

# Comparison of Hardness

Tens. strength (N/mm <sup>2</sup> )	HRC	HB30	HV10
240		71	75
255		76	80
270		81	85
285		86	90
305		90	95
320		95	100
335		100	105
350		105	110
370		109	115
385		114	120
400		119	125
415		124	130
430		128	135
450		133	140
465		138	145
480		143	150
495		147	155
510		152	160
530		157	165
545		162	170
560		166	175
575		171	180
595		176	185
610		181	190
625		185	195
640		190	200
660		195	205
675		199	210
690		204	215
705		209	220
720		214	225
740		219	230
755		223	235
770		228	240
785		233	245
800	22	238	250
820	23	242	255
835	24	247	260
860	25	255	268
870	26	258	272
900	27	266	280
920	28	273	287

Tens. strength (N/mm <sup>2</sup> )	HRC	HB30	HV10
940	29	278	293
970	30	287	302
995	31	295	310
1020	32	301	317
1050	33	311	327
1080	34	319	336
1110	35	328	345
1140	36	337	355
1170	37	346	364
1200	38	354	373
1230	39	363	382
1260	40	372	392
1300	41	383	403
1330	42	393	413
1360	43	402	423
1400	44	413	434
1440	45	424	446
1480	46	435	458
1530	47	449	473
1570	48	460	484
1620	49	472	497
1680	50	488	514
1730	51	501	527
1790	52	517	544
1845	53	532	560
1910	54	549	578
1980	55	567	596
2050	56	584	615
2140	57	607	639
2180	58	622	655
	59		675
	60		698
	61		720
	62		745
	63		773
	64		800
	65		829
	66		864
	67		900
	68		940

## Tolerances to DIN ISO 286

		Nominal diameter range in µm/tolerances in µm										
		from 1 up to 3	over 3 up to 6	over 6 up to 10	over 10 up to 18	over 18 up to 30	over 30 up to 50	over 50 up to 80	over 80 up to 120	over 120 up to 180	over 180 up to 250	
Tolerances: Position and Grade	Shafts	h 6	0	0	0	0	0	0	0	0	0	0
			-6	-8	-9	-11	-13	-16	-19	-22	-25	-29
		h 7	0	0	0	0	0	0	0	0	0	0
			-10	-12	-15	-18	-21	-25	-30	-35	-40	-46
		h 8	0	0	0	0	0	0	0	0	0	0
			-14	-18	-22	-27	-33	-39	-46	-54	-63	-72
		h 9	0	0	0	0	0	0	0	0	0	
			-25	-30	-36	-43	-52	-62	-74	-87	-100	-115
		h 10	0	0	0	0	0	0	0	0	0	0
			-40	-48	-58	-70	-84	-100	-120	-140	-160	-185
		e 8*	-14	-20	-25	-32	-40	-50	-60	-72	-85	-100
			-28	-38	-47	-59	-73	-89	-106	-126	-148	-172

\*Milling cutters to tolerance e8 produce key slots to tolerance P9 with one cut.