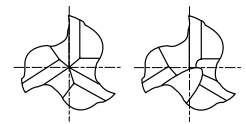


HSS-PM, 3 FLUTE SHORT LENGTH

- HSS-PM, 3 SCHNEIDEN KURZ
- FRAISES HSS-PM, 3 DENTS, SÉRIE COURTE
- 3 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Well balanced web design to minimize deflection and chattering.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Verstärkter Kern zur Erhöhung der Stabilität.
- ▶ 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsem.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

HSS PM
DIN 844
3
30°
DIN 1835B

p. 658 ~ 661

Unit : mm

| EDP No. | | Mill Diameter | Shank Diameter | Length of Cut | Overall Length |
|----------|-------------|---------------|----------------|---------------|----------------|
| UNCOATED | TiAIN based | e8 | h6 | | |
| E9A30010 | GAA30010 | 1.0 | 6 | 3 | 47 |
| E9A30020 | GAA30020 | 2.0 | 6 | 7 | 51 |
| E9A30030 | GAA30030 | 3.0 | 6 | 8 | 52 |
| E9A30040 | GAA30040 | 4.0 | 6 | 11 | 55 |
| E9A30050 | GAA30050 | 5.0 | 6 | 13 | 57 |
| E9A30060 | GAA30060 | 6.0 | 6 | 13 | 57 |
| E9A30070 | GAA30070 | 7.0 | 10 | 16 | 66 |
| E9A30080 | GAA30080 | 8.0 | 10 | 19 | 69 |
| E9A30090 | GAA30090 | 9.0 | 10 | 19 | 69 |
| E9A30100 | GAA30100 | 10.0 | 10 | 22 | 72 |
| E9A30120 | GAA30120 | 12.0 | 12 | 26 | 83 |
| E9A30140 | GAA30140 | 14.0 | 12 | 26 | 83 |
| E9A30160 | GAA30160 | 16.0 | 16 | 32 | 92 |
| E9A30180 | GAA30180 | 18.0 | 16 | 32 | 92 |
| E9A30200 | GAA30200 | 20.0 | 20 | 38 | 104 |
| E9A30220 | GAA30220 | 22.0 | 20 | 38 | 104 |
| E9A30250 | GAA30250 | 25.0 | 25 | 45 | 121 |

Tolerances according to DIN 7160 & 7161

| Tolerance range in µm | | | | | |
|------------------------|--------------|--------------|--------------|---------------|---------------|
| Nominal-Diameter in mm | | | | | |
| | from 1 to 3 | over 3 to 6 | over 6 to 10 | over 10 to 18 | over 18 to 30 |
| e8 | - 14 - 28 | - 20 - 38 | - 25 - 47 | - 32 - 59 | - 40 - 73 |
| h6 | 0 - 6 | 0 - 8 | 0 - 9 | 0 - 11 | 0 - 13 |

◎ : Excellent ○ : Good

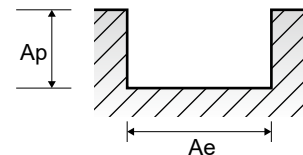
| ISO Material Description | P | | | | | | | | | | M | | | | K | | | | | | |
|--------------------------|-----------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----------------|-----|----------------|-----|-------------------|-----|---------------------|
| | Non-alloy steel | | | | | Low alloy steel | | | | | High alloyed steel, and tool steel | | | | Stainless steel | | Grey cast iron | | Nodular cast iron | | Malleable cast iron |
| VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| HRC | | 13 | 25 | 28 | 32 | 10 | 29 | 32 | 38 | 15 | 35 | 15 | 23 | 10 | 10 | 26 | 3 | 25 | | 21 | |
| HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230 | |
| Recommend | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | |

| ISO Material Description | N | | | | | S | | | | | | | | | | H | | | | | |
|--------------------------|------------------------|-----|------------------------|----|-----|---|----|-----|------------------------|----|-----------------------------|-----|-----|-----|-----|-----------------|---------|----------------|-------------------|--------------------|-----|
| | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | | Copper and Copper Alloys (Bronze / Brass) | | | Non Metallic Materials | | Heat Resistant Super Alloys | | | | | Titanium Alloys | | Hardened steel | Chilled Cast Iron | Hardened Cast Iron | |
| VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| HRC | | | | | | | | | | | 15 | 30 | 25 | 38 | 34 | | | 55 | 60 | 42 | 55 |
| HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550 |
| Recommend | | | | | | ○ | ○ | ○ | | | | | | | | | | | | | |

E9942 , E9A30 SERIES **3 FLUTE - SLOTTING**

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

| ISO | VDI 3323 | Material Description | Ae | Ap | Parameter | Diameter (Ø) | | | | | | | | | | | | | | | |
|------|----------|--|------|-------|-----------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|--|
| | | | | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 25.0 | | |
| P | 1 | Non-alloy steel | 1.0D | 0.5D | Vc | 30 | 30 | 35 | 40 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 40 | 40 | 40 | |
| | | | | | fz | 0.003 | 0.007 | 0.01 | 0.013 | 0.021 | 0.028 | 0.037 | 0.047 | 0.048 | 0.054 | 0.064 | 0.076 | 0.085 | 0.096 | | |
| | | | | | FEED | 4775 | 3183 | 2785 | 2546 | 2387 | 1790 | 1432 | 1194 | 1023 | 895 | 796 | 637 | 579 | 509 | | |
| | 2 | | 1.0D | 0.5D | Vc | 25 | 25 | 30 | 35 | 35 | 40 | 40 | 40 | 40 | 40 | 35 | 35 | 35 | 35 | | |
| | | | | | fz | 0.003 | 0.007 | 0.01 | 0.012 | 0.021 | 0.029 | 0.036 | 0.048 | 0.048 | 0.056 | 0.066 | 0.075 | 0.08 | 0.101 | | |
| | | | | | FEED | 3979 | 2653 | 2387 | 2228 | 1857 | 1592 | 1273 | 1061 | 909 | 796 | 619 | 557 | 506 | 446 | | |
| | 3-4 | | 1.0D | 0.5D | Vc | 20 | 30 | 25 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 25 | |
| | | | | | fz | 0.003 | 0.003 | 0.008 | 0.01 | 0.018 | 0.026 | 0.035 | 0.043 | 0.049 | 0.052 | 0.06 | 0.059 | 0.077 | 0.098 | | |
| | | | | | FEED | 3183 | 3183 | 1989 | 1910 | 1592 | 1194 | 955 | 796 | 682 | 597 | 531 | 477 | 434 | 318 | | |
| | 5 | | 1.0D | 0.5D | Vc | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| | | | | | fz | 0.003 | 0.007 | 0.009 | 0.012 | 0.018 | 0.028 | 0.038 | 0.047 | 0.048 | 0.057 | 0.057 | 0.061 | 0.074 | 0.09 | | |
| FEED | | 2387 | | | 1592 | 1194 | 955 | 1061 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | | |
| 6 | 1.0D | 0.5D | Vc | 25 | 25 | 30 | 35 | 35 | 40 | 40 | 40 | 40 | 40 | 35 | 35 | 35 | 35 | | | | |
| | | | fz | 0.003 | 0.007 | 0.01 | 0.012 | 0.021 | 0.029 | 0.036 | 0.048 | 0.048 | 0.056 | 0.066 | 0.075 | 0.08 | 0.101 | | | | |
| | | | FEED | 3979 | 2653 | 2387 | 2228 | 1857 | 1592 | 1273 | 1061 | 909 | 796 | 619 | 557 | 506 | 446 | | | | |
| 7 | 1.0D | 0.5D | Vc | 20 | 30 | 25 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 25 | | | |
| | | | fz | 0.003 | 0.003 | 0.008 | 0.01 | 0.018 | 0.026 | 0.035 | 0.043 | 0.049 | 0.052 | 0.06 | 0.059 | 0.077 | 0.098 | | | | |
| | | | FEED | 3183 | 3183 | 1989 | 1910 | 1592 | 1194 | 955 | 796 | 682 | 597 | 531 | 477 | 434 | 318 | | | | |
| 8 | 1.0D | 0.5D | Vc | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| | | | fz | 0.003 | 0.007 | 0.009 | 0.012 | 0.018 | 0.028 | 0.038 | 0.047 | 0.048 | 0.057 | 0.057 | 0.061 | 0.074 | 0.09 | | | | |
| | | | FEED | 2387 | 1592 | 1194 | 955 | 1061 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | | |
| 9 | 1.0D | 0.5D | Vc | 10 | 10 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | | | |
| | | | fz | 0.005 | 0.008 | 0.012 | 0.013 | 0.02 | 0.03 | 0.042 | 0.049 | 0.053 | 0.061 | 0.062 | 0.068 | 0.085 | 0.108 | | | | |
| | | | FEED | 1592 | 1061 | 1194 | 955 | 796 | 597 | 477 | 398 | 341 | 298 | 265 | 239 | 217 | 191 | | | | |
| 10 | 1.0D | 0.5D | Vc | 25 | 25 | 30 | 35 | 35 | 40 | 40 | 40 | 40 | 40 | 35 | 35 | 35 | 35 | | | | |
| | | | fz | 0.003 | 0.007 | 0.01 | 0.012 | 0.021 | 0.029 | 0.036 | 0.048 | 0.048 | 0.056 | 0.066 | 0.075 | 0.08 | 0.101 | | | | |
| | | | FEED | 3979 | 2653 | 2387 | 2228 | 1857 | 1592 | 1273 | 1061 | 909 | 796 | 619 | 557 | 506 | 446 | | | | |
| 11.1 | 1.0D | 0.5D | Vc | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| | | | fz | 0.003 | 0.007 | 0.009 | 0.012 | 0.018 | 0.028 | 0.038 | 0.047 | 0.048 | 0.057 | 0.057 | 0.061 | 0.074 | 0.09 | | | | |
| | | | FEED | 2387 | 1592 | 1194 | 955 | 1061 | 796 | 637 | 531 | 455 | 398 | 354 | 318 | 289 | 255 | | | | |
| K | 15-20 | Grey cast iron Nodular cast iron Malleable cast iron | 1.0D | 0.5D | Vc | 25 | 25 | 30 | 35 | 35 | 40 | 40 | 40 | 40 | 40 | 35 | 35 | 35 | 35 | | |
| | | | | | fz | 0.003 | 0.007 | 0.01 | 0.012 | 0.021 | 0.029 | 0.036 | 0.048 | 0.048 | 0.056 | 0.066 | 0.075 | 0.08 | 0.101 | | |
| | | | | | FEED | 3979 | 2653 | 2387 | 2228 | 1857 | 1592 | 1273 | 1061 | 909 | 796 | 619 | 557 | 506 | 446 | | |

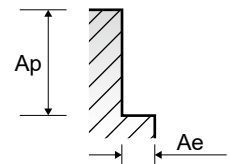


E9942 , E9A30 SERIES

3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

| ISO | VDI 3323 | Material Description | Ae | Ap | Parameter | Diameter (Ø) | | | | | | | | | | | | | | | |
|------|----------|--|------|-------|-----------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| | | | | | | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 25.0 | | |
| P | 1 | Non-alloy steel | 0.1D | 1.5D | Vc | 50 | 55 | 65 | 75 | 80 | 80 | 80 | 80 | 80 | 80 | 75 | 80 | 80 | 80 | | |
| | | | | | fz | 0.004 | 0.008 | 0.012 | 0.015 | 0.024 | 0.034 | 0.047 | 0.056 | 0.065 | 0.069 | 0.077 | 0.08 | 0.09 | 0.11 | | |
| | | | | | RPM | 7958 | 5836 | 5173 | 4775 | 4244 | 3183 | 2546 | 2122 | 1819 | 1592 | 1326 | 1273 | 1157 | 1019 | | |
| | 2 | | 0.1D | 1.5D | Vc | 45 | 45 | 55 | 65 | 70 | 65 | 65 | 70 | 65 | 65 | 65 | 65 | 65 | 65 | | |
| | | | | | fz | 0.004 | 0.008 | 0.012 | 0.015 | 0.023 | 0.035 | 0.046 | 0.056 | 0.063 | 0.071 | 0.077 | 0.081 | 0.093 | 0.109 | | |
| | | | | | RPM | 7162 | 4775 | 4377 | 4138 | 3714 | 2586 | 2069 | 1857 | 1478 | 1293 | 1149 | 1035 | 940 | 828 | | |
| | 3-4 | | 0.1D | 1.5D | Vc | 35 | 35 | 45 | 45 | 50 | 50 | 50 | 55 | 50 | 50 | 50 | 50 | 50 | 50 | | |
| | | | | | fz | 0.004 | 0.007 | 0.01 | 0.014 | 0.024 | 0.033 | 0.044 | 0.055 | 0.061 | 0.067 | 0.073 | 0.081 | 0.088 | 0.111 | | |
| | | | | | RPM | 5570 | 3714 | 3581 | 2865 | 2653 | 1989 | 1592 | 1459 | 1137 | 995 | 884 | 796 | 723 | 637 | | |
| | 5 | | 0.1D | 1.5D | Vc | 25 | 25 | 30 | 30 | 35 | 35 | 30 | 35 | 35 | 35 | 35 | 35 | 30 | 35 | | |
| | | | | | fz | 0.004 | 0.008 | 0.011 | 0.014 | 0.023 | 0.036 | 0.05 | 0.056 | 0.06 | 0.071 | 0.075 | 0.08 | 0.092 | 0.107 | | |
| RPM | | 3979 | | | 2653 | 2387 | 1910 | 1857 | 1393 | 955 | 928 | 796 | 696 | 619 | 557 | 434 | 446 | | | | |
| 6 | 0.1D | 1.5D | Vc | 45 | 45 | 55 | 65 | 70 | 65 | 65 | 70 | 65 | 65 | 65 | 65 | 65 | 65 | | | | |
| | | | fz | 0.004 | 0.008 | 0.012 | 0.015 | 0.023 | 0.035 | 0.046 | 0.056 | 0.063 | 0.071 | 0.077 | 0.081 | 0.093 | 0.109 | | | | |
| | | | RPM | 7162 | 4775 | 4377 | 4138 | 3714 | 2586 | 2069 | 1857 | 1478 | 1293 | 1149 | 1035 | 940 | 828 | | | | |
| 7 | 0.1D | 1.5D | Vc | 35 | 35 | 45 | 45 | 50 | 50 | 50 | 55 | 50 | 50 | 50 | 50 | 50 | 50 | | | | |
| | | | fz | 0.004 | 0.007 | 0.01 | 0.014 | 0.024 | 0.033 | 0.044 | 0.055 | 0.061 | 0.067 | 0.073 | 0.081 | 0.088 | 0.111 | | | | |
| | | | RPM | 5570 | 3714 | 3581 | 2865 | 2653 | 1989 | 1592 | 1459 | 1137 | 995 | 884 | 796 | 723 | 637 | | | | |
| 8 | 0.1D | 1.5D | Vc | 25 | 25 | 30 | 30 | 35 | 35 | 30 | 35 | 35 | 35 | 35 | 35 | 30 | 35 | | | | |
| | | | fz | 0.004 | 0.008 | 0.011 | 0.014 | 0.023 | 0.036 | 0.05 | 0.056 | 0.06 | 0.071 | 0.075 | 0.08 | 0.092 | 0.107 | | | | |
| | | | RPM | 3979 | 2653 | 2387 | 1910 | 1857 | 1393 | 955 | 928 | 796 | 696 | 619 | 557 | 434 | 446 | | | | |
| 9 | 0.1D | 1.5D | Vc | 15 | 20 | 25 | 25 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | | | | |
| | | | fz | 0.006 | 0.01 | 0.013 | 0.015 | 0.022 | 0.035 | 0.047 | 0.056 | 0.063 | 0.07 | 0.073 | 0.083 | 0.092 | 0.111 | | | | |
| | | | RPM | 2387 | 2122 | 1989 | 1592 | 1592 | 1194 | 955 | 796 | 682 | 597 | 531 | 477 | 434 | 382 | | | | |
| 10 | 0.1D | 1.5D | Vc | 45 | 45 | 55 | 65 | 70 | 65 | 65 | 70 | 65 | 65 | 65 | 65 | 65 | 65 | | | | |
| | | | fz | 0.004 | 0.008 | 0.012 | 0.015 | 0.023 | 0.035 | 0.046 | 0.056 | 0.063 | 0.071 | 0.077 | 0.081 | 0.093 | 0.109 | | | | |
| | | | RPM | 7162 | 4775 | 4377 | 4138 | 3714 | 2586 | 2069 | 1857 | 1478 | 1293 | 1149 | 1035 | 940 | 828 | | | | |
| 11.1 | 0.1D | 1.5D | Vc | 25 | 25 | 30 | 30 | 35 | 35 | 30 | 35 | 35 | 35 | 35 | 35 | 30 | 35 | | | | |
| | | | fz | 0.004 | 0.008 | 0.011 | 0.014 | 0.023 | 0.036 | 0.05 | 0.056 | 0.06 | 0.071 | 0.075 | 0.08 | 0.092 | 0.107 | | | | |
| | | | RPM | 3979 | 2653 | 2387 | 1910 | 1857 | 1393 | 955 | 928 | 796 | 696 | 619 | 557 | 434 | 446 | | | | |
| K | 15-20 | Grey cast iron Nodular cast iron Malleable cast iron | 0.1D | 1.5D | Vc | 45 | 45 | 55 | 65 | 70 | 65 | 65 | 70 | 65 | 65 | 65 | 65 | 65 | | | |
| | | | | | fz | 0.004 | 0.008 | 0.012 | 0.015 | 0.023 | 0.035 | 0.046 | 0.056 | 0.063 | 0.071 | 0.077 | 0.081 | 0.093 | 0.109 | | |
| | | | | | RPM | 7162 | 4775 | 4377 | 4138 | 3714 | 2586 | 2069 | 1857 | 1478 | 1293 | 1149 | 1035 | 940 | 828 | | |
| | | | | | FEED | 86 | 115 | 158 | 186 | 256 | 272 | 286 | 312 | 279 | 275 | 266 | 251 | 262 | 271 | | |



SELECTION GUIDE



| SERIES | E9940 GA940 | E9A32 GAA32 | E9936 GA936 | E9A29 GAA29 |
|--------------------|----------------|----------------|----------------|----------------|
| FLUTE | 2 | 2 | 2 | 2 |
| HELIX ANGLE | 30° | 30° | 30° | 30° |
| CUTTING EDGE SHAPE | BALL NOSE | BALL NOSE | SQUARE | SQUARE |
| SIZE MIN | R0.5 | R1.0 | D1.0 | D1.0 |
| SIZE MAX | R12.5 | R12.5 | D25.0 | D25.0 |
| PAGE | 640 | 641 | 642 | 643 |

CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS
END MILLS

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

D-POWER
CFRP
END MILLS

ROUTERS

CRX S
END MILLS

K-2
END MILLS

ONLY ONE
COATED PM60
END MILLS

TANK-
POWER
END MILLS

GENERAL
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END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

HSS-PM TANK-POWER END MILLS

High Toughness, for Stainless Steels, Carbon steels, Alloy Steels
For General Application, Rough & Finish



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for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P 654

| | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | LONG LENGTH |
|---|--------------|-------------|--------------|-------------|
| | TiAlN based | TiAlN based | TiAlN based | TiAlN based |
| | | | | |
| P | ◎ | ◎ | ◎ | ◎ |
| M | ◎ | ◎ | ◎ | ◎ |
| K | ◎ | ◎ | ◎ | ◎ |
| N | ○ | ○ | ○ | ○ |
| S | ○ | ○ | ○ | ○ |
| H | ○ | ○ | ○ | ○ |

| ISO | VDI 3323 | Material Description | Composition / Structure / Heat Treatment | HB | HRc | |
|-----|----------|-----------------------------|--|---------------------|-----|----|
| P | 1 | Non-alloy steel | About 0.15% C Annealed | 125 | | |
| | 2 | | About 0.45% C Annealed | 190 | 13 | |
| | 3 | | About 0.45% C Quenched & Tempered | 250 | 25 | |
| | 4 | | About 0.75% C Annealed | 270 | 28 | |
| | 5 | | About 0.75% C Quenched & Tempered | 300 | 32 | |
| | 6 | Low alloy steel | Annealed | 180 | 10 | |
| | 7 | | Quenched & Tempered | 275 | 29 | |
| | 8 | | Quenched & Tempered | 300 | 32 | |
| | 9 | | Quenched & Tempered | 350 | 38 | |
| | 10 | | High alloyed steel, and tool steel | Annealed | 200 | 15 |
| | 11 | | | Quenched & Tempered | 325 | 35 |
| M | 12 | Stainless steel | Ferritic / Martensitic Annealed | 200 | 15 | |
| | 13 | | Martensitic Quenched & Tempered | 240 | 23 | |
| | 14 | | Austenitic | 180 | 10 | |
| K | 15 | Grey cast iron | Pearlitic / ferritic | 180 | 10 | |
| | 16 | | Pearlitic (Martensitic) | 260 | 26 | |
| | 17 | Nodular cast iron | Ferritic | 160 | 3 | |
| | 18 | | Pearlitic | 250 | 25 | |
| | 19 | Malleable cast iron | Ferritic | 130 | | |
| | 20 | | Pearlitic | 230 | 21 | |
| N | 21 | Aluminum-wrought alloy | Not Curable | 60 | | |
| | 22 | | Curable Hardened | 100 | | |
| | 23 | Aluminum-cast, alloyed | ≤ 12% Si, Not Curable | 75 | | |
| | 24 | | ≤ 12% Si, Curable Hardened | 90 | | |
| | 25 | | > 12% Si, Not Curable | 130 | | |
| | 26 | | Copper and Copper Alloys (Bronze / Brass) | 110 | | |
| | 27 | Non Metallic Materials | CuZn, CuSnZn (Brass) | 90 | | |
| | 28 | | CuSn, lead-free copper and electrolytic copper | 100 | | |
| | 29 | | Duroplastic, Fiber Reinforced Plastic | | | |
| | 30 | Rubber, Wood, etc. | | | | |
| S | 31 | Heat Resistant Super Alloys | Fe Based Annealed | 200 | 15 | |
| | 32 | | Fe Based Cured | 280 | 30 | |
| | 33 | | Ni or Co Based Annealed | 250 | 25 | |
| | 34 | | Ni or Co Based Cured | 350 | 38 | |
| | 35 | | Ni or Co Based Cast | 320 | 34 | |
| | 36 | Titanium Alloys | Pure Titanium | 400 Rm | | |
| | 37 | | Alpha + Beta Alloys Hardened | 1050 Rm | | |
| H | 38 | Hardened steel | Hardened | 550 | 55 | |
| | 39 | | Hardened | 630 | 60 | |
| | 40 | Chilled Cast Iron | Cast | 400 | 42 | |
| | 41 | Hardened Cast Iron | Hardened | 550 | 55 | |

| E9942 GA942 | E9A30 GAA30 | E9938 GA938 | E9A31 GAA31 | E9941 GA941 | E9A35 GAA35 | E9A26 GAA26 | E9A33 GAA33 | E9A34 GAA34 | E9E43 GAE43 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3 | 3 | 4 | 4 | Multi Flute | Multi Flute | Multi Flute | Multi Flute | Multi Flute | Multi Flute |
| 30° | 30° | 30° | 30° | 30° | 30° | 45° | 30° | 30° | 30° |
| SQUARE | SQUARE | SQUARE | SQUARE | ROUGHING | ROUGHING | ROUGHING | ROUGHING | ROUGHING | ROUGHING |
| D1.0 | D1.0 | D1.0 | D2.0 | D6.0 | D6.0 | D4.0 | D6.0 | D6.0 | D10.0 |
| D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 | D25.0 |
| 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 |
| STUB LENGTH | SHORT LENGTH | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | LONG LENGTH | SHORT LENGTH | SHORT LENGTH | LONG LENGTH | WITH NECK |
| TiAlN based | TiAlN based | TiAlN based | TiAlN based | X-Coating | X-Coating | X-Coating | X-Coating | X-Coating | X-Coating |



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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 2 |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 5 |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 7 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 8 |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 9 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 10 |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 11 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 12 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 13 M |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 14 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 15 |
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| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 17 K |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 18 |
| ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 19 |
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CBN
END MILLS

i-Xmill
END MILLS

i-SMART
MODULAR
END MILLS

X5070
END MILLS

4G MILL
END MILLS

X-POWER
PRO
END MILLS

TitaNox-
POWER
END MILLS

JET-POWER
END MILLS

V7 PLUS
END MILLS

ALU-POWER
HPC
END MILLS

ALU-
POWER
END MILLS

D-POWER
GRAPHITE
END MILLS

D-POWER
CFRP
END MILLS

ROUTERS

CRX S
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POWER
END MILLS

GENERAL
HSS
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MILLING
CUTTERS

TECHNICAL
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