FREE CALCULATOR

Feeds and speeds calculator: SFM to RPM and feed rate

Spindle RPM from surface feet per minute and tool or work diameter, the feed rate from chip load and flutes, the SFM at any RPM, and starting cutting speeds for turning, milling and drilling common metals.

CHART

Turning speeds

MATERIAL	GRADES
Free machining plain carbon steels (re-sulfurized)	1212, 1213, 1215
Free machining plain carbon steels	1108, 1109, 1115, 1117, 1118, 1120, 1126, 1211
Free machining plain carbon steels	1132, 1137, 1139, 1140, 1144, 1146, 1151
Free machining plain carbon steels (Leaded)	11L17, 11L18, 12L13, 12L14
Plain carbon steels	1006, 1008, 1009, 1010, 1012, 1015, 1016, 1017, 1018, 10
Plain carbon steels	1027, 1030, 1033, 1035, 1036, 1037, 1038, 1039, 1040,
Free machining alloy steels (re-sulfurized)	4140, 4150
Water hardening tool steel	W1, W2, W5
Cold work, oil hardening tool steel	O1, O2, O6, O7
Cold work, air hardening tool steel	A2, A3, A4, A6, A7, A8, A9, A10
Stainless steels (Austenitic)	201, 202, 301, 302, 304, 304L, 305, 308, 321, 347, 3
Cast Iron	ASTM Class 20, 25, 30, 35, 40
Brass	C35600, C37700, C36000, C33200, C34200, C3530
Bronze	C65500, C22600, C65100, C67500

MATERIAL	GRADES
Wrought aluminum	6061-T6, 5000, 6000, and 7000 series.
Cast aluminum	Sand and permanent mold casting alloys

CHART

Milling speeds (HSS end mills)

MATERIAL	GRADES
Free machining plain carbon steels (re-sulfurized)	1212, 1213, 1215
Free machining plain carbon steels	1108, 1109, 1115, 1117, 1118, 1120, 1126, 1211
Free machining plain carbon steels	1132, 1137, 1139, 1140, 1144, 1146, 1151
Free machining plain carbon steels (Leaded)	11L17, 11L18, 12L13, 12L14
Plain carbon steels	1006, 1008, 1009, 1010, 1012, 1015, 1016, 1017, 1018, 10
Plain carbon steels	1027, 1030, 1033, 1035, 1036, 1037, 1038, 1039, 1040,
Free machining alloy steels (resulfurized)	4140, 4150
Water hardening tool steel	W1, W2, W5
Cold work, oil hardening tool steel	O1, O2, O6, O7
Cold work, air hardening tool steel	A2, A3, A4, A6, A7, A8, A9, A10
Stainless steels (Austenitic)	201, 202, 301, 302, 304, 304L, 305, 308, 321, 347, 34
Cast Iron	ASTM Class 20, 25, 30, 35, 40
Brass	C33200, C34000, C34200, C35300, C35600, C360(
Bronze	C22600, C65100, C65500, C67500
Wrought aluminum	6061-T6, 5000, 6000, and 7000 series.
Cast aluminum	Sand and permanent mold casting alloys

CHART

Drilling and reaming speeds

MATERIAL	GRADES
Free machining plain carbon steels (resulfurized)	1212, 1213, 1215
Free machining plain carbon steels	1108, 1109, 1115, 1117, 1118, 1120, 1126, 1211
Free machining plain carbon steels	1132, 1137, 1139, 1140, 1144, 1146, 1151
Free machining plain carbon steels (Leaded)	11L17, 11L18, 12L13, 12L14
Plain carbon steels	1006, 1008, 1009, 1010, 1012, 1015, 1016, 1017, 1018, 101
Plain carbon steels	1027, 1030, 1033, 1035, 1036, 1037, 1038, 1039, 1040, 1
Free machining alloy steels (resulfurized)	4140, 4150
Water hardening tool steel	W1, W2, W5
Cold work, oil hardening tool steel	O1, O2, O6, O7
Cold work, air hardening tool steel	A2, A3, A4, A6, A7, A8, A9, A10
Stainless steels (Austenitic)	201, 202, 301, 302, 304, 304L, 305, 308, 321, 347, 34
Cast Iron	ASTM Class 20, 25, 30, 35, 40
Brass	C35600, C37700, C36000, C33200, C34200, C35300
Bronze	C65500, C22600, C65100, C67500
Wrought aluminum	6061-T6, 5000, 6000, and 7000 series.
Cast aluminum	Sand and permanent mold casting alloys

Free chart from fleetzap.com/tools/cutting-speed-calculator