



Series 25 Fractional		Ae x D ₁	Ap x D ₁	Vc (SFM)		Diameter (D ₁) (inch)				
						1/4	5/16	3/8	1/2	3/4
CFRP, AFRP (CARBON FIBER, ARAMID FIBER)	Profile 	≤ 0.5	≤ 1.5	500	RPM	7640	6112	5093	3820	2547
				(400-600)	Fz	0.0016	0.0025	0.0030	0.0040	0.0048
					Feed (IPM)	48.9	61.1	91.7	122.2	97.8
	HSM 	≤ 0.05	≤ 2	825	RPM	12606	10085	8404	6303	4202
				(660-990)	Fz	0.0037	0.0057	0.0069	0.0092	0.0110
					Feed (IPM)	186.6	229.9	347.9	463.9	369.8
GFRP (FIBERGLASS)	Profile 	≤ 0.5	≤ 1.5	400	RPM	6112	4890	4075	3056	2037
				(320-480)	Fz	0.0016	0.0025	0.0030	0.0040	0.0048
					Feed (IPM)	39.1	48.9	73.3	97.8	78.2
	HSM 	≤ 0.05	≤ 2	660	RPM	10085	8068	6723	5042	3362
				(528-792)	Fz	0.0037	0.0057	0.0069	0.0092	0.0110
					Feed (IPM)	149.3	183.9	278.3	371.1	295.8
CARBON, GRAPHITE	Profile 	≤ 0.5	≤ 1.5	600	RPM	9168	7334	6112	4584	3056
				(480-720)	Fz	0.0020	0.0031	0.0038	0.0050	0.0050
					Feed (IPM)	73.3	90.9	139.4	183.4	122.2
	HSM 	≤ 0.05	≤ 2	990	RPM	15127	12102	10085	7564	5042
				(792-1188)	Fz	0.0046	0.0072	0.0086	0.0115	0.0138
					Feed (IPM)	278.3	348.5	520.4	695.9	556.7
PLASTICS	Profile 	≤ 0.5	≤ 1.5	1000	RPM	15280	12224	10187	7640	5093
				(800-1200)	Fz	0.0020	0.0031	0.0038	0.0050	0.0060
					Feed (IPM)	122.2	151.6	232.3	305.6	244.5
	HSM 	≤ 0.05	≤ 2	1650	RPM	25212	20170	16808	12606	8404
				(1320-1980)	Fz	0.0046	0.0072	0.0086	0.0115	0.0138
					Feed (IPM)	463.9	580.9	867.3	1159.8	927.8
MACHINABLE CERAMICS MACHINABLE GLASS	Profile 	≤ 0.5	≤ 1.5	50	RPM	764	611	509	382	255
				(40-60)	Fz	0.0008	0.0013	0.0015	0.0020	0.0024
					Feed (IPM)	2.4	3.2	4.6	6.1	4.9
	HSM 	≤ 0.05	≤ 2	85	RPM	1299	1039	866	649	433
				(68-102)	Fz	0.0018	0.0029	0.0034	0.0046	0.0550
					Feed (IPM)	9.4	12.1	17.7	23.9	190.5

rpm = sfm x 3.82 / D₁

ipm = (inch / flute) x 4 x rpm

HSM (high speed machining)

adjust parameters based on resin type and fiber structure

reduce speed when overheating causes melting or damage to resin

reduce feed if delamination or fraying occur

finish cuts typically required reduced feed and cutting depths

rates shown are for use without coolant; rates may be increased with coolant

dust collection is vital when machining dry

diamond coating will increase tool life in graphite and composite materials

refer to the SGS Tool Wizard for complete technical information (I)