ISO 2768 General Tolerance Standards

1 Introduction

The ISO 2768 standard is intended to simplify drawing indications and specifies general tolerances for linear and angular dimensions without individual tolerance indications.

- **ISO 2768-1**: Applies to linear and angular dimensions.
- **ISO 2768-2**: Applies to geometrical tolerances such as straightness, flatness, perpendicularity, etc.

2 ISO 2768-1: Linear & Angular Dimensions

2.1 Linear Dimensions

Table 1: Permissible deviations for linear dimensions

Nominal Length Range	**Tolerance Class**			
[mm]	**f** (fine) [mm]	**m** (medium) [mm]	**c** (coarse) [mm]	**v** (very coarse) [mm]
0.5 up to 3	± 0.05	± 0.1	± 0.2	–
over 3 up to 6	± 0.05	± 0.1	± 0.3	± 0.5
over 6 up to 30	± 0.1	± 0.2	± 0.5	± 1.0
over 30 up to 120	± 0.15	± 0.3	± 0.8	± 1.5
over 120 up to 400	± 0.2	± 0.5	± 1.2	± 2.5
over 400 up to 1000	± 0.3	± 0.8	± 2.0	± 4.0
over 1000 up to 2000	± 0.5	± 1.2	± 3.0	± 6.0
over 2000 up to 4000	–	± 2.0	± 4.0	± 8.0

2.2 External Radii and Chamfer Heights

2.3 Angular Dimensions

Table 2: Permissible deviations for external radii and chamfer heights

Nominal Length Range	**Tolerance Class**		
[mm]	**f** (fine) & **m** (medium) [mm]	**c** (coarse) [mm]	**v** (very coarse) [mm]
0.5 up to 3	± 0.2	± 0.4	± 0.4
over 3 up to 6	± 0.5	± 1.0	± 1.0
over 6	± 1.0	± 2.0	± 2.0

Table 3: Permissible deviations for angular dimensions (Shortest side reference)

Length Range (Shortest Side)	**Tolerance Class**		
	f (fine) & **m** (medium)	**c** (coarse)	**v** (very coarse)
up to 10	$\pm 1^\circ$	$\pm 1^\circ 30'$	$\pm 3^\circ$
over 10 up to 50	$\pm 0^\circ 30'$	$\pm 1^\circ$	$\pm 2^\circ$
over 50 up to 120	$\pm 0^\circ 20'$	$\pm 0^\circ 30'$	$\pm 1^\circ$
over 120 up to 400	$\pm 0^\circ 10'$	$\pm 0^\circ 15'$	$\pm 0^\circ 30'$
over 400	$\pm 0^\circ 5'$	$\pm 0^\circ 10'$	$\pm 0^\circ 20'$

3 ISO 2768-2: Geometrical Tolerances

3.1 Straightness and Flatness

3.2 Perpendicularity

3.3 Symmetry

3.4 Circular Run-Out

Table 4: General tolerances on straightness and flatness

Nominal Length Range	**Tolerance Class**		
[mm]	**H**	**K**	**L**
	[mm]	[mm]	[mm]
up to 10	0.02	0.05	0.1
over 10 up to 30	0.05	0.1	0.2
over 30 up to 100	0.1	0.2	0.4
over 100 up to 300	0.2	0.4	0.8
over 300 up to 1000	0.3	0.6	1.2
over 1000 up to 3000	0.4	0.8	1.6

Table 5: General tolerances on perpendicularity

Nominal Length Range	**Tolerance Class**		
[mm]	**H**	**K**	**L**
	[mm]	[mm]	[mm]
up to 100	0.2	0.4	0.6
over 100 up to 300	0.3	0.6	1.0
over 300 up to 1000	0.4	0.8	1.5
over 1000 up to 3000	0.5	1.0	2.0

Table 6: General tolerances on symmetry

Nominal Length Range	**Tolerance Class**		
[mm]	**H**	**K**	**L**
	[mm]	[mm]	[mm]
up to 100	0.5	0.6	0.6
over 100 up to 300	0.5	0.6	1.0
over 300 up to 1000	0.5	0.8	1.5
over 1000 up to 3000	0.5	1.0	2.0

Table 7: General tolerances on circular run-out

	Tolerance Class		
	H	**K**	**L**
Run-out Tolerance [mm]	0.1	0.2	0.5