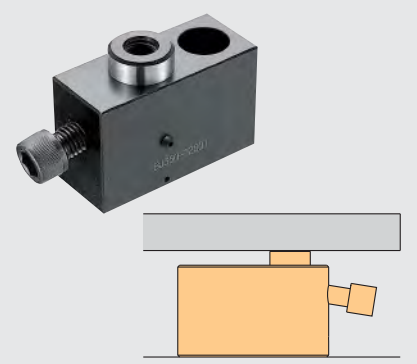
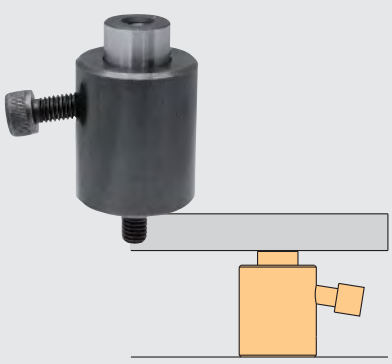
IMAO® fixtureworks®

Work Supports



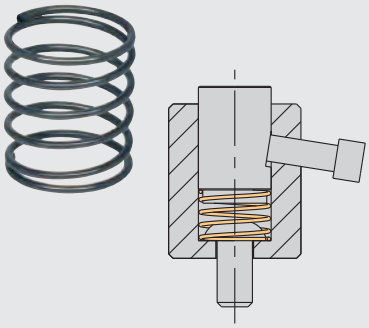
WORK SUPPORTS

Part No. BJ350



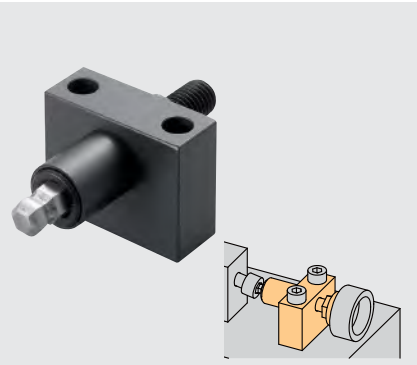
CYLINDRICAL
WORK SUPPORTS

Part No. BJ351



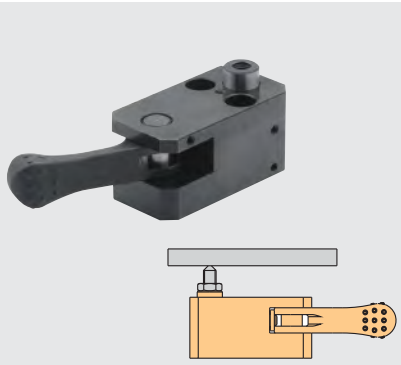
COIL SPRINGS FOR
CYLINDRICAL WORK SUPPORTS

Part No. BJ351-C



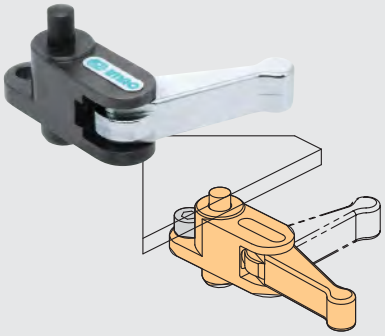
REMOTE-CONTROL UNITS

Part No. BJ650



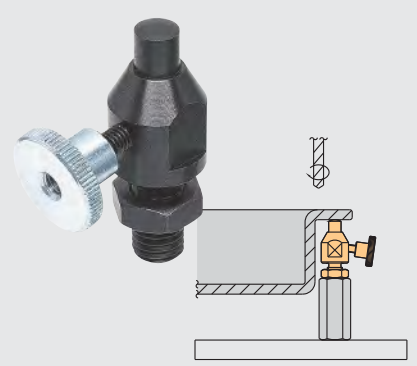
WORK SUPPORTS
WITH CAM HANDLE

Part No. BJ352



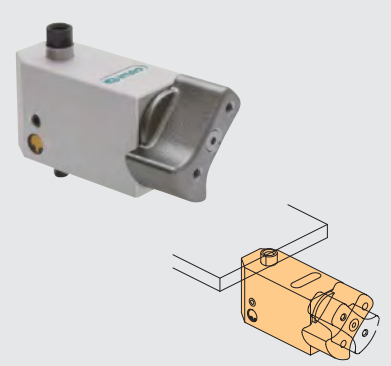
COMPACT WORK SUPPORTS
WITH CAM HANDLE

Part No. BJ362



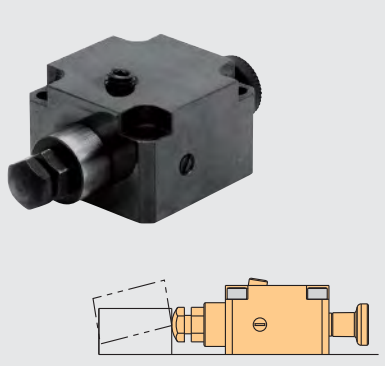
COMPACT
WORK SUPPORTS

Part No. BJ360



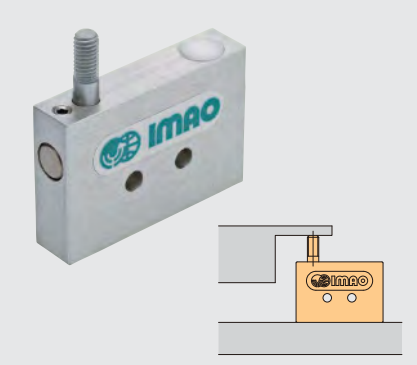
PRECISION
WORK SUPPORT

Part No. BJ371



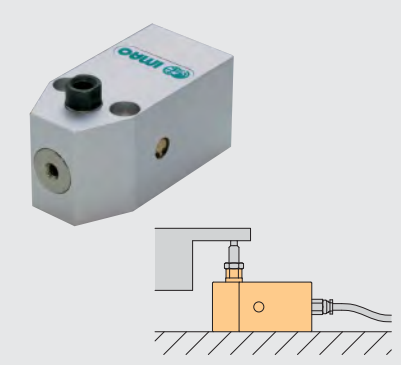
HORIZONTAL
WORK SUPPORTS

Part No. BJ351-A



COMPACT PNEUMATIC
WORK SUPPORTS

Part No. AMNS-S



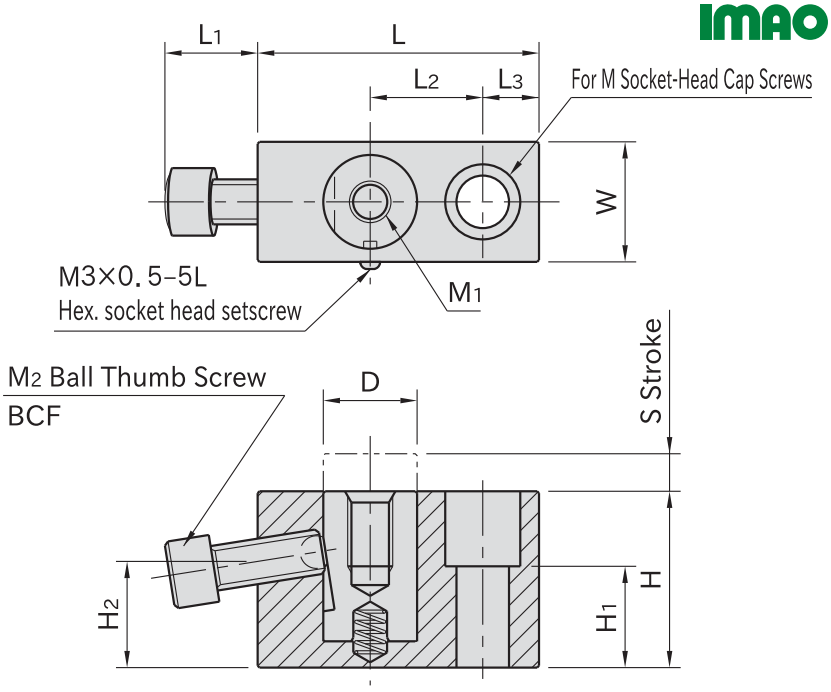
PNEUMATIC
WORK SUPPORTS

Part No. BJ370

IMAO® fixtureworks®

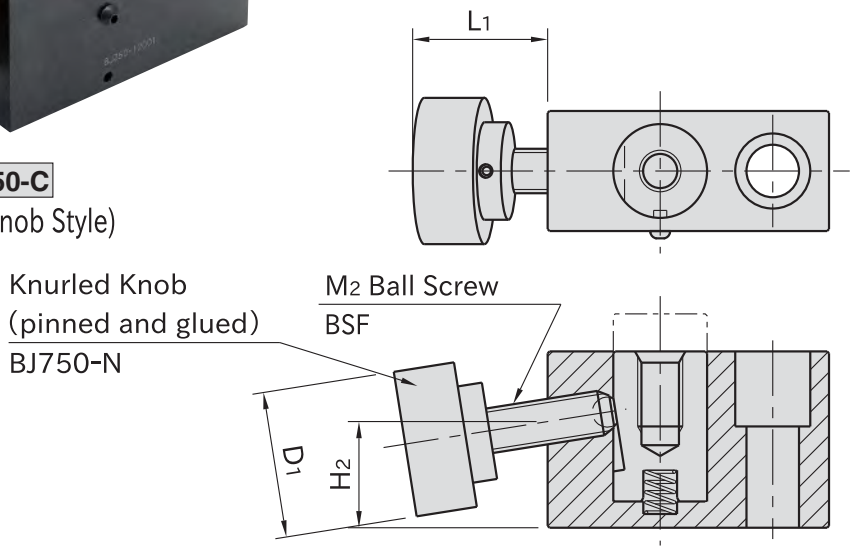
BJ350 WORK SUPPORTS

BJ350
(Ball-Thumb-Screw Style)



BJ350
(Ball-Thumb-Screw Style)

BJ350-C
(Knurled-Knob Style)



BJ350-C
(Knurled-Knob Style)

Body	Piston
S45C steel Black oxide finish	SK95 steel Quenched and tempered Black oxide finish

Size		H	S	M1	D	L	W	M	L2	L3	H1	H2
BJ350 BJ350-C	06001	29	6	M 6×1 Depth 10	12	38	19	M 6	15	8	15	17.6
	08001	37	10	M 8×1.25 Depth 15	16	50	22	M 8	20	10	20	21.6
	10001	42		M10×1.5 Depth 15	19	65	25	M10	25	15		24.6
	12001	47		M12×1.75 Depth 20	25	75	32	M12	30		27	28.3

BJ350 (Ball-Thumb-Screw Style)

Part Number	L_1	M_2	Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ350-06001	12	M 6×1 -16L	7.5	4	0～ 6	150
BJ350-08001	15	M 8×1.25-20L	14	6	0～ 7	285
BJ350-10001	18.5	M10×1.5 -25L	18	7.5	1～11	480
BJ350-12001	23	M12×1.75-30L	22	9		800

BJ350-C (Knurled-Knob Style)

Part Number	L_1	D_1	M_2	Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ350-06001C	20.7	24	M 6×1	1	0.6	0～ 6	180
BJ350-08001C	23.6	30	M 8×1.25	1.2	0.7	0～ 7	340
BJ350-10001C	26.2	36	M10×1.5	1.5		1～11	500
BJ350-12001C	31.3	40	M12×1.75	2	0.8		950

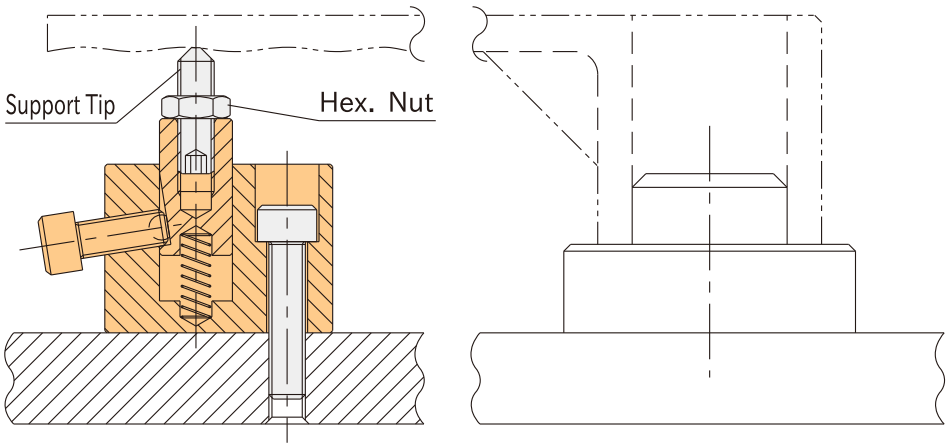
Feature

The positive locking mechanism allows the ball-thumb-screw style to offer high support capacities.

Note

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

How To Use



Ideal for preventing the workpiece from chattering and deflecting.

Reference

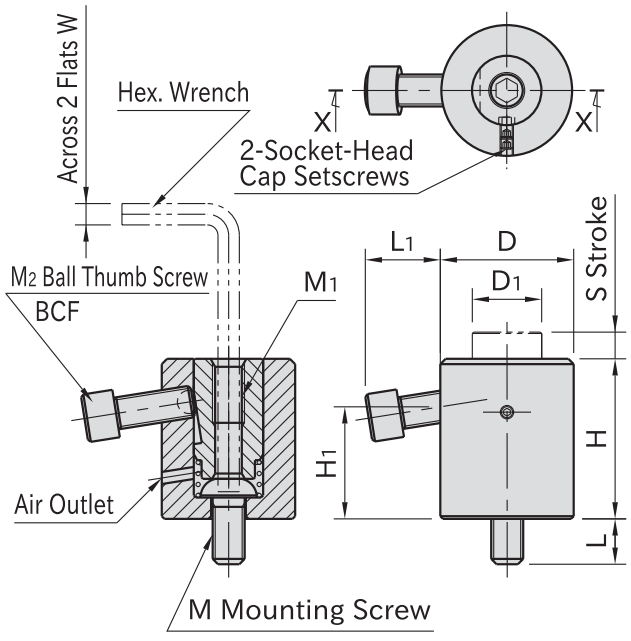
BJ650 REMOTE-CONTROL UNITS

BJ351 CYLINDRICAL WORK SUPPORTS

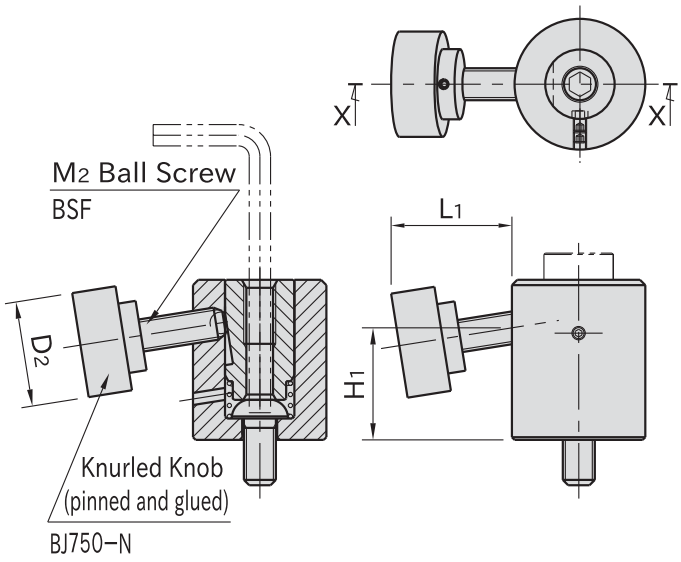
BJ351
(Ball-Thumb-Screw Style)

BJ351-C
(Knurled-Knob Style)

Body	Piston
S45C steel Black oxide finish	SK95 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-Thumb-Screw Style)

BJ351-C
(Knurled-Knob Style)

Size		H	S	M_1	D_1	D	M	L	W	H_1
BJ351 BJ351-C	060060	33	33 6	M 6×1 Depth 12	12	14	M 6×1	10	10 4	22
	080080	42	42	M 8×1.25 Depth 16	16	19	M 8×1.25	15	15 5	28.5
	100100	50	50	M10×1.5 Depth 20	20	24	M10×1.5	14	14 6	34
	120120	60	60	M12×1.75 Depth 24	24	26	M12×1.75	17	17 8	42
	160160	70	70	M16×2 Depth 32	32	33	M16×2	22	22 10	47

10 10

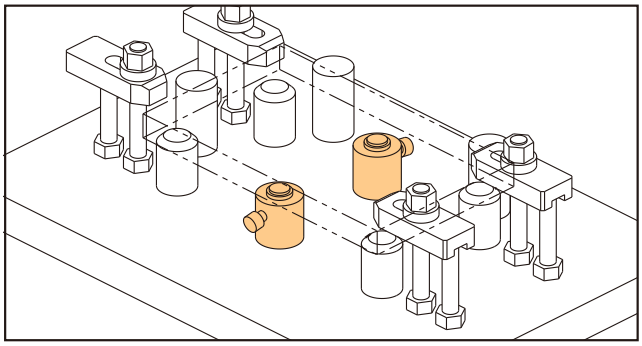
BJ351 (Ball-Thumb-Screw Style)

Part Number	L_1	M_2	Allowable Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ351-06001	14.1	M 6×1 -16L	7.5	4	10～22	150
BJ351-08001	18.8	M 8×1.25-20L	14	6	10～27	300
BJ351-10001	23.8	M10×1.5 -25L	18	7.5	14～28	540
BJ351-12001	28.5	M12×1.75-30L	22	9	15～30	865
BJ351-16001	26.5		25		15～35	1390

BJ351-C (Knurled-Knob Style)

Part Number	L_1	D_2	M_2	Allowable Screw Torque (N·m)	Support Capacity (kN)	Piston Spring Force (N)	Weight (g)
BJ351-06001C	22.7	24	M 6×1	1	0.6	10～22	185
BJ351-08001C	27.7	30	M 8×1.25	1.2	0.7	10～27	360
BJ351-10001C	31.8	36	M10×1.5	1.5		14～28	620
BJ351-12001C	36.8	40	M12×1.75	2	0.8	15～30	1020

How To Use



Feature

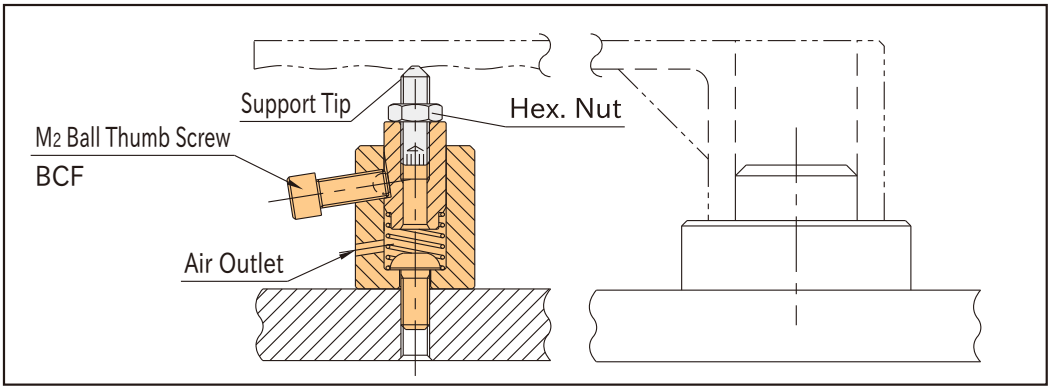
The positive locking mechanism allows the ball-thumb-screw style to offer high support capacities.

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



Ideal for preventing the workpiece from chattering and deflecting.

BJ351-C COIL SPRINGS FOR CYLINDRICAL WORK SUPPORTS

RoHS

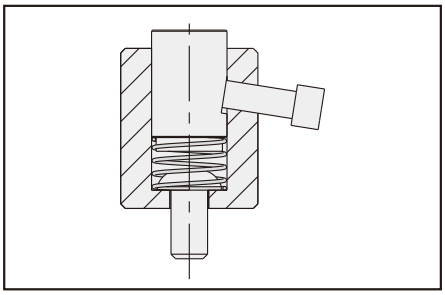
IMAO

Body
SWPA steel

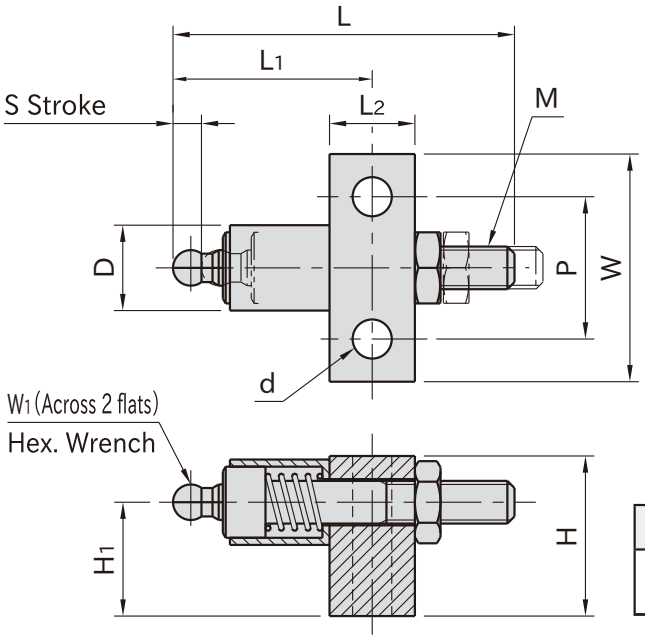
How To Use

Replacement springs to set the piston spring force lower.

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



BJ650 REMOTE-CONTROL UNITS



Body
S45C steel Black oxide finish

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		

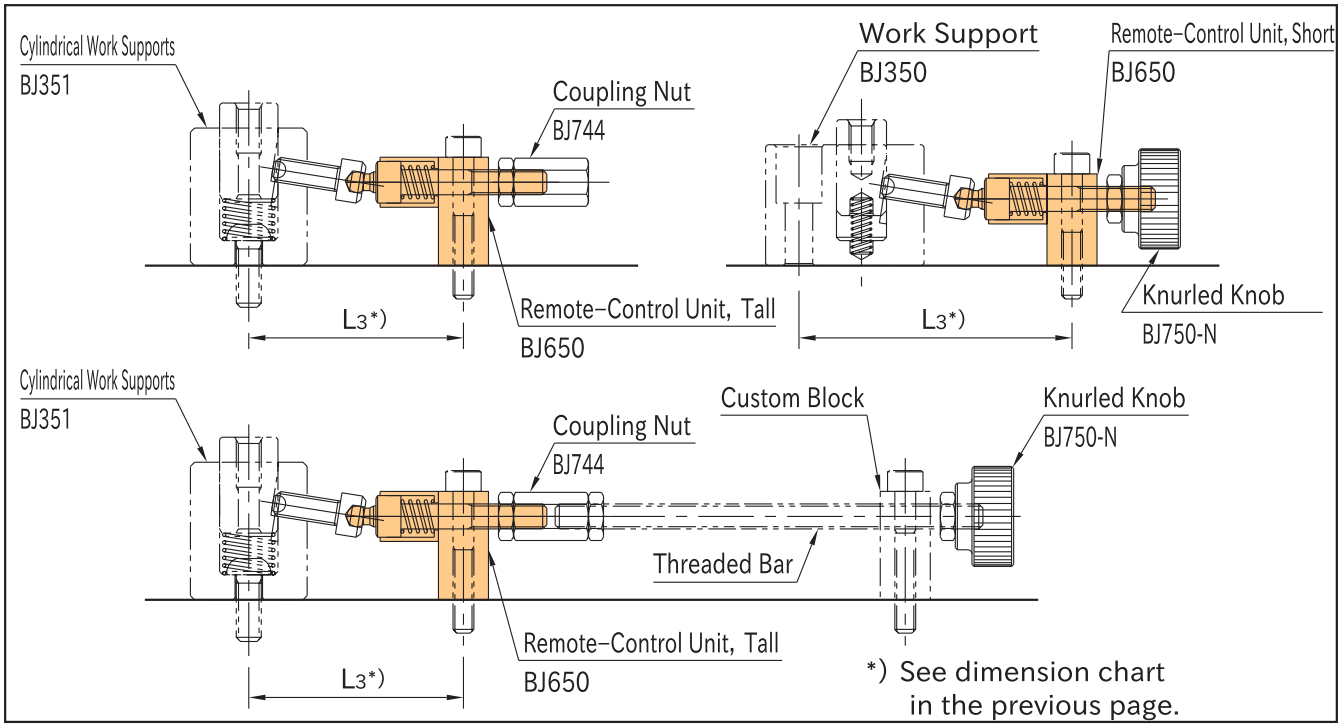
Part Number	W_1	M	L_3: Recommended Distance between Work Supprt and Remote-Control Unit	Weight (g)	Work Supports (Ball-Thumb-Screw Style)
BJ650-06001	5	M 6×1 -35L	66	75	BJ350-06001
BJ650-08001	6	M 8×1.25-40L	81	100	BJ350-08001
BJ650-10001	8	M10×1.5 -55L	103	210	BJ350-10001
BJ650-12001	10	M12×1.75-60L	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 6×1 -35L	52	85	BJ351-06001
BJ650-08002	6	M 8×1.25-40L	62	115	BJ351-08001
BJ650-10002	8	M10×1.5 -55L	79	240	BJ351-10001
BJ650-12002	10	M12×1.75-60L	92	310	BJ351-12001
BJ650-16002			95	335	BJ351-16001

How To Use



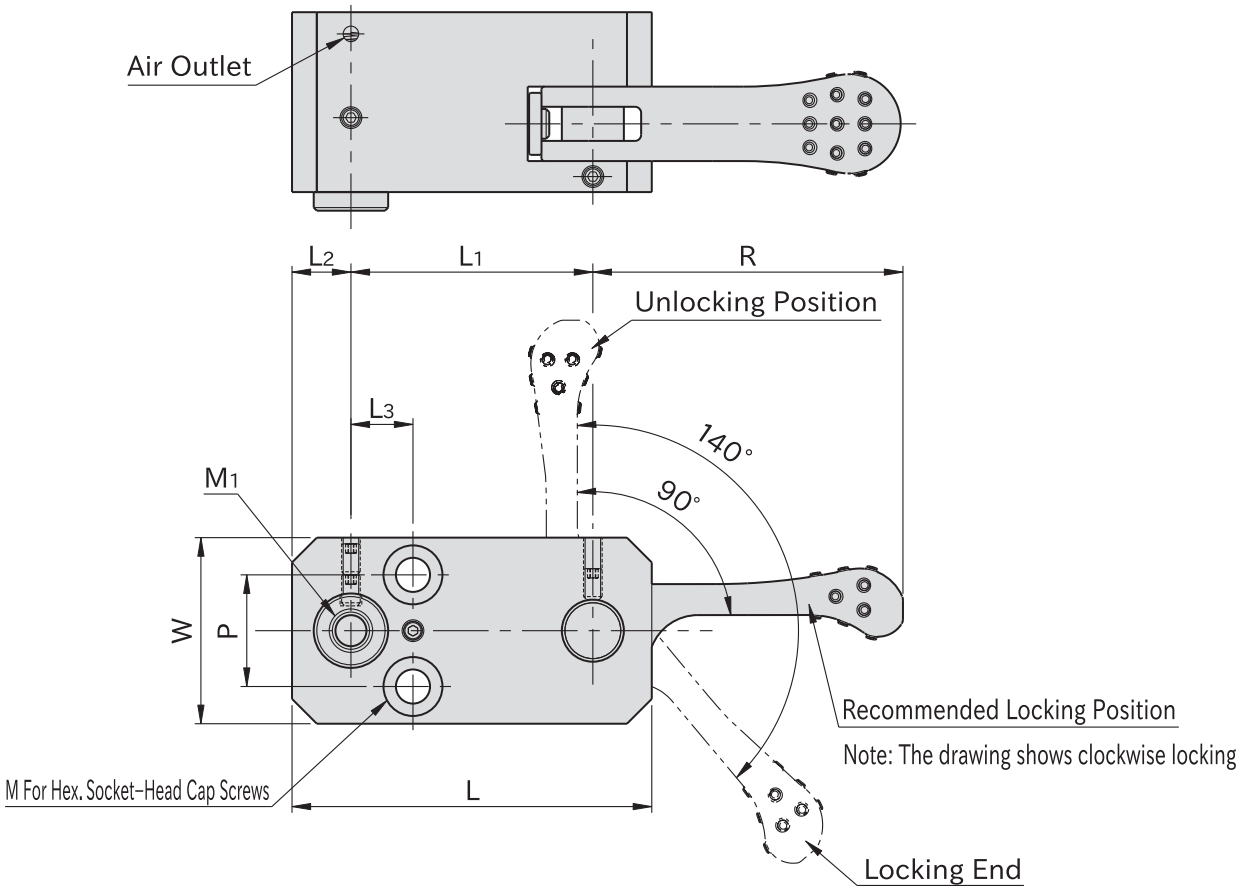
Suitable for controling work supports from a distance.

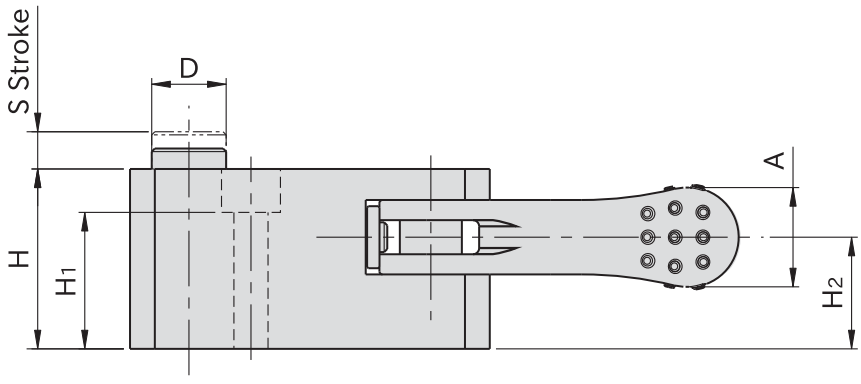
Note

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





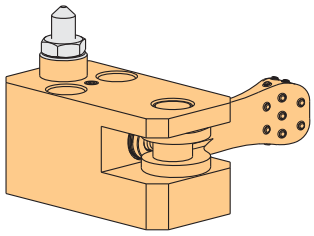
Part Number	H	S	M_1	D	L	W	R	A	H_2	M	H_1	P
BJ352-05001	24	5	M 5X0.8 Depth 8	10	52	25	40	14	14	M4	19	15
BJ352-06001	29	6	M 6X1 Depth 10	12	58	30	50	16	18	M5	22	18
BJ352-08001	37	8	M 8X1.25 Depth 15	16	75	38	63	19	23	M6	25	24
BJ352-10001	42	10	M10X1.5 Depth 15	19	85	45	80	24	26	M8	30	28

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

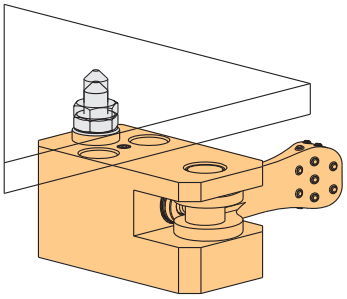
*)Allowable load to operate the handle

How To Use

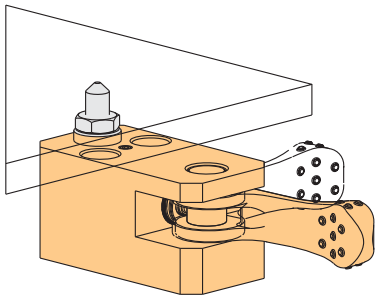
■Operating Instruction



1. Unlocked
No workpiece loaded

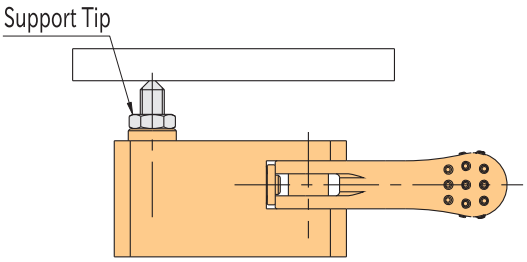


2. Workpiece Loading
Load a workpiece,
and the piston lowers.



3. Locking
Turn the handle to lock the piston.

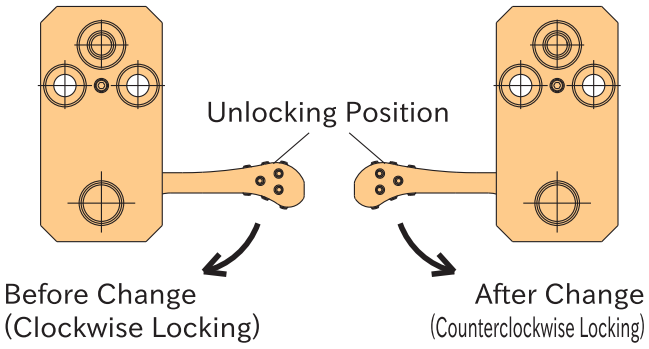
■Adjusting Handle Locking Position



When the projection amount from the body is ½ 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.

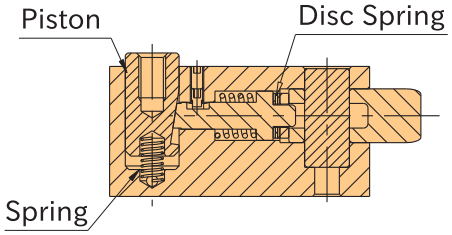
■Changing Locking Direction

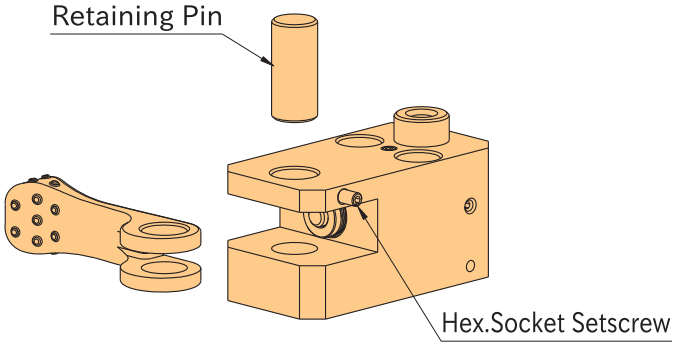
Loosen the hex. socket setscrew to remove the retaining pin.
Turn the handle upside down and put it in position again.



Feature

The built-in disc spring prevents loosened locking.



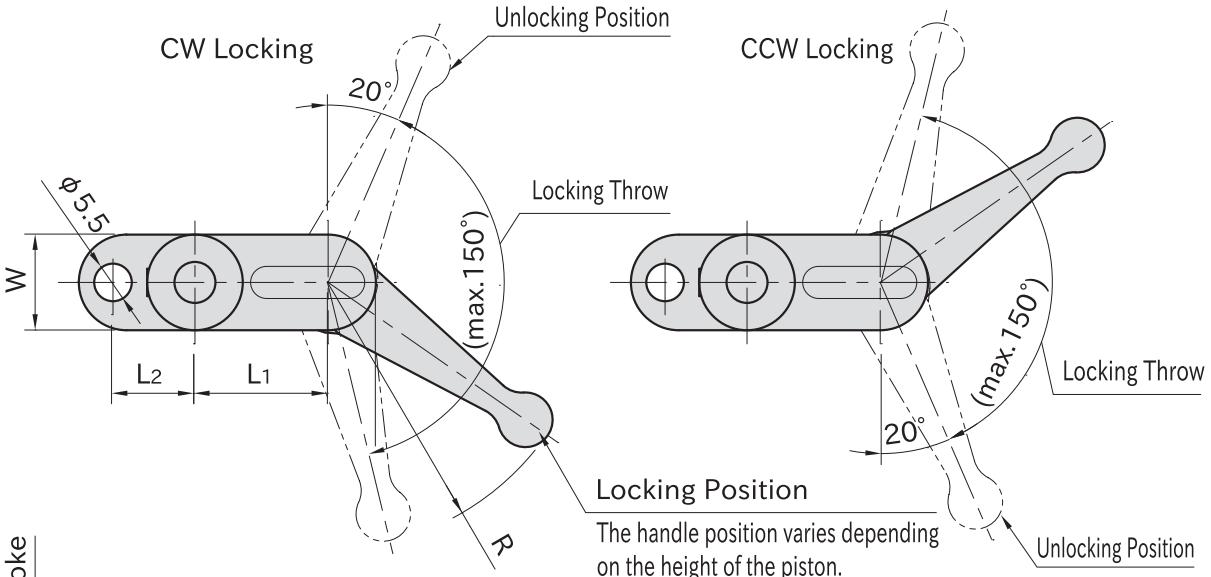


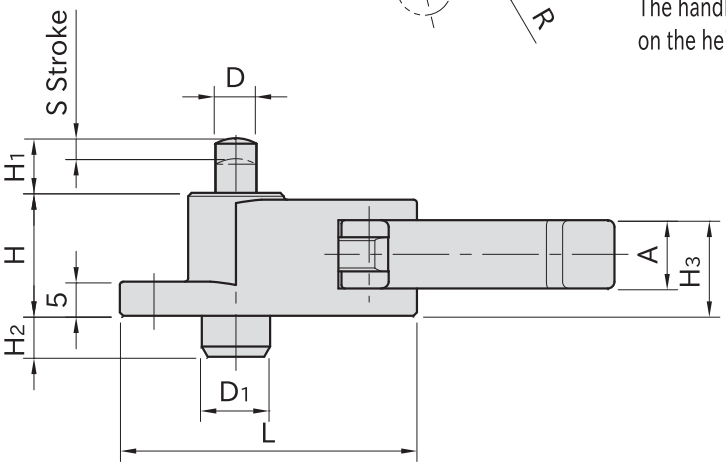
Note

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





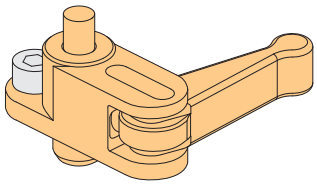
Part Number	Locking Direction	H	H_1	S	D	L	W	R	A	H_3	D_1	H_2	L_1	L_2
BJ362-06001R	CW	18	8	3	6	43.5	14	39	10	14	10	6	19.5	12
BJ362-06001L	CCW													
BJ362-10001R	CW	25	10	4	10	50.4	18	50	13	18.5	14	9.5	22.4	14
BJ362-10001L	CCW													

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					

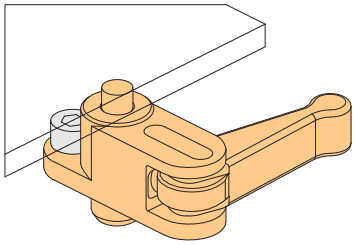
*)Allowable load to operate the handle.

How To Use

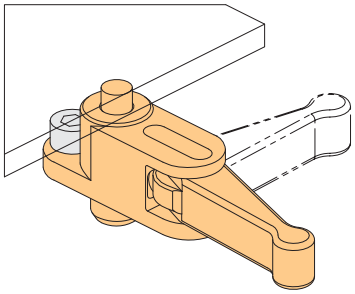
■Operating Instruction



1. Unlocked
No workpiece loaded.

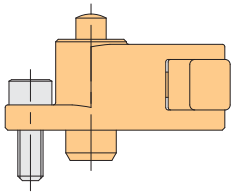


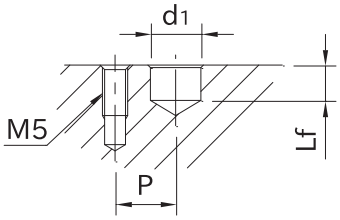
2. Workpiece Loading
Load a workpiece,
and the piston lowers.



3. Locking
Turn the handle to lock the piston.

■Mounting-Hole Dimension



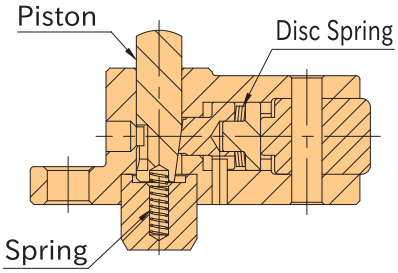


Drill a tapped hole and a locating-pin hole as specified below.

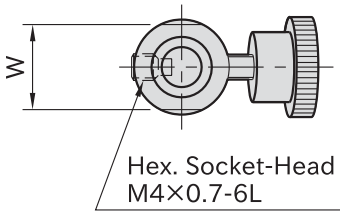
Size	d_1 $(^{+0.3}_{0})$	Lf	P
BJ362-06001	10	7	12
BJ362-10001	14	10.5	14

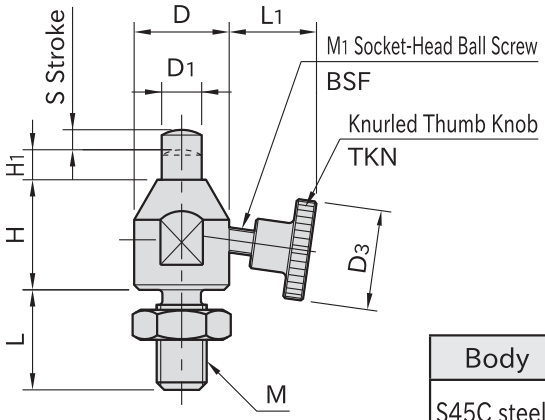
Feature

The built-in disc spring prevents loosened locking.



BJ360 COMPACT WORK SUPPORTS





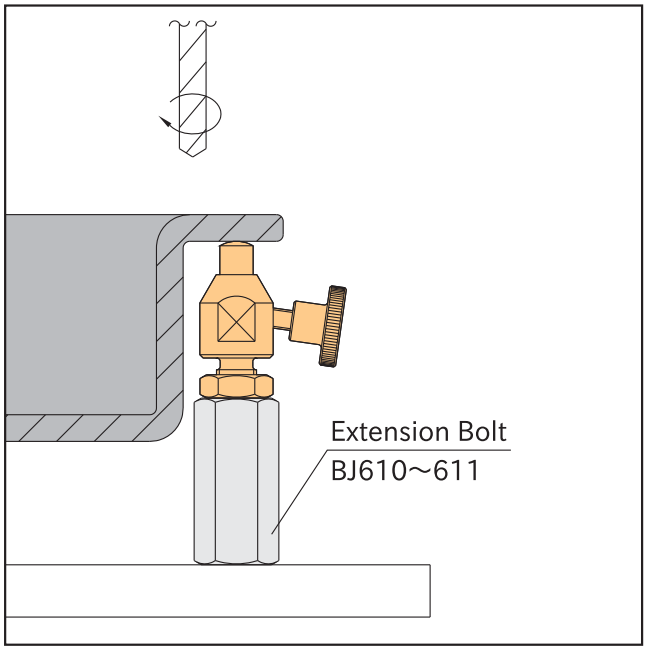
Note: The socket-head ball screw is glued to the knurled thumb knob.

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

Part Number	H	H1	S	D1	D	M	L	W	D3	M1	L1
BJ360-08001	18	5	3	6	15	M 8×1.25	16	13	16	M4×0.7-16L	13.2
BJ360-10001	22	6	4	8	19	M10×1.5	20	17	20	M5×0.8-20L	16.3
BJ360-12001	25			10	22	M12×1.75	24	19	24	M6×1 -25L	22.3

Part Number	Piston Spring Force (N)	Support Capacity (kN)	Weight (g)
BJ360-08001	1.5~3.0	0.2	36
BJ360-10001	1.8~3.0	0.3	72
BJ360-12001		0.4	150

How To Use



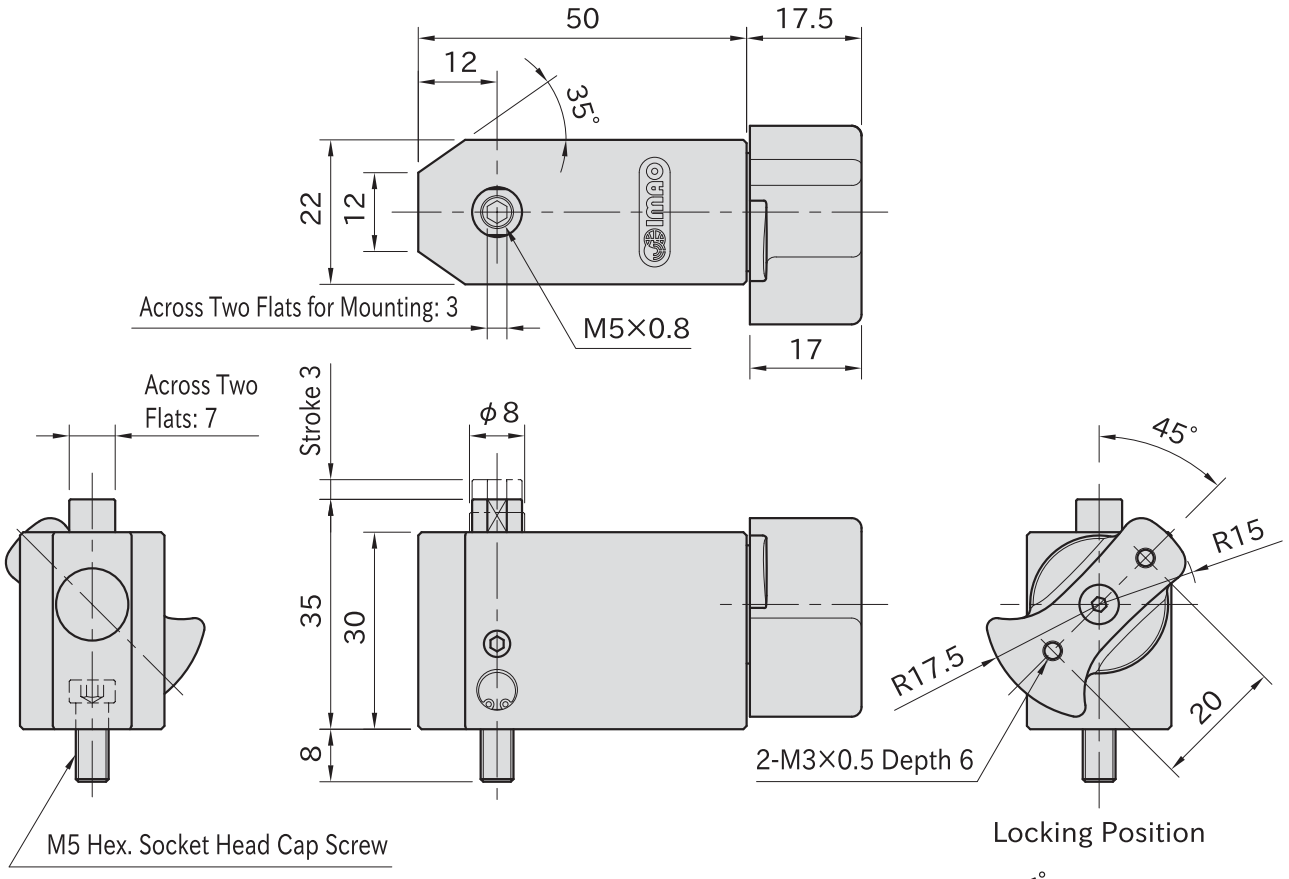
IMAO® fixtureworks®

BJ371 PRECISION WORK SUPPORT

RoHS

IMAO

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



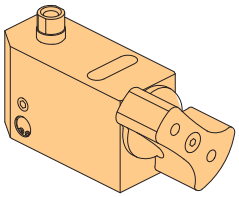
Part Number	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
BJ371-05001	400	0.3~0.4	160

Feature

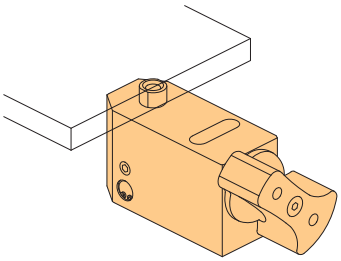
- The piston can be locked/unlocked with one-touch operation and keeps stable support capacity.
- The displacement of the piston is not exceeding 3 μm when it is locked. This helps keep the accuracy of the workpiece height.
- Can be used by remote control.

How To Use

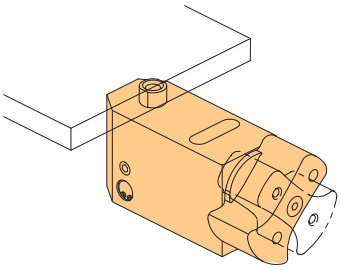
■Operating Instruction



1. No workpiece loaded.



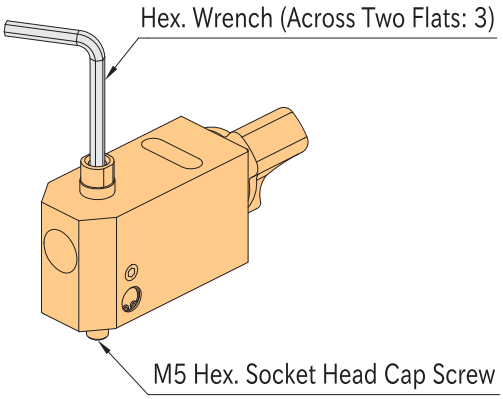
2. Load a workpiece, and the piston lowers.



3. Lock the piston by turning the knob.

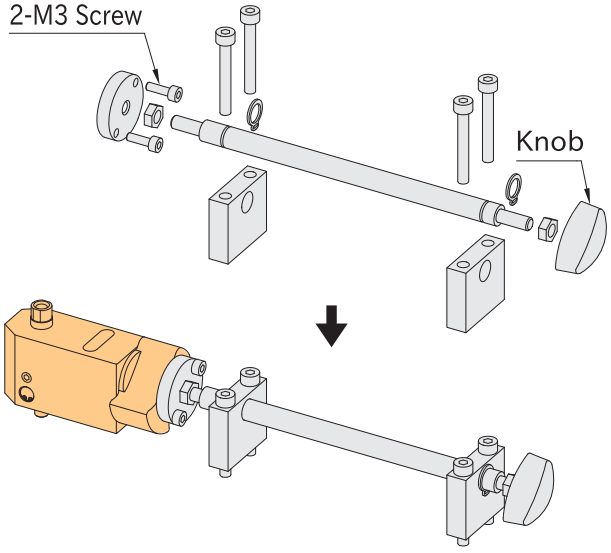
■Installation Instruction

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



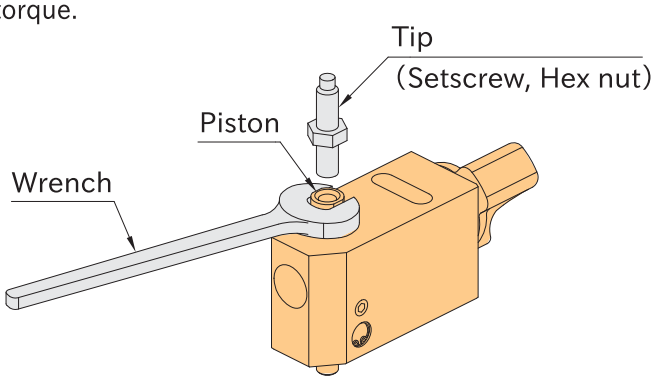
■Application Example for Remote Control

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.

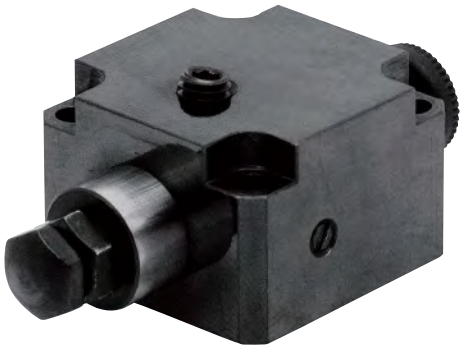


- In machining applications, use clean coolant without sludge to prevent trouble.

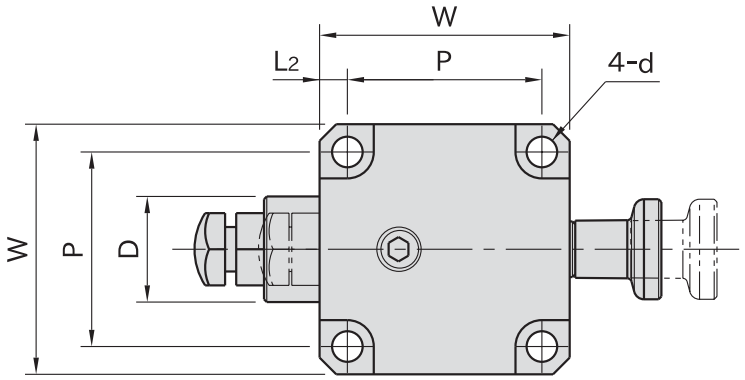
BJ351-A HORIZONTAL WORK SUPPORTS

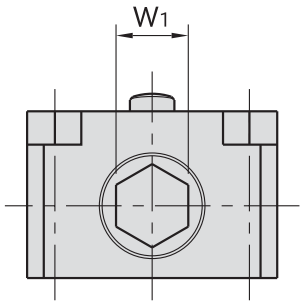
RoHS

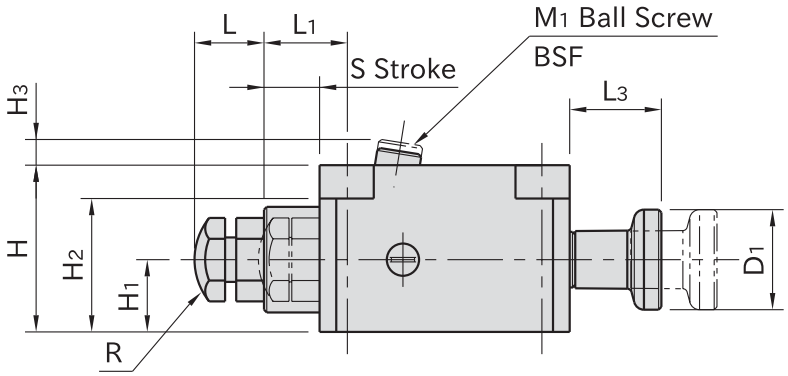
IMAO

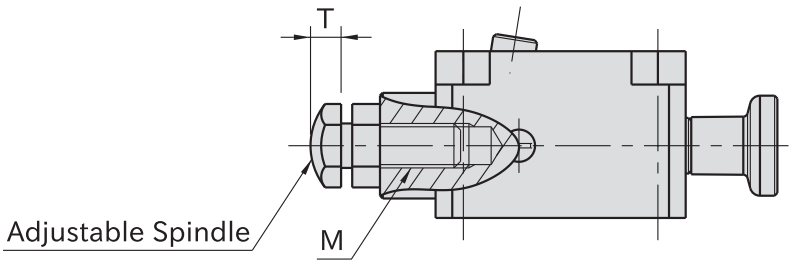


Body	Piston	Adjustable Spindle	Knob
S45C steel Black oxide finish	SK4 steel Quenched and tempered Black oxide finish	S45C steel Heat treated on edge Black oxide finish	Polyamide plastic Black







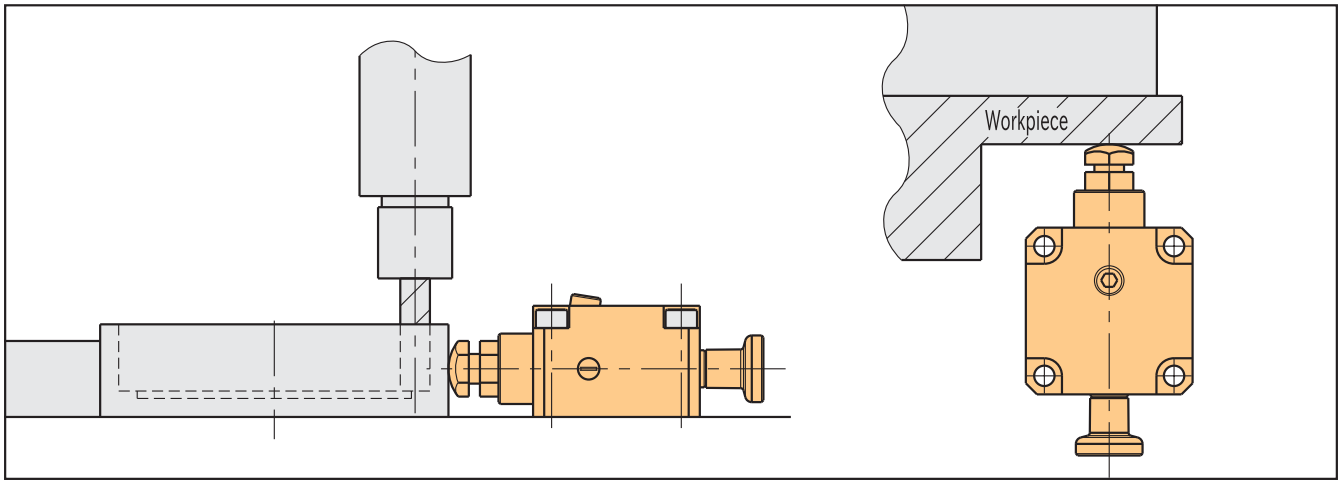


Internal structure of the piston part

Part Number	L	L1	S	L2	H1	D	W	H	d	H2	P	W1	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	M1	H3	D1	L3	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

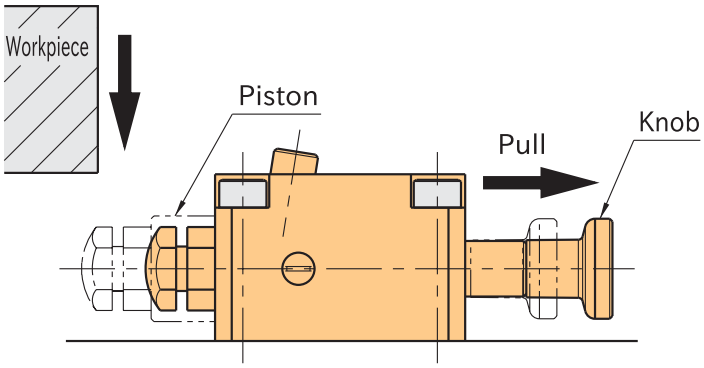
How To Use



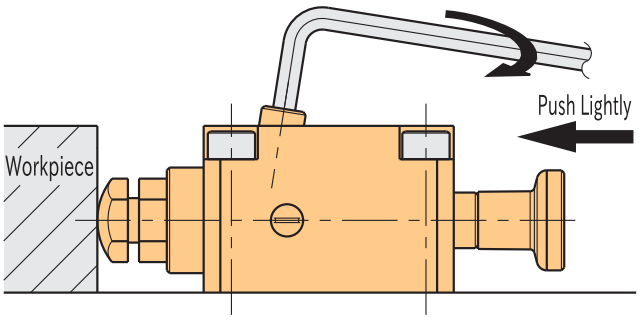
Ideal for preventing the thin workpiece from chattering and deflecting.

■Operating Instruction

1. To set a workpiece with the piston retracted,

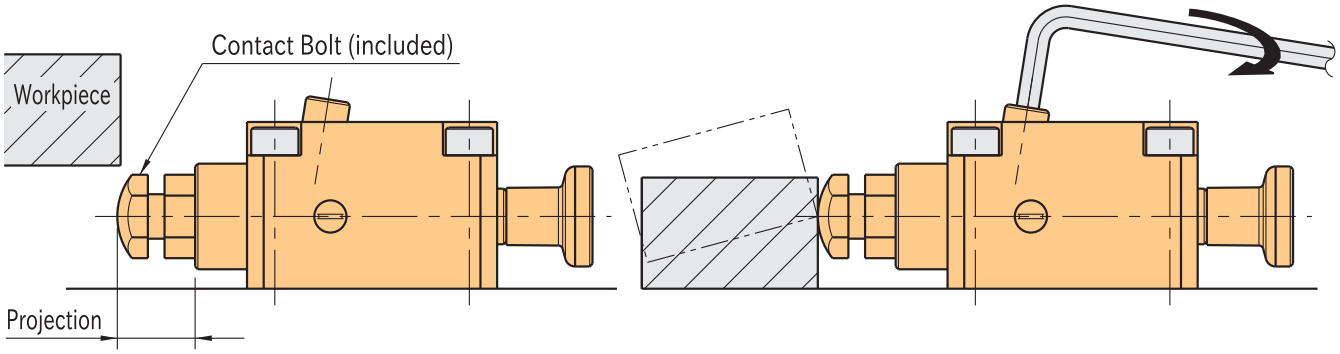


1. Set the piston retracted by pulling the knob. The internal plunger allows retaining the piston at the retracted position.



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

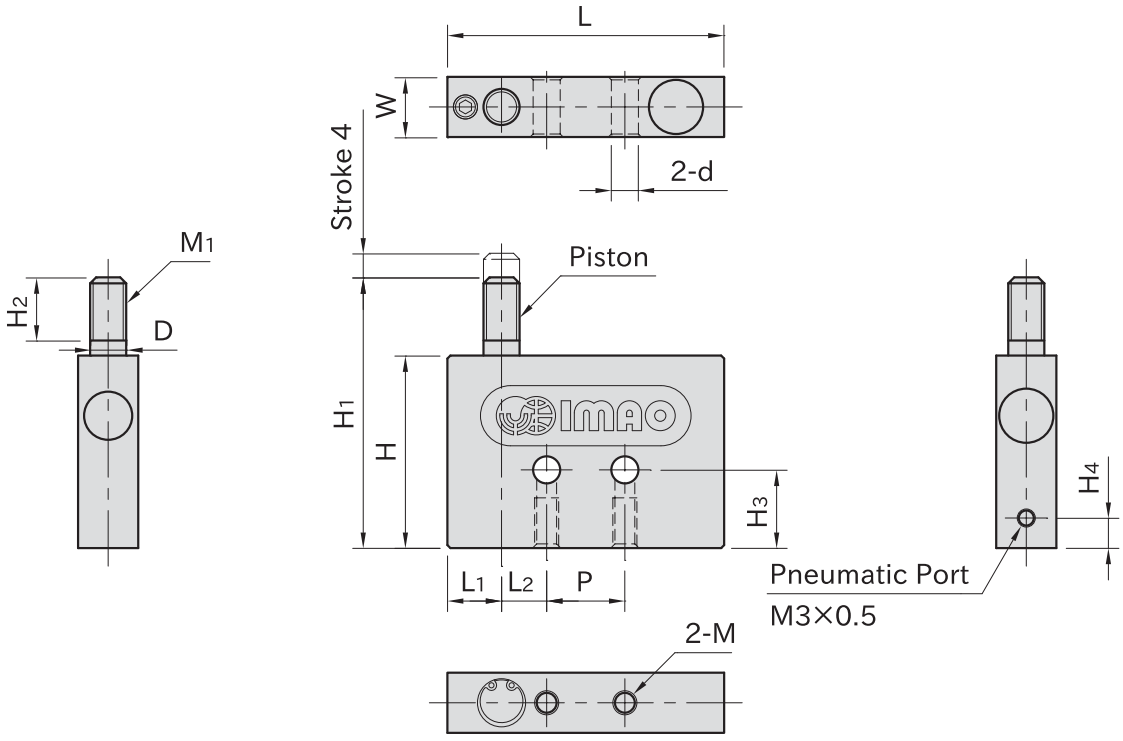
When you attach a support tip to the tapped hole through the shaft, tighten the shaft and fix it to prevent damage.

AMNS-S COMPACT PNEUMATIC WORK SUPPORTS

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

★Key Point

Provide high support capacity even with small body.



Part Number	H	H1	M1	H2	D	L	W	d	M	L1
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	L2	P	H3	H4	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

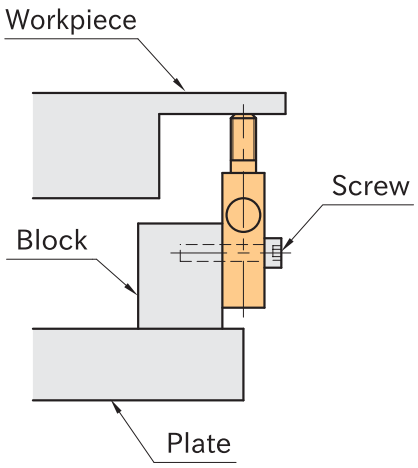
■Operating Instructions

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.

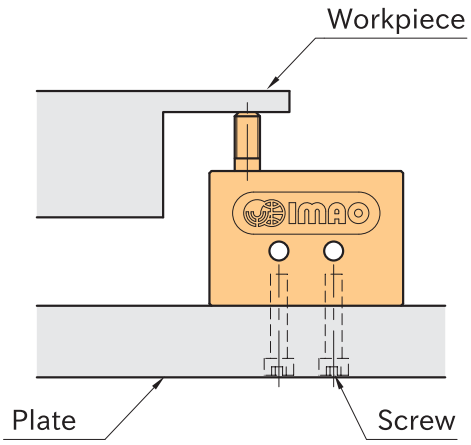
■Installation Instructions

Side or bottom surface mounting is possible.

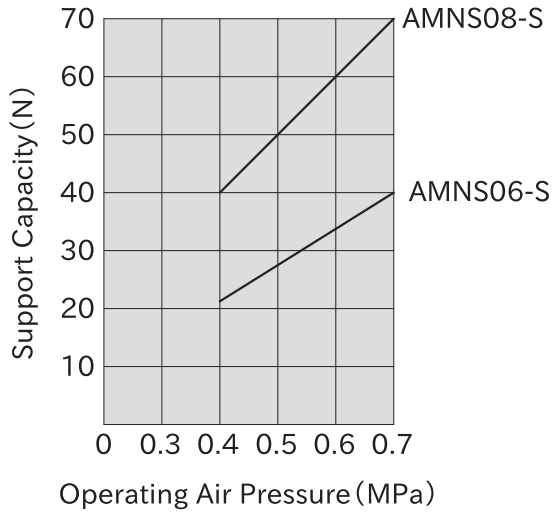
Side Surface Mounting



Bottom Surface Mounting

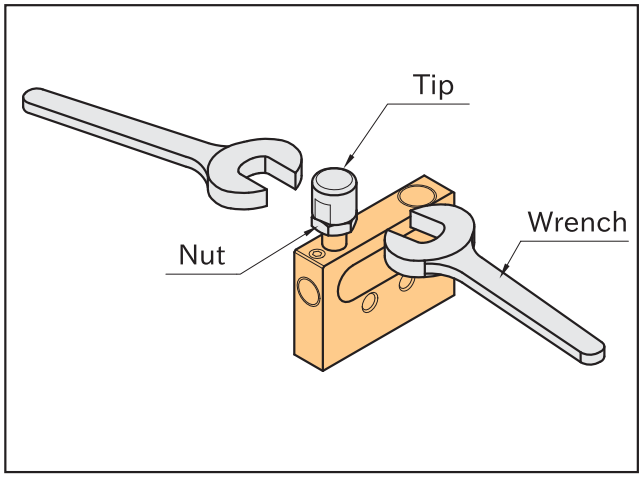


Performance Curve



Note

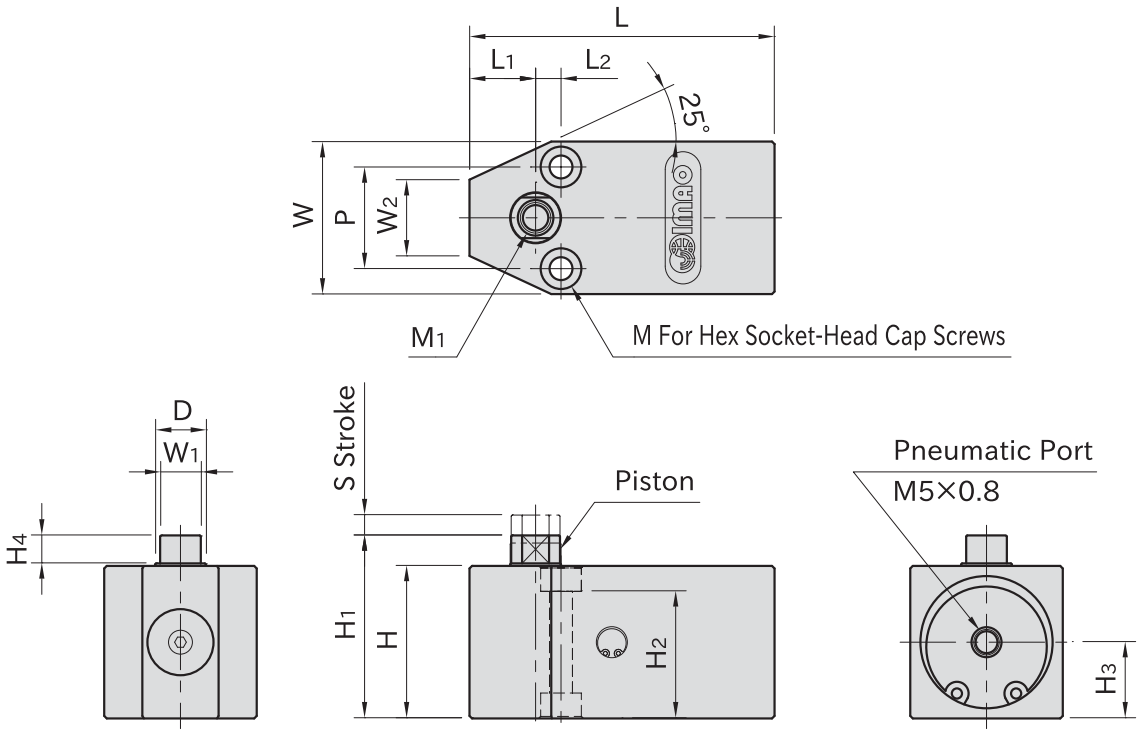
・Use a nut to attach a tip on the piston as directed below.
The piston rotates 360° freely.



・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	H1	S	M1	D	L	W	M	H2	P	H3	W1	H4
BJ370-05001	25	30	3	M5×0.8 Depth10	8	50	25	M3	21	16	12.5	7	4.5
BJ370-06001	30	36	4	M6×1 Depth12	10	60	30	M4	25	20	15	8	5.5

Part Number	L1	L2	W2	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

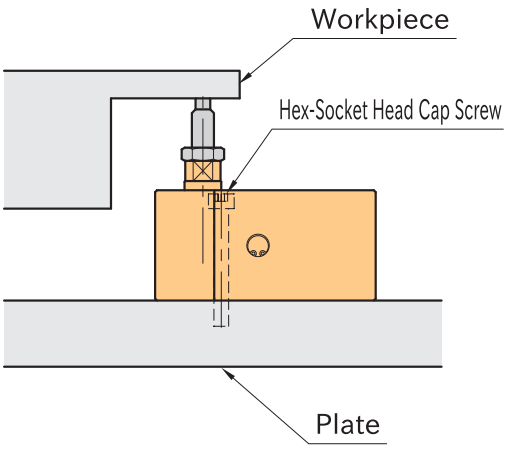
■Operating Instructions

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.

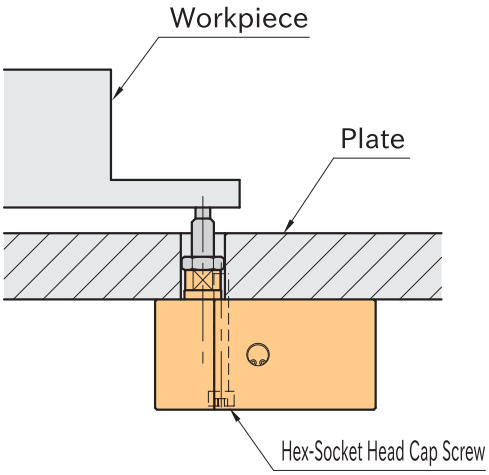
■Installation Instructions

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

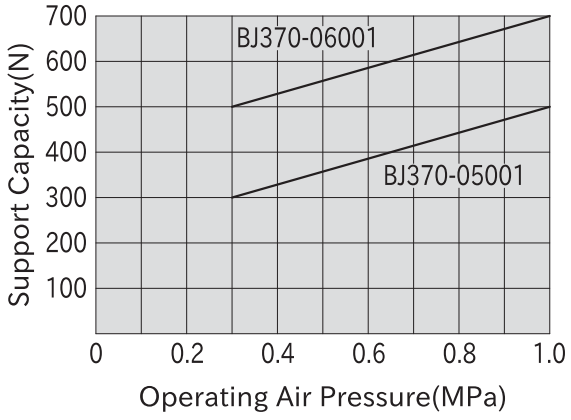
Mount on Top Surface of Plate



Mount on Bottom Surface of Plate
(For lower positioning of workpiece)

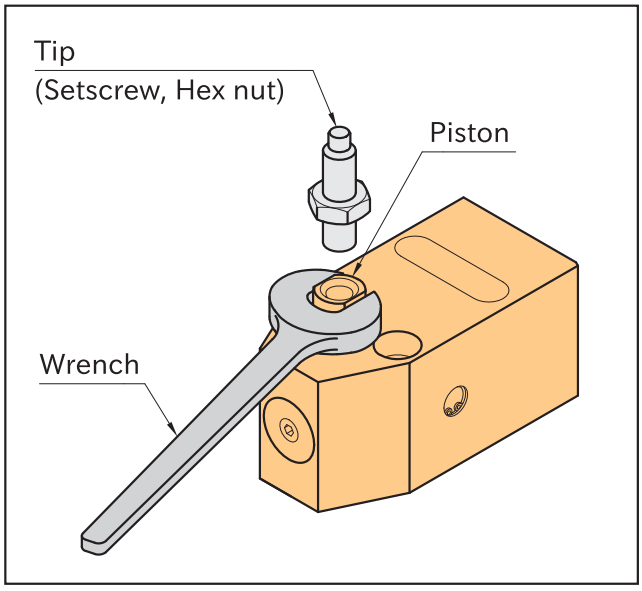


Performance Curve



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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