

Hardness Relationship Scales

Hardness Comparison to Rockwell C										
Rockwell standard			Rockwell superficial			Vickers	Knoop	Brinell	Tensile	
C	A	D	15N	30N	45N				strength,	
150 kg	60 kg	100 kg	15 kg	30 kg	45 kg	DPH	500 gm	3,000 kg	1,000 lb.	
Brale	Brale	Brale	Brale	Brale	Brale	10 kg	& over		/sq. in.	
80	92.0	86.5	96.5	92.0	87.0	1,865				
79	91.5	85.5		91.5	86.5	1,787				
78	91.0	84.5	96.0	91.0	85.5	1,710				
77	90.5	84.0		90.5	84.5	1,633				
76	90.0	83.0	95.5	90.0	83.5	1,556				
75	89.5	82.5		89.0	82.5	1,478				
74	89.0	81.5	95.0	88.5	81.5	1,400				
73	88.5	81.0		88.0	80.5	1,323				
72	88.0	80.0	94.5	87.0	79.5	1,245				
71	87.0	79.5		86.5	78.5	1,160				
70	86.5	78.5	94.0	86.0	77.5	1,076	972			
69	86.0	78.0	93.5	85.0	76.5	1,044	946			
68	85.6	76.9	93.2	84.4	75.4	940	920			
67	85.0	76.1	92.9	83.6	74.2	900	895			
66	84.5	75.4	92.5	82.8	73.3	865	870			
65	83.9	74.5	92.2	81.9	72.0	832	846			
64	83.4	73.8	91.8	81.1	71.0	800	822			
63	82.8	73.0	91.4	80.1	69.9	772	799			
62	82.3	72.2	91.1	79.3	68.8	746	776			
61	81.8	71.5	90.7	78.4	67.7	720	754			
60	81.2	70.7	90.2	77.5	66.6	697	732	614	314	
59	80.7	69.9	89.8	76.6	65.5	674	710	600	306	
58	80.1	69.2	89.3	75.7	64.3	653	690	587	299	
57	79.6	68.5	88.9	74.8	63.2	633	670	573	291	
56	79.0	67.7	88.3	73.9	62.0	613	650	560	284	
55	78.5	66.9	87.9	73.0	60.9	595	630	547	277	
54	78.0	66.1	87.4	72.0	59.8	577	612	534	270	
53	77.4	65.4	86.9	71.2	58.6	560	594	522	263	
52	76.8	64.6	86.4	70.2	57.4	544	576	509	256	
51	76.3	63.8	85.9	69.4	56.1	528	558	496	250	

Hardness Comparison to Rockwell C										
Rockwell standard			Rockwell superficial			Vickers	Knoop	Brinell	Tensile	
50	75.9	63.1	85.5	68.5	55.0	513	542	484	243	
49	75.2	62.1	85.0	67.6	53.8	498	526	472	236	
48	74.7	61.4	84.5	66.7	52.5	484	510	460	230	
47	74.1	60.8	83.9	65.8	51.4	471	495	448	223	
46	73.6	60.0	83.5	64.8	50.3	458	480	437	217	
45	73.1	59.2	83.0	64.0	49.0	446	466	426	211	
44	72.5	58.5	82.5	63.1	47.8	434	452	415	205	
43	72.0	57.7	82.0	62.2	46.7	423	438	404	199	
42	71.5	56.9	81.5	61.3	45.5	412	426	393	194	
41	70.9	56.2	80.9	60.4	44.3	402	414	382	188	
40	70.4	55.4	80.4	59.5	43.1	392	402	372	182	
39	69.9	54.6	79.9	58.6	41.9	382	391	362	177	
38	69.4	53.8	79.4	57.7	40.8	372	380	352	171	
37	68.9	53.1	78.8	56.8	39.6	363	370	342	166	
36	68.4	52.3	78.3	55.9	38.4	354	360	332	162	
35	67.9	51.5	77.7	55.0	37.2	345	351	322	157	
34	67.4	50.8	77.2	54.2	36.1	336	342	313	153	
33	66.8	50.0	76.6	53.3	34.9	327	334	305	148	
32	66.3	49.2	76.1	52.1	33.7	318	326	297	144	
31	65.8	48.4	75.6	51.3	32.5	310	318	290	140	
30	65.3	47.7	75.0	50.4	31.3	302	311	283	136	
29	64.6	47.0	74.5	49.5	30.1	294	304	276	132	
28	64.3	46.1	73.9	48.6	28.9	286	297	270	129	
27	63.8	45.2	73.3	47.7	27.8	279	290	265	126	
26	63.3	44.6	72.8	46.8	26.7	272	284	260	123	
25	62.8	43.8	72.2	45.9	25.5	266	278	255	120	
24	62.4	43.1	71.6	45.0	24.3	260	272	250	117	
23	62.0	42.1	71.0	44.0	23.1	254	266	245	115	
22	61.5	41.6	70.5	43.2	22.0	248	261	240	112	
21	61.0	40.9	69.9	42.3	20.7	243	256	235	110	
20	60.5	40.1	69.4	41.5	19.6	238	251	230	108	

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