



HSM Wire International, Inc

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Hardness Conversion List of Scales

Stainless Steel Non-Austenitic Steels, Austenitic Steels, Nickel, Cartidge Brass & Copper Alloys

The requirement to convert from one hardness test scale to another is quite common. It is not possible to show a constant conversion relationship across all the materials. The following conversion charts have been constructed according to the hardness test scale conversion algorithms provided within ASTM E140. To be used as a guideline only.

The table below lists the scales present in the following table and any restrictions on the load ranges valid for the conversions.

SCALE

- VICKERS
- KNOOP
- ROCKWELL A
- ROCKWELL B
- ROCKWELL C
- BRINELL
- BRINELL

SYMBOL

- HV
- HK
- HRA
- HRB
- HRC
- HBW
- HBS

INDENTER AND LOAD FORCE

- Vickers Diamond, Nickel alloys (1,5,10 OR 30-kgf), Copper (100-gf), Aluminum (15-kgf)
- Knoop Diamond, 500-gf and over
- Diamond, 60-kgf
- Steel Ball $\frac{1}{16}$ ", 100-kgf
- Diamond, 150-kgf
- Tungsten Carbide 10mm ball, 3000-kgf
- Steel 10mm ball, steel and nickel (3000-kgf), brass and



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Hardness Conversion Chart for Non-Austenitic Steels (Rockwell C Range)

The non-austenitic steels include carbon, alloy and tool steels in the as-forged, annealed, normalized and quenched and tempered conditions

HV	HK	HRC	HRA	HBW	HV	HK	HRC	HRA	HBW	HV	HK	HRC	HRA	HBW
950	917	68.0	85.7	-	700	739	60.2	81.3	-	450	467	45.2	73.2	424
940	912	67.8	85.6	-	690	730	59.8	81.1	-	440	456	44.4	72.7	415
930	907	67.6	85.5	-	680	720	59.3	80.8	645	430	445	43.5	72.3	406
920	902	67.4	85.3	-	670	710	58.9	80.6	634	420	434	42.7	71.8	396
910	897	67.2	85.2	-	660	700	58.4	80.3	623	410	423	41.8	71.4	387
900	891	66.9	85.1	-	650	690	57.9	80	613	400	412	40.9	70.9	378
890	885	66.7	84.9	-	640	679	57.4	79.8	603	390	402	39.9	70.4	369
880	880	66.4	84.8	-	630	669	56.9	79.5	593	380	391	38.9	69.9	360
870	874	66.2	84.6	-	620	658	56.4	79.2	583	370	380	37.9	69.4	351
860	867	65.9	84.5	-	610	647	55.8	78.9	573	360	370	36.9	68.8	341
850	860	65.6	84.3	-	600	637	55.3	78.6	563	350	359	35.8	68.3	332
840	854	65.3	84.2	-	590	626	54.7	78.3	554	340	349	34.7	67.7	323
830	847	65.0	84	-	580	614	54.1	78	544	330	339	33.5	67.1	314
820	840	64.7	83.8	-	570	603	53.5	77.6	535	320	329	32.3	66.5	304
810	833	64.4	83.6	-	560	592	52.9	77.3	525	310	319	31.1	65.9	295
800	825	64.1	83.4	-	550	581	52.3	77	516	300	309	29.8	65.2	285
790	817	63.7	83.3	-	540	570	51.7	76.6	507	290	300	28.4	64.6	276
780	809	63.4	83.1	-	530	558	51.0	76.3	497	280	290	27.0	63.9	266
770	801	63.0	82.9	-	520	547	50.4	75.9	488	270	281	25.5	63.1	257
760	793	62.7	82.7	-	510	535	49.7	75.6	479	260	271	23.9	62.3	247
750	784	62.3	82.5	-	500	524	49	75.2	470	250	262	22.3	61.5	237
740	776	61.9	82.2	-	490	513	48.3	74.8	460	240	253	20.5	60.7	228
730	767	61.5	82	-	480	501	47.5	74.4	451					
720	758	61.1	81.8	-	470	490	46.8	74	442					
710	749	60.7	81.6	-	460	479	46.0	73.6	433					

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