

[TECHNICAL DATA]

GENERAL DIMENSIONAL TOLERANCES FOR PARTS FORMED BY PRESS WORKING FROM SHEET METAL AND SHEAR FROM METAL PLATES

Excerpt from JIS B 0408/0410(1991)

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GENERAL DIMENSIONAL TOLERANCE

Excerpt from JIS B 0405/0419(1991)

1. General dimensional tolerances for parts formed by press working from sheet metal JIS B 0408 —1991

Table 1. General dimensional tolerance of blanking Unit : mm

Basic size step	Grades		
	Grade A	Grade B	Grade C
6 or less	±0.05	±0.1	±0.3
Over 6 to 30 incl.	±0.1	±0.2	±0.5
Over 30 to 120 incl.	±0.15	±0.3	±0.8
Over 120 to 400 incl.	±0.2	±0.5	±1.2
Over 400 to 1000 incl.	±0.3	±0.8	±2
Over 1000 to 2000 incl.	±0.5	±1.2	±3

Note : Grade A, B and C are equal to tolerance grade f, m and c of JIS B 0405 respectively.

Table 2. adimensional tolerance of bending and drawing Unit : mm

Basic size step	Grades		
	Grade A	Grade B	Grade C
6 or less	±0.1	±0.3	±0.5
Over 6 to 30 incl.	±0.2	±0.5	±1
Over 30 to 120 incl.	±0.3	±0.8	±1.5
Over 120 to 400 incl.	±0.5	±1.2	±2.5
Over 400 to 1000 incl.	±0.8	±2	±4
Over 1000 to 2000 incl.	±1.2	±3	±6

Note : Grade A, B and C are equal to tolerance grade m, c and v of JIS B 0405 respectively.

2. General tolerances for parts formed by shear from metal plates JIS B 0410 —1991

Table 1. General dimensional tolerance of cut width Unit : mm

Basic size step	Board thickness (t)							
	t ≤ 1.6		1.6 < t ≤ 3		3 < t ≤ 6		6 < t ≤ 12	
	Grades							
	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B
30 or less	±0.1	±0.3	—	—	—	—	—	—
Over 30 to 120 incl.	±0.2	±0.5	±0.3	±0.5	±0.8	±1.2	—	±1.5
Over 120 to 400 incl.	±0.3	±0.8	±0.4	±0.8	±1	±1.5	—	±2
Over 400 to 1000 incl.	±0.5	±1	±0.5	±1.2	±1.5	±2	—	±2.5
Over 1000 to 2000 incl.	±0.8	±1.5	±0.8	±2	±2	±3	—	±3
Over 2000 to 4000 incl.	±1.2	±2	±1.2	±2.5	±3	±4	—	±4

Table 2. General tolerance of straightness Unit : mm

Nominal length on cut dimension	Board thickness (t)							
	t ≤ 1.6		1.6 < t ≤ 3		3 < t ≤ 6		6 < t ≤ 12	
	Grades							
	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B
30 or less	0.1	0.2	—	—	—	—	—	—
Over 30 to 120 incl.	0.2	0.3	0.2	0.3	0.5	0.8	—	1.5
Over 120 to 400 incl.	0.3	0.5	0.3	0.5	0.8	1.5	—	2
Over 400 to 1000 incl.	0.5	0.8	0.5	1	1.5	2	—	3
Over 1000 to 2000 incl.	0.8	1.2	0.8	1.5	2	3	—	4
Over 2000 to 4000 incl.	1.2	2	1.2	2.5	3	5	—	6

Table 3. General tolerance of perpendicularity Unit : mm

Nominal length on shorter side	Board thickness (t)					
	t ≤ 3		3 < t ≤ 6		6 < t ≤ 12	
	Grades					
	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B
30 or less	—	—	—	—	—	—
Over 30 to 120 incl.	0.3	0.5	0.5	0.8	—	1.5
Over 120 to 400 incl.	0.8	1.2	1	1.5	—	2
Over 400 to 1000 incl.	1.5	3	2	3	—	3
Over 1000 to 2000 incl.	3	6	4	6	—	6
Over 2000 to 4000 incl.	6	10	6	10	—	10

1. General dimensional tolerance of cutting JIS B 0405 —1991

Length dimensional tolerance (excluding chamfered parts) Unit : mm

Degree	Symbol	Explanation	Basic size step							
			0.5 ⁽¹⁾ to 3 incl.	Over 3 to 6 incl.	Over 6 to 30 incl.	Over 30 to 120 incl.	Over 120 to 400 incl.	Over 400 to 1000 incl.	Over 1000 to 2000 incl.	Over 2000 to 4000 incl.
			Tolerance							
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		±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
v	Very coarse		—	±0.5	±1	±1.5	±2.5	±4	±6	±8

Note (1) : Tolerance for standard dimensions of less than 0.5mm shall be specified individually.

2. Length dimensional tolerance in chamfered parts **3. Tolerance of angle dimension (corner roundness or chamfer dimension)**

Unit : mm

Degree	Symbol	Explanation	Basic size step			Shorter side of corner						
			0.5 ⁽¹⁾ to 3 incl.	Over 3 to 6 incl.	Over 6	10 or less	Over 10 to 50 incl.	Over 50 to 120 incl.	Over 120 to 400 incl.	Over 400		
			Tolerance					Tolerance				
f	Fine		±0.2	±0.5	±1	±1°	±30'	±20'	±10'	±5'		
m	Medium											
c	Coarse					±1° 30'	±1°	±30'	±15'	±10'		
v	Very coarse					±3°	±2°	±1°	±30'	±20'		

Note (1) : Tolerance for standard dimensions of less than 0.5mm shall be specified individually.

4. General tolerance of perpendicularity

JIS B 0419 —1991 Unit : mm

Degree	Nominal length on shorter side			
	100 or less	Over 100 to 300 incl.	Over 300 to 1000 incl.	Over 1000 to 3000 incl.
	Perpendicularity tolerance			
H	0.2	0.3	0.4	0.5
K	0.4	0.6	0.8	1
L	0.6	1	1.5	2

5. General tolerance of straightness and flatness

JIS B 0419 —1991 Unit : mm

Degree	Nominal area					
	10 or less	Over 10 to 30 incl.	Over 30 to 100 incl.	Over 100 to 300 incl.	Over 300 to 1000 incl.	Over 1000 to 3000 incl.
	Straightness and flatness tolerance					
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