

## General tolerances for linear and angular dimensions

According to DIN ISO 2768-1



**General tolerances for linear measures** and level squares with four tolerance classes are useful for simplifying drawings. By choosing the tolerance class precision levels common in workshops should be taken into account.

**If smaller tolerances are needed or bigger ones are more economical,** then these tolerances are indicated next to the nominal size.

**Tabular 1** Limits for linear measures

Tolerance class	Limits in mm for nominal sizes in mm							
	0,5 to 3	above 3 to 6	above 6 to 30	above 30 to 120	above 120 to 400	above 400 to 1000	above 1000 to 2000	above 2000 to 4000
f (fine)	± 0,05	± 0,05	± 0,1	± 0,15	± 0,2	± 0,3	± 0,5	-
m (medium)	± 0,1	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2
c (coarse)	± 0,15	± 0,2	± 0,5	± 0,8	± 1,2	± 2	± 3	± 4
v (very coarse grob)	-	± 0,5	± 1	± 1,5	± 2,5	± 4	± 6	± 8

For nominal sizes below 0,5 mm the limit measures are to be indicated directly at the nominal measure.

**Tabular 2** Limit measures for radius of curvature and chamfer height

Tolerance class	Limits in mm for nominal sizes in mm		
	0,5 to 3	above 3 to 6	above 6
f (finne)	± 0,2	± 0,5	± 1
m (medium)	± 0,2	± 0,5	± 1
c (coarse)	± 0,4	± 1	± 2
v (very coarse)	± 0,4	± 1	± 2

For nominal sizes below 0,5 mm the limit measures are to be indicated directly at the nominal measure.

**Tabular 3** Limits for angular measures

Tolerance class	Limits in mm for nominal sizes in mm				
	to 10	above 10 to 50	above 50 to 120	above 50 to 400	above 400
f (fine)	± 1 °	± 30 '	± 20 '	± 10 '	± 5 '
m (medium)	± 1 °	± 30 '	± 20 '	± 10 '	± 5 '
c (coarse )	± 1 ° 30 '	± 1 °	± 30 '	± 15 '	± 10 '
v (very coarse)	± 3 °	± 2 °	± 1 °	± 30 '	± 20 '

For nominal sizes below 0,5 mm the limit measures are to be indicated directly at the nominal measure. If general tolerances according to ISO 2768-1 are valid, the following has to be inserted: in the title box, i.e. for tolerance class medium **ISO 2768 – m** or general tolerance **ISO 2768 – m**

For new designs only the general tolerance according to DIN ISO 2768-1 should be valid. The limit measurements of the tolerance classes m and f of DIN ISO 2768-1 are identic with those of DIN 7168-1.



## General tolerances for form and position

according to DIN ISO 2768-2

**DIN ISO 2768-2 is for simplifying drawing** and fixes general tolerances in three tolerance classes for form and position. By choosing a special tolerance class exactly the precision level common in workshops should be taken into account.

**If smaller tolerances are needed or bigger are more economical** these tolerances should be mentioned directly according to ISO 1101.

**General tolerances for form and position should be used** while the tolerance principle according to ISO 8015 is valid and while this is mentioned in the drawing. This tolerance principles says that no opposite relation between measure, form and position tolerance exists (principle of superposition).

Tolerance class	General tolerances for straightness and evenness in mm					
	Range of specified size in mm					
	to 10	above 10 to 30	above 30 to 100	above 100 to 300	above 300 to 1000	above 1000 to 3000
H	0,02	0,05	0,1	0,2	0,3	0,4
K	0,05	0,1	0,2	0,4	0,6	0,8
L	0,1	0,2	0,4	0,8	1,2	1,6
Tolerance class	General tolerances for straightness and evenness in mm					
	Range of specified size in mm					
		to 100	above 100 to 300	above 300 to 1000	above 1000 to 3000	
H		0,2	0,3	0,4	0,5	
K		0,4	0,6	0,8	1	
L		0,6	1	1,5	2	
Tolerance class	General tolerances for symmetry					
	Range of specified size in mm					
		to 100	above 100 to 300	above 300 to 1000	above 1000 to 3000	
H		0,5				
K		0,6	0,8	1		
L		0,6	1	1,5	2	

**General tolerances for form and position are valid for form** elements for which form and position tolerances are not indicated individually. They are applicable for all characteristics of the form elements accept cylinders, profiles of any line or surfaces, inclines, coaxiality, position and total movement.

**Eng. Rami Khalil**

Mechanical design and production engineer

[www.engramikhalil.weebly.com](http://www.engramikhalil.weebly.com)

[eng.ramikhalil@gmail.com](mailto:eng.ramikhalil@gmail.com)

00961 76 610 384