

4. DIMENSIONAL CONTROL

At the end of the manufacturing processes, **all our parts are systematically visually and dimensionally inspected in accordance with the approved drawings.** Our control devices are periodically checked by a metrology laboratory.

In addition to the standard testing devices, we have the following items:

- MITUTOYO measuring column,
- MAHR roughness meter,
- FARO 3D measuring arm,
- MAHR Marsurf CD120 profilometer,
- ZEISS DuraMax measuring machine,
- MITUTOYO profile projector.

The dimensional and geometric aspects of our parts meet the corresponding tolerance standards.



General tolerances (machining) according to ISO 2768

LINEAR DIMENSIONS (mm)						Broken angles			Angular dimensions			
						Radius - Bevels			Dimension of the shortest side			
Accuracy class	0.5 to 3 inclusive	3 to 6	6 to 30	30 to 120	120 to 400	0.5 to 3 inclusive	3 to 6	> 6	< 10	10 to 50 inclusive	50 to 120	120 to 400
f (thin)	± 0.05	± 0.05	± 0.1	± 0.15	± 0.2	± 0.2	± 0.5	± 1	± 1°	± 30'	± 20'	± 10'
m (medium)	± 0.1	± 0.1	± 0.2	± 0.30	± 0.5	± 0.2	± 0.5	± 1				
c (wide)	± 0.2	± 0.3	± 0.5	± 0.80	± 1.2	± 0.4	± 1	± 2	± 1°30'	± 1°	± 30'	± 15'
v (very wide)	-	± 0.5	± 1	± 1.5	± 2.5	± 0.4	± 1	± 2	± 3°	± 2°	± 1°	± 30'

GEOMETRIC TOLERANCES (mm)												
Tolerances	—					⊥			≡			↗↘ Radial Axis
Accuracy class	< 10	10 to 30	30 to 100	100 to 300	300 to 1000	< 100	100 to 300	300 to 1000	< 100	100 to 300	300 to 1000	All dimensions
H (thin)	0.02	0.06	0.1	0.2	0.3	0.2	0.3	0.4	0.5	0.5	0.5	0.1
K (medium)	0.05	0.1	0.2	0.4	0.6	0.4	0.6	0.8	0.6	0.6	0.8	0.2
L (wide)	0.1	0.2	0.4	0.8	1.2	0.6	1	1.5	0.6	1	1.5	0.5

General tolerances for welded constructions according to ISO 13920

Linear dimensions											
NOMINAL DIMENSIONS l (in mm)											
Accuracy class	2 to 30	> 30 to 120	> 120 to 400	> 400 to 1000	> 1000 to 2000	> 2000 to 4000	> 4000 to 8000	> 8000 to 12000	> 12000 to 16000	> 16000 to 20000	> 20000
	Tolerances t (in mm)										
A	± 1	± 1	± 1	± 2	± 3	± 4	± 5	± 6	± 7	± 8	± 9
B		± 2	± 2	± 3	± 4	± 6	± 8	± 10	± 12	± 14	± 16
C		± 3	± 4	± 6	± 8	± 11	± 14	± 18	± 21	± 24	± 27
D		± 4	± 7	± 9	± 12	± 16	± 21	± 27	± 32	± 36	± 40

Angular dimensions							
NOMINAL DIMENSIONS l (in mm) Shortest side length				NOMINAL DIMENSIONS l (in mm) Shortest side length			
Accuracy class	< 400	> 400 to 1000	> 1000	Classe de tolérance	< 400	> 400 to 1000	> 1000
	Tolerances Δα (in degrees and minutes)				Calculated and rounded tolerances t (in mm/m) ¹		
A	± 20'	± 15'	± 10'	A	± 6	± 4.5	± 3
B	± 45'	± 30'	± 20'	B	± 13	± 9	± 6
C	± 1°	± 45'	± 30'	C	± 18	± 13	± 9
D	± 1°30'	± 1°15'	± 1°	D	± 26	± 22	± 18

⁽¹⁾ The value indicated in millimeters per meter corresponds to the tangent value of the general tolerance. It should be multiplied by the length, in meters, of the shortest side.

