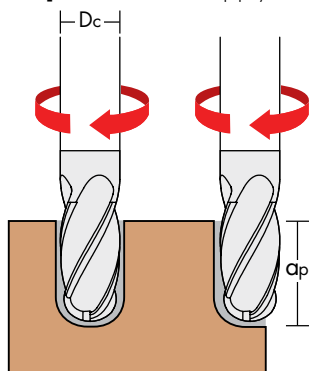


# M924 and M904 Application Guide (metric) • Speed & Feed

ISO Classification	Work Material	Type of Cut	Axial DOC	Radial DOC	Number of Flutes	Speed (M/min)	Feed (MM per Tooth)					
							3,0	6,0	10,0	12,0	16,0	20,0
<b>S</b>	Titanium Alloys	Slotting	.5 x D	1 x D	4	76	0.0127	0.0255	0.0423	0.0510	0.0678	0.0846
		Peripheral - Rough	1.25 x D	.3 x D	4	91	0.0159	0.0319	0.0529	0.0637	0.0848	0.1058
		Finish	1.5 x D	.01 x D	4	114	0.0198	0.0396	0.0658	0.0793	0.1054	0.1316
	High Temperature Alloys Inconel, Haynes, Stellite, Hastalloy	Slotting	.25 x D	1 x D	4	18	0.0135	0.0270	0.0448	0.0540	0.0718	0.0896
		Peripheral - Rough	1.25 x D	.25 x D	4	27	0.0169	0.0337	0.0560	0.0675	0.0897	0.1120
		Finish	1.5 x D	.01 x D	4	38	0.0198	0.0396	0.0658	0.0793	0.1054	0.1316
<b>M</b>	Austenitic Stainless Steels 303, 304, 316	Slotting	.75 x D	1 x D	4	84	0.0166	0.0333	0.0552	0.0665	0.0885	0.1104
		Peripheral - Rough	1.25 x D	.3 x D	4	99	0.0208	0.0416	0.0690	0.0831	0.1106	0.1380
		Finish	1.5 x D	.01 x D	4	122	0.0258	0.0517	0.0858	0.1034	0.1375	0.1716
	Precipitation Hardening Stainless Steels 17-4 PH, 15-5 PH, 13-8 PH	Slotting	.5 x D	1 x D	4	76	0.0127	0.0255	0.0423	0.0510	0.0678	0.0846
		Peripheral - Rough	1.25 x D	.3 x D	4	91	0.0159	0.0319	0.0529	0.0637	0.0848	0.1058
		Finish	1.5 x D	.01 x D	4	114	0.0198	0.0396	0.0658	0.0793	0.1054	0.1316
<b>P</b>	Medium Carbon Steels 4140, 4340	Slotting	1 x D	1 x D	4	91	0.0152	0.0305	0.0506	0.0610	0.0811	0.1012
		Peripheral - Rough	1.25 x D	.5 x D	4	114	0.0191	0.0381	0.0632	0.0762	0.1013	0.1265
		Finish	1.5 x D	.01 x D	4	137	0.0258	0.0517	0.0858	0.1034	0.1375	0.1716
	Tool & Die Steels < 48 Rc A2, D2, H13, P20	Slotting	.75 x D	1 x D	4	91	0.0150	0.0299	0.0497	0.0599	0.0796	0.0994
		Peripheral - Rough	1.25 x D	.3 x D	4	114	0.0187	0.0374	0.0621	0.0748	0.0995	0.1242
		Finish	1.5 x D	.01 x D	4	137	0.0233	0.0465	0.0772	0.0930	0.1238	0.1545
	Martensitic Stainless Steel 416, 410, 440C	Slotting	.75 x D	1 x D	4	91	0.0150	0.0299	0.0497	0.0599	0.0796	0.0994
		Peripheral - Rough	1.25 x D	.3 x D	4	114	0.0187	0.0374	0.0621	0.0748	0.0995	0.1242
		Finish	1.5 x D	.01 x D	4	137	0.0233	0.0465	0.0772	0.0930	0.1238	0.1545
<b>K</b>	Cast Iron Gray	Slotting	1 x D	1 x D	4	107	0.0152	0.0305	0.0506	0.0610	0.0811	0.1012
		Peripheral - Rough	1.25 x D	.5 x D	4	137	0.0191	0.0381	0.0632	0.0762	0.1013	0.1265
		Finish	1.5 x D	.01 x D	4	168	0.0258	0.0517	0.0858	0.1034	0.1375	0.1716
	Cast Iron Ductile	Slotting	1 x D	1 x D	4	99	0.0137	0.0274	0.0455	0.0549	0.0730	0.0911
		Peripheral - Rough	1.25 x D	.5 x D	4	130	0.0171	0.0343	0.0569	0.0686	0.0912	0.1138
		Finish	1.5 x D	.01 x D	4	160	0.0233	0.0465	0.0772	0.0930	0.1238	0.1545
	Cast Iron Malleable	Slotting	.75 x D	1 x D	4	91	0.0137	0.0274	0.0455	0.0549	0.0730	0.0911
		Peripheral - Rough	1.25 x D	.5 x D	4	114	0.0171	0.0343	0.0569	0.0686	0.0912	0.1138
		Finish	1.5 x D	.01 x D	4	137	0.0233	0.0465	0.0772	0.0930	0.1238	0.1545

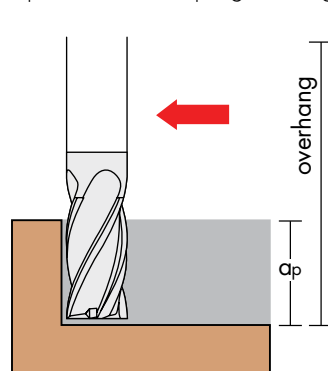
D = Tool diameter

## Adjustments – Apply these adjustments when programming the following applications.



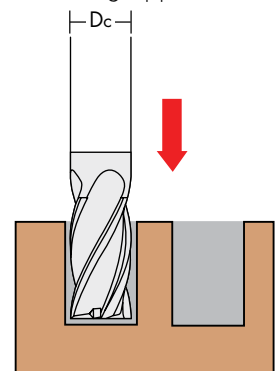
**1. Ball nose end mills**

- Reduce chip load by 25% from roughing/slotting recommendation when axial DOC ( $a_p$ ) exceeds 75% of  $D_c$



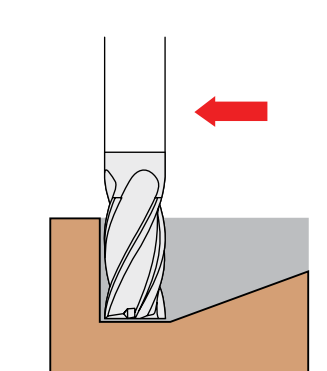
**2. Long reach mills with large overhang**

- Reduce speed rate and chip load by 20% each when total reach to tool diameter ratio is 5:1 or greater



**3. Plunge entry into work piece**

- Reduce chip load by 80% of recommended slotting rate
- Peck mill if axial DOC ( $a_p$ ) exceeds 50% of  $D_c$



**4. Ramp entry into work piece**

- Ramp at 1.5°–2.5° angle
- Reduce chip load by 20% of recommended slotting rate