VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

# ASR

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.3/4 or 20mm (2 Flute) | | | | | Dia.1"or 25mm (2 Flute) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | | | |  | | | | |
| | | | | Over hang | | | | | Over hang | | | | |
| | | | | < 3D | | 3D-5D | 5D-7D | >7D | < 3D | | 3D-5D | 5D-7D | >7D |
| | | | | General | High Speed | | | | General | High Speed | | | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>1018<br>Hot/Cold Rolled | CY250 | RPM | 2,184 | 3,398 | 2,670 | 2,306 | 1,699 | 1,747 | 2,717 | 2,135 | 1,844 | 1,359 |
| | | | SFM | 450 | 700 | 550 | 475 | 350 | 450 | 700 | 550 | 475 | 350 |
| | | | IPM | 139.8 | 373.7 | 170.9 | 147.6 | 108.7 | 136.3 | 342.4 | 166.5 | 143.8 | 106.0 |
| | | | Chip per Tooth | .032 | .055 | .032 | .032 | .032 | .039 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .032 | .024 | .024 | .02 | .016 | .039 | .02 | .031 | .024 | .016 |
| | | | Width of Cut | <.590 | <.590 | <.590 | <.590 | <.590 | <.787 | <.787 | <.787 | <.787 | <.787 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>4140<br>P-20 | CY250 | RPM | 2,184 | 2,791 | 2,427 | 2,063 | 1,699 | 1,747 | 2,232 | 1,941 | 1,650 | 1,359 |
| | | | SFM | 450 | 575 | 500 | 425 | 350 | 450 | 575 | 500 | 425 | 350 |
| | | | IPM | 135.4 | 307.0 | 150.5 | 127.9 | 105.3 | 136.3 | 281.3 | 151.4 | 128.7 | 106.0 |
| | | | Chip per Tooth | .031 | .055 | .031 | .031 | .031 | .039 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .024 | .016 | 0.020 | .016 | .012 | .031 | .016 | .024 | 0.020 | .014 |
| | | | Width of Cut | <.590 | <.590 | <.590 | <.590 | <.590 | <.787 | <.787 | <.787 | <.787 | <.787 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2<br>P-20 High Hard | CY250 | RPM | 1,820 | 2,427 | 1,942 | 1,723 | 1,432 | 1,456 | 1,941 | 1,553 | 1,378 | 1,145 |
| | | | SFM | 375 | 500 | 400 | 355 | 295 | 375 | 500 | 400 | 355 | 295 |
| | | | IPM | 87.4 | 228.1 | 120.4 | 106.8 | 88.8 | 90.3 | 213.5 | 96.3 | 85.4 | 71.0 |
| | | | Chip per Tooth | .024 | .047 | .031 | .031 | .031 | .031 | .055 | .031 | .031 | .031 |
| | | | Depth of Cut | .020 | .014 | .016 | .012 | .008 | .024 | .014 | .020 | .016 | .01 |
| | | | Width of Cut | <.590 | <.590 | <.590 | <.590 | <.590 | <.787 | <.787 | <.787 | <.787 | <.787 |
| VIII | Cast iron<br>GG<br>GGG | CY250 | RPM | 2,864 | 2,864 | 2,864 | 2,864 | 2,378 | 2,290 | 2,290 | 2,290 | 2,290 | 1,902 |
| | | | SFM | 590 | 590 | 590 | 590 | 490 | 590 | 590 | 590 | 590 | 490 |
| | | | IPM | 269.2 | 360.8 | 269.2 | 269.2 | 223.6 | 251.9 | 325.2 | 251.9 | 251.9 | 209.2 |
| | | | Chip per Tooth | .047 | .063 | .047 | .047 | .047 | .055 | .071 | .055 | .055 | .055 |
| | | | Depth of Cut | .039 | .031 | .031 | .025 | .02 | .049 | .039 | .031 | .024 | .016 |
| | | | Width of Cut | <.590 | <.590 | <.590 | <.590 | <.590 | <.787 | <.787 | <.787 | <.787 | <.787 |
| Maximum (feed per tooth) | | | | <.080 | | | | | <.080 | | | | |
| Maximum Depth of Cut | | | | <.04 | | | | | <.050 | | | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASR

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.1 1/4 or 32mm(2 Flute) | | | | | Dia.1 1/2 or 40mm(3 Flute) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | | | |  | | | | |
| | | | | Over hang | | | | | Over hang | | | | |
| | | | | < 3D | | 3D-5D | 5D-7D | >7D | < 3D | | 3D-5D | 5D-7D | >7D |
| | | | | General | High Speed | | | | General | High Speed | | | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>1018<br>Hot/Cold Rolled | CY250 | RPM | 1,364 | 2,122 | 1,667 | 1,440 | 1,061 | 1,091 | 1,698 | 1,334 | 1,152 | 849 |
| | | | SFM | 450 | 700 | 550 | 475 | 350 | 450 | 700 | 550 | 475 | 350 |
| | | | IPM | 161.0 | 335.3 | 156.7 | 135.4 | 99.7 | 153.9 | 320.9 | 156.1 | 134.8 | 99.3 |
| | | | Chip per Tooth | .059 | .079 | .047 | .047 | .047 | .047 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .047 | .031 | .039 | .024 | .020 | .039 | .020 | .031 | .024 | .016 |
| | | | Width of Cut | <.906 | <.906 | <.906 | <.906 | <.906 | <1.200 | <1.200 | <1.200 | <1.200 | <1.200 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20<br>4140 | CY250 | RPM | 1,364 | 1,743 | 1,516 | 1,288 | 1,061 | 1,091 | 1,395 | 1,213 | 1,031 | 849 |
| | | | SFM | 450 | 575 | 500 | 425 | 350 | 450 | 575 | 500 | 425 | 350 |
| | | | IPM | 161.0 | 275.4 | 142.5 | 121.1 | 99.7 | 153.9 | 263.6 | 141.9 | 120.6 | 99.3 |
| | | | Chip per Tooth | .059 | .079 | .047 | .047 | .047 | .047 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .039 | .024 | .031 | .024 | .020 | .031 | .016 | .024 | .020 | .014 |
| | | | Width of Cut | <.906 | <.906 | <.906 | <.906 | <.906 | <1.200 | <1.200 | <1.200 | <1.200 | <1.200 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2<br>P-20 High Hard | CY250 | RPM | 1,137 | 1,516 | 1,213 | 1,076 | 894 | 910 | 1,213 | 970 | 861 | 715 |
| | | | SFM | 375 | 500 | 400 | 355 | 295 | 375 | 500 | 400 | 355 | 295 |
| | | | IPM | 106.9 | 191.0 | 94.6 | 83.9 | 69.8 | 84.6 | 200.1 | 90.2 | 80.1 | 66.5 |
| | | | Chip per Tooth | .047 | .063 | .039 | .039 | .039 | .031 | .055 | .031 | .031 | .031 |
| | | | Depth of Cut | .031 | .020 | .024 | .020 | .016 | .023 | .014 | .020 | .016 | .010 |
| | | | Width of Cut | <.906 | <.906 | <.906 | <.906 | <.906 | <1.200 | <1.200 | <1.200 | <1.200 | <1.200 |
| VIII | Cast iron<br>GG<br>GGG | CY250 | RPM | 1,789 | 1,789 | 1,789 | 1,789 | 1,486 | 1,431 | 1,431 | 1,431 | 1,431 | 1,188 |
| | | | SFM | 590 | 590 | 590 | 590 | 490 | 590 | 590 | 590 | 590 | 490 |
| | | | IPM | 282.6 | 350.6 | 225.4 | 225.4 | 187.2 | 236.1 | 304.8 | 236.1 | 236.1 | 196.1 |
| | | | Chip per Tooth | .079 | .098 | .063 | .063 | .063 | .055 | .071 | .055 | .055 | .055 |
| | | | Depth of Cut | .055 | .031 | .039 | .031 | .020 | .049 | .039 | .031 | .024 | .016 |
| | | | Width of Cut | <.906 | <.906 | <.906 | <.906 | <.906 | <1.200 | <1.200 | <1.200 | <1.200 | <1.200 |
| Maximum (feed per tooth) | | | | <.118 | | | | | <.098 | | | | |
| Maximum (depth of cut) | | | | <.059 | | | | | <.059 | | | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASR

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.2" or 50mm (4Flute) | | | | | Dia.2" or 50mm (5Flute) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | | | |  | | | | |
| | | | | Over hang | | | | | Over hang | | | | |
| | | | | < 3D | | 3D-5D | 5D-7D | >7D | < 3D | | 3D-5D | 5D-7D | >7D |
| | | | | General | High Speed | | | | General | High Speed | | | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>1018<br>Hot/Cold Rolled | CY250 | RPM | 873 | 1,358 | 1,067 | 922 | 679 | 873 | 1,358 | 1,067 | 922 | 679 |
| | | | SFM | 450 | 700 | 550 | 475 | 350 | 450 | 700 | 550 | 475 | 350 |
| | | | IPM | 220.0 | 429.1 | 200.6 | 173.2 | 127.7 | 205.2 | 427.8 | 208.1 | 179.7 | 132.4 |
| | | | Chip per Tooth | .063 | .079 | .047 | .047 | .047 | .047 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .059 | .039 | .047 | .039 | .031 | .039 | .020 | .031 | .024 | .016 |
| | | | Width of Cut | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20<br>4140 | CY250 | RPM | 873 | 1,116 | 970 | 825 | 679 | 873 | 1,116 | 970 | 825 | 679 |
| | | | SFM | 450 | 575 | 500 | 425 | 350 | 450 | 575 | 500 | 425 | 350 |
| | | | IPM | 220.0 | 352.5 | 182.4 | 155.0 | 127.7 | 205.2 | 351.4 | 189.2 | 160.8 | 132.4 |
| | | | Chip per Tooth | .063 | .079 | .047 | .047 | .047 | .047 | .063 | .039 | .039 | .039 |
| | | | Depth of Cut | .047 | .031 | .039 | .031 | .023 | .031 | .016 | .023 | .020 | .014 |
| | | | Width of Cut | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2<br>P-20 High Hard | CY250 | RPM | 728 | 970 | 776 | 689 | 572 | 728 | 970 | 776 | 689 | 572 |
| | | | SFM | 375 | 500 | 400 | 355 | 295 | 375 | 500 | 400 | 355 | 295 |
| | | | IPM | 113.5 | 182.4 | 96.2 | 85.4 | 71.0 | 112.8 | 266.8 | 120.3 | 106.8 | 88.7 |
| | | | Chip per Tooth | .039 | .047 | .031 | .031 | .031 | .031 | .055 | .031 | .031 | .031 |
| | | | Depth of Cut | .039 | .030 | .024 | .020 | .016 | .024 | .014 | .020 | .016 | .010 |
| | | | Width of Cut | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 |
| VIII | Cast iron<br>GG<br>GGG | CY250 | RPM | 1,145 | 1,145 | 1,145 | 1,145 | 951 | 1,145 | 1,145 | 1,145 | 1,145 | 951 |
| | | | SFM | 590 | 590 | 590 | 590 | 490 | 590 | 590 | 590 | 590 | 490 |
| | | | IPM | 361.7 | 448.7 | 288.4 | 288.4 | 239.6 | 314.8 | 406.3 | 314.8 | 314.8 | 261.4 |
| | | | Chip per Tooth | .079 | .098 | .063 | .063 | .063 | .055 | .071 | .055 | .055 | .055 |
| | | | Depth of Cut | .06 | .047 | .039 | .031 | .02 | .049 | .039 | .031 | .023 | .016 |
| | | | Width of Cut | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 | <1.550 |
| Maximum (feed per tooth) | | | | <.138 | | | | | <.098 | | | | |
| Maximum Depth of Cut | | | | <.059 | | | | | <.049 | | | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASR

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.2 1/2 or 63mm(4 Flute) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | |  | | | | |
| | | | | Over hang | | | | |
| | | | | < 3D | | 3D-5D | 5D-7D | >7D |
| | | | | General | High Speed | | | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>1018<br>Hot/Cold Rolled | CY250 | RPM | 693 | 1,078 | 847 | 732 | 539 |
| | | | SFM | 450 | 700 | 550 | 475 | 350 |
| | | | IPM | 174.7 | 340.7 | 159.3 | 137.6 | 101.4 |
| | | | Chip per Tooth | .063 | .079 | .047 | .047 | .047 |
| | | | Depth of Cut | .059 | .039 | .047 | .039 | .031 |
| | | | Width of Cut | <2.000 | <2.000 | <2.000 | <2.000 | <2.000 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20<br>4140 | CY250 | RPM | 693 | 886 | 770 | 655 | 539 |
| | | | SFM | 450 | 575 | 500 | 425 | 350 |
| | | | IPM | 174.7 | 279.9 | 144.8 | 123.1 | 101.4 |
| | | | Chip per Tooth | .063 | .079 | .047 | .047 | .047 |
| | | | Depth of Cut | .047 | .039 | .031 | .024 | .016 |
| | | | Width of Cut | <2.000 | <2.000 | <2.000 | <2.000 | <2.000 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2<br>P-20 High Hard | CY250 | RPM | 578 | 770 | 616 | 547 | 454 |
| | | | SFM | 375 | 500 | 400 | 355 | 295 |
| | | | IPM | 90.1 | 144.8 | 76.4 | 67.8 | 56.3 |
| | | | Chip per Tooth | .039 | .047 | .031 | .031 | .031 |
| | | | Depth of Cut | .039 | .030 | .024 | .020 | .016 |
| | | | Width of Cut | <2.000 | <2.000 | <2.000 | <2.000 | <2.000 |
| VIII | Cast iron<br>GG<br>GGG | CY250 | RPM | 909 | 909 | 909 | 909 | 755 |
| | | | SFM | 590 | 590 | 590 | 590 | 490 |
| | | | IPM | 287.2 | 356.2 | 229.0 | 229.0 | 190.2 |
| | | | Chip per Tooth | .079 | .098 | .063 | .063 | .063 |
| | | | Depth of Cut | .06 | .047 | .039 | .031 | .020 |
| | | | Width of Cut | <2.000 | <2.000 | <2.000 | <2.000 | <2.000 |
| Maximum (feed per tooth) | | | | <.138 | | | | |
| Maximum Depth of Cut | | | | <.079 | | | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASR

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.3" or 80mm (5 Flute) | | | | | Dia.4" or 100mm (6 Flute) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | | | |  | | | | |
| | | | | Over hang | | | | | Over hang | | | | |
| | | | | < 3D | | 3D-5D | | | < 3D | | 3D-5D | | |
| | | | | General | High Speed | | | | General | High Speed | | | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>1018<br>Hot/Cold Rolled | CY250 | RPM | 546 | 849 | | 576 | | 437 | 679 | | 461 | |
| | | | SFM | 450 | 700 | | 475 | | 450 | 700 | | 475 | |
| | | | IPM | 193.7 | 369.3 | | 169.9 | | 186.0 | 354.5 | | 163.2 | |
| | | | Chip per Tooth | .071 | .087 | | .059 | | .071 | .087 | | .059 | |
| | | | Depth of Cut | .059 | .047 | | .039 | | .059 | .047 | | .039 | |
| | | | Width of Cut | <2.650 | <2.650 | | <2.650 | | <3.420 | <3.420 | | <3.420 | |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20<br>4140 | CY250 | RPM | 546 | 697 | | 515 | | 437 | 558 | | 412 | |
| | | | SFM | 450 | 575 | | 425 | | 450 | 575 | | 425 | |
| | | | IPM | 193.7 | 303.3 | | 152.0 | | 186.0 | 291.2 | | 146.0 | |
| | | | Chip per Tooth | .071 | .087 | | .059 | | .071 | .087 | | .059 | |
| | | | Depth of Cut | .047 | .039 | | .031 | | .047 | .039 | | .031 | |
| | | | Width of Cut | <2.650 | <2.650 | | <2.650 | | <3.420 | <3.420 | | <3.420 | |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2<br>P-20 High Hard | CY250 | RPM | 455 | 606 | | 431 | | 364 | 485 | | 344 | |
| | | | SFM | 375 | 500 | | 355 | | 375 | 500 | | 355 | 295 |
| | | | IPM | 143.3 | 239.5 | | 127.0 | | 137.5 | 227.0 | | 121.9 | |
| | | | Chip per Tooth | .063 | .079 | | .059 | | .063 | .078 | | .059 | |
| | | | Depth of Cut | .039 | .031 | | .023 | | .039 | .031 | | .023 | |
| | | | Width of Cut | <2.650 | <2.650 | | <2.650 | | <3.420 | <3.420 | | <3.420 | |
| VIII | Cast iron<br>GG<br>GGG | CY250 | RPM | 715 | 715 | | 715 | | 572 | 572 | | 572 | |
| | | | SFM | 590 | 590 | | 590 | | 590 | 590 | | 590 | 490 |
| | | | IPM | 307.7 | 422.1 | | 282.6 | | 298.8 | 405.3 | | 271.3 | |
| | | | Chip per Tooth | .086 | .118 | | .079 | | .087 | .118 | | .079 | |
| | | | Depth of Cut | .059 | .047 | | .039 | | .059 | .047 | | .039 | |
| | | | Width of Cut | <2.650 | <2.650 | | <2.650 | | <3.420 | <3.420 | | <3.420 | |
| Maximum (feed per tooth) | | | | <.138 | | | | | <.138 | | | | |
| Maximum Depth of Cut | | | | <.079 | | | | | <.079 | | | | |

## ASF

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.2 1/2" (4 Flute) | | | Dia.3" (4 Flute) | | | Dia.4" (5 Flute) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | |  | | |  | | |
| | | | | Roughing | | Finishing | Roughing | | Finishing | Roughing | | Finishing |
| | | | | Machine Power | | | Machine Power | | | Machine Power | | |
| | | | | Week | Strong | | Week | Strong | | Week | Strong | |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | TB6045<br>CY 250 =<br>80%SFM | RPM | 902 | 902 | 1,352 | 716 | 716 | 1,073 | 572 | 572 | 859 |
| | | | SFM | 590 | 590 | 885 | 590 | 590 | 885 | 590 | 590 | 885 |
| | | | IPM | 212.8 | 354.8 | 63.8 | 168.9 | 281.7 | 50.7 | 168.9 | 281.7 | 50.7 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .0787 | .0118 | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | TB6045<br>CY 250=<br>80%SFM | RPM | 840 | 840 | 1,203 | 667 | 667 | 955 | 534 | 534 | 764 |
| | | | SFM | 550 | 550 | 787 | 550 | 550 | 787 | 550 | 550 | 787 |
| | | | IPM | 198.3 | 330.8 | 56.8 | 157.4 | 262.6 | 45.1 | 157.4 | 262.6 | 45.1 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | TB6045<br>CY 250=<br>80%SFM | RPM | 801 | 801 | 1,203 | 636 | 636 | 955 | 508 | 508 | 764 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 189.0 | 252.1 | 56.8 | 150.0 | 200.1 | 45.1 | 150.0 | 200.1 | 45.1 |
| | | | Feed per Tooth | .059 | .0787 | .0118 | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | TB6045<br>CY 250=<br>80%SFM | RPM | 501 | 501 | 752 | 398 | 398 | 597 | 318 | 318 | 477 |
| | | | SFM | 328 | 328 | 492 | 328 | 328 | 492 | 328 | 328 | 492 |
| | | | IPM | 62.9 | 118.3 | 35.5 | 50.0 | 93.9 | 28.2 | 50.0 | 93.9 | 28.2 |
| | | | Feed per Tooth | .0314 | .059 | .0118 | .0314 | .059 | .0118 | .0314 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | TB6045<br>CY 250=<br>80%SFM | RPM | 451 | 451 | 601 | 358 | 358 | 477 | 286 | 286 | 381 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 21.3 | 35.3 | 18.7 | 16.9 | 28.1 | 14.9 | 16.9 | 28.1 | 14.9 |
| | | | Feed per Tooth | .0118 | .0196 | .0078 | .0118 | .0196 | .0078 | .0118 | .0196 | .0078 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| VI | Stainless steel | TB6045<br>GX30 | RPM | 451 | 451 | 601 | 358 | 358 | 477 | 286 | 286 | 381 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 70.9 | 106.4 | 28.3 | 56.2 | 84.4 | 22.5 | 56.2 | 84.4 | 22.5 |
| | | | Feed per Tooth | .0393 | .059 | .0118 | .0393 | .059 | .0118 | .0393 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| VIII | Cast iron<br>GG<br>GGG | TB6045<br>GX30 | RPM | 801 | 801 | 1,203 | 636 | 636 | 955 | 508 | 508 | 764 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 252.1 | 377.9 | 56.8 | 200.1 | 300.0 | 45.1 | 200.1 | 300.0 | 45.1 |
| | | | Feed per Tooth | .0787 | .118 | .0118 | .0787 | .118 | .0118 | .0787 | .118 | .0118 |
| | | | Depth of Cut | .0787 | .0787 | .0118 | .0787 | .0787 | .0118 | .0787 | .0787 | .0118 |
| | | | Width of Cut | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.204 | <2.755 | <2.755 | <2.755 |
| **Maximum (Feed per Tooth)** | | | | <.1377 | | | <.1377 | | | <.1377 | | |
| **Maximum Depth of Cut** | | | | <.118 | | | <.118 | | | <.118 | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASF

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia.5" (6 Flute) | | | Dia.6" (8 Flute) | | | Dia. 8" (10 Flute) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | |  | | |  | | |
| | | | | Roughing | | Finishing | Roughing | | Finishing | Roughing | | Finishing |
| | | | | Machine Power | | | Machine Power | | | Machine Power | | |
| | | | | Week | Strong | | Week | Strong | | Week | Strong | |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | TB6045<br>CY 250=<br>80%SFM | RPM | 458 | 458 | 687 | 417 | 417 | 625 | 333 | 333 | 500 |
| | | | SFM | 590 | 590 | 885 | 687 | 687 | 1031 | 687 | 687 | 1031 |
| | | | IPM | 162.1 | 270.4 | 48.6 | 196.6 | 328.0 | 59.0 | 196.6 | 328.0 | 59.0 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .0787 | .0118 | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | TB6045<br>CY 250 =<br>80%SFM | RPM | 427 | 427 | 611 | 334 | 334 | 477 | 267 | 267 | 382 |
| | | | SFM | 550 | 550 | 787 | 550 | 550 | 787 | 550 | 550 | 787 |
| | | | IPM | 151.1 | 252.1 | 43.3 | 157.4 | 262.6 | 45.1 | 157.4 | 262.6 | 45.1 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | TB6045<br>CY 250 =<br>80%SFM | RPM | 407 | 407 | 611 | 318 | 318 | 477 | 254 | 254 | 382 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 144.0 | 192.1 | 43.3 | 150.0 | 200.1 | 45.1 | 150.0 | 200.1 | 45.1 |
| | | | Feed per Tooth | .059 | .0787 | .0118 | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | TB6045<br>CY 250=<br>80%SFM | RPM | 255 | 255 | 382 | 199 | 199 | 298 | 159 | 159 | 239 |
| | | | SFM | 328 | 328 | 492 | 328 | 328 | 492 | 328 | 328 | 492 |
| | | | IPM | 48.0 | 90.1 | 27.0 | 50 | 94 | 28 | 50 | 94 | 28 |
| | | | Feed per Tooth | .0314 | .059 | .0118 | .0315 | .059 | .0118 | .0315 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | TB6045<br>CY 250=<br>80%SFM | RPM | 229 | 229 | 305 | 179 | 179 | 238 | 143 | 143 | 191 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 16.2 | 26.9 | 14.3 | 17 | 28 | 15 | 17 | 28 | 15 |
| | | | Feed per Tooth | .0118 | .0196 | .0078 | .0118 | .0196 | .0078 | .0118 | .0196 | .0078 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| VI | Stainless steel | TB6045<br>GX30 | RPM | 229 | 229 | 305 | 179 | 179 | 238 | 143 | 143 | 191 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 54.0 | 81.1 | 21.6 | 56 | 84 | 22 | 56 | 84 | 22 |
| | | | Feed per Tooth | .0393 | .059 | .0118 | .0393 | .059 | .0118 | .0393 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| VIII | Cast iron<br>GG<br>GGG | TB6045<br>GX30 | RPM | 407 | 407 | 611 | 318 | 318 | 477 | 254 | 254 | 382 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 192.1 | 288.0 | 43.3 | 200 | 300 | 45 | 200 | 300 | 45 |
| | | | Feed per Tooth | .0787 | .118 | .0118 | .0787 | .118 | .0118 | .0787 | .118 | .0118 |
| | | | Depth of Cut | .0787 | .0787 | .0118 | .0787 | .0787 | .0118 | .0787 | .0787 | .0118 |
| | | | Width of Cut | <3.464 | <3.464 | <3.464 | <4.410 | <4.410 | <4.410 | <5.510 | <5.510 | <5.510 |
| **Maximum (Feed per Tooth)** | | | | <.1377 | | | <.1377 | | | <.1377 | | |
| **Maximum Depth of Cut** | | | | <.118 | | | <.118 | | | <.118 | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ASF

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 10" (12 Flute) | | | Dia. 12" (14 Flute) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | |  | | |
| | | | | Roughing | | Finishing | Roughing | | Finishing |
| | | | | Machine Power | | | Machine Power | | |
| | | | | Week | Strong | | Week | Strong | |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | TB6045<br>CY 250=<br>80%SFM | RPM | 267 | 267 | 400 | 219 | 219 | 328 |
| | | | SFM | 687 | 687 | 1031 | 687 | 687 | 1031 |
| | | | IPM | 188.8 | 314.9 | 56.7 | 180.8 | 301.5 | 54.3 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | TB6045<br>CY 250 =<br>80%SFM | RPM | 213 | 213 | 305 | 175 | 175 | 251 |
| | | | SFM | 550 | 550 | 787 | 550 | 550 | 787 |
| | | | IPM | 151.1 | 252.1 | 43.3 | 144.7 | 241.4 | 41.4 |
| | | | Feed per Tooth | .059 | .0984 | .0118 | .059 | .0984 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | TB6045<br>CY 250 =<br>80%SFM | RPM | 203 | 203 | 305 | 167 | 167 | 251 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 144.0 | 192.1 | 43.3 | 137.9 | 183.9 | 41.4 |
| | | | Feed per Tooth | .059 | .0787 | .0118 | .059 | .0787 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | TB6045<br>CY 250=<br>80%SFM | RPM | 127 | 127 | 191 | 105 | 105 | 157 |
| | | | SFM | 328 | 328 | 492 | 328 | 328 | 492 |
| | | | IPM | 48 | 90 | 27 | 46.1 | 86.3 | 25.9 |
| | | | Feed per Tooth | .0315 | .059 | .0118 | .0315 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | TB6045<br>CY 250=<br>80%SFM | RPM | 114 | 114 | 153 | 94 | 94 | 125 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 16 | 27 | 14 | 15.5 | 25.8 | 13.7 |
| | | | Feed per Tooth | .0118 | .0196 | .0078 | .0118 | .0196 | .0078 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| VI | Stainless steel | TB6045<br>GX30 | RPM | 114 | 114 | 153 | 94 | 94 | 125 |
| | | | SFM | 295 | 295 | 393 | 295 | 295 | 393 |
| | | | IPM | 54 | 81 | 22 | 51.7 | 77.6 | 20.7 |
| | | | Feed per Tooth | .0393 | .059 | .0118 | .0393 | .059 | .0118 |
| | | | Depth of Cut | .059 | .059 | .0118 | .059 | .059 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| VIII | Cast iron<br>GG<br>GGG | TB6045<br>GX30 | RPM | 203 | 203 | 305 | 167 | 167 | 251 |
| | | | SFM | 524 | 524 | 787 | 524 | 524 | 787 |
| | | | IPM | 192 | 288 | 43 | 183.9 | 275.8 | 41.4 |
| | | | Feed per Tooth | .0787 | .118 | .0118 | .0787 | .118 | .0118 |
| | | | Depth of Cut | .0787 | .0787 | .0118 | .0787 | .0787 | .0118 |
| | | | Width of Cut | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 | <6.890 |
| **Maximum (Feed per Tooth)** | | | | <.1377 | | | <.1377 | | |
| **Maximum Depth of Cut** | | | | <.118 | | | <.118 | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

**AHU**

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 3/4" (3 Flute) | | | Dia. 1" (2 Flute) | | | Dia. 1 1/4" (3 Flute) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | |  | | |  | | |
| | | | | 1003 Insert Size | | | 1505 Insert Size | | | 1505 Insert Size | | |
| | | | | 3° Ramp Angle | | | 5° Ramp Angle | | | 4° Ramp Angle | | |
| | | | | Slotting | "Z" Level Facing | Profiling | Slotting | "Z" Level Facing | Profiling | Slotting | "Z" Level Facing | Profiling |
| 1 | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | PTH30E | RPM | 3,438 | 3,438 | 4,329 | 2,579 | 2,579 | 3,247 | 2,063 | 2,063 | 2,598 |
| | | | SFM | 675 | 675 | 850 | 675 | 675 | 850 | 675 | 675 | 850 |
| | | | IPM | 46.4 | 56.7 | 90.9 | 30.9 | 41.3 | 64.9 | 37.1 | 49.5 | 77.9 |
| | | | Feed per Tooth | .0045 | .0055 | .007 | .006 | .008 | .01 | .006 | .008 | .01 |
| | | | Depth of Cut Max | .045 | .08 | up to .187 | .06 | .125 | up to .31 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 2 | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PTH30E<br>TB6045 | RPM | 2,929 | 2,929 | 3,820 | 2,197 | 2,197 | 2,865 | 1,757 | 1,757 | 2,292 |
| | | | SFM | 575 | 575 | 750 | 575 | 575 | 750 | 575 | 575 | 750 |
| | | | IPM | 35.1 | 48.3 | 74.5 | 26.4 | 35.1 | 57.3 | 31.6 | 42.2 | 68.8 |
| | | | Feed per Tooth | .004 | .0055 | .0065 | .006 | .008 | .01 | .006 | .008 | .01 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .06 | .125 | up to .31 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 3 | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PTH30E<br>TB6045 | RPM | 2,674 | 2,674 | 3,056 | 2,006 | 2,006 | 2,292 | 1,604 | 1,604 | 1,834 |
| | | | SFM | 525 | 525 | 600 | 525 | 525 | 600 | 525 | 525 | 600 |
| | | | IPM | 32.1 | 44.1 | 59.6 | 24.1 | 28.1 | 39.0 | 28.9 | 33.7 | 46.8 |
| | | | Feed per Tooth | .004 | .0055 | .0065 | .006 | .007 | .0085 | .006 | .007 | .0085 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .06 | .093 | up to .31 | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 4 | Stainless Steel<br>Alloy steel<br>(45-54HRC)<br>17-4 / 15-5<br>D-2 | PTH30E<br>TB6045 | RPM | 1,375 | 1,375 | 1,783 | 1,031 | 1,031 | 1,337 | 825 | 825 | 1,070 |
| | | | SFM | 270 | 270 | 350 | 270 | 270 | 350 | 270 | 270 | 350 |
| | | | IPM | 18.6 | 24.8 | 37.4 | 10.3 | 13.4 | 21.4 | 12.4 | 16.1 | 25.7 |
| | | | Feed per Tooth | .0045 | .006 | .007 | .005 | .0065 | .008 | .005 | .0065 | .008 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .045 | .093 | up to .31 | .045 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 5 | Titanium | PTH30E | RPM | 1,146 | 1,146 | 1,350 | 860 | 860 | 1,012 | 688 | 688 | 810 |
| | | | SFM | 225 | 225 | 265 | 225 | 225 | 265 | 225 | 225 | 265 |
| | | | IPM | 12.0 | 15.5 | 26.3 | 8.6 | 13.8 | 17.2 | 10.3 | 16.5 | 20.7 |
| | | | Feed per Tooth | .0035 | .0045 | .0065 | .005 | .008 | .0085 | .005 | .008 | .0085 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .06 | .125 | up to .31 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 6 | Stainless Steel 300, 400 Series | TB6045 | RPM | 3,311 | 3,311 | 3,693 | 2,483 | 2,483 | 2,770 | 1,986 | 1,986 | 2,216 |
| | | | SFM | 650 | 650 | 725 | 650 | 650 | 725 | 650 | 650 | 725 |
| | | | IPM | 44.7 | 64.6 | 77.5 | 22.3 | 34.8 | 44.3 | 26.8 | 41.7 | 53.2 |
| | | | Feed per Tooth | .0045 | .0065 | .007 | .0045 | .007 | .008 | .0045 | .007 | .008 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .06 | .093 | up to .31 | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 7 | Cast Iron | PTH30E | RPM | 2,669 | 2,669 | 3,565 | 2,002 | 2,002 | 2,674 | 1,601 | 1,601 | 2,139 |
| | | | SFM | 524 | 524 | 700 | 524 | 524 | 700 | 524 | 524 | 700 |
| | | | IPM | 48.0 | 64.1 | 107.0 | 32.0 | 40.0 | 53.5 | 38.4 | 48.0 | 64.2 |
| | | | Feed per Tooth | .006 | .008 | .01 | .008 | .01 | .01 | .008 | .01 | .01 |
| | | | Depth of Cut | .045 | .08 | up to .187 | .06 | .125 | up to .31 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

# AHU

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 1 1/2" (4 Flute) | | | Dia.1 1/2" (5 Flute) | | | Dia. 2" (5 Flute) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | | |  | | |  | | |
| | | | | 1505 Insert Size | | | 1003 Insert Size | | | 1505 Insert Size | | |
| | | | | 3.5° Ramp Angle | | | 3.5° Ramp Angle | | | 2° Ramp Angle | | |
| | | | | Slotting | "Z" Level Facing | Profiling | Slotting | "Z" Level Facing | Profiling | Slotting | "Z" Level Facing | Profiling |
| 1 | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | PTH30E | RPM | 1,719 | 1,719 | 2,165 | 1,719 | 1,719 | 2,165 | 1,289 | 1,289 | 1,624 |
| | | | SFM | 675 | 675 | 850 | 675 | 675 | 850 | 675 | 675 | 850 |
| | | | IPM | 41.3 | 55.0 | 86.6 | 38.7 | 47.3 | 75.8 | 38.7 | 51.6 | 81.2 |
| | | | Feed per Tooth | .006 | .008 | .01 | .0045 | .0055 | .007 | .006 | .008 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 | .045 | .08 | up to .187 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 2 | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PTH30E<br>TB6045 | RPM | 1,464 | 1,464 | 1,910 | 1,464 | 1,464 | 1,910 | 1,098 | 1,098 | 1,433 |
| | | | SFM | 575 | 575 | 750 | 575 | 575 | 750 | 575 | 575 | 750 |
| | | | IPM | 35.1 | 46.9 | 76.4 | 17.6 | 24.2 | 37.2 | 32.9 | 43.9 | 71.6 |
| | | | Feed per Tooth | .006 | .008 | .01 | .004 | .0055 | .0065 | .006 | .008 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 | .045 | .08 | up to .187 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 3 | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PTH30E<br>TB6045 | RPM | 1,337 | 1,337 | 1,528 | 1,337 | 1,337 | 1,528 | 1,003 | 1,003 | 1,146 |
| | | | SFM | 525 | 525 | 600 | 525 | 525 | 600 | 525 | 525 | 600 |
| | | | IPM | 32.1 | 37.4 | 52.0 | 16.0 | 22.1 | 29.8 | 30.1 | 35.1 | 48.7 |
| | | | Feed per Tooth | .006 | .007 | .0085 | .004 | .0055 | .0065 | .006 | .007 | .0085 |
| | | | Depth of Cut | .06 | .093 | up to .31 | .045 | .08 | up to .187 | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 4 | Stainless Steel<br>Alloy steel<br>(45-54HRC)<br>17-4 / 15-5<br>D-2 | PTH30E<br>TB6045 | RPM | 688 | 688 | 891 | 688 | 688 | 891 | 516 | 516 | 669 |
| | | | SFM | 270 | 270 | 350 | 270 | 270 | 350 | 270 | 270 | 350 |
| | | | IPM | 13.8 | 17.9 | 28.5 | 15.5 | 20.6 | 31.2 | 12.9 | 16.8 | 26.7 |
| | | | Feed per Tooth | .005 | .0065 | .008 | .0045 | .006 | .007 | .005 | .0065 | .008 |
| | | | Depth of Cut | .045 | .093 | up to .31 | .03 | .06 | up to .187 | .045 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 5 | Titanium | PTH30E | RPM | 573 | 573 | 675 | 573 | 573 | 675 | 430 | 430 | 506 |
| | | | SFM | 225 | 225 | 265 | 225 | 225 | 265 | 225 | 225 | 265 |
| | | | IPM | 11.5 | 18.3 | 22.9 | 14.3 | 22.9 | 28.7 | 10.7 | 17.2 | 21.5 |
| | | | Feed per Tooth | .005 | .008 | .0085 | .005 | .008 | .0085 | .005 | .008 | .0085 |
| | | | Depth of Cut | .045 | .125 | up to .31 | .045 | .08 | up to .187 | .045 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 6 | Stainless Steel 300, 400 Series | TB6045 | RPM | 1,655 | 1,655 | 1,846 | 1,655 | 1,655 | 1,846 | 1,242 | 1,242 | 1,385 |
| | | | SFM | 650 | 650 | 725 | 650 | 650 | 725 | 650 | 650 | 725 |
| | | | IPM | 29.8 | 46.3 | 59.1 | 22.3 | 32.3 | 38.8 | 27.9 | 43.5 | 55.4 |
| | | | Feed per Tooth | .0045 | .007 | .008 | .0045 | .0065 | .007 | .0045 | .007 | .008 |
| | | | Depth of Cut | .06 | .093 | up to .31 | .045 | .08 | up to .187 | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |
| 7 | Cast Iron | PTH30E | RPM | 1,334 | 1,334 | 1,783 | 1,334 | 1,334 | 1,783 | 1,001 | 1,001 | 1,337 |
| | | | SFM | 524 | 524 | 700 | 524 | 524 | 700 | 524 | 524 | 700 |
| | | | IPM | 42.7 | 53.4 | 71.3 | 24.0 | 32.0 | 53.5 | 40.0 | 50.0 | 66.9 |
| | | | Feed per Tooth | .008 | .01 | .01 | .006 | .008 | .01 | .008 | .01 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 | .045 | .08 | up to .187 | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia | Full | < 1/2 Dia. | < 20 % Dia |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

# AHU

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 3" (7 Flute) | | |
|---|---|---|---|---|---|---|
| | | | |  | | |
| | | | | 1505 Insert Size | | |
| | | | | 1.5° Ramp Angle | | Profiling |
| | | | | Slotting | "Z" Level Facing | |
| 1 | Mild steel<br>Carbon steel<br>(<200HB)<br>1018<br>Hot/Cold Rolled | PTH30E | RPM | 860 | 860 | 1,082 |
| | | | SFM | 675 | 675 | 850 |
| | | | IPM | 36.1 | 48.1 | 75.8 |
| | | | Feed per Tooth | .006 | .008 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 2 | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PTH30E<br>TB6045 | RPM | 732 | 732 | 955 |
| | | | SFM | 575 | 575 | 750 |
| | | | IPM | 30.8 | 41.0 | 66.9 |
| | | | Feed per Tooth | .006 | .008 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 3 | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PTH30E<br>TB6045 | RPM | 669 | 669 | 764 |
| | | | SFM | 525 | 525 | 600 |
| | | | IPM | 28.1 | 32.8 | 45.5 |
| | | | Feed per Tooth | .006 | .007 | .0085 |
| | | | Depth of Cut | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 4 | Stainless Steel<br>Alloy steel<br>(45-54HRC)<br>17-4 / 15-5<br>D-2 | PTH30E<br>TB6045 | RPM | 344 | 344 | 446 |
| | | | SFM | 270 | 270 | 350 |
| | | | IPM | 12.0 | 15.6 | 25.0 |
| | | | Feed per Tooth | .005 | .0065 | .008 |
| | | | Depth of Cut | .045 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 5 | Titanium | PTH30E | RPM | 287 | 287 | 337 |
| | | | SFM | 225 | 225 | 265 |
| | | | IPM | 10.0 | 16.0 | 20.1 |
| | | | Feed per Tooth | .005 | .008 | .0085 |
| | | | Depth of Cut | .045 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 6 | Stainless Steel<br>300, 400 Series | TB6045 | RPM | 828 | 828 | 923 |
| | | | SFM | 650 | 650 | 725 |
| | | | IPM | 26.1 | 40.6 | 51.7 |
| | | | Feed per Tooth | .0045 | .007 | .008 |
| | | | Depth of Cut | .06 | .093 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| 7 | Cast Iron | PTH30E | RPM | 667 | 667 | 891 |
| | | | SFM | 524 | 524 | 700 |
| | | | IPM | 37.4 | 46.7 | 62.4 |
| | | | Feed per Tooth | .008 | .01 | .01 |
| | | | Depth of Cut | .06 | .125 | up to .31 |
| | | | Width of Cut | Full | < 1/2 Dia. | < 20 % Dia |
| | | | | | | |
| | | | | | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

**ARB**

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 2" (4 Flute) | | Dia. 2 1/2" (4 Flute) | | Dia. 3" (5 Flute) | | Dia. 4" (6 Flute) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | |  | |  | |  | |
| | | | | Roughing 12mm Insert | | Roughing 12mm Insert | | Roughing 12mm Insert | | Roughing 12mm Insert | |
| | | | | Light | Heavy | Light | Heavy | Light | Heavy | Light | Heavy |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>12L14<br>1018 | CY 250 | RPM | 1,433 | 1,433 | 1,155 | 1,155 | 912 | 912 | 729 | 729 |
| | | | SFM | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| | | | IPM | 177.6 | 292.2 | 143.3 | 235.7 | 141.4 | 232.7 | 135.6 | 223.1 |
| | | | Feed per Tooth | 0.031 | 0.051 | 0.031 | 0.051 | 0.031 | 0.051 | 0.031 | 0.051 |
| | | | Depth of Cut | .08 | 0.06 | .08 | 0.06 | .08 | 0.06 | .08 | 0.06 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | CY 250 | RPM | 1,146 | 1,146 | 924 | 924 | 730 | 730 | 583 | 583 |
| | | | SFM | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| | | | IPM | 142.1 | 229.2 | 114.6 | 184.8 | 113.1 | 182.5 | 108.5 | 175.0 |
| | | | Feed per Tooth | .031 | .05 | .031 | .05 | .031 | .05 | .031 | .05 |
| | | | Depth of Cut | .08 | .06 | .08 | .06 | .08 | 0.06 | .08 | 0.06 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | CY 250 | RPM | 993 | 993 | 801 | 801 | 633 | 633 | 505 | 505 |
| | | | SFM | 520 | 520 | 520 | 520 | 520 | 520 | 520 | 520 |
| | | | IPM | 87.4 | 139.0 | 70.5 | 112.1 | 69.6 | 110.7 | 66.7 | 106.1 |
| | | | Feed per Tooth | .022 | .035 | .022 | .035 | .022 | .035 | .022 | .035 |
| | | | Depth of Cut | .06 | .04 | .06 | .04 | .06 | .04 | .06 | .04 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | CY 250 | RPM | 907 | 907 | 732 | 732 | 578 | 578 | 462 | 462 |
| | | | SFM | 475 | 475 | 475 | 475 | 475 | 475 | 475 | 475 |
| | | | IPM | 65.3 | 101.6 | 52.7 | 81.9 | 52.0 | 80.9 | 49.9 | 77.6 |
| | | | Feed per Tooth | .018 | .028 | .018 | .028 | .018 | .028 | .018 | .028 |
| | | | Depth of Cut | .04 | .03 | .04 | .03 | .04 | .03 | .04 | .03 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | CY 250 | RPM | 678 | 678 | 547 | 547 | 432 | 432 | 345 | 345 |
| | | | SFM | 355 | 355 | 355 | 355 | 355 | 355 | 355 | 355 |
| | | | IPM | 38.0 | 54.2 | 30.6 | 43.7 | 30.2 | 43.2 | 29.0 | 41.4 |
| | | | Feed per Tooth | .014 | .02 | .014 | .02 | .014 | .02 | .014 | .02 |
| | | | Depth of Cut | .03 | .02 | .03 | .02 | .03 | .02 | .03 | .02 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| IV | Carbon steel<br>Alloy steel<br>(50-60HRC)<br>Hardened Tool Steel | CY 250 | RPM | 525 | 525 | 424 | 424 | 335 | 335 | 267 | 267 |
| | | | SFM | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 |
| | | | IPM | 21.0 | 31.5 | 16.9 | 25.4 | 16.7 | 25.1 | 16.0 | 24.1 |
| | | | Feed per Tooth | .01 | .015 | .01 | .015 | .01 | .015 | .01 | .015 |
| | | | Depth of Cut | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| VI | Stainless steel | CY 250<br>GF 30<br>TB6045 | RPM | 1,165 | 1,165 | 940 | 940 | 742 | 742 | 593 | 593 |
| | | | SFM | 610 | 610 | 610 | 610 | 610 | 610 | 610 | 610 |
| | | | IPM | 139.8 | 209.7 | 112.8 | 169.1 | 111.3 | 167.0 | 106.7 | 160.1 |
| | | | Feed per Tooth | .03 | .045 | .03 | .045 | .03 | .045 | .03 | .045 |
| | | | Depth of Cut | .06 | .05 | .06 | .05 | .06 | .05 | .06 | .05 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| VIII | Cast iron<br>GG<br>GGG | CY 250<br>CY 150 | RPM | 1,079 | 1,079 | 870 | 870 | 687 | 687 | 549 | 549 |
| | | | SFM | 565 | 565 | 565 | 565 | 565 | 565 | 565 | 565 |
| | | | IPM | 172.7 | 259.0 | 139.2 | 208.9 | 137.5 | 206.2 | 131.8 | 197.7 |
| | | | Feed per Tooth | .04 | .06 | .04 | .06 | .04 | .06 | .04 | .06 |
| | | | Depth of Cut | .08 | .06 | .08 | .06 | .08 | .06 | .08 | .06 |
| | | | Favorable Width of Cut | 1.00 | 1.00 | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 |
| **Maximum Depth of Cut** | | | | 0.15 | | 0.15 | | 0.15 | | 0.15 | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

# ARB

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 2 1/2" (3 Flute) | | Dia. 3" (4 Flute) | | Dia. 4" (5 Flute) | | Dia. 5" (6 Flute) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | |  | |  | |  | |
| | | | | Roughing 16mm Insert | | Roughing 16mm Insert | | Roughing 16mm Insert | | Roughing 16mm Insert | |
| | | | | Light | Heavy | Light | Heavy | Light | Heavy | Light | Heavy |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>12L14<br>1018 | CY 250 | RPM | 1,155 | 1,155 | 912 | 912 | 729 | 729 | 582 | 582 |
| | | | SFM | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| | | | IPM | 107.4 | 176.8 | 113.1 | 186.1 | 113.0 | 185.9 | 108.3 | 178.2 |
| | | | Feed per Tooth | 0.031 | 0.051 | 0.031 | 0.051 | 0.031 | 0.051 | 0.031 | 0.051 |
| | | | Depth of Cut | 0.10 | 0.08 | 0.10 | 0.08 | 0.10 | 0.08 | 0.10 | 0.08 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | CY 250 | RPM | 924 | 924 | 730 | 730 | 583 | 583 | 466 | 466 |
| | | | SFM | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| | | | IPM | 86.0 | 138.6 | 90.5 | 146.0 | 90.4 | 145.8 | 86.6 | 139.8 |
| | | | Feed per Tooth | .031 | .05 | .031 | .05 | .031 | .05 | .031 | .05 |
| | | | Depth of Cut | .1 | .08 | 0.10 | 0.08 | 0.10 | 0.08 | 0.10 | 0.08 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | CY 250 | RPM | 801 | 801 | 633 | 633 | 505 | 505 | 404 | 404 |
| | | | SFM | 520 | 520 | 520 | 520 | 520 | 520 | 520 | 520 |
| | | | IPM | 52.9 | 84.1 | 55.7 | 88.6 | 55.6 | 88.5 | 53.3 | 84.8 |
| | | | Feed per Tooth | .022 | .035 | .022 | .035 | .022 | .035 | .022 | .035 |
| | | | Depth of Cut | .08 | .06 | .08 | .06 | .08 | .06 | .08 | .06 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | CY 250 | RPM | 732 | 732 | 578 | 578 | 462 | 462 | 369 | 369 |
| | | | SFM | 475 | 475 | 475 | 475 | 475 | 475 | 475 | 475 |
| | | | IPM | 39.5 | 61.5 | 41.6 | 64.7 | 41.6 | 64.6 | 39.8 | 62.0 |
| | | | Feed per Tooth | .018 | .028 | .018 | .028 | .018 | .028 | .018 | .028 |
| | | | Depth of Cut | .06 | .05 | .06 | .05 | .06 | .05 | .06 | .05 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | CY 250 | RPM | 547 | 547 | 432 | 432 | 345 | 345 | 276 | 276 |
| | | | SFM | 355 | 355 | 355 | 355 | 355 | 355 | 355 | 355 |
| | | | IPM | 23.0 | 32.8 | 24.2 | 34.6 | 24.2 | 34.5 | 23.2 | 33.1 |
| | | | Feed per Tooth | .014 | .02 | .014 | .02 | .014 | .02 | .014 | .02 |
| | | | Depth of Cut | .04 | .035 | .04 | .035 | .04 | .035 | .04 | .035 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| IV | Carbon steel<br>Alloy steel<br>(50-60HRC)<br>Hardened Tool Steel | CY 250 | RPM | 424 | 424 | 335 | 335 | 267 | 267 | 214 | 214 |
| | | | SFM | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 |
| | | | IPM | 25.4 | 31.8 | 26.8 | 33.5 | 26.7 | 33.4 | 25.6 | 32.0 |
| | | | Feed per Tooth | .02 | .025 | .02 | .025 | .02 | .025 | .02 | .025 |
| | | | Depth of Cut | .04 | .035 | .04 | .035 | .04 | .035 | .04 | .035 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| VI | Stainless steel | CY 250<br>GF30<br>TB6045 | RPM | 940 | 940 | 742 | 742 | 593 | 593 | 474 | 474 |
| | | | SFM | 610 | 610 | 610 | 610 | 610 | 610 | 610 | 610 |
| | | | IPM | 84.6 | 126.8 | 89.1 | 133.6 | 88.9 | 133.4 | 85.3 | 127.9 |
| | | | Feed per Tooth | .03 | .045 | .03 | .045 | .03 | .045 | .03 | .045 |
| | | | Depth of Cut | .08 | .05 | .08 | .05 | .08 | .05 | .08 | .05 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| VIII | Cast iron<br>GG<br>GGG | CY 250<br>CY 150 | RPM | 909 | 909 | 718 | 718 | 573 | 573 | 458 | 458 |
| | | | SFM | 590 | 590 | 590 | 590 | 590 | 590 | 590 | 590 |
| | | | IPM | 109.1 | 163.6 | 114.8 | 172.3 | 114.7 | 172.0 | 109.9 | 164.9 |
| | | | Feed per Tooth | .04 | .06 | .04 | .06 | .04 | .06 | .04 | .06 |
| | | | Depth of Cut | .1 | .08 | .08 | .06 | .08 | .06 | .08 | .06 |
| | | | Favorable Width of Cut | 1.25 | 1.25 | 1.50 | 1.50 | 2.00 | 2.00 | 2.50 | 2.50 |
| **Maximum Depth of Cut** | | | | 0.25 | | 0.25 | | 0.25 | | 0.25 | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

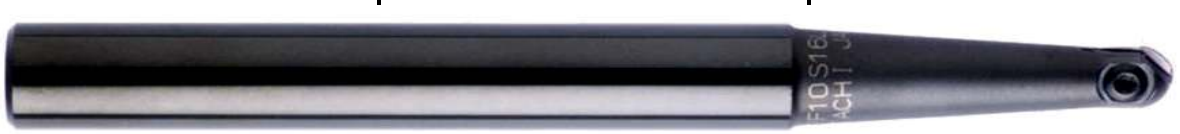
# ARB

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 6" (8 Flute) | | Dia. 1" (2 Flute) | | Dia. 1 1/4" (2 Flute) | | Dia. 1 1/2" (3 Flute) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | |  | |  | |  | |  | |
| | | | | Roughing 16mm Insert | | Roughing 12mm Insert | | Roughing 12mm Insert | | Roughing 12mm Insert | |
| | | | | Light | Heavy | Light | Heavy | Light | Heavy | Light | Heavy |
| I | Mild steel<br>Carbon steel<br>(<200HB)<br>12L14<br>1018 | CY 250 | RPM | 478 | 478 | 2,865 | 2,865 | 2,292 | 2,292 | 1,910 | 1,910 |
| | | | SFM | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| | | | IPM | 44.4 | 73.1 | 114.6 | 177.6 | 91.7 | 142.1 | 114.6 | 177.6 |
| | | | Feed per Tooth | 0.031 | 0.051 | 0.020 | 0.031 | 0.020 | 0.031 | 0.020 | 0.031 |
| | | | Depth of Cut | 0.10 | 0.08 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | CY 250 | RPM | 382 | 382 | 2,292 | 2,292 | 1,834 | 1,834 | 1,528 | 1,528 |
| | | | SFM | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 |
| | | | IPM | 35.5 | 57.3 | 91.7 | 142.1 | 73.3 | 113.7 | 91.7 | 142.1 |
| | | | Feed per Tooth | .031 | .05 | .02 | .031 | .02 | .031 | .02 | .031 |
| | | | Depth of Cut | .1 | .08 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| III | Carbon steel<br>Alloy steel<br>(30-40HRC)<br>P-20 High Hard | CY 250 | RPM | 331 | 331 | 1,986 | 1,986 | 1,589 | 1,589 | 1,324 | 1,324 |
| | | | SFM | 520 | 520 | 520 | 520 | 520 | 520 | 520 | 520 |
| | | | IPM | 21.9 | 34.8 | 87.4 | 139.0 | 69.9 | 111.2 | 87.4 | 139.0 |
| | | | Feed per Tooth | .022 | .035 | .022 | .035 | .022 | .035 | .022 | .035 |
| | | | Depth of Cut | .08 | .06 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| III | Carbon steel<br>Alloy steel<br>(40-45HRC)<br>4140 | CY 250 | RPM | 302 | 302 | 1,815 | 1,815 | 1,452 | 1,452 | 1,210 | 1,210 |
| | | | SFM | 475 | 475 | 475 | 475 | 475 | 475 | 475 | 475 |
| | | | IPM | 16.3 | 25.4 | 42.8 | 79.8 | 34.3 | 63.9 | 42.8 | 79.8 |
| | | | Feed per Tooth | .018 | .028 | .0118 | .022 | .0118 | .022 | .0118 | .022 |
| | | | Depth of Cut | .06 | .05 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| IV | Carbon steel<br>Alloy steel<br>(45-50HRC)<br>D-2 | CY 250 | RPM | 226 | 226 | 1,356 | 1,356 | 1,085 | 1,085 | 904 | 904 |
| | | | SFM | 355 | 355 | 355 | 355 | 355 | 355 | 355 | 355 |
| | | | IPM | 9.5 | 13.6 | 21.7 | 40.7 | 17.4 | 32.5 | 21.7 | 40.7 |
| | | | Feed per Tooth | .014 | .02 | .008 | .015 | .008 | .015 | .008 | .015 |
| | | | Depth of Cut | .04 | .035 | 0.04 | 0.035 | .04 | .035 | .04 | .035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| IV | Carbon steel<br>Alloy steel<br>(50-60HRC)<br>Hardened Tool Steel | CY 250 | RPM | 175 | 175 | 1,051 | 1,051 | 840 | 840 | 700 | 700 |
| | | | SFM | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 |
| | | | IPM | 10.5 | 13.1 | 10.5 | 21.0 | 8.4 | 16.8 | 10.5 | 21.0 |
| | | | Feed per Tooth | .02 | .025 | .005 | .01 | .005 | .01 | .005 | .01 |
| | | | Depth of Cut | .04 | .035 | .04 | .035 | .04 | .035 | .04 | .035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| VI | Stainless steel | CY 250<br>GF 30<br>TB6045 | RPM | 388 | 388 | 2,330 | 2,330 | 1,864 | 1,864 | 1,719 | 1,719 |
| | | | SFM | 610 | 610 | 610 | 610 | 610 | 610 | 675 | 675 |
| | | | IPM | 35.0 | 52.4 | 60.6 | 102.5 | 48.5 | 82.0 | 67.0 | 113.5 |
| | | | Feed per Tooth | .03 | .045 | .013 | .022 | .013 | .022 | .013 | .022 |
| | | | Depth of Cut | .08 | .05 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| VIII | Cast iron<br>GG<br>GGG | CY 250<br>CY 150 | RPM | 376 | 376 | 2,158 | 2,158 | 1,727 | 1,727 | 1,439 | 1,439 |
| | | | SFM | 590 | 590 | 565 | 565 | 565 | 565 | 565 | 565 |
| | | | IPM | 45.1 | 67.6 | 86.3 | 138.1 | 69.1 | 110.5 | 86.3 | 138.1 |
| | | | Feed per Tooth | .04 | .06 | .02 | .032 | .02 | .032 | .02 | .032 |
| | | | Depth of Cut | .1 | .08 | 0.05 | 0.035 | 0.05 | 0.035 | 0.05 | 0.035 |
| | | | Favorable Width of Cut | 3.00 | 3.00 | 0.50 | 0.50 | 0.63 | 0.63 | 0.75 | 0.75 |
| **Maximum Depth of Cut** | | | | 0.25 | | 0.15 | | 0.15 | | 0.15 | |

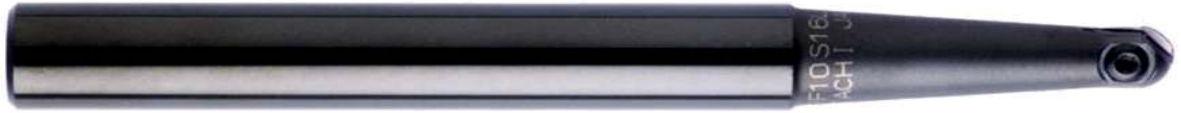
## ABPF

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 5/16 or 8mm | | | Dia. 3/8 or 10mm | | | Dia. 1/2 or 12mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | |  | | | | | | | |
| | | | | Semi Finishing | | Finishing | Semi Finishing | | Finishing | Semi Finishing | | Finishing |
| | | | | General | High Feed | | General | High Feed | | General | High Feed | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PCA12M | RPM | 6,370 | 12,340 | 12,340 | 5,100 | 9,240 | 11,150 | 4,250 | 7,170 | 10,080 |
| | | | SFM | 525 | 1017 | 1017 | 525 | 951 | 1148 | 525 | 886 | 1246 |
| | | | IPM | 100.0 | 388.0 | 194.0 | 80.0 | 290.0 | 175.0 | 66.0 | 225.0 | 158.0 |
| | | | Feed per Tooth | .008 | .0157 | .008 | .008 | .0157 | .008 | .008 | .0157 | .008 |
| | | | Depth of Cut | .008 | .0039 | .0039 | .0098 | .0059 | .0039 | .012 | .008 | .0039 |
| | | | Width of Cut | .031 | .031 | .0098 | .039 | .031 | .0098 | .047 | .035 | .0118 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PCA12M | RPM | 4,780 | 10,750 | 10,750 | 3,820 | 7,640 | 9,550 | 3,180 | 6,100 | 8,760 |
| | | | SFM | 393.0 | 885.0 | 885.0 | 393.0 | 787.0 | 984.0 | 393.0 | 754.0 | 1082.0 |
| | | | IPM | 75.0 | 338.0 | 169.0 | 60.0 | 240.0 | 150.0 | 50.0 | 192.0 | 137.0 |
| | | | Feed per Tooth | .0078 | .0157 | .0078 | .0078 | .0157 | .0078 | .0078 | .0157 | .0078 |
| | | | Depth of Cut | .0078 | .0039 | .0039 | .0098 | .0059 | .0039 | .0118 | .0078 | .0039 |
| | | | Width of Cut | .031 | .031 | .0098 | .039 | .031 | .0098 | .047 | .035 | .0118 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2 | PCA12M | RPM | 3,980 | 9,160 | 9,160 | 3,180 | 6,690 | 8,280 | 2,650 | 5,310 | 7,700 |
| | | | SFM | 328.0 | 754.0 | 754.0 | 328.0 | 688.0 | 852.0 | 328.0 | 656.0 | 951.0 |
| | | | IPM | 31.5 | 144.0 | 144.0 | 25.0 | 105.0 | 130.0 | 20.0 | 83.0 | 121.0 |
| | | | Feed per Tooth | .0039 | .0078 | .0078 | .0039 | .0078 | .0078 | .0039 | .0078 | .0078 |
| | | | Depth of Cut | .0078 | .0039 | .0039 | .0098 | .0059 | .0039 | .0118 | .0078 | .0039 |
| | | | Width of Cut | .031 | .031 | .0098 | .039 | .031 | .0098 | .047 | .035 | .0118 |
| VIII | Cast iron<br>GG<br>GGG | PCA12M | RPM | 6,370 | 12,340 | 12,340 | 5,090 | 9,240 | 11,150 | 4,240 | 7,170 | 10,080 |
| | | | SFM | 524.0 | 1016.0 | 1016.0 | 524.0 | 951.0 | 1148.0 | 524.0 | 885.0 | 1246.0 |
| | | | IPM | 150.0 | 583.0 | 194.0 | 120.0 | 436.0 | 263.0 | 100.0 | 338.0 | 238.0 |
| | | | Feed per Tooth | .0118 | .0236 | .0078 | .0118 | .0236 | .0118 | .0118 | .0236 | .0118 |
| | | | Depth of Cut | .0078 | .0039 | .0039 | .0098 | .0059 | .0039 | .0118 | .0078 | .0039 |
| | | | Width of Cut | .031 | .031 | .0098 | .0393 | .031 | .0098 | .047 | .0354 | .0118 |
| Maximum (Feed per Tooth) | | | | <0.0315 | | | <0.0315 | | | <0.0315 | | |
| Maximum Depth of Cut | | | | <.1570 | | | <.1968 | | | <.2362 | | |

## ABPF

**Recommended Cutting Condition**

| Work piece material | Work piece material | Insert material | Parameter | Dia. 5/8 or 16mm | | | Dia. 3/4 or 20mm | | | Dia. 1" or 25mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | |  | | | | | | | |
| | | | | Semi Finishing | | Finishing | Semi Finishing | | Finishing | Semi Finishing | | Finishing |
| | | | | General | High Feed | | General | High Feed | | General | High Feed | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PCA12M | RPM | 3,180 | 4,180 | 9,950 | 2,550 | 3,340 | 9,080 | 2,040 | 2,680 | 8,030 |
| | | | SFM | 524.0 | 688.0 | 1640.0 | 524.0 | 688.0 | 1869.0 | 524.0 | 688.0 | 2066.0 |
| | | | IPM | 62.5 | 164.5 | 235.0 | 50.3 | 131.4 | 285.8 | 40.0 | 105.5 | 316.0 |
| | | | Feed per Tooth | .0098 | .0196 | .0118 | .0098 | .0196 | .0157 | .0098 | .0196 | .0196 |
| | | | Depth of Cut | .0314 | .0236 | .0039 | .0393 | .0275 | .0039 | .0492 | .0354 | .0039 |
| | | | Width of Cut | .0629 | .0433 | .0137 | .0787 | .059 | .0157 | .0984 | .070 | .0196 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PCA12M | RPM | 2,390 | 2,990 | 7,560 | 1,910 | 2,550 | 6,690 | 1,530 | 2,040 | 5,990 |
| | | | SFM | 393.0 | 492.0 | 1246.0 | 393.0 | 524.0 | 1377.0 | 393.0 | 524.0 | 1541.0 |
| | | | IPM | 47.0 | 117.7 | 178.0 | 37.7 | 100.0 | 210.0 | 30.0 | 80.3 | 235.0 |
| | | | Feed per Tooth | .0098 | .0196 | .0118 | .0098 | .0196 | .0157 | .0098 | .0196 | .0196 |
| | | | Depth of Cut | .0314 | .0236 | .0039 | .0393 | .0275 | .0039 | .049 | .0354 | .0039 |
| | | | Width of Cut | .0629 | .0433 | .0118 | .0787 | .059 | .0157 | .0984 | .0708 | .0196 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2 | PCA12M | RPM | 1,990 | 2,990 | 6,970 | 1,590 | 2,390 | 6,370 | 1,270 | 1,910 | 5,730 |
| | | | SFM | 328.0 | 492.0 | 1148.0 | 328.0 | 492.0 | 1312.0 | 328.0 | 492.0 | 1476.0 |
| | | | IPM | 18.8 | 56.6 | 164.0 | 14.9 | 45.2 | 200.0 | 12.0 | 36.2 | 225.5 |
| | | | Feed per Tooth | .0047 | .0094 | .0118 | .0047 | .0094 | .0157 | .0047 | .0094 | .0196 |
| | | | Depth of Cut | .0314 | .0236 | .0039 | .0393 | .0275 | .0039 | .0492 | .0354 | .0039 |
| | | | Width of Cut | .063 | .0433 | .0118 | .0787 | .059 | .0157 | .0984 | .0708 | .0196 |
| VIII | Cast iron<br>GG<br>GGG | PCA12M | RPM | 3,200 | 4,180 | 9,950 | 2,550 | 3,340 | 9,080 | 2,050 | 2,680 | 8,030 |
| | | | SFM | 524.0 | 688.0 | 1640.0 | 524.0 | 688.0 | 1869.0 | 524.0 | 688.0 | 2066.0 |
| | | | IPM | 88.0 | 230.0 | 235.0 | 70.0 | 184.0 | 285.0 | 56.6 | 147.0 | 316.0 |
| | | | Feed per Tooth | .0137 | .0275 | .0118 | .0137 | .0275 | .0157 | .0137 | .0275 | .0196 |
| | | | Depth of Cut | .0314 | .0236 | .0039 | .0393 | .0275 | .0039 | .0492 | .0354 | .0039 |
| | | | Width of Cut | .063 | .0433 | .0118 | .0787 | .059 | .0157 | .0984 | .0708 | .0196 |
| Maximum (Feed per Tooth) | | | | <.0393 | | | <.0393 | | | <.0393 | | |
| Maximum Depth of Cut | | | | <.3149 | | | <.3937 | | | <.4921 | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ARPF

**Recommended Cutting Condition**

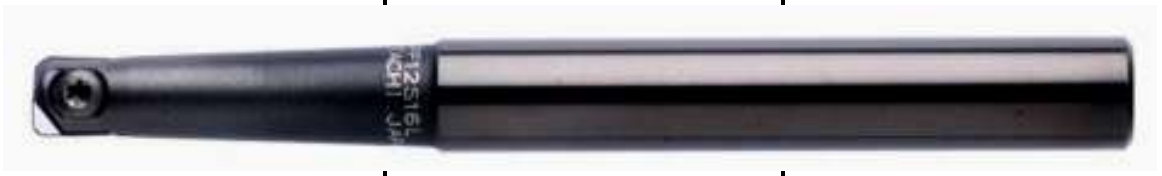
| Work piece material | work piece material | Insert material | Parameter | Dia. 8mm | | | Dia. 3/8 or 10mm | | | Dia. 1/2 or 12mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | |  | | | | | | | |
| | | | | Semi Finishing | | Finishing | Semi Finishing | | Finishing | Semi Finishing | | Finishing |
| | | | | General | High Speed | | General | High Speed | | General | High Speed | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PCA12M | RPM | 6,370 | 11,940 | 11,940 | 5,090 | 9,550 | 9,550 | 4,240 | 7,960 | 7,960 |
| | | | SFM | 524.0 | 984.0 | 984.0 | 524.0 | 984.0 | 984.0 | 524.0 | 984.0 | 984.0 |
| | | | IPM | 100.0 | 140.0 | 140.0 | 80.0 | 112.0 | 112.0 | 67.0 | 94.0 | 94.0 |
| | | | Feed per Tooth | .0078 | .0059 | .0059 | .0078 | .0059 | .0059 | .0078 | .0059 | .0059 |
| | | | Depth of Cut | .0078 | .0078 | .0039 | .0098 | .0098 | .0039 | .0118 | .0118 | .0039 |
| | | | Width of Cut | .031 | .0157 | .0078 | .0393 | .0196 | .0078 | .0472 | .0236 | .0078 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PCA12M | RPM | 4,770 | 11,150 | 11,150 | 3,820 | 8,920 | 8,920 | 3,180 | 7,430 | 7,430 |
| | | | SFM | 393.0 | 918.0 | 918.0 | 393.0 | 918.0 | 918.0 | 393.0 | 918.0 | 918.0 |
| | | | IPM | 75.0 | 131.0 | 131.0 | 60.0 | 105.0 | 105.0 | 50.0 | 87.0 | 87.0 |
| | | | Feed per Tooth | .0078 | .0059 | .0059 | .0078 | .0059 | .0059 | .0078 | .0059 | .0059 |
| | | | Depth of Cut | .0078 | .0078 | .0039 | .0098 | .0098 | .0039 | .0118 | .0118 | .0039 |
| | | | Width of Cut | .0314 | .0157 | .0078 | .0393 | .0196 | .0078 | .0472 | .0236 | .0078 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2 | PCA12M | RPM | 3,980 | 11,150 | 11,150 | 3,180 | 8,920 | 8,920 | 2,650 | 7,430 | 7,430 |
| | | | SFM | 328.0 | 918.0 | 918.0 | 328.0 | 918.0 | 918.0 | 328.0 | 918.0 | 918.0 |
| | | | IPM | 31.0 | 44.0 | 44.0 | 25.0 | 35.0 | 35.0 | 20.0 | 29.0 | 29.0 |
| | | | Feed per Tooth | .0039 | .0019 | .0019 | .0039 | .0019 | .0019 | .0039 | .0019 | .0019 |
| | | | Depth of Cut | .0078 | .0078 | .0039 | .0098 | .0098 | .0039 | .0118 | .0118 | .0039 |
| | | | Width of Cut | .0314 | .0078 | .0078 | .0393 | .0098 | .0078 | .0472 | .0118 | .0078 |
| VIII | Cast iron<br>GG<br>GGG | PCA12M | RPM | 6,370 | 15,130 | 15,130 | 5,090 | 12,100 | 12,100 | 4,240 | 10,080 | 10,080 |
| | | | SFM | 524.0 | 1246.0 | 1246.0 | 524.0 | 1246.0 | 1246.0 | 524.0 | 1246.0 | 1246.0 |
| | | | IPM | 150.0 | 238.0 | 238.0 | 120.0 | 190.0 | 190.0 | 100.0 | 158.0 | 158.0 |
| | | | Feed per Tooth | .0118 | .0078 | .0078 | .0118 | .0078 | .0078 | .0118 | .0078 | .0078 |
| | | | Depth of Cut | .0078 | .0078 | .0039 | .0098 | .0078 | .0039 | .0118 | .0118 | .0039 |
| | | | Width of Cut | .0314 | .0157 | .0078 | .0393 | .0157 | .0078 | .0472 | .0236 | .0078 |
| Maximum (Feed per Tooth) | | | | <.0196 | | | <.0196 | | | <.0196 | | |
| Maximum Depth of Cut | | | | <.0984 | | | <.1181 | | | <.1574 | | |

VEGA TOOL CORP.

R&D Engineering HITACHI TOOL

## ARPF

**Recommended Cutting Condition**

| Work piece material | work piece material | Insert material | Parameter | Dia. 5/8 or 16mm | | | Dia. 3/4 or 20mm | | | Dia. 1" or 25mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | |  | | | | | | | |
| | | | | Semi Finishing | | Finishing | Semi Finishing | | Finishing | Semi Finishing | | Finishing |
| | | | | General | High Speed | | General | High Speed | | General | High Speed | |
| I<br>II | Carbon steel<br>Alloy steel<br>(<30HRC)<br>P-20 | PCA12M | RPM | 3,200 | 5,970 | 5,970 | 2,550 | 4,780 | 4,780 | 2,050 | 3,820 | 3,820 |
| | | | SFM | 524.0 | 984.0 | 984.0 | 524.0 | 984.0 | 984.0 | 524.0 | 984.0 | 984.0 |
| | | | IPM | 62.9 | 94.0 | 94.0 | 51.0 | 75.0 | 75.0 | 40.5 | 60.2 | 60.2 |
| | | | Feed per Tooth | .0098 | .0078 | .0078 | .0098 | .0078 | .0078 | .0098 | .0078 | .0078 |
| | | | Depth of Cut | .0314 | .0314 | .0078 | .0393 | .0393 | .0078 | .0492 | .0492 | .0078 |
| | | | Width of Cut | .0629 | .0629 | .0078 | .0787 | .0787 | .0078 | .0984 | .0492 | .0078 |
| III | Alloy steel<br>Tool steel<br>(30-40HRC)<br>P-20 High Hard<br>4140 | PCA12M | RPM | 2,400 | 5,570 | 5,570 | 1,910 | 4,460 | 4,460 | 1,530 | 3,570 | 3,570 |
| | | | SFM | 393.0 | 918.0 | 918.0 | 393.0 | 918.0 | 918.0 | 393.0 | 918.0 | 918.0 |
| | | | IPM | 47.0 | 87.0 | 87.0 | 37.5 | 70.0 | 70.0 | 30.1 | 56.2 | 56.2 |
| | | | Feed per Tooth | .0098 | .0078 | .0078 | .0098 | .0078 | .0078 | .0098 | .0078 | .0078 |
| | | | Depth of Cut | .0314 | .0314 | .0078 | .0393 | .0393 | .0078 | .0492 | .0492 | .0078 |
| | | | Width of Cut | .0629 | .0629 | .0078 | .0787 | .0787 | .0078 | .0984 | .0984 | .0078 |
| IV | Pre-Harden Steel<br>Tool steel<br>(40-50HRC)<br>D-2 | PCA12M | RPM | 1,990 | 5,570 | 5,570 | 1,590 | 4,460 | 4,460 | 1,270 | 3,570 | 3,570 |
| | | | SFM | 328.0 | 918.0 | 918.0 | 328.0 | 918.0 | 918.0 | 328.0 | 918.0 | 918.0 |
| | | | IPM | 18.8 | 26.3 | 26.3 | 14.9 | 21.0 | 21.0 | 12.0 | 16.9 | 16.9 |
| | | | Feed per Tooth | .0047 | .0023 | .0023 | .0047 | .0023 | .0023 | .0047 | .0023 | .0023 |
| | | | Depth of Cut | .0314 | .0314 | .0078 | .0393 | .0393 | .0078 | .0492 | .0492 | .0078 |
| | | | Width of Cut | .0629 | .0314 | .0078 | .0787 | .0393 | .0078 | .0984 | .0492 | .0078 |
| VIII | Cast iron<br>GG<br>GGG | PCA12M | RPM | 3,200 | 7,560 | 7,560 | 2,550 | 6,050 | 6,050 | 2,050 | 4,840 | 4,840 |
| | | | SFM | 524.0 | 1246.0 | 1246.0 | 524.0 | 1246.0 | 1246.0 | 524.0 | 1246.0 | 1246.0 |
| | | | IPM | 88.0 | 178.0 | 178.0 | 70.0 | 142.0 | 142.0 | 56.0 | 114.0 | 114.0 |
| | | | Feed per Tooth | .0137 | .0118 | .0118 | .0137 | .0118 | .0118 | .0137 | .0118 | .0118 |
| | | | Depth of Cut | .0314 | .0314 | .0078 | .0393 | .0393 | .0078 | .0492 | .0492 | .0078 |
| | | | Width of Cut | .0629 | .0629 | .0078 | .0787 | .0787 | .0078 | .0984 | .0984 | .0078 |
| Maximum (Feed per Tooth) | | | | <.0236 | | | <.0236 | | | <.0236 | | |
| Maximum Depth of Cut | | | | <.1968 | | | <.2362 | | | <.3149 | | |