

# Hardness Conversion Chart

## Approximate Conversion Values for Non-Austenitic Steel

Rockwell Scales				Vickers	Brinell	Knoop	Tensile	
C	A	15 N	30 N	136° Diamond Pyramid Indenter	3000 KG 10 mm. Carbide Ball	500 KG Diamond Knoop Indenter	Strength KPSI 1000 Lbs. per sq. in.	
64	83.4	91.8	81.0	800		822	Approximate values for steel	
63	82.8	91.4	80.1	772		799		
62	82.3	91.1	79.3	746		776		
61	81.8	90.7	78.4	720		754		
60	81.2	90.2	77.5	697		732		
59	80.7	89.8	76.6	674		710		
58	80.1	89.3	75.7	653		690		
57	79.6	88.9	74.8	633		670		
56	79.0	88.3	73.9	613		650		
55	78.5	87.9	73.0	595	560	630		
54	78.0	87.4	72.0	577	543	612		
53	77.4	86.9	71.2	560	526	594		283
52	76.8	86.4	70.2	544	514	576		273
51	76.3	85.9	69.4	528	495	558		264
50	75.9	85.5	68.5	513	481	542		256
49	75.2	85.0	67.6	498	467	526		246
48	74.7	84.5	66.7	484	454	510		237
47	74.1	83.9	65.8	471	444	495		231
46	73.6	83.5	64.8	458	432	480		221
45	73.1	83.0	64.0	446	420	466		215
44	72.5	82.5	63.1	434	409	452		208
43	72.0	82.0	62.2	423	401	438	201	
42	71.5	81.5	61.3	412	390	426	194	
41	70.9	80.9	60.4	402	380	414	188	
40	70.4	80.4	59.5	392	370	402	181	
39	69.9	79.9	58.6	382	361	391	176	
38	69.4	79.4	57.7	372	352	380	170	
37	68.9	78.8	56.8	363	345	370	165	
36	68.4	78.3	55.9	354	337	360	160	
35	67.9	77.7	55.0	345	326	350	155	
34	67.4	77.2	54.2	336	319	342	150	
33	66.8	76.6	53.9	327	311	334	147	
32	66.3	76.0	52.1	318	302	326	142	
31	65.8	75.5	51.3	310	293	318	139	
30	65.3	75.0	50.4	302	286	311	135	
29	64.8	74.5	49.5	294	278	304	132	
28	64.3	73.9	48.6	286	271	297	129	
27	63.8	73.3	47.7	279	263	290	126	
26	63.3	72.7	46.8	272	257	284	123	
25	62.8	72.2	45.9	266	253	278	120	
24	62.4	71.6	45.0	247	248	272	118	
23	62.0	71.0	44.0	243	241	266	115	
22	61.5	70.5	43.2	237	236	261	112	
21	61.0	70.0	42.3	243	230	256	110	

## Soft Steel, grey and malleable cast iron, and most soft non-ferrous metal

Rockwell Scales					Brinell	Brinell	Vickers
B	E	15T	30T	A	3000 KG 10 mm. Ball	500 KG 10 mm. Ball	10 KG 136° Diamond Pyramid Indenter
100		93.0	82.0	61.5	240	201	250
99		92.6	81.4	61.0	234	195	245
98		92.3	80.8	60.0	228	189	235
97		92.0	80.2	59.5	222	184	231
96		91.7	79.6	59.0	216	179	223
95		91.4	79.0	58.5	211	175	215
94		91.1	78.4	57.5	205	171	211
93		90.8	77.8	57.0	201	167	207
92		90.5	77.3	56.5	196	163	199
91		90.2	76.7	56.0	190	160	196
90		89.9	76.1	55.0	186	157	189
89		89.6	75.5	54.5	182	154	186
88		89.3	74.9	54.0	178	151	183
87		89.0	74.3	53.5	174	148	177
86		88.6	73.7	53.0	170	145	173
85		88.3	73.1	52.5	166	142	167
84		87.9	72.5	51.5	163	140	165
83		87.6	71.9	51.0	160	137	163
92		87.3	71.3	50.5	157	135	157
81		87.0	70.7	50.0	153	133	154
80		86.6	70.0	49.5	150	128	153
79		86.3	69.4	49.0	148	126	149
78		86.0	68.8	48.5	145	124	145
77		85.6	68.1	48.0	143	120	143
76		85.3	67.5	47.5	140	118	139
75		85.0	66.8	47.0	138	116	137
74		84.6	66.2	46.5	136	112	135
73		84.3	65.5	46.0	133	110	132
72		84.0	64.8	45.5	131	109	129
71	100.0	83.7	64.1	45.0	128	107	127
70	99.4	83.4	63.4	44.5	126	106	125
69	98.8	83.0	62.7	44.0	124	104	123
68	98.2	82.7	62.1	43.5	122	102	120
67	97.6	82.4	61.4	43.0	120	101	118
66	97.0	82.1	60.7	42.5	118	99.0	116
65	96.3	81.8	60.0	42.0	116	98.0	114
64	95.7	81.5	59.3	41.5	114	96.0	112
63	95.1	81.1	58.6	41.0	111	95.0	111
62	94.5	80.8	57.9	40.5	109	94.0	110
61	93.9	80.5	57.2	40.0	108	92.0	108
60	93.3	80.1	56.5	39.5	107	91.0	107
59	92.7	79.8	55.8	39.0	105	90.0	106
58	92.1	79.5	55.2	38.5	104	89.0	104
57	91.5	79.2	54.5	38.0	103	87.7	103
56	90.9	78.8	53.8	37.5	101	87.3	101
55	90.3	78.5	53.1	37.0	100	86.7	99
54	89.7	78.2	52.4	37.0	99	86.3	98
53	89.1	77.9	51.7	36.5	97	85.8	97
52	88.5	77.5	51.0	36.0	96	84.7	96
51	87.9	77.2	50.3	35.5	95	83.3	95
50	87.3	76.9	49.7	35.0	93	83.0	94
49	86.7	76.5	49.0	34.5		82.3	93
48	86.0	76.2	48.3	33.8		81.5	92
47	85.4	75.9	47.7	33.6		80.7	91
46	84.8	75.5	47.0	33.3		80.0	90
45	84.2	75.2	46.3	33.0		79.2	89

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All values expressed are approximate, and may not apply to a specific application.

Conversion data was obtained from A.S.T.M Specification E 140-05, and data collected from decades of hardness testing experience. A.S.T.M. E 140-05 provides conversion values for a variety of materials, your specific hardness application may be different.