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HARDNESS NUMBER CONVERSION CHART (for non-austenitic steels)

TRADEMARK



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HARDNESS NUMBER CONVERSION CHART¹ (for non-austenitic steels)

Brinell Hardness		Brinell Hardness Conversion to Rockwell Hardness		Brinell Hardness Conversion to Vickers Hardness	Estimated * Tensile Strength P.S.I.
Impression Diameter	Tungsten Carbide Ball 3000 KG	C Scale 150 KG	B Scale 100 KG	HV	
2.20	(782)**	68	-	940	368,000
2.25	(744)**	67	-	900	360,000
2.30	(713)**	65	-	832	354,000
2.35	(683)**	63	-	772	341,000
2.40	(652)**	62	-	746	329,000
2.45	(627)**	60	-	697	317,000
2.50	600	58	-	653	305,000
2.55	578	56	-	613	295,000
2.60	555	55	120	595	284,000
2.65	532	53	119	560	273,000
2.70	512	52	119	544	263,000
2.75	495	50	117	513	253,000
2.80	477	48	116	484	242,000
2.85	460	47	116	471	233,000
2.90	444	46	115	458	221,000
2.95	430	44	114	434	211,000
3.00	418	43	114	423	202,000
3.05	402	42	113	412	193,000
3.10	387	41	112	402	185,000
3.15	375	39	112	382	178,000
3.20	364	38	110	372	171,000
3.25	351	37	110	363	165,000
3.30	340	36	109	354	159,000
3.35	332	35	108	345	154,000
3.40	321	34	108	336	148,000
3.45	311	32	107	318	143,000
3.50	302	31	106	310	139,000

¹ Brinell impression diameters and hardness numbers derived from ASTM E 10; conversion to Rockwell and Vickers hardness numbers derived from ASTM E 140; approximate tensile strength derived from test records and various published tables.

* Hardness measurement tests only give a means to estimate tensile strength, not a means to estimate yield strength; Yield strength estimation requires, in addition to the hardness measurement, a knowledge of the chemistry and thermal history of the material tested.

** 22 RC, 99 RB, 237 HBW (read 235 in table), and 248 HV represent the important upper hardness limit for non austenitic steel for H2S service specified in NACE MRO175 and referenced in API Spec 6A. Some authorities may offer slightly different equivalent hardness numbers.

*** Parenthesis around a hardness number indicates the testing method has questionable accuracy in this range.

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Impression Diameter	Tungsten Carbide Ball 3000 KG	C Scale 150 KG	B Scale 100 KG	HV	
3.55	293	30	105	302	135,000
3.60	286	29	104	294	131,000
3.65	277	28	104	286	127,000
3.70	269	27	104	279	124,000
3.75	262	26	103	272	121,000
3.80	255	25	102	266	117,000
3.85	248	24	102	260	115,000
3.90	241	23	100	254	112,000
3.95	235	22**	99	248	109,000
4.00	228	21	98	243	107,000
4.05	223	20	97	238	105,000
4.10	217	(18)***	96	217	103,000
4.15	212	(17)***	96	212	100,000
4.20	207	(16)***	95	207	98,000
4.25	202	(15)***	94	202	96,000
4.30	196	(14)***	93	196	95,000
4.35	192	(12)***	92	192	93,000
4.40	187	(12)***	91	187	91,000
4.45	183	(11)***	90	183	89,000
4.50	179	(10)***	89	179	87,000
4.55	174	-	88	174	85,000
4.60	170	-	87	170	84,000
4.65	166	-	86	166	82,000
4.70	163	-	85	163	81,000
4.75	159	-	84	159	79,000
4.80	156	-	83	156	78,000
4.85	153	-	82	153	76,000

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Impression Diameter	Tungsten Carbide Ball 3000 KG	C Scale 150 KG	B Scale 100 KG	HV	
4.90	149	-	81	149	75,000
4.95	146	-	80	146	74,000
5.00	143	-	79	143	72,000
5.05	140	-	78	140	71,000
5.10	137	-	77	137	70,000
5.15	134	-	76	134	68,000
5.20	131	-	74	131	66,000
5.25	128	-	73	128	65,000
5.30	126	-	72	126	64,000
5.35	124	-	71	124	63,000
5.40	121	-	70	121	62,000
5.45	118	-	69	118	61,000
5.50	116	-	68	116	60,000
5.55	114	-	67	114	59,000
5.60	112	-	66	112	58,000
5.65	109	-	65	109	56,000
5.70	107	-	64	107	55,000
5.75	105	-	62	105	54,000
5.80	103	-	61	103	53,000
5.85	101	-	60	101	52,000
5.90	99	-	59	99	51,000
5.95	97	-	57	97	50,000

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