250 | 0.0100 | 0.0900 | 1.1656 | 1.5000 | 930-000-963 | N/A | 930-000-819 |
| 0.0310 | 0.1250 | 0.0050 | 0.0930 | 1.1652 | 1.5000 | 930-001-006 | 930-001-128 | 930-000-861 |
| 0.0310 | 0.1250 | 0.0100 | 0.0930 | 1.1652 | 1.5000 | 930-000-964 | N/A | 930-000-820 |
| 0.0350 | 0.1250 | 0.0050 | 0.1050 | 1.1635 | 1.5000 | 930-001-007 | 930-001-129 | 930-000-862 |
| 0.0350 | 0.1250 | 0.0100 | 0.1050 | 1.1635 | 1.5000 | 930-000-965 | N/A | 930-000-821 |
| 0.0400 | 0.1250 | 0.0050 | 0.1200 | 1.1614 | 1.5000 | 930-001-008 | 930-001-130 | 930-000-863 |
| 0.0400 | 0.1250 | 0.0100 | 0.1200 | 1.1614 | 1.5000 | 930-000-966 | 930-001-108 | 930-000-822 |
| 0.0450 | 0.1250 | 0.0050 | 0.1350 | 1.1592 | 1.5000 | 930-001-009 | 930-001-131 | 930-000-864 |
| 0.0450 | 0.1250 | 0.0100 | 0.1350 | 1.1592 | 1.5000 | 930-000-967 | 930-001-109 | 930-000-823 |
| 0.0450 | 0.1250 | 0.0150 | 0.1350 | 1.1592 | 1.5000 | 930-000-983 | N/A | 930-000-839 |
| 0.0470 | 0.1250 | 0.0050 | 0.1410 | 1.1584 | 1.5000 | 930-001-010 | 930-001-132 | 930-000-865 |
| 0.0470 | 0.1250 | 0.0100 | 0.1410 | 1.1584 | 1.5000 | 930-000-968 | 930-001-110 | 930-000-824 |
| 0.0470 | 0.1250 | 0.0150 | 0.1410 | 1.1584 | 1.5000 | 930-000-984 | 930-001-117 | 930-000-840 |
| 0.0500 | 0.1250 | 0.0050 | 0.1500 | 1.1571 | 1.5000 | 930-001-011 | 930-001-133 | 930-000-866 |
| 0.0500 | 0.1250 | 0.0100 | 0.1500 | 1.1571 | 1.5000 | 930-000-969 | 930-001-111 | 930-000-825 |
| 0.0500 | 0.1250 | 0.0150 | 0.1500 | 1.1571 | 1.5000 | 930-000-985 | 930-001-118 | 930-000-841 |
| 0.0550 | 0.1250 | 0.0050 | 0.1650 | 1.1549 | 1.5000 | 930-001-012 | 930-001-134 | 930-000-867 |
| 0.0550 | 0.1250 | 0.0100 | 0.1650 | 1.1549 | 1.5000 | 930-000-970 | N/A | 930-000-826 |
| 0.0550 | 0.1250 | 0.0150 | 0.1650 | 1.1549 | 1.5000 | 930-000-986 | N/A | 930-000-842 |
| 0.0600 | 0.1250 | 0.0050 | 0.1800 | 1.1528 | 1.5000 | 930-001-013 | 930-001-135 | 930-000-868 |
| 0.0600 | 0.1250 | 0.0100 | 0.1800 | 1.1528 | 1.5000 | 930-000-971 | 930-001-112 | 930-000-827 |
| 0.0600 | 0.1250 | 0.0150 | 0.1800 | 1.1528 | 1.5000 | 930-000-987 | 930-001-119 | 930-000-843 |
| 0.0620 | 0.1250 | 0.0050 | 0.1860 | 1.1519 | 1.5000 | 930-001-014 | N/A | 930-000-869 |
| 0.0620 | 0.1250 | 0.0100 | 0.1860 | 1.1519 | 1.5000 | 930-000-972 | N/A | 930-000-828 |
| 0.0620 | 0.1250 | 0.0150 | 0.1860 | 1.1519 | 1.5000 | 930-000-988 | N/A | 930-000-844 |
| 0.0620 | 0.1250 | 0.0200 | 0.1860 | 1.1519 | 1.5000 | 930-000-999 | N/A | 930-000-855 |
| 0.0650 | 0.1250 | 0.0050 | 0.1950 | 1.1507 | 1.5000 | 930-001-015 | N/A | 930-000-870 |
| 0.0650 | 0.1250 | 0.0100 | 0.1950 | 1.1507 | 1.5000 | 930-000-973 | N/A | 930-000-829 |
| 0.0650 | 0.1250 | 0.0150 | 0.1950 | 1.1507 | 1.5000 | 930-000-989 | N/A | 930-000-845 |

Ø .020" - .100"



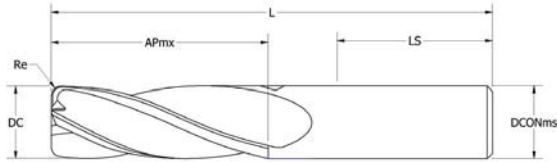
CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.0700 | 0.1250 | 0.0050 | 0.2100 | 1.1485 | 1.5000 | 930-001-016 | 930-001-136 | 930-000-871 |
| 0.0700 | 0.1250 | 0.0100 | 0.2100 | 1.1485 | 1.5000 | 930-000-974 | 930-001-113 | 930-000-830 |
| 0.0700 | 0.1250 | 0.0150 | 0.2100 | 1.1485 | 1.5000 | 930-000-990 | 930-001-121 | 930-000-846 |
| 0.0750 | 0.1250 | 0.0050 | 0.2250 | 1.1464 | 1.5000 | 930-001-017 | N/A | 930-000-872 |
| 0.0750 | 0.1250 | 0.0100 | 0.2250 | 1.1464 | 1.5000 | 930-000-975 | N/A | 930-000-831 |
| 0.0750 | 0.1250 | 0.0150 | 0.2250 | 1.1464 | 1.5000 | 930-000-991 | N/A | 930-000-847 |
| 0.0780 | 0.1250 | 0.0050 | 0.2340 | 1.1451 | 1.5000 | 930-001-018 | N/A | 930-000-873 |
| 0.0780 | 0.1250 | 0.0100 | 0.2340 | 1.1451 | 1.5000 | 930-000-976 | N/A | 930-000-832 |
| 0.0780 | 0.1250 | 0.0150 | 0.2340 | 1.1451 | 1.5000 | 930-000-992 | N/A | 930-000-848 |
| 0.0780 | 0.1250 | 0.0200 | 0.2340 | 1.1451 | 1.5000 | 930-001-001 | N/A | 930-000-856 |
| 0.0800 | 0.1250 | 0.0050 | 0.2400 | 1.1442 | 1.5000 | 930-001-019 | 930-001-137 | 930-000-874 |
| 0.0800 | 0.1250 | 0.0100 | 0.2400 | 1.1442 | 1.5000 | 930-000-977 | 930-001-114 | 930-000-833 |
| 0.0800 | 0.1250 | 0.0150 | 0.2400 | 1.1442 | 1.5000 | 930-000-993 | 930-001-122 | 930-000-849 |
| 0.0850 | 0.1250 | 0.0050 | 0.2550 | 1.1421 | 1.5000 | 930-001-020 | N/A | 930-000-875 |
| 0.0850 | 0.1250 | 0.0100 | 0.2550 | 1.1421 | 1.5000 | 930-000-978 | N/A | 930-000-834 |
| 0.0850 | 0.1250 | 0.0150 | 0.2550 | 1.1421 | 1.5000 | 930-000-994 | N/A | 930-000-850 |
| 0.0900 | 0.1250 | 0.0050 | 0.2700 | 1.1400 | 1.5000 | 930-001-021 | 930-001-138 | 930-000-876 |
| 0.0900 | 0.1250 | 0.0100 | 0.2700 | 1.1400 | 1.5000 | 930-000-979 | 930-001-115 | 930-000-835 |
| 0.0900 | 0.1250 | 0.0150 | 0.2700 | 1.1400 | 1.5000 | 930-000-995 | 930-001-123 | 930-000-851 |
| 0.0930 | 0.1250 | 0.0050 | 0.2790 | 1.1387 | 1.5000 | 930-001-022 | N/A | 930-000-877 |
| 0.0930 | 0.1250 | 0.0100 | 0.2790 | 1.1387 | 1.5000 | 930-000-980 | N/A | 930-000-836 |
| 0.0930 | 0.1250 | 0.0150 | 0.2790 | 1.1387 | 1.5000 | 930-000-996 | N/A | 930-000-852 |
| 0.0930 | 0.1250 | 0.0200 | 0.2790 | 1.1387 | 1.5000 | 930-001-002 | N/A | 930-000-857 |
| 0.0950 | 0.1250 | 0.0050 | 0.2850 | 1.1378 | 1.5000 | 930-001-023 | N/A | 930-000-878 |
| 0.0950 | 0.1250 | 0.0100 | 0.2850 | 1.1378 | 1.5000 | 930-000-981 | N/A | 930-000-837 |
| 0.0950 | 0.1250 | 0.0150 | 0.2850 | 1.1378 | 1.5000 | 930-000-997 | N/A | 930-000-853 |
| 0.1000 | 0.1250 | 0.0050 | 0.3000 | 1.1357 | 1.5000 | 930-001-024 | 930-001-139 | 930-000-879 |
| 0.1000 | 0.1250 | 0.0100 | 0.3000 | 1.1357 | 1.5000 | 930-000-982 | 930-001-116 | 930-000-838 |
| 0.1000 | 0.1250 | 0.0150 | 0.3000 | 1.1357 | 1.5000 | 930-000-998 | 930-001-124 | 930-000-854 |

CARBIDE

Ø .125" - .375"

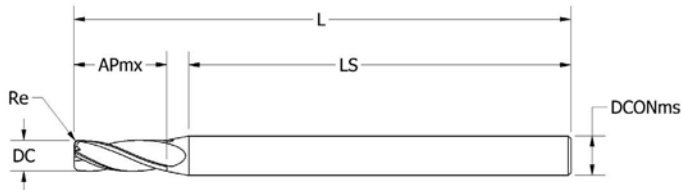


| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|-------------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.1250 | 0.1250 | 0.0100 | 0.5000 | 0.6250 | 1.5000 | 931-000-098 | 931-000-147 | 931-000-150 | 931-000-426 |
| 0.1250 | 0.1250 | 0.0150 | 0.5000 | 0.6250 | 1.5000 | 931-000-099 | 931-000-148 | 931-000-151 | 931-000-427 |
| 0.1250 | 0.1250 | 0.0200 | 0.5000 | 0.6250 | 1.5000 | 931-000-100 | 931-000-149 | 931-000-152 | 931-000-428 |
| 0.1875 | 0.1875 | 0.0100 | 0.6250 | 1.0000 | 2.0000 | 931-000-101 | 931-000-153 | 931-000-156 | 931-000-435 |
| 0.1875 | 0.1875 | 0.0150 | 0.6250 | 1.0000 | 2.0000 | 931-000-102 | 931-000-154 | 931-000-157 | 931-000-436 |
| 0.1875 | 0.1875 | 0.0300 | 0.6250 | 1.0000 | 2.0000 | 931-000-103 | 931-000-155 | 931-000-158 | 931-000-437 |
| 0.2500 | 0.2500 | 0.0150 | 0.7500 | 1.3750 | 2.5000 | 931-000-104 | 931-000-159 | 931-000-164 | 931-000-440 |
| 0.2500 | 0.2500 | 0.0200 | 0.7500 | 1.3750 | 2.5000 | 931-000-105 | 931-000-160 | 931-000-165 | 931-000-441 |
| 0.2500 | 0.2500 | 0.0300 | 0.7500 | 1.3750 | 2.5000 | 931-000-106 | 931-000-161 | 931-000-166 | 931-000-442 |
| 0.2500 | 0.2500 | 0.0450 | 0.7500 | 1.3750 | 2.5000 | 931-000-107 | 931-000-162 | 931-000-167 | 931-000-443 |
| 0.2500 | 0.2500 | 0.0600 | 0.7500 | 1.3750 | 2.5000 | 931-000-108 | 931-000-163 | 931-000-168 | 931-000-444 |
| 0.3125 | 0.3125 | 0.0150 | 0.8125 | 1.3125 | 2.5000 | 931-000-109 | 931-000-169 | N/A | N/A |
| 0.3125 | 0.3125 | 0.0200 | 0.8125 | 1.3125 | 2.5000 | 931-000-110 | 931-000-170 | N/A | N/A |
| 0.3125 | 0.3125 | 0.0300 | 0.8125 | 1.3125 | 2.5000 | 931-000-111 | 931-000-171 | 931-000-174 | N/A |
| 0.3125 | 0.3125 | 0.0450 | 0.8125 | 1.3125 | 2.5000 | 931-000-112 | 931-000-172 | 931-000-175 | N/A |
| 0.3125 | 0.3125 | 0.0600 | 0.8125 | 1.3125 | 2.5000 | 931-000-113 | 931-000-173 | 931-000-176 | N/A |
| 0.3750 | 0.3750 | 0.0150 | 1.0000 | 1.1250 | 2.5000 | 931-000-114 | 931-000-177 | N/A | N/A |
| 0.3750 | 0.3750 | 0.0300 | 1.0000 | 1.1250 | 2.5000 | 931-000-115 | 931-000-178 | 931-000-181 | 931-000-447 |
| 0.3750 | 0.3750 | 0.0450 | 1.0000 | 1.1250 | 2.5000 | 931-000-116 | 931-000-179 | 931-000-182 | N/A |
| 0.3750 | 0.3750 | 0.0600 | 1.0000 | 1.1250 | 2.5000 | 931-000-117 | 931-000-180 | 931-000-183 | 931-000-448 |

Ø .020" - .093"



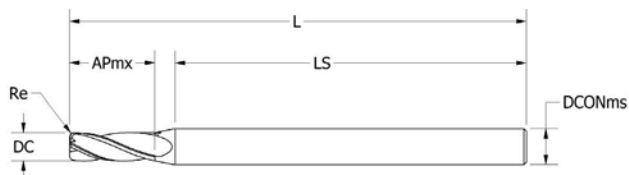
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| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.0200 | 0.1250 | 0.0050 | 0.0300 | 1.1999 | 1.5000 | 930-001-802 | 930-001-788 | 930-001-743 |
| 0.0250 | 0.1250 | 0.0050 | 0.0375 | 1.2053 | 1.5000 | 930-001-803 | 930-001-789 | 930-001-744 |
| 0.0310 | 0.1250 | 0.0050 | 0.0465 | 1.2117 | 1.5000 | 930-001-804 | 930-001-790 | 930-001-745 |
| 0.0470 | 0.1250 | 0.0050 | 0.0705 | 1.2289 | 1.5000 | 930-001-805 | 930-001-791 | 930-001-746 |
| 0.0470 | 0.1250 | 0.0100 | 0.0705 | 1.2289 | 1.5000 | 930-001-795 | 930-001-781 | 930-001-736 |
| 0.0620 | 0.1250 | 0.0050 | 0.0930 | 1.2449 | 1.5000 | 930-001-806 | 930-001-792 | 930-001-747 |
| 0.0620 | 0.1250 | 0.0100 | 0.0930 | 1.2449 | 1.5000 | 930-001-796 | 930-001-782 | 930-001-737 |
| 0.0620 | 0.1250 | 0.0150 | 0.0930 | 1.2449 | 1.5000 | 930-001-799 | 930-001-785 | 930-001-740 |
| 0.0780 | 0.1250 | 0.0050 | 0.1170 | 1.2621 | 1.5000 | 930-001-807 | 930-001-793 | 930-001-748 |
| 0.0780 | 0.1250 | 0.0100 | 0.1170 | 1.2621 | 1.5000 | 930-001-797 | 930-001-783 | 930-001-738 |
| 0.0780 | 0.1250 | 0.0150 | 0.1170 | 1.2621 | 1.5000 | 930-001-800 | 930-001-786 | 930-001-741 |
| 0.0930 | 0.1250 | 0.0050 | 0.1395 | 1.2782 | 1.5000 | 930-001-808 | 930-001-794 | 930-001-749 |
| 0.0930 | 0.1250 | 0.0100 | 0.1395 | 1.2782 | 1.5000 | 930-001-798 | 930-001-784 | 930-001-739 |
| 0.0930 | 0.1250 | 0.0150 | 0.1395 | 1.2782 | 1.5000 | 930-001-801 | 930-001-787 | 930-001-742 |

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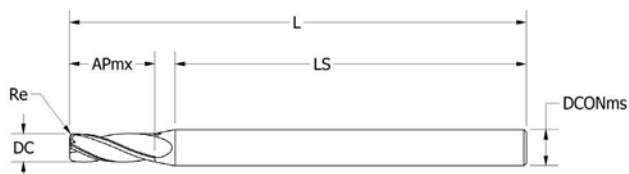
Ø .015" - .093"



HARD MILL

| DC | DCONms | Re | APmx | LS | L | HARD MILL COATED |
|--------|--------|--------|--------|--------|--------|------------------|
| | | | | | | 4 FLUTE |
| 0.0150 | 0.1250 | 0.0020 | 0.0225 | 1.1945 | 1.5000 | 930-001-809 |
| 0.0310 | 0.1250 | 0.0030 | 0.0465 | 1.2117 | 1.5000 | 930-001-810 |
| 0.0470 | 0.1250 | 0.0050 | 0.0705 | 1.2289 | 1.5000 | 930-001-811 |
| 0.0620 | 0.1250 | 0.0060 | 0.0930 | 1.2449 | 1.5000 | 930-001-812 |
| 0.0780 | 0.1250 | 0.0080 | 0.1170 | 1.2621 | 1.5000 | 930-001-813 |
| 0.0930 | 0.1250 | 0.0090 | 0.1395 | 1.2782 | 1.5000 | 930-001-814 |

Ø .0313" - .25"



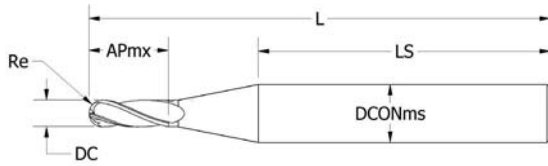
HARD MILL, STUB

| DC | DCONms | Re | APmx | LS | L | HARD MILL COATED |
|--------|--------|--------|--------|--------|--------|------------------|
| | | | | | | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0030 | 0.0625 | 1.1963 | 1.5000 | 931-000-278 |
| 0.0469 | 0.1250 | 0.0050 | 0.0625 | 1.2365 | 1.5000 | 931-000-279 |
| 0.0625 | 0.1250 | 0.0060 | 0.1250 | 1.2142 | 1.5000 | 931-000-280 |
| 0.0781 | 0.1250 | 0.0080 | 0.1250 | 1.2544 | 1.5000 | 931-000-281 |
| 0.0938 | 0.1250 | 0.0090 | 0.1875 | 1.2321 | 1.5000 | 931-000-282 |
| 0.1250 | 0.1250 | 0.0130 | 0.2500 | 0.8750 | 1.5000 | 931-000-283 |
| 0.1875 | 0.1875 | 0.0190 | 0.3750 | 1.2500 | 2.0000 | 931-000-284 |
| 0.2500 | 0.2500 | 0.0250 | 0.5000 | 1.6250 | 2.5000 | 931-000-285 |

Ø .005" - .044"

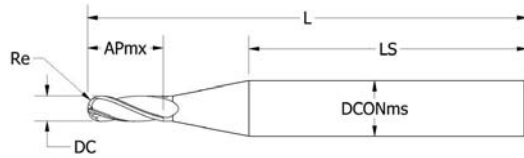


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| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITiN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0150 | 1.1342 | 1.5000 | 930-001-965 | N/A | 930-002-249 |
| 0.0060 | 0.1250 | 0.0030 | 0.0180 | 1.1342 | 1.5000 | 930-001-967 | N/A | 930-002-250 |
| 0.0070 | 0.1250 | 0.0035 | 0.0210 | 1.1342 | 1.5000 | 930-001-968 | N/A | 930-002-251 |
| 0.0080 | 0.1250 | 0.0040 | 0.0240 | 1.1342 | 1.5000 | 930-001-969 | N/A | 930-002-252 |
| 0.0090 | 0.1250 | 0.0045 | 0.0270 | 1.1342 | 1.5000 | 930-001-970 | N/A | 930-002-253 |
| 0.0100 | 0.1250 | 0.0050 | 0.0300 | 1.1742 | 1.5000 | 930-001-971 | 930-002-341 | 930-002-254 |
| 0.0110 | 0.1250 | 0.0055 | 0.0330 | 1.1738 | 1.5000 | 930-001-973 | 930-002-343 | 930-002-255 |
| 0.0120 | 0.1250 | 0.0060 | 0.0360 | 1.1733 | 1.5000 | 930-001-974 | 930-002-344 | 930-002-256 |
| 0.0130 | 0.1250 | 0.0065 | 0.0390 | 1.1729 | 1.5000 | 930-001-975 | 930-002-345 | 930-002-257 |
| 0.0140 | 0.1250 | 0.0070 | 0.0420 | 1.1725 | 1.5000 | 930-001-976 | 930-002-346 | 930-002-258 |
| 0.0150 | 0.1250 | 0.0075 | 0.0450 | 1.1720 | 1.5000 | 930-001-977 | 930-002-347 | 930-002-259 |
| 0.0156 | 0.1250 | 0.0078 | 0.0468 | 1.1718 | 1.5000 | 930-002-084 | 930-002-453 | N/A |
| 0.0160 | 0.1250 | 0.0080 | 0.0480 | 1.1716 | 1.5000 | 930-001-979 | 930-002-349 | 930-002-260 |
| 0.0170 | 0.1250 | 0.0085 | 0.0510 | 1.1712 | 1.5000 | 930-001-980 | 930-002-350 | 930-002-261 |
| 0.0180 | 0.1250 | 0.0090 | 0.0540 | 1.1708 | 1.5000 | 930-001-981 | 930-002-351 | 930-002-262 |
| 0.0190 | 0.1250 | 0.0095 | 0.0570 | 1.1703 | 1.5000 | 930-001-982 | 930-002-352 | 930-002-263 |
| 0.0197 | 0.1250 | 0.0099 | 0.0591 | 1.1700 | 1.5000 | 930-002-065 | 930-002-434 | N/A |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.1699 | 1.5000 | 930-001-983 | 930-002-353 | 930-002-264 |
| 0.0210 | 0.1250 | 0.0105 | 0.0630 | 1.1695 | 1.5000 | 930-001-985 | 930-002-355 | 930-002-265 |
| 0.0220 | 0.1250 | 0.0110 | 0.0660 | 1.1691 | 1.5000 | 930-001-986 | 930-002-356 | 930-002-266 |
| 0.0230 | 0.1250 | 0.0115 | 0.0690 | 1.1686 | 1.5000 | 930-001-987 | 930-002-357 | 930-002-267 |
| 0.0240 | 0.1250 | 0.0120 | 0.0720 | 1.1682 | 1.5000 | 930-001-988 | 930-002-358 | 930-002-268 |
| 0.0250 | 0.1250 | 0.0125 | 0.0750 | 1.1678 | 1.5000 | 930-001-989 | 930-002-359 | 930-002-269 |
| 0.0260 | 0.1250 | 0.0130 | 0.0780 | 1.1673 | 1.5000 | 930-001-991 | 930-002-361 | 930-002-270 |
| 0.0270 | 0.1250 | 0.0135 | 0.0810 | 1.1669 | 1.5000 | 930-001-992 | 930-002-362 | 930-002-271 |
| 0.0280 | 0.1250 | 0.0140 | 0.0840 | 1.1665 | 1.5000 | 930-001-993 | 930-002-363 | 930-002-272 |
| 0.0290 | 0.1250 | 0.0145 | 0.0870 | 1.1661 | 1.5000 | 930-001-994 | 930-002-364 | 930-002-273 |
| 0.0300 | 0.1250 | 0.0150 | 0.0900 | 1.1656 | 1.5000 | 930-001-995 | 930-002-365 | 930-002-274 |
| 0.0312 | 0.1250 | 0.0156 | 0.0936 | 1.1651 | 1.5000 | 930-001-997 | 930-002-367 | 930-002-275 |
| 0.0320 | 0.1250 | 0.0160 | 0.0960 | 1.1648 | 1.5000 | 930-001-998 | 930-002-368 | 930-002-276 |
| 0.0330 | 0.1250 | 0.0165 | 0.0990 | 1.1644 | 1.5000 | 930-001-999 | 930-002-369 | 930-002-277 |
| 0.0340 | 0.1250 | 0.0170 | 0.1020 | 1.1639 | 1.5000 | 930-002-001 | 930-002-370 | 930-002-278 |
| 0.0350 | 0.1250 | 0.0175 | 0.1050 | 1.1635 | 1.5000 | 930-002-002 | 930-002-371 | 930-002-279 |
| 0.0360 | 0.1250 | 0.0180 | 0.1080 | 1.1631 | 1.5000 | 930-002-004 | 930-002-373 | 930-002-280 |
| 0.0370 | 0.1250 | 0.0185 | 0.1110 | 1.1626 | 1.5000 | 930-002-005 | 930-002-374 | 930-002-281 |
| 0.0380 | 0.1250 | 0.0190 | 0.1140 | 1.1622 | 1.5000 | 930-002-006 | 930-002-375 | 930-002-282 |
| 0.0390 | 0.1250 | 0.0195 | 0.1170 | 1.1618 | 1.5000 | 930-002-007 | 930-002-376 | 930-002-283 |
| 0.0394 | 0.1250 | 0.0197 | 0.1182 | 1.1616 | 1.5000 | 930-002-072 | 930-002-441 | 882-E-0394 |
| 0.0400 | 0.1250 | 0.0200 | 0.1200 | 1.1614 | 1.5000 | 930-002-008 | 930-002-377 | 930-002-284 |
| 0.0410 | 0.1250 | 0.0205 | 0.1230 | 1.1609 | 1.5000 | 930-002-010 | 930-002-379 | 930-002-285 |
| 0.0420 | 0.1250 | 0.0210 | 0.1260 | 1.1605 | 1.5000 | 930-002-011 | 930-002-380 | 930-002-286 |
| 0.0430 | 0.1250 | 0.0215 | 0.1290 | 1.1601 | 1.5000 | 930-002-012 | 930-002-381 | 930-002-287 |
| 0.0440 | 0.1250 | 0.0220 | 0.1320 | 1.1596 | 1.5000 | 930-002-013 | 930-002-382 | 930-002-288 |

Ø .005" - .044"

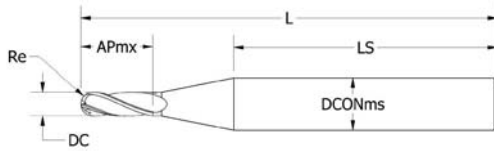


| DC | DCONms | Re | APmx | LS | L | TiAlN COATED | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|--------------|-------------|-------------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0150 | 1.1342 | 1.5000 | 930-002-161 | N/A | 930-002-086 | N/A |
| 0.0060 | 0.1250 | 0.0030 | 0.0180 | 1.1342 | 1.5000 | 930-002-162 | N/A | 930-002-087 | N/A |
| 0.0070 | 0.1250 | 0.0035 | 0.0210 | 1.1342 | 1.5000 | 930-002-163 | N/A | 930-002-088 | N/A |
| 0.0080 | 0.1250 | 0.0040 | 0.0240 | 1.1342 | 1.5000 | 930-002-164 | N/A | 930-002-089 | N/A |
| 0.0090 | 0.1250 | 0.0045 | 0.0270 | 1.1342 | 1.5000 | 930-002-165 | N/A | 930-002-090 | N/A |
| 0.0100 | 0.1250 | 0.0050 | 0.0300 | 1.1742 | 1.5000 | 930-002-166 | 930-002-523 | 930-002-091 | 930-002-455 |
| 0.0110 | 0.1250 | 0.0055 | 0.0330 | 1.1738 | 1.5000 | 930-002-167 | 930-002-524 | 930-002-092 | 930-002-456 |
| 0.0120 | 0.1250 | 0.0060 | 0.0360 | 1.1733 | 1.5000 | 930-002-168 | 930-002-525 | 930-002-093 | 930-002-457 |
| 0.0130 | 0.1250 | 0.0065 | 0.0390 | 1.1729 | 1.5000 | 930-002-169 | 930-002-526 | 930-002-094 | 930-002-458 |
| 0.0140 | 0.1250 | 0.0070 | 0.0420 | 1.1725 | 1.5000 | 930-002-170 | 930-002-527 | 930-002-095 | 930-002-459 |
| 0.0150 | 0.1250 | 0.0075 | 0.0450 | 1.1720 | 1.5000 | 930-002-171 | 930-002-528 | 930-002-096 | 930-002-460 |
| 0.0156 | 0.1250 | 0.0078 | 0.0468 | 1.1718 | 1.5000 | 930-002-247 | 883-C-1560 | N/A | N/A |
| 0.0160 | 0.1250 | 0.0080 | 0.0480 | 1.1716 | 1.5000 | 930-002-172 | 930-002-529 | 930-002-097 | 930-002-461 |
| 0.0170 | 0.1250 | 0.0085 | 0.0510 | 1.1712 | 1.5000 | 930-002-173 | 930-002-530 | 930-002-098 | 930-002-462 |
| 0.0180 | 0.1250 | 0.0090 | 0.0540 | 1.1708 | 1.5000 | 930-002-174 | 930-002-531 | 930-002-099 | 930-002-463 |
| 0.0190 | 0.1250 | 0.0095 | 0.0570 | 1.1703 | 1.5000 | 930-002-175 | 930-002-532 | 930-002-100 | 930-002-464 |
| 0.0197 | 0.1250 | 0.0099 | 0.0591 | 1.1700 | 1.5000 | 930-002-235 | 930-002-592 | N/A | N/A |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.1699 | 1.5000 | 930-002-176 | 930-002-533 | 930-002-101 | 930-002-465 |
| 0.0210 | 0.1250 | 0.0105 | 0.0630 | 1.1695 | 1.5000 | 930-002-177 | 930-002-534 | 930-002-102 | 930-002-466 |
| 0.0220 | 0.1250 | 0.0110 | 0.0660 | 1.1691 | 1.5000 | 930-002-178 | 930-002-535 | 930-002-103 | 930-002-467 |
| 0.0230 | 0.1250 | 0.0115 | 0.0690 | 1.1686 | 1.5000 | 930-002-179 | 930-002-536 | 930-002-104 | 930-002-468 |
| 0.0240 | 0.1250 | 0.0120 | 0.0720 | 1.1682 | 1.5000 | 930-002-180 | 930-002-537 | 930-002-105 | 930-002-469 |
| 0.0250 | 0.1250 | 0.0125 | 0.0750 | 1.1678 | 1.5000 | 930-002-181 | 930-002-538 | 930-002-106 | 930-002-470 |
| 0.0260 | 0.1250 | 0.0130 | 0.0780 | 1.1673 | 1.5000 | 930-002-182 | 930-002-539 | 930-002-107 | 930-002-471 |
| 0.0270 | 0.1250 | 0.0135 | 0.0810 | 1.1669 | 1.5000 | 930-002-183 | 930-002-540 | 930-002-108 | 930-002-472 |
| 0.0280 | 0.1250 | 0.0140 | 0.0840 | 1.1665 | 1.5000 | 930-002-184 | 930-002-541 | 930-002-109 | 930-002-473 |
| 0.0290 | 0.1250 | 0.0145 | 0.0870 | 1.1661 | 1.5000 | 930-002-185 | 930-002-542 | 930-002-110 | 930-002-474 |
| 0.0300 | 0.1250 | 0.0150 | 0.0900 | 1.1656 | 1.5000 | 930-002-186 | 930-002-543 | 930-002-111 | 930-002-475 |
| 0.0310 | 0.1250 | 0.0155 | 0.0930 | 1.1652 | 1.5000 | 930-002-187 | 930-002-544 | 930-002-112 | 930-002-476 |
| 0.0320 | 0.1250 | 0.0160 | 0.0960 | 1.1648 | 1.5000 | 930-002-188 | 930-002-545 | 930-002-113 | 930-002-477 |
| 0.0330 | 0.1250 | 0.0165 | 0.0990 | 1.1644 | 1.5000 | 930-002-189 | 930-002-546 | 930-002-114 | 930-002-478 |
| 0.0340 | 0.1250 | 0.0170 | 0.1020 | 1.1639 | 1.5000 | 930-002-190 | 930-002-547 | 930-002-115 | 930-002-479 |
| 0.0350 | 0.1250 | 0.0175 | 0.1050 | 1.1635 | 1.5000 | 930-002-191 | 930-002-548 | 930-002-116 | 930-002-480 |
| 0.0360 | 0.1250 | 0.0180 | 0.1080 | 1.1631 | 1.5000 | 930-002-192 | 930-002-549 | 930-002-117 | 930-002-481 |
| 0.0370 | 0.1250 | 0.0185 | 0.1110 | 1.1626 | 1.5000 | 930-002-193 | 930-002-550 | 930-002-118 | 930-002-482 |
| 0.0380 | 0.1250 | 0.0190 | 0.1140 | 1.1622 | 1.5000 | 930-002-194 | 930-002-551 | 930-002-119 | 930-002-483 |
| 0.0390 | 0.1250 | 0.0195 | 0.1170 | 1.1618 | 1.5000 | 930-002-195 | 930-002-552 | 930-002-120 | 930-002-484 |
| 0.0394 | 0.1250 | 0.0197 | 0.1182 | 1.1616 | 1.5000 | 930-002-236 | 930-002-593 | 930-002-156 | 930-002-518 |
| 0.0400 | 0.1250 | 0.0200 | 0.1200 | 1.1614 | 1.5000 | 930-002-196 | 930-002-553 | 930-002-121 | 930-002-485 |
| 0.0410 | 0.1250 | 0.0205 | 0.1230 | 1.1609 | 1.5000 | 930-002-197 | 930-002-554 | 930-002-122 | 930-002-486 |
| 0.0420 | 0.1250 | 0.0210 | 0.1260 | 1.1605 | 1.5000 | 930-002-198 | 930-002-555 | 930-002-123 | 930-002-487 |
| 0.0430 | 0.1250 | 0.0215 | 0.1290 | 1.1601 | 1.5000 | 930-002-199 | 930-002-556 | 930-002-124 | 930-002-488 |
| 0.0440 | 0.1250 | 0.0220 | 0.1320 | 1.1596 | 1.5000 | 930-002-200 | 930-002-557 | 930-002-125 | 930-002-489 |

Ø .045" - .1772"



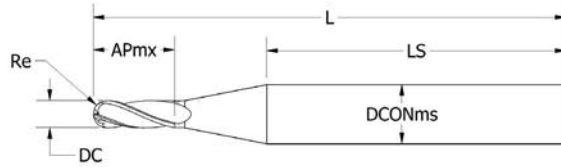
CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0450 | 0.1250 | 0.0225 | 0.1350 | 1.1592 | 1.5000 | 930-002-014 | 930-002-383 | 930-002-289 |
| 0.0460 | 0.1250 | 0.0230 | 0.1380 | 1.1588 | 1.5000 | 930-002-016 | 930-002-385 | 930-002-290 |
| 0.0468 | 0.1250 | 0.0234 | 0.1404 | 1.1584 | 1.5000 | 930-002-017 | 930-002-386 | 930-002-291 |
| 0.0480 | 0.1250 | 0.0240 | 0.1440 | 1.1579 | 1.5000 | 930-002-018 | 930-002-387 | 930-002-292 |
| 0.0490 | 0.1250 | 0.0245 | 0.1470 | 1.1575 | 1.5000 | 930-002-019 | 930-002-388 | 930-002-293 |
| 0.0492 | 0.1250 | 0.0246 | 0.1476 | 1.1574 | 1.5000 | 930-002-073 | 930-002-442 | N/A |
| 0.0500 | 0.1250 | 0.0250 | 0.1500 | 1.1571 | 1.5000 | 930-002-020 | 930-002-389 | 930-002-294 |
| 0.0510 | 0.1250 | 0.0255 | 0.1530 | 1.1567 | 1.5000 | 930-002-022 | 930-002-391 | 930-002-295 |
| 0.0520 | 0.1250 | 0.0260 | 0.1560 | 1.1562 | 1.5000 | 930-002-023 | 930-002-392 | 930-002-296 |
| 0.0530 | 0.1250 | 0.0265 | 0.1590 | 1.1558 | 1.5000 | 930-002-024 | 930-002-393 | 930-002-297 |
| 0.0540 | 0.1250 | 0.0270 | 0.1620 | 1.1554 | 1.5000 | 930-002-025 | 930-002-394 | 930-002-298 |
| 0.0550 | 0.1250 | 0.0275 | 0.1650 | 1.1549 | 1.5000 | 930-002-026 | 930-002-395 | 930-002-299 |
| 0.0560 | 0.1250 | 0.0280 | 0.1680 | 1.1545 | 1.5000 | 930-002-028 | 930-002-397 | 930-002-300 |
| 0.0570 | 0.1250 | 0.0285 | 0.1710 | 1.1541 | 1.5000 | 930-002-029 | 930-002-398 | 930-002-301 |
| 0.0580 | 0.1250 | 0.0290 | 0.1740 | 1.1537 | 1.5000 | 930-002-030 | 930-002-399 | 930-002-302 |
| 0.0590 | 0.1250 | 0.0295 | 0.1770 | 1.1532 | 1.5000 | 930-002-031 | 930-002-400 | 930-002-303 |
| 0.0591 | 0.1250 | 0.0296 | 0.1773 | 1.1532 | 1.5000 | 930-002-075 | 930-002-444 | 930-002-322 |
| 0.0600 | 0.1250 | 0.0300 | 0.1800 | 1.1528 | 1.5000 | 930-002-032 | 930-002-401 | 930-002-304 |
| 0.0620 | 0.1250 | 0.0310 | 0.1860 | 1.1519 | 1.5000 | 930-002-034 | 930-002-403 | 930-002-305 |
| 0.0630 | 0.1250 | 0.0315 | 0.1890 | 1.1515 | 1.5000 | 930-002-076 | 930-002-445 | N/A |
| 0.0640 | 0.1250 | 0.0320 | 0.1920 | 1.1511 | 1.5000 | 930-002-035 | 930-002-404 | N/A |
| 0.0650 | 0.1250 | 0.0325 | 0.1950 | 1.1507 | 1.5000 | 930-002-036 | 930-002-405 | 930-002-304 |
| 0.0700 | 0.1250 | 0.0350 | 0.2100 | 1.1485 | 1.5000 | 930-002-038 | 930-002-407 | 930-002-305 |
| 0.0709 | 0.1250 | 0.0355 | 0.2127 | 1.1481 | 1.5000 | 930-002-077 | 930-002-446 | N/A |
| 0.0750 | 0.1250 | 0.0375 | 0.2250 | 1.1464 | 1.5000 | 930-002-040 | 930-002-409 | 930-002-308 |
| 0.0781 | 0.1250 | 0.0391 | 0.2343 | 1.1451 | 1.5000 | 930-002-041 | 930-002-410 | 930-002-309 |
| 0.0787 | 0.1250 | 0.0394 | 0.2361 | 1.1448 | 1.5000 | 930-002-078 | 930-002-447 | N/A |
| 0.0800 | 0.1250 | 0.0400 | 0.2400 | 1.1442 | 1.5000 | 930-002-042 | 930-002-411 | 930-002-310 |
| 0.0850 | 0.1250 | 0.0425 | 0.2550 | 1.1421 | 1.5000 | 930-002-044 | 930-002-413 | 930-002-311 |
| 0.0866 | 0.1250 | 0.0433 | 0.2598 | 1.1414 | 1.5000 | 930-002-079 | 930-002-448 | N/A |
| 0.0900 | 0.1250 | 0.0450 | 0.2700 | 1.1400 | 1.5000 | 930-002-045 | 930-002-414 | 930-002-312 |
| 0.0938 | 0.1250 | 0.0469 | 0.2814 | 1.1383 | 1.5000 | 930-002-047 | 930-002-416 | 930-002-313 |
| 0.0950 | 0.1250 | 0.0475 | 0.2850 | 1.1378 | 1.5000 | 930-002-048 | 930-002-417 | 930-002-314 |
| 0.0984 | 0.1250 | 0.0492 | 0.2952 | 1.1364 | 1.5000 | 930-002-080 | 930-002-449 | N/A |
| 0.1000 | 0.1250 | 0.0500 | 0.3000 | 1.1357 | 1.5000 | 930-002-049 | 930-002-418 | 930-002-315 |
| 0.1050 | 0.1250 | 0.0525 | 0.3150 | 1.1336 | 1.5000 | 930-002-051 | 930-002-420 | 930-002-316 |
| 0.1102 | 0.1250 | 0.0551 | 0.3306 | 1.1313 | 1.5000 | 930-002-081 | 930-002-450 | 930-002-323 |
| 0.1150 | 0.1250 | 0.0575 | 0.3450 | 1.1293 | 1.5000 | 930-002-052 | 930-002-421 | 930-002-317 |
| 0.1181 | 0.1250 | 0.0591 | 0.3543 | 1.1280 | 1.5000 | 930-002-082 | 930-002-451 | 930-002-324 |
| 0.1200 | 0.1250 | 0.0600 | 0.3600 | 1.1271 | 1.5000 | 930-002-053 | 930-002-422 | 930-002-318 |
| 0.1378 | 0.1875 | 0.0689 | 0.4134 | 1.4588 | 2.0000 | 930-002-083 | 930-002-452 | N/A |
| 0.1772 | 0.1875 | 0.0886 | 0.5316 | 1.4419 | 2.0000 | 930-002-085 | 930-002-454 | N/A |

CARBIDE

Ø .045" - .1772"

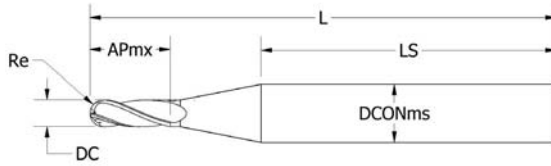


| DC | DCONms | Re | APmx | LS | L | TIAIN COATED | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|--------------|-------------|-------------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0450 | 0.1250 | 0.0225 | 0.1350 | 1.1592 | 1.5000 | 930-002-201 | 930-002-558 | 930-002-126 | 930-002-490 |
| 0.0460 | 0.1250 | 0.0230 | 0.1380 | 1.1588 | 1.5000 | 930-002-202 | 930-002-559 | 930-002-127 | 930-002-491 |
| 0.0470 | 0.1250 | 0.0235 | 0.1410 | 1.1584 | 1.5000 | 930-002-203 | 930-002-560 | 930-002-128 | 930-002-492 |
| 0.0480 | 0.1250 | 0.0240 | 0.1440 | 1.1579 | 1.5000 | 930-002-204 | 930-002-561 | 930-002-129 | 930-002-493 |
| 0.0490 | 0.1250 | 0.0245 | 0.1470 | 1.1575 | 1.5000 | 930-002-205 | 930-002-562 | 930-002-130 | 930-002-494 |
| 0.0492 | 0.1250 | 0.0246 | 0.1476 | 1.1574 | 1.5000 | 930-002-237 | 930-002-594 | 930-002-157 | 930-002-519 |
| 0.0500 | 0.1250 | 0.0250 | 0.1500 | 1.1571 | 1.5000 | 930-002-206 | 930-002-563 | 930-002-131 | 930-002-495 |
| 0.0510 | 0.1250 | 0.0255 | 0.1530 | 1.1567 | 1.5000 | 930-002-207 | 930-002-564 | 930-002-132 | 930-002-496 |
| 0.0520 | 0.1250 | 0.0260 | 0.1560 | 1.1562 | 1.5000 | 930-002-208 | 930-002-565 | 930-002-133 | 930-002-497 |
| 0.0530 | 0.1250 | 0.0265 | 0.1590 | 1.1558 | 1.5000 | 930-002-209 | 930-002-566 | 930-002-134 | 930-002-498 |
| 0.0540 | 0.1250 | 0.0270 | 0.1620 | 1.1554 | 1.5000 | 930-002-210 | 930-002-567 | 930-002-135 | 930-002-499 |
| 0.0550 | 0.1250 | 0.0275 | 0.1650 | 1.1549 | 1.5000 | 930-002-211 | 930-002-568 | 930-002-136 | 930-002-500 |
| 0.0560 | 0.1250 | 0.0280 | 0.1680 | 1.1545 | 1.5000 | 930-002-212 | 930-002-569 | 930-002-137 | 930-002-501 |
| 0.0570 | 0.1250 | 0.0285 | 0.1710 | 1.1541 | 1.5000 | 930-002-213 | 930-002-570 | 930-002-138 | 930-002-502 |
| 0.0580 | 0.1250 | 0.0290 | 0.1740 | 1.1537 | 1.5000 | 930-002-214 | 930-002-571 | 930-002-139 | 930-002-503 |
| 0.0590 | 0.1250 | 0.0295 | 0.1770 | 1.1532 | 1.5000 | 930-002-215 | 930-002-572 | 930-002-140 | 930-002-504 |
| 0.0591 | 0.1250 | 0.0296 | 0.1773 | 1.1532 | 1.5000 | 930-002-238 | 930-002-595 | 930-002-158 | 930-002-520 |
| 0.0600 | 0.1250 | 0.0300 | 0.1800 | 1.1528 | 1.5000 | 930-002-216 | 930-002-573 | 930-002-141 | 930-002-505 |
| 0.0620 | 0.1250 | 0.0310 | 0.1860 | 1.1519 | 1.5000 | 930-002-217 | 930-002-574 | 930-002-142 | 930-002-506 |
| 0.0630 | 0.1250 | 0.0315 | 0.1890 | 1.1515 | 1.5000 | 930-002-239 | 930-002-596 | N/A | N/A |
| 0.0650 | 0.1250 | 0.0325 | 0.1950 | 1.1507 | 1.5000 | 930-002-218 | 930-002-575 | 930-002-143 | 930-002-507 |
| 0.0700 | 0.1250 | 0.0350 | 0.2100 | 1.1485 | 1.5000 | 930-002-219 | 930-002-576 | N/A | N/A |
| 0.0709 | 0.1250 | 0.0355 | 0.2127 | 1.1481 | 1.5000 | 930-002-240 | 930-002-597 | N/A | N/A |
| 0.0750 | 0.1250 | 0.0375 | 0.2250 | 1.1464 | 1.5000 | 930-002-220 | 930-002-577 | 930-002-145 | 930-002-509 |
| 0.0781 | 0.1250 | 0.0391 | 0.2343 | 1.1451 | 1.5000 | 930-002-221 | 930-002-578 | 930-002-146 | 930-002-510 |
| 0.0787 | 0.1250 | 0.0394 | 0.2361 | 1.1448 | 1.5000 | 930-002-241 | 930-002-598 | N/A | N/A |
| 0.0800 | 0.1250 | 0.0400 | 0.2400 | 1.1442 | 1.5000 | 930-002-222 | 930-002-579 | 930-002-147 | 930-002-511 |
| 0.0850 | 0.1250 | 0.0425 | 0.2550 | 1.1421 | 1.5000 | 930-002-223 | 930-002-580 | 930-002-148 | 930-002-512 |
| 0.0866 | 0.1250 | 0.0433 | 0.2598 | 1.1414 | 1.5000 | 930-002-242 | 930-002-599 | N/A | N/A |
| 0.0900 | 0.1250 | 0.0450 | 0.2700 | 1.1400 | 1.5000 | 930-002-224 | 930-002-581 | 930-002-149 | 930-002-513 |
| 0.0938 | 0.1250 | 0.0469 | 0.2814 | 1.1383 | 1.5000 | 930-002-225 | 930-002-582 | 930-002-150 | 930-002-514 |
| 0.0950 | 0.1250 | 0.0475 | 0.2850 | 1.1378 | 1.5000 | 930-002-226 | 930-002-583 | 930-002-151 | 930-002-515 |
| 0.0984 | 0.1250 | 0.0492 | 0.2952 | 1.1364 | 1.5000 | 930-002-243 | 930-002-600 | N/A | N/A |
| 0.1000 | 0.1250 | 0.0500 | 0.3000 | 1.1357 | 1.5000 | 930-002-227 | 930-002-584 | 930-002-152 | 930-002-516 |
| 0.1102 | 0.1250 | 0.0551 | 0.3306 | 1.1313 | 1.5000 | 930-002-244 | 930-002-601 | 930-002-159 | 930-002-521 |
| 0.1181 | 0.1250 | 0.0591 | 0.3543 | 1.1280 | 1.5000 | 930-002-245 | 930-002-602 | 930-002-160 | 930-002-522 |
| 0.1200 | 0.1250 | 0.0600 | 0.3600 | 1.1271 | 1.5000 | 930-002-228 | 930-002-585 | 930-002-155 | 930-002-517 |
| 0.1378 | 0.1875 | 0.0689 | 0.4134 | 1.4588 | 2.0000 | 930-002-246 | 930-002-603 | N/A | N/A |
| 0.1772 | 0.1875 | 0.0886 | 0.5316 | 1.4419 | 2.0000 | 930-002-248 | 930-002-605 | N/A | N/A |

Ø .005" - .040"



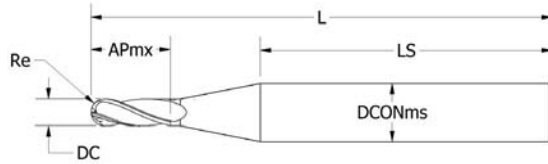
CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0080 | 1.1342 | 1.5000 | 930-001-173 | N/A | 930-001-337 |
| 0.0060 | 0.1250 | 0.0030 | 0.0090 | 1.1342 | 1.5000 | 930-001-174 | N/A | 930-001-338 |
| 0.0070 | 0.1250 | 0.0035 | 0.0110 | 1.1342 | 1.5000 | 930-001-175 | N/A | 930-001-339 |
| 0.0080 | 0.1250 | 0.0040 | 0.0120 | 1.1342 | 1.5000 | 930-001-176 | N/A | 930-001-340 |
| 0.0090 | 0.1250 | 0.0045 | 0.0140 | 1.1342 | 1.5000 | 930-001-177 | N/A | 930-001-341 |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 1.1892 | 1.5000 | 930-001-178 | 930-001-815 | 930-001-342 |
| 0.0110 | 0.1250 | 0.0055 | 0.0165 | 1.1903 | 1.5000 | 930-001-179 | 930-001-816 | 930-001-343 |
| 0.0120 | 0.1250 | 0.0060 | 0.0180 | 1.1913 | 1.5000 | 930-001-180 | 930-001-817 | 930-001-344 |
| 0.0130 | 0.1250 | 0.0065 | 0.0195 | 1.1924 | 1.5000 | 930-001-181 | 930-001-818 | 930-001-345 |
| 0.0140 | 0.1250 | 0.0070 | 0.0210 | 1.1935 | 1.5000 | 930-001-182 | 930-001-819 | 930-001-346 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 1.1945 | 1.5000 | 930-001-183 | 930-001-820 | 930-001-347 |
| 0.0156 | 0.1250 | 0.0078 | 0.0234 | 1.1952 | 1.5000 | 930-001-246 | 930-001-883 | N/A |
| 0.0160 | 0.1250 | 0.0080 | 0.0240 | 1.1956 | 1.5000 | 930-001-184 | 930-001-821 | 930-001-348 |
| 0.0170 | 0.1250 | 0.0085 | 0.0255 | 1.1967 | 1.5000 | 930-001-185 | 930-001-822 | 930-001-349 |
| 0.0180 | 0.1250 | 0.0090 | 0.0270 | 1.1978 | 1.5000 | 930-001-186 | 930-001-823 | 930-001-350 |
| 0.0190 | 0.1250 | 0.0095 | 0.0285 | 1.1988 | 1.5000 | 930-001-187 | 930-001-824 | 930-001-351 |
| 0.0197 | 0.1250 | 0.0099 | 0.0296 | 1.1996 | 1.5000 | 930-001-233 | 930-001-870 | N/A |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 1.1999 | 1.5000 | 930-001-188 | 930-001-825 | 930-001-352 |
| 0.0210 | 0.1250 | 0.0105 | 0.0315 | 1.2010 | 1.5000 | 930-001-189 | 930-001-826 | 930-001-353 |
| 0.0220 | 0.1250 | 0.0110 | 0.0330 | 1.2021 | 1.5000 | 930-001-190 | 930-001-827 | 930-001-354 |
| 0.0230 | 0.1250 | 0.0115 | 0.0345 | 1.2031 | 1.5000 | 930-001-191 | 930-001-828 | 930-001-355 |
| 0.0240 | 0.1250 | 0.0120 | 0.0360 | 1.2042 | 1.5000 | 930-001-192 | 930-001-829 | 930-001-356 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 1.2053 | 1.5000 | 930-001-193 | 930-001-830 | 930-001-357 |
| 0.0260 | 0.1250 | 0.0130 | 0.0390 | 1.2063 | 1.5000 | 930-001-194 | 930-001-831 | 930-001-358 |
| 0.0270 | 0.1250 | 0.0135 | 0.0405 | 1.2074 | 1.5000 | 930-001-195 | 930-001-832 | 930-001-359 |
| 0.0280 | 0.1250 | 0.0140 | 0.0420 | 1.2085 | 1.5000 | 930-001-196 | 930-001-833 | 930-001-360 |
| 0.0290 | 0.1250 | 0.0145 | 0.0435 | 1.2096 | 1.5000 | 930-001-197 | 930-001-834 | 930-001-361 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 1.2106 | 1.5000 | 930-001-198 | 930-001-835 | 930-001-362 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 1.2117 | 1.5000 | 930-001-199 | 930-001-836 | 930-001-363 |
| 0.0320 | 0.1250 | 0.0160 | 0.0480 | 1.2128 | 1.5000 | 930-001-200 | 930-001-837 | 930-001-364 |
| 0.0330 | 0.1250 | 0.0165 | 0.0495 | 1.2139 | 1.5000 | 930-001-201 | 930-001-838 | 930-001-365 |
| 0.0340 | 0.1250 | 0.0170 | 0.0510 | 1.2149 | 1.5000 | 930-001-202 | 930-001-839 | 930-001-366 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 1.2160 | 1.5000 | 930-001-203 | 930-001-840 | 930-001-367 |
| 0.0360 | 0.1250 | 0.0180 | 0.0540 | 1.2171 | 1.5000 | 930-001-204 | 930-001-841 | 930-001-368 |
| 0.0370 | 0.1250 | 0.0185 | 0.0555 | 1.2181 | 1.5000 | 930-001-205 | 930-001-842 | 930-001-369 |
| 0.0380 | 0.1250 | 0.0190 | 0.0570 | 1.2192 | 1.5000 | 930-001-206 | 930-001-843 | 930-001-370 |
| 0.0390 | 0.1250 | 0.0195 | 0.0585 | 1.2203 | 1.5000 | 930-001-207 | 930-001-844 | 930-001-371 |
| 0.0394 | 0.1250 | 0.0197 | 0.0591 | 1.2207 | 1.5000 | 930-001-235 | 930-001-872 | 930-001-390 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 1.2214 | 1.5000 | 930-001-208 | 930-001-845 | 930-001-372 |

CARBIDE

Ø .005" - .040"

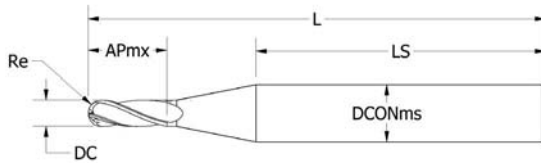


| DC | DCONms | Re | APmx | LS | L | TiAIN COATED | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|--------------|-------------|-------------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0080 | 1.1342 | 1.5000 | 930-001-296 | N/A | 930-001-247 | N/A |
| 0.0060 | 0.1250 | 0.0030 | 0.0090 | 1.1342 | 1.5000 | 930-001-297 | N/A | 930-001-248 | N/A |
| 0.0070 | 0.1250 | 0.0035 | 0.0110 | 1.1342 | 1.5000 | 930-001-298 | N/A | 930-001-249 | N/A |
| 0.0080 | 0.1250 | 0.0040 | 0.0120 | 1.1342 | 1.5000 | 930-001-299 | N/A | 930-001-250 | N/A |
| 0.0090 | 0.1250 | 0.0045 | 0.0140 | 1.1342 | 1.5000 | 930-001-300 | N/A | 930-001-251 | N/A |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 1.1892 | 1.5000 | 930-001-301 | 930-001-929 | 930-001-252 | 930-001-884 |
| 0.0110 | 0.1250 | 0.0055 | 0.0165 | 1.1903 | 1.5000 | 930-001-302 | 930-001-930 | 930-001-253 | 930-001-885 |
| 0.0120 | 0.1250 | 0.0060 | 0.0180 | 1.1913 | 1.5000 | 930-001-303 | 930-001-931 | 930-001-254 | 930-001-886 |
| 0.0130 | 0.1250 | 0.0065 | 0.0195 | 1.1924 | 1.5000 | 930-001-304 | 930-001-932 | 930-001-255 | 930-001-887 |
| 0.0140 | 0.1250 | 0.0070 | 0.0210 | 1.1935 | 1.5000 | 930-001-305 | 930-001-933 | 930-001-256 | 930-001-888 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 1.1945 | 1.5000 | 930-001-306 | 930-001-934 | 930-001-257 | 930-001-889 |
| 0.0160 | 0.1250 | 0.0080 | 0.0240 | 1.1956 | 1.5000 | 930-001-307 | 930-001-935 | 930-001-258 | 930-001-890 |
| 0.0170 | 0.1250 | 0.0085 | 0.0255 | 1.1967 | 1.5000 | 930-001-308 | 930-001-936 | 930-001-259 | 930-001-891 |
| 0.0180 | 0.1250 | 0.0090 | 0.0270 | 1.1978 | 1.5000 | 930-001-309 | 930-001-937 | 930-001-260 | 930-001-892 |
| 0.0190 | 0.1250 | 0.0095 | 0.0285 | 1.1988 | 1.5000 | 930-001-310 | 930-001-938 | 930-001-261 | 930-001-893 |
| 0.0190 | 0.1250 | 0.0095 | 0.0285 | 1.1988 | 1.5000 | 930-001-311 | 930-001-939 | 930-001-262 | 930-001-894 |
| 0.0210 | 0.1250 | 0.0105 | 0.0315 | 1.2010 | 1.5000 | 930-001-312 | 930-001-940 | 930-001-263 | 930-001-895 |
| 0.0220 | 0.1250 | 0.0110 | 0.0330 | 1.2021 | 1.5000 | 930-001-313 | 930-001-941 | 930-001-264 | 930-001-896 |
| 0.0230 | 0.1250 | 0.0115 | 0.0345 | 1.2031 | 1.5000 | 930-001-314 | 930-001-942 | 930-001-265 | 930-001-897 |
| 0.0240 | 0.1250 | 0.0120 | 0.0360 | 1.2042 | 1.5000 | 930-001-315 | 930-001-943 | 930-001-266 | 930-001-898 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 1.2053 | 1.5000 | 930-001-316 | 930-001-944 | 930-001-267 | 930-001-899 |
| 0.0260 | 0.1250 | 0.0130 | 0.0390 | 1.2063 | 1.5000 | 930-001-317 | 930-001-945 | 930-001-268 | 930-001-900 |
| 0.0270 | 0.1250 | 0.0135 | 0.0405 | 1.2074 | 1.5000 | 930-001-318 | 930-001-946 | 930-001-269 | 930-001-901 |
| 0.0280 | 0.1250 | 0.0140 | 0.0420 | 1.2085 | 1.5000 | 930-001-319 | 930-001-947 | 930-001-270 | 930-001-902 |
| 0.0290 | 0.1250 | 0.0145 | 0.0435 | 1.2096 | 1.5000 | 930-001-320 | 930-001-948 | 930-001-271 | 930-001-903 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 1.2106 | 1.5000 | 930-001-321 | 930-001-949 | 930-001-272 | 930-001-904 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 1.2117 | 1.5000 | 930-001-322 | 930-001-950 | 930-001-273 | 930-001-905 |
| 0.0320 | 0.1250 | 0.0160 | 0.0480 | 1.2128 | 1.5000 | 930-001-323 | 930-001-951 | 930-001-274 | 930-001-906 |
| 0.0330 | 0.1250 | 0.0165 | 0.0495 | 1.2139 | 1.5000 | 930-001-324 | 930-001-952 | 930-001-275 | 930-001-907 |
| 0.0340 | 0.1250 | 0.0170 | 0.0510 | 1.2149 | 1.5000 | 930-001-325 | 930-001-953 | 930-001-276 | 930-001-908 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 1.2160 | 1.5000 | 930-001-326 | 930-001-954 | 930-001-277 | 930-001-909 |
| 0.0360 | 0.1250 | 0.0180 | 0.0540 | 1.2171 | 1.5000 | 930-001-327 | 930-001-955 | 930-001-278 | 930-001-910 |
| 0.0370 | 0.1250 | 0.0185 | 0.0555 | 1.2181 | 1.5000 | 930-001-328 | 930-001-956 | 930-001-279 | 930-001-911 |
| 0.0380 | 0.1250 | 0.0190 | 0.0570 | 1.2192 | 1.5000 | 930-001-329 | 930-001-957 | 930-001-280 | 930-001-912 |
| 0.0390 | 0.1250 | 0.0195 | 0.0585 | 1.2203 | 1.5000 | 930-001-330 | 930-001-958 | 930-001-281 | 930-001-913 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 1.2214 | 1.5000 | 930-001-331 | 930-001-959 | 930-001-282 | 930-001-914 |

Ø .045" - .1378"

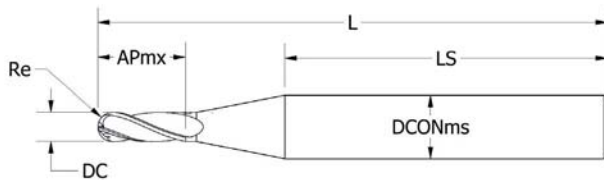


CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 1.2267 | 1.5000 | 930-001-209 | 930-001-846 | 930-001-373 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.2289 | 1.5000 | 930-001-210 | 930-001-847 | 930-001-374 |
| 0.0492 | 0.1250 | 0.0246 | 0.0738 | 1.2312 | 1.5000 | 930-001-236 | 930-001-873 | N/A |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 1.2321 | 1.5000 | 930-001-211 | 930-001-848 | 930-001-375 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 1.2374 | 1.5000 | 930-001-212 | 930-001-849 | 930-001-376 |
| 0.0591 | 0.1250 | 0.0296 | 0.0887 | 1.2418 | 1.5000 | 930-001-237 | 930-001-874 | N/A |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 1.2428 | 1.5000 | 930-001-213 | 930-001-850 | 930-001-377 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.2449 | 1.5000 | 930-001-214 | 930-001-851 | 930-001-378 |
| 0.0630 | 0.1250 | 0.0315 | 0.0945 | 1.2460 | 1.5000 | 930-001-238 | 930-001-875 | N/A |
| 0.0650 | 0.1250 | 0.0325 | 0.0975 | 1.2482 | 1.5000 | 930-001-215 | 930-001-852 | 930-001-379 |
| 0.0700 | 0.1250 | 0.0350 | 0.1050 | 1.2535 | 1.5000 | 930-001-216 | 930-001-853 | 930-001-380 |
| 0.0709 | 0.1250 | 0.0355 | 0.1064 | 1.2545 | 1.5000 | 930-001-239 | 930-001-876 | N/A |
| 0.0750 | 0.1250 | 0.0375 | 0.1125 | 1.2589 | 1.5000 | 930-001-217 | 930-001-854 | 930-001-381 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.2621 | 1.5000 | 930-001-218 | 930-001-855 | 930-001-382 |
| 0.0787 | 0.1250 | 0.0394 | 0.1181 | 1.2629 | 1.5000 | 930-001-240 | 930-001-877 | N/A |
| 0.0800 | 0.1250 | 0.0400 | 0.1200 | 1.2642 | 1.5000 | 930-001-219 | 930-001-856 | 930-001-383 |
| 0.0850 | 0.1250 | 0.0425 | 0.1275 | 1.2696 | 1.5000 | 930-001-220 | 930-001-857 | 930-001-384 |
| 0.0866 | 0.1250 | 0.0433 | 0.1299 | 1.2713 | 1.5000 | 930-001-241 | 930-001-878 | N/A |
| 0.0900 | 0.1250 | 0.0450 | 0.1350 | 1.2750 | 1.5000 | 930-001-221 | 930-001-858 | 930-001-385 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.2782 | 1.5000 | 930-001-222 | 930-001-859 | N/A |
| 0.0950 | 0.1250 | 0.0475 | 0.1425 | 1.2803 | 1.5000 | 930-001-223 | 930-001-860 | 930-001-387 |
| 0.0984 | 0.1250 | 0.0492 | 0.1476 | 1.2840 | 1.5000 | 930-001-242 | 930-001-879 | N/A |
| 0.1000 | 0.1250 | 0.0500 | 0.1500 | 1.2857 | 1.5000 | 930-001-224 | 930-001-861 | 930-001-388 |
| 0.1102 | 0.1250 | 0.0551 | 0.1653 | 1.2966 | 1.5000 | 930-001-243 | 930-001-880 | N/A |
| 0.1181 | 0.1250 | 0.0591 | 0.1772 | 1.3051 | 1.5000 | 930-001-244 | 930-001-881 | N/A |
| 0.1200 | 0.1250 | 0.0600 | 0.1800 | 1.3071 | 1.5000 | 930-001-225 | 930-001-862 | N/A |
| 0.1378 | 0.1875 | 0.0689 | 0.2067 | 1.6655 | 2.0000 | 930-001-245 | 930-001-882 | N/A |

Ø .045" - .100"

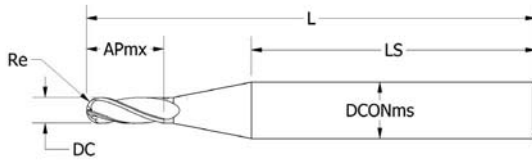


| DC | DCONms | Re | APmx | LS | L | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|-------------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 1.2267 | 1.5000 | 930-001-283 | 930-001-915 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.2289 | 1.5000 | 930-001-284 | 930-001-916 |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 1.2321 | 1.5000 | 930-001-285 | 930-001-917 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 1.2374 | 1.5000 | 930-001-286 | 930-001-918 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 1.2428 | 1.5000 | 930-001-287 | 930-001-919 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.2449 | 1.5000 | 930-001-288 | 930-001-920 |
| 0.0650 | 0.1250 | 0.0325 | 0.0975 | 1.2482 | 1.5000 | 930-001-289 | 930-001-921 |
| 0.0700 | 0.1250 | 0.0350 | 0.1050 | 1.2535 | 1.5000 | 930-001-290 | 930-001-922 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.2621 | 1.5000 | 930-001-291 | 930-001-923 |
| 0.0800 | 0.1250 | 0.0400 | 0.1200 | 1.2642 | 1.5000 | 930-001-292 | 930-001-924 |
| 0.0900 | 0.1250 | 0.0450 | 0.1350 | 1.2750 | 1.5000 | 930-001-293 | 930-001-925 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.2782 | 1.5000 | 930-001-294 | 930-001-926 |
| 0.1000 | 0.1250 | 0.0500 | 0.1500 | 1.2857 | 1.5000 | 930-001-295 | 930-001-928 |

Ø .010" - .250"



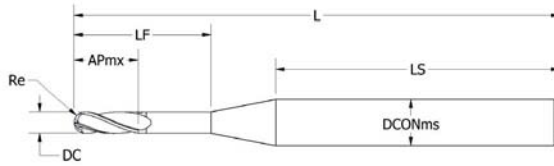
CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 2.1892 | 2.5000 | 930-003-162 | 930-003-311 | 930-003-189 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.1945 | 2.5000 | 930-003-163 | 930-003-312 | 930-003-190 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.1999 | 2.5000 | 930-003-164 | 930-003-313 | 930-003-191 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 2.2053 | 2.5000 | 930-003-165 | 930-003-314 | 930-003-192 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 2.2106 | 2.5000 | 930-003-166 | 930-003-315 | 930-003-193 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2117 | 2.5000 | 930-003-167 | 930-003-316 | 930-003-194 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 2.2160 | 2.5000 | 930-003-168 | 930-003-317 | 930-003-195 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 2.2214 | 2.5000 | 930-003-169 | 930-003-318 | 930-003-196 |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 2.2267 | 2.5000 | 930-003-170 | 930-003-319 | 930-003-197 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.2289 | 2.5000 | 930-003-171 | 930-003-320 | 930-003-198 |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 2.2321 | 2.5000 | 930-003-172 | 930-003-321 | 930-003-199 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 2.2374 | 2.5000 | 930-003-173 | 930-003-322 | 930-003-200 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 2.2428 | 2.5000 | 930-003-174 | 930-003-323 | 930-003-201 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 2.2449 | 2.5000 | 930-003-175 | 930-003-324 | 930-003-202 |
| 0.0650 | 0.1250 | 0.0325 | 0.0975 | 2.2482 | 2.5000 | 930-003-176 | 930-003-325 | 930-003-203 |
| 0.0700 | 0.1250 | 0.0350 | 0.1050 | 2.2535 | 2.5000 | 930-003-177 | 930-003-326 | 930-003-204 |
| 0.0750 | 0.1250 | 0.0375 | 0.1125 | 2.2589 | 2.5000 | 930-003-178 | 930-003-327 | 930-003-205 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 2.2621 | 2.5000 | 930-003-179 | 930-003-328 | 930-003-206 |
| 0.0800 | 0.1250 | 0.0400 | 0.1200 | 2.2642 | 2.5000 | 930-003-180 | 930-003-329 | 930-003-207 |
| 0.0850 | 0.1250 | 0.0425 | 0.1275 | 2.2696 | 2.5000 | 930-003-181 | 930-003-330 | 930-003-208 |
| 0.0900 | 0.1250 | 0.0450 | 0.1350 | 2.2750 | 2.5000 | 930-003-182 | 930-003-331 | 930-003-209 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 2.2782 | 2.5000 | 930-003-183 | 930-003-332 | 930-003-210 |
| 0.0950 | 0.1250 | 0.0475 | 0.1425 | 2.2803 | 2.5000 | 930-003-184 | 930-003-333 | 930-003-211 |
| 0.1000 | 0.1250 | 0.0500 | 0.1500 | 2.2857 | 2.5000 | 930-003-185 | 930-003-334 | 930-003-212 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.9375 | 2.5000 | 930-003-186 | 931-000-377 | 931-000-361 |
| 0.1875 | 0.1875 | 0.0938 | 0.2813 | 2.3438 | 3.0000 | 930-003-187 | 931-000-378 | 931-000-362 |
| 0.2500 | 0.2500 | 0.1250 | 0.3750 | 3.2500 | 4.0000 | 930-003-188 | 931-000-379 | 931-000-363 |

CARBIDE

Ø .010"-.035"

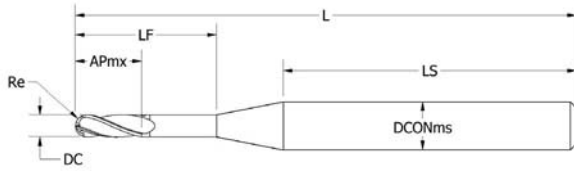


| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 2.3925 | 2.5000 | 0.0500 | 930-003-509 | 930-003-386 | 930-003-257 |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 2.3625 | 2.5000 | 0.0800 | 930-003-536 | 930-003-413 | 930-003-281 |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 2.3175 | 2.5000 | 0.1250 | 930-003-458 | 930-003-335 | 930-003-213 |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 2.2925 | 2.5000 | 0.1500 | 930-003-477 | 930-003-354 | 930-003-229 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.4000 | 2.5000 | 0.0450 | 930-003-503 | 930-003-380 | 930-003-251 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.3670 | 2.5000 | 0.0780 | 930-003-510 | 930-003-387 | 930-003-258 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.3200 | 2.5000 | 0.1250 | 930-003-537 | 930-003-414 | 930-003-282 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.2575 | 2.5000 | 0.1875 | 930-003-459 | 930-003-336 | 930-003-214 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.2200 | 2.5000 | 0.2250 | 930-003-478 | 930-003-355 | 930-003-230 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.1450 | 2.5000 | 0.3000 | 930-003-494 | 930-003-371 | 930-003-243 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.3475 | 2.5000 | 0.1000 | 930-003-511 | 930-003-388 | 930-003-259 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.2875 | 2.5000 | 0.1600 | 930-003-538 | 930-003-415 | 930-003-283 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.1975 | 2.5000 | 0.2500 | 930-003-460 | 930-003-337 | 930-003-215 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.1475 | 2.5000 | 0.3000 | 930-003-479 | 930-003-356 | 930-003-231 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.0475 | 2.5000 | 0.4000 | 930-003-495 | 930-003-372 | 930-003-244 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 2.3250 | 2.5000 | 0.1250 | 930-003-512 | 930-003-389 | 930-003-260 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 2.2500 | 2.5000 | 0.2000 | 930-003-539 | 930-003-416 | 930-003-284 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 2.1375 | 2.5000 | 0.3125 | 930-003-461 | 930-003-338 | 930-003-216 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 2.0750 | 2.5000 | 0.3750 | 930-003-480 | 930-003-357 | 930-003-232 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 2.3025 | 2.5000 | 0.1500 | 930-003-513 | 930-003-390 | 930-003-261 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 2.2025 | 2.5000 | 0.2500 | 930-003-540 | 930-003-417 | 930-003-285 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 2.0775 | 2.5000 | 0.3750 | 930-003-462 | 930-003-339 | 930-003-217 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 2.0025 | 2.5000 | 0.4500 | 930-003-481 | 930-003-358 | 930-003-233 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.3600 | 2.5000 | 0.0930 | 930-003-504 | 930-003-381 | 930-003-252 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2980 | 2.5000 | 0.1550 | 930-003-514 | 930-003-391 | 930-003-262 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2030 | 2.5000 | 0.2500 | 930-003-541 | 930-003-418 | 930-003-286 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.0780 | 2.5000 | 0.3750 | 930-003-463 | 930-003-340 | 930-003-218 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 1.9830 | 2.5000 | 0.4700 | 930-003-482 | 930-003-359 | 930-003-234 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 1.8280 | 2.5000 | 0.6250 | 930-003-496 | 930-003-373 | 930-003-245 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 2.2680 | 2.5000 | 0.1870 | 930-003-515 | 930-003-392 | 930-003-263 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 2.1750 | 2.5000 | 0.2800 | 930-003-542 | 930-003-419 | 930-003-287 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 2.0300 | 2.5000 | 0.4250 | 930-003-464 | 930-003-341 | 930-003-219 |
| 0.0350 | 0.1250 | 0.0175 | 0.0525 | 1.9300 | 2.5000 | 0.5250 | 930-003-483 | 930-003-360 | 930-003-235 |

Ø .040" - .075"



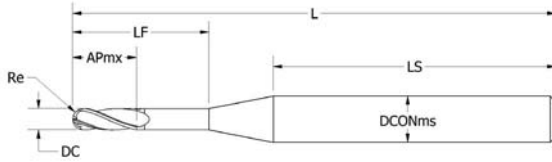
CARBIDE



| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 2.2575 | 2.5000 | 0.2000 | 930-003-516 | 930-003-393 | 930-003-264 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 2.1325 | 2.5000 | 0.3250 | 930-003-543 | 930-003-420 | 930-003-288 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 1.9775 | 2.5000 | 0.4800 | 930-003-465 | 930-003-342 | 930-003-220 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 1.8575 | 2.5000 | 0.6000 | 930-003-484 | 930-003-361 | 930-003-236 |
| 0.0400 | 0.1250 | 0.0200 | 0.0600 | 1.6575 | 2.5000 | 0.8000 | 930-003-497 | 930-003-374 | 930-003-246 |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 2.2350 | 2.5000 | 0.2250 | 930-003-517 | 930-003-394 | 930-003-265 |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 2.0850 | 2.5000 | 0.3750 | 930-003-544 | 930-003-421 | 930-003-289 |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 1.9100 | 2.5000 | 0.5500 | 930-003-466 | 930-003-343 | 930-003-221 |
| 0.0450 | 0.1250 | 0.0225 | 0.0675 | 1.7800 | 2.5000 | 0.6800 | 930-003-485 | 930-003-362 | 930-003-237 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.3200 | 2.5000 | 0.1410 | 930-003-505 | 930-003-382 | 930-003-253 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.2110 | 2.5000 | 0.2500 | 930-003-518 | 930-003-395 | 930-003-266 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.0860 | 2.5000 | 0.3750 | 930-003-545 | 930-003-422 | 930-003-290 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.8910 | 2.5000 | 0.5700 | 930-003-467 | 930-003-344 | 930-003-222 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.7510 | 2.5000 | 0.7100 | 930-003-486 | 930-003-363 | 930-003-238 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.5110 | 2.5000 | 0.9500 | 930-003-498 | 930-003-375 | 930-003-247 |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 2.2125 | 2.5000 | 0.2500 | 930-003-519 | 930-003-396 | 930-003-267 |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 2.0625 | 2.5000 | 0.4000 | 930-003-546 | 930-003-423 | 930-003-291 |
| 0.0500 | 0.1250 | 0.0250 | 0.0750 | 1.8625 | 2.5000 | 0.6000 | 930-003-468 | 930-003-345 | 930-003-223 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 2.1900 | 2.5000 | 0.2750 | 930-003-520 | 930-003-397 | 930-003-268 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 2.0150 | 2.5000 | 0.4500 | 930-003-547 | 930-003-424 | 930-003-292 |
| 0.0550 | 0.1250 | 0.0275 | 0.0825 | 1.8050 | 2.5000 | 0.6600 | 930-003-469 | 930-003-346 | 930-003-224 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 2.1555 | 2.5000 | 0.3120 | 930-003-521 | 930-003-398 | 930-003-269 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 1.9675 | 2.5000 | 0.5000 | 930-003-548 | 930-003-425 | 930-003-293 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 1.7475 | 2.5000 | 0.7200 | 930-003-470 | 930-003-347 | 930-003-225 |
| 0.0600 | 0.1250 | 0.0300 | 0.0900 | 1.5675 | 2.5000 | 0.9000 | 930-003-487 | 930-003-364 | 930-003-239 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 2.2825 | 2.5000 | 0.1860 | 930-003-506 | 930-003-383 | 930-003-254 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 2.1565 | 2.5000 | 0.3120 | 930-003-522 | 930-003-399 | 930-003-270 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.9685 | 2.5000 | 0.5000 | 930-003-549 | 930-003-426 | 930-003-294 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.7185 | 2.5000 | 0.7500 | 930-003-471 | 930-003-348 | 930-003-226 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.5185 | 2.5000 | 0.9500 | 930-003-488 | 930-003-365 | 930-003-240 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.2185 | 2.5000 | 1.2500 | 930-003-499 | 930-003-376 | 930-003-248 |
| 0.0650 | 0.1250 | 0.0325 | 0.0975 | 2.1450 | 2.5000 | 0.3250 | 930-003-523 | 930-003-400 | 930-003-271 |
| 0.0650 | 0.1250 | 0.0325 | 0.0975 | 1.9450 | 2.5000 | 0.5250 | 930-003-550 | 930-003-427 | 930-003-295 |
| 0.0700 | 0.1250 | 0.0350 | 0.1050 | 2.0975 | 2.5000 | 0.3750 | 930-003-524 | 930-003-401 | 930-003-272 |
| 0.0700 | 0.1250 | 0.0350 | 0.1050 | 1.9025 | 2.5000 | 0.5700 | 930-003-551 | 930-003-428 | 930-003-296 |
| 0.0750 | 0.1250 | 0.0375 | 0.1125 | 2.1000 | 2.5000 | 0.3750 | 930-003-525 | 930-003-402 | 930-003-273 |
| 0.0750 | 0.1250 | 0.0375 | 0.1125 | 1.8500 | 2.5000 | 0.6250 | 930-003-552 | 930-003-429 | 930-003-297 |

CARBIDE

Ø .078"-.250"

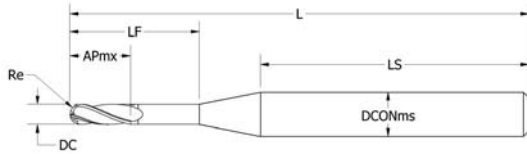


| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 2.2425 | 2.5000 | 0.2340 | 930-003-507 | 930-003-384 | 930-003-255 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 2.0765 | 2.5000 | 0.4000 | 930-003-526 | 930-003-403 | 930-003-274 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.8515 | 2.5000 | 0.6250 | 930-003-553 | 930-003-430 | 930-003-298 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.5365 | 2.5000 | 0.9400 | 930-003-472 | 930-003-349 | 930-003-227 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.2895 | 2.5000 | 1.1870 | 930-003-489 | 930-003-366 | 930-003-241 |
| 0.0780 | 0.1250 | 0.0390 | 0.1170 | 1.4145 | 3.0000 | 1.5620 | 930-003-500 | 930-003-377 | 930-003-249 |
| 0.0800 | 0.1250 | 0.0400 | 0.1200 | 2.0775 | 2.5000 | 0.4000 | 930-003-527 | 930-003-404 | 930-003-275 |
| 0.0800 | 0.1250 | 0.0400 | 0.1200 | 1.8275 | 2.5000 | 0.6500 | 930-003-554 | 930-003-431 | 930-003-299 |
| 0.0850 | 0.1250 | 0.0425 | 0.1275 | 2.0550 | 2.5000 | 0.4250 | 930-003-528 | 930-003-405 | 930-003-276 |
| 0.0850 | 0.1250 | 0.0425 | 0.1275 | 1.7800 | 2.5000 | 0.7000 | 930-003-555 | 930-003-432 | 930-003-300 |
| 0.0900 | 0.1250 | 0.0450 | 0.1350 | 2.0325 | 2.5000 | 0.4500 | 930-003-529 | 930-003-406 | 930-003-277 |
| 0.0900 | 0.1250 | 0.0450 | 0.1350 | 1.7325 | 2.5000 | 0.7500 | 930-003-556 | 930-003-433 | 930-003-301 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 2.2140 | 2.5000 | 0.2700 | 930-003-508 | 930-003-385 | 930-003-256 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.9840 | 2.5000 | 0.5000 | 930-003-530 | 930-003-407 | 930-003-278 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.7340 | 2.5000 | 0.7500 | 930-003-557 | 930-003-434 | 930-003-302 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.3590 | 2.5000 | 1.1250 | 930-003-473 | 930-003-350 | 930-003-228 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.5840 | 3.0000 | 1.4000 | 930-003-490 | 930-003-367 | 930-003-242 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 2.1090 | 4.0000 | 1.8750 | 930-003-501 | 930-003-378 | 930-003-250 |
| 0.0950 | 0.1250 | 0.0475 | 0.1425 | 1.9850 | 2.5000 | 0.5000 | 930-003-531 | 930-003-408 | 930-003-279 |
| 0.0950 | 0.1250 | 0.0475 | 0.1425 | 1.7350 | 2.5000 | 0.7500 | 930-003-558 | 930-003-435 | 930-003-303 |
| 0.1000 | 0.1250 | 0.0500 | 0.1500 | 1.9875 | 2.5000 | 0.5000 | 930-003-532 | 930-003-409 | 930-003-280 |
| 0.1000 | 0.1250 | 0.0500 | 0.1500 | 1.6875 | 2.5000 | 0.8000 | 930-003-559 | 930-003-436 | 930-003-304 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.8750 | 2.5000 | 0.6250 | 930-003-533 | 930-003-410 | 931-000-371 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.5000 | 2.5000 | 1.0000 | 930-003-560 | 930-003-437 | 931-000-374 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.5000 | 3.0000 | 1.5000 | 930-003-474 | 930-003-351 | 931-000-364 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.1250 | 3.0000 | 1.8750 | 930-003-491 | 930-003-368 | 931-000-367 |
| 0.1250 | 0.1250 | 0.0625 | 0.1875 | 1.5000 | 4.0000 | 2.5000 | 930-003-502 | 930-003-379 | 931-000-370 |
| 0.1875 | 0.1875 | 0.0938 | 0.2813 | 2.0000 | 3.0000 | 1.0000 | 930-003-534 | 930-003-411 | 931-000-372 |
| 0.1875 | 0.1875 | 0.0938 | 0.2813 | 1.5000 | 3.0000 | 1.5000 | 930-003-561 | 930-003-438 | 931-000-375 |
| 0.1875 | 0.1875 | 0.0938 | 0.2813 | 1.7500 | 4.0000 | 2.2500 | 930-003-475 | 930-003-352 | 931-000-365 |
| 0.1875 | 0.1875 | 0.0938 | 0.2813 | 1.1880 | 4.0000 | 2.8120 | 930-003-492 | 930-003-369 | 931-000-368 |
| 0.2500 | 0.2500 | 0.1250 | 0.3750 | 2.7500 | 4.0000 | 1.2500 | 930-003-535 | 930-003-412 | 931-000-373 |
| 0.2500 | 0.2500 | 0.1250 | 0.3750 | 2.0000 | 4.0000 | 2.0000 | 930-003-562 | 930-003-439 | 931-000-376 |
| 0.2500 | 0.2500 | 0.1250 | 0.3750 | 3.0000 | 6.0000 | 3.0000 | 930-003-476 | 930-003-353 | 931-000-366 |
| 0.2500 | 0.2500 | 0.1250 | 0.3750 | 2.2500 | 6.0000 | 3.7500 | 930-003-493 | 930-003-370 | 931-000-369 |

Ø .005"-.100"



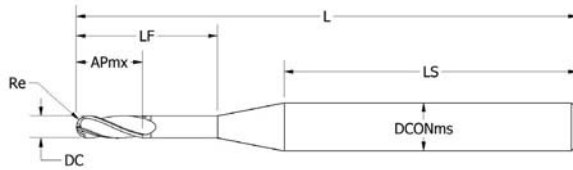
CARBIDE



| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | |
|--------|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | | 2 FLUTE | 4 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0150 | 1.3930 | 1.5000 | 0.0470 | 930-001-966 | N/A |
| 0.0100 | 0.1250 | 0.0050 | 0.0300 | 1.3625 | 1.5000 | 0.0800 | 930-002-326 | 930-002-624 |
| 0.0100 | 0.1250 | 0.0050 | 0.0300 | 1.3488 | 1.5000 | 0.0937 | 930-001-972 | 930-002-342 |
| 0.0150 | 0.1250 | 0.0075 | 0.0450 | 1.3200 | 1.5000 | 0.1250 | 930-001-978 | 930-002-348 |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.2775 | 1.5000 | 0.1700 | 930-002-327 | 930-002-625 |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.2600 | 1.5000 | 0.1875 | 930-001-984 | 930-002-354 |
| 0.0250 | 0.1250 | 0.0125 | 0.0750 | 1.2370 | 1.5000 | 0.2130 | 930-002-328 | 930-002-626 |
| 0.0250 | 0.1250 | 0.0125 | 0.0750 | 1.2000 | 1.5000 | 0.2500 | 930-001-990 | 930-002-360 |
| 0.0300 | 0.1250 | 0.0150 | 0.0900 | 1.2025 | 1.5000 | 0.2500 | 930-001-996 | 930-002-366 |
| 0.0300 | 0.1250 | 0.0150 | 0.0900 | 1.1825 | 1.5000 | 0.2700 | 930-002-329 | 930-002-627 |
| 0.0310 | 0.1250 | 0.0155 | 0.0930 | 1.1740 | 1.5000 | 0.2790 | 930-002-330 | 930-002-628 |
| 0.0350 | 0.1250 | 0.0175 | 0.1050 | 1.2050 | 1.5000 | 0.2500 | 930-002-003 | 930-002-372 |
| 0.0350 | 0.1250 | 0.0175 | 0.1050 | 1.1400 | 1.5000 | 0.3150 | 930-002-331 | 930-002-629 |
| 0.0400 | 0.1250 | 0.0200 | 0.1200 | 1.2075 | 1.5000 | 0.2500 | 930-002-009 | 930-002-378 |
| 0.0400 | 0.1250 | 0.0200 | 0.1200 | 1.0975 | 1.5000 | 0.3600 | 930-002-332 | 930-002-630 |
| 0.0450 | 0.1250 | 0.0225 | 0.1350 | 1.0550 | 1.5000 | 0.4050 | 930-002-333 | 930-002-631 |
| 0.0450 | 0.1250 | 0.0225 | 0.1350 | 0.9600 | 1.5000 | 0.5000 | 930-002-015 | 930-002-384 |
| 0.0470 | 0.1250 | 0.0235 | 0.1410 | 1.0380 | 1.5000 | 0.4230 | 930-002-334 | 930-002-632 |
| 0.0500 | 0.1250 | 0.0250 | 0.1500 | 0.9625 | 1.5000 | 0.5000 | 930-002-021 | 930-002-390 |
| 0.0550 | 0.1250 | 0.0275 | 0.1650 | 0.9650 | 1.5000 | 0.5000 | 930-002-027 | 930-002-396 |
| 0.0600 | 0.1250 | 0.0300 | 0.1800 | 0.9675 | 1.5000 | 0.5000 | 930-002-033 | 930-002-402 |
| 0.0620 | 0.1250 | 0.0310 | 0.1860 | 0.9685 | 1.5000 | 0.5000 | 930-002-335 | 930-002-633 |
| 0.0650 | 0.1250 | 0.0325 | 0.1950 | 0.9700 | 1.5000 | 0.5000 | 930-002-037 | 930-002-406 |
| 0.0700 | 0.1250 | 0.0350 | 0.2100 | 0.9725 | 1.5000 | 0.5000 | 930-002-039 | 930-002-408 |
| 0.0780 | 0.1250 | 0.0390 | 0.2340 | 0.9765 | 1.5000 | 0.5000 | 930-002-336 | 930-002-634 |
| 0.0800 | 0.1250 | 0.0400 | 0.2400 | 0.9775 | 1.5000 | 0.5000 | 930-002-043 | 930-002-412 |
| 0.0900 | 0.1250 | 0.0450 | 0.2700 | 0.9825 | 1.5000 | 0.5000 | 930-002-046 | 930-002-415 |
| 0.0900 | 0.1250 | 0.0450 | 0.2700 | 0.8575 | 1.5000 | 0.6250 | 930-002-337 | 930-002-635 |
| 0.0930 | 0.1250 | 0.0465 | 0.2790 | 0.8590 | 1.5000 | 0.6250 | 930-002-338 | 930-002-636 |
| 0.0950 | 0.1250 | 0.0475 | 0.2850 | 0.8600 | 1.5000 | 0.6250 | 930-002-339 | 930-002-637 |
| 0.1000 | 0.1250 | 0.0500 | 0.3000 | 0.9875 | 1.5000 | 0.5000 | 930-002-050 | 930-002-419 |
| 0.1000 | 0.1250 | 0.0500 | 0.3000 | 0.8625 | 1.5000 | 0.6250 | 930-002-340 | 930-002-638 |

CARBIDE

Ø .010"-.250"

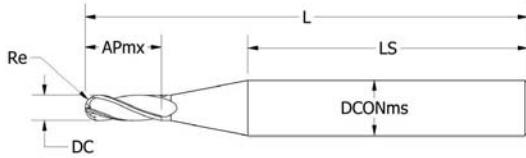


| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0100 | 0.1250 | 0.0050 | 0.0500 | 2.3425 | 2.5000 | 0.1000 | 930-002-896 | 930-002-862 | 930-002-830 |
| 0.0150 | 0.1250 | 0.0075 | 0.0750 | 2.2950 | 2.5000 | 0.1500 | 930-002-897 | 930-002-863 | 930-002-831 |
| 0.0200 | 0.1250 | 0.0100 | 0.1000 | 2.2475 | 2.5000 | 0.2000 | 930-002-898 | 930-002-864 | 930-002-832 |
| 0.0250 | 0.1250 | 0.0125 | 0.1250 | 2.2000 | 2.5000 | 0.2500 | 930-002-899 | 930-002-865 | 930-002-833 |
| 0.0300 | 0.1250 | 0.0150 | 0.1500 | 2.1525 | 2.5000 | 0.3000 | 930-002-900 | 930-002-866 | 930-002-834 |
| 0.0310 | 0.1250 | 0.0155 | 0.1550 | 2.1530 | 2.5000 | 0.3000 | 930-002-901 | 930-002-867 | 930-002-835 |
| 0.0350 | 0.1250 | 0.0175 | 0.1750 | 2.1050 | 2.5000 | 0.3500 | 930-002-902 | 930-002-868 | 930-002-836 |
| 0.0400 | 0.1250 | 0.0200 | 0.2000 | 2.0575 | 2.5000 | 0.4000 | 930-002-903 | 930-002-869 | 930-002-837 |
| 0.0450 | 0.1250 | 0.0225 | 0.2250 | 2.0100 | 2.5000 | 0.4500 | 930-002-904 | 930-002-870 | 930-002-838 |
| 0.0470 | 0.1250 | 0.0235 | 0.2500 | 1.9610 | 2.5000 | 0.5000 | 930-002-905 | 930-002-871 | 930-002-839 |
| 0.0500 | 0.1250 | 0.0250 | 0.3000 | 1.8625 | 2.5000 | 0.6000 | 930-002-906 | 930-002-872 | 930-002-840 |
| 0.0550 | 0.1250 | 0.0275 | 0.3850 | 1.6950 | 2.5000 | 0.7700 | 930-002-907 | 930-002-873 | 930-002-841 |
| 0.0600 | 0.1250 | 0.0300 | 0.5000 | 1.4675 | 2.5000 | 1.0000 | 930-002-908 | 930-002-874 | 930-002-842 |
| 0.0620 | 0.1250 | 0.0310 | 0.5000 | 1.4685 | 2.5000 | 1.0000 | 930-002-909 | 930-002-875 | 930-002-843 |
| 0.0650 | 0.1250 | 0.0325 | 0.5000 | 1.4700 | 2.5000 | 1.0000 | 930-002-910 | 930-002-876 | 930-002-844 |
| 0.0700 | 0.1250 | 0.0350 | 0.5000 | 1.4725 | 2.5000 | 1.0000 | 930-002-911 | 930-002-877 | 930-002-845 |
| 0.0750 | 0.1250 | 0.0375 | 0.5000 | 1.4750 | 2.5000 | 1.0000 | 930-002-912 | 930-002-878 | 930-002-846 |
| 0.0780 | 0.1250 | 0.0390 | 0.5000 | 1.4765 | 2.5000 | 1.0000 | 930-002-913 | 930-002-879 | 930-002-847 |
| 0.0800 | 0.1250 | 0.0400 | 0.7500 | 1.2275 | 2.5000 | 1.2500 | 930-002-914 | 930-002-880 | 930-002-848 |
| 0.0850 | 0.1250 | 0.0425 | 0.7500 | 1.2300 | 2.5000 | 1.2500 | 930-002-915 | 930-002-881 | 930-002-849 |
| 0.0900 | 0.1250 | 0.0450 | 0.7500 | 1.2325 | 2.5000 | 1.2500 | 930-002-916 | 930-002-882 | 930-002-850 |
| 0.0930 | 0.1250 | 0.0465 | 0.7500 | 1.2340 | 2.5000 | 1.2500 | 930-002-917 | 930-002-883 | 930-002-851 |
| 0.0950 | 0.1250 | 0.0475 | 0.7500 | 1.2350 | 2.5000 | 1.2500 | 930-002-918 | 930-002-884 | 930-002-852 |
| 0.1000 | 0.1250 | 0.0500 | 0.7500 | 1.2375 | 2.5000 | 1.2500 | 930-002-919 | 930-002-885 | 930-002-853 |
| 0.1250 | 0.1250 | 0.0625 | 1.0000 | 1.0000 | 2.5000 | 1.5000 | 930-002-920 | 930-002-886 | 931-000-337 |
| 0.1875 | 0.1875 | 0.0938 | 1.1250 | 1.3750 | 3.0000 | 1.6250 | 930-002-921 | 931-000-342 | 931-000-338 |
| 0.2500 | 0.2500 | 0.1250 | 1.5000 | 2.0000 | 4.0000 | 2.0000 | 930-002-922 | 931-000-343 | 931-000-339 |

Ø .031" - .125"



CARBIDE

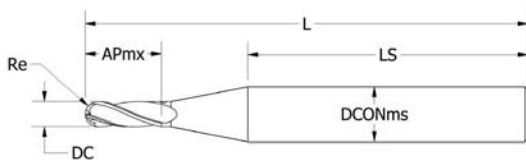


12X FLUTE LENGTH



| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0310 | 0.1250 | 0.0155 | 0.3750 | 1.8832 | 2.5000 | 930-002-923 | 930-002-887 | 930-002-854 |
| 0.0470 | 0.1250 | 0.0235 | 0.5700 | 1.7294 | 2.5000 | 930-002-924 | 930-002-888 | 930-002-855 |
| 0.0620 | 0.1250 | 0.0310 | 0.7500 | 1.5879 | 2.5000 | 930-002-925 | 930-002-889 | 930-002-856 |
| 0.0780 | 0.1250 | 0.0390 | 0.9400 | 1.4391 | 2.5000 | 930-002-926 | 930-002-890 | 930-002-857 |
| 0.0930 | 0.1250 | 0.0465 | 1.1250 | 1.2927 | 2.5000 | 930-002-927 | 930-002-891 | 930-002-858 |
| 0.1250 | 0.1250 | 0.0625 | 1.5000 | 1.1250 | 3.0000 | 930-002-928 | 930-002-892 | 931-000-340 |

Ø .062" - .125"



15X FLUTE LENGTH

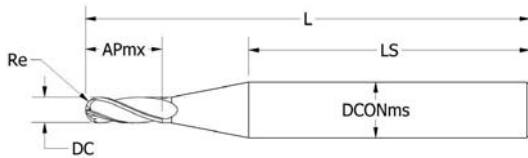


| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0620 | 0.1250 | 0.0310 | 0.9500 | 1.3879 | 2.5000 | 930-002-929 | 930-002-893 | 930-002-859 |
| 0.0780 | 0.1250 | 0.0390 | 1.1870 | 1.1921 | 2.5000 | 930-002-930 | 930-002-894 | 930-002-860 |
| 0.0930 | 0.1250 | 0.0465 | 1.4000 | 1.5177 | 3.0000 | 930-002-931 | 930-002-895 | 930-002-861 |
| 0.1250 | 0.1250 | 0.0625 | 1.8750 | 0.7500 | 3.0000 | 930-002-932 | 931-000-344 | 931-000-341 |

CARBIDE



Ø .015"-.093"

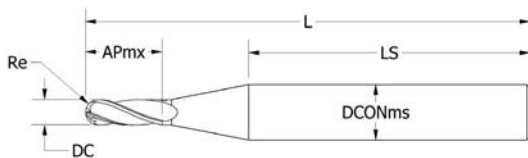


STANDARD



| DC | DCONms | Re | APmx | LS | L | CVD COATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0150 | 0.1250 | 0.0075 | 0.0450 | 1.1720 | 1.5000 | 930-002-606 |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.1699 | 1.5000 | 930-002-607 |
| 0.0310 | 0.1250 | 0.0155 | 0.0930 | 1.1652 | 1.5000 | 930-002-608 |
| 0.0470 | 0.1250 | 0.0235 | 0.1410 | 1.1584 | 1.5000 | 930-002-609 |
| 0.0620 | 0.1250 | 0.0310 | 0.1860 | 1.1519 | 1.5000 | 930-002-610 |
| 0.0930 | 0.1250 | 0.0465 | 0.2790 | 1.1387 | 1.5000 | 930-002-611 |

Ø .015"-.093"

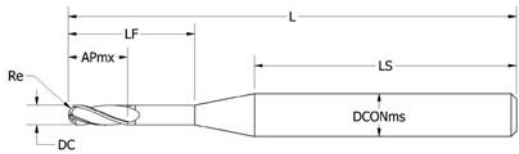


LONG SHANK, STUB



| DC | DCONms | Re | APmx | LS | L | CVD COATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 3 FLUTE |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.1945 | 2.5000 | 930-003-305 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.1999 | 2.5000 | 930-003-306 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2117 | 2.5000 | 930-003-307 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.2289 | 2.5000 | 930-003-308 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 2.2449 | 2.5000 | 930-003-309 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 2.2782 | 2.5000 | 930-003-310 |

Ø .015"-.093"

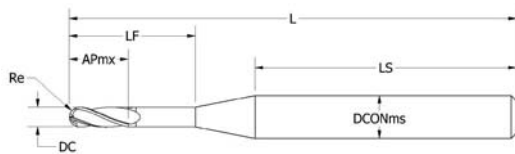


LONG REACH, STUB



| DC | DCONms | Re | APmx | LS | L | LF | CVD COATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | | 3 FLUTE |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.3670 | 2.5000 | 0.0780 | 930-003-446 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.3200 | 2.5000 | 0.1250 | 930-003-452 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 2.2575 | 2.5000 | 0.1875 | 930-003-440 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.3475 | 2.5000 | 0.1000 | 930-003-447 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.2875 | 2.5000 | 0.1600 | 930-003-453 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 2.1975 | 2.5000 | 0.2500 | 930-003-441 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2980 | 2.5000 | 0.1550 | 930-003-448 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.2030 | 2.5000 | 0.2500 | 930-003-454 |
| 0.0310 | 0.1250 | 0.0155 | 0.0465 | 2.0780 | 2.5000 | 0.3750 | 930-003-442 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.2110 | 2.5000 | 0.2500 | 930-003-449 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 2.0860 | 2.5000 | 0.3750 | 930-003-455 |
| 0.0470 | 0.1250 | 0.0235 | 0.0705 | 1.8910 | 2.5000 | 0.5700 | 930-003-443 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 2.1565 | 2.5000 | 0.3120 | 930-003-450 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.9685 | 2.5000 | 0.5000 | 930-003-456 |
| 0.0620 | 0.1250 | 0.0310 | 0.0930 | 1.7185 | 2.5000 | 0.7500 | 930-003-444 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.9840 | 2.5000 | 0.5000 | 930-003-451 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.7340 | 2.5000 | 0.7500 | 930-003-457 |
| 0.0930 | 0.1250 | 0.0465 | 0.1395 | 1.3590 | 2.5000 | 1.1250 | 930-003-445 |

Ø .015"-.093"



5X FLUTE, 10X REACH

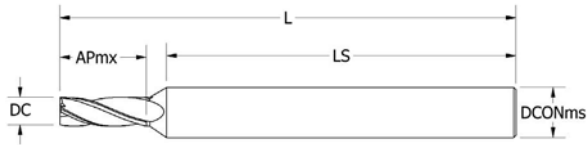


| DC | DCONms | Re | APmx | LS | L | LF | CVD COATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | | 4 FLUTE |
| 0.0150 | 0.1250 | 0.0075 | 0.0750 | 2.2890 | 2.5000 | 0.1560 | 930-001-155 |
| 0.0310 | 0.1250 | 0.0155 | 0.1550 | 2.1410 | 2.5000 | 0.3120 | 930-001-156 |
| 0.0470 | 0.1250 | 0.0235 | 0.2350 | 1.9810 | 2.5000 | 0.4800 | 930-001-157 |
| 0.0620 | 0.1250 | 0.0310 | 0.3125 | 1.8435 | 2.5000 | 0.6250 | 930-001-158 |
| 0.0780 | 0.1250 | 0.0390 | 0.3900 | 1.6765 | 2.5000 | 0.8000 | 930-001-159 |
| 0.0930 | 0.1250 | 0.0465 | 0.4650 | 1.5340 | 2.5000 | 0.9500 | 930-001-160 |

CARBIDE

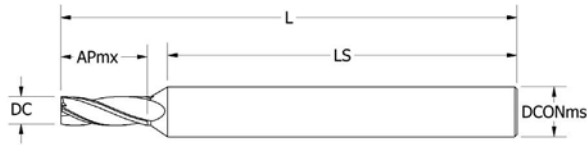


Ø .0313"-.25"



| DC | DCONms | APmx | LS | L | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.2500 | 0.0938 | 1.8436 | 2.5000 | 930-002-667 | 931-000-322 |
| 0.0469 | 0.2500 | 0.1406 | 1.8369 | 2.5000 | 930-002-668 | 931-000-323 |
| 0.0625 | 0.2500 | 0.1875 | 1.8302 | 2.5000 | 930-002-669 | 931-000-324 |
| 0.0781 | 0.2500 | 0.1875 | 1.8704 | 2.5000 | 930-002-670 | 931-000-325 |
| 0.0938 | 0.2500 | 0.3750 | 1.7231 | 2.5000 | 930-002-671 | 931-000-326 |
| 0.1094 | 0.2500 | 0.4375 | 1.7008 | 2.5000 | 930-002-672 | 931-000-327 |
| 0.1250 | 0.2500 | 0.5000 | 1.6785 | 2.5000 | 930-002-673 | 931-000-328 |
| 0.1563 | 0.2500 | 0.5625 | 1.6963 | 2.5000 | 930-002-674 | 931-000-329 |
| 0.1875 | 0.2500 | 0.6250 | 1.7142 | 2.5000 | 930-002-675 | 931-000-330 |
| 0.2188 | 0.2500 | 0.6250 | 1.7946 | 2.5000 | 930-002-676 | 931-000-331 |
| 0.2500 | 0.2500 | 0.7500 | 1.3750 | 2.5000 | 930-002-677 | 931-000-332 |

Ø .0313"-.25"



STUB

| DC | DCONms | APmx | LS | L | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.2500 | 0.0625 | 1.8748 | 2.5000 | 930-002-639 | 931-000-294 |
| 0.0469 | 0.2500 | 0.0938 | 1.8838 | 2.5000 | 930-002-641 | 931-000-296 |
| 0.0625 | 0.2500 | 0.1250 | 1.8927 | 2.5000 | 930-002-643 | 931-000-298 |
| 0.0781 | 0.2500 | 0.1250 | 1.9329 | 2.5000 | 930-002-645 | 931-000-300 |
| 0.0938 | 0.2500 | 0.1875 | 1.9106 | 2.5000 | 930-002-647 | 931-000-302 |
| 0.1094 | 0.2500 | 0.1875 | 1.9508 | 2.5000 | 930-002-649 | 931-000-304 |
| 0.1250 | 0.2500 | 0.2500 | 1.9285 | 2.5000 | 930-002-651 | 931-000-306 |
| 0.1563 | 0.2500 | 0.3750 | 1.8838 | 2.5000 | 930-002-653 | 931-000-308 |
| 0.1875 | 0.2500 | 0.3750 | 1.9642 | 2.5000 | 930-002-655 | 931-000-310 |
| 0.2188 | 0.2500 | 0.3750 | 2.0446 | 2.5000 | 930-002-657 | 931-000-312 |
| 0.2500 | 0.2500 | 0.5000 | 1.6250 | 2.5000 | 930-002-659 | 931-000-314 |

Ø .0313"-.25"

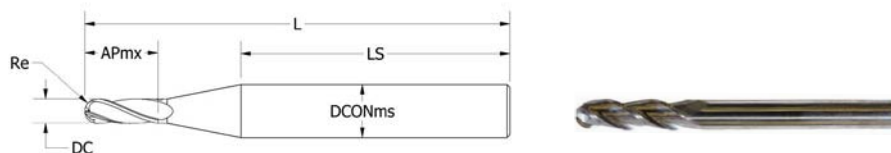


STUB, REACHED



| DC | DCONms | APmx | LS | L | LF | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.2500 | 0.0625 | 2.2356 | 2.5000 | 0.1550 | 930-002-640 | 931-000-295 |
| 0.0469 | 0.2500 | 0.0938 | 2.1684 | 2.5000 | 0.2300 | 930-002-642 | 931-000-297 |
| 0.0625 | 0.2500 | 0.1250 | 2.0943 | 2.5000 | 0.3120 | 930-002-644 | 931-000-299 |
| 0.0781 | 0.2500 | 0.1563 | 2.0241 | 2.5000 | 0.3900 | 930-002-646 | 931-000-301 |
| 0.0938 | 0.2500 | 0.1875 | 1.9569 | 2.5000 | 0.4650 | 930-002-648 | 931-000-303 |
| 0.1094 | 0.2500 | 0.2188 | 1.8847 | 2.5000 | 0.5450 | 930-002-650 | 931-000-305 |
| 0.1250 | 0.2500 | 0.2500 | 1.8125 | 2.5000 | 0.6250 | 930-002-652 | 931-000-307 |
| 0.1563 | 0.2500 | 0.3750 | 1.6731 | 2.5000 | 0.7800 | 930-002-654 | 931-000-309 |
| 0.1875 | 0.2500 | 0.3750 | 1.5313 | 2.5000 | 0.9375 | 930-002-656 | 931-000-311 |
| 0.2188 | 0.2500 | 0.3750 | 1.3914 | 2.5000 | 1.0930 | 930-002-658 | 931-000-313 |
| 0.2500 | 0.2500 | 0.5000 | 1.2500 | 2.5000 | 1.2500 | 930-002-660 | 931-000-315 |

Ø .0313"-.25"



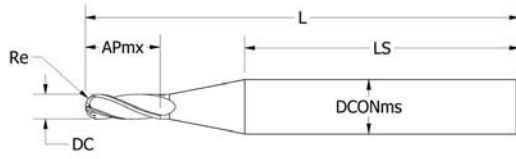
BALL, STANDARD



| DC | DCONms | Re | APmx | LS | L | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.2500 | 0.0156 | 0.0938 | 1.8436 | 2.5000 | 930-002-661 | 931-000-316 |
| 0.0625 | 0.2500 | 0.0313 | 0.1875 | 1.8302 | 2.5000 | 930-002-662 | 931-000-317 |
| 0.0938 | 0.2500 | 0.0469 | 0.3750 | 1.7231 | 2.5000 | 930-002-663 | 931-000-318 |
| 0.1250 | 0.2500 | 0.0625 | 0.5000 | 1.6785 | 2.5000 | 930-002-664 | 931-000-319 |
| 0.1875 | 0.2500 | 0.0938 | 0.6250 | 1.7142 | 2.5000 | 930-002-665 | 931-000-320 |
| 0.2500 | 0.2500 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | 930-002-666 | 931-000-321 |

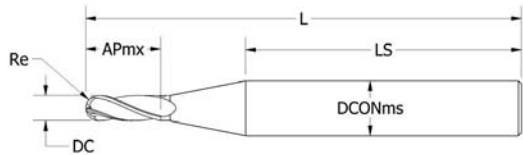
CARBIDE

Ø .0313"-.050"



| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITiN COATED | |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0156 | 0.0938 | 1.1651 | 1.5000 | 930-002-054 | 930-002-423 | N/A | 930-002-612 |
| 0.0469 | 0.1250 | 0.0234 | 0.1406 | 1.1584 | 1.5000 | 930-002-055 | 930-002-424 | N/A | 930-002-613 |
| 0.0625 | 0.1250 | 0.0313 | 0.1875 | 1.1517 | 1.5000 | 930-002-056 | 930-002-425 | N/A | 930-002-614 |
| 0.0781 | 0.1250 | 0.0391 | 0.1875 | 1.1919 | 1.5000 | 930-002-057 | 930-002-426 | N/A | 930-002-615 |
| 0.0938 | 0.1250 | 0.0469 | 0.3750 | 1.0446 | 1.5000 | 930-002-058 | 930-002-427 | N/A | 930-002-616 |
| 0.1094 | 0.1250 | 0.0547 | 0.4375 | 1.0223 | 1.5000 | 930-002-059 | 930-002-428 | N/A | 930-002-617 |
| 0.1250 | 0.1250 | 0.0625 | 0.5000 | 0.6250 | 1.5000 | 930-002-060 | 930-002-429 | 931-000-289 | 930-002-618 |
| 0.1406 | 0.1875 | 0.0703 | 0.5000 | 1.3794 | 2.0000 | 930-002-061 | 930-002-430 | 930-002-319 | 930-002-619 |
| 0.1563 | 0.1875 | 0.0781 | 0.5625 | 1.3571 | 2.0000 | 930-002-062 | 930-002-431 | 931-000-290 | 930-002-620 |
| 0.1719 | 0.1875 | 0.0859 | 0.6250 | 1.3348 | 2.0000 | 930-002-063 | 930-002-432 | N/A | N/A |
| 0.1875 | 0.1875 | 0.0938 | 0.6250 | 1.0000 | 2.0000 | 930-002-064 | 930-002-433 | 931-000-291 | 930-002-621 |
| 0.2031 | 0.2500 | 0.1016 | 0.6250 | 1.7544 | 2.5000 | 930-002-066 | 930-002-435 | N/A | N/A |
| 0.2188 | 0.2500 | 0.1094 | 0.6250 | 1.7946 | 2.5000 | 930-002-067 | 930-002-436 | 930-002-320 | 930-002-622 |
| 0.2344 | 0.2500 | 0.1172 | 0.6250 | 1.8348 | 2.5000 | 930-002-068 | 930-002-437 | N/A | N/A |
| 0.2500 | 0.2500 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | 930-002-069 | 930-002-438 | 931-000-292 | 930-002-623 |
| 0.3125 | 0.3125 | 0.1563 | 0.8125 | 1.3125 | 2.5000 | 930-002-070 | 930-002-439 | N/A | N/A |
| 0.3750 | 0.3750 | 0.1875 | 1.0000 | 1.1250 | 2.5000 | 930-002-071 | 930-002-440 | N/A | N/A |
| 0.5000 | 0.5000 | 0.2500 | 1.0000 | 1.6250 | 3.0000 | 930-002-074 | 930-002-443 | N/A | 931-000-293 |

Ø .0313"-.25"

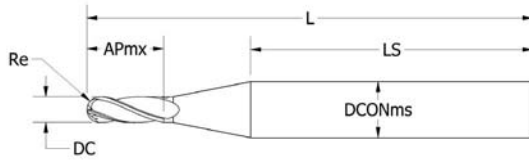


STUB



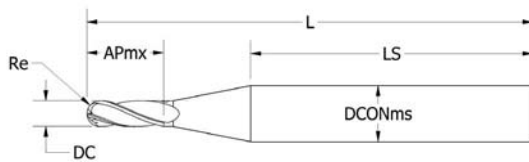
| DC | DCONms | Re | APmx | LS | L | UNCOATED | | AITiN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE |
| 0.0313 | 0.1250 | 0.0156 | 0.0625 | 1.1963 | 1.5000 | 930-001-226 | 930-001-863 | N/A |
| 0.0469 | 0.1250 | 0.0234 | 0.0625 | 1.2365 | 1.5000 | 930-001-227 | 930-001-864 | N/A |
| 0.0625 | 0.1250 | 0.0313 | 0.1250 | 1.2142 | 1.5000 | 930-001-228 | 930-001-865 | N/A |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.2321 | 1.5000 | 930-001-229 | 930-001-866 | N/A |
| 0.1250 | 0.1250 | 0.0625 | 0.2500 | 0.8750 | 1.5000 | 930-001-230 | 930-001-867 | 931-000-262 |
| 0.1563 | 0.1875 | 0.0781 | 0.3750 | 1.5446 | 2.0000 | 930-001-231 | 930-001-868 | 930-001-389 |
| 0.1875 | 0.1875 | 0.0938 | 0.3750 | 1.2500 | 2.0000 | 930-001-232 | 930-001-869 | 931-000-263 |
| 0.2500 | 0.2500 | 0.1250 | 0.5000 | 1.1250 | 2.0000 | 930-001-234 | 930-001-871 | 931-000-264 |

Ø .0313"-.050"



| DC | DCONms | Re | APmx | LS | L | TiAIN COATED | | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|--------------|-------------|-------------|-------------------|-------------|
| | | | | | | 2 FLUTE | 3 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0156 | 0.0938 | 1.1651 | 1.5000 | 930-002-229 | 931-000-119 | 930-002-586 | 931-000-387 | 931-000-413 |
| 0.0469 | 0.1250 | 0.0234 | 0.1406 | 1.1584 | 1.5000 | 930-002-230 | 931-000-122 | 930-002-587 | 931-000-389 | 931-000-415 |
| 0.0625 | 0.1250 | 0.0313 | 0.1875 | 1.1517 | 1.5000 | 930-002-231 | 931-000-125 | 930-002-588 | 931-000-391 | 931-000-417 |
| 0.0781 | 0.1250 | 0.0391 | 0.1875 | 1.1919 | 1.5000 | 930-002-232 | 931-000-128 | 930-002-589 | 931-000-393 | 931-000-419 |
| 0.0938 | 0.1250 | 0.0469 | 0.3750 | 1.0446 | 1.5000 | 930-002-233 | 931-000-131 | 930-002-590 | 931-000-395 | 931-000-421 |
| 0.1094 | 0.1250 | 0.0547 | 0.4375 | 1.0223 | 1.5000 | N/A | N/A | N/A | 931-000-397 | 931-000-423 |
| 0.1250 | 0.1250 | 0.0625 | 0.5000 | 0.6250 | 1.5000 | 930-002-234 | 931-000-135 | 930-002-591 | 931-000-399 | 931-000-425 |
| 0.1406 | 0.1875 | 0.0703 | 0.5000 | 1.3794 | 2.0000 | N/A | N/A | N/A | 931-000-401 | 931-000-430 |
| 0.1563 | 0.1875 | 0.0781 | 0.5625 | 1.3571 | 2.0000 | N/A | N/A | N/A | 931-000-403 | 931-000-432 |
| 0.1875 | 0.1875 | 0.0938 | 0.6250 | 1.0000 | 2.0000 | N/A | N/A | N/A | 931-000-405 | 931-000-434 |
| 0.2500 | 0.2500 | 0.1250 | 0.7500 | 1.3750 | 2.5000 | N/A | N/A | N/A | 931-000-407 | 931-000-439 |
| 0.3750 | 0.3750 | 0.1875 | 1.0000 | 1.1250 | 2.5000 | N/A | N/A | N/A | 931-000-409 | 931-000-446 |
| 0.5000 | 0.5000 | 0.2500 | 1.0000 | 1.6250 | 3.0000 | N/A | N/A | N/A | 931-000-411 | 931-000-450 |

Ø .0313"-.25"

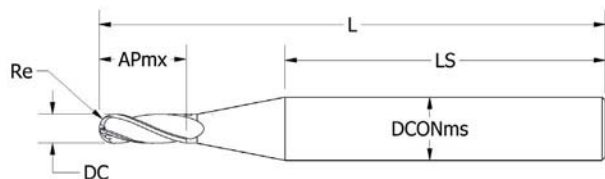


STUB

| DC | DCONms | Re | APmx | LS | L | TiAIN COATED | | AMORPHOUS DIAMOND | |
|--------|--------|--------|--------|--------|--------|--------------|-------------|-------------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 0.0156 | 0.0625 | 1.1963 | 1.5000 | 930-001-332 | 930-001-960 | N/A | N/A |
| 0.0469 | 0.1250 | 0.0234 | 0.0625 | 1.2365 | 1.5000 | 930-001-333 | 930-001-961 | N/A | N/A |
| 0.0625 | 0.1250 | 0.0313 | 0.1250 | 1.2142 | 1.5000 | 930-001-334 | 930-001-962 | N/A | N/A |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.2321 | 1.5000 | 930-001-335 | 930-001-963 | N/A | N/A |
| 0.1250 | 0.1250 | 0.0625 | 0.2500 | 0.8750 | 1.5000 | 930-001-336 | 930-001-964 | 931-000-259 | 931-000-286 |
| 0.1875 | 0.1875 | 0.0938 | 0.3750 | 1.2500 | 2.0000 | N/A | N/A | 931-000-260 | 931-000-287 |
| 0.2500 | 0.2500 | 0.1250 | 0.5000 | 1.1250 | 2.0000 | N/A | N/A | 931-000-261 | 931-000-288 |

CARBIDE

Ø .0156"-.250"

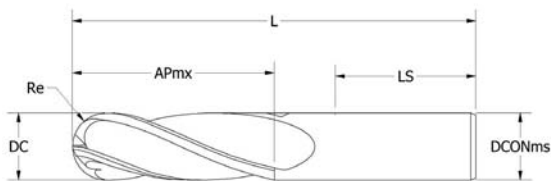


G MILLS



| DC | DCONms | Re | APmx | LS | L | UNCOATED | AITiN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------|--------------|-------------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0156 | 0.1250 | 0.0078 | 0.0780 | 2.1407 | 2.5000 | 931-000-194 | 930-000-125 | 931-000-457 |
| 0.0313 | 0.1250 | 0.0156 | 0.1560 | 2.1028 | 2.5000 | 931-000-196 | 931-000-197 | 931-000-463 |
| 0.0469 | 0.1250 | 0.0234 | 0.2500 | 2.0490 | 2.5000 | 931-000-201 | 930-000-128 | 931-000-475 |
| 0.0625 | 0.1250 | 0.0313 | 0.5000 | 1.8392 | 2.5000 | 931-000-203 | 930-000-130 | 931-000-481 |
| 0.0781 | 0.1250 | 0.0391 | 0.5000 | 1.8794 | 2.5000 | 931-000-207 | 931-000-208 | 931-000-493 |
| 0.0938 | 0.1250 | 0.0469 | 0.7500 | 1.6696 | 2.5000 | 931-000-210 | 931-000-211 | 931-000-499 |
| 0.1250 | 0.1250 | 0.0625 | 1.0000 | 1.6250 | 3.0000 | 931-000-215 | 931-000-216 | 931-000-511 |

Ø .1875"-.250"

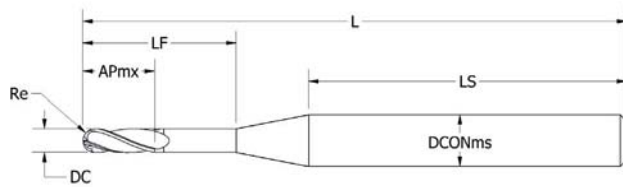


| DC | DCONms | Re | APmx | LS | L | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------------------|
| | | | | | | 4 FLUTE |
| 0.1875 | 0.1875 | 0.0938 | 1.1250 | 1.5000 | 3.0000 | 931-000-517 |
| 0.2500 | 0.2500 | 0.1250 | 1.5000 | 2.1250 | 4.0000 | 931-000-523 |

Ø .0313"-.0938"



CARBIDE



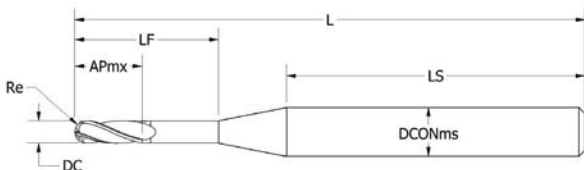
STUB, LONG REACH



| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------|-------------------|
| | | | | | | | 3 FLUTE | 3 FLUTE |
| 0.0313 | 0.1250 | 0.0156 | 0.0625 | 2.2031 | 2.5000 | 0.2500 | 931-000-199 | 931-000-465 |
| 0.0313 | 0.1250 | 0.0156 | 0.0625 | 2.0781 | 2.5000 | 0.3750 | N/A | 931-000-473 |
| 0.0313 | 0.1250 | 0.0156 | 0.0625 | 1.9531 | 2.5000 | 0.5000 | N/A | 931-000-469 |
| 0.0625 | 0.1250 | 0.0313 | 0.1250 | 1.9688 | 2.5000 | 0.5000 | 931-000-205 | 931-000-483 |
| 0.0625 | 0.1250 | 0.0313 | 0.1250 | 1.7188 | 2.5000 | 0.7500 | N/A | 931-000-491 |
| 0.0625 | 0.1250 | 0.0313 | 0.1250 | 1.4688 | 2.5000 | 1.0000 | N/A | 931-000-487 |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.7344 | 2.5000 | 0.7500 | 931-000-213 | 931-000-501 |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.4844 | 2.5000 | 1.0000 | N/A | 931-000-509 |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.2344 | 2.5000 | 1.2500 | N/A | 931-000-505 |

CARBIDE

Ø .0156"-.250"

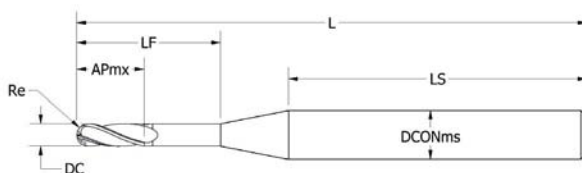


LONG FLUTE, LONG REACH



| DC | DCONms | Re | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|--------|-------------------|
| | | | | | | | 3 FLUTE |
| 0.0156 | 0.1250 | 0.0078 | 0.0781 | 2.2953 | 2.5000 | 0.1500 | 931-000-461 |
| 0.0156 | 0.1250 | 0.0078 | 0.0781 | 2.1953 | 2.5000 | 0.2500 | 931-000-459 |
| 0.0313 | 0.1250 | 0.0156 | 0.1563 | 2.2031 | 2.5000 | 0.2500 | 931-000-471 |
| 0.0313 | 0.1250 | 0.0156 | 0.1563 | 2.0781 | 2.5000 | 0.3750 | 931-000-467 |
| 0.0469 | 0.1250 | 0.0234 | 0.2500 | 2.0859 | 2.5000 | 0.3750 | 931-000-479 |
| 0.0469 | 0.1250 | 0.0234 | 0.2500 | 1.9609 | 2.5000 | 0.5000 | 931-000-477 |
| 0.0625 | 0.1250 | 0.0313 | 0.5000 | 1.7188 | 2.5000 | 0.7500 | 931-000-489 |
| 0.0625 | 0.1250 | 0.0313 | 0.5000 | 1.4688 | 2.5000 | 1.0000 | 931-000-485 |
| 0.0781 | 0.1250 | 0.0391 | 0.5000 | 1.7266 | 2.5000 | 0.7500 | 931-000-497 |
| 0.0781 | 0.1250 | 0.0391 | 0.5000 | 1.4766 | 2.5000 | 1.0000 | 931-000-495 |
| 0.0938 | 0.1250 | 0.0469 | 0.7500 | 1.4844 | 2.5000 | 1.0000 | 931-000-507 |
| 0.0938 | 0.1250 | 0.0469 | 0.7500 | 1.2344 | 2.5000 | 1.2500 | 931-000-503 |
| 0.1250 | 0.1250 | 0.0625 | 1.0000 | 1.7500 | 3.0000 | 1.2500 | 931-000-515 |
| 0.1250 | 0.1250 | 0.0625 | 1.0000 | 1.5000 | 3.0000 | 1.5000 | 931-000-513 |

Ø .0156"-.250"

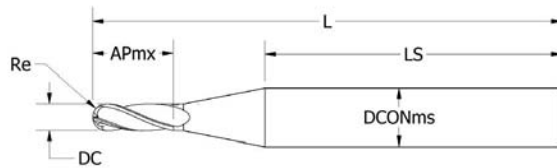


| DC | DCONms | Re | APmx | LS | L | LF | 4 FLUTE |
|--------|--------|--------|--------|--------|--------|--------|-------------|
| 0.1875 | 0.1875 | 0.0938 | 1.1250 | 1.5000 | 3.0000 | 1.5000 | 931-000-521 |
| 0.1875 | 0.1875 | 0.0938 | 1.1250 | 1.2500 | 3.0000 | 1.7500 | 931-000-519 |
| 0.2500 | 0.2500 | 0.1250 | 1.5000 | 2.0000 | 4.0000 | 2.0000 | 931-000-527 |
| 0.2500 | 0.2500 | 0.1250 | 1.5000 | 1.5000 | 4.0000 | 2.5000 | 931-000-525 |

Ø .5 mm-12 mm



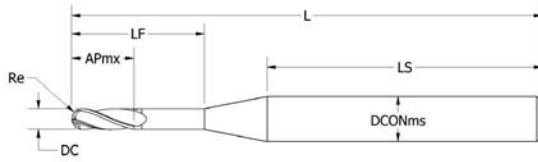
CARBIDE



| DC | DCONms | Re | APmx | LS | L | UNCOATED | |
|-------|--------|------|-------|-------|-------|-------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE |
| 0.50 | 3.00 | 0.25 | 1.50 | 30.07 | 38.00 | 930-000-017 | 930-000-049 |
| 1.00 | 3.00 | 0.50 | 3.00 | 29.86 | 38.00 | 930-000-018 | 930-000-050 |
| 1.50 | 3.00 | 0.75 | 4.50 | 29.64 | 38.00 | 930-000-019 | 930-000-051 |
| 2.00 | 3.00 | 1.00 | 6.00 | 29.43 | 38.00 | 930-000-020 | 930-000-052 |
| 2.50 | 3.00 | 1.25 | 8.00 | 28.71 | 38.00 | 930-000-021 | 930-000-053 |
| 3.00 | 3.00 | 1.50 | 10.00 | 18.00 | 38.00 | 930-000-022 | 930-000-054 |
| 3.50 | 4.00 | 1.75 | 12.00 | 36.71 | 50.00 | 930-000-023 | 930-000-055 |
| 4.00 | 4.00 | 2.00 | 12.00 | 28.00 | 50.00 | 930-000-024 | 930-000-056 |
| 4.50 | 5.00 | 2.25 | 14.00 | 34.71 | 50.00 | 930-000-025 | 930-000-057 |
| 5.00 | 5.00 | 2.50 | 15.00 | 25.00 | 50.00 | 930-000-026 | 930-000-058 |
| 6.00 | 6.00 | 3.00 | 18.00 | 35.00 | 63.00 | 930-000-027 | 930-000-059 |
| 7.00 | 8.00 | 3.50 | 20.00 | 40.43 | 63.00 | 930-000-028 | 930-000-060 |
| 8.00 | 4.00 | 4.00 | 20.00 | 33.00 | 63.00 | 930-000-029 | 930-000-061 |
| 9.00 | 10.00 | 4.50 | 22.00 | 38.43 | 63.00 | 930-000-030 | 930-000-062 |
| 10.00 | 10.00 | 5.00 | 22.00 | 31.00 | 63.00 | 930-000-031 | 930-000-063 |
| 12.00 | 12.00 | 6.00 | 25.00 | 40.00 | 75.00 | 930-000-032 | 930-000-064 |

CARBIDE

Ø .4 mm-12 mm

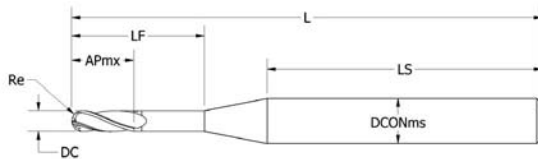


STUB, 8X REACH LENGTH



| DC | DCONms | Re | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|-------|--------|------|-------|-------|--------|-------|-------------------|
| | | | | | | | 3 FLUTE |
| 0.40 | 3.00 | 0.20 | 0.60 | 70.50 | 75.00 | 3.20 | 930-000-109 |
| 0.50 | 3.00 | 0.25 | 0.75 | 69.75 | 75.00 | 4.00 | 930-000-110 |
| 0.60 | 3.00 | 0.30 | 0.90 | 69.00 | 75.00 | 4.80 | 930-000-111 |
| 0.80 | 3.00 | 0.40 | 1.20 | 67.50 | 75.00 | 6.40 | 930-000-112 |
| 1.00 | 3.00 | 0.50 | 1.50 | 66.00 | 75.00 | 8.00 | 930-000-113 |
| 1.50 | 3.00 | 0.75 | 2.25 | 62.25 | 75.00 | 12.00 | 930-000-114 |
| 2.00 | 3.00 | 1.00 | 3.00 | 58.50 | 75.00 | 16.00 | 930-000-115 |
| 2.50 | 3.00 | 1.25 | 3.75 | 54.75 | 75.00 | 20.00 | 930-000-116 |
| 3.00 | 3.00 | 1.50 | 4.50 | 51.00 | 75.00 | 24.00 | 930-000-117 |
| 4.00 | 4.00 | 2.00 | 6.00 | 43.00 | 75.00 | 32.00 | 930-000-118 |
| 6.00 | 6.00 | 3.00 | 9.00 | 52.00 | 100.00 | 48.00 | 930-000-119 |
| 8.00 | 8.00 | 4.00 | 12.00 | 36.00 | 100.00 | 64.00 | 930-000-120 |
| 10.00 | 10.00 | 5.00 | 15.00 | 40.00 | 120.00 | 80.00 | 930-000-121 |
| 12.00 | 12.00 | 6.00 | 18.00 | 54.00 | 150.00 | 96.00 | 930-000-122 |

Ø .4 mm-12 mm

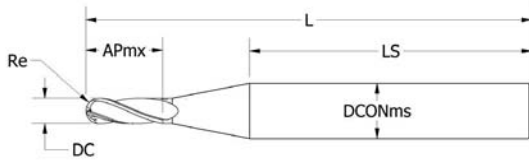


5X FLUTE LENGTH, 10X REACH LENGTH



| DC | DCONms | Re | APmx | LS | L | LF | AMORPHOUS DIAMOND |
|-------|--------|------|-------|-------|--------|-------|-------------------|
| | | | | | | | 3 FLUTE |
| 0.40 | 3.00 | 0.20 | 2.00 | 69.70 | 75.00 | 4 mm | 930-000-080 |
| 0.50 | 3.00 | 0.25 | 2.50 | 68.75 | 75.00 | 5 mm | 930-000-081 |
| 0.60 | 3.00 | 0.30 | 3.00 | 67.80 | 75.00 | 6 mm | 930-000-082 |
| 0.80 | 3.00 | 0.40 | 4.00 | 65.90 | 75.00 | 8 mm | 930-000-083 |
| 1.00 | 3.00 | 0.50 | 5.00 | 64.00 | 75.00 | 10 mm | 930-000-084 |
| 1.20 | 3.00 | 0.60 | 6.00 | 62.10 | 75.00 | 12 mm | 930-000-085 |
| 1.50 | 3.00 | 0.75 | 7.50 | 59.25 | 75.00 | 15 mm | 930-000-086 |
| 2.00 | 3.00 | 1.00 | 10.00 | 54.50 | 75.00 | 20 mm | 930-000-087 |
| 2.50 | 3.00 | 1.25 | 12.50 | 49.75 | 75.00 | 25 mm | 930-000-088 |
| 3.00 | 3.00 | 1.50 | 15.00 | 45.00 | 75.00 | 30 mm | 930-000-089 |
| 4.00 | 4.00 | 2.00 | 20.00 | 35.00 | 75.00 | 40 mm | 930-000-090 |
| 6.00 | 6.00 | 3.00 | 30.00 | 40.00 | 100.00 | 60 mm | 930-000-091 |
| 8.00 | 8.00 | 4.00 | 40.00 | 30.00 | 100.00 | 70 mm | 930-000-092 |
| 10.00 | 10.00 | 5.00 | 50.00 | 40.00 | 120.00 | 80 mm | 930-000-093 |
| 12.00 | 12.00 | 6.00 | 60.00 | 65.00 | 150.00 | 85 mm | 930-000-094 |

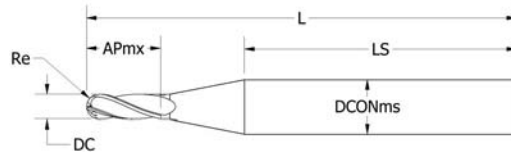
Ø .020"-.060"



LONG FLUTE

| DC | DCONms | Re | APmx | LS | L | A | UNCOATED | TiAIN NANO COATED |
|--------|--------|--------|--------|--------|--------|-----|-------------|-------------------|
| | | | | | | | 4 FLUTE | 4 FLUTE |
| 0.0200 | 0.1875 | 0.0100 | 0.1400 | 2.4291 | 3.0000 | N/A | 930-000-151 | 930-000-161 |
| 0.0300 | 0.1875 | 0.0150 | 0.2100 | 2.3849 | 3.0000 | N/A | 930-000-152 | 930-000-162 |
| 0.0400 | 0.1875 | 0.0200 | 0.2800 | 2.3406 | 3.0000 | N/A | 930-000-153 | 930-000-163 |
| 0.0500 | 0.1875 | 0.0250 | 0.3500 | 2.2963 | 3.0000 | N/A | 930-000-154 | 930-000-164 |
| 0.0600 | 0.1875 | 0.0300 | 0.4200 | 2.2520 | 3.0000 | N/A | 930-000-155 | 930-000-165 |
| 0.0200 | 0.1875 | 0.0100 | 0.1400 | 2.4350 | 3.0000 | 1.0 | 930-000-203 | 930-000-223 |
| 0.0300 | 0.1875 | 0.0150 | 0.2100 | 2.3936 | 3.0000 | 1.0 | 930-000-204 | 930-000-224 |
| 0.0400 | 0.1875 | 0.0200 | 0.2800 | 2.3523 | 3.0000 | 1.0 | 930-000-205 | 930-000-225 |
| 0.0500 | 0.1875 | 0.0250 | 0.3500 | 2.3109 | 3.0000 | 1.0 | 930-000-206 | 930-000-226 |
| 0.0600 | 0.1875 | 0.0300 | 0.4200 | 2.2695 | 3.0000 | 1.0 | 930-000-207 | 930-000-227 |
| 0.0200 | 0.1875 | 0.0100 | 0.1400 | 2.4408 | 3.0000 | 2.0 | 930-000-213 | 930-000-233 |
| 0.0300 | 0.1875 | 0.0150 | 0.2100 | 2.4024 | 3.0000 | 2.0 | 930-000-214 | 930-000-234 |
| 0.0400 | 0.1875 | 0.0200 | 0.2800 | 2.3639 | 3.0000 | 2.0 | 930-000-215 | 930-000-235 |
| 0.0500 | 0.1875 | 0.0250 | 0.3500 | 2.3255 | 3.0000 | 2.0 | 930-000-216 | 930-000-236 |
| 0.0600 | 0.1875 | 0.0300 | 0.4200 | 2.2871 | 3.0000 | 2.0 | 930-000-217 | 930-000-237 |

Ø .020"-.060"



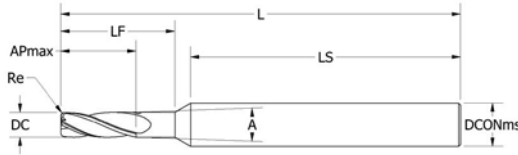
EXTRA LONG FLUTE



| DC | DCONms | Re | APmx | LS | L | A | UNCOATED | TiAIN NANO COATED |
|--------|--------|--------|--------|--------|--------|-----|-------------|-------------------|
| | | | | | | | 4 FLUTE | 4 FLUTE |
| 0.0200 | 0.1875 | 0.0100 | 0.2800 | 2.2891 | 3.0000 | N/A | 930-000-156 | 930-000-166 |
| 0.0300 | 0.1875 | 0.0150 | 0.4100 | 2.1849 | 3.0000 | N/A | 930-000-157 | 930-000-167 |
| 0.0400 | 0.1875 | 0.0200 | 0.5600 | 2.0606 | 3.0000 | N/A | 930-000-158 | 930-000-168 |
| 0.0500 | 0.1875 | 0.0250 | 0.7000 | 1.9463 | 3.0000 | N/A | 930-000-159 | 930-000-169 |
| 0.0600 | 0.1875 | 0.0300 | 0.8400 | 1.8320 | 3.0000 | N/A | 930-000-160 | 930-000-170 |
| 0.0200 | 0.1875 | 0.0100 | 0.2800 | 2.3013 | 3.0000 | 1.0 | 930-000-208 | 930-000-228 |
| 0.0300 | 0.1875 | 0.0150 | 0.4100 | 2.2026 | 3.0000 | 1.0 | 930-000-209 | 930-000-229 |
| 0.0400 | 0.1875 | 0.0200 | 0.5600 | 2.0848 | 3.0000 | 1.0 | 930-000-210 | 930-000-230 |
| 0.0500 | 0.1875 | 0.0250 | 0.7000 | 1.9766 | 3.0000 | 1.0 | 930-000-211 | 930-000-231 |
| 0.0600 | 0.1875 | 0.0300 | 0.8400 | 1.8684 | 3.0000 | 1.0 | 930-000-212 | 930-000-232 |
| 0.0200 | 0.1875 | 0.0100 | 0.2800 | 2.3134 | 3.0000 | 2.0 | 930-000-218 | 930-000-238 |
| 0.0300 | 0.1875 | 0.0150 | 0.4100 | 2.2203 | 3.0000 | 2.0 | 930-000-219 | 930-000-239 |
| 0.0400 | 0.1875 | 0.0200 | 0.5600 | 2.1091 | 3.0000 | 2.0 | 930-000-220 | 930-000-240 |
| 0.0500 | 0.1875 | 0.0250 | 0.7000 | 2.0069 | 3.0000 | 2.0 | 930-000-221 | 930-000-241 |
| 0.0600 | 0.1875 | 0.0300 | 0.8400 | 1.9048 | 3.0000 | 2.0 | 930-000-222 | 930-000-242 |

CARBIDE

Ø .030"-.060"

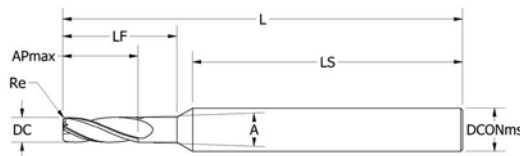


LONG FLUTE



| DC | DCONms | Re | APmx | LS | L | A | UNCOATED | TiAIN NANO COATED |
|--------|--------|--------|--------|--------|--------|-----|-------------|-------------------|
| | | | | | | | 4 FLUTE | 4 FLUTE |
| 0.0300 | 0.1875 | 0.0100 | 0.2100 | 2.3849 | 3.0000 | N/A | 930-000-135 | 930-000-143 |
| 0.0400 | 0.1875 | 0.0100 | 0.2800 | 2.3406 | 3.0000 | N/A | 930-000-136 | 930-000-144 |
| 0.0500 | 0.1875 | 0.0100 | 0.3500 | 2.2963 | 3.0000 | N/A | 930-000-137 | 930-000-145 |
| 0.0600 | 0.1875 | 0.0100 | 0.4200 | 2.2520 | 3.0000 | N/A | 930-000-138 | 930-000-146 |
| 0.0300 | 0.1875 | 0.0100 | 0.2100 | 2.3938 | 3.0000 | 1.0 | 930-000-171 | 930-000-187 |
| 0.0400 | 0.1875 | 0.0100 | 0.2800 | 2.3527 | 3.0000 | 1.0 | 930-000-172 | 930-000-188 |
| 0.0500 | 0.1875 | 0.0100 | 0.3500 | 2.3116 | 3.0000 | 1.0 | 930-000-173 | 930-000-189 |
| 0.0600 | 0.1875 | 0.0100 | 0.4200 | 2.2704 | 3.0000 | 1.0 | 930-000-174 | 930-000-190 |
| 0.0300 | 0.1875 | 0.0100 | 0.2100 | 2.4028 | 3.0000 | 2.0 | 930-000-179 | 930-000-195 |
| 0.0400 | 0.1875 | 0.0100 | 0.2800 | 2.3648 | 3.0000 | 2.0 | 930-000-180 | 930-000-196 |
| 0.0500 | 0.1875 | 0.0100 | 0.3500 | 2.3268 | 3.0000 | 2.0 | 930-000-181 | 930-000-197 |
| 0.0600 | 0.1875 | 0.0100 | 0.4200 | 2.2889 | 3.0000 | 2.0 | 930-000-182 | 930-000-198 |

Ø .030"-.060"

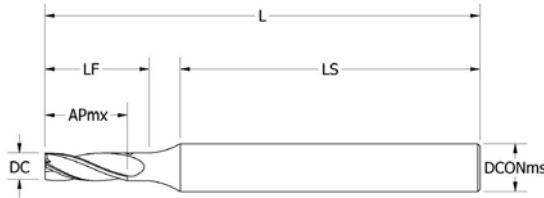


EXTRA LONG FLUTE



| DC | DCONms | Re | APmx | LS | L | A | UNCOATED | TiAIN NANO COATED |
|--------|--------|--------|--------|--------|--------|-----|-------------|-------------------|
| | | | | | | | 4 FLUTE | 4 FLUTE |
| 0.0300 | 0.1875 | 0.0100 | 0.4100 | 2.1849 | 3.0000 | N/A | 930-000-139 | 930-000-147 |
| 0.0400 | 0.1875 | 0.0100 | 0.5600 | 2.0606 | 3.0000 | N/A | 930-000-140 | 930-000-148 |
| 0.0500 | 0.1875 | 0.0100 | 0.7000 | 1.9463 | 3.0000 | N/A | 930-000-141 | 930-000-149 |
| 0.0600 | 0.1875 | 0.0100 | 0.8400 | 1.8320 | 3.0000 | N/A | 930-000-142 | 930-000-150 |
| 0.0300 | 0.1875 | 0.0100 | 0.4100 | 2.2028 | 3.0000 | 1.0 | 930-000-175 | 930-000-191 |
| 0.0400 | 0.1875 | 0.0100 | 0.5600 | 2.0853 | 3.0000 | 1.0 | 930-000-176 | 930-000-192 |
| 0.0500 | 0.1875 | 0.0100 | 0.7000 | 1.9773 | 3.0000 | 1.0 | 930-000-177 | 930-000-193 |
| 0.0600 | 0.1875 | 0.0100 | 0.8400 | 1.8693 | 3.0000 | 1.0 | 930-000-178 | 930-000-194 |
| 0.0300 | 0.1875 | 0.0100 | 0.4100 | 2.2208 | 3.0000 | 2.0 | 930-000-183 | 930-000-199 |
| 0.0400 | 0.1875 | 0.0100 | 0.5600 | 2.1100 | 3.0000 | 2.0 | 930-000-184 | 930-000-200 |
| 0.0500 | 0.1875 | 0.0100 | 0.7000 | 2.0083 | 3.0000 | 2.0 | 930-000-185 | 930-000-201 |
| 0.0600 | 0.1875 | 0.0100 | 0.8400 | 1.9066 | 3.0000 | 2.0 | 930-000-186 | 930-000-202 |

Ø.005"-.1378"

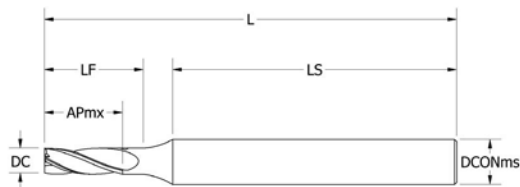


| DC | DCONms | APmx | LS | L | LF | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0150 | 1.2815 | 1.5000 | N/A | 934-000-109 | 934-000-154 |
| 0.0100 | 0.1250 | 0.0300 | 1.2705 | 1.5000 | 0.0310 | 934-000-110 | 934-000-155 |
| 0.0150 | 0.1250 | 0.0450 | 1.2595 | 1.5000 | 0.0475 | 934-000-111 | 934-000-156 |
| 0.0050 | 0.1250 | 0.0150 | 1.2815 | 1.5000 | N/A | 934-000-154 | N/A |
| 0.0197 | 0.1250 | 0.0591 | 1.2493 | 1.5000 | N/A | 934-000-141 | N/A |
| 0.0200 | 0.1250 | 0.0600 | 1.2486 | 1.5000 | 0.0630 | 934-000-112 | 934-000-157 |
| 0.0250 | 0.1250 | 0.0750 | 1.2379 | 1.5000 | 0.0780 | 934-000-113 | N/A |
| 0.0300 | 0.1250 | 0.0900 | 1.2273 | 1.5000 | 0.0930 | 934-000-114 | 934-000-158 |
| 0.0350 | 0.1875 | 0.1050 | 1.1683 | 1.5000 | 0.1100 | 934-000-115 | N/A |
| 0.0394 | 0.1875 | 0.1182 | 1.1581 | 1.5000 | 0.1232 | 934-000-142 | N/A |
| 0.0400 | 0.1875 | 0.1200 | 1.1567 | 1.5000 | 0.1250 | 934-000-116 | 934-000-159 |
| 0.0450 | 0.1875 | 0.1350 | 1.1451 | 1.5000 | 0.1400 | 934-000-117 | N/A |
| 0.0492 | 0.1875 | 0.1476 | 1.1354 | 1.5000 | 0.1526 | 934-000-143 | N/A |
| 0.0500 | 0.1875 | 0.1500 | 1.1336 | 1.5000 | 0.1550 | 934-000-118 | 934-000-160 |
| 0.0550 | 0.1875 | 0.1650 | 1.1222 | 1.5000 | 0.1700 | 934-000-119 | N/A |
| 0.0591 | 0.1875 | 0.1773 | 1.1129 | 1.5000 | 0.1823 | 934-000-144 | N/A |
| 0.0600 | 0.1875 | 0.1800 | 1.1108 | 1.5000 | 0.1850 | 934-000-120 | 934-000-161 |
| 0.0630 | 0.1875 | 0.1890 | 1.1041 | 1.5000 | 0.1940 | 934-000-145 | N/A |
| 0.0650 | 0.1875 | 0.1950 | 1.0996 | 1.5000 | 0.2000 | 934-000-121 | N/A |
| 0.0700 | 0.1875 | 0.2100 | 1.0885 | 1.5000 | 0.2150 | 934-000-122 | 934-000-162 |
| 0.0709 | 0.1875 | 0.2127 | 1.0865 | 1.5000 | 0.2177 | 934-000-146 | N/A |
| 0.0750 | 0.1875 | 0.2250 | 1.0775 | 1.5000 | 0.2300 | 934-000-123 | N/A |
| 0.0787 | 0.1875 | 0.2361 | 1.0694 | 1.5000 | 0.2411 | 934-000-147 | N/A |
| 0.0800 | 0.1875 | 0.2400 | 1.0665 | 1.5000 | 0.2450 | 934-000-124 | 934-000-163 |
| 0.0850 | 0.1875 | 0.2550 | 1.0558 | 1.5000 | 0.2600 | 934-000-125 | N/A |
| 0.0866 | 0.1875 | 0.2598 | 1.0523 | 1.5000 | 0.2648 | 934-000-148 | N/A |
| 0.0900 | 0.1875 | 0.2700 | 1.0451 | 1.5000 | 0.2750 | 934-000-126 | 934-000-164 |
| 0.0950 | 0.1875 | 0.2850 | 1.0346 | 1.5000 | 0.2900 | 934-000-127 | N/A |
| 0.0984 | 0.1875 | 0.2952 | 1.0275 | 1.5000 | 0.3002 | 934-000-149 | N/A |
| 0.1000 | 0.1875 | 0.3000 | 1.0242 | 1.5000 | 0.3050 | 934-000-128 | 934-000-165 |
| 0.1102 | 0.1875 | 0.3306 | 1.0036 | 1.5000 | 0.3356 | 934-000-150 | N/A |
| 0.1181 | 0.1875 | 0.3543 | 0.9882 | 1.5000 | 0.3593 | 934-000-151 | N/A |
| 0.1200 | 0.1875 | 0.3600 | 0.9845 | 1.5000 | 0.3650 | 934-000-129 | N/A |
| 0.1378 | 0.1875 | 0.4134 | 0.9524 | 1.5000 | 0.4184 | 934-000-152 | N/A |

Ø .005" - .1378"



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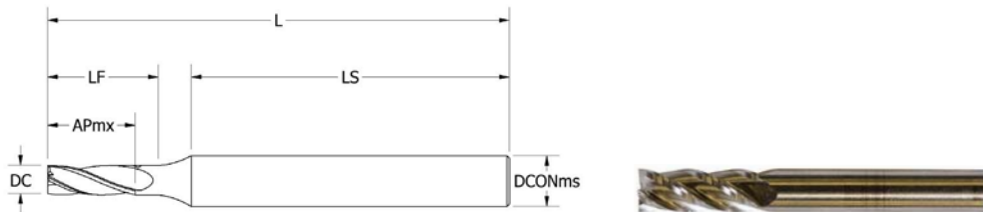


| DC | DCONms | APmx | LS | L | LF | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0075 | 1.3300 | 1.5000 | N/A | 934-000-190 |
| 0.0100 | 0.1250 | 0.0150 | 1.2855 | 1.5000 | 0.0150 | 934-000-191 |
| 0.0150 | 0.1250 | 0.0225 | 1.2820 | 1.5000 | 0.0225 | 934-000-192 |
| 0.0156 | 0.1250 | 0.0234 | 1.2816 | 1.5000 | 0.0234 | 934-000-223 |
| 0.0197 | 0.1250 | 0.0296 | 1.2788 | 1.5000 | 0.0296 | 934-000-211 |
| 0.0200 | 0.1250 | 0.0300 | 1.2786 | 1.5000 | 0.0300 | 934-000-193 |
| 0.0250 | 0.1250 | 0.0375 | 1.2754 | 1.5000 | 0.0375 | 934-000-194 |
| 0.0300 | 0.1250 | 0.0450 | 1.2723 | 1.5000 | 0.0450 | 934-000-195 |
| 0.0350 | 0.1875 | 0.0525 | 1.2208 | 1.5000 | 0.0525 | 934-000-196 |
| 0.0394 | 0.1875 | 0.0591 | 1.2172 | 1.5000 | 0.0591 | 934-000-212 |
| 0.0400 | 0.1875 | 0.0600 | 1.2167 | 1.5000 | 0.0600 | 934-000-197 |
| 0.0450 | 0.1875 | 0.0675 | 1.2126 | 1.5000 | 0.0675 | 934-000-198 |
| 0.0492 | 0.1875 | 0.0738 | 1.2092 | 1.5000 | 0.0738 | 934-000-213 |
| 0.0500 | 0.1875 | 0.0750 | 1.2086 | 1.5000 | 0.0750 | 934-000-199 |
| 0.0550 | 0.1875 | 0.0825 | 1.2047 | 1.5000 | 0.0825 | 934-000-200 |
| 0.0591 | 0.1875 | 0.0887 | 1.2015 | 1.5000 | 0.0887 | 934-000-214 |
| 0.0600 | 0.1875 | 0.0900 | 1.2008 | 1.5000 | 0.0900 | 934-000-201 |
| 0.0630 | 0.1875 | 0.0945 | 1.1986 | 1.5000 | 0.0945 | 934-000-215 |
| 0.0650 | 0.1875 | 0.0975 | 1.1971 | 1.5000 | 0.0975 | 934-000-202 |
| 0.0700 | 0.1875 | 0.1050 | 1.1935 | 1.5000 | 0.1050 | 934-000-203 |
| 0.0709 | 0.1875 | 0.1064 | 1.1928 | 1.5000 | 0.1064 | 934-000-216 |
| 0.0750 | 0.1875 | 0.1125 | 1.1900 | 1.5000 | 0.1125 | 934-000-204 |
| 0.0787 | 0.1875 | 0.1181 | 1.1874 | 1.5000 | 0.1181 | 934-000-217 |
| 0.0800 | 0.1875 | 0.1200 | 1.1865 | 1.5000 | 0.1200 | 934-000-205 |
| 0.0850 | 0.1875 | 0.1275 | 1.1833 | 1.5000 | 0.1275 | 934-000-206 |
| 0.0866 | 0.1875 | 0.1299 | 1.1822 | 1.5000 | 0.1299 | 934-000-218 |
| 0.0900 | 0.1875 | 0.1350 | 1.1801 | 1.5000 | 0.1350 | 934-000-207 |
| 0.0950 | 0.1875 | 0.1425 | 1.1771 | 1.5000 | 0.1425 | 934-000-208 |
| 0.0984 | 0.1875 | 0.1476 | 1.1751 | 1.5000 | 0.1476 | 934-000-219 |
| 0.1000 | 0.1875 | 0.1500 | 1.1742 | 1.5000 | 0.1500 | 934-000-209 |
| 0.1102 | 0.1875 | 0.1653 | 1.1689 | 1.5000 | 0.1653 | 934-000-220 |
| 0.1181 | 0.1875 | 0.1772 | 1.1653 | 1.5000 | 0.1772 | 934-000-221 |
| 0.1200 | 0.1875 | 0.1800 | 1.1645 | 1.5000 | 0.1800 | 934-000-210 |
| 0.1378 | 0.1875 | 0.2067 | 1.1591 | 1.5000 | 0.2067 | 934-000-222 |

Ø .0156" - .1875"

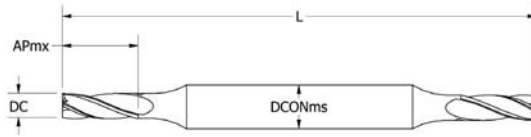


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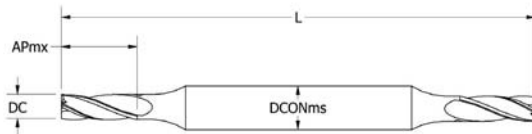
| DC | DCONms | APmx | LS | L | LF | UNCOATED | | TICN COATED | |
|--------|--------|--------|--------|--------|--------|-------------|-------------|-------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE | 2 FLUTE | 4 FLUTE |
| 0.0156 | 0.1250 | 0.0468 | 1.2582 | 1.5000 | 0.0493 | 934-000-153 | N/A | 934-000-172 | N/A |
| 0.0313 | 0.1875 | 0.0938 | 1.1771 | 1.5000 | 0.0988 | 934-000-130 | 934-000-173 | 934-000-166 | 934-000-184 |
| 0.0469 | 0.1875 | 0.1406 | 1.1408 | 1.5000 | 0.1456 | 934-000-131 | 934-000-174 | 934-000-167 | 934-000-185 |
| 0.0625 | 0.1875 | 0.1875 | 1.1052 | 1.5000 | 0.1925 | 934-000-132 | 934-000-175 | 934-000-168 | 934-000-186 |
| 0.0781 | 0.1875 | 0.2344 | 1.0706 | 1.5000 | 0.2394 | 934-000-133 | 934-000-176 | 934-000-169 | 934-000-187 |
| 0.0938 | 0.1875 | 0.2813 | 1.0372 | 1.5000 | 0.2863 | 934-000-134 | 934-000-177 | 934-000-170 | 934-000-188 |
| 0.1094 | 0.1875 | 0.3281 | 1.0052 | 1.5000 | 0.3331 | 934-000-135 | 934-000-178 | N/A | N/A |
| 0.1250 | 0.1875 | 0.3750 | 0.9751 | 1.5000 | 0.3800 | 934-000-136 | 934-000-179 | 934-000-171 | 934-000-189 |
| 0.1406 | 0.1875 | 0.4063 | 0.9633 | 1.5000 | 0.4113 | 934-000-137 | 934-000-180 | N/A | N/A |
| 0.1563 | 0.1875 | 0.4375 | 0.9554 | 1.5000 | 0.4425 | 934-000-138 | 934-000-181 | N/A | N/A |
| 0.1719 | 0.1875 | 0.5000 | 0.9239 | 1.5000 | 0.5050 | 934-000-139 | 934-000-182 | N/A | N/A |
| 0.1875 | 0.1875 | 0.5000 | 0.6250 | 1.5000 | N/A | 934-000-140 | 934-000-183 | N/A | N/A |

Ø .0313" - .1875"



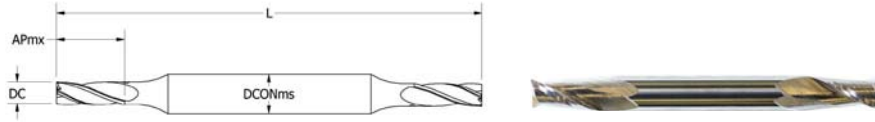
| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 2 FLUTE |
| 0.0313 | 0.1875 | 0.0938 | 1.1250 | 2.2500 | 934-000-001 |
| 0.0469 | 0.1875 | 0.1406 | 1.1250 | 2.2500 | 934-000-002 |
| 0.0625 | 0.1875 | 0.1875 | 1.1250 | 2.2500 | 934-000-003 |
| 0.0781 | 0.1875 | 0.2344 | 1.1250 | 2.2500 | 934-000-004 |
| 0.0938 | 0.1875 | 0.2813 | 1.1250 | 2.2500 | 934-000-005 |
| 0.1094 | 0.1875 | 0.3281 | 1.1250 | 2.2500 | 934-000-006 |
| 0.1250 | 0.1875 | 0.3750 | 1.1250 | 2.2500 | 934-000-007 |
| 0.1406 | 0.1875 | 0.4063 | 1.1250 | 2.2500 | 934-000-008 |
| 0.1563 | 0.1875 | 0.4375 | 1.1250 | 2.2500 | 934-000-009 |
| 0.1719 | 0.1875 | 0.5025 | 1.1250 | 2.2500 | 934-000-010 |
| 0.1875 | 0.1875 | 0.5000 | 1.2500 | 2.5000 | 934-000-011 |

Ø .0313" - .1875"



| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 4 FLUTE |
| 0.0313 | 0.1875 | 0.0938 | 1.1250 | 2.2500 | 934-000-055 |
| 0.0469 | 0.1875 | 0.1406 | 1.1250 | 2.2500 | 934-000-056 |
| 0.0625 | 0.1875 | 0.1875 | 1.1250 | 2.2500 | 934-000-057 |
| 0.0781 | 0.1875 | 0.2344 | 1.1250 | 2.2500 | 934-000-058 |
| 0.0938 | 0.1875 | 0.2813 | 1.1250 | 2.2500 | 934-000-059 |
| 0.1094 | 0.1875 | 0.3281 | 1.1250 | 2.2500 | 934-000-060 |
| 0.1250 | 0.1875 | 0.3750 | 1.1250 | 2.2500 | 934-000-061 |
| 0.1406 | 0.1875 | 0.4063 | 1.1250 | 2.2500 | 934-000-062 |
| 0.1563 | 0.1875 | 0.4375 | 1.1250 | 2.2500 | 934-000-063 |
| 0.1719 | 0.1875 | 0.5000 | 1.1250 | 2.2500 | 934-000-064 |
| 0.1875 | 0.1875 | 0.5000 | 1.1250 | 2.2500 | 934-000-065 |

Ø .0313" - .1875"



| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 2 FLUTE |
| 0.0313 | 0.1875 | 0.0469 | 1.0000 | 2.0000 | 934-000-023 |
| 0.0469 | 0.1875 | 0.0625 | 1.0000 | 2.0000 | 934-000-024 |
| 0.0625 | 0.1875 | 0.0938 | 1.0000 | 2.0000 | 934-000-025 |
| 0.0781 | 0.1875 | 0.1250 | 1.0000 | 2.0000 | 934-000-026 |
| 0.0938 | 0.1875 | 0.1406 | 1.0000 | 2.0000 | 934-000-027 |
| 0.1094 | 0.1875 | 0.1563 | 1.0000 | 2.0000 | 934-000-028 |
| 0.1250 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 934-000-029 |
| 0.1406 | 0.1875 | 0.2188 | 1.0000 | 2.0000 | 934-000-030 |
| 0.1563 | 0.1875 | 0.2344 | 1.0000 | 2.0000 | 934-000-031 |
| 0.1719 | 0.1875 | 0.2500 | 1.0000 | 2.0000 | 934-000-032 |
| 0.1875 | 0.1875 | 0.2813 | 1.0000 | 2.0000 | 934-000-033 |

COBALT

Ø .0313" - .1875"

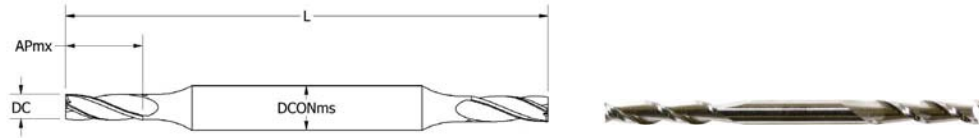


| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 4 FLUTE |
| 0.0313 | 0.1875 | 0.0469 | 1.0000 | 2.0000 | 934-000-077 |
| 0.0469 | 0.1875 | 0.0625 | 1.0000 | 2.0000 | 934-000-078 |
| 0.0625 | 0.1875 | 0.0938 | 1.0000 | 2.0000 | 934-000-079 |
| 0.0781 | 0.1875 | 0.1250 | 1.0000 | 2.0000 | 934-000-080 |
| 0.0938 | 0.1875 | 0.1406 | 1.0000 | 2.0000 | 934-000-081 |
| 0.1094 | 0.1875 | 0.1563 | 1.0000 | 2.0000 | 934-000-082 |
| 0.1250 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 934-000-083 |
| 0.1406 | 0.1875 | 0.2188 | 1.0000 | 2.0000 | 934-000-084 |
| 0.1563 | 0.1875 | 0.2344 | 1.0000 | 2.0000 | 934-000-085 |
| 0.1719 | 0.1875 | 0.2500 | 1.0000 | 2.0000 | 934-000-086 |
| 0.1875 | 0.1875 | 0.2813 | 1.0000 | 2.0000 | 934-000-087 |

Ø .0625"-.1875"

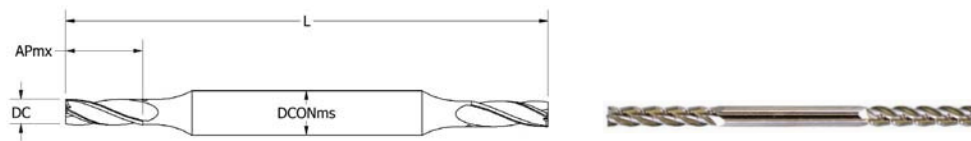


Cobalt



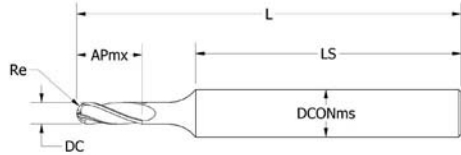
| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 2 FLUTE |
| 0.0625 | 0.1875 | 0.2188 | 1.2500 | 2.5000 | 934-000-045 |
| 0.0938 | 0.1875 | 0.2813 | 1.3125 | 2.6250 | 934-000-046 |
| 0.1250 | 0.1875 | 0.7500 | 1.5625 | 3.1250 | 934-000-047 |
| 0.1563 | 0.1875 | 0.8750 | 1.6250 | 3.2500 | 934-000-048 |
| 0.1875 | 0.1875 | 1.0000 | 1.6875 | 3.3750 | 934-000-049 |

Ø .0625"-.1875"



| DC | DCONms | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|-------------|
| | | | | | 4 FLUTE |
| 0.0625 | 0.1875 | 0.2188 | 1.2500 | 2.5000 | 934-000-099 |
| 0.0938 | 0.1875 | 0.2813 | 1.3125 | 2.6250 | 934-000-100 |
| 0.1250 | 0.1875 | 0.7500 | 1.5625 | 3.1250 | 934-000-101 |
| 0.1563 | 0.1875 | 0.8750 | 1.6250 | 3.2500 | 934-000-102 |
| 0.1875 | 0.1875 | 1.0000 | 1.6875 | 3.3750 | 934-000-103 |

Ø .005" - .1378"



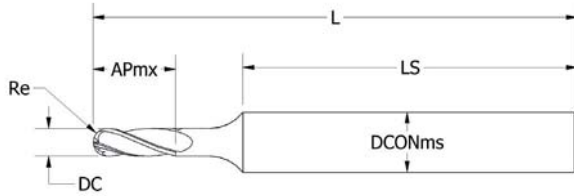
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| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0150 | 1.3225 | 1.5000 | N/A | 934-000-258 | 934-000-303 |
| 0.0100 | 0.1250 | 0.0050 | 0.0300 | 1.2705 | 1.5000 | 0.0310 | 934-000-259 | 934-000-304 |
| 0.0150 | 0.1250 | 0.0075 | 0.0450 | 1.2595 | 1.5000 | 0.0475 | 934-000-260 | 934-000-305 |
| 0.0156 | 0.1250 | 0.0078 | 0.0468 | 1.2582 | 1.5000 | 0.0493 | 934-000-302 | 934-000-321 |
| 0.0197 | 0.1250 | 0.0099 | 0.0591 | 1.2493 | 1.5000 | 0.0621 | 934-000-290 | N/A |
| 0.0200 | 0.1250 | 0.0100 | 0.0600 | 1.2486 | 1.5000 | 0.0630 | 934-000-261 | 934-000-306 |
| 0.0250 | 0.1250 | 0.0125 | 0.0750 | 1.2379 | 1.5000 | 0.0780 | 934-000-262 | N/A |
| 0.0300 | 0.1250 | 0.0150 | 0.0900 | 1.2273 | 1.5000 | 0.0930 | 934-000-263 | 934-000-307 |
| 0.0350 | 0.1875 | 0.0175 | 0.1050 | 1.1683 | 1.5000 | 0.1100 | 934-000-264 | N/A |
| 0.0394 | 0.1875 | 0.0197 | 0.1182 | 1.1581 | 1.5000 | 0.1232 | 934-000-291 | N/A |
| 0.0400 | 0.1875 | 0.0200 | 0.1200 | 1.1567 | 1.5000 | 0.1250 | 934-000-265 | 934-000-308 |
| 0.0450 | 0.1875 | 0.0225 | 0.1350 | 1.1451 | 1.5000 | 0.1400 | 934-000-266 | N/A |
| 0.0492 | 0.1875 | 0.0246 | 0.1476 | 1.1354 | 1.5000 | 0.1526 | 934-000-292 | N/A |
| 0.0500 | 0.1875 | 0.0250 | 0.1500 | 1.1336 | 1.5000 | 0.1550 | 934-000-267 | 934-000-309 |
| 0.0550 | 0.1875 | 0.0275 | 0.1650 | 1.1222 | 1.5000 | 0.1700 | 934-000-268 | N/A |
| 0.0591 | 0.1875 | 0.0296 | 0.1773 | 1.1129 | 1.5000 | 0.1823 | 934-000-293 | N/A |
| 0.0600 | 0.1875 | 0.0300 | 0.1800 | 1.1108 | 1.5000 | 0.1850 | 934-000-269 | 934-000-310 |
| 0.0630 | 0.1875 | 0.0315 | 0.1890 | 1.1041 | 1.5000 | 0.1940 | 934-000-294 | N/A |
| 0.0650 | 0.1875 | 0.0325 | 0.1950 | 1.0996 | 1.5000 | 0.2000 | 934-000-270 | N/A |
| 0.0700 | 0.1875 | 0.0350 | 0.2100 | 1.0885 | 1.5000 | 0.2150 | 934-000-271 | 934-000-311 |
| 0.0709 | 0.1875 | 0.0355 | 0.2127 | 1.0865 | 1.5000 | 0.2177 | 934-000-295 | N/A |
| 0.0750 | 0.1875 | 0.0375 | 0.2250 | 1.0775 | 1.5000 | 0.2300 | 934-000-272 | N/A |
| 0.0787 | 0.1875 | 0.0394 | 0.2361 | 1.0694 | 1.5000 | 0.2411 | 934-000-296 | N/A |
| 0.0800 | 0.1875 | 0.0400 | 0.2400 | 1.0665 | 1.5000 | 0.2450 | 934-000-273 | 934-000-312 |
| 0.0850 | 0.1875 | 0.0425 | 0.2550 | 1.0558 | 1.5000 | 0.2600 | 934-000-274 | N/A |
| 0.0866 | 0.1875 | 0.0433 | 0.2598 | 1.0523 | 1.5000 | 0.2648 | 934-000-297 | N/A |
| 0.0900 | 0.1875 | 0.0450 | 0.2700 | 1.0451 | 1.5000 | 0.2750 | 934-000-275 | 934-000-313 |
| 0.0950 | 0.1875 | 0.0475 | 0.2850 | 1.0346 | 1.5000 | 0.2900 | 934-000-276 | N/A |
| 0.0984 | 0.1875 | 0.0492 | 0.2952 | 1.0275 | 1.5000 | 0.3002 | 934-000-298 | N/A |
| 0.1000 | 0.1875 | 0.0500 | 0.3000 | 1.0242 | 1.5000 | 0.3050 | 934-000-277 | 934-000-314 |
| 0.1102 | 0.1875 | 0.0551 | 0.3306 | 1.0036 | 1.5000 | 0.3356 | 934-000-299 | N/A |
| 0.1181 | 0.1875 | 0.0591 | 0.3543 | 0.9882 | 1.5000 | 0.3593 | 934-000-300 | N/A |
| 0.1200 | 0.1875 | 0.0600 | 0.3600 | 0.9845 | 1.5000 | 0.3650 | 934-000-278 | N/A |
| 0.1378 | 0.1875 | 0.0689 | 0.4134 | 0.9524 | 1.5000 | 0.4184 | 934-000-301 | N/A |

Ø .0313" - .1875"



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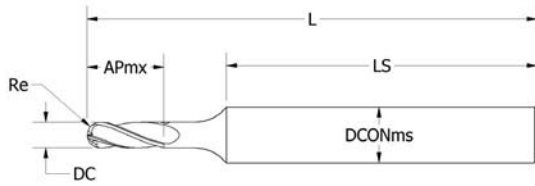


1.50 Length



| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED | TiCN COATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0313 | 0.1875 | 0.0156 | 0.0938 | 1.1771 | 1.5000 | 0.0988 | 934-000-279 | 934-000-315 |
| 0.0469 | 0.1875 | 0.0234 | 0.1406 | 1.1408 | 1.5000 | 0.1456 | 934-000-280 | 934-000-316 |
| 0.0625 | 0.1875 | 0.0313 | 0.1875 | 1.1052 | 1.5000 | 0.1925 | 934-000-281 | 934-000-317 |
| 0.0781 | 0.1875 | 0.0391 | 0.2344 | 1.0706 | 1.5000 | 0.2394 | 934-000-282 | 934-000-318 |
| 0.0938 | 0.1875 | 0.0469 | 0.2188 | 1.0997 | 1.5000 | 0.2238 | 934-000-283 | 934-000-319 |
| 0.1094 | 0.1875 | 0.0547 | 0.3281 | 1.0052 | 1.5000 | 0.3331 | 934-000-284 | N/A |
| 0.1250 | 0.1875 | 0.0625 | 0.7500 | 0.6001 | 1.5000 | 0.7550 | 934-000-285 | 934-000-320 |
| 0.1406 | 0.1875 | 0.0703 | 0.4063 | 0.9633 | 1.5000 | 0.4113 | 934-000-286 | N/A |
| 0.1563 | 0.1875 | 0.0781 | 0.4375 | 0.9554 | 1.5000 | 0.4425 | 934-000-287 | N/A |
| 0.1719 | 0.1875 | 0.0859 | 0.5000 | 0.9239 | 1.5000 | 0.5050 | 934-000-288 | N/A |
| 0.1875 | 0.1875 | 0.0938 | 0.5000 | 0.6250 | 1.5000 | N/A | 934-000-289 | N/A |

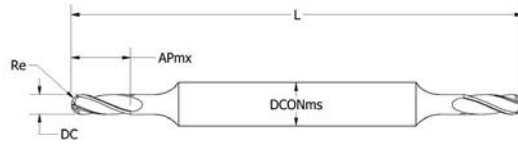
Ø .005" - .1378"



HSS

| DC | DCONms | Re | APmx | LS | L | LF | UNCOATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | | 2 FLUTE |
| 0.0050 | 0.1250 | 0.0025 | 0.0075 | 1.3300 | 1.5000 | N/A | 934-000-224 |
| 0.0100 | 0.1250 | 0.0050 | 0.0150 | 1.2855 | 1.5000 | 0.0150 | 934-000-225 |
| 0.0150 | 0.1250 | 0.0075 | 0.0225 | 1.2820 | 1.5000 | 0.0225 | 934-000-226 |
| 0.0156 | 0.1250 | 0.0078 | 0.0234 | 1.2816 | 1.5000 | 0.0234 | 934-000-257 |
| 0.0197 | 0.1875 | 0.0099 | 0.0296 | 1.2340 | 1.5000 | 0.0296 | 934-000-245 |
| 0.0200 | 0.1250 | 0.0100 | 0.0300 | 1.2786 | 1.5000 | 0.0300 | 934-000-227 |
| 0.0250 | 0.1250 | 0.0125 | 0.0375 | 1.2754 | 1.5000 | 0.0375 | 934-000-228 |
| 0.0300 | 0.1250 | 0.0150 | 0.0450 | 1.2723 | 1.5000 | 0.0450 | 934-000-229 |
| 0.0350 | 0.1875 | 0.0175 | 0.0525 | 1.2208 | 1.5000 | 0.0525 | 934-000-230 |
| 0.0394 | 0.1875 | 0.0197 | 0.0591 | 1.2172 | 1.5000 | 0.0591 | 934-000-246 |
| 0.0400 | 0.1875 | 0.0200 | 0.0600 | 1.2167 | 1.5000 | 0.0600 | 934-000-231 |
| 0.0450 | 0.1875 | 0.0225 | 0.0675 | 1.2126 | 1.5000 | 0.0675 | 934-000-232 |
| 0.0492 | 0.1875 | 0.0246 | 0.0738 | 1.2092 | 1.5000 | 0.0738 | 934-000-247 |
| 0.0500 | 0.1875 | 0.0250 | 0.0750 | 1.2086 | 1.5000 | 0.0750 | 934-000-233 |
| 0.0550 | 0.1875 | 0.0275 | 0.0825 | 1.2047 | 1.5000 | 0.0825 | 934-000-234 |
| 0.0591 | 0.1875 | 0.0296 | 0.0887 | 1.2015 | 1.5000 | 0.0887 | 934-000-248 |
| 0.0600 | 0.1875 | 0.0300 | 0.0900 | 1.2008 | 1.5000 | 0.0900 | 934-000-235 |
| 0.0630 | 0.1875 | 0.0315 | 0.0945 | 1.1986 | 1.5000 | 0.0945 | 934-000-249 |
| 0.0650 | 0.1875 | 0.0325 | 0.0975 | 1.1971 | 1.5000 | 0.0975 | 934-000-236 |
| 0.0700 | 0.1875 | 0.0350 | 0.1050 | 1.1935 | 1.5000 | 0.1050 | 934-000-237 |
| 0.0709 | 0.1875 | 0.0355 | 0.1064 | 1.1928 | 1.5000 | 0.1064 | 934-000-250 |
| 0.0750 | 0.1875 | 0.0375 | 0.1125 | 1.1900 | 1.5000 | 0.1125 | 934-000-238 |
| 0.0787 | 0.1875 | 0.0394 | 0.1181 | 1.1874 | 1.5000 | 0.1181 | 934-000-251 |
| 0.0800 | 0.1875 | 0.0400 | 0.1200 | 1.1865 | 1.5000 | 0.1200 | 934-000-239 |
| 0.0850 | 0.1875 | 0.0425 | 0.1275 | 1.1833 | 1.5000 | 0.1275 | 934-000-240 |
| 0.0866 | 0.1875 | 0.0433 | 0.1299 | 1.1822 | 1.5000 | 0.1299 | 934-000-252 |
| 0.0900 | 0.1875 | 0.0450 | 0.1350 | 1.1801 | 1.5000 | 0.1350 | 934-000-241 |
| 0.0950 | 0.1875 | 0.0475 | 0.1425 | 1.1771 | 1.5000 | 0.1425 | 934-000-242 |
| 0.0984 | 0.1875 | 0.0492 | 0.1476 | 1.1751 | 1.5000 | 0.1476 | 934-000-253 |
| 0.1000 | 0.1875 | 0.0500 | 0.1500 | 1.1742 | 1.5000 | 0.1500 | 934-000-243 |
| 0.1102 | 0.1875 | 0.0551 | 0.1653 | 1.1689 | 1.5000 | 0.1653 | 934-000-254 |
| 0.1181 | 0.1875 | 0.0591 | 0.1772 | 1.1653 | 1.5000 | 0.1772 | 934-000-255 |
| 0.1200 | 0.1875 | 0.0600 | 0.1800 | 1.1645 | 1.5000 | 0.1800 | 934-000-244 |
| 0.1378 | 0.1875 | 0.0689 | 0.2067 | 1.1591 | 1.5000 | 0.2067 | 934-000-256 |

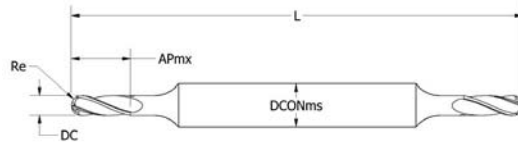
Ø .0313"-.1875"



| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|---------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 2 FLUTE |
| 0.0313 | 0.1875 | 0.0156 | 0.0938 | 1.1250 | 2.2500 | 934-000-012 |
| 0.0469 | 0.1875 | 0.0234 | 0.1406 | 1.1250 | 2.2500 | 934-000-013 |
| 0.0625 | 0.1875 | 0.0313 | 0.1875 | 1.1250 | 2.2500 | 934-000-014 |
| 0.0781 | 0.1875 | 0.0391 | 0.2344 | 1.1250 | 2.2500 | 934-000-015 |
| 0.0938 | 0.1875 | 0.0469 | 0.2813 | 1.1250 | 2.2500 | 934-000-016 |
| 0.1094 | 0.1875 | 0.0547 | 0.3281 | 1.1250 | 2.2500 | 934-000-017 |
| 0.1250 | 0.1875 | 0.0625 | 0.3750 | 1.1250 | 2.2500 | 934-000-018 |
| 0.1406 | 0.1875 | 0.0703 | 0.4063 | 1.1250 | 2.2500 | 934-000-019 |
| 0.1563 | 0.1875 | 0.0781 | 0.4375 | 1.1250 | 2.2500 | 934-000-020 |
| 0.1719 | 0.1875 | 0.0859 | 0.5000 | 1.1250 | 2.2500 | 934-000-021 |
| 0.1875* | 0.1875 | 0.0938 | 0.5000 | 1.1250 | 2.2500 | 934-000-022 |

3/16": +000/.0025

Ø .0313"-.1875"

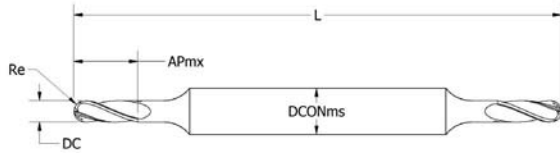


| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|---------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0313 | 0.1875 | 0.0156 | 0.0938 | 1.1250 | 2.2500 | 934-000-066 |
| 0.0469 | 0.1875 | 0.0234 | 0.1406 | 1.1250 | 2.2500 | 934-000-067 |
| 0.0625 | 0.1875 | 0.0313 | 0.1875 | 1.1250 | 2.2500 | 934-000-068 |
| 0.0781 | 0.1875 | 0.0391 | 0.2344 | 1.1250 | 2.2500 | 934-000-069 |
| 0.0938 | 0.1875 | 0.0469 | 0.2188 | 1.1250 | 2.2500 | 934-000-070 |
| 0.1094 | 0.1875 | 0.0547 | 0.3281 | 1.1250 | 2.2500 | 934-000-071 |
| 0.1250 | 0.1875 | 0.0625 | 0.3750 | 1.1250 | 2.2500 | 934-000-072 |
| 0.1406 | 0.1875 | 0.0703 | 0.4063 | 1.1250 | 2.2500 | 934-000-073 |
| 0.1563 | 0.1875 | 0.0781 | 0.4375 | 1.1250 | 2.2500 | 934-000-074 |
| 0.1719 | 0.1875 | 0.0859 | 0.5000 | 1.1250 | 2.2500 | 934-000-075 |
| 0.1875* | 0.1875 | 0.0938 | 0.5000 | 1.1250 | 2.2500 | 934-000-076 |

3/16": +000/.0025

COBALT

Ø .0313" - .1875"



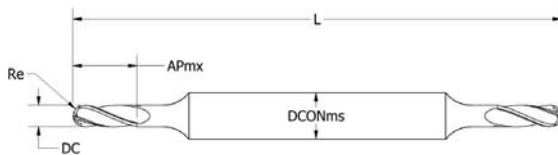
2.000 Length



| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|---------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 2 FLUTE |
| 0.0313 | 0.1875 | 0.0156 | 0.0469 | 1.0000 | 2.0000 | 934-000-034 |
| 0.0469 | 0.1875 | 0.0234 | 0.0625 | 1.0000 | 2.0000 | 934-000-035 |
| 0.0625 | 0.1875 | 0.0313 | 0.0938 | 1.0000 | 2.0000 | 934-000-036 |
| 0.0781 | 0.1875 | 0.0391 | 0.1250 | 1.0000 | 2.0000 | 934-000-037 |
| 0.0938 | 0.1875 | 0.0469 | 0.1406 | 1.0000 | 2.0000 | 934-000-038 |
| 0.1094 | 0.1875 | 0.0547 | 0.1563 | 1.0000 | 2.0000 | 934-000-039 |
| 0.1250 | 0.1875 | 0.0625 | 0.1875 | 1.0000 | 2.0000 | 934-000-040 |
| 0.1406 | 0.1875 | 0.0703 | 0.2188 | 1.0000 | 2.0000 | 934-000-041 |
| 0.1563 | 0.1875 | 0.0781 | 0.2344 | 1.0000 | 2.0000 | 934-000-042 |
| 0.1719 | 0.1875 | 0.0859 | 0.2500 | 1.0000 | 2.0000 | 934-000-043 |
| 0.1875* | 0.1875 | 0.0938 | 0.2813 | 1.0000 | 2.0000 | 934-000-044 |

3/16": +000/.0025

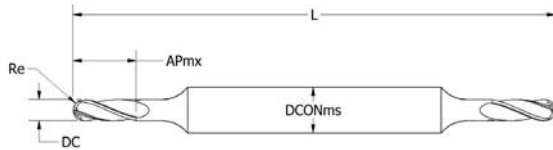
Ø .0313" - .1875"



| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|---------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0313 | 0.1875 | 0.0156 | 0.0469 | 1.0000 | 2.0000 | 934-000-088 |
| 0.0469 | 0.1875 | 0.0234 | 0.0625 | 1.0000 | 2.0000 | 934-000-089 |
| 0.0625 | 0.1875 | 0.0313 | 0.0938 | 1.0000 | 2.0000 | 934-000-090 |
| 0.0781 | 0.1875 | 0.0391 | 0.1250 | 1.0000 | 2.0000 | 934-000-091 |
| 0.0938 | 0.1875 | 0.0469 | 0.1406 | 1.0000 | 2.0000 | 934-000-092 |
| 0.1094 | 0.1875 | 0.0547 | 0.1563 | 1.0000 | 2.0000 | 934-000-093 |
| 0.1250 | 0.1875 | 0.0625 | 0.1875 | 1.0000 | 2.0000 | 934-000-094 |
| 0.1406 | 0.1875 | 0.0703 | 0.2188 | 1.0000 | 2.0000 | 934-000-095 |
| 0.1563 | 0.1875 | 0.0781 | 0.2344 | 1.0000 | 2.0000 | 934-000-096 |
| 0.1719 | 0.1875 | 0.0859 | 0.2500 | 1.0000 | 2.0000 | 934-000-097 |
| 0.1875* | 0.1875 | 0.0938 | 0.2813 | 1.0000 | 2.0000 | 934-000-098 |

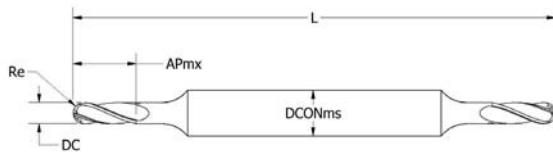
3/16": +000/.0025

Ø .0625"-.1875"



| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 2 FLUTE |
| 0.0625 | 0.1875 | 0.0313 | 0.2188 | 1.2500 | 2.5000 | 934-000-050 |
| 0.0938 | 0.1875 | 0.0469 | 0.2813 | 1.3125 | 2.6250 | 934-000-051 |
| 0.1250 | 0.1875 | 0.0625 | 0.7500 | 1.5625 | 3.1250 | 934-000-052 |
| 0.1563 | 0.1875 | 0.0781 | 0.8750 | 1.6250 | 3.2500 | 934-000-053 |
| 0.1875 | 0.1875 | 0.0938 | 1.0000 | 1.6875 | 3.3750 | 934-000-054 |

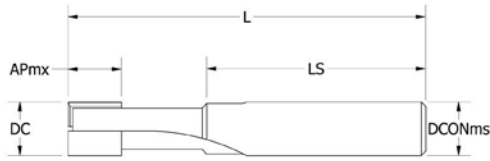
Ø .0625"-.1875"



| DC | DCONms | Re | APmx | LS | L | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------------|
| | | | | | | 4 FLUTE |
| 0.0625 | 0.1875 | 0.0313 | 0.2188 | 1.2500 | 2.5000 | 934-000-104 |
| 0.0938 | 0.1875 | 0.0469 | 0.2813 | 1.3125 | 2.6250 | 934-000-105 |
| 0.1250 | 0.1875 | 0.0625 | 0.7500 | 1.5625 | 3.1250 | 934-000-106 |
| 0.1563 | 0.1875 | 0.0781 | 0.8750 | 1.6250 | 3.2500 | 934-000-107 |
| 0.1875 | 0.1875 | 0.0938 | 1.0000 | 1.6875 | 3.3750 | 934-000-108 |

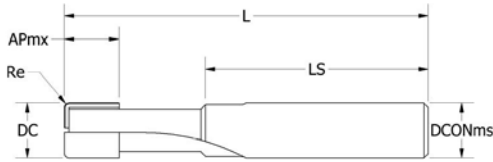
COBALT

Ø.0938"- 0.75"



| DC | DCONms | APmx | LS | L | PCD BRAZED | |
|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | 1 FLUTE | 2 FLUTE |
| 0.0938 | 0.1250 | 0.1875 | 1.1250 | 1.5000 | 935-000-001 | N/A |
| 0.1250 | 0.1250 | 0.2500 | 1.0000 | 1.5000 | 935-000-002 | N/A |
| 0.1875 | 0.1875 | 0.2500 | 1.3750 | 2.0000 | N/A | 935-000-003 |
| 0.2500 | 0.2500 | 0.2500 | 1.7500 | 2.5000 | N/A | 935-000-004 |
| 0.3750 | 0.3750 | 0.2500 | 1.5625 | 2.5000 | N/A | 935-000-005 |
| 0.5000 | 0.5000 | 0.0250 | 2.0000 | 3.0000 | N/A | 935-000-006 |
| 0.6250 | 0.6250 | 0.3750 | 2.5000 | 3.5000 | N/A | 935-000-007 |
| 0.7500 | 0.7500 | 0.3750 | 2.8750 | 4.0000 | N/A | 935-000-008 |

Ø .0938"-.5"

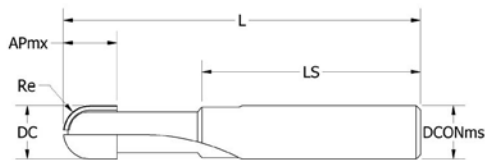


CORNER RADIUS



| DC | DCONms | Re | APmx | LS | L | PCD BRAZED | |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 1 FLUTE | 2 FLUTE |
| 0.0938 | 0.1250 | 0.0100 | 0.1875 | 1.1250 | 1.5000 | 935-000-009 | N/A |
| 0.1250 | 0.1250 | 0.0150 | 0.2500 | 1.0000 | 1.5000 | 935-000-010 | N/A |
| 0.1875 | 0.1875 | 0.0150 | 0.2500 | 1.3750 | 2.0000 | N/A | 935-000-011 |
| 0.2500 | 0.2500 | 0.0300 | 0.2500 | 1.7500 | 2.5000 | N/A | 935-000-012 |
| 0.3750 | 0.3750 | 0.0300 | 0.2500 | 1.5625 | 2.5000 | N/A | 935-000-013 |
| 0.5000 | 0.5000 | 0.0300 | 0.2500 | 2.0000 | 3.0000 | N/A | 935-000-014 |

Ø .0938"-.5"



BALL END



| DC | DCONms | Re | APmx | LS | L | PCD BRAZED | |
|--------|--------|--------|--------|--------|--------|-------------|-------------|
| | | | | | | 1 FLUTE | 2 FLUTE |
| 0.0938 | 0.1250 | 0.0469 | 0.1875 | 1.1250 | 1.5000 | 935-000-015 | N/A |
| 0.1250 | 0.1250 | 0.0625 | 0.2500 | 1.0000 | 1.5000 | 935-000-016 | N/A |
| 0.1875 | 0.1875 | 0.0938 | 0.2500 | 1.3750 | 2.0000 | N/A | 935-000-017 |
| 0.2500 | 0.2500 | 0.1250 | 0.3125 | 1.7500 | 2.5000 | N/A | 935-000-018 |
| 0.3750 | 0.3750 | 0.1875 | 0.4375 | 1.5625 | 2.5000 | N/A | 935-000-019 |
| 0.5000 | 0.5000 | 0.2500 | 0.5000 | 2.0000 | 3.0000 | N/A | 935-000-020 |



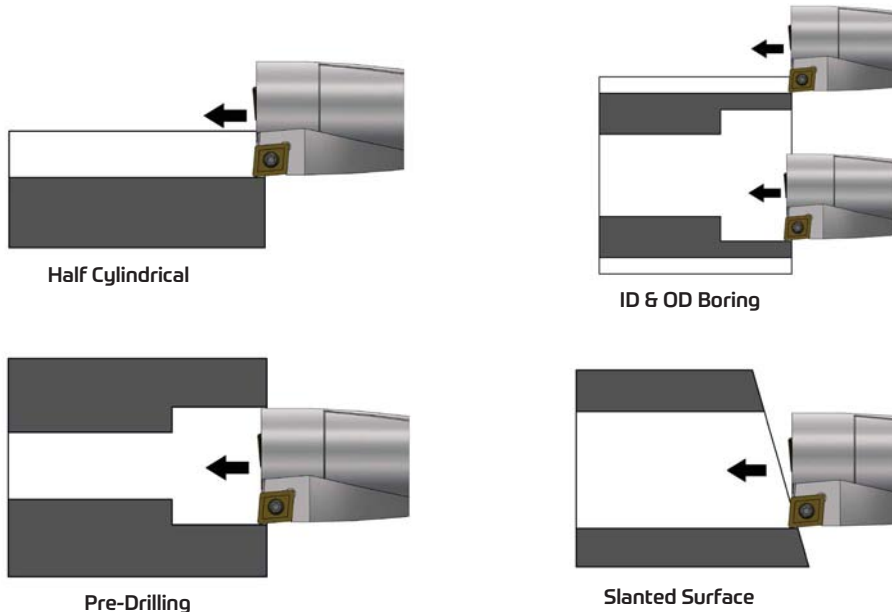
INDEXABLE DRILLS

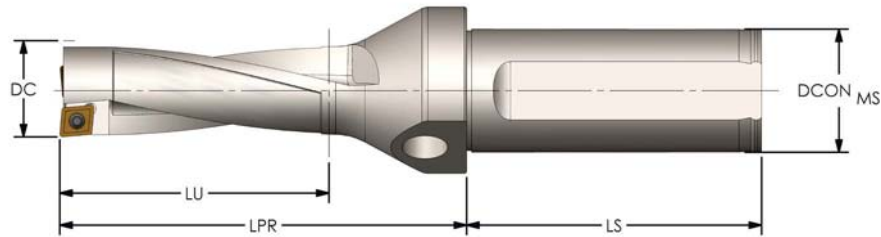
THE COMPLETE TOOL MAKING AUTHORITY®



ARCH Cutting Tools Patriot High Performance PD1 portfolio of indexable drills excels across a broad spectrum of ISO class workpiece materials. From general steels, cast irons, HSRA, and many more, when there is a high demand to reduce cost per feature in hole making applications. With diameters from 0.5625" (15mm) to 2.125" (54mm) offered in both imperial and metric sizes. Our range covers a comprehensive application base providing universal insert geometries and grades, suitable for most applications across all industry segments that focus on hole quality. These include general engineering, die and mold, automotive, and aerospace & defense.

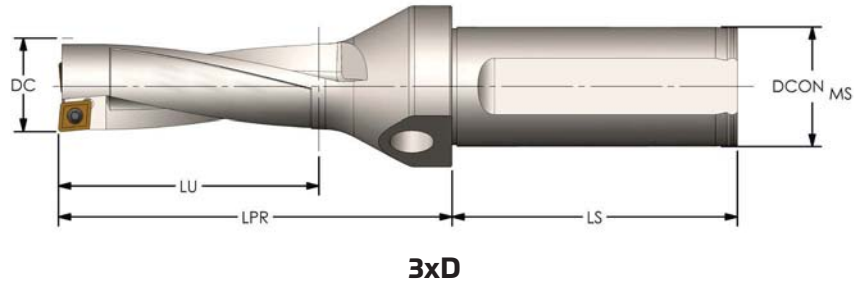
- Available in diameters 0.562" (15mm) - 2.125" (54mm), 2xD, 3xD, and 4xD
- 2-ported precision through coolant for excellent chip evacuation
- Versatility - Facing, boring, O.D. and I.D. turning capabilities
- Capable of drilling into slanted workpieces without pre-drilling
- Radial offset capability to adjust diameter size in non- rotating applications
- Economical 4-edge insert design providing excellent chip formation and lower spindle loads
- High quality tool steel bodies for added rigidity, wear resistance and reduced chip wash





2xD

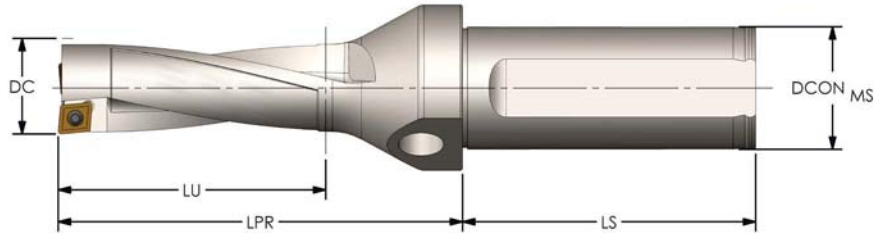
| PRODUCT # | Designation | DC | DCON MS | LS | LPR | LU | INSERT | SCREW | WRENCH |
|-------------|-----------------|-------|---------|-------|-------|-------|------------|--------|--------|
| 970-000-034 | PD1-0562-2D-075 | 0.562 | 0.750 | 1.900 | 2.042 | 1.242 | PD1 042004 | PD1-16 | T-6-S |
| 970-000-038 | PD1-0625-2D-075 | 0.625 | 0.750 | 1.900 | 2.168 | 1.368 | PD1 052804 | PD1-2 | |
| 970-000-042 | PD1-0687-2D-075 | 0.687 | 0.750 | 1.900 | 2.292 | 1.492 | | | |
| 970-000-047 | PD1-0750-2D-100 | 0.750 | 1.000 | 2.400 | 2.561 | 1.618 | PD1 063306 | PD1-22 | T-7-S |
| 970-000-051 | PD1-0812-2D-100 | 0.812 | 1.000 | 2.400 | 2.686 | 1.743 | | | |
| 970-000-055 | PD1-0875-2D-100 | 0.875 | 1.000 | 2.400 | 2.811 | 1.868 | | | |
| 970-000-058 | PD1-0937-2D-125 | 0.937 | 1.250 | 2.900 | 2.936 | 1.993 | PD1 074006 | PD1-25 | T-7-S |
| 970-000-062 | PD1-1000-2D-125 | 1.000 | 1.250 | 2.900 | 3.061 | 2.118 | | | |
| 970-000-066 | PD1-1125-2D-125 | 1.125 | 1.250 | 2.900 | 3.311 | 2.368 | | | |
| 970-000-070 | PD1-1250-2D-125 | 1.250 | 1.250 | 2.900 | 3.600 | 2.657 | PD1 094508 | PD1-35 | T-15-S |
| 970-000-074 | PD1-1375-2D-125 | 1.375 | 1.250 | 2.900 | 3.850 | 2.907 | | | |
| 970-000-078 | PD1-1500-2D-150 | 1.500 | 1.500 | 2.900 | 4.100 | 3.157 | | | |
| 970-000-081 | PD1-1625-2D-150 | 1.625 | 1.500 | 2.900 | 4.390 | 3.447 | PD1 125812 | PD1-5 | T-20-S |
| 970-000-084 | PD1-1750-2D-150 | 1.750 | 1.500 | 2.900 | 4.600 | 3.657 | | | |
| 970-000-088 | PD1-2000-2D-150 | 2.000 | 1.500 | 2.900 | 5.100 | 4.157 | | | |
| 970-000-131 | PD1-2125-2D-150 | 2.125 | 1.500 | 2.900 | 5.350 | 4.407 | PD1 156812 | PD1-6 | T-25-S |



| PRODUCT # | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw | Wrench |
|-------------|-----------------|--------------|---------|-------|-------|-------|------------|--------|--------|
| 970-000-035 | PD1-0562-3D-075 | 0.562 | 0.750 | 1.900 | 2.747 | 1.804 | PD1 042004 | PD1-16 | T-6-S |
| 970-000-036 | PD1-0594-3D-075 | 0.594 | 0.750 | 1.900 | 2.843 | 1.900 | | | |
| 970-000-037 | PD1-0609-3D-075 | 0.609 | 0.750 | 1.900 | 2.888 | 1.945 | | | |
| 970-000-039 | PD1-0625-3D-075 | 0.625 | 0.750 | 1.900 | 2.936 | 1.993 | PD1 052804 | PD1-2 | T-6-S |
| 970-000-041 | PD1-0669-3D-075 | 0.669 (17mm) | 0.750 | 1.900 | 3.069 | 2.126 | | | |
| 970-000-043 | PD1-0687-3D-075 | 0.687 | 0.750 | 1.900 | 3.122 | 2.179 | | | |
| 970-000-045 | PD1-0709-3D-075 | 0.709 (18mm) | 0.750 | 1.900 | 3.187 | 2.244 | PD1 063306 | PD1-22 | T-7-S |
| 970-000-046 | PD1-0734-3D-100 | 0.734 | 1.000 | 2.400 | 3.263 | 2.320 | | | |
| 970-000-048 | PD1-0750-3D-100 | 0.750 | 1.000 | 2.400 | 3.311 | 2.368 | | | |
| 970-000-050 | PD1-0787-3D-100 | 0.787 (20mm) | 1.000 | 2.400 | 3.422 | 2.479 | PD1 074006 | PD1-25 | T-7-S |
| 970-000-052 | PD1-0812-3D-100 | 0.812 | 1.000 | 2.400 | 3.499 | 2.556 | | | |
| 970-000-054 | PD1-0844-3D-100 | 0.844 | 1.000 | 2.400 | 3.637 | 2.694 | | | |
| 970-000-056 | PD1-0875-3D-100 | 0.875 | 1.000 | 2.400 | 3.686 | 2.743 | PD1 094508 | PD1-35 | T-15-S |
| 970-000-059 | PD1-0937-3D-125 | 0.937 | 1.250 | 2.900 | 3.874 | 2.931 | | | |
| 970-000-061 | PD1-0984-3D-125 | 0.984 (25mm) | 1.250 | 2.900 | 4.014 | 3.071 | | | |
| 970-000-063 | PD1-1000-3D-125 | 1.000 | 1.250 | 2.900 | 4.061 | 3.118 | PD1 125812 | PD1-5 | T-20-S |
| 970-000-065 | PD1-1062-3D-125 | 1.062 | 1.250 | 2.900 | 4.249 | 3.306 | | | |
| 970-000-067 | PD1-1125-3D-125 | 1.125 | 1.250 | 2.900 | 4.436 | 3.493 | | | |
| 970-000-069 | PD1-1181-3D-125 | 1.181 (30mm) | 1.250 | 2.900 | 4.645 | 3.702 | PD1 156812 | PD1-6 | T-25-S |
| 970-000-071 | PD1-1250-3D-125 | 1.250 | 1.250 | 2.900 | 4.850 | 3.907 | | | |
| 970-000-073 | PD1-1312-3D-125 | 1.312 | 1.250 | 2.900 | 5.039 | 4.095 | | | |
| 970-000-075 | PD1-1375-3D-125 | 1.375 | 1.250 | 2.900 | 5.225 | 4.282 | PD1 125812 | PD1-5 | T-20-S |
| 970-000-077 | PD1-1437-3D-125 | 1.437 | 1.250 | 2.900 | 5.413 | 4.470 | | | |
| 970-000-079 | PD1-1500-3D-150 | 1.500 | 1.500 | 2.900 | 5.640 | 4.697 | | | |
| 970-000-082 | PD1-1625-3D-150 | 1.625 | 1.500 | 2.900 | 6.015 | 5.072 | PD1 156812 | PD1-6 | T-25-S |
| 970-000-085 | PD1-1750-3D-150 | 1.750 | 1.500 | 2.900 | 6.390 | 5.447 | | | |
| 970-000-087 | PD1-1875-3D-150 | 1.875 | 1.500 | 2.900 | 6.825 | 5.882 | | | |
| 970-000-089 | PD1-2000-3D-150 | 2.000 | 1.500 | 2.900 | 7.140 | 6.197 | PD1 156812 | PD1-6 | T-25-S |
| 970-000-091 | PD1-2125-3D-150 | 2.125 | 1.500 | 2.900 | 7.515 | 6.572 | | | |

METRIC SHANK

| PRODUCT # | Designation | DC (metric) | DCONMS (metric) | LS | LPR | LU | Insert | Screw | Wrench |
|-------------|------------------|-------------|-----------------|------|-------|------|------------|--------|--------|
| 970-000-115 | PD1-0170-3D-20MM | 17mm | 20mm | 44mm | 74mm | 54mm | PD1 052804 | PD1-2 | T-6-S |
| 970-000-116 | PD1-0180-3D-25MM | 18mm | 25mm | 56mm | 81mm | 57mm | | | |
| 970-000-117 | PD1-0190-3D-25MM | 19mm | 25mm | 56mm | 84mm | 60mm | | | |
| 970-000-118 | PD1-0200-3D-25MM | 20mm | 25mm | 56mm | 84mm | 60mm | PD1 063306 | PD1-22 | T-7-S |
| 970-000-119 | PD1-0210-3D-25MM | 21mm | 25mm | 56mm | 90mm | 66mm | | | |
| 970-000-120 | PD1-0220-3D-25MM | 22mm | 25mm | 56mm | 93mm | 69mm | | | |
| 970-000-121 | PD1-0230-3D-25MM | 23mm | 25mm | 56mm | 96mm | 72mm | PD1 074006 | PD1-25 | T-7-S |
| 970-000-122 | PD1-0240-3D-25MM | 24mm | 25mm | 56mm | 98mm | 75mm | | | |
| 970-000-123 | PD1-0250-3D-25MM | 25mm | 25mm | 56mm | 102mm | 78mm | | | |
| 970-000-124 | PD1-0260-3D-32MM | 26mm | 32mm | 60mm | 105mm | 81mm | PD1 074006 | PD1-25 | T-7-S |
| 970-000-125 | PD1-0270-3D-32MM | 27mm | 32mm | 60mm | 108mm | 84mm | | | |
| 970-000-126 | PD1-0280-3D-32MM | 28mm | 32mm | 60mm | 111mm | 87mm | | | |
| 970-000-127 | PD1-0290-3D-32MM | 29mm | 32mm | 60mm | 115mm | 91mm | PD1 094508 | PD1-35 | T-15-S |
| 970-000-128 | PD1-0300-3D-32MM | 30mm | 32mm | 60mm | 118mm | 94mm | | | |



4xD



| PRODUCT # | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw | Wrench |
|-------------|-----------------|-------|---------|-------|-------|-------|------------|--------|--------|
| 970-000-129 | PD1-0562-4D-075 | 0.562 | 0.750 | 1.900 | 3.166 | 2.366 | PD1 042004 | PD1-16 | T-6-S |
| 970-000-040 | PD1-0625-4D-075 | 0.625 | 0.750 | 1.900 | 3.418 | 2.618 | PD1 052804 | PD1-2 | T-6-S |
| 970-000-044 | PD1-0687-4D-075 | 0.687 | 0.750 | 1.900 | 3.667 | 2.867 | | | |
| 970-000-049 | PD1-0750-4D-100 | 0.750 | 1.000 | 2.400 | 4.061 | 3.118 | PD1 063306 | PD1-22 | T-7-S |
| 970-000-053 | PD1-0812-4D-100 | 0.812 | 1.000 | 2.400 | 4.312 | 3.369 | | | |
| 970-000-057 | PD1-0875-4D-100 | 0.875 | 1.000 | 2.400 | 4.561 | 3.618 | | | |
| 970-000-060 | PD1-0937-4D-125 | 0.937 | 1.250 | 2.900 | 4.812 | 3.869 | PD1 074006 | PD1-25 | T-7-S |
| 970-000-064 | PD1-1000-4D-125 | 1.000 | 1.250 | 2.900 | 5.061 | 4.118 | | | |
| 970-000-068 | PD1-1125-4D-125 | 1.125 | 1.250 | 2.900 | 5.561 | 4.618 | | | |
| 970-000-072 | PD1-1250-4D-125 | 1.250 | 1.250 | 2.900 | 6.100 | 5.157 | PD1 094508 | PD1-35 | T-15-S |
| 970-000-076 | PD1-1375-4D-125 | 1.375 | 1.250 | 2.900 | 6.600 | 5.627 | PD1 125812 | PD1-5 | T-20-S |
| 970-000-080 | PD1-1500-4D-150 | 1.500 | 1.500 | 2.900 | 7.140 | 6.197 | | | |
| 970-000-083 | PD1-1625-4D-150 | 1.625 | 1.500 | 2.900 | 7.640 | 6.697 | | | |
| 970-000-086 | PD1-1750-4D-150 | 1.750 | 1.500 | 2.900 | 8.140 | 7.197 | PD1 156812 | PD1-6 | T-25-S |
| 970-000-090 | PD1-2000-4D-150 | 2.000 | 1.500 | 2.900 | 9.140 | 8.197 | | | |
| 970-000-130 | PD1-2125-4D-150 | 2.125 | 1.500 | 2.900 | 9.640 | 8.697 | | | |

| PRODUCT # | Designation | HP600 | HK356 | HN300 |
|-------------|-------------|-------|-------|-------|
| 914-000-085 | PD1 042004 | • | | |
| 914-000-083 | | | • | |
| 914-000-084 | | | | • |
| 914-000-088 | PD1 052804 | • | | |
| 914-000-086 | | | • | |
| 914-000-087 | | | | • |
| 914-000-091 | PD1 063306 | • | | |
| 914-000-089 | | | • | |
| 914-000-090 | | | | • |
| 914-000-094 | PD1 074006 | • | | |
| 914-000-092 | | | • | |
| 914-000-093 | | | | • |
| 914-000-097 | PD1 094508 | • | | |
| 914-000-095 | | | • | |
| 914-000-096 | | | | • |
| 914-000-100 | PD1 125812 | • | | |
| 914-000-098 | | | • | |
| 914-000-99 | | | | • |
| 914-000-103 | PD1 156812 | • | | |
| 914-000-101 | | | • | |
| 914-000-102 | | | | • |



PD1

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-112 | PD1-16 |
| 968-000-113 | PD1-2 |
| 968-000-114 | PD1-22 |
| 968-000-115 | PD1-25 |
| 968-000-116 | PD1-35 |
| 968-000-117 | PD1-5 |
| 968-000-118 | PD1-6 |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10



| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | INDEXABLE DRILL DIAMETER (INCH) | | |
|----------|---|-----------------------------|---------------|-----------|---------------------------------|-------------------|-------------------|
| | | | | | 0.5620"-0.7499" | 0.7500" - 1.4999" | 1.5000" - 2.2500" |
| | | | | | Fz = IPR (INCH PER REVOLUTION)* | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 350-900 | .0015-.0060 | .0020-.0075 | .0030-.0120 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 260-750 | .0020-.0070 | .0020-.0085 | .0030-.0095 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 230-700 | .0018-.0040 | .0030-.0065 | .0030-.0085 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-750 | .0018-.0040 | .0030-.0065 | .0030-.0085 |
| K | GRAY IRONS Class 20, 30, 40 ,50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK 356 | 285-1000 | .0025-.0055 | .0035-.0070 | .0040-.0085 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 230-740 | .0020-.0050 | .0028-.0065 | .0030-.0070 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | HN 300 | 600-1150 | .0020-.0075 | .0030-.0090 | .0045-.0115 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2" | ≤ 375 BHN or ≤ 55 HRC | HP 600 | 80-275 | .0018-.0065 | .0020-.0075 | .0030-.0080 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 55-270 | .0016-.0032 | .0020-.0055 | .0025-.0060 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 95-460 | .0019-.0055 | .0020-.0065 | .0025-.008 |

Recommendations

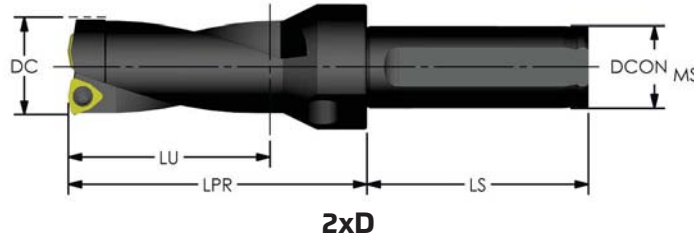
Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



- Diameter range from 0.625" – 2.375"
- Close bore tolerances up to IT 8 achievable
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore machining
- Universal use – suitable for both rotating and stationary operations
- Come equipped with 1/8-27 NPT side and end entry coolant ports

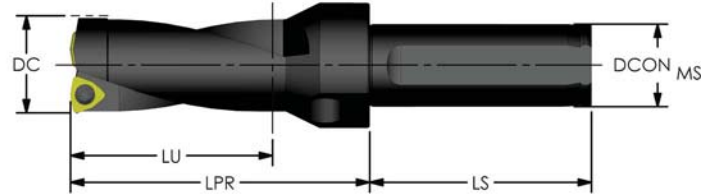


| PRODUCT # Coated | PRODUCT # Uncoated | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw |
|---------------------|-----------------------|----------------|-------|---------|-------|-------|-------|--------------|-------------------------------|
| 926-000-014 | 926-000-013 | UD-0625-2D-063 | 0.625 | .625 | 1.687 | 2.280 | 1.375 | WCMX 1.81.52 | MTS-255 T-7-S Wrench |
| 926-000-018 | 926-000-017 | UD-0656-2D-063 | 0.656 | | | | 1.406 | | |
| 926-000-022 | 926-000-021 | UD-0687-2D-063 | 0.687 | | | | 1.437 | | |
| 926-000-026 | 926-000-025 | UD-0719-2D-063 | 0.719 | | | | 1.467 | | |
| 926-000-030 | 926-000-029 | UD-0750-2D-075 | 0.750 | .750 | 2.000 | 2.810 | 1.748 | WCMX 21.52 | MTS-25-DR T-8-S Wrench |
| 926-000-034 | 926-000-033 | UD-0781-2D-075 | 0.781 | | | | 1.780 | | |
| 926-000-038 | 926-000-037 | UD-0812-2D-075 | 0.812 | | | | 1.811 | | |
| 926-000-042 | 926-000-041 | UD-0844-2D-075 | 0.844 | | | | 1.850 | | |
| 926-000-046 | 926-000-045 | UD-0875-2D-075 | 0.875 | | | | 1.874 | | |
| 926-000-050 | 926-000-049 | UD-0906-2D-075 | 0.906 | | | | 1.910 | | |
| 926-000-054 | 926-000-053 | UD-0937-2D-075 | 0.937 | | | | 1.935 | | |
| 926-000-058 | 926-000-057 | UD-0968-2D-075 | 0.968 | | | | 1.970 | | |
| 926-000-062 | 926-000-061 | UD-1000-2D-100 | 1.000 | 1.000 | 2.375 | 3.235 | 2.345 | WCMX 2.522 | MTS-3-DR T-9-S Wrench |
| 926-000-066 | 926-000-065 | UD-1031-2D-100 | 1.031 | | | | 2.375 | | |
| 926-000-070 | 926-000-069 | UD-1062-2D-100 | 1.062 | | | | 2.406 | | |
| 926-000-074 | 926-000-073 | UD-1094-2D-100 | 1.094 | | | | 2.438 | | |
| 926-000-078 | 926-000-077 | UD-1125-2D-100 | 1.125 | | | | 2.469 | | |
| 926-000-082 | 926-000-081 | UD-1156-2D-100 | 1.156 | | | | 2.500 | | |
| 926-000-086 | 926-000-085 | UD-1187-2D-100 | 1.187 | | | | 2.532 | | |
| 926-000-090 | 926-000-089 | UD-1219-2D-100 | 1.219 | | | | 2.564 | | |
| 926-000-094 | 926-000-093 | UD-1250-2D-125 | 1.250 | 1.250 | 2.619 | 3.886 | 2.710 | WCMX 32.52 | MTS-35-DR T-10-S Wrench |
| 926-000-098 | 926-000-097 | UD-1312-2D-125 | 1.312 | | | | 2.771 | | |
| 926-000-102 | 926-000-101 | UD-1343-2D-125 | 1.343 | | | | 2.802 | | |
| 926-000-104 | 926-000-103 | UD-1375-2D-125 | 1.375 | | | | 2.833 | | |
| 926-000-108 | 926-000-107 | UD-1437-2D-125 | 1.437 | | | 2.896 | | | |
| 926-000-112 | 926-000-111 | UD-1500-2D-125 | 1.500 | | | 3.250 | | | |
| 926-000-116 | 926-000-115 | UD-1562-2D-125 | 1.562 | | | 3.312 | | | |
| 926-000-120 | 926-000-119 | UD-1625-2D-125 | 1.625 | | | 3.375 | | | |
| 926-000-124 | 926-000-123 | UD-1687-2D-125 | 1.687 | 1.500 | 2.875 | 5.025 | 3.437 | WCMX 433 | MTS-4-DR T-15-S Wrench |
| 926-000-128 | 926-000-127 | UD-1750-2D-150 | 1.750 | | | | 3.850 | | |
| 926-000-132 | 926-000-131 | UD-1812-2D-150 | 1.812 | | | | 3.912 | | |
| 926-000-136 | 926-000-135 | UD-1875-2D-150 | 1.875 | | | | 3.975 | | |
| 926-000-140 | 926-000-139 | UD-1937-2D-150 | 1.937 | | | 4.036 | | | |
| 926-000-144 | 926-000-143 | UD-2000-2D-150 | 2.000 | | | 4.469 | | | |
| 926-000-148 | 926-000-147 | UD-2125-2D-150 | 2.125 | | | 4.593 | | | |
| 926-000-152 | 926-000-151 | UD-2250-2D-150 | 2.250 | | | 4.717 | | | |
| 926-000-156 | 926-000-155 | UD-2375-2D-150 | 2.375 | 5.687 | | 4.840 | | | |

*Coated with ION Nitride (Add -C to the end of designation)



by Ultra-Dex



2.5xD

| PRODUCT # Coated | PRODUCT # Uncoated | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw |
|------------------|--------------------|----------------|-------|---------|-------|-------|-------|--------------|-----------------------------------|
| 926-000-002 | 926-000-001 | UD-0437-2D-063 | 0.437 | .625 | 1.687 | 2.280 | 1.280 | WCMT 1.211 | MTS-184 (Screw) T-6-S (Wrench) |
| 926-000-004 | 926-000-003 | UD-0468-2D-063 | 0.468 | | | | 1.310 | | |
| 926-000-006 | 926-000-005 | UD-0500-2D-063 | 0.500 | | | | 1.340 | | |
| 926-000-008 | 926-000-007 | UD-0531-2D-063 | 0.531 | | | | 1.370 | WCMT 1.51.51 | |
| 926-000-010 | 926-000-009 | UD-0562-2D-063 | 0.562 | | | | 1.400 | | |
| 926-000-012 | 926-000-011 | UD-0593-2D-063 | 0.593 | | | | 1.430 | | |

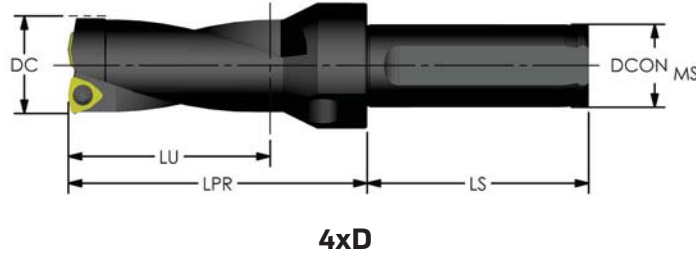
*Coated with ION Nitride (Add -C to the end of designation)



4xD

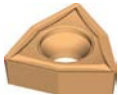
| PRODUCT # Coated | PRODUCT # Uncoated | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw | | | | | |
|------------------|--------------------|----------------|-------|---------|-------|-------|-------|--------------|-------------------------------------|-------|-------|-------|------------|------------------------------------|
| 926-000-016 | 926-000-015 | UD-0625-4D-063 | 0.625 | 0.625 | 1.687 | 3.720 | 2.815 | WCMX 1.81.52 | MTS-255 (Screw) T-7-S (Wrench) | | | | | |
| 926-000-020 | 926-000-019 | UD-0656-4D-063 | 0.656 | | | | 2.847 | | | | | | | |
| 926-000-024 | 926-000-023 | UD-0687-4D-063 | 0.687 | | | | 2.878 | | | | | | | |
| 926-000-028 | 926-000-027 | UD-0719-4D-063 | 0.719 | | | | 2.911 | | | | | | | |
| 926-000-032 | 926-000-031 | UD-0750-4D-075 | 0.750 | 0.750 | 2.000 | 4.763 | 3.698 | WCMX 21.52 | MTS-25-DR (Screw) T-8-S (Wrench) | | | | | |
| 926-000-036 | 926-000-035 | UD-0781-4D-075 | 0.781 | | | | 3.729 | | | | | | | |
| 926-000-040 | 926-000-039 | UD-0812-4D-075 | 0.812 | | | | 3.761 | | | | | | | |
| 926-000-044 | 926-000-043 | UD-0844-4D-075 | 0.844 | | | | 3.792 | | | | | | | |
| 926-000-048 | 926-000-047 | UD-0875-4D-075 | 0.875 | | | | 3.824 | | | | | | | |
| 926-000-052 | 926-000-051 | UD-0906-4D-075 | 0.906 | | | | 3.855 | | | | | | | |
| 926-000-056 | 926-000-055 | UD-0937-4D-075 | 0.937 | | | | 3.885 | | | | | | | |
| 926-000-060 | 926-000-059 | UD-0968-4D-075 | 0.968 | | | | 3.918 | | | | | | | |
| 926-000-064 | 926-000-063 | UD-1000-4D-100 | 1.000 | | | | 1.000 | | | 2.375 | 5.685 | 4.635 | WCMX 2.522 | MTS-3-DR (Screw) T-9-S (Wrench) |
| 926-000-068 | 926-000-067 | UD-1031-4D-100 | 1.031 | | | | | | | | | 4.666 | | |
| 926-000-072 | 926-000-071 | UD-1062-4D-100 | 1.062 | 4.696 | | | | | | | | | | |
| 926-000-076 | 926-000-075 | UD-1094-4D-100 | 1.094 | 4.728 | | | | | | | | | | |
| 926-000-080 | 926-000-079 | UD-1125-4D-100 | 1.125 | 4.760 | | | | | | | | | | |
| 926-000-084 | 926-000-083 | UD-1156-4D-100 | 1.156 | 4.792 | | | | | | | | | | |
| 926-000-088 | 926-000-087 | UD-1187-4D-100 | 1.187 | 4.822 | | | | | | | | | | |
| 926-000-092 | 926-000-091 | UD-1219-4D-100 | 1.219 | 4.864 | | | | | | | | | | |

*Coated with ION Nitride (Add -C to the end of designation)



| PRODUCT # Coated | PRODUCT # Uncoated | Designation | DC | DCON MS | LS | LPR | LU | Insert | Screw |
|---------------------|-----------------------|----------------|-------|---------|-------|--------|-------|------------|--|
| 926-000-096 | 926-000-095 | UD-1250-4D-125 | 1.250 | 1.250 | 2.619 | 6.760 | 5.585 | WCMX 32.52 | MTS-35-DR (Screw) T-10-S (Wrench) |
| 926-000-100 | 926-000-099 | UD-1312-4D-125 | 1.312 | | | | 5.646 | | |
| 926-000-106 | 926-000-105 | UD-1375-4D-125 | 1.375 | | | | 5.708 | | |
| 926-000-110 | 926-000-109 | UD-1437-4D-125 | 1.437 | | | | 5.771 | | |
| 926-000-114 | 926-000-113 | UD-1500-4D-125 | 1.500 | | | 7.800 | 6.632 | | |
| 926-000-118 | 926-000-117 | UD-1562-4D-125 | 1.562 | | | | 6.695 | | |
| 926-000-122 | 926-000-121 | UD-1625-4D-125 | 1.625 | | | | 6.757 | | |
| 926-000-126 | 926-000-125 | UD-1687-4D-125 | 1.687 | | | | 6.820 | | |
| 926-000-130 | 926-000-129 | UD-1750-4D-150 | 1.750 | 1.500 | 2.875 | 8.900 | 7.724 | WCMX 433 | MTS-4-DR (Screw) T-15-S (Wrench) |
| 926-000-134 | 926-000-133 | UD-1812-4D-150 | 1.812 | | | | 7.786 | | |
| 926-000-138 | 926-000-137 | UD-1875-4D-150 | 1.875 | | | | 7.849 | | |
| 926-000-142 | 926-000-141 | UD-1937-4D-150 | 1.937 | | | | 7.911 | | |
| 926-000-146 | 926-000-145 | UD-2000-4D-150 | 2.000 | | | 10.347 | 9.263 | | |
| 926-000-150 | 926-000-149 | UD-2125-4D-150 | 2.125 | | | | 9.387 | | |
| 926-000-154 | 926-000-153 | UD-2250-4D-150 | 2.250 | | | | 9.512 | | |
| 926-000-158 | 926-000-157 | UD-2375-4D-150 | 2.375 | | | | 9.637 | | |

*Coated with ION Nitride (Add -C to the end of designation)



| PRODUCT # | Designation | UD51 | UD52 | UD2 | UD21 | UD32 |
|-------------|--------------|------|------|-----|------|------|
| 913-000-596 | WCMX 1.81.52 | • | | | | |
| 913-000-597 | | | • | | | |
| 913-000-593 | | | | • | | |
| 913-000-594 | | | | | • | |
| 913-000-595 | | | | | | • |
| 913-000-606 | WCMX 21.52 | • | | | | |
| 913-000-607 | | | • | | | |
| 913-000-603 | | | | • | | |
| 913-000-604 | | | | | • | |
| 913-000-605 | | | | | | • |
| 913-000-601 | WCMX 2.522 | • | | | | |
| 913-000-602 | | | • | | | |
| 913-000-598 | | | | • | | |
| 913-000-599 | | | | | • | |
| 913-000-600 | | | | | | • |

PACKAGE SIZE OF 10

| PRODUCT # | Designation | UD51 | UD52 | UD2 | UD21 | UD32 |
|-------------|-------------|------|------|-----|------|------|
| 913-000-611 | WCMX 32.52 | • | | | | |
| 913-000-612 | | | • | | | |
| 913-000-608 | | | | | • | |
| 913-000-609 | | | | | | • |
| 913-000-610 | | | | | | |
| 913-000-616 | WCMX 433 | • | | | | |
| 913-000-617 | | | • | | | |
| 913-000-613 | | | | | • | |
| 913-000-614 | | | | | | • |
| 913-000-615 | | | | | | |

PACKAGE SIZE OF 10

| PRODUCT # | Insert Screw |
|-------------|-----------------|
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-092 | MTS-255 |
| 968-000-082 | MTS-25-DR |
| 968-000-084 | MTS-3-DR |
| 968-000-083 | MTS-35-DR |
| 968-000-085 | MTS-4-DR |

PACKAGE SIZE OF 5



| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | INDEXABLE DRILL DIAMETER (INCH) | | |
|---------------------------------|--|-----------------------------|------------------|-----------|---------------------------------|-------------------|-------------------|
| | | | | | 0.5620"-0.7499" | 0.7500" - 1.4999" | 1.5000" - 2.2500" |
| Fz = IPR (INCH PER REVOLUTION)* | | | | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | UD51/UD52 | 300-800 | .0015-.0060 | .0025-.0080 | .0030-.009 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 250-700 | .0020-.0070 | .0025-.0070 | .0030-.0080 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | UD32 | 230-650 | .0018-.0040 | .0025-.0065 | .0030-.0070 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-700 | .0018-.0040 | .0023-.0055 | .0030-.0065 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | UD21 | 285-900 | .0025-.0055 | .0035-.0070 | .0040-.0080 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 230-700 | .0020-.0050 | .0028-.0055 | .0030-.0060 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | UD2 | 400-975 | .0020-.0075 | .0030-.0070 | .0045-.0100 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2" | ≤ 375 BHN or ≤ 55 HRC | UD32 | 75-200 | .0018-.0065 | .0020-.0065 | .0030-.0070 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | UD32/UD52 | 40-200 | .0016-.0032 | .0020-.0050 | .0020-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 90-350 | .0019-.0055 | .0020-.0050 | .0020-.0065 |

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

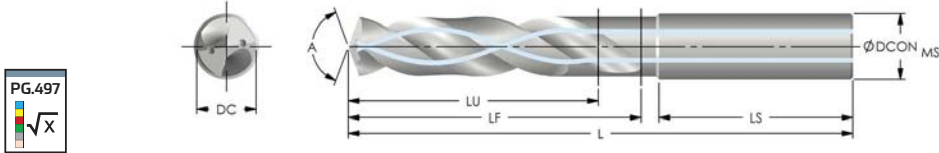
- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

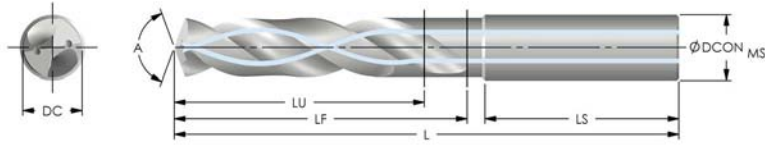
ARCH[®]
Cutting Tools

SOLID DRILLS

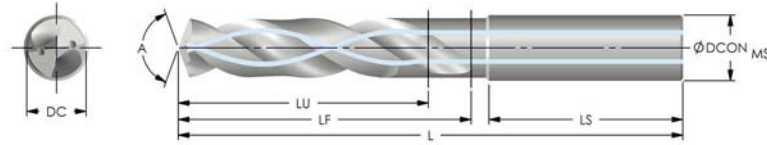
THE COMPLETE TOOL MAKING AUTHORITY[®]



| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #67 | 0.0320 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-002 |
| #67 | 0.0320 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-240 |
| #67 | 0.0320 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-478 |
| #66 | 0.0330 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-003 |
| #66 | 0.0330 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-241 |
| #66 | 0.0330 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-479 |
| #65 | 0.0350 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-004 |
| #65 | 0.0350 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-242 |
| #65 | 0.0350 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-480 |
| #64 | 0.0360 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-006 |
| #64 | 0.0360 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-244 |
| #64 | 0.0360 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-482 |
| #63 | 0.0370 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-007 |
| #63 | 0.0370 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-245 |
| #63 | 0.0370 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-483 |
| #62 | 0.0380 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-008 |
| #62 | 0.0380 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-246 |
| #62 | 0.0380 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-484 |
| #61 | 0.0390 | 0.1575 (4mm) | 140 | 0.1181 | 0.1969 | 1.1024 | 2.2835 | 3XD | 928-000-009 |
| #61 | 0.0390 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 5XD | 928-000-247 |
| #61 | 0.0390 | 0.1575 (4mm) | 140 | 0.2756 | 0.3543 | 1.1024 | 2.2835 | 8XD | 928-000-485 |
| #60 | 0.0400 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-011 |
| #60 | 0.0400 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-249 |
| #60 | 0.0400 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-487 |
| #59 | 0.0410 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-012 |
| #59 | 0.0410 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-250 |
| #59 | 0.0410 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-488 |
| #58 | 0.0420 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-013 |
| #58 | 0.0420 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-251 |
| #58 | 0.0420 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-489 |
| #57 | 0.0430 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-014 |
| #57 | 0.0430 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-252 |
| #57 | 0.0430 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-490 |
| #56 | 0.0465 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-017 |
| #56 | 0.0465 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-255 |
| #56 | 0.0465 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-493 |
| 3/64 | 0.0469 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-018 |
| 3/64 | 0.0469 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-256 |
| 3/64 | 0.0469 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-494 |
| #55 | 0.0520 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-023 |
| #55 | 0.0520 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-261 |
| #55 | 0.0520 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-499 |
| #54 | 0.0550 | 0.1575 (4mm) | 140 | 0.1969 | 0.2756 | 1.1024 | 2.2835 | 3XD | 928-000-025 |
| #54 | 0.0550 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 5XD | 928-000-263 |
| #54 | 0.0550 | 0.1575 (4mm) | 140 | 0.3937 | 0.4724 | 1.1024 | 2.2835 | 8XD | 928-000-501 |



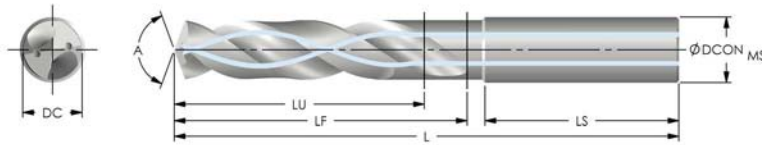
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #53 | 0.0595 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-028 |
| #53 | 0.0595 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-266 |
| #53 | 0.0595 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-504 |
| 1/16 | 0.0625 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-030 |
| 1/16 | 0.0625 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-268 |
| 1/16 | 0.0625 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-506 |
| #52 | 0.0635 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-032 |
| #52 | 0.0635 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-270 |
| #52 | 0.0635 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-508 |
| #51 | 0.0670 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-033 |
| #51 | 0.0670 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-271 |
| #51 | 0.0670 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-509 |
| #50 | 0.0700 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-034 |
| #50 | 0.0700 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-272 |
| #50 | 0.0700 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-510 |
| #49 | 0.0730 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-035 |
| #49 | 0.0730 | 0.1575 (4mm) | 140 | 0.3543 | 0.4724 | 1.1024 | 2.2835 | 5XD | 928-000-273 |
| #49 | 0.0730 | 0.1575 (4mm) | 140 | 0.5906 | 0.7087 | 1.1024 | 2.2835 | 8XD | 928-000-511 |
| #48 | 0.0760 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-036 |
| #48 | 0.0760 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-274 |
| #48 | 0.0760 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-512 |
| 5/64 | 0.0781 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-037 |
| 5/64 | 0.0781 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-275 |
| 5/64 | 0.0781 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-513 |
| #47 | 0.0785 | 0.1575 (4mm) | 140 | 0.2362 | 0.3543 | 1.1024 | 2.2835 | 3XD | 928-000-038 |
| #47 | 0.0785 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-276 |
| #47 | 0.0785 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-514 |
| #46 | 0.0810 | 0.1575 (4mm) | 140 | 0.3543 | 0.5118 | 1.1024 | 2.2835 | 3XD | 928-000-040 |
| #46 | 0.0810 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-278 |
| #46 | 0.0810 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-516 |
| #45 | 0.0820 | 0.1575 (4mm) | 140 | 0.3543 | 0.5118 | 1.1024 | 2.2835 | 3XD | 928-000-041 |
| #45 | 0.0820 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-279 |
| #45 | 0.0820 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-517 |
| #44 | 0.0860 | 0.1575 (4mm) | 140 | 0.3543 | 0.5118 | 1.1024 | 2.2835 | 3XD | 928-000-042 |
| #44 | 0.0860 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-280 |
| #44 | 0.0860 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-518 |
| #43 | 0.0890 | 0.1575 (4mm) | 140 | 0.3543 | 0.5118 | 1.1024 | 2.2835 | 3XD | 928-000-043 |
| #43 | 0.0890 | 0.1575 (4mm) | 140 | 0.5512 | 0.7087 | 1.1024 | 2.2835 | 5XD | 928-000-281 |
| #43 | 0.0890 | 0.1575 (4mm) | 140 | 0.8661 | 1.0236 | 1.1024 | 2.5984 | 8XD | 928-000-519 |
| #42 | 0.0935 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-044 |
| #42 | 0.0935 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-282 |
| #42 | 0.0935 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-520 |
| 3/32 | 0.0938 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-045 |
| 3/32 | 0.0938 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-283 |
| 3/32 | 0.0938 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-521 |



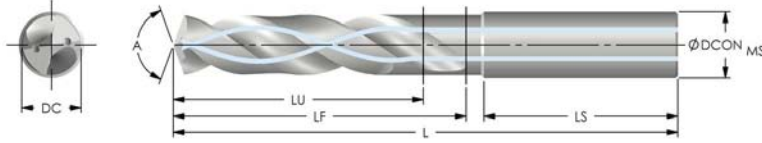
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #41 | 0.0960 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-046 |
| #41 | 0.0960 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-284 |
| #41 | 0.0960 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-522 |
| #40 | 0.0980 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-047 |
| #40 | 0.0980 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-285 |
| #40 | 0.0980 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-523 |
| #39 | 0.0995 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-049 |
| #39 | 0.0995 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-287 |
| #39 | 0.0995 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-525 |
| #38 | 0.1015 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-050 |
| #38 | 0.1015 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-288 |
| #38 | 0.1015 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-526 |
| #37 | 0.1040 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-051 |
| #37 | 0.1040 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-289 |
| #37 | 0.1040 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-527 |
| #36 | 0.1065 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-052 |
| #36 | 0.1065 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-290 |
| #36 | 0.1065 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-528 |
| 7/64 | 0.1094 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-053 |
| 7/64 | 0.1094 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-291 |
| 7/64 | 0.1094 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-529 |
| #35 | 0.1100 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-054 |
| #35 | 0.1100 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-292 |
| #35 | 0.1100 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-530 |
| #34 | 0.1110 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-055 |
| #34 | 0.1110 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-293 |
| #34 | 0.1110 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-531 |
| #33 | 0.1130 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-056 |
| #33 | 0.1130 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-294 |
| #33 | 0.1130 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-532 |
| #32 | 0.1160 | 0.1575 (4mm) | 140 | 0.4724 | 0.6693 | 1.1024 | 2.2835 | 3XD | 928-000-057 |
| #32 | 0.1160 | 0.1575 (4mm) | 140 | 0.6693 | 0.8661 | 1.1024 | 2.2835 | 5XD | 928-000-295 |
| #32 | 0.1160 | 0.1575 (4mm) | 140 | 0.9843 | 1.1811 | 1.1024 | 2.5984 | 8XD | 928-000-533 |
| #31 | 0.1200 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-059 |
| #31 | 0.1200 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-297 |
| #31 | 0.1200 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-535 |
| 1/8 | 0.1250 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-060 |
| 1/8 | 0.1250 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-298 |
| 1/8 | 0.1250 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-536 |
| #30 | 0.1285 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-062 |
| #30 | 0.1285 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-300 |
| #30 | 0.1285 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-538 |
| #29 | 0.1360 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-063 |
| #29 | 0.1360 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-301 |
| #29 | 0.1360 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-539 |



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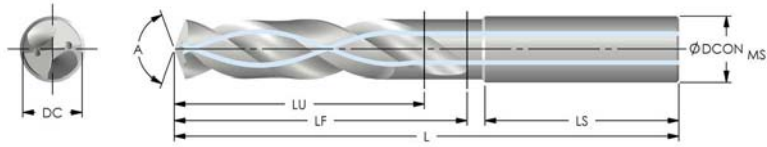
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|-------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #28 | 0.1405 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-065 |
| #28 | 0.1405 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-303 |
| #28 | 0.1405 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-541 |
| 9/64 | 0.1406 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-066 |
| 9/64 | 0.1406 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-304 |
| 9/64 | 0.1406 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-542 |
| #27 | 0.1440 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-068 |
| #27 | 0.1440 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-306 |
| #27 | 0.1440 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-544 |
| #26 | 0.1470 | 0.2362 (6mm) | 140 | 0.5512 | 0.7874 | 1.4173 | 2.4409 | 3XD | 928-000-069 |
| #26 | 0.1470 | 0.2362 (6mm) | 140 | 0.9055 | 1.1024 | 1.4173 | 2.5984 | 5XD | 928-000-307 |
| #26 | 0.1470 | 0.2362 (6mm) | 140 | 1.2992 | 1.5748 | 1.4173 | 3.0709 | 8XD | 928-000-545 |
| #25 | 0.1495 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-070 |
| #25 | 0.1495 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-308 |
| #25 | 0.1495 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-546 |
| #24 | 0.1520 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-071 |
| #24 | 0.1520 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-309 |
| #24 | 0.1520 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-547 |
| #23 | 0.1540 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-073 |
| #23 | 0.1540 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-311 |
| #23 | 0.1540 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-549 |
| 5/32 | 0.1562 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-074 |
| 5/32 | 0.1562 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-312 |
| 5/32 | 0.1562 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-550 |
| #22 | 0.1570 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-075 |
| #22 | 0.1570 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-313 |
| #22 | 0.1570 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-551 |
| #21 | 0.1590 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-077 |
| #21 | 0.1590 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-315 |
| #21 | 0.1590 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-553 |
| #20 | 0.1610 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-078 |
| #20 | 0.1610 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-316 |
| #20 | 0.1610 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-554 |
| #19 | 0.1660 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-080 |
| #19 | 0.1660 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-318 |
| #19 | 0.1660 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-556 |
| #18 | 0.1695 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-081 |
| #18 | 0.1695 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-319 |
| #18 | 0.1695 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-557 |
| 11/64 | 0.1719 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-082 |
| 11/64 | 0.1719 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-320 |
| 11/64 | 0.1719 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-558 |
| #17 | 0.1730 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-083 |
| #17 | 0.1730 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-321 |
| #17 | 0.1730 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-559 |



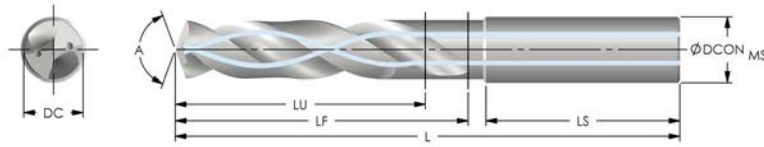
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|-------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #16 | 0.1770 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-085 |
| #16 | 0.1770 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-323 |
| #16 | 0.1770 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-561 |
| #15 | 0.1800 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-087 |
| #15 | 0.1800 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-325 |
| #15 | 0.1800 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-563 |
| #14 | 0.1820 | 0.2362 (6mm) | 140 | 0.6693 | 0.9449 | 1.4173 | 2.5984 | 3XD | 928-000-089 |
| #14 | 0.1820 | 0.2362 (6mm) | 140 | 1.1417 | 1.4173 | 1.4173 | 2.9134 | 5XD | 928-000-327 |
| #14 | 0.1820 | 0.2362 (6mm) | 140 | 1.6142 | 1.9291 | 1.4173 | 3.4252 | 8XD | 928-000-565 |
| 3/16 | 0.1875 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-091 |
| 3/16 | 0.1875 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-329 |
| 3/16 | 0.1875 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-567 |
| #11 | 0.1910 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-093 |
| #11 | 0.1910 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-331 |
| #11 | 0.1910 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-569 |
| #10 | 0.1935 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-095 |
| #10 | 0.1935 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-333 |
| #10 | 0.1935 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-571 |
| #9 | 0.1960 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-096 |
| #9 | 0.1960 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-334 |
| #9 | 0.1960 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-572 |
| #8 | 0.1990 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-098 |
| #8 | 0.1990 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-336 |
| #8 | 0.1990 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-574 |
| #7 | 0.2010 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-100 |
| #7 | 0.2010 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-338 |
| #7 | 0.2010 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-576 |
| 13/64 | 0.2031 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-101 |
| 13/64 | 0.2031 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-339 |
| 13/64 | 0.2031 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-577 |
| #6 | 0.2040 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-102 |
| #6 | 0.2040 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-340 |
| #6 | 0.2040 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-578 |
| #5 | 0.2055 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-104 |
| #5 | 0.2055 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-342 |
| #5 | 0.2055 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-580 |
| #4 | 0.2090 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-106 |
| #4 | 0.2090 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-344 |
| #4 | 0.2090 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-582 |
| #3 | 0.2130 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-108 |
| #3 | 0.2130 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-346 |
| #3 | 0.2130 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-584 |
| 7/32 | 0.2188 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-110 |
| 7/32 | 0.2188 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-348 |
| 7/32 | 0.2188 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-586 |



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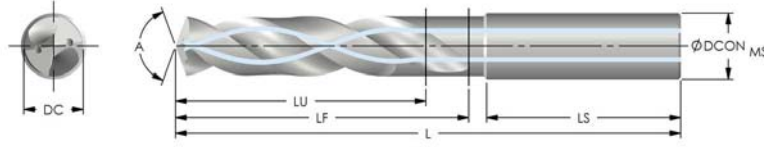
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|--------|--------------|-----|--------|--------|--------|--------|----------|-------------|
| #2 | 0.2210 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-112 |
| #2 | 0.2210 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-350 |
| #2 | 0.2210 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-588 |
| #1 | 0.2280 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-114 |
| #1 | 0.2280 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-352 |
| #1 | 0.2280 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-590 |
| A | 0.2340 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-117 |
| A | 0.2340 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-355 |
| A | 0.2340 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-593 |
| 15/64 | 0.2344 | 0.2362 (6mm) | 140 | 0.7874 | 1.1024 | 1.4173 | 2.5984 | 3XD | 928-000-118 |
| 15/64 | 0.2344 | 0.2362 (6mm) | 140 | 1.3780 | 1.7323 | 1.4173 | 3.2283 | 5XD | 928-000-356 |
| 15/64 | 0.2344 | 0.2362 (6mm) | 140 | 1.8898 | 2.2047 | 1.4173 | 3.7008 | 8XD | 928-000-594 |
| B | 0.2380 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-120 |
| B | 0.2380 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-358 |
| B | 0.2380 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-596 |
| C | 0.2420 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-122 |
| C | 0.2420 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-360 |
| C | 0.2420 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-598 |
| D | 0.2460 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-124 |
| D | 0.2460 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-362 |
| D | 0.2460 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-600 |
| E(1/4) | 0.2500 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-126 |
| E(1/4) | 0.2500 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-364 |
| E(1/4) | 0.2500 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-602 |
| F | 0.2570 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-129 |
| F | 0.2570 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-367 |
| F | 0.2570 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-605 |
| G | 0.2610 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-131 |
| G | 0.2610 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-369 |
| G | 0.2610 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-607 |
| 17/64 | 0.2656 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-133 |
| 17/64 | 0.2656 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-371 |
| 17/64 | 0.2656 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-609 |
| H | 0.2660 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-134 |
| H | 0.2660 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-372 |
| H | 0.2660 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-610 |
| I | 0.2720 | 0.3150 (8mm) | 140 | 0.9449 | 1.3386 | 1.4173 | 3.1102 | 3XD | 928-000-137 |
| I | 0.2720 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-375 |
| I | 0.2720 | 0.3150 (8mm) | 140 | 2.2441 | 2.6378 | 1.4173 | 4.1339 | 8XD | 928-000-613 |
| J | 0.2770 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-139 |
| J | 0.2770 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-377 |
| J | 0.2770 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-615 |
| K | 0.2810 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-141 |
| K | 0.2810 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-379 |
| K | 0.2810 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-617 |
| 9/32 | 0.2812 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-142 |
| 9/32 | 0.2812 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-380 |
| 9/32 | 0.2812 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-618 |



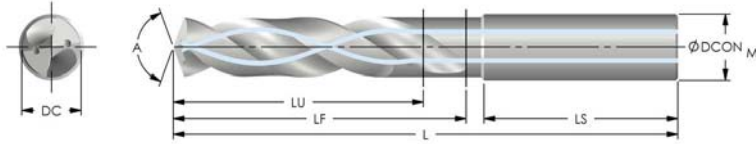
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|-------|--------|---------------|-----|--------|--------|--------|--------|----------|-------------|
| L | 0.2900 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-145 |
| L | 0.2900 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-383 |
| L | 0.2900 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-621 |
| M | 0.2950 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-147 |
| M | 0.2950 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-385 |
| M | 0.2950 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-623 |
| 19/64 | 0.2969 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-149 |
| 19/64 | 0.2969 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-387 |
| 19/64 | 0.2969 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-625 |
| N | 0.3020 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-151 |
| N | 0.3020 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-389 |
| N | 0.3020 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-627 |
| 5/16 | 0.3125 | 0.3150 (8mm) | 140 | 1.1417 | 1.6142 | 1.4173 | 3.1102 | 3XD | 928-000-155 |
| 5/16 | 0.3125 | 0.3150 (8mm) | 140 | 1.6929 | 2.0866 | 1.4173 | 3.5827 | 5XD | 928-000-393 |
| 5/16 | 0.3125 | 0.3150 (8mm) | 140 | 2.5197 | 3.0315 | 1.4173 | 4.5276 | 8XD | 928-000-631 |
| O | 0.3160 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-157 |
| O | 0.3160 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-395 |
| O | 0.3160 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-633 |
| P | 0.3230 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-160 |
| P | 0.3230 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-398 |
| P | 0.3230 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-636 |
| 21/64 | 0.3281 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-162 |
| 21/64 | 0.3281 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-400 |
| 21/64 | 0.3281 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-638 |
| Q | 0.3320 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-164 |
| Q | 0.3320 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-402 |
| Q | 0.3320 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-640 |
| R | 0.3390 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-167 |
| R | 0.3390 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-405 |
| R | 0.3390 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-643 |
| 11/32 | 0.3438 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-169 |
| 11/32 | 0.3438 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-407 |
| 11/32 | 0.3438 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-645 |
| S | 0.3480 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-171 |
| S | 0.3480 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-409 |
| S | 0.3480 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-647 |
| T | 0.3580 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-174 |
| T | 0.3580 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-412 |
| T | 0.3580 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-650 |
| 23/64 | 0.3594 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-176 |
| 23/64 | 0.3594 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-414 |
| 23/64 | 0.3594 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-652 |
| U | 0.3680 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-179 |
| U | 0.3680 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-417 |
| U | 0.3680 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-655 |



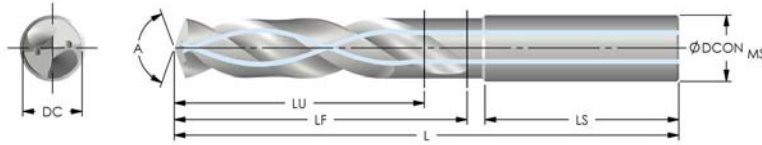
CARBIDE



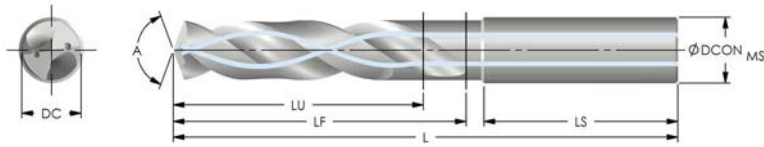
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|-------|--------|---------------|-----|--------|--------|--------|--------|----------|-------------|
| 3/8 | 0.3750 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-182 |
| 3/8 | 0.3750 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-420 |
| 3/8 | 0.3750 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-658 |
| V | 0.3770 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-183 |
| V | 0.3770 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-421 |
| V | 0.3770 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-659 |
| W | 0.3860 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-187 |
| W | 0.3860 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-425 |
| W | 0.3860 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-663 |
| 25/64 | 0.3906 | 0.3937 (10mm) | 140 | 1.3780 | 1.8504 | 1.5748 | 3.5039 | 3XD | 928-000-189 |
| 25/64 | 0.3906 | 0.3937 (10mm) | 140 | 1.9291 | 2.4016 | 1.5748 | 4.0551 | 5XD | 928-000-427 |
| 25/64 | 0.3906 | 0.3937 (10mm) | 140 | 2.9528 | 3.5039 | 1.5748 | 5.1575 | 8XD | 928-000-665 |
| X | 0.3970 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-191 |
| X | 0.3970 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-429 |
| X | 0.3970 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-667 |
| Y | 0.4040 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-192 |
| Y | 0.4040 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-430 |
| Y | 0.4040 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-668 |
| 13/32 | 0.4062 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-193 |
| 13/32 | 0.4062 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-431 |
| 13/32 | 0.4062 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-669 |
| Z | 0.4130 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-194 |
| Z | 0.4130 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-432 |
| Z | 0.4130 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-670 |
| 27/64 | 0.4219 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-196 |
| 27/64 | 0.4219 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-434 |
| 27/64 | 0.4219 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-672 |
| 7/16 | 0.4375 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-198 |
| 7/16 | 0.4375 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-436 |
| 7/16 | 0.4375 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-674 |
| 29/64 | 0.4531 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-200 |
| 29/64 | 0.4531 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-438 |
| 29/64 | 0.4531 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-676 |
| 15/32 | 0.4688 | 0.4724 (12mm) | 140 | 1.5748 | 2.1654 | 1.7717 | 4.0157 | 3XD | 928-000-201 |
| 15/32 | 0.4688 | 0.4724 (12mm) | 140 | 2.2047 | 2.7953 | 1.7717 | 4.6457 | 5XD | 928-000-439 |
| 15/32 | 0.4688 | 0.4724 (12mm) | 140 | 3.6220 | 4.2520 | 1.7717 | 6.1024 | 8XD | 928-000-677 |
| 31/64 | 0.4844 | 0.5512 (14mm) | 140 | 1.6929 | 2.3622 | 1.7717 | 4.2126 | 3XD | 928-000-203 |
| 31/64 | 0.4844 | 0.5512 (14mm) | 140 | 2.3622 | 3.0315 | 1.7717 | 4.8819 | 5XD | 928-000-441 |
| 31/64 | 0.4844 | 0.5512 (14mm) | 140 | 4.3307 | 5.3150 | 1.7717 | 7.1654 | 8XD | 928-000-679 |
| 1/2 | 0.5000 | 0.5512 (14mm) | 140 | 1.6929 | 2.3622 | 1.7717 | 4.2126 | 3XD | 928-000-205 |
| 1/2 | 0.5000 | 0.5512 (14mm) | 140 | 2.3622 | 3.0315 | 1.7717 | 4.8819 | 5XD | 928-000-443 |
| 1/2 | 0.5000 | 0.5512 (14mm) | 140 | 4.3307 | 5.315 | 1.7717 | 7.1654 | 8XD | 928-000-681 |
| 33/64 | 0.5156 | 0.5512 (14mm) | 140 | 1.6929 | 2.3622 | 1.7717 | 4.2126 | 3XD | 928-000-207 |
| 33/64 | 0.5156 | 0.5512 (14mm) | 140 | 2.3622 | 3.0315 | 1.7717 | 4.8819 | 5XD | 928-000-445 |
| 33/64 | 0.5156 | 0.5512 (14mm) | 140 | 4.3307 | 5.3150 | 1.7717 | 7.1654 | 8XD | 928-000-683 |



| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|-------|--------|------------------|-----|--------|--------|--------|--------|----------|-------------|
| 17/32 | 0.5312 | 0.5512 (14mm) | 140 | 1.6929 | 2.3622 | 1.7717 | 4.2126 | 3XD | 928-000-208 |
| 17/32 | 0.5312 | 0.5512 (14mm) | 140 | 2.3622 | 3.0315 | 1.7717 | 4.8819 | 5XD | 928-000-446 |
| 17/32 | 0.5312 | 0.5512 (14mm) | 140 | 4.3307 | 5.315 | 1.7717 | 7.1654 | 8XD | 928-000-684 |
| 35/64 | 0.5469 | 0.5512 (14mm) | 140 | 1.6929 | 2.3622 | 1.7717 | 4.2126 | 3XD | 928-000-210 |
| 35/64 | 0.5469 | 0.5512 (14mm) | 140 | 2.3622 | 3.0315 | 1.7717 | 4.8819 | 5XD | 928-000-448 |
| 35/64 | 0.5469 | 0.5512 (14mm) | 140 | 4.3307 | 5.315 | 1.7717 | 7.1654 | 8XD | 928-000-686 |
| 9/16 | 0.5625 | 0.6299 (16mm) | 140 | 1.7717 | 2.5591 | 1.8898 | 4.5276 | 3XD | 928-000-212 |
| 9/16 | 0.5625 | 0.6299 (16mm) | 140 | 2.4803 | 3.2677 | 1.8898 | 5.2362 | 5XD | 928-000-450 |
| 9/16 | 0.5625 | 0.6299 (16mm) | 140 | 5.0394 | 6.1024 | 1.8898 | 8.0315 | 8XD | 928-000-688 |
| 37/64 | 0.5781 | 0.6299 (16mm) | 140 | 1.7717 | 2.5591 | 1.8898 | 4.5276 | 3XD | 928-000-214 |
| 37/64 | 0.5781 | 0.6299 (16mm) | 140 | 2.4803 | 3.2677 | 1.8898 | 5.2362 | 5XD | 928-000-452 |
| 37/64 | 0.5781 | 0.6299 (16mm) | 140 | 5.0394 | 6.1024 | 1.8898 | 8.0315 | 8XD | 928-000-690 |
| 19/32 | 0.5938 | 0.6299 (16mm) | 140 | 1.7717 | 2.5591 | 1.8898 | 4.5276 | 3XD | 928-000-216 |
| 19/32 | 0.5938 | 0.6299 (16mm) | 140 | 2.4803 | 3.2677 | 1.8898 | 5.2362 | 5XD | 928-000-454 |
| 19/32 | 0.5938 | 0.6299 (16mm) | 140 | 5.0394 | 6.1024 | 1.8898 | 8.0315 | 8XD | 928-000-692 |
| 39/64 | 0.6094 | 0.6299 (16mm) | 140 | 1.7717 | 2.5591 | 1.8898 | 4.5276 | 3XD | 928-000-217 |
| 39/64 | 0.6094 | 0.6299 (16mm) | 140 | 2.4803 | 3.2677 | 1.8898 | 5.2362 | 5XD | 928-000-455 |
| 39/64 | 0.6094 | 0.6299 (16mm) | 140 | 5.0394 | 6.1024 | 1.8898 | 8.0315 | 8XD | 928-000-693 |
| 5/8 | 0.6250 | 0.6299 (16mm) | 140 | 1.7717 | 2.5591 | 1.8898 | 4.5276 | 3XD | 928-000-219 |
| 5/8 | 0.6250 | 0.6299 (16mm) | 140 | 2.4803 | 3.2677 | 1.8898 | 5.2362 | 5XD | 928-000-457 |
| 5/8 | 0.6250 | 0.6299 (16mm) | 140 | 5.0394 | 6.1024 | 1.8898 | 8.0315 | 8XD | 928-000-695 |
| 41/64 | 0.6406 | 0.7087 (18mm) | 140 | 2.0079 | 2.8740 | 1.8898 | 4.8425 | 3XD | 928-000-221 |
| 41/64 | 0.6406 | 0.7087 (18mm) | 140 | 2.7953 | 3.6614 | 1.8898 | 5.6299 | 5XD | 928-000-459 |
| 41/64 | 0.6406 | 0.7087 (18mm) | 140 | 5.6693 | 6.6929 | 1.8898 | 8.7795 | 8XD | 928-000-697 |
| 21/32 | 0.6562 | 0.7087 (18mm) | 140 | 2.0079 | 2.8740 | 1.8898 | 4.8425 | 3XD | 928-000-223 |
| 21/32 | 0.6562 | 0.7087 (18mm) | 140 | 2.7953 | 3.6614 | 1.8898 | 5.6299 | 5XD | 928-000-461 |
| 21/32 | 0.6562 | 0.7087 (18mm) | 140 | 5.6693 | 6.6929 | 1.8898 | 8.7795 | 8XD | 928-000-699 |
| 43/64 | 0.6719 | 0.7087 (18mm) | 140 | 2.0079 | 2.874 | 1.8898 | 4.8425 | 3XD | 928-000-225 |
| 43/64 | 0.6719 | 0.7087 (18mm) | 140 | 2.7953 | 3.6614 | 1.8898 | 5.6299 | 5XD | 928-000-463 |
| 43/64 | 0.6719 | 0.7087 (18mm) | 140 | 5.6693 | 6.6929 | 1.8898 | 8.7795 | 8XD | 928-000-701 |
| 11/16 | 0.6875 | 0.7087 (18mm) | 140 | 2.0079 | 2.8740 | 1.8898 | 4.8425 | 3XD | 928-000-226 |
| 11/16 | 0.6875 | 0.7087 (18mm) | 140 | 2.7953 | 3.6614 | 1.8898 | 5.6299 | 5XD | 928-000-464 |
| 11/16 | 0.6875 | 0.7087 (18mm) | 140 | 5.6693 | 6.6929 | 1.8898 | 8.7795 | 8XD | 928-000-702 |
| 45/64 | 0.7031 | 0.7087 (18mm) | 140 | 2.0079 | 2.8740 | 1.8898 | 4.8425 | 3XD | 928-000-228 |
| 45/64 | 0.7031 | 0.7087 (18mm) | 140 | 2.7953 | 3.6614 | 1.8898 | 5.6299 | 5XD | 928-000-466 |
| 45/64 | 0.7031 | 0.7087 (18mm) | 140 | 5.6693 | 6.6929 | 1.8898 | 8.7795 | 8XD | 928-000-704 |
| 23/32 | 0.7188 | 0.7874 (20.00mm) | 140 | 2.1654 | 3.1102 | 1.9685 | 5.1969 | 3XD | 928-000-230 |
| 23/32 | 0.7188 | 0.7874 (20.00mm) | 140 | 3.0315 | 3.9764 | 1.9685 | 6.0630 | 5XD | 928-000-468 |
| 23/32 | 0.7188 | 0.7874 (20.00mm) | 140 | 6.2992 | 7.2835 | 1.9685 | 9.6457 | 8XD | 928-000-706 |
| 47/64 | 0.7344 | 0.7874 (20.00mm) | 140 | 2.1654 | 3.1102 | 1.9685 | 5.1969 | 3XD | 928-000-232 |
| 47/64 | 0.7344 | 0.7874 (20.00mm) | 140 | 3.0315 | 3.9764 | 1.9685 | 6.0630 | 5XD | 928-000-470 |
| 47/64 | 0.7344 | 0.7874 (20.00mm) | 140 | 6.2992 | 7.2835 | 1.9685 | 9.6457 | 8XD | 928-000-708 |
| 3/4 | 0.7500 | 0.7874 (20.00mm) | 140 | 2.1654 | 3.1102 | 1.9685 | 5.1969 | 3XD | 928-000-234 |
| 3/4 | 0.7500 | 0.7874 (20.00mm) | 140 | 3.0315 | 3.9764 | 1.9685 | 6.0630 | 5XD | 928-000-472 |
| 3/4 | 0.7500 | 0.7874 (20.00mm) | 140 | 6.2992 | 7.2835 | 1.9685 | 9.6457 | 8XD | 928-000-710 |
| 49/64 | 0.7656 | 0.7874 (20.00mm) | 140 | 2.1654 | 3.1102 | 1.9685 | 5.1969 | 3XD | 928-000-235 |
| 49/64 | 0.7656 | 0.7874 (20.00mm) | 140 | 3.0315 | 3.9764 | 1.9685 | 6.0630 | 5XD | 928-000-473 |
| 49/64 | 0.7656 | 0.7874 (20.00mm) | 140 | 6.2992 | 7.2835 | 1.9685 | 9.6457 | 8XD | 928-000-711 |
| 25/32 | 0.7812 | 0.7874 (20.00mm) | 140 | 2.1654 | 3.1102 | 1.9685 | 5.1969 | 3XD | 928-000-237 |
| 25/32 | 0.7812 | 0.7874 (20.00mm) | 140 | 3.0315 | 3.9764 | 1.9685 | 6.0630 | 5XD | 928-000-475 |
| 25/32 | 0.7812 | 0.7874 (20.00mm) | 140 | 6.2992 | 7.2835 | 1.9685 | 9.6457 | 8XD | 928-000-713 |



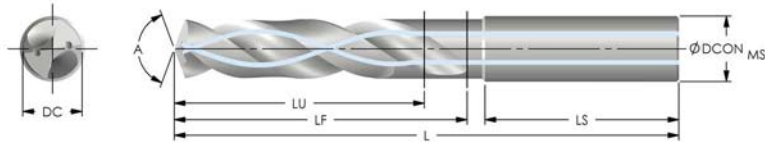
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|------|--------|-----|-------|-------|-------|-------|----------|-------------|
| 0.80MM | 0.80 | 4.00 | 140 | 3.00 | 5.00 | 28.00 | 58.00 | 3XD | 928-000-001 |
| 0.80MM | 0.80 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 5XD | 928-000-239 |
| 0.80MM | 0.80 | 4.00 | 140 | 7.00 | 9.00 | 28.00 | 58.00 | 8XD | 928-000-477 |
| 0.90MM | 0.90 | 4.00 | 140 | 3.00 | 5.00 | 28.00 | 58.00 | 3XD | 928-000-005 |
| 0.90MM | 0.90 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 5XD | 928-000-243 |
| 0.90MM | 0.90 | 4.00 | 140 | 7.00 | 9.00 | 28.00 | 58.00 | 8XD | 928-000-481 |
| 1.00MM | 1.00 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-010 |
| 1.00MM | 1.00 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-248 |
| 1.00MM | 1.00 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-486 |
| 1.10MM | 1.10 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-015 |
| 1.10MM | 1.10 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-253 |
| 1.10MM | 1.10 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-491 |
| 1.12MM | 1.12 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-016 |
| 1.12MM | 1.12 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-254 |
| 1.12MM | 1.12 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-492 |
| 1.20MM | 1.20 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-019 |
| 1.20MM | 1.20 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-257 |
| 1.20MM | 1.20 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-495 |
| 1.25MM | 1.25 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-020 |
| 1.25MM | 1.25 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-258 |
| 1.25MM | 1.25 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-496 |
| 1.27MM | 1.27 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-021 |
| 1.27MM | 1.27 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-259 |
| 1.27MM | 1.27 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-497 |
| 1.30MM | 1.30 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-022 |
| 1.30MM | 1.30 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-260 |
| 1.30MM | 1.30 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-498 |
| 1.35MM | 1.35 | 4.00 | 140 | 5.00 | 7.00 | 28.00 | 58.00 | 3XD | 928-000-024 |
| 1.35MM | 1.35 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 5XD | 928-000-262 |
| 1.35MM | 1.35 | 4.00 | 140 | 10.00 | 12.00 | 28.00 | 58.00 | 8XD | 928-000-500 |
| 1.45MM | 1.45 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 3XD | 928-000-026 |
| 1.45MM | 1.45 | 4.00 | 140 | 9.00 | 12.00 | 28.00 | 58.00 | 5XD | 928-000-264 |
| 1.45MM | 1.45 | 4.00 | 140 | 15.00 | 18.00 | 28.00 | 58.00 | 8XD | 928-000-502 |
| 1.50MM | 1.50 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 3XD | 928-000-027 |
| 1.50MM | 1.50 | 4.00 | 140 | 9.00 | 12.00 | 28.00 | 58.00 | 5XD | 928-000-265 |
| 1.50MM | 1.50 | 4.00 | 140 | 15.00 | 18.00 | 28.00 | 58.00 | 8XD | 928-000-503 |
| 1.55MM | 1.55 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 3XD | 928-000-029 |
| 1.55MM | 1.55 | 4.00 | 140 | 9.00 | 12.00 | 28.00 | 58.00 | 5XD | 928-000-267 |
| 1.55MM | 1.55 | 4.00 | 140 | 15.00 | 18.00 | 28.00 | 58.00 | 8XD | 928-000-505 |
| 1.60MM | 1.60 | 4.00 | 140 | 6.00 | 9.00 | 28.00 | 58.00 | 3XD | 928-000-031 |
| 1.60MM | 1.60 | 4.00 | 140 | 9.00 | 12.00 | 28.00 | 58.00 | 5XD | 928-000-269 |
| 1.60MM | 1.60 | 4.00 | 140 | 15.00 | 18.00 | 28.00 | 58.00 | 8XD | 928-000-507 |
| 2.00MM | 2.00 | 4.00 | 140 | 9.00 | 13.00 | 28.00 | 58.00 | 3XD | 928-000-039 |
| 2.00MM | 2.00 | 4.00 | 140 | 14.00 | 18.00 | 28.00 | 58.00 | 5XD | 928-000-277 |
| 2.00MM | 2.00 | 4.00 | 140 | 22.00 | 26.00 | 28.00 | 66.00 | 8XD | 928-000-515 |



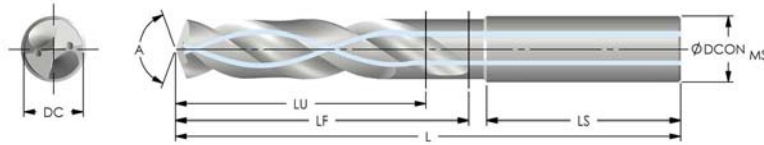
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|------|--------|-----|-------|-------|-------|-------|----------|-------------|
| 2.50MM | 2.50 | 4.00 | 140 | 12.00 | 17.00 | 28.00 | 58.00 | 3XD | 928-000-048 |
| 2.50MM | 2.50 | 4.00 | 140 | 17.00 | 22.00 | 28.00 | 58.00 | 5XD | 928-000-286 |
| 2.50MM | 2.50 | 4.00 | 140 | 25.00 | 30.00 | 28.00 | 66.00 | 8XD | 928-000-524 |
| 3.00MM | 3.00 | 6.00 | 140 | 14.00 | 20.00 | 36.00 | 62.00 | 3XD | 928-000-058 |
| 3.00MM | 3.00 | 6.00 | 140 | 23.00 | 28.00 | 36.00 | 66.00 | 5XD | 928-000-296 |
| 3.00MM | 3.00 | 6.00 | 140 | 33.00 | 40.00 | 36.00 | 78.00 | 8XD | 928-000-534 |
| 3.20MM | 3.20 | 6.00 | 140 | 14.00 | 20.00 | 36.00 | 62.00 | 3XD | 928-000-061 |
| 3.20MM | 3.20 | 6.00 | 140 | 23.00 | 28.00 | 36.00 | 66.00 | 5XD | 928-000-299 |
| 3.20MM | 3.20 | 6.00 | 140 | 33.00 | 40.00 | 36.00 | 78.00 | 8XD | 928-000-537 |
| 3.50MM | 3.50 | 6.00 | 140 | 14.00 | 20.00 | 36.00 | 62.00 | 3XD | 928-000-064 |
| 3.50MM | 3.50 | 6.00 | 140 | 23.00 | 28.00 | 36.00 | 66.00 | 5XD | 928-000-302 |
| 3.50MM | 3.50 | 6.00 | 140 | 33.00 | 40.00 | 36.00 | 78.00 | 8XD | 928-000-540 |
| 3.60MM | 3.60 | 6.00 | 140 | 14.00 | 20.00 | 36.00 | 62.00 | 3XD | 928-000-067 |
| 3.60MM | 3.60 | 6.00 | 140 | 23.00 | 28.00 | 36.00 | 66.00 | 5XD | 928-000-305 |
| 3.60MM | 3.60 | 6.00 | 140 | 33.00 | 40.00 | 36.00 | 78.00 | 8XD | 928-000-543 |
| 3.90MM | 3.90 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-072 |
| 3.90MM | 3.90 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-310 |
| 3.90MM | 3.90 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-548 |
| 4.00MM | 4.00 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-076 |
| 4.00MM | 4.00 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-314 |
| 4.00MM | 4.00 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-552 |
| 4.10MM | 4.10 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-079 |
| 4.10MM | 4.10 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-317 |
| 4.10MM | 4.10 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-555 |
| 4.40MM | 4.40 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-084 |
| 4.40MM | 4.40 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-322 |
| 4.40MM | 4.40 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-560 |
| 4.50MM | 4.50 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-086 |
| 4.50MM | 4.50 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-324 |
| 4.50MM | 4.50 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-562 |
| 4.60MM | 4.60 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-088 |
| 4.60MM | 4.60 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-326 |
| 4.60MM | 4.60 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-564 |
| 4.70MM | 4.70 | 6.00 | 140 | 17.00 | 24.00 | 36.00 | 66.00 | 3XD | 928-000-090 |
| 4.70MM | 4.70 | 6.00 | 140 | 29.00 | 36.00 | 36.00 | 74.00 | 5XD | 928-000-328 |
| 4.70MM | 4.70 | 6.00 | 140 | 41.00 | 49.00 | 36.00 | 87.00 | 8XD | 928-000-566 |
| 4.80MM | 4.80 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-092 |
| 4.80MM | 4.80 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-330 |
| 4.80MM | 4.80 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-568 |
| 4.90MM | 4.90 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-094 |
| 4.90MM | 4.90 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-332 |
| 4.90MM | 4.90 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-570 |
| 5.00MM | 5.00 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-097 |
| 5.00MM | 5.00 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-335 |
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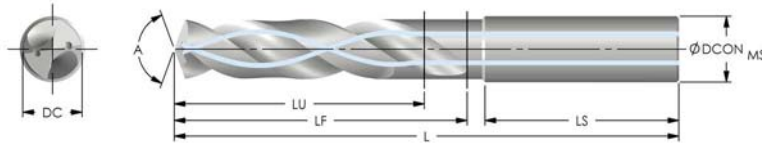
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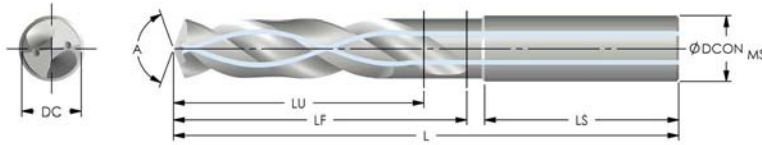
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|------|--------|-----|-------|-------|-------|--------|----------|-------------|
| 5.10MM | 5.10 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-099 |
| 5.10MM | 5.10 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-337 |
| 5.10MM | 5.10 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-575 |
| 5.20MM | 5.20 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-103 |
| 5.20MM | 5.20 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-341 |
| 5.20MM | 5.20 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-579 |
| 5.30MM | 5.30 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-105 |
| 5.30MM | 5.30 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-343 |
| 5.30MM | 5.30 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-581 |
| 5.40MM | 5.40 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-107 |
| 5.40MM | 5.40 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-345 |
| 5.40MM | 5.40 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-583 |
| 5.50MM | 5.50 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-109 |
| 5.50MM | 5.50 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-347 |
| 5.50MM | 5.50 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-585 |
| 5.60MM | 5.60 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-111 |
| 5.60MM | 5.60 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-349 |
| 5.60MM | 5.60 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-587 |
| 5.70MM | 5.70 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-113 |
| 5.70MM | 5.70 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-351 |
| 5.70MM | 5.70 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-589 |
| 5.80MM | 5.80 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-115 |
| 5.80MM | 5.80 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-353 |
| 5.80MM | 5.80 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-591 |
| 5.90MM | 5.90 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-116 |
| 5.90MM | 5.90 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-354 |
| 5.90MM | 5.90 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-592 |
| 6.00MM | 6.00 | 6.00 | 140 | 20.00 | 28.00 | 36.00 | 66.00 | 3XD | 928-000-119 |
| 6.00MM | 6.00 | 6.00 | 140 | 35.00 | 44.00 | 36.00 | 82.00 | 5XD | 928-000-357 |
| 6.00MM | 6.00 | 6.00 | 140 | 48.00 | 56.00 | 36.00 | 94.00 | 8XD | 928-000-595 |
| 6.10MM | 6.10 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-121 |
| 6.10MM | 6.10 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-359 |
| 6.10MM | 6.10 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-597 |
| 6.20MM | 6.20 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-123 |
| 6.20MM | 6.20 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-361 |
| 6.20MM | 6.20 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-599 |
| 6.30MM | 6.30 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-125 |
| 6.30MM | 6.30 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-363 |
| 6.30MM | 6.30 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-601 |
| 6.40MM | 6.40 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-127 |
| 6.40MM | 6.40 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-365 |
| 6.40MM | 6.40 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-603 |
| 6.50MM | 6.50 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-128 |
| 6.50MM | 6.50 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-366 |
| 6.50MM | 6.50 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-604 |



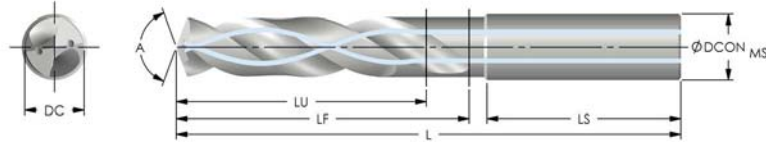
| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|------|--------|-----|-------|-------|-------|--------|----------|-------------|
| 6.60MM | 6.60 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-130 |
| 6.60MM | 6.60 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-368 |
| 6.60MM | 6.60 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-606 |
| 6.70MM | 6.70 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-132 |
| 6.70MM | 6.70 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-370 |
| 6.70MM | 6.70 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-608 |
| 6.80MM | 6.80 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-135 |
| 6.80MM | 6.80 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-373 |
| 6.80MM | 6.80 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-611 |
| 6.90MM | 6.90 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-136 |
| 6.90MM | 6.90 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-374 |
| 6.90MM | 6.90 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-612 |
| 7.00MM | 7.00 | 8.00 | 140 | 24.00 | 34.00 | 36.00 | 79.00 | 3XD | 928-000-138 |
| 7.00MM | 7.00 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-376 |
| 7.00MM | 7.00 | 8.00 | 140 | 57.00 | 67.00 | 36.00 | 105.00 | 8XD | 928-000-614 |
| 7.10MM | 7.10 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-140 |
| 7.10MM | 7.10 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-378 |
| 7.10MM | 7.10 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-616 |
| 7.20MM | 7.20 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-143 |
| 7.20MM | 7.20 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-381 |
| 7.20MM | 7.20 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-619 |
| 7.30MM | 7.30 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-144 |
| 7.30MM | 7.30 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-382 |
| 7.30MM | 7.30 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-620 |
| 7.40MM | 7.40 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-146 |
| 7.40MM | 7.40 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-384 |
| 7.40MM | 7.40 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-622 |
| 7.50MM | 7.50 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-148 |
| 7.50MM | 7.50 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-386 |
| 7.50MM | 7.50 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-624 |
| 7.60MM | 7.60 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-150 |
| 7.60MM | 7.60 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-388 |
| 7.60MM | 7.60 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-626 |
| 7.70MM | 7.70 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-152 |
| 7.70MM | 7.70 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-390 |
| 7.70MM | 7.70 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-628 |
| 7.80MM | 7.80 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-153 |
| 7.80MM | 7.80 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-391 |
| 7.80MM | 7.80 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-629 |
| 7.90MM | 7.90 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-154 |
| 7.90MM | 7.90 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-392 |
| 7.90MM | 7.90 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-630 |
| 8.00MM | 8.00 | 8.00 | 140 | 29.00 | 41.00 | 36.00 | 79.00 | 3XD | 928-000-156 |
| 8.00MM | 8.00 | 8.00 | 140 | 43.00 | 53.00 | 36.00 | 91.00 | 5XD | 928-000-394 |
| 8.00MM | 8.00 | 8.00 | 140 | 64.00 | 77.00 | 36.00 | 115.00 | 8XD | 928-000-632 |
| 8.10MM | 8.10 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-158 |
| 8.10MM | 8.10 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-396 |
| 8.10MM | 8.10 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-634 |



| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|--------|------|--------|-----|-------|-------|-------|--------|----------|-------------|
| 8.20MM | 8.20 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-159 |
| 8.20MM | 8.20 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-397 |
| 8.20MM | 8.20 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-635 |
| 8.30MM | 8.30 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-161 |
| 8.30MM | 8.30 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-399 |
| 8.30MM | 8.30 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-637 |
| 8.40MM | 8.40 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-163 |
| 8.40MM | 8.40 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-401 |
| 8.40MM | 8.40 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-639 |
| 8.50MM | 8.50 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-165 |
| 8.50MM | 8.50 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-403 |
| 8.50MM | 8.50 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-641 |
| 8.60MM | 8.60 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-166 |
| 8.60MM | 8.60 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-404 |
| 8.60MM | 8.60 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-642 |
| 8.70MM | 8.70 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-168 |
| 8.70MM | 8.70 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-406 |
| 8.70MM | 8.70 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-644 |
| 8.80MM | 8.80 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-170 |
| 8.80MM | 8.80 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-408 |
| 8.80MM | 8.80 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-646 |
| 8.90MM | 8.90 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-172 |
| 8.90MM | 8.90 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-410 |
| 8.90MM | 8.90 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-648 |
| 9.00MM | 9.00 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-173 |
| 9.00MM | 9.00 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-411 |
| 9.00MM | 9.00 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-649 |
| 9.10MM | 9.10 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-175 |
| 9.10MM | 9.10 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-413 |
| 9.10MM | 9.10 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-651 |
| 9.20MM | 9.20 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-177 |
| 9.20MM | 9.20 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-415 |
| 9.20MM | 9.20 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-653 |
| 9.30MM | 9.30 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-178 |
| 9.30MM | 9.30 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-416 |
| 9.30MM | 9.30 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-654 |
| 9.40MM | 9.40 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-180 |
| 9.40MM | 9.40 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-418 |
| 9.40MM | 9.40 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-656 |
| 9.50MM | 9.50 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-181 |
| 9.50MM | 9.50 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-419 |
| 9.50MM | 9.50 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-657 |
| 9.60MM | 9.60 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-184 |
| 9.60MM | 9.60 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-422 |
| 9.60MM | 9.60 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-660 |



| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|---------|-------|--------|-----|--------|--------|-------|--------|----------|-------------|
| 9.70MM | 9.70 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-185 |
| 9.70MM | 9.70 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-423 |
| 9.70MM | 9.70 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-661 |
| 9.80MM | 9.80 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-186 |
| 9.80MM | 9.80 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-424 |
| 9.80MM | 9.80 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-662 |
| 9.90MM | 9.90 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-188 |
| 9.90MM | 9.90 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-426 |
| 9.90MM | 9.90 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-664 |
| 10.00MM | 10.00 | 10.00 | 140 | 35.00 | 47.00 | 40.00 | 89.00 | 3XD | 928-000-190 |
| 10.00MM | 10.00 | 10.00 | 140 | 49.00 | 61.00 | 40.00 | 103.00 | 5XD | 928-000-428 |
| 10.00MM | 10.00 | 10.00 | 140 | 75.00 | 89.00 | 40.00 | 131.00 | 8XD | 928-000-666 |
| 10.50MM | 10.50 | 12.00 | 140 | 40.00 | 55.00 | 45.00 | 102.00 | 3XD | 928-000-195 |
| 10.50MM | 10.50 | 12.00 | 140 | 56.00 | 71.00 | 45.00 | 118.00 | 5XD | 928-000-433 |
| 10.50MM | 10.50 | 12.00 | 140 | 92.00 | 108.00 | 45.00 | 155.00 | 8XD | 928-000-671 |
| 11.00MM | 11.00 | 12.00 | 140 | 40.00 | 55.00 | 45.00 | 102.00 | 3XD | 928-000-197 |
| 11.00MM | 11.00 | 12.00 | 140 | 56.00 | 71.00 | 45.00 | 118.00 | 5XD | 928-000-435 |
| 11.00MM | 11.00 | 12.00 | 140 | 92.00 | 108.00 | 45.00 | 155.00 | 8XD | 928-000-673 |
| 11.50MM | 11.50 | 12.00 | 140 | 40.00 | 55.00 | 45.00 | 102.00 | 3XD | 928-000-199 |
| 11.50MM | 11.50 | 12.00 | 140 | 56.00 | 71.00 | 45.00 | 118.00 | 5XD | 928-000-437 |
| 11.50MM | 11.50 | 12.00 | 140 | 92.00 | 108.00 | 45.00 | 155.00 | 8XD | 928-000-675 |
| 12.00MM | 12.00 | 12.00 | 140 | 40.00 | 55.00 | 45.00 | 102.00 | 3XD | 928-000-202 |
| 12.00MM | 12.00 | 12.00 | 140 | 56.00 | 71.00 | 45.00 | 118.00 | 5XD | 928-000-440 |
| 12.00MM | 12.00 | 12.00 | 140 | 92.00 | 108.00 | 45.00 | 155.00 | 8XD | 928-000-678 |
| 12.50MM | 12.50 | 14.00 | 140 | 43.00 | 60.00 | 45.00 | 107.00 | 3XD | 928-000-204 |
| 12.50MM | 12.50 | 14.00 | 140 | 60.00 | 77.00 | 45.00 | 124.00 | 5XD | 928-000-442 |
| 12.50MM | 12.50 | 14.00 | 140 | 110.00 | 135.00 | 45.00 | 182.00 | 8XD | 928-000-680 |
| 13.00MM | 13.00 | 14.00 | 140 | 43.00 | 60.00 | 45.00 | 107.00 | 3XD | 928-000-206 |
| 13.00MM | 13.00 | 14.00 | 140 | 60.00 | 77.00 | 45.00 | 124.00 | 5XD | 928-000-444 |
| 13.00MM | 13.00 | 14.00 | 140 | 110.00 | 135.00 | 45.00 | 182.00 | 8XD | 928-000-682 |
| 13.50MM | 13.50 | 14.00 | 140 | 43.00 | 60.00 | 45.00 | 107.00 | 3XD | 928-000-209 |
| 13.50MM | 13.50 | 14.00 | 140 | 60.00 | 77.00 | 45.00 | 124.00 | 5XD | 928-000-447 |
| 13.50MM | 13.50 | 14.00 | 140 | 110.00 | 135.00 | 45.00 | 182.00 | 8XD | 928-000-685 |
| 14.00MM | 14.00 | 14.00 | 140 | 43.00 | 60.00 | 45.00 | 107.00 | 3XD | 928-000-211 |
| 14.00MM | 14.00 | 14.00 | 140 | 60.00 | 77.00 | 45.00 | 124.00 | 5XD | 928-000-449 |
| 14.00MM | 14.00 | 14.00 | 140 | 110.00 | 135.00 | 45.00 | 182.00 | 8XD | 928-000-687 |
| 14.50MM | 14.50 | 16.00 | 140 | 45.00 | 65.00 | 48.00 | 115.00 | 3XD | 928-000-213 |
| 14.50MM | 14.50 | 16.00 | 140 | 63.00 | 83.00 | 48.00 | 133.00 | 5XD | 928-000-451 |
| 14.50MM | 14.50 | 16.00 | 140 | 128.00 | 155.00 | 48.00 | 204.00 | 8XD | 928-000-689 |
| 15.00MM | 15.00 | 16.00 | 140 | 45.00 | 65.00 | 48.00 | 115.00 | 3XD | 928-000-215 |
| 15.00MM | 15.00 | 16.00 | 140 | 63.00 | 83.00 | 48.00 | 133.00 | 5XD | 928-000-453 |
| 15.00MM | 15.00 | 16.00 | 140 | 128.00 | 155.00 | 48.00 | 204.00 | 8XD | 928-000-691 |
| 15.50MM | 15.50 | 16.00 | 140 | 45.00 | 65.00 | 48.00 | 115.00 | 3XD | 928-000-218 |
| 15.50MM | 15.50 | 16.00 | 140 | 63.00 | 83.00 | 48.00 | 133.00 | 5XD | 928-000-456 |
| 15.50MM | 15.50 | 16.00 | 140 | 128.00 | 155.00 | 48.00 | 204.00 | 8XD | 928-000-694 |

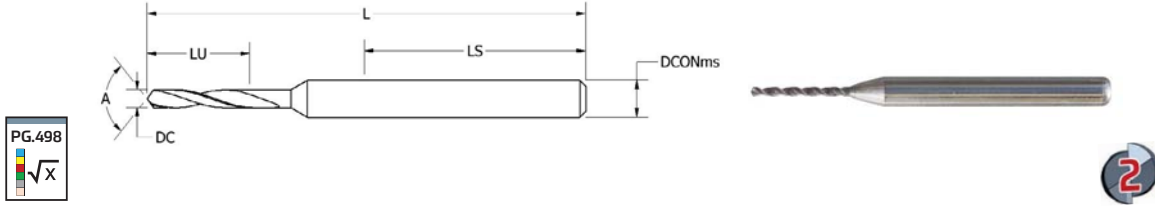


| DC | DC | DCONMS | A | LU | LF | LS | L | LD Ratio | PRODUCT # |
|---------|-------|--------|-----|--------|--------|-------|--------|----------|-------------|
| 16.00MM | 16.00 | 16.00 | 140 | 45.00 | 65.00 | 48.00 | 115.00 | 3XD | 928-000-220 |
| 16.00MM | 16.00 | 16.00 | 140 | 63.00 | 83.00 | 48.00 | 133.00 | 5XD | 928-000-458 |
| 16.00MM | 16.00 | 16.00 | 140 | 128.00 | 155.00 | 48.00 | 204.00 | 8XD | 928-000-696 |
| 16.50MM | 16.50 | 18.00 | 140 | 51.00 | 73.00 | 48.00 | 123.00 | 3XD | 928-000-222 |
| 16.50MM | 16.50 | 18.00 | 140 | 71.00 | 93.00 | 48.00 | 143.00 | 5XD | 928-000-460 |
| 16.50MM | 16.50 | 18.00 | 140 | 144.00 | 170.00 | 48.00 | 223.00 | 8XD | 928-000-698 |
| 17.00MM | 17.00 | 18.00 | 140 | 51.00 | 73.00 | 48.00 | 123.00 | 3XD | 928-000-224 |
| 17.00MM | 17.00 | 18.00 | 140 | 71.00 | 93.00 | 48.00 | 143.00 | 5XD | 928-000-462 |
| 17.00MM | 17.00 | 18.00 | 140 | 144.00 | 170.00 | 48.00 | 223.00 | 8XD | 928-000-700 |
| 17.50MM | 17.50 | 18.00 | 140 | 51.00 | 73.00 | 48.00 | 123.00 | 3XD | 928-000-227 |
| 17.50MM | 17.50 | 18.00 | 140 | 71.00 | 93.00 | 48.00 | 143.00 | 5XD | 928-000-465 |
| 17.50MM | 17.50 | 18.00 | 140 | 144.00 | 170.00 | 48.00 | 223.00 | 8XD | 928-000-703 |
| 18.00MM | 18.00 | 18.00 | 140 | 51.00 | 73.00 | 48.00 | 123.00 | 3XD | 928-000-229 |
| 18.00MM | 18.00 | 18.00 | 140 | 71.00 | 93.00 | 48.00 | 143.00 | 5XD | 928-000-467 |
| 18.00MM | 18.00 | 18.00 | 140 | 144.00 | 170.00 | 48.00 | 223.00 | 8XD | 928-000-705 |
| 18.50MM | 18.50 | 20.00 | 140 | 55.00 | 79.00 | 50.00 | 132.00 | 3XD | 928-000-231 |
| 18.50MM | 18.50 | 20.00 | 140 | 77.00 | 101.00 | 50.00 | 154.00 | 5XD | 928-000-469 |
| 18.50MM | 18.50 | 20.00 | 140 | 160.00 | 185.00 | 50.00 | 245.00 | 8XD | 928-000-707 |
| 19.00MM | 19.00 | 20.00 | 140 | 55.00 | 79.00 | 50.00 | 132.00 | 3XD | 928-000-233 |
| 19.00MM | 19.00 | 20.00 | 140 | 77.00 | 101.00 | 50.00 | 154.00 | 5XD | 928-000-471 |
| 19.00MM | 19.00 | 20.00 | 140 | 160.00 | 185.00 | 50.00 | 245.00 | 8XD | 928-000-709 |
| 19.50MM | 19.50 | 20.00 | 140 | 55.00 | 79.00 | 50.00 | 132.00 | 3XD | 928-000-236 |
| 19.50MM | 19.50 | 20.00 | 140 | 77.00 | 101.00 | 50.00 | 154.00 | 5XD | 928-000-474 |
| 19.50MM | 19.50 | 20.00 | 140 | 160.00 | 185.00 | 50.00 | 245.00 | 8XD | 928-000-712 |
| 20.00MM | 20.00 | 20.00 | 140 | 55.00 | 79.00 | 50.00 | 132.00 | 3XD | 928-000-238 |
| 20.00MM | 20.00 | 20.00 | 140 | 77.00 | 101.00 | 50.00 | 154.00 | 5XD | 928-000-476 |
| 20.00MM | 20.00 | 20.00 | 140 | 160.00 | 185.00 | 50.00 | 245.00 | 8XD | 928-000-714 |

CARBIDE



Ø .004"-.025" (.10MM - .64MM)

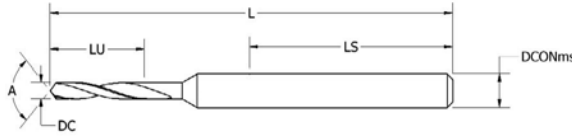


| DC | DC | DC (mm) | DCONms | LU | A | LS | L | UNCOATED |
|--------|-------|---------|--------|--------|-------|--------|--------|-------------|
| | | | | | | | | 2 FLUTE |
| 0.0040 | # 102 | .10mm | 0.1250 | 0.0700 | 118.0 | 0.7500 | 1.5000 | 925-000-001 |
| 0.0050 | # 99 | .13mm | 0.1250 | 0.0700 | 118.0 | 0.7500 | 1.5000 | 925-000-002 |
| 0.0059 | # 97 | .15mm | 0.1250 | 0.1200 | 118.0 | 0.7500 | 1.5000 | 925-000-003 |
| 0.0063 | # 96 | .16mm | 0.1250 | 0.1200 | 118.0 | 0.7500 | 1.5000 | 925-000-004 |
| 0.0067 | # 95 | .17mm | 0.1250 | 0.1200 | 118.0 | 0.7500 | 1.5000 | 925-000-005 |
| 0.0071 | # 94 | .18mm | 0.1250 | 0.1500 | 118.0 | 0.7500 | 1.5000 | 925-000-006 |
| 0.0075 | # 93 | .19mm | 0.1250 | 0.1500 | 118.0 | 0.7500 | 1.5000 | 925-000-007 |
| 0.0079 | # 92 | .20mm | 0.1250 | 0.1500 | 118.0 | 0.7500 | 1.5000 | 925-000-008 |
| 0.0083 | # 91 | .21mm | 0.1250 | 0.1500 | 118.0 | 0.7500 | 1.5000 | 925-000-009 |
| 0.0087 | # 90 | .22mm | 0.1250 | 0.1500 | 118.0 | 0.7500 | 1.5000 | 925-000-010 |
| 0.0091 | # 89 | .23mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-011 |
| 0.0095 | # 88 | .24mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-012 |
| 0.0098 | .25mm | .25mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-013 |
| 0.0100 | # 87 | .25mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-014 |
| 0.0105 | # 86 | .27mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-015 |
| 0.0110 | # 85 | .28mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-016 |
| 0.0115 | # 84 | .29mm | 0.1250 | 0.2200 | 118.0 | 0.7500 | 1.5000 | 925-000-017 |
| 0.0118 | .30mm | .30mm | 0.1250 | 0.2800 | 118.0 | 0.7500 | 1.5000 | 925-000-018 |
| 0.0120 | # 83 | .305mm | 0.1250 | 0.2800 | 118.0 | 0.7500 | 1.5000 | 925-000-019 |
| 0.0125 | # 82 | .32mm | 0.1250 | 0.2800 | 118.0 | 0.7500 | 1.5000 | 925-000-020 |
| 0.0130 | # 81 | .33mm | 0.1250 | 0.2800 | 130.0 | 0.7500 | 1.5000 | 925-000-021 |
| 0.0135 | # 80 | .34mm | 0.1250 | 0.2800 | 130.0 | 0.7500 | 1.5000 | 925-000-022 |
| 0.0138 | .35mm | .35mm | 0.1250 | 0.2800 | 130.0 | 0.7500 | 1.5000 | 925-000-023 |
| 0.0145 | # 79 | .37mm | 0.1250 | 0.2800 | 130.0 | 0.7500 | 1.5000 | 925-000-024 |
| 0.0156 | 1/64" | .396mm | 0.1250 | 0.2950 | 130.0 | 0.7500 | 1.5000 | 925-000-025 |
| 0.0157 | .40mm | .40mm | 0.1250 | 0.2950 | 130.0 | 0.7500 | 1.5000 | 925-000-026 |
| 0.0160 | # 78 | .41mm | 0.1250 | 0.2950 | 130.0 | 0.7500 | 1.5000 | 925-000-027 |
| 0.0177 | .45mm | .45mm | 0.1250 | 0.2950 | 130.0 | 0.7500 | 1.5000 | 925-000-028 |
| 0.0180 | # 77 | .46mm | 0.1250 | 0.2950 | 130.0 | 0.7500 | 1.5000 | 925-000-029 |
| 0.0197 | .50mm | .50mm | 0.1250 | 0.3100 | 130.0 | 0.7500 | 1.5000 | 925-000-030 |
| 0.0200 | # 76 | .51mm | 0.1250 | 0.3100 | 130.0 | 0.7500 | 1.5000 | 925-000-031 |
| 0.0210 | # 75 | .53mm | 0.1250 | 0.3100 | 130.0 | 0.7500 | 1.5000 | 925-000-032 |
| 0.0217 | .55mm | .55mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-033 |
| 0.0225 | # 74 | .57mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-034 |
| 0.0236 | .60mm | .60mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-035 |
| 0.0240 | # 73 | .61mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-036 |
| 0.0250 | # 72 | .64mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-037 |

Ø .0256"-.0571" (.65MM - 1.45MM)



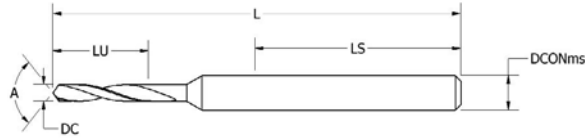
CARBIDE



| DC | DC | DC (mm) | DCONms | LU | A | LS | L | UNCOATED |
|--------|--------|---------|--------|--------|-------|--------|--------|-------------|
| | | | | | | | | 2 FLUTE |
| 0.0256 | .65mm | .65mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-038 |
| 0.0260 | # 71 | .66mm | 0.1250 | 0.3400 | 130.0 | 0.7500 | 1.5000 | 925-000-039 |
| 0.0276 | .70mm | .70mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-040 |
| 0.0280 | # 70 | .71mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-041 |
| 0.0292 | # 69 | .74mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-042 |
| 0.0295 | .75mm | .75mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-043 |
| 0.0310 | # 68 | .787mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-044 |
| 0.0312 | 1/32" | .79mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-045 |
| 0.0315 | .80mm | .80mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-046 |
| 0.0320 | # 67 | .81mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-047 |
| 0.0330 | # 66 | .84mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-048 |
| 0.0335 | .85mm | .85mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-049 |
| 0.0350 | # 65 | .89mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-050 |
| 0.0354 | .90mm | .90mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-051 |
| 0.0360 | # 64 | .91mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-052 |
| 0.0370 | # 63 | .94mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-053 |
| 0.0374 | .95mm | .95mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-054 |
| 0.0380 | # 62 | .97mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-055 |
| 0.0390 | # 61 | .99mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-056 |
| 0.0394 | 1.0mm | 1.00mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-057 |
| 0.0400 | # 60 | 1.02mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-058 |
| 0.0410 | # 59 | 1.04mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-059 |
| 0.0413 | 1.05mm | 1.05mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-060 |
| 0.0420 | # 58 | 1.07mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-061 |
| 0.0420 | # 57 | 1.09mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-062 |
| 0.0433 | 1.10mm | 1.10mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-063 |
| 0.0440 | 1.12mm | 1.12mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-064 |
| 0.0453 | 1.15mm | 1.15mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-065 |
| 0.0465 | # 56 | 1.18mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-066 |
| 0.0469 | 3/64" | 1.19mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-067 |
| 0.0472 | 1.20mm | 1.20mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-068 |
| 0.0492 | 1.25mm | 1.25mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-069 |
| 0.0512 | 1.30mm | 1.30mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-070 |
| 0.0520 | # 55 | 1.32mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-071 |
| 0.0531 | 1.35mm | 1.35mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-072 |
| 0.0550 | # 54 | 1.397mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-073 |
| 0.0551 | 1.40mm | 1.40mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-074 |
| 0.0571 | 1.45mm | 1.45mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-075 |

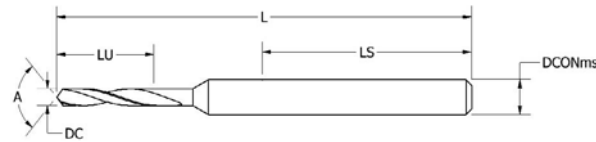


Ø .0591"-.0925" (1.50MM -2.35MM)



| DC | DC | DC (mm) | DCONms | LU | A | LS | L | UNCOATED |
|--------|--------|---------|--------|--------|-------|--------|--------|-------------|
| | | | | | | | | 2 FLUTE |
| 0.0591 | 1.50mm | 1.50mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-076 |
| 0.0595 | # 53 | 1.51mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-077 |
| 0.0610 | 1.55mm | 1.55mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-078 |
| 0.0625 | 1/16" | 1.59mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-079 |
| 0.0630 | 1.60mm | 1.60mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-080 |
| 0.0635 | # 52 | 1.61mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-081 |
| 0.0650 | 1.65mm | 1.65mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-082 |
| 0.0669 | 1.70mm | 1.699mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-083 |
| 0.0670 | # 51 | 1.70mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-084 |
| 0.0689 | 1.75mm | 1.75mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-085 |
| 0.0700 | # 50 | 1.78mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-086 |
| 0.0709 | 1.80mm | 1.80mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-087 |
| 0.0728 | 1.85mm | 1.85mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-088 |
| 0.0730 | # 49 | 1.85mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-089 |
| 0.0748 | 1.90mm | 1.90mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-090 |
| 0.0760 | # 48 | 1.93mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-091 |
| 0.0768 | 1.95mm | 1.95mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-092 |
| 0.0781 | 5/64" | 1.98mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-093 |
| 0.0785 | # 47 | 1.99mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-094 |
| 0.0787 | 2.0mm | 2.00mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-095 |
| 0.0807 | 2.05mm | 2.05mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-096 |
| 0.0810 | # 46 | 2.06mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-097 |
| 0.0820 | # 45 | 2.08mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-098 |
| 0.0827 | 2.10mm | 2.10mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-099 |
| 0.0846 | 2.15mm | 2.15mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-100 |
| 0.0860 | # 44 | 2.18mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-101 |
| 0.0866 | 2.20mm | 2.20mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-102 |
| 0.0886 | 2.25mm | 2.25mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-103 |
| 0.0890 | # 43 | 2.26mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-104 |
| 0.0906 | 2.30mm | 2.30mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-105 |
| 0.0925 | 2.35mm | 2.35mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-106 |

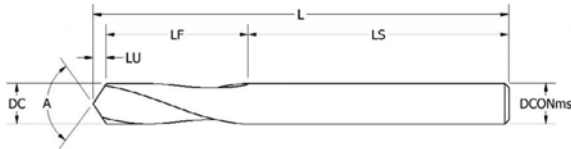
Ø .0935"-.1250" (2.37MM - 3.18MM)



| DC | DC | DC (mm) | DCONms | LU | A | LS | L | UNCOATED |
|--------|--------|---------|--------|--------|-------|--------|--------|-------------|
| | | | | | | | | 2 FLUTE |
| 0.0935 | # 42 | 2.37mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-107 |
| 0.0938 | 3/32" | 2.38mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-108 |
| 0.0945 | 2.40mm | 2.40mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-109 |
| 0.0960 | # 41 | 2.44mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-110 |
| 0.0965 | 2.45mm | 2.45mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-111 |
| 0.0980 | # 40 | 2.49mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-112 |
| 0.0984 | 2.50mm | 2.50mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-113 |
| 0.0995 | # 39 | 2.53mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-114 |
| 0.1004 | 2.55mm | 2.55mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-115 |
| 0.1015 | # 38 | 2.58mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-116 |
| 0.1024 | 2.60mm | 2.60mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-117 |
| 0.1040 | # 37 | 2.64mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-118 |
| 0.1043 | 2.65mm | 2.65mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-119 |
| 0.1063 | 2.70mm | 2.70mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-120 |
| 0.1065 | # 36 | 2.71mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-121 |
| 0.1083 | 2.75mm | 2.75mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-122 |
| 0.1094 | 7/64" | 2.78mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-123 |
| 0.1100 | # 35 | 2.79mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-124 |
| 0.1102 | 2.80mm | 2.80mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-125 |
| 0.1110 | # 34 | 2.82mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-126 |
| 0.1122 | 2.85mm | 2.85mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-127 |
| 0.1130 | # 33 | 2.87mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-128 |
| 0.1142 | 2.90mm | 2.90mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-129 |
| 0.1160 | # 32 | 2.946mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-130 |
| 0.1161 | 2.95mm | 2.95mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-131 |
| 0.1181 | 3.00mm | 3.00mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-132 |
| 0.1200 | # 31 | 3.05mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-133 |
| 0.1201 | 3.05mm | 3.05mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-134 |
| 0.1220 | 3.10mm | 3.10mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-135 |
| 0.1240 | 3.15mm | 3.15mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-136 |
| 0.1250 | 1/8" | 3.18mm | 0.1250 | 0.4000 | 130.0 | 0.7500 | 1.5000 | 925-000-137 |

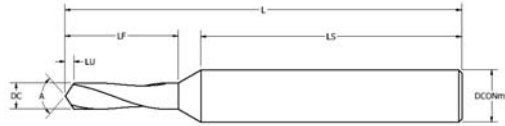


SPOTTING DRILLS

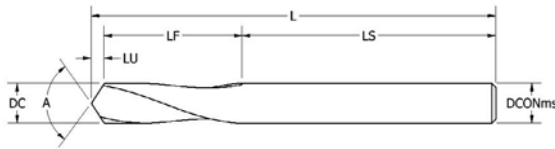


| DC | DCONms | LS | L | LF | LU | A | UNCOATED | AITiN COATED |
|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|
| | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0161 | 82.0 | 956-000-262 | 956-000-329 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0334 | 82.0 | 956-000-286 | 956-000-347 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0702 | 82.0 | 956-000-308 | 956-000-369 |
| 0.0050 | 0.1250 | 1.1663 | 1.5000 | 0.0250 | 0.0007 | 90.0 | 956-000-238 | 956-000-311 |
| 0.0100 | 0.1250 | 1.1692 | 1.5000 | 0.0350 | 0.0040 | 90.0 | 956-000-242 | 956-000-315 |
| 0.0150 | 0.1250 | 1.1720 | 1.5000 | 0.0450 | 0.0065 | 90.0 | 956-000-248 | 956-000-319 |
| 0.0200 | 0.1250 | 1.1799 | 1.5000 | 0.0500 | 0.0090 | 90.0 | 956-000-254 | 956-000-323 |
| 0.0250 | 0.1250 | 1.1678 | 1.5000 | 0.0750 | 0.0115 | 90.0 | 956-000-255 | 956-000-324 |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0140 | 90.0 | 956-000-263 | 956-000-330 |
| 0.0312 | 0.1250 | 1.1687 | 1.5000 | 0.0900 | 0.0146 | 90.0 | 956-000-267 | 956-000-334 |
| 0.0400 | 0.1250 | 1.1614 | 1.5000 | 0.1200 | 0.0190 | 90.0 | 956-000-272 | 956-000-335 |
| 0.0450 | 0.1250 | 1.1592 | 1.5000 | 0.1350 | 0.0215 | 90.0 | 956-000-275 | 956-000-338 |
| 0.0215 | 0.1250 | 1.1584 | 1.5000 | 0.1410 | 0.0225 | 90.0 | 956-000-278 | 956-000-341 |
| 0.0500 | 0.1250 | 1.1571 | 1.5000 | 0.1500 | 0.0240 | 90.0 | 956-000-279 | 956-000-342 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0290 | 90.0 | 956-000-287 | 956-000-348 |
| 0.0625 | 0.1250 | 1.1392 | 1.5000 | 0.2000 | 0.0303 | 90.0 | 956-000-291 | 956-000-352 |
| 0.0780 | 0.1250 | 1.1451 | 1.5000 | 0.2340 | 0.0375 | 90.0 | 956-000-294 | 956-000-355 |
| 0.0900 | 0.1250 | 1.1400 | 1.5000 | 0.2700 | 0.0435 | 90.0 | 956-000-297 | 956-000-358 |
| 0.0938 | 0.1250 | 1.1407 | 1.5000 | 0.2790 | 0.0165 | 90.0 | 956-000-300 | 956-000-361 |
| 0.1000 | 0.1250 | 1.1357 | 1.5000 | 0.3000 | 0.0485 | 90.0 | 956-000-302 | 956-000-363 |
| 0.1180 | 0.1250 | 1.1280 | 1.5000 | 0.3540 | 0.0575 | 90.0 | 956-000-303 | 956-000-364 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0610 | 90.0 | 956-000-309 | 956-000-370 |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0117 | 100.0 | 956-000-258 | 956-000-325 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0243 | 100.0 | 956-000-282 | 956-000-343 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0512 | 100.0 | 956-000-304 | 956-000-365 |

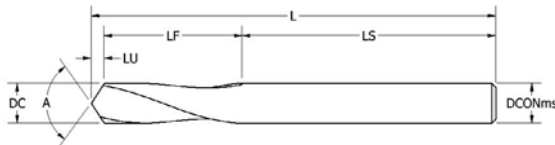
CARBIDE



| DC | DCONms | LS | L | LF | LU | A | UNCOATED | AITIN COATED |
|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|
| | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0100 | 0.1250 | 1.1742 | 1.5000 | 0.0300 | 0.0023 | 120.0 | 956-000-239 | 956-000-312 |
| 0.0150 | 0.1250 | 1.1720 | 1.5000 | 0.0450 | 0.0038 | 120.0 | 956-000-245 | 956-000-316 |
| 0.0200 | 0.1250 | 1.1799 | 1.5000 | 0.0500 | 0.0052 | 120.0 | 956-000-251 | 956-000-320 |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0081 | 120.0 | 956-000-259 | 956-000-326 |
| 0.0312 | 0.1250 | 1.1687 | 1.5000 | 0.0900 | 0.0084 | 120.0 | 956-000-264 | 956-000-331 |
| 0.0450 | 0.1250 | 1.1592 | 1.5000 | 0.1350 | 0.0124 | 120.0 | 956-000-273 | 956-000-336 |
| 0.0470 | 0.1250 | 1.1584 | 1.5000 | 0.1410 | 0.0130 | 120.0 | 956-000-276 | 956-000-339 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0167 | 120.0 | 956-000-283 | 956-000-344 |
| 0.0625 | 0.1250 | 1.1532 | 1.5000 | 0.1860 | 0.0175 | 120.0 | 956-000-288 | 956-000-349 |
| 0.0780 | 0.1250 | 1.1451 | 1.5000 | 0.2340 | 0.0217 | 120.0 | 956-000-292 | 956-000-353 |
| 0.0900 | 0.1250 | 1.1400 | 1.5000 | 0.2700 | 0.0158 | 120.0 | 956-000-295 | 956-000-356 |
| 0.0938 | 0.1250 | 1.1407 | 1.5000 | 0.2790 | 0.0165 | 120.0 | 956-000-298 | 956-000-359 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0163 | 120.0 | 956-000-305 | 956-000-366 |
| 0.0050 | 0.1250 | 1.1663 | 1.5000 | 0.0250 | 0.0007 | 130.0 | 956-000-237 | 956-000-310 |
| 0.0100 | 0.1250 | 1.1692 | 1.5000 | 0.0350 | 0.0019 | 130.0 | 956-000-240 | 956-000-313 |
| 0.0150 | 0.1250 | 1.1720 | 1.5000 | 0.0450 | 0.0030 | 130.0 | 956-000-246 | 956-000-317 |
| 0.0200 | 0.1250 | 1.1799 | 1.5000 | 0.0500 | 0.0042 | 130.0 | 956-000-252 | 956-000-321 |
| 0.0312 | 0.1250 | 1.1687 | 1.5000 | 0.0900 | 0.0068 | 130.0 | 956-000-265 | 956-000-332 |
| 0.0625 | 0.1250 | 1.1392 | 1.5000 | 0.2000 | 0.0141 | 130.0 | 956-000-289 | 956-000-350 |
| 0.0938 | 0.1250 | 1.1407 | 1.5000 | 0.2790 | 0.0212 | 130.0 | 956-000-301 | 956-000-362 |
| 0.0100 | 0.1250 | 1.1742 | 1.5000 | 0.0300 | 0.0015 | 140.0 | 956-000-241 | 956-000-314 |
| 0.0150 | 0.1250 | 1.1720 | 1.5000 | 0.0450 | 0.0024 | 140.0 | 956-000-247 | 956-000-318 |
| 0.0200 | 0.1250 | 1.1799 | 1.5000 | 0.0500 | 0.0042 | 140.0 | 956-000-253 | 956-000-322 |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0051 | 140.0 | 956-000-260 | 956-000-327 |
| 0.0312 | 0.1250 | 1.1687 | 1.5000 | 0.0900 | 0.0053 | 140.0 | 956-000-266 | 956-000-333 |
| 0.0450 | 0.1250 | 1.1592 | 1.5000 | 0.1350 | 0.0078 | 140.0 | 956-000-274 | 956-000-337 |
| 0.0470 | 0.1250 | 1.1584 | 1.5000 | 0.1410 | 0.0082 | 140.0 | 956-000-277 | 956-000-340 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0106 | 140.0 | 956-000-284 | 956-000-345 |
| 0.0625 | 0.1250 | 1.1532 | 1.5000 | 0.1860 | 0.0110 | 140.0 | 956-000-290 | 956-000-351 |
| 0.0780 | 0.1250 | 1.1451 | 1.5000 | 0.2340 | 0.0136 | 140.0 | 956-000-293 | 956-000-354 |
| 0.0900 | 0.1250 | 1.1400 | 1.5000 | 0.2700 | 0.0158 | 140.0 | 956-000-296 | 956-000-357 |
| 0.0938 | 0.1250 | 1.1407 | 1.5000 | 0.2790 | 0.0165 | 140.0 | 956-000-299 | 956-000-360 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0222 | 140.0 | 956-000-306 | 956-000-367 |
| 0.0300 | 0.1250 | 1.1656 | 1.5000 | 0.0900 | 0.0038 | 150.0 | 956-000-261 | 956-000-328 |
| 0.0600 | 0.1250 | 1.1528 | 1.5000 | 0.1800 | 0.0078 | 150.0 | 956-000-285 | 956-000-346 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0163 | 150.0 | 956-000-307 | 956-000-368 |

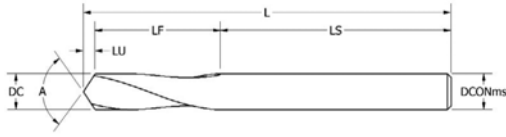


| DC | DCONms | LS | L | LF | LU | A | UNCOATED | AITIN COATED |
|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|
| | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0580 | 90.0 | 956-000-388 | 956-000-373 |
| 0.1250 | 0.1250 | 3.6250 | 4.0000 | 0.3750 | 0.0580 | 90.0 | 956-000-383 | 956-000-380 |
| 0.1870 | 0.1875 | 1.3750 | 2.0000 | 0.6250 | 0.0880 | 90.0 | 956-000-391 | 956-000-376 |
| 0.1870 | 0.1875 | 3.3750 | 4.0000 | 0.6250 | 0.0880 | 90.0 | 956-000-384 | 956-000-381 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.7500 | 0.1180 | 90.0 | 956-000-394 | 956-000-379 |
| 0.2500 | 0.2500 | 5.2500 | 6.0000 | 0.7500 | 0.1180 | 90.0 | 956-000-385 | 956-000-382 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0335 | 120.0 | 956-000-386 | 956-000-371 |
| 0.1870 | 0.1875 | 1.3750 | 2.0000 | 0.6250 | 0.0508 | 120.0 | 956-000-389 | 956-000-374 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.7500 | 0.0681 | 120.0 | 956-000-392 | 956-000-377 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3750 | 0.0211 | 140.0 | 956-000-387 | 956-000-372 |
| 0.1870 | 0.1875 | 1.3750 | 2.0000 | 0.6250 | 0.0320 | 140.0 | 956-000-390 | 956-000-375 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.7500 | 0.0429 | 140.0 | 956-000-393 | 956-000-378 |

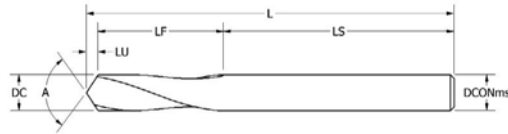


| DC | DCONms | LS | L | LF | LU | A | UNCOATED |
|--------|--------|--------|--------|--------|--------|-------|-------------|
| | | | | | | | 2 FLUTE |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3225 | 0.0525 | 90.0 | 956-000-121 |
| 0.1875 | 0.1875 | 1.4375 | 2.0000 | 0.4853 | 0.0773 | 90.0 | 956-000-128 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.6465 | 0.1035 | 90.0 | 956-000-115 |
| 0.3125 | 0.3125 | 1.7500 | 2.5000 | 0.6188 | 0.1313 | 90.0 | 956-000-133 |
| 0.3750 | 0.3750 | 1.7500 | 2.5000 | 0.5935 | 0.1565 | 90.0 | 956-000-145 |
| 0.5000 | 0.5000 | 2.0000 | 3.0000 | 0.7900 | 0.2100 | 90.0 | 956-000-109 |
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3447 | 0.0303 | 120.0 | 956-000-123 |
| 0.1875 | 0.1875 | 1.4375 | 2.0000 | 0.5179 | 0.0446 | 120.0 | 956-000-130 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.6902 | 0.0598 | 120.0 | 956-000-117 |
| 0.3125 | 0.3125 | 1.7500 | 2.5000 | 0.6742 | 0.0758 | 120.0 | 956-000-135 |
| 0.3750 | 0.3750 | 1.7500 | 2.5000 | 0.6596 | 0.0904 | 120.0 | 956-000-147 |
| 0.5000 | 0.5000 | 2.0000 | 3.0000 | 0.8788 | 0.1212 | 120.0 | 956-000-111 |

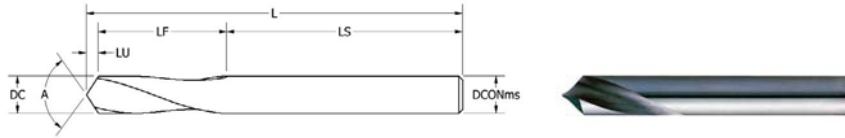
CARBIDE



| DC | DCONms | LS | L | LF | LU | 82° | 90° | 90° TiN | 120° | 120° TiN |
|--------|--------|--------|--------|--------|--------|-------------|-------------|-------------|-------------|-------------|
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3146 | 0.0604 | 956-000-125 | 956-000-121 | 956-000-122 | 956-000-123 | 956-000-124 |
| 0.1875 | 0.1875 | 1.4375 | 2.0000 | 0.4736 | 0.0889 | 956-000-127 | 956-000-128 | 956-000-129 | 956-000-130 | 956-000-131 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.6309 | 0.1191 | 956-000-120 | 956-000-115 | 956-000-116 | 956-000-117 | 956-000-118 |
| 0.3125 | 0.3125 | 1.7500 | 2.5000 | 0.5990 | 0.1510 | 956-000-138 | 956-000-133 | 956-000-134 | 956-000-135 | 956-000-136 |
| 0.3750 | 0.3750 | 1.7500 | 2.5000 | 0.5700 | 0.1800 | 956-000-150 | 956-000-145 | 956-000-146 | 956-000-147 | 956-000-148 |
| 0.5000 | 0.5000 | 2.0000 | 3.0000 | 0.7584 | 0.2416 | 956-000-114 | 956-000-109 | 956-000-110 | 956-000-111 | 956-000-112 |
| 0.6250 | 0.6250 | 2.5000 | 3.5000 | 0.7067 | 0.2933 | 956-000-156 | 956-000-151 | 956-000-152 | 956-000-153 | 956-000-154 |
| 0.7500 | 0.7500 | 2.8750 | 4.0000 | 0.7713 | 0.3537 | 956-000-144 | 956-000-139 | 956-000-140 | 956-000-141 | 956-000-142 |

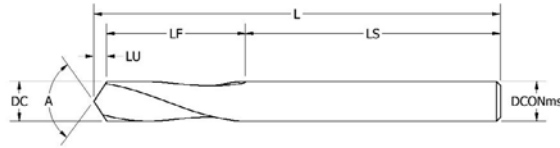


| DC | DCONms | LS | L | LF | LU | CAR 142° |
|--------|--------|--------|--------|--------|--------|-------------|
| 0.1250 | 0.1250 | 1.1250 | 1.5000 | 0.3569 | 0.0181 | 956-000-126 |
| 0.1875 | 0.1875 | 1.4375 | 2.0000 | 0.5359 | 0.0266 | 956-000-132 |
| 0.2500 | 0.2500 | 1.7500 | 2.5000 | 0.7144 | 0.0356 | 956-000-119 |
| 0.3125 | 0.3125 | 1.7500 | 2.5000 | 0.7048 | 0.0452 | 956-000-137 |
| 0.3750 | 0.3750 | 1.7500 | 2.5000 | 0.6961 | 0.0539 | 956-000-149 |
| 0.5000 | 0.5000 | 2.0000 | 3.0000 | 0.9277 | 0.0723 | 956-000-113 |
| 0.6250 | 0.6250 | 2.5000 | 3.5000 | 0.9122 | 0.0878 | 956-000-155 |
| 0.7500 | 0.7500 | 2.8750 | 4.0000 | 1.0191 | 0.1059 | 956-000-143 |



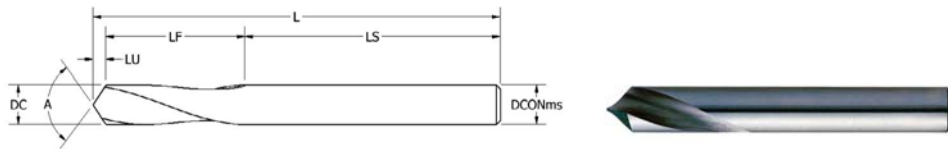
| DC | DCONms | LS | L | LF | LU | A | HSS | HSS-TiN | COBALT |
|--------|--------|--------|---------|--------|--------|------|-------------|-------------|-------------|
| 0.2500 | 0.2500 | 1.6229 | 2.6271 | 0.8771 | 0.1271 | 82.0 | 956-000-213 | N/A | 956-000-214 |
| 0.2500 | 0.2500 | 3.1229 | 4.1271 | 0.8771 | 0.1271 | 82.0 | 956-000-215 | N/A | 956-000-216 |
| 0.2500 | 0.2500 | 5.1229 | 6.1271 | 0.8771 | 0.1271 | 82.0 | 956-000-217 | N/A | 956-000-218 |
| 0.3750 | 0.3750 | 1.8102 | 3.3148 | 1.3148 | 0.1898 | 82.0 | 956-000-225 | N/A | 956-000-226 |
| 0.3750 | 0.3750 | 3.6852 | 5.1898 | 1.3148 | 0.1898 | 82.0 | 956-000-227 | N/A | 956-000-228 |
| 0.3750 | 0.3750 | 5.6852 | 7.1898 | 1.3148 | 0.1898 | 82.0 | 956-000-229 | N/A | 956-000-230 |
| 0.5000 | 0.5000 | 2.1196 | 4.0054 | 1.6304 | 0.2554 | 82.0 | 956-000-207 | N/A | 956-000-208 |
| 0.5000 | 0.5000 | 4.3696 | 6.2554 | 1.6304 | 0.2554 | 82.0 | 956-000-209 | N/A | 956-000-210 |
| 0.5000 | 0.5000 | 6.3696 | 8.2554 | 1.6304 | 0.2554 | 82.0 | 956-000-211 | N/A | 956-000-212 |
| 0.6250 | 0.6250 | 2.0977 | 4.3750 | 1.9511 | 0.3261 | 82.0 | 956-000-231 | N/A | 956-000-232 |
| 0.6250 | 0.6250 | 5.0489 | 7.3261 | 1.9511 | 0.3261 | 82.0 | 956-000-233 | N/A | 956-000-234 |
| 0.6250 | 0.6250 | 7.0489 | 9.3261 | 1.9511 | 0.3261 | 82.0 | 956-000-235 | N/A | 956-000-236 |
| 0.7500 | 0.7500 | 2.7281 | 5.3969 | 2.2719 | 0.3969 | 82.0 | 956-000-219 | N/A | 956-000-220 |
| 0.7500 | 0.7500 | 5.7281 | 8.3969 | 2.2719 | 0.3969 | 82.0 | 956-000-221 | N/A | 956-000-222 |
| 0.7500 | 0.7500 | 7.7281 | 10.3969 | 2.2719 | 0.3969 | 82.0 | 956-000-223 | N/A | 956-000-224 |
| 1.0000 | 1.0000 | 3.4801 | 6.2699 | 2.5199 | 0.2699 | 82.0 | 956-000-201 | N/A | 956-000-202 |
| 1.0000 | 1.0000 | 5.2122 | 8.5378 | 2.7878 | 0.5378 | 82.0 | 956-000-203 | N/A | 956-000-204 |
| 1.0000 | 1.0000 | 7.2122 | 10.5378 | 2.7878 | 0.5378 | 82.0 | 956-000-205 | N/A | 956-000-206 |
| 0.2500 | 0.2500 | 1.6395 | 2.6105 | 0.8605 | 0.1105 | 90.0 | 956-000-019 | 956-000-020 | 956-000-023 |
| 0.2500 | 0.2500 | 3.1395 | 4.1105 | 0.8605 | 0.1105 | 90.0 | 956-000-021 | 956-000-022 | 956-000-026 |
| 0.2500 | 0.2500 | 5.1395 | 6.1105 | 0.8605 | 0.1105 | 90.0 | 956-000-024 | 956-000-025 | 956-000-027 |
| 0.3750 | 0.3750 | 1.8350 | 3.2900 | 1.2900 | 0.1650 | 90.0 | 956-000-037 | 956-000-038 | 956-000-041 |
| 0.3750 | 0.3750 | 3.7100 | 5.1650 | 1.2900 | 0.1650 | 90.0 | 956-000-039 | 956-000-040 | 956-000-044 |
| 0.3750 | 0.3750 | 5.7100 | 7.1650 | 1.2900 | 0.1650 | 90.0 | 956-000-042 | 956-000-043 | 956-000-045 |
| 0.5000 | 0.5000 | 2.1530 | 3.9720 | 1.5970 | 0.2220 | 90.0 | 956-000-010 | 956-000-011 | 956-000-014 |
| 0.5000 | 0.5000 | 4.4030 | 6.2220 | 1.5970 | 0.2220 | 90.0 | 956-000-012 | 956-000-013 | 956-000-017 |
| 0.5000 | 0.5000 | 6.4030 | 8.2220 | 1.5970 | 0.2220 | 90.0 | 956-000-015 | 956-000-016 | 956-000-018 |
| 0.6250 | 0.6250 | 2.1830 | 4.3750 | 1.9085 | 0.2835 | 90.0 | 956-000-046 | 956-000-047 | 956-000-050 |
| 0.6250 | 0.6250 | 5.0915 | 7.2835 | 1.9085 | 0.2835 | 90.0 | 956-000-048 | 956-000-049 | 956-000-053 |
| 0.6250 | 0.6250 | 7.0915 | 9.2835 | 1.9085 | 0.2835 | 90.0 | 956-000-051 | 956-000-052 | 956-000-054 |
| 0.7500 | 0.7500 | 2.7800 | 5.3450 | 2.2200 | 0.3450 | 90.0 | 956-000-028 | 956-000-029 | 956-000-032 |
| 0.7500 | 0.7500 | 5.7800 | 8.3450 | 2.2200 | 0.3450 | 90.0 | 956-000-030 | 956-000-031 | 956-000-035 |
| 0.7500 | 0.7500 | 7.7800 | 10.3450 | 2.2200 | 0.3450 | 90.0 | 956-000-033 | 956-000-034 | 956-000-036 |
| 1.0000 | 1.0000 | 3.2825 | 6.4675 | 2.7175 | 0.4675 | 90.0 | 956-000-001 | 956-000-002 | 956-000-005 |
| 1.0000 | 1.0000 | 5.2825 | 8.4675 | 2.7175 | 0.4675 | 90.0 | 956-000-003 | 956-000-004 | 956-000-008 |
| 1.0000 | 1.0000 | 7.2825 | 10.4675 | 2.7175 | 0.4675 | 90.0 | 956-000-006 | 956-000-007 | 956-000-009 |

HSS
COBALT



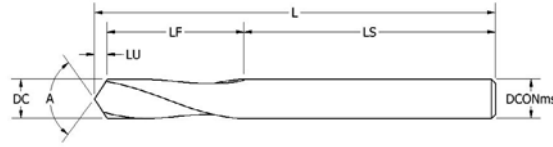
COBALT

| DC | DCONms | LS | L | LF | LU | A | HSS | HSS-TiN | COBALT |
|--------|--------|--------|---------|--------|--------|-------|-------------|-------------|-------------|
| 0.2500 | 0.2500 | 1.6395 | 2.6105 | 0.8605 | 0.1105 | 120.0 | 956-000-073 | 956-000-074 | 956-000-077 |
| 0.2500 | 0.2500 | 3.1395 | 4.1105 | 0.8605 | 0.1105 | 120.0 | 956-000-075 | 956-000-076 | 956-000-080 |
| 0.2500 | 0.2500 | 5.1395 | 6.1105 | 0.8605 | 0.1105 | 120.0 | 956-000-078 | 956-000-079 | 956-000-081 |
| 0.3750 | 0.3750 | 1.8350 | 3.2900 | 1.2900 | 0.1650 | 120.0 | 956-000-091 | 956-000-092 | 956-000-095 |
| 0.3750 | 0.3750 | 3.7100 | 5.1650 | 1.2900 | 0.1650 | 120.0 | 956-000-093 | 956-000-094 | 956-000-098 |
| 0.3750 | 0.3750 | 5.7100 | 7.1650 | 1.2900 | 0.1650 | 120.0 | 956-000-096 | 956-000-097 | 956-000-099 |
| 0.5000 | 0.5000 | 2.1530 | 3.9720 | 1.5970 | 0.2220 | 120.0 | 956-000-064 | 956-000-065 | 956-000-068 |
| 0.5000 | 0.5000 | 4.4030 | 6.2220 | 1.5970 | 0.2220 | 120.0 | 956-000-066 | 956-000-067 | 956-000-071 |
| 0.5000 | 0.5000 | 6.4030 | 8.2220 | 1.5970 | 0.2220 | 120.0 | 956-000-069 | 956-000-070 | 956-000-072 |
| 0.6250 | 0.6250 | 2.1830 | 4.3750 | 1.9085 | 0.2835 | 120.0 | 956-000-100 | 956-000-101 | 956-000-104 |
| 0.6250 | 0.6250 | 5.0915 | 7.2835 | 1.9085 | 0.2835 | 120.0 | 956-000-102 | 956-000-103 | 956-000-107 |
| 0.6250 | 0.6250 | 7.0915 | 9.2835 | 1.9085 | 0.2835 | 120.0 | 956-000-105 | 956-000-106 | 956-000-108 |
| 0.7500 | 0.7500 | 2.7800 | 5.3450 | 2.2200 | 0.3450 | 120.0 | 956-000-082 | 956-000-083 | 956-000-086 |
| 0.7500 | 0.7500 | 5.7800 | 8.3450 | 2.2200 | 0.3450 | 120.0 | 956-000-084 | 956-000-085 | 956-000-089 |
| 0.7500 | 0.7500 | 7.7800 | 10.3450 | 2.2200 | 0.3450 | 120.0 | 956-000-087 | 956-000-088 | 956-000-090 |
| 1.0000 | 1.0000 | 3.2825 | 6.4675 | 2.7175 | 0.4675 | 120.0 | 956-000-055 | 956-000-056 | 956-000-059 |
| 1.0000 | 1.0000 | 5.2825 | 8.4675 | 2.7175 | 0.4675 | 120.0 | 956-000-057 | 956-000-058 | 956-000-062 |
| 1.0000 | 1.0000 | 7.2825 | 10.4675 | 2.7175 | 0.4675 | 120.0 | 956-000-060 | 956-000-061 | 956-000-063 |



METRIC

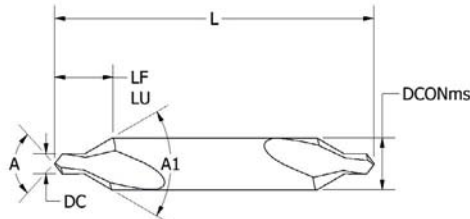
| DC | DCONms | LS | L | LF | LU | 90° | 120° |
|-------|--------|--------|--------|-------|-------|-------------|-------------|
| 2.00 | 2.00 | 41.00 | 49.00 | 7.15 | 0.85 | 956-000-157 | 956-000-170 |
| 3.00 | 3.00 | 40.00 | 50.00 | 8.68 | 1.32 | 956-000-158 | 956-000-171 |
| 4.00 | 4.00 | 40.00 | 52.00 | 10.22 | 1.78 | 956-000-159 | 956-000-172 |
| 5.00 | 5.00 | 45.00 | 60.00 | 12.78 | 2.22 | 956-000-160 | 956-000-173 |
| 6.00 | 6.00 | 46.00 | 66.00 | 17.38 | 2.62 | 956-000-161 | 956-000-174 |
| 8.00 | 8.00 | 54.00 | 79.00 | 21.48 | 3.52 | 956-000-162 | 956-000-175 |
| 10.00 | 10.00 | 64.00 | 89.00 | 20.50 | 4.50 | 956-000-163 | 956-000-176 |
| 12.00 | 12.00 | 72.00 | 102.00 | 24.71 | 5.29 | 956-000-164 | 956-000-177 |
| 14.00 | 14.00 | 80.00 | 115.00 | 28.71 | 6.29 | 956-000-165 | 956-000-178 |
| 16.00 | 16.00 | 80.00 | 115.00 | 27.71 | 7.29 | 956-000-166 | 956-000-179 |
| 18.00 | 18.00 | 90.00 | 130.00 | 31.76 | 8.24 | 956-000-167 | 956-000-180 |
| 20.00 | 20.00 | 91.00 | 131.00 | 30.76 | 9.24 | 956-000-168 | 956-000-181 |
| 25.00 | 25.00 | 93.00 | 138.00 | 33.41 | 11.59 | 956-000-169 | 956-000-182 |
| 3.00 | 3.00 | 70.00 | 80.00 | 8.68 | 1.32 | 956-000-183 | 956-000-192 |
| 4.00 | 4.00 | 88.00 | 100.00 | 10.22 | 1.78 | 956-000-184 | 956-000-193 |
| 5.00 | 5.00 | 105.00 | 120.00 | 12.78 | 2.22 | 956-000-185 | 956-000-194 |
| 6.00 | 6.00 | 120.00 | 140.00 | 17.38 | 2.62 | 956-000-186 | 956-000-195 |
| 8.00 | 8.00 | 115.00 | 140.00 | 21.48 | 3.52 | 956-000-187 | 956-000-196 |
| 10.00 | 10.00 | 145.00 | 170.00 | 20.50 | 4.50 | 956-000-188 | 956-000-197 |
| 12.00 | 12.00 | 140.00 | 170.00 | 24.71 | 5.29 | 956-000-189 | 956-000-198 |
| 16.00 | 16.00 | 165.00 | 200.00 | 27.71 | 7.29 | 956-000-190 | 956-000-199 |
| 20.00 | 20.00 | 160.00 | 200.00 | 30.76 | 9.24 | 956-000-191 | 956-000-200 |



| DC | DCONms | LS | L | LF | LU | A | RH | RH-TiN | LH |
|--------|--------|--------|--------|--------|--------|-------|-------------|-------------|-------------|
| 0.1250 | 0.1250 | 0.8750 | 1.2500 | 0.3185 | 0.0565 | 90.0 | 955-000-009 | 955-000-010 | 955-000-012 |
| 0.1875 | 0.1875 | 0.8750 | 1.3750 | 0.4148 | 0.0853 | 90.0 | 955-000-015 | 955-000-016 | 955-000-018 |
| 0.2500 | 0.2500 | 0.8750 | 1.5000 | 0.5120 | 0.1130 | 90.0 | 955-000-021 | 955-000-022 | 955-000-024 |
| 0.3125 | 0.3125 | 0.8750 | 1.5000 | 0.4843 | 0.1408 | 90.0 | 955-000-027 | 955-000-028 | 955-000-030 |
| 0.3750 | 0.3750 | 1.0000 | 2.0000 | 0.8305 | 0.1695 | 90.0 | 955-000-039 | 955-000-040 | 955-000-042 |
| 0.4375 | 0.4375 | 1.0000 | 2.0000 | 0.8003 | 0.1998 | 90.0 | 955-000-051 | 955-000-052 | 955-000-054 |
| 0.5000 | 0.5000 | 1.0000 | 2.0000 | 0.7720 | 0.2280 | 90.0 | 955-000-003 | 955-000-004 | 955-000-006 |
| 0.5625 | 0.5625 | 1.0000 | 2.0000 | 0.7433 | 0.2568 | 90.0 | 955-000-063 | 955-000-064 | 955-000-066 |
| 0.6250 | 0.6250 | 1.1250 | 2.2500 | 0.8375 | 0.2875 | 90.0 | 955-000-045 | 955-000-046 | 955-000-048 |
| 0.7500 | 0.7500 | 1.1250 | 2.2500 | 0.7755 | 0.3495 | 90.0 | 955-000-033 | 955-000-034 | 955-000-036 |
| 0.8750 | 0.8750 | 1.2500 | 2.5000 | 0.8425 | 0.4075 | 90.0 | 955-000-057 | 955-000-058 | 955-000-060 |
| 1.0000 | 1.0000 | 1.2500 | 2.5000 | 0.7830 | 0.4670 | 90.0 | 955-000-069 | 955-000-070 | 955-000-072 |
| 1.2500 | 1.2500 | 2.0000 | 4.0000 | 1.4155 | 0.5845 | 90.0 | 955-000-081 | 955-000-082 | 955-000-084 |
| 1.5000 | 1.5000 | 2.5000 | 5.0000 | 1.8005 | 0.6995 | 90.0 | 955-000-075 | 955-000-076 | 955-000-078 |
| 1.7500 | 1.7500 | 2.7500 | 5.5000 | 1.9330 | 0.8170 | 90.0 | 955-000-087 | 955-000-088 | 955-000-090 |
| 0.1250 | 0.1250 | 0.8750 | 1.2500 | 0.3411 | 0.0339 | 118.0 | 955-000-007 | 955-000-008 | 955-000-011 |
| 0.1875 | 0.1875 | 0.8750 | 1.3750 | 0.4488 | 0.0512 | 118.0 | 955-000-013 | 955-000-014 | 955-000-017 |
| 0.2500 | 0.2500 | 0.8750 | 1.5000 | 0.5571 | 0.0679 | 118.0 | 955-000-019 | 955-000-020 | 955-000-023 |
| 0.3125 | 0.3125 | 0.8750 | 1.5000 | 0.5404 | 0.0846 | 118.0 | 955-000-025 | 955-000-026 | 955-000-029 |
| 0.3750 | 0.3750 | 1.0000 | 2.0000 | 0.8982 | 0.1018 | 118.0 | 955-000-037 | 955-000-038 | 955-000-041 |
| 0.4375 | 0.4375 | 1.0000 | 2.0000 | 0.8800 | 0.1200 | 118.0 | 955-000-049 | 955-000-050 | 955-000-053 |
| 0.5000 | 0.5000 | 1.0000 | 2.0000 | 0.8630 | 0.1370 | 118.0 | 955-000-001 | 955-000-002 | 955-000-005 |
| 0.5625 | 0.5625 | 1.0000 | 2.0000 | 0.8457 | 0.1543 | 118.0 | 955-000-061 | 955-000-062 | 955-000-065 |
| 0.6250 | 0.6250 | 1.1250 | 2.2500 | 0.9523 | 0.1727 | 118.0 | 955-000-043 | 955-000-044 | 955-000-047 |
| 0.7500 | 0.7500 | 1.1250 | 2.2500 | 0.9150 | 0.2100 | 118.0 | 955-000-031 | 955-000-032 | 955-000-035 |
| 0.8750 | 0.8750 | 1.2500 | 2.5000 | 1.0051 | 0.2449 | 118.0 | 955-000-055 | 955-000-056 | 955-000-059 |
| 1.0000 | 1.0000 | 1.2500 | 2.5000 | 0.9694 | 0.2806 | 118.0 | 955-000-067 | 955-000-068 | 955-000-071 |
| 1.2500 | 1.2500 | 2.0000 | 4.0000 | 1.6488 | 0.3512 | 118.0 | 955-000-079 | 955-000-080 | 955-000-083 |
| 1.5000 | 1.5000 | 2.5000 | 5.0000 | 2.0797 | 0.4203 | 118.0 | 955-000-073 | 955-000-074 | 955-000-077 |
| 1.7500 | 1.7500 | 2.7500 | 5.5000 | 2.2591 | 0.4909 | 118.0 | 955-000-085 | 955-000-086 | 955-000-089 |



CENTER DRILLS



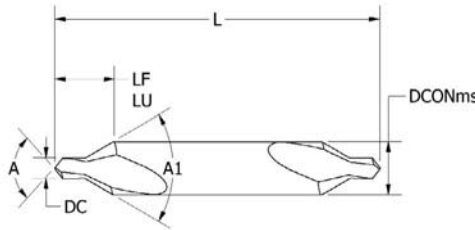
| SIZE | DC [in.] | DCONms [in.] | LF/LU [in.] | L [in.] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TiN COATED | TiAlN COATED |
|---------------|----------|--------------|-------------|---------|-------|--------|----------|-------------|-------------|-------------|--------------|
| | | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| #3-0 - 3/32 | 0.0200 | 0.0938 | 1.1250 | 0.0888 | 118.0 | 60.0 | HSS | R | 906-000-590 | N/A | N/A |
| #2-0 - 3/32 | 0.0250 | 0.0938 | 1.1250 | 0.0907 | 118.0 | 60.0 | HSS | R | 906-000-591 | N/A | N/A |
| #0 - 3/32 | 0.0310 | 0.0938 | 1.1250 | 0.0930 | 118.0 | 60.0 | HSS | R | 906-000-592 | N/A | N/A |
| #5-0 SE | 0.0100 | 0.1250 | 1.5000 | 0.1121 | 118.0 | 60.0 | Carbide | R | 906-000-409 | 906-001-568 | 906-001-566 |
| #5-0 x 82° SE | 0.0100 | 0.1250 | 1.5000 | 0.0786 | 118.0 | 82.0 | Carbide | R | 906-000-410 | 906-001-571 | 906-001-569 |
| #5-0 x 90° SE | 0.0100 | 0.1250 | 1.5000 | 0.0700 | 118.0 | 90.0 | Carbide | R | 906-000-411 | 906-001-574 | 906-001-572 |
| #5-0 | 0.0100 | 0.1250 | 1.2500 | 0.1121 | 118.0 | 60.0 | HSS | R | 906-000-005 | 906-000-006 | 906-000-597 |
| #5-0 | 0.0100 | 0.1250 | 1.2500 | 0.1121 | 118.0 | 60.0 | HSS | L | 906-000-009 | 906-000-610 | 906-000-608 |
| #5-0 x 82° | 0.0100 | 0.1250 | 1.2500 | 0.0786 | 118.0 | 82.0 | HSS | R | 906-000-044 | 906-000-045 | 906-000-693 |
| #5-0 x 90° | 0.0100 | 0.1250 | 1.2500 | 0.0700 | 118.0 | 90.0 | HSS | R | 906-000-010 | 906-000-011 | 906-000-612 |
| #5-0 | 0.0100 | 0.1250 | 1.2500 | 0.1121 | 118.0 | 60.0 | HSS-Co | R | 906-000-008 | 906-000-606 | 906-000-604 |
| #5-0 | 0.0100 | 0.1250 | 1.2500 | 0.1121 | 118.0 | 60.0 | T-15 | R | 906-000-007 | 906-000-602 | 906-000-600 |
| #4-0 SE | 0.0150 | 0.1250 | 1.5000 | 0.1140 | 118.0 | 60.0 | Carbide | R | 906-000-412 | 906-001-577 | 906-001-575 |
| #4-0 x 82° SE | 0.0150 | 0.1250 | 1.5000 | 0.0820 | 118.0 | 82.0 | Carbide | R | 906-000-413 | 906-001-580 | 906-001-578 |
| #4-0 x 90° SE | 0.0150 | 0.1250 | 1.5000 | 0.0737 | 118.0 | 90.0 | Carbide | R | 906-000-414 | 906-001-583 | 906-001-581 |
| #4-0 | 0.0150 | 0.1250 | 1.2500 | 0.1140 | 118.0 | 60.0 | HSS | R | 906-000-012 | 906-000-013 | 906-000-615 |
| #4-0 | 0.0150 | 0.1250 | 1.2500 | 0.1140 | 118.0 | 60.0 | HSS | L | 906-000-016 | 906-000-628 | 906-000-626 |
| #4-0 x 82° | 0.0150 | 0.1250 | 1.2500 | 0.0820 | 118.0 | 82.0 | HSS | R | 906-000-046 | 906-000-047 | 906-000-696 |
| #4-0 x 90° | 0.0150 | 0.1250 | 1.2500 | 0.0737 | 118.0 | 90.0 | HSS | R | 906-000-017 | 906-000-018 | 906-000-630 |
| #4-0 | 0.0150 | 0.1250 | 1.2500 | 0.1140 | 118.0 | 60.0 | HSS-Co | R | 906-000-015 | 906-000-624 | 906-000-622 |
| #4-0 | 0.0150 | 0.1250 | 1.2500 | 0.1140 | 118.0 | 60.0 | T-15 | R | 906-000-014 | 906-000-620 | 906-000-618 |
| #3-0 SE | 0.0200 | 0.1250 | 1.5000 | 0.1159 | 118.0 | 60.0 | Carbide | R | 906-000-415 | 906-001-586 | 906-001-584 |
| #3-0 x 82° SE | 0.0200 | 0.1250 | 1.5000 | 0.0854 | 118.0 | 82.0 | Carbide | R | 906-000-416 | 906-001-589 | 906-001-587 |
| #3-0 x 90° SE | 0.0200 | 0.1250 | 1.5000 | 0.0775 | 118.0 | 90.0 | Carbide | R | 906-000-417 | 906-001-592 | 906-001-590 |
| #3-0 | 0.0200 | 0.1250 | 1.2500 | 0.1159 | 118.0 | 60.0 | HSS | R | 906-000-019 | 906-000-020 | 906-000-633 |
| #3-0 | 0.0200 | 0.1250 | 1.2500 | 0.1159 | 118.0 | 60.0 | HSS | L | 906-000-023 | 906-000-646 | 906-000-644 |
| #3-0 x 82° | 0.0200 | 0.1250 | 1.2500 | 0.0854 | 118.0 | 82.0 | HSS | R | 906-000-048 | 906-000-049 | 906-000-699 |
| #3-0 x 90° | 0.0200 | 0.1250 | 1.2500 | 0.0775 | 118.0 | 90.0 | HSS | R | 906-000-024 | 906-000-025 | 906-000-648 |
| #3-0 | 0.0200 | 0.1250 | 1.2500 | 0.1159 | 118.0 | 60.0 | HSS-Co | R | 906-000-022 | 906-000-642 | 906-000-640 |
| #3-0 | 0.0200 | 0.1250 | 1.2500 | 0.1159 | 118.0 | 60.0 | T-15 | R | 906-000-021 | 906-000-638 | 906-000-636 |
| #2-0 | 0.0250 | 0.1250 | 1.5000 | 0.1178 | 118.0 | 60.0 | Carbide | R | 906-000-418 | 906-001-595 | 906-001-593 |
| #2-0 x 82° | 0.0250 | 0.1250 | 1.5000 | 0.0887 | 118.0 | 82.0 | Carbide | R | 906-000-419 | 906-001-598 | 906-001-596 |
| #2-0 x 90° | 0.0250 | 0.1250 | 1.5000 | 0.0812 | 118.0 | 90.0 | Carbide | R | 906-000-420 | 906-001-601 | 906-001-599 |
| #2-0 x 4 | 0.0250 | 0.1250 | 4.0000 | 0.1178 | 118.0 | 60.0 | Carbide | R | 907-000-185 | 907-000-655 | 907-000-653 |
| #2-0 x 6 | 0.0250 | 0.1250 | 6.0000 | 0.1178 | 118.0 | 60.0 | Carbide | R | 907-000-186 | 907-000-658 | 907-000-656 |
| #2-0 | 0.0250 | 0.1250 | 1.2500 | 0.1178 | 118.0 | 60.0 | HSS | R | 906-000-026 | 906-000-027 | 906-000-651 |
| #2-0 | 0.0250 | 0.1250 | 1.2500 | 0.1178 | 118.0 | 60.0 | HSS | L | 906-000-030 | 906-000-664 | 906-000-662 |
| #2-0 x 82° | 0.0250 | 0.1250 | 1.2500 | 0.0887 | 118.0 | 82.0 | HSS | R | 906-000-031 | 906-000-032 | 906-000-666 |
| #2-0 x 90° | 0.0250 | 0.1250 | 1.2500 | 0.0812 | 118.0 | 90.0 | HSS | R | 906-000-033 | 906-000-034 | 906-000-669 |
| #2-0 | 0.0250 | 0.1250 | 1.2500 | 0.1178 | 118.0 | 60.0 | HSS-Co | R | 906-000-029 | 906-000-660 | 906-000-658 |
| #2-0 | 0.0250 | 0.1250 | 1.2500 | 0.1178 | 118.0 | 60.0 | T-15 | R | 906-000-028 | 906-000-656 | 906-000-654 |
| #0 | 0.0313 | 0.1250 | 1.5000 | 0.1202 | 118.0 | 60.0 | Carbide | R | 906-000-421 | 906-001-604 | 906-001-602 |
| #0 x 82° | 0.0313 | 0.1250 | 1.5000 | 0.0929 | 118.0 | 82.0 | Carbide | R | 906-000-422 | 906-001-607 | 906-001-605 |
| #0 x 90° | 0.0313 | 0.1250 | 1.5000 | 0.0859 | 118.0 | 90.0 | Carbide | R | 906-000-423 | 906-001-610 | 906-001-608 |
| #0 x 4 | 0.0313 | 0.1250 | 4.0000 | 0.1202 | 118.0 | 60.0 | Carbide | R | 907-000-187 | 907-000-661 | 907-000-659 |
| #0 x 6 | 0.0313 | 0.1250 | 6.0000 | 0.1202 | 118.0 | 60.0 | Carbide | R | 907-000-188 | 907-000-664 | 907-000-662 |
| #0 | 0.0313 | 0.1250 | 1.2500 | 0.1202 | 118.0 | 60.0 | HSS | R | 906-000-035 | 906-000-036 | 906-000-672 |
| #0 | 0.0313 | 0.1250 | 1.2500 | 0.1202 | 118.0 | 60.0 | HSS | L | 906-000-039 | 906-000-685 | 906-000-683 |
| #0 x 82° | 0.0313 | 0.1250 | 1.2500 | 0.0929 | 118.0 | 82.0 | HSS | R | 906-000-040 | 906-000-041 | 906-000-687 |
| #0 x 90° | 0.0313 | 0.1250 | 1.2500 | 0.0859 | 118.0 | 90.0 | HSS | R | 906-000-042 | 906-000-043 | 906-000-690 |
| #0 | 0.0313 | 0.1250 | 1.2500 | 0.1202 | 118.0 | 60.0 | HSS-Co | R | 906-000-038 | 906-000-681 | 906-000-679 |
| #0 | 0.0313 | 0.1250 | 1.2500 | 0.1202 | 118.0 | 60.0 | T-15 | R | 906-000-037 | 906-000-677 | 906-000-675 |
| #1 | 0.0469 | 0.1250 | 1.5000 | 0.1262 | 118.0 | 60.0 | Carbide | R | 906-000-424 | 906-001-613 | 906-001-611 |
| #1 x 82° | 0.0469 | 0.1250 | 1.5000 | 0.1034 | 118.0 | 82.0 | Carbide | R | 906-000-425 | 906-001-616 | 906-001-614 |
| #1 x 90° | 0.0469 | 0.1250 | 1.5000 | 0.0976 | 118.0 | 90.0 | Carbide | R | 906-000-426 | 906-001-619 | 906-001-617 |
| #1 x 4 | 0.0469 | 0.1250 | 4.0000 | 0.1262 | 118.0 | 60.0 | Carbide | R | 907-000-189 | 907-000-668 | 907-000-666 |
| #1 x 6 | 0.0469 | 0.1250 | 6.0000 | 0.1262 | 118.0 | 60.0 | Carbide | R | 907-000-190 | 907-000-671 | 907-000-669 |

CARBIDE

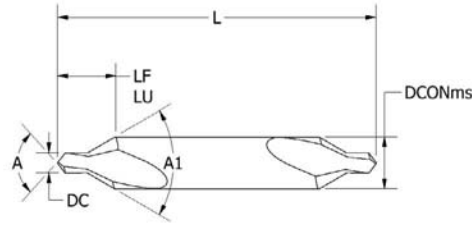
HSS

COBALT

T-15



| SIZE | DC [in.] | DCONms [in.] | LF/LU [in.] | L [in.] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TIN COATED | TIAIN COATED |
|--------------|----------|--------------|-------------|---------|-------|--------|----------|-------------|-------------|-------------|--------------|
| | | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| #1 | 0.0469 | 0.1250 | 1.2500 | 0.1262 | 118.0 | 60.0 | HSS | R | 906-000-060 | 906-000-061 | 906-000-717 |
| #1 | 0.0469 | 0.1250 | 1.2500 | 0.1262 | 118.0 | 60.0 | HSS | L | 906-000-070 | 906-000-739 | 906-000-737 |
| #1 x 82° | 0.0469 | 0.1250 | 1.2500 | 0.1034 | 118.0 | 82.0 | HSS | R | 906-000-071 | 906-000-072 | 906-000-741 |
| #1 x 90° | 0.0469 | 0.1250 | 1.2500 | 0.0976 | 118.0 | 90.0 | HSS | R | 906-000-073 | 906-000-074 | 906-000-744 |
| #1 x 3 | 0.0469 | 0.1250 | 3.0000 | 0.1262 | 118.0 | 60.0 | HSS | R | 907-000-041 | 907-000-042 | 907-000-324 |
| #1 x 3 x 82° | 0.0469 | 0.1250 | 3.0000 | 0.1034 | 118.0 | 82.0 | HSS | R | 907-000-044 | 907-000-331 | 907-000-329 |
| #1 x 3 x 90° | 0.0469 | 0.1250 | 3.0000 | 0.0976 | 118.0 | 90.0 | HSS | R | 907-000-045 | 907-000-334 | 907-000-332 |
| #1 x 4 | 0.0469 | 0.1250 | 4.0000 | 0.1262 | 118.0 | 60.0 | HSS | R | 907-000-046 | 907-000-047 | 907-000-335 |
| #1 x 4 x 82° | 0.0469 | 0.1250 | 4.0000 | 0.1034 | 118.0 | 82.0 | HSS | R | 907-000-049 | 907-000-342 | 907-000-340 |
| #1 x 4 x 90° | 0.0469 | 0.1250 | 4.0000 | 0.0976 | 118.0 | 90.0 | HSS | R | 907-000-050 | 907-000-345 | 907-000-343 |
| #1 x 5 | 0.0469 | 0.1250 | 5.0000 | 0.1262 | 118.0 | 60.0 | HSS | R | 907-000-051 | 907-000-052 | 907-000-346 |
| #1 x 5 x 82° | 0.0469 | 0.1250 | 5.0000 | 0.1034 | 118.0 | 82.0 | HSS | R | 907-000-054 | 907-000-353 | 907-000-351 |
| #1 x 5 x 90° | 0.0469 | 0.1250 | 5.0000 | 0.0976 | 118.0 | 90.0 | HSS | R | 907-000-055 | 907-000-356 | 907-000-354 |
| #1 x 6 | 0.0469 | 0.1250 | 6.0000 | 0.1262 | 118.0 | 60.0 | HSS | R | 907-000-056 | 907-000-057 | 907-000-357 |
| #1 x 6 x 82° | 0.0469 | 0.1250 | 6.0000 | 0.1034 | 118.0 | 82.0 | HSS | R | 907-000-059 | 907-000-364 | 907-000-362 |
| #1 x 6 x 90° | 0.0469 | 0.1250 | 6.0000 | 0.0976 | 118.0 | 90.0 | HSS | R | 907-000-060 | 907-000-367 | 907-000-365 |
| #1 x 8 | 0.0469 | 0.1250 | 8.0000 | 0.1262 | 118.0 | 60.0 | HSS | R | 907-000-061 | 907-000-370 | 907-000-368 |
| #1 | 0.0469 | 0.1250 | 1.2500 | 0.1262 | 118.0 | 60.0 | HSS-Co | R | 906-000-069 | 906-000-735 | 906-000-733 |
| #1 x 3 | 0.0469 | 0.1250 | 3.0000 | 0.1262 | 118.0 | 60.0 | HSS-Co | R | 907-000-043 | 907-000-328 | 907-000-326 |
| #1 x 4 | 0.0469 | 0.1250 | 4.0000 | 0.1262 | 118.0 | 60.0 | HSS-Co | R | 907-000-048 | 907-000-339 | 907-000-337 |
| #1 x 5 | 0.0469 | 0.1250 | 5.0000 | 0.1262 | 118.0 | 60.0 | HSS-Co | R | 907-000-053 | 907-000-350 | 907-000-348 |
| #1 x 6 | 0.0469 | 0.1250 | 6.0000 | 0.1262 | 118.0 | 60.0 | HSS-Co | R | 907-000-058 | 907-000-361 | 907-000-359 |
| #1 | 0.0469 | 0.1250 | 1.2500 | 0.1262 | 118.0 | 60.0 | T-15 | R | 906-000-064 | 906-000-725 | 906-000-723 |
| #2 | 0.0781 | 0.1875 | 1.8750 | 0.1922 | 118.0 | 60.0 | Carbide | R | 906-000-433 | 906-001-640 | 906-001-638 |
| #2 x 82° | 0.0781 | 0.1875 | 1.8750 | 0.1604 | 118.0 | 82.0 | Carbide | R | 906-000-434 | 906-001-643 | 906-001-641 |
| #2 x 90° | 0.0781 | 0.1875 | 1.8750 | 0.1522 | 118.0 | 90.0 | Carbide | R | 906-000-435 | 906-001-646 | 906-001-644 |
| #2 x 4 | 0.0781 | 0.1875 | 4.0000 | 0.1922 | 118.0 | 60.0 | Carbide | R | 907-000-191 | 907-000-675 | 907-000-673 |
| #2 x 6 | 0.0781 | 0.1875 | 6.0000 | 0.1922 | 118.0 | 60.0 | Carbide | R | 907-000-192 | 907-000-678 | 907-000-676 |
| #2 | 0.0781 | 0.1875 | 1.8750 | 0.1922 | 118.0 | 60.0 | HSS | R | 906-000-075 | 906-000-076 | 906-000-747 |
| #2 | 0.0781 | 0.1875 | 1.8750 | 0.1922 | 118.0 | 60.0 | HSS | L | 906-000-085 | 906-000-769 | 906-000-767 |
| #2 x 82° | 0.0781 | 0.1875 | 1.8750 | 0.1604 | 118.0 | 82.0 | HSS | R | 906-000-086 | 906-000-087 | 906-000-771 |
| #2 x 90° | 0.0781 | 0.1875 | 1.8750 | 0.1522 | 118.0 | 90.0 | HSS | R | 906-000-088 | 906-000-089 | 906-000-774 |
| #2 x 3 | 0.0781 | 0.1875 | 3.0000 | 0.1922 | 118.0 | 60.0 | HSS | R | 907-000-062 | 907-000-063 | 907-000-372 |
| #2 x 3 x 82° | 0.0781 | 0.1875 | 3.0000 | 0.1604 | 118.0 | 82.0 | HSS | R | 907-000-065 | 907-000-379 | 907-000-377 |
| #2 x 3 x 90° | 0.0781 | 0.1875 | 3.0000 | 0.1522 | 118.0 | 90.0 | HSS | R | 907-000-066 | 907-000-382 | 907-000-380 |
| #2 x 4 | 0.0781 | 0.1875 | 4.0000 | 0.1922 | 118.0 | 60.0 | HSS | R | 907-000-067 | 907-000-068 | 907-000-383 |
| #2 x 4 x 82° | 0.0781 | 0.1875 | 4.0000 | 0.1604 | 118.0 | 82.0 | HSS | R | 907-000-070 | 907-000-391 | 907-000-389 |
| #2 x 4 x 90° | 0.0781 | 0.1875 | 4.0000 | 0.1522 | 118.0 | 90.0 | HSS | R | 907-000-071 | 907-000-394 | 907-000-392 |
| #2 x 5 | 0.0781 | 0.1875 | 5.0000 | 0.1922 | 118.0 | 60.0 | HSS | R | 907-000-072 | 907-000-073 | 907-000-395 |
| #2 x 5 x 82° | 0.0781 | 0.1875 | 5.0000 | 0.1604 | 118.0 | 82.0 | HSS | R | 907-000-075 | 907-000-402 | 907-000-400 |
| #2 x 5 x 90° | 0.0781 | 0.1875 | 5.0000 | 0.1522 | 118.0 | 90.0 | HSS | R | 907-000-076 | 907-000-405 | 907-000-403 |
| #2 x 6 | 0.0781 | 0.1875 | 6.0000 | 0.1922 | 118.0 | 60.0 | HSS | R | 907-000-077 | 907-000-078 | 907-000-406 |
| #2 x 6 x 82° | 0.0781 | 0.1875 | 6.0000 | 0.1604 | 118.0 | 82.0 | HSS | R | 907-000-080 | 907-000-413 | 907-000-411 |
| #2 x 6 x 90° | 0.0781 | 0.1875 | 6.0000 | 0.1522 | 118.0 | 90.0 | HSS | R | 907-000-081 | 907-000-416 | 907-000-414 |
| #2 x 8 | 0.0781 | 0.1875 | 8.0000 | 0.1922 | 118.0 | 60.0 | HSS | R | 907-000-082 | 907-000-419 | 907-000-417 |
| #2 | 0.0781 | 0.1875 | 1.8750 | 0.1922 | 118.0 | 60.0 | HSS-Co | R | 906-000-084 | 906-000-765 | 906-000-763 |
| #2 x 3 | 0.0781 | 0.1875 | 3.0000 | 0.1922 | 118.0 | 60.0 | HSS-Co | R | 907-000-064 | 907-000-376 | 907-000-374 |
| #2 x 4 | 0.0781 | 0.1875 | 4.0000 | 0.1922 | 118.0 | 60.0 | HSS-Co | R | 907-000-069 | 907-000-388 | 907-000-386 |
| #2 x 5 | 0.0781 | 0.1875 | 5.0000 | 0.1922 | 118.0 | 60.0 | HSS-Co | R | 907-000-074 | 907-000-399 | 907-000-397 |
| #2 x 6 | 0.0781 | 0.1875 | 6.0000 | 0.1922 | 118.0 | 60.0 | HSS-Co | R | 907-000-079 | 907-000-410 | 907-000-408 |
| #2 | 0.0781 | 0.1875 | 1.8750 | 0.1922 | 118.0 | 60.0 | T-15 | R | 906-000-079 | 906-000-755 | 906-000-753 |
| #3 | 0.1094 | 0.2500 | 2.0000 | 0.2583 | 118.0 | 60.0 | Carbide | R | 906-000-436 | 906-001-650 | 906-001-648 |
| #3 x 82° | 0.1094 | 0.2500 | 2.0000 | 0.2174 | 118.0 | 82.0 | Carbide | R | 906-000-437 | 906-001-653 | 906-001-651 |
| #3 x 90° | 0.1094 | 0.2500 | 2.0000 | 0.2068 | 118.0 | 90.0 | Carbide | R | 906-000-438 | 906-001-656 | 906-001-654 |



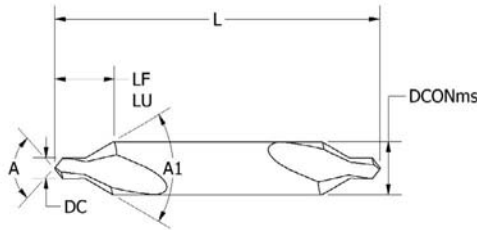
| SIZE | DC [in.] | DCONms [in.] | LF/LU [in.] | L [in.] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TIN COATED | TiAIN COATED |
|--------------|----------|--------------|-------------|---------|-------|--------|----------|-------------|-------------|-------------|--------------|
| | | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| #3 x 4 | 0.1094 | 0.2500 | 4.0000 | 0.2583 | 118.0 | 60.0 | Carbide | R | 907-000-193 | 907-000-682 | 907-000-680 |
| #3 x 6 | 0.1094 | 0.2500 | 6.0000 | 0.2583 | 118.0 | 60.0 | Carbide | R | 907-000-194 | 907-000-685 | 907-000-683 |
| #3 | 0.1094 | 0.2500 | 2.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 906-000-090 | 906-000-091 | 906-000-777 |
| #3 | 0.1094 | 0.2500 | 2.0000 | 0.2583 | 118.0 | 60.0 | HSS | L | 906-000-100 | 906-000-799 | 906-000-797 |
| #3 x 82° | 0.1094 | 0.2500 | 2.0000 | 0.2174 | 118.0 | 82.0 | HSS | R | 906-000-101 | 906-000-102 | 906-000-801 |
| #3 x 90° | 0.1094 | 0.2500 | 2.0000 | 0.2068 | 118.0 | 90.0 | HSS | R | 906-000-103 | 906-000-104 | 906-000-804 |
| #3 x 3 | 0.1094 | 0.2500 | 3.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 907-000-083 | 907-000-084 | 907-000-421 |
| #3 x 3 x 82° | 0.1094 | 0.2500 | 3.0000 | 0.2174 | 118.0 | 82.0 | HSS | R | 907-000-086 | 907-000-428 | 907-000-426 |
| #3 x 3 x 90° | 0.1094 | 0.2500 | 3.0000 | 0.2068 | 118.0 | 90.0 | HSS | R | 907-000-087 | 907-000-431 | 907-000-429 |
| #3 x 4 | 0.1094 | 0.2500 | 4.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 907-000-088 | 907-000-089 | 907-000-432 |
| #3 x 4 x 82° | 0.1094 | 0.2500 | 4.0000 | 0.2174 | 118.0 | 82.0 | HSS | R | 907-000-091 | 907-000-439 | 907-000-437 |
| #3 x 4 x 90° | 0.1094 | 0.2500 | 4.0000 | 0.2068 | 118.0 | 90.0 | HSS | R | 907-000-092 | 907-000-442 | 907-000-440 |
| #3 x 5 | 0.1094 | 0.2500 | 5.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 907-000-093 | 907-000-094 | 907-000-443 |
| #3 x 5 x 82° | 0.1094 | 0.2500 | 5.0000 | 0.2174 | 118.0 | 82.0 | HSS | R | 907-000-096 | 907-000-450 | 907-000-448 |
| #3 x 5 x 90° | 0.1094 | 0.2500 | 5.0000 | 0.2068 | 118.0 | 90.0 | HSS | R | 907-000-097 | 907-000-453 | 907-000-451 |
| #3 x 6 | 0.1094 | 0.2500 | 6.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 907-000-098 | 907-000-099 | 907-000-454 |
| #3 x 6 x 82° | 0.1094 | 0.2500 | 6.0000 | 0.2174 | 118.0 | 82.0 | HSS | R | 907-000-101 | 907-000-461 | 907-000-459 |
| #3 x 6 x 90° | 0.1094 | 0.2500 | 6.0000 | 0.2068 | 118.0 | 90.0 | HSS | R | 907-000-102 | 907-000-464 | 907-000-462 |
| #3 x 8 | 0.1094 | 0.2500 | 8.0000 | 0.2583 | 118.0 | 60.0 | HSS | R | 907-000-103 | 907-000-467 | 907-000-465 |
| #3 | 0.1094 | 0.2500 | 2.0000 | 0.2583 | 118.0 | 60.0 | HSS-Co | R | 906-000-099 | 906-000-795 | 906-000-793 |
| #3 x 3 | 0.1094 | 0.2500 | 3.0000 | 0.2583 | 118.0 | 60.0 | HSS-Co | R | 907-000-085 | 907-000-425 | 907-000-423 |
| #3 x 4 | 0.1094 | 0.2500 | 4.0000 | 0.2583 | 118.0 | 60.0 | HSS-Co | R | 907-000-090 | 907-000-436 | 907-000-434 |
| #3 x 5 | 0.1094 | 0.2500 | 5.0000 | 0.2583 | 118.0 | 60.0 | HSS-Co | R | 907-000-095 | 907-000-447 | 907-000-445 |
| #3 x 6 | 0.1094 | 0.2500 | 6.0000 | 0.2583 | 118.0 | 60.0 | HSS-Co | R | 907-000-100 | 907-000-458 | 907-000-456 |
| #3 | 0.1094 | 0.2500 | 2.0000 | 0.2583 | 118.0 | 60.0 | T-15 | R | 906-000-094 | 906-000-785 | 906-000-783 |
| #4 | 0.1250 | 0.3125 | 2.1250 | 0.3184 | 118.0 | 60.0 | Carbide | R | 906-000-439 | 906-001-659 | 906-001-657 |
| #4 x 82° | 0.1250 | 0.3125 | 2.1250 | 0.2638 | 118.0 | 82.0 | Carbide | R | 906-000-440 | 906-001-662 | 906-001-660 |
| #4 x 90° | 0.1250 | 0.3125 | 2.1250 | 0.2497 | 118.0 | 90.0 | Carbide | R | 906-000-441 | 906-001-665 | 906-001-663 |
| #4 x 4 | 0.1250 | 0.3125 | 4.0000 | 0.3184 | 118.0 | 60.0 | Carbide | R | 907-000-195 | 907-000-689 | 907-000-687 |
| #4 x 6 | 0.1250 | 0.3125 | 6.0000 | 0.3184 | 118.0 | 60.0 | Carbide | R | 907-000-196 | 907-000-692 | 907-000-690 |
| #4 | 0.1250 | 0.3125 | 2.1250 | 0.3184 | 118.0 | 60.0 | HSS | R | 906-000-105 | 906-000-106 | 906-000-807 |
| #4 | 0.1250 | 0.3125 | 2.1250 | 0.3184 | 118.0 | 60.0 | HSS | L | 906-000-115 | 906-000-829 | 906-000-827 |
| #4 x 82° | 0.1250 | 0.3125 | 2.1250 | 0.2638 | 118.0 | 82.0 | HSS | R | 906-000-116 | 906-000-117 | 906-000-831 |
| #4 x 90° | 0.1250 | 0.3125 | 2.1250 | 0.2497 | 118.0 | 90.0 | HSS | R | 906-000-118 | 906-000-119 | 906-000-834 |
| #4 x 3 | 0.1250 | 0.3125 | 3.0000 | 0.3184 | 118.0 | 60.0 | HSS | R | 907-000-104 | 907-000-105 | 907-000-469 |
| #4 x 3 x 82° | 0.1250 | 0.3125 | 3.0000 | 0.2638 | 118.0 | 82.0 | HSS | R | 907-000-107 | 907-000-476 | 907-000-474 |
| #4 x 3 x 90° | 0.1250 | 0.3125 | 3.0000 | 0.2497 | 118.0 | 90.0 | HSS | R | 907-000-108 | 907-000-479 | 907-000-477 |
| #4 x 4 | 0.1250 | 0.3125 | 4.0000 | 0.3184 | 118.0 | 60.0 | HSS | R | 907-000-109 | 907-000-110 | 907-000-480 |
| #4 x 4 x 82° | 0.1250 | 0.3125 | 4.0000 | 0.2638 | 118.0 | 82.0 | HSS | R | 907-000-112 | 907-000-487 | 907-000-485 |
| #4 x 4 x 90° | 0.1250 | 0.3125 | 4.0000 | 0.2497 | 118.0 | 90.0 | HSS | R | 907-000-113 | 907-000-490 | 907-000-488 |
| #4 x 5 | 0.1250 | 0.3125 | 5.0000 | 0.3184 | 118.0 | 60.0 | HSS | R | 907-000-114 | 907-000-115 | 907-000-491 |
| #4 x 5 x 82° | 0.1250 | 0.3125 | 5.0000 | 0.2638 | 118.0 | 82.0 | HSS | R | 907-000-117 | 907-000-498 | 907-000-496 |
| #4 x 5 x 90° | 0.1250 | 0.3125 | 5.0000 | 0.2497 | 118.0 | 90.0 | HSS | R | 907-000-118 | 907-000-501 | 907-000-499 |
| #4 x 6 | 0.1250 | 0.3125 | 6.0000 | 0.3184 | 118.0 | 60.0 | HSS | R | 907-000-119 | 907-000-120 | 907-000-502 |
| #4 x 6 x 82° | 0.1250 | 0.3125 | 6.0000 | 0.2638 | 118.0 | 82.0 | HSS | R | 907-000-122 | 907-000-509 | 907-000-507 |
| #4 x 6 x 90° | 0.1250 | 0.3125 | 6.0000 | 0.2497 | 118.0 | 90.0 | HSS | R | 907-000-123 | 907-000-512 | 907-000-510 |
| #4 x 8 | 0.1250 | 0.3125 | 8.0000 | 0.3184 | 118.0 | 60.0 | HSS | R | 907-000-124 | 907-000-515 | 907-000-513 |
| #4 | 0.1250 | 0.3125 | 2.1250 | 0.3184 | 118.0 | 60.0 | HSS-Co | R | 906-000-114 | 906-000-825 | 906-000-823 |
| #4 x 3 | 0.1250 | 0.3125 | 3.0000 | 0.3184 | 118.0 | 60.0 | HSS-Co | R | 907-000-106 | 907-000-473 | 907-000-471 |
| #4 x 4 | 0.1250 | 0.3125 | 4.0000 | 0.3184 | 118.0 | 60.0 | HSS-Co | R | 907-000-111 | 907-000-484 | 907-000-482 |
| #4 x 5 | 0.1250 | 0.3125 | 5.0000 | 0.3184 | 118.0 | 60.0 | HSS-Co | R | 907-000-116 | 907-000-495 | 907-000-493 |
| #4 x 6 | 0.1250 | 0.3125 | 6.0000 | 0.3184 | 118.0 | 60.0 | HSS-Co | R | 907-000-121 | 907-000-506 | 907-000-504 |
| #4 | 0.1250 | 0.3125 | 2.1250 | 0.3184 | 118.0 | 60.0 | T-15 | R | 906-000-109 | 906-000-815 | 906-000-813 |
| #4½ | 0.1406 | 0.3750 | 2.5000 | 0.3785 | 118.0 | 60.0 | HSS | R | 906-000-309 | 906-000-310 | 906-001-248 |

CARBIDE

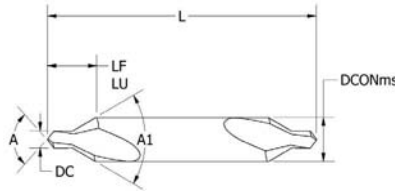
HSS

COBALT

T-15



| SIZE | DC [in.] | DCONms [in.] | LF/LU [in.] | L [in.] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TIN COATED | TiAIN COATED |
|---------------|----------|--------------|-------------|---------|-------|--------|----------|-------------|-------------|-------------|--------------|
| | | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| #4½ | 0.1406 | 0.3750 | 2.5000 | 0.3785 | 118.0 | 60.0 | HSS | L | 906-000-315 | 906-001-267 | 906-001-265 |
| #4½ x 82° | 0.1406 | 0.3750 | 2.5000 | 0.3103 | 118.0 | 82.0 | HSS | R | 906-000-316 | 906-000-317 | 906-001-269 |
| #4½ x 90° | 0.1406 | 0.3750 | 2.5000 | 0.2927 | 118.0 | 90.0 | HSS | R | 906-000-318 | 906-000-319 | 906-001-272 |
| #4½ x 4 | 0.1406 | 0.3750 | 4.0000 | 0.3785 | 118.0 | 60.0 | HSS | R | 907-000-125 | 907-000-126 | 907-000-516 |
| #4½ x 4 x 82° | 0.1406 | 0.3750 | 4.0000 | 0.3103 | 118.0 | 82.0 | HSS | R | 907-000-128 | 907-000-523 | 907-000-521 |
| #4½ x 4 x 90° | 0.1406 | 0.3750 | 4.0000 | 0.2927 | 118.0 | 90.0 | HSS | R | 907-000-129 | 907-000-526 | 907-000-524 |
| #4½ x 5 | 0.1406 | 0.3750 | 5.0000 | 0.3785 | 118.0 | 60.0 | HSS | R | 907-000-130 | 907-000-131 | 907-000-527 |
| #4½ x 5 x 82° | 0.1406 | 0.3750 | 5.0000 | 0.3103 | 118.0 | 82.0 | HSS | R | 907-000-133 | 907-000-534 | 907-000-532 |
| #4½ x 5 x 90° | 0.1406 | 0.3750 | 5.0000 | 0.2927 | 118.0 | 90.0 | HSS | R | 907-000-134 | 907-000-537 | 907-000-535 |
| #4½ x 6 | 0.1406 | 0.3750 | 6.0000 | 0.3785 | 118.0 | 60.0 | HSS | R | 907-000-135 | 907-000-136 | 907-000-538 |
| #4½ x 6 x 82° | 0.1406 | 0.3750 | 6.0000 | 0.3103 | 118.0 | 82.0 | HSS | R | 907-000-138 | 907-000-545 | 907-000-543 |
| #4½ x 6 x 90° | 0.1406 | 0.3750 | 6.0000 | 0.2927 | 118.0 | 90.0 | HSS | R | 907-000-139 | 907-000-548 | 907-000-546 |
| #4½ x 8 | 0.1406 | 0.3750 | 8.0000 | 0.3785 | 118.0 | 60.0 | HSS | R | 907-000-140 | 907-000-551 | 907-000-549 |
| #4½ | 0.1406 | 0.3750 | 2.5000 | 0.3785 | 118.0 | 60.0 | HSS-Co | R | 906-000-314 | 906-001-263 | 906-001-261 |
| #4½ x 4 | 0.1406 | 0.3750 | 4.0000 | 0.3785 | 118.0 | 60.0 | HSS-Co | R | 907-000-127 | 907-000-520 | 907-000-518 |
| #4½ x 5 | 0.1406 | 0.3750 | 5.0000 | 0.3785 | 118.0 | 60.0 | HSS-Co | R | 907-000-132 | 907-000-531 | 907-000-529 |
| #4½ x 6 | 0.1406 | 0.3750 | 6.0000 | 0.3785 | 118.0 | 60.0 | HSS-Co | R | 907-000-137 | 907-000-542 | 907-000-540 |
| #4½ | 0.1406 | 0.3750 | 2.5000 | 0.3785 | 118.0 | 60.0 | T-15 | R | 906-000-313 | 906-001-256 | 906-001-254 |
| #5 | 0.1875 | 0.4375 | 2.7500 | 0.4505 | 118.0 | 60.0 | Carbide | R | 906-000-442 | 906-001-668 | 906-001-666 |
| #5 x 82° | 0.1875 | 0.4375 | 2.7500 | 0.3778 | 118.0 | 82.0 | Carbide | R | 906-000-443 | 906-001-671 | 906-001-669 |
| #5 x 90° | 0.1875 | 0.4375 | 2.7500 | 0.3590 | 118.0 | 90.0 | Carbide | R | 906-000-444 | 906-001-674 | 906-001-672 |
| #5 x 4 | 0.1875 | 0.4375 | 4.0000 | 0.4505 | 118.0 | 60.0 | Carbide | R | 907-000-197 | 907-000-696 | 907-000-694 |
| #5 x 6 | 0.1875 | 0.4375 | 6.0000 | 0.4505 | 118.0 | 60.0 | Carbide | R | 907-000-198 | 907-000-699 | 907-000-697 |
| #5 | 0.1875 | 0.4375 | 2.7500 | 0.4505 | 118.0 | 60.0 | HSS | R | 906-000-120 | 906-000-121 | 906-000-838 |
| #5 | 0.1875 | 0.4375 | 2.7500 | 0.4505 | 118.0 | 60.0 | HSS | L | 906-000-130 | 906-000-860 | 906-000-858 |
| #5 x 82° | 0.1875 | 0.4375 | 2.7500 | 0.3778 | 118.0 | 82.0 | HSS | R | 906-000-131 | 906-000-132 | 906-000-862 |
| #5 x 90° | 0.1875 | 0.4375 | 2.7500 | 0.3590 | 118.0 | 90.0 | HSS | R | 906-000-133 | 906-000-134 | 906-000-865 |
| #5 x 4 | 0.1875 | 0.4375 | 4.0000 | 0.4505 | 118.0 | 60.0 | HSS | R | 907-000-141 | 907-000-142 | 907-000-553 |
| #5 x 4 x 82° | 0.1875 | 0.4375 | 4.0000 | 0.3778 | 118.0 | 82.0 | HSS | R | 907-000-144 | 907-000-560 | 907-000-558 |
| #5 x 4 x 90° | 0.1875 | 0.4375 | 4.0000 | 0.3590 | 118.0 | 90.0 | HSS | R | 907-000-145 | 907-000-563 | 907-000-561 |
| #5 x 5 | 0.1875 | 0.4375 | 5.0000 | 0.4505 | 118.0 | 60.0 | HSS | R | 907-000-146 | 907-000-147 | 907-000-564 |
| #5 x 5 x 82° | 0.1875 | 0.4375 | 5.0000 | 0.3778 | 118.0 | 82.0 | HSS | R | 907-000-149 | 907-000-571 | 907-000-569 |
| #5 x 5 x 90° | 0.1875 | 0.4375 | 5.0000 | 0.3590 | 118.0 | 90.0 | HSS | R | 907-000-150 | 907-000-574 | 907-000-572 |
| #5 x 6 | 0.1875 | 0.4375 | 6.0000 | 0.4505 | 118.0 | 60.0 | HSS | R | 907-000-151 | 907-000-152 | 907-000-575 |
| #5 x 6 x 82° | 0.1875 | 0.4375 | 6.0000 | 0.3778 | 118.0 | 82.0 | HSS | R | 907-000-154 | 907-000-582 | 907-000-580 |
| #5 x 6 x 90° | 0.1875 | 0.4375 | 6.0000 | 0.3590 | 118.0 | 90.0 | HSS | R | 907-000-155 | 907-000-585 | 907-000-583 |
| #5 x 8 | 0.1875 | 0.4375 | 8.0000 | 0.4505 | 118.0 | 60.0 | HSS | R | 907-000-156 | 907-000-588 | 907-000-586 |
| #5 | 0.1875 | 0.4375 | 2.7500 | 0.4505 | 118.0 | 60.0 | HSS-Co | R | 906-000-129 | 906-000-856 | 906-000-854 |
| #5 x 4 | 0.1875 | 0.4375 | 4.0000 | 0.4505 | 118.0 | 60.0 | HSS-Co | R | 907-000-143 | 907-000-557 | 907-000-555 |
| #5 x 5 | 0.1875 | 0.4375 | 5.0000 | 0.4505 | 118.0 | 60.0 | HSS-Co | R | 907-000-148 | 907-000-568 | 907-000-566 |
| #5 x 6 | 0.1875 | 0.4375 | 6.0000 | 0.4505 | 118.0 | 60.0 | HSS-Co | R | 907-000-153 | 907-000-579 | 907-000-577 |
| #5 | 0.1875 | 0.4375 | 2.7500 | 0.4505 | 118.0 | 60.0 | T-15 | R | 906-000-124 | 906-000-846 | 906-000-844 |
| #6 | 0.2188 | 0.5000 | 3.0000 | 0.5165 | 118.0 | 60.0 | Carbide | R | 906-000-445 | 906-001-677 | 906-001-675 |
| #6 x 82° | 0.2188 | 0.5000 | 3.0000 | 0.4347 | 118.0 | 82.0 | Carbide | R | 906-000-446 | 906-001-680 | 906-001-678 |
| #6 x 90° | 0.2188 | 0.5000 | 3.0000 | 0.4136 | 118.0 | 90.0 | Carbide | R | 906-000-447 | 906-001-683 | 906-001-681 |
| #6 x 4 | 0.2188 | 0.5000 | 4.0000 | 0.5165 | 118.0 | 60.0 | Carbide | R | 907-000-199 | 907-000-702 | 907-000-700 |
| #6 x 6 | 0.2188 | 0.5000 | 6.0000 | 0.5165 | 118.0 | 60.0 | Carbide | R | 907-000-200 | 907-000-705 | 907-000-703 |
| #6 | 0.2188 | 0.5000 | 3.0000 | 0.5165 | 118.0 | 60.0 | HSS | R | 906-000-135 | 906-000-136 | 906-000-868 |
| #6 | 0.2188 | 0.5000 | 3.0000 | 0.5165 | 118.0 | 60.0 | HSS | L | 906-000-145 | 906-000-890 | 906-000-888 |
| #6 x 82° | 0.2188 | 0.5000 | 3.0000 | 0.4347 | 118.0 | 82.0 | HSS | R | 906-000-146 | 906-000-147 | 906-000-892 |
| #6 x 90° | 0.2188 | 0.5000 | 3.0000 | 0.4136 | 118.0 | 90.0 | HSS | R | 906-000-148 | 906-000-149 | 906-000-895 |
| #6 x 4 | 0.2188 | 0.5000 | 4.0000 | 0.5165 | 118.0 | 60.0 | HSS | R | 907-000-157 | 907-000-158 | 907-000-589 |
| #6 x 4 x 82° | 0.2188 | 0.5000 | 4.0000 | 0.4347 | 118.0 | 82.0 | HSS | R | 907-000-160 | 907-000-596 | 907-000-594 |
| #6 x 4 x 90° | 0.2188 | 0.5000 | 4.0000 | 0.4136 | 118.0 | 90.0 | HSS | R | 907-000-161 | 907-000-599 | 907-000-597 |



| SIZE | DC [in.] | DCONms [in.] | LF/LU [in.] | L [in.] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TiN COATED | TiAlN COATED |
|--------------|----------|--------------|-------------|---------|-------|--------|----------|-------------|-------------|-------------|--------------|
| | | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| #6 x 5 | 0.2188 | 0.5000 | 5.0000 | 0.5165 | 118.0 | 60.0 | HSS | R | 907-000-162 | 907-000-163 | 907-000-600 |
| #6 x 5 x 82° | 0.2188 | 0.5000 | 5.0000 | 0.4347 | 118.0 | 82.0 | HSS | R | 907-000-165 | 907-000-607 | 907-000-605 |
| #6 x 5 x 90° | 0.2188 | 0.5000 | 5.0000 | 0.4136 | 118.0 | 90.0 | HSS | R | 907-000-166 | 907-000-610 | 907-000-608 |
| #6 x 6 | 0.2188 | 0.5000 | 6.0000 | 0.5165 | 118.0 | 60.0 | HSS | R | 907-000-167 | 907-000-168 | 907-000-611 |
| #6 x 6 x 82° | 0.2188 | 0.5000 | 6.0000 | 0.4347 | 118.0 | 82.0 | HSS | R | 907-000-170 | 907-000-618 | 907-000-616 |
| #6 x 6 x 90° | 0.2188 | 0.5000 | 6.0000 | 0.4136 | 118.0 | 90.0 | HSS | R | 907-000-171 | 907-000-621 | 907-000-619 |
| #6 x 8 | 0.2188 | 0.5000 | 8.0000 | 0.5165 | 118.0 | 60.0 | HSS | R | 907-000-172 | 907-000-624 | 907-000-622 |
| #6 | 0.2188 | 0.5000 | 3.0000 | 0.5165 | 118.0 | 60.0 | HSS-Co | R | 906-000-144 | 906-000-886 | 906-000-884 |
| #6 x 4 | 0.2188 | 0.5000 | 4.0000 | 0.5165 | 118.0 | 60.0 | HSS-Co | R | 907-000-159 | 907-000-593 | 907-000-591 |
| #6 x 5 | 0.2188 | 0.5000 | 5.0000 | 0.5165 | 118.0 | 60.0 | HSS-Co | R | 907-000-164 | 907-000-604 | 907-000-602 |
| #6 x 6 | 0.2188 | 0.5000 | 6.0000 | 0.5165 | 118.0 | 60.0 | HSS-Co | R | 907-000-169 | 907-000-615 | 907-000-613 |
| #6 | 0.2188 | 0.5000 | 3.0000 | 0.5165 | 118.0 | 60.0 | T-15 | R | 906-000-139 | 906-000-876 | 906-000-874 |
| #7 | 0.2500 | 0.6250 | 3.2500 | 0.6367 | 118.0 | 60.0 | Carbide | R | 906-000-448 | 906-001-686 | 906-001-684 |
| #7 x 82° | 0.2500 | 0.6250 | 3.7500 | 0.5277 | 118.0 | 82.0 | Carbide | R | 906-000-449 | 906-001-690 | 906-001-688 |
| #7 x 90° | 0.2500 | 0.6250 | 3.7500 | 0.4995 | 118.0 | 90.0 | Carbide | R | 906-000-450 | 906-001-693 | 906-001-691 |
| #7 x 6 | 0.2500 | 0.6250 | 6.0000 | 0.6367 | 118.0 | 60.0 | Carbide | R | 907-000-201 | 907-000-708 | 907-000-706 |
| #7 | 0.2500 | 0.6250 | 3.2500 | 0.6367 | 118.0 | 60.0 | HSS | R | 906-000-150 | 906-000-151 | 906-000-898 |
| #7 | 0.2500 | 0.6250 | 3.2500 | 0.6367 | 118.0 | 60.0 | HSS | L | 906-000-160 | 906-000-920 | 906-000-918 |
| #7 x 82° | 0.2500 | 0.6250 | 3.2500 | 0.5277 | 118.0 | 82.0 | HSS | R | 906-000-161 | 906-000-162 | 906-000-922 |
| #7 x 90° | 0.2500 | 0.6250 | 3.2500 | 0.4995 | 118.0 | 90.0 | HSS | R | 906-000-163 | 906-000-164 | 906-000-925 |
| #7 x 6 | 0.2500 | 0.6250 | 6.0000 | 0.6367 | 118.0 | 60.0 | HSS | R | 907-000-173 | 907-000-174 | 907-000-625 |
| #7 x 6 x 82° | 0.2500 | 0.6250 | 6.0000 | 0.5277 | 118.0 | 82.0 | HSS | R | 907-000-176 | 907-000-632 | 907-000-630 |
| #7 x 6 x 90° | 0.2500 | 0.6250 | 6.0000 | 0.4995 | 118.0 | 90.0 | HSS | R | 907-000-177 | 907-000-635 | 907-000-633 |
| #7 x 8 | 0.2500 | 0.6250 | 8.0000 | 0.6367 | 118.0 | 60.0 | HSS | R | 907-000-178 | 907-000-638 | 907-000-636 |
| #7 | 0.2500 | 0.6250 | 3.2500 | 0.6367 | 118.0 | 60.0 | HSS-Co | R | 906-000-159 | 906-000-916 | 906-000-914 |
| #7 x 6 | 0.2500 | 0.6250 | 6.0000 | 0.6367 | 118.0 | 60.0 | HSS-Co | R | 907-000-175 | 907-000-629 | 907-000-627 |
| #7 | 0.2500 | 0.6250 | 3.2500 | 0.6367 | 118.0 | 60.0 | T-15 | R | 906-000-154 | 906-000-906 | 906-000-904 |
| #8 | 0.3125 | 0.7500 | 3.5000 | 0.7688 | 118.0 | 60.0 | Carbide | R | 906-000-451 | 906-001-696 | 906-001-694 |
| #8 x 82° | 0.3125 | 0.7500 | 4.0000 | 0.6416 | 118.0 | 82.0 | Carbide | R | 906-000-452 | 906-001-699 | 906-001-697 |
| #8 x 90° | 0.3125 | 0.7500 | 4.0000 | 0.6087 | 118.0 | 90.0 | Carbide | R | 906-000-453 | 906-001-702 | 906-001-700 |
| #8 x 6 | 0.3125 | 0.7500 | 6.0000 | 0.7688 | 118.0 | 60.0 | Carbide | R | 907-000-202 | 907-000-711 | 907-000-709 |
| #8 | 0.3125 | 0.7500 | 3.5000 | 0.7688 | 118.0 | 60.0 | HSS | R | 906-000-165 | 906-000-166 | 906-000-928 |
| #8 | 0.3125 | 0.7500 | 3.5000 | 0.7688 | 118.0 | 60.0 | HSS | L | 906-000-175 | 906-000-950 | 906-000-948 |
| #8 x 82° | 0.3125 | 0.7500 | 3.5000 | 0.6416 | 118.0 | 82.0 | HSS | R | 906-000-176 | 906-000-177 | 906-000-952 |
| #8 x 90° | 0.3125 | 0.7500 | 3.5000 | 0.6087 | 118.0 | 90.0 | HSS | R | 906-000-178 | 906-000-179 | 906-000-955 |
| #8 x 6 | 0.3125 | 0.7500 | 6.0000 | 0.7688 | 118.0 | 60.0 | HSS | R | 907-000-179 | 907-000-180 | 907-000-639 |
| #8 x 6 x 82° | 0.3125 | 0.7500 | 6.0000 | 0.6416 | 118.0 | 82.0 | HSS | R | 907-000-182 | 907-000-646 | 907-000-644 |
| #8 x 6 x 90° | 0.3125 | 0.7500 | 6.0000 | 0.6087 | 118.0 | 90.0 | HSS | R | 907-000-183 | 907-000-649 | 907-000-647 |
| #8 x 8 | 0.3125 | 0.7500 | 8.0000 | 0.7688 | 118.0 | 60.0 | HSS | R | 907-000-184 | 907-000-652 | 907-000-650 |
| #8 | 0.3125 | 0.7500 | 3.5000 | 0.7688 | 118.0 | 60.0 | HSS-Co | R | 906-000-174 | 906-000-946 | 906-000-944 |
| #8 x 6 | 0.3125 | 0.7500 | 6.0000 | 0.7688 | 118.0 | 60.0 | HSS-Co | R | 907-000-181 | 907-000-643 | 907-000-641 |
| #8 | 0.3125 | 0.7500 | 3.5000 | 0.7688 | 118.0 | 60.0 | T-15 | R | 906-000-169 | 906-000-936 | 906-000-934 |
| #9 | 0.3438 | 0.8750 | 3.6250 | 0.8890 | 118.0 | 60.0 | HSS | R | 906-000-180 | 906-000-181 | 906-000-958 |
| #9 | 0.3438 | 0.8750 | 3.6250 | 0.8890 | 118.0 | 60.0 | HSS | L | 906-000-186 | 906-000-974 | 906-000-972 |
| #9 x 82° | 0.3438 | 0.8750 | 3.6250 | 0.7345 | 118.0 | 82.0 | HSS | R | 906-000-187 | 906-000-188 | 906-000-976 |
| #9 x 90° | 0.3438 | 0.8750 | 3.6250 | 0.6946 | 118.0 | 90.0 | HSS | R | 906-000-189 | 906-000-190 | 906-000-979 |
| #9 | 0.3438 | 0.8750 | 3.6250 | 0.8890 | 118.0 | 60.0 | HSS-Co | R | 906-000-185 | 906-000-970 | 906-000-968 |
| #9 | 0.3438 | 0.8750 | 3.6250 | 0.8890 | 118.0 | 60.0 | T-15 | R | 906-000-184 | 906-000-966 | 906-000-964 |
| #10 | 0.3750 | 1.0000 | 3.7500 | 1.0092 | 118.0 | 60.0 | HSS | R | 906-000-191 | 906-000-192 | 906-000-982 |
| #10 | 0.3750 | 1.0000 | 3.7500 | 1.0092 | 118.0 | 60.0 | HSS | L | 906-000-197 | 906-000-998 | 906-000-996 |
| #10 x 82° | 0.3750 | 1.0000 | 3.7500 | 0.8274 | 118.0 | 82.0 | HSS | R | 906-000-198 | 906-000-199 | 906-001-000 |
| #10 x 90° | 0.3750 | 1.0000 | 3.7500 | 0.7804 | 118.0 | 90.0 | HSS | R | 906-000-200 | 906-000-201 | 906-001-003 |
| #10 | 0.3750 | 1.0000 | 3.7500 | 1.0092 | 118.0 | 60.0 | HSS-Co | R | 906-000-196 | 906-000-994 | 906-000-992 |
| #10 | 0.3750 | 1.0000 | 3.7500 | 1.0092 | 118.0 | 60.0 | T-15 | R | 906-000-195 | 906-000-990 | 906-000-988 |

CARBIDE

HSS

COBALT

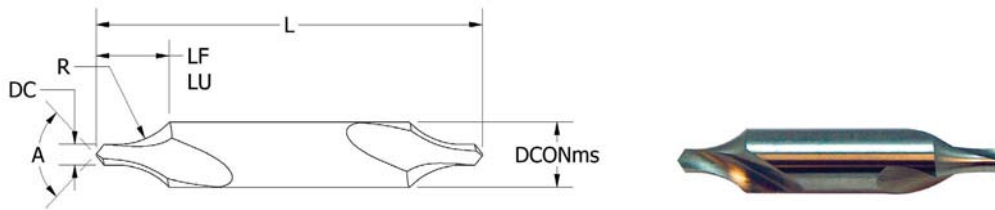
T-15



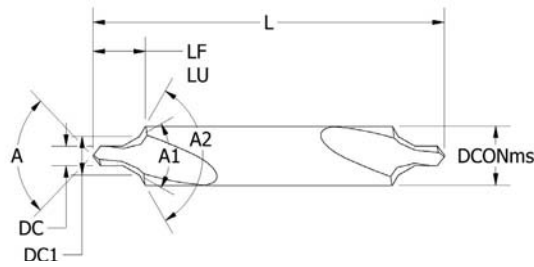
Center Drill & Countersink Set

This 5-piece set includes one piece each of the following plain type center drill with a standard 60° included countersink angle.

| C'Drills | PKG QTY. | HSS | HSS-TiN | Cobalt | Carbide |
|---------------------------|----------|-------------|-------------|-------------|-------------|
| #1, #2, #3, #4, #5, | 1 | 906-000-001 | 906-000-002 | 906-000-003 | 906-000-004 |



| Size | DC [in.] | R [in.] | DCONms [in.] | L [in.] | LF / LU [in.] | A [°] | Material | Hand of Cut | UNCOATED | TiN COATED | TiAlN COATED |
|------|----------|---------|--------------|---------|---------------|-------|----------|-------------|-------------|-------------|--------------|
| #5-0 | 0.0100 | 0.0625 | 0.1250 | 1.2500 | 0.0705 | 118.0 | HSS | R | 906-000-050 | 906-000-051 | 906-000-702 |
| #4-0 | 0.0150 | 0.0781 | 0.1250 | 1.2500 | 0.0867 | 118.0 | HSS | R | 906-000-052 | 906-000-053 | 906-000-705 |
| #3-0 | 0.0200 | 0.0938 | 0.1250 | 1.2500 | 0.1020 | 118.0 | HSS | R | 906-000-054 | 906-000-055 | 906-000-708 |
| #2-0 | 0.0250 | 0.1094 | 0.1250 | 1.2500 | 0.1152 | 118.0 | HSS | R | 906-000-056 | 906-000-057 | 906-000-711 |
| #0 | 0.0313 | 0.1250 | 0.1250 | 1.2500 | 0.1257 | 118.0 | HSS | R | 906-000-058 | 906-000-059 | 906-000-714 |
| #1 | 0.0469 | 0.1563 | 0.1250 | 1.2500 | 0.1436 | 118.0 | HSS | R | 906-000-062 | 906-000-063 | 906-000-720 |
| #2 | 0.0781 | 0.2188 | 0.1875 | 1.8750 | 0.2234 | 118.0 | HSS | R | 906-000-077 | 906-000-078 | 906-000-750 |
| #3 | 0.1094 | 0.2813 | 0.2500 | 2.0000 | 0.3021 | 118.0 | HSS | R | 906-000-092 | 906-000-093 | 906-000-780 |
| #4 | 0.1250 | 0.3750 | 0.3125 | 2.1250 | 0.3747 | 118.0 | HSS | R | 906-000-107 | 906-000-108 | 906-000-810 |
| #4½ | 0.1406 | 0.4375 | 0.3750 | 2.5000 | 0.4411 | 118.0 | HSS | R | 906-000-311 | 906-000-312 | 906-001-251 |
| #5 | 0.1875 | 0.5000 | 0.4375 | 2.7500 | 0.5308 | 118.0 | HSS | R | 906-000-122 | 906-000-123 | 906-000-841 |
| #6 | 0.2188 | 0.5625 | 0.5000 | 3.0000 | 0.6011 | 118.0 | HSS | R | 906-000-137 | 906-000-138 | 906-000-871 |
| #7 | 0.2500 | 0.7031 | 0.6250 | 3.2500 | 0.7338 | 118.0 | HSS | R | 906-000-152 | 906-000-153 | 906-000-901 |
| #8 | 0.3125 | 0.8750 | 0.7500 | 3.5000 | 0.8900 | 118.0 | HSS | R | 906-000-167 | 906-000-168 | 906-000-931 |
| #9 | 0.3438 | 1.0000 | 0.8750 | 3.6250 | 1.0227 | 118.0 | HSS | R | 906-000-182 | 906-000-183 | 906-000-961 |
| #10 | 0.3750 | 1.1094 | 1.0000 | 3.7500 | 1.1554 | 118.0 | HSS | R | 906-000-193 | 906-000-194 | 906-000-985 |

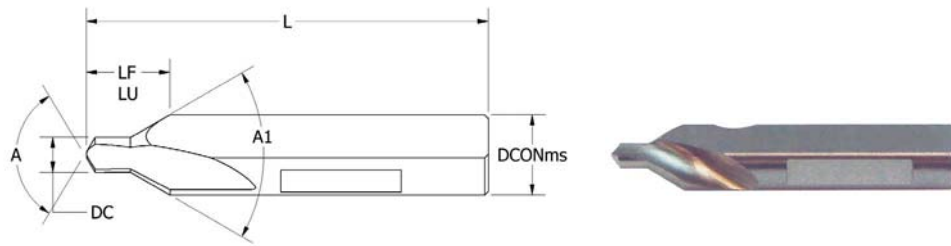


CARBIDE

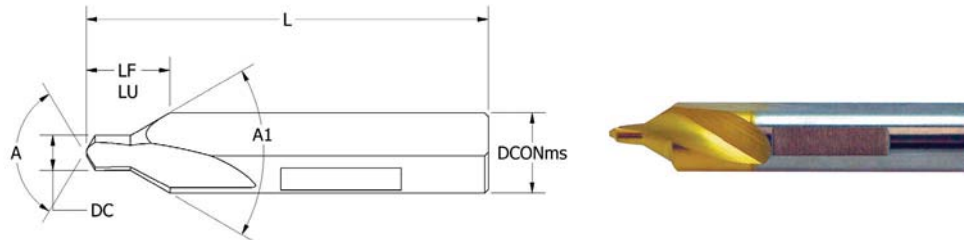
HSS

Cobalt

| Size | DC [in.] | DC1 [in.] | DCONms [in.] | L [in.] | LF / LU [in.] | A [°] | A1 [°] | A2 [°] | Material | Hand of Cut | UNCOATED | TiN COATED | TiAlN COATED |
|------|----------|-----------|--------------|---------|---------------|-------|--------|--------|----------|-------------|-------------|-------------|--------------|
| #11 | 0.0469 | 0.1000 | 0.1250 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-427 | 906-001-622 | 906-001-620 |
| #11 | 0.0469 | 0.1000 | 0.1250 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-210 | 906-001-024 | 906-001-022 |
| #11 | 0.0469 | 0.1000 | 0.1250 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-202 | 906-000-203 | 906-001-006 |
| #11 | 0.0469 | 0.1000 | 0.1250 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-209 | 906-001-020 | 906-001-018 |
| #11 | 0.0469 | 0.1000 | 0.1250 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-204 | 906-001-011 | 906-001-009 |
| #12 | 0.0625 | 0.1500 | 0.1875 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-428 | 906-001-625 | 906-001-623 |
| #12 | 0.0625 | 0.1500 | 0.1875 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-219 | 906-001-045 | 906-001-043 |
| #12 | 0.0625 | 0.1500 | 0.1875 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-211 | 906-000-212 | 906-001-026 |
| #12 | 0.0625 | 0.1500 | 0.1875 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-218 | 906-001-041 | 906-001-039 |
| #12 | 0.0625 | 0.1500 | 0.1875 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-213 | 906-001-031 | 906-001-029 |
| #13 | 0.0938 | 0.2000 | 0.2500 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-429 | 906-001-628 | 906-001-626 |
| #13 | 0.0938 | 0.2000 | 0.2500 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-228 | 906-001-066 | 906-001-064 |
| #13 | 0.0938 | 0.2000 | 0.2500 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-220 | 906-000-221 | 906-001-047 |
| #13 | 0.0938 | 0.2000 | 0.2500 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-227 | 906-001-062 | 906-001-060 |
| #13 | 0.0938 | 0.2000 | 0.2500 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-222 | 906-001-052 | 906-001-050 |
| #14 | 0.1094 | 0.2500 | 0.3125 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-430 | 906-001-631 | 906-001-629 |
| #14 | 0.1094 | 0.2500 | 0.3125 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-237 | 906-001-091 | 906-001-089 |
| #14 | 0.1094 | 0.2500 | 0.3125 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-229 | 906-000-230 | 906-001-072 |
| #14 | 0.1094 | 0.2500 | 0.3125 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-236 | 906-001-087 | 906-001-085 |
| #14 | 0.1094 | 0.2500 | 0.3125 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-231 | 906-001-077 | 906-001-075 |
| #15 | 0.1563 | 0.3500 | 0.4375 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-431 | 906-001-634 | 906-001-632 |
| #15 | 0.1563 | 0.3500 | 0.4375 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-246 | 906-001-112 | 906-001-110 |
| #15 | 0.1563 | 0.3500 | 0.4375 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-238 | 906-000-239 | 906-001-093 |
| #15 | 0.1563 | 0.3500 | 0.4375 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-245 | 906-001-108 | 906-001-106 |
| #15 | 0.1563 | 0.3500 | 0.4375 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-240 | 906-001-098 | 906-001-096 |
| #16 | 0.1875 | 0.4000 | 0.5000 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | Carbide | R | 906-000-432 | 906-001-637 | 906-001-635 |
| #16 | 0.1875 | 0.4000 | 0.5000 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-255 | 906-001-133 | 906-001-131 |
| #16 | 0.1875 | 0.4000 | 0.5000 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-247 | 906-000-248 | 906-001-114 |
| #16 | 0.1875 | 0.4000 | 0.5000 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-254 | 906-001-129 | 906-001-127 |
| #16 | 0.1875 | 0.4000 | 0.5000 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-249 | 906-001-119 | 906-001-117 |
| #17 | 0.2188 | 0.5000 | 0.6250 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-264 | 906-001-154 | 906-001-152 |
| #17 | 0.2188 | 0.5000 | 0.6250 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-256 | 906-000-257 | 906-001-135 |
| #17 | 0.2188 | 0.5000 | 0.6250 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-263 | 906-001-150 | 906-001-148 |
| #17 | 0.2188 | 0.5000 | 0.6250 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-258 | 906-001-140 | 906-001-138 |
| #18 | 0.2500 | 0.6000 | 0.7500 | 3.5000 | 0.6584 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-273 | 906-001-176 | 906-001-174 |
| #18 | 0.2500 | 0.6000 | 0.7500 | 3.5000 | 0.6584 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-265 | 906-000-266 | 906-001-156 |
| #18 | 0.2500 | 0.6000 | 0.7500 | 3.5000 | 0.6584 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-272 | 906-001-172 | 906-001-170 |
| #18 | 0.2500 | 0.6000 | 0.7500 | 3.5000 | 0.6584 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-267 | 906-001-161 | 906-001-159 |
| #19 | 0.3125 | 0.7000 | 0.8750 | 3.6250 | 0.7761 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-278 | 906-001-191 | 906-001-189 |
| #19 | 0.3125 | 0.7000 | 0.8750 | 3.6250 | 0.7761 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-274 | 906-000-275 | 906-001-178 |
| #19 | 0.3125 | 0.7000 | 0.8750 | 3.6250 | 0.7761 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-277 | 906-001-187 | 906-001-185 |
| #19 | 0.3125 | 0.7000 | 0.8750 | 3.6250 | 0.7761 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-276 | 906-001-183 | 906-001-181 |
| #20 | 0.3750 | 0.8000 | 1.0000 | 3.7500 | 0.8937 | 118.0 | 60.0 | 120.0 | HSS | L | 906-000-283 | 906-001-206 | 906-001-204 |
| #20 | 0.3750 | 0.8000 | 1.0000 | 3.7500 | 0.8937 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-279 | 906-000-280 | 906-001-193 |
| #20 | 0.3750 | 0.8000 | 1.0000 | 3.7500 | 0.8937 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-282 | 906-001-202 | 906-001-200 |
| #20 | 0.3750 | 0.8000 | 1.0000 | 3.7500 | 0.8937 | 118.0 | 60.0 | 120.0 | T-15 | R | 906-000-281 | 906-001-198 | 906-001-196 |



| DC | DC | DCNms | LU | L | LF | A | A1 | HSS | HSS-TiN |
|--------|----|--------|--------|--------|--------|-------|------|-------------|-------------|
| 0.0469 | #1 | 0.1250 | 0.1262 | 1.2500 | 0.1262 | 118.0 | 60.0 | 906-000-067 | 906-000-068 |
| 0.0781 | #2 | 0.1875 | 0.1922 | 1.8750 | 0.1922 | 118.0 | 60.0 | 906-000-082 | 906-000-083 |
| 0.1094 | #3 | 0.2500 | 0.2583 | 2.0000 | 0.2583 | 118.0 | 60.0 | 906-000-097 | 906-000-098 |
| 0.1250 | #4 | 0.3125 | 0.3184 | 2.1250 | 0.3184 | 118.0 | 60.0 | 906-000-112 | 906-000-113 |
| 0.1875 | #5 | 0.4375 | 0.4505 | 2.7500 | 0.4505 | 118.0 | 60.0 | 906-000-127 | 906-000-128 |
| 0.2188 | #6 | 0.5000 | 0.5165 | 3.0000 | 0.5165 | 118.0 | 60.0 | 906-000-142 | 906-000-143 |
| 0.2500 | #7 | 0.6250 | 0.6367 | 3.2500 | 0.6367 | 118.0 | 60.0 | 906-000-157 | 906-000-158 |
| 0.3125 | #8 | 0.7500 | 0.7688 | 3.5000 | 0.7688 | 118.0 | 60.0 | 906-000-172 | 906-000-173 |



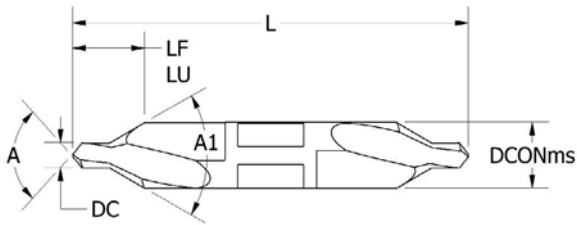
- Bell hey-type single end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set screw flats for locking the center drills into the tool holder



| DC | DC | DCNms | DC1 | LU | L | LF | A | A1 | A2 | HSS | HSS-TiN |
|--------|-----|--------|--------|--------|--------|--------|-------|------|-------|-------------|-------------|
| 0.0469 | #11 | 0.1250 | 0.1000 | 0.1117 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | 906-000-207 | 906-000-208 |
| 0.0625 | #12 | 0.1875 | 0.1500 | 0.1646 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | 906-000-216 | 906-000-217 |
| 0.0938 | #13 | 0.2500 | 0.2000 | 0.2234 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | 906-000-225 | 906-000-226 |
| 0.1094 | #14 | 0.3125 | 0.2500 | 0.2763 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | 906-000-234 | 906-000-235 |
| 0.1563 | #15 | 0.4375 | 0.3500 | 0.3880 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | 906-000-243 | 906-000-244 |
| 0.1875 | #16 | 0.5000 | 0.4000 | 0.4469 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | 906-000-252 | 906-000-253 |
| 0.2188 | #17 | 0.6250 | 0.5000 | 0.5526 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | 906-000-261 | 906-000-262 |
| 0.2500 | #18 | 0.7500 | 0.6000 | 0.6584 | 3.5000 | 0.6584 | 118.0 | 60.0 | 120.0 | 906-000-270 | 906-000-271 |



- Plain hey-type center drills with a bell tip have flats on their end that accept carbide inserts
- Standard choice for creating center holes in a piece of stock to prepare it for turning between centers on a lathe
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set screw flats for locking the center drills into the tool holder

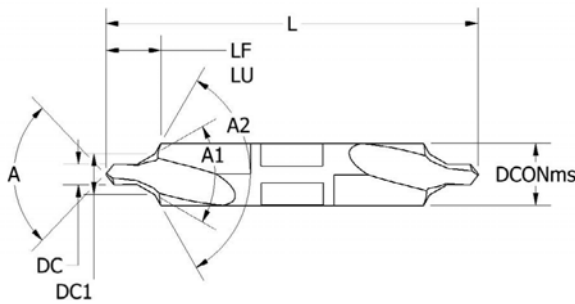


| DC | DC | DCONms | LU | L | LF | A | A1 | HSS | HSS-TiN |
|--------|----|--------|--------|--------|--------|-------|------|-------------|-------------|
| 0.0469 | #1 | 0.1250 | 0.1262 | 1.2500 | 0.1262 | 118.0 | 60.0 | 906-000-065 | 906-000-066 |
| 0.0781 | #2 | 0.1875 | 0.1922 | 1.8750 | 0.1922 | 118.0 | 60.0 | 906-000-080 | 906-000-081 |
| 0.1094 | #3 | 0.2500 | 0.2583 | 2.0000 | 0.2583 | 118.0 | 60.0 | 906-000-095 | 906-000-096 |
| 0.1250 | #4 | 0.3125 | 0.3184 | 2.1250 | 0.3184 | 118.0 | 60.0 | 906-000-110 | 906-000-111 |
| 0.1875 | #5 | 0.4375 | 0.4505 | 2.7500 | 0.4505 | 118.0 | 60.0 | 906-000-125 | 906-000-126 |
| 0.2188 | #6 | 0.5000 | 0.5165 | 3.0000 | 0.5165 | 118.0 | 60.0 | 906-000-140 | 906-000-141 |
| 0.2500 | #7 | 0.6250 | 0.6367 | 3.2500 | 0.6367 | 118.0 | 60.0 | 906-000-155 | 906-000-156 |
| 0.3125 | #8 | 0.7500 | 0.7688 | 3-1/2 | 0.7688 | 118.0 | 60.0 | 906-000-170 | 906-000-171 |



HSS

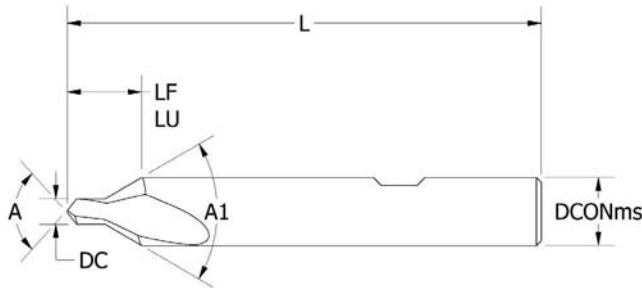
- Bell hey-type double end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set screw flats for locking the center drills into the tool holder



| DC | DC | DCONms | DC1 | LU | L | LF | A | A1 | A2 | HSS | HSS-TiN |
|--------|-----|--------|--------|--------|--------|--------|-------|------|-------|-------------|-------------|
| 0.0469 | #11 | 0.1250 | 0.1000 | 0.1117 | 1.2500 | 0.1117 | 118.0 | 60.0 | 120.0 | 906-000-205 | 906-000-206 |
| 0.0625 | #12 | 0.1875 | 0.1500 | 0.1646 | 1.8750 | 0.1646 | 118.0 | 60.0 | 120.0 | 906-000-214 | 906-000-215 |
| 0.0938 | #13 | 0.2500 | 0.2000 | 0.2234 | 2.0000 | 0.2234 | 118.0 | 60.0 | 120.0 | 906-000-223 | 906-000-224 |
| 0.1094 | #14 | 0.3125 | 0.2500 | 0.2763 | 2.1250 | 0.2763 | 118.0 | 60.0 | 120.0 | 906-000-232 | 906-000-233 |
| 0.1563 | #15 | 0.4375 | 0.3500 | 0.3880 | 2.7500 | 0.3880 | 118.0 | 60.0 | 120.0 | 906-000-241 | 906-000-242 |
| 0.1875 | #16 | 0.5000 | 0.4000 | 0.4469 | 3.0000 | 0.4469 | 118.0 | 60.0 | 120.0 | 906-000-250 | 906-000-251 |
| 0.2188 | #17 | 0.6250 | 0.5000 | 0.5526 | 3.2500 | 0.5526 | 118.0 | 60.0 | 120.0 | 906-000-259 | 906-000-260 |
| 0.2500 | #18 | 0.7500 | 0.6000 | 0.6000 | 3.5000 | 0.6000 | 118.0 | 60.0 | 120.0 | 906-000-268 | 906-000-269 |



Jig Bore Type and countersinks are used for producing center holes in components or workpieces which require machining between centers and are manufactured with a locking set screw flat.



HSS



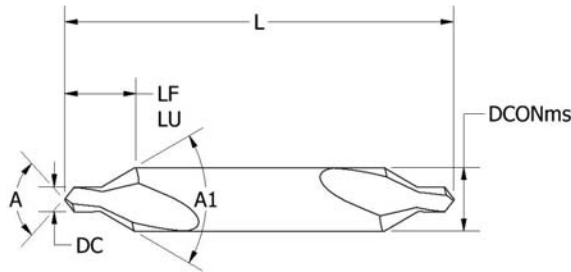
| DC | DCONms | LU | L | LF | A | A1 | HSS |
|--------|--------|--------|--------|--------|-------|------|-------------|
| 0.0625 | 0.3750 | 0.3486 | 3.0000 | 0.3486 | 118.0 | 60.0 | 906-000-291 |
| 0.0938 | 0.3750 | 0.3606 | 3.0000 | 0.3606 | 118.0 | 60.0 | 906-000-294 |
| 0.1250 | 0.3750 | 0.3725 | 3.0000 | 0.3725 | 118.0 | 60.0 | 906-000-292 |
| 0.1563 | 0.3750 | 0.3844 | 3.0000 | 0.3844 | 118.0 | 60.0 | 906-000-295 |
| 0.1875 | 0.3750 | 0.3964 | 3.0000 | 0.3964 | 118.0 | 60.0 | 906-000-293 |
| 0.1250 | 0.5000 | 0.4807 | 3.5000 | 0.4807 | 118.0 | 60.0 | 906-000-285 |
| 0.1875 | 0.5000 | 0.5046 | 3.5000 | 0.5046 | 118.0 | 60.0 | 906-000-286 |
| 0.2188 | 0.5000 | 0.5165 | 3.5000 | 0.5165 | 118.0 | 60.0 | 906-000-287 |
| 0.2500 | 0.5000 | 0.5285 | 3.5000 | 0.5285 | 118.0 | 60.0 | 906-000-284 |
| 0.2813 | 0.5000 | 0.5404 | 3.5000 | 0.5404 | 118.0 | 60.0 | 906-000-288 |

Jig Bore Center Drill & Countersink Sets

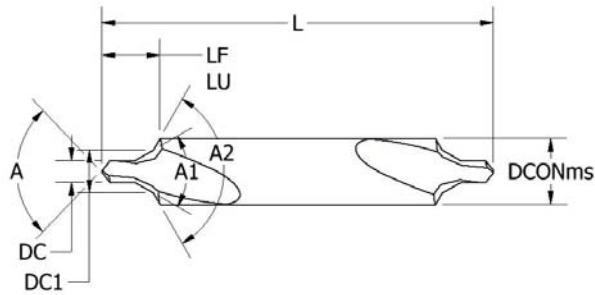
Each 5-piece set includes one piece each of the following jig bore type Center drill and countersinks.



| Body Dia. | Point Dia. | Product # |
|-----------|------------|-------------|
| 3/8 | 1/16 | 906-000-290 |
| | 3/32 | |
| | 1/8 | |
| | 5/32 | |
| | 3/16 | |
| 1/2 | 1/8 | 906-000-289 |
| | 3/16 | |
| | 7/32 | |
| | 1/4 | |
| | 9/32 | |



| DIN332-A Hole Design | DIN333-A Designation | DC [mm] | DCONms [mm] | L [mm] | LF / LU [mm] | A [°] | A1 [°] | Material | Hand of Cut | UNCOATED | TIN COATED | TIAIN COATED |
|----------------------|----------------------|---------|-------------|--------|--------------|-------|--------|----------|-------------|-------------|-------------|--------------|
| 0,5 x 1,06 | 0,5 x 3,15 | 0.50 | 3.15 | 25.00 | 3.09 | 118.0 | 60.0 | HSS | R | 906-000-320 | 906-001-277 | 906-001-275 |
| 0,5 x 1,06 | 0,5 x 3,15 | 0.50 | 3.15 | 25.00 | 0.37 | 118.0 | 60.0 | HSS-E | R | 906-000-334 | 906-001-331 | 906-001-329 |
| 0,5 x 1,06 | 0,5 x 3,15 | 0.50 | 3.15 | 25.00 | 0.37 | 118.0 | 60.0 | Carb | R | 906-000-348 | 906-001-373 | 906-001-371 |
| 0,8 x 1,7 | 0,8 x 3,15 | 0.80 | 3.15 | 25.00 | 3.14 | 118.0 | 60.0 | HSS | R | 906-000-321 | 906-001-281 | 906-001-279 |
| 0,8 x 1,7 | 0,8 x 3,15 | 0.80 | 3.15 | 25.00 | 0.41 | 118.0 | 60.0 | HSS-E | R | 906-000-335 | 906-001-334 | 906-001-332 |
| 0,8 x 1,7 | 0,8 x 3,15 | 0.80 | 3.15 | 25.00 | 0.41 | 118.0 | 60.0 | Carb | R | 906-000-349 | 906-001-376 | 906-001-374 |
| 1 x 2,12 | 1 x 3,15 | 1.00 | 3.15 | 31.50 | 3.16 | 118.0 | 60.0 | HSS | R | 906-000-322 | 906-001-285 | 906-001-283 |
| 1 x 2,12 | 1 x 3,15 | 1.00 | 3.15 | 31.50 | 3.16 | 118.0 | 60.0 | HSS-E | R | 906-000-336 | 906-001-337 | 906-001-335 |
| 1 x 2,12 | 1 x 3,15 | 1.00 | 3.15 | 31.50 | 3.16 | 118.0 | 60.0 | Carb | R | 906-000-350 | 906-001-379 | 906-001-377 |
| 1,25 x 2,65 | 1,25 x 3,15 | 1.25 | 3.15 | 31.50 | 3.25 | 118.0 | 60.0 | HSS | R | 906-000-323 | 906-001-289 | 906-001-287 |
| 1,25 x 2,65 | 1,25 x 3,15 | 1.25 | 3.15 | 31.50 | 3.25 | 118.0 | 60.0 | HSS-E | R | 906-000-337 | 906-001-340 | 906-001-338 |
| 1,25 x 2,65 | 1,25 x 3,15 | 1.25 | 3.15 | 31.50 | 3.25 | 118.0 | 60.0 | Carb | R | 906-000-351 | 906-001-382 | 906-001-380 |
| 1,6 x 3,35 | 1,6 x 4 | 1.60 | 4.00 | 35.50 | 4.08 | 118.0 | 60.0 | HSS | R | 906-000-324 | 906-001-293 | 906-001-291 |
| 1,6 x 3,35 | 1,6 x 4 | 1.60 | 4.00 | 35.50 | 4.08 | 118.0 | 60.0 | HSS-E | R | 906-000-344 | 906-001-361 | 906-001-359 |
| 1,6 x 3,35 | 1,6 x 4 | 1.60 | 4.00 | 35.50 | 4.08 | 118.0 | 60.0 | Carb | R | 906-000-355 | 906-001-394 | 906-001-392 |
| 2 x 4,25 | 2 x 5 | 2.00 | 5.00 | 40.00 | 5.10 | 118.0 | 60.0 | HSS | R | 906-000-325 | 906-001-297 | 906-001-295 |
| 2 x 4,25 | 2 x 5 | 2.00 | 5.00 | 40.00 | 5.10 | 118.0 | 60.0 | HSS-E | R | 906-000-345 | 906-001-364 | 906-001-362 |
| 2 x 4,25 | 2 x 5 | 2.00 | 5.00 | 40.00 | 5.10 | 118.0 | 60.0 | Carb | R | 906-000-356 | 906-001-397 | 906-001-395 |
| 2,5 x 5,3 | 2,5 x 6,3 | 2.50 | 6.30 | 45.00 | 6.39 | 118.0 | 60.0 | HSS | R | 906-000-326 | 906-001-301 | 906-001-299 |
| 2,5 x 5,3 | 2,5 x 6,3 | 2.50 | 6.30 | 45.00 | 6.39 | 118.0 | 60.0 | HSS-E | R | 906-000-346 | 906-001-367 | 906-001-365 |
| 2,5 x 5,3 | 2,5 x 6,3 | 2.50 | 6.30 | 45.00 | 6.39 | 118.0 | 60.0 | Carb | R | 906-000-357 | 906-001-400 | 906-001-398 |
| 3,15 x 6,7 | 3,15 x 8 | 3.15 | 8.00 | 50.00 | 8.10 | 118.0 | 60.0 | HSS | R | 906-000-327 | 906-001-305 | 906-001-303 |
| 3,15 x 6,7 | 3,15 x 8 | 3.15 | 8.00 | 50.00 | 8.10 | 118.0 | 60.0 | HSS-E | R | 906-000-347 | 906-001-370 | 906-001-368 |
| 3,15 x 6,7 | 3,15 x 8 | 3.15 | 8.00 | 50.00 | 8.10 | 118.0 | 60.0 | Carb | R | 906-000-358 | 906-001-403 | 906-001-401 |
| 4 x 8,5 | 4 x 10 | 4.00 | 10.00 | 56.00 | 10.20 | 118.0 | 60.0 | HSS | R | 906-000-328 | 906-001-309 | 906-001-307 |
| 4 x 8,5 | 4 x 10 | 4.00 | 10.00 | 56.00 | 10.20 | 118.0 | 60.0 | HSS-E | R | 906-000-338 | 906-001-343 | 906-001-341 |
| 4 x 8,5 | 4 x 10 | 4.00 | 10.00 | 56.00 | 10.20 | 118.0 | 60.0 | Carb | R | 906-000-352 | 906-001-385 | 906-001-383 |
| 5 x 10,6 | 5 x 12,5 | 5.00 | 12.50 | 63.00 | 12.80 | 118.0 | 60.0 | HSS | R | 906-000-329 | 906-001-313 | 906-001-311 |
| 5 x 10,6 | 5 x 12,5 | 5.00 | 12.50 | 63.00 | 12.80 | 118.0 | 60.0 | HSS-E | R | 906-000-339 | 906-001-346 | 906-001-344 |
| 5 x 10,6 | 5 x 12,5 | 5.00 | 12.50 | 63.00 | 12.80 | 118.0 | 60.0 | Carb | R | 906-000-353 | 906-001-388 | 906-001-386 |
| 6,3 x 13,2 | 6,3 x 16 | 6.30 | 16.00 | 71.00 | 16.40 | 118.0 | 60.0 | HSS | R | 906-000-330 | 906-001-317 | 906-001-315 |
| 6,3 x 13,2 | 6,3 x 16 | 6.30 | 16.00 | 71.00 | 16.40 | 118.0 | 60.0 | HSS-E | R | 906-000-340 | 906-001-349 | 906-001-347 |
| 6,3 x 13,2 | 6,3 x 16 | 6.30 | 16.00 | 71.00 | 16.40 | 118.0 | 60.0 | Carb | R | 906-000-354 | 906-001-391 | 906-001-389 |
| 8 x 17 | 8 x 20 | 8.00 | 20.00 | 80.00 | 20.49 | 118.0 | 60.0 | HSS | R | 906-000-331 | 906-001-321 | 906-001-319 |
| 8 x 17 | 8 x 20 | 8.00 | 20.00 | 80.00 | 20.49 | 118.0 | 60.0 | HSS-E | R | 906-000-341 | 906-001-352 | 906-001-350 |
| 10 x 21,2 | 10 x 25 | 10.00 | 25.00 | 100.00 | 25.79 | 118.0 | 60.0 | HSS | R | 906-000-332 | 906-001-325 | 906-001-323 |
| 10 x 21,2 | 10 x 25 | 10.00 | 25.00 | 100.00 | 25.79 | 118.0 | 60.0 | HSS-E | R | 906-000-342 | 906-001-355 | 906-001-353 |
| 12,5 x 26,5 | 12,5 x 31,5 | 12.50 | 31.50 | 125.00 | 32.95 | 118.0 | 60.0 | HSS | R | 906-000-333 | 906-001-328 | 906-001-326 |
| 12,5 x 26,5 | 12,5 x 31,5 | 12.50 | 31.50 | 125.00 | 32.95 | 118.0 | 60.0 | HSS-E | R | 906-000-343 | 906-001-358 | 906-001-356 |



HSS
COBALT

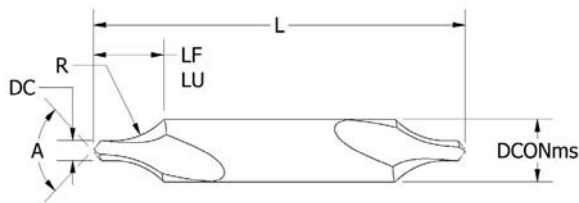


| DIN332-B Hole Design | DIN333-B Designation | DC [mm] | DC1 [mm] | DCONms [mm] | L [mm] | LF / LU [mm] | A [°] | A1 [°] | A2 [°] | Material | Hand of Cut | UNCOATED | TiN COATED | TiAIN COATED |
|----------------------|----------------------|---------|----------|-------------|--------|--------------|-------|--------|--------|----------|-------------|-------------|-------------|--------------|
| 1 x 2,12 | 1 x 4 | 1.00 | 2.12 | 4.00 | 35.50 | 2.81 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-359 | 906-001-407 | 906-001-405 |
| 1 x 2,12 | 1 x 4 | 1.00 | 2.12 | 4.00 | 35.50 | 2.81 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-377 | 906-001-470 | 906-001-468 |
| 1,25 x 2,65 | 1,25 x 5 | 1.25 | 2.65 | 5.00 | 40.00 | 3.49 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-360 | 906-001-411 | 906-001-409 |
| 1,25 x 2,65 | 1,25 x 5 | 1.25 | 2.65 | 5.00 | 40.00 | 3.49 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-378 | 906-001-473 | 906-001-471 |
| 1,6 x 3,35 | 1,6 x 6,3 | 1.60 | 3.35 | 6.30 | 45.00 | 4.37 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-361 | 906-001-415 | 906-001-413 |
| 1,6 x 3,35 | 1,6 x 6,3 | 1.60 | 3.35 | 6.30 | 45.00 | 4.37 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-379 | 906-001-476 | 906-001-474 |
| 2 x 4,25 | 2 x 8 | 2.00 | 4.25 | 8.00 | 50.00 | 5.53 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-362 | 906-001-419 | 906-001-417 |
| 2 x 4,25 | 2 x 8 | 2.00 | 4.25 | 8.00 | 50.00 | 5.53 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-380 | 906-001-479 | 906-001-477 |
| 2,5 x 5,3 | 2,5 x 10 | 2.50 | 5.30 | 10.00 | 56.00 | 6.88 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-363 | 906-001-423 | 906-001-421 |
| 2,5 x 5,3 | 2,5 x 10 | 2.50 | 5.30 | 10.00 | 56.00 | 6.88 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-370 | 906-001-449 | 906-001-447 |
| 3,15 x 6,7 | 3,15 x 11,2 | 3.15 | 6.70 | 11.20 | 60.00 | 8.27 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-364 | 906-001-427 | 906-001-425 |
| 3,15 x 6,7 | 3,15 x 11,2 | 3.15 | 6.70 | 11.20 | 60.00 | 8.27 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-371 | 906-001-452 | 906-001-450 |
| 4 x 8,5 | 4 x 14 | 4.00 | 8.50 | 14.00 | 67.00 | 10.48 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-365 | 906-001-431 | 906-001-429 |
| 4 x 8,5 | 4 x 14 | 4.00 | 8.50 | 14.00 | 67.00 | 10.48 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-372 | 906-001-455 | 906-001-453 |
| 5 x 10,6 | 5 x 18 | 5.00 | 10.60 | 18.00 | 75.00 | 13.29 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-366 | 906-001-435 | 906-001-433 |
| 5 x 10,6 | 5 x 18 | 5.00 | 10.60 | 18.00 | 75.00 | 13.29 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-373 | 906-001-458 | 906-001-456 |
| 6,3 x 13,2 | 6,3 x 20 | 6.30 | 13.20 | 20.00 | 80.00 | 15.94 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-367 | 906-001-439 | 906-001-437 |
| 6,3 x 13,2 | 6,3 x 20 | 6.30 | 13.20 | 20.00 | 80.00 | 15.94 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-374 | 906-001-461 | 906-001-459 |
| 8 x 17 | 8 x 25 | 8.00 | 17.00 | 25.00 | 100.00 | 20.20 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-368 | 906-001-443 | 906-001-441 |
| 8 x 17 | 8 x 25 | 8.00 | 17.00 | 25.00 | 100.00 | 20.20 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-375 | 906-001-464 | 906-001-462 |
| 10 x 21,2 | 10 x 31,5 | 10.00 | 21.20 | 31.50 | 125.00 | 25.47 | 118.0 | 60.0 | 120.0 | HSS | R | 906-000-369 | 906-001-446 | 906-001-444 |
| 10 x 21,2 | 10 x 31,5 | 10.00 | 21.20 | 31.50 | 125.00 | 25.47 | 118.0 | 60.0 | 120.0 | HSS-E | R | 906-000-376 | 906-001-467 | 906-001-465 |



HSS

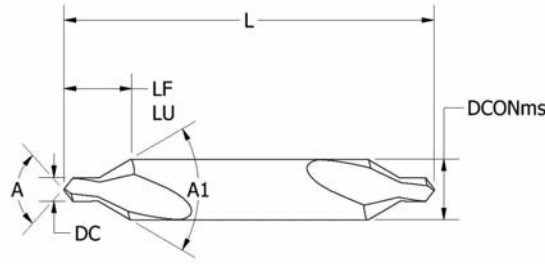
COBALT



PG.498



| DIN332-R Hole Design. | DIN333-R Designation | DC [mm] | R [mm] | DCONms [mm] | L [mm] | LF / LU [mm] | A [°] | Material | Hand of Cut | UNCOATED | TIN COATED | TiAIN COATED |
|-----------------------|----------------------|---------|--------|-------------|--------|--------------|-------|----------|-------------|-------------|-------------|--------------|
| 0,5 x 1,05 | 0,5 x 3,15 | 0.50 | 1.60 | 3.15 | 25.00 | 2.12 | 118.0 | HSS | R | 906-000-381 | 906-001-483 | 906-001-481 |
| 0,5 x 1,05 | 0,5 x 3,15 | 0.50 | 1.60 | 3.15 | 25.00 | 2.12 | 118.0 | HSS | R | 906-000-395 | 906-001-526 | 906-001-524 |
| 0,8 x 1,7 | 0,8 x 3,15 | 0.80 | 2.50 | 3.15 | 25.00 | 2.65 | 118.0 | HSS | R | 906-000-382 | 906-001-487 | 906-001-485 |
| 0,8 x 1,7 | 0,8 x 3,15 | 0.80 | 2.50 | 3.15 | 25.00 | 2.65 | 118.0 | HSS | R | 906-000-396 | 906-001-529 | 906-001-527 |
| 1 x 2,12 | 1 x 3,15 | 1.00 | 3.15 | 3.15 | 31.50 | 3.00 | 118.0 | HSS | R | 906-000-383 | 906-001-490 | 906-001-488 |
| 1 x 2,12 | 1 x 3,15 | 1.00 | 3.15 | 3.15 | 31.50 | 3.00 | 118.0 | HSS | R | 906-000-397 | 906-001-532 | 906-001-530 |
| 1,25 x 2,65 | 1,25 x 3,15 | 1.25 | 4.00 | 3.15 | 31.50 | 3.35 | 118.0 | HSS | R | 906-000-384 | 906-001-493 | 906-001-491 |
| 1,25 x 2,65 | 1,25 x 3,15 | 1.25 | 4.00 | 3.15 | 31.50 | 3.35 | 118.0 | HSS | R | 906-000-398 | 906-001-535 | 906-001-533 |
| 1,6 x 3,35 | 1,6 x 4 | 1.60 | 5.00 | 4.00 | 35.50 | 4.25 | 118.0 | HSS | R | 906-000-385 | 906-001-496 | 906-001-494 |
| 1,6 x 3,35 | 1,6 x 4 | 1.60 | 5.00 | 4.00 | 35.50 | 4.25 | 118.0 | HSS | R | 906-000-405 | 906-001-556 | 906-001-554 |
| 10 x 21,2 | 10 x 25 | 10.00 | 31.50 | 25.00 | 100.00 | 26.50 | 118.0 | HSS | R | 906-000-393 | 906-001-520 | 906-001-518 |
| 10 x 21,2 | 10 x 25 | 10.00 | 31.50 | 25.00 | 100.00 | 26.50 | 118.0 | HSS | R | 906-000-403 | 906-001-550 | 906-001-548 |
| 12,5 x 26,5 | 12,5 x 31,5 | 12.50 | 40.00 | 31.50 | 125.00 | 33.50 | 118.0 | HSS | R | 906-000-394 | 906-001-523 | 906-001-521 |
| 12,5 x 26,5 | 12,5 x 31,5 | 12.50 | 40.00 | 31.50 | 125.00 | 33.50 | 118.0 | HSS | R | 906-000-404 | 906-001-553 | 906-001-551 |
| 2 x 4,25 | 2 x 5 | 2.00 | 6.30 | 5.00 | 40.00 | 5.30 | 118.0 | HSS-E | R | 906-000-386 | 906-001-499 | 906-001-497 |
| 2 x 4,25 | 2 x 5 | 2.00 | 6.30 | 5.00 | 40.00 | 5.30 | 118.0 | HSS-E | R | 906-000-406 | 906-001-559 | 906-001-557 |
| 2,5 x 5,3 | 2,5 x 6,3 | 2.50 | 8.00 | 6.30 | 45.00 | 6.70 | 118.0 | HSS-E | R | 906-000-387 | 906-001-502 | 906-001-500 |
| 2,5 x 5,3 | 2,5 x 6,3 | 2.50 | 8.00 | 6.30 | 45.00 | 6.70 | 118.0 | HSS-E | R | 906-000-407 | 906-001-562 | 906-001-560 |
| 3,15 x 6,7 | 3,15 x 8 | 3.15 | 10.00 | 8.00 | 50.00 | 8.50 | 118.0 | HSS-E | R | 906-000-388 | 906-001-505 | 906-001-503 |
| 3,15 x 6,7 | 3,15 x 8 | 3.15 | 10.00 | 8.00 | 50.00 | 8.50 | 118.0 | HSS-E | R | 906-000-408 | 906-001-565 | 906-001-563 |
| 4 x 8,5 | 4 x 10 | 4.00 | 12.50 | 10.00 | 56.00 | 10.60 | 118.0 | HSS-E | R | 906-000-389 | 906-001-508 | 906-001-506 |
| 4 x 8,5 | 4 x 10 | 4.00 | 12.50 | 10.00 | 56.00 | 10.60 | 118.0 | HSS-E | R | 906-000-399 | 906-001-538 | 906-001-536 |
| 5 x 10,6 | 5 x 12,5 | 5.00 | 16.00 | 12.50 | 63.00 | 13.20 | 118.0 | HSS-E | R | 906-000-390 | 906-001-511 | 906-001-509 |
| 5 x 10,6 | 5 x 12,5 | 5.00 | 16.00 | 12.50 | 63.00 | 13.20 | 118.0 | HSS-E | R | 906-000-400 | 906-001-541 | 906-001-539 |
| 6,3 x 13,2 | 6,3 x 16 | 6.30 | 20.00 | 16.00 | 71.00 | 17.00 | 118.0 | HSS-E | R | 906-000-391 | 906-001-514 | 906-001-512 |
| 6,3 x 13,2 | 6,3 x 16 | 6.30 | 20.00 | 16.00 | 71.00 | 17.00 | 118.0 | HSS-E | R | 906-000-401 | 906-001-544 | 906-001-542 |
| 8 x 17 | 8 x 20 | 8.00 | 25.00 | 20.00 | 80.00 | 21.20 | 118.0 | HSS-E | R | 906-000-392 | 906-001-517 | 906-001-515 |
| 8 x 17 | 8 x 20 | 8.00 | 25.00 | 20.00 | 80.00 | 21.20 | 118.0 | HSS-E | R | 906-000-402 | 906-001-547 | 906-001-545 |



| DC | DCONms | LU | L | LF | A | A1 | PRODUCT # |
|------|--------|-------|--------|-------|-------|------|-------------|
| 0.75 | 3.50 | 3.38 | 60.00 | 3.38 | 118.0 | 60.0 | 907-000-001 |
| 1.00 | 4.00 | 3.90 | 60.00 | 3.90 | 118.0 | 60.0 | 907-000-002 |
| 1.50 | 5.00 | 5.03 | 60.00 | 5.03 | 118.0 | 60.0 | 907-000-003 |
| 2.00 | 6.00 | 5.96 | 80.00 | 5.96 | 118.0 | 60.0 | 907-000-004 |
| 2.50 | 8.00 | 7.86 | 80.00 | 7.86 | 118.0 | 60.0 | 907-000-005 |
| 3.00 | 8.00 | 8.23 | 80.00 | 8.23 | 118.0 | 60.0 | 907-000-006 |
| 1.00 | 4.00 | 3.90 | 100.0 | 3.90 | 118.0 | 60.0 | 907-000-007 |
| 1.50 | 5.00 | 5.03 | 100.0 | 5.03 | 118.0 | 60.0 | 907-000-008 |
| 2.00 | 6.00 | 5.96 | 100.0 | 5.96 | 118.0 | 60.0 | 907-000-009 |
| 2.50 | 8.00 | 7.86 | 100.0 | 7.86 | 118.0 | 60.0 | 907-000-010 |
| 3.00 | 8.00 | 8.23 | 100.0 | 8.23 | 118.0 | 60.0 | 907-000-011 |
| 3.00 | 10.00 | 9.96 | 100.0 | 9.96 | 118.0 | 60.0 | 907-000-012 |
| 4.00 | 10.00 | 10.20 | 100.0 | 10.20 | 118.0 | 60.0 | 907-000-013 |
| 4.00 | 12.00 | 11.93 | 100.0 | 11.93 | 118.0 | 60.0 | 907-000-014 |
| 5.00 | 12.00 | 12.36 | 100.0 | 12.36 | 118.0 | 60.0 | 907-000-015 |
| 0.75 | 3.50 | 3.38 | 120.0 | 3.38 | 118.0 | 60.0 | 907-000-016 |
| 1.00 | 4.00 | 3.90 | 120.0 | 3.90 | 118.0 | 60.0 | 907-000-017 |
| 1.60 | 5.00 | 4.94 | 120.0 | 4.94 | 118.0 | 60.0 | 907-000-018 |
| 2.00 | 6.00 | 5.96 | 120.0 | 5.96 | 118.0 | 60.0 | 907-000-019 |
| 2.50 | 8.00 | 7.86 | 120.0 | 7.86 | 118.0 | 60.0 | 907-000-020 |
| 3.00 | 8.00 | 8.23 | 120.0 | 8.23 | 118.0 | 60.0 | 907-000-021 |
| 3.00 | 10.00 | 9.96 | 120.0 | 9.96 | 118.0 | 60.0 | 907-000-022 |
| 3.15 | 10.00 | 9.83 | 120.0 | 9.83 | 118.0 | 60.0 | 907-000-023 |
| 3.15 | 10.00 | 9.83 | 120.0 | 9.83 | 118.0 | 60.0 | 907-000-024 |
| 4.00 | 12.00 | 11.93 | 120.0 | 11.93 | 118.0 | 60.0 | 907-000-025 |
| 5.00 | 14.00 | 14.09 | 120.0 | 14.09 | 118.0 | 60.0 | 907-000-026 |
| 1.50 | 5.00 | 5.03 | 150.00 | 5.03 | 118.0 | 60.0 | 907-000-027 |
| 1.00 | 4.00 | 3.90 | 150.0 | 3.90 | 118.0 | 60.0 | 907-000-028 |
| 1.50 | 5.00 | 5.03 | 150.0 | 5.03 | 118.0 | 60.0 | 907-000-029 |
| 2.00 | 6.00 | 5.96 | 150.0 | 5.96 | 118.0 | 60.0 | 907-000-030 |
| 2.50 | 8.00 | 7.86 | 150.0 | 7.86 | 118.0 | 60.0 | 907-000-031 |
| 3.00 | 8.00 | 8.23 | 150.0 | 8.23 | 118.0 | 60.0 | 907-000-032 |
| 3.00 | 10.00 | 9.96 | 150.0 | 9.96 | 118.0 | 60.0 | 907-000-033 |
| 4.00 | 10.00 | 10.20 | 150.0 | 10.20 | 118.0 | 60.0 | 907-000-034 |
| 4.00 | 12.00 | 11.93 | 150.0 | 11.93 | 118.0 | 60.0 | 907-000-035 |
| 6.30 | 16.00 | 16.40 | 150.0 | 16.40 | 118.0 | 60.0 | 907-000-036 |
| 2.00 | 5.00 | 5.10 | 200.0 | 5.10 | 118.0 | 60.0 | 907-000-037 |
| 2.50 | 6.30 | 6.39 | 200.0 | 6.39 | 118.0 | 60.0 | 907-000-038 |
| 3.15 | 8.00 | 8.10 | 200.0 | 8.10 | 118.0 | 60.0 | 907-000-039 |
| 4.00 | 10.00 | 10.20 | 200.0 | 10.20 | 118.0 | 60.0 | 907-000-040 |

COBALT

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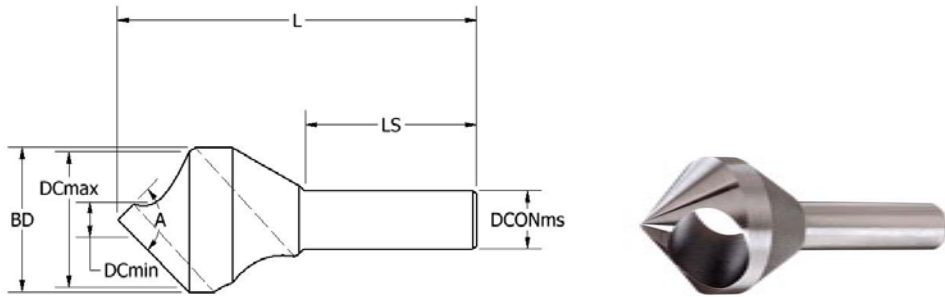
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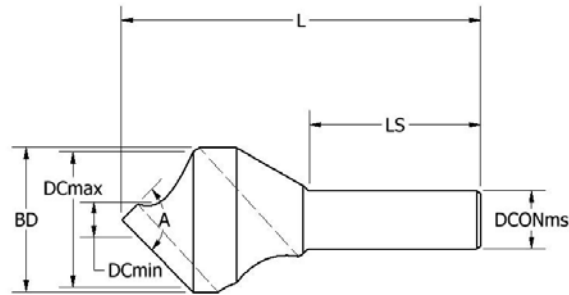
COUNTERSINKS



ZERO-FLUTE

| DCONms | BD | LS | L | DCmax | DCmin | A | Uncoated | TiN |
|--------|--------|--------|--------|--------|--------|------|-------------|-------------|
| 0.2500 | 0.3125 | 1.2500 | 1.8750 | 0.2813 | 0.1094 | 60.0 | 919-000-185 | 919-000-186 |
| 0.2500 | 0.3750 | 1.2500 | 1.8750 | 0.3438 | 0.1563 | 60.0 | 919-000-187 | 919-000-188 |
| 0.3125 | 0.5000 | 1.2500 | 2.0000 | 0.4531 | 0.1719 | 60.0 | 919-000-189 | 919-000-190 |
| 0.3750 | 0.6250 | 1.3750 | 2.5000 | 0.5781 | 0.1875 | 60.0 | 919-000-191 | 919-000-192 |
| 0.3750 | 0.7500 | 1.5000 | 2.7500 | 0.7031 | 0.2500 | 60.0 | 919-000-193 | 919-000-194 |
| 0.3750 | 1.0000 | 1.2500 | 3.0000 | 0.8438 | 0.2969 | 60.0 | 919-000-195 | 919-000-196 |
| 0.5000 | 1.2500 | 1.5000 | 3.5000 | 1.0313 | 0.4219 | 60.0 | 919-000-197 | 919-000-198 |
| 0.2500 | 0.3125 | 1.2500 | 1.6250 | 0.2813 | 0.0938 | 82.0 | 919-000-202 | 919-000-203 |
| 0.2500 | 0.3750 | 1.2500 | 1.7500 | 0.3438 | 0.1406 | 82.0 | 919-000-204 | 919-000-205 |
| 0.3125 | 0.5000 | 1.2500 | 1.7500 | 0.4531 | 0.1563 | 82.0 | 919-000-206 | 919-000-207 |
| 0.3750 | 0.6250 | 1.3750 | 2.1250 | 0.5781 | 0.1719 | 82.0 | 919-000-208 | 919-000-209 |
| 0.3750 | 0.7500 | 1.5000 | 2.3750 | 0.7031 | 0.2031 | 82.0 | 919-000-210 | 919-000-211 |
| 0.3750 | 1.0000 | 1.2500 | 2.6250 | 0.9219 | 0.2969 | 82.0 | 919-000-212 | 919-000-213 |
| 0.5000 | 1.2500 | 1.5000 | 3.1250 | 1.0938 | 0.3594 | 82.0 | 919-000-214 | 919-000-215 |
| 0.2500 | 5/16 | 1.2500 | 1.6250 | 1.0938 | 0.3594 | 90.0 | 919-000-219 | 919-000-220 |
| 0.2500 | 0.3750 | 1.2500 | 1.7500 | 0.3438 | 0.1406 | 90.0 | 919-000-221 | 919-000-222 |
| 0.3125 | 0.5000 | 1.2500 | 1.7500 | 0.4531 | 0.1563 | 90.0 | 919-000-223 | 919-000-224 |
| 0.3750 | 0.6250 | 1.3750 | 2.1250 | 0.5781 | 0.1719 | 90.0 | 919-000-225 | 919-000-226 |
| 0.3750 | 0.7500 | 1.5000 | 2.3750 | 0.7031 | 0.2031 | 90.0 | 919-000-227 | 919-000-228 |
| 0.3750 | 1.0000 | 1.2500 | 2.6250 | 0.9219 | 0.2969 | 90.0 | 919-000-229 | 919-000-230 |
| 0.5000 | 1.2500 | 1.5000 | 3.1250 | 1.0938 | 0.3594 | 90.0 | 919-000-231 | 919-000-232 |

COBALT



ZERO-FLUTE

| DCONms | BD | LS | L | DCmax | DCmin | A | Uncoated | TiN |
|--------|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.2500 | 0.3125 | 1.2500 | 1.6250 | 0.2813 | 0.0938 | 100.0 | 919-000-236 | 919-000-237 |
| 0.2500 | 0.3750 | 1.2500 | 1.7500 | 0.3438 | 0.1406 | 100.0 | 919-000-238 | 919-000-239 |
| 0.3125 | 0.5000 | 1.2500 | 1.7500 | 0.4531 | 0.1563 | 100.0 | 919-000-240 | 919-000-241 |
| 0.3750 | 0.6250 | 1.3750 | 2.1250 | 0.5781 | 0.1719 | 100.0 | 919-000-242 | 919-000-243 |
| 0.3750 | 0.7500 | 1.5000 | 2.3750 | 0.7031 | 0.2031 | 100.0 | 919-000-244 | 919-000-245 |
| 0.3750 | 1.0000 | 1.2500 | 2.6250 | 0.9219 | 0.2969 | 100.0 | 919-000-246 | 919-000-247 |
| 0.5000 | 1.2500 | 1.5000 | 3.1250 | 1.1250 | 0.3594 | 100.0 | 919-000-248 | 919-000-249 |

Zero Countersink & Deburring Tools Set

Straight Shank, CNC Precision Cam Ground, Cobalt, Chatter-free Cutting Action.

Sets include: 4 piece - 5/16, 3/8, 1/2, 5/8

5 piece - 5/16, 3/8, 1/2, 3/4, 1

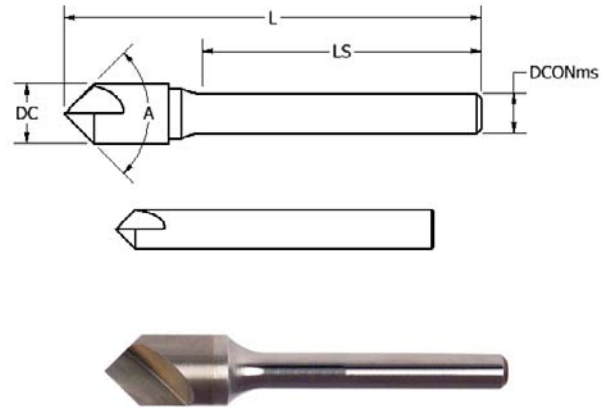


| Countersink Angle | 4-Piece | 5-Piece | 5-Piece Coated |
|----------------------|---------------------|------------------------|------------------------|
| 60° | 919-000-199 | 919-000-200 | 919-000-201 |
| 82° | 919-000-216 | 919-000-217 | 919-000-218 |
| 90° | 919-000-233 | 919-000-234 | 919-000-235 |
| 100° | 919-000-250 | 919-000-251 | 919-000-252 |
| Head Diameter | 5/16, 3/8, 1/2, 5/8 | 5/16, 3/8, 1/2, 3/4, 1 | 5/16, 3/8, 1/2, 3/4, 1 |

CARBIDE



| DC | DCONms | LS | L | A | CARBIDE | CARBIDE-TIALN |
|--------|--------|--------|--------|-------|-------------|---------------|
| 0.1250 | 0.1250 | 0.7500 | 1.5000 | 60.0 | 919-000-909 | 919-000-910 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 60.0 | 919-000-911 | 919-000-912 |
| 0.2500 | 0.2500 | 1.0000 | 2.0000 | 60.0 | 919-000-913 | 919-000-914 |
| 0.3750 | 0.2500 | 1.7500 | 2.8750 | 60.0 | 919-000-915 | 919-000-916 |
| 0.5000 | 0.2500 | 1.6250 | 2.8750 | 60.0 | 919-000-917 | 919-000-918 |
| 0.6250 | 0.3750 | 1.6250 | 3.0000 | 60.0 | 919-000-919 | 919-000-920 |
| 0.7500 | 0.3750 | 1.5000 | 3.0000 | 60.0 | 919-000-921 | 919-000-922 |
| 1.0000 | 0.5000 | 1.5000 | 3.2500 | 60.0 | 919-000-923 | 919-000-924 |
| 1.2500 | 0.7500 | 1.5000 | 3.7500 | 60.0 | 919-000-925 | 919-000-926 |
| 0.1250 | 0.1250 | 0.7500 | 1.5000 | 82.0 | 919-000-929 | 919-000-930 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 82.0 | 919-000-931 | 919-000-932 |
| 0.2500 | 0.2500 | 1.0000 | 2.0000 | 82.0 | 919-000-933 | 919-000-934 |
| 0.3750 | 0.2500 | 1.7500 | 2.6250 | 82.0 | 919-000-935 | 919-000-936 |
| 0.5000 | 0.2500 | 1.6250 | 2.6250 | 82.0 | 919-000-937 | 919-000-938 |
| 0.6250 | 0.3750 | 1.6250 | 2.7500 | 82.0 | 919-000-939 | 919-000-940 |
| 0.7500 | 0.3750 | 1.5000 | 2.7500 | 82.0 | 919-000-941 | 919-000-942 |
| 1.0000 | 0.5000 | 1.5000 | 3.0000 | 82.0 | 919-000-943 | 919-000-944 |
| 1.2500 | 0.7500 | 1.5000 | 3.2500 | 82.0 | 919-000-945 | 919-000-946 |
| 0.1250 | 0.1250 | 0.7500 | 1.5000 | 90.0 | 919-000-949 | 919-000-950 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 90.0 | 919-000-951 | 919-000-952 |
| 0.2500 | 0.2500 | 1.0000 | 2.0000 | 90.0 | 919-000-953 | 919-000-954 |
| 0.3750 | 0.2500 | 1.7500 | 2.6250 | 90.0 | 919-000-955 | 919-000-956 |
| 0.5000 | 0.2500 | 1.6250 | 2.6250 | 90.0 | 919-000-957 | 919-000-958 |
| 0.6250 | 0.3750 | 1.6250 | 2.7500 | 90.0 | 919-000-959 | 919-000-960 |
| 0.7500 | 0.3750 | 1.5000 | 2.7500 | 90.0 | 919-000-961 | 919-000-962 |
| 1.0000 | 0.5000 | 1.5000 | 3.0000 | 90.0 | 919-000-963 | 919-000-964 |
| 1.2500 | 0.7500 | 1.5000 | 3.2500 | 90.0 | 919-000-965 | 919-000-966 |
| 0.1250 | 0.1250 | 0.7500 | 1.5000 | 100.0 | 919-000-969 | 919-000-970 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 100.0 | 919-000-971 | 919-000-972 |
| 0.2500 | 0.2500 | 1.0000 | 2.0000 | 100.0 | 919-000-973 | 919-000-974 |
| 0.3750 | 0.2500 | 1.7500 | 2.6250 | 100.0 | 919-000-975 | 919-000-976 |
| 0.5000 | 0.2500 | 1.6250 | 2.6250 | 100.0 | 919-000-977 | 919-000-978 |
| 0.6250 | 0.3750 | 1.6250 | 2.7500 | 100.0 | 919-000-979 | 919-000-980 |
| 0.7500 | 0.3750 | 1.5000 | 2.7500 | 100.0 | 919-000-981 | 919-000-982 |
| 1.0000 | 0.5000 | 1.5000 | 3.0000 | 100.0 | 919-000-983 | 919-000-984 |
| 1.2500 | 0.7500 | 1.5000 | 3.2500 | 100.0 | 919-000-985 | 919-000-986 |

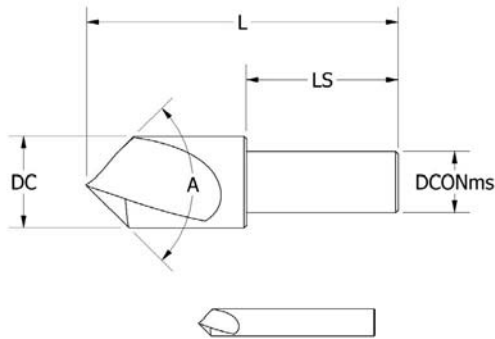


Carbide Countersink Sets

Carbide sets include one 1/4, 3/8, 1/2, 5/8 and 3/4" body diameter with a particular included point angle.



| Countersink Angle | Single-Flute KIT# | 3-Flute KIT# | 6-Flute KIT# |
|-------------------|-------------------|--------------|--------------|
| 60° | 919-000-927 | 917-000-319 | 919-001-010 |
| 60° | 919-000-928 | 917-000-320 | 919-001-011 |
| 82° | 919-000-947 | 917-000-339 | 919-001-032 |
| 82° | 919-000-948 | 917-000-340 | 919-001-033 |
| 90° | 919-000-967 | 917-000-359 | 919-001-054 |
| 90° | 919-000-968 | 917-000-360 | 919-001-055 |
| 100° | 919-000-987 | 917-000-379 | 919-001-077 |
| 100° | 919-000-988 | 917-000-380 | 919-001-078 |

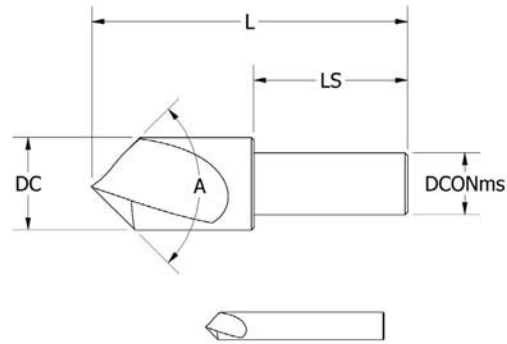


HSS



| DC | DCONms | LS | L | A | HSS | HSS-TiN |
|--------|--------|--------|--------|------|-------------|-------------|
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 60.0 | 919-000-107 | 919-000-108 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 60.0 | 919-000-095 | 919-000-096 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 60.0 | 919-000-083 | 919-000-084 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 60.0 | 919-000-167 | 919-000-168 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 60.0 | 919-000-071 | 919-000-072 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 60.0 | 919-000-259 | 919-000-260 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 60.0 | 919-000-155 | 919-000-156 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 60.0 | 919-000-059 | 919-000-060 |
| 1.2500 | 0.5000 | 1.2500 | 3.0000 | 60.0 | 919-000-143 | 919-000-144 |
| 1.5000 | 0.7500 | 1.2500 | 3.2500 | 60.0 | 919-000-131 | 919-000-132 |
| 1.7500 | 0.7500 | 1.2500 | 3.5000 | 60.0 | 919-000-179 | 919-000-180 |
| 2.0000 | 0.7500 | 1.2500 | 3.7500 | 60.0 | 919-000-119 | 919-000-120 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 82.0 | 919-000-109 | 919-000-110 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 82.0 | 919-000-097 | 919-000-098 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 82.0 | 919-000-085 | 919-000-086 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 82.0 | 919-000-169 | 919-000-170 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 82.0 | 919-000-073 | 919-000-074 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 82.0 | 919-000-261 | 919-000-262 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 82.0 | 919-000-157 | 919-000-158 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 82.0 | 919-000-061 | 919-000-062 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 82.0 | 919-000-145 | 919-000-146 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 82.0 | 919-000-133 | 919-000-134 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 82.0 | 919-000-181 | 919-000-182 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 82.0 | 919-000-121 | 919-000-122 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 90.0 | 919-000-111 | 919-000-112 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 90.0 | 919-000-099 | 919-000-100 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 90.0 | 919-000-087 | 919-000-088 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 90.0 | 919-000-171 | 919-000-172 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 90.0 | 919-000-075 | 919-000-076 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 90.0 | 919-000-263 | 919-000-264 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 90.0 | 919-000-159 | 919-000-160 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 90.0 | 919-000-063 | 919-000-064 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 90.0 | 919-000-147 | 919-000-148 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 90.0 | 919-000-135 | 919-000-136 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 90.0 | 919-000-183 | 919-000-184 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 90.0 | 919-000-123 | 919-000-124 |

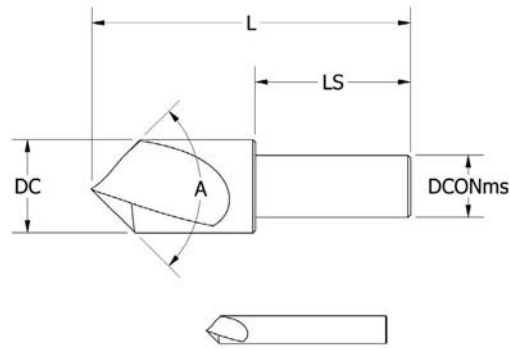
For set information see **page 192**



| DC | DCONms | LS | L | A | HSS | HSS-TiN |
|--------|--------|--------|--------|-------|-------------|-------------|
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 100.0 | 919-000-101 | 919-000-102 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 100.0 | 919-000-089 | 919-000-090 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 100.0 | 919-000-077 | 919-000-078 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 100.0 | 919-000-161 | 919-000-162 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 100.0 | 919-000-065 | 919-000-066 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 100.0 | 919-000-253 | 919-000-254 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 100.0 | 919-000-149 | 919-000-150 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 100.0 | 919-000-053 | 919-000-054 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 100.0 | 919-000-137 | 919-000-138 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 100.0 | 919-000-125 | 919-000-126 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 100.0 | 919-000-173 | 919-000-174 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 110.0 | 919-000-103 | 919-000-104 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 110.0 | 919-000-091 | 919-000-092 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 110.0 | 919-000-079 | 919-000-080 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 110.0 | 919-000-163 | 919-000-164 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 110.0 | 919-000-067 | 919-000-068 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 110.0 | 919-000-255 | 919-000-256 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 110.0 | 919-000-151 | 919-000-152 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 110.0 | 919-000-055 | 919-000-056 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 110.0 | 919-000-139 | 919-000-140 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 110.0 | 919-000-127 | 919-000-128 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 110.0 | 919-000-175 | 919-000-176 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 110.0 | 919-000-115 | 919-000-116 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 120.0 | 919-000-105 | 919-000-106 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 120.0 | 919-000-093 | 919-000-094 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 120.0 | 919-000-081 | 919-000-082 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 120.0 | 919-000-165 | 919-000-166 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 120.0 | 919-000-069 | 919-000-070 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 120.0 | 919-000-165 | 919-000-166 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 120.0 | 919-000-153 | 919-000-154 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 120.0 | 919-000-057 | 919-000-058 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 120.0 | 919-000-141 | 919-000-142 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 120.0 | 919-000-129 | 919-000-130 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 120.0 | 919-000-177 | 919-000-178 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 120.0 | 919-000-117 | 919-000-118 |

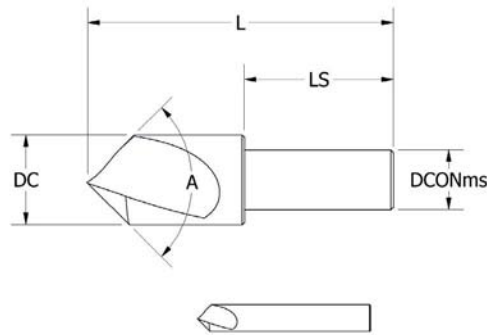
For set information see **page 192**

HSS



| DC | DCONms | LS | L | A | COBALT | COBALT-TIN |
|--------|--------|--------|--------|------|-------------|-------------|
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 60.0 | 919-000-549 | 919-000-550 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 60.0 | 919-000-551 | 919-000-552 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 60.0 | 919-000-553 | 919-000-554 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 60.0 | 919-000-555 | 919-000-556 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 60.0 | 919-000-557 | 919-000-558 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 60.0 | 919-000-559 | 919-000-560 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 60.0 | 919-000-561 | 919-000-562 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 60.0 | 919-000-563 | 919-000-564 |
| 1.2500 | 0.5000 | 1.2500 | 3.0000 | 60.0 | 919-000-565 | 919-000-566 |
| 1.5000 | 0.7500 | 1.2500 | 3.2500 | 60.0 | 919-000-567 | 919-000-568 |
| 1.7500 | 0.7500 | 1.2500 | 3.5000 | 60.0 | 919-000-569 | 919-000-570 |
| 2.0000 | 0.7500 | 1.2500 | 3.7500 | 60.0 | 919-000-571 | 919-000-572 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 82.0 | 919-000-573 | 919-000-574 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 82.0 | 919-000-575 | 919-000-576 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 82.0 | 919-000-577 | 919-000-578 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 82.0 | 919-000-579 | 919-000-580 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 82.0 | 919-000-581 | 919-000-582 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 82.0 | 919-000-583 | 919-000-584 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 82.0 | 919-000-585 | 919-000-586 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 82.0 | 919-000-587 | 919-000-588 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 82.0 | 919-000-589 | 919-000-590 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 82.0 | 919-000-591 | 919-000-592 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 82.0 | 919-000-593 | 919-000-594 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 82.0 | 919-000-595 | 919-000-596 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 90.0 | 919-000-597 | 919-000-598 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 90.0 | 919-000-599 | 919-000-600 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 90.0 | 919-000-601 | 919-000-602 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 90.0 | 919-000-603 | 919-000-604 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 90.0 | 919-000-605 | 919-000-606 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 90.0 | 919-000-607 | 919-000-608 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 90.0 | 919-000-609 | 919-000-610 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 90.0 | 919-000-611 | 919-000-612 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 90.0 | 919-000-613 | 919-000-614 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 90.0 | 919-000-615 | 919-000-616 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 90.0 | 919-000-617 | 919-000-618 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 90.0 | 919-000-619 | 919-000-620 |

For set information see page 192



Cobalt

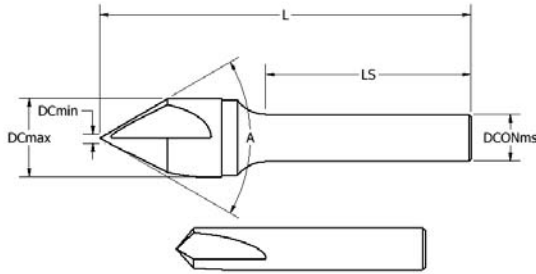
| DC | DCONms | LS | L | A | COBALT | COBALT-TiN |
|--------|--------|--------|--------|-------|-------------|-------------|
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 100.0 | 919-000-621 | 919-000-622 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 100.0 | 919-000-623 | 919-000-624 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 100.0 | 919-000-625 | 919-000-626 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 100.0 | 919-000-627 | 919-000-628 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 100.0 | 919-000-629 | 919-000-630 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 100.0 | 919-000-631 | 919-000-632 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 100.0 | 919-000-633 | 919-000-634 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 100.0 | 919-000-635 | 919-000-636 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 100.0 | 919-000-637 | 919-000-638 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 100.0 | 919-000-639 | 919-000-640 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 100.0 | 919-000-641 | 919-000-642 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 100.0 | 919-000-643 | 919-000-644 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 110.0 | 919-000-645 | 919-000-646 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 110.0 | 919-000-647 | 919-000-648 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 110.0 | 919-000-649 | 919-000-650 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 110.0 | 919-000-651 | 919-000-652 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 110.0 | 919-000-653 | 919-000-654 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 110.0 | 919-000-655 | 919-000-656 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 110.0 | 919-000-657 | 919-000-658 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 110.0 | 919-000-659 | 919-000-660 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 110.0 | 919-000-661 | 919-000-662 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 110.0 | 919-000-663 | 919-000-664 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 110.0 | 919-000-665 | 919-000-666 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 110.0 | 919-000-667 | 919-000-668 |
| 0.1250 | 0.1250 | 0.6250 | 1.2500 | 120.0 | 919-000-669 | 919-000-670 |
| 0.1875 | 0.1875 | 0.6875 | 1.3750 | 120.0 | 919-000-671 | 919-000-672 |
| 0.2500 | 0.2500 | 0.7500 | 1.5000 | 120.0 | 919-000-673 | 919-000-674 |
| 0.3750 | 0.2500 | 0.8750 | 1.7500 | 120.0 | 919-000-675 | 919-000-676 |
| 0.5000 | 0.2500 | 1.0000 | 2.0000 | 120.0 | 919-000-677 | 919-000-678 |
| 0.6250 | 0.3750 | 1.0000 | 2.2500 | 120.0 | 919-000-679 | 919-000-680 |
| 0.7500 | 0.5000 | 1.2500 | 2.6250 | 120.0 | 919-000-681 | 919-000-682 |
| 1.0000 | 0.5000 | 1.2500 | 2.7500 | 120.0 | 919-000-683 | 919-000-684 |
| 1.2500 | 0.5000 | 1.2500 | 2.7500 | 120.0 | 919-000-685 | 919-000-686 |
| 1.5000 | 0.7500 | 1.2500 | 2.8750 | 120.0 | 919-000-687 | 919-000-688 |
| 1.7500 | 0.7500 | 1.2500 | 3.0000 | 120.0 | 919-000-689 | 919-000-690 |
| 2.0000 | 0.7500 | 1.2500 | 3.2500 | 120.0 | 919-000-691 | 919-000-692 |



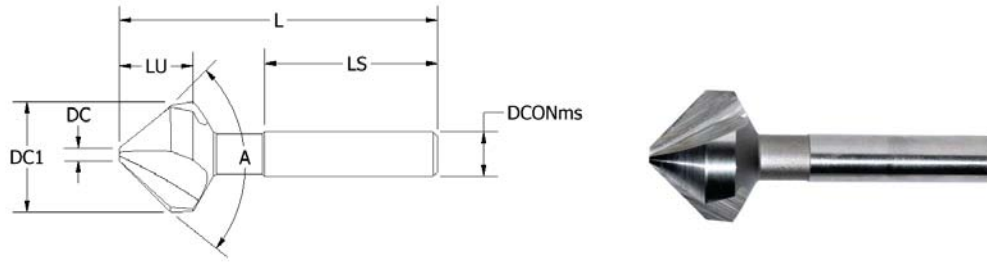
| Countersink Angle | HSS KIT# | COBALT KIT# |
|-------------------|-------------|-------------|
| 60° | 919-000-050 | 919-000-044 |
| 82° | 919-000-051 | 919-000-045 |
| 90° | 919-000-052 | 919-000-046 |
| 100° | 919-000-047 | 919-000-041 |
| 110° | 919-000-048 | 919-000-042 |
| 120° | 919-000-049 | 919-000-043 |

Single-Flute Countersink Sets Available in HSS & Cobalt

Each 5-piece set includes one piece each of 1/4, 3/8, 1/2, 3/4, and 1" body diameter with a particular included point angle.

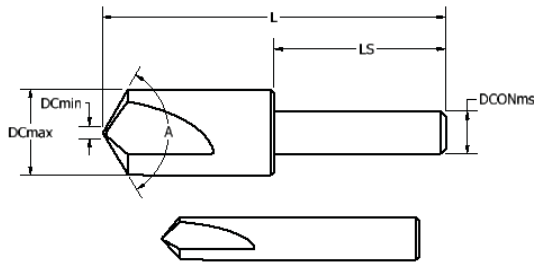


| DCONms | LS | L | DCmax | DCmin | A | CARBIDE | CARBIDE-TIALN |
|--------|--------|--------|--------|--------|-------|-------------|---------------|
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0156 | 60.0 | 917-000-301 | 917-000-302 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0313 | 60.0 | 917-000-303 | 917-000-304 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0625 | 60.0 | 917-000-305 | 917-000-306 |
| 0.2500 | 1.7500 | 2.8750 | 0.3750 | 0.0625 | 60.0 | 917-000-307 | 917-000-308 |
| 0.2500 | 1.6250 | 2.8750 | 0.5000 | 0.0625 | 60.0 | 917-000-309 | 917-000-310 |
| 0.3750 | 1.6250 | 3.0000 | 0.6250 | 0.0625 | 60.0 | 917-000-311 | 917-000-312 |
| 0.3750 | 1.5000 | 3.0000 | 0.7500 | 0.0625 | 60.0 | 917-000-313 | 917-000-314 |
| 0.5000 | 1.5000 | 3.2500 | 1.0000 | 0.1250 | 60.0 | 917-000-315 | 917-000-316 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1875 | 60.0 | 917-000-317 | 917-000-318 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0156 | 82.0 | 917-000-321 | 917-000-322 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0313 | 82.0 | 917-000-323 | 917-000-324 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0625 | 82.0 | 917-000-325 | 917-000-326 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.0625 | 82.0 | 917-000-327 | 917-000-328 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.0625 | 82.0 | 917-000-329 | 917-000-330 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.0625 | 82.0 | 917-000-331 | 917-000-332 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.0625 | 82.0 | 917-000-333 | 917-000-334 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.0938 | 82.0 | 917-000-335 | 917-000-336 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1250 | 82.0 | 917-000-337 | 917-000-338 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0156 | 90.0 | 917-000-341 | 917-000-342 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0313 | 90.0 | 917-000-343 | 917-000-344 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0625 | 90.0 | 917-000-345 | 917-000-346 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.0625 | 90.0 | 917-000-347 | 917-000-348 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.0625 | 90.0 | 917-000-349 | 917-000-350 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.0625 | 90.0 | 917-000-351 | 917-000-352 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.0625 | 90.0 | 917-000-353 | 917-000-354 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.0938 | 90.0 | 917-000-355 | 917-000-356 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1250 | 90.0 | 917-000-357 | 917-000-358 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0156 | 100.0 | 917-000-361 | 917-000-362 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0313 | 100.0 | 917-000-363 | 917-000-364 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0625 | 100.0 | 917-000-365 | 917-000-366 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.0625 | 100.0 | 917-000-367 | 917-000-368 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.0625 | 100.0 | 917-000-369 | 917-000-370 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.0625 | 100.0 | 917-000-371 | 917-000-372 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.0625 | 100.0 | 917-000-373 | 917-000-374 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.0625 | 100.0 | 917-000-375 | 917-000-376 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.0938 | 100.0 | 917-000-377 | 917-000-378 |



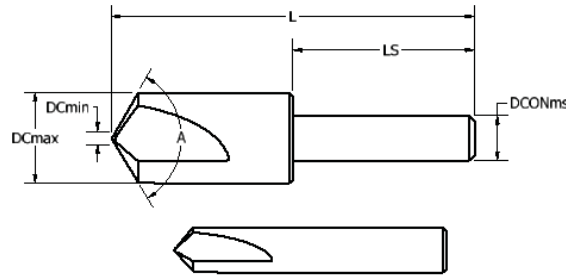
COBALT

| DC | DCNms | DC1 | LU | LS | L | A | COBALT |
|--------|--------|--------|--------|--------|--------|-------|-------------|
| 0.0590 | 0.2031 | 0.2500 | 0.2550 | 1.2500 | 1.7500 | 60.0 | 919-000-265 |
| 0.0510 | 0.2500 | 0.3125 | 0.3360 | 1.2031 | 1.7500 | 60.0 | 919-000-266 |
| 0.0870 | 0.2500 | 0.3750 | 0.4060 | 1.2031 | 1.7500 | 60.0 | 919-000-267 |
| 0.0980 | 0.2500 | 0.5000 | 0.5350 | 1.2500 | 1.8750 | 60.0 | 919-000-268 |
| 0.1100 | 0.3750 | 0.6250 | 0.6490 | 1.5000 | 2.2500 | 60.0 | 919-000-269 |
| 0.1180 | 0.3750 | 0.7500 | 0.7500 | 1.5000 | 2.5000 | 60.0 | 919-000-270 |
| 0.1260 | 0.3750 | 1.0000 | 0.9760 | 1.5000 | 2.7500 | 60.0 | 919-000-271 |
| 0.1970 | 0.5000 | 1.2500 | 1.1620 | 1.7500 | 3.2500 | 60.0 | 919-000-272 |
| 0.0590 | 0.2031 | 0.2500 | 0.2000 | 1.2500 | 1.7500 | 82.0 | 919-000-273 |
| 0.0510 | 0.2500 | 0.3125 | 0.2600 | 1.2031 | 1.7500 | 82.0 | 919-000-274 |
| 0.0870 | 0.2500 | 0.3750 | 0.3220 | 1.2031 | 1.7500 | 82.0 | 919-000-275 |
| 0.0980 | 0.2500 | 0.5000 | 0.4180 | 1.2500 | 1.8750 | 82.0 | 919-000-276 |
| 0.1100 | 0.3750 | 0.6250 | 0.4990 | 1.5000 | 2.2500 | 82.0 | 919-000-277 |
| 0.1180 | 0.3750 | 0.7500 | 0.5670 | 1.5000 | 2.5000 | 82.0 | 919-000-278 |
| 0.1260 | 0.3750 | 1.0000 | 0.7210 | 1.5000 | 2.7500 | 82.0 | 919-000-279 |
| 0.1970 | 0.5000 | 1.2500 | 0.8560 | 1.7500 | 3.2500 | 82.0 | 919-000-280 |
| 0.0590 | 0.2031 | 0.2500 | 0.1850 | 1.2500 | 1.7500 | 90.0 | 919-000-281 |
| 0.0510 | 0.2500 | 0.3125 | 0.2400 | 1.2031 | 1.7500 | 90.0 | 919-000-282 |
| 0.0870 | 0.2500 | 0.3750 | 0.3000 | 1.2031 | 1.7500 | 90.0 | 919-000-283 |
| 0.0980 | 0.2500 | 0.5000 | 0.3880 | 1.2500 | 1.8750 | 90.0 | 919-000-284 |
| 0.1100 | 0.3750 | 0.6250 | 0.4610 | 1.5000 | 2.2500 | 90.0 | 919-000-285 |
| 0.1180 | 0.3750 | 0.7500 | 0.5190 | 1.5000 | 2.5000 | 90.0 | 919-000-286 |
| 0.1260 | 0.3750 | 1.0000 | 0.6560 | 1.5000 | 2.7500 | 90.0 | 919-000-287 |
| 0.1970 | 0.5000 | 1.2500 | 0.7770 | 1.7500 | 3.2500 | 90.0 | 919-000-288 |
| 0.0590 | 0.2031 | 0.2500 | 0.1700 | 1.2500 | 1.7500 | 100.0 | 919-000-289 |
| 0.0510 | 0.2500 | 0.3125 | 0.2190 | 1.2031 | 1.7500 | 100.0 | 919-000-290 |
| 0.0870 | 0.2500 | 0.3750 | 0.2770 | 1.2031 | 1.7500 | 100.0 | 919-000-291 |
| 0.0980 | 0.2500 | 0.5000 | 0.3560 | 1.2500 | 1.8750 | 100.0 | 919-000-292 |
| 0.1100 | 0.3750 | 0.6250 | 0.4190 | 1.5000 | 2.2500 | 100.0 | 919-000-293 |
| 0.1180 | 0.3750 | 0.7500 | 0.4680 | 1.5000 | 2.5000 | 100.0 | 919-000-294 |
| 0.1260 | 0.3750 | 1.0000 | 0.5850 | 1.5000 | 2.7500 | 100.0 | 919-000-295 |
| 0.1970 | 0.5000 | 1.2500 | 0.6920 | 1.7500 | 3.2500 | 100.0 | 919-000-296 |



| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TiN |
|--------|--------|--------|--------|--------|------|-------------|-------------|
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 60.0 | 917-000-031 | 917-000-032 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 60.0 | 917-000-055 | 917-000-056 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0938 | 60.0 | 917-000-019 | 917-000-020 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0938 | 60.0 | 917-000-067 | 917-000-068 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 60.0 | 917-000-043 | 917-000-044 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1250 | 60.0 | 917-000-079 | 917-000-080 |
| 0.5000 | 1.2500 | 3.0000 | 1.2500 | 0.1250 | 60.0 | 917-000-103 | 917-000-104 |
| 0.7500 | 1.2500 | 3.2500 | 1.5000 | 0.1250 | 60.0 | 917-000-121 | 917-000-122 |
| 0.7500 | 1.2500 | 3.5000 | 1.7500 | 0.1250 | 60.0 | 917-000-133 | 917-000-134 |
| 0.7500 | 1.2500 | 3.7500 | 2.0000 | 0.1250 | 60.0 | 917-000-151 | 917-000-152 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 82.0 | 917-000-033 | 917-000-034 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 82.0 | 917-000-057 | 917-000-058 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 82.0 | 917-000-021 | 917-000-022 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 82.0 | 917-000-069 | 917-000-070 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0938 | 82.0 | 917-000-045 | 917-000-046 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0938 | 82.0 | 917-000-081 | 917-000-082 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0938 | 82.0 | 917-000-105 | 917-000-106 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0938 | 82.0 | 917-000-123 | 917-000-124 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0938 | 82.0 | 917-000-135 | 917-000-136 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0938 | 82.0 | 917-000-153 | 917-000-154 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 90.0 | 917-000-035 | 917-000-036 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 90.0 | 917-000-059 | 917-000-060 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 90.0 | 917-000-023 | 917-000-024 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 90.0 | 917-000-071 | 917-000-072 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0938 | 90.0 | 917-000-047 | 917-000-048 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0938 | 90.0 | 917-000-083 | 917-000-084 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0938 | 90.0 | 917-000-107 | 917-000-108 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0938 | 90.0 | 917-000-125 | 917-000-126 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0938 | 90.0 | 917-000-137 | 917-000-138 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0938 | 90.0 | 917-000-155 | 917-000-156 |

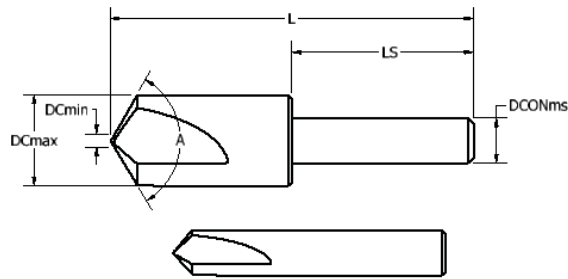
For set information see **page 198**



| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TiN |
|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.2500 | 0.7500 | 1.5000 | 0.5000 | 0.0625 | 100.0 | 917-000-025 | 917-000-026 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 100.0 | 917-000-049 | 917-000-050 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 100.0 | 917-000-013 | 917-000-014 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 100.0 | 917-000-061 | 917-000-062 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 100.0 | 917-000-037 | 917-000-038 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 100.0 | 917-000-073 | 917-000-074 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 100.0 | 917-000-097 | 917-000-098 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 100.0 | 917-000-115 | 917-000-116 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 100.0 | 917-000-127 | 917-000-128 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 100.0 | 917-000-145 | 917-000-146 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0313 | 110.0 | 917-000-027 | 917-000-028 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0313 | 110.0 | 917-000-051 | 917-000-052 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 110.0 | 917-000-015 | 917-000-016 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 110.0 | 917-000-063 | 917-000-064 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 110.0 | 917-000-039 | 917-000-040 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 110.0 | 917-000-075 | 917-000-076 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 110.0 | 917-000-099 | 917-000-100 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 110.0 | 917-000-117 | 917-000-118 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 110.0 | 917-000-129 | 917-000-130 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 110.0 | 917-000-147 | 917-000-148 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0313 | 120.0 | 917-000-029 | 917-000-030 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0313 | 120.0 | 917-000-053 | 917-000-054 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 120.0 | 917-000-017 | 917-000-018 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 120.0 | 917-000-065 | 917-000-066 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 120.0 | 917-000-041 | 917-000-042 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 120.0 | 917-000-077 | 917-000-078 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 120.0 | 917-000-101 | 917-000-102 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 120.0 | 917-000-119 | 917-000-120 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 120.0 | 917-000-131 | 917-000-132 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 120.0 | 917-000-149 | 917-000-150 |

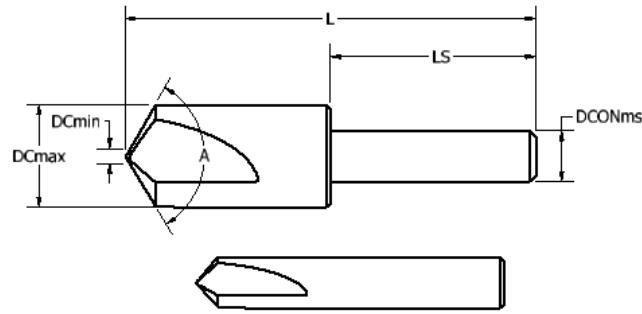
For set information see page 198

HSS



| DCONms | LS | L | DCmax | DCmin | A | COBALT | COBALT-TIN |
|--------|--------|--------|--------|--------|------|-------------|-------------|
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 60.0 | 917-000-157 | 917-000-158 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 60.0 | 917-000-159 | 917-000-160 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0938 | 60.0 | 917-000-161 | 917-000-162 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0938 | 60.0 | 917-000-163 | 917-000-164 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 60.0 | 917-000-165 | 917-000-166 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1250 | 60.0 | 917-000-167 | 917-000-168 |
| 0.5000 | 1.2500 | 3.0000 | 1.2500 | 0.1250 | 60.0 | 917-000-169 | 917-000-170 |
| 0.7500 | 1.2500 | 3.2500 | 1.5000 | 0.1250 | 60.0 | 917-000-171 | 917-000-172 |
| 0.7500 | 1.2500 | 3.5000 | 1.7500 | 0.1250 | 60.0 | 917-000-173 | 917-000-174 |
| 0.7500 | 1.2500 | 3.7500 | 2.0000 | 0.1250 | 60.0 | 917-000-175 | 917-000-176 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 82.0 | 917-000-177 | 917-000-178 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 82.0 | 917-000-179 | 917-000-180 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 82.0 | 917-000-181 | 917-000-182 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 82.0 | 917-000-183 | 917-000-184 |
| 0.5000 | 1.2500 | 2.7500 | 0.7500 | 0.0938 | 82.0 | 917-000-185 | 917-000-186 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0938 | 82.0 | 917-000-187 | 917-000-188 |
| 0.5000 | 2.7500 | 3.0000 | 1.2500 | 0.0938 | 82.0 | 917-000-189 | 917-000-190 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0938 | 82.0 | 917-000-191 | 917-000-192 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0938 | 82.0 | 917-000-193 | 917-000-194 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0938 | 82.0 | 917-000-195 | 917-000-196 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 90.0 | 917-000-197 | 917-000-198 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 90.0 | 917-000-199 | 917-000-200 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 90.0 | 917-000-201 | 917-000-202 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 90.0 | 917-000-203 | 917-000-204 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0938 | 90.0 | 917-000-205 | 917-000-206 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0938 | 90.0 | 917-000-207 | 917-000-208 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0938 | 90.0 | 917-000-209 | 917-000-210 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0938 | 90.0 | 917-000-211 | 917-000-212 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0938 | 90.0 | 917-000-213 | 917-000-214 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0938 | 90.0 | 917-000-215 | 917-000-216 |

For set information see page 198



COBALT



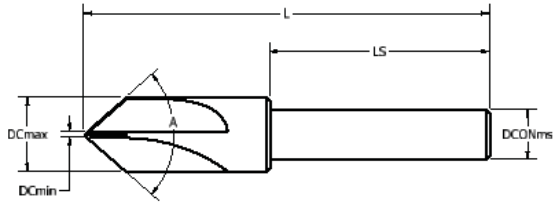
| DCONms | LS | L | DCmax | DCmin | A | COBALT | COBALT-TiN |
|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0625 | 100.0 | 917-000-217 | 917-000-218 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 100.0 | 917-000-219 | 917-000-220 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 100.0 | 917-000-221 | 917-000-222 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 100.0 | 917-000-223 | 917-000-224 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 100.0 | 917-000-225 | 917-000-226 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 100.0 | 917-000-227 | 917-000-228 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 100.0 | 917-000-229 | 917-000-230 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 100.0 | 917-000-231 | 917-000-232 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 100.0 | 917-000-233 | 917-000-234 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 100.0 | 917-000-235 | 917-000-236 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0313 | 110.0 | 917-000-237 | 917-000-238 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0313 | 110.0 | 917-000-239 | 917-000-240 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 110.0 | 917-000-241 | 917-000-242 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 110.0 | 917-000-243 | 917-000-244 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 110.0 | 917-000-245 | 917-000-246 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 110.0 | 917-000-247 | 917-000-248 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 110.0 | 917-000-249 | 917-000-250 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 110.0 | 917-000-251 | 917-000-252 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 110.0 | 917-000-253 | 917-000-254 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 110.0 | 917-000-255 | 917-000-256 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0313 | 120.0 | 917-000-257 | 917-000-258 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0313 | 120.0 | 917-000-259 | 917-000-260 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0625 | 120.0 | 917-000-261 | 917-000-262 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.0625 | 120.0 | 917-000-263 | 917-000-264 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.0625 | 120.0 | 917-000-265 | 917-000-266 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.0625 | 120.0 | 917-000-267 | 917-000-268 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.0625 | 120.0 | 917-000-269 | 917-000-270 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.0625 | 120.0 | 917-000-271 | 917-000-272 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.0625 | 120.0 | 917-000-273 | 917-000-274 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.0625 | 120.0 | 917-000-275 | 917-000-276 |



| Countersink Angle | HSS KIT# | COBALT KIT# |
|-------------------|-------------|-------------|
| 60° | 917-000-004 | 917-000-010 |
| 82° | 917-000-005 | 917-000-011 |
| 90° | 917-000-006 | 917-000-012 |
| 100° | 917-000-001 | 917-000-007 |
| 110° | 917-000-002 | 917-000-008 |
| 120° | 917-000-003 | 917-000-009 |

3-Flute Center Reamer Sets - Available in HSS & Cobalt

Each 5-piece set includes one piece each of 1/4, 3/8, 1/2, 3/4, and 1" body diameter with a particular included point angle.



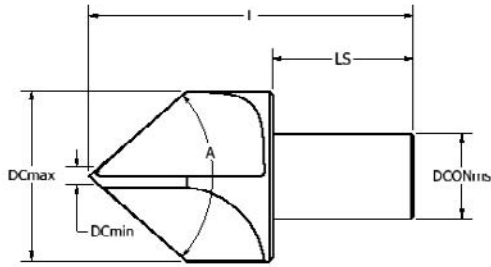
| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TiN | CO | COBALT-TiN |
|--------|--------|--------|--------|--------|------|-------------|-------------|-------------|-------------|
| 0.5000 | 2.2500 | 3.8750 | 0.5000 | 0.1094 | 60.0 | 919-000-001 | 919-000-002 | 919-000-519 | 919-000-520 |
| 0.5000 | 2.2500 | 4.0000 | 0.6250 | 0.1563 | 60.0 | 919-000-013 | 919-000-014 | 919-000-521 | 919-000-522 |
| 0.5000 | 2.2500 | 4.1250 | 0.7500 | 0.2031 | 60.0 | 919-000-007 | 919-000-008 | 919-000-523 | 919-000-524 |
| 0.5000 | 2.2500 | 4.2500 | 0.8750 | 0.2031 | 60.0 | 919-000-019 | 919-000-020 | 919-000-525 | 919-000-526 |
| 0.5000 | 2.2500 | 4.3750 | 1.0000 | 0.2031 | 60.0 | 919-000-025 | 919-000-026 | 919-000-527 | 919-000-528 |
| 0.5000 | 2.2500 | 3.8750 | 0.5000 | 0.1094 | 82.0 | 919-000-003 | 919-000-004 | 919-000-529 | 919-000-530 |
| 0.5000 | 2.2500 | 4.0000 | 0.6250 | 0.1250 | 82.0 | 919-000-015 | 919-000-016 | 919-000-531 | 919-000-532 |
| 0.5000 | 2.2500 | 4.1250 | 0.7500 | 0.1406 | 82.0 | 919-000-009 | 919-000-010 | 919-000-533 | 919-000-534 |
| 0.5000 | 2.2500 | 4.2500 | 0.8750 | 0.1563 | 82.0 | 919-000-021 | 919-000-022 | 919-000-535 | 919-000-536 |
| 0.5000 | 2.2500 | 4.3750 | 1.0000 | 0.1719 | 82.0 | 919-000-027 | 919-000-028 | 919-000-537 | 919-000-538 |
| 0.5000 | 2.2500 | 3.8750 | 0.5000 | 0.1094 | 90.0 | 919-000-005 | 919-000-006 | 919-000-539 | 919-000-540 |
| 0.5000 | 2.2500 | 4.0000 | 0.6250 | 0.1250 | 90.0 | 919-000-017 | 919-000-018 | 919-000-541 | 919-000-542 |
| 0.5000 | 2.2500 | 4.1250 | 0.7500 | 0.1406 | 90.0 | 919-000-011 | 919-000-012 | 919-000-543 | 919-000-544 |
| 0.5000 | 2.2500 | 4.2500 | 0.8750 | 0.1563 | 90.0 | 919-000-023 | 919-000-024 | 919-000-545 | 919-000-546 |
| 0.5000 | 2.2500 | 4.3750 | 1.0000 | 0.1719 | 90.0 | 919-000-029 | 919-000-030 | 919-000-547 | 919-000-548 |

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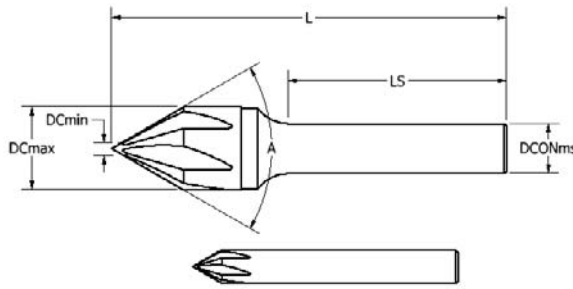
COBALT



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COBALT

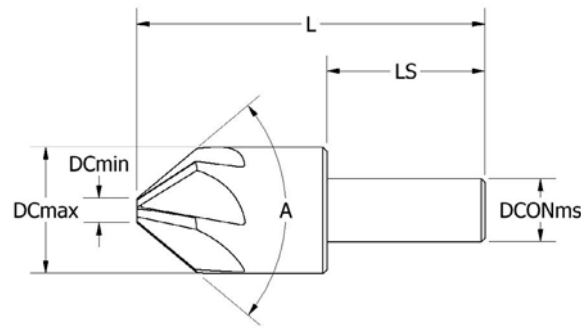


| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TiN | COBALT | COBALT-TiN |
|--------|--------|--------|--------|--------|------|-------------|-------------|-------------|-------------|
| 0.5000 | 1.2500 | 3.0000 | 1.2500 | 0.4375 | 60.0 | 917-000-091 | 917-000-092 | 917-000-277 | 917-000-278 |
| 0.7500 | 1.2500 | 3.2500 | 1.5000 | 0.5625 | 60.0 | 917-000-085 | 917-000-086 | 917-000-279 | 917-000-280 |
| 0.7500 | 1.2500 | 3.5000 | 1.7500 | 0.5625 | 60.0 | 917-000-109 | 917-000-110 | 917-000-281 | 917-000-282 |
| 0.7500 | 1.2500 | 3.7500 | 2.0000 | 0.5625 | 60.0 | 917-000-139 | 917-000-140 | 917-000-283 | 917-000-284 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.3750 | 82.0 | 917-000-093 | 917-000-094 | 917-000-285 | 917-000-286 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.5156 | 82.0 | 917-000-087 | 917-000-088 | 917-000-287 | 917-000-288 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.5156 | 82.0 | 917-000-111 | 917-000-112 | 917-000-289 | 917-000-290 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.5313 | 82.0 | 917-000-141 | 917-000-142 | 917-000-291 | 917-000-292 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.3594 | 90.0 | 917-000-095 | 917-000-096 | 917-000-293 | 917-000-294 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.5000 | 90.0 | 917-000-089 | 917-000-090 | 917-000-295 | 917-000-296 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.5000 | 90.0 | 917-000-113 | 917-000-114 | 917-000-297 | 917-000-298 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.5000 | 90.0 | 917-000-143 | 917-000-144 | 917-000-299 | 917-000-300 |

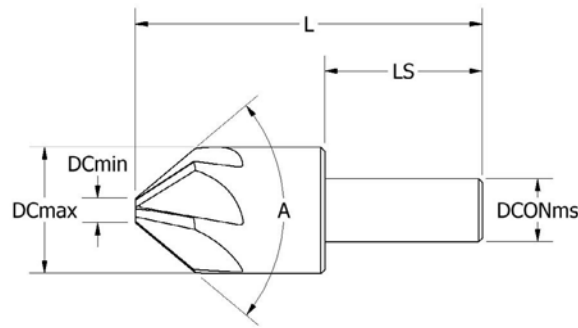


| DCONms | LS | L | DCmax | DCmin | A | CARBIDE | CARBIDE-TIALN |
|--------|--------|--------|--------|--------|-------|-------------|---------------|
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0469 | 60.0 | 919-000-989 | 919-000-990 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0469 | 60.0 | 919-000-991 | 919-000-992 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0625 | 60.0 | 919-000-993 | 919-000-994 |
| 0.2500 | 1.7500 | 2.7500 | 0.3750 | 0.0781 | 60.0 | 919-000-995 | 919-000-996 |
| 0.2500 | 1.6250 | 2.7500 | 0.5000 | 0.0938 | 60.0 | 919-000-997 | 919-000-998 |
| 0.3750 | 1.6250 | 2.8750 | 0.6250 | 0.1094 | 60.0 | 919-000-999 | 919-001-001 |
| 0.3750 | 1.5000 | 3.0000 | 0.7500 | 0.1094 | 60.0 | 919-001-002 | 919-001-003 |
| 0.5000 | 1.5000 | 3.2500 | 1.0000 | 0.1563 | 60.0 | 919-001-004 | 919-001-005 |
| 0.7500 | 1.5000 | 3.7500 | 1.2500 | 0.1563 | 60.0 | 919-001-006 | 919-001-007 |
| 0.7500 | 1.5000 | 3.7500 | 1.5000 | 0.1875 | 60.0 | 919-001-008 | 919-001-009 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0469 | 82.0 | 919-001-012 | 919-001-013 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0625 | 82.0 | 919-001-014 | 919-001-015 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0781 | 82.0 | 919-001-016 | 919-001-017 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.1094 | 82.0 | 919-001-018 | 919-001-019 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.1250 | 82.0 | 919-001-020 | 919-001-021 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.1406 | 82.0 | 919-001-022 | 919-001-023 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.1563 | 82.0 | 919-001-024 | 919-001-025 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.1719 | 82.0 | 919-001-026 | 919-001-027 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1719 | 82.0 | 919-001-028 | 919-001-029 |
| 0.7500 | 1.5000 | 3.2500 | 1.5000 | 0.1875 | 82.0 | 919-001-030 | 919-001-031 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0469 | 90.0 | 919-001-034 | 919-001-035 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0625 | 90.0 | 919-001-036 | 919-001-037 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0781 | 90.0 | 919-001-038 | 919-001-039 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.1094 | 90.0 | 919-001-040 | 919-001-041 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.1250 | 90.0 | 919-001-042 | 919-001-043 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.1406 | 90.0 | 919-001-044 | 919-001-045 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.1563 | 90.0 | 919-001-046 | 919-001-047 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.1719 | 90.0 | 919-001-048 | 919-001-049 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1719 | 90.0 | 919-001-050 | 919-001-051 |
| 0.7500 | 1.5000 | 3.2500 | 1.5000 | 0.1875 | 90.0 | 919-001-052 | 919-001-053 |
| 0.1250 | 0.7500 | 1.5000 | 0.1250 | 0.0625 | 100.0 | 919-001-056 | 919-001-057 |
| 0.1875 | 1.0000 | 2.0000 | 0.1875 | 0.0781 | 100.0 | 919-001-058 | 919-001-059 |
| 0.2500 | 1.0000 | 2.0000 | 0.2500 | 0.0781 | 100.0 | 919-001-060 | 919-001-061 |
| 0.2500 | 1.7500 | 2.6250 | 0.3750 | 0.1094 | 100.0 | 919-001-062 | 919-001-063 |
| 0.2500 | 1.6250 | 2.6250 | 0.5000 | 0.1250 | 100.0 | 919-001-064 | 919-001-065 |
| 0.3750 | 1.6250 | 2.7500 | 0.6250 | 0.1563 | 100.0 | 919-001-066 | 919-001-067 |
| 0.3750 | 1.5000 | 2.7500 | 0.7500 | 0.1719 | 100.0 | 919-001-068 | 919-001-069 |
| 0.5000 | 1.5000 | 3.0000 | 1.0000 | 0.1875 | 100.0 | 919-001-071 | 919-001-072 |
| 0.7500 | 1.5000 | 3.2500 | 1.2500 | 0.1875 | 100.0 | 919-001-073 | 919-001-074 |
| 0.7500 | 1.5000 | 3.2500 | 1.5000 | 0.2188 | 100.0 | 919-001-075 | 919-001-076 |

For set information see page 207

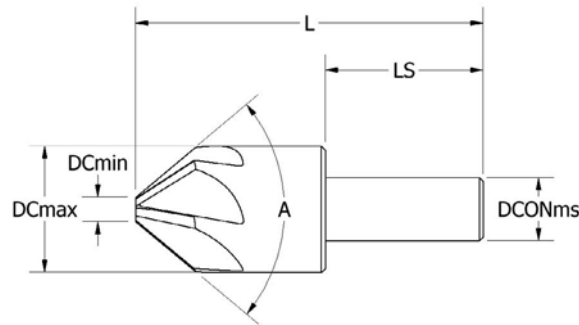


| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TIN |
|--------|--------|--------|--------|--------|------|-------------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0469 | 60.0 | 919-000-297 | 919-000-298 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0625 | 60.0 | 919-000-299 | 919-000-300 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0781 | 60.0 | 919-000-301 | 919-000-302 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0938 | 60.0 | 919-000-303 | 919-000-304 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.1250 | 60.0 | 919-000-305 | 919-000-306 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1563 | 60.0 | 919-000-307 | 919-000-308 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1563 | 60.0 | 919-000-309 | 919-000-310 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.2031 | 60.0 | 919-000-311 | 919-000-312 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.2031 | 60.0 | 919-000-313 | 919-000-314 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.2500 | 60.0 | 919-000-315 | 919-000-316 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.2813 | 60.0 | 919-000-317 | 919-000-318 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.3281 | 60.0 | 919-000-319 | 919-000-320 |
| 0.5000 | 1.2500 | 3.0000 | 1.2500 | 0.4063 | 60.0 | 919-000-321 | 919-000-322 |
| 0.7500 | 1.2500 | 3.2500 | 1.5000 | 0.5000 | 60.0 | 919-000-323 | 919-000-324 |
| 0.7500 | 1.2500 | 3.5000 | 1.7500 | 0.5781 | 60.0 | 919-000-325 | 919-000-326 |
| 0.7500 | 1.2500 | 3.7500 | 2.0000 | 0.6563 | 60.0 | 919-000-327 | 919-000-328 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.8281 | 60.0 | 919-000-329 | 919-000-330 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 1.0000 | 60.0 | 919-000-331 | 919-000-332 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 82.0 | 919-000-334 | 919-000-335 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 82.0 | 919-000-336 | 919-000-337 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 82.0 | 919-000-338 | 919-000-339 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 82.0 | 919-000-340 | 919-000-341 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 82.0 | 919-000-342 | 919-000-343 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 82.0 | 919-000-344 | 919-000-345 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 82.0 | 919-000-346 | 919-000-347 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 82.0 | 919-000-348 | 919-000-349 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 82.0 | 919-000-350 | 919-000-351 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 82.0 | 919-000-352 | 919-000-353 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 82.0 | 919-000-354 | 919-000-355 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 82.0 | 919-000-356 | 919-000-357 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 82.0 | 919-000-358 | 919-000-359 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 82.0 | 919-000-360 | 919-000-361 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 82.0 | 919-000-362 | 919-000-363 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 82.0 | 919-000-364 | 919-000-365 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 82.0 | 919-000-366 | 919-000-367 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5938 | 82.0 | 919-000-368 | 919-000-369 |



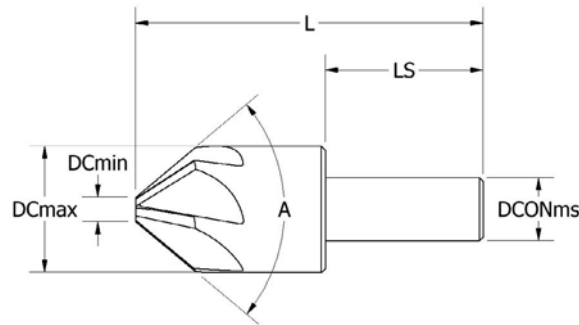
| DCONms | LS | L | DCmax | DCmin | A | HSS | Price | HSS-TIN |
|--------|--------|--------|--------|--------|-------|-------------|----------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 90.0 | 919-000-371 | \$8.02 | 919-000-372 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 90.0 | 919-000-373 | \$8.75 | 919-000-374 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 90.0 | 919-000-375 | \$8.90 | 919-000-376 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 90.0 | 919-000-377 | \$10.53 | 919-000-378 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 90.0 | 919-000-379 | \$10.99 | 919-000-380 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 90.0 | 919-000-381 | \$13.51 | 919-000-382 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 90.0 | 919-000-383 | \$13.51 | 919-000-384 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 90.0 | 919-000-385 | \$19.59 | 919-000-386 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 90.0 | 919-000-387 | \$19.59 | 919-000-388 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 90.0 | 919-000-389 | \$26.87 | 919-000-390 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 90.0 | 919-000-391 | \$38.02 | 919-000-392 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 90.0 | 919-000-393 | \$42.29 | 919-000-394 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 90.0 | 919-000-395 | \$64.87 | 919-000-396 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 90.0 | 919-000-397 | \$92.96 | 919-000-398 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 90.0 | 919-000-399 | \$123.65 | 919-000-400 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 90.0 | 919-000-401 | \$157.23 | 919-000-402 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 90.0 | 919-000-403 | \$407.58 | 919-000-404 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5938 | 90.0 | 919-000-405 | \$561.76 | 919-000-406 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 100.0 | 919-000-408 | \$8.02 | 919-000-409 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 100.0 | 919-000-410 | \$8.75 | 919-000-411 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 100.0 | 919-000-412 | \$8.90 | 919-000-413 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 100.0 | 919-000-414 | \$10.53 | 919-000-415 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 100.0 | 919-000-416 | \$10.99 | 919-000-417 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 100.0 | 919-000-418 | \$13.51 | 919-000-419 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 100.0 | 919-000-420 | \$13.51 | 919-000-421 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 100.0 | 919-000-422 | \$19.59 | 919-000-423 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 100.0 | 919-000-424 | \$19.59 | 919-000-425 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 100.0 | 919-000-426 | \$26.87 | 919-000-427 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 100.0 | 919-000-428 | \$38.02 | 919-000-429 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 100.0 | 919-000-430 | \$42.29 | 919-000-431 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 100.0 | 919-000-432 | \$64.87 | 919-000-433 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 100.0 | 919-000-434 | \$92.96 | 919-000-435 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 100.0 | 919-000-436 | \$123.65 | 919-000-437 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 100.0 | 919-000-438 | \$157.23 | 919-000-439 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 100.0 | 919-000-440 | \$407.58 | 919-000-441 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 100.0 | 919-000-442 | \$561.76 | 919-000-443 |

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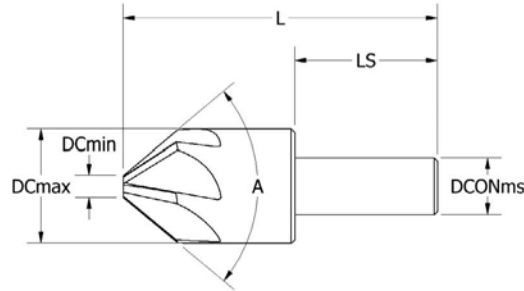


| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TIN |
|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0200 | 110.0 | 919-000-445 | 919-000-446 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 110.0 | 919-000-447 | 919-000-448 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 110.0 | 919-000-449 | 919-000-450 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0469 | 110.0 | 919-000-451 | 919-000-452 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 110.0 | 919-000-453 | 919-000-454 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 110.0 | 919-000-455 | 919-000-456 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 110.0 | 919-000-457 | 919-000-458 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 110.0 | 919-000-459 | 919-000-460 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 110.0 | 919-000-461 | 919-000-462 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 110.0 | 919-000-463 | 919-000-464 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1406 | 110.0 | 919-000-465 | 919-000-466 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1719 | 110.0 | 919-000-467 | 919-000-468 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2188 | 110.0 | 919-000-469 | 919-000-470 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.2500 | 110.0 | 919-000-471 | 919-000-472 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.2969 | 110.0 | 919-000-473 | 919-000-474 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.3438 | 110.0 | 919-000-475 | 919-000-476 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.4375 | 110.0 | 919-000-477 | 919-000-478 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5156 | 110.0 | 919-000-479 | 919-000-480 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0200 | 120.0 | 919-000-482 | 919-000-483 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 120.0 | 919-000-484 | 919-000-485 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 120.0 | 919-000-486 | 919-000-487 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0469 | 120.0 | 919-000-488 | 919-000-489 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 120.0 | 919-000-490 | 919-000-491 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 120.0 | 919-000-492 | 919-000-493 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 120.0 | 919-000-494 | 919-000-495 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 120.0 | 919-000-496 | 919-000-497 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 120.0 | 919-000-498 | 919-000-499 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 120.0 | 919-000-500 | 919-000-501 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1406 | 120.0 | 919-000-502 | 919-000-503 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1719 | 120.0 | 919-000-504 | 919-000-505 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2188 | 120.0 | 919-000-506 | 919-000-507 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.2500 | 120.0 | 919-000-508 | 919-000-509 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.2969 | 120.0 | 919-000-510 | 919-000-511 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.3438 | 120.0 | 919-000-512 | 919-000-513 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.4375 | 120.0 | 919-000-514 | 919-000-515 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5156 | 120.0 | 919-000-516 | 919-000-517 |

HSS

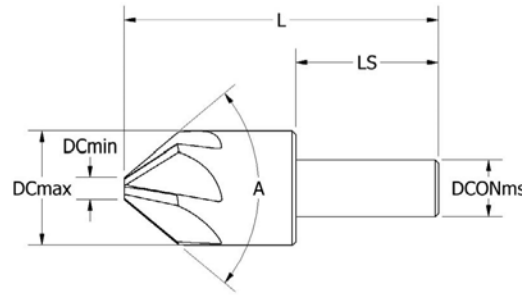


| DCONms | LS | L | DCmax | DCmin | A | COBALT | COBALT-TiN |
|--------|--------|--------|--------|--------|------|-------------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0469 | 60.0 | 919-000-693 | 919-000-694 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0625 | 60.0 | 919-000-695 | 919-000-696 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0781 | 60.0 | 919-000-697 | 919-000-698 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0938 | 60.0 | 919-000-699 | 919-000-700 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.1250 | 60.0 | 919-000-701 | 919-000-702 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1563 | 60.0 | 919-000-703 | 919-000-704 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1563 | 60.0 | 919-000-705 | 919-000-706 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.2031 | 60.0 | 919-000-707 | 919-000-708 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.2031 | 60.0 | 919-000-709 | 919-000-710 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.2500 | 60.0 | 919-000-711 | 919-000-712 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.2813 | 60.0 | 919-000-713 | 919-000-714 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.3281 | 60.0 | 919-000-715 | 919-000-716 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.4063 | 60.0 | 919-000-717 | 919-000-718 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.5000 | 60.0 | 919-000-719 | 919-000-720 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.5781 | 60.0 | 919-000-721 | 919-000-722 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.6563 | 60.0 | 919-000-723 | 919-000-724 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.8281 | 60.0 | 919-000-725 | 919-000-726 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 1.0000 | 60.0 | 919-000-727 | 919-000-728 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 82.0 | 919-000-729 | 919-000-730 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 82.0 | 919-000-731 | 919-000-732 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 82.0 | 919-000-733 | 919-000-734 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 82.0 | 919-000-735 | 919-000-736 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 82.0 | 919-000-737 | 919-000-738 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 82.0 | 919-000-739 | 919-000-740 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 82.0 | 919-000-741 | 919-000-742 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 82.0 | 919-000-743 | 919-000-744 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 82.0 | 919-000-745 | 919-000-746 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 82.0 | 919-000-747 | 919-000-748 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 82.0 | 919-000-749 | 919-000-750 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 82.0 | 919-000-751 | 919-000-752 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 82.0 | 919-000-753 | 919-000-754 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 82.0 | 919-000-755 | 919-000-756 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 82.0 | 919-000-757 | 919-000-758 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 82.0 | 919-000-759 | 919-000-760 |
| 1.0000 | 1.5000 | 5.0000 | 2.0000 | 0.5000 | 82.0 | 919-000-761 | 919-000-762 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5938 | 82.0 | 919-000-763 | 919-000-764 |



COBALT

| DCONms | LS | L | DCmax | DCmin | A | COBALT | COBALT-TiN |
|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 90.0 | 919-000-765 | 919-000-766 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 90.0 | 919-000-767 | 919-000-768 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 90.0 | 919-000-769 | 919-000-770 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 90.0 | 919-000-771 | 919-000-772 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 90.0 | 919-000-773 | 919-000-774 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 90.0 | 919-000-775 | 919-000-776 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 90.0 | 919-000-777 | 919-000-778 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 90.0 | 919-000-779 | 919-000-780 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 90.0 | 919-000-781 | 919-000-782 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 90.0 | 919-000-783 | 919-000-784 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 90.0 | 919-000-785 | 919-000-786 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 90.0 | 919-000-787 | 919-000-788 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 90.0 | 919-000-789 | 919-000-790 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 90.0 | 919-000-791 | 919-000-792 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 90.0 | 919-000-793 | 919-000-794 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 90.0 | 919-000-795 | 919-000-796 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 90.0 | 919-000-797 | 919-000-798 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5938 | 90.0 | 919-000-799 | 919-000-800 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0250 | 100.0 | 919-000-801 | 919-000-802 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 100.0 | 919-000-803 | 919-000-804 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 100.0 | 919-000-805 | 919-000-806 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0625 | 100.0 | 919-000-807 | 919-000-808 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0781 | 100.0 | 919-000-809 | 919-000-810 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 100.0 | 919-000-811 | 919-000-812 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.1094 | 100.0 | 919-000-813 | 919-000-814 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 100.0 | 919-000-815 | 919-000-816 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1250 | 100.0 | 919-000-817 | 919-000-818 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1563 | 100.0 | 919-000-819 | 919-000-820 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1719 | 100.0 | 919-000-821 | 919-000-822 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.2031 | 100.0 | 919-000-823 | 919-000-824 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2500 | 100.0 | 919-000-825 | 919-000-826 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.3125 | 100.0 | 919-000-827 | 919-000-828 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.3594 | 100.0 | 919-000-829 | 919-000-830 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.4063 | 100.0 | 919-000-831 | 919-000-832 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.5000 | 100.0 | 919-000-833 | 919-000-834 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5938 | 100.0 | 919-000-835 | 919-000-836 |



| DCONms | LS | L | DCmax | DCmin | A | HSS | HSS-TiN |
|--------|--------|--------|--------|--------|-------|-------------|-------------|
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0200 | 110.0 | 919-000-837 | 919-000-838 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 110.0 | 919-000-839 | 919-000-840 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 110.0 | 919-000-841 | 919-000-842 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0469 | 110.0 | 919-000-843 | 919-000-844 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 110.0 | 919-000-845 | 919-000-846 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 110.0 | 919-000-847 | 919-000-848 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 110.0 | 919-000-849 | 919-000-850 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 110.0 | 919-000-851 | 919-000-852 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 110.0 | 919-000-853 | 919-000-854 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 110.0 | 919-000-855 | 919-000-856 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1406 | 110.0 | 919-000-857 | 919-000-858 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1719 | 110.0 | 919-000-859 | 919-000-860 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2188 | 110.0 | 919-000-861 | 919-000-862 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.2500 | 110.0 | 919-000-863 | 919-000-864 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.2969 | 110.0 | 919-000-865 | 919-000-866 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.3438 | 110.0 | 919-000-867 | 919-000-868 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.4375 | 110.0 | 919-000-869 | 919-000-870 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5156 | 110.0 | 919-000-871 | 919-000-872 |
| 0.1250 | 0.6250 | 1.2500 | 0.1250 | 0.0200 | 120.0 | 919-000-873 | 919-000-874 |
| 0.1875 | 0.6875 | 1.3750 | 0.1875 | 0.0313 | 120.0 | 919-000-875 | 919-000-876 |
| 0.2500 | 0.7500 | 1.5000 | 0.2500 | 0.0469 | 120.0 | 919-000-877 | 919-000-878 |
| 0.2500 | 0.8750 | 1.7500 | 0.3125 | 0.0469 | 120.0 | 919-000-879 | 919-000-880 |
| 0.2500 | 0.8750 | 1.7500 | 0.3750 | 0.0625 | 120.0 | 919-000-881 | 919-000-882 |
| 0.2500 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 120.0 | 919-000-883 | 919-000-884 |
| 0.3750 | 1.0000 | 2.0000 | 0.5000 | 0.0781 | 120.0 | 919-000-885 | 919-000-886 |
| 0.2500 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 120.0 | 919-000-887 | 919-000-888 |
| 0.3750 | 1.0000 | 2.2500 | 0.6250 | 0.1094 | 120.0 | 919-000-889 | 919-000-890 |
| 0.5000 | 1.2500 | 2.6250 | 0.7500 | 0.1250 | 120.0 | 919-000-891 | 919-000-892 |
| 0.5000 | 1.2500 | 2.7500 | 0.8750 | 0.1406 | 120.0 | 919-000-893 | 919-000-894 |
| 0.5000 | 1.2500 | 2.7500 | 1.0000 | 0.1719 | 120.0 | 919-000-895 | 919-000-896 |
| 0.5000 | 1.2500 | 2.7500 | 1.2500 | 0.2188 | 120.0 | 919-000-897 | 919-000-898 |
| 0.7500 | 1.2500 | 2.8750 | 1.5000 | 0.2500 | 120.0 | 919-000-899 | 919-000-900 |
| 0.7500 | 1.2500 | 3.0000 | 1.7500 | 0.2969 | 120.0 | 919-000-901 | 919-000-902 |
| 0.7500 | 1.2500 | 3.2500 | 2.0000 | 0.3438 | 120.0 | 919-000-903 | 919-000-904 |
| 1.0000 | 1.5000 | 5.0000 | 2.5000 | 0.4375 | 120.0 | 919-000-905 | 919-000-906 |
| 1.0000 | 1.5000 | 5.2500 | 3.0000 | 0.5156 | 120.0 | 919-000-907 | 919-000-908 |



| Countersink Angle | HSS KIT # | CO KIT # |
|-------------------|-------------|-------------|
| 60° | 919-000-333 | 919-000-038 |
| 82° | 919-000-370 | 919-000-039 |
| 90° | 919-000-407 | 919-000-040 |
| 100° | 919-000-444 | 919-000-035 |
| 110° | 919-000-481 | 919-000-036 |
| 120° | 919-000-518 | 919-000-037 |

6-Flute Countersink Sets Available in HSS & Cobalt

HSS includes 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, and 1" body diameter with a particular included point angle. Cobalt includes 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, and 1" body diameter with a particular included point angle.



COUNTERBORES

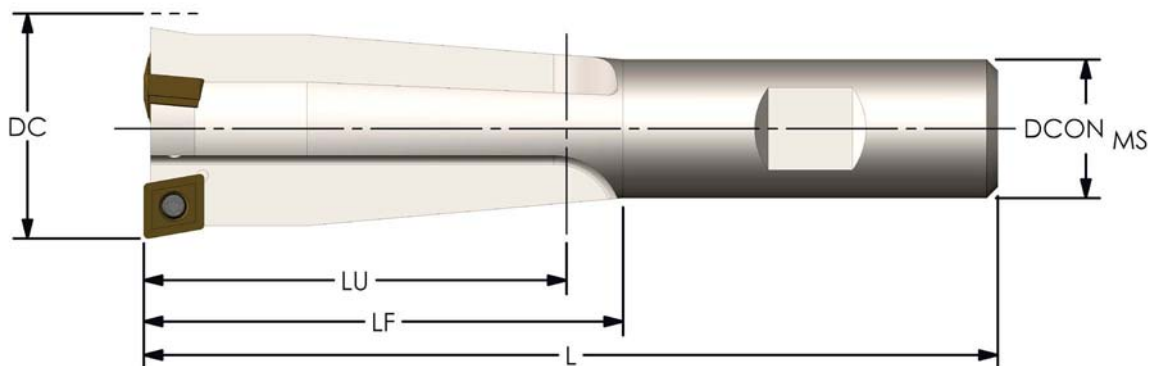


- Diameter range from 0.562" – 0.750" (8mm-20mm) socket head cap screw bore
- Single tool to counterbore, dual chamfer all in one setup* (PC2 series)
- Back boring reduces production time by eliminating second operation* (PC3 series)
- Achieves a true 90° bottom with all PC- series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process



PC1

- Diameter range from 0.562" – 0.750" (8mm-20mm) socket head cap screw bore
- Achieves a true 90° bottom with all PC- series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process



| PRODUCT # | Designation | C'bore Size | DC | DCONMS | LU | L | LF | Insert | Screw | ZC |
|-------------|------------------|-------------|-------|--------|-------|-------|-------|------------|--------|----|
| 970-000-001 | PC1-312-2-750-04 | 5/16 | 0.500 | 0.750 | 1.000 | 3.375 | 1.345 | PD1 042004 | PD1-16 | 2 |
| 970-000-003 | PC1-375-2-750-04 | 3/8 | 0.594 | 0.750 | 1.188 | 3.500 | 1.470 | PD1 042004 | PD1-16 | 2 |
| 970-000-005 | PC1-437-2-750-05 | 7/16 | 0.687 | 0.750 | 1.374 | 3.625 | 1.595 | PD1 052804 | PD1-2 | 2 |
| 970-000-007 | PC1-500-2-750-06 | 1/2 | 0.781 | 0.750 | 1.562 | 3.750 | 1.720 | PD1 063306 | PD1-22 | 2 |
| 970-000-008 | PC1-625-3-750-06 | 5/8 | 1.000 | 0.750 | 2.000 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 3 |
| 970-000-010 | PC1-750-3-750-07 | 3/4 | 1.188 | 0.750 | 2.376 | 4.625 | 2.595 | PD1 074006 | PD1-25 | 3 |
| 970-000-002 | PC1-315-2-750-04 | 8mm | 0.591 | 0.750 | 1.182 | 3.500 | 1.470 | PD1 042004 | PD1-16 | 2 |
| 970-000-004 | PC1-394-2-750-05 | 10mm | 0.709 | 0.750 | 1.418 | 3.625 | 1.595 | PD1 052804 | PD1-2 | 2 |
| 970-000-006 | PC1-472-2-750-06 | 12mm | 0.787 | 0.750 | 1.574 | 3.750 | 1.720 | PD1 063306 | PD1-22 | 2 |
| 970-000-009 | PC1-630-3-750-06 | 16mm | 1.024 | 0.750 | 2.048 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 3 |
| 970-000-011 | PC1-787-3-750-07 | 20mm | 1.299 | 0.750 | 2.598 | 4.750 | 2.720 | PD1 074006 | PD1-25 | 3 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi



| PRODUCT # | Designation | HP600 | HK356 | HN300 |
|-------------|-------------|-------|-------|-------|
| 914-000-085 | | • | | |
| 914-000-083 | PD1 042004 | | • | |
| 914-000-084 | | | | • |
| 914-000-088 | | • | | |
| 914-000-086 | PD1 052804 | | • | |
| 914-000-087 | | | | • |
| 914-000-091 | | • | | |
| 914-000-089 | PD1 063306 | | • | |
| 914-000-090 | | | | • |
| 914-000-094 | | • | | |
| 914-000-092 | PD1 074006 | | • | |
| 914-000-093 | | | | • |
| 914-000-097 | | • | | |
| 914-000-095 | PD1 094508 | | • | |
| 914-000-096 | | | | • |
| 914-000-100 | | • | | |
| 914-000-098 | PD1 125812 | | • | |
| 914-000-99 | | | | • |
| 914-000-103 | | • | | |
| 914-000-101 | PD1 156812 | | • | |
| 914-000-102 | | | | • |



PD1

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-112 | PD1-16 |
| 968-000-113 | PD1-2 |
| 968-000-114 | PD1-22 |
| 968-000-115 | PD1-25 |
| 968-000-116 | PD1-35 |
| 968-000-117 | PD1-5 |
| 968-000-118 | PD1-6 |

PACKAGE SIZE OF 5



PACKAGE SIZE OF 10

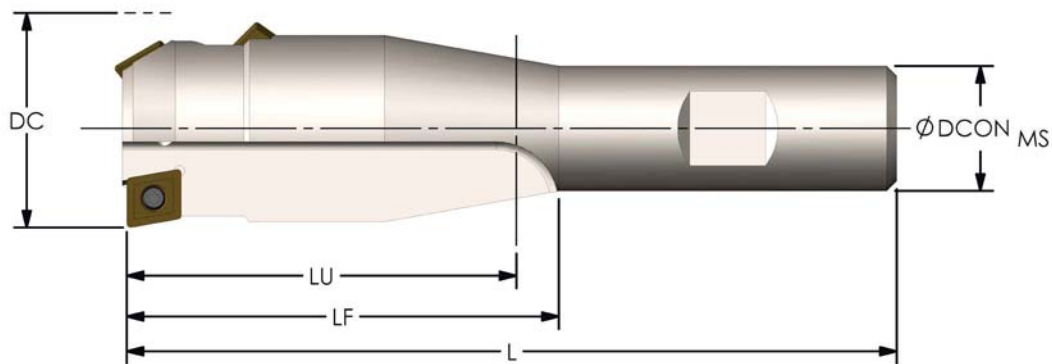
| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | DIAMETER inch (metric) | |
|----------|---|-----------------------------|--------------|-----------|---------------------------|---------------------------|
| | | | | | 5/16" (8mm) - 1/2" (12mm) | 1/2" (12mm) - 3/4" (20mm) |
| | | | | | Fz (INCH PER TOOTH)* | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 250-675 | .0015-.0040 | .0020-.0060 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 200-550 | .0020-.0050 | .0020-.0075 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP600 | 150-450 | .0018-.0025 | .0025-.0060 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 100-400 | .0018-.0025 | .0025-.0060 |
| K | GRAY IRONS Class 20,30,40,50,60,G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK365 | 200-700 | .0025-.0045 | .0035-.0070 |
| | DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 200-600 | .0020-.0045 | .0025-.0065 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic" | ≤ 271 BHN or ≤ 28 HRC | HN300 | 300-750 | .0020-.0060 | .0030-.0090 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | HP600 | 60-275 | .0018-.0055 | .0020-.0060 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 45-200 | .0015-.0030 | .0017-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 75-300 | .0019-.0045 | .0020-.0060 |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



PC2

- Diameter range from 0.562" – 0.750" (8mm-20mm) socket head cap screw bore
- Single tool to counterbore, dual chamfer all in one setup* (PC2 series)
- Achieves a true 90° bottom with all PC- series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process



| PRODUCT # | Designation | C'bore Size | DC | DCONMS | LU | L | LF | Insert | Screw | ZC |
|-------------|------------------|-------------|-------|--------|-------|--------|-------|------------|--------|----|
| 970-000-012 | PC2-312-3-750-04 | 5/16 | 0.500 | 0.750 | 1.000 | 3.375 | 1.345 | PD1 042004 | PD1-16 | 3 |
| 970-000-014 | PC2-375-3-750-04 | 3/8 | 0.594 | 0.750 | 1.188 | 30.500 | 1.470 | PD1 042004 | PD1-16 | 3 |
| 970-000-016 | PC2-437-3-750-05 | 7/16 | 0.687 | 0.750 | 1.374 | 3.625 | 1.595 | PD1 052804 | PD1-2 | 3 |
| 970-000-018 | PC2-500-3-750-06 | 1/2 | 0.781 | 0.750 | 1.562 | 3.750 | 1.720 | PD1 063306 | PD1-22 | 3 |
| 970-000-019 | PC2-625-3-750-06 | 5/8 | 1.000 | 0.750 | 2.000 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 3 |
| 970-000-021 | PC2-750-3-750-07 | 3/4 | 1.188 | 0.750 | 2.376 | 4.625 | 2.595 | PD1 074006 | PD1-25 | 3 |
| 970-000-013 | PC2-315-3-750-04 | 8mm | 0.591 | 0.750 | 1.182 | 30.500 | 1.470 | PD1 042004 | PD1-16 | 3 |
| 970-000-015 | PC2-394-3-750-05 | 10mm | 0.709 | 0.750 | 1.418 | 3.625 | 1.595 | PD1 052804 | PD1-2 | 3 |
| 970-000-017 | PC2-472-3-750-06 | 12mm | 0.787 | 0.750 | 1.574 | 3.750 | 1.720 | PD1 063306 | PD1-22 | 3 |
| 970-000-020 | PC2-630-3-750-06 | 16mm | 1.024 | 0.750 | 2.048 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 3 |
| 970-000-022 | PC2-787-3-750-07 | 20mm | 1.299 | 0.750 | 2.598 | 4.750 | 2.720 | PD1 074006 | PD1-25 | 3 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi



| PRODUCT # | Designation | HP600 | HK356 | HN300 |
|-------------|-------------|-------|-------|-------|
| 914-000-085 | | • | | |
| 914-000-083 | PD1 042004 | | • | |
| 914-000-084 | | | | • |
| 914-000-088 | | • | | |
| 914-000-086 | PD1 052804 | | • | |
| 914-000-087 | | | | • |
| 914-000-091 | | • | | |
| 914-000-089 | PD1 063306 | | • | |
| 914-000-090 | | | | • |
| 914-000-094 | | • | | |
| 914-000-092 | PD1 074006 | | • | |
| 914-000-093 | | | | • |
| 914-000-097 | | • | | |
| 914-000-095 | PD1 094508 | | • | |
| 914-000-096 | | | | • |
| 914-000-100 | | • | | |
| 914-000-098 | PD1 125812 | | • | |
| 914-000-99 | | | | • |
| 914-000-103 | | • | | |
| 914-000-101 | PD1 156812 | | • | |
| 914-000-102 | | | | • |



PD1

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-112 | PD1-16 |
| 968-000-113 | PD1-2 |
| 968-000-114 | PD1-22 |
| 968-000-115 | PD1-25 |
| 968-000-116 | PD1-35 |
| 968-000-117 | PD1-5 |
| 968-000-118 | PD1-6 |

PACKAGE SIZE OF 5

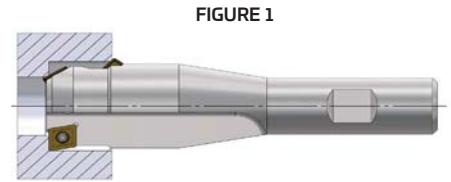


FIGURE 1

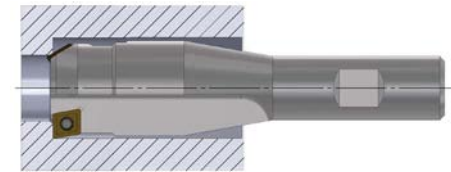


FIGURE 2

PACKAGE SIZE OF 10

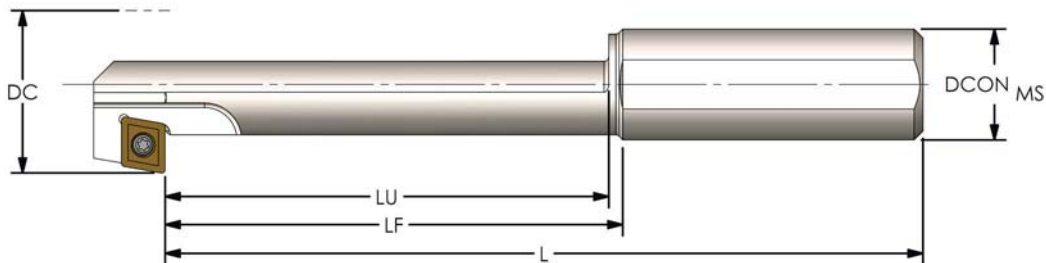
| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | DIAMETER inch (metric) | |
|----------|---|-----------------------------|--------------|-----------|---------------------------|---------------------------|
| | | | | | 5/16" (8mm) - 1/2" (12mm) | 1/2" (12mm) - 3/4" (20mm) |
| | | | | | Fz (INCH PER TOOTH)* | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 250-675 | .0015-.0040 | .0020-.0060 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | | |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP600 | 150-450 | .0018-.0025 | .0025-.0060 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | | |
| K | GRAY IRONS Class 20,30,40,50,60,G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK356 | 200-700 | .0025-.0045 | .0035-.0070 |
| | DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | | |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic" | ≤ 271 BHN or ≤ 28 HRC | HN300 | 300-750 | .0020-.0060 | .0030-.0090 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | HP600 | 60-275 | .0018-.0055 | .0020-.0060 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 45-200 | .0015-.0030 | .0017-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | | |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



PC3

- Diameter range from 0.562" – 0.750" (8mm-20mm) socket head cap screw bore
- Back boring reduces production time by eliminating second operation* (PC3 series)
- Achieves a true 90° bottom with all PC- series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process



| PRODUCT # | Designation | C'bore Size | DC | DCONMS | LU | L | LF | Insert | Screw | ZC |
|-------------|------------------|-------------|-------|--------|-------|-------|-------|------------|--------|----|
| 970-000-023 | PC3-312-1-750-04 | 5/16 | 0.500 | 0.750 | 1.030 | 3.375 | 1.345 | PD1 042004 | PD1-16 | 1 |
| 970-000-025 | PC3-375-1-750-04 | 3/8 | 0.594 | 0.750 | 1.218 | 3.500 | 1.470 | PD1 042004 | PD1-16 | 1 |
| 970-000-027 | PC3-437-1-750-05 | 7/16 | 0.687 | 0.750 | 1.748 | 4.000 | 1.970 | PD1 052804 | PD1-2 | 1 |
| 970-000-029 | PC3-500-1-750-06 | 1/2 | 0.781 | 0.750 | 1.983 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 1 |
| 970-000-030 | PC3-625-1-750-06 | 5/8 | 1.000 | 0.750 | 2.530 | 4.750 | 2.720 | PD1 063306 | PD1-22 | 1 |
| 970-000-032 | PC3-750-1-750-07 | 3/4 | 1.188 | 0.750 | 3.000 | 5.125 | 3.095 | PD1 074006 | PD1-25 | 1 |
| 970-000-024 | PC3-315-1-750-04 | 8mm | 0.591 | 0.750 | 1.212 | 3.500 | 1.470 | PD1 042004 | PD1-16 | 1 |
| 970-000-026 | PC3-394-1-750-05 | 10mm | 0.709 | 0.750 | 1.448 | 3.750 | 1.720 | PD1 052804 | PD1-2 | 1 |
| 970-000-028 | PC3-472-1-750-06 | 12mm | 0.787 | 0.750 | 1.998 | 4.250 | 2.220 | PD1 063306 | PD1-22 | 1 |
| 970-000-031 | PC3-630-1-750-06 | 16mm | 1.024 | 0.750 | 2.590 | 4.750 | 2.720 | PD1 063306 | PD1-22 | 1 |
| 970-000-033 | PC3-787-1-750-07 | 20mm | 1.299 | 0.750 | 3.278 | 5.375 | 3.345 | PD1 074006 | PD1-25 | 1 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi



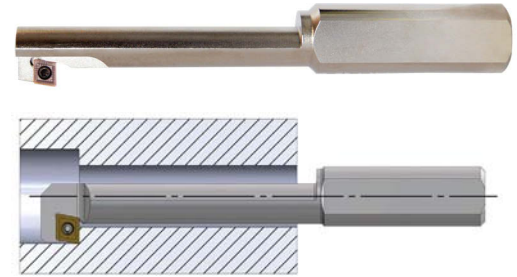
| PRODUCT # | Designation | HP600 | HK356 | HN300 |
|-------------|-------------|-------|-------|-------|
| 914-000-085 | | • | | |
| 914-000-083 | PD1 042004 | | • | |
| 914-000-084 | | | | • |
| 914-000-088 | | • | | |
| 914-000-086 | PD1 052804 | | • | |
| 914-000-087 | | | | • |
| 914-000-091 | | • | | |
| 914-000-089 | PD1 063306 | | • | |
| 914-000-090 | | | | • |
| 914-000-094 | | • | | |
| 914-000-092 | PD1 074006 | | • | |
| 914-000-093 | | | | • |
| 914-000-097 | | • | | |
| 914-000-095 | PD1 094508 | | • | |
| 914-000-096 | | | | • |
| 914-000-100 | | • | | |
| 914-000-098 | PD1 125812 | | • | |
| 914-000-99 | | | | • |
| 914-000-103 | | • | | |
| 914-000-101 | PD1 156812 | | • | |
| 914-000-102 | | | | • |



PD1

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-112 | PD1-16 |
| 968-000-113 | PD1-2 |
| 968-000-114 | PD1-22 |
| 968-000-115 | PD1-25 |
| 968-000-116 | PD1-35 |
| 968-000-117 | PD1-5 |
| 968-000-118 | PD1-6 |

PACKAGE SIZE OF 5



PACKAGE SIZE OF 10

| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | DIAMETER inch (metric) | |
|----------|---|-----------------------------|--------------|-----------|---------------------------|---------------------------|
| | | | | | 5/16" (8mm) - 1/2" (12mm) | 1/2" (12mm) - 3/4" (20mm) |
| | | | | | Fz (INCH PER TOOTH)* | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 250-675 | .0015-.0040 | .0020-.0060 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | | |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP600 | 150-450 | .0018-.0025 | .0025-.0060 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | | |
| K | GRAY IRONS Class 20,30,40,50,60,G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK356 | 200-700 | .0025-.0045 | .0035-.0070 |
| | DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | | |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic" | ≤ 271 BHN or ≤ 28 HRC | HN300 | 300-750 | .0020-.0060 | .0030-.0090 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | HP600 | 60-275 | .0018-.0055 | .0020-.0060 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 45-200 | .0015-.0030 | .0017-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | | |

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



COBALT

| DC | DCONms | D | LU | LS | L | LF | LP | Size/ Application | Assembly Criteria | COBALT |
|--------|--------|--------|--------|--------|--------|--------|--------|----------------------|----------------------|-------------|
| 0.1860 | 0.1563 | 0.1120 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #4 Nominal | Close Fit | 902-000-001 |
| 0.2020 | 0.1563 | 0.1270 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #4 +1/64 O/S | 1/64" Clearance | 902-000-002 |
| 0.2170 | 0.1563 | 0.1430 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #4 +1/32 O/S | 1/32" Clearance | 902-000-003 |
| 0.2050 | 0.1875 | 0.1250 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #5 Nominal | Close Fit | 902-000-004 |
| 0.2210 | 0.1875 | 0.1400 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #5 +1/64 O/S | 1/64" Clearance | 902-000-005 |
| 0.2370 | 0.1875 | 0.1560 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.1875 | #5 +1/32 O/S | 1/32" Clearance | 902-000-006 |
| 0.2280 | 0.2188 | 0.1380 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2031 | #6 Nominal | Close Fit | 902-000-007 |
| 0.2440 | 0.2188 | 0.1530 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2031 | #6 +1/64 O/S | 1/64" Clearance | 902-000-008 |
| 0.2600 | 0.2188 | 0.1690 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2031 | #6 +1/32 O/S | 1/32" Clearance | 902-000-009 |
| 0.2720 | 0.2500 | 0.1640 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2500 | #8 Nominal | Close Fit | 902-000-010 |
| 0.2880 | 0.2500 | 0.1790 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2500 | #8 +1/64 O/S | 1/64" Clearance | 902-000-011 |
| 0.3040 | 0.2500 | 0.1950 | 0.5000 | 1.6250 | 3.0000 | 1.3750 | 0.2500 | #8 +1/32 O/S | 1/32" Clearance | 902-000-012 |
| 0.3140 | 0.2813 | 0.1900 | 0.7813 | 2.4687 | 4.5000 | 2.0313 | 0.2656 | #10 Nominal | Close Fit | 902-000-013 |
| 0.3300 | 0.2813 | 0.2050 | 0.7813 | 2.4687 | 4.5000 | 2.0313 | 0.2656 | #10 +1/64 O/S | 1/64" Clearance | 902-000-014 |
| 0.3460 | 0.2813 | 0.2210 | 0.7813 | 2.4687 | 4.5000 | 2.0313 | 0.2656 | #10 +1/32 O/S | 1/32" Clearance | 902-000-015 |
| 0.3820 | 0.3125 | 0.2500 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3125 | 1/4" Nominal | Close Fit | 902-000-016 |
| 0.3980 | 0.3125 | 0.2650 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3125 | 1/4" +1/64 O/S | 1/64" Clearance | 902-000-017 |
| 0.4140 | 0.3125 | 0.2810 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3125 | 1/4" +1/32 O/S | 1/32" Clearance | 902-000-018 |
| 0.4750 | 0.3750 | 0.3120 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3594 | 5/16" Nominal | Close Fit | 902-000-019 |
| 0.4910 | 0.3750 | 0.3280 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3594 | 5/16" +1/64 O/S | 1/64" Clearance | 902-000-020 |
| 0.5070 | 0.3750 | 0.3430 | 0.7813 | 2.4218 | 4.5000 | 2.0782 | 0.3594 | 5/16" +1/32 O/S | 1/32" Clearance | 902-000-021 |
| 0.5720 | 0.5000 | 0.3750 | 0.9063 | 2.4687 | 5.0000 | 2.5313 | 0.5000 | 3/8" Nominal | Close Fit | 902-000-022 |
| 0.5880 | 0.5000 | 0.3900 | 0.9063 | 2.4687 | 5.0000 | 2.5313 | 0.5000 | 3/8" +1/64 O/S | 1/64" Clearance | 902-000-023 |
| 0.6040 | 0.5000 | 0.4060 | 0.9063 | 2.4687 | 5.0000 | 2.5313 | 0.5000 | 3/8" +1/32 O/S | 1/32" Clearance | 902-000-024 |
| 0.6630 | 0.5000 | 0.4370 | 0.9375 | 2.5000 | 5.0000 | 2.5000 | 0.5000 | 7/16" Nominal | Close Fit | 902-000-025 |
| 0.6790 | 0.5000 | 0.4520 | 0.9375 | 2.5000 | 5.0000 | 2.5000 | 0.5000 | 7/16" +1/64 O/S | 1/64" Clearance | 902-000-026 |
| 0.6950 | 0.5000 | 0.4680 | 0.9375 | 2.5000 | 5.0000 | 2.5000 | 0.5000 | 7/16" +1/32 O/S | 1/32" Clearance | 902-000-027 |
| 0.7570 | 0.5000 | 0.5000 | 1.0156 | 3.0468 | 6.0000 | 2.9532 | 0.5000 | 1/2" Nominal | Close Fit | 902-000-028 |
| 0.7730 | 0.5000 | 0.5150 | 1.0156 | 3.0468 | 6.0000 | 2.9532 | 0.5000 | 1/2" +1/64 O/S | 1/64" Clearance | 902-000-029 |
| 0.7890 | 0.5000 | 0.5310 | 1.0156 | 3.0468 | 6.0000 | 2.9532 | 0.5000 | 1/2" +1/32 O/S | 1/32" Clearance | 902-000-030 |
| 0.9450 | 0.6250 | 0.6250 | 1.0156 | 3.0625 | 6.0000 | 2.9375 | 0.6250 | 5/8" Nominal | Close Fit | 902-000-031 |
| 0.9610 | 0.6250 | 0.6410 | 1.0156 | 3.0625 | 6.0000 | 2.9375 | 0.6250 | 5/8" +1/64 O/S | 1/64" Clearance | 902-000-032 |
| 0.9770 | 0.6250 | 0.6560 | 1.0156 | 3.0625 | 6.0000 | 2.9375 | 0.6250 | 5/8" +1/32 O/S | 1/32" Clearance | 902-000-033 |
| 1.1870 | 0.7500 | 0.7660 | 1.2500 | 3.0625 | 7.0000 | 3.9375 | 0.7344 | 3/4" Nominal | Close Fit | 902-000-034 |
| 1.2030 | 0.7500 | 0.7810 | 1.2500 | 3.0625 | 7.0000 | 3.9375 | 0.7344 | 3/4" +1/32 O/S | 1/32" Clearance | 902-000-035 |
| 1.3750 | 0.8750 | 0.8910 | 1.2500 | 3.0000 | 7.0000 | 4.0000 | 0.8906 | 7/8" Nominal | Close Fit | 902-000-036 |
| 1.3910 | 0.8750 | 0.9060 | 1.2500 | 3.0000 | 7.0000 | 4.0000 | 0.8906 | 7/8" +1/32 O/S | 1/32" Clearance | 902-000-037 |
| 1.5620 | 1.0000 | 1.0160 | 1.2500 | 3.0000 | 7.0000 | 4.0000 | 1.0625 | 1" Nominal | Close Fit | 902-000-038 |
| 1.5880 | 1.0000 | 1.0320 | 1.2500 | 3.0000 | 7.0000 | 4.0000 | 1.0625 | 1" +1/32 O/S | 1/32" Clearance | 902-000-039 |



| Complete 7-Piece Tool Sets | Assembly Criteria | Product # | Price |
|--|-------------------|-------------|----------|
| #6, #8, #10, 1/4", 5/16", 3/8", 1/2" Nominal | Close Fit | 902-000-040 | \$413.98 |
| #6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/64 O/S | 1/64" Clearance | 902-000-041 | \$413.98 |
| #6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/32 O/S | 1/32" Clearance | 902-000-042 | \$413.98 |

Precision Cap Screw Counterbores

Integral Pilot, Straight Shank, CNC Precision Ground, Cobalt HSS.



| DC | DCONms | D | LU | LS | L | LF | LP | Application | COBALT |
|-------|--------|-------|-------|-------|--------|-------|-------|----------------------|-------------|
| 6.00 | 5.00 | 2.50 | 14.00 | 31.50 | 71.00 | 39.50 | 3.50 | M3 - Before Thread | 902-000-043 |
| 6.00 | 5.00 | 3.20 | 14.00 | 31.50 | 71.00 | 39.50 | 3.50 | M3 - Fine | 902-000-044 |
| 6.00 | 5.00 | 3.40 | 14.00 | 31.50 | 71.00 | 39.50 | 3.50 | M3 - Medium | 902-000-045 |
| 6.50 | 5.00 | 2.90 | 14.00 | 31.50 | 71.00 | 39.50 | 3.50 | M3.5 - Before Thread | 902-000-046 |
| 6.50 | 5.00 | 3.70 | 14.00 | 31.50 | 71.00 | 39.50 | 3.50 | M3.5 - Fine | 902-000-047 |
| 6.50 | 5.00 | 3.90 | 14.00 | 31.50 | 71.00 | 39.50 | 4.00 | M3.5 - Medium | 902-000-048 |
| 8.00 | 5.00 | 3.30 | 14.00 | 31.50 | 71.00 | 39.50 | 4.50 | M4 - Before Thread | 902-000-049 |
| 8.00 | 5.00 | 4.30 | 14.00 | 31.50 | 71.00 | 39.50 | 4.50 | M4 - Fine | 902-000-050 |
| 8.00 | 5.00 | 4.50 | 14.00 | 31.50 | 71.00 | 39.50 | 4.50 | M4 - Medium | 902-000-051 |
| 10.00 | 8.00 | 4.20 | 18.00 | 35.50 | 80.00 | 44.50 | 4.50 | M5 - Before Thread | 902-000-052 |
| 10.00 | 8.00 | 5.30 | 18.00 | 35.50 | 80.00 | 44.50 | 4.50 | M5 - Fine | 902-000-053 |
| 10.00 | 8.00 | 5.50 | 18.00 | 35.50 | 80.00 | 44.50 | 4.50 | M5 - Medium | 902-000-054 |
| 11.00 | 8.00 | 5.00 | 18.00 | 35.50 | 80.00 | 44.50 | 5.50 | M6 - Before Thread | 902-000-055 |
| 11.00 | 8.00 | 6.40 | 18.00 | 35.50 | 80.00 | 44.50 | 5.50 | M6 - Fine | 902-000-056 |
| 11.00 | 8.00 | 6.60 | 18.00 | 35.50 | 80.00 | 44.50 | 7.00 | M6 - Medium | 902-000-057 |
| 15.00 | 12.50 | 6.80 | 22.00 | 40.00 | 100.00 | 60.00 | 7.00 | M8 - Before Thread | 902-000-058 |
| 15.00 | 12.50 | 8.40 | 22.00 | 40.00 | 100.00 | 60.00 | 9.00 | M8 - Fine | 902-000-059 |
| 15.00 | 12.50 | 9.00 | 22.00 | 40.00 | 100.00 | 60.00 | 9.00 | M8 - Medium | 902-000-060 |
| 18.00 | 12.50 | 8.50 | 22.00 | 40.00 | 100.00 | 60.00 | 9.00 | M10 - Before Thread | 902-000-061 |
| 18.00 | 12.50 | 10.50 | 22.00 | 40.00 | 100.00 | 60.00 | 11.00 | M10 - Fine | 902-000-062 |
| 18.00 | 12.50 | 11.00 | 22.00 | 40.00 | 100.00 | 60.00 | 11.00 | M10 - Medium | 902-000-063 |
| 20.00 | 12.50 | 10.20 | 22.00 | 40.00 | 100.00 | 60.00 | 10.50 | M12 - Before Thread | 902-000-064 |
| 20.00 | 12.50 | 13.00 | 22.00 | 40.00 | 100.00 | 60.00 | 14.00 | M12 - Fine | 902-000-065 |
| 20.00 | 12.50 | 14.00 | 22.00 | 40.00 | 100.00 | 60.00 | 14.00 | M12 - Medium | 902-000-066 |



Precision Metric Cap Screw Counterbores

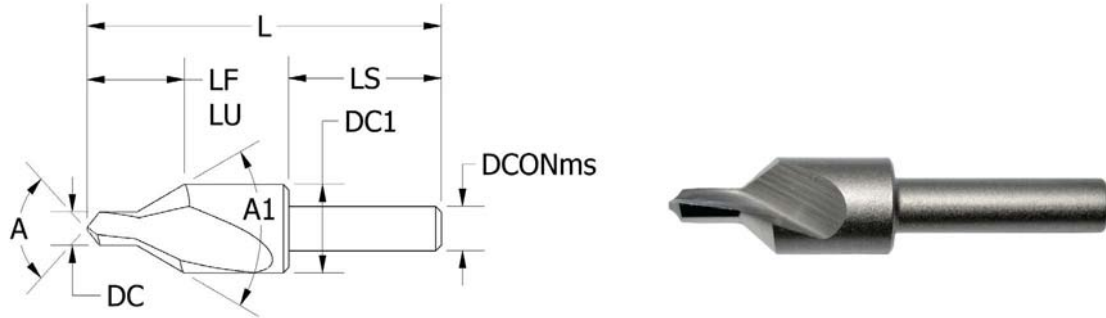
Integral Pilot, Straight Shank, CNC Precision Ground, Cobalt HSS.

| Complete 6-Piece Tool Sets | Application | Product # |
|----------------------------|---------------|-------------|
| M3, M4, M5, M6, M8, M10 | Before Thread | 902-000-067 |
| M3, M4, M5, M6, M8, M10 | Fine | 902-000-068 |
| M3, M4, M5, M6, M8, M10 | Medium | 902-000-069 |

COBALT



COBALT



MACHINE SCREW

| DC | DCNms | DC1 | LU | LS | L | LF | A | A1 | Flat Head Screws Machine Screw |
|--------|--------|--------|--------|--------|--------|--------|-------|------|-----------------------------------|
| 0.1270 | 0.2500 | 0.3125 | 0.3022 | 0.8750 | 1.7500 | 0.3022 | 118.0 | 82.0 | 906-000-296 |
| 0.1400 | 0.2500 | 0.3125 | 0.2979 | 0.8750 | 1.7500 | 0.2979 | 118.0 | 82.0 | 906-000-297 |
| 0.1660 | 0.2500 | 0.3750 | 0.4144 | 0.8750 | 1.7500 | 0.4144 | 118.0 | 82.0 | 906-000-298 |
| 0.1920 | 0.2500 | 0.4375 | 0.4059 | 1.0000 | 2.0000 | 0.4059 | 118.0 | 82.0 | 906-000-299 |
| 0.2200 | 0.2500 | 0.4375 | 0.4280 | 1.0000 | 2.0000 | 0.4280 | 118.0 | 82.0 | 906-000-300 |
| 0.2520 | 0.2500 | 0.5000 | 0.4488 | 1.0000 | 2.0000 | 0.4488 | 118.0 | 82.0 | 906-000-301 |
| 0.3150 | 0.3750 | 0.6250 | 0.5531 | 1.0000 | 2.2500 | 0.5531 | 118.0 | 82.0 | 906-000-302 |
| 0.3780 | 0.5000 | 0.7500 | 0.6575 | 1.2500 | 2.6250 | 0.6575 | 118.0 | 82.0 | 906-000-303 |

SELF TAPPING SCREW

| DC | DCNms | DC1 | LU | LS | L | LF | A | A1 | Flat Head Screws Self-tapping Screw |
|--------|--------|--------|--------|--------|--------|--------|-------|------|--|
| 0.0990 | 0.2500 | 0.3125 | 0.2801 | 0.8750 | 1.7500 | 0.2801 | 118.0 | 82.0 | 906-000-304 |
| 0.1160 | 0.2500 | 0.3750 | 0.3214 | 0.8750 | 1.7500 | 0.3214 | 118.0 | 82.0 | 906-000-305 |
| 0.1350 | 0.2500 | 0.4375 | 0.3777 | 1.0000 | 2.0000 | 0.3777 | 118.0 | 82.0 | 906-000-306 |
| 0.1570 | 0.2500 | 0.4375 | 0.4017 | 1.0000 | 2.0000 | 0.4017 | 118.0 | 82.0 | 906-000-307 |
| 0.1840 | 0.2500 | 0.5000 | 0.4554 | 1.0000 | 2.0000 | 0.4554 | 118.0 | 82.0 | 906-000-308 |



DRILL & CHAMFER MILLS

THE COMPLETE TOOL MAKING AUTHORITY®



EC WELDON SHANK

- Cost effective chamfer milling in all ISO materials
- Increase machine utilization when chamfering in process
- Versatile tool for many different weld prep, hole prep, and chamfer operations
- Value add when machining small batches in different material classes
- Easy indexing with three effective cutting edges

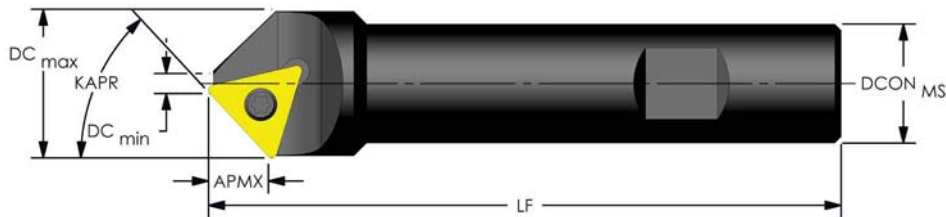


FIGURE 1

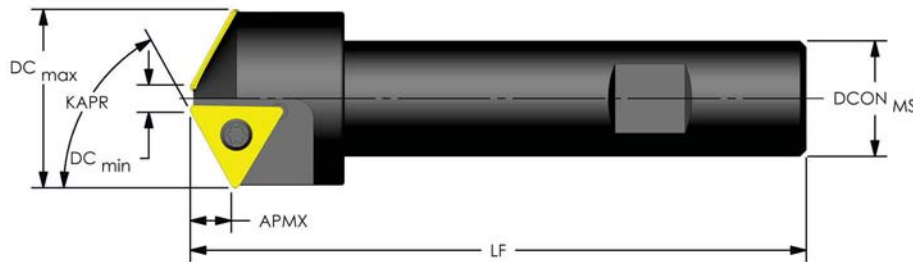


FIGURE 2



| PRODUCT # | Designation | Figure | KAPR° | DCmax | DCmin | LF | DCON MS | APMX | Insert | Screw |
|-------------|---------------------|--------|-------|-------|-------|-------|---------|-------|------------|--------|
| 909-000-520 | E05C-D.500-1-.750-3 | 1 | 5 | 0.594 | 0.500 | 4.000 | 0.750 | 0.568 | TCMT 32.52 | MTS-35 |
| 909-000-521 | E10C-D.500-1-.750-3 | 1 | 10 | 0.688 | 0.500 | 4.000 | 0.750 | 0.558 | | MTS-35 |
| 909-000-522 | E15C-D.500-1-.750-3 | 1 | 15 | 0.782 | 0.500 | 4.000 | 0.750 | 0.546 | | MTS-35 |
| 909-000-523 | E15C-D1.00-2-.750-3 | 2 | 15 | 1.280 | 1.000 | 4.000 | 0.750 | 0.546 | | MTS-35 |
| 909-000-524 | E20C-D.375-1-.750-3 | 1 | 20 | 0.750 | 0.375 | 4.000 | 0.750 | 0.527 | | MTS-35 |
| 909-000-525 | E30C-D.250-1-.750-3 | 1 | 30 | 0.800 | 0.250 | 4.000 | 0.750 | 0.484 | | MTS-35 |
| 909-000-526 | E30C-D.750-2-.750-3 | 2 | 30 | 1.300 | 0.750 | 4.000 | 0.750 | 0.484 | | MTS-35 |
| 909-000-527 | E41C-D.188-1-.750-3 | 1 | 41 | 0.914 | 0.188 | 4.000 | 0.750 | 0.418 | | MTS-35 |
| 909-000-528 | E41C-D.562-2-.750-3 | 2 | 41 | 1.288 | 0.562 | 4.000 | 0.750 | 0.418 | | MTS-35 |
| 909-000-529 | E45C-D.188-1-.750-3 | 1 | 45 | 0.972 | 0.188 | 4.000 | 0.750 | 0.390 | | MTS-35 |
| 909-000-530 | E45C-D.500-2-.750-3 | 2 | 45 | 1.290 | 0.500 | 4.000 | 0.750 | 0.390 | | MTS-35 |
| 909-000-531 | E60C-D.188-2-.750-3 | 2 | 60 | 1.160 | 0.188 | 4.000 | 0.750 | 0.266 | | MTS-35 |



| PRODUCT # | Designation |
|-------------|----------------|
| 913-000-451 | TCMT 32.52-ZM1 |

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-092 | MTS-255 |
| 968-000-082 | MTS-25-DR |
| 968-000-084 | MTS-3-DR |
| 968-000-083 | MTS-35-DR |
| 968-000-085 | MTS-4-DR |

PACKAGE SIZE OF 5

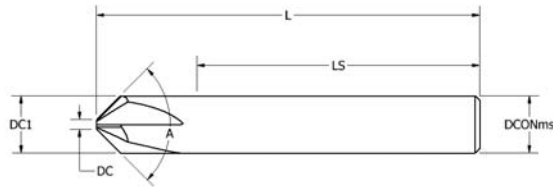
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|-----------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 220-650 | .0032 - .0080 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 180-500 | .0030 - .0065 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 200-450 | .0026 - .0065 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 120-350 | .0025 - .0075 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 250-700 | .0030 - .0100 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40- 18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 150-450 | .0030 - .0092 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic" | ≤ 271 BHN or ≤ 28 HRC | 250-950 | .0050 - .0130 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | 80-250 | .0030 - .0065 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 50-160 | .0025 - .0060 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 90-250 | .0025 - .0075 |

* HIGHER VC AND FZ APPLY TO LIGHT/FINISHING ENGAGEMENT

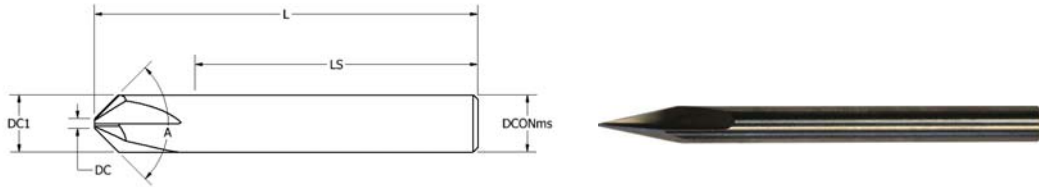
* LOWER VC AND FZ APPLY TO HEAVY/ROUGHING ENGAGEMENT

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

CARBIDE

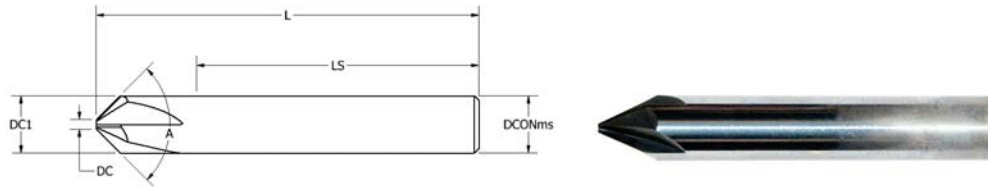


| DC | DCNms | DC1 | LS | L | A | UNCOATED | AITIN COATED | TIAIN COATED |
|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 30.0 | 909-000-198 | 909-000-342 | 909-000-249 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 40.0 | 909-000-203 | 909-000-347 | 909-000-254 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 45.0 | 909-000-207 | 909-000-351 | 909-000-258 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 50.0 | 909-000-209 | 909-000-353 | 909-000-260 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 60.0 | 909-000-035 | 909-000-355 | 909-000-262 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 70.0 | 909-000-214 | 909-000-360 | 909-000-267 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 80.0 | 909-000-215 | 909-000-361 | 909-000-268 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 82.0 | 909-000-036 | 909-000-362 | 909-000-269 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 90.0 | 909-000-037 | 909-000-367 | 909-000-274 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 100.0 | 909-000-033 | 909-000-326 | 909-000-233 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 110.0 | 909-000-188 | 909-000-330 | 909-000-237 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 120.0 | 909-000-034 | 909-000-331 | 909-000-238 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 130.0 | 909-000-192 | 909-000-336 | 909-000-243 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 140.0 | 909-000-193 | 909-000-337 | 909-000-244 |
| 0.0060 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 150.0 | 909-000-194 | 909-000-338 | 909-000-245 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 30.0 | 909-000-199 | 909-000-343 | 909-000-250 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 40.0 | 909-000-204 | 909-000-348 | 909-000-255 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 45.0 | 909-000-208 | 909-000-352 | 909-000-259 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 50.0 | 909-000-210 | 909-000-354 | 909-000-261 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 60.0 | 909-000-211 | 909-000-356 | 909-000-263 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 82.0 | 909-000-216 | 909-000-363 | 909-000-270 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 90.0 | 909-000-219 | 909-000-368 | 909-000-275 |
| 0.0060 | 0.1875 | 0.1875 | 1.0000 | 2.0000 | 120.0 | 909-000-189 | 909-000-332 | 909-000-239 |
| 0.0060 | 0.1875 | 0.1875 | 1.2500 | 2.5000 | 150.0 | 909-000-195 | 909-000-339 | 909-000-246 |

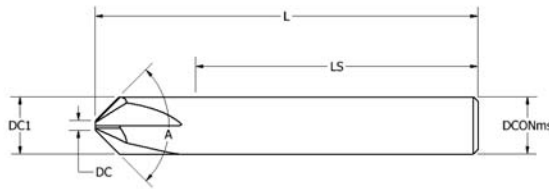


| DC | DCONms | DC1 | LS | L | A | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 30.0 | 909-000-200 | 909-000-344 | 909-000-251 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 40.0 | 909-000-205 | 909-000-349 | 909-000-256 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 60.0 | 909-000-046 | 909-000-357 | 909-000-264 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 82.0 | 909-000-050 | 909-000-364 | 909-000-271 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 90.0 | 909-000-054 | 909-000-369 | 909-000-276 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 100.0 | 909-000-038 | 909-000-327 | 909-000-234 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 120.0 | 909-000-042 | 909-000-333 | 909-000-240 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 30.0 | 909-000-201 | 909-000-345 | 909-000-252 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 40.0 | 909-000-206 | 909-000-350 | 909-000-257 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 60.0 | 909-000-061 | 909-000-358 | 909-000-265 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 82.0 | 909-000-062 | 909-000-365 | 909-000-272 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 90.0 | 909-000-063 | 909-000-300 | 909-000-277 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 100.0 | 909-000-059 | 909-000-328 | 909-000-235 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 120.0 | 909-000-060 | 909-000-334 | 909-000-241 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 150.0 | 909-000-196 | 909-000-340 | 909-000-247 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 30.0 | 909-000-202 | 909-000-346 | 909-000-253 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 60.0 | 909-000-066 | 909-000-359 | 909-000-266 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 82.0 | 909-000-067 | 909-000-366 | 909-000-273 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 90.0 | 909-000-068 | 909-000-371 | 909-000-278 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 100.0 | 909-000-064 | 909-000-329 | 909-000-236 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 120.0 | 909-000-065 | 909-000-335 | 909-000-242 |

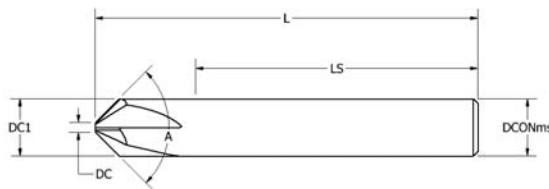
CARBIDE



| DC | DCNms | DC1 | LS | L | A | UNCOATED | TiAIN COATED |
|--------|--------|--------|--------|--------|-------|-------------|--------------|
| | | | | | | 4 FLUTE | 4 FLUTE |
| 0.0250 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 60.0 | 909-000-071 | 909-000-286 |
| 0.0250 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 82.0 | 909-000-072 | 909-000-290 |
| 0.0250 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 90.0 | 909-000-073 | 909-000-294 |
| 0.0250 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 100.0 | 909-000-069 | 909-000-279 |
| 0.0250 | 0.1250 | 0.1250 | 0.7500 | 1.5000 | 120.0 | 909-000-070 | 909-000-283 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 60.0 | 909-000-082 | 909-000-287 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 82.0 | 909-000-086 | 909-000-291 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 90.0 | 909-000-090 | 909-000-295 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 100.0 | 909-000-074 | 909-000-280 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 120.0 | 909-000-078 | 909-000-079 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 60.0 | 909-000-097 | 909-000-288 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 82.0 | 909-000-098 | 909-000-292 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 90.0 | 909-000-099 | 909-000-296 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 100.0 | 909-000-095 | 909-000-281 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 120.0 | 909-000-096 | 909-000-284 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 60.0 | 909-000-108 | 909-000-109 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 82.0 | 909-000-112 | 909-000-113 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 90.0 | 909-000-116 | 909-000-297 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 100.0 | 909-000-100 | 909-000-282 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 120.0 | 909-000-104 | 909-000-285 |

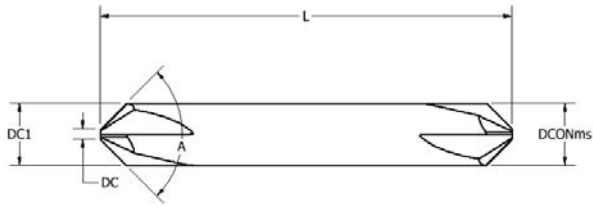


| DC | DCONms | DC1 | LS | L | A | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | 3 FLUTE | 3 FLUTE | 3 FLUTE |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 30.0 | 909-000-404 | 909-000-376 | 909-000-302 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 30.0 | 909-000-405 | 909-000-377 | 909-000-303 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 40.0 | 909-000-406 | 909-000-378 | 909-000-304 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 40.0 | 909-000-407 | 909-000-379 | 909-000-305 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 45.0 | 909-000-408 | 909-000-380 | 909-000-306 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 45.0 | 909-000-409 | 909-000-381 | 909-000-307 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 50.0 | 909-000-410 | 909-000-382 | 909-000-308 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 50.0 | 909-000-411 | 909-000-383 | 909-000-309 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 60.0 | 909-000-412 | 909-000-384 | 909-000-310 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 60.0 | 909-000-413 | 909-000-385 | 909-000-311 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 82.0 | 909-000-414 | 909-000-386 | 909-000-312 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 82.0 | 909-000-415 | 909-000-387 | 909-000-313 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 90.0 | 909-000-416 | 909-000-388 | 909-000-314 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 90.0 | 909-000-417 | 909-000-389 | 909-000-315 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 100.0 | 909-000-400 | 909-000-372 | 909-000-298 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 120.0 | 909-000-401 | 909-000-373 | 909-000-299 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 120.0 | 909-000-402 | 909-000-374 | 909-000-300 |
| 0.0600 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 150.0 | 909-000-403 | 909-000-375 | 909-000-301 |

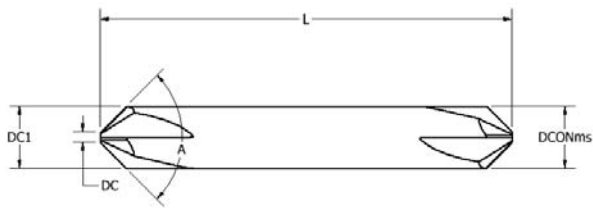


| DC | DCONms | DC1 | LS | L | A | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 30.0 | 909-000-421 | 909-000-393 | 909-000-319 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 40.0 | 909-000-422 | 909-000-394 | 909-000-320 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 45.0 | 909-000-423 | 909-000-395 | 909-000-321 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 50.0 | 909-000-424 | 909-000-396 | 909-000-322 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 60.0 | 909-000-425 | 909-000-397 | 909-000-323 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 82.0 | 909-000-426 | 909-000-398 | 909-000-324 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 90.0 | 909-000-427 | 909-000-399 | 909-000-325 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 100.0 | 909-000-418 | 909-000-390 | 909-000-316 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 120.0 | 909-000-419 | 909-000-391 | 909-000-317 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 150.0 | 909-000-420 | 909-000-392 | 909-000-318 |

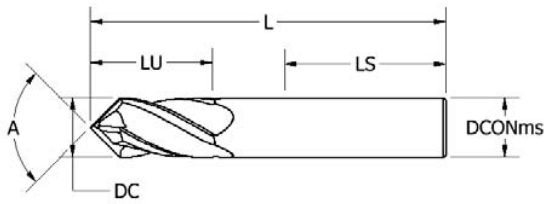
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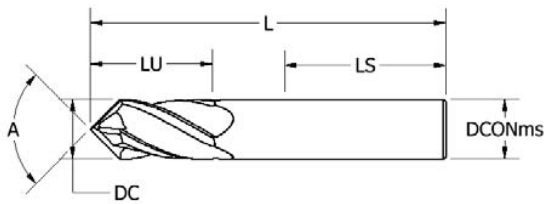
| DC | DCONms | DC1 | LS | L | 60° | 82° | 90° | 100° | 120° |
|--------|--------|--------|--------|--------|-------------|-------------|-------------|-------------|-------------|
| 0.0060 | 0.1250 | 0.1250 | 1.0000 | 2.0000 | 909-000-119 | 909-000-120 | 909-000-121 | 909-000-117 | 909-000-118 |
| 0.0060 | 0.1875 | 0.1875 | 1.2500 | 2.5000 | 909-000-124 | 909-000-125 | 909-000-126 | 909-000-122 | 909-000-123 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 909-000-135 | 909-000-139 | 909-000-140 | 909-000-127 | 909-000-131 |
| 0.0600 | 0.3125 | 0.3125 | 1.2500 | 2.5000 | 909-000-143 | 909-000-144 | 909-000-145 | 909-000-141 | 909-000-142 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 909-000-148 | 909-000-149 | 909-000-150 | 909-000-146 | 909-000-147 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 909-000-153 | 909-000-154 | 909-000-155 | 909-000-151 | 909-000-152 |



| DC | DCONms | DC1 | LS | L | 60° | 82° | 90° | 100° | 120° |
|--------|--------|--------|--------|--------|-------------|-------------|-------------|-------------|-------------|
| 0.0250 | 0.1250 | 0.1250 | 1.0000 | 2.0000 | 909-000-158 | 909-000-159 | 909-000-160 | 909-000-156 | 909-000-157 |
| 0.0400 | 0.1875 | 0.1875 | 1.2500 | 2.5000 | 909-000-163 | 909-000-164 | 909-000-165 | 909-000-161 | 909-000-162 |
| 0.0400 | 0.2500 | 0.2500 | 1.2500 | 2.5000 | 909-000-168 | 909-000-169 | 909-000-170 | 909-000-166 | 909-000-167 |
| 0.0600 | 0.3125 | 0.3125 | 1.2500 | 2.5000 | 909-000-173 | 909-000-174 | 909-000-175 | 909-000-171 | 909-000-172 |
| 0.0600 | 0.3750 | 0.3750 | 1.2500 | 2.5000 | 909-000-178 | 909-000-179 | 909-000-180 | 909-000-176 | 909-000-177 |
| 0.0800 | 0.5000 | 0.5000 | 1.5000 | 3.0000 | 909-000-183 | 909-000-184 | 909-000-185 | 909-000-181 | 909-000-182 |

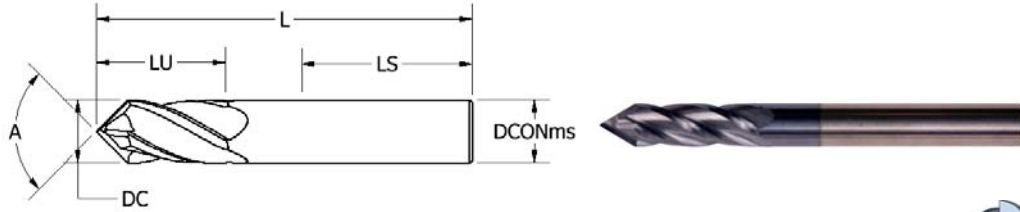


| DC | DCONms | LS | L | LU | 60° | 90° |
|--------|--------|--------|--------|--------|-------------|-------------|
| 0.0313 | 0.1250 | 1.1338 | 1.5000 | 0.1250 | 933-000-001 | 933-000-002 |
| 0.0625 | 0.1250 | 1.1517 | 1.5000 | 0.1875 | 933-000-003 | 933-000-004 |
| 0.0938 | 0.1250 | 1.0446 | 1.5000 | 0.3750 | 933-000-005 | 933-000-006 |
| 0.1250 | 0.1250 | 0.6250 | 1.5000 | 0.5000 | 933-000-007 | 933-000-008 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 0.6250 | 933-000-009 | 933-000-010 |
| 0.2500 | 0.2500 | 1.3750 | 2.5000 | 0.7500 | 933-000-011 | 933-000-012 |
| 0.2500 | 0.2500 | 1.3750 | 2.5000 | 0.7500 | 933-000-013 | 933-000-014 |
| 0.3750 | 0.3750 | 1.1250 | 2.5000 | 1.0000 | 933-000-015 | 933-000-016 |
| 0.4375 | 0.4375 | 1.3750 | 2.7500 | 1.0000 | 933-000-017 | 933-000-018 |
| 0.5000 | 0.5000 | 1.6250 | 3.0000 | 1.0000 | 933-000-019 | 933-000-020 |
| 0.6250 | 0.6250 | 1.8750 | 3.5000 | 1.2500 | 933-000-021 | 933-000-022 |
| 0.7500 | 0.7500 | 2.1250 | 4.0000 | 1.5000 | 933-000-023 | 933-000-024 |



| DC | DCONms | LS | L | LU | 60° | 90° |
|--------|--------|--------|--------|--------|-------------|-------------|
| 0.0313 | 0.1250 | 1.1338 | 1.5000 | 0.1250 | 933-000-025 | 933-000-026 |
| 0.0625 | 0.1250 | 1.1517 | 1.5000 | 0.1875 | 933-000-027 | 933-000-028 |
| 0.0938 | 0.1250 | 1.0446 | 1.5000 | 0.3750 | 933-000-029 | 933-000-030 |
| 0.1250 | 0.1250 | 0.6250 | 1.5000 | 0.5000 | 933-000-031 | 933-000-032 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 0.6250 | 933-000-033 | 933-000-034 |
| 0.2500 | 0.2500 | 1.3750 | 2.5000 | 0.7500 | 933-000-035 | 933-000-036 |
| 0.3125 | 0.3125 | 1.3125 | 2.5000 | 0.8125 | 933-000-040 | 933-000-041 |
| 0.3750 | 0.3750 | 1.1250 | 2.5000 | 1.0000 | 933-000-042 | 933-000-043 |
| 0.4375 | 0.4375 | 1.3750 | 2.7500 | 1.0000 | 933-000-044 | 933-000-045 |
| 0.5000 | 0.5000 | 1.6250 | 3.0000 | 1.0000 | 933-000-046 | 933-000-047 |
| 0.6250 | 0.6250 | 1.8750 | 3.5000 | 1.2500 | 933-000-048 | 933-000-049 |
| 0.7500 | 0.7500 | 2.1250 | 4.0000 | 1.5000 | 933-000-050 | 933-000-051 |

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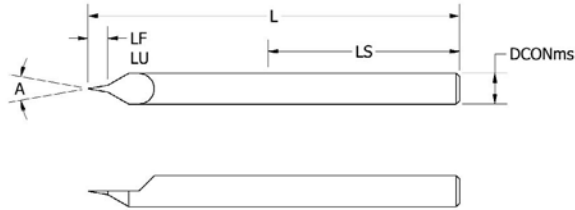
| DC | DCONms | LS | L | LU | A | AITiN COATED | |
|--------|--------|--------|--------|--------|------|--------------|-------------|
| | | | | | | 2 FLUTE | 4 FLUTE |
| 0.0313 | 0.1250 | 1.1338 | 1.5000 | 0.1250 | 60.0 | 933-000-066 | 933-000-104 |
| 0.0625 | 0.1250 | 1.1517 | 1.5000 | 0.1875 | 60.0 | 933-000-067 | 933-000-105 |
| 0.0938 | 0.1250 | 1.0446 | 1.5000 | 0.3750 | 60.0 | 933-000-068 | 933-000-106 |
| 0.1250 | 0.1250 | 0.6250 | 1.5000 | 0.5000 | 60.0 | 933-000-069 | 933-000-107 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 0.6250 | 60.0 | 933-000-070 | 933-000-108 |
| 0.2500 | 0.2500 | 1.3750 | 2.5000 | 0.7500 | 60.0 | 933-000-071 | 933-000-109 |
| 0.3125 | 0.3125 | 1.3125 | 2.5000 | 0.8125 | 60.0 | 933-000-072 | 933-000-110 |
| 0.3750 | 0.3750 | 1.1250 | 2.5000 | 1.0000 | 60.0 | 933-000-073 | 933-000-111 |
| 0.4375 | 0.4375 | 1.3750 | 2.7500 | 1.0000 | 60.0 | 933-000-074 | 933-000-112 |
| 0.5000 | 0.5000 | 1.6250 | 3.0000 | 1.0000 | 60.0 | 933-000-075 | 933-000-113 |
| 0.6250 | 0.6250 | 1.8750 | 3.5000 | 1.2500 | 60.0 | 933-000-076 | 933-000-114 |
| 0.7500 | 0.7500 | 2.1250 | 4.0000 | 1.5000 | 60.0 | 933-000-077 | 933-000-115 |
| 0.0313 | 0.1250 | 1.1338 | 1.5000 | 0.1250 | 90.0 | 933-000-078 | 933-000-116 |
| 0.0625 | 0.1250 | 1.1517 | 1.5000 | 0.1875 | 90.0 | 933-000-079 | 933-000-117 |
| 0.0938 | 0.1250 | 1.0446 | 1.5000 | 0.3750 | 90.0 | 933-000-080 | 933-000-118 |
| 0.1250 | 0.1250 | 0.6250 | 1.5000 | 0.5000 | 90.0 | 933-000-081 | 933-000-119 |
| 0.1875 | 0.1875 | 1.0000 | 2.0000 | 0.6250 | 90.0 | 933-000-082 | 933-000-120 |
| 0.2500 | 0.2500 | 1.3750 | 2.5000 | 0.7500 | 90.0 | 933-000-083 | 933-000-121 |
| 0.3125 | 0.3125 | 1.3125 | 2.5000 | 0.8125 | 90.0 | 933-000-084 | 933-000-122 |
| 0.3750 | 0.3750 | 1.1250 | 2.5000 | 1.0000 | 90.0 | 933-000-085 | 933-000-123 |
| 0.4375 | 0.4375 | 1.3750 | 2.7500 | 1.0000 | 90.0 | 933-000-086 | 933-000-124 |
| 0.5000 | 0.5000 | 1.6250 | 3.0000 | 1.0000 | 90.0 | 933-000-087 | 933-000-125 |
| 0.6250 | 0.6250 | 1.8750 | 3.5000 | 1.2500 | 90.0 | 933-000-088 | 933-000-126 |
| 0.7500 | 0.7500 | 2.1250 | 4.0000 | 1.5000 | 90.0 | 933-000-089 | 933-000-127 |

ARCH[®]
Cutting Tools

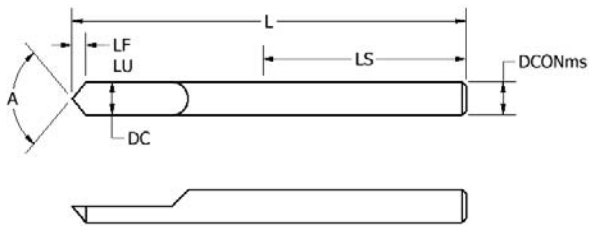
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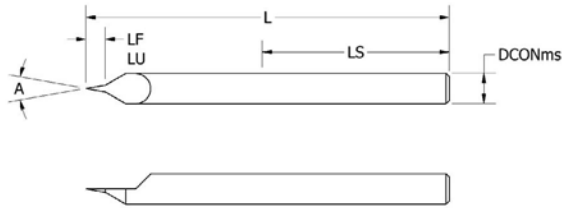
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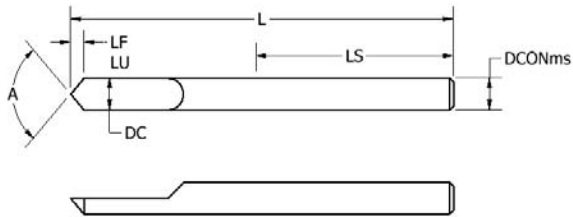
| DCONms | LU | LS | L | LF | A | UNCOATED | AITiN COATED |
|--------|--------|--------|--------|--------|------|-------------|--------------|
| | | | | | | 1 FLUTE | 1 FLUTE |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 10.0 | 937-000-002 | 937-000-135 |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 15.0 | 937-000-004 | 937-000-137 |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 20.0 | 937-000-005 | 937-000-138 |



| DC | DCONms | LU | LS | L | LF | A | UNCOATED | AITiN COATED |
|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|
| | | | | | | | 1 FLUTE | 1 FLUTE |
| 0.1250 | 0.1250 | 0.2330 | 0.7500 | 1.5000 | 0.2330 | 30.0 | 937-000-010 | 937-000-143 |
| 0.1250 | 0.1250 | 0.1720 | 0.7500 | 1.5000 | 0.1720 | 40.0 | 937-000-020 | 937-000-153 |
| 0.1250 | 0.1250 | 0.1510 | 0.7500 | 1.5000 | 0.1510 | 45.0 | 937-000-026 | 937-000-159 |
| 0.1250 | 0.1250 | 0.1340 | 0.7500 | 1.5000 | 0.1340 | 50.0 | 937-000-027 | 937-000-160 |
| 0.1250 | 0.1250 | 0.1080 | 0.7500 | 1.5000 | 0.1080 | 60.0 | 937-000-032 | 937-000-165 |
| 0.1250 | 0.1250 | 0.0720 | 0.7500 | 1.5000 | 0.0720 | 82.0 | 937-000-038 | 937-000-171 |
| 0.1250 | 0.1250 | 0.0630 | 0.7500 | 1.5000 | 0.0630 | 90.0 | 937-000-043 | 937-000-176 |
| 0.1250 | 0.1250 | 0.0520 | 0.7500 | 1.5000 | 0.0520 | 100.0 | 937-000-001 | 937-000-134 |
| 0.1250 | 0.1250 | 0.0360 | 0.7500 | 1.5000 | 0.0360 | 120.0 | 937-000-003 | 937-000-136 |

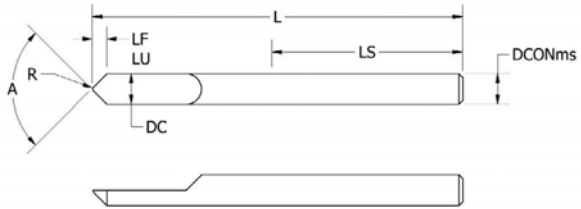


| DCONms | LU | LS | L | LF | A | TiAIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|------|--------------|-------------------|
| | | | | | | 1 FLUTE | 1 FLUTE |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 10.0 | 937-000-062 | 937-000-050 |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 15.0 | 937-000-064 | 937-000-052 |
| 0.1250 | 0.0800 | 0.7500 | 1.5000 | 0.0800 | 20.0 | 937-000-065 | 937-000-053 |

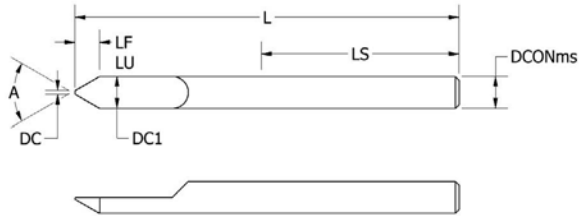


| DC | DCONms | LU | LS | L | LF | A | TiAIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------|-------|--------------|-------------------|
| | | | | | | | 1 FLUTE | 1 FLUTE |
| 0.1250 | 0.1250 | 0.2330 | 0.7500 | 1.5000 | 0.2330 | 30.0 | 937-000-070 | 937-000-054 |
| 0.1250 | 0.1250 | 0.1720 | 0.7500 | 1.5000 | 0.1720 | 40.0 | 937-000-080 | 937-000-055 |
| 0.1250 | 0.1250 | 0.1510 | 0.7500 | 1.5000 | 0.1510 | 45.0 | 937-000-086 | 937-000-056 |
| 0.1250 | 0.1250 | 0.1340 | 0.7500 | 1.5000 | 0.1340 | 50.0 | 937-000-087 | 937-000-057 |
| 0.1250 | 0.1250 | 0.1080 | 0.7500 | 1.5000 | 0.1080 | 60.0 | 937-000-092 | 937-000-058 |
| 0.1250 | 0.1250 | 0.0720 | 0.7500 | 1.5000 | 0.0720 | 82.0 | 937-000-098 | 937-000-059 |
| 0.1250 | 0.1250 | 0.0630 | 0.7500 | 1.5000 | 0.0630 | 90.0 | 937-000-103 | 937-000-060 |
| 0.1250 | 0.1250 | 0.0520 | 0.7500 | 1.5000 | 0.0520 | 100.0 | 937-000-061 | 937-000-049 |
| 0.1250 | 0.1250 | 0.0360 | 0.7500 | 1.5000 | 0.0360 | 120.0 | 937-000-063 | 937-000-051 |

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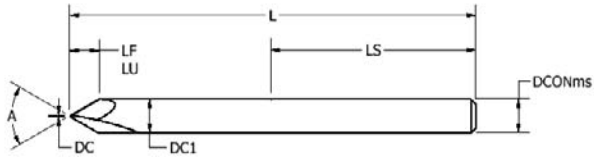


| DC | DCONms | LU | LS | L | LF | R | A | UNCOATED | AITiN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|--------|------|-------------|--------------|--------------|
| | | | | | | | | 1 FLUTE | 1 FLUTE | 1 FLUTE |
| 0.1250 | 0.1250 | 0.2260 | 0.7500 | 1.5000 | 0.2260 | 0.0025 | 30.0 | 937-000-011 | 937-000-144 | 937-000-071 |
| 0.1250 | 0.1250 | 0.1670 | 0.7500 | 1.5000 | 0.1670 | 0.0025 | 40.0 | 937-000-021 | 937-000-154 | 937-000-081 |
| 0.1250 | 0.1250 | 0.1060 | 0.7500 | 1.5000 | 0.1060 | 0.0025 | 60.0 | 937-000-033 | 937-000-166 | 937-000-093 |
| 0.1250 | 0.1250 | 0.0610 | 0.7500 | 1.5000 | 0.0610 | 0.0025 | 90.0 | 937-000-044 | 937-000-177 | 937-000-104 |
| 0.1250 | 0.1250 | 0.2190 | 0.7500 | 1.5000 | 0.2190 | 0.0050 | 30.0 | 937-000-012 | 937-000-145 | 937-000-072 |
| 0.1250 | 0.1250 | 0.1620 | 0.7500 | 1.5000 | 0.1620 | 0.0050 | 40.0 | 937-000-022 | 937-000-155 | 937-000-082 |
| 0.1250 | 0.1250 | 0.1030 | 0.7500 | 1.5000 | 0.1030 | 0.0050 | 60.0 | 937-000-034 | 937-000-167 | 937-000-094 |
| 0.1250 | 0.1250 | 0.0600 | 0.7500 | 1.5000 | 0.0600 | 0.0050 | 90.0 | 937-000-045 | 937-000-178 | 937-000-105 |
| 0.1250 | 0.1250 | 0.2050 | 0.7500 | 1.5000 | 0.2050 | 0.0100 | 30.0 | 937-000-013 | 937-000-146 | 937-000-073 |
| 0.1250 | 0.1250 | 0.1520 | 0.7500 | 1.5000 | 0.1520 | 0.0100 | 40.0 | 937-000-023 | 937-000-156 | 937-000-083 |
| 0.1250 | 0.1250 | 0.0980 | 0.7500 | 1.5000 | 0.0980 | 0.0100 | 60.0 | 937-000-035 | 937-000-168 | 937-000-095 |
| 0.1250 | 0.1250 | 0.0580 | 0.7500 | 1.5000 | 0.0580 | 0.0100 | 90.0 | 937-000-046 | 937-000-179 | 937-000-106 |
| 0.1250 | 0.1250 | 0.1900 | 0.7500 | 1.5000 | 0.1900 | 0.0150 | 30.0 | 937-000-014 | 937-000-147 | 937-000-074 |
| 0.1250 | 0.1250 | 0.1430 | 0.7500 | 1.5000 | 0.1430 | 0.0150 | 40.0 | 937-000-024 | 937-000-157 | 937-000-084 |
| 0.1250 | 0.1250 | 0.0930 | 0.7500 | 1.5000 | 0.0930 | 0.0150 | 60.0 | 937-000-036 | 937-000-169 | 937-000-096 |
| 0.1250 | 0.1250 | 0.0560 | 0.7500 | 1.5000 | 0.0560 | 0.0150 | 90.0 | 937-000-047 | 937-000-180 | 937-000-107 |
| 0.1250 | 0.1250 | 0.1760 | 0.7500 | 1.5000 | 0.1760 | 0.0200 | 30.0 | 937-000-015 | 937-000-148 | 937-000-075 |
| 0.1250 | 0.1250 | 0.1280 | 0.7500 | 1.5000 | 0.1280 | 0.0200 | 40.0 | 937-000-025 | 937-000-158 | 937-000-085 |
| 0.1250 | 0.1250 | 0.0880 | 0.7500 | 1.5000 | 0.0880 | 0.0200 | 60.0 | 937-000-037 | 937-000-170 | 937-000-097 |
| 0.1250 | 0.1250 | 0.0540 | 0.7500 | 1.5000 | 0.0540 | 0.0200 | 90.0 | 937-000-048 | 937-000-181 | 937-000-108 |

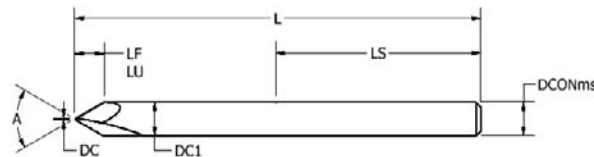


| DC | DCNms | DC1 | LU | LS | L | LF | A | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|--------|------|-------------|--------------|--------------|
| | | | | | | | | 1 FLUTE | 1 FLUTE | 1 FLUTE |
| 0.0050 | 0.1250 | 0.1250 | 0.2240 | 0.7500 | 1.5000 | 0.2240 | 30.0 | 937-000-006 | 937-000-139 | 937-000-066 |
| 0.0050 | 0.1250 | 0.1250 | 0.1650 | 0.7500 | 1.5000 | 0.1650 | 40.0 | 937-000-016 | 937-000-149 | 937-000-076 |
| 0.0050 | 0.1250 | 0.1250 | 0.1040 | 0.7500 | 1.5000 | 0.1040 | 60.0 | 937-000-028 | 937-000-161 | 937-000-088 |
| 0.0050 | 0.1250 | 0.1250 | 0.0600 | 0.7500 | 1.5000 | 0.0600 | 90.0 | 937-000-039 | 937-000-172 | 937-000-099 |
| 0.0100 | 0.1250 | 0.1250 | 0.2150 | 0.7500 | 1.5000 | 0.2150 | 30.0 | 937-000-007 | 937-000-140 | 937-000-067 |
| 0.0100 | 0.1250 | 0.1250 | 0.1580 | 0.7500 | 1.5000 | 0.1580 | 40.0 | 937-000-017 | 937-000-150 | 937-000-077 |
| 0.0100 | 0.1250 | 0.1250 | 0.1000 | 0.7500 | 1.5000 | 0.1000 | 60.0 | 937-000-029 | 937-000-162 | 937-000-089 |
| 0.0100 | 0.1250 | 0.1250 | 0.0580 | 0.7500 | 1.5000 | 0.0580 | 90.0 | 937-000-040 | 937-000-173 | 937-000-100 |
| 0.0150 | 0.1250 | 0.1250 | 0.2050 | 0.7500 | 1.5000 | 0.2050 | 30.0 | 937-000-008 | 937-000-141 | 937-000-068 |
| 0.0150 | 0.1250 | 0.1250 | 0.1510 | 0.7500 | 1.5000 | 0.1510 | 40.0 | 937-000-018 | 937-000-151 | 937-000-078 |
| 0.0150 | 0.1250 | 0.1250 | 0.0950 | 0.7500 | 1.5000 | 0.0950 | 60.0 | 937-000-030 | 937-000-163 | 937-000-090 |
| 0.0150 | 0.1250 | 0.1250 | 0.0550 | 0.7500 | 1.5000 | 0.0550 | 90.0 | 937-000-041 | 937-000-174 | 937-000-101 |
| 0.0200 | 0.1250 | 0.1250 | 0.1960 | 0.7500 | 1.5000 | 0.1960 | 30.0 | 937-000-009 | 937-000-142 | 937-000-069 |
| 0.0200 | 0.1250 | 0.1250 | 0.1440 | 0.7500 | 1.5000 | 0.1440 | 40.0 | 937-000-019 | 937-000-152 | 937-000-079 |
| 0.0200 | 0.1250 | 0.1250 | 0.0910 | 0.7500 | 1.5000 | 0.0910 | 60.0 | 937-000-031 | 937-000-164 | 937-000-091 |
| 0.0200 | 0.1250 | 0.1250 | 0.0530 | 0.7500 | 1.5000 | 0.0530 | 90.0 | 937-000-042 | 937-000-175 | 937-000-102 |

CARBIDE



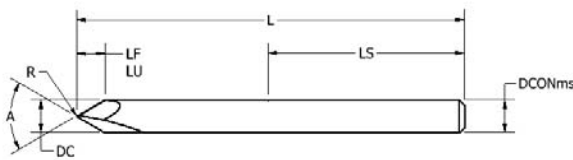
| DC | DCNms | DC1 | LU | LS | L | LF | A | UNCOATED | AITIN COATED | TIAIN COATED |
|--------|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | | | 2 FLUTE | 1 FLUTE | 1 FLUTE |
| 0.0050 | 0.1250 | 0.1250 | 0.2240 | 0.7500 | 1.5000 | 0.2240 | 30.0 | 947-000-006 | 947-000-030 | 937-000-113 |
| 0.0050 | 0.1250 | 0.1250 | 0.1650 | 0.7500 | 1.5000 | 0.1650 | 40.0 | 947-000-011 | 947-000-034 | 937-000-117 |
| 0.0050 | 0.1250 | 0.1250 | 0.1040 | 0.7500 | 1.5000 | 0.1040 | 60.0 | 947-000-016 | 947-000-038 | 937-000-121 |
| 0.0050 | 0.1250 | 0.1250 | 0.0600 | 0.7500 | 1.5000 | 0.0600 | 90.0 | 947-000-021 | 947-000-042 | 937-000-125 |
| 0.0050 | 0.1250 | 0.1250 | 0.0350 | 0.7500 | 1.5000 | 0.0350 | 120.0 | 947-000-001 | 947-000-026 | 937-000-109 |
| 0.0100 | 0.1250 | 0.1250 | 0.2150 | 0.7500 | 1.5000 | 0.2150 | 30.0 | 947-000-008 | 947-000-031 | 937-000-114 |
| 0.0100 | 0.1250 | 0.1250 | 0.1580 | 0.7500 | 1.5000 | 0.1580 | 40.0 | 947-000-013 | 947-000-035 | 937-000-118 |
| 0.0100 | 0.1250 | 0.1250 | 0.1000 | 0.7500 | 1.5000 | 0.1000 | 60.0 | 947-000-018 | 947-000-039 | 937-000-122 |
| 0.0100 | 0.1250 | 0.1250 | 0.0580 | 0.7500 | 1.5000 | 0.0580 | 90.0 | 947-000-023 | 947-000-043 | 937-000-126 |
| 0.0100 | 0.1250 | 0.1250 | 0.0330 | 0.7500 | 1.5000 | 0.0330 | 120.0 | 947-000-003 | 947-000-027 | 937-000-110 |



For Non-Ferrous Applications



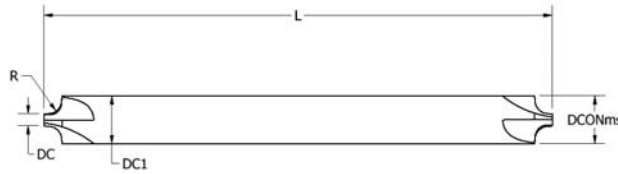
| DC | DCNms | DC1 | LU | LS | L | LF | A | UNCOATED | DLC COATED |
|--------|--------|--------|--------|--------|--------|--------|-------|-------------|-------------|
| | | | | | | | | 2 FLUTE | 2 FLUTE |
| 0.0050 | 0.1250 | 0.1250 | 0.2240 | 0.7500 | 1.5000 | 0.2240 | 30.0 | 947-000-007 | 937-000-130 |
| 0.0050 | 0.1250 | 0.1250 | 0.1650 | 0.7500 | 1.5000 | 0.1650 | 40.0 | 947-000-012 | 937-000-131 |
| 0.0050 | 0.1250 | 0.1250 | 0.1040 | 0.7500 | 1.5000 | 0.1040 | 60.0 | 947-000-017 | 937-000-132 |
| 0.0050 | 0.1250 | 0.1250 | 0.0600 | 0.7500 | 1.5000 | 0.0600 | 90.0 | 947-000-022 | 937-000-133 |
| 0.0050 | 0.1250 | 0.1250 | 0.0350 | 0.7500 | 1.5000 | 0.0350 | 120.0 | 947-000-002 | 937-000-129 |



| DC | DCONms | LU | LS | L | LF | R | A | UNCOATED | AITiN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|--------|-------|-------------|--------------|--------------|
| | | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.1250 | 0.1250 | 0.2180 | 0.7500 | 1.5000 | 0.2180 | 0.0050 | 30.0 | 947-000-009 | 947-000-032 | 937-000-115 |
| 0.1250 | 0.1250 | 0.1600 | 0.7500 | 1.5000 | 0.1600 | 0.0050 | 40.0 | 947-000-014 | 947-000-036 | 937-000-119 |
| 0.1250 | 0.1250 | 0.1030 | 0.7500 | 1.5000 | 0.1030 | 0.0050 | 60.0 | 947-000-019 | 947-000-040 | 937-000-123 |
| 0.1250 | 0.1250 | 0.0600 | 0.7500 | 1.5000 | 0.0600 | 0.0050 | 90.0 | 947-000-024 | 947-000-044 | 937-000-127 |
| 0.1250 | 0.1250 | 0.0350 | 0.7500 | 1.5000 | 0.0350 | 0.0050 | 120.0 | 937-000-111 | 947-000-028 | 937-000-111 |
| 0.1250 | 0.1250 | 0.2040 | 0.7500 | 1.5000 | 0.2040 | 0.0100 | 30.0 | 947-000-010 | 947-000-033 | 937-000-116 |
| 0.1250 | 0.1250 | 0.1500 | 0.7500 | 1.5000 | 0.1500 | 0.0100 | 40.0 | 947-000-015 | 947-000-037 | 937-000-120 |
| 0.1250 | 0.1250 | 0.0980 | 0.7500 | 1.5000 | 0.0980 | 0.0100 | 60.0 | 947-000-020 | 947-000-041 | 937-000-124 |
| 0.1250 | 0.1250 | 0.0580 | 0.7500 | 1.5000 | 0.0580 | 0.0100 | 90.0 | 947-000-025 | 947-000-045 | 937-000-128 |
| 0.1250 | 0.1250 | 0.0340 | 0.7500 | 1.5000 | 0.0340 | 0.0100 | 120.0 | 947-000-005 | 947-000-029 | 937-000-112 |

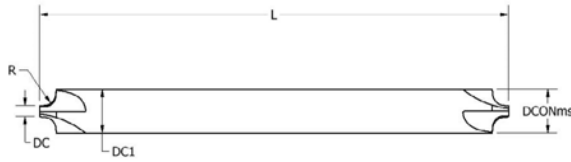


CORNER ROUNDING

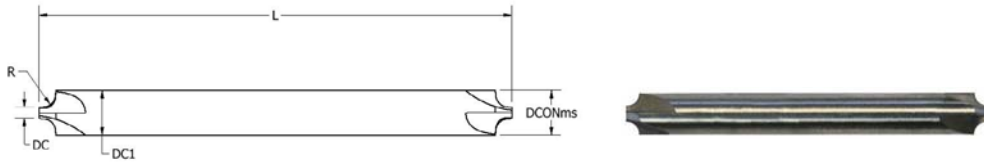


| DC | DCONms | DC1 | L | R | UNCOATED | AlTiN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0080 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-634 | 932-000-745 | 932-000-463 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-635 | 932-000-746 | 932-000-464 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-636 | 932-000-747 | 932-000-465 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0050 | 932-000-856 | 932-000-874 | 932-000-574 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0060 | 932-000-637 | 932-000-748 | 932-000-466 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0060 | 932-000-638 | 932-000-749 | 932-000-467 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0070 | 932-000-639 | 932-000-750 | 932-000-468 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0070 | 932-000-640 | 932-000-751 | 932-000-469 |
| 0.0080 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-641 | 932-000-752 | 932-000-470 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-642 | 932-000-753 | 932-000-471 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-643 | 932-000-754 | 932-000-472 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0080 | 932-000-857 | 932-000-875 | 932-000-575 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0090 | 932-000-644 | 932-000-755 | 932-000-473 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0090 | 932-000-645 | 932-000-756 | 932-000-474 |
| 0.0080 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-646 | 932-000-757 | 932-000-475 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-647 | 932-000-758 | 932-000-476 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-648 | 932-000-759 | 932-000-477 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0100 | 932-000-858 | 932-000-876 | 932-000-576 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0110 | 932-000-649 | 932-000-760 | 932-000-478 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0110 | 932-000-650 | 932-000-761 | 932-000-479 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0120 | 932-000-651 | 932-000-762 | 932-000-480 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0120 | 932-000-652 | 932-000-763 | 932-000-481 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0130 | 932-000-653 | 932-000-764 | 932-000-482 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0130 | 932-000-654 | 932-000-765 | 932-000-483 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0140 | 932-000-655 | 932-000-766 | 932-000-484 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0140 | 932-000-656 | 932-000-767 | 932-000-485 |
| 0.0080 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-657 | 932-000-768 | 932-000-486 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-658 | 932-000-769 | 932-000-487 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-659 | 932-000-770 | 932-000-488 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0150 | 932-000-859 | 932-000-877 | 932-000-577 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0180 | 932-000-660 | 932-000-771 | 932-000-489 |
| 0.0080 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-661 | 932-000-772 | 932-000-490 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-662 | 932-000-773 | 932-000-491 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-663 | 932-000-774 | 932-000-492 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0200 | 932-000-860 | 932-000-878 | 932-000-578 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0220 | 932-000-664 | 932-000-775 | 932-000-493 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0250 | 932-000-665 | 932-000-776 | 932-000-494 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0250 | 932-000-666 | 932-000-777 | 932-000-495 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0250 | 932-000-861 | 932-000-879 | 932-000-579 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0270 | 932-000-667 | 932-000-778 | 932-000-496 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0300 | 932-000-668 | 932-000-779 | 932-000-497 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0300 | 932-000-669 | 932-000-780 | 932-000-498 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0300 | 932-000-862 | 932-000-880 | 932-000-580 |

CARBIDE

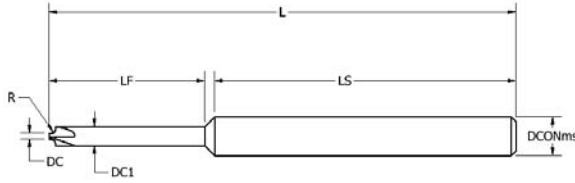


| DC | DCONms | DC1 | L | R | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0310 | 932-000-670 | 932-000-781 | 932-000-499 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0310 | 932-000-671 | 932-000-782 | 932-000-500 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0310 | 932-000-863 | 932-000-881 | 932-000-581 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0320 | 932-000-672 | 932-000-783 | 932-000-501 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0350 | 932-000-673 | 932-000-784 | 932-000-502 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0350 | 932-000-674 | 932-000-785 | 932-000-503 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0350 | 932-000-864 | 932-000-882 | 932-000-582 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0390 | 932-000-675 | 932-000-786 | 932-000-504 |
| 0.0460 | 0.1250 | 0.1250 | 1.5000 | 0.0390 | 932-000-676 | 932-000-787 | 932-000-505 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0390 | 932-000-865 | 932-000-883 | 932-000-583 |
| 0.1000 | 0.1875 | 0.1875 | 2.0000 | 0.0390 | 932-000-677 | 932-000-788 | 932-000-506 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0430 | 932-000-678 | 932-000-789 | 932-000-507 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0470 | 932-000-679 | 932-000-790 | 932-000-508 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0470 | 932-000-680 | 932-000-791 | 932-000-509 |
| 0.0460 | 0.1875 | 0.1875 | 4.0000 | 0.0470 | 932-000-866 | 932-000-884 | 932-000-584 |
| 0.1250 | 0.2500 | 0.2500 | 2.0000 | 0.0470 | 932-000-681 | 932-000-792 | 932-000-510 |
| 0.0200 | 0.1250 | 0.1250 | 1.5000 | 0.0500 | 932-000-682 | 932-000-793 | 932-000-511 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0500 | 932-000-683 | 932-000-794 | 932-000-512 |
| 0.0460 | 0.2500 | 0.2500 | 4.0000 | 0.0500 | 932-000-867 | 932-000-885 | 932-000-585 |
| 0.1250 | 0.2500 | 0.2500 | 2.0000 | 0.0500 | 932-000-684 | 932-000-795 | 932-000-513 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0550 | 932-000-685 | 932-000-796 | 932-000-514 |
| 0.0200 | 0.1875 | 0.1875 | 2.0000 | 0.0600 | 932-000-686 | 932-000-797 | 932-000-515 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0600 | 932-000-687 | 932-000-798 | 932-000-516 |
| 0.0460 | 0.2500 | 0.2500 | 4.0000 | 0.0600 | 932-000-868 | 932-000-886 | 932-000-586 |
| 0.0200 | 0.1875 | 0.2500 | 2.0000 | 0.0600 | 932-000-689 | 932-000-799 | 932-000-517 |
| 0.0460 | 0.1875 | 0.1875 | 2.0000 | 0.0620 | 932-000-690 | 932-000-800 | 932-000-518 |
| 0.1250 | 0.2500 | 0.1875 | 2.0000 | 0.0620 | 932-000-691 | 932-000-801 | 932-000-519 |
| 0.0460 | 0.2500 | 0.2500 | 4.0000 | 0.0620 | 932-000-869 | 932-000-887 | 932-000-587 |
| 0.1250 | 0.2500 | 0.2500 | 2.0000 | 0.0620 | 932-000-691 | 932-000-802 | 932-000-520 |
| 0.0460 | 0.2500 | 0.2500 | 2.0000 | 0.0720 | 932-000-692 | 932-000-803 | 932-000-521 |
| 0.0460 | 0.2500 | 0.2500 | 2.0000 | 0.0780 | 932-000-693 | 932-000-804 | 932-000-522 |
| 0.0460 | 0.2500 | 0.2500 | 4.0000 | 0.0780 | 932-000-870 | 932-000-888 | 932-000-588 |
| 0.0450 | 0.2500 | 0.2500 | 2.0000 | 0.0890 | 932-000-694 | 932-000-805 | 932-000-523 |
| 0.0450 | 0.2500 | 0.2500 | 2.0000 | 0.0930 | 932-000-695 | 932-000-806 | 932-000-524 |
| 0.0450 | 0.3125 | 0.3125 | 4.0000 | 0.0930 | 932-000-871 | 932-000-889 | 932-000-589 |
| 0.0450 | 0.2500 | 0.2500 | 2.0000 | 0.1000 | 932-000-696 | 932-000-807 | 932-000-525 |
| 0.0450 | 0.3125 | 0.3125 | 4.0000 | 0.1000 | 932-000-872 | 932-000-890 | 932-000-590 |
| 0.0580 | 0.3125 | 0.3125 | 2.5000 | 0.1090 | 932-000-697 | 932-000-808 | 932-000-526 |
| 0.0580 | 0.3125 | 0.3125 | 2.5000 | 0.1180 | 932-000-698 | 932-000-809 | 932-000-527 |
| 0.0580 | 0.3125 | 0.3125 | 2.5000 | 0.1250 | 932-000-699 | 932-000-810 | 932-000-528 |
| 0.0580 | 0.3750 | 0.3750 | 4.0000 | 0.1250 | 932-000-873 | 932-000-891 | 932-000-591 |
| 0.0580 | 0.3750 | 0.3750 | 2.5000 | 0.1400 | 932-000-700 | 932-000-811 | 932-000-529 |
| 0.0580 | 0.3750 | 0.3750 | 2.5000 | 0.1560 | 932-000-701 | 932-000-812 | 932-000-530 |

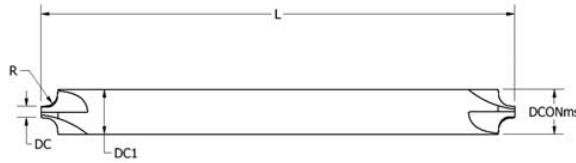


| DC | DCONms | DC1 | L | R | UNCOATED | AITIN COATED | TIAIN COATED |
|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-702 | 932-000-813 | 932-000-531 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0050 | 932-000-703 | 932-000-814 | 932-000-532 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-704 | 932-000-815 | 932-000-533 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0080 | 932-000-705 | 932-000-816 | 932-000-534 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-706 | 932-000-817 | 932-000-535 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0100 | 932-000-707 | 932-000-818 | 932-000-536 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-708 | 932-000-819 | 932-000-537 |
| 0.1070 | 0.1875 | 0.1875 | 2.0000 | 0.0150 | 932-000-709 | 932-000-820 | 932-000-538 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0150 | 932-000-710 | 932-000-821 | 932-000-539 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-711 | 932-000-822 | 932-000-540 |
| 0.1070 | 0.1875 | 0.1875 | 2.0000 | 0.0200 | 932-000-712 | 932-000-823 | 932-000-541 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0200 | 932-000-713 | 932-000-824 | 932-000-542 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0250 | 932-000-714 | 932-000-825 | 932-000-543 |
| 0.1070 | 0.1875 | 0.1875 | 2.0000 | 0.0250 | 932-000-715 | 932-000-826 | 932-000-544 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0250 | 932-000-716 | 932-000-827 | 932-000-545 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0300 | 932-000-717 | 932-000-828 | 932-000-546 |
| 0.1070 | 0.1875 | 0.1875 | 2.0000 | 0.0300 | 932-000-718 | 932-000-829 | 932-000-547 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0300 | 932-000-719 | 932-000-830 | 932-000-548 |
| 0.0580 | 0.1250 | 0.1250 | 1.5000 | 0.0310 | 932-000-720 | 932-000-831 | 932-000-549 |
| 0.1070 | 0.1875 | 0.1875 | 2.0000 | 0.0310 | 932-000-721 | 932-000-832 | 932-000-550 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0310 | 932-000-722 | 932-000-833 | 932-000-551 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0320 | 932-000-723 | 932-000-834 | 932-000-552 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0350 | 932-000-724 | 932-000-835 | 932-000-553 |
| 0.0580 | 0.1875 | 0.1875 | 2.0000 | 0.0390 | 932-000-725 | 932-000-836 | 932-000-554 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0390 | 932-000-726 | 932-000-837 | 932-000-555 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0430 | 932-000-727 | 932-000-838 | 932-000-556 |
| 0.0580 | 0.1875 | 0.1875 | 2.0000 | 0.0470 | 932-000-728 | 932-000-839 | 932-000-557 |
| 0.1070 | 0.2500 | 0.2500 | 2.0000 | 0.0470 | 932-000-729 | 932-000-840 | 932-000-558 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0470 | 932-000-730 | 932-000-841 | 932-000-559 |
| 0.0580 | 0.1875 | 0.1875 | 2.0000 | 0.0500 | 932-000-731 | 932-000-842 | 932-000-560 |
| 0.1070 | 0.2500 | 0.2500 | 2.0000 | 0.0500 | 932-000-732 | 932-000-843 | 932-000-561 |
| 0.2490 | 0.3750 | 0.3750 | 2.5000 | 0.0500 | 932-000-733 | 932-000-844 | 932-000-562 |
| 0.0580 | 0.1875 | 0.1875 | 2.0000 | 0.0600 | 932-000-734 | 932-000-845 | 932-000-563 |
| 0.1070 | 0.2500 | 0.2500 | 2.0000 | 0.0600 | 932-000-735 | 932-000-846 | 932-000-564 |
| 0.0580 | 0.1875 | 0.1875 | 2.0000 | 0.0620 | 932-000-736 | 932-000-847 | 932-000-565 |
| 0.1070 | 0.2500 | 0.2500 | 2.0000 | 0.0620 | 932-000-737 | 932-000-848 | 932-000-566 |
| 0.0580 | 0.2500 | 0.2500 | 2.0000 | 0.0780 | 932-000-738 | 932-000-849 | 932-000-567 |
| 0.1070 | 0.3125 | 0.3125 | 2.5000 | 0.0780 | 932-000-739 | 932-000-850 | 932-000-568 |
| 0.0580 | 0.2500 | 0.2500 | 2.0000 | 0.0930 | 932-000-740 | 932-000-851 | 932-000-569 |
| 0.1070 | 0.3125 | 0.3125 | 2.5000 | 0.0930 | 932-000-741 | 932-000-852 | 932-000-570 |
| 0.1070 | 0.3125 | 0.3125 | 2.5000 | 0.1000 | 932-000-742 | 932-000-853 | 932-000-571 |
| 0.1070 | 0.3750 | 0.3750 | 2.5000 | 0.1180 | 932-000-743 | 932-000-854 | 932-000-572 |
| 0.1070 | 0.3750 | 0.3750 | 2.5000 | 0.1250 | 932-000-744 | 932-000-855 | 932-000-573 |

CARBIDE



| DC | DCONms | DC1 | LS | L | LF | R | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0100 | 0.1250 | 0.0310 | 1.2970 | 1.5000 | 0.1560 | 0.0050 | 932-000-265 | 932-000-301 | 932-000-229 |
| 0.0100 | 0.1250 | 0.0310 | 1.2030 | 1.5000 | 0.2500 | 0.0050 | 932-000-266 | 932-000-302 | 932-000-230 |
| 0.0100 | 0.1250 | 0.0310 | 1.0780 | 1.5000 | 0.3750 | 0.0050 | 932-000-267 | 932-000-303 | 932-000-231 |
| 0.0100 | 0.1250 | 0.0310 | 1.2970 | 1.5000 | 0.1560 | 0.0050 | 932-000-268 | 932-000-304 | 932-000-232 |
| 0.0100 | 0.1250 | 0.0310 | 1.2030 | 1.5000 | 0.2500 | 0.0050 | 932-000-269 | 932-000-305 | 932-000-233 |
| 0.0100 | 0.1250 | 0.0310 | 1.0780 | 1.5000 | 0.3750 | 0.0050 | 932-000-270 | 932-000-306 | 932-000-234 |
| 0.0100 | 0.1250 | 0.0620 | 1.1565 | 1.5000 | 0.3120 | 0.0050 | 932-000-271 | 932-000-307 | 932-000-235 |
| 0.0100 | 0.1250 | 0.0620 | 0.9685 | 1.5000 | 0.5000 | 0.0050 | 932-000-272 | 932-000-308 | 932-000-236 |
| 0.0100 | 0.1250 | 0.0620 | 1.2185 | 2.0000 | 0.7500 | 0.0050 | 932-000-273 | 932-000-309 | 932-000-237 |
| 0.0100 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0050 | 932-000-274 | 932-000-310 | 932-000-238 |
| 0.0100 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0050 | 932-000-275 | 932-000-311 | 932-000-239 |
| 0.0100 | 0.1250 | 0.0310 | 1.2970 | 1.5000 | 0.1560 | 0.0080 | 932-000-276 | 932-000-312 | 932-000-240 |
| 0.0100 | 0.1250 | 0.0310 | 1.2030 | 1.5000 | 0.2500 | 0.0080 | 932-000-277 | 932-000-313 | 932-000-241 |
| 0.0100 | 0.1250 | 0.0310 | 1.0780 | 1.5000 | 0.3750 | 0.0080 | 932-000-278 | 932-000-314 | 932-000-242 |
| 0.0100 | 0.1250 | 0.0310 | 1.2970 | 1.5000 | 0.1560 | 0.0100 | 932-000-279 | 932-000-315 | 932-000-243 |
| 0.0100 | 0.1250 | 0.0310 | 1.2030 | 1.5000 | 0.2500 | 0.0100 | 932-000-280 | 932-000-316 | 932-000-244 |
| 0.0100 | 0.1250 | 0.0310 | 1.0780 | 1.5000 | 0.3750 | 0.0100 | 932-000-281 | 932-000-317 | 932-000-245 |
| 0.0200 | 0.1250 | 0.0620 | 1.1565 | 1.5000 | 0.3120 | 0.0100 | 932-000-282 | 932-000-318 | 932-000-246 |
| 0.0200 | 0.1250 | 0.0620 | 0.9685 | 1.5000 | 0.5000 | 0.0100 | 932-000-283 | 932-000-319 | 932-000-247 |
| 0.0200 | 0.1250 | 0.0620 | 1.2185 | 2.0000 | 0.7500 | 0.0100 | 932-000-284 | 932-000-320 | 932-000-248 |
| 0.0200 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0100 | 932-000-285 | 932-000-321 | 932-000-249 |
| 0.0200 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0100 | 932-000-286 | 932-000-322 | 932-000-250 |
| 0.0200 | 0.1250 | 0.0620 | 1.1565 | 1.5000 | 0.3120 | 0.0150 | 932-000-287 | 932-000-323 | 932-000-251 |
| 0.0200 | 0.1250 | 0.0620 | 0.9685 | 1.5000 | 0.5000 | 0.0150 | 932-000-288 | 932-000-324 | 932-000-252 |
| 0.0200 | 0.1250 | 0.0620 | 1.2185 | 2.0000 | 0.7500 | 0.0150 | 932-000-289 | 932-000-325 | 932-000-253 |
| 0.0200 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0150 | 932-000-290 | 932-000-326 | 932-000-254 |
| 0.0200 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0150 | 932-000-291 | 932-000-327 | 932-000-255 |
| 0.0200 | 0.1250 | 0.0620 | 1.1565 | 1.5000 | 0.3120 | 0.0200 | 932-000-292 | 932-000-328 | 932-000-256 |
| 0.0200 | 0.1250 | 0.0620 | 0.9685 | 1.5000 | 0.5000 | 0.0200 | 932-000-293 | 932-000-329 | 932-000-257 |
| 0.0200 | 0.1250 | 0.0620 | 1.2185 | 2.0000 | 0.7500 | 0.0200 | 932-000-294 | 932-000-330 | 932-000-258 |
| 0.0200 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0200 | 932-000-295 | 932-000-331 | 932-000-259 |
| 0.0200 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0200 | 932-000-296 | 932-000-332 | 932-000-260 |
| 0.0200 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0250 | 932-000-297 | 932-000-333 | 932-000-261 |
| 0.0200 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0250 | 932-000-298 | 932-000-334 | 932-000-262 |
| 0.0200 | 0.1250 | 0.0930 | 1.2340 | 2.0000 | 0.7500 | 0.0300 | 932-000-299 | 932-000-335 | 932-000-263 |
| 0.0200 | 0.1250 | 0.0930 | 0.8590 | 2.0000 | 1.1250 | 0.0300 | 932-000-300 | 932-000-336 | 932-000-264 |

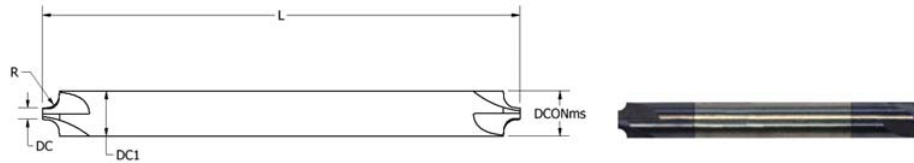


| DC | DCONms | DC1 | L | R | UNCOATED | TIN COATED | AITIN COATED |
|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | 2 FLUTE | 2 FLUTE | 2 FLUTE |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-337 | 932-000-892 | 932-000-592 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-338 | 932-000-893 | 932-000-593 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-339 | 932-000-894 | 932-000-594 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0120 | 932-000-340 | 932-000-895 | 932-000-595 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-341 | 932-000-896 | 932-000-596 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0180 | 932-000-342 | 932-000-897 | 932-000-597 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-343 | 932-000-898 | 932-000-598 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0220 | 932-000-344 | 932-000-899 | 932-000-599 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0250 | 932-000-345 | 932-000-900 | 932-000-600 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0270 | 932-000-346 | 932-000-901 | 932-000-601 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0300 | 932-000-347 | 932-000-902 | 932-000-602 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0310 | 932-000-348 | 932-000-903 | 932-000-603 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0320 | 932-000-349 | 932-000-904 | 932-000-604 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0350 | 932-000-350 | 932-000-905 | 932-000-605 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0390 | 932-000-351 | 932-000-906 | 932-000-606 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0430 | 932-000-352 | 932-000-907 | 932-000-607 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0470 | 932-000-353 | 932-000-908 | 932-000-608 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0500 | 932-000-354 | 932-000-909 | 932-000-609 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0550 | 932-000-355 | 932-000-910 | 932-000-610 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0600 | 932-000-356 | 932-000-911 | 932-000-611 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0620 | 932-000-357 | 932-000-912 | 932-000-612 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0670 | 932-000-358 | 932-000-913 | 932-000-613 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0720 | 932-000-359 | 932-000-914 | 932-000-614 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0780 | 932-000-360 | 932-000-915 | 932-000-615 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0890 | 932-000-361 | 932-000-916 | 932-000-616 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0930 | 932-000-362 | 932-000-917 | 932-000-617 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.1000 | 932-000-363 | 932-000-918 | 932-000-618 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1040 | 932-000-364 | 932-000-919 | 932-000-619 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1090 | 932-000-365 | 932-000-920 | 932-000-620 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1180 | 932-000-366 | 932-000-921 | 932-000-621 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1250 | 932-000-367 | 932-000-922 | 932-000-622 |
| 0.0600 | 0.3750 | 0.3750 | 2.5000 | 0.1400 | 932-000-368 | 932-000-923 | 932-000-623 |
| 0.0600 | 0.3750 | 0.3750 | 2.5000 | 0.1560 | 932-000-369 | 932-000-924 | 932-000-624 |



| DC | DCONms | DC1 | L | R | UNCOATED | TIN COATED | AITIN COATED |
|--------|--------|--------|--------|--------|-------------|-------------|--------------|
| | | | | | 4 FLUTE | 4 FLUTE | 4 FLUTE |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0100 | 932-000-370 | 932-000-925 | 932-000-625 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0150 | 932-000-371 | 932-000-926 | 932-000-626 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0200 | 932-000-372 | 932-000-927 | 932-000-627 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0250 | 932-000-373 | 932-000-928 | 932-000-628 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0300 | 932-000-374 | 932-000-929 | 932-000-629 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0310 | 932-000-375 | 932-000-930 | 932-000-630 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0390 | 932-000-376 | 932-000-931 | 932-000-631 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0470 | 932-000-377 | 932-000-932 | 932-000-632 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0500 | 932-000-378 | 932-000-933 | 932-000-633 |

CARBIDE

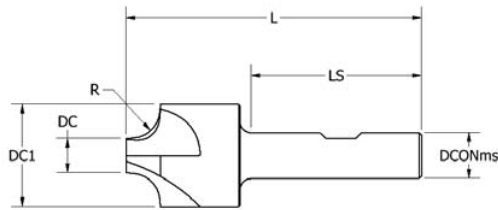


| DC | DCONms | DC1 | L | R | TiAIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------------|-------------------|
| | | | | | 2 FLUTE | 2 FLUTE |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0050 | 932-000-421 | 932-000-379 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0080 | 932-000-422 | 932-000-380 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0100 | 932-000-423 | 932-000-381 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0120 | 932-000-424 | 932-000-382 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0150 | 932-000-425 | 932-000-383 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0180 | 932-000-426 | 932-000-384 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0200 | 932-000-427 | 932-000-385 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0220 | 932-000-428 | 932-000-386 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0270 | 932-000-429 | 932-000-387 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0270 | 932-000-430 | 932-000-388 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0300 | 932-000-431 | 932-000-389 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0310 | 932-000-432 | 932-000-390 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0320 | 932-000-433 | 932-000-391 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0350 | 932-000-434 | 932-000-392 |
| 0.0470 | 0.1250 | 0.1250 | 1.5000 | 0.0390 | 932-000-435 | 932-000-393 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0430 | 932-000-436 | 932-000-394 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0470 | 932-000-437 | 932-000-395 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0500 | 932-000-438 | 932-000-396 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0550 | 932-000-439 | 932-000-397 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0600 | 932-000-440 | 932-000-398 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0620 | 932-000-441 | 932-000-399 |
| 0.0470 | 0.1875 | 0.1875 | 2.0000 | 0.0670 | 932-000-442 | 932-000-400 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0720 | 932-000-443 | 932-000-401 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0780 | 932-000-444 | 932-000-402 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0890 | 932-000-445 | 932-000-403 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.0930 | 932-000-446 | 932-000-404 |
| 0.0470 | 0.2500 | 0.2500 | 2.0000 | 0.1000 | 932-000-447 | 932-000-405 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1040 | 932-000-448 | 932-000-406 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1090 | 932-000-449 | 932-000-407 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1180 | 932-000-450 | 932-000-408 |
| 0.0600 | 0.3125 | 0.3125 | 2.5000 | 0.1250 | 932-000-451 | 932-000-409 |
| 0.0600 | 0.3750 | 0.3750 | 2.5000 | 0.1400 | 932-000-452 | 932-000-410 |
| 0.0600 | 0.3750 | 0.3750 | 2.5000 | 0.1560 | 932-000-453 | 932-000-411 |



| DC | DCONms | DC1 | L | R | TiAIN COATED | AMORPHOUS DIAMOND |
|--------|--------|--------|--------|--------|--------------|-------------------|
| | | | | | 2 FLUTE | 2 FLUTE |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0100 | 932-000-454 | 932-000-412 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0150 | 932-000-455 | 932-000-413 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0200 | 932-000-456 | 932-000-414 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0250 | 932-000-457 | 932-000-415 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0300 | 932-000-458 | 932-000-416 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0310 | 932-000-459 | 932-000-417 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0390 | 932-000-460 | 932-000-418 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0470 | 932-000-461 | 932-000-419 |
| 0.2500 | 0.3750 | 0.3750 | 2.5000 | 0.0500 | 932-000-462 | 932-000-420 |

METRIC RADIUS

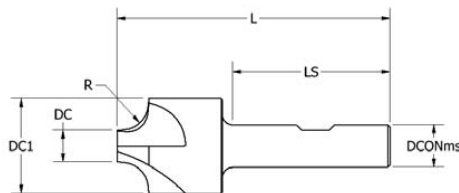


CRM125 HSS



| DC | DCONms | DC1 | LS | L | R | Uncoated | TiN Coated | TiCN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|---------------|-------------|-------------|-------------|--------------|
| 0.2270 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0394(1mm) | 932-000-133 | 932-000-136 | 932-000-135 | 932-000-134 |
| 0.2500 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0591(1.5mm) | 932-000-137 | 932-000-140 | 932-000-139 | 932-000-138 |
| 0.2730 | 0.3750 | 0.5000 | 1.6880 | 2.5000 | 0.0787(2mm) | 932-000-141 | 932-000-144 | 932-000-143 | 932-000-142 |
| 0.2330 | 0.3750 | 0.5000 | 1.6880 | 2.5000 | 0.0984(2.5mm) | 932-000-145 | 932-000-148 | 932-000-147 | 932-000-146 |
| 0.2570 | 0.5000 | 0.6250 | 2.0000 | 3.0000 | 0.1181(3mm) | 932-000-149 | 932-000-152 | 932-000-151 | 932-000-150 |
| 0.2790 | 0.5000 | 0.7500 | 2.0000 | 3.0000 | 0.1378(3.5mm) | 932-000-153 | 932-000-156 | 932-000-155 | 932-000-154 |
| 0.3030 | 0.5000 | 0.7500 | 2.0000 | 3.0000 | 0.1575(4mm) | 932-000-157 | 932-000-160 | 932-000-159 | 932-000-158 |
| 0.3890 | 0.5000 | 0.8750 | 2.0000 | 3.0000 | 0.1772(4.5mm) | 932-000-161 | 932-000-164 | 932-000-163 | 932-000-162 |
| 0.3490 | 0.5000 | 0.8750 | 2.0000 | 3.0000 | 0.1969(5mm) | 932-000-165 | 932-000-168 | 932-000-167 | 932-000-166 |
| 0.3950 | 0.7500 | 1.0000 | 2.2500 | 3.2500 | 0.2362(6mm) | 932-000-169 | 932-000-172 | 932-000-171 | 932-000-170 |
| 0.3790 | 0.7500 | 1.0000 | 2.2500 | 3.2500 | 0.2756(7mm) | 932-000-173 | 932-000-176 | 932-000-175 | 932-000-174 |
| 0.3630 | 0.7500 | 1.1250 | 2.2500 | 3.2500 | 0.3150(8mm) | 932-000-177 | 932-000-180 | 932-000-179 | 932-000-178 |
| 0.3460 | 0.7500 | 1.1250 | 2.2500 | 3.2500 | 0.3543(9mm) | 932-000-181 | 932-000-184 | 932-000-183 | 932-000-182 |
| 0.3920 | 0.7500 | 1.3750 | 2.2500 | 3.7500 | 0.3937(10mm) | 932-000-185 | 932-000-188 | 932-000-187 | 932-000-186 |
| 0.3760 | 1.0000 | 1.3750 | 2.5000 | 3.7500 | 0.4331(11mm) | 932-000-189 | 932-000-192 | 932-000-191 | 932-000-190 |
| 0.4220 | 1.0000 | 1.5000 | 2.5000 | 4.1250 | 0.4724(12mm) | 932-000-193 | 932-000-196 | 932-000-195 | 932-000-194 |
| 0.3430 | 1.0000 | 1.5000 | 2.5000 | 4.1250 | 0.5118(13mm) | 932-000-197 | 932-000-200 | 932-000-199 | 932-000-198 |
| 0.4520 | 1.0000 | 1.6250 | 2.5000 | 4.1250 | 0.5512(14mm) | 932-000-201 | 932-000-204 | 932-000-203 | 932-000-202 |
| 0.4980 | 1.0000 | 1.8750 | 2.5000 | 4.2500 | 0.5906(15mm) | 932-000-205 | 932-000-208 | 932-000-207 | 932-000-206 |
| 0.5440 | 1.0000 | 2.0000 | 2.5000 | 4.2500 | 0.6299(16mm) | 932-000-209 | 932-000-212 | 932-000-211 | 932-000-210 |
| 0.5280 | 1.0000 | 2.1250 | 2.5000 | 4.2500 | 0.6693(17mm) | 932-000-213 | 932-000-216 | 932-000-215 | 932-000-214 |
| 0.6410 | 1.0000 | 2.2500 | 2.5000 | 4.2500 | 0.7087(18mm) | 932-000-217 | 932-000-220 | 932-000-219 | 932-000-218 |
| 0.6200 | 1.0000 | 2.2500 | 2.5000 | 4.2500 | 0.7480(19mm) | 932-000-221 | 932-000-224 | 932-000-223 | 932-000-222 |
| 0.6040 | 1.0000 | 2.3125 | 2.5000 | 4.2500 | 0.7874(20mm) | 932-000-225 | 932-000-228 | 932-000-227 | 932-000-226 |

IMPERIAL RADIUS



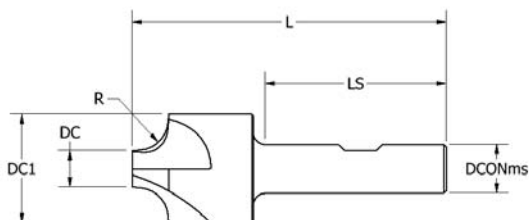
CRCO126 Cobalt Steel



| DC | DCONms | DC1 | LS | L | R | Uncoated | TiN Coated | TiCN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|-------------|--------------|
| 0.2430 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0313 | 932-000-001 | 932-000-004 | 932-000-003 | 932-000-002 |
| 0.2430 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0625 | 932-000-005 | 932-000-008 | 932-000-007 | 932-000-006 |
| 0.2430 | 0.3750 | 0.5000 | 1.6880 | 2.5000 | 0.0938 | 932-000-009 | 932-000-012 | 932-000-011 | 932-000-010 |
| 0.2430 | 0.5000 | 0.6250 | 1.9370 | 3.0000 | 0.1250 | 932-000-013 | 932-000-016 | 932-000-015 | 932-000-014 |
| 0.3050 | 0.5000 | 0.7500 | 2.0000 | 3.0000 | 0.1563 | 932-000-017 | 932-000-020 | 932-000-019 | 932-000-018 |
| 0.3680 | 0.7500 | 0.8750 | 2.2500 | 3.1250 | 0.1875 | 932-000-021 | 932-000-024 | 932-000-023 | 932-000-022 |
| 0.3680 | 0.7500 | 1.0000 | 2.2500 | 3.2500 | 0.2500 | 932-000-025 | 932-000-028 | 932-000-027 | 932-000-026 |
| 0.3680 | 0.8750 | 1.1250 | 2.1870 | 3.5000 | 0.3125 | 932-000-029 | 932-000-032 | 932-000-031 | 932-000-030 |
| 0.3670 | 0.8750 | 1.2500 | 2.2500 | 3.7500 | 0.3750 | 932-000-033 | 932-000-036 | 932-000-035 | 932-000-034 |
| 0.3670 | 1.0000 | 1.5000 | 2.5000 | 4.1250 | 0.5000 | 932-000-037 | 932-000-040 | 932-000-039 | 932-000-038 |



IMPERIAL RADIUS



HSS



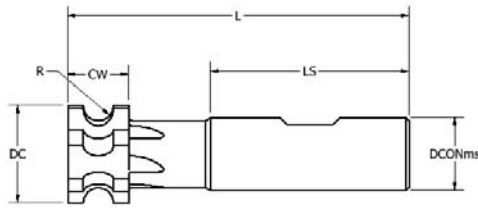
CRE124



| DC | DCONms | DC1 | LS | L | R | Uncoated | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|-------------|-------------|-------------|--------------|
| 0.2430 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0313 | 932-000-041 | 932-000-044 | 932-000-043 | 932-000-042 |
| 0.2430 | 0.3750 | 0.4375 | 1.6880 | 2.5000 | 0.0625 | 932-000-045 | 932-000-048 | 932-000-047 | 932-000-046 |
| 0.2430 | 0.3750 | 0.5000 | 1.6880 | 2.5000 | 0.0938 | 932-000-049 | 932-000-052 | 932-000-051 | 932-000-050 |
| 0.2430 | 0.5000 | 0.6250 | 1.9370 | 3.0000 | 0.1250 | 932-000-053 | 932-000-056 | 932-000-055 | 932-000-054 |
| 0.3050 | 0.5000 | 0.7500 | 2.0000 | 3.0000 | 0.1563 | 932-000-057 | 932-000-060 | 932-000-059 | 932-000-058 |
| 0.3680 | 0.5000 | 0.8750 | 1.9380 | 2.9375 | 0.1875 | 932-000-065 | 932-000-068 | 932-000-067 | 932-000-066 |
| 0.3680 | 0.7500 | 0.8750 | 2.2500 | 3.1250 | 0.1875 | 932-000-061 | 932-000-064 | 932-000-063 | 932-000-062 |
| 0.3680 | 0.5000 | 1.0000 | 1.9370 | 3.0000 | 0.2500 | 932-000-073 | 932-000-076 | 932-000-075 | 932-000-070 |
| 0.3680 | 0.7500 | 1.0000 | 2.2500 | 3.2500 | 0.2500 | 932-000-069 | 932-000-072 | 932-000-071 | 932-000-074 |
| 0.3680 | 0.5000 | 1.1250 | 1.9370 | 3.2500 | 0.3125 | 932-000-081 | 932-000-084 | 932-000-083 | 932-000-078 |
| 0.3680 | 0.7500 | 1.1250 | 2.1870 | 3.5000 | 0.3125 | 932-000-077 | 932-000-080 | 932-000-079 | 932-000-082 |
| 0.3670 | 0.5000 | 1.2500 | 2.0000 | 3.5000 | 0.3750 | 932-000-089 | 932-000-092 | 932-000-091 | 932-000-086 |
| 0.3670 | 0.8750 | 1.2500 | 2.2500 | 3.7500 | 0.3750 | 932-000-085 | 932-000-088 | 932-000-087 | 932-000-090 |
| 0.3670 | 0.7500 | 1.3750 | 2.1870 | 3.7500 | 0.4375 | 932-000-097 | 932-000-100 | 932-000-099 | 932-000-094 |
| 0.3670 | 1.0000 | 1.3750 | 2.4370 | 4.0000 | 0.4375 | 932-000-093 | 932-000-096 | 932-000-095 | 932-000-098 |
| 0.3670 | 0.7500 | 1.5000 | 2.3120 | 3.8750 | 0.5000 | 932-000-105 | 932-000-108 | 932-000-107 | 932-000-106 |
| 0.3670 | 1.0000 | 1.5000 | 2.5000 | 4.1250 | 0.5000 | 932-000-101 | 932-000-104 | 932-000-103 | 932-000-102 |
| 0.5540 | 0.7500 | 1.9375 | 2.2500 | 4.0000 | 0.6250 | 932-000-113 | 932-000-116 | 932-000-115 | 932-000-114 |
| 0.5540 | 1.0000 | 1.9375 | 2.5000 | 4.2500 | 0.6250 | 932-000-109 | 932-000-112 | 932-000-111 | 932-000-110 |
| 0.6160 | 0.7500 | 2.2500 | 2.2500 | 4.1250 | 0.7500 | 932-000-121 | 932-000-124 | 932-000-123 | 932-000-122 |
| 0.6160 | 1.0000 | 2.2500 | 2.4380 | 4.3125 | 0.7500 | 932-000-117 | 932-000-120 | 932-000-119 | 932-000-118 |
| 0.6160 | 0.7500 | 2.7500 | 2.2500 | 4.5000 | 1.0000 | 932-000-129 | 932-000-132 | 932-000-131 | 932-000-130 |
| 0.6160 | 1.0000 | 2.7500 | 2.5000 | 4.7500 | 1.0000 | 932-000-125 | 932-000-128 | 932-000-127 | 932-000-126 |



CONCAVE

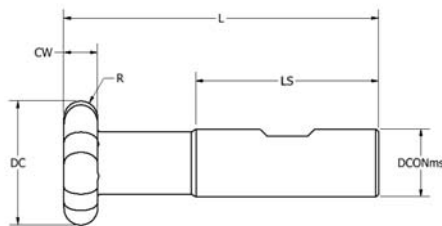


CCS150



| DC | DCONms | LS | L | CW | R | Zc | Uncoated | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|-------------|--------------|
| 0.7500 | 0.5000 | 2.1250 | 3.0000 | 0.3750 | 0.0313 | 6 | 905-000-008 | 905-000-035 | 905-000-025 | 905-000-017 |
| 0.7500 | 0.5000 | 2.1250 | 3.0000 | 0.3750 | 0.0625 | 6 | 905-000-007 | 905-000-034 | 905-000-026 | 905-000-016 |
| 0.7500 | 0.5000 | 2.1250 | 3.0000 | 0.3750 | 0.1250 | 6 | 905-000-009 | 905-000-036 | 905-000-027 | 905-000-018 |
| 1.0000 | 0.7500 | 2.2500 | 3.5000 | 0.6250 | 0.1250 | 6 | 905-000-004 | 905-000-031 | 905-000-022 | 905-000-013 |
| 1.0000 | 0.7500 | 2.2500 | 3.5000 | 0.6250 | 0.1563 | 6 | 905-000-006 | 905-000-033 | 905-000-023 | 905-000-015 |
| 1.0000 | 0.7500 | 2.2500 | 3.5000 | 0.6250 | 0.1563 | 6 | 905-000-005 | 905-000-032 | 905-000-024 | 905-000-014 |
| 1.2500 | 0.7500 | 2.2500 | 4.0000 | 1.0000 | 0.2500 | 4 | 905-000-003 | 905-000-030 | 905-000-020 | 905-000-012 |
| 1.2500 | 0.7500 | 2.2500 | 4.0000 | 1.0000 | 0.3125 | 4 | 905-000-002 | 905-000-029 | 905-000-021 | 905-000-011 |
| 1.5000 | 0.7500 | 2.2500 | 4.1875 | 1.0000 | 0.3750 | 4 | 905-000-001 | 905-000-028 | 905-000-019 | 905-000-010 |

CONVEX



CVS130



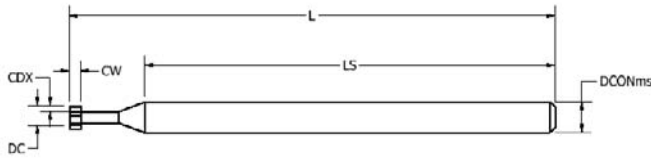
| DC | DCONms | LS | L | CW | R | Zc | Uncoated | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|-------------|--------------|
| 0.7500 | 0.5000 | 2.4375 | 3.0000 | 0.0625 | 0.0313 | 6 | 922-000-001 | 922-000-004 | 922-000-003 | 922-000-002 |
| 0.7500 | 0.5000 | 2.2500 | 3.0000 | 0.1250 | 0.0625 | 6 | 922-000-005 | 922-000-008 | 922-000-007 | 922-000-006 |
| 0.8750 | 0.5000 | 2.1875 | 3.0000 | 0.1875 | 0.0938 | 6 | 922-000-009 | 922-000-012 | 922-000-011 | 922-000-010 |
| 1.2500 | 0.7500 | 2.6250 | 3.5000 | 0.2500 | 0.1250 | 6 | 922-000-013 | 922-000-016 | 922-000-015 | 922-000-014 |
| 1.3125 | 0.7500 | 2.5625 | 3.5000 | 0.3125 | 0.1563 | 6 | 922-000-017 | 922-000-020 | 922-000-019 | 922-000-018 |
| 1.3750 | 0.7500 | 2.5000 | 3.5000 | 0.3750 | 0.1875 | 6 | 922-000-021 | 922-000-024 | 922-000-023 | 922-000-022 |
| 1.5000 | 0.7500 | 2.8750 | 4.0000 | 0.5000 | 0.2500 | 6 | 922-000-025 | 922-000-028 | 922-000-027 | 922-000-026 |
| 1.6250 | 0.7500 | 2.7500 | 4.0000 | 0.6250 | 0.3125 | 6 | 922-000-029 | 922-000-032 | 922-000-031 | 922-000-030 |
| 1.7500 | 0.7500 | 2.6250 | 4.0000 | 0.7500 | 0.3750 | 6 | 922-000-033 | 922-000-036 | 922-000-035 | 922-000-034 |



KEYSEAT CUTTERS



Ø .0625" - .1875"

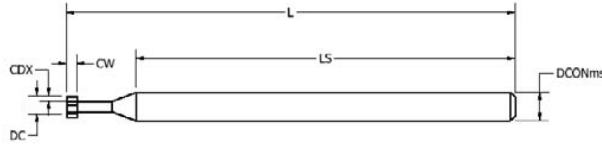


| DC | DCONms | LS | L | CDX | CW | UNCOATED | AITiN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | | 6 FLUTE | 6 FLUTE | 6 FLUTE |
| 0.0625 | 0.1250 | 1.7138 | 2.0000 | 0.0153 | 0.0156 | 943-000-811 | 943-000-941 | 943-000-873 |
| 0.0625 | 0.1250 | 1.6982 | 2.0000 | 0.0153 | 0.0313 | 943-000-812 | 943-000-942 | 943-000-874 |
| 0.0625 | 0.1250 | 1.6901 | 2.0000 | 0.0153 | 0.0394 | 943-000-813 | 943-000-943 | 943-000-875 |
| 0.0625 | 0.1250 | 1.6826 | 2.0000 | 0.0153 | 0.0469 | 943-000-814 | 943-000-944 | 943-000-876 |
| 0.0625 | 0.1250 | 1.6669 | 2.0000 | 0.0153 | 0.0625 | 943-000-815 | 943-000-945 | 943-000-877 |
| 0.0781 | 0.1250 | 1.7371 | 2.0000 | 0.0191 | 0.0156 | 943-000-816 | 943-000-946 | 943-000-878 |
| 0.0781 | 0.1250 | 1.7215 | 2.0000 | 0.0191 | 0.0313 | 943-000-817 | 943-000-947 | 943-000-879 |
| 0.0781 | 0.1250 | 1.7134 | 2.0000 | 0.0191 | 0.0394 | 943-000-818 | 943-000-948 | 943-000-880 |
| 0.0781 | 0.1250 | 1.7059 | 2.0000 | 0.0191 | 0.0469 | 943-000-819 | 943-000-949 | 943-000-881 |
| 0.0781 | 0.1250 | 1.6903 | 2.0000 | 0.0191 | 0.0625 | 943-000-820 | 943-000-950 | 943-000-882 |
| 0.0937 | 0.1250 | 1.7148 | 2.0000 | 0.0234 | 0.0156 | 943-000-821 | 943-000-951 | 943-000-883 |
| 0.0937 | 0.1250 | 1.6991 | 2.0000 | 0.0234 | 0.0313 | 943-000-822 | 943-000-952 | 943-000-884 |
| 0.0937 | 0.1250 | 1.6910 | 2.0000 | 0.0234 | 0.0394 | 943-000-823 | 943-000-953 | 943-000-885 |
| 0.0937 | 0.1250 | 1.6835 | 2.0000 | 0.0234 | 0.0469 | 943-000-824 | 943-000-954 | 943-000-886 |
| 0.0937 | 0.1250 | 1.6679 | 2.0000 | 0.0234 | 0.0625 | 943-000-825 | 943-000-955 | 943-000-887 |
| 0.1250 | 0.1250 | 1.6772 | 2.0000 | 0.0310 | 0.0156 | 943-000-826 | 943-000-956 | 943-000-888 |
| 0.1250 | 0.1250 | 1.6615 | 2.0000 | 0.0310 | 0.0313 | 943-000-827 | 943-000-957 | 943-000-889 |
| 0.1250 | 0.1250 | 1.6534 | 2.0000 | 0.0310 | 0.0394 | 943-000-828 | 943-000-958 | 943-000-890 |
| 0.1250 | 0.1250 | 1.6459 | 2.0000 | 0.0310 | 0.0469 | 943-000-829 | 943-000-959 | 943-000-891 |
| 0.1250 | 0.1250 | 1.6303 | 2.0000 | 0.0310 | 0.0625 | 943-000-830 | 943-000-960 | 943-000-892 |
| 0.1250 | 0.1250 | 1.5990 | 2.0000 | 0.0310 | 0.0938 | 943-000-831 | 943-000-961 | 943-000-893 |
| 0.1250 | 0.1250 | 1.5678 | 2.0000 | 0.0310 | 0.1250 | 943-000-832 | 943-000-962 | 943-000-894 |
| 0.1875 | 0.1875 | 1.5249 | 2.0000 | 0.0468 | 0.0156 | 943-000-833 | 943-000-963 | 943-000-895 |
| 0.1875 | 0.1875 | 1.5093 | 2.0000 | 0.0468 | 0.0313 | 943-000-834 | 943-000-964 | 943-000-896 |
| 0.1875 | 0.1875 | 1.5011 | 2.0000 | 0.0468 | 0.0394 | 943-000-835 | 943-000-965 | 943-000-897 |
| 0.1875 | 0.1875 | 1.4936 | 2.0000 | 0.0468 | 0.0469 | 943-000-836 | 943-000-966 | 943-000-898 |
| 0.1875 | 0.1875 | 1.4780 | 2.0000 | 0.0468 | 0.0625 | 943-000-837 | 943-000-967 | 943-000-899 |
| 0.1875 | 0.1875 | 1.4468 | 2.0000 | 0.0468 | 0.0938 | 943-000-838 | 943-000-968 | 943-000-900 |
| 0.1875 | 0.1875 | 1.4155 | 2.0000 | 0.0468 | 0.1250 | 943-000-839 | 943-000-969 | 943-000-901 |
| 0.1875 | 0.1875 | 1.3530 | 2.0000 | 0.0468 | 0.1875 | 943-000-840 | 943-000-970 | 943-000-902 |

CARBIDE

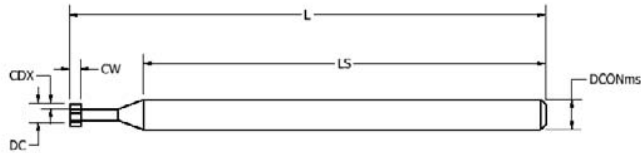


Ø .125"-.375"



| DC | DCONms | LS | L | CDX | CW | Zc | UNCOATED |
|--------|--------|--------|--------|--------|--------|----|-------------|
| 0.1250 | 0.2500 | 1.4744 | 2.0000 | 0.0310 | 0.0156 | 6 | 943-000-378 |
| 0.1250 | 0.2500 | 1.4588 | 2.0000 | 0.0310 | 0.0313 | 6 | 943-000-379 |
| 0.1250 | 0.2500 | 1.4507 | 2.0000 | 0.0310 | 0.0394 | 6 | 943-000-380 |
| 0.1250 | 0.2500 | 1.4432 | 2.0000 | 0.0310 | 0.0469 | 6 | 943-000-381 |
| 0.1250 | 0.2500 | 1.4275 | 2.0000 | 0.0310 | 0.0625 | 6 | 943-000-382 |
| 0.1875 | 0.2500 | 1.4393 | 2.0000 | 0.0468 | 0.0156 | 6 | 943-000-383 |
| 0.1875 | 0.2500 | 1.4236 | 2.0000 | 0.0468 | 0.0313 | 6 | 943-000-384 |
| 0.1875 | 0.2500 | 1.4155 | 2.0000 | 0.0468 | 0.0394 | 6 | 943-000-385 |
| 0.1875 | 0.2500 | 1.4080 | 2.0000 | 0.0468 | 0.0469 | 6 | 943-000-386 |
| 0.1875 | 0.2500 | 1.3924 | 2.0000 | 0.0468 | 0.0625 | 6 | 943-000-387 |
| 0.2500 | 0.2500 | 1.4971 | 2.0000 | 0.0625 | 0.0156 | 8 | 943-000-388 |
| 0.2500 | 0.2500 | 1.4815 | 2.0000 | 0.0625 | 0.0313 | 8 | 943-000-389 |
| 0.2500 | 0.2500 | 1.4734 | 2.0000 | 0.0625 | 0.0394 | 8 | 943-000-390 |
| 0.2500 | 0.2500 | 1.4659 | 2.0000 | 0.0625 | 0.0469 | 8 | 943-000-391 |
| 0.2500 | 0.2500 | 1.4502 | 2.0000 | 0.0625 | 0.0625 | 8 | 943-000-392 |
| 0.3125 | 0.3750 | 1.3236 | 2.0000 | 0.0778 | 0.0156 | 8 | 943-000-393 |
| 0.3125 | 0.3750 | 1.3079 | 2.0000 | 0.0778 | 0.0313 | 8 | 943-000-394 |
| 0.3125 | 0.3750 | 1.2998 | 2.0000 | 0.0778 | 0.0394 | 8 | 943-000-395 |
| 0.3125 | 0.3750 | 1.2923 | 2.0000 | 0.0778 | 0.0469 | 8 | 943-000-396 |
| 0.3125 | 0.3750 | 1.2767 | 2.0000 | 0.0778 | 0.0625 | 8 | 943-000-397 |
| 0.3125 | 0.3750 | 1.2604 | 2.0000 | 0.0778 | 0.0787 | 8 | 943-000-398 |
| 0.3125 | 0.3750 | 1.2454 | 2.0000 | 0.0778 | 0.0938 | 8 | 943-000-399 |
| 0.3750 | 0.3750 | 1.3814 | 2.0000 | 0.0935 | 0.0156 | 8 | 943-000-400 |
| 0.3750 | 0.3750 | 1.3658 | 2.0000 | 0.0935 | 0.0313 | 8 | 943-000-401 |
| 0.3750 | 0.3750 | 1.3577 | 2.0000 | 0.0935 | 0.0394 | 8 | 943-000-402 |
| 0.3750 | 0.3750 | 1.3502 | 2.0000 | 0.0935 | 0.0469 | 8 | 943-000-403 |
| 0.3750 | 0.3750 | 1.3345 | 2.0000 | 0.0935 | 0.0625 | 8 | 943-000-404 |
| 0.3750 | 0.3750 | 1.3183 | 2.0000 | 0.0935 | 0.0787 | 8 | 943-000-405 |
| 0.3750 | 0.3750 | 1.3033 | 2.0000 | 0.0935 | 0.0938 | 8 | 943-000-406 |
| 0.3750 | 0.3750 | 1.2720 | 2.0000 | 0.0935 | 0.1250 | 8 | 943-000-407 |

Ø .125"-.375"

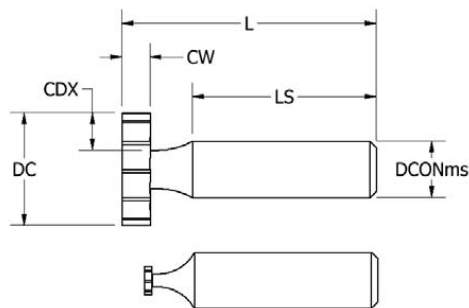


| DC | DCONms | LS | L | CDX | CW | UNCOATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|--------------|
| | | | | | | 6 FLUTE | 6 FLUTE |
| 0.1250 | 0.2500 | 1.4744 | 2.0000 | 0.0310 | 0.0156 | 943-000-378 | 943-001-143 |
| 0.1250 | 0.2500 | 1.4588 | 2.0000 | 0.0310 | 0.0313 | 943-000-379 | 943-001-146 |
| 0.1250 | 0.2500 | 1.4507 | 2.0000 | 0.0310 | 0.0394 | 943-000-380 | 943-001-149 |
| 0.1250 | 0.2500 | 1.4432 | 2.0000 | 0.0310 | 0.0469 | 943-000-381 | 943-001-152 |
| 0.1250 | 0.2500 | 1.4275 | 2.0000 | 0.0310 | 0.0625 | 943-000-382 | 943-001-155 |
| 0.1250 | 0.2500 | 1.3963 | 2.0000 | 0.0310 | 0.0938 | 943-000-845 | 943-000-908 |
| 0.1250 | 0.2500 | 1.3650 | 2.0000 | 0.0310 | 0.1250 | 943-000-846 | 943-000-909 |
| 0.1875 | 0.2500 | 1.4393 | 2.0000 | 0.0468 | 0.0156 | 943-000-383 | 943-001-158 |
| 0.1875 | 0.2500 | 1.4236 | 2.0000 | 0.0468 | 0.0313 | 943-000-384 | 943-001-161 |
| 0.1875 | 0.2500 | 1.4155 | 2.0000 | 0.0468 | 0.0394 | 943-000-385 | 943-001-164 |
| 0.1875 | 0.2500 | 1.4080 | 2.0000 | 0.0468 | 0.0469 | 943-000-386 | 943-001-167 |
| 0.1875 | 0.2500 | 1.3924 | 2.0000 | 0.0468 | 0.0625 | 943-000-387 | 943-001-170 |
| 0.1875 | 0.2500 | 1.3611 | 2.0000 | 0.0468 | 0.0938 | 943-000-851 | 943-000-915 |
| 0.1875 | 0.2500 | 1.3299 | 2.0000 | 0.0468 | 0.1250 | 943-000-852 | 943-000-916 |
| 0.1875 | 0.2500 | 1.2674 | 2.0000 | 0.0468 | 0.1875 | 943-000-853 | 943-000-917 |



| DC | DCONms | LS | L | CDX | CW | UNCOATED | AITIN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|-------------|--------------|--------------|
| | | | | | | 8 FLUTE | 8 FLUTE | 8 FLUTE |
| 0.2500 | 0.2500 | 1.4971 | 2.0000 | 0.0625 | 0.0156 | 943-000-388 | 943-000-971 | 943-001-173 |
| 0.2500 | 0.2500 | 1.4815 | 2.0000 | 0.0625 | 0.0313 | 943-000-389 | 943-000-972 | 943-001-176 |
| 0.2500 | 0.2500 | 1.4734 | 2.0000 | 0.0625 | 0.0394 | 943-000-390 | 943-000-973 | 943-001-179 |
| 0.2500 | 0.2500 | 1.4502 | 2.0000 | 0.0625 | 0.0625 | 943-000-392 | 943-000-974 | 943-001-182 |
| 0.2500 | 0.2500 | 1.4502 | 2.0000 | 0.0625 | 0.0625 | 943-000-854 | 943-000-975 | 943-001-185 |
| 0.2500 | 0.2500 | 1.3877 | 2.0000 | 0.0625 | 0.1250 | 943-000-855 | 943-000-976 | 943-000-923 |
| 0.2500 | 0.2500 | 1.3252 | 2.0000 | 0.0625 | 0.1875 | 943-000-856 | 943-000-977 | 943-000-924 |
| 0.2500 | 0.2500 | 1.2627 | 2.0000 | 0.0625 | 0.2500 | 943-000-857 | 943-000-978 | 943-000-925 |
| 0.3125 | 0.3750 | 1.3236 | 2.0000 | 0.0778 | 0.0156 | 943-000-393 | 943-000-979 | 943-001-188 |
| 0.3125 | 0.3750 | 1.3079 | 2.0000 | 0.0778 | 0.0313 | 943-000-394 | 943-000-980 | 943-001-191 |
| 0.3125 | 0.3750 | 1.2998 | 2.0000 | 0.0778 | 0.0394 | 943-000-395 | 943-000-981 | 943-001-194 |
| 0.3125 | 0.3750 | 1.2923 | 2.0000 | 0.0778 | 0.0469 | 943-000-396 | 943-000-982 | 943-001-197 |
| 0.3125 | 0.3750 | 1.2767 | 2.0000 | 0.0778 | 0.0625 | 943-000-397 | 943-000-983 | 943-001-200 |
| 0.3125 | 0.3750 | 1.2604 | 2.0000 | 0.0778 | 0.0787 | 943-000-398 | 943-000-984 | 943-001-203 |
| 0.3125 | 0.3750 | 1.2454 | 2.0000 | 0.0778 | 0.0938 | 943-000-399 | 943-000-985 | 943-001-206 |
| 0.3750 | 0.3750 | 1.3814 | 2.0000 | 0.0935 | 0.0156 | 943-000-400 | 943-000-986 | 943-001-209 |
| 0.3750 | 0.3750 | 1.3658 | 2.0000 | 0.0935 | 0.0313 | 943-000-401 | 943-000-987 | 943-001-212 |
| 0.3750 | 0.3750 | 1.3577 | 2.0000 | 0.0935 | 0.0394 | 943-000-402 | 943-000-988 | 943-001-215 |
| 0.3750 | 0.3750 | 1.3502 | 2.0000 | 0.0935 | 0.0469 | 943-000-403 | 943-000-989 | 943-001-218 |
| 0.3750 | 0.3750 | 1.3345 | 2.0000 | 0.0935 | 0.0625 | 943-000-404 | 943-000-990 | 943-001-221 |
| 0.3750 | 0.3750 | 1.3183 | 2.0000 | 0.0935 | 0.0787 | 943-000-405 | 943-000-991 | 943-001-224 |
| 0.3750 | 0.3750 | 1.3033 | 2.0000 | 0.0935 | 0.0938 | 943-000-406 | 943-000-992 | 943-001-227 |
| 0.3750 | 0.3750 | 1.2720 | 2.0000 | 0.0935 | 0.1250 | 943-000-407 | 943-000-993 | 943-001-231 |

CARBIDE



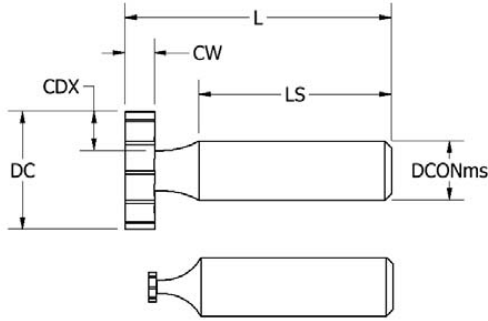
CARBIDE HEAD/STEEL SHANK

| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | Product # |
|--------------------|--------|--------|--------|--------|--------|--------|----|-------------|
| 204 | 0.5100 | 0.5000 | 1.6250 | 2.0625 | 0.1460 | 0.0625 | 10 | 943-000-343 |
| 304 | 0.5100 | 0.5000 | 1.6250 | 2.0938 | 0.1460 | 0.0938 | 10 | 943-000-344 |
| 404 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1460 | 0.1250 | 10 | 943-000-345 |
| 305 | 0.6350 | 0.5000 | 1.6250 | 2.0938 | 0.1925 | 0.0938 | 10 | 943-000-346 |
| 405 | 0.6350 | 0.5000 | 1.6250 | 2.1250 | 0.1925 | 0.1250 | 10 | 943-000-347 |
| 505 | 0.6350 | 0.5000 | 1.6250 | 2.1563 | 0.1770 | 0.1563 | 10 | 943-000-348 |
| 605 | 0.6350 | 0.5000 | 1.6250 | 2.1875 | 0.1770 | 0.1875 | 10 | 943-000-349 |
| 406 | 0.7600 | 0.5000 | 1.6250 | 2.1250 | 0.2550 | 0.1250 | 10 | 943-000-350 |
| 506 | 0.7600 | 0.5000 | 1.6250 | 2.1563 | 0.2550 | 0.1563 | 10 | 943-000-351 |
| 606 | 0.7600 | 0.5000 | 1.6250 | 2.1875 | 0.2395 | 0.1875 | 10 | 943-000-352 |
| 806 | 0.7600 | 0.5000 | 1.6250 | 2.2500 | 0.2395 | 0.2500 | 10 | 943-000-353 |
| 507 | 0.8970 | 0.5000 | 1.6250 | 2.1563 | 0.3080 | 0.1563 | 12 | 943-000-354 |
| 607 | 0.8970 | 0.5000 | 1.6250 | 2.1875 | 0.3080 | 0.1875 | 12 | 943-000-355 |
| 707 | 0.8970 | 0.5000 | 1.6250 | 2.2188 | 0.2925 | 0.2188 | 12 | 943-000-356 |
| 807 | 0.8970 | 0.5000 | 1.6250 | 2.2500 | 0.2925 | 0.2500 | 12 | 943-000-357 |
| 608 | 1.0120 | 0.5000 | 1.6250 | 2.1875 | 0.3500 | 0.1875 | 12 | 943-000-358 |
| 708 | 1.0120 | 0.5000 | 1.6250 | 2.2188 | 0.3500 | 0.2188 | 12 | 943-000-359 |
| 808 | 1.0120 | 0.5000 | 1.6250 | 2.2500 | 0.3500 | 0.2500 | 12 | 943-000-360 |
| 1008 | 1.0120 | 0.5000 | 1.6250 | 2.3125 | 0.3345 | 0.3125 | 12 | 943-000-361 |
| 1208 | 1.0120 | 0.5000 | 1.6250 | 2.3750 | 0.3345 | 0.3750 | 12 | 943-000-362 |



SOLID CARBIDE

| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | Product # |
|--------------------|--------|--------|--------|--------|--------|--------|----|-------------|
| 609 | 1.1370 | 0.5000 | 1.6250 | 2.1875 | 0.3970 | 0.1875 | 12 | 943-000-363 |
| 709 | 1.1370 | 0.5000 | 1.6250 | 2.2188 | 0.3970 | 0.2188 | 12 | 943-000-364 |
| 809 | 1.1370 | 0.5000 | 1.6250 | 2.2500 | 0.3810 | 0.2500 | 12 | 943-000-365 |
| 1009 | 1.1370 | 0.5000 | 1.6250 | 2.3125 | 0.3810 | 0.3125 | 12 | 943-000-366 |
| 610 | 1.2650 | 0.5000 | 1.6250 | 2.1875 | 0.4610 | 0.1875 | 14 | 943-000-367 |
| 710 | 1.2650 | 0.5000 | 1.6250 | 2.2188 | 0.4610 | 0.2188 | 14 | 943-000-368 |
| 810 | 1.2650 | 0.5000 | 1.6250 | 2.2500 | 0.4450 | 0.2500 | 14 | 943-000-369 |
| 1010 | 1.2650 | 0.5000 | 1.6250 | 2.3125 | 0.4140 | 0.3125 | 14 | 943-000-370 |
| 1210 | 1.2650 | 0.5000 | 1.6250 | 2.3750 | 0.3985 | 0.3750 | 14 | 943-000-371 |
| 811 | 1.3900 | 0.5000 | 1.6250 | 2.2500 | 0.4945 | 0.2500 | 14 | 943-000-372 |
| 1011 | 1.3900 | 0.5000 | 1.6250 | 2.3125 | 0.4610 | 0.3125 | 14 | 943-000-373 |
| 1211 | 1.3900 | 0.5000 | 1.6250 | 2.3750 | 0.4610 | 0.3750 | 14 | 943-000-374 |
| 812 | 1.5150 | 0.5000 | 1.6250 | 2.2500 | 0.5400 | 0.2500 | 14 | 943-000-375 |
| 1012 | 1.5150 | 0.5000 | 1.6250 | 2.3125 | 0.5235 | 0.3125 | 14 | 943-000-376 |
| 1212 | 1.5150 | 0.5000 | 1.6250 | 2.3750 | 0.5235 | 0.3750 | 14 | 943-000-377 |

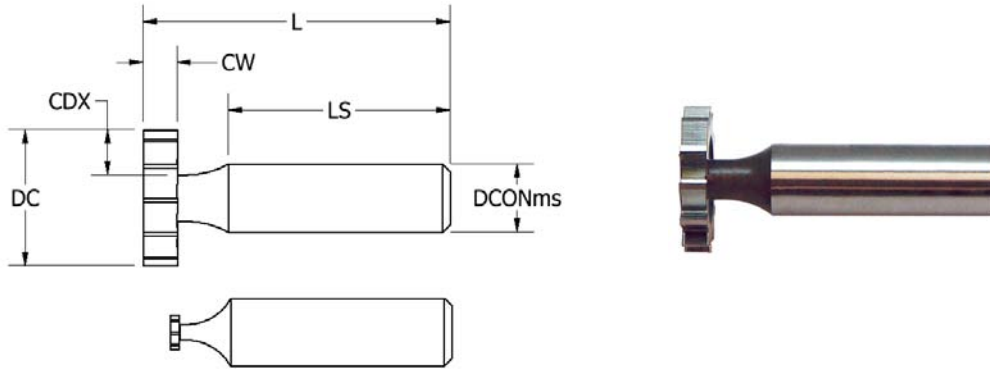


CARBIDE TIPPED

| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | Straight Tooth | Stagger Tooth |
|--------------------|--------|--------|--------|--------|--------|--------|----|----------------|---------------|
| 204 | 0.5100 | 0.5000 | 1.6250 | 2.0625 | 0.1875 | 0.0625 | 6 | 943-000-640 | 943-000-641 |
| 304 | 0.5100 | 0.5000 | 1.6250 | 2.0938 | 0.1750 | 0.0938 | 6 | 943-000-645 | 943-000-646 |
| 404 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1595 | 0.1250 | 6 | 943-000-650 | 943-000-651 |
| 305 | 0.6350 | 0.5000 | 1.6250 | 2.0938 | 0.2220 | 0.0938 | 6 | 943-000-655 | 943-000-656 |
| 405 | 0.6350 | 0.5000 | 1.6250 | 2.1250 | 0.2060 | 0.1250 | 6 | 943-000-660 | 943-000-661 |
| 505 | 0.6350 | 0.5000 | 1.6250 | 2.1563 | 0.1910 | 0.1563 | 6 | 943-000-665 | 943-000-666 |
| 605 | 0.6350 | 0.5000 | 1.6250 | 2.1875 | 0.1910 | 0.1875 | 6 | 943-000-670 | 943-000-671 |
| 406 | 0.7600 | 0.5000 | 1.6250 | 2.1250 | 0.2715 | 0.1250 | 6 | 943-000-675 | 943-000-676 |
| 506 | 0.7600 | 0.5000 | 1.6250 | 2.1563 | 0.2565 | 0.1563 | 6 | 943-000-680 | 943-000-681 |
| 606 | 0.7600 | 0.5000 | 1.6250 | 2.1875 | 0.2405 | 0.1875 | 6 | 943-000-685 | 943-000-686 |
| 806 | 0.7600 | 0.5000 | 1.6250 | 2.2500 | 0.2405 | 0.2500 | 6 | 943-000-690 | 943-000-691 |
| 507 | 0.8970 | 0.5000 | 1.6250 | 2.1563 | 0.3250 | 0.1563 | 6 | 943-000-695 | 943-000-696 |
| 607 | 0.8970 | 0.5000 | 1.6250 | 2.1875 | 0.3090 | 0.1875 | 6 | 943-000-700 | 943-000-701 |
| 707 | 0.8970 | 0.5000 | 1.6250 | 2.2188 | 0.3090 | 0.2188 | 6 | 943-000-705 | 943-000-706 |
| 807 | 0.8970 | 0.5000 | 1.6250 | 2.2500 | 0.2775 | 0.2500 | 6 | 943-000-710 | 943-000-711 |
| 608 | 1.0120 | 0.5000 | 1.6250 | 2.1875 | 0.3665 | 0.1875 | 8 | 943-000-715 | 943-000-716 |
| 708 | 1.0120 | 0.5000 | 1.6250 | 2.2188 | 0.3665 | 0.2188 | 8 | 943-000-720 | 943-000-721 |
| 808 | 1.0120 | 0.5000 | 1.6250 | 2.2500 | 0.3350 | 0.2500 | 8 | 943-000-725 | 943-000-726 |
| 1008 | 1.0120 | 0.5000 | 1.6250 | 2.3125 | 0.3055 | 0.3125 | 8 | 943-000-730 | 943-000-731 |
| 1208 | 1.0120 | 0.5000 | 1.6250 | 2.3750 | 0.3055 | 0.3750 | 8 | 943-000-735 | 943-000-736 |
| 609 | 1.1370 | 0.5000 | 1.6250 | 2.1875 | 0.4125 | 0.1875 | 8 | 943-000-740 | 943-000-741 |
| 709 | 1.1370 | 0.5000 | 1.6250 | 2.2188 | 0.4125 | 0.2188 | 8 | 943-000-745 | 943-000-746 |
| 809 | 1.1370 | 0.5000 | 1.6250 | 2.2500 | 0.3820 | 0.2500 | 8 | 943-000-750 | 943-000-751 |
| 1009 | 1.1370 | 0.5000 | 1.6250 | 2.3125 | 0.3510 | 0.3125 | 8 | 943-000-755 | 943-000-756 |
| 610 | 1.2650 | 0.5000 | 1.6250 | 2.1875 | 0.4460 | 0.1875 | 8 | 943-000-760 | 943-000-761 |
| 710 | 1.2650 | 0.5000 | 1.6250 | 2.2188 | 0.4460 | 0.2188 | 8 | 943-000-765 | 943-000-766 |
| 810 | 1.2650 | 0.5000 | 1.6250 | 2.2500 | 0.4460 | 0.2500 | 8 | 943-000-770 | 943-000-771 |
| 1010 | 1.2650 | 0.5000 | 1.6250 | 2.3125 | 0.4150 | 0.3125 | 8 | 943-000-775 | 943-000-776 |
| 1210 | 1.2650 | 0.5000 | 1.6250 | 2.3750 | 0.3990 | 0.3750 | 8 | 943-000-780 | 943-000-781 |
| 811 | 1.3900 | 0.5000 | 1.6250 | 2.2500 | 0.4945 | 0.2500 | 8 | 943-000-785 | 943-000-786 |
| 1011 | 1.3900 | 0.5000 | 1.6250 | 2.3125 | 0.4615 | 0.3125 | 8 | 943-000-790 | 943-000-791 |
| 1211 | 1.3900 | 0.5000 | 1.6250 | 2.3750 | 0.4615 | 0.3750 | 8 | 943-000-795 | 943-000-796 |
| 812 | 1.5150 | 0.5000 | 1.6250 | 2.2500 | 0.5400 | 0.2500 | 8 | 943-000-800 | 943-000-801 |
| 1012 | 1.5150 | 0.5000 | 1.6250 | 2.3125 | 0.5240 | 0.3125 | 8 | 943-000-805 | 943-000-806 |
| 1212 | 1.5150 | 0.5000 | 1.6250 | 2.3750 | 0.5240 | 0.3750 | 8 | 943-000-809 | 943-000-810 |



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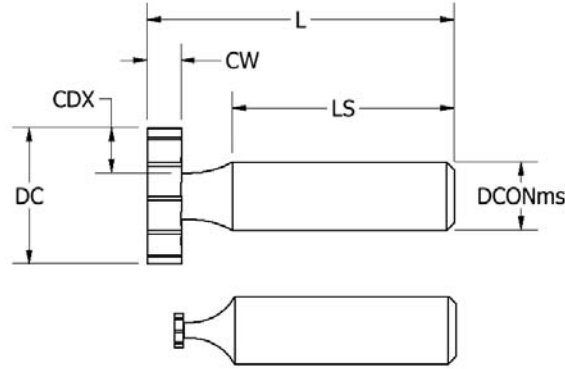


| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | | Straight Tooth | Stagger Tooth |
|--------------------|--------|--------|--------|--------|--------|--------|----------|-----------|----------------|---------------|
| | | | | | | | Straight | Staggered | | |
| 202 | 0.2600 | 0.5000 | 1.6250 | 2.0625 | 0.0750 | 0.0625 | 8 | 6 | 943-000-001 | 943-000-005 |
| 202 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0625 | 0.1063 | 0.0625 | 8 | 6 | 943-000-009 | 943-000-013 |
| 302 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0938 | 0.1063 | 0.0938 | 8 | 6 | 943-000-017 | 943-000-021 |
| 203 | 0.3850 | 0.5000 | 1.6250 | 2.0625 | 0.1375 | 0.0625 | 8 | 6 | 943-000-025 | 943-000-029 |
| 303 | 0.3850 | 0.5000 | 1.6250 | 2.0938 | 0.1375 | 0.0938 | 8 | 6 | 943-000-033 | 943-000-037 |
| 403 | 0.3850 | 0.5000 | 1.6250 | 2.1250 | 0.1275 | 0.1250 | 8 | 6 | 943-000-041 | 943-000-045 |
| 204 | 0.5100 | 0.5000 | 1.6250 | 2.0625 | 0.1900 | 0.0625 | 10 | 8 | 943-000-049 | 943-000-053 |
| 304 | 0.5100 | 0.5000 | 1.6250 | 2.0938 | 0.1750 | 0.0938 | 10 | 8 | 943-000-057 | 943-000-061 |
| 404 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1595 | 0.1250 | 10 | 8 | 943-000-065 | 943-000-069 |
| 305 | 0.6350 | 0.5000 | 1.6250 | 2.0938 | 0.2220 | 0.0938 | 10 | 8 | 943-000-073 | 943-000-077 |
| 405 | 0.6350 | 0.5000 | 1.6250 | 2.1250 | 0.2060 | 0.1250 | 10 | 8 | 943-000-081 | 943-000-085 |
| 505 | 0.6350 | 0.5000 | 1.6250 | 2.1563 | 0.1910 | 0.1563 | 10 | 8 | 943-000-089 | 943-000-093 |
| 605 | 0.6350 | 0.5000 | 1.6250 | 2.1875 | 0.1910 | 0.1875 | 10 | 8 | 943-000-097 | 943-000-101 |
| 406 | 0.7600 | 0.5000 | 1.6250 | 2.1250 | 0.2685 | 0.1250 | 10 | 8 | 943-000-105 | 943-000-109 |
| 506 | 0.7600 | 0.5000 | 1.6250 | 2.1563 | 0.2535 | 0.1563 | 10 | 8 | 943-000-113 | 943-000-117 |
| 606 | 0.7600 | 0.5000 | 1.6250 | 2.1875 | 0.2405 | 0.1875 | 10 | 8 | 943-000-121 | 943-000-125 |
| 806 | 0.7600 | 0.5000 | 1.6250 | 2.2500 | 0.2405 | 0.2500 | 10 | 8 | 943-000-129 | 943-000-133 |

| DC(Cutter Diameter) | | |
|-----------------------------------|----------|----------|
| 1/4" up to and including 3/4" | +0.010" | +0.015" |
| 7/8" up to and including 1-1/8" | +0.012" | +0.017" |
| 1-1/4" up to and including 1-1/2" | +0.015" | +0.020" |
| DCONms(Shank Diameter) | | |
| | -0.0001" | -0.0005" |

| CW(Width) | | |
|---------------------------------|----------|----------|
| 1/16" up to and including 5/32" | +0.0000" | -0.0005" |
| 3/16" up to and including 7/32" | -0.0002" | -0.0007" |
| 1/4" | -0.0003" | -0.0008" |
| 5/16" | -0.0004" | -0.0009" |
| 3/8" | -0.0005" | -0.0010" |

For set information see **page 256**



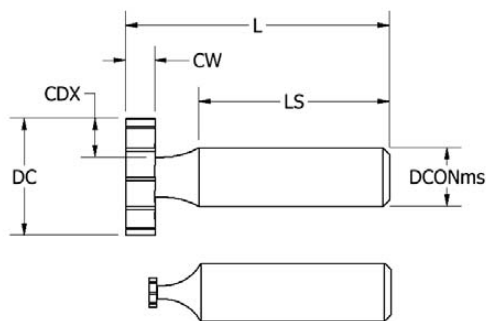
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| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | | Straight Tooth | Stagger Tooth |
|--------------------|--------|--------|--------|--------|--------|--------|----------|-----------|----------------|---------------|
| | | | | | | | Straight | Staggered | | |
| 507 | 0.8970 | 0.5000 | 1.6250 | 2.1563 | 0.3250 | 0.1563 | 12 | 10 | 943-000-137 | 943-000-141 |
| 607 | 0.8970 | 0.5000 | 1.6250 | 2.1875 | 0.3090 | 0.1875 | 12 | 10 | 943-000-145 | 943-000-149 |
| 707 | 0.8970 | 0.5000 | 1.6250 | 2.2188 | 0.3090 | 0.2188 | 12 | 10 | 943-000-153 | 943-000-157 |
| 807 | 0.8970 | 0.5000 | 1.6250 | 2.2500 | 0.2775 | 0.2500 | 12 | 10 | 943-000-161 | 943-000-165 |
| 608 | 1.0120 | 0.5000 | 1.6250 | 2.1875 | 0.3665 | 0.1875 | 12 | 10 | 943-000-169 | 943-000-173 |
| 708 | 1.0120 | 0.5000 | 1.6250 | 2.2188 | 0.3350 | 0.2188 | 12 | 10 | 943-000-177 | 943-000-181 |
| 808 | 1.0120 | 0.5000 | 1.6250 | 2.2500 | 0.3350 | 0.2500 | 12 | 10 | 943-000-185 | 943-000-189 |
| 1008 | 1.0120 | 0.5000 | 1.6250 | 2.3125 | 0.3055 | 0.3125 | 12 | 10 | 943-000-193 | 943-000-197 |
| 1208 | 1.0120 | 0.5000 | 1.6250 | 2.3750 | 0.3055 | 0.3750 | 12 | 10 | 943-000-201 | 943-000-205 |
| 609 | 1.1370 | 0.5000 | 1.6250 | 2.1875 | 0.4125 | 0.1875 | 12 | 10 | 943-000-209 | 943-000-213 |
| 709 | 1.1370 | 0.5000 | 1.6250 | 2.2188 | 0.4125 | 0.2188 | 12 | 10 | 943-000-217 | 943-000-221 |
| 809 | 1.1370 | 0.5000 | 1.6250 | 2.2500 | 0.3810 | 0.2500 | 12 | 10 | 943-000-225 | 943-000-229 |
| 1009 | 1.1370 | 0.5000 | 1.6250 | 2.3125 | 0.3510 | 0.3125 | 12 | 10 | 943-000-233 | 943-000-237 |
| 610 | 1.2650 | 0.5000 | 1.6250 | 2.1875 | 0.4765 | 0.1875 | 14 | 12 | 943-000-241 | 943-000-245 |
| 710 | 1.2650 | 0.5000 | 1.6250 | 2.2188 | 0.4450 | 0.2188 | 14 | 12 | 943-000-249 | 943-000-253 |
| 810 | 1.2650 | 0.5000 | 1.6250 | 2.2500 | 0.4450 | 0.2500 | 14 | 12 | 943-000-257 | 943-000-261 |
| 1010 | 1.2650 | 0.5000 | 1.6250 | 2.6250 | 0.4150 | 0.3125 | 14 | 12 | 943-000-265 | 943-000-269 |
| 1210 | 1.2650 | 0.5000 | 1.6250 | 2.3750 | 0.3990 | 0.3750 | 14 | 12 | 943-000-273 | 943-000-277 |
| 811 | 1.3900 | 0.5000 | 1.6250 | 2.2500 | 0.4945 | 0.2500 | 14 | 12 | 943-000-281 | 943-000-285 |
| 1011 | 1.3900 | 0.5000 | 1.6250 | 2.3125 | 0.4615 | 0.3125 | 14 | 12 | 943-000-289 | 943-000-293 |
| 1211 | 1.3900 | 0.5000 | 1.6250 | 2.3750 | 0.4615 | 0.3750 | 14 | 12 | 943-000-297 | 943-000-301 |
| 812 | 1.5150 | 0.5000 | 1.6250 | 2.2500 | 0.5400 | 0.2500 | 16 | 14 | 943-000-305 | 943-000-309 |
| 1012 | 1.5150 | 0.5000 | 1.6250 | 2.3125 | 0.5240 | 0.3125 | 16 | 14 | 943-000-313 | 943-000-317 |
| 1212 | 1.5150 | 0.5000 | 1.6250 | 2.3750 | 0.5240 | 0.3750 | 16 | 14 | 943-000-321 | 943-000-325 |

| DC(Cutter Diameter) | | |
|-----------------------------------|----------|----------|
| 1/4" up to and including 3/4" | +0.010" | +0.015" |
| 7/8" up to and including 1-1/8" | +0.012" | +0.017" |
| 1-1/4" up to and including 1-1/2" | +0.015" | +0.020" |
| DCONms(Shank Diameter) | | |
| | -0.0001" | -0.0005" |

| CW(Width) | | |
|---------------------------------|----------|----------|
| 1/16" up to and including 5/32" | +0.0000" | -0.0005" |
| 3/16" up to and including 7/32" | -0.0002" | -0.0007" |
| 1/4" | -0.0003" | -0.0008" |
| 5/16" | -0.0004" | -0.0009" |
| 3/8" | -0.0005" | -0.0010" |

For set information see **page 256**

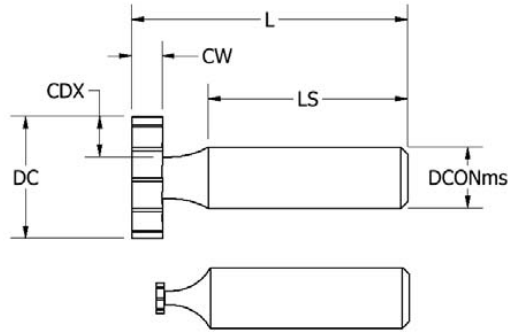


LEFT HAND

| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | Straight Tooth |
|--------------------|--------|--------|--------|--------|--------|--------|----|----------------|
| 202 | 0.2600 | 0.5000 | 1.6250 | 2.0625 | 0.0750 | 0.0625 | 8 | 943-000-618 |
| 202 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0625 | 0.1063 | 0.0625 | 8 | 943-000-621 |
| 302 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0938 | 0.1063 | 0.0938 | 8 | 943-000-624 |
| 203 | 0.3850 | 0.5000 | 1.6250 | 2.0625 | 0.1375 | 0.0625 | 8 | 943-000-627 |
| 303 | 0.3850 | 0.5000 | 1.6250 | 2.0938 | 0.1375 | 0.0938 | 8 | 943-000-630 |
| 403 | 0.3850 | 0.5000 | 1.6250 | 2.1250 | 0.1275 | 0.1250 | 8 | 943-000-633 |
| 204 | 0.5100 | 0.5000 | 1.6250 | 2.0625 | 0.1900 | 0.0625 | 10 | 943-000-636 |
| 304 | 0.5100 | 0.5000 | 1.6250 | 2.0938 | 0.1750 | 0.0938 | 10 | 943-000-639 |
| 404 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1595 | 0.1250 | 10 | 943-000-649 |
| 305 | 0.6350 | 0.5000 | 1.6250 | 2.0938 | 0.2220 | 0.0938 | 10 | 943-000-644 |
| 405 | 0.6350 | 0.5000 | 1.6250 | 2.1250 | 0.2060 | 0.1250 | 10 | 943-000-654 |
| 505 | 0.6350 | 0.5000 | 1.6250 | 2.1563 | 0.1910 | 0.1563 | 10 | 943-000-664 |
| 605 | 0.6350 | 0.5000 | 1.6250 | 2.1875 | 0.1910 | 0.1875 | 10 | 943-000-669 |
| 406 | 0.7600 | 0.5000 | 1.6250 | 2.1250 | 0.2685 | 0.1250 | 10 | 943-000-659 |
| 506 | 0.7600 | 0.5000 | 1.6250 | 2.1563 | 0.2535 | 0.1563 | 10 | 943-000-674 |
| 606 | 0.7600 | 0.5000 | 1.6250 | 2.1875 | 0.2405 | 0.1875 | 10 | 943-000-689 |
| 806 | 0.7600 | 0.5000 | 1.6250 | 2.2500 | 0.2405 | 0.2500 | 10 | 943-000-679 |
| 507 | 0.8970 | 0.5000 | 1.6250 | 2.1563 | 0.3250 | 0.1563 | 12 | 943-000-684 |
| 607 | 0.8970 | 0.5000 | 1.6250 | 2.1875 | 0.3090 | 0.1875 | 12 | 943-000-694 |
| 707 | 0.8970 | 0.5000 | 1.6250 | 2.2188 | 0.3090 | 0.2188 | 12 | 943-000-699 |
| 807 | 0.8970 | 0.5000 | 1.6250 | 2.2500 | 0.2775 | 0.2500 | 12 | 943-000-724 |
| 608 | 1.0120 | 0.5000 | 1.6250 | 2.1875 | 0.3665 | 0.1875 | 12 | 943-000-704 |
| 708 | 1.0120 | 0.5000 | 1.6250 | 2.2188 | 0.3350 | 0.2188 | 12 | 943-000-709 |
| 808 | 1.0120 | 0.5000 | 1.6250 | 2.2500 | 0.3350 | 0.2500 | 12 | 943-000-729 |
| 1008 | 1.0120 | 0.5000 | 1.6250 | 2.3125 | 0.3055 | 0.3125 | 12 | 943-000-769 |
| 1208 | 1.0120 | 0.5000 | 1.6250 | 2.3750 | 0.3055 | 0.3750 | 12 | 943-000-714 |
| 609 | 1.1370 | 0.5000 | 1.6250 | 2.1875 | 0.4125 | 0.1875 | 12 | 943-000-719 |
| 709 | 1.1370 | 0.5000 | 1.6250 | 2.2188 | 0.4125 | 0.2188 | 12 | 943-000-734 |
| 809 | 1.1370 | 0.5000 | 1.6250 | 2.2500 | 0.3810 | 0.2500 | 12 | 943-000-739 |
| 1009 | 1.1370 | 0.5000 | 1.6250 | 2.3125 | 0.3510 | 0.3125 | 12 | 943-000-774 |
| 610 | 1.2650 | 0.5000 | 1.6250 | 2.1875 | 0.4765 | 0.1875 | 14 | 943-000-744 |
| 710 | 1.2650 | 0.5000 | 1.6250 | 2.2188 | 0.4450 | 0.2188 | 14 | 943-000-749 |
| 810 | 1.2650 | 0.5000 | 1.6250 | 2.2500 | 0.4450 | 0.2500 | 14 | 943-000-754 |
| 1010 | 1.2650 | 0.5000 | 1.6250 | 2.3125 | 0.4150 | 0.3125 | 14 | 943-000-779 |
| 1210 | 1.2650 | 0.5000 | 1.6250 | 2.3750 | 0.3990 | 0.3750 | 14 | 943-000-794 |
| 811 | 1.3900 | 0.5000 | 1.6250 | 2.2500 | 0.4945 | 0.2500 | 14 | 943-000-759 |
| 1011 | 1.3900 | 0.5000 | 1.6250 | 2.3125 | 0.4615 | 0.3125 | 14 | 943-000-784 |
| 1211 | 1.3900 | 0.5000 | 1.6250 | 2.3750 | 0.4615 | 0.3750 | 14 | 943-000-799 |
| 812 | 1.5150 | 0.5000 | 1.6250 | 2.2500 | 0.5400 | 0.2500 | 16 | 943-000-764 |
| 1012 | 1.5150 | 0.5000 | 1.6250 | 2.3125 | 0.5240 | 0.3125 | 16 | 943-000-789 |
| 1212 | 1.5150 | 0.5000 | 1.6250 | 2.3750 | 0.5240 | 0.3750 | 16 | 943-000-804 |

For set information see page 256

HSS



| American Standard# | DC | DCONms | LS | L | CDX | CW | Zc | | Straight Tooth | Stagger Tooth |
|--------------------|--------|--------|--------|--------|--------|--------|----------|-----------|----------------|---------------|
| | | | | | | | Straight | Staggered | | |
| 202 | 0.2600 | 0.5000 | 1.6250 | 2.0625 | 0.0750 | 0.0625 | 8 | 6 | 943-000-619 | 943-000-620 |
| 202 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0625 | 0.1063 | 0.0625 | 8 | 6 | 943-000-622 | 943-000-623 |
| 302 1/2 | 0.3225 | 0.5000 | 1.6250 | 2.0938 | 0.1063 | 0.0938 | 8 | 6 | 943-000-625 | 943-000-626 |
| 203 | 0.3850 | 0.5000 | 1.6250 | 2.0625 | 0.1375 | 0.0625 | 8 | 6 | 943-000-628 | 943-000-629 |
| 303 | 0.3850 | 0.5000 | 1.6250 | 2.0938 | 0.1375 | 0.0938 | 8 | 6 | 943-000-631 | 943-000-632 |
| 403 | 0.3850 | 0.5000 | 1.6250 | 2.1250 | 0.1275 | 0.1250 | 8 | 6 | 943-000-634 | 943-000-635 |
| 204 | 0.5100 | 0.5000 | 1.6250 | 2.0625 | 0.1900 | 0.0625 | 10 | 8 | 943-000-637 | 943-000-638 |
| 304 | 0.5100 | 0.5000 | 1.6250 | 2.0938 | 0.1750 | 0.0938 | 10 | 8 | 943-000-642 | 943-000-643 |
| 404 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1595 | 0.1250 | 10 | 8 | 943-000-652 | 943-000-653 |
| 305 | 0.6350 | 0.5000 | 1.6250 | 2.0938 | 0.2220 | 0.0938 | 10 | 8 | 943-000-647 | 943-000-648 |
| 405 | 0.5100 | 0.5000 | 1.6250 | 2.1250 | 0.1595 | 0.1250 | 10 | 8 | 943-000-649 | 943-000-650 |
| 505 | 0.6350 | 0.5000 | 1.6250 | 2.1563 | 0.1910 | 0.1563 | 10 | 8 | 943-000-667 | 943-000-668 |
| 605 | 0.6350 | 0.5000 | 1.6250 | 2.1875 | 0.1910 | 0.1875 | 10 | 8 | 943-000-672 | 943-000-673 |
| 406 | 0.7600 | 0.5000 | 1.6250 | 2.1250 | 0.2685 | 0.1250 | 10 | 8 | 943-000-662 | 943-000-663 |
| 506 | 0.7600 | 0.5000 | 1.6250 | 2.1563 | 0.2535 | 0.1563 | 10 | 8 | 943-000-677 | 943-000-678 |
| 606 | 0.7600 | 0.5000 | 1.6250 | 2.1875 | 0.2405 | 0.1875 | 10 | 8 | 943-000-692 | 943-000-693 |
| 806 | 0.7600 | 0.5000 | 1.6250 | 2.2500 | 0.2405 | 0.2500 | 10 | 8 | 943-000-682 | 943-000-683 |
| 507 | 0.8970 | 0.5000 | 1.6250 | 2.1563 | 0.3250 | 0.1563 | 12 | 10 | 943-000-687 | 943-000-688 |
| 607 | 0.8970 | 0.5000 | 1.6250 | 2.1875 | 0.3090 | 0.1875 | 12 | 10 | 943-000-697 | 943-000-698 |
| 707 | 0.8970 | 0.5000 | 1.6250 | 2.2188 | 0.3090 | 0.2188 | 12 | 10 | 943-000-702 | 943-000-703 |
| 807 | 0.8970 | 0.5000 | 1.6250 | 2.2500 | 0.2775 | 0.2500 | 12 | 10 | 943-000-727 | 943-000-728 |
| 608 | 1.0120 | 0.5000 | 1.6250 | 2.1875 | 0.3665 | 0.1875 | 12 | 10 | 943-000-707 | 943-000-708 |
| 708 | 1.0120 | 0.5000 | 1.6250 | 2.2188 | 0.3350 | 0.2188 | 12 | 10 | 943-000-712 | 943-000-713 |
| 808 | 1.0120 | 0.5000 | 1.6250 | 2.2500 | 0.3350 | 0.2500 | 12 | 10 | 943-000-732 | 943-000-733 |
| 1008 | 1.0120 | 0.5000 | 1.6250 | 2.3125 | 0.3055 | 0.3125 | 12 | 10 | 943-000-772 | 943-000-773 |
| 1208 | 1.0120 | 0.5000 | 1.6250 | 2.3750 | 0.3055 | 0.3750 | 12 | 10 | 943-000-717 | 943-000-718 |
| 609 | 1.1370 | 0.5000 | 1.6250 | 2.1875 | 0.4125 | 0.1875 | 12 | 10 | 943-000-722 | 943-000-723 |
| 709 | 1.1370 | 0.5000 | 1.6250 | 2.2188 | 0.4125 | 0.2188 | 12 | 10 | 943-000-737 | 943-000-738 |
| 809 | 1.1370 | 0.5000 | 1.6250 | 2.2500 | 0.3810 | 0.2500 | 12 | 10 | 943-000-742 | 943-000-743 |
| 1009 | 1.1370 | 0.5000 | 1.6250 | 2.3125 | 0.3510 | 0.3125 | 12 | 10 | 943-000-777 | 943-000-778 |
| 610 | 1.2650 | 0.5000 | 1.6250 | 2.1875 | 0.4765 | 0.1875 | 14 | 12 | 943-000-747 | 943-000-748 |
| 710 | 1.2650 | 0.5000 | 1.6250 | 2.2188 | 0.4450 | 0.2188 | 14 | 12 | 943-000-752 | 943-000-753 |
| 810 | 1.2650 | 0.5000 | 1.6250 | 2.2500 | 0.4450 | 0.2500 | 14 | 12 | 943-000-757 | 943-000-758 |
| 1010 | 1.2650 | 0.5000 | 1.6250 | 2.3125 | 0.4150 | 0.3125 | 14 | 12 | 943-000-782 | 943-000-783 |
| 1210 | 1.2650 | 0.5000 | 1.6250 | 2.3750 | 0.3990 | 0.3750 | 14 | 12 | 943-000-797 | 943-000-798 |
| 811 | 1.3900 | 0.5000 | 1.6250 | 2.2500 | 0.4945 | 0.2500 | 14 | 12 | 943-000-762 | 943-000-763 |
| 1011 | 1.3900 | 0.5000 | 1.6250 | 2.3125 | 0.4615 | 0.3125 | 14 | 12 | 943-000-787 | 943-000-788 |
| 1211 | 1.3900 | 0.5000 | 1.6250 | 2.3750 | 0.4615 | 0.3750 | 14 | 12 | 943-000-802 | 943-000-803 |
| 812 | 1.5150 | 0.5000 | 1.6250 | 2.2500 | 0.5400 | 0.2500 | 16 | 14 | 943-000-767 | 943-000-768 |
| 1012 | 1.5150 | 0.5000 | 1.6250 | 2.3125 | 0.5240 | 0.3125 | 16 | 14 | 943-000-792 | 943-000-793 |
| 1212 | 1.5150 | 0.5000 | 1.6250 | 2.3750 | 0.5240 | 0.3750 | 16 | 14 | 943-000-807 | 943-000-808 |

For set information see page 256



10-Piece Woodruff Keyseat Cutter Sets

The 10-piece set includes one piece each of the following sizes with straight or staggered teeth.

| Teeth | Product # |
|-----------|-------------|
| Straight | 943-000-337 |
| Staggered | 943-000-338 |

| American Standard Sizes | |
|-------------------------|-----|
| 403 | 406 |
| 204 | 606 |
| 404 | 806 |
| 305 | 608 |
| 505 | 808 |



*Many tools are available with additional coatings.
Please call for quote.*

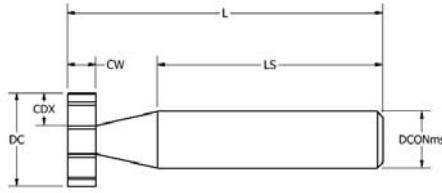
41-Piece Woodruff Keyseat Cutter Sets

The 41-piece set includes one piece each of all the American Standard woodruff keyseat cutter sizes with straight or staggered teeth.

| Teeth | Product # |
|-----------|-------------|
| Straight | 943-000-329 |
| Staggered | 943-000-330 |



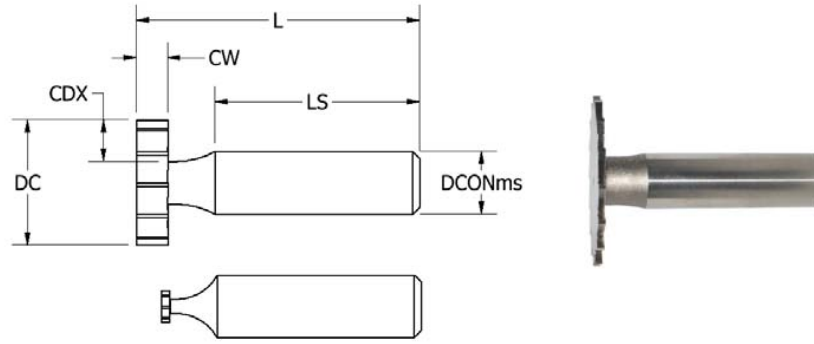
HSS



HSS

| Tolerance | h12 | h8 | [+2/-0] | [js18] | | e8 | | | | | | |
|--------------------|---------|-------------|---------|--------|----------|---------|----------|----|-------------|-------------|-------------|--------------|
| DIN850 Designation | DC [mm] | DCONms [mm] | LS [mm] | L [mm] | CDX [mm] | CW [mm] | Material | Zc | Hand of Cut | UNCOATED | TIN COATED | TiAIN COATED |
| A 4,5 x 1 | 4.50 | 6.00 | 36.00 | 50.00 | 1.35 | 1.00 | HSS | 6 | R | 943-000-480 | 943-001-452 | 943-001-450 |
| B 4,5 x 1 | 4.50 | 6.00 | 36.00 | 50.00 | 1.35 | 1.00 | HSS | 4 | R | 943-000-481 | 943-001-455 | 943-001-453 |
| A 7,5 x 1,5 | 7.50 | 6.00 | 36.00 | 50.00 | 2.35 | 1.50 | HSS | 8 | R | 943-000-482 | 943-001-458 | 943-001-456 |
| B 7,5 x 1,5 | 7.50 | 6.00 | 36.00 | 50.00 | 2.35 | 1.50 | HSS | 6 | R | 943-000-483 | 943-001-461 | 943-001-459 |
| A 7,5 x 2 | 7.50 | 6.00 | 36.00 | 50.00 | 2.15 | 2.00 | HSS | 8 | R | 943-000-484 | 943-001-464 | 943-001-462 |
| B 7,5 x 2 | 7.50 | 6.00 | 36.00 | 50.00 | 2.15 | 2.00 | HSS | 6 | R | 943-000-485 | 943-001-467 | 943-001-465 |
| A 10,5 x 2 | 10.50 | 6.00 | 36.00 | 50.00 | 3.25 | 2.00 | HSS | 8 | R | 943-000-486 | 943-001-470 | 943-001-468 |
| B 10,5 x 2 | 10.00 | 6.00 | 36.00 | 50.00 | 3.00 | 2.00 | HSS | 6 | R | 943-000-487 | 943-001-473 | 943-001-471 |
| A 10,5 x 2,5 | 10.50 | 6.00 | 36.00 | 50.00 | 3.25 | 2.50 | HSS | 8 | R | 943-000-488 | 943-001-476 | 943-001-474 |
| B 10,5 x 2,5 | 10.50 | 6.00 | 36.00 | 50.00 | 3.25 | 2.50 | HSS | 6 | R | 943-000-489 | 943-001-479 | 943-001-477 |
| A 10,5 x 3 | 10.50 | 6.00 | 36.00 | 50.00 | 3.15 | 3.00 | HSS | 8 | R | 943-000-490 | 943-001-482 | 943-001-480 |
| B 10,5 x 3 | 10.50 | 6.00 | 36.00 | 50.00 | 3.15 | 3.00 | HSS | 6 | R | 943-000-491 | 943-001-485 | 943-001-483 |
| A 13,5 x 3 | 13.50 | 10.00 | 40.00 | 56.00 | 4.45 | 3.00 | HSS | 10 | R | 943-000-492 | 943-001-488 | 943-001-486 |
| B 13,5 x 3 | 13.50 | 10.00 | 40.00 | 56.00 | 4.45 | 3.00 | HSS | 8 | R | 943-000-493 | 943-001-491 | 943-001-489 |
| A 13,5 x 4 | 13.50 | 10.00 | 40.00 | 56.00 | 4.45 | 4.00 | HSS | 10 | R | 943-000-494 | 943-001-494 | 943-001-492 |
| B 13,5 x 4 | 13.50 | 10.00 | 40.00 | 56.00 | 4.45 | 4.00 | HSS | 8 | R | 943-000-495 | 943-001-497 | 943-001-495 |
| A 16,5 x 3 | 16.50 | 10.00 | 40.00 | 56.00 | 5.95 | 3.00 | HSS | 10 | R | 943-000-496 | 943-001-500 | 943-001-498 |
| B 16,5 x 3 | 16.50 | 10.00 | 40.00 | 56.00 | 5.95 | 3.00 | HSS | 8 | R | 943-000-497 | 943-001-503 | 943-001-501 |
| A 16,5 x 4 | 16.50 | 10.00 | 40.00 | 56.00 | 5.95 | 4.00 | HSS | 10 | R | 943-000-498 | 943-001-506 | 943-001-504 |
| B 16,5 x 4 | 16.50 | 10.00 | 40.00 | 56.00 | 5.95 | 4.00 | HSS | 8 | R | 943-000-499 | 943-001-509 | 943-001-507 |
| A 16,5 x 5 | 16.50 | 10.00 | 40.00 | 56.00 | 5.75 | 5.00 | HSS | 10 | R | 943-000-500 | 943-001-512 | 943-001-510 |
| B 16,5 x 5 | 16.50 | 10.00 | 40.00 | 56.00 | 5.75 | 5.00 | HSS | 8 | R | 943-000-501 | 943-001-515 | 943-001-513 |
| A 19,5 x 4 | 19.50 | 10.00 | 40.00 | 63.00 | 6.95 | 4.00 | HSS | 10 | R | 943-000-502 | 943-001-518 | 943-001-516 |
| B 19,5 x 4 | 19.50 | 10.00 | 40.00 | 63.00 | 6.95 | 4.00 | HSS | 8 | R | 943-000-503 | 943-001-521 | 943-001-519 |
| A 19,5 x 5 | 19.50 | 10.00 | 40.00 | 63.00 | 6.75 | 5.00 | HSS | 10 | R | 943-000-504 | 943-001-524 | 943-001-522 |
| B 19,5 x 5 | 19.50 | 10.00 | 40.00 | 63.00 | 6.75 | 5.00 | HSS | 8 | R | 943-000-505 | 943-001-527 | 943-001-525 |
| A 19,5 x 6 | 19.50 | 10.00 | 40.00 | 63.00 | 6.50 | 6.00 | HSS | 10 | R | 943-000-506 | 943-001-530 | 943-001-528 |
| B 19,5 x 6 | 19.50 | 10.00 | 40.00 | 63.00 | 6.50 | 6.00 | HSS | 8 | R | 943-000-507 | 943-001-533 | 943-001-531 |
| A 22,5 x 5 | 22.50 | 10.00 | 40.00 | 63.00 | 8.25 | 5.00 | HSS | 12 | R | 943-000-508 | 943-001-536 | 943-001-534 |
| B 22,5 x 5 | 22.50 | 10.00 | 40.00 | 63.00 | 8.25 | 5.00 | HSS | 10 | R | 943-000-509 | 943-001-539 | 943-001-537 |
| A 22,5 x 6 | 22.50 | 10.00 | 40.00 | 63.00 | 8.25 | 6.00 | HSS | 12 | R | 943-000-510 | 943-001-542 | 943-001-540 |
| B 22,5 x 6 | 22.50 | 10.00 | 40.00 | 63.00 | 8.25 | 6.00 | HSS | 10 | R | 943-000-511 | 943-001-545 | 943-001-543 |
| A 22,5 x 8 | 22.50 | 10.00 | 40.00 | 63.00 | 8.00 | 8.00 | HSS | 12 | R | 943-000-512 | 943-001-548 | 943-001-546 |
| B 22,5 x 8 | 22.50 | 10.00 | 40.00 | 63.00 | 8.00 | 8.00 | HSS | 10 | R | 943-000-513 | 943-001-551 | 943-001-549 |
| A 25,5 x 6 | 25.50 | 10.00 | 40.00 | 63.00 | 9.00 | 6.00 | HSS | 12 | R | 943-000-514 | 943-001-554 | 943-001-552 |
| B 25,5 x 6 | 25.50 | 10.00 | 40.00 | 63.00 | 9.00 | 6.00 | HSS | 10 | R | 943-000-515 | 943-001-557 | 943-001-555 |
| A 28,5 x 6 | 28.50 | 10.00 | 40.00 | 71.00 | 10.00 | 6.00 | HSS | 12 | R | 943-000-516 | 943-001-560 | 943-001-558 |
| B 28,5 x 6 | 28.50 | 10.00 | 40.00 | 71.00 | 10.00 | 6.00 | HSS | 10 | R | 943-000-517 | 943-001-563 | 943-001-561 |
| A 28,5 x 8 | 28.50 | 10.00 | 40.00 | 71.00 | 10.00 | 8.00 | HSS | 12 | R | 943-000-518 | 943-001-566 | 943-001-564 |
| B 28,5 x 8 | 28.50 | 10.00 | 40.00 | 71.00 | 10.00 | 8.00 | HSS | 10 | R | 943-000-519 | 943-001-569 | 943-001-567 |
| A 28,5 x 10 | 28.50 | 12.00 | 45.00 | 71.00 | 9.60 | 10.00 | HSS | 12 | R | 943-000-520 | 943-001-572 | 943-001-570 |
| B 28,5 x 10 | 28.50 | 12.00 | 45.00 | 71.00 | 9.60 | 10.00 | HSS | 10 | R | 943-000-521 | 943-001-575 | 943-001-573 |
| A 32,5 x 7 | 32.50 | 12.00 | 45.00 | 71.00 | 12.00 | 7.00 | HSS | 14 | R | 943-000-522 | 943-001-578 | 943-001-576 |
| B 32,5 x 7 | 32.50 | 12.00 | 45.00 | 71.00 | 12.00 | 7.00 | HSS | 12 | R | 943-000-523 | 943-001-581 | 943-001-579 |
| A 32,5 x 8 | 32.50 | 12.00 | 45.00 | 71.00 | 12.00 | 8.00 | HSS | 14 | R | 943-000-524 | 943-001-584 | 943-001-582 |
| B 32,5 x 8 | 32.50 | 12.00 | 45.00 | 71.00 | 12.00 | 8.00 | HSS | 12 | R | 943-000-525 | 943-001-587 | 943-001-585 |
| A 32,5 x 10 | 32.50 | 12.00 | 45.00 | 71.00 | 11.60 | 10.00 | HSS | 14 | R | 943-000-526 | 943-001-590 | 943-001-588 |
| B 32,5 x 10 | 32.50 | 12.00 | 45.00 | 71.00 | 11.60 | 10.00 | HSS | 12 | R | 943-000-527 | 943-001-593 | 943-001-591 |
| A 45,5 x 10 | 45.50 | 12.00 | 45.00 | 71.00 | 16.85 | 10.00 | HSS | 18 | R | 943-000-528 | 943-001-596 | 943-001-594 |
| B 45,5 x 10 | 45.50 | 12.00 | 45.00 | 71.00 | 16.85 | 10.00 | HSS | 16 | R | 943-000-529 | 943-001-599 | 943-001-597 |

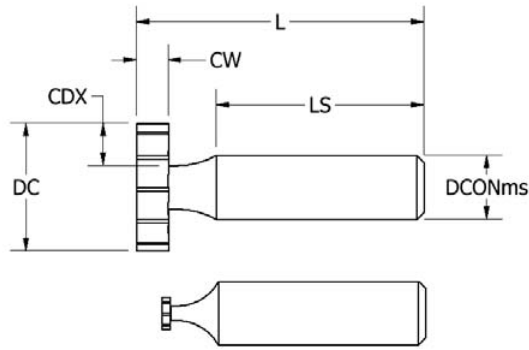
*DIN 850 - Form A: Straight Shank, Straight Teeth
*DIN 850 - Form B: Straight Shank, Staggered Teeth



NARROW WIDTH

| DC | DCONms | LS | L | CDX | CW | Zc | Product # |
|--------|--------|--------|--------|--------|--------|----|-------------|
| 0.2500 | 0.5000 | 1.6250 | 2.0156 | 0.0700 | 0.0156 | 8 | 943-000-533 |
| 0.2500 | 0.5000 | 1.6250 | 2.0200 | 0.0700 | 0.0200 | 8 | 943-000-530 |
| 0.2500 | 0.5000 | 1.6250 | 2.0313 | 0.0700 | 0.0313 | 8 | 943-000-534 |
| 0.2500 | 0.5000 | 1.6250 | 2.0469 | 0.0700 | 0.0469 | 8 | 943-000-535 |
| 0.3125 | 0.5000 | 1.6250 | 2.0156 | 0.1013 | 0.0156 | 8 | 943-000-536 |
| 0.3125 | 0.5000 | 1.6250 | 2.0200 | 0.1013 | 0.0200 | 8 | 943-000-531 |
| 0.3125 | 0.5000 | 1.6250 | 2.0313 | 0.1013 | 0.0313 | 8 | 943-000-537 |
| 0.3125 | 0.5000 | 1.6250 | 2.0469 | 0.1013 | 0.0469 | 8 | 943-000-538 |
| 0.3750 | 0.5000 | 1.6250 | 2.0156 | 0.1325 | 0.0156 | 8 | 943-000-539 |
| 0.3750 | 0.5000 | 1.6250 | 2.0200 | 0.1325 | 0.0200 | 8 | 943-000-532 |
| 0.3750 | 0.5000 | 1.6250 | 2.0313 | 0.1325 | 0.0313 | 8 | 943-000-540 |
| 0.3750 | 0.5000 | 1.6250 | 2.0469 | 0.1325 | 0.0469 | 8 | 943-000-541 |
| 0.5000 | 0.5000 | 1.6250 | 2.0156 | 0.1850 | 0.0156 | 10 | 943-000-542 |
| 0.5000 | 0.5000 | 1.6250 | 2.0200 | 0.1850 | 0.0200 | 10 | 943-000-543 |
| 0.5000 | 0.5000 | 1.6250 | 2.0313 | 0.1850 | 0.0313 | 10 | 943-000-544 |
| 0.5000 | 0.5000 | 1.6250 | 2.0469 | 0.1850 | 0.0469 | 10 | 943-000-545 |
| 0.6250 | 0.5000 | 1.6250 | 2.0200 | 0.2170 | 0.0200 | 10 | 943-000-546 |
| 0.6250 | 0.5000 | 1.6250 | 2.0313 | 0.2170 | 0.0313 | 10 | 943-000-547 |
| 0.6250 | 0.5000 | 1.6250 | 2.0469 | 0.2170 | 0.0469 | 10 | 943-000-548 |
| 0.6250 | 0.5000 | 1.6250 | 2.0625 | 0.2170 | 0.0625 | 10 | 943-000-549 |
| 0.6250 | 0.5000 | 1.6250 | 2.0781 | 0.2170 | 0.0781 | 10 | 943-000-550 |
| 0.7500 | 0.5000 | 1.6250 | 2.0313 | 0.2635 | 0.0313 | 10 | 943-000-551 |
| 0.7500 | 0.5000 | 1.6250 | 2.0469 | 0.2635 | 0.0469 | 10 | 943-000-552 |
| 0.7500 | 0.5000 | 1.6250 | 2.0625 | 0.2635 | 0.0625 | 10 | 943-000-553 |
| 0.7500 | 0.5000 | 1.6250 | 2.0781 | 0.2635 | 0.0781 | 10 | 943-000-554 |
| 0.7500 | 0.5000 | 1.6250 | 2.0938 | 0.2635 | 0.0938 | 10 | 943-000-555 |
| 0.7500 | 0.5000 | 1.6250 | 2.1094 | 0.2635 | 0.1094 | 10 | 943-000-556 |
| 0.8750 | 0.5000 | 1.6250 | 2.0313 | 0.3140 | 0.0313 | 12 | 943-000-557 |
| 0.8750 | 0.5000 | 1.6250 | 2.0469 | 0.3140 | 0.0469 | 12 | 943-000-558 |
| 0.8750 | 0.5000 | 1.6250 | 2.0625 | 0.3140 | 0.0625 | 12 | 943-000-559 |
| 0.8750 | 0.5000 | 1.6250 | 2.0781 | 0.3140 | 0.0781 | 12 | 943-000-560 |
| 0.8750 | 0.5000 | 1.6250 | 2.0938 | 0.3140 | 0.0938 | 12 | 943-000-561 |
| 0.8750 | 0.5000 | 1.6250 | 2.1094 | 0.3140 | 0.1094 | 12 | 943-000-562 |
| 0.8750 | 0.5000 | 1.6250 | 2.1250 | 0.3140 | 0.1250 | 12 | 943-000-563 |
| 0.8750 | 0.5000 | 1.6250 | 2.1406 | 0.3140 | 0.1406 | 12 | 943-000-564 |
| 1.0000 | 0.5000 | 1.6250 | 2.0313 | 0.3605 | 0.0313 | 12 | 943-000-565 |
| 1.0000 | 0.5000 | 1.6250 | 2.0469 | 0.3605 | 0.0469 | 12 | 943-000-566 |
| 1.0000 | 0.5000 | 1.6250 | 2.0625 | 0.3605 | 0.0625 | 12 | 943-000-567 |
| 1.0000 | 0.5000 | 1.6250 | 2.0781 | 0.3605 | 0.0781 | 12 | 943-000-568 |
| 1.0000 | 0.5000 | 1.6250 | 2.0938 | 0.3605 | 0.0938 | 12 | 943-000-569 |
| 1.0000 | 0.5000 | 1.6250 | 2.1094 | 0.3605 | 0.1094 | 12 | 943-000-570 |
| 1.0000 | 0.5000 | 1.6250 | 2.1250 | 0.3605 | 0.1250 | 12 | 943-000-571 |
| 1.0000 | 0.5000 | 1.6250 | 2.1406 | 0.3605 | 0.1406 | 12 | 943-000-572 |
| 1.0000 | 0.5000 | 1.6250 | 2.1563 | 0.3605 | 0.1563 | 12 | 943-000-573 |
| 1.0000 | 0.5000 | 1.6250 | 2.1719 | 0.3605 | 0.1719 | 12 | 943-000-574 |

HSS



| Tolerance | | |
|-----------------------------------|----------|---------|
| DC(Cutter Diameter) | | |
| 1/4" up to and including 3/4" | +0.010" | +0.015" |
| 7/8" up to and including 1-1/8" | +0.012" | +0.017" |
| 1-1/4" up to and including 1-1/2" | +0.015" | +0.020" |
| DCONms(Shank Diameter) | | |
| -0.0001" | -0.0005" | |
| CW(Width) | | |
| +0.0005" | -0.0005" | |

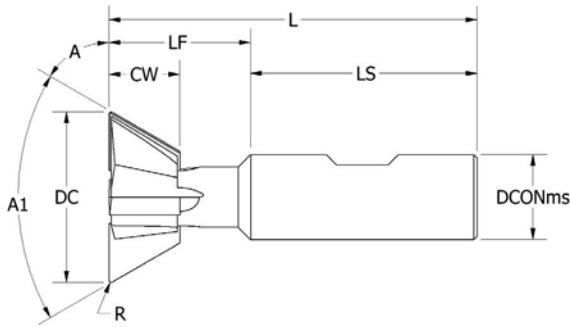


NARROW WIDTH

| DC | DCONms | LS | L | CDX | CW | Zc | Product # |
|--------|--------|--------|--------|--------|--------|----|-------------|
| 1.1250 | 0.5000 | 1.6250 | 2.0469 | 0.4065 | 0.0469 | 12 | 943-000-575 |
| 1.1250 | 0.5000 | 1.6250 | 2.0625 | 0.4065 | 0.0625 | 12 | 943-000-576 |
| 1.1250 | 0.5000 | 1.6250 | 2.0781 | 0.4065 | 0.0781 | 12 | 943-000-577 |
| 1.1250 | 0.5000 | 1.6250 | 2.0938 | 0.4065 | 0.0938 | 12 | 943-000-578 |
| 1.1250 | 0.5000 | 1.6250 | 2.1094 | 0.4065 | 0.1094 | 12 | 943-000-579 |
| 1.1250 | 0.5000 | 1.6250 | 2.1250 | 0.4065 | 0.1250 | 12 | 943-000-580 |
| 1.1250 | 0.5000 | 1.6250 | 2.1406 | 0.4065 | 0.1406 | 12 | 943-000-581 |
| 1.1250 | 0.5000 | 1.6250 | 2.1563 | 0.4065 | 0.1563 | 12 | 943-000-582 |
| 1.1250 | 0.5000 | 1.6250 | 2.1719 | 0.4065 | 0.1719 | 12 | 943-000-583 |
| 1.2500 | 0.5000 | 1.6250 | 2.0469 | 0.4690 | 0.0469 | 14 | 943-000-584 |
| 1.2500 | 0.5000 | 1.6250 | 2.0625 | 0.4690 | 0.0625 | 14 | 943-000-585 |
| 1.2500 | 0.5000 | 1.6250 | 2.0781 | 0.4690 | 0.0781 | 14 | 943-000-586 |
| 1.2500 | 0.5000 | 1.6250 | 2.0938 | 0.4690 | 0.0938 | 14 | 943-000-587 |
| 1.2500 | 0.5000 | 1.6250 | 2.1094 | 0.4690 | 0.1094 | 14 | 943-000-588 |
| 1.2500 | 0.5000 | 1.6250 | 2.1250 | 0.4690 | 0.1250 | 14 | 943-000-589 |
| 1.2500 | 0.5000 | 1.6250 | 2.1406 | 0.4690 | 0.1406 | 14 | 943-000-590 |
| 1.2500 | 0.5000 | 1.6250 | 2.1563 | 0.4690 | 0.1563 | 14 | 943-000-591 |
| 1.2500 | 0.5000 | 1.6250 | 2.1719 | 0.4690 | 0.1719 | 14 | 943-000-592 |
| 1.3750 | 0.5000 | 1.6250 | 2.0469 | 0.4870 | 0.0469 | 14 | 943-000-593 |
| 1.3750 | 0.5000 | 1.6250 | 2.0625 | 0.4870 | 0.0625 | 14 | 943-000-594 |
| 1.3750 | 0.5000 | 1.6250 | 2.0781 | 0.4870 | 0.0781 | 14 | 943-000-595 |
| 1.3750 | 0.5000 | 1.6250 | 2.0938 | 0.4870 | 0.0938 | 14 | 943-000-596 |
| 1.3750 | 0.5000 | 1.6250 | 2.1094 | 0.4870 | 0.1094 | 14 | 943-000-597 |
| 1.3750 | 0.5000 | 1.6250 | 2.1250 | 0.4870 | 0.1250 | 14 | 943-000-598 |
| 1.3750 | 0.5000 | 1.6250 | 2.1406 | 0.4870 | 0.1406 | 14 | 943-000-599 |
| 1.3750 | 0.5000 | 1.6250 | 2.1563 | 0.4870 | 0.1563 | 14 | 943-000-600 |
| 1.3750 | 0.5000 | 1.6250 | 2.1719 | 0.4870 | 0.1719 | 14 | 943-000-601 |
| 1.3750 | 0.5000 | 1.6250 | 2.1875 | 0.4870 | 0.1875 | 14 | 943-000-602 |
| 1.3750 | 0.5000 | 1.6250 | 2.2031 | 0.4870 | 0.2031 | 14 | 943-000-603 |
| 1.3750 | 0.5000 | 1.6250 | 2.2188 | 0.4870 | 0.2188 | 14 | 943-000-604 |
| 1.5000 | 0.5000 | 1.6250 | 2.0469 | 0.5325 | 0.0469 | 16 | 943-000-605 |
| 1.5000 | 0.5000 | 1.6250 | 2.0625 | 0.5325 | 0.0625 | 16 | 943-000-606 |
| 1.5000 | 0.5000 | 1.6250 | 2.0781 | 0.5325 | 0.0781 | 16 | 943-000-607 |
| 1.5000 | 0.5000 | 1.6250 | 2.0938 | 0.5325 | 0.0938 | 16 | 943-000-608 |
| 1.5000 | 0.5000 | 1.6250 | 2.1094 | 0.5325 | 0.1094 | 16 | 943-000-609 |
| 1.5000 | 0.5000 | 1.6250 | 2.1250 | 0.5325 | 0.1250 | 16 | 943-000-610 |
| 1.5000 | 0.5000 | 1.6250 | 2.1406 | 0.5325 | 0.1406 | 16 | 943-000-611 |
| 1.5000 | 0.5000 | 1.6250 | 2.1563 | 0.5325 | 0.1563 | 16 | 943-000-612 |
| 1.5000 | 0.5000 | 1.6250 | 2.1719 | 0.5325 | 0.1719 | 16 | 943-000-613 |
| 1.5000 | 0.5000 | 1.6250 | 2.1875 | 0.5325 | 0.1875 | 16 | 943-000-614 |
| 1.5000 | 0.5000 | 1.6250 | 2.2031 | 0.5325 | 0.2031 | 16 | 943-000-615 |
| 1.5000 | 0.5000 | 1.6250 | 2.2188 | 0.5325 | 0.2188 | 16 | 943-000-616 |
| 1.5000 | 0.5000 | 1.6250 | 2.2344 | 0.5325 | 0.2344 | 16 | 943-000-617 |



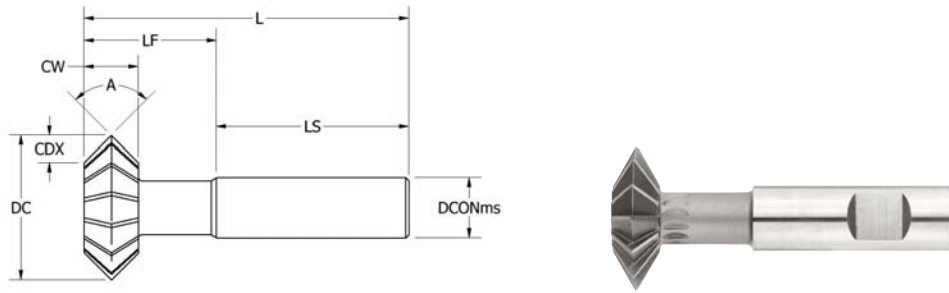
DOVETAIL CUTTERS



| DC [in] | CW [in] | DCONms [in] | L [in] | LF [in] | A [°] | A1 [°] | R [in] | Zc | Material | Hand of Cut | UNCOATED | TiN COATED | TiAIN COATED |
|---------|---------|-------------|--------|---------|-------|--------|--------|----|----------------|-------------|-------------|-------------|--------------|
| 0.3750 | 0.1250 | 0.3750 | 2.1250 | 0.3750 | 45.0 | 90.0 | N/A | 6 | HSS | R | 929-000-077 | 929-000-146 | 929-000-144 |
| 0.3750 | 0.1250 | 0.3750 | 2.1250 | 0.3750 | 45.0 | 90.0 | N/A | 6 | HSS-Co | R | 929-000-080 | 929-000-195 | 929-000-193 |
| 0.3750 | 0.1875 | 0.3750 | 2.1250 | 0.4375 | 60.0 | 60.0 | N/A | 8 | HSS | R | 929-000-001 | 929-000-004 | 929-000-002 |
| 0.3750 | 0.1875 | 0.3750 | 2.1250 | 0.4375 | 60.0 | 60.0 | N/A | 8 | HSS-Co | R | 929-000-081 | 929-000-198 | 929-000-196 |
| 0.5000 | 0.1250 | 0.3750 | 2.1250 | 0.4375 | 45.0 | 90.0 | N/A | 8 | HSS | R | 929-000-005 | 929-000-008 | 929-000-006 |
| 0.5000 | 0.1250 | 0.3750 | 2.1250 | 0.4375 | 45.0 | 90.0 | N/A | 8 | HSS-Co | R | 929-000-082 | 929-000-201 | 929-000-199 |
| 0.5000 | 0.1563 | 0.3750 | 2.1250 | 0.5625 | 45.0 | 90.0 | 0.0200 | 3 | Carbide Tipped | R | 929-000-061 | 929-000-098 | 929-000-096 |
| 0.5000 | 0.2188 | 0.3750 | 2.1250 | 0.4375 | 60.0 | 60.0 | N/A | 8 | HSS | R | 929-000-009 | 929-000-012 | 929-000-010 |
| 0.5000 | 0.2188 | 0.3750 | 2.1250 | 0.4375 | 60.0 | 60.0 | N/A | 8 | HSS-Co | R | 929-000-083 | 929-000-204 | 929-000-202 |
| 0.5000 | 0.2188 | 0.3750 | 2.1250 | 0.5625 | 60.0 | 60.0 | 0.0200 | 3 | Carbide Tipped | R | 929-000-062 | 929-000-101 | 929-000-099 |
| 0.7500 | 0.1875 | 0.3750 | 2.1250 | 0.5625 | 45.0 | 90.0 | N/A | 8 | HSS | R | 929-000-013 | 929-000-016 | 929-000-014 |
| 0.7500 | 0.1875 | 0.3750 | 2.1250 | 0.5625 | 45.0 | 90.0 | N/A | 8 | HSS-Co | R | 929-000-084 | 929-000-207 | 929-000-205 |
| 0.7500 | 0.2500 | 0.3750 | 2.2500 | 0.7031 | 45.0 | 90.0 | 0.0200 | 3 | Carbide Tipped | R | 929-000-063 | 929-000-104 | 929-000-102 |
| 0.7500 | 0.3125 | 0.3750 | 2.1250 | 0.5625 | 60.0 | 60.0 | N/A | 8 | HSS | R | 929-000-017 | 929-000-020 | 929-000-018 |
| 0.7500 | 0.3125 | 0.3750 | 2.1250 | 0.5625 | 60.0 | 60.0 | N/A | 8 | HSS-Co | R | 929-000-085 | 929-000-210 | 929-000-208 |
| 0.7500 | 0.2500 | 0.3750 | 2.2500 | 0.7188 | 60.0 | 60.0 | 0.0200 | 3 | Carbide Tipped | R | 929-000-064 | 929-000-107 | 929-000-105 |
| 1.0000 | 0.2500 | 0.5000 | 2.5000 | 0.5625 | 45.0 | 90.0 | N/A | 10 | HSS | R | 929-000-078 | 929-000-164 | 929-000-162 |
| 1.0000 | 0.2500 | 0.5000 | 2.5000 | 0.5625 | 45.0 | 90.0 | N/A | 10 | HSS-Co | R | 929-000-086 | 929-000-213 | 929-000-211 |
| 1.0000 | 0.3125 | 0.5000 | 2.5000 | 0.8125 | 45.0 | 90.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-065 | 929-000-110 | 929-000-108 |
| 1.0000 | 0.4375 | 0.5000 | 2.5000 | 0.7500 | 60.0 | 60.0 | N/A | 10 | HSS | R | 929-000-079 | 929-000-167 | 929-000-165 |
| 1.0000 | 0.4375 | 0.5000 | 2.5000 | 0.7500 | 60.0 | 60.0 | N/A | 10 | HSS-Co | R | 929-000-087 | 929-000-216 | 929-000-214 |
| 1.0000 | 0.3750 | 0.5000 | 2.5000 | 0.7500 | 60.0 | 60.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-066 | 929-000-113 | 929-000-111 |
| 1.2500 | 0.3125 | 0.6250 | 2.7500 | 0.8750 | 45.0 | 90.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-067 | 929-000-116 | 929-000-114 |
| 1.2500 | 0.5000 | 0.6250 | 2.7500 | 0.8750 | 60.0 | 60.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-068 | 929-000-119 | 929-000-117 |
| 1.3750 | 0.3750 | 0.6250 | 2.8750 | 0.9688 | 45.0 | 90.0 | N/A | 10 | HSS | R | 929-000-021 | 929-000-028 | 929-000-026 |
| 1.3750 | 0.3750 | 0.6250 | 2.8750 | 0.9688 | 45.0 | 90.0 | N/A | 10 | HSS-Co | R | 929-000-088 | 929-000-219 | 929-000-217 |
| 1.3750 | 0.5625 | 0.6250 | 2.8750 | 0.9688 | 60.0 | 60.0 | N/A | 12 | HSS | R | 929-000-029 | 929-000-036 | 929-000-034 |
| 1.3750 | 0.5625 | 0.6250 | 2.8750 | 0.9688 | 60.0 | 60.0 | N/A | 12 | HSS-Co | R | 929-000-089 | 929-000-222 | 929-000-220 |
| 1.5000 | 0.5000 | 0.7500 | 3.2500 | 1.3125 | 45.0 | 90.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-069 | 929-000-122 | 929-000-120 |
| 1.5000 | 0.6250 | 0.7500 | 3.2500 | 1.3125 | 60.0 | 60.0 | 0.0200 | 4 | Carbide Tipped | R | 929-000-070 | 929-000-125 | 929-000-123 |
| 1.8750 | 0.5000 | 0.8750 | 3.2500 | 1.2188 | 45.0 | 90.0 | N/A | 12 | HSS | R | 929-000-037 | 929-000-040 | 929-000-038 |
| 1.8750 | 0.5000 | 0.8750 | 3.2500 | 1.2188 | 45.0 | 90.0 | N/A | 12 | HSS-Co | R | 929-000-090 | 929-000-225 | 929-000-223 |
| 1.8750 | 0.8125 | 0.8750 | 3.2500 | 1.2188 | 60.0 | 60.0 | N/A | 12 | HSS | R | 929-000-041 | 929-000-044 | 929-000-042 |
| 1.8750 | 0.8125 | 0.8750 | 3.2500 | 1.2188 | 60.0 | 60.0 | N/A | 12 | HSS-Co | R | 929-000-091 | 929-000-228 | 929-000-226 |
| 2.0000 | 0.6250 | 1.0000 | 4.2500 | 2.0000 | 45.0 | 90.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-071 | 929-000-128 | 929-000-126 |
| 2.0000 | 0.7500 | 1.0000 | 4.2500 | 2.1250 | 60.0 | 60.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-072 | 929-000-131 | 929-000-129 |
| 2.2500 | 1.0625 | 1.0000 | 3.7500 | 1.4688 | 60.0 | 60.0 | N/A | 12 | HSS | R | 929-000-049 | 929-000-052 | 929-000-050 |
| 2.2500 | 1.0625 | 1.0000 | 3.7500 | 1.4688 | 60.0 | 60.0 | N/A | 12 | HSS-Co | R | 929-000-093 | 929-000-234 | 929-000-232 |
| 2.5000 | 0.7500 | 1.0000 | 3.7500 | 1.4688 | 45.0 | 90.0 | N/A | 12 | HSS | R | 929-000-053 | 929-000-056 | 929-000-054 |
| 2.5000 | 0.7500 | 1.0000 | 3.7500 | 1.4688 | 45.0 | 90.0 | N/A | 12 | HSS-Co | R | 929-000-094 | 929-000-237 | 929-000-235 |
| 2.5000 | 0.7500 | 1.2500 | 4.3750 | 2.0625 | 45.0 | 90.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-073 | 929-000-134 | 929-000-132 |
| 2.5000 | 1.1250 | 1.0000 | 3.7500 | 1.4688 | 60.0 | 60.0 | N/A | 12 | HSS | R | 929-000-057 | 929-000-060 | 929-000-058 |
| 2.5000 | 1.1250 | 1.0000 | 3.7500 | 1.4688 | 60.0 | 60.0 | N/A | 12 | HSS-Co | R | 929-000-095 | 929-000-240 | 929-000-238 |
| 2.5000 | 0.8750 | 1.2500 | 4.3750 | 2.1875 | 60.0 | 60.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-074 | 929-000-137 | 929-000-135 |
| 3.0000 | 1.0000 | 1.2500 | 4.5000 | 2.2500 | 45.0 | 90.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-075 | 929-000-140 | 929-000-138 |
| 3.0000 | 1.1250 | 1.2500 | 4.5000 | 2.3750 | 60.0 | 60.0 | 0.0200 | 6 | Carbide Tipped | R | 929-000-076 | 929-000-143 | 929-000-141 |

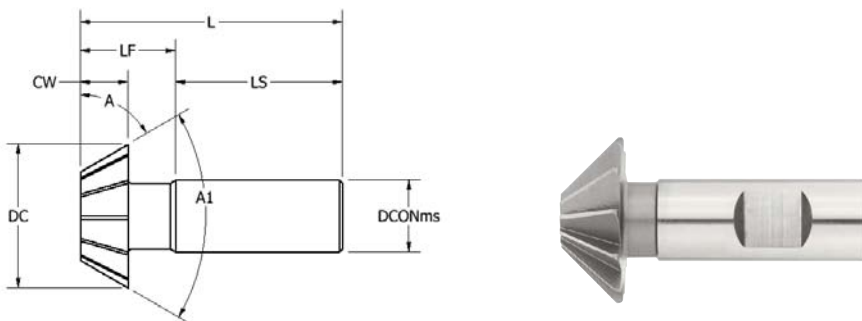


HSS



DA129 DOUBLE ANGLE

| DC | DCONms | LS | L | LF | CDX | CW | A | Zc | UNCOATED | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|--------|------|----|-------------|-------------|-------------|--------------|
| 0.7500 | 0.3750 | 1.5625 | 2.3750 | 0.8125 | 0.1624 | 0.1875 | 60.0 | 10 | 924-000-001 | 924-000-004 | 924-000-003 | 924-000-002 |
| 1.0000 | 0.5000 | 1.7813 | 2.8438 | 1.0625 | 0.2706 | 0.3125 | 60.0 | 12 | 924-000-005 | 924-000-008 | 924-000-007 | 924-000-006 |
| 1.3750 | 0.6250 | 1.9063 | 3.2188 | 1.3125 | 0.3789 | 0.4375 | 60.0 | 14 | 924-000-009 | 924-000-012 | 924-000-011 | 924-000-010 |
| 1.5000 | 0.6250 | 2.0000 | 3.3750 | 1.3750 | 0.4330 | 0.5000 | 60.0 | 14 | 924-000-013 | 924-000-016 | 924-000-015 | 924-000-014 |
| 1.8750 | 0.7500 | 2.0313 | 3.7813 | 1.7500 | 0.5413 | 0.6250 | 60.0 | 16 | 924-000-017 | 924-000-020 | 924-000-019 | 924-000-018 |
| 2.2500 | 0.8750 | 2.0313 | 4.1563 | 2.1250 | 0.6495 | 0.7500 | 60.0 | 18 | 924-000-021 | 924-000-024 | 924-000-023 | 924-000-022 |
| 2.2500 | 0.7500 | 2.0313 | 3.1250 | 1.0938 | 0.4330 | 0.5000 | 60.0 | 16 | 924-000-025 | 924-000-028 | 924-000-027 | 924-000-026 |
| 0.7500 | 0.3750 | 0.7500 | 0.3750 | 0.8750 | 0.1250 | 0.2500 | 90.0 | 10 | 924-000-029 | 924-000-032 | 924-000-031 | 924-000-030 |
| 1.0000 | 0.5000 | 1.7813 | 2.9063 | 1.1250 | 0.1875 | 0.3750 | 90.0 | 12 | 924-000-033 | 924-000-036 | 924-000-035 | 924-000-034 |
| 1.3750 | 0.6250 | 1.9063 | 3.2813 | 1.3750 | 0.2500 | 0.5000 | 90.0 | 14 | 924-000-037 | 924-000-040 | 924-000-039 | 924-000-038 |
| 1.5000 | 0.6250 | 2.0000 | 3.4375 | 1.4375 | 0.2813 | 0.5625 | 90.0 | 14 | 924-000-041 | 924-000-044 | 924-000-043 | 924-000-042 |
| 1.8750 | 0.7500 | 2.0313 | 3.7813 | 1.7500 | 0.3125 | 0.6250 | 90.0 | 16 | 924-000-045 | 924-000-048 | 924-000-047 | 924-000-046 |
| 2.2500 | 0.8750 | 2.0313 | 4.1563 | 2.1250 | 0.3750 | 0.7500 | 90.0 | 18 | 924-000-049 | 924-000-052 | 924-000-051 | 924-000-050 |
| 2.2500 | 0.7500 | 2.0313 | 3.1250 | 1.0938 | 0.2500 | 0.5000 | 90.0 | 16 | 924-000-053 | 924-000-056 | 924-000-055 | 924-000-054 |



CH126 SINGLE-ANGLE

| DC | DCONms | LS | L | LF | CW | A | A1 | Zc | UNCOATED | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|------|------|----|-------------|-------------|-------------|--------------|
| 0.5000 | 0.3750 | 1.6875 | 2.1250 | 0.4375 | 0.1250 | 45.0 | 90.0 | 8 | 909-000-001 | 909-000-004 | 909-000-003 | 909-000-002 |
| 0.7500 | 0.3750 | 1.6250 | 2.1250 | 0.1875 | 0.1875 | 45.0 | 90.0 | 8 | 909-000-009 | 909-000-012 | 909-000-011 | 909-000-010 |
| 1.0000 | 0.5000 | 1.8125 | 2.5000 | 0.6875 | 0.3125 | 45.0 | 90.0 | 10 | 909-000-017 | 909-000-020 | 909-000-019 | 909-000-018 |
| 1.5000 | 0.7500 | 1.8750 | 2.7500 | 0.8750 | 0.5000 | 45.0 | 90.0 | 12 | 909-000-025 | 909-000-028 | 909-000-027 | 909-000-026 |
| 0.5000 | 0.3750 | 1.5938 | 2.1250 | 0.5313 | 0.2188 | 60.0 | 60.0 | 8 | 909-000-005 | 909-000-008 | 909-000-007 | 909-000-006 |
| 0.7500 | 0.3750 | 1.5625 | 2.1250 | 0.5625 | 0.3125 | 60.0 | 60.0 | 8 | 909-000-013 | 909-000-016 | 909-000-015 | 909-000-014 |
| 1.0000 | 0.5000 | 1.7500 | 2.5000 | 0.7500 | 0.4375 | 60.0 | 60.0 | 10 | 909-000-021 | 909-000-024 | 909-000-023 | 909-000-022 |
| 1.5000 | 0.7500 | 1.7500 | 2.7500 | 1.0000 | 0.6250 | 60.0 | 60.0 | 12 | 909-000-029 | 909-000-032 | 909-000-031 | 909-000-030 |

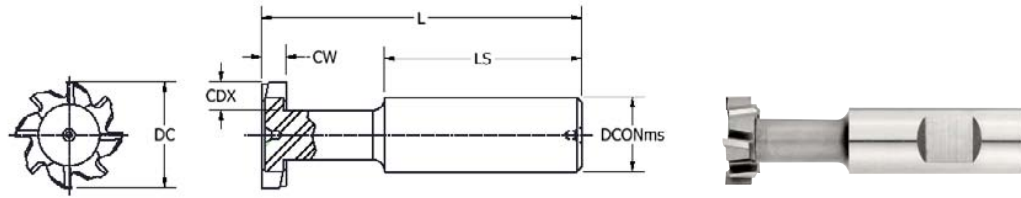


T-SLOT CUTTERS

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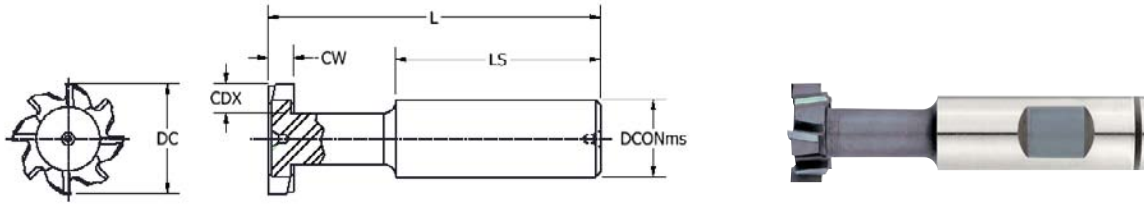


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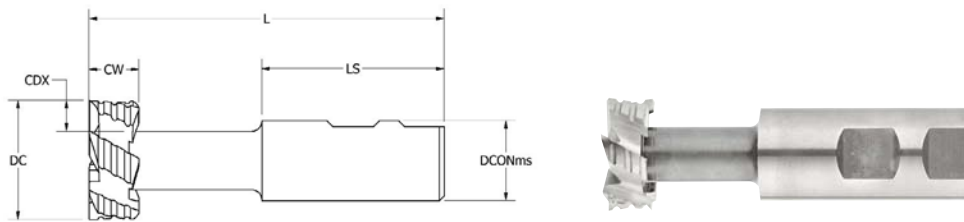
TS109

| DC | DCONms | LS | L | CDX | CW | Zc | UNCOATED | Price | TIN COATED | TICN COATED | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|----------|-------------|-------------|--------------|
| 0.5625 | 0.5000 | 1.8125 | 2.5938 | 0.1484 | 0.2344 | 8 | 964-000-025 | \$93.57 | 964-000-029 | 964-000-028 | 964-000-027 |
| 0.6563 | 0.5000 | 1.8125 | 2.6875 | 0.1641 | 0.2656 | 8 | 964-000-030 | \$100.63 | 964-000-034 | 964-000-033 | 964-000-032 |
| 0.7813 | 0.7500 | 2.0625 | 3.2500 | 0.1875 | 0.3281 | 8 | 964-000-035 | \$148.40 | 964-000-039 | 964-000-038 | 964-000-037 |
| 0.9688 | 0.7500 | 2.0625 | 3.4375 | 0.2188 | 0.3906 | 8 | 964-000-040 | \$168.52 | 964-000-044 | 964-000-043 | 964-000-042 |
| 1.0000 | 0.7500 | 2.0313 | 3.1250 | 0.2500 | 0.0938 | 8 | 964-000-045 | \$163.62 | 964-000-048 | 964-000-047 | 964-000-046 |
| 1.0000 | 0.7500 | 2.0000 | 3.1250 | 0.2500 | 0.1250 | 8 | 964-000-049 | \$167.75 | 964-000-052 | 964-000-051 | 964-000-050 |
| 1.0000 | 0.7500 | 2.0313 | 3.1875 | 0.2500 | 0.1563 | 8 | 964-000-053 | \$169.90 | 964-000-056 | 964-000-055 | 964-000-054 |
| 1.0000 | 0.7500 | 2.0000 | 3.1875 | 0.2500 | 0.1875 | 8 | 964-000-057 | \$172.37 | 964-000-060 | 964-000-059 | 964-000-058 |
| 1.0000 | 0.7500 | 2.0000 | 3.2500 | 0.2500 | 0.2500 | 8 | 964-000-061 | \$174.01 | 964-000-064 | 964-000-063 | 964-000-062 |
| 1.0000 | 0.7500 | 2.0000 | 3.3125 | 0.2500 | 0.3125 | 8 | 964-000-065 | \$176.51 | 964-000-068 | 964-000-067 | 964-000-066 |
| 1.0000 | 0.7500 | 2.0000 | 3.3750 | 0.2500 | 0.3750 | 8 | 964-000-069 | \$178.15 | 964-000-072 | 964-000-071 | 964-000-070 |
| 1.0000 | 0.7500 | 2.0000 | 3.5000 | 0.2500 | 0.5000 | 8 | 964-000-073 | \$178.15 | 964-000-076 | 964-000-075 | 964-000-074 |
| 1.2500 | 1.0000 | 2.3125 | 3.9375 | 0.2969 | 0.4844 | 8 | 964-000-077 | \$205.38 | 964-000-081 | 964-000-080 | 964-000-079 |
| 1.4688 | 1.0000 | 2.3125 | 4.4375 | 0.3438 | 0.6250 | 8 | 964-000-082 | \$267.84 | 964-000-086 | 964-000-085 | 964-000-084 |
| 1.5000 | 1.0000 | 2.5313 | 4.1250 | 0.3750 | 0.0938 | 8 | 964-000-087 | \$244.20 | 964-000-090 | 964-000-089 | 964-000-088 |
| 1.5000 | 1.0000 | 2.5000 | 4.1250 | 0.3750 | 0.1250 | 8 | 964-000-091 | \$244.20 | 964-000-094 | 964-000-093 | 964-000-092 |
| 1.5000 | 1.0000 | 2.5313 | 4.1875 | 0.3750 | 0.1563 | 8 | 964-000-095 | \$247.15 | 964-000-098 | 964-000-097 | 964-000-096 |
| 1.5000 | 1.0000 | 2.5000 | 4.1875 | 0.3750 | 0.1875 | 8 | 964-000-099 | \$249.47 | 964-000-102 | 964-000-101 | 964-000-100 |
| 1.5000 | 1.0000 | 2.5000 | 4.2500 | 0.3750 | 0.2500 | 8 | 964-000-103 | \$256.89 | 964-000-106 | 964-000-105 | 964-000-104 |
| 2.0000 | 1.2500 | 2.6563 | 4.5000 | 0.4375 | 0.0938 | 8 | 964-000-107 | \$256.89 | 964-000-110 | 964-000-109 | 964-000-108 |
| 1.5000 | 1.0000 | 2.5000 | 4.3750 | 0.3750 | 0.3750 | 8 | 964-000-111 | \$272.10 | 964-000-114 | 964-000-113 | 964-000-112 |
| 1.5000 | 1.0000 | 2.5000 | 4.5000 | 0.3750 | 0.5000 | 8 | 964-000-115 | \$272.10 | 964-000-118 | 964-000-117 | 964-000-116 |
| 1.8438 | 1.2500 | 2.3125 | 4.8125 | 0.4063 | 0.8281 | 12 | 964-000-119 | \$453.24 | 964-000-123 | 964-000-122 | 964-000-121 |
| 2.0000 | 1.2500 | 2.6563 | 4.5000 | 0.4375 | 0.0938 | 12 | 964-000-124 | \$399.05 | 964-000-127 | 964-000-126 | 964-000-125 |
| 2.0000 | 1.2500 | 2.6250 | 4.5000 | 0.4375 | 0.1250 | 12 | 964-000-128 | \$399.05 | 964-000-131 | 964-000-130 | 964-000-129 |
| 2.0000 | 1.2500 | 2.6563 | 4.5625 | 0.4375 | 0.1563 | 12 | 964-000-132 | \$405.84 | 964-000-135 | 964-000-134 | 964-000-133 |
| 2.0000 | 1.2500 | 2.6250 | 4.5625 | 0.4375 | 0.1875 | 12 | 964-000-136 | \$405.84 | 964-000-139 | 964-000-138 | 964-000-137 |
| 2.0000 | 1.2500 | 2.6250 | 4.6250 | 0.4375 | 0.2500 | 12 | 964-000-140 | \$444.46 | 964-000-143 | 964-000-142 | 964-000-141 |
| 2.0000 | 1.2500 | 2.6250 | 4.6875 | 0.4375 | 0.3125 | 12 | 964-000-144 | \$444.46 | 964-000-147 | 964-000-146 | 964-000-145 |
| 2.0000 | 1.2500 | 2.6250 | 4.7500 | 0.4375 | 0.3750 | 12 | 964-000-148 | \$459.30 | 964-000-151 | 964-000-150 | 964-000-149 |
| 2.0000 | 1.2500 | 2.6250 | 4.8750 | 0.4375 | 0.5000 | 12 | 964-000-152 | \$459.30 | 964-000-155 | 964-000-154 | 964-000-153 |
| 2.2188 | 1.2500 | 2.2813 | 5.3750 | 0.5000 | 1.0938 | 12 | 964-000-156 | \$598.16 | 964-000-157 | 964-000-159 | 964-000-158 |
| 2.6563 | 1.2500 | 2.4375 | 5.9063 | 0.5625 | 1.3438 | 12 | 964-000-161 | \$774.69 | 964-000-165 | 964-000-164 | 964-000-163 |



TS112 COBALT STEEL

| DC | DCONms | LS | L | CDX | CW | Zc | AlCrN Coated |
|--------|--------|--------|--------|--------|--------|----|--------------|
| 0.5625 | 0.5000 | 1.8125 | 2.5938 | 0.1484 | 0.2344 | 8 | 964-000-026 |
| 0.6563 | 0.5000 | 1.8125 | 2.6875 | 0.1641 | 0.2656 | 8 | 964-000-031 |
| 0.7813 | 0.7500 | 2.0625 | 3.2500 | 0.1875 | 0.3281 | 8 | 964-000-036 |
| 0.9688 | 0.7500 | 2.0625 | 3.4375 | 0.2188 | 0.3906 | 8 | 964-000-041 |
| 1.2500 | 1.0000 | 2.3125 | 3.9375 | 0.2969 | 0.4844 | 8 | 964-000-078 |
| 1.4688 | 1.0000 | 2.3125 | 4.4375 | 0.3438 | 0.6250 | 8 | 964-000-083 |
| 1.8438 | 1.2500 | 2.3125 | 4.8125 | 0.3594 | 0.8281 | 12 | 964-000-120 |
| 2.2188 | 1.2500 | 2.2813 | 5.3750 | 0.5000 | 1.0938 | 12 | 964-000-157 |
| 2.6563 | 1.2500 | 2.4375 | 5.9063 | 0.5625 | 1.3438 | 12 | 964-000-162 |



TS111 ROUGHER/FINISHER

| DC | DCONms | LS | L | CDX | CW | Zc | UNCOATED | Price | TiN COATED | TiCN COATED | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|----------|-------------|-------------|--------------|
| 0.9688 | 0.7500 | 2.0313 | 3.4375 | 0.2444 | 0.3906 | 5 | 964-000-006 | \$231.47 | 964-000-024 | 964-000-018 | 964-000-012 |
| 1.2500 | 1.0000 | 2.2813 | 3.9375 | 0.3225 | 0.4844 | 6 | 964-000-001 | \$333.29 | 964-000-019 | 964-000-013 | 964-000-007 |
| 1.4688 | 1.0000 | 2.2813 | 4.4375 | 0.3694 | 0.6250 | 6 | 964-000-002 | \$368.20 | 964-000-020 | 964-000-014 | 964-000-008 |
| 1.8438 | 1.2500 | 2.2813 | 4.8125 | 0.4319 | 0.8281 | 6 | 964-000-003 | \$502.90 | 964-000-021 | 964-000-015 | 964-000-009 |
| 2.2188 | 1.2500 | 2.2813 | 5.3750 | 0.4944 | 1.0938 | 8 | 964-000-005 | \$656.95 | 964-000-023 | 964-000-017 | 964-000-011 |
| 2.6563 | 1.2500 | 2.3750 | 5.9063 | 0.5881 | 1.3438 | 10 | 964-000-004 | \$968.16 | 964-000-022 | 964-000-016 | 964-000-010 |

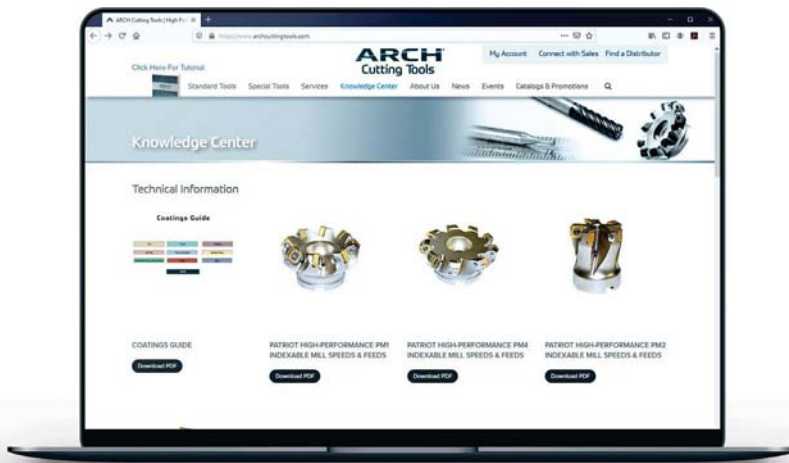
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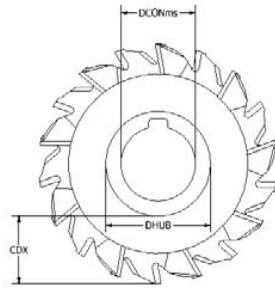
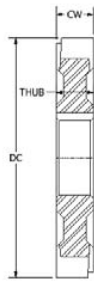
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Product Number: 966-000-382
SKU: HSK125A-ER16-500-G6

| Product Specs | Spare Parts/Accessories |
|----------------------------|-------------------------|
| ADINT SD (Connection Type) | HSK125A |
| BD (Body Diameter) | 1.1 |



SLOTTING MILLS



"S" Style

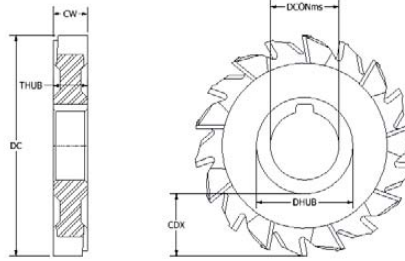
- General Purpose
- Ideal for Deep Slotting
- Alternate tooth design allows excellent chip removal



SSH

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.1250 | 0.1875 | 0.7500 | 0.5313 | 1.0000 | 0.1875 | 14 | 952-001-237 | 952-001-240 | 952-001-239 | 952-001-238 |
| 2.1250 | 0.2500 | 0.7500 | 0.5313 | 1.0000 | 0.2500 | 14 | 952-001-241 | 952-001-244 | 952-001-243 | 952-001-242 |
| 2.1250 | 0.3125 | 0.7500 | 0.5313 | 1.0000 | 0.3125 | 14 | 952-001-245 | 952-001-248 | 952-001-247 | 952-001-246 |
| 2.1250 | 0.3750 | 0.7500 | 0.5313 | 1.0000 | 0.3750 | 14 | 952-001-249 | 952-001-252 | 952-001-251 | 952-001-250 |
| 2.5000 | 0.2500 | 0.8750 | 0.6248 | 1.1880 | 0.2500 | 16 | 952-001-253 | 952-001-256 | 952-001-255 | 952-001-254 |
| 2.5000 | 0.3125 | 0.8750 | 0.6248 | 1.1880 | 0.3125 | 16 | 952-001-257 | 952-001-260 | 952-001-259 | 952-001-258 |
| 2.5000 | 0.3750 | 0.8750 | 0.6248 | 1.1880 | 0.3750 | 16 | 952-001-261 | 952-001-264 | 952-001-263 | 952-001-262 |
| 2.5000 | 0.5000 | 0.8750 | 0.6248 | 1.1880 | 0.5000 | 16 | 952-001-265 | 952-001-268 | 952-001-267 | 952-001-266 |
| 2.7500 | 0.2500 | 1.0000 | 0.6248 | 1.4380 | 0.2500 | 16 | 952-001-269 | 952-001-272 | 952-001-271 | 952-001-270 |
| 2.7500 | 0.3125 | 1.0000 | 0.6248 | 1.4380 | 0.3125 | 16 | 952-001-273 | 952-001-276 | 952-001-275 | 952-001-274 |
| 2.7500 | 0.3750 | 1.0000 | 0.6248 | 1.4380 | 0.3750 | 16 | 952-001-277 | 952-001-280 | 952-001-279 | 952-001-278 |
| 2.7500 | 0.4375 | 1.0000 | 0.6248 | 1.4380 | 0.4375 | 16 | 952-001-281 | 952-001-284 | 952-001-283 | 952-001-282 |
| 2.7500 | 0.5000 | 1.0000 | 0.6248 | 1.4380 | 0.5000 | 16 | 952-001-285 | 952-001-288 | 952-001-287 | 952-001-286 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 16 | 952-001-289 | 952-001-292 | 952-001-291 | 952-001-290 |
| 3.0000 | 0.1875 | 1.2500 | 0.5938 | 1.7500 | 0.1875 | 18 | 952-001-293 | 952-001-296 | 952-001-295 | 952-001-294 |
| 3.0000 | 0.2188 | 1.0000 | 0.7188 | 1.5000 | 0.2188 | 16 | 952-001-577 | 952-001-580 | 952-001-579 | 952-001-578 |
| 3.0000 | 0.2188 | 1.2500 | 0.5938 | 1.7500 | 0.2188 | 18 | 952-001-581 | 952-001-584 | 952-001-583 | 952-001-582 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 16 | 952-001-297 | 952-001-300 | 952-001-299 | 952-001-298 |
| 3.0000 | 0.2500 | 1.2500 | 0.5938 | 1.7500 | 0.2500 | 18 | 952-001-301 | 952-001-304 | 952-001-303 | 952-001-302 |
| 3.0000 | 0.2813 | 1.0000 | 0.7188 | 1.5000 | 0.2813 | 16 | 952-001-585 | 952-001-588 | 952-001-587 | 952-001-586 |
| 3.0000 | 0.2813 | 1.2500 | 0.5938 | 1.7500 | 0.2813 | 18 | 952-001-589 | 952-001-592 | 952-001-591 | 952-001-590 |
| 3.0000 | 0.3125 | 1.0000 | 0.7188 | 1.5000 | 0.3125 | 16 | 952-001-305 | 952-001-308 | 952-001-307 | 952-001-298 |
| 3.0000 | 0.3125 | 1.2500 | 0.5938 | 1.7500 | 0.3125 | 18 | 952-001-309 | 952-001-312 | 952-001-311 | 952-001-302 |
| 3.0000 | 0.3438 | 1.0000 | 0.7188 | 1.5000 | 0.3438 | 16 | 952-001-593 | 952-001-596 | 952-001-595 | 952-001-594 |
| 3.0000 | 0.3438 | 1.2500 | 0.5938 | 1.7500 | 0.3438 | 18 | 952-001-597 | 952-001-600 | 952-001-599 | 952-001-598 |
| 3.0000 | 0.3750 | 1.0000 | 0.7188 | 1.5000 | 0.3750 | 16 | 952-001-313 | 952-001-316 | 952-001-315 | 952-001-314 |
| 3.0000 | 0.3750 | 1.2500 | 0.5938 | 1.7500 | 0.3750 | 18 | 952-001-317 | 952-001-320 | 952-001-319 | 952-001-318 |
| 3.0000 | 0.4063 | 1.0000 | 0.7188 | 1.5000 | 0.4063 | 16 | 952-001-601 | 952-001-604 | 952-001-603 | 952-001-602 |
| 3.0000 | 0.4063 | 1.2500 | 0.5938 | 1.7500 | 0.4063 | 18 | 952-001-605 | 952-001-608 | 952-001-607 | 952-001-606 |
| 3.0000 | 0.4375 | 1.0000 | 0.7188 | 1.5000 | 0.4375 | 16 | 952-001-321 | 952-001-324 | 952-001-323 | 952-001-322 |
| 3.0000 | 0.4375 | 1.2500 | 0.5938 | 1.7500 | 0.4375 | 18 | 952-001-325 | 952-001-328 | 952-001-327 | 952-001-326 |
| 3.0000 | 0.5000 | 1.0000 | 0.7188 | 1.5000 | 0.5000 | 16 | 952-001-329 | 952-001-332 | 952-001-331 | 952-001-330 |
| 3.0000 | 0.5000 | 1.2500 | 0.5938 | 1.7500 | 0.5000 | 18 | 952-001-333 | 952-001-336 | 952-001-335 | 952-001-334 |
| 3.0000 | 0.5625 | 1.0000 | 0.7188 | 1.5000 | 0.5625 | 16 | 952-001-337 | 952-001-340 | 952-001-339 | 952-001-338 |
| 3.0000 | 0.5625 | 1.2500 | 0.5938 | 1.7500 | 0.5625 | 18 | 952-001-341 | 952-001-344 | 952-001-343 | 952-001-342 |
| 3.0000 | 0.6250 | 1.0000 | 0.7188 | 1.5000 | 0.6250 | 16 | 952-001-345 | 952-001-348 | 952-001-347 | 952-001-346 |
| 3.0000 | 0.6250 | 1.2500 | 0.5938 | 1.7500 | 0.6250 | 18 | 952-001-349 | 952-001-352 | 952-001-351 | 952-001-350 |
| 3.0000 | 0.6875 | 1.0000 | 0.7188 | 1.5000 | 0.6875 | 16 | 952-001-353 | 952-001-356 | 952-001-355 | 952-001-354 |
| 3.0000 | 0.6875 | 1.2500 | 0.5938 | 1.7500 | 0.6875 | 18 | 952-001-357 | 952-001-360 | 952-001-359 | 952-001-358 |
| 3.0000 | 0.7500 | 1.0000 | 0.7188 | 1.5000 | 0.7500 | 16 | 952-001-361 | 952-001-364 | 952-001-363 | 952-001-362 |
| 3.0000 | 0.7500 | 1.2500 | 0.5938 | 1.7500 | 0.7500 | 18 | 952-001-365 | 952-001-368 | 952-001-367 | 952-001-366 |
| 3.0000 | 0.8125 | 1.0000 | 0.7188 | 1.5000 | 0.8125 | 16 | 952-001-369 | 952-001-372 | 952-001-371 | 952-001-370 |
| 3.0000 | 0.8125 | 1.2500 | 0.5938 | 1.7500 | 0.8125 | 18 | 952-001-373 | 952-001-376 | 952-001-375 | 952-001-374 |
| 3.0000 | 0.8750 | 1.0000 | 0.7188 | 1.5000 | 0.8750 | 16 | 952-001-377 | 952-001-380 | 952-001-379 | 952-001-378 |
| 3.0000 | 0.8750 | 1.2500 | 0.5938 | 1.7500 | 0.8750 | 18 | 952-001-381 | 952-001-384 | 952-001-383 | 952-001-382 |
| 3.0000 | 0.9375 | 1.0000 | 0.7188 | 1.5000 | 0.9375 | 16 | 952-001-385 | 952-001-388 | 952-001-387 | 952-001-386 |
| 3.0000 | 0.9375 | 1.2500 | 0.5938 | 1.7500 | 0.9375 | 18 | 952-001-389 | 952-001-392 | 952-001-391 | 952-001-390 |

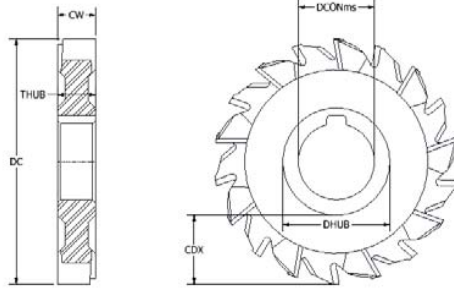
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 1.0000 | 1.0000 | 0.7188 | 1.5000 | 1.0000 | 16 | 952-001-393 | 952-001-396 | 952-001-395 | 952-001-394 |
| 3.0000 | 1.0000 | 1.2500 | 0.5938 | 1.7500 | 1.0000 | 18 | 952-001-397 | 952-001-400 | 952-001-399 | 952-001-398 |
| 3.0000 | 1.2500 | 1.0000 | 0.7188 | 1.5000 | 1.2500 | 16 | 952-001-401 | 952-001-404 | 952-001-403 | 952-001-402 |
| 3.0000 | 1.2500 | 1.2500 | 0.5938 | 1.7500 | 1.2500 | 18 | 952-001-405 | 952-001-408 | 952-001-407 | 952-001-406 |
| 3.2500 | 0.2500 | 1.2500 | 0.7188 | 1.7500 | 0.2500 | 18 | 952-001-409 | 952-001-412 | 952-001-411 | 952-001-410 |
| 3.2500 | 0.3750 | 1.2500 | 0.7188 | 1.7500 | 0.3750 | 18 | 952-001-413 | 952-001-416 | 952-001-415 | 952-001-414 |
| 3.2500 | 0.5000 | 1.2500 | 0.7188 | 1.7500 | 0.5000 | 18 | 952-001-417 | 952-001-420 | 952-001-419 | 952-001-418 |
| 3.2500 | 0.7500 | 1.2500 | 0.7188 | 1.7500 | 0.7500 | 18 | 952-001-421 | 952-001-424 | 952-001-423 | 952-001-422 |
| 3.5000 | 0.2188 | 1.0000 | 0.9688 | 1.5000 | 0.2188 | 18 | 952-001-529 | 952-001-532 | 952-001-531 | 952-001-530 |
| 3.5000 | 0.2188 | 1.2500 | 0.8438 | 1.7500 | 0.2188 | 18 | 952-001-533 | 952-001-536 | 952-001-535 | 952-001-534 |
| 3.5000 | 0.2500 | 1.0000 | 0.9688 | 1.5000 | 0.2500 | 18 | 952-001-425 | 952-001-428 | 952-001-427 | 952-001-426 |
| 3.5000 | 0.2500 | 1.2500 | 0.8438 | 1.7500 | 0.2500 | 18 | 952-001-429 | 952-001-432 | 952-001-431 | 952-001-430 |
| 3.5000 | 0.2813 | 1.0000 | 0.9688 | 1.5000 | 0.2813 | 18 | 952-001-537 | 952-001-540 | 952-001-539 | 952-001-538 |
| 3.5000 | 0.2813 | 1.2500 | 0.8438 | 1.7500 | 0.2813 | 18 | 952-001-541 | 952-001-544 | 952-001-543 | 952-001-542 |
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| 3.5000 | 0.3125 | 1.2500 | 0.8438 | 1.7500 | 0.3125 | 18 | 952-001-437 | 952-001-440 | 952-001-439 | 952-001-438 |
| 3.5000 | 0.3438 | 1.0000 | 0.9688 | 1.5000 | 0.3438 | 18 | 952-001-545 | 952-001-548 | 952-001-547 | 952-001-546 |
| 3.5000 | 1.2500 | 1.2500 | 3.5000 | 1.7500 | 0.3438 | 18 | 952-001-549 | 952-001-552 | 952-001-551 | 952-001-550 |
| 3.5000 | 0.3750 | 1.0000 | 0.9688 | 1.5000 | 0.3750 | 18 | 952-001-441 | 952-001-444 | 952-001-443 | 952-001-442 |
| 3.5000 | 0.3750 | 1.2500 | 0.8438 | 1.7500 | 0.3750 | 18 | 952-001-445 | 952-001-448 | 952-001-447 | 952-001-446 |
| 3.5000 | 0.4063 | 1.0000 | 0.9688 | 1.5000 | 0.4063 | 18 | 952-001-553 | 952-001-556 | 952-001-555 | 952-001-554 |
| 3.5000 | 0.4063 | 1.2500 | 0.8438 | 1.7500 | 0.4063 | 18 | 952-001-557 | 952-001-560 | 952-001-559 | 952-001-558 |
| 3.5000 | 0.4375 | 1.0000 | 0.9688 | 1.5000 | 0.4375 | 18 | 952-001-449 | 952-001-452 | 952-001-451 | 952-001-450 |
| 3.5000 | 0.4375 | 1.2500 | 0.8438 | 1.7500 | 0.4375 | 18 | 952-001-453 | 952-001-456 | 952-001-455 | 952-001-454 |
| 3.5000 | 0.5000 | 1.0000 | 0.9688 | 1.5000 | 0.5000 | 18 | 952-001-457 | 952-001-460 | 952-001-459 | 952-001-458 |
| 3.5000 | 0.5000 | 1.2500 | 0.8438 | 1.7500 | 0.5000 | 18 | 952-001-461 | 952-001-464 | 952-001-463 | 952-001-462 |
| 3.5000 | 0.5625 | 1.0000 | 0.9688 | 1.5000 | 0.5625 | 18 | 952-001-465 | 952-001-468 | 952-001-467 | 952-001-466 |
| 3.5000 | 0.5625 | 1.2500 | 0.8438 | 1.7500 | 0.5625 | 18 | 952-001-469 | 952-001-472 | 952-001-471 | 952-001-470 |
| 3.5000 | 0.6250 | 1.0000 | 0.9688 | 1.5000 | 0.6250 | 18 | 952-001-473 | 952-001-476 | 952-001-475 | 952-001-474 |
| 3.5000 | 0.6250 | 1.2500 | 0.8438 | 1.7500 | 0.6250 | 18 | 952-001-477 | 952-001-480 | 952-001-479 | 952-001-478 |
| 3.5000 | 0.6875 | 1.0000 | 0.9688 | 1.5000 | 0.6875 | 18 | 952-001-481 | 952-001-484 | 952-001-483 | 952-001-482 |
| 3.5000 | 0.6875 | 1.2500 | 0.8438 | 1.7500 | 0.6875 | 18 | 952-001-485 | 952-001-488 | 952-001-487 | 952-001-486 |
| 3.5000 | 0.7500 | 1.0000 | 0.9688 | 1.5000 | 0.6875 | 18 | 952-001-489 | 952-001-492 | 952-001-491 | 952-001-490 |
| 3.5000 | 0.7500 | 1.2500 | 0.8438 | 1.7500 | 0.7500 | 18 | 952-001-493 | 952-001-496 | 952-001-495 | 952-001-494 |
| 3.5000 | 0.8125 | 1.0000 | 0.9688 | 1.5000 | 0.8125 | 18 | 952-001-497 | 952-001-500 | 952-001-499 | 952-001-498 |
| 3.5000 | 0.8125 | 1.2500 | 0.8438 | 1.7500 | 0.8125 | 18 | 952-001-501 | 952-001-504 | 952-001-503 | 952-001-502 |
| 3.5000 | 0.8750 | 1.0000 | 0.9688 | 1.5000 | 0.8750 | 18 | 952-001-505 | 952-001-508 | 952-001-507 | 952-001-506 |
| 3.5000 | 0.8750 | 1.2500 | 0.8438 | 1.7500 | 0.8750 | 18 | 952-001-509 | 952-001-512 | 952-001-511 | 952-001-510 |
| 3.5000 | 0.9375 | 1.0000 | 0.9688 | 1.5000 | 0.9375 | 18 | 952-001-513 | 952-001-516 | 952-001-515 | 952-001-514 |
| 3.5000 | 0.9375 | 1.2500 | 0.8438 | 1.7500 | 0.9375 | 18 | 952-001-517 | 952-001-520 | 952-001-519 | 952-001-518 |
| 3.5000 | 1.0000 | 1.0000 | 0.9688 | 1.5000 | 1.0000 | 18 | 952-001-521 | 952-001-524 | 952-001-523 | 952-001-522 |
| 3.5000 | 1.0000 | 1.2500 | 0.8438 | 1.7500 | 1.0000 | 18 | 952-001-525 | 952-001-528 | 952-001-527 | 952-001-526 |
| 3.7500 | 0.2500 | 1.2500 | 0.9688 | 1.7500 | 0.2500 | 18 | 952-001-561 | 952-001-564 | 952-001-563 | 952-001-562 |
| 3.7500 | 0.3750 | 1.2500 | 0.9688 | 1.7500 | 0.3750 | 18 | 952-001-565 | 952-001-568 | 952-001-567 | 952-001-566 |
| 3.7500 | 0.5000 | 1.2500 | 0.9688 | 1.7500 | 0.5000 | 18 | 952-001-569 | 952-001-572 | 952-001-571 | 952-001-570 |
| 3.7500 | 0.7500 | 1.2500 | 0.9688 | 1.7500 | 0.7500 | 18 | 952-001-573 | 952-001-576 | 952-001-575 | 952-001-574 |
| 4.0000 | 0.1875 | 1.0000 | 1.1563 | 1.6250 | 0.1875 | 18 | 952-001-609 | 952-001-612 | 952-001-611 | 952-001-610 |

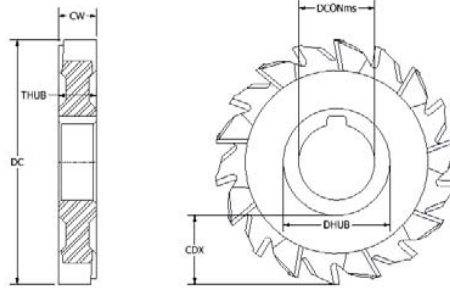
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TIAlN COATED |
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| 4.0000 | 0.1875 | 1.2500 | 1.0938 | 1.7500 | 0.1875 | 18 | 952-001-613 | 952-001-616 | 952-001-615 | 952-001-614 |
| 4.0000 | 0.2188 | 1.0000 | 1.1563 | 1.6250 | 0.2188 | 18 | 952-001-817 | 952-001-820 | 952-001-819 | 952-001-818 |
| 4.0000 | 0.2188 | 1.2500 | 1.0938 | 1.7500 | 0.2188 | 18 | 952-001-821 | 952-001-824 | 952-001-823 | 952-001-822 |
| 4.0000 | 0.2500 | 1.0000 | 1.1563 | 1.6250 | 0.2500 | 18 | 952-001-617 | 952-001-620 | 952-001-619 | 952-001-618 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 18 | 952-001-621 | 952-001-624 | 952-001-623 | 952-001-622 |
| 4.0000 | 0.2813 | 1.0000 | 1.1563 | 1.6250 | 0.2813 | 18 | 952-001-825 | 952-001-828 | 952-001-827 | 952-001-826 |
| 4.0000 | 0.2813 | 1.2500 | 1.0938 | 1.7500 | 0.2813 | 18 | 952-001-829 | 952-001-832 | 952-001-831 | 952-001-830 |
| 4.0000 | 0.3125 | 1.0000 | 1.1563 | 1.6250 | 0.3125 | 18 | 952-001-625 | 952-001-628 | 952-001-627 | 952-001-626 |
| 4.0000 | 0.3125 | 1.2500 | 1.0938 | 1.7500 | 0.3125 | 18 | 952-001-629 | 952-001-632 | 952-001-631 | 952-001-630 |
| 4.0000 | 0.3438 | 1.0000 | 1.1563 | 1.6250 | 0.3438 | 18 | 952-001-833 | 952-001-836 | 952-001-835 | 952-001-834 |
| 4.0000 | 0.3438 | 1.2500 | 1.0938 | 1.7500 | 0.3438 | 18 | 952-001-837 | 952-001-840 | 952-001-839 | 952-001-838 |
| 4.0000 | 0.3750 | 1.0000 | 1.1563 | 1.6250 | 0.3750 | 18 | 952-001-633 | 952-001-636 | 952-001-635 | 952-001-634 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 18 | 952-001-637 | 952-001-640 | 952-001-639 | 952-001-638 |
| 4.0000 | 0.4063 | 1.0000 | 1.1563 | 1.6250 | 0.4063 | 18 | 952-001-841 | 952-001-844 | 952-001-843 | 952-001-842 |
| 4.0000 | 0.4063 | 1.2500 | 1.0938 | 1.7500 | 0.4063 | 18 | 952-001-845 | 952-001-848 | 952-001-847 | 952-001-846 |
| 4.0000 | 0.4375 | 1.0000 | 1.1563 | 1.6250 | 0.4375 | 18 | 952-001-641 | 952-001-644 | 952-001-643 | 952-001-642 |
| 4.0000 | 0.4375 | 1.2500 | 1.0938 | 1.7500 | 0.4375 | 18 | 952-001-645 | 952-001-648 | 952-001-647 | 952-001-646 |
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| 4.0000 | 0.5625 | 1.2500 | 1.0938 | 1.7500 | 0.5625 | 18 | 952-001-661 | 952-001-664 | 952-001-663 | 952-001-662 |
| 4.0000 | 0.6250 | 1.0000 | 1.1563 | 1.6250 | 0.6250 | 18 | 952-001-665 | 952-001-668 | 952-001-667 | 952-001-666 |
| 4.0000 | 0.6250 | 1.2500 | 1.0938 | 1.7500 | 0.6250 | 18 | 952-001-669 | 952-001-672 | 952-001-671 | 952-001-670 |
| 4.0000 | 0.6875 | 1.0000 | 1.1563 | 1.6250 | 0.6875 | 18 | 952-001-673 | 952-001-676 | 952-001-675 | 952-001-674 |
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| 4.0000 | 0.7500 | 1.0000 | 1.1563 | 1.6250 | 0.7500 | 18 | 952-001-681 | 952-001-684 | 952-001-683 | 952-001-682 |
| 4.0000 | 0.7500 | 1.2500 | 1.0938 | 1.7500 | 0.7500 | 18 | 952-001-685 | 952-001-688 | 952-001-687 | 952-001-686 |
| 4.0000 | 0.8125 | 1.0000 | 1.1563 | 1.6250 | 0.8125 | 18 | 952-001-689 | 952-001-692 | 952-001-691 | 952-001-690 |
| 4.0000 | 0.8125 | 1.2500 | 1.0938 | 1.7500 | 0.8125 | 18 | 952-001-693 | 952-001-696 | 952-001-695 | 952-001-694 |
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| 4.0000 | 0.8750 | 1.2500 | 1.0938 | 1.7500 | 0.8750 | 18 | 952-001-701 | 952-001-704 | 952-001-703 | 952-001-702 |
| 4.0000 | 0.9375 | 1.0000 | 1.1563 | 1.6250 | 0.9375 | 18 | 952-001-705 | 952-001-708 | 952-001-707 | 952-001-706 |
| 4.0000 | 0.9375 | 1.2500 | 1.0938 | 1.7500 | 0.9375 | 18 | 952-001-709 | 952-001-712 | 952-001-711 | 952-001-710 |
| 4.0000 | 1.0000 | 1.0000 | 1.1563 | 1.6250 | 1.0000 | 18 | 952-001-713 | 952-001-716 | 952-001-715 | 952-001-714 |
| 4.0000 | 1.0000 | 1.2500 | 1.0938 | 1.7500 | 1.0000 | 18 | 952-001-717 | 952-001-720 | 952-001-719 | 952-001-718 |
| 4.0000 | 1.1250 | 1.2500 | 1.0938 | 1.7500 | 1.1250 | 18 | 952-001-721 | 952-001-724 | 952-001-723 | 952-001-722 |
| 4.0000 | 1.2500 | 1.2500 | 1.0938 | 1.7500 | 1.1250 | 18 | 952-001-725 | 952-001-728 | 952-001-727 | 952-001-726 |
| 4.0000 | 1.3750 | 1.2500 | 1.0938 | 1.7500 | 1.3750 | 18 | 952-001-745 | 952-001-748 | 952-001-747 | 952-001-746 |
| 4.0000 | 1.5000 | 1.2500 | 1.0938 | 1.7500 | 1.5000 | 18 | 952-001-749 | 952-001-752 | 952-001-751 | 952-001-750 |
| 4.2500 | 0.2500 | 1.2500 | 1.2188 | 1.7500 | 0.2500 | 18 | 952-001-729 | 952-001-732 | 952-001-731 | 952-001-730 |
| 4.2500 | 0.3750 | 1.2500 | 1.2188 | 1.7500 | 0.3750 | 18 | 952-001-733 | 952-001-736 | 952-001-735 | 952-001-734 |
| 4.2500 | 0.5000 | 1.2500 | 1.2188 | 1.7500 | 0.5000 | 18 | 952-001-737 | 952-001-740 | 952-001-739 | 952-001-738 |
| 4.2500 | 0.7500 | 1.2500 | 1.2188 | 1.7500 | 0.7500 | 18 | 952-001-741 | 952-001-744 | 952-001-743 | 952-001-742 |
| 4.5000 | 0.2188 | 1.0000 | 1.4063 | 1.6250 | 0.2188 | 18 | 952-001-809 | 952-001-812 | 952-001-811 | 952-001-810 |
| 4.5000 | 0.2188 | 1.2500 | 1.2813 | 1.8750 | 0.2188 | 18 | 952-001-813 | 952-001-816 | 952-001-815 | 952-001-814 |
| 4.5000 | 0.2500 | 1.0000 | 1.4063 | 1.6250 | 0.2500 | 18 | 952-001-753 | 952-001-756 | 952-001-755 | 952-001-754 |
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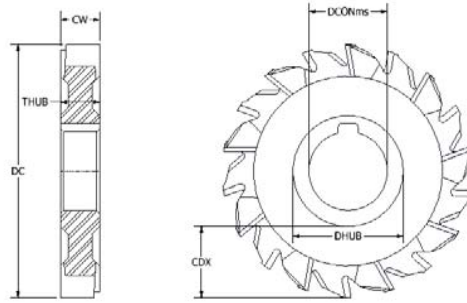
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
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| 4.5000 | 1.2500 | 1.2500 | 4.5000 | 1.8750 | 0.3125 | 18 | 952-001-765 | 952-001-768 | 952-001-767 | 952-001-766 |
| 4.5000 | 0.3750 | 1.0000 | 1.4063 | 1.6250 | 0.3750 | 18 | 952-001-769 | 952-001-772 | 952-001-771 | 952-001-770 |
| 4.5000 | 0.3750 | 1.2500 | 1.2813 | 1.8750 | 0.3750 | 18 | 952-001-773 | 952-001-776 | 952-001-775 | 952-001-774 |
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| 4.5000 | 0.5000 | 1.2500 | 1.2813 | 1.8750 | 0.5000 | 18 | 952-001-781 | 952-001-784 | 952-001-783 | 952-001-782 |
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| 4.5000 | 0.6250 | 1.2500 | 1.2813 | 1.8750 | 0.6250 | 18 | 952-001-789 | 952-001-792 | 952-001-791 | 952-001-790 |
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| 4.5000 | 0.7500 | 1.2500 | 1.2813 | 1.8750 | 0.7500 | 18 | 952-001-797 | 952-001-800 | 952-001-799 | 952-001-798 |
| 4.5000 | 1.0000 | 1.0000 | 1.4063 | 1.6250 | 1.0000 | 18 | 952-001-801 | 952-001-804 | 952-001-803 | 952-001-802 |
| 4.5000 | 1.0000 | 1.2500 | 1.2813 | 1.8750 | 1.0000 | 18 | 952-001-805 | 952-001-808 | 952-001-807 | 952-001-806 |
| 5.0000 | 0.1875 | 1.0000 | 1.6563 | 1.6250 | 0.1875 | 24 | 952-001-849 | 952-001-852 | 952-001-851 | 952-001-850 |
| 5.0000 | 0.1875 | 1.2500 | 1.5313 | 1.8750 | 0.1875 | 24 | 952-001-853 | 952-001-856 | 952-001-855 | 952-001-854 |
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| 5.0000 | 0.2188 | 1.2500 | 1.5313 | 1.8750 | 0.2188 | 24 | 952-001-949 | 952-001-952 | 952-001-951 | 952-001-950 |
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| 5.0000 | 0.3125 | 1.0000 | 1.6563 | 1.6250 | 0.3125 | 24 | 952-001-865 | 952-001-868 | 952-001-867 | 952-001-866 |
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| 5.0000 | 0.3438 | 1.0000 | 1.6563 | 1.6250 | 0.3438 | 24 | 952-001-961 | 952-001-964 | 952-001-963 | 952-001-962 |
| 5.0000 | 0.3438 | 1.2500 | 1.5313 | 1.8750 | 0.3438 | 24 | 952-001-965 | 952-001-968 | 952-001-967 | 952-001-966 |
| 5.0000 | 0.3750 | 1.0000 | 1.6563 | 1.6250 | 0.3750 | 24 | 952-001-873 | 952-001-876 | 952-001-875 | 952-001-874 |
| 5.0000 | 0.3750 | 1.2500 | 1.5313 | 1.8750 | 0.3750 | 24 | 952-001-877 | 952-001-880 | 952-001-879 | 952-001-878 |
| 5.0000 | 0.4063 | 1.0000 | 1.6563 | 1.6250 | 0.4063 | 24 | 952-001-969 | 952-001-972 | 952-001-971 | 952-001-970 |
| 5.0000 | 0.4063 | 1.2500 | 1.5313 | 1.8750 | 0.4063 | 24 | 952-001-973 | 952-001-976 | 952-001-975 | 952-001-974 |
| 5.0000 | 0.4375 | 1.0000 | 1.6563 | 1.6250 | 0.4375 | 24 | 952-001-881 | 952-001-884 | 952-001-883 | 952-001-882 |
| 5.0000 | 0.4375 | 1.2500 | 1.5313 | 1.8750 | 0.4375 | 24 | 952-001-885 | 952-001-888 | 952-001-887 | 952-001-886 |
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| 5.0000 | 0.4688 | 1.2500 | 1.5313 | 1.8750 | 0.4688 | 24 | 952-001-981 | 952-001-984 | 952-001-983 | 952-001-982 |
| 5.0000 | 0.5000 | 1.0000 | 1.6563 | 1.6250 | 0.5000 | 24 | 952-001-889 | 952-001-892 | 952-001-891 | 952-001-890 |
| 5.0000 | 0.5000 | 1.2500 | 1.5313 | 1.8750 | 0.5000 | 24 | 952-001-893 | 952-001-896 | 952-001-895 | 952-001-894 |
| 5.0000 | 0.5313 | 1.2500 | 1.5313 | 1.8750 | 0.5313 | 24 | 952-001-985 | 952-001-988 | 952-001-987 | 952-001-986 |
| 5.0000 | 0.5625 | 1.2500 | 1.5313 | 1.8750 | 0.5625 | 24 | 952-001-897 | 952-001-900 | 952-001-899 | 952-001-898 |
| 5.0000 | 0.5938 | 1.2500 | 1.5313 | 1.8750 | 0.5938 | 24 | 952-001-989 | 952-001-992 | 952-001-991 | 952-001-990 |
| 5.0000 | 0.6250 | 1.2500 | 1.5313 | 1.8750 | 0.6250 | 24 | 952-001-901 | 952-001-904 | 952-001-903 | 952-001-902 |
| 5.0000 | 0.6875 | 1.2500 | 1.5313 | 1.8750 | 0.6875 | 24 | 952-001-905 | 952-001-908 | 952-001-907 | 952-001-906 |
| 5.0000 | 0.7500 | 1.2500 | 1.5313 | 1.8750 | 0.7500 | 24 | 952-001-909 | 952-001-912 | 952-001-911 | 952-001-910 |
| 5.0000 | 0.8125 | 1.2500 | 1.5313 | 1.8750 | 0.8125 | 24 | 952-001-913 | 952-001-916 | 952-001-915 | 952-001-914 |
| 5.0000 | 0.8750 | 1.2500 | 1.5313 | 1.8750 | 0.8750 | 24 | 952-001-917 | 952-001-920 | 952-001-919 | 952-001-918 |
| 5.0000 | 0.9375 | 1.2500 | 1.5313 | 1.8750 | 0.9375 | 24 | 952-001-921 | 952-001-924 | 952-001-923 | 952-001-922 |
| 5.0000 | 1.0000 | 1.2500 | 1.5313 | 1.8750 | 1.0000 | 24 | 952-001-925 | 952-001-928 | 952-001-927 | 952-001-926 |
| 5.5000 | 0.2500 | 1.2500 | 1.7813 | 1.8750 | 0.2500 | 24 | 952-001-929 | 952-001-932 | 952-001-931 | 952-001-930 |
| 5.5000 | 0.3750 | 1.2500 | 1.7813 | 1.8750 | 0.3750 | 24 | 952-001-933 | 952-001-936 | 952-001-935 | 952-001-934 |
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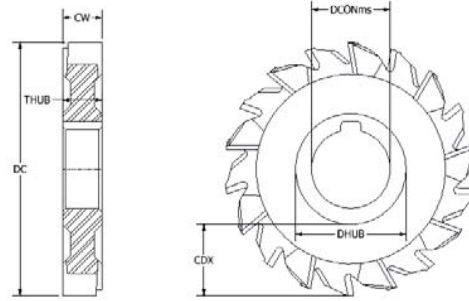
*Make To Order



SSH

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 5.5000 | 0.7500 | 1.2500 | 1.7813 | 1.8750 | 0.7500 | 24 | 952-001-941 | 952-001-944 | 952-001-943 | 952-001-942 |
| 6.0000 | 0.1875 | 1.0000 | 2.1563 | 1.6250 | 0.1875 | 24 | 952-001-993 | 952-001-996 | 952-001-995 | 952-001-994 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 24 | 952-001-997 | 952-002-000 | 952-001-999 | 952-001-998 |
| 6.0000 | 0.1875 | 1.5000 | 1.8438 | 2.2500 | 0.1875 | 28 | 952-002-001 | 952-002-004 | 952-002-003 | 952-002-002 |
| 6.0000 | 0.2188 | 1.0000 | 2.1563 | 1.6250 | 0.2188 | 24 | 952-002-145 | 952-002-148 | 952-002-147 | 952-002-146 |
| 6.0000 | 0.2188 | 1.2500 | 2.0313 | 1.8750 | 0.2188 | 24 | 952-002-149 | 952-002-152 | 952-002-151 | 952-002-150 |
| 6.0000 | 0.2188 | 1.5000 | 1.8438 | 2.2500 | 0.2188 | 28 | 952-002-153 | 952-002-156 | 952-002-155 | 952-002-154 |
| 6.0000 | 0.2500 | 1.0000 | 2.1563 | 1.6250 | 0.2500 | 24 | 952-002-005 | 952-002-008 | 952-002-007 | 952-002-006 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 24 | 952-002-009 | 952-002-012 | 952-002-011 | 952-002-010 |
| 6.0000 | 0.2500 | 1.5000 | 1.8438 | 2.2500 | 0.2500 | 28 | 952-002-013 | 952-002-016 | 952-002-015 | 952-002-014 |
| 6.0000 | 0.2813 | 1.0000 | 2.1563 | 1.6250 | 0.2813 | 24 | 952-002-157 | 952-002-160 | 952-002-159 | 952-002-158 |
| 6.0000 | 0.2813 | 1.2500 | 2.0313 | 1.8750 | 0.2813 | 24 | 952-002-161 | 952-002-164 | 952-002-163 | 952-002-162 |
| 6.0000 | 0.2813 | 1.5000 | 1.8438 | 2.2500 | 0.2813 | 28 | 952-002-165 | 952-002-168 | 952-002-167 | 952-002-166 |
| 6.0000 | 0.3125 | 1.0000 | 2.1563 | 1.6250 | 0.3125 | 24 | 952-002-017 | 952-002-020 | 952-002-019 | 952-002-018 |
| 6.0000 | 0.3125 | 1.2500 | 2.0313 | 1.8750 | 0.3125 | 24 | 952-002-021 | 952-002-024 | 952-002-023 | 952-002-022 |
| 6.0000 | 0.3125 | 1.5000 | 1.8438 | 2.2500 | 0.3125 | 28 | 952-002-025 | 952-002-028 | 952-002-027 | 952-002-026 |
| 6.0000 | 0.3438 | 1.0000 | 2.1563 | 1.6250 | 0.3438 | 24 | 952-002-169 | 952-002-172 | 952-002-171 | 952-002-170 |
| 6.0000 | 0.3438 | 1.2500 | 2.0313 | 1.8750 | 0.3438 | 24 | 952-002-173 | 952-002-176 | 952-002-175 | 952-002-174 |
| 6.0000 | 0.3438 | 1.5000 | 1.8438 | 2.2500 | 0.3438 | 28 | 952-002-177 | 952-002-180 | 952-002-179 | 952-002-178 |
| 6.0000 | 0.3750 | 1.0000 | 2.1563 | 1.6250 | 0.3750 | 24 | 952-002-029 | 952-002-032 | 952-002-031 | 952-002-030 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 24 | 952-002-033 | 952-002-036 | 952-002-035 | 952-002-034 |
| 6.0000 | 0.3750 | 1.5000 | 1.8438 | 2.2500 | 0.3750 | 28 | 952-002-037 | 952-002-040 | 952-002-039 | 952-002-038 |
| 6.0000 | 0.4063 | 1.0000 | 2.1563 | 1.6250 | 0.4063 | 24 | 952-002-181 | 952-002-184 | 952-002-183 | 952-002-182 |
| 6.0000 | 0.4063 | 1.2500 | 2.0313 | 1.8750 | 0.4063 | 24 | 952-002-185 | 952-002-188 | 952-002-187 | 952-002-186 |
| 6.0000 | 0.4063 | 1.5000 | 1.8438 | 2.2500 | 0.4063 | 28 | 952-002-189 | 952-002-192 | 952-002-191 | 952-002-190 |
| 6.0000 | 0.4375 | 1.0000 | 2.1563 | 1.6250 | 0.4375 | 24 | 952-002-041 | 952-002-044 | 952-002-043 | 952-002-042 |
| 6.0000 | 0.4375 | 1.2500 | 2.0313 | 1.8750 | 0.4375 | 24 | 952-002-045 | 952-002-048 | 952-002-047 | 952-002-046 |
| 6.0000 | 0.4375 | 1.5000 | 1.8438 | 2.2500 | 0.4375 | 28 | 952-002-049 | 952-002-052 | 952-002-051 | 952-002-050 |
| 6.0000 | 0.4688 | 1.0000 | 2.1563 | 1.6250 | 0.4688 | 24 | 952-002-193 | 952-002-196 | 952-002-195 | 952-002-194 |
| 6.0000 | 0.4688 | 1.2500 | 2.0313 | 1.8750 | 0.4688 | 24 | 952-002-197 | 952-002-200 | 952-002-199 | 952-002-198 |
| 6.0000 | 0.4688 | 1.5000 | 1.8438 | 2.2500 | 0.4688 | 28 | 952-002-201 | 952-002-204 | 952-002-203 | 952-002-202 |
| 6.0000 | 0.5000 | 1.0000 | 2.1563 | 1.6250 | 0.5000 | 24 | 952-002-053 | 952-002-056 | 952-002-055 | 952-002-054 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 24 | 952-002-057 | 952-002-060 | 952-002-059 | 952-002-058 |
| 6.0000 | 0.5000 | 1.5000 | 1.8438 | 2.2500 | 0.5000 | 28 | 952-002-061 | 952-002-064 | 952-002-063 | 952-002-062 |
| 6.0000 | 0.5313 | 1.2500 | 2.0313 | 1.8750 | 0.5313 | 24 | 952-002-205 | 952-002-208 | 952-002-207 | 952-002-206 |
| 6.0000 | 0.5625 | 1.2500 | 2.0313 | 1.8750 | 0.5625 | 24 | 952-002-065 | 952-002-068 | 952-002-067 | 952-002-066 |
| 6.0000 | 0.5625 | 1.5000 | 1.8438 | 2.2500 | 0.5625 | 28 | 952-002-069 | 952-002-072 | 952-002-071 | 952-002-070 |
| 6.0000 | 0.6250 | 1.2500 | 2.0313 | 1.8750 | 0.6250 | 24 | 952-002-073 | 952-002-076 | 952-002-075 | 952-002-074 |
| 6.0000 | 0.6250 | 1.5000 | 1.8438 | 2.2500 | 0.6250 | 28 | 952-002-077 | 952-002-080 | 952-002-079 | 952-002-078 |
| 6.0000 | 0.6875 | 1.2500 | 2.0313 | 1.8750 | 0.6875 | 24 | 952-002-081 | 952-002-084 | 952-002-083 | 952-002-082 |
| 6.0000 | 0.6875 | 1.5000 | 1.8438 | 2.2500 | 0.6875 | 28 | 952-002-085 | 952-002-088 | 952-002-087 | 952-002-086 |
| 6.0000 | 0.7500 | 1.2500 | 2.0313 | 1.8750 | 0.7500 | 28 | 952-002-089 | 952-002-092 | 952-002-091 | 952-002-090 |
| 6.0000 | 0.7500 | 1.5000 | 1.8438 | 2.2500 | 0.7500 | 24 | 952-002-093 | 952-002-096 | 952-002-095 | 952-002-094 |
| 6.0000 | 0.8125 | 1.2500 | 2.0313 | 1.8750 | 0.8125 | 24 | 952-002-097 | 952-002-100 | 952-002-099 | 952-002-098 |
| 6.0000 | 0.8125 | 1.5000 | 1.8438 | 2.2500 | 0.8125 | 28 | 952-002-101 | 952-002-104 | 952-002-103 | 952-002-102 |
| 6.0000 | 0.8750 | 1.2500 | 2.0313 | 1.8750 | 0.8750 | 24 | 952-002-105 | 952-002-108 | 952-002-107 | 952-002-106 |
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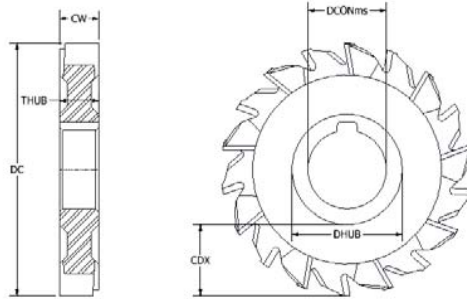
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 6.0000 | 0.9375 | 1.2500 | 2.0313 | 1.8750 | 0.9375 | 24 | 952-002-113 | 952-002-116 | 952-002-115 | 952-002-114 |
| 6.0000 | 0.9375 | 1.5000 | 1.8438 | 2.2500 | 0.9375 | 28 | 952-002-117 | 952-002-120 | 952-002-119 | 952-002-118 |
| 6.0000 | 1.0000 | 1.2500 | 2.0313 | 1.8750 | 1.0000 | 24 | 952-002-121 | 952-002-124 | 952-002-123 | 952-002-122 |
| 6.0000 | 1.0000 | 1.5000 | 1.8438 | 2.2500 | 1.0000 | 28 | 952-002-125 | 952-002-128 | 952-002-127 | 952-002-126 |
| 6.0000 | 1.2500 | 1.0625 | 2.0313 | 1.8750 | 1.0625 | 24 | 952-002-129 | 952-002-132 | 952-002-131 | 952-002-130 |
| 6.0000 | 1.1250 | 1.2500 | 2.0313 | 1.8750 | 1.1250 | 24 | 952-002-133 | 952-002-136 | 952-002-135 | 952-002-134 |
| 6.0000 | 1.1875 | 1.2500 | 2.0313 | 1.8750 | 1.1875 | 24 | 952-002-137 | 952-002-140 | 952-002-139 | 952-002-138 |
| 6.0000 | 1.2500 | 1.2500 | 2.0313 | 1.8750 | 1.2500 | 24 | 952-002-141 | 952-002-144 | 952-002-143 | 952-002-142 |
| 7.0000 | 0.2500 | 1.2500 | 2.5313 | 1.8750 | 0.2500 | 24 | 952-002-209 | 952-002-212 | 952-002-211 | 952-002-210 |
| 7.0000 | 0.2500 | 1.5000 | 2.3438 | 2.2500 | 0.2500 | 28 | 952-002-213 | 952-002-216 | 952-002-215 | 952-002-214 |
| 7.0000 | 0.3125 | 1.2500 | 2.5313 | 1.8750 | 0.3125 | 24 | 952-002-217 | 952-002-220 | 952-002-219 | 952-002-218 |
| 7.0000 | 0.3125 | 1.5000 | 2.3438 | 2.2500 | 0.3125 | 28 | 952-002-221 | 952-002-224 | 952-002-223 | 952-002-222 |
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| 7.0000 | 0.3750 | 1.5000 | 2.3438 | 2.2500 | 0.3750 | 28 | 952-002-229 | 952-002-232 | 952-002-231 | 952-002-230 |
| 7.0000 | 0.4375 | 1.2500 | 2.5313 | 1.8750 | 0.4375 | 24 | 952-002-233 | 952-002-236 | 952-002-235 | 952-002-234 |
| 7.0000 | 0.4375 | 1.5000 | 2.3438 | 2.2500 | 0.4375 | 28 | 952-002-237 | 952-002-240 | 952-002-239 | 952-002-238 |
| 7.0000 | 0.5000 | 1.2500 | 2.5313 | 1.8750 | 0.5000 | 24 | 952-002-241 | 952-002-244 | 952-002-243 | 952-002-242 |
| 7.0000 | 0.5000 | 1.5000 | 2.3438 | 2.2500 | 0.5000 | 28 | 952-002-245 | 952-002-248 | 952-002-247 | 952-002-246 |
| 7.0000 | 0.5625 | 1.2500 | 2.5313 | 1.8750 | 0.5625 | 24 | 952-002-249 | 952-002-252 | 952-002-251 | 952-002-250 |
| 7.0000 | 0.5625 | 1.5000 | 2.3438 | 2.2500 | 0.5625 | 28 | 952-002-253 | 952-002-256 | 952-002-255 | 952-002-254 |
| 7.0000 | 0.6250 | 1.2500 | 2.5313 | 1.8750 | 0.6250 | 24 | 952-002-257 | 952-002-260 | 952-002-259 | 952-002-258 |
| 7.0000 | 0.6250 | 1.5000 | 2.3438 | 2.2500 | 0.6250 | 28 | 952-002-261 | 952-002-264 | 952-002-263 | 952-002-262 |
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| 7.0000 | 0.6875 | 1.5000 | 2.3438 | 2.2500 | 0.6875 | 28 | 952-002-269 | 952-002-272 | 952-002-271 | 952-002-270 |
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| 7.0000 | 0.8750 | 1.2500 | 2.5313 | 1.8750 | 0.8750 | 24 | 952-002-289 | 952-002-292 | 952-002-291 | 952-002-290 |
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| 7.0000 | 0.9375 | 1.5000 | 2.3438 | 2.2500 | 0.9375 | 28 | 952-002-301 | 952-002-304 | 952-002-303 | 952-002-302 |
| 7.0000 | 1.0000 | 1.2500 | 2.5313 | 1.8750 | 1.0000 | 24 | 952-002-305 | 952-002-308 | 952-002-307 | 952-002-306 |
| 7.0000 | 1.0000 | 1.5000 | 2.3438 | 2.2500 | 1.0000 | 28 | 952-002-309 | 952-002-312 | 952-002-311 | 952-002-310 |
| 8.0000 | 0.1875 | 1.2500 | 3.0313 | 1.8750 | 0.1875 | 28 | 952-002-313 | 952-002-316 | 952-002-315 | 952-002-314 |
| 8.0000 | 0.1875 | 1.5000 | 2.7188 | 2.5000 | 0.1875 | 28 | 952-002-317 | 952-002-320 | 952-002-319 | 952-002-318 |
| 8.0000 | 0.2188 | 1.2500 | 3.0313 | 1.8750 | 0.2188 | 28 | 952-002-425 | 952-002-428 | 952-002-427 | 952-002-426 |
| 8.0000 | 0.2188 | 1.5000 | 2.7188 | 2.5000 | 0.2188 | 28 | 952-002-429 | 952-002-432 | 952-002-431 | 952-002-430 |
| 8.0000 | 0.2500 | 1.2500 | 3.0313 | 1.8750 | 0.2500 | 28 | 952-002-321 | 952-002-324 | 952-002-323 | 952-002-322 |
| 8.0000 | 0.2500 | 1.5000 | 2.7188 | 2.5000 | 0.2500 | 28 | 952-002-325 | 952-002-328 | 952-002-327 | 952-002-326 |
| 8.0000 | 0.2813 | 1.2500 | 3.0313 | 1.8750 | 0.2813 | 28 | 952-002-433 | 952-002-436 | 952-002-435 | 952-002-434 |
| 8.0000 | 0.2813 | 1.5000 | 2.7188 | 2.5000 | 0.2813 | 28 | 952-002-437 | 952-002-440 | 952-002-439 | 952-002-438 |
| 8.0000 | 0.3125 | 1.2500 | 3.0313 | 1.8750 | 0.3125 | 28 | 952-002-329 | 952-002-332 | 952-002-331 | 952-002-330 |
| 8.0000 | 0.3125 | 1.5000 | 2.7188 | 2.5000 | 0.3125 | 28 | 952-002-333 | 952-002-336 | 952-002-335 | 952-002-334 |
| 8.0000 | 0.3438 | 1.2500 | 3.0313 | 1.8750 | 0.3438 | 28 | 952-002-441 | 952-002-444 | 952-002-443 | 952-002-442 |
| 8.0000 | 0.3438 | 1.5000 | 2.7188 | 2.5000 | 0.3438 | 28 | 952-002-445 | 952-002-448 | 952-002-447 | 952-002-446 |
| 8.0000 | 0.3750 | 1.2500 | 3.0313 | 1.8750 | 0.3750 | 28 | 952-002-337 | 952-002-340 | 952-002-339 | 952-002-338 |

*Make To Order

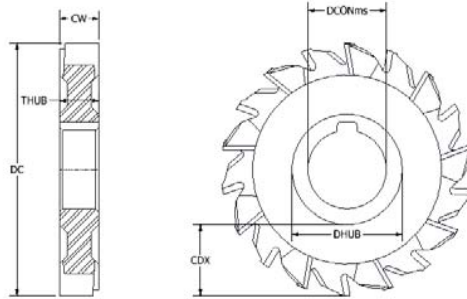


| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 8.0000 | 0.3750 | 1.5000 | 2.8438 | 2.2500 | 0.3750 | 28 | 952-002-341 | 952-002-344 | 952-002-343 | 952-002-342 |
| 8.0000 | 0.4063 | 1.2500 | 3.0313 | 1.8750 | 0.4063 | 28 | 952-002-449 | 952-002-452 | 952-002-451 | 952-002-450 |
| 8.0000 | 0.4063 | 1.5000 | 2.7188 | 2.5000 | 0.4063 | 28 | 952-002-453 | 952-002-456 | 952-002-455 | 952-002-454 |
| 8.0000 | 0.4375 | 1.2500 | 3.0313 | 1.8750 | 0.4375 | 28 | 952-002-345 | 952-002-348 | 952-002-347 | 952-002-346 |
| 8.0000 | 0.4375 | 1.5000 | 2.8438 | 2.2500 | 0.4375 | 28 | 952-002-349 | 952-002-352 | 952-002-351 | 952-002-350 |
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| 8.0000 | 0.5000 | 1.5000 | 2.8438 | 2.2500 | 0.5000 | 28 | 952-002-357 | 952-002-360 | 952-002-359 | 952-002-358 |
| 8.0000 | 0.5313 | 1.2500 | 3.0313 | 1.8750 | 0.5313 | 28 | 952-002-465 | 952-002-468 | 952-002-467 | 952-002-466 |
| 8.0000 | 0.5313 | 1.5000 | 2.7188 | 2.5000 | 0.5313 | 28 | 952-002-469 | 952-002-472 | 952-002-471 | 952-002-470 |
| 8.0000 | 0.5625 | 1.2500 | 3.0313 | 1.8750 | 0.5625 | 28 | 952-002-361 | 952-002-364 | 952-002-363 | 952-002-362 |
| 8.0000 | 0.5625 | 1.5000 | 2.7188 | 2.5000 | 0.5625 | 28 | 952-002-365 | 952-002-368 | 952-002-367 | 952-002-366 |
| 8.0000 | 0.5938 | 1.2500 | 3.0313 | 1.8750 | 0.5938 | 28 | 952-002-473 | 952-002-476 | 952-002-475 | 952-002-474 |
| 8.0000 | 0.5938 | 1.5000 | 2.7188 | 2.5000 | 0.5938 | 28 | 952-002-477 | 952-002-480 | 952-002-479 | 952-002-478 |
| 8.0000 | 0.6250 | 1.2500 | 3.0313 | 1.8750 | 0.6250 | 28 | 952-002-369 | 952-002-372 | 952-002-371 | 952-002-370 |
| 8.0000 | 0.6250 | 1.5000 | 2.8438 | 2.2500 | 0.6250 | 28 | 952-002-373 | 952-002-376 | 952-002-375 | 952-002-374 |
| 8.0000 | 0.6875 | 1.2500 | 3.0313 | 1.8750 | 0.6875 | 28 | 952-002-377 | 952-002-380 | 952-002-379 | 952-002-378 |
| 8.0000 | 0.6875 | 1.5000 | 2.7188 | 2.5000 | 0.6875 | 28 | 952-002-381 | 952-002-384 | 952-002-383 | 952-002-382 |
| 8.0000 | 0.7500 | 1.2500 | 3.0313 | 1.8750 | 0.7500 | 28 | 952-002-385 | 952-002-388 | 952-002-387 | 952-002-386 |
| 8.0000 | 0.7500 | 1.5000 | 2.8438 | 2.2500 | 0.7500 | 28 | 952-002-389 | 952-002-392 | 952-002-391 | 952-002-390 |
| 8.0000 | 0.8125 | 1.2500 | 3.0313 | 1.8750 | 0.8125 | 28 | 952-002-393 | 952-002-396 | 952-002-395 | 952-002-394 |
| 8.0000 | 0.8125 | 1.5000 | 2.8438 | 2.2500 | 0.8125 | 28 | 952-002-397 | 952-002-400 | 952-002-399 | 952-002-398 |
| 8.0000 | 0.8750 | 1.2500 | 3.0313 | 1.8750 | 0.8750 | 28 | 952-002-401 | 952-002-404 | 952-002-403 | 952-002-402 |
| 8.0000 | 0.8750 | 1.5000 | 2.8438 | 2.2500 | 0.8750 | 28 | 952-002-405 | 952-002-408 | 952-002-407 | 952-002-406 |
| 8.0000 | 0.9375 | 1.2500 | 3.0313 | 1.8750 | 0.9375 | 28 | 952-002-409 | 952-002-412 | 952-002-411 | 952-002-410 |
| 8.0000 | 0.9375 | 1.5000 | 2.8438 | 2.2500 | 0.9375 | 28 | 952-002-413 | 952-002-416 | 952-002-415 | 952-002-414 |
| 8.0000 | 1.0000 | 1.2500 | 3.0313 | 1.8750 | 1.0000 | 28 | 952-002-417 | 952-002-420 | 952-002-419 | 952-002-418 |
| 8.0000 | 1.0000 | 1.5000 | 2.8438 | 2.2500 | 1.0000 | 28 | 952-002-421 | 952-002-424 | 952-002-423 | 952-002-422 |
| 9.0000 | 0.2500 | 1.2500 | 3.2188 | 2.5000 | 0.2500 | 28 | 952-002-481 | 952-002-484 | 952-002-483 | 952-002-482 |
| 9.0000 | 0.2500 | 1.5000 | 3.2188 | 2.5000 | 0.2500 | 28 | 952-002-485 | 952-002-488 | 952-002-487 | 952-002-486 |
| 9.0000 | 0.3125 | 1.2500 | 3.2188 | 2.5000 | 0.3125 | 28 | 952-002-489 | 952-002-492 | 952-002-491 | 952-002-490 |
| 9.0000 | 0.3125 | 1.5000 | 3.2188 | 2.5000 | 0.3125 | 28 | 952-002-493 | 952-002-496 | 952-002-495 | 952-002-494 |
| 9.0000 | 0.3750 | 1.2500 | 3.2188 | 2.5000 | 0.3750 | 28 | 952-002-497 | 952-002-500 | 952-002-499 | 952-002-498 |
| 9.0000 | 0.3750 | 1.5000 | 3.2188 | 2.5000 | 0.3750 | 28 | 952-002-501 | 952-002-504 | 952-002-503 | 952-002-502 |
| 9.0000 | 0.4375 | 1.2500 | 3.2188 | 2.5000 | 0.4375 | 28 | 952-002-505 | 952-002-508 | 952-002-507 | 952-002-506 |
| 9.0000 | 0.4375 | 1.5000 | 3.2188 | 2.5000 | 0.4375 | 28 | 952-002-509 | 952-002-512 | 952-002-511 | 952-002-510 |
| 9.0000 | 0.5000 | 1.2500 | 3.2188 | 2.5000 | 0.5000 | 28 | 952-002-513 | 952-002-516 | 952-002-515 | 952-002-514 |
| 9.0000 | 0.5000 | 1.5000 | 3.2188 | 2.5000 | 0.5000 | 28 | 952-002-517 | 952-002-520 | 952-002-519 | 952-002-518 |

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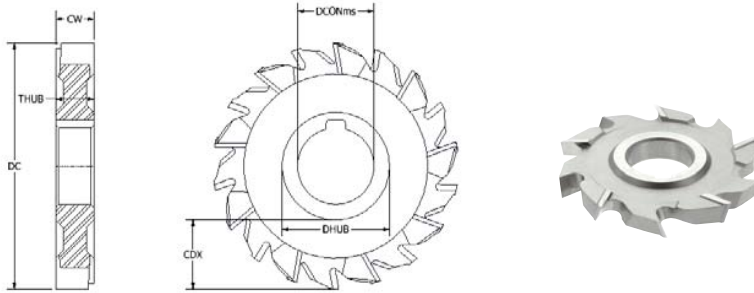


| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|---------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 9.0000 | 0.5625 | 1.2500 | 3.2188 | 2.5000 | 0.5625 | 28 | 952-002-521 | 952-002-524 | 952-002-523 | 952-002-522 |
| 9.0000 | 0.5625 | 1.5000 | 3.2188 | 2.5000 | 0.5625 | 28 | 952-002-525 | 952-002-528 | 952-002-527 | 952-002-526 |
| 9.0000 | 0.6250 | 1.2500 | 3.2188 | 2.5000 | 0.6250 | 28 | 952-002-529 | 952-002-532 | 952-002-531 | 952-002-530 |
| 9.0000 | 0.6250 | 1.5000 | 3.2188 | 2.5000 | 0.6250 | 28 | 952-002-533 | 952-002-536 | 952-002-535 | 952-002-534 |
| 9.0000 | 0.6875 | 1.2500 | 3.2188 | 2.5000 | 0.6875 | 28 | 952-002-537 | 952-002-540 | 952-002-539 | 952-002-538 |
| 9.0000 | 0.6875 | 1.5000 | 3.2188 | 2.5000 | 0.6875 | 28 | 952-002-541 | 952-002-544 | 952-002-543 | 952-002-542 |
| 9.0000 | 0.7500 | 1.2500 | 3.2188 | 2.5000 | 0.7500 | 28 | 952-002-545 | 952-002-548 | 952-002-547 | 952-002-546 |
| 9.0000 | 0.7500 | 1.5000 | 3.2188 | 2.5000 | 0.7500 | 28 | 952-002-549 | 952-002-552 | 952-002-551 | 952-002-550 |
| 9.0000 | 0.8125 | 1.2500 | 3.2188 | 2.5000 | 0.8125 | 28 | 952-002-553 | 952-002-556 | 952-002-555 | 952-002-554 |
| 9.0000 | 0.8125 | 1.5000 | 3.2188 | 2.5000 | 0.8125 | 28 | 952-002-557 | 952-002-560 | 952-002-559 | 952-002-558 |
| 9.0000 | 0.8750 | 1.2500 | 3.2188 | 2.5000 | 0.8750 | 28 | 952-002-561 | 952-002-564 | 952-002-563 | 952-002-562 |
| 9.0000 | 0.8750 | 1.5000 | 3.2188 | 2.5000 | 0.8750 | 28 | 952-002-565 | 952-002-568 | 952-002-567 | 952-002-566 |
| 9.0000 | 0.9375 | 1.2500 | 3.2188 | 2.5000 | 0.9375 | 28 | 952-002-569 | 952-002-572 | 952-002-571 | 952-002-570 |
| 9.0000 | 0.9375 | 1.5000 | 3.2188 | 2.5000 | 0.9375 | 28 | 952-002-573 | 952-002-576 | 952-002-575 | 952-002-574 |
| 9.0000 | 1.0000 | 1.2500 | 3.2188 | 2.5000 | 1.0000 | 28 | 952-002-577 | 952-002-580 | 952-002-579 | 952-002-578 |
| 9.0000 | 1.0000 | 1.5000 | 3.2188 | 2.5000 | 1.0000 | 28 | 952-002-581 | 952-002-584 | 952-002-583 | 952-002-582 |
| 10.0000 | 0.1875 | 1.5000 | 3.8438 | 2.2500 | 0.1875 | 32 | 952-001-157 | 952-001-160 | 952-001-159 | 952-001-158 |
| 10.0000 | 0.2188 | 1.5000 | 3.3438 | 3.2500 | 0.2188 | 32 | 952-001-213 | 952-001-216 | 952-001-163 | 952-001-214 |
| 10.0000 | 0.2500 | 1.5000 | 3.8438 | 2.2500 | 0.2500 | 32 | 952-001-161 | 952-001-164 | 952-001-215 | 952-001-162 |
| 10.0000 | 0.2813 | 1.5000 | 3.3438 | 3.2500 | 0.2813 | 32 | 952-001-217 | 952-001-220 | 952-001-219 | 952-001-218 |
| 10.0000 | 0.3125 | 1.5000 | 3.8438 | 2.2500 | 0.3125 | 32 | 952-001-165 | 952-001-168 | 952-001-167 | 952-001-166 |
| 10.0000 | 0.3438 | 1.5000 | 3.3438 | 3.2500 | 0.3438 | 32 | 952-001-221 | 952-001-224 | 952-001-223 | 952-001-222 |
| 10.0000 | 0.3750 | 1.5000 | 3.8438 | 2.2500 | 0.3750 | 32 | 952-001-169 | 952-001-172 | 952-001-171 | 952-001-170 |
| 10.0000 | 0.4063 | 1.5000 | 3.3438 | 3.2500 | 0.4063 | 32 | 952-001-225 | 952-001-228 | 952-001-227 | 952-001-226 |
| 10.0000 | 0.4375 | 1.5000 | 3.8438 | 2.2500 | 0.4375 | 32 | 952-001-173 | 952-001-176 | 952-001-175 | 952-001-174 |
| 10.0000 | 0.4688 | 1.5000 | 3.3438 | 3.2500 | 0.4688 | 32 | 952-001-229 | 952-001-232 | 952-001-231 | 952-001-230 |
| 10.0000 | 0.5000 | 1.5000 | 3.8438 | 2.2500 | 0.5000 | 32 | 952-001-177 | 952-001-180 | 952-001-179 | 952-001-178 |
| 10.0000 | 0.5313 | 1.5000 | 3.3438 | 3.2500 | 0.5313 | 32 | 952-001-233 | 952-001-236 | 952-001-235 | 952-001-234 |
| 10.0000 | 0.5625 | 1.5000 | 3.8438 | 2.2500 | 0.5625 | 32 | 952-001-181 | 952-001-184 | 952-001-183 | 952-001-182 |
| 10.0000 | 0.6250 | 1.5000 | 3.8438 | 2.2500 | 0.6250 | 32 | 952-001-185 | 952-001-188 | 952-001-187 | 952-001-186 |
| 10.0000 | 0.6875 | 1.5000 | 3.8438 | 2.2500 | 0.6875 | 32 | 952-001-189 | 952-001-192 | 952-001-191 | 952-001-190 |
| 10.0000 | 0.7500 | 1.5000 | 3.8438 | 2.2500 | 0.7500 | 32 | 952-001-193 | 952-001-196 | 952-001-195 | 952-001-194 |
| 10.0000 | 0.8125 | 1.5000 | 3.8438 | 2.2500 | 0.8125 | 32 | 952-001-197 | 952-001-200 | 952-001-199 | 952-001-198 |
| 10.0000 | 0.8750 | 1.5000 | 3.8438 | 2.2500 | 0.8750 | 32 | 952-001-201 | 952-001-204 | 952-001-203 | 952-001-202 |
| 10.0000 | 0.9375 | 1.5000 | 3.8438 | 2.2500 | 0.9375 | 32 | 952-001-205 | 952-001-208 | 952-001-207 | 952-001-206 |
| 10.0000 | 1.0000 | 1.5000 | 3.8438 | 2.2500 | 1.0000 | 32 | 952-001-209 | 952-001-212 | 952-001-211 | 952-001-210 |

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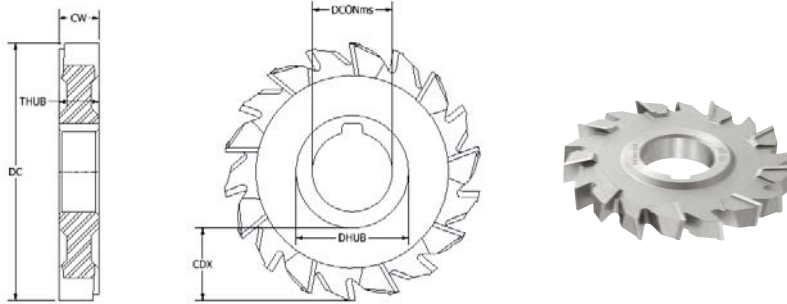
A Style

- Coarse Pitch Design
- Ground Flutes
- Flutes ground on 20° helix with 15° radial rake
- Refer to page 513 for interlocking set information



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 4.0000 | 0.2188 | 1.2500 | 1.0938 | 1.7500 | 0.2188 | 10 | 952-000-041 | 952-000-044 | 952-000-043 | 952-000-042 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 10 | 952-000-001 | 952-000-004 | 952-000-003 | 952-000-002 |
| 4.0000 | 0.2813 | 1.2500 | 1.0938 | 1.7500 | 0.2813 | 10 | 952-000-045 | 952-000-048 | 952-000-047 | 952-000-046 |
| 4.0000 | 0.3125 | 1.2500 | 1.0938 | 1.7500 | 0.3125 | 10 | 952-000-005 | 952-000-008 | 952-000-007 | 952-000-006 |
| 4.0000 | 0.3438 | 1.2500 | 1.0938 | 1.7500 | 0.3438 | 10 | 952-000-049 | 952-000-052 | 952-000-051 | 952-000-050 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 10 | 952-000-009 | 952-000-012 | 952-000-014 | 952-000-010 |
| 4.0000 | 0.4375 | 1.2500 | 1.0938 | 1.7500 | 0.4375 | 10 | 952-000-013 | 952-000-016 | 952-000-018 | 952-000-014 |
| 4.0000 | 0.5000 | 1.2500 | 1.0938 | 1.7500 | 0.5000 | 10 | 952-000-017 | 952-000-020 | 952-000-019 | 952-000-018 |
| 4.0000 | 0.5625 | 1.2500 | 1.0938 | 1.7500 | 0.5625 | 10 | 952-000-021 | 952-000-024 | 952-000-023 | 952-000-022 |
| 4.0000 | 0.6250 | 1.2500 | 1.0938 | 1.7500 | 0.6250 | 10 | 952-000-025 | 952-000-028 | 952-000-027 | 952-000-026 |
| 4.0000 | 0.6875 | 1.2500 | 1.0938 | 1.7500 | 0.6875 | 10 | 952-000-029 | 952-000-032 | 952-000-031 | 952-000-030 |
| 4.0000 | 0.7500 | 1.2500 | 1.0938 | 1.7500 | 0.7500 | 10 | 952-000-033 | 952-000-036 | 952-000-035 | 952-000-034 |
| 4.0000 | 1.0000 | 1.2500 | 1.0938 | 1.7500 | 1.0000 | 10 | 952-000-037 | 952-000-040 | 952-000-039 | 952-000-038 |
| 6.0000 | 0.2188 | 1.2500 | 2.0313 | 1.8750 | 0.2188 | 16 | 952-000-093 | 952-000-096 | 952-000-095 | 952-000-094 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 16 | 952-000-053 | 952-000-056 | 952-000-055 | 952-000-054 |
| 6.0000 | 0.2813 | 1.2500 | 2.0313 | 1.8750 | 0.2813 | 16 | 952-000-097 | 952-000-100 | 952-000-099 | 952-000-098 |
| 6.0000 | 0.3125 | 1.2500 | 2.0313 | 1.8750 | 0.3125 | 16 | 952-000-057 | 952-000-060 | 952-000-059 | 952-000-058 |
| 6.0000 | 0.3438 | 1.2500 | 2.0313 | 1.8750 | 0.3438 | 16 | 952-000-101 | 952-000-104 | 952-000-103 | 952-000-102 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 16 | 952-000-061 | 952-000-064 | 952-000-063 | 952-000-062 |
| 6.0000 | 0.4375 | 1.2500 | 2.0313 | 1.8750 | 0.4375 | 16 | 952-000-065 | 952-000-068 | 952-000-067 | 952-000-066 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 16 | 952-000-069 | 952-000-072 | 952-000-071 | 952-000-070 |
| 6.0000 | 0.5625 | 1.2500 | 2.0313 | 1.8750 | 0.5625 | 16 | 952-000-073 | 952-000-076 | 952-000-075 | 952-000-074 |
| 6.0000 | 0.6250 | 1.2500 | 2.0313 | 1.8750 | 0.6250 | 16 | 952-000-077 | 952-000-080 | 952-000-079 | 952-000-078 |
| 6.0000 | 0.6875 | 1.2500 | 2.0313 | 1.8750 | 0.6875 | 16 | 952-000-081 | 952-000-084 | 952-000-083 | 952-000-082 |
| 6.0000 | 0.7500 | 1.2500 | 2.0313 | 1.8750 | 0.7500 | 16 | 952-000-085 | 952-000-088 | 952-000-087 | 952-000-086 |
| 6.0000 | 1.0000 | 1.2500 | 2.0313 | 1.8750 | 1.0000 | 16 | 952-000-089 | 952-000-092 | 952-000-091 | 952-000-090 |
| 8.0000 | 0.3750 | 1.2500 | 2.7188 | 2.5000 | 0.3750 | 20 | 952-000-105 | 952-000-108 | 952-000-107 | 952-000-106 |
| 8.0000 | 0.5000 | 1.2500 | 2.7188 | 2.5000 | 0.5000 | 20 | 952-000-109 | 952-000-112 | 952-000-111 | 952-000-110 |
| 8.0000 | 0.7500 | 1.2500 | 2.7188 | 2.5000 | 0.7500 | 20 | 952-000-113 | 952-000-116 | 952-000-115 | 952-000-114 |

*Make To Order



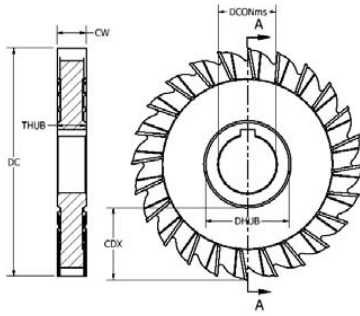
WK Style

- Excellent for Milling Keys
- Reduced Side Clearance to Maintain Width
- Diameters Furnished 1/32" Oversized for Resharpener
- Refer to page 513 for interlocking set information



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.1563 | 0.1875 | 0.7500 | 0.5469 | 1.0000 | 0.1875 | 14 | 952-002-637 | 952-002-640 | 952-002-639 | 952-002-638 |
| 2.1563 | 0.2500 | 0.7500 | 0.5469 | 1.0000 | 0.2500 | 14 | 952-002-641 | 952-002-644 | 952-002-643 | 952-002-642 |
| 2.1563 | 0.3125 | 0.7500 | 0.5469 | 1.0000 | 0.3125 | 14 | 952-002-585 | 952-002-588 | 952-002-587 | 952-002-586 |
| 2.1563 | 0.3750 | 0.7500 | 0.5469 | 1.0000 | 0.3750 | 14 | 952-002-593 | 952-002-596 | 952-002-595 | 952-002-594 |
| 2.7813 | 0.2500 | 1.0000 | 0.6404 | 1.4380 | 0.2500 | 16 | 952-002-645 | 952-002-648 | 952-002-647 | 952-002-646 |
| 2.7813 | 0.3125 | 1.0000 | 0.6404 | 1.4380 | 0.3125 | 16 | 952-002-589 | 952-002-592 | 952-002-591 | 952-002-590 |
| 2.7813 | 0.3750 | 1.0000 | 0.6404 | 1.4380 | 0.3750 | 16 | 952-002-597 | 952-002-600 | 952-002-599 | 952-002-598 |
| 2.7813 | 0.4375 | 1.0000 | 0.6404 | 1.4380 | 0.4375 | 16 | 952-002-605 | 952-002-608 | 952-002-607 | 952-002-606 |
| 2.7813 | 0.5000 | 1.0000 | 0.6404 | 1.4380 | 0.5000 | 16 | 952-002-613 | 952-002-616 | 952-002-615 | 952-002-614 |
| 3.5313 | 0.3750 | 1.0000 | 1.0154 | 1.4380 | 0.3750 | 18 | 952-002-601 | 952-002-604 | 952-002-603 | 952-002-602 |
| 3.5313 | 0.4375 | 1.0000 | 1.0154 | 1.4380 | 0.4375 | 18 | 952-002-609 | 952-002-612 | 952-002-611 | 952-002-610 |
| 3.5313 | 0.5000 | 1.0000 | 0.9844 | 1.5000 | 0.5000 | 18 | 952-002-617 | 952-002-620 | 952-002-619 | 952-002-618 |
| 3.5313 | 0.5625 | 1.0000 | 0.9844 | 1.5000 | 0.5625 | 18 | 952-002-621 | 952-002-624 | 952-002-623 | 952-002-622 |
| 3.5313 | 0.6250 | 1.0000 | 0.9844 | 1.5000 | 0.6250 | 18 | 952-002-625 | 952-002-628 | 952-002-627 | 952-002-626 |
| 3.5313 | 0.6875 | 1.0000 | 0.9844 | 1.5000 | 0.6875 | 18 | 952-002-629 | 952-002-632 | 952-002-631 | 952-002-630 |
| 3.5313 | 0.7500 | 1.0000 | 0.9844 | 1.5000 | 0.7500 | 18 | 952-002-633 | 952-002-636 | 952-002-635 | 952-002-634 |

*Make To Order



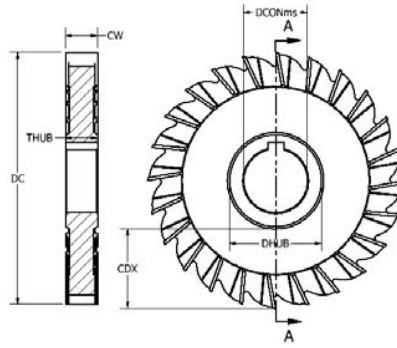
B Style

- Additional teeth for improved finish
- Excellent for thin walled parts, interrupted cuts or finish requirements



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.0000 | 0.1875 | 0.5000 | 0.4998 | 0.9380 | 0.1875 | 14 | 952-000-169 | 952-000-172 | 952-000-171 | 952-000-170 |
| 2.0000 | 0.1875 | 0.6250 | 0.4998 | 0.9380 | 0.1875 | 14 | 952-000-173 | 952-000-176 | 952-000-175 | 952-000-174 |
| 2.0000 | 0.2500 | 0.5000 | 0.4998 | 0.9380 | 0.2500 | 14 | 952-000-177 | 952-000-180 | 952-000-179 | 952-000-178 |
| 2.0000 | 0.2500 | 0.6250 | 0.4998 | 0.9380 | 0.2500 | 14 | 952-000-181 | 952-000-184 | 952-000-183 | 952-000-182 |
| 2.0000 | 0.3750 | 0.5000 | 0.4998 | 0.9380 | 0.3750 | 14 | 952-000-185 | 952-000-188 | 952-000-187 | 952-000-186 |
| 2.0000 | 0.3750 | 0.6250 | 0.4998 | 0.9380 | 0.3750 | 14 | 952-000-189 | 952-000-192 | 952-000-191 | 952-000-190 |
| 2.5000 | 0.2500 | 0.8750 | 0.6248 | 1.1880 | 0.2500 | 16 | 952-000-193 | 952-000-196 | 952-000-195 | 952-000-194 |
| 2.5000 | 0.3125 | 0.8750 | 0.6248 | 1.1880 | 0.3125 | 16 | 952-000-197 | 952-000-200 | 952-000-199 | 952-000-198 |
| 2.5000 | 0.3750 | 0.8750 | 0.6248 | 1.1880 | 0.3750 | 16 | 952-000-201 | 952-000-204 | 952-000-203 | 952-000-202 |
| 2.5000 | 0.5000 | 1.0000 | 0.6248 | 1.1880 | 0.5000 | 16 | 952-000-205 | 952-000-208 | 952-000-207 | 952-000-206 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 20 | 952-000-209 | 952-000-212 | 952-000-211 | 952-000-210 |
| 3.0000 | 0.2188 | 1.0000 | 0.7188 | 1.5000 | 0.2188 | 20 | 952-000-265 | 952-000-268 | 952-000-267 | 952-000-266 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 20 | 952-000-213 | 952-000-216 | 952-000-215 | 952-000-214 |
| 3.0000 | 0.2813 | 1.0000 | 0.7188 | 1.5000 | 0.2813 | 20 | 952-000-269 | 952-000-272 | 952-000-271 | 952-000-270 |
| 3.0000 | 0.3125 | 1.0000 | 0.7188 | 1.5000 | 0.3125 | 20 | 952-000-217 | 952-000-220 | 952-000-219 | 952-000-218 |
| 3.0000 | 0.3438 | 1.0000 | 0.7188 | 1.5000 | 0.3438 | 20 | 952-000-273 | 952-000-276 | 952-000-275 | 952-000-274 |
| 3.0000 | 0.3750 | 1.0000 | 0.7188 | 1.5000 | 0.3750 | 20 | 952-000-221 | 952-000-224 | 952-000-223 | 952-000-222 |
| 3.0000 | 0.4063 | 1.0000 | 0.7188 | 1.5000 | 0.4063 | 20 | 952-000-277 | 952-000-280 | 952-000-279 | 952-000-278 |
| 3.0000 | 0.4375 | 1.0000 | 0.7188 | 1.5000 | 0.4375 | 20 | 952-000-225 | 952-000-228 | 952-000-227 | 952-000-226 |
| 3.0000 | 0.5000 | 1.0000 | 0.7188 | 1.5000 | 0.5000 | 20 | 952-000-229 | 952-000-232 | 952-000-231 | 952-000-230 |
| 3.0000 | 0.5625 | 1.0000 | 0.7188 | 1.5000 | 0.5625 | 20 | 952-000-233 | 952-000-236 | 952-000-235 | 952-000-234 |
| 3.0000 | 0.6250 | 1.0000 | 0.7188 | 1.5000 | 0.6250 | 20 | 952-000-237 | 952-000-240 | 952-000-239 | 952-000-238 |
| 3.0000 | 0.6875 | 1.0000 | 0.7188 | 1.5000 | 0.6875 | 20 | 952-000-241 | 952-000-244 | 952-000-243 | 952-000-242 |
| 3.0000 | 0.7500 | 1.0000 | 0.7188 | 1.5000 | 0.7500 | 20 | 952-000-245 | 952-000-248 | 952-000-247 | 952-000-246 |
| 3.0000 | 0.8125 | 1.0000 | 0.7188 | 1.5000 | 0.8125 | 24 | 952-000-249 | 952-000-252 | 952-000-251 | 952-000-250 |
| 3.0000 | 0.8750 | 1.0000 | 0.7188 | 1.5000 | 0.8750 | 24 | 952-000-253 | 952-000-256 | 952-000-255 | 952-000-254 |
| 3.0000 | 0.9375 | 1.0000 | 0.7188 | 1.5000 | 0.9375 | 24 | 952-000-257 | 952-000-260 | 952-000-259 | 952-000-258 |
| 3.0000 | 1.0000 | 1.0000 | 0.7188 | 1.5000 | 1.0000 | 24 | 952-000-261 | 952-000-264 | 952-000-263 | 952-000-262 |
| 4.0000 | 0.2188 | 1.0000 | 1.1563 | 1.6250 | 0.2188 | 24 | 952-000-385 | 952-000-388 | 952-000-387 | 952-000-386 |
| 4.0000 | 0.2188 | 1.2500 | 1.0938 | 1.7500 | 0.2188 | 24 | 952-000-389 | 952-000-392 | 952-000-391 | 952-000-390 |
| 4.0000 | 0.2500 | 1.0000 | 1.1563 | 1.6250 | 0.2500 | 24 | 952-000-281 | 952-000-284 | 952-000-283 | 952-000-282 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 24 | 952-000-285 | 952-000-288 | 952-000-287 | 952-000-286 |
| 4.0000 | 0.2813 | 1.0000 | 1.1563 | 1.6250 | 0.2813 | 24 | 952-000-393 | 952-000-396 | 952-000-395 | 952-000-394 |
| 4.0000 | 0.2813 | 1.2500 | 1.0938 | 1.7500 | 0.2813 | 24 | 952-000-397 | 952-000-400 | 952-000-399 | 952-000-398 |
| 4.0000 | 0.3125 | 1.0000 | 1.1563 | 1.6250 | 0.3125 | 24 | 952-000-289 | 952-000-292 | 952-000-291 | 952-000-290 |
| 4.0000 | 0.3125 | 1.2500 | 1.0938 | 1.7500 | 0.3125 | 24 | 952-000-293 | 952-000-296 | 952-000-295 | 952-000-294 |
| 4.0000 | 0.3438 | 1.0000 | 1.1563 | 1.6250 | 0.3438 | 24 | 952-000-401 | 952-000-404 | 952-000-403 | 952-000-402 |
| 4.0000 | 0.3438 | 1.2500 | 1.0938 | 1.7500 | 0.3438 | 24 | 952-000-405 | 952-000-408 | 952-000-407 | 952-000-406 |
| 4.0000 | 0.3750 | 1.0000 | 1.1563 | 1.6250 | 0.3750 | 24 | 952-000-297 | 952-000-300 | 952-000-299 | 952-000-298 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 24 | 952-000-301 | 952-000-304 | 952-000-303 | 952-000-302 |
| 4.0000 | 0.4063 | 1.0000 | 1.1563 | 1.6250 | 0.4063 | 24 | 952-000-409 | 952-000-412 | 952-000-411 | 952-000-410 |
| 4.0000 | 0.4063 | 1.2500 | 1.0938 | 1.7500 | 0.4063 | 24 | 952-000-413 | 952-000-416 | 952-000-415 | 952-000-414 |
| 4.0000 | 0.4375 | 1.0000 | 1.1563 | 1.6250 | 0.4375 | 24 | 952-000-305 | 952-000-308 | 952-000-307 | 952-000-306 |
| 4.0000 | 0.4375 | 1.2500 | 1.0938 | 1.7500 | 0.4375 | 24 | 952-000-309 | 952-000-312 | 952-000-311 | 952-000-310 |
| 4.0000 | 0.5000 | 1.0000 | 1.1563 | 1.6250 | 0.5000 | 24 | 952-000-313 | 952-000-316 | 952-000-315 | 952-000-314 |
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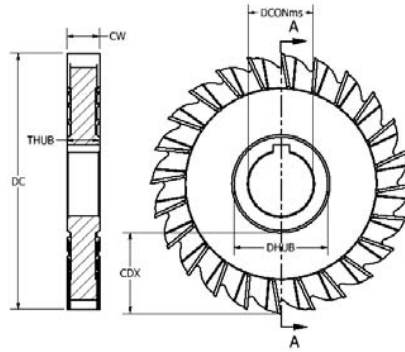
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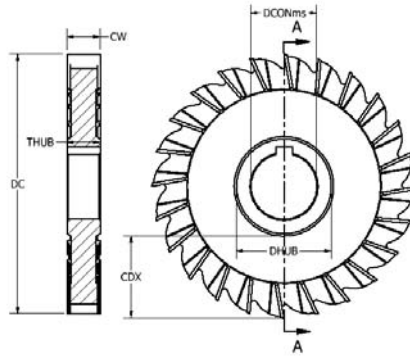
| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 4.0000 | 0.5625 | 1.0000 | 1.1563 | 1.6250 | 0.5625 | 24 | 952-000-321 | 952-000-324 | 952-000-323 | 952-000-322 |
| 4.0000 | 0.5625 | 1.2500 | 1.0938 | 1.7500 | 0.5625 | 24 | 952-000-325 | 952-000-328 | 952-000-327 | 952-000-326 |
| 4.0000 | 0.6250 | 1.0000 | 1.1563 | 1.6250 | 0.6250 | 24 | 952-000-329 | 952-000-332 | 952-000-331 | 952-000-330 |
| 4.0000 | 0.6250 | 1.2500 | 1.0938 | 1.7500 | 0.6250 | 24 | 952-000-333 | 952-000-336 | 952-000-335 | 952-000-334 |
| 4.0000 | 0.6875 | 1.0000 | 1.1563 | 1.6250 | 0.6875 | 24 | 952-000-337 | 952-000-340 | 952-000-339 | 952-000-338 |
| 4.0000 | 0.6875 | 1.2500 | 1.0938 | 1.7500 | 0.6875 | 24 | 952-000-341 | 952-000-344 | 952-000-343 | 952-000-342 |
| 4.0000 | 0.7500 | 1.0000 | 1.1563 | 1.6250 | 0.7500 | 24 | 952-000-345 | 952-000-348 | 952-000-347 | 952-000-346 |
| 4.0000 | 0.7500 | 1.2500 | 1.0938 | 1.7500 | 0.7500 | 24 | 952-000-349 | 952-000-352 | 952-000-351 | 952-000-350 |
| 4.0000 | 0.8125 | 1.0000 | 1.1563 | 1.6250 | 0.8125 | 24 | 952-000-353 | 952-000-356 | 952-000-355 | 952-000-354 |
| 4.0000 | 0.8125 | 1.2500 | 1.0938 | 1.7500 | 0.8125 | 24 | 952-000-357 | 952-000-360 | 952-000-359 | 952-000-358 |
| 4.0000 | 0.8750 | 1.0000 | 1.1563 | 1.6250 | 0.8750 | 24 | 952-000-361 | 952-000-364 | 952-000-363 | 952-000-362 |
| 4.0000 | 0.8750 | 1.2500 | 1.0938 | 1.7500 | 0.8750 | 24 | 952-000-365 | 952-000-368 | 952-000-367 | 952-000-366 |
| 4.0000 | 0.9375 | 1.0000 | 1.1563 | 1.6250 | 0.9375 | 24 | 952-000-369 | 952-000-372 | 952-000-371 | 952-000-370 |
| 4.0000 | 0.9375 | 1.2500 | 1.0938 | 1.7500 | 0.9375 | 24 | 952-000-373 | 952-000-376 | 952-000-375 | 952-000-374 |
| 4.0000 | 1.0000 | 1.0000 | 1.1563 | 1.6250 | 1.0000 | 24 | 952-000-377 | 952-000-380 | 952-000-379 | 952-000-378 |
| 4.0000 | 1.0000 | 1.2500 | 1.0938 | 1.7500 | 1.0000 | 24 | 952-000-381 | 952-000-384 | 952-000-383 | 952-000-382 |
| 5.0000 | 0.2500 | 1.0000 | 1.6563 | 1.6250 | 0.2500 | 26 | 952-000-417 | 952-000-420 | 952-000-419 | 952-000-418 |
| 5.0000 | 0.2500 | 1.2500 | 1.5313 | 1.8750 | 0.2500 | 26 | 952-000-421 | 952-000-424 | 952-000-423 | 952-000-422 |
| 5.0000 | 0.2813 | 1.0000 | 1.6563 | 1.6250 | 0.2813 | 26 | 952-000-521 | 952-000-524 | 952-000-523 | 952-000-522 |
| 5.0000 | 0.2813 | 1.2500 | 1.5313 | 1.8750 | 0.2813 | 26 | 952-000-525 | 952-000-528 | 952-000-527 | 952-000-526 |
| 5.0000 | 0.3125 | 1.0000 | 1.6563 | 1.6250 | 0.3125 | 26 | 952-000-425 | 952-000-428 | 952-000-427 | 952-000-426 |
| 5.0000 | 0.3125 | 1.2500 | 1.5313 | 1.8750 | 0.3125 | 26 | 952-000-429 | 952-000-432 | 952-000-431 | 952-000-430 |
| 5.0000 | 0.3438 | 1.0000 | 1.6563 | 1.6250 | 0.3438 | 26 | 952-000-529 | 952-000-532 | 952-000-531 | 952-000-530 |
| 5.0000 | 0.3438 | 1.2500 | 1.5313 | 1.8750 | 0.3438 | 26 | 952-000-533 | 952-000-536 | 952-000-535 | 952-000-534 |
| 5.0000 | 0.3750 | 1.0000 | 1.6563 | 1.6250 | 0.3750 | 26 | 952-000-433 | 952-000-436 | 952-000-435 | 952-000-434 |
| 5.0000 | 0.3750 | 1.2500 | 1.5313 | 1.8750 | 0.3750 | 26 | 952-000-437 | 952-000-440 | 952-000-439 | 952-000-438 |
| 5.0000 | 0.4063 | 1.0000 | 1.6563 | 1.6250 | 0.4063 | 26 | 952-000-537 | 952-000-540 | 952-000-539 | 952-000-538 |
| 5.0000 | 0.4063 | 1.2500 | 1.5313 | 1.8750 | 0.4063 | 26 | 952-000-541 | 952-000-544 | 952-000-543 | 952-000-542 |
| 5.0000 | 0.4375 | 1.0000 | 1.6563 | 1.6250 | 0.4375 | 26 | 952-000-441 | 952-000-444 | 952-000-443 | 952-000-442 |
| 5.0000 | 0.4375 | 1.2500 | 1.5313 | 1.8750 | 0.4375 | 26 | 952-000-445 | 952-000-448 | 952-000-447 | 952-000-446 |
| 5.0000 | 0.5000 | 1.0000 | 1.6563 | 1.6250 | 0.5000 | 26 | 952-000-449 | 952-000-452 | 952-000-451 | 952-000-450 |
| 5.0000 | 0.5000 | 1.2500 | 1.5313 | 1.8750 | 0.5000 | 26 | 952-000-453 | 952-000-456 | 952-000-455 | 952-000-454 |
| 5.0000 | 0.5625 | 1.0000 | 1.6563 | 1.6250 | 0.5625 | 26 | 952-000-457 | 952-000-460 | 952-000-459 | 952-000-458 |
| 5.0000 | 0.5625 | 1.2500 | 1.5313 | 1.8750 | 0.5625 | 26 | 952-000-461 | 952-000-464 | 952-000-463 | 952-000-462 |
| 5.0000 | 0.6250 | 1.0000 | 1.6563 | 1.6250 | 0.6250 | 26 | 952-000-465 | 952-000-468 | 952-000-467 | 952-000-466 |
| 5.0000 | 0.6250 | 1.2500 | 1.5313 | 1.8750 | 0.6250 | 26 | 952-000-469 | 952-000-472 | 952-000-471 | 952-000-470 |
| 5.0000 | 0.6875 | 1.0000 | 1.6563 | 1.6250 | 0.6875 | 26 | 952-000-473 | 952-000-476 | 952-000-475 | 952-000-474 |
| 5.0000 | 0.6875 | 1.2500 | 1.5313 | 1.8750 | 0.6875 | 26 | 952-000-477 | 952-000-480 | 952-000-479 | 952-000-478 |
| 5.0000 | 0.7500 | 1.0000 | 1.6563 | 1.6250 | 0.7500 | 26 | 952-000-481 | 952-000-484 | 952-000-483 | 952-000-482 |

*Make To Order



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 5.0000 | 0.7500 | 1.2500 | 1.5313 | 1.8750 | 0.7500 | 26 | 952-000-485 | 952-000-488 | 952-000-487 | 952-000-486 |
| 5.0000 | 0.8125 | 1.0000 | 1.6563 | 1.6250 | 0.8125 | 26 | 952-000-489 | 952-000-492 | 952-000-491 | 952-000-490 |
| 5.0000 | 0.8125 | 1.2500 | 1.5313 | 1.8750 | 0.8125 | 26 | 952-000-493 | 952-000-496 | 952-000-495 | 952-000-494 |
| 5.0000 | 0.8750 | 1.0000 | 1.6563 | 1.6250 | 0.8750 | 26 | 952-000-497 | 952-000-500 | 952-000-499 | 952-000-498 |
| 5.0000 | 0.8750 | 1.2500 | 1.5313 | 1.8750 | 0.8750 | 26 | 952-000-501 | 952-000-504 | 952-000-503 | 952-000-502 |
| 5.0000 | 0.9375 | 1.0000 | 1.6563 | 1.6250 | 0.9375 | 26 | 952-000-505 | 952-000-508 | 952-000-507 | 952-000-506 |
| 5.0000 | 0.9375 | 1.2500 | 1.5313 | 1.8750 | 0.9375 | 26 | 952-000-509 | 952-000-512 | 952-000-511 | 952-000-510 |
| 5.0000 | 1.0000 | 1.0000 | 1.6563 | 1.6250 | 1.0000 | 26 | 952-000-513 | 952-000-516 | 952-000-515 | 952-000-514 |
| 5.0000 | 1.0000 | 1.2500 | 1.5313 | 1.8750 | 1.0000 | 26 | 952-000-517 | 952-000-520 | 952-000-519 | 952-000-518 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 26 | 952-000-545 | 952-000-548 | 952-000-547 | 952-000-546 |
| 6.0000 | 0.2813 | 1.2500 | 2.0313 | 1.8750 | 0.2813 | 30 | 952-000-605 | 952-000-608 | 952-000-607 | 952-000-606 |
| 6.0000 | 0.3125 | 1.2500 | 2.0313 | 1.8750 | 0.3125 | 30 | 952-000-549 | 952-000-552 | 952-000-551 | 952-000-550 |
| 6.0000 | 0.3438 | 1.2500 | 2.0313 | 1.8750 | 0.3438 | 30 | 952-000-609 | 952-000-612 | 952-000-611 | 952-000-610 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 30 | 952-000-553 | 952-000-556 | 952-000-555 | 952-000-554 |
| 6.0000 | 0.4063 | 1.2500 | 2.0313 | 1.8750 | 0.4063 | 30 | 952-000-613 | 952-000-616 | 952-000-615 | 952-000-614 |
| 6.0000 | 0.4375 | 1.2500 | 2.0313 | 1.8750 | 0.4375 | 30 | 952-000-557 | 952-000-560 | 952-000-559 | 952-000-558 |
| 6.0000 | 0.5000 | 1.0000 | 2.1563 | 1.6250 | 0.5000 | 30 | 952-000-561 | 952-000-564 | 952-000-563 | 952-000-562 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 30 | 952-000-565 | 952-000-568 | 952-000-567 | 952-000-566 |
| 6.0000 | 0.5625 | 1.2500 | 2.0313 | 1.8750 | 0.5625 | 30 | 952-000-569 | 952-000-572 | 952-000-571 | 952-000-570 |
| 6.0000 | 0.6250 | 1.2500 | 2.0313 | 1.8750 | 0.6250 | 30 | 952-000-573 | 952-000-576 | 952-000-575 | 952-000-574 |
| 6.0000 | 0.6875 | 1.2500 | 2.0313 | 1.8750 | 0.6875 | 30 | 952-000-577 | 952-000-580 | 952-000-579 | 952-000-578 |
| 6.0000 | 0.7500 | 1.0000 | 2.1563 | 1.6250 | 0.7500 | 30 | 952-000-581 | 952-000-584 | 952-000-583 | 952-000-582 |
| 6.0000 | 0.7500 | 1.2500 | 2.0313 | 1.8750 | 0.7500 | 30 | 952-000-585 | 952-000-588 | 952-000-587 | 952-000-586 |
| 6.0000 | 0.8125 | 1.2500 | 2.0313 | 1.8750 | 0.8125 | 30 | 952-000-589 | 952-000-592 | 952-000-591 | 952-000-590 |
| 6.0000 | 0.8750 | 1.2500 | 2.0313 | 1.8750 | 0.8750 | 30 | 952-000-593 | 952-000-596 | 952-000-595 | 952-000-594 |
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| 6.0000 | 1.0000 | 1.2500 | 2.0313 | 1.8750 | 1.0000 | 30 | 952-000-601 | 952-000-604 | 952-000-603 | 952-000-602 |
| 7.0000 | 0.2500 | 1.2500 | 2.5313 | 1.8750 | 0.2500 | 32 | 952-000-617 | 952-000-620 | 952-000-619 | 952-000-618 |
| 7.0000 | 0.3125 | 1.2500 | 2.5313 | 1.8750 | 0.3125 | 32 | 952-000-621 | 952-000-624 | 952-000-623 | 952-000-622 |
| 7.0000 | 0.3750 | 1.2500 | 2.5313 | 1.8750 | 0.3750 | 32 | 952-000-625 | 952-000-628 | 952-000-627 | 952-000-626 |
| 7.0000 | 0.4375 | 1.2500 | 2.5313 | 1.8750 | 0.4375 | 32 | 952-000-629 | 952-000-632 | 952-000-631 | 952-000-630 |
| 7.0000 | 0.5000 | 1.2500 | 2.5313 | 1.8750 | 0.5000 | 32 | 952-000-633 | 952-000-636 | 952-000-635 | 952-000-634 |
| 7.0000 | 0.5625 | 1.2500 | 2.5313 | 1.8750 | 0.5625 | 32 | 952-000-637 | 952-000-640 | 952-000-639 | 952-000-638 |
| 7.0000 | 0.6250 | 1.2500 | 2.5313 | 1.8750 | 0.6250 | 32 | 952-000-641 | 952-000-644 | 952-000-643 | 952-000-642 |
| 7.0000 | 0.6875 | 1.2500 | 2.5313 | 1.8750 | 0.6875 | 32 | 952-000-645 | 952-000-648 | 952-000-647 | 952-000-646 |
| 7.0000 | 0.7500 | 1.2500 | 2.5313 | 1.8750 | 0.7500 | 32 | 952-000-649 | 952-000-652 | 952-000-651 | 952-000-650 |
| 7.0000 | 0.8125 | 1.2500 | 2.5313 | 1.8750 | 0.8125 | 32 | 952-000-653 | 952-000-656 | 952-000-655 | 952-000-654 |
| 7.0000 | 0.8750 | 1.2500 | 2.5313 | 1.8750 | 0.8750 | 32 | 952-000-657 | 952-000-660 | 952-000-659 | 952-000-658 |
| 7.0000 | 0.9375 | 1.2500 | 2.5313 | 1.8750 | 0.9375 | 32 | 952-000-661 | 952-000-664 | 952-000-663 | 952-000-662 |
| 7.0000 | 1.0000 | 1.2500 | 2.5313 | 1.8750 | 1.0000 | 32 | 952-000-665 | 952-000-668 | 952-000-667 | 952-000-666 |
| 8.0000 | 0.2500 | 1.2500 | 3.0313 | 1.8750 | 0.2500 | 34 | 952-000-669 | 952-000-672 | 952-000-671 | 952-000-670 |
| 8.0000 | 0.3125 | 1.2500 | 3.0313 | 1.8750 | 0.3125 | 34 | 952-000-673 | 952-000-676 | 952-000-675 | 952-000-674 |
| 8.0000 | 0.3750 | 1.2500 | 3.0313 | 1.8750 | 0.3750 | 34 | 952-000-677 | 952-000-680 | 952-000-679 | 952-000-678 |

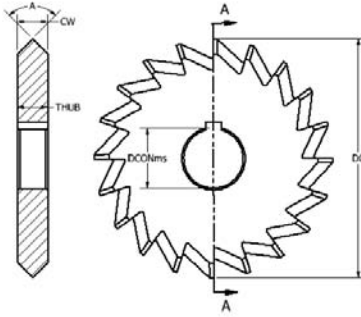
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|---------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 8.0000 | 0.4375 | 1.2500 | 3.0313 | 1.8750 | 0.4375 | 34 | 952-000-681 | 952-000-684 | 952-000-683 | 952-000-682 |
| 8.0000 | 0.5000 | 1.2500 | 3.0313 | 1.8750 | 0.5000 | 34 | 952-000-685 | 952-000-688 | 952-000-687 | 952-000-686 |
| 8.0000 | 0.5625 | 1.2500 | 3.0313 | 1.8750 | 0.5625 | 34 | 952-000-689 | 952-000-692 | 952-000-691 | 952-000-690 |
| 8.0000 | 0.6250 | 1.2500 | 3.0313 | 1.8750 | 0.6250 | 34 | 952-000-693 | 952-000-696 | 952-000-695 | 952-000-694 |
| 8.0000 | 0.6875 | 1.0000 | 3.0313 | 1.8750 | 0.6875 | 34 | 952-000-697 | 952-000-700 | 952-000-699 | 952-000-698 |
| 8.0000 | 0.7500 | 1.2500 | 3.0313 | 1.8750 | 0.7500 | 34 | 952-000-701 | 952-000-704 | 952-000-703 | 952-000-702 |
| 8.0000 | 0.8125 | 1.2500 | 3.0313 | 1.8750 | 0.8125 | 34 | 952-000-705 | 952-000-708 | 952-000-707 | 952-000-706 |
| 8.0000 | 0.8750 | 1.2500 | 3.0313 | 1.8750 | 0.8750 | 34 | 952-000-709 | 952-000-712 | 952-000-711 | 952-000-710 |
| 8.0000 | 0.9375 | 1.2500 | 3.0313 | 1.8750 | 0.9375 | 34 | 952-000-713 | 952-000-716 | 952-000-715 | 952-000-714 |
| 8.0000 | 1.0000 | 1.2500 | 3.0313 | 1.8750 | 1.0000 | 34 | 952-000-717 | 952-000-720 | 952-000-719 | 952-000-718 |
| 9.0000 | 0.2500 | 1.2500 | 3.2188 | 2.5000 | 0.2500 | 36 | 952-000-721 | 952-000-724 | 952-000-723 | 952-000-722 |
| 9.0000 | 0.3125 | 1.2500 | 3.2188 | 2.5000 | 0.3125 | 36 | 952-000-725 | 952-000-728 | 952-000-727 | 952-000-726 |
| 9.0000 | 0.3750 | 1.2500 | 3.2188 | 2.5000 | 0.3750 | 36 | 952-000-729 | 952-000-732 | 952-000-731 | 952-000-730 |
| 9.0000 | 0.4375 | 1.2500 | 3.2188 | 2.5000 | 0.4375 | 36 | 952-000-733 | 952-000-736 | 952-000-735 | 952-000-734 |
| 9.0000 | 0.5000 | 1.2500 | 3.2188 | 2.5000 | 0.5000 | 36 | 952-000-737 | 952-000-740 | 952-000-739 | 952-000-738 |
| 9.0000 | 0.5625 | 1.2500 | 3.2188 | 2.5000 | 0.5625 | 36 | 952-000-741 | 952-000-744 | 952-000-743 | 952-000-742 |
| 9.0000 | 0.6250 | 1.2500 | 3.2188 | 2.5000 | 0.6250 | 36 | 952-000-745 | 952-000-748 | 952-000-747 | 952-000-746 |
| 9.0000 | 0.6875 | 1.0000 | 3.2188 | 2.5000 | 0.6875 | 36 | 952-000-749 | 952-000-752 | 952-000-751 | 952-000-750 |
| 9.0000 | 0.7500 | 1.2500 | 3.2188 | 2.5000 | 0.7500 | 36 | 952-000-753 | 952-000-756 | 952-000-755 | 952-000-754 |
| 9.0000 | 0.8125 | 1.2500 | 3.2188 | 2.5000 | 0.8125 | 36 | 952-000-757 | 952-000-760 | 952-000-759 | 952-000-758 |
| 9.0000 | 0.8750 | 1.2500 | 3.2188 | 2.5000 | 0.8750 | 36 | 952-000-761 | 952-000-764 | 952-000-763 | 952-000-762 |
| 9.0000 | 0.9375 | 1.2500 | 3.2188 | 2.5000 | 0.9375 | 36 | 952-000-765 | 952-000-768 | 952-000-767 | 952-000-766 |
| 9.0000 | 1.0000 | 1.2500 | 3.2188 | 2.5000 | 1.0000 | 36 | 952-000-769 | 952-000-772 | 952-000-771 | 952-000-770 |
| 10.0000 | 0.2500 | 1.5000 | 3.3438 | 3.2500 | 0.2500 | 38 | 952-000-117 | 952-000-120 | 952-000-119 | 952-000-118 |
| 10.0000 | 0.3125 | 1.5000 | 3.3438 | 3.2500 | 0.3125 | 38 | 952-000-121 | 952-000-124 | 952-000-123 | 952-000-122 |
| 10.0000 | 0.3750 | 1.5000 | 3.3438 | 3.2500 | 0.3750 | 38 | 952-000-125 | 952-000-128 | 952-000-127 | 952-000-126 |
| 10.0000 | 0.4375 | 1.5000 | 3.3438 | 3.2500 | 0.4375 | 38 | 952-000-129 | 952-000-132 | 952-000-131 | 952-000-130 |
| 10.0000 | 0.5000 | 1.5000 | 3.3438 | 3.2500 | 0.5000 | 38 | 952-000-133 | 952-000-136 | 952-000-135 | 952-000-134 |
| 10.0000 | 0.5625 | 1.5000 | 3.3438 | 3.2500 | 0.5625 | 38 | 952-000-137 | 952-000-140 | 952-000-139 | 952-000-138 |
| 10.0000 | 0.6250 | 1.5000 | 3.3438 | 3.2500 | 0.6250 | 38 | 952-000-141 | 952-000-144 | 952-000-143 | 952-000-142 |
| 10.0000 | 0.6875 | 1.5000 | 3.3438 | 3.2500 | 0.6875 | 38 | 952-000-145 | 952-000-148 | 952-000-147 | 952-000-146 |
| 10.0000 | 0.7500 | 1.5000 | 3.3438 | 3.2500 | 0.7500 | 38 | 952-000-149 | 952-000-152 | 952-000-151 | 952-000-150 |
| 10.0000 | 0.8125 | 1.5000 | 3.3438 | 3.2500 | 0.8125 | 38 | 952-000-153 | 952-000-156 | 952-000-155 | 952-000-154 |
| 10.0000 | 0.8750 | 1.5000 | 3.3438 | 3.2500 | 0.8750 | 38 | 952-000-157 | 952-000-160 | 952-000-159 | 952-000-158 |
| 10.0000 | 0.9375 | 1.5000 | 3.3438 | 3.2500 | 0.9375 | 38 | 952-000-161 | 952-000-164 | 952-000-163 | 952-000-162 |
| 10.0000 | 1.0000 | 1.5000 | 3.3438 | 3.2500 | 1.0000 | 38 | 952-000-165 | 952-000-168 | 952-000-167 | 952-000-166 |

*Make To Order



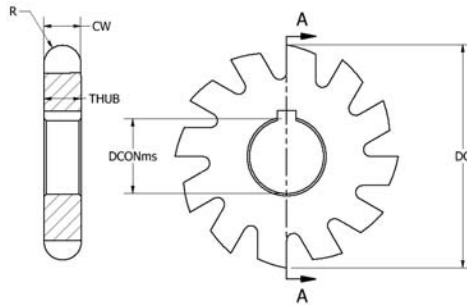
DA Style

- Three Standard Angles
- Excellent for thin Milling Notches, Chamfers, Serrations and Angles



| DC | CW | DCONms | THUB | A | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|------|----|-------------|-------------|--------------|--------------|
| 2.7500 | 0.5000 | 1.0000 | 1.2500 | 45.0 | 20 | 900-000-001 | 900-000-004 | 900-000-003 | 900-000-002 |
| 2.7500 | 0.5000 | 1.0000 | 0.5000 | 60.0 | 20 | 900-000-005 | 900-000-008 | 900-000-007 | 900-000-006 |
| 2.7500 | 0.5000 | 1.0000 | 0.5000 | 90.0 | 20 | 900-000-041 | 900-000-044 | 900-000-043 | 900-000-042 |
| 4.0000 | 0.5000 | 1.2500 | 0.5000 | 60.0 | 20 | 900-000-009 | 900-000-012 | 900-000-011 | 900-000-010 |
| 4.0000 | 0.5000 | 1.2500 | 0.5000 | 90.0 | 20 | 900-000-045 | 900-000-048 | 900-000-047 | 900-000-046 |
| 4.0000 | 0.7500 | 1.2500 | 0.7500 | 60.0 | 20 | 900-000-013 | 900-000-016 | 900-000-015 | 900-000-014 |
| 4.0000 | 0.7500 | 1.2500 | 0.7500 | 90.0 | 20 | 900-000-049 | 900-000-052 | 900-000-051 | 900-000-050 |
| 4.0000 | 1.0000 | 1.2500 | 1.0000 | 60.0 | 20 | 900-000-017 | 900-000-020 | 900-000-019 | 900-000-018 |
| 4.0000 | 1.0000 | 1.2500 | 1.0000 | 90.0 | 20 | 900-000-053 | 900-000-056 | 900-000-055 | 900-000-054 |
| 5.0000 | 0.7500 | 1.2500 | 0.7500 | 60.0 | 24 | 900-000-021 | 900-000-024 | 900-000-023 | 900-000-022 |
| 5.0000 | 0.7500 | 1.2500 | 0.7500 | 90.0 | 24 | 900-000-057 | 900-000-060 | 900-000-059 | 900-000-058 |
| 5.0000 | 1.0000 | 1.2500 | 1.0000 | 60.0 | 24 | 900-000-025 | 900-000-028 | 900-000-027 | 900-000-026 |
| 5.0000 | 1.0000 | 1.2500 | 1.0000 | 90.0 | 24 | 900-000-061 | 900-000-064 | 900-000-063 | 900-000-062 |
| 6.0000 | 1.0000 | 1.2500 | 1.0000 | 60.0 | 28 | 900-000-029 | 900-000-032 | 900-000-031 | 900-000-030 |
| 6.0000 | 1.0000 | 1.2500 | 1.0000 | 90.0 | 28 | 900-000-065 | 900-000-068 | 900-000-067 | 900-000-066 |
| 6.0000 | 1.2500 | 1.2500 | 1.2500 | 60.0 | 28 | 900-000-033 | 900-000-036 | 900-000-035 | 900-000-034 |
| 6.0000 | 1.0000 | 1.2500 | 1.0000 | 90.0 | 28 | 900-000-069 | 900-000-072 | 900-000-071 | 900-000-070 |
| 6.0000 | 1.5000 | 1.2500 | 1.5000 | 60.0 | 28 | 900-000-037 | 900-000-040 | 900-000-039 | 900-000-038 |
| 6.0000 | 1.2500 | 1.2500 | 1.2500 | 90.0 | 28 | 900-000-073 | 900-000-076 | 900-000-075 | 900-000-074 |

*Make To Order



CVS Style

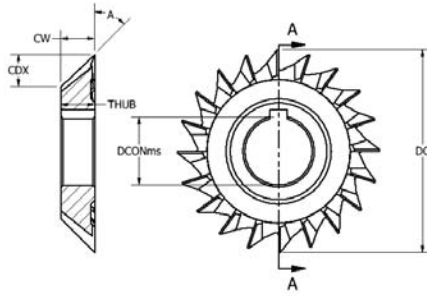
- Convex Radius



| DC | CW | DCONms | THUB | R | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.2500 | 0.1250 | 1.0000 | 0.1250 | 0.0625 | 16 | 921-000-001 | 921-000-004 | 921-000-003 | 921-000-002 |
| 2.2500 | 0.1875 | 1.0000 | 0.1875 | 0.0625 | 16 | 921-000-005 | 921-000-008 | 921-000-007 | 921-000-006 |
| 2.5000 | 0.2500 | 1.0000 | 0.2500 | 0.1250 | 14 | 921-000-009 | 921-000-012 | 921-000-011 | 921-000-010 |
| 2.7500 | 0.3125 | 1.0000 | 0.3125 | 0.1563 | 14 | 921-000-013 | 921-000-016 | 921-000-015 | 921-000-014 |
| 2.7500 | 0.3750 | 1.0000 | 0.1875 | 0.3750 | 12 | 921-000-017 | 921-000-020 | 921-000-019 | 921-000-018 |
| 3.0000 | 0.4375 | 1.0000 | 0.2188 | 0.4375 | 12 | 921-000-021 | 921-000-024 | 921-000-023 | 921-000-022 |
| 3.0000 | 0.5000 | 1.0000 | 0.2500 | 0.5000 | 12 | 921-000-025 | 921-000-028 | 921-000-027 | 921-000-026 |
| 3.5000 | 0.6250 | 1.2500 | 0.3125 | 0.6250 | 12 | 921-000-029 | 921-000-032 | 921-000-031 | 921-000-030 |
| 3.7500 | 0.7500 | 1.2500 | 0.7500 | 0.3750 | 12 | 921-000-033 | 921-000-036 | 921-000-035 | 921-000-034 |
| 4.0000 | 0.8750 | 1.2500 | 0.8750 | 0.4375 | 12 | 921-000-037 | 921-000-040 | 921-000-039 | 921-000-038 |
| 4.2500 | 1.0000 | 1.2500 | 0.5000 | 1.0000 | 10 | 921-000-041 | 921-000-044 | 921-000-043 | 921-000-042 |
| 4.2500 | 1.1250 | 1.2500 | 0.5625 | 1.1250 | 10 | 921-000-045 | 921-000-048 | 921-000-047 | 921-000-046 |
| 4.5000 | 1.2500 | 1.2500 | 0.6250 | 1.2500 | 10 | 921-000-049 | 921-000-052 | 921-000-051 | 921-000-050 |
| 4.7500 | 1.3750 | 1.2500 | 0.6875 | 1.3750 | 10 | 921-000-053 | 921-000-056 | 921-000-055 | 921-000-054 |
| 5.0000 | 1.5000 | 1.2500 | 0.7500 | 1.5000 | 10 | 921-000-057 | 921-000-060 | 921-000-059 | 921-000-058 |

*Make To Order

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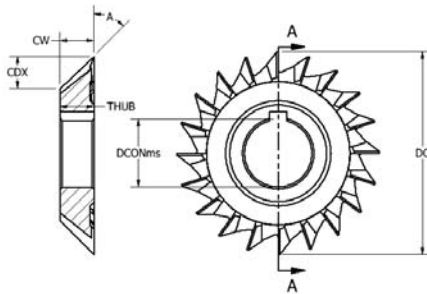


FL Style



| DC | CW | DCONms | CDX | THUB | A | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|------|----|-------------|-------------|--------------|--------------|
| 2.7500 | 0.5000 | 1.0000 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-077 | 900-000-080 | 900-000-079 | 900-000-078 |
| 2.7500 | 0.5000 | 1.0000 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-157 | 900-000-160 | 900-000-159 | 900-000-158 |
| 3.0000 | 0.5000 | 1.2500 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-085 | 900-000-088 | 900-000-087 | 900-000-086 |
| 3.0000 | 0.5000 | 1.2500 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-165 | 900-000-168 | 900-000-167 | 900-000-166 |
| 4.0000 | 0.5000 | 1.2500 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-093 | 900-000-096 | 900-000-095 | 900-000-094 |
| 4.0000 | 0.5000 | 1.2500 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-173 | 900-000-176 | 900-000-175 | 900-000-174 |
| 4.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 20 | 900-000-101 | 900-000-104 | 900-000-103 | 900-000-102 |
| 4.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 20 | 900-000-181 | 900-000-184 | 900-000-183 | 900-000-182 |
| 4.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 20 | 900-000-109 | 900-000-112 | 900-000-111 | 900-000-110 |
| 4.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 20 | 900-000-189 | 900-000-192 | 900-000-191 | 900-000-190 |
| 5.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 24 | 900-000-117 | 900-000-120 | 900-000-119 | 900-000-118 |
| 4.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 24 | 900-000-197 | 900-000-200 | 900-000-199 | 900-000-198 |
| 5.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 24 | 900-000-125 | 900-000-128 | 900-000-127 | 900-000-126 |
| 5.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 24 | 900-000-205 | 900-000-208 | 900-000-207 | 900-000-206 |
| 6.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 28 | 900-000-133 | 900-000-136 | 900-000-135 | 900-000-134 |
| 6.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 28 | 900-000-213 | 900-000-216 | 900-000-215 | 900-000-214 |
| 6.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 28 | 900-000-141 | 900-000-144 | 900-000-143 | 900-000-142 |
| 6.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 28 | 900-000-221 | 900-000-224 | 900-000-223 | 900-000-222 |
| 6.0000 | 1.2500 | 1.2500 | 1.2500 | 1.2500 | 45.0 | 28 | 900-000-149 | 900-000-152 | 900-000-151 | 900-000-150 |
| 6.0000 | 1.2500 | 1.2500 | 0.7217 | 1.2500 | 60.0 | 28 | 900-000-229 | 900-000-232 | 900-000-231 | 900-000-230 |

*Make To Order



FR Style



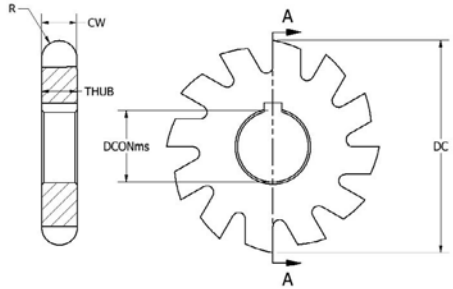
| DC | CW | DCONms | CDX | THUB | A | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|------|----|-------------|-------------|--------------|--------------|
| 2.7500 | 0.5000 | 1.0000 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-081 | 900-000-084 | 900-000-083 | 900-000-082 |
| 2.7500 | 0.5000 | 1.0000 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-161 | 900-000-164 | 900-000-163 | 900-000-162 |
| 3.0000 | 0.5000 | 1.2500 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-089 | 900-000-092 | 900-000-091 | 900-000-090 |
| 3.0000 | 0.5000 | 1.2500 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-169 | 900-000-172 | 900-000-171 | 900-000-170 |
| 4.0000 | 0.5000 | 1.2500 | 0.5000 | 0.5000 | 45.0 | 20 | 900-000-097 | 900-000-100 | 900-000-099 | 900-000-098 |
| 4.0000 | 0.5000 | 1.2500 | 0.2887 | 0.5000 | 60.0 | 20 | 900-000-177 | 900-000-180 | 900-000-179 | 900-000-178 |
| 4.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 20 | 900-000-105 | 900-000-108 | 900-000-107 | 900-000-106 |
| 4.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 20 | 900-000-185 | 900-000-188 | 900-000-187 | 900-000-186 |
| 4.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 20 | 900-000-113 | 900-000-116 | 900-000-115 | 900-000-114 |
| 4.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 20 | 900-000-193 | 900-000-196 | 900-000-195 | 900-000-194 |
| 5.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 24 | 900-000-121 | 900-000-124 | 900-000-123 | 900-000-122 |
| 5.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 24 | 900-000-201 | 900-000-204 | 900-000-203 | 900-000-202 |
| 5.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 24 | 900-000-129 | 900-000-132 | 900-000-131 | 900-000-130 |
| 5.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 24 | 900-000-209 | 900-000-212 | 900-000-211 | 900-000-210 |
| 6.0000 | 0.7500 | 1.2500 | 0.7500 | 0.7500 | 45.0 | 28 | 900-000-137 | 900-000-140 | 900-000-139 | 900-000-138 |
| 6.0000 | 0.7500 | 1.2500 | 0.4330 | 0.7500 | 60.0 | 28 | 900-000-217 | 900-000-220 | 900-000-219 | 900-000-218 |
| 6.0000 | 1.0000 | 1.2500 | 1.0000 | 1.0000 | 45.0 | 28 | 900-000-145 | 900-000-148 | 900-000-147 | 900-000-146 |
| 6.0000 | 1.0000 | 1.2500 | 0.5774 | 1.0000 | 60.0 | 28 | 900-000-225 | 900-000-228 | 900-000-227 | 900-000-226 |
| 6.0000 | 1.2500 | 1.2500 | 1.2500 | 1.2500 | 45.0 | 28 | 900-000-153 | 900-000-156 | 900-000-155 | 900-000-154 |
| 6.0000 | 1.2500 | 1.2500 | 0.7217 | 1.2500 | 60.0 | 28 | 900-000-233 | 900-000-236 | 900-000-235 | 900-000-234 |

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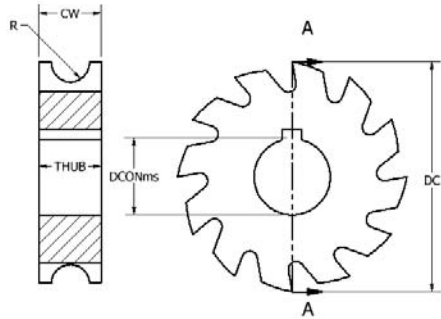


CVL Style
• Convex Radius



| DC | CW | DCONms | THUB | R | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 4.0000 | 0.1250 | 1.2500 | 0.1250 | 0.0625 | 22 | 921-000-061 | 921-000-064 | 921-000-063 | 921-000-062 |
| 4.0000 | 0.1875 | 1.2500 | 0.0938 | 0.1875 | 22 | 921-000-065 | 921-000-068 | 921-000-067 | 921-000-066 |
| 4.0000 | 0.2500 | 1.2500 | 0.1250 | 0.2500 | 22 | 921-000-069 | 921-000-072 | 921-000-071 | 921-000-070 |
| 5.0000 | 0.3125 | 1.2500 | 0.3125 | 0.1563 | 18 | 921-000-073 | 921-000-076 | 921-000-075 | 921-000-083 |
| 5.0000 | 0.3750 | 1.2500 | 0.1875 | 0.3750 | 18 | 921-000-077 | 921-000-080 | 921-000-079 | 921-000-078 |
| 5.0000 | 0.4375 | 1.2500 | 0.2188 | 0.4375 | 18 | 921-000-081 | 921-000-084 | 921-000-083 | 921-000-082 |
| 5.0000 | 0.5000 | 1.2500 | 0.2500 | 0.5000 | 18 | 921-000-085 | 921-000-088 | 921-000-087 | 921-000-086 |
| 5.0000 | 0.6250 | 1.2500 | 0.3125 | 0.6250 | 18 | 921-000-089 | 921-000-092 | 921-000-091 | 921-000-090 |
| 6.0000 | 0.7500 | 1.2500 | 0.3750 | 0.7500 | 14 | 921-000-093 | 921-000-096 | 921-000-095 | 921-000-094 |
| 6.0000 | 0.8750 | 1.2500 | 0.8750 | 0.8750 | 14 | 921-000-097 | 921-000-100 | 921-000-099 | 921-000-098 |
| 6.0000 | 1.0000 | 1.2500 | 0.5000 | 1.0000 | 14 | 921-000-101 | 921-000-104 | 921-000-103 | 921-000-102 |
| 6.0000 | 1.2500 | 1.2500 | 0.6250 | 1.2500 | 14 | 921-000-105 | 921-000-108 | 921-000-107 | 921-000-106 |

*Make To Order



CC Style
• Concave Radius

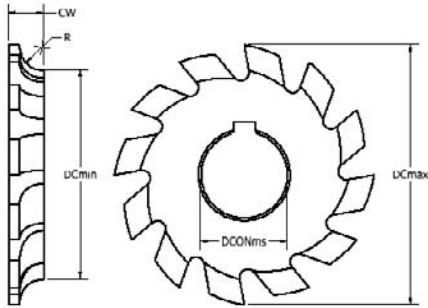


| DC | CW | DCONms | THUB | R | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.2500 | 0.2500 | 1.0000 | 0.2500 | 0.0625 | 16 | 904-000-005 | 904-000-012 | 904-000-011 | 904-000-010 |
| 2.2500 | 0.3750 | 1.0000 | 0.0938 | 0.3750 | 16 | 904-000-029 | 904-000-032 | 904-000-031 | 904-000-030 |
| 2.5000 | 0.4375 | 1.0000 | 0.4375 | 0.1250 | 14 | 904-000-033 | 904-000-036 | 904-000-035 | 904-000-034 |
| 2.7500 | 0.5625 | 1.0000 | 0.1563 | 0.5625 | 14 | 904-000-037 | 904-000-040 | 904-000-039 | 904-000-038 |
| 2.7500 | 0.6250 | 1.0000 | 0.1875 | 0.6250 | 12 | 904-000-041 | 904-000-044 | 904-000-043 | 904-000-042 |
| 3.0000 | 0.7500 | 1.0000 | 0.7500 | 0.2188 | 12 | 904-000-045 | 904-000-048 | 904-000-047 | 904-000-046 |
| 3.0000 | 0.8125 | 1.0000 | 0.2500 | 0.8125 | 12 | 904-000-049 | 904-000-052 | 904-000-051 | 904-000-050 |
| 3.5000 | 1.0000 | 1.2500 | 0.3125 | 1.0000 | 12 | 904-000-053 | 904-000-056 | 904-000-055 | 904-000-054 |
| 3.7500 | 1.1875 | 1.2500 | 0.3750 | 1.1875 | 12 | 904-000-057 | 904-000-060 | 904-000-059 | 904-000-058 |
| 4.0000 | 1.3750 | 1.2500 | 0.4375 | 1.3750 | 12 | 904-000-001 | 904-000-004 | 904-000-003 | 904-000-002 |
| 4.2500 | 1.5625 | 1.2500 | 0.5000 | 1.5625 | 10 | 904-000-006 | 904-000-009 | 904-000-008 | 904-000-007 |
| 4.2500 | 1.6875 | 1.2500 | 0.5625 | 1.6875 | 10 | 904-000-013 | 904-000-016 | 904-000-015 | 904-000-014 |
| 4.5000 | 1.8750 | 1.2500 | 0.6250 | 1.8750 | 10 | 904-000-017 | 904-000-020 | 904-000-019 | 904-000-018 |
| 4.7500 | 2.0625 | 1.2500 | 0.6875 | 2.0625 | 10 | 904-000-021 | 904-000-024 | 904-000-023 | 904-000-022 |
| 5.0000 | 2.2500 | 1.2500 | 0.7500 | 2.2500 | 10 | 904-000-025 | 904-000-028 | 904-000-027 | 904-000-026 |

*Make To Order



HSS

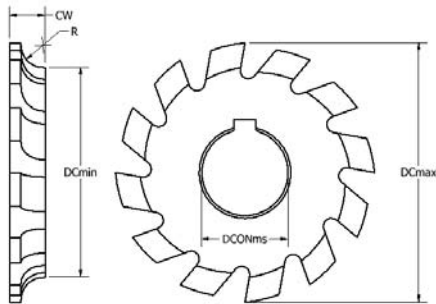


CR Style
• Right hand rotation



| CW | DCONms | R | DCmax | DCmin | Zc | HAND | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|----|------|-------------|-------------|--------------|--------------|
| 0.2500 | 1.0000 | 0.1250 | 2.5000 | 2.2500 | 14 | L | 918-000-025 | 918-000-028 | 918-000-027 | 918-000-026 |
| 0.4063 | 1.0000 | 0.2500 | 3.0000 | 2.5000 | 12 | L | 918-000-029 | 918-000-032 | 918-000-031 | 918-000-030 |
| 0.5625 | 1.2500 | 0.3750 | 3.7500 | 3.0000 | 12 | L | 918-000-033 | 918-000-036 | 918-000-035 | 918-000-034 |
| 0.7500 | 1.2500 | 0.5000 | 4.2500 | 3.2500 | 10 | L | 918-000-037 | 918-000-040 | 918-000-039 | 918-000-038 |
| 0.9375 | 1.2500 | 0.6250 | 4.2500 | 3.0000 | 10 | L | 918-000-041 | 918-000-044 | 918-000-043 | 918-000-042 |
| 1.1250 | 1.2500 | 0.7500 | 4.5000 | 3.0000 | 10 | L | 918-000-045 | 918-000-048 | 918-000-047 | 918-000-046 |

*Make To Order



CL Style
• Left hand rotation

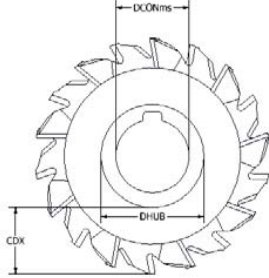
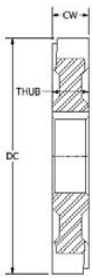


| CW | DCONms | R | DCmax | DCmin | Zc | HAND | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|----|------|-------------|-------------|--------------|--------------|
| 0.2500 | 1.0000 | 0.1250 | 2.5000 | 2.2500 | 14 | R | 918-000-001 | 918-000-004 | 918-000-003 | 918-000-002 |
| 0.4063 | 1.0000 | 0.2500 | 3.0000 | 2.5000 | 12 | R | 918-000-005 | 918-000-008 | 918-000-007 | 918-000-006 |
| 0.5625 | 1.2500 | 0.3750 | 3.7500 | 3.0000 | 12 | R | 918-000-009 | 918-000-012 | 918-000-011 | 918-000-010 |
| 0.7500 | 1.2500 | 0.5000 | 4.2500 | 3.2500 | 10 | R | 918-000-013 | 918-000-016 | 918-000-015 | 918-000-014 |
| 0.9375 | 1.2500 | 0.6250 | 4.2500 | 3.0000 | 10 | R | 918-000-017 | 918-000-020 | 918-000-019 | 918-000-018 |
| 1.1250 | 1.2500 | 0.7500 | 4.5000 | 3.0000 | 10 | R | 918-000-021 | 918-000-024 | 918-000-023 | 918-000-022 |

*Make To Order



COBALT



DS Style

- Free Cutting Design
- Long Tool Life
- Refer to page 513 for interlocking set information

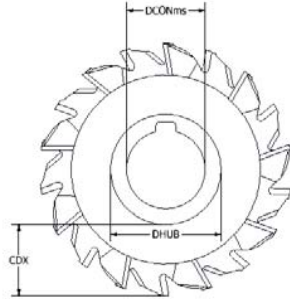
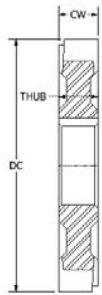


| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 16 | 952-000-841 | 952-000-844 | 952-000-843 | 952-000-842 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 16 | 952-000-845 | 952-000-848 | 952-000-847 | 952-000-846 |
| 3.0000 | 0.3125 | 1.0000 | 0.7188 | 1.5000 | 0.3125 | 16 | 952-000-849 | 952-000-852 | 952-000-851 | 952-000-850 |
| 3.0000 | 0.3750 | 1.0000 | 0.7188 | 1.5000 | 0.3750 | 16 | 952-000-853 | 952-000-856 | 952-000-855 | 952-000-854 |
| 3.0000 | 0.5000 | 1.0000 | 0.7188 | 1.5000 | 0.5000 | 16 | 952-000-857 | 952-000-860 | 952-000-859 | 952-000-858 |
| 3.0000 | 0.5000 | 1.2500 | 0.5938 | 1.7500 | 0.5000 | 16 | 952-000-861 | 952-000-864 | 952-000-863 | 952-000-862 |
| 4.0000 | 0.2500 | 1.0000 | 1.2188 | 1.5000 | 0.2500 | 18 | 952-000-865 | 952-000-868 | 952-000-867 | 952-000-866 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 18 | 952-000-869 | 952-000-872 | 952-000-871 | 952-000-870 |
| 4.0000 | 0.3125 | 1.0000 | 1.2188 | 1.5000 | 0.3125 | 18 | 952-000-873 | 952-000-876 | 952-000-875 | 952-000-874 |
| 4.0000 | 0.3125 | 1.2500 | 1.0938 | 1.7500 | 0.3125 | 18 | 952-000-877 | 952-000-880 | 952-000-879 | 952-000-878 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 18 | 952-000-881 | 952-000-884 | 952-000-883 | 952-000-882 |
| 4.0000 | 0.5000 | 1.2500 | 1.0938 | 1.7500 | 0.5000 | 18 | 952-000-885 | 952-000-888 | 952-000-887 | 952-000-886 |
| 4.0000 | 0.7500 | 1.2500 | 1.0938 | 1.7500 | 0.7500 | 18 | 952-000-889 | 952-000-892 | 952-000-891 | 952-000-890 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 24 | 952-000-893 | 952-000-896 | 952-000-895 | 952-000-894 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 24 | 952-000-897 | 952-000-900 | 952-000-899 | 952-000-898 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 24 | 952-000-901 | 952-000-904 | 952-000-903 | 952-000-902 |
| 6.0000 | 0.7500 | 1.2500 | 2.0313 | 1.8750 | 0.7500 | 24 | 952-000-905 | 952-000-908 | 952-000-907 | 952-000-906 |
| 6.0000 | 1.0000 | 1.2500 | 2.0313 | 1.8750 | 1.0000 | 24 | 952-000-909 | 952-000-912 | 952-000-911 | 952-000-910 |

*Make To Order



T15 Supreme



NS Style

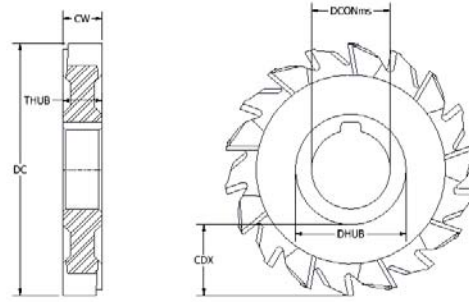
- Resistant to High Heat and Abrasive Wear
- Free Cutting Design
- Refer to page 513 for interlocking set information



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 18 | 952-000-913 | 952-000-916 | 952-000-915 | 952-000-914 |
| 3.0000 | 0.2188 | 1.0000 | 0.7188 | 1.5000 | 0.2188 | 18 | 952-000-937 | 952-000-940 | 952-000-939 | 952-000-938 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 18 | 952-000-917 | 952-000-920 | 952-000-919 | 952-000-918 |
| 3.0000 | 0.2813 | 1.0000 | 0.7188 | 1.5000 | 0.2813 | 18 | 952-000-941 | 952-000-944 | 952-000-943 | 952-000-942 |
| 3.0000 | 0.3125 | 1.0000 | 0.7188 | 1.5000 | 0.3125 | 18 | 952-000-921 | 952-000-924 | 952-000-923 | 952-000-922 |
| 3.0000 | 0.3438 | 1.0000 | 0.7188 | 1.5000 | 0.3438 | 18 | 952-000-945 | 952-000-948 | 952-000-947 | 952-000-946 |
| 3.0000 | 0.3750 | 1.0000 | 0.7188 | 1.5000 | 0.3750 | 18 | 952-000-925 | 952-000-928 | 952-000-927 | 952-000-926 |
| 3.0000 | 0.4063 | 1.0000 | 0.7188 | 1.5000 | 0.4063 | 18 | 952-000-949 | 952-000-952 | 952-000-951 | 952-000-950 |
| 3.0000 | 0.4375 | 1.0000 | 0.7188 | 1.5000 | 0.4375 | 18 | 952-000-929 | 952-000-932 | 952-000-931 | 952-000-930 |
| 3.0000 | 0.4688 | 1.0000 | 0.7188 | 1.5000 | 0.4688 | 18 | 952-000-953 | 952-000-956 | 952-000-955 | 952-000-954 |
| 3.0000 | 0.5000 | 1.0000 | 0.7188 | 1.5000 | 0.5000 | 18 | 952-000-933 | 952-000-936 | 952-000-935 | 952-000-934 |
| 4.0000 | 0.2188 | 1.2500 | 1.0938 | 1.7500 | 0.2188 | 22 | 952-000-993 | 952-000-996 | 952-000-995 | 952-000-994 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 22 | 952-000-957 | 952-000-960 | 952-000-959 | 952-000-958 |
| 4.0000 | 0.2813 | 1.2500 | 1.0938 | 1.7500 | 0.2813 | 22 | 952-000-997 | 952-001-000 | 952-000-999 | 952-000-998 |
| 4.0000 | 0.3125 | 1.2500 | 1.0938 | 1.7500 | 0.3125 | 22 | 952-000-961 | 952-000-964 | 952-000-963 | 952-000-962 |
| 4.0000 | 0.3438 | 1.2500 | 1.0938 | 1.7500 | 0.3438 | 22 | 952-001-001 | 952-001-004 | 952-001-003 | 952-001-002 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 22 | 952-000-965 | 952-000-968 | 952-000-967 | 952-000-966 |
| 4.0000 | 0.4063 | 1.2500 | 1.0938 | 1.7500 | 0.4063 | 22 | 952-001-005 | 952-001-008 | 952-001-007 | 952-001-006 |
| 4.0000 | 0.4375 | 1.2500 | 1.0938 | 1.7500 | 0.4375 | 22 | 952-000-969 | 952-000-972 | 952-000-971 | 952-000-970 |
| 4.0000 | 0.4688 | 1.2500 | 1.0938 | 1.7500 | 0.4688 | 22 | 952-001-009 | 952-001-012 | 952-001-011 | 952-001-010 |
| 4.0000 | 0.5000 | 1.2500 | 1.0938 | 1.7500 | 0.5000 | 22 | 952-000-973 | 952-000-976 | 952-000-975 | 952-000-974 |
| 4.0000 | 0.5625 | 1.2500 | 1.0938 | 1.7500 | 0.5625 | 22 | 952-000-977 | 952-000-980 | 952-000-979 | 952-000-978 |
| 4.0000 | 0.6250 | 1.2500 | 1.0938 | 1.7500 | 0.6250 | 22 | 952-000-981 | 952-000-984 | 952-000-983 | 952-000-982 |
| 4.0000 | 0.6875 | 1.2500 | 1.0938 | 1.7500 | 0.6875 | 22 | 952-000-985 | 952-000-988 | 952-000-987 | 952-000-986 |
| 5.0000 | 0.7500 | 1.2500 | 1.5313 | 1.8750 | 0.7500 | 22 | 952-000-989 | 952-000-992 | 952-000-991 | 952-000-990 |
| 5.0000 | 0.2188 | 1.2500 | 1.5313 | 1.8750 | 0.2188 | 26 | 952-001-065 | 952-001-068 | 952-001-067 | 952-001-066 |
| 5.0000 | 0.2500 | 1.2500 | 1.5313 | 1.8750 | 0.2500 | 26 | 952-001-013 | 952-001-016 | 952-001-015 | 952-001-014 |
| 5.0000 | 0.2500 | 1.2500 | 1.5313 | 1.8750 | 0.2500 | 26 | 952-001-069 | 952-001-072 | 952-001-071 | 952-001-070 |
| 5.0000 | 0.3125 | 1.2500 | 1.5313 | 1.8750 | 0.3125 | 26 | 952-001-017 | 952-001-020 | 952-001-019 | 952-001-018 |
| 5.0000 | 0.3438 | 1.2500 | 1.5313 | 1.8750 | 0.3438 | 26 | 952-001-073 | 952-001-076 | 952-001-075 | 952-001-074 |
| 5.0000 | 0.3750 | 1.2500 | 1.5313 | 1.8750 | 0.3750 | 26 | 952-001-021 | 952-001-024 | 952-001-023 | 952-001-022 |
| 5.0000 | 0.4063 | 1.2500 | 1.5313 | 1.8750 | 0.4063 | 26 | 952-001-077 | 952-001-080 | 952-001-079 | 952-001-078 |
| 5.0000 | 0.4375 | 1.2500 | 1.5313 | 1.8750 | 0.4375 | 26 | 952-001-025 | 952-001-028 | 952-001-027 | 952-001-026 |
| 5.0000 | 0.4688 | 1.2500 | 1.5313 | 1.8750 | 0.4688 | 26 | 952-001-081 | 952-001-084 | 952-001-083 | 952-001-082 |
| 5.0000 | 0.5000 | 1.2500 | 1.5313 | 1.8750 | 0.5000 | 26 | 952-001-029 | 952-001-032 | 952-001-031 | 952-001-030 |
| 5.0000 | 0.5625 | 1.2500 | 1.5313 | 1.8750 | 0.5625 | 26 | 952-001-033 | 952-001-036 | 952-001-035 | 952-001-034 |
| 5.0000 | 0.6250 | 1.2500 | 1.5313 | 1.8750 | 0.6250 | 26 | 952-001-037 | 952-001-040 | 952-001-039 | 952-001-038 |
| 5.0000 | 0.6875 | 1.2500 | 1.5313 | 1.8750 | 0.6875 | 26 | 952-001-041 | 952-001-044 | 952-001-043 | 952-001-042 |
| 5.0000 | 0.7500 | 1.2500 | 1.5313 | 1.8750 | 0.7500 | 26 | 952-001-045 | 952-001-048 | 952-001-047 | 952-001-046 |

*Make To Order

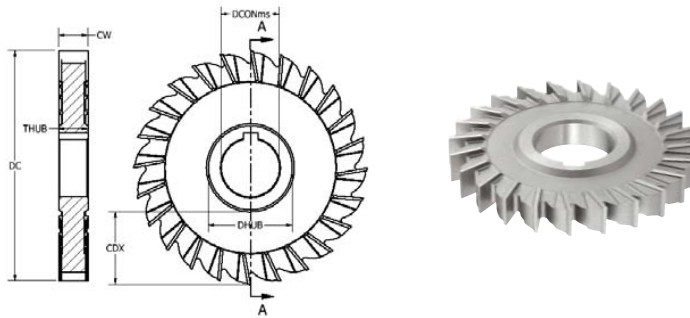
T-15



T15 Supreme

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 5.0000 | 0.8125 | 1.2500 | 1.5313 | 1.8750 | 0.8125 | 26 | 952-001-049 | 952-001-052 | 952-001-051 | 952-001-050 |
| 5.0000 | 0.8750 | 1.2500 | 1.5313 | 1.8750 | 0.8750 | 26 | 952-001-053 | 952-001-056 | 952-001-055 | 952-001-054 |
| 5.0000 | 0.9375 | 1.2500 | 1.5313 | 1.8750 | 0.9375 | 26 | 952-001-057 | 952-001-060 | 952-001-059 | 952-001-058 |
| 5.0000 | 1.0000 | 1.2500 | 1.5313 | 1.8750 | 1.0000 | 26 | 952-001-061 | 952-001-064 | 952-001-063 | 952-001-062 |
| 6.0000 | 0.2188 | 1.2500 | 2.0313 | 1.8750 | 0.2188 | 30 | 952-001-137 | 952-001-140 | 952-001-139 | 952-001-138 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 30 | 952-001-085 | 952-001-088 | 952-001-087 | 952-001-086 |
| 6.0000 | 0.2813 | 1.2500 | 2.0313 | 1.8750 | 0.2813 | 30 | 952-001-141 | 952-001-144 | 952-001-143 | 952-001-142 |
| 6.0000 | 0.3125 | 1.2500 | 2.0313 | 1.8750 | 0.3125 | 30 | 952-001-089 | 952-001-092 | 952-001-091 | 952-001-090 |
| 6.0000 | 0.3438 | 1.2500 | 2.0313 | 1.8750 | 0.3438 | 30 | 952-001-145 | 952-001-148 | 952-001-147 | 952-001-146 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 30 | 952-001-093 | 952-001-096 | 952-001-095 | 952-001-094 |
| 6.0000 | 0.4063 | 1.2500 | 2.0313 | 1.8750 | 0.4063 | 30 | 952-001-149 | 952-001-152 | 952-001-151 | 952-001-150 |
| 6.0000 | 0.4375 | 1.2500 | 2.0313 | 1.8750 | 0.4375 | 30 | 952-001-097 | 952-001-100 | 952-001-099 | 952-001-098 |
| 6.0000 | 0.4688 | 1.2500 | 2.0313 | 1.8750 | 0.4688 | 30 | 952-001-153 | 952-001-156 | 952-001-155 | 952-001-154 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 30 | 952-001-101 | 952-001-104 | 952-001-103 | 952-001-102 |
| 6.0000 | 0.5625 | 1.2500 | 2.0313 | 1.8750 | 0.5625 | 30 | 952-001-105 | 952-001-108 | 952-001-107 | 952-001-106 |
| 6.0000 | 0.6250 | 1.2500 | 2.0313 | 1.8750 | 0.6250 | 30 | 952-001-109 | 952-001-112 | 952-001-111 | 952-001-110 |
| 6.0000 | 0.6875 | 1.2500 | 2.0313 | 1.8750 | 0.6875 | 30 | 952-001-113 | 952-001-116 | 952-001-115 | 952-001-114 |
| 6.0000 | 0.7500 | 1.2500 | 2.0313 | 1.8750 | 0.7500 | 30 | 952-001-117 | 952-001-120 | 952-001-119 | 952-001-118 |
| 6.0000 | 0.8125 | 1.2500 | 2.0313 | 1.8750 | 0.8125 | 30 | 952-001-121 | 952-001-124 | 952-001-123 | 952-001-122 |
| 6.0000 | 0.8750 | 1.2500 | 2.0313 | 1.8750 | 0.8750 | 30 | 952-001-125 | 952-001-128 | 952-001-127 | 952-001-126 |
| 6.0000 | 0.9375 | 1.2500 | 2.0313 | 1.8750 | 0.9375 | 30 | 952-001-129 | 952-001-132 | 952-001-131 | 952-001-130 |
| 6.0000 | 1.0000 | 1.2500 | 2.0313 | 1.8750 | 1.0000 | 30 | 952-001-133 | 952-001-136 | 952-001-135 | 952-001-134 |

*Make To Order



DB Style

- Additional Teeth for Fine Finishes
- Cobalt



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 20 | 952-000-773 | 952-000-776 | 952-000-775 | 952-000-774 |
| 3.0000 | 0.3125 | 1.0000 | 0.7188 | 1.5000 | 0.3125 | 20 | 952-000-777 | 952-000-780 | 952-000-779 | 952-000-778 |
| 3.0000 | 0.3750 | 1.0000 | 0.7188 | 1.5000 | 0.3750 | 20 | 952-000-781 | 952-000-784 | 952-000-783 | 952-000-782 |
| 3.0000 | 0.5000 | 1.0000 | 0.7188 | 1.5000 | 0.5000 | 20 | 952-000-785 | 952-000-788 | 952-000-787 | 952-000-786 |
| 4.0000 | 0.2500 | 1.0000 | 1.1563 | 1.6250 | 0.2500 | 24 | 952-000-789 | 952-000-792 | 952-000-791 | 952-000-790 |
| 4.0000 | 0.2500 | 1.2500 | 1.0938 | 1.7500 | 0.2500 | 24 | 952-000-793 | 952-000-796 | 952-000-795 | 952-000-794 |
| 4.0000 | 0.3125 | 1.0000 | 1.1563 | 1.6250 | 0.3125 | 24 | 952-000-797 | 952-000-800 | 952-000-799 | 952-000-798 |
| 4.0000 | 1.0938 | 1.2500 | 1.0938 | 1.7500 | 1.0938 | 24 | 952-000-801 | 952-000-804 | 952-000-803 | 952-000-802 |
| 4.0000 | 0.3750 | 1.0000 | 1.1563 | 1.6250 | 0.3750 | 24 | 952-000-805 | 952-000-808 | 952-000-807 | 952-000-806 |
| 4.0000 | 0.3750 | 1.2500 | 1.0938 | 1.7500 | 0.3750 | 24 | 952-000-809 | 952-000-812 | 952-000-811 | 952-000-810 |
| 4.0000 | 0.5000 | 1.0000 | 1.1563 | 1.6250 | 0.5000 | 24 | 952-000-813 | 952-000-816 | 952-000-815 | 952-000-814 |
| 4.0000 | 0.5000 | 1.2500 | 1.0938 | 1.7500 | 0.5000 | 24 | 952-000-817 | 952-000-820 | 952-000-819 | 952-000-818 |
| 4.0000 | 0.7500 | 1.0000 | 1.1563 | 1.6250 | 0.7500 | 24 | 952-000-821 | 952-000-824 | 952-000-823 | 952-000-822 |
| 4.0000 | 0.7500 | 1.2500 | 1.0938 | 1.7500 | 0.7500 | 24 | 952-000-825 | 952-000-828 | 952-000-827 | 952-000-826 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 30 | 952-000-829 | 952-000-832 | 952-000-831 | 952-000-830 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 30 | 952-000-833 | 952-000-836 | 952-000-835 | 952-000-834 |
| 6.0000 | 0.5000 | 1.2500 | 2.0313 | 1.8750 | 0.5000 | 30 | 952-000-837 | 952-000-840 | 952-000-839 | 952-000-838 |

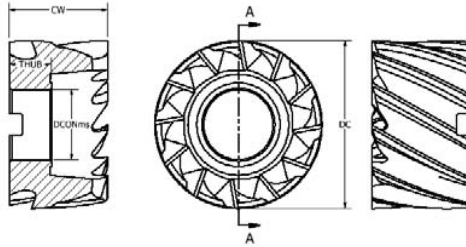
*Make To Order

COBALT

T-15



PLAIN/SHELL MILLS



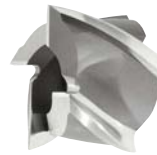
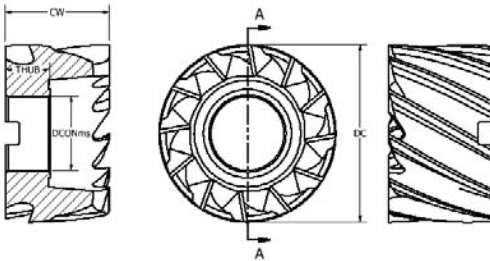
SMGP

- Ground Flutes
- Available in Right-Hand or Left-Hand by special order

General Purpose

| DC | CW | DCONms | THUB | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 1.2500 | 1.0000 | 0.5000 | 0.6250 | 8 | 938-000-001 | 938-000-004 | 938-000-003 | 938-000-002 |
| 1.5000 | 1.1250 | 0.5000 | 0.6250 | 8 | 938-000-005 | 938-000-008 | 938-000-007 | 938-000-006 |
| 1.7500 | 1.2500 | 0.7500 | 0.7500 | 8 | 938-000-009 | 938-000-012 | 938-000-011 | 938-000-010 |
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 10 | 938-000-013 | 938-000-016 | 938-000-015 | 938-000-014 |
| 2.2500 | 1.5000 | 1.0000 | 0.7500 | 10 | 938-000-017 | 938-000-020 | 938-000-019 | 938-000-018 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 10 | 938-000-021 | 938-000-024 | 938-000-023 | 938-000-022 |
| 2.7500 | 1.6250 | 1.0000 | 0.7500 | 10 | 938-000-025 | 938-000-028 | 938-000-027 | 938-000-026 |
| 3.0000 | 1.7500 | 1.2500 | 0.7500 | 12 | 938-000-029 | 938-000-032 | 938-000-031 | 938-000-030 |
| 3.5000 | 1.8750 | 1.2500 | 0.7500 | 12 | 938-000-033 | 938-000-036 | 938-000-035 | 938-000-034 |
| 4.0000 | 2.2500 | 1.5000 | 1.0000 | 14 | 938-000-037 | 938-000-040 | 938-000-039 | 938-000-038 |
| 4.5000 | 2.2500 | 1.5000 | 1.0000 | 14 | 938-000-041 | 938-000-044 | 938-000-043 | 938-000-042 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 16 | 938-000-045 | 938-000-048 | 938-000-047 | 938-000-046 |
| 6.0000 | 2.2500 | 1.5000 | 1.0000 | 16 | 938-000-049 | 938-000-052 | 938-000-051 | 938-000-050 |

*Make To Order



SMAL

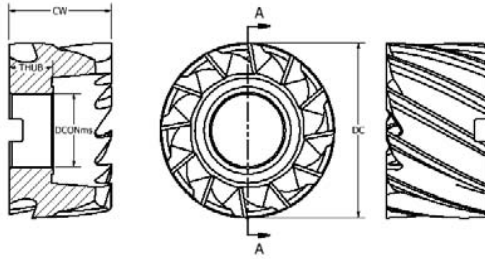
- Deep Gullet Space
- Excellent for Non-Ferrous Materials
- High Rake and Polished Flutes

Aluminum Cutting

| DC | CW | DCONms | THUB | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 1.2500 | 1.0000 | 0.5000 | 0.6250 | 4 | 938-000-053 | 938-000-056 | 938-000-055 | 938-000-054 |
| 1.5000 | 1.1250 | 0.5000 | 0.6250 | 4 | 938-000-057 | 938-000-060 | 938-000-059 | 938-000-058 |
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 4 | 938-000-061 | 938-000-064 | 938-000-063 | 938-000-062 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 4 | 938-000-065 | 938-000-068 | 938-000-067 | 938-000-066 |
| 3.0000 | 1.7500 | 1.2500 | 0.7500 | 6 | 938-000-069 | 938-000-072 | 938-000-071 | 938-000-070 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 6 | 938-000-073 | 938-000-076 | 938-000-075 | 938-000-074 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 8 | 938-000-077 | 938-000-080 | 938-000-079 | 938-000-078 |
| 6.0000 | 2.2500 | 1.5000 | 1.0000 | 8 | 938-000-081 | 938-000-084 | 938-000-083 | 938-000-082 |

*Make To Order

COBALT

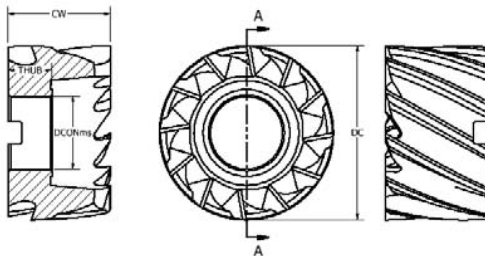


SMT15

- Recommended for finishing
- Resistant to High Heat and Abrasive Wear

| DC | CW | DCONms | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 1.2500 | 1.0000 | 0.5000 | 0.6250 | 8 | 938-000-133 | 938-000-136 | 938-000-135 | 938-000-134 |
| 1.5000 | 1.1250 | 0.5000 | 0.6250 | 8 | 938-000-137 | 938-000-140 | 938-000-139 | 938-000-138 |
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 10 | 938-000-141 | 938-000-144 | 938-000-143 | 938-000-142 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 10 | 938-000-145 | 938-000-148 | 938-000-147 | 938-000-146 |
| 3.0000 | 1.7500 | 1.2500 | 0.7500 | 12 | 938-000-149 | 938-000-152 | 938-000-151 | 938-000-150 |
| 4.0000 | 2.2500 | 1.5000 | 1.0000 | 14 | 938-000-153 | 938-000-156 | 938-000-155 | 938-000-154 |

*Make To Order



RM750

Coarse-Pitch

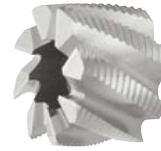
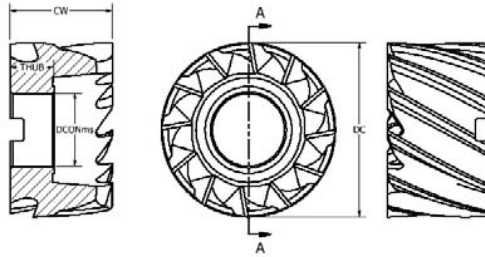
| DC | CW | DCONms | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 8 | 949-000-001 | 949-000-004 | 949-000-003 | 949-000-002 |
| 2.2500 | 1.5000 | 1.0000 | 0.7500 | 8 | 949-000-005 | 949-000-008 | 949-000-007 | 949-000-006 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 8 | 949-000-009 | 949-000-012 | 949-000-011 | 949-000-010 |
| 2.7500 | 1.6250 | 1.0000 | 0.7500 | 10 | 949-000-013 | 949-000-016 | 949-000-015 | 949-000-014 |
| 3.0000 | 2.0000 | 1.2500 | 0.7500 | 10 | 949-000-017 | 949-000-020 | 949-000-019 | 949-000-018 |
| 3.5000 | 1.8750 | 1.2500 | 0.7500 | 10 | 949-000-021 | 949-000-024 | 949-000-023 | 949-000-022 |
| 4.0000 | 2.2500 | 1.5000 | 1.0000 | 10 | 949-000-025 | 949-000-028 | 949-000-027 | 949-000-026 |
| 4.5000 | 2.2500 | 1.5000 | 1.0000 | 12 | 949-000-029 | 949-000-032 | 949-000-031 | 949-000-030 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 12 | 949-000-033 | 949-000-036 | 949-000-035 | 949-000-034 |
| 6.0000 | 2.2500 | 1.5000 | 1.0000 | 14 | 949-000-037 | 949-000-040 | 949-000-039 | 949-000-038 |

*Make To Order

COBALT



COBALT

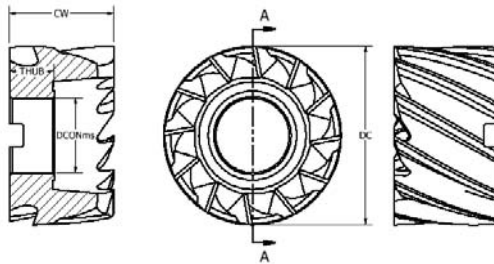


RP450

Fine-Pitch

| DC | CW | DCONms | THUB | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 8 | 949-000-041 | 949-000-042 | 949-000-043 | 949-000-044 |
| 2.2500 | 1.5000 | 1.0000 | 0.7500 | 8 | 949-000-045 | 949-000-046 | 949-000-047 | 949-000-048 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 8 | 949-000-049 | 949-000-050 | 949-000-051 | 949-000-052 |
| 2.7500 | 1.6250 | 1.0000 | 0.7500 | 10 | 949-000-053 | 949-000-054 | 949-000-055 | 949-000-056 |
| 3.0000 | 2.0000 | 1.2500 | 0.7500 | 10 | 949-000-057 | 949-000-058 | 949-000-059 | 949-000-060 |
| 3.5000 | 1.2500 | 1.8750 | 0.7500 | 10 | 949-000-061 | 949-000-062 | 949-000-063 | 949-000-064 |
| 4.0000 | 2.2500 | 1.5000 | 1.0000 | 10 | 949-000-065 | 949-000-066 | 949-000-067 | 949-000-068 |
| 4.5000 | 2.2500 | 1.5000 | 1.0000 | 12 | 949-000-069 | 949-000-070 | 949-000-071 | 949-000-072 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 12 | 949-000-073 | 949-000-074 | 949-000-075 | 949-000-076 |
| 6.0000 | 2.2500 | 1.5000 | 1.0000 | 14 | 949-000-077 | 949-000-078 | 949-000-079 | 949-000-080 |

*Make To Order



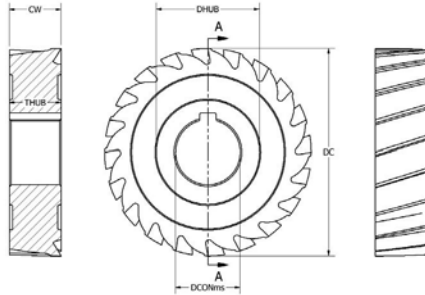
SMM42

| DC | CW | DCONms | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 1.2500 | 1.0000 | 0.5000 | 0.6250 | 8 | 938-000-085 | 938-000-088 | 938-000-087 | 938-000-086 |
| 1.5000 | 1.1250 | 0.5000 | 0.6250 | 8 | 938-000-089 | 938-000-092 | 938-000-091 | 938-000-090 |
| 1.7500 | 1.2500 | 0.7500 | 0.7500 | 8 | 938-000-093 | 938-000-096 | 938-000-095 | 938-000-094 |
| 2.0000 | 1.3750 | 0.7500 | 0.7500 | 10 | 938-000-097 | 938-000-100 | 938-000-099 | 938-000-098 |
| 2.2500 | 1.5000 | 1.0000 | 0.7500 | 10 | 938-000-101 | 938-000-104 | 938-000-103 | 938-000-102 |
| 2.5000 | 1.6250 | 1.0000 | 0.7500 | 10 | 938-000-105 | 938-000-108 | 938-000-107 | 938-000-106 |
| 2.7500 | 1.6250 | 1.0000 | 0.7500 | 10 | 938-000-109 | 938-000-112 | 938-000-111 | 938-000-110 |
| 3.0000 | 1.7500 | 1.2500 | 0.7500 | 12 | 938-000-113 | 938-000-116 | 938-000-115 | 938-000-114 |
| 3.5000 | 1.8750 | 1.2500 | 0.7500 | 12 | 938-000-117 | 938-000-120 | 938-000-119 | 938-000-118 |
| 4.0000 | 2.2500 | 1.5000 | 1.0000 | 14 | 938-000-121 | 938-000-124 | 938-000-123 | 938-000-122 |
| 5.0000 | 2.2500 | 1.5000 | 1.0000 | 16 | 938-000-125 | 938-000-128 | 938-000-127 | 938-000-126 |
| 6.0000 | 2.2500 | 1.5000 | 1.0000 | 16 | 938-000-129 | 938-000-132 | 938-000-131 | 938-000-130 |

*Make To Order



HSS



LD Style

- Cutters up to 3/4" face width have straight teeth
- Cutters 3/4" face width and over have 18° left hand helix
- Right-Hand Cut, Left-Hand Helix allows for Rigidity and Improved Surface Finish

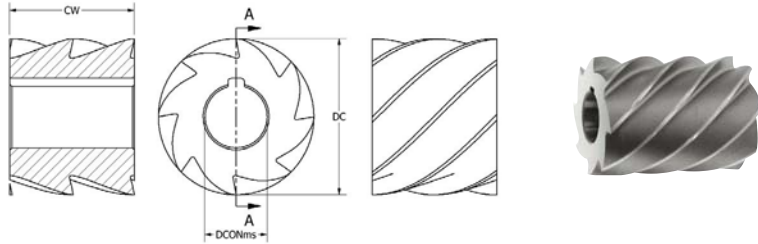
Light-Duty

| DC | CW | DCONms | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.5000 | 0.1875 | 1.0000 | 1.5000 | 0.1875 | 16 | 948-000-045 | 948-000-048 | 948-000-047 | 948-000-046 |
| 2.5000 | 0.2500 | 1.0000 | 1.5000 | 0.2500 | 16 | 948-000-049 | 948-000-052 | 948-000-051 | 948-000-050 |
| 2.5000 | 0.3125 | 1.0000 | 1.5000 | 0.3125 | 16 | 948-000-053 | 948-000-056 | 948-000-055 | 948-000-054 |
| 2.5000 | 0.3750 | 1.0000 | 1.5000 | 0.3750 | 16 | 948-000-057 | 948-000-060 | 948-000-059 | 948-000-058 |
| 2.5000 | 0.5000 | 1.0000 | 1.5000 | 0.5000 | 16 | 948-000-061 | 948-000-064 | 948-000-063 | 948-000-062 |
| 2.5000 | 0.6250 | 1.0000 | 1.5000 | 0.6250 | 16 | 948-000-065 | 948-000-068 | 948-000-067 | 948-000-066 |
| 2.5000 | 0.7500 | 1.0000 | 1.5000 | 0.7500 | 14 | 948-000-069 | 948-000-072 | 948-000-071 | 948-000-070 |
| 2.5000 | 1.0000 | 1.0000 | 1.5000 | 1.0000 | 14 | 948-000-073 | 948-000-076 | 948-000-075 | 948-000-074 |
| 2.5000 | 1.5000 | 1.0000 | N/A | N/A | 14 | 948-000-077 | 948-000-080 | 948-000-079 | 948-000-078 |
| 2.5000 | 2.0000 | 1.0000 | N/A | N/A | 14 | 948-000-081 | 948-000-084 | 948-000-083 | 948-000-082 |
| 2.5000 | 2.5000 | 1.0000 | N/A | N/A | 14 | 948-000-085 | 948-000-088 | 948-000-087 | 948-000-086 |
| 2.5000 | 3.0000 | 1.0000 | N/A | N/A | 14 | 948-000-089 | 948-000-092 | 948-000-091 | 948-000-090 |
| 3.0000 | 0.1875 | 1.0000 | 1.6300 | 0.1875 | 18 | 948-000-093 | 948-000-096 | 948-000-095 | 948-000-094 |
| 3.0000 | 0.2500 | 1.0000 | 1.6300 | 0.2500 | 18 | 948-000-097 | 948-000-100 | 948-000-099 | 948-000-098 |
| 3.0000 | 0.3125 | 1.0000 | 1.6300 | 0.3125 | 18 | 948-000-101 | 948-000-104 | 948-000-103 | 948-000-102 |
| 3.0000 | 0.3750 | 1.0000 | 1.6300 | 0.3750 | 18 | 948-000-105 | 948-000-108 | 948-000-107 | 948-000-106 |
| 3.0000 | 0.3750 | 1.2500 | 1.8800 | 0.3750 | 18 | 948-000-109 | 948-000-112 | 948-000-111 | 948-000-110 |
| 3.0000 | 0.5000 | 1.2500 | 1.8800 | 0.5000 | 18 | 948-000-113 | 948-000-116 | 948-000-115 | 948-000-114 |
| 3.0000 | 0.6250 | 1.2500 | 1.8800 | 0.6250 | 18 | 948-000-117 | 948-000-120 | 948-000-119 | 948-000-118 |
| 3.0000 | 0.7500 | 1.2500 | 1.8800 | 0.7500 | 16 | 948-000-121 | 948-000-124 | 948-000-123 | 948-000-122 |
| 3.0000 | 1.0000 | 1.2500 | 1.8800 | 1.0000 | 16 | 948-000-125 | 948-000-128 | 948-000-127 | 948-000-126 |
| 3.0000 | 1.2500 | 1.2500 | N/A | N/A | 16 | 948-000-129 | 948-000-132 | 948-000-131 | 948-000-130 |
| 3.0000 | 1.5000 | 1.2500 | N/A | N/A | 16 | 948-000-133 | 948-000-136 | 948-000-135 | 948-000-134 |
| 3.0000 | 2.0000 | 1.2500 | N/A | N/A | 16 | 948-000-137 | 948-000-140 | 948-000-139 | 948-000-138 |
| 3.0000 | 3.0000 | 1.2500 | N/A | N/A | 16 | 948-000-141 | 948-000-144 | 948-000-143 | 948-000-142 |
| 4.0000 | 0.2500 | 1.0000 | 1.6300 | 0.2500 | 20 | 948-000-145 | 948-000-148 | 948-000-147 | 948-000-146 |
| 4.0000 | 0.2500 | 1.2500 | 2.0000 | 0.2500 | 20 | 948-000-149 | 948-000-152 | 948-000-151 | 948-000-150 |
| 4.0000 | 0.3125 | 1.0000 | 1.6300 | 0.3125 | 20 | 948-000-153 | 948-000-156 | 948-000-155 | 948-000-154 |
| 4.0000 | 0.3750 | 1.0000 | 1.6300 | 0.3750 | 20 | 948-000-157 | 948-000-160 | 948-000-159 | 948-000-158 |
| 4.0000 | 0.3750 | 1.2500 | 2.0000 | 0.3750 | 20 | 948-000-161 | 948-000-164 | 948-000-163 | 948-000-162 |
| 4.0000 | 0.5000 | 1.2500 | 2.0000 | 0.5000 | 20 | 948-000-165 | 948-000-168 | 948-000-167 | 948-000-166 |
| 4.0000 | 0.6250 | 1.2500 | 2.0000 | 0.6250 | 20 | 948-000-169 | 948-000-172 | 948-000-171 | 948-000-170 |
| 4.0000 | 0.7500 | 1.2500 | 2.0000 | 0.7500 | 20 | 948-000-173 | 948-000-176 | 948-000-175 | 948-000-174 |
| 4.0000 | 1.0000 | 1.2500 | 2.0000 | 1.0000 | 20 | 948-000-177 | 948-000-180 | 948-000-179 | 948-000-178 |
| 4.0000 | 1.5000 | 1.2500 | N/A | N/A | 20 | 948-000-181 | 948-000-184 | 948-000-183 | 948-000-182 |
| 4.0000 | 2.0000 | 1.2500 | N/A | N/A | 20 | 948-000-185 | 948-000-188 | 948-000-187 | 948-000-186 |
| 4.0000 | 3.0000 | 1.2500 | N/A | N/A | 20 | 948-000-189 | 948-000-192 | 948-000-191 | 948-000-190 |
| 4.0000 | 4.0000 | 1.2500 | N/A | N/A | 20 | 948-000-193 | 948-000-196 | 948-000-195 | 948-000-194 |

*Make To Order



HSS



HD Style

- 45° Left-Hand Helix, Right-Hand Cuts
- Fewer teeth than "LD" Style making it better suited for heavy stock removal

45° Spiral Heavy-Duty

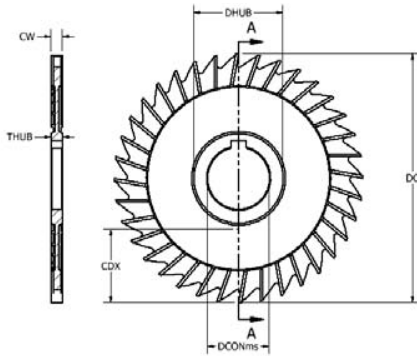
| DC | CW | DCONms | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.5000 | 2.0000 | 1.0000 | 8 | 948-000-001 | 948-000-004 | 948-000-003 | 948-000-002 |
| 2.5000 | 4.0000 | 1.0000 | 8 | 948-000-005 | 948-000-008 | 948-000-007 | 948-000-006 |
| 3.0000 | 2.0000 | 1.2500 | 8 | 948-000-009 | 948-000-012 | 948-000-011 | 948-000-010 |
| 3.0000 | 2.5000 | 1.2500 | 8 | 948-000-013 | 948-000-016 | 948-000-015 | 948-000-014 |
| 3.0000 | 3.0000 | 1.2500 | 8 | 948-000-017 | 948-000-020 | 948-000-019 | 948-000-018 |
| 3.0000 | 4.0000 | 1.2500 | 8 | 948-000-021 | 948-000-024 | 948-000-023 | 948-000-022 |
| 3.0000 | 6.0000 | 1.2500 | 8 | 948-000-025 | 948-000-028 | 948-000-027 | 948-000-026 |
| 4.0000 | 2.0000 | 1.5000 | 10 | 948-000-029 | 948-000-032 | 948-000-031 | 948-000-030 |
| 4.0000 | 3.0000 | 1.5000 | 10 | 948-000-033 | 948-000-036 | 948-000-035 | 948-000-034 |
| 4.0000 | 4.0000 | 1.5000 | 10 | 948-000-037 | 948-000-040 | 948-000-039 | 948-000-038 |
| 4.0000 | 6.0000 | 1.5000 | 10 | 948-000-041 | 948-000-044 | 948-000-043 | 948-000-042 |

*Make To Order



SLITTING/JEWELER SAWS

THE COMPLETE TOOL MAKING AUTHORITY®



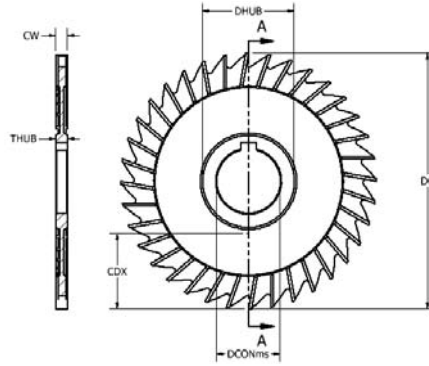
CMT Style

- Fully Ground Surfaces
- Recommended for Thin Walled Parts



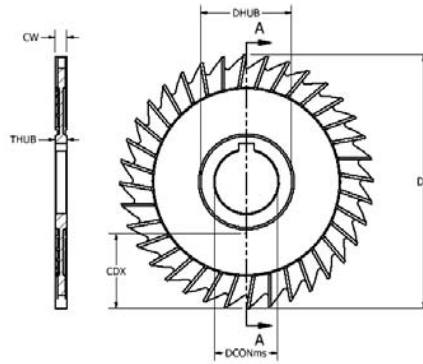
| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.5000 | 0.0625 | 0.8750 | 0.5938 | 1.2500 | 0.0625 | 28 | 950-001-169 | 950-001-172 | 950-001-171 | 950-001-170 |
| 2.5000 | 0.0938 | 0.8750 | 0.5938 | 1.2500 | 0.0938 | 28 | 950-001-177 | 950-001-180 | 950-001-179 | 950-001-178 |
| 2.5000 | 0.1250 | 0.8750 | 0.5938 | 1.2500 | 0.1250 | 28 | 950-001-173 | 950-001-176 | 950-001-175 | 950-001-174 |
| 3.0000 | 0.0625 | 1.0000 | 0.7188 | 1.5000 | 0.0625 | 32 | 950-001-181 | 950-001-184 | 950-001-183 | 950-001-182 |
| 3.0000 | 0.0781 | 1.0000 | 0.7188 | 1.5000 | 0.0781 | 32 | 950-001-197 | 950-001-200 | 950-001-199 | 950-001-198 |
| 3.0000 | 0.0938 | 1.0000 | 0.7188 | 1.5000 | 0.0938 | 32 | 950-001-209 | 950-001-212 | 950-001-211 | 950-001-210 |
| 3.0000 | 0.1094 | 1.0000 | 0.7188 | 1.5000 | 0.1094 | 32 | 950-001-221 | 950-001-224 | 950-001-223 | 950-001-222 |
| 3.0000 | 0.1250 | 1.0000 | 0.7188 | 1.5000 | 0.1250 | 32 | 950-001-185 | 950-001-188 | 950-001-187 | 950-001-186 |
| 3.0000 | 0.1406 | 1.0000 | 0.7188 | 1.5000 | 0.1406 | 32 | 950-001-201 | 950-001-204 | 950-001-203 | 950-001-202 |
| 3.0000 | 0.1563 | 1.0000 | 0.7188 | 1.5000 | 0.1563 | 32 | 950-001-213 | 950-001-216 | 950-001-215 | 950-001-214 |
| 3.0000 | 0.1719 | 1.0000 | 0.7188 | 1.5000 | 0.1719 | 32 | 950-001-225 | 950-001-228 | 950-001-227 | 950-001-226 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 32 | 950-001-189 | 950-001-192 | 950-001-191 | 950-001-190 |
| 3.0000 | 0.2031 | 1.0000 | 0.7188 | 1.5000 | 0.2031 | 32 | 950-001-205 | 950-001-208 | 950-001-207 | 950-001-206 |
| 3.0000 | 0.2188 | 1.0000 | 0.7188 | 1.5000 | 0.2188 | 32 | 950-001-217 | 950-001-220 | 950-001-219 | 950-001-218 |
| 3.0000 | 0.2344 | 1.0000 | 0.7188 | 1.5000 | 0.2344 | 32 | 950-001-229 | 950-001-232 | 950-001-231 | 950-001-230 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 32 | 950-001-193 | 950-001-196 | 950-001-195 | 950-001-194 |
| 4.0000 | 0.0625 | 1.0000 | 1.2188 | 1.5000 | 0.0625 | 36 | 950-001-233 | 950-001-236 | 950-001-235 | 950-001-234 |
| 4.0000 | 0.0625 | 1.2500 | 1.0313 | 1.8750 | 0.0625 | 36 | 950-001-237 | 950-001-240 | 950-001-239 | 950-001-238 |
| 4.0000 | 0.0781 | 1.0000 | 1.2188 | 1.5000 | 0.0781 | 36 | 950-001-265 | 950-001-268 | 950-001-267 | 950-001-266 |
| 4.0000 | 0.0781 | 1.2500 | 1.0313 | 1.8750 | 0.0781 | 36 | 950-001-269 | 950-001-272 | 950-001-271 | 950-001-270 |
| 4.0000 | 0.0938 | 1.0000 | 1.2188 | 1.5000 | 0.0938 | 36 | 950-001-289 | 950-001-292 | 950-001-291 | 950-001-290 |
| 4.0000 | 0.0938 | 1.2500 | 1.0313 | 1.8750 | 0.0938 | 36 | 950-001-293 | 950-001-296 | 950-001-295 | 950-001-294 |
| 4.0000 | 0.1094 | 1.0000 | 1.2188 | 1.5000 | 0.1094 | 36 | 950-001-313 | 950-001-316 | 950-001-315 | 950-001-314 |
| 4.0000 | 0.1094 | 1.2500 | 1.0313 | 1.8750 | 0.1094 | 36 | 950-001-317 | 950-001-320 | 950-001-319 | 950-001-318 |
| 4.0000 | 0.1250 | 1.0000 | 1.2188 | 1.5000 | 0.1250 | 36 | 950-001-241 | 950-001-244 | 950-001-243 | 950-001-242 |
| 4.0000 | 0.1250 | 1.2500 | 1.0313 | 1.8750 | 0.1250 | 36 | 950-001-245 | 950-001-248 | 950-001-247 | 950-001-246 |
| 4.0000 | 0.1406 | 1.0000 | 1.2188 | 1.5000 | 0.1406 | 36 | 950-001-273 | 950-001-276 | 950-001-275 | 950-001-274 |
| 4.0000 | 0.1406 | 1.2500 | 1.0313 | 1.8750 | 0.1406 | 36 | 950-001-277 | 950-001-280 | 950-001-279 | 950-001-278 |
| 4.0000 | 0.1563 | 1.0000 | 1.2188 | 1.5000 | 0.1563 | 36 | 950-001-297 | 950-001-300 | 950-001-299 | 950-001-298 |
| 4.0000 | 0.1563 | 1.2500 | 1.0313 | 1.8750 | 0.1563 | 36 | 950-001-301 | 950-001-304 | 950-001-303 | 950-001-302 |
| 4.0000 | 0.1719 | 1.0000 | 1.2188 | 1.5000 | 0.1719 | 36 | 950-001-321 | 950-001-324 | 950-001-323 | 950-001-322 |
| 4.0000 | 0.1719 | 1.2500 | 1.0313 | 1.8750 | 0.1719 | 36 | 950-001-325 | 950-001-328 | 950-001-327 | 950-001-326 |
| 4.0000 | 0.1875 | 1.0000 | 1.2188 | 1.5000 | 0.1875 | 36 | 950-001-249 | 950-001-252 | 950-001-251 | 950-001-250 |
| 4.0000 | 0.1875 | 1.2500 | 1.0313 | 1.8750 | 0.1875 | 36 | 950-001-253 | 950-001-256 | 950-001-255 | 950-001-254 |
| 4.0000 | 0.2031 | 1.0000 | 1.2188 | 1.5000 | 0.2031 | 36 | 950-001-281 | 950-001-284 | 950-001-283 | 950-001-282 |
| 4.0000 | 0.2031 | 1.2500 | 1.0313 | 1.8750 | 0.2031 | 36 | 950-001-285 | 950-001-288 | 950-001-287 | 950-001-286 |
| 4.0000 | 0.2188 | 1.0000 | 1.2188 | 1.5000 | 0.2188 | 36 | 950-001-305 | 950-001-308 | 950-001-307 | 950-001-306 |
| 4.0000 | 0.2188 | 1.2500 | 1.0313 | 1.8750 | 0.2188 | 36 | 950-001-309 | 950-001-312 | 950-001-311 | 950-001-310 |
| 4.0000 | 0.2344 | 1.0000 | 1.2188 | 1.5000 | 0.2344 | 36 | 950-001-329 | 950-001-332 | 950-001-331 | 950-001-330 |
| 4.0000 | 0.2344 | 1.2500 | 1.0313 | 1.8750 | 0.2344 | 36 | 950-001-333 | 950-001-336 | 950-001-335 | 950-001-334 |
| 4.0000 | 0.2500 | 1.0000 | 1.2188 | 1.5000 | 0.2500 | 36 | 950-001-257 | 950-001-260 | 950-001-259 | 950-001-258 |
| 4.0000 | 0.2500 | 1.2500 | 1.0313 | 1.8750 | 0.2500 | 36 | 950-001-261 | 950-001-264 | 950-001-263 | 950-001-262 |

*Make To Order



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAIN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 5.0000 | 0.0625 | 1.0000 | 1.7188 | 1.5000 | 0.0625 | 40 | 950-001-337 | 950-001-340 | 950-001-339 | 950-001-338 |
| 5.0000 | 0.0625 | 1.2500 | 1.5313 | 1.8750 | 0.0625 | 40 | 950-001-341 | 950-001-344 | 950-001-343 | 950-001-342 |
| 5.0000 | 0.0938 | 1.0000 | 1.7188 | 1.5000 | 0.0938 | 40 | 950-001-369 | 950-001-372 | 950-001-371 | 950-001-370 |
| 5.0000 | 0.0938 | 1.2500 | 1.5313 | 1.8750 | 0.0938 | 40 | 950-001-373 | 950-001-376 | 950-001-375 | 950-001-374 |
| 5.0000 | 0.1250 | 1.0000 | 1.7188 | 1.5000 | 0.1250 | 40 | 950-001-345 | 950-001-348 | 950-001-347 | 950-001-346 |
| 5.0000 | 0.1250 | 1.2500 | 1.5313 | 1.8750 | 0.1250 | 40 | 950-001-349 | 950-001-352 | 950-001-351 | 950-001-350 |
| 5.0000 | 0.1563 | 1.0000 | 1.7188 | 1.5000 | 0.1563 | 40 | 950-001-377 | 950-001-380 | 950-001-379 | 950-001-378 |
| 5.0000 | 0.1563 | 1.2500 | 1.5313 | 1.8750 | 0.1563 | 40 | 950-001-381 | 950-001-384 | 950-001-383 | 950-001-382 |
| 5.0000 | 0.1875 | 1.0000 | 1.7188 | 1.5000 | 0.1875 | 40 | 950-001-353 | 950-001-356 | 950-001-355 | 950-001-354 |
| 5.0000 | 0.1875 | 1.2500 | 1.5313 | 1.8750 | 0.1875 | 40 | 950-001-357 | 950-001-360 | 950-001-359 | 950-001-358 |
| 5.0000 | 0.2188 | 1.0000 | 1.7188 | 1.5000 | 0.2188 | 40 | 950-001-385 | 950-001-388 | 950-001-387 | 950-001-386 |
| 5.0000 | 0.2188 | 1.2500 | 1.5313 | 1.8750 | 0.2188 | 40 | 950-001-389 | 950-001-392 | 950-001-391 | 950-001-390 |
| 5.0000 | 0.2500 | 1.0000 | 1.7188 | 1.5000 | 0.2500 | 40 | 950-001-361 | 950-001-364 | 950-001-363 | 950-001-362 |
| 5.0000 | 0.2500 | 1.2500 | 1.5313 | 1.8750 | 0.2500 | 40 | 950-001-365 | 950-001-368 | 950-001-367 | 950-001-366 |
| 6.0000 | 0.0625 | 1.0000 | 2.2188 | 1.5000 | 0.0625 | 42 | 950-001-393 | 950-001-396 | 950-001-395 | 950-001-394 |
| 6.0000 | 0.0625 | 1.2500 | 2.0313 | 1.8750 | 0.0625 | 42 | 950-001-397 | 950-001-400 | 950-001-399 | 950-001-398 |
| 6.0000 | 0.0781 | 1.0000 | 2.2188 | 1.5000 | 0.0781 | 42 | 950-001-441 | 950-001-444 | 950-001-443 | 950-001-442 |
| 6.0000 | 0.0781 | 1.2500 | 2.0313 | 1.8750 | 0.0781 | 42 | 950-001-445 | 950-001-448 | 950-001-447 | 950-001-446 |
| 6.0000 | 0.0938 | 1.0000 | 2.2188 | 1.5000 | 0.0938 | 42 | 950-001-481 | 950-001-484 | 950-001-483 | 950-001-482 |
| 6.0000 | 0.0938 | 1.2500 | 2.0313 | 1.8750 | 0.0938 | 42 | 950-001-485 | 950-001-488 | 950-001-487 | 950-001-486 |
| 6.0000 | 0.1094 | 1.0000 | 2.2188 | 1.5000 | 0.1094 | 42 | 950-001-521 | 950-001-524 | 950-001-523 | 950-001-522 |
| 6.0000 | 0.1094 | 1.2500 | 2.0313 | 1.8750 | 0.1094 | 42 | 950-001-525 | 950-001-528 | 950-001-527 | 950-001-526 |
| 6.0000 | 0.1250 | 1.0000 | 2.2188 | 1.5000 | 0.1250 | 42 | 950-001-401 | 950-001-404 | 950-001-403 | 950-001-402 |
| 6.0000 | 0.1250 | 1.2500 | 2.0313 | 1.8750 | 0.1250 | 42 | 950-001-405 | 950-001-408 | 950-001-407 | 950-001-406 |
| 6.0000 | 0.1406 | 1.0000 | 2.2188 | 1.5000 | 0.1406 | 42 | 950-001-449 | 950-001-452 | 950-001-451 | 950-001-450 |
| 6.0000 | 0.1406 | 1.2500 | 2.0313 | 1.8750 | 0.1406 | 42 | 950-001-453 | 950-001-456 | 950-001-455 | 950-001-454 |
| 6.0000 | 0.1563 | 1.0000 | 2.2188 | 1.5000 | 0.1563 | 42 | 950-001-489 | 950-001-492 | 950-001-491 | 950-001-490 |
| 6.0000 | 0.1563 | 1.2500 | 2.0313 | 1.8750 | 0.1563 | 42 | 950-001-493 | 950-001-496 | 950-001-495 | 950-001-494 |
| 6.0000 | 0.1719 | 1.0000 | 2.2188 | 1.5000 | 0.1719 | 42 | 950-001-529 | 950-001-532 | 950-001-531 | 950-001-530 |
| 6.0000 | 0.1719 | 1.2500 | 2.0313 | 1.8750 | 0.1719 | 42 | 950-001-533 | 950-001-536 | 950-001-535 | 950-001-534 |
| 6.0000 | 0.1875 | 1.0000 | 2.2188 | 1.5000 | 0.1875 | 42 | 950-001-409 | 950-001-412 | 950-001-411 | 950-001-410 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 42 | 950-001-413 | 950-001-416 | 950-001-415 | 950-001-414 |
| 6.0000 | 0.2031 | 1.0000 | 2.2188 | 1.5000 | 0.2031 | 42 | 950-001-457 | 950-001-460 | 950-001-459 | 950-001-458 |
| 6.0000 | 0.2031 | 1.2500 | 2.0313 | 1.8750 | 0.2031 | 42 | 950-001-461 | 950-001-464 | 950-001-463 | 950-001-462 |
| 6.0000 | 0.2188 | 1.0000 | 2.2188 | 1.5000 | 0.2188 | 42 | 950-001-497 | 950-001-500 | 950-001-499 | 950-001-498 |
| 6.0000 | 0.2188 | 1.2500 | 2.0313 | 1.8750 | 0.2188 | 42 | 950-001-501 | 950-001-504 | 950-001-503 | 950-001-502 |
| 6.0000 | 0.2344 | 1.0000 | 2.2188 | 1.5000 | 0.2344 | 42 | 950-001-537 | 950-001-540 | 950-001-539 | 950-001-538 |
| 6.0000 | 0.2344 | 1.2500 | 2.0313 | 1.8750 | 0.2344 | 42 | 950-001-541 | 950-001-544 | 950-001-543 | 950-001-542 |
| 6.0000 | 0.2500 | 1.0000 | 2.2188 | 1.5000 | 0.2500 | 42 | 950-001-417 | 950-001-420 | 950-001-419 | 950-001-418 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 42 | 950-001-421 | 950-001-424 | 950-001-423 | 950-001-422 |
| 6.0000 | 0.2656 | 1.0000 | 2.2188 | 1.5000 | 0.2656 | 42 | 950-001-465 | 950-001-468 | 950-001-467 | 950-001-466 |
| 6.0000 | 0.2656 | 1.2500 | 2.0313 | 1.8750 | 0.2656 | 42 | 950-001-469 | 950-001-472 | 950-001-471 | 950-001-470 |
| 6.0000 | 0.2813 | 1.0000 | 2.2188 | 1.5000 | 0.2813 | 42 | 950-001-505 | 950-001-508 | 950-001-507 | 950-001-506 |
| 6.0000 | 0.2813 | 1.2500 | 2.0313 | 1.8750 | 0.2813 | 42 | 950-001-509 | 950-001-512 | 950-001-511 | 950-001-510 |
| 6.0000 | 0.2969 | 1.0000 | 2.2188 | 1.5000 | 0.2969 | 42 | 950-001-545 | 950-001-548 | 950-001-547 | 950-001-546 |
| 6.0000 | 0.2969 | 1.2500 | 2.0313 | 1.8750 | 0.2969 | 42 | 950-001-549 | 950-001-552 | 950-001-551 | 950-001-550 |
| 6.0000 | 0.3125 | 1.0000 | 2.2188 | 1.5000 | 0.3125 | 42 | 950-001-425 | 950-001-428 | 950-001-427 | 950-001-426 |
| 6.0000 | 0.3125 | 1.2500 | 2.0313 | 1.8750 | 0.3125 | 42 | 950-001-429 | 950-001-432 | 950-001-431 | 950-001-430 |
| 6.0000 | 0.3281 | 1.0000 | 2.2188 | 1.5000 | 0.3281 | 42 | 950-001-473 | 950-001-476 | 950-001-475 | 950-001-474 |
| 6.0000 | 0.3281 | 1.2500 | 2.0313 | 1.8750 | 0.3281 | 42 | 950-001-477 | 950-001-480 | 950-001-479 | 950-001-478 |
| 6.0000 | 0.3438 | 1.0000 | 2.2188 | 1.5000 | 0.3438 | 42 | 950-001-513 | 950-001-516 | 950-001-515 | 950-001-514 |
| 6.0000 | 0.3438 | 1.2500 | 2.0313 | 1.8750 | 0.3438 | 42 | 950-001-517 | 950-001-520 | 950-001-519 | 950-001-518 |
| 6.0000 | 0.3594 | 1.0000 | 2.2188 | 1.5000 | 0.3594 | 42 | 950-001-553 | 950-001-556 | 950-001-555 | 950-001-554 |

*Make To Order

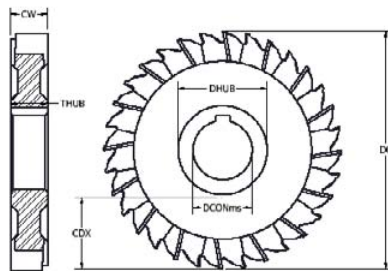


HSS



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|---------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 6.0000 | 0.3594 | 1.2500 | 2.0313 | 1.8750 | 0.3594 | 42 | 950-001-557 | 950-001-560 | 950-001-559 | 950-001-558 |
| 6.0000 | 0.3750 | 1.0000 | 2.2188 | 1.5000 | 0.3750 | 42 | 950-001-433 | 950-001-436 | 950-001-435 | 950-001-434 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 1.8750 | 0.3750 | 42 | 950-001-437 | 950-001-440 | 950-001-439 | 950-001-438 |
| 7.0000 | 0.1250 | 1.0000 | 2.6563 | 1.6250 | 0.1250 | 48 | 950-001-561 | 950-001-564 | 950-001-563 | 950-001-562 |
| 7.0000 | 0.1250 | 1.2500 | 2.5313 | 1.8750 | 0.1250 | 48 | 950-001-565 | 950-001-568 | 950-001-567 | 950-001-566 |
| 7.0000 | 0.1875 | 1.0000 | 2.6563 | 1.6250 | 0.1875 | 48 | 950-001-569 | 950-001-572 | 950-001-571 | 950-001-570 |
| 7.0000 | 0.1875 | 1.2500 | 2.5313 | 1.8750 | 0.1875 | 48 | 950-001-573 | 950-001-576 | 950-001-575 | 950-001-574 |
| 8.0000 | 0.1250 | 1.0000 | 3.1563 | 1.6250 | 0.1250 | 48 | 950-001-577 | 950-001-580 | 950-001-579 | 950-001-578 |
| 8.0000 | 0.1250 | 1.2500 | 3.0313 | 1.8750 | 0.1250 | 48 | 950-001-581 | 950-001-584 | 950-001-583 | 950-001-582 |
| 8.0000 | 0.1250 | 1.5000 | 3.0313 | 1.8750 | 0.1250 | 48 | 950-001-585 | 950-001-588 | 950-001-587 | 950-001-586 |
| 8.0000 | 0.1563 | 1.2500 | 3.0313 | 0.1250 | 0.1563 | 48 | 950-001-613 | 950-001-616 | 950-001-615 | 950-001-614 |
| 8.0000 | 0.1563 | 1.5000 | 3.0313 | 1.8750 | 0.1563 | 48 | 950-001-617 | 950-001-620 | 950-001-619 | 950-001-618 |
| 8.0000 | 0.1875 | 1.2500 | 3.0313 | 1.8750 | 0.1875 | 48 | 950-001-589 | 950-001-592 | 950-001-591 | 950-001-590 |
| 8.0000 | 0.1875 | 1.5000 | 3.0313 | 1.8750 | 0.1875 | 48 | 950-001-593 | 950-001-596 | 950-001-595 | 950-001-594 |
| 8.0000 | 0.2188 | 1.2500 | 3.0313 | 1.8750 | 0.2188 | 48 | 950-001-621 | 950-001-624 | 950-001-623 | 950-001-622 |
| 8.0000 | 0.2188 | 1.5000 | 3.0313 | 1.8750 | 0.2188 | 48 | 950-001-625 | 950-001-628 | 950-001-627 | 950-001-626 |
| 8.0000 | 0.2500 | 1.2500 | 3.0313 | 1.8750 | 0.2500 | 48 | 950-001-597 | 950-001-600 | 950-001-599 | 950-001-598 |
| 8.0000 | 0.2500 | 1.5000 | 3.0313 | 1.8750 | 0.2500 | 48 | 950-001-601 | 950-001-604 | 950-001-603 | 950-001-602 |
| 8.0000 | 0.3750 | 1.2500 | 3.0313 | 1.8750 | 0.3750 | 48 | 950-001-605 | 950-001-608 | 950-001-607 | 950-001-606 |
| 8.0000 | 0.3750 | 1.5000 | 3.0313 | 1.8750 | 0.3750 | 48 | 950-001-609 | 950-001-612 | 950-001-611 | 950-001-610 |
| 10.0000 | 0.1875 | 1.2500 | 3.4063 | 3.1250 | 0.1875 | 56 | 950-001-137 | 950-001-140 | 950-001-139 | 950-001-138 |
| 10.0000 | 0.1875 | 1.5000 | 3.4063 | 3.1250 | 0.1875 | 56 | 950-001-141 | 950-001-144 | 950-001-143 | 950-001-142 |
| 10.0000 | 0.2188 | 1.2500 | 3.4063 | 3.1250 | 0.2188 | 56 | 950-001-161 | 950-001-164 | 950-001-163 | 950-001-162 |
| 10.0000 | 0.2188 | 1.5000 | 3.4063 | 3.1250 | 0.2188 | 56 | 950-001-165 | 950-001-168 | 950-001-167 | 950-001-166 |
| 10.0000 | 0.2500 | 1.2500 | 3.4063 | 3.1250 | 0.2500 | 56 | 950-001-145 | 950-001-148 | 950-001-147 | 950-001-146 |
| 10.0000 | 0.2500 | 1.5000 | 3.4063 | 3.1250 | 0.2500 | 56 | 950-001-149 | 950-001-152 | 950-001-151 | 950-001-150 |
| 10.0000 | 0.3750 | 1.2500 | 3.4063 | 3.1250 | 0.3750 | 56 | 950-001-153 | 950-001-156 | 950-001-155 | 950-001-154 |
| 10.0000 | 0.3750 | 1.5000 | 3.4063 | 3.1250 | 0.3750 | 56 | 950-001-157 | 950-001-160 | 950-001-159 | 950-001-158 |

*Make To Order



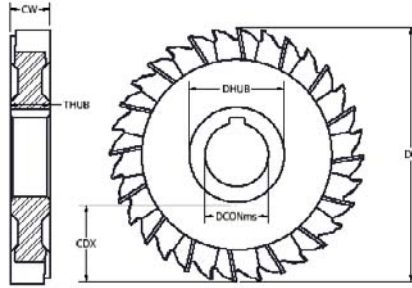
CMS Style

- Excellent for Deep Slotting
- Free Cutting



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.0938 | 1.0000 | 0.7188 | 1.5000 | 0.0938 | 28 | 950-000-917 | 950-000-920 | 950-000-919 | 950-000-918 |
| 3.0000 | 0.1250 | 1.0000 | 0.7188 | 1.5000 | 0.1250 | 28 | 950-000-905 | 950-000-908 | 950-000-907 | 950-000-906 |
| 3.0000 | 0.1563 | 1.0000 | 0.7188 | 1.5000 | 0.1563 | 28 | 950-000-921 | 950-000-924 | 950-000-923 | 950-000-922 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 28 | 950-000-909 | 950-000-912 | 950-000-911 | 950-000-910 |
| 3.0000 | 0.2188 | 1.0000 | 0.7188 | 1.5000 | 0.2188 | 28 | 950-000-925 | 950-000-928 | 950-000-927 | 950-000-926 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 28 | 950-000-913 | 950-000-916 | 950-000-915 | 950-000-914 |
| 4.0000 | 0.0938 | 1.0000 | 1.2188 | 1.5000 | 0.0938 | 32 | 950-000-953 | 950-000-956 | 950-000-955 | 950-000-954 |
| 4.0000 | 0.0938 | 1.2500 | 1.0313 | 1.8750 | 0.0938 | 32 | 950-000-957 | 950-000-960 | 950-000-959 | 950-000-958 |
| 4.0000 | 0.1250 | 1.0000 | 1.2188 | 1.5000 | 0.1250 | 32 | 950-000-929 | 950-000-932 | 950-000-931 | 950-000-930 |
| 4.0000 | 0.1250 | 1.2500 | 1.0313 | 1.8750 | 0.1250 | 32 | 950-000-933 | 950-000-936 | 950-000-935 | 950-000-934 |
| 4.0000 | 0.1563 | 1.0000 | 1.2188 | 1.5000 | 0.1563 | 32 | 950-000-961 | 950-000-964 | 950-000-963 | 950-000-962 |
| 4.0000 | 0.1563 | 1.2500 | 1.0313 | 1.8750 | 0.1563 | 32 | 950-000-965 | 950-000-968 | 950-000-967 | 950-000-966 |

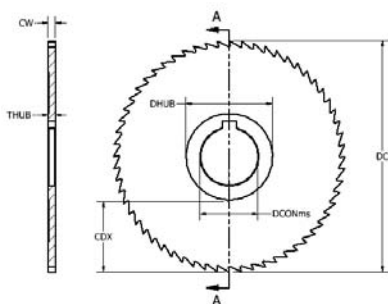
*Make To Order



HSS

| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|---------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 4.0000 | 0.1875 | 1.0000 | 1.2188 | 1.5000 | 0.1875 | 32 | 950-000-937 | 950-000-940 | 950-000-939 | 950-000-938 |
| 4.0000 | 0.1875 | 1.2500 | 1.0313 | 1.8750 | 0.1875 | 32 | 950-000-941 | 950-000-944 | 950-000-943 | 950-000-942 |
| 4.0000 | 0.2188 | 1.0000 | 1.2188 | 1.5000 | 0.2188 | 32 | 950-000-969 | 950-000-972 | 950-000-971 | 950-000-970 |
| 4.0000 | 0.2188 | 1.2500 | 1.0313 | 1.8750 | 0.2188 | 32 | 950-000-973 | 950-000-976 | 950-000-975 | 950-000-974 |
| 4.0000 | 0.2500 | 1.0000 | 1.2188 | 1.5000 | 0.2500 | 32 | 950-000-945 | 950-000-948 | 950-000-947 | 950-000-946 |
| 4.0000 | 0.2500 | 1.2500 | 1.0313 | 1.8750 | 0.2500 | 32 | 950-000-949 | 950-000-952 | 950-000-951 | 950-000-950 |
| 5.0000 | 0.0938 | 1.0000 | 1.7188 | 1.5000 | 0.0938 | 36 | 950-001-001 | 950-001-004 | 950-001-003 | 950-001-002 |
| 5.0000 | 0.0938 | 1.2500 | 1.5313 | 1.8750 | 0.0938 | 36 | 950-001-005 | 950-001-008 | 950-001-007 | 950-001-006 |
| 5.0000 | 0.1250 | 1.0000 | 1.7188 | 1.5000 | 0.1250 | 36 | 950-000-977 | 950-000-980 | 950-000-979 | 950-000-978 |
| 5.0000 | 0.1250 | 1.2500 | 1.5313 | 1.8750 | 0.1250 | 36 | 950-000-981 | 950-000-984 | 950-000-983 | 950-000-982 |
| 5.0000 | 0.1563 | 1.0000 | 1.7188 | 1.5000 | 0.1563 | 36 | 950-001-009 | 950-001-012 | 950-001-011 | 950-001-010 |
| 5.0000 | 0.1563 | 1.2500 | 1.5313 | 1.8750 | 0.1563 | 36 | 950-001-013 | 950-001-016 | 950-001-015 | 950-001-014 |
| 5.0000 | 0.1875 | 1.0000 | 1.7188 | 1.5000 | 0.1875 | 36 | 950-000-985 | 950-000-988 | 950-000-987 | 950-000-986 |
| 5.0000 | 0.1875 | 1.2500 | 1.5313 | 1.8750 | 0.1875 | 36 | 950-000-989 | 950-000-992 | 950-000-991 | 950-000-990 |
| 5.0000 | 0.2188 | 1.0000 | 1.7188 | 1.5000 | 0.2188 | 36 | 950-001-017 | 950-001-020 | 950-001-019 | 950-001-018 |
| 5.0000 | 0.2188 | 1.2500 | 1.5313 | 1.8750 | 0.2188 | 36 | 950-001-021 | 950-001-024 | 950-001-023 | 950-001-022 |
| 5.0000 | 0.2500 | 1.0000 | 1.7188 | 1.5000 | 0.2500 | 36 | 950-000-993 | 950-000-996 | 950-000-995 | 950-000-994 |
| 5.0000 | 0.2500 | 1.2500 | 1.5313 | 1.8750 | 0.2500 | 36 | 950-000-997 | 950-001-000 | 950-000-999 | 950-000-998 |
| 6.0000 | 0.1250 | 1.0000 | 2.2188 | 1.5000 | 0.1250 | 40 | 950-001-025 | 950-001-028 | 950-001-027 | 950-001-026 |
| 6.0000 | 0.1250 | 1.2500 | 2.0313 | 1.8750 | 0.1250 | 40 | 950-001-029 | 950-001-032 | 950-001-031 | 950-001-030 |
| 6.0000 | 0.1563 | 1.0000 | 2.2188 | 1.5000 | 0.1563 | 40 | 950-001-057 | 950-001-060 | 950-001-059 | 950-001-058 |
| 6.0000 | 0.1563 | 1.2500 | 2.0313 | 1.8750 | 0.1563 | 40 | 950-001-061 | 950-001-064 | 950-001-063 | 950-001-062 |
| 6.0000 | 0.1875 | 1.0000 | 2.2188 | 1.5000 | 0.1875 | 40 | 950-001-033 | 950-001-036 | 950-001-035 | 950-001-034 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 40 | 950-001-037 | 950-001-040 | 950-001-039 | 950-001-038 |
| 6.0000 | 0.2188 | 1.0000 | 2.2188 | 1.5000 | 0.2188 | 40 | 950-001-065 | 950-001-068 | 950-001-067 | 950-001-066 |
| 6.0000 | 0.2188 | 1.2500 | 2.0313 | 1.8750 | 0.2188 | 40 | 950-001-069 | 950-001-072 | 950-001-071 | 950-001-070 |
| 6.0000 | 0.2500 | 1.0000 | 2.2188 | 1.5000 | 0.2500 | 40 | 950-001-041 | 950-001-044 | 950-001-043 | 950-001-042 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 40 | 950-001-045 | 950-001-048 | 950-001-047 | 950-001-046 |
| 6.0000 | 0.3750 | 1.0000 | 2.2188 | 1.5000 | 0.3750 | 40 | 950-001-049 | 950-001-052 | 950-001-051 | 950-001-050 |
| 6.0000 | 0.3750 | 1.2500 | 2.0313 | 0.3750 | 0.3750 | 40 | 950-001-053 | 950-001-056 | 950-001-055 | 950-001-054 |
| 7.0000 | 0.1250 | 1.0000 | 2.7188 | 1.5000 | 0.1250 | 44 | 950-001-073 | 950-001-076 | 950-001-075 | 950-001-074 |
| 7.0000 | 0.1250 | 1.2500 | 2.5313 | 1.8750 | 0.1250 | 44 | 950-001-077 | 950-001-080 | 950-001-079 | 950-001-078 |
| 7.0000 | 0.1875 | 1.0000 | 2.7188 | 1.5000 | 0.1875 | 44 | 950-001-081 | 950-001-084 | 950-001-083 | 950-001-082 |
| 7.0000 | 0.1875 | 1.2500 | 2.5313 | 1.8750 | 0.1875 | 44 | 950-001-085 | 950-001-088 | 950-001-087 | 950-001-086 |
| 8.0000 | 0.1250 | 1.2500 | 3.0313 | 1.8750 | 0.1250 | 48 | 950-001-089 | 950-001-092 | 950-001-091 | 950-001-090 |
| 8.0000 | 0.1250 | 1.5000 | 3.0313 | 1.8750 | 0.1250 | 48 | 950-001-093 | 950-001-096 | 950-001-095 | 950-001-094 |
| 8.0000 | 0.1563 | 1.2500 | 3.0313 | 1.8750 | 0.1563 | 48 | 950-001-121 | 950-001-124 | 950-001-123 | 950-001-122 |
| 8.0000 | 0.1563 | 1.5000 | 3.0313 | 1.8750 | 0.1563 | 48 | 950-001-125 | 950-001-128 | 950-001-127 | 950-001-126 |
| 8.0000 | 0.1875 | 1.2500 | 3.0313 | 1.8750 | 0.1875 | 48 | 950-001-097 | 950-001-100 | 950-001-099 | 950-001-098 |
| 8.0000 | 0.1875 | 1.5000 | 3.0313 | 1.8750 | 0.1875 | 48 | 950-001-101 | 950-001-104 | 950-001-103 | 950-001-102 |
| 8.0000 | 0.2188 | 1.2500 | 3.0313 | 1.8750 | 0.2188 | 48 | 950-001-129 | 950-001-132 | 950-001-131 | 950-001-130 |
| 8.0000 | 0.2188 | 1.5000 | 3.0313 | 1.8750 | 0.2188 | 48 | 950-001-133 | 950-001-136 | 950-001-135 | 950-001-134 |
| 8.0000 | 0.2500 | 1.2500 | 3.0313 | 1.8750 | 0.2500 | 48 | 950-001-105 | 950-001-108 | 950-001-107 | 950-001-106 |
| 8.0000 | 0.2500 | 1.5000 | 3.0313 | 1.8750 | 0.2500 | 48 | 950-001-109 | 950-001-112 | 950-001-111 | 950-001-110 |
| 8.0000 | 0.3750 | 1.2500 | 3.0313 | 1.8750 | 0.3750 | 48 | 950-001-113 | 950-001-116 | 950-001-115 | 950-001-114 |
| 8.0000 | 0.3750 | 1.5000 | 3.0313 | 1.8750 | 0.3750 | 48 | 950-001-117 | 950-001-120 | 950-001-119 | 950-001-118 |
| 10.0000 | 0.1875 | 1.2500 | 3.4063 | 3.1250 | 0.1875 | 56 | 950-000-873 | 950-000-876 | 950-000-875 | 950-000-874 |
| 10.0000 | 0.1875 | 1.5000 | 3.4063 | 3.1250 | 0.1875 | 56 | 950-000-877 | 950-000-880 | 950-000-879 | 950-000-878 |
| 10.0000 | 0.2188 | 1.2500 | 3.4063 | 3.1250 | 0.2188 | 56 | 950-000-897 | 950-000-900 | 950-000-899 | 950-000-898 |
| 10.0000 | 0.2188 | 1.5000 | 3.4063 | 3.1250 | 0.2188 | 56 | 950-000-901 | 950-000-904 | 950-000-903 | 950-000-902 |
| 10.0000 | 0.2500 | 1.2500 | 3.4063 | 3.1250 | 0.2500 | 56 | 950-000-881 | 950-000-884 | 950-000-883 | 950-000-882 |
| 10.0000 | 0.2500 | 1.5000 | 3.4063 | 3.1250 | 0.2500 | 56 | 950-000-885 | 950-000-888 | 950-000-887 | 950-000-886 |
| 10.0000 | 0.3750 | 1.2500 | 3.4063 | 3.1250 | 0.3750 | 56 | 950-000-889 | 950-000-892 | 950-000-891 | 950-000-890 |
| 10.0000 | 0.3750 | 1.5000 | 3.4063 | 3.1250 | 0.3750 | 56 | 950-000-893 | 950-000-896 | 950-000-895 | 950-000-894 |

*Make To Order



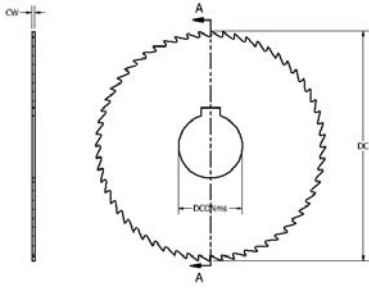
MC Style

- Designed for Slitting or Cutoff Operations
- O.D. Cutting Only, No Side Teeth
- Fully Ground Surfaces
- Square Cornered with Side Concavity



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 2.5000 | 0.0313 | 0.8750 | 0.5938 | 1.2500 | 0.0313 | 36 | 950-000-677 | 950-000-680 | 950-000-679 | 950-000-678 |
| 2.5000 | 0.0469 | 0.8750 | 0.5938 | 1.2500 | 0.0469 | 36 | 950-000-685 | 950-000-688 | 950-000-687 | 950-000-686 |
| 2.5000 | 0.0625 | 0.8750 | 0.5938 | 1.2500 | 0.0625 | 36 | 950-000-669 | 950-000-672 | 950-000-671 | 950-000-670 |
| 2.5000 | 0.0938 | 0.8750 | 0.5938 | 1.2500 | 0.0938 | 36 | 950-000-681 | 950-000-684 | 950-000-683 | 950-000-682 |
| 2.5000 | 0.1250 | 0.8750 | 0.5938 | 1.2500 | 0.1250 | 36 | 950-000-673 | 950-000-676 | 950-000-675 | 950-000-674 |
| 3.0000 | 0.0313 | 1.0000 | 0.7188 | 1.5000 | 0.0313 | 36 | 950-000-697 | 950-000-700 | 950-000-699 | 950-000-698 |
| 3.0000 | 0.0469 | 1.0000 | 0.7188 | 1.5000 | 0.0469 | 36 | 950-000-709 | 950-000-712 | 950-000-711 | 950-000-710 |
| 3.0000 | 0.0625 | 1.0000 | 0.7188 | 1.5000 | 0.0625 | 36 | 950-000-689 | 950-000-692 | 950-000-691 | 950-000-690 |
| 3.0000 | 0.0938 | 1.0000 | 0.7188 | 1.5000 | 0.0938 | 36 | 950-000-701 | 950-000-704 | 950-000-703 | 950-000-702 |
| 3.0000 | 0.1250 | 1.0000 | 0.7188 | 1.5000 | 0.1250 | 36 | 950-000-693 | 950-000-696 | 950-000-695 | 950-000-694 |
| 3.0000 | 0.1563 | 1.0000 | 0.7188 | 1.5000 | 0.1563 | 36 | 950-000-705 | 950-000-708 | 950-000-707 | 950-000-706 |
| 4.0000 | 0.0313 | 1.0000 | 1.2188 | 1.5000 | 0.0313 | 40 | 950-000-737 | 950-000-740 | 950-000-739 | 950-000-738 |
| 4.0000 | 0.0313 | 1.2500 | 1.0313 | 1.8750 | 0.0313 | 40 | 950-000-741 | 950-000-744 | 950-000-743 | 950-000-742 |
| 4.0000 | 0.0469 | 1.0000 | 1.2188 | 1.5000 | 0.0469 | 40 | 950-000-761 | 950-000-764 | 950-000-763 | 950-000-762 |
| 4.0000 | 0.0469 | 1.2500 | 1.0313 | 1.8750 | 0.0469 | 40 | 950-000-765 | 950-000-768 | 950-000-767 | 950-000-766 |
| 4.0000 | 0.0625 | 1.0000 | 1.2188 | 1.5000 | 0.0625 | 40 | 950-000-713 | 950-000-716 | 950-000-715 | 950-000-714 |
| 4.0000 | 0.0625 | 1.2500 | 1.0313 | 1.8750 | 0.0625 | 40 | 950-000-717 | 950-000-720 | 950-000-719 | 950-000-718 |
| 4.0000 | 0.0938 | 1.0000 | 1.2188 | 1.5000 | 0.0938 | 40 | 950-000-745 | 950-000-748 | 950-000-747 | 950-000-746 |
| 4.0000 | 0.0938 | 1.2500 | 1.0313 | 1.8750 | 0.0938 | 40 | 950-000-749 | 950-000-752 | 950-000-751 | 950-000-750 |
| 4.0000 | 0.1250 | 1.0000 | 1.2188 | 1.5000 | 0.1250 | 40 | 950-000-721 | 950-000-724 | 950-000-723 | 950-000-722 |
| 4.0000 | 0.1250 | 1.2500 | 1.0313 | 1.8750 | 0.1250 | 40 | 950-000-725 | 950-000-728 | 950-000-727 | 950-000-726 |
| 4.0000 | 0.1563 | 1.0000 | 1.2188 | 1.5000 | 0.1563 | 40 | 950-000-753 | 950-000-756 | 950-000-755 | 950-000-754 |
| 4.0000 | 0.1563 | 1.2500 | 1.0313 | 1.8750 | 0.1563 | 40 | 950-000-757 | 950-000-760 | 950-000-759 | 950-000-758 |
| 4.0000 | 0.1875 | 1.0000 | 1.2188 | 1.5000 | 0.1875 | 40 | 950-000-729 | 950-000-732 | 950-000-731 | 950-000-730 |
| 4.0000 | 0.1875 | 1.2500 | 1.0313 | 1.8750 | 0.1875 | 40 | 950-000-733 | 950-000-736 | 950-000-735 | 950-000-734 |
| 5.0000 | 0.0313 | 1.0000 | 1.7188 | 1.5000 | 0.0313 | 44 | 950-000-793 | 950-000-796 | 950-000-795 | 950-000-794 |
| 5.0000 | 0.0313 | 1.2500 | 1.5313 | 1.8750 | 0.0313 | 44 | 950-000-797 | 950-000-800 | 950-000-799 | 950-000-798 |
| 5.0000 | 0.0625 | 1.0000 | 1.7188 | 1.5000 | 0.0625 | 44 | 950-000-769 | 950-000-772 | 950-000-771 | 950-000-770 |
| 5.0000 | 0.0625 | 1.2500 | 1.5313 | 1.8750 | 0.0625 | 44 | 950-000-773 | 950-000-776 | 950-000-775 | 950-000-774 |
| 5.0000 | 0.0938 | 1.0000 | 1.7188 | 1.5000 | 0.0938 | 44 | 950-000-801 | 950-000-804 | 950-000-803 | 950-000-802 |
| 5.0000 | 0.0938 | 1.2500 | 1.5313 | 1.8750 | 0.0938 | 44 | 950-000-805 | 950-000-808 | 950-000-807 | 950-000-806 |
| 5.0000 | 0.1250 | 1.0000 | 1.7188 | 1.5000 | 0.1250 | 44 | 950-000-777 | 950-000-780 | 950-000-779 | 950-000-778 |
| 5.0000 | 0.1250 | 1.2500 | 1.5313 | 1.8750 | 0.1250 | 44 | 950-000-781 | 950-000-784 | 950-000-783 | 950-000-782 |
| 5.0000 | 0.1563 | 1.0000 | 1.7188 | 1.5000 | 0.1563 | 44 | 950-000-809 | 950-000-812 | 950-000-811 | 950-000-810 |
| 5.0000 | 0.1563 | 1.2500 | 1.5313 | 1.8750 | 0.1563 | 44 | 950-000-813 | 950-000-816 | 950-000-815 | 950-000-814 |
| 5.0000 | 0.1875 | 1.0000 | 1.7188 | 1.5000 | 0.1875 | 44 | 950-000-785 | 950-000-788 | 950-000-787 | 950-000-786 |
| 5.0000 | 0.1875 | 1.2500 | 1.5313 | 1.8750 | 0.1875 | 44 | 950-000-789 | 950-000-792 | 950-000-791 | 950-000-790 |
| 6.0000 | 0.0313 | 1.0000 | 2.2188 | 1.5000 | 0.0313 | 48 | 950-000-841 | 950-000-844 | 950-000-843 | 950-000-842 |
| 6.0000 | 0.0313 | 1.2500 | 2.0313 | 1.8750 | 0.0313 | 48 | 950-000-845 | 950-000-848 | 950-000-847 | 950-000-846 |
| 6.0000 | 0.0625 | 1.0000 | 2.2188 | 1.5000 | 0.0625 | 48 | 950-000-817 | 950-000-820 | 950-000-819 | 950-000-818 |
| 6.0000 | 0.0625 | 1.2500 | 2.0313 | 1.8750 | 0.0625 | 48 | 950-000-821 | 950-000-824 | 950-000-823 | 950-000-822 |
| 6.0000 | 0.0938 | 1.0000 | 2.2188 | 1.5000 | 0.0938 | 48 | 950-000-849 | 950-000-852 | 950-000-851 | 950-000-850 |
| 6.0000 | 0.0938 | 1.2500 | 2.0313 | 1.8750 | 0.0938 | 48 | 950-000-853 | 950-000-856 | 950-000-855 | 950-000-854 |
| 6.0000 | 0.1250 | 1.0000 | 2.2188 | 1.5000 | 0.1250 | 48 | 950-000-825 | 950-000-828 | 950-000-827 | 950-000-826 |
| 6.0000 | 0.1250 | 1.2500 | 2.0313 | 1.8750 | 0.1250 | 48 | 950-000-829 | 950-000-832 | 950-000-831 | 950-000-830 |
| 6.0000 | 0.1563 | 1.0000 | 2.2188 | 1.5000 | 0.1563 | 48 | 950-000-857 | 950-000-860 | 950-000-859 | 950-000-858 |
| 6.0000 | 0.1563 | 1.2500 | 2.0313 | 1.8750 | 0.1563 | 48 | 950-000-861 | 950-000-864 | 950-000-863 | 950-000-862 |
| 6.0000 | 0.1875 | 1.0000 | 2.2188 | 1.5000 | 0.1875 | 48 | 950-000-833 | 950-000-836 | 950-000-835 | 950-000-834 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 48 | 950-000-837 | 950-000-840 | 950-000-839 | 950-000-838 |
| 8.0000 | 0.1250 | 1.0000 | 3.2188 | 1.5000 | 0.1250 | 58 | 950-000-865 | 950-000-868 | 950-000-867 | 950-000-866 |
| 8.0000 | 0.1250 | 1.2500 | 3.0313 | 1.8750 | 0.1250 | 58 | 950-000-869 | 950-000-872 | 950-000-871 | 950-000-870 |

*Make To Order

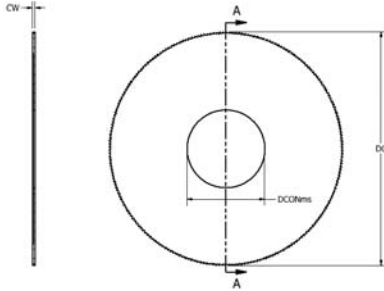


1470
• Fully Ground Surfaces



| DC | CW | DCONms | THUB | Zc | UNCOATED | TIN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 1.7500 | 0.0640 | 0.6250 | 0.0640 | 90 | 950-001-644 | 950-001-812 | 950-001-756 | 950-001-700 |
| 1.7500 | 0.0570 | 0.6250 | 0.0570 | 90 | 950-001-643 | 950-001-811 | 950-001-755 | 950-001-699 |
| 1.7500 | 0.0510 | 0.6250 | 0.0510 | 90 | 950-001-642 | 950-001-810 | 950-001-754 | 950-001-698 |
| 1.7500 | 0.0450 | 0.6250 | 0.0450 | 90 | 950-001-641 | 950-001-809 | 950-001-753 | 950-001-697 |
| 1.7500 | 0.0400 | 0.6250 | 0.0400 | 90 | 950-001-640 | 950-001-808 | 950-001-752 | 950-001-696 |
| 1.7500 | 0.0360 | 0.6250 | 0.0360 | 90 | 950-001-639 | 950-001-807 | 950-001-751 | 950-001-695 |
| 1.7500 | 0.0320 | 0.6250 | 0.0320 | 90 | 950-001-638 | 950-001-806 | 950-001-750 | 950-001-694 |
| 1.7500 | 0.0280 | 0.6250 | 0.0280 | 90 | 950-001-637 | 950-001-805 | 950-001-749 | 950-001-693 |
| 1.7500 | 0.0250 | 0.6250 | 0.0250 | 90 | 950-001-636 | 950-001-804 | 950-001-748 | 950-001-692 |
| 1.7500 | 0.0230 | 0.6250 | 0.0230 | 90 | 950-001-635 | 950-001-803 | 950-001-747 | 950-001-691 |
| 1.7500 | 0.0200 | 0.6250 | 0.0200 | 90 | 950-001-634 | 950-001-802 | 950-001-746 | 950-001-690 |
| 1.7500 | 0.0180 | 0.6250 | 0.0180 | 90 | 950-001-633 | 950-001-801 | 950-001-745 | 950-001-689 |
| 1.7500 | 0.0160 | 0.6250 | 0.0160 | 90 | 950-001-632 | 950-001-800 | 950-001-744 | 950-001-688 |
| 1.7500 | 0.0140 | 0.6250 | 0.0140 | 90 | 950-001-631 | 950-001-799 | 950-001-743 | 950-001-687 |
| 1.7500 | 0.0130 | 0.6250 | 0.0130 | 90 | 950-001-630 | 950-001-798 | 950-001-742 | 950-001-686 |
| 1.7500 | 0.0100 | 0.6250 | 0.0100 | 90 | 950-001-629 | 950-001-797 | 950-001-741 | 950-001-685 |
| 2.2500 | 0.0720 | 0.6250 | 0.0720 | 60 | 950-001-661 | 950-001-829 | 950-001-773 | 950-001-717 |
| 2.2500 | 0.0640 | 0.6250 | 0.0640 | 60 | 950-001-660 | 950-001-828 | 950-001-772 | 950-001-716 |
| 2.2500 | 0.0570 | 0.6250 | 0.0570 | 60 | 950-001-659 | 950-001-827 | 950-001-771 | 950-001-715 |
| 2.2500 | 0.0510 | 0.6250 | 0.0510 | 60 | 950-001-658 | 950-001-826 | 950-001-770 | 950-001-714 |
| 2.2500 | 0.0450 | 0.6250 | 0.0450 | 60 | 950-001-657 | 950-001-825 | 950-001-769 | 950-001-713 |
| 2.2500 | 0.0400 | 0.6250 | 0.0400 | 60 | 950-001-656 | 950-001-824 | 950-001-768 | 950-001-712 |
| 2.2500 | 0.0360 | 0.6250 | 0.0360 | 60 | 950-001-655 | 950-001-823 | 950-001-767 | 950-001-711 |
| 2.2500 | 0.0320 | 0.6250 | 0.0320 | 60 | 950-001-654 | 950-001-822 | 950-001-766 | 950-001-710 |
| 2.2500 | 0.0280 | 0.6250 | 0.0280 | 60 | 950-001-653 | 950-001-821 | 950-001-765 | 950-001-709 |
| 2.2500 | 0.0250 | 0.6250 | 0.0250 | 60 | 950-001-652 | 950-001-820 | 950-001-764 | 950-001-708 |
| 2.2500 | 0.0230 | 0.6250 | 0.0230 | 60 | 950-001-651 | 950-001-819 | 950-001-763 | 950-001-707 |
| 2.2500 | 0.0200 | 0.6250 | 0.0200 | 60 | 950-001-650 | 950-001-818 | 950-001-762 | 950-001-706 |
| 2.2500 | 0.0180 | 0.6250 | 0.0180 | 60 | 950-001-649 | 950-001-817 | 950-001-761 | 950-001-705 |
| 2.2500 | 0.0160 | 0.6250 | 0.0160 | 60 | 950-001-648 | 950-001-816 | 950-001-760 | 950-001-704 |
| 2.2500 | 0.0140 | 0.6250 | 0.0140 | 60 | 950-001-647 | 950-001-815 | 950-001-759 | 950-001-703 |
| 2.2500 | 0.0130 | 0.6250 | 0.0130 | 60 | 950-001-646 | 950-001-814 | 950-001-758 | 950-001-702 |
| 2.2500 | 0.0100 | 0.6250 | 0.0100 | 60 | 950-001-645 | 950-001-813 | 950-001-757 | 950-001-701 |
| 2.7500 | 0.1440 | 1.0000 | 0.1440 | 72 | 950-001-684 | 950-001-852 | 950-001-796 | 950-001-740 |
| 2.7500 | 0.1280 | 1.0000 | 0.1280 | 72 | 950-001-683 | 950-001-851 | 950-001-795 | 950-001-739 |
| 2.7500 | 0.1140 | 1.0000 | 0.1140 | 72 | 950-001-682 | 950-001-850 | 950-001-794 | 950-001-738 |
| 2.7500 | 0.1020 | 1.0000 | 0.1020 | 72 | 950-001-681 | 950-001-849 | 950-001-793 | 950-001-737 |
| 2.7500 | 0.0910 | 1.0000 | 0.0910 | 72 | 950-001-680 | 950-001-847 | 950-001-792 | 950-001-736 |
| 2.7500 | 0.0810 | 1.0000 | 0.0810 | 72 | 950-001-679 | 950-001-847 | 950-001-791 | 950-001-735 |
| 2.7500 | 0.0720 | 1.0000 | 0.0720 | 72 | 950-001-678 | 950-001-846 | 950-001-790 | 950-001-734 |
| 2.7500 | 0.0640 | 1.0000 | 0.0640 | 72 | 950-001-677 | 950-001-845 | 950-001-789 | 950-001-733 |
| 2.7500 | 0.0570 | 1.0000 | 0.0570 | 72 | 950-001-676 | 950-001-844 | 950-001-788 | 950-001-732 |
| 2.7500 | 0.0510 | 1.0000 | 0.0510 | 72 | 950-001-675 | 950-001-843 | 950-001-787 | 950-001-731 |
| 2.7500 | 0.0450 | 1.0000 | 0.0450 | 72 | 950-001-674 | 950-001-842 | 950-001-786 | 950-001-730 |
| 2.7500 | 0.0400 | 1.0000 | 0.0400 | 72 | 950-001-673 | 950-001-841 | 950-001-785 | 950-001-729 |
| 2.7500 | 0.0360 | 1.0000 | 0.0360 | 72 | 950-001-672 | 950-001-840 | 950-001-784 | 950-001-728 |
| 2.7500 | 0.0320 | 1.0000 | 0.0320 | 72 | 950-001-671 | 950-001-839 | 950-001-783 | 950-001-727 |
| 2.7500 | 0.0280 | 1.0000 | 0.0280 | 72 | 950-001-670 | 950-001-838 | 950-001-782 | 950-001-726 |
| 2.7500 | 0.0250 | 1.0000 | 0.0250 | 72 | 950-001-669 | 950-001-837 | 950-001-781 | 950-001-725 |
| 2.7500 | 0.0230 | 1.0000 | 0.0230 | 72 | 950-001-668 | 950-001-836 | 950-001-780 | 950-001-724 |
| 2.7500 | 0.0200 | 1.0000 | 0.0200 | 72 | 950-001-667 | 950-001-835 | 950-001-779 | 950-001-723 |
| 2.7500 | 0.0180 | 1.0000 | 0.0180 | 72 | 950-001-666 | 950-001-834 | 950-001-778 | 950-001-722 |
| 2.7500 | 0.0160 | 1.0000 | 0.0160 | 72 | 950-001-665 | 950-001-833 | 950-001-777 | 950-001-721 |
| 2.7500 | 0.0140 | 1.0000 | 0.0140 | 72 | 950-001-664 | 950-001-832 | 950-001-776 | 950-001-720 |
| 2.7500 | 0.0130 | 1.0000 | 0.0130 | 72 | 950-001-663 | 950-001-831 | 950-001-775 | 950-001-719 |
| 2.7500 | 0.0100 | 1.0000 | 0.0100 | 72 | 950-001-662 | 950-001-830 | 950-001-774 | 950-001-718 |

*Make To Order

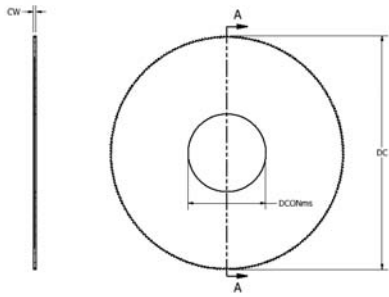


1490
• Fully Ground Surfaces



| DC | CW | DCONms | Zc | UNCOATED | TIN COATED* | TICN COATED* | TiAIN COATED |
|--------|--------|--------|-----|-------------|-------------|--------------|--------------|
| 1.0000 | 0.0320 | 0.3750 | 80 | 950-000-191 | 950-000-578 | 950-000-449 | 950-000-320 |
| 1.0000 | 0.0280 | 0.3750 | 80 | 950-000-190 | 950-000-577 | 950-000-448 | 950-000-319 |
| 1.0000 | 0.0250 | 0.3750 | 80 | 950-000-189 | 950-000-576 | 950-000-447 | 950-000-318 |
| 1.0000 | 0.0230 | 0.3750 | 80 | 950-000-188 | 950-000-575 | 950-000-446 | 950-000-317 |
| 1.0000 | 0.0200 | 0.3750 | 80 | 950-000-187 | 950-000-574 | 950-000-445 | 950-000-316 |
| 1.0000 | 0.0180 | 0.3750 | 80 | 950-000-186 | 950-000-573 | 950-000-444 | 950-000-315 |
| 1.0000 | 0.0160 | 0.3750 | 80 | 950-000-185 | 950-000-572 | 950-000-443 | 950-000-314 |
| 1.0000 | 0.0140 | 0.3750 | 80 | 950-000-184 | 950-000-571 | 950-000-442 | 950-000-313 |
| 1.0000 | 0.0120 | 0.3750 | 100 | 950-000-183 | 950-000-570 | 950-000-441 | 950-000-312 |
| 1.0000 | 0.0100 | 0.3750 | 100 | 950-000-182 | 950-000-569 | 950-000-440 | 950-000-311 |
| 1.2500 | 0.0320 | 0.3750 | 100 | 950-000-171 | 950-000-558 | 950-000-429 | 950-000-300 |
| 1.2500 | 0.0280 | 0.3750 | 100 | 950-000-170 | 950-000-557 | 950-000-428 | 950-000-299 |
| 1.2500 | 0.0250 | 0.3750 | 100 | 950-000-169 | 950-000-556 | 950-000-427 | 950-000-298 |
| 1.2500 | 0.0230 | 0.3750 | 100 | 950-000-168 | 950-000-555 | 950-000-426 | 950-000-297 |
| 1.2500 | 0.0200 | 0.3750 | 100 | 950-000-167 | 950-000-554 | 950-000-425 | 950-000-296 |
| 1.2500 | 0.0180 | 0.3750 | 100 | 950-000-166 | 950-000-553 | 950-000-424 | 950-000-295 |
| 1.2500 | 0.0160 | 0.3750 | 100 | 950-000-165 | 950-000-552 | 950-000-423 | 950-000-294 |
| 1.2500 | 0.0140 | 0.3750 | 100 | 950-000-164 | 950-000-551 | 950-000-422 | 950-000-293 |
| 1.2500 | 0.0120 | 0.3750 | 120 | 950-000-163 | 950-000-550 | 950-000-421 | 950-000-292 |
| 1.2500 | 0.0100 | 0.3750 | 120 | 950-000-162 | 950-000-549 | 950-000-420 | 950-000-291 |
| 1.5000 | 0.0280 | 0.5000 | 110 | 950-000-161 | 950-000-548 | 950-000-419 | 950-000-290 |
| 1.5000 | 0.0250 | 0.5000 | 110 | 950-000-160 | 950-000-547 | 950-000-418 | 950-000-289 |
| 1.5000 | 0.0230 | 0.5000 | 110 | 950-000-159 | 950-000-546 | 950-000-417 | 950-000-288 |
| 1.5000 | 0.0200 | 0.5000 | 110 | 950-000-158 | 950-000-545 | 950-000-416 | 950-000-287 |
| 1.5000 | 0.0180 | 0.5000 | 110 | 950-000-157 | 950-000-544 | 950-000-415 | 950-000-286 |
| 1.5000 | 0.0160 | 0.5000 | 110 | 950-000-156 | 950-000-543 | 950-000-414 | 950-000-285 |
| 1.5000 | 0.0140 | 0.5000 | 110 | 950-000-155 | 950-000-542 | 950-000-413 | 950-000-284 |
| 1.5000 | 0.0120 | 0.5000 | 140 | 950-000-154 | 950-000-541 | 950-000-412 | 950-000-283 |
| 1.5000 | 0.0100 | 0.5000 | 140 | 950-000-153 | 950-000-540 | 950-000-411 | 950-000-282 |
| 1.7500 | 0.0320 | 0.5000 | 130 | 950-000-181 | 950-000-568 | 950-000-439 | 950-000-310 |
| 1.7500 | 0.0280 | 0.5000 | 130 | 950-000-180 | 950-000-567 | 950-000-438 | 950-000-309 |
| 1.7500 | 0.0250 | 0.5000 | 130 | 950-000-179 | 950-000-566 | 950-000-437 | 950-000-308 |
| 1.7500 | 0.0230 | 0.5000 | 130 | 950-000-178 | 950-000-565 | 950-000-436 | 950-000-307 |
| 1.7500 | 0.0200 | 0.5000 | 130 | 950-000-177 | 950-000-564 | 950-000-435 | 950-000-306 |
| 1.7500 | 0.0180 | 0.5000 | 130 | 950-000-176 | 950-000-563 | 950-000-434 | 950-000-305 |
| 1.7500 | 0.0160 | 0.5000 | 130 | 950-000-175 | 950-000-562 | 950-000-433 | 950-000-304 |
| 1.7500 | 0.0140 | 0.5000 | 130 | 950-000-174 | 950-000-561 | 950-000-432 | 950-000-303 |
| 1.7500 | 0.0120 | 0.5000 | 160 | 950-000-173 | 950-000-560 | 950-000-431 | 950-000-302 |
| 1.7500 | 0.0100 | 0.5000 | 160 | 950-000-172 | 950-000-559 | 950-000-430 | 950-000-301 |
| 2.0000 | 0.0570 | 0.5000 | 110 | 950-000-221 | 950-000-608 | 950-000-479 | 950-000-350 |
| 2.0000 | 0.0510 | 0.5000 | 110 | 950-000-220 | 950-000-607 | 950-000-478 | 950-000-349 |
| 2.0000 | 0.0450 | 0.5000 | 110 | 950-000-219 | 950-000-606 | 950-000-477 | 950-000-348 |
| 2.0000 | 0.0400 | 0.5000 | 110 | 950-000-218 | 950-000-605 | 950-000-476 | 950-000-347 |
| 2.0000 | 0.0350 | 0.5000 | 110 | 950-000-217 | 950-000-604 | 950-000-475 | 950-000-346 |

*Make To Order

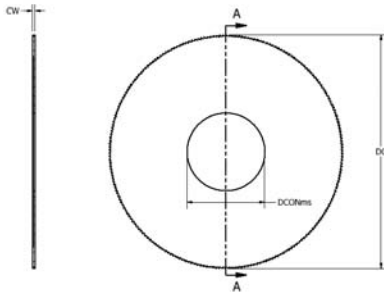


1490
• Fully Ground Surfaces



| DC | CW | DCONms | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|-----|-------------|-------------|--------------|--------------|
| 2.0000 | 0.0320 | 0.5000 | 110 | 950-000-216 | 950-000-603 | 950-000-474 | 950-000-345 |
| 2.0000 | 0.0280 | 0.5000 | 150 | 950-000-215 | 950-000-602 | 950-000-473 | 950-000-344 |
| 2.0000 | 0.0250 | 0.5000 | 150 | 950-000-214 | 950-000-601 | 950-000-472 | 950-000-343 |
| 2.0000 | 0.0230 | 0.5000 | 150 | 950-000-213 | 950-000-600 | 950-000-471 | 950-000-342 |
| 2.0000 | 0.0200 | 0.5000 | 150 | 950-000-212 | 950-000-599 | 950-000-470 | 950-000-341 |
| 2.0000 | 0.0180 | 0.5000 | 150 | 950-000-211 | 950-000-598 | 950-000-469 | 950-000-340 |
| 2.0000 | 0.0160 | 0.5000 | 150 | 950-000-210 | 950-000-597 | 950-000-468 | 950-000-339 |
| 2.0000 | 0.0140 | 0.5000 | 150 | 950-000-209 | 950-000-596 | 950-000-467 | 950-000-338 |
| 2.0000 | 0.0120 | 0.5000 | 190 | 950-000-208 | 950-000-595 | 950-000-466 | 950-000-337 |
| 2.0000 | 0.0100 | 0.5000 | 190 | 950-000-207 | 950-000-594 | 950-000-465 | 950-000-336 |
| 2.5000 | 0.0570 | 0.5000 | 140 | 950-000-206 | 950-000-593 | 950-000-464 | 950-000-335 |
| 2.5000 | 0.0510 | 0.5000 | 140 | 950-000-205 | 950-000-592 | 950-000-463 | 950-000-334 |
| 2.5000 | 0.0450 | 0.5000 | 140 | 950-000-204 | 950-000-591 | 950-000-462 | 950-000-333 |
| 2.5000 | 0.0400 | 0.5000 | 140 | 950-000-203 | 950-000-590 | 950-000-461 | 950-000-332 |
| 2.5000 | 0.0350 | 0.5000 | 140 | 950-000-202 | 950-000-589 | 950-000-460 | 950-000-331 |
| 2.5000 | 0.0320 | 0.5000 | 140 | 950-000-201 | 950-000-588 | 950-000-459 | 950-000-330 |
| 2.5000 | 0.0280 | 0.5000 | 190 | 950-000-200 | 950-000-587 | 950-000-458 | 950-000-329 |
| 2.5000 | 0.0250 | 0.5000 | 190 | 950-000-199 | 950-000-586 | 950-000-457 | 950-000-328 |
| 2.5000 | 0.0230 | 0.5000 | 190 | 950-000-198 | 950-000-585 | 950-000-456 | 950-000-327 |
| 2.5000 | 0.0200 | 0.5000 | 190 | 950-000-197 | 950-000-584 | 950-000-455 | 950-000-326 |
| 2.5000 | 0.0180 | 0.5000 | 190 | 950-000-196 | 950-000-583 | 950-000-454 | 950-000-325 |
| 2.5000 | 0.0160 | 0.5000 | 190 | 950-000-195 | 950-000-582 | 950-000-453 | 950-000-324 |
| 2.5000 | 0.0140 | 0.5000 | 190 | 950-000-194 | 950-000-581 | 950-000-452 | 950-000-323 |
| 2.5000 | 0.0120 | 0.5000 | 240 | 950-000-193 | 950-000-580 | 950-000-451 | 950-000-322 |
| 3.0000 | 0.0100 | 0.5000 | 240 | 950-000-192 | 950-000-579 | 950-000-450 | 950-000-321 |
| 3.0000 | 0.0570 | 0.5000 | 170 | 950-000-250 | 950-000-637 | 950-000-508 | 950-000-379 |
| 3.0000 | 0.0570 | 1.0000 | 170 | 950-000-251 | 950-000-638 | 950-000-509 | 950-000-380 |
| 3.0000 | 0.0510 | 0.5000 | 170 | 950-000-248 | 950-000-635 | 950-000-506 | 950-000-377 |
| 3.0000 | 0.0510 | 1.0000 | 170 | 950-000-249 | 950-000-636 | 950-000-507 | 950-000-378 |
| 3.0000 | 0.0450 | 0.5000 | 170 | 950-000-246 | 950-000-633 | 950-000-504 | 950-000-375 |
| 3.0000 | 0.0450 | 1.0000 | 170 | 950-000-247 | 950-000-634 | 950-000-505 | 950-000-376 |
| 3.0000 | 0.0400 | 0.5000 | 170 | 950-000-244 | 950-000-631 | 950-000-502 | 950-000-373 |
| 3.0000 | 0.0400 | 1.0000 | 170 | 950-000-245 | 950-000-632 | 950-000-503 | 950-000-374 |
| 3.0000 | 0.0350 | 0.5000 | 170 | 950-000-242 | 950-000-629 | 950-000-500 | 950-000-371 |
| 3.0000 | 0.0350 | 1.0000 | 170 | 950-000-243 | 950-000-630 | 950-000-501 | 950-000-372 |
| 3.0000 | 0.0320 | 0.5000 | 170 | 950-000-240 | 950-000-627 | 950-000-498 | 950-000-369 |
| 3.0000 | 0.0320 | 1.0000 | 170 | 950-000-241 | 950-000-628 | 950-000-499 | 950-000-370 |
| 3.0000 | 0.0280 | 0.5000 | 230 | 950-000-238 | 950-000-625 | 950-000-496 | 950-000-367 |
| 3.0000 | 0.0280 | 1.0000 | 230 | 950-000-239 | 950-000-626 | 950-000-497 | 950-000-368 |
| 3.0000 | 0.0250 | 0.5000 | 230 | 950-000-236 | 950-000-623 | 950-000-494 | 950-000-365 |
| 3.0000 | 0.0250 | 1.0000 | 230 | 950-000-237 | 950-000-624 | 950-000-495 | 950-000-366 |
| 3.0000 | 0.0230 | 0.5000 | 230 | 950-000-234 | 950-000-621 | 950-000-492 | 950-000-363 |
| 3.0000 | 0.0230 | 1.0000 | 230 | 950-000-235 | 950-000-622 | 950-000-493 | 950-000-364 |
| 3.0000 | 0.0200 | 0.5000 | 230 | 950-000-232 | 950-000-619 | 950-000-490 | 950-000-361 |

*Make To Order

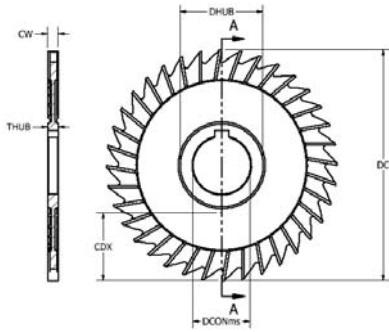


1490
• Fully Ground Surfaces



| DC | CW | DCONms | Zc | UNCOATED | Price | TiN COATED* | TiCN COATED* | TIAlN COATED |
|--------|--------|--------|-----|-------------|---------|-------------|--------------|--------------|
| 3.0000 | 0.0200 | 1.0000 | 230 | 950-000-233 | \$24.11 | 950-000-620 | 950-000-491 | 950-000-362 |
| 3.0000 | 0.018 | 0.5000 | 230 | 950-000-230 | \$25.62 | 950-000-617 | 950-000-488 | 950-000-359 |
| 3.0000 | 0.018 | 1.0000 | 230 | 950-000-231 | \$25.62 | 950-000-618 | 950-000-489 | 950-000-360 |
| 3.0000 | 0.016 | 0.5000 | 230 | 950-000-228 | \$28.36 | 950-000-615 | 950-000-486 | 950-000-357 |
| 3.0000 | 0.016 | 1.0000 | 230 | 950-000-229 | \$28.36 | 950-000-616 | 950-000-487 | 950-000-358 |
| 3.0000 | 0.014 | 0.5000 | 230 | 950-000-226 | \$30.23 | 950-000-613 | 950-000-484 | 950-000-355 |
| 3.0000 | 0.014 | 1.0000 | 230 | 950-000-227 | \$30.23 | 950-000-614 | 950-000-485 | 950-000-356 |
| 3.0000 | 0.012 | 0.5000 | 280 | 950-000-224 | \$28.55 | 950-000-611 | 950-000-482 | 950-000-353 |
| 3.0000 | 0.012 | 1.0000 | 280 | 950-000-225 | \$28.55 | 950-000-612 | 950-000-483 | 950-000-354 |
| 3.0000 | 0.010 | 0.5000 | 280 | 950-000-222 | \$38.37 | 950-000-609 | 950-000-480 | 950-000-351 |
| 3.0000 | 0.010 | 1.0000 | 280 | 950-000-223 | \$38.37 | 950-000-610 | 950-000-481 | 950-000-352 |
| 4.0000 | 0.0570 | 0.5000 | 220 | 950-000-280 | \$54.34 | 950-000-667 | 950-000-538 | 950-000-409 |
| 4.0000 | 0.0570 | 1.0000 | 220 | 950-000-281 | \$54.34 | 950-000-668 | 950-000-539 | 950-000-410 |
| 4.0000 | 0.0510 | 0.5000 | 220 | 950-000-278 | \$51.79 | 950-000-665 | 950-000-536 | 950-000-407 |
| 4.0000 | 0.0510 | 1.0000 | 220 | 950-000-279 | \$51.79 | 950-000-666 | 950-000-537 | 950-000-408 |
| 4.0000 | 0.0450 | 0.5000 | 220 | 950-000-276 | \$48.73 | 950-000-663 | 950-000-534 | 950-000-405 |
| 4.0000 | 0.0450 | 1.0000 | 220 | 950-000-277 | \$48.73 | 950-000-664 | 950-000-535 | 950-000-406 |
| 4.0000 | 0.0400 | 0.5000 | 220 | 950-000-274 | \$46.21 | 950-000-661 | 950-000-532 | 950-000-403 |
| 4.0000 | 0.0400 | 1.0000 | 220 | 950-000-275 | \$46.21 | 950-000-662 | 950-000-533 | 950-000-404 |
| 4.0000 | 0.0350 | 0.5000 | 220 | 950-000-272 | \$43.46 | 950-000-659 | 950-000-530 | 950-000-401 |
| 4.0000 | 0.0350 | 1.0000 | 220 | 950-000-273 | \$43.46 | 950-000-660 | 950-000-531 | 950-000-402 |
| 4.0000 | 0.0320 | 0.5000 | 220 | 950-000-270 | \$40.92 | 950-000-657 | 950-000-528 | 950-000-399 |
| 4.0000 | 0.0320 | 1.0000 | 220 | 950-000-271 | \$40.92 | 950-000-658 | 950-000-529 | 950-000-400 |
| 4.0000 | 0.0280 | 0.5000 | 300 | 950-000-268 | \$38.05 | 950-000-655 | 950-000-526 | 950-000-397 |
| 4.0000 | 0.0280 | 1.0000 | 300 | 950-000-269 | \$38.05 | 950-000-656 | 950-000-527 | 950-000-398 |
| 4.0000 | 0.0250 | 0.5000 | 300 | 950-000-266 | \$40.92 | 950-000-653 | 950-000-524 | 950-000-395 |
| 4.0000 | 0.0250 | 1.0000 | 300 | 950-000-267 | \$40.92 | 950-000-654 | 950-000-525 | 950-000-396 |
| 4.0000 | 0.0230 | 0.5000 | 300 | 950-000-264 | \$43.46 | 950-000-651 | 950-000-522 | 950-000-393 |
| 4.0000 | 0.0230 | 1.0000 | 300 | 950-000-265 | \$43.46 | 950-000-652 | 950-000-523 | 950-000-394 |
| 4.0000 | 0.0200 | 0.5000 | 300 | 950-000-262 | \$46.21 | 950-000-649 | 950-000-520 | 950-000-391 |
| 4.0000 | 0.0200 | 1.0000 | 300 | 950-000-263 | \$46.21 | 950-000-650 | 950-000-521 | 950-000-392 |
| 4.0000 | 0.0180 | 0.5000 | 300 | 950-000-260 | \$48.73 | 950-000-647 | 950-000-518 | 950-000-389 |
| 4.0000 | 0.0180 | 1.0000 | 300 | 950-000-261 | \$48.73 | 950-000-648 | 950-000-519 | 950-000-390 |
| 4.0000 | 0.0160 | 0.5000 | 300 | 950-000-258 | \$51.79 | 950-000-645 | 950-000-516 | 950-000-387 |
| 4.0000 | 0.0160 | 1.0000 | 300 | 950-000-259 | \$51.79 | 950-000-646 | 950-000-517 | 950-000-388 |
| 4.0000 | 0.0140 | 0.5000 | 300 | 950-000-256 | \$54.34 | 950-000-643 | 950-000-514 | 950-000-385 |
| 4.0000 | 0.0140 | 1.0000 | 300 | 950-000-257 | \$54.34 | 950-000-644 | 950-000-515 | 950-000-386 |
| 4.0000 | 0.0120 | 0.5000 | 380 | 950-000-254 | \$57.06 | 950-000-641 | 950-000-512 | 950-000-383 |
| 4.0000 | 0.012 | 1.0000 | 380 | 950-000-255 | \$57.06 | 950-000-642 | 950-000-513 | 950-000-384 |
| 4.0000 | 0.0100 | 0.5000 | 380 | 950-000-252 | \$60.13 | 950-000-639 | 950-000-510 | 950-000-381 |
| 4.0000 | 0.0100 | 1.0000 | 380 | 950-000-253 | \$60.13 | 950-000-640 | 950-000-511 | 950-000-382 |

*Make To Order



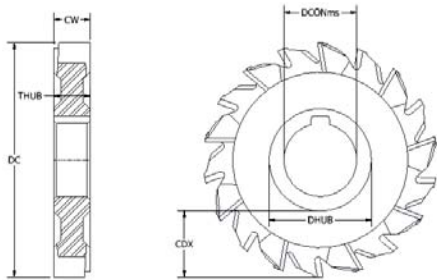
MT Style - Straight Tooth

- For use in fine finish applications



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.0625 | 1.0000 | 0.7188 | 1.5000 | 0.0625 | 32 | 950-000-065 | 950-000-068 | 950-000-067 | 950-000-066 |
| 3.0000 | 0.0938 | 1.0000 | 0.7188 | 1.5000 | 0.0938 | 32 | 950-000-081 | 950-000-084 | 950-000-083 | 950-000-082 |
| 3.0000 | 0.1250 | 1.0000 | 0.7188 | 1.5000 | 0.1250 | 32 | 950-000-069 | 950-000-072 | 950-000-071 | 950-000-070 |
| 3.0000 | 0.1563 | 1.0000 | 0.7188 | 1.5000 | 0.1563 | 32 | 950-000-085 | 950-000-088 | 950-000-087 | 950-000-086 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 32 | 950-000-073 | 950-000-076 | 950-000-075 | 950-000-074 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 32 | 950-000-077 | 950-000-080 | 950-000-079 | 950-000-078 |
| 4.0000 | 0.0625 | 1.0000 | 1.2188 | 1.5000 | 0.0625 | 36 | 950-000-089 | 950-000-092 | 950-000-091 | 950-000-090 |
| 4.0000 | 0.0625 | 1.2500 | 1.0313 | 1.8750 | 0.0625 | 36 | 950-000-093 | 950-000-096 | 950-000-095 | 950-000-094 |
| 4.0000 | 0.0938 | 1.0000 | 1.2188 | 1.5000 | 0.0938 | 36 | 950-000-121 | 950-000-124 | 950-000-123 | 950-000-122 |
| 4.0000 | 0.0938 | 1.2500 | 1.0313 | 1.8750 | 0.0938 | 36 | 950-000-125 | 950-000-128 | 950-000-127 | 950-000-126 |
| 4.0000 | 0.1250 | 1.0000 | 1.2188 | 1.5000 | 0.1250 | 36 | 950-000-097 | 950-000-100 | 950-000-099 | 950-000-098 |
| 4.0000 | 0.1250 | 1.2500 | 1.0313 | 1.8750 | 0.1250 | 36 | 950-000-101 | 950-000-104 | 950-000-103 | 950-000-102 |
| 4.0000 | 0.1563 | 1.0000 | 1.2188 | 1.5000 | 0.1563 | 36 | 950-000-129 | 950-000-132 | 950-000-131 | 950-000-130 |
| 4.0000 | 0.1563 | 1.2500 | 1.0313 | 1.8750 | 0.1563 | 36 | 950-000-133 | 950-000-136 | 950-000-135 | 950-000-134 |
| 4.0000 | 0.1875 | 1.0000 | 1.2188 | 1.5000 | 0.1875 | 36 | 950-000-105 | 950-000-108 | 950-000-107 | 950-000-106 |
| 4.0000 | 0.1875 | 1.2500 | 1.0313 | 1.8750 | 0.1875 | 36 | 950-000-109 | 950-000-112 | 950-000-111 | 950-000-110 |
| 4.0000 | 0.2500 | 1.0000 | 1.2188 | 1.5000 | 0.2500 | 36 | 950-000-113 | 950-000-116 | 950-000-115 | 950-000-114 |
| 4.0000 | 0.2500 | 1.2500 | 1.0313 | 1.8750 | 0.2500 | 36 | 950-000-117 | 950-000-120 | 950-000-119 | 950-000-118 |
| 6.0000 | 0.1250 | 1.2500 | 2.0313 | 1.8750 | 0.1250 | 42 | 950-000-137 | 950-000-140 | 950-000-139 | 950-000-138 |
| 6.0000 | 0.1563 | 1.2500 | 2.0313 | 1.8750 | 0.1563 | 42 | 950-000-149 | 950-000-152 | 950-000-151 | 950-000-150 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 42 | 950-000-141 | 950-000-144 | 950-000-143 | 950-000-142 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 42 | 950-000-145 | 950-000-148 | 950-000-147 | 950-000-146 |

*Make To Order



MS Style - Staggered Tooth

- For use in Deep Slotting Applications



| DC | CW | DCONms | CDX | DHUB | THUB | Zc | UNCOATED | TiN COATED* | TiCN COATED* | TiAlN COATED |
|--------|--------|--------|--------|--------|--------|----|-------------|-------------|--------------|--------------|
| 3.0000 | 0.1250 | 1.0000 | 0.7188 | 1.5000 | 0.1250 | 28 | 950-000-001 | 950-000-004 | 950-000-003 | 950-000-002 |
| 3.0000 | 0.1563 | 1.0000 | 0.7188 | 1.5000 | 0.1563 | 28 | 950-000-013 | 950-000-016 | 950-000-015 | 950-000-014 |
| 3.0000 | 0.1875 | 1.0000 | 0.7188 | 1.5000 | 0.1875 | 28 | 950-000-005 | 950-000-008 | 950-000-007 | 950-000-006 |
| 3.0000 | 0.2500 | 1.0000 | 0.7188 | 1.5000 | 0.2500 | 28 | 950-000-009 | 950-000-012 | 950-000-011 | 950-000-010 |
| 4.0000 | 0.1250 | 1.0000 | 1.2188 | 1.5000 | 0.1250 | 32 | 950-000-017 | 950-000-020 | 950-000-019 | 950-000-018 |
| 4.0000 | 0.1250 | 1.2500 | 1.0313 | 1.8750 | 0.1250 | 32 | 950-000-021 | 950-000-024 | 950-000-023 | 950-000-022 |
| 4.0000 | 0.1563 | 1.0000 | 1.2188 | 1.5000 | 0.1563 | 32 | 950-000-041 | 950-000-044 | 950-000-043 | 950-000-042 |
| 4.0000 | 0.1563 | 1.2500 | 1.0313 | 1.8750 | 0.1563 | 32 | 950-000-045 | 950-000-048 | 950-000-047 | 950-000-046 |
| 4.0000 | 0.1875 | 1.0000 | 1.2188 | 1.5000 | 0.1875 | 32 | 950-000-025 | 950-000-028 | 950-000-027 | 950-000-026 |
| 4.0000 | 0.1875 | 1.2500 | 1.0313 | 1.8750 | 0.1875 | 32 | 950-000-029 | 950-000-032 | 950-000-031 | 950-000-030 |
| 4.0000 | 0.2500 | 1.0000 | 1.2188 | 1.5000 | 0.2500 | 32 | 950-000-033 | 950-000-036 | 950-000-035 | 950-000-034 |
| 4.0000 | 0.2500 | 1.2500 | 1.0313 | 1.8750 | 0.2500 | 32 | 950-000-037 | 950-000-040 | 950-000-039 | 950-000-038 |
| 6.0000 | 0.1250 | 1.2500 | 2.0313 | 1.8750 | 0.1250 | 40 | 950-000-049 | 950-000-052 | 950-000-051 | 950-000-050 |
| 6.0000 | 0.1563 | 1.2500 | 2.0313 | 1.8750 | 0.1563 | 40 | 950-000-061 | 950-000-064 | 950-000-063 | 950-000-062 |
| 6.0000 | 0.1875 | 1.2500 | 2.0313 | 1.8750 | 0.1875 | 40 | 950-000-053 | 950-000-056 | 950-000-055 | 950-000-054 |
| 6.0000 | 0.2500 | 1.2500 | 2.0313 | 1.8750 | 0.2500 | 40 | 950-000-057 | 950-000-060 | 950-000-059 | 950-000-058 |

*Make To Order



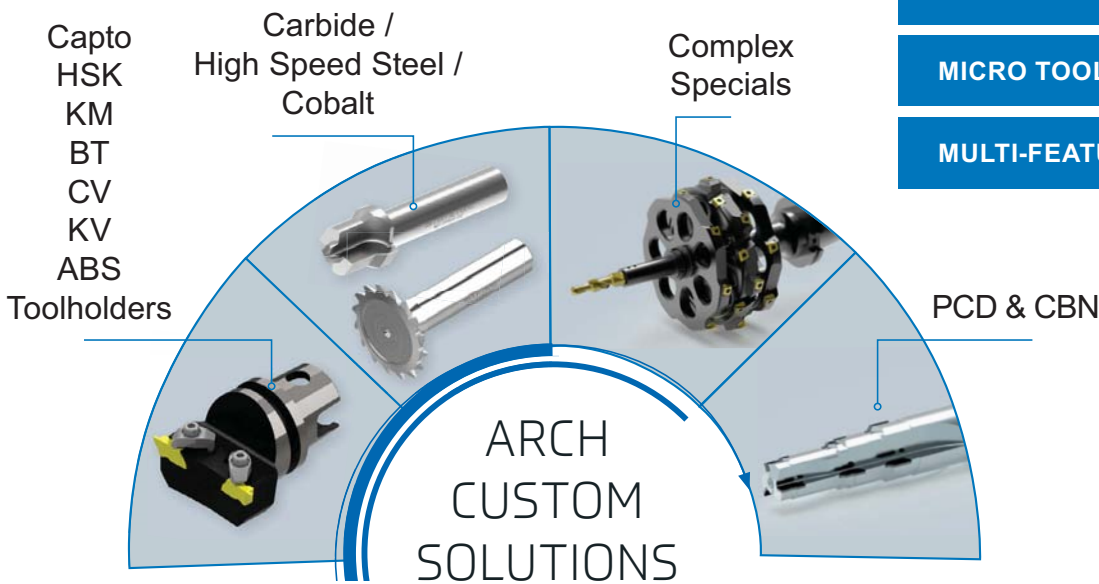
CUSTOM SOLUTIONS

THE COMPLETE TOOL MAKING AUTHORITY®



ARCH[®] Specials

We can create your custom tooling solution with expert engineers across the company, within ARCH's 400,000+ square feet of manufacturing space.



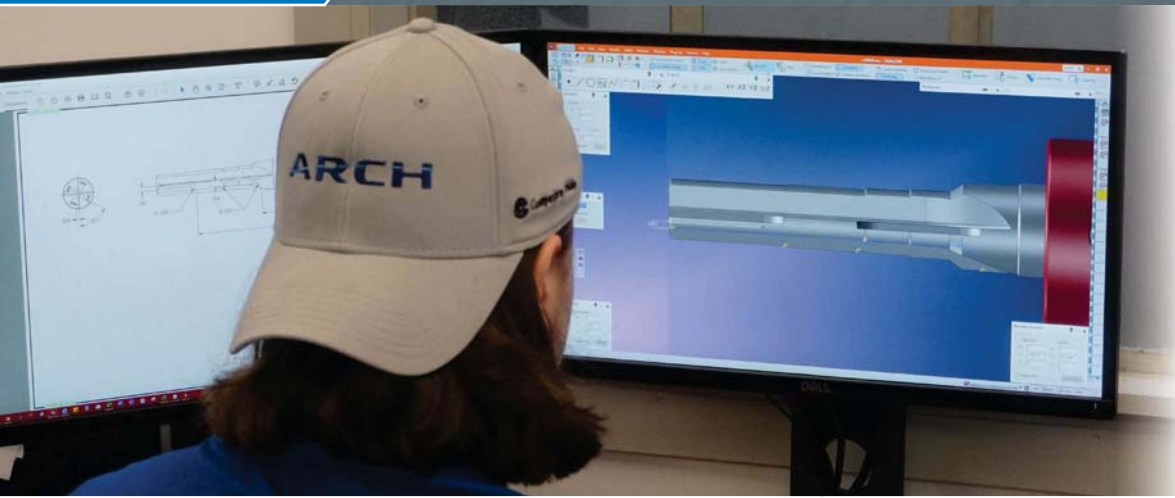
- SOLID CARBIDE
- HSS / COBALT
- INDEXABLES
- INTEGRAL SHANK
- MICRO TOOLS
- COMPLEX FORM TOOLS
- MULTI-FEATURE TOOLS
- PCD



Award Winning Custom Tooling

ARCH Cutting Tools is the 2020 winner of the ANCA Tool of the Year. Our team created this tool to demonstrate our design capabilities. This tool is a multifunctional tool designed to take the place of six separate cutting tools.

The customer increased profitability by reducing tool changes and the compliment of enhanced geometries in a combined process for better performance and tool life.



Our engineers talk to your engineers – fewer steps for your critical application

Productivity at the Spindle

We provide:

- Cost-reducing efficiencies
- Process improvements
- Advanced coatings
- Laser etching
- Comprehensive supply chain management
- Unmatched customer service



Your One Stop Shop for Custom Tooling Packages

ARCH Cutting Tool's Tooling Packages combine the widest range of our lightning-fast special cutting tool capabilities with our robust standards product portfolio to provide a single touch point, turn-key solution. Backed by American craftsmanship and ingenuity, you won't be disappointed.



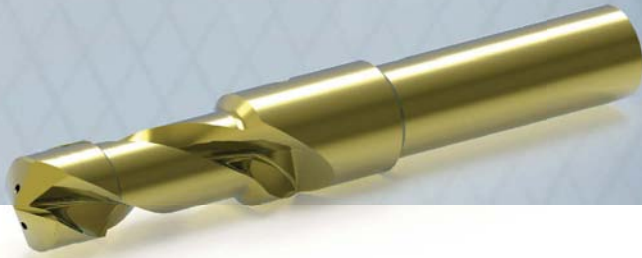
Operational Consultation

Our customers do extraordinary things, but everybody needs a competitive edge. This requires a precision tooling partner that can deliver customs and specials that meet exacting standards. Providing the special tools that our customers need to do their unparalleled work is just the beginning of the ARCH Specials story. Our engineers help identify your opportunities to increase value, improve quality and performance, and enhance manufacturing operations.

At high speeds, even the smallest variance is amplified. When a customer consults with us, they get design-for-manufacturability guidance. We can help reduce the number of steps required to produce a component and the number of cutting tools needed to do it. Each time you take out a step in the manufacturing process, you remove the introduction of an inconsistency, divergence, or variation, no matter how small.

Contact ARCH Specials:
(844) 321-ARCH
sales@archgp.com





Solid Round Tools

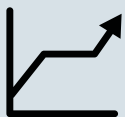
Including:

- Specialty end mills
- Multi- step custom diameter drills
- Micro Tools
- Countersinks
- Reamers
- Chamfer Mills & Drills
- Engraving Cutters
- Corner Rounding tools
- Dovetail Cutters
- T-Slot Cutters
- Chamber Reamers
- Application specific geometry and coating
- Customizable shank types and diameters



Precise specifications - Extraordinary applications

The performance advantages of custom tools machined with greater precision — such as optimized cylindrical concentricity — produce increased throughput and enhanced machine usage. Simply put, achieving unique contours and cavities with tighter tolerances and reduced scrap saves time and money. Single tool solutions eliminate the need for multiple tools and passes resulting in improved cycle time and CPU.



Improved surface finish in cone taper

ARCH engineers modified the geometry and edge prep on a cone drill which tripled tool life and significantly improved surface finish to reduce scrap rates.

\$50,000

cost savings annually

30%

reduction in scrap



Indexables: Rotating & Non Rotating

Including:

- Custom Indexable profiles / lead angles
- Multi-step hole-making
- Indexable trepan
- Specialty square shank
- Custom straddle and grooving mills
- Multi -process combination tools
- Integral shank designs
- Modular / redundant tooling packages
- Precision insert pockets



Indexable milling, drilling, boring, turning, and holding tools can all be optimized with our proven full product life cycle process. Our customers invariably enjoy enhanced efficiencies when our process is applied to their unique needs. They are enabled to develop specialized cutting tool solutions that not only improve their final product, but also how they operate as an organization. From the initial on-site or virtual consultation, to engineering and design assist, ARCH Specials brings comprehensive and knowledge-driven results.



Performance and cost evaluation of inserts

ARCH reviewed customer's high-volume inserts for cost improvements.

\$36,000

cost savings
annually



Coast to Coast Support

Custom PCD Tooling

ARCH CT is proud to offer Polycrystalline Diamond (PCD) with our proprietary internally developed design and manufacturing process. We create tool tolerances as tight as .003mm, provide CNC inspection reports with every tool, and offer unmatched lead times for new tools.

Key Features for PCD Tooling:

- Combining roughing and finishing tools
- Improved surface finishes
- Consistent results
- Tighter tolerances achievable
- Can be used in many materials including:
 - Aluminum Composite Material (ACM)
 - Composite panels
 - High pressure laminates (HPL)
 - Fiberglass

Our Capabilities

- Custom solutions, specific for your application and part configuration
- Combining PCD and carbide tooling in the same tool to lead to balanced, optimized solutions
- 1-2 week turnaround on re-tipped tools
- Reconditioning, sharpening, re-tipping ANY manufacturers PCD tools and in any style connection, including steerable connections



Before



After



After



Maximize tool life

Faster speeds and higher feed rates, results in increased through-put

25x
longer tool life
when compared to carbide



ARCH® Services- RECON360

Repair - Retip - Recoat - Re grind - Resharpen

Before



After



Remove the wear and tear that's caused your cutting tool to become dull, worn, and damaged. Our remanufacturing services for both conventional cutting tools and CNC cutting tools extend the life and enhance the performance of your tooling. ARCH Cutting Tools is proud to offer our customers complete repair services for solid or indexable tooling.



Before

Indexable Tools

- Capable of repairing any manufacturers' tool or insert pocket type
- All tools brought back to original manufacturer's specifications
- Experienced with HSK, KM, CAPTO, and all standard machine tapers



After



Before

Solid Round Tools

- Carbide, HSS, Cobalt
- PCD/CBN Tipped
- Any coating



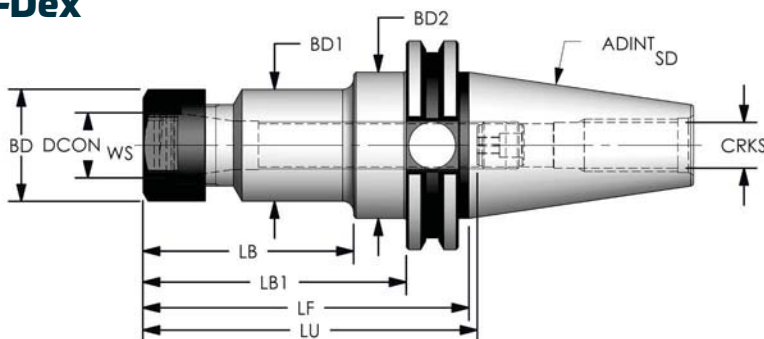
After

Save up to 75% off the cost of new tooling

Contact us at:
archcuttingtools.com/services



TOOL HOLDERS



Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | BD2 | LB | LB1 | LF | LU | CRKS | Collet Nut | Stop Screw | Wrench |
|-------------|------------------|---------|--------|-------|-------|-------|-------|-------|-------|-------|--------|------------|------------|--------|
| 966-000-065 | CT40-ER11-250-G2 | CAT40 | ER11 | 0.750 | N/A | N/A | 1.750 | N/A | 2.500 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-067 | CT40-ER11-400-G2 | CAT40 | ER11 | 0.750 | N/A | 1.750 | 2.620 | 3.250 | 4.000 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-069 | CT40-ER11-600-G2 | CAT40 | ER11 | 0.750 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-071 | CT40-ER16-250-G2 | CAT40 | ER16 | 1.100 | N/A | N/A | 1.750 | N/A | 2.500 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-073 | CT40-ER16-300-G2 | CAT40 | ER16 | 1.100 | N/A | N/A | 2.250 | N/A | 3.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-075 | CT40-ER16-400-G2 | CAT40 | ER16 | 1.100 | N/A | N/A | 3.250 | N/A | 4.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-077 | CT40-ER16-500-G2 | CAT40 | ER16 | 1.100 | N/A | 1.750 | 3.620 | 4.250 | 5.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-079 | CT40-ER16-600-G2 | CAT40 | ER16 | 1.100 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-081 | CT40-ER20-300-G2 | CAT40 | ER20 | 1.340 | N/A | N/A | 2.250 | N/A | 3.000 | 3.500 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-083 | CT40-ER20-400-G2 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 2.620 | 3.250 | 4.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-085 | CT40-ER20-600-G2 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-087 | CT40-ER20-800-G2 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 6.620 | 7.250 | 8.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-089 | CT40-ER25-250-G2 | CAT40 | ER25 | 1.660 | 1.590 | N/A | 1.750 | N/A | 2.500 | 2.800 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-091 | CT40-ER25-400-G2 | CAT40 | ER25 | 1.660 | 1.590 | 1.750 | 2.620 | 3.250 | 4.000 | 4.300 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-093 | CT40-ER25-600-G2 | CAT40 | ER25 | 1.660 | 1.590 | 1.750 | 4.620 | 5.250 | 6.000 | 4.400 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-095 | CT40-ER32-300-G2 | CAT40 | ER32 | 1.980 | 1.750 | N/A | 2.250 | N/A | 3.000 | 3.450 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-097 | CT40-ER32-400-G2 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 3.250 | 4.000 | 4.300 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-099 | CT40-ER32-600-G2 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 5.250 | 6.000 | 4.600 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-101 | CT40-ER32-800-G2 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 7.250 | 8.000 | 4.600 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-103 | CT40-ER40-300-G2 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 2.250 | 3.000 | 3.300 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-105 | CT40-ER40-400-G2 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 3.250 | 4.000 | 4.000 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-107 | CT40-ER40-600-G2 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 5.250 | 6.000 | 4.500 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-109 | CT40-ER40-800-G2 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 7.250 | 8.000 | 4.500 | 5/8-11 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

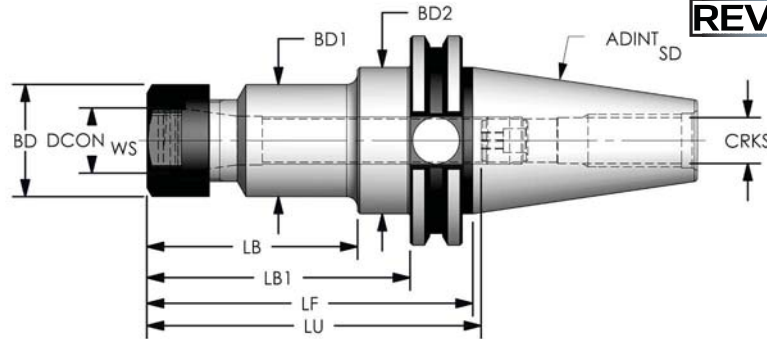
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | BD2 | LB | LB1 | LF | LU | CRKS | Collet Nut | Stop Screw | Wrench |
|-------------|------------------|---------|--------|-------|-------|-------|-------|-------|-------|-------|--------|------------|------------|--------|
| 966-000-066 | CT40-ER11-250-G6 | CAT40 | ER11 | 0.750 | N/A | N/A | 1.750 | N/A | 2.500 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-068 | CT40-ER11-400-G6 | CAT40 | ER11 | 0.750 | N/A | 1.750 | 2.620 | 3.250 | 4.000 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-070 | CT40-ER11-600-G6 | CAT40 | ER11 | 0.750 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 1.940 | 5/8-11 | ER-11HN | ER-11S | ER-11W |
| 966-000-072 | CT40-ER16-250-G6 | CAT40 | ER16 | 1.100 | N/A | N/A | 1.750 | N/A | 2.500 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-074 | CT40-ER16-300-G6 | CAT40 | ER16 | 1.100 | N/A | N/A | 2.250 | N/A | 3.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-076 | CT40-ER16-400-G6 | CAT40 | ER16 | 1.100 | N/A | N/A | 3.250 | N/A | 4.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-078 | CT40-ER16-500-G6 | CAT40 | ER16 | 1.100 | N/A | 1.750 | 3.620 | 4.250 | 5.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-080 | CT40-ER16-600-G6 | CAT40 | ER16 | 1.100 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 3.000 | 5/8-11 | ER-16HN | ER-16S | ER-16W |
| 966-000-082 | CT40-ER20-300-G6 | CAT40 | ER20 | 1.340 | N/A | N/A | 2.250 | N/A | 3.000 | 3.500 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-084 | CT40-ER20-400-G6 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 2.620 | 3.250 | 4.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-086 | CT40-ER20-600-G6 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 4.620 | 5.250 | 6.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-088 | CT40-ER20-800-G6 | CAT40 | ER20 | 1.340 | N/A | 1.750 | 6.620 | 7.250 | 8.000 | 3.950 | 5/8-11 | ER-20HN | ER-20S | ER-20W |
| 966-000-090 | CT40-ER25-250-G6 | CAT40 | ER25 | 1.660 | 1.590 | N/A | 1.750 | N/A | 2.500 | 2.800 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-092 | CT40-ER25-400-G6 | CAT40 | ER25 | 1.660 | 1.590 | 1.750 | 2.620 | 3.250 | 4.000 | 4.300 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-094 | CT40-ER25-600-G6 | CAT40 | ER25 | 1.660 | 1.590 | 1.750 | 4.620 | 5.250 | 6.000 | 4.400 | 5/8-11 | ER-25SN | ER-25S | ER-25W |
| 966-000-096 | CT40-ER32-300-G6 | CAT40 | ER32 | 1.980 | 1.750 | N/A | 2.250 | N/A | 3.000 | 3.450 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-098 | CT40-ER32-400-G6 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 3.250 | 4.000 | 4.300 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-100 | CT40-ER32-600-G6 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 5.250 | 6.000 | 4.600 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-102 | CT40-ER32-800-G6 | CAT40 | ER32 | 1.980 | 1.750 | N/A | N/A | 7.250 | 8.000 | 4.600 | 5/8-11 | ER-32SN | ER-32S | ER-32W |
| 966-000-104 | CT40-ER40-300-G6 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 2.250 | 3.000 | 3.300 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-106 | CT40-ER40-400-G6 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 3.250 | 4.000 | 4.000 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-108 | CT40-ER40-600-G6 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 5.250 | 6.000 | 4.500 | 5/8-11 | ER-40SN | ER-40S | ER-40W |
| 966-000-110 | CT40-ER40-800-G6 | CAT40 | ER40 | 2.250 | N/A | N/A | N/A | 7.250 | 8.000 | 4.500 | 5/8-11 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

PACKAGE SIZE OF 1

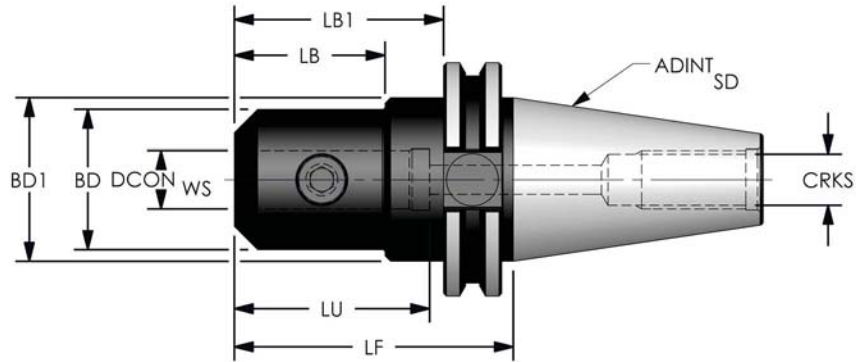
| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1

ULTRA-DEX[®]



Balanced to:
G2.5 (20,000 rpm)

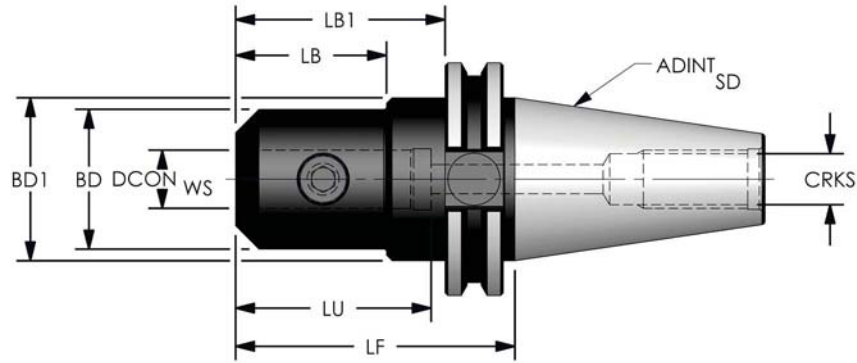
| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|--------|-------|-------|-------|-------|-------|-----|--------|------------|
| 966-000-001 | CT40-EM012-250-G2 | CAT40 | 0.125 | 0.690 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS10-250 |
| 966-000-017 | CT40-EM188-250-G2 | CAT40 | 0.188 | 0.750 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS10-250 |
| 966-000-019 | CT40-EM188-400-G2 | CAT40 | 0.188 | 0.750 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS10-250 |
| 966-000-021 | CT40-EM250-250-G2 | CAT40 | 0.250 | 0.880 | 1.750 | 1.125 | 1.750 | 2.500 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-023 | CT40-EM250-400-G2 | CAT40 | 0.250 | 0.880 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-025 | CT40-EM250-600-G2 | CAT40 | 0.250 | 0.880 | 1.750 | 4.625 | 5.250 | 6.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-027 | CT40-EM312-250-G2 | CAT40 | 0.312 | 0.880 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-029 | CT40-EM312-400-G2 | CAT40 | 0.312 | 0.880 | 1.750 | 2.625 | 3.250 | 4.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-031 | CT40-EM312-600-G2 | CAT40 | 0.312 | 0.880 | 1.750 | 4.625 | 5.250 | 6.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-033 | CT40-EM375-250-G2 | CAT40 | 0.375 | 1.000 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-035 | CT40-EM375-400-G2 | CAT40 | 0.375 | 1.000 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-037 | CT40-EM375-600-G2 | CAT40 | 0.375 | 1.000 | 1.750 | 4.620 | 5.250 | 6.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-039 | CT40-EM437-250-G2 | CAT40 | 0.437 | 1.000 | 1.750 | 1.125 | 1.750 | 2.500 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-041 | CT40-EM437-400-G2 | CAT40 | 0.437 | 1.000 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-043 | CT40-EM500-262-G2 | CAT40 | 0.500 | 1.375 | 1.750 | 1.245 | 1.870 | 2.620 | N/A | 5/8-11 | SS7/16-500 |
| 966-000-045 | CT40-EM500-400-G2 | CAT40 | 0.500 | 1.375 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS7/16-500 |
| 966-000-047 | CT40-EM500-600-G2 | CAT40 | 0.500 | 1.375 | 1.750 | 4.620 | 5.250 | 6.000 | N/A | 5/8-11 | SS7/16-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)

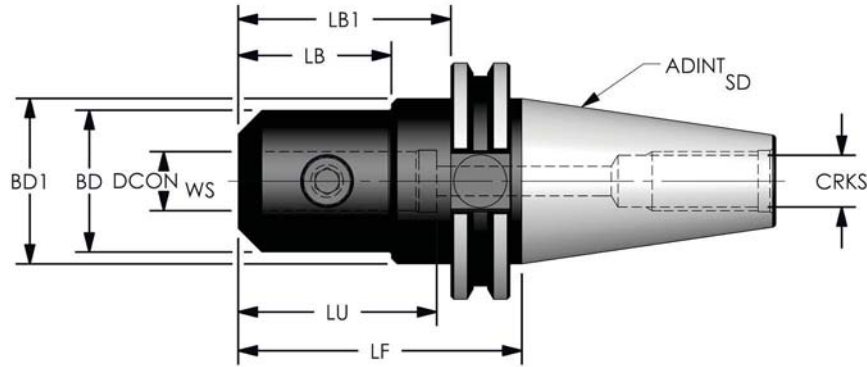
| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|--------|-------|-------|-------|-------|-------|-----|--------|------------|
| 966-000-002 | CT40-EM012-250-G6 | CAT40 | 0.125 | 0.690 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS10-250 |
| 966-000-018 | CT40-EM188-250-G6 | CAT40 | 0.188 | 0.750 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS10-250 |
| 966-000-020 | CT40-EM188-400-G6 | CAT40 | 0.188 | 0.750 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS10-250 |
| 966-000-022 | CT40-EM250-250-G6 | CAT40 | 0.250 | 0.880 | 1.750 | 1.125 | 1.750 | 2.500 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-024 | CT40-EM250-400-G6 | CAT40 | 0.250 | 0.880 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-026 | CT40-EM250-600-G6 | CAT40 | 0.250 | 0.880 | 1.750 | 4.625 | 5.250 | 6.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-028 | CT40-EM312-250-G6 | CAT40 | 0.312 | 0.880 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-030 | CT40-EM312-400-G6 | CAT40 | 0.312 | 0.880 | 1.750 | 2.625 | 3.250 | 4.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-032 | CT40-EM312-600-G6 | CAT40 | 0.312 | 0.880 | 1.750 | 4.625 | 5.250 | 6.000 | N/A | 5/8-11 | SS1/4-250 |
| 966-000-034 | CT40-EM375-250-G6 | CAT40 | 0.375 | 1.000 | 1.750 | 1.120 | 1.750 | 2.500 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-036 | CT40-EM375-400-G6 | CAT40 | 0.375 | 1.000 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-038 | CT40-EM375-600-G6 | CAT40 | 0.375 | 1.000 | 1.750 | 4.620 | 5.250 | 6.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-040 | CT40-EM437-250-G6 | CAT40 | 0.437 | 1.000 | 1.750 | 1.125 | 1.750 | 2.500 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-042 | CT40-EM437-400-G6 | CAT40 | 0.437 | 1.000 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS3/8-375 |
| 966-000-044 | CT40-EM500-262-G6 | CAT40 | 0.500 | 1.375 | 1.750 | 1.245 | 1.870 | 2.620 | N/A | 5/8-11 | SS7/16-500 |
| 966-000-046 | CT40-EM500-400-G6 | CAT40 | 0.500 | 1.375 | 1.750 | 2.620 | 3.250 | 4.000 | N/A | 5/8-11 | SS7/16-500 |
| 966-000-048 | CT40-EM500-600-G6 | CAT40 | 0.500 | 1.375 | 1.750 | 4.620 | 5.250 | 6.000 | N/A | 5/8-11 | SS7/16-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]



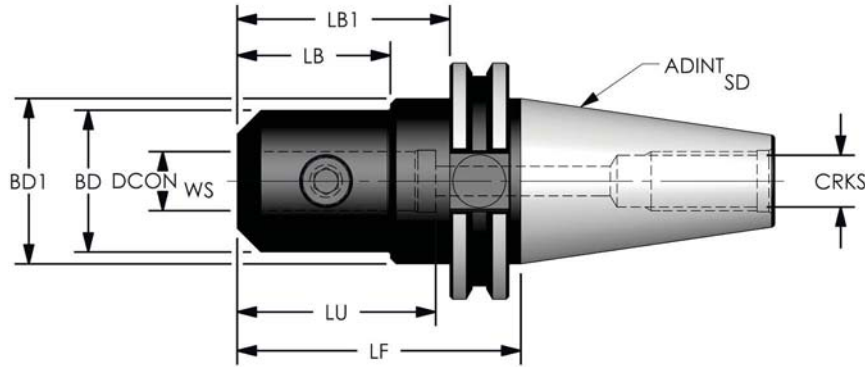
Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|--------|---------------|
| 966-000-049 | CT40-EM563-262-G2 | CAT40 | 0.563 | 1.375 | 1.750 | 1.240 | 1.870 | 2.620 | 2.050 | 5/8-11 | SS7/16-500 |
| 966-000-051 | CT40-EM625-175-G2 | CAT40 | 0.625 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-053 | CT40-EM625-300-G2 | CAT40 | 0.625 | 1.500 | 1.750 | 1.620 | 2.250 | 3.000 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-055 | CT40-EM625-600-G2 | CAT40 | 0.625 | 1.500 | 1.750 | 4.625 | 5.250 | 6.000 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-057 | CT40-EM750-175-G2 | CAT40 | 0.750 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.250 | 5/8-11 | SS5/8-500 |
| 966-000-059 | CT40-EM750-300-G2 | CAT40 | 0.750 | 1.750 | N/A | 2.250 | N/A | 3.000 | 2.300 | 5/8-11 | SS5/8-500 |
| 966-000-061 | CT40-EM750-600-G2 | CAT40 | 0.750 | 1.750 | N/A | 5.280 | N/A | 6.000 | 2.300 | 5/8-11 | SS5/8-500 |
| 966-000-063 | CT40-EM875-600-G2 | CAT40 | 0.875 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.500 | 5/8-11 | SS5/8-500 |
| 966-000-003 | CT40-EM100-175-G2 | CAT40 | 1.000 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.250 | 5/8-11 | SS3/4-375 |
| 966-000-005 | CT40-EM100-400-G2 | CAT40 | 1.000 | 2.000 | 1.750 | 2.620 | 3.250 | 4.000 | 2.830 | 5/8-11 | SS3/4-500 |
| 966-000-007 | CT40-EM100-600-G2 | CAT40 | 1.000 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.830 | 5/8-11 | SS3/4-500 |
| 966-000-009 | CT40-EM125-250-G2 | CAT40 | 1.250 | 2.250 | N/A | 1.750 | N/A | 2.500 | 2.500 | 5/8-11 | SS3/4-500 |
| 966-000-011 | CT40-EM125-400-G2 | CAT40 | 1.250 | 2.250 | N/A | 3.250 | N/A | 4.000 | 3.000 | 5/8-11 | (2) SS3/4-500 |
| 966-000-013 | CT40-EM125-600-G2 | CAT40 | 1.250 | 2.250 | 1.750 | 4.625 | 5.250 | 6.000 | 3.000 | 5/8-11 | (2) SS3/4-500 |
| 966-000-015 | CT40-EM150-462-G2 | CAT40 | 1.500 | 2.600 | 1.750 | 3.245 | 3.870 | 4.620 | 2.750 | 5/8-11 | (2) SS3/4-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5



Balanced to:
G6.3 (12,000 rpm)

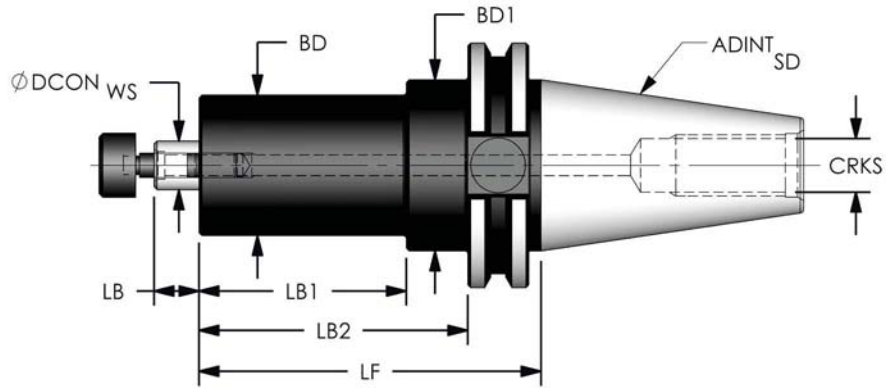
| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|--------|---------------|
| 966-000-050 | CT40-EM563-262-G6 | CAT40 | 0.563 | 1.375 | 1.750 | 1.240 | 1.870 | 2.620 | 2.050 | 5/8-11 | SS7/16-500 |
| 966-000-052 | CT40-EM625-175-G6 | CAT40 | 0.625 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-054 | CT40-EM625-300-G6 | CAT40 | 0.625 | 1.500 | 1.750 | 1.620 | 2.250 | 3.000 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-056 | CT40-EM625-600-G6 | CAT40 | 0.625 | 1.500 | 1.750 | 4.625 | 5.250 | 6.000 | 2.100 | 5/8-11 | SS9/16-500 |
| 966-000-058 | CT40-EM750-175-G6 | CAT40 | 0.750 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.250 | 5/8-11 | SS5/8-500 |
| 966-000-060 | CT40-EM750-300-G6 | CAT40 | 0.750 | 1.750 | N/A | 2.250 | N/A | 3.000 | 2.300 | 5/8-11 | SS5/8-500 |
| 966-000-062 | CT40-EM750-600-G6 | CAT40 | 0.750 | 1.750 | N/A | 5.280 | N/A | 6.000 | 2.300 | 5/8-11 | SS5/8-500 |
| 966-000-064 | CT40-EM875-600-G6 | CAT40 | 0.875 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.500 | 5/8-11 | SS5/8-500 |
| 966-000-004 | CT40-EM100-175-G6 | CAT40 | 1.000 | 1.750 | N/A | 1.000 | N/A | 1.750 | 2.250 | 5/8-11 | SS3/4-375 |
| 966-000-006 | CT40-EM100-400-G6 | CAT40 | 1.000 | 2.000 | 1.750 | 2.620 | 3.250 | 4.000 | 2.830 | 5/8-11 | SS3/4-500 |
| 966-000-008 | CT40-EM100-600-G6 | CAT40 | 1.000 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.830 | 5/8-11 | SS3/4-500 |
| 966-000-010 | CT40-EM125-250-G6 | CAT40 | 1.250 | 2.250 | N/A | 1.750 | N/A | 2.500 | 2.500 | 5/8-11 | SS3/4-500 |
| 966-000-012 | CT40-EM125-400-G6 | CAT40 | 1.250 | 2.250 | N/A | 3.250 | N/A | 4.000 | 3.000 | 5/8-11 | (2) SS3/4-500 |
| 966-000-014 | CT40-EM125-600-G6 | CAT40 | 1.250 | 2.250 | 1.750 | 4.625 | 5.250 | 6.000 | 3.000 | 5/8-11 | (2) SS3/4-500 |
| 966-000-016 | CT40-EM150-462-G6 | CAT40 | 1.500 | 2.600 | 1.750 | 3.245 | 3.870 | 4.620 | 2.750 | 5/8-11 | (2) SS3/4-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]

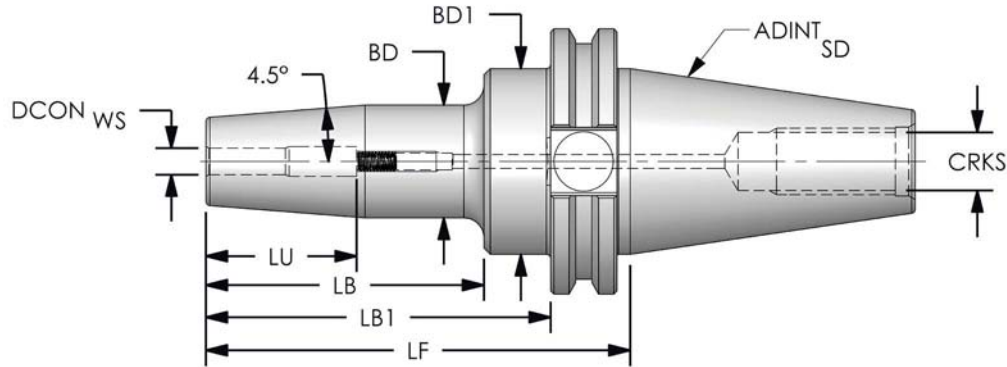


Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LB2 | LF | CRKS | Drive Key | Lock Screw | Thread |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|--------|-----------|------------|--------|
| 966-000-134 | CT40-SM050-138-G6 | CAT40 | 0.500 | 1.438 | N/A | 0.460 | 0.625 | N/A | 1.380 | 5/8-11 | UDK 250 | U5001 | 1/4-28 |
| 966-000-135 | CT40-SM050-350-G6 | CAT40 | 0.500 | 1.438 | 1.750 | 0.460 | 2.580 | 3.210 | 3.500 | 5/8-11 | UDK 250 | U5001 | 1/4-28 |
| 966-000-136 | CT40-SM075-150-G6 | CAT40 | 0.750 | 1.750 | N/A | 0.680 | 1.430 | N/A | 1.500 | 5/8-11 | UDK 312 | U5002 | 3/8-24 |
| 966-000-137 | CT40-SM075-400-G6 | CAT40 | 0.750 | 1.750 | N/A | 0.680 | 3.250 | N/A | 4.000 | 5/8-11 | UDK 312 | U5002 | 3/8-24 |
| 966-000-138 | CT40-SM075-600-G6 | CAT40 | 0.750 | 1.750 | N/A | 0.680 | 5.250 | N/A | 6.000 | 5/8-11 | UDK 312 | U5002 | 3/8-24 |
| 966-000-139 | CT40-SM100-200-G6 | CAT40 | 1.000 | 2.190 | 1.750 | 0.680 | 0.620 | 1.250 | 2.000 | 5/8-11 | UDK 375 | U5003 | 1/2-20 |
| 966-000-140 | CT40-SM100-400-G6 | CAT40 | 1.000 | 2.190 | 1.750 | 0.680 | 2.620 | 3.250 | 4.000 | 5/8-11 | UDK 375 | U5003 | 1/2-20 |
| 966-000-141 | CT40-SM100-600-G6 | CAT40 | 1.000 | 2.190 | 1.750 | 0.680 | 4.620 | 5.250 | 6.000 | 5/8-11 | UDK 375 | U5003 | 1/2-20 |
| 966-000-142 | CT40-SM125-212-G6 | CAT40 | 1.250 | 2.750 | 1.750 | 0.680 | 0.745 | 1.375 | 2.120 | 5/8-11 | UDK 500 | U5004 | 5/8-18 |
| 966-000-143 | CT40-SM125-400-G6 | CAT40 | 1.250 | 2.750 | 1.750 | 0.680 | 2.620 | 3.250 | 4.000 | 5/8-11 | UDK 500 | U5004 | 5/8-18 |
| 966-000-144 | CT40-SM150-250-G6 | CAT40 | 1.500 | 3.380 | 1.750 | 0.940 | 1.120 | 1.750 | 2.500 | 5/8-11 | UDK 625 | U5005 | 3/4-16 |
| 966-000-145 | CT40-SM150-400-G6 | CAT40 | 1.500 | 3.380 | 1.750 | 0.940 | 2.620 | 3.250 | 4.000 | 5/8-11 | UDK 625 | U5005 | 3/4-16 |

| PRODUCT # | Arbor Screws |
|-------------|--------------|
| 968-000-162 | U5001 |
| 968-000-163 | U5002 |
| 968-000-164 | U5003 |
| 968-000-165 | U5004 |
| 968-000-166 | U5005 |
| 968-000-167 | U5006 |
| 968-000-168 | U5007 |
| 968-000-008 | AS1/4-100 |
| 968-000-009 | AS3/8-125 |
| 968-000-007 | AS1/2-150 |

PACKAGE SIZE OF 1



Standard Length

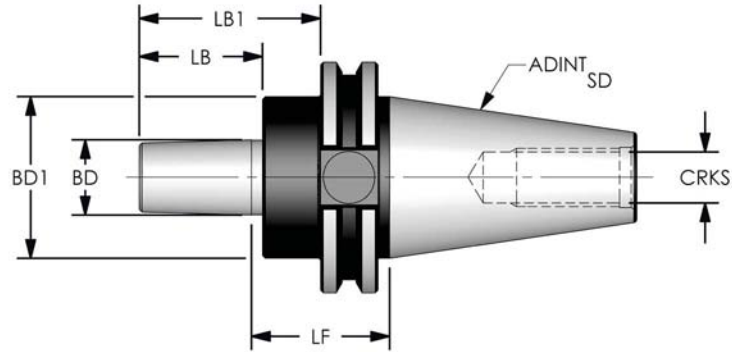
**Balanced to:
G2.5 (20,000 rpm)**

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | THREAD |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|--------|---------|
| 966-000-116 | CT40-SF012-400-G2 | CAT40 | 0.125 | 0.500 | 1.750 | 2.620 | 3.250 | 4.000 | 0.790 | 5/8-11 | N/A |
| 966-000-121 | CT40-SF188-400-G2 | CAT40 | 0.188 | 0.500 | 1.750 | 2.620 | 3.250 | 4.000 | 0.790 | 5/8-11 | N/A |
| 966-000-123 | CT40-SF250-400-G2 | CAT40 | 0.250 | 0.750 | 1.750 | 2.620 | 3.250 | 4.000 | 1.420 | 5/8-11 | 10-32 |
| 966-000-126 | CT40-SF375-400-G2 | CAT40 | 0.375 | 0.750 | 1.750 | 2.620 | 3.250 | 4.000 | 1.530 | 5/8-11 | 1/4-28 |
| 966-000-128 | CT40-SF500-400-G2 | CAT40 | 0.500 | 1.000 | 1.750 | 2.620 | 3.250 | 4.000 | 1.850 | 5/8-11 | 7/16-20 |
| 966-000-130 | CT40-SF625-400-G2 | CAT40 | 0.625 | 1.000 | 1.750 | 2.625 | 3.250 | 4.000 | 1.970 | 5/8-11 | 9/16-18 |
| 966-000-132 | CT40-SF750-400-G2 | CAT40 | 0.750 | 1.250 | 1.750 | 2.625 | 3.250 | 4.000 | 2.040 | 5/8-11 | 5/8-18 |
| 966-000-118 | CT40-SF100-400-G2 | CAT40 | 1.000 | 2.090 | 1.750 | 2.625 | 3.250 | 4.000 | 2.280 | 5/8-11 | 3/4-16 |
| 966-000-120 | CT40-SF125-400-G2 | CAT40 | 1.250 | 2.090 | 1.750 | 2.625 | 3.250 | 4.000 | 2.280 | 5/8-11 | 3/4-16 |

Extended Length

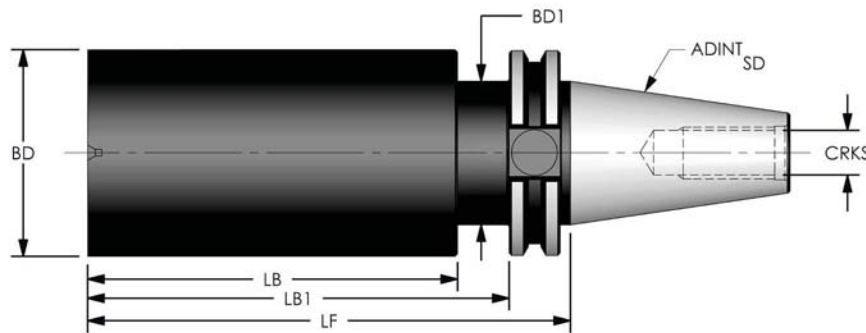
| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | THREAD |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|--------|---------|
| 966-000-117 | CT40-SF012-600-G2 | CAT40 | 0.125 | 0.750 | 1.750 | 2.620 | 5.250 | 6.000 | 0.790 | 5/8-11 | N/A |
| 966-000-122 | CT40-SF188-600-G2 | CAT40 | 0.188 | 0.750 | 1.750 | 2.620 | 5.250 | 6.000 | 0.790 | 5/8-11 | N/A |
| 966-000-124 | CT40-SF250-600-G2 | CAT40 | 0.250 | 0.750 | 1.750 | 2.620 | 5.250 | 6.000 | 1.420 | 5/8-11 | 10-32 |
| 966-000-127 | CT40-SF375-600-G2 | CAT40 | 0.375 | 1.000 | 1.750 | 2.620 | 5.250 | 6.000 | 1.530 | 5/8-11 | 1/4-28 |
| 966-000-129 | CT40-SF500-600-G2 | CAT40 | 0.500 | 1.000 | 1.750 | 2.620 | 5.250 | 6.000 | 1.850 | 5/8-11 | 7/16-20 |
| 966-000-131 | CT40-SF625-600-G2 | CAT40 | 0.625 | 1.250 | 1.750 | 2.625 | 5.250 | 6.000 | 1.970 | 5/8-11 | 9/16-18 |
| 966-000-133 | CT40-SF750-600-G2 | CAT40 | 0.750 | 1.250 | 1.750 | 2.625 | 5.250 | 6.000 | 2.040 | 5/8-11 | 5/8-18 |
| 966-000-119 | CT40-SF100-600-G2 | CAT40 | 1.000 | 2.090 | 1.750 | 2.625 | 5.250 | 6.000 | 2.280 | 5/8-11 | 3/4-16 |
| 966-000-125 | CT40-SF250-800-G2 | CAT40 | 0.250 | 1.000 | 1.750 | 6.625 | 7.250 | 8.000 | 1.420 | 5/8-11 | 10-32 |

ULTRA-DEX[®]

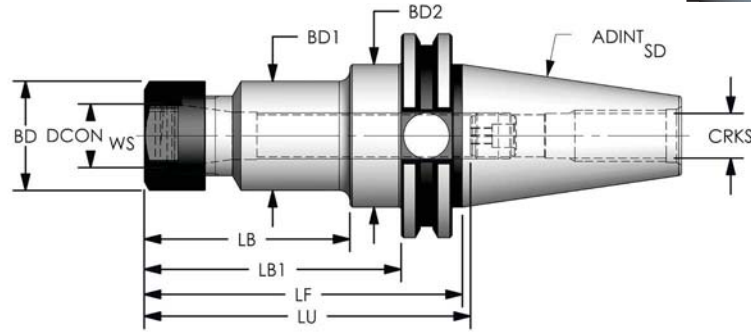


Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | Taper No. | BD | BD1 | LB | LB1 | LF | CRKS | Taper Length |
|-------------|------------------|---------|-----------|-------|-------|-------|-------|-------|--------|--------------|
| 966-000-111 | CT40-JT02-150-G6 | CAT40 | 2 | 0.559 | 1.750 | 1.025 | 1.625 | 1.500 | 5/8-11 | 0.875 |
| 966-000-112 | CT40-JT03-150-G6 | CAT40 | 3 | 0.811 | 1.750 | 1.339 | 1.969 | 1.500 | 5/8-11 | 1.219 |
| 966-000-113 | CT40-JT04-150-G6 | CAT40 | 4 | 1.124 | 1.750 | 1.776 | 2.406 | 1.500 | 5/8-11 | 1.656 |
| 966-000-114 | CT40-JT06-150-G6 | CAT40 | 6 | 0.676 | 1.750 | 1.120 | 1.750 | 1.500 | 5/8-11 | 1.000 |
| 966-000-115 | CT40-JT33-150-G6 | CAT40 | 33 | 0.624 | 1.750 | 1.120 | 1.750 | 1.500 | 5/8-11 | 1.000 |



| PRODUCT # | Designation | ADINTSD | BD | BD1 | LB | LB1 | LF | CRKS |
|-------------|----------------|---------|--------------|-------|-------|-------|-------------|--------|
| 967-000-002 | CT40-BB64-150 | CAT40 | 2.520(64mm) | 1.750 | 4.526 | 5.156 | 5.91(150mm) | 5/8-11 |
| 967-000-003 | CT40-BB64-250 | CAT40 | 2.520(64mm) | 1.750 | 4.526 | 5.156 | 9.84(250mm) | 5/8-11 |
| 967-000-001 | CT40-BB100-150 | CAT40 | 3.940(100mm) | 1.750 | 8.463 | 9.093 | 5.91(150mm) | 5/8-11 |



Balanced to:
G2.5 (15,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | BD2 | LB | LB1 | LF | LU | CRKS | Collet Nut | Stop Screw | Wrench |
|-------------|------------------|---------|--------|-------|-------|-------|-------|-------|-------|-------|------|------------|------------|--------|
| 966-000-216 | CT50-ER11-600-G2 | CAT50 | ER11 | 0.750 | N/A | N/A | N/A | N/A | 6.000 | 1.940 | 1-8 | ER-11HN | ER-11S | ER-11W |
| 966-000-218 | CT50-ER16-400-G2 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-220 | CT50-ER16-600-G2 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-222 | CT50-ER16-800-G2 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-224 | CT50-ER20-250-G2 | CAT50 | ER20 | 1.340 | 1.340 | 1.340 | 1.750 | N/A | 2.500 | 3.380 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-226 | CT50-ER20-400-G2 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 2.620 | 3.250 | 4.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-228 | CT50-ER20-600-G2 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 4.620 | 5.250 | 6.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-230 | CT50-ER20-800-G2 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 6.620 | 7.250 | 8.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-232 | CT50-ER25-250-G2 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 1.120 | 1.750 | 2.500 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-234 | CT50-ER25-400-G2 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-236 | CT50-ER25-600-G2 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-238 | CT50-ER25-800-G2 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-240 | CT50-ER32-300-G2 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 1.620 | 2.250 | 3.000 | 3.500 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-242 | CT50-ER32-400-G2 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 2.620 | 3.250 | 4.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-244 | CT50-ER32-500-G2 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 3.620 | 4.250 | 5.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-246 | CT50-ER32-600-G2 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 4.620 | 5.250 | 6.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-248 | CT50-ER32-800-G2 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 6.620 | 7.250 | 8.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-250 | CT50-ER40-300-G2 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 1.620 | 2.250 | 3.000 | 4.000 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-252 | CT50-ER40-400-G2 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-254 | CT50-ER40-500-G2 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 3.620 | 4.250 | 5.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-256 | CT50-ER40-600-G2 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-258 | CT50-ER40-800-G2 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

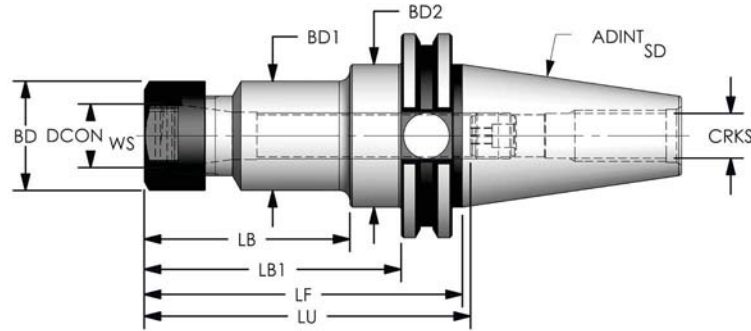
PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



by Ultra-Dex



Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCONWS | BD | BD1 | BD2 | LB | LB1 | LF | LU | CRKS | Collet Nut | Stop Screw | Wrench |
|-------------|------------------|---------|--------|-------|-------|-------|-------|-------|-------|-------|------|------------|------------|--------|
| 966-000-217 | CT50-ER11-600-G6 | CAT50 | ER11 | 0.750 | N/A | N/A | N/A | N/A | 6.000 | 1.940 | 1-8 | ER-11HN | ER-11S | ER-11W |
| 966-000-219 | CT50-ER16-400-G6 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-221 | CT50-ER16-600-G6 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-223 | CT50-ER16-800-G6 | CAT50 | ER16 | 1.100 | 1.100 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-16HN | ER-16S | ER-16W |
| 966-000-225 | CT50-ER20-250-G6 | CAT50 | ER20 | 1.340 | 1.340 | 1.340 | 1.750 | N/A | 2.500 | 3.380 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-227 | CT50-ER20-400-G6 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 2.620 | 3.250 | 4.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-229 | CT50-ER20-600-G6 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 4.620 | 5.250 | 6.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-231 | CT50-ER20-800-G6 | CAT50 | ER20 | 1.340 | 1.340 | 2.750 | 6.620 | 7.250 | 8.000 | 4.000 | 1-8 | ER-20HN | ER-20S | ER-20W |
| 966-000-233 | CT50-ER25-250-G6 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 1.120 | 1.750 | 2.500 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-235 | CT50-ER25-400-G6 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-237 | CT50-ER25-600-G6 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-239 | CT50-ER25-800-G6 | CAT50 | ER25 | 1.660 | 1.590 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-25SN | ER-25S | ER-25W |
| 966-000-241 | CT50-ER32-300-G6 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 1.620 | 2.250 | 3.000 | 3.500 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-243 | CT50-ER32-400-G6 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 2.620 | 3.250 | 4.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-245 | CT50-ER32-500-G6 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 3.620 | 4.250 | 5.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-247 | CT50-ER32-600-G6 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 4.620 | 5.250 | 6.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-249 | CT50-ER32-800-G6 | CAT50 | ER32 | 1.980 | 2.000 | 2.750 | 6.620 | 7.250 | 8.000 | 4.000 | 1-8 | ER-32SN | ER-32S | ER-32W |
| 966-000-251 | CT50-ER40-300-G6 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 1.620 | 2.250 | 3.000 | 4.000 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-253 | CT50-ER40-400-G6 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 2.620 | 3.250 | 4.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-255 | CT50-ER40-500-G6 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 3.620 | 4.250 | 5.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-257 | CT50-ER40-600-G6 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 4.620 | 5.250 | 6.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |
| 966-000-259 | CT50-ER40-800-G6 | CAT50 | ER40 | 2.500 | 2.500 | 2.750 | 6.620 | 7.250 | 8.000 | 4.500 | 1-8 | ER-40SN | ER-40S | ER-40W |

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

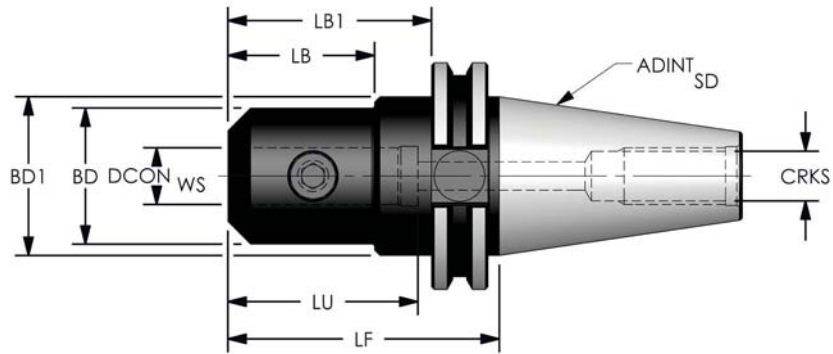
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



Balanced to:
G2.5 (15,000 rpm)

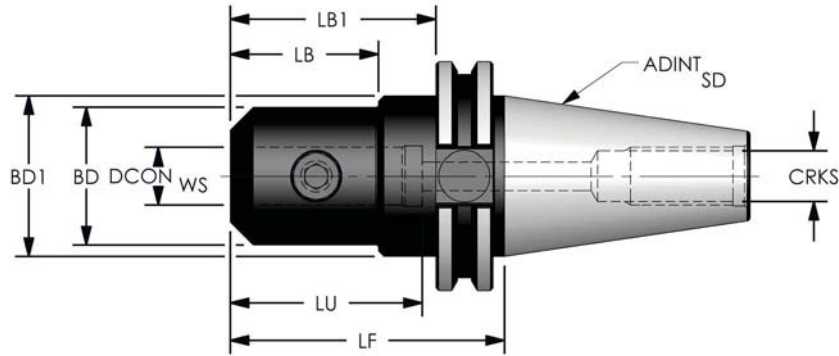
| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-----|------|------------|
| 966-000-162 | CT50-EM188-250-G2 | CAT50 | 0.188 | 0.680 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS10-250 |
| 966-000-164 | CT50-EM188-400-G2 | CAT50 | 0.188 | 0.680 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS10-250 |
| 966-000-170 | CT50-EM250-250-G2 | CAT50 | 0.250 | 0.880 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS1/4-250 |
| 966-000-172 | CT50-EM250-400-G2 | CAT50 | 0.250 | 0.880 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-174 | CT50-EM250-600-G2 | CAT50 | 0.250 | 0.880 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-176 | CT50-EM312-250-G2 | CAT50 | 0.312 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS1/4-250 |
| 966-000-178 | CT50-EM312-400-G2 | CAT50 | 0.312 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-180 | CT50-EM312-600-G2 | CAT50 | 0.312 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-182 | CT50-EM375-250-G2 | CAT50 | 0.375 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS3/8-375 |
| 966-000-184 | CT50-EM375-400-G2 | CAT50 | 0.375 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-186 | CT50-EM375-600-G2 | CAT50 | 0.375 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-188 | CT50-EM437-250-G2 | CAT50 | 0.437 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS3/8-375 |
| 966-000-190 | CT50-EM437-400-G2 | CAT50 | 0.437 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-192 | CT50-EM437-600-G2 | CAT50 | 0.437 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-194 | CT50-EM500-262-G2 | CAT50 | 0.500 | 1.375 | 2.750 | 1.245 | 1.870 | 2.620 | N/A | 1-8 | SS7/16-500 |
| 966-000-196 | CT50-EM500-400-G2 | CAT50 | 0.500 | 1.375 | 2.750 | 2.620 | 3.250 | 4.000 | N/A | 1-8 | SS7/16-500 |
| 966-000-198 | CT50-EM500-600-G2 | CAT50 | 0.500 | 1.375 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS7/16-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)

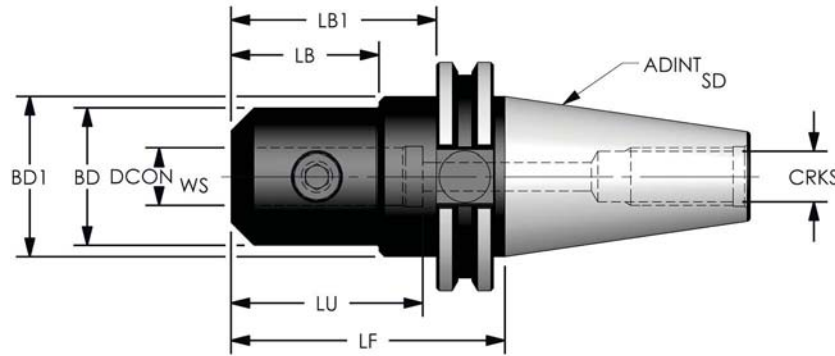
| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-----|------|------------|
| 966-000-163 | CT50-EM188-250-G6 | CAT50 | 0.188 | 0.680 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS10-250 |
| 966-000-165 | CT50-EM188-400-G6 | CAT50 | 0.188 | 0.680 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS10-250 |
| 966-000-171 | CT50-EM250-250-G6 | CAT50 | 0.250 | 0.880 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS1/4-250 |
| 966-000-173 | CT50-EM250-400-G6 | CAT50 | 0.250 | 0.880 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-175 | CT50-EM250-600-G6 | CAT50 | 0.250 | 0.880 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-177 | CT50-EM312-250-G6 | CAT50 | 0.312 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS1/4-250 |
| 966-000-179 | CT50-EM312-400-G6 | CAT50 | 0.312 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-181 | CT50-EM312-600-G6 | CAT50 | 0.312 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS1/4-250 |
| 966-000-183 | CT50-EM375-250-G6 | CAT50 | 0.375 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS3/8-375 |
| 966-000-185 | CT50-EM375-400-G6 | CAT50 | 0.375 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-187 | CT50-EM375-600-G6 | CAT50 | 0.375 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-189 | CT50-EM437-250-G6 | CAT50 | 0.437 | 1.000 | 2.750 | 1.125 | 1.750 | 2.500 | N/A | 1-8 | SS3/8-375 |
| 966-000-191 | CT50-EM437-400-G6 | CAT50 | 0.437 | 1.000 | 2.750 | 2.625 | 3.250 | 4.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-193 | CT50-EM437-600-G6 | CAT50 | 0.437 | 1.000 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS3/8-375 |
| 966-000-195 | CT50-EM500-262-G6 | CAT50 | 0.500 | 1.375 | 2.750 | 1.245 | 1.870 | 2.620 | N/A | 1-8 | SS7/16-500 |
| 966-000-197 | CT50-EM500-400-G6 | CAT50 | 0.500 | 1.375 | 2.750 | 2.620 | 3.250 | 4.000 | N/A | 1-8 | SS7/16-500 |
| 966-000-199 | CT50-EM500-600-G6 | CAT50 | 0.500 | 1.375 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS7/16-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G2.5 (15,000 rpm)

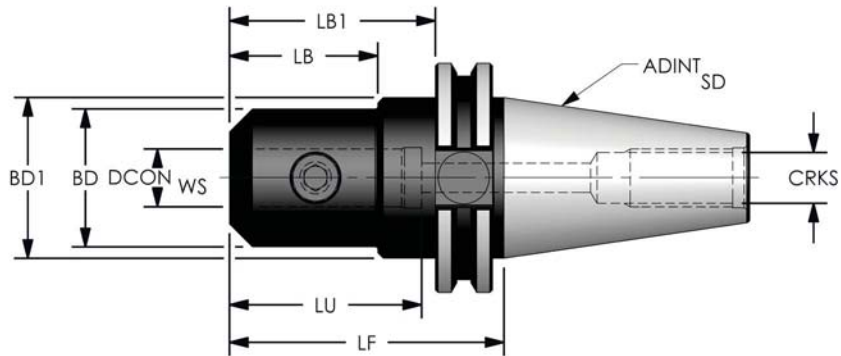
| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|----------|---------|-------|-------|-------|-------|-------|-------|------|---------------|
| 966-000-200 | CT50-EM625-138-G2 | CAT50 | 0.625 | 2.750 | N/A | 0.630 | N/A | 1.380 | N/A | 1-8 | SS9/16-500 |
| 966-000-202 | CT50-EM625-300-G2 | CAT50 | 0.625 | 1.750 | 2.750 | 1.625 | 2.250 | 3.000 | N/A | 1-8 | SS9/16-500 |
| 966-000-204 | CT50-EM625-600-G2 | CAT50 | 0.625 | 1.750 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS9/16-500 |
| 966-000-206 | CT50-EM750-138-G2 | CAT50 | 0.750 | 2.750 | N/A | 0.630 | N/A | 1.380 | N/A | 1-8 | SS5/8-500 |
| 966-000-208 | CT50-EM750-300-G2 | CAT50 | 0.750 | 1.750 | 2.750 | 1.625 | 2.250 | 3.000 | N/A | 1-8 | SS5/8-500 |
| 966-000-210 | CT50-EM750-600-G2 | CAT50 | 0.750 | 1.750 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS5/8-500 |
| 966-000-212 | CT50-EM875-400-G2 | CAT50 | 0.875 | 2.000 | 2.750 | 2.625 | 3.250 | 4.000 | 2.500 | 1-8 | SS5/8-500 |
| 966-000-214 | CT50-EM875-600-G2 | CAT50 | 0.875 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.500 | 1-8 | SS5/8-500 |
| 966-000-146 | CT50-EM100-138-G2 | CAT50 | 1.000 | 2.750 | N/A | 0.630 | N/A | 1.380 | 2.250 | 1-8 | SS3/4-500 |
| 966-000-148 | CT50-EM100-400-G2 | CAT50 | 1.000 | 2.000 | 2.750 | 2.620 | 3.250 | 4.000 | 2.830 | 1-8 | SS3/4-500 |
| 966-000-150 | CT50-EM100-600-G2 | CAT50 | 1.000 | 2.000 | 2.750 | 4.620 | 5.250 | 6.000 | 2.830 | 1-8 | SS3/4-500 |
| 966-000-152 | CT50-EM125-200-G2 | CAT50 | 1.250 | 2.750 | N/A | 1.250 | N/A | 2.000 | 2.550 | 1-8 | SS3/4-750 |
| 966-000-154 | CT50-EM125-400-G2 | CAT50 | 1.250 | 2.750 | N/A | 3.250 | N/A | 4.000 | 3.000 | 1-8 | (2) SS3/4-750 |
| 966-000-156 | CT50-EM125-600-G2 | CAT50 | 1.250 | 2.500 | 2.750 | 4.620 | 5.250 | 6.000 | 3.000 | 1-8 | (2) SS3/4-750 |
| 966-000-158 | CT50-EM150-200-G2 | CAT50 | 1.500 | 2.750 | N/A | 1.250 | N/A | 2.000 | 2.750 | 1-8 | SS3/4-500 |
| 966-000-160 | CT50-EM150-450-G2 | CAT50 | 1.500 | 2.500 | 2.750 | 3.120 | 3.750 | 4.500 | 2.750 | 1-8 | (2) SS3/4-500 |
| 966-000-166 | CT50-EM200-500-G2 | CAT50 | 2.000 | 3.750 | 2.750 | 3.620 | 4.250 | 5.000 | 3.500 | 1-8 | (2) SS1-750 |
| 966-000-168 | CT50-EM200-800-G2 | CAT50 | 2.000 | 3.750 | 2.750 | 6.625 | 7.250 | 8.000 | 3.500 | 1-8 | (2) SS1-750 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]



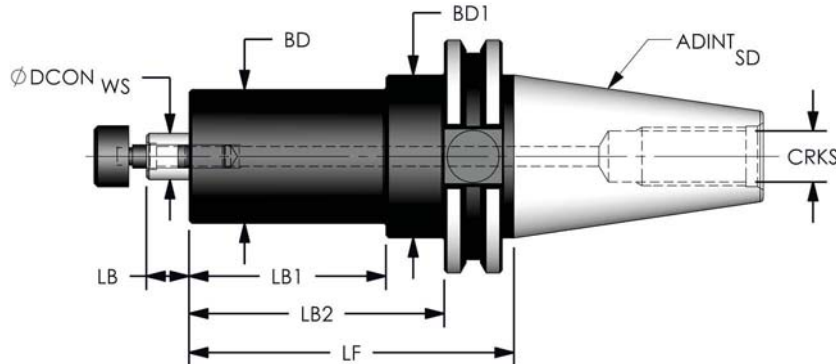
Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Set Screw |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|------|---------------|
| 966-000-201 | CT50-EM625-138-G6 | CAT50 | 0.625 | 2.750 | N/A | 0.630 | N/A | 1.380 | N/A | 1-8 | SS9/16-500 |
| 966-000-203 | CT50-EM625-300-G6 | CAT50 | 0.625 | 1.750 | 2.750 | 1.625 | 2.250 | 3.000 | N/A | 1-8 | SS9/16-500 |
| 966-000-205 | CT50-EM625-600-G6 | CAT50 | 0.625 | 1.750 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS9/16-500 |
| 966-000-207 | CT50-EM750-138-G6 | CAT50 | 0.750 | 2.750 | N/A | 0.630 | N/A | 1.380 | N/A | 1-8 | SS5/8-500 |
| 966-000-209 | CT50-EM750-300-G6 | CAT50 | 0.750 | 1.750 | 2.750 | 1.625 | 2.250 | 3.000 | N/A | 1-8 | SS5/8-500 |
| 966-000-211 | CT50-EM750-600-G6 | CAT50 | 0.750 | 1.750 | 2.750 | 4.625 | 5.250 | 6.000 | N/A | 1-8 | SS5/8-500 |
| 966-000-213 | CT50-EM875-400-G6 | CAT50 | 0.875 | 2.000 | 2.750 | 2.625 | 3.250 | 4.000 | 2.500 | 1-8 | SS5/8-500 |
| 966-000-215 | CT50-EM875-600-G6 | CAT50 | 0.875 | 2.000 | 1.750 | 4.625 | 5.250 | 6.000 | 2.500 | 1-8 | SS5/8-500 |
| 966-000-147 | CT50-EM100-138-G6 | CAT50 | 1.000 | 2.750 | N/A | 0.630 | N/A | 1.380 | 2.250 | 1-8 | SS3/4-500 |
| 966-000-149 | CT50-EM100-400-G6 | CAT50 | 1.000 | 2.000 | 2.750 | 2.620 | 3.250 | 4.000 | 2.830 | 1-8 | SS3/4-500 |
| 966-000-151 | CT50-EM100-600-G6 | CAT50 | 1.000 | 2.000 | 2.750 | 4.620 | 5.250 | 6.000 | 2.830 | 1-8 | SS3/4-500 |
| 966-000-153 | CT50-EM125-200-G6 | CAT50 | 1.250 | 2.750 | N/A | 1.250 | N/A | 2.000 | 2.550 | 1-8 | SS3/4-750 |
| 966-000-155 | CT50-EM125-400-G6 | CAT50 | 1.250 | 2.750 | N/A | 3.250 | N/A | 4.000 | 3.000 | 1-8 | (2) SS3/4-750 |
| 966-000-157 | CT50-EM125-600-G6 | CAT50 | 1.250 | 2.500 | 2.750 | 4.620 | 5.250 | 6.000 | 3.000 | 1-8 | (2) SS3/4-750 |
| 966-000-159 | CT50-EM150-200-G6 | CAT50 | 1.500 | 2.750 | N/A | 1.250 | N/A | 2.000 | 2.750 | 1-8 | SS3/4-500 |
| 966-000-161 | CT50-EM150-450-G6 | CAT50 | 1.500 | 2.500 | 2.750 | 3.120 | 3.750 | 4.500 | 2.750 | 1-8 | (2) SS3/4-500 |
| 966-000-167 | CT50-EM200-500-G6 | CAT50 | 2.000 | 3.750 | 2.750 | 3.620 | 4.250 | 5.000 | 3.500 | 1-8 | (2) SS1-750 |
| 966-000-169 | CT50-EM200-800-G6 | CAT50 | 2.000 | 3.750 | 2.750 | 6.625 | 7.250 | 8.000 | 3.500 | 1-8 | (2) SS1-750 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5



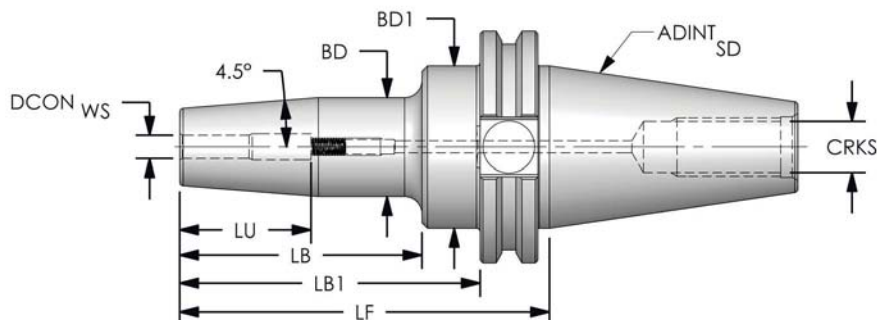
Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LB2 | LF | CRKS | Drive Key | Lock Screw | Thread | Price |
|-------------|--------------------|---------|---------|-------|-------|-------|-------|-------|-------|------|-----------|------------|--------|----------|
| 966-000-282 | CT50-SM050-200-G6 | CAT50 | 0.500 | 1.560 | 2.750 | 0.460 | 1.085 | 1.710 | 2.000 | 1-8 | UDK 250 | U5001 | 1/4-28 | \$137.00 |
| 966-000-283 | CT50-SM050-400-G6 | CAT50 | 0.500 | 1.560 | 2.750 | 0.460 | 3.085 | 3.710 | 4.000 | 1-8 | UDK 250 | U5001 | 1/4-28 | \$158.00 |
| 966-000-284 | CT50-SM050-600-G6 | CAT50 | 0.500 | 1.560 | 2.750 | 0.460 | 5.085 | 5.710 | 6.000 | 1-8 | UDK 250 | U5001 | 1/4-28 | \$178.00 |
| 966-000-285 | CT50-SM075-150-G6 | CAT50 | 0.750 | 2.750 | N/A | 0.680 | 0.750 | N/A | 1.500 | 1-8 | UDK 312 | U5002 | 3/8-24 | \$137.00 |
| 966-000-286 | CT50-SM075-400-G6 | CAT50 | 0.750 | 1.750 | 2.750 | 0.680 | 2.625 | 3.250 | 4.000 | 1-8 | UDK 312 | U5002 | 3/8-24 | \$158.00 |
| 966-000-287 | CT50-SM075-600-G6 | CAT50 | 0.750 | 1.750 | 2.750 | 0.680 | 4.625 | 5.250 | 6.000 | 1-8 | UDK 312 | U5002 | 3/8-24 | \$178.00 |
| 966-000-288 | CT50-SM100-150-G6 | CAT50 | 1.000 | 2.750 | N/A | 0.680 | 1.460 | N/A | 1.500 | 1-8 | UDK 375 | U5003 | 1/2-20 | \$137.00 |
| 966-000-289 | CT50-SM100-400-G6 | CAT50 | 1.000 | 2.750 | 2.750 | 0.680 | 2.625 | 3.250 | 4.000 | 1-8 | UDK 375 | U5003 | 1/2-20 | \$158.00 |
| 966-000-290 | CT50-SM100-600-G6 | CAT50 | 1.000 | 2.750 | 2.750 | 0.680 | 4.625 | 5.250 | 6.000 | 1-8 | UDK 375 | U5003 | 1/2-20 | \$178.00 |
| 966-000-291 | CT50-SM125-150-G6 | CAT50 | 1.250 | 2.750 | N/A | 0.680 | 0.750 | N/A | 1.500 | 1-8 | UDK 500 | U5004 | 5/8-18 | \$137.00 |
| 966-000-292 | CT50-SM125-400-G6 | CAT50 | 1.250 | 2.750 | N/A | 0.680 | 3.250 | N/A | 4.000 | 1-8 | UDK 500 | U5004 | 5/8-18 | \$158.00 |
| 966-000-293 | CT50-SM125-600-G6 | CAT50 | 1.250 | 2.750 | N/A | 0.680 | 5.250 | N/A | 6.000 | 1-8 | UDK 500 | U5004 | 5/8-18 | \$178.00 |
| 966-000-294 | CT50-SM150-250-G6 | CAT50 | 1.500 | 3.750 | 2.750 | 0.940 | 1.125 | 1.750 | 2.500 | 1-8 | UDK 625 | U5005 | 3/4-16 | \$136.00 |
| 966-000-295 | CT50-SM150-400-G6 | CAT50 | 1.500 | 3.750 | 2.750 | 0.940 | 2.625 | 3.250 | 4.000 | 1-8 | UDK 625 | U5005 | 3/4-16 | \$158.00 |
| 966-000-296 | CT50-SM150-600-G6 | CAT50 | 1.500 | 3.750 | 2.750 | 0.940 | 4.625 | 5.250 | 6.000 | 1-8 | UDK 625 | U5005 | 3/4-16 | \$179.00 |
| 966-000-297 | CT50-SM200-250-G6 | CAT50 | 2.000 | 4.440 | 2.750 | 0.940 | 1.125 | 1.750 | 2.500 | 1-8 | UDK 750 | U5006 | 1-14 | \$163.00 |
| 966-000-298 | CT50-SM200-400-G6 | CAT50 | 2.000 | 4.440 | 2.750 | 0.940 | 2.625 | 3.250 | 4.000 | 1-8 | UDK 750 | U5006 | 1-14 | \$190.00 |
| 966-000-299 | CT50-SM200-600-G6 | CAT50 | 2.000 | 4.440 | 2.750 | 0.940 | 4.625 | 5.250 | 6.000 | 1-8 | UDK 750 | U5006 | 1-14 | \$224.00 |
| 966-000-300 | CT50-SM250-250-G6* | CAT50 | 2.500 | 4.880 | 2.750 | 0.940 | 1.125 | 1.750 | 2.500 | 1-8 | UDK 100 | U5007 | 1-14 | \$220.00 |
| 966-000-301 | CT50-SM250-400-G6* | CAT50 | 2.500 | 4.880 | 2.750 | 0.940 | 2.625 | 3.250 | 4.000 | 1-8 | UDK 100 | U5007 | 1-14 | \$261.00 |
| 966-000-302 | CT50-SM250-600-G6* | CAT50 | 2.500 | 4.880 | 2.750 | 0.940 | 4.625 | 5.250 | 6.000 | 1-8 | UDK 100 | U5007 | 1-14 | \$316.00 |

*Features x4 5/8-11 tapped holes on a 4" bolt circle.
All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5



Standard Length

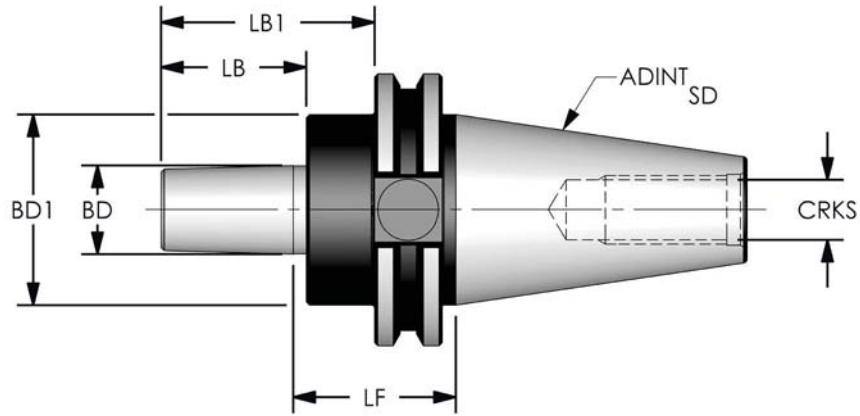
Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Thread |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|------|---------|
| 966-000-265 | CT50-SF012-400-G2 | CAT50 | 0.125 | 0.787 | 2.750 | 2.620 | 3.250 | 4.000 | 0.375 | 1-8 | N/A |
| 966-000-268 | CT50-SF188-400-G2 | CAT50 | 0.188 | 0.750 | 2.750 | 2.620 | 3.250 | 4.000 | 0.563 | 1-8 | N/A |
| 966-000-269 | CT50-SF250-400-G2 | CAT50 | 0.250 | 0.750 | 2.750 | 2.620 | 3.250 | 4.000 | 1.420 | 1-8 | 10-32 |
| 966-000-272 | CT50-SF375-400-G2 | CAT50 | 0.375 | 0.750 | 2.750 | 2.620 | 3.250 | 4.000 | 1.530 | 1-8 | 1/4-28 |
| 966-000-275 | CT50-SF500-400-G2 | CAT50 | 0.500 | 1.000 | 2.750 | 2.620 | 3.250 | 4.000 | 1.850 | 1-8 | 7/16-20 |
| 966-000-278 | CT50-SF625-400-G2 | CAT50 | 0.625 | 1.000 | 2.750 | 2.620 | 3.250 | 4.000 | 1.970 | 1-8 | 9/16-18 |
| 966-000-280 | CT50-SF750-400-G2 | CAT50 | 0.750 | 1.250 | 2.750 | 2.620 | 3.250 | 4.000 | 2.040 | 1-8 | 5/8-18 |
| 966-000-266 | CT50-SF100-400-G2 | CAT50 | 1.000 | 2.090 | 2.750 | 2.620 | 3.250 | 4.000 | 2.280 | 1-8 | 3/4-16 |
| 966-000-267 | CT50-SF125-400-G2 | CAT50 | 1.250 | 2.090 | 2.750 | 2.620 | 3.250 | 4.000 | 2.280 | 1-8 | 3/4-16 |

Extended Length

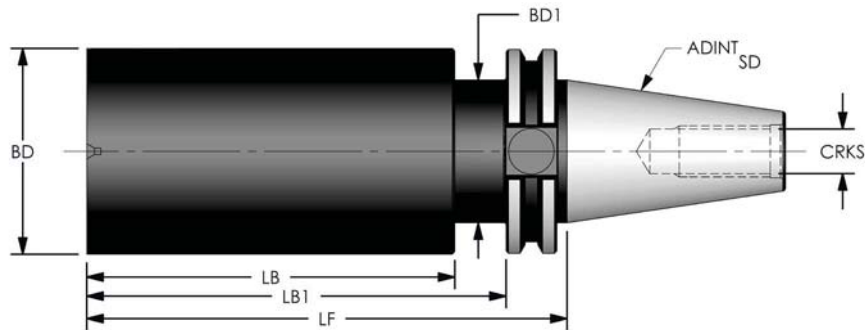
| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | CRKS | Thread |
|-------------|-------------------|---------|---------|-------|-------|-------|-------|-------|-------|------|---------|
| 966-000-270 | CT50-SF250-600-G2 | CAT50 | 0.250 | 0.750 | 2.750 | 4.620 | 5.250 | 6.000 | 1.420 | 1-8 | 10-32 |
| 966-000-273 | CT50-SF375-600-G2 | CAT50 | 0.375 | 1.000 | 2.750 | 4.620 | 5.250 | 6.000 | 1.530 | 1-8 | 1/4-28 |
| 966-000-276 | CT50-SF500-600-G2 | CAT50 | 0.500 | 1.000 | 2.750 | 4.620 | 5.250 | 6.000 | 1.850 | 1-8 | 7/16-20 |
| 966-000-279 | CT50-SF625-600-G2 | CAT50 | 0.625 | 1.250 | 2.750 | 4.620 | 5.250 | 6.000 | 1.970 | 1-8 | 9/16-18 |
| 966-000-281 | CT50-SF750-600-G2 | CAT50 | 0.750 | 1.250 | 2.750 | 4.620 | 5.250 | 6.000 | 2.040 | 1-8 | 5/8-18 |
| 966-000-271 | CT50-SF250-800-G2 | CAT50 | 0.250 | 1.000 | 2.750 | 6.620 | 7.250 | 8.000 | 1.420 | 1-8 | 10-32 |
| 966-000-274 | CT50-SF375-800-G2 | CAT50 | 0.375 | 1.250 | 2.750 | 6.620 | 7.250 | 8.000 | 1.530 | 1-8 | 1/4-28 |
| 966-000-277 | CT50-SF500-800-G2 | CAT50 | 0.500 | 1.250 | 2.750 | 6.620 | 7.250 | 8.000 | 1.850 | 1-8 | 7/16-20 |

ULTRA-DEX[®]



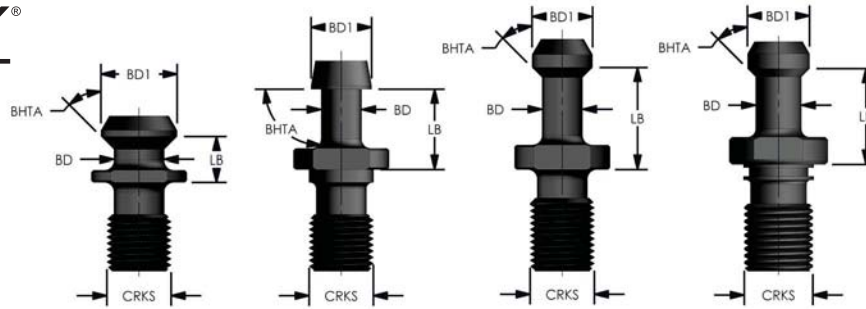
Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | Taper No. | BD | B1 | LB | LB1 | LF | CRKS | Taper Length |
|-------------|------------------|---------|-----------|-------|-------|-------|-------|-------|------|--------------|
| 966-000-260 | CT50-JT02-150-G6 | CAT50 | 2 | 0.559 | 2.750 | 0.995 | 1.625 | 1.500 | 1-8 | 0.875 |
| 966-000-261 | CT50-JT03-150-G6 | CAT50 | 3 | 0.811 | 2.750 | 1.339 | 1.969 | 1.500 | 1-8 | 1.219 |
| 966-000-262 | CT50-JT04-150-G6 | CAT50 | 4 | 1.124 | 2.750 | 1.776 | 2.406 | 1.500 | 1-8 | 1.656 |
| 966-000-263 | CT50-JT06-150-G6 | CAT50 | 6 | 0.676 | 2.750 | 1.120 | 1.750 | 1.500 | 1-8 | 1.000 |
| 966-000-264 | CT50-JT33-150-G6 | CAT50 | 33 | 0.624 | 2.750 | 1.120 | 1.750 | 1.500 | 1-8 | 1.000 |



| PRODUCT # | Designation | ADINTSD | BD | BD1 | LB | LB1 | LF | CRKS |
|-------------|----------------|---------|--------------|-------|-------|-------|-------------|------|
| 967-000-004 | CT50-BB100-150 | CAT50 | 3.940(100mm) | 2.750 | 4.526 | 5.156 | 5.91(150mm) | 1-8 |
| 967-000-005 | CT50-BB100-250 | CAT50 | 3.940(100mm) | 2.750 | 8.460 | 9.090 | 9.84(250mm) | 1-8 |
| 967-000-006 | CT50-BB150-150 | CAT50 | 5.910(150mm) | 2.750 | 4.526 | 5.156 | 5.91(150mm) | 1-8 |

ULTRA-DEX[®]



| PRODUCT # | Designation | BD | BD1 | LB | BHTA | CRKS | Coolant Thru | Figure |
|-------------|-------------|-------|-------|-------|------|--------|--------------|--------|
| 971-000-015 | PSC-475 | 0.490 | 0.740 | 0.440 | 45° | 5/8-11 | YES | 1 |
| 971-000-002 | PS-475 | 0.490 | 0.740 | 0.440 | 45° | 5/8-11 | NO | 1 |
| 971-000-004 | PS-532x15 | 0.551 | 0.747 | 0.791 | 75° | 5/8-11 | NO | 1 |
| 971-000-016 | PSC-532x45 | 0.392 | 0.591 | 0.984 | 45° | 5/8-11 | YES | 2 |
| 971-000-005 | PS-532x45 | 0.392 | 0.591 | 0.984 | 45° | 5/8-11 | NO | 2 |
| 971-000-006 | PS-532x60 | 0.392 | 0.591 | 0.984 | 60° | 5/8-11 | NO | 2 |
| 971-000-007 | PS-532x90 | 0.392 | 0.591 | 0.984 | 90° | 5/8-11 | NO | 2 |
| 971-000-003 | PS-498 | 0.392 | 0.591 | 0.775 | 90° | 5/8-11 | NO | 3 |
| 971-000-019 | PSC-552 | 0.406 | 0.594 | 1.139 | 45° | 5/8-11 | YES | 2 |
| 971-000-012 | PS-552 | 0.406 | 0.594 | 1.139 | 45° | 5/8-11 | NO | 2 |

CAT40

| PRODUCT # | Designation | BD | BD1 | LB | BHTA | CRKS | Coolant Thru | Figure |
|-------------|-------------|-------|-------|-------|------|------|--------------|--------|
| 971-000-017 | PSC-535x45 | 0.667 | 0.904 | 1.384 | 45° | 1-8 | YES | 4 |
| 971-000-008 | PS-535x45 | 0.667 | 0.904 | 1.384 | 45° | 1-8 | NO | 4 |
| 971-000-018 | PSC-536x45 | 0.667 | 0.904 | 1.384 | 45° | 1-8 | YES | 2 |
| 971-000-009 | PS-536x45 | 0.667 | 0.904 | 1.384 | 45° | 1-8 | NO | 2 |
| 971-000-010 | PS-536x60 | 0.667 | 0.904 | 1.384 | 60° | 1-8 | NO | 2 |
| 971-000-011 | PS-536x90 | 0.667 | 0.904 | 1.384 | 90° | 1-8 | NO | 2 |
| 971-000-014 | PSC-274 | 0.820 | 1.140 | 0.700 | 45° | 1-8 | YES | 1 |
| 971-000-001 | PS-274 | 0.820 | 1.140 | 0.700 | 45° | 1-8 | NO | 1 |
| 971-000-013 | PSC-271x15 | 0.826 | 1.102 | 1.350 | 15° | 1-8 | YES | 1 |

CAT50

Quick Reference Guide - Following page Machine Cross Reference

Each CAT taper machine requires its own style retention knob, on the following page is a general quick reference of the most common manufacturers. Be sure to check which knob your machine requires to ensure proper fit.

CAT40

- PSC-475 Fits Cincinnati Milacron, Maho, Mazak, Matsura
- PS-475 Fits Acroloc-Bayer, Maho, Mazak
- PSC-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x60 Fits Hitachi-Seiki, Kia, Mitsubishi, Okuma, Matsura, Howa Kogyo, Milltronic
- PS-532x90 Fits Kia, Mori Seiki
- PS-498 Fits Mazak
- PS-552 Fits Cincinnati Milacron
- PSC-552 Fits Cincinnati Milacron

CAT50

- PS-536x45 Fits Dah Lih, Haas, Ikegai, Kitamura, LeBlond Makino, YCI
- PSC-536x45 Fits Haas, LeBlond Makino
- PS-536x60 Fits Mitsubishi, Okuma, Matsura
- PS-536x90 Fits Hitachi-Seiki, Mori Seiki, Mazak
- PS-274 Fits Mazak
- PSC-274 Fits Burgmaster, Devlieg, Exello, Maho, Matsura, Mazak



PLEASE NOTE: Retention knobs are available in many different types and sizes. ARCH Cutting Tools has provided a list with common machines that fit each of our knobs. Due to the vast amount of machines, please check each machine to verify that you are ordering the proper knob. Retention knob dimensions for each machine can be typically found in the user manual or next to the power supply.

Quick Reference Guide

Each CAT taper machine requires its own style retention knob. Be sure to check which knob your machine requires to ensure proper fit.

| MANUFACTURER | DESIGNATION | | | | | | | | | |
|-----------------|-------------|--------|-----------|------------|-----------|-----------|-----------|--------|---------|--------|
| | PSC-475 | PS-475 | PS-532x15 | PSC-532x45 | PS-532x45 | PS-532x60 | PS-532x90 | PS-498 | PSC-552 | PS-552 |
| ACROLOC-BAYER | • | • | | | | | | | | |
| ATRUMP | | | | • | • | | | | | |
| BRIDGEPORT | • | • | | | | | | | | |
| CARMAN | • | • | | | | | | | | |
| CHEVALIER | | | | • | • | | | | | |
| CHIRON | • | • | | | | | | | | |
| CINCINNATI | • | • | | | | | | | • | • |
| COMET | | | | • | • | | | | | |
| DAEWOO | | | | • | • | | | | | |
| DAH LIH | | | | • | • | | | | | |
| DOOSAN | | | • | | | | | | | |
| ENSHU | | | | • | • | • | | | | |
| EXCEL | | | | • | • | | | | | |
| FADAL | • | • | | | | | | | | |
| HAAS | | | | • | • | | | | | |
| HAMAI | | | | • | • | | | | | |
| HITACHI-SEIKI | | | | • | • | • | | | | |
| HOWA KOGYO | | | | • | • | | | | | |
| HURCO | • | • | | • | • | | | | | |
| IKEGAI | | | | • | • | | | | | |
| JOHNFORD | | | | • | • | | | | | |
| KASHAHARA | | | | • | • | | | | | |
| KEARNY-TRECKER | | | | • | • | | | | | |
| KIA | | | | • | • | | • | | | |
| KITAMURA | | | | • | • | | | | | |
| KIWA | | | | • | • | | | | | |
| LEBLOND MAKINO | | | • | • | • | | | | | |
| MAHO | • | • | | | | | | | | |
| MASCO | • | • | | | | | | | | |
| MATSUURA | | | • | | | • | | | | |
| MAZAK | • | • | | | | | | | | |
| MILLPORT | | | | • | • | | | | | |
| MILLTRONICS | • | | | | | • | | | | |
| MITSUBISHI | | | | | | • | | | | |
| MIYANO | | | | • | • | | | | | |
| MORI SEIKI | | | | | | | • | | | |
| NOMURA | | | | | | • | | | | |
| OKUMA | | | | | | • | | | | |
| OKUMA HOWA | | | | • | • | | | | | |
| Ooya | | | | • | • | | | | | |
| OSAKA KIKO | | | | • | • | | • | | | |
| PRATT & WHITNEY | • | | | • | • | | | | | |
| ROKU-ROKU | | | | • | • | | | | | |
| SAEIO | | | | • | • | | | | | |
| SAKAZAKI | | | | • | • | • | | | | |
| SHARONA | | | | • | • | | | | | |
| SHARP | • | • | | | | | | | | |
| SHIZUOKA | | | | • | • | | | | | |
| SHODA | | | | • | • | | | | | |
| STAMA | • | • | | | | | | | | |
| TAKISAWA | | | | • | • | | | | | |
| TOSHIBA | | | | • | • | | | | | |
| TOYAMA | | | | • | • | | | | | |
| TOYO | | | | • | • | | | | | |
| TOYODA | | | | • | • | | | | | |
| TREE | • | • | | | | | | | | |
| ULTRAMILL | | | | • | • | | | | | |
| URAWA | | | | • | • | | | | | |
| VULCAN | | | | • | • | | | | | |
| YAM (YANG) | | | | | | | • | | | |
| YASDA | | | | • | • | | | | | |
| YCI | | | | • | • | | | | | |

Quick Reference Guide

Each CAT taper machine requires its own style retention knob. Be sure to check which knob your machine requires to ensure proper fit.

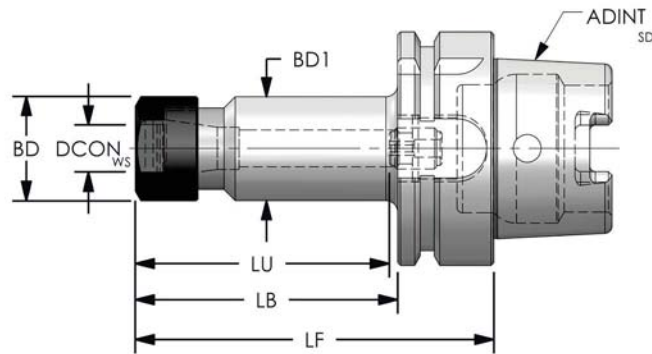
| MANUFACTURER | DESIGNATION | | | | | | | | |
|----------------|-------------|-----------|------------|-----------|-----------|-----------|---------|--------|------------|
| | PSC-535x45 | PS-535x45 | PSC-536x45 | PS-536x45 | PS-536x60 | PS-536x90 | PSC-274 | PS-274 | PSC-271x15 |
| AMURA-SEIKI | • | • | • | • | | | | | |
| DAH LIH | • | • | • | • | | | | | |
| ENSHU | | | | | • | | | | |
| FADAL | | | | | | | • | • | |
| HAAS | • | • | • | • | | | | | |
| HAMAI | • | • | • | • | | | | | |
| HITACHI-SEIKI | | | | | • | • | | | |
| IKEGAI | • | • | • | • | | | | | |
| JOHNFORD | • | • | | | | | | | |
| KITAMURA | • | • | • | • | | | | | |
| KURAKI | • | • | • | • | | | | | |
| LEBLOND MAKINO | • | • | • | • | | | | | |
| MIGHTY | • | • | • | • | | | | | |
| MILLTRONICS | | | | | | | • | • | |
| MITSUBISHI | • | • | • | • | | | | | |
| MORI-SEIKI | | | | | | • | | | |
| OKUMA | | | | | • | | | | |



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our cutting tool experts**

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Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINT SD | BD | BD1 | BD2 | LB | LB1 | LF | LU | Collet Nut | Stop Screw | Wrench |
|-------------|--------------------|----------|-------|-------|-------|-------|-------|-------|-------|------------|------------|--------|
| 966-000-384 | HSK40A-ER11-250-G2 | HSK40A | 0.750 | N/A | N/A | N/A | N/A | 2.500 | 1.500 | ER-11HN | ER-11S | ER-11W |
| 966-000-386 | HSK40A-ER16-300-G2 | HSK40A | 1.100 | N/A | N/A | N/A | N/A | 3.000 | 1.700 | ER-16HN | ER-16S | ER-16W |
| 966-000-388 | HSK40A-ER32-300-G2 | HSK40A | 1.980 | N/A | N/A | N/A | N/A | 3.000 | 1.620 | ER-32SN | ER-32S | ER-32W |
| 966-000-390 | HSK50A-ER16-300-G2 | HSK50A | 1.100 | N/A | N/A | N/A | N/A | 3.000 | 1.610 | ER-16HN | ER-16S | ER-16W |
| 966-000-392 | HSK50A-ER32-300-G2 | HSK50A | 1.980 | N/A | N/A | N/A | N/A | 3.000 | 1.500 | ER-32SN | ER-32S | ER-32W |
| 966-000-422 | HSK63A-ER11-600-G2 | HSK63A | 0.750 | 0.750 | N/A | 4.976 | N/A | 6.000 | 1.940 | ER-11HN | ER-11S | ER-11W |
| 966-000-424 | HSK63A-ER16-400-G2 | HSK63A | 1.100 | 1.100 | N/A | 2.976 | N/A | 4.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-426 | HSK63A-ER16-600-G2 | HSK63A | 1.100 | 1.100 | N/A | 4.976 | N/A | 6.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-428 | HSK63A-ER32-400-G2 | HSK63A | 1.980 | 1.750 | N/A | 2.976 | N/A | 4.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-430 | HSK63A-ER32-600-G2 | HSK63A | 1.980 | 1.750 | N/A | 4.976 | N/A | 6.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-432 | HSK63A-ER40-400-G2 | HSK63A | 2.250 | 2.366 | 2.080 | 2.344 | 2.976 | 4.000 | 4.000 | ER-40SN | ER-40S | ER-40W |
| 966-000-434 | HSK63A-ER40-600-G2 | HSK63A | 2.250 | 2.366 | 2.080 | 4.344 | 4.976 | 6.000 | 4.500 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

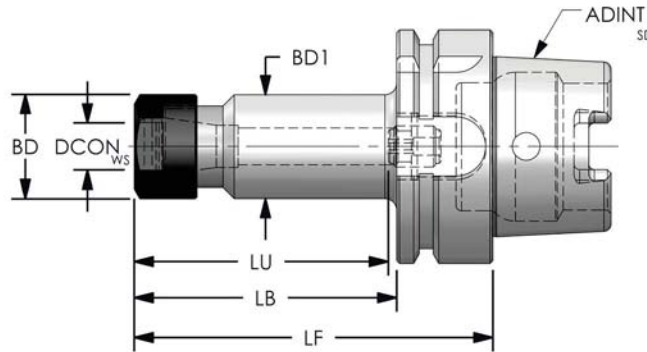
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINTSD | BD | BD1 | BD2 | LB | LB1 | LF | LU | Collet Nut | Stop Screw | Wrench |
|-------------|--------------------|---------|-------|-------|-------|-------|-------|-------|-------|------------|------------|--------|
| 966-000-385 | HSK40A-ER11-250-G6 | HSK40A | 0.750 | N/A | N/A | N/A | N/A | 2.500 | 1.500 | ER-11HN | ER-11S | ER-11W |
| 966-000-387 | HSK40A-ER16-300-G6 | HSK40A | 1.100 | N/A | N/A | N/A | N/A | 3.000 | 1.700 | ER-16HN | ER-16S | ER-16W |
| 966-000-389 | HSK40A-ER32-300-G6 | HSK40A | 1.980 | N/A | N/A | N/A | N/A | 3.000 | 1.620 | ER-32SN | ER-32S | ER-32W |
| 966-000-391 | HSK50A-ER16-300-G6 | HSK50A | 1.100 | N/A | N/A | N/A | N/A | 3.000 | 1.610 | ER-16HN | ER-16S | ER-16W |
| 966-000-393 | HSK50A-ER32-300-G6 | HSK50A | 1.980 | N/A | N/A | N/A | N/A | 3.000 | 1.500 | ER-32SN | ER-32S | ER-32W |
| 966-000-423 | HSK63A-ER11-600-G6 | HSK63A | 0.750 | 0.750 | N/A | 4.976 | N/A | 6.000 | 1.940 | ER-11HN | ER-11S | ER-11W |
| 966-000-425 | HSK63A-ER16-400-G6 | HSK63A | 1.100 | 1.100 | N/A | 2.976 | N/A | 4.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-427 | HSK63A-ER16-600-G6 | HSK63A | 1.100 | 1.100 | N/A | 4.976 | N/A | 6.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-429 | HSK63A-ER32-400-G6 | HSK63A | 1.980 | 1.750 | N/A | 2.976 | N/A | 4.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-431 | HSK63A-ER32-600-G6 | HSK63A | 1.980 | 1.750 | N/A | 4.976 | N/A | 6.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-433 | HSK63A-ER40-400-G6 | HSK63A | 2.250 | 2.366 | 2.080 | 2.344 | 2.976 | 4.000 | 4.000 | ER-40SN | ER-40S | ER-40W |
| 966-000-435 | HSK63A-ER40-600-G6 | HSK63A | 2.250 | 2.366 | 2.080 | 4.344 | 4.976 | 6.000 | 4.500 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

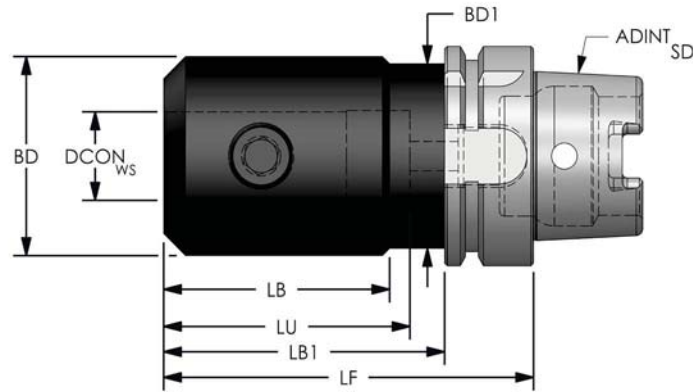
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINTSD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | Set Screw |
|-------------|---------------------|---------|---------|-------|-------|-------|--------|-------|-------|---------------|
| 966-000-402 | HSK63A-EM250-300-G2 | HSK63A | 0.250 | 0.880 | N/A | 1.976 | N/A | 3.000 | N/A | SS1/4-250 |
| 966-000-404 | HSK63A-EM250-600-G2 | HSK63A | 0.250 | 0.880 | N/A | 4.976 | N/A | 6.000 | N/A | SS1/4-250 |
| 966-000-406 | HSK63A-EM375-300-G2 | HSK63A | 0.375 | 1.000 | N/A | 1.976 | N/A | 3.000 | N/A | SS3/8-375 |
| 966-000-408 | HSK63A-EM375-600-G2 | HSK63A | 0.375 | 1.000 | N/A | 4.976 | N/A | 6.000 | N/A | SS3/8-375 |
| 966-000-410 | HSK63A-EM500-300-G2 | HSK63A | 0.500 | 1.375 | N/A | 1.976 | N/A | 3.000 | N/A | SS7/16-500 |
| 966-000-412 | HSK63A-EM500-600-G2 | HSK63A | 0.500 | 1.375 | N/A | 4.976 | N/A | 6.000 | N/A | SS7/16-500 |
| 966-000-414 | HSK63A-EM625-300-G2 | HSK63A | 0.625 | 1.750 | N/A | 1.976 | N/A | 3.000 | 2.100 | SS9/16-500 |
| 966-000-416 | HSK63A-EM625-600-G2 | HSK63A | 0.625 | 1.750 | N/A | 4.976 | N/A | 6.000 | 2.100 | SS9/16-500 |
| 966-000-418 | HSK63A-EM750-300-G2 | HSK63A | 0.750 | 1.750 | N/A | 1.976 | N/A | 3.000 | 2.050 | SS5/8-500 |
| 966-000-420 | HSK63A-EM750-600-G2 | HSK63A | 0.750 | 1.750 | N/A | 4.976 | N/A | 6.000 | 2.300 | SS5/8-500 |
| 966-000-394 | HSK63A-EM100-425-G2 | HSK63A | 1.000 | 2.250 | 2.087 | 3.226 | 2.5940 | 4.250 | 2.830 | SS3/4-500 |
| 966-000-396 | HSK63A-EM100-600-G2 | HSK63A | 1.000 | 2.250 | 2.087 | 4.976 | 4.3440 | 6.000 | 2.830 | SS3/4-500 |
| 966-000-398 | HSK63A-EM125-425-G2 | HSK63A | 1.250 | 2.250 | 2.087 | 3.226 | 2.5940 | 4.250 | 3.000 | (2) SS3/4-500 |
| 966-000-400 | HSK63A-EM125-600-G2 | HSK63A | 1.250 | 2.250 | 2.087 | 4.976 | 4.3440 | 6.000 | 3.000 | (2) SS3/4-500 |

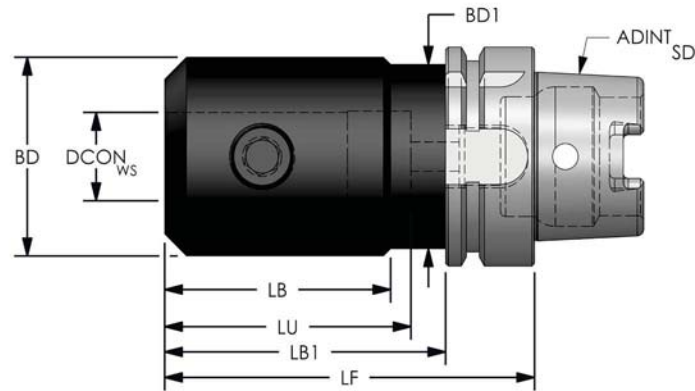
All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5



by **Ultra-Dex**



Balanced to:
G6.3 (12,000 rpm)

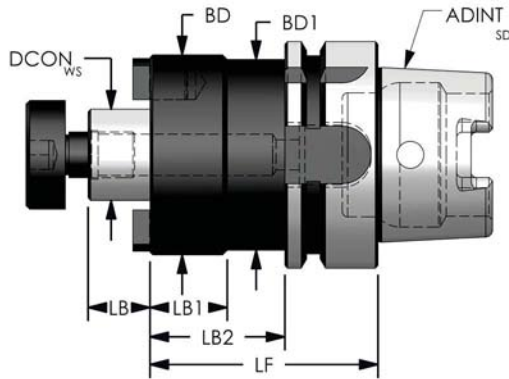
| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | Set Screw |
|-------------|---------------------|----------|---------|-------|-------|-------|--------|-------|-------|---------------|
| 966-000-403 | HSK63A-EM250-300-G6 | HSK63A | 0.250 | 0.880 | N/A | 1.976 | N/A | 3.000 | N/A | SS1/4-250 |
| 966-000-405 | HSK63A-EM250-600-G6 | HSK63A | 0.250 | 0.880 | N/A | 4.976 | N/A | 6.000 | N/A | SS1/4-250 |
| 966-000-407 | HSK63A-EM375-300-G6 | HSK63A | 0.375 | 1.000 | N/A | 1.976 | N/A | 3.000 | N/A | SS3/8-375 |
| 966-000-409 | HSK63A-EM375-600-G6 | HSK63A | 0.375 | 1.000 | N/A | 4.976 | N/A | 6.000 | N/A | SS3/8-375 |
| 966-000-411 | HSK63A-EM500-300-G6 | HSK63A | 0.500 | 1.375 | N/A | 1.976 | N/A | 3.000 | N/A | SS7/16-500 |
| 966-000-413 | HSK63A-EM500-600-G6 | HSK63A | 0.500 | 1.375 | N/A | 4.976 | N/A | 6.000 | N/A | SS7/16-500 |
| 966-000-415 | HSK63A-EM625-300-G6 | HSK63A | 0.625 | 1.750 | N/A | 1.976 | N/A | 3.000 | 2.100 | SS9/16-500 |
| 966-000-417 | HSK63A-EM625-600-G6 | HSK63A | 0.625 | 1.750 | N/A | 4.976 | N/A | 6.000 | 2.100 | SS9/16-500 |
| 966-000-419 | HSK63A-EM750-300-G6 | HSK63A | 0.750 | 1.750 | N/A | 1.976 | N/A | 3.000 | 2.050 | SS5/8-500 |
| 966-000-421 | HSK63A-EM750-600-G6 | HSK63A | 0.750 | 1.750 | N/A | 4.976 | N/A | 6.000 | 2.300 | SS5/8-500 |
| 966-000-395 | HSK63A-EM100-425-G6 | HSK63A | 1.000 | 2.250 | 2.087 | 3.226 | 2.5940 | 4.250 | 2.830 | SS3/4-500 |
| 966-000-397 | HSK63A-EM100-600-G6 | HSK63A | 1.000 | 2.250 | 2.087 | 4.976 | 4.3440 | 6.000 | 2.830 | SS3/4-500 |
| 966-000-399 | HSK63A-EM125-425-G6 | HSK63A | 1.250 | 2.250 | 2.087 | 3.226 | 2.5940 | 4.250 | 3.000 | (2) SS3/4-500 |
| 966-000-401 | HSK63A-EM125-600-G6 | HSK63A | 1.250 | 2.250 | 2.087 | 4.976 | 4.3440 | 6.000 | 3.000 | (2) SS3/4-500 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

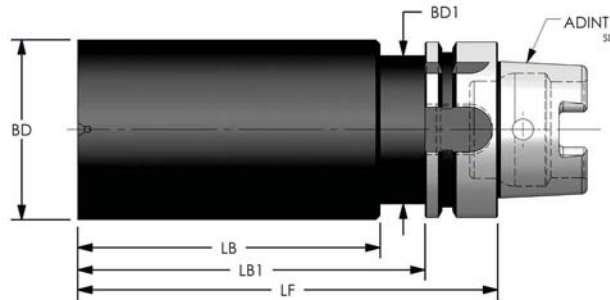
ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LB2 | LF | Drive Key | Lock Screw | Thread |
|-------------|---------------------|----------|---------|-------|-------|-------|-------|-------|-------|-----------|------------|--------|
| 966-000-463 | HSK63A-SM075-200-G6 | HSK63A | 0.750 | 1.750 | N/A | 0.680 | 0.976 | N/A | 2.000 | UDK 312 | U5002 | 3/8-24 |
| 966-000-464 | HSK63A-SM100-250-G6 | HSK63A | 1.000 | 2.190 | 2.087 | 0.680 | 0.846 | 1.476 | 2.500 | UDK 375 | U5003 | 1/2-20 |
| 966-000-465 | HSK63A-SM125-250-G6 | HSK63A | 1.250 | 2.750 | 2.087 | 0.680 | 0.846 | 1.476 | 2.500 | UDK 500 | U5004 | 5/8-18 |
| 966-000-466 | HSK63A-SM150-250-G6 | HSK63A | 1.500 | 3.380 | 2.087 | 0.940 | 0.846 | 1.476 | 2.500 | UDK 625 | U5005 | 3/4-16 |

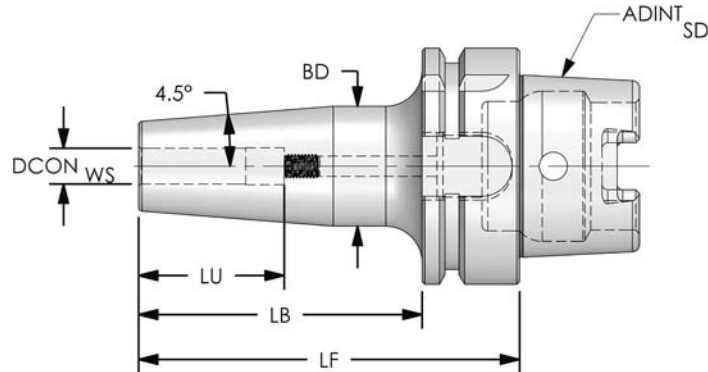
All Hardware Included



| PRODUCT # | Designation | ADINT SD | BD | BD1 | LB | LB1 | LF |
|-------------|------------------|----------|-------------|-------|-------|-------|-------------|
| 967-000-012 | HSK40A-BB50-120 | HSK40A | 1.970/50mm | 1.339 | 3.342 | 3.935 | 4.72/120mm |
| 967-000-014 | HSK50A-BB50-150 | HSK50A | 1.970/50mm | 1.654 | 4.256 | 4.886 | 5.91/150mm |
| 967-000-015 | HSK50A-BB75-200 | HSK50A | 2.950/75mm | 1.654 | 6.216 | 6.846 | 7.87/200mm |
| 967-000-013 | HSK50A-BB100-125 | HSK50A | 3.940/100mm | 1.654 | 3.266 | 3.896 | 4.920/125mm |
| 967-000-017 | HSK63A-BB64-150 | HSK63A | 2.520/64mm | 2.078 | 4.252 | 4.884 | 5.91/150mm |
| 967-000-018 | HSK63A-BB64-250 | HSK63A | 2.520/64mm | 2.078 | 8.189 | 8.821 | 9.84/250mm |
| 967-000-019 | HSK63A-BB89-89 | HSK63A | 3.500/89mm | 2.078 | 1.850 | 2.482 | 30.500/89mm |
| 967-000-016 | HSK63A-BB125-150 | HSK63A | 4.920/125mm | 2.078 | 4.252 | 4.884 | 5.91/150mm |

| PRODUCT # | Arbor Screws |
|-------------|--------------|
| 968-000-162 | U5001 |
| 968-000-163 | U5002 |
| 968-000-164 | U5003 |
| 968-000-165 | U5004 |
| 968-000-166 | U5005 |
| 968-000-167 | U5006 |
| 968-000-168 | U5007 |
| 968-000-008 | AS1/4-100 |
| 968-000-009 | AS3/8-125 |
| 968-000-007 | AS1/2-150 |

PACKAGE SIZE OF 1



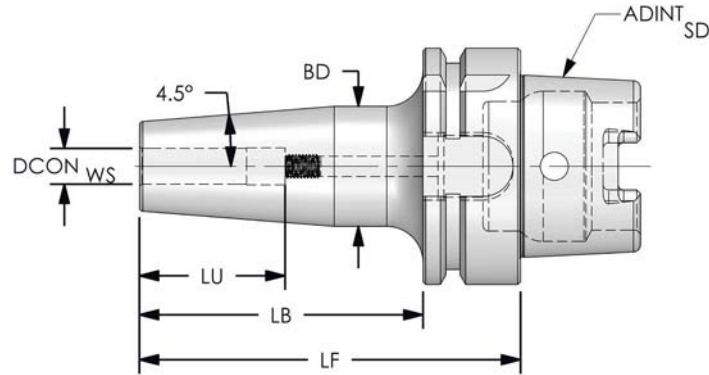
Standard Length

Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|---------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-436 | HSK63A-SF012-400-G2 | HSK63A | 0.125 | 1.063 | 2.976 | 4.000 | 0.790 | N/A |
| 966-000-450 | HSK63A-SF188-400-G2 | HSK63A | 0.188 | 1.063 | 2.976 | 4.000 | 0.790 | N/A |
| 966-000-453 | HSK63A-SF250-400-G2 | HSK63A | 0.250 | 1.063 | 2.976 | 4.000 | 1.420 | N/A |
| 966-000-456 | HSK63A-SF375-400-G2 | HSK63A | 0.375 | 1.260 | 2.976 | 4.000 | 1.530 | 1/4-28 |
| 966-000-458 | HSK63A-SF500-400-G2 | HSK63A | 0.500 | 1.339 | 2.976 | 4.000 | 1.850 | 7/16-20 |
| 966-000-460 | HSK63A-SF625-400-G2 | HSK63A | 0.625 | 1.339 | 2.976 | 4.000 | 1.970 | 9/16-18 |
| 966-000-461 | HSK63A-SF750-400-G2 | HSK63A | 0.750 | 1.654 | 2.976 | 4.000 | 2.040 | 5/8-18 |
| 966-000-441 | HSK63A-SF100-500-G2 | HSK63A | 1.000 | 2.087 | 3.976 | 5.000 | 2.280 | 3/4-16 |
| 966-000-446 | HSK63A-SF125-500-G2 | HSK63A | 1.250 | 2.087 | 3.976 | 5.000 | 2.280 | 3/4-16 |

Extended Length

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|---------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-457 | HSK63A-SF375-600-G2 | HSK63A | 0.375 | 1.260 | 4.976 | 6.000 | 1.530 | 1/4-28 |
| 966-000-459 | HSK63A-SF500-600-G2 | HSK63A | 0.500 | 1.339 | 4.976 | 6.000 | 1.850 | 7/16-20 |
| 966-000-462 | HSK63A-SF750-600-G2 | HSK63A | 0.750 | 1.654 | 4.976 | 6.000 | 2.040 | 5/8-18 |
| 966-000-442 | HSK63A-SF100-700-G2 | HSK63A | 1.000 | 2.087 | 5.976 | 7.000 | 2.280 | 3/4-16 |



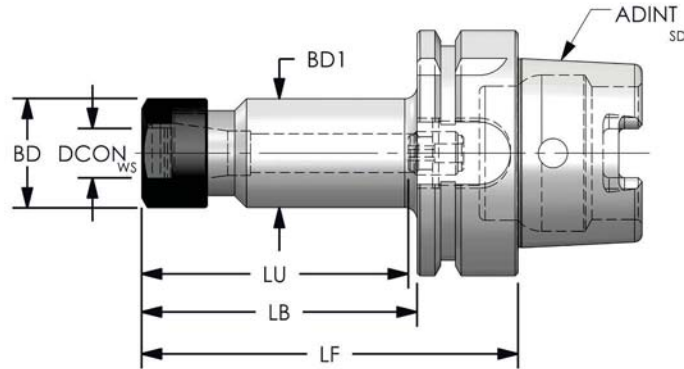
Standard Length

Balanced to:
G2.5 (20,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|--------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-437 | HSK63A-SF06-400-G2 | HSK63A | 6mm | 1.063 | 2.976 | 4.000 | 2.167 | 10-32 |
| 966-000-439 | HSK63A-SF08-400-G2 | HSK63A | 8mm | 1.063 | 2.976 | 4.000 | 1.970 | 1/4-28 |
| 966-000-443 | HSK63A-SF10-400-G2 | HSK63A | 10mm | 1.260 | 2.976 | 4.000 | 2.207 | 1/4-28 |
| 966-000-445 | HSK63A-SF12-400-G2 | HSK63A | 12mm | 1.260 | 2.976 | 4.000 | 2.404 | 7/16-20 |
| 966-000-448 | HSK63A-SF16-400-G2 | HSK63A | 16mm | 1.339 | 2.976 | 4.000 | 2.522 | 9/16-18 |
| 966-000-451 | HSK63A-SF20-400-G2 | HSK63A | 20mm | 1.654 | 2.976 | 4.000 | 2.600 | 5/8-18 |
| 966-000-454 | HSK63A-SF25-500-G2 | HSK63A | 25mm | 2.087 | 3.976 | 5.000 | 2.912 | 3/4-16 |

Extended Length

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|--------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-438 | HSK63A-SF06-600-G2 | HSK63A | 6mm | 1.063 | 4.976 | 6.000 | 2.167 | 10-32 |
| 966-000-440 | HSK63A-SF08-600-G2 | HSK63A | 8mm | 1.063 | 4.976 | 6.000 | 1.970 | 1/4-28 |
| 966-000-444 | HSK63A-SF10-600-G2 | HSK63A | 10mm | 1.260 | 4.976 | 6.000 | 2.207 | 1/4-28 |
| 966-000-447 | HSK63A-SF12-600-G2 | HSK63A | 12mm | 1.260 | 4.976 | 6.000 | 2.404 | 7/16-20 |
| 966-000-449 | HSK63A-SF16-600-G2 | HSK63A | 16mm | 1.260 | 4.976 | 6.000 | 2.522 | 9/16-18 |
| 966-000-452 | HSK63A-SF20-600-G2 | HSK63A | 20mm | 1.654 | 4.976 | 6.000 | 2.600 | 5/8-18 |
| 966-000-455 | HSK63A-SF25-700-G2 | HSK63A | 25mm | 2.087 | 5.976 | 7.000 | 2.912 | 3/4-16 |



Balanced to:
G2.5 (15,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LF | LU | Collet Nut | Stop Screw | Wrench |
|-------------|---------------------|----------|---------|-------|--------|--------|-------|-------|------------|------------|--------|
| 966-000-467 | HSK80A-ER16-400-G2 | HSK80A | ER-16 | 1.100 | N/A | N/A | 4.000 | 2.400 | ER-16HN | ER-16S | ER-16W |
| 966-000-469 | HSK80A-ER32-400-G2 | HSK80A | ER-32 | 1.980 | N/A | N/A | 4.000 | 2.050 | ER-32SN | ER-32S | ER-32W |
| 966-000-335 | HSK100A-ER16-400-G2 | HSK100A | ER-16 | 1.100 | 1.100 | 2.8580 | 4.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-337 | HSK100A-ER16-600-G2 | HSK100A | ER-16 | 1.100 | 1.100 | 4.8580 | 6.000 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-339 | HSK100A-ER32-400-G2 | HSK100A | ER-32 | 1.980 | 1.7500 | 2.8580 | 4.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-341 | HSK100A-ER32-600-G2 | HSK100A | ER-32 | 1.980 | 1.7500 | 4.8580 | 6.000 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-343 | HSK100A-ER40-400-G2 | HSK100A | ER-40 | 2.250 | 2.3660 | 2.8580 | 4.000 | 4.000 | ER-40SN | ER-40S | ER-40W |
| 966-000-345 | HSK100A-ER40-600-G2 | HSK100A | ER-40 | 2.250 | 2.3660 | 4.8580 | 6.000 | 4.500 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

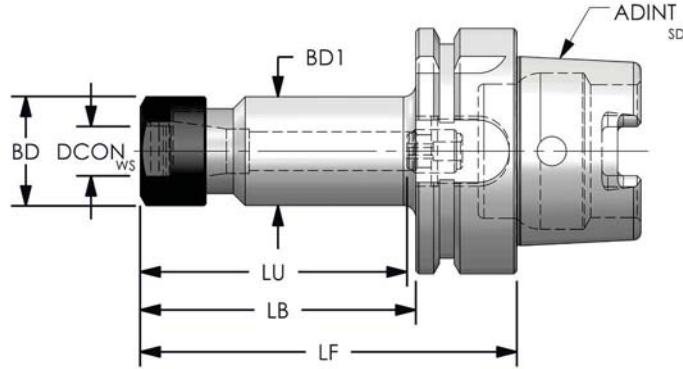
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LF | LU | Collet Nut | Stop Screw | Wrench |
|-------------|---------------------|----------|---------|-------|-----|--------|------|-------|------------|------------|--------|
| 966-000-468 | HSK80A-ER16-400-G6 | HSK80A | ER-16 | 1.100 | N/A | N/A | 4.00 | 2.400 | ER-16N | ER-16S | ER-16W |
| 966-000-470 | HSK80A-ER32-400-G6 | HSK80A | ER-32 | 1.980 | N/A | N/A | 4.00 | 2.050 | ER-32N | ER-32S | ER-32W |
| 966-000-336 | HSK100A-ER16-400-G6 | HSK100A | ER-16 | 1.100 | N/A | 2.8580 | 4.00 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-338 | HSK100A-ER16-600-G6 | HSK100A | ER-16 | 1.100 | N/A | 4.8580 | 6.00 | 3.000 | ER-16HN | ER-16S | ER-16W |
| 966-000-340 | HSK100A-ER32-400-G6 | HSK100A | ER-32 | 1.980 | N/A | 2.8580 | 4.00 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-342 | HSK100A-ER32-600-G6 | HSK100A | ER-32 | 1.980 | N/A | 4.8580 | 6.00 | 4.300 | ER-32SN | ER-32S | ER-32W |
| 966-000-344 | HSK100A-ER40-400-G6 | HSK100A | ER-40 | 2.250 | N/A | 2.8580 | 4.00 | 4.000 | ER-40SN | ER-40S | ER-40W |
| 966-000-346 | HSK100A-ER40-600-G6 | HSK100A | ER-40 | 2.250 | N/A | 4.8580 | 6.00 | 4.500 | ER-40SN | ER-40S | ER-40W |
| 966-000-382 | HSK125A-ER16-500-G6 | HSK125A | ER-16 | 1.100 | N/A | 5.0000 | 5.00 | 3.100 | ER-16HN | ER-16S | ER-16W |
| 966-000-383 | HSK125A-ER40-500-G6 | HSK125A | ER-40 | 2.250 | | 5.0000 | 5.00 | 2.800 | ER-40SN | ER-40S | ER-40W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

PACKAGE SIZE OF 1

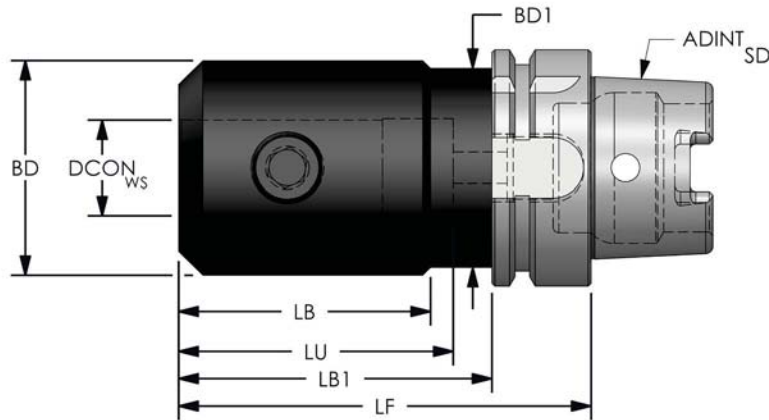
| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1

ULTRA-DEX[®]



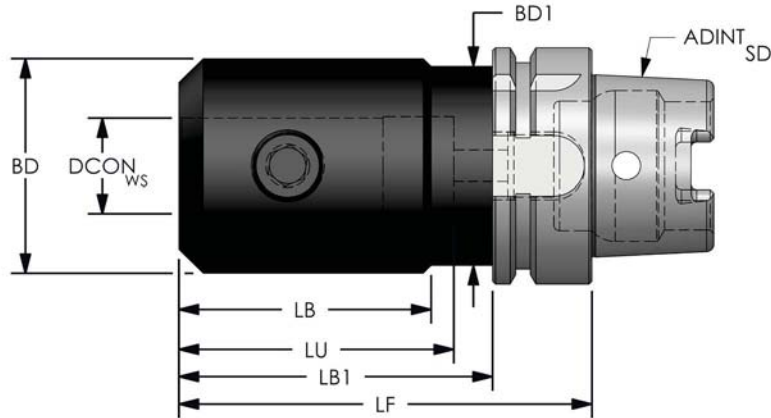
Balanced to:
G2.5 (15,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | Set Screw |
|-------------|----------------------|----------|---------|-------|-------|-------|-------|-------|-------|---------------|
| 966-000-315 | HSK100A-EM250-400-G2 | HSK100A | 0.250 | 0.880 | N/A | 2.858 | N/A | 4.000 | N/A | SS1/4-250 |
| 966-000-317 | HSK100A-EM250-600-G2 | HSK100A | 0.250 | 0.880 | N/A | 4.858 | N/A | 6.000 | N/A | SS1/4-250 |
| 966-000-319 | HSK100A-EM375-400-G2 | HSK100A | 0.375 | 1.000 | N/A | 2.858 | N/A | 4.000 | N/A | SS3/8-375 |
| 966-000-321 | HSK100A-EM375-600-G2 | HSK100A | 0.375 | 1.000 | N/A | 4.858 | N/A | 6.000 | N/A | SS3/8-375 |
| 966-000-323 | HSK100A-EM500-400-G2 | HSK100A | 0.500 | 1.375 | N/A | 2.858 | N/A | 4.000 | N/A | SS7/16-500 |
| 966-000-325 | HSK100A-EM500-600-G2 | HSK100A | 0.500 | 1.375 | N/A | 4.858 | N/A | 6.000 | N/A | SS7/16-500 |
| 966-000-327 | HSK100A-EM625-400-G2 | HSK100A | 0.625 | 1.750 | N/A | 2.858 | N/A | 4.000 | 2.100 | SS9/16-500 |
| 966-000-329 | HSK100A-EM625-600-G2 | HSK100A | 0.625 | 1.750 | N/A | 4.858 | N/A | 6.000 | 2.100 | SS9/16-500 |
| 966-000-331 | HSK100A-EM750-400-G2 | HSK100A | 0.750 | 1.750 | N/A | 2.858 | N/A | 4.000 | 2.500 | SS5/8-500 |
| 966-000-333 | HSK100A-EM750-600-G2 | HSK100A | 0.750 | 1.750 | N/A | 4.858 | N/A | 6.000 | 2.500 | SS5/8-500 |
| 966-000-303 | HSK100A-EM100-400-G2 | HSK100A | 1.000 | 2.250 | N/A | 2.858 | N/A | 4.000 | 2.830 | SS3/4-500 |
| 966-000-305 | HSK100A-EM100-600-G2 | HSK100A | 1.000 | 2.250 | N/A | 4.858 | N/A | 6.000 | 2.830 | SS3/4-500 |
| 966-000-307 | HSK100A-EM125-425-G2 | HSK100A | 1.250 | 2.250 | N/A | 3.108 | N/A | 4.250 | 3.000 | (2) SS3/4-500 |
| 966-000-309 | HSK100A-EM125-600-G2 | HSK100A | 1.250 | 2.250 | N/A | 4.858 | N/A | 6.000 | 3.000 | (2) SS3/4-500 |
| 966-000-311 | HSK100A-EM150-450-G2 | HSK100A | 1.500 | 2.750 | N/A | 3.358 | N/A | 4.500 | 2.750 | (2)SS3/4-500 |
| 966-000-313 | HSK100A-EM200-550-G2 | HSK100A | 2.000 | 3.750 | 3.347 | 4.358 | 3.728 | 5.500 | 3.500 | (2)SS1-750 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5



Balanced to:
G6.3 (12,000 rpm)

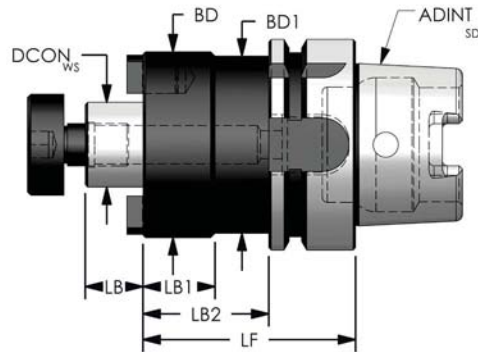
| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LF | LU | Set Screw |
|-------------|----------------------|----------|---------|-------|-------|-------|-------|-------|-------|---------------|
| 966-000-316 | HSK100A-EM250-400-G6 | HSK100A | 0.250 | 0.880 | N/A | 2.858 | N/A | 4.000 | N/A | SS1/4-250 |
| 966-000-318 | HSK100A-EM250-600-G6 | HSK100A | 0.250 | 0.880 | N/A | 4.858 | N/A | 6.000 | N/A | SS1/4-250 |
| 966-000-320 | HSK100A-EM375-400-G6 | HSK100A | 0.375 | 1.000 | N/A | 2.858 | N/A | 4.000 | N/A | SS3/8-375 |
| 966-000-322 | HSK100A-EM375-600-G6 | HSK100A | 0.375 | 1.000 | N/A | 4.858 | N/A | 6.000 | N/A | SS3/8-375 |
| 966-000-324 | HSK100A-EM500-400-G6 | HSK100A | 0.500 | 1.375 | N/A | 2.858 | N/A | 4.000 | N/A | SS7/16-500 |
| 966-000-326 | HSK100A-EM500-600-G6 | HSK100A | 0.500 | 1.375 | N/A | 4.858 | N/A | 6.000 | N/A | SS7/16-500 |
| 966-000-328 | HSK100A-EM625-400-G6 | HSK100A | 0.625 | 1.750 | N/A | 2.858 | N/A | 4.000 | 2.100 | SS9/16-500 |
| 966-000-330 | HSK100A-EM625-600-G6 | HSK100A | 0.625 | 1.750 | N/A | 4.858 | N/A | 6.000 | 2.100 | SS9/16-500 |
| 966-000-332 | HSK100A-EM750-400-G6 | HSK100A | 0.750 | 1.750 | N/A | 2.858 | N/A | 4.000 | 2.500 | SS5/8-500 |
| 966-000-334 | HSK100A-EM750-600-G6 | HSK100A | 0.750 | 1.750 | N/A | 4.858 | N/A | 6.000 | 2.500 | SS5/8-500 |
| 966-000-304 | HSK100A-EM100-400-G6 | HSK100A | 1.000 | 2.250 | N/A | 2.858 | N/A | 4.000 | 2.830 | SS3/4-500 |
| 966-000-306 | HSK100A-EM100-600-G6 | HSK100A | 1.000 | 2.250 | N/A | 4.858 | N/A | 6.000 | 2.830 | SS3/4-500 |
| 966-000-308 | HSK100A-EM125-425-G6 | HSK100A | 1.250 | 2.250 | N/A | 3.108 | N/A | 4.250 | 3.000 | (2) SS3/4-500 |
| 966-000-310 | HSK100A-EM125-600-G6 | HSK100A | 1.250 | 2.250 | N/A | 4.858 | N/A | 6.000 | 3.000 | (2) SS3/4-500 |
| 966-000-312 | HSK100A-EM150-450-G6 | HSK100A | 1.500 | 2.750 | N/A | 3.358 | N/A | 4.500 | 2.750 | (2) SS3/4-500 |
| 966-000-314 | HSK100A-EM200-550-G6 | HSK100A | 2.000 | 3.750 | 3.347 | 4.358 | 3.728 | 5.500 | 3.500 | (2) SS1-750 |

All Hardware Included

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-137 | SS10-250 |
| 968-000-136 | SS1/4-250 |
| 968-000-142 | SS3/8-375 |
| 968-000-144 | SS7/16-500 |
| 968-000-145 | SS9/16-500 |
| 968-000-143 | SS5/8-500 |
| 968-000-139 | SS3/4-375 |
| 968-000-140 | SS3/4-500 |
| 968-000-138 | SS1-750 |

PACKAGE SIZE OF 5

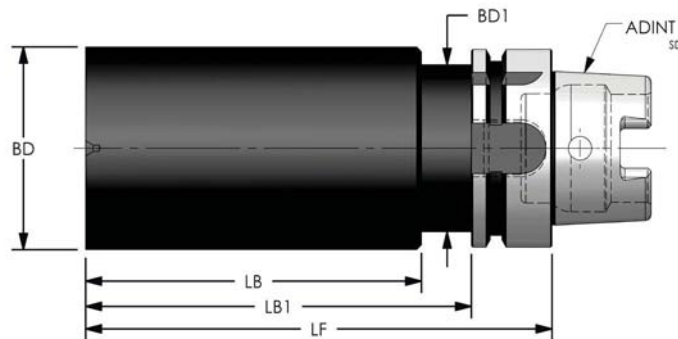
ULTRA-DEX[®]



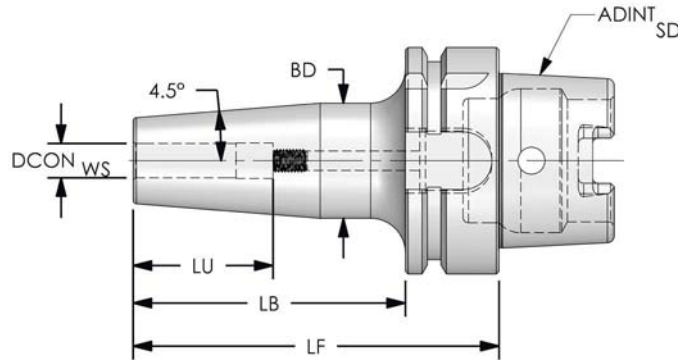
Balanced to:
G6.3 (12,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | BD1 | LB | LB1 | LB2 | LF | Drive Key | Lock Screw | Thread |
|-------------|----------------------|----------|---------|-------|-------|-------|-------|-------|-------|-----------|------------|--------|
| 966-000-377 | HSK100A-SM075-200-G6 | HSK100A | 0.750 | 1.750 | N/A | 0.680 | 0.858 | N/A | 2.000 | UDK 312 | U5002 | 3/8-24 |
| 966-000-378 | HSK100A-SM100-200-G6 | HSK100A | 1.000 | 2.190 | N/A | 0.680 | 0.858 | N/A | 2.000 | UDK 375 | U5003 | 1/2-20 |
| 966-000-379 | HSK100A-SM125-250-G6 | HSK100A | 1.250 | 2.750 | N/A | 0.680 | 1.358 | N/A | 2.500 | UDK 500 | U5004 | 5/8-18 |
| 966-000-380 | HSK100A-SM150-250-G6 | HSK100A | 1.500 | 3.380 | 3.347 | 0.940 | 1.358 | 0.728 | 2.500 | UDK 625 | U5005 | 3/4-16 |
| 966-000-381 | HSK100A-SM200-300-G6 | HSK100A | 2.000 | 4.440 | 3.347 | 0.940 | 1.858 | 1.226 | 3.000 | UDK 750 | U5006 | 1-14 |

All Hardware Included



| PRODUCT # | Designation | ADINT SD | BD | BD1 | LB | LB1 | LF |
|-------------|-------------------|----------|-------------|-------|--------|--------|-------------|
| 967-000-021 | HSK80A-BB80-250 | HSK80A | 3.150/80mm | 2.677 | 8.189 | 8.819 | 9.84/250mm |
| 967-000-020 | HSK80A-BB150-200 | HSK80A | 5.910/150mm | 2.677 | 6.220 | 6.850 | 7.87/200mm |
| 967-000-007 | HSK100A-BB100-150 | HSK100A | 3.940/100mm | 3.465 | 4.134 | 4.764 | 5.910/150mm |
| 967-000-008 | HSK100A-BB100-250 | HSK100A | 3.940/100mm | 3.465 | 8.071 | 8.701 | 9.84/250mm |
| 967-000-009 | HSK100A-BB150-250 | HSK100A | 5.910/150mm | 3.465 | 8.071 | 8.701 | 9.84/250mm |
| 967-000-010 | HSK125A-BB125-305 | HSK125A | 4.920/125mm | 4.134 | 10.238 | 10.868 | 12.01/305mm |
| 967-000-011 | HSK125A-BB150-200 | HSK125A | 5.910/150mm | 4.134 | 6.008 | 6.638 | 7.87/200mm |



Standard Length

Balanced to:
G2.5 (15,000 rpm)

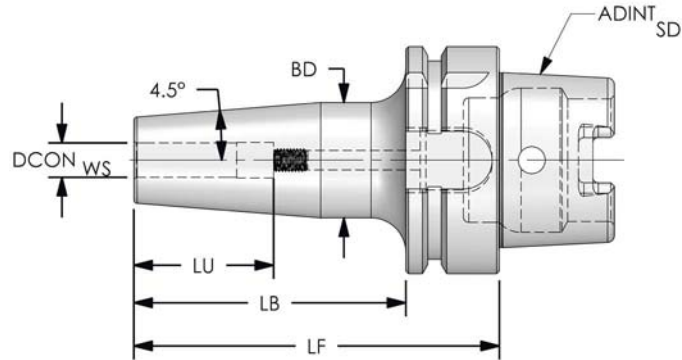
| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LF | LU | LB | Thread |
|-------------|----------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-347 | HSK100A-SF012-400-G2 | HSK100A | 0.125 | 1.060 | 4.000 | 0.790 | 2.860 | N/A |
| 966-000-362 | HSK100A-SF188-400-G2 | HSK100A | 0.188 | 1.060 | 4.000 | 0.790 | 2.860 | N/A |
| 966-000-365 | HSK100A-SF250-400-G2 | HSK100A | 0.250 | 1.060 | 4.000 | 1.420 | 2.860 | 10-32 |
| 966-000-370 | HSK100A-SF375-400-G2 | HSK100A | 0.375 | 1.260 | 4.000 | 1.530 | 2.860 | 1/4-28 |
| 966-000-372 | HSK100A-SF500-400-G2 | HSK100A | 0.500 | 1.340 | 4.000 | 1.850 | 2.860 | 7/16-20 |
| 966-000-374 | HSK100A-SF625-400-G2 | HSK100A | 0.625 | 1.340 | 4.000 | 1.970 | 2.860 | 9/16-18 |
| 966-000-375 | HSK100A-SF750-500-G2 | HSK100A | 0.750 | 1.650 | 5.000 | 2.040 | 3.860 | 5/8-18 |
| 966-000-352 | HSK100A-SF100-500-G2 | HSK100A | 1.000 | 2.090 | 5.000 | 2.280 | 3.860 | 3/4-16 |
| 966-000-357 | HSK100A-SF125-500-G2 | HSK100A | 1.250 | 2.090 | 5.000 | 2.280 | 3.860 | 3/4-16 |

Extended Length

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LF | LU | LB | Thread |
|-------------|----------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-371 | HSK100A-SF375-600-G2 | HSK100A | 0.375 | 1.260 | 6.000 | 1.530 | 4.860 | 1/4-28 |
| 966-000-373 | HSK100A-SF500-600-G2 | HSK100A | 0.500 | 1.340 | 6.000 | 1.850 | 4.860 | 7/16-20 |
| 966-000-376 | HSK100A-SF750-700-G2 | HSK100A | 0.750 | 1.650 | 7.000 | 2.040 | 5.860 | 5/8-18 |
| 966-000-353 | HSK100A-SF100-700-G2 | HSK100A | 1.000 | 2.090 | 7.000 | 2.280 | 5.860 | 3/4-16 |
| 966-000-358 | HSK100A-SF125-700-G2 | HSK100A | 1.250 | 2.090 | 7.000 | 2.280 | 5.860 | 3/4-16 |



by Ultra-Dex



Standard Length

Balanced to:
G2.5 (15,000 rpm)

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|---------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-348 | HSK100A-SF06-400-G2 | HSK100A | 6mm | 1.063 | 2.858 | 4.000 | 2.167 | 10-32 |
| 966-000-350 | HSK100A-SF08-400-G2 | HSK100A | 8mm | 1.063 | 2.858 | 4.000 | 1.970 | 1/4-28 |
| 966-000-354 | HSK100A-SF10-400-G2 | HSK100A | 10mm | 1.260 | 2.858 | 4.000 | 2.207 | 1/4-28 |
| 966-000-356 | HSK100A-SF12-400-G2 | HSK100A | 12mm | 1.260 | 2.858 | 4.000 | 2.404 | 7/16-20 |
| 966-000-360 | HSK100A-SF16-400-G2 | HSK100A | 16mm | 1.339 | 2.858 | 4.000 | 2.522 | 9/16-18 |
| 966-000-363 | HSK100A-SF20-500-G2 | HSK100A | 20mm | 1.654 | 3.858 | 5.000 | 2.600 | 5/8-18 |
| 966-000-366 | HSK100A-SF25-500-G2 | HSK100A | 25mm | 2.087 | 3.858 | 5.000 | 2.912 | 3/4-16 |
| 966-000-368 | HSK100A-SF32-500-G2 | HSK100A | 32mm | 2.087 | 3.858 | 5.000 | 2.912 | 3/4-16 |

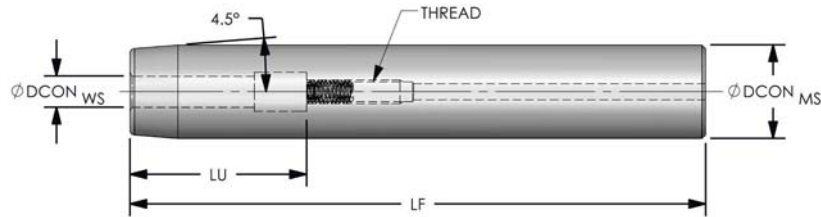
Extended Length

| PRODUCT # | Designation | ADINT SD | DCON WS | BD | LB | LF | LU | Thread |
|-------------|---------------------|----------|---------|-------|-------|-------|-------|---------|
| 966-000-349 | HSK100A-SF06-600-G2 | HSK100A | 6mm | 1.063 | 4.858 | 6.000 | 2.167 | 10-32 |
| 966-000-351 | HSK100A-SF08-600-G2 | HSK100A | 8mm | 1.063 | 4.858 | 6.000 | 1.970 | 1/4-28 |
| 966-000-355 | HSK100A-SF10-600-G2 | HSK100A | 10mm | 1.260 | 4.858 | 6.000 | 2.207 | 1/4-28 |
| 966-000-359 | HSK100A-SF12-600-G2 | HSK100A | 12mm | 1.260 | 4.858 | 6.000 | 2.404 | 7/16-20 |
| 966-000-361 | HSK100A-SF16-600-G2 | HSK100A | 16mm | 1.260 | 4.858 | 6.000 | 2.522 | 9/16-18 |
| 966-000-364 | HSK100A-SF20-700-G2 | HSK100A | 20mm | 1.654 | 5.858 | 7.000 | 2.600 | 5/8-18 |
| 966-000-367 | HSK100A-SF25-700-G2 | HSK100A | 25mm | 2.087 | 5.858 | 7.000 | 2.912 | 3/4-16 |
| 966-000-369 | HSK100A-SF32-700-G2 | HSK100A | 32mm | 2.087 | 5.858 | 7.000 | 2.912 | 3/4-16 |



| PRODUCT # | Designation | Description |
|-------------|-------------|----------------------|
| 969-000-005 | HSK40A-CT | HSK40A Coolant Tube |
| 969-000-007 | HSK50A-CT | HSK50A Coolant Tube |
| 969-000-009 | HSK63A-CT | HSK63A Coolant Tube |
| 969-000-011 | HSK80A-CT | HSK80A Coolant Tube |
| 969-000-001 | HSK100A-CT | HSK100A Coolant Tube |
| 969-000-003 | HSK125A-CT | HSK125A Coolant Tube |

| PRODUCT # | Designation | Description |
|-------------|-------------|--|
| 969-000-006 | HSK40A-S | HSK40A Coolant Tube Socket (3/8" Drive) |
| 969-000-008 | HSK50A-S | HSK50A Coolant Tube Socket (3/8" Drive) |
| 969-000-010 | HSK63A-S | HSK63A Coolant Tube Socket (3/8" Drive) |
| 969-000-012 | HSK80A-S | HSK80A Coolant Tube Socket (3/8" Drive) |
| 969-000-002 | HSK100A-S | HSK100A Coolant Tube Socket (1/2" Drive) |
| 969-000-004 | HSK125A-S | HSK125A Coolant Tube Socket (1/2" Drive) |

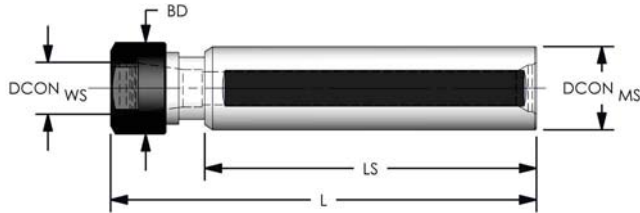


| PRODUCT # | Designation | DCON WS | DCON MS | LF | LU | Thread |
|-------------|-----------------|---------|---------|-------|-------|---------|
| 973-000-001 | SS050-SF012-463 | 0.125 | 0.500 | 4.630 | 0.790 | N/A |
| 973-000-003 | SS075-SF012-463 | 0.125 | 0.750 | 4.630 | 0.790 | N/A |
| 973-000-004 | SS075-SF012-663 | 0.125 | 0.750 | 6.630 | 0.790 | N/A |
| 973-000-010 | SS100-SF012-863 | 0.125 | 1.000 | 8.630 | 0.790 | N/A |
| 973-000-002 | SS050-SF188-463 | 0.188 | 0.500 | 4.630 | 0.790 | N/A |
| 973-000-005 | SS075-SF188-463 | 0.188 | 0.750 | 4.630 | 0.790 | N/A |
| 973-000-006 | SS075-SF188-663 | 0.188 | 0.750 | 6.630 | 0.790 | N/A |
| 973-000-011 | SS100-SF188-863 | 0.188 | 1.000 | 8.630 | 0.790 | N/A |
| 973-000-007 | SS075-SF250-463 | 0.250 | 0.750 | 4.630 | 1.420 | 10-32 |
| 973-000-008 | SS075-SF250-663 | 0.250 | 0.750 | 6.630 | 1.420 | 10-32 |
| 973-000-012 | SS100-SF250-863 | 0.250 | 1.000 | 8.630 | 1.420 | 10-32 |
| 973-000-009 | SS075-SF375-463 | 0.375 | 0.750 | 4.630 | 1.530 | 1/4-28 |
| 973-000-013 | SS100-SF375-663 | 0.375 | 1.000 | 6.630 | 1.530 | 1/4-28 |
| 973-000-017 | SS125-SF375-900 | 0.375 | 1.250 | 9.000 | 1.530 | 1/4-28 |
| 973-000-014 | SS100-SF500-463 | 0.500 | 1.000 | 4.630 | 1.850 | 7/16-20 |
| 973-000-015 | SS100-SF500-663 | 0.500 | 1.000 | 6.630 | 1.850 | 7/16-20 |
| 973-000-018 | SS125-SF500-900 | 0.500 | 1.250 | 9.000 | 1.850 | 7/16-20 |
| 973-000-016 | SS100-SF625-463 | 0.625 | 1.000 | 4.630 | 1.970 | 9/16-18 |
| 973-000-019 | SS125-SF625-700 | 0.625 | 1.250 | 7.000 | 1.970 | 1/4-28 |
| 973-000-020 | SS125-SF750-500 | 0.750 | 1.250 | 5.000 | 2.040 | 5/8-18 |
| 973-000-021 | SS125-SF750-700 | 0.750 | 1.250 | 7.000 | 1.420 | 5/8-18 |



by **Ultra-Dex**

- Adjustable Stop Screw Allows Drills to be Pre-Set
- Balanced for Less Vibration & Longer Tool Life
- T.I.R. .0002
- Hardened & Tempered to Prevent Cracking
- Balanced Nuts (G2.5 at 15,000 RPM)
- Special Lengths Available



IMPERIAL

| PRODUCT # | Designation | DCON WS | Range | BD | DCON MS | L | LS | Collet Nut | Screw | Collet Wrench |
|-------------|----------------|---------|--|-------|---------|-------|-------|------------|--------|---------------|
| 958-000-001 | SS075-ER16-250 | ER16 | .020" – .406" (.5mm - 10mm) 1/32" - 13/32" | 1.100 | 0.750 | 3.800 | 2.500 | ER-16HN | ER-16S | ER-16W |
| 958-000-002 | SS075-ER16-400 | ER16 | | 1.100 | 0.750 | 5.300 | 4.000 | ER-16HN | ER-16S | ER-16W |
| 958-000-005 | SS100-ER16-250 | ER16 | | 1.100 | 1.000 | 3.800 | 2.500 | ER-16HN | ER-16S | ER-16W |
| 958-000-006 | SS100-ER16-400 | ER16 | | 1.100 | 1.000 | 5.300 | 4.000 | ER-16HN | ER-16S | ER-16W |
| 958-000-007 | SS100-ER16-600 | ER16 | | 1.100 | 1.000 | 7.300 | 6.000 | ER-16HN | ER-16S | ER-16W |
| 958-000-003 | SS075-ER20-250 | ER20 | .020" – 0.500" (.5mm - 13mm) 1/32" - 1/2" | 1.340 | 0.750 | 3.600 | 2.500 | ER-20HN | ER-20S | ER-20W |
| 958-000-004 | SS075-ER20-400 | ER20 | | 1.340 | 0.750 | 5.100 | 4.000 | ER-20HN | ER-20S | ER-20W |
| 958-000-008 | SS100-ER20-250 | ER20 | | 1.340 | 1.000 | 3.600 | 2.500 | ER-20HN | ER-20S | ER-20W |
| 958-000-009 | SS100-ER20-400 | ER20 | | 1.340 | 1.000 | 5.100 | 4.000 | ER-20HN | ER-20S | ER-20W |
| 958-000-010 | SS100-ER20-600 | ER20 | | 1.340 | 1.000 | 7.100 | 6.000 | ER-20HN | ER-20S | ER-20W |

METRIC

| PRODUCT # | Designation | DCON WS | Range | BD | DCON MS | L | LS | Collet Nut | Screw | Collet Wrench |
|-------------|-----------------|---------|---|-------|---------|-------|-------|------------|--------|---------------|
| 958-000-011 | SS22MM-ER16-250 | ER16 | .020" – .406" (.5mm - 10mm) 1/32" - 13/32" | 1.100 | 22mm | 3.800 | 2.500 | ER-16HN | ER-16S | ER-16W |
| 958-000-012 | SS22MM-ER20-250 | ER20 | .020" – 0.500" (.5mm - 13mm) 1/32" - 1/2" | 1.340 | 22mm | 3.600 | 2.500 | ER-20HN | ER-20S | ER-20W |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

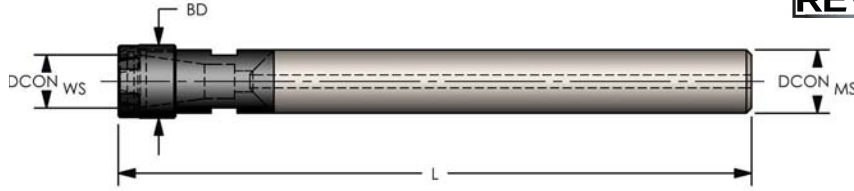
PACKAGE SIZE OF 1

| PRODUCT # | Adj. Screw |
|-------------|------------|
| 968-000-032 | ER-11S |
| 968-000-036 | ER-16S |
| 968-000-041 | ER-20S |
| 968-000-043 | ER-25S |
| 968-000-046 | ER-32S |
| 968-000-049 | ER-40S |

PACKAGE SIZE OF 1

| PRODUCT # | Wrench |
|-------------|---------|
| 968-000-189 | ER-11W |
| 968-000-031 | ER-11MW |
| 968-000-035 | ER-16MW |
| 968-000-037 | ER-16W |
| 968-000-040 | ER-20MW |
| 968-000-042 | ER-20W |
| 968-000-045 | ER-25W |
| 968-000-048 | ER-32W |
| 968-000-051 | ER-40W |

PACKAGE SIZE OF 1



With Flat

| PRODUCT # | Designation | DCON WS | Range | Collet Nut | L | DCON MS | BD |
|-------------|-------------------------|---------|---|------------|--------|---------|-------|
| 903-000-011 | ST1/2 X 8.000 ER11 C W | ER11 | .062 - .250 (1.5mm - 6.4mm) 1/16" - 1/4" | ER11-MN | 8.000 | 0.500 | 0.625 |
| 903-000-027 | ST5/8 X 7.000 ER11 C W | ER11 | | ER11-MN | 7.000 | 0.625 | 0.625 |
| 903-000-021 | ST5/8 X 10.000 ER11 C W | ER11 | | ER11-MN | 10.000 | 0.625 | 0.625 |
| 903-000-029 | ST5/8 X 7.000 ER16 C W | ER16 | .062 - .406 (1.5mm - 10.3mm) 1/16" - 13/32" | ER16-MN | 7.000 | 0.625 | 0.875 |
| 903-000-023 | ST5/8 X 10.000 ER16 C W | ER16 | | ER16-MN | 10.000 | 0.625 | 0.875 |
| 903-000-017 | ST3/4 X 7.000 ER16 C W | ER16 | | ER16-MN | 7.000 | 0.750 | 0.875 |
| 903-000-013 | ST3/4 X 10.000 ER16 C W | ER16 | | ER16-MN | 10.000 | 0.750 | 0.875 |
| 903-000-006 | ST1 X 8.000 ER16 C W | ER16 | | ER16-MN | 8.000 | 1.000 | 0.875 |
| 903-000-002 | ST1 X 12.000 ER16 C W | ER16 | ER16-MN | 12.000 | 1.000 | 0.875 | |
| 903-000-031 | ST5/8 X 7.000 ER20 C W | ER20 | .094 - 0.500 (2.4mm - 13mm) 3/32" - 1/2" | ER20-MN | 7.000 | 0.625 | 1.125 |
| 903-000-025 | ST5/8 X 10.000 ER20 C W | ER20 | | ER20-MN | 10.000 | 0.625 | 1.125 |
| 903-000-019 | ST3/4 X 7.000 ER20 C W | ER20 | | ER20-MN | 7.000 | 0.750 | 1.125 |
| 903-000-015 | ST3/4 X 10.000 ER20 C W | ER20 | | ER20-MN | 10.000 | 0.750 | 1.125 |
| 903-000-008 | ST1 X 8.000 ER20 C W | ER20 | | ER20-MN | 8.000 | 1.000 | 1.125 |
| 903-000-004 | ST1 X 12.000 ER20 C W | ER20 | | ER20-MN | 12.000 | 1.000 | 1.125 |

Without Flat

| PRODUCT # | Designation | DCON WS | Range | Collet Nut | L | DCON MS | BD |
|-------------|-----------------------|---------|---|------------|--------|---------|-------|
| 903-000-009 | ST1/2 X 5.000 ER11 C | ER11 | .062 - .250 (1.5mm - 6.4mm) 1/16" - 1/4" | ER11-MN | 5.000 | 0.500 | 0.625 |
| 903-000-010 | ST1/2 X 8.000 ER11 C | ER11 | | ER11-MN | 8.000 | 0.500 | 0.625 |
| 903-000-026 | ST5/8 X 7.000 ER11 C | ER11 | | ER11-MN | 7.000 | 0.625 | 0.625 |
| 903-000-020 | ST5/8 X 10.000 ER11 C | ER11 | | ER11-MN | 10.000 | 0.625 | 0.625 |
| 903-000-028 | ST5/8 X 7.000 ER16 C | ER16 | .062 - .406 (1.5mm - 10.3mm) 1/16" - 13/32" | ER16-MN | 7.000 | 0.625 | 0.875 |
| 903-000-022 | ST5/8 X 10.000 ER16 C | ER16 | | ER16-MN | 10.000 | 0.625 | 0.875 |
| 903-000-016 | ST3/4 X 7.000 ER16 C | ER16 | | ER16-MN | 7.000 | 0.750 | 0.875 |
| 903-000-012 | ST3/4 X 10.000 ER16 C | ER16 | | ER16-MN | 10.000 | 0.750 | 0.875 |
| 903-000-005 | ST1 X 8.000 ER16 C | ER16 | | ER16-MN | 8.000 | 1.000 | 0.875 |
| 903-000-001 | ST1 X 12.000 ER16 C | ER16 | ER16-MN | 12.000 | 1.000 | 0.875 | |
| 903-000-030 | ST5/8 X 7.000 ER20 C | ER20 | .094 - 0.500 (2.4mm - 13mm) 3/32" - 1/2" | ER20-MN | 7.000 | 0.625 | 1.125 |
| 903-000-024 | ST5/8 X 10.000 ER20 C | ER20 | | ER20-MN | 10.000 | 0.625 | 1.125 |
| 903-000-018 | ST3/4 X 7.000 ER20 C | ER20 | | ER20-MN | 7.000 | 0.750 | 1.125 |
| 903-000-014 | ST3/4 X 10.000 ER20 C | ER20 | | ER20-MN | 10.000 | 0.750 | 1.125 |
| 903-000-007 | ST1 X 8.000 ER20 C | ER20 | | ER20-MN | 8.000 | 1.000 | 1.125 |
| 903-000-003 | ST1 X 12.000 ER20 C | ER20 | | ER20-MN | 12.000 | 1.000 | 1.125 |

All Hardware Included. Wrenches Sold Separately.

| PRODUCT # | Nut |
|-------------|---------|
| 968-000-029 | ER-11HN |
| 968-000-033 | ER-16HN |
| 968-000-038 | ER-20HN |
| 968-000-044 | ER-25SN |
| 968-000-047 | ER-32SN |
| 968-000-050 | ER-40SN |
| 968-000-030 | ER-11MN |
| 968-000-034 | ER-16MN |
| 968-000-039 | ER-20MN |

PACKAGE SIZE OF 1



| | Ø | PRODUCT # | Designation |
|-------------|-------------|---------------|---------------|
| ER16 | 1/8 | 916-000-041 | ER16C-SS-1250 |
| | 5/32 | 916-000-042 | ER16C-SS-1562 |
| | 3/16 | 916-000-043 | ER16C-SS-1875 |
| | 7/32 | 916-000-044 | ER16C-SS-2187 |
| | 1/4 | 916-000-045 | ER16C-SS-2500 |
| | 9/32 | 916-000-046 | ER16C-SS-2812 |
| | 5/16 | 916-000-047 | ER16C-SS-3125 |
| | 11/32 | 916-000-048 | ER16C-SS-3437 |
| | 3/8 | 916-000-049 | ER16C-SS-3750 |
| | 13/32 | 916-000-050 | ER16C-SS-4062 |
| ER20 | 1/8 | 916-000-089 | ER20C-SS-1250 |
| | 5/32 | 916-000-092 | ER20C-SS-1562 |
| | 3/16 | 916-000-093 | ER20C-SS-1875 |
| | 7/32 | 916-000-094 | ER20C-SS-2187 |
| | 1/4 | 916-000-095 | ER20C-SS-2500 |
| | 9/32 | 916-000-096 | ER20C-SS-2812 |
| | 5/16 | 916-000-097 | ER20C-SS-3125 |
| | 11/32 | 916-000-098 | ER20C-SS-3437 |
| | 3/8 | 916-000-099 | ER20C-SS-3750 |
| | 13/32 | 916-000-100 | ER20C-SS-4062 |
| | 7/16 | 916-000-101 | ER20C-SS-4375 |
| | 15/32 | 916-000-102 | ER20C-SS-4687 |
| | 1/2 | 916-000-104 | ER20C-SS-5000 |
| ER25 | 1/8 | 916-000-147 | ER25C-SS-1250 |
| | 5/32 | 916-000-151 | ER25C-SS-1562 |
| | 3/16 | 916-000-154 | ER25C-SS-1875 |
| | 7/32 | 916-000-155 | ER25C-SS-2187 |
| | 1/4 | 916-000-156 | ER25C-SS-2500 |
| | 9/32 | 916-000-157 | ER25C-SS-2812 |
| | 5/16 | 916-000-158 | ER25C-SS-3125 |
| | 11/32 | 916-000-159 | ER25C-SS-3437 |
| | 3/8 | 916-000-160 | ER25C-SS-3750 |
| | 13/32 | 916-000-161 | ER25C-SS-4062 |
| | 7/16 | 916-000-162 | ER25C-SS-4375 |
| | 15/32 | 916-000-163 | ER25C-SS-4687 |
| | 1/2 | 916-000-165 | ER25C-SS-5000 |
| | 17/32 | 916-000-166 | ER25C-SS-5312 |
| | 9/16 | 916-000-167 | ER25C-SS-5625 |
| | 19/32 | 916-000-168 | ER25C-SS-5937 |
| 5/8 | 916-000-170 | ER25C-SS-6250 | |

| | Ø | PRODUCT # | Designation |
|-------------|-------------|----------------|---------------|
| ER32 | 1/8 | 916-000-220 | ER32C-SS-1250 |
| | 5/32 | 916-000-224 | ER32C-SS-1562 |
| | 3/16 | 916-000-228 | ER32C-SS-1875 |
| | 7/32 | 916-000-232 | ER32C-SS-2187 |
| | 1/4 | 916-000-233 | ER32C-SS-2500 |
| | 9/32 | 916-000-234 | ER32C-SS-2812 |
| | 5/16 | 916-000-235 | ER32C-SS-3125 |
| | 11/32 | 916-000-236 | ER32C-SS-3437 |
| | 3/8 | 916-000-237 | ER32C-SS-3750 |
| | 13/32 | 916-000-238 | ER32C-SS-4062 |
| | 7/16 | 916-000-239 | ER32C-SS-4375 |
| | 15/32 | 916-000-240 | ER32C-SS-4687 |
| | 1/2 | 916-000-242 | ER32C-SS-5000 |
| | 17/32 | 916-000-243 | ER32C-SS-5312 |
| | 9/16 | 916-000-244 | ER32C-SS-5625 |
| | 19/32 | 916-000-245 | ER32C-SS-5937 |
| | 5/8 | 916-000-247 | ER32C-SS-6250 |
| | ER40 | 21/32 | 916-000-248 |
| 11/16 | | 916-000-249 | ER32C-SS-6875 |
| 23/32 | | 916-000-251 | ER32C-SS-7187 |
| 3/4 | | 916-000-252 | ER32C-SS-7500 |
| 1/8 | | 916-000-309 | ER40C-SS-1250 |
| 5/32 | | 916-000-313 | ER40C-SS-1562 |
| 3/16 | | 916-000-317 | ER40C-SS-1875 |
| 7/32 | | 916-000-321 | ER40C-SS-2187 |
| 1/4 | | 916-000-326 | ER40C-SS-2500 |
| 9/32 | | 916-000-329 | ER40C-SS-2812 |
| 5/16 | | 916-000-330 | ER40C-SS-3125 |
| 11/32 | | 916-000-331 | ER40C-SS-3437 |
| 3/8 | | 916-000-332 | ER40C-SS-3750 |
| 13/32 | | 916-000-333 | ER40C-SS-4062 |
| 7/16 | | 916-000-334 | ER40C-SS-4375 |
| 15/32 | | 916-000-335 | ER40C-SS-4687 |
| 1/2 | | 916-000-336 | ER40C-SS-5000 |
| 17/32 | | 916-000-337 | ER40C-SS-5312 |
| 9/16 | 916-000-338 | ER40C-SS-5625 | |
| 19/32 | 916-000-339 | ER405C-SS-5937 | |
| 5/8 | 916-000-340 | ER40C-SS-6250 | |
| 21/32 | 916-000-341 | ER40C-SS-6562 | |
| 11/16 | 916-000-342 | ER40C-SS-6875 | |
| 23/32 | 916-000-298 | ER40C-SS-7187 | |
| 3/4 | 916-000-299 | ER40C-SS-7500 | |
| 13/16 | 916-000-347 | ER40C-SS-8125 | |
| 7/8 | 916-000-348 | ER40C-SS-8750 | |
| 1 | 916-000-257 | ER40C-SS-1000 | |



| | Ø | PRODUCT # | Designation |
|-------------|-------------|---------------|---------------|
| ER16 | 4mm | 916-000-051 | ER16C-SS-4MM |
| | 5mm | 916-000-052 | ER16C-SS-5MM |
| | 6mm | 916-000-053 | ER16C-SS-6MM |
| | 7mm | 916-000-054 | ER16C-SS-7MM |
| | 8mm | 916-000-055 | ER16C-SS-8MM |
| | 9mm | 916-000-056 | ER16C-SS-9MM |
| | 10mm | 916-000-040 | ER16C-SS-10MM |
| ER20 | 4mm | 916-000-105 | ER20C-SS-4MM |
| | 5mm | 916-000-106 | ER20C-SS-5MM |
| | 6mm | 916-000-107 | ER20C-SS-6MM |
| | 7mm | 916-000-108 | ER20C-SS-7MM |
| | 8mm | 916-000-109 | ER20C-SS-8MM |
| | 9mm | 916-000-085 | ER20C-SS-9MM |
| | 10mm | 916-000-087 | ER20C-SS-10MM |
| | 11mm | 916-000-088 | ER20C-SS-11MM |
| | 12mm | 916-000-090 | ER20C-SS-12MM |
| | 13mm | 916-000-091 | ER20C-SS-13MM |
| 14mm | 916-000-064 | ER20C-SS-14MM | |
| ER25 | 4mm | 916-000-164 | ER25C-SS-4MM |
| | 5mm | 916-000-169 | ER25C-SS-5MM |
| | 6mm | 916-000-171 | ER25C-SS-6MM |
| | 7mm | 916-000-172 | ER25C-SS-7MM |
| | 8mm | 916-000-173 | ER25C-SS-8MM |
| | 9mm | 916-000-174 | ER25C-SS-9MM |
| | 10mm | 916-000-145 | ER25C-SS-10MM |
| | 11mm | 916-000-146 | ER25C-SS-11MM |
| | 12mm | 916-000-148 | ER25C-SS-12MM |
| | 13mm | 916-000-149 | ER25C-SS-13MM |
| | 14mm | 916-000-150 | ER25C-SS-14MM |
| | 15mm | 916-000-152 | ER25C-SS-15MM |
| | 16mm | 916-000-153 | ER25C-SS-16MM |
| 17mm | 916-000-120 | ER25C-SS-17MM | |

| | Ø | PRODUCT # | Designation |
|-------------|-------------|---------------|---------------|
| ER32 | 4mm | 916-000-241 | ER32C-SS-4MM |
| | 5mm | 916-000-246 | ER32C-SS-5MM |
| | 6mm | 916-000-250 | ER32C-SS-6MM |
| | 7mm | 916-000-253 | ER32C-SS-7MM |
| | 8mm | 916-000-254 | ER32C-SS-8MM |
| | 9mm | 916-000-255 | ER32C-SS-9MM |
| | 10mm | 916-000-218 | ER32C-SS-10MM |
| | 11mm | 916-000-219 | ER32C-SS-11MM |
| | 12mm | 916-000-221 | ER32C-SS-12MM |
| | 13mm | 916-000-222 | ER32C-SS-13MM |
| | 14mm | 916-000-223 | ER32C-SS-14MM |
| | 15mm | 916-000-225 | ER32C-SS-15MM |
| | 16mm | 916-000-226 | ER32C-SS-16MM |
| | 17mm | 916-000-227 | ER32C-SS-17MM |
| | 18mm | 916-000-229 | ER32C-SS-18MM |
| | 19mm | 916-000-230 | ER32C-SS-19MM |
| | ER40 | 20mm | 916-000-231 |
| 6mm | | 916-000-343 | ER40C-SS-6MM |
| 7mm | | 916-000-346 | ER40C-SS-7MM |
| 8mm | | 916-000-349 | ER40C-SS-8MM |
| 9mm | | 916-000-350 | ER40C-SS-9MM |
| 10mm | | 916-000-307 | ER40C-SS-10MM |
| 11mm | | 916-000-308 | ER40C-SS-11MM |
| 12mm | | 916-000-310 | ER40C-SS-12MM |
| 13mm | | 916-000-311 | ER40C-SS-13MM |
| 14mm | | 916-000-312 | ER40C-SS-14MM |
| 15mm | | 916-000-314 | ER40C-SS-15MM |
| 16mm | | 916-000-315 | ER40C-SS-16MM |
| 17mm | | 916-000-316 | ER40C-SS-17MM |
| 18mm | | 916-000-318 | ER40C-SS-18MM |
| 19mm | | 916-000-319 | ER40C-SS-19MM |
| 20mm | | 916-000-320 | ER40C-SS-20MM |
| 21mm | | 916-000-322 | ER40C-SS-21MM |
| 22mm | 916-000-323 | ER40C-SS-22MM | |
| 23mm | 916-000-324 | ER40C-SS-23MM | |
| 24mm | 916-000-325 | ER40C-SS-24MM | |
| 25mm | 916-000-327 | ER40C-SS-25MM | |
| 26mm | 916-000-328 | ER40C-SS-26MM | |



| | Ø | PRODUCT # | Designation |
|-------------|-------|-------------|-------------|
| ER11 | 1/16 | 916-000-001 | ER11C-0625* |
| | 3/32 | 916-000-002 | ER11C-0937* |
| | 1/8 | 916-000-003 | ER11C-1250* |
| | 5/32 | 916-000-004 | ER11C-1562* |
| | 3/16 | 916-000-005 | ER11C-1875* |
| | 7/32 | 916-000-007 | ER11C-2187* |
| | 1/4 | 916-000-008 | ER11C-2500* |
| ER16 | 1/16 | 916-000-017 | ER16C-0625 |
| | 3/32 | 916-000-018 | ER16C-0937* |
| | 1/8 | 916-000-020 | ER16C-1250* |
| | 5/32 | 916-000-021 | ER16C-1562* |
| | 3/16 | 916-000-022 | ER16C-1875* |
| | 7/32 | 916-000-024 | ER16C-2187* |
| | 1/4 | 916-000-025 | ER16C-2500* |
| | 9/32 | 916-000-026 | ER16C-2812* |
| | 5/16 | 916-000-028 | ER16C-3125* |
| | 11/32 | 916-000-029 | ER16C-3437* |
| | 3/8 | 916-000-030 | ER16C-3750* |
| | 13/32 | 916-000-032 | ER16C-4062 |

| | Ø | PRODUCT # | Designation | |
|-------------|-------------|-------------|-------------|-------------|
| ER20 | 3/32 | 916-000-058 | ER20C-0937 | |
| | 1/8 | 916-000-061 | ER20C-1250* | |
| | 5/32 | 916-000-065 | ER20C-1562* | |
| | 3/16 | 916-000-066 | ER20C-1875* | |
| | 7/32 | 916-000-068 | ER20C-2187* | |
| | 1/4 | 916-000-069 | ER20C-2500* | |
| | 9/32 | 916-000-070 | ER20C-2812* | |
| | 5/16 | 916-000-072 | ER20C-3125* | |
| | 11/32 | 916-000-073 | ER20C-3437 | |
| | 3/8 | 916-000-074 | ER20C-3750* | |
| | 13/32 | 916-000-076 | ER20C-4062 | |
| | 7/16 | 916-000-077 | ER20C-4375* | |
| | 15/32 | 916-000-078 | ER20C-4687 | |
| | 1/2 | 916-000-080 | ER20C-5000* | |
| | ER25 | 1/8 | 916-000-113 | ER25C-1250 |
| | | 5/32 | 916-000-117 | ER25C-1562* |
| | | 3/16 | 916-000-121 | ER25C-1875* |
| 7/32 | | 916-000-122 | ER25C-2187* | |
| 1/4 | | 916-000-123 | ER25C-2500* | |
| 9/32 | | 916-000-124 | ER25C-2812 | |
| 5/16 | | 916-000-126 | ER25C-3125* | |
| 11/32 | | 916-000-127 | ER25C-3437 | |
| 3/8 | | 916-000-128 | ER25C-3750* | |
| 13/32 | | 916-000-130 | ER25C-4062 | |
| 7/16 | | 916-000-131 | ER25C-4375* | |
| 15/32 | | 916-000-132 | ER25C-4687 | |
| 1/2 | | 916-000-134 | ER25C-5000* | |
| 17/32 | 916-000-135 | ER25C-5312 | | |
| 9/16 | 916-000-136 | ER25C-5625* | | |
| 19/32 | 916-000-137 | ER25C-5937 | | |
| 5/8 | 916-000-139 | ER25C-6250* | | |

IMPERIAL COLLETS SETS

| Product # | Designation | Description |
|-------------|-------------|--|
| 916-000-015 | ER11CS | 7 pcs (items with "*" in ER11 section included) |
| 916-000-039 | ER16CS | 10 pcs (items with "*" in ER16 section included) |
| 916-000-086 | ER20CS | 10 pcs (items with "*" in ER20 section included) |
| 916-000-144 | ER25CS | 10 pcs (items with "*" in ER25 section included) |
| 916-000-217 | ER32CS | 10 pcs (items with "*" in ER32 section included) |
| 916-000-305 | ER40CS | 10 pcs (items with "*" in ER40 section included) |



| | Ø | PRODUCT # | Designation |
|-------------|-------------|-------------|-------------|
| ER32 | 3/32 | 916-000-176 | ER32C-0937 |
| | 1/8 | 916-000-179 | ER32C-1250* |
| | 5/32 | 916-000-183 | ER32C-1562 |
| | 3/16 | 916-000-187 | ER32C-1875* |
| | 7/32 | 916-000-191 | ER32C-2187 |
| | 1/4 | 916-000-193 | ER32C-2500* |
| | 9/32 | 916-000-194 | ER32C-2812 |
| | 5/16 | 916-000-195 | ER32C-3125* |
| | 11/32 | 916-000-196 | ER32C-3437 |
| | 3/8 | 916-000-197 | ER32C-3750* |
| | 13/32 | 916-000-199 | ER32C-4062 |
| | 7/16 | 916-000-200 | ER32C-4375* |
| | 15/32 | 916-000-201 | ER32C-4687 |
| | 1/2 | 916-000-203 | ER32C-5000* |
| | 17/32 | 916-000-204 | ER32C-5312 |
| | 9/16 | 916-000-205 | ER32C-5625* |
| | 19/32 | 916-000-206 | ER32C-5937 |
| | 5/8 | 916-000-208 | ER32C-6250* |
| | 21/32 | 916-000-209 | ER32C-6562 |
| 11/16 | 916-000-210 | ER32C-6875 | |
| 23/32 | 916-000-212 | ER32C-7187 | |
| 3/4 | 916-000-213 | ER32C-7500* | |

| | Ø | PRODUCT # | Designation |
|-------------|-------|-------------|-------------|
| ER40 | 1/8 | 916-000-260 | ER40C-1250* |
| | 5/32 | 916-000-264 | ER40C-1562 |
| | 3/16 | 916-000-268 | ER40C-1875* |
| | 7/32 | 916-000-272 | ER40C-2187 |
| | 1/4 | 916-000-277 | ER40C-2500* |
| | 9/32 | 916-000-280 | ER40C-2812 |
| | 5/16 | 916-000-281 | ER40C-3125* |
| | 11/32 | 916-000-282 | ER40C-3437 |
| | 3/8 | 916-000-283 | ER40C-3750* |
| | 13/32 | 916-000-285 | ER40C-4062 |
| | 7/16 | 916-000-286 | ER40C-4375 |
| | 15/32 | 916-000-287 | ER40C-4687 |
| | 1/2 | 916-000-289 | ER40C-5000* |
| | 17/32 | 916-000-290 | ER40C-5312 |
| | 9/16 | 916-000-291 | ER40C-5625 |
| | 19/32 | 916-000-292 | ER405C-5937 |
| | 5/8 | 916-000-294 | ER40C-6250* |
| | 21/32 | 916-000-295 | ER40C-6562 |
| | 11/16 | 916-000-296 | ER40C-6875 |
| | 23/32 | 916-000-298 | ER40C-7187 |
| | 3/4 | 916-000-299 | ER40C-7500* |
| | 13/16 | 916-000-301 | ER40C-8125 |
| | 7/8 | 916-000-302 | ER40C-8750* |
| | 1 | 916-000-257 | ER40C-1000* |

IMPERIAL COLLETS SETS

| Product # | Designation | Description |
|-------------|-------------|--|
| 916-000-015 | ER11CS | 7 pcs (items with "*" in ER11 section included) |
| 916-000-039 | ER16CS | 10 pcs (items with "*" in ER16 section included) |
| 916-000-086 | ER20CS | 10 pcs (items with "*" in ER20 section included) |
| 916-000-144 | ER25CS | 10 pcs (items with "*" in ER25 section included) |
| 916-000-217 | ER32CS | 10 pcs (items with "*" in ER32 section included) |
| 916-000-305 | ER40CS | 10 pcs (items with "*" in ER40 section included) |



| | Ø | PRODUCT # | Designation |
|-------------|-------------|-------------|-------------|
| ER11 | 1mm | 916-000-006 | ER11C-1MM* |
| | 2mm | 916-000-009 | ER11C-2MM* |
| | 3mm | 916-000-010 | ER11C-3MM* |
| | 4mm | 916-000-011 | ER11C-4MM* |
| | 5mm | 916-000-012 | ER11C-5MM* |
| | 6mm | 916-000-013 | ER11C-6MM* |
| | 7mm | 916-000-014 | ER11C-7MM |
| ER16 | 1mm | 916-000-023 | ER16C-1MM* |
| | 2mm | 916-000-027 | ER16C-2MM* |
| | 3mm | 916-000-031 | ER16C-3MM* |
| | 4mm | 916-000-033 | ER16C-4MM* |
| | 5mm | 916-000-034 | ER16C-5MM* |
| | 6mm | 916-000-035 | ER16C-6MM* |
| | 7mm | 916-000-036 | ER16C-7MM |
| | 8mm | 916-000-037 | ER16C-8MM* |
| | 9mm | 916-000-038 | ER16C-9MM |
| 10mm | 916-000-019 | ER16C-10MM* | |

| | Ø | PRODUCT # | Designation |
|-------------|-------------|-------------|-------------|
| ER20 | 1mm | 916-000-067 | ER20C-1MM |
| | 2mm | 916-000-071 | ER20C-2MM* |
| | 3mm | 916-000-075 | ER20C-3MM* |
| | 4mm | 916-000-079 | ER20C-4MM* |
| | 5mm | 916-000-081 | ER20C-5MM* |
| | 6mm | 916-000-082 | ER20C-6MM* |
| | 7mm | 916-000-083 | ER20C-7MM |
| | 8mm | 916-000-084 | ER20C-8MM* |
| | 9mm | 916-000-085 | ER20C-9MM |
| | 10mm | 916-000-059 | ER20C-10MM* |
| | 11mm | 916-000-060 | ER20C-11MM |
| | 12mm | 916-000-062 | ER20C-12MM* |
| | 13mm | 916-000-063 | ER20C-13MM |
| | 14mm | 916-000-064 | ER20C-14MM* |
| ER25 | 2mm | 916-000-125 | ER25C-2MM* |
| | 3mm | 916-000-129 | ER25C-3MM* |
| | 4mm | 916-000-133 | ER25C-4MM* |
| | 5mm | 916-000-138 | ER25C-5MM* |
| | 6mm | 916-000-140 | ER25C-6MM* |
| | 7mm | 916-000-141 | ER25C-7MM |
| | 8mm | 916-000-142 | ER25C-8MM* |
| | 9mm | 916-000-143 | ER25C-9MM |
| | 10mm | 916-000-111 | ER25C-10MM* |
| | 11mm | 916-000-112 | ER25C-11MM |
| | 12mm | 916-000-114 | ER25C-12MM* |
| | 13mm | 916-000-115 | ER25C-13MM |
| | 14mm | 916-000-116 | ER25C-14MM* |
| | 15mm | 916-000-118 | ER25C-15MM |
| 16mm | 916-000-119 | ER25C-16MM* | |
| 17mm | 916-000-120 | ER25C-17MM | |

METRIC COLLETS SETS

| Product # | Designation | Description |
|-------------|-------------|--|
| 916-000-016 | ER11MCS | 6 pcs (items with "*" in ER11 section included) |
| 916-000-057 | ER16MCS | 8 pcs (items with "*" in ER16 section included) |
| 916-000-110 | ER20MCS | 9 pcs (items with "*" in ER20 section included) |
| 916-000-175 | ER25MCS | 10 pcs (items with "*" in ER25 section included) |
| 916-000-256 | ER32MCS | 11 pcs (items with "*" in ER32 section included) |
| 916-000-351 | ER40MCS | 14 pcs (items with "*" in ER40 section included) |



| | Ø | PRODUCT # | Designation |
|-------------|-------------|-------------|-------------|
| ER32 | 3mm | 916-000-198 | ER32C-3MM* |
| | 4mm | 916-000-202 | ER32C-4MM* |
| | 5mm | 916-000-207 | ER32C-5MM* |
| | 6mm | 916-000-211 | ER32C-6MM* |
| | 7mm | 916-000-214 | ER32C-7MM |
| | 8mm | 916-000-215 | ER32C-8MM* |
| | 9mm | 916-000-216 | ER32C-9MM |
| | 10mm | 916-000-177 | ER32C-10MM* |
| | 11mm | 916-000-178 | ER32C-11MM |
| | 12mm | 916-000-180 | ER32C-12MM* |
| | 13mm | 916-000-181 | ER32C-13MM |
| | 14mm | 916-000-182 | ER32C-14MM* |
| | 15mm | 916-000-184 | ER32C-15MM |
| | 16mm | 916-000-185 | ER32C-16MM* |
| 17mm | 916-000-186 | ER32C-17MM | |
| 18mm | 916-000-188 | ER32C-18MM* | |
| 19mm | 916-000-189 | ER32C-19MM | |
| 20mm | 916-000-190 | ER32C-20MM* | |
| 21mm | 916-000-192 | ER32C-21MM | |

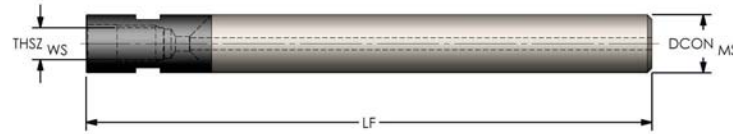
| | Ø | PRODUCT # | Designation |
|-------------|-------------|-------------|-------------|
| ER40 | 3mm | 916-000-284 | ER40C-3MM* |
| | 4mm | 916-000-288 | ER40C-4MM* |
| | 5mm | 916-000-293 | ER40C-5MM* |
| | 6mm | 916-000-297 | ER40C-6MM* |
| | 7mm | 916-000-300 | ER40C-7MM |
| | 8mm | 916-000-303 | ER40C-8MM* |
| | 9mm | 916-000-304 | ER40C-9MM |
| | 10mm | 916-000-258 | ER40C-10MM* |
| | 11mm | 916-000-259 | ER40C-11MM |
| | 12mm | 916-000-261 | ER40C-12MM* |
| | 13mm | 916-000-262 | ER40C-13MM |
| | 14mm | 916-000-263 | ER40C-14MM* |
| | 15mm | 916-000-265 | ER40C-15MM |
| | 16mm | 916-000-266 | ER40C-16MM* |
| | 17mm | 916-000-267 | ER40C-17MM |
| | 18mm | 916-000-269 | ER40C-18MM* |
| | 19mm | 916-000-270 | ER40C-19MM |
| | 20mm | 916-000-271 | ER40C-20MM* |
| | 21mm | 916-000-273 | ER40C-21MM |
| | 22mm | 916-000-274 | ER40C-22MM* |
| 23mm | 916-000-275 | ER40C-23MM | |
| 24mm | 916-000-276 | ER40C-24MM* | |
| 25mm | 916-000-278 | ER40C-25MM | |
| 26mm | 916-000-279 | ER40C-26MM* | |

METRIC COLLETS SETS

| Product # | Designation | Description |
|-------------|-------------|--|
| 916-000-016 | ER11MCS | 6 pcs (items with "*" in ER11 section included) |
| 916-000-057 | ER16MCS | 8 pcs (items with "*" in ER16 section included) |
| 916-000-110 | ER20MCS | 9 pcs (items with "*" in ER20 section included) |
| 916-000-175 | ER25MCS | 10 pcs (items with "*" in ER25 section included) |
| 916-000-256 | ER32MCS | 11 pcs (items with "*" in ER32 section included) |
| 916-000-351 | ER40MCS | 14 pcs (items with "*" in ER40 section included) |



by Ultra-Dex

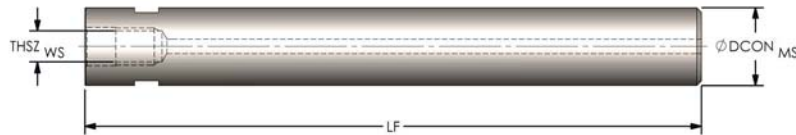


Carbide - With Flat

Without Flat

| PRODUCT # | Designation | DCON MS | LF | THSZws |
|-------------|---------------------|---------|----|--------|
| 942-000-003 | CM06 L6.00-W.375* | 0.375 | 6 | M6 |
| 942-000-005 | CM08 L5.00-W.500* | 0.500 | 5 | M8 |
| 942-000-007 | CM08 L8.00-W.500* | 0.500 | 8 | M8 |
| 942-000-012 | CM10 L7.00-W.750 | 0.750 | 7 | M10 |
| 942-000-009 | CM10 L10.00-W.750 | 0.750 | 10 | M10 |
| 942-000-019 | CM12 L7.00-W.750 | 0.750 | 7 | M12 |
| 942-000-014 | CM12 L10.00-W.750 | 0.750 | 10 | M12 |
| 942-000-021 | CM12 L8.00-W1.00 | 1.000 | 8 | M12 |
| 942-000-016 | CM12 L12.00-W1.00 | 1.000 | 12 | M12 |
| 942-000-023 | CM16 L14.00-W1.25* | 1.250 | 14 | M16 |
| 942-000-024 | CM16 L14.00-W1.500* | 1.500 | 14 | M16 |

| PRODUCT # | Designation | DCON MS | LF | THSZws |
|-------------|--------------------|---------|----|--------|
| 942-000-006 | CM08 L8.00-C.500* | 0.500 | 8 | M8 |
| 942-000-011 | CM10 L7.00-C.750 | 0.750 | 7 | M10 |
| 942-000-008 | CM10 L10.00-C.750 | 0.750 | 10 | M10 |
| 942-000-018 | CM12 L7.00-C.750 | 0.750 | 7 | M12 |
| 942-000-013 | CM12 L10.00-C.750 | 0.750 | 10 | M12 |
| 942-000-020 | CM12 L8.00-C1.00 | 1.000 | 8 | M12 |
| 942-000-015 | CM12 L12.00-C1.00 | 1.000 | 12 | M12 |
| 942-000-022 | CM16 L14.00-C1.25* | 1.250 | 14 | M16 |



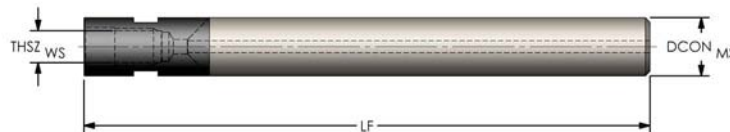
Heavy Metal - With Flat

Without Flat

| PRODUCT # | Designation | DCON MS | LF | THSZws |
|-------------|---------------------|---------|--------|--------|
| 942-000-026 | HM06 L6.00-W.375* | 0.375 | 6.000 | M6 |
| 942-000-028 | HM08 L6.00-W.500* | 0.500 | 6.000 | M8 |
| 942-000-031 | HM12 L12.00-W.750* | 0.750 | 12.000 | M12 |
| 942-000-034 | HM12 L8.00-W1.00* | 1.000 | 8.000 | M12 |
| 942-000-032 | HM12 L12.00-W1.00* | 1.000 | 12.000 | M12 |
| 942-000-036 | HM16 L12.00-W1.25* | 1.250 | 12.000 | M16 |
| 942-000-037 | HM16 L12.00-W1.500* | 1.500 | 12.000 | M16 |

| PRODUCT # | Designation | DCON MS | LF | THSZws |
|-------------|--------------------|---------|--------|--------|
| 942-000-025 | HM06 L6.00-C.375* | 0.375 | 6.000 | M6 |
| 942-000-027 | HM08 L6.00-C.500* | 0.500 | 6.000 | M8 |
| 942-000-029 | HM12 L12.00-C.750* | 0.750 | 12.000 | M12 |
| 942-000-033 | HM12 L8.00-C1.00* | 1.000 | 8.000 | M12 |
| 942-000-030 | HM12 L12.00-C1.00* | 1.000 | 12.000 | M12 |
| 942-000-035 | HM16 L12.00-C1.25* | 1.250 | 12.000 | M16 |

* Please allow up to 1 week for processing.



Carbide without Flat- Metric

| PRODUCT # | Designation | DCON MS (mm) | LF (mm) | THSZws |
|-------------|-------------------|--------------|---------|--------|
| 942-000-001 | CM06 L150MM-C10MM | 10 | 150 | M6 |
| 942-000-002 | CM06 L180MM-C12MM | 12 | 180 | M6 |
| 942-000-004 | CM08 L200MM-C16MM | 16 | 200 | M8 |
| 942-000-010 | CM10 L250MM-C20MM | 20 | 250 | M10 |
| 942-000-017 | CM12 L300MM-C25MM | 25 | 300 | M12 |

ARCH[®] **Cutting Tools**



CHAPTER 2 **NON-ROTATING**



INSERTS

INSERTS

Our inserts are for a wide array of tools throughout our indexable milling, drilling, boring, and turning offering



Insert Speeds & Feeds

| Material | TURNING | | MILLING | | DRILLING | |
|--|----------|-----------|----------|------------|----------|------------|
| | SFM | Inch/ Rev | SFM | Inch/ Rev | SFM | Inch/ Rev |
| P Mild Steel Annealed Alloy Steel Hardened Alloy Steel Cast Steel | 490-1200 | .004-.031 | 250-800 | .003-.015 | 225-650 | .0022-.006 |
| | 490-980 | | 200-725 | | 200-650 | |
| | 180-500 | | 200-600 | | 100-300 | |
| | 180-650 | | 200-600 | | 150-550 | |
| M Stainless Steel | 280-810 | .004-.015 | 200-600 | .003-.015 | 250-430 | .002-.006 |
| K Low Cast Iron High Cast Iron Cast Iron (CBN INSERTS) | 590-1240 | .004-.024 | 325-600 | .004-.016 | 300-600 | .0025-.009 |
| | 360-700 | | 325-600 | | 300-600 | |
| | 400-600 | .002-.020 | | | | |
| N Alum. Alloy Un-heat Treated Alum. Alloy Heat Treated Cast Alum. & Copper Alloy | 850-1980 | .004-.018 | 860-1800 | .007-.018 | 600-1100 | .0038-.011 |
| | 550-1650 | | 575-1230 | | 315-790 | |
| | 360-950 | | 280-930 | | 250-760 | |
| H Hardened Material (CBN INSERTS) | 450-950 | .002-.011 | | | | |
| S Heat Resistant Steels | 100-300 | .002-.006 | 100-300 | .0024-.008 | 60-150 | .0028-.008 |

Chipbreaker Designation

| ISO | FINISHING | MEDIUM | ROUGHING |
|----------|--|--------------------------------|--------------|
| P | CX2, LX6, SP1, SP2, SX1, ZX3 CM1, CM3, CX2, LX6, ZM1 | CX1, LX3, ZP1 CM1, CM2, LX3 | CP2, LX2 LX2 |
| M | | | |
| K | ZX3 | ZK1, ZK2 CS1 | |
| N | SX1, ZN1 | CN1, LX2, LX3 | |
| S | ZX3 | ZK1, ZK2 CS1 | |

- Good
- ◐ Better
- Best

***HIGH PERFORMANCE GRADES**

| Grade | Description | Steel | Stainless Steel | Cast Iron | Ferrite Materials | Heat-Resistant | Steel Hardened Metal |
|--------|---|-------|-----------------|-----------|-------------------|----------------|----------------------|
| | | P | M | K | N | S | H |
| UD51 | General purpose TiN (CVD) coated steel grade - used for roughing and semi-finishing of carbon alloy and stainless steel. | ● | ○ | ○ | | ◐ | |
| UD52 | Tough general purpose steel grade with multi-layer titanium aluminum nitride coating for alloy steel, aluminum alloys, austenitic stainless and carbon steels, copper alloys and exotic alloys. | ● | ○ | | | ● | |
| HP230* | Productive steel turning grade under stable conditions. | ● | ○ | ◐ | | | |
| HP250* | Universal steel turning grade-The best in efficiency and productivity. | ● | ○ | ◐ | | | |
| UD21 | Multi-layer titanium aluminum nitride grade. Excellent for machining cast iron. | | ◐ | ● | | | |
| HM240* | Stainless steel turning grade. Finishing to light roughing. | ○ | ● | | ○ | | |
| HM250* | Turning grade for wide application in the stainless steel range. Finishing to roughing. | ◐ | ● | | | ○ | |
| HS220* | Excellent for heat resistance and titanium alloys | | ○ | | | ● | |
| UD2 | Uncoated - Used to cut cast iron, aluminum, non-ferrous alloys, non-metals and most high temp alloys. Provides excellent wear resistance. | | | ○ | ◐ | | |
| HN432* | Ideal grade for aluminum. Low tendency for adhesion. | | | ◐ | ● | | |
| UD22 | TiN coated insert. Suitable for semi-finishing and finishing of high temp alloys. Intended for cast iron machining. | | | ● | | ◐ | |
| UD32 | TiAlN coated insert. Used in high speed medium load applications of stainless steel and finishing to semi-finishing of high temperature alloys. | ◐ | ● | ○ | ○ | ● | |
| HK036* | Stability in a wide range of applications with long tool life. First choice for turning cast iron. | | | ● | | | |
| UD5C | Uncoated cermet grade for semi-finishing and finishing applications at medium to high cutting speeds on carbon and alloyed steels. Also used on stainless. Normally used without coolant. | | ○ | ○ | | | |
| UD5CT | TiAlN coated cermet grade performs extremely well for semi-finish and finish applications in alloyed steels, stainless and high carbon steels. | ● | ◐ | ◐ | | | |
| UD1 | Uncoated - Designed with a polished surface and large rake angle, Intended for machining aluminum and other non-ferrous alloys. Also works well for semi machining on cast iron. | | ◐ | | ● | | |
| HP470* | Suitable for demanding steel milling applications, interrupted cut. | ● | ◐ | | | | |
| HM470* | Stainless steel milling grade. PVD, TiAlN coating. | ◐ | ● | | | | |
| HS470* | First choice for milling heat-resistant alloys. | | ○ | | | ● | |
| HS480* | Extremely heat-resistant tough grade for milling titanium. | | | | | ● | |
| HK430* | Milling grade for cast iron. | | | ● | | | |
| HP600* | Super tough substrate with PVD coating. Excellent for drilling steel and stainless steel. | ● | ◐ | ○ | ○ | ○ | |
| HK356* | Stable cutting performance for drilling cast iron. Suitable for aluminum. Recommended for mild structural steel, difficult chip controlled steel. | ◐ | ● | ● | ◐ | ◐ | |
| HN300* | Drilling Grade for Aluminum | | | | ● | | |
| UD2CBN | A Polycrystalline Cubic Boron Nitride (PCBN) Insert for cast iron, gray cast iron, chilled cast, and powder metal with long tool life. Coolant not recommended for use. | | | ● | | | ◐ |
| UD5CBN | A Polycrystalline Cubic Boron Nitride (PCBN) Insert for precision finishing of hardened steels 50-65 rockwell. Coolant not recommended for use. | | | ◐ | | | ● |
| UD2PCD | Polycrystalline Diamond with Carbide Reinforced Diamond, Sharpness and Low Cutting Pressure allowing tight tolerances. Finishing of all non-ferrous metals and non-metallics. | | | | ● | | |
| UD25 | Uncoated - Used to cut aluminum, brass, copper, nickel base alloys, titanium and non-ferrous materials. | | | ○ | ○ | | |
| UD204 | A PVD TiAlN coated fine grain substrate. Excellent for light to medium feeds on cast iron and semi-finishing to finishing of high temperature alloys. Excellent for high SFM. | ◐ | | ● | | ◐ | |
| UD404 | A PVD TiAlN coated tough general purpose grade. Well suited for milling alloy steels, stainless steel, high temperature alloy steels and hardened steels up to 60 Rc. | ● | ● | ◐ | | ● | |
| UD602 | A CVD coating of Ti A1 ₂ O ₃ & TiN on a tough substrate. It is suitable for light to heavy milling of alloy steel and non alloy steel, even under unfavorable condition. | ◐ | ◐ | | | ◐ | |



ZX3



CDGW Flat Top



CDHB Flat Top

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | | |
|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|---|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 | |
| 913-000-133 | CDGT 1.510.5-ZX3 | | | | | | | | • | | | | | | | | | |
| 913-000-134 | | | | | | | | | | • | | | | | | | | |
| 913-000-132 | | | | | | | | | | | • | | | | | | | |
| 913-000-131 | | | | | | | | | | | | • | | | | | | |
| 913-000-135 | | | | | | | | | | | | | • | | | • | | |
| 913-000-136 | CDGT 1.511-ZX3 | | | | | | | | • | | | | | | | • | | |
| 913-000-139 | | | | | | | | | | • | | | | | | | | |
| 913-000-140 | | | | | | | | | | | • | | | | | | | |
| 913-000-138 | | | | | | | | | | | | • | | | | | | |
| 913-000-137 | | | | | | | | | | | | | • | | | | | |
| 913-000-141 | CDGW 1.510 | | | | | | | | | | | | | | • | | | |
| 913-000-142 | | | | | | | | | | | | | | | | • | | |
| 913-000-145 | | | | | | | | | | • | | | | | | | | |
| 913-000-146 | | | | | | | | | | | • | | | | | | | |
| 913-000-144 | | | | | | | | | | | | • | | | | | | |
| 913-000-143 | CDGW 1.510.5 | | | | | | | | | | | • | | | | | | |
| 913-000-147 | | | | | | | | | | | | | • | | | | | |
| 913-000-148 | | | | | | | | | | | | | | | • | | • | |
| 913-000-151 | | | | | | | | | | • | | | | | | | | |
| 913-000-152 | | | | | | | | | | | • | | | | | | | |
| 913-000-150 | CDGW 1.511 | | | | | | | | | | • | | | | | | | |
| 913-000-149 | | | | | | | | | | | | • | | | | | | |
| 913-000-153 | | | | | | | | | | | | | | | • | | | |
| 913-000-154 | | | | | | | | | | | | | | | | • | | |
| 913-000-157 | | | | | | | | | | • | | | | | | | | • |
| 913-000-158 | CDHB 1.20.60 | | | | | | | | | • | | | | | | | | |
| 913-000-156 | | | | | | | | | | | • | | | | | | | |
| 913-000-155 | | | | | | | | | | | | • | | | | | | |
| 913-000-159 | | | | | | | | | | | | | | | • | | | |
| 913-000-160 | | | | | | | | | | | | | | | | | • | |
| 913-000-163 | CDHB 1.20.60.5 | | | | | | | | | • | | | | | | | | |
| 913-000-164 | | | | | | | | | | | • | | | | | | | |
| 913-000-162 | | | | | | | | | | | | • | | | | | | |
| 913-000-161 | | | | | | | | | | | | | • | | | | | |
| 913-000-165 | | | | | | | | | | | | | | | • | | | |
| 913-000-166 | CDHB 1.20.60.5 | | | | | | | | | | | | | | | • | | |
| 913-000-169 | | | | | | | | | | | | | | | | | • | |
| 913-000-170 | | | | | | | | | | | • | | | | | | | |
| 913-000-168 | | | | | | | | | | | | • | | | | | | |
| 913-000-167 | | | | | | | | | | | | | • | | | | | |
| 913-000-171 | | | | | | | | | | | | | | | • | | | |
| 913-000-172 | | | | | | | | | | | | | | | | • | | |

PACKAGE SIZE OF 10



CM1



CN1



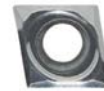
CX1



CX2



ZM1



ZN1



ZX3

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-001 | CCGT 21.50-CM1 | | | • | | | | | | | | | | | | | |
| 914-000-004 | CCGT 32.50.5-CM1 | | | • | | | | | | | | | | | | | |
| 914-000-005 | CCGT 32.50-CM1 | | | • | | | | | | | | | | | | | |
| 914-000-002 | CCGT 21.50-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-003 | CCGT 21.51-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-006 | CCGT 32.51-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-007 | CCGT 32.52-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-010 | CCMT 21.51-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-009 | | | | | • | | | | | | | | | | | | |
| 914-000-011 | | | | • | | | | | | | | | | | | | |
| 914-000-008 | CCMT 21.52-CX1 | | | | | | | • | | | | | | | | | |
| 914-000-013 | | | | • | | | | | | | | | | | | | |
| 914-000-012 | | | | | • | | | | | | | | | | | | |
| 914-000-018 | CCMT 32.51-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-019 | | | | • | | | | | | | | | | | | | |
| 914-000-017 | | | | | • | | | | | | | | | | | | |
| 914-000-016 | CCMT 32.52-CX1 | | | | | | | | • | | | | | | | | |
| 914-000-022 | | | • | | | | | | | | | | | | | | |
| 914-000-023 | | | | • | | | | | | | | | | | | | |
| 914-000-021 | CCMT 431-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-020 | | | | | | | | | • | | | | | | | | |
| 914-000-026 | | | | • | | | | | | | | | | | | | |
| 914-000-025 | CCMT 432-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-024 | | | | | | | | | • | | | | | | | | |
| 914-000-028 | | | | • | | | | | | | | | | | | | |
| 914-000-029 | CCMT 432-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-027 | | | | | | | | | • | | | | | | | | |
| 914-000-015 | | | | • | | | | | | | | | | | | | |
| 914-000-014 | CCMT 32.50.5-CX2 | | | | • | | | | | | | | | | | | |
| 913-000-076 | CCMT 21.51-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-083 | CCMT 32.50.5-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-087 | CCMT 32.51-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-091 | CCMT 32.52-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-095 | CCMT 431-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-099 | CCMT 432-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-072 | CCGX 21.50.5-ZN1 | | | | | | | | | | | | | | | | x |
| 913-000-073 | CCGX 21.51-ZN1 | | | | | | | | | | | | | | | | x |
| 913-000-074 | CCGX 32.51-ZN1 | | | | | | | | | | | | | | | | x |
| 913-000-075 | CCGX 32.52-ZN1 | | | | | | | | | | | | | | | | x |
| 913-000-078 | CCMT 21.51-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-079 | | | | | | | | | | • | | | | | | | |
| 913-000-077 | | | | | | | | | | | | • | | | | | |
| 913-000-081 | CCMT 21.52-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-082 | | | | | | | | | | • | | | | | | | |
| 913-000-080 | | | | | | | | | | | | • | | | | | |
| 913-000-085 | CCMT 32.50.5-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-086 | | | | | | | | | | • | | | | | | | |
| 913-000-084 | | | | | | | | | | | | • | | | | | |
| 913-000-089 | CCMT 32.51-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-090 | | | | | | | | | | • | | | | | | | |
| 913-000-088 | | | | | | | | | | | | • | | | | | |
| 913-000-093 | CCMT 32.52-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-094 | | | | | | | | | | • | | | | | | | |
| 913-000-092 | | | | | | | | | | | | • | | | | | |
| 913-000-097 | CCMT 431-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-098 | | | | | | | | | | • | | | | | | | |
| 913-000-096 | | | | | | | | | | | | • | | | | | |
| 913-000-101 | CCMT 432-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-102 | | | | | | | | | | • | | | | | | | |
| 913-000-100 | | | | | | | | | | | | • | | | | | |



LX6

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 913-000-207 | CPMT 1.81.20.5-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-208 | | | | | | | | | | • | | | | | | | |
| 913-000-206 | | | | | | | | | | | • | | | | | | |
| 913-000-205 | | | | | | | | | | | | • | | | | | |
| 913-000-209 | | | | | | | | | | | | | | | • | | |
| 913-000-210 | | | | | | | | | | | | | | | | • | |
| 913-000-213 | CPMT 1.81.21-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-214 | | | | | | | | | | • | | | | | | | |
| 913-000-212 | | | | | | | | | | | • | | | | | | |
| 913-000-211 | | | | | | | | | | | | • | | | | | |
| 913-000-215 | | | | | | | | | | | | | | | • | | |
| 913-000-216 | | | | | | | | | | | | | | | | • | |
| 913-000-219 | CPMT 21.50.5-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-220 | | | | | | | | | | • | | | | | | | |
| 913-000-218 | | | | | | | | | | | • | | | | | | |
| 913-000-217 | | | | | | | | | | | | • | | | | | |
| 913-000-221 | | | | | | | | | | | | | | | • | | |
| 913-000-222 | | | | | | | | | | | | | | | | • | |
| 913-000-225 | CPMT 21.51-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-226 | | | | | | | | | | • | | | | | | | |
| 913-000-224 | | | | | | | | | | | • | | | | | | |
| 913-000-223 | | | | | | | | | | | | • | | | | | |
| 913-000-227 | | | | | | | | | | | | | | | • | | |
| 913-000-228 | | | | | | | | | | | | | | | | • | |
| 913-000-231 | CPMT 21.52-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-232 | | | | | | | | | | • | | | | | | | |
| 913-000-230 | | | | | | | | | | | • | | | | | | |
| 913-000-229 | | | | | | | | | | | | • | | | | | |
| 913-000-233 | | | | | | | | | | | | | | | • | | |
| 913-000-234 | | | | | | | | | | | | | | | | • | |
| 913-000-237 | CPMT 32.51-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-238 | | | | | | | | | | • | | | | | | | |
| 913-000-236 | | | | | | | | | | | • | | | | | | |
| 913-000-235 | | | | | | | | | | | | • | | | | | |
| 913-000-241 | CPMT 32.52-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-242 | | | | | | | | | | • | | | | | | | |
| 913-000-240 | | | | | | | | | | | • | | | | | | |
| 913-000-239 | | | | | | | | | | | | • | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-049 | DCGT 21.50-CM1 | | | • | | | | | | | | | | | | | |
| 914-000-052 | DCGT 32.50-CM1 | | | • | | | | | | | | | | | | | |
| 914-000-050 | DCGT 21.50-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-051 | DCGT 21.51-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-053 | DCGT 32.51-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-054 | DCGT 32.52-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-059 | | | • | | | | | | | | | | | | | | |
| 914-000-058 | DCMT 21.51-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-057 | | | | | | | • | | | | | | | | | | |
| 914-000-061 | DCMT 21.52-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-060 | | | | | • | | | | | | | | | | | | |
| 914-000-066 | | • | | | | | | | | | | | | | | | |
| 914-000-067 | DCMT 32.51-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-065 | | | | | • | | | | | | | | | | | | |
| 914-000-064 | | | | | | | • | | | | | | | | | | |
| 914-000-070 | | • | | | | | | | | | | | | | | | |
| 914-000-071 | DCMT 32.52-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-069 | | | | | • | | | | | | | | | | | | |
| 914-000-068 | | | | | | | • | | | | | | | | | | |
| 914-000-056 | DCMT 21.50.5-CX2 | | • | | | | | | | | | | | | | | |
| 914-000-055 | | | | | • | | | | | | | | | | | | |
| 914-000-063 | DCMT 32.50.5-CX2 | | • | | | | | | | | | | | | | | |
| 914-000-062 | | | | | • | | | | | | | | | | | | |
| 913-000-258 | | | | | | | | • | | | | | | | | | |
| 913-000-259 | DCMT 21.50.5-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-257 | | | | | | | | | | • | | | | | | | |
| 913-000-260 | DCMT 21.50.5-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-261 | DCMT 21.51-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-265 | DCMT 32.51-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-269 | DCMT 32.52-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-253 | DCGX 21.50.5-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-254 | DCGX 21.51-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-255 | DCGX 32.51-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-256 | DCGX 32.52-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-263 | | | | | | | | • | | | | | | | | | |
| 913-000-264 | DCMT 21.51-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-262 | | | | | | | | | | • | | | | | | | |
| 913-000-267 | | | | | | | | • | | | • | | | | | | |
| 913-000-268 | DCMT 32.51-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-266 | | | | | | | | | | • | | | | | | | |
| 913-000-271 | | | | | | | | • | | | | | | | | | |
| 913-000-272 | DCMT 32.52-ZX3 | | | | | | | | • | | | | | | | | |
| 913-000-270 | | | | | | | | | | • | | | | | | | |
| 913-000-302 | | | | | | | | • | | | | | | | | | |
| 913-000-303 | | | | | | | | | • | | | | | | | | |
| 913-000-300 | DPMT 32.51-LX6 | | | | | | | | | • | | | | | | | |
| 913-000-299 | | | | | | | | | | | • | | | | | | |
| 913-000-301 | | | | | | | | | | | | • | | | | | |
| 913-000-307 | | | | | | | | • | | | | | | | | | |
| 913-000-308 | | | | | | | | | • | | | | | | | | |
| 913-000-305 | DPMT 32.52-LX6 | | | | | | | | | • | | | | | | | |
| 913-000-304 | | | | | | | | | | | • | | | | | | |
| 913-000-306 | | | | | | | | | | | | • | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-130 | SCGT 32.51-CN1 | | | | | | • | | | | | | | | | | |
| 914-000-133 | | | • | | | | | | | | | | | | | | |
| 914-000-132 | SCMT 32.51-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-131 | | | | | | | | • | | | | | | | | | |
| 914-000-136 | | | • | | | | | | | | | | | | | | |
| 914-000-135 | SCMT 32.52-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-134 | | | | | | | | • | | | | | | | | | |
| 914-000-138 | | | • | | | | | | | | | | | | | | |
| 914-000-137 | SCMT 431-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-141 | | | • | | | | | | | | | | | | | | |
| 914-000-140 | SCMT 432-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-139 | | | | | | | | • | | | | | | | | | |
| 913-000-379 | | | | | | | | | • | | | | | | | | |
| 913-000-380 | | | | | | | | | | • | | | | | | | |
| 913-000-377 | SCMT 21.51-LX6 | | | | | | | | | | • | | | | | | |
| 913-000-378 | | | | | | | | | | | | • | | | | | |
| 913-000-381 | SCMT 32.51-LX6 | | | | | | | | | | | • | | | | | |
| 913-000-385 | SCMT 32.52-LX6 | | | | | | | | | | | • | | | | | |
| 913-000-382 | SCMT 32.51-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-386 | SCMT 32.52-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-374 | SCGX 32.50.5-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-375 | SCGX 32.51-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-376 | SCGX 32.52-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-383 | | | | | | | | | • | | | | | | | | |
| 913-000-384 | SCMT 32.51-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-387 | | | | | | | | | • | | | | | | | | |
| 913-000-388 | SCMT 32.52-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-389 | | | | | | | | | • | | | | | | | | |
| 913-000-390 | SCMT 431-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-391 | | | | | | | | | • | | | | | | | | |
| 913-000-392 | SCMT 432-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-396 | | | | | | | | | • | | | | | | | | |
| 913-000-397 | | | | | | | | | | • | | | | | | | |
| 913-000-394 | SCMW 21.51 | | | | | | | | | | • | | | | | | |
| 913-000-393 | | | | | | | | | | | • | | | | | | |
| 913-000-395 | | | | | | | | | | | | • | | | | | |

PACKAGE SIZE OF 10



CX1



LX6



ZM1



ZN1



ZX3

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-151 | | | • | | | | | | | | | | | | | | |
| 914-000-150 | TCMT 21.51-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-149 | | | | | | | | • | | | | | | | | | |
| 914-000-154 | | | • | | | | | | | | | | | | | | |
| 914-000-153 | TCMT 21.52-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-152 | | | | | | | | • | | | | | | | | | |
| 914-000-157 | | | • | | | | | | | | | | | | | | |
| 914-000-156 | TCMT 32.51-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-155 | | | | | | | | • | | | | | | | | | |
| 914-000-160 | | | • | | | | | | | | | | | | | | |
| 914-000-159 | TCMT 32.52-CX1 | | | | • | | | | | | | | | | | | |
| 914-000-158 | | | | | | | | • | | | | | | | | | |
| 913-000-437 | TCMT 1.21.20.5-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-438 | | | | | | | | | | • | | | | | | | |
| 913-000-436 | | | | | | | | | | | | • | | | | | |
| 913-000-439 | TCMT 21.51-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-446 | TCMT 32.51-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-451 | TCMT 32.52-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-431 | TCGX 21.50.5-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-432 | TCGX 21.51-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-433 | TCGX 21.52-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-434 | TCGX 32.51-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-435 | TCGX 32.52-ZN1 | | | | | | | | | | | | | | | | • |
| 913-000-441 | | | | | | | | | • | | | | | | | | |
| 913-000-442 | TCMT 21.51-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-440 | | | | | | | | | | | • | | | | | | |
| 913-000-444 | | | | | | | | | • | | | | | | | | |
| 913-000-445 | TCMT 21.52-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-443 | | | | | | | | | | | • | | | | | | |
| 913-000-449 | | | | | | | | | • | | | | | | | | |
| 913-000-450 | TCMT 32.51-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-447 | | | | | | | | | | | • | | | | | | |
| 913-000-448 | | | | | | | | | | | | • | | | | | |
| 913-000-454 | | | | | | | | | • | | | | | | | | |
| 913-000-455 | TCMT 32.52-ZX3 | | | | | | | | | • | | | | | | | |
| 913-000-452 | | | | | | | | | | | | • | | | | | |
| 913-000-453 | | | | | | | | | | | | | • | | | | |

PACKAGE SIZE OF 10



LX6

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|----------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 913-000-509 | TPMT 21.51-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-510 | | | | | | | | | | • | | | | | | | |
| 913-000-508 | | | | | | | | | | | | • | | | | | |
| 913-000-507 | | | | | | | | | | | | • | | | | | |
| 913-000-513 | TPMT 21.52-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-514 | | | | | | | | | | • | | | | | | | |
| 913-000-512 | | | | | | | | | | | | • | | | | | |
| 913-000-511 | | | | | | | | | | | | • | | | | | |
| 913-000-517 | TPMT 32.51-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-518 | | | | | | | | | | • | | | | | | | |
| 913-000-516 | | | | | | | | | | | | • | | | | | |
| 913-000-515 | | | | | | | | | | | | • | | | | | |
| 913-000-521 | TPMT 32.52-LX6 | | | | | | | | • | | | | | | | | |
| 913-000-522 | | | | | | | | | | • | | | | | | | |
| 913-000-520 | | | | | | | | | | | | • | | | | | |
| 913-000-519 | | | | | | | | | | | | • | | | | | |



CP1



ZM1



ZX3

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-175 | VBMT 331-CP1 | | • | | | | | | | | | | | | | | |
| 914-000-176 | VBMT 332-CP1 | | • | | | | | | | | | | | | | | |
| 913-000-539 | VBMT 331-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-542 | VBMT 332-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-535 | VBMT 21.50.5-ZX3 | | | | | | | • | | | | | | | | | |
| 913-000-536 | | | | | | | | | • | | | | | | | | |
| 913-000-537 | VBMT 21.51-ZX3 | | | | | | | • | | | | | | | | | |
| 913-000-538 | | | | | | | | | • | | | | | | | | |
| 913-000-540 | VBMT 331-ZX3 | | | | | | | • | | | | | | | | | |
| 913-000-541 | | | | | | | | | • | | | | | | | | |
| 913-000-543 | VBMT 332-ZX3 | | | | | | | • | | | | | | | | | |
| 913-000-544 | | | | | | | | | • | | | | | | | | |

PACKAGE SIZE OF 10



CX1



LX6



ZX3

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-185 | WCMT 21.51-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-184 | | | | | • | | | | | | | | | | | | |
| 914-000-187 | WCMT 21.52-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-186 | | | | | • | | | | | | | | | | | | |
| 914-000-189 | WCMT 32.51-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-188 | | | | | • | | | | | | | | | | | | |
| 914-000-191 | WCMT 32.52-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-190 | | | | | • | | | | | | | | | | | | |
| 913-000-579 | WCMT 21.51-LX6 | | | | | | | • | | | | | | | | | |
| 913-000-580 | | | | | | | | | • | | | | | | | | |
| 913-000-578 | | | | | | | | | | | • | | | | | | |
| 913-000-577 | WCMT 21.52-LX6 | | | | | | | | | | • | | | | | | |
| 913-000-583 | | | | | | | | | | | | • | | | | | |
| 913-000-584 | | | | | | | | | | | | | • | | | | |
| 913-000-582 | WCMT 32.51-LX6 | | | | | | | | | | | | | | | | |
| 913-000-581 | | | | | | | | | | | | | | | | | |
| 913-000-587 | | | | | | | | | | | | | | | | | |
| 913-000-588 | WCMT 32.52-LX6 | | | | | | | | | | | | | | | | |
| 913-000-586 | | | | | | | | | | | | | | | | | |
| 913-000-585 | | | | | | | | | | | | | | | | | |
| 913-000-591 | WCMT 32.51-LX6 | | | | | | | | | | | | | | | | |
| 913-000-592 | | | | | | | | | | | | | | | | | |
| 913-000-590 | | | | | | | | | | | | | | | | | |
| 913-000-589 | WCMT 1.210.5-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-563 | | | | | | | | | | | | | | | | | |
| 913-000-564 | | | | | | | | | | | | | | | | | |
| 913-000-562 | WCMT 1.211-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-561 | | | | | | | | | | | | | | | | | |
| 913-000-567 | | | | | | | | | | | | | | | | | |
| 913-000-568 | WCMT 1.51.50.5-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-566 | | | | | | | | | | | | | | | | | |
| 913-000-565 | | | | | | | | | | | | | | | | | |
| 913-000-571 | WCMT 1.51.51-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-572 | | | | | | | | | | | | | | | | | |
| 913-000-570 | | | | | | | | | | | | | | | | | |
| 913-000-569 | WCMT 1.51.51-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-575 | | | | | | | | | | | | | | | | | |
| 913-000-576 | | | | | | | | | | | | | | | | | |
| 913-000-574 | WCMT 1.51.51-ZX3 | | | | | | | | | | | | | | | | |
| 913-000-573 | | | | | | | | | | | | | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-036 | CNMG 321-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-037 | CNMG 322-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-038 | CNMG 431-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-042 | CNMG 432-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-030 | CNGP 431-CM3 | | | • | | | | | | | | | | | | | |
| 914-000-031 | CNGP 432-CM3 | | | • | | | | | | | | | | | | | |
| 914-000-047 | CNMG 543-CP2 | | • | | | | | | | | | | | | | | |
| 914-000-048 | CNMG 643-CP2 | | • | | | | | | | | | | | | | | |
| 914-000-039 | CNMG 431-CS1 | | | | | • | | | | | | | | | | | |
| 914-000-040 | CNMG 431-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-041 | CNMG 432-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-044 | CNMG 432-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-045 | CNMG 432-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-043 | CNMG 433-CX1 | | | | | | | • | | | | | | | | | |
| 914-000-046 | CNMG 433-CX1 | | | | | | | • | | | | | | | | | |
| 913-000-177 | CNMG 321-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-181 | CNMG 322-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-185 | CNMG 431-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-189 | CNMG 432-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-193 | CNMG 542-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-196 | CNMG 543-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-199 | CNMG 642-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-202 | CNMG 643-ZK1 | | | | | | | | | | • | | | | | | |
| 913-000-178 | CNMG 321-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-182 | CNMG 322-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-186 | CNMG 431-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-190 | CNMG 432-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-179 | CNMG 321-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-180 | CNMG 322-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-183 | CNMG 322-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-184 | CNMG 322-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-187 | CNMG 431-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-188 | CNMG 431-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-191 | CNMG 432-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-192 | CNMG 432-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-194 | CNMG 542-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-195 | CNMG 542-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-197 | CNMG 543-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-198 | CNMG 543-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-200 | CNMG 642-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-201 | CNMG 642-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-203 | CNMG 643-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-204 | CNMG 643-ZP1 | | | | | | | | • | | | | | | | | |
| 914-000-032 | CNMA 432 | | | | | | | | • | | | | | | | | |
| 914-000-033 | CNMA 433 | | | | | | | | • | | | | | | | | |
| 914-000-034 | CNMA 543 | | | | | | | | • | | | | | | | | |
| 914-000-035 | CNMA 643 | | | | | | | | • | | | | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | | |
|-------------|--------------|--------------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|--|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 | |
| 914-000-075 | DNMG 331-CM2 | | | | • | | | | | | | | | | | | | |
| 914-000-077 | DNMG 332-CM2 | | | | • | | | | | | | | | | | | | |
| 914-000-079 | DNMG 431-CM2 | | | | • | | | | | | | | | | | | | |
| 914-000-081 | DNMG 432-CM2 | | | | • | | | | | | | | | | | | | |
| 914-000-072 | DNGP 431-CM3 | | | • | | | | | | | | | | | | | | |
| 914-000-076 | DNMG 331-CX1 | | • | | | | | | | | | | | | | | | |
| 914-000-078 | DNMG 332-CX1 | | • | | | | | | | | | | | | | | | |
| 914-000-080 | DNMG 431-CX1 | | • | | | | | | | | | | | | | | | |
| 914-000-082 | DNMG 432-CX1 | | • | | | | | | | | | | | | | | | |
| 913-000-294 | DNMG 542-LX2 | | | | | | | • | | | | | | | | | | |
| 913-000-295 | | | | | | | | | • | | | | | | | | | |
| 913-000-293 | | | | | | | | | | | • | | | | | | | |
| 913-000-297 | DNMG 543-LX2 | | | | | | | • | | | | | | | | | | |
| 913-000-298 | | | | | | | | | • | | | | | | | | | |
| 913-000-296 | | | | | | | | | | | • | | | | | | | |
| 913-000-277 | | DNMG 331-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-281 | DNMG 332-ZM1 | | | | | | | | | | | | | • | | | | |
| 913-000-285 | DNMG 431-ZM1 | | | | | | | | | | | | | • | | | | |
| 913-000-289 | DNMG 432-ZM1 | | | | | | | | | | | | | • | | | | |
| 913-000-278 | DNMG 331-ZP1 | | | | | | | • | | | | | | | | | | |
| 913-000-279 | | | | | | | | | | • | | | | | | | | |
| 913-000-282 | DNMG 332-ZP1 | | | | | | | • | | | | | | | | | | |
| 913-000-283 | | | | | | | | | | • | | | | | | | | |
| 913-000-286 | DNMG 431-ZP1 | | | | | | | • | | | | | | | | | | |
| 913-000-287 | | | | | | | | | | • | | | | | | | | |
| 913-000-290 | DNMG 432-ZP1 | | | | | | | • | | | | | | | | | | |
| 913-000-291 | | | | | | | | | | • | | | | | | | | |
| 913-000-280 | DNMG 331-ZX2 | | | | | | | | | | | | | • | | | | |
| 913-000-284 | DNMG 332-ZX2 | | | | | | | | | | | | | • | | | | |
| 913-000-288 | DNMG 431-ZX2 | | | | | | | | | | | | | • | | | | |
| 913-000-292 | DNMG 432-ZX2 | | | | | | | | | | | | | • | | | | |
| 914-000-073 | DNMA 431 | | | | | | | | • | | | | | | | | | |
| 914-000-074 | DNMA 432 | | | | | | | | • | | | | | | | | | |

PACKAGE SIZE OF 10



LX2



RNMA Flat Top

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 913-000-363 | RNMG 32-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-364 | | | | | | | | | | • | | | | | | | |
| 913-000-362 | | | | | | | | | | | | • | | | | | |
| 913-000-366 | RNMG 43-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-367 | | | | | | | | | | • | | | | | | | |
| 913-000-365 | | | | | | | | | | | | • | | | | | |
| 913-000-369 | RNMG 54-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-370 | | | | | | | | | | • | | | | | | | |
| 913-000-368 | | | | | | | | | | | | • | | | | | |
| 913-000-372 | RNMG 64-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-373 | | | | | | | | | | • | | | | | | | |
| 913-000-371 | | | | | | | | | | | | • | | | | | |
| 914-000-129 | RNMA 43 | | | | | | | | • | | | | | | | | |

PACKAGE SIZE OF 10



CP2



CS1



CX1



ZK1



ZM1



ZP1



ZX2



SNMA Flat Top

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-147 | SNMG 543-CP2 | | • | | | | | | | | | | | | | | |
| 914-000-148 | SNMG 643-CP2 | | • | | | | | | | | | | | | | | |
| 914-000-144 | SNMG 432-CS1 | | | | | • | | | | | | | | | | | |
| 914-000-146 | SNMG 432-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-145 | SNMG 643-ZK1 | | | | | | | • | | | | | | | | | |
| 913-000-411 | SNMG 644-ZK1 | | | | | | | | | • | | | | | | | |
| 913-000-398 | SNMG 431-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-402 | SNMG 432-ZM1 | | | | | | | | | | | | • | | | | |
| 913-000-399 | SNMG 431-ZP1 | | | | | | | • | | | | | | | | | |
| 913-000-400 | SNMG 432-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-403 | SNMG 432-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-404 | SNMG 542-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-406 | SNMG 542-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-407 | SNMG 543-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-408 | SNMG 643-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-412 | SNMG 644-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-413 | SNMG 644-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-415 | SNMG 644-ZP1 | | | | | | | • | | • | | | | | | | |
| 913-000-416 | SNMG 431-ZX2 | | | | | | | | | | • | | | | | | |
| 913-000-401 | SNMG 432-ZX2 | | | | | | | | | | • | | | | | | |
| 913-000-405 | SNMG 543-ZX2 | | | | | | | | | | • | | | | | | |
| 914-000-142 | SNMA 432 | | | | | | | • | | | | | | | | | |
| 914-000-143 | SNMA 543 | | | | | | | • | | | | | | | | | |

PACKAGE SIZE OF 10



CM2



CS1



CX1



LX2



ZM1



ZP1



ZX2



TNMA Flat Top

| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-164 | TNMG 331-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-167 | TNMG 332-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-168 | TNMG 332-CS1 | | | | | • | | | | | | | | | | | |
| 914-000-165 | TNMG 331-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-166 | TNMG 331-CX1 | • | • | | | | | | | | | | | | | | |
| 914-000-170 | TNMG 332-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-171 | TNMG 332-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-169 | TNMG 431-CX1 | | • | | | | | • | | | | | | | | | |
| 914-000-172 | TNMG 431-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-174 | TNMG 432-CX1 | | • | | | | | | | | | | | | | | |
| 914-000-173 | TNMG 432-CX1 | | | | | | | • | | | | | | | | | |
| 913-000-490 | TNMG 542-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-491 | TNMG 542-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-489 | TNMG 542-LX2 | | | | | | | | | • | | | | | | | |
| 913-000-493 | TNMG 543-LX2 | | | | | | | | • | | | | | | | | |
| 913-000-494 | TNMG 543-LX2 | | | | | | | | | • | | | | | | | |
| 913-000-492 | TNMG 543-LX2 | | | | | | | | | | • | | | | | | |
| 913-000-473 | TNMG 331-ZM1 | | | | | | | | | | | • | | | | | |
| 913-000-477 | TNMG 332-ZM1 | | | | | | | | | | | • | | | | | |
| 913-000-481 | TNMG 431-ZM1 | | | | | | | | | | | • | | | | | |
| 913-000-485 | TNMG 432-ZM1 | | | | | | | | | | | • | | | | | |
| 913-000-474 | TNMG 331-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-475 | TNMG 331-ZP1 | | | | | | | | | • | | | | | | | |
| 913-000-478 | TNMG 332-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-479 | TNMG 332-ZP1 | | | | | | | | | • | | | | | | | |
| 913-000-482 | TNMG 431-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-483 | TNMG 431-ZP1 | | | | | | | | | • | | | | | | | |
| 913-000-486 | TNMG 432-ZP1 | | | | | | | | • | | | | | | | | |
| 913-000-487 | TNMG 432-ZP1 | | | | | | | | | • | | | | | | | |
| 913-000-476 | TNMG 331-ZX2 | | | | | | | | | | | • | | | | | |
| 913-000-480 | TNMG 332-ZX2 | | | | | | | | | | | • | | | | | |
| 913-000-484 | TNMG 431-ZX2 | | | | | | | | | | | • | | | | | |
| 913-000-488 | TNMG 432-ZX2 | | | | | | | | | | | • | | | | | |
| 914-000-161 | TNMA 332 | | | | | | | | • | | | | | | | | |
| 914-000-162 | TNMA 432 | | | | | | | | • | | | | | | | | |
| 914-000-163 | TNMA 543 | | | | | | | | • | | | | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | | |
|-------------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|--|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 | |
| 914-000-180 | VNMG 332-CM2 | | | | • | | | | | | | | | | | | | |
| 914-000-181 | VNMG 332-CS1 | | | | | • | | | | | | | | | | | | |
| 914-000-178 | VNMG 331-CX1 | • | | | | | | | | | | | | | | | | |
| 914-000-179 | | | • | | | | | | | | | | | | | | | |
| 914-000-182 | VNMG 332-CX1 | • | | | | | | | | | | | | | | | | |
| 914-000-183 | | | | • | | | | | | | | | | | | | | |
| 913-000-559 | VNMG 432-LX3 | | | | | | | • | | | | | | | | | | |
| 913-000-560 | | | | | | | | | • | | | | | | | | | |
| 913-000-558 | | | | | | | | | | • | | | | | | | | |
| 913-000-557 | | | | | | | | | | | • | | | | | | | |
| 913-000-549 | VNMG 331-ZM1 | | | | | | | | | | | | | • | | | | |
| 913-000-553 | VNMG 332-ZM1 | | | | | | | | | | | | | • | | | | |
| 913-000-551 | VNMG 331-ZX2 | | | | | | | • | | | | | | | | | | |
| 913-000-552 | | | | | | | | | • | | | | | | | | | |
| 913-000-550 | | | | | | | | | | • | | | | | | | | |
| 913-000-555 | VNMG 332-ZX2 | | | | | | | • | | | | | | | | | | |
| 913-000-556 | | | | | | | | | • | | | | | | | | | |
| 913-000-554 | | | | | | | | | | • | | | | | | | | |
| 914-000-177 | VNMA 332 | | | | | | | | • | | | | | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | DESIGNATION | Grade | | | | | | | | | | | | | | | |
|-------------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|------|------|------|-------|-----|
| | | HP230 | HP250 | HM240 | HM250 | HS220 | HN432 | HK036 | UD51 | UD52 | UD21 | UD2 | UD22 | UD32 | UD5C | UD5CT | UD1 |
| 914-000-199 | WNMG 432-CM2 | | | | • | | | | | | | | | | | | |
| 914-000-200 | WNMG 432-CS1 | | | | | • | | | | | | | | | | | |
| 914-000-193 | WNMG 331-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-194 | | | | • | | | | | | | | | | | | | |
| 914-000-195 | WNMG 332-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-196 | | | | • | | | | | | | | | | | | | |
| 914-000-197 | WNMG 431-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-198 | | | | • | | | | | | | | | | | | | |
| 914-000-202 | WNMG 432-CX1 | • | | | | | | | | | | | | | | | |
| 914-000-203 | | | | • | | | | | | | | | | | | | |
| 914-000-201 | WNMG 433-CX1 | | | | | | | • | | | | | | | | | |
| 914-000-204 | | | | | | | | | • | | | | | | | | |
| 913-000-618 | WNMG 331-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-622 | WNMG 332-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-626 | WNMG 431-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-631 | WNMG 432-ZM1 | | | | | | | | | | | | | • | | | |
| 913-000-619 | WNMG 331-ZP1 | | | | | | | • | | | | | | | | | |
| 913-000-620 | | | | | | | | | • | | | | | | | | |
| 913-000-623 | WNMG 332-ZP1 | | | | | | | • | | | | | | | | | |
| 913-000-624 | | | | | | | | | • | | | | | | | | |
| 913-000-627 | WNMG 431-ZP1 | | | | | | | • | | | | | | | | | |
| 913-000-628 | | | | | | | | | • | | | | | | | | |
| 913-000-632 | WNMG 432-ZP1 | | | | | | | • | | | | | | | | | |
| 913-000-633 | | | | | | | | | • | | | | | | | | |
| 913-000-621 | WNMG 331-ZX2 | | | | | | | | | | • | | | | | | |
| 913-000-625 | WNMG 332-ZX2 | | | | | | | | | | • | | | | | | |
| 913-000-629 | WNMG 431-ZX2 | | | | | | | | | | • | | | | | | |
| 913-000-634 | WNMG 432-ZX2 | | | | | | | | | | • | | | | | | |
| 914-000-192 | WNMA 432 | | | | | | | | • | | | | | | | | |

PACKAGE SIZE OF 10



| PRODUCT # | Designation | UD5CBN | UD2CBN | UD2PCD |
|-------------|--------------|--------|--------|--------|
| 913-000-062 | | • | | |
| 913-000-060 | CCGW 21.51-1 | | • | |
| 913-000-061 | | | | • |
| 913-000-065 | | • | | |
| 913-000-063 | CCGW 21.52-1 | | • | |
| 913-000-064 | | | | • |
| 913-000-068 | | • | | |
| 913-000-066 | CCGW 32.51-2 | | • | |
| 913-000-067 | | | | • |
| 913-000-071 | | • | | |
| 913-000-069 | CCGW 32.52-2 | | • | |
| 913-000-070 | | | | • |
| 913-000-174 | CNGA 431-2 | • | | |
| 913-000-173 | | | • | |
| 913-000-176 | CNGA 432-2 | • | | |
| 913-000-175 | | | • | |
| 913-000-248 | | • | | |
| 913-000-246 | DCGW 21.51-1 | | • | |
| 913-000-247 | | | | • |
| 913-000-250 | DCGW 32.51-2 | • | | |
| 913-000-249 | | | • | |
| 913-000-252 | DCGW 32.52-2 | • | | |
| 913-000-251 | | | • | |
| 913-000-274 | DNGA 431-2 | • | | |
| 913-000-273 | | | • | |
| 913-000-276 | DNGA 432-2 | • | | |
| 913-000-275 | | | • | |

PACKAGE SIZE OF 1



| PRODUCT # | Designation | UD51 | UD25 |
|-------------|------------------|------|------|
| 913-000-460 | TDHB 1.280.750.1 | • | |
| 913-000-459 | | | • |
| 913-000-462 | TDHB 1.280.750.5 | • | |
| 913-000-461 | | | • |
| 913-000-464 | TDHB 1.280.751 | • | |
| 913-000-463 | | | • |
| 913-000-495 | TPCB 220.5 | • | |
| 913-000-496 | | | • |
| 913-000-498 | TPCB 221 | • | |
| 913-000-497 | | | • |
| 913-000-500 | TPCB 222 | • | |
| 913-000-499 | | | • |
| 913-000-501 | TPCH 220.5-SP1 | • | |
| 913-000-502 | TPCH 221-SP1 | • | |
| 913-000-456 | TD 320.5 | • | |
| 913-000-457 | TD 321 | • | |
| 913-000-458 | TD 322 | • | |
| 913-000-504 | TPGH 321-SX1 | • | |
| 913-000-503 | | | |
| 913-000-506 | TPGH 322-SX1 | • | |
| 913-000-505 | | | |

PACKAGE SIZE OF 10



| PRODUCT # | Designation | UD5CBN | UD2CBN | UD2PCD |
|-------------|--------------|--------|--------|--------|
| 913-000-420 | TCGW 21.51-1 | | • | |
| 913-000-421 | | | | • |
| 913-000-424 | TCGW 21.52-1 | • | | |
| 913-000-422 | | | • | |
| 913-000-423 | | | | • |
| 913-000-427 | TCGW 32.51-1 | • | | |
| 913-000-425 | | | • | |
| 913-000-426 | | | | • |
| 913-000-430 | TCGW 32.52-1 | • | | |
| 913-000-428 | | | • | |
| 913-000-429 | | | | • |
| 913-000-466 | TNGA 331-1 | • | | |
| 913-000-465 | | | • | |
| 913-000-468 | TNGA 332-1 | • | | |
| 913-000-467 | | | • | |
| 913-000-531 | VBGW 21.51-1 | | | • |
| 913-000-532 | VBGW 21.52-1 | | | • |
| 913-000-533 | VBGW 331-1 | | | • |
| 913-000-534 | VBGW 332-1 | | | • |
| 913-000-546 | VNGA 331-2 | • | | |
| 913-000-545 | | | • | |
| 913-000-548 | VNGA 332-2 | • | | |
| 913-000-547 | | | • | |

PACKAGE SIZE OF 1



| PRODUCT # | Designation | UD51 |
|-------------|------------------|------|
| 913-000-637 | WPGT 1.510-SP2 | |
| 913-000-636 | WPGT 1.510.5-SP2 | |
| 913-000-638 | WPGT 1.511-SP2 | |
| 913-000-640 | WPGT 21.50-SP2 | |
| 913-000-639 | WPGT 21.50.5-SP2 | |
| 913-000-641 | WPGT 21.51-SP2 | |
| 913-000-642 | WPMT 32.51-SP2 | |
| 913-000-643 | WPMT 32.52-SP2 | |

PACKAGE SIZE OF 10



CCGT



DCGT



| PRODUCT # | Designation | UD2PCD |
|-------------|-------------------|--------|
| 913-000-056 | CCGT 21.51-CB-1 * | |
| 913-000-057 | CCGT 21.52-CB-1 * | |
| 913-000-058 | CCGT 32.51-CB-1 * | |
| 913-000-059 | CCGT 32.52-CB-1 * | |
| 913-000-243 | DCGT 21.51-CB-1 * | |
| 913-000-244 | DCGT 32.51-CB-1 * | |
| 913-000-245 | DCGT 32.52-CB-1 * | |

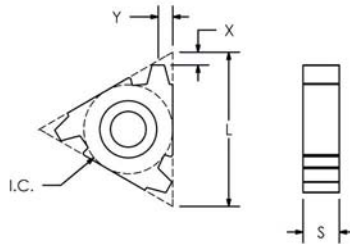
PACKAGE SIZE OF 1

| PRODUCT # | Designation | UD2PCD |
|-------------|-----------------|--------|
| 913-000-529 | VBGT 331-CB-1 * | |
| 913-000-530 | VBGT 332-CB-1 * | |

PACKAGE SIZE OF 1

| PRODUCT # | Designation | UD2PCD |
|-------------|-------------------|--------|
| 913-000-417 | TCGT 21.51-CB-1 * | |
| 913-000-418 | TCGT 32.51-CB-1 * | |
| 913-000-419 | TCGT 32.52-CB-1 * | |

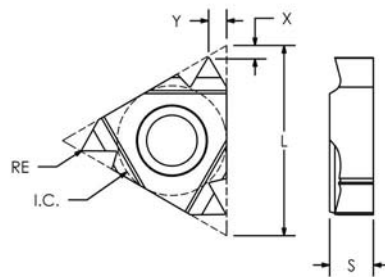
PACKAGE SIZE OF 1



American Acme

| PRODUCT # | Designation | PRODUCT # | Designation | I.C. | L | S | Pitch (tpi) | X | Y | Anvil Right | Anvil Left | UD51 |
|-------------|-------------|-------------|-------------|------|-------|-------|-------------|-------|-------|-------------|------------|------|
| | Right Hand | | Left Hand | | | | | | | | | |
| 913-000-017 | 3IR16ACME | 913-000-005 | 3IL16ACME | 3/8" | 0.630 | 0.156 | 16 | 0.040 | 0.040 | Y13 | YE3 | |
| 913-000-018 | 3IR14ACME | 913-000-006 | 3IL14ACME | 3/8" | 0.630 | 0.156 | 14 | 0.040 | 0.050 | Y13 | YE3 | |
| 913-000-019 | 3IR12ACME | 913-000-007 | 3IL12ACME | 3/8" | 0.630 | 0.156 | 12 | 0.050 | 0.050 | Y13 | YE3 | |
| 913-000-020 | 3IR10ACME | 913-000-008 | 3IL10ACME | 3/8" | 0.630 | 0.156 | 10 | 0.050 | 0.050 | Y13 | YE3 | |
| 913-000-021 | 3IR8ACME | 913-000-009 | 3IL8ACME | 3/8" | 0.630 | 0.156 | 8 | 0.060 | 0.060 | Y13 | YE3 | |

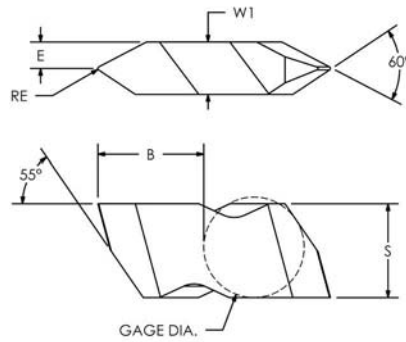
PACKAGE SIZE OF 10



Partial Profile 60°

| PRODUCT # | Designation | PRODUCT # | Designation | I.C. | L | S | Pitch (mm) | Pitch (tpi) | RE | X | Y | Anvil Right | Anvil Left | UD51 |
|-------------|-------------|-------------|-------------|----------|-------|-------|------------|-------------|-------|-------|-------|-------------|------------|------|
| | Right Hand | | Left Hand | | | | | | | | | | | |
| 913-000-004 | 2JIRA60 | 913-000-002 | 2JILA60 | 1/4" | 0.630 | 0.125 | .7-1.5 | 36-18 | 0.004 | 0.040 | 0.045 | Y13 | YE3 | |
| 913-000-003 | 2JIR12UN | 913-000-001 | 2JIL12UN | 1/4" | 0.630 | 0.125 | 1.0-2.0 | 28-12 | 0.004 | 0.030 | 0.035 | Y13 | YE3 | |
| 913-000-022 | 3IRA60 | 913-000-010 | 3ILA60 | 3/8" | 0.630 | 0.156 | .05-1.5 | 48-16 | 0.002 | 0.030 | 0.040 | Y13 | YE3 | |
| 913-000-023 | 3IRG60 | 913-000-011 | 3ILG60 | 3/8" | 0.630 | 0.156 | 1.75-3.0 | 14-8 | 0.006 | 0.050 | 0.070 | Y13 | YE3 | |
| 913-000-024 | 3IRAG60 | 913-000-012 | 3ILAG60 | 3/8" | 0.630 | 0.156 | .05-3.0 | 48-8 | 0.002 | 0.050 | 0.070 | Y13 | YE3 | |
| 913-000-025 | 3JIRA60 | N/A | N/A | 3/8" SCB | 0.630 | 0.156 | .05-1.5 | 48-16 | 0.002 | 0.020 | 0.030 | Y13 | N/A | |
| 913-000-026 | 3JIRG60 | N/A | N/A | 3/8" SCB | 0.630 | 0.156 | 1.75-3.0 | 14-8 | 0.006 | 0.040 | 0.060 | Y13 | N/A | |
| 913-000-027 | 3JIRAG60 | N/A | N/A | 3/8" SCB | 0.630 | 0.156 | .05-3.0 | 48-8 | 0.002 | 0.040 | 0.060 | Y13 | N/A | |

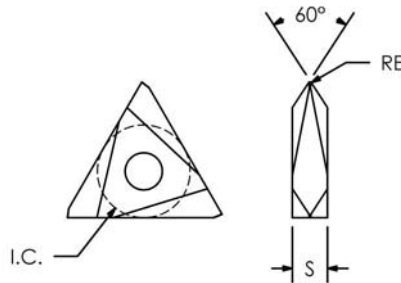
PACKAGE SIZE OF 10



Top Notch Threading

| PRODUCT # | Designation | PRODUCT # | Designation | S | W1 | E | RE | Ext. TPI | Int. TPI | B | GAGE DIA. | UD51 |
|-------------|-------------|-------------|-------------|-------|-------|-------|-----------|----------|----------|-------|-----------|------|
| | Right Hand | | Left Hand | | | | | | | | | |
| 913-000-332 | NTP-2R | 913-000-331 | NTP-2L | 0.219 | 0.150 | 0.075 | .003/.005 | 8-36 | 1-20 | 0.266 | 0.187 | |
| 913-000-334 | NTP-3R | 913-000-333 | NTP-3L | 0.344 | 0.195 | 0.098 | .005/.008 | 6-20 | 5-12 | 0.400 | 0.375 | |
| 913-000-336 | NTP-4R | 913-000-335 | NTP-4L | 0.453 | 0.255 | 0.128 | .005/.008 | 4-20 | 4-12 | 0.629 | 0.375 | |

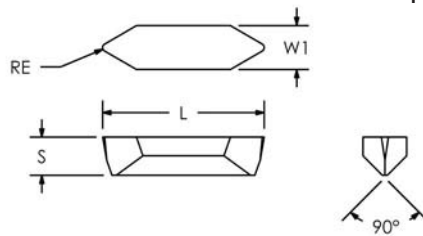
PACKAGE SIZE OF 1



On Edge

| PRODUCT # | Designation Right Hand | I.C. | S | RE | TPI | UD51 |
|-------------|------------------------|-------|-------|-------------|------|------|
| 913-000-469 | TNMA-43NV | 0.500 | 0.187 | 0.003/0.005 | 5-24 | |
| 913-000-470 | TNMA-43NV .010 | 0.500 | 0.187 | 0.001 | 4-20 | |
| 913-000-471 | TNMC-43NV | 0.500 | 0.187 | 0.003/0.005 | 5-24 | |
| 913-000-472 | TNMC-43NV .010 | 0.500 | 0.187 | 0.001 | 4-20 | |

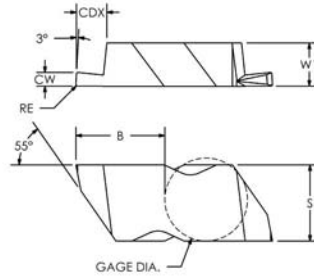
PACKAGE SIZE OF 1



V-Bottom

| PRODUCT # | Designation Right Hand | W1 | L | RE | S | TPI | UD51 |
|-------------|------------------------|-------|-------|-------------|-------|------|------|
| 913-000-523 | V84-NV | 0.250 | 1.000 | 0.006/.008 | 0.250 | 5-20 | |
| 913-000-524 | V84-NV-.010R | 0.250 | 1.000 | 0.010 | 0.250 | 4-20 | |
| 913-000-525 | V84-NV-.020R | 0.250 | 1.000 | 0.020 | 0.250 | 4-12 | |
| 913-000-526 | V84-NV-.025R | 0.250 | 1.000 | 0.025 | 0.250 | 4-8 | |
| 913-000-527 | V84-NV-.038R | 0.250 | 1.000 | 0.038 | 0.250 | 4-6 | |
| 913-000-528 | V85-NV | 0.312 | 1.000 | 0.006/0.008 | 0.250 | 5-20 | |

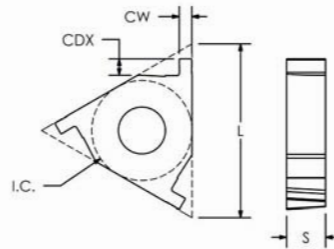
PACKAGE SIZE OF 1



Top Notch Grooving

| PRODUCT # | Designation | PRODUCT # | Designation | S | B | CDX | RE | W1 | CW | GAGE DIA. | UD51 |
|-------------|-------------|-------------|-------------|-------|-------|-------|---------------|-------|-------|-----------|------|
| | Right Hand | | Left Hand | | | | | | | | |
| 913-000-312 | NG-2R W.031 | 913-000-309 | NG-2L W.031 | 0.219 | 0.270 | 0.050 | 0.002 / 0.005 | 0.150 | 0.031 | 0.187 | |
| 913-000-313 | NG-2R W.062 | 913-000-310 | NG-2L W.062 | 0.219 | 0.270 | 0.110 | 0.005 / 0.010 | 0.150 | 0.062 | 0.187 | |
| 913-000-314 | NG-2R W.094 | 913-000-311 | NG-2L W.094 | 0.219 | 0.270 | 0.110 | 0.005 / 0.010 | 0.150 | 0.094 | 0.187 | |
| 913-000-318 | NG-3R W.062 | 913-000-315 | NG-3L W.062 | 0.344 | 0.405 | 0.120 | 0.005 / 0.010 | 0.195 | 0.062 | 0.375 | |
| 913-000-319 | NG-3R W.094 | 913-000-316 | NG-3L W.094 | 0.344 | 0.405 | 0.180 | 0.005 / 0.010 | 0.195 | 0.094 | 0.375 | |
| 913-000-320 | NG-3R W.125 | 913-000-317 | NG-3L W.125 | 0.344 | 0.405 | 0.180 | 0.005 / 0.010 | 0.195 | 0.125 | 0.375 | |
| 913-000-324 | NG-4R W.125 | 913-000-321 | NG-4L W.125 | 0.453 | 0.636 | 0.250 | 0.005 / 0.010 | 0.255 | 0.125 | 0.375 | |
| 913-000-325 | NG-4R W.189 | 913-000-322 | NG-4L W.189 | 0.453 | 0.636 | 0.250 | 0.020 / 0.025 | 0.255 | 0.189 | 0.375 | |
| 913-000-326 | NG-4R W.250 | 913-000-323 | NG-4L W.250 | 0.453 | 0.636 | 0.250 | 0.020 / 0.025 | 0.255 | 0.250 | 0.375 | |
| 913-000-327 | NG-6R W.281 | 913-000-329 | NG-6L W.281 | 0.453 | 0.636 | 0.250 | 0.030 / 0.035 | 0.383 | 0.281 | 0.375 | |
| 913-000-328 | NG-6R W.375 | 913-000-330 | NG-6L W.375 | 0.453 | 0.636 | 0.250 | 0.030 / 0.035 | 0.383 | 0.375 | 0.375 | |

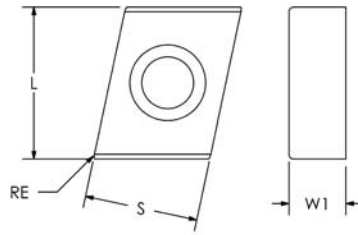
PACKAGE SIZE OF 1



Grooving

| PRODUCT # | Designation Right Hand | I.C. | S | CW | CDX | Anvil Right | UD51 |
|-------------|------------------------|------|-------|-------|-------|-------------|------|
| 913-000-013 | 3IR NG W.031 | 3/8" | 0.156 | 0.031 | 0.050 | Y13M-1.5N | |
| 913-000-014 | 3IR NG W.047 | 3/8" | 0.156 | 0.047 | 0.070 | Y13M-1.5N | |
| 913-000-015 | 3IR NG W.062 | 3/8" | 0.156 | 0.062 | 0.080 | Y13M-1.5N | |
| 913-000-016 | 3IR NG W.093 | 3/8" | 0.156 | 0.093 | 0.070 | Y13 | |

PACKAGE SIZE OF 10



| PRODUCT # | Designation Right Hand | PRODUCT # | Designation Left Hand | L | RE | S | W | UD501 | UD502 | UD201 | UD202 | UD207 | UD101 |
|-------------|---------------------------|-------------|--------------------------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|
| 913-000-111 | CDE-323R02 | 913-000-103 | CDE-323L02 | 0.500 | 0.015 | 0.375 | 0.1875 | | | | • | | |
| 913-000-112 | | 913-000-104 | | 0.500 | 0.015 | 0.375 | 0.1875 | | | | | • | |
| 913-000-113 | CDE-323R05 | 913-000-105 | CDE-323L05 | 0.500 | 0.031 | 0.375 | 0.1875 | | | | | | • |
| 913-000-114 | | 913-000-106 | | 0.500 | 0.031 | 0.375 | 0.1875 | | | • | | | |
| 913-000-115 | | 913-000-107 | | 0.500 | 0.031 | 0.375 | 0.1875 | | | | • | | |
| 913-000-116 | | 913-000-108 | | 0.500 | 0.031 | 0.375 | 0.1875 | | | | | • | |
| 913-000-117 | | 913-000-109 | | 0.500 | 0.031 | 0.375 | 0.1875 | • | | | | | |
| 913-000-118 | | 913-000-110 | | 0.500 | 0.031 | 0.375 | 0.1875 | | • | | | | |
| 913-000-124 | CDE-8X3R05 | 913-000-119 | CDE-8X3L05 | 0.875 | 0.031 | 0.375 | 0.230 | | | | | | • |
| 913-000-127 | | 913-000-120 | | 0.875 | 0.031 | 0.375 | 0.230 | | | | • | | |
| 913-000-128 | | 913-000-121 | | 0.875 | 0.031 | 0.375 | 0.230 | | | | | • | |
| 913-000-129 | | 913-000-122 | | 0.875 | 0.031 | 0.375 | 0.230 | • | | | | | |
| 913-000-130 | | 913-000-123 | | 0.875 | 0.031 | 0.375 | 0.230 | | • | | | | |

- Good
- ◐ Better
- Best

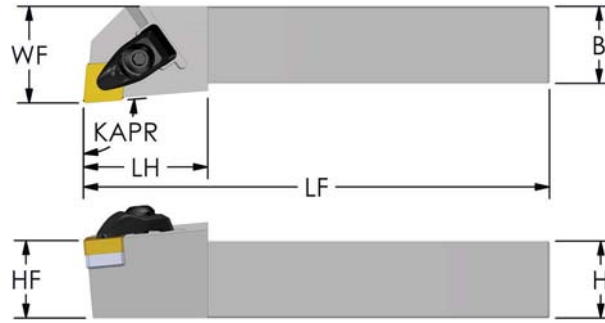
| Grade | Description |
|--------------|--|
| UD501 | TiN Coated Steel Milling Grade |
| UD502 | TiAlN Coated Steel Milling Grade |
| UD201 | TiN Coated Cast Iron Grade |
| UD202 | TiAlN Coated Cast Iron Grade. |
| UD207 | Supreme AlTiN Based Coated For High Wear Resistance |
| UD101 | Coated Milling Insert for machining Aluminum. Excellent when machining all non-Ferrous Material. |

| | Steel | Stainless Steel | Cast Iron | Ferrite Materials | Heat-Resistant | Steel Hardened Metal |
|-------|-------|-----------------|-----------|-------------------|----------------|----------------------|
| | P | M | K | N | S | H |
| UD501 | ● | ○ | ○ | | ◐ | |
| UD502 | ● | ○ | | | ● | |
| UD201 | | ○ | ● | | | |
| UD202 | | ○ | ● | | | |
| UD207 | | ○ | ● | | ○ | |
| UD101 | | | | ● | | |

ARCH[®]
Cutting Tools

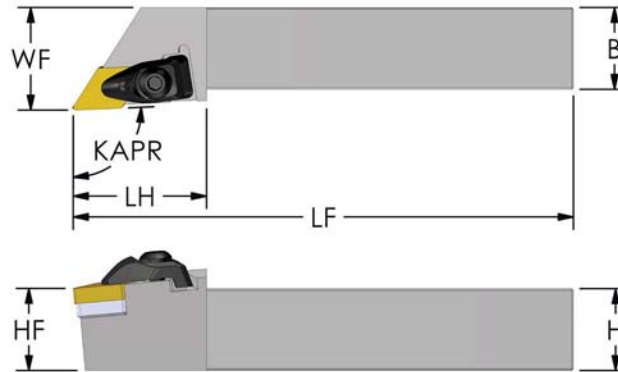
OD TURNING

THE COMPLETE TOOL MAKING AUTHORITY[®]



Negative 80° Diamond (KAPR: 95°)

| PRODUCT # Left Hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Shim Screw | Clamp Assy |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|---------------|---------------|
| 974-000-001 | 974-000-004 | DCLNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 974-000-002 | 974-000-005 | DCLNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 974-000-003 | 974-000-006 | DCLNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |



Negative 55° Diamond (KAPR: 93°)

| PRODUCT # Left Hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Shim Screw | Clamp Assy |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|---------------|---------------|
| 974-000-007 | 974-000-010 | DDJNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.770 | 1.000 | 0.750 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |
| 974-000-008 | 974-000-011 | DDJNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |
| 974-000-009 | 974-000-012 | DDJNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |

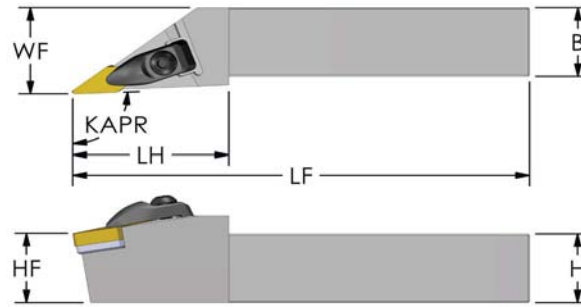
| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

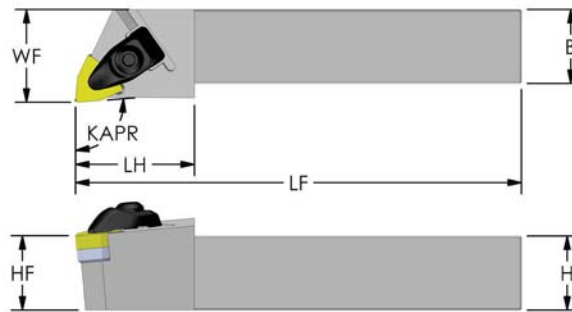
PACKAGE SIZE OF 10



Negative 35° Diamond (KAPR: 93°)



| PRODUCT # Left Hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Shim Screw | Clamp Assy |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|---------------|---------------|
| 974-000-013 | 974-000-016 | DVJNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.770 | 1.000 | 0.750 | 93.0 | VNMG 332 | IVSN-322 | PB3-SS | PB3L-CA |
| 974-000-014 | 974-000-017 | DVJNR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | VNMG 332 | IVSN-322 | PB3-SS | PB3L-CA |
| 974-000-015 | 974-000-018 | DVJNR/L 20-3D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | VNMG 332 | IVSN-322 | PB3-SS | PB3L-CA |



Negative Trigon (KAPR: 95°)



| PRODUCT # Left Hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Shim Screw | Clamp Assy |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|---------------|---------------|
| 974-000-019 | 974-000-022 | DWLNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 95.0 | WNMG 432 | IWSN-433 | PB4-SS | PB4-CA |
| 974-000-020 | 974-000-023 | DWLNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | WNMG 432 | IWSN-433 | PB4-SS | PB4-CA |
| 974-000-021 | 974-000-024 | DWLNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 95.0 | WNMG 432 | IWSN-433 | PB4-SS | PB4-CA |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

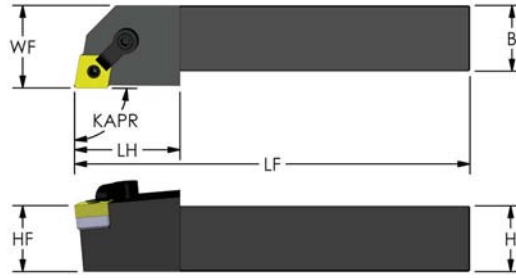
| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

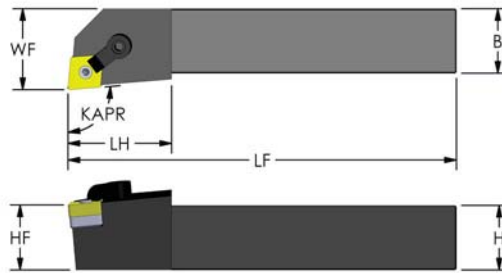
ULTRA-DEX[®]



Negative 80° Diamond (KAPR: 90°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-029 | 974-000-038 | MCGNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 90.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-030 | 974-000-039 | MCGNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-032 | 974-000-041 | MCGNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-035 | 974-000-044 | MCGNR/L 24-4D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-031 | 974-000-040 | MCGNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-033 | 974-000-042 | MCGNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-036 | 974-000-045 | MCGNR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-034 | 974-000-043 | MCGNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-037 | 974-000-046 | MCGNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |



Negative 80° Diamond (KAPR: 95°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-065 | 974-000-075 | MCLNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 95.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-066 | 974-000-076 | MCLNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-069 | 974-000-079 | MCLNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 95.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-067 | 974-000-077 | MCLNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-070 | 974-000-080 | MCLNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.570 | 1.250 | 95.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-072 | 974-000-082 | MCLNR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 95.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-068 | 974-000-078 | MCLNR/L 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-071 | 974-000-081 | MCLNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.570 | 1.250 | 95.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-073 | 974-000-083 | MCLNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 95.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-074 | 974-000-084 | MCLNR/L 24-6E | 1.500 | 1.500 | 7.000 | 1.600 | 2.000 | 1.500 | 95.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

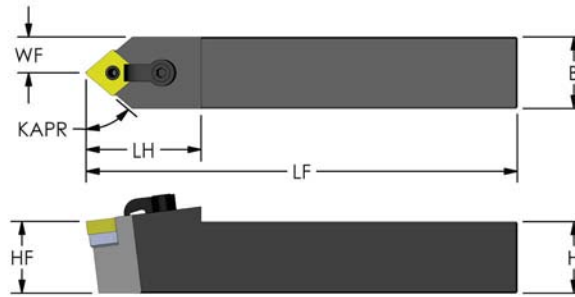
| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

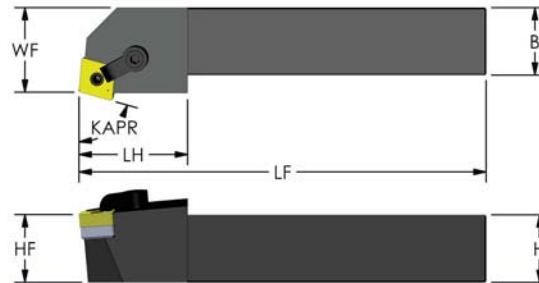
PACKAGE SIZE OF 10

ULTRA-DEX[®]



Negative 80° Diamond (KAPR: 50°)

| PRODUCT # | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|-------------|-------------|-------|-------|-------|-------|--------|-------|------|----------|----------|----------|-------|---------|
| 974-000-085 | MCMNN 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.3750 | 0.750 | 50.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-086 | MCMNN 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 0.5000 | 1.000 | 50.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-088 | MCMNN 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 0.5000 | 1.250 | 50.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-087 | MCMNN 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 0.6250 | 1.000 | 50.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-089 | MCMNN 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 0.6250 | 1.250 | 50.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-090 | MCMNN 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 0.7500 | 1.500 | 50.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-091 | MCMNN 24-6D | 1.500 | 1.500 | 6.000 | 2.050 | 0.7500 | 1.500 | 50.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-092 | MCMNN 24-6E | 1.500 | 1.500 | 7.000 | 2.050 | 0.7500 | 1.500 | 50.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |



Negative 80° Diamond (KAPR: 75°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-093 | 974-000-103 | MCRNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.750 | 0.750 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-094 | 974-000-104 | MCRNR/L 16-4C | 1.000 | 1.000 | 5.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-095 | 974-000-105 | MCRNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-098 | 974-000-108 | MCRNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-101 | 974-000-111 | MCRNR/L 24-4D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-096 | 974-000-106 | MCRNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-099 | 974-000-109 | MCRNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-097 | 974-000-107 | MCRNR/L 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-100 | 974-000-110 | MCRNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-102 | 974-000-112 | MCRNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

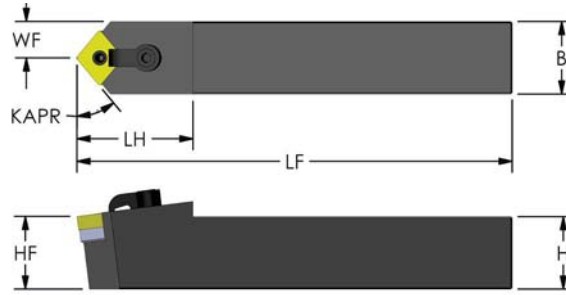
| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

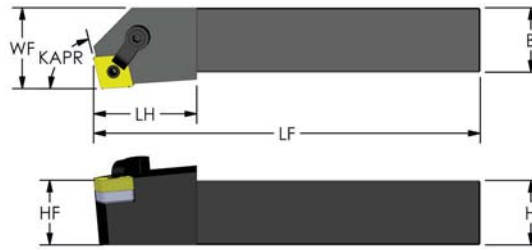
PACKAGE SIZE OF 5

ULTRA-DEX[®]



Negative 80° Diamond (KAPR: 40°)

| PRODUCT # | Designation | B | H | LF | LH | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|-------------|-------------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-113 | MCYNN 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.750 | 40.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-114 | MCYNN 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.000 | 40.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-117 | MCYNN 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.250 | 40.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-115 | MCYNN 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.000 | 40.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-118 | MCYNN 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.250 | 40.0 | CNMG 543 | ICSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-116 | MCYNN 16-6D | 1.000 | 1.000 | 6.000 | 2.050 | 1.000 | 40.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-119 | MCYNN 20-6D | 1.250 | 1.250 | 6.000 | 2.050 | 1.250 | 40.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-120 | MCYNN 24-6D | 1.500 | 1.500 | 6.000 | 2.050 | 1.500 | 40.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |



Negative 80° Diamond (KAPR: 75°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-047 | 974-000-056 | MCKNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-048 | 974-000-057 | MCKNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-051 | 974-000-060 | MCKNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 432 | ICSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-049 | 974-000-058 | MCKNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 543 | ICSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-052 | 974-000-061 | MCKNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 543 | ICSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-050 | 974-000-059 | MCKNR/L 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-053 | 974-000-062 | MCKNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-054 | 974-000-063 | MCKNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-055 | 974-000-064 | MCKNR/L 24-6E | 1.500 | 1.500 | 7.000 | 1.600 | 2.000 | 1.500 | 75.0 | CNMG 643 | ICSN-633 | NL-68 | CL-12 | XNS-510 |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

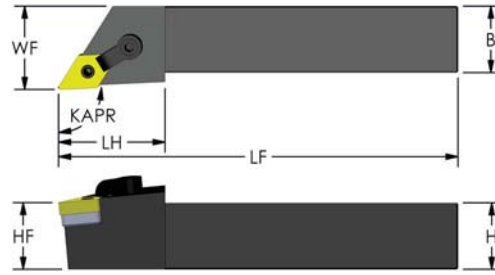
| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

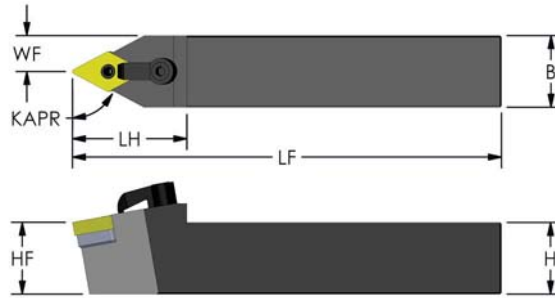
PACKAGE SIZE OF 10

ULTRA-DEX[®]



Negative 55° Diamond (KAPR: 93°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw | Price |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|----------|
| 974-000-121 | 974-000-128 | MDJNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.770 | 1.000 | 0.750 | 93.0 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$99.80 |
| 974-000-122 | 974-000-129 | MDJNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$112.40 |
| 974-000-124 | 974-000-131 | MDJNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$129.20 |
| 974-000-126 | 974-000-133 | MDJNR/L 24-4D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 93.0 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$135.50 |
| 974-000-123 | 974-000-130 | MDJNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$112.40 |
| 974-000-125 | 974-000-132 | MDJNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$129.20 |
| 974-000-127 | 974-000-134 | MDJNR/L 24-5D | 1.500 | 1.500 | 6.000 | 2.050 | 2.000 | 1.500 | 93.0 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$135.50 |



Negative 55° Diamond (KAPR: 62.5°)

| PRODUCT # | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw | Price |
|-------------|-------------|-------|-------|-------|-------|--------|-------|------|----------|----------|----------|-------|---------|----------|
| 974-000-135 | MDPNN 12-4B | 0.750 | 0.750 | 4.500 | 1.770 | 0.3750 | 0.750 | 62.5 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$109.20 |
| 974-000-136 | MDPNN 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 0.5000 | 1.000 | 62.5 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$113.40 |
| 974-000-138 | MDPNN 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 0.5000 | 1.250 | 62.5 | DNMG 432 | IDSN-433 | NL-46 | CL-22 | XNS-48 | \$126.00 |
| 974-000-137 | MDPNN 16-5D | 1.000 | 1.000 | 6.000 | 2.050 | 0.6250 | 1.000 | 62.5 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$113.40 |
| 974-000-139 | MDPNN 20-5D | 1.250 | 1.250 | 6.000 | 2.050 | 0.6250 | 1.250 | 62.5 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$126.00 |
| 974-000-140 | MDPNN 24-5D | 1.500 | 1.500 | 6.000 | 2.050 | 0.7500 | 1.500 | 62.5 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$135.50 |
| 974-000-141 | MDPNN 24-5E | 1.500 | 1.500 | 7.000 | 2.050 | 0.7500 | 1.500 | 62.5 | DNMG 543 | IDSN-533 | NL-58 | CL-12 | XNS-510 | \$135.50 |

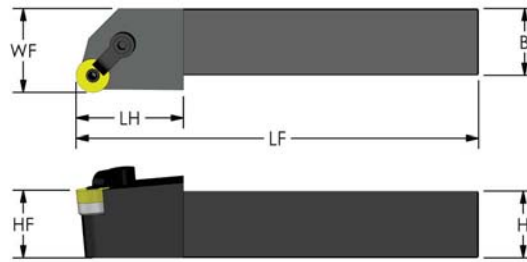
| PRODUCT # | Clamp | Price Each |
|-------------|-------|------------|
| 968-000-016 | CL-6 | \$5.30 |
| 968-000-017 | CL-7 | \$5.30 |
| 968-000-020 | CL-9 | \$5.30 |
| 968-000-010 | CL-12 | \$5.30 |
| 968-000-011 | CL-19 | \$6.60 |
| 968-000-012 | CL-20 | \$5.30 |

| PRODUCT # | Clamp | Price Each |
|-------------|-------|------------|
| 968-000-013 | CL-21 | \$12.40 |
| 968-000-014 | CL-22 | \$12.60 |
| 968-000-015 | CL-30 | \$9.30 |
| 968-000-018 | CL-84 | \$28.40 |
| 968-000-019 | CL-85 | \$28.40 |

| PRODUCT # | Clamp Screw | Price Each |
|-------------|-------------|------------|
| 968-000-176 | XNS-36 | \$2.20 |
| 968-000-177 | XNS-47 | \$2.20 |
| 968-000-178 | XNS-48 | \$2.20 |
| 968-000-179 | XNS-510 | \$2.20 |
| 968-000-180 | XNS-58 | \$2.20 |
| 968-000-181 | XNS-59 | \$2.20 |

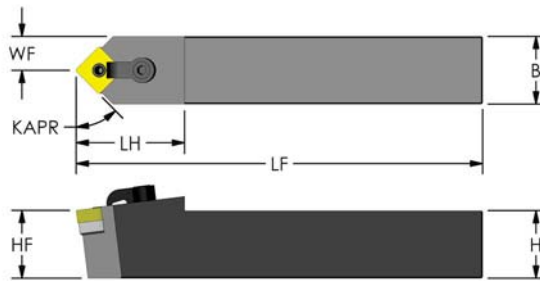
PACKAGE SIZE OF 1

PACKAGE SIZE OF 5



Negative Round (0° Lead)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|---------|---------|----------|-------|---------|
| 974-000-142 | 974-000-151 | MRGNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | RNMG 32 | IRSN-32 | NL-34 | CL-6 | XNS-36 |
| 974-000-143 | 974-000-152 | MRGNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | RNMG 43 | IRSN-43 | NL-46 | CL-20 | XNS-48 |
| 974-000-144 | 974-000-153 | MRGNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | RNMG 43 | IRSN-43 | NL-46 | CL-20 | XNS-48 |
| 974-000-147 | 974-000-156 | MRGNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | RNMG 43 | IRSN-43 | NL-46 | CL-20 | XNS-48 |
| 974-000-145 | 974-000-154 | MRGNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | RNMG 54 | IRSN-53 | NL-58 | CL-12 | XNS-510 |
| 974-000-148 | 974-000-157 | MRGNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | RNMG 54 | IRSN-53 | NL-58 | CL-12 | XNS-510 |
| 974-000-146 | 974-000-155 | MRGNR/L 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | RNMG 64 | IRSN-63 | NL-68 | CL-12 | XNS-510 |
| 974-000-149 | 974-000-158 | MRGNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | RNMG 64 | IRSN-63 | NL-68 | CL-12 | XNS-510 |
| 974-000-150 | 974-000-159 | MRGNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | RNMG 64 | IRSN-63 | NL-68 | CL-12 | XNS-510 |



Negative Square (KAPR: 45°)

| PRODUCT # | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|-------------|-------------|-------|-------|-------|-------|--------|-------|------|----------|----------|----------|-------|---------|
| 974-000-160 | MSDNN 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.3750 | 0.750 | 45.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-161 | MSDNN 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 0.5000 | 1.000 | 45.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-162 | MSDNN 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 0.5000 | 1.000 | 45.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-163 | MSDNN 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 0.5000 | 1.250 | 45.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-164 | MSDNN 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 0.6250 | 1.000 | 45.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-165 | MSDNN 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 0.6250 | 1.250 | 45.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-166 | MSDNN 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 0.7500 | 1.500 | 45.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

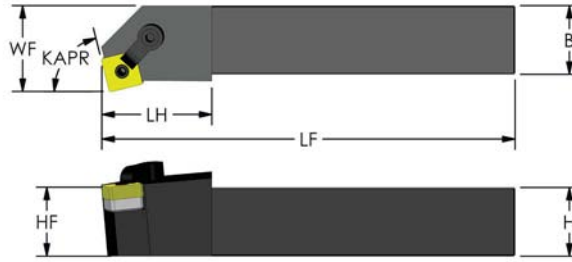
| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

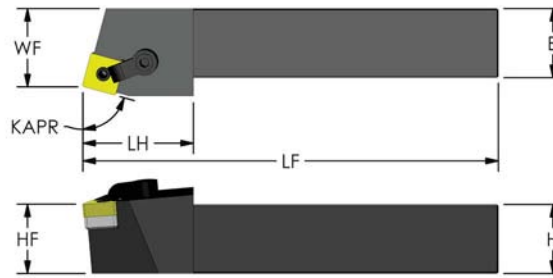
ULTRA-DEX[®]



Negative Square (KAPR: 75°) End Cutting



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-167 | 974-000-173 | MSKNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 75.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-168 | 974-000-174 | MSKNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-169 | 974-000-175 | MSKNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 75.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-170 | 974-000-176 | MSKNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-171 | 974-000-177 | MSKNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 75.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-172 | 974-000-178 | MSKNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 75.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |



Negative Square (KAPR: 75°) Side Cutting



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-179 | 974-000-187 | MSRNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.880 | 0.750 | 75.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-180 | 974-000-188 | MSRNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.130 | 1.000 | 75.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-181 | 974-000-189 | MSRNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.380 | 1.250 | 75.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-182 | 974-000-190 | MSRNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.103 | 1.000 | 75.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-183 | 974-000-191 | MSRNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.353 | 1.250 | 75.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-184 | 974-000-192 | MSRNR/L 16-6D | 1.000 | 1.000 | 6.000 | 1.600 | 1.071 | 1.000 | 75.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-185 | 974-000-193 | MSRNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.315 | 1.250 | 75.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-186 | 974-000-194 | MSRNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 1.821 | 1.500 | 75.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

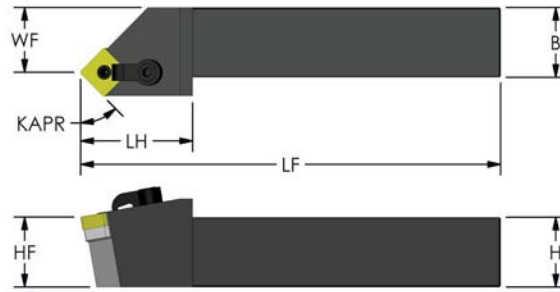
| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

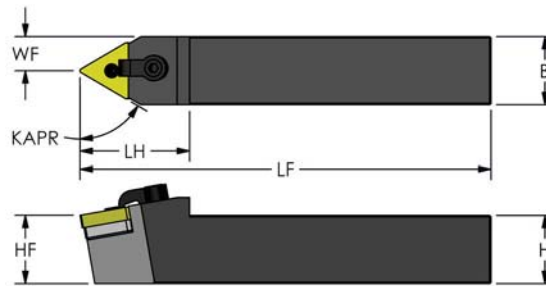
ULTRA-DEX[®]



Negative Square (KAPR: 45°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-195 | 974-000-201 | MSSNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 0.675 | 0.750 | 45.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-196 | 974-000-202 | MSSNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 0.925 | 1.000 | 45.0 | SNMG 432 | ISSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-197 | 974-000-203 | MSSNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 0.847 | 1.000 | 45.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-198 | 974-000-204 | MSSNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.097 | 1.250 | 45.0 | SNMG 543 | ISSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-199 | 974-000-205 | MSSNR/L 20-6D | 1.250 | 1.250 | 6.000 | 1.600 | 1.011 | 1.250 | 45.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |
| 974-000-200 | 974-000-206 | MSSNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 1.511 | 1.500 | 45.0 | SNMG 643 | ISSN-633 | NL-68 | CL-12 | XNS-510 |



Negative Triangle (KAPR: 60°)



| PRODUCT # | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|-------------|-------------|-------|-------|-------|-------|--------|-------|------|----------|----------|----------|-------|---------|
| 974-000-219 | MTENN 10-3B | 0.625 | 0.625 | 4.500 | 1.120 | 0.3125 | 0.625 | 60.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-220 | MTENN 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 0.3750 | 0.750 | 60.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-221 | MTENN 12-4B | 0.750 | 0.750 | 4.500 | 1.770 | 0.3750 | 0.750 | 60.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-222 | MTENN 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 0.5000 | 1.000 | 60.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-223 | MTENN 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 0.6250 | 1.250 | 60.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-224 | MTENN 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 0.7500 | 1.500 | 60.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

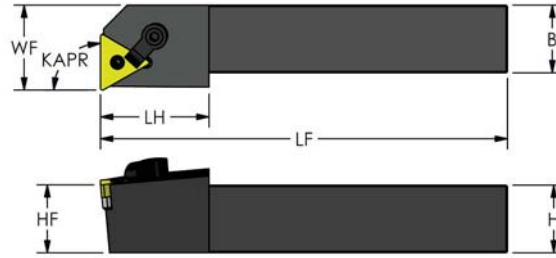
| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

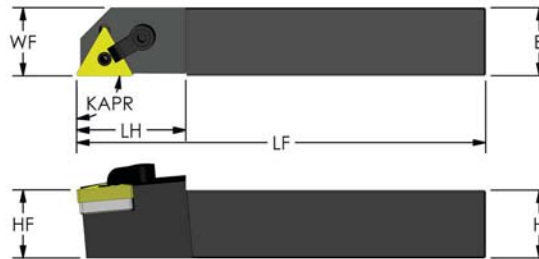
PACKAGE SIZE OF 10

ULTRA-DEX[®]



Negative Triangle (KAPR: 90°) End Cutting

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-225 | 974-000-233 | MTFNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-226 | 974-000-234 | MTFNR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-227 | 974-000-235 | MTFNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-228 | 974-000-236 | MTFNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-229 | 974-000-237 | MTFNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-230 | 974-000-238 | MTFNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-231 | 974-000-239 | MTFNR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-232 | 974-000-240 | MTFNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | TNMG 663 | ITSN-636 | NL-68L | CL-12 | XNS-510 |



Negative Triangle (KAPR: 90°) Side Cutting

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-207 | 974-000-213 | MTANR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 0.750 | 0.750 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-208 | 974-000-214 | MTANR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.000 | 1.000 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-209 | 974-000-215 | MTANR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.000 | 1.000 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-210 | 974-000-216 | MTANR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.250 | 1.250 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-211 | 974-000-217 | MTANR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 1.500 | 1.500 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-12 | XNS-510 |
| 974-000-212 | 974-000-218 | MTANR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 1.500 | 1.500 | 90.0 | TNMG 663 | ITSN-636 | NL-68L | CL-12 | XNS-510 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

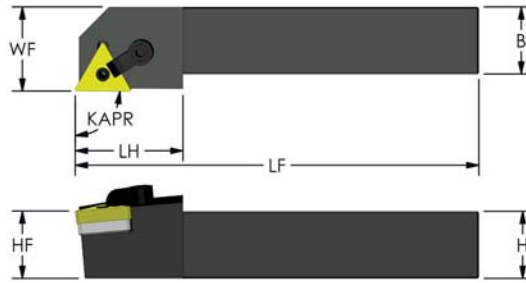
| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

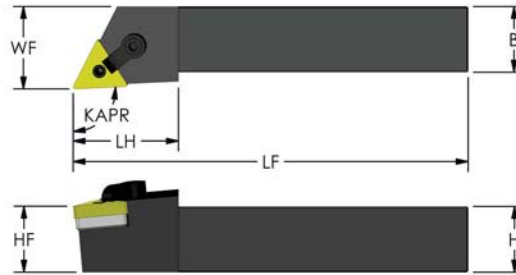
ULTRA-DEX[®]



Negative Triangle (KAPR: 90°) Side Cutting



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-241 | 974-000-251 | MTGNR/L 10-3B | 0.625 | 0.625 | 4.500 | 1.120 | 0.875 | 0.625 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-242 | 974-000-252 | MTGNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-243 | 974-000-253 | MTGNR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-244 | 974-000-254 | MTGNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-246 | 974-000-256 | MTGNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-248 | 974-000-258 | MTGNR/L 24-4D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-249 | 974-000-259 | MTGNR/L 24-4E | 1.500 | 1.500 | 7.000 | 1.600 | 2.000 | 1.500 | 90.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-245 | 974-000-255 | MTGNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-247 | 974-000-257 | MTGNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-250 | 974-000-260 | MTGNR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 90.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |



Negative Triangle (KAPR: 93°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-261 | 974-000-269 | MTJNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 93.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-262 | 974-000-270 | MTJNR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | TNMG 332 | ITSN-323 | NL-34L | CL-6 | XNS-36 |
| 974-000-263 | 974-000-271 | MTJNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-265 | 974-000-273 | MTJNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | TNMG 432 | ITSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-264 | 974-000-272 | MTJNR/L 16-5D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-266 | 974-000-274 | MTJNR/L 20-5D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-267 | 974-000-275 | MTJNR/L 24-5D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 93.0 | TNMG 543 | ITSN-533 | NL-58 | CL-9 | XNS-510 |
| 974-000-268 | 974-000-276 | MTJNR/L 24-6D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 93.0 | TNMG 663 | ITSN-636 | NL-68L | CL-12 | XNS-510 |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

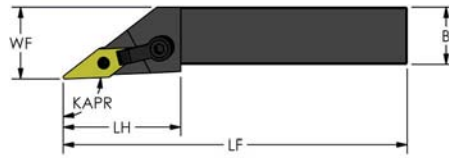
| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

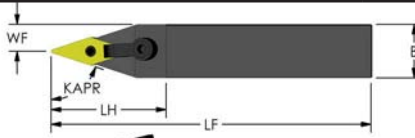
ULTRA-DEX®



Negative 35° Diamond (KAPR: 93°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|---------|
| 974-000-277 | 974-000-283 | MVJNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.770 | 1.000 | 0.750 | 93.0 | VNMG 332 | IVSN-322 | NL-34L | CL-22 | XNS-48 |
| 974-000-278 | 974-000-284 | MVJNR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 93.0 | VNMG 332 | IVSN-322 | NL-34L | CL-22 | XNS-48 |
| 974-000-280 | 974-000-286 | MVJNR/L 20-3D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 93.0 | VNMG 332 | IVSN-322 | NL-34L | CL-22 | XNS-48 |
| 974-000-279 | 974-000-285 | MVJNR/L 16-4D | 1.000 | 1.000 | 6.000 | 2.050 | 1.250 | 1.000 | 93.0 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |
| 974-000-281 | 974-000-287 | MVJNR/L 20-4D | 1.250 | 1.250 | 6.000 | 2.050 | 1.500 | 1.250 | 93.0 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |
| 974-000-282 | 974-000-288 | MVJNR/L 24-4D | 1.500 | 1.500 | 6.000 | 2.050 | 2.000 | 1.500 | 93.0 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |



Negative 35° Diamond (KAPR: 72.5°)



| PRODUCT # | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|-------------|-------------|-------|-------|-------|-------|--------|-------|------|----------|----------|----------|-------|---------|
| 974-000-289 | MVVNN 12-3B | 0.750 | 0.750 | 4.500 | 1.770 | 0.3750 | 0.750 | 72.5 | VNMG 332 | IVSN-322 | NL-34L | CL-30 | XNS-510 |
| 974-000-290 | MVVNN 16-3D | 1.000 | 1.000 | 6.000 | 2.050 | 0.5000 | 1.000 | 72.5 | VNMG 332 | IVSN-322 | NL-34L | CL-30 | XNS-510 |
| 974-000-292 | MVVNN 20-3D | 1.250 | 1.250 | 6.000 | 2.050 | 0.5000 | 1.250 | 72.5 | VNMG 332 | IVSN-322 | NL-34L | CL-30 | XNS-510 |
| 974-000-294 | MVVNN 24-3D | 1.500 | 1.500 | 6.000 | 2.050 | 0.6250 | 1.500 | 72.5 | VNMG 332 | IVSN-322 | NL-34L | CL-30 | XNS-510 |
| 974-000-291 | MVVNN 16-4D | 1.000 | 1.000 | 6.000 | 2.050 | 0.6250 | 1.000 | 72.5 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |
| 974-000-293 | MVVNN 20-4D | 1.250 | 1.250 | 6.000 | 2.050 | 0.7500 | 1.250 | 72.5 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |
| 974-000-295 | MVVNN 24-4D | 1.500 | 1.500 | 6.000 | 2.050 | 0.7500 | 1.500 | 72.5 | VNMG 432 | IVSN-432 | NL-46 | CL-30 | XNS-510 |



Negative Trigon (KAPR: 95°)



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Shim | Lock Pin | Clamp | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------|----------|----------|----------|-------|--------|
| 974-000-296 | 974-000-301 | MWLNR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 95.0 | WNMG 332 | IWSN-322 | NL-34L | CL-6 | XNS-36 |
| 974-000-297 | 974-000-302 | MWLNR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 95.0 | WNMG 432 | IWSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-298 | 974-000-303 | MWLNR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 95.0 | WNMG 432 | IWSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-299 | 974-000-304 | MWLNR/L 20-4D | 1.250 | 1.250 | 6.000 | 1.600 | 1.500 | 1.250 | 95.0 | WNMG 432 | IWSN-433 | NL-46 | CL-20 | XNS-48 |
| 974-000-300 | 974-000-305 | MWLNR/L 24-4D | 1.500 | 1.500 | 6.000 | 1.600 | 2.000 | 1.500 | 95.0 | WNMG 432 | IWSN-433 | NL-46 | CL-20 | XNS-48 |

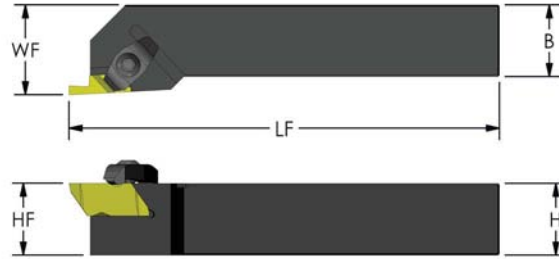
| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

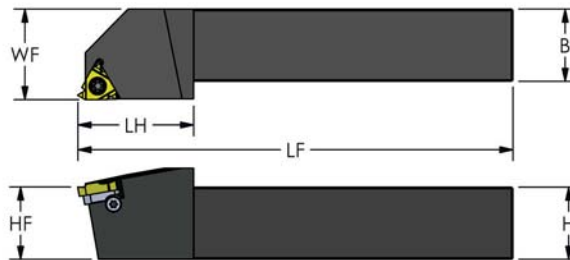
PACKAGE SIZE OF 1

PACKAGE SIZE OF 5



Threading/Grooving Top Notch

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | WF | HF | Insert | RH Clamp | LH Clamp | Clamp Screw |
|------------------------|-------------------------|-------------|-------|-------|-------|-------|-------|----------|-------------|-------------|----------------|
| 974-000-306 | 974-000-310 | NSR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.000 | 0.750 | NG 3R/3L | CM-72 | CM-73 | 10-32 |
| 974-000-307 | 974-000-311 | NSR/L 12-4B | 0.750 | 0.750 | 4.500 | 1.000 | 0.750 | NG 4R/4L | CM-72 | CM-73 | 10-32 |
| 974-000-308 | 974-000-312 | NSR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.250 | 1.000 | NG 3R/3L | CM-72 | CM-73 | 10-32 |
| 974-000-309 | 974-000-313 | NSR/L 16-4D | 1.000 | 1.000 | 6.000 | 1.250 | 1.000 | NG 4R/4L | CM-72 | CM-73 | 10-32 |



Threading/Grooving Laydown

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | Insert | Insert Screw | Anvil Screw | Anvil Right | Anvil Left |
|------------------------|-------------------------|--------------|-------|-------|-------|-------|-------|-------|---------|-----------------|----------------|----------------|---------------|
| 974-000-025 | 974-000-027 | LSSR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.300 | 1.000 | 0.750 | 3 IL/IR | SA3T | SY3T | YE3 | Y13 |
| 974-000-026 | 974-000-028 | LSSR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.600 | 1.250 | 1.000 | 3 IL/IR | SA3T | SY3T | YE3 | Y13 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil Screw |
|-------------|----------------|
| 968-000-146 | SY3T |
| 968-000-147 | SY4T |
| 968-000-148 | SY5T |

PACKAGE SIZE OF 5

| PRODUCT # | Insert Screw |
|-------------|-----------------|
| 968-000-124 | SA3T |
| 968-000-125 | SA4T |
| 968-000-126 | SA5T |

PACKAGE SIZE OF 5

ULTRA-DEX®



Positive 35° Diamond (KAPR: 117.5°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | WF | HF | KAPR | Insert | Screw |
|------------------------|-------------------------|---------------|-------|-------|-------|-------|-------|-------|------------|----------|
| 974-000-314 | 974-000-317 | SVTBR/L 12-2B | 0.750 | 0.750 | 4.500 | 0.935 | 0.750 | 117.5 | VBMT 21.51 | MTS-2.5L |
| 974-000-315 | 974-000-318 | SVTBR/L 12-3B | 0.750 | 0.750 | 4.500 | 1.050 | 0.750 | 117.5 | VBMT 331 | MTS-3.5L |
| 974-000-316 | 974-000-319 | SVTBR/L 16-3D | 1.000 | 1.000 | 6.000 | 1.300 | 1.000 | 117.5 | VBMT 331 | MTS-3.5L |

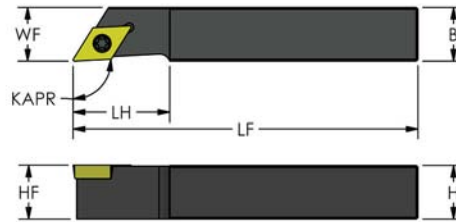


- Proper insert alignment for swiss processes
- Accepts standard ISO inserts
- Specials available upon request



Positive 80° Diamond (KAPR: 95°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Screw |
|------------------------|-------------------------|-----------------|-------|-------|-------|--------|-------|-------|------|------------|--------|
| 960-000-003 | 960-000-007 | SCLCR/L 1212-3A | 12mm | 12mm | 100mm | 22mm | 22mm | 12mm | 95.0 | CCMT 32.51 | MTS-35 |
| 960-000-004 | 960-000-008 | SCLCR/L 1616-3A | 16mm | 16mm | 100mm | 28mm | 28mm | 16mm | 95.0 | CCMT 32.51 | MTS-35 |
| 960-000-001 | 960-000-005 | SCLCR/L 08-3A | 0.500 | 0.500 | 4.000 | 0.8650 | 0.865 | 0.500 | 95.0 | CCMT 32.51 | MTS-35 |
| 960-000-002 | 960-000-006 | SCLCR/L 10-3A | 0.625 | 0.625 | 4.000 | 1.1200 | 1.120 | 0.625 | 95.0 | CCMT 32.51 | MTS-35 |



Positive 55° Diamond (KAPR: 93°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | B | H | LF | LH | WF | HF | KAPR | Insert | Screw |
|------------------------|-------------------------|-----------------|-------|-------|-------|--------|-------|-------|------|------------|--------|
| 960-000-011 | 960-000-015 | SDJCR/L 1212-3A | 12mm | 12mm | 100mm | 22mm | 22mm | 12mm | 93.0 | DCMT 32.51 | MTS-35 |
| 960-000-012 | 960-000-016 | SDJCR/L 1616-3A | 16mm | 16mm | 100mm | 28mm | 28mm | 16mm | 93.0 | DCMT 32.51 | MTS-35 |
| 960-000-009 | 960-000-013 | SDJCR/L 08-3A | 0.500 | 0.500 | 4.000 | 0.8650 | 0.865 | 0.500 | 93.0 | DCMT 32.51 | MTS-35 |
| 960-000-010 | 960-000-014 | SDJCR/L 10-3A | 0.625 | 0.625 | 4.000 | 1.1200 | 1.120 | 0.625 | 93.0 | DCMT 32.51 | MTS-35 |

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Anvil |
|-------------|-----------|
| 968-000-185 | Y13 |
| 968-000-182 | YE3 |
| 968-000-187 | Y14 |
| 968-000-186 | Y13M-1.5N |
| 968-000-183 | YE4 |
| 968-000-188 | Y15 |
| 968-000-184 | YE5 |

PACKAGE SIZE OF 1

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

ARCH[®]
Cutting Tools

ID TURNING

THE COMPLETE TOOL MAKING AUTHORITY[®]

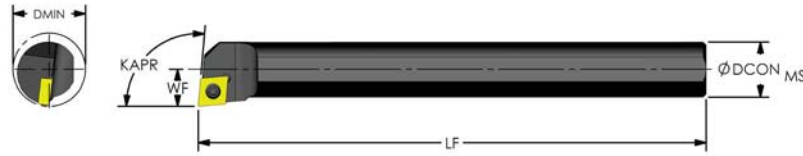
STEEL BORING BARS

The economical choice
for general machining

Up to 4:1 Ratio

.156"-2" Diameters





ULTRA-DEX



Positive 80° Diamond (KAPR: 95°)

**4:1 Ratio
No Coolant**

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|--------|-------|-------|----------------|-----------------|------|
| 957-000-207 | 957-000-208 | S02.5G SCLDR/L1.2 * | 0.156 | 3.500 | 0.090 | 0.175 | CDHB 1.20.60 | MTS-182 | T-6 |
| 957-000-211 | 957-000-212 | S03G SCLDR/L1.2 * | 0.187 | 3.500 | 0.102 | 0.205 | CDHB 1.20.60 | MTS-183 | T-6 |
| 957-000-209 | 957-000-210 | S03.5G SCLDR/L1.5 * | 0.218 | 3.500 | 0.125 | 0.245 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-214 | 957-000-216 | S04G SCLDR/L1.5 * | 0.250 | 3.500 | 0.172 | 0.312 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-228 | 957-000-230 | S05G SCLPR/L1.8 * | 0.312 | 3.500 | 0.219 | 0.395 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 957-000-248 | 957-000-250 | S06K SCLPR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-280 | 957-000-283 | S08M SCLPR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-317 | 957-000-319 | S10Q SCLPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-282 | 957-000-285 | S08M SCLPR/L3 | 0.500 | 6.000 | 0.344 | 0.625 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-318 | 957-000-320 | S10Q SCLPR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-341 | 957-000-342 | S12Q SCLPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-372 | 957-000-373 | S16R SCLPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-244 | 957-000-246 | S06K SCLCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-274 | 957-000-277 | S08M SCLCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-313 | 957-000-315 | S10Q SCLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-276 | 957-000-279 | S08M SCLCR/L3 | 0.500 | 6.000 | 0.344 | 0.625 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-314 | 957-000-316 | S10Q SCLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-339 | 957-000-340 | S12Q SCLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | CCMT 32.51 | MTS-35 | T-15 |
| N/A | 957-000-367 | S12S SCLCR3 | 0.750 | 10.000 | 0.500 | 0.920 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-370 | 957-000-371 | S16R SCLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | CCMT 32.51 | MTS-35 | T-15 |
| N/A | 957-000-401 | S16T SCLCR3 | 1.000 | 12.000 | 0.625 | 1.185 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-425 | 957-000-427 | S20U SCLCR/L3 | 1.250 | 14.000 | 0.765 | 1.465 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-428 | 957-000-428 | S20U SCLCR/L4 | 1.250 | 14.000 | 0.765 | 1.465 | CCMT 432 | MTS-4 | T-20 |
| 957-000-440 | 957-000-441 | S24U SCLCR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | CCMT 432 | MTS-4 | T-20 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|----------------|-----------------|-----|
| 957-000-215 | 957-000-217 | S04G SCLDR/L1.5-138 * | 0.250 | 3.500 | 0.138 | 0.275 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-229 | 957-000-231 | S05G SCLPR/L1.8-167 * | 0.312 | 3.500 | 0.167 | 0.340 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 957-000-249 | 957-000-251 | S06K SCLPR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-281 | 957-000-284 | S08M SCLPR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-245 | 957-000-247 | S06K SCLCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-275 | 957-000-278 | S08M SCLCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | CCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

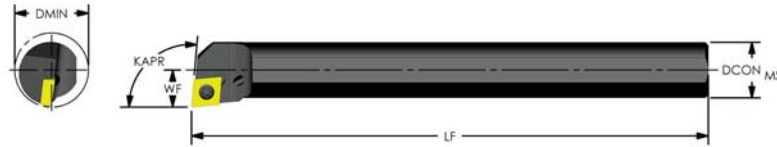
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



4:1 Ratio

Coolant Thru

Positive 80° Diamond (KAPR: 95°)

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|--------|-------|-------|----------------|-----------------|------|
| 957-000-001 | 957-000-003 | A04G SCLDR/L1.5 * | 0.250 | 3.500 | 0.172 | 0.312 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-009 | 957-000-011 | A05G SCLPR/L1.8 * | 0.312 | 3.500 | 0.219 | 0.395 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 957-000-023 | 957-000-025 | A06K SCLPR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-053 | 957-000-056 | A08M SCLPR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-087 | 957-000-089 | A10Q SCLPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-055 | 957-000-058 | A08M SCLPR/L3 | 0.500 | 6.000 | 0.344 | 0.625 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-088 | 957-000-090 | A10Q SCLPR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-108 | 957-000-109 | A12Q SCLPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-135 | 957-000-136 | A16R SCLPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | CPMT 32.51 | MTS-35 | T-15 |
| 957-000-019 | 957-000-021 | A06K SCLCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-047 | 957-000-050 | A08M SCLCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-083 | 957-000-085 | A10Q SCLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-049 | 957-000-052 | A08M SCLCR/L3 | 0.500 | 6.000 | 0.344 | 0.625 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-084 | 957-000-086 | A10Q SCLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-106 | 957-000-107 | A12Q SCLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-133 | 957-000-134 | A16R SCLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-182 | 957-000-184 | A20U SCLCR/L3 | 1.250 | 14.000 | 0.765 | 1.465 | CCMT 32.51 | MTS-35 | T-15 |
| 957-000-183 | 957-000-185 | A20U SCLCR/L4 | 1.250 | 14.000 | 0.765 | 1.465 | CCMT 432 | MTS-4 | T-20 |
| 957-000-198 | 957-000-199 | A24U SCLCR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | CCMT 432 | MTS-4 | T-20 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|----------------|-----------------|-----|
| 957-000-002 | 957-000-004 | A04G SCLDR/L1.5-138 * | 0.250 | 3.500 | 0.138 | 0.275 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-010 | 957-000-012 | A05G SCLPR/L1.8-167 * | 0.312 | 3.500 | 0.167 | 0.340 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 957-000-024 | 957-000-026 | A06K SCLPR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-054 | 957-000-057 | A08M SCLPR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | CPMT 21.51 | MTS-255 | T-7 |
| 957-000-020 | 957-000-022 | A06K SCLCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | CCMT 21.51 | MTS-255 | T-7 |
| 957-000-048 | 957-000-051 | A08M SCLCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | CCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



SERIES "C"

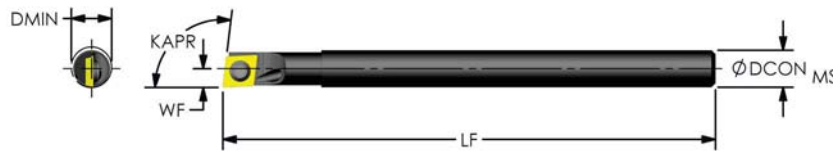


Positive 80° Diamond (KAPR: 95°)

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------------------|---------|-------|-------|-------|------|----------------|--------------|-----|
| 915-000-016 | CSUD-180/187-2 1/2-5R * | 0.187 | 2.500 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-021 | CSUD-187-2 1/2-5R * | 0.187 | 2.500 | 0.116 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-029 | CSUD-250-3-5R * | 0.250 | 3.000 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |

*bars do not have flats



SERIES "C"

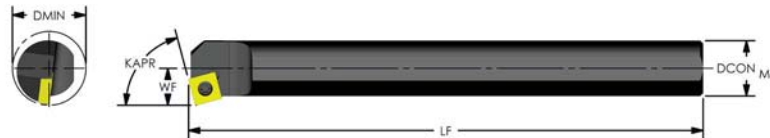


Positive 80° Diamond (KAPR: 97°)

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------------------|---------|-------|-------|-------|------|----------------|--------------|-----|
| 915-000-015 | CSUD-165/187-2 1/2-7R * | 0.187 | 2.500 | 0.095 | 0.180 | 97.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |

*bars do not have flats



Positive 90° Square (KAPR: 75°)

4:1 Ratio
No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|------|------------|--------------|------|
| 957-000-255 | S06K SSKCR2 | 0.375 | 5.000 | 0.250 | 0.460 | 75.0 | SCMT 21.51 | MTS-255 | T-7 |
| 957-000-292 | S08M SSKCR3 | 0.500 | 6.000 | 0.344 | 0.625 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |
| 957-000-325 | S10Q SSKCR3 | 0.625 | 7.000 | 0.406 | 0.760 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |
| 957-000-350 | S12Q SSKCR3 | 0.750 | 7.000 | 0.500 | 0.920 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |
| 957-000-379 | S16R SSKCR4 | 1.000 | 8.000 | 0.625 | 1.185 | 75.0 | SCMT 432 | MTS-4 | T-20 |

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

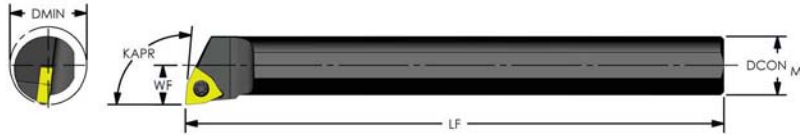
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



Positive Trigon (95° KAPR)

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| N/A | 957-000-213 | S03G SWLCR1.2 * | 0.187 | 3.500 | 0.102 | 0.205 | 95.0 | WCMT 1.210.5 | MTS-183 | T-6 |
| N/A | 957-000-226 | S04G SWLCR1.2 * | 0.250 | 3.500 | 0.172 | 0.312 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 957-000-240 | S05G SWLCR1.5 * | 0.312 | 3.500 | 0.219 | 0.395 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |
| 957-000-268 | 957-000-270 | S06K SWLCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-305 | 957-000-307 | S08M SWLCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-333 | 957-000-335 | S10Q SWLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-334 | 957-000-336 | S10Q SWLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 957-000-359 | 957-000-360 | S12Q SWLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 957-000-386 | 957-000-387 | S16R SWLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| N/A | 957-000-227 | S04G SWLCR1.2-138 * | 0.250 | 3.500 | 0.138 | 0.275 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 957-000-241 | S05G SWLCR1.5-167 * | 0.312 | 3.500 | 0.167 | 0.342 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |
| 957-000-269 | 957-000-271 | S06K SWLCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-306 | 957-000-308 | S08M SWLCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats



Positive Trigon (95° KAPR)

4:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-042 | 957-000-044 | A06K SWLCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-076 | 957-000-078 | A08M SWLCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-100 | 957-000-102 | A10Q SWLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-101 | 957-000-103 | A10Q SWLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 957-000-123 | 957-000-124 | A12Q SWLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 957-000-147 | 957-000-148 | A16R SWLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|------------|-----------------|-----|
| 957-000-043 | 957-000-045 | A06K SWLCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 957-000-077 | 957-000-079 | A08M SWLCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

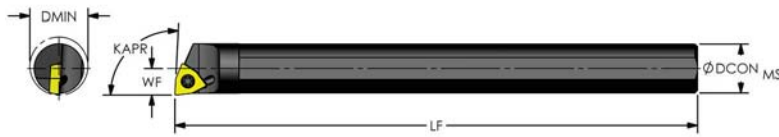
| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

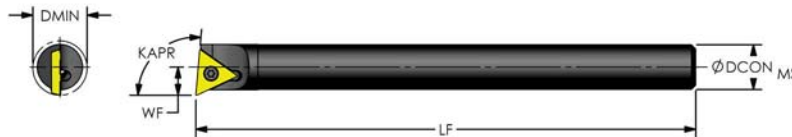
STEEL



Positive Trigon (KAPR: 93°) SERIES "G, Q, S"

4:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 915-000-059 | 915-000-060 | GSUDW-187-4-3R/L | 0.187 | 4.000 | 0.126 | 0.260 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-061 | 915-000-062 | GSUDW-250-4-3R/L | 0.250 | 4.000 | 0.143 | 0.285 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-063 | 915-000-064 | GSUDW-312-4-3R/L | 0.312 | 4.000 | 0.174 | 0.347 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-082 | 915-000-083 | QSUDW-375-5-3R/L | 0.375 | 5.000 | 0.211 | 0.415 | 93.0 | WPGT 21.50 | MTS-255 | T-7 |
| 915-000-084 | 915-000-085 | QSUDW-500-6-3R/L | 0.500 | 6.000 | 0.273 | 0.540 | 93.0 | WPGT 21.50 | MTS-255 | T-7 |
| 915-000-101 | 915-000-102 | SSUDW-625-7-3R/L | 0.625 | 7.000 | 0.345 | 0.675 | 93.0 | WPMT 32.51 | MTS-35 | T-15 |
| 915-000-103 | 915-000-104 | SSUDW-750-8-3R/L | 0.750 | 8.000 | 0.407 | 0.800 | 93.0 | WPMT 32.51 | MTS-35 | T-15 |



Positive Triangle (KAPR: 90°) SERIES "F, Q, S"

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-----------------|------------|-------|-------|-------|------|------------------|-----------------|------|
| 915-000-047 | FSUD-250-4-0R * | 0.250 | 4.000 | 0.156 | 0.300 | 90.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-077 | QSUD-375-5-0R * | 0.375 | 5.000 | 0.221 | 0.438 | 90.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-094 | SSUD-500-6-0R * | 0.500 | 6.000 | 0.339 | 0.668 | 90.0 | TD 320.5 | ETS 4-40 | T-10 |
| 915-000-097 | SSUD-625-7-0R * | 0.625 | 7.000 | 0.393 | 0.731 | 90.0 | TD 320.5 | ETS 4-40 | T-10 |

* bars do not have flats



Positive Triangle (KAPR: 95°) SERIES "F, Q, S"

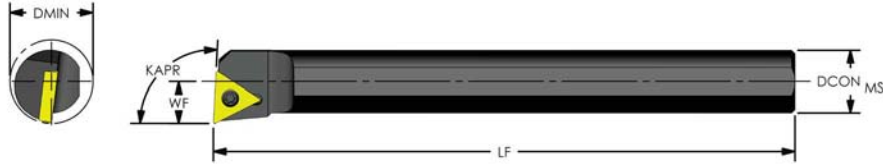
4:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|--------|-------|-------|------|------------------|-----------------|------|
| N/A | 915-000-040 | FSUD-187-3 1/2-5R * | 0.187 | 3.500 | 0.123 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| N/A | 915-000-048 | FSUD-250-4-5R * | 0.250 | 4.000 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| N/A | 915-000-052 | FSUD-312-4-5R * | 0.312 | 4.000 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-078 | 915-000-079 | QSUD-375-5-5R/L * | 0.375 | 5.000 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| N/A | 915-000-080 | QSUD-500-6-5R * | 0.500 | 6.000 | 0.296 | 0.563 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| N/A | 915-000-095 | SSUD-500-6-5R * | 0.500 | 6.000 | 0.339 | 0.668 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-096 | SSUD-625-4-5R * | 0.625 | 4.000 | 0.393 | 0.731 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-098 | SSUD-625-7-5R * | 0.625 | 7.000 | 0.393 | 0.731 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-099 | SSUD-750-4-5R * | 0.750 | 4.000 | 0.460 | 0.855 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-100 | SSUD-750-8-5R * | 0.750 | 8.000 | 0.460 | 0.855 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-092 | SSUD-1000-10-5R * | 1.000 | 10.000 | 0.585 | 1.105 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| N/A | 915-000-093 | SSUD-1250-12-5R * | 1.250 | 12.000 | 0.710 | 1.355 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |

* bars do not have flats

ULTRA-DEX[®]

STEEL



Positive Triangle (KAPR: 93°)

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| 957-000-222 | 957-000-224 | S04G STUCR/L1.2 * | 0.250 | 3.500 | 0.172 | 0.312 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-236 | 957-000-238 | S05G STUCR/L1.2 * | 0.312 | 3.500 | 0.219 | 0.395 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-260 | 957-000-262 | S06K STUCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-297 | 957-000-299 | S08M STUCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-328 | 957-000-329 | S10Q STUCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-353 | 957-000-354 | S12Q STUCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-382 | 957-000-383 | S16R STUCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-266 | 957-000-264 | S06K STUPR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-301 | 957-000-303 | S08M STUPR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-330 | 957-000-331 | S10Q STUPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-355 | 957-000-356 | S12Q STUPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 957-000-384 | 957-000-385 | S16R STUPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 957-000-223 | 957-000-225 | S04G STUCR/L1.2-138 * | 0.250 | 3.500 | 0.138 | 0.275 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-237 | 957-000-239 | S05G STUCR/L1.2-167 * | 0.312 | 3.500 | 0.167 | 0.340 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-261 | 957-000-263 | S06K STUCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-298 | 957-000-300 | S08M STUCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-265 | 957-000-267 | S06K STUPR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-302 | 957-000-304 | S08M STUPR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |

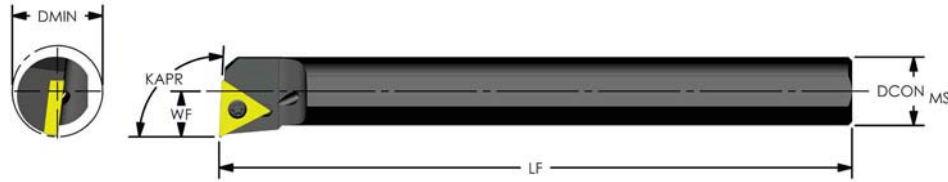
Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



Positive Triangle (KAPR: 93°)

4:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| 957-000-005 | 957-000-007 | A04G STUCR/L1.2 * | 0.250 | 3.500 | 0.172 | 0.312 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-013 | 957-000-015 | A05G STUCR/L1.2 * | 0.312 | 3.500 | 0.219 | 0.395 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-033 | 957-000-035 | A06K STUCR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-067 | 957-000-069 | A08M STUCR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-097 | 957-000-096 | A10Q STUCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-120 | 957-000-119 | A12Q STUCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-143 | 957-000-144 | A16R STUCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-037 | 957-000-039 | A06K STUPR/L2 | 0.375 | 5.000 | 0.250 | 0.460 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-071 | 957-000-073 | A08M STUPR/L2 | 0.500 | 6.000 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-097 | 957-000-098 | A10Q STUPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-119 | 957-000-120 | A12Q STUPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 957-000-145 | 957-000-146 | A16R STUPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 957-000-006 | 957-000-008 | A04G STUCR/L1.2-138 * | 0.250 | 3.500 | 0.138 | 0.275 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-014 | 957-000-016 | A05G STUCR/L1.2-167 * | 0.312 | 3.500 | 0.167 | 0.340 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-034 | 957-000-036 | A06K STUCR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-068 | 957-000-070 | A08M STUCR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-038 | 957-000-040 | A06K STUPR/L2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-072 | 957-000-074 | A08M STUPR/L2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]

STEEL



Positive Triangle (KAPR: 90°)

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| 957-000-218 | 957-000-220 | S04G STFCL/L1.2 * | 0.250 | 3.500 | 0.172 | 0.312 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-232 | 957-000-234 | S05G STFCL/L1.2 * | 0.312 | 3.500 | 0.219 | 0.395 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| N/A | 957-000-256 | S06K STFCL2 | 0.375 | 5.000 | 0.250 | 0.460 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-293 | S08M STFCL2 | 0.500 | 6.000 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-326 | S10Q STFCL2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-351 | S12Q STFCL3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| N/A | 957-000-380 | S16R STFCL3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| N/A | 957-000-258 | S06K STFPR2 | 0.375 | 5.000 | 0.250 | 0.460 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-295 | S08M STFPR2 | 0.500 | 6.000 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-327 | S10Q STFPR2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-352 | S12Q STFPR3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| N/A | 957-000-381 | S16R STFPR3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 957-000-219 | 957-000-221 | S04G STFCL/L1.2-138 * | 0.250 | 3.500 | 0.138 | 0.275 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-233 | 957-000-235 | S05G STFCL/L1.2-167 * | 0.312 | 3.500 | 0.167 | 0.340 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| N/A | 957-000-257 | S06K STFCL2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-294 | S08M STFCL2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-259 | S06K STFPR2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| N/A | 957-000-296 | S08M STFPR2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |

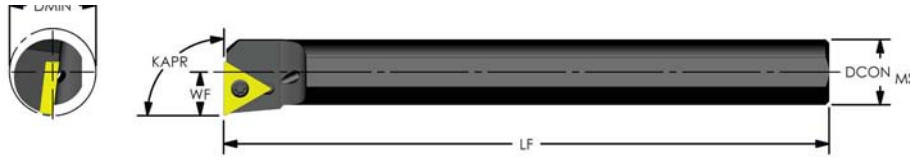
Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



Positive Triangle (KAPR: 90°)

4:1 Ratio
Coolant Thru

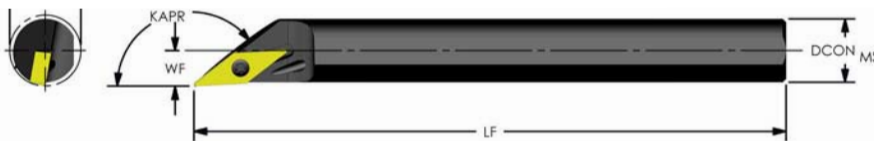
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|--------------|---------|-------|-------|-------|------|------------|--------------|------|
| 957-000-029 | A06K STFPCR2 | 0.375 | 5.000 | 0.250 | 0.460 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-063 | A08M STFPCR2 | 0.500 | 6.000 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-093 | A10Q STFPCR2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-116 | A12Q STFPCR3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-141 | A16R STFPCR3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 957-000-031 | A06K STFPR2 | 0.375 | 5.000 | 0.250 | 0.460 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-063 | A08M STFPR2 | 0.500 | 6.000 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-094 | A10Q STFPR2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-117 | A12Q STFPR3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| 957-000-142 | A16R STFPR3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|------------------|---------|-------|-------|-------|------|------------|--------------|-----|
| 957-000-030 | A06K STFPCR2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-064 | A08M STFPCR2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 957-000-032 | A06K STFPR2-203 | 0.375 | 5.000 | 0.203 | 0.410 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 957-000-066 | A08M STFPR2-281 | 0.500 | 6.000 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats



Positive 35° Diamond (KAPR: 142°) Profiling

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------------|--------------|------|
| 957-000-041 | A06K SVJBR2 | 0.375 | 5.000 | 0.223 | 0.445 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-075 | A08M SVJBR2 | 0.500 | 6.000 | 0.285 | 0.570 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-099 | A10Q SVJBR2 | 0.625 | 7.000 | 0.348 | 0.700 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-122 | A12Q SVJBR3 | 0.750 | 7.000 | 0.421 | 0.840 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |

STEEL

ULTRA-DEX[®]

STEEL



Positive 55° Diamond (KAPR: 93°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-253 | 957-000-254 | S06K SDUCR/L2 | 0.375 | 5.000 | 0.375 | 0.585 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-288 | 957-000-289 | S08M SDUCR/L2 | 0.500 | 6.000 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-323 | 957-000-324 | S10Q SDUCR/L2 | 0.625 | 7.000 | 0.500 | 0.850 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-344 | 957-000-345 | S12Q SDUCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-376 | 957-000-375 | S16R SDUCR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-346 | 957-000-347 | S12Q SDUPR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |
| 957-000-377 | 957-000-378 | S16R SDUPR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 93°) Profiling

Coolant Thru

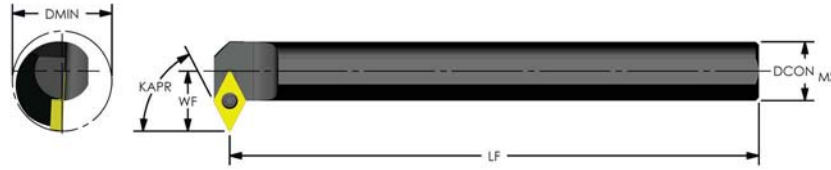
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-027 | 957-000-028 | A06K SDUCR/L2 | 0.375 | 5.000 | 0.375 | 0.585 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-059 | 957-000-060 | A08M SDUCR/L2 | 0.500 | 6.000 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-091 | 957-000-092 | A10Q SDUCR/L2 | 0.625 | 7.000 | 0.500 | 0.850 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-110 | 957-000-111 | A12Q SDUCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-137 | 957-000-138 | A16R SDUCR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-112 | 957-000-113 | A12Q SDUPR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |
| 957-000-139 | 957-000-140 | A16R SDUPR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

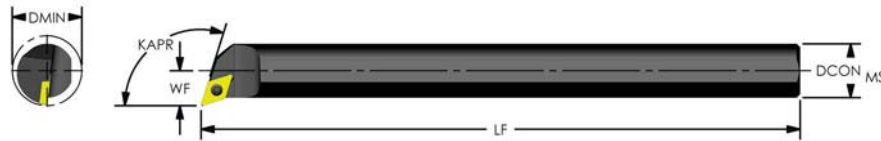
PACKAGE SIZE OF 5



Positive 55° Diamond (KAPR: 62.5°) Profiling

4:1 Ratio
No Coolant

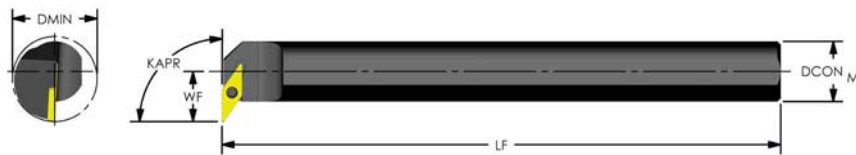
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|------|------------|--------------|------|
| 957-000-286 | S08M SDNCR2 | 0.500 | 6.000 | 0.508 | 0.780 | 62.5 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-321 | S10Q SDNCR2 | 0.625 | 6.860 | 0.562 | 0.920 | 62.5 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-343 | S12Q SDNCR3 | 0.750 | 6.800 | 0.765 | 1.190 | 62.5 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-374 | S16R SDNCR3 | 1.000 | 7.800 | 0.890 | 1.450 | 62.5 | DCMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 107.5°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------------|--------------|-----|
| 957-000-252 | S06K SDQCR2 | 0.375 | 5.000 | 0.281 | 0.490 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-287 | S08M SDQCR2 | 0.500 | 6.000 | 0.341 | 0.620 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-322 | S10Q SDQCR2 | 0.625 | 7.000 | 0.406 | 0.760 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |



Positive 35° Diamond (KAPR: 90°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|------|------------|--------------|------|
| 957-000-332 | S10Q SVFBR2 | 0.625 | 7.000 | 0.500 | 0.850 | 90.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-357 | S12Q SVFBR2 | 0.750 | 7.000 | 0.625 | 1.050 | 90.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-404 | S16X SVFBR3 | 1.000 | 9.000 | 0.750 | 1.310 | 90.0 | VBMT 331 | MTS-3.5L | T-15 |

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

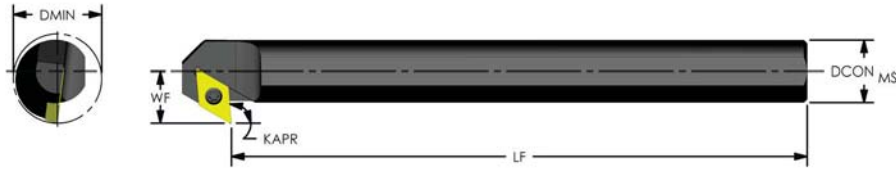
| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5

ULTRA-DEX

STEEL



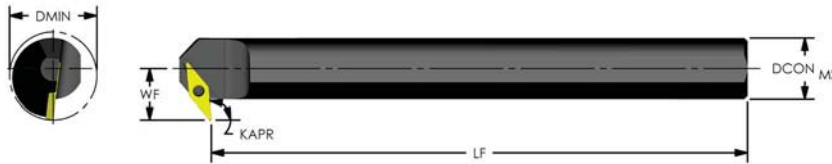
Positive 55° Diamond (KAPR: 95°) Back Facing

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-242 | 957-000-243 | S06J SDXCR/L2 | 0.375 | 4.500 | 0.375 | 0.585 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-290 | 957-000-291 | S08M SDXCR/L2 | 0.500 | 6.000 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-309 | 957-000-310 | S10M SDXCR/L2 | 0.625 | 6.000 | 0.500 | 0.850 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-348 | 957-000-349 | S12Q SDXCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-402 | 957-000-403 | S16X SDXCR/L3 | 1.000 | 9.000 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-017 | 957-000-018 | A06J SDXCR/L2 | 0.375 | 4.500 | 0.375 | 0.585 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-061 | 957-000-062 | A08M SDXCR/L2 | 0.500 | 6.000 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-080 | 957-000-081 | A10M SDXCR/L2 | 0.625 | 6.000 | 0.500 | 0.850 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 957-000-114 | 957-000-115 | A12Q SDXCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 957-000-162 | 957-000-163 | A16X SDXCR/L3 | 1.000 | 9.000 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |



Positive 35° Diamond (KAPR: 95°) Back Facing

4:1 Ratio
No Coolant

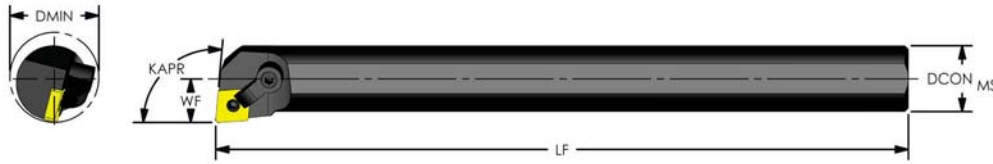
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 957-000-358 | S12Q SVXBR2 | 0.750 | 6.600 | 0.625 | 1.050 | 95.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 957-000-405 | S16X SVXBR3 | 1.000 | 9.000 | 0.875 | 1.435 | 95.0 | VBMT 331 | MTS-3.5L | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



Negative 80° Diamond (KAPR: 95°)

**4:1 Ratio
No Coolant**

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-361 | 957-000-362 | S12R MCLNR/L3 | 0.750 | 8.000 | 0.500 | 0.920 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 957-000-388 | 957-000-390 | S16S MCLNR/L3 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 957-000-389 | 957-000-391 | S16S MCLNR/L4 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 957-000-406 | 957-000-407 | S20S MCLNR/L4 | 1.250 | 10.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-419 | 957-000-420 | S20U MCLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-429 | 957-000-430 | S24U MCLNR/L4 | 1.500 | 14.000 | .890 | 1.730 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-442 | 957-000-443 | S32V MCLNR/L4 | 2.000 | 16.000 | 1.281 | 2.400 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-125 | 957-000-126 | A12R MCLNR/L3 | 0.750 | 8.000 | 0.500 | 0.920 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 957-000-151 | 957-000-153 | A16S MCLNR/L3 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 957-000-152 | 957-000-154 | A16S MCLNR/L4 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 957-000-164 | 957-000-165 | A20S MCLNR/L4 | 1.250 | 10.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-178 | 957-000-179 | A20U MCLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-189 | 957-000-190 | A24U MCLNR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-200 | 957-000-201 | A32V MCLNR/L4 | 2.000 | 16.000 | 1.281 | 2.400 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

PACKAGE SIZE OF 10

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

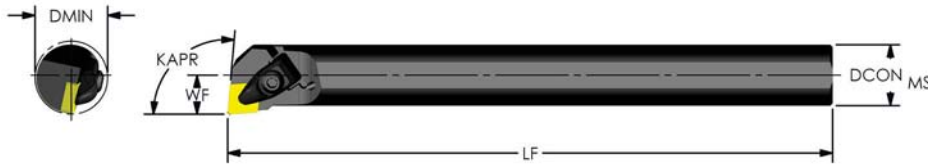
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| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

STEEL

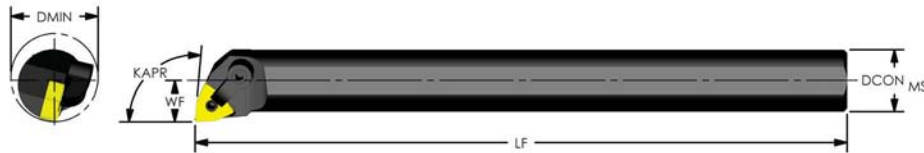
ULTRA-DEX[®]



Negative 80° Diamond (KAPR: 95°)

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|--------|-------|-------|----------|----------|------------|-------------|
| 957-000-149 | A16S DCLNR4 | 1.000 | 10.000 | 0.640 | 1.200 | CNMG 432 | N/A | N/A | PB4-CA |
| 957-000-176 | A20U DCLNR4 | 1.250 | 14.000 | 0.765 | 1.470 | CNMG 432 | ICSN 433 | PB4-SS | PB4-CA |
| 957-000-186 | A24U DCLNR4 | 1.500 | 14.000 | 0.890 | 1.730 | CNMG 432 | ICSN 433 | PB4-SS | PB4-CA |



Negative Trigon (KAPR: 95°)

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|---------|--------|-------|-------|------|----------|-----------|-------|-------------|----------|
| 957-000-365 | 957-000-366 | S12R MWLNR/L3 | 0.750 | 8.000 | 0.500 | 0.920 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-397 | 957-000-399 | S16S MWLNR/L3 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-398 | 957-000-400 | S16S MWLNR/L4 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 957-000-410 | 957-000-411 | S20S MWLNR/L4 | 1.250 | 10.000 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-423 | 957-000-424 | S20U MWLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-438 | 957-000-439 | S24U MWLNR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-444 | 957-000-445 | S32V MWLNR/L4 | 2.000 | 16.000 | 1.281 | 2.400 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|---------|--------|-------|-------|------|----------|-----------|-------|-------------|----------|
| 957-000-129 | 957-000-130 | A12R MWLNR/L3 | 0.750 | 8.000 | 0.500 | 0.920 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-158 | 957-000-160 | A16S MWLNR/L3 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-159 | 957-000-161 | A16S MWLNR/L4 | 1.000 | 10.000 | 0.640 | 1.200 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 957-000-166 | 957-000-167 | A20S MWLNR/L4 | 1.250 | 10.000 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-180 | 957-000-181 | A20U MWLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-196 | 957-000-197 | A24U MWLNR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 957-000-202 | 957-000-203 | A32V MWLNR/L4 | 2.000 | 16.000 | 1.281 | 2.400 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

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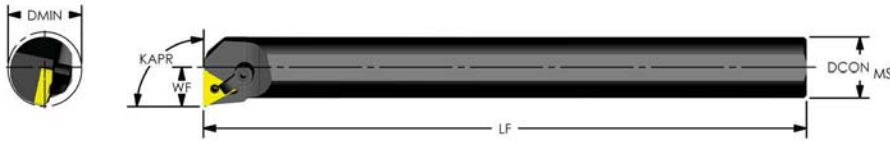
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|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

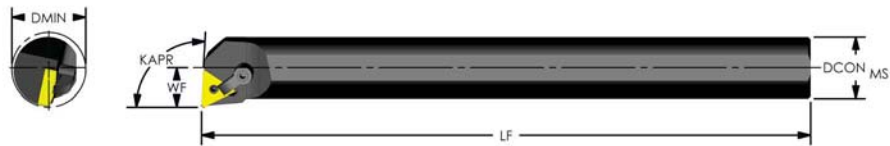
STEEL



Negative Triangle (KAPR: 90°)

4:1 Ratio
No Coolant

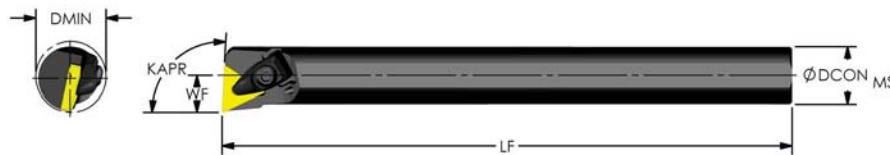
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|-------------|-------------|---------|--------|-------|-------|------|----------|-----------|-------|-------------|----------|
| 957-000-394 | S16S MTFNR3 | 1.000 | 10.000 | 0.640 | 1.200 | 90.0 | TNMG 332 | | CL-7 | XNS-36 | NL-33L |
| 957-000-408 | S20S MTFNR3 | 1.250 | 10.000 | 0.765 | 1.470 | 90.0 | TNMG 332 | ITSN-23 | CL-7 | XNS-36 | NL-34L |
| 957-000-421 | S20U MTFNR3 | 1.250 | 14.000 | 0.765 | 1.470 | 90.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 957-000-435 | S24U MTFNR4 | 1.500 | 14.000 | 0.890 | 1.730 | 90.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |



Negative Triangle (KAPR: 93°)

4:1 Ratio
No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|-------------|-------------|---------|--------|-------|-------|------|----------|-----------|-------|-------------|----------|
| 957-000-395 | S16S MTUNR3 | 1.000 | 10.000 | 0.640 | 1.200 | 93.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-409 | S20S MTUNR3 | 1.250 | 10.000 | 0.765 | 1.470 | 93.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 957-000-422 | S20U MTUNR3 | 1.250 | 14.000 | 0.765 | 1.470 | 93.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 957-000-436 | S24U MTUNR4 | 1.500 | 14.000 | 0.890 | 1.730 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |



Negative Triangle (KAPR: 93°)

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|--------|-------|-------|------|----------|----------|------------|-------------|
| 957-000-150 | A16S DTUNR4 | 1.000 | 10.000 | 0.640 | 1.200 | 93.0 | TNMG 432 | N/A | N/A | PB4-CA |
| 957-000-177 | A20U DTUNR4 | 1.250 | 14.000 | 0.765 | 1.470 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |
| 957-000-188 | A24U DTUNR4 | 1.500 | 14.000 | 0.890 | 1.730 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

PACKAGE SIZE OF 10

| PRODUCT # | Shim Seat |
|-------------|-----------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

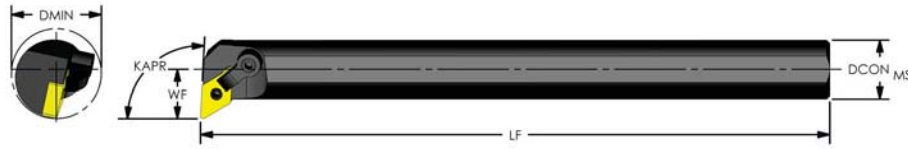
PACKAGE SIZE OF 10

| PRODUCT # | Lock Pin |
|-------------|----------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

ULTRA-DEX[®]

STEEL



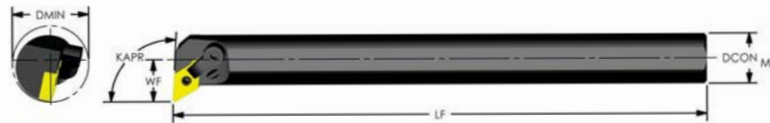
Negative 55° Diamond (KAPR: 93°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-363 | 957-000-364 | S12R MDUNR/L3 | 0.750 | 8.000 | 0.625 | 1.050 | 93.0 | DNMG 432 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-392 | 957-000-393 | S16S MDUNR/L3 | 1.000 | 10.000 | 0.750 | 1.310 | 93.0 | DNMG 432 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-414 | 957-000-416 | S20T MDUNR/L3 | 1.250 | 12.000 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 957-000-415 | 957-000-417 | S20T MDUNR/L4 | 1.250 | 12.000 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 957-000-433 | 957-000-434 | S24U MDUNR/L4 | 1.500 | 14.000 | 1.125 | 1.960 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-127 | 957-000-128 | A12R MDUNR/L3 | 0.750 | 8.000 | 0.625 | 1.050 | 93.0 | DNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-155 | 957-000-156 | A16S MDUNR/L3 | 1.000 | 10.000 | 0.750 | 1.310 | 93.0 | DNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 957-000-171 | 957-000-173 | A20T MDUNR/L3 | 1.250 | 12.000 | 1.000 | 1.700 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 957-000-172 | 957-000-174 | A20T MDUNR/L4 | 1.250 | 12.000 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 957-000-193 | 957-000-194 | A24U MDUNR/L4 | 1.500 | 14.000 | 1.125 | 1.960 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |



Negative 55° Diamond (KAPR: 93°)

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|------------|----|-------|-------|------|----------|----------|---------------|----------------|
| 957-000-168 | A20T DDUNR4 | 1.250 | 12 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN 433 | PB4-SS | PB4-CA |
| 957-000-187 | A24U DDUNR4 | 1.500 | 14 | 1.125 | 1.965 | 93.0 | DNMG 432 | IDSN 433 | PB4-SS | PB4-CA |

| PRODUCT # | Shim Screw |
|-------------|---------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

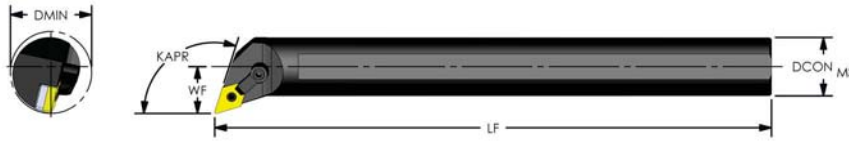
PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|----------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1



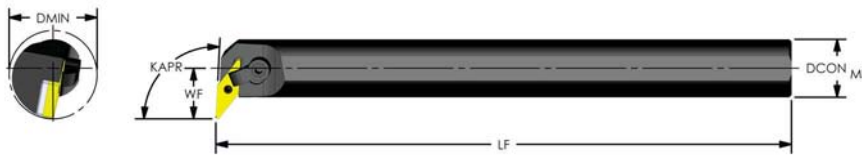
Negative 55° Diamond (KAPR: 72.5°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-412 | 957-000-413 | S20T MDQNR/L4 | 1.250 | 12.000 | 1.000 | 1.700 | 72.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 957-000-431 | 957-000-432 | S24U MDQNR/L4 | 1.500 | 14.000 | 1.125 | 1.960 | 72.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-169 | 957-000-170 | A20T MDQNR/L4 | 1.250 | 12.000 | 1.000 | 1.700 | 72.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 957-000-191 | 957-000-192 | A24U MDQNR/L4 | 1.500 | 14.000 | 1.125 | 1.960 | 72.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |



Negative 35° Diamond (KAPR: 93°) Profiling

4:1 Ratio
No Coolant

| PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|-------------------------|-------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-396 | S16S MVUNR3 | 1.000 | 10.000 | .875 | 1.435 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 957-000-418 | S20T MVUNR3 | 1.250 | 12.000 | 1.000 | 1.705 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 957-000-437 | S24U MVUNR3 | 1.500 | 14.000 | 1.120 | 1.960 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |

Coolant Thru

| PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|-------------------------|-------------|------------|--------|-------|-------|------|----------|--------------|-------|----------------|-------------|
| 957-000-157 | A16S MVUNR3 | 1.000 | 10.000 | 0.875 | 1.435 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 957-000-175 | A20T MVUNR3 | 1.250 | 12.000 | 1.000 | 1.705 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 957-000-195 | A24U MVUNR3 | 1.500 | 14.000 | 1.120 | 1.960 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

PACKAGE SIZE OF 10

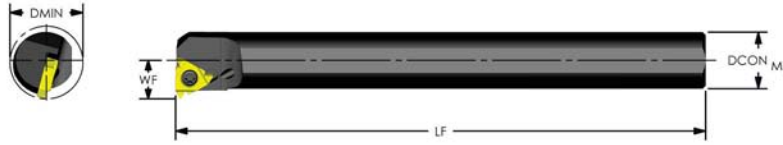
| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

PACKAGE SIZE OF 10

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

ULTRA-DEX

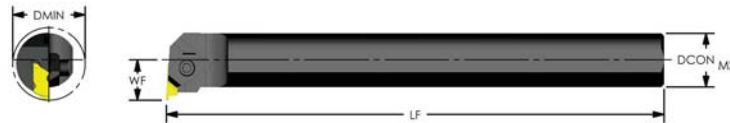


Threading/Grooving Laydown

4:1 Ratio
Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | LF | WF | L | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|------------------------|---------|-------|-------|-----|-------|--------|--------------|-------------|-------|
| 957-000-046 | A08M LSER2 | 0.500 | 6.000 | 0.308 | N/A | 0.588 | 2IR | SR34505 | N/A | N/A |
| 957-000-082 | A10Q LSER2 | 0.625 | 7.000 | 0.371 | N/A | 0.721 | 2IR | SR34505 | N/A | N/A |
| 957-000-105 | A12Q LSER3 | 0.750 | 7.000 | 0.510 | N/A | 0.935 | 3IR | MTS-35 | N/A | N/A |
| 957-000-132 | A16R LSER3 | 1.000 | 8.000 | 0.650 | N/A | 1.210 | 3IR | SA3T | SY3T | YI3 |

| PRODUCT # | Designation Left Hand | DCON MS | LF | WF | L | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|-----------------------|---------|-------|-------|-----|-------|--------|--------------|-------------|-------|
| 957-000-104 | A12Q LSEL3 | 0.750 | 7.000 | 0.510 | N/A | 0.935 | 3IL | MTS-35 | N/A | N/A |
| 957-000-131 | A16R LSEL3 | 1.000 | 8.000 | 0.650 | N/A | 1.210 | 3IL | SA3T | SY3T | YE3 |



Threading/Grooving Top Notch

4:1 Ratio
No Coolant

| PRODUCT # | Designation Right Hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|-------------|------------------------|---------|-------|-------|-------|--------|--------|-------------|
| 957-000-273 | S08M NER2 | 0.500 | 6.000 | 0.437 | 0.730 | NG 2L | CM-147 | 6-32 |
| 957-000-312 | S10Q NER2 | 0.625 | 7.000 | 0.500 | 1.000 | N/A | CM-75 | 6-32 |
| 957-000-338 | S12Q NER2 | 0.750 | 7.000 | 0.562 | 1.120 | N/A | CM-75 | 6-32 |
| 957-000-369 | S16R NER3 | 1.000 | 8.000 | 0.688 | 1.250 | NG 3L | CM-73 | 10-32 |

| PRODUCT # | Designation Left Hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|-------------|-----------------------|---------|-------|-------|-------|--------|--------|-------------|
| 957-000-272 | S08M NEL2 | 0.500 | 6.000 | 0.437 | 0.730 | NG 2R | CM-146 | 6-32 |
| 957-000-311 | S10Q NEL2 | 0.625 | 7.000 | 0.500 | 1.000 | NG 2R | CM-74 | 6-32 |
| 957-000-337 | S12Q NEL2 | 0.750 | 7.000 | 0.562 | 1.120 | NG 2R | CM-74 | 6-32 |
| 957-000-368 | S16R NEL3 | 1.000 | 8.000 | 0.688 | 1.250 | NG 3R | CM-72 | 10-32 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil |
|-------------|-----------|
| 968-000-185 | YI3 |
| 968-000-182 | YE3 |
| 968-000-187 | YI4 |
| 968-000-186 | YI3M-1.5N |
| 968-000-183 | YE4 |
| 968-000-188 | YI5 |
| 968-000-184 | YE5 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil Screw |
|-------------|-------------|
| 968-000-146 | SY3T |
| 968-000-147 | SY4T |
| 968-000-148 | SY5T |

PACKAGE SIZE OF 5

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-124 | SA3T |
| 968-000-125 | SA4T |
| 968-000-126 | SA5T |

PACKAGE SIZE OF 5

STEEL

957-000-204



Coolant Thru

- (1) A06K SCLCR2 (3/8" Bar)
- (1) A08M SCLCR2 (1/2" Bar)
- (1) A10Q SCLCR2 (5/8" Bar)
- (5) CCMT 21.51 ZX3-UD51

957-000-205



Coolant Thru

- (1) A10Q SCLCR3 (5/8" Bar)
- (1) A12Q SCLCR3 (3/4" Bar)
- (1) A16R SCLCR3 (1" Bar)
- (5) CCMT 32.51 ZX3-UD51

957-000-206



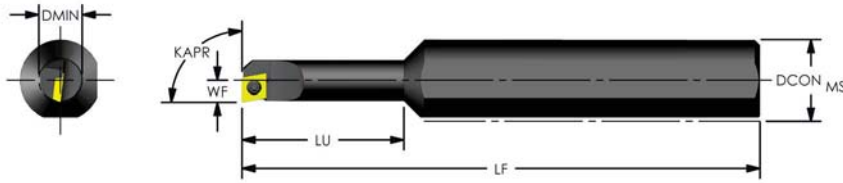
No Coolant

- (1) S03G SCLDR1.2
- (1) S03.5G SCLDR1.5
- (1) S04G SCLDR1.5
- (1) S05G SCLPR1.8
- (2) CDHB 1.20.60 UD51
- (2) CDGW 1.510 UD51
- (2) CPMT 1.81.20.5 LX6-UD52

| PRODUCT # | PRODUCT KITS |
|-------------|--------------|
| 957-000-204 | PDBK-356 |
| 957-000-205 | PDBK-671 |
| 957-000-206 | PDBK-MINI |

ULTRA-DEX[®]

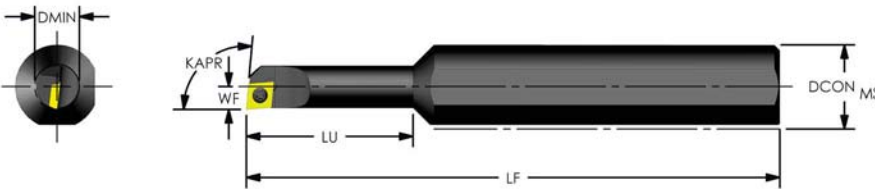
STEEL



Positive 80° Diamond (KAPR: 90°) Reduced Neck

No Coolant

| PRODUCT # | Designation | DCON MS | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------|------------|--------------|-----|
| 957-000-450 | SCFDR2-5 | 0.625 | 4.000 | 0.500 | 0.138 | 0.276 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-446 | SCFDR2-15 | 0.625 | 4.000 | 1.000 | 0.138 | 0.276 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-447 | SCFDR2-25 | 0.625 | 4.000 | 0.750 | 0.167 | 0.334 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-448 | SCFDR2-35 | 0.625 | 4.000 | 1.250 | 0.167 | 0.334 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-449 | SCFDR2-45 | 0.625 | 4.000 | 1.000 | 0.203 | 0.450 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-451 | SCFDR2-55 | 0.625 | 4.000 | 1.500 | 0.203 | 0.450 | 90.0 | CDGW 1.510 | MTS-184 | T-6 |



Positive 80° Diamond (KAPR: 95°) Reduced Neck

No Coolant

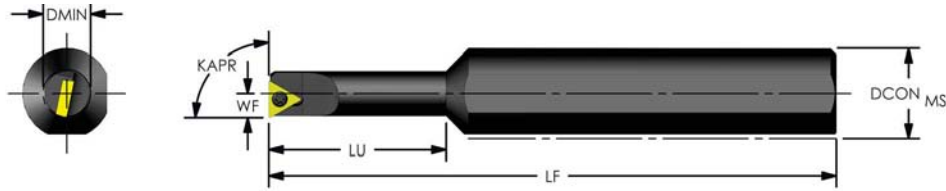
| PRODUCT # | Designation | DCON MS | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------|------------|--------------|-----|
| 957-000-456 | SCLDR2-5 | 0.625 | 4.000 | 0.500 | 0.138 | 0.276 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-452 | SCLDR2-15 | 0.625 | 4.000 | 1.000 | 0.138 | 0.276 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-453 | SCLDR2-25 | 0.625 | 4.000 | 0.750 | 0.167 | 0.334 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-454 | SCLDR2-35 | 0.625 | 4.000 | 1.250 | 0.167 | 0.334 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-455 | SCLDR2-45 | 0.625 | 4.000 | 1.000 | 0.203 | 0.450 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 957-000-457 | SCLDR2-55 | 0.625 | 4.000 | 1.500 | 0.203 | 0.450 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

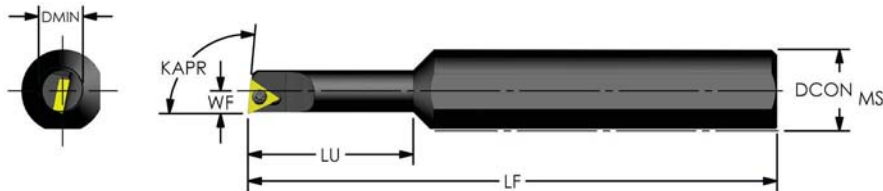
PACKAGE SIZE OF 5



Positive Triangle (KAPR: 90°) Reduced Neck

No Coolant

| PRODUCT # | Designation | DCON MS | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------|----------------|--------------|-----|
| 957-000-462 | STFCR2-5 | 0.625 | 4.000 | 0.500 | 0.138 | 0.276 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-458 | STFCR2-15 | 0.625 | 4.000 | 1.000 | 0.138 | 0.276 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-459 | STFCR2-25 | 0.625 | 4.000 | 0.750 | 0.167 | 0.334 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-460 | STFCR2-35 | 0.625 | 4.000 | 1.250 | 0.167 | 0.334 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-461 | STFCR2-45 | 0.625 | 4.000 | 1.000 | 0.203 | 0.450 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-463 | STFCR2-55 | 0.625 | 4.000 | 1.500 | 0.203 | 0.450 | 90.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |



Positive Triangle (KAPR: 95°) Reduced Neck

No Coolant

| PRODUCT # | Designation | DCON MS | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|-------|------|----------------|--------------|-----|
| 957-000-468 | STLCR2-5 | 0.625 | 4.000 | 0.500 | 0.138 | 0.276 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-464 | STLCR2-15 | 0.625 | 4.000 | 1.000 | 0.138 | 0.276 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-465 | STLCR2-25 | 0.625 | 4.000 | 0.750 | 0.167 | 0.334 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-466 | STLCR2-35 | 0.625 | 4.000 | 1.250 | 0.167 | 0.334 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-467 | STLCR2-45 | 0.625 | 4.000 | 1.000 | 0.203 | 0.450 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 957-000-469 | STLCR2-55 | 0.625 | 4.000 | 1.500 | 0.203 | 0.450 | 95.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |

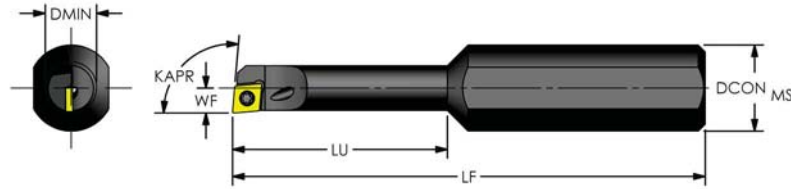
| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

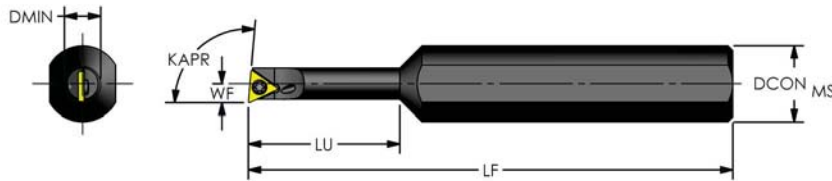
ULTRA-DEX[®]



Positive 80° Diamond (KAPR: 95°) Reduced Neck **SERIES "C"**

Coolant Thru

| PRODUCT # | Designation | DCON MS | KAPR | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|----------------------|---------|-------|-------|-------|-------|-------|------|----------------|--------------|-----|
| 915-000-017 | CSUD-180/375-1/2-5R | 0.375 | 0.180 | 2.500 | 0.500 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-018 | CSUD-180/375-1-5R | 0.375 | 0.180 | 2.500 | 1.000 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-022 | CSUD-203/375-1/2-5R | 0.375 | 0.203 | 2.500 | 0.500 | 0.116 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-023 | CSUD-203/375-1-5R | 0.375 | 0.203 | 2.500 | 1.000 | 0.116 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-026 | CSUD-250/375-11/4-5R | 0.375 | 0.250 | 2.500 | 1.250 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-019 | CSUD-180/500-1/2-5R | 0.500 | 0.180 | 2.750 | 0.500 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-020 | CSUD-180/500-1-5R | 0.500 | 0.180 | 2.750 | 1.000 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-024 | CSUD-203/500-1/2-5R | 0.500 | 0.203 | 2.750 | 0.500 | 0.116 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-025 | CSUD-203/500-1-5R | 0.500 | 0.203 | 2.750 | 1.000 | 0.116 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-028 | CSUD-250/500-3/4-5R | 0.500 | 0.250 | 2.750 | 0.750 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |
| 915-000-027 | CSUD-250/500-11/4-5R | 0.500 | 0.250 | 2.750 | 1.250 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |



Positive Triangle (KAPR: 95°) Reduced Neck **SERIES "F, Q"**

Coolant Thru

| PRODUCT # | Designation | DCON MS | KAPR | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|----------------------|---------|-------|-------|-------|-------|-------|------|------------------|--------------|------|
| 915-000-041 | FSUD-203/500-1/2-5R | 0.500 | 0.203 | 3.000 | 0.500 | 0.126 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-042 | FSUD-203/500-1-5R | 0.500 | 0.203 | 3.000 | 1.000 | 0.126 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-044 | FSUD-250/500-3/4-5R | 0.500 | 0.259 | 3.000 | 0.750 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-050 | FSUD-312/500-1-5R | 0.500 | 0.321 | 3.000 | 1.000 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-049 | FSUD-312/500-11/2-5R | 0.500 | 0.321 | 3.000 | 1.500 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-043 | FSUD-203/625-1/2-5R | 0.625 | 0.203 | 4.000 | 0.500 | 0.126 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-046 | FSUD-250/625-3/4-5R | 0.625 | 0.259 | 4.000 | 0.750 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-045 | FSUD-250/625-11/4-5R | 0.625 | 0.259 | 4.000 | 1.250 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-051 | FSUD-312/625-1-5R | 0.625 | 0.321 | 4.000 | 1.000 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-072 | QSUD-375/500-11/8-5R | 0.500 | 0.390 | 3.750 | 1.125 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-073 | QSUD-375/500-17/8-5R | 0.500 | 0.390 | 3.750 | 1.875 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-074 | QSUD-375/625-11/8-5R | 0.625 | 0.390 | 4.250 | 1.125 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-075 | QSUD-375/625-17/8-5R | 0.625 | 0.390 | 4.250 | 1.875 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-076 | QSUD-375/750-11/2-5R | 0.750 | 0.390 | 4.000 | 1.500 | 0.221 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-081 | QSUD-625/750-21/2-5R | 0.750 | 0.635 | 4.500 | 2.500 | 0.353 | 0.688 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5

STEEL

CARBIDE BORING BARS

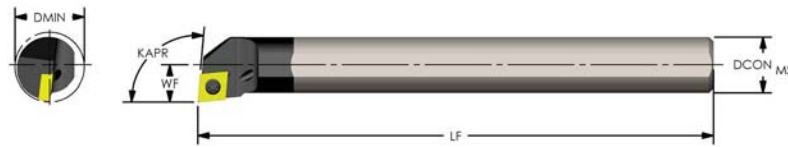
Maximum rigidity and efficiency for use in tougher applications

Up to 8:1 Ratio

.156"-1.5" Diameters



CARBIDE

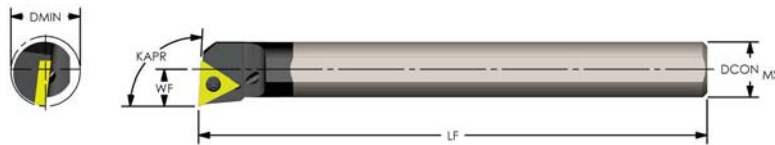


Positive 80° Diamond (KAPR: 95°)

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS (mm) | LF (mm) | WF (mm) | DMIN (mm) | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|--------------------|------------|------------|--------------|------|------------|-----------------|------|
| 920-000-428 | 920-000-429 | M-E06H SCLDR/L04* | 6.00 | 100.00 | 3.50 | 7.00 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-432 | 920-000-433 | M-E08K SCLCR/L06* | 8.00 | 125.00 | 6.00 | 11.00 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-436 | 920-000-437 | M-E10M SCLCR/L06 | 10.00 | 150.00 | 7.00 | 13.00 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-442 | 920-000-443 | M-E12Q SCLCR/L06 | 12.00 | 180.00 | 9.00 | 16.00 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-448 | 920-000-449 | M-E16R SCLCR/L09 | 16.00 | 200.00 | 11.00 | 20.00 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-454 | 920-000-455 | M-E20S SCLCR/L09 | 20.00 | 250.00 | 13.00 | 25.00 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-460 | 920-000-461 | M-E25T SCLCR/L09 | 25.00 | 300.00 | 17.00 | 32.00 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |

*bars 8mm and smaller do not have flats

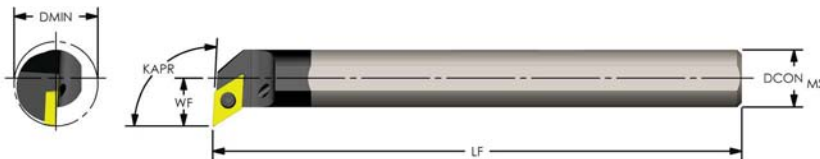


Positive Triangle (KAPR: 93°)

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS (mm) | LF (mm) | WF (mm) | DMIN (mm) | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|--------------------|------------|------------|--------------|------|----------------|-----------------|------|
| 920-000-430 | 920-000-431 | M-E06H STUCR/L06* | 6.00 | 100.00 | 3.50 | 7.00 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-434 | 920-000-435 | M-E08K STUCR/L06* | 8.00 | 125.00 | 6.00 | 11.00 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-440 | 920-000-441 | M-E10M STUCR/L11 | 10.00 | 150.00 | 7.00 | 13.00 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-446 | 920-000-447 | M-E12Q STUCR/L11 | 12.00 | 180.00 | 9.00 | 16.00 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-452 | 920-000-453 | M-E16R STUCR/L11 | 16.00 | 200.00 | 11.00 | 20.00 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-458 | 920-000-459 | M-E20S STUCR/L16 | 20.00 | 250.00 | 13.00 | 25.00 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-464 | 920-000-465 | M-E25T STUCR/L16 | 25.00 | 300.00 | 17.00 | 32.00 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |

*bars 8mm and smaller do not have flats



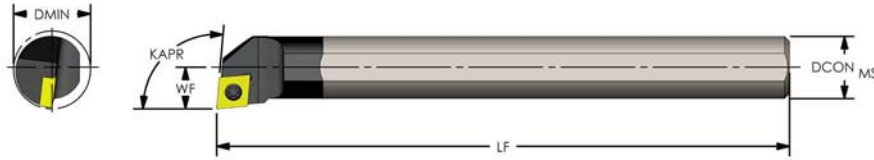
Positive 55° Diamond (KAPR: 93°) Profiling

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS (mm) | LF (mm) | WF (mm) | DMIN (mm) | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|------------------|--------------------|------------|------------|--------------|------|------------|-----------------|------|
| 920-000-438 | 920-000-439 | M-E10M SDUCR/L07 | 10.00 | 150.00 | 9.00 | 15.00 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-444 | 920-000-445 | M-E12Q SDUCR/L07 | 12.00 | 180.00 | 11.00 | 18.00 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-450 | 920-000-451 | M-E16R SDUCR/L07 | 16.00 | 200.00 | 13.00 | 22.00 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-456 | 920-000-457 | M-E20S SDUCR/L11 | 20.00 | 250.00 | 15.00 | 27.00 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-462 | 920-000-463 | M-E25T SDUCR/L11 | 25.00 | 300.00 | 18.00 | 33.00 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |



CARBIDE



Positive 80° Diamond (KAPR: 95°)

**8:1 Ratio
No Coolant**

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|--------------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| 920-000-001 | 920-000-002 | C02.5G SCLDR/L1.2* | 0.156 | 3.500 | 0.090 | 0.175 | 95.0 | CDHB 1.20.60 | MTS-183 | T-6 |
| 920-000-005 | 920-000-006 | C03H SCLDR/L1.2* | 0.187 | 4.000 | 0.102 | 0.205 | 95.0 | CDHB 1.20.60 | MTS-183 | T-6 |
| 920-000-003 | 920-000-004 | C03.5H SCLDR/L1.5* | 0.218 | 4.000 | 0.125 | 0.245 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-008 | 920-000-010 | C04H SCLDR/L1.5* | 0.250 | 4.000 | 0.172 | 0.312 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-018 | 920-000-020 | C05K SCLPR/L1.8* | 0.312 | 5.000 | 0.219 | 0.395 | 95.0 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 920-000-032 | 920-000-034 | C06M SCLPR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-062 | 920-000-065 | C08J SCLPR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-094 | 920-000-097 | C08R SCLPR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-064 | 920-000-067 | C08J SCLPR/L3 | 0.500 | 4.500 | 0.344 | 0.625 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-096 | 920-000-099 | C08R SCLPR/L3 | 0.500 | 8.000 | 0.344 | 0.625 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-028 | 920-000-030 | C06M SCLCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-056 | 920-000-059 | C08J SCLCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-088 | 920-000-091 | C08R SCLCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-058 | 920-000-061 | C08J SCLCR/L3 | 0.500 | 4.500 | 0.344 | 0.625 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-090 | 920-000-093 | C08R SCLCR/L3 | 0.500 | 8.000 | 0.344 | 0.625 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 920-000-009 | 920-000-011 | C04H SCLDR/L1.5-138 * | 0.250 | 4.000 | 0.138 | 0.275 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-019 | 920-000-021 | C05K SCLPR/L1.8-167 * | 0.312 | 5.000 | 0.167 | 0.340 | 95.0 | CPMT 1.81.20.5 | MTS-224 | T-7 |
| 920-000-033 | 920-000-035 | C06M SCLPR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-063 | 920-000-066 | C08J SCLPR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-095 | 920-000-098 | C08R SCLPR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-029 | 920-000-031 | C06M SCLCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-057 | 920-000-060 | C08J SCLCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-089 | 920-000-092 | C08R SCLCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

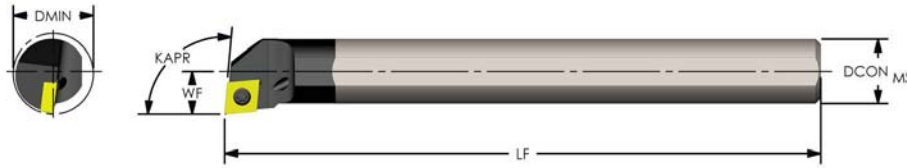
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



Positive 80° Diamond (KAPR: 95°)

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|--------|-------|-------|------|----------------|-----------------|------|
| 920-000-120 | 920-000-121 | E02.5G SCLDR/L1.2 * | 0.156 | 3.500 | 0.090 | 0.175 | 95.0 | CDHB 1.20.60 | MTS-183 | T-6 |
| 920-000-124 | 920-000-125 | E03H SCLDR/L1.2 * | 0.187 | 4.000 | 0.102 | 0.205 | 95.0 | CDHB 1.20.60 | MTS-183 | T-6 |
| 920-000-122 | 920-000-123 | E03.5H SCLDR/L1.5 * | 0.218 | 4.000 | 0.125 | 0.245 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-127 | 920-000-129 | E04H SCLDR/L1.5 * | 0.250 | 4.000 | 0.172 | 0.312 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-137 | 920-000-139 | E05K SCLPR/L1.8 * | 0.312 | 5.000 | 0.219 | 0.395 | 95.0 | CPMT 1.81.20.5 | MTS 224 | T-7 |
| 920-000-151 | 920-000-153 | E06M SCLPR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-183 | 920-000-186 | E08J SCLPR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-219 | 920-000-222 | E08R SCLPR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-254 | 920-000-256 | E10Q SCLPR/L2 | 0.625 | 7.000 | 0.406 | 0.770 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-279 | 920-000-281 | E10S SCLPR/L2 | 0.625 | 10.000 | 0.406 | 0.770 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-185 | 920-000-188 | E08J SCLPR/L3 | 0.500 | 4.500 | 0.344 | 0.625 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-221 | 920-000-224 | E08R SCLPR/L3 | 0.500 | 8.000 | 0.344 | 0.625 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-255 | 920-000-257 | E10Q SCLPR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-280 | 920-000-282 | E10S SCLPR/L3 | 0.625 | 10.000 | 0.406 | 0.760 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-307 | 920-000-309 | E12Q SCLPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-334 | 920-000-335 | E12S SCLPR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-364 | 920-000-365 | E16R SCLPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 920-000-394 | 920-000-395 | E16T SCLPR/L3 | 1.000 | 12.000 | 0.625 | 1.185 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 920-000-128 | 920-000-130 | E04H SCLDR/L1.5-138 * | 0.250 | 4.000 | 0.138 | 0.270 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 920-000-138 | 920-000-140 | E05K SCLPR/L1.8-167 * | 0.312 | 5.000 | 0.167 | 0.340 | 95.0 | CPMT 1.81.20.5 | MTS 224 | T-7 |
| 920-000-152 | 920-000-154 | E06M SCLPR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-184 | 920-000-187 | E08J SCLPR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 920-000-220 | 920-000-223 | E08R SCLPR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

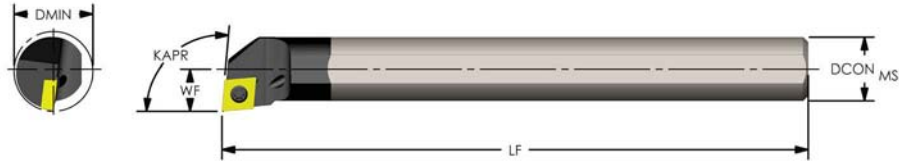
| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5



CARBIDE



Positive 80° Diamond (KAPR: 95°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 920-000-147 | 920-000-149 | E06M SCLCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-177 | 920-000-180 | E08J SCLCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-213 | 920-000-216 | E08R SCLCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-250 | 920-000-252 | E10Q SCLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-275 | 920-000-277 | E10S SCLCR/L2 | 0.625 | 10.00 | 0.406 | 0.760 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-179 | 920-000-182 | E08J SCLCR/L3 | 0.500 | 4.500 | 0.344 | 0.625 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-215 | 920-000-218 | E08R SCLCR/L3 | 0.500 | 8.000 | 0.344 | 0.625 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-251 | 920-000-253 | E10Q SCLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-276 | 920-000-278 | E10S SCLCR/L3 | 0.625 | 10.00 | 0.406 | 0.760 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-306 | 920-000-307 | E12Q SCLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-332 | 920-000-333 | E12S SCLCR/L3 | 0.750 | 10.00 | 0.500 | 0.920 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-362 | 920-000-363 | E16R SCLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-392 | 920-000-393 | E16T SCLCR/L3 | 1.000 | 12.00 | 0.625 | 1.185 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-417 | 920-000-419 | E20U SCLCR/L3 | 1.250 | 14.00 | 0.765 | 1.465 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 920-000-418 | 920-000-420 | E20U SCLCR/L4 | 1.250 | 14.00 | 0.765 | 1.465 | 95.0 | CCMT 432 | MTS-4 | T-20 |
| 920-000-426 | 920-000-427 | E24U SCLCR/L4 | 1.500 | 14.00 | 0.890 | 1.730 | 95.0 | CCMT 432 | MTS-4 | T-20 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|------------|-----------------|-----|
| 920-000-148 | 920-000-150 | E06M SCLCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-178 | 920-000-181 | E08J SCLCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 920-000-214 | 920-000-217 | E08R SCLCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

CARBIDE

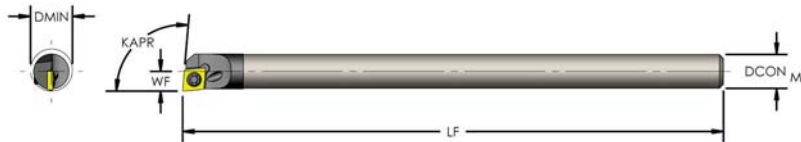


Positive 80° Diamond (KAPR: 97°) SERIES "C"

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|---------------------|---------|-------|-------|-------|------|----------------|--------------|-----|
| 915-000-001 | CCUD-165/156-6-7R * | 0.156 | 6.000 | 0.095 | 0.180 | 97.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |

* bars .312 and smaller do not have flats

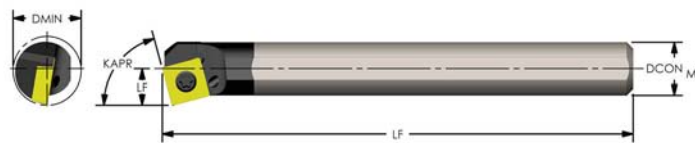


Positive 80° Diamond (KAPR: 95°) SERIES "C"

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|---------------------|---------|-------|-------|-------|------|----------------|--------------|-----|
| 915-000-002 | CCUD-180/187-4-5R * | 0.187 | 4.000 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-003 | CCUD-180/187-6-5R * | 0.187 | 6.000 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-006 | CCUD-187-4-5R * | 0.187 | 4.000 | 0.111 | 0.222 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-007 | CCUD-187-6-5R * | 0.187 | 6.000 | 0.111 | 0.222 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 |
| 915-000-011 | CCUD-250-4-5R * | 0.250 | 4.000 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |
| 915-000-013 | CCUD-250-6-5R * | 0.250 | 6.000 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |
| 915-000-014 | CCUD-312-5-5R * | 0.312 | 5.000 | 0.185 | 0.360 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 |
| 915-000-012 | CCUD-250-4-5R-1.5 * | 0.250 | 4.000 | 0.145 | 0.285 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |

* bars .312 and smaller do not have flats



Positive Square (KAPR: 75°)

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|------|------------|--------------|------|
| 920-000-230 | E08R SSKCR3 | 0.500 | 8.000 | 0.344 | 0.625 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |
| 920-000-288 | E10S SSKCR3 | 0.625 | 10.00 | 0.406 | 0.760 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

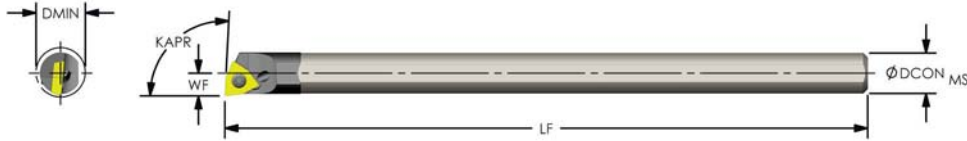
| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



by **Ultra-Dex**

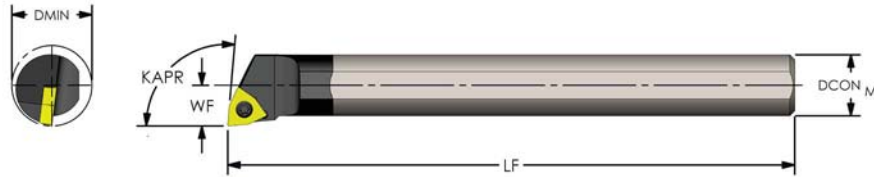
CARBIDE



Positive Trigon (KAPR: 93°) SERIES "G, Q, S"

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|------------------|------------|--------|-------|-------|------|------------|-----------------|------|
| 915-000-053 | 915-000-054 | GCUDW-187-6-3R/L | 0.187 | 6.000 | 0.126 | 0.260 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-055 | 915-000-056 | GCUDW-250-6-3R/L | 0.250 | 6.000 | 0.143 | 0.285 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-057 | 915-000-058 | GCUDW-312-6-3R/L | 0.312 | 6.000 | 0.174 | 0.374 | 93.0 | WPGT 1.511 | MTS-184 | T-6 |
| 915-000-068 | 915-000-069 | QCUDW-375-6-3R/L | 0.375 | 6.000 | 0.211 | 0.415 | 93.0 | WPGT 21.50 | MTS-255 | T-7 |
| 915-000-070 | 915-000-071 | QCUDW-500-8-3R/L | 0.500 | 8.000 | 0.273 | 0.540 | 93.0 | WPGT 21.50 | MTS-255 | T-7 |
| N/A | 915-000-090 | SCUDW-625-10-3R | 0.625 | 10.000 | 0.345 | 0.675 | 93.0 | WPMT 32.51 | MTS-35 | T-15 |
| N/A | 915-000-091 | SCUDW-750-10-3R | 0.750 | 10.000 | 0.407 | 0.800 | 93.0 | WPMT 32.51 | MTS-35 | T-15 |



Positive Trigon (KAPR: 95°)

8:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| N/A | 920-000-007 | C03H SWLCR1.2 * | 0.187 | 4.000 | 0.102 | 0.205 | 95.0 | WCMT 1.210.5 | MTS-183 | T-6 |
| N/A | 920-000-016 | C04H SWLCR1.2 * | 0.250 | 4.000 | 0.172 | 0.312 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 920-000-026 | C05K SWLCR1.5 * | 0.312 | 5.000 | 0.219 | 0.395 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |
| 920-000-052 | 920-000-054 | C06M SWLCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-084 | 920-000-086 | C08J SWLCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-116 | 920-000-118 | C08R SWLCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance

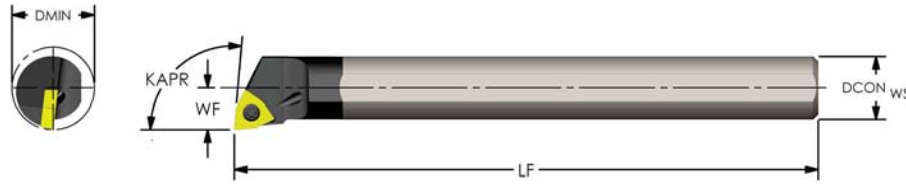
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| N/A | 920-000-017 | C04H SWLCR1.2-138 * | 0.250 | 4.000 | 0.138 | 0.275 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 920-000-027 | C05K SWLCR1.5-167 * | 0.312 | 5.000 | 0.167 | 0.345 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |
| 920-000-053 | 920-000-055 | C06M SWLCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.400 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-085 | 920-000-087 | C08J SWLCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-117 | 920-000-119 | C08R SWLCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



Positive Trigon (KAPR: 95°)

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------|------------|--------|-------|-------|------|---------------|-----------------|------|
| N/A | 920-000-126 | E03H SWLCR1.2 * | 0.187 | 4.000 | 0.102 | 0.205 | 95.0 | WCMT 1.210.5 | MTS-183 | T-6 |
| N/A | 920-000-135 | E04H SWLCR1.2 * | 0.250 | 4.000 | 0.172 | 0.395 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 920-000-145 | E05K SWLCR1.5 * | 0.312 | 5.000 | 0.219 | 0.410 | 95.0 | WCMT1.51.50.5 | MTS-2 | T-6 |
| 920-000-173 | 920-000-175 | E06M SWLCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-205 | 920-000-207 | E08J SWLCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-244 | 920-000-246 | E08R SWLCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-269 | 920-000-271 | E10Q SWLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-296 | 920-000-298 | E10S SWLCR/L2 | 0.625 | 10.000 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-270 | 920-000-272 | E10Q SWLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 920-000-297 | 920-000-299 | E10S SWLCR/L3 | 0.625 | 10.000 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 920-000-322 | 920-000-323 | E12Q SWLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 920-000-350 | 920-000-351 | E12S SWLCR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 920-000-378 | 920-000-379 | E16R SWLCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 920-000-408 | 920-000-409 | E16T SWLCR/L3 | 1.000 | 12.000 | 0.625 | 1.185 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| N/A | 920-000-136 | E04H SWLCR1.2-138 * | 0.250 | 4.000 | 0.138 | 0.275 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| N/A | 920-000-146 | E05K SWLCR1.5-167 * | 0.312 | 5.000 | 0.167 | 0.345 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |
| 920-000-174 | 920-000-176 | E06M SWLCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-206 | 920-000-208 | E08J SWLCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 920-000-245 | 920-000-247 | E08R SWLCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

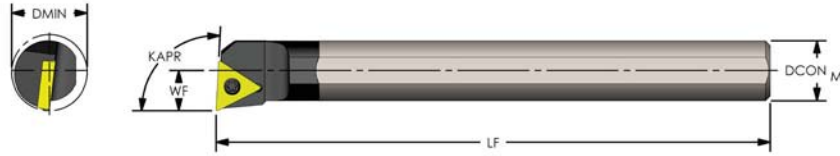
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



CARBIDE



Positive Triangle (KAPR: 93°)

**8:1 Ratio
No Coolant**

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 920-000-012 | 920-000-014 | C04H STUCR/L1.2 * | 0.250 | 4.000 | 0.172 | 0.312 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-022 | 920-000-024 | C05K STUCR/L1.2 * | 0.312 | 5.000 | 0.219 | 0.395 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-044 | 920-000-046 | C06M STUCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-076 | 920-000-078 | C08J STUCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-108 | 920-000-110 | C08R STUCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-048 | 920-000-050 | C06M STUPR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-080 | 920-000-082 | C08J STUPR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-112 | 920-000-114 | C08R STUPR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance

No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 920-000-013 | 920-000-015 | C04H STUCR/L1.2-138 * | 0.250 | 4.000 | 0.138 | 0.275 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-023 | 920-000-025 | C05K STUCR/L1.2-167 * | 0.312 | 5.000 | 0.167 | 0.340 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-045 | 920-000-047 | C06M STUCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-077 | 920-000-079 | C08J STUCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-109 | 920-000-111 | C08R STUCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.570 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-049 | 920-000-051 | C06M STUPR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-081 | 920-000-083 | C08J STUPR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-113 | 920-000-115 | C08R STUPR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

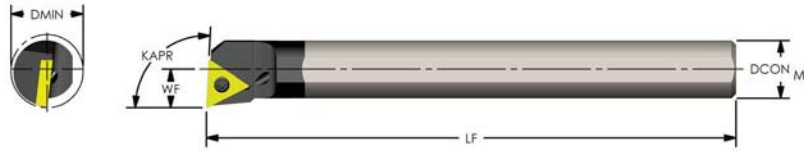
| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

CARBIDE



Positive Triangle (KAPR: 93°)

8:1 Ratio

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|--------|-------|-------|------|----------------|-----------------|------|
| 920-000-131 | 920-000-133 | E04H STUCR/L1.2 * | 0.250 | 4.000 | 0.172 | 0.312 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-141 | 920-000-143 | E05K STUCR/L1.2 * | 0.312 | 5.000 | 0.219 | 0.395 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-164 | 920-000-166 | E06M STUCR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-197 | 920-000-199 | E08J STUCR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-235 | 920-000-237 | E08R STUCR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-265 | 920-000-266 | E10Q STUCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-291 | 920-000-292 | E10S STUCR/L2 | 0.625 | 10.000 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-318 | 920-000-319 | E12Q STUCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-345 | 920-000-346 | E12S STUCR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-374 | 920-000-375 | E16R STUCR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-404 | 920-000-405 | E16T STUCR/L3 | 1.000 | 12.000 | 0.625 | 1.185 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-168 | 920-000-170 | E06M STUPR/L2 | 0.375 | 6.000 | 0.250 | 0.460 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-201 | 920-000-203 | E08J STUPR/L2 | 0.500 | 4.500 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-239 | 920-000-241 | E08R STUPR/L2 | 0.500 | 8.000 | 0.312 | 0.600 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-267 | 920-000-268 | E10Q STUPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-293 | 920-000-294 | E10S STUPR/L2 | 0.625 | 10.000 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-320 | 920-000-321 | E12Q STUPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-347 | 920-000-348 | E12S STUPR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-376 | 920-000-377 | E16R STUPR/L3 | 1.000 | 8.000 | 0.625 | 1.185 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-406 | 920-000-407 | E16T STUPR/L3 | 1.000 | 12.000 | 0.625 | 1.185 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

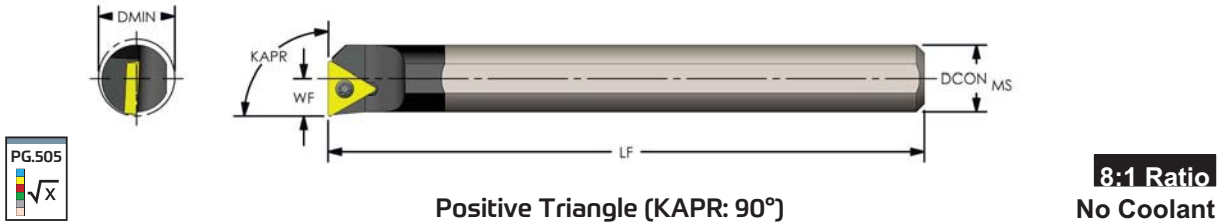
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 920-000-132 | 920-000-134 | E04H STUCR/L1.2-138 * | 0.250 | 4.000 | 0.138 | 0.275 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-142 | 920-000-144 | E05K STUCR/L1.2-167 * | 0.312 | 5.000 | 0.167 | 0.340 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 920-000-165 | 920-000-167 | E06M STUCR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-198 | 920-000-200 | E08J STUCR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-236 | 920-000-238 | E08R STUCR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-169 | 920-000-170 | E06M STUPR/L2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-202 | 920-000-204 | E08J STUPR/L2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-240 | 920-000-242 | E08R STUPR/L2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



CARBIDE



| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|--------------|---------|-------|-------|-------|------|------------|--------------|-----|
| 920-000-042 | C06M STFPR2 | 0.375 | 6.000 | 0.250 | 0.460 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-074 | C08J STFPR2 | 0.500 | 4.500 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-106 | C08R STFPR2 | 0.500 | 8.000 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-040 | C06M STFPCR2 | .375 | 6.000 | 0.250 | 0.460 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-072 | C08J STFPCR2 | 0.500 | 4.500 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-104 | C08R STFPCR2 | 0.500 | 8.000 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance

No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|------------------|---------|-------|-------|-------|------|------------|--------------|-----|
| 920-000-043 | C06M STFPR2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-075 | C08J STFPR2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-107 | C08R STFPR2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-041 | C06M STFPCR2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-073 | C08J STFPCR2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-105 | C08R STFPCR2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

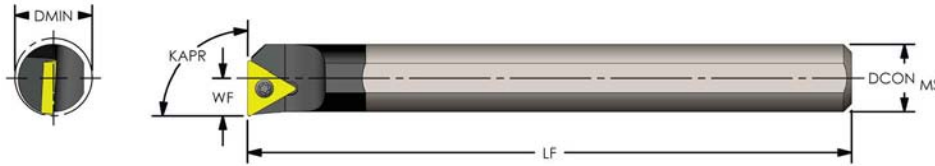
| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

CARBIDE



Positive Triangle (KAPR: 90°)

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|--------------|---------|--------|-------|-------|------|------------|--------------|------|
| 920-000-162 | E06M STFPR2 | 0.375 | 6.000 | 0.250 | 0.460 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-195 | E08J STFPR2 | 0.500 | 4.500 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-233 | E08R STFPR2 | 0.500 | 8.000 | 0.312 | 0.600 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-264 | E10Q STFPR2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-290 | E10S STFPR2 | 0.625 | 10.000 | 0.406 | 0.760 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-317 | E12Q STFPR3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-344 | E12S STFPR3 | 0.750 | 10.000 | 0.500 | 0.920 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-373 | E16R STFPR3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-403 | E16T STFPR3 | 1.000 | 12.000 | 0.625 | 1.185 | 90.0 | TPMT 32.51 | MTS-35 | T-15 |
| 920-000-160 | E06M STFPCR2 | 0.375 | 6.000 | 0.250 | 0.460 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-193 | E08J STFPCR2 | 0.500 | 4.500 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-231 | E08R STFPCR2 | 0.500 | 8.000 | 0.312 | 0.600 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-263 | E10Q STFPCR2 | 0.625 | 7.000 | 0.406 | 0.760 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-289 | E10S STFPCR2 | 0.625 | 10.000 | 0.406 | 0.760 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-316 | E12Q STFPCR3 | 0.750 | 7.000 | 0.500 | 0.920 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-343 | E12S STFPCR3 | 0.750 | 10.000 | 0.500 | 0.920 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-372 | E16R STFPCR3 | 1.000 | 8.000 | 0.625 | 1.185 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 920-000-402 | E16T STFPCR3 | 1.000 | 12.000 | 0.625 | 1.185 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |

Minimum Clearance

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|------------------|---------|-------|-------|-------|------|------------|--------------|-----|
| 920-000-163 | E06M STFPR2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-196 | E08J STFPR2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-234 | E08R STFPR2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 90.0 | TPMT 21.51 | MTS-255 | T-7 |
| 920-000-161 | E06M STFPCR2-203 | 0.375 | 6.000 | 0.203 | 0.410 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-194 | E08J STFPCR2-281 | 0.500 | 4.500 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 920-000-232 | E08R STFPCR2-281 | 0.500 | 8.000 | 0.281 | 0.560 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



CARBIDE

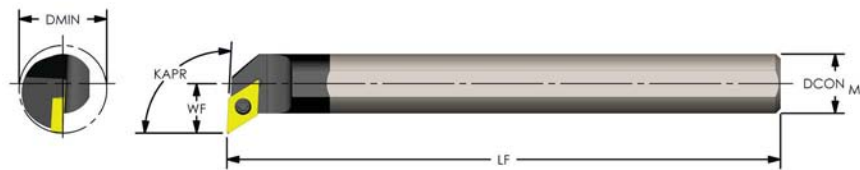


Positive Triangle (KAPR: 95°) SERIES "F, Q, S"

8:1 Ratio Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-----------------|---------|--------|-------|-------|------|------------------|--------------|------|
| 915-000-030 | FCUD-187-4-5R * | 0.187 | 4.000 | 0.126 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-031 | FCUD-187-6-5R * | 0.187 | 6.000 | 0.126 | 0.275 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-034 | FCUD-250-4-5R * | 0.250 | 4.000 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-035 | FCUD-250-6-5R * | 0.250 | 6.000 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-038 | FCUD-312-4-5R * | 0.312 | 4.000 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-039 | FCUD-312-6-5R * | 0.312 | 6.000 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 |
| 915-000-066 | QCUD-375-6-5R | 0.375 | 6.000 | 0.228 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-065 | QCUD-375-10-5R | 0.375 | 10.000 | 0.228 | 0.438 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-067 | QCUD-500-8-5R | 0.500 | 8.000 | 0.296 | 0.563 | 95.0 | TPCB 220.5 | ETS 4-40 | T-10 |
| 915-000-088 | SCUD-625-6-5R | 0.625 | 6.000 | 0.393 | 0.731 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| 915-000-087 | SCUD-625-10-5R | 0.625 | 10.000 | 0.393 | 0.731 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| 915-000-089 | SCUD-750-10-5R | 0.750 | 10.000 | 0.460 | 0.855 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |
| 915-000-086 | SCUD-1000-12-5R | 1.000 | 12.000 | 0.585 | 1.105 | 95.0 | TD 320.5 | ETS 4-40 | T-10 |

*bars .312 and smaller do not have flats



Positive 55° Diamond (KAPR: 93°) Profiling

8:1 Ratio No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|---------------------|----------------------|---------------|---------|-------|-------|-------|------|------------|--------------|-----|
| 920-000-036 | 920-000-037 | C06M SDUCR/L2 | 0.375 | 6.000 | 0.375 | 0.585 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-068 | 920-000-069 | C08J SDUCR/L2 | 0.500 | 4.500 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-100 | 920-000-101 | C08R SDUCR/L2 | 0.500 | 8.000 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

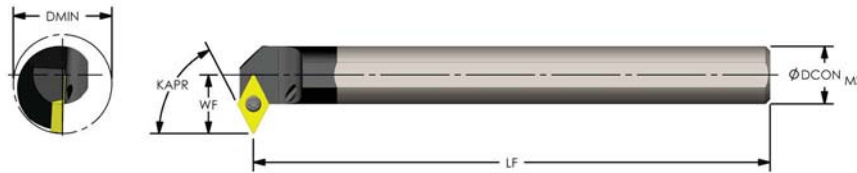
CARBIDE



Positive 55° Diamond (KAPR: 93°) Profiling

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|------------|-----------------|------|
| 920-000-156 | 920-000-157 | E06M SDUCR/L2 | 0.375 | 6.000 | 0.375 | 0.585 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-189 | 920-000-190 | E08J SDUCR/L2 | 0.500 | 4.500 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-226 | 920-000-227 | E08R SDUCR/L2 | 0.500 | 8.000 | 0.437 | 0.720 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-259 | 920-000-260 | E10Q SDUCR/L2 | 0.625 | 7.000 | 0.500 | 0.850 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-284 | 920-000-285 | E10S SDUCR/L2 | 0.625 | 10.000 | 0.500 | 0.850 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-310 | 920-000-311 | E12Q SDUCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-337 | 920-000-338 | E12S SDUCR/L3 | 0.750 | 10.000 | 0.625 | 1.050 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-366 | 920-000-367 | E16R SDUCR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-396 | 920-000-397 | E16T SDUCR/L3 | 1.000 | 12.000 | 0.750 | 1.310 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-312 | 920-000-313 | E12Q SDUPR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |
| 920-000-339 | 920-000-340 | E12S SDUPR/L3 | 0.750 | 10.000 | 0.625 | 1.050 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |
| 920-000-368 | 920-000-369 | E16R SDUPR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |
| 920-000-398 | 920-000-399 | E16T SDUPR/L3 | 1.000 | 12.000 | 0.750 | 1.310 | 93.0 | DPMT 32.51 | MTS-35 | T-15 |

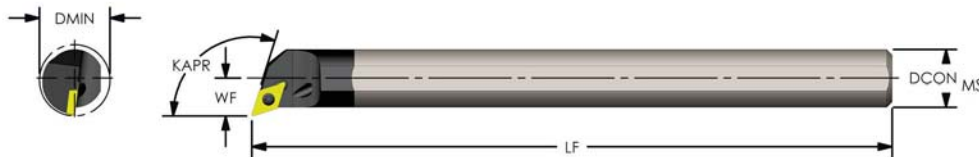


Positive 55° Diamond (KAPR: 62.5°) Profiling

8:1 Ratio

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|------------|------|-------|-------|------|------------|-----------------|------|
| 920-000-258 | E10Q SDNCR2 | 0.625 | 6.86 | .562 | 0.920 | 62.5 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-336 | E12S SDNCR3 | 0.750 | 9.80 | 0.765 | 1.190 | 62.5 | DCMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 107.5°) Profiling

8:1 Ratio

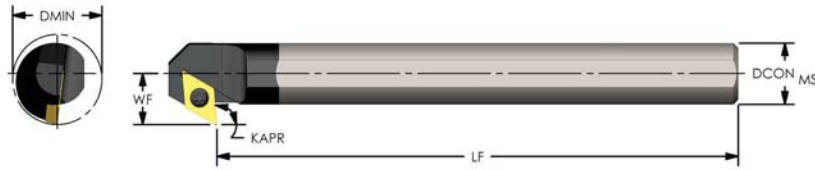
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|------------|--------|-------|-------|-------|------------|-----------------|-----|
| 920-000-155 | E06M SDQCR2 | 0.375 | 6.000 | 0.281 | 0.490 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-225 | E08R SDQCR2 | 0.500 | 8.000 | 0.341 | 0.620 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-283 | E10S SDQCR2 | 0.625 | 10.000 | 0.406 | 0.760 | 107.5 | DCMT 21.51 | MTS-255 | T-7 |

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



CARBIDE



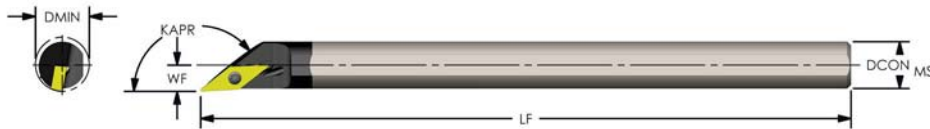
Positive 55° Diamond (KAPR: 95°) Back Facing

8:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|-----|
| 920-000-038 | 920-000-039 | C06M SDXCR/L2 | 0.375 | 6.000 | 0.375 | 0.585 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-070 | 920-000-071 | C08J SDXCR/L2 | 0.500 | 4.500 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-102 | 920-000-103 | C08R SDXCR/L2 | 0.500 | 8.000 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|------------|-----------------|------|
| 920-000-158 | 920-000-159 | E06M SDXCR/L2 | 0.375 | 6.000 | 0.375 | 0.585 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-191 | 920-000-192 | E08J SDXCR/L2 | 0.500 | 4.500 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-228 | 920-000-229 | E08R SDXCR/L2 | 0.500 | 8.000 | 0.437 | 0.720 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-261 | 920-000-262 | E10Q SDXCR/L2 | 0.625 | 7.000 | 0.500 | 0.850 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-286 | 920-000-287 | E10S SDXCR/L2 | 0.625 | 10.000 | 0.500 | 0.850 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 920-000-314 | 920-000-315 | E12Q SDXCR/L3 | 0.750 | 7.000 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-341 | 920-000-342 | E12S SDXCR/L3 | 0.750 | 10.000 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-370 | 920-000-371 | E16R SDXCR/L3 | 1.000 | 8.000 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 920-000-400 | 920-000-401 | E16T SDXCR/L3 | 1.000 | 12.000 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |



Positive 35° Diamond (KAPR: 142°) Profiling

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|------------|--------|-------|-------|-------|------------|-----------------|------|
| 920-000-172 | E06M SVJBR2 | 0.375 | 6.000 | 0.223 | 0.445 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 920-000-243 | E08R SVJBR2 | 0.500 | 8.000 | 0.285 | 0.570 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 920-000-295 | E10S SVJBR2 | 0.625 | 10.000 | 0.348 | 0.700 | 142.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 920-000-349 | E12S SVJBR3 | 0.750 | 10.000 | 0.421 | 0.840 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |

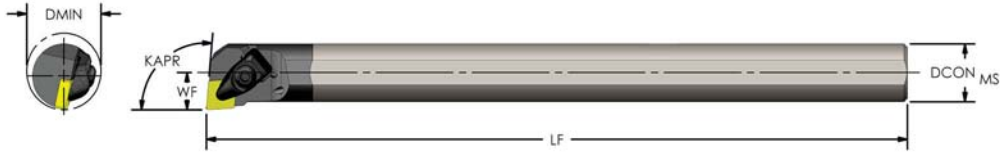
| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

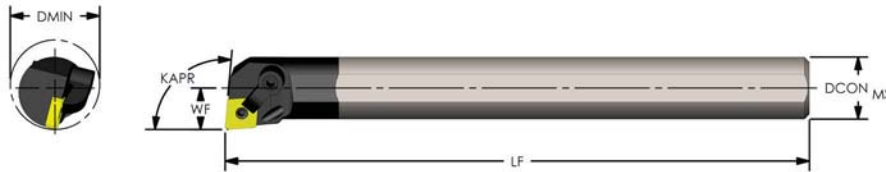
CARBIDE



Negative 80° Diamond (KAPR: 95°) Shank

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|--------|-------|-------|------|----------|----------|------------|-------------|
| 920-000-380 | E16T DCLNR4 | 1.000 | 12.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | N/A | PB4-CA |
| 920-000-410 | E20U DCLNR4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN 433 | PB4-SS | PB4-CA |



Negative 80° Diamond (KAPR: 95°)

8:1 Ratio
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|---------|--------|-------|-------|------|----------|-----------|-------|-------------|----------|
| 920-000-302 | 920-000-303 | E12Q MCLNR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 920-000-326 | 920-000-327 | E12S MCLNR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 920-000-354 | 920-000-355 | E16R MCLNR/L3 | 1.000 | 8.000 | 0.640 | 1.200 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 920-000-383 | 920-000-384 | E16T MCLNR/L3 | 1.000 | 12.000 | 0.640 | 1.200 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 920-000-355 | 920-000-356 | E16R MCLNR/L4 | 1.000 | 8.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 920-000-384 | 920-000-385 | E16T MCLNR/L4 | 1.000 | 12.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 920-000-412 | 920-000-413 | E20U MCLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 920-000-421 | 920-000-422 | E24U MCLNR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|-------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Shim Screw |
|-------------|------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

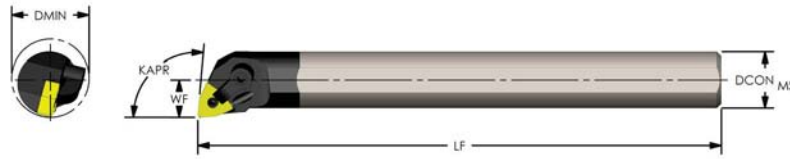
PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|-------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1



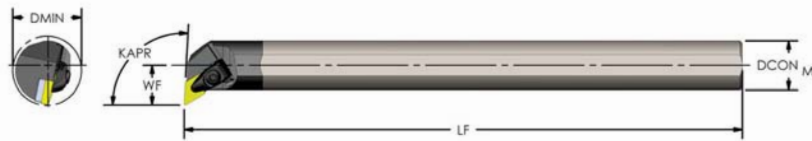
CARBIDE



Negative Trigon (KAPR: 95°)

8:1 Ratio
Coolant Thru

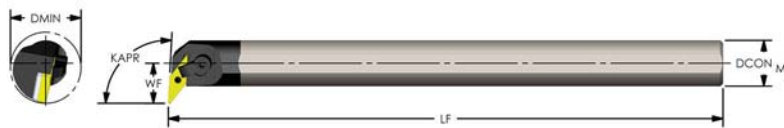
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|--------|-------|-------|------|----------|-----------|-------|----------------|-------------|
| 920-000-304 | 920-000-305 | E12Q MWLNR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 920-000-328 | 920-000-329 | E12S MWLNR/L3 | 0.750 | 10.000 | 0.500 | 0.920 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 920-000-358 | 920-000-360 | E16R MWLNR/L3 | 1.000 | 8.000 | 0.640 | 1.200 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 920-000-388 | 920-000-390 | E16T MWLNR/L3 | 1.000 | 12.000 | 0.640 | 1.200 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 920-000-359 | 920-000-361 | E16R MWLNR/L4 | 1.000 | 8.000 | 0.640 | 1.200 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 920-000-389 | 920-000-391 | E16T MWLNR/L4 | 1.000 | 12.000 | 0.640 | 1.200 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 920-000-415 | 920-000-416 | E20U MWLNR/L4 | 1.250 | 14.000 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 920-000-424 | 920-000-425 | E24U MWLNR/L4 | 1.500 | 14.000 | 0.890 | 1.730 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |



Negative 55° Diamond (KAPR: 93°) Shank

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|------------|--------|-------|-------|------|----------|----------|---------------|----------------|
| 920-000-411 | E20U DDUNR4 | 1.250 | 14.000 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN 433 | PB4-SS | PB4-CA |



Negative 35° Diamond (KAPR: 93°) Profiling

8:1 Ratio
No Coolant

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim Seat | Clamp | Clamp Screw | Lock Pin |
|-------------|-------------|------------|--------|-------|-------|------|----------|-----------|-------|----------------|-------------|
| 920-000-387 | E16T MVUNR3 | 1.000 | 12.000 | 0.875 | 1.435 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 920-000-414 | E20U MVUNR3 | 1.250 | 14.000 | 1.000 | 1.705 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 920-000-423 | E24U MVUNR3 | 1.500 | 14.000 | 1.120 | 1.960 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

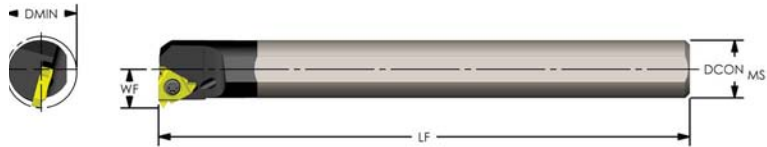
| PRODUCT # | Shim Screw |
|-------------|---------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|----------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1

CARBIDE



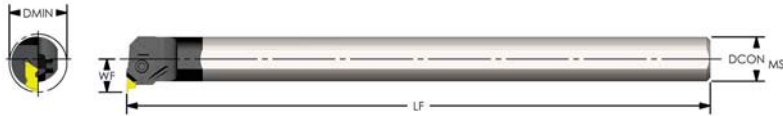
8:1 Ratio

Threading/Grooving Laydown

Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|------------------------|---------|--------|-------|-------|--------|--------------|-------------|-------|
| 920-000-210 | E08R LSER2 | 0.500 | 8.000 | 0.308 | 0.588 | 2IR | SR34505L | N/A | N/A |
| 920-000-249 | E10Q LSER2 | 0.625 | 7.000 | 0.371 | 0.721 | 2IR | SR34505L | N/A | N/A |
| 920-000-301 | E12Q LSER3 | 0.750 | 7.000 | 0.510 | 0.935 | 3IR | MTS-35 | N/A | N/A |
| 920-000-325 | E12S LSER3 | 0.750 | 10.000 | 0.510 | 0.935 | 3IR | MTS-35 | N/A | N/A |
| 920-000-353 | E16R LSER3 | 1.000 | 8.000 | 0.650 | 1.210 | 3IR | SA3T | SY3T | YI3 |
| 920-000-381 | E16T LSER3 | 1.000 | 12.000 | 0.650 | 1.210 | 3IR | SA3T | SY3T | YI3 |

| PRODUCT # | Designation Left Hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|-----------------------|---------|--------|-------|-------|--------|--------------|-------------|-------|
| 920-000-209 | E08R LSEL2 | 0.500 | 8.000 | 0.308 | 0.588 | 2IL | SR34505L | N/A | N/A |
| 920-000-248 | E10Q LSEL2 | 0.625 | 7.000 | 0.371 | 0.721 | 2IL | SR34505L | N/A | N/A |
| 920-000-300 | E12Q LSEL3 | 0.750 | 7.000 | 0.510 | 0.935 | 3IL | MTS-35 | N/A | N/A |
| 920-000-324 | E12S LSEL3 | 0.750 | 10.000 | 0.510 | 0.935 | 3IL | MTS-35 | N/A | N/A |
| 920-000-352 | E16R LSEL3 | 1.000 | 8.000 | 0.650 | 1.210 | 3IL | SA3T | SY3T | YE3 |
| 920-000-382 | E16T LSEL3 | 1.000 | 12.000 | 0.650 | 1.210 | 3IL | SA3T | SY3T | YE3 |



8:1 Ratio

Threading/Grooving Top Notch

Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|-------------|------------------------|---------|--------|-------|-------|--------|--------|-------------|
| 920-000-212 | E08R NER2 | 0.500 | 8.000 | 0.437 | 0.730 | NG 2L | CM-147 | 6-32 |
| 920-000-274 | E10S NER2 | 0.625 | 10.000 | 0.500 | 1.000 | NG 2L | CM-75 | 6-32 |
| 920-000-331 | E12S NER2 | 0.750 | 10.000 | 0.562 | 1.120 | NG 2L | CM-75 | 6-32 |

| PRODUCT # | Designation Left Hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|-------------|-----------------------|---------|--------|-------|-------|--------|--------|-------------|
| 920-000-211 | E08R NEL2 | 0.500 | 8.000 | 0.437 | 0.730 | NG 2R | CM-146 | 6-32 |
| 920-000-273 | E10S NEL2 | 0.625 | 10.000 | 0.500 | 1.000 | NG 2R | CM-74 | 6-32 |
| 920-000-330 | E12S NEL2 | 0.750 | 10.000 | 0.562 | 1.120 | NG 2R | CM-74 | 6-32 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

| PRODUCT # | Anvil |
|-------------|-----------|
| 968-000-185 | YI3 |
| 968-000-182 | YE3 |
| 968-000-187 | YI4 |
| 968-000-186 | YI3M-1.5N |
| 968-000-183 | YE4 |
| 968-000-188 | YI5 |
| 968-000-184 | YE5 |

| PRODUCT # | Anvil Screw |
|-------------|-------------|
| 968-000-146 | SY3T |
| 968-000-147 | SY4T |
| 968-000-148 | SY5T |

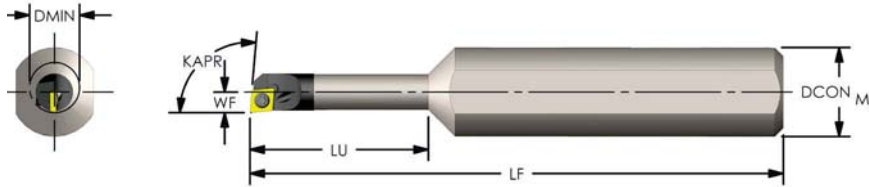
PACKAGE SIZE OF 5

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-124 | SA3T |
| 968-000-125 | SA4T |
| 968-000-126 | SA5T |

PACKAGE SIZE OF 5



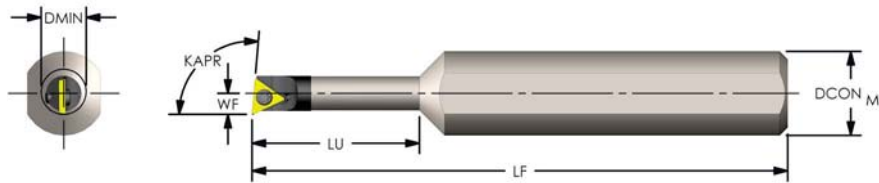
CARBIDE



Positive 80° Diamond (KAPR: 95°) Reduced Neck SERIES "C"

Coolant Thru

| PRODUCT # | Designation | DCON MS | KAPR | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key | Price |
|-------------|-----------------------|---------|-------|-------|-------|-------|-------|------|----------------|--------------|-----|----------|
| 915-000-004 | CCUD-180/500-7/8-5R | 0.500 | 0.189 | 2.380 | 0.875 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 | \$299.10 |
| 915-000-008 | CCUD-203/500-1-5R | 0.500 | 0.210 | 2.500 | 1.000 | 0.119 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 | \$299.10 |
| 915-000-005 | CCUD-180/625-7/8-5R | 0.625 | 0.189 | 3.000 | 0.875 | 0.104 | 0.208 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 | \$331.60 |
| 915-000-009 | CCUD-203/625-1-5R | 0.625 | 0.210 | 3.500 | 1.000 | 0.119 | 0.230 | 95.0 | CDHB 1.20.60.5 | MTS-183 | T-6 | \$299.10 |
| 915-000-010 | CCUD-250/625-1 1/4-5R | 0.625 | 0.260 | 3.000 | 1.250 | 0.145 | 0.285 | 95.0 | CDHB 1.20.60.5 | MTS-184 | T-6 | \$320.40 |



Positive Triangle (KAPR: 95°) Reduced Neck SERIES "F"

Coolant Thru

| PRODUCT # | Designation | DCON MS | KAPR | LF | LU | WF | DMIN | KAPR | Insert | Insert Screw | Key | Price |
|-------------|-----------------------|---------|-------|-------|-------|-------|-------|------|------------------|--------------|-----|----------|
| 915-000-032 | FCUD-250/500-1 1/4-5R | 0.500 | 0.260 | 2.750 | 1.250 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 | \$284.50 |
| 915-000-036 | FCUD-312/500-3 1/8-5R | 0.500 | 0.322 | 4.630 | 3.125 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 | \$290.10 |
| 915-000-033 | FCUD-250/625-1 1/4-5R | 0.625 | 0.260 | 4.000 | 1.250 | 0.156 | 0.300 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 | \$299.10 |
| 915-000-037 | FCUD-312/625-1 1/2-5R | 0.625 | 0.322 | 4.000 | 1.500 | 0.187 | 0.360 | 95.0 | TDHB 1.280.750.5 | MTS-224 | T-7 | \$299.10 |

| PRODUCT # | Insert Screws | Price Each |
|-------------|---------------|------------|
| 968-000-086 | MTS-183 | \$3.20 |
| 968-000-087 | MTS-184 | \$3.20 |
| 968-000-088 | MTS-2 | \$2.90 |
| 968-000-091 | MTS-224 | \$3.20 |
| 968-000-092 | MTS-255 | \$3.20 |
| 968-000-094 | MTS-35 | \$3.20 |
| 968-000-090 | MTS-2.5L | \$2.90 |
| 968-000-052 | ETS 4-40 | \$3.20 |

PACKAGE SIZE OF 5

| PRODUCT # | Key | Price Each |
|-------------|------|------------|
| 968-000-156 | T-6 | \$4.20 |
| 968-000-158 | T-7 | \$3.80 |
| 968-000-149 | T-10 | \$6.50 |
| 968-000-151 | T-15 | \$3.80 |
| 968-000-153 | T-20 | \$4.00 |

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



by Ultra-Dex



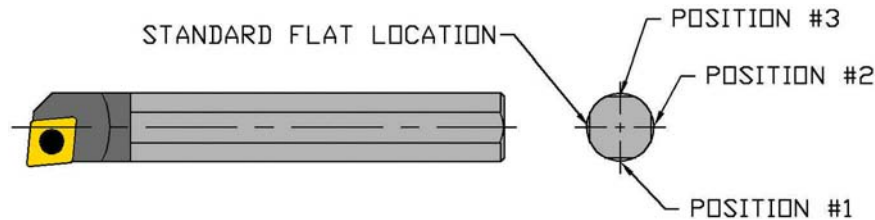
Positive 80° Diamond

8:1 Ratio
No Coolant

| PRODUCT # | Designation | DMIN | LU | DCON MS | LF | GRADE |
|-------------|-----------------|-------|-------|---------|-------|-------|
| 951-000-037 | UD125-020-75R | 0.020 | 0.075 | 0.125 | 1.500 | UD5 |
| 951-000-038 | | 0.020 | 0.075 | 0.125 | 1.500 | UD51 |
| 951-000-039 | | 0.020 | 0.075 | 0.125 | 1.500 | UD52 |
| 951-000-040 | UD125-030-100R | 0.030 | 0.100 | 0.125 | 1.500 | UD5 |
| 951-000-041 | | 0.030 | 0.100 | 0.125 | 1.500 | UD51 |
| 951-000-042 | | 0.030 | 0.100 | 0.125 | 1.500 | UD52 |
| 951-000-043 | UD125-040-150R | 0.040 | 0.150 | 0.125 | 1.500 | UD5 |
| 951-000-044 | | 0.040 | 0.150 | 0.125 | 1.500 | UD51 |
| 951-000-045 | | 0.040 | 0.150 | 0.125 | 1.500 | UD52 |
| 951-000-046 | UD125-050-150R | 0.050 | 0.150 | 0.125 | 1.500 | UD5 |
| 951-000-047 | | 0.050 | 0.150 | 0.125 | 1.500 | UD51 |
| 951-000-048 | | 0.050 | 0.150 | 0.125 | 1.500 | UD52 |
| 951-000-001 | UD125-060-188R | 0.060 | 0.188 | 0.125 | 1.500 | UD5 |
| 951-000-002 | | 0.060 | 0.188 | 0.125 | 1.500 | UD51 |
| 951-000-003 | | 0.060 | 0.188 | 0.125 | 1.500 | UD52 |
| 951-000-004 | UD125-080-375R | 0.080 | 0.375 | 0.125 | 1.500 | UD5 |
| 951-000-005 | | 0.080 | 0.375 | 0.125 | 1.500 | UD51 |
| 951-000-006 | | 0.080 | 0.375 | 0.125 | 1.500 | UD52 |
| 951-000-007 | UD125-090-500R | 0.090 | 0.500 | 0.125 | 1.500 | UD5 |
| 951-000-008 | | 0.090 | 0.500 | 0.125 | 1.500 | UD51 |
| 951-000-009 | | 0.090 | 0.500 | 0.125 | 1.500 | UD52 |
| 951-000-010 | UD125-120-625R | 0.120 | 0.625 | 0.125 | 1.500 | UD5 |
| 951-000-011 | | 0.120 | 0.625 | 0.125 | 1.500 | UD51 |
| 951-000-012 | | 0.120 | 0.625 | 0.125 | 1.500 | UD52 |
| 951-000-013 | UD188-150-750R | 0.150 | 0.750 | 0.188 | 2.000 | UD5 |
| 951-000-014 | | 0.150 | 0.750 | 0.188 | 2.000 | UD51 |
| 951-000-015 | | 0.150 | 0.750 | 0.188 | 2.000 | UD52 |
| 951-000-016 | UD188-180-1.00R | 0.180 | 1.000 | 0.188 | 2.000 | UD5 |
| 951-000-017 | | 0.180 | 1.000 | 0.188 | 2.000 | UD51 |
| 951-000-018 | | 0.180 | 1.000 | 0.188 | 2.000 | UD52 |
| 951-000-019 | UD250-210-1.25R | 0.210 | 1.250 | 0.250 | 2.500 | UD5 |
| 951-000-020 | | 0.210 | 1.250 | 0.250 | 2.500 | UD51 |
| 951-000-021 | | 0.210 | 1.250 | 0.250 | 2.500 | UD52 |
| 951-000-022 | UD250-240-1.25R | 0.240 | 1.250 | 0.250 | 2.500 | UD5 |
| 951-000-023 | | 0.240 | 1.250 | 0.250 | 2.500 | UD51 |
| 951-000-024 | | 0.240 | 1.250 | 0.250 | 2.500 | UD52 |
| 951-000-025 | UD312-270-1.25R | 0.270 | 1.250 | 0.312 | 2.500 | UD5 |
| 951-000-026 | | 0.270 | 1.250 | 0.312 | 2.500 | UD51 |
| 951-000-027 | | 0.270 | 1.250 | 0.312 | 2.500 | UD52 |
| 951-000-028 | UD312-300-1.25R | 0.300 | 1.250 | 0.312 | 2.500 | UD5 |
| 951-000-029 | | 0.300 | 1.250 | 0.312 | 2.500 | UD51 |
| 951-000-030 | | 0.300 | 1.250 | 0.312 | 2.500 | UD52 |
| 951-000-031 | UD375-330-1.50R | 0.330 | 1.500 | 0.375 | 2.500 | UD5 |
| 951-000-032 | | 0.330 | 1.500 | 0.375 | 2.500 | UD51 |
| 951-000-033 | | 0.330 | 1.500 | 0.375 | 2.500 | UD52 |
| 951-000-034 | UD375-360-1.50R | 0.360 | 1.500 | 0.375 | 2.500 | UD5 |
| 951-000-035 | | 0.360 | 1.500 | 0.375 | 2.500 | UD51 |
| 951-000-036 | | 0.360 | 1.500 | 0.375 | 2.500 | UD52 |

The following services are for **Carbide** bars only:

| Cut-Off Service | Extra-Flat Service |
|---------------------|----------------------|
| up to 3/8" diameter | up to 5/16" diameter |
| 1/2" diameter | 3/8" - 1/2" diameter |
| 5/8" diameter | 5/8" - 3/4" diameter |
| 3/4" diameter | 1" - 2" diameter |
| 1" diameter | |
| 1 1/4" diameter | |
| 1 1/2" diameter | |
| 1 3/4" diameter | |
| 2" diameter | |



Ordering is easy, Use part # "Cut-Off" and specify the length in the item description
Use part # "Extra-Flat" and specify the location in the item description

Have us braze on a steel coolant adapter to any Carbide Boring Bar 1/2" or larger!



Comes with 1/16-27 NPT (or) 1/8-27 NPT
Plastic loc-line NOT included

Item Designations:
Coolant Adapter - 1/16
Coolant Adapter - 1/8

Designation Depends on the Diameter of the Bar:
Coolant Adapter-1/16 for 1/2" Diameter Bars
Coolant Adapter-1/8 for 5/8" Diameter Bars and Larger

HEAVY METAL BORING BARS

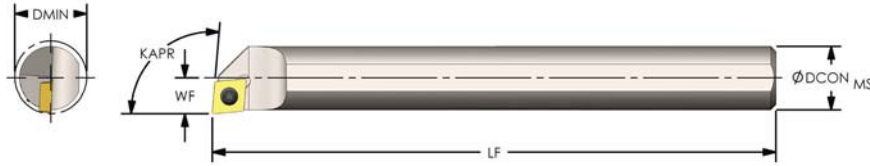
Vibration dampening
to help reduce chatter
in your application

- Machine deeper bores
- Achieve better precision and finish

Up to 6:1 Ratio

.187"-.750" Diameters

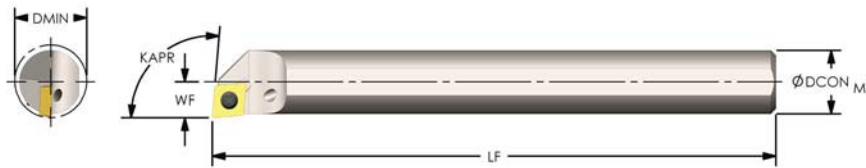




Positive 80° Diamond (KAPR: 95°)

6:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 940-000-097 | 940-000-098 | J03F SCLDR/L1.2 * | 0.187 | 3.000 | 0.102 | 0.205 | 95.0 | CDHB 1.20.60 | MTS-183 | T-6 |
| 940-000-100 | 940-000-101 | J04F SCLDR/L1.5-138 * | 0.250 | 3.000 | 0.138 | 0.275 | 95.0 | CDGW 1.510 | MTS-184 | T-6 |
| 940-000-105 | 940-000-106 | J05H SCLPR/L1.8-167 * | 0.312 | 4.000 | 0.167 | 0.340 | 95.0 | CPMT 1.81.20.5 | MTS-224 | T-7 |



Positive 80° Diamond (KAPR: 95°)

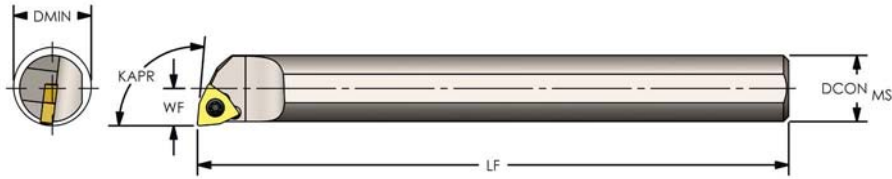
Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|----------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 940-000-003 | 940-000-004 | HM06J SCLPR/L2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-015 | 940-000-016 | HM06Q SCLPR/L2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-027 | 940-000-028 | HM08J SCLPR/L2-281 ■ | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-037 | 940-000-038 | HM08Q SCLPR/L2-281 ■ | 0.500 | 7.000 | 0.281 | 0.560 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-049 | 940-000-051 | HM10J SCLPR/L2 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-065 | 940-000-067 | HM10Q SCLPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CPMT 21.51 | MTS-255 | T-7 |
| 940-000-050 | 940-000-052 | HM10J SCLPR/L3 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 940-000-066 | 940-000-067 | HM10Q SCLPR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 940-000-079 | 940-000-080 | HM12J SCLPR/L3 | 0.750 | 4.500 | 0.500 | 0.920 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 940-000-089 | 940-000-090 | HM12Q SCLPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 940-000-001 | 940-000-002 | HM06J SCLCR/L2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-013 | 940-000-014 | HM06Q SCLCR/L2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-025 | 940-000-026 | HM08J SCLCR/L2-281 ■ | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-035 | 940-000-036 | HM08Q SCLCR/L2-281 ■ | 0.500 | 7.000 | 0.281 | 0.560 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-045 | 940-000-047 | HM10J SCLCR/L2 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-061 | 940-000-063 | HM10Q SCLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 940-000-046 | 940-000-048 | HM10J SCLCR/L3 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 940-000-062 | 940-000-064 | HM10Q SCLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 940-000-077 | 940-000-078 | HM12J SCLCR/L3 | 0.750 | 4.500 | 0.500 | 0.920 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 940-000-087 | 940-000-088 | HM12Q SCLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

*bars .312 and smaller do not have flats

HEAVY METAL

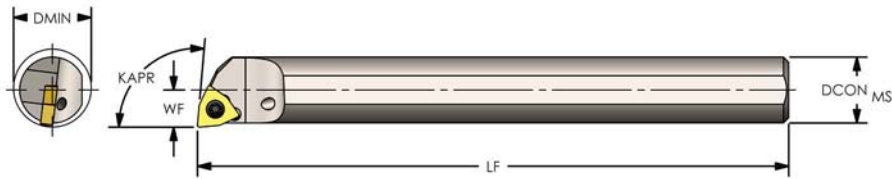


Positive Trigon (KAPR: 95°)

**6:1 Ratio
No Coolant**

| PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------------------|-----------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 940-000-099 | J03F SWLCR1.2 * | 0.187 | 3.000 | 0.102 | 0.205 | 95.0 | WCMT 1.210.5 | MTS-183 | T-6 |
| 940-000-104 | J04F SWLCR1.2-138 * ■ | 0.250 | 3.000 | 0.138 | 0.275 | 95.0 | WCMT 1.210.5 | MTS-184 | T-6 |
| 940-000-109 | J05H SWLCR1.5-167 * ■ | 0.312 | 4.000 | 0.167 | 0.342 | 95.0 | WCMT 1.51.50.5 | MTS-2 | T-6 |

HEAVY METAL



Positive Trigon (KAPR: 95°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|----------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 940-000-011 | 940-000-012 | HM06J SWLCR/L2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-023 | 940-000-024 | HM06Q SWLCR/L2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-033 | 940-000-034 | HM08J SWLCR/L2-281 ■ | 0.500 | 4.500 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-043 | 940-000-044 | HM08Q SWLCR/L2-281 ■ | 0.500 | 7.000 | 0.281 | 0.560 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-057 | 940-000-059 | HM10J SWLCR/L2 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-073 | 940-000-075 | HM10Q SWLCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 21.51 | MTS-255 | T-7 |
| 940-000-058 | 940-000-060 | HM10J SWLCR/L3 | 0.625 | 4.500 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 940-000-074 | 940-000-076 | HM10Q SWLCR/L3 | 0.625 | 7.000 | 0.406 | 0.760 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 940-000-085 | 940-000-086 | HM12J SWLCR/L3 | 0.750 | 4.500 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 940-000-095 | 940-000-096 | HM12Q SWLCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |

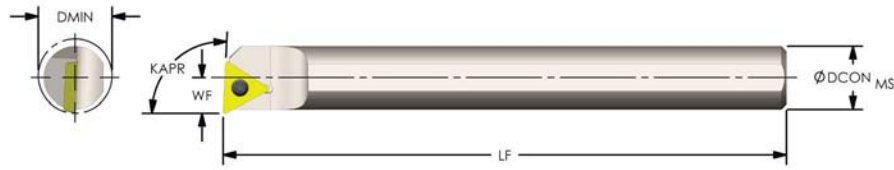
■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020" *bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

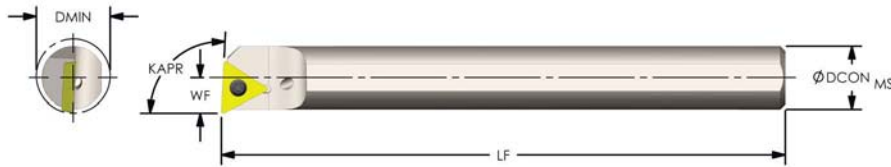
PACKAGE SIZE OF 5



Positive Triangle (KAPR: 93°)

6:1 Ratio
No Coolant

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------------|------------|-------|-------|-------|------|----------------|-----------------|-----|
| 940-000-102 | 940-000-103 | J04F STUCR/L1.2-138 * ■ | 0.250 | 3.000 | 0.138 | 0.275 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 940-000-107 | 940-000-108 | J05H STUCR/L1.2-167 * ■ | 0.312 | 4.000 | 0.167 | 0.340 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |



Positive Triangle (KAPR: 93°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|------------------------|------------|-------|-------|-------|------|----------------|-----------------|------|
| 940-000-005 | 940-000-007 | HM06J STUCR/L1.2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 940-000-017 | 940-000-019 | HM06Q STUCR/L1.2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 93.0 | TCMT 1.21.20.5 | MTS-184 | T-6 |
| 940-000-009 | 940-000-010 | HM06J STUPR/L2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-021 | 940-000-022 | HM06Q STUPR/L2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-031 | 940-000-032 | HM08J STUPR/L2-281 ■ | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-041 | 940-000-042 | HM08Q STUPR/L2-281 ■ | 0.500 | 7.000 | 0.281 | 0.560 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-055 | 940-000-056 | HM10J STUPR/L2 | 0.625 | 4.500 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-071 | 940-000-072 | HM10Q STUPR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TPMT 21.51 | MTS-255 | T-7 |
| 940-000-083 | 940-000-084 | HM12J STUPR/L3 | 0.750 | 4.500 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 940-000-093 | 940-000-094 | HM12Q STUPR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TPMT 32.51 | MTS-35 | T-15 |
| 940-000-006 | 940-000-008 | HM06J STUCR/L2-203 ■ | 0.375 | 4.500 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-018 | 940-000-020 | HM06Q STUCR/L2-203 ■ | 0.375 | 7.000 | 0.203 | 0.410 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-029 | 940-000-030 | HM08J STUCR/L2-281 ■ | 0.500 | 4.500 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-039 | 940-000-040 | HM08Q STUCR/L2-281 ■ | 0.500 | 7.000 | 0.281 | 0.560 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-053 | 940-000-054 | HM10J STUCR/L2 | 0.625 | 4.500 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-069 | 940-000-070 | HM10Q STUCR/L2 | 0.625 | 7.000 | 0.406 | 0.760 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 940-000-081 | 940-000-082 | HM12J STUCR/L3 | 0.750 | 4.500 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 940-000-091 | 940-000-092 | HM12Q STUCR/L3 | 0.750 | 7.000 | 0.500 | 0.920 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

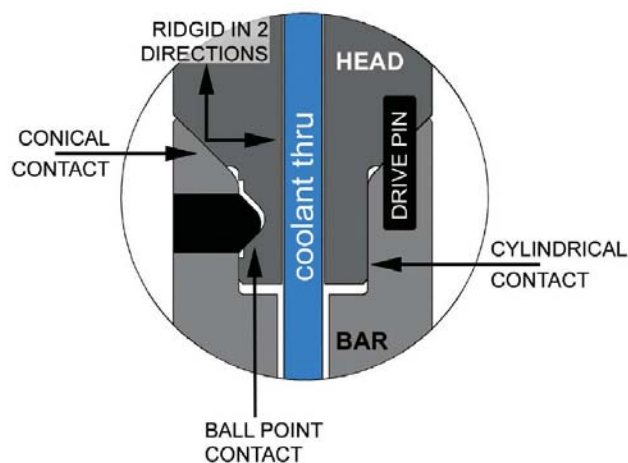
| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

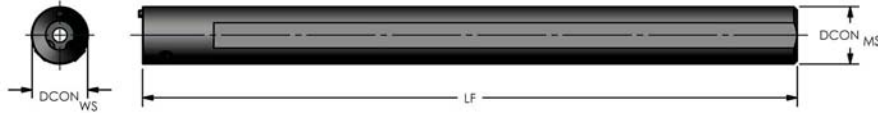
HEAVY METAL

MODULAR BORING BARS

Endless possibilities and the convenience of one bar with 28 different insert style configurations



ULTRA-DEX[®]



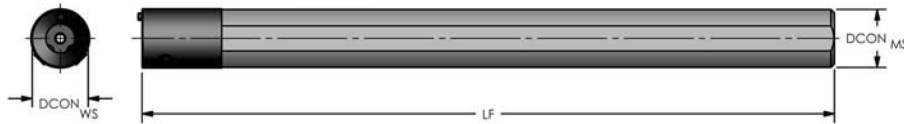
4:1 Ratio

STEEL SHANK

Coolant Thru

| PRODUCT # | Designation | DCONMS | LF | DCONWS | Insert |
|-------------|-------------|--------|--------|--------|--------|
| 944-000-019 | MBS 1295 | 0.750 | 9.500 | 0.750 | MH12S |
| 944-000-020 | MBS 1612 | 1.000 | 11.500 | 1.000 | MH16S |
| 944-000-021 | MBS 2014 | 1.250 | 14.000 | 1.250 | MH20S |
| 944-000-022 | MBS 2414 | 1.500 | 14.000 | 1.500 | MH24S |
| 944-000-023 | MBS 2816 | 1.750 | 16.000 | 1.750 | MH28S |
| 944-000-024 | MBS 3210 | 2.000 | 10.000 | 2.000 | MH32S |
| 944-000-025 | MBS 3220 | 2.000 | 20.000 | 2.000 | MH32S |
| 944-000-026 | MBS 4012* | 2.500 | 12.000 | 2.000 | MH32S |
| 944-000-027 | MBS 4024* | 2.500 | 24.000 | 2.000 | MH32S |
| 944-000-028 | MBS 4828* | 3.000 | 28.000 | 2.000 | MH32S |

*2.5" and 3" bars take 2" heads



8:1 Ratio

CARBIDE SHANK

Coolant Thru

| PRODUCT # | Designation | DCONMS | LF | DCONWS | Insert |
|-------------|-------------|--------|--------|--------|--------|
| 944-000-002 | MB 1295 | 0.750 | 9.500 | 0.750 | MH12S |
| 944-000-001 | MB 1220M | 20mm | 241mm | 0.750 | MH12S |
| 944-000-003 | MB 1612 | 1.000 | 11.500 | 1.000 | MH16S |
| 944-000-004 | MB 2014 | 1.250 | 14.000 | 1.250 | MH20S |
| 944-000-005 | MB 2414 | 1.500 | 14.000 | 1.500 | MH24S |
| 944-000-006 | MB 2816 | 1.750 | 16.000 | 1.750 | MH28S |
| 944-000-007 | MB 3220 | 2.000 | 20.000 | 2.000 | MH32S |
| 944-000-026 | MBS 4012* | 2.500 | 12.000 | 2.000 | MH32S |
| 944-000-027 | MBS 4024* | 2.500 | 24.000 | 2.000 | MH32S |
| 944-000-028 | MBS 4828* | 3.000 | 28.000 | 2.000 | MH32S |

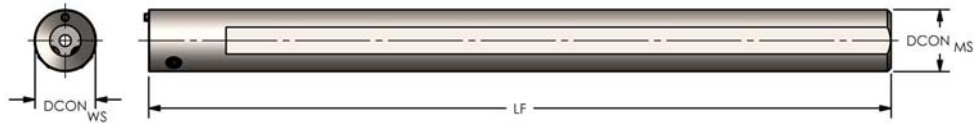
| PRODUCT # | Set Screws | Price Each |
|-------------|------------|------------|
| 968-000-076 | MH12S | \$1.80 |
| 968-000-077 | MH16S | \$2.10 |
| 968-000-078 | MH20S | \$2.50 |
| 968-000-079 | MH24S | \$2.50 |
| 968-000-080 | MH28S | \$3.20 |
| 968-000-081 | MH32S | \$3.60 |

PACKAGE SIZE OF 2

MODULAR

ULTRA-DEX[®]

MODULAR



HEAVY METAL SHANK

6:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCONMS | LF | DCONWS | Insert |
|-------------|-------------|--------|--------|--------|--------|
| 944-000-008 | MBH 1212 | 0.750 | 12.000 | 0.750 | MH12S |
| 944-000-009 | MBH 1612 | 1.000 | 12.000 | 1.000 | MH16S |
| 944-000-010 | MBH 2012 | 1.250 | 12.000 | 1.250 | MH20S |
| 944-000-011 | MBH 2412 | 1.500 | 12.000 | 1.500 | MH24S |
| 944-000-012 | MBH 2414 | 1.500 | 14.000 | 1.500 | MH24S |
| 944-000-013 | MBH 2812 | 1.750 | 12.000 | 1.750 | MH28S |
| 944-000-014 | MBH 2816 * | 1.750 | 16.000 | 1.750 | MH28S |
| 944-000-015 | MBH 3212 | 2.000 | 12.000 | 2.000 | MH32S |
| 944-000-016 | MBH 3218 * | 2.000 | 18.000 | 2.000 | MH32S |
| 944-000-017 | MBH 4024 ** | 2.500 | 24.000 | 2.000 | MH32S |
| 944-000-018 | MBH 4828 ** | 3.000 | 28.000 | 2.000 | MH32S |

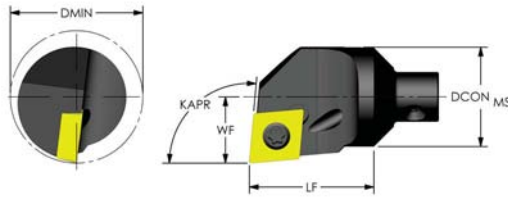
*non-stock item; call for delivery

*2.5" and 3" bars take 2" heads

| PRODUCT # | Set Screws |
|-------------|------------|
| 968-000-076 | MH12S |
| 968-000-077 | MH16S |
| 968-000-078 | MH20S |
| 968-000-079 | MH24S |
| 968-000-080 | MH28S |
| 968-000-081 | MH32S |

PACKAGE SIZE OF 2

ULTRA-DEX



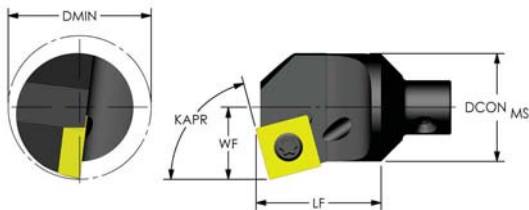
Positive 80° Diamond (KAPR: 95°)



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-017 | 945-000-018 | MH12 SCLCR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 945-000-065 | 945-000-066 | MH16 SCLCR/L3 | 1.000 | 1.000 | 0.625 | 1.185 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 945-000-019 | 945-000-020 | MH12 SCLPR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| 945-000-067 | 945-000-068 | MH16 SCLPR/L3 | 1.000 | 1.000 | 0.625 | 1.185 | 95.0 | CPMT 32.51 | MTS-35 | T-15 |
| N/A | 945-000-120 | MH20 SCLCR4 | 1.250 | 1.300 | 0.765 | 1.465 | 95.0 | CCMT 432 | MTS-4 | T-20 |
| N/A | 945-000-156 | MH24 SCLCR4 | 1.500 | 1.520 | 0.890 | 1.730 | 95.0 | CCMT 432 | MTS-4 | T-20 |
| N/A | 945-000-190 | MH28 SCLCR4 | 1.750 | 1.770 | 1.015 | 2.000 | 95.0 | CCMT 432 | MTS-4 | T-20 |
| N/A | 912-000-157 | MH32 SCLCR4 | 2.000 | 2.030 | 1.281 | 2.400 | 95.0 | CCMT 432 | MTS-4 | T-20 |

MODULAR



Positive Square (KAPR: 75°)



Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-028 | MH12 SSKCR3 | 0.750 | 0.875 | 0.500 | 0.920 | 75.0 | SCMT 32.51 | MTS-35 | T-15 |
| 945-000-078 | MH16 SSKCR4 | 1.000 | 0.935 | 0.625 | 1.185 | 75.0 | SCMT 432 | MTS-4 | T-20 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

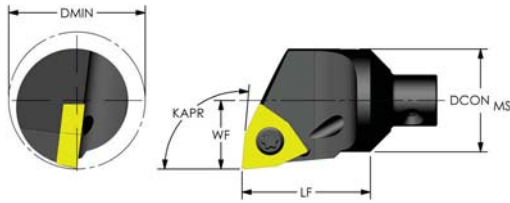
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]

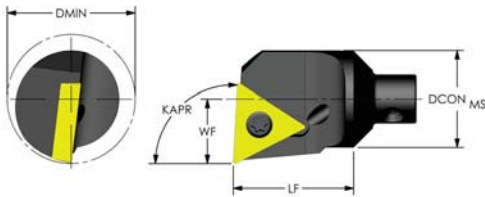
MODULAR



Positive Trigon (KAPR: 95°)

Coolant Thru

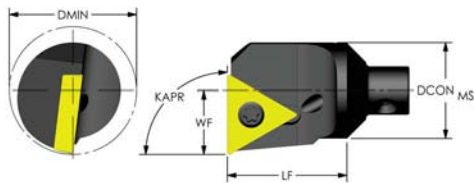
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-037 | 945-000-038 | MH12 SWLCR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |
| 945-000-087 | 945-000-088 | MH16 SWLCR/L3 | 1.000 | 1.000 | 0.625 | 1.185 | 95.0 | WCMT 32.51 | MTS-35 | T-15 |



Positive Triangle (KAPR: 93°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-031 | 945-000-032 | MH12 STUCR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | TCMT 32.51 | MTS-35 | T-15 |
| 945-000-081 | 945-000-082 | MH16 STUCR/L3 | 1.000 | 1.000 | 0.625 | 1.185 | 95.0 | TCMT 32.51 | MTS-35 | T-15 |



Positive Triangle (KAPR: 90°)

Coolant Thru

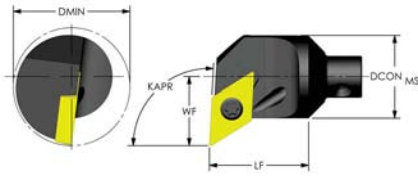
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|----------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-029 | 945-000-030 | MH12 STFCCR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 945-000-079 | 945-000-080 | MH16 STFCCR/L3 | 1.000 | 1.000 | .625 | 1.185 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

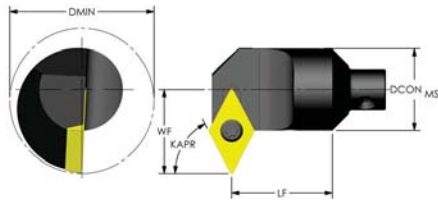
PACKAGE SIZE OF 5



Positive 55° Diamond (KAPR: 95°) Profiling

Coolant Thru

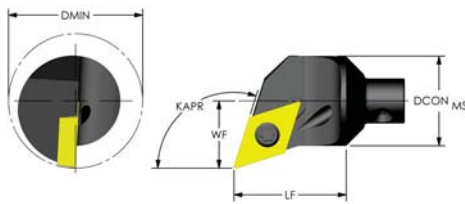
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|---------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-024 | 945-000-025 | MH12 SDUCR/L3 | 0.750 | 0.940 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-072 | 945-000-073 | MH16 SDUCR/L3 | 1.000 | 1.000 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| N/A | 945-000-123 | MH20 SDUCR3-8 | 1.250 | 1.300 | 0.800 | 1.500 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-121 | 945-000-122 | MH20 SDUCR/L3 | 1.250 | 1.300 | 1.000 | 1.700 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-157 | 945-000-158 | MH24 SDUCR/L3 | 1.500 | 1.520 | 1.120 | 1.960 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-191 | 945-000-192 | MH28 SDUCR/L3 | 1.750 | 1.770 | 1.250 | 2.230 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-226 | 945-000-227 | MH32 SDUCR/L3 | 2.000 | 2.030 | 1.375 | 2.500 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 62.5°) Profiling

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-021 | MH12 SDNCR3 | 0.750 | 0.940 | 0.765 | 1.190 | 62.5 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-069 | MH16 SDNCR3 | 1.000 | 1.000 | 0.890 | 1.450 | 62.5 | DCMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 107.5°) Profiling

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|---------|-------|-------|-------|-------|------------|-----------------|------|
| 945-000-022 | 945-000-023 | MH12 SDQCR/L3 | 0.750 | 0.940 | 0.562 | 1.000 | 107.5 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-070 | 945-000-071 | MH16 SDQCR/L3 | 1.000 | 1.000 | 0.625 | 1.185 | 107.5 | DCMT 32.51 | MTS-35 | T-15 |

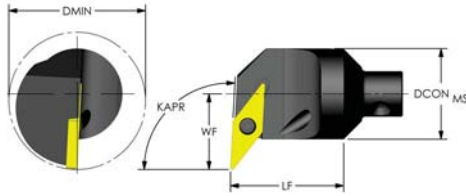
| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

ULTRA-DEX[®]

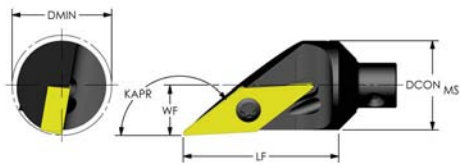


Positive 35° Diamond (KAPR: 93°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-035 | 945-000-036 | MH12 SVUBR/L2 | 0.750 | 0.940 | 0.625 | 1.045 | 93.0 | VBMT 21.51 | MTS-2.5L | T-7 |
| 945-000-085 | 945-000-086 | MH16 SVUBR/L3 | 1.000 | 1.000 | 0.875 | 1.435 | 93.0 | VBMT 331 | MTS-3.5L | T-15 |

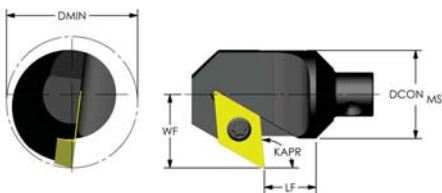


Positive 35° Diamond (KAPR: 142°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|-------|----------|-----------------|------|
| 945-000-033 | 945-000-034 | MH12 SVJBR/L3 | 0.750 | 1.315 | 0.421 | 0.840 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |
| 945-000-083 | 945-000-084 | MH16 SVJBR/L3 | 1.000 | 1.375 | 0.546 | 1.110 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |
| 945-000-124 | 945-000-125 | MH20 SVJBR/L3 | 1.250 | 1.675 | 0.671 | 1.700 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |
| 945-000-161 | 945-000-162 | MH24 SVJBR/L3 | 1.500 | 1.895 | 0.796 | 1.960 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |
| 945-000-193 | 945-000-194 | MH28 SVJBR/L3 | 1.750 | 2.145 | 0.921 | 2.230 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |
| 945-000-228 | 945-000-229 | MH32 SVJBR/L3 | 2.000 | 2.405 | 1.046 | 2.500 | 142.0 | VBMT 331 | MTS-3.5L | T-15 |



Positive 55° Diamond (KAPR: 95°) Back Facing



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 945-000-026 | 945-000-027 | MH12 SDXCR/L3 | 0.750 | 0.440 | 0.625 | 1.050 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |
| 945-000-074 | 945-000-075 | MH16 SDXCR/L3 | 1.000 | 0.525 | 0.750 | 1.310 | 95.0 | DCMT 32.51 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

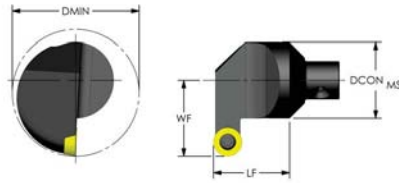
PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-093 | MTS-3.5L |
| 968-000-095 | MTS-4 |
| 968-000-096 | MTS-526 |

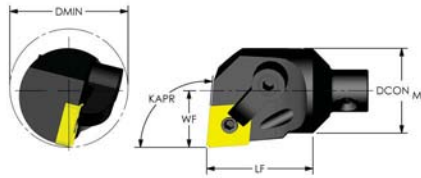
PACKAGE SIZE OF 1



Positive Round

Coolant Thru

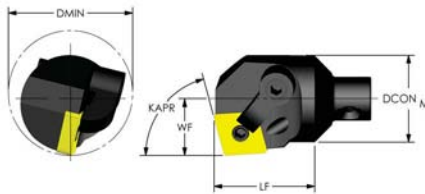
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Screw |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|-----------|--------|
| 945-000-076 | 945-000-077 | MH16 SRNCR/L3 | 1.000 | 1.000 | 1.000 | 1.560 | RCMT 32.5 | MTS-35 |
| 945-000-159 | 945-000-160 | MH24 SRNCR/L4 | 1.500 | 1.520 | 1.250 | 2.090 | RCMT 43 | MTS-4 |



Negative 80° Diamond (KAPR: 95°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-005 | 945-000-006 | MH12 MCLNR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 945-000-044 | 945-000-046 | MH16 MCLNR/L3 | 1.000 | 1.000 | 0.640 | 1.200 | 95.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 945-000-045 | 945-000-047 | MH16 MCLNR/L4 | 1.000 | 1.000 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 945-000-096 | 945-000-097 | MH20 MCLNR/L4 | 1.250 | 1.300 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-133 | 945-000-134 | MH24 MCLNR/L4 | 1.500 | 1.520 | .890 | 1.730 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-170 | 945-000-171 | MH28 MCLNR/L4 | 1.750 | 1.770 | 1.015 | 1.995 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-200 | 945-000-202 | MH32 MCLNR/L4 | 2.000 | 2.030 | 1.281 | 2.400 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-203 | 945-000-205 | MH32 MCLNR/L5 | 2.000 | 2.030 | 1.281 | 2.400 | 95.0 | CNMG 543 | ICSN-533 | CL-12 | XNS-510 | NL-58 |



Negative 80° Diamond (KAPR: 75°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-003 | 945-000-004 | MH12 MCKNR/L3 | 0.750 | 0.875 | 0.490 | 0.910 | 80.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 945-000-042 | 945-000-043 | MH16 MCKNR/L3 | 1.000 | 0.935 | 0.630 | 1.190 | 80.0 | CNMG 322 | N/A | CL-7 | XNS-36 | NL-33 |
| 945-000-094 | 945-000-096 | MH20 MCKNR/L4 | 1.250 | 1.210 | 0.755 | 1.455 | 80.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-131 | 945-000-132 | MH24 MCKNR/L4 | 1.500 | 1.430 | 0.880 | 1.720 | 80.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-168 | 945-000-169 | MH28 MCKNR/L4 | 1.750 | 1.680 | 1.005 | 1.985 | 80.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-200 | 945-000-201 | MH32 MCKNR/L4 | 2.000 | 1.940 | 1.271 | 2.390 | 80.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |

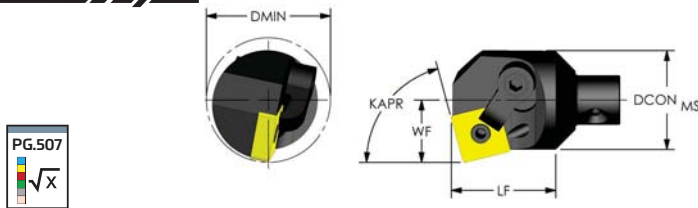
| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

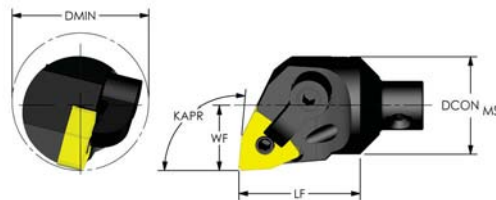
ULTRA-DEX[®]



Negative Square (KAPR: 75°)

Coolant Thru

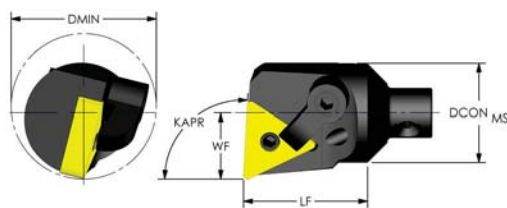
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|-------------|-------------|---------|-------|-------|-------|------|----------|----------|-------|-------------|----------|
| 945-000-050 | MH16 MSKNR4 | 1.000 | 1.060 | 0.630 | 1.190 | 75.0 | SNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 945-000-105 | MH20 MSKNR4 | 1.250 | 1.210 | 0.755 | 1.455 | 75.0 | SNMG 432 | ISSN-432 | CL-20 | XNS-47 | NL-46 |
| 945-000-141 | MH24 MSKNR4 | 1.500 | 1.430 | 0.880 | 1.720 | 75.0 | SNMG 432 | ISSN-432 | CL-20 | XNS-47 | NL-46 |
| 945-000-212 | MH32 MSKNR4 | 2.000 | 1.680 | 1.271 | 2.390 | 75.0 | SNMG 432 | ISSN-432 | CL-20 | XNS-47 | NL-46 |



Negative Trigon (KAPR: 95°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|---------|-------|-------|-------|------|----------|----------|-------|-------------|----------|
| 945-000-013 | 945-000-014 | MH12 MWLNR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-057 | 945-000-058 | MH16 MWLNR/L3 | 1.000 | 1.000 | 0.640 | 1.200 | 95.0 | WNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-058 | 945-000-060 | MH16 MWLNR/L4 | 1.000 | 1.000 | 0.640 | 1.240 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 945-000-116 | 945-000-117 | MH20 MWLNR/L4 | 1.250 | 1.300 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-152 | 945-000-153 | MH24 MWLNR/L4 | 1.500 | 1.520 | .890 | 1.730 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-186 | 945-000-187 | MH28 MWLNR/L4 | 1.750 | 1.770 | 1.015 | 1.995 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-221 | 945-000-222 | MH32 MWLNR/L4 | 2.000 | 2.030 | 1.281 | 2.400 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |

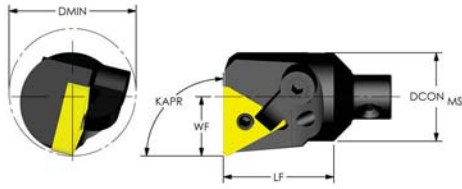


Negative Triangle (KAPR: 93°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|---------|-------|-------|-------|------|----------|----------|-------|-------------|----------|
| 945-000-011 | 945-000-012 | MH12 MTUNR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 93.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-053 | 945-000-054 | MH16 MTUNR/L3 | 1.000 | 1.000 | 0.640 | 1.200 | 93.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-110 | 945-000-112 | MH20 MTUNR/L3 | 1.250 | 1.300 | 0.765 | 1.470 | 93.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 945-000-146 | 945-000-148 | MH24 MTUNR/L3 | 1.500 | 1.520 | 0.890 | 1.470 | 93.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 945-000-111 | 945-000-113 | MH20 MTUNR/L4 | 1.250 | 1.300 | 0.765 | 1.730 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-147 | 945-000-149 | MH24 MTUNR/L4 | 1.500 | 1.520 | 0.890 | 1.730 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-180 | 945-000-181 | MH28 MTUNR/L4 | 1.750 | 1.770 | 1.015 | 1.995 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-215 | 945-000-216 | MH32 MTUNR/L4 | 2.000 | 2.030 | 1.281 | 2.400 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |

MODULAR

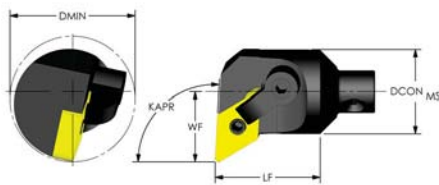


Negative Triangle (KAPR: 90°)



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-009 | 945-000-010 | MH12 MTFNR/L3 | 0.750 | 0.940 | 0.500 | 0.920 | 90.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-051 | 945-000-052 | MH16 MTFNR/L3 | 1.000 | 1.000 | 0.640 | 1.200 | 90.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-106 | 945-000-108 | MH20 MTFNR/L3 | 1.250 | 1.300 | 0.765 | 1.470 | 90.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 945-000-142 | 945-000-144 | MH24 MTFNR/L3 | 1.500 | 1.520 | 0.890 | 1.730 | 90.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 945-000-107 | 945-000-109 | MH20 MTFNR/L4 | 1.250 | 1.300 | 0.765 | 1.470 | 90.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-143 | 945-000-145 | MH24 MTFNR/L4 | 1.500 | 1.520 | 0.890 | 1.730 | 90.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-178 | 945-000-179 | MH28 MTFNR/L4 | 1.750 | 1.770 | 1.015 | 1.995 | 90.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 945-000-213 | 945-000-214 | MH32 MTFNR/L4 | 2.000 | 2.030 | 1.281 | 2.400 | 90.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |

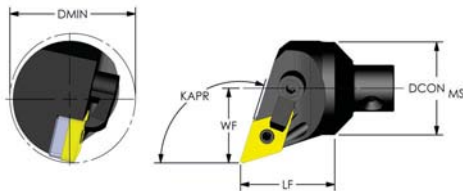


Negative 55° Diamond (KAPR: 93°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-007 | 945-000-008 | MH12 MDUNR/L3 | 0.750 | 0.940 | 0.625 | 1.050 | 93.0 | DNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 945-000-048 | 945-000-049 | MH16 MDUNR/L3 | 1.000 | 1.000 | 0.750 | 1.310 | 93.0 | DNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| N/A | 945-000-102 | MH20 MDUNR4-7 | 1.250 | 1.300 | 0.775 | 1.475 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-100 | 945-000-101 | MH20 MDUNR/L4 | 1.250 | 1.300 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-137 | 945-000-138 | MH24 MDUNR/L4 | 1.500 | 1.520 | 1.120 | 1.960 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-174 | 945-000-175 | MH28 MDUNR/L4 | 1.750 | 1.770 | 1.250 | 2.250 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-208 | 945-000-209 | MH32 MDUNR/L4 | 2.000 | 2.030 | 1.375 | 2.500 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |



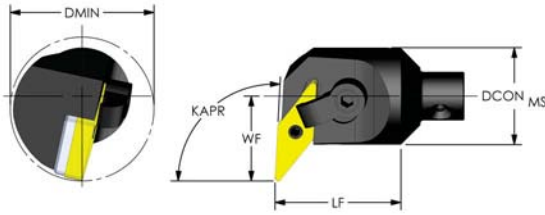
Negative 55° Diamond (KAPR: 107.5°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|-------|----------|----------|-------|----------------|-------------|
| 945-000-098 | 945-000-099 | MH20 MDQNR/L4 | 1.250 | 1.300 | 1.000 | 1.700 | 107.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-135 | 945-000-136 | MH24 MDQNR/L4 | 1.500 | 1.520 | 1.120 | 1.960 | 107.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-172 | 945-000-173 | MH28 MDQNR/L4 | 1.750 | 1.770 | 1.250 | 2.250 | 107.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-206 | 945-000-207 | MH32 MDQNR/L4 | 2.000 | 2.030 | 1.281 | 2.400 | 107.5 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |

ULTRA-DEX[®]

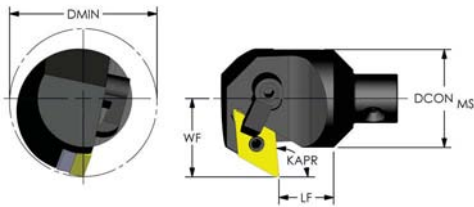


Negative 35° Diamond (KAPR: 93°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-055 | 945-000-056 | MH16 MVUNR/L3 | 1.000 | 1.300 | 0.875 | 1.435 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL- 34L |
| 945-000-114 | 945-000-115 | MH20 MVUNR/L3 | 1.250 | 1.300 | 1.000 | 1.700 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL- 34L |
| 945-000-150 | 945-000-151 | MH24 MVUNR/L3 | 1.500 | 1.520 | 1.120 | 2.000 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL -34L |
| 945-000-182 | 945-000-181 | MH28 MVUNR/L3 | 1.750 | 1.770 | 1.250 | 2.250 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL -34L |
| 945-000-217 | 945-000-216 | MH32 MVUNR/L3 | 2.000 | 2.030 | 1.375 | 2.500 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 945-000-183 | 945-000-185 | MH28 MVUNR/L4 | 1.750 | 1.770 | 1.250 | 2.250 | 93.0 | VNMG 432 | IVSN-432 | CL-22 | XNS-48 | NL-46 |
| 945-000-218 | 945-000-220 | MH32 MVUNR/L4 | 2.000 | 2.030 | 1.375 | 2.500 | 93.0 | VNMG 432 | IVSN-432 | CL-22 | XNS-48 | NL-46 |



Negative 55° Diamond (KAPR: 95°) Back Facing



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|---------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 945-000-103 | 945-000-104 | MH20 MDXNR/L4 | 1.250 | 0.700 | 1.000 | 1.700 | 95.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-139 | 945-000-140 | MH24 MDXNR/L4 | 1.500 | 0.650 | 1.120 | 1.960 | 95.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-176 | 945-000-177 | MH28 MDXNR/L4 | 1.750 | 0.780 | 1.250 | 2.250 | 95.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 945-000-210 | 945-000-211 | MH32 MDXNR/L4 | 2.000 | 0.780 | 1.500 | 2.620 | 95.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

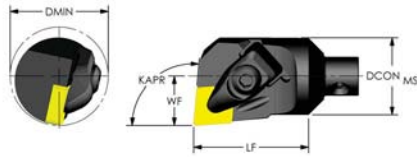
| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

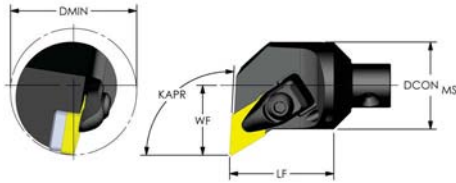
MODULAR



PULLBACK Clamp Negative 80° Diamond (KAPR: 95°)

Coolant Thru

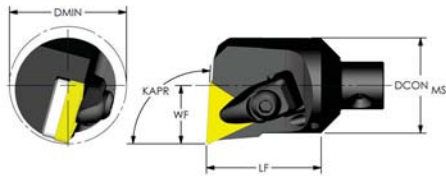
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|-------|-------|-------|------|----------|----------|------------|-------------|
| 945-000-039 | MH16 DCLNR4 | 1.000 | 1.500 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | N/A | PB4-CA |
| 945-000-089 | MH20 DCLNR4 | 1.250 | 1.500 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 945-000-126 | MH24 DCLNR4 | 1.500 | 1.520 | .890 | 1.730 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 945-000-163 | MH28 DCLNR4 | 1.750 | 1.770 | 1.015 | 1.995 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 945-000-195 | MH32 DCLNR4 | 2.000 | 2.030 | 1.281 | 2.400 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |



PULLBACK Clamp Negative 55° Diamond (KAPR: 93°)

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|-------|-------|-------|------|----------|----------|------------|-------------|
| 945-000-090 | MH20 DDUNR4 | 1.250 | 1.500 | 1.000 | 1.700 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |
| 945-000-127 | MH24 DDUNR4 | 1.500 | 1.520 | 1.120 | 1.960 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |
| 945-000-164 | MH28 DDUNR4 | 1.750 | 1.770 | 1.250 | 2.250 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |
| 945-000-196 | MH32 DDUNR4 | 2.000 | 2.030 | 1.375 | 2.500 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |



PULLBACK Clamp Negative Triangle (KAPR: 93°)

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Shim Screw | Clamp Assy. |
|-------------|-------------|---------|-------|-------|-------|------|----------|----------|------------|-------------|
| 945-000-091 | MH20 DTUNR4 | 1.250 | 1.500 | 0.765 | 1.470 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |
| 945-000-128 | MH24 DTUNR4 | 1.500 | 1.520 | .890 | 1.730 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |
| 945-000-165 | MH28 DTUNR4 | 1.750 | 1.770 | 1.015 | 1.995 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |
| 945-000-197 | MH32 DTUNR4 | 2.000 | 2.030 | 1.281 | 2.400 | 93.0 | TNMG 432 | ITSN-433 | PB4-SS | PB4-CA |

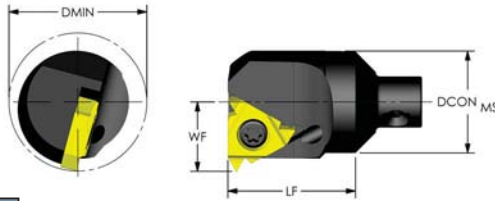
| PRODUCT # | Shim Screw |
|-------------|------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|-------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1

ULTRA-DEX



Threading / Grooving Laydown



Coolant Thru

| PRODUCT # | Designation Right hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|------------------------|---------|-------|-------|-------|--------|--------------|-------------|-------|
| 945-000-002 | MH12 LSER3 | 0.750 | 0.940 | 0.510 | 0.930 | 3IR | MTS-35 | N/A | N/A |
| 945-000-041 | MH16 LSER3 | 1.000 | 1.000 | 0.650 | 1.210 | 3IR | SA3T | SY3T | YI3 |
| 945-000-093 | MH20 LSER3 | 1.250 | 1.300 | 0.770 | 1.470 | 3IR | SA3T | SY3T | YI3 |
| 945-000-130 | MH24 LSER3 | 1.500 | 1.520 | 0.900 | 1.740 | 3IR | SA3T | SY3T | YI3 |
| 945-000-167 | MH28 LSER3 | 1.750 | 1.770 | 1.090 | 2.070 | 3IR | SA3T | SY3T | YI3 |
| 945-000-199 | MH32 LSER3 | 2.000 | 2.030 | 1.281 | 2.400 | 3IR | SA3T | SY3T | YI3 |

| PRODUCT # | Designation Left hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|-----------------------|---------|-------|-------|-------|--------|--------------|-------------|-------|
| 945-000-001 | MH12 LSEL3 | 0.750 | 0.940 | 0.510 | 0.930 | 3IL | MTS-35 | N/A | N/A |
| 945-000-040 | MH16 LSEL3 | 1.000 | 1.000 | 0.650 | 1.210 | 3IL | SA3T | SY3T | YE3 |
| 945-000-092 | MH20 LSEL3 | 1.250 | 1.300 | 0.770 | 1.470 | 3IL | SA3T | SY3T | YE3 |
| 945-000-129 | MH24 LSEL3 | 1.500 | 1.520 | 0.900 | 1.740 | 3IL | SA3T | SY3T | YE3 |
| 945-000-166 | MH28 LSEL3 | 1.750 | 1.770 | 1.090 | 2.070 | 3IL | SA3T | SY3T | YE3 |
| 945-000-198 | MH32 LSEL3 | 2.000 | 2.030 | 1.281 | 2.400 | 3IL | SA3T | SY3T | YE3 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil |
|-------------|-----------|
| 968-000-185 | YI3 |
| 968-000-182 | YE3 |
| 968-000-187 | YI4 |
| 968-000-186 | YI3M-1.5N |
| 968-000-183 | YE4 |
| 968-000-188 | YI5 |
| 968-000-184 | YE5 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil Screw |
|-------------|-------------|
| 968-000-146 | SY3T |
| 968-000-147 | SY4T |
| 968-000-148 | SY5T |

PACKAGE SIZE OF 5

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-124 | SA3T |
| 968-000-125 | SA4T |
| 968-000-126 | SA5T |

PACKAGE SIZE OF 5



Threading / Grooving Top Notch



Coolant Thru

| PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|-------------------------|-------------|------------|-------|-------|-------|--------|-------|----------------|
| 945-000-016 | MH12 NER2 | 0.750 | 0.920 | 0.562 | 1.120 | NG 2L | CM-75 | 6-32 |
| 945-000-063 | MH16 NER2 | 1.000 | 1.180 | 0.688 | 1.380 | NG 2L | CM-75 | 6-32 |
| 945-000-064 | MH16 NER3 | 1.000 | 1.180 | 0.688 | 1.380 | NG 3L | CM-73 | 10-32 |
| 945-000-119 | MH20 NER3 | 1.250 | 1.300 | 0.875 | 1.750 | NG 3L | CM-73 | 10-32 |
| 945-000-155 | MH24 NER3 | 1.500 | 1.520 | 1.000 | 2.000 | NG 3L | CM-73 | 10-32 |
| 945-000-189 | MH28 NER3 | 1.750 | 1.770 | 1.125 | 2.250 | NG 3L | CM-73 | 10-32 |
| 945-000-224 | MH32 NER3 | 2.000 | 2.030 | 1.250 | 2.500 | NG 3L | CM-73 | 10-32 |

| PRODUCT # Left hand | Designation | DCON MS | LF | WF | DMIN | Insert | Clamp | Clamp Screw |
|------------------------|-------------|------------|-------|-------|-------|--------|-------|----------------|
| 945-000-015 | MH12 NEL2 | 0.750 | 0.920 | 0.562 | 1.120 | NG 2R | CM-74 | 6-32 |
| 945-000-061 | MH16 NEL2 | 1.000 | 1.180 | 0.688 | 1.380 | NG 2R | CM-74 | 6-32 |
| 945-000-062 | MH16 NEL3 | 1.000 | 1.180 | 0.688 | 1.380 | NG 3R | CM-72 | 10-32 |
| 945-000-118 | MH20 NEL3 | 1.250 | 1.300 | 0.875 | 1.750 | NG 3R | CM-72 | 10-32 |
| 945-000-154 | MH24 NEL3 | 1.500 | 1.520 | 1.000 | 2.000 | NG 3R | CM-72 | 10-32 |
| 945-000-188 | MH28 NEL3 | 1.750 | 1.770 | 1.125 | 2.250 | NG 3R | CM-72 | 10-32 |
| 945-000-223 | MH32 NEL3 | 2.000 | 2.030 | 1.250 | 2.500 | NG 3R | CM-72 | 10-32 |

| PRODUCT # | Clamp |
|-------------|--------|
| 968-000-025 | CM-72 |
| 968-000-026 | CM-73 |
| 968-000-027 | CM-74 |
| 968-000-028 | CM-75 |
| 968-000-021 | CM-120 |
| 968-000-022 | CM-121 |
| 968-000-023 | CM-146 |
| 968-000-024 | CM-147 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-005 | 6-32 |
| 968-000-003 | 10-32 |
| 968-000-096 | MTS-526 |

PACKAGE SIZE OF 5

MODULAR

STEALTH™ BORING BARS

Tunable Internal Damping Technology



5:1 Up To
14:1 Ratio

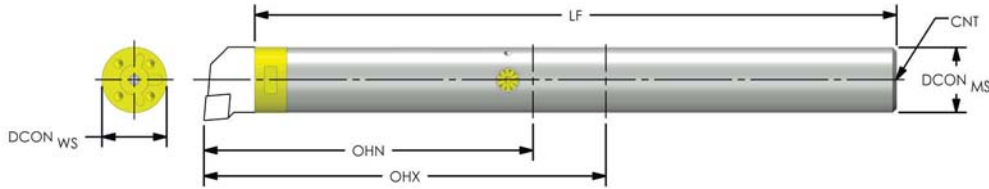
0.500" - 4.00" Diameters



Product Highlights:

Tunable Internal Damping Technology provides optimal dynamic stability yielding significant increases in machining performance. Most importantly, the bars pay for themselves quickly by increasing speed and precision. Additionally, you can leave Stealth Tooling "CFT" in the machine and use it for deep or shallow bore applications, thus reducing changeover and setup time.

- Fully tunable boring bar (arrives pre-tuned)
- Labeled dial for ease of tuning
- Quick setup flat located on connection end of bar
- Solves difficult deep boring applications
- Improved surface finish
- Increase output by more aggressive cutting
- Increase tool life from reduced vibration
- Multiple head configurations



5:1 Ratio

Modular Stealth™ Bars

Coolant Thru

| PRODUCT # | Designation | DCON MS | DCON WS | LF | OHN | OHX | Head Bolts | CNT |
|-------------|--------------|---------|---------|--------|-------|--------|------------|------------|
| 910-000-013 | CFT B1500-9 | 1.500 | 1.500 | 9.000 | 7.000 | 7.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-018 | CFT B2000-12 | 2.000 | 2.000 | 12.000 | 7.500 | 10.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-023 | CFT B2500-16 | 2.500 | 2.500 | 16.000 | 8.000 | 12.500 | 5/16-18 HB | 1/8-27 NPT |

7:1 Ratio

| | | | | | | | | |
|-------------|--------------|-------|-------|--------|--------|--------|------------|------------|
| 910-000-001 | CFT B1000-10 | 1.000 | 1.000 | 10.000 | 5.000 | 7.000 | 8-32 HB | 1/8-27 NPT |
| 910-000-005 | CFT B1250-12 | 1.250 | 1.250 | 12.000 | 6.250 | 8.750 | 10-24 HB | 1/8-27 NPT |
| 910-000-009 | CFT B1500-15 | 1.500 | 1.500 | 15.000 | 7.500 | 10.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-014 | CFT B1750-18 | 1.750 | 1.750 | 18.000 | 8.750 | 12.250 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-019 | CFT B2000-20 | 2.000 | 2.000 | 20.000 | 10.000 | 14.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-024 | CFT B2500-27 | 2.500 | 2.500 | 27.000 | 12.500 | 17.500 | 5/16-18 HB | 1/4-18 NPT |
| 910-000-028 | CFT B3000-31 | 3.000 | 2.500 | 31.000 | 15.000 | 21.000 | 5/16-18 HB | 1/4-18 NPT |

10:1 Ratio

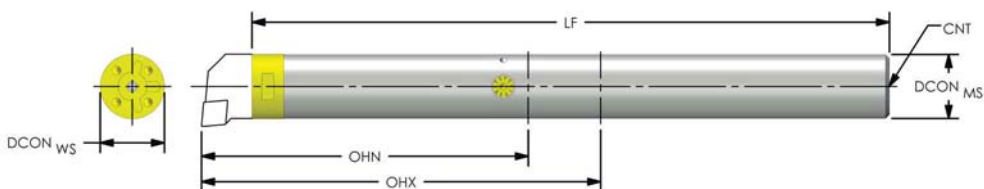
| | | | | | | | | |
|-------------|--------------|-------|-------|--------|--------|--------|------------|------------|
| 910-000-002 | CFT B1000-14 | 1.000 | 1.000 | 14.000 | 7.000 | 10.000 | 8-32 HB | 1/8-27 NPT |
| 910-000-006 | CFT B1250-16 | 1.250 | 1.250 | 16.000 | 8.750 | 12.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-010 | CFT B1500-19 | 1.500 | 1.500 | 19.000 | 10.500 | 15.000 | 10-24 HB | 1/8-27 NPT |
| 910-000-015 | CFT B1750-23 | 1.750 | 1.750 | 23.000 | 12.250 | 17.500 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-020 | CFT B2000-26 | 2.000 | 2.000 | 26.000 | 14.000 | 20.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-025 | CFT B2500-33 | 2.500 | 2.500 | 33.000 | 17.500 | 25.000 | 5/16-18 HB | 1/4-18 NPT |
| 910-000-029 | CFT B3000-40 | 3.000 | 2.500 | 40.000 | 21.000 | 30.000 | 5/16-18 HB | 1/4-18 NPT |
| 910-000-034 | CFT B4000-50 | 4.000 | 2.500 | 50.000 | 28.000 | 40.000 | 5/16-18 HB | 1/4-18 NPT |

12:1 Ratio

| | | | | | | | | |
|-------------|--------------|-------|-------|--------|--------|--------|-----------|-----|
| 910-000-003 | CFT B1000-16 | 1.000 | 1.000 | 16.000 | 10.875 | 12.000 | 8-32 HB | N/A |
| 910-000-058 | CFT B1250-18 | 1.250 | 1.250 | 18.000 | 13.785 | 15.000 | 10-24 HB | N/A |
| 910-000-011 | CFT B1500-22 | 1.500 | 1.500 | 22.000 | 16.375 | 18.000 | 10-24 HB | N/A |
| 910-000-016 | CFT B1750-25 | 1.750 | 1.750 | 25.000 | 18.060 | 21.000 | 1/4-20 HB | N/A |
| 910-000-021 | CFT B2000-29 | 2.000 | 2.000 | 29.000 | 19.375 | 24.000 | 1/4-20 HB | N/A |

14:1 Ratio

| | | | | | | | | |
|-------------|--------------|-------|-------|--------|--------|--------|-----------|-----|
| 910-000-004 | CFT B1000-18 | 1.000 | 1.000 | 18.000 | 10.875 | 12.000 | 8-32 HB | N/A |
| 910-000-008 | CFT B1250-21 | 1.250 | 1.250 | 21.000 | 13.875 | 15.000 | 10-24 HB | N/A |
| 910-000-012 | CFT B1500-25 | 1.500 | 1.500 | 25.000 | 16.375 | 18.000 | 10-24 HB | N/A |
| 910-000-017 | CFT B1750-29 | 1.750 | 1.750 | 29.000 | 18.060 | 21.000 | 1/4-20 HB | N/A |
| 910-000-022 | CFT B2000-33 | 2.000 | 2.000 | 33.000 | 19.375 | 24.000 | 1/4-20 HB | N/A |



7:1 Ratio **Modular Stealth™ Bars** **Coolant Thru**

| PRODUCT # | Designation | DCON MS | DCON WS | LF | OHN | OHX | Head Bolts | CNT |
|-------------|---------------|---------|---------|-------|-------|-------|------------|------------|
| 910-000-077 | CFT B25MM-250 | 25mm | 1.000 | 250mm | 127mm | 175mm | 8-32 HB | 1/8-27 NPT |
| 910-000-079 | CFT B32MM-320 | 32mm | 1.250 | 320mm | 159mm | 224mm | 10-24 HB | 1/8-27 NPT |
| 910-000-083 | CFT B40MM-400 | 40mm | 1.500 | 400mm | 190mm | 280mm | 10-24 HB | 1/8-27 NPT |
| 910-000-087 | CFT B50MM-500 | 50mm | 2.000 | 500mm | 254mm | 350mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-091 | CFT B60MM-600 | 60mm | 2.000 | 600mm | 320mm | 420mm | 1/4-20 HB | 1/8-27 NPT |

10:1 Ratio

| | | | | | | | | |
|-------------|---------------|------|-------|-------|-------|-------|-----------|------------|
| 910-000-078 | CFT B25MM-325 | 25mm | 1.000 | 325mm | 178mm | 250mm | 8-32 HB | 1/8-27 NPT |
| 910-000-080 | CFT B32MM-416 | 32mm | 1.250 | 416mm | 223mm | 320mm | 10-24 HB | 1/8-27 NPT |
| 910-000-084 | CFT B40MM-520 | 40mm | 1.500 | 520mm | 266mm | 400mm | 10-24 HB | 1/8-27 NPT |
| 910-000-088 | CFT B50MM-650 | 50mm | 2.000 | 650mm | 356mm | 500mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-092 | CFT B60MM-780 | 60mm | 2.000 | 780mm | 445mm | 600mm | 1/4-20 HB | 1/8-27 NPT |

12:1 Ratio

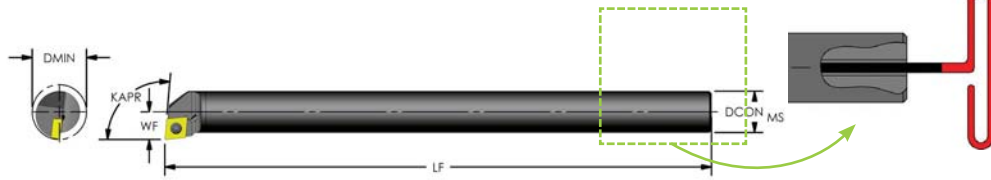
| | | | | | | | | |
|-------------|---------------|------|-------|-------|-------|-------|-----------|-----|
| 910-000-081 | CFT B32MM-480 | 32mm | 1.250 | 480mm | 352mm | 384mm | 10-24 HB | N/A |
| 910-000-085 | CFT B40MM-600 | 40mm | 1.500 | 600mm | 416mm | 480mm | 10-24 HB | N/A |
| 910-000-089 | CFT B50MM-750 | 50mm | 2.000 | 750mm | 492mm | 600mm | 1/4-20 HB | N/A |

14:1 Ratio

| | | | | | | | | |
|-------------|---------------|------|-------|-------|-------|-------|-----------|-----|
| 910-000-082 | CFT B32MM-544 | 32mm | 1.250 | 544mm | 352mm | 448mm | 10-24 HB | N/A |
| 910-000-086 | CFT B40MM-680 | 40mm | 1.500 | 680mm | 416mm | 560mm | 10-24 HB | N/A |
| 910-000-090 | CFT B50MM-850 | 50mm | 2.000 | 850mm | 492mm | 788mm | 1/4-20 HB | N/A |

| PRODUCT # | Head Bolts |
|-------------|------------|
| 968-000-006 | 8-32 HB |
| 968-000-002 | 10-24 HB |
| 968-000-001 | 1/4-20 HB |
| 968-000-004 | 5/16-18 HB |

PACKAGE SIZE OF 1



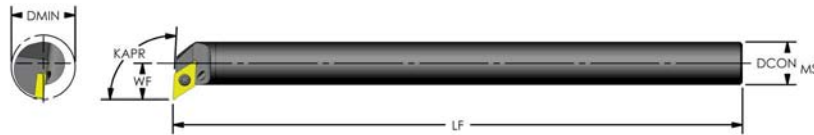
Tuneable from the end with supplied T-Handle Hex Wrench.

8:1 Ratio

SOLID Positive 80° Diamond (KAPR: 95°)

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|--------|-------|-------|------|------------|--------------|------|
| 910-000-045 | D08R SCLCR2 | 0.500 | 8.000 | 0.281 | 0.580 | 95.0 | CCMT 21.51 | MTS-255 | T-7 |
| 910-000-047 | D10X SCLCR3 | 0.625 | 9.000 | 0.406 | 0.770 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |
| 910-000-050 | D12S SCLCR3 | 0.750 | 10.000 | 0.500 | 0.930 | 95.0 | CCMT 32.51 | MTS-35 | T-15 |



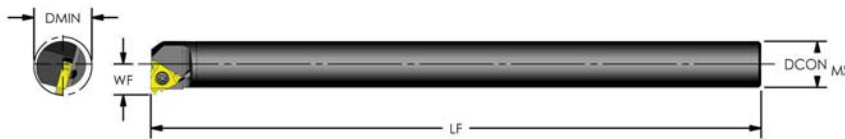
Tuneable from the end with supplied T-Handle Hex Wrench.

8:1 Ratio

SOLID Positive 55° Diamond (KAPR: 93°)

Coolant Thru

| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|-------------|-------------|---------|--------|-------|-------|------|------------|--------------|------|
| 910-000-046 | D08R SDUCR2 | 0.500 | 8.000 | 0.437 | 0.730 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 910-000-048 | D10X SDUCR2 | 0.625 | 9.000 | 0.500 | 0.850 | 93.0 | DCMT 21.51 | MTS-255 | T-7 |
| 910-000-051 | D12S SDUCR3 | 0.750 | 10.000 | 0.625 | 1.050 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |



Tuneable from the end with supplied T-Handle Hex Wrench.

8:1 Ratio

SOLID Threading/Grooving Laydown

Coolant Thru

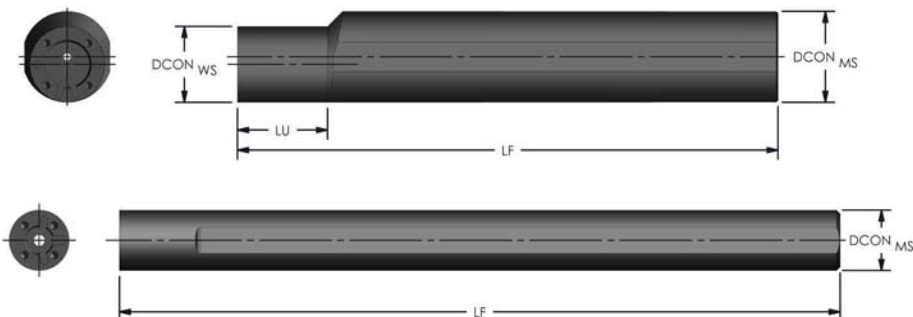
| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | Insert | Insert Screw |
|-------------|-------------|---------|--------|-------|-------|--------|--------------|
| 910-000-049 | D12S LSER3 | 0.750 | 10.000 | 0.510 | 0.935 | 3IR | MTS-35 |

| PRODUCT # | Insert Screws |
|-------------|---------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5



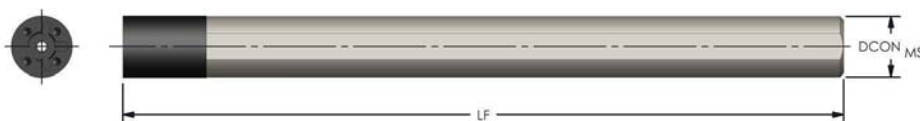
4:1 Ratio

STEEL SHANK

Coolant Thru

| PRODUCT # | Designation | DCON MS | DCON WS | LU | LF | Head Bolts |
|-------------|-------------|---------|---------|-------|--------|------------|
| 911-000-001 | A1000-12 | 1.000 | N/A | N/A | 12.000 | 8-32 |
| 911-000-002 | A1250-14 | 1.250 | N/A | N/A | 14.000 | 10-24 |
| 911-000-003 | A1500-14 | 1.500 | N/A | N/A | 14.000 | 10-24 |
| 911-000-004 | A1750-16 | 1.750 | N/A | N/A | 16.000 | 1/4-20 |
| 911-000-026 | A2000-10 | 2.000 | N/A | N/A | 10.000 | 1/4-20 |
| 911-000-005 | A2000-20 | 2.000 | N/A | N/A | 20.000 | 1/4-20 |
| 911-000-006 | A2500-12 | 2.500 | N/A | N/A | 12.000 | 5/16-18 |
| 911-000-007 | A2500-24 | 2.500 | N/A | N/A | 24.000 | 5/16-18 |
| 911-000-008 | A3000-18 * | 3.000 | 2.000 | 3.000 | 18.000 | 5/16-18 |

* 3" bar takes 2.5" head



8:1 Ratio

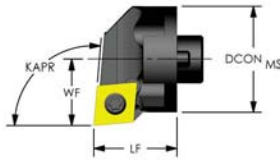
CARBIDE SHANK

Coolant Thru

| PRODUCT # | Designation | DCONMS | LF | Head Bolts |
|-------------|-------------|--------|--------|------------|
| 911-000-016 | E1000-12 | 1.000 | 12.000 | 8-32 |
| 911-000-017 | E1250-14 | 1.250 | 14.000 | 10-24 |
| 911-000-018 | E1500-14 | 1.500 | 14.000 | 10-24 |
| 911-000-019 | E1750-16 | 1.750 | 16.000 | 1/4-20 |
| 911-000-020 | E2000-20 | 2.000 | 20.000 | 1/4-20 |

| PRODUCT # | Head Bolts |
|-------------|------------|
| 968-000-006 | 8-32 HB |
| 968-000-002 | 10-24 HB |
| 968-000-001 | 1/4-20 HB |
| 968-000-004 | 5/16-18 HB |

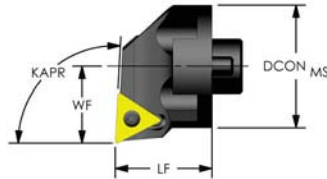
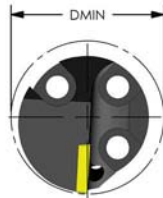
PACKAGE SIZE OF 1



Positive 80° Diamond (KAPR: 93°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-014 | 912-000-015 | MH16 SCLCR/L3-CFT | 1.000 | 0.790 | 0.625 | 1.200 | 93.0 | CCMT 32.51 | MTS-35 | T-15 |
| 912-000-041 | 912-000-042 | MH20 SCLCR/L3-CFT | 1.250 | 1.250 | 0.765 | 1.470 | 93.0 | CCMT 32.51 | MTS-35 | T-15 |
| 912-000-074 | 912-000-075 | MH24 SCLCR/L3-CFT | 1.500 | 1.250 | 0.890 | 1.760 | 93.0 | CCMT 32.51 | MTS-35 | T-15 |
| 912-000-110 | 912-000-111 | MH28 SCLCR/L3-CFT | 1.750 | 1.250 | 1.015 | 2.030 | 93.0 | CCMT 32.51 | MTS-35 | T-15 |
| N/A | 912-000-076 | MH24 SCLCR4-CFT | 1.500 | 1.250 | 0.890 | 1.760 | 93.0 | CCMT 432 | MTS-4 | T-20 |
| N/A | 912-000-112 | MH28 SCLCR4-CFT | 1.750 | 1.250 | 1.015 | 2.030 | 93.0 | CCMT 432 | MTS-4 | T-20 |
| 912-000-156 | 912-000-157 | MH32 SCLCR/L4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 93.0 | CCMT 432 | MTS-4 | T-20 |
| 912-000-195 | 912-000-196 | MH40 SCLCR/L4-CFT | 2.500 | 1.625 | 1.500 | 2.800 | 93.0 | CCMT 432 | MTS-4 | T-20 |



Positive Triangle (KAPR: 93°)

Coolant Thru

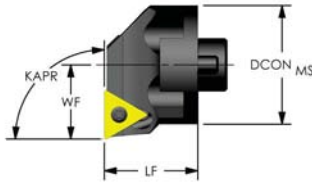
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-020 | 912-000-021 | MH16 STUCR/L2-CFT | 1.000 | 0.790 | 0.625 | 1.200 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 912-000-047 | 912-000-048 | MH20 STUCR/L3-CFT | 1.250 | 1.250 | 0.765 | 1.470 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-081 | 912-000-082 | MH24 STUCR/L3-CFT | 1.500 | 1.250 | 0.890 | 1.760 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-117 | 912-000-118 | MH28 STUCR/L3-CFT | 1.750 | 1.250 | 1.015 | 2.030 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-162 | 912-000-163 | MH32 STUCR/L3-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-201 | 912-000-202 | MH40 STUCR/L3-CFT | 2.500 | 1.625 | 1.500 | 2.800 | 93.0 | TCMT 32.51 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

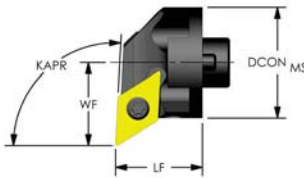
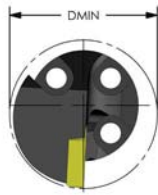


Positive Triangle (KAPR: 90°)



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|--------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-018 | 912-000-019 | MH16 STFCLR/L2-CFT | 1.000 | 0.790 | 0.625 | 1.200 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 912-000-045 | 912-000-046 | MH20 STFCLR/L3-CFT | 1.250 | 1.250 | 0.765 | 1.470 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-079 | 912-000-080 | MH24 STFCLR/L3-CFT | 1.500 | 1.250 | 0.890 | 1.760 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-115 | 912-000-116 | MH28 STFCLR/L3-CFT | 1.750 | 1.250 | 1.015 | 2.030 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-160 | 912-000-161 | MH32 STFCLR/L3-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |
| 912-000-199 | 912-000-200 | MH40 STFCLR/L3-CFT | 2.500 | 1.625 | 1.500 | 2.800 | 90.0 | TCMT 32.51 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 93°) Profiling



Coolant Thru

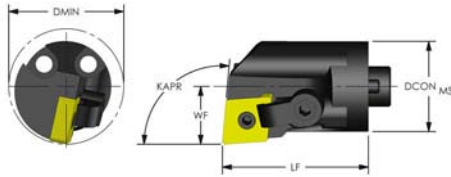
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-016 | 912-000-017 | MH16 SDUCR/L3-CFT | 1.000 | 0.790 | 0.750 | 1.300 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 912-000-043 | 912-000-044 | MH20 SDUCR/L3-CFT | 1.250 | 1.250 | 1.000 | 1.675 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 912-000-077 | 912-000-078 | MH24 SDUCR/L3-CFT | 1.500 | 1.250 | 1.120 | 1.920 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 912-000-113 | 912-000-114 | MH28 SDUCR/L3-CFT | 1.750 | 1.250 | 1.250 | 2.175 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 912-000-158 | 912-000-159 | MH32 SDUCR/L3-CFT | 2.000 | 1.625 | 1.375 | 2.425 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |
| 912-000-197 | 912-000-198 | MH40 SDUCR/L3-CFT | 2.500 | 1.625 | 1.500 | 2.800 | 93.0 | DCMT 32.51 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

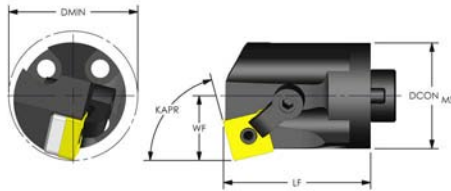
PACKAGE SIZE OF 5



Negative 80° Diamond (KAPR: 95°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-003 | 912-000-004 | MH16 MCLNR/L4-CFT | 1.000 | 1.625 | 0.640 | 1.200 | 95.0 | CNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 912-000-024 | 912-000-025 | MH20 MCLNR/L4-CFT | 1.250 | 1.625 | 0.765 | 1.470 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-053 | 912-000-055 | MH24 MCLNR/L4-CFT | 1.500 | 1.625 | 0.890 | 1.760 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-087 | 912-000-088 | MH28 MCLNR/L4-CFT | 1.750 | 1.625 | 1.015 | 2.010 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-125 | 912-000-128 | MH32 MCLNR/L4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-166 | 912-000-169 | MH40 MCLNR/L4-CFT | 2.500 | 1.625 | 1.531 | 2.980 | 95.0 | CNMG 432 | ICSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-054 | 912-000-056 | MH24 MCLNR/L5-CFT | 1.250 | 1.625 | 0.890 | 1.760 | 95.0 | CNMG 543 | N/A | CL-20 | XNS-47 | NL-56 |
| 912-000-126 | 912-000-129 | MH32 MCLNR/L5-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 95.0 | CNMG 543 | ICSN-533 | CL-12 | XNS-510 | NL-58 |
| 912-000-167 | 912-000-170 | MH40 MCLNR/L5-CFT | 2.500 | 1.625 | 1.531 | 2.980 | 95.0 | CNMG 543 | ICSN-533 | CL-12 | XNS-510 | NL-58 |
| 912-000-127 | 912-000-130 | MH32 MCLNR/L6-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 95.0 | CNMG 643 | ICSN-633 | CL-12 | XNS-59 | NL-68 |
| 912-000-168 | 912-000-171 | MH40 MCLNR/L6-CFT | 2.500 | 1.625 | 1.531 | 3.030 | 95.0 | CNMG 643 | ICSN-633 | CL-12 | XNS-59 | NL-68 |



Negative Square (KAPR: 75°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-030 | 912-000-031 | MH20 MSKNR/L4-CFT | 1.250 | 1.744 | 0.765 | 1.470 | 75.0 | SNMG 432 | ISSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-061 | 912-000-062 | MH24 MSKNR/L4-CFT | 1.500 | 1.744 | 0.890 | 1.760 | 75.0 | SNMG 432 | ISSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-093 | 912-000-094 | MH28 MSKNR/L4-CFT | 1.750 | 1.744 | 1.015 | 2.010 | 75.0 | SNMG 432 | ISSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-135 | 912-000-138 | MH32 MSKNR/L4-CFT | 2.000 | 1.744 | 1.281 | 2.400 | 75.0 | SNMG 432 | ISSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-176 | 912-000-179 | MH40 MSKNR/L4-CFT | 2.500 | 1.804 | 1.531 | 3.030 | 75.0 | SNMG 432 | ISSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-136 | 912-000-139 | MH32 MSKNR/L5-CFT | 2.000 | 1.744 | 1.281 | 2.400 | 75.0 | SNMG 543 | ISSN-533 | CL-12 | XNS-510 | NL-58 |
| 912-000-177 | 912-000-180 | MH40 MSKNR/L5-CFT | 2.500 | 1.804 | 1.531 | 3.030 | 75.0 | SNMG 543 | ISSN-533 | CL-12 | XNS-510 | NL-58 |
| 912-000-137 | 912-000-138 | MH32 MSKNR/L6-CFT | 2.000 | 1.744 | 1.281 | 2.400 | 75.0 | SNMG 643 | ISSN-633 | CL-12 | XNS-510 | NL-68 |
| 912-000-178 | 912-000-181 | MH40 MSKNR/L6-CFT | 2.500 | 1.804 | 1.531 | 3.030 | 75.0 | SNMG 643 | ISSN-633 | CL-12 | XNS-510 | NL-68 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

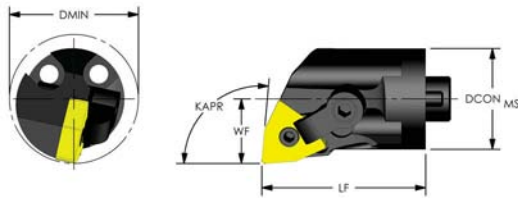
PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

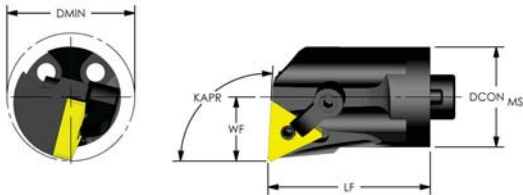


Negative Trigon (KAPR: 95°)

Coolant Thru



| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-012 | 912-000-013 | MH16 MWLNR/L4-CFT | 1.000 | 1.625 | 0.640 | 1.200 | 95.0 | WNMG 432 | N/A | CL-20 | XNS-47 | NL-44 |
| 912-000-037 | 912-000-038 | MH20 MWLNR/L4-CFT | 1.250 | 1.625 | 0.765 | 1.470 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-070 | 912-000-071 | MH24 MWLNR/L4-CFT | 1.500 | 1.625 | 0.890 | 1.760 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-102 | 912-000-103 | MH28 MWLNR/L4-CFT | 1.750 | 1.625 | 1.015 | 2.010 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-148 | 912-000-149 | MH32 MWLNR/L4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-189 | 912-000-190 | MH40 MWLNR/L4-CFT | 2.500 | 1.625 | 1.500 | 2.980 | 95.0 | WNMG 432 | IWSN-433 | CL-20 | XNS-47 | NL-46 |



Negative Triangle (KAPR: 93°)

Coolant Thru



| PRODUCT # | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|-------------|-----------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-007 | MH16 MTUNR3-CFT | 1.000 | 1.625 | 0.640 | 1.200 | 93.0 | TNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 912-000-032 | MH20 MTUNR3-CFT | 1.250 | 1.625 | 0.765 | 1.470 | 93.0 | TNMG 332 | ITSN-323 | CL-7 | XNS-36 | NL-34L |
| 912-000-065 | MH24 MTUNR4-CFT | 1.500 | 1.625 | 0.890 | 1.760 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-097 | MH28 MTUNR4-CFT | 1.750 | 1.625 | 1.015 | 2.010 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-143 | MH32 MTUNR4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |
| 912-000-182 | MH40 MTUNR4-CFT | 2.500 | 1.625 | 1.531 | 2.900 | 93.0 | TNMG 432 | ITSN-433 | CL-20 | XNS-47 | NL-46 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

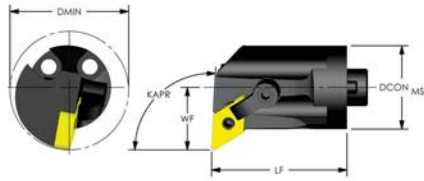
PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

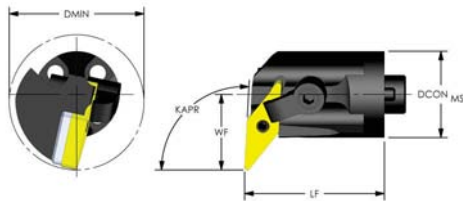


Negative 55° Diamond (KAPR: 93°)



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-005 | 912-000-006 | MH16 MDUNR/L3-CFT | 1.000 | 1.625 | 0.750 | 1.300 | 93.0 | DNMG 332 | N/A | CL-7 | XNS-36 | NL-33L |
| 912-000-026 | 912-000-027 | MH20 MDUNR/L3-CFT | 1.250 | 1.625 | 1.000 | 1.705 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 912-000-057 | 912-000-059 | MH24 MDUNR/L3-CFT | 1.500 | 1.625 | 1.125 | 2.000 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 912-000-089 | 912-000-091 | MH28 MDUNR/L3-CFT | 1.750 | 1.625 | 1.250 | 2.250 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 912-000-131 | 912-000-133 | MH32 MDUNR/L3-CFT | 2.000 | 1.625 | 1.375 | 2.500 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 912-000-172 | 912-000-174 | MH40 MDUNR/L3-CFT | 2.500 | 1.625 | 1.500 | 2.950 | 93.0 | DNMG 332 | IDSN-322 | CL-7 | XNS-36 | NL-34L |
| 912-000-027 | 912-000-029 | MH20 MDUNR/L4-CFT | 1.250 | 1.625 | 1.000 | 1.705 | 93.0 | DNMG 432 | IDSN-433 | CL-20 | XNS-48 | NL-46 |
| 912-000-058 | 912-000-060 | MH24 MDUNR/L4-CFT | 1.500 | 1.625 | 1.125 | 2.000 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 912-000-090 | 912-000-092 | MH28 MDUNR/L4-CFT | 1.750 | 1.625 | 1.250 | 2.250 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 912-000-132 | 912-000-134 | MH32 MDUNR/L4-CFT | 2.000 | 1.625 | 1.375 | 2.500 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |
| 912-000-173 | 912-000-175 | MH40 MDUNR/L4-CFT | 2.500 | 1.625 | 1.500 | 2.950 | 93.0 | DNMG 432 | IDSN-433 | CL-22 | XNS-48 | NL-46 |



Negative 35° Diamond (KAPR: 93°)



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-008 | 912-000-009 | MH16 MVUNR/L3-CFT | 1.000 | 1.625 | 0.875 | 1.435 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-033 | 912-000-034 | MH20 MVUNR/L3-CFT | 1.250 | 1.625 | 1.000 | 1.705 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-066 | 912-000-067 | MH24 MVUNR/L3-CFT | 1.500 | 1.625 | 1.125 | 2.000 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-098 | 912-000-099 | MH28 MVUNR/L3-CFT | 1.750 | 1.625 | 1.250 | 2.250 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-144 | 912-000-145 | MH32 MVUNR/L3-CFT | 2.000 | 1.625 | 1.375 | 2.500 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-183 | 912-000-185 | MH40 MVUNR/L3-CFT | 2.500 | 1.625 | 1.750 | 3.250 | 93.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-184 | 912-000-186 | MH40 MVUNR/L4-CFT | 2.500 | 1.625 | 1.750 | 3.250 | 93.0 | VNMG 432 | IVSN-432 | CL-22 | XNS-48 | NL-46 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

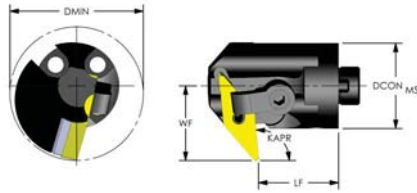
PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5



by Ultra-Dex

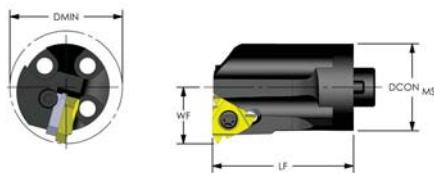


Negative 35° Diamond (KAPR: 95°)
Back Facing



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | KAPR | Insert | Shim | Clamp | Clamp Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|------|----------|----------|-------|----------------|-------------|
| 912-000-010 | 912-000-011 | MH16 MVXNR/L3-CFT | 1.000 | 0.940 | 0.875 | 1.435 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-035 | 912-000-036 | MH20 MVXNR/L3-CFT | 1.250 | 1.000 | 1.000 | 1.705 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-068 | 912-000-069 | MH24 MVXNR/L3-CFT | 1.500 | 1.120 | 1.125 | 2.000 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-100 | 912-000-101 | MH28 MVXNR/L3-CFT | 1.750 | 1.120 | 1.250 | 2.250 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-146 | 912-000-147 | MH32 MVXNR/L3-CFT | 2.000 | 1.120 | 1.375 | 2.500 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |
| 912-000-187 | 912-000-188 | MH40 MVXNR/L3-CFT | 2.500 | 1.120 | 1.750 | 3.250 | 95.0 | VNMG 332 | IVSN-322 | CL-20 | XNS-47 | NL-34L |



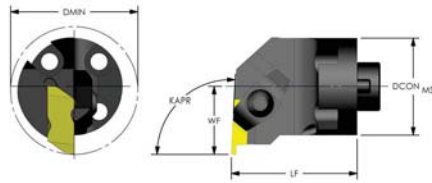
Threading / Grooving Laydown



Coolant Thru

| PRODUCT # | Designation Right hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|---------------------------|------------|-------|-------|-------|--------|-----------------|----------------|-------|
| 912-000-002 | MH16 LSER3-CFT | 1.000 | 1.625 | 0.650 | 1.200 | 3IR | SA3T | SY3T | YI3 |
| 912-000-023 | MH20 LSER3-CFT | 1.250 | 1.625 | 0.770 | 1.450 | 3IR | SA3T | SY3T | YI3 |
| 912-000-051 | MH24 LSER3-CFT | 1.500 | 1.625 | 0.900 | 1.650 | 3IR | SA3T | SY3T | YI3 |
| 912-000-085 | MH28 LSER3-CFT | 1.750 | 1.625 | 1.090 | 2.020 | 3IR | SA3T | SY3T | YI3 |
| 912-000-122 | MH32 LSER3-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 3IR | SA3T | SY3T | YI3 |
| 912-000-052 | MH24 LSER4-CFT | 1.500 | 1.625 | 0.978 | 1.782 | 4IR | SA4T | SY4T | YI4 |
| 912-000-084 | MH28 LSER4-CFT | 1.750 | 1.625 | 1.090 | 2.020 | 4IR | SA4T | SY4T | YI4 |
| 912-000-123 | MH32 LSER4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 4IR | SA4T | SY4T | YI4 |
| 912-000-124 | MH32 LSER5-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 5IR | SA5T | SY5T | YI5 |
| 912-000-165 | MH40 LSER5-CFT | 2.500 | 1.625 | 1.530 | 2.800 | 5IR | SA5T | SY5T | YI5 |

| PRODUCT # | Designation Left hand | DCON MS | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|--------------------------|------------|-------|-------|-------|--------|-----------------|----------------|-------|
| 912-000-001 | MH16 LSEL3-CFT | 1.000 | 1.625 | 0.650 | 1.200 | 3IL | SA3T | SY3T | YE3 |
| 912-000-022 | MH20 LSEL3-CFT | 1.250 | 1.625 | 0.770 | 1.450 | 3IL | SA3T | SY3T | YE3 |
| 912-000-049 | MH24 LSEL3-CFT | 1.500 | 1.625 | 0.900 | 1.650 | 3IL | SA3T | SY3T | YE3 |
| 912-000-083 | MH28 LSEL3-CFT | 1.750 | 1.625 | 1.090 | 2.020 | 3IL | SA3T | SY3T | YE3 |
| 912-000-119 | MH32 LSEL3-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 3IL | SA3T | SY3T | YE3 |
| 912-000-051 | MH24 LSEL4-CFT | 1.500 | 1.625 | 0.978 | 1.782 | 4IL | SA4T | SY4T | YE4 |
| 912-000-086 | MH28 LSEL4-CFT | 1.750 | 1.625 | 1.090 | 2.020 | 4IL | SA4T | SY4T | YE4 |
| 912-000-120 | MH32 LSEL4-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 4IL | SA4T | SY4T | YE4 |
| 912-000-121 | MH32 LSEL5-CFT | 2.000 | 1.625 | 1.281 | 2.400 | 5IL | SA5T | SY5T | YE5 |
| 912-000-164 | MH40 LSEL5-CFT | 2.500 | 1.625 | 1.530 | 2.800 | 5IL | SA5T | SY5T | YE5 |



Threading / Grooving Top Notch



Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Screw |
|-------------|---------------------------|------------|-------|-------|-------|--------|--------|-------|
| 912-000-040 | MH20 NER3-CFT | 1.250 | 1.625 | 0.875 | 1.750 | NG 3L | CM-73 | 10-32 |
| 912-000-073 | MH24 NER3-CFT | 1.500 | 1.625 | 1.000 | 2.000 | NG 3L | CM-73 | 10-32 |
| 912-000-107 | MH28 NER3-CFT | 1.750 | 1.625 | 1.125 | 2.250 | NG 3L | CM-73 | 10-32 |
| 912-000-153 | MH32 NER3-CFT | 2.000 | 1.625 | 1.250 | 2.410 | NG 3L | CM-73 | 10-32 |
| 912-000-108 | MH28 NER4-CFT | 1.750 | 1.625 | 1.250 | 2.500 | NG 4L | CM-73 | 10-32 |
| 912-000-154 | MH32 NER4-CFT | 2.000 | 1.625 | 1.375 | 2.750 | NG 4L | CM-73 | 10-32 |
| 912-000-193 | MH40 NER4-CFT | 2.500 | 1.625 | 1.625 | 3.250 | NG 4L | CM-73 | 10-32 |
| 912-000-109 | MH28 NER6-CFT | 1.750 | 1.625 | 1.250 | 2.500 | NG 6L | CM-121 | 10-32 |
| 912-000-155 | MH32 NER6-CFT | 2.000 | 1.625 | 1.375 | 2.750 | NG 6L | CM-121 | 10-32 |
| 912-000-194 | MH40 NER6-CFT | 2.500 | 1.625 | 1.625 | 3.250 | NG 6L | CM-121 | 10-32 |

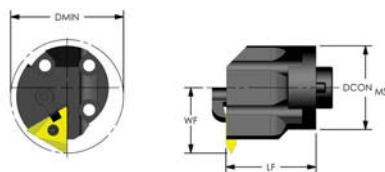
| PRODUCT # | Clamp |
|-------------|--------|
| 968-000-025 | CM-72 |
| 968-000-026 | CM-73 |
| 968-000-027 | CM-74 |
| 968-000-028 | CM-75 |
| 968-000-021 | CM-120 |
| 968-000-022 | CM-121 |
| 968-000-023 | CM-146 |
| 968-000-024 | CM-147 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-005 | 6-32 |
| 968-000-003 | 10-32 |
| 968-000-096 | MTS-526 |

PACKAGE SIZE OF 5

| PRODUCT # | Designation Left hand | DCON MS | LF | WF | DMIN | Insert | Clamp | Screw |
|-------------|--------------------------|------------|-------|-------|-------|--------|--------|-------|
| 912-000-039 | MH20 NEL3-CFT | 1.250 | 1.625 | .875 | 1.750 | NG 3R | CM-72 | 10-32 |
| 912-000-072 | MH24 NEL3-CFT | 1.500 | 1.625 | 1.000 | 2.000 | NG 3R | CM-72 | 10-32 |
| 912-000-104 | MH28 NEL3-CFT | 1.750 | 1.625 | 1.125 | 2.250 | NG 3R | CM-72 | 10-32 |
| 912-000-150 | MH32 NEL3-CFT | 2.000 | 1.625 | 1.250 | 2.410 | NG 3R | CM-72 | 10-32 |
| 912-000-105 | MH28 NEL4-CFT | 1.750 | 1.625 | 1.250 | 2.500 | NG 4R | CM-72 | 10-32 |
| 912-000-151 | MH32 NEL4-CFT | 2.000 | 1.625 | 1.375 | 2.750 | NG 4R | CM-72 | 10-32 |
| 912-000-191 | MH40 NEL4-CFT | 2.500 | 1.625 | 1.625 | 3.250 | NG 4R | CM-72 | 10-32 |
| 912-000-106 | MH28 NEL6-CFT | 1.750 | 1.625 | 1.250 | 2.500 | NG 6R | CM-120 | 10-32 |
| 912-000-152 | MH32 NEL6-CFT | 2.000 | 1.625 | 1.375 | 2.750 | NG 6R | CM-120 | 10-32 |
| 912-000-192 | MH40 NEL6-CFT | 2.500 | 1.625 | 1.625 | 3.250 | NG 6R | CM-120 | 10-32 |



Threading / Grooving On Edge



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | LF | WF | DMIN | Insert | Clamp | Screw | Lock Pin |
|------------------------|-------------------------|-------------------|------------|-------|-------|-------|---------|-------|--------|-------------|
| 912-000-063 | 912-000-064 | MH24 MTHOR/L4-CFT | 1.500 | 1.625 | 1.173 | 2.625 | TNMA 43 | CL-7 | XNS-36 | NL-44 |
| 912-000-095 | 912-000-096 | MH28 MTHOR/L4-CFT | 1.750 | 1.625 | 1.298 | 2.750 | TNMA 43 | CL-7 | XNS-36 | NL-44 |
| 912-000-141 | 912-000-142 | MH32 MTHOR/L4-CFT | 2.000 | 1.625 | 1.423 | 2.875 | TNMA 43 | CL-7 | XNS-36 | NL-44 |

| PRODUCT # | Clamp Screw |
|-------------|----------------|
| 968-000-176 | XNS-36 |
| 968-000-177 | XNS-47 |
| 968-000-178 | XNS-48 |
| 968-000-179 | XNS-510 |
| 968-000-180 | XNS-58 |
| 968-000-181 | XNS-59 |

PACKAGE SIZE OF 5

| PRODUCT # | Lock Pin |
|-------------|-------------|
| 968-000-097 | NL-33 |
| 968-000-098 | NL-33L |
| 968-000-099 | NL-34 |
| 968-000-100 | NL-34L |
| 968-000-101 | NL-44 |
| 968-000-102 | NL-46 |
| 968-000-103 | NL-56 |
| 968-000-104 | NL-58 |
| 968-000-105 | NL-68 |
| 968-000-106 | NL-68L |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

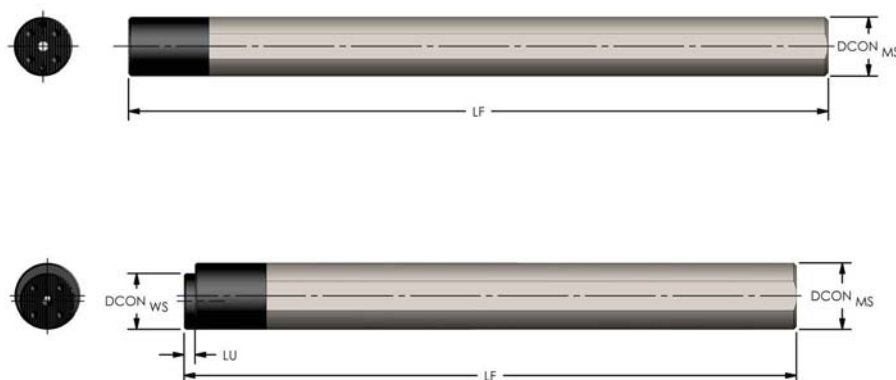
PACKAGE SIZE OF 1



STEEL SHANK

4:1 Ratio
Coolant Thru

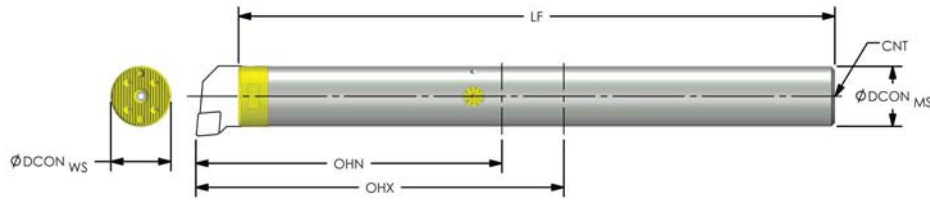
| PRODUCT # | Designation | DCON MS | DCON WS | LU | LF | Head Bolts |
|-------------|-------------|---------|---------|-------|--------|------------|
| 911-000-009 | AS1000-12 | 1.000 | 25mm | N/A | 12.000 | 8-32 |
| 911-000-010 | AS1250-14 | 1.250 | 32mm | N/A | 14.000 | 10-24 |
| 911-000-011 | AS1500-14 | 1.500 | 32mm | 0.250 | 14.000 | 10-24 |
| 911-000-012 | AS1750-16 | 1.750 | 40mm | 0.250 | 16.000 | 1/4-20 |
| 911-000-013 | AS2000-20 | 2.000 | 40mm | 0.250 | 20.000 | 1/4-20 |
| 911-000-014 | AS2500-12 | 2.500 | 40mm | 0.250 | 12.000 | 1/4-20 |
| 911-000-015 | AS2500-24 | 2.500 | 40mm | 0.250 | 24.000 | 1/4-20 |



CARBIDE SHANK

8:1 Ratio
Coolant Thru

| PRODUCT # | Designation | DCON MS | DCON WS | LU | LF | Head Bolts |
|-------------|-------------|---------|---------|-------|--------|------------|
| 911-000-021 | ES1000-12 | 1.000 | 25mm | N/A | 12.000 | 8-32 |
| 911-000-022 | ES1250-14 | 1.250 | 32mm | N/A | 14.000 | 10-24 |
| 911-000-023 | ES1500-14 | 1.500 | 32mm | 0.250 | 14.000 | 10-24 |
| 911-000-024 | ES1750-16 | 1.750 | 40mm | 0.250 | 16.000 | 1/4-20 |
| 911-000-025 | ES2000-20 | 2.000 | 40mm | 0.250 | 20.000 | 1/4-20 |



5:1 Ratio **MODULAR STEALTH BARS** **Coolant Thru**

| PRODUCT # | Designation | DCON MS | DCON WS | LF | OHN | OHX | Head Bolts | CNT |
|-------------|---------------|---------|---------|--------|-------|--------|------------|------------|
| 910-000-064 | SCFT B1500-9 | 1.500 | 32mm | 9.000 | 7.000 | 7.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-069 | SCFT B2000-12 | 2.000 | 40mm | 12.000 | 7.500 | 10.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-074 | SCFT B2500-16 | 2.500 | 40mm | 16.000 | 8.000 | 12.500 | 1/4-20 HB | 1/8-27 NPT |

7:1 Ratio

| | | | | | | | | |
|-------------|---------------|-------|------|--------|--------|--------|-----------|------------|
| 910-000-052 | SCFT B1000-10 | 1.000 | 25mm | 10.000 | 5.000 | 7.000 | 8-32 HB | 1/8-27 NPT |
| 910-000-056 | SCFT B1250-12 | 1.250 | 32mm | 12.000 | 6.250 | 8.750 | 10-24 HB | 1/8-27 NPT |
| 910-000-060 | SCFT B1500-15 | 1.500 | 32mm | 15.000 | 7.500 | 10.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-065 | SCFT B1750-18 | 1.750 | 40mm | 18.000 | 8.750 | 12.250 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-070 | SCFT B2000-20 | 2.000 | 40mm | 20.000 | 10.000 | 14.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-075 | SCFT B2500-27 | 2.500 | 40mm | 27.000 | 12.500 | 17.500 | 1/4-20 HB | 1/4-18 NPT |

10:1 Ratio

| | | | | | | | | |
|-------------|---------------|-------|------|--------|--------|--------|-----------|------------|
| 910-000-053 | SCFT B1000-14 | 1.000 | 25mm | 14.000 | 7.000 | 10.000 | 8-32 HB | 1/8-27 NPT |
| 910-000-057 | SCFT B1250-16 | 1.250 | 32mm | 16.000 | 8.750 | 12.500 | 10-24 HB | 1/8-27 NPT |
| 910-000-061 | SCFT B1500-19 | 1.500 | 32mm | 19.000 | 10.500 | 15.000 | 10-24 HB | 1/8-27 NPT |
| 910-000-066 | SCFT B1750-23 | 1.750 | 40mm | 23.000 | 12.250 | 17.500 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-071 | SCFT B2000-26 | 2.000 | 40mm | 26.000 | 14.000 | 20.000 | 1/4-20 HB | 1/8-27 NPT |
| 910-000-076 | SCFT B2500-33 | 2.500 | 40mm | 33.000 | 17.500 | 25.000 | 1/4-20 HB | 1/4-18 NPT |

12:1 Ratio

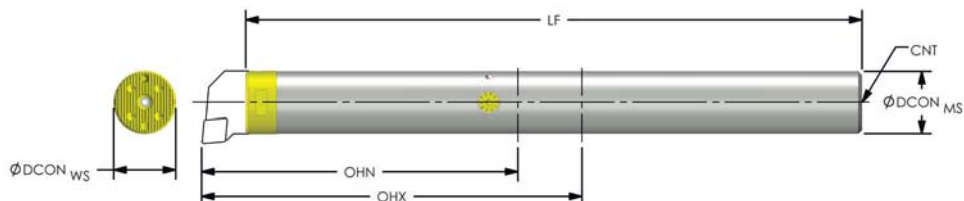
| | | | | | | | | |
|-------------|---------------|-------|------|--------|--------|--------|-----------|-----|
| 910-000-054 | SCFT B1000-16 | 1.000 | 25mm | 16.000 | 10.875 | 12.000 | 8-32 HB | N/A |
| 910-000-058 | SCFT B1250-18 | 1.250 | 32mm | 18.000 | 13.785 | 15.000 | 10-24 HB | N/A |
| 910-000-062 | SCFT B1500-22 | 1.500 | 32mm | 22.000 | 16.375 | 18.000 | 10-24 HB | N/A |
| 910-000-067 | SCFT B1750-25 | 1.750 | 40mm | 25.000 | 18.060 | 21.000 | 1/4-20 HB | N/A |
| 910-000-072 | SCFT B2000-29 | 2.000 | 40mm | 29.000 | 19.375 | 24.000 | 1/4-20 HB | N/A |

14:1 Ratio

| | | | | | | | | |
|-------------|---------------|-------|------|--------|--------|--------|-----------|-----|
| 910-000-055 | SCFT B1000-18 | 1.000 | 25mm | 18.000 | 10.875 | 12.000 | 8-32 HB | N/A |
| 910-000-059 | SCFT B1250-21 | 1.250 | 32mm | 21.000 | 13.875 | 15.000 | 10-24 HB | N/A |
| 910-000-063 | SCFT B1500-25 | 1.500 | 32mm | 25.000 | 16.375 | 18.000 | 10-24 HB | N/A |
| 910-000-068 | SCFT B1750-29 | 1.750 | 40mm | 29.000 | 18.060 | 21.000 | 1/4-20 HB | N/A |
| 910-000-073 | SCFT B2000-33 | 2.000 | 40mm | 33.000 | 19.375 | 24.000 | 1/4-20 HB | N/A |

| PRODUCT # | Head Bolts |
|-------------|------------|
| 968-000-006 | 8-32 HB |
| 968-000-002 | 10-24 HB |
| 968-000-001 | 1/4-20 HB |
| 968-000-004 | 5/16-18 HB |

PACKAGE SIZE OF 1



7:1 Ratio

MODULAR STEALTH BARS

Coolant Thru

| PRODUCT # | Designation | DCON MS | DCON WS | LF | OHN | OHX | Head Bolts | CNT |
|-------------|----------------|---------|---------|-------|-------|-------|------------|------------|
| 910-000-077 | SCFT B25MM-250 | 25mm | 25mm | 250mm | 127mm | 175mm | 8-32 HB | 1/8-27 NPT |
| 910-000-079 | SCFT B32MM-320 | 32mm | 32mm | 320mm | 159mm | 224mm | 10-24 HB | 1/8-27 NPT |
| 910-000-083 | SCFT B40MM-400 | 40mm | 40mm | 400mm | 190mm | 280mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-087 | SCFT B50MM-500 | 50mm | 40mm | 500mm | 254mm | 350mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-091 | SCFT B60MM-600 | 60mm | 40mm | 600mm | 320mm | 420mm | 1/4-20 HB | 1/8-27 NPT |

10:1 Ratio

| | | | | | | | | |
|-------------|----------------|------|------|-------|-------|-------|-----------|------------|
| 910-000-078 | SCFT B25MM-325 | 25mm | 25mm | 325mm | 178mm | 250mm | 8-32 HB | 1/8-27 NPT |
| 910-000-080 | SCFT B32MM-416 | 32mm | 32mm | 416mm | 223mm | 320mm | 10-24 HB | 1/8-27 NPT |
| 910-000-084 | SCFT B40MM-520 | 40mm | 40mm | 520mm | 266mm | 400mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-088 | SCFT B50MM-650 | 50mm | 40mm | 650mm | 356mm | 500mm | 1/4-20 HB | 1/8-27 NPT |
| 910-000-092 | SCFT B60MM-780 | 60mm | 40mm | 780mm | 445mm | 600mm | 1/4-20 HB | 1/8-27 NPT |

12:1 Ratio

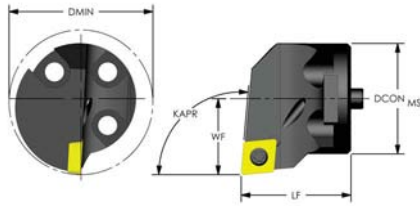
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|-------------|----------------|------|------|-------|-------|-------|-----------|-----|
| 910-000-081 | SCFT B32MM-480 | 32mm | 32mm | 480mm | 352mm | 384mm | 10-24 HB | N/A |
| 910-000-085 | SCFT B40MM-600 | 40mm | 40mm | 600mm | 416mm | 480mm | 1/4-20 HB | N/A |
| 910-000-089 | SCFT B50MM-750 | 50mm | 40mm | 750mm | 492mm | 600mm | 1/4-20 HB | N/A |

14:1 Ratio

| | | | | | | | | |
|-------------|----------------|------|------|-------|-------|-------|-----------|-----|
| 910-000-082 | SCFT B32MM-544 | 32mm | 32mm | 544mm | 352mm | 448mm | 10-24 HB | N/A |
| 910-000-086 | SCFT B40MM-680 | 40mm | 40mm | 680mm | 416mm | 560mm | 1/4-20 HB | N/A |
| 910-000-090 | SCFT B50MM-850 | 50mm | 40mm | 850mm | 492mm | 788mm | 1/4-20 HB | N/A |

| PRODUCT # | Head Bolts |
|-------------|------------|
| 968-000-006 | 8-32 HB |
| 968-000-002 | 10-24 HB |
| 968-000-001 | 1/4-20 HB |
| 968-000-004 | 5/16-18 HB |

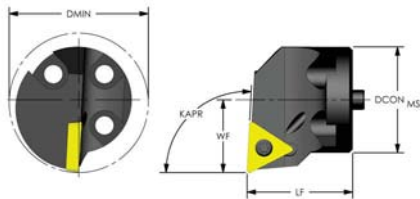
PACKAGE SIZE OF 1



Positive 80° Diamond (KAPR:95°)

Coolant Thru

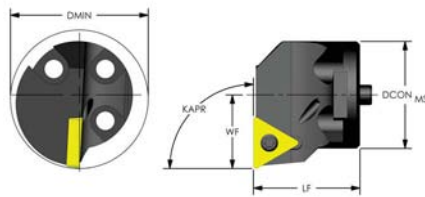
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-205 | 912-000-206 | SH16 SCLCR/L3 | 0.984 | 25mm | 0.787 | 0.669 | 1.260 | 95.0 | CCMT 32.52 | MTS-35 | T-15 |
| 912-000-233 | 912-000-234 | SH20 SCLCR/L3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 95.0 | CCMT 32.52 | MTS-35 | T-15 |
| 912-000-263 | 912-000-264 | SH24 SCLCR/L4 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 95.0 | CCMT 432 | MTS-4 | T-20 |



Positive Triangle (KAPR:93°)

Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-215 | 912-000-216 | SH16 STUCR/L2 | 0.984 | 25mm | 0.787 | 0.669 | 1.260 | 93.0 | TCMT 21.51 | MTS-255 | T-7 |
| 912-000-243 | 912-000-244 | SH20 STUCR/L3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 93.0 | TCMT 32.52 | MTS-35 | T-15 |
| 912-000-273 | 912-000-274 | SH24 STUCR/L3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 93.0 | TCMT 32.52 | MTS-35 | T-15 |



Positive Triangle (KAPR:90°)

Coolant Thru

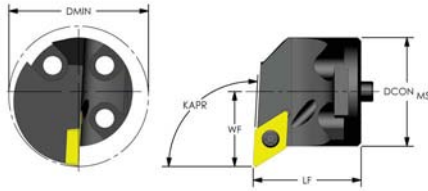
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-213 | 912-000-214 | SH16 STFCR/L2 | 0.984 | 25mm | 0.787 | 0.669 | 1.260 | 90.0 | TCMT 21.51 | MTS-255 | T-7 |
| 912-000-241 | 912-000-242 | SH20 STFCR/L3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 90.0 | TCMT 32.52 | MTS-35 | T-15 |
| 912-000-271 | 912-000-272 | SH24 STFCR/L3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 90.0 | TCMT 32.52 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

PACKAGE SIZE OF 5

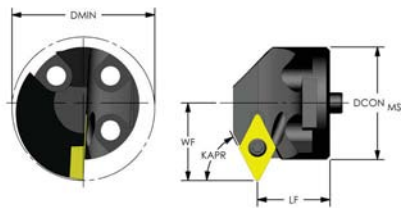


Positive 55° Diamond (KAPR: 93°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-209 | 912-000-210 | SH16 SDUCR/L3 | 0.984 | 25mm | 0.787 | 0.669 | 1.260 | 93.0 | DCMT 32.52 | MTS-35 | T-15 |
| 912-000-237 | 912-000-238 | SH20 SDUCR/L3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 93.0 | DCMT 32.52 | MTS-35 | T-15 |
| 912-000-267 | 912-000-268 | SH24 SDUCR/L3 | 1.575 | 40mm | 1.260 | 1.063 | 1.968 | 93.0 | DCMT 32.52 | MTS-35 | T-15 |

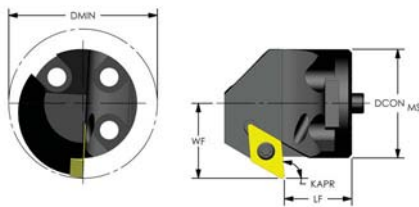


Positive 55° Diamond (KAPR: 62.5°) Profiling



Coolant Thru

| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-207 | 912-000-208 | SH16 SDNCR/L2 | 0.984 | 25mm | 0.591 | 0.709 | 1.299 | 62.5 | DCMT 21.51 | MTS-255 | T-7 |
| 912-000-235 | 912-000-236 | SH20 SDNCR/L3 | 1.260 | 32mm | 0.787 | 0.866 | 1.575 | 62.5 | DCMT 32.52 | MTS-35 | T-15 |
| 912-000-265 | 912-000-266 | SH24 SDNCR/L3 | 1.575 | 40mm | 0.787 | 1.063 | 1.968 | 62.5 | DCMT 32.52 | MTS-35 | T-15 |



Positive 55° Diamond (KAPR: 95°) Back Facing



Coolant Thru

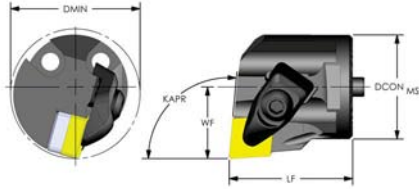
| PRODUCT # Left hand | PRODUCT # Right hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Insert Screw | Key |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|------------|-----------------|------|
| 912-000-211 | 912-000-212 | SH16 SDXCR/L2 | 0.984 | 25mm | 0.591 | 0.709 | 1.299 | 95.0 | DCMT 21.51 | MTS-255 | T-7 |
| 912-000-239 | 912-000-240 | SH20 SDXCR/L3 | 1.260 | 32mm | 0.787 | 0.866 | 1.575 | 95.0 | DCMT 32.52 | MTS-35 | T-15 |
| 912-000-269 | 912-000-270 | SH24 SDXCR/L3 | 1.575 | 40mm | 0.787 | 1.063 | 1.968 | 95.0 | DCMT 32.52 | MTS-35 | T-15 |

| PRODUCT # | Insert Screws |
|-------------|------------------|
| 968-000-086 | MTS-183 |
| 968-000-087 | MTS-184 |
| 968-000-088 | MTS-2 |
| 968-000-091 | MTS-224 |
| 968-000-092 | MTS-255 |
| 968-000-094 | MTS-35 |
| 968-000-090 | MTS-2.5L |
| 968-000-052 | ETS 4-40 |

PACKAGE SIZE OF 5

| PRODUCT # | Key |
|-------------|------|
| 968-000-156 | T-6 |
| 968-000-158 | T-7 |
| 968-000-149 | T-10 |
| 968-000-151 | T-15 |
| 968-000-153 | T-20 |

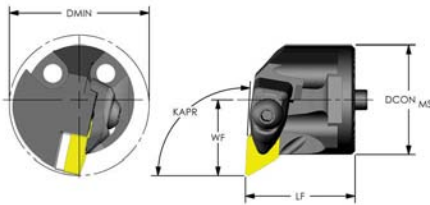
PACKAGE SIZE OF 5



PULLBACK Clamp Negative 80° Diamond (KAPR 95° Lead)

Coolant Thru

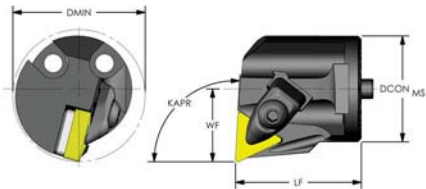
| PRODUCT # Left Hand | PRODUCT # Right Hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Shim Seat | Shim Screw | Clamp Assy. |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|----------|--------------|---------------|----------------|
| 912-000-217 | 912-000-218 | SH20 DCLNR/L4 | 1.260 | 32mm | 1.496 | 0.866 | 1.575 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |
| 912-000-245 | 912-000-246 | SH24 DCLNR/L4 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 95.0 | CNMG 432 | ICSN-433 | PB4-SS | PB4-CA |



PULLBACK Clamp Negative 55° Diamond (KAPR: 93°)

Coolant Thru

| PRODUCT # Left Hand | PRODUCT # Right Hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Shim Seat | Shim Screw | Clamp Assy. |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|-------------|--------------|---------------|----------------|
| 912-000-219 | 912-000-220 | SH20 DDUNR/L3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 93.0 | DNMG 332 | IDSN-322 | PB3-SS | PB3-CA |
| 912-000-247 | 912-000-248 | SH24 DDUNR/L4 | 1.575 | 40mm | 1.260 | 1.063 | 1.968 | 93.0 | DNMG 432 | IDSN-433 | PB4-SS | PB4-CA |



PULLBACK Clamp Negative Triangle (KAPR: 93°)

Coolant Thru

| PRODUCT # Left Hand | PRODUCT # Right Hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | Insert | Shim Seat | Shim Screw | Clamp Assy. |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|----------|--------------|---------------|----------------|
| 912-000-223 | 912-000-224 | SH20 DTUNR/L3 | 1.260 | 32mm | 1.496 | 0.866 | 1.575 | TNMG 332 | ITSN-323 | PB3-SS | PB3-CA |
| 912-000-251 | 912-000-252 | SH24 DTUNR/L3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | TNMG 332 | ITSN-323 | PB3-SS | PB3-CA |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

PACKAGE SIZE OF 10

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

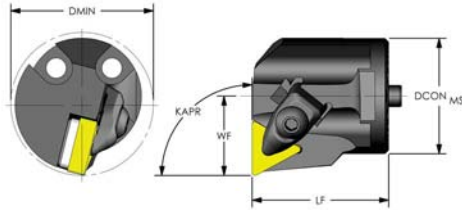
PACKAGE SIZE OF 10

| PRODUCT # | Shim Screw |
|-------------|---------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|----------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1

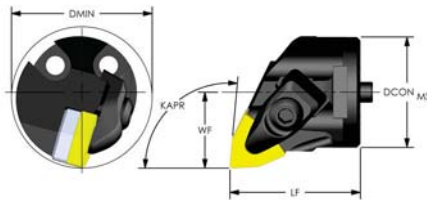


PULLBACK Clamp Negative Triangle (KAPR: 90°)



Coolant Thru

| PRODUCT # Left Hand | PRODUCT # Right Hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Shim Seat | Shim Screw | Clamp Assy. |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|----------|--------------|---------------|----------------|
| 912-000-221 | 912-000-222 | SH20 DTFNR/L3 | 1.260 | 32mm | 1.496 | 0.866 | 1.575 | 90.0 | TNMG 332 | ITSN-323 | PB3-SS | PB3-CA |
| 912-000-249 | 912-000-250 | SH24 DTFNR/L3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 90.0 | TNMG 332 | ITSN-323 | PB3-SS | PB3-CA |



PULLBACK Clamp Negative Trigon (KAPR: 95°)



Coolant Thru

| PRODUCT # Left Hand | PRODUCT # Right Hand | Designation | DCON MS | Coupling Size | LF | WF | DMIN | KAPR | Insert | Shim Seat | Shim Screw | Clamp Assy. |
|------------------------|-------------------------|---------------|------------|------------------|-------|-------|-------|------|----------|--------------|---------------|----------------|
| 912-000-225 | 912-000-226 | SH20 DWLNR/L4 | 1.260 | 32mm | 1.496 | 0.866 | 1.575 | 95.0 | WNMG 432 | IWSN-433 | PB4-SS | PB4-CA |
| 912-000-253 | 912-000-254 | SH24 DWLNR/L4 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 95.0 | WNMG 432 | IWSN-433 | PB4-SS | PB4-CA |

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-053 | ICSN-433 |
| 968-000-054 | ICSN-533 |
| 968-000-055 | ICSN-633 |
| 968-000-063 | ISSN-432 |
| 968-000-064 | ISSN-433 |
| 968-000-065 | ISSN-533 |
| 968-000-066 | ISSN-633 |
| 968-000-056 | IDSN-322 |
| 968-000-057 | IDSN-433 |
| 968-000-058 | IDSN-533 |
| 968-000-067 | ITSN-323 |
| 968-000-068 | ITSN-433 |

PACKAGE SIZE OF 10

| PRODUCT # | Shim Seat |
|-------------|--------------|
| 968-000-069 | ITSN-533 |
| 968-000-070 | ITSN-636 |
| 968-000-071 | IVSN-322 |
| 968-000-072 | IVSN-432 |
| 968-000-073 | IVSN-433 |
| 968-000-074 | IWSN-322 |
| 968-000-075 | IWSN-433 |
| 968-000-059 | IRSN-32 |
| 968-000-060 | IRSN-43 |
| 968-000-061 | IRSN-53 |
| 968-000-062 | IRSN-63 |

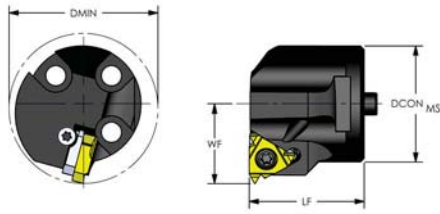
PACKAGE SIZE OF 10

| PRODUCT # | Shim Screw |
|-------------|---------------|
| 968-000-109 | PB3-SS |
| 968-000-111 | PB4-SS |

PACKAGE SIZE OF 5

| PRODUCT # | Clamp Assy. |
|-------------|----------------|
| 968-000-107 | PB3-CA |
| 968-000-110 | PB4-CA |

PACKAGE SIZE OF 1



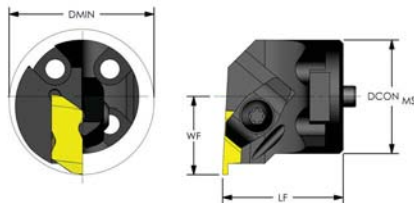
Threading / Grooving Laydown



Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | Coupling Size | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|------------------------|---------|---------------|-------|-------|-------|--------|--------------|-------------|-------|
| 912-000-204 | SH16 LSER3 | .984 | 25mm | 0.984 | 0.669 | 1.260 | 3IR | SA3T | SY3T | YI3 |
| 912-000-229 | SH20 LSER3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 3IR | SA3T | SY3T | YI3 |
| 912-000-257 | SH24 LSER3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 3IR | SA3T | SY3T | YI3 |
| 912-000-230 | SH20 LSER4 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 4IR | SA4T | SY4T | YI4 |
| 912-000-258 | SH24 LSER4 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 4IR | SA4T | SY4T | YI4 |

| PRODUCT # | Designation Left Hand | DCON MS | Coupling Size | LF | WF | DMIN | Insert | Insert Screw | Anvil Screw | Anvil |
|-------------|-----------------------|---------|---------------|-------|-------|-------|--------|--------------|-------------|-------|
| 912-000-203 | SH16 LSEL3 | .984 | 25mm | 0.984 | 0.669 | 1.260 | 3IL | SA3T | SY3T | YE3 |
| 912-000-227 | SH20 LSEL3 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 3IL | SA3T | SY3T | YE3 |
| 912-000-255 | SH24 LSEL3 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 3IL | SA3T | SY3T | YE3 |
| 912-000-228 | SH20 LSEL4 | 1.260 | 32mm | 1.260 | 0.866 | 1.575 | 4IL | SA4T | SY4T | YE4 |
| 912-000-256 | SH24 LSEL4 | 1.575 | 40mm | 1.496 | 1.063 | 1.968 | 4IL | SA4T | SY4T | YE4 |



Threading / Grooving Top Notch



Coolant Thru

| PRODUCT # | Designation Right Hand | DCON MS | Coupling Size | LF | WF | DMIN | Insert | Clamp | Screw |
|-------------|------------------------|---------|---------------|-------|-------|-------|--------|-------|-------|
| 912-000-232 | SH20 NER3 | 1.260 | 32mm | 1.340 | 0.866 | 1.730 | NG 3L | CM-73 | 10-32 |
| 912-000-261 | SH24 NER3 | 1.575 | 40mm | 1.575 | 1.102 | 2.210 | NG 3L | CM-73 | 10-32 |
| 912-000-262 | SH24 NER4 | 1.575 | 40mm | 1.575 | 1.102 | 2.210 | NG 4L | CM-73 | 10-32 |

| PRODUCT # | Designation Left Hand | DCON MS | Coupling Size | LF | WF | DMIN | Insert | Clamp | Screw |
|-------------|-----------------------|---------|---------------|-------|-------|-------|--------|-------|-------|
| 912-000-231 | SH20 NEL3 | 1.260 | 32mm | 1.340 | 0.866 | 1.730 | NG 3R | CM-72 | 10-32 |
| 912-000-259 | SH24 NEL3 | 1.575 | 40mm | 1.575 | 1.102 | 2.210 | NG 3R | CM-72 | 10-32 |
| 912-000-260 | SH24 NEL4 | 1.575 | 40mm | 1.575 | 1.102 | 2.210 | NG 4R | CM-72 | 10-32 |

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-016 | CL-6 |
| 968-000-017 | CL-7 |
| 968-000-020 | CL-9 |
| 968-000-010 | CL-12 |
| 968-000-011 | CL-19 |
| 968-000-012 | CL-20 |

PACKAGE SIZE OF 1

| PRODUCT # | Clamp |
|-------------|-------|
| 968-000-013 | CL-21 |
| 968-000-014 | CL-22 |
| 968-000-015 | CL-30 |
| 968-000-018 | CL-84 |
| 968-000-019 | CL-85 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil |
|-------------|-----------|
| 968-000-185 | YI3 |
| 968-000-182 | YE3 |
| 968-000-187 | YI4 |
| 968-000-186 | YI3M-1.5N |
| 968-000-183 | YE4 |
| 968-000-188 | YI5 |
| 968-000-184 | YE5 |

PACKAGE SIZE OF 1

| PRODUCT # | Anvil Screw |
|-------------|-------------|
| 968-000-146 | SY3T |
| 968-000-147 | SY4T |
| 968-000-148 | SY5T |

PACKAGE SIZE OF 5

| PRODUCT # | Insert Screw |
|-------------|--------------|
| 968-000-124 | SA3T |
| 968-000-125 | SA4T |
| 968-000-126 | SA5T |

PACKAGE SIZE OF 5

Choosing the largest possible bar size with the shortest overhang will provide rigidity to minimize vibrations.

Make sure to allow clearance for chips.

5:1 Stealth bars are recommended for grooving and threading where forces are higher than in turning.

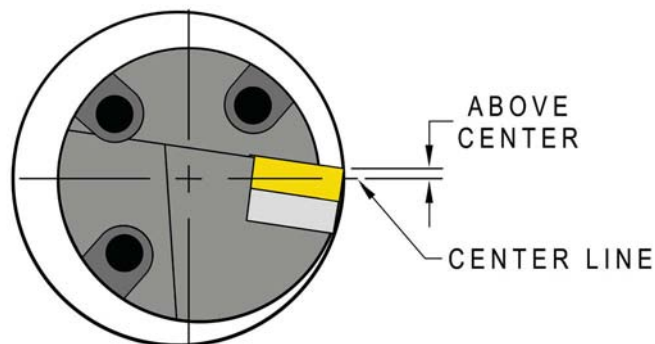
Proper clamping of the bar is crucial to performance.
(set screws should not come in contact with the bar)



Stealth bars Ø1.0," and larger have a flat located on the gold ring to indicate the insert on the centerline.

Overhang is measured from cutting edge to face of boring bar holder.
Bars should not be extended past the specified diameter to length ratio.
The Bars can be modified to reduce overall length .

To compensate for bar deflection due to extended overhangs, rotating the insert above center line will help.



Split Collar System

To assure the best rigidity of the boring bar, the Split Collar System is the best holder. This process is achieved by locking the bar 360° on the diameter.



Split Bushing System

If set screws are to be used, a split bushing must be placed on the bar before placing in the machine. Set screws will contact the bushing and tighten around the bar.

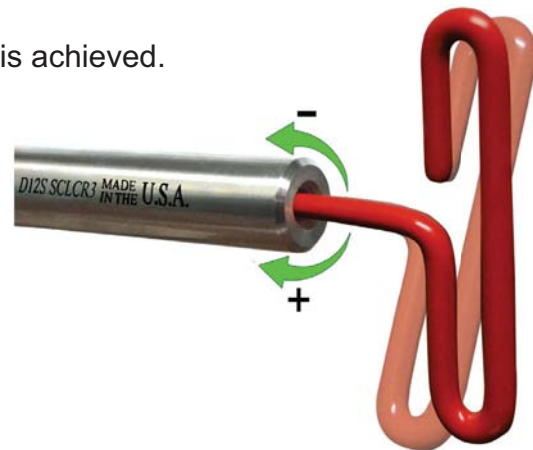


Set Screw Lock System

Do not lock in the boring bar with set screws. This creates very poor rigidity when there is one point of contact.

For Bars $\varnothing.75''$ and Smaller

1. Make a test cut with the bar.
2. Insert supplied T-handle wrench into the end of the bar.
3. If the pitch of the chatter was high, tighten the adjust screw 1/16 turn.(+)
4. If the pitch of the chatter was low, loosen the adjust screw 1/16turn.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.

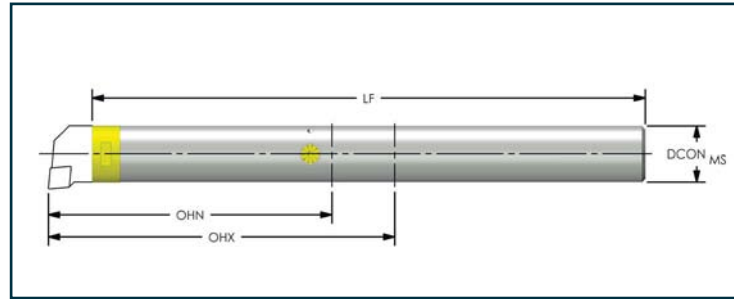


For Bars $\varnothing1.0''$ and Above

1. Make a test cut with the bar.
2. Loosen lock screw two complete turns in the negative direction.
3. If the pitch of the chatter was high, tighten the adjust screw 1/2 digit.(+)
4. If the pitch of the chatter was low,loosen the adjust screw 1/2 digit.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.
7. Tighten lock screw.DO NOT over tighten lock screw.



HANGOUT SPECS

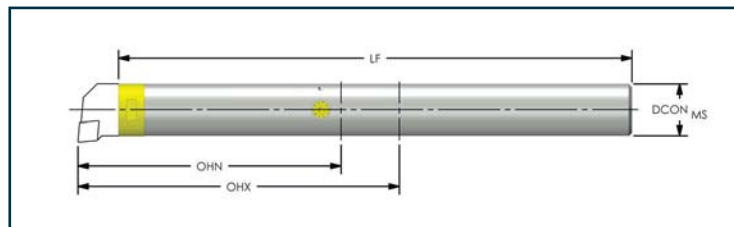


5:1 Ratio

| DCONms | OHN | OHX | LF | Weight (LBS) |
|--------|--------|-------|-------|--------------|
| 1.000 | 5.750 | 7.50 | 9.00 | 4.5 |
| 2.000 | 6.375 | 10.00 | 12.00 | 10.7 |
| 2.500 | 6.750 | 12.50 | 16.00 | 22.8 |
| 1.000 | 5.000 | 7.00 | 10.00 | 2.2 |
| 1.250 | 5.000 | 8.75 | 12.00 | 4.1 |
| 1.500 | 5.750 | 10.50 | 15.00 | 7.5 |
| 1.750 | 6.000 | 12.25 | 18.00 | 11.3 |
| 2.000 | 6.375 | 14.00 | 20.00 | 18.0 |
| 2.500 | 6.750 | 17.50 | 27.00 | 42.0 |
| 3.000 | 12.500 | 21.00 | 31.00 | 63.0 |
| 1.000 | 6.000 | 10.00 | 14.00 | 3.1 |
| 1.250 | 6.750 | 12.50 | 16.00 | 5.7 |
| 1.500 | 9.000 | 15.00 | 19.00 | 11.0 |
| 1.750 | 10.625 | 17.50 | 23.00 | 17.0 |
| 2.000 | 12.375 | 20.00 | 26.00 | 25.0 |
| 2.500 | 15.875 | 25.00 | 33.00 | 42.0 |
| 3.000 | 19.375 | 30.00 | 40.00 | 88.0 |
| 4.000 | 26.375 | 40.00 | 50.00 | 182.0 |

7:1 Ratio

10:1 Ratio



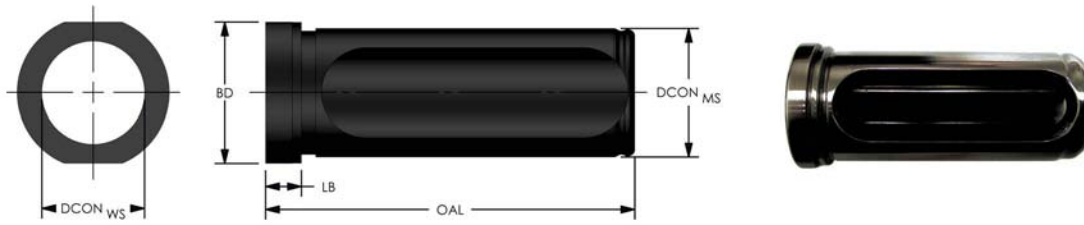
HANGOUT SPECS

CARBIDE REINFORCED

12:1 Ratio

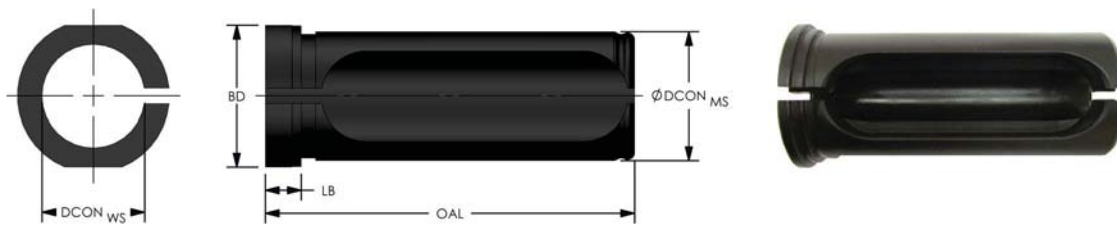
| DCONms | OHN | OHX | LF | Weight (LBS) |
|--------|--------|-------|-------|--------------|
| 1.000 | 9.250 | 12.00 | 16.00 | 5.9 |
| 1.250 | 12.160 | 15.00 | 18.00 | 9.0 |
| 1.500 | 14.750 | 18.00 | 22.00 | 16.4 |
| 1.750 | 16.435 | 21.00 | 25.00 | 25.4 |
| 2.000 | 17.750 | 24.00 | 29.00 | 37.7 |
| 1.000 | 9.250 | 14.00 | 18.00 | 6.9 |
| 1.250 | 12.160 | 17.50 | 22.00 | 10.9 |
| 1.500 | 14.750 | 21.00 | 25.00 | 18.6 |
| 1.750 | 16.435 | 24.50 | 29.00 | 31.0 |
| 2.000 | 17.750 | 28.00 | 33.00 | 44.2 |

ULTRA-DEX[®]



C Style

| PRODUCT # | Designation | DCON MS | DCON WS | LB | OAL |
|-------------|-------------|---------|---------|-------|-------|
| 901-000-001 | UT-12C-037 | 1.250 | 0.375 | 0.270 | 3.500 |
| 901-000-002 | UT-12C-050 | 1.250 | 0.500 | 0.270 | 3.500 |
| 901-000-003 | UT-12C-062 | 1.250 | 0.625 | 0.270 | 3.500 |
| 901-000-004 | UT-12C-075 | 1.250 | 0.750 | 0.270 | 3.500 |
| 901-000-005 | UT-12C-100 | 1.250 | 1.000 | 0.270 | 3.500 |
| 901-000-011 | UT-13C-037 | 1.500 | 0.375 | 0.270 | 3.600 |
| 901-000-012 | UT-13C-050 | 1.500 | 0.500 | 0.270 | 3.600 |
| 901-000-013 | UT-13C-062 | 1.500 | 0.625 | 0.270 | 3.600 |
| 901-000-014 | UT-13C-075 | 1.500 | 0.750 | 0.270 | 3.600 |
| 901-000-015 | UT-13C-100 | 1.500 | 1.000 | 0.270 | 3.600 |
| 901-000-016 | UT-13C-125 | 1.500 | 1.250 | 0.270 | 3.600 |



CX Style

| PRODUCT # | Designation | DCON MS | DCON WS | LB | OAL |
|-------------|-------------|---------|---------|-------|-------|
| 901-000-006 | UT-12CX-037 | 1.250 | 0.375 | 0.270 | 3.500 |
| 901-000-007 | UT-12CX-050 | 1.250 | 0.500 | 0.270 | 3.500 |
| 901-000-008 | UT-12CX-062 | 1.250 | 0.625 | 0.270 | 3.500 |
| 901-000-009 | UT-12CX-075 | 1.250 | 0.750 | 0.270 | 3.500 |
| 901-000-010 | UT-12CX-100 | 1.250 | 1.000 | 0.270 | 3.500 |
| 901-000-017 | UT-13CX-037 | 1.500 | 0.375 | 0.270 | 3.600 |
| 901-000-018 | UT-13CX-050 | 1.500 | 0.500 | 0.270 | 3.600 |
| 901-000-019 | UT-13CX-062 | 1.500 | 0.625 | 0.270 | 3.600 |
| 901-000-020 | UT-13CX-075 | 1.500 | 0.750 | 0.270 | 3.600 |
| 901-000-021 | UT-13CX-100 | 1.500 | 1.000 | 0.270 | 3.600 |
| 901-000-022 | UT-13CX-125 | 1.500 | 1.250 | 0.270 | 3.600 |

| PRODUCT # | Designation | DCON MS | DCON WS | LB | OAL |
|-------------|--------------|---------|---------|-------|-------|
| 901-000-023 | UT-73CX-10MM | 1.500 | 10mm | 0.270 | 3.600 |
| 901-000-024 | UT-73CX-12MM | 1.500 | 12mm | 0.270 | 3.600 |
| 901-000-025 | UT-73CX-16MM | 1.500 | 16mm | 0.270 | 3.600 |
| 901-000-026 | UT-73CX-20MM | 1.500 | 20mm | 0.270 | 3.600 |
| 901-000-027 | UT-73CX-25MM | 1.500 | 25mm | 0.270 | 3.600 |
| 901-000-028 | UT-93CX-10MM | 40mm | 10mm | 0.270 | 3.600 |
| 901-000-029 | UT-93CX-12MM | 40mm | 12mm | 0.270 | 3.600 |
| 901-000-030 | UT-93CX-16MM | 40mm | 16mm | 0.270 | 3.600 |
| 901-000-031 | UT-93CX-20MM | 40mm | 20mm | 0.270 | 3.600 |
| 901-000-032 | UT-93CX-25MM | 40mm | 25mm | 0.270 | 3.600 |



TECHNICAL INFORMATION

THE COMPLETE TOOL MAKING AUTHORITY®

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

COATINGS GUIDE

TIN

(TITANIUM NITRIDE)

- General Purpose coating for machining ferrous materials.
- Thickness: 2 - 5 microns
- Hardness HV .05: 2,300

TICN

(TITANIUM CARBON NITRIDE)

- Coating with hard, smooth finish. Offers improved wear and built up edge resistance.
- Durability for interrupted cuts
 - Low to medium cutting speeds
 - Thickness: 2 - 4 microns
 - Hardness HV .05: 3,000

TiAlN

(TITANIUM ALUMINUM NITRIDE)

- High performance coating in ferrous materials.
- Heat resistance and medium hardness
- Good results in dry milling applications
- Medium to high cutting speeds
- Thickness: 2 - 4 microns
- Hardness HV .05: 2,800

AlTiN

(ALUMINUM TITANIUM NITRIDE)

- High performance coating for ferrous materials.
- High heat resistance and hardness
- Best results in dry milling applications
- Excellent at high speeds and feeds
- Thickness: 2 – 4 microns
- Hardness HV .05: 4,500

TiAlN NANO

(TITANIUM ALUMINUM NITRIDE NANO)

- Extended tool life in difficult to machine steels and super alloys.
- Dry or MQL machining
- Improved chip flow due to lubricity factor.
- Reduced built up edge (BUE)
- Hardness HV .05: 3,300

HARD MILL

(HARDMILL)

- Proprietary coating blend designed specifically for extended life machining hardened materials
- Hardness HV .05: 3,300

AMORPHOUS DIAMOND

AD(AMORPHOUS DIAMOND)

- Amorphous Diamond is a smooth, hard, flexible, thin film coating
- Maintains sharper edge than CVD
- Excellent for machining graphite, carbon fiber and non-ferrous materials where machining forms a grit rather than a chip.
- Thickness: .5 - 2 microns
- Hardness HV .05: 5,000

CVD

(CRYSTALLINE DIAMOND)

- Crystalline Diamond grown directly on the cutting tool
- Excellent for machining graphite, carbon fiber, green ceramics and non-ferrous materials where machining forms a grit rather than a chip.
- Up to 50x the tool life as AD
- Thickness: 6 - 10 microns
- Hardness HV .05: 10,000

DLC

(DIAMOND LIKE COATING)

- Thin carbon based amorphous coating, best for non-ferrous materials.
- Increases tool life and ensures a more controlled wear process, while being resistant to edge build-up (BUE).
- Hardness HV .05: 2,800

PCD

PCD (POLYCRYSTALLINE DIAMOND)

- Non-ferrous applications
- Resists abrasion wear and dramatically extends the cutters tool life.
- PCD end mills run faster than conventional carbide end mills and provide better surface finish and longer tool life.
- Hardness HV .05: 10,000



Chipbreaker:

HCX : Medium to roughing applications in steel and cast iron

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|--|---|-----------------------------|--|--------------|------------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 300-800 | .005 - .020 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 220-720 | .003 - .018 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .003 - .015 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 260-700 | .003 - .015 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 1100 | .005 - .022 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 350 - 850 | .005 - .016 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 80-280 | .004 - .011 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 250 | .003 - .009 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 300 | .004 - .012 |
| *LOWER Vc AND Fz = MED.- HEAVY Ap / Ae | | | *HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae | | | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Medium to roughing applications in steels and cast irons

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

LCX : Sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|--|---|-----------------------------|--|--------------|------------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 300-800 | .005 - .018 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 220-720 | .005 - .016 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .003 - .012 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 260-700 | .003 - .014 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 950 | .005 - .020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 350 - 800 | .005 - .016 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | LCX | HK430 | 400 - 1100 | .007 - .020 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 80-250 | .004 - .011 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 200 | .003 - .008 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 350 | .003 - .010 |
| *LOWER Vc AND Fz = MED.- HEAVY Ap / Ae | | | *HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae | | | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

CCX : Strong cutting edge for cast iron applications

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|--|---|-----------------------------|------------------|--------------|--|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 230-800 | .003 - .010 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | 230-700 | .003 - .008 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 200-600 | .003 - .009 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | 200-600 | .003 - .009 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | CCX / HCX | HK430 | 400 - 950 | .004 - .015 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | 300 - 700 | .003 - .011 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | LCX | HK430 | 400 - 1000 | .006 - .018 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX / HCX | HS470 | 80-250 | .003 - .009 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 200 | .0025 - .007 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | 90 - 350 | .003 - .010 |
| *LOWER Vc AND Fz = MED.- HEAVY Ap / Ae | | | | | *HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application

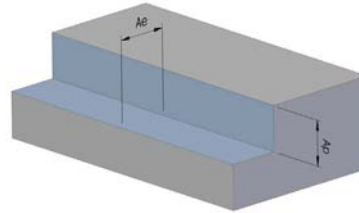
SCX : Sharp cutting edge for general stainless steels and super alloy applications

| ISO | MATERIAL | HARDNESS | CHIPBREAKER | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|----------|---|-----------------------------|-------------|--------------|-----------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HCX | HP470 | 220 - 820 | .009 - .075 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | | | |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | SCX | HM470 | 230-650 | .009 - .045 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | | | |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HCX | HK430 | 400 - 900 | .009 - .063 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | | | |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | SCX | HS470 | 100-350 | .009 - .040 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | SCX | HS470 | 60 - 220 | .007 - .035 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | | | |

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

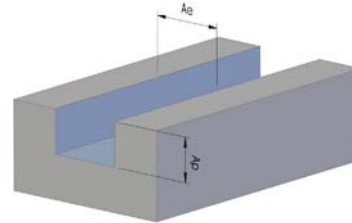
*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| | | | | SQUARE SHOULDER MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|---------------|----------|----------|
| | | | | Fz (INCH PER TOOTH)* | | APMX | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.009 | 0.003 - 0.012 | 0.315 | 0.472 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.0075 | 0.003 - 0.010 | 0.315 | 0.472 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.010 | 0.004 - 0.012 | 0.315 | 0.472 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.012 | 0.004 - 0.012 | 0.315 | 0.472 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.014 | 0.004 - 0.016 | 0.315 | 0.472 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.007 | 0.003 - 0.009 | 0.315 | 0.472 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.0085 | 0.003 - 0.010 | 0.315 | 0.472 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

Continues on next page



| | | | | SQUARE SLOT MILLING | | | |
|----------|---|-----------------------------|------------|-------------------------|----------------|----------|----------|
| | | | | Fz (INCH PER TOOTH)* | | APMX | |
| ISO | MATERIAL | HARDNESS | Vc (SFM)* | -PF /-AL | -PM /-PR | APKT11T3 | APKT1604 |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 550-900 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 450-850 | 0.003 - 0.006 | 0.003 - 0.0085 | 0.315 | 0.472 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 350 - 875 | 0.003 - 0.007 | 0.003 - 0.010 | 0.315 | 0.472 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 250 - 800 | 0.003 - 0.006 | 0.003 - 0.010 | 0.315 | 0.472 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 400 - 1000 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 300 - 800 | 0.004 - 0.008 | 0.004 - 0.010 | 0.315 | 0.472 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 600-1200 | 0.004 - 0.011 | 0.004 - 0.014 | 0.315 | 0.472 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 190 - 500 | 0.003 - 0.006 | 0.003 - 0.007 | 0.315 | 0.472 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-220 | 0.002 - 0.006 | 0.002 - 0.007 | 0.315 | 0.472 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 230-450 | 0.003 - 0.006 | 0.003 - 0.008 | 0.315 | 0.472 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



by **Ultra-Dex**

| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | Fz (INCH PER TOOTH)* at 50% insert I.C. APMX** |
|----------|---|-----------------------------|--|-----------|--|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | UD51 UD52 UD404 UD602 | 300-850 | .006 - .018 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 200-700 | .005 - .015 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | UD32 | 200-650 | .003 - .010 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-700 | .003 - .012 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | UD21 | 250-900 | .005 - .020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 200-700 | .005 - .015 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | UD1 UD2 | 400-975 | .006 - .020 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | UD32 UD404 | 80-400 | .004 - .012 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | UD32 UD52 UD404 | 40-250 | .003 - .008 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 100-550 | .003 - .010 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is recommended to use precision holders i.e. hydraulic, shrink fit

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | END MILL DIAMETER | | | | | | | | | |
|--|---|-----------------------------|-----------|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | 1/8" | 3/16" | 1/4" | 5/16" | 3/8" | 7/16" | 1/2" | 5/8" | 3/4" | 1" |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 320-750 | .0009 - .0017 | .0011 - .0019 | .0020 - .0028 | .0024 - .0033 | .0025 - .0038 | .0025 - .0041 | .0027 - .0046 | .0035 - .0052 | .0040 - .0066 | .0042 - .0090 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 230-670 | .0006 - .0013 | .0011 - .0017 | .0014 - .0022 | .0017 - .0024 | .0019 - .0028 | .0020 - .0035 | .0023 - .0040 | .0030 - .0050 | .0038 - .0057 | .0040 - .0085 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 250-600 | .0004 - .0013 | .0008 - .0017 | .0013 - .0020 | .0016 - .0023 | .0020 - .0026 | .0022 - .0030 | .0026 -0.0034 | .0032 - .0039 | .0035 - .0047 | .0035 - .0068 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 180-520 | .0005 - .0017 | .0010 - .0020 | .0013 - .0023 | .0017 - .0027 | .0021 - .0030 | .0025 - .0035 | .0028 - .0040 | .0030 - .0048 | .0033 - .0060 | .0033 - .0078 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 320-830 | .0007 - .0020 | .0011 - .0032 | .0014 - .0041 | .0019 - .0052 | .0022 - .0061 | .0025 - .0070 | .0028 - .0080 | .0031 - .0086 | .0032 - .0095 | .0036 - .0110 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 220-670 | .0005 - .0014 | .0009 - .0023 | .0012 - .0032 | .0016 - .0038 | .0018 - .0041 | .0020 - .0047 | .0022 - .0053 | .0024 - .0062 | .0028 - .0070 | .0030 - .0090 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 115-270 | .0004 - .0017 | .0008 - .0017 | .0013 - .0020 | .0016 - .0024 | .0020 - .0030 | .0022 - .0035 | .0028 - .0045 | .0032 - .0053 | .0036 - .0062 | .0040 - .0078 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 70-180 | .0005 - -.0018 | .0008 - .0022 | .0010 - .0028 | .0012 - .0032 | .0015 - .0036 | .0017 - .0042 | .0018 - .0047 | .0019 - .0050 | .0022 - .0055 | .0025 - .0065 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 140-400 | .0007 - -.0013 | .0011 - .0016 | .0013 - .0018 | .0015 - .0021 | .0019 - .0026 | .0022 - .0031 | .0024 - .0035 | .0025 - .0044 | .0030 - .0053 | .0031 - .0075 |
| *LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT | | | | *HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT | | | | | | | | | |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

| h_{ex} | (Ae) Radial Depth of cut to % of (Dc) Cutter Diameter | Increase Feed Multiplier |
|----------|---|--------------------------|
| | ≥ 40% | 1.00 |
| | 30% | 1.10 |
| | 25% | 1.18 |
| | 20% | 1.20 |
| | 15% | 1.40 |
| | 10% | 1.75 |
| | 7% | 2.00 |
| | 5% | 2.30 |
| | 1% | 5.00 |



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | | EFFECTIVE CUTTER DIAMETER (INCH) | | | | | | |
|--|---|-----------------------------|-----------|---------|--|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | | ≤ 1/16" | 1/16"- 1/8" | 1/8"- 1/4" | 1/4"- 3/8" | 3/8"- 1/2" | 1/2"- 3/4" | 3/4"- 1" |
| | | | | | Fz (INCH PER TOOTH)* | | | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 80-200 | 220-650 | .0004 - .0009 | .0006 - .0015 | .0010 - .0028 | .0020 - .0030 | .0023 - .0040 | .0028 - .0060 | .0032 - .0080 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 60-120 | 180-500 | .0006 - .0012 | .0008 - .0019 | .0009 - .0022 | .0010 - .0027 | .0020 - .0038 | .0026 - .0050 | .0030 - .0065 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 50-100 | 200-450 | .0004 - .0019 | .0008 - .0025 | .0012 - .0030 | .0016 - .0035 | .0019 - .0040 | .0023 - .0050 | .0026 - .0065 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 30-75 | 120-350 | .0005 - .0013 | .0009 - .0017 | .0013 - .0021 | .0015 - .0040 | .0017 - .0048 | .0021 - .0060 | .0025 - .0075 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 60-150 | 250-700 | .0005 - .0014 | .0009 - .0023 | .0012 - .0032 | .0016 - .0041 | .0022 - .0053 | .0028 - .0090 | .0030 - .0100 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 50-90 | 150-450 | .0003 - .0010 | .0006 - .0019 | .0010 - .0028 | .0014 - .0038 | .0020 - .0048 | .0025 - .0080 | .0030 - .0092 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 100-400 | 250-950 | .0003 - .0010 | .0006 - .0021 | .0010 - .0028 | .0025 - .0040 | .0028 - .0065 | .0030 - .0080 | .0050 - .0130 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 40-65 | 80-250 | .0003 - .0010 | .0006 - .0015 | .0012 - .0021 | .0015 - .0030 | .0023 - .0045 | .0028 - .0050 | .0030 - .0065 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 30-50 | 50-160 | .0003 - .0007 | .0005 - .0012 | .0008 - .0018 | .0012 - .0022 | .0018 - .0035 | .0020 - .0045 | .0025 - .0060 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 40-65 | 90-250 | .0006 - .0014 | .0008 - .0017 | .0013 - .0018 | .0015 - .0026 | .0020 - .0035 | .0025 - .0060 | .0025 - .0075 |
| * LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT | | | | | * HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT | | | | | | |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

| h_{ex} | (Ae) Radial Depth of cut to % of (Dc) Cutter Diameter | Increase Feed Multiplier |
|----------|---|--------------------------|
| | ≥ 40% | 1.00 |
| | 30% | 1.10 |
| | 25% | 1.18 |
| | 20% | 1.20 |
| | 15% | 1.40 |
| | 10% | 1.75 |
| | 7% | 2.00 |
| | 5% | 2.30 |
| | 1% | 5.00 |



by Ultra-Dex



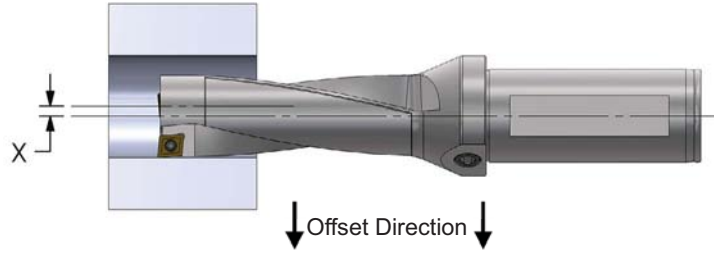
| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | INDEXABLE DRILL DIAMETER (INCH) | | |
|----------|---|-----------------------------|---------------|-----------|---------------------------------|-------------------|-------------------|
| | | | | | 0.5620"-0.7499" | 0.7500" - 1.4999" | 1.5000" - 2.2500" |
| | | | | | Fz = IPR (INCH PER REVOLUTION)* | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 350-900 | .0015-.0060 | .0020-.0075 | .0030-.0120 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 260-750 | .0020-.0070 | .0020-.0085 | .0030-.0095 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 230-700 | .0018-.0040 | .0030-.0065 | .0030-.0085 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-750 | .0018-.0040 | .0030-.0065 | .0030-.0085 |
| K | GRAY IRONS Class 20, 30, 40 ,50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK 356 | 285-1000 | .0025-.0055 | .0035-.0070 | .0040-.0085 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 230-740 | .0020-.0050 | .0028-.0065 | .0030-.0070 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | HN 300 | 600-1150 | .0020-.0075 | .0030-.0090 | .0045-.0115 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2" | ≤ 375 BHN or ≤ 55 HRC | HP 600 | 80-275 | .0018-.0065 | .0020-.0075 | .0030-.0080 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP 600 | 55-270 | .0016-.0032 | .0020-.0055 | .0025-.0060 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 95-460 | .0019-.0055 | .0020-.0065 | .0025-.008 |

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Our Drills offer the ability to offset in turning applications to help with tolerance optimization and creation of holes larger than the drill diameter.

PATRIOT HIGH PERFORMANCE

| Designation | Offset (Max) |
|-----------------|--------------|
| PD1-0562-3D-075 | .007 |
| PD1-0594-3D-075 | .005 |
| PD1-0609-3D-075 | .005 |
| PD1-0625-3D-075 | .015 |
| PD1-0669-3D-075 | .011 |
| PD1-0687-3D-075 | .009 |
| PD1-0709-3D-075 | .007 |
| PD1-0734-3D-100 | .019 |
| PD1-0750-3D-100 | .017 |
| PD1-0787-3D-100 | .011 |
| PD1-0812-3D-100 | .009 |
| PD1-0844-3D-100 | .005 |
| PD1-0875-3D-100 | .004 |
| PD1-0937-3D-125 | .023 |
| PD1-0984-3D-125 | .019 |
| PD1-1000-3D-125 | .017 |
| PD1-1062-3D-125 | .009 |
| PD1-1125-3D-125 | .004 |
| PD1-1181-3D-125 | .035 |
| PD1-1250-3D-125 | .027 |
| PD1-1312-3D-125 | .021 |
| PD1-1375-3D-125 | .013 |
| PD1-1437-3D-125 | .008 |
| PD1-1500-3D-150 | .039 |
| PD1-1625-3D-150 | .027 |
| PD1-1750-3D-150 | .015 |
| PD1-1875-3D-150 | .051 |
| PD1-2000-3D-150 | .039 |
| PD1-2125-3D-150 | .023 |

REVERE*

| Designation | Offset (Max) |
|----------------|--------------|
| UD-0437-2D-063 | .018 |
| UD-0468-2D-063 | .016 |
| UD-0500-2D-063 | .014 |
| UD-0531-2D-063 | .023 |
| UD-0562-2D-063 | .021 |
| UD-0593-2D-063 | .019 |
| UD-0625-2D-063 | .023 |
| UD-0656-2D-063 | .021 |
| UD-0687-2D-063 | .019 |
| UD-0719-2D-063 | .017 |
| UD-0750-2D-075 | .024 |
| UD-0781-2D-075 | .022 |
| UD-0812-2D-075 | .021 |
| UD-0844-2D-075 | .019 |
| UD-0875-2D-075 | .017 |
| UD-0906-2D-075 | .015 |
| UD-0937-2D-075 | .013 |
| UD-0968-2D-075 | .011 |
| UD-1000-2D-100 | .029 |
| UD-1031-2D-100 | .027 |
| UD-1062-2D-100 | .025 |
| UD-1094-2D-100 | .023 |

REVERE*

| Designation | Offset (Max) |
|----------------|--------------|
| UD-1125-2D-100 | .021 |
| UD-1156-2D-100 | .020 |
| UD-1187-2D-100 | .018 |
| UD-1219-2D-100 | .016 |
| UD-1250-2D-125 | .035 |
| UD-1312-2D-125 | .031 |
| UD-1343-2D-125 | .029 |
| UD-1375-2D-125 | .027 |
| UD-1437-2D-125 | .023 |
| UD-1500-2D-125 | .019 |
| UD-1562-2D-125 | .015 |
| UD-1625-2D-125 | .011 |
| UD-1687-2D-125 | .008 |
| UD-1750-2D-150 | .040 |
| UD-1812-2D-150 | .036 |
| UD-1875-2D-150 | .032 |
| UD-1937-2D-150 | .028 |
| UD-2000-2D-150 | .024 |
| UD-2125-2D-150 | .017 |
| UD-2250-2D-150 | .009 |
| UD-2375-2D-150 | .001 |

*2XD Only



| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | INDEXABLE DRILL DIAMETER (INCH) | | |
|----------|---|-----------------------------|-------------------|-----------|---------------------------------|-------------------|-------------------|
| | | | | | 0.5620"-0.7499" | 0.7500" - 1.4999" | 1.5000" - 2.2500" |
| | | | | | Fz = IPR (INCH PER REVOLUTION)* | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | UD51 /UD52 | 300-800 | .0015-.0060 | .0025-.0080 | .0030-.009 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 250-700 | .0020-.0070 | .0025-.0070 | .0030-.0080 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | UD32 | 230-650 | .0018-.0040 | .0025-.0065 | .0030-.0070 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 260-700 | .0018-.0040 | .0023-.0055 | .0030-.0065 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | UD21 | 285-900 | .0025-.0055 | .0035-.0070 | .0040-.0080 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 230-700 | .0020-.0050 | .0028-.0055 | .0030-.0060 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | UD2 | 400-975 | .0020-.0075 | .0030-.0070 | .0045-.0100 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2" | ≤ 375 BHN or ≤ 55 HRC | UD32 | 75-200 | .0018-.0065 | .0020-.0065 | .0030-.0070 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | UD32 /UD52 | 40-200 | .0016-.0032 | .0020-.0050 | .0020-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 90-350 | .0019-.0055 | .0020-.0050 | .0020-.0065 |

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | DRILL DIAMETER (INCH) | | | | | | |
|---------------------------------------|---|-------------------------------|-----------|-----------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|
| | | | | ≤ 1/16" | 1/16" - 1/8" | 1/8" - 1/4" | 1/4" - 3/8" | 3/8" - 1/2" | 1/2" - 3/4" | 3/4" - 1" |
| Fz = IPR(INCH PER REVOLUTION)* | | | | | | | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 210-510 | .0008 - .0030 | .0030 - .0055 | .0040 - .0085 | .0050 - .012 | .0070 - .015 | .0090 - .0175 | .0100 - .0200 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 170-390 | .0006 - .0025 | .0020 - .0045 | .0030 - .0060 | .0045 - .0080 | .0060 - .0120 | .0070 - .0145 | .0080 - .0175 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 95-165 | .0005 - .0025 | .0020 - .0045 | .0035 - .0060 | .0040 - .0085 | .0055 - .0125 | .0070 - .0150 | .0080 - .0170 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 80-140 | .0004 - .0018 | .0018 - .0035 | .0022 - .0045 | .0033 - .0060 | .0055 - .0090 | .0060 - .0140 | .0070 - .0150 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 190-475 | .0008 - .0040 | .0030 - .0060 | .0045 - .0080 | .0060 - .0135 | .0070 - .0140 | .0010 - .0160 | .0120 - .0200 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | "≤ 260 BHN or ≤ 26 HRC" | 160-310 | .0006 - .0030 | .0028 - .0035 | .0040 - .0070 | .0055 - .010 | .0070 - .0120 | .0090 - .0140 | .0110 - .0170 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | "≤ 271 BHN or ≤ 28 HRC" | 350-950 | .0010 - .0040 | .0030 - .0060 | .0040 - .0070 | .0060 - .0115 | .0075 - .0135 | .0090 - .0150 | .0100 - .0210 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | "≤ 375 BHN or ≤ 55 HRC" | 55-145 | .0008 - .0030 | .0010 - .0040 | .0017 - .0055 | .0030 - .0073 | .0055 - .0095 | .0060 - .0100 | .0070 - .0115 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | "≤ 275 BHN or ≤ 28 HRC" | 95 -215 | .0007 - .0020 | .00012 - .0025 | .0018 - .0040 | .0027 - .0075 | .0030 - .0075 | .0050 - .0090 | .0060 - .0110 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | "≤ 275 BHN or ≤ 28 HRC" | 70-160 | .0009 - .0030 | .0015 - .0035 | .0020 - .00550 | .0045 - .0100 | .0075 - .0120 | .0080 - .0150 | .0095 - .0160 |

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | | DRILL DIAMETER (INCH) | | | | | | |
|----------|---|-----------------------------|----------------|---------|---------------------------------|-------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | | ≤ 1/16" | 1/16"- 1/8" | 1/8"- 1/4" | 1/4"- 3/8" | 3/8" - 1/2" | 1/2" - 3/4" | 3/4" - 1" |
| | | | | | Fz = IPR (INCH PER REVOLUTION)* | | | | | | |
| | | | HSS/ Cobalt | Carbide | | | | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 70-200 | 150-350 | .0005 - .0030 | .0010 - .0050 | .0020 - .0075 | .0030 - .0100 | .0060 - .0120 | .0080 - .0140 | .0100 - .0170 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 60-150 | 100-280 | .0007 - .0030 | .0012 - .0040 | .0020 - .0060 | .0040 - .0080 | .0060 - .0110 | .0070 - .0135 | .0070 - .0155 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 60-120 | 110-190 | .0006 - .0025 | .0008 - .0030 | .0012 - .0060 | .0025 - .0085 | .0040 - .0110 | .0060 - .0140 | .0080 - .0170 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 40-110 | 90-140 | .0004 - .0018 | .0006 - .0020 | .0009 - .0040 | .0010 - .0060 | .0030 - .0080 | .0040 - .0110 | .0050 - .0140 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 60-180 | 140-400 | .0006 - .0025 | .0008 - .0030 | .0012 - .0060 | .0025 - .0085 | .0040 - .0110 | .0060 - .0140 | .0080 - .0190 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 50-90 | 110-280 | .0006 - .0025 | .0008 - .0030 | .0012 - .0060 | .0025 - .0085 | .0040 - .0110 | .0060 - .0140 | .0080 - .0170 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 90-300 | 180-500 | .0003 - .0010 | .0006 - .0021 | .0010 - .0030 | .0025 - .0040 | .0028 - .0065 | .0030 - .0090 | .0050 - .0150 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 555 BHN or ≤ 55 HRC | 40-80 | 70-160 | .0005 - .0030 | .0010 - .0040 | .0020 - .0055 | .0040 - .0080 | .0060 - .0100 | .0080 - .0120 | .0100 - .0140 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 15-55 | 50-110 | .0007 - .0020 | .00012 - .0025 | .0018 - .0040 | .0025 - .0060 | .0030 - .0075 | .0040 - .0085 | .0050 - .0100 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 30-75 | 70-160 | .0006 - .0025 | .0008 - .0035 | .0012 - .0060 | .0025 - .0085 | .0040 - .0100 | .0060 - .0120 | .0080 - .0140 |

Factors affecting optimized drill speeds and feeds:

- Depth of Hole
- Machinability of Material
- Coolant delivery method

Drill depths > 4X diameter require 15%-30% reduction in suggested drill feed rates.

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| ISO | MATERIAL | HARDNESS | GRADE | Vc (SFM)* | DIAMETER INCH (METRIC) | |
|----------|---|-----------------------------|--------------|--------------|---------------------------|---------------------------|
| | | | | | 5/16" (8mm) - 1/2" (12mm) | 1/2" (12mm) - 3/4" (20mm) |
| | | | | | Fz (INCH PER TOOTH)* | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 250-675 | .0015-.0040 | .0020-.0060 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | | 200-550 | .0020-.0050 | .0020-.0075 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | HP600 | 150-450 | .0018-.0025 | .0025-.0060 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | | 100-400 | .0018-.0025 | .0025-.0060 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | HK365 | 200-700 | .0025-.0045 | .0035-.0070 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | | 200-600 | .0020-.0045 | .0025-.0065 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | HN300 | 300-750 | .0020-.0060 | .0030-.0090 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | HP600 | 60-275 | .0018-.0055 | .0020-.0060 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | HP600 | 45-200 | .0015-.0030 | .0017-.0050 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | | 75-300 | .0019-.0045 | .0020-.0060 |

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | Fz (INCH PER TOOTH)* |
|--|---|-----------------------------|-----------|----------------------|
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 220-650 | .0032 - .0080 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 180-500 | .0030 - .0065 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 200-450 | .0026 - .0065 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 120-350 | .0025 - .0075 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 250-700 | .0030 - .0100 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 150-450 | .0030 - .0092 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 250-950 | .0050 - .0130 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | 80-250 | .0030 - .0065 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 50-160 | .0025 - .0060 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 90-250 | .0025 - .0075 |
| * HIGHER Vc AND Fz APPLY TO LIGHT/FINISHING ENGAGEMENT | | | | |
| * LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT | | | | |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | | EFFECTIVE CUTTER DIAMETER (INCH) | | | | | | |
|----------|---|-----------------------------|----------------|---------|----------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | | ≤ 1/16" | 1/16"- 1/8" | 1/8"- 1/4" | 1/4"- 3/8" | 3/8" - 1/2" | 1/2" - 3/4" | 3/4" - 1" |
| | | | HSS/ Cobalt | Carbide | Fz (INCH PER TOOTH)* | | | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 80-200 | 250-600 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH" | ≤ 375 BHN or ≤ 40 HRC | 60-150 | 150-400 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 50-100 | 130-400 | .0002 - .0009 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0006 - .0016 | .0009 - .0018 | .0010 - .0022 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 30-75 | 100-300 | .0003 - .0008 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0006 - .0016 | .0009 - .0018 | .0010 - .0020 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 60-180 | 200-650 | .0002 - .0009 | .0003 - .0010 | .0004 - .0012 | .0005 - .0014 | .0007 - .0016 | .0009 - .0018 | .0010 - .0025 |
| | DUCTILE IRONS D&M series, 250 , 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 50-120 | 150-450 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 70-300 | 200-700 | .0003 - .0009 | .0003 - .0011 | .0004 - .0013 | .0005 - .0015 | .0006 - .0017 | .0009 - .0020 | .0010 - .0035 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | 30-65 | 80-250 | .0002 - .0009 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0007 - .0016 | .0009 - .0018 | .0010 - .0025 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 20-50 | 50-90 | .0002 - .0005 | .0003 - .0007 | .0004 - .0010 | .0005 - .0011 | .0006 - .0011 | .0007 - .0011 | .0007 - .0013 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 30-65 | 70-160 | .0002 - .0007 | .0003 - .0009 | .0004 - .0010 | .0005 - .0011 | .0006 - .0012 | .0007 - .0012 | .0007 - .0016 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

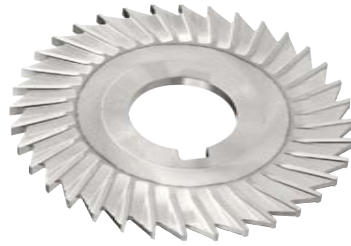


| ISO | MATERIAL | HARDNESS | Vc (SFM)* | | EFFECTIVE CUTTER DIAMETER (INCH) | | | | | | |
|----------|---|-----------------------------|-----------|---------|----------------------------------|------------------|------------------|------------------|----------------------|------------------|------------------|
| | | | | | ≤ 1/16" | 1/16"- 1/8" | 1/8"- 1/4" | 1/4"- 3/8" | 3/8"- 1/2" | 1/2"- 3/4" | 3/4"- 1" |
| | | | | | HSS/ Cobalt | | Carbide | | Fz (INCH PER TOOTH)* | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 80-200 | 200-500 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 60-150 | 150-400 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 50-100 | 130-400 | .0002 - .0009 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0006 - .0016 | .0009 - .0018 | .0010 - .0022 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 30-75 | 100-300 | .0003 - .0008 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0006 - .0016 | .0009 - .0018 | .0010 - .0020 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 60-180 | 200-650 | .0002 - .0009 | .0003 - .0010 | .0004 - .0012 | .0005 - .0014 | .0007 - .0016 | .0009 - .0018 | .0010 - .0025 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 50-120 | 150-450 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0006 - .0013 | .0009 - .0015 | .0010 - .0030 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 70-300 | 200-700 | .0003 - .0009 | .0003 - .0011 | .0004 - .0013 | .0005 - .0015 | .0006 - .0017 | .0009 - .0020 | .0010 - .0035 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | 30-65 | 80-250 | .0002 - .0009 | .0003 - .0009 | .0004 - .0012 | .0005 - .0014 | .0007 - .0016 | .0009 - .0018 | .0010 - .0025 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 20-50 | 50-90 | .0002 - .0005 | .0003 - .0007 | .0004 - .0010 | .0005 - .0011 | .0006 - .0011 | .0007 - .0011 | .0007 - .0013 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 30-65 | 70-160 | .0002 - .0007 | .0003 - .0009 | .0004 - .0010 | .0005 - .0011 | .0006 - .0012 | .0007 - .0012 | .0007 - .0016 |

Keyseat Cutter Considerations:

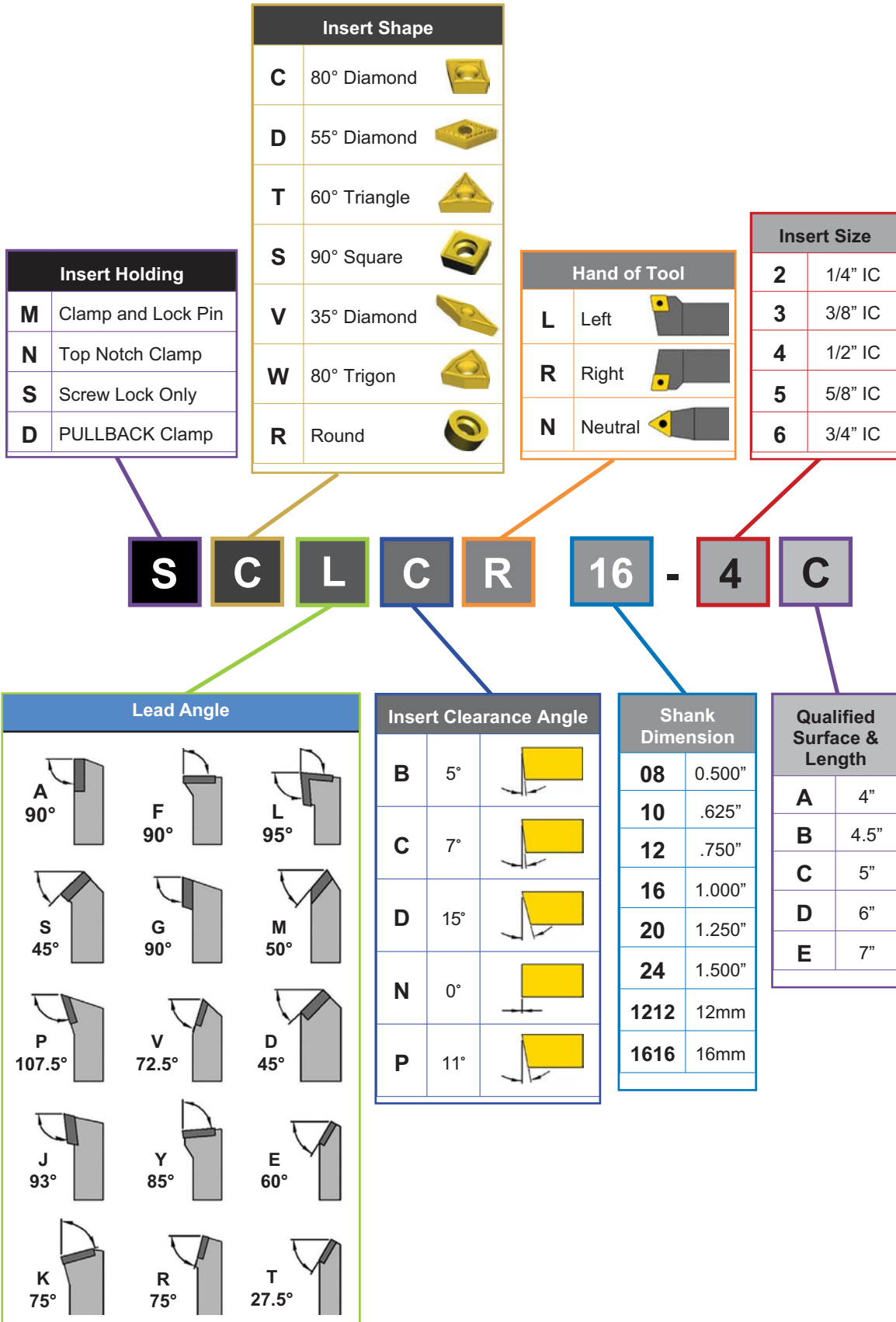
- Select a tool with the shortest allowable overall length to ensure the strongest tool setup possible.
- The keyseat cutter's neck diameter greatly affects its performance.
- Choose thickest neck allowable for the most optimized performance.

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| ISO | MATERIAL | HARDNESS | Vc (SFM)* | | SAW DIAMETER (INCH) | | | | |
|----------|---|-----------------------------|----------------|----------|----------------------|------------------|------------------|------------------|------------------|
| | | | | | 1.00" - 3.00" | 3.01" - 5.00" | 5.01" - 8.00" | 8.01" - 10.00" | 10.01" - 12.00" |
| | | | HSS/ Cobalt | Carbide | Fz (INCH PER TOOTH)* | | | | |
| P | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | ≤ 275 BHN or ≤ 28 HRC | 40-95 | 90-200 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0010 - .0020 |
| | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH | ≤ 375 BHN or ≤ 40 HRC | 30-70 | 60-150 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0007 - .0015 |
| M | STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F | ≤ 275 BHN or ≤ 28 HRC | 60-110 | 80-190 | .0002 - .0008 | .0003 - .0008 | .0004 - .0010 | .0005 - .0012 | .0010 - .0022 |
| | STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L | ≤ 275 BHN or ≤ 28 HRC | 30-75 | 40-130 | .0003 - .0008 | .0003 - .0008 | .0004 - .0010 | .0005 - .0012 | .0010 - .0018 |
| K | GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500 | ≤ 220 BHN or ≤ 19 HRC | 45-100 | 80-150 | .0003 - .0009 | .0003 - .0010 | .0004 - .0012 | .0005 - .0014 | .0010 - .0020 |
| | DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12 | ≤ 260 BHN or ≤ 26 HRC | 20-75 | 30-90 | .0003 - .0009 | .0003 - .0009 | .0004 - .0011 | .0005 - .0012 | .0008 - .0016 |
| N | NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic | ≤ 271 BHN or ≤ 28 HRC | 180-900 | 450-1200 | .0005 - .0009 | .0006 - .0011 | .0006 - .0013 | .0007 - .0015 | .0010 - .0030 |
| H | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | ≤ 375 BHN or ≤ 55 HRC | 10-25 | 30-130 | .0002 - .0008 | .0003 - .0009 | .0004 - .0010 | .0005 - .0013 | .0007 - .0020 |
| S | HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41 | ≤ 275 BHN or ≤ 28 HRC | 05-20 | 30-80 | .0002 - .0005 | .0003 - .0006 | .0004 - .0010 | .0005 - .0011 | .0006 - .0012 |
| | TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S | ≤ 275 BHN or ≤ 28 HRC | 10-30 | 40-180 | .0002 - .0007 | .0003 - .0010 | .0004 - .0012 | .0005 - .0016 | .0007 - .0020 |

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



| Bar Type | |
|----------|--------------------------------|
| A | Solid Steel Bar with Coolant |
| C | Carbide Bar |
| D | Chatter-Free with Coolant |
| E | Carbide Bar with Coolant |
| HM | Solid Heavy Metal with Coolant |
| J | Solid Heavy Metal |
| R | Carbide Reinforced Steel Bar |
| S | Solid Steel Bar |

| Bar Length | |
|------------|------|
| F | 3" |
| G | 3.5" |
| H | 4" |
| J | 4.5" |
| K | 5" |
| M | 6" |
| Q | 7" |
| R | 8" |
| X | 9" |
| S | 10" |
| T | 12" |
| U | 14" |
| V | 16" |
| W | 20" |

| Insert Clearance Angle | | |
|------------------------|-----|--|
| B | 5° | |
| C | 7° | |
| D | 15° | |
| N | 0° | |
| P | 11° | |

| Alternate F Dim. | |
|------------------|-------|
| 138 | .138" |
| 167 | .167" |
| 203 | .203" |
| 281 | .281" |

E 10 Q S C L C R 2 -281

| Bar Diameter | |
|--------------|-----------------|
| 02.5 | .156" (5/32") |
| 03 | .187" (3/16") |
| 03.5 | .218" (7/32") |
| 04 | .250" (1/4") |
| 05 | .312" (5/16") |
| 06 | .375" (3/8") |
| 08 | 0.500" (1/2") |
| 10 | .625" (5/8") |
| 12 | .750" (3/4") |
| 16 | 1.000" (1") |
| 20 | 1.250" (1 1/4") |
| 24 | 1.500" (1 1/2") |
| 28 | 1.750" (1 3/4") |
| 32 | 2.000" (2") |

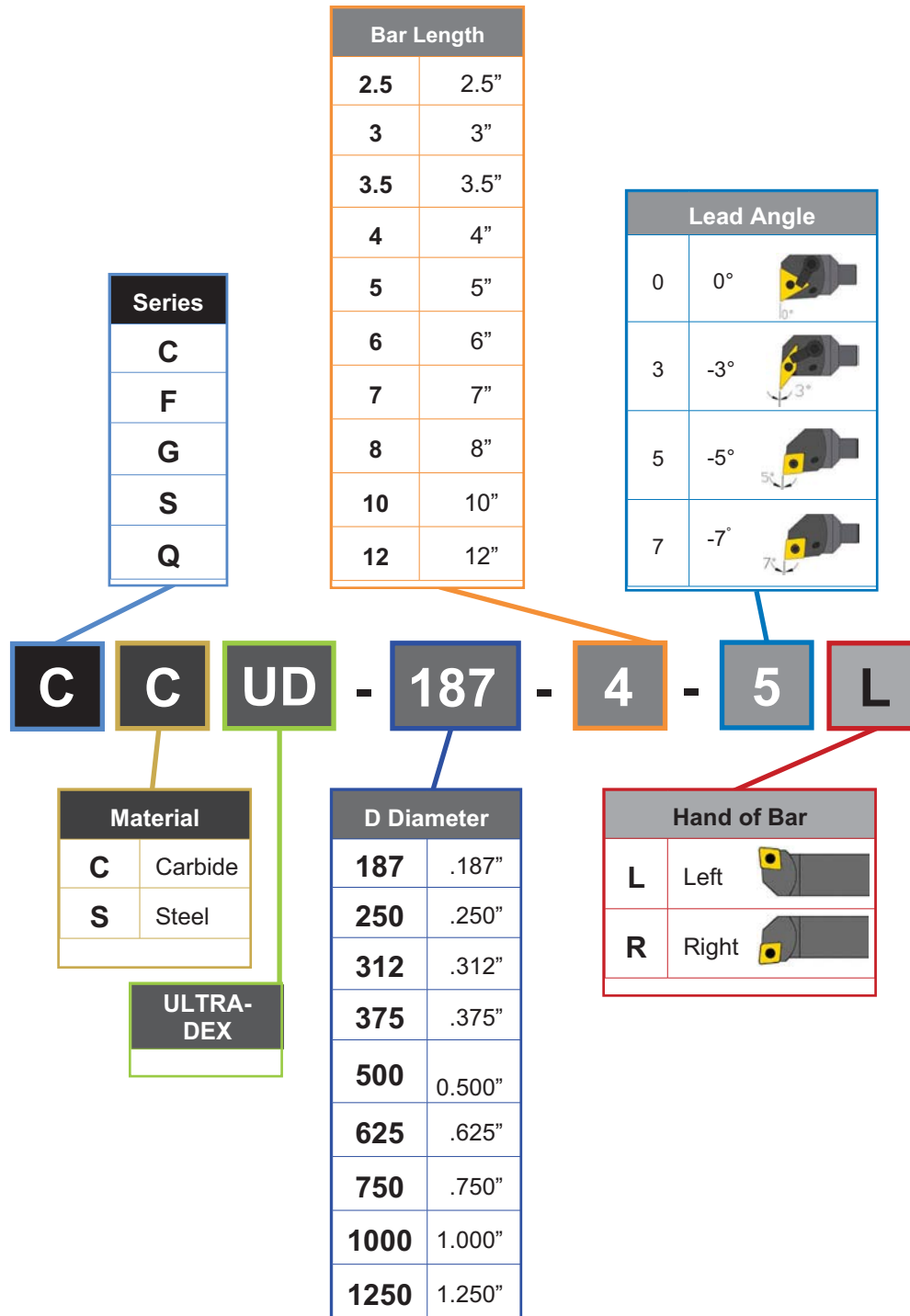
| Insert Holding | |
|----------------|--------------------|
| M | Clamp and Lock Pin |
| N | Top Notch Clamp |
| S | Screw Lock Only |
| D | PULLBACK Clamp |

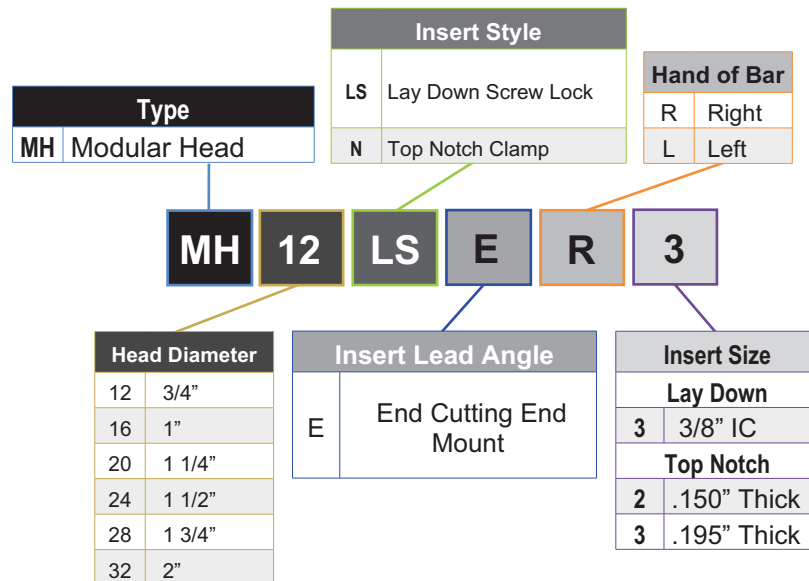
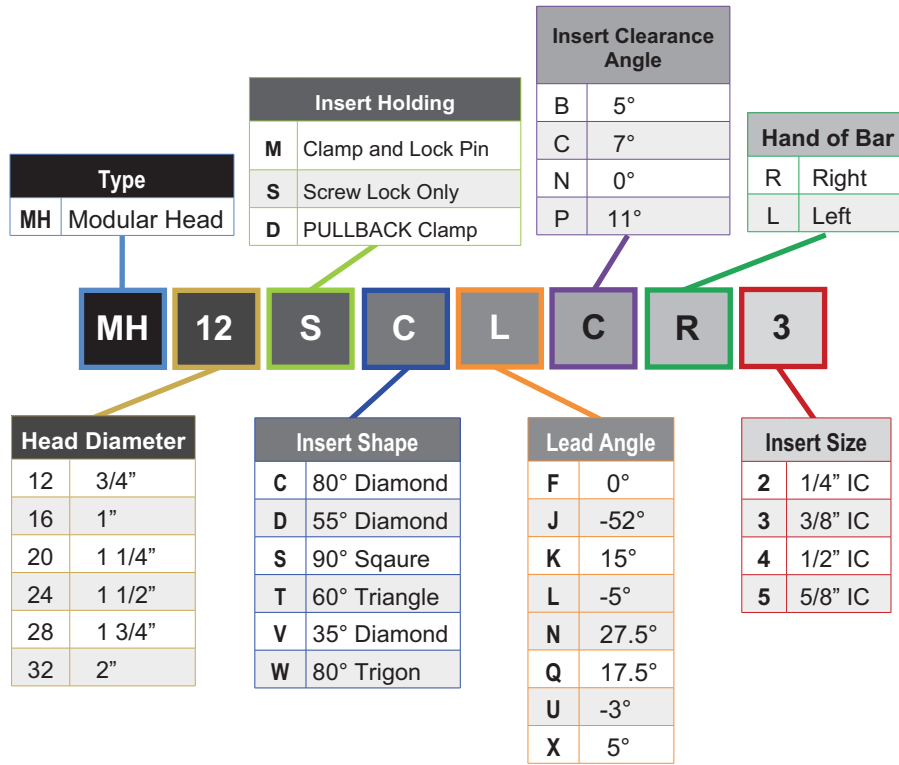
| Insert Shape | |
|--------------|--------------|
| C | 80° Diamond |
| D | 55° Diamond |
| T | 60° Triangle |
| S | 90° Square |
| V | 35° Diamond |
| W | 80° Trigon |
| R | Round |

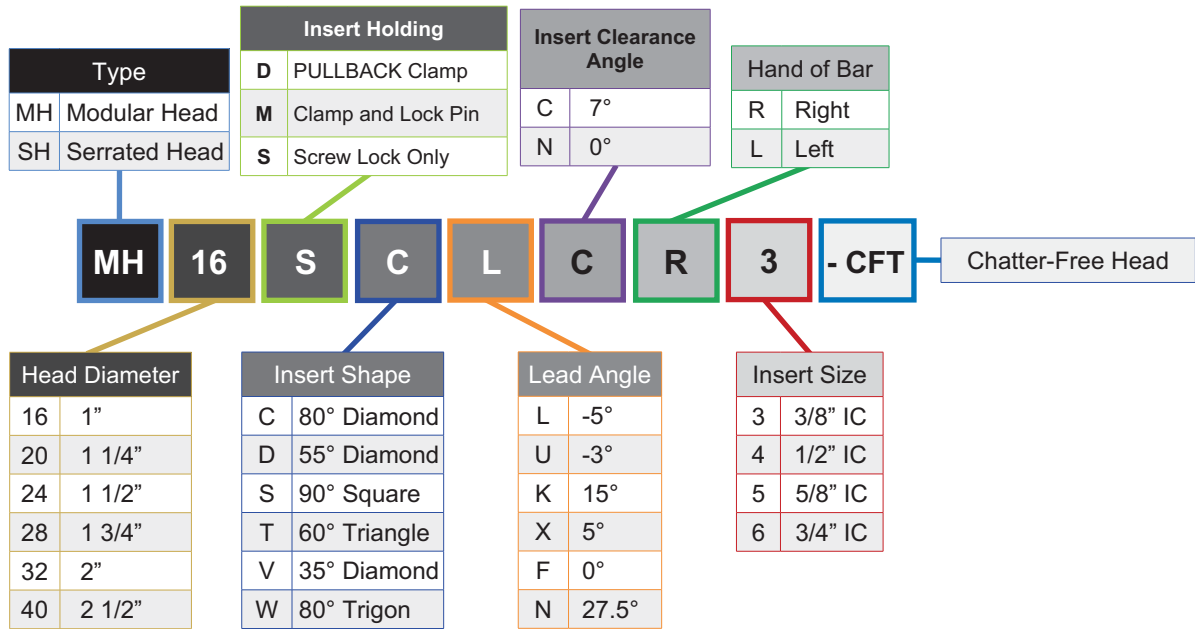
| Lead Angle | |
|------------|--------|
| F | 0° |
| J | -52° |
| K | 15° |
| L | -5° |
| N | 27.5° |
| Q | -17.5° |
| U | -3° |
| X | 5° |

| Insert Size | |
|-------------|----------|
| 1.2 | 5/32" IC |
| 1.5 | 3/16" IC |
| 1.8 | 7/32" IC |
| 2 | 1/4" IC |
| 2.5 | 5/16" IC |
| 3 | 3/8" IC |
| 4 | 1/2" IC |

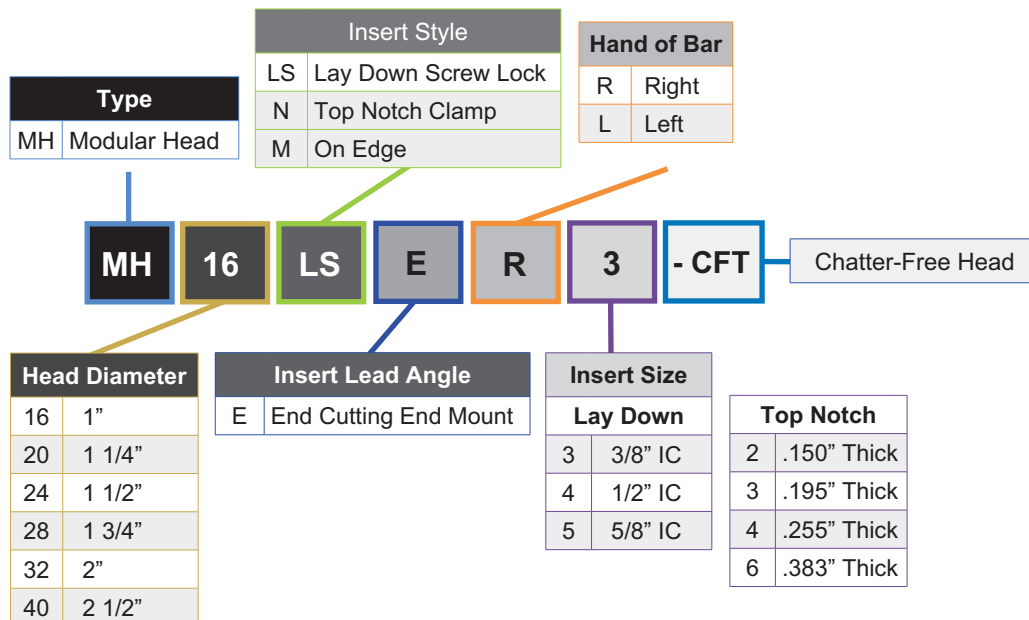
| Hand of Bar | |
|-------------|-------|
| L | Left |
| R | Right |





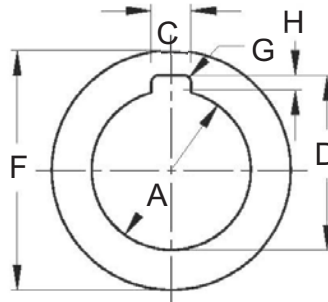


Threading / Grooving



Cutting Diameter Tolerances

| ARBOR TYPE CUTTERS | | | | | |
|---|---|---|--|-----------------------------------|--|
| Cutter Type | Specifications | Tolerance | | | |
| | | Diameter | Width | Angle | Radius |
| Plain Milling | Up to 1" Width Over 1" – 2" Incl. Over 2" | +0.015" -0.000" +0.015" -0.000" +0.015" -0.000" | ±.001" +0.010" -0.000" +0.020" -0.000" | | |
| Side Mills | Straight Tooth Staggered Tooth Straight Tooth Saw | +0.015" -0.000" +0.015" -0.000" +0.015" -0.000" | +0.002" -0.000" ±.001" ±.001" | | |
| Single Angle Double Angle | | +0.015" -0.000" +0.015" -0.000" | +0.015" -0.000" +0.015" -0.000" | ±0°10" ±0°10" on half angle | |
| Keyseat (1/32" oversize on diameters) | 3/16" Face 1/4" Face 5/16" Face 3/8" Face and Over | ±.002" ±.002" ±.002" ±.002" | -.0002" -0.0007" -.0003" -0.0008" -.0004" -0.0009" -.0005" -0.0010" | | |
| Convex Concave Corner Rounding | | +0.030" -0.000" +0.030" -0.000" +0.030" -0.000" | ±.001" ±.005" ±.005" | | ±.001" +0.002" -0.001" +0.002" -0.001" |



| Cutter Bore "A" Inches | Nominal Size Key (Square) Inches | Dimensions - Inches | | | | | | |
|---------------------------|--|---------------------|-------|--------|--------|--------------|-----------------------|-------------|
| | | C | | D | | H Nominal | G Corner Radius | F Collar |
| | | Max. | Min. | Max. | Min. | | | |
| 1/2 | 3/32 | .106 | .099 | .5678 | .5578 | 3/64 | .020 | 7/8 |
| 5/8 | 1/8 | .137 | .130 | .7085 | .6985 | 1/16 | 1/32 | 1 |
| 3/4 | 1/8 | .137 | .130 | .8325 | .8225 | 1/16 | 1/32 | 1-1/8 |
| 7/8 | 1/8 | .137 | .130 | .9575 | .9475 | 1/16 | 1/32 | 1-1/4 |
| 1 | 1/4 | .262 | .255 | 1.1140 | 1.1040 | 3/32 | 3/64 | 1-1/2 |
| 1-1/4 | 5/16 | .325 | .318 | 1.3950 | 1.3850 | 1/8 | 1/16 | 1-7/8 |
| 1-1/2 | 3/8 | .410 | .385 | 1.6760 | 1.6660 | 5/32 | 1/16 | 2-1/4 |
| 1-3/4 | 7/16 | .473 | .448 | 1.9580 | 1.9480 | 3/16 | 1/16 | 2-1/2 |
| 2 | 1/2 | .535 | .510 | 2.2080 | 2.1980 | 3/16 | 1/16 | 2-3/4 |
| 2-1/2 | 5/8 | .660 | .635 | 2.7430 | 2.7330 | 7/32 | 1/16 | 3-1/2 |
| 3 | 3/4 | .785 | .760 | 3.2750 | 3.2650 | 1/4 | 3/32 | 4 |
| 3-1/2 | 7/8 | .910 | .885 | 3.9000 | 3.8900 | 3/8 | 3/32 | 5 |
| 4 | 1 | 1.035 | 1.011 | 4.4000 | 4.3900 | 3/8 | 3/32 | 5-1/2 |
| 4-1/2 | 1-1/8 | 1.160 | 1.135 | 4.9630 | 4.9530 | 7/16 | 1/8 | 6 |
| 5 | 1-1/4 | 1.285 | 1.260 | 5.5250 | 5.5150 | 1/2 | 1/8 | 6-1/2 |

Terminology and Ordering Data

KEO® "S" Style Staggered Interlocking Cutter's consist of two pieces, each piece being a Staggered Side Milling Cutter. Unless otherwise specified, diameters of each piece held relative to each other within .001". Refer to Figures 1, 2 and 3

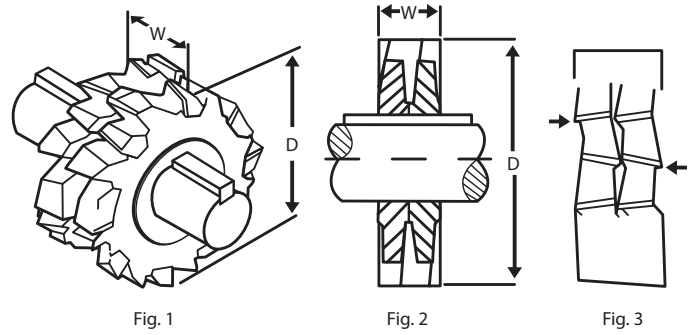
Total Interlocking Width (W).

The total interlocking width (W) is equal to the overall width of an interlocking cutter. The total interlock width (W) is normally equal to the width of the slot to be machined. This width is measured over the two pieces within the interlocking cutter as shown in Figure 1 and Figure 2.

Unless otherwise specified, tolerance on W Dimension is ±.001". Specify the following information when ordering:

1. Quantity of Interlocking Cutters required.
2. Diameter of Interlocking Cutters (D).
3. Interlock Width (W).
4. Hole size required.

Interlocking or overlap can be varied from as small as



.010" – 3/32" or more depending upon the widths selected. Hubs may be ground in customer's plant, by a local grinding service shop or at the KEO® plants. When sharpening reduces the total interlock width, shims may be used between hubs to regain the original total interlock width.

"X" indicates Width Interlock Range that can be priced as standard in diameters listed. All Staggered Tooth Cutters having the same number of teeth interlock.

| INTERLOCK WIDTH RANGE | CUTTER DIAMETER | | | | | | | | | | | | | | | | | | |
|-----------------------------|-----------------|--------|--------|----|--------|--------|--------|----|--------|--------|----|--------|----|----|----|----|-----|-----|---|
| | 2-1/8" | 2-1/2" | 2-3/4" | 3" | 3-1/4" | 3-1/2" | 3-3/4" | 4" | 4-1/4" | 4-1/2" | 5" | 5-1/2" | 6" | 7" | 8" | 9" | 10" | 12" | |
| .345 – .370 | X | | | X | | X | | X | | | X | | X | X | X | | | X | |
| .370 – .401 | X | | | X | | X | | X | | | X | | X | X | X | | | X | |
| .401 – .432 | X | | | X | | X | | X | | X | | | X | X | X | | | X | |
| .432 – .464 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | |
| .464 – .495 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | |
| .495 – .526 | X | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | |
| .526 – .557 | X | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | |
| .557 – .588 | X | X | X | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X |
| .588 – .620 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .620 – .651 | X | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| .651 – .682 | X | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| .682 – .713 | X | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| .700 – .745 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .731 – .776 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .763 – .807 | | X | X | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| .794 – .838 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .825 – .870 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .856 – .901 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .888 – .932 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .930 – .995 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| .993 – 1.058 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.055 – 1.120 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.118 – 1.182 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.180 – 1.245 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.242 – 1.307 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.305 – 1.370 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.368 – 1.432 | | | | X | X | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.430 – 1.495 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.492 – 1.557 | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 1.555 – 1.620 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.618 – 1.682 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.680 – 1.745 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.743 – 1.807 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.805 – 1.870 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.868 – 1.932 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 1.930 – 1.995 1.990 – 2.055 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 2.050 – 2.120 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 2.115 – 2.180 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 2.175 – 2.245 | | | | X | | X | | X | | X | X | | X | X | X | X | X | X | X |
| 2.240 – 2.305 | | | | | | | | X | | | | | X | | | | | | |
| 2.300 – 2.370 | | | | | | | | X | | | | | X | | | | | | |
| 2.365 – 2.430 | | | | X | | | | X | | | | | X | | | | | | |
| 2.425 – 2.495 | | | | X | | | | X | | | | | X | | | | | | |

| MILIMETERS TO INCHES CONVERSION CHART | | | | | | | |
|---------------------------------------|--------|----|--------|----|--------|-----|--------|
| MM | INCHES | MM | INCHES | MM | INCHES | MM | INCHES |
| 0.1 | 0.0039 | 20 | 0.7872 | 48 | 1.8898 | 76 | 2.9921 |
| 0.2 | 0.0079 | 21 | 0.8268 | 49 | 1.9291 | 77 | 3.0315 |
| 0.3 | 0.0118 | 22 | 0.8661 | 50 | 1.9685 | 78 | 3.0709 |
| 0.4 | 0.0157 | 23 | 0.9055 | 51 | 2.0079 | 79 | 3.1102 |
| 0.5 | 0.0197 | 24 | 0.9449 | 52 | 2.0472 | 80 | 3.1496 |
| 0.6 | 0.0236 | 25 | 0.9843 | 53 | 2.0866 | 81 | 3.189 |
| 0.7 | 0.0276 | 26 | 1.0236 | 54 | 2.126 | 82 | 3.2284 |
| 0.8 | 0.0315 | 27 | 1.063 | 55 | 2.1654 | 83 | 3.2677 |
| 0.9 | 0.0354 | 28 | 1.1024 | 56 | 2.2047 | 84 | 3.3071 |
| 1 | 0.0394 | 29 | 1.1417 | 57 | 2.2441 | 85 | 3.3465 |
| 2 | 0.0787 | 30 | 1.1811 | 58 | 2.2835 | 86 | 3.3858 |
| 3 | 0.1181 | 31 | 1.2205 | 59 | 2.3228 | 87 | 3.4252 |
| 4 | 0.1575 | 32 | 1.2598 | 60 | 2.3622 | 88 | 3.4646 |
| 5 | 0.1969 | 33 | 1.2992 | 61 | 2.4016 | 89 | 3.5039 |
| 6 | 0.2362 | 34 | 1.3386 | 62 | 2.441 | 90 | 3.5433 |
| 7 | 0.2756 | 35 | 1.378 | 63 | 2.4803 | 91 | 3.5827 |
| 8 | 0.315 | 36 | 1.4173 | 64 | 2.5197 | 92 | 3.6221 |
| 9 | 0.3543 | 37 | 1.4567 | 65 | 2.5591 | 93 | 3.6614 |
| 10 | 0.3937 | 38 | 1.4961 | 66 | 2.5984 | 94 | 3.7008 |
| 11 | 0.4331 | 39 | 1.5354 | 67 | 2.6378 | 95 | 3.7402 |
| 12 | 0.4724 | 40 | 1.5748 | 68 | 2.6772 | 96 | 3.7795 |
| 13 | 0.5118 | 41 | 1.6142 | 69 | 2.7165 | 97 | 3.8189 |
| 14 | 0.5512 | 42 | 1.6535 | 70 | 2.7559 | 98 | 3.8583 |
| 15 | 0.5906 | 43 | 1.6929 | 71 | 2.7953 | 99 | 3.8976 |
| 16 | 0.6299 | 44 | 1.7323 | 72 | 2.8347 | 100 | 3.937 |
| 17 | 0.6693 | 45 | 1.7717 | 73 | 2.874 | | |
| 18 | 0.7087 | 46 | 1.811 | 74 | 2.9134 | | |
| 19 | 0.748 | 47 | 1.8504 | 75 | 2.9528 | | |

Surface Feet Per Minute

$$\text{SFM} = \text{RPM} \times \text{D} \times .262$$

Revolutions Per Minute

$$\text{RPM} = \frac{\text{SFM} \times 3.82}{\text{D}}$$

Inches Per Minute

$$\text{IPM} = \text{RPM} \times \text{IPT} \times \text{Z}$$

Inches Per Tooth

$$\text{IPT} = \frac{\text{IPR}}{\text{Z}}$$

Inches Per Revolution

$$\text{IPR} = \frac{\text{IPM}}{\text{RPM}}$$

Metal Removal Rate (cu. in./min.)

$$\text{MRR} = \text{RDOC} \times \text{ADOC} \times \text{IPM}$$

Inches Per Tooth
(Chip Thinning Adjustment)

$$\text{IPT}_{\text{adj}} = \frac{\text{CT} \times \text{D}}{2 \times \sqrt{(\text{D} \times \text{RDOC}) - \text{RDOC}}}$$

Feed Rate Adjustment - Inside Arc

$$F_i = \frac{\text{IPM} \times (r_i + R)}{r_i}$$

Feed Rate Adjustment - Outside Arc

$$F_o = \frac{\text{IPM} \times (r_o + R)}{r_o}$$

Chip Thickness

$$\text{CT} = \frac{2 \times \text{IPT} \times \sqrt{(\text{D} \times \text{RDOC}) - \text{RDOC}}}{\text{D}}$$

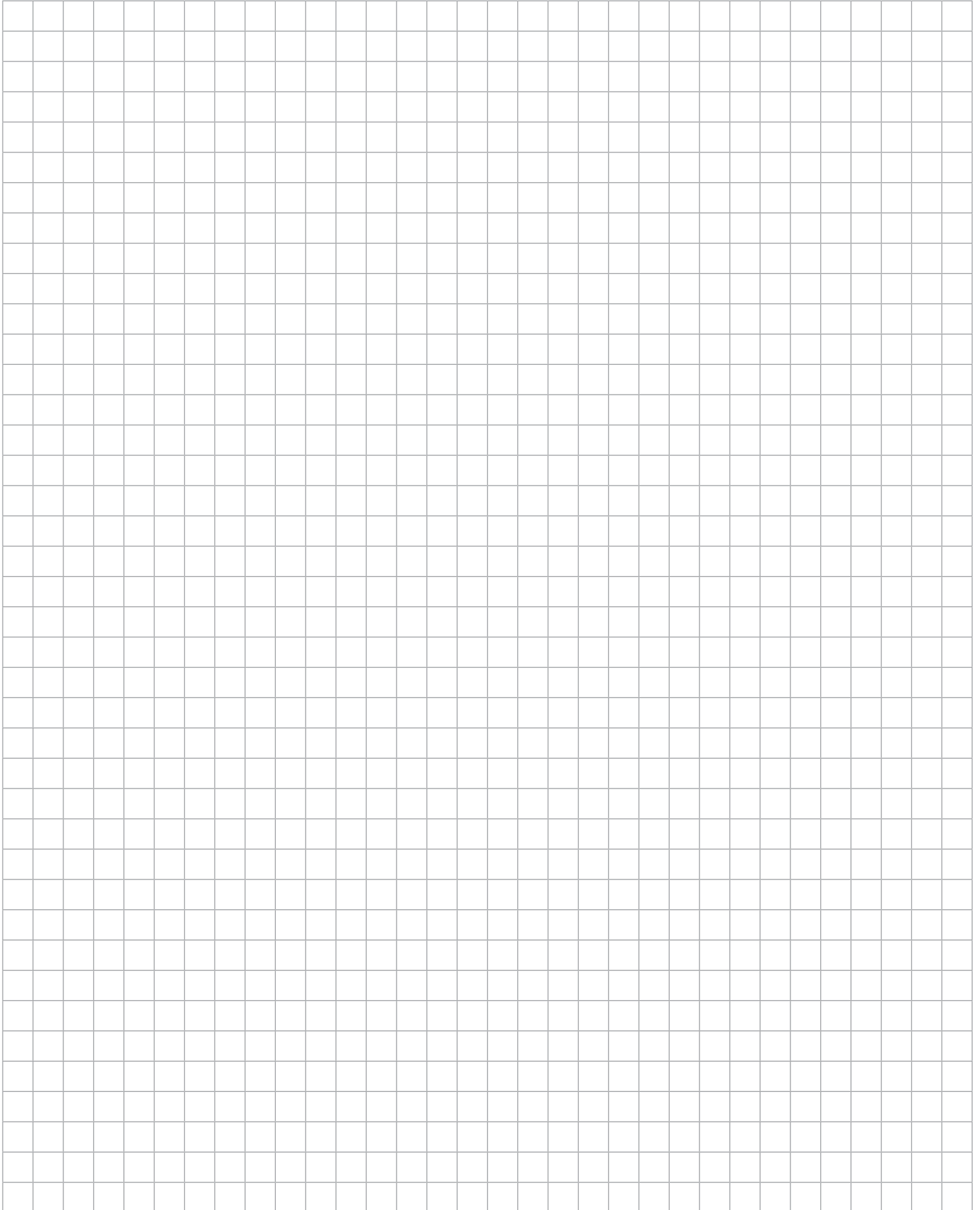
Ball Nose Velocity Adjustment

$$V_{\text{adj}} = \frac{\text{SFM} \times 3.82}{\text{D}_{\text{eff}}}$$

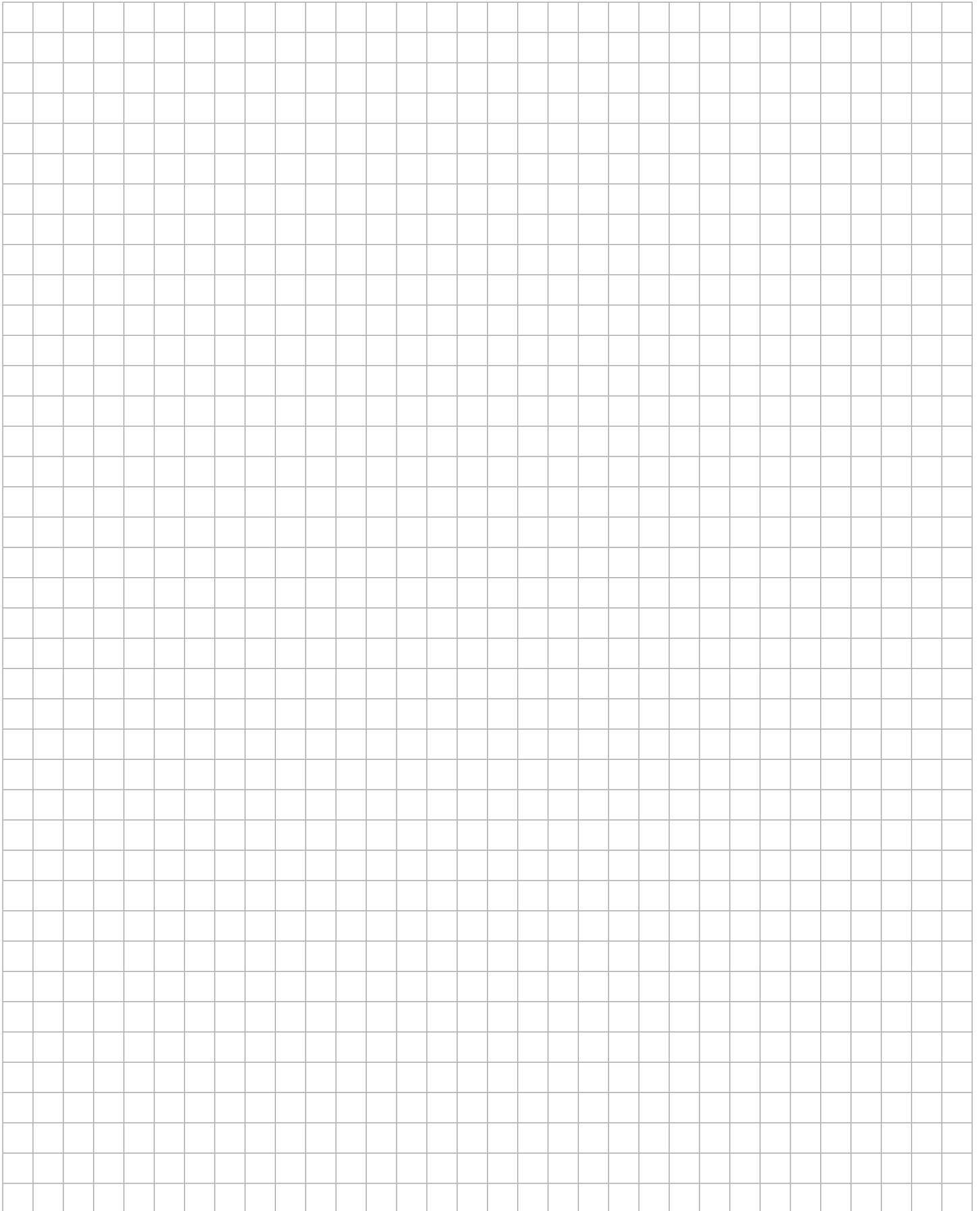
Ball Nose "Effective Diameter"

$$\text{D}_{\text{eff}} = 2 \times \sqrt{\text{ADOC} \times (\text{D} - \text{ADOC})}$$

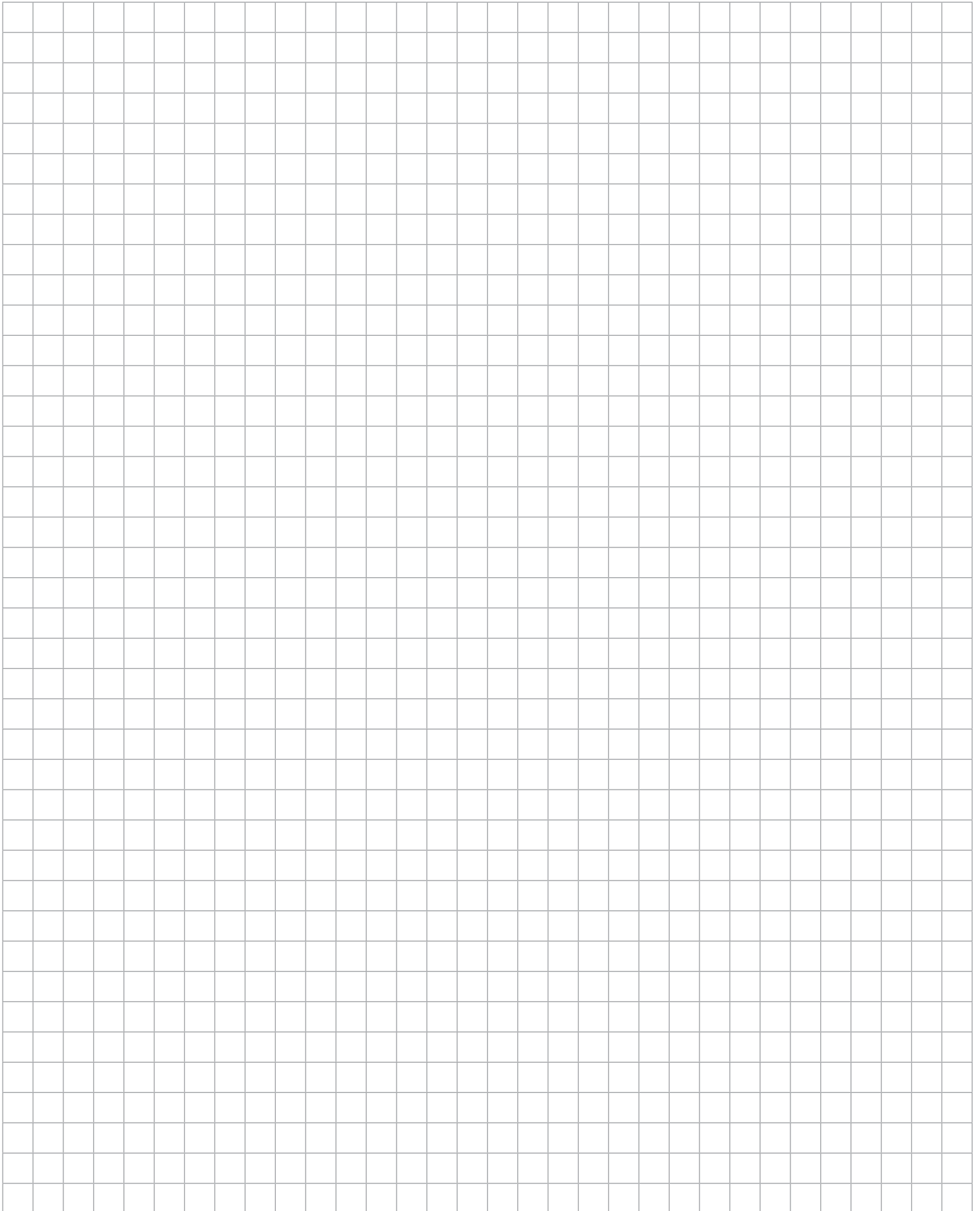
| | | | | | |
|---|-----------------------|-------|---------------------------|------|---------------------|
| D | Tool Cutting Diameter | r_i | Part Radius (inside arc) | RDOC | Radial Depth of Cut |
| Z | Number of Flutes | r_o | Part Radius (outside arc) | ADOC | Axial Depth of Cut |



A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.



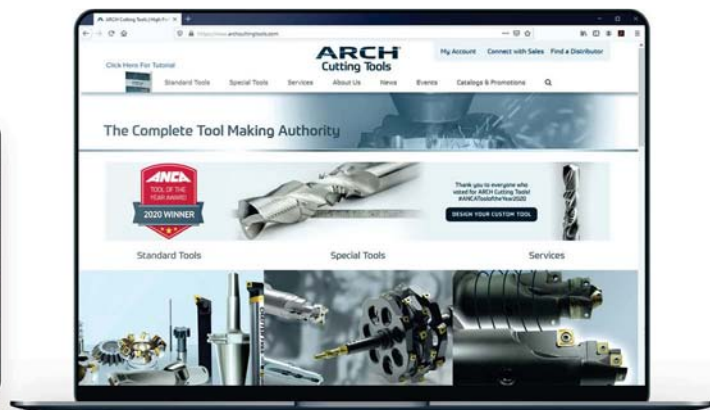








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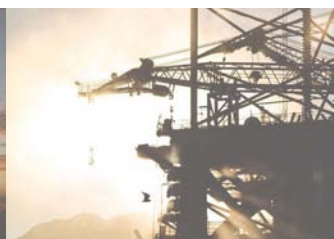
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