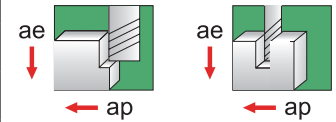


GARR TOOL Milling Guide for V4 End Mills in Titanium, Inconel, and Stainless

Fractional

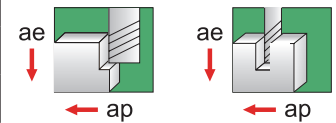
| | Titanium Alloys | Nickel or Cobalt-based Material | Stainless (400 Series, pH Series) | Carbon Steels |
|-----------------|-----------------|---------------------------------|-----------------------------------|-----------------|
| | SFM = 100 - 200 | SFM = 50 - 100 | SFM = 100 - 225 | SFM = 250 - 400 |
| DIAMETER | CPT (Fz) | CPT (Fz) | CPT (Fz) | CPT (Fz) |
| .1575" - .2755" | .0004" - .0008" | .0003" - .0006" | .0005" - .0010" | .0008" - .0010" |
| .2756" - .3124" | .0005" - .0010" | .0004" - .0008" | .0007" - .0012" | .0010" - .0015" |
| .3125" - .3749" | .0007" - .0012" | .0005" - .0010" | .0008" - .0015" | .0012" - .0020" |
| .3750" - .4999" | .0008" - .0015" | .0007" - .0012" | .0010" - .0018" | .0013" - .0022" |
| .5000" - .6249" | .0010" - .0018" | .0008" - .0015" | .0012" - .0020" | .0015" - .0025" |
| .6250" - .7499" | .0012" - .0020" | .0010" - .0018" | .0015" - .0022" | .0018" - .0030" |
| .7500" - .8749" | .0015" - .0022" | .0012" - .0020" | .0018" - .0025" | .0022" - .0035" |
| .8750" - 1.000" | .0018" - .0025" | .0015" - .0022" | .0022" - .0030" | .0025" - .0040" |

| | Profiling Side Cutting | Slotting Pocket Milling |
|-------------|------------------------|-------------------------|
| Axial (ae) | 1xD | 100% of Dia. |
| Radial (ap) | 100% of Dia. | 1xD |



| | Titanium Alloys | Nickel or Cobalt-based Material | Stainless (400 Series, pH Series) | Carbon Steels |
|-----------------|-----------------|---------------------------------|-----------------------------------|-----------------|
| | SFM = 150 - 250 | SFM = 60 - 125 | SFM = 150 - 300 | SFM = 300 - 450 |
| DIAMETER | CPT (Fz) | CPT (Fz) | CPT (Fz) | CPT (Fz) |
| .1575" - .2755" | .0008" - .0011" | .0004" - .0008" | .0008" - .0012" | .0010" - .0015" |
| .2756" - .3124" | .0010" - .0015" | .0005" - .0010" | .0010" - .0018" | .0012" - .0020" |
| .3125" - .3749" | .0012" - .0018" | .0007" - .0012" | .0012" - .0020" | .0015" - .0023" |
| .3750" - .4999" | .0012" - .0021" | .0008" - .0015" | .0015" - .0022" | .0018" - .0027" |
| .5000" - .6249" | .0015" - .0025" | .0010" - .0018" | .0018" - .0030" | .0020" - .0032" |
| .6250" - .7499" | .0018" - .0030" | .0012" - .0020" | .0020" - .0033" | .0025" - .0035" |
| .7500" - .8749" | .0020" - .0032" | .0015" - .0022" | .0023" - .0037" | .0030" - .0042" |
| .8750" - 1.000" | .0025" - .0035" | .0018" - .0025" | .0027" - .0040" | .0032" - .0050" |

| | Profiling Side Cutting | Slotting Pocket Milling |
|-------------|------------------------|-------------------------|
| Axial (ae) | 1xD | 50% of Dia. |
| Radial (ap) | 50% of Dia. | 1xD |



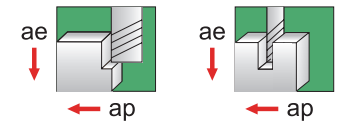
NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL Milling Guide for V4 End Mills in Titanium, Inconel, and Stainless

Metric

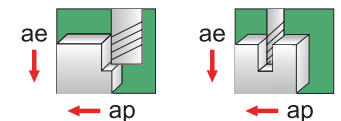
| | Titanium Alloys | Nickel or Cobalt-based Material | Stainless (400 Series, pH Series) | Carbon Steels |
|-------------|-----------------|---------------------------------|-----------------------------------|----------------|
| | SMM = 30 - 60 | SMM = 15 - 30 | SMM = 30 - 70 | SMM = 75 - 120 |
| DIAMETER | CPT (Fz) | CPT (Fz) | CPT (Fz) | CPT (Fz) |
| 4.0 - 7.0 | .010 - .020 | .005 - .008 | .010 - .025 | .020 - .030 |
| 7.0 - 8.0 | .012 - .025 | .010 - .020 | .015 - .030 | .025 - .045 |
| 8.0 - 10.0 | .015 - .030 | .012 - .025 | .020 - .040 | .030 - .050 |
| 10.0 - 13.0 | .020 - .040 | .015 - .030 | .025 - .045 | .035 - .055 |
| 13.0 - 16.0 | .025 - .045 | .020 - .040 | .030 - .050 | .045 - .075 |
| 16.0 - 19.0 | .030 - .050 | .025 - .045 | .035 - .055 | .050 - .080 |
| 19.0 - 22.0 | .035 - .055 | .030 - .050 | .045 - .065 | .055 - .095 |
| 22.0 - 25.0 | .045 - .065 | .035 - .055 | .055 - .075 | .065 - .105 |

| | Profiling Side Cutting | Slotting Pocket Milling |
|-------------|------------------------|-------------------------|
| Axial (ae) | 1xD | 100% of Dia. |
| Radial (ap) | 100% of Dia. | 1xD |



| | Titanium Alloys | Nickel or Cobalt-based Material | Stainless (400 Series, pH Series) | Carbon Steels |
|-------------|-----------------|---------------------------------|-----------------------------------|----------------|
| | SMM = 45 - 75 | SMM = 20 - 40 | SMM = 45 - 90 | SMM = 90 - 130 |
| DIAMETER | CPT (Fz) | CPT (Fz) | CPT (Fz) | CPT (Fz) |
| 4.0 - 7.0 | .020 - .030 | .010 - .020 | .020 - .030 | .025 - .040 |
| 7.0 - 8.0 | .025 - .040 | .013 - .025 | .025 - .045 | .030 - .045 |
| 8.0 - 10.0 | .030 - .045 | .018 - .030 | .030 - .050 | .035 - .050 |
| 10.0 - 13.0 | .030 - .050 | .020 - .040 | .035 - .055 | .040 - .055 |
| 13.0 - 16.0 | .035 - .060 | .025 - .045 | .045 - .075 | .050 - .080 |
| 16.0 - 19.0 | .045 - .075 | .030 - .050 | .050 - .080 | .055 - .090 |
| 19.0 - 22.0 | .050 - .080 | .035 - .055 | .055 - .095 | .060 - .105 |
| 22.0 - 25.0 | .060 - .090 | .045 - .065 | .065 - .105 | .070 - .110 |

| | Profiling Side Cutting | Slotting Pocket Milling |
|-------------|------------------------|-------------------------|
| Axial (ae) | 1xD | 50% of Dia. |
| Radial (ap) | 50% of Dia. | 1xD |



NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.