

Threads and Materials (continued)
Material Hardness Tensile Value Conversions
Hardened Carbon and Alloy Steels

Rockwell C	Rockwell A	15-N	30-N	45-N	Knoop 500 g And over	Brinnell 3000 KG	Approx. Tensile Strength ksi
59	80.7	89.8	76.6	65.5	710	599	326
58	80.1	89.3	75.7	64.3	690	587	315
57	79.6	88.9	74.8	63.2	670	575	305
56	79.0	88.3	73.9	62.0	650	561	295
55	78.5	87.9	73.0	60.9	630	546	287
54	78.0	87.4	72.0	59.8	612	534	278
53	77.4	86.9	71.2	58.6	594	519	269
52	76.8	86.4	70.2	57.4	576	508	262
51	76.3	85.9	69.4	56.1	558	494	253
50	75.9	85.5	68.5	55.0	542	481	245
49	75.2	85.0	67.6	53.8	526	469	239
48	74.7	84.5	66.7	52.5	510	455	232
47	74.1	83.9	65.8	51.4	495	443	225
46	73.6	83.5	64.8	50.3	480	432	219
45	73.1	83.0	64.0	49.0	466	421	212
44	72.5	82.5	63.1	47.8	452	409	206
43	72.0	82.0	62.2	46.7	438	400	201
42	71.5	81.5	61.3	45.5	426	390	196
41	70.9	80.9	60.4	44.3	414	381	191
40	70.4	80.4	59.5	43.1	402	371	186
39	69.9	79.9	58.6	41.9	391	362	181
38	69.4	79.4	57.7	40.8	380	353	176
37	68.9	78.8	56.8	39.6	370	344	172
36	68.4	78.3	55.9	38.4	360	336	168
35	67.9	77.7	55.0	37.2	351	327	163
34	67.4	77.2	54.2	36.1	342	319	159
33	66.8	76.6	53.3	34.9	334	311	154
32	66.3	76.1	52.1	33.7	326	301	150
31	65.8	75.6	51.3	32.5	318	294	146
30	65.3	75.0	50.4	31.3	311	286	142
29	64.7	74.5	49.5	30.1	304	279	138
28	64.3	73.9	48.6	28.9	297	271	134
27	63.8	73.3	47.7	27.8	290	264	131
26	63.3	72.8	46.8	26.7	284	258	127
25	62.8	72.2	45.9	25.5	278	253	124
24	62.4	71.6	45.0	24.3	272	247	121
23	62.0	71.0	44.0	23.1	266	243	118
22	61.5	70.5	43.2	22.0	261	237	115
21	61.0	69.9	42.3	20.7	256	231	113
20	60.5	69.4	41.5	19.6	251	226	110

Inch to Metric Stress Comparison

KSI	MPa	KSI	MPa
326	2247.7	107	737.7
315	2171.8	104	717.1
305	2102.9	101	696.4
295	2034.0	98	675.7
287	1978.8	95	655.0
278	1916.7	92	634.3
269	1854.7	89	613.6
262	1806.4	86	592.9
253	1744.4	83	572.3
245	1689.2	80	551.6
239	1647.8	77	530.9
232	1599.6	74	510.2
225	1551.3	71	489.5
219	1510.0	68	468.8
212	1461.7	65	448.2
206	1420.3	62	427.5
201	1385.8	59	406.8
196	1351.4	56	386.1
191	1316.9	53	365.4
186	1282.4	50	344.7
181	1248.0	47	324.1
176	1213.5	44	303.4
172	1185.9	41	282.7
168	1158.3	38	262.0
163	1123.8	35	241.3
159	1096.3	32	220.6
154	1061.8	29	199.9
150	1034.2	26	179.3
146	1006.6	23	158.6
142	979.1	20	137.9
138	951.5	17	117.2
134	923.9		
131	903.2		
127	875.6		
124	854.9		
121	834.3		
118	813.6		
115	792.9		
113	779.1		
110	758.4		

Inch to Metric Force and Stress Conversions

Force

To convert from	to	multiply by
kip (1000 lb)	kilogram (kg)	453.6
kip (1000 lb)	newton (N)	4,448.222
pound (lb) avoirdupois	kilogram (kg)	0.4535924
pound (lb)	newton (N)	4.448222

Stress

kip per square inch (ksi)	megapascal (MPa)	6.894757
pound per square foot (psf)	kilogram per square meter (kg/sq m)	4.8824
pound per square foot (psf)	pascal (Pa)	47.88
pound per square inch (psi)	pascal (Pa)	6,894.757
pound per square inch (psi)	megapascal (MPa)	0.00689476