

硬度表

Hardness Conversion Table (Steels)

Diameter of Brinell indent (mm)	Brinell hardness 10mm.load 3000kg	Vickers hardness	Rockwell hardness				Rockwell superficial hardness			Shore Hardness	Tensile Strength N/mm ² Approximate value
	Standard or Hultgren or Tungsten carbide ball		A	B	C	D	15-N	30-N	45-N		
			Scale	Scale	Scale	Scale	Scale	Scale	Scale		
			load 60kgf Diamond Penetration	load 100kgf (1.588mm) Ball	load 150kgf Diamond Penetration	load 100kgf Diamond Penetration	load 10kgf	load 30kgf	load 45kgf		
	HB	HV	HRA	HRB	HRC	HRD	HR15N	HR30N	HR45N	HS	
2.5	601 ⁽³⁾	640	79.8	-	57.3	68.7	89	75.1	63.5	77	2055
2.55	578 ⁽³⁾	615	79.1	-	56	67.7	88.4	73.9	62.1	75	1979
2.6	555 ⁽³⁾	591	78.4	-	54.7	66.7	87.8	72.7	60.6	73	1903
2.65	534 ⁽³⁾	569	77.8	-	53.5	65.8	87.2	71.6	59.2	71	1834
2.7	514 ⁽²⁾	553	77.1	-	52.5	65	86.7	70.7	58	-	1765
	514 ⁽³⁾	547	76.9	-	52.1	64.7	86.5	70.3	57.6	70	1765
2.75	495 ⁽¹⁾	539	76.7	-	51.6	64.3	86.3	69.9	56.9	-	1703
	495 ⁽²⁾	530	76.4	-	51.1	63.9	86	69.5	56.2	-	1703
	495 ⁽³⁾	528	76.3	-	51	63.8	85.9	69.4	56.1	68	1703
2.8	477 ⁽¹⁾	516	75.9	-	50.3	63.2	85.6	68.7	55.2	-	1641
	477 ⁽²⁾	508	75.6	-	49.6	62.7	85.3	68.2	54.5	-	1641
	477 ⁽³⁾	508	75.6	-	49.6	62.7	85.3	68.2	54.5	66	1641
2.85	461 ⁽¹⁾	495	75.1	-	48.8	61.9	84.9	67.4	53.5	-	1579
	461 ⁽²⁾	491	74.9	-	48.5	61.7	84.7	67.2	53.2	-	1579
	461 ⁽³⁾	491	74.9	-	48.5	61.7	84.7	67.2	53.2	65	1579
	444 ⁽¹⁾	474	74.3	-	47.2	61	84.1	66	51.7	-	1517
	444 ⁽²⁾	472	74.2	-	47.1	60.8	84	65.8	51.5	-	1517

2.9	444 ³⁾	472	74.2	-	47.1	60.8	84	65.8	51.5	63	1517
2.95	429	455	73.4	-	45.7	59.7	83.4	64.6	49.9	61	1462
3	415	440	72.8	-	44.5	58.8	82.8	63.5	48.4	59	1407
3.05	401	425	72	-	43.1	57.8	82	62.3	46.9	58	1351
3.1	388	410	71.4	-	41.8	56.8	81.4	61.1	45.3	56	1303
3.15	375	396	70.6	-	40.4	55.7	80.6	59.9	43.6	54	1255
3.2	363	383	70	-	39.1	54.6	80	58.7	42	52	1213
3.25	352	372	69.3	-110	37.9	53.8	79.3	57.6	40.5	51	1172
3.3	341	360	68.7	-109	36.6	52.8	78.6	56.4	39.1	50	1138
3.35	331	350	68.1	-108.5	35.5	51.9	78	55.4	37.8	48	1103
3.4	321	339	67.5	-108	34.3	51	77.3	54.3	36.4	47	1069
3.45	311	328	66.9	-107.5	33.1	50	76.7	53.3	34.4	46	1034
3.5	302	319	66.3	-107	32.1	49.3	76.1	52.2	33.8	45	1007
3.55	293	309	65.7	-106	30.9	48.3	75.5	51.2	32.4	43	979
3.6	285	301	65.3	-105.5	29.9	47.6	75	50.3	31.2	-	951
3.65	277	292	64.6	-104.5	28.8	46.7	74.4	49.3	29.9	41	924
3.7	269	284	64.1	-104	27.6	45.9	73.7	48.3	28.5	40	903
3.75	262	276	63.6	-103	26.6	45	73.1	47.3	27.3	39	883
3.8	255	269	63	-102	25.4	44.2	72.5	46.2	26	38	862
3.85	248	261	62.5	-101	24.2	43.2	71.7	45.1	24.5	37	841
3.9	241	253	61.8	100	22.8	42	70.9	43.9	22.8	36	820
3.95	235	247	61.4	99	21.7	41.4	70.3	42.9	21.5	35	800
4	229	241	60.8	98.2	20.5	40.5	69.7	41.9	20.1	34	779
4.05	223	234	-	97.3	-18.8	-	-	-	-	-	758
4.1	217	228	-	96.4	-17.5	-	-	-	-	33	738
4.15	212	222	-	95.5	-16	-	-	-	-	-	717
4.2	207	218	-	94.6	-15.2	-	-	-	-	32	696
4.25	201	212	-	93.8	-13.8	-	-	-	-	31	683
4.3	197	207	-	92.8	-12.7	-	-	-	-	30	669
4.35	192	202	-	91.9	-11.5	-	-	-	-	29	655
4.4	187	196	-	90.7	-10	-	-	-	-	-	641
4.45	183	192	-	90	-9	-	-	-	-	28	627
4.5	179	188	-	89	-8	-	-	-	-	27	614
4.55	174	182	-	87.8	-6.4	-	-	-	-	-	600

4.6	170	178	-	86.8	-5.4	-	-	-	-	26	586
4.65	167	175	-	86	-4.4	-	-	-	-	-	572
4.7	163	171	-	85	-3.3	-	-	-	-	25	565
4.8	156	163	-	82.9	-0.9	-	-	-	-	-	538
4.9	149	156	-	80.8	-	-	-	-	-	23	517
5	143	150	-	78.7	-	-	-	-	-	22	496
5.1	137	143	-	76.4	-	-	-	-	-	21	483
5.2	131	137	-	74	-	-	-	-	-	-	455
5.3	126	132	-	72	-	-	-	-	-	20	441
5.4	121	127	-	69.8	-	-	-	-	-	19	427
5.5	116	122	-	67.6	-	-	-	-	-	18	414
5.6	111	117	-	65.7	-	-	-	-	-	15	400
5.7	107 ¹⁾	113	-	64	-	-	-	-	-	-	379
5.8	103 ¹⁾	108	-	61	-	-	-	-	-	-	365

Notes:

1) Standard ball only

2) Hultgren ball only

3) Tungsten carbide ball only

Figures in parenthesis are rarely used, given for information only