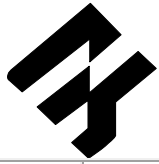




# MASTERSOURCE

## Hardness Conversion Chart

Rockwell						Rockwell Superficial				Brinell		Vickers	Shore	Approx Tensile Strength (psi)
A	B	C	D	E	F	15-N	30-N	45-N	30-T	3000 kg	500 kg	136		
60kg Brale	100kg 1/16" Ball	150kg Brale	100kg Brale	100kg 1/8" Ball	60kg 1/16" Ball	15kg Brale	30kg Brale	45kg Brale	30 kg 1/16" Ball	10mm Ball Steel	10mm Ball Steel	Diamond Pyramid	Sciuroscope	
86.5	---	70	78.5	---	---	94.0	86.0	77.6	---	---	---	1076	101	---
86.0	---	69	77.7	---	---	93.5	85.0	76.5	---	---	---	1044	99	---
85.6	---	68	76.9	---	---	93.2	84.4	75.4	---	---	---	940	97	---
85.0	---	67	76.1	---	---	92.9	83.6	74.2	---	---	---	900	95	---
84.5	---	66	75.4	---	---	92.5	82.8	73.2	---	---	---	865	92	---
83.9	---	65	74.5	---	---	92.2	81.9	72.0	---	739	---	832	91	---
83.4	---	64	73.8	---	---	91.8	81.1	71.0	---	722	---	800	88	---
82.8	---	63	73.0	---	---	91.4	80.1	69.9	---	705	---	772	87	---
82.3	---	62	72.2	---	---	91.1	79.3	68.8	---	688	---	746	85	---
81.8	---	61	71.5	---	---	90.7	78.4	67.7	---	670	---	720	83	---
81.2	---	60	70.7	---	---	90.2	77.5	66.6	---	654	---	697	81	320,000
80.7	---	59	69.9	---	---	89.8	76.6	65.5	---	634	---	674	80	310,000
80.1	---	58	69.2	---	---	89.3	75.7	64.3	---	615	---	653	78	300,000
79.6	---	57	68.5	---	---	88.9	74.8	63.2	---	595	---	633	76	290,000
79.0	---	56	67.7	---	---	88.3	73.9	62.0	---	577	---	613	75	282,000
78.5	120	55	66.9	---	---	87.9	73.0	60.9	---	560	---	595	74	274,000
78.0	120	54	66.1	---	---	87.4	72.0	59.8	---	543	---	577	72	266,000
77.4	119	53	65.4	---	---	86.9	71.2	58.6	---	525	---	560	71	257,000
76.8	119	52	64.6	---	---	86.4	70.2	57.4	---	500	---	544	69	245,000
76.3	118	51	63.8	---	---	85.9	69.4	56.1	---	487	---	528	68	239,000
75.9	117	50	63.1	---	---	85.5	68.5	55.0	---	475	---	513	67	233,000
75.2	117	49	62.1	---	---	85.0	67.6	53.8	---	464	---	498	66	227,000
74.7	116	48	61.4	---	---	84.5	66.7	52.5	---	451	---	484	64	221,000
74.1	116	47	60.8	---	---	83.9	65.8	51.4	---	442	---	471	63	217,000
73.6	115	46	60.0	---	---	83.5	64.8	50.3	---	432	---	458	62	212,000
73.1	115	45	59.2	---	---	83.0	64.0	49.0	---	421	---	446	60	206,000
72.5	114	44	58.5	---	---	82.5	63.1	47.8	---	409	---	434	58	200,000
72.0	113	43	57.7	---	---	82.0	62.2	46.7	---	400	---	423	57	196,000



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71.5	113	42	56.9	---	---	81.5	61.3	45.5	---	390	---	412	56	191,000
70.9	112	41	56.2	---	---	80.9	60.4	44.3	---	381	---	402	55	187,000
70.4	112	40	55.4	---	---	80.4	59.5	43.1	---	371	---	392	54	182,000
69.9	111	39	54.6	---	---	79.9	58.6	41.9	---	362	---	382	52	177,000
69.4	110	38	53.8	---	---	79.4	57.7	40.8	---	353	---	372	51	173,000
68.9	110	37	53.1	---	---	78.8	56.8	39.6	---	344	---	363	50	169,000
68.4	109	36	52.3	---	---	78.3	55.9	38.4	---	336	---	354	49	165,000
67.9	109	35	51.5	---	---	77.7	55.0	37.2	---	327	---	345	48	160,000
67.4	108	34	50.8	---	---	77.2	54.2	36.1	---	319	---	336	47	156,000
66.8	108	33	50.0	---	---	76.6	53.3	34.9	---	311	---	327	46	152,000
66.3	107	32	49.2	---	---	76.1	52.1	33.7	---	301	---	318	44	147,000
65.8	106	31	48.4	---	---	75.6	51.3	32.5	---	294	---	310	43	144,000
65.3	105	30	47.7	---	---	75.0	50.4	31.3	---	286	---	302	42	140,000
64.7	104	29	47.0	---	---	74.5	49.5	30.1	---	279	---	294	41	137,000
64.3	104	28	46.1	---	---	73.9	48.6	28.9	---	271	---	286	41	133,000
63.8	103	27	45.2	---	---	73.3	47.7	27.8	---	264	---	279	40	129,000
63.3	103	26	44.6	---	---	72.8	46.8	26.7	---	258	---	272	39	126,000
62.8	102	25	43.8	---	---	72.2	45.9	25.5	---	253	---	266	38	124,000
62.4	101	24	43.1	---	---	71.6	45.0	24.3	---	247	---	260	37	121,000
62.0	100	23	42.1	---	---	71.0	44.0	23.1	82.0	240	201	254	36	118,000
61.5	99	22	41.6	---	---	70.5	43.2	22.0	81.5	234	195	248	35	115,000
61.0	98	21	40.9	---	---	69.9	42.3	20.7	81.0	228	189	243	35	112,000
60.5	97	20	40.1	---	---	69.4	41.5	19.6	80.5	222	184	238	34	109,000
59.0	96	18	---	---	---	---	---	---	80.0	216	179	230	33	106,000
58.0	95	16	---	---	---	---	---	---	79.0	210	175	222	32	103,000
57.5	94	15	---	---	---	---	---	---	78.5	205	171	213	31	100,000
57.0	93	13	---	---	---	---	---	---	78.0	200	167	208	30	98,000
56.5	92	12	---	---	---	---	---	---	77.5	195	163	204	29	96,000
56.0	91	10	---	---	---	---	---	---	77.0	190	160	196	28	93,000
55.5	90	9	---	---	---	---	---	---	76.0	185	157	192	27	91,000
55.0	89	8	---	---	---	---	---	---	75.5	180	154	188	26	88,000
54.0	88	7	---	---	---	---	---	---	75.0	176	151	184	26	86,000
53.5	87	6	---	---	---	---	---	---	74.5	172	148	180	26	84,000
53.0	86	5	---	---	---	---	---	---	74.0	169	145	176	25	83,000
52.5	85	4	---	---	---	---	---	---	73.5	165	142	173	25	81,000
52.0	84	3	---	---	---	---	---	---	73.0	162	140	170	25	79,000
51.0	83	2	---	---	---	---	---	---	72.0	159	137	166	24	78,000



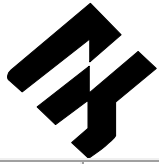
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50.5	82	1	---	---	---	---	---	---	71.5	156	135	163	24	76,000
50.0	81	0	---	---	---	---	---	---	71.0	153	133	160	24	75,000
49.5	80	---	---	---	---	---	---	---	70.0	150	130	---	---	73,000
49.0	79	---	---	---	---	---	---	---	69.5	147	128	---	---	---
48.5	78	---	---	---	---	---	---	---	69.0	144	126	---	---	---
48.0	77	---	---	---	---	---	---	---	68.0	141	124	---	---	---
47.0	76	---	---	---	---	---	---	---	67.5	139	122	---	---	---
46.5	75	---	---	---	99.5	---	---	---	67.0	137	120	---	---	---
46.0	74	---	---	---	99.0	---	---	---	66.0	135	118	---	---	---
45.5	73	---	---	---	98.5	---	---	---	65.5	132	116	---	---	---
45.0	72	---	---	---	98.0	---	---	---	65.0	130	114	---	---	---
44.5	71	---	---	100.0	97.5	---	---	---	64.2	127	112	---	---	---
44.0	70	---	---	99.5	97.0	---	---	---	63.5	125	110	---	---	---
43.5	69	---	---	99.0	96.0	---	---	---	62.8	123	109	---	---	---
43.0	68	---	---	98.0	95.5	---	---	---	62.0	121	107	---	---	---
42.5	67	---	---	97.5	95.0	---	---	---	61.4	119	106	---	---	---
42.0	66	---	---	97.0	94.5	---	---	---	60.5	117	104	---	---	---
41.8	65	---	---	96.0	94.0	---	---	---	60.1	116	102	---	---	---
41.5	64	---	---	95.5	93.5	---	---	---	59.5	114	101	---	---	---
41.0	63	---	---	95.0	93.0	---	---	---	58.7	112	99	---	---	---
40.5	62	---	---	94.5	92.0	---	---	---	58.0	110	98	---	---	---
40.0	61	---	---	93.5	91.5	---	---	---	57.3	108	96	---	---	---
39.5	60	---	---	93.0	91.0	---	---	---	56.5	107	95	---	---	---
39.0	59	---	---	92.5	90.5	---	---	---	55.9	106	94	---	---	---
38.5	58	---	---	92.0	90.0	---	---	---	55.0	104	92	---	---	---
38.0	57	---	---	91.0	89.5	---	---	---	54.6	102	91	---	---	---
37.8	56	---	---	90.5	89.0	---	---	---	54.0	101	90	---	---	---
37.5	55	---	---	90.0	88.0	---	---	---	53.2	99	89	---	---	---
37.0	54	---	---	89.5	87.5	---	---	---	52.5	---	87	---	---	---
36.5	53	---	---	89.0	87.0	---	---	---	51.8	---	86	---	---	---
36.0	52	---	---	88.0	86.5	---	---	---	51.0	---	85	---	---	---
35.5	51	---	---	87.5	86.0	---	---	---	50.4	---	84	---	---	---
35.0	50	---	---	87.0	85.5	---	---	---	49.5	---	83	---	---	---
34.8	49	---	---	86.5	85.0	---	---	---	49.1	---	82	---	---	---
34.5	48	---	---	85.5	84.5	---	---	---	48.5	---	81	---	---	---
34.0	47	---	---	85.0	84.0	---	---	---	47.7	---	80	---	---	---
33.5	46	---	---	84.5	83.0	---	---	---	47.0	---	79	---	---	---



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33.0	45	---	---	84.0	82.5	---	---	---	46.2	---	79	---	---	---
32.5	44	---	---	83.5	82.0	---	---	---	45.5	---	78	---	---	---
32.0	43	---	---	82.5	81.5	---	---	---	44.8	---	77	---	---	---
31.5	42	---	---	82.0	81.0	---	---	---	44.0	---	76	---	---	---
31.0	41	---	---	81.5	80.5	---	---	---	43.4	---	75	---	---	---
30.8	40	---	---	81.0	79.5	---	---	---	43.0	---	74	---	---	---
30.5	39	---	---	80.0	79.0	---	---	---	42.1	---	74	---	---	---
30.0	38	---	---	79.5	78.5	---	---	---	41.5	---	73	---	---	---
29.5	37	---	---	79.0	78.0	---	---	---	40.7	---	72	---	---	---
29.0	36	---	---	78.5	77.5	---	---	---	40.0	---	71	---	---	---
28.5	35	---	---	78.0	77.0	---	---	---	39.3	---	71	---	---	---
28.0	34	---	---	77.0	76.5	---	---	---	38.5	---	70	---	---	---
27.8	33	---	---	76.5	75.5	---	---	---	37.9	---	69	---	---	---
27.5	32	---	---	76.0	75.0	---	---	---	37.5	---	68	---	---	---
27.0	31	---	---	75.5	74.5	---	---	---	36.6	---	68	---	---	---
26.5	30	---	---	75.0	74.0	---	---	---	36.0	---	67	---	---	---
26.0	29	---	---	74.0	73.5	---	---	---	35.2	---	66	---	---	---
25.5	28	---	---	73.5	73.0	---	---	---	34.5	---	66	---	---	---
25.0	27	---	---	73.0	72.5	---	---	---	33.8	---	65	---	---	---
24.5	26	---	---	72.5	72.0	---	---	---	33.1	---	65	---	---	---
24.2	25	---	---	72.0	71.0	---	---	---	32.4	---	64	---	---	---
24.0	24	---	---	71.0	70.5	---	---	---	32.0	---	64	---	---	---
23.5	23	---	---	70.5	70.0	---	---	---	31.1	---	63	---	---	---
23.0	22	---	---	70.0	69.5	---	---	---	30.4	---	63	---	---	---
22.5	21	---	---	69.5	69.0	---	---	---	29.7	---	62	---	---	---
22.0	20	---	---	68.5	68.5	---	---	---	29.0	---	62	---	---	---
21.5	19	---	---	68.0	68.0	---	---	---	28.1	---	61	---	---	---
21.2	18	---	---	67.5	67.0	---	---	---	27.4	---	61	---	---	---
21.0	17	---	---	67.0	66.5	---	---	---	26.7	---	60	---	---	---
20.5	16	---	---	66.5	66.0	---	---	---	26.0	---	60	---	---	---
20.0	15	---	---	65.5	65.5	---	---	---	25.3	---	59	---	---	---
---	14	---	---	65.0	65.0	---	---	---	24.6	---	59	---	---	---
---	13	---	---	64.5	64.5	---	---	---	23.9	---	58	---	---	---
---	12	---	---	64.0	64.0	---	---	---	23.5	---	58	---	---	---
---	11	---	---	63.5	63.5	---	---	---	22.6	---	57	---	---	---
---	10	---	---	62.5	63.0	---	---	---	21.9	---	57	---	---	---
---	9	---	---	62.0	62.0	---	---	---	21.2	---	56	---	---	---



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---	8	---	---	61.5	61.5	---	---	---	20.5	---	56	---	---	---
---	7	---	---	61.0	61.0	---	---	---	19.8	---	56	---	---	---
---	6	---	---	60.5	60.5	---	---	---	19.1	---	55	---	---	---
---	5	---	---	60.0	60.0	---	---	---	18.4	---	55	---	---	---
---	4	---	---	59.0	59.5	---	---	---	18.0	---	55	---	---	---
---	3	---	---	58.5	59.0	---	---	---	17.1	---	54	---	---	---
---	2	---	---	58.0	58.0	---	---	---	16.4	---	54	---	---	---
---	1	---	---	57.5	57.5	---	---	---	15.7	---	53	---	---	---
---	0	---	---	57.0	57.0	---	---	---	15.0	---	53	---	---	---