



Product Table: Miniature End Mills - Ball - Stub & Standard
Characteristics: 1.5x Length of Cut, 3 Flutes
Series: 8234xx, 8235xx

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**.

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.

MATERIAL	Hardness: ≤ 28 Rc (≤ 271 HBn)															
	SFM	Chip Load (IPT) by Dia			Depth of Cut		Chip Load (IPT) by Cutter Dia						Depth of Cut			
		0.015	0.031	0.047	Radial	Axial	0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	Radial	Axial
ALUMINUM ALLOYS																
750	Slotting	.00019	.00039	.00059	1 x Dia	.20 x Dia	.00068	.00085	.00101	.00136	.00204	.00272	.00408	.00545	1 x Dia	.50 x Dia
750	Roughing	.00025	.00051	.00077	.30 x Dia	1 x Dia	.00088	.00111	.00132	.00178	.00266	.00356	.00534	.00712	.60 x Dia	1 x Dia
1000	Finishing	.00027	.00056	.00085	.13 x Dia	1 x Dia	.00097	.00122	.00145	.00196	.00293	.00391	.00587	.00782	.25 x Dia	1 x Dia
750	Slotting	.00017	.00035	.00053	1 x Dia	.20 x Dia	.00061	.00076	.00091	.00123	.00183	.00245	.00368	.00490	1 x Dia	.50 x Dia
700	Roughing	.00022	.00046	.00069	.30 x Dia	1 x Dia	.00079	.00100	.00119	.00160	.00240	.00320	.00480	.00640	.60 x Dia	1 x Dia
475	Finishing	.00024	.00050	.00076	.13 x Dia	1 x Dia	.00087	.00110	.00131	.00176	.00263	.00352	.00528	.00704	.25 x Dia	1 x Dia
1000	Slotting	.00019	.00039	.00059	1 x Dia	.20 x Dia	.00068	.00085	.00101	.00136	.00204	.00272	.00408	.00545	1 x Dia	.50 x Dia
800	Roughing	.00025	.00051	.00077	.30 x Dia	1 x Dia	.00088	.00111	.00132	.00178	.00266	.00356	.00534	.00712	.60 x Dia	1 x Dia
800	Finishing	.00027	.00056	.00085	.13 x Dia	1 x Dia	.00097	.00122	.00145	.00196	.00293	.00391	.00587	.00782	.25 x Dia	1 x Dia
1500	Slotting	.00015	.00031	.00047	1 x Dia	.20 x Dia	.00054	.00068	.00081	.00109	.00163	.00218	.00327	.00436	1 x Dia	.50 x Dia
500	Roughing	.00020	.00041	.00062	.30 x Dia	1 x Dia	.00071	.00089	.00106	.00142	.00213	.00285	.00427	.00569	.60 x Dia	1 x Dia
500	Finishing	.00022	.00045	.00068	.13 x Dia	1 x Dia	.00078	.00098	.00116	.00156	.00234	.00313	.00469	.00626	.25 x Dia	1 x Dia
225	Slotting	.00006	.00013	.00020	1 x Dia	.20 x Dia	.00023	.00029	.00035	.00047	.00070	.00094	.00140	.00187	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
450	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
450	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
450	Finishing	.00008	.00017	.00026	.13 x Dia	1 x Dia	.00030	.00038	.00045	.00061	.00091	.00122	.00183	.00245	.25 x Dia	1 x Dia
200	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
200	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
70	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
70	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
70	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia

MATERIAL	Hardness: 29-37 Rc (279-344 HBn)															
	SFM	Chip Load (IPT) by Dia			Depth of Cut		Chip Load (IPT) by Cutter Dia						Depth of Cut			
		0.015	0.031	0.047	Radial	Axial	0.062	0.078	0.093	0.125	0.187	0.250	0.375	0.500	Radial	Axial
CARBON STEELS																
600	Slotting	.00006	.00013	.00020	1 x Dia	.20 x Dia	.00023	.00029	.00035	.00047	.00070	.00094	.00140	.00187	1 x Dia	.50 x Dia
600	Roughing	.00008	.00016	.00024	.30 x Dia	1 x Dia	.00027	.00034	.00041	.00055	.00082	.00110	.00165	.00220	.60 x Dia	1 x Dia
600	Finishing	.00008	.00017	.00026	.13 x Dia	1 x Dia	.00030	.00038	.00045	.00061	.00091	.00122	.00183	.00245	.25 x Dia	1 x Dia
200	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
450	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
450	Roughing	.00008	.00016	.00024	.30 x Dia	1 x Dia	.00027	.00034	.00041	.00055	.00082	.00110	.00165	.00220	.60 x Dia	1 x Dia
450	Finishing	.00008	.00017	.00026	.13 x Dia	1 x Dia	.00030	.00038	.00045	.00061	.00091	.00122	.00183	.00245	.25 x Dia	1 x Dia
200	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
200	Slotting	.00006	.00012	.00018	1 x Dia	.20 x Dia	.00021	.00027	.00032	.00043	.00064	.00086	.00128	.00171	1 x Dia	.50 x Dia
200	Roughing	.00007	.00014	.00022	.30 x Dia	1 x Dia	.00025	.00031	.00037	.00050	.00075	.00101	.00151	.00201	.60 x Dia	1 x Dia
200	Finishing	.00008	.00016	.00024	.13 x Dia	1 x Dia	.00028	.00035	.00042	.00056	.00084	.00112	.00168	.00224	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
150	Slotting	.00004	.00008	.00012	1 x Dia	.20 x Dia	.00013	.00017	.00020	.00027	.00040	.00053	.00080	.00107	1 x Dia	.50 x Dia
150	Roughing	.00004	.00009	.00014	.30 x Dia	1 x Dia	.00016	.00020	.00023	.00031	.00047	.00063	.00094	.00126	.60 x Dia	1 x Dia
150	Finishing	.00005	.00010	.00015	.13 x Dia	1 x Dia	.00017	.00022	.00026	.00035	.00052	.00070	.00105	.00140	.25 x Dia	1 x Dia
75	Slotting	.00002	.00004	.00006	1 x Dia	.20 x Dia	.00007	.00008	.0							