

HARDNESS CONVERSION CHART

Brinell	Diamond Pyramid Scale HV10 HV30	Rockwell Scale			Approx. Tensile Strength Comparison (Guide Only)			
		"C" Scale	"B" Scale	"A" Scale	Mpa N/mm2	Kg/mm2	Tons Per Sq Inch	1000lb per Sq Inch
116	122		67		401	42	26	58
121	127		70		432	44	28	63
126	132		72.5		448	46	29	65
131	137		75		455	47	29.5	66
137	143		77		463	48	30	67
143	150		80		479	49	31	69
149	156		82		494	51	32	72
156	163		84.2		525	54	34	76
163	171		86		540	55	35	78
170	178		88.5		556	57	36	81
179	188		91		602	62	39	88
187	196		93		632	65	41	92
197	212		96		664	68	43	97
207	218		97		695	71	45	101
212	222		98		710	73	46	103
217	228				741	76	48	107
223	234	20.8		60.7	756	77	49	110
229	241	22		61.6	772	79	50	112
235	247	23		62	787	81	51	114
241	255	24.3		62.6	818	84	53	118
248	261	25.2		34	849	87	55	123
255	269	26.6		63.6	865	89	56	125
262	275	27.5		64	895	91	58	130
269	284	29		64.6	911	93	59	132
277	292	29.8		65.2	942	96	61	136
285	300	30.9		65.7	973	99	63	141
293	308	32		66.2	988	101	64	143
302	318	33		66.8	1019	104	66	147
311	327	34		67.5	1050	107	68	152
321	337	35		68	1096	111	71	159
331	349	36.7		68.8	1127	114	73	163
341	359	37.7		69.2	1158	118	75	168
352	370	38.8		69.8	1189	121	77	172
363	381	39.9		70.3	1235	126	80	179
375	395	41.3		71	1266	129	82	183
388	408	42.4		71.5	1312	134	85	190
401	422	43.7		72.5	1359	139	88	197
415	437	44.8		73	1420	145	92	206
429	452	46		73.5	1467	150	95	212
444	470	47.5		74.2	1513	155	98	219
461	497	49.5		75.5	1559	160	101	226
477	517	50.7		76.3	1621	165	105	235
495	532	51.9		76.9	1668	170	108	241
514	572	54.4		78.2	1729	176	112	250
534	609	56.1		79	1807	184	117	262
555	630	57.1		79.6	1884	192	122	273
578	670	58.9		80.6	1961	200	127	284
601	698	60		81.2	2039	208	132	295
627	710	60.5		81.5				
630	725	61		81.8				
	740	61.7		82.2				
	760	62.5		82.6				
	780	63.3		83				
	800	64		83.4				

TOLERANCE TABLES

Most Common Steel Supply Tolerances

ISO h Tolerance (ISO 286-2)

Diameter (mm)	h6	h7	h8	h9	h10	h11	h12
Up to & Incl 3mm	-0.006/+0	-0.010/+0	-0.014/+0	-0.025/+0	-0.040/+0	-0.060/+0	-0.100/+0
3 < 6mm	-0.008/+0	-0.012/+0	-0.018/+0	-0.030/+0	-0.048/+0	-0.075/+0	-0.120/+0
6 < 10mm	-0.009/+0	-0.015/+0	-0.022/+0	-0.036/+0	-0.058/+0	-0.090/+0	-0.150/+0
10 < 18mm	-0.011/+0	-0.018/+0	-0.027/+0	-0.043/+0	-0.070/+0	-0.110/+0	-0.180/+0
18 < 30mm	-0.013/+0	-0.021/+0	-0.033/+0	-0.052/+0	-0.084/+0	-0.130/+0	-0.210/+0
30 < 50mm	-0.016/+0	-0.025/+0	-0.039/+0	-0.062/+0	-0.100/+0	-0.160/+0	-0.250/+0
50 < 80mm	-0.019/+0	-0.030/+0	-0.046/+0	-0.074/+0	-0.120/+0	-0.190/+0	-0.300/+0
80 < 120mm	-0.022/+0	-0.035/+0	-0.054/+0	-0.087/+0	-0.140/+0	-0.220/+0	-0.350/+0
120 < 180mm	-0.025/+0	-0.040/+0	-0.063/+0	-0.100/+0	-0.160/+0	-0.250/+0	-0.400/+0
180 < 250mm	-0.029/+0	-0.046/+0	-0.072/+0	-0.115/+0	-0.185/+0	-0.290/+0	-0.460/+0
250 < 315mm	-0.032/+0	-0.052/+0	-0.081/+0	-0.130/+0	-0.210/+0	-0.320/+0	-0.52/+0

ISO K Tolerance (ISO 286-2)

Diameter (mm)	K6	K7	K8	K9	K10	K11	K12
Up to & Incl 3mm	+0.006/-0	+0.010/-0	+0.014/-0	+0.025/-0	+0.040/-0	+0.060/-0	+0.100/-0
3 < 6mm	+0.009/+0.001	+0.013/+0.001	+0.018/-0	+0.030/-0	+0.048/-0	+0.075/-0	+0.120/-0
6 < 10mm	+0.010/+0.001	+0.016/+0.001	+0.022/-0	+0.036/-0	+0.058/-0	+0.090/-0	+0.150/-0
10 < 18mm	+0.012/+0.001	+0.023/+0.002	+0.027/-0	+0.043/-0	+0.070/-0	+0.110/-0	+0.180/-0
18 < 30mm	+0.015/+0.002	+0.027/+0.002	+0.033/-0	+0.052/-0	+0.084/-0	+0.130/-0	+0.210/-0
30 < 50mm	+0.018/+0.002	+0.032/+0.002	+0.039/-0	+0.062/-0	+0.100/-0	+0.160/-0	+0.250/-0
50 < 80mm	+0.021/+0.002	+0.038/+0.003	+0.046/-0	+0.074/-0	+0.120/-0	+0.190/-0	+0.300/-0
80 < 120mm	+0.025/+0.003	+0.043/+0.003	+0.054/-0	+0.087/-0	+0.140/-0	+0.220/-0	+0.350/-0
120 < 180mm	+0.028/+0.003	+0.050/+0.004	+0.063/-0	+0.100/-0	+0.160/-0	+0.250/-0	+0.400/-0
180 < 250mm	+0.033/+0.004	+0.050/+0.004	+0.072/-0	+0.115/-0	+0.185/-0	+0.290/-0	+0.460/-0
250 < 315mm	+0.036/+0.004	+0.056/+0.004	+0.081/-0	+0.130/-0	+0.210/-0	+0.320/-0	+0.520/-0

Other Tolerances

ISO j Tolerance (ISO 286-2)

Diameter (mm)	j5	j6	j7
Up to & Incl 3mm		+0.004/-0.002	+0.006/-0.004
3 < 6mm	+0.003/-0.002	+0.006/-0.002	+0.008/-0.004
6 < 10mm	+0.004/-0.002	+0.007/-0.002	+0.010/-0.005
10 < 18mm	+0.005/-0.003	+0.008/-0.002	+0.012/-0.006
18 < 30mm	+0.005/-0.004	+0.009/-0.004	+0.013/-0.008
30 < 50mm	+0.006/-0.005	+0.011/-0.005	+0.015/-0.010
50 < 80mm	+0.006/-0.007	+0.012/-0.007	+0.018/-0.012
80 < 120mm	+0.006/-0.009	+0.013/-0.009	+0.020/-0.015
120 < 180mm	+0.007/-0.011	+0.014/-0.011	+0.022/-0.018
180 < 250mm	+0.007/-0.013	+0.016/-0.013	+0.025/-0.021
250 < 315mm	+0.007/-0.016		