Helical

HPL270-RN-6

SPEEDS AND FEEDS

Undercut End Mills - 270 º - 6 Flute - High Performance

HPL270-RN-6

Material Guide		Hardness	SFM	Inches Per Tooth (IPT)														
				1/8			3/16			1/4			3/8			1/2		
				Deburring	Profiling	Slotting	Deburring	Profiling	Slotting	Deburring	Profiling	Slotting	Deburring	Profiling	Slotting	Deburring	Profiling	Slotting
WROUGHT ALIMINUM ALLOY	"2014, 5052, 6061 7050, 7075, 7475"	< 120 HBS	2200	.0009	.0008	.0008	.0013	.0012	.0012	.0018	.0016	.0016	.0026	.0023	.0023	.0036	.0031	.0031
		≥ 120 HBS	2200	.0009	.0008	.0008	.0013	.0012	.0012	.0018	.0016	.0016	.0026	.0023	.0023	.0036	.0031	.0031
CAST ALUMINUM ALLOY	"319.0, 328.0, 355.0 360.0, 380.0, 383.0 390.0, 520.0, 535.0"	< 120 HBS	1800	.0008	.0007	.0007	.0012	.0011	.0011	.0016	.0014	.0014	.0024	.0021	.0021	.0032	.0028	.0028
		≥ 120 HBS	1600	.0008	.0007	.0007	.0012	.0011	.0011	.0016	.0014	.0014	.0024	.0021	.0021	.0032	.0028	.0028
COPPER ALLOY	"Cu-ETP , CuBe2 CuZn30 , CuZn36Pb3 CuZn10 , CuSn5"	< 75 HRB	600	.0007	.0006	.0006	.0011	.0009	.0009	.0014	.0013	.0013	.0022	.0019	.0019	.0029	.0025	.0025
		75 - 98 HRB	450	.0007	.0006	.0006	.0011	.0009	.0009	.0014	.0013	.0013	.0022	.0019	.0019	.0029	.0025	.0025
CARBON STEEL	10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36	< 75 HRB	455	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		75 - 98 HRB	445	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		21 - 36 HRC	400	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
LOW ALLOY STEEL	13XX, 41XX, 43XX, 51XX, 86XX, 93XX	75 - 98 HRB	390	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		21 - 36 HRC	340	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		36 - 50 HRC	260	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		> 50 HRC	155	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
TOOL STEEL	A2, H13, L6, P20, S7	75 - 98 HRB	340	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		21 - 36 HRC	250	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		36 - 50 HRC	145	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		> 50 HRC	85	.0003	.0002	.0002	.0004	.0003	.0003	.0005	.0005	.0005	.0008	.0007	.0007	.0011	.0009	.0009
SPECIALTY STEEL	300M, Invar 36, Kovar, Maraging 200, Maraging 250, Maraging 300, Maraging 350	< 75 HRB	290	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		75 - 98 HRB	255	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		21 - 36 HRC	175	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		36 - 50 HRC	150	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		> 50 HRC	55	.0002	.0001	.0001	.0002	.0002	.0002	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006
AUSTENITIC STAINLESS STEEL	Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347	75 - 98 HRB	265	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		21 - 36 HRC	225	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		36 - 50 HRC	180	.0026	.0002	.0002	.0004	.0003	.0003	.0005	.0005	.0005	.0008	.0007	.0007	.0011	.0009	.0009
MARTENSITIC & FERRITIC STAINLESS STEEL	403, 410, 416, 420, 440, 430, 446	75 - 98 HRB	300	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		21 - 36 HRC	280	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
PH STAINLESS STEEL	15-5, 17-4, Carpenter 450, Carpenter 465	21 - 36 HRC	200	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006	.0010	.0009	.0009	.0013	.0011	.0011
		36 - 50 HRC	145	.0026	.0002	.0002	.0004	.0003	.0003	.0005	.0005	.0005	.0008	.0007	.0007	.0011	.0009	.0009
GRAY CAST IRON	SAE J431, ASTM A48	75 - 98 HRB	410	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		21 - 36 HRC	370	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
MALLEABLE CAST IRON	ASTM A47, ASTM A220, ASTM A602	75 - 98 HRB	345	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		21 - 36 HRC	335	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
NODULAR (DUCTILE) CAST IRON	ASTM A536, ASTM 897	75 - 98 HRB	310	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		21 - 36 HRC	260	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
		36 - 50 HRC	135	.0003	.0003	.0003	.0005	.0004	.0004	.0006	.0005	.0052	.0009	.0008	.0008	.0012	.0010	.0010
PURE NICKEL	Nickel 200, Nickel 201	< 75 HRB	285	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		75 - 98 HRB	250	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
NICKEL ALLOY	Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20	75 - 98 HRB	80	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		21 - 36 HRC	75	.0002	.0001	.0001	.0002	.0002	.0002	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006
		36 - 50 HRC	70	.0002	.0001	.0001	.0002	.0002	.0002	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006
PURE TITANIUM	Ti Grade 1, Ti Grade 2, Ti Grade 3, Ti Grade 4, Ti Grade 7, Ti Grade 12	< 75 HRB	300	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		75 - 98 HRB	275	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		21 - 36 HRC	250	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
TITANIUM ALLOY	Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al	21 - 36 HRC	180	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		36 - 50 HRC	160	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
COBALT ALLOY	ASTM F562, ASTM F90, ASTM F75, ASTM F799	75 - 98 HRB	210	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		21 - 36 HRC	170	.0002	.0002	.0002	.0003	.0002	.0002	.0004	.0003	.0003	.0006	.0005	.0005	.0007	.0006	.0006
		36 - 50 HRC	65	.0002	.0001	.0001	.0002	.0002	.0002	.0003	.0003	.0003	.0005	.0004	.0004	.0007	.0006	.0006

NOTES:

Speed (SFM) numbers shown in table above are considered to be average values. Use a tolerance of +/-25% as needed

Feed (IPT) numbers shown are for 5xD neck lengths and should be increased or decreased for other neck lengths

Feed (IPT) numbers shown in table above are considered to be starting values and may be increased given optimal conditions

Effective cutter diameter should be used to calculate RPM and to select the proper chipload per tooth