

**BRINELL HARDNESS NUMBERS AND TENSILE STRENGTH  
EQUIVALENTS WITH  
CORRESPONDING HV AND HRC NUMBERS**

Brinell Diameter of Impression mm	Brinell Hardness Number HB	Vickers Hardness Number HV	Rockwell C Scale hardness Number HRC	Equivalent R <sub>m</sub> tonf/in <sup>2</sup>	Equivalent R <sub>m</sub> kgf/in <sup>2</sup>	Equivalent R <sub>m</sub> N/mm <sup>2</sup>
2.50	(601)	640	57	-	-	-
2.55	(578)	615	56	-	-	-
2.60	(555)	591	54.5	-	-	-
2.65	(534)	569	53.05	-	-	-
2.70	(514)	547	52	-	-	-
2.75	(495)	528	51	-	-	-
2.80	(477)	508	49.5	-	-	-
2.85	(461)	491	48.5	101	160	1569
2.90	444	474	47	98	155	1520
2.95	429	455	45.5	95	150	1471
3.00	415	440	44.5	92	145	1422
3.05	401	425	43	88	139	1363
3.10	388	410	42	85	134	1314
3.15	375	396	40.5	82	129	1265
3.20	363	383	39	80	126	1236
3.25	352	372	38	77	121	1187
3.30	341	360	36.5	75	118	1157
3.35	331	350	35.5	73	114	1118
3.40	321	339	34.5	71	111	1089
3.45	311	328	33	68	107	1049
3.50	302	319	32	66	104	1020
3.55	293	309	31	64	101	990
3.60	285	301	30	63	99	971
3.65	277	292	29	61	96	941
3.70	269	284	27.5	59	93	912
3.75	262	276	26.5	58	91	892
3.80	255	269	25.5	56	89	873
3.85	248	261	24	55	87	853
3.90	241	253	23	53	84	824
3.95	235	247	22	51	81	794
4.00	229	241	20.5	50	79	775
4.05	223	235	-	49	77	755
4.10	217	228	-	48	76	745
4.15	212	223	-	46	73	716
4.20	207	218	-	45	71	696
4.30	197	208	-	43	68	667
4.40	187	197	-	41	65	637
4.50	179	189	-	39	62	608
4.60	170	179	-	36	57	559
4.70	163	172	-	35	55	539
4.80	156	165	-	34	54	530
4.90	149	157	-	32	51	500
5.00	143	150	-	31	49	481
5.10	137	144	-	31	49	481
5.20	131	138	-	30	47	461
5.30	126	133	-	29	46	451
5.40	121	127	-	28	44	431
5.50	116	122	-	27	43	422
5.60	111	117	-	26	41	402
5.70	107	113	-	25	39	382
5.80	103	108	-	24	38	373

The figures in parenthesis require a 'modified' Brinell test, ie a tungsten carbide ball is required where the BH value exceeds 450. HB to HV and HV to HRC conversions are based on A.S.T.M.E.140

**STRESS CONVERSION TABLE**

tonf/in <sup>2</sup>	kgf/mm <sup>2</sup>	N/mm <sup>2</sup>	psi	tonf/in <sup>2</sup>	kgf/mm <sup>2</sup>	N/mm <sup>2</sup>	psi
1	1.6	15.4	2240	41	64.6	633.2	91840
2	3.2	30.9	4480	42	66.1	648.7	94080
3	4.7	46.3	6720	43	67.7	664.1	96320
4	6.3	61.8	8960	44	69.3	679.5	98560
5	7.9	77.2	11200	45	70.9	695.0	100800
6	9.5	92.7	13440	46	72.4	710.4	103040
7	11.0	108.1	15680	47	74.0	725.9	105280
8	12.6	123.6	17920	48	75.6	741.3	107520
9	14.2	139.0	20160	49	77.2	756.8	109760
10	15.7	154.4	22400	50	78.7	772.2	112000
11	17.3	169.9	24640	51	80.3	787.7	114240
12	18.9	185.3	26880	52	81.9	803.1	116480
13	20.5	200.8	29120	53	83.5	818.5	118720
14	22.0	216.2	31360	54	85.0	834.0	120960
15	23.6	231.7	33600	55	86.6	849.4	123200
16	25.2	247.1	35840	56	88.2	864.9	125440
17	26.8	262.6	38080	57	89.8	880.3	127680
18	28.3	278.0	40320	58	91.3	895.7	129920
19	29.9	293.4	42560	59	92.9	911.2	132160
20	31.5	308.9	44800	60	94.5	926.7	134400
21	33.1	324.3	47040	61	96.1	942.1	136640
22	34.6	339.8	49280	62	97.6	957.5	138880
23	36.2	355.2	51520	63	99.2	973.0	141120
24	37.8	370.7	53760	64	100.8	988.4	143360
25	39.4	386.1	56000	65	102.4	1004	145600
26	40.9	401.6	58240	66	103.9	1019	147840
27	42.5	417.0	60480	67	105.5	1034	150080
28	44.1	432.4	62720	68	107.1	1050	152320
29	45.7	447.9	64960	69	108.7	1066	154560
30	47.2	463.3	67200	70	110.2	1081	156800
31	48.8	478.8	69440	71	111.8	1097	159040
32	50.4	494.2	71680	72	113.4	1112	161280
33	52.0	509.7	73920	73	115.0	1127	163520
34	53.5	525.1	76160	74	116.5	1143	165760
35	55.1	540.5	78400	75	118.1	1158	168000
36	56.7	556.0	80640	76	119.7	1174	170240
37	58.3	571.4	82880	77	121.3	1189	172480
38	59.8	586.9	85120	78	122.8	1205	174720
39	61.4	602.3	87360	79	124.4	1220	176960
40	63.0	617.8	89600	80	126.0	1236	179200