

Mounting Plates / Brackets

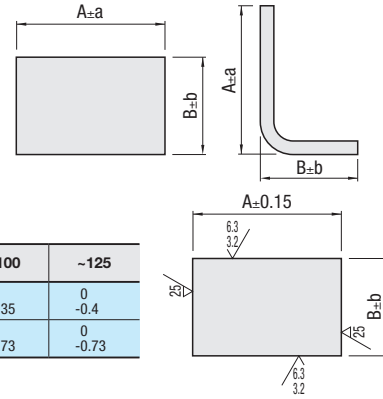
Overview

1. Standard machined dimension tolerances, and thickness tolerances of sheet metals, flat bars, and rolled material.

<Standard Machined Dimension Tolerances>

Product	Dimension Range (A & B Dim.)	6 or less	Over 6, and 30 or less	Over 30, and 120 or less	Over 120, and 400 or less
Sheet Metal (No bends) Flat Bars (Width Configurable) Rolled Aluminum, 6 Surface Milled L Angle - Welded	Allowable Tolerance (a, b)	±0.1	±0.2	±0.3	±0.5
Sheet Metal (Bent Products)	Allowable Tolerance (a, b)	±0.3	±0.5	±0.8	±1.2

* For sheet metals, JIS B 0408 General dimensional tolerances for parts formed by press working from sheet metal class B tolerance is used.
* For others, JIS B 0405 Standard Machining Tolerances Class: Medium (m) is used.



Product	Dimension Range (B Dim.)	Material	-16	-25	-50	-60	-100	-125
Flat Bars (Width Selectable)	Allowable Tolerance (b)	1018 Carbon Steel	0	0	0	0	0	0
		1045 Carbon Steel	-0.18	-0.21	-0.25	-0.3	-0.35	-0.4
		304 Stainless Steel	0	0	0	0	0	0
		304 Stainless Steel	-0.27	-0.33	-0.39	-0.73	-0.73	-0.73

<Plate Thickness Tolerance>

Product	Material	Plate Thickness							
		1.0-4.5	5	6	10	12	15, 16, 19	20	
Sheet Metal	All materials	Since as material, ±thickness×0.1 will be the reference.							
Flat Bars (Width Selectable - Configurable)	1018 Carbon Steel	-	0	0	-	0	0	-	
	1045 Carbon Steel	-	-0.18	-0.18	-	-0.22	-0.27	-0.3	
	304 Stainless Steel	-	0	0	-	0	0	-	
	304 Stainless Steel	-	-0.3	-0.3	-	-0.22	-0.27	-0.33	
Rolled Material	5052 Aluminum Alloy	-	±0.35	±0.45	±0.5	±0.6	±0.7	±0.7	
		-	±0.35	±0.45	±0.5	±0.6	±0.7	±0.7	

* Although there may be listings in some of the cells, some material may not apply to the indicated thickness. For corresponding thickness details, see each product page.

2. Hole Type

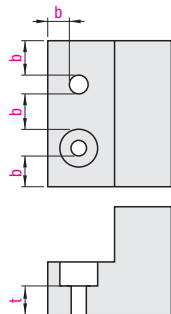
Hole Type	Bolt Hole	Counterbored Holes	Through Hole	Tapped Holes (Coarse Thread)
Code	N, NA	Z, ZF, ZB, ZBA	D, DA	M, MA
Shape Diagram				
Details	Through hole for screws / bolts. Use bolt nominal diameter for specifying. (*) See chart on right for machining dimensions)	Counterbored hole for screws / bolts. Use bolt nominal diameter for specifying. (*) See chart on right for machining dimensions)	Through hole that the diameter can be specified in 0.5mm or 1mm increments.	Coarse Thread Tap. Use tap hole size for specifying.

⚠ Bolt through hole (N, NA), Counterbored hole (Z, ZF, ZB) nominal diameter machining dimensions

Screw Nominal Size	Machining Dimensions	
	d, h	d1
3	3.5	6.5
4	4.5	8
5	5.5	9.5
6	6.5	11
8	9	14
10	11	18
12	14	20
14	16	23
16	18	26

Effective tap depth will be the max. nominal tap dia.x2.
EX.) Specify M6 → Effective depth is 12

3-1. Machining Limits: Flat Bars, Rolled Aluminum Material, 6-Surface Milled, L Angles, and Welded



⚠ Machining below the indicated limits is not possible.

■ b Conditional Values

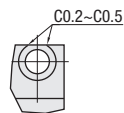
Hole Type, Code	Specified Values	Specified Values (Nominal) b Conditional Values								
		3	4	5	6	8	10	12	14	16
Tapped Holes	M, MA	0.8	0.8	0.8	1	1	1	1	1.5	1.5
Bolt Hole	N, NA	0.8	0.8	1	1	1	1	1	1	1
Counterbored Holes	Z, ZF, ZB	0.8	0.8	1	1	1	1	1	1	1

Hole Type, Code	Specified Values	Specified Values (Hole Diameter) b Conditional Values			
		3.0-5.0	5.1-25.0	25.1-50.0	50.5-100.0
Through Hole	D, DA	0.8	1	2	3
Precision Hole (H7)	DC, DFC	1.5	2	3	4

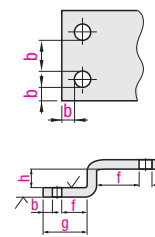
■ t Conditional Values

Hole Type, Code	Specified Values	Specified Values (Nominal) t Conditional Values								
		3	4	5	6	8	10	12	14	16
Counterbored Holes	Z, ZF, ZB	0.8	0.8	0.8	1	1	1	1	1.5	1.5

⚠ When counterbore and wall thickness is less than 0.5, the counterbore may break through.



3-2. Machining Limits: Sheet Metal



⚠ Machining below the indicated limits is not possible.

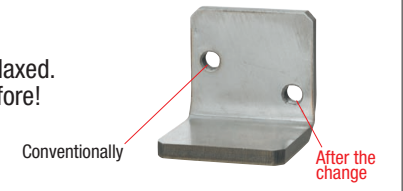
Plate Thickness	f (Distance between the Hole and the Bend)									
	Through Hole		Tapped Holes		Toleranced Hole/Slotted Hole Parallel to Bend		b (Distance between the Hole and the End Face)			
Low Carbon Steel	5052 Aluminum Alloy	304 Stainless Steel (2B)	L Bend	Z, Convex Bend	L Bend	Z, Convex Bend	h	g		
1.0	-	1.0	2	3	3	5.5	3.5	1	5.5	5.5
1.6	1.5	1.5	2	3.5	3	6	4	1	6	6
2.3	2.0	2.0	2	4.5	3	7	5	1.5	7	7
3.2	3.0	3.0	2	6.5	3	9	7	1.5	9	9
4.5	4.0	4.0	3	7.5	4	11	8 (9)	2	11	11
6.0	5.0	5.0	3	14	4	16	15	2.5	16	18

⚠ Slotted hole f parallel to T4.0 - 4.5 will be (9)

⚠ The hole may be deformed if specified at the limit value shown above.



- Notice -
L bending machining limits have been greatly relaxed.
Holes can be placed closer to the bends than before!

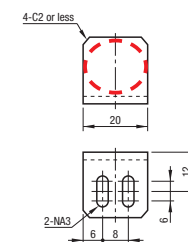
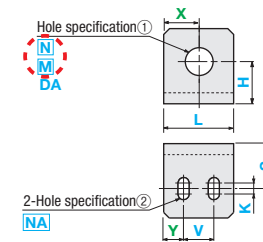


4. Hole specifying example

① □ enclosed symbol hole specification are available to eliminate holes.

Specifying Method Specify hole position parameters and hole as 0.

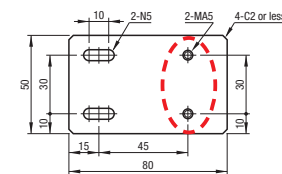
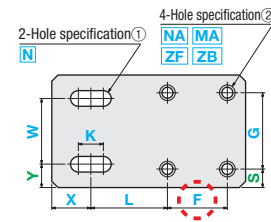
Order Example FASBS-SP-T2.3-A20-B20-L20-X0-H0-N0-Y6-V8-S12-NA3-K6



② Holes can be reduced by specifying the hole pitch as 0.

Specifying Method Specify hole pitch parameter with 0.

Order Example HRJDA-SCB-A80-B50-T6-X15-Y10-W30-N5-K10-L45-F0-S10-G30-MA5



③ When holes are evenly located about the center, the green color parameter can be omitted.

Order Example FALBS-SP-T2.3-A20-B20-L20-H15-N3-V8-S12-NA3
(Same as FALBS-SP-T2.3-A20-B20-L20-X10-H15-N3-Y6-V8-S12-NA3.)

