How do the different hardness scales relate to each other?

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Several different scales exist to measure the hardness of a wide variety of manufacturing materials. Some scales are used to measure extremely hard materials, while other scales are used to measure softer materials such as rubber. Table 1 shows a comparison of a few of the more common hardness scales used to indicate the hardness of steel.

Table 1. Comparison between commonly used hardness scales.

Rockwell C	Vickers	Brinell
Diamond (Cone) 150 kgf	Diamond (Pyramid) 10 kgf	10mm Ball (Hardened) 3,000 kgf
68	940	-
67	900	-
66	865	-
65	832	739
64	800	722
63	772	705
62	746	688
61	720	670
60	697	654
59	674	634
58	653	615
57	633	595
56	613	577
55	595	560
54	577	543

Rockwell C	Vickers	Brinell
Diamond (Cone) 150 kgf	Diamond (Pyramid) 10 kgf	10mm Ball (Hardened) 3,000 kgf
53	560	525
52	544	512
51	528	496
50	513	481
49	498	469
48	484	455
47	471	443
46	458	432
45	446	421
44	434	409
43	423	400
42	412	390
41	402	381
40	392	371