

Product Table: Engraving Cutters - Tip Radius
Characteristics: 1 Flute, Radiused Tip

Series or Item	RPM	Chip Load (IPT) by Material												Axial DOC		
		Plastics		Non-Ferrous		Iron		Carbon Steels			Stainless Steels		Titanium		High Temp Alloys	
		Non-Filled, Glass Filled, Carbon Fiber, G10	Aluminum, Magnesium, Copper Alloys	Cast Iron (< 30 Rc)	Cast Iron (30+ Rc)	Ductile, Malleable	< 29 Rc	30 < 39 Rc	40 < 45 Rc	< 30 Rc	32 < 45 Rc	< 30 Rc	32 < 45 Rc		Inconel, Waspaloy, Monel	
475xx	6000+	.00168	.00112	.00112	.00045	.00056	.00067	.00050	.00028	.00056	.00028	.00056	.00028	.00045	< .010	
481xx	6000+	.00240	.00160	.00160	.00064	.00080	.00096	.00072	.00040	.00080	.00040	.00080	.00040	.00064	< .010	
484xx	6000+	.00264	.00176	.00176	.00070	.00088	.00106	.00079	.00044	.00088	.00044	.00088	.00044	.00070	< .010	
488xx	6000+	.00189	.00126	.00126	.00050	.00063	.00076	.00057	.00032	.00063	.00032	.00063	.00032	.00050	< .010	
491xx	6000+	.00297	.00198	.00198	.00079	.00099	.00119	.00089	.00050	.00099	.00050	.00099	.00050	.00079	< .010	
494xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
497xx	6000+	.00189	.00126	.00126	.00050	.00063	.00076	.00057	.00032	.00063	.00032	.00063	.00032	.00050	< .010	
508xx	6000+	.00297	.00198	.00198	.00079	.00099	.00119	.00089	.00050	.00099	.00050	.00099	.00050	.00079	< .010	
517xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
576xx	6000+	.00192	.00128	.00128	.00051	.00064	.00077	.00058	.00032	.00064	.00032	.00064	.00032	.00051	< .010	
582xx	6000+	.00216	.00144	.00144	.00058	.00072	.00086	.00065	.00036	.00072	.00036	.00072	.00036	.00058	< .010	
586xx	6000+	.00189	.00126	.00126	.00050	.00063	.00076	.00057	.00032	.00063	.00032	.00063	.00032	.00050	< .010	
589xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
593xx	6000+	.00216	.00144	.00144	.00058	.00072	.00086	.00065	.00036	.00072	.00036	.00072	.00036	.00058	< .010	
599xx	6000+	.00297	.00198	.00198	.00079	.00099	.00119	.00089	.00050	.00099	.00050	.00099	.00050	.00079	< .010	
605xx	6000+	.00216	.00144	.00144	.00058	.00072	.00086	.00065	.00036	.00072	.00036	.00072	.00036	.00058	< .010	
72715	6000+	.00147	.00098	.00098	.00039	.00049	.00059	.00044	.00025	.00049	.00025	.00049	.00025	.00039	< .010	
72720	6000+	.00147	.00098	.00098	.00039	.00049	.00059	.00044	.00025	.00049	.00025	.00049	.00025	.00039	< .010	
72730	6000+	.00210	.00140	.00140	.00056	.00070	.00084	.00063	.00035	.00070	.00035	.00070	.00035	.00056	< .010	
72745	6000+	.00231	.00154	.00154	.00062	.00077	.00092	.00069	.00039	.00077	.00039	.00077	.00039	.00062	< .010	
8170xx	6000+	.00297	.00198	.00198	.00079	.00099	.00119	.00089	.00050	.00099	.00050	.00099	.00050	.00079	< .010	
8171xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
8289xx	6000+	.00231	.00154	.00154	.00062	.00077	.00092	.00069	.00039	.00077	.00039	.00077	.00039	.00062	< .010	
8347xx	6000+	.00210	.00140	.00140	.00056	.00070	.00084	.00063	.00035	.00070	.00035	.00070	.00035	.00056	< .010	
8420xx	6000+	.00147	.00098	.00098	.00039	.00049	.00059	.00044	.00025	.00049	.00025	.00049	.00025	.00039	< .010	
8438xx	6000+	.00240	.00160	.00160	.00064	.00080	.00096	.00072	.00040	.00080	.00040	.00080	.00040	.00064	< .010	
8447xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
8450xx	6000+	.00216	.00144	.00144	.00058	.00072	.00086	.00065	.00036	.00072	.00036	.00072	.00036	.00058	< .010	
8472xx	6000+	.00243	.00162	.00162	.00065	.00081	.00097	.00073	.00041	.00081	.00041	.00081	.00041	.00065	< .010	
8689xx	6000+	.00243	.00162	.00162	.00065	.00081	.00097	.00073	.00041	.00081	.00041	.00081	.00041	.00065	< .010	
8770xx	6000+	.00189	.00126	.00126	.00050	.00063	.00076	.00057	.00032	.00063	.00032	.00063	.00032	.00050	< .010	
8914xx	6000+	.00270	.00180	.00180	.00072	.00090	.00108	.00081	.00045	.00090	.00045	.00090	.00045	.00072	< .010	
9391xx	6000+	.00297	.00198	.00198	.00079	.00099	.00119	.00089	.00050	.00099	.00050	.00099	.00050	.00079	< .010	
9404xx	6000+	.00120	.00080	.00080	.00032	.00040	.00048	.00036	.00020	.00040	.00020	.00040	.00020	.00032	< .010	
943730	6000+	.00210	.00140	.00140	.00056	.00070	.00084	.00063	.00035	.00070	.00035	.00070	.00035	.00056	< .010	
943745	6000+	.00231	.00154	.00154	.00062	.00077	.00092	.00069	.00039	.00077	.00039	.00077	.00039	.00062	< .010	
9473xx	6000+	.00288	.00192	.00192	.00077	.00096	.00115	.00086	.00048	.00096	.00048	.00096	.00048	.00077	< .010	
9465xx	6000+	.00204	.00136	.00136	.00054	.00068	.00082	.00061	.00034	.00068	.00034	.00068	.00034	.00054	< .010	
9480xx	6000+	.00135	.00090	.00090	.00036	.00045	.00054	.00041	.00023	.00045	.00023	.00045	.00023	.00036	< .010	
9529xx	6000+	.00132	.00088	.00088	.00035	.00044	.00053	.00040	.00022	.00044	.00022	.00044	.00022	.00035	< .010	
9560xx	6000+	.00162	.00108	.00108	.00043	.00054	.00065	.00049	.00027	.00054	.00027	.00054	.00027	.00043	< .010	
9579xx	6000+	.00230	.00153	.00153	.00061	.00077	.00092	.00069	.00038	.00077	.00038	.00077	.00038	.00061	< .010	
9598xx	6000+	.00255	.00170	.00170	.00068	.00085	.00102	.00077	.00043	.00085	.00043	.00085	.00043	.00068	< .010	
9635xx	6000+	.00149	.00099	.00099	.00040	.00050	.00059	.00045	.00025	.00050	.00025	.00050	.00025	.00040	< .010	
964830	6000+	.00210	.00140	.00140	.00056	.00070	.00084	.00063	.00035	.00070	.00035	.00070	.00035	.00056	< .010	
964845	6000+	.00231	.00154	.00154	.00062	.00077	.00092	.00069	.00039	.00077	.00039	.00077	.00039	.00062	< .010	
9673xx	6000+	.00281	.00187	.00187	.00075	.00094	.00112	.00084	.00047	.00094	.00047	.00094	.00047	.00075	< .010	

Please note:
 All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions (minimal runout is required for best results).
 Suggested speed is 6000 rpm or more. Choose an rpm value that creates the least amount of internal machine vibration. In many cases, a speed increaser is helpful.

Posted chip loads reflect axial depths of cut up to .009. For depths of cut = .010"-.015", reduce posted chip loads by 20%. For depths of cut = .016"-.020", reduce posted chip loads by 30%.

Posted chip loads reflect uncoated cutters. Coating is better suited to prolong tool life rather than decrease cycle times.

Posted chip loads reflect HORIZONTAL milling conditions. For VERTICAL plunge milling to depth, reduce posted chip loads by 50% (ramping is preferred to maintain tip integrity).

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.