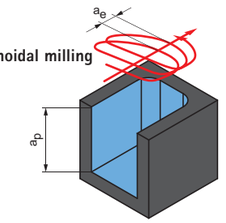
# Cutting data recommendations for trochoidal milling cutters

Feed and cutting speed




**Trochoidal milling**

$a_p$ = depending on the tool length
$a_e$ = depending on the workpiece material

**OptiMill-Tro-Inox | SCM292**

| MMG* | | | Workpiece material | Strength/hardness [N/mm²] [HRC] | Cooling | | | $v_c$ [m/min] | $f_z$ [mm] in % of D | $a_e$ [mm] in % of D | $h_m$ max. [mm] in % of D | Machining example |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MQL/Air | Dry | KSS | | | | | |
| M | M1 | M1.1 | Stainless steels, austenitic | < 700 | ✓ | | ✓ | **160 - 220** | 0.8 - 1.1 | 5 - 10 | 0.48 - 0.60 | **X5CrNi18-8**<br>ø = 12 mm<br>$v_c$ = 180 m/min<br>$f_z$ = 0.09 mm<br>$a_e$ = 1.2 mm<br>$a_p$ = 32 mm |
| | | M1.2 | Stainless steels, ferritic/austenitic (duplex) | < 1,000 | | | ✓ | **120 - 160** | 0.6 - 1.0 | 5 - 10 | 0.46 - 0.58 | |
| | M2 | M2.1 | Stainless cast steel, austenitic | < 700 | ✓ | | ✓ | **160 - 220** | 0.8 - 1.1 | 5 - 10 | 0.48 - 0.60 | |
| | M3 | M3.1 | Stainless cast steel, ferritic/austenitic (duplex) | < 1,000 | | | ✓ | **120 - 160** | 0.6 - 1.0 | 5 - 10 | 0.46 - 0.58 | |
| S | S1 | S1.1 | Titanium, titanium alloys | < 400 | | | ✓ | **110 - 170** | 0.65 - 1.3 | 6 - 12 | 0.52 -0.60 | **TiAl6V4**<br>ø = 12 mm<br>$v_c$ = 140 m/min<br>$f_z$ = 0.09 mm<br>$a_e$ = 1.2 mm<br>$a_p$ = 30 mm |
| | S2 | S2.1 | Titanium, titanium alloys | < 1,200 | | | ✓ | **90 - 150** | 0.6 - 1.2 | 5 - 10 | 0.46 - 0.56 | |
| | | S2.2 | Titanium, titanium alloys | > 1,200 | | | ✓ | **70 - 130** | 0.4 - 1.0 | 5 - 10 | 0.42 - 0.54 | |

**Correction factors**

| Factor | $v_c$ | $a_e$ | $h_m$ |
|---|---|---|---|
| | M | | |
| 2xD | 1,05 | 1,05 | 1,05 |
| 3xD | 1,00 | 1,00 | 1,00 |
| 4xD | 0,92 | 0,90 | 0,94 |
| 5xD | 0,80 | 0,80 | 0,87 |

**Note:**
In the case of trochoidal milling, the specified cutting conditions change during the machining process. This also depends on the CAM software used and the machining position of the tool in the workpiece. The feed and cutting width or contact angle are constantly changing during machining in order to achieve, as far as is possible, the most constant average chip thickness depending on the contour.

* MAPAL machining groups

The specified machining values are guide values.
The optimum data for the respective machining task should be determined during the test or machining.