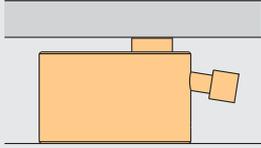


 IMAO[®] fixtureworks[®]

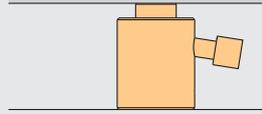
Work Supports





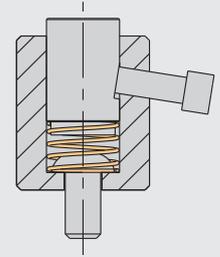
WORK SUPPORTS

Part No. BJ350



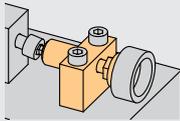
CYLINDRICAL WORK SUPPORTS

Part No. BJ351



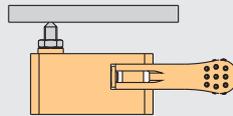
COIL SPRINGS FOR CYLINDRICAL WORK SUPPORTS

Part No. BJ351-C



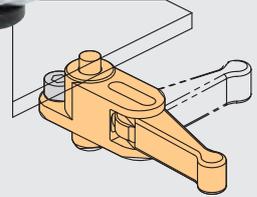
REMOTE-CONTROL UNITS

Part No. BJ650



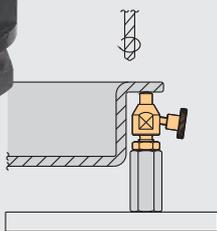
WORK SUPPORTS WITH CAM HANDLE

Part No. BJ352



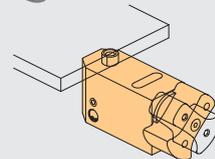
COMPACT WORK SUPPORTS WITH CAM HANDLE

Part No. BJ362



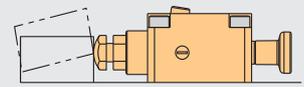
COMPACT WORK SUPPORTS

Part No. BJ360



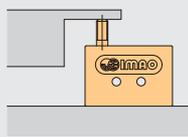
PRECISION WORK SUPPORT

Part No. BJ371



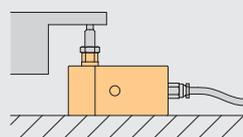
HORIZONTAL WORK SUPPORTS

Part No. BJ351-A



COMPACT PNEUMATIC WORK SUPPORTS

Part No. AMNS-S



PNEUMATIC WORK SUPPORTS

Part No. BJ370

BJ350

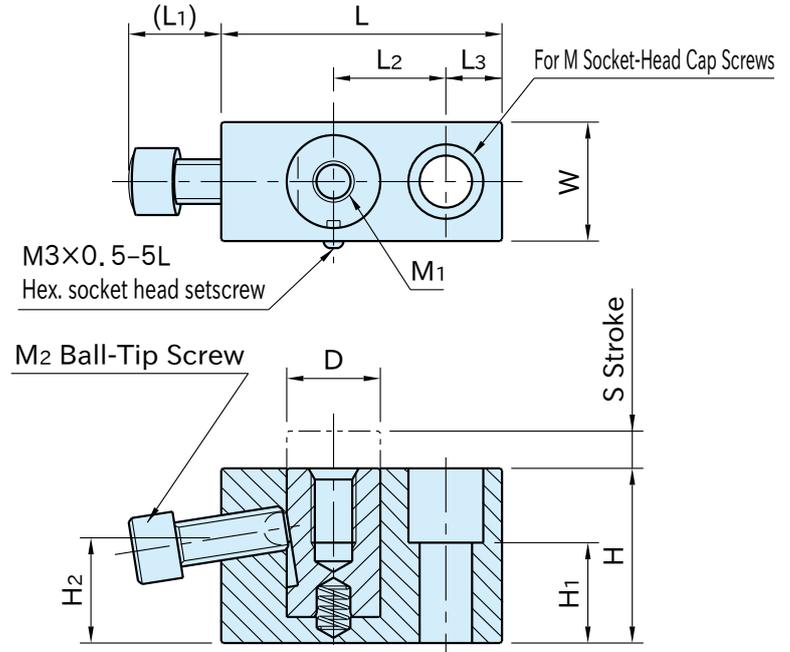
WORK SUPPORTS



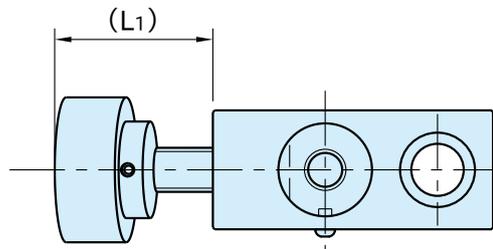
BJ350
(Ball-Tip Screw Style)



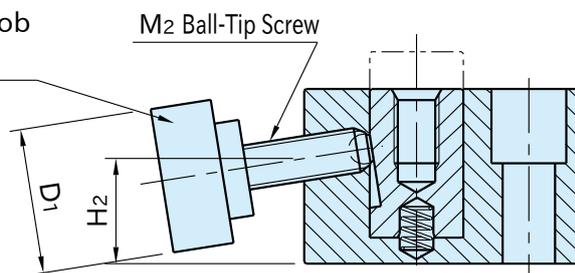
BJ350-C
(Knurled-Knob Style)



BJ350
(Ball-Tip Screw Style)



Knurled Knob
(Glued)
BJ750-N



BJ350-C
(Knurled-Knob Style)

Body	Piston
S45C steel Black oxide finish	Equivalent to SKS93 steel Quenched and tempered Black oxide finish

Size	H	S	M ₁	D	L	W	M	L ₂	L ₃	H ₁	H ₂	
BJ350	06	29	6	M 6x1 Depth 10	12	38	19	M 6	15	8	15	17.6
	08	37	10	M 8x1.25 Depth 15	16	50	22	M 8	20	10	20	21.6
BJ350-C	10	42		M10x1.5 Depth 15	19	65	25	M10	25	15	27	24.6
	12	47		M12x1.75 Depth 20	25	75	32	M12	30		27	28.3

BJ350

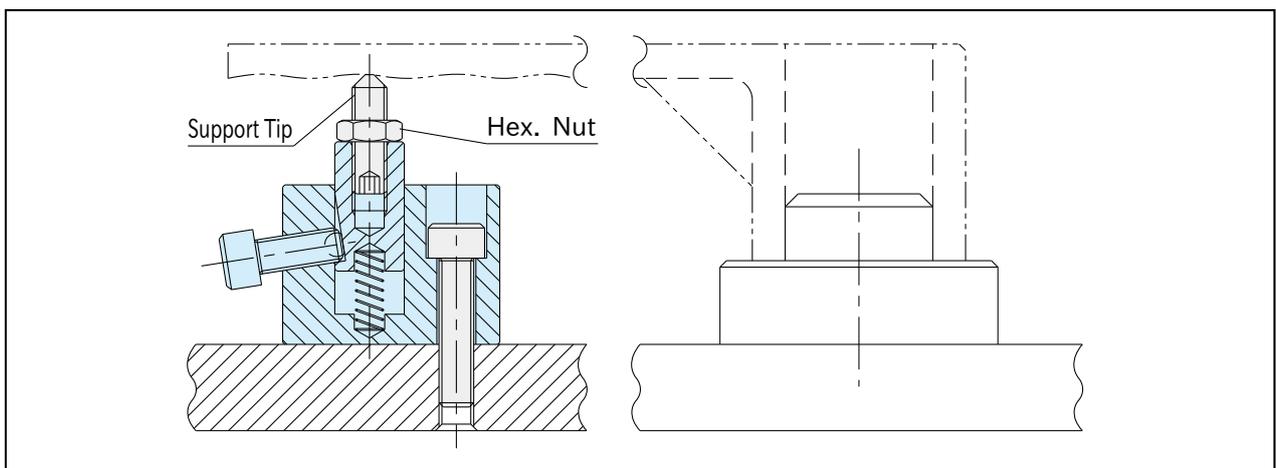
Ball-Tip Screw			Ball-Tip Screw (Anti-Rotation)			Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
Part Number	L ₁	M ₂	Part Number	L ₁	M ₂				
BJ350-06001	13	M 6X1 -16L	BJ350-06002	17	M 6X1 -20L	7.5	4	0~ 6	150
BJ350-08001	16.5	M 8X1.25-20L	BJ350-08002	16.5	M 8X1.25-20L	14	6	0~ 7	285
BJ350-10001	20	M10X1.5 -25L	BJ350-10002	20	M10X1.5 -25L	18	7.5	1~11	470
BJ350-12001	25	M12X1.75-30L	BJ350-12002	25	M12X1.75-30L	22	9		790

BJ350-C

Knurled-Knob	Knurled-Knob (Anti-Rotation)	L ₁	D ₁	M ₂	Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
Part Number	Part Number							
BJ350-06001C	BJ350-06002C	22	24	M 6X1	1	0.6	0~ 6	180
BJ350-08001C	BJ350-08002C	25	30	M 8X1.25	1.2	0.7	0~ 7	340
BJ350-10001C	BJ350-10002C	28	36	M10X1.5	1.5		550	
BJ350-12001C	BJ350-12002C	33	40	M12X1.75	2	0.8	1~11	910

Feature

- The positive locking mechanism allows the ball-tip screw style to offer high support capacities.
- Part numbers of ball-tip screws
BJ350-**001: **BCF** Ball-tip screws (flat contact) without anti-rotation
BJ350-**002: **BCFN-F** Ball-tip screws (flat contact) with anti-rotation
BJ350-**001C: **BSF** Ball-tip screws (flat contact) without anti-rotation
BJ350-**002C: Ball-tip screws with anti-rotation (Non-stocked item)
- BJ350-**002 BJ350-**002C Ball-tip screws and ball screws with anti-rotation feature are marked for product identification.

How To Use

Ideal for preventing the workpiece from chattering and deflecting.

Note

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

Reference

BJ650 REMOTE-CONTROL UNITS

BJ351

CYLINDRICAL WORK SUPPORTS

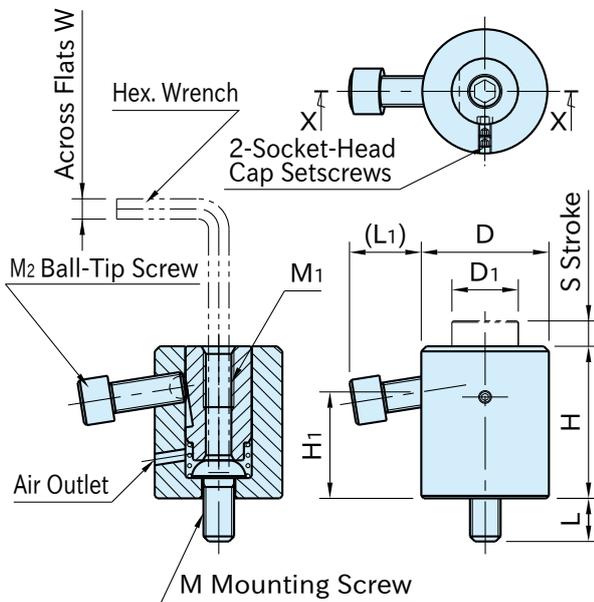


BJ351
(Ball-Tip Screw Style)

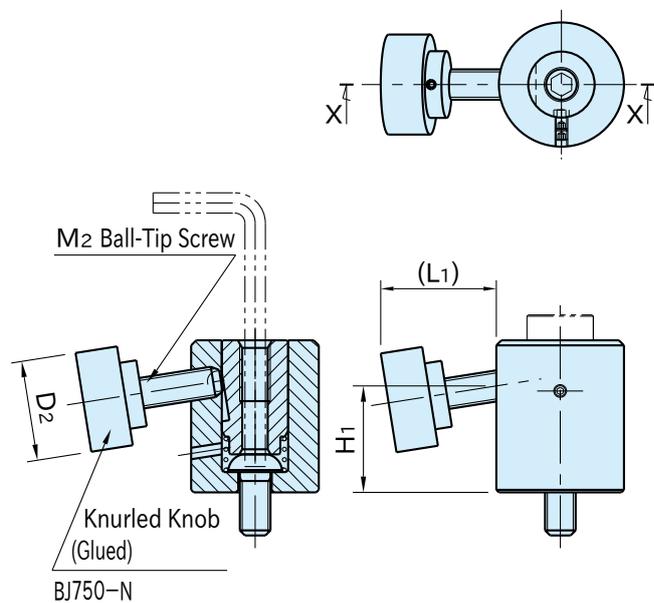


BJ351-C
(Knurled-Knob Style)

Body	Piston
S45C steel Black oxide finish	Equivalent to SKS93 steel Quenched and tempered Black oxide finish



Section X-X



Section X-X

Note: To install, insert a hex. wrench through the piston into the mounting screw.

BJ351
(Ball-Tip Screw Style)

BJ351-C
(Knurled-Knob Style)

Size	H	S	M ₁	D ₁	D	M	L	W	H ₁	
BJ351 BJ351-C	06	33	6	M 6×1 Depth 12	14	28	M 6×1	10	4	22
	08	42	10	M 8×1.25 Depth 16	19	35	M 8×1.25	15	5	28.5
	10	50		M10×1.5 Depth 20	22	42	M10×1.5	14	6	34
	12	60		M12×1.75 Depth 24	26	50	M12×1.75	17	8	42
	16	70		M16×2 Depth 32	33	60	M16×2	22	10	47

BJ351

Ball-Tip Screw			Ball-Tip Screw (Anti-Rotation)			Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
Part Number	L ₁	M ₂	Part Number	L ₁	M ₂				
BJ351-06001	15	M 6×1 -16L	BJ351-06002	19	M 6×1 -20L	7.5	4	10~22	150
BJ351-08001	20.5	M 8×1.25-20L	BJ351-08002	20.5	M 8×1.25-20L	14	6	10~27	310
BJ351-10001	25.5	M10×1.5 -25L	BJ351-10002	25.5	M10×1.5 -25L	18	7.5	14~28	530
BJ351-12001	30	M12×1.75-30L	BJ351-12002	30	M12×1.75-30L	22	9	15~30	895
BJ351-16001	28		BJ351-16002	28		25		15~35	1475

BJ351-C

Knurled-Knob	Knurled-Knob (Anti-Rotation)	L ₁	D ₂	M ₂	Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
Part Number	Part Number							
BJ351-06001C	BJ351-06002C	24	24	M 6×1	1	0.6	10~22	185
BJ351-08001C	BJ351-08002C	29.5	30	M 8×1.25	1.2	0.7	10~27	360
BJ351-10001C	BJ351-10002C	33.5	36	M10×1.5	1.5		14~28	620
BJ351-12001C	BJ351-12002C	38.5	40	M12×1.75	2	0.8	15~30	1020

Feature

- The positive locking mechanism allows the ball-tip screw style to offer high support capacities.
- Part numbers of ball-tip screws
 - BJ351-**001** : **BCF** Ball-tip screws (flat contact) without anti-rotation
 - BJ351-**002** : **BCFN-F** Ball-tip screws (flat contact) with anti-rotation
 - BJ351-**001C** : **BSF** Ball-tip screws (flat contact) without anti-rotation
 - BJ351-**002C** : Ball-tip screws with anti-rotation (Non-stocked item)
- **BJ351-**002** **BJ351-**002C** Ball-tip screws and ball screws with anti-rotation feature are marked for product identification.

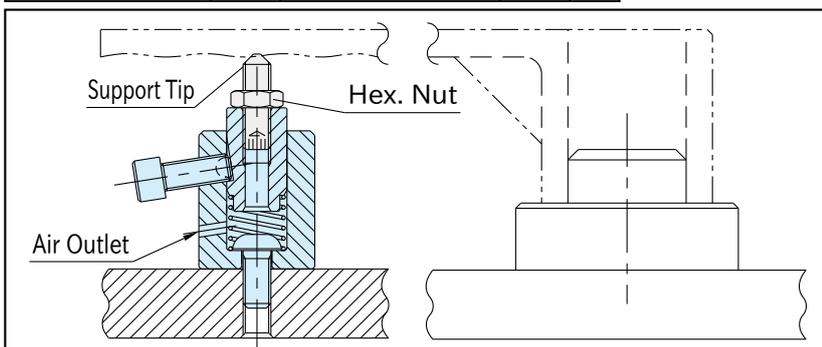
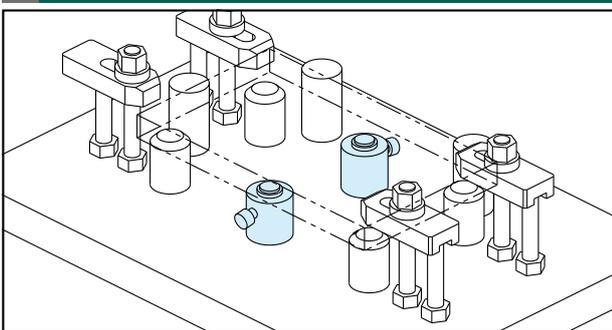
Note

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

Reference

- **BJ650** REMOTE-CONTROL UNITS
- **BJ351-C** COIL SPRINGS FOR CYLINDRICAL WORK SUPPORTS

How To Use



Ideal for preventing the workpiece from chattering and deflecting.

BJ351-C

COIL SPRINGS FOR CYLINDRICAL WORK SUPPORTS

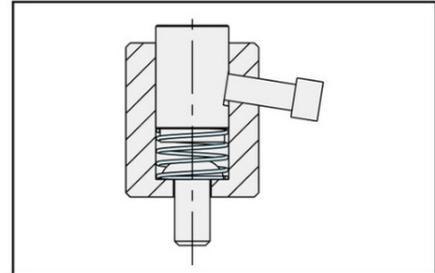


Body
SWPA steel

Part Number	Piston Spring Force (N)	Cylindrical Work Supports	
		BJ351	BJ351-C
BJ351-06001-C1	3~ 7		06001
			06002
BJ351-08001-C1			08001
			08002
BJ351-10001-C1	5~ 9		10001
			10002
BJ351-12001-C1	6~11		12001
			12002
BJ351-16001-C1	7~14		16001
			16002

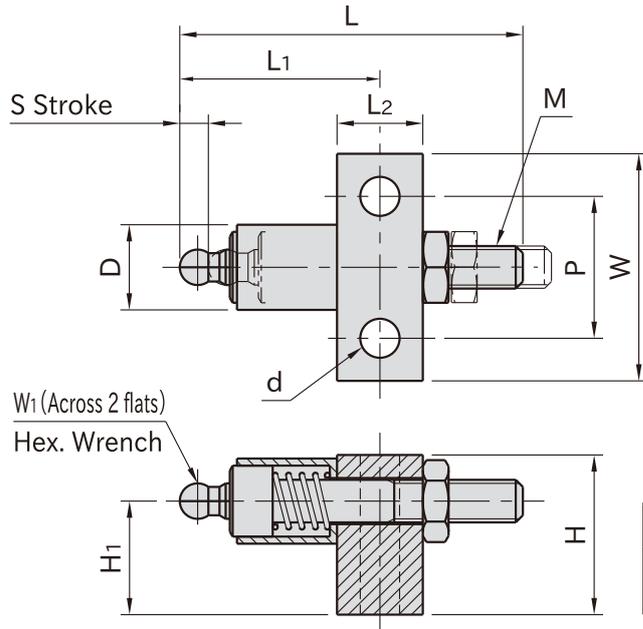
How To Use

Replacement springs to set the piston spring force lower.



BJ650

REMOTE-CONTROL UNITS



BJ650-****1 (Short)

Part Number	L	W	H	L ₁	L ₂	D	S	H ₁	d	P
BJ650-06001	48	32	22	30	12	12	4	16	5.5	20
BJ650-08001	57		27	34		15		19.2		
BJ650-10001	76	44	32	45	16	18	5	22.2	9	30
BJ650-12001	86		36	50		20		25.2		

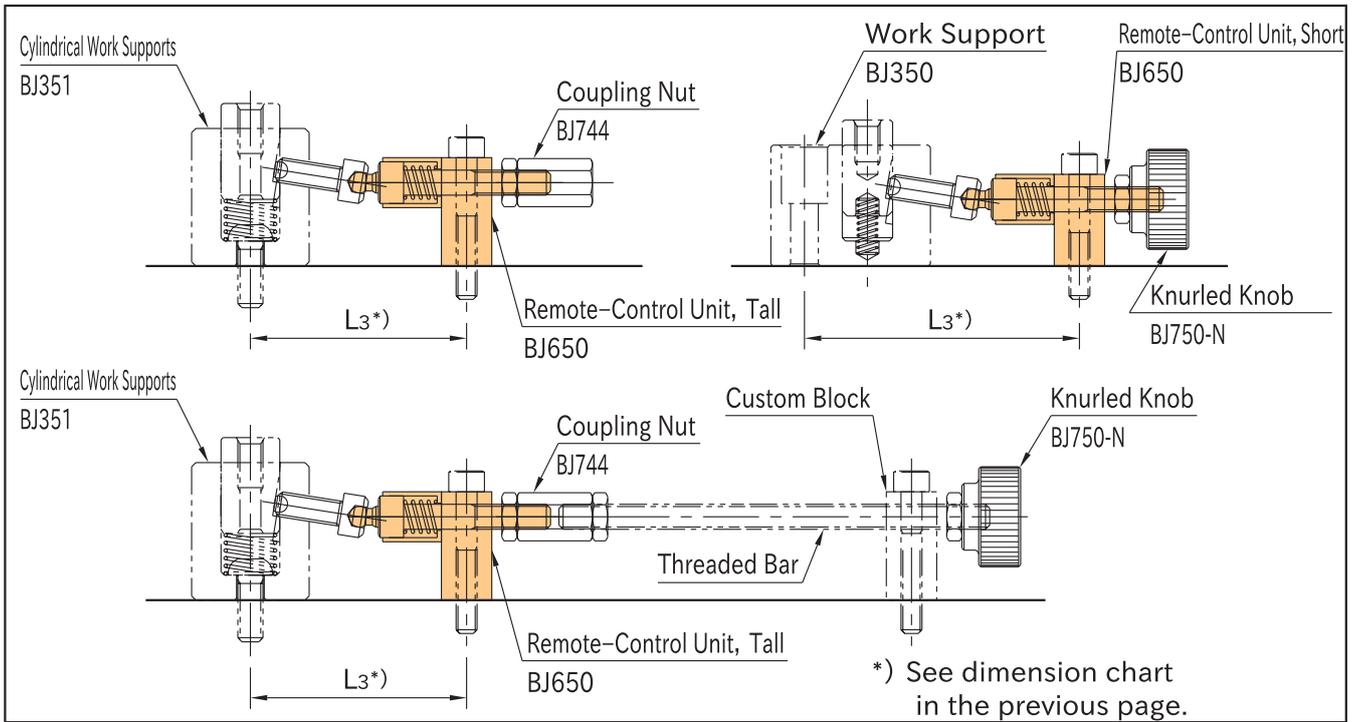
Part Number	W ₁	M	L ₃ : Recommended Distance between Work Supprt and Remote-Control Unit	Weight (g)	Work Supports (Ball-Thumb-Screw Style)
BJ650-06001	5	M 6X1 -35L	66	75	BJ350-06001
BJ650-08001	6	M 8X1.25-40L	81	100	BJ350-08001
BJ650-10001	8	M10X1.5 -55L	103	210	BJ350-10001
BJ650-12001	10	M12X1.75-60L	121	250	BJ350-12001

BJ650-****2 (Tall)

Part Number	L	W	H	L ₁	L ₂	D	S	H ₁	d	P
BJ650-06002	48	32	26	30	12	12	4	20	5.5	20
BJ650-08002	57		33	34		15		25.2		
BJ650-10002	76	44	40	45	16	18	5	30.7	9	30
BJ650-12002	86		49	50		20		38.2		
BJ650-16002			54			43.7				

Part Number	W ₁	M	L ₃ : Recommended Distance between Work Supprt and Remote-Control Unit	Weight (g)	Work Supports (Ball-Thumb-Screw Style)
BJ650-06002	5	M 6X1 -35L	52	85	BJ351-06001
BJ650-08002	6	M 8X1.25-40L	62	115	BJ351-08001
BJ650-10002	8	M10X1.5 -55L	79	240	BJ351-10001
BJ650-12002	10	M12X1.75-60L	92	310	BJ351-12001
BJ650-16002			95	335	BJ351-16001

How To Use



Suitable for controlling work supports from a distance.

Note

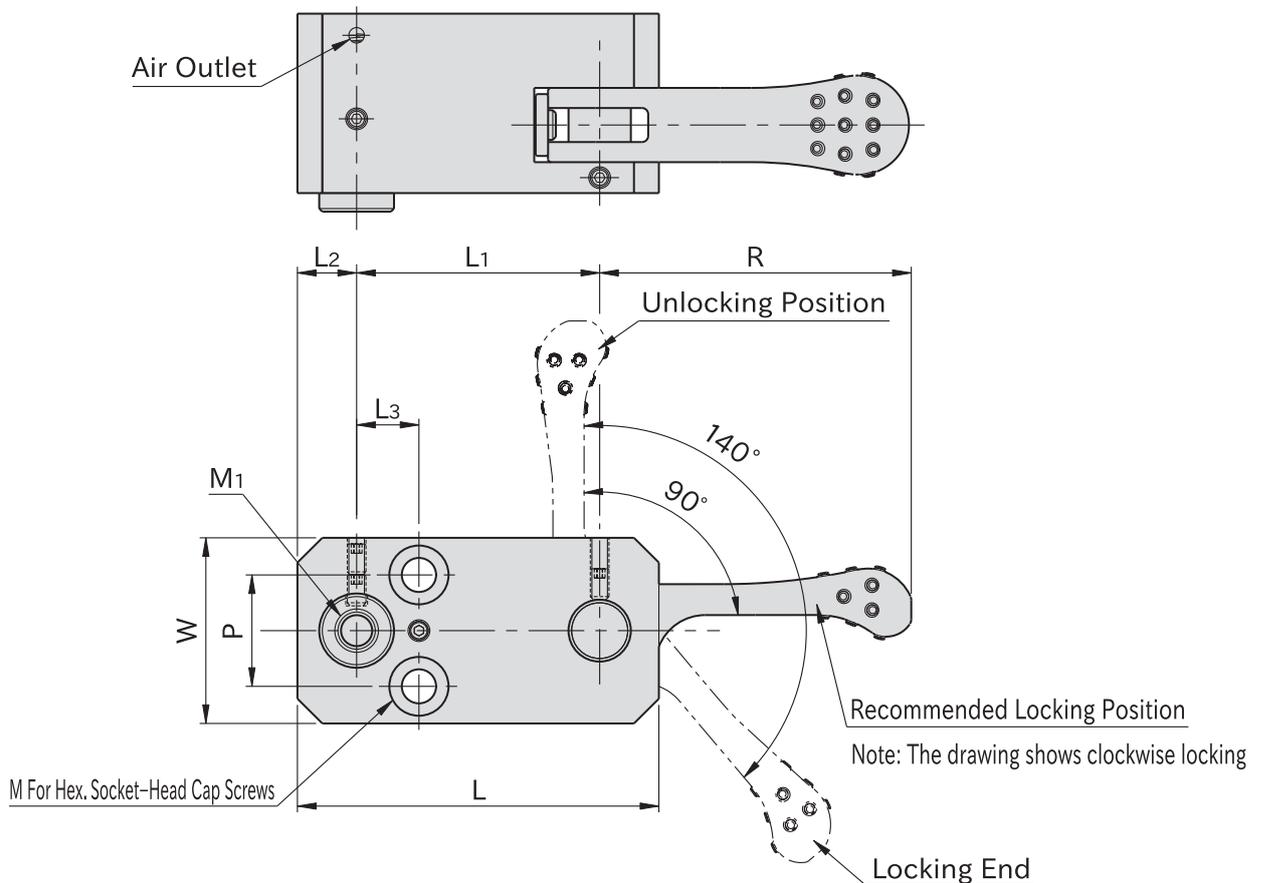
When used with a BJ650 Remote-Control Unit, a BJ350 or BJ351 Work Support can provide the support capacity as given in the catalog if the screw torque is fully applied by using a tool like wrench. If the screw torque is fully applied by hand (using a knob), the support capacity will be reduced to approx. 20% of the catalog value.

BJ352

WORK SUPPORTS WITH CAM HANDLE



Body	Piston	Locking Pin	Handle
S45C steel Black oxide finish	SK95 steel Quenched and tempered Black oxide finish	S45C steel Quenched and tempered Black oxide finish	SCM440 steel Quenched and tempered Black oxide finish



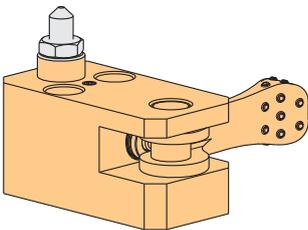
Part Number	H	S	M ₁	D	L	W	R	A	H ₂	M	H ₁	P
BJ352-05001	24	5	M 5×0.8 Depth 8	10	52	25	40	14	14	M4	19	15
BJ352-06001	29	6	M 6×1 Depth 10	12	58	30	50	16	18	M5	22	18
BJ352-08001	37	8	M 8×1.25 Depth 15	16	75	38	63	19	23	M6	25	24
BJ352-10001	42	10	M10×1.5 Depth 15	19	85	45	80	24	26	M8	30	28

Part Number	L ₁	L ₂	L ₃	Cam Handles Part Number	Allowable Operating Load (N)*	Support Capacity (kN)	Piston Spring Force (N)	Locking Mechanism	Weight (g)
BJ352-05001	36	8	8	QLCA-04	80	0.5	0~ 6	Spiral Cam Cam Angle:4°	213
BJ352-06001	39	9.5	10	QLCA-05	100	0.7	0~ 6		335
BJ352-08001	51	12	12	QLCA-06	150	0.9	0~ 7		738
BJ352-10001	56	14.5	15	QLCA-08	200	1.2	1~11		1110

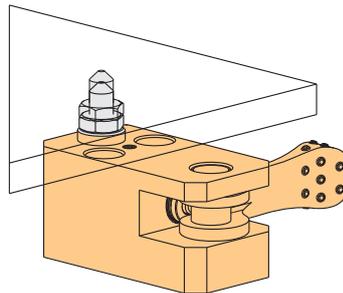
*Allowable load to operate the handle

How To Use

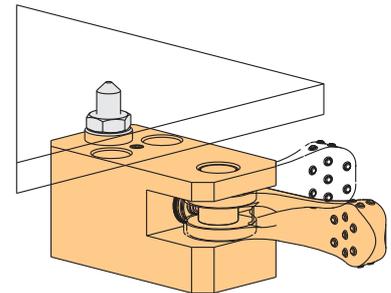
Operating Instruction



1. Unlocked
No workpiece loaded

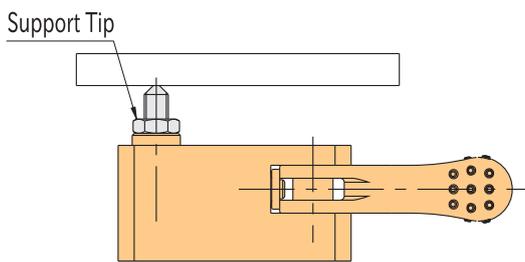


2. Workpiece Loading
Load a workpiece,
and the piston lowers.



3. Locking
Turn the handle to lock the piston.

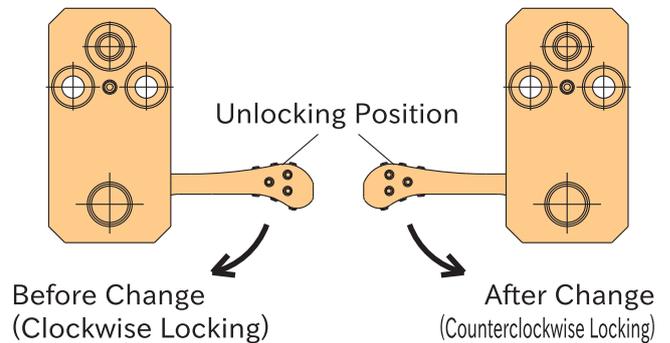
Adjusting Handle Locking Position



When the projection amount from the body is $\frac{1}{2}$ of the stroke S, the handle comes to the recommended locking position. Design your application as the support tip contacts the workpiece at this position.

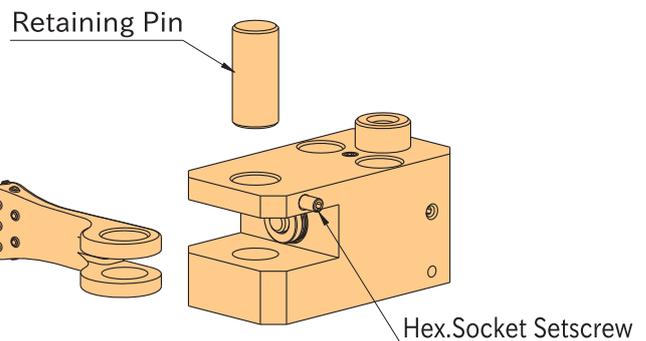
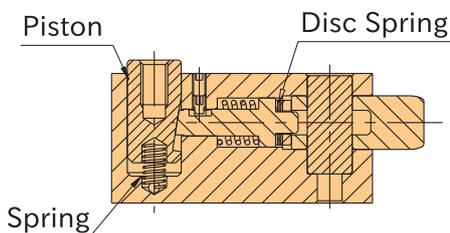
Changing Locking Direction

Loosen the hex. socket setscrew to remove the retaining pin. Turn the handle upside down and put it in position again.



Feature

The built-in disc spring prevents loosened locking.



Note

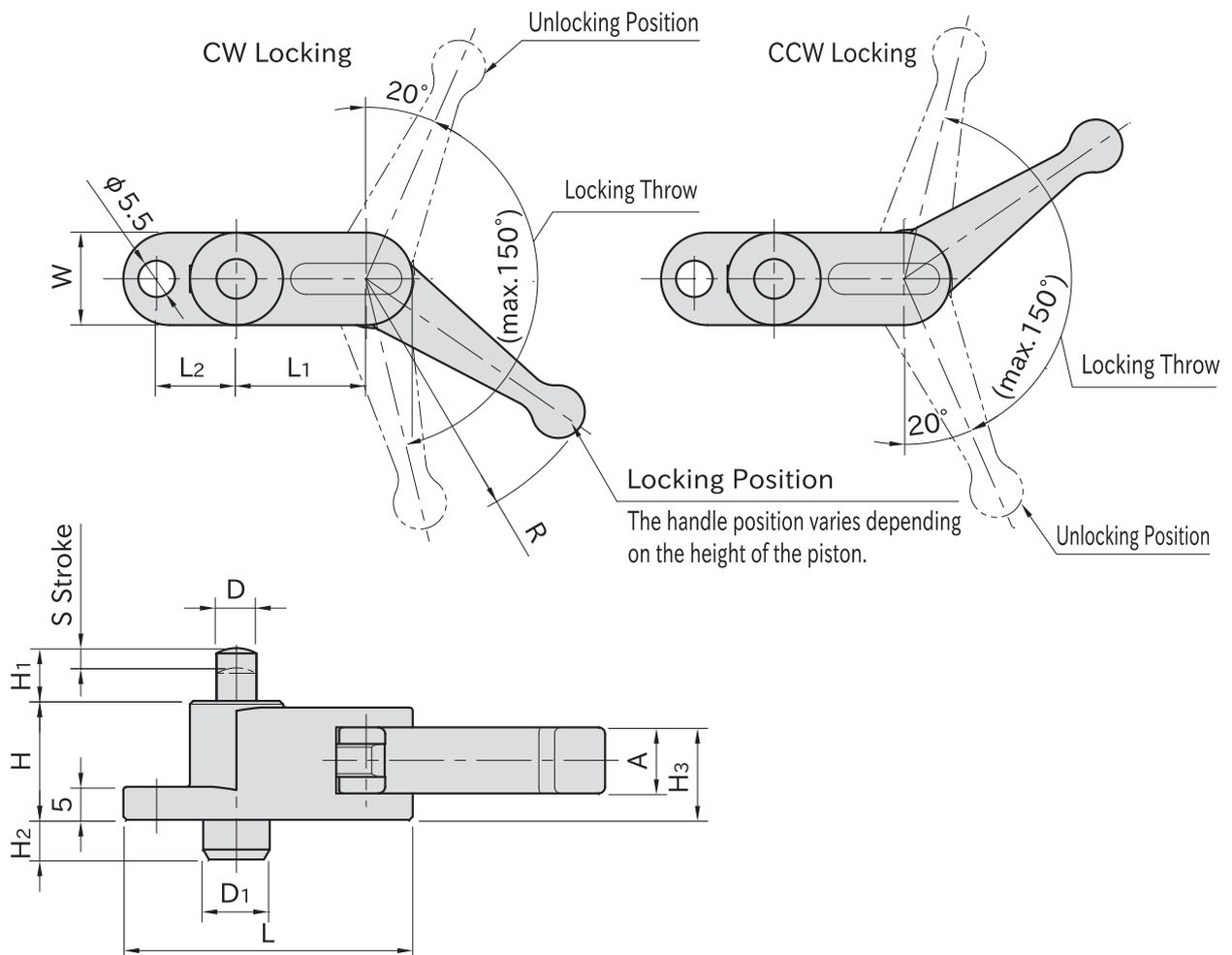
When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

BJ362

COMPACT WORK SUPPORTS WITH CAM HANDLE



Body/Pin	Piston	Cam Handle
S45C steel Black oxide finished	SCM440 steel Black oxide finished HRC50-55	Die-cast zinc Chrome plated



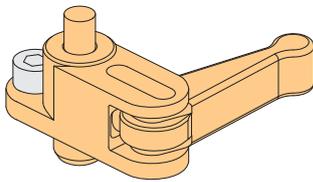
Part Number	Locking Direction	H	H ₁	S	D	L	W	R	A	H ₃	D ₁	H ₂	L ₁	L ₂
BJ362-06001R	CW	18	8	3	6	43.5	14	39	10	14	10	6	19.5	12
BJ362-06001L	CCW													
BJ362-10001R	CW	25	10	4	10	50.4	18	50	13	18.5	14	9.5	22.4	14
BJ362-10001L	CCW													

Part Number	Allowable Operating Load (N)*	Support Capacity (N)	Piston Spring Force (N)	Locking Mechanism	Weight (g)
BJ362-06001R	80	200	1.5~3	Spiral Cam Cam Angle: 4°	76
BJ362-06001L					
BJ362-10001R	100	400	1.8~3		140
BJ362-10001L					

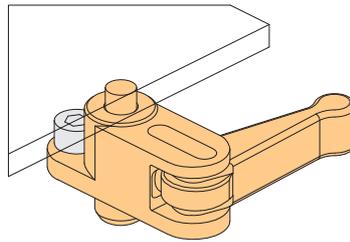
*)Allowable load to operate the handle.

How To Use

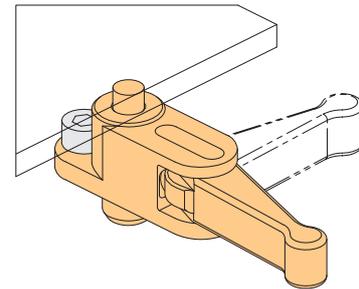
Operating Instruction



1. Unlocked
No workpiece loaded.

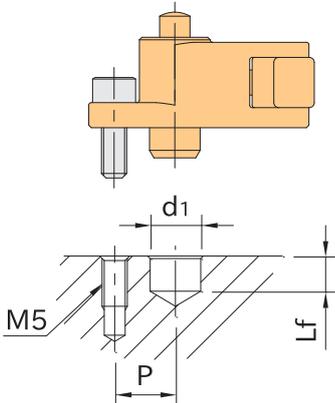


2. Workpiece Loading
Load a workpiece,
and the piston lowers.



3. Locking
Turn the handle to lock the piston.

Mounting-Hole Dimension

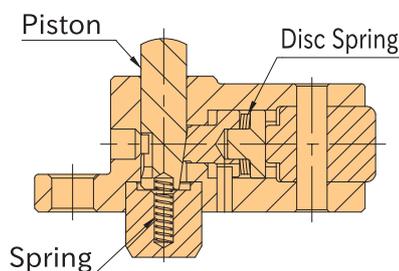


Drill a tapped hole and a locating-pin hole as specified below.

Size	d ₁ (^{+0.3} / ₀)	Lf	P
BJ362-06001	10	7	12
BJ362-10001	14	10.5	14

Feature

The built-in disc spring prevents loosened locking.



BJ360

COMPACT WORK SUPPORTS

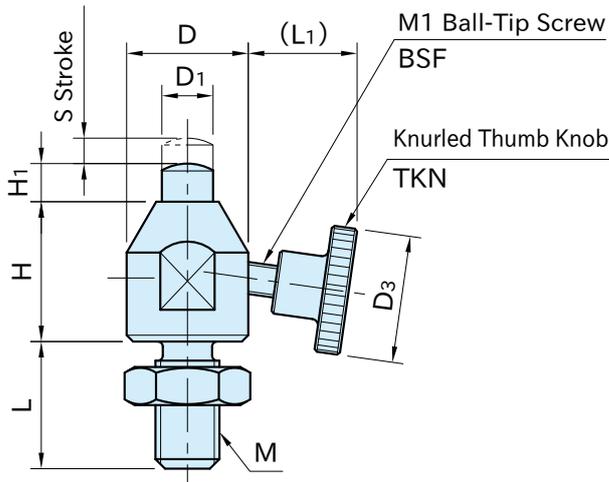
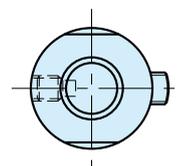
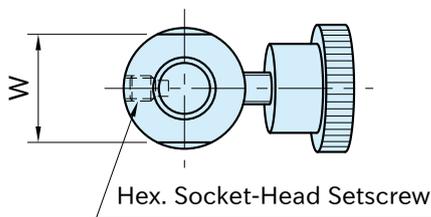


BJ360-001**
(Knurled-Knob Style)

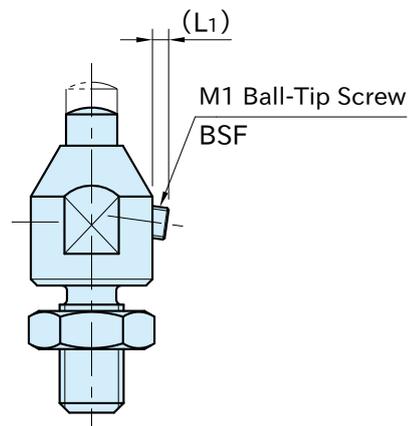


BJ360-002**
(Ball-Tip Screw Style)

Body	Piston
S45C steel Black oxide	SCM440 steel Heat treated Black oxide



BJ360-001**
(Knurled-Knob Style)



BJ360-002**
(Ball-Tip Screw Style)

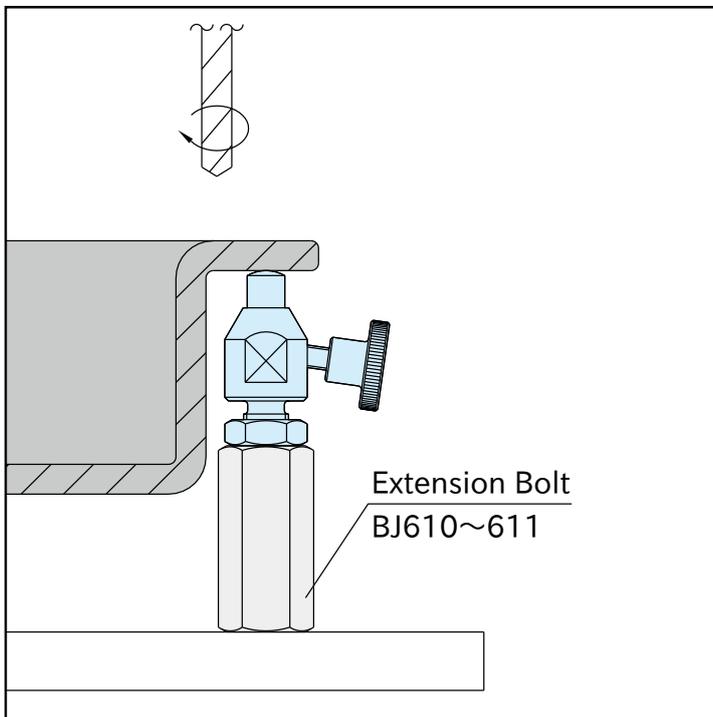
Size	H	H ₁	S	D ₁	D	M	L	W	
BJ360	06	14	4	3	5	12	M 6X1	12	10
	08	18	5		6	15	M 8X1.25	16	13
	10	22	6	4	8	19	M10X1.5	20	17
	12	25			10	22	M12X1.75	24	19

BJ360-001** (Knurled-Knob Style)

Part Number	D ₃	M ₁	L ₁	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ360-06001	16	M4×0.7	14.6	0.16	0.5 - 0.9	22
BJ360-08001			13.7	0.2	1.5 - 3.0	36
BJ360-10001	20	M5×0.8	17	0.3	1.8 - 3.0	72
BJ360-12001	24	M6×1	23	0.4		150

BJ360-002** (Ball-Tip Screw Style)

Part Number	M ₁	L ₁	Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ360-06002	M4×0.7	2.4	1	0.3	0.5 - 0.9	15
BJ360-08002		1.5		0.4	1.5 - 3.0	29
BJ360-10002	M5×0.8	2.5	2	0.7	1.8 - 3.0	57
BJ360-12002	M6×1	3.8	3	1		125

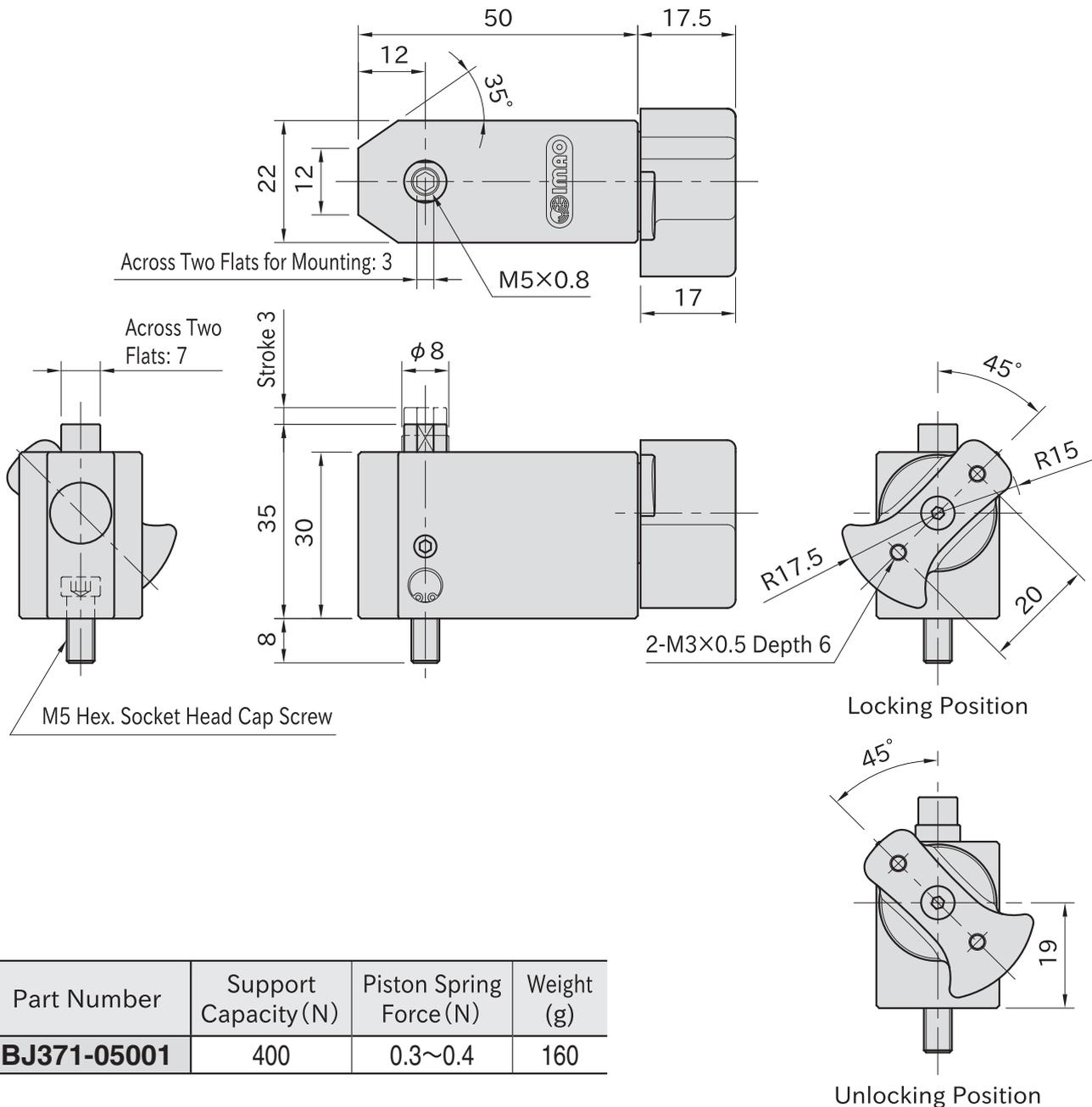
How To Use

BJ371

PRECISION WORK SUPPORT



Body	Piston	Locking Shaft	Knob
A5052 aluminum Anodized	SK95 steel Quenched & tempered Black oxide finished	S45C steel Electroless nickel plated	SUS303 stainless steel



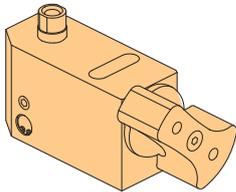
Part Number	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ371-05001	400	0.3~0.4	160

Feature

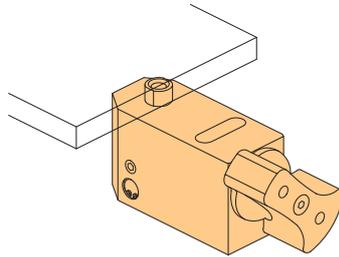
- The piston can be locked/unlocked with one-touch operation and keeps stable support capacity.
- The displacement of the piston is not exceeding $3\ \mu\text{m}$ when it is locked. This helps keep the accuracy of the workpiece height.
- Can be used by remote control.

How To Use

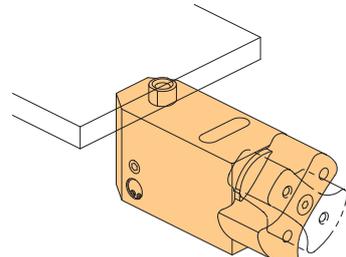
■ Operating Instruction



1. No workpiece loaded.



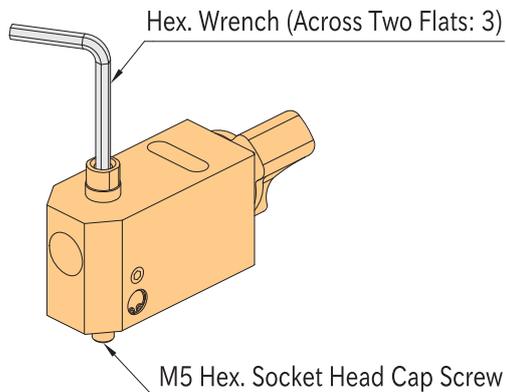
2. Load a workpiece, and the piston lowers.



3. Lock the piston by turning the knob.

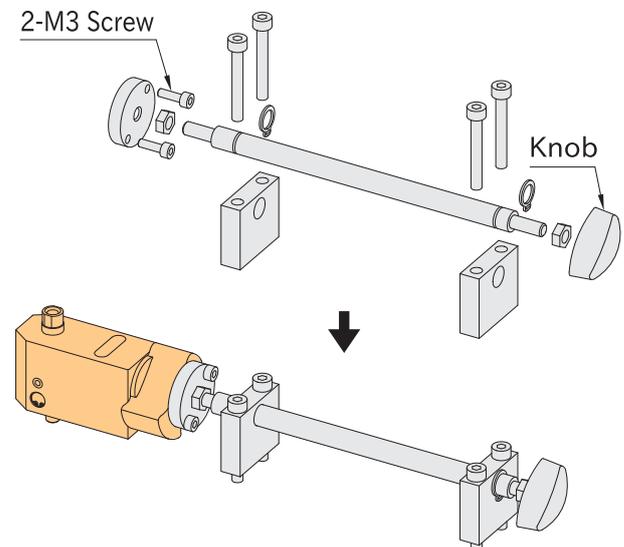
■ Installation Instruction

Tighten the M5 hex. socket head cap screw with a hex. wrench (Across Two Flats: 3).



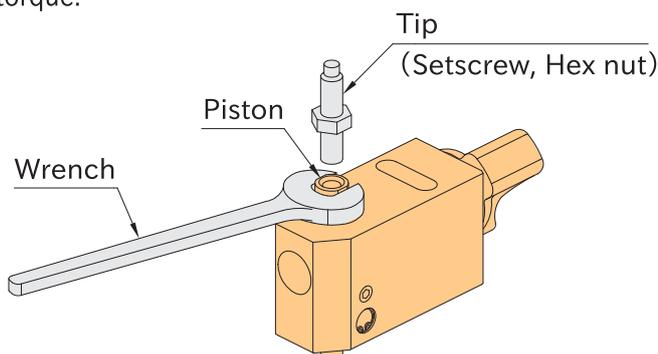
■ Application Example for Remote Control

Components for remote control are not available from us.



🔧 Note

- When installing a tip on the piston, lock the piston using a wrench to prevent it from receiving any torque.



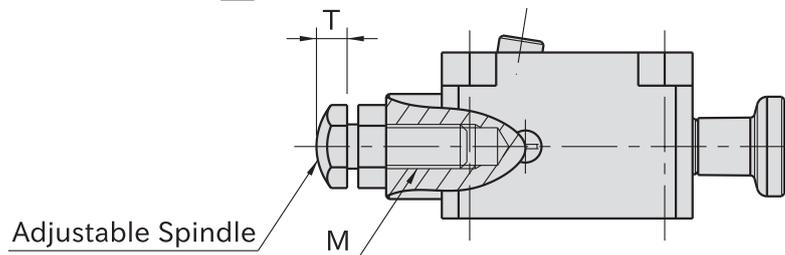
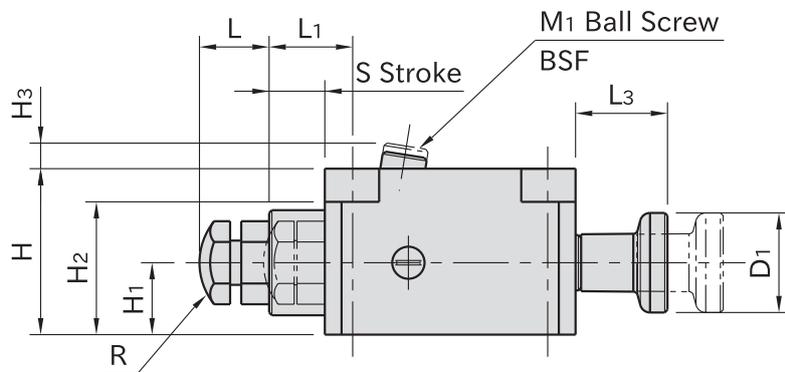
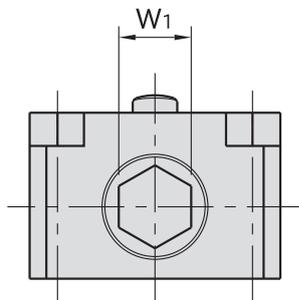
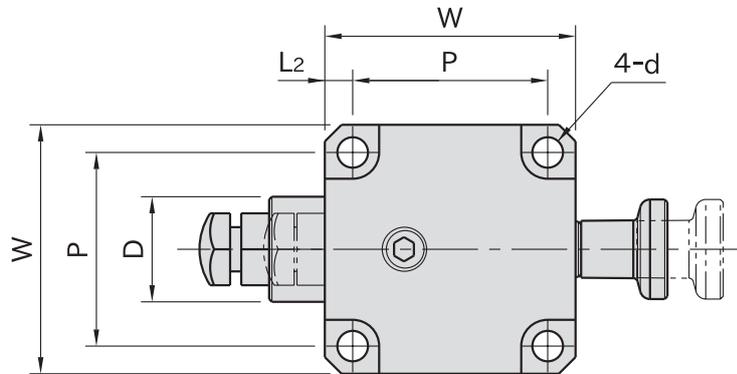
- In machining applications, use clean coolant without sludge to prevent trouble.

BJ351-A

HORIZONTAL WORK SUPPORTS



Body	Piston	Adjustable Spindle	Knob
S45C steel Black oxide finish	SK4 steel Quenched and tempered Black oxide finish	S45C steel Heat treated on edge Black oxide finish	Polyamide plastic Black

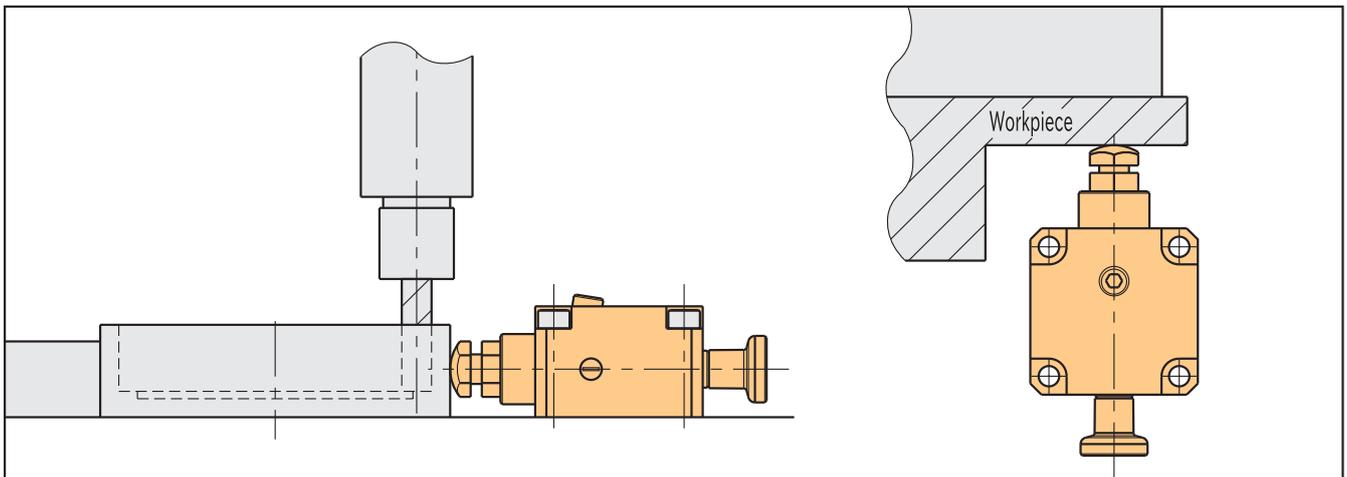


Internal structure of the piston part

Part Number	L	L ₁	S	L ₂	H ₁	D	W	H	d	H ₂	P	W ₁	T	R	M
BJ351-06001A	8~13	10	6	4	10	14	38	24	4.5	19	30	10	4	10	M 6X1 Depth 12
BJ351-08001A	11~18	15	10	5	13	19	45	30	5.5	24	35	13	5.5	12	M 8X1.25 Depth 16
BJ351-12001A	16~26	17.5		7.5	20	26	60	45	9	36	45	19	8	20	M12X1.75 Depth 24

Part Number	M ₁	H ₃	D ₁	L ₃	Screw Torque(N·m)	Support Capacity(kN)	Piston Spring Force(N)	Weight(g)
BJ351-06001A	M 6X1 -10L Across 2 Flats 3	3	16	14	3.5	1.5	0~ 6	260
BJ351-08001A	M 8X1.25-12L Across 2 Flats 4	5	18	16.5	8	2.5	1~ 6	450
BJ351-12001A	M12X1.75-20L Across 2 Flats 6	8	21	19	22	5	1~11	1160

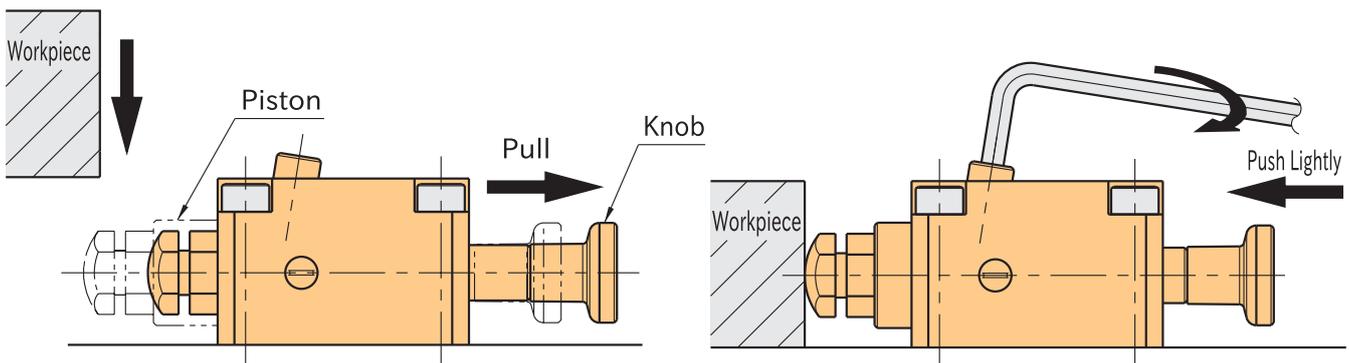
How To Use



Ideal for preventing the thin workpiece from chattering and deflecting.

■ Operating Instruction

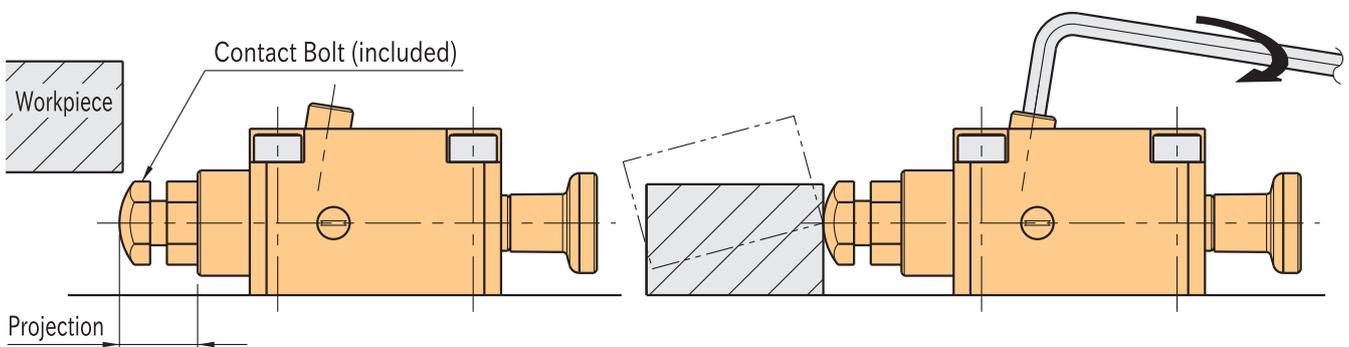
1. To set a workpiece with the piston retracted,



1. Set the piston retracted by pulling the knob. The internal plunger allows retaining the piston at the retracted position.

2. Load the workpiece and then push the knob lightly to let the adjustable spindle contact the workpiece. Tighten the ball thumb screw to lock the piston.

2. To set a workpiece without retracting the piston,



1. Adjust the projection of the adjustable spindle to let the bottom edge of workpiece contact the radius of the adjustable spindle when loading the workpiece.

2. Snap in the workpiece, and then tighten the ball thumb screw to lock the piston.

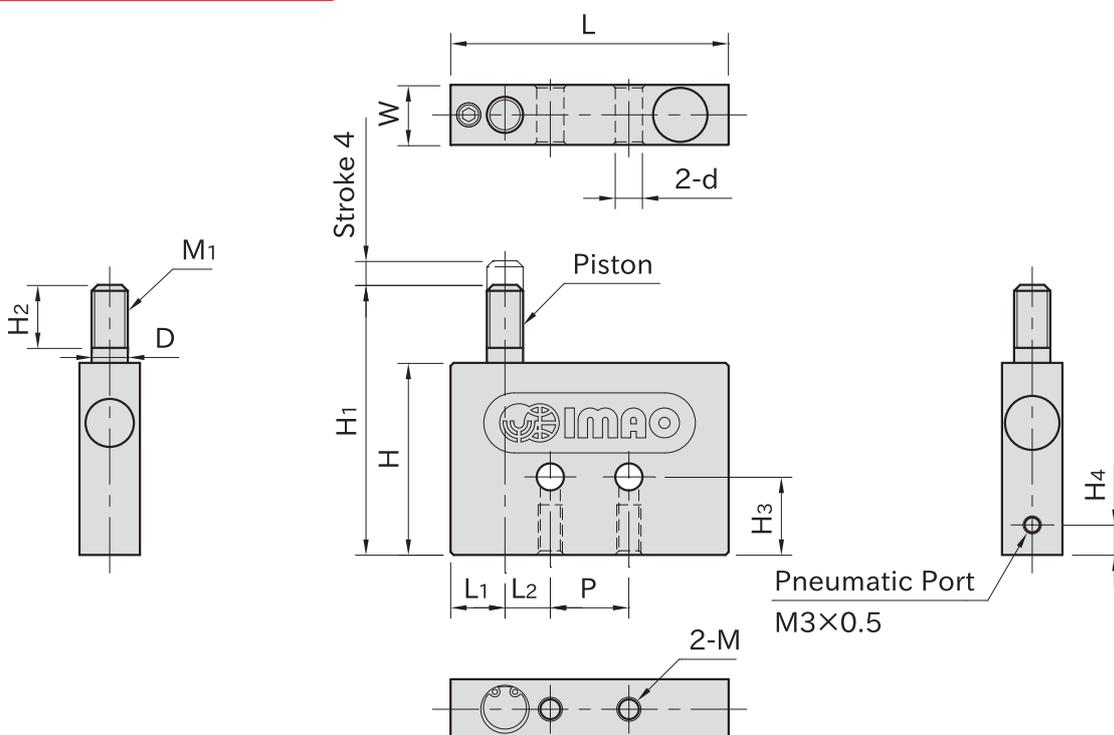
🔧 Note

When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.



★ **Key Point** —
Provide high support capacity even with small body.

Body	Piston / Locking Shaft	Cylinder
A5052 aluminum Anodized	S45C steel Electroless nickel plated	A5056 aluminum Anodized



Part Number	H	H ₁	M ₁	H ₂	D	L	W	d	M	L ₁
AMNS06-S	25	33	M4×0.7	7	4	36	8	3.4	M3×0.5 Depth 6	7
AMNS08-S	32	44	M6×1	10.5	6	46	10	4.5	M4×0.7 Depth 8	9

Part Number	L ₂	P	H ₃	H ₄	Operating Air Pressure (MPa)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
AMNS06-S	6	10	10	3	0.4~0.7	20~40	0.2~0.3	22
AMNS08-S	7.5	13	13	5		40~70	0.3~0.4	49

Feature

- The piston can be locked/unlocked by air operation.
- This compact work support can be used as a support in surface mounter.

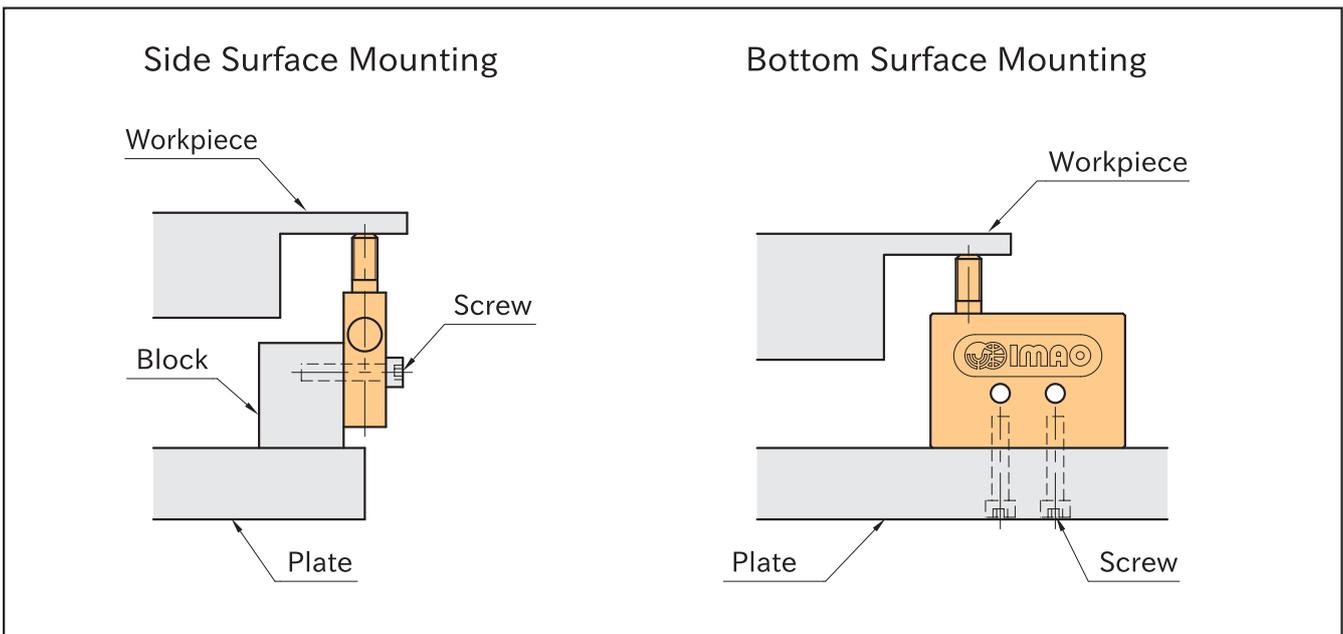
How To Use

■ Operating Instructions

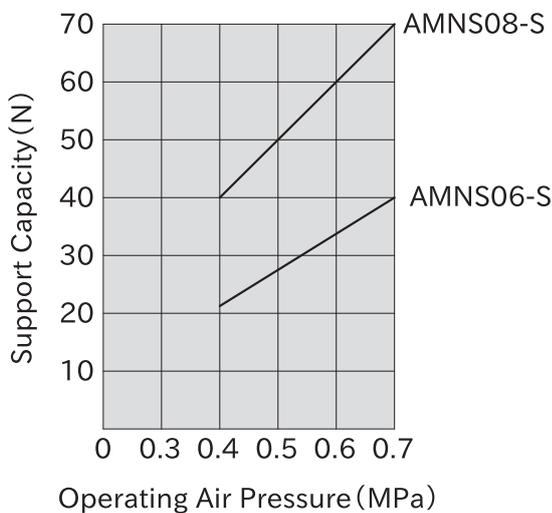
1. Load a workpiece on the support.
2. The piston strokes to fit the workpiece by the inner spring.
3. Clamp the workpiece.
4. Apply air to the pneumatic port.
5. The piston is locked.
6. The piston is unlocked when the air is released.

■ Installation Instructions

Side or bottom surface mounting is possible.

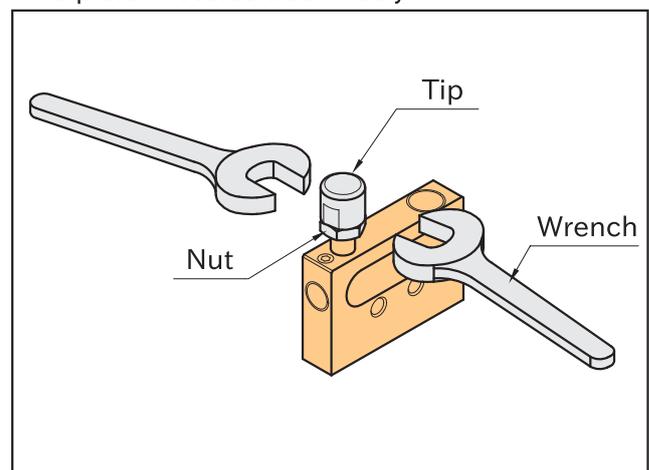


Performance Curve



Note

- Use a nut to attach a tip on the piston as directed below.
- The piston rotates 360° freely.



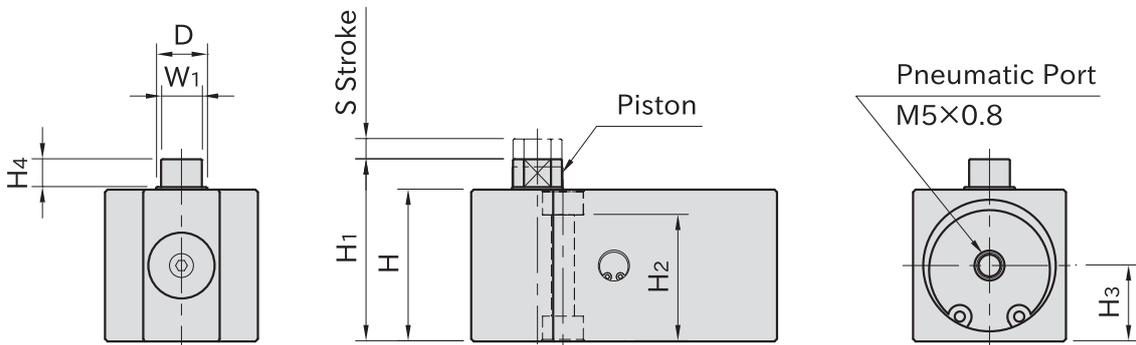
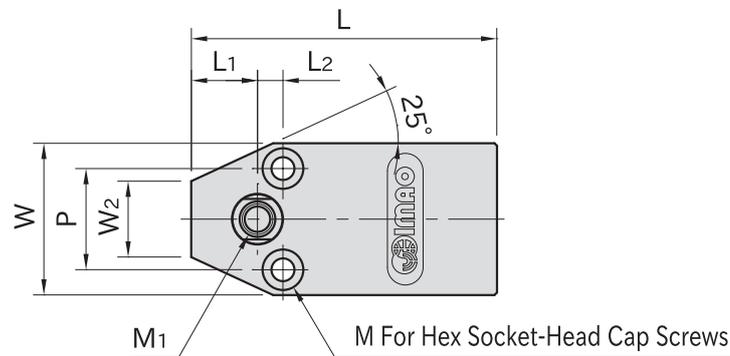
- In machining applications, use clean coolant without sludge to prevent trouble.

BJ370

PNEUMATIC WORK SUPPORTS



Body	Piston	Locking Shaft
A5052 aluminum Anodized	SK95 steel Quenched & tempered Black oxide finished	S45C steel Electroless nickel plated



Part Number	H	H ₁	S	M ₁	D	L	W	M	H ₂	P	H ₃	W ₁	H ₄
BJ370-05001	25	30	3	M5x0.8 Depth10	8	50	25	M3	21	16	12.5	7	4.5
BJ370-06001	30	36	4	M6x1 Depth12	10	60	30	M4	25	20	15	8	5.5

Part Number	L ₁	L ₂	W ₂	Operating Air Pressure (MPa)	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ370-05001	11	4	12	0.3~1.0	300~500	1~1.9	92
BJ370-06001	13	5	15		500~700	1~2.2	165

Feature

The piston can be locked/unlocked by air operation.

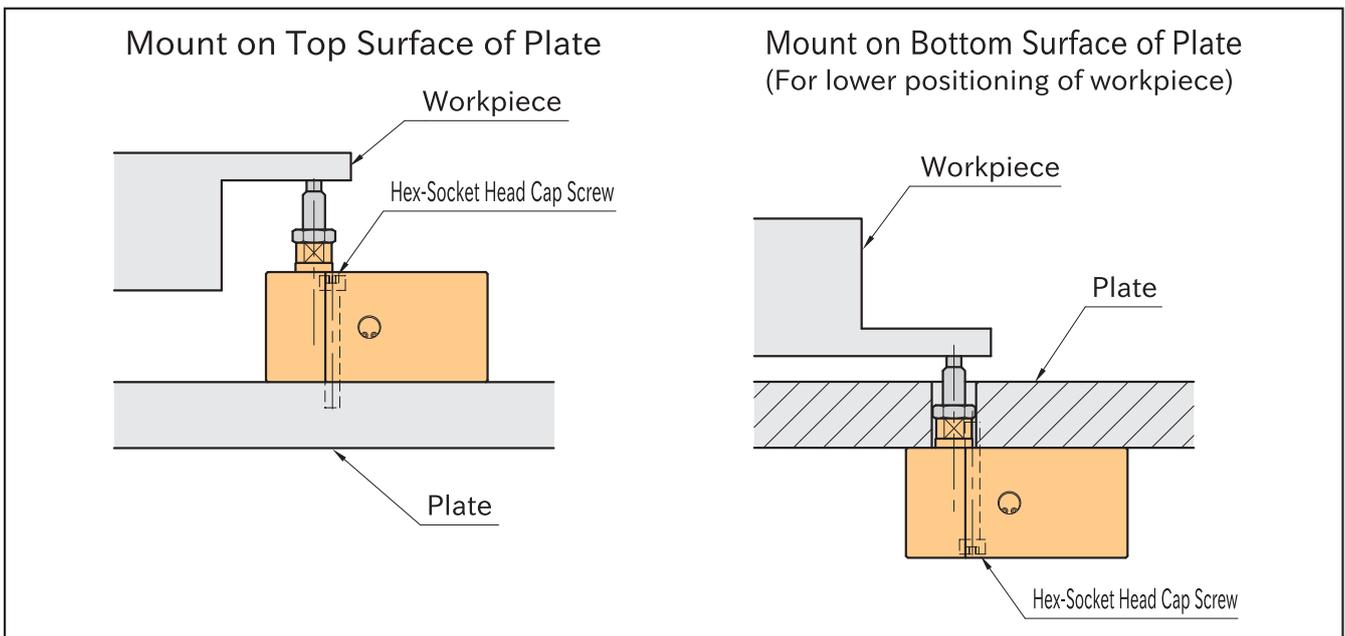
How To Use

■ Operating Instructions

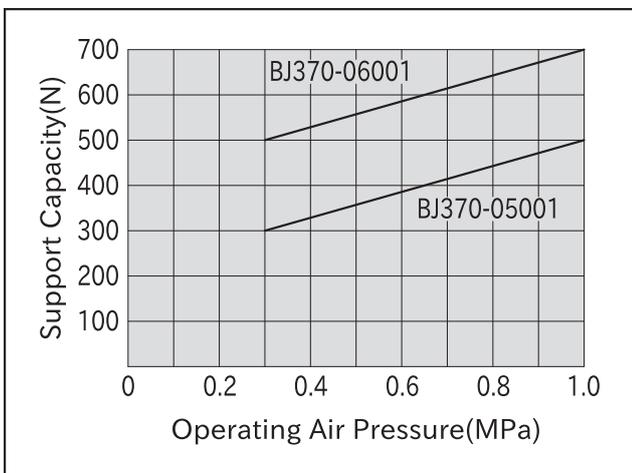
1. Load a workpiece on the support.
2. The piston strokes to fit the workpiece by the inner spring.
3. Clamp the workpiece.
4. Apply air to the pneumatic port.
5. The piston is locked.
6. The piston is unlocked when the air pressure is released.

■ Installation Instructions

Can be mounted on both top surface and bottom surface of plate with hex-socket head cap screws.

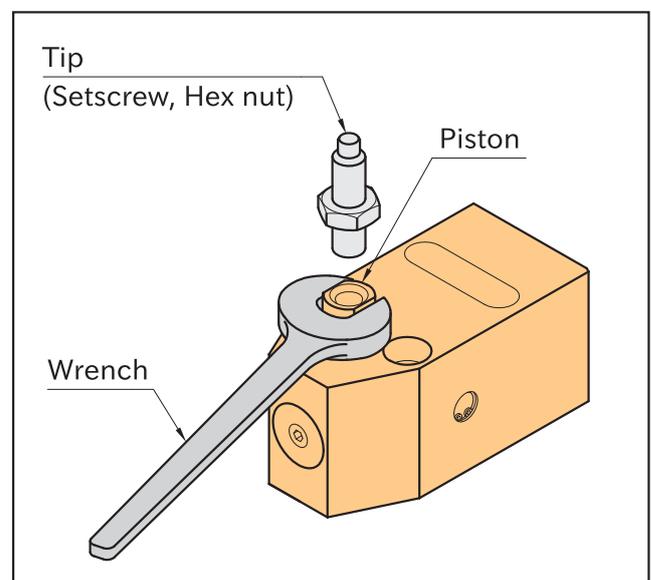


Performance Curve



⚠ Note

• When installing a tip on the piston, lock the piston using a wrench to prevent it from receiving any torque.



• In machining applications, use clean coolant without sludge to prevent trouble.



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