

Mechanical Properties of Steel

Condition, Strength, Hardness, Machinability

Carbon Steels—Rephosphorized & Resulphurized

Grade	Type of Processing	Estimated Minimum Values		Brinell Hardness	Average Machinability Rating (Cold drawn 1212-100%)
		Tensile Strength psi	Yield Strength psi		
1006	Hot Rolled	43,000	24,000	86	-
	Cold Drawn	48,000	41,000	95	50
1008	Hot Rolled	44,000	24,500	86	-
	Cold Drawn	49,000	41,500	95	55
1010	Hot Rolled	47,000	26,000	95	-
	Cold Drawn	53,000	44,000	105	55
1018	Hot Rolled	58,000	32,000	116	-
	Cold Drawn	64,000	54,000	126	70
1022	Hot Rolled	62,000	34,000	121	-
	Cold Drawn	69,000	58,000	137	70
1038	Hot Rolled	75,000	41,000	149	-
	Cold Drawn	83,000	70,000	163	65
1045	Hot Rolled	82,000	45,000	163	-
	Cold Drawn	91,000	77,000	179	55
	ACD*	85,000	73,000	170	65
1212	Hot Rolled	56,000	33,500	121	-
	Cold Drawn	78,000	60,000	167	100
12L14	Hot Rolled	57,000	34,000	121	-
	Cold Drawn	78,000	60,000	163	160
1215	Hot Rolled	57,000	34,000	121	-
	Cold Drawn	75,000	65,000	163	135
1117	Hot Rolled	62,000	34,000	121	-
	Cold Drawn	69,000	58,000	137	90
1141	Hot Rolled	94,000	51,500	187	-
	Cold Drawn	105,100	88,000	212	70
1144	Hot Rolled	97,000	53,000	197	-
	Cold Drawn	108,000	90,000	217	80

*ACD = annealed, cold drawn

All SAE 1100 series steels are rated on the basis for 0.10 max silicon or coarse grain melting practice. The mechanical properties shown are expected minimums for the sizes ranging from 3/4" to 1-1/4".