



Speeds & Feeds

**Product Table:** Miniature End Mills - Square - Long Reach, Standard Flute - Metric  
**Characteristics:** 5x Reach Multiple, 3x Length of Cut Multiple, 4 Flutes  
**Series:** 6777xx

**Please note:**

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. Chip loads reflect uncoated cutters and may be increased 10%-20% if coated. For ferrous materials with hardness ≤ 28 Rc, chip loads can be increased 10%-20%.

If you require additional information, Harvey Tool has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **800-645-5609** or [Harveytech@harveyperformance.com](mailto:Harveytech@harveyperformance.com).

WARNING: Cutting tools may shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment in the vicinity of use.

Hardness: ≤ 28 Rc (≤ 271 HBn)																			
MATERIAL	SMM	Chip Load (MMPT) by Dia						Depth of Cut											
		0.50			0.75			1.20			Radial			Axial					
		1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	Radial	Axial
ALUMINUM ALLOYS	230	Slotting	.0046	.0068	.0109	1 x Dia	.08 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	1 x Dia	.20 x Dia		
		Roughing	.0057	.0085	.0137	.30 x Dia	.35 x Dia	.0149	.0198	.0248	.0297	.0495	.0594	.0941	.1188	.60 x Dia	.35 x Dia		
	305	Finishing	.0086	.0130	.0207	.06 x Dia	3 x Dia	.0225	.0300	.0375	.0450	.0751	.0901	.1427	.1802	.12 x Dia	3 x Dia		
		230	Slotting	.0041	.0061	.0098	1 x Dia	.08 x Dia	.0107	.0143	.0178	.0214	.0356	.0428	.0677	.0855	1 x Dia	.20 x Dia	
	215	Slotting	.0041	.0061	.0098	1 x Dia	.08 x Dia	.0107	.0143	.0178	.0214	.0356	.0428	.0677	.0855	1 x Dia	.20 x Dia		
		Roughing	.0051	.0077	.0123	.30 x Dia	.35 x Dia	.0134	.0178	.0223	.0267	.0446	.0535	.0846	.1069	.60 x Dia	.35 x Dia		
145	Slotting	.0041	.0061	.0098	1 x Dia	.08 x Dia	.0107	.0143	.0178	.0214	.0356	.0428	.0677	.0855	1 x Dia	.20 x Dia			
	305	Finishing	.0078	.0117	.0187	.06 x Dia	3 x Dia	.0203	.0270	.0338	.0405	.0676	.0811	.1284	.1622	.12 x Dia	3 x Dia		
245	Slotting	.0046	.0068	.0109	1 x Dia	.08 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	1 x Dia	.20 x Dia			
	Roughing	.0057	.0085	.0137	.30 x Dia	.35 x Dia	.0149	.0198	.0248	.0297	.0495	.0594	.0941	.1188	.60 x Dia	.35 x Dia			
460	Slotting	.0046	.0068	.0109	1 x Dia	.08 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	1 x Dia	.20 x Dia			
	Roughing	.0057	.0085	.0137	.30 x Dia	.35 x Dia	.0149	.0198	.0248	.0297	.0495	.0594	.0941	.1188	.60 x Dia	.35 x Dia			
245	Slotting	.0046	.0068	.0109	1 x Dia	.08 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	1 x Dia	.20 x Dia			
	Roughing	.0057	.0085	.0137	.30 x Dia	.35 x Dia	.0149	.0198	.0248	.0297	.0495	.0594	.0941	.1188	.60 x Dia	.35 x Dia			
70	Slotting	.0036	.0055	.0087	1 x Dia	.08 x Dia	.0095	.0127	.0158	.0190	.0317	.0380	.0602	.0760	1 x Dia	.20 x Dia			
	150	Slotting	.0036	.0055	.0087	1 x Dia	.08 x Dia	.0095	.0127	.0158	.0190	.0317	.0380	.0602	.0760	1 x Dia	.20 x Dia		
150	Slotting	.0046	.0068	.0109	.30 x Dia	.35 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	.60 x Dia	.35 x Dia			
	150	Slotting	.0046	.0068	.0109	.30 x Dia	.35 x Dia	.0119	.0158	.0198	.0238	.0396	.0475	.0752	.0950	.60 x Dia	.35 x Dia		
70	Slotting	.0036	.0055	.0087	1 x Dia	.08 x Dia	.0095	.0127	.0158	.0190	.0317	.0380	.0602	.0760	1 x Dia	.20 x Dia			
	150	Slotting	.0036	.0055	.0087	1 x Dia	.08 x Dia	.0095	.0127	.0158	.0190	.0317	.0380	.0602	.0760	1 x Dia	.20 x Dia		
170	Slotting	.0069	.0104	.0166	.06 x Dia	3 x Dia	.0180	.0240	.0300	.0360	.0601	.0721	.1141	.1442	.12 x Dia	3 x Dia			
	170	Slotting	.0069	.0104	.0166	.06 x Dia	3 x Dia	.0180	.0240	.0300	.0360	.0601	.0721	.1141	.1442	.12 x Dia	3 x Dia		

Hardness: 29-37 Rc (279-344 HBn)																			
MATERIAL	SMM	Chip Load (MMPT) by Dia						Depth of Cut											
		0.50			0.75			1.20			Radial			Axial					
		1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	Radial	Axial
CARBON STEELS	180	Slotting	.0016	.0023	.0038	1 x Dia	.08 x Dia	.0041	.0054	.0068	.0082	.0136	.0163	.0259	.0327	1 x Dia	.20 x Dia		
		Roughing	.0018	.0026	.0042	.30 x Dia	.35 x Dia	.0046	.0061	.0077	.0092	.0153	.0184	.0291	.0367	.60 x Dia	.35 x Dia		
		Finishing	.0027	.0040	.0065	.06 x Dia	3 x Dia	.0070	.0094	.0117	.0141	.0235	.0282	.0446	.0563	.12 x Dia	3 x Dia		
	60	Slotting	.0014	.0021	.0034	1 x Dia	.08 x Dia	.0037	.0050	.0062	.0075	.0124	.0149	.0236	.0299	1 x Dia	.20 x Dia		
		Roughing	.0016	.0024	.0039	.30 x Dia	.35 x Dia	.0042	.0056	.0070	.0084	.0140	.0168	.0266	.0336	.60 x Dia	.35 x Dia		
		Finishing	.0025	.0037	.0059	.06 x Dia	3 x Dia	.0064	.0086	.0107	.0129	.0215	.0258	.0408	.0515	.12 x Dia	3 x Dia		
140	Slotting	.0016	.0023	.0038	1 x Dia	.08 x Dia	.0041	.0054	.0068	.0082	.0136	.0163	.0259	.0327	1 x Dia	.20 x Dia			
	Roughing	.0018	.0026	.0042	.30 x Dia	.35 x Dia	.0046	.0061	.0077	.0092	.0153	.0184	.0291	.0367	.60 x Dia	.35 x Dia			
	Finishing	.0027	.0040	.0065	.06 x Dia	3 x Dia	.0070	.0094	.0117	.0141	.0235	.0282	.0446	.0563	.12 x Dia	3 x Dia			
60	Slotting	.0014	.0021	.0034	1 x Dia	.08 x Dia	.0037	.0050	.0062	.0075	.0124	.0149	.0236	.0299	1 x Dia	.20 x Dia			
	Roughing	.0016	.0024	.0039	.30 x Dia	.35 x Dia	.0042	.0056	.0070	.0084	.0140	.0168	.0266	.0336	.60 x Dia	.35 x Dia			
	Finishing	.0025	.0037	.0059	.06 x Dia	3 x Dia	.0064	.0086	.0107	.0129	.0215	.0258	.0408	.0515	.12 x Dia	3 x Dia			
45	Slotting	.0009	.0013	.0021	1 x Dia	.08 x Dia	.0023	.0031	.0039	.0047	.0078	.0093	.0148	.0187	1 x Dia	.20 x Dia			
	Roughing	.0010	.0015	.0024	.30 x Dia	.35 x Dia	.0026	.0035	.0044	.0052	.0087	.0105	.0166	.0210	.60 x Dia	.35 x Dia			
	Finishing	.0015	.0023	.0037	.06 x Dia	3 x Dia	.0040	.0054	.0067	.0080	.0134	.0161	.0255	.0322	.12 x Dia	3 x Dia			
TOOL STEELS	60	Slotting	.0014	.0021	.0034	1 x Dia	.08 x Dia	.0037	.0050	.0062	.0075	.0124	.0149	.0236	.0299	1 x Dia	.20 x Dia		
		Roughing	.0016	.0024	.0039	.30 x Dia	.35 x Dia	.0042	.0056	.0070	.0084	.0140	.0168	.0266	.0336	.60 x Dia	.35 x Dia		
		Finishing	.0025	.0037	.0059	.06 x Dia	3 x Dia	.0064	.0086	.0107	.0129	.0215	.0258	.0408	.0515	.12 x Dia	3 x Dia		
D, H, M, T, S series	45	Slotting	.0009	.0013	.0021	1 x Dia	.08 x Dia	.0023	.0031	.0039	.0047	.0078	.0093	.0148	.0187	1 x Dia	.20 x Dia		
		Roughing	.0010	.0015	.0024	.30 x Dia	.35 x Dia	.0026	.0035	.0044	.0052	.0087	.0105	.0166	.0210	.60 x Dia	.35 x Dia		
		Finishing	.0015	.0023	.0037	.06 x Dia	3 x Dia	.0040	.0054	.0067	.0080	.0134	.0161	.0255	.0322	.12 x Dia	3 x Dia		
TITANIUM ALLOYS	45	Slotting	.0009	.0013	.0021	1 x Dia	.08 x Dia	.0023	.0031	.0039	.0047	.0078	.0093	.0148	.0187	1 x Dia	.20 x Dia		
		Roughing	.0010	.0015	.0024	.30 x Dia	.35 x Dia	.0026	.0035	.0044	.0052	.0087	.0105	.0166	.0210	.60 x Dia	.35 x Dia		
		Finishing	.0015	.0023	.0037	.06 x Dia	3 x Dia	.0040	.0054	.0067	.0080	.0134	.0161	.0255	.0322	.12 x Dia	3 x Dia		
HIGH TEMP ALLOYS	20	Slotting	.0009	.0013	.0021	1 x Dia	.08 x Dia	.0023	.0031	.0039	.0047	.0078	.0093	.0148	.0187	1 x Dia	.20 x Dia		
		Roughing	.0010	.0015	.0024	.30 x Dia	.35 x Dia	.0026	.0035	.0044	.0052	.0087	.0105	.0166	.0210	.60 x Dia	.35 x Dia		
		Finishing	.0015	.0023	.0037	.06 x Dia	3 x Dia	.0040	.0054	.0067	.0080	.0134	.0161	.0255	.0322	.12 x Dia	3 x Dia		

Hardness: 38-45 Rc (353-421 HBn)																			
MATERIAL	SMM	Chip Load (MMPT) by Dia						Depth of Cut											
		0.50			0.75			1.20			Radial			Axial					
		1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	1.50	2.00	2.50	3.00	5.00	6.00	9.50	12.00	Radial	Axial
CARBON STEELS	180	Slotting	.0016	.0023	.0038	1 x Dia	.08 x Dia	.0041	.0054	.0068	.0082	.0136	.0163	.0259	.0327	1 x Dia	.20 x Dia		
		Roughing	.0018	.0026	.0042	.30 x Dia	.35 x Dia	.0046	.0061	.0077	.0092	.0153	.0184	.0291	.0367	.60 x Dia	.35 x Dia		
		Finishing	.0027	.0040	.0065	.06 x Dia	3 x Dia	.0070	.0094	.0117	.0141	.0235	.0282	.0446	.0563	.12 x Dia	3 x Dia		
	60	Slotting	.0014	.0021	.0034	1 x Dia	.08 x Dia	.0037	.0050	.0062	.0075	.0124	.0149	.0236	.0299	1 x Dia	.20 x Dia		
		Roughing	.0016	.0024	.0039	.30 x Dia	.35 x Dia	.0042	.0056	.0070	.0084	.0140	.0168	.0266	.0336	.60 x Dia	.35 x Dia		
		Finishing	.0025	.0037	.0059	.06 x Dia	3 x Dia	.0064	.0086	.0107	.0129	.0215	.0258	.0408	.0515	.12 x Dia	3 x Dia		
140	Slotting	.0016	.0023	.0038	1 x Dia	.08 x Dia	.0041	.0054	.0068	.0082	.0136	.0163	.0259	.0327	1 x Dia	.20 x Dia			
	Roughing	.0018	.0026	.0042	.30 x Dia	.35 x Dia	.0046	.0061	.0077	.0092	.0153	.0184	.0291	.0367	.60 x Dia	.35 x Dia			
	Finishing	.0027	.0040	.0065	.06 x Dia	3 x Dia	.0070	.0094	.0117	.0141	.0235	.0282	.0446	.0563	.12 x Dia	3 x Dia			
60	Slotting	.0014	.0021	.0034	1 x Dia	.08 x Dia	.0037	.0050	.0062	.0075	.0124	.0149	.0236	.0299	1 x Dia	.			