



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 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 B Range)

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

HV	HK	HRB	HRA	HBS	HV	HK	HRB	HRA	HBS
240	252	99.8	61.4	240	115	128	64.7	41.7	115
235	248	99.1	60.9	235	110	123	61.8	40.3	110
230	243	98.4	60.4	230	105	118	58.6	38.8	105
225	239	97.6	59.9	225	100	113	55.1	37.3	100
220	235	96.8	59.4	220	95	109	51.3	35.5	95
215	230	95.9	58.8	215	90	104	47.1	33.7	90
210	225	95.1	58.3	210	85	99	42.4	31.7	85
205	221	94.1	57.7	205	80	94	37.1	29.5	80
200	216	93.2	57.1	200	75	89	31.2	27.2	75
195	211	92.2	56.5	195					
190	205	91.1	55.8	190					
185	200	90	55.1	185					
180	195	88.8	54.4	180					
175	190	87.5	53.7	175					
170	185	86.2	52.9	170					
165	180	84.8	52.2	165					
160	174	83.3	51.3	160					
155	169	81.7	50.5	155					
150	164	80.1	49.5	150					
145	159	78.3	48.6	145					
140	154	76.4	47.6	140					
135	149	74.4	46.5	135					
130	143	72.2	45.4	130					
125	138	69.9	44.3	125					
120	133	67.4	43	120					

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