

# HARDNESS CONVERSION NUMBERS FOR STEEL

## BASED ON ROCKWELL HARDNESS

ROCKWELL	SCLEROSCOPE	BRINELL	TENSIL STRENGTH LBS./SQ. INCH
1	.....	158	80,000
2	.....	160	80,700
3	.....	162	81,500
4	.....	165	82,800
5	.....	168	84,000
6	.....	171	85,000
7	.....	174	87,000
8	28	177	88,000
9	28	180	89,200
10	29	183	90,600
11	29	186	91,800
12	29	190	93,800
13	30	193	95,000
14	30	197	96,800
15	30	201	98,500
16	31	206	100,500
17	32	210	102,400
18	32	215	104,600
19	33	220	106,800
20	33	225	109,000
21	34	230	110,100
22	35	235	113,200
23	36	241	115,800
24	36	247	118,500
25	37	253	121,200
26	38	259	124,000
27	39	265	126,500

ROCKWELL	SCLEROSCOPE	BRINELL	TENSIL STRENGTH LBS./SQ. INCH
28	40	272	129,500
29	41	279	133,000
30	42	286	135,000
31	43	294	139,500
32	44	301	142,300
33	45	309	146,000
34	46	318	150,000
35	47	327	153,800
36	48	337	158,000
37	50	347	162,800
38	51	357	167,800
39	52	367	173,500
40	53	377	179,600
41	54	387	186,000
42	56	398	193,000
43	57	408	200,000
44	58	419	206,500
45	59	430	213,400
46	61	442	221,000
47	62	453	231,600
48	63	464	236,600
49	65	476	245,500
50	66	488	255,500
51	67	500	263,500
52	69	512	273,000
53	70	524	283,000
54	71	536	.....

ROCKWELL	SCLEROSCOPE	BRINELL	TENSIL STRENGTH LBS./SQ. INCH
55	73	548	.....
56	74	561	.....
57	76	574	.....
58	77	584	.....
59	78	600	.....
60	80	613	.....
61	81	627	.....
62	82	.....	.....
63	84	.....	.....

### NOTE

Exact comparison between Rockwell and Brinell tests for hardness is impossible because of differences in methods of determination. This table is offered for approximation only. The figures are mostly derived from ordinary carbon and alloy steels and should not be applied to austenitic or highly alloyed steels.

**Brinell** hardness is the measurement of resistance to indentation. The machine prepresses a hardened steel ball into the metal being tested; the size of the impression is measured by its diameter.

**Rockwell** hardness is also the measurement of resistance to indentation. The load and the penetrator are both smaller than the Brinell test and the depth of the indentation is measured rather than the diameter.

**Scleroscope** hardness is determined by measuring the rebound of a diamond-pointed hammer which is dropped on the material being tested.