

**Mechanical Properties of Standard Cold Drawn Steels**

These figures are NOT GUARANTEED. These figures show the APROXIMATE range of mechanical properties.

These properties are for 20 mm to 30 mm round bars. Sizes under 20 mm will usually show a strength which is slightly higher than those shown in the tables. The mass effect of larger sections has a direct influence on mechanical properties and results in slightly lower values as the section size increases

THESE FIGURES CANNOT BE USED AS A BASIS OF ACCEPTANCE OR REJECTION OF MATERIAL.

It must not be assumed that these properties will be obtained in all cases, as they vary widely with permissible variation in analysis, size of section, rolling condition, grain size, amount of draft taken during cold drawing, and methods of heat treatment.

The properties of turned and polished or turned and ground types of cold finished material will correspond to the hot rolled values. Reliable mechanical properties can only be obtained by exactly controlled heat treatment or special processing.

SAE and/or AISI	Estimated Tensile Strength PSI	Estimated Yield Strength PSI	Estimated Minimum Values Elongation in 2 in %	Reduction in Area %	Brinell Hardness	Average Machinability Rating Cold Drawn 12L14 = 100%
1008 Cd	49000	41000	20	45	95	34
1010 Cd	53000	44000	20	40	105	34
1018 Tg&P	58000	32000	25	50	116	43
1018 Cd	64000	54000	15	40	126	43
1020 Cd	61000	51000	15	40	121	40
1035 Cd	80000	67000	12	35	167	40
1040 Cd	85000	71000	12	35	170	37
1045 Tg&P	82000	45000	16	40	163	34
1045 Cd	91000	77000	12	35	179	34
1045 ANN. Cd.	85000	73000	12	45	170	40
1050 Cd	100000	84000	10	30	197	28
1050 ANN.Cd	95000	80000	10	40	189	34
1117 Cd	69000	58000	15	40	137	56
1140 Cd	88000	74000	12	35	170	43
1141 Cd	105000	88000	10	30	212	43
1144 Cd	108000	90000	10	30	207	40
1144 STRESS	115000min	100000min	7	20	235	51
1215 Cd	78000	60000	10	35	167	84
12114 Cd	78000	60000	10	35	163	100
ALLOY STEEL						
4130 Nor.Cd	85000	70000	25	55	187 / 229	43
4140 ANN Cd	105000	85000	20	50	187 / 229	40
4140 Q&T	105000	80000	15	40	262 / 321	31
TOOL STEEL						
0-1 SA Cd	90000	65000	10	30	200 / 240	24
STAINLESS						
303 ANN Cd	85000	30000	45	50	160 / 210	45
304 ANN Cd	80000	30000	55	65	150 / 180	28
316 ANN Cd	75000	30000	40	60	150 / 180	25

ANN = ANNEALED CD = COLD DRAWN NOR = NORMALIZED Q&T = QUENCH & TEMPERED

SA = SPHEROIDIZE ANNEALED TG&P = TURNED GROUND AND POLISHED

STRESS = ASTM 311 CLASS B