SPEEDS & FEEDS

HEVF-C-4

Combination Feed & HEM - 4 Flute

HEVF-C-4

Material Guide		Hardness	SFM	Inches per Tooth (IPT)													
				1/8		3/16		1/4		3/8		1/2		3/4		1	
				Slot	Rgh	Slot	Rgh	Slot	Rgh	Slot	Rgh	Slot	Rgh	Slot	Rgh	Slot	Rgh
Carbon Steel	10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36	< 75 HRB	455	.0027	.0012	.0040	.0018	.0053	.0024	.0080	.0036	.0107	.0047	.0160	.0067	.0214	.0086
		75 - 98 HRB	445	.0020	.0009	.0030	.0013	.0040	.0018	.0060	.0026	.0080	.0034	.0120	.0049	.0160	.0063
		21 - 36 HRC	400	.0013	.0006	.0020	.0009	.0027	.0011	.0040	.0017	.0053	.0022	.0080	.0032	.0106	.0041
Low Alloy Steel	13XX, 41XX, 43XX, 51XX, 86XX, 93XX	75 - 98 HRB	390	.0027	.0008	.0040	.0011	.0053	.0015	.0080	.0023	.0107	.0030	.0160	.0043	.0214	.0054
		21 - 36 HRC	340	.0027	.0006	.0040	.0009	.0053	.0012	.0080	.0017	.0107	.0022	.0160	.0032	.0214	.0040
		36 - 50 HRC	260	.0020	.0005	.0030	.0007	.0040	.0010	.0060	.0015	.0080	.0019	.0120	.0028	.0160	.0035
		> 50 HRC	155	.0013	.0004	.0020	.0006	.0027	.0008	.0040	.0012	.0053	.0015	.0080	.0022	.0106	.0028
Tool Steel	A2, H13, L6, P20, S7	75 - 98 HRB	340	.0027	.0008	.0040	.0011	.0053	.0015	.0080	.0023	.0107	.0030	.0160	.0043	.0214	.0054
		21 - 36 HRC	250	.0027	.0006	.0040	.0009	.0053	.0012	.0080	.0018	.0107	.0024	.0160	.0034	.0214	.0043
		36 - 50 HRC	145	.0020	.0005	.0030	.0007	.0040	.0010	.0060	.0014	.0080	.0019	.0120	.0027	.0160	.0034
		> 50 HRC	85	.0013	.0004	.0020	.0006	.0027	.0008	.0040	.0012	.0053	.0015	.0080	.0022	.0106	.0028
Specialty Steel	300M, Invar 36, Kovar, Maraging 200, Maraging 250, Maraging 300, Maraging 350	< 75 HRB	290	.0027	.0010	.0040	.0015	.0053	.0020	.0080	.0030	.0107	.0039	.0160	.0056	.0214	.0071
		75 - 98 HRB	255	.0027	.0007	.0040	.0010	.0053	.0014	.0080	.0021	.0107	.0027	.0160	.0038	.0214	.0049
		21 - 36 HRC	175	.0027	.0006	.0040	.0009	.0053	.0012	.0080	.0018	.0107	.0024	.0160	.0034	.0214	.0044
		36 - 50 HRC	150	.0020	.0006	.0030	.0008	.0040	.0011	.0060	.0016	.0080	.0021	.0120	.0031	.0160	.0039
		> 50 HRC	55	.0013	.0004	.0020	.0005	.0027	.0007	.0040	.0010	.0053	.0013	.0080	.0019	.0106	.0024
Austenitic Stainless Steel	Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347	75 - 98 HRB	265	.0027	.0008	.0040	.0011	.0053	.0015	.0080	.0022	.0107	.0029	.0160	.0042	.0214	.0053
		21 - 36 HRC	225	.0027	.0007	.0040	.0010	.0053	.0014	.0080	.0020	.0107	.0026	.0160	.0038	.0214	.0048
		36 - 50 HRC	180	.0022	.0006	.0033	.0008	.0043	.0011	.0065	.0016	.0087	.0021	.0130	.0030	.0174	.0038
Martensitic & Ferritic Stainless Steel	403, 410, 416, 420, 440, 430, 446	75 - 98 HRB	300	.0025	.0008	.0038	.0011	.0050	.0016	.0075	.0023	.0100	.0030	.0150	.0043	.0200	.0055
		21 - 36 HRC	280	.0027	.0007	.0040	.0010	.0053	.0013	.0080	.0020	.0107	.0026	.0160	.0037	.0214	.0047
PH Stainless Steel	15-5, 17-4, Carpenter 450, Carpenter 465	21 - 36 HRC	200	.0025	.0006	.0038	.0008	.0050	.0011	.0075	.0017	.0100	.0022	.0150	.0031	.0200	.0040
		36 - 50 HRC	145	.0020	.0005	.0030	.0007	.0040	.0010	.0060	.0014	.0080	.0019	.0120	.0027	.0160	.0035
Gray Cast Iron	SAE J431, ASTM A48	75 - 98 HRB	410	.0027	.0013	.0040	.0019	.0053	.0025	.0080	.0037	.0107	.0048	.0160	.0069	.0214	.0088
		21 - 36 HRC	370	.0027	.0007	.0040	.0010	.0053	.0013	.0080	.0020	.0107	.0026	.0160	.0038	.0214	.0048
Malleable Cast Iron	ASTM A47, ASTM A220, ASTM A602	75 - 98 HRB	345	.0027	.0008	.0040	.0012	.0053	.0016	.0080	.0023	.0107	.0031	.0160	.0044	.0214	.0056
		21 - 36 HRC	335	.0027	.0007	.0040	.0010	.0053	.0014	.0080	.0020	.0107	.0026	.0160	.0038	.0214	.0048
Nodular (Ductile) Cast Iron	ASTM A536, ASTM 897	75 - 98 HRB	310	.0027	.0008	.0040	.0012	.0053	.0016	.0080	.0024	.0107	.0032	.0160	.0046	.0214	.0058
		21 - 36 HRC	260	.0027	.0006	.0040	.0008	.0053	.0011	.0080	.0016	.0107	.0021	.0160	.0030	.0214	.0039
		36 - 50 HRC	135	.0013	.0004	.0020	.0005	.0027	.0007	.0040	.0010	.0053	.0013	.0080	.0019	.0106	.0024
Pure Nickel	Nickel 200, Nickel 201	< 75 HRB	285	.0027	.0011	.0040	.0016	.0053	.0021	.0080	.0031	.0107	.0041	.0160	.0059	.0214	.0075
		75 - 98 HRB	250	.0027	.0009	.0040	.0013	.0053	.0018	.0080	.0026	.0107	.0034	.0160	.0049	.0214	.0063
Nickel Alloy	Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20	75 - 98 HRB	80	.0027	.0005	.0040	.0008	.0053	.0011	.0080	.0016	.0107	.0021	.0160	.0030	.0214	.0038
		21 - 36 HRC	75	.0027	.0005	.0040	.0008	.0053	.0010	.0080	.0015	.0107	.0020	.0160	.0029	.0214	.0036
		36 - 50 HRC	70	.0022	.0005	.0033	.0007	.0043	.0009	.0065	.0013	.0087	.0017	.0130	.0025	.0174	.0031
Pure Titanium	Ti Grade 1, Ti Grade 2, Ti Grade 3, Ti Grade 4, Ti Grade 7, Ti Grade 12	< 75 HRB	300	.0027	.0015	.0040	.0022	.0053	.0029	.0080	.0043	.0107	.0057	.0160	.0081	.0214	.0103
		75 - 98 HRB	275	.0027	.0012	.0040	.0018	.0053	.0024	.0080	.0036	.0107	.0047	.0160	.0068	.0214	.0087
		21 - 36 HRC	250	.0027	.0009	.0040	.0014	.0053	.0018	.0080	.0027	.0107	.0036	.0160	.0051	.0214	.0065
Titanium Alloy	Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al	21 - 36 HRC	180	.0027	.0007	.0040	.0011	.0053	.0014	.0080	.0021	.0107	.0028	.0160	.0040	.0214	.0051
		36 - 50 HRC	160	.0025	.0007	.0038	.0010	.0050	.0013	.0075	.0020	.0100	.0026	.0150	.0037	.0200	.0047
Cobalt Alloy	ASTM F562, ASTM F90, ASTM F75, ASTM F799	75 - 98 HRB	210	.0020	.0006	.0030	.0009	.0040	.0012	.0060	.0018	.0080	.0024	.0120	.0034	.0160	.0043
		21 - 36 HRC	170	.0027	.0006	.0040	.0009	.0053	.0012	.0080	.0017	.0107	.0023	.0160	.0033	.0214	.0042
		36 - 50 HRC	65	.0020	.0004	.0030	.0006	.0040	.0008	.0060	.0012	.0080	.0016	.0120	.0022	.0160	.0028

Milling Process	Hardness	ADOC	RDOC
Slot (Full Slotting)	< 35 HRC	3.00%-5.00% Diameter	100% Diameter
	≥ 35 HRC	2.50%-4.00% Diameter	100% Diameter
Rgh (Traditional Roughing)	< 35 HRC	Up to Max LOC	30%-40% Diameter
	≥ 35 HRC	Up to Max LOC	25%-35% Diameter

NOTES:
IPT values shown are for 2.5xD length of cut tools, and should be adjusted for longer or shorter lengths of cut. For more accurate running parameters, please refer to Machining Advisor Pro.