Rockwell C Hardness Conversion (Approximate Conversion Values for Non-Austenitic Steels)

		Brinell Hardness (HB) 10mm Ball Load 3000kgf		Rockwell Hardness			Rockwell Superficial Hardness Diamond Conical Indenter			(HS)		
(HRC) Rockwell C Scale Hardness	(HV) Vickers Hardness	Standard Ball	Tungsten Carbide Ball	(HRA) A Scale Load 60kgf Diamond Conical Indenter	(HRB) B Scale Load 100kgf Diameter 1.6mm (1/16in) Ball	(HRD) D Scale Load 100kgf Diamond Conical Indenter	15-N Scale Load 15kgf	30-N Scale Load 30kgf	45-N Scale Load 45kgf	Shore Hardness	Approx. Tensile Strength (PSI)	(HRC) Rockwell C Scale Hardness
68	940	—	—	85.6	—	76.9	93.2	84.4	75.4	97	—	68
67	900	—	—	85.0	—	76.1	92.9	83.6	74.2	95	—	67
66	865	—	—	84.5	—	75.4	92.5	82.8	73.3	92	—	66
65	832	—	(739)	83.9	—	74.5	92.2	81.9	72.0	91	—	65
64	800	—	(722)	83.4	—	73.8	91.8	81.1	71.0	88	—	64
63	772	—	(705)	82.8	—	73.0	91.4	80.1	69.9	87	—	63
62	746	—	(688)	82.3	—	72.2	91.1	79.3	68.8	85	—	62
61	720	—	(670)	81.8	—	71.5	90.7	78.4	67.7	83	—	61
60	697	—	(654)	81.2	—	70.7	90.2	77.5	66.6	81	320,000	60
59	674	—	634	80.7	—	69.9	89.8	76.6	65.5	80	310,000	59
58	653	—	615	80.1	—	69.2	89.3	75.7	64.3	78	300,000	58
57	633	—	595	79.6	—	68.5	88.9	74.8	63.2	76	290,000	57
56	613	—	577	79.0	—	67.7	88.3	73.9	62.0	75	282,000	56
55	595	—	560	78.5	120	66.9	87.9	73.0	60.9	74	274,000	55
54	577	—	543	78.0	120	66.1	87.4	72.0	59.8	72	266,000	54
53	560	—	525	77.4	119	65.4	86.9	71.2	58.6	71	257,000	53
52	544	(500)	512	76.8	119	64.6	86.4	70.2	57.4	69	245,000	52
51	528	(487)	496	76.3	118	63.8	85.9	69.4	56.1	68	239,000	51
50	513	(475)	481	75.9	117	63.1	85.5	68.5	55.0	67	233,000	50
49	498	(464)	469	75.2	117	62.1	85.0	67.6	53.8	66	227,000	49
48	484	451	455	74.7	116	61.4	84.5	66.7	52.5	64	221,000	48
47	471	442	443	74.1	116	60.8	83.9	65.8	51.4	63	217,000	47
46	458	432	432	73.6	115	60.0	83.5	64.8	50.3	62	212,000	46
45	446	421	421	73.1	115	59.2	83.0	64.0	49.0	60	206,000	45
44	434	409	409	72.5	114	58.5	82.5	63.1	47.8	58	200,000	44
43	423	400	400	72.0	113	57.7	82.0	62.2	46.7	57	196,000	43
42	412	390	390	71.5	113	56.9	81.5	61.3	45.5	56	191,000	42
41	402	381	381	70.9	112	56.2	80.9	60.4	44.3	55	187,000	41
40	392	371	371	70.4	112	55.4	80.4	59.5	43.1	54	182,000	40
39	382	362	362	69.9	111	54.6	79.9	58.6	41.9	52	177,000	39
38	372	353	353	69.4	110	53.8	79.4	57.7	40.8	51	173,000	38
37	363	344	344	68.9	110	53.1	78.8	56.8	39.6	50	169,000	37
36	354	336	336	68.4	109	52.3	78.3	55.9	38.4	49	165,000	36
35	345	327	327	67.9	109	51.5	77.7	55.0	37.2	48	160,000	35
34	336	319	319	67.4	108	50.8	77.2	54.2	36.1	47	156,000	34
33	327	311	311	66.8	108	50.0	76.6	53.3	34.9	46	152,000	33
32	318	301	301	66.3	107	49.2	76.1	52.1	33.7	44	147,000	32
31	310	294	294	65.8	106	48.4	75.6	51.3	32.5	43	144,000	31
30	302	286	286	65.3	105	47.7	75.0	50.4	31.3	42	140,000	30
29	294	279	279	64.8	104	47.0	74.5	49.5	30.1	41	137,000	29
28	286	271	271	64.3	104	46.1	73.9	48.6	28.9	41	133,000	28
27	279	264	264	63.8	103	45.2	73.3	47.7	27.8	40	129,000	27
26	272	258	258	63.3	103	44.6	72.8	46.8	26.7	39	126,000	26
25	266	253	253	62.8	102	43.8	72.2	45.9	25.5	38	124,000	25
24	260	247	247	62.4	101	43.1	71.6	45.0	24.3	37	121,000	24
23	254	243	243	62.0	100	42.1	71.0	44.0	23.1	36	118,000	23
22	248	237	237	61.5	99	41.6	70.5	43.2	22.0	35	115,000	22
21	243	231	231	61.0	98	40.9	69.9	42.3	20.7	35	112,000	21
20	238	226	226	60.5	97	40.1	69.4	41.5	19.6	34	109,000	20

For general reference only, please refer to current ASTM Standard.

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