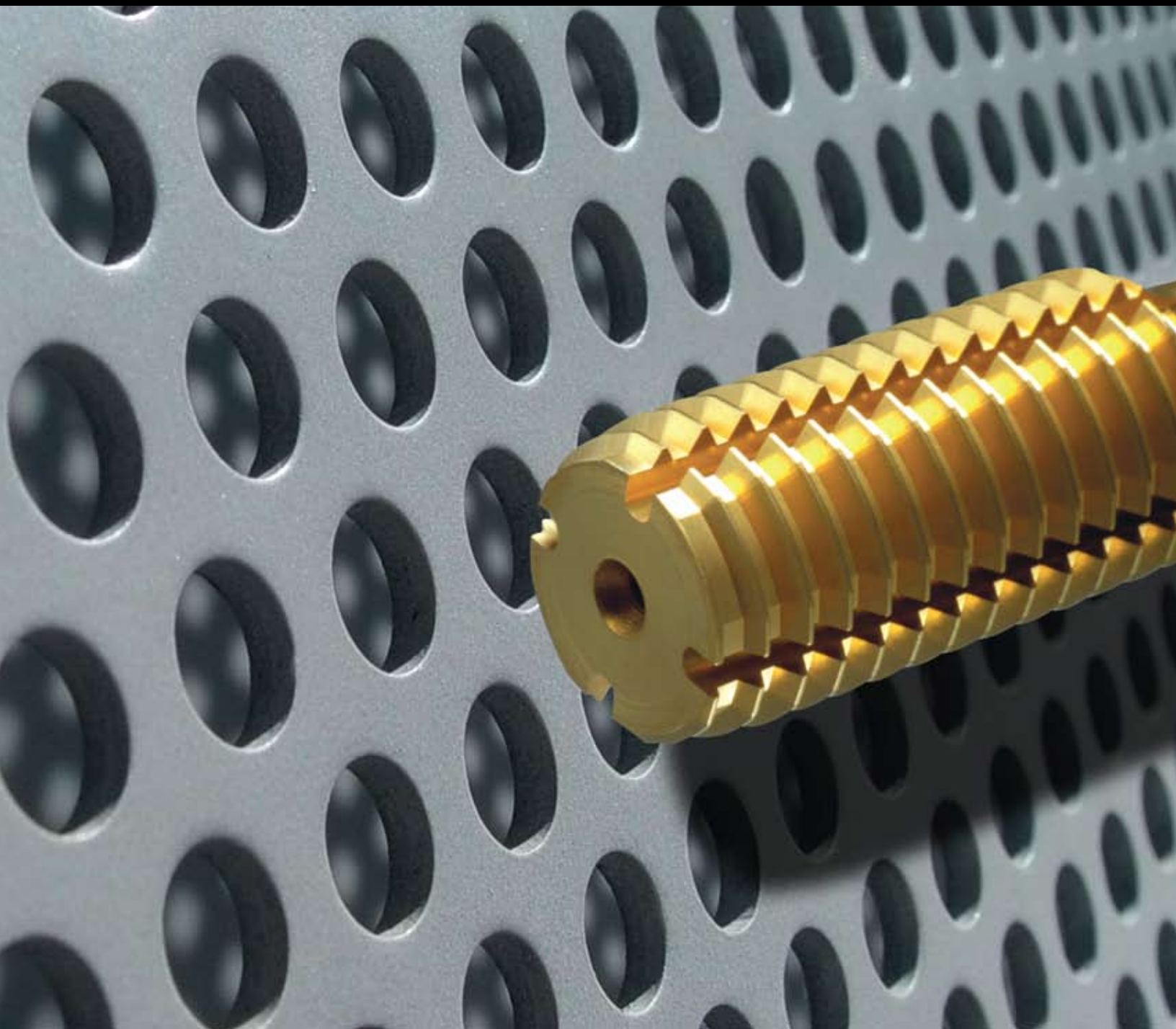
# VEGA
## CUTTING TOOLS

2009 - 2010 EDITION



VEGA CUTTING TOOLS

WWW.VEGA-TOOL.COM

# PRODUCT INDEX

VEGA CUTTING TOOLS

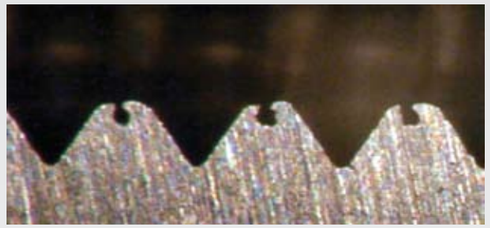
# VEGA XTF FORMING TAPS

VEGA CUTTING TOOLS

# XTF

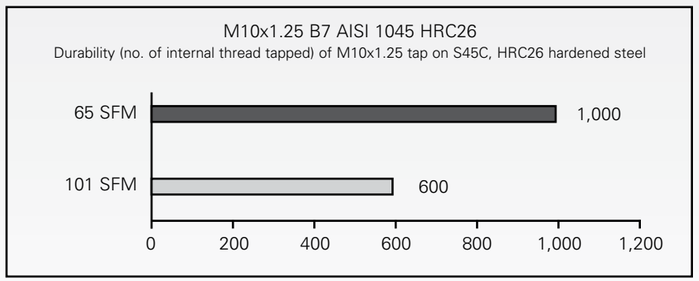
## Advantages of Vega's XTF Forming Tap

- Crests are rounded off to promote smooth plastic flow and prevent cracks and burrs in the root of the internal thread.
- The surface is TiCN coated which further enhances heat and wear resistance, and is therefore well suited for high speed tapping.
- Made from Cobalt HSS, the XTF taps have superior hardness and heat resistance.
- Application: Stainless Steel, Carbon Steel

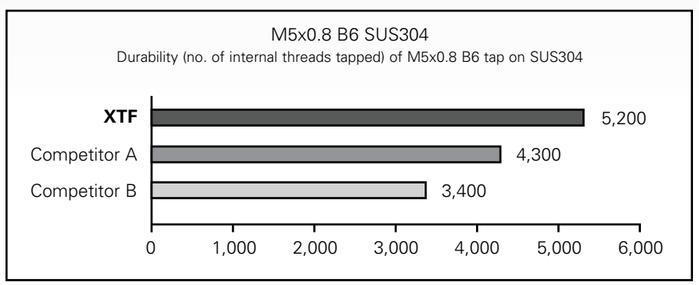


## Performance Data

| Taps | XTF |
|---|---|
| Tap Size | M10x1.25 B7 |
| Work Material | 1045 HRC26 |
| Tapping Speed | 65-101-SFM |
| Hole Size | 9.4mm Depth of blind hole:32mm |
| Thread length | 23mm |
| Coolant | External oiling, water-soluble (Diluted 10 times) |
| Machine | Machining center |




| Taps | XTF |
|---|---|
| Tap Size | M5x0.8 B6 |
| Work Material | 304 SS |
| Tapping Speed | 20m/min 1,280rpm |
| Hole Size | 4.6mm Blind hole |
| Thread length | 10mm |
| Coolant | Active sulfur type non-water-soluble oil |
| Machine | Machining center |







VEGA CUTTING TOOLS

## Tapping Torque

Tapping torque varies for a variety of reasons: hole diameter, material, effective length of internal thread, cutting fluid, tapping speed and machine tool used. For an internal thread length of 1 – 1.5 x nominal diameter, the torque can be approximately calculated using the formula below. The tapping torque required is nearly twice as high as that of cutting taps. XTF internal threads have frictional resistance due to spring back, so torque increases in proportion to the effective length of the internal thread.

$T\ (N{\cdot}m) = 0.09806 \times K \times E \times P^2$

T: Tapping Torque (N·m)
E: Basic pitch diameter of threads (mm)
P: Thread pitch (mm)

Resistance coefficient of deformation of work materials

| Work Materials | Coefficient (K) |
|---|---|
| Aluminum | 2~3 |
| Aluminum die casting, Aluminum castings | 3~5 |
| Brass | 4~6 |
| Low carbon steel | 5~7 |
| High carbon steel | 7~9 |
| Stainless Steel | 10~12 |

## Tapping Speed

When tapping with XTF Forming Taps, since there are no cutting chips, higher speeds can be achieve compared to conventional cutting taps. However, tapping speed should be selected based on work material, cutting fluid type and machine tool. Generally, 15-65 SFM is the most frequently used speed, but high-speed tapping of 100 SFM or more/minute may sometimes be performed in parallel with press punching work. However, very high speed may shorten the life of the taps due to early wear and heat-induced galling.

| Workpiece | Internal thread length | Tapping speed of coated XTF |
|---|---|---|
| Nonferrous metals, AL alloy, brass, etc. | 1.5D or less | 65-160 SFM |
| | Over 1.5D | 50-130 SFM |
| Low and medium carbon steels, SS material, 1035, rolled plate | 1.5D or less | 50-100 SFM |
| | Over 1.5D | 32-80 SFM |
| Stainless steels(SUS), heat resistant steels(SUH), etc. | 1.5D or less | 32-80 SFM |
| | Over 1.5D | 26-65 SFM |
| High carbon steels, alloy steels, hardened steels, 1045, 4130, 4140, etc. | 1.5D or less | 32-65 SFM |
| | Over 1.5D | 26-50 SFM |

VEGA CUTTING TOOLS

# XTF Fluteless Forming Taps Co-HSS TiCN Coating

## INCH

- High surface hardness for excellent wear resistance
- Excellent galling resistance enables highly accurate tapping
- High-performance tapping can be carried out without lubrication on holes prepared by press or burring
- Sizes ranging from 0-80 to 1/2"-20

## APPLICATION

Stainless Steel
High Carbon Steel
Structural Alloy Steel
Low/Medium Carbon Steel
Cold Rolled Sheet Steel

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI UNC | TPI UNF | Style | Thread Limits H2 | H3 | H4 | H5 | H6 | H7 | H8 | H10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 80 | B | 1840302 | | | | | | | |
| 1 | 64 | | B | 1841302 | | | | | | | |
| | | 72 | B | 1842302 | | | | | | | |
| 2 | 56 | | B | 1843302 | 1843303 | | | | | | |
| | | 64 | B | 1844302 | 1844303 | | | | | | |
| 3 | 48 | | B | 1845302 | 1845303 | | | | | | |
| | | 56 | B | 1846302 | 1846303 | | | | | | |
| 4 | 40 | | P | | 1847103 | | 1847105 | | | | |
| | | | B | | 1847303 | | 1847305 | | | | |
| | | 48 | P | | 1848103 | | 1848105 | | | | |
| | | | B | | 1848303 | | 1848305 | | | | |
| 6 | 32 | | P | | 1851103 | | 1851105 | | | | 1851110 |
| | | | B | | 1851303 | | 1851305 | | | | 1851310 |
| | | 40 | P | | 1852103 | | 1852105 | | | | |
| | | | B | | 1852303 | | 1852305 | | | | |
| 8 | 32 | | P | | 1853103 | | 1853105 | | | | 1853110 |
| | | | B | | 1853303 | | 1853305 | | | | 1853310 |
| | | 36 | P | | 1854103 | | 1854105 | | | | |
| | | | B | | 1854303 | | 1854305 | | | | |
| 10 | 24 | | P | | | 1855104 | | 1855106 | | | 1855110 |
| | | | B | | | 1855304 | | 1855306 | | | 1855310 |
| | | 32 | P | | | 1856104 | | 1856106 | | | 1856110 |
| | | | B | | | 1856304 | | 1856306 | | | 1856310 |
| 1/4 | 20 | | P | | | 1860104 | | 1860106 | | | 1860110 |
| | | | B | | | 1860304 | | 1860306 | | | 1860310 |
| | | 28 | P | | | 1861104 | | 1861106 | | | 1861110 |
| | | | B | | | 1861304 | | 1861306 | | | 1861310 |
| 5/16 | 18 | | P | | | | 1862105 | | 1862 107 | | |
| | | | B | | | | 1862305 | | 1862 307 | | |
| | | 24 | P | | | | 1863105 | | 1863 107 | | |
| | | | B | | | | 1863305 | | 1863 307 | | |
| 3/8 | 16 | | P | | | | 1864105 | | 1864 107 | | |
| | | | B | | | | 1864305 | | 1864 307 | | |
| | | 24 | P | | | | 1865105 | | 1865 107 | | |
| | | | B | | | | 1865305 | | 1865 307 | | |
| 7/16 | 14 | | P | | | | 1866105 | | | 1866108 | |
| | | | B | | | | 1866305 | | | 1866308 | |
| | | 20 | P | | | | 1867105 | | | 1867108 | |
| | | | B | | | | 1867305 | | | 1867308 | |
| 1/2 | 13 | | P | | | | 1868105 | | | 1868108 | |
| | | | B | | | | 1868305 | | | 1868308 | |
| | | 20 | P | | | | 1869105 | | | 1869108 | |
| | | | B | | | | 1869305 | | | 1868308 | |

* DIN Length • ANSI Shank




XTF-FORMING TAPS

VEGA CUTTING TOOLS

# XTF Fluteless Forming Tap Co-HSS TiCN Coating

## METRIC

- High surface hardness for excellent wear resistance
- Excellent galling resistance enables highly accurate tapping
- High-performance tapping can be carried out without lubrication on holes prepared by press or burring
- Sizes ranging from M2x0.4 to M12x1.75

## APPLICATION

Stainless Steel
High Carbon Steel
Structural Alloy Steel
Low/Medium Carbon Steel
Cold Rolled Sheet Steel

RECOMMENDED USEABLE

**Metric Sizes**

| Nominal Size | Pitch | Style | Thread Limits D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 | D11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M2 | 0.40 | P | 1205103 | | 1205105 | | | | | | |
| | | B | 1205303 | | 1205305 | | | | | | |
| M2.5 | 0.45 | P | 1206103 | | 1206105 | | | | | | |
| | | B | 1206303 | | 1206305 | | | | | | |
| M3 | 0.50 | P | 1207103 | | 1207105 | | | | | | |
| | | B | 1207303 | | 1207305 | | | | | | |
| M4 | 0.70 | P | | 1208104 | | 1208106 | | | | | |
| | | B | | 1208304 | | 1208306 | | | | | |
| M5 | 0.80 | P | | 1209104 | | | 1209107 | | | | |
| | | B | | 1209304 | | | 1209307 | | | | |
| M6 | 1.00 | P | | | 1210105 | | | 1210108 | | | |
| | | B | | | 1210305 | | | 1210308 | | | |
| M8 | 1.25 | P | | | 1211105 | | | | 1211109 | | |
| | | B | | | 1211305 | | | | 1211309 | | |
| M10 | 1.50 | P | | | | 1212106 | | | | 1212110 | |
| | | B | | | | 1212306 | | | | 1212310 | |
| M12 | 1.75 | P | | | | 1213106 | | | | | 1213111 |
| | | B | | | | 1213306 | | | | | 1213311 |

* DIN Length • ANSI Shank

# TECHNICAL DATA

## XTF-Formimg Tap Dimensional Data

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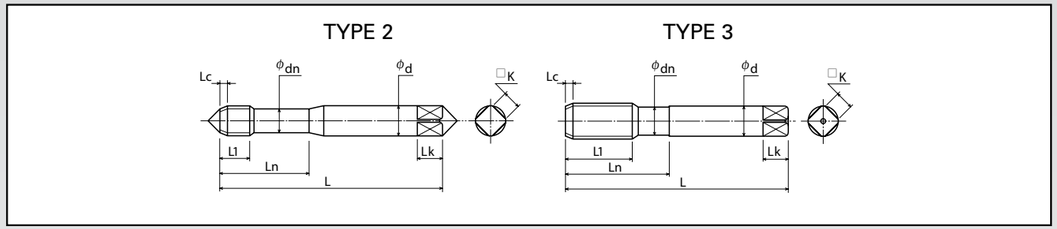


**Inch Sizes**

| Nominal Size | TPI UNC | TPI UNF | OAL | L1 | Ln | dn | d | K | Type |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | 80 | 1.575 | 0.313 | 0.512 | 0.065 | 0.141 | 0.110 | 2 |
| 1 | 64 | | 1.772 | 0.354 | 0.512 | 0.077 | 0.141 | 0.110 | 2 |
| | | 72 | 1.772 | 0.354 | 0.512 | 0.077 | 0.141 | 0.110 | 2 |
| 2 | 56 | | 1.772 | 0.354 | 0.591 | 0.091 | 0.141 | 0.110 | 2 |
| | | 64 | 1.772 | 0.354 | 0.591 | 0.091 | 0.141 | 0.110 | 2 |
| 3 | 48 | | 1.969 | 0.354 | 0.630 | 0.102 | 0.141 | 0.110 | 2 |
| | | 56 | 1.969 | 0.354 | 0.630 | 0.102 | 0.141 | 0.110 | 2 |
| 4 | 40 | | 2.205 | 0.433 | 0.630 | 0.118 | 0.141 | 0.110 | 2 |
| | | 48 | 2.205 | 0.433 | 0.630 | 0.118 | 0.141 | 0.110 | 2 |
| 5 | 40 | | 2.205 | 0.433 | 0.709 | 0.091 | 0.141 | 0.110 | 2 |
| | | 44 | 2.205 | 0.433 | 0.709 | 0.091 | 0.141 | 0.110 | 2 |
| 6 | 32 | | 2.205 | 0.472 | 0.709 | 0.098 | 0.141 | 0.110 | 2 |
| | | 40 | 2.205 | 0.472 | 0.709 | 0.098 | 0.141 | 0.110 | 2 |
| 8 | 32 | | 2.480 | 0.512 | 0.787 | 0.122 | 0.168 | 0.131 | 2 |
| | | 36 | 2.480 | 0.512 | 0.787 | 0.122 | 0.168 | 0.131 | 2 |
| 10 | 24 | | 2.756 | 0.591 | 0.866 | 0.134 | 0.194 | 0.152 | 2 |
| | | 32 | 2.756 | 0.591 | 0.866 | 0.134 | 0.194 | 0.152 | 2 |
| 12 | 24 | | 3.150 | 0.630 | 0.945 | 0.169 | 0.220 | 0.165 | 2 |
| | | 28 | 3.150 | 0.630 | 0.945 | 0.169 | 0.220 | 0.165 | 2 |
| 1/4 | 20 | | 3.150 | 0.669 | 0.945 | 0.185 | 0.255 | 0.191 | 2 |
| | | 28 | 3.150 | 0.669 | 0.945 | 0.185 | 0.255 | 0.191 | 2 |
| 5/16 | 18 | | 3.543 | 0.787 | 1.181 | 0.240 | 0.318 | 0.238 | 2 |
| | | 24 | 3.543 | 0.787 | 1.181 | 0.240 | 0.318 | 0.238 | 2 |
| 3/8 | 16 | | 3.937 | 0.866 | 1.378 | 0.295 | 0.381 | 0.286 | 2 |
| | | 24 | 3.937 | 0.866 | 1.378 | 0.295 | 0.381 | 0.286 | 2 |
| 7/16 | 14 | | 3.937 | 0.866 | 1.496 | 0.315 | 0.323 | 0.242 | 3 |
| | | 20 | 3.937 | 0.866 | 1.496 | 0.315 | 0.323 | 0.242 | 3 |
| 1/2 | 13 | | 4.331 | 0.984 | 1.654 | 0.354 | 0.367 | 0.275 | 3 |
| | | 20 | 4.331 | 0.984 | 1.654 | 0.354 | 0.367 | 0.275 | 3 |

**Metric Sizes**

| Nominal Size | Pitch | OAL | L1 | Ln | dn | d | K | Type |
|---|---|---|---|---|---|---|---|---|
| M2 | 0.40 | 1.772 | 0.438 | 0.591 | 0.084 | 0.141 | 0.11 | 2 |
| M2.5 | 0.45 | 1.969 | 0.500 | 0.630 | 0.102 | 0.141 | 0.11 | 2 |
| M3 | 0.50 | 2.205 | 0.158 | 0.709 | 0.094 | 0.141 | 0.11 | 2 |
| M4 | 0.70 | 2.480 | 0.221 | 0.787 | 0.122 | 0.168 | 0.131 | 2 |
| M5 | 0.80 | 2.756 | 0.252 | 0.866 | 0.157 | 0.194 | 0.152 | 2 |
| M6 | 1.00 | 3.150 | 0.315 | 0.945 | 0.189 | 0.255 | 0.191 | 2 |
| M8 | 1.25 | 3.543 | 0.394 | 1.181 | 0.240 | 0.318 | 0.238 | 2 |
| M10 | 1.50 | 3.937 | 0.472 | 1.260 | 0.272 | 0.381 | 0.286 | 3 |
| M12 | 1.75 | 4.331 | 0.551 | 1.496 | 0.331 | 0.367 | 0.275 | 3 |




# TECHNICAL DATA

## XTF-Forming Tap Recommended Drill Sizes

VEGA CUTTING TOOLS

**Recommended Drill Sizes for Inch XTF Forming Taps**

| Nominal Size & Pitch mm | Theoretical Drill Size: Max. Approx. 55% Thread | Theoretical Drill Size: Min. Approx. 75% Thread | Drill Approx. 65% Thread | Decimal Equivalent Inches | Tap Suggested for Class of Thread: 2B | 3B | B |
|---|---|---|---|---|---|---|---|
| 0-80 NF | 0.0553 | 0.0537 | 54 | 0.0550 | H3 | H2 | H2 |
| 1-64NC | 0.0671 | 0.0652 | 51 | 0.0670 | - | H2 | H2 |
| 1-72 NF | 0.0678 | 0.0661 | 51 | 0.0670 | H3 | H2 | H2 |
| 2-56 NC | 0.0793 | 0.0771 | 5/64 | 0.0781 | H3 | H2 | H2 |
| 2-64 NF | 0.0801 | 0.0782 | 47 | 0.0785 | H3 | H3 | H3 |
| 3-48 NC | 0.0912 | 0.0886 | 43 | 0.0890 | H3 | H2 | H2 |
| 3-56 NF | 0.0923 | 0.0901 | 2.3mm | 0.0905 | H3 | H2 | H2 |
| 4-40 NC | 0.1026 | 0.0995 | 38 | 0.1015 | H5 | H3 | H3 |
| 4-48 NF | 0.1042 | 0.1016 | 2.6mm | 0.1024 | H5 | H3 | H3 |
| 5-40 NC | 0.1156 | 0.1125 | 2.9mm | 0.1142 | H5 | H3 | H3 |
| 6-32 NC | 0.1263 | 0.1224 | 1/8 | 0.1250 | H5 | H3 | H3 |
| 6-40 NF | 0.1268 | 0.1255 | 3.25mm | 0.1280 | H5 | H3 | H3 |
| 8-32 NC | 0.1523 | 0.1484 | 25 | 0.1495 | H5 | H3 | H3 |
| 8-36 NF | 0.1536 | 0.1501 | 24 | 0.1520 | H5 | H3 | H3 |
| 10-24 NC | 0.1744 | 0.1692 | 11/64 | 0.1719 | H6 | H4 | H4 |
| 10-32 NF | 0.1783 | 0.1744 | 16 | 0.1770 | H6 | H4 | H4 |
| 12-24 NC | 0.2004 | 0.1952 | 8 | 0.1990 | H6 | H4 | H4 |
| 1/4-20 NC | 0.2312 | 0.2250 | 1 | 0.2280 | H6 | H4 | H4 |
| 1/4-28 NF | 0.2366 | 0.2322 | 15/16 | 0.2344 | H5 | H4 | H4 |
| 5/16-18 NC | 0.2917 | 0.2847 | L | 0.2900 | H7 | H5 | H5 |
| 5/16-24 NF | 0.2969 | 0.2917 | M | 0.2950 | H7 | H5 | H5 |
| 3/8-16 NC | 0.3516 | 0.3438 | S | 0.3480 | H7 | H5 | H5 |
| 3/8-24 NF | 0.3594 | 0.3542 | T | 0.3580 | H7 | H5 | H5 |
| 1/2-13 NC | 0.4712 | 0.4615 | 15/32 | 0.4682 | H8 | H5 | H5 |

**Recommended Drill Sizes and "D" Limits for Metric XTF Forming Taps**

| Nominal Size & Pitch mm | Recommended "D" Limit Class 6H Threads | Theoretical Drill Size: Max. Approx. 55% Thread | Theoretical Drill Size: Min. Approx. 75% Thread | Rec. Drill Sizes: Drill Approx. 65% Thread | Rec. Drill Sizes: Decimal Equivalent Inches |
|---|---|---|---|---|---|
| M1.6 x 0.35 | D5 | 0.0578 | 0.0561 | 1.45mm | 0.0571 |
| M2 x 0.40 | D5 | 0.0728 | 0.0709 | 1.8mm | 0.0709 |
| M2.5 x 0.45 | D5 | 0.0918 | 0.0896 | 2.3mm | 0.0905 |
| M3 x 0.50 | D5 | 0.1107 | 0.1083 | 7/64 | 0.1094 |
| M3.5 x 0.60 | D6 | 0.1289 | 0.1260 | 3.2mm | 0.1260 |
| M4 x 0.70 | D6 | 0.1471 | 0.1437 | 3.7mm | 0.1457 |
| M5 x 0.80 | D7 | 0.1850 | 0.1811 | 14 | 0.1820 |
| M6 x 1.00 | D8 | 0.2215 | 0.2165 | 7/32 | 0.2188 |
| M8 x 1.25 | D9 | 0.2965 | 0.2904 | 7.4mm | 0.2913 |
| M10 x 1.50 | D10 | 0.3716 | 0.3642 | "U" | 0.3680 |
| M12 x 1.75 | D11 | 0.4460 | 0.4380 | 11.2mm | 0.4409 |

# XHP-MB Spiral Fluted Taps
HSSE-V
Steam Oxide Finish

## INCH

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from 2-56 to 2"-4.5

## APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| Die Steel | |
| Cast Iron | |

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Thread Limits H2 | H3 | H4 | H5 | H6 | H7 | H8 | H11* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 84623 | | | | | | | |
| 3 | 48 | | 2 | 84600 | | | | | | | |
| 4 | 40 | | 2 | 84601 | 84602 | 84629 | 84634 | | | | |
| | | 48 | 2 | 84683 | | | | | | | |
| 5 | 40 | | 3 | 84603 | | | | | | | |
| 6 | 32 | | 3 | 84604 | 84605 | 84636 | 84635 | 84659 | 84665 | | |
| | | 40 | 3 | 84684 | 84685 | | | | | | |
| 8 | 32 | | 3 | 84606 | 84607 | 84638 | 84637 | 84660 | 84667 | | |
| | | 36 | 3 | | 84687 | | | | | | |
| 10 | 24 | | 3 | 84624 | 84609 | | 84639 | 84690 | 84669 | | |
| | | 32 | 3 | 84611 | 84610 | 84630 | 84640 | 84662 | 84670 | | |
| 12 | 24 | | 3 | | 84688 | | | | | | |
| | | 28 | 3 | | 84689 | | | | | | |
| 1/4 | 20 | | 3 | | 84613 | | 84643 | | 84673 | | 89002 |
| | | 28 | 3 | | 84614 | 84631 | 84644 | 84664 | 84674 | | 89004 |
| 5/16 | 18 | | 3 | | 84615 | | 84645 | | 84675 | | 89006 |
| | | 24 | 3 | | 84616 | 84632 | 84646 | | 84676 | | 89008 |
| 3/8 | 16 | | 3 | | 84617 | | 84647 | | 84677 | | 89010 |
| | | 24 | 3 | | 84618 | 84633 | 84648 | | 84678 | | 89012 |
| 7/16 | 14 | | 3 | | 84619 | | 84649 | | 84679 | | |
| | | 20 | 3 | | 84620 | | 84650 | 84691 | 84680 | | |
| 1/2 | 13 | | 3 | | 84621 | | 84651 | | 84681 | | 89014 |
| | | 20 | 3 | | 84622 | | 84652 | 84692 | 84682 | | 89016 |
| 9/16 | 12 | | 3 | | 84653 | | | | | | |
| | | 18 | 3 | | 84654 | | | | | | |
| | | 24 | 3 | | 84641 | | | | | | |
| 5/8 | 11 | | 3 | | 84625 | | 84655 | | | | 89018 |
| | | 18 | 3 | | 84626 | | 84656 | | | | 89020 |
| 3/4 | 10 | | 4 | | 84627 | | 84657 | | | | 89022 |
| | | 16 | 4 | | 84628 | | 84658 | | 84686 | | 89024 |
| 7/8 | 9 | | 4 | | | 84695 | | | | | |
| | | 14 | 4 | | | 84696 | | 84694 | | | |
| 1 | 8 | | 4 | | | 84697 | | | | | |
| | | 12 | 4 | | | 84698 | | | | | |
| 1-1/8 | 7 | | 4 | | | 84661 | | 846616 | | | |
| | | 12 | 4 | | | | 846625 | | | | |
| 1-1/4 | 7 | | 4 | | | 84693 | | 846936 | | | |
| | | 12 | 4 | | | | 846945 | | | | |
| 1-3/8 | 6 | | 4 | | | 84671 | | | 846716 | | |
| | | 12 | 4 | | | | | 846725 | | | |
| 1-1/2 | 6 | | 4 | | | 84672 | | | 846726 | | |
| | | 12 | 4 | | | | | 846735 | | | |
| 1-3/4 | 5 | | 5 | | | | | | | 846367 | |
| 2 | 4.5 | | 5 | | | | 84699 | | | 846997 | |

* H11 ... +0.005 Oversize

DIMENSIONAL INFORMATION ON PAGE 40
TECHNICAL DATA ON PAGE 49




NEW SIZES
XHP-MODIFIED BOTTOMING TAPS
VEGA CUTTING TOOLS

# XHP-MB Spiral Fluted Taps
HSSE-V
TiN Coated

## INCH

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from 2-56 to 2"-4.5

## APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| Cast Iron | |
| Non-Ferrous | |
| Ductile Iron | |
| Die Steel | |
| Cast Iron | |

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Thread Limits H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 84923 | | | | | | |
| 4 | 40 | | 2 | 84901 | | | | | | |
| 5 | 40 | | 3 | 84903 | | | | | | |
| 6 | 32 | | 3 | | 84905 | | | | | |
| 8 | 32 | | 3 | | 84907 | | | | | |
| 10 | 24 | | 3 | | 84909 | | | | | |
| | | 32 | 3 | | 84910 | | | | | |
| 1/4 | 20 | | 3 | | 84913 | | | | | |
| | | 28 | 3 | | 84914 | | | | | |
| 5/16 | 18 | | 3 | | 84915 | | | | | |
| | | 24 | 3 | | 84916 | | | | | |
| 3/8 | 16 | | 3 | | 84917 | | | | | |
| | | 24 | 3 | | 84918 | | | | | |
| 7/16 | 14 | | 3 | | 84919 | | | | | |
| | | 20 | 3 | | 84920 | | | | | |
| 1/2 | 13 | | 3 | | 84921 | | | | | |
| | | 20 | 3 | | 84922 | | | | | |
| 9/16 | 12 | | 3 | | 84953 | | | | | |
| | | 18 | 3 | | 84954 | | | | | |
| 5/8 | 11 | | 3 | | 84925 | | | | | |
| | | 18 | 3 | | 84926 | | | | | |
| 3/4 | 10 | | 4 | | 84927 | | | | | |
| | | 16 | 4 | | 84928 | | | | | |
| 7/8 | 9 | | 4 | | | 84995 | | | | |
| | | 14 | 4 | | | 84996 | | | | |
| 1 | 8 | | 4 | | | 84997 | | | | |
| 1-1/8 | 7 | | 4 | | | | | 849616 | | |
| | | 12 | 4 | | | | 849625 | | | |
| 1-1/4 | 7 | | 4 | | | | | 849936 | | |
| | | 12 | 4 | | | | 849945 | | | |
| 1-3/8 | 6 | | 4 | | | | | | 849716 | |
| | | 12 | 4 | | | | | 849725 | | |
| 1-1/2 | 6 | | 4 | | | | | | 849726 | |
| | | 12 | 4 | | | | | 849735 | | |
| 1-3/4 | 5 | | | | | | | | | 849367 |
| 2 | 4.5 | | 5 | | | | | | | 849997 |

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# XHP-MB Spiral Fluted Taps

HSSE-V

Steam Oxide Finish

## METRIC

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from M3x0.5 to M24x3

## APPLICATION

Stainless Steel
Carbon Steel
Alloy Steel
Die Steel
Cast Iron

RECOMMENDED USEABLE

| Nominal Size | Pitch | No. of Flutes | Thread Limits | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | D3 | D4 | D5 | D6 | D7 | D8 |
| M3 | 0.50 | 3 | 74615 | | | | | |
| M3.5 | 0.60 | 3 | | 74616 | | | | |
| M4 | 0.70 | 3 | | 74617 | | | | |
| M5 | 0.80 | 3 | | 74619 | | | | |
| M6 | 1.00 | 3 | | | 74620 | | | |
| M7 | 1.00 | 3 | | | 74621 | | | |
| M8 | 1.00 | 3 | | | 74622 | | | |
| | 1.25 | 3 | | | 74623 | | | |
| M10 | 1.25 | 3 | | | 74624 | | | |
| | 1.50 | 3 | | | | 74625 | | |
| M12 | 1.25 | 3 | | | 74626 | | | |
| | 1.75 | 3 | | | | 74627 | | |
| M14 | 1.50 | 3 | | | | 74628 | | |
| | 2.00 | 3 | | | | | 74629 | |
| M16 | 1.50 | 3 | | | | 74630 | | |
| | 2.00 | 3 | | | | | 74631 | |
| M18 | 1.50 | 4 | | | | 74632 | | |
| | 2.50 | 4 | | | | | 74633 | |
| M20 | 2.50 | 4 | | | | | 74635 | |
| M24 | 3.00 | 4 | | | | | | 74639 |

DIMENSIONAL INFORMATION ON PAGE 41 TECHNICAL DATA ON PAGE 49




XHP-MODIFIED BOTTOMING TAPS

# XHP-MB Spiral Fluted Taps

HSSE-V

TiN Coated

## METRIC

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from M3x0.5 to M24x3

## APPLICATION

Stainless Steel
Carbon Steel
Alloy Steel
Cast Iron
Non-Ferrous
Ductile Iron
Die Steel
Cast Iron

RECOMMENDED USEABLE

| Nominal Size | Pitch | No. of Flutes | Thread Limits | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | D3 | D4 | D5 | D6 | D7 | D8 |
| M3 | 0.50 | 3 | 74915 | | | | | |
| M3.5 | 0.60 | 3 | | 74916 | | | | |
| M4 | 0.70 | 3 | | 74917 | | | | |
| M5 | 0.80 | 3 | | 74919 | | | | |
| M6 | 1.00 | 3 | | | 74920 | | | |
| M7 | 1.00 | 3 | | | 74921 | | | |
| M8 | 1.00 | 3 | | | 74922 | | | |
| | 1.25 | 3 | | | 74923 | | | |
| M10 | 1.25 | 3 | | | 74924 | | | |
| | 1.50 | 3 | | | | 74925 | | |
| M12 | 1.25 | 3 | | | 74926 | | | |
| | 1.75 | 3 | | | | 74927 | | |
| M14 | 1.50 | 3 | | | | 74928 | | |
| | 2.00 | 3 | | | | | 74929 | |
| M16 | 1.50 | 3 | | | | 74930 | | |
| | 2.00 | 3 | | | | | 74931 | |
| M18 | 1.50 | 4 | | | | 74932 | | |
| | 2.50 | 4 | | | | | 74933 | |
| M20 | 2.50 | 4 | | | | | 74935 | |
| M24 | 3.00 | 4 | | | | | | 74939 |

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NEW PRODUCT

# XHP-FULL BOTTOMING TAPS

VEGA CUTTING TOOLS

## XHP-B
## Spiral Fluted Taps
HSSE-V
Steam Oxide Finish

**INCH**

- Full Bottoming = 1.5 Thread Chamfer
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from 4 - 40 to 3/4" – 16

### APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| | Die Steel |
| | Cast Iron |

| Nominal Size | TPI | | No. of Flutes | Thread Limits | | | |
|---|---|---|---|---|---|---|---|
| | NC/UNC | NF/UNF | | H2 | H3 | H4 | H5 |
| 4 | 40 | | 2 | 34601 | | | |
| 6 | 32 | | 3 | | 34605 | | |
| 8 | 32 | | 3 | | 34607 | | |
| 10 | 24 | | 3 | 34609 | | | |
| | | 32 | 3 | | 34610 | | |
| 1/4 | 20 | | 3 | | | | 34613 |
| | | 28 | 3 | | | 34614 | |
| 5/16 | 18 | | 3 | | | | 34615 |
| | | 24 | 3 | | | 34616 | |
| 3/8 | 16 | | 3 | | | | 34617 |
| | | 24 | 3 | | | 34618 | |
| 7/16 | 14 | | 3 | | | | 34619 |
| | | 20 | 3 | | | | 34620 |
| 1/2 | 13 | | 3 | | | | 34621 |
| | | 20 | 3 | | | | 34622 |
| 5/8 | 11 | | 3 | | | | 34625 |
| | | 18 | 3 | | | | 34626 |
| 3/4 | 10 | | 4 | | | | 34627 |
| | | 16 | 4 | | | | 34628 |

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NEW PRODUCT

XHP-FULL BOTTOMING TAPS

VEGA CUTTING TOOLS

## XHP-B
## Spiral Fluted Taps
HSSE-V
Steam Oxide Finish

**METRIC**

- Full Bottoming = 1.5 Thread Chamfer
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from M6x1 to M16x2

### APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| Cast Iron | |
| Non-Ferrous | |
| Ductile Iron | |
| | Die Steel |
| | Cast Iron |

| Nominal Size | Pitch | No. of Flutes | Thread Limits | | |
|---|---|---|---|---|---|
| | | | D5 | D6 | D7 |
| M6 | 1.00 | 3 | 24620 | | |
| M8 | 1.00 | 3 | 24622 | | |
| | 1.25 | 3 | 24623 | | |
| M10 | 1.25 | 3 | 24624 | | |
| | 1.50 | 3 | | 24625 | |
| M12 | 1.25 | 3 | 24626 | | |
| | 1.75 | 3 | | | 24627 |
| M14 | 1.50 | 3 | | 24628 | |
| | 2.00 | 3 | | | 24629 |
| M16 | 1.50 | 3 | | 24630 | |
| | 2.00 | 3 | | | 24631 |

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# XHP-P
# Spiral Pointed Taps
## HSSE-V
## Steam Oxide Finish

## INCH

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 2–56 to 2"–4.5

## APPLICATION

Stainless Steel
Carbon Steel
Alloy Steel
Die Steel
Cast Iron

RECOMMENDED USEABLE

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Thread Limits H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 82623 | | | | | | |
| 3 | 48 | | 2 | 82600 | | | | | | |
| 4 | 40 | | 2 | 82601 | 82602 | 82612 | 82634 | | | |
| | | 48 | 2 | 82683 | | | | | | |
| 5 | 40 | | 3 | 82603 | | | | | | |
| 6 | 32 | | 3 | 82604 | 82605 | 82608 | 82635 | 82659 | 82665 | |
| | | 40 | 3 | 82684 | | | | | | |
| 8 | 32 | | 3 | 82606 | 82607 | 82629 | 82637 | 82660 | 82667 | |
| | | 36 | 3 | 82686 | | | | 82693 | | |
| 10 | 24 | | 3 | | 82609 | | 82639 | 82690 | 82669 | |
| | | 32 | 3 | 82611 | 82610 | 82630 | 82640 | 82661 | 82670 | |
| 12 | 24 | | 3 | | 82688 | | | | | |
| | | 28 | 3 | | 82689 | | | | | |
| 1/4 | 20 | | 3 | | 82613 | | 82643 | | 82673 | |
| | | 28 | 3 | | 82614 | 82631 | 82644 | 82662 | 82674 | |
| 5/16 | 18 | | 3 | | 82615 | | 82645 | | 82675 | |
| | | 24 | 3 | | 82616 | 82632 | 82646 | 82663 | 82676 | |
| 3/8 | 16 | | 3 | | 82617 | | 82647 | | | |
| | | 24 | 3 | | 82618 | 82633 | 82648 | 82664 | 82678 | |
| | | 32 | 3 | | | | 82671 | 82672 | 82677 | |
| 7/16 | 14 | | 3 | | 82619 | | 82649 | | | |
| | | 20 | 3 | | 82620 | | 82650 | 82691 | 82680 | |
| | | 24 | 3 | | | | 82679 | | | |
| 1/2 | 13 | | 3 | | 82621 | | 82651 | | 82681 | |
| | | 20 | 3 | | 82622 | | 82652 | 82692 | 82682 | |
| 9/16 | 12 | | 3 | | 82653 | | | | | |
| | | 18 | 3 | | 82654 | | 82666 | | | |
| 5/8 | 11 | | 3 | | 82625 | | 82655 | | | |
| | | 18 | 3 | | 82626 | 82636 | 82656 | 82694 | | |
| 3/4 | 10 | | 3 | | 82627 | | 82657 | | | |
| | | 16 | 3 | | 82628 | | 82658 | | | |
| 7/8 | 9 | | 3 | | | 82695 | | | | |
| | | 14 | 3 | | | 82696 | | 82699 | | |
| 1 | 8 | | 3 | | | 82697 | | | | |
| | | 12 | 3 | | | 826984 | | | | |
| 1-1/8 | 7 | | 4 | | | | | 826616 | | |
| | | 12 | 4 | | | | 826625 | | | |
| 1-1/4 | 7 | | 4 | | | 82698 | | 826986 | | |
| | | 12 | 4 | | | | 826945 | | | |
| 1-3/8 | 6 | | 4 | | | | | | 826716 | |
| | | 12 | 4 | | | | | 826725 | | |
| 1-1/2 | 6 | | 4 | | | | | | 826726 | |
| | | 12 | 4 | | | | | 826735 | | |
| 1-3/4 | 5 | | 4 | | | | | | | 826367 |
| 2 | 4.5 | | 4 | | | | | | | 826997 |

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NEW SIZES

XHP-PLUG TAPS

VEGA CUTTING TOOLS

# XHP-P
# Spiral Pointed Taps
## HSSE-V
## TiN Coated

## INCH

- Excellent performance in steel, stainless steel, aluminum and exotic materials
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 2–56 to 2"–4.5

## APPLICATION

Stainless Steel
Carbon Steel
Alloy Steel
Cast Iron
Non-Ferrous
Ductile Iron
Die Steel
Cast Iron

RECOMMENDED USEABLE

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Thread Limits H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 82923 | | | | | | |
| 4 | 40 | | 2 | 82901 | | | | | | |
| 5 | 40 | | 3 | 82903 | | | | | | |
| 6 | 32 | | 3 | | 82905 | | | | | |
| 8 | 32 | | 3 | | 82907 | | | | | |
| 10 | 24 | | 3 | | 82909 | | | | | |
| | | 32 | 3 | | 82910 | | | | | |
| 1/4 | 20 | | 3 | | 82913 | | | | | |
| | | 28 | 3 | | 82914 | | | | | |
| 5/16 | 18 | | 3 | | 82915 | | | | | |
| | | 24 | 3 | | 82916 | | | | | |
| 3/8 | 16 | | 3 | | 82917 | | | | | |
| | | 24 | 3 | | 82918 | | | | | |
| 7/16 | 14 | | 3 | | 82919 | | | | | |
| | | 20 | 3 | | 82920 | | | | | |
| 1/2 | 13 | | 3 | | 82921 | | | | | |
| | | 20 | 3 | | 82922 | | | | | |
| 9/16 | 12 | | 3 | | 82953 | | | | | |
| | | 18 | 3 | | 82954 | | | | | |
| 5/8 | 11 | | 3 | | 82925 | | | | | |
| | | 18 | 3 | | 82926 | | | | | |
| 3/4 | 10 | | 3 | | 82927 | | | | | |
| | | 16 | 3 | | 82928 | | | | | |
| 7/8 | 9 | | 3 | | | 82995 | | | | |
| | | 14 | 3 | | | 82996 | | | | |
| 1 | 8 | | 3 | | | 82997 | | | | |
| | | 12 | 3 | | | 829984 | | | | |
| 1-1/8 | 7 | | 4 | | | | | 829616 | | |
| | | 12 | 4 | | | | 829625 | | | |
| 1-1/4 | 7 | | 4 | | | | | 829986 | | |
| | | 12 | 4 | | | | 829945 | | | |
| 1-3/8 | 6 | | 4 | | | | | | 829716 | |
| | | 12 | 4 | | | | | 829725 | | |
| 1-1/2 | 6 | | 4 | | | | | | 829726 | |
| | | 12 | 4 | | | | | 829735 | | |
| 1-3/4 | 5 | | 4 | | | | | | | 829367 |
| 2 | 4.5 | | 4 | | | | | | | 829997 |

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VEGA CUTTING TOOLS

# XHP-P
# Spiral Pointed Taps
## HSSE-V
## Steam Oxide Finish

**METRIC**

- Excellent performance in steel and stainless steel
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from M3x0.5 to M24x3.0

## APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| | Die Steel |
| | Cast Iron |

| Nominal Size | Pitch | No. of Flutes | Thread Limits | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | D3 | D4 | D5 | D6 | D7 | D8 |
| M3 | 0.50 | 3 | 72615 | | | | | |
| M3.5 | 0.60 | 3 | | 72616 | | | | |
| M4 | 0.70 | 3 | | 72617 | | | | |
| M5 | 0.80 | 3 | | 72619 | | | | |
| M6 | 1.00 | 3 | | | 72620 | | | |
| M7 | 1.00 | 3 | | | 72621 | | | |
| M8 | 1.00 | 3 | | | 72622 | | | |
| | 1.25 | 3 | | | 72623 | | | |
| M10 | 1.25 | 3 | | | 72624 | 72644 | | |
| | 1.50 | 3 | | | | 72625 | | |
| M12 | 1.25 | 3 | | | 72626 | | | |
| | 1.75 | 3 | | | | 72627 | | |
| M14 | 1.50 | 3 | | | | 72628 | | |
| | 2.00 | 3 | | | | | 72629 | |
| M16 | 1.50 | 3 | | | | 72630 | | |
| | 2.00 | 3 | | | | | 72631 | |
| M18 | 1.50 | 3 | | | | 72632 | | |
| | 2.50 | 3 | | | | | 72633 | |
| M20 | 2.50 | 3 | | | | | 72635 | |
| M24 | 3.00 | 3 | | | | | | 72639 |

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XHP-PLUG TAPS

VEGA CUTTING TOOLS

# XHP-P
# Spiral Pointed Taps
## HSSE-V
## TiN Coated

**METRIC**

- Excellent performance in steel, stainless steel, aluminum and exotic materials
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from M3x0.5 to M24x3.0

## APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| Cast Iron | |
| Non-Ferrous | |
| Ductile Iron | |
| | Die Steel |
| | Cast Iron |

| Nominal Size | Pitch | No. of Flutes | Thread Limits | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | D3 | D4 | D5 | D6 | D7 | D8 |
| M3 | 0.50 | 3 | 72915 | | | | | |
| M3.5 | 0.60 | 3 | | 72916 | | | | |
| M4 | 0.70 | 3 | | 72917 | | | | |
| M5 | 0.80 | 3 | | 72919 | | | | |
| M6 | 1.00 | 3 | | | 72920 | | | |
| M7 | 1.00 | 3 | | | 72921 | | | |
| M8 | 1.00 | 3 | | | 72922 | | | |
| | 1.25 | 3 | | | 72923 | | | |
| M10 | 1.25 | 3 | | | 72924 | | | |
| | 1.50 | 3 | | | | 72925 | | |
| M12 | 1.25 | 3 | | | 72926 | | | |
| | 1.75 | 3 | | | | 72927 | | |
| M14 | 1.50 | 3 | | | | 72928 | | |
| | 2.00 | 3 | | | | | 72929 | |
| M16 | 1.50 | 3 | | | | 72930 | | |
| | 2.00 | 3 | | | | | 72931 | |
| M18 | 1.50 | 3 | | | | 72932 | | |
| | 2.50 | 3 | | | | | 72933 | |
| M20 | 2.50 | 3 | | | | | 72935 | |
| M24 | 3.00 | 3 | | | | | | 72939 |

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# XHP-PIPE TAPS

## XHP-PIPE
## 15° Spiral Fluted Pipe Taps
### HSSE-V
### Steam Oxide Finish

**INCH**

- Excellent performance in steel, stainless steel and cast iron
- Free cutting geometry provides excellent tool life
- 15° spiral flute for good chip evacuation
- Sizes ranging from 1/16"–27 to 1"–11.5

**APPLICATION**

Stainless Steel
Carbon Steel
Alloy Steel
Die Steel

RECOMMENDED USEABLE

| Nominal Size | TPI | No. of Flutes | NPT | NPTF |
|---|---|---|---|---|
| 1/16 | 27 | 4 | 83640 | 83660 |
| 1/8 (LS) | 27 | 4 | 83641 | 83661 |
| 1/8 (SS) | 27 | 4 | 83642 | 83662 |
| 1/4 | 18 | 4 | 83643 | 83663 |
| 3/8 | 18 | 4 | 83644 | 83664 |
| 1/2 | 14 | 4 | 83645 | 83665 |
| 3/4 | 14 | 4 | 83646 | 83666 |
| 1 | 11.5 | 4 | 83647 | 83667 |

# XCM-MOLD PIPE TAPS

## XCM-M
## Straight Fluted Pipe Taps
### Co-HSS
### Nitride Finish

**INCH**

- Excellent performance in steel and tool steels up to 38 RC
- Special geometry provides excellent strength in difficult tool steels
- Straight flutes provide strong cutting edge
- Sizes ranging from 1/8"–27 to 3/4"–14

**APPLICATION**

Die Steel
Alloy Steel
Cast Iron
Carbon Steel

RECOMMENDED USEABLE

| Nominal Size | TPI | No. of Flutes | NPT |
|---|---|---|---|
| 1/8 | 27 | 4 | 89641 |
| 1/4 | 18 | 4 | 89643 |
| 3/8 | 18 | 4 | 89644 |
| 1/2 | 14 | 4 | 89645 |
| 3/4 | 14 | 5 | 89646 |

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# XCM-MOLD TAPS

## XCM-M
## Straight Fluted Taps
### Co-HSS
### Bright Finish

**INCH**

- Excellent performance in mold steels up to 45 RC
- Free cutting geometry provides excellent tool life
- Straight flutes provide strong cutting edge
- Sizes ranging from 4–40 to 3/4"–16

**APPLICATION**

Die Steel
Alloy Steel
Cast Iron
Carbon Steel

RECOMMENDED USEABLE

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 |
|---|---|---|---|---|---|
| 4 | 40 | | 3 | 89599 | |
| 5 | 40 | | 3 | 89601 | |
| 6 | 32 | | 3 | | 89602 |
| 8 | 32 | | 3 | | 89604 |
| 10 | 24 | | 3 | | 89606 |
| | | 32 | 3 | | 89607 |
| 1/4 | 20 | | 3 | | 89613 |
| | | 28 | 3 | | 89614 |
| 5/16 | 18 | | 4 | | 89615 |
| | | 24 | 4 | | 89616 |
| 3/8 | 16 | | 4 | | 89617 |
| | | 24 | 4 | | 89618 |
| 7/16 | 14 | | 4 | | 89619 |
| | | 20 | 4 | | 89620 |
| 1/2 | 13 | | 4 | | 89621 |
| | | 20 | 4 | | 89622 |
| 5/8 | 11 | | 4 | | 89625 |
| | | 18 | 4 | | 89626 |
| 3/4 | 10 | | 4 | | 89627 |
| | | 16 | 4 | | 89628 |

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# XCR-ROLL Forming Taps

Co-HSS
TiN

**INCH**

- Excellent performance in steel, stainless steel and nonferrous materials
- "Lube grooves" for improved tool life
- Sizes ranging from 0-80 to 3/8"-24

## APPLICATION

Non-Ferrous
Low Carbon Steel

RECOMMENDED USEABLE

**Inch Sizes - Plug & Bottoming Style**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | Style | Class of Fit | TiN |
|---|---|---|---|---|---|
| 0 | | 80 | B | 2B | 93732TI |
| 2 | 56 | | B | 2B | 93738TI |
| 3 | 48 | | B | 2B | 93742TI |
| 4 | 40 | | B | 2B | 93784TI |
| 6 | 32 | | P | 2B | 93791TI |
| | | | B | 2B | 93792TI |
| 8 | 32 | | P | 2B | 93795TI |
| | | | B | 2B | 93796TI |
| 10 | 24 | | P | 2B | 93829TI |
| | | | B | 2B | 93830TI |
| | | 32 | P | 2B | 93831TI |
| | | | B | 2B | 93832TI |
| 1/4 | 20 | | P | 2B | 93837TI |
| | | | B | 2B | 93838TI |
| | | 28 | P | 2B | 93839TI |
| | | | B | 2B | 93840TI |
| 5/16 | 18 | | P | 2B | 93872TI |
| | | | B | 2B | 93873TI |
| | | 24 | P | 2B | 93874TI |
| | | | B | 2B | 93875TI |
| 3/8 | 16 | | P | 2B | 93876TI |
| | | | B | 2B | 93877TI |
| | | 24 | P | 2B | 93878TI |
| | | | B | 2B | 93879TI |

**TAP DRILL SIZES FOR XCR TAPS**

| Tap Size | Drill Size | Tap Size | Drill Size |
|---|---|---|---|
| 0-80 | #54 | M3X.5 | 7/64 |
| 2-56 | 5/64 | M4X.7 | 27 |
| 3-48 | #43 | M5X.8 | 4.60MM |
| 4-40 | #38 | M6X1 | 5.50MM |
| 6-32 | 1/8 | M8X1.25 | L |
| 8-32 | #25 | | |
| 10-24 | 11/66 | M10X1.5 | 9.20MM |
| 3/8-24 | T | M12X1.75 | 7/16 |
| 10-32 | #16 | | |
| 1/4-20 | #1 | | |
| 1/4-28 | 15/64 | | |
| 5/16-18 | L | | |
| 5/16-24 | M | | |
| 3/8-16 | S | | |

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XCR-FORMING TAPS

VEGA CUTTING TOOLS

# XCR-ROLL Forming Taps

Co-HSS
TiN

**METRIC**

- Excellent performance in steel, stainless steel and nonferrous materials
- "Lube grooves" for improved tool life
- Sizes ranging from M3x0.5 to M12x1.75

## APPLICATION

Non-Ferrous
Low Carbon Steel

RECOMMENDED USEABLE

**Metric Sizes - Plug & Bottoming Style**

| Nominal Size | Pitch | Style | Class of Fit | TiN |
|---|---|---|---|---|
| M3 | 0.50 | B | 6H | 93990TI |
| | | P | 6H | 93991TI |
| M4 | 0.70 | B | 6H | 93992TI |
| | | P | 6H | 93993TI |
| M5 | 0.80 | B | 6H | 93994TI |
| | | P | 6H | 93995TI |
| M6 | 1.00 | B | 6H | 93996TI |
| | | P | 6H | 93997TI |
| M8 | 1.25 | B | 6H | 93998TI |
| | | P | 6H | 93999TI |
| M10 | 1.50 | B | 6H | 94000TI |
| | | P | 6H | 94001TI |
| M12 | 1.75 | B | 6H | 94002TI |
| | | P | 6H | 94003TI |

**TAPPING SPEEDS FOR XCR TAPS**

| Material | Bright* |
|---|---|
| Stainless Steel | 30 SFM |
| Low Carbon Steel | 50 SFM |
| Medium Carbon Steel | 40 SFM |
| Aluminum Alloys | 60 SFM |
| Aluminum | 100 SFM |

* TIN coated: add 10% to above SFM

DIMENSIONAL INFORMATION ON PAGE 42

# XCI-P & XCI-B
## Straight Fluted Taps
Co-HSS
Nitride Oxide Finish

**INCH**
**METRIC**

- Excellent performance in grey cast and ductile iron
- Strong geometry provides excellent tool life
- Sizes ranging from 10-24 to 1/2"-20 in inch sizes and M6x1 to M12x1.75 in metric sizes

## APPLICATION

Cast Iron

RECOMMENDED USEABLE

**Inch Sizes - Plug & Bottoming Style**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | Style | Class of Fit | No. of Flutes | EDP |
|---|---|---|---|---|---|---|
| 10 | 24 | | B | 2B | 4 | 46000 |
| 1/4 | 20 | | P | 2B | 4 | 46001 |
| | | | B | 2B | 4 | 46002 |
| | | 28 | P | 2B | 4 | 46003 |
| | | | B | 2B | 4 | 46004 |
| 5/16 | 18 | | P | 2B | 4 | 46007 |
| | | | B | 2B | 4 | 46008 |
| | | 24 | P | 2B | 4 | 46009 |
| | | | B | 2B | 4 | 46010 |
| 3/8 | 16 | | P | 2B | 4 | 46013 |
| | | | B | 2B | 4 | 46014 |
| | | 24 | P | 2B | 4 | 46015 |
| | | | B | 2B | 4 | 46016 |
| 7/16 | 14 | | P | 2B | 4 | 46019 |
| | | | B | 2B | 4 | 46020 |
| | | 20 | P | 2B | 4 | 46021 |
| | | | B | 2B | 4 | 46022 |
| 1/2 | 13 | | P | 2B | 4 | 46023 |
| | | | B | 2B | 4 | 46024 |
| | | 20 | P | 2B | 4 | 46025 |
| | | | B | 2B | 4 | 46026 |

**Metric Sizes - Plug & Bottoming Style**

| Nominal Size | Pitch | Style | Class of Fit | No. of Flutes | Class of Fit | EDP |
|---|---|---|---|---|---|---|
| M6 | 1.00 | P | 6H | 3 | 6H | 71081 |
| | | B | 6H | 3 | 6H | 71082 |
| M8 | 1.25 | P | 6H | 4 | 6H | 71083 |
| | | B | 6H | 4 | 6H | 71084 |
| M10 | 1.50 | P | 6H | 4 | 6H | 71085 |
| | | B | 6H | 4 | 6H | 71086 |
| M12 | 1.75 | P | 6H | 4 | 6H | 71087 |
| | | B | 6H | 4 | 6H | 71088 |

DIMENSIONAL INFORMATION ON PAGE 42 TECHNICAL DATA ON PAGE 49






# XEN-STI
## Spiral Pointed Taps (P)
## Spiral Fluted Taps (MB)
Powdered HSS Metal
Steam Oxide Finish

**INCH**

- Taps for Screw Thread Inserts
- Excellent performance in steel, stainless steel and exotic materials
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 2-56 to 1/2"- 20

## APPLICATION

Alloy Steel
Nickel Base Alloy
Tool Steel
Stainless Steel
17-4 PH

RECOMMENDED USEABLE

**Inch Sizes - Spiral Pointed Plug Style**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H1 | H2 | H3 | H4 |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | | 87200 | | |
| 4 | 40 | | 3 | 87203 | 87204 | | |
| 6 | 32 | | 3 | | 87208 | 87224 | |
| | | 40 | 3 | | 87209 | | |
| 8 | 32 | | 3 | | 87210 | 87226 | |
| 10 | 24 | | 3 | | 87212 | 87228 | |
| | | 32 | 3 | | 87213 | 87229 | |
| 1/4 | 20 | | 3 | | 87248 | 87258 | |
| | | 28 | 3 | | 87249 | 87259 | |
| 5/16 | 18 | | 3 | | | 87260 | |
| | | 24 | 3 | | 87251 | 87261 | |
| 3/8 | 16 | | 3 | | | 87262 | 87270 |
| | | 24 | 3 | | 87253 | 87263 | |
| 7/16 | 14 | | 3 | | | 87264 | |
| | | 20 | 3 | | | 87265 | 87275 |
| 1/2 | 13 | | 3 | | | 87266 | |
| | | 20 | 3 | | | 87267 | |

**Inch Sizes - Spiral Fluted Modified Bottoming Style**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H1 | H2 | H3 | H4 |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | | 87400 | | |
| 4 | 40 | | 2 | 87403 | 87404 | 87420 | |
| 6 | 32 | | 3 | | 87408 | 87424 | |
| | | 40 | 3 | | 87409 | | |
| 8 | 32 | | 3 | | 87410 | 87426 | |
| 10 | 24 | | 3 | | 87412 | 87428 | |
| | | 32 | 3 | | 87413 | 87429 | 87439 |
| 1/4 | 20 | | 3 | | 87448 | 87458 | |
| | | 28 | 3 | | 87449 | 87459 | |
| 5/16 | 18 | | 3 | | | 87460 | 87470 |
| | | 24 | 3 | | 87451 | 87461 | |
| 3/8 | 16 | | 3 | | | 87462 | 87472 |
| | | 24 | 3 | | 87453 | 87463 | |
| 7/16 | 14 | | 3 | | | 87464 | |
| | | 20 | 3 | | | 87465 | 87475 |
| 1/2 | 13 | | 3 | | | 87466 | |
| | | 20 | 3 | | | 87467 | |

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# XEN-P
## Spiral Pointed Taps
Powdered HSS Metal
Steam Oxide

**INCH**

**METRIC**

- Excellent performance in Inconel, Hastalloy and other exotic materials
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 2–56 to 3/4"–16 in inch sizes and M3x0.5 to M12x1.75 in metric sizes

## APPLICATION

Alloy Steel
Nickel Base Alloy
Tool Steel
Stainless Steel
17-4 PH

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 | H4 | H5 | H6 | H7 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 85523 | | | | | |
| 4 | 40 | | 2 | 85501 | | | | | |
| 5 | 40 | | 3 | 85503 | | | | | |
| 6 | 32 | | 3 | | 85505 | | 85535 | | |
| 8 | 32 | | 3 | | 85507 | 85529 | 85537 | 85560 | 85567 |
| 10 | 24 | | 3 | | 85509 | | 85539 | | |
| | | 32 | 3 | | 85510 | 85530 | 85540 | 85561 | 85570 |
| 1/4 | 20 | | 3 | | 85513 | | 85543 | | |
| | | 28 | 3 | | 85514 | 85531 | 85544 | 85562 | 85574 |
| 5/16 | 18 | | 3 | | 85515 | | 85545 | | |
| | | 24 | 3 | | 85516 | 85532 | 85546 | 85563 | 85576 |
| 3/8 | 16 | | 3 | | 85517 | | 85547 | | |
| | | 24 | 3 | | 85518 | 85533 | 85548 | 85564 | 85578 |
| 7/16 | 14 | | 3 | | 85519 | | 85549 | | |
| | | 20 | 3 | | 85520 | | 85550 | | |
| 1/2 | 13 | | 3 | | 85521 | | 85551 | | |
| | | 20 | 3 | | 85522 | | 85552 | | 85582 |
| 5/8 | 11 | | 3 | | 85525 | | | | |
| | | 18 | 3 | | 85526 | | | | |
| 3/4 | 10 | | 4 | | 85527 | | | | |
| | | 16 | 4 | | 85528 | | | | |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 75515 | | | |
| M4 | 0.70 | 3 | | 75517 | | |
| M5 | 0.80 | 3 | | 75519 | | |
| M6 | 1.00 | 3 | | | 75520 | |
| M8 | 1.25 | 3 | | | 75523 | |
| M10 | 1.50 | 3 | | | | 75525 |
| M12 | 1.75 | 3 | | | | 75527 |

DIMENSIONAL INFORMATION ON PAGE 44 TECHNICAL DATA ON PAGE 49






# XEN-MB
## Spiral Fluted Taps
Powdered HSS Metal
Steam Oxide

**INCH**

**METRIC**

- Excellent performance in Inconel, Hastalloy and other exotic materials
- Free cutting geometry provides excellent tool life
- Slow spiral design for good chip evacuation
- Sizes ranging from 2–56 to 3/4"–16 in inch sizes and M3x0.5 to M12x1.75 in metric sizes

## APPLICATION

Alloy Steel
Nickel Base Alloy
Tool Steel
Stainless Steel
17-4 PH

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 | H4 | H5 | H6 | H7 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 3 | 87523 | | | | | |
| 4 | 40 | | 3 | 87501 | | 87512 | | | |
| 6 | 32 | | 3 | | 87505 | 87508 | 87535 | | |
| 8 | 32 | | 3 | | 87507 | 87529 | 87537 | 87560 | 87567 |
| 10 | 24 | | 3 | | 87509 | | 87539 | | |
| | | 32 | 3 | | 87510 | 87530 | 87540 | 87561 | 87570 |
| 1/4 | 20 | | 3 | | 87513 | | 87543 | | |
| | | 28 | 3 | | 87514 | 87531 | 87544 | 87562 | 87574 |
| 5/16 | 18 | | 3 | | 87515 | | 87545 | | |
| | | 24 | 3 | | 87516 | 87532 | 87546 | 87563 | 87576 |
| 3/8 | 16 | | 3 | | 87517 | | 87547 | | |
| | | 24 | 3 | | 87518 | 87533 | 87548 | 87564 | 87578 |
| 7/16 | 14 | | 3 | | 87519 | | 87549 | | |
| | | 20 | 3 | | 87520 | | 87550 | | |
| 1/2 | 13 | | 3 | | 87521 | | 87551 | | |
| | | 20 | 3 | | 87522 | | 87552 | | |
| 5/8 | 11 | | 3 | | 87525 | | | | |
| | | 18 | 3 | | 87526 | | | | |
| 3/4 | 10 | | 4 | | 87527 | | | | |
| | | 16 | 4 | | 87528 | | | | |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 77515 | | | |
| M4 | 0.70 | 3 | | 77517 | | |
| M5 | 0.80 | 3 | | 77519 | | |
| M6 | 1.00 | 3 | | | 77520 | |
| M8 | 1.25 | 3 | | | 77523 | |
| M10 | 1.50 | 3 | | | | 77525 |
| M12 | 1.75 | 3 | | | | 77527 |

DIMENSIONAL INFORMATION ON PAGE 44 TECHNICAL DATA ON PAGE 49

VEGA CUTTING TOOLS

# XET-P
## Left Hand Spiral Right Hand Cut Taps
## Powdered HSS Metal Nitride Finish

**INCH**

**METRIC**

- Excellent performance in titanium alloys
- Free cutting geometry provides excellent tool life
- Right hand cut, left hand spiral for good chip evacuation
- Sizes ranging from 2-56 to 1/2"-20 in inch sizes and M3x0.5 to M12x1.75

## APPLICATION

Titanium Alloy
Nickel Base Alloy
Stainless Steel
Alloy Steel

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 | H4 | H5 | H6 | H7 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 85623 | | | | | |
| 4 | 40 | | 3 | 85601 | | | | | |
| 5 | 40 | | 3 | 85603 | | | | | |
| 6 | 32 | | 3 | | 85605 | | 85635 | | |
| 8 | 32 | | 3 | | 85607 | 85629 | 85637 | 85660 | 85667 |
| 10 | 24 | | 3 | | 85609 | | 85639 | | |
| | | 32 | 3 | | 85610 | 85630 | 85640 | 85661 | 85670 |
| 1/4 | 20 | | 3 | | 85613 | | 85643 | | |
| | | 28 | 3 | | 85614 | 85631 | 85644 | 85662 | 85674 |
| 5/16 | 18 | | 3 | | 85615 | | 85645 | | |
| | | 24 | 3 | | 85616 | 85632 | 85646 | 85663 | 85676 |
| 3/8 | 16 | | 3 | | 85617 | | 85647 | | |
| | | 24 | 3 | | 85618 | 85633 | 85648 | 85664 | 85678 |
| 7/16 | 14 | | 3 | | 85619 | | 85649 | | |
| | | 20 | 3 | | 85620 | | 85650 | | |
| 1/2 | 13 | | 3 | | 85621 | | 85651 | | |
| | | 20 | 3 | | 85622 | | 85652 | | |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 75615 | | | |
| M4 | 0.70 | 3 | | 75617 | | |
| M5 | 0.80 | 3 | | 75619 | | |
| M6 | 1.00 | 3 | | | 75620 | |
| M8 | 1.25 | 3 | | | 75623 | |
| M10 | 1.50 | 3 | | | | 75625 |
| M12 | 1.75 | 3 | | | | 75627 |

TECHNICAL DATA ON PAGE 49






VEGA CUTTING TOOLS

# XET-MB
## Spiral Fluted Taps
## Powdered HSS Metal Nitride Finish

**INCH**

**METRIC**

- Excellent performance in titanium alloys
- Free cutting geometry provides excellent tool life
- Right hand slow spiral for good chip evacuation
- Sizes ranging from 2-56 to 1/2"-20 in inch sizes and M3x0.5 to M12x1.75

## APPLICATION

Titanium Alloy
Nickel Base Alloy
Stainless Steel
Alloy Steel

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 | H4 | H5 | H6 | H7 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 56 | | 3 | 87623 | | | | | |
| 4 | 40 | | 3 | 87601 | | 87612 | | | |
| 6 | 32 | | 3 | | 87605 | 87608 | 87635 | | |
| 8 | 32 | | 3 | | 87607 | 87629 | 87637 | 87660 | 87667 |
| 10 | 24 | | 3 | | 87609 | | | | |
| | | 32 | 3 | | 87610 | 87630 | 87640 | 87661 | 87670 |
| 1/4 | 20 | | 3 | | 87613 | | | | |
| | | 28 | 3 | | 87614 | 87631 | 87644 | 87662 | 87674 |
| 5/16 | 18 | | 3 | | 87615 | | | | |
| | | 24 | 3 | | 87616 | 87632 | 87646 | 87663 | 87676 |
| 3/8 | 16 | | 3 | | 87617 | | | | |
| | | 24 | 3 | | 87618 | 87633 | 87648 | 87664 | 87678 |
| 7/16 | 14 | | 3 | | 87619 | | | | |
| | | 20 | 3 | | 87620 | | 87650 | | |
| 1/2 | 13 | | 3 | | 87621 | | | | |
| | | 20 | 3 | | 87622 | | 87652 | | |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 77615 | | | |
| M4 | 0.70 | 3 | | 77617 | | |
| M5 | 0.80 | 3 | | 77619 | | |
| M6 | 1.00 | 3 | | | 77620 | |
| M8 | 1.25 | 3 | | | 77623 | |
| M10 | 1.50 | 3 | | | | 77625 |
| M12 | 1.75 | 3 | | | | 77627 |

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VEGA CUTTING TOOLS

# XSN-P
## Left Hand Spiral Right Hand Cut Synchro Taps
HSSE-V
TiN Coated

**INCH**

**METRIC**

- Special geometry reduces friction and wear and promotes efficient chip flow
- Precision ground shank to reduce run-out for high speed tapping
- Tapping speeds can be increased 2–3 times versus standard taps due to "zero lead error". Minimum tapping speed 50 SFM
- Right hand cut, left hand spiral for excellent chip evacuation
- Sizes ranging from 4–40 to 1/2"–20 and M3x0.5 to M12x1.75

## APPLICATION

Non-Ferrous
Carbon Steel
Stainless Steel

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 |
|---|---|---|---|---|---|
| 4 | 40 | | 3 | 84201 | |
| 6 | 32 | | 3 | | 84205 |
| 8 | 32 | | 3 | | 84207 |
| 10 | 24 | | 3 | | 84209 |
| | | 32 | 3 | | 84210 |
| 1/4 | 20 | | 3 | | 84213 |
| | | 28 | 3 | | 84214 |
| 5/16 | 18 | | 3 | | 84215 |
| | | 24 | 3 | | 84216 |
| 3/8 | 16 | | 3 | | 84217 |
| | | 24 | 3 | | 84218 |
| 7/16 | 14 | | 3 | | 84219 |
| | | 20 | 3 | | 84220 |
| 1/2 | 13 | | 3 | | 84221 |
| | | 20 | 3 | | 84222 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 74215 | | | |
| M4 | 0.70 | 3 | | 74217 | | |
| M5 | 0.80 | 3 | | 74219 | | |
| M6 | 1.00 | 3 | | | 74220 | |
| M8 | 1.25 | 3 | | | 74223 | |
| M10 | 1.50 | 3 | | | | 74225 |
| M12 | 1.75 | 3 | | | | 74227 |

DIMENSIONAL INFORMATION ON PAGE 41 & 42 TECHNICAL DATA ON PAGE 49




XSN-TAPS FOR HIGH SPEED TAPPING

VEGA CUTTING TOOLS

# XSN-MB
## Spiral Fluted Synchro Taps
HSSE-V
TiN Coated

**INCH**

**METRIC**

- Special geometry reduces friction and wear and promotes efficient chip flow
- Precision ground shank to reduce run-out for high speed tapping
- Tapping speeds can be increased 2–3 times versus standard taps due to "zero lead error". Minimum tapping speed 50 SFM
- Right hand cut, left hand spiral for excellent chip evacuation
- Sizes ranging from 4–40 to 1/2"–20 and M3x0.5 to M12x1.75

## APPLICATION

Non-Ferrous
Carbon Steel
Stainless Steel

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | H2 | H3 |
|---|---|---|---|---|---|
| 4 | 40 | | 3 | 84401 | |
| 6 | 32 | | 3 | | 84405 |
| 8 | 32 | | 3 | | 84407 |
| 10 | 24 | | 3 | | 84409 |
| | | 32 | 3 | | 84410 |
| 1/4 | 20 | | 3 | | 84413 |
| | | 28 | 3 | | 84414 |
| 5/16 | 18 | | 3 | | 84415 |
| | | 24 | 3 | | 84416 |
| 3/8 | 16 | | 3 | | 84417 |
| | | 24 | 3 | | 84418 |
| 7/16 | 14 | | 3 | | 84419 |
| | | 20 | 3 | | 84420 |
| 1/2 | 13 | | 3 | | 84421 |
| | | 20 | 3 | | 84422 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 74415 | | | |
| M4 | 0.70 | 3 | | 74417 | | |
| M5 | 0.80 | 3 | | 74419 | | |
| M6 | 1.00 | 3 | | | 74420 | |
| M8 | 1.25 | 3 | | | 74423 | |
| M10 | 1.50 | 3 | | | | 74425 |
| M12 | 1.75 | 3 | | | | 74427 |

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# XLT-EXTENSION TAPS

VEGA CUTTING TOOLS

## XLT-P Spiral Pointed Extension Taps

HSSE-V

Bright Finish

(TiN, TiCN, or TiAlN upon request)

**INCH**

**METRIC**

- Excellent performance in steel, stainless steel, aluminum and exotic materials
- Extended flute length will tap deeper than standard extended length taps
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 2–56 to 1/2"–20 in inch sizes and M3x0.5 to M12x1.75 in metric sizes

### APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| | Die Steel |
| | Cast Iron |

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Overall Length | Thread Length | H2 | H3 |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 4.000 | 0.844 | 42800 | |
| | | | 2 | 6.000 | 0.844 | 82800 | |
| 3 | 48 | | 2 | 4.000 | 0.844 | 42801 | |
| | | | 2 | 6.000 | 0.844 | 82801 | |
| 4 | 40 | | 2 | 4.000 | 1.000 | 42802 | |
| | | | 2 | 6.000 | 1.000 | 82802 | |
| 6 | 32 | | 3 | 6.000 | 1.125 | | 82803 |
| 8 | 32 | | 3 | 6.000 | 1.250 | | 82804 |
| 10 | 24 | | 3 | 6.000 | 1.375 | | 82805 |
| | | 32 | 3 | 6.000 | 1.375 | | 82806 |
| 1/4 | 20 | | 3 | 6.000 | 1.625 | | 82807 |
| | | 28 | 3 | 6.000 | 1.625 | | 82808 |
| 5/16 | 18 | | 3 | 6.000 | 1.750 | | 82809 |
| | | 24 | 3 | 6.000 | 1.750 | | 82810 |
| 3/8 | 16 | | 3 | 6.000 | 2.000 | | 82811 |
| | | 24 | 3 | 6.000 | 2.000 | | 82812 |
| 7/16 | 14 | | 3 | 6.000 | 2.000 | | 82813 |
| | | 20 | 3 | 6.000 | 2.000 | | 82814 |
| 1/2 | 13 | | 3 | 6.000 | 2.000 | | 82815 |
| | | 20 | 3 | 6.000 | 2.000 | | 82816 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | Overall Length | Thread Length | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 6.000 | 0.844 | 72870 | | | |
| M4 | 0.70 | 3 | 6.000 | 1.250 | | 72871 | | |
| M5 | 0.80 | 3 | 6.000 | 1.375 | | 72872 | | |
| M6 | 1.00 | 3 | 6.000 | 1.625 | | | 72873 | |
| M8 | 1.25 | 3 | 6.000 | 1.750 | | | 72874 | |
| M10 | 1.50 | 3 | 6.000 | 2.000 | | | | 72875 |
| M12 | 1.75 | 3 | 6.000 | 2.000 | | | | 72876 |

DIMENSIONAL INFORMATION ON PAGE 45 TECHNICAL DATA ON PAGE 49




# XLT-P OVERSIZE TAPS

NEW PRODUCT

VEGA CUTTING TOOLS

## XLT-P-OS Spiral Pointed Oversize Extension Taps

HSSE-V

Steam Oxide Finish

**INCH**

**METRIC**

- Oversize for heat treatment
- Extended length, reduced shank taps
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 1/4" – 20 to 5/8" – 11 in inch sizes and M6x1 to M16x2 in metric sizes

### APPLICATION

| RECOMMENDED | USEABLE |
|---|---|
| Stainless Steel | |
| Carbon Steel | |
| Alloy Steel | |
| Die Maintenance | |
| | Die Steel |
| | Cast Iron |

**Inch Sizes**

| Nominal Size | TPI NC/UNC | No. of Flutes | Overall Length | Shank Diameter | H11 |
|---|---|---|---|---|---|
| 1/4 | 20 | 3 | 6.000 | 0.168 | 32807 |
| 5/16 | 18 | 3 | 6.000 | 0.220 | 32809 |
| 3/8 | 16 | 3 | 6.000 | 0.255 | 32811 |
| 7/16 | 14 | 3 | 6.000 | 0.323 | 32813 |
| 1/2 | 13 | 3 | 6.000 | 0.367 | 32815 |
| 5/8 | 11 | 3 | 6.000 | 0.480 | 32817 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | Overall Length | Shank Diameter | D11 |
|---|---|---|---|---|---|
| M6 | 1.00 | 3 | 6.000 | 0.168 | 22873 |
| M8 | 1.25 | 3 | 6.000 | 0.255 | 22874 |
| M10 | 1.50 | 3 | 6.000 | 0.318 | 22875 |
| M12 | 1.75 | 3 | 6.000 | 0.367 | 22876 |
| M16 | 2.00 | 3 | 6.000 | 0.480 | 22877 |

DIMENSIONAL INFORMATION ON PAGE 45 TECHNICAL DATA ON PAGE 49

# XLT-EXTENSION TAPS

VEGA CUTTING TOOLS

## XLT-MB Spiral Fluted Extension Taps

HSSE-V
Bright Finish
(TiN, TiCN, or TiAlN upon request)

**INCH**

**METRIC**

- Excellent performance in steel, stainless steel, aluminum and exotic materials
- Extended flute length will tap deeper than standard extended length taps
- Free cutting geometry provides excellent tool life
- Spiral flute provides good chip evacuation in deep holes
- Sizes ranging from 2–56 to 1/2"–20 in inch sizes and M3x0.5 to M12x1.75 in metric sizes

### APPLICATION

Stainless Steel
Carbon Steel
Alloy Steel
Die Steel
Cast Iron

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Overall Length | Thread Length | H2 | H3 |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 2 | 4.000 | 0.844 | 44800 | |
| | | | 2 | 6.000 | 0.844 | 84800 | |
| 3 | 48 | | 2 | 4.000 | 0.844 | 44801 | |
| | | | 2 | 6.000 | 0.844 | 84801 | |
| 4 | 40 | | 2 | 4.000 | 1.000 | 44802 | |
| | | | 2 | 6.000 | 1.000 | 84802 | |
| 6 | 32 | | 3 | 6.000 | 1.125 | | 84803 |
| 8 | 32 | | 3 | 6.000 | 1.250 | | 84804 |
| 10 | 24 | | 3 | 6.000 | 1.375 | | 84805 |
| | | 32 | 3 | 6.000 | 1.375 | | 84806 |
| 1/4 | 20 | | 3 | 6.000 | 1.625 | | 84807 |
| | | 28 | 3 | 6.000 | 1.625 | | 84808 |
| 5/16 | 18 | | 3 | 6.000 | 1.750 | | 84809 |
| | | 24 | 3 | 6.000 | 1.750 | | 84810 |
| 3/8 | 16 | | 3 | 6.000 | 2.000 | | 84811 |
| | | 24 | 3 | 6.000 | 2.000 | | 84812 |
| 7/16 | 14 | | 3 | 6.000 | 2.000 | | 84813 |
| | | 20 | 3 | 6.000 | 2.000 | | 84814 |
| 1/2 | 13 | | 3 | 6.000 | 2.000 | | 84815 |
| | | 20 | 3 | 6.000 | 2.000 | | 84816 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | Overall Length | Thread Length | D3 | D4 | D5 | D6 |
|---|---|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 6.000 | 0.844 | 74870 | | | |
| M4 | 0.70 | 3 | 6.000 | 1.250 | | 74871 | | |
| M5 | 0.80 | 3 | 6.000 | 1.375 | | 74872 | | |
| M6 | 1.00 | 3 | 6.000 | 1.625 | | | 74873 | |
| M8 | 1.25 | 3 | 6.000 | 1.750 | | | 74874 | |
| M10 | 1.50 | 3 | 6.000 | 2.000 | | | | 74875 |
| M12 | 1.75 | 3 | 6.000 | 2.000 | | | | 74876 |

DIMENSIONAL INFORMATION ON PAGE 46 TECHNICAL DATA ON PAGE 49




# XCT-COOLANT THROUGH TAPS

VEGA CUTTING TOOLS

## XCT-MB Spiral Fluted Coolant-Through Taps

HSSE-V
TiAlN Coating

**INCH**

**METRIC**

- Coolant-through the center of the tool on bottoming taps for excellent chip evacuation and improved tool life
- Coolant-through the flutes on Pipe style taps for excellent tool life and thread quality
- Extended length taps for hard to reach holes at higher SFM
- TiAlN coating for high cutting speeds and excellent tool life

### APPLICATION

Carbon Steel
Stainless Steel
Alloy Steel
Non-Ferrrous
Cast Iron

RECOMMENDED USEABLE

**Unified Threads**

| Pitch Diameter | TPI NC/UNC | TPI NF/UNF | No. of Flutes | OAL | Thread Limit | TiAlN |
|---|---|---|---|---|---|---|
| 1/4 | 20 | | 3 | 3.937 | 3B | 64613-00 |
| | | 28 | 3 | 3.937 | 3B | 64614-00 |
| 5/16 | 18 | | 3 | 3.937 | 3B | 64615-00 |
| | | 24 | 3 | 3.937 | 3B | 64616-00 |
| 3/8 | 16 | | 3 | 4.724 | 3B | 64617-00 |
| | | 24 | 3 | 4.724 | 3B | 64618-00 |
| 7/16 | 14 | | 3 | 4.724 | 3B | 64619-00 |
| | | 20 | 3 | 4.724 | 3B | 64620-00 |
| 1/2 | 13 | | 3 | 4.724 | 3B | 64621-00 |
| | | 20 | 3 | 4.724 | 3B | 64622-00 |
| 9/16 | 12 | | 3 | 5.906 | 3B | 64653-00 |
| | | 18 | 3 | 5.906 | 3B | 64654-00 |
| 5/8 | 11 | | 3 | 5.906 | 3B | 64625-00 |
| | | 18 | 3 | 5.906 | 3B | 64626-00 |
| 3/4 | 10 | | 4 | 5.906 | 3B | 64627-00 |
| | | 16 | 4 | 5.906 | 3B | 64628-00 |

**ISO/Metric Threads**

| Pitch Diameter | TPI | Thread Form | No. of Flutes | OAL | Thread Limit | TiAlN |
|---|---|---|---|---|---|---|
| M6 | 1.00 | ISO | 3 | 3.937 | D5 | 54620-00 |
| M8 | 1.25 | ISO | 3 | 3.937 | D5 | 54623-00 |
| M10 | 1.25 | ISO | 3 | 4.724 | D5 | 54624-00 |
| | 1.50 | ISO | 3 | 4.724 | D6 | 54625-00 |
| M12 | 1.25 | ISO | 3 | 4.724 | D5 | 54626-00 |
| | 1.75 | ISO | 3 | 4.724 | D6 | 54627-00 |
| M14 | 1.50 | ISO | 3 | 5.906 | D6 | 54628-00 |
| | 2.00 | ISO | 3 | 5.906 | D7 | 54629-00 |
| M16 | 2.00 | ISO | 3 | 5.906 | D6 | 54631-00 |
| M20 | 2.50 | ISO | 4 | 5.906 | D8 | 54635-00 |

**Pipe Threads**

| Pitch Diameter | TPI | Thread Form | No. of Flutes | OAL | TiAlN |
|---|---|---|---|---|---|
| 1/16 | 27 | NPT | 4 | 3.543 | 63640-00 |
| 1/8 | 27 | NPT | 4 | 3.937 | 63641-00 |
| 1/4 | 18 | NPT | 4 | 3.937 | 63643-00 |
| 3/8 | 18 | NPT | 4 | 4.331 | 63644-00 |
| 1/2 | 14 | NPT | 4 | 5.512 | 63645-00 |

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NEW SIZES

# XDN-P DIN LENGTH TAPS

VEGA CUTTING TOOLS

## XDN-P Spiral Pointed DIN Length Taps

HSSE-V
TiAlN Coating

**INCH**

**METRIC**

- Excellent performance in stainless steel and hardened alloy steels
- DIN length provides excellent accessibility
- Free cutting geometry provides excellent tool life
- Spiral point provides good chip evacuation
- Sizes ranging from 4-40 to 1"- 8 in inch sizes and M3x0.5 to M24x3 in metric sizes

## APPLICATION

Stainless Steel
High Carbon Steel
Alloy Steel
Die Steel
Cast Iron

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Class of Fit | OAL in | OAL mm | TiAlN |
|---|---|---|---|---|---|---|---|
| 4 | 40 | | 3 | 2B | 2.205 | 56 | 86900 |
| 6 | 32 | | 3 | 2B | 2.205 | 56 | 86903 |
| 8 | 32 | | 3 | 2B | 2.480 | 63 | 86906 |
| 10 | 24 | | 3 | 2B | 2.756 | 70 | 86909 |
| | | 32 | 3 | 2B | 2.756 | 70 | 86912 |
| 1/4 | 20 | | 3 | 2B | 3.150 | 80 | 86915 |
| | | 28 | 3 | 2B | 3.150 | 80 | 86918 |
| 5/16 | 18 | | 3 | 2B | 3.543 | 90 | 86921 |
| | | 24 | 3 | 2B | 3.543 | 90 | 86924 |
| 3/8 | 16 | | 3 | 2B | 3.937 | 100 | 86927 |
| | | 24 | 3 | 2B | 3.937 | 100 | 86930 |
| 7/16 | 14 | | 3 | 2B | 3.937 | 100 | 86933 |
| | | 20 | 3 | 2B | 3.937 | 100 | 86936 |
| 1/2 | 13 | | 3 | 2B | 4.331 | 110 | 86939 |
| | | 20 | 3 | 2B | 3.937 | 100 | 86942 |
| 5/8 | 11 | | 4 | 2B | 4.331 | 110 | 86945 |
| | | 18 | 4 | 2B | 3.937 | 100 | 86948 |
| 3/4 | 10 | | 4 | 2B | 4.921 | 125 | 86951 |
| | | 16 | 4 | 2B | 4.331 | 110 | 86954 |
| 1 | 8 | | 4 | 2B | 6.299 | 160 | 86957 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | Class of Fit | OAL in | OAL mm | TiAlN |
|---|---|---|---|---|---|---|
| M4 | 0.70 | 3 | 6H | 2.480 | 63 | 76905 |
| M5 | 0.80 | 3 | 6H | 2.756 | 70 | 76910 |
| M6 | 1.00 | 3 | 6H | 3.150 | 80 | 76915 |
| M8 | 1.25 | 3 | 6H | 3.543 | 90 | 76920 |
| M10 | 1.25 | 3 | 6H | 3.937 | 100 | 76925 |
| | 1.50 | 3 | 6H | 3.937 | 100 | 76930 |
| M12 | 1.25 | 3 | 6H | 3.937 | 100 | 76935 |
| | 1.50 | 3 | 6H | 3.937 | 100 | 76940 |
| | 1.75 | 3 | 6H | 4.331 | 110 | 76945 |
| M14 | 1.50 | 3 | 6H | 3.937 | 100 | 76950 |
| | 2.00 | 3 | 6H | 4.331 | 110 | 76955 |
| M16 | 1.50 | 3 | 6H | 3.937 | 100 | 76960 |
| | 2.00 | 3 | 6H | 4.331 | 110 | 76965 |
| M18 | 1.50 | 3 | 6H | 4.331 | 110 | 76970 |
| | 2.50 | 3 | 6H | 4.921 | 125 | 76975 |
| M20 | 1.50 | 3 | 6H | 4.921 | 125 | 76980 |
| | 2.50 | 3 | 6H | 5.512 | 140 | 76985 |
| M24 | 3.00 | 4 | 6H | 6.299 | 160 | 76990 |

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NEW SIZES

# XDN-MB DIN LENGTH TAPS

VEGA CUTTING TOOLS

## XDN-MB Spiral Fluted DIN Length Taps

HSSE-V
TiAlN Coating

**INCH**

**METRIC**

- Excellent performance in stainless steel and hardened alloy steels
- DIN length provides excellent accessibility
- Free cutting geometry provides excellent tool life
- Spiral flute for excellent chip evacuation in deep holes
- Sizes ranging from 4-40 to 1"- 8 in inch sizes and M3x0.5 to M24x3 in metric sizes

## APPLICATION

Stainless Steel
High Carbon Steel
Alloy Steel
Die Steel
Cast Iron

RECOMMENDED USEABLE

**Inch Sizes**

| Nominal Size | TPI NC/UNC | TPI NF/UNF | No. of Flutes | Class of Fit | OAL in | OAL mm | TiAlN |
|---|---|---|---|---|---|---|---|
| 4 | 40 | | 3 | 2B | 2.205 | 56 | 85900 |
| 6 | 32 | | 3 | 2B | 2.205 | 56 | 85903 |
| 8 | 32 | | 3 | 2B | 2.480 | 63 | 85906 |
| 10 | 24 | | 3 | 2B | 2.756 | 70 | 85909 |
| | | 32 | 3 | 2B | 2.756 | 70 | 85912 |
| 1/4 | 20 | | 3 | 2B | 3.150 | 80 | 85915 |
| | | 28 | 3 | 2B | 3.150 | 80 | 85918 |
| 5/16 | 18 | | 3 | 2B | 3.543 | 90 | 85921 |
| | | 24 | 3 | 2B | 3.543 | 90 | 85924 |
| 3/8 | 16 | | 3 | 2B | 3.937 | 100 | 85927 |
| | | 24 | 3 | 2B | 3.937 | 100 | 85930 |
| 7/16 | 14 | | 3 | 2B | 3.937 | 100 | 85933 |
| | | 20 | 3 | 2B | 3.937 | 100 | 85936 |
| 1/2 | 13 | | 3 | 2B | 4.331 | 110 | 85939 |
| | | 20 | 3 | 2B | 3.937 | 100 | 85942 |
| 5/8 | 11 | | 4 | 2B | 4.331 | 110 | 85945 |
| | | 18 | 4 | 2B | 3.937 | 100 | 85948 |
| 3/4 | 10 | | 4 | 2B | 4.921 | 125 | 85951 |
| | | 16 | 4 | 2B | 4.331 | 110 | 85954 |
| 1 | 8 | | 4 | 2B | 6.299 | 160 | 85957 |

**Metric Sizes**

| Nominal Size | Pitch | No. of Flutes | Class of Fit | OAL in | OAL mm | TiAlN |
|---|---|---|---|---|---|---|
| M3 | 0.50 | 3 | 6H | 2.205 | 56 | 75900 |
| M4 | 0.70 | 3 | 6H | 2.480 | 63 | 75905 |
| M5 | 0.80 | 3 | 6H | 2.756 | 70 | 75910 |
| M6 | 1.00 | 3 | 6H | 3.150 | 80 | 75915 |
| M8 | 1.25 | 3 | 6H | 3.543 | 90 | 75920 |
| M10 | 1.25 | 3 | 6H | 3.937 | 100 | 75925 |
| | 1.50 | 3 | 6H | 3.937 | 100 | 75930 |
| M12 | 1.25 | 3 | 6H | 3.937 | 100 | 75935 |
| | 1.50 | 3 | 6H | 3.937 | 100 | 75940 |
| | 1.75 | 3 | 6H | 4.331 | 110 | 75945 |
| M14 | 1.50 | 3 | 6H | 3.937 | 100 | 75950 |
| | 2.00 | 3 | 6H | 4.331 | 110 | 75955 |
| M16 | 1.50 | 3 | 6H | 3.937 | 100 | 75960 |
| | 2.00 | 3 | 6H | 4.331 | 110 | 75965 |
| M18 | 1.50 | 3 | 6H | 4.331 | 110 | 75970 |
| | 2.50 | 3 | 6H | 4.921 | 125 | 75975 |
| M20 | 1.50 | 3 | 6H | 4.921 | 125 | 75980 |
| | 2.50 | 3 | 6H | 5.512 | 140 | 75985 |
| M24 | 3.00 | 4 | 6H | 6.299 | 160 | 75990 |

DIMENSIONAL INFORMATION ON PAGE 47 & 48

TECHNICAL DATA ON PAGE 49

# XCD-RAPID FEED DRILLS

VEGA CUTTING TOOLS

## XCD Coolant-Through Drills
### Co-HSS TiAlN Coating

**INCH**

**METRIC**

- All drills are jobbers length for deep holes
- Ground between centers (.0008" T.I.R) means straight, accurate holes
- Coolant-through for accelerated speeds & feeds
- Self-centering point geometry eliminates the need for a center drill
- Co-HSS means excellent tool durability in deep holes (>5 x D)

## APPLICATION

General Purpose
High Feed Drilling

RECOMMENDED USEABLE

| Drill Size | Inch Diameter | Metric Diameter | Flute Length | OAL | Shank Diameter | Tap Drill Size | EDP |
|---|---|---|---|---|---|---|---|
| 3/16 | 0.188 | 4.762 | 2-5/16 | 3-3/4 | 0.188 | | 10050 |
| 9 | 0.196 | 4.980 | 2-7/16 | 4-1/4 | 0.196 | | 10109 |
| 5.0mm | 0.197 | 5.000 | 2-7/16 | 4-1/4 | 0.197 | M6 x 1 | 10051 |
| 7 | 0.201 | 5.110 | 2-7/16 | 4-1/4 | 0.201 | 1/4-20 | 10107 |
| 13/64 | 0.203 | 5.159 | 2-7/16 | 4-1/4 | 0.203 | | 10052 |
| 3 | 0.213 | 5.410 | 2-1/2 | 4-5/16 | 0.213 | 1/4-28 | 10103 |
| 5.5mm | 0.217 | 5.499 | 2-1/2 | 4-5/16 | 0.217 | | 10053 |
| 7/32 | 0.219 | 5.558 | 2-1/2 | 4-5/16 | 0.219 | | 10054 |
| 15/64 | 0.234 | 5.950 | 2-5/8 | 4-7/16 | 0.234 | | 10015 |
| 6.0mm | 0.236 | 6.000 | 2-5/8 | 4-7/16 | 0.236 | M7 x 1 | 10055 |
| 1/4 | 0.250 | 6.350 | 2-3/4 | 4-9/16 | 0.250 | | 10016 |
| 6.5mm | 0.256 | 6.500 | 2-3/4 | 4-9/16 | 0.256 | | 10056 |
| F | 0.257 | 6.530 | 2-7/8 | 4-11/16 | 0.257 | 5/16-18 | 10206 |
| 17/64 | 0.266 | 6.750 | 2-7/8 | 4-11/16 | 0.266 | M8 x 1.25 | 10017 |
| 6.8mm | 0.268 | 6.800 | 2-7/8 | 4-11/16 | 0.268 | | 10057 |
| I | 0.272 | 6.910 | 2-7/8 | 4-11/16 | 0.272 | 5/16-24 | 10209 |
| 7.0mm | 0.276 | 7.000 | 2-7/8 | 4-11/16 | 0.276 | M8 x 1 | 10058 |
| 9/32 | 0.281 | 7.140 | 2-15/16 | 4-3/4 | 0.281 | | 10018 |
| 7.5mm | 0.295 | 7.500 | 3-1/16 | 4-7/8 | 0.295 | | 10059 |
| 19/64 | 0.297 | 7.541 | 3-1/16 | 4-7/8 | 0.297 | | 10019 |
| 5/16 | 0.313 | 7.938 | 3-3/16 | 5 | 0.313 | 3/8-16 | 10020 |
| 8.0mm | 0.315 | 8.000 | 3-3/16 | 5 | 0.315 | | 10060 |
| 21/64 | 0.328 | 8.334 | 3-5/16 | 5-1/8 | 0.328 | | 10021 |
| Q | 0.332 | 8.433 | 3-7/16 | 5-1/4 | 0.332 | 3/8-24, M10 x 1.5 | 10217 |
| 8.5mm | 0.335 | 8.500 | 3-7/16 | 5-1/4 | 0.335 | M10 x 1.5 | 10062 |
| 11/32 | 0.344 | 8.733 | 3-5/16 | 5-1/4 | 0.344 | M10 x 1.25 | 10022 |
| 9.0mm | 0.354 | 9.000 | 3-1/2 | 5-5/16 | 0.354 | | 10063 |
| 23/64 | 0.359 | 9.129 | 3-1/2 | 5-5/16 | 0.359 | | 10023 |
| U | 0.368 | 9.347 | 3-5/8 | 5-7/16 | 0.368 | 7/16-14 | 10221 |
| 9.5mm | 0.374 | 9.500 | 3-5/8 | 5-7/16 | 0.374 | | 10064 |
| 3/8 | 0.375 | 9.525 | 3-5/8 | 5-7/16 | 0.375 | | 10024 |
| 25/64 | 0.391 | 9.921 | 3-3/4 | 5-27/32 | 0.391 | 7/16-20 | 10025 |
| 10.0mm | 0.394 | 10.000 | 3-3/4 | 5-27/32 | 0.394 | | 10065 |
| Y | 0.404 | 10.262 | 3-7/8 | 5-31/32 | 0.404 | M12 x 1.75 | 10225 |
| 13/32 | 0.406 | 10.317 | 3-7/8 | 5-31/32 | 0.406 | M12 x 1.25 | 10026 |
| 10.4mm | 0.409 | 10.400 | 3-7/8 | 5-31/32 | 0.409 | | 10066 |
| 10.5mm | 0.413 | 10.500 | 3-7/8 | 5-31/32 | 0.413 | | 10067 |
| 27/64 | 0.422 | 10.716 | 3-15/16 | 6-1/32 | 0.422 | 1/2-13 | 10027 |

TECHNICAL DATA ON PAGE 49




# XCD-RAPID FEED DRILLS

VEGA CUTTING TOOLS

## XCD Coolant-Through Drills
### Co-HSS TiAlN Coating

**INCH**

**METRIC**

- All drills are jobbers length for deep holes
- Ground between centers (.0008" T.I.R) means straight, accurate holes
- Coolant-through for accelerated speeds & feeds
- Self-centering point geometry eliminates the need for a center drill
- Co-HSS means excellent tool durability in deep holes (>5 x D)

## APPLICATION

General Purpose
High Feed Drilling

RECOMMENDED USEABLE

| Drill Size | Inch Diameter | Metric Diameter | Flute Length | Overall Length | Shank Diameter | Tap Drill Size | EDP |
|---|---|---|---|---|---|---|---|
| 11.0mm | 0.433 | 11.000 | 4-1/16 | 6-5/32 | 0.433 | | 10068 |
| 7/16 | 0.438 | 11.112 | 4-1/16 | 6-5/32 | 0.438 | 1/4 NPT | 10028 |
| 11.5mm | 0.453 | 11.500 | 4-3/16 | 6-9/32 | 0.453 | | 10069 |
| 29/64 | 0.453 | 11.509 | 4-3/16 | 6-9/32 | 0.453 | 1/2-20 | 10029 |
| 15/32 | 0.469 | 11.908 | 4-5/16 | 6-13/32 | 0.469 | | 10030 |
| 12.0mm | 0.472 | 12.000 | 4-5/16 | 6-13/32 | 0.472 | M14 x 2 | 10070 |
| 31/64 | 0.484 | 12.304 | 4-3/8 | 6-15/32 | 0.484 | 9/16-12 | 10031 |
| 12.5mm | 0.492 | 12.500 | 4-3/8 | 6-15/32 | 0.492 | M14 x 1.5 | 10071 |
| 1/2 | 0.500 | 12.700 | 4-1/2 | 6-19/32 | 0.500 | | 10032 |
| 13.0mm | 0.512 | 13.000 | 4-13/16 | 7-3/16 | 0.625 | | 10072 |
| 33/64 | 0.516 | 13.096 | 4-13/16 | 7-3/16 | 0.625 | 9/16-18 | 10033 |
| 17/32 | 0.531 | 13.492 | 4-13/16 | 7-3/16 | 0.625 | 5/8-11 | 10034 |
| 35/64 | 0.547 | 13.891 | 4-13/16 | 7-3/16 | 0.625 | | 10073 |
| 14.0mm | 0.551 | 14.000 | 4-13/16 | 7-3/16 | 0.625 | M16 x 2 | 10074 |
| 9/16 | 0.563 | 14.288 | 4-13/16 | 7-3/16 | 0.625 | | 10036 |
| 14.5mm | 0.571 | 14.500 | 4-13/16 | 7-3/16 | 0.625 | M16 x 1.5 | 10075 |
| 37/64 | 0.578 | 14.684 | 4-13/16 | 7-3/16 | 0.625 | 5/8-18, 3/8 NPT | 10037 |
| 15.0mm | 0.591 | 15.000 | 5-3/16 | 7-27/32 | 0.750 | | 10076 |
| 19/32 | 0.594 | 15.083 | 5-3/16 | 7-9/16 | 0.625 | | 10038 |
| 39/64 | 0.609 | 15.479 | 5-3/16 | 7-27/32 | 0.750 | | 10077 |
| 15.5mm | 0.610 | 15.500 | 5-3/16 | 7-27/32 | 0.750 | M18 x 2.5 | 10078 |
| 5/8 | 0.625 | 15.875 | 5-3/16 | 7-9/16 | 0.625 | | 10040 |
| 16.0mm | 0.630 | 16.000 | 5-3/16 | 7-27/32 | 0.750 | | 10079 |
| 41/64 | 0.641 | 16.271 | 5-3/16 | 7-27/32 | 0.750 | | 10080 |
| 16.5mm | 0.650 | 16.500 | 5-3/16 | 7-27/32 | 0.750 | M18 x 1.5 | 10081 |
| 21/32 | 0.656 | 16.667 | 5-3/16 | 7-27/32 | 0.750 | 3/4-10 | 10042 |
| 17.0mm | 0.669 | 17.000 | 5-3/16 | 7-27/32 | 0.750 | | 10082 |
| 43/64 | 0.672 | 17.064 | 5-5/8 | 8-9/32 | 0.750 | | 10083 |
| 11/16 | 0.688 | 17.462 | 5-5/8 | 8-9/32 | 0.750 | 3/4-16 | 10044 |
| 17.5mm | 0.689 | 17.500 | 5-5/8 | 8-9/32 | 0.750 | M20 x 2.5 | 10084 |
| 45/64 | 0.703 | 17.859 | 5-5/8 | 8-9/32 | 0.750 | | 10085 |
| 18.0mm | 0.709 | 18.000 | 5-5/8 | 9-9/32 | 0.875 | | 10086 |
| 23/32 | 0.719 | 18.258 | 5-5/8 | 8-9/32 | 0.750 | 1/2 NPT | 10046 |
| 18.5mm | 0.728 | 18.500 | 5-5/8 | 9-9/32 | 0.750 | M20 x 1.5 | 10087 |
| 47/64 | 0.734 | 18.654 | 5-7/8 | 8-17/32 | 0.875 | | 10088 |
| 19.0mm | 0.748 | 19.000 | 5-7/8 | 8-17/32 | 0.875 | | 10089 |
| 3/4 | 0.750 | 19.050 | 5-7/8 | 8-11/32 | 0.750 | | 10048 |

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VEGA CUTTING TOOLS

# Spiral Fluted
## Solid Carbide Thread Mills
### TiAlN Coating

**INCH**

**METRIC**

- Free cutting 30 degree helix for quiet, chatter-free cuts and excellent tool life
- All tools feature thread lengths of 1.5 x nominal thread diameter for excellent versatility
- Optimized shank lengths ensure a stable, chatter free cut
- Sub-micro grain substrate with cobalt for excellent wear resistance combined with outstanding edge toughness

## APPLICATION

Non-Ferrous
Carbon Steel
Stainless Steel

RECOMMENDED USEABLE

**Unified Threads**

| Thread Diameter | TPI | Thread Form | No. of Flutes | Cut Diameter | OAL | Cut Length | Shank Diameter | EDP |
|---|---|---|---|---|---|---|---|---|
| 1/4 | 20 | UNC | 3 | 0.160 | 1.978 | 0.400 | 0.250 | 52002 |
| 5/16 | 18 | UNC | 3 | 0.208 | 2.078 | 0.500 | 0.250 | 52008 |
| 3/8 | 16 | UNC | 3 | 0.246 | 2.141 | 0.563 | 0.250 | 52007 |
| 7/16 | 14 | UNC | 3 | 0.310 | 2.620 | 0.714 | 0.375 | 52010 |
| 1/2 | 13 | UNC | 3 | 0.350 | 2.756 | 0.850 | 0.375 | 52001 |
| 9/16 | 12 | UNC | 3 | 0.370 | 2.822 | 0.916 | 0.375 | 52012 |
| 5/8 | 11 | UNC | 4 | 0.448 | 3.141 | 1.000 | 0.500 | 52009 |
| 3/4 | 10 | UNC | 4 | 0.567 | 3.090 | 1.200 | 0.625 | 52006 |
| 7/8 | 9 | UNC | 4 | 0.621 | 3.836 | 1.571 | 0.625 | 52011 |
| 1 | 8 | UNC | 4 | 0.620 | 3.765 | 1.500 | 0.625 | 52005 |
| 1-1/4 | 7 | UNC | 4 | 0.745 | 4.266 | 1.875 | 0.750 | 52004 |
| 1-1/2 | 6 | UNC | 4 | 0.745 | 4.641 | 2.250 | 0.750 | 52003 |
| 1/4 | 28 | UNF | 3 | 0.177 | 1.971 | 0.393 | 0.250 | 53002 |
| 3/8 | 24 | UNF | 3 | 0.246 | 2.078 | 0.500 | 0.250 | 53005 |
| 1/2 | 20 | UNF | 3 | 0.334 | 2.706 | 0.800 | 0.375 | 53001 |
| 5/8 | 18 | UNF | 4 | 0.444 | 3.141 | 1.000 | 0.500 | 53006 |
| 3/4 | 16 | UNF | 4 | 0.614 | 3.765 | 1.500 | 0.625 | 53004 |
| 7/8 | 14 | UNF | 4 | 0.621 | 3.836 | 1.571 | 0.625 | 53007 |
| 1 | 12 | UNF | 4 | 0.621 | 3.765 | 1.500 | 0.625 | 53003 |

**ISO/Metric Threads**

| Thread Diameter | Pitch | Thread Form | No. of Flutes | Cut Diameter | OAL | Cut Length | Shank Diameter | EDP |
|---|---|---|---|---|---|---|---|---|
| M6 | 1.00 | ISO | 3 | 0.160 | 2.011 | 0.433 | 0.250 | 50009 |
| M10 | 1.25 | ISO | 3 | 0.240 | 2.267 | 0.689 | 0.250 | 50001 |
| M12 | 1.75 | ISO | 3 | 0.338 | 2.733 | 0.827 | 0.375 | 50002 |
| M14 | 1.50 | ISO | 3 | 0.280 | 2.556 | 0.650 | 0.375 | 50003 |
| M16 | 2.00 | ISO | 3 | 0.468 | 3.165 | 1.024 | 0.500 | 50004 |
| M20 | 2.50 | ISO | 4 | 0.590 | 3.643 | 1.378 | 0.625 | 50005 |
| M24 | 3.00 | ISO | 4 | 0.621 | 3.800 | 1.535 | 0.625 | 50006 |
| M30 | 3.50 | ISO | 4 | 0.745 | 4.044 | 1.653 | 0.750 | 50007 |
| M36 | 4.00 | ISO | 4 | 0.745 | 4.280 | 1.889 | 0.750 | 50008 |

**Pipe Threads**

| Thread Diameter | TPI | Thread Form | No. of Flutes | Cut Diameter | OAL | Length of Cut | Shank Diameter | EDP |
|---|---|---|---|---|---|---|---|---|
| 1/8 | 27 | NPT | 3 | 0.300 | 2.276 | 0.370 | 0.375 | 51003 |
| 1/4 | 18 | NPT | 3 | 0.371 | 2.276 | 0.555 | 0.375 | 51002 |
| 1/2 | 14 | NPT | 4 | 0.621 | 3.053 | 0.788 | 0.625 | 51001 |
| 1 | 11.5 | NPT | 4 | 0.620 | 3.309 | 1.044 | 0.625 | 51004 |
| 2-1/2 | 8 | NPT | 4 | 0.745 | 4.141 | 1.750 | 0.750 | 51005 |

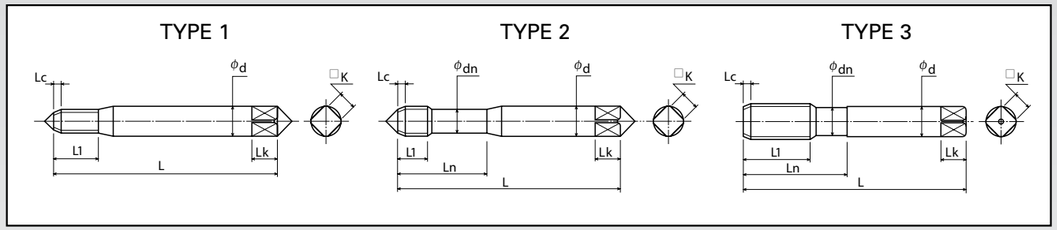
TECHNICAL DATA ON PAGE 49






VEGA CUTTING TOOLS

**Pages**




XHP-MB XSN-MB XHP-B

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 1.750 | 0.437 | 0.437 | 0.141 | 1 |
| 3 | 48 | | 1.812 | 0.500 | 0.500 | 0.141 | 1 |
| 4 | 40 | | 1.875 | 0.199 | 0.562 | 0.141 | 2 |
| | | 48 | 1.875 | 0.199 | 0.562 | 0.141 | 2 |
| 5 | 40 | | 1.937 | 0.200 | 0.625 | 0.141 | 2 |
| 6 | 32 | | 2.000 | 0.252 | 0.687 | 0.141 | 2 |
| | | 40 | 2.000 | 0.248 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.125 | 0.254 | 0.750 | 0.168 | 2 |
| | | 36 | 2.125 | 0.252 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.375 | 0.333 | 0.875 | 0.194 | 2 |
| | | 32 | 2.375 | 0.333 | 0.875 | 0.194 | 2 |
| 12 | 24 | | 2.375 | 0.335 | 0.937 | 0.220 | 2 |
| | | 28 | 2.375 | 0.331 | 0.937 | 0.220 | 2 |
| 1/4 | 20 | | 2.500 | 0.419 | 1.000 | 0.255 | 2 |
| | | 28 | 2.500 | 0.391 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 2.719 | 0.445 | 1.125 | 0.318 | 2 |
| | | 24 | 2.719 | 0.445 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 2.937 | 0.500 | 1.250 | 0.381 | 2 |
| | | 24 | 2.937 | 0.500 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.157 | 0.571 | 1.437 | 0.323 | 3 |
| | | 20 | 3.157 | 0.571 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 3.375 | 0.614 | 1.656 | 0.367 | 3 |
| | | 20 | 3.375 | 0.614 | 1.656 | 0.367 | 3 |
| 9/16 | 12 | | 3.594 | 0.665 | 1.656 | 0.429 | 3 |
| | | 18 | 3.594 | 0.665 | 1.656 | 0.429 | 3 |
| 5/8 | 11 | | 3.813 | 0.728 | 1.813 | 0.480 | 3 |
| | | 18 | 3.813 | 0.728 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 4.250 | 0.799 | 2.000 | 0.590 | 3 |
| | | 16 | 4.250 | 0.799 | 2.000 | 0.590 | 3 |
| 7/8 | 9 | | 4.687 | 0.890 | 2.219 | 0.697 | 3 |
| | | 14 | 4.687 | 0.890 | 2.219 | 0.697 | 3 |
| 1 | 8 | | 5.125 | 1.000 | 2.500 | 0.800 | 3 |
| | | 12 | 5.125 | 1.000 | 2.500 | 0.800 | 3 |
| 1-1/8 | 7 | | 5.437 | 1.142 | 2.562 | 0.896 | 3 |
| | | 12 | 5.437 | 1.142 | 2.562 | 0.896 | 3 |
| 1-1/4 | 7 | | 5.750 | 1.142 | 2.562 | 1.021 | 3 |
| | | 12 | 5.750 | 1.142 | 2.562 | 1.021 | 3 |
| 1-3/8 | 6 | | 6.062 | 1.335 | 3.000 | 1.108 | 3 |
| | | 12 | 6.062 | 1.335 | 3.000 | 1.108 | 3 |
| 1-1/2 | 6 | | 6.375 | 1.335 | 3.000 | 1.233 | 3 |
| | | 12 | 6.375 | 1.335 | 3.000 | 1.233 | 3 |
| 1-3/4 | 5 | | 7.000 | 1.598 | 4.067 | 1.430 | 3 |
| 2 | 4-1/2 | | 7.625 | 1.778 | 3.562 | 1.644 | 3 |




TECHNICAL DATA
TAP DIMENSIONAL INFORMATION
VEGA CUTTING TOOLS

XHP-MB XSN-MB XHP-B

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 1.937 | 0.157 | 0.625 | 0.141 | 2 |
| M3.5 | 0.6 | 2.000 | 0.189 | 0.688 | 0.141 | 2 |
| M4 | 0.7 | 2.125 | 0.220 | 0.750 | 0.168 | 2 |
| M5 | 0.8 | 2.375 | 0.252 | 0.875 | 0.194 | 2 |
| M6 | 1 | 2.500 | 0.314 | 1.000 | 0.255 | 2 |
| M7 | 1 | 2.719 | 0.315 | 1.125 | 0.318 | 2 |
| M8 | 1 | 2.719 | 0.394 | 1.125 | 0.318 | 2 |
| | 1.25 | 2.719 | 0.394 | 1.125 | 0.318 | 2 |
| M10 | 1.25 | 2.938 | 0.472 | 1.250 | 0.381 | 2 |
| | 1.5 | 2.938 | 0.472 | 1.250 | 0.381 | 2 |
| M12 | 1.25 | 3.375 | 0.551 | 1.656 | 0.367 | 3 |
| | 1.75 | 3.375 | 0.551 | 1.656 | 0.367 | 3 |
| M14 | 1.5 | 3.594 | 0.630 | 1.656 | 0.429 | 3 |
| | 2 | 3.594 | 0.630 | 1.656 | 0.429 | 3 |
| M16 | 1.5 | 3.813 | 0.630 | 1.813 | 0.480 | 3 |
| | 2 | 3.813 | 0.630 | 1.813 | 0.480 | 3 |
| M18 | 1.5 | 4.031 | 0.787 | 1.813 | 0.542 | 3 |
| | 2.5 | 4.031 | 0.787 | 1.813 | 0.542 | 3 |
| M20 | 2.5 | 4.469 | 0.787 | 2.000 | 0.652 | 3 |
| M24 | 3 | 4.906 | 0.945 | 2.219 | 0.760 | 3 |

XHP-PIPE XCM PIPE

| Tap Size | Pitch | OAL | Thread Length | Neck Length | Shank Dia. | Type |
|---|---|---|---|---|---|---|
| 1/16 | 27 | 2.125 | 0.689 | 0.312 | 0.313 | |
| 1/8 | 27 | 2.125 | 0.752 | 0.312 | 0.313 | small shank |
| | 27 | 2.125 | 0.752 | 0.312 | 0.438 | large shank |
| 1/4 | 18 | 2.438 | 1.063 | 0.459 | 0.563 | |
| 3/8 | 18 | 2.563 | 1.063 | 0.454 | 0.700 | |
| 1/2 | 14 | 3.125 | 1.374 | 0.579 | 0.688 | |
| 3/4 | 14 | 3.250 | 1.374 | 0.565 | 0.906 | |
| 1 | 11-1/2 | 3.750 | 1.752 | 0.678 | 1.125 | |

XHP-P XCR XSN-P

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 1.938 | 0.236 | 0.625 | 0.141 | 2 |
| M3.5 | 0.6 | 2.000 | 0.283 | 0.688 | 0.141 | 2 |
| M4 | 0.7 | 2.125 | 0.344 | 0.750 | 0.168 | 2 |
| M5 | 0.8 | 2.375 | 0.378 | 0.875 | 0.194 | 2 |
| M6 | 1 | 2.500 | 0.472 | 1.000 | 0.255 | 2 |
| M7 | 1 | 2.719 | 0.472 | 1.125 | 0.318 | 2 |
| M8 | 1 | 2.719 | 0.582 | 1.125 | 0.318 | 2 |
| M8 | 1.25 | 2.719 | 0.589 | 1.125 | 0.318 | 2 |
| M10 | 1.25 | 2.938 | 0.703 | 1.250 | 0.381 | 2 |
| M10 | 1.5 | 2.938 | 0.710 | 1.250 | 0.381 | 2 |
| M12 | 1.25 | 3.375 | 0.827 | 1.656 | 0.367 | 3 |
| M12 | 1.75 | 3.375 | 0.827 | 1.656 | 0.367 | 3 |
| M14 | 1.5 | 3.594 | 0.945 | 1.656 | 0.429 | 3 |
| M14 | 2 | 2.594 | 0.945 | 1.656 | 0.429 | 3 |
| M16 | 1.5 | 3.813 | 0.945 | 1.813 | 0.480 | 3 |
| M16 | 2 | 3.813 | 0.945 | 1.813 | 0.480 | 3 |
| M18 | 1.5 | 4.031 | 1.181 | 1.813 | 0.542 | 3 |
| M18 | 2.5 | 4.031 | 1.181 | 1.813 | 0.542 | 3 |
| M20 | 2.5 | 4.469 | 1.181 | 2.000 | 0.652 | 3 |
| M24 | 3 | 4.906 | 1.417 | 2.219 | 0.760 | 3 |

XHP-P XCM XCR XCI XSN-P XET-P

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 0 | | 80 | 1.750 | 0.312 | 0.312 | 0.141 | 1 |
| 2 | 56 | | 1.750 | 0.437 | 0.437 | 0.141 | 1 |
| 3 | 48 | | 1.812 | 0.499 | 0.500 | 0.141 | 1 |
| 4 | 40 | | 1.875 | 0.298 | 0.562 | 0.141 | 2 |
| | | 48 | 1.875 | 0.295 | 0.562 | 0.141 | 2 |
| 5 | 40 | | 1.937 | 0.299 | 0.625 | 0.141 | 2 |
| 6 | 32 | | 2.000 | 0.374 | 0.687 | 0.141 | 2 |
| | | 40 | 2.000 | 0.370 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.125 | 0.376 | 0.750 | 0.168 | 2 |
| | | 36 | 2.125 | 0.374 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.375 | 0.498 | 0.875 | 0.194 | 2 |
| | | 32 | 2.375 | 0.492 | 0.875 | 0.194 | 2 |
| 12 | 24 | | 2.375 | 0.500 | 0.937 | 0.220 | 2 |
| | | 28 | 2.375 | 0.496 | 0.937 | 0.220 | 2 |
| 1/4 | 20 | | 2.500 | 0.597 | 1.000 | 0.255 | 2 |
| | | 28 | 2.500 | 0.391 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 2.719 | 0.665 | 1.125 | 0.318 | 2 |
| | | 24 | 2.719 | 0.656 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 2.938 | 0.754 | 1.250 | 0.381 | 2 |
| | | 24 | 2.938 | 0.740 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.156 | 0.858 | 1.437 | 0.323 | 3 |
| | | 20 | 3.156 | 0.858 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 3.375 | 0.921 | 1.656 | 0.367 | 3 |
| | | 20 | 3.375 | 0.921 | 1.656 | 0.367 | 3 |
| 9/16 | 12 | | 3.594 | 1.000 | 1.656 | 0.429 | 3 |
| | | 18 | 3.594 | 1.000 | 1.656 | 0.429 | 3 |
| 5/8 | 11 | | 3.813 | 1.091 | 1.813 | 0.480 | 3 |
| | | 18 | 3.813 | 1.091 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 4.250 | 1.201 | 2.000 | 0.590 | 3 |
| | | 16 | 4.250 | 1.201 | 2.000 | 0.590 | 3 |
| 7/8 | 9 | | 4.688 | 1.335 | 2.219 | 0.697 | 3 |
| | | 14 | 4.688 | 1.335 | 2.219 | 0.697 | 3 |
| 1 | 8 | | 5.125 | 1.500 | 2.500 | 0.800 | 3 |
| | | 12 | 5.125 | 1.500 | 2.500 | 0.800 | 3 |
| 1-1/8 | 7 | | 5.437 | 1.713 | 2.740 | 0.896 | 3 |
| | | 12 | 5.437 | 1.713 | 2.740 | 0.896 | 3 |
| 1-1/4 | 7 | | 5.750 | 1.713 | 2.562 | 1.021 | 3 |
| | | 12 | 5.750 | 1.713 | 2.562 | 1.021 | 3 |
| 1-3/8 | 6 | | 6.062 | 2.000 | 2.730 | 1.108 | 3 |
| | | 12 | 6.062 | 2.000 | 2.730 | 1.108 | 3 |
| 1-1/2 | 6 | | 6.375 | 2.000 | 2.750 | 1.233 | 3 |
| | | 12 | 6.375 | 2.000 | 2.750 | 1.233 | 3 |
| 1-3/4 | 5 | | 7.000 | 1.598 | 2.450 | 1.430 | 3 |
| 2 | 4.5 | | 7.625 | 1.780 | 2.630 | 1.644 | 3 |




TECHNICAL DATA
TAP DIMENSIONAL INFORMATION
VEGA CUTTING TOOLS

XEN-STI-P

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 1.875 | 0.252 | 0.438 | 0.141 | 2 |
| 4 | 40 | | 2.000 | 0.350 | 0.563 | 0.141 | 2 |
| 6 | 32 | | 2.375 | 0.437 | 0.688 | 0.194 | 2 |
| | | 40 | 2.125 | 0.437 | 0.688 | 0.194 | 2 |
| 8 | 32 | | 2.375 | 0.437 | 0.750 | 0.220 | 2 |
| 10 | 24 | | 2.500 | 0.583 | 0.875 | 0.255 | 2 |
| | | 32 | 2.500 | 0.582 | 0.875 | 0.255 | 2 |
| 1/4 | 20 | | 2.719 | 0.701 | 1.000 | 0.318 | 2 |
| | | 28 | 2.719 | 0.701 | 1.000 | 0.318 | 2 |
| 5/16 | 18 | | 2.938 | 0.780 | 1.125 | 0.381 | 2 |
| | | 24 | 2.938 | 0.780 | 1.125 | 0.381 | 2 |
| 3/8 | 16 | | 3.375 | 0.874 | 1.250 | 0.367 | 3 |
| | | 24 | 3.156 | 0.874 | 1.250 | 0.367 | 3 |
| 7/16 | 14 | | 3.594 | 1.000 | 1.437 | 0.429 | 3 |
| | | 20 | 3.375 | 1.000 | 1.437 | 0.429 | 3 |
| 1/2 | 13 | | 3.813 | 1.079 | 1.656 | 0.480 | 3 |
| | | 20 | 3.594 | 1.079 | 1.656 | 0.480 | 3 |

XEN-STI-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 1.875 | 0.177 | 0.438 | 0.141 | 2 |
| 4 | 40 | | 2.000 | 0.252 | 0.563 | 0.141 | 2 |
| 6 | 32 | | 2.375 | 0.311 | 0.688 | 0.194 | 2 |
| | | 40 | 2.125 | 0.311 | 0.688 | 0.194 | 2 |
| 8 | 32 | | 2.375 | 0.311 | 0.750 | 0.220 | 2 |
| 10 | 24 | | 2.500 | 0.417 | 0.875 | 0.255 | 2 |
| | | 32 | 2.500 | 0.417 | 0.875 | 0.255 | 2 |
| 1/4 | 20 | | 2.719 | 0.500 | 1.000 | 0.318 | 2 |
| | | 28 | 2.719 | 0.500 | 1.000 | 0.318 | 2 |
| 5/16 | 18 | | 2.938 | 0.555 | 1.125 | 0.381 | 2 |
| | | 24 | 2.938 | 0.555 | 1.125 | 0.381 | 2 |
| 3/8 | 16 | | 3.375 | 0.626 | 1.250 | 0.367 | 3 |
| | | 24 | 3.156 | 0.626 | 1.250 | 0.367 | 3 |
| 7/16 | 14 | | 3.594 | 0.713 | 1.437 | 0.429 | 3 |
| | | 20 | 3.375 | 0.713 | 1.437 | 0.429 | 3 |
| 1/2 | 13 | | 3.813 | 0.768 | 1.656 | 0.480 | 3 |
| | | 20 | 3.594 | 0.768 | 1.656 | 0.480 | 3 |

XEN-P XEN-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 1.750 | 0.437 | 0.437 | 0.141 | 1 |
| 4 | 40 | | 1.875 | 0.296 | 0.562 | 0.141 | 2 |
| | | 48 | 1.875 | 0.296 | 0.562 | 0.141 | 2 |
| 5 | 40 | | 1.937 | 0.299 | 0.625 | 0.141 | 2 |
| 6 | 32 | | 2.000 | 0.374 | 0.687 | 0.141 | 2 |
| | | 40 | 2.000 | 0.374 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.125 | 0.374 | 0.750 | 0.168 | 2 |
| | | 36 | 2.125 | 0.374 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.375 | 0.500 | 0.875 | 0.194 | 2 |
| | | 32 | 2.375 | 0.500 | 0.875 | 0.194 | 2 |
| 1/4 | 20 | | 2.500 | 0.594 | 1.000 | 0.255 | 2 |
| | | 28 | 2.500 | 0.594 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 2.719 | 0.662 | 1.125 | 0.318 | 2 |
| | | 24 | 2.719 | 0.654 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 2.937 | 0.752 | 1.250 | 0.381 | 2 |
| | | 24 | 2.937 | 0.752 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.157 | 0.858 | 1.437 | 0.323 | 3 |
| | | 20 | 3.157 | 0.858 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 3.375 | 0.921 | 1.656 | 0.367 | 3 |
| | | 20 | 3.375 | 0.921 | 1.656 | 0.367 | 3 |
| 5/8 | 11 | | 3.813 | 1.091 | 1.813 | 0.480 | 3 |
| | | 18 | 3.813 | 1.091 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 4.250 | 1.201 | 2.000 | 0.590 | 3 |
| | | 16 | 4.250 | 1.201 | 2.000 | 0.590 | 3 |

XEN-P XEN-MB

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 1.937 | 0.236 | 0.625 | 0.141 | 2 |
| M4 | 0.7 | 2.125 | 0.328 | 0.750 | 0.168 | 2 |
| M5 | 0.8 | 2.375 | 0.376 | 0.875 | 0.194 | 2 |
| M6 | 1 | 2.500 | 0.472 | 1.000 | 0.255 | 2 |
| M8 | 1.25 | 2.719 | 0.591 | 1.125 | 0.318 | 2 |
| M10 | 1.5 | 2.938 | 0.709 | 1.250 | 0.381 | 2 |
| M12 | 1.75 | 3.375 | 0.827 | 1.656 | 0.367 | 3 |

XET-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 1.750 | 0.437 | 0.437 | 0.141 | 1 |
| 4 | 40 | | 1.875 | 0.201 | 0.562 | 0.141 | 2 |
| 6 | 32 | | 2.000 | 0.252 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.125 | 0.252 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.375 | 0.335 | 0.875 | 0.194 | 2 |
| | | 32 | 2.375 | 0.335 | 0.875 | 0.194 | 2 |
| 1/4 | 20 | | 2.500 | 0.402 | 1.000 | 0.255 | 2 |
| | | 28 | 2.500 | 0.402 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 2.719 | 0.445 | 1.125 | 0.318 | 2 |
| | | 24 | 2.719 | 0.445 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 2.937 | 0.500 | 1.250 | 0.381 | 2 |
| | | 24 | 2.937 | 0.500 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.157 | 0.571 | 1.437 | 0.323 | 3 |
| | | 20 | 3.157 | 0.571 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 3.375 | 0.614 | 1.656 | 0.367 | 3 |
| | | 20 | 3.375 | 0.614 | 1.656 | 0.367 | 3 |




TECHNICAL DATA
TAP DIMENSIONAL INFORMATION
VEGA CUTTING TOOLS

XLT-P

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 4.000 | 0.844 | 0.844 | 0.141 | 1 |
| | | | 6.000 | 0.844 | 0.844 | 0.141 | 1 |
| 3 | 48 | | 4.000 | 0.844 | 0.844 | 0.141 | 1 |
| | | | 6.000 | 0.844 | 0.844 | 0.141 | 1 |
| 4 | 40 | | 4.000 | 0.299 | 1.000 | 0.141 | 2 |
| | | | 6.000 | 0.299 | 1.000 | 0.141 | 2 |
| 6 | 32 | | 6.000 | 0.374 | 1.125 | 0.141 | 2 |
| 8 | 32 | | 6.000 | 0.374 | 1.250 | 0.168 | 2 |
| 10 | 24 | | 6.000 | 0.500 | 1.375 | 0.194 | 2 |
| | | 32 | 6.000 | 0.500 | 1.375 | 0.194 | 2 |
| 1/4 | 20 | | 6.000 | 0.598 | 1.625 | 0.255 | 2 |
| | | 28 | 6.000 | 0.598 | 1.625 | 0.255 | 2 |
| 5/16 | 18 | | 6.000 | 0.665 | 1.750 | 0.318 | 2 |
| | | 24 | 6.000 | 0.665 | 1.750 | 0.318 | 2 |
| 3/8 | 16 | | 6.000 | 0.754 | 2.000 | 0.381 | 2 |
| | | 24 | 6.000 | 0.754 | 2.000 | 0.381 | 2 |
| 7/16 | 14 | | 6.000 | 0.858 | 2.000 | 0.323 | 3 |
| | | 20 | 6.000 | 0.858 | 2.000 | 0.323 | 3 |
| 1/2 | 13 | | 6.000 | 0.921 | 2.000 | 0.367 | 3 |
| | | 20 | 6.000 | 0.921 | 2.000 | 0.367 | 3 |

XLT-P

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 6.000 | 0.236 | 0.844 | 0.141 | 2 |
| M4 | 0.7 | 6.000 | 0.331 | 1.250 | 0.168 | 2 |
| M5 | 0.5 | 6.000 | 0.378 | 1.375 | 0.194 | 2 |
| M6 | 1 | 6.000 | 0.472 | 1.625 | 0.255 | 2 |
| M8 | 1.25 | 6.000 | 0.589 | 1.750 | 0.318 | 2 |
| M10 | 1.5 | 6.000 | 0.709 | 2.000 | 0.381 | 2 |
| M12 | 1.75 | 6.000 | 0.827 | 2.000 | 0.367 | 3 |

XLT-P-OS

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 1/4 | 20 | | 6.000 | 0.591 | Reduced Shank | 0.168 | 3 |
| 5/16 | 18 | | 6.000 | 0.669 | Reduced Shank | 0.220 | 3 |
| 3/8 | 16 | | 6.000 | 0.748 | Reduced Shank | 0.255 | 3 |
| 7/16 | 14 | | 6.000 | 0.866 | Reduced Shank | 0.323 | 3 |
| 1/2 | 13 | | 6.000 | 0.984 | Reduced Shank | 0.367 | 3 |
| 5/8 | 11 | | 6.000 | 1.091 | Reduced Shank | 0.480 | 3 |

XLT-P-OS

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M6 | 1 | 6.000 | 0.591 | Reduced Shank | 0.168 | 3 |
| M8 | 1.25 | 6.000 | 0.669 | Reduced Shank | 0.255 | 3 |
| M10 | 1.5 | 6.000 | 0.748 | Reduced Shank | 0.318 | 3 |
| M12 | 1.75 | 6.000 | 0.984 | Reduced Shank | 0.367 | 3 |
| M16 | 2 | 6.000 | 0.945 | Reduced Shank | 0.480 | 3 |

XLT-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 2 | 56 | | 4.000 | 0.844 | 0.844 | 0.141 | 1 |
| | | | 6.000 | 0.844 | 0.844 | 0.141 | 1 |
| 3 | 48 | | 4.000 | 0.844 | 0.844 | 0.141 | 1 |
| | | | 6.000 | 0.844 | 0.844 | 0.141 | 1 |
| 4 | 40 | | 4.000 | 0.201 | 1.000 | 0.141 | 2 |
| | | | 6.000 | 0.201 | 1.000 | 0.141 | 2 |
| 6 | 32 | | 6.000 | 0.252 | 1.125 | 0.141 | 2 |
| 8 | 32 | | 6.000 | 0.252 | 1.250 | 0.168 | 2 |
| 10 | 24 | | 6.000 | 0.335 | 1.375 | 0.194 | 2 |
| | | 32 | 6.000 | 0.335 | 1.375 | 0.194 | 2 |
| 1/4 | 20 | | 6.000 | 0.402 | 1.625 | 0.255 | 2 |
| | | 28 | 6.000 | 0.402 | 1.625 | 0.255 | 2 |
| 5/16 | 18 | | 6.000 | 0.445 | 1.750 | 0.318 | 2 |
| | | 24 | 6.000 | 0.445 | 1.750 | 0.318 | 2 |
| 3/8 | 16 | | 6.000 | 0.500 | 2.000 | 0.381 | 2 |
| | | 24 | 6.000 | 0.500 | 2.000 | 0.381 | 2 |
| 7/16 | 14 | | 6.000 | 0.571 | 2.000 | 0.323 | 3 |
| | | 20 | 6.000 | 0.571 | 2.000 | 0.323 | 3 |
| 1/2 | 13 | | 6.000 | 0.614 | 2.000 | 0.367 | 3 |
| | | 20 | 6.000 | 0.614 | 2.000 | 0.367 | 3 |

XLT-MB

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 6.000 | 0.158 | 0.844 | 0.141 | 2 |
| M4 | 0.7 | 6.000 | 0.221 | 1.250 | 0.168 | 2 |
| M5 | 0.5 | 6.000 | 0.252 | 1.375 | 0.194 | 2 |
| M6 | 1 | 6.000 | 0.315 | 1.625 | 0.255 | 2 |
| M8 | 1.25 | 6.000 | 0.394 | 1.750 | 0.318 | 2 |
| M10 | 1.5 | 6.000 | 0.472 | 2.000 | 0.381 | 2 |
| M12 | 1.75 | 6.000 | 0.551 | 2.000 | 0.367 | 3 |

XDN-P

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 4 | 40 | | 2.205 | 0.299 | 0.562 | 0.141 | 2 |
| 6 | 32 | | 2.205 | 0.374 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.480 | 0.374 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.756 | 0.500 | 0.875 | 0.194 | 2 |
| | | 32 | 2.756 | 0.500 | 0.875 | 0.194 | 2 |
| 1/4 | 20 | | 3.150 | 0.597 | 1.000 | 0.255 | 2 |
| | | 28 | 3.150 | 0.597 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 3.543 | 0.665 | 1.125 | 0.318 | 2 |
| | | 24 | 3.543 | 0.665 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 3.937 | 0.754 | 1.250 | 0.381 | 2 |
| | | 24 | 3.937 | 0.740 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.937 | 0.858 | 1.437 | 0.323 | 3 |
| | | 20 | 3.937 | 0.858 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 4.331 | 0.921 | 1.656 | 0.367 | 3 |
| | | 20 | 3.937 | 0.921 | 1.656 | 0.367 | 3 |
| 5/8 | 11 | | 4.331 | 1.091 | 1.813 | 0.480 | 3 |
| | | 18 | 3.937 | 1.091 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 4.921 | 1.201 | 2.000 | 0.590 | 3 |
| | | 16 | 4.331 | 1.201 | 2.000 | 0.590 | 3 |
| 1 | 8 | | 6.299 | 1.778 | 2.500 | 0.800 | 3 |




TECHNICAL DATA
TAP DIMENSIONAL INFORMATION
VEGA CUTTING TOOLS

XDN-P

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 2.205 | 0.236 | 0.625 | 0.141 | 2 |
| M4 | 0.7 | 2.480 | 0.331 | 0.750 | 0.168 | 2 |
| M5 | 0.8 | 2.756 | 0.378 | 0.875 | 0.194 | 2 |
| M6 | 1 | 3.150 | 0.472 | 1.000 | 0.255 | 2 |
| M8 | 1.25 | 3.543 | 0.589 | 1.125 | 0.318 | 2 |
| M10 | 1.25 | 3.937 | 0.709 | 1.250 | 0.381 | 2 |
| | 1.5 | 3.937 | 0.709 | 1.250 | 0.381 | 2 |
| M12 | 1.25 | 3.937 | 0.827 | 1.656 | 0.367 | 3 |
| | 1.5 | 3.937 | 0.827 | 1.656 | 0.367 | 3 |
| | 1.75 | 4.331 | 0.827 | 1.656 | 0.367 | 3 |
| M14 | 1.5 | 3.937 | 0.945 | 1.656 | 0.429 | 3 |
| | 2 | 4.331 | 0.945 | 1.656 | 0.429 | 3 |
| M16 | 1.5 | 3.937 | 0.945 | 1.813 | 0.480 | 3 |
| | 2 | 4.331 | 0.945 | 1.813 | 0.480 | 3 |
| M18 | 1.5 | 4.331 | 1.181 | 1.813 | 0.542 | 3 |
| | 2.5 | 4.921 | 1.181 | 1.813 | 0.542 | 3 |
| M20 | 1.5 | 4.921 | 1.181 | 2.000 | 0.652 | 3 |
| | 2.5 | 5.512 | 1.181 | 2.000 | 0.652 | 3 |
| M24 | 3 | 6.299 | 1.417 | 2.219 | 0.760 | 3 |

XDN-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 4 | 40 | | 2.205 | 0.201 | 0.562 | 0.141 | 2 |
| 6 | 32 | | 2.205 | 0.252 | 0.687 | 0.141 | 2 |
| 8 | 32 | | 2.480 | 0.252 | 0.750 | 0.168 | 2 |
| 10 | 24 | | 2.756 | 0.335 | 0.875 | 0.194 | 2 |
| | | 32 | 2.756 | 0.335 | 0.875 | 0.194 | 2 |
| 1/4 | 20 | | 3.150 | 0.402 | 1.000 | 0.255 | 2 |
| | | 28 | 3.150 | 0.402 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 3.543 | 0.445 | 1.125 | 0.318 | 2 |
| | | 24 | 3.543 | 0.445 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 3.937 | 0.500 | 1.250 | 0.381 | 2 |
| | | 24 | 3.937 | 0.500 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 3.937 | 0.571 | 1.437 | 0.323 | 3 |
| | | 20 | 3.937 | 0.571 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 4.331 | 0.614 | 1.656 | 0.367 | 3 |
| | | 20 | 3.937 | 0.614 | 1.656 | 0.367 | 3 |
| 5/8 | 11 | | 4.331 | 0.728 | 1.813 | 0.480 | 3 |
| | | 18 | 3.937 | 0.728 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 4.921 | 0.799 | 2.000 | 0.590 | 3 |
| | | 16 | 4.331 | 0.799 | 2.000 | 0.590 | 3 |
| 1 | 8 | | 6.299 | 1.778 | 2.500 | 0.800 | 3 |

XDN-MB

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M6 | 1 | 3.150 | 0.315 | 1.000 | 0.255 | 2 |
| M8 | 1.25 | 3.543 | 0.394 | 1.125 | 0.318 | 2 |
| M10 | 1.25 | 3.937 | 0.472 | 1.250 | 0.381 | 2 |
| | 1.5 | 3.937 | 0.472 | 1.250 | 0.381 | 2 |
| M12 | 1.25 | 3.937 | 0.551 | 1.656 | 0.367 | 3 |
| | 1.5 | 3.937 | 0.551 | 1.656 | 0.367 | 3 |
| | 1.75 | 4.331 | 0.551 | 1.656 | 0.367 | 3 |
| M14 | 1.5 | 3.937 | 0.630 | 1.656 | 0.429 | 3 |
| | 2 | 4.331 | 0.630 | 1.656 | 0.429 | 3 |
| M16 | 1.5 | 3.937 | 0.630 | 1.813 | 0.480 | 3 |
| | 2 | 4.331 | 0.630 | 1.813 | 0.480 | 3 |
| M18 | 1.5 | 4.331 | 0.787 | 1.813 | 0.542 | 3 |
| | 2.5 | 4.921 | 0.787 | 1.813 | 0.542 | 3 |
| M20 | 1.5 | 4.921 | 0.787 | 2.000 | 0.652 | 3 |
| | 2.5 | 5.512 | 0.787 | 2.000 | 0.652 | 3 |
| M24 | 3 | 6.299 | 0.945 | 2.219 | 0.760 | 3 |

XCT-MB

| Tap Size | UNC | UNF | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|---|
| 1/4 | 20 | | 3.937 | 0.402 | 1.000 | 0.255 | 2 |
| | | 28 | 3.937 | 0.402 | 1.000 | 0.255 | 2 |
| 5/16 | 18 | | 3.937 | 0.445 | 1.125 | 0.318 | 2 |
| | | 24 | 3.937 | 0.445 | 1.125 | 0.318 | 2 |
| 3/8 | 16 | | 4.724 | 0.500 | 1.250 | 0.381 | 2 |
| | | 24 | 4.724 | 0.500 | 1.250 | 0.381 | 2 |
| 7/16 | 14 | | 4.724 | 0.571 | 1.437 | 0.323 | 3 |
| | | 20 | 4.724 | 0.571 | 1.437 | 0.323 | 3 |
| 1/2 | 13 | | 4.724 | 0.614 | 1.656 | 0.367 | 3 |
| | | 20 | 4.724 | 0.614 | 1.656 | 0.367 | 3 |
| 5/8 | 11 | | 5.906 | 0.728 | 1.813 | 0.480 | 3 |
| | | 18 | 5.906 | 0.728 | 1.813 | 0.480 | 3 |
| 3/4 | 10 | | 5.906 | 0.799 | 2.000 | 0.590 | 3 |
| | | 16 | 5.906 | 0.799 | 2.000 | 0.590 | 3 |

XCT-MB

| Tap Size | Pitch | L | L1 | Ln | Ød | Type |
|---|---|---|---|---|---|---|
| M6 | 1 | 3.937 | 0.315 | 1.000 | 0.255 | 2 |
| M8 | 1.25 | 3.937 | 0.394 | 1.125 | 0.318 | 2 |
| M10 | 1.25 | 4.724 | 0.472 | 1.250 | 0.381 | 2 |
| | 1.5 | 4.724 | 0.472 | 1.250 | 0.381 | 2 |
| M12 | 1.25 | 4.724 | 0.551 | 1.656 | 0.367 | 3 |
| | 1.5 | 4.724 | 0.551 | 1.656 | 0.367 | 3 |
| | 1.75 | 4.724 | 0.551 | 1.656 | 0.367 | 3 |
| M14 | 1.5 | 5.906 | 0.630 | 1.656 | 0.429 | 3 |
| | 2 | 5.906 | 0.630 | 1.656 | 0.429 | 3 |
| M16 | 1.5 | 5.906 | 0.630 | 1.813 | 0.480 | 3 |
| | 2 | 5.906 | 0.630 | 1.813 | 0.480 | 3 |
| M20 | 2.5 | 5.906 | 0.787 | 2.000 | 0.652 | 3 |

XCT-PIPE

| Tap Size | TPI | OAL | Thread Length | Neck Length | Shank Dia. | Type |
|---|---|---|---|---|---|---|
| 1/16 | 27 | 3.543 | 0.689 | 0.312 | 0.313 | |
| 1/8 | 27 | 3.937 | 0.752 | 0.312 | 0.438 | large shank |
| 1/4 | 18 | 3.937 | 1.063 | 0.459 | 0.563 | |
| 3/8 | 18 | 4.331 | 1.063 | 0.454 | 0.700 | |
| 1/2 | 14 | 5.512 | 1.374 | 0.579 | 0.688 | |






| Material | Condition | Hardness BHN | Hardness HRC | SFM | Suggested Style XLT XHP | TIN | XCM | XEN | XET | XDN |
|---|---|---|---|---|---|---|---|---|---|---|
| **Group 1—Ferritic Stainless Steel, Wrought** | | | | | | | | | | |
| 405, 409, 430, 434, 436, 442, 446, 502 | Annealed | <185 | <12 | 25-40 | ● | ● | | | | ● |
| **Group 2 —Austenitic Stainless Steel, Wrought** | | | | | | | | | | |
| 201, 202, 301, 302, 303, 304, 305, 308, 309, 310, 314, 316,317, 321, 330, 347, 384, 385 | Annealed | <185 | <12 | 18-25 | ● | ● | | | | ● |
| | Cold Drawn | <275 | <30 | 12-20 | ● | ● | | | | ● |
| Nitronic | Annealed | <250 | <25 | 12-20 | ● | ● | | ○ | | |
| | Cold Drawn | <375 | <41 | 7-15 | | ○ | | ● | | ● |
| **Group 3—Martensitic Stainless Steel, Wrought** | | | | | | | | | | |
| 403, 410, 420, 422, 501, 502 | Annealed | <175 | <9 | 25-40 | ● | ● | | ○ | | ● |
| | Annealed | <225 | <21 | 18-30 | ● | ● | | ○ | | ● |
| | Hardened | <325 | <35 | 18-25 | ○ | ● | | ● | | ● |
| | Hardened | <425 | <45 | 10-18 | | ○ | | ● | | |
| 414, 431 Greek Ascoly | Annealed | <275 | <30 | 18-25 | ○ | ○ | | ● | | |
| | Hardened | <325 | <35 | 12-20 | ○ | ○ | | ● | | |
| | Hardened | <425 | <45 | 7-15 | | | | ● | | |
| 440A, 440B, 440C | Annealed | <275 | <30 | 12-20 | ○ | ○ | | ● | | |
| | Hardened | <325 | <35 | 10-18 | | ○ | | ● | | |
| | Hardened | <425 | <45 | 7-15 | | | | ● | | |
| **Group 4—Precipitation Hardening Stainless Steel, Wrought** | | | | | | | | | | |
| 15-5PH, 16-6PH, 17-4PH, 17-7PH, AF71, AM350, AM355, PH13-8MO, PH14-8MO, PH15-7MO, Custom 450 HNM | Annealed | <200 | <16 | 18-30 | ● | ● | | ○ | | ● |
| | Hardened | <325 | <35 | 15-25 | | ○ | | ● | | ○ |
| | Hardened | <375 | <41 | 12-20 | | | | ● | | |
| | Hardened | <440 | <47 | 6-12 | | | | ● | | |
| **Group 5—Titanium Alloys, Wrought** | | | | | | | | | | |
| Commercial Pure | Annealed | <170 | <7 | 40-60 | ○ | ● | | | ● | ● |
| | Annealed | <200 | <16 | 30-50 | ○ | ○ | | | ● | ○ |
| | Annealed | <275 | <30 | 25-40 | | ○ | | | ● | ○ |
| Ti-5AL-2.5Sn | Annealed | <340 | <37 | 15-25 | | | | | ● | |
| Ti-6AL-4V | Annealed | <350 | <38 | 15-20 | | | | | ● | |
| | Treated | <380 | <40 | 10-15 | | | | | ● | |
| Ti-6AL-6V-2Sn | Annealed | <370 | <41 | 7-10 | | | | | ● | |
| | Treated | <440 | <46 | 5-7 | | | | | ● | |
| **Group 6—Nickel Alloys, Wrought and Cast** | | | | | | | | | | |
| Nickel 200–Nickel 270, Monel 400, 401, 404, MonelR405, Monel 502, Monel K500, Perma Nickel 300, Duranickel 301 | Annealed | <170 | <7 | 15-25 | ○ | ● | ● | ● | ○ | ● |
| | Annealed | <170 | <23 | 15-20 | | | ● | ● | ○ | |
| | Treated | <360 | <39 | 3-5 | | | | ● | ○ | |

● RECOMMENDED ○ ALTERNATE

| Material | Condition | Hardness BHN | Hardness HRC | SFM | Suggested Style XLT XHP | TIN | XCM | XEN | XET | XDN |
|---|---|---|---|---|---|---|---|---|---|---|
| **Group 7—Exotic Nickel, Base Alloys, Wrought and Cast** | | | | | | | | | | |
| Inconel 625,702,706,718,721,722, Inconel X-759,751,907, Haynes 263, M252, Nimonic 75,80, Waspaloy | Annealed | | <33 | 7-10 | | | ● | ● | ○ | |
| | Treated | | <43 | 4-7 | | | ● | ● | ○ | |
| Astrology, Inconel 700, Nimonic 90,95, Rene 41,63, Udimett 500,700,710 | Treated | | <33 | 5-8 | | | | ● | ○ | |
| | Treated | | <43 | 3-5 | | | | ● | ○ | |
| AF2-1DA, Rene 77, Rene 95, Unitemp 1753 Hastelloy B,C,G,S,X, Incoloy 804, Incoloy 825 Inconel 600, Inconel 601, Udimet 630, Retractaloy 26 | Treated | | <43 | 4-7 | | | | ● | ○ | |
| | Treated | | <49 | 3-5 | | | | ● | ○ | |
| | Annealed | | <20 | 7-10 | | | | ● | ○ | |
| | Cold Drawn | | <34 | 4-7 | | | | ● | ○ | |
| M252, Rene 80, Rene 125, B-1900, GMR-235, IN-100, IN-738, MAR-M200, 246, 421, 432, Iconel 718, Udimet 500, 700 | As cast or Cast/Aged | | <34 | 3-5 | | | | ● | ○ | |
| **Group 8—Exotic Cobalt , Base Alloys, Wrought and Cast** | | | | | | | | | | |
| AiResist 213, V36, S-816, Haynes 25 (L-605), Stellite, Haynes 188, MAR-M905,918, AiResist 3,215,X45,HS-6,HS-21, | Treated | | <22 | 5-8 | ○ | | | ● | | |
| | Treated/ Aged | | <34 | 3-5 | | | | ● | ○ | |
| HS-31,HS-51, HOWMET 3, NASA-Co-W-Re, MAR-M302,M322,M509,W1-52 | Cast/Aged | | <32 | 3-5 | | | | ● | ○ | |
| **Group 9—Exotic Iron, Base Alloys, Wrought** | | | | | | | | | | |
| A-286, Discaloy, N-155, V57,W-545, Incoloy 800, Incoloy 801, Incoloy 802, 16-25-6,19-90L | Treated | | <22 | 10-15 | ○ | ○ | | ● | | |
| | Treated/ Aged | | <34 | 7-10 | | | | ● | ○ | |
| **Group 10—Tool Steels, Wrought** | | | | | | | | | | |
| H10,H11,H12,H13,H14, H19,H21,H26,H42, D2,D3,D4,D5,D7,A7, P2,P4,P5,P6, P20,P21 | Annealed | | <25 | 15-25 | ○ | ● | ● | | | ● |
| | Hardened | | <41 | 15-20 | | | ● | ○ | | |
| | Annealed | | | 30-45 | ● | ○ | ● | | | |
| | Annealed | | <25 | 10-15 | ○ | | ● | | | |
| | Annealed | | <16 | 25-35 | ○ | ○ | ● | | | |
| **Group 11—Armor Plate, Wrought** | | | | | | | | | | |
| HY80,HY100, MIL-S-12560, MIL-S-16216 | Annealed | | <25 | 25-35 | ○ | ○ | ○ | ● | | ● |
| | Hardened | | <33 | 18-30 | ○ | | ○ | ● | | |
| | Hardened | | <38 | 15-25 | | | ○ | ● | | |
| **Group 12—High Strength, Steels, Wrought** | | | | | | | | | | |
| 300M, 4340, D6AC, 4340Si, 98BV40 | Normalized | | <38 | 15-20 | | ○ | | ● | | ○ |
| | Normalized | | <43 | 10-15 | | | ○ | ● | | |
| | Hardened | | <48 | 5-7 | | | | ● | | |
| HP9-4-20, HP25, HP30, HP45 | Annealed | | <41 | 10-15 | | | ○ | ● | | |
| | Hardened | | <48 | 7-10 | | | | ● | | |
| **Group 13—Maraging Steels, Wrought** | | | | | | | | | | |
| 200 Grade, 250 Grade, 300 Grade, 350 Grade, HY230 | Annealed | | <35 | 15-20 | | | ○ | ● | | ○ |
| 120 Grade, 180 Grade | Annealed | | <35 | 25-35 | | | ○ | ● | | ○ |
| | Maraged | | <45 | 7-10 | | | | ● | | |

● RECOMMENDED ○ ALTERNATE




TECHNICAL DATA
TAPPING GUIDE FOR HIGH-PERFORMANCE TAPS
VEGA CUTTING TOOLS

| Material | Condition | Hardness BHN | Hardness HRC | SFM | Suggested Style XLT XHP | TIN | XCM | XDN | XCI | XDN |
|---|---|---|---|---|---|---|---|---|---|---|
| **Low Carbon Steel, Wrought** | | | | | | | | | | |
| 1005-1029, 1513-1522 | Normalized | <175 | <9 | 75-100 | ● | ● | | | ● | |
| | Cold Drawn | <276 | <30 | 40-60 | ● | ● | | | ● | |
| **Medium Carbon Steel, Wrought** | | | | | | | | | | |
| 1030-1055, 1525-1552 | Normalized | <250 | <25 | 30-50 | ● | ● | | | ● | |
| | Hardened | <350 | <38 | 15-25 | | | ● | ● | ● | |
| **High Carbon Steel, Wrought** | | | | | | | | | | |
| 1060-1069, 1070-1078 1080-1086, 1095, 1561 | Annealed | <275 | <30 | 30-50 | ● | ● | | | ● | |
| | Hardened | <350 | <38 | 15-25 | | | | ● | | |
| **Low Carbon Alloy Steel, Wrought** | | | | | | | | | | |
| 4023, 4320, 5120 8115, 8622 | Normalized | <250 | <25 | 30-45 | | ● | | | ● | |
| | Hardened | <350 | <38 | 25-35 | | | ● | ● | | |
| **Medium Carbon Alloy Steel, Wrought** | | | | | | | | | | |
| 4032, 4130 5135, 8630 | Normalized | <250 | <25 | 25-35 | | ● | | | ● | |
| | Hardened | <350 | <38 | 15-20 | | | ● | ● | | |
| **Aluminum Alloys, Wrought** | | | | | | | | | | |
| 2011-2025, 5050 6061, 7075 | Cold Drawn | <80 | | 95-125 | | ● | | | ● | |
| | Treated | <150 | | 75-100 | | ● | | | ● | |
| **Aluminum Die Cast** | As Cast | <100 | | 100-150 | | ● | | | ● | |
| | Treated | <125 | | 70-100 | | ● | | | ● | |
| **High Silicon Aluminum** | Si>10% | <125 | | 25-40 | | ● | | | ● | |
| **Brass, Cast** | | | | 50-70 | | ● | | | ● | |
| **Bronze, Cast** | | | | 40-60 | | ● | | | ● | |
| **Copper** | | | | 30-50 | | ● | | | ● | |
| **Copper, Berylium** | | | | 35-80 | | ● | | | ● | |
| **Magnesium Alloys** | | <100 | | 100-150 | | ● | | | ● | |
| **Ductile Iron** | | <250 | | 30-40 | | ● | | | ● | |
| **Nodular Cast Iron** | | <220 | | 30-40 | | | | | | ● |
| **Gray Cast Iron** | | <220 | | 30-40 | | | | | | ● |

● RECOMMENDED ○ ALTERNATE

# TECHNICAL DATA

## Speeds and Feeds Conversion Table for Inch Taps

### Surface Feet Per Minute (SFM) To Revolutions Per Minute (RPM)

VEGA CUTTING TOOLS

| Tap Size | RPM | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SFM | | | | | | | | | | | | | | |
| | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
| 0 | 1273 | 1592 | 1910 | 2546 | 3183 | 3820 | 4456 | 5093 | 5730 | 6366 | 7003 | 7639 | 8276 | 8913 | 9549 |
| 1 | 1047 | 1308 | 1570 | 2093 | 2617 | 3140 | 3663 | 4186 | 4710 | 5233 | 5756 | 6279 | 6808 | 7326 | 7849 |
| 2 | 888 | 1110 | 1333 | 1777 | 2221 | 2665 | 3109 | 3556 | 3999 | 4442 | 4886 | 5330 | 5774 | 6218 | 6662 |
| 3 | 772 | 964 | 1157 | 1543 | 1929 | 2315 | 2701 | 3086 | 3472 | 3858 | 4244 | 4629 | 5015 | 5401 | 5787 |
| 4 | 682 | 853 | 1023 | 1364 | 1705 | 2046 | 2387 | 2728 | 3069 | 3411 | 3751 | 4092 | 4434 | 4775 | 5116 |
| 5 | 611 | 764 | 917 | 1222 | 1528 | 1833 | 2139 | 2445 | 2750 | 3056 | 3361 | 3667 | 3973 | 4278 | 4584 |
| 6 | 553 | 691 | 829 | 1106 | 1382 | 1658 | 1934 | 2211 | 2487 | 2764 | 3040 | 3316 | 3592 | 3869 | 4145 |
| 8 | 466 | 583 | 699 | 932 | 1165 | 1398 | 1631 | 1864 | 2097 | 2330 | 2563 | 2796 | 3029 | 3262 | 3495 |
| 10 | 402 | 502 | 603 | 804 | 1005 | 1205 | 1406 | 1607 | 1808 | 2009 | 2210 | 2411 | 2612 | 2813 | 3014 |
| 12 | 354 | 442 | 531 | 707 | 884 | 1061 | 1238 | 1415 | 1592 | 1769 | 1945 | 2122 | 2300 | 2476 | 2653 |
| 1/4 | 306 | 382 | 458 | 611 | 764 | 917 | 1070 | 1222 | 1375 | 1528 | 1681 | 1833 | 1986 | 2139 | 2292 |
| 5/16 | 245 | 306 | 367 | 489 | 611 | 733 | 856 | 978 | 1100 | 1222 | 1345 | 1467 | 1589 | 1711 | 1833 |
| 3/8 | 204 | 255 | 306 | 407 | 509 | 611 | 713 | 815 | 917 | 1019 | 1120 | 1222 | 1324 | 1426 | 1528 |
| 7/16 | 175 | 219 | 262 | 349 | 437 | 524 | 611 | 698 | 786 | 873 | 960 | 1048 | 1135 | 1222 | 1310 |
| 1/2 | 153 | 191 | 229 | 306 | 382 | 458 | 535 | 611 | 688 | 764 | 840 | 917 | 993 | 1070 | 1146 |
| 9/16 | 137 | 172 | 206 | 275 | 344 | 412 | 481 | 550 | 619 | 687 | 756 | 825 | 893 | 963 | 1031 |
| 5/8 | 122 | 153 | 183 | 244 | 306 | 367 | 428 | 489 | 550 | 611 | 672 | 733 | 794 | 856 | 917 |
| 3/4 | 102 | 128 | 153 | 203 | 255 | 306 | 357 | 407 | 458 | 509 | 560 | 611 | 662 | 713 | 764 |
| 7/8 | 87 | 109 | 131 | 175 | 218 | 262 | 306 | 350 | 392 | 437 | 480 | 524 | 568 | 611 | 655 |
| 1 | 76 | 96 | 115 | 153 | 191 | 230 | 268 | 306 | 344 | 382 | 420 | 458 | 497 | 535 | 573 |

### Pipe Taps

| Tap Size | Decimal | RPM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SFM | | | | | | | | |
| | | 8 | 12 | 15 | 18 | 20 | 25 | 30 | 35 | 40 |
| 1/16 NPT | 0.3058 | 100 | 150 | 187 | 225 | 250 | 312 | 375 | 437 | 499 |
| 1/8 NPT | 0.3983 | 77 | 115 | 144 | 173 | 192 | 240 | 288 | 336 | 383 |
| 1/4 NPT | 0.5286 | 58 | 87 | 108 | 130 | 144 | 181 | 217 | 253 | 289 |
| 3/8 NPT | 0.664 | 46 | 69 | 86 | 104 | 115 | 144 | 173 | 201 | 230 |
| 1/2 NPT | 0.826 | 37 | 55 | 69 | 83 | 92 | 116 | 139 | 162 | 185 |
| 3/4 NPT | 1.0364 | 29 | 44 | 55 | 66 | 74 | 92 | 111 | 129 | 147 |
| 1 NPT | 1.2965 | 24 | 35 | 44 | 53 | 59 | 74 | 88 | 103 | 118 |
| 1-1/4 NPT | 1.6412 | 19 | 28 | 35 | 42 | 47 | 58 | 70 | 81 | 93 |
| 1-1/2 NPT | 1.8803 | 16 | 24 | 30 | 37 | 41 | 51 | 61 | 71 | 81 |
| 2 NPT | 2.3542 | 13 | 19 | 24 | 29 | 32 | 41 | 49 | 57 | 65 |

Proper tapping speeds are very important in obtaining efficient tapping results.
There are many factors which affect proper tapping speeds, some of which are listed below:

**MATERIAL FACTORS:**
- Thermo-conductivity of the material and wall thickness as it affects heat dispersion
- Variations in carbon content of steel
- Hard spots in material
- Depth of hole to be tapped
- Percentage of full thread to be tapped

**TAP FACTORS:**
- Major diameters, pitch and lead
- Style of tap
- Width of lands
- Amount of hook or rake
- Length of chamfer
- Bottoming Taps normally require slower speeds than Plug Chamfered Taps

**MECHANICAL FACTORS:**
- Type of tapping machine and holder
- Speeds for small diameter taps are often governed by the limitations of the machine
- Condition of tapping machine and spindle
- Type of fixture
- Vertical or horizontal tapping (faster speeds for vertical tapping)
- Method of feeding the tap
- Cutting fluid used and method of application

◆ The optimum speed for tapping is the highest speed that conditions permit, consistent with economic tool life.

◆ Proper tapping speeds are determined best by experiment. In the table above, speeds shown should be used as a guide only, and the suggested surface feet per minute adjusted upward or downward until the best results are obtained.




# TECHNICAL DATA

## Speeds and Feeds Conversion Table for Metric Taps

### Surface Feet Per Minute (SFM) To Revolutions Per Minute (RPM)

VEGA CUTTING TOOLS

| Tap Size | Decimal | RPM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SFM | | | | | | | | |
| | | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
| 1.6 | 0.0630 | 303 | 605 | 910 | 1210 | 1520 | 1820 | 2120 | 2430 | 3030 |
| 2 | 0.0787 | 242 | 485 | 730 | 970 | 1210 | 1460 | 1700 | 1940 | 2430 |
| 2.5 | 0.0984 | 194 | 388 | 580 | 775 | 970 | 1160 | 1360 | 1550 | 1940 |
| 3 | 0.1161 | 162 | 323 | 485 | 645 | 810 | 970 | 1130 | 1290 | 1620 |
| 3.5 | 0.1378 | 138 | 277 | 416 | 555 | 695 | 830 | 970 | 1110 | 1390 |
| 4 | 0.1575 | 121 | 242 | 364 | 485 | 605 | 730 | 850 | 970 | 1210 |
| 4.5 | 0.1772 | 108 | 216 | 323 | 431 | 540 | 645 | 755 | 860 | 1080 |
| 5 | 0.1969 | 97 | 194 | 291 | 388 | 485 | 580 | 680 | 775 | 970 |
| 6 | 0.2362 | 80 | 162 | 242 | 323 | 404 | 485 | 565 | 645 | 810 |
| 7 | 0.2756 | 69 | 138 | 208 | 277 | 346 | 416 | 485 | 553 | 695 |
| 8 | 0.3150 | 60 | 121 | 182 | 242 | 303 | 364 | 424 | 485 | 605 |
| 10 | 0.3937 | 48 | 97 | 146 | 194 | 242 | 291 | 340 | 388 | 485 |
| 12 | 0.4724 | 40 | 80 | 121 | 162 | 202 | 242 | 263 | 323 | 404 |
| 14 | 0.5512 | 35 | 69 | 104 | 139 | 173 | 208 | 242 | 277 | 346 |
| 16 | 0.6299 | 30 | 61 | 91 | 121 | 152 | 182 | 212 | 242 | 303 |
| 20 | 0.7874 | 24 | 48 | 73 | 97 | 121 | 146 | 170 | 194 | 242 |
| 24 | 0.9449 | 20 | 40 | 61 | 81 | 101 | 121 | 141 | 162 | 202 |
| 30 | 1.1811 | 16 | 32 | 48 | 65 | 81 | 97 | 113 | 129 | 162 |
| 36 | 1.4173 | 13 | 27 | 40 | 54 | 67 | 81 | 94 | 108 | 135 |

| Tap Size | Decimal | RPM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SFM | | | | | | | | |
| | | 60 | 70 | 80 | 90 | 100 | 125 | 150 | 175 | 200 |
| 1.6 | 0.0630 | 3640 | 4240 | 4850 | 5450 | 6050 | 7600 | 9100 | 10600 | 12100 |
| 2 | 0.0787 | 2910 | 3400 | 3880 | 4370 | 4850 | 6050 | 7300 | 8500 | 9700 |
| 2.5 | 0.0984 | 2330 | 2720 | 3100 | 3496 | 3880 | 4856 | 5800 | 6800 | 7750 |
| 3 | 0.1161 | 1940 | 2260 | 2590 | 2910 | 3230 | 4046 | 4850 | 5650 | 6450 |
| 3.5 | 0.1378 | 1660 | 1940 | 2220 | 2490 | 2770 | 3460 | 4160 | 4850 | 5540 |
| 4 | 0.1575 | 1450 | 1700 | 1940 | 2180 | 2430 | 3030 | 3640 | 4240 | 4850 |
| 4.5 | 0.1772 | 1290 | 1510 | 1720 | 1940 | 2160 | 2690 | 3230 | 3770 | 4310 |
| 5 | 0.1969 | 1160 | 1360 | 1550 | 1750 | 1940 | 2430 | 2910 | 3400 | 3880 |
| 6 | 0.2362 | 970 | 1130 | 1290 | 1450 | 1620 | 2020 | 2430 | 2830 | 3230 |
| 7 | 0.2756 | 830 | 970 | 1110 | 1250 | 1390 | 1730 | 2080 | 2430 | 2770 |
| 8 | 0.3150 | 730 | 850 | 970 | 1090 | 1210 | 1520 | 1820 | 2120 | 2430 |
| 10 | 0.3937 | 580 | 680 | 775 | 875 | 970 | 1210 | 1400 | 1700 | 1940 |
| 12 | 0.4724 | 485 | 565 | 645 | 730 | 810 | 1010 | 1210 | 1410 | 1620 |
| 14 | 0.5512 | 416 | 485 | 555 | 625 | 695 | 865 | 1040 | 1210 | 1390 |
| 16 | 0.6299 | 364 | 424 | 485 | 545 | 605 | 760 | 910 | 1060 | 1210 |
| 20 | 0.7874 | 291 | 340 | 386 | 436 | 485 | 605 | 730 | 850 | 970 |
| 24 | 0.9449 | 242 | 283 | 323 | 364 | 404 | 505 | 605 | 705 | 810 |
| 30 | 1.1811 | 194 | 226 | 259 | 291 | 323 | 464 | 485 | 565 | 645 |
| 36 | 1.4173 | 162 | 189 | 216 | 242 | 270 | 337 | 404 | 472 | 540 |

# TECHNICAL DATA

## Inch Tap Drill Sizes

VEGA CUTTING TOOLS

| Nominal Size | Threads per Inch | | Drills for Regular Taps | | | | Drills for Roll Taps |
|---|---|---|---|---|---|---|---|
| | NC/UNC | NF/UNF | Drill Size | Inch Equiv. | Probable Hole Size (Inches) | Probable Percent of Thread | Drill for 50-65% |
| 0 | | 80 | 3/36 | .0469 | .0484 | 71 | 54 |
| 1 | 64 | | 53 | .0595 | .0610 | 59 | 51 |
| | | 72 | 53 | .0595 | .0610 | 67 | 51 |
| 2 | 56 | | 50 | .0700 | .0717 | 62 | 47 |
| | | 64 | 50 | .0700 | .0717 | 70 | 2.0mm |
| 3 | 48 | | 47 | .0785 | .0804 | 69 | 2.3mm |
| | | 56 | 45 | .0820 | .0839 | 65 | 2.3mm |
| 4 | 40 | | 43 | .0890 | .0910 | 65 | 38 |
| | | 48 | 42 | .0935 | .0955 | 61 | 2.6mm |
| 5 | 40 | | 38 | .1015 | .1038 | 65 | 2.9mm |
| | | 44 | 37 | .1040 | .1063 | 63 | 32 |
| 6 | 32 | | 36 | .1065 | .1088 | 72 | 1/8 |
| | | 40 | 33 | .1130 | .1156 | 69 | 3.25mm |
| 8 | 32 | | 29 | .1360 | .1389 | 62 | 3.8mm |
| | | 36 | 29 | .1360 | .1389 | 70 | 24 |
| 10 | 24 | | 25 | .1495 | .1527 | 69 | 11/64 |
| | | 32 | 21 | .1590 | .1622 | 68 | 16 |
| 12 | 24 | | 16 | .1770 | .1805 | 66 | 8 |
| | | 28 | 14 | .1820 | .1855 | 66 | 7 |
| 1/4 | 20 | | 7 | .2010 | .2048 | 70 | 1 |
| | | 28 | 3 | .2130 | .2168 | 72 | 15/64 |
| 5/16 | 18 | | F | .2570 | .2608 | 72 | L |
| | | 24 | 1 | .2720 | .2761 | 67 | 7.5mm |
| 3/8 | 16 | | 5/16 | .3125 | .3169 | 72 | 8.9mm |
| | | 24 | Q | .3320 | .3364 | 71 | T |
| 7/16 | 14 | | U | .3680 | .3726 | 70 | Z |
| | | 20 | 25/64 | .3906 | .3952 | 65 | 27/64 |
| 1/2 | 13 | | 27/64 | .4219 | .4266 | 73 | 15/32 |
| | | 20 | 29/64 | .4531 | .4578 | 65 | 31/64 |
| 9/16 | 12 | | 31/64 | .4844 | .4892 | 68 | 17/32 |
| | | 18 | 33/64 | .5156 | .5204 | 58 | 35/64 |
| 5/8 | 11 | | 17/32 | .5312 | .5362 | 75 | 15mm |
| | | 18 | 37/64 | .5781 | .5831 | 58 | 19/32 |
| 3/4 | 10 | | 21/32 | .6562 | .6613 | 68 | 18mm |
| | | 16 | 11/16 | .6875 | .6925 | 71 | 18.5mm |
| 7/8 | 9 | | 49/64 | .7656 | .7708 | 72 | |
| | | 14 | 13/16 | .8125 | .8177 | 62 | |
| 1 | 8 | | 7/8 | .8750 | .8809 | 73 | |
| | | 12 | 59/64 | .9219 | .9279 | 67 | |
| 1 1/8 | 7 | | 63/64 | .9844 | .9911 | 72 | |
| | | 12 | 1 3/64 | 1.0469 | 1.0541 | 65 | |
| 1 1/4 | 7 | | 1 7/64 | 1.1094 | | | |
| | | 12 | 1 11/64 | 1.1719 | | | |
| 1 3/8 | 6 | | 1 7/64 | 1.2187 | | | |
| | | 12 | 1 /19/64 | 1.2969 | | | |
| 1 1/2 | 6 | | 1 11/32 | 1.3437 | | | |
| | | 12 | 1 27/64 | 1.4219 | | | |




# TECHNICAL DATA

## Screw Thread Insert (STI) Taps
## STI Drill Sizes

VEGA CUTTING TOOLS

### Unified Coarse

| Nominal Thread Size | Minor Diameter (After Tapping) | | Suggested Drill Size | |
|---|---|---|---|---|
| | Min. | Max. | Aluminum | Steel, Magnesium, Plastic |
| 2 (.086)-56 | .0899 | .0961 | 3/32 (.0938) | #41 (.0960) |
| 3 (.099)-40 | .10367 | .1104 | #36 (.1065) | 7/64 (.1092) |
| 4 (.112)-40 | .1175 | .1252 | #31 (.1200) | #31 (.1200) |
| 5 (.125)-40 | .1305 | .1373 | 3.4mm (.1339) | #29 (.1360) |
| 6 (.138)-32 | .1448 | .1527 | #26 (.1470) | #25 (.1495) |
| 8 (.164)-32 | .1708 | .1781 | #17 (.1730) | #16 (.1770) |
| 10 (.190)-24 | .1990 | .2000 | 13/64 (.2031) | #5 (.2055) |
| 12 (.216)-24 | .2250 | .2340 | #1 (.2280) | #1 (.2280) |
| 1/4 (.250)-20 | .2608 | .2704 | H (.2660) | H (.2660) |
| 5/16 (.3125)-18 | .3245 | .3342 | Q (.3320) | Q (.3320) |
| 3/8 (.3750)-16 | .3885 | .3987 | X (.3970) | X (.3970) |
| 7/16 (.4375)-14 | .4530 | .4639 | 29/64 (.4531) | 29/64 (.4531) |
| 1/2 (.5000)-13 | .5166 | .5273 | 33/64 (.5156) | 17/32 (.5312) |

### Unified Fine

| Nominal Thread Size | Minor Diameter (After Tapping) | | Suggested Drill Size | |
|---|---|---|---|---|
| | Min. | Max. | Aluminum | Steel, Magnesium, Plastic |
| 3 (.099)-56 | .1029 | .1086 | #37 (.1040) | #36 (.1065) |
| 4 (.112)-48 | .1166 | .1229 | 3mm (.1181) | #31 (.1200) |
| 6 (.138)-40 | .1435 | .1503 | #26 (.1470) | #25 (.1495) |
| 8 (.164)-36 | .1701 | .1771 | #17 (.1730) | #16 (.1770) |
| 10 (.190)-32 | .1968 | .2041 | #7 (.2010) | 13/64 (.2031) |
| 1/4 (.2500)-28 | .2577 | .2646 | G (.2610) | 6.7mm (.2638) |
| 5/16 (.3125)-24 | .3215 | .3288 | 21/64 (.3281) | 21/64 (.3281) |
| 3/8 (.3750)-24 | .3840 | .3910 | 25/64 (.3906) | 25/64 (.3906) |
| 7/16 (.4375)-20 | .4483 | .4561 | 29/64 (.4531) | 29/64 (.4531) |
| 1/2 (.5000)-20 | .5108 | .5186 | 33/64 (.5156) | 33/64 (.5156) |

# TECHNICAL DATA

## Pitch Diameter Limits

### For Internal Screw Thread Classes and Tap Recommendations

VEGA CUTTING TOOLS

| Size | Threads Per Inch | | Basic Pitch Diameter | Unified Classes of Threads | | | | American National Classes of Threads | | | | ISO Metric Class of Threads | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Class 2B for General Applications | | Class 3B for Closer Fits | | Class 2 | | Class 3 | | Class for 6H Commercial Threads | | | | |
| | NC UNC | NF UNF | All Classes Minimum | Pitch Diam. Limits Maximum | Rec.* Taps | Pitch Diam. Limits Maximum | Rec.* Taps | Pitch Diam. Limits Maximum | Rec.* Taps | Pitch Diam. Limits Maximum | Rec.* Taps | Size mm | Pitch mm | Pitch Diameter Limits (in) | | Rec. Taps |
| | | | | | | | | | | | | | | Min.** | Max. | |
| 0 | | 80 | 0.0519 | 0.0542 | H2 | 0.0536 | H1 | 0.0536 | H1 | 0.0532 | H1 | M1.6 | 0.35 | 0.0541 | 0.0574 | D3 |
| 1 | 64 | | 0.0629 | 0.0655 | H2 | 0.0648 | H1 | 0.0648 | H1 | 0.0643 | H1 | M2 | 0.4 | 0.0686 | 0.072 | D3 |
| | | 72 | 0.064 | 0.0665 | H2 | 0.0659 | H1 | 0.0658 | H1 | 0.0653 | H1 | M2.5 | 0.45 | 0.087 | 0.0906 | D3 |
| 2 | 56 | | 0.0744 | 0.0772 | H2 | 0.0765 | H1 | 0.0764 | H1 | 0.0759 | H1 | M3 | 0.5 | 0.1054 | 0.1092 | D3 |
| | | 64 | 0.0759 | 0.0786 | H2 | 0.0779 | H1 | 0.0778 | H1 | 0.0773 | H1 | M3.5 | 0.6 | 0.1225 | 0.1268 | D4 |
| 3 | 48 | | 0.0855 | 0.0855 | H2 | 0.0877 | H1 | 0.0877 | H1 | 0.0871 | H1 | M4 | 0.7 | 0.1396 | 0.1442 | D4 |
| | | 56 | 0.0874 | 0.0902 | H2 | 0.0895 | H1 | 0.0894 | H1 | 0.0889 | H1 | M5 | 0.8 | 0.1764 | 0.1812 | D4 |
| 4 | 40 | | 0.0958 | 0.0991 | H2 | 0.0982 | H2 | 0.0982 | H2 | 0.0975 | H1 | M6 | 1 | 0.2107 | 0.2165 | D5 |
| | | 48 | 0.0985 | 0.1016 | H2 | 0.1008 | H1 | 0.1007 | H1 | 0.1001 | H1 | M8 | 1.25 | 0.283 | 0.2892 | D5 |
| 5 | 40 | | 0.1088 | 0.1121 | H2 | 0.1113 | H2 | 0.1112 | H2 | 0.1105 | H1 | M10 | 1.5 | 0.3554 | 0.3624 | D6 |
| | | 44 | 0.1102 | 0.1134 | H2 | 0.1126 | H1 | 0.1125 | H1 | 0.1118 | H1 | M12 | 1.75 | 0.4277 | 0.4355 | D6 |
| 6 | 32 | | 0.1177 | 0.1214 | H3 | 0.1204 | H2 | 0.1204 | H2 | 0.1196 | H1 | M14 | 2 | 0.5001 | 0.5083 | D7 |
| | | 40 | 0.1218 | 0.1252 | H2 | 0.1243 | H2 | 0.1242 | H2 | 0.1235 | H1 | M16 | 2 | 0.5788 | 0.5871 | D7 |
| 8 | 32 | | 0.1437 | 0.1475 | H3 | 0.1465 | H2 | 0.1464 | H2 | 0.1456 | H1 | M20 | 2.5 | 0.7235 | 0.7322 | D7 |
| | | 36 | 0.146 | 0.1496 | H2 | 0.1487 | H2 | 0.1485 | H2 | 0.1478 | H1 | M24 | 3 | 0.8682 | 0.8785 | D8 |
| 10 | 24 | | 0.1629 | 0.1672 | H3 | 0.1661 | H3 | 0.1662 | H3 | 0.1653 | H1 | M30 | 3.5 | 1.0917 | 1.1026 | D9 |
| | | 32 | 0.1697 | 0.1736 | H3 | 0.1726 | H2 | 0.1724 | H2 | 0.1716 | H1 | M36 | 4 | 1.3151 | 1.3268 | D9 |
| 12 | 24 | | 0.1889 | 0.1933 | H3 | 0.1922 | H3 | 0.1922 | H3 | 0.1913 | H1 | | | | | |
| | | 28 | 0.1928 | 0.197 | H3 | 0.1959 | H3 | 0.1959 | H3 | 0.195 | H1 | | | | | |
| 1/4 | 20 | | 0.2175 | 0.2224 | H5 | 0.2211 | H3 | 0.2211 | H3 | 0.2201 | H2 | | | | | |
| | | 28 | 0.2268 | 0.2311 | H4 | 0.23 | H3 | 0.2299 | H3 | 0.229 | H1 | | | | | |
| 5/16 | 18 | | 0.2764 | 0.2817 | H5 | 0.2803 | H3 | 0.2805 | H3 | 0.2794 | H2 | | | | | |
| | | 24 | 0.2854 | 0.2902 | H4 | 0.289 | H3 | 0.2887 | H3 | 0.2878 | H1 | | | | | |
| 3/8 | 16 | | 0.3344 | 0.3401 | H5 | 0.3387 | H3 | 0.3389 | H3 | 0.3376 | H2 | | | | | |
| | | 24 | 0.3479 | 0.3528 | H4 | 0.3516 | H3 | 0.3512 | H3 | 0.3503 | H1 | | | | | |
| 7/16 | 14 | | 0.3911 | 0.3972 | H5 | 0.3957 | H3 | 0.396 | H5 | 0.3947 | H3 | | | | | |
| | | 20 | 0.405 | 0.4104 | H5 | 0.4091 | H3 | 0.4086 | H3 | 0.4076 | H1 | | | | | |
| 1/2 | 13 | | 0.45 | 0.4565 | H5 | 0.4548 | H3 | 0.4552 | H5 | 0.4537 | H3 | | | | | |
| | | 20 | 0.4675 | 0.4731 | H5 | 0.4717 | H3 | 0.4711 | H3 | 0.4701 | H1 | | | | | |
| 9/16 | 12 | | 0.5084 | 0.5152 | H5 | 0.5135 | H3 | 0.514 | H5 | 0.5124 | H3 | | | | | |
| | | 18 | 0.5264 | 0.5323 | H5 | 0.5308 | H3 | 0.5305 | H3 | 0.5294 | H2 | | | | | |
| 5/8 | 11 | | 0.566 | 0.5732 | H5 | 0.5714 | H3 | 0.5719 | H5 | 0.5702 | H3 | | | | | |
| | | 18 | 0.5889 | 0.5949 | H5 | 0.5934 | H3 | 0.593 | H3 | 0.5919 | H2 | | | | | |
| 3/4 | 10 | | 0.685 | 0.6927 | H5 | 0.6907 | H5 | 0.6914 | H5 | 0.6895 | H3 | | | | | |
| | | 16 | 0.7094 | 0.7159 | H5 | 0.7143 | H3 | 0.7139 | H3 | 0.7126 | H2 | | | | | |
| 7/8 | 9 | | 0.8028 | 0.811 | H6 | 0.8089 | H4 | 0.8098 | H6 | 0.8077 | H4 | | | | | |
| | | 14 | 0.8286 | 0.8356 | H4 | 0.8339 | H4 | 0.8335 | H4 | 0.8322 | H2 | | | | | |
| 1 | 8 | | 0.9188 | 0.9276 | H4 | 0.9254 | H4 | 0.9264 | H4 | 0.9242 | H4 | | | | | |
| | | 12 | 0.9459 | 0.9535 | H4 | 0.9516 | H4 | 0.9515 | H4 | 0.9499 | H4 | | | | | |
| | | 14NS | 0.9536 | 0.9609 | H4 | 0.959 | H4 | 0.9585 | H4 | 0.9572 | H4 | | | | | |
| 1-1/8 | 7 | | 1.0322 | 1.0416 | H4 | 1.0393 | H4 | 1.0407 | H4 | 1.0381 | H4 | | | | | |
| | | 12 | 1.0709 | 1.0787 | H4 | 1.0768 | H4 | 1.0765 | H4 | 1.0749 | H4 | | | | | |
| 1-1/4 | 7 | | 1.1572 | 1.1668 | H4 | 1.1644 | H4 | 1.1657 | H4 | 1.1631 | H4 | | | | | |
| | | 12 | 1.1959 | 1.2039 | H4 | 1.2019 | H4 | 1.2015 | H4 | 1.1999 | H4 | | | | | |
| 1-3/8 | 6 | | 1.2667 | 1.2771 | H4 | 1.2745 | H4 | 1.2768 | H4 | 1.2738 | H4 | | | | | |
| | | 12 | 1.3209 | 1.3291 | H4 | 1.372 | H4 | 1.3265 | H4 | 1.3249 | H4 | | | | | |
| 1-1/2 | 6 | | 1.3917 | 1.4022 | H4 | 1.3996 | H4 | 1.4018 | H4 | 1.3988 | H4 | | | | | |
| | | 12 | 1.4459 | 1.4542 | H4 | 1.4522 | H4 | 1.4515 | H4 | 0.1450 | H4 | | | | | |

*Basic Pitch Diameter:
NOTE: P.D. Limits for recommended taps:
D3 = Basic Plus .0009" to Basic Plus .0015"
D4 = Basic Plus .0012" to Basic Plus .002"
D5 = Basic Plus .0015" to Basic Plus .0025"
D6 = Basic Plus .0018" to Basic Plus .003"
D7 = Basic Plus .0019" to Basic Plus .0035"
D8 = Basic Plus .0024" to Basic Plus .004"
D9 = Basic Plus .0025" to Basic Plus .0045"

The above recommended taps normally produce the class of thread indicated in average materials when used with reasonable care. However, if the tap specified does not give a satisfactory gage fit in the work, a choice of some other limit tap may be necessary.

** Sizes through 1" diameter:
H1 = Basic to Basic Plus .0005"
H2 = Basic Plus .0005" to Basic Plus .0010"
H3 = Basic Plus .0010" to Basic Plus .0015"
H4 = Basic Plus .0015" to Basic Plus .0020"
H5 = Basic Plus .0020" to Basic Plus .0025"
H6 = Basic Plus .0025" to Basic Plus .0030"
H7 = Basic Plus .0030" to Basic Plus .0035"
H8 = Basic Plus .0035" to Basic Plus .0040"
H9 = Basic Plus .0040" to Basic Plus .0045"
H10 = Basic Plus .0045" to Basic Plus .0050"
H11 = Basic Plus .0050" to Basic Plus .0055"

Sizes larger than 1" diameter thru 1-1/2":
H4 = Basic Plus .0010" to Basic Plus .0020"




# TECHNICAL DATA

## Metric Tap Drill Sizes

VEGA CUTTING TOOLS

| Nominal Size | Pitch | Recommended Metric Drill | | | | Closest Reccommended Inch Drill | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Drill Size (mm) | Inch Equiv. | Probable Hole Size (Inches) | Probable Percent of Thread | Drill Size | Inch Equiv. | Probable Hole Size (Inch) | Probable Percent of Thread |
| M1.6 | 0.35 | 1.25 | 0.0492 | 0.0507 | 69 | | | | |
| M1.8 | 0.35 | 1.45 | 0.0571 | 0.0586 | 69 | | | | |
| M2 | 0.40 | 1.6 | 0.063 | 0.0647 | 69 | #52 | 0.0635 | 0.0652 | 66 |
| M2.2 | 0.45 | 1.75 | 0.0689 | 0.0706 | 70 | | | | |
| M2.5 | 0.45 | 2.05 | 0.0807 | 0.0826 | 69 | #46 | 0.081 | 0.0829 | 67 |
| M3 | 0.50 | 2.5 | 0.0984 | 0.1007 | 68 | #40 | 0.098 | 0.1003 | 70 |
| M3.5 | 0.60 | 2.9 | 0.1142 | 0.1168 | 68 | #33 | 0.113 | 0.1156 | 72 |
| M4 | 0.70 | 3.3 | 0.1299 | 0.1328 | 69 | #30 | 0.1285 | 0.1314 | 73 |
| M4.5 | 0.75 | 3.7 | 0.1457 | 0.1489 | 74 | #26 | 0.147 | 0.1502 | 70 |
| M5 | 0.80 | 4.2 | 0.1654 | 0.1686 | 69 | #19 | 0.166 | 0.1692 | 68 |
| M6 | 1.00 | 5 | 0.1968 | 0.2006 | 70 | #9 | 0.196 | 0.1998 | 71 |
| M7 | 1.00 | 6 | 0.2362 | 0.24 | 70 | 15/64 | 0.2344 | 0.2382 | 73 |
| M8 | 1.25 | 6.7 | 0.2638 | 0.2679 | 74 | 17/64 | 0.2656 | 0.2697 | 71 |
| | 1.00 | 7 | 0.2756 | 0.2797 | 69 | J | 0.277 | 0.2811 | 66 |
| M10 | 1.50 | 8.5 | 0.3346 | 0.339 | 71 | Q | 0.332 | 0.3364 | 75 |
| | 1.25 | 8.7 | 0.3425 | 0.3471 | 73 | 11/32 | 0.3438 | 0.3483 | 71 |
| M12 | 1.75 | 10.2 | 0.4016 | 0.4063 | 74 | Y | 0.404 | 0.4087 | 71 |
| | 1.25 | 10.8 | 0.4252 | 0.4299 | 67 | 27/64 | 0.4219 | 0.4266 | 72 |
| M14 | 2.00 | 12 | 0.4724 | 0.4772 | 72 | 15/32 | 0.4688 | 0.4736 | 76 |
| | 1.50 | 12.5 | 0.4921 | 0.4969 | 71 | | | | |
| M16 | 2.00 | 14 | 0.5512 | 0.5561 | 72 | 35/64 | 0.5469 | 0.5518 | 76 |
| | 1.50 | 14.5 | 0.5709 | 0.5758 | 71 | | | | |
| M18 | 2.50 | 15.5 | 0.6102 | 0.6152 | 73 | 39/64 | 0.6094 | 0.6144 | 74 |
| | 1.50 | 16.5 | 0.6496 | 0.6546 | 70 | | | | |
| M20 | 2.50 | 17.5 | 0.689 | 0.6942 | 73 | 11/16 | 0.6875 | 0.6925 | 74 |
| | 1.50 | 18.5 | 0.7283 | 0.7335 | 70 | | | | |
| M22 | 2.50 | 19.5 | 0.7677 | 0.7729 | 73 | 49/64 | 0.7656 | 0.7708 | 75 |
| | 1.50 | 20.5 | 0.8071 | 0.8123 | 70 | | | | |
| M24 | 3.00 | 21 | 0.8268 | 0.8327 | 73 | 53/64 | 0.8281 | 0.834 | 72 |
| | 2.00 | 22 | 0.8661 | 0.872 | 71 | | | | |
| M27 | 3.00 | 24 | 0.9449 | 0.9511 | 73 | 15/16 | 0.9375 | 0.9435 | 78 |
| | 2.00 | 25 | 0.9843 | 0.9913 | 70 | 63/64 | 0.9844 | 0.9914 | 70 |
| M30 | 3.50 | 26.5 | 1.0433 | | | | | | |
| | 2.00 | 28 | 1.1024 | | | | | | |
| M33 | 3.50 | 29.5 | 1.1614 | | | | | | |
| | 2.00 | 31 | 1.2205 | | | | | | |
| M36 | 4.00 | 32 | 1.2598 | | | | | | |
| | 3.00 | 33 | 1.2992 | | | | | | |
| M39 | 4.00 | 35 | 1.378 | | | | | | |
| | 3.00 | 36 | 1.4173 | | | | | | |

# TECHNICAL DATA

## Speeds and Feeds for XCD Drills

*Please decrease starting speed & feed by 30% if not using 1000 plus PSI Coolant System

| Size | | Medium - Low Carbon Steels | | Alloy Steels | | Die Steels | | Cast Iron | | Aluminum Cast | | Stainless Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1035, 1045 | | 4140, 4340 | | H13 (HRC20) | | | | | | 303-17-4PH | |
| | | 100-140 SFM | | 83-120 SFM | | 50-90 SFM | | 150-200 SFM | | 250-400 SFM | | 80-105 SFM | |
| Fractional | Decimal | RPM | IPR | RPM | IPR | RPM | IPR | RPM | IPR | RPM | IPR | RPM | IPR |
| 1/4 | 0.2500 | 1830 | .005-.007 | 1530 | .005-.007 | 1070 | .005-.007 | 2680 | .008-.010 | 4970 | .013-.019 | 1605 | .004-.005 |
| 9/32 | 0.2813 | 1630 | .006-.008 | 1360 | .006-.008 | 950 | .006-.008 | 2380 | .008-.011 | 4420 | .014-.020 | 1426 | .004-.006 |
| 5/16 | 0.3125 | 1470 | .007-.009 | 1220 | .007-.009 | 860 | .007-.009 | 2140 | .008-.012 | 3970 | .015-.021 | 1283 | .005-.006 |
| 11/32 | 0.3438 | 1330 | .007-.009 | 1110 | .007-.009 | 780 | .007-.009 | 1950 | .009-.013 | 3610 | .016-.022 | 1167 | .005-.006 |
| 3/8 | 0.3750 | 1220 | .008-.011 | 1020 | .008-.011 | 710 | .008-.011 | 1780 | .010-.014 | 3310 | .017-.025 | 1070 | .006-.007 |
| 13/32 | 0.4062 | 1130 | .008-.011 | 940 | .008-.011 | 660 | .008-.011 | 1650 | .010-.014 | 3060 | .018-.026 | 987 | .006-.007 |
| 7/16 | 0.4375 | 1050 | .009-.012 | 870 | .009-.012 | 610 | .009-.012 | 1530 | .011-.015 | 2840 | .019-.027 | 917 | .006-.007 |
| 15/32 | 0.4688 | 980 | .009-.012 | 820 | .009-.012 | 570 | .009-.012 | 1430 | .011-.015 | 2650 | .020-.028 | 822 | .006-.007 |
| 1/2 | 0.5000 | 920 | .010-.013 | 760 | .010-.013 | 540 | .010-.013 | 1340 | .013-.017 | 2480 | .021-.030 | 802 | .007-.008 |
| 9/16 | 0.5625 | 820 | .011-.014 | 680 | .011-.014 | 480 | .011-.014 | 1190 | .013-.017 | 2210 | .022-.031 | 713 | .007-.008 |
| 5/8 | 0.6250 | 730 | .012-.015 | 610 | .012-.015 | 430 | .011-.014 | 1070 | .014-.018 | 1990 | .023-.032 | 642 | .007-.008 |
| 11/16 | 0.6875 | 670 | .013-.016 | 560 | .013-.016 | 390 | .012-.015 | 970 | .014-.018 | 1810 | .024-.033 | 584 | .008-.009 |
| 3/4 | 0.7500 | 610 | .014-.017 | 510 | .014-.017 | 360 | .013-.016 | 890 | .015-.019 | 1660 | .025-.0347 | 535 | .008-.009 |

| Specific Problems | Causes | Solution |
|---|---|---|
| Corners Break Down | Cutting Speed too fast, poor lubrication | Reduce RPM, improve coolant flow |
| Chipping | Feed rate too high, (IPR), relief angle too high | Reduce feed rate (IPR), adjust relief angle of regrind |
| Poor Surface Finish | Feed rate too high, (IPR), time to regrind | Reduce feed rate (IPR), regrind |
| Rifling Mark | Feed rate too high, (IPR), relief angle too high | Reduce feed rate (IPR), adjust relief angle of regrind |
| Over Sized Holes | Uneven lip height, poor spindle or holder | Inspect lip height, check run-out of drill in spindle |

Formulas

Cutting Speed (SFM) = $\frac{\text{Drill Dia. (inch)} \times 3.14 \times \text{RPM}}{12}$ Feed Rate (in/min) = IPR x RPM Metric Conversion (mm) = 25.4 x inch (drill dia.)

## Speeds and Feeds for XCT Taps

| Material | Cutting Speed (SFM) |
|---|---|
| Aluminum | 150-300 SFM |
| Stainless Steels | 50-120 SFM |
| Tool Steels | 120 SFM |
| Low Carbon Steels | 150-250 SFM |
| Med Carbon Steels | 100-200 SFM |




# TECHNICAL DATA

## *High Performance Thread Mills

*Vega Standard Thread Mill Recommended Cutting Data (SFM/FPT*)

| Effective Cut Diameter | | Steel | | | Stainless Steel | | | Cast Iron | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | <15Rc | 15-30Rc | >30Rc | <20Rc | 20-30Rc | >30Rc | Grey Cast Iron | Ductile Iron | Chilled Iron |
| 0.160 - 0.246 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0010 | 0.0009 | 0.0008 | 0.0009 | 0.0008 | 0.0007 | 0.0012 | 0.0009 | 0.0005 |
| 0.280 - 0.371 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0014 | 0.0013 | 0.0011 | 0.0013 | 0.0011 | 0.0011 | 0.0015 | 0.0013 | 0.0008 |
| 0.444 - 0.468 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0011 | 0.0010 | 0.0008 | 0.0010 | 0.0009 | 0.0008 | 0.0012 | 0.0010 | 0.0006 |
| 0.567 - 0.621 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0012 | 0.0011 | 0.0009 | 0.0010 | 0.0009 | 0.0008 | 0.0012 | 0.0011 | 0.0006 |
| 0..700 - 0.745 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0013 | 0.0012 | 0.0010 | 0.0011 | 0.0010 | 0.0009 | 0.0014 | 0.0012 | 0.0006 |
| 0.990 | SFM | 450 | 325 | 175 | 290 | 225 | 145 | 425 | 350 | 80 |
| | FPT | 0.0017 | 0.0016 | 0.0014 | 0.0015 | 0.0013 | 0.0012 | 0.0018 | 0.0016 | 0.0009 |

| Effective Cut Diameter | | Non Ferrous | | | Hi Temp Alloys | | |
|---|---|---|---|---|---|---|---|
| | | Aluminum | Brass/ Bronze | Copper Alloys | Titanium Alloys | Nickel Alloys | Cobalt Alloys |
| 0.160 - 0.246 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0013 | 0.0013 | 0.0010 | 0.0005 | 0.0005 | 0.0005 |
| 0.280 - 0.371 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0018 | 0.0018 | 0.0015 | 0.0008 | 0.0007 | 0.0007 |
| 0.444 - 0.468 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0014 | 0.0014 | 0.0011 | 0.0006 | 0.0005 | 0.0005 |
| 0.567 - 0.621 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0014 | 0.0014 | 0.0011 | 0.0006 | 0.0006 | 0.0006 |
| 0.700 - 0.745 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0015 | 0.0015 | 0.0012 | 0.0007 | 0.0006 | 0.0006 |
| 0.990 | SFM | 1500 | 1500 | 800 | 115 | 80 | 60 |
| | FPT | 0.0020 | 0.0020 | 0.0017 | 0.0009 | 0.0009 | 0.0009 |

* Please note that the Feed Per Tooth (FPT) is determined at the tool center. Please calculate table feed accordingly.

## Vega High Performance Thread Mill Application Tips

### Holding the Tools

Whenever possible, utilize a milling chuck in conjunction with the thread mill for optimal performance and minimal tool deflection. If a milling chuck is not available, a weldon style endmill holder is acceptable. Collet chucks are not recommended due to the potential for tool deflection.

### Cutting Straight Threads

Using the proper tool holder will have a major impact on the straightness of your threads. Reducing your effective feed per tooth will also have an impact on the straightness of your threads.

### Troubleshooting

| Problem: | Solution: |
|---|---|
| • Premature Tool Wear<br>• Tool Chipping | • Decrease cutting speed or increase effective feed per tooth<br>• Decrease effective feed per tooth<br>• Check for proper holder and holder runout<br>• Increase coolant pressure to flush chips |
| • Undersize or Tapered Threads | • Increase cutting speed or decrease effective feed per tooth<br>• Use Milling Chuck for tool holder |
| • Tool Chattering | • Decrease cutting speed and/or increase effective feed per tooth<br>• Use Milling Chuck for tool holder<br>• Reduce radial depth to 50% per pass |

| EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE | EDP# | PAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10015 | 36 | 22874 | 31 | 51001 | 38 | 72932 | 17 | 75623 | 26 | 82621 | 14 | 82804 | 30 | 84414 | 29 | 84673 | 8 |
| 10016 | 36 | 22875 | 31 | 51002 | 38 | 72933 | 17 | 75625 | 26 | 82622 | 14 | 82805 | 30 | 84415 | 29 | 84674 | 8 |
| 10017 | 36 | 22876 | 31 | 51003 | 38 | 72935 | 17 | 75627 | 26 | 82623 | 14 | 82806 | 30 | 84416 | 29 | 84675 | 8 |
| 10018 | 36 | 22877 | 31 | 51004 | 38 | 72939 | 17 | 75900 | 35 | 82625 | 14 | 82807 | 30 | 84417 | 29 | 84676 | 8 |
| 10019 | 36 | 24620 | 13 | 51005 | 38 | 74215 | 28 | 75905 | 35 | 82626 | 14 | 82808 | 30 | 84418 | 29 | 84677 | 8 |
| 10020 | 36 | 24622 | 13 | 52001 | 38 | 74217 | 28 | 75910 | 35 | 82627 | 14 | 82809 | 30 | 84419 | 29 | 84678 | 8 |
| 10021 | 36 | 24623 | 13 | 52002 | 38 | 74219 | 28 | 75915 | 35 | 82628 | 14 | 82810 | 30 | 84420 | 29 | 84679 | 8 |
| 10022 | 36 | 24624 | 13 | 52003 | 38 | 74220 | 28 | 75920 | 35 | 82629 | 14 | 82811 | 30 | 84421 | 29 | 84680 | 8 |
| 10023 | 36 | 24625 | 13 | 52004 | 38 | 74223 | 28 | 75925 | 35 | 82630 | 14 | 82812 | 30 | 84422 | 29 | 84681 | 8 |
| 10024 | 36 | 24626 | 13 | 52005 | 38 | 74225 | 28 | 75930 | 35 | 82631 | 14 | 82813 | 30 | 84600 | 8 | 84682 | 8 |
| 10025 | 36 | 24627 | 13 | 52006 | 38 | 74227 | 28 | 75935 | 35 | 82632 | 14 | 82814 | 30 | 84601 | 8 | 84683 | 8 |
| 10026 | 36 | 24628 | 13 | 52007 | 38 | 74415 | 29 | 75940 | 35 | 82633 | 14 | 82815 | 30 | 84602 | 8 | 84684 | 8 |
| 10027 | 36 | 24629 | 13 | 52008 | 38 | 74417 | 29 | 75945 | 35 | 82634 | 14 | 82816 | 30 | 84603 | 8 | 84685 | 8 |
| 10028 | 37 | 24630 | 13 | 52009 | 38 | 74419 | 29 | 75950 | 35 | 82635 | 14 | 82901 | 15 | 84604 | 8 | 84686 | 8 |
| 10029 | 37 | 24631 | 13 | 52010 | 38 | 74420 | 29 | 75955 | 35 | 82636 | 14 | 82903 | 15 | 84605 | 8 | 84687 | 8 |
| 10030 | 37 | 32807 | 31 | 52011 | 38 | 74423 | 29 | 75960 | 35 | 82637 | 14 | 82905 | 15 | 84606 | 8 | 84688 | 8 |
| 10031 | 37 | 32809 | 31 | 52012 | 38 | 74425 | 29 | 75965 | 35 | 82639 | 14 | 82907 | 15 | 84607 | 8 | 84689 | 8 |
| 10032 | 37 | 32811 | 31 | 53001 | 38 | 74427 | 29 | 75970 | 35 | 82640 | 14 | 82909 | 15 | 84609 | 8 | 84690 | 8 |
| 10033 | 37 | 32813 | 31 | 53002 | 38 | 74615 | 10 | 75975 | 35 | 82643 | 14 | 82910 | 15 | 84610 | 8 | 84691 | 8 |
| 10034 | 37 | 32815 | 31 | 53003 | 38 | 74616 | 10 | 75980 | 35 | 82644 | 14 | 82913 | 15 | 84611 | 8 | 84692 | 8 |
| 10036 | 37 | 32817 | 31 | 53004 | 38 | 74617 | 10 | 75985 | 35 | 82645 | 14 | 82914 | 15 | 84613 | 8 | 84693 | 8 |
| 10037 | 37 | 34601 | 12 | 53005 | 38 | 74619 | 10 | 75990 | 35 | 82646 | 14 | 82915 | 15 | 84614 | 8 | 84694 | 8 |
| 10038 | 37 | 34605 | 12 | 53006 | 38 | 74620 | 10 | 76900 | 34 | 82647 | 14 | 82916 | 15 | 84615 | 8 | 84695 | 8 |
| 10040 | 37 | 34607 | 12 | 53007 | 38 | 74621 | 10 | 76905 | 34 | 82648 | 14 | 82917 | 15 | 84616 | 8 | 84696 | 8 |
| 10042 | 37 | 34609 | 12 | 71081 | 22 | 74622 | 10 | 76910 | 34 | 82649 | 14 | 82918 | 15 | 84617 | 8 | 84697 | 8 |
| 10044 | 37 | 34610 | 12 | 71082 | 22 | 74623 | 10 | 76915 | 34 | 82650 | 14 | 82919 | 15 | 84618 | 8 | 84698 | 8 |
| 10046 | 37 | 34613 | 12 | 71083 | 22 | 74624 | 10 | 76920 | 34 | 82651 | 14 | 82920 | 15 | 84619 | 8 | 84699 | 8 |
| 10048 | 37 | 34614 | 12 | 71084 | 22 | 74625 | 10 | 76925 | 34 | 82652 | 14 | 82921 | 15 | 84620 | 8 | 84800 | 32 |
| 10050 | 36 | 34615 | 12 | 71085 | 22 | 74626 | 10 | 76930 | 34 | 82653 | 14 | 82922 | 15 | 84621 | 8 | 84801 | 32 |
| 10051 | 36 | 34616 | 12 | 71086 | 22 | 74627 | 10 | 76935 | 34 | 82654 | 14 | 82923 | 15 | 84622 | 8 | 84802 | 32 |
| 10052 | 36 | 34617 | 12 | 71087 | 22 | 74628 | 10 | 76940 | 34 | 82655 | 14 | 82925 | 15 | 84623 | 8 | 84803 | 32 |
| 10053 | 36 | 34618 | 12 | 71088 | 22 | 74629 | 10 | 76945 | 34 | 82656 | 14 | 82926 | 15 | 84624 | 8 | 84804 | 32 |
| 10054 | 36 | 34619 | 12 | 72615 | 16 | 74630 | 10 | 76950 | 34 | 82657 | 14 | 82927 | 15 | 84625 | 8 | 84805 | 32 |
| 10055 | 36 | 34620 | 12 | 72616 | 16 | 74631 | 10 | 76955 | 34 | 82658 | 14 | 82928 | 15 | 84626 | 8 | 84806 | 32 |
| 10056 | 36 | 34621 | 12 | 72617 | 16 | 74632 | 10 | 76960 | 34 | 82659 | 14 | 82953 | 15 | 84627 | 8 | 84807 | 32 |
| 10057 | 36 | 34622 | 12 | 72619 | 16 | 74633 | 10 | 76965 | 34 | 82660 | 14 | 82954 | 15 | 84628 | 8 | 84808 | 32 |
| 10058 | 36 | 34625 | 12 | 72620 | 16 | 74635 | 10 | 76970 | 34 | 82661 | 14 | 82995 | 15 | 84629 | 8 | 84809 | 32 |
| 10059 | 36 | 34626 | 12 | 72621 | 16 | 74639 | 10 | 76975 | 34 | 82662 | 14 | 82996 | 15 | 84630 | 8 | 84810 | 32 |
| 10060 | 36 | 34627 | 12 | 72622 | 16 | 74870 | 30 | 76980 | 34 | 82663 | 14 | 82997 | 15 | 84631 | 8 | 84811 | 32 |
| 10062 | 36 | 34628 | 12 | 72623 | 16 | 74871 | 30 | 76985 | 34 | 82664 | 14 | 83640 | 18 | 84632 | 8 | 84812 | 32 |
| 10063 | 36 | 42800 | 30 | 72624 | 16 | 74872 | 30 | 76990 | 34 | 82665 | 14 | 83641 | 18 | 84633 | 8 | 84813 | 32 |
| 10064 | 36 | 42801 | 30 | 72625 | 16 | 74873 | 30 | 77515 | 25 | 82666 | 14 | 83642 | 18 | 84634 | 8 | 84814 | 32 |
| 10065 | 36 | 42802 | 30 | 72626 | 16 | 74874 | 30 | 77517 | 25 | 82667 | 14 | 83643 | 18 | 84635 | 8 | 84815 | 32 |
| 10066 | 36 | 44800 | 32 | 72627 | 16 | 74875 | 30 | 77519 | 25 | 82669 | 14 | 83644 | 18 | 84636 | 8 | 84816 | 32 |
| 10067 | 36 | 44801 | 32 | 72628 | 16 | 74876 | 30 | 77520 | 25 | 82670 | 14 | 83645 | 18 | 84637 | 8 | 84901 | 9 |
| 10068 | 37 | 44802 | 32 | 72629 | 16 | 74915 | 11 | 77523 | 25 | 82671 | 14 | 83646 | 18 | 84638 | 8 | 84903 | 9 |
| 10069 | 37 | 46000 | 22 | 72630 | 16 | 74916 | 11 | 77525 | 25 | 82672 | 14 | 83647 | 18 | 84639 | 8 | 84905 | 9 |
| 10070 | 37 | 46001 | 22 | 72631 | 16 | 74917 | 11 | 77527 | 25 | 82673 | 14 | 83660 | 18 | 84640 | 8 | 84907 | 9 |
| 10071 | 37 | 46002 | 22 | 72632 | 16 | 74919 | 11 | 77615 | 27 | 82674 | 14 | 83661 | 18 | 84641 | 8 | 84909 | 9 |
| 10072 | 37 | 46003 | 22 | 72633 | 16 | 74920 | 11 | 77617 | 27 | 82675 | 14 | 83662 | 18 | 84643 | 8 | 84910 | 9 |
| 10073 | 37 | 46004 | 22 | 72635 | 16 | 74921 | 11 | 77619 | 27 | 82676 | 14 | 83663 | 18 | 84644 | 8 | 84913 | 9 |
| 10074 | 37 | 46007 | 22 | 72639 | 16 | 74922 | 11 | 77620 | 27 | 82677 | 14 | 83664 | 18 | 84645 | 8 | 84914 | 9 |
| 10075 | 37 | 46008 | 22 | 72644 | 16 | 74923 | 11 | 77623 | 27 | 82678 | 14 | 83665 | 18 | 84646 | 8 | 84915 | 9 |
| 10076 | 37 | 46009 | 22 | 72870 | 30 | 74924 | 11 | 77625 | 27 | 82679 | 14 | 83666 | 18 | 84647 | 8 | 84916 | 9 |
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| 10078 | 37 | 46013 | 22 | 72872 | 30 | 74926 | 11 | 82600 | 14 | 82681 | 14 | 84201 | 28 | 84649 | 8 | 84918 | 9 |
| 10079 | 37 | 46014 | 22 | 72873 | 30 | 74927 | 11 | 82601 | 14 | 82682 | 14 | 84205 | 28 | 84650 | 8 | 84919 | 9 |
| 10080 | 37 | 46015 | 22 | 72874 | 30 | 74928 | 11 | 82602 | 14 | 82683 | 14 | 84207 | 28 | 84651 | 8 | 84920 | 9 |
| 10081 | 37 | 46016 | 22 | 72875 | 30 | 74929 | 11 | 82603 | 14 | 82684 | 14 | 84209 | 28 | 84652 | 8 | 84921 | 9 |
| 10082 | 37 | 46019 | 22 | 72876 | 30 | 74930 | 11 | 82604 | 14 | 82686 | 14 | 84210 | 28 | 84653 | 8 | 84922 | 9 |
| 10083 | 37 | 46020 | 22 | 72915 | 17 | 74931 | 11 | 82605 | 14 | 82688 | 14 | 84213 | 28 | 84654 | 8 | 84923 | 9 |
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| 10085 | 37 | 46022 | 22 | 72917 | 17 | 74933 | 11 | 82607 | 14 | 82690 | 14 | 84215 | 28 | 84656 | 8 | 84926 | 9 |
| 10086 | 37 | 46023 | 22 | 72919 | 17 | 74935 | 11 | 82608 | 14 | 82691 | 14 | 84216 | 28 | 84657 | 8 | 84927 | 9 |
| 10087 | 37 | 46024 | 22 | 72920 | 17 | 74939 | 11 | 82609 | 14 | 82692 | 14 | 84217 | 28 | 84658 | 8 | 84928 | 9 |
| 10088 | 37 | 46025 | 22 | 72921 | 17 | 75515 | 24 | 82610 | 14 | 82693 | 14 | 84218 | 28 | 84659 | 8 | 84953 | 9 |
| 10089 | 37 | 46026 | 22 | 72922 | 17 | 75517 | 24 | 82611 | 14 | 82694 | 14 | 84219 | 28 | 84660 | 8 | 84954 | 9 |
| 10103 | 36 | 50001 | 38 | 72923 | 17 | 75519 | 24 | 82612 | 14 | 82695 | 14 | 84220 | 28 | 84661 | 8 | 84995 | 9 |
| 10107 | 36 | 50002 | 38 | 72924 | 17 | 75520 | 24 | 82613 | 14 | 82696 | 14 | 84221 | 28 | 84662 | 8 | 84996 | 9 |
| 10109 | 36 | 50003 | 38 | 72925 | 17 | 75523 | 24 | 82614 | 14 | 82697 | 14 | 84222 | 28 | 84664 | 8 | 84997 | 9 |
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| 10221 | 36 | 50007 | 38 | 72929 | 17 | 75617 | 26 | 82618 | 14 | 82801 | 30 | 84409 | 29 | 84670 | 8 | 85507 | 24 |
| 10225 | 36 | 50008 | 38 | 72930 | 17 | 75619 | 26 | 82619 | 14 | 82802 | 30 | 84410 | 29 | 84671 | 8 | 85509 | 24 |
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| 85532 | 24 | 85909 | 35 | 87428 | 23 | 87610 | 27 | 826716 | 14 | 1841302 | 4 | 1865305 | 4 | 93993TI | 21 |
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| 85640 | 26 | 87253 | 23 | 87544 | 25 | 89606 | 19 | 1208106 | 5 | 1860110 | 4 | 93784TI | 20 | | |
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| 85645 | 26 | 87260 | 23 | 87547 | 25 | 89614 | 19 | 1209104 | 5 | 1860310 | 4 | 93795TI | 20 | | |
| 85646 | 26 | 87261 | 23 | 87548 | 25 | 89615 | 19 | 1209107 | 5 | 1861104 | 4 | 93796TI | 20 | | |
| 85647 | 26 | 87262 | 23 | 87549 | 25 | 89616 | 19 | 1209304 | 5 | 1861106 | 4 | 93829TI | 20 | | |

735 E. Remington Rd. • Schaumburg, IL 60173
Tel: 800.228.2969 • Fax: 847.882.9056

# Sample Test Tool Report

Please make copies of this original for your staff.

Date: _____ Distributor: _____

Customer Name: _____ Salesman: _____

Contact: _____ Street: _____

Street: _____ City: _____

City: _____ Phone: _____

Phone: _____

| Tap Size | Type of Tap | # of Flutes | GH Limit | EDP# | Surface Treatment |
|---|---|---|---|---|---|
| | | | | | |

| | | | |
|---|---|---|---|
| Qty / Tread Class | Gage<br>Go:<br>No Go: | % of Thread | Tapping<br>Horizontal ☐<br>Vertical ☐ |

| | | | |
|---|---|---|---|
| Work Material | Hardness | Hole Size | Lubricant<br>Flow ☐<br>Brush ☐ |

| | |
|---|---|
| Tapping Speed<br>RPM<br>Feet/Minute | Operation<br>1) Hand 2) Machine 3) NC Machine |

Hole Dimension

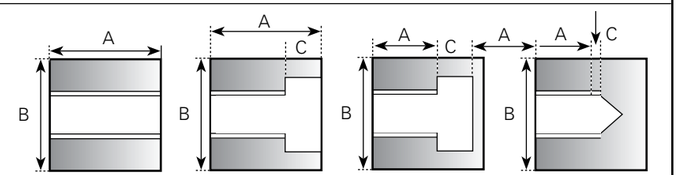
A: _____

B: _____

C: _____

• Circle One

• Show Tap Entry Using Arrow




| | |
|---|---|
| Test Results<br>Tool Life:<br>Comments: | Competition:<br>Tool Life:<br>Price:<br>Comments:<br>Brand: |

| | | | | |
|---|---|---|---|---|
| Tapping Problem: | ☐ Breakage | ☐ Teeth Breakage | ☐ Rough/Torn Thread | ☐ Chipping |
| | ☐ Loading | ☐ Extreme Wear | ☐ Oversize | ☐ Undersize |

Additional Information:

_____

_____

_____

Criteria For Successful Test:

_____

_____

_____




735 E. Remington Rd. • Schaumburg, IL 60173
Tel: 800.228.2969 • Fax: 847.882.9056

RMA# _____

# Request for Return Authorization

Customer: _____ C/M Order#: _____

Sold to: _____ Date: _____

City/State: _____ Contact: _____

S.O.#: _____ P.O#: _____

Invoice: _____ Invoice Date: _____

| Qty Ordered | Qty Returned | EDP# | Description | Price | Disc | Net |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## Reason for Return

☐ Ordered in Error ☐ Refused C.O.D. ☐ Duplicate ☐ Test Failed _____

☐ Wrong Customer ☐ Customer Cancelled ☐ Defective _____

☐ Wrong Merchandise/Check Inventory/Item Sent? _____

## BELOW FOR INTERNAL USE ONLY:

## Inventory Action

☐ Return to Customer ☐ Return to Stock ☐ Scrap

☐ Return to Vendor _____

## Customer Action

☐ Credit ☐ Restocking Fee? _____ % ☐ Shipping Charges?

☐ Replacement Sent _____ ☐ No Credit Being Issued

Additional Comments:

_____

_____

_____

_____

Sales Return Clerk Entered By

**Please make copies for your office. Fax request to 847.882.9056**

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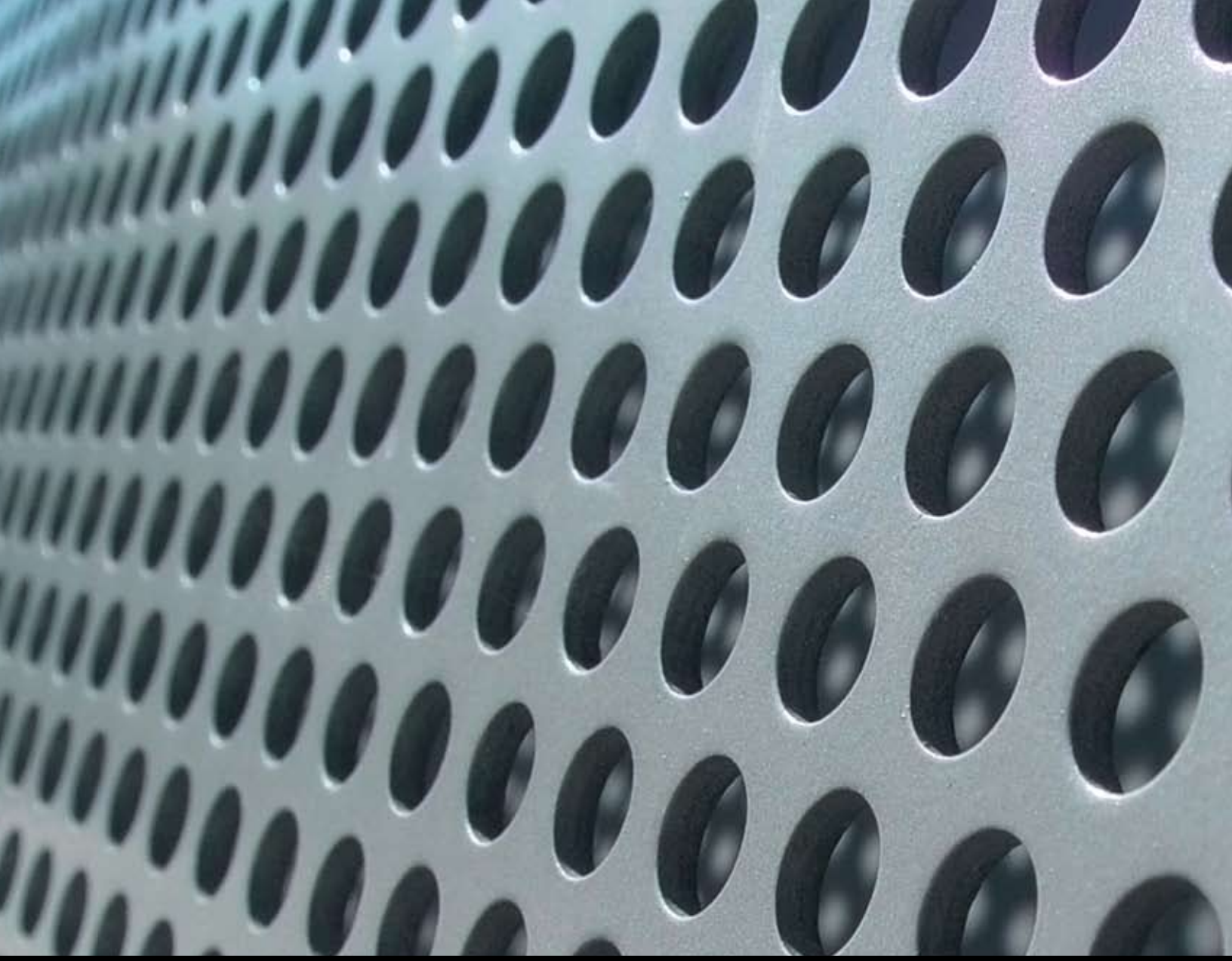

# 2009 - 2010 EDITION

VEGA
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