

According to **DIN ISO 2768-1**

The total tolerance for linear measurements and the square with four tolerance levels are useful for simplifying the drawing. Consideration should be given to selecting tolerance level accuracy standards in the shop.

If smaller tolerances are required or larger tolerances are more economical, then these tolerances are almost always stated in nominal dimensions.

Table 1 Limitations of linear measurements

Tolerance class	Permissible deviations in mm for ranges in nominal lengths							
	0.5 up to 3	over 3 up to 6	over 6 up to 30	over 30 up to 120	over 120 up to 400	over 400 up to 1000	over 1000 up to 2000	over 2000 up 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)	--	±0.5	±1	±1.5	±2.5	±4	±6	±8

For nominal dimensions below 0.5 mm, the limiting measurement shall be marked directly on the nominal measurement.

Table 2 Limitations on radian and fillet height measurements.

Tolerance class	Permissible deviations in mm for ranges in nominal lengths		
	0.5 up to 3	over 3 up to 6	over 6
f (fine)	±0.2	±0.5	±1
m (medium)			
c (coarse)	±4	±1	±2
v (very coarse)			

Table 3 ANGULAR DIMENSIONS

Tolerance class	Permissible deviations in mm for ranges in nominal lengths				
	up to 10	over 10 up to 50	over 50 up to 120	over 120 up to 400	over 400
f (fine)	±1°	±30'	±20'	±10'	±5'
m (medium)					
c (coarse)	±1°30'	±1°	±30'	±15'	±10'
v (very coarse)	±3°	±2°	±1°	±30'	±20'

For nominal dimensions below 0.5 mm, the limiting measurement shall be marked directly on the nominal measurement.

If the overall tolerance is valid in accordance with ISO 2768-1, the following relevant information must be inserted in the title bar, i.e. regarding tolerance class "m".

ISO 2768—m or total tolerance ISO 2768—m

For new designs in accordance with DIN ISO 2768-1, the overall tolerances shall be valid. The tolerance classes "m" and "f" of DIN ISO 2768-1 are identical to those of DIN 7168-1.

Total tolerances on shape and position according to DIN ISO 2768-2

DIN ISO 2768-2 To simplify drawings and determine the total tolerance in three tolerance positions regarding shape and position. By accurately selecting the special tolerance class, the level of workmanship should be taken into account.

If smaller tolerances are required or larger tolerances are more economical, these tolerances should be addressed directly in accordance with ISO 1101.

When a tolerance standard in accordance with ISO 8015 is valid and it is mentioned in a drawing, the total tolerance with respect to shape and position shall be used. This tolerance standard states that there is no antagonistic relationship between measurement, shape and position tolerances. (Principle of superposition)

Table 4 STRAIGHTNESS AND FLATNESS

Tolerance class	Ranges in nominal lengths in mm					
	up to 10	over 10 up to 30	over 30 up to 100	over 100 up to 300	over 300 up to 1000	over 1000 up 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

Table 5 PERPENDICULARITY

Tolerance class	Ranges in nominal lengths in mm			
	up to 100	over 100 up to 300	over 300 up to 1000	over 1000 up 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

Table 6 SYMMETRY

Tolerance class	Ranges in nominal lengths in mm			
	up to 100	over 100 up to 300	over 300 up to 1000	over 1000 up to 3000
H	0.5			
K	0.6		0.8	1
L	0.6	1	1.5	2