

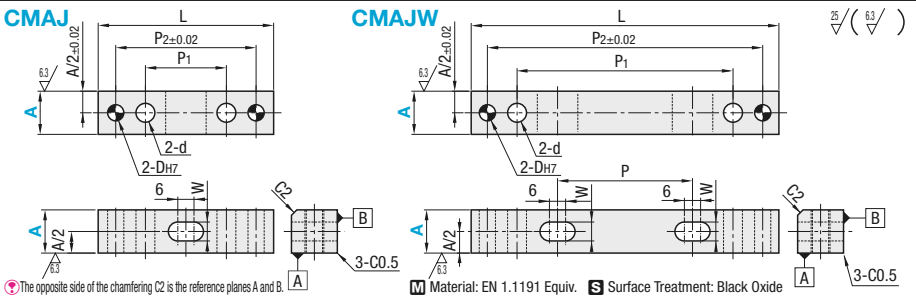
Blocks for Shim Adjustment of Welding Fixtures / Shim Sets

Straight, L-Shaped

Straight Type



RoHS

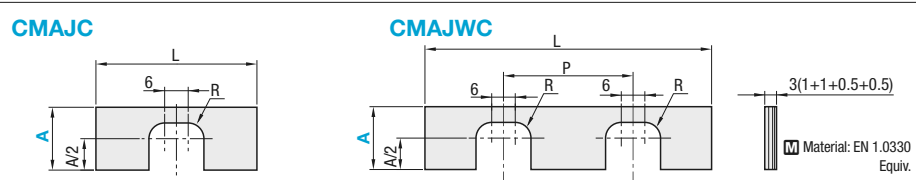


Part Number		L	D	d	P	P1	P2	W	Unit Price	Volume Discount Rate
Type		A							1 ~ 9 pc(s).	10 ~ 30 pcs.
CMAJ	16	65	6	7	-	30	52	7		
	20	75	8	9	-	40	62	9		
CMAJW	16	114	6	7	50	80	102	7		
	20	124	8	9	50	90	112	9		

Shim Sets For Straight Blocks



RoHS



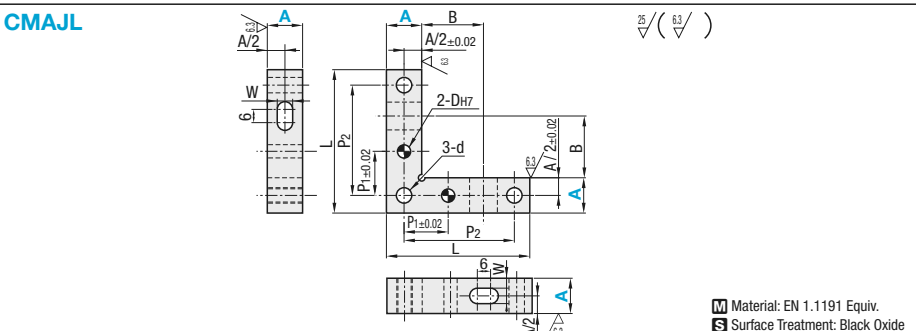
Part Number		L	R	P	Unit Price	Volume Discount Rate
Type		A			1 ~ 9 set(s)	10 ~ 30 sets
CMAJC	16	65	4	-		
	20	75	5	-		
CMAJWC	16	114	4	50		
	20	124	5	50		

This product is offered as a set of 2 pieces of 1mm and 0.5mm thickness.

L-Shaped Type

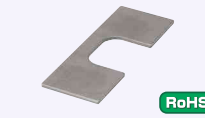


RoHS

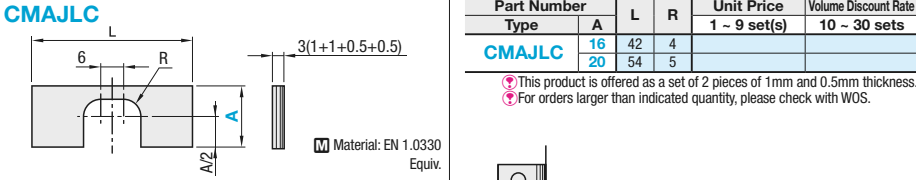


Part Number		L	D	d	B	P1	P2	W	Unit Price	Volume Discount Rate
Type		A							1 ~ 9 pc(s).	10 ~ 30 pcs.
CMAJL	16	65	6	7	28	20	50	7		
	20	100	8	9	53	40	80	9		

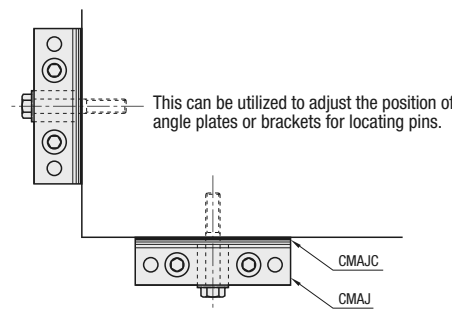
Shim Sets for L-Shaped Blocks



RoHS

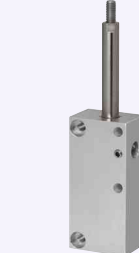


Part Number	
Type	
CMAJ16	16
	20
	24
	28
CMAJ20	20
	24
	28
	32

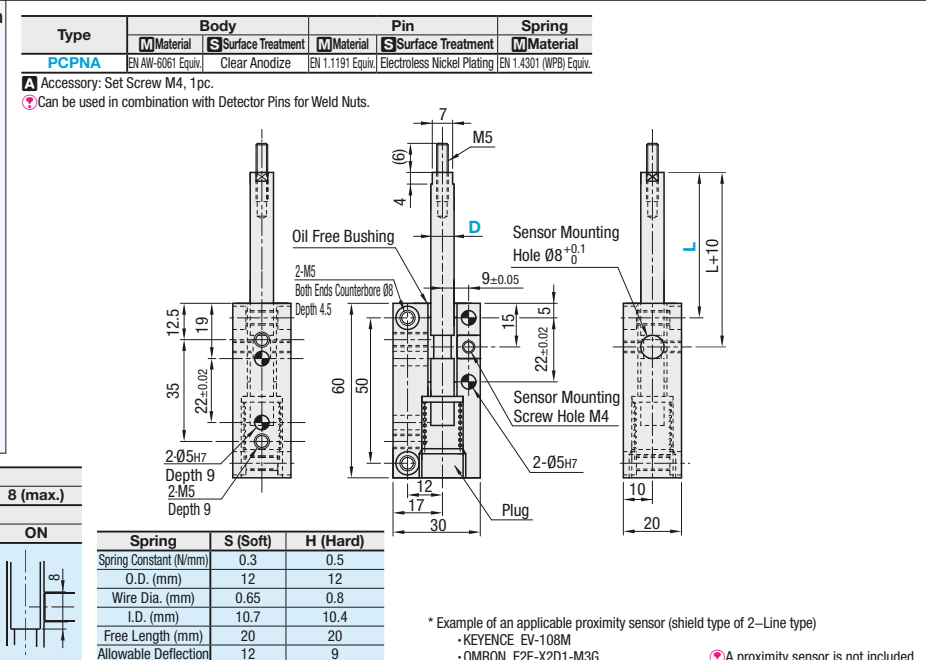


Workpiece Detection System / Detection Pins for Weld Nuts

Workpiece Detection System



RoHS



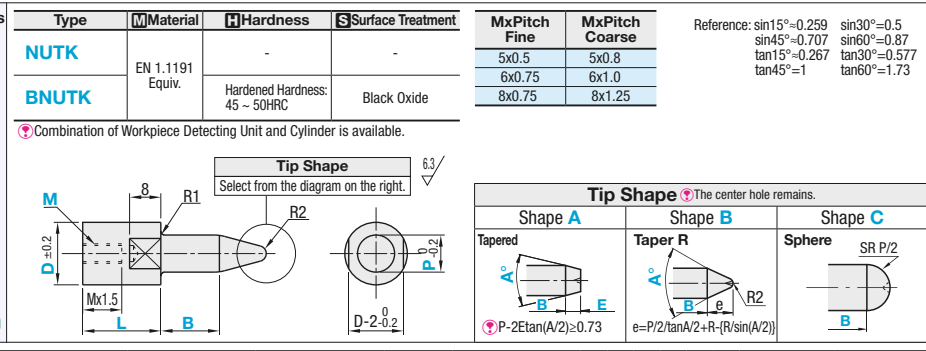
Part Number		L Selection	S (Soft) Load (N)	H (Hard) Load (N)	Unit Price
Type			min max	min max	
PCPNA	8	30	1.2 3.6	2.0 6.0	
		50			

Ordering Example: PCPNA8H - 50

Detection Pins for Weld Nuts



RoHS



Part Number		P	B	L	A	E	M	Unit Price
Type		Tip Shape	0.1mm Increment	1mm Increment	1mm Increment	Selection	Coarse Fine	
NUTK	A	12	5.0~10.0	5~30	15~20	30	5	
	B	9	10.1~12.0	(B<P/4)		60	5 6	
	C	16	12.1~14.0			90	5 6 8	

Ordering Example: NUTK A 12 - P6.0 - B10 - L20 - A30 - E2 - M5 (Shape A)

Roller Pushers / Point Pads

Low Dust Generation Type

■ **Features:** Can be used for alignment adjustment for thin workpieces such as glass plates. Low dust generation bearings are used.

Roller Pushers

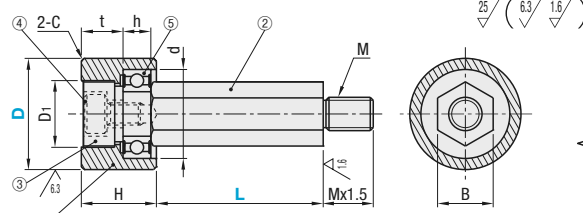
- Low Particle Generation Type



RoHS

Type Components ①②③④⑤	Material				
	① Cap	② Post	③ Holder	④ Screw	⑤ Bearing (Low Dust Generation)
RLLP	Polyacetal	EN 1.4301	EN 1.4301	EN 1.4567	SBC6□□ZZ
RLLUP	Ultra High-Molecular-Weight Polyethylene	Equiv.	Equiv.	Equiv.	(Stainless Steel)
RLLPK	PEEK				

* Low Dust Generation Grease Filled Bearing SBC6□□ZZ P1009



ex

Example As the cap rotates, it prevents the workpiece from being damaged.

Part Number		L		H	D1	④ Screw	C	t	h	d	B	M	Unit Price		
Type	D	5mm Increment											RLLP	RLLUP	RLLPK
RLLP	10	5~30	10	7.5	SCB2.6-5	0.2	5.5	2.5	7	5	M3				
RLLUP	20	10~50	14	12	SCB4-6	0.5	7.5	5	16	10	M6				
RLLPK	30	10~70	18	12	SCB5-8	0.5	9	8	26	13	M8				

Ordering Example Part Number - L
RLLP10 - 20

Point Pads



RoHS

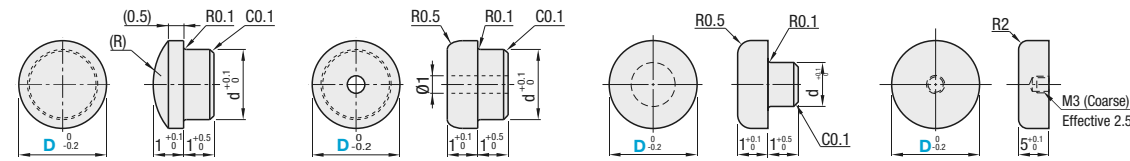
Type				Material
Spherical Type	Hole Type	Flat Type	Tapped Type	
PDKPK	-	PDAPK	PDUPK	PEEK
-	-	PDATF	-	PTFE Resin
PDKUP	PDCUP	PDAUP	PDUUP	Ultra High-Molecular-Weight Polyethylene

Spherical Type

Suction Hole Type

Flat Type

Tapped Type



■ **Spherical Type** Features: Suitable for reducing contact area since the pads make point contacts.

Part Number		PDKPK (PEEK)		PDKUP (Ultra High-Molecular-Weight Polyethylene)	
Type	D	d	(R)	Unit Price	Volume Discount Rate
PDKPK (PEEK)	3	1.5	2.5	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
PDKUP	4	2	4.25	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
	5	2	6.5	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.

☎ For orders larger than indicated quantity, please check with WOS.

Flat Type

Features: Can be used when surface contacting with objects are desired.

Part Number		PDAPK (PEEK)		PDATF (PTFE Resin)		PDAUP (Ultra High-Molecular-Weight Polyethylene)	
Type	D	d		Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate
PDAPK (PEEK)	3	1.5		1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
PDATF (PTFE Resin)	4	2		1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
PDAUP	5	2		1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.

☎ For orders larger than indicated quantity, please check with WOS.

Ordering Example Part Number
PDKPK3 (Spherical Type)
PDCUP10 (Suction Hole Type)
PDATF3 (Flat Type)
PDUPK20 (Tapped Type)

■ **Suction Hole Type** Features: Can be used for vacuum pickup of objects such as glass plates.

Part Number		PDCUP (Ultra High-Molecular-Weight Polyethylene)	
Type	D	d	Unit Price
PDCUP	5	4	1 ~ 9 pcs(s)
	8	5	10 ~ 29 pcs. 30 ~ 100 pcs.
	10	5	10 ~ 29 pcs. 30 ~ 100 pcs.

☎ For orders larger than indicated quantity, please check with WOS.

Tapped Type

Features: Can be used for screw fastening.

Part Number		PDUPK (PEEK)		PDUUP (Ultra High-Molecular-Weight Polyethylene)	
Type	D	Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate
PDUPK (PEEK)	10	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
PDUUP	15	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.
	20	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.	1 ~ 9 pcs(s)	10 ~ 29 pcs. 30 ~ 100 pcs.

☎ For orders larger than indicated quantity, please check with WOS.

ex

Example



Point pad prevents robot hand from contacting conveyed products directly.

Lift Pins

■ **Features:** Useable for lifting work objects that require isolation from metal contacts. A 50% more economical length selectable type is introduced.

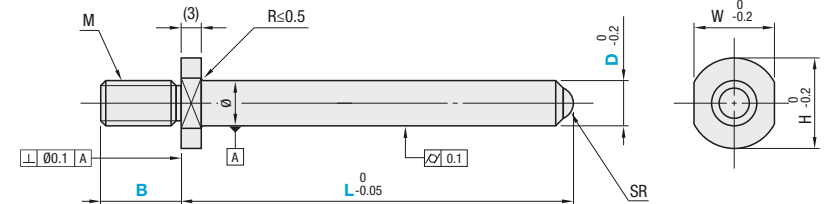
Lift Pins



RoHS

Type			Main Body	Material	
L Selectable	L Configurable	L, B Configurable		Tip	
-	LPCE	LPFCE	EN 1.4301 Equiv.	Ceramic (Al2O3/Alumina 99)	
LPEPK	LPPK	LPFPK		PEEK	
-	LPMC	LPFMC		MC Nylon	

6.3



L Selectable Type

Part Number		L Selection	B Fixed	M (Coarse)	H	W	SR	Unit Price		
Type	D							L 25, 50	L 75, 100	L 120
LPEPK	3	25 50 75 100 120	4.5	3	6	5	1.2			
	4		6	4	8	7				
	5		7.5	5	9	7				
	6		9	6	10	8	2			

L Configurable Type

Part Number		L 1mm Increment	B Fixed	M (Coarse)	H	W	SR	Unit Price					
Type	D							L15~50		L51~120			
LPCE LPPK LPMC	3	15~120	4.5	3	6	5	1.2	LPCE	LPPK	LPMC	LPCE	LPPK	LPMC
	4		6	4	8	7							
	5		7.5	5	9	7							
	6	20~120	9	6	10	8	2						
	8		12	8	12	10							
	10		15	10	15	13	3.2						

L, B Configurable Type

Part Number		L 1mm Increment	B 0.5mm Increment	M (Coarse)	H	W	SR	Unit Price					
Type	D							L15~50		L51~120			
LPFCE LPFPK LPFMC	3	15~120	5.0~9.0	3	6	5	1.2	LPFCE	LPFPK	LPFMC	LPFCE	LPFPK	LPFMC
	4		6.5~12.0	4	8	7							
	5		8.0~15.0	5	9	7							
	6	20~120	9.5~18.0	6	10	8	2						
	8		12.5~24.0	8	12	10							
	10		15.5~30.0	10	15	13	3.2						

☎ L+B≤135



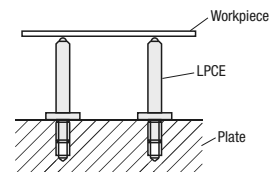
Ordering Example

Part Number - L - B
LPEPK3 - 120 (L Selectable)
LPCE4 - 72 (L Configurable)
LPFCE5 - 75 - B9.0 (L, B Configurable)

ex

Example

Suitable for lifting high temperature objects and objects that are not to come in contact with metals.



Feed Fingers

■ **Features:** The minimal 20.5mm height has been added to the lineup. Best for use in limited spaces.



① Claw			
Type	M Material	S Surface Treatment	H Hardness
ATBM	EN 1.0038 Equiv.	Electroless Nickel Plating	Carburization (Depth 0.1) H400 - 500
ATBS	EN 1.4301	-	-
ATBST	Equiv.	Tufluride	Tufluride (Depth 0.01) HV1000
ATBJ	MC Nylon	-	-

② EN 1.4301 Equiv. Tufluride is gray.
 ③ EN 1.4301 Equiv. Tufluride has lesser antitrust effect compared to EN 1.4301 Equiv.

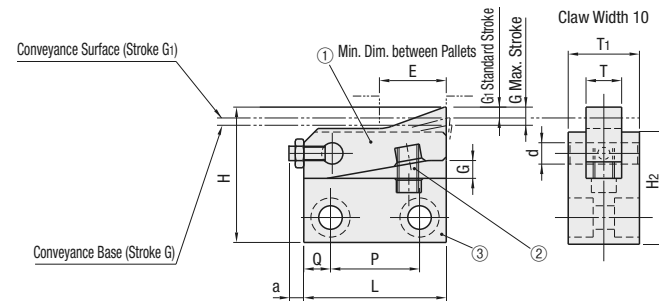
③ Main Body, Pin			
Type	Main Body		Accessory (Pin)
	M Material	S Surface Treatment	M Material S Surface Treatment
BL BH BT TP PI	EN 1.0038 Equiv.	Electroless Nickel Plating	EN 1.1191 Equiv. Electroless Nickel Plating
BLS BHS BTS TPS	EN 1.4301 Equiv.	-	EN 1.4305 Equiv. -

④ Accessory: (For BH and BHS only)

Claw	BH	BHS
14A, 14B	WSSM25-8-3x2 pcs.	-
10A, 10B	WSSM20-6-3x2 pcs.	WSSS20-6-3x2 pcs.

EN 1.4301 Equiv. Tuftride is gray.
EN 1.4301 Equiv. Tuftride has lesser antitrust effect compared to EN 1.4301 Equiv.

■②Spring **M** Material: EN 1.4301 (WPB) Equiv.



Feed Fingers are composed of ①Claw, ②Spring and ③Main Body.
By selecting each type of components, the unit can be assembled before shipping.

①Claw			②Spring			③Main Body	
ATBM	28A 28B	-	S	-	BT		
	20A 20B		H		PI		
ATBM ATBJ	14A 14B	-	S	-	BL		
	10A 10B		H		BH		
	7A 7B		S		BT		
	7SA 7SB^{*1}				TP		
ATBJ ATBS ATBST	10A 10B	-	S	-	BLS		
			H		BHS		
					BTS		
					TPS		

❗*1 "7SB" is available for ATBM only.

Part Number Type		①Claw	②Spring	③ Main Body		T	T ₁	d	H	H ₂	L	P	Q	a	G	G ₁	Unit Price			
																	ATBM	ATBJ	ATBS	ATBST
ATBM (EN 1.0038 Equiv. + Electroless Nickel Plating) ATBJ (MC Nylon)	7SA 7SB		S (Soft) H (Hard)	BL	Side Mounting Type (Screw Hole)	7	12	6	29	22.5	30	20	5	2.5	5	3		-	-	
				TP	Side Mounting Type (Tapped Hole)													-	-	
				BT	Bottom Mount Type													-	-	
				PI	π-Shaped Type													-	-	
	7A 7B	BL		Side Mounting Type (Screw Hole)	7	12	6	38	31	40	25	7.5	2	5	3		-	-		
		TP		Side Mounting Type (Tapped Hole)													-	-		
BT		Bottom Mount Type														-	-			
PI		π-Shaped Type														-	-			
ATBM (EN 1.0038 Equiv. + Electroless Nickel Plating) ATBS (EN 1.4301 Equiv.) ATBST (EN 1.4301 Equiv. + Tuftride) ATBJ (MC Nylon)	10A 10B			BL	Side Mounting Type (Screw Hole)	10	19	6	38	31	40	25	7.5	2.5	5	3		-	-	
				BH	Side Mounting Type (Through Hole)													-	-	
				TP	Side Mounting Type (Tapped Hole)													-	-	
				BT	Bottom Mount Type													-	-	
			PI	π-Shaped Type													-	-		
			BLS	Side Mounting Type (Screw Hole)													-	-		
	14A 14B		BHS	Side Mounting Type (Through Hole)		-	-													
			TPS	Side Mounting Type (Tapped Hole)		-	-													
			BTS	Bottom Mount Type		-	-													
			BL	Side Mounting Type (Screw Hole)	14	25	8	55.5	43	55	35	10	2.5	10	5		-	-		
			BH	Side Mounting Type (Through Hole)													-	-		
			TP	Side Mounting Type (Tapped Hole)													-	-		
BT	Bottom Mount Type		-	-																
20A 20B		PI	π-Shaped Type		-	-														
		BT	Bottom Mount Type	20	38	10	63	49	65	40	12.5	4.5	10	5		-	-			
		PI	π-Shaped Type													-	-			
		BT	Bottom Mount Type													-	-			
28A 28B		PI	π-Shaped Type												28	50	12	83	64	101

Dimension Details ①Claw

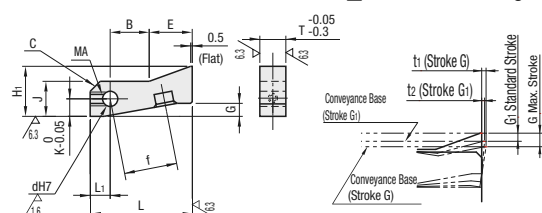
■ **Straight Type**

7SA	14A
7A	20A
10A	28A

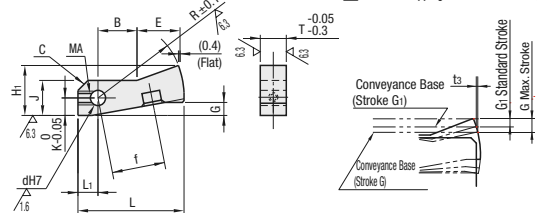
■ Round Type

7SB	14B
7B	20B
10B	28B

■ Claw Position of Straight Type



Standard Stopping Position for Round Type



Type		T	L		L1	B	G	E		R	H1	J	K	MA	d	f	C	t1	t2	t3
			Straight Claw	Round Claw				Straight Claw	Round Claw											
ATBM ATBS ATBST ATBJ	7SA 7SB	7	30	31.5	7.5	7.5	5	15	13.9	24	16	10	5	M3*	6	15.7	3	1.8	1.2	0.7
	7A 7B	7	40	41.5	8	15		17	15.9	33.5	20	14	7	M4*		21	4	1.6	1	0.8
	10A 10B	10																		
	14A 14B	14	55	57	10	12.4	10	32.6	30	47	30.5	19	10	M4*	8	35.8	5	3.3	2	0.5
	20A 20B	20	65	66.5	12.5	18.5	11	34	30.4	54	33	21	10	M5	10	40	7	3.4		
	28A 28B	28	80	82.5	15	30	13	35	30.5	67.5	45	30	15	M6	12	50	9	4.5	2.8	1.8

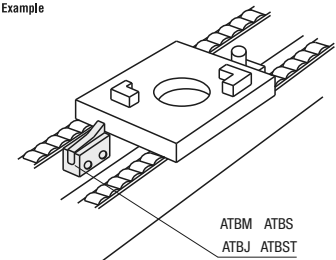
ⓘ ATBM is available for 28A, 28B, 20A, 20B and 7SB only.

* ATBJ is for threaded insert.

Load Details ②Spring

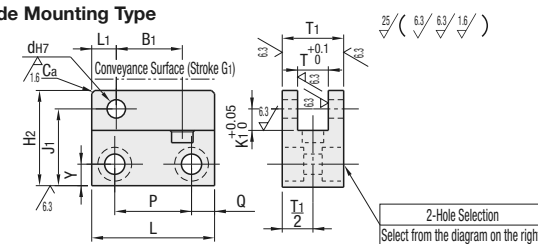
Type			Load (Calculated Value) N							
			Set		Stroke 3 (7)		Stroke 10 (12)			
			Spring Upper Part	Claw Tip	Spring Upper Part	Claw Tip	Spring Upper Part	Claw Tip		
7SA	Soft	S	0.4	0.3	1.1	0.7	1.5	1.0	-	-
7SB	Hard	H	1.4	1.0	2.4	1.6	2.9	2.0	-	-
7A	Soft	S	0.3	0.2	1.0	0.7	1.5	1.0	-	-
7B	Hard	H	1.7	1.1	2.6	1.7	3.1	2.1	-	-
10A	Soft	S	0.3	0.2	1.0	0.7	1.5	1.0	-	-
10B	Hard	H	1.8	1.2	2.6	1.7	3.2	2.1	-	-
14A	Soft	S	0.9	0.7	1.3	1.1	1.7	1.3	2.4	1.9
14B	Hard	H	2.6	2.1	3.1	2.5	3.5	2.8	4.3	3.5
20A	Soft	S	2.3	1.8	-	-	3.0	2.4	3.8	3.0
20B	Hard	H	3.6	2.8	-	-	4.5	3.5	5.5	4.3
28A	Soft	S	3.7	2.6	-	-	5.2	4.0	6.3	4.8
28B	Hard	H	4.9	3.4	-	-	6.7	5.2	8.0	6.2

⚠ The value of Stroke 5 and 10 for 28A and 28B are of when Stroke 7 and 12.

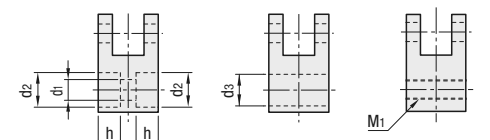


Dimension Details ③Main Body

■ Side Mounting Type



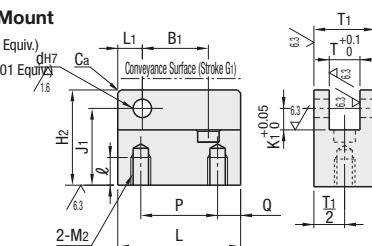
Screw Hole	Through Hole	Tapped Hole
BL (EN 1.0038 Equiv.)	BH (EN 1.0038 Equiv.)	TP (EN 1.0038 Equiv.)
BLS (EN 1.4301 Equiv.)	BHS (EN 1.4301 Equiv.)	TPS (EN 1.4301 Equiv.)



* No counterbored holes for claw 7A, 7B, 7SA and 7SB.

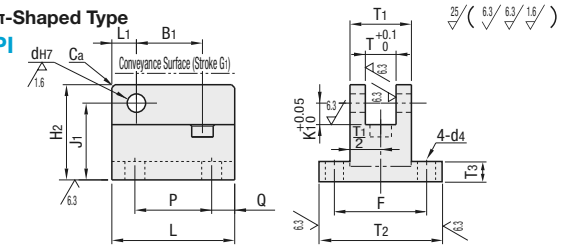
■ **Bottom Mount**

BT (EN 1.0038 Equiv.)
BTS (EN 1.4301 Equiv.)

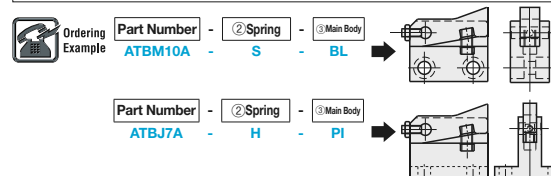


■π-Shaped Type

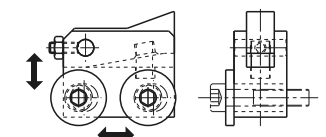
PI



For PI of claw width 14, 20 and 28, flange is screwed on BT.

[illegible]

Fine adjustment for the mounting position of BH and BHS (Through Hole) can be made by combining with the included washer.



Claw	Applicable Screw
14A, 14B	M8
10A, 10B	M6

Tapered Plunging Locating Pin / Feed Fingers Economy Type

Automatic Latches

■Features: Tapered section holds a workpiece, which enables positioning without wobbling. Similar Products: Flanged Locating Pins (P.1653)

■Tapered Plunging Locating Pin

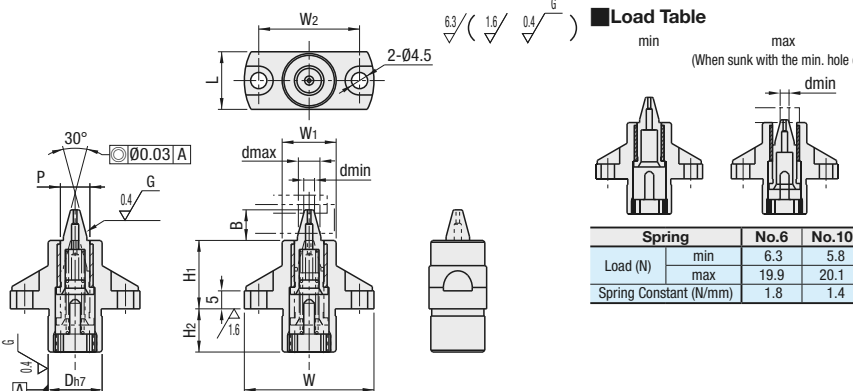


RoHS

Type	Pin	Body	Spring	Oil Free Bushing
	Material	Material	Material	Material
PICP	EN 1.2379 Equiv.	EN 1.1191 Equiv.	JIS-SWP-B	Special Bronze Casting

Load Table

Spring	No.6	No.10
Load (N)	6.3	5.8
Spring Constant (N/mm)	1.8	1.4



Part Number		Applicable Hole Dia.		D	P	B	H ₁	H ₂	W	W ₁	W ₂	L	Unit Price
Type	No.	Max. Hole Dia. dmax	Min. Hole Dia. dmin										
PICP	6	6	3	15	8.2	8.5	19	12	36	15	28	16	
	10	10	6	19	12.2	12	24	17	40	19	32	20	

Ordering Example

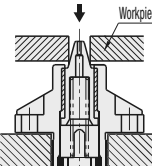
Part Number

PICP6

Example

The pin sinks and the tapered section holds a workpiece without wobbling. Changeover is not necessary when used within the applicable hole diameter, which enables high productivity and operability.

Height Adjusting Blocks (P.1653) can be used together.



■Features: Use of sheet metal for the main body has realized price reduction by approx. 50%, compared to the conventional products.

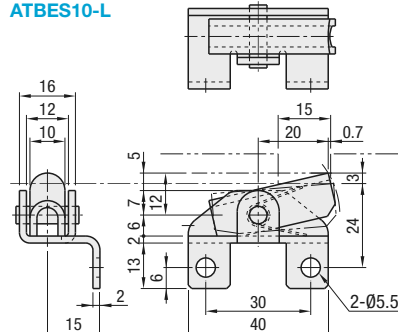
■Feed Fingers Economy Type



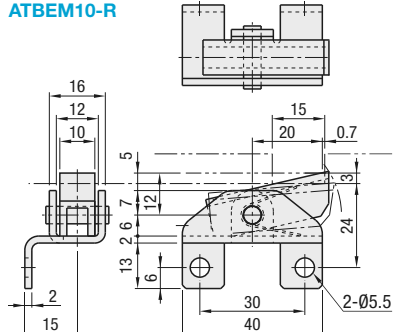
RoHS

Type	Claw	Main Body	Pin	Spring
	Material	Material	Material	Material
ATBES	EN 1.4301 (CP) Equiv.	EN 1.4301 (CP) Equiv.	EN 1.4301 Equiv.	EN 1.4301 (WPB) Equiv.
ATBEM	MC Nylon			

ATBES10-L



ATBEM10-R



Part Number		Claw Orientation	Load (Calculated Value) N		Mass (g)	Unit Price		Volume Discount Rate
Type	No.		Stroke 3mm	Stroke 5mm		1 ~ 3 pc(s).	4 ~ 9 pcs.	
ATBES	10	L (Left)	8.3	8.9	45			
		R (Right)						
ATBEM	10	L (Left)	8.1	8.7	35			
		R (Right)						

Ordering Example

Part Number

ATBES10 - L

ATBEM10 - R

Claw Orientation

L

R

■Features: Thin-plated workpieces such as printed circuit boards and metal plates can be easily located.

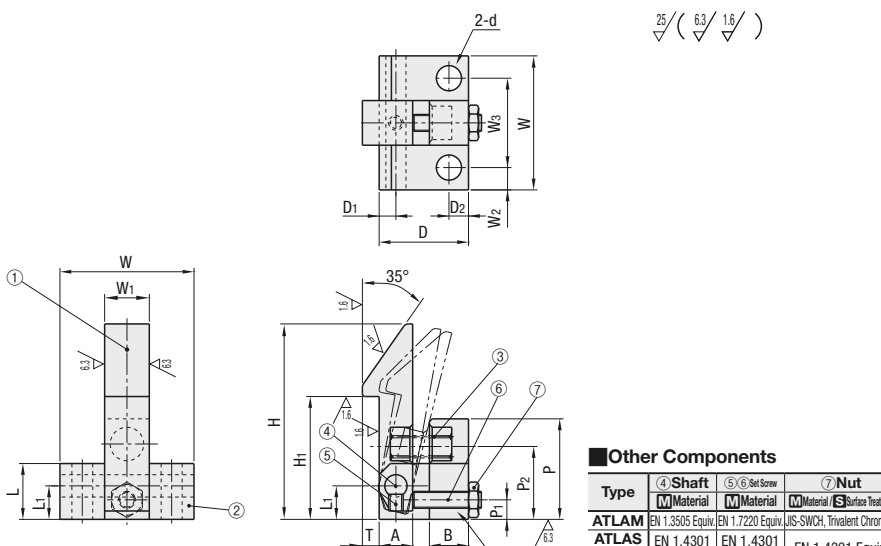


RoHS

Type	Claw	Base	Spring
	Material	Material	Material
ATLAM	EN 1.1191 Equiv.	EN 1.1191 Equiv.	EN 1.4301 (WPB) Equiv.
ATLAS	EN 1.4301 Equiv.	EN 1.4301 Equiv.	
ATLAN	MC Nylon		

Load Table

Spring	No.6	No.10
Load (N)	6.3	5.8
Spring Constant (N/mm)	1.8	1.4



Part Number		H	H ₁	T	W	W ₁	W ₂	W ₃	d	L	L ₁	D	D ₁	D ₂	A	B	P	P ₁	P ₂	M (Coarse)
Type	No.																			
ATLAM ATLAS ATLAN	25	25	15	2	20	7	3	14	3.5	8	5	14	2.5	3	5	6	15	3.5	11	M3
	35	35	22	3	24	8	4	16	4.5	10	6	16	3	3.5	6	7	18	3.5	13.5	M3
	45	45	30	4	26	10	4	18	4.5	12	7	20	4	4	8	8	22	4.5	17	M4

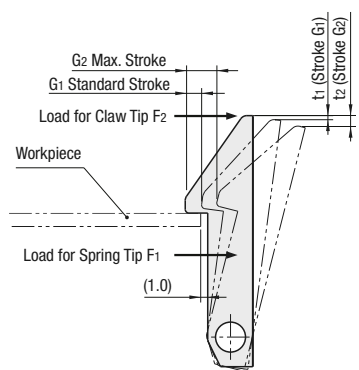
Ordering Example

Part Number

ATLAM25

ATLAS45

Claws Stroke Position Variations



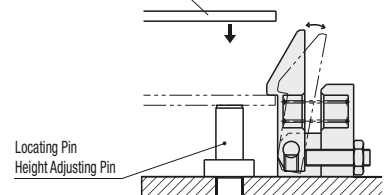
No.	G ₁	G ₂	t ₁	t ₂
25	1	3.2	0.3	1.4
35	2	4.2	0.5	1.4
45	3	6.3	0.5	1.6

* 1.0mm clearance is assumed.

Example

Clicks and latches the workpiece easily at the required position just by lowering the workpiece from above.

Thin-plate Workpiece



Spring Load Table (Calculated Value)

No.	Spring Tip F ₁ (N)			Claw Tip F ₂ (N)		
	Initial Load	Stroke G ₁	Stroke G ₂	Initial Load	Stroke G ₁	Stroke G ₂
25	1.2	1.3	1.7	0.4	0.4	0.5
35	2.0	2.4	2.9	0.5	0.6	0.8
45	3.9	5.1	6.5	1.0	1.3	1.7