

TOLERANCE VALUES FOR METRIC FASTENERS

Ref: ISO R 286 - 1962, ISO 4759/I - 1978, ISO 4759/III - 1977, ISO 965/III - 1973, ISO 4579/II - 1979

Due to the manufacturing methods, a part cannot be manufactured precisely to a given dimension. It is considered acceptable if it is made within two permissible limits of size, the difference of which is the tolerance. A basic size is ascribed to the part and each of the two limits is defined by its deviation from this basic size. The magnitude and size of the deviation are obtained by subtracting the basic size from the limit in question.

Ref: ISO 4759/1 - 1978, DIN 267 - Part 2/1984

HOW TO GET TOLERANCE VALUES

To obtain a requested tolerance, locate your part and read indicated tolerance grade in question. Use the tables on this page to obtain tolerance value given in a line corresponding to the nominal dimension of your part.

NOMINAL DIMENSIONS mm OVER - TO	STANDARD TOLERANCES						
	IT VALUES mm						
	IT 11	IT 12	IT 13	IT 14	IT 15	IT 16	IT 17
3	0.06	0.10	0.14	0.25	0.40	0.60	1.00
3 - 6	0.075	0.12	0.18	0.30	0.48	0.75	1.20
6 - 10	0.09	0.15	0.22	0.36	0.58	0.90	1.50
10 - 18	0.11	0.18	0.27	0.43	0.70	1.10	1.80
18 - 30	0.13	0.21	0.33	0.52	0.84	1.30	2.10
30 - 50	0.16	0.25	0.39	0.62	1.00	1.60	2.50
50 - 80	0.19	0.30	0.46	0.74	1.20	1.90	3.00
80 - 120	0.22	0.35	0.54	0.87	1.40	2.20	3.50
120 - 180	0.25	0.40	0.63	1.00	1.80	2.50	4.00
180 - 250	0.29	0.46	0.72	1.15	1.85	2.90	4.60
250 - 315	0.32	0.52	0.81	1.30	2.10	3.20	5.20
315 - 400	0.36	0.57	0.89	1.40	2.30	3.60	5.70
400 - 500	0.36	0.63	0.97	1.55	2.50	4.00	6.30

Ref: ISO4759/1 - 1978, DIN 267 - Part 2

NOM. DIMENSIONS mm OVER - TO	TOLERANCE FIELDS mm																		
	FOR SHAFTS								FOR HOLES										
	h 11	h 12	h 13	h 14	h 15	h 16	h 17	js 14	js 15	js 16	js 17	D 12	E 11	E 12	H 11	H 12	H 13	H 14	H 15
3	0 -0.06	0 -0.10	0 -0.14	0 -0.25	0 -0.40	0 -0.60	0 -1.00	±0.12 5	±0.20	±0.30	±0.50	+0.12 -0.02	+0.074 +0.014	+0.100 +0.014	+0.06 0	+0.10 0	+0.14 0	+0.25 0	+0.40 0
3 - 6	0 -0.075	0 -0.12	0 -0.18	0 -0.30	0 -0.48	0 -0.75	0 -1.20	±0.15	±0.24	±0.375	±0.60	+0.15 +0.03	+0.095 +0.020	+0.140 +0.020	+0.075 0	+0.12 0	+0.18 0	+0.30 0	+0.48 0
6 - 10	0 -0.09	0 -0.15	0 -0.22	0 -0.36	0 -0.58	0 -0.90	0 -1.50	±0.18	±0.29	±0.45	±0.75	+0.19 +0.04	+0.115 +0.025	+0.175 +0.025	+0.09 0	+0.15 0	+0.22 0	+0.36 0	+0.58 0
10 - 18	0 -0.11	0 -0.18	0 -0.27	0 -0.43	0 -0.70	0 -1.10	0 -1.80	±0.215	±0.35	±0.55	0.90	+0.2 +0.05	+0.142 +0.032	+0.212 +0.032	+0.11 0	+0.18 0	+0.27 0	+0.43 0	+0.70 0
18 - 30	0 -0.13	0 -0.21	0 -0.33	0 -0.52	0 -0.84	0 -1.30	0 -2.10	±0.26	±0.42	±0.65	±1.05	+0.275 +0.065			+0.13 0	+0.21 0	+0.33 0	+0.52 0	+0.84 0
30 - 50	0 -0.16	0 -0.25	0 -0.39	0 -0.62	0 -1.00	0 -1.60	0 -2.50	±0.31	±0.50	±0.80	±1.25	+0.33 +0.08			+0.16 0	+0.25 0	+0.39 0	+0.62 0	+1.00 0
50 - 80	0 -0.19	0 -0.30	0 -0.46	0 -0.74	0 -1.20	0 -1.90	0 -3.00	±0.37	±0.60	±0.95	±1.50	+0.40 +0.10			+0.19 0	+0.30 0	+0.46 0	+0.74 0	+1.20 0
80 - 120	0 -0.22	0 -0.35	0 -0.54	0 -0.87	0 -1.40	0 -2.20	0 -3.50	±0.435	±0.70	±1.10	±1.75	+0.49 +0.12			+0.22 0	+0.35 0	+0.54 0	+0.87 0	+1.40 0
120 - 180	0 -0.25	0 -0.40	0 -0.63	0 -1.00	0 -1.60	0 -2.50	0 -4.00	±0.50	±0.80	±1.25	±2.00				+0.25 0	+0.40 0	+0.63 0	+1.00 0	+1.60 0
180 - 250	0 -0.29	0 -0.46	0 -0.72	0 -1.15	0 -1.85	0 -2.90	0 -4.60	±0.575	±0.925	±1.45	±2.30				+0.29 0	+0.46 0	+0.72 0	+1.15 0	+1.85 0
250 - 315	0 -0.32	0 -0.52	0 -0.81	0 -1.30	0 -2.10	0 -3.20	0 -5.20	±0.65	±1.05	±1.60	±2.60				+0.32 0	+0.52 0	+0.81 0	+1.30 0	+2.10 0
315 - 400	0 -0.36	0 -0.57	0 -0.89	0 -1.40	0 -2.30	0 -3.60	0 -5.70	±0.70	±1.15	±1.80	±2.85				+0.36 0	+0.57 0	+0.89 0	+1.40 0	+2.30 0
400 - 500	0 -0.40	0 -0.63	0 -0.97	0 -1.55	0 -2.50	0 -4.00	0 -6.30	±0.775	±1.25	±2.00	±3.15				+0.40 0	+0.63 0	+0.97 0	+1.55 0	+2.50 0