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**Approximate Hardness Conversion Numbers for Non-austenitic Steels<sup>A</sup> (Rockwell C to other Hardness Numbers)**

Rockwell C Scale, 150-kgf Load, Diamond Penetrator	Vickers Hardness Number	Brinell Hardness, 3000-kgf Load, 10-mm Ball	Knoop Hardness, 500-gf Load and Over	Rockwell A Scale, 60-kgf Load, Diamond Penetrator	15N Scale, 15-kgf Load, Diamond Penetrator	30N Scale, 30-kgf Load, Diamond Penetrator	45N Scale, 45-kgf Load, Diamond Penetrator	Approximate Tensile Strength, ksi
68	940	...	920	85.6	93.2	84.4	75.4	...
67	900	...	895	85.0	92.9	83.6	74.2	...
66	865	...	870	84.5	92.5	82.8	73.3	...
65	832	739	846	83.9	92.2	81.9	72.0	...
64	800	722	822	83.4	91.8	81.1	71.0	...
63	772	706	799	82.8	91.4	80.1	69.9	...
62	746	688	776	82.3	91.1	79.3	68.8	...
61	720	670	754	81.8	90.7	78.4	67.7	...
60	697	654	732	81.2	90.2	77.5	66.6	...
59	674	634	710	80.7	89.8	76.6	65.5	351
58	653	615	690	80.1	89.3	75.7	64.3	338
57	633	595	670	79.6	88.9	74.8	63.2	325
56	613	577	650	79.0	88.3	73.9	62.0	313
55	595	560	630	78.5	87.9	73.0	60.9	301
54	577	543	612	78.0	87.4	72.0	59.8	292
53	560	525	594	77.4	86.9	71.2	58.6	283
52	544	512	576	76.8	86.4	70.2	57.4	273
51	528	496	558	76.3	85.9	69.4	56.1	264
50	513	482	542	75.9	85.5	68.5	55.0	255
49	498	468	526	75.2	85.0	67.6	53.8	246
48	484	455	510	74.7	84.5	66.7	52.5	238
47	471	442	495	74.1	83.9	65.8	51.4	229
46	458	432	480	73.6	83.5	64.8	50.3	221
45	446	421	466	73.1	83.0	64.0	49.0	215
44	434	409	452	72.5	82.5	63.1	47.8	208
43	423	400	438	72.0	82.0	62.2	46.7	201
42	412	390	426	71.5	81.5	61.3	45.5	194
41	402	381	414	70.9	80.9	60.4	44.3	188
40	392	371	402	70.4	80.4	59.5	43.1	182
39	382	362	391	69.9	79.9	58.6	41.9	177
38	372	353	380	69.4	79.4	57.7	40.8	171
37	363	344	370	68.9	78.8	56.8	39.6	166
36	354	336	360	68.4	78.3	55.9	38.4	161
35	345	327	351	67.9	77.7	55.0	37.2	156
34	336	319	342	67.4	77.2	54.2	36.1	152
33	327	311	334	66.8	76.6	53.3	34.9	149
32	318	301	326	66.3	76.1	52.1	33.7	146
31	310	294	318	65.8	75.6	51.3	32.5	141
30	302	286	311	65.3	75.0	50.4	31.3	138
29	294	279	304	64.6	74.5	49.5	30.1	135
28	286	271	297	64.3	73.9	48.6	28.9	131
27	279	264	290	63.8	73.3	47.7	27.8	128
26	272	258	284	63.3	72.8	46.8	26.7	125
25	266	253	278	62.8	72.2	45.9	25.5	123
24	260	247	272	62.4	71.6	45.0	24.3	119
23	254	243	266	62.0	71.0	44.0	23.1	117
22	248	237	261	61.5	70.5	43.2	22.0	115
21	243	231	256	61.0	69.9	42.3	20.7	112
20	238	226	251	60.5	69.4	41.5	19.6	110

<sup>A</sup> This table gives the approximate interrelationships of hardness values and approximate tensile strength of steels. It is possible that steels of various compositions and processing histories will deviate in hardness-tensile strength relationship from the data presented in this table. The data in this table should not be used for austenitic stainless steels, but have been shown to be applicable for ferritic and martensitic stainless steels. Where more precise conversions are required, they should be developed specifically for each steel composition, heat treatment and part.