

# HARDNESS CONVERSION CHART

## Rockwell 'C' Scale

Rockwell 'C' Scale	Diamond Pyramid Scale HV10 HV30	Brinell			Tensile Stress Equivalents			Rockwell		Diamond Pyramid Scale HV10 HV30	Typical Hardness Values
		10mm Ball Diameter Impression	Carbide Ball	Standard Ball	Tons/in <sup>2</sup>	Kg/mm <sup>2</sup>	MPa [N/mm <sup>2</sup> ]				
67.7	900							85.6	67.7	900	
67	880							85.0	67.0	880	
66.3	860							84.7	66.3	860	
65.5	840							84.2	65.5	840	
64.8	820							83.8	64.8	820	
64	800							83.4	64.0	800	
63.3	780							83.0	63.3	780	
62.5	760							82.6	62.5	760	
61.7	740							82.2	61.7	740	
61	725	2.44	630	-	-	-	-	81.8	61.0	725	
60.5	710	2.45	627	-	-	-	-	81.5	60.5	710	
60	698	2.50	601	-	132	208	2039	81.2	60.0	698	
58.9	670	2.55	578	-	127	200	1961	80.6	58.9	670	
57.1	630	2.60	555	-	122	192	1884	79.6	57.1	630	
56.1	609	2.65	534	-	117	184	1807	79.0	56.1	609	
54.4	572	2.70	514	-	112	176	1729	78.2	54.4	572	
51.9	532	2.75	495	495	108	170	1668	76.9	51.9	532	
50.7	517	2.80	477	477	105	165	1621	76.3	50.7	517	

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		10mm Ball Diameter Impression	Carbide Ball	Standard Ball	Tons/in <sup>2</sup>	Kg/mm <sup>2</sup>	MPa [N/mm <sup>2</sup> ]				
49.5	497	2.85	461	461	101	160	1559	75.5	49.5	497	
47.5	470	2.90	444	444	98	155	1513	74.2	47.5	470	
46.0	452	2.95	429	429	95	150	1467	73.5	46.0	452	7 MP35 Ni-Co Age Hardenable
44.8	437	3.00	415	415	92	145	1420	73.0	44.8	437	
43.7	422	3.05	401	401	88	139	1359	72.5	43.7	422	
42.4	408	3.10	388	388	85	134	1312	71.5	42.4	408	
41.3	395	3.15	375	375	82	129	1266	71.0	41.3	395	
39.9	381	3.20	363	363	80	126	1235	70.3	39.9	381	17-4PH precipitation Hardened & Aged
38.8	370	3.25	352	352	77	121	1189	69.8	38.8	370	
37.7	359	3.00	341	341	75	118	1158	69.2	37.7	359	
36.7	349	3.35	331	331	73	114	1127	68.8	36.7	349	

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		10mm Ball Diameter Impression	Carbide Ball	Standard Ball	Tons/in <sup>2</sup>	Kg/mm <sup>2</sup>	MPa [N/mm <sup>2</sup> ]				
35.0	337	3.40	321	321	71	111	1096	68.0	35.0	337	
34.0	327	3.45	311	311	68	107	1050	67.5	34.0	327	Super Duplex Cold Worked Min
33.0	318	3.50	302	302	66	104	1019	66.8	33.0	318	Duplex Cold Worked Min
32.0	308	3.55	293	293	64	101	988	66.2	32.0	308	
30.9	300	3.60	285	285	63	99	973	65.7	30.9	300	Super Duplex Annealed Max
29.8	292	3.65	277	277	61	96	942	65.2	29.8	292	Duplex Annealed
29.0	284	3.70	269	269	59	93	911	64.6	29.0	284	Ni Alloy 625 Cold Worked Min
27.5	275	3.75	262	262	58	91	895	64.0	27.5	275	
26.6	269	3.80	255	255	56	89	865	63.6	26.6	269	
25.2	261	3.85	248	248	55	87	849	62.9	25.2	261	Ni Alloy 625 Annealed max
24.3	255	3.90	241	241	53	84	818	62.6	24.3	255	Ni Alloy 825 Cold Worked Min
23.0	247	3.95	235	235	51	81	787	62.0	23.0	247	6Mo Cold Worked min
22.0	241	4.00	229	229	50	79	772	61.6	22.0	241	
20.8	234	4.05	223	223	49	77	756	60.7	20.8	234	
	228	4.10	217	217	48	76	741	-	-	228	

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## Rockwell 'B' Scale

Rockwell 'B' Scale	Diamond Pyramid Scale HV10 HV30	Brinell			Tensile Stress Equivalents			Rockwell		Diamond Pyramid Scale HV10 HV30	Typical Hardness Values
		10mm Ball Diameter Impression	Carbide Ball	Standard Ball	Tons/in <sup>2</sup>	Kg/mm <sup>2</sup>	MPa [N/mm <sup>2</sup> ]				
98	222	4.15	212	212	46	73	710	-	98	228	
97	218	4.20	207	207	45	71	695	-	97	226	6Mo Annealed Max
96	212	4.30	197	197	43	68	664	-	96	224	304L/316L Austenitic Cold worked Min
93	196	4.40	187	187	41	65	632	-	93	217	904L Cold Worked min
91	188	4.50	179	179	39	62	602	-	91	211	
88.5	178	4.60	170	170	36	57	556	-	88.5	206	Ni Alloy 825 An-nealed Max
86	171	4.70	163	163	35	55	540	-	86	200	304L/316L Austenitic Annealed Max
84.2	163	4.80	156	156	34	54	525	-	84.2	195	Alloy 400 Cold Worked Min
82	156	4.90	149	149	32	51	494	-	82	189	
80	150	5.00	143	143	31	49	479	-	80	184	904L Annealed Max
77	143	5.10	137	137	30	48	463	-	77	176	
75	137	5.20	131	131	29.5	47	455	-	75	171	Alloy 400 Annealed Max
72.5	132	5.30	126	126	29	46	448	-	72.5	166	
70	127	5.40	121	121	28	44	432	-	70	160	
67	122	5.50	116	116	26	42	401	-	67	153	