

Hardness Conversion Table

Vickers Hardness Number	Brinell Hardness Number	Rockwell Hardness Number				Rockwell Superficial Hardness Number					
		A Scale	B Scale	C Scale	D Scale	15N Scale	30N Scale	45N Scale	15T Scale	30T Scale	45T Scale
Vickers Indenter 1, 5, 10, 30 kgf (HV)	10-mm Standard Ball 3000 kgf (HBS)	60-kgf Diamond Penetrator (HRA)	100-kgf 1/16-in (1.588-mm) Ball (HRB)	150-kgf Diamond Pentrator (HRC)	100-kgf Diamond Penetrator (HRD)	15-kgf Superficial Diamond Penterator for (HR15N)	30-kgf Superficial Diamond Penetrator for (HR15N)	45-kgf Superficial Diamond Penetrator for (HR45N)	15-kgf 1/16-in (1.588-mm) Bail (HR30T)	30-kgf 1/16-in (1.588-mm) Ball (HR45T)	45-kgf 1/16-in (1.588-mm) Bail (HR45T)
513	479	75.5	—	50.0	63.0	85.5	68.0	54.5	—	—	—
481	450	74.5	—	48.0	61.5	84.5	66.5	52.5	—	—	—
452	425	73.5	—	46.0	60.0	83.5	64.5	50.0	—	—	—
427	403	72.5	—	44.0	58.5	82.5	63.0	47.5	—	—	—
404	382	71.5	—	42.0	57.0	81.5	61.0	45.5	—	—	—
382	363	70.5	—	40.0	55.5	80.5	59.5	43.0	—	—	—
362	346	69.5	—	38.0	54.0	79.5	58.0	41.0	—	—	—
344	329	68.5	—	36.0	52.5	78.5	56.0	38.5	—	—	—
326	313	67.5	—	34.0	50.5	77.5	54.5	36.0	—	—	—
309	298	66.5	106	32.0	49.5	76.5	52.5	34.0	94.5	85.5	77.0
285	275	64.5	104	28.5	46.5	75.0	49.5	30.0	94.0	84.5	75.0
266	258	63.0	102	25.5	44.5	73.5	47.0	26.5	93.0	83.0	73.0
248	241	61.5	100	22.5	42.0	72.0	44.5	23.0	92.5	81.5	71.0
234	228	60.5	98	20.0	40.0	70.5	42.0	20.0	92.0	80.5	69.0
220	215	59.0	96	17.0	38.0	69.0	39.5	17.0	91.0	79.0	67.0
209	204	57.5	94	14.5	36.0	68.0	37.5	14.0	90.5	77.5	65.0
198	194	56.5	92	12.0	34.0	66.5	35.5	11.0	89.5	76.0	63.0
188	184	55.0	90	9.0	32.0	65.0	32.5	7.5	89.0	75.0	61.0
179	176	53.5	88	6.5	30.0	64.0	30.5	5.0	88.0	73.5	59.5
171	168	52.5	86	4.0	28.0	62.5	28.5	2.0	87.5	72.0	57.5
164	161	51.5	84	2.0	26.5	61.5	26.5	-0.5	87.0	70.5	55.5
157	155	50.0	82	—	24.5	—	—	—	86.0	69.5	53.5
151	149	49.0	80	—	22.5	—	—	—	85.5	68.0	51.5
145	144	47.5	78	—	21.0	—	—	—	84.5	66.5	49.5
140	139	46.5	76	—	19.0	—	—	—	84.0	65.5	47.5
135	134	45.5	74	—	17.5	—	—	—	83.0	64.0	45.5
130	129	44.0	72	—	16.0	—	—	—	82.5	62.5	43.5
126	125	43.0	70	—	14.5	—	—	—	82.0	61.0	41.5
122	121	42.0	68	—	13.0	—	—	—	81.0	60.0	39.5
119	118	41.0	66	—	11.5	—	—	—	80.5	58.5	37.5
115	114	40.0	64	—	10.0	—	—	—	79.5	57.0	35.5
112	111	39	62	—	8.0	—	—	—	79.0	56.0	33.5
108	108	—	60	—	—	—	—	—	78.5	54.5	31.5
106	106	—	58	—	—	—	—	—	77.5	53.0	29.5
103	103	—	56	—	—	—	—	—	77.0	51.5	27.5
100	100	—	54	—	—	—	—	—	76.0	50.5	25.5
98	98	—	52	—	—	—	—	—	75.5	49.0	23.5
95	95	—	50	—	—	—	—	—	74.5	47.5	21.5
93	93	—	48	—	—	—	—	—	74.0	46.5	19.5
91	91	—	46	—	—	—	—	—	73.5	45.0	17.0
89	89	—	44	—	—	—	—	—	72.5	43.5	14.5
87	87	—	42	—	—	—	—	—	72.0	42.0	12.5
85	85	—	40	—	—	—	—	—	71.0	41.0	10.0
83	83	—	38	—	—	—	—	—	70.5	39.5	7.5
81	81	—	36	—	—	—	—	—	70.0	38.0	5.5
79	79	—	34	—	—	—	—	—	69.0	36.5	3.0
78	78	—	32	—	—	—	—	—	68.5	35.5	1.0
77	77	—	30	—	—	—	—	—	67.5	34.0	-1.5

*This is for reference only and should not be used as a direct representation

**Majority of Conversions were based on ASTM E140

