

TuffCut® HF

FHFP Series Recommended Cutting Data - Inch

Series FHFP - 3xD - Inch																				
Workpiece Material Group	ISO	Coolant			Vc-SFM	Tool Diameter (inch)														
		Emulsion	Air	MQL		.2362			.3150			.3937			.4724			.6299		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	985	.0118	.1772	.0154	.0157	.2362	.0205	.0197	.2953	.0256	.0236	.3543	.0307	.0276	.4724	.0409
Medium Carbon Steels		●	●	○	820	.0118	.1772	.0142	.0157	.2362	.0189	.0197	.2953	.0236	.0236	.3543	.0283	.0276	.4724	.0378
Alloy Steels		●	●	○	655	.0118	.1772	.0130	.0157	.2362	.0173	.0197	.2953	.0217	.0236	.3543	.0260	.0276	.4724	.0346
Die/Tool Steels		●	●	○	490	.0118	.1772	.0118	.0157	.2362	.0157	.0197	.2953	.0197	.0236	.3543	.0236	.0276	.4724	.0315
Austenitic Stainless Steels	M	●	X	○	395	.0094	.1417	.0094	.0126	.1890	.0126	.0157	.2362	.0157	.0189	.2835	.0189	.0220	.3780	.0252
Duplex (22%)		●	X	○	295	.0083	.1417	.0094	.0110	.1890	.0126	.0138	.2362	.0157	.0165	.2835	.0189	.0193	.3780	.0252
Super Duplex (25%)		●	X	○	245	.0071	.0945	.0094	.0094	.1260	.0126	.0118	.1575	.0157	.0142	.1890	.0189	.0165	.2520	.0252
Titanium Alloys	S	●	X	X	330	.0071	.0945	.0094	.0094	.1260	.0126	.0118	.1575	.0157	.0142	.1890	.0189	.0165	.2520	.0252
High Temp Alloys		●	X	X	100	.0059	.0709	.0063	.0079	.0945	.0087	.0098	.1181	.0106	.0118	.1417	.0126	.0138	.1890	.0169
Hardened Steels 45 - 50HRC	H	●	●	○	295	.0106	.1772	.0106	.0142	.2362	.0142	.0177	.2953	.0177	.0213	.3543	.0213	.0248	.4724	.0283
Hardened Steels 50 - 55HRC		●	●	○	260	.0094	.1417	.0083	.0126	.1890	.0110	.0157	.2362	.0138	.0189	.2835	.0165	.0220	.3780	.0220

Series FHFP - 5xD - Inch																				
Workpiece Material Group	ISO	Coolant			Vc-SFM	Tool Diameter (inch)														
		Emulsion	Air	MQL		.2362			.3150			.3937			.4724			.6299		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	885	.0094	.1772	.0154	.0126	.2362	.0205	.0157	.2953	.0256	.0189	.3543	.0307	.0220	.4724	.0409
Medium Carbon Steels		●	●	○	740	.0094	.1772	.0142	.0126	.2362	.0189	.0157	.2953	.0236	.0189	.3543	.0283	.0220	.4724	.0378
Alloy Steels		●	●	○	590	.0094	.1772	.0130	.0126	.2362	.0173	.0157	.2953	.0217	.0189	.3543	.0260	.0220	.4724	.0346
Die/Tool Steels		●	●	○	445	.0094	.1772	.0118	.0126	.2362	.0157	.0157	.2953	.0197	.0189	.3543	.0236	.0220	.4724	.0315
Austenitic Stainless Steels	M	●	X	○	360	.0075	.1417	.0094	.0102	.1890	.0126	.0126	.2362	.0157	.0150	.2835	.0189	.0177	.3780	.0252
Duplex (22%)		●	X	○	260	.0067	.1417	.0094	.0087	.1890	.0126	.0110	.2362	.0157	.0134	.2835	.0189	.0154	.3780	.0252
Super Duplex (25%)		●	X	○	230	.0055	.0945	.0094	.0075	.1260	.0126	.0094	.1575	.0157	.0114	.1890	.0189	.0134	.2520	.0252
Titanium Alloys	S	●	X	X	295	.0055	.0945	.0094	.0075	.1260	.0126	.0094	.1575	.0157	.0114	.1890	.0189	.0134	.2520	.0252
High Temp Alloys		●	X	X	100	.0047	.0709	.0063	.0063	.0945	.0087	.0079	.1181	.0106	.0094	.1417	.0126	.0110	.1890	.0169
Hardened Steels 45 - 50HRC	H	●	●	○	260	.0087	.1772	.0106	.0114	.2362	.0142	.0142	.2953	.0177	.0169	.3543	.0213	.0197	.4724	.0283
Hardened Steels 50 - 55HRC		●	●	○	230	.0075	.1417	.0083	.0102	.1890	.0110	.0126	.2362	.0138	.0150	.2835	.0165	.0177	.3780	.0220

Series FHFP - 8xD - Inch																				
Workpiece Material Group	ISO	Coolant			Vc-SFM	Tool Diameter (inch)														
		Emulsion	Air	MQL		.2362			.3150			.3937			.4724			.6299		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	490	.0071	.1417	.0154	.0094	.1890	.0205	.0118	.2362	.0256	.0142	.2835	.0307	.0165	.3780	.0409
Medium Carbon Steels		●	●	○	395	.0071	.1417	.0142	.0094	.1890	.0189	.0118	.2362	.0236	.0142	.2835	.0283	.0165	.3780	.0378
Alloy Steels		●	●	○	330	.0071	.1417	.0130	.0094	.1890	.0173	.0118	.2362	.0217	.0142	.2835	.0260	.0165	.3780	.0346
Die/Tool Steels		●	●	○	330	.0071	.1417	.0118	.0094	.1890	.0157	.0118	.2362	.0197	.0142	.2835	.0236	.0165	.3780	.0315
Austenitic Stainless Steels	M	●	X	○	260	.0055	.1417	.0094	.0075	.1890	.0126	.0094	.2362	.0157	.0114	.2835	.0189	.0134	.3780	.0252
Duplex (22%)		●	X	○	195	.0051	.0945	.0094	.0067	.1260	.0126	.0083	.1575	.0157	.0098	.1890	.0189	.0114	.2520	.0252
Super Duplex (25%)		●	X	○	165	.0043	.0945	.0094	.0055	.1260	.0126	.0071	.1575	.0157	.0087	.1890	.0189	.0098	.2520	.0252
Titanium Alloys	S	●	X	X	230	.0043	.0945	.0094	.0055	.1260	.0126	.0071	.1575	.0157	.0087	.1890	.0189	.0098	.2520	.0252
High Temp Alloys		●	X	X	65	.0035	.0709	.0063	.0047	.0945	.0087	.0059	.1181	.0106	.0071	.1417	.0126	.0083	.1890	.0169
Hardened Steels 45 - 50HRC	H	●	●	○	195	.0063	.1417	.0106	.0087	.1890	.0142	.0106	.2362	.0177	.0126	.2835	.0213	.0150	.3780	.0283
Hardened Steels 50 - 55HRC		●	●	○	165	.0055	.0945	.0083	.0075	.1260	.0110	.0094	.1575	.0138	.0114	.1890	.0165	.0134	.2520	.0220

● Preferred ○ Possible X Not Possible

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

TuffCut® HF

FHFP Series Recommended Cutting Data - Metric

Series FHFP - 3xD - Metric																				
Workpiece Material Group	ISO	Coolant			Vc-m/min	Tool Diameter (mm)														
		Emulsion	Air	MQL		6			8			10			12			16		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	300	0.30	4.5	0.39	0.40	6.0	0.52	0.50	7.5	0.65	0.60	9.0	0.78	0.70	12.0	1.04
Medium Carbon Steels		●	●	○	250	0.30	4.5	0.36	0.40	6.0	0.48	0.50	7.5	0.60	0.60	9.0	0.72	0.70	12.0	0.96
Alloy Steels		●	●	○	200	0.30	4.5	0.33	0.40	6.0	0.44	0.50	7.5	0.55	0.60	9.0	0.66	0.70	12.0	0.88
Die/Tool Steels		●	●	○	150	0.30	4.5	0.30	0.40	6.0	0.40	0.50	7.5	0.50	0.60	9.0	0.60	0.70	12.0	0.80
Austenitic Stainless Steels	M	●	X	○	120	0.24	3.6	0.24	0.32	4.8	0.32	0.40	6.0	0.40	0.48	7.2	0.48	0.56	9.6	0.64
Duplex (22%)		●	X	○	90	0.21	3.6	0.24	0.28	4.8	0.32	0.35	6.0	0.40	0.42	7.2	0.48	0.49	9.6	0.64
Super Duplex (25%)		●	X	○	75	0.18	2.4	0.24	0.24	3.2	0.32	0.30	4.0	0.40	0.36	4.8	0.48	0.42	6.4	0.64
Titanium Alloys	S	●	X	X	100	0.18	2.4	0.24	0.24	3.2	0.32	0.30	4.0	0.40	0.36	4.8	0.48	0.42	6.4	0.64
High Temp Alloys		●	X	X	30	0.15	1.8	0.16	0.20	2.4	0.22	0.25	3.0	0.27	0.30	3.6	0.32	0.35	4.8	0.43
Hardened Steels 45 - 50HRC	H	●	●	○	90	0.27	4.5	0.27	0.36	6.0	0.36	0.45	7.5	0.45	0.54	9.0	0.54	0.63	12.0	0.72
Hardened Steels 50 - 55HRC		●	●	○	80	0.24	3.6	0.21	0.32	4.8	0.28	0.40	6.0	0.35	0.48	7.2	0.42	0.56	9.6	0.56

Series FHFP - 5xD - Metric																				
Workpiece Material Group	ISO	Coolant			Vc-m/min	Tool Diameter (mm)														
		Emulsion	Air	MQL		6			8			10			12			16		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	270	0.24	4.5	0.39	0.32	6.0	0.52	0.40	7.5	0.65	0.48	9.0	0.78	0.56	12.0	1.04
Medium Carbon Steels		●	●	○	225	0.24	4.5	0.36	0.32	6.0	0.48	0.40	7.5	0.60	0.48	9.0	0.72	0.56	12.0	0.96
Alloy Steels		●	●	○	180	0.24	4.5	0.33	0.32	6.0	0.44	0.40	7.5	0.55	0.48	9.0	0.66	0.56	12.0	0.88
Die/Tool Steels		●	●	○	135	0.24	4.5	0.30	0.32	6.0	0.40	0.40	7.5	0.50	0.48	9.0	0.60	0.56	12.0	0.80
Austenitic Stainless Steels	M	●	X	○	110	0.19	3.6	0.24	0.26	4.8	0.32	0.32	6.0	0.40	0.38	7.2	0.48	0.45	9.6	0.64
Duplex (22%)		●	X	○	80	0.17	3.6	0.24	0.22	4.8	0.32	0.28	6.0	0.40	0.34	7.2	0.48	0.39	9.6	0.64
Super Duplex (25%)		●	X	○	70	0.14	2.4	0.24	0.19	3.2	0.32	0.24	4.0	0.40	0.29	4.8	0.48	0.34	6.4	0.64
Titanium Alloys	S	●	X	X	90	0.14	2.4	0.24	0.19	3.2	0.32	0.24	4.0	0.40	0.29	4.8	0.48	0.34	6.4	0.64
High Temp Alloys		●	X	X	30	0.12	1.8	0.16	0.16	2.4	0.22	0.20	3.0	0.27	0.24	3.6	0.32	0.28	4.8	0.43
Hardened Steels 45 - 50HRC	H	●	●	○	80	0.22	4.5	0.27	0.29	6.0	0.36	0.36	7.5	0.45	0.43	9.0	0.54	0.50	12.0	0.72
Hardened Steels 50 - 55HRC		●	●	○	70	0.19	3.6	0.21	0.26	4.8	0.28	0.32	6.0	0.35	0.38	7.2	0.42	0.45	9.6	0.56

Series FHFP - 8xD - Metric																				
Workpiece Material Group	ISO	Coolant			Vc-m/min	Tool Diameter (mm)														
		Emulsion	Air	MQL		6			8			10			12			16		
						Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Low Carbon Steels	P	●	●	○	150	0.18	3.6	0.39	0.24	4.8	0.52	0.30	6.0	0.65	0.36	7.2	0.78	0.42	9.6	1.04
Medium Carbon Steels		●	●	○	120	0.18	3.6	0.36	0.24	4.8	0.48	0.30	6.0	0.60	0.36	7.2	0.72	0.42	9.6	0.96
Alloy Steels		●	●	○	100	0.18	3.6	0.33	0.24	4.8	0.44	0.30	6.0	0.55	0.36	7.2	0.66	0.42	9.6	0.88
Die/Tool Steels		●	●	○	100	0.18	3.6	0.30	0.24	4.8	0.40	0.30	6.0	0.50	0.36	7.2	0.60	0.42	9.6	0.80
Austenitic Stainless Steels	M	●	X	○	80	0.14	3.6	0.24	0.19	4.8	0.32	0.24	6.0	0.40	0.29	7.2	0.48	0.34	9.6	0.64
Duplex (22%)		●	X	○	60	0.13	2.4	0.24	0.17	3.2	0.32	0.21	4.0	0.40	0.25	4.8	0.48	0.29	6.4	0.64
Super Duplex (25%)		●	X	○	50	0.11	2.4	0.24	0.14	3.2	0.32	0.18	4.0	0.40	0.22	4.8	0.48	0.25	6.4	0.64
Titanium Alloys	S	●	X	X	70	0.11	2.4	0.24	0.14	3.2	0.32	0.18	4.0	0.40	0.22	4.8	0.48	0.25	6.4	0.64
High Temp Alloys		●	X	X	20	0.09	1.8	0.16	0.12	2.4	0.22	0.15	3.0	0.27	0.18	3.6	0.32	0.21	4.8	0.43
Hardened Steels 45 - 50HRC	H	●	●	○	60	0.16	3.6	0.27	0.22	4.8	0.36	0.27	6.0	0.45	0.32	7.2	0.54	0.38	9.6	0.72
Hardened Steels 50 - 55HRC		●	●	○	50	0.14	2.4	0.21	0.19	3.2	0.28	0.24	4.0	0.35	0.29	4.8	0.42	0.34	6.4	0.56

● Preferred ○ Possible X Not Possible

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.