



**Product Table:** Variable Helix End Mills for High Temp Alloys - Ball - Long Reach, Stub Flute  
**Characteristics:** 12x Reach Multiple, 4 Flutes  
**Series:** 648xx-C6, 649xx-C6, 9813xx-C6

Material	Hardness (HBn)	SFM	Chip Load (IPT) By Cutter Diameter												Depth of Cut		
			0.015	0.031	0.047	0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	Radial	Axial	
Stainless Steels: 40x, 41x, 42x, 43x, 44x, 13-8, 15-5, 15-7, 17-4, 17-7	275 - 300	160	Slotting	.00003	.00007	.00010	.00013	.00017	.00020	.00027	.00040	.00054	.00070	.00084	.00113	1x Dia	.26x Dia
	300 - 350	140															
	350 - 400	100															
Tool Steels: D, H, M, T, S series	400 - 425	80	Roughing	.00004	.00008	.00013	.00017	.00021	.00025	.00034	.00051	.00068	.00089	.00107	.00143	.26x Dia	.5x - 1x Dia
	275 - 300	200															
Titanium: All alloys	300 - 350	125	Finishing	.00005	.00011	.00017	.00022	.00028	.00033	.00045	.00067	.00089	.00117	.00141	.00188	.07x Dia	.5x - 1x Dia
	350 - 400	75															
	400 - 425	75															
Nickel Alloys: Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	275 - 300	80	Max	.00006	.00013	.00020	.00027	.00033	.00040	.00054	.00080	.00107	.00141	.00169	.00225	-	-
	300 - 350	60															
	350 - 400	50															
	400 - 425	40															

**Please note:**  
 All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. If less than minimum Axial or Radial DOC values are used, increased feed rates are possible. If greater than maximum Axial or Radial DOC values are used, decreased feed rates may be needed.  
 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.