FIXTURE CHANGING SYSTEM

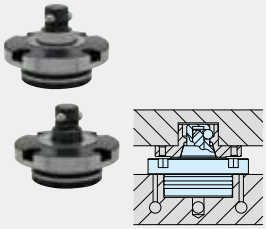
FLEX LOCATORS

FLEX ZERO BASES

QUICK ZERO SETTING DEVICE

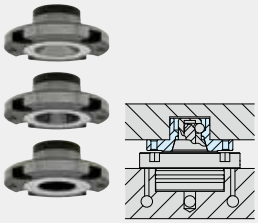
FIXTURE CHANGING SYSTEM

FLEX LOCATORS



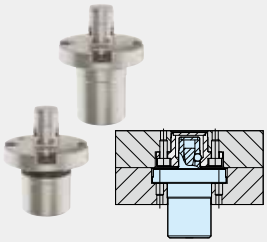
PNEUMATIC FLEX LOCATOR PINS

Part No. AMWF-W



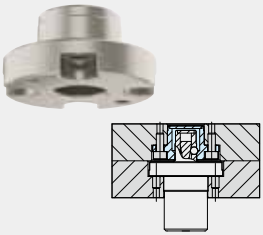
PNEUMATIC FLEX LOCATOR BUSHINGS

Part No. AMWF-BU



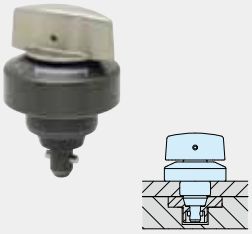
PNEUMATIC FLEX LOCATOR PINS

Part No. AMWF-L-S



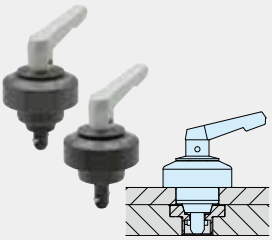
PNEUMATIC FLEX LOCATOR BUSHINGS

Part No. AMWF-BU



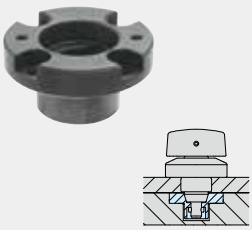
ONE-TOUCH FLEX LOCATOR CLAMPERS (Knob)

Part No. CP723



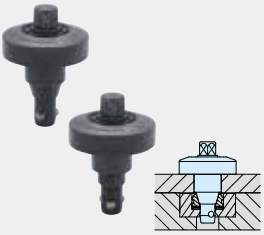
ONE-TOUCH FLEX LOCATOR CLAMPERS

Part No. CP722



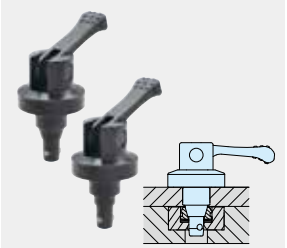
ONE-TOUCH FLEX LOCATOR BUSHINGS

Part No. CP727



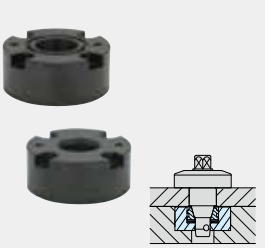
ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head)

Part No. CP730



ONE-TOUCH FLEX LOCATOR CLAMPERS (Cam Handle)

Part No. CP731



ONE-TOUCH FLEX LOCATOR BUSHINGS

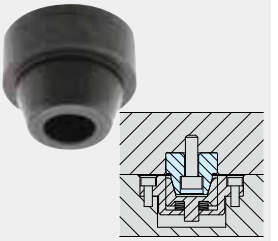
Part No. CP735

ONE-TOUCH FLEX LOCATOR PROTECTING COVERS

Part No. CP735-P

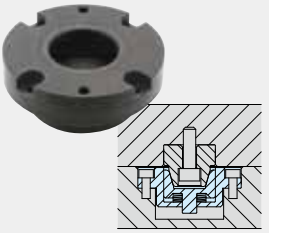
ADJUSTABLE-TORQUE WRENCHES

Part No. CP-TCW



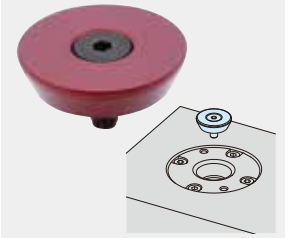
FLEX LOCATOR PINS

Part No. CP720



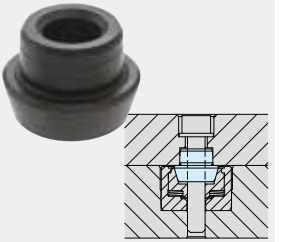
FLEX LOCATOR BUSHINGS (Blind)

Part No. CP725



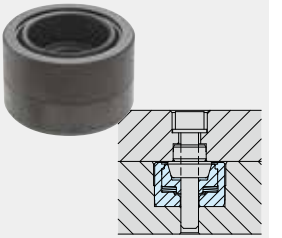
FLEX LOCATOR PROTECTING COVERS

Part No. CP725-P



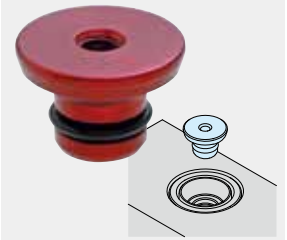
FLEX LOCATOR PINS

Part No. CP721



FLEX LOCATOR BUSHINGS (Through)

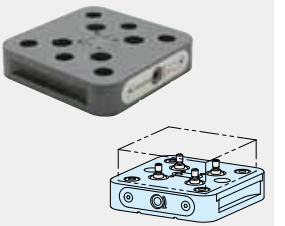
Part No. CP726



FLEX LOCATOR PROTECTING COVERS

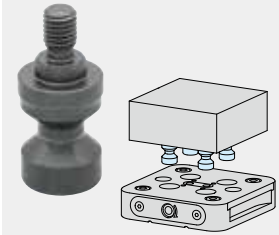
Part No. CP726-P

FLEX ZERO BASES



FLEX ZERO BASES

Part No. CP180



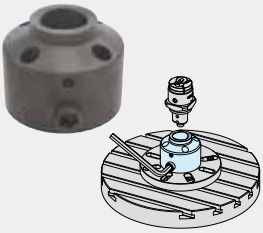
CLAMPING PINS

Part No. CP185

PROTECTING COVER

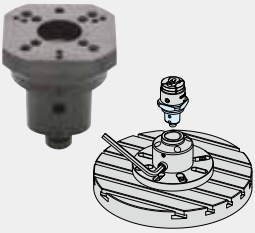
Part No. CP185-P

QUICK ZERO SETTING DEVICE



BASE
(QUICK ZERO SETTING DEVICE)

Part No. QZSD-C6-B



HOLDER
(QUICK ZERO SETTING DEVICE)

Part No. QZSD-C6-H

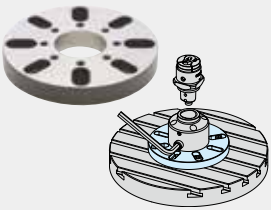


PLATE
(QUICK ZERO SETTING DEVICE)

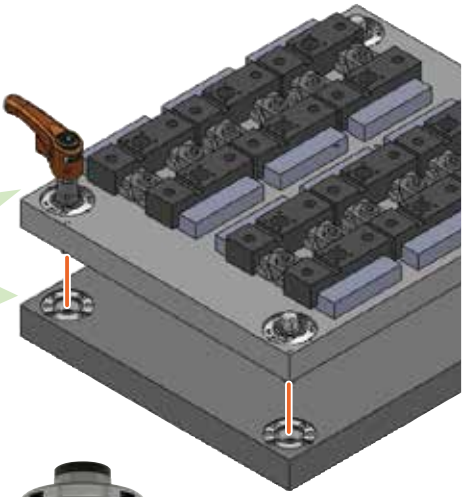
Part No. QZSD-C6-P

Value Creator
IMAO

FLEX LOCATORS

FLEX LOCATORS

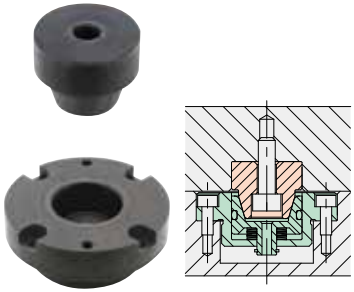
Flex Locators provide "precise locating" and "easy operation" by movable tapered pin or bushing.



Hexagon Head | Cam Handle | Knob | Pneumatic

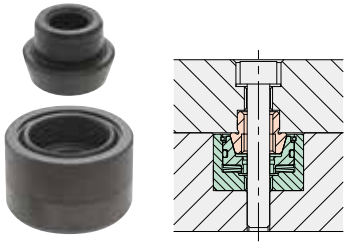
FLEX LOCATORS

Simple and low cost types with only locating function



Standard

Locating Repeatability	10μm



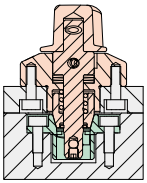
Through Hole

Locating Repeatability	10μm

ONE-TOUCH FLEX LOCATORS

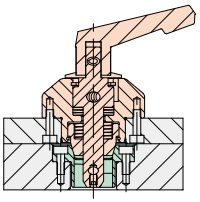
Locating and clamping functions

Quick and easy operation by knob



Knob

Locating Repeatability	10μm
Clamping Force	350N, 600N

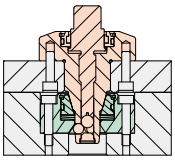


Handle

Locating Repeatability	10μm
Clamping Force	600N, 700N

(Adjustable-torque wrenches are available to control clamping force.)

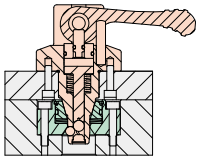
High clamping force by hex head



Hexagon Head

Locating Repeatability	8μm
Clamping Force	1700N, 3000N, 4500N

Quick operation by handle



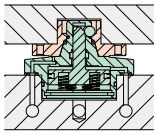
Cam Handle

Locating Repeatability	8μm
Clamping Force	600N, 1200N, 1800N

PNEUMATIC FLEX LOCATORS

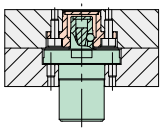
Easier and faster pneumatic operation

High clamping force by spring and air



Flange diameter
ϕ70 / ϕ85

Locating Repeatability	3μm
Clamping Force	4kN, 6.3kN



Flange diameter
ϕ40 / ϕ51

Locating Repeatability	±10μm
Clamping Force	250N, 350N

AMWF-W PNEUMATIC FLEX LOCATOR PINS

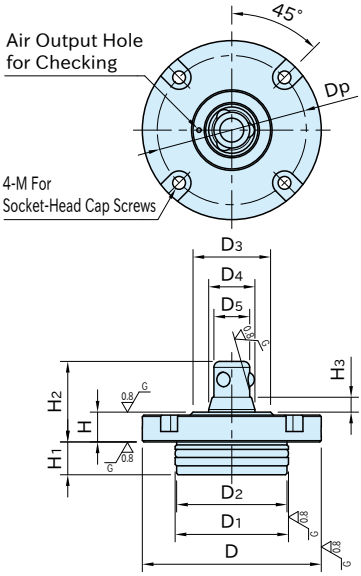
RoHS

IMAO

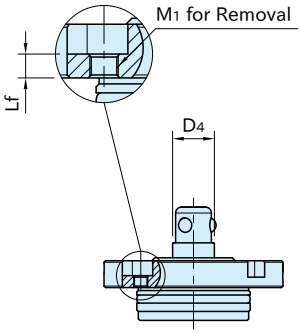
(Tapered Type)

(Straight Type)

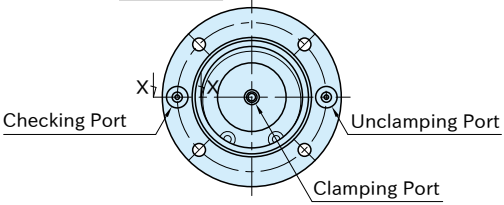
Body	Cylinder	Ball
SCM440 steel Induction hardened Black oxide finished Precision ground	S45C steel Induction hardened Electroless nickel plated	SUS440C stainless steel

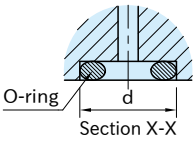


AMWF-W-T (Tapered Type)



AMWF-W-S (Straight Type)





Reference

- How To Use PNEUMATIC FLEX LOCATORS
- How To Install PNEUMATIC FLEX LOCATORS

Note

- Use clean air by removing dust with filter or draining with dryer.
- Impure compressed air may cause malfunction of the products.
- Using lubricator is recommended.

Size		D_1 (g6)	D_2	H_1	D	D_3	H (±0.003)	M	H_3	D_5 (−0.05 −0.15)	H_2	Lf	M_1	Dp
AMWF-W-T	40	48	47.5	15	70	38	12	M5	8	16	35	5	M6X1 (Drilled Hole ϕ5.2)	60
AMWF-W-S	50	58	57.5	19	85	48	15	M6	10	20	44	6	M8X1.25(Drilled Hole ϕ6.8)	72

Size		d	Furnished O-ring	Operating Air Pressure(MPa) *)	Clamping Force(kN)
AMWF-W-T	40	7.2	P4	0.5	4
AMWF-W-S	50	8.2	P5		6.3

*) At least 0.45 MPa is required for unclamping.
The maximum operating air pressure is 1 MPa.

Related Product

AMWF-BU PNEUMATIC FLEX LOCATOR BUSHINGS

AMWF-W-T (Tapered Type)

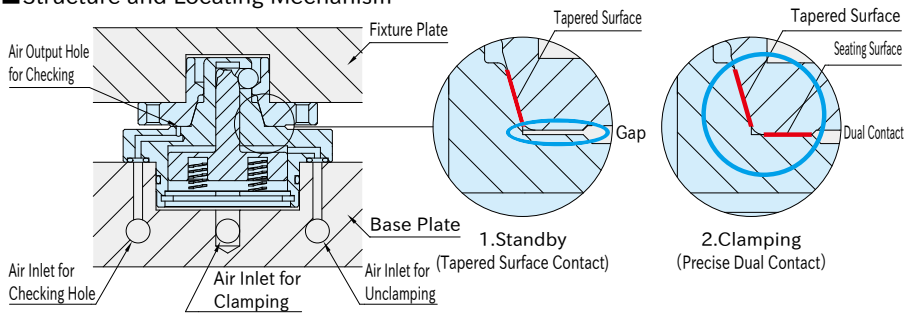
Part Number	D_4	Weight (g)
AMWF40-W-T	24.5	450
AMWF50-W-T	31.5	820

AMWF-W-S (Straight Type)

Part Number	D_4	Weight (g)
AMWF40-W-S	20	440
AMWF50-W-S	26	810

Feature

■Structure and Locating Mechanism



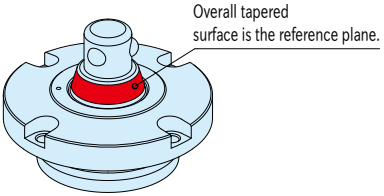
・When the air pressure is lowered by an air leakage, the wedge mechanism and the spring prevent prompt lowering of the clamping force.
Clamping Force at 0 Mpa Air Pressure (Clamping Force of Spring)
・AMWF40Type…1.2kN
・AMWF50Type…1.8kN

・Can check if the fixture plate is clamped properly by applying air through the checking hole.

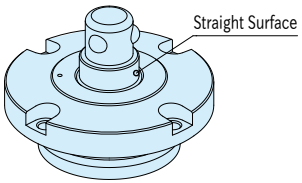
・Precise dual contact provides excellent locating repeatability at 3μm.

■Functions

Locating with Tapered Type



Clamping with Straight Type



AMWF-BU PNEUMATIC FLEX LOCATOR BUSHINGS

RoHS

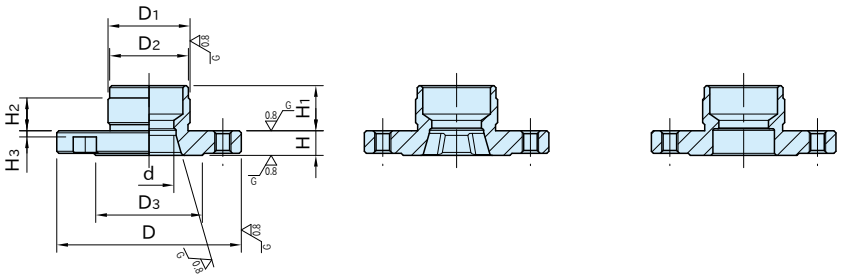
IMAO

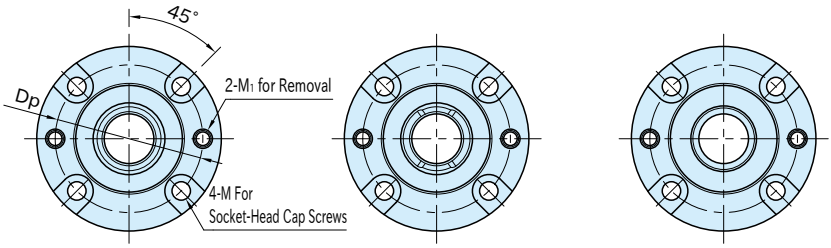
(Tapered Type)

(Diamond Type)

(Straight Type)

Body
SCM440 steel
Quenched & tempered
Black oxide finish
Precision ground





AMWF-BU-T
(Tapered Type)

AMWF-BU-D
(Diamond Type)

AMWF-BU-S
(Straight Type)

Size		D_1 (g6)	H_2	D_2	H_1	M	H_3	D	D_3	H (±0.003)	d ($^{+0.15}_{+0.05}$)	M_1	Dp
AMWF-BU-T AMWF-BU-D AMWF-BU-S	40	28	10	27.5	15	M5	2.5	60	38	8	16	M5×0.8	50
	50	36	14	35.5	19	M6	3.5	75	48	10	20	M6×1	62

AMWF-BU-T (Tapered Type)

Part Number	Weight (g)
AMWF40-BU-T	160
AMWF50-BU-T	323

AMWF-BU-D (Diamond Type)

Part Number	Weight (g)
AMWF40-BU-D	159
AMWF50-BU-D	322

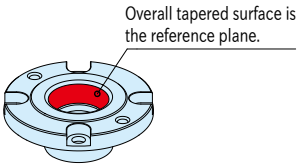
AMWF-BU-S (Straight Type)

Part Number	Weight (g)
AMWF40-BU-S	163
AMWF50-BU-S	330

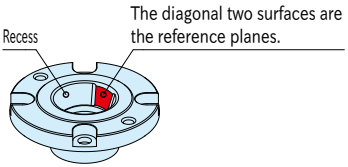
Feature

■Function

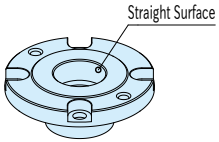
Locating with Tapered Type
For setting reference position



Locating with Diamond Type
For locating reference at rotational direction



Clamping with Straight Type



Related Product

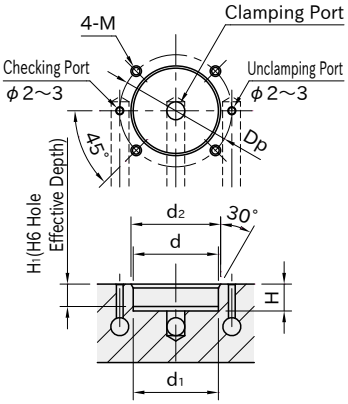
AMWF-W PNEUMATIC FLEX LOCATOR PINS

Reference

・How To Use PNEUMATIC FLEX LOCATORS
・How To Install PNEUMATIC FLEX LOCATORS

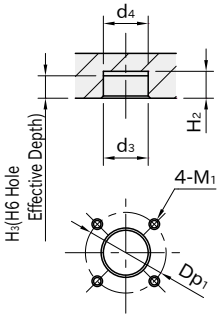
How To Install PNEUMATIC FLEX LOCATORS

■Mounting Hole Dimensions for Pins



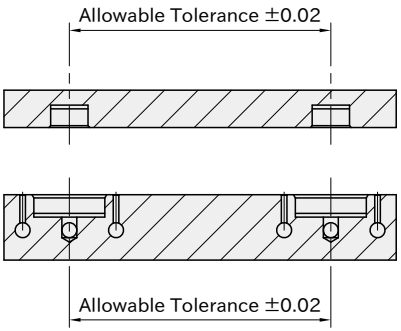
Size	d (H6)	H1	d1 (-0.1 -0.3)	H	d2	M	Dp
AMWF40-W	48	12	48	16	50	M5×0.8	60
AMWF50-W	58	16	58	20	60	M6×1	72

■Mounting Hole Dimensions for Bushings



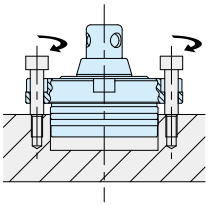
Size	d3 (H6)	H3	d4 (-0.1 -0.3)	H2	M1	Dp1
AMWF40-BU	28	12	28	16	M5×0.8	50
AMWF50-BU	36	16	36	20	M6×1	62

■Spacing Tolerance



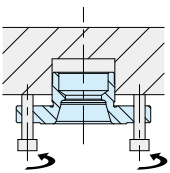
■How to Remove Pins

For easier removal, insert screws into the tapped holes and screw them.



■How to Remove Bushings

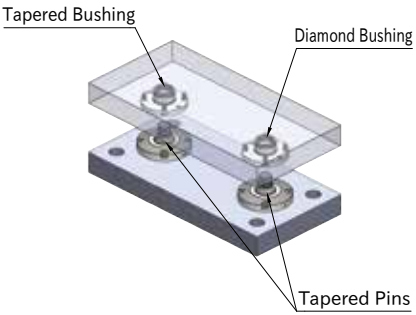
For easier removal, insert screws into the tapped holes and screw them.



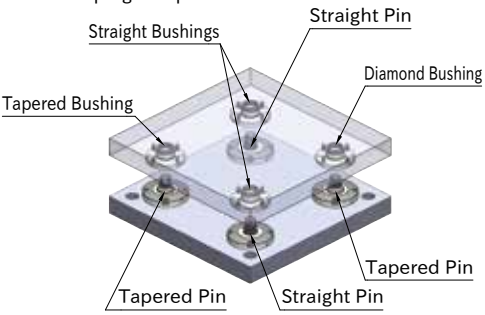
How To Use PNEUMATIC FLEX LOCATORS

Application Example

For clamping at 2 points



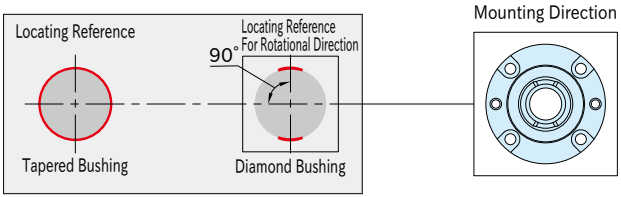
For clamping at 4 points



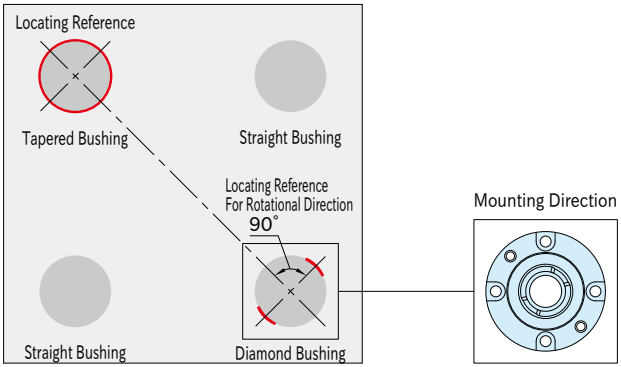
■Positioning Order of Bushings

Mount the Tapered Bushings and Diamond Bushings as in the figure below for locating fixture plates. Pay attention to the mounting direction of the Diamond Bushings, since the direction for use at 2 points and the direction for use at 4 points differ.

For clamping at 2 points



For clamping at 4 points



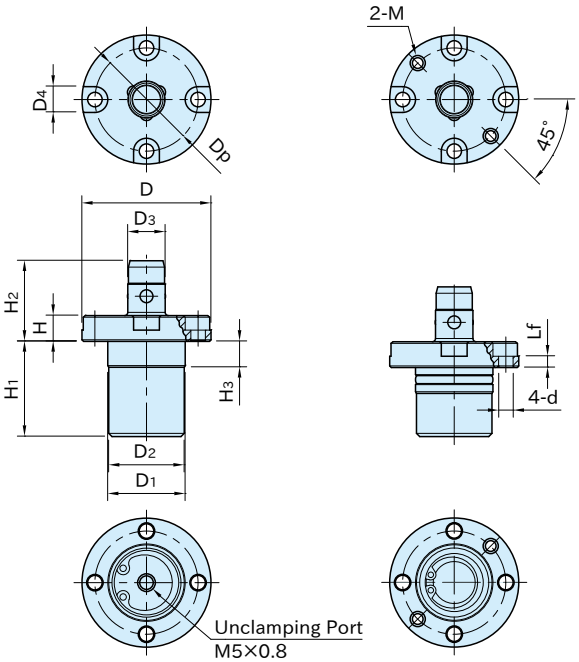
AMWF-L-S PNEUMATIC FLEX LOCATOR PINS

RoHS

IMAO

AMWF-L-S

AMWF-L-S-G



AMWF-L-S (Port Style) AMWF-L-S-G (Direct Style)

Body	Ball	Coiled Spring
S45C steel Electroless nickel plated	SUS440C stainless steel	SUS304WPB stainless steel

Part Number	D1 (g6)	H3	D2	H1	D	H	D3 (h8)	H2	d	Lf	D4	Dp
AMWF18L-4S	24	8	23.4	29.5	40	8	12	25	4.5	3.5	8	32
AMWF26L-4S	32	8.5	31.4	31.7	51	9.5	16	28.5	5.5	4	9.5	41
AMWF18L-4S-G	24	8	23.4	24.5	40	8	12	25	4.5	3.5	8	32
AMWF26L-4S-G	32	8.5	31.4	25.5	51	9.5	16	28.5	5.5	4	9.5	41

Part Number	M	Air Pressure (MPa)	Clamping Force (N)	Weight (g)
AMWF18L-4S	—	0.5	250	154
AMWF26L-4S	—		350	289
AMWF18L-4S-G	M4×0.7		250	136
AMWF26L-4S-G	M5×0.8		350	252

Reference

- How To Install PNEUMATIC FLEX LOCATORS
- How To Use PNEUMATIC FLEX LOCATORS

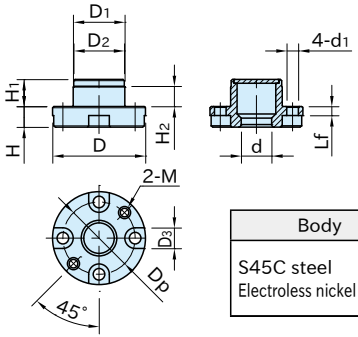
Related Product

AMWF-BU PNEUMATIC FLEX LOCATOR BUSHINGS

AMWF-BU PNEUMATIC FLEX LOCATOR BUSHINGS

RoHS

IMAO



Body
S45C steel Electroless nickel plated

Part Number	D_1 (g6)	H_2	D_2	H_1	D	H	d (E7)	d_1	Lf	D_3	M	Dp	Weight (g)
AMWF18-BU	20	7.5	19.6	10.5	36	8	12.1	4.5	3.5	8	M4×0.7	28	57
AMWF26-BU	25	7	24.6	11	44	9.5	16.1	5.5	4	9.5	M5×0.8	34	97

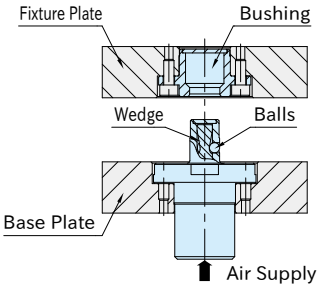
Reference

・How To Install PNEUMATIC FLEX LOCATORS
・How To Use PNEUMATIC FLEX LOCATORS

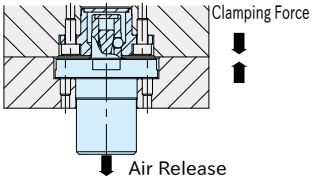
Related Product

AMWF-L-S PNEUMATIC FLEX LOCATOR PINS

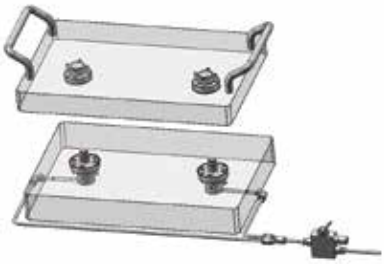
Feature



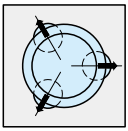
Supply air for unclamping.
The wedge goes up and releases the balls.



Release air for clamping. The wedge goes down and pushes the balls to pull down the bushing. Can keep clamped without air supply.



Quick clamping and unclamping reduce set-up time in production equipment.



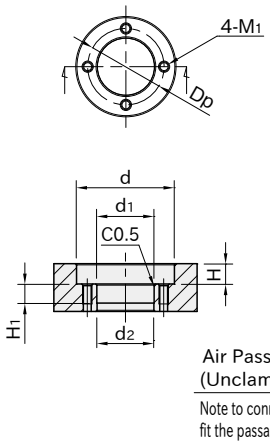
Locating Repeatability : ±10μm
The bushing is centered and clamped when the 3 balls are pushed out to gain high locating repeatability.

How To Install PNEUMATIC FLEX LOCATORS

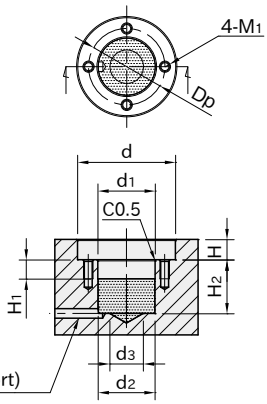
■Mounting Hole Dimensions

・Pins

AMWF-L-S (Port Style)



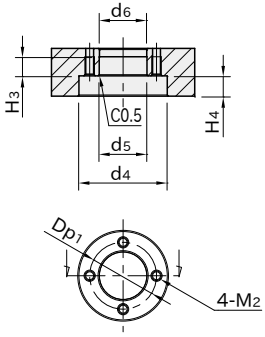
AMWF-L-S-G (Direct Style)



Part Number	d1 (H7)	H1	d2	H2	d3	d	H (±0.05)	M1	Dp
AMWF18L-4S	24	8.5	23.8	—	—	41	8.5	M4×0.7 Depth 8	32
AMWF26L-4S	32	9	31.8	—	—	52	10	M5×0.8 Depth10	41
AMWF18L-4S-G	24	8.5	23.8	25.5	14	41	8.5	M4×0.7 Depth 8	32
AMWF26L-4S-G	32	9	31.8	26.5	20	52	10	M5×0.8 Depth10	41

・Bushings

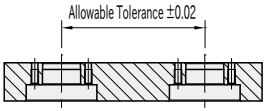
AMWF-BU (Bushing)



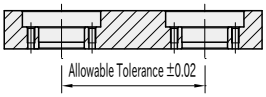
Part Number	d5 (H7)	H3	d6	d4	H4 (±0.05)	M2	Dp1
AMWF18-BU	20	8	19.8	37	8.5	M4×0.7 Depth 8	28
AMWF26-BU	25	7.5	24.8	45	10	M5×0.8 Depth10	34

■Spacing Tolerance

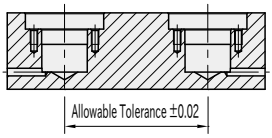
AMWF-BU (Bushing)



AMWF-L-S (Port Style)

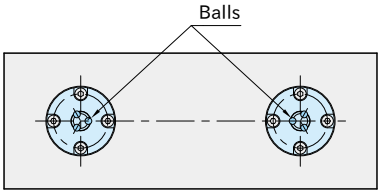


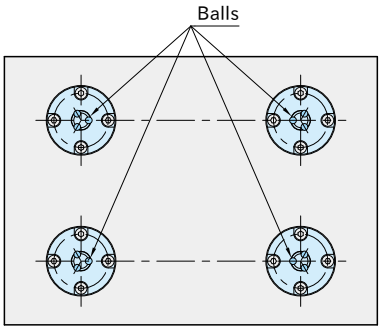
AMWF-L-S-G (Direct Style)



How To Use PNEUMATIC FLEX LOCATORS

■How to Use

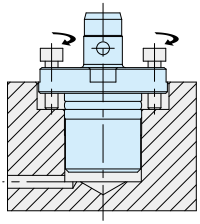




The pins should be mounted in the direction shown in the above figures.

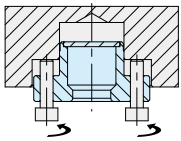
■How to Remove (Direct Style Pins)

For easier removal, insert screws into the tapped holes and screw them.



■How to Remove (Bushings)

For easier removal, insert screws into the tapped holes and screw them.



Note

Size	Max. Loading Weight (kg)
AMWF18	40
AMWF26	56

- If the total weight exceeds the maximum loading weight, the locating repeatability may exceed ±10μm.
- In vertical use, the locating repeatability may exceed ±10μm.
- Pins and Bushings should be positioned equally against the center of the fixture plate.
- For Port Style Pins, use with air joint that is available commercially.

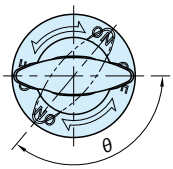
Note: The maximum loading weight is the entire sum of the weight of fixture plates, fixtures and workpieces.

Note: The maximum loading weight shown is the value when two sets each of AMWF-L-S Pins and AMWF-BU Bushings are used.

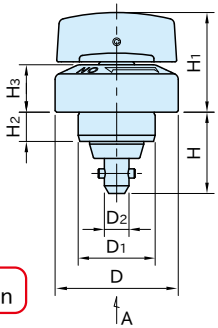
CP723 ONE-TOUCH FLEX LOCATOR CLAMPERS (Knob)

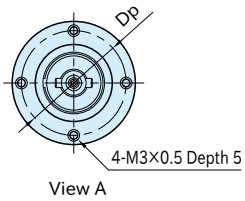
RoHS

IMAO



Body / Shank	Tapered Pin	Knob	Pin
SCM440 steel Black oxide finished	SCM440 steel Nitrocarburized	SCS13 stainless steel (Equivalent to SUS304)	SUS304 stainless steel





★Key Point
Space saving operation

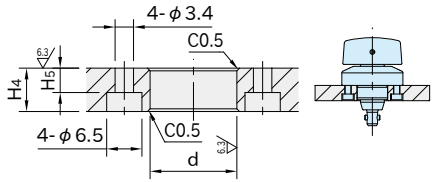
Part Number	D1 (g6)	H2	D	H1	H3	D2	H	θ	Dp
CP723-0632R-04	16	7.5	32	27	12	5.5	22	120°	25.5
CP723-0840R-06	25	9.5	40	32	15.5	8	26	130°	34

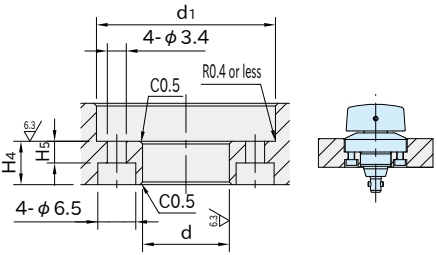
Part Number	Clamping Force(N)	Lifting Force (N) *)	Weight (g)	Proper One-Touch Flex Locator Bushing
CP723-0632R-04	350	30	96	CP727-0632R
CP723-0840R-06	600	100	211	CP727-0840R

*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

How To Use

■Mounting Hole Dimension





Part Number	d (H7)	H4 (±0.05)	d1	H5
CP723-0632R-04	16	8	33	4
CP723-0840R-06	25	10	41	6

Supplied With

- CP723-0632R-04 : Four pieces of hex. socket-head cap screws M3×0.5-8L
- CP723-0840R-06 : Four pieces of hex. socket-head cap screws M3×0.5-10L

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Handle / Knob)

CP722 ONE-TOUCH FLEX LOCATOR CLAMPERS

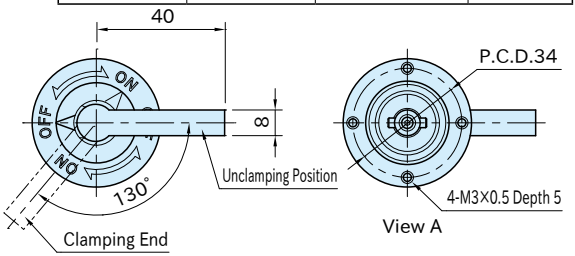
RoHS

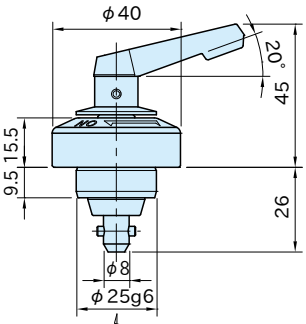
IMAO

Body / Shank	Tapered Pin	Handle	Pin
SCM440 steel Black Oxide Finished	SCM440 Nitrocarburized	ZDC1 die-cast zinc Silver-gray painted	SUS303 stainless steel

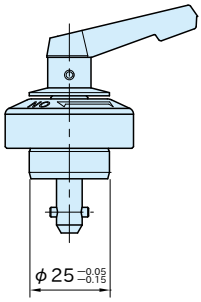
CP722-0840R-06

CP722-0840R-06N





CP722-0840R-06



CP722-0840R-06N

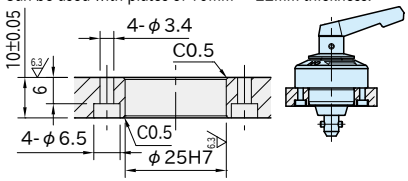
Part Number	Tapered Pin	Clamping Force (N)	Lifting Force (N)*)	Weight (g)	Proper One-Touch Flex Locator Bushing
CP722-0840R-06	With	600	100	220	CP727-0840R
CP722-0840R-06N	Without	700	—	215	

*) The lifting force is the power of the inner spring of the body to push up the movable tapered pin.

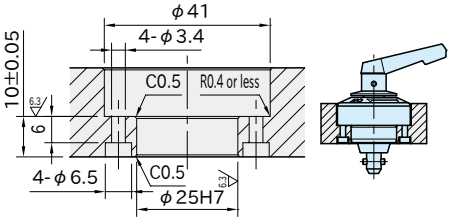
How To Use

■Mounting Hole Dimension

Can be used with plates of 10mm ~ 22mm thickness.



Installation on 10mm-thick Plate



Installation on 10mm-22mm Thick Plate
Drill a counterbored hole.

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Handle / Knob)

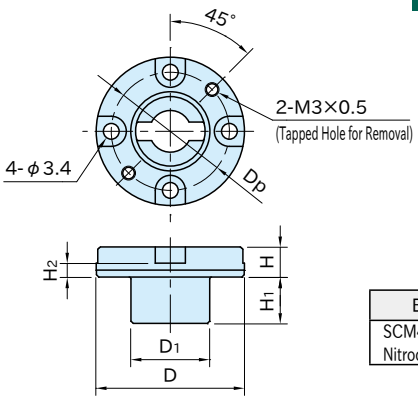
Supplied With

4 of M3×0.5-10L Hex Socket-Head Cap Screw

CP727 ONE-TOUCH FLEX LOCATOR BUSHINGS

RoHS

IMAO

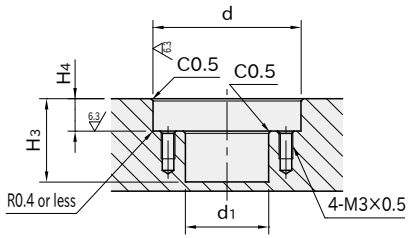


Body
SCM440 steel
Nitrocarburized

Part Number	D (g6)	H	D1	H1	H2	Dp	Weight (g)
CP727-0632R	28	5.5	12.5	8	2	21.5	20
CP727-0840R	32	6.5	17	10	3	25.5	32

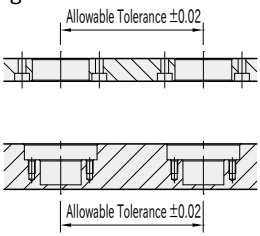
How To Use

■Mounting Hole Dimension



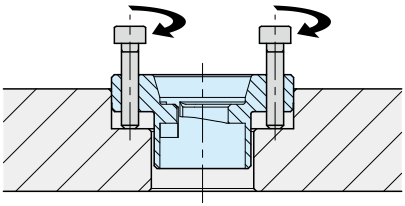
Part Number	d (H7)	H4 (±0.05)	d1	H3
CP727-0632R	28	6	13.5	15
CP727-0840R	32	7	18	18

■Spacing Tolerance



■How to Remove

Insert screws into the tapped holes to lift up the bushing for removal.



Related Product

・CP722 ONE-TOUCH FLEX LOCATOR CLAMPERS
・CP723 ONE-TOUCH FLEX LOCATOR CLAMPERS(Knob)

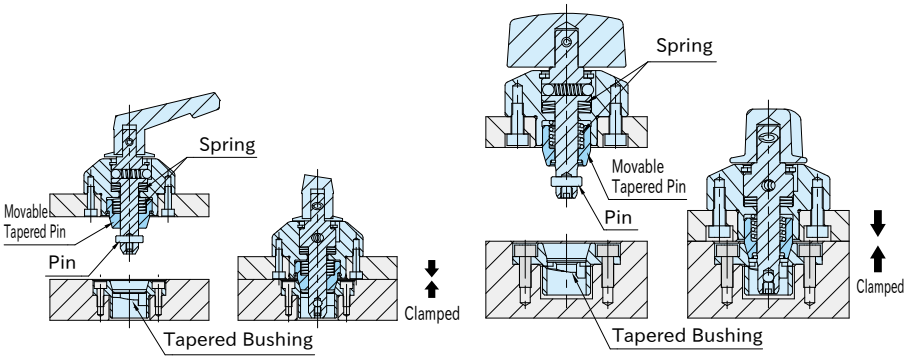
Reference

How To Use ONE-TOUCH FLEX LOCATORS (Handle / Knob)

Value Creator
IMAO

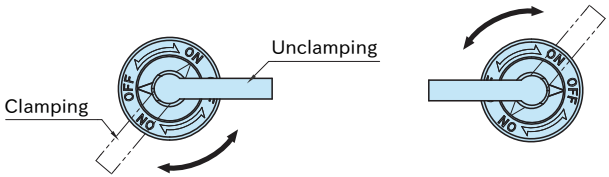
How To Use ONE-TOUCH FLEX LOCATORS (Handle / Knob)

Feature

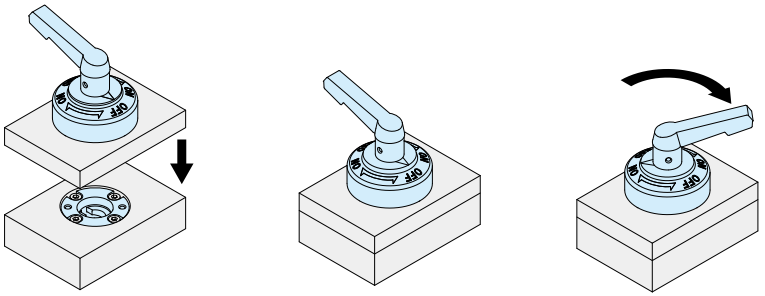


・The plates are located by fitting of the tapered pin and the tapered bushing.
・The pin contacts the cam surface inside the bushing, and it compresses the inner spring, then the plates are clamped.
Note: CP722-0840R-06N does not have locating function.

Two pair of clamping and unclamping positions of handle can be chosen for CP722.



How To Operate

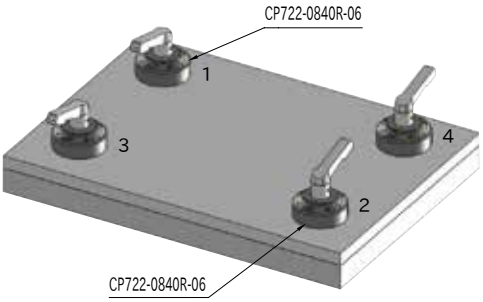


1. Ensure the handle is positioned at "OFF" mark.
2. Insert the clamper to the bushing.
3. Turn the handle to "ON" mark for clamping.

*) Follow back these steps for unclamping.
*) Same operation for Knob style.

Tightening Order

1.Ensure the handle is positioned at "OFF" mark and lift down the fixture plate.
2.Turn the handle and clamp in order of 1→2→3→4.
*) For unclamping, ensure the handle is positioned at "OFF" mark and disassemble the fixture plate.

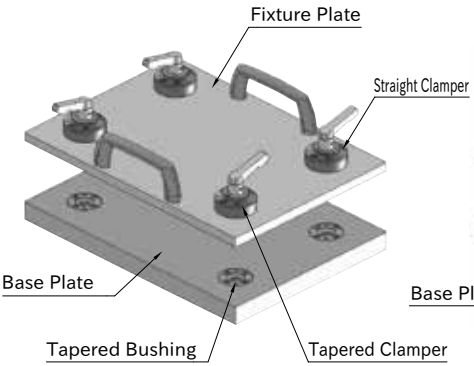


If the handles are not tightened in the correct order, the locating repeatability may exceed 10 μm.

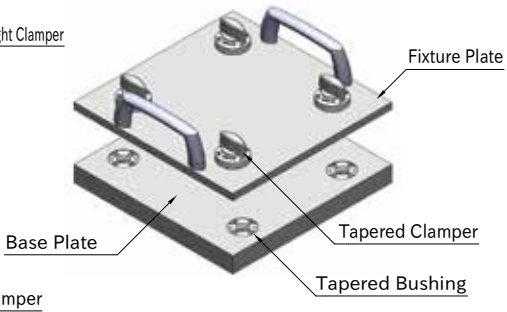
How To Use

■Horizontal Assembly of Fixture Plate

Note: Ensure not to lift the fixture plate up and down with gripping the handle of the clampers.



CP722



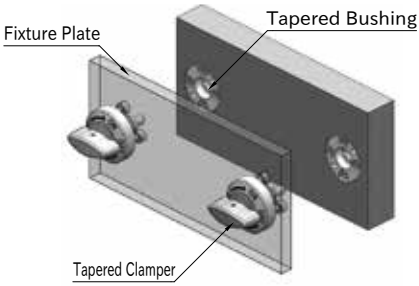
CP723

■Vertical Assembly of Fixture Plate

Locating repeatability is 20 μm.

Size		Max. Loading Weight(kg)
CP722 CP727	0840R	40

Size		Max. Loading Weight(kg)
CP723	0632R	12
CP727	0840R	40



Note: The maximum loading weight is the entire sum of the weight of fixture plates, fixtures and workpieces.
Note: The maximum loading weight shown is the value when two sets of tapered clamper and tapered bushing are used.

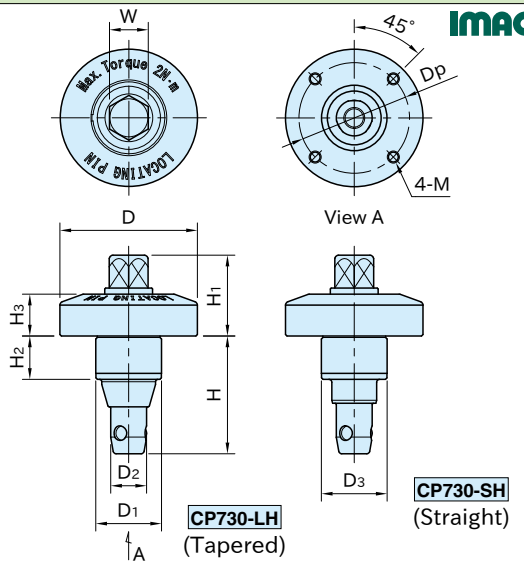
CP730 ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head)

RoHS

IMAO

CP730-LH (Tapered)

CP730-SH (Straight)



Body	Clamping Screw	Ball
SCM440 steel Nitrocarburized	SCM435 steel Black oxide finished Quenched & tempered	SUJ2 steel

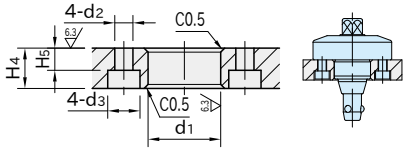
Part Number	D_1 (g6)	D_3 $(^{-0.02}_{-0.06})$	H_2	D	H_1	H_3	D_2	H	W	M	Dp
CP730-0939LH	18	–	9.5	39	22	12	9	30	10	M4×0.7 Depth 6	30
CP730-0939SH	–	18									
CP730-1246LH	22	–	14.5	46	27	14	12	40	13		37
CP730-1246SH	–	22									
CP730-1656LH	28	–	19.5	56	34	16	16	51	17	M5×0.8 Depth 7	45
CP730-1656SH	–	28									

Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)*)	Weight (g)	Proper Bushing
CP730-0939LH	1700	2	134	CP735-0939L
CP730-0939SH			133	CP735-0939S
CP730-1246LH	3000	4	241	CP735-1246L
CP730-1246SH			239	CP735-1246S
CP730-1656LH	4500	7	457	CP735-1656L
CP730-1656SH			453	CP735-1656S

*)Do not apply greater torque than allowable screw torque.
Do not use a power tool (impact wrench etc.) to turn the hex head, for damage prevention.

How To Use

■Mounting Hole Dimension



Size	d_1 (H7)	H_4 (±0.05)	d_2	H_5	d_3
CP730-0939	18	10	4.5	5	8
CP730-1246	22	15		10	
CP730-1656	28	20	5.5	14	10

Supplied With

- CP730-0939 : Four pieces of hex. socket-head cap screws M4×0.7-10L
- CP730-1246 : Four pieces of hex. socket-head cap screws M4×0.7-15L
- CP730-1656 : Four pieces of hex. socket-head cap screws M5×0.8-20L

Reference

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

Related Product

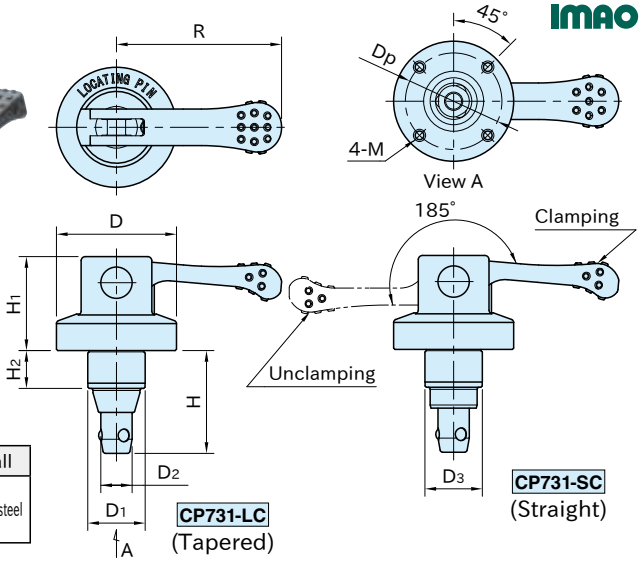
CP-TCW ADJUSTABLE-TORQUE WRENCHES are available for tightening.

CP731 ONE-TOUCH FLEX LOCATOR CLAMPERS (Cam Handle)

RoHS

IMAO

CP731-LC (Tapered) CP731-SC (Straight)



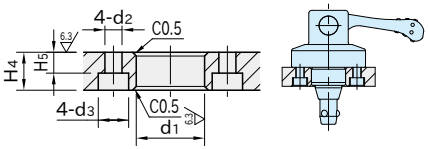
Body	Cam Handle	Ball
SCM440 steel Nitrocarburized	SCM440 steel Black oxide finished Quenched & tempered	SUJ2 steel

Part Number	D_1 (g6)	D_3 $(^{-0.02}_{-0.06})$	H_2	D	H_1	D_2	H	M	Dp	R	Cam Handle
CP731-0939LC	18	–	9.5	39	30	9	30	M4×0.7 Depth 6	30	50	QLCA-05
CP731-0939SC	–	18									
CP731-1246LC	22	–	14.5	46	36	12	40		37	63	QLCA-06
CP731-1246SC	–	22									
CP731-1656LC	28	–	19.5	56	42	16	51	M5×0.8 Depth 7	45	80	QLCA-08
CP731-1656SC	–	28									

Part Number	Clamping Force (N)	Operating Load (N)	Weight (g)	Proper Bushing
CP731-0939LC	600	60	191	CP735-0939L
CP731-0939SC			189	CP735-0939S
CP731-1246LC	1200	130	297	CP735-1246L
CP731-1246SC			294	CP735-1246S
CP731-1656LC	1800	160	654	CP735-1656L
CP731-1656SC			648	CP735-1656S

How To Use

■Mounting Hole Dimension



Size	d_1 (H7)	H_4 (±0.05)	d_2	H_5	d_3
CP731-0939	18	10	4.5	5	8
CP731-1246	22	15		10	
CP731-1656	28	20	5.5	14	10

Supplied With

- CP731-0939: Four pieces of hex. socket-head cap screws M4×0.7-10L
- CP731-1246: Four pieces of hex. socket-head cap screws M4×0.7-15L
- CP731-1656: Four pieces of hex. socket-head cap screws M5×0.8-20L

Reference

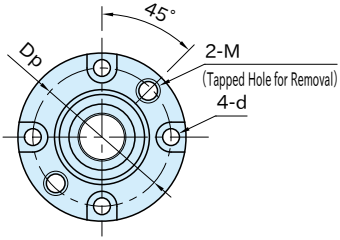
How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

CP735 ONE-TOUCH FLEX LOCATOR BUSHINGS

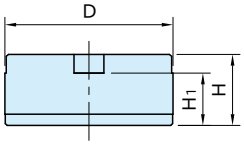
RoHS

IMAO

(Tapered Type)



(Straight Type)



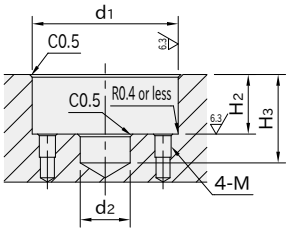
Type	Body	Tapered Bushing
CP735-L	SCM440 steel Black oxide finished	SCM440 steel Nitrocarburized
CP735-S	Quenched & tempered	–

Part Number	Type	D (g6)	H	d	H_1	Dp	M	Lifting Force (N)*)	Weight (g)
CP735-0939L	Tapered	38	15	4.5	10	30	M5×0.8	300	100
CP735-0939S	Straight							–	101
CP735-1246L	Tapered	45	19		14	37	M6×1	450	179
CP735-1246S	Straight							–	184
CP735-1656L	Tapered	55	24	5.5	18	45		680	337
CP735-1656S	Straight							–	341

*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

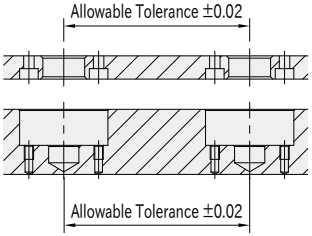
How To Use

■Mounting Hole Dimension



Size	d_1 (H7)	H_2 (±0.05)	d_2	H_3	M
CP735-0939	38	15.5	13	23	M4×0.7
CP735-1246	45	19.5	16	28	
CP735-1656	55	24.5	20	34	M5×0.8

■Spacing Tolerance



Related Product

- CP730 ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head)
- CP731 ONE-TOUCH FLEX LOCATOR CLAMPERS (Cam Handle)
- CP735-P ONE-TOUCH FLEX LOCATOR (PROTECTING COVERS)

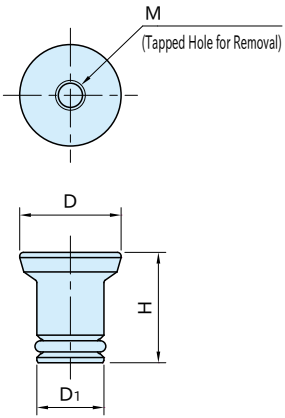
Reference

How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

CP735-P ONE-TOUCH FLEX LOCATOR PROTECTING COVERS

RoHS

IMAO



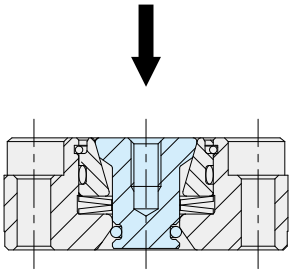
Body	O-Ring
A5052 aluminum Red	NBR nitrile rubber

Part Number	D	H	D_1	M	Weight (g)	Proper Bushing	
CP735-0939P	13.5	15	9	M4×0.7	3	CP735-0939L	CP735-0939S
CP735-1246P	17	19	12		6	CP735-1246L	CP735-1246S
CP735-1656P	23	22.5	16	M5×0.8	14	CP735-1656L	CP735-1656S

How To Use

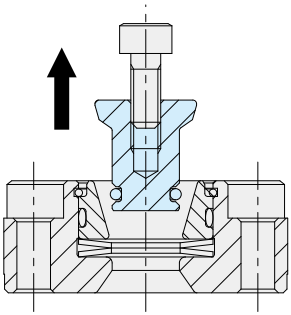
■How to Install

Insert the product to the center hole of the Flex Locator Bushings and use it as a protective cover.



■How to Remove

Insert a screw into the tapped hole and pull it out.



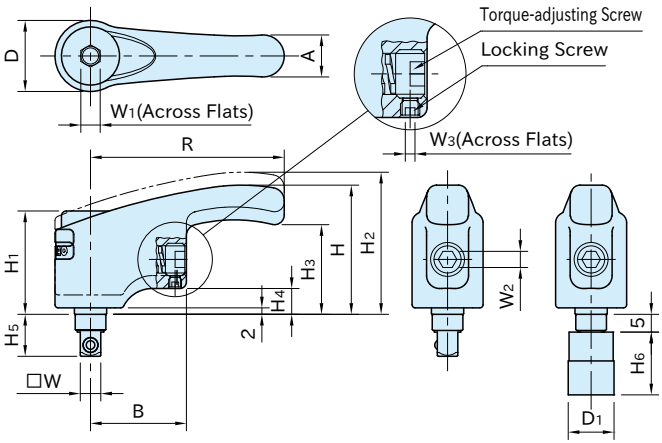
CP-TCW ADJUSTABLE-TORQUEWRENCHES

RoHS

IMAO

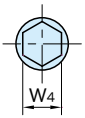
Without Socket

With Socket



Without Socket

With Socket



Socket Dimension

Type	Handle	Ratchet	Adapter	Socket
CP-TCW	SCM440 steel Quenched & tempered Painted Orange	SCM415 steel Carburized-hardened Black oxide finished	SCM435 steel Quenched & tempered Black oxide finished	–
CP-TCW-S				Cr-V chrome-vanadium steel Chrome plated

Size		W	R	H	D	H1	H2	H3	H4	H5	A	B	W1	W2	W3
CP-TCW / CP-TCW-S	6	6.3	60	40	22	32	44	27.5	8	13	13	30	6	5	2
	8		75	48	26	38	52.5	33	9		15	37	8	6	2.5
	10	9.5	90	57	32	45	62.5	39.5	10.5	16.5	18	39	10		

Size		Torque Range (N·m)
CP-TCW / CP-TCW-S	6	1~3.5
	8	2~5.4
	10	3~8

■Without Socket

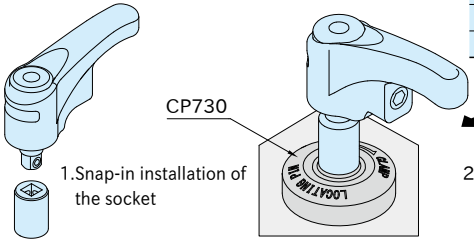
Part Number	Weight (g)
CP-TCW 6	166
CP-TCW 8	284
CP-TCW10	467

■With Socket

Part Number	W4	D1	H6	Weight (g)
CP-TCW 6-S	10	13.8	25	183
CP-TCW 8-S	13	17.8		314
CP-TCW10-S	17	23.8	30	529

How To Use

Can be used as a tightening tool for CP730 ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head).

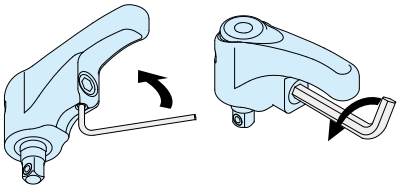


2.Turn the handle to clamp.
The handle clicks to indicate completed tightening at desired torque.

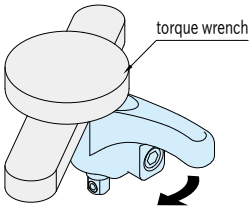
Part Number	Proper ONE-TOUCH FLEX LOCATOR CLAMPERS	
CP-TCW 6-S	CP730-0939LH	CP730-0939SH
CP-TCW 8-S	CP730-1246LH	CP730-1246SH
CP-TCW 10-S	CP730-1656LH	CP730-1656SH

How To Set Torque

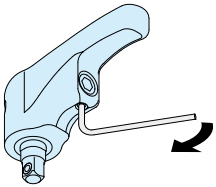
The preset torque is roughly set to its maximum tightening torque.



1. Loosen the locking screw.
2. Turn the hex key CCW to fine adjust the torque-adjusting screw.



3. Measure the torque with a torque wrench.
- Connect a torque wrench on the Adjustable-Torque Wrench.
- Turn the handle in the tightening direction and fine adjust the depth of torque-adjusting screw to reach to the handle clicking position at desired torque.



4. Fasten the locking screw at the desired torque.

Reference

See ATCL ADJUSTABLE-TORQUE HANDLES page for further information.

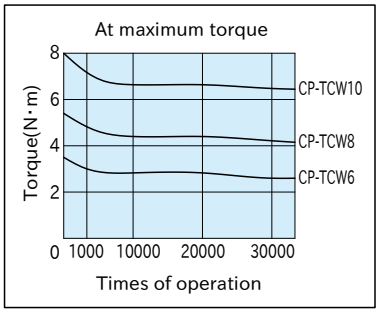
Related Product

CP730 ONE-TOUCH FLEX LOCATOR CLAMPERS (Hexagon Head)

Technical Information

- For initial several thousand operations, the tightening torque will decrease. (See the graph below) Measure the torque regularly, and fine adjust the depth of torque-adjusting screw as needed.
- The tightening torque can vary. (Max.±15%) Not recommended for precise torque management.

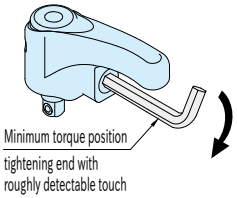
Torque Performance Graph



Note

- Do not overtighten or overloosen the torque-adjusting screw.

■Reference Torque Adjusting Range

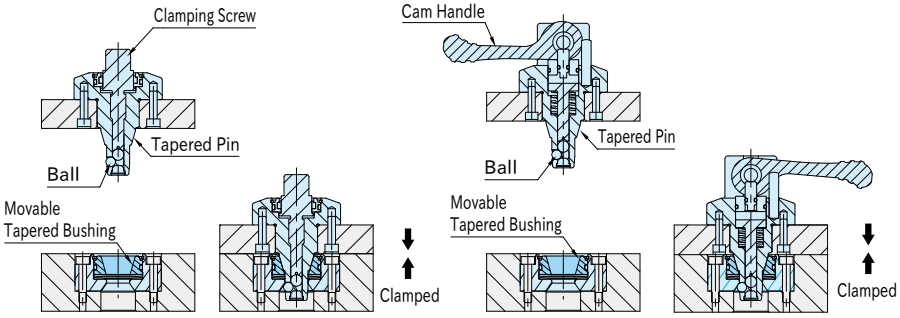


Size		Rotation
CP-TCW	6	3/4
CP-TCW-S	8	1
	10	3/4

- To reach approx. the min torque, loosen the torque adjusting screw to the same end surface level of the body, then tighten it until you feel light touch of stop. (Ensure that the torque adjusting screw does not protrude from the body when loosening it.)
- To reach approx. the max torque, rotate the torque adjusting screw depending on the above table from the approx. min torque as instructed previously.

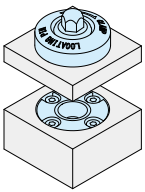
How To Use ONE-TOUCH FLEX LOCATORS (Hexagon Head / Cam Handle)

Feature

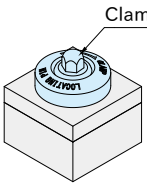


・The plate is located by fitting of the tapered parts.
・When the clamping screw or the cam handle is tightened, the balls goes out and the movable tapered bushing goes down. The fixture plate contacts with the base plate.
・For clamping screw, 2 turns tightening is enough.
Note: No locating function on the combination of straight pin and straight bushing.

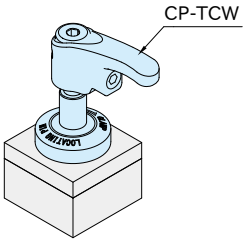
How To Operate



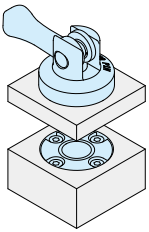
1. Ensure the balls are retracted.



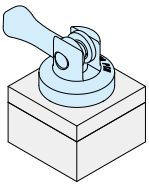
2. Insert the clamper to the bushing.



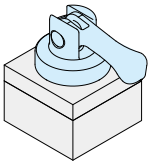
3. Tighten the clamping screw within the allowable torque.
Note: For unclamping, follow back these steps.



1. Ensure that the cam handle is loosened.

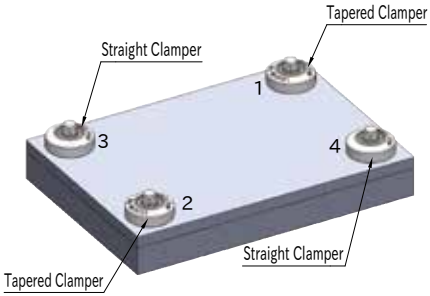


2. Insert the clamper to the bushing.



3. Tighten the cam handle.
Note: For unclamping, follow back these steps.

Tightening Order



CP730

1.Ensure that each plate is in close contact. *)
2.Tighten the screws temporarily in order of 1→2→3→4. For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
3.Tighten the screws finally in order of 1→2→3→4.
*) The fixture plate may be pushed up by the lifting force of the tapered bushing. In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily. For the lifting force, see the measurement table of CP735 ONE-TOUCH FLEX LOCATOR BUSHINGS.

CP731

・Tighten the cam handles in order of 1→2→3→4.

If the screws are not tightened in the correct order, the locating repeatability may exceed 8 μm.

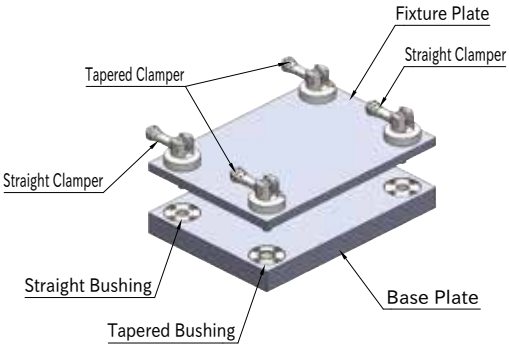
How To Use

■Horizontal Assembly

Two sets of tapered pin and straight pin

Use tapered or straight pin and bush as a set.

Note:Ensure not to lift the fixture plate up and down with gripping the cam handle of the clampers.

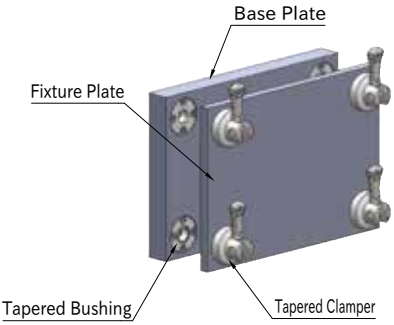


■Vertical Assembly

In vertical assembly, the locating repeatability is 10 μm.

Size		Max. Loading Weight(kg)
CP730 CP735	0939	40
	1246	60
	1656	100

Size		Max. Loading Weight(kg)
CP731 CP735	0939	25
	1246	40
	1656	60

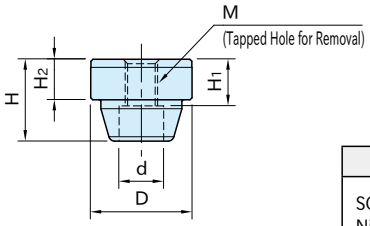


Note: The maximum loading weight is the entire sum of the weight of fixture plates, fixtures and workpieces.
Note: The maximum loading weight shown is the value when two sets of tapered clamper and tapered bushing are used.

CP720 FLEX LOCATOR PINS

RoHS

IMAO

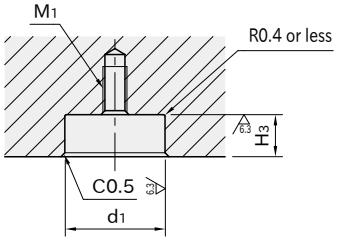


Body
SCM440 steel Nitrocarburized

Part Number	D (g6)	H_2	H	M	H_1	d	Weight (g)	Proper Flex Locator Bushings
CP720-16032	16	5.5	11.5	M 5X0.8 (Prepared Hole φ 4.2)	6	8	18	CP725-16032
CP720-25050	25	10	20	M 8X1.25(Prepared Hole φ 6.8)	11.5	11	49	CP725-25050
CP720-38070	38	15	29.5	M10X1.5 (Prepared Hole φ 8.5)	18	14	176	CP725-38070
CP720-56095	56	22	43.5	M16X2 (Prepared Hole φ14)	28.5	20	569	CP725-56095

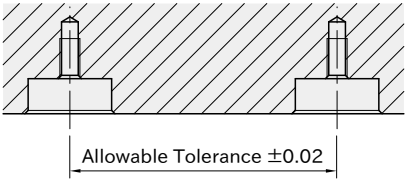
How To Use

■Mouting Hole Dimension

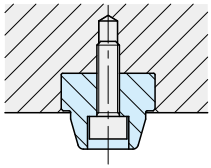


Part Number	d_1 (H7)	H_3 (±0.05)	M_1
CP720-16032	16	6	M 4X0.7
CP720-25050	25	10.5	M 6X1
CP720-38070	38	15.5	M 8X1.25
CP720-56095	56	22.5	M12X1.75

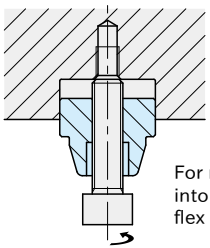
■Spacing Tolerance



■How to Install and Remove



Use a socket-head cap screw to fix the flex locator pin.



For removal, insert a screw into the tapped hole of the flex locator pin and screw it.

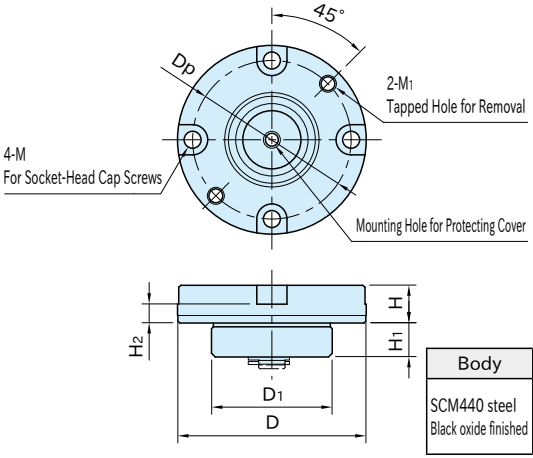
Reference

- How To Install FLEX LOCATORS (Blind)
- How To Use FLEX LOCATORS (Blind)

CP725 FLEX LOCATOR BUSHINGS (Blind)

RoHS

IMAO



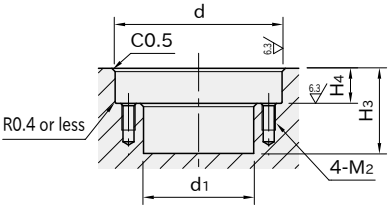
Body	Tapered Bushing
SCM440 steel Black oxide finished	SCM440 steel Nitrocarburized

Part Number	D (g6)	H	D1	H1	M	H2	M1	Dp	Lifting Force (N)*)	Weight (g)
CP725-16032	32	6.5	20	7	M3	3	M3×0.5	25.5	110	60
CP725-25050	50	10	32	9	M4	5	M4×0.7	42	180	160
CP725-38070	70	15	48	14	M5	9	M5×0.8	60	400	508
CP725-56095	95	22	70	21	M6	15	M6×1	84	690	1451

*) The lifting force is the power of the inner spring of the body to push up up the movable tapered bushing.

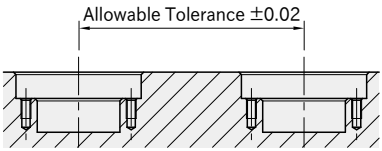
How To Use

■Mouting Hole Dimension

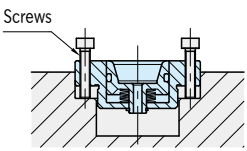


Part Number	d (H7)	H4 (±0.05)	d1	H3	M2
CP725-16032	32	7	21	18	M3×0.5
CP725-25050	50	10.5	33	24	M4×0.7
CP725-38070	70	15.5	49	35	M5×0.8
CP725-56095	95	22.5	71	51	M6×1

■Spacing Tolerance



■How to Remove



For removal, insert screws into the tapped holes and screw it.

Reference

・How To Install FLEX LOCATORS (Blind)
・How To Use FLEX LOCATORS (Blind)

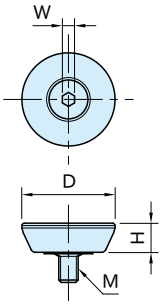
Related Product

CP720 FLEX LOCATOR PINS

CP725-P FLEX LOCATOR PROTECTING COVERS

RoHS

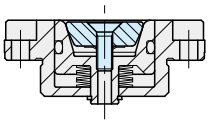
IMAO



Body	Screw
A5056 aluminum Red	SCM435 steel Black oxide finished

Part Number	D	H	M	W	Weight (g)	Proper Flex Locator Bushings
CP725-16032P	12	4	M3X0.5	2	3	CP725-16032
CP725-25050P	19	6	M4X0.7	2.5	5	CP725-25050
CP725-38070P	29	7	M5X0.8	3	14	CP725-38070
CP725-56095P	44	8	M6X1	4	35	CP725-56095

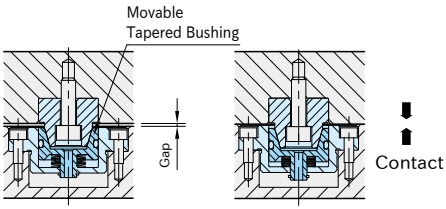
How to Install



Mount on Flex Locator Bushings onto the tapped hole as a protective cover.

How To Install FLEX LOCATORS (Blind)

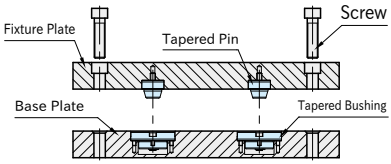
Feature



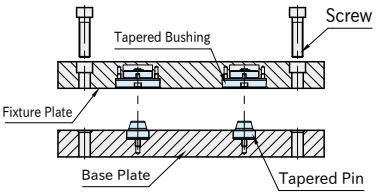
- Fixture plate is lifted down, and tapered pin engages with tapered bushing.
- Movable tapered bushing goes down, and fixture plate contacts with base plate.

How To Install

Bushings on Base Plate



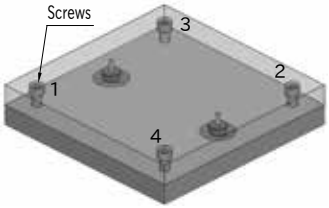
Pins on Base Plate

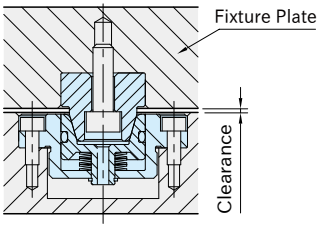


How To Use FLEX LOCATORS (Blind)

Tightening Order

1.Ensure that each plate is in close contact.*)
2.Tighten the screws temporarily in order of 1→2→3→4.
For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
3.Tighten the screws finally in order of 1→2→3→4.
*) The fixture plate may be pushed up by the lifting force of CP725 Flex Locator Bushings.
In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily.
For the lifting force, see the measurement table of CP725 Flex Locator Bushings.

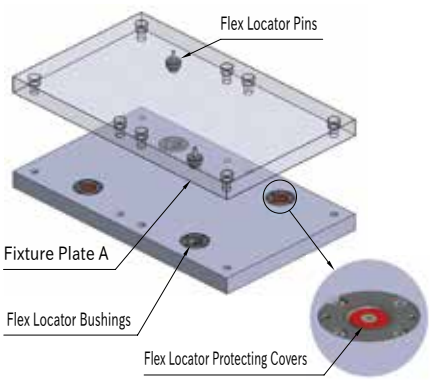


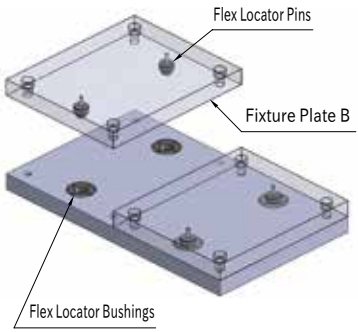


If the screws are not tightened in the correct order, the locating repeatability may exceed 10 μm.

How To Use

■Horizontal Assembly of Base Plate and Fixture Plate



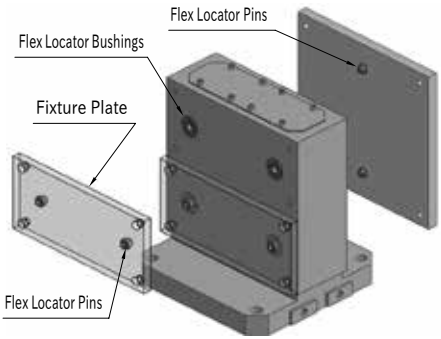


■Vertical Assembly of Tooling Block and Fixture Plate

If the total weight exceeds the maximum loading weight, the locating repeatability may exceed 10 μm.

Size		Max. Loading Weight(kg)
CP720	16032	80
CP720	25050	120
CP725	38070	200
CP725	56095	220

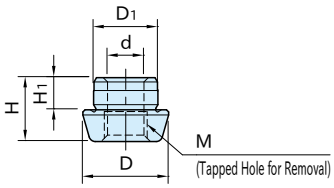
Note: The maximum loading weight is the entire sum of the weight of fixture plates, fixtures and workpieces.
Note: The maximum loading weight shown is the value when two sets of CP720 Flex Locator Pins and CP725 Flex Locator Bushings are used.



CP721 FLEX LOCATOR PINS

RoHS

IMAO



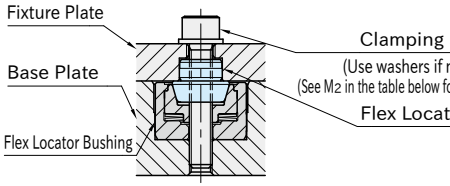
Body
SCM440 steel Nitrocarburized

Part Number	D1 (p6)	H1	D	H	M	d	Weight (g)	Proper Flex Locator Bushings
CP721-12025	12	4.5	15	10	M10×1.5 Depth 3.5	8.5	6	CP726-12025
CP721-15032	15	7.5	20	15	M12×1.75Depth 4.5	10.2	16	CP726-15032
CP721-20045	20	10	30	20	M16×2 Depth 5.5	14	47	CP726-20045

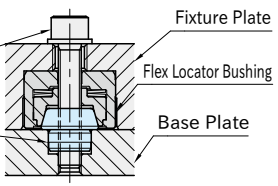
How To Use

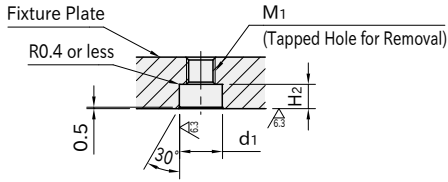
■Mounting Hole Dimensions for Press Fit

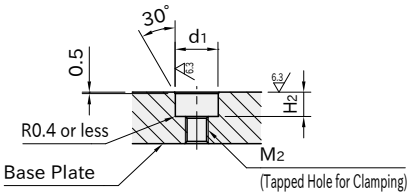
Installation of the Flex Locator Pins on the Fixture Plate



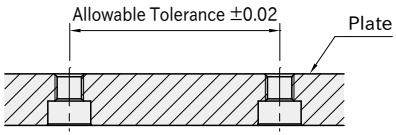
Installation of the Flex Locator Pins on the Base Plate







■Spacing Tolerance



Part Number	d1 (H6)	H2	M1	M2
CP721-12025	12	5.5	M 8×1.25	M 6×1
CP721-15032	15	8.5	M10×1.5	M 8×1.25
CP721-20045	20	11	M14×1.5	M10×1.5 M12×1.75

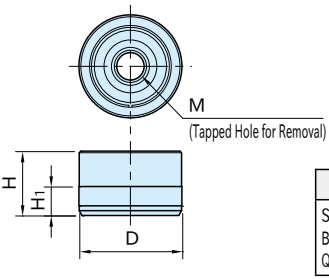
Reference

・How To Install FLEX LOCATORS (Through)
・How To Use FLEX LOCATORS (Through)

CP726 FLEX LOCATOR BUSHINGS (Through)

RoHS

IMAO



Body	Tapered Bushing
SCM440 steel Black Oxide Finished Quenched & Tempered	SCM440 steel Nitrocarburized

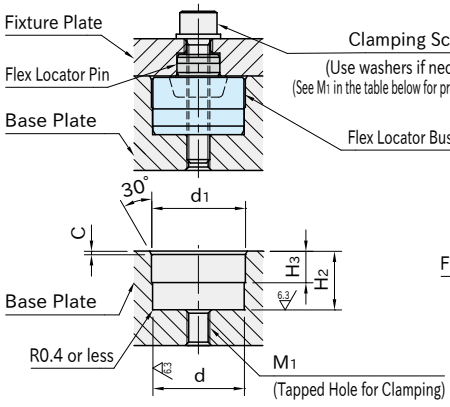
Part Number	D	H	H1	M	Lifting Force (N)*)	Weight (g)
CP726-12025	25 $(^{+0.028}_{+0.018})$	16	8	M 8×1.25(Prepared Hole ϕ 6.8)	540	46
CP726-15032	32 $(^{+0.031}_{+0.021})$	20	9	M10×1.5 (Prepared Hole ϕ 8.5)	600	92
CP726-20045	45 $(^{+0.031}_{+0.021})$	26	11	M14×1.5 (Prepared Hole ϕ 12.5)	780	230

*) The lifting force is the power of the inner spring of the body to push up the movable tapered bushing.

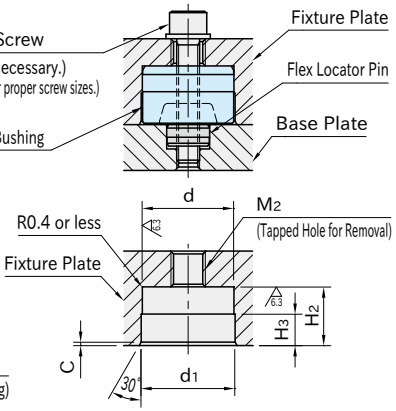
How To Use

■Mounting Hole Dimension for Press Fit

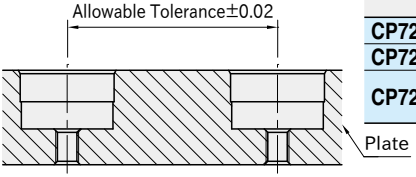
Installation of the Bushings on the Base Plate



Installation of the Bushings on the Fixture Plate



■Spacing Tolerance



Part Number	d (H6)	H2 (±0.05)	d1	H3	C	M1	M2
CP726-12025	25	16.5	25.2	8	1	M 6×1	M10×1.5
CP726-15032	32	20.5	32.2	11	1.2	M 8×1.25	M12×1.75
CP726-20045	45	26.5	45.2	15	1.5	M10×1.5 M12×1.75	M16×2

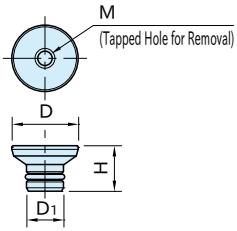
Reference

- How To Install FLEX LOCATORS (Through)
- How To Use FLEX LOCATORS (Through)

CP726-P FLEX LOCATOR PROTECTING COVERS

RoHS

IMAO



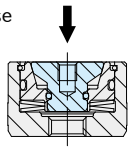
Body	O-Ring
A5056 aluminum Red	NBR nitrile rubber

Part Number	D	H	D_1	M	Weight (g)	Proper Flex Locator Bushings
CP726-12025P	15	10	9	M4×0.7	2	CP726-12025
CP726-15032P	19	13	11	M5×0.8	5	CP726-15032
CP726-20045P	29	18	16	M6×1	17	CP726-20045

How To Use

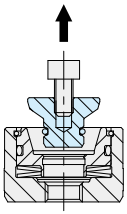
■How to Install

Insert the product to the center hole of the Flex Locator Bushings and use it as a protective cover.



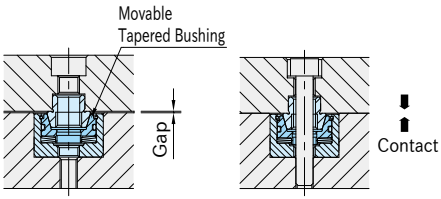
■How to Remove

Insert a screw into the tapped hole and pull it out.



How To Install FLEX LOCATORS (Through)

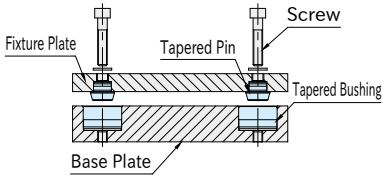
Feature



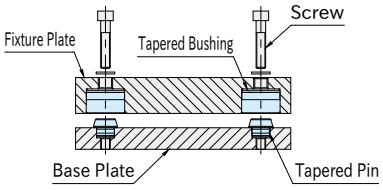
- When the fixture plate is lifted down, the tapered pin engages with the tapered receiver bushing.
- The movable tapered receiver bushing goes down by screwing the clamping screw and the fixture plate contacts with the base plate.

How To Install

Bushings on Base Plate



Pins on Base Plate



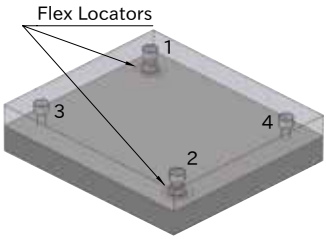
How To Use FLEX LOCATORS (Through)

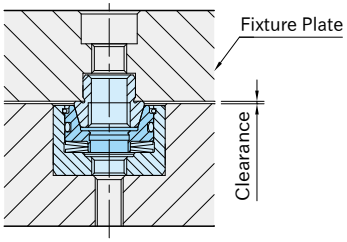
Tightening Order

1.Ensure that each plate is in close contact. *)
2.Tighten the screws temporarily in order of 1→2→3→4.
For temporary tightening, the tightening torque should be approximately 50% of the final tightening.
3.Tighten the screws finally in order of 1→2→3→4.

*) The fixture plate may be pushed up by the lifting force of CP726 Flex Locator Bushings.
In such cases, tighten the screws loosely in order of 1→2→3→4, and make the each plate be in close contact with each other. Then tighten the screws temporarily.For the lifting force, see the measurement table of CP726 Flex Locator Bushings.

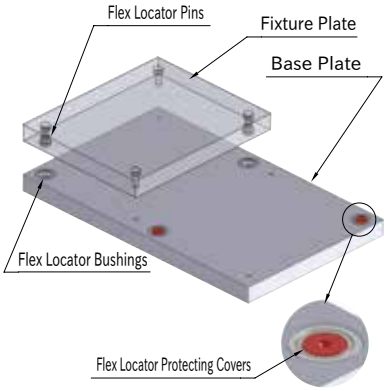
If the screws are not tightened in the correct order, the locating repeatability may exceed 10μm.



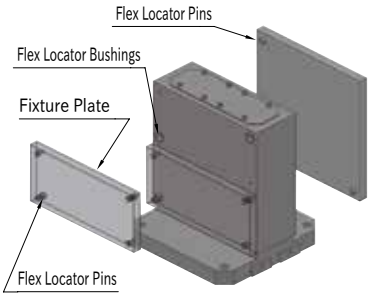


How To Use

■Horizontal Assembly of Base Plate and Fixture Plate



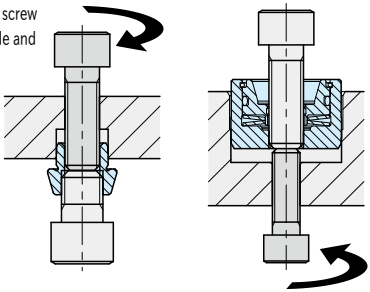
■Vertical Assembly of Base Plate and Fixture Plate



In vertical assembly, the locating repeatability may exceed 10μm if the total weight exceeds the maximum loading weight.

■How to Remove

For removal, insert screw into the tapped hole and screw it.



Size		Max. Loading Weight(kg)
CP721 / CP726	12025	150
	15032	200
	20045	240

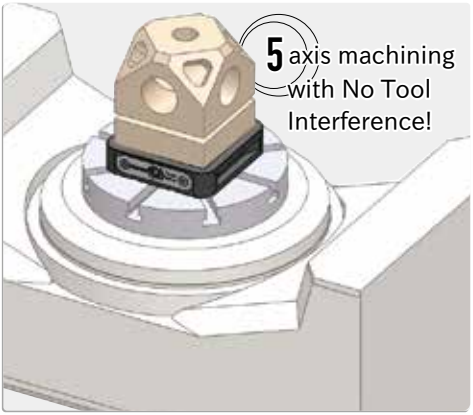
Note: The maximum loading weight is the entire sum of the weight of fixture plates, fixtures and workpieces.
Note: The maximum loading weight shown is the value when two sets of CP721 Flex Locator Pins and CP726 Flex Locator Bushings are used.

Value Creator
IMAO

FLEX ZERO BASES

FLEX ZERO BASES

Powerfully clamp both workpiece or fixture.
Pull clamp mechanism maximizes machining area.



CP180 FLEX ZERO BASES

RoHS

IMAO

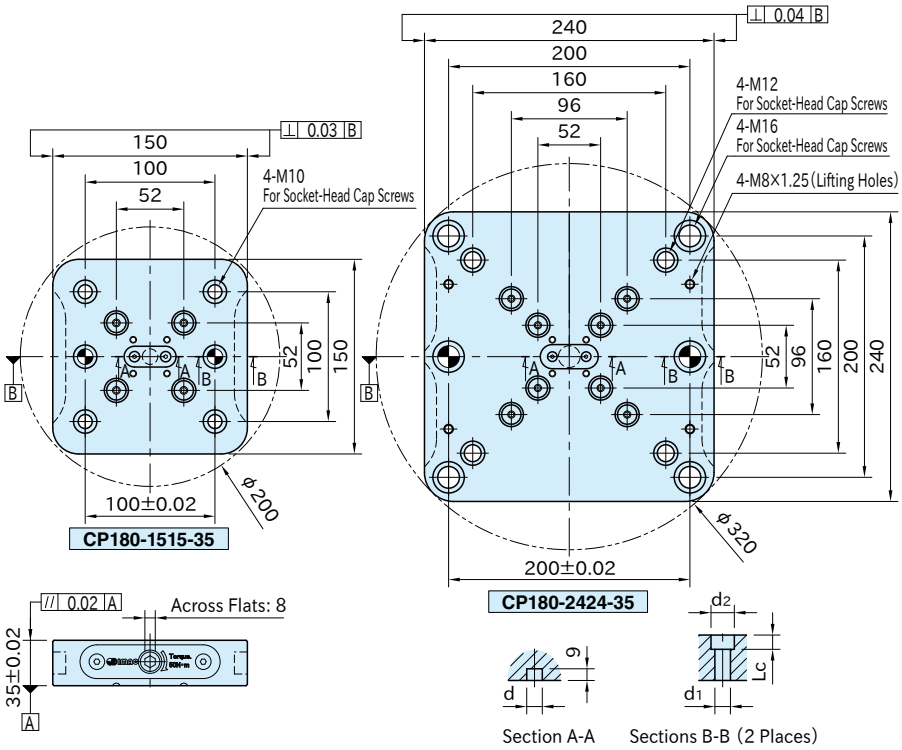
CP180-1515-35

CP180-2424-35

★Key Point

Clamp the fixture by single operation!

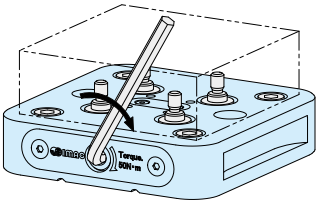
Body	Threaded Spindle	Clamping Socket
S50C steel Nitrocarburized HV 400 (Effective depth 0.1mm)	SCM440 steel Black oxide finished	S45C steel Black oxide finished



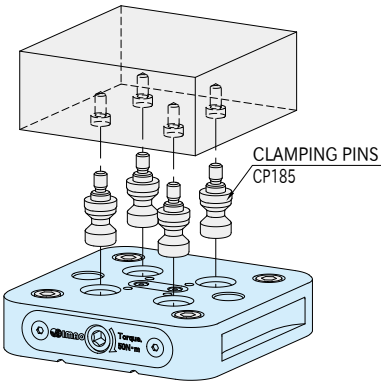
Part Number	d (H9)	d1 (H9)	d2	Lc	Clamping Force (kN)	Allowable Tightening Torque (N·m)	Weight (kg)
CP180-1515-35	12	12	18	11	12	50	5
CP180-2424-35	18	18	26	17.5			13.5

Feature

- Can be clamped by one operation.
- Pins are fully clamped by approx. 3 rotations of the clamping socket.

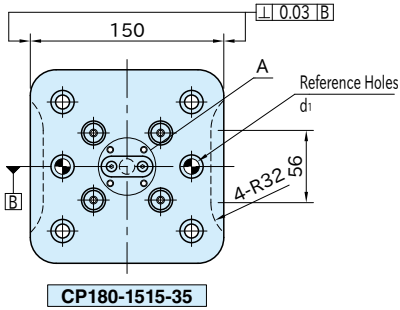


How To Use

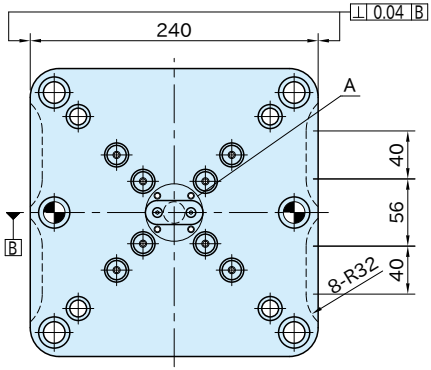


■How To Locate

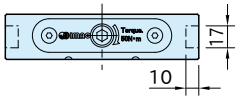
Can be positioned by reference holes or finished side surfaces.

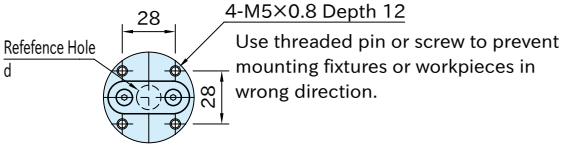


CP180-1515-35



CP180-2424-35



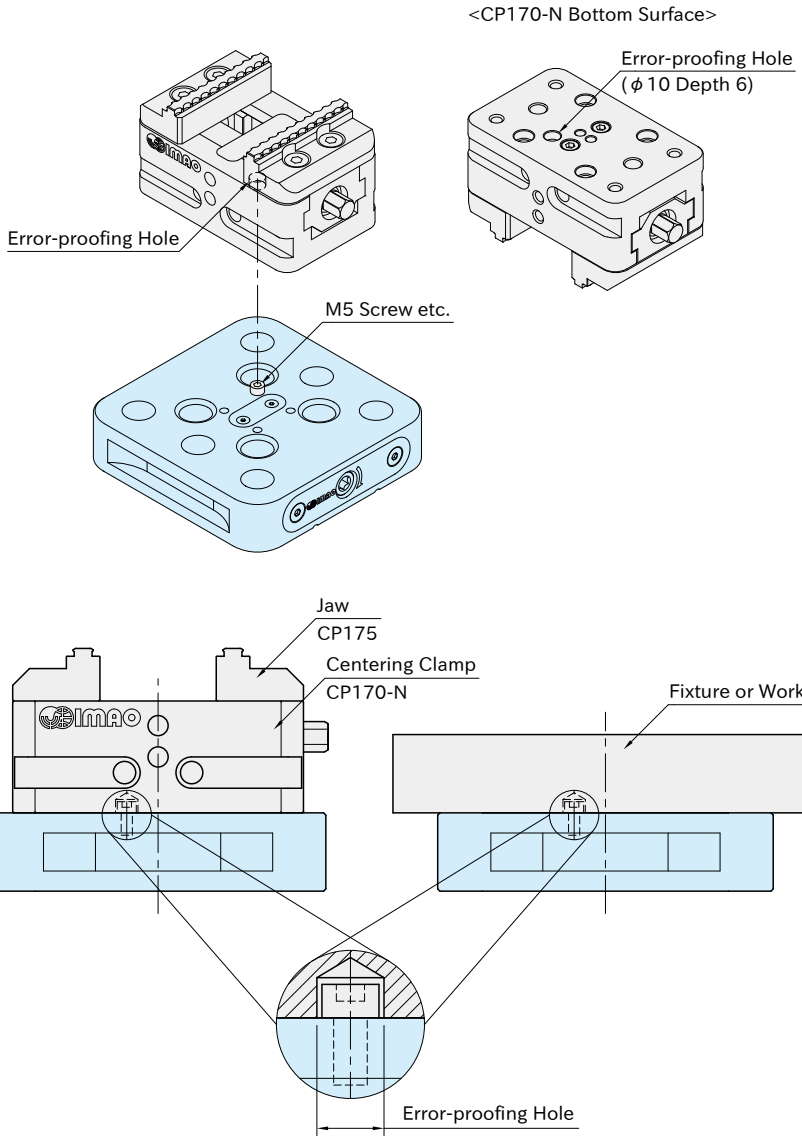


Enlarged View:A

Continuing on Next Page

■Usage Example of Error-proofing Hole

Prepare a screw etc. on M5x0.8 Depth 12 hole on CP180 Flex Zero Base to prevent mounting CP170-N Centering Clamp in wrong direction.



Technical Information

Repeatability: 5μm

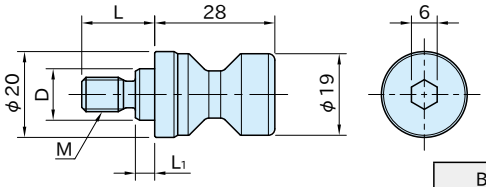
Related Product

- CP185 CLAMPING PINS
- CP185-P PROTECTING COVER
- CP170-N CENTERING CLAMPS

CP185 CLAMPING PINS

RoHS

IMAO



Body
SCM440 steel Nitrocarburized

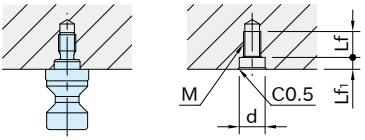
Part Number	M	D $^{-0.01}_{-0.03}$	L_1	L	Weight (g)
CP185-08001	M 8×1.25	12	4.5	17	57
CP185-10001	M10×1.5	16	5.5	20.5	66

Note

Use 4 pins as a set for mounting.

How To Use

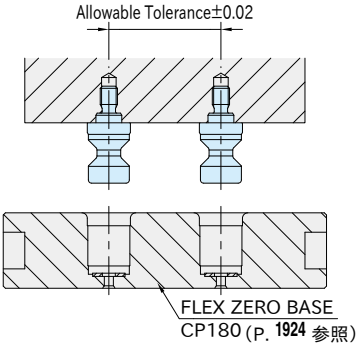
■Mounting Hole Dimension



Part Number	d (H7)	Lf_1	M	Lf
CP185-08001	12	5.5	M 8×1.25	12
CP185-10001	16	6.5	M10×1.5	16

■Spacing Torelance

Allowable tolerance of the mounting holes should be ±0.02.



Related Product

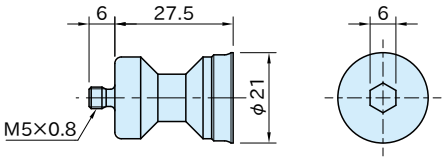
Can be used in combination with CP170-N CENTERING CLAMPS. (P. 2038 参照)

Usage example
(CP170-08013N, CP185-08001x4pcs.)

CP185-P PROTECTING COVER

RoHS

IMAO



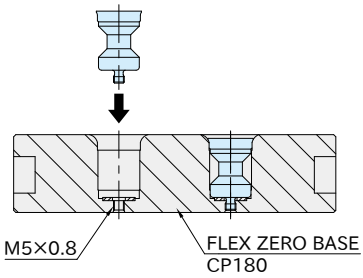
Body
S45C steel Electroless Nickel Plated

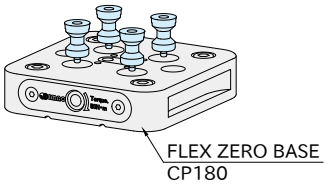
Part Number	Weight (g)
CP185-2424P	45

How To Use

How To Mount

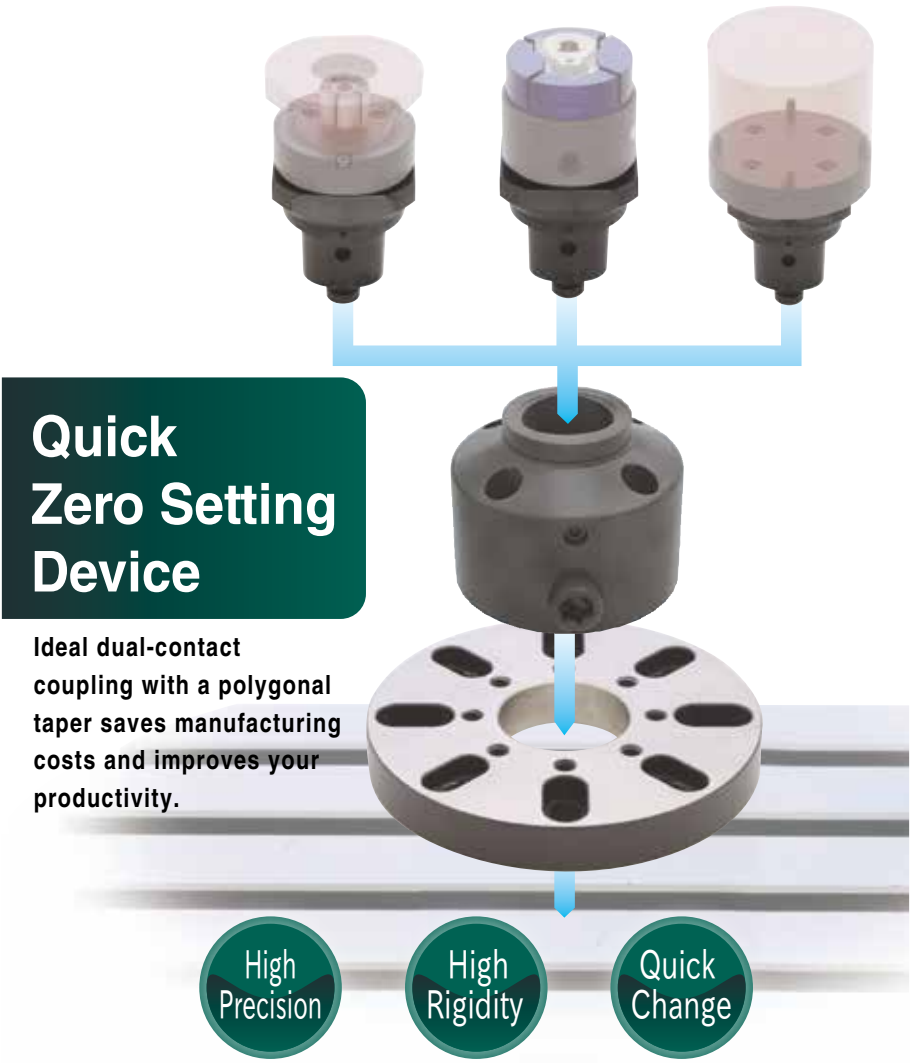
Mount on the unused grid of FLEX ZERO BASE by hex. key as a protective cover.





Value Creator
IMAO

Quick Zero Setting Device



Quick Zero Setting Device

Ideal dual-contact coupling with a polygonal taper saves manufacturing costs and improves your productivity.

High Precision

High Rigidity

Quick Change

Usabilities

- Precise fixture changes for wide-variety low-volume productions
- Precise machinings that require intermediate measurements

Usable on

- 5-axis machine
- Vertical M/C
- CNC Rotary table

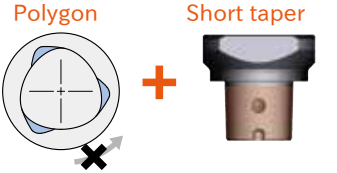
High Rigidity

Ideal dual-contact of a polygonal taper provides high bending rigidity and high torsional rigidity.

Compared to HSK shank(HSK-A63)
Bending/torsional rigidity is
more than double!

Bending rigidity

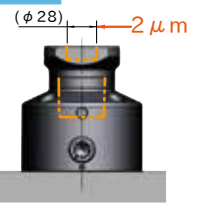
Torsional rigidity



High Precision

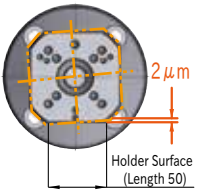
Provides accurate positioning with high repeatability and no need of centering.

Center



Height

Angle



Quick Change

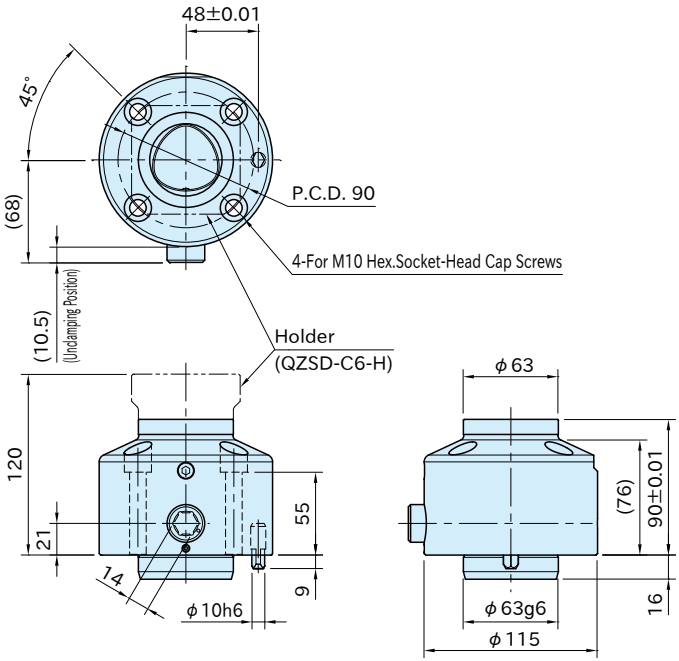
Holder can be locked/ unlocked with a hex wrench.
Easy settings for everyone.
Saves lots of time for setups.

QZSD-C6-B BASE (QUICK ZERO SETTING DEVICE)

RoHS

IMAO

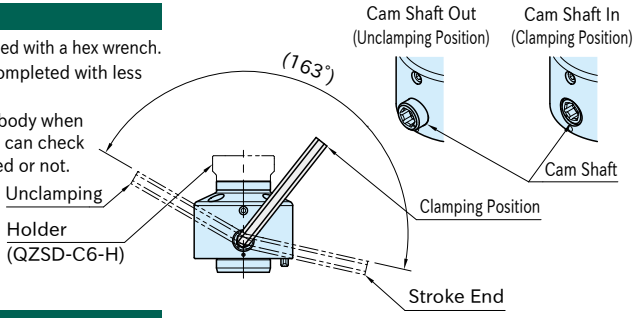
Body	Cam Shaft
SCM420 steel Carburized-hardened Black oxide finished	SCM435 steel Quenched and tempered Black oxide finished



Part Number	Clamping Force(kN)	Allowable Tightening Torque(N·m)	Weight (kg)
QZSD-C6-B	30	100	5.2

Feature

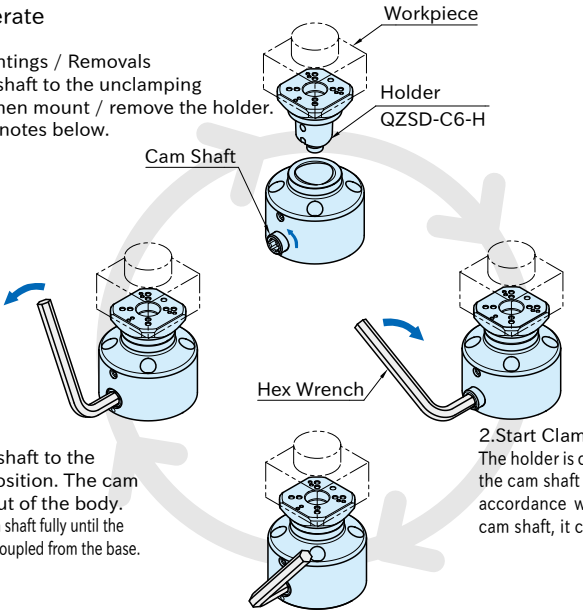
- Holder can be clamped / unclamped with a hex wrench.
- Tightening / loosening can be completed with less than 180˚turn.
- The cam shaft comes out of the body when the holder is unclamped. So you can check visually if the holder is unclamped or not.



How To Use

■How to Operate

1.Holder Mountings / Removals
Turn the cam shaft to the unclamping position and then mount / remove the holder.
Note: See the notes below.



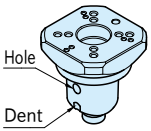
4.Unclamping
Turn the cam shaft to the unclamping position. The cam shaft comes out of the body.
Note: Turn the cam shaft fully until the holder is uncoupled from the base.

2.Start Clamping
The holder is clamped by tightening the cam shaft with a hex wrench. In accordance with tightening of the cam shaft, it comes in the body.

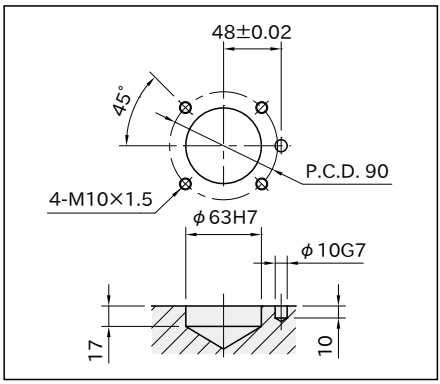
3.Fully Clamped!

<Notes for Mountings/ Removals of Holder>

- Ensure that the cam shaft is come out of the body.
- Note to mount the holder by aligning its hole and dent to the cam shaft of the base.



■Mounting-Hole Dimension



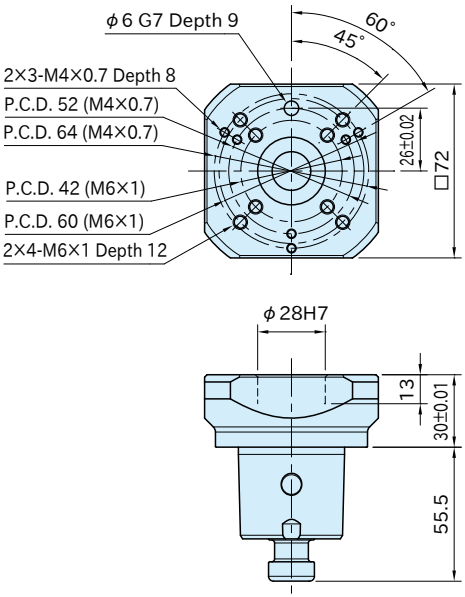
Related Product

- QZSD-C6-H HOLDER (QUICK ZERO SETTING DEVICE)
- QZSD-C6-P PLATE (QUICK ZERO SETTING DEVICE)

QZSD-C6-H HOLDER (QUICK ZERO SETTING DEVICE)

RoHS

IMAO



Body	Clamping Screw
SCM420 steel Carburized-hardened Black oxide finished	SCM435 steel Quenched and tempered Black oxide finished

Part Number	Weight (kg)
QZSD-C6-H	1.3

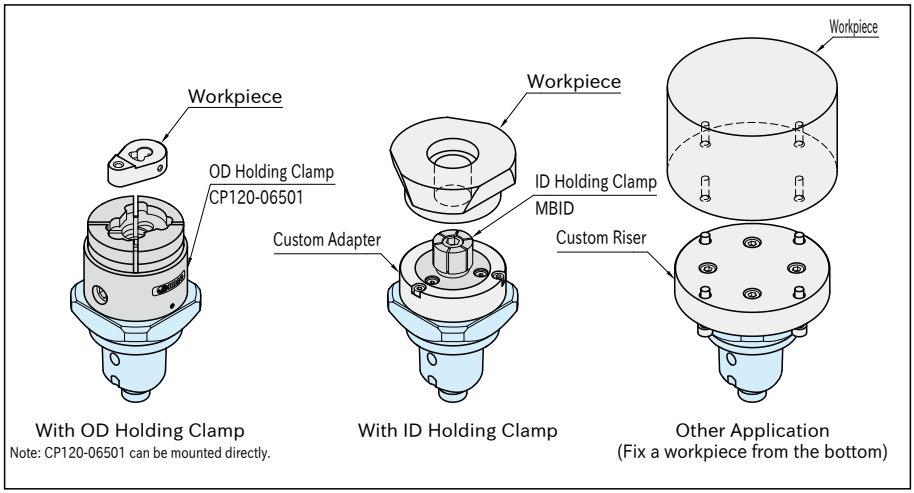
Feature

- Tapped holes for mounting fixtures on the top face.
- CP120-06501 OD HOLDING CLAMPS can be mounted directly.

Related Product

- CP120 OD HOLDING CLAMP
- MBID ID HOLDING CLAMP
- QZSD-C6-B BASE (QUICK ZERO SETTING DEVICE)
- QZSD-C6-P PLATE (QUICK ZERO SETTING DEVICE)

Application Example



With OD Holding Clamp
Note: CP120-06501 can be mounted directly.

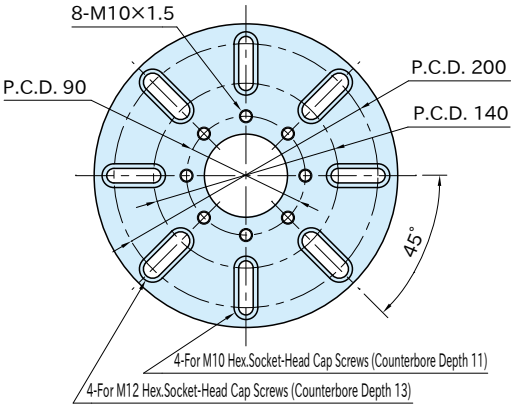
With ID Holding Clamp

Other Application
(Fix a workpiece from the bottom)

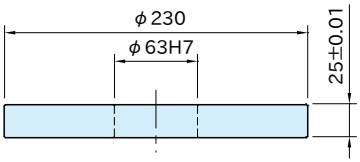
QZSD-C6-P PLATE (QUICK ZERO SETTING DEVICE)

On Request RoHS

IMAO



Body
S45C steel Black oxide finished Precision ground



Part Number	Weight (kg)
QZSD-C6-P	6.3

Feature

- For mounting the device on machine tables with T-Slots.
- Mouning holes are M10 and M12 sizes.
- Custom plates are available on request.

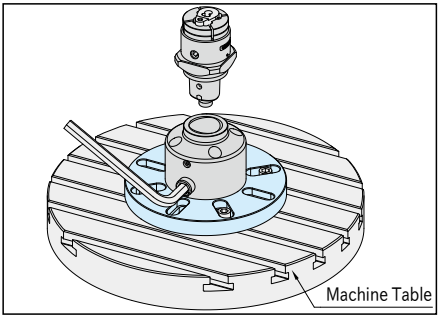
Related Product

- QZSD-C6-B BASE (QUICK ZERO SETTING DEVICE)
- QZSD-C6-H HOLDER (QUICK ZERO SETTING DEVICE)

Note

This plate is a non-stock item.

How To Use



Value Creator
IMAO