ISO 286 tolerance chart: IT grades and common fits

Values in micrometres (µm). Size ranges are "over … up to and including …" (e.g. 18 mm falls in 10–18). Deviations follow ISO 286-1/-2; always check the standard for critical work.

Standard tolerance grades IT, µm

MM	IT5	IT6	IT7	IT8	IT9	IT10	IT11
0–3	4	6	10	14	25	40	60
3–6	5	8	12	18	30	48	75
6–10	6	9	15	22	36	58	90
10–18	8	11	18	27	43	70	110
18–30	9	13	21	33	52	84	130
30–50	11	16	25	39	62	100	160
50–80	13	19	30	46	74	120	190
80–120	15	22	35	54	87	140	220
120–180	18	25	40	63	100	160	250
180–250	20	29	46	72	115	185	290
250–315	23	32	52	81	130	210	320
315–400	25	36	57	89	140	230	360
400–500	27	40	63	97	155	250	400

Hole limit deviations, µm

MM	H7	H8	G7	F8	K7	N7	P7
0–3	+10 0	+14 0	+12 +2	+20 +6	0 -10	-4 -14	-6 -16
3–6	+12 0	+18 0	+16 +4	+28 +10	+3 -9	-4 -16	-8 -20
6–10	+15 0	+22 0	+20 +5	+35 +13	+5 -10	-4 -19	-9 -24
10–18	+18 0	+27 0	+24 +6	+43 +16	+6 -12	-5 -23	-11 -29
18–30	+21 0	+33 0	+28 +7	+53 +20	+6 -15	-7 -28	-14 -35
30–50	+25 0	+39 0	+34 +9	+64 +25	+7 -18	-8 -33	-17 -42
50–80	+30 0	+46 0	+40 +10	+76 +30	+9 -21	-9 -39	-21 -51
80–120	+35 0	+54 0	+47 +12	+90 +36	+10 -25	-10 -45	-24 -59

MM	H7	H8	G7	F8	K7	N7	P7
120–180	+40 0	+63 0	+54 +14	+106 +43	+12 -28	-12 -52	-28 -68
180–250	+46 0	+72 0	+61 +15	+122 +50	+13 -33	-14 -60	-33 -79
250–315	+52 0	+81 0	+69 +17	+137 +56	+16 -36	-14 -66	-36 -88
315–400	+57 0	+89 0	+75 +18	+151 +62	+17 -40	-16 -73	-41 -98
400–500	+63 0	+97 0	+83 +20	+165 +68	+18 -45	-17 -80	-45 -108

Shaft limit deviations, µm

MM	F7	G6	H6	H7	K6	M6	N6	P6
0–3	-6 -16	-2 -8	0 -6	0 -10	+6 0	+8 +2	+10 +4	+12 +6
3–6	-10 -22	-4 -12	0 -8	0 -12	+9 +1	+12 +4	+16 +8	+20 +12
6–10	-13 -28	-5 -14	0 -9	0 -15	+10 +1	+15 +6	+19 +10	+24 +15
10–18	-16 -34	-6 -17	0 -11	0 -18	+12 +1	+18 +7	+23 +12	+29 +18
18–30	-20 -41	-7 -20	0 -13	0 -21	+15 +2	+21 +8	+28 +15	+35 +22
30–50	-25 -50	-9 -25	0 -16	0 -25	+18 +2	+25 +9	+33 +17	+42 +26
50–80	-30 -60	-10 -29	0 -19	0 -30	+21 +2	+30 +11	+39 +20	+51 +32
80–120	-36 -71	-12 -34	0 -22	0 -35	+25 +3	+35 +13	+45 +23	+59 +37
120–180	-43 -83	-14 -39	0 -25	0 -40	+28 +3	+40 +15	+52 +27	+68 +43
180–250	-50 -96	-15 -44	0 -29	0 -46	+33 +4	+46 +17	+60 +31	+79 +50
250–315	-56 -108	-17 -49	0 -32	0 -52	+36 +4	+52 +20	+66 +34	+88 +56
315–400	-62 -119	-18 -54	0 -36	0 -57	+40 +4	+57 +21	+73 +37	+98 +62
400–500	-68 -131	-20 -60	0 -40	0 -63	+45 +5	+63 +23	+80 +40	+108 +68

Common fits: H7/g6 – precise sliding; H7/h6 – locational clearance; H8/f7 – running; H7/k6 and H7/n6 – transition; H7/p6 – press fit.

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