HARVEY TOOL

Speeds & Feeds

Product Table: High Helix End Mills for Medium Alloy Steels - Ball - Tapered Reach (Mold Cutters)
Characteristics: 1.5x Neck Angle
Series: 190xx-C6

Product Notes:

Posted values represent a 5x Reach. Use the table below to adjust Chip Load (IPT) and Depths of Cut for tools with longer reach.

Reach	Profiling			Finishing		
	IPT	Radial DOC*	Axial DOC	IPT	Radial DOC*	Axial DOC
5x	100%	100%	100%	100%	100%	100%
8x	83%	100%	100%	83%	100%	100%
10x	79%	100%	100%	79%	100%	100%
15x	66%	77%	77%	66%	80%	100%
20x	59%	77%	77%	59%	80%	100%
25x	52%	77%	62%	52%	80%	80%
30x	45%	62%	62%	45%	60%	60%
40x	45%	62%	38%	45%	60%	50%
50x	45%	46%	31%	45%	50%	40%
60x	45%	46%	23%	45%	50%	30%

* Radial DOC values represent typical starting parameters. For other finish options, consult a Cusp Height & Finish chart.

General Notes:

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	SFM	Hardness: 29-37 Rc (279-344 HBn)														SFM	Hardness: 38-45 Rc (353-421 HBn)													
		Chip Load (IPT) by Cutter Diameter												Depth of Cut			Chip Load (IPT) by Cutter Diameter												Depth of Cut	
			.015	.031	.047	.062	.078	.093	.125	.187	.250	.312	.375	Radial	Axial			.015	.031	.047	.062	.078	.093	.125	.187	.250	.312	.375	Radial	Axial
CARBON STEELS Free-Machining/Low Carbon steels, 10xx - 1029 & all 10Lxx, 11xx - 1139 & all 11Lxx, 12xx - 1215 & all 12Lxx	600	Profiling	.00015	.00031	.00047	.00063	.00079	.00094	.00126	.00189	.00252	.00315	.00379	.13 x Dia	.13 x Dia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Finishing	.00014	.00028	.00043	.00057	.00072	.00085	.00115	.00172	.00230	.00286	.00344	.10 x Dia	.10 x Dia		-	-	-	-	-	-	-	-	-	-	-	-	-	-
1030 - 1095, 1140 - 1151, 13xx, 15xx, 2xxx, 3xxx, 4xxx & 4xLxx, 5xxx & 5xLxx, 50xxx & 50Lxxx, 51xxx & 51Lxxx, 52xxx & 52Lxxx, 6xxx, 8xxx, 9xxx	200	Profiling	.00014	.00029	.00043	.00057	.00072	.00086	.00115	.00173	.00231	.00288	.00346	.13 x Dia	.13 x Dia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Finishing	.00013	.00026	.00039	.00052	.00065	.00078	.00105	.00157	.00210	.00262	.00315	.10 x Dia	.10 x Dia		-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAINLESS STEELS 203 EZ, 303 (all types), 416, 416Se, 416 Plus X, 420F, 420FSe, 430F, 430FSe, 440F, 440FSe	450	Profiling	.00015	.00031	.00047	.00063	.00079	.00094	.00126	.00189	.00252	.00315	.00379	.13 x Dia	.13 x Dia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Finishing	.00014	.00028	.00043	.00057	.00072	.00085	.00115	.00172	.00230	.00286	.00344	.10 x Dia	.10 x Dia		-	-	-	-	-	-	-	-	-	-	-	-	-	-
201, 202, 203, 205, 301, 302, 304, 304L, 308, 309, 310, 314, 316, 316L, 317, 321, 329, 330, 347, 348, 385, 403, 405, 409, 410, 413, 420, 429, 430, 434, 436, 442, 446, 501, 502	200	Profiling	.00014	.00029	.00043	.00057	.00072	.00086	.00115	.00173	.00231	.00288	.00346	.13 x Dia	.13 x Dia	100	Profiling	.00007	.00014	.00022	.00029	.00036	.00043	.00058	.00086	.00115	.00144	.00173	.13 x Dia	.13 x Dia
		Finishing	.00013	.00026	.00039	.00052	.00065	.00078	.00105	.00157	.00210	.00262	.00315	.10 x Dia	.10 x Dia		Finishing	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00078	.00105	.00131	.00157	.10 x Dia	.10 x Dia
414, 431, 440A, 440B, 440C, 13-8, 15-5, 15-7, 17-4, 17-7	150	Profiling	.00009	.00018	.00027	.00036	.00045	.00054	.00072	.00108	.00144	.00180	.00216	.13 x Dia	.13 x Dia	90	Profiling	.00004	.00009	.00014	.00018	.00023	.00027	.00036	.00054	.00072	.00090	.00108	.13 x Dia	.13 x Dia
		Finishing	.00008	.00016	.00025	.00033	.00041	.00049	.00066	.00098	.00131	.00164	.00197	.10 x Dia	.10 x Dia		Finishing	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.10 x Dia	.10 x Dia
TOOL STEELS A, L, O, P, W series	200	Profiling	.00014	.00029	.00043	.00057	.00072	.00086	.00115	.00173	.00231	.00288	.00346	.13 x Dia	.13 x Dia	100	Profiling	.00007	.00014	.00022	.00029	.00036	.00043	.00058	.00086	.00115	.00144	.00173	.13 x Dia	.13 x Dia
		Finishing	.00013	.00026	.00039	.00052	.00065	.00078	.00105	.00157	.00210	.00262	.00315	.10 x Dia	.10 x Dia		Finishing	.00006	.00013	.00020	.00026	.00033	.00039	.00052	.00078	.00105	.00131	.00157	.10 x Dia	.10 x Dia
D, H, M, T, S series	150	Profiling	.00009	.00018	.00027	.00036	.00045	.00054	.00072	.00108	.00144	.00180	.00216	.13 x Dia	.13 x Dia	90	Profiling	.00004	.00009	.00014	.00018	.00023	.00027	.00036	.00054	.00072	.00090	.00108	.13 x Dia	.13 x Dia
		Finishing	.00008	.00016	.00025	.00033	.00041	.00049	.00066	.00098	.00131	.00164	.00197	.10 x Dia	.10 x Dia		Finishing	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.10 x Dia	.10 x Dia
TITANIUM ALLOYS	150	Profiling	.00009	.00018	.00027	.00036	.00045	.00054	.00072	.00108	.00144	.00180	.00216	.13 x Dia	.13 x Dia	75	Profiling	.00004	.00009	.00014	.00018	.00023	.00027	.00036	.00054	.00072	.00090	.00108	.13 x Dia	.13 x Dia
		Finishing	.00008	.00016	.00025	.00033	.00041	.00049	.00066	.00098	.00131	.00164	.00197	.10 x Dia	.10 x Dia		Finishing	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.10 x Dia	.10 x Dia
HIGH TEMP ALLOYS Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discoloy, Incoloy	70	Profiling	.00009	.00018	.00027	.00036	.00045	.00054	.00072	.00108	.00144	.00180	.00216	.13 x Dia	.13 x Dia	50	Profiling	.00004	.00009	.00014	.00018	.00023	.00027	.00036	.00054	.00072	.00090	.00108	.13 x Dia	.13 x Dia
		Finishing	.00008	.00016	.00025	.00033	.00041	.00049	.00066	.00098	.00131	.00164	.00197	.10 x Dia	.10 x Dia		Finishing	.00004	.00008	.00012	.00016	.00020	.00024	.00033	.00049	.00066	.00082	.00098	.10 x Dia	.10 x Dia