HERTEL™
Production Grade Tooling Since 1947

TECHNICAL INFORMATION

Solid Carbide End Mills Speed & Feed Recommendations

Material	Speed SFM	End Mill Diameter Feed per Tooth (In.) Up to ¼"	Up to ½"	Up to 1"
Aluminum/Aluminum Alloys	600 – 1,200	.0002 – .0020	.0020 – .0040	.0040 – .0080
Brass/Bronze	200 – 350	.0005 – .0020	.0020 – .0030	.0030 – .0050
Copper/Copper Alloys	350 – 900	.0005 – .0020	.0020	.0020 – .0060
Iron-Cast, soft	200 – 500	.0005 – .0020	.0020 – .0030	.0030 – .0080
Iron-Cast, hard	80 – 350	.0003 – .0008	.0008 – .0020	.0020 – .0040
Iron-Ductile	80 – 400	.0002 – .0010	.0010 – .0020	.0020 – .0060
Iron-Malleable	200 – 600	.0002 – .0010	.0010 – .0030	.0030 – .0070
Magnesium/Magnesium Alloys	800 – 1,400	.0005 – .0020	.0020 – .0040	.0040 – .0100
Monel/High Nickel Steel	150 – 300	.0002 – .0010	.0010 – .0020	.0020 – .0040
Plastics	600 – 1,200	.0006 – .0030	.0030 – .0060	.0060 – .0150
Plastic-Glass Filled	300 – 800	.0006 – .0030	.0030 – .0040	.0040 – .0120
Refractory Alloys	80 – 400	.0002 – .0010	.0010	.0010 – .0020
Steel-Low Carbon	200 – 500	.0002 – .0010	.0010 – .0030	.0030 – .0070
Steel-Medium Carbon	100 – 250	.0004 – .0015	.0015 – .0020	.0020 – .0050
Steel-Hardened	25 – 120	.0002 – .0005	.0005 – .0010	.0010 – .0030
Steel-Mold	200 – 350	.0002 – .0010	.0010 – .0020	.0020 – .0060
Steel-Tool	100 – 300	.0002 – .0010	.0010 – .0020	.0020 – .0060

High Helix End Mills

Material	Speed (SFM)	End Mill Diameter Feed per Tooth (In.) Up to ¼"	Up to ½"	Up to 1"
Stainless Steel, soft	400 – 500	.0005 – .0010	.0010 – .0020	.0020 – .0050
Stainless Steel, hard	300 – 450	.0005 – .0010	.0010 – .0020	.0020 – .0050
Titanium	100 – 200	.0002 – .0005	.0005 – .0010	.0010 – .0040
Nickel Based High-Temperature Alloys	50 – 100	.0002 – .0008	.0008 – .0010	.0010 – .0020

- TiN Coated: Increase speeds by 10-25%
- TiCN Coated: Increase speeds by 25-50%
- TiAlN Coated: Increase speeds by 50-75%
- For Lighter Radial Depths-of-Cut – Higher range of recommended surface speeds should be used
- For Greater Radial Depths-of-Cut – Lower range of recommended surface speeds should be used
- For Slotting Applications – Speeds (SFM) should be reduced approximately 20% of lowest range value
- Above recommendations are to be used when axial depth-of-cut does not exceed 1½ times the cutter diameter
- When using long and extra-long end mills, reduce feed per tooth 50%

All recommendations should be considered only as a starting point, with possible variations to achieve optimum results.

- Accurate, well maintained single angle (TG) collet chucks and powergrip milling chucks are recommended holding methods for solid carbide end mills, these chucks hold better concentricity between the tool and machine spindle
- Coolant is recommended when milling steel and high temperature alloys and will extend tool life and improve workpiece finishes. Light cutting oil or water soluble oil is recommended

USER SAFETY REQUIREMENTS

CAUTION: When using solid carbide rotary cutting tools, you must wear safety glasses and protective clothing. Use safety shields on machines as applicable.