

# Vertex Engineers & Associates

S-250, Sector 4, Airoli, Navi Mumbai – 400708

Tel : +91-22-27691675 / 65169832

Email : [info@vertexmachines.com](mailto:info@vertexmachines.com), Visit us at : [www.vertexmachines.com](http://www.vertexmachines.com)

<b>HARDNESS CONVERSION TABLE</b>			
<b>APROXIMATE RELATION AMONG BRINELL AND ROCKWELL HARDNESS SCALE FOR STEEL</b>			
<b>STEEL BALL</b>	<b>TUNGSTEN CARBIDE BALL</b>	<b>C 150 Kgf. [Diamond 120']</b>	<b>B 100 Kgf. [1/16" Dia.]</b>
*745	840	68	
*712	812	66	
*682	794	64	
*653	760	62	
*627	724	60	
*601	682	58	
*578	646	57	
*555	614	55	*120
*534	578	53	*119
*514	555	52	*119
495	525	52	*117
477	514	49	*117
461	477	47	*116
444	460	46	*115
429	432	45	*115
415	418	44	*114
401	401	42	*113
388	388	41	*112
375	375	40	*112
363	364	38	*110
352	352	37	*110
341	341	36	*109
331	330	35	*109
321	321	34	*108
311	311	33	*108
302	302	32	*107
293		31	*106
285		30	*105
277		29	*104
269		28	*104
262		26	*103
255		25	*102
248		24	*102
241		23	*100
235		22	99
229		21	98
223		20	97
217		*18	96

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<b>STEEL BALL</b>	<b>TUNGSTEN CARBIDE BALL</b>	<b>C 150 Kgf. [Diamond 120']</b>	<b>B 100 Kgf. [1/16" Dia.]</b>
212		*17	96
207		*16	95
202		*15	94
197		*13	93
192		*12	92
187		*10	91
183		*9	90
179		*8	89
174		*7	88
170		*6	87
166		*4	86
163		*3	85
159		*2	84
156		*1	83
153			82
149			81
146			80
143			79
140			78
137			77
134			76
131			74
128			73
126			72
124			71
121			70
118			69
116			68
114			67
112			66
109			65
107			64
105			62
103			61

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## BRINELL HARDNESS CHART BALL DIA. 5.0MM, LOAD 250 KGF.

Dia. Of ball Impression in mm.	Brinell Hardness Number	Dia. Of ball Impression in mm.	Brinell Hardness Number
0.81	482	2.21	61.8
0.82	470	2.22	61.2
0.83	459	2.23	60.6
0.84	448	2.24	60.1
0.85	437	2.25	59.5
0.86	427	2.26	59
0.87	417	2.27	58.4
0.88	408	2.28	57.9
0.89	399	2.29	57.3
0.90	390	2.30	56.8
0.91	381	2.31	56.3
0.92	373	2.32	55.8
0.93	365	2.33	55.2
0.94	357	2.34	54.8
0.95	349	2.35	54.3
0.96	342	2.36	53.8
0.97	335	2.37	53.3
0.98	328	2.38	52.8
0.99	322	2.39	52.3
1.00	315	2.40	51.9
1.01	309	2.41	51.4
1.02	303	2.42	51
1.03	297	2.43	50.5
1.04	291	2.44	50.1
1.05	285	2.45	49.6
1.06	280	2.46	49.2
1.07	275	2.47	48.8
1.08	270	2.48	48
1.09	265	2.49	47.9
1.10	260	2.50	47.5
1.11	255	2.51	46.7
1.12	251	2.52	46.5
1.13	245	2.53	46.3
1.14	242	2.54	45.9
1.15	237	2.55	45.5
1.16	233	2.56	45.1
1.17	229	2.57	44.8
1.18	225	2.58	44.4
1.19	222	2.59	44
1.20	218	2.60	43.7
1.21	214	2.61	43.3

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<b>Dia. Of ball Impression in mm.</b>	<b>Brinell Hardness Number</b>	<b>Dia. Of ball Impression in mm.</b>	<b>Brinell Hardness Number</b>
1.22	211	2.62	42.9
1.23	207	2.63	42.6
1.24	204	2.64	42.2
1.25	200	2.65	41.9
1.26	197	2.66	41.5
1.27	194	2.67	41.2
1.28	191	2.68	40.9
1.29	188	2.69	40.5
1.30	185	2.70	40.2
1.31	182	2.71	39.9
1.32	179	2.72	39.6
1.33	177	2.73	39.2
1.34	174	2.74	38.9
1.35	171	2.75	38.6
1.36	169	2.76	38.3
1.37	166	2.77	38
1.38	164	2.78	37.7
1.39	162	2.79	37.4
1.40	159	2.80	37.1
1.41	157	2.81	36.8
1.42	155	2.82	36.5
1.43	152	2.83	36.3
1.44	150	2.84	36
1.45	148	2.85	35.5
1.46	146	2.86	35.4
1.47	144	2.87	35.1
1.48	142	2.88	34.9
1.49	140	2.89	34.6
1.50	138	2.90	34.3
1.51	136	2.91	34.1
1.52	135	2.92	33.8
1.53	133	2.93	33.6
1.54	131	2.94	33.3
1.55	129	2.95	33.1
1.56	128	2.96	32.8
1.57	126	2.97	32.6
1.58	124	2.98	32.3
1.59	123	2.99	32.1
1.60	121	3.00	31.8
1.61	120	3.01	31.6
1.62	118	3.02	31.4
1.63	117	3.03	31.1
1.64	115	3.04	30.9

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<b>Dia. Of ball Impression in mm.</b>	<b>Brinell Hardness Number</b>	<b>Dia. Of ball Impression in mm.</b>	<b>Brinell Hardness Number</b>
1.65	114	3.05	30.7
1.66	112	3.06	30.4
1.67	111	3.07	30.2
1.68	110	3.08	30
1.69	108	3.09	29.8
1.70	107	3.10	29.6
1.71	106	3.11	29.3
1.72	104	3.12	29.1
1.73	103	3.13	28.9
1.74	102	3.14	28.7
1.75	101	3.15	28.5
1.76	99.5	3.16	28.3
1.77	98.3	3.17	28.1
1.78	97.2	3.18	27.9
1.79	96.1	3.19	27.7
1.80	95.0	3.20	27.5
1.81	93.9	3.21	27.3
1.82	92.8	3.22	27.1
1.83	91.7	3.23	26.9
1.84	90.7	3.24	26.7
1.85	89.7	3.25	26.5
1.86	88.7	3.26	26.3
1.87	87.7	3.27	26.1
1.88	86.8	3.28	26
1.89	85.8	3.29	25.8
1.90	84.9	3.30	25.6
1.91	84	3.31	25.4
1.92	83	3.32	25.2
1.93	82.1	3.33	25.1
1.94	81.3	3.34	24.9
1.95	80.4	3.35	24.7
1.96	79.6	3.36	24.5
1.97	78.7	3.37	24.4
1.98	77.9	3.38	24.2
1.99	77.1	3.39	24
2.00	76.3	3.40	23.9
2.01	75.5	3.41	23.7
2.02	74.7	3.42	23.5
2.03	73.9	3.43	23.4
2.04	73.2	3.44	23.2
2.05	72.4	3.45	23.1
2.06	71.7	3.46	22.9
2.07	71	3.47	22.7

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Dia. Of ball Impression in mm.	Brinell Hardness Number	Dia. Of ball Impression in mm.	Brinell Hardness Number
2.08	70.2	3.48	22.6
2.09	69.5	3.49	22.4
2.10	68.8	3.50	22.3
2.11	68.2	<p>TO READ BRINELL HARDNESS NUMBER FOR 125KGF &amp; 62.5 KGF, USE FOLLOWING FORMULA</p> <p>(1) BHN FOR 125 KGF = 1/2(BHN FOR 250KGF)</p> <p>(1) BHN FOR 62.5 KGF = 1/4(BHN FOR 250KGF)</p>	
2.12	67.5		
2.13	66.8		
2.14	66.3		
2.15	65.5		
2.16	64.9		
2.17	64.2		
2.18	63.6		
2.19	63		
2.20	62.4		

PLEASE SELECT THE MODEL BY CHECKING FOLLOWING:

1. THE MAXIMUM SIZE OF THE JOB TO THE TESTED: WE OFFER (A) 250MM (B) 350MM & (C) 550MM.
2. THE HARDNESS SCALES TO THE USED:
  - (A) ROCKWELL                      A,B OR C
  - (B) BRINELL                        HB OR BHN
  - (C) SUPERFICIAL                  N OR T.
3. THE FACILITIES AVAILABLE ARE:
  - (A) MANUAL
  - (B) AUTOLOAD SELECTION WITH AUTO ZERO SETTING DIAL GAUGE
  - (C) MOTORISED.
  - (D) FULLY AUTOMATIC.
  - (E) EQUIPPED WITH DIGITAL DIAL OR DRO.

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## BRINELL HARDNESS CHART BALL DIA. 2.50MM, LOAD 187.5KGF.

Dia. Of ball Impression in mm.	Brinell Hardness Number	Dia. Of ball Impression in mm.	Brinell Hardness Number
0.41	1411	1.16	167
0.42	1344	1.17	164
0.43	1282	1.18	161
0.44	1223	1.19	158
0.45	1169	1.20	156
0.46	1119	1.21	153
0.47	1071	1.22	150
0.48	1007	1.23	148
0.49	985	1.24	145
0.50	945	1.25	143
0.51	908	1.26	140
0.52	873	1.27	138
0.53	840	1.28	135
0.54	809	1.29	133
0.55	780	1.30	131
0.56	752	1.31	129
0.57	725	1.32	127
0.58	700	1.33	125
0.59	676	1.34	123
0.60	653	1.35	121
0.61	632	1.36	119
0.62	611	1.37	117
0.63	592	1.38	115
0.64	573	1.39	113
0.65	555	1.40	111
0.66	538	1.41	110
0.67	522	1.42	108
0.68	507	1.43	106
0.69	492	1.44	105
0.70	477	1.45	103
0.71	464	1.46	101
0.72	451	1.47	99.9
0.73	438	1.48	98.4
0.74	426	1.49	96.9
0.75	415	1.50	95.5
0.76	404	1.51	94.1
0.77	393	1.52	92.7
0.78	383	1.53	91.3
0.79	373	1.54	90
0.80	363	1.55	88.7
0.81	354	1.56	87.4

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Dia. Of ball Impression in mm.	Brinell Hardness Number	Dia. Of ball Impression in mm.	Brinell Hardness Number
0.82	345	1.57	86.4
0.83	337	1.58	84.6
0.84	329	1.59	83.7
0.85	321	1.60	82.5
0.86	313	1.61	81.3
0.87	306	1.62	80.1
0.88	298	1.63	79
0.89	292	1.64	77.9
0.90	285	1.65	76.8
0.91	278	1.66	75.7
0.92	272	1.67	74.7
0.93	266	1.68	73.6
0.94	260	1.69	72.6
0.95	255	1.70	71.6
0.96	249	1.71	70.6
0.97	244	1.72	69.6
0.98	239	1.73	68.7
0.99	234	1.74	67.7
1.00	229	1.75	66.8
1.01	224	<p>TO READ BRINELL HARDNESS NUMBER FOR 125KGF &amp; 62.5 KGF, USE FOLLOWING FORMULA</p> <p>(1) BHN FOR 125 KGF = 3/2(BHN FOR 187.5KGF)</p> <p>(1) BHN FOR 62.5 KGF = 1/3(BHN FOR 187.5KGF)</p>	
1.02	219		
1.03	215		
1.04	211		
1.05	207		
1.06	202		
1.07	198		
1.08	195		
1.09	191		
1.10	187		
1.11	184		
1.12	180		
1.13	177		
1.14	174		
1.15	170		

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## COMPARATIVE HARDNESS SCALE FOR UN-HARDNED STEEL, SOFT

Vickers Hardness No.	Rockwell			Rockwell Superficial			Rockwell				Brinell	
	B 1/16” ball 100 Kgf Load	F 1/16” ball 60 Kgf Load	G 1/16” ball 150 Kgf Load	15-T 1/16” ball 15 Kgf Load	30-T 1/16” ball 30 Kgf Load	45-T 1/16” ball 45 Kgf Load	E 1/8” ball 100 Kgf Load	H 1/8” ball 60 Kgf Load	K 1/8” ball 150 Kgf Load	A Dia- Mond 60 Kgf. Load	10mm Dia. Ball 500 Kgf. Load	10mm Dia. Ball 3000 Kgf. Load
	100		82.5	93.0	82.0	72.0				61.5	201	240
	99		81.0	92.5	81.5	71.0				61.0	195	234
	98		79.0		81.0	70.0				60.0	189	228
227	97		77.5	92.0	80.5	69.0				59.5	184	222
	96		76.0		80.0	68.0				59.0	179	216
	95		74.0	91.5	79.0	67.5				58.0	175	210
	94		72.5		78.5	66.0				57.5	171	205
207	93		71.0	91.0	78.0	65.5				57.0	167	200
	92		69.0	90.5	77.5	64.5			100.0	56.5	163	195
	91		67.5		77.0	63.5			99.5	56.0	160	190
189	90		66.0	90.0	76.0	62.5			98.5	55.5	157	185
	89		64.0	89.5	75.5	61.5			98.0	55.0	154	180
	88		62.5		75.0	60.5			97.0	54.0	151	176
176	87		61.0	89.0	74.5	59.5			96.5	53.5	148	172
	86		59.0	88.5	74.0	58.5			95.5	53.0	145	169
	85		57.5		73.5	58.0			94.5	52.5	142	165
164	84		56.0	88.0	73.0	57.			94.0	52.0	140	162
	83		54.0	87.5	72.0	56.0			93.0	51.0	137	159
	82		52.5		71.5	55.0			92.0	50.5	135	153
155	81		51.0	87.0	71.0	54.0			91.0	50.0	133	153
	80		49.0	86.5	70.0	53.0			90.5	49.5	130	150
	79		47.5		69.5	52.0			89.5	49.0	128	147
146	78		46.0	86.0	69.0	51.0			88.5	48.5	126	144
	77		44.0	85.5	68.0	50.0			88.0	48.0	124	141
	76		42.5		67.5	49.0			87.0	47.0	122	139
137	75	99.5	41.0	85.0	67.0	48.5			86.0	46.5	120	137
	74	99.0	39.0		66.0	47.0			85.0	46.0	118	135
	73	98.5	37.5	84.5	66.5	46.5			84.5	45.5	116	132
128	72	98.0	36.0	84.0	65.0	45.5			83.5	45.0	114	130
	71	97.5	34.5		64.0	44.5	100		82.5	44.5	112	127
	70	97.0	31.5	83.5	63.5	43.5	99.0		81.5	44.0	110	125
	69	96.0	31.0	83.0	62.5	42.5	99.0		81.0	43.5	109	123
	68	95.5	29.5		62.0	41.5	98.0		80.0	43.0	107	121
	67	95.0	28.0	82.5	61.5	40.5	97.5		79.0	42.0	106	119
	66	94.5	26.5	82.0	60.5	39.5	97.0		78.0	42.0	104	117
	65	94.0	25.0		60.0	38.5	96.0		77.5		182	116

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Vickers Hardness No.	Rockwell			Rockwell Superficial			Rockwell				Brinell	
	B 1/16" ball 100 Kgf Load	F 1/16" ball 60 Kgf Load	G 1/16" ball 150 Kgf Load	15-T 1/16" ball 15 Kgf Load	30-T 1/16" ball 30 Kgf Load	45-T 1/16" ball 45 Kgf Load	E 1/8" ball 100 Kgf Load	H 1/8" ball 60 Kgf Load	K 1/8" ball 150 Kgf Load	A Dia-Mond 60 Kgf. Load	10mm Dia. Ball 500 Kgf. Load	10mm Dia. Ball 3000 Kgf. Load
	64	93.5	23.5	81.5	59.5	37.5	95.5		76.5	41.5	101	114
	63	93.0	22.0	81.0	58.5	36.5	95.0		76.0	41.0	99	112
	62	92.0	20.5		58.0	35.0	94.5		74.5	40.5	98	110
	61	91.5	19.0	80.5	57.0	34.5	93.5		74.0	40.0	96	108
	60	91.0	17.5		56.5	33.5	93.0		73.0	39.5	95	107
	59	90.5	16.0	80.0	56.0	32.0	92.5		72.0	39.0	94	106
	58	90.0	14.5	79.5	55.0	31.0	92.0		71.0	38.5	92	
	57	89.5	13.0		54.5	30.0	91.0		70.5	38.0	91	
	56	89.0	11.5	79.0	54.0	29.0	90.5		69.5		90	
	55	88.0	10.0	78.5	53.0	28.0	90.0		68.5	37.5	89	
	54	87.5	8.5		52.5	27.0	89.5		68.0	37.0	87	
	53	87.0	7.0	78.0	51.5	26.0	89.0		67.0	36.5	85	
	52	86.5	5.5	77.5	51.0	25.0	88.0		66.0	36.0	85	
	51	86.0	4.0		50.5	24.0	87.5		65.0	35.5	84	
	50	85.5	2.5	77.0	49.5	23.0	87.0		64.5	35.0	83	
	49	85.0	1.0	76.0	49.0	22.0	86.5		63.5		82	
	48	84.5			48.5	20.5	85.5		62.5	34.5	81	
	47	84.0		76.0	47.5	19.5	85.0		61.5	34.0	80	
	46	83.0		75.5	47.0	18.5	84.5		61.0	33.5		
	45	82.5			46.0	17.5	84.0		60.0	33.0	79	
	44	82.0		75.0	45.5	16.5	83.5		59.0	32.5	78	
	43	81.5		74.5	45.0	15.5	82.5		58.0	32.0	77	
	42	81.0			44.0	14.0	82.0		57.5	31.5	76	
	41	80.5		74.0	43.5	13.5	81.5		56.5	31.0	75	
	40	79.5		73.5	43.0	12.5	81.0		55.5			
	39	79.0			42.0	11.0	80.0		54.5	30.5	74	
	38	78.5		73.0	41.5	10.0	79.5		54.0	30.0	73	
	37	78.0		72.5	40.5	9.0	79.0		53.0	29.5	72	
	36	77.5			40.0	8.0	78.5	100	52.0	29.0		
	35	77.0		72.0	39.0	7.0	78.0	99.5	51.5	28.5	71	
	34	76.5		71.5	38.5	6.0	77.0	99.0	50.5	28.0	70	
	33	75.5			38.0	5.0	76.5		49.5		69	
	32	75.0		71.0	37.5	4.0	76.0	98.5	48.5	27.5		
	31	74.5			35.5	3.0	75.5	98.0	48.0	27.0	68	
	30	74.0		70.5	36.0	2.0	75.0		47.0	26.5	67	
	29	73.5		70.0	36.5	1.0	74.0	97.5	46.0	26.0		
	28	73.0			34.5		73.5	97.0	45.0	25.5	66	

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Vickers Hardness No.	Rockwell			Rockwell Superficial			Rockwell				Brinell	
	B 1/16" ball 100 Kgf Load	F 1/16" ball 60 Kgf Load	G 1/16" ball 150 Kgf Load	15-T 1/16" ball 15 Kgf Load	30-T 1/16" ball 30 Kgf Load	45-T 1/16" ball 45 Kgf Load	E 1/8" ball 100 Kgf Load	H 1/8" ball 60 Kgf Load	K 1/8" ball 150 Kgf Load	A Dia- Mond 60 Kgf. Load	10mm Dia. Ball 500 Kgf. Load	10mm Dia. Ball 3000 Kgf. Load
	27	72.5		69.5	34.0		73.0	96.5	44.5	25.0		
	26	72.0		69.5	33.0		72.5		43.5		64	
	25	71.0			32.5		72.0	96.0	42.5		64	
	24	70.5		68.5	32.0		71.0	95.5	41.5	24.0		
	23	70.0		68.0	31.0		70.5		41.0	23.5	63	
	22	69.5			30.5		70.5	95.0	40.0	23.0		
	21	69.0		67.5	29.5		69.5	94.5	39.0	22.5	62	
	20	68.5			29.0		68.5		38.0	22.0		
	19	68.0		67.0	28.5		68.0	94.0	37.5	21.5	61	
	18	67.0		66.5	27.5		67.5	93.5	36.5			
	17	66.5			27.0		67.0	93.0	35.5	21.0	60	
	16	66.0		66.0	26.0		66.5		35.0	20.5		
	15	65.5		65.5	25.5		65.5	92.5	34.0	20.0	59	
	14	65.0			25.0		65.0	92.0	33.0			
	13	64.5		65.0	24.0		64.5		32.0			
	12	64.0		64.5	23.5		64.0	91.5	31.5			
	11	63.5			23.0		63.5	91.0	30.5			
	10	63.0		64.0	22.0		62.5	90.5	29.5		57	
	9	62.0			21.5		62.0		29.0			
	8	61.5		63.5	20.5		61.5	90.0	28.0			
	7	61.0		63.0	20.0		61.0	89.0	27.0		56	
	6	60.5			19.5		60.5		26.0			
	5	60.0		62.5	18.5		60.0	89.0	25.5		55	
	4	59.5		62.0	18.0		59.0	88.5	24.5			
	3	59.0			17.0		58.5	88.0	23.5			
	2	58.0		61.5	16.5		58.0		23.5			
	1	57.5		61.5	16.0		57.5	87.5	23.0		54	
	0	57.0			15.0		57.0	87.0	21.0		53	

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## COMPERATIVE HARDNESS SCALE (FOR STEEL)

Rockwell C Scale	Vickers VHN	Brinell Hardness No., 10mm Dia. Ball, 3000Kgf Load		Rockwell Hardness Number		Rockwell Superficial Hardness No. Brale Penetrator			Shore Hardness Number
		Std. Steel Ball	Tungsten Carbide	HRA 60 Kgf. Diamond	HRD 100 Kgf. Diamond	15-N 15 Kgf. Load	30-N 30 Kgf. Load	45-N 45 Kgf. Load	
80	1865			92.0	86.5	96.5	92.0	87.0	
79	1787			91.5	85.5		91.5	86.5	
78	1710			91.0	84.5	96.0	91.0	85.5	
77	1633			90.5	84.0		90.5	84.5	
76	1556			90.0	83.0	95.0	90.0	83.5	
75	1478			89.5	82.5		89.0	82.5	
74	1400			89.0	81.5	95.0	88.5	81.5	
73	1323			88.5	81.0		88.0	80.5	
72	1245			88.0	80.0	94.5	87.0	79.5	
71	1160			87.0	79.5		86.5	78.5	
70	1076			86.5	78.5	94.0	86.0	77.5	
69	1004			86.0	77.6	93.5	85.0	76.5	
68	940			85.6	76.9	93.2	84.4	75.4	97
67	900			85.0	76.1	92.9	83.6	74.2	95
66	865			84.5	75.4	92.5	82.8	73.3	92
65	832		739	83.9	74.5	92.2	81.9	72.0	91
64	800		722	83.4	73.8	91.8	81.1	71.0	88
63	772		705	82.8	73.0	91.4	80.1	69.9	87
62	746		688	82.3	72.2	91.1	79.3	68.8	85
61	720		670	81.8	71.5	90.7	78.4	67.7	83
60	697		651	81.2	70.7	90.2	77.5	66.6	81
59	674		634	80.7	69.9	89.8	76.6	65.5	80
58	653		615	80.1	69.2	89.3	75.7	64.3	78
57	633		595	79.6	68.5	88.9	74.8	63.2	76
56	613		577	79.0	67.7	88.3	73.9	62.0	75
55	595		560	78.5	66.9	87.9	73.0	60.9	74
54	577		543	78.0	66.1	87.4	72.0	59.8	72
53	560		525	77.4	65.4	86.9	71.2	58.6	71
52	544	500	512	76.8	64.6	86.4	70.2	57.4	69
51	528	487	496	76.3	63.8	85.9	69.4	56.1	68
50	518	475	481	75.9	63.1	85.5	68.5	55.0	67
49	498	464	469	75.2	62.1	85.0	67.6	53.8	66
48	484	451	455	74.7	61.4	84.5	66.7	52.5	64
47	471	442	443	74.1	60.9	83.9	65.8	51.1	63
46	458	432	432	73.0	60.0	83.5	64.8	50.3	62
45	446	421	421	73.1	59.2	83.0	64.0	49.0	60

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Rockwell C Scale	Vickers VHN	Brinell Hardness No., 10mm Dia. Ball, 3000Kgf Load		Rockwell Hardness Number		Rockwell Superficial Hardness No. Brale Penetrator			Shore Hardness Number
		Std. Steel Ball	Tungsten Carbide	HRA 60 Kgf. Diamond	HRD 100 Kgf. Diamond	15-N 15 Kgf. Load	30-N 30 Kgf. Load	45-N 45 Kgf. Load	
44	434	409	409	72.5	58.5	82.5	63.1	47.8	58
43	423	400	400	72.0	57.7	82.0	62.2	46.7	57
42	412	390	390	71.5	56.9	81.5	61.3	45.5	56
41	402	381	381	70.9	56.2	80.9	60.4	44.3	55
40	392	371	371	70.4	55.4	80.4	59.5	43.1	54
39	382	362	362	69.9	54.6	79.9	58.6	41.9	52
38	372	354	353	69.4	53.8	79.4	57.7	40.8	51
37	363	344	344	68.9	53.1	78.8	56.8	39.6	50
36	354	336	336	68.4	52.3	78.3	55.9	38.4	49
35	345	327	327	67.9	51.5	77.7	55.0	37.2	48
34	336	319	319	67.4	50.8	77.2	54.2	36.1	47
33	327	311	311	66.8	50.0	76.6	53.3	34.9	46
32	318	301	301	66.3	49.2	76.1	52.1	33.7	44
31	310	294	294	65.8	48.4	75.6	51.3	32.5	43
30	302	286	286	65.3	47.7	75.0	50.4	31.3	42
29	294	279	279	64.7	47.0	74.5	49.5	30.1	41
28	286	271	271	64.3	46.1	73.9	48.6	28.9	41
27	279	264	264	63.8	45.2	73.3	47.7	27.8	40
26	272	258	258	63.3	44.6	72.8	46.8	26.7	38
25	266	253	253	62.8	43.6	72.2	45.9	25.5	38
24	260	247	247	62.4	43.1	71.6	45.0	24.3	37
23	254	243	243	62.0	42.1	71.0	44.0	23.1	36
22	248	237	237	61.5	41.6	70.5	43.2	22.0	35
21	243	231	231	61.0	40.9	69.9	42.3	20.7	35
20	238	226	226	61.0	40.9	69.9	42.3	20.7	35
(18)	230	219	219						33
(16)	222	212	212						32
(14)	213	203	203						31
(12)	204	194	194						29
(10)	196	187	187						28
(8)	188	179	179						27
(6)	180	171	171						26
(4)	173	165	165						25
(2)	166	158	158						24
(0)	160	152	152						24

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Vickers Diamond Pyramid	Rockwell H 1/8" Dia.Ball 60Kgf. Load	Brinell Hardness 10mm.Dia. 500Kgf. Load	Vickers Diamond Pyramid	Rockwell H 1/8" Dia.Ball 60Kgf. Load	Brinell Hardness 10mm.Dia. 500Kgf. Load
57.4	86	50	31.1	58	28.8
52.3	85	48.5	30.6	57	28.5
50.7	84	46.6	30.2	56	28.2
49	83	45	29.7	55	27.9
48.2	82	44.2	29.2	54	27.6
47.3	81	43.3	28.8	53	27.4
46.5	80	42.5	28.3	52	27.1
45.7	79	41.7	27.8	51	26.8
44.8	78	40.8	27.4	50	26.5
44	77	40	26.9	49	26.2
43	76	39.2	26.4	48	25.9
42	75	38.3	25.9	47	25.6
41	74	37.5	25.5	46	25.3
40	73	36.7	25	45	25
39	72	35.8	24.8	44	24.9
38	71	35	24.5	43	24.8
37.4	70	34.4	24.3	42	24.8
36.9	69	33.9	24.1	41	24.7
36.3	68	33.3	23.8	40	24.6
35.8	67	32.8	23.6	39	24.5
35.2	66	32.2	23.4	38	24.5
34.7	65	31.7	23.2	37	24.4
34.1	64	31.1	22.9	36	24.3
33.6	63	30.6	22.7	35	24.2
33	62	30.29.7	22.5	34	24.2
32.5	61	29.4	22.2	33	24.1
32.1	60	29.1	22	32	24
31.6	59				

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**SELECTOR CHART FOR SCALE USING THE DIAMOND  
CONE PENETRATOR  
ANY GREATER THICKNESS OR HARDNESS CAN BE TESTED  
ON THE INDICATED SCALE**

Thickness		ROCKWELL SUPERFICIAL SCALE				ROCKWELL SCALE			
		15- N		30-N		A		C	
Inches	MM	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale
0.006	0.1524	92	65						
0.008	0.2032	90	60						
0.010	0.2540	88	55						
0.012	0.3048	83	45	80	65				
0.014	0.3556		32	78.5	61				
0.016	0.4064		18	66	56	68			
0.018	0.4572			57	47	84			
0.020	0.5080			47	37	82	61.5		
0.022	0.5588				26	79	56	69	
0.024	0.6096					76	50	67	
0.026	0.6604						41	65	
0.028	0.7112						32	62	
0.030	0.7620						19	57	
0.032	0.8128							52	
0.034	0.8636							45	
0.036	0.9144							37	
0.038	0.9652							28	
0.040	1.0160							20	

These approximate Hardness numbers are for use in selecting a suitable scale, and should not be used as Hardness conversions. If necessary to convert test reading to another scale, refer to the standard to Hardness conversion Table for Metals (Relationship Between Brinell Hardness, Diamond Pyramid Hardness, Rockwell Hardness & Rockwell Superficial Hardness).

(ASTM Designation : E 140) 3.

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ON THE INDICATED SCALE**

Thickness		ROCKWELL SUPERFICIAL SCALE				ROCKWELL SCALE			
		15- T		30-T		F		B	
Inches	MM	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale	Dial Reading	Approx Hardness C- Scale
0.010	0.2540	91	93						
0.012	0.3048	86	78						
0.014	0.3556	81	62	79	95				
0.016	0.4064	75	44	73	84				
0.018	0.4572	68	24	64	71				
0.020	0.5080			55	58				
0.022	0.5588			45	43				
0.024	0.6096			34	23	98	72	94	
0.026	0.6604					91	60	87	
0.028	0.7112					85	49	80	
0.030	0.7620					77	35	71	
0.032	0.8128								
0.034	0.8636					69	21	62	
0.036	0.9144							52	
0.038	0.9652							40	
0.040	1.0160							28	

These approximate Hardness numbers are for use in selecting a suitable scale, and should not be used as Hardness conversions. If necessary to convert test reading to another scale, refer to the standard to Hardness conversion Table for Metals (Relationship Between Brinell Hardness, Diamond Pyramid Hardness, Rockwell Hardness & Rockwell Superficial Hardness).

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## CORRECTION TABLE FOR ROCKWELL HARDNESS FOR CYLINDRICAL JOB DIA : 2 TO 10MM.

DIAMOND INDENTOR, MONOR LOAD 10KGF. MAJOR LOAD 150KGF. JOB DIA. (IN MM)									
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	RC
DIAL GAUGE READING									
15.0	18.5	22.0	24.0	25.0	26.0	26.5	27.0	27.5	30
16.5	20.0	23.0	25.0	26.0	27.0	27.3	28.0	28.5	31
18.0	21.0	24.0	26.0	27.5	28.3	29.0	29.5	29.5	32
19.5	22.5	25.5	27.5	28.5	29.0	30.0	30.5	30.5	33
20.5	23.5	26.5	28.5	29.5	30.5	31.0	31.0	32.0	34
21.5	25.0	27.5	29.5	30.5	31.5	32.0	32.5	33.0	35
23.0	26.0	29.0	30.5	31.5	32.5	33.0	33.5	34.0	36
24.5	27.5	30.0	31.5	33.0	33.5	34.0	34.5	35.0	37
25.5	28.5	31.0	33.0	34.0	34.5	35.0	35.0	36.0	38
27.0	30.0	32.5	34.0	35.0	35.5	36.5	36.5	37.0	39
28.5	31.0	33.5	35.0	36.0	37.0	37.5	37.5	38.0	40
29.5	32.5	34.5	36.0	37.0	38.0	38.5	39.0	39.0	41
31.0	33.5	36.0	37.5	38.0	39.0	39.5	40.0	40.0	42
32.0	35.0	37.0	38.5	39.5	40.0	40.5	41.0	41.5	43
33.5	36.0	38.0	39.5	40.5	41.0	41.5	42.0	42.5	44
35.0	37.5	39.5	40.5	41.5	42.0	42.5	43.0	43.5	45
36.0	38.5	40.5	42.0	42.5	43.5	43.5	44.0	44.5	46
37.5	40.0	41.5	43.0	43.5	44.5	45.0	45.0	45.5	47
39.0	41.0	43.0	44.0	45.0	45.5	46.0	46.0	46.5	48
40.0	42.0	44.0	45.0	46.0	46.5	47.0	47.5	47.5	49
41.5	43.5	45.0	46.5	47.0	47.5	48.0	48.5	48.5	50
43.0	44.5	46.5	47.5	48.0	48.5	49.0	49.5	49.5	51
44.0	46.0	47.5	48.5	49.0	49.5	50.0	50.5	51.0	52
45.5	47.0	48.5	49.5	50.5	51.0	51.0	51.5	52.0	53
46.5	48.5	50.0	51.0	52.0	52.0	52.5	52.5	53.0	54
48.0	49.5	51.0	52.0	52.5	53.0	53.5	53.5	54.0	55
49.5	51.0	52.0	53.0	53.5	54.0	54.5	54.5	55.0	56
50.5	52.0	53.5	54.0	54.5	55.0	55.5	56.0	56.0	57
52.0	53.5	54.5	55.5	56.0	56.5	56.5	57.0	57.0	58
53.5	54.5	55.5	56.5	57.0	57.0	57.5	58.0	58.0	59
54.5	56.5	57.0	57.5	58.0	58.5	58.5	59.0	59.0	60
56.0	57.0	58.0	58.6	59.0	59.5	60.0	60.0	60.5	61
57.5	58.5	59.0	59.5	60.0	60.5	61.0	61.0	61.5	62
58.5	59.5	60.5	61.0	61.5	61.5	62.0	62.0	62.5	63
60.0	61.0	61.5	62.0	62.5	62.5	63.0	63.0	63.5	64
61.0	62.0	62.5	63.0	63.5	64.5	64.0	64.5	64.5	65
62.5	63.5	64.0	64.0	64.5	65.0	65.0	65.5	65.5	66.0
64.0	64.5	65.0	65.5	65.5	66.0	66.0	66.5	66.5	67.0
65.5	66.0	66.0	66.5	66.5	67.0	67.5	67.5	67.5	68.0

