ISO-Fundamental tolerances

for bores and shafts

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Tolerance classes for bore	Nominal size range – ... 3	> 3 ... 6	> 6 ... 10	> 10 ... 18	> 18 ... 30	> 30 ... 50	> 50 ... 80	> 80 ... 120	> 120 ... 180	> 180 ... 250
D 9	+ 45 + 20	+ 60 + 30	+ 76 + 40	+ 93 + 50	+ 117 + 65	+ 142 + 80	+ 174 + 100	+ 207 + 120	+ 245 + 145	+ 285 + 170
D 12	+ 120 + 20	+ 150 + 30	+ 190 + 40	+ 230 + 50	+ 275 + 65	+ 330 + 80	+ 400 + 100	+ 470 + 120	+ 545 + 145	+ 630 + 170
E 8	+ 28 + 14	+ 38 + 20	+ 47 + 25	+ 59 + 32	+ 73 + 40	+ 89 + 50	+ 106 + 60	+ 126 + 72	+ 148 + 85	+ 172 + 100
F 7	+ 16 + 6	+ 22 + 10	+ 28 + 13	+ 34 + 16	+ 41 + 20	+ 50 + 25	+ 60 + 30	+ 71 + 36	+ 83 + 43	+ 96 + 50
G 6	+ 8 + 2	+ 12 + 4	+ 14 + 5	+ 17 + 6	+ 20 + 7	+ 25 + 9	+ 29 + 10	+ 34 + 12	+ 39 + 14	+ 44 + 15
G 7	+ 12 + 2	+ 16 + 4	+ 20 + 5	+ 24 + 6	+ 28 + 7	+ 34 + 9	+ 40 + 10	+ 47 + 12	+ 54 + 14	+ 61 + 15
H 7	+ 10 0	+ 12 0	+ 15 0	+ 18 0	+ 21 0	+ 25 0	+ 30 0	+ 35 0	+ 40 0	+ 46 0
H 8	+ 14 0	+ 18 0	+ 22 0	+ 27 0	+ 33 0	+ 39 0	+ 46 0	+ 54 0	+ 63 0	+ 72 0
H 9	+ 25 0	+ 30 0	+ 36 0	+ 43 0	+ 52 0	+ 62 0	+ 74 0	+ 87 0	+ 100 0	+ 115 0
H 10	+ 40 0	+ 48 0	+ 58 0	+ 70 0	+ 84 0	+ 100 0	+ 120 0	+ 140 0	+ 160 0	+ 185 0
H 11	+ 60 0	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0	+ 290 0
H 12	+ 100 0	+ 120 0	+ 150 0	+ 180 0	+ 210 0	+ 250 0	+ 300 0	+ 350 0	+ 400 0	+ 460 0
H 13	+ 140 0	+ 180 0	+ 220 0	+ 270 0	+ 330 0	+ 390 0	+ 460 0	+ 540 0	+ 630 0	+ 720 0
H 14	+ 250 0	+ 300 0	+ 360 0	+ 430 0	+ 520 0	+ 620 0	+ 740 0	+ 870 0	+1000 0	+1150 0
JS 9	+ 12,5 – 12,5	+ 15 – 15	+ 18 – 18	+ 21,5 – 21,5	+ 26 – 26	+ 31 – 31	+ 37 – 37	+ 43,5 – 43,5	+ 50 – 50	+ 57,5 – 57,5
N 9	– 4 – 29	0 – 30	0 – 36	0 – 43	0 – 52	0 – 62	0 – 74	0 – 87	0 – 100	0 – 115
P 9	– 6 – 31	– 12 – 42	– 15 – 51	– 18 – 61	– 22 – 74	– 26 – 88	– 32 – 106	– 37 – 124	– 43 – 143	– 50 – 165

Tolerances in µm

Tolerance classes for shaft	Nominal size range – ... 3	> 3 ... 6	> 6 ... 10	> 10 ... 18	> 18 ... 30	> 30 ... 50	> 50 ... 80	> 80 ... 120	> 120 ... 180	> 180 ... 250
f 7	– 6 – 16	– 10 – 22	– 13 – 28	– 16 – 34	– 20 – 41	– 25 – 50	– 30 – 60	– 36 – 71	– 43 – 83	– 50 – 96
f 9	– 6 – 31	– 10 – 40	– 13 – 49	– 16 – 59	– 20 – 72	– 25 – 87	– 30 – 104	– 36 – 123	– 43 – 143	– 50 – 165
g 6	– 2 – 8	– 4 – 12	– 5 – 14	– 6 – 17	– 7 – 20	– 9 – 25	– 10 – 29	– 12 – 34	– 14 – 39	– 15 – 44
h 6	0 – 6	0 – 8	0 – 9	0 – 11	0 – 13	0 – 16	0 – 19	0 – 22	0 – 25	0 – 29
h 7	0 – 10	0 – 12	0 – 15	0 – 18	0 – 21	0 – 25	0 – 30	0 – 35	0 – 40	0 – 46
h 8	0 – 14	0 – 18	0 – 22	0 – 27	0 – 33	0 – 39	0 – 46	0 – 54	0 – 63	0 – 72
h 9	0 – 25	0 – 30	0 – 36	0 – 43	0 – 52	0 – 62	0 – 74	0 – 87	0 – 100	0 – 115
h 11	0 – 60	0 – 75	0 – 90	0 – 110	0 – 130	0 – 160	0 – 190	0 – 220	0 – 250	0 – 290
h 13	0 – 140	0 – 180	0 – 220	0 – 270	0 – 330	0 – 390	0 – 460	0 – 540	0 – 630	0 – 720
h 14	0 – 250	0 – 300	0 – 360	0 – 430	0 – 520	0 – 620	0 – 740	0 – 870	0 –1000	0 –1150
js 14	+ 125 – 125	+ 150 – 150	+ 180 – 180	+ 215 – 215	+ 260 – 260	+ 310 – 310	+ 370 – 370	+ 435 – 435	+ 500 – 500	+ 575 – 575
n 6	+ 10 + 4	+ 16 + 8	+ 19 + 10	+ 23 + 12	+ 28 + 15	+ 33 + 17	+ 39 + 20	+ 45 + 23	+ 52 + 27	+ 60 + 31
p 6	+ 12 + 6	+ 20 + 12	+ 24 + 15	+ 29 + 18	+ 35 + 22	+ 42 + 26	+ 51 + 32	+ 59 + 37	+ 68 + 43	+ 79 + 50

Tolerances in µm