

SPECIALTY TOOL - HELICAL CHAMFER MILL

TECHNICAL INFORMATION

MATERIAL	ROCKWELL HARDNESS	SPEED (SFM) UNCOATED	SPEED (SFM) AITiN+	FEED (Inches per tooth)							
				CALCULATED CUTTING DIAMETER							
				<.125	.125-.1875	.1875-.250	.250-.3125	.3125-.375	.375-.500	.500-.625	.625-.750
Gray Cast Iron	85Rb	250	450	0.0012	0.0022	0.0035	0.0045	0.0050	0.0055	0.0070	0.0090
Ductile Cast Iron	85Rb	180	375	0.0007	0.0015	0.0020	0.0028	0.0035	0.0040	0.0055	0.0070
Carbon Steel	18Rc	225	450	0.0007	0.0015	0.0022	0.0028	0.0035	0.0045	0.0055	0.0070
Alloy Steel	20Rc	200	400	0.0006	0.0012	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060
Heat Treated Alloys	40Rc	100	200	0.0003	0.0007	0.0010	0.0012	0.0018	0.0020	0.0028	0.0035
Tool Steel	20Rc	150	325	0.0006	0.0010	0.0018	0.0022	0.0028	0.0035	0.0045	0.0055
300 Stainless Steel	80Rb	120	250	0.0005	0.0009	0.0015	0.0018	0.0022	0.0028	0.0035	0.0045
400 Stainless Steel	95Rb	140	325	0.0004	0.0009	0.0012	0.0018	0.0022	0.0025	0.0035	0.0045
Nickel Alloy	20Rc	120	175	0.0005	0.0009	0.0012	0.0018	0.0022	0.0028	0.0035	0.0045
Cobalt Alloy	20Rc	140	225	0.0003	0.0006	0.0009	0.0012	0.0015	0.0018	0.0022	0.0030
Titanium	25Rc	160	250	0.0005	0.0009	0.0012	0.0018	0.0022	0.0028	0.0035	0.0045
Aluminum	60Rb	1000	1900	0.0010	0.0028	0.0040	0.0055	0.0070	0.0080	0.0110	0.0130
Brass, Zinc, Copper	41Rb	320	600	0.0008	0.0015	0.0022	0.0030	0.0040	0.0045	0.0060	0.0080

Determining the Calculated Cutting Diameter

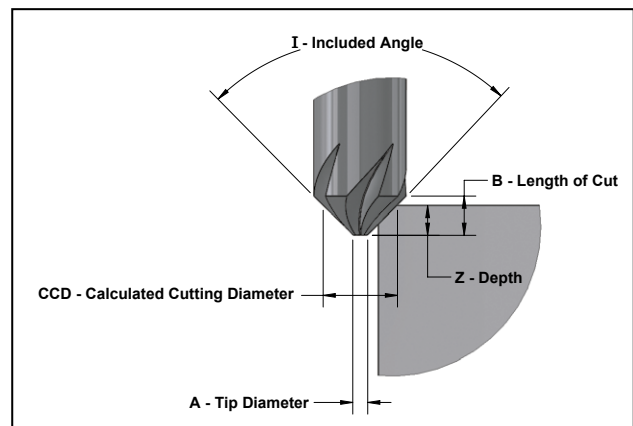
Surface footage and chip load should be calculated at the "Calculated Cutting Diameter" or CCD. The CCD is the largest diameter of the tool that engages the part.

$$\text{Calculated Cutting Diameter} = 2 \times \text{Depth} \times \tan(\text{Included Angle} / 2) + \text{Tip Diameter}$$

$$\text{CCD} = 2 \times Z \times \tan(I/2) + A$$

Choose a "Z - Depth" based on the "B - Length of Cut" of the selected tool. This should result in the part only contacting the included angle of the tool. The part should never touch the shank or tip of the tool. Using a Z - Depth that results in a larger CCD (closer to the shank) is preferred over a smaller CCD (closer to the tip). Find tool dimensions in chart on the product page.

RPM and IPM should be calculated using the Calculated Cutting Diameter.



Example:

Tool: HC50003-090A

I - Included Angle: 90°

A - Tip Diameter: 0.080"

B - Length of Cut: 0.210"

Chosen Z - Depth: 0.200"

Calculation:

$$\text{CCD} = 2 \times Z \times \tan(I/2) + A$$

$$\text{CCD} = 2 \times 0.200" \times \tan(90^\circ/2) + 0.080"$$

$$\text{CCD} = 0.480"$$