

S2F Recommended Starting Speeds and Feeds

Material Group		Rc Hardness	Series	Series	frac. dec.	D - Diameter					
			S2F	S4F		1/4"	3/8"	1/2"	5/8"	3/4"	1"
			Speed (SFM)			0.250	0.375	0.500	0.625	0.750	1.000
P	Unalloyed Steel (AISI 1000, 1100, 1200, 1500 Series)	>32	-	200-250	IPT	.0007-.0015	.0010-.0025	.0010-.0025	.0030-.0050	.0030-.0050	.0040-.0060
		<32	-	125-175	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
	Low-alloy Steel (AISI 3000, 4000, 5000, 6000, 8000, 9000 Series)	>32	-	200-250	IPT	.0007-.0015	.0010-.0025	.0010-.0025	.0030-.0050	.0030-.0050	.0040-.0060
		<32	-	125-175	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
High-alloy Steel/Tool Steel (SAE Classes A, D, H, O, S, M, T)*	>32	-	150-225	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050	
	<32	-	60-125	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040	
M	Austenitic (AISI 200 & 300 Series)	>32	-	200-250	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
		<32	-	150-200	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040
	Marensitic (AISI 400 & 500 Series)	>32	-	150-250	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
		<32	-	125-175	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040
Precipitation (PH 15-7 Mo, 15-5 PH, 17-7 PH)	>32	-	150-250	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050	
	<32	-	125-175	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040	
K	Gray Iron GG	-	225-325	250-350	IPT	.0010-.0020	.0015-.0040	.0015-.0040	.0030-.0100	.0030-.0100	.0050-.0100
	Nodular Iron GGG	-	250-350	300-400	IPT	.0010-.0020	.0015-.0040	.0015-.0040	.0030-.0100	.0030-.0100	.0050-.0100
	Malleable Iron GTS/GTW	-	250-350	300-400	IPT	.0010-.0020	.0015-.0040	.0015-.0040	.0030-.0100	.0030-.0100	.0050-.0100
S	HRSA Iron-Based (Incoloy 800/909, A286)	>32	-	175-225	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
		<32	-	125-175	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040
	HRSA Cobalt-Based (Stellite, Haynes 21/25/188)	>32	-	175-225	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050
		<32	-	125-175	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040
HRSA Nickel-Based (Inconel 601/617/625/700/706/718, Hastelloy, Monel, Nimonic, Rene, Udimet, Waspaloy)	>32	-	125-175	IPT	.0005-.0010	.0008-.0020	.0008-.0020	.0020-.0040	.0020-.0040	.0030-.0050	
	<32	-	70-115	IPT	.0003-.0005	.0005-.0015	.0005-.0015	.0010-.0030	.0010-.0030	.0020-.0040	
	"Titanium (Pure, ASTM 1/2/3, Ti6AL-4V, Ti6Al-2Sn-4Zr-2Mo-Si)	-	200-300	200-300	IPT	.0007-.0015	.0010-.0025	.0010-.0025	.0030-.0050	.0030-.0050	.0040-.0060
N	Aluminum (<10% Si)	-	500 min.	-	IPT	.0010-.0020	.0015-.0040	.0015-.0040	.0030-.0150	.0030-.0150	.0050-.0150
	Aluminum (> 0% to 10% Si)	-	500 min.	-	IPT	.0010-.0020	.0015-.0040	.0015-.0040	.0030-.0150	.0030-.0150	.0050-.0150
	Copper / Brass	-	350-500	-	IPT	0.0015	0.0023	0.0031	0.0039	0.0047	0.0055
H	Hardened Steels and Hardened or Chilled Cast Irons (42-48HRc)	-	-	-	-	-	-	-	-	-	-

Note:

- These values are for uncoated tools.
- For coated tools increase SFM: SC-2 = +40%
- For tools with a LOC greater than 3xD lower SFM by no less than 15%
- All values are recommended starting points based on ideal conditions. Adjust parameters accordingly for