

CUTTING PARAMETERS

HF852

| | | | | | | | | | | | | | |
|----------------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|-----------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | ap x ae | 0.5D x D | | | 0.5D x D | | | 0.3D x D | | | 0.2D x D | | |
| | Vc (m/min) | 80-100 | | | 60-80 | | | 40-60 | | | 30-50 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 4 | 7170 | 0.016 | 450 | 5570 | 0.014 | 320 | 3980 | 0.012 | 190 | 3180 | 0.011 | 140 |
| | 5 | 5730 | 0.020 | 450 | 4460 | 0.018 | 310 | 3180 | 0.015 | 190 | 2550 | 0.014 | 140 |
| | 6 | 4780 | 0.023 | 440 | 3720 | 0.021 | 310 | 2650 | 0.017 | 180 | 2120 | 0.016 | 140 |
| | 8 | 3580 | 0.030 | 430 | 2790 | 0.027 | 300 | 1990 | 0.022 | 180 | 1590 | 0.021 | 130 |
| | 10 | 2870 | 0.036 | 410 | 2230 | 0.032 | 290 | 1590 | 0.027 | 170 | 1270 | 0.025 | 130 |
| 12 | 2390 | 0.041 | 390 | 1860 | 0.037 | 270 | 1330 | 0.031 | 160 | 1060 | 0.029 | 120 | |
| 14 | 2050 | 0.046 | 380 | 1590 | 0.041 | 260 | 1140 | 0.034 | 160 | 910 | 0.032 | 120 | |
| 16 | 1790 | 0.051 | 370 | 1390 | 0.046 | 260 | 1000 | 0.038 | 150 | 800 | 0.036 | 110 | |
| 20 | 1430 | 0.062 | 350 | 1110 | 0.056 | 250 | 800 | 0.047 | 150 | 640 | 0.043 | 110 | |
| ap x ae | ≤ D5 | 0.3D x D | | | 0.3D x D | | | 0.2D x D | | | 0.1D x D | | |

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|----------------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|--------------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | ap x ae | 1.5D x 0.3D | | | 1.5D x 0.2D | | | 1.2D x 0.2D | | | 1.2D x 0.1D | | |
| | Vc (m/min) | 100-120 | | | 70-90 | | | 50-70 | | | 40-60 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 4 | 8760 | 0.019 | 660 | 6370 | 0.017 | 430 | 4780 | 0.015 | 290 | 3980 | 0.021 | 330 |
| | 5 | 7010 | 0.023 | 660 | 5100 | 0.021 | 430 | 3820 | 0.019 | 290 | 3180 | 0.026 | 330 |
| | 6 | 5840 | 0.028 | 640 | 4250 | 0.025 | 420 | 3180 | 0.022 | 280 | 2650 | 0.030 | 320 |
| | 8 | 4380 | 0.036 | 630 | 3180 | 0.032 | 410 | 2390 | 0.029 | 270 | 1990 | 0.039 | 310 |
| | 10 | 3500 | 0.043 | 600 | 2550 | 0.039 | 390 | 1910 | 0.034 | 260 | 1590 | 0.047 | 300 |
| 12 | 2920 | 0.049 | 570 | 2120 | 0.044 | 370 | 1590 | 0.039 | 250 | 1330 | 0.054 | 290 | |
| 14 | 2500 | 0.055 | 550 | 1820 | 0.050 | 360 | 1360 | 0.044 | 240 | 1140 | 0.061 | 280 | |
| 16 | 2190 | 0.061 | 540 | 1590 | 0.055 | 350 | 1190 | 0.049 | 230 | 1000 | 0.067 | 270 | |
| 20 | 1750 | 0.074 | 520 | 1270 | 0.067 | 340 | 960 | 0.060 | 230 | 800 | 0.082 | 260 | |
| ap x ae | ≤ D5 | 1.2D x 0.2D | | | 1.2D x 0.1D | | | D x 0.2D | | | D x 0.1D | | |

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|-----------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|------------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | α° x ae | 5° x 0.4D | | | 4° x 0.4D | | | 3° x 0.4D | | | 2° x 0.4D | | |
| | Vc (m/min) | 80-100 | | | 60-80 | | | 40-60 | | | 30-50 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 4 | 7170 | 0.011 | 330 | 5570 | 0.011 | 240 | 3980 | 0.009 | 150 | 3180 | 0.010 | 126 |
| | 5 | 5730 | 0.014 | 325 | 4460 | 0.013 | 235 | 3180 | 0.012 | 149 | 2550 | 0.012 | 126 |
| | 6 | 4780 | 0.017 | 320 | 3720 | 0.016 | 230 | 2650 | 0.014 | 146 | 2120 | 0.015 | 123 |
| | 8 | 3580 | 0.022 | 310 | 2790 | 0.020 | 225 | 1990 | 0.018 | 142 | 1590 | 0.019 | 120 |
| | 10 | 2870 | 0.026 | 300 | 2230 | 0.024 | 215 | 1590 | 0.021 | 136 | 1270 | 0.023 | 115 |
| 12 | 2390 | 0.030 | 285 | 1860 | 0.028 | 205 | 1330 | 0.024 | 130 | 1060 | 0.026 | 109 | |
| 14 | 2050 | 0.033 | 275 | 1590 | 0.031 | 200 | 1140 | 0.028 | 126 | 910 | 0.029 | 106 | |
| 16 | 1790 | 0.037 | 265 | 1390 | 0.035 | 190 | 1000 | 0.031 | 122 | 800 | 0.032 | 103 | |
| 20 | 1430 | 0.045 | 260 | 1110 | 0.042 | 185 | 800 | 0.037 | 119 | 640 | 0.039 | 100 | |
| α° | ≤ D5 | 2° | | | 2° | | | 1° | | | 1° | | |

PARAMETERS SUGGESTED WITH HIGH POWER MILLING CHUCK AND STABLE MACHINING CONDITION

CUTTING PARAMETERS

HF852

| | | | | | | | | | | | | | |
|-----------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|----------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | α° x ae | 5° x D | | | 4° x D | | | 3° x D | | | 2° x D | | |
| | Vc (m/min) | 80-100 | | | 60-80 | | | 40-60 | | | 30-50 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 6 | 4780 | 0.020 | 385 | 3720 | 0.019 | 280 | 2650 | 0.018 | 187 | 2120 | 0.027 | 232 |
| | 8 | 3580 | 0.026 | 370 | 2790 | 0.024 | 270 | 1990 | 0.023 | 182 | 1590 | 0.035 | 226 |
| | 10 | 2870 | 0.031 | 360 | 2230 | 0.029 | 260 | 1590 | 0.027 | 175 | 1270 | 0.043 | 216 |
| | 12 | 2390 | 0.036 | 340 | 1860 | 0.033 | 245 | 1330 | 0.031 | 167 | 1060 | 0.049 | 206 |
| | 14 | 2050 | 0.040 | 330 | 1590 | 0.037 | 240 | 1140 | 0.035 | 161 | 910 | 0.055 | 199 |
| 16 | 1790 | 0.045 | 320 | 1390 | 0.042 | 230 | 1000 | 0.039 | 157 | 800 | 0.061 | 195 | |
| 20 | 1430 | 0.054 | 310 | 1110 | 0.051 | 225 | 800 | 0.048 | 153 | 640 | 0.074 | 189 | |

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|-----------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|----------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | ap x ae | D x 0.4D | | | D x 0.4D | | | D x 0.25D | | | D x 0.25D | | |
| | Vc (m/min) | 80-100 | | | 60-80 | | | 40-60 | | | 30-50 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 6 | 4780 | 0.023 | 440 | 3720 | 0.021 | 310 | 2650 | 0.017 | 180 | 2120 | 0.016 | 140 |
| | 8 | 3580 | 0.030 | 430 | 2790 | 0.027 | 300 | 1990 | 0.022 | 180 | 1590 | 0.021 | 130 |
| | 10 | 2870 | 0.036 | 410 | 2230 | 0.032 | 290 | 1590 | 0.027 | 170 | 1270 | 0.025 | 130 |
| | 12 | 2390 | 0.041 | 390 | 1860 | 0.037 | 270 | 1330 | 0.031 | 160 | 1060 | 0.029 | 120 |
| | 14 | 2050 | 0.046 | 380 | 1590 | 0.041 | 260 | 1140 | 0.034 | 160 | 910 | 0.032 | 120 |
| 16 | 1790 | 0.051 | 370 | 1390 | 0.046 | 260 | 1000 | 0.038 | 150 | 800 | 0.036 | 110 | |
| 20 | 1430 | 0.062 | 350 | 1110 | 0.056 | 250 | 800 | 0.047 | 150 | 640 | 0.043 | 110 | |

- INFO
- TYPHOON TA-HTA-4HTA
- TYPHOON PU-HPU
- TYPHOON SUH
- TYPHOON ALH
- TYPHOON HRC
- TYPHOON SUH MINI
- TYPHOON HL
- C-SD-TA
- LFTA
- SUTA
- HSS-HSS/CO DRILLS
- G2
- MDTA
- HF VH/UP
- MEF
- ALU
- MEX
- UH
- HSS/CO-HSSP END MILLS
- CARBIDE BURRS

PARAMETERS SUGGESTED WITH HIGH POWER MILLING CHUCK AND STABLE MACHINING CONDITION

HF852

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|----------------|-------------------------------|----------------------------|------------------|--------------------|----------------------------|------------------|--------------------|----------------------|------------------|--------------------|--------------------|------------------|--------------------|
| | Material Group ISO 513 | P4 M4 K4 | | | P4 P5 M4 M5 K4 S1 | | | P5 P6 M5 K4 S2 S3 | | | H1 H4 H5 | | |
| | Hardness/Rm | 800-1000 N/mm ² | | | 900-1200 N/mm ² | | | 35-45 HRC | | | ≤ 55 HRC | | |
| | ap x ae | 2D x 0.2D | | | 2D x 0.1D | | | 1.5D x 0.1D | | | 1.5D x 0.1D | | |
| | Vc (m/min) | 130-150 | | | 100-120 | | | 70-90 | | | 50-70 | | |
| | D (mm) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) | n (rpm) | fz (mm/z) | Vf (mm/min) |
| | 4 | 11150 | 0.039 | 1750 | 8760 | 0.035 | 1240 | 6370 | 0.031 | 800 | 4780 | 0.043 | 830 |
| | 5 | 8920 | 0.049 | 1740 | 7010 | 0.044 | 1230 | 5100 | 0.039 | 800 | 3820 | 0.054 | 820 |
| | 6 | 7430 | 0.057 | 1710 | 5840 | 0.052 | 1210 | 4250 | 0.046 | 780 | 3180 | 0.063 | 800 |
| | 8 | 5570 | 0.074 | 1660 | 4380 | 0.067 | 1170 | 3180 | 0.060 | 760 | 2390 | 0.082 | 780 |
| | 10 | 4460 | 0.089 | 1590 | 3500 | 0.080 | 1120 | 2550 | 0.071 | 730 | 1910 | 0.098 | 750 |
| 12 | 3720 | 0.102 | 1520 | 2920 | 0.092 | 1070 | 2120 | 0.082 | 690 | 1590 | 0.112 | 710 | |
| 14 | 3180 | 0.115 | 1460 | 2500 | 0.103 | 1030 | 1820 | 0.092 | 670 | 1360 | 0.126 | 690 | |
| 16 | 2790 | 0.128 | 1420 | 2190 | 0.115 | 1010 | 1590 | 0.102 | 650 | 1190 | 0.140 | 670 | |
| 20 | 2230 | 0.155 | 1380 | 1750 | 0.140 | 980 | 1270 | 0.124 | 630 | 960 | 0.171 | 660 | |
| ap x ae | ≤ D5 | 1.5D x 0.1D | | | 1.5D x 0.1D | | | D x 0.1D | | | D x 0.05D | | |

NOTES:

Down milling CNC programming is required.

"ae" value max 0.2xD - "T" value max 0.1xD.

The use of end mill with diameter 30-40% smaller than the width of the slot is recommended.

The cutting conditions are based on CNC programming with medium dynamic speed.

With lower CNC dynamic speed, use the same cutting conditions or reduce the cutting speed Vc.

With higher CNC dynamic speed, reduce the "T" value by approximately -30 -50% and apply the maximum available cutting speed Vc.

