



## HARDNESS CONVERSION TABLE

ASTM E140 – ROCKWELL B RANGE (NON-AUSTENITIC STEELS)

Rockwell B 100 Kgf 1/16" Ball	Rockwell A 60 Kgf Diamond	Rockwell F 60 Kgf 1/16" Ball	Superficial Rockwell 15 Kgf 1/16" Ball	Superficial Rockwell 30 Kgf 1/16" Ball	Superficial Rockwell 45 Kgf 1/16" Ball	Brinell Hardness 3000 Kgf 10mm Ball	Vickers Hardness	Knoop Hardness ≥500 g
B	A	F	15T	30T	45T	HB	HV	HK
100	61.5	—	93.1	83.1	72.9	240	240	251
99	60.9	—	92.8	82.5	71.9	234	234	246
98	60.2	—	92.5	81.8	70.9	228	228	241
97	59.5	—	92.1	81.1	69.9	222	222	236
96	58.9	—	91.8	80.4	68.9	216	216	231
95	58.3	—	91.5	79.8	67.9	210	210	226
94	57.6	—	91.2	79.1	66.9	205	205	221
93	57.0	—	90.8	78.4	65.9	200	200	216
92	56.4	—	90.5	77.8	64.8	195	195	211
91	55.8	—	90.2	77.1	63.8	190	190	206
90	55.2	—	89.9	76.4	62.8	185	185	201
89	54.6	—	89.5	75.8	61.8	180	180	196
88	54.0	—	89.2	75.1	60.8	176	176	192
87	53.4	—	88.9	74.4	59.8	172	172	188
86	52.8	—	88.6	73.8	58.8	169	169	184
85	52.3	—	88.2	73.1	57.8	165	165	180
84	51.7	—	87.9	72.4	56.8	162	165	176
83	51.1	—	87.6	71.8	55.8	159	159	173
82	50.6	—	87.3	71.1	54.8	156	156	170
81	50.0	—	86.9	70.4	53.8	153	153	167
80	49.5	—	86.6	69.7	52.8	150	150	164
79	48.9	—	86.3	69.1	51.8	147	147	161
78	48.4	—	86.0	68.4	50.8	144	144	158
77	47.9	—	85.6	67.7	49.8	141	141	155
76	47.3	—	85.3	67.1	48.8	139	139	152
75	46.8	99.6	85.0	66.4	47.8	137	137	150
74	46.3	99.1	84.7	65.7	46.8	135	135	147
73	45.8	98.5	84.3	65.1	45.8	132	132	145
72	45.3	98.0	84.0	64.4	44.8	130	130	143
71	44.8	97.4	83.7	63.7	43.8	127	127	141
70	44.3	96.8	83.4	63.1	42.8	125	125	139
69	43.8	96.2	83.0	62.4	41.8	123	123	137
68	43.3	95.6	82.7	61.7	40.8	121	121	135
67	42.8	95.1	82.4	61.0	39.8	119	119	133
66	42.3	94.5	82.1	60.4	38.7	117	117	131
65	41.8	93.9	81.8	59.7	37.7	116	116	129
64	41.4	93.4	81.4	59.0	36.7	114	114	127
63	40.9	92.8	81.1	58.4	35.7	112	112	125
62	40.4	92.2	80.8	57.7	34.7	110	110	124
61	40.0	91.7	80.5	57.0	33.7	108	108	122
60	39.5	91.1	80.1	56.4	32.7	107	107	120
59	39.0	90.5	79.8	55.7	31.7	106	106	118
58	38.6	90.0	79.5	55.0	30.7	104	104	117
57	38.1	89.4	79.2	54.4	29.7	103	103	115
56	37.7	88.8	78.8	53.7	28.7	101	101	114
55	37.2	88.2	78.5	53.0	27.7	100	100	112
54	36.8	87.7	78.2	52.4	26.7	—	—	111
53	36.3	87.1	77.9	51.7	25.7	—	—	110
52	35.9	86.5	77.5	51.0	24.7	—	—	109
51	35.5	86.0	77.2	50.3	23.7	—	—	108
50	35.0	85.4	76.9	49.7	22.7	—	—	107
49	34.6	84.8	76.6	49.0	21.7	—	—	106
48	34.1	84.3	76.2	48.3	20.7	—	—	105
47	33.7	83.7	75.9	47.7	19.7	—	—	104
46	33.3	83.1	75.6	47.0	18.7	—	—	103
45	32.9	82.6	75.3	46.3	17.7	—	—	102
44	32.4	82.0	74.9	45.7	16.7	—	—	101
43	32.0	81.4	74.6	45.0	15.7	—	—	100
42	31.6	80.8	74.3	44.3	14.7	—	—	99
41	31.2	80.3	74.0	43.7	13.6	—	—	98
40	30.7	79.7	73.6	43.0	12.6	—	—	97
39	30.3	79.1	73.3	42.3	11.6	—	—	96
38	29.9	78.6	73.0	41.6	10.6	—	—	95
37	29.5	78.0	72.7	41.0	9.6	—	—	94
36	29.1	77.4	72.3	40.3	8.6	—	—	93
35	28.7	76.9	72.0	39.6	7.6	—	—	92
34	28.2	76.3	71.7	39.0	6.6	—	—	91
33	27.8	75.7	71.4	38.3	5.6	—	—	90
32	27.4	75.2	71.0	37.6	4.6	—	—	89
31	27.0	74.6	70.7	37.0	3.6	—	—	88
30	26.6	74.0	70.4	36.3	2.6	—	—	87

These values are approximate and this chart is intended primarily as a guide.

Ref: Annual Book of ASTM Standards 3.01