



# 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.

<b>SCALE</b>	<b>SYMBOL</b>	<b>INDENTER AND LOAD FORCE</b>
- VICKERS	- HV	- Vickers Diamond, Nickel alloys (1,5,10 OR 30-kgf), Copper (100-gf), Aluminum (15-kgf)
- KNOOP	- HK	- Knoop Diamond, 500-gf and over
- ROCKWELL A	- HRA	- Diamond, 60-kgf
- ROCKWELL B	- HRB	- Steel Ball $\frac{1}{16}$ ", 100-kgf
- ROCKWELL C	- HRC	- Diamond, 150-kgf
-BRINELL	- HBW	- Tungsten Carbide 10mm ball, 3000-kgf
- BRINELL	- HBS	- Steel 10mm ball, steel and nickel (3000-kgf), brass and



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## Hardness Conversion Chart for Austenitic Steels (Rockwell C Range)

The austenitic steels included in the original testing was as followed:

Types 201,202,301,302,304,304L,305,316,316L,321 and 347.

HRC	HRA	HRC	HRA
48	74.4	24	62.3
47	73.9	23	61.8
46	73.4	22	61.3
45	72.9	21	60.8
44	72.4	20	60.3
43	71.9		
42	71.4		
41	70.9		
40	70.4		
39	69.9		
38	69.4		
37	68.8		
36	68.3		
35	67.8		
34	67.3		
33	66.8		
32	66.3		
31	65.8		
30	65.3		
29	64.8		
28	64.3		
27	63.8		
26	63.3		
25	62.8		

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