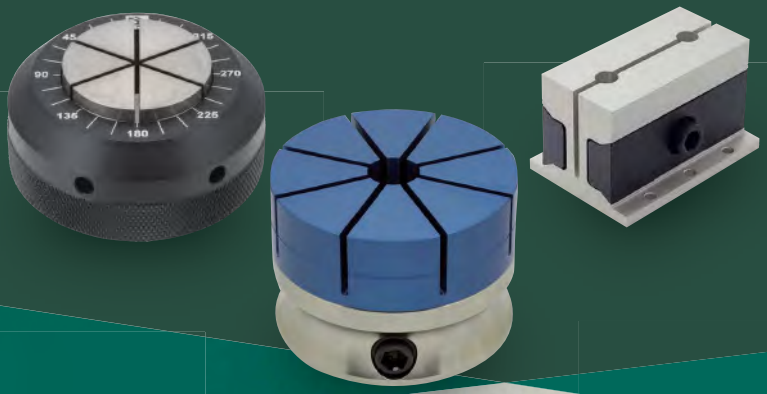
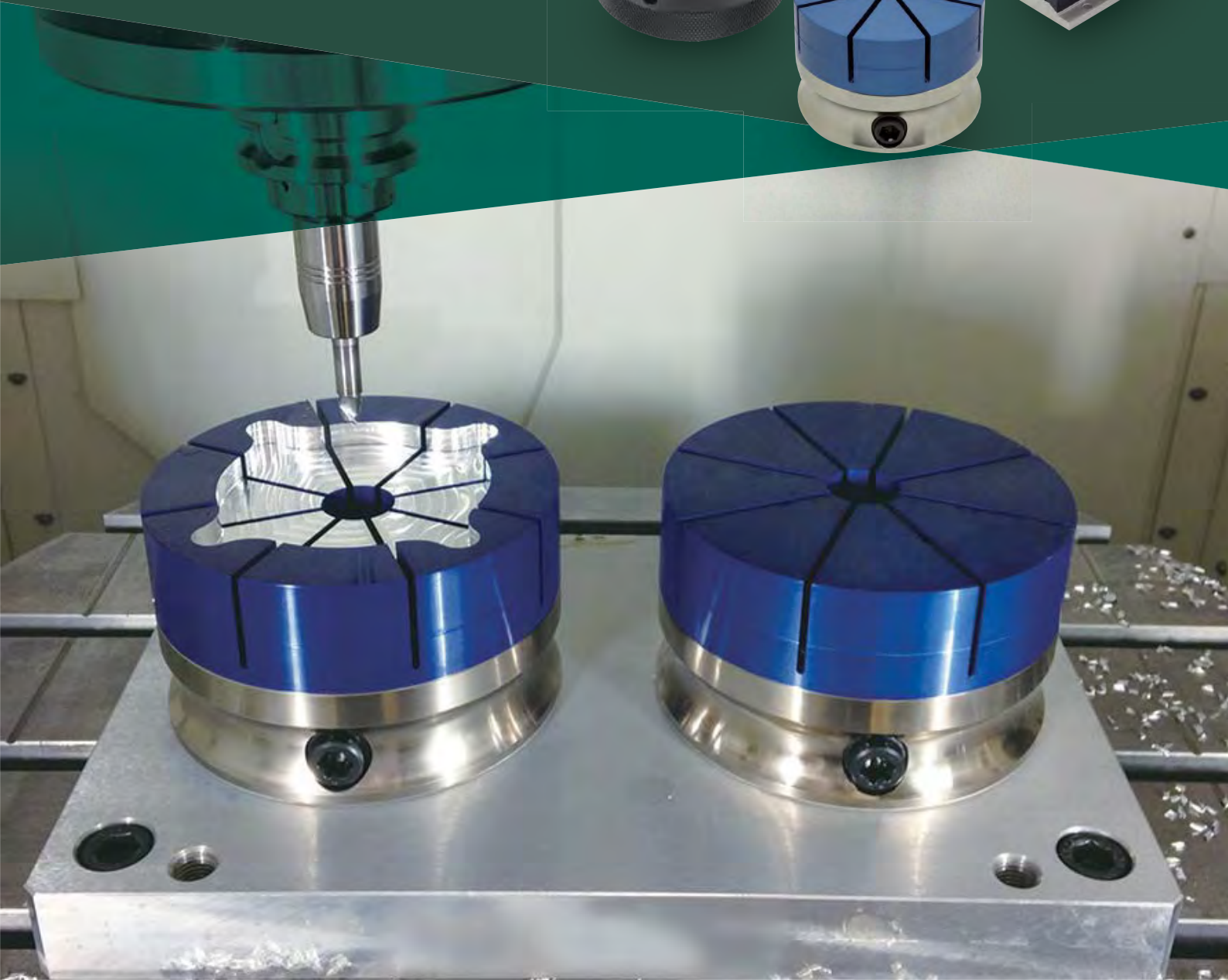
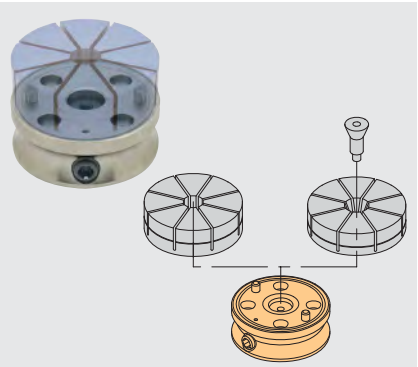
IMAO® fixtureworks®

Machinable Collet Clamps

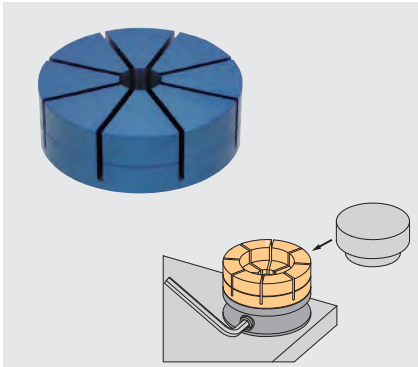






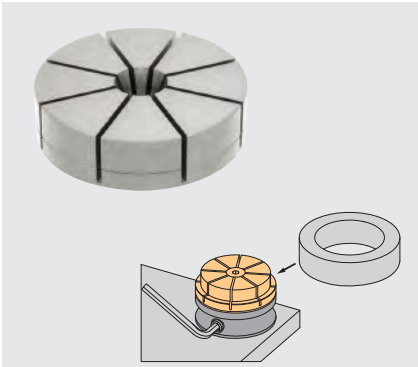
FORM HOLDING CLAMPS

Part No. CP125



JAWS FOR EXTERNAL FORM HOLDING

Part No. CP126

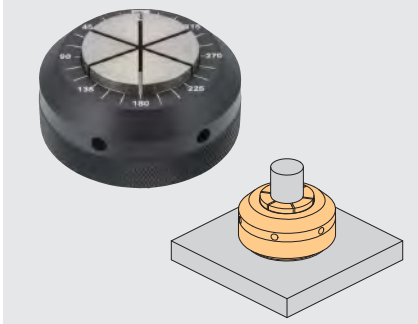


JAWS FOR INTERNAL FORM HOLDING

Part No. CP127

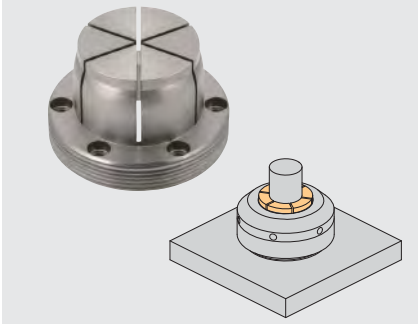
TAPERED SCREWS FOR INTERNAL FORM HOLDING

Part No. CP127-B



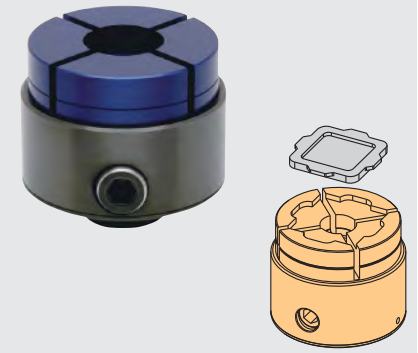
CONCENTRIC OD CLAMPS

Part No. MBOD



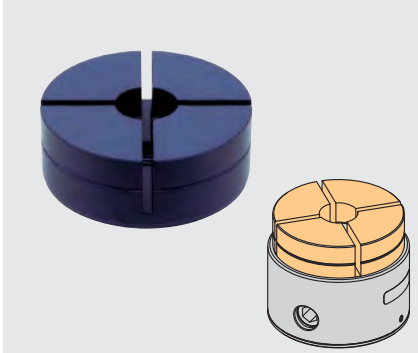
JAWS

Part No. MBOD-01



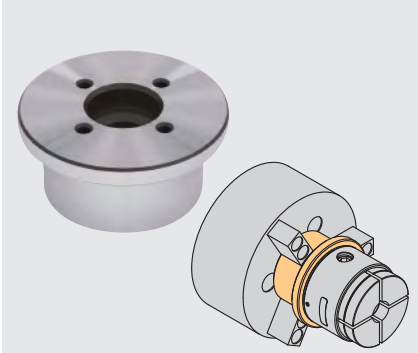
OD HOLDING CLAMPS

Part No. CP120



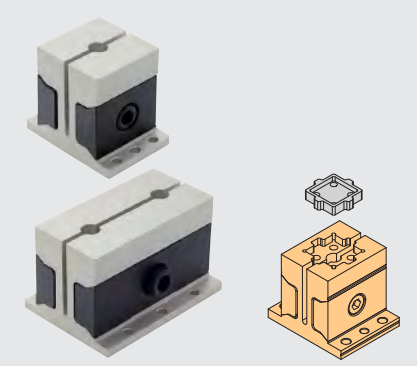
JAWS

Part No. CP121



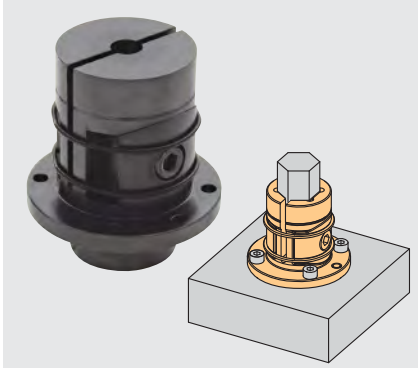
MOUNTING-ON-LATHE ADAPTERS

Part No. CP122



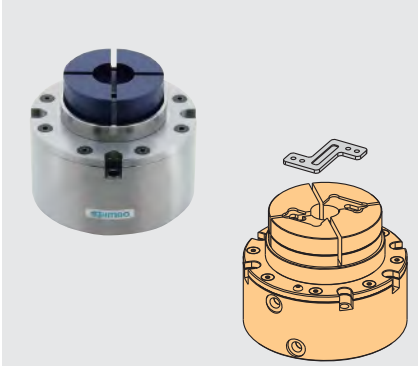
OD HOLDING CLAMPS (Wedge Style/Square)

Part No. CP124



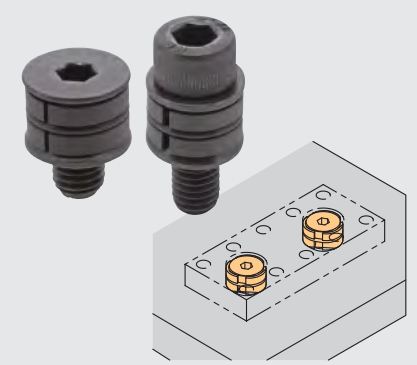
OD HOLDING CLAMPS (Wedge Style/Round)

Part No. CP123



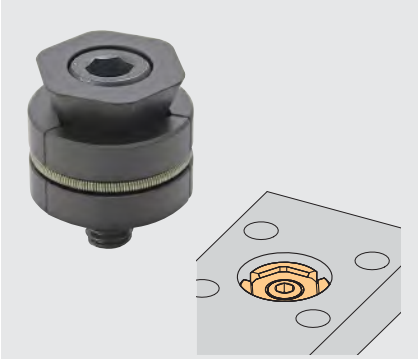
PNEUMATIC OD HOLDING CLAMPS

Part No. AMCH-W



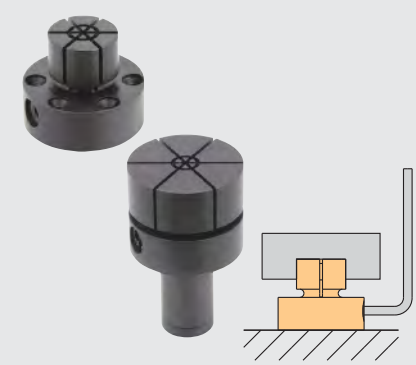
COMPACT ID HOLDING CLAMPS

Part No. CP131



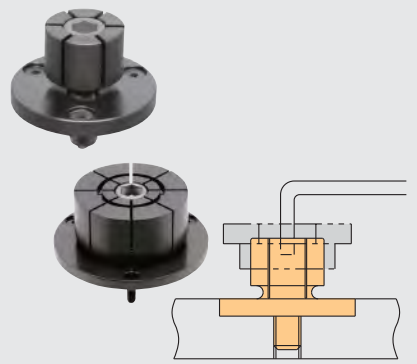
ID HOLDING CLAMPS

Part No. CP130



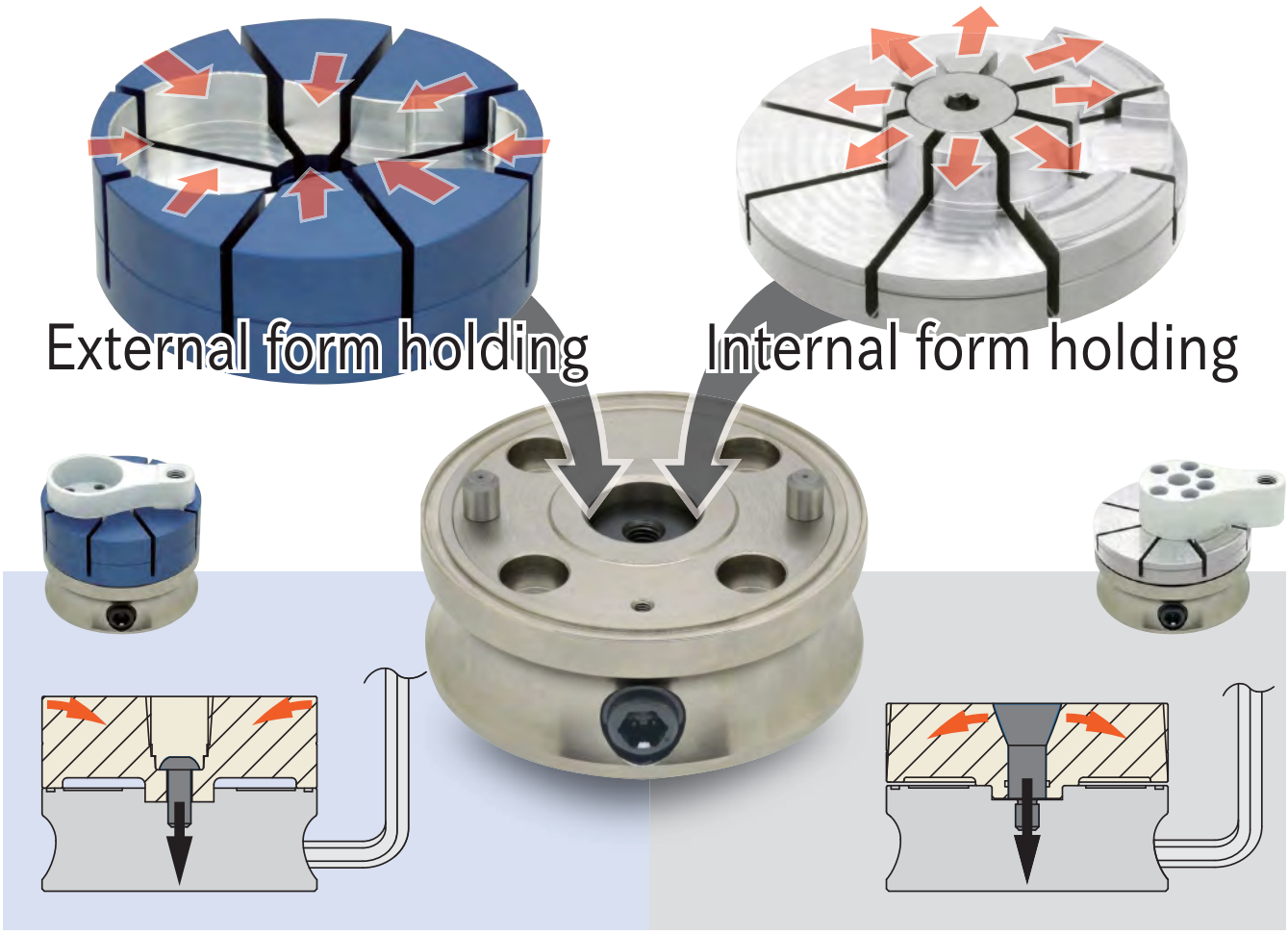
ID HOLDING CLAMPS

Part No. MBID



SIDE LOCK ID HOLDING CLAMPS

Part No. MBSID

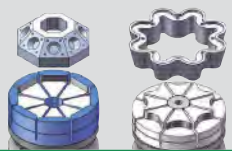


Clamp any shape! Hold on external / internal form!

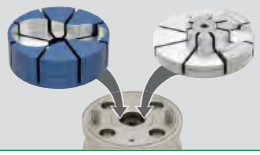
FORM HOLDING CLAMPS

Form Holding Clamps with a machinable jaw are perfect for irregular-shaped workpieces. Simple workholding on external/internal form eliminates the need for custom fixtures.

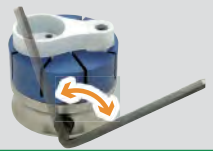
Secure clamping for odd shaped workpieces



Versatile workholding by changing jaw



Quick clamping by tightening cam cylinder



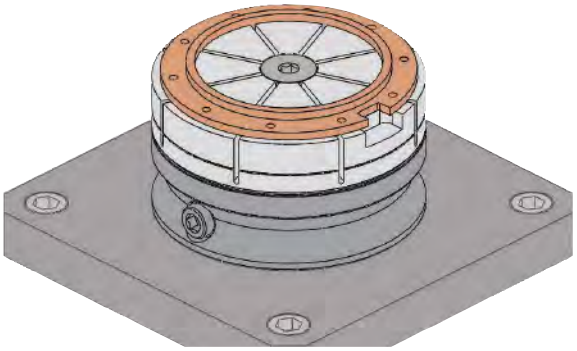
1 Prepare jaw | 2 Machine jaw | 3 Mount workpiece | 4 Tighten cam cylinder

External

Internal

Application Example

Clamping Low Profile Workpiece

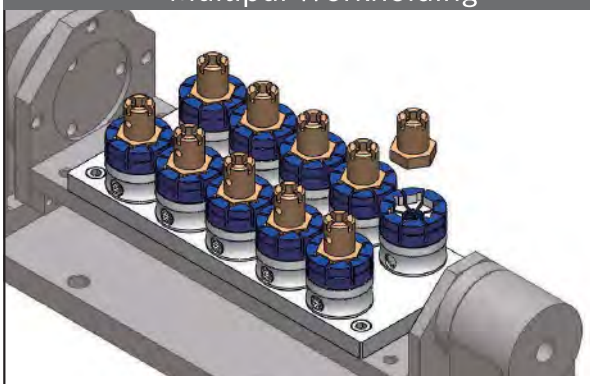


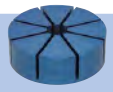
Internal Form

8 jaw sections distribute clamping force to workpiece for deformation prevention.

Note to control the tightening torque using adequate tools in reference to the data provided by the performance curve.

Multipul Workholding

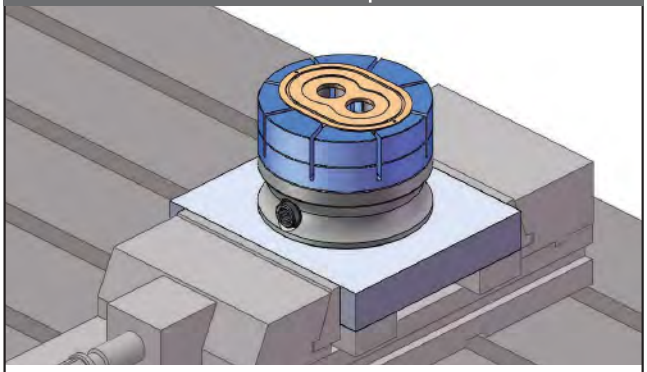


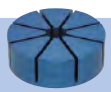


External Form

Small cylindrical body allows the multi-piece clamping in limited space.

Fixture for Temporal Job

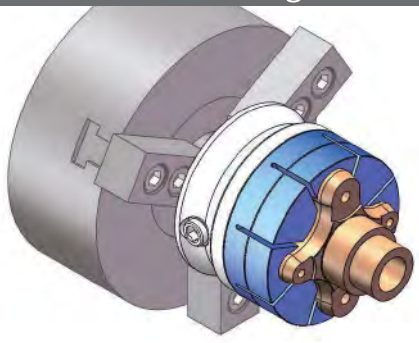


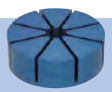


External Form

Can be mounted on the existing vise by attaching the clamp on plate.

Fixture for Turning Lathe





External Form

Can clamp odd shape that a chuck does not clamp.

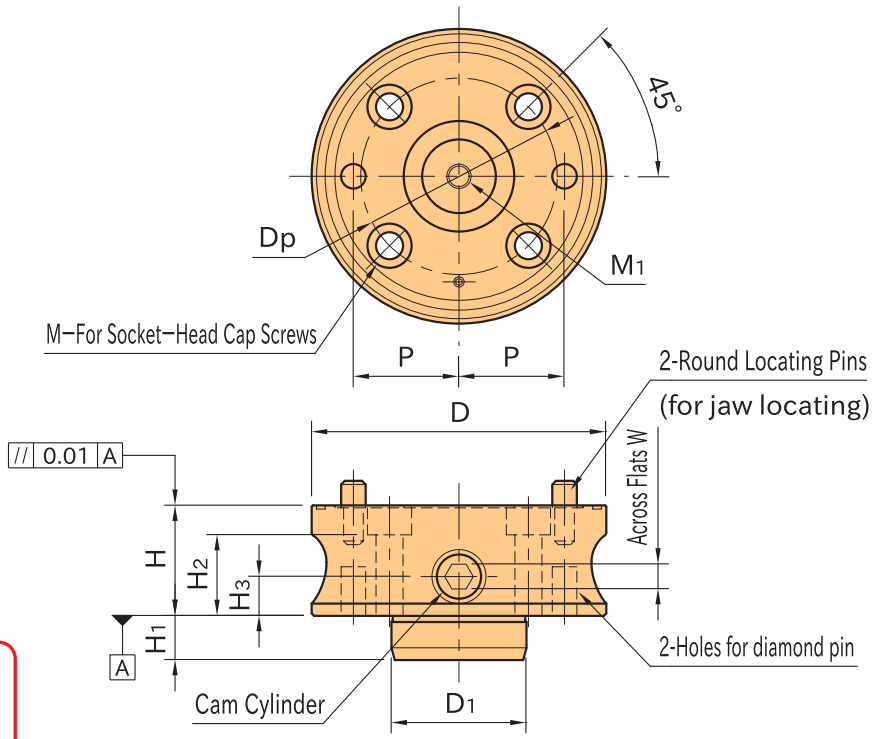
CP122 Mounting-on-lathe Adapter is available.

CP125 FORM HOLDING CLAMPS

RoHS

Note: Jaw is not included.

Body	Pull Cylinder	Cam Cylinder
S45C steel Electroless nickel plated	SCM415 steel Carburized-hardened Black oxide finish	SCM435 steel Quenched & tempered Black oxide finish



★Key Point

Can hold on external/ internal form.

Part Number	D	H (±0.01)	D1 (g6)	H1	M	H2	Dp	P (±0.02)	W	H3	M1
CP125-06501	65	35	28	12	M 6	27	42	22	8	12	M 8×1.25
CP125-09001	90	40	42	14	M 8	30	60	30		14	M10×1.5
CP125-12001	120	45	55	18	M10	33	80	43	10	16	
CP125-16001	160	50	63	24	M12	36	110	60		18	M12×1.75

Part Number	Allowable Screw Torque(N·m)	Weight (kg)	Proper Jaws					
			For External Form Holding			For Internal Form Holding		
			Part Number	Clamping Force(kN)	Clamping Stroke	Part Number	Clamping Force(kN)	Clamping Stroke
CP125-06501	15	0.8	CP126-06501	4.5	ϕ0.3	CP127-06501	4.5	ϕ0.3
CP125-09001	25	1.7	CP126-09001	7		CP127-09001	7	
CP125-12001	40	3.5	CP126-12001	10		CP127-12001	10	
CP125-16001		7.1	CP126-16001	12		CP127-16001		

Technical Information

- Part locating repeatability: ±0.03
- Jaw locating repeatability: ±0.02

Note

Do not tighten the cam cylinder without the workpiece set to prevent damage and deformation. Tightening with the torque beyond the allowable screw torque will lower the durability of the jaw.

Supplied With

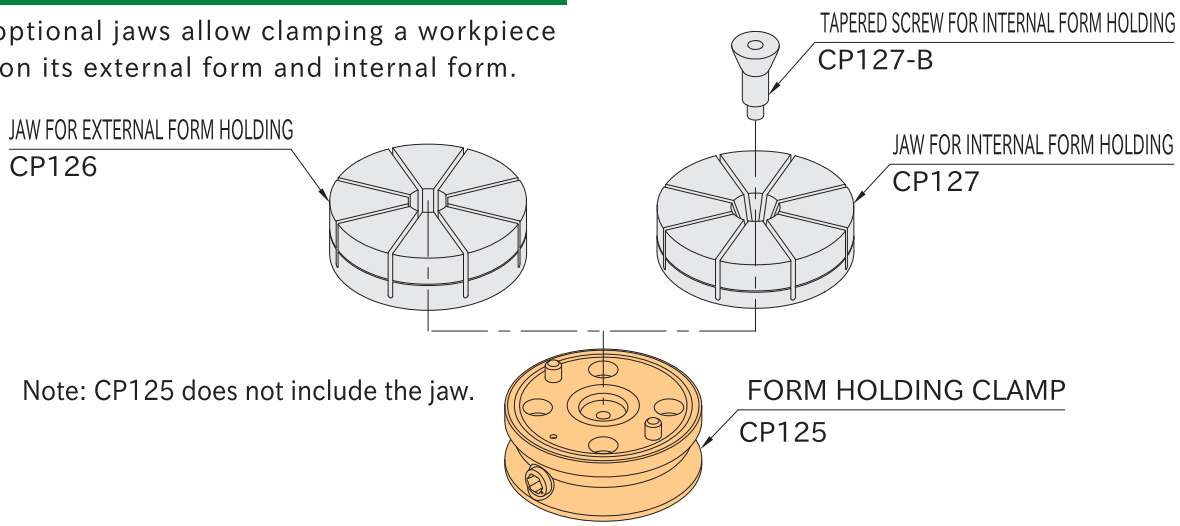
- CP125-06501 : 1 pc. of Diamond Locating Pin (BJ722-06001)
- CP125-09001 : 1 pc. of Diamond Locating Pin (BJ722-08001)
- CP125-12001 : 1 pc. of Diamond Locating Pin (BJ722-10001)
- CP125-16001 : 1 pc. of Diamond Locating Pin (BJ722-12001)

Related Product

- CP126 Jaws for External Form Holding
- CP127 Jaws for Internal Form Holding
- BJ722 Diamond Locating Pin
- CP122 Mounting-on-lathe Adapters

Feature

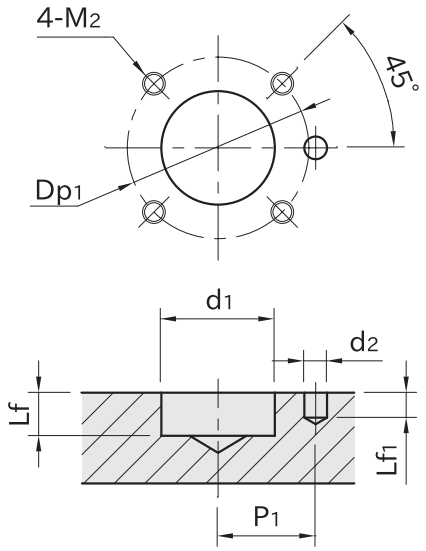
Two optional jaws allow clamping a workpiece both on its external form and internal form.



Note: CP125 does not include the jaw.

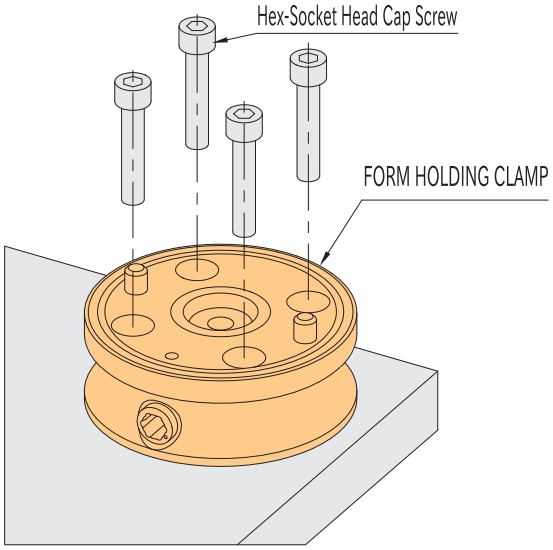
How To Use

■Mounting Hole Dimension

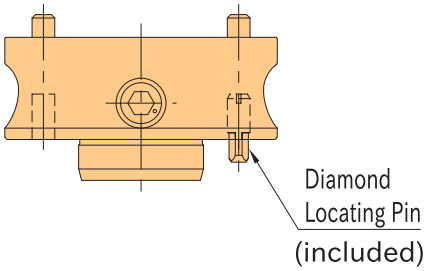


Part Number	d_1 (H7)	Lf	d_2 (G7)	Lf_1	P_1 (±0.02)	M_2	Dp_1
CP125-06501	28	13	6	6	22	M 6X1	42
CP125-09001	42	15	8	8	30	M 8X1.25	60
CP125-12001	55	19	10	11	43	M10X1.5	80
CP125-16001	63	25	12	13	60	M12X1.75	110

■Installation Instruction



Insert an included diamond pin into the body for locating and secure the body to the fixture plate with 4 socket-head cap screws.
Note: Use either of the holes for diamond locating pin for your application.



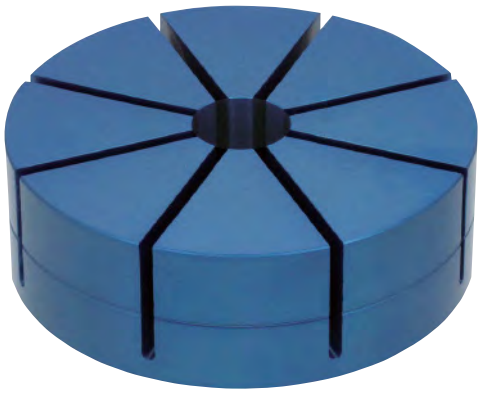
Dimension of Diamond Locating Pin

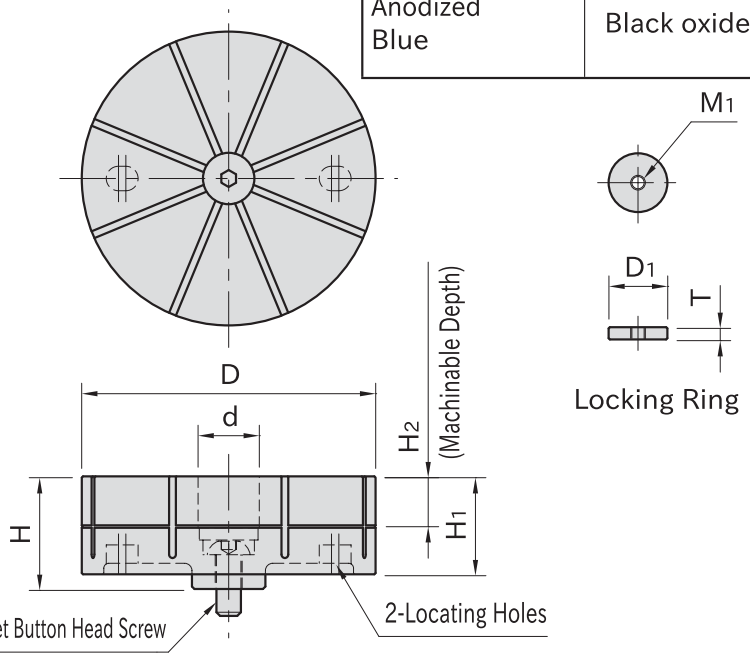
Part Number	Diameter
CP125-06501	ϕ 6h6
CP125-09001	ϕ 8h6
CP125-12001	ϕ 10h6
CP125-16001	ϕ 12h6

CP126 JAWS FOR EXTERNAL FORM HOLDING

RoHS

Jaw	Locking Ring
A7075 aluminum Anodized Blue	S45C steel Black oxide finish



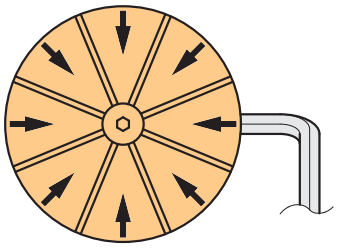


Part Number	D	d	H_1	H_2	M	H	M_1	D_1	T	Weight (kg)	Proper CP125 Clamps
CP126-06501	65	21	25	10	M 8X20L Across Flats 5	29	M5X0.8	20	4	0.2	CP125-06501
CP126-09001	90	25	35	15	M10X25L Across Flats 6	40	M6X1	24	5	0.5	CP125-09001
CP126-12001	120	25	40	20		46				1.1	CP125-12001
CP126-16001	160	29	45	25	M12X25L Across Flats 8	52	M8X1.25	28	6	2.2	CP125-16001

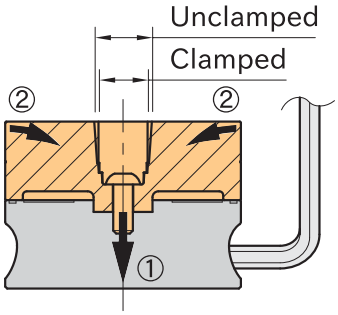
Supplied With

- 1 pc. of O-ring
- 1 pc. of Locking Ring
- 1 pc. of Hex Socket Button Head Screw

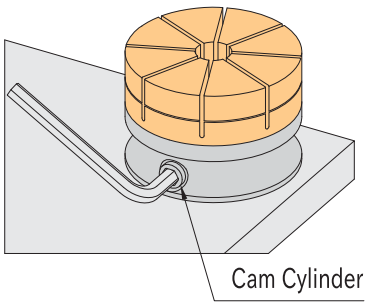
Feature



- The diaphragm clamping mechanism allows securely clamping a part with 8 jaw sections.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.



①When the cam cylinder is tightened, the central bottom part of the jaw is pulled down.
②At the same time the 8 jaw sections tilt toward the center to clamp the external form of workpiece.

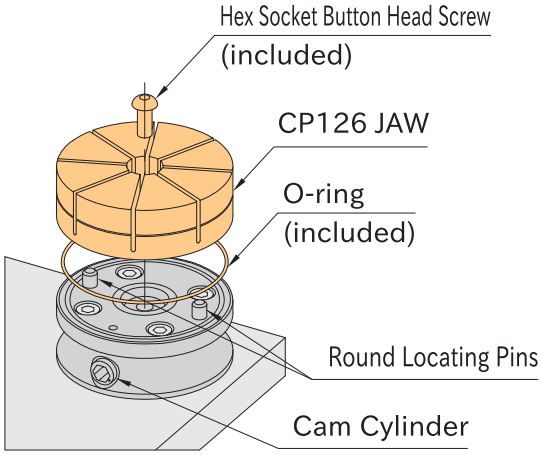


How To Use

1.Jaw Mounting

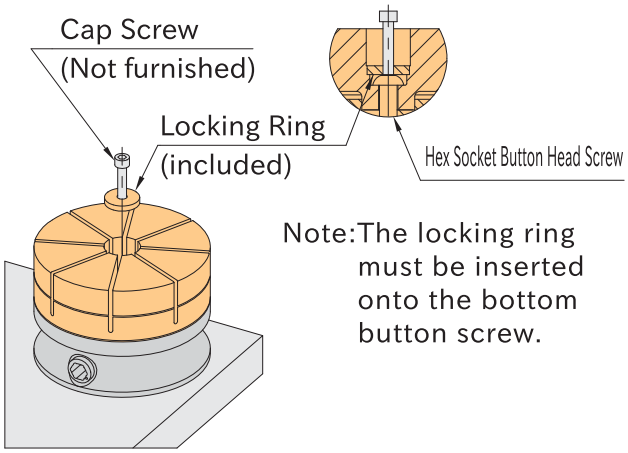
- Insert an O-ring to the groove on top surface of the Form Holding Clamp.
- Set a Jaw putting its locating holes onto the round locating pins and fix it with a hex socket button head screw.

Note: At jaw installation, ensure the cam cylinder is fully loosened by turning counterclockwise until it stops.

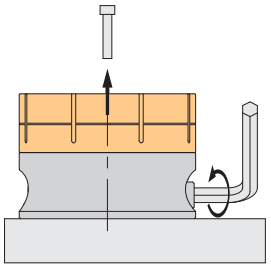


2.Jaw Machining

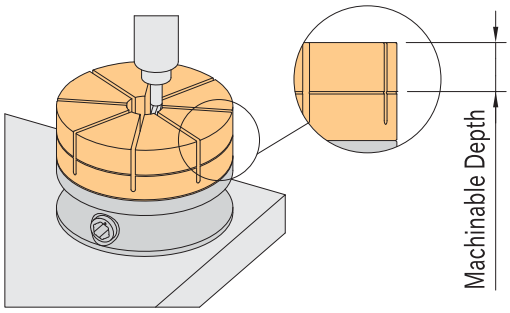
2-1. Set the locking ring in the jaw.
(Using a screw facilitates setting.)



2-2. - Tighten the cam cylinder to clamp the locking ring. (Recommended Tightening Torque:15N·m)
- After clamping the screw should be removed from the locking ring.

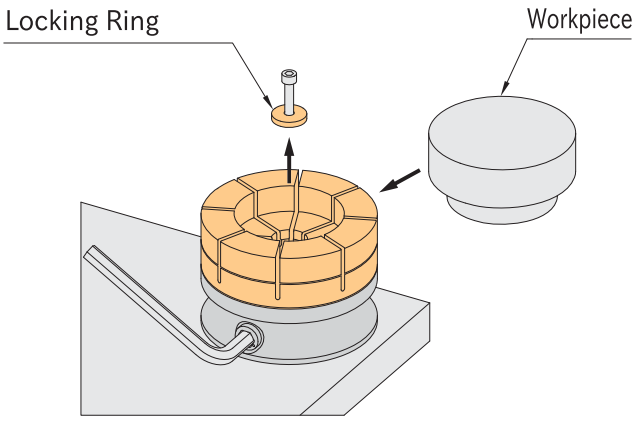


2-3. Machine the jaw to the contours of workpiece.
(Do not machine the jaws beyond the machinable depth.)

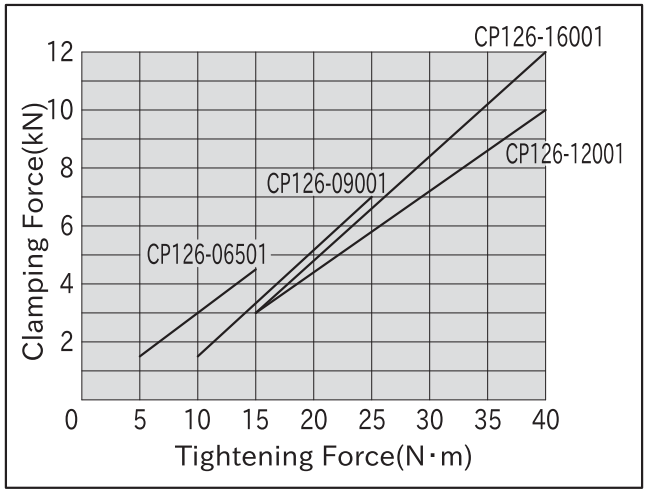


3.Workpiece Loading

- Loosen the cap screw to remove the locking ring.
- Load the workpiece and tighten the cam cylinder for clamping.



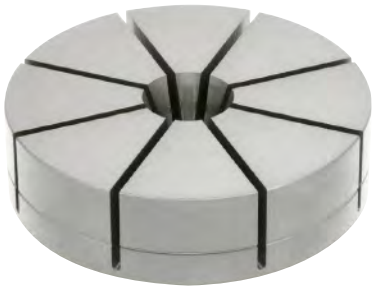
Performance Curve

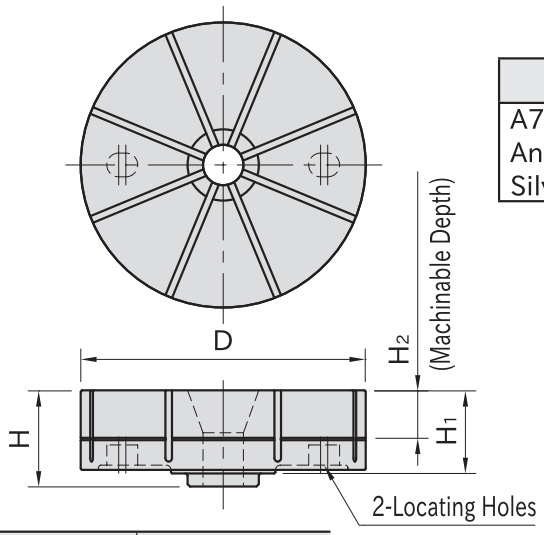


Note

Do not tighten the cam cylinder without the workpiece set to prevent damage and deformation. Tightening with the torque beyond the allowable screw torque will lower the durability of the jaw.

CP127 JAWS FOR INTERNAL FORM HOLDING





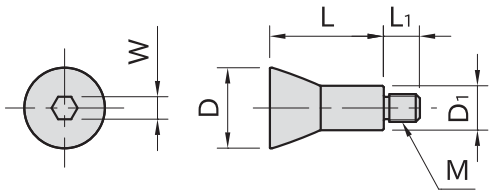
Jaw
A7075 aluminum Anodized Silver

Part Number	D	H_1	H_2	H	Weight (kg)	Proper CP125 Clamps	Proper CP127-B Screws
CP127-06501	65	25	10	28.5	0.2	CP125-06501	CP127-06501B
CP127-09001	90	30	15	34.5	0.4	CP125-09001	CP127-09001B
CP127-12001	120	35	20	40.5	0.9	CP125-12001	CP127-12001B
CP127-16001	160	40	25	46.5	1.9	CP125-16001	CP127-16001B

Supplied With

1 pc. of O-ring

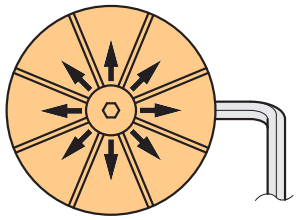
CP127-B TAPERED SCREWS FOR INTERNAL FORM HOLDING

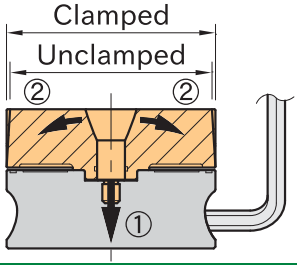


Body
SCM435 steel Quenched and tempered Electroless nickel plated

Part Number	D	L	M	L_1	D_1	W	Weight (g)	Proper CP127 Jaws
CP127-06501B	22.5	29	M 8×1.25	10	13.2	6	50	CP127-06501
CP127-09001B	27	35	M10×1.5	11	16	8	80	CP127-09001
CP127-12001B	29	41		13			100	CP127-12001
CP127-16001B	33	47	M12×1.75	14	18	10	150	CP127-16001

Feature

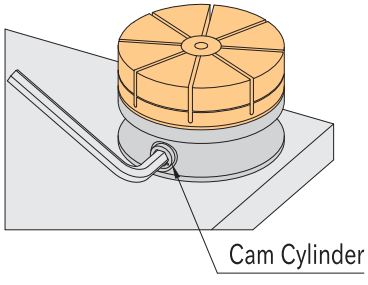




- The tapered screw expands the jaws towards eight directions to hold different irregularly-shaped workpieces securely.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

①When the cam cylinder is tightened, the tapered screw is pulled down.

②At the same time the 8 jaw sections expand to clamp the internal form of workpiece.

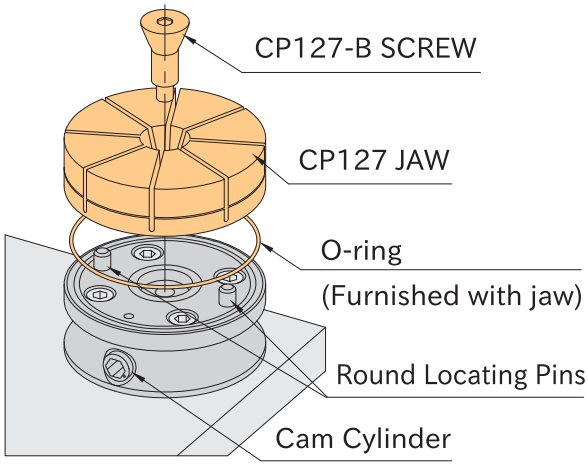


How To Use

1.Jaw Mounting

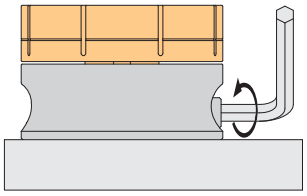
- Insert an O-ring to the groove on top surface of the Form Holding Clamp.
- Set a Jaw putting its locating holes onto the round locating pins and fix it with a tapered screw.

Note: At jaw installation, ensure the cam cylinder is fully loosened by turning counterclockwise until it stops.

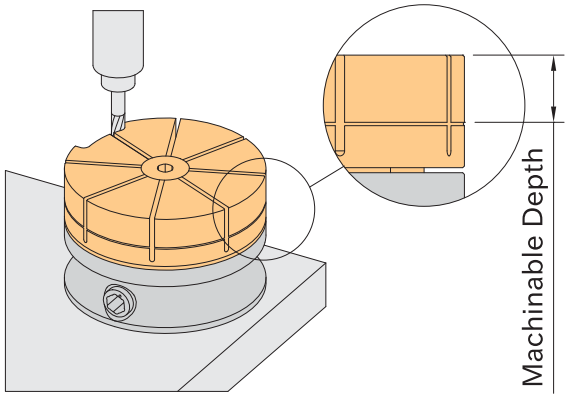


2.Jaw Machining

2-1. Loosen the cam cylinder fully and measure the dimension of the jaw for machining. Then tighten the cam cylinder until each jaw section expands 0.15mm.

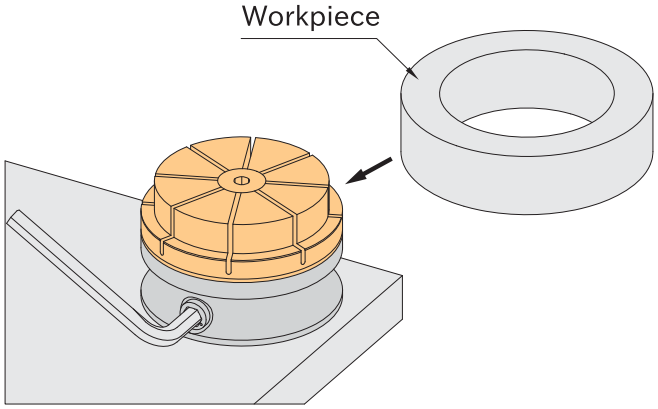


2-2. Machine the jaw to the contours of workpiece. (Do not machine the jaws beyond the machinable depth.)

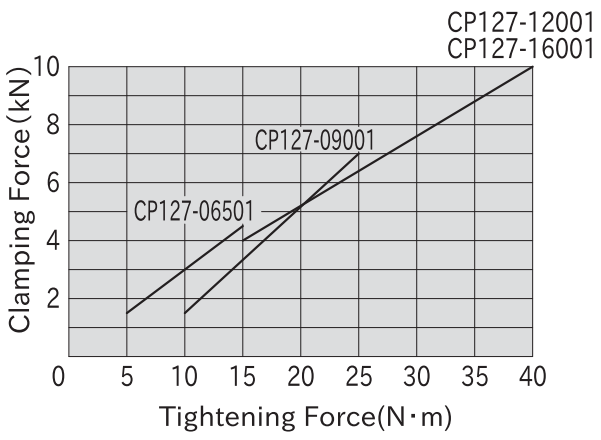


3. Workpiece Loading

After machining loosen the cam cylinder to set workpiece and tighten the cam cylinder again for clamping.



Performance Curve



Note

Do not tighten the cam cylinder without the workpiece set to prevent damage and deformation. Tightening with the torque beyond the allowable screw torque will lower the durability of the jaw.

MBOD CONCENTRIC OD CLAMPS

RoHS

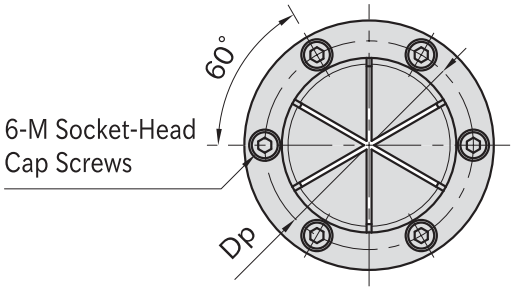
(Jaw)

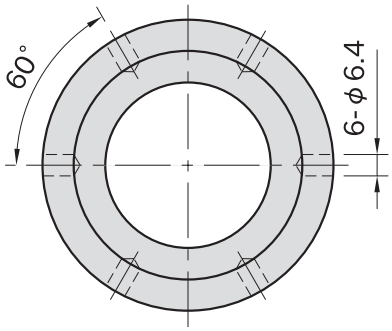
(Cap)

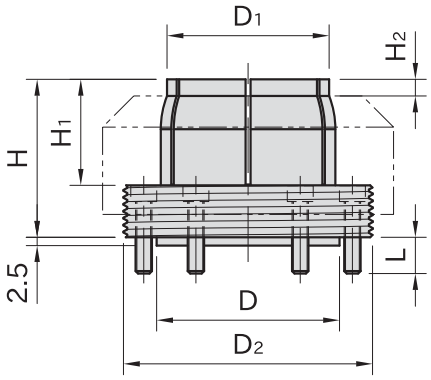
★Key Point

Compact design with high clamping force
Applicable to small workpieces of ϕ2.5mm and long workpieces

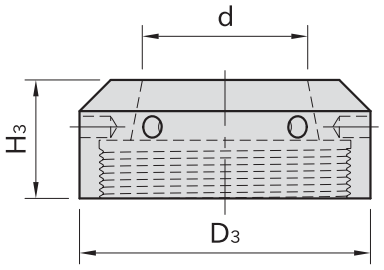
Jaw	Cap
S17C Steel Fluoroplastic coated	A6061 aluminum Hard anodized







(Jaw)



(Cap)

Part Number	Adaptable Workpiece Dia. *)	D_1	H_1	H	H_2	D ($^{0}_{-0.05}$)	D_2	M	L	Dp	D_3	H_3	d
MBOD-1	ϕ2.5-ϕ15.9	19.1	22.9	35.6	4.6	23.9	38.1	M3×0.5-16L	6.8	29	50.8	25.4	20.1
MBOD-2	ϕ5.1-ϕ45.7	49.5	32.4	48.3	5.1	55.9	76.2	M5×0.8-22L	11.1	63.8	88.9	36.2	50.5

*)Machine the jaw to the workpiece diameter with attention to the Recommended Jaw Compression.

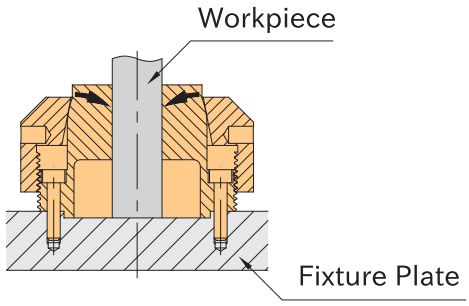
Part Number	Clamping Force (kN)	Allowable Tightening Torque (N·m)	Recommended Jaw Compression	Allowable Jaw Compression	Weight (g)
MBOD-1	17.3	81.5	0.07	0.38	200
MBOD-2	17.8	135.5	0.1	0.64	960

Related Product

Jaws can be ordered separately.
・MBOD-01 Jaws

Feature

・Collet-shaped jaws generate high clamping force.
・The machinable jaw can clamp any shape of workpieces and hold long workpieces with a wide clamping area by machining completely through.

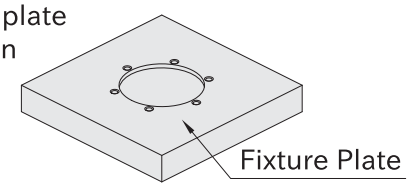


Note

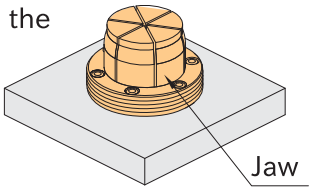
Do not tighten the cap without the workpiece to prevent damage and deformation.

How To Use

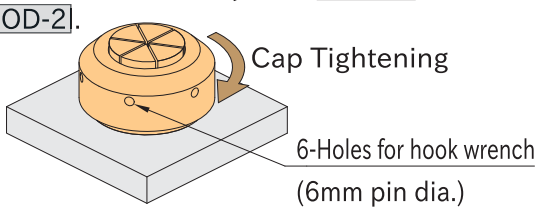
①Prepare a pocket on the plate according to D dimension of the jaw and drill 6 tapped holes.



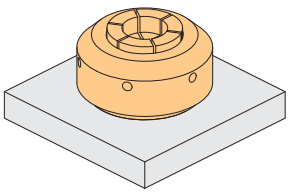
②Fix the jaw on the plate with the supplied screws.



③Tighten the cap until the compression reaches the Recommended Jaw Compression. Each 15˚of rotation compresses 0.025mm for jaw of MBOD-1 and 0.05mm for MBOD-2.



④Machine the jaw to nominal size of the workpiece.



Technical Information

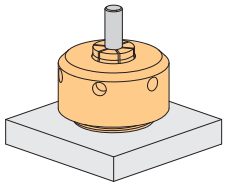
Indicators on the cap are guides to read the rotation degree for torque control without a torque wrench.

Tightening Torque (N·m)	MBOD-1		MBOD-2	
	Rotation Degree **)	Clamping Force (kN)	Rotation Degree **)	Clamping Force (kN)
13.5	43°	2.9	20°	1.8
27	66°	5.8	31°	3.6
40.5	88°	8.7	37°	5.3
54	111°	11.6	44°	7.1
68	133°	14.5	49°	8.9
81.5	165°	17.3	53°	10.7
95	-	-	56°	12.5
108.5	-	-	60°	14.2
122	-	-	65°	16
135.5	-	-	67°	17.8

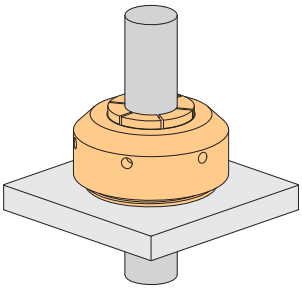
**) 0˚ is when the clamp first contacts the workpiece.

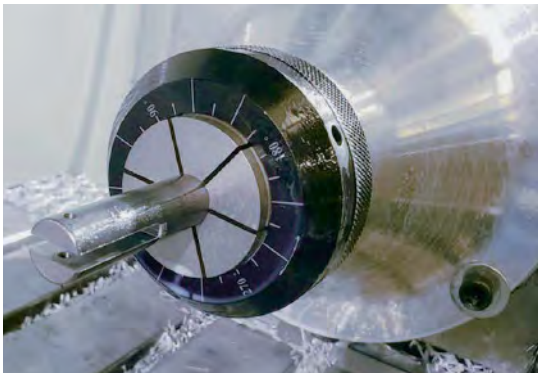
Application Example

■Small round workpiece



■Long workpiece





MBOD-01 JAWS

Reference

Replaceable jaws for MBOD Concentric OD Clamps

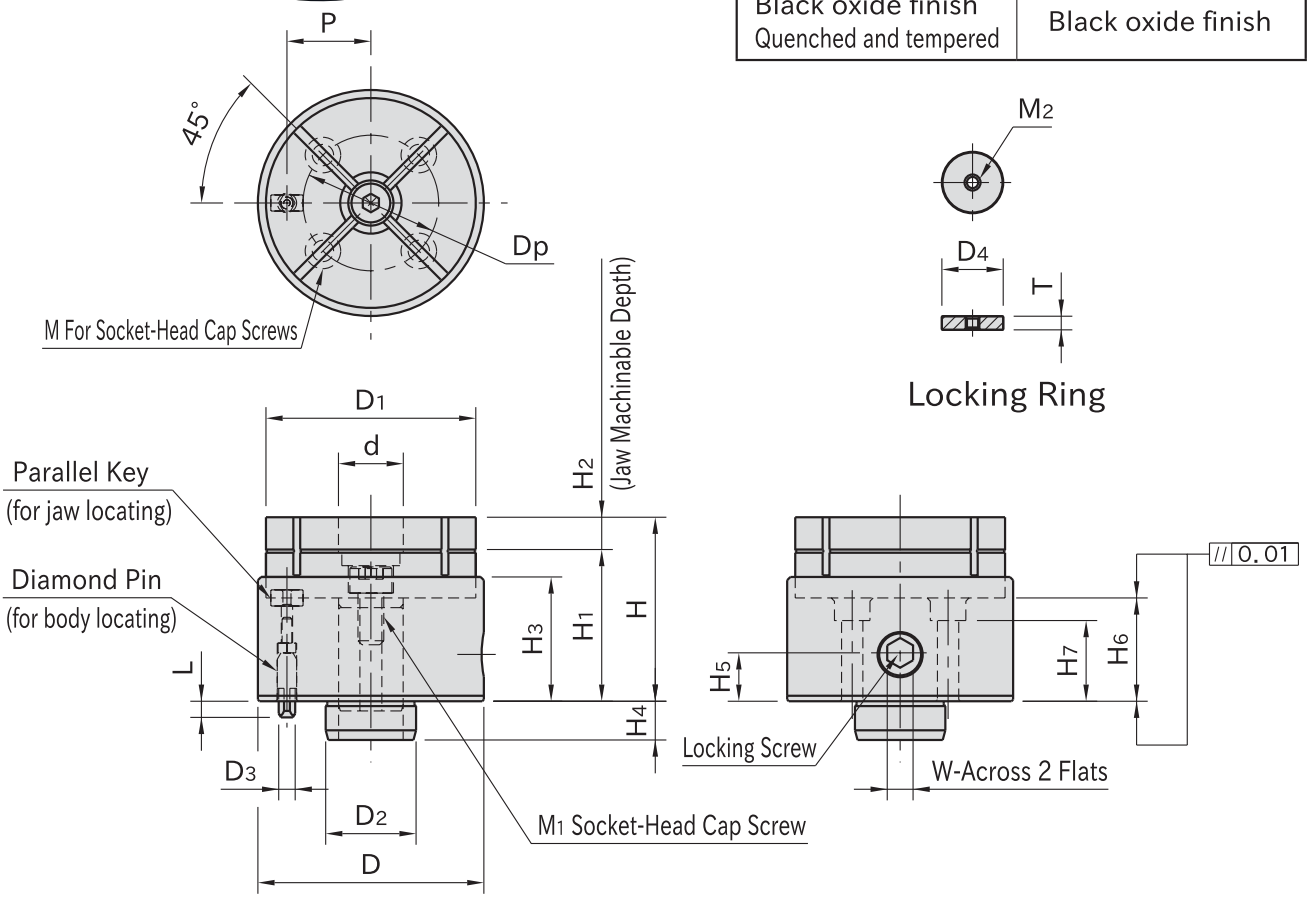
Part Number	Weight (g)	Proper MBOD Clamps
MBOD-1-01	130	MBOD-1
MBOD-2-01	740	MBOD-2

IMAO® fixtureworks®

CP120 OD HOLDING CLAMPS

RoHS

Body	Jaw
S45C steel Black oxide finish	A7075 alluminum Anodized Blue
Shaft / Locking Screw	Housing / Locking Ring
SCM435 steel Black oxide finish Quenched and tempered	S45C steel Black oxide finish



Part Number	D_1	d	H	H_2	D	H_1	H_3	H_6 (±0.01)	D_2 (g6)	H_4	M	H_7	Dp	D_3 (h6)	L	P (±0.02)
CP120-06501	65	19	57	10	70	47	39	32	28	12	M6	25	42	6	5	26
CP120-09001	90	23	72	15	95	57	46	38	42	14	M8	28	60	8	7	36

Part Number	W	H_5	M_1	M_2	D_4	T	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (kg)
CP120-06501	8	15	M 8X1.25-15L	M4X0.7	18	4	4	60	1.1
CP120-09001	10	17	M10X1.5 -20L	M5X0.8	22	6	6	100	2.6

Technical Information

- Part locating repeatability: ±0.03
- Jaw locating repeatability: ±0.02

Supplied With

- 1 of locking ring
- 1 of diamond pin
- 1 of socket-head cap screw

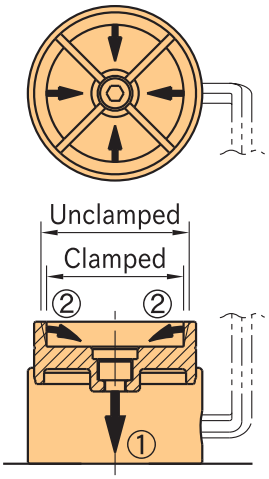
Note

- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- Do not machine the jaw beyond the machinable depth.

Related Product

- CP121 Jaws
- CP122 Mounting-on-lathe Adapters

Feature

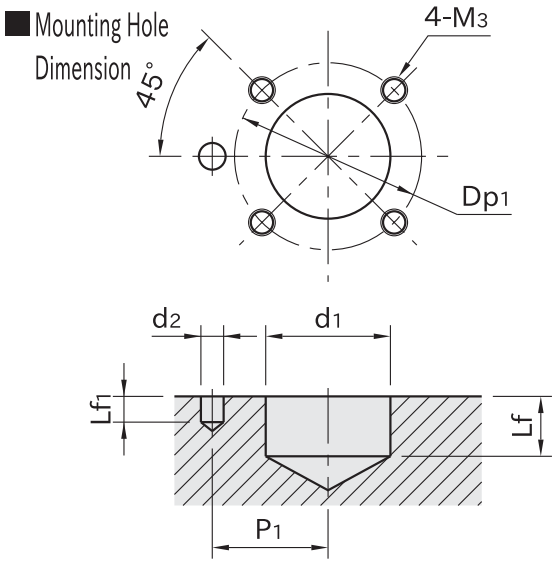


①When the locking screw is tightened, the central bottom part of the jaw is pulled down.

②At the same time the 4 jaw sections tilt toward the center to clamp the circumference of a part.

- The diaphragm claming mechanism allows securely clamping a part with 4 jaw sections.
- Different irregularly-shaped parts can be clamped.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

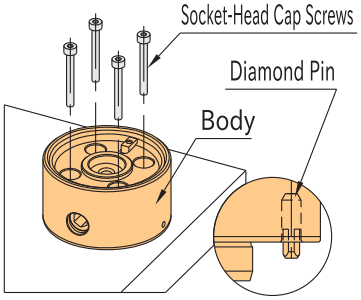
How To Install



Part Number	d_1 (H7)	Lf	d_2 (G7)	Lf_1	P_1 (±0.02)	M_3	Dp_1
CP120-06501	28	13	6	6	26	M6×1	42
CP120-09001	42	15	8	8	36	M8×1.25	60

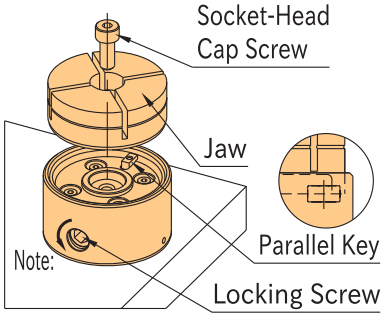
How To Use

1. Body Mounting



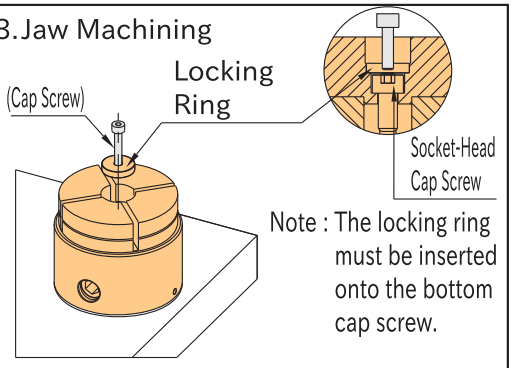
Insert an included diamond pin into the body for locating, and then secure the body to the fixture plate with 4 socket-head cap screws.

2. Jaw Setting



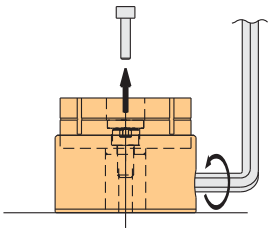
Engage the keyway on the bottom of the jaw with the parallel key on the top of the body, and then secure the jaw with an included cap screw.
Note : At jaw installation, ensure the locking screw is fully loosened by turning it counterclockwise until it stops.

3. Jaw Machining

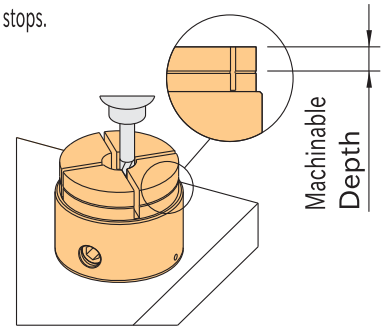


Note : The locking ring must be inserted onto the bottom cap screw.

(1)Set the locking ring in the jaw. (using a cap screw facilitates setting)

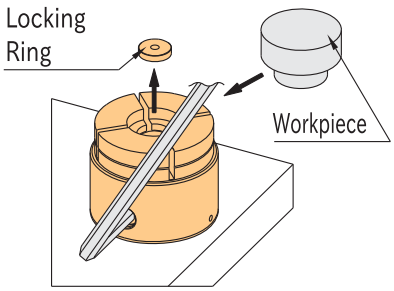


(2)Tighten the locking screw to clamp the locking ring. (Tighten with half of the allowable screw torque or more.) After clamping the screw, remove the screw from the locking ring.

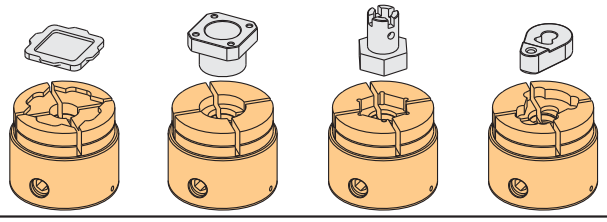


(3)Machine the jaw to the contours of workpiece.

4. Workpiece Loading

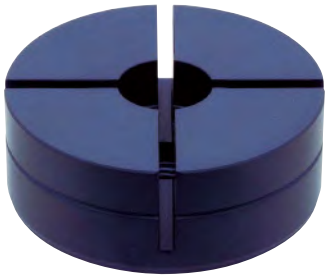


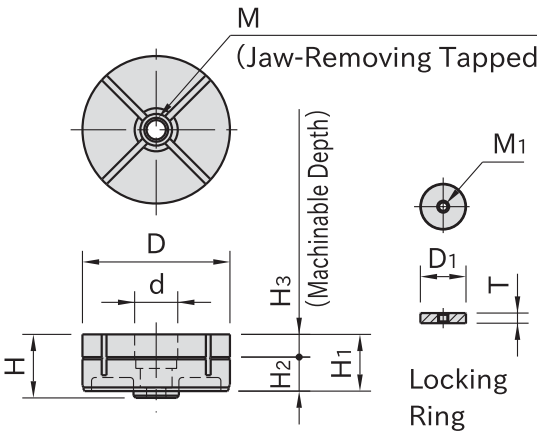
- Loosen the cap screw to remove the locking ring.
- Load the workpiece and tighten the clamping screw for clamping.



- Tightening the locking screw on the side of the body allows holding a part on its circumference.
- Machinable jaws allow clamping parts of various shapes.
- Ideal way to hold parts for machining on small-size machining centers, tapping centers, small-size 5-axis machines, CNC rotary tables, etc.

CP121 JAWS





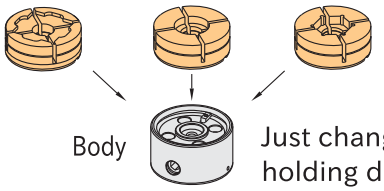
Jaw	Locking Ring
A7075 aluminum Anodized Blue	S45C steel Black oxide finish

Part Number	D	d	H_1	H_3	M	H	H_2	M_1	D_1	T	Weight (g)	OD Holding Clamps	
CP121-06501	65	19	25	10	M10X1.5 (Prepared hole ϕ 8.5)	28	15	M4X0.7	18	4	170	CP120-06501	AMCH080-5W
CP121-09001	90	23	34	15	M12X1.75(Prepared hole ϕ10.2)	39	19	M5X0.8	22	6	470	CP120-09001	AMCH100-5W

Note

Jaw has lifecycle.

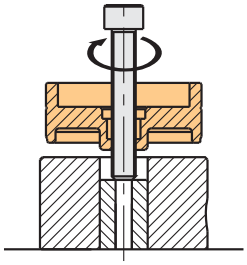
Feature



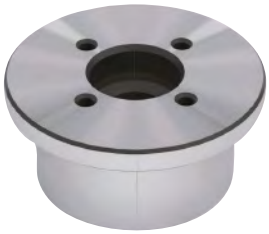
Just changing jaws allows holding different parts.

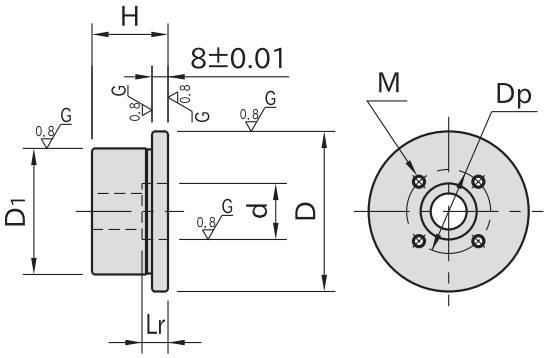
■How to Remove Jaw

When it is hard to remove the jaw by hand, screw a bolt into the jaw-removing tapped hole to push it against the body, for easier removal.



CP122 MOUNTING-ON-LATHE ADAPTERS

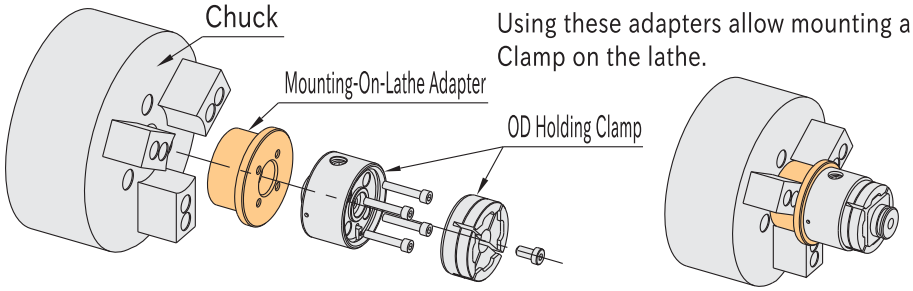




Body
SCM415 steel Black oxide finish Carburized-hardened

Part Number	d (H7)	Lr	D_1 (±0.01)	H	D	M	Dp	Weight (g)	Form Holding Clamps	OD Holding Clamps
CP122-06501	28	13	63	38	80	M6X1 Depth 12	42	910	CP125-06501	CP120-06501
CP122-09001	42	15	80	43	100	M8X1.25Depth 16	60	1600	CP125-09001	CP120-09001

How To Use



Using these adapters allow mounting a OD Holding Clamp on the lathe.

Note : A diamond pin included in an OD Holding Clamp is NOT REQUIRED in this combination use.

IMAO® fixtureworks®

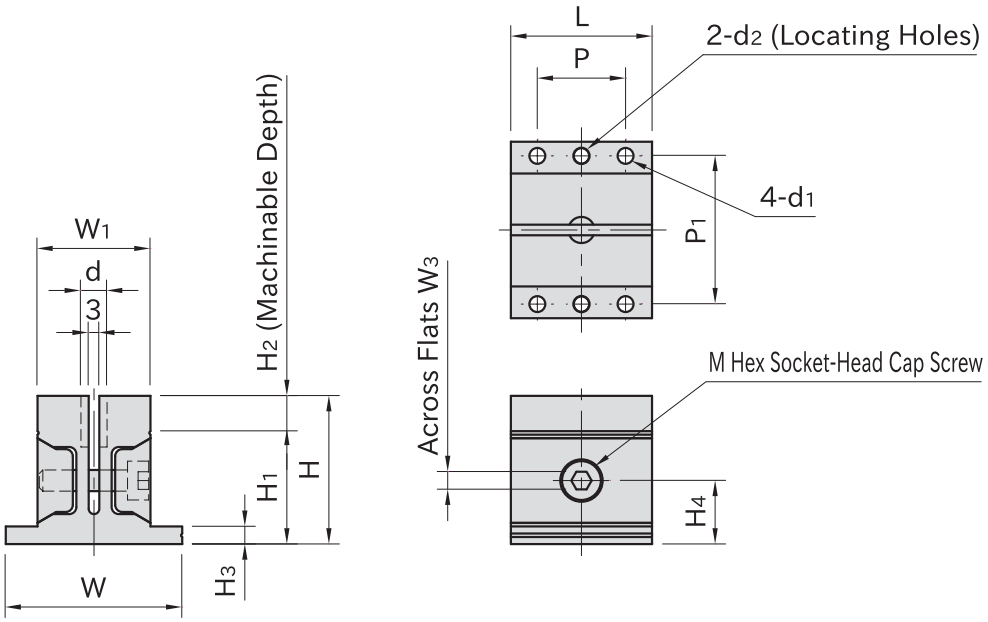
CP124 OD HOLDING CLAMPS (Wedge Style/Square)

RoHS

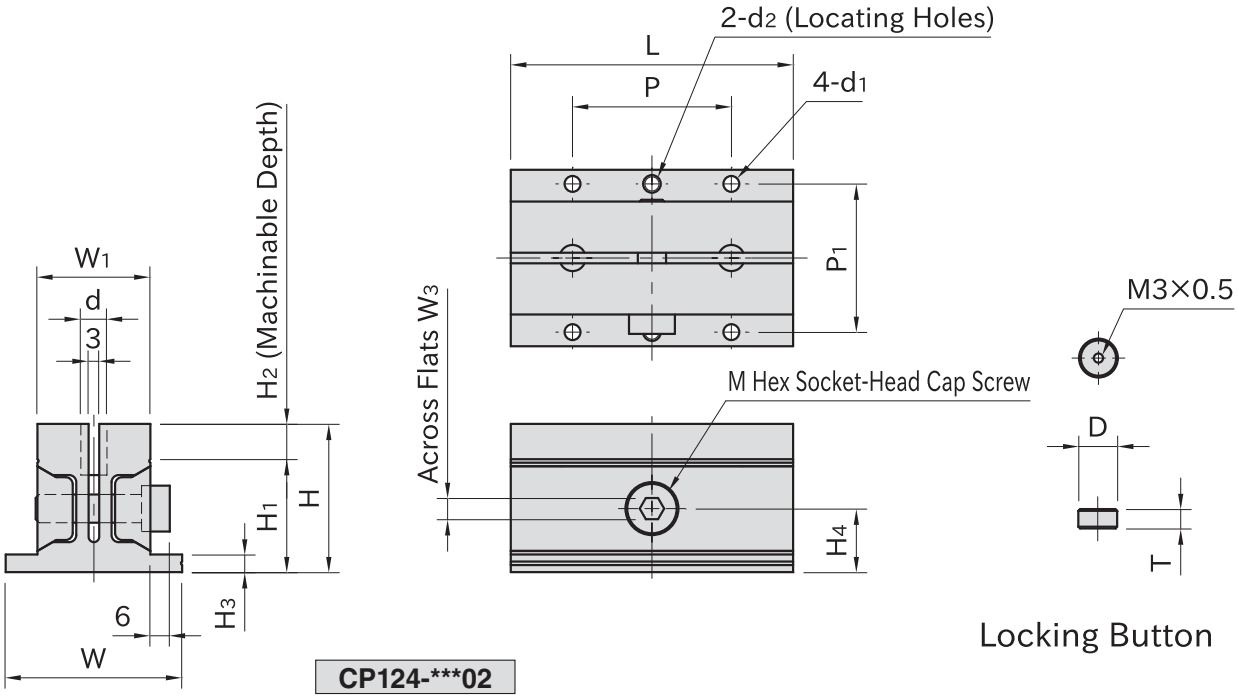
CP124-***01

CP124-***02

Body	Wedge
A6N01 aluminum Anodized Silver	SCM440 steel Black oxide finished Quenched & tempered



CP124-***01



CP124-***02

Locking Button

Part Number	W_1	d	L	H	H_2	W	H_3	H_1	d_2 (H7)	d_1	P	P_1	M
CP124-03201	32	7.4	40	42	10	50	5	32	5	4.5	25	42	M 6×1 -25L
CP124-03202			80								45		M 8×1.25-30L
CP124-05001	50	11.4	50	63	15	72	7	48	6	5.5	30	62	M10×1.5 -40L
CP124-05002			100								58		M12×1.75-45L

Part Number	W_3	H_4	D	T	Clamping Force (kN)	Allowable Screw torque (N·m)	Weight (kg)
CP124-03201	5	18	7	3.5	2.5	7.5	0.22
CP124-03202	6					14	0.42
CP124-05001	8	27	11	5.5	5.5	26	0.62
CP124-05002	10					46	1.29

Technical Information

Locating Repeatability : ±0.08

Supplied With

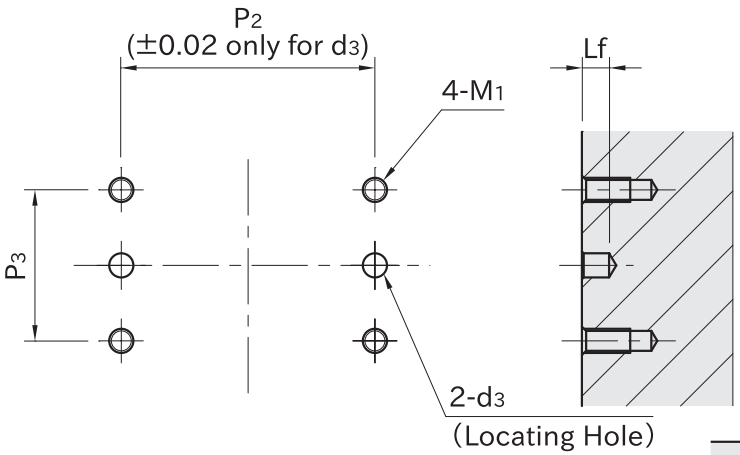
- 1 of locking button for CP124-***01
  2 of locking button for CP124-***02
- 2 of parallel pin(m6 tolerance)
  ϕ5×10L for CP124-***01
  ϕ6×15L for CP124-***02

Feature

- When the clamp screw is tightened, both jaws tilt toward the center to clamp the circumference of the workpiece.
- The clamping stroke is 0.5mm.
- Cutting the machinable jaw to the contour of workpiece allows holding different shapes.
- Simple and compact design permits multiple-parts holding arrangement.

How To Use

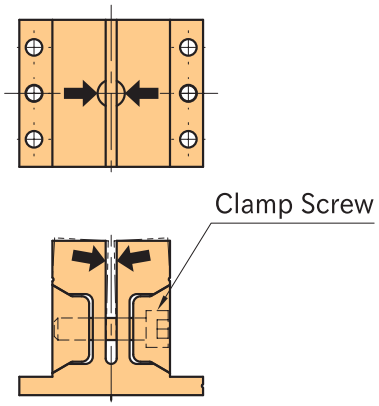
■Mounting-Hole Dimension



Use the included parallel pin for locating.

Note

- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- Do not machine the jaws beyond the machinable depth

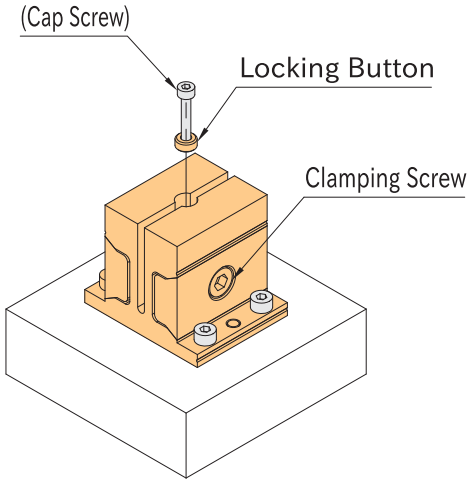


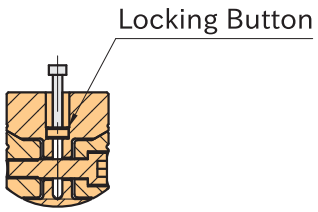
Part Number	d_3 (H7)	Lf	M_1	P_2	P_3
CP124-03201	5	5	M4×0.7	42	25
CP124-03202					45
CP124-05001	6	8	M5×0.8	62	30
CP124-05002					58

Continuing to next page

■How to Machine Jaw

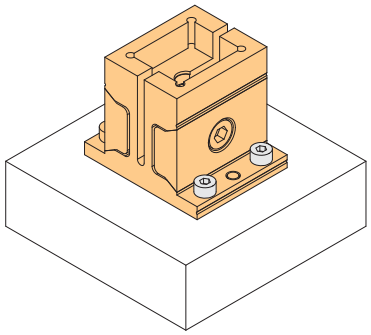
1. Setting the locking button
Insert the locking button into the jaw, and then tighten the clamp screw to fasten the locking button.
(Using a cap screw facilitates setting)





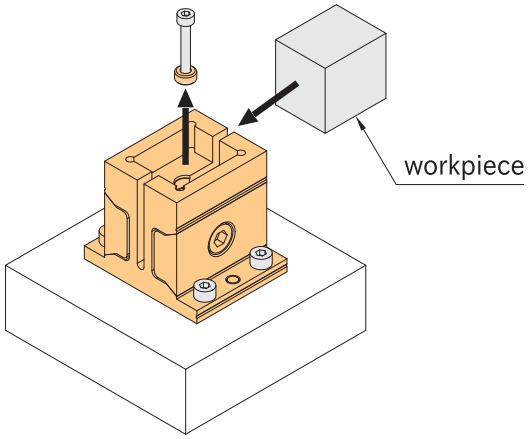
Note: The locking button must be inserted onto the bottom.

2. Machining the jaw
Cut the jaw to the contours of the workpiece.

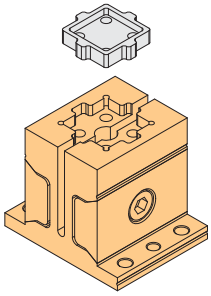


Note:Do not cut beyond the machinable depth.

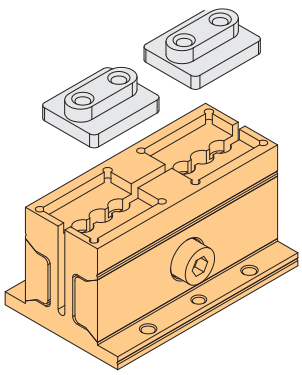
3. Workpiece Loading
Loosen the clamp screw to remove the locking button. Load the workpiece and tighten the clamp screw for clamping.



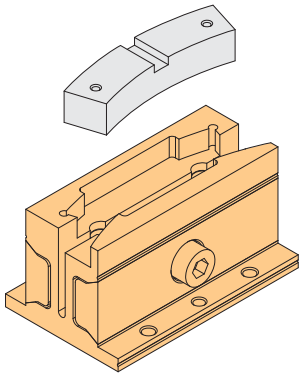
■Application Example



Single-station mode
on the short-type clamp



Dual-station mode
on the long-type clamp



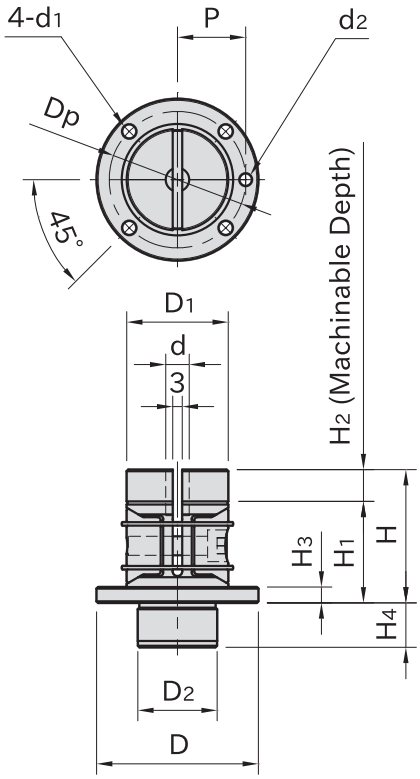
Single-station mode
on the long-type clamp

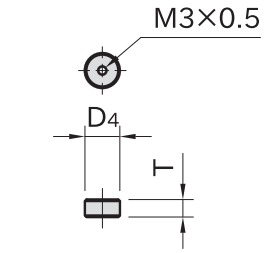
IMAO® fixtureworks®

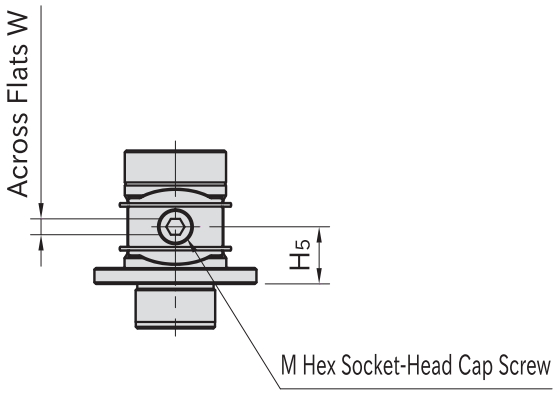
CP123 OD HOLDING CLAMPS (Wedge Style/Round)

RoHS

Body	Wedge
S45C steel Black oxide finished	S45C steel Black oxide finished Quenched & tempered







Part Number	D1	d	H	H2	D	H1	H3	D2 (g7)	H4	d1	Dp	d2	P
CP123-03201	32	7.4	42	10	51	32	5	25	14	4.5	43	5	21.5
CP123-05001	50	11.4	63	15	75	48	7	40	19	5.5	65	6	32.5

Part Number	M	W	H5	D4	T	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (kg)
CP123-03201	M 6X1 —25L	5	18	7	3.5	3	9	0.33
CP123-05001	M10X1.5—35L	8	27	11	5.5	7	42	1.2

Technical Information

Part Locating Repeatability ±0.08

Supplied With

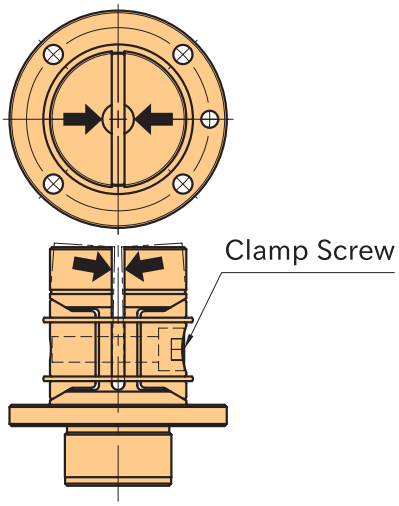
- 1 of locking button
- Spring pin
  (φ5×10L for CP123-03201)
  (φ6×14L for CP123-05001)

Note

- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- Do not machine the jaws beyond the machinable depth.

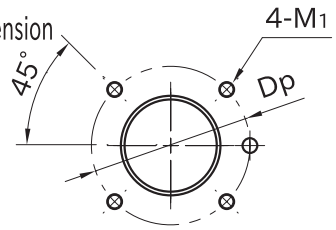
Feature

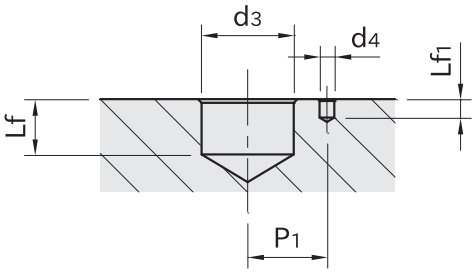
- When the clamp screw is tightened, both jaws tilt toward the center to clamp the circumference of the workpiece.
- The clamping stroke is 0.5mm.
- Cutting the machinable jaw to the contour of workpiece allows holding different shapes.
- Simple and compact design permits multiple-parts holding arrangement.



How To Use

■ Mouting-Hole Dimension

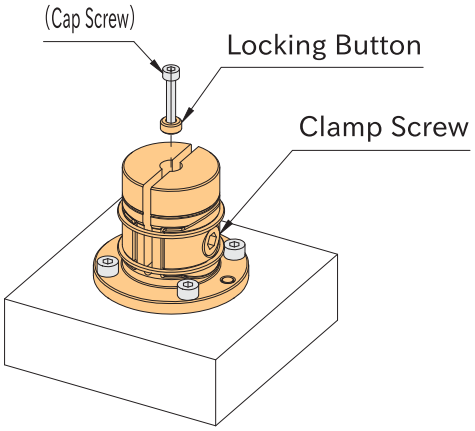


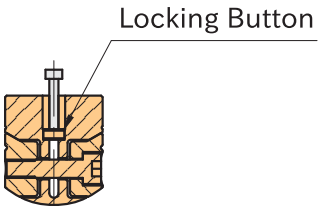


Part Number	d_3 (H7)	Lf	d_4 ($^{+0.12}_{0}$)	Lf_1	P_1 (±0.05)	M_1	Dp
CP123-03201	25	15	5	5	21.5	M4×0.7	43
CP123-05001	40	20	6	7	32.5	M5×0.8	65

■ How to Machine Jaw

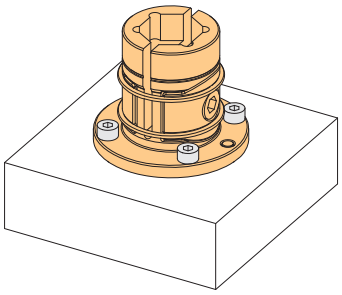
1. Setting the locking button
Insert the locking button into the jaw, and then tighten the clamp screw to fasten the locking button. (Using a cap screw facilitates setting)





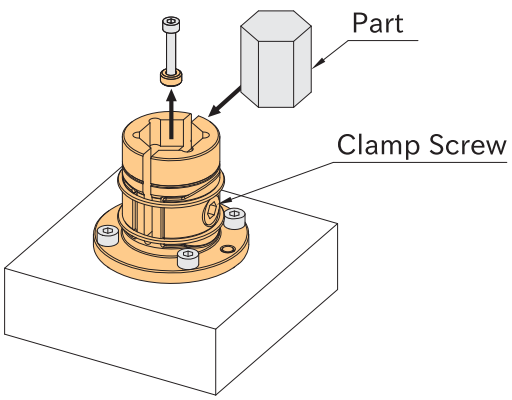
Note:The locking button must be inserted onto the bottom.

2. Machining the jaw
Cut the jaw to the contours of the part.



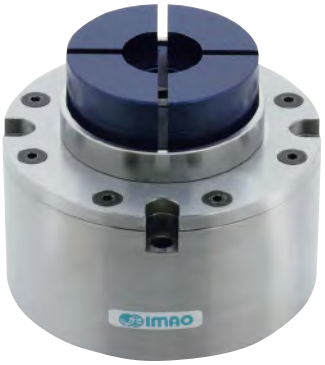
Note:Do not cut beyond the machinable depth.

3. Loading the part
Loosen the clamp screw to remove the locking button. Load the part and tighten the clamp screw for clamping.

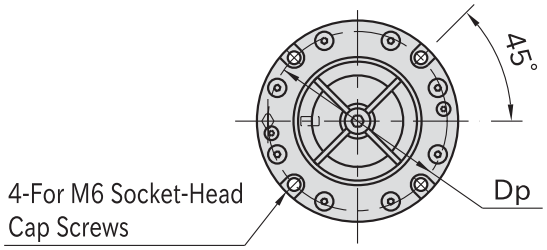


AMCH-W PNEUMATIC OD HOLDING CLAMPS

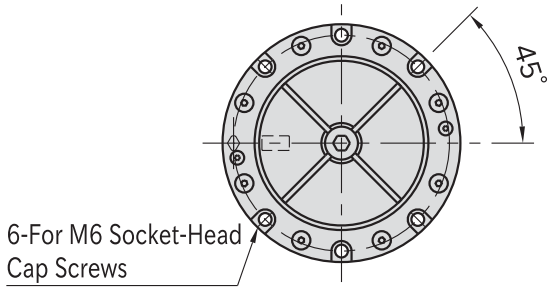
RoHS



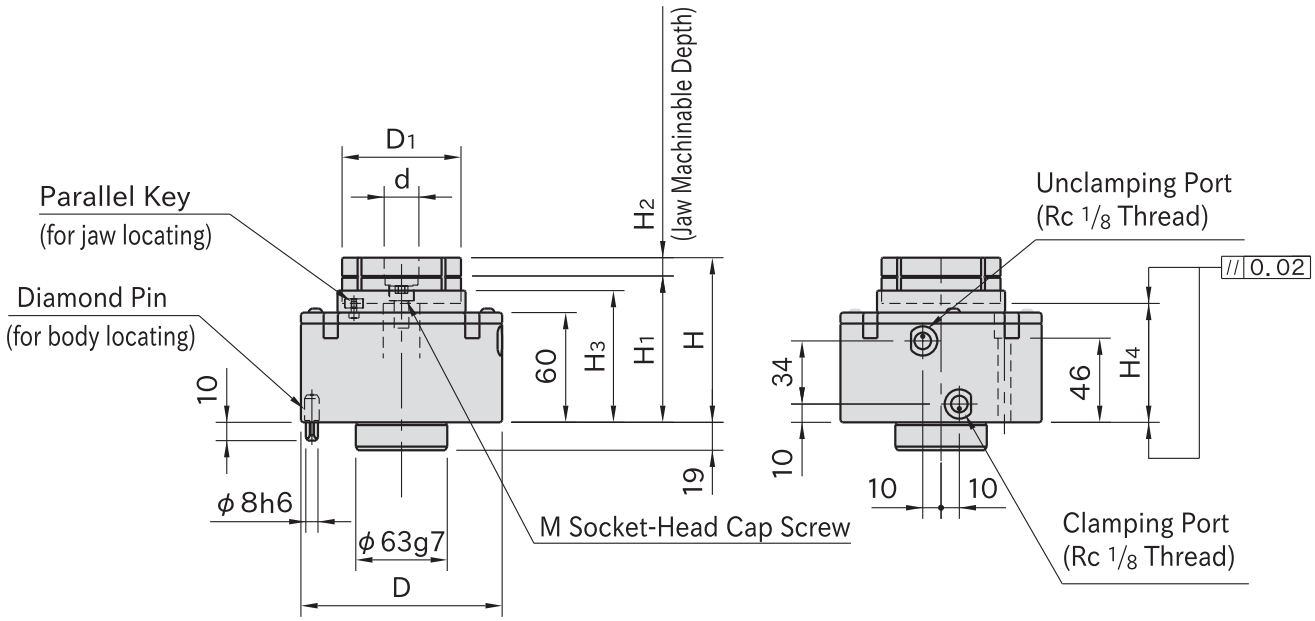
Body	Jaw
S45C steel Electroless nickel plated	A7075 aluminum Anodized Blue

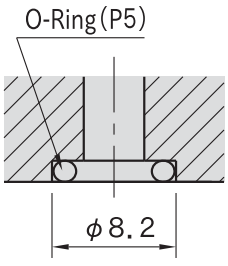


AMCH080-5W

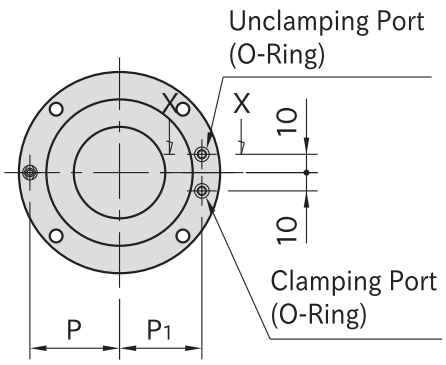


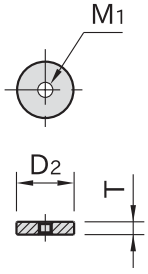
AMCH100-5W





Section X-X





Locking Ring

Part Number	D_1	d	H	H_2	D	H_1	H_3	H_4 (±0.02)	Dp	P (±0.02)	P_1	M	M_1
AMCH080-5W	65	19	90	10	110	80	72	65	98	49	45	M 8X1.25-15L	M4X0.7
AMCH100-5W	90	23	100	15	130	85	74	66	118	59	55	M10X1.5 -20L	M5X0.8

Part Number	D_2	T	Furnished O-Ring	Operating Air Pressure(MPa) *)	Clamping Force (kN) **)	Weight (kg)
AMCH080-5W	18	4	P5	0.5	4	4.2
AMCH100-5W	22	6			6	6

*) Operating air pressure range: 0.45 - 0.55 MPa.
**) The clamping forces above are at 0.5 MPa.

Supplied With

- 1 of locking ring
- 2 of O-Ring
- 1 of diamond pin

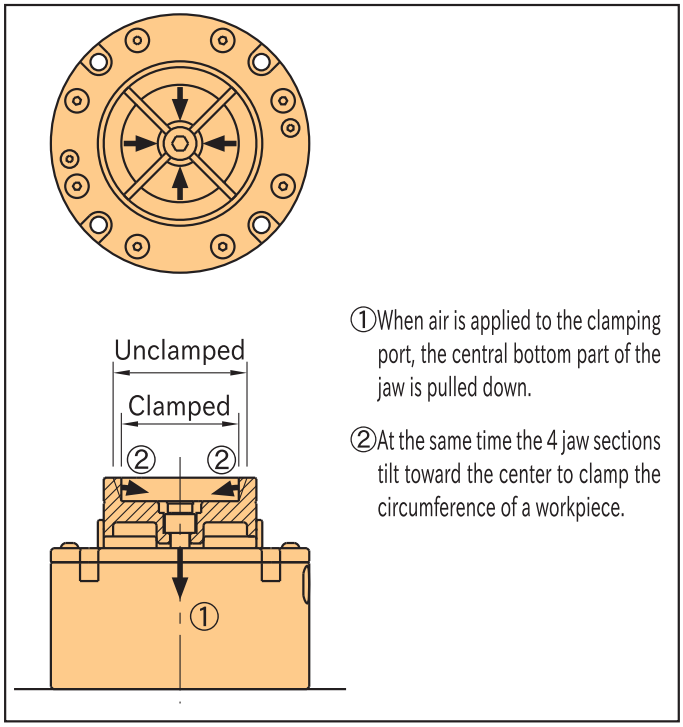
Technical Information

- Workpiece locating repeatability : ±0.03
- Jaw locating repeatability : ±0.02

Note

- Do not actuate clamping without a workpiece inserted to avoid damage and deformation.
- Do not machine the jaw beyond the machinable area.
- Changeable Jaws CP121 are available.
- 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.

Feature



- The diaphragm clamping mechanism allows securely clamping a workpiece with 4 jaw sections.
- Different irregularly-shaped workpieces can be clamped.
- 0.15mm clamping stroke of each jaw section is perfect for clamping of lost-wax parts, die-cast parts, extruded parts, solid-drawn parts, prefinished parts, etc.

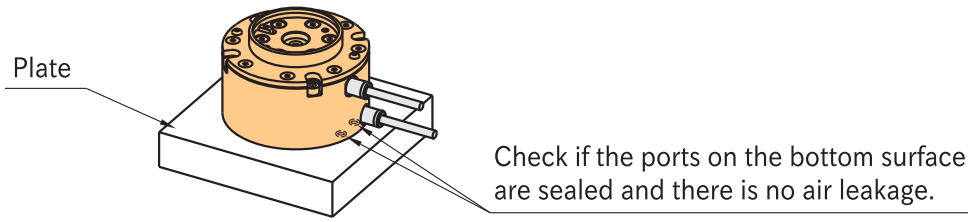
Continuing on Next Page

How To Use

■Body Installing

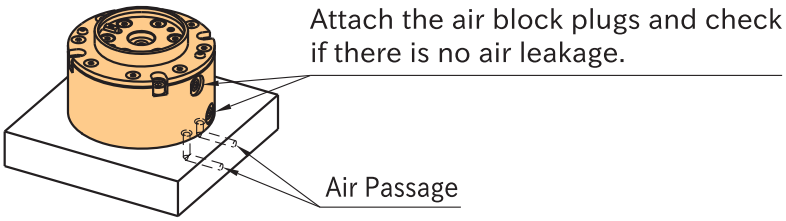
With Side Ports

- ·Attach the furnished o-rings to the bottom ports.
- ·Plate surface must be flat (6.3▽) to get the bottom ports sealed up.
- ·Check if there is no air leakage from the area of the bottom ports.

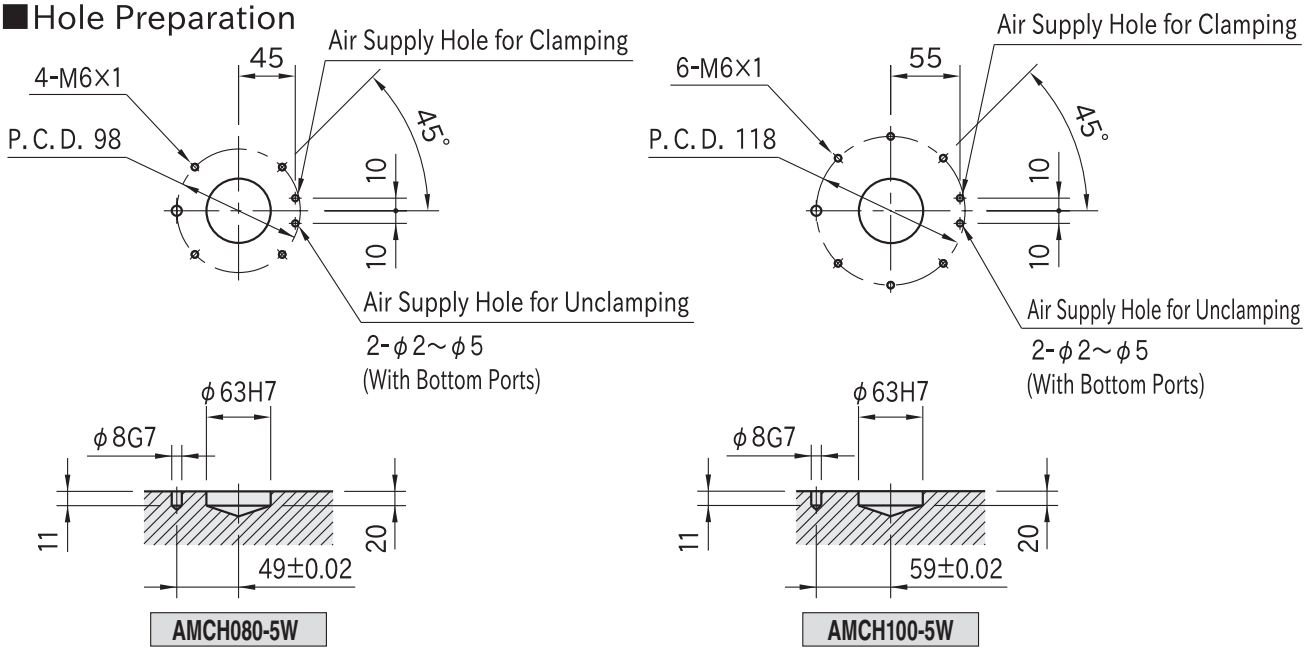


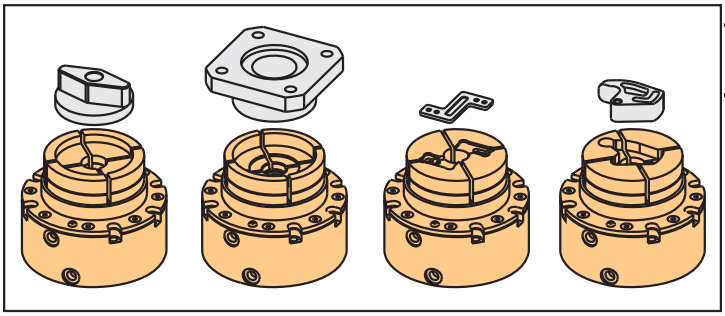
With Bottom Ports

- ·Attach the furnished o-rings to the bottom ports.
- ·Plate surface must be flat (6.3▽) to get the bottom ports sealed up.
- ·Refer to the figure below for the hole positions for ports.
- ·Ensure that the furnished air block plugs are attached to the side ports.



■Hole Preparation



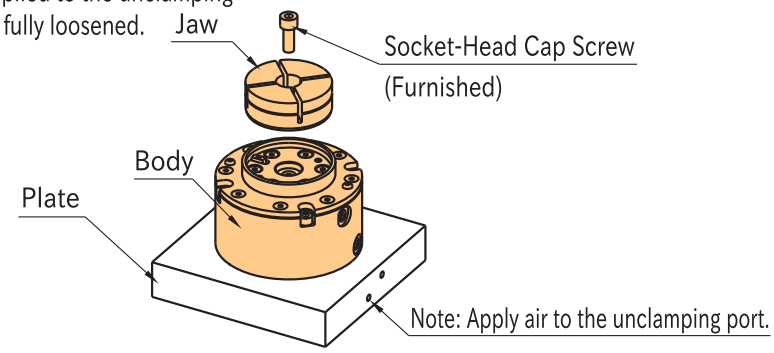


- ·Machinable jaws allow clamping workpieces of various shapes.
- ·Ideal way to hold workpieces for machining on small-size machining centers, tapping centers, small-size 5-axis machines, CNC rotary tables, etc.

Changeable Jaws CP121 are available.

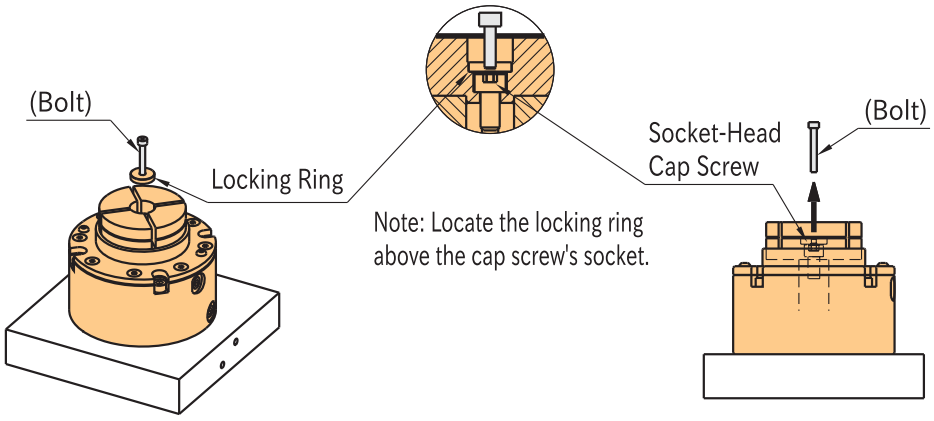
■Jaw Setting

At jaw installation, ensure that air is applied to the unclamping port and the socket-head cap screw is fully loosened.

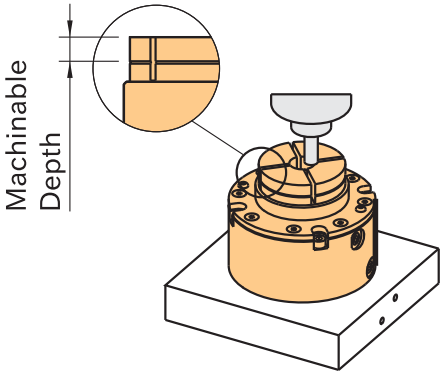


■Jaw Machining

1. Set the locking ring in the jaw.
   (using a bolt facilitates setting)
2. Apply air to the clamping port to clamp the locking ring.
   (After clamping, remove the bolt from the locking ring.)

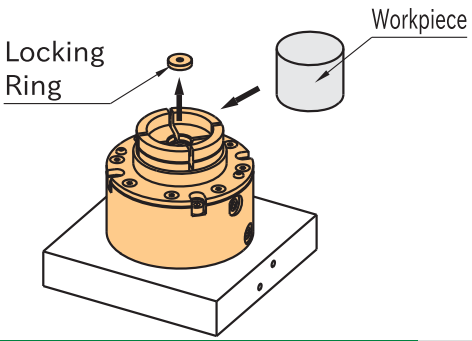


3. Machine the jaw to custom fit a workpiece.



■Workpiece Setting

1. After machining apply air to the unclamping port to take out the locking ring.
2. Mount a workpiece and then apply air to the clamping port for clamping.

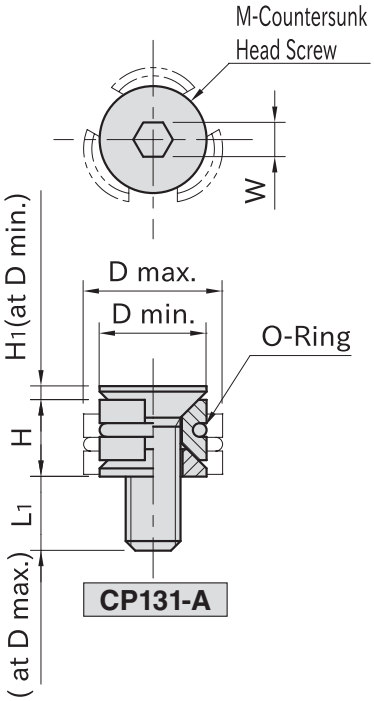


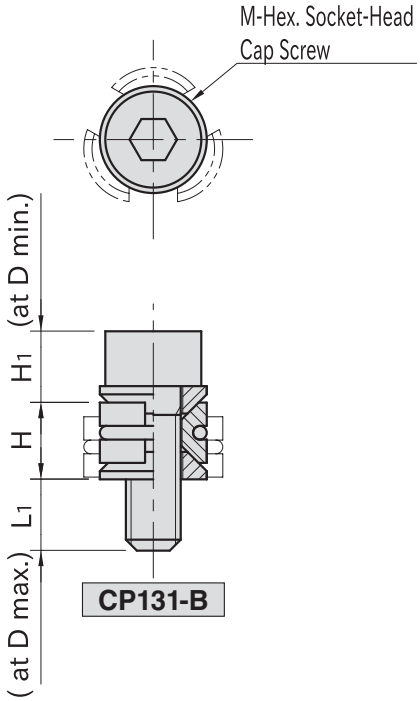
CP131 COMPACT ID HOLDING CLAMPS

RoHS

CP131-A

CP131-B





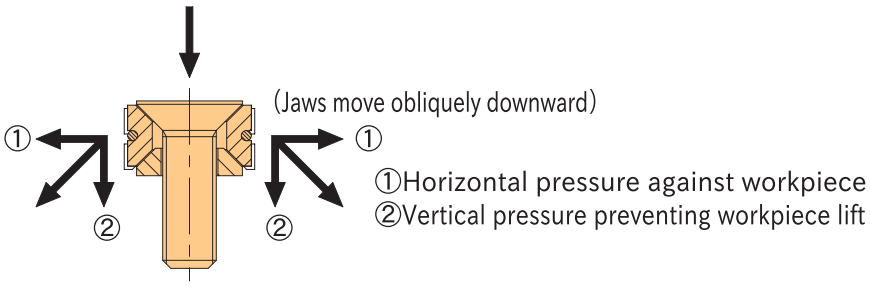
Jaw	Washer	O-Ring
SNCM439 steel Black oxide finished HRC33-39	SCM435 steel Black oxide finished	Fluoro rubber

Part Number	D		H		H_1	M	L_1	W
	min.	max.	D min.	D max.				
CP131-04001A	8	10.3	5.5	4.6	0.9	M4×0.7 -12L	7.3	2.5
CP131-05001A	10	12.3	6.4	5.6	1.1	M5×0.8 -15L	9.1	3
CP131-06001A	12	16.3	8.6	7	1.3	M6×1 -18L	11.2	4
CP131-08001A	16	22	11.5	9.4	1.6	M8×1.25-25L	16.2	5
CP131-04001B	8	10.3	5.5	4.6	5.1	M4×0.7 -12L	7.1	3
CP131-05001B	10	12.3	6.4	5.6	6.2	M5×0.8 -15L	9	4
CP131-06001B	12	16.3	8.6	7	7.9	M6×1 -18L	10.6	5
CP131-08001B	16	22	11.5	9.4	10.4	M8×1.25-25L	15.4	6

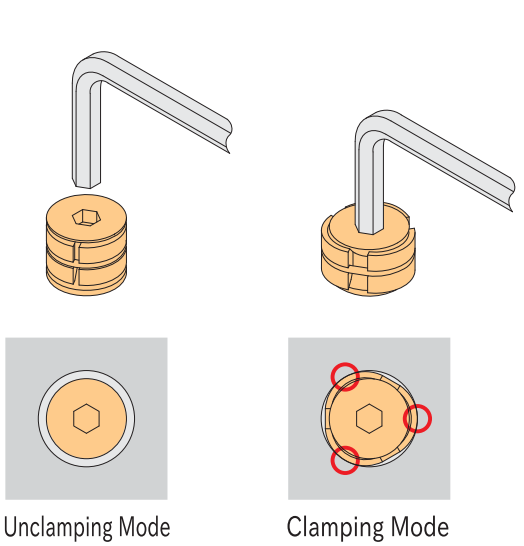
Part Number	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (g)	Proper O-ring
CP131-04001A	0.9	2.1	3	SS050(CS1 /ID 5)
CP131-05001A	1.5	4.3	5	SS070(CS1 /ID 7)
CP131-06001A	2.1	7.3	9	S 8 (CS1.5 /ID 7.5)
CP131-08001A	4	18	22	S 12 (CS1.5 /ID11.5)
CP131-04001B	1.5	2.7	4	SS050(CS1 /ID 5)
CP131-05001B	2.5	5.4	7	SS070(CS1 /ID 7)
CP131-06001B	5	9.1	11	S 8 (CS1.5 /ID 7.5)
CP131-08001B	9	25	28	S 12 (CS1.5 /ID11.5)

Feature

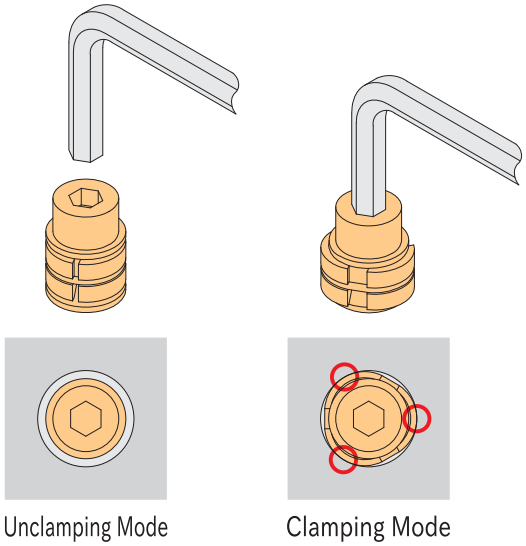
・These clamps hold the inside diameter of the workpiece.
・The wedge construction allows powerfully clamping the workpiece.
・Long clamping stroke is ideal for holding as-cast or roughly-finished holes.



How To Use

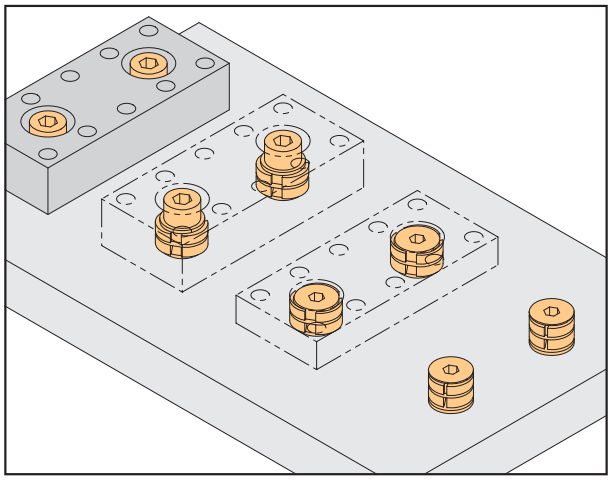


CP131-A



CP131-B

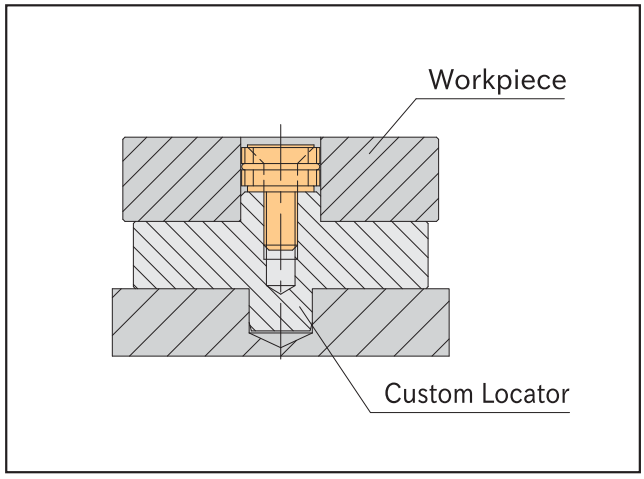
Note: The clamp makes a line contact with the workpiece at the clamping mode.
This contact can mark the surface of the workpiece depending on its materials, and using these clamps for accurately finished holes is not recommended.



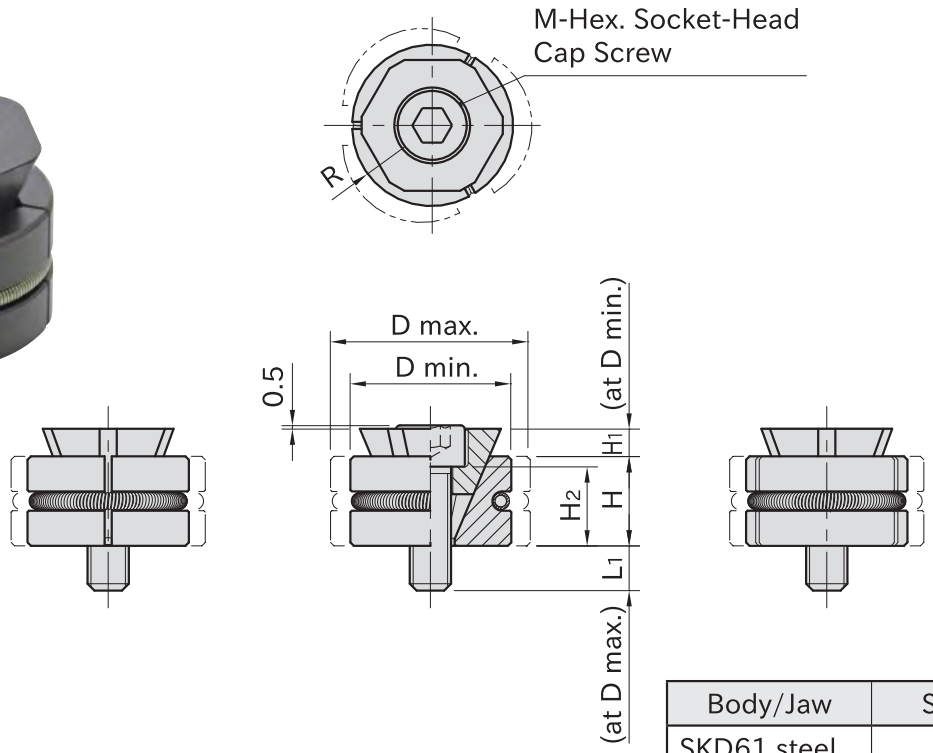
Example of application where two Compact ID Holding Clamps are used.

Note

For accurate locating, use these clamps with a locator as shown below.



CP130 ID HOLDING CLAMPS



Body/Jaw	Spring
SKD61 steel Quenched & tempered Black oxide finished HRC47-53	SUS304 stainless steel

Part Number	D		H	H_1	R	H_2		L_1*)	M
	min.	max.				min.	max.		
CP130-04001	19.5	24	9	2.5	R 9.5	8	2.6	9.4	M4×12L
CP130-06001	23.5	29	13	4	R11.5	11.5	5	13	M6×18L
CP130-08001	28.5	36	17	5.5	R14	15	6	19	M8×25L

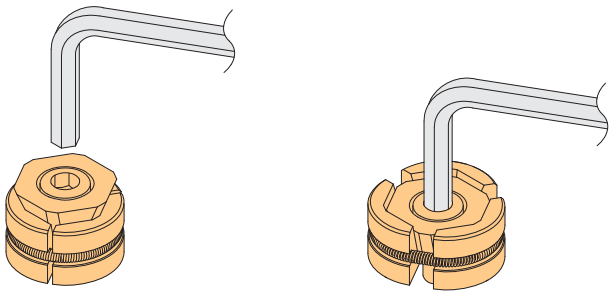
Part Number	Clamping Force (kN)	Allowable Screw Torque (N·m)	Weight (g)
CP130-04001	2	3.2	19
CP130-06001	5	10.5	43
CP130-08001	9	25	89

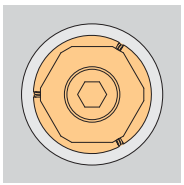
*) The stated values are only for use of the proper cap screws.

Feature

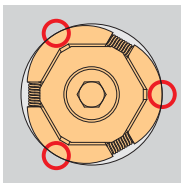
・These clamps hold the inside diameter of the workpiece.
・The wedge construction allows powerfully clamping the workpiece.
・Long clamping stroke is ideal for holding as-cast or roughly-finished holes.

How To Use



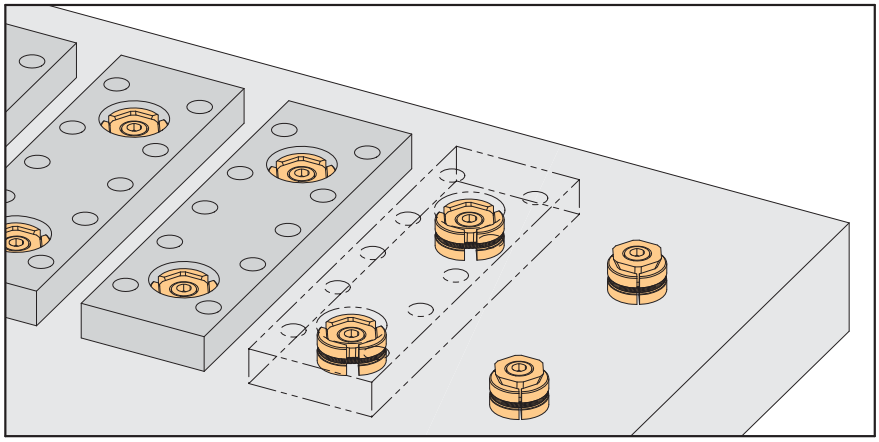


Unclamping Mode



Clamping Mode

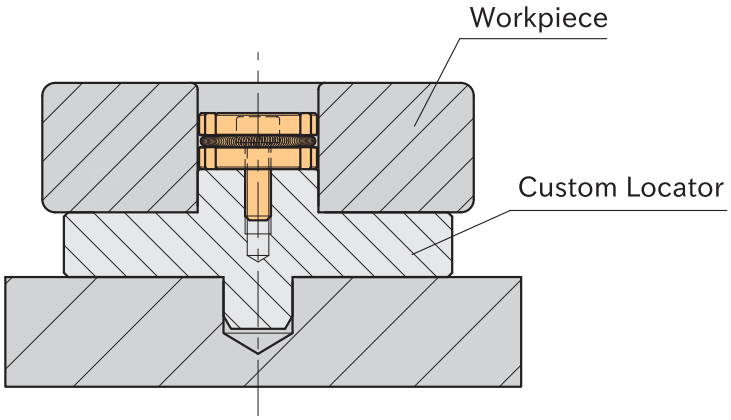
Note:The clamp makes a line contact with the workpiece at the clamping mode.
This contact can mark the surface of the workpiece depending on its materials, and using these clamps for accurately finished holes is not recommended.



Example of application where two ID Holding Clamps are used.

Note

For accurate locating, use these clamps with a locator as shown below.



MBID ID HOLDING CLAMPS

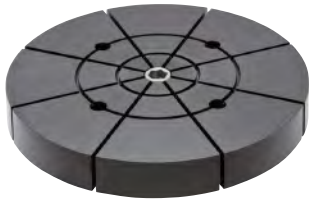
RoHS

MBID 02～06

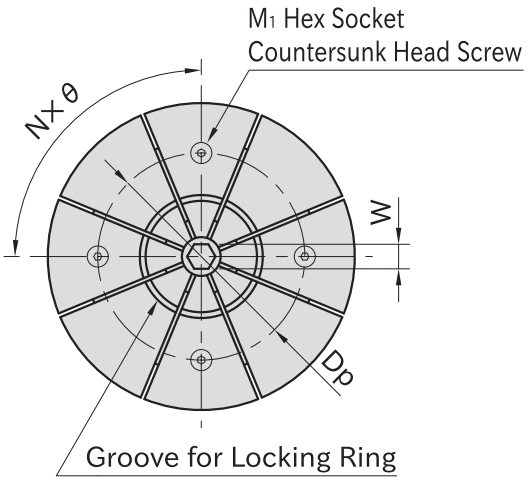
MBID 08～16B

MBID 16C,16D

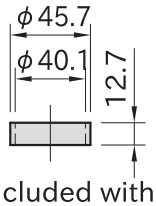
MBID 16E



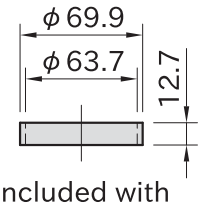
MBID 16F



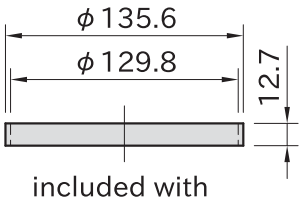
■Locking Ring(2 sizes for MBID16E,F)



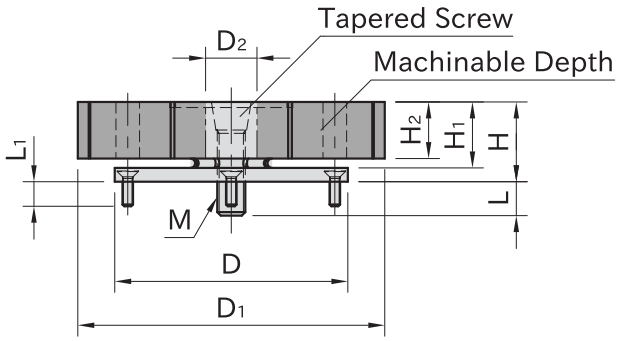
included with **MBID** 16C



included with **MBID** 16D～F



included with **MBID** 16E,16F



Body	Tapered Screw
SUM24L steel Black oxide finished (MBID16F A7075-T6 aluminum Anodized Black)	SCM440 steel Quenched & tempered Fluoroplastic coated HRC39～45

Part Number	Adaptable Workpiece Dia. *)	D1	D2	H2	H1	D (0 −0.05)	H	M	L	W
MBID02	ϕ 4.1～ϕ 7.4	7.4	4.1	6.1	7.6	20	10.7	M 2×0.4	4.1	1.5
MBID04	ϕ 7.1～ϕ 12.4	12.4	7.1	15	16	29.72	21.8	M 4×0.7	7.2	3
MBID06	ϕ12.2～ϕ 14.2	14.2	12.2		19	31.5	24.9	M 6×1	11.2	5
MBID08	ϕ13.5～ϕ 20	20	13.5			37.5		M 8×1.25	13.2	6
MBID10	ϕ18 ～ϕ 27	27	18	17.5	22.2	50	28.6	M10×1.5	16.3	8
MBID12	ϕ23 ～ϕ 35.3	35.3	23	20.6	25.4	56	31.8	M12×1.75	20.3	10
MBID16A	ϕ29.3～ϕ 42	42	29.3	27	31.8	69.5	39.6	M16×2	21.4	14
MBID16B	ϕ29.3～ϕ 51.5	51.5				75.5				
MBID16C	ϕ29.3～ϕ 77.7	77.7		32.3	37.6	107.5	45.5		19.3	
MBID16D	ϕ29.3～ϕ103	103				132.9				
MBID16E	ϕ29.3～ϕ175	175								
MBID16F	ϕ29.3～ϕ250.2	250.2				152.4				

*) You need to machine the clamp to suit the diameter of your workpieces in consideration of the range of expansion.

Part Number	M_1	L_1	Dp	N	θ	Clamping Force (kN)	Allowable Screw Torque (N·m)	Recommended Expansion Range of Dia	Number of Groove***	Allowable Expansion of Dia.	Weight (g)
MBID02	M2	4	13.7	3	120°	1.1	0.7	0.05	–	0.13	10
MBID04	M3	6	21			4.2	5	0.07			45
MBID06			23.1			8.4	17	0.08		0.23	60
MBID08			29			11	34			0.3	95
MBID10	M4	7	39.4			20	60			0.35	190
MBID12			45.5			26	150				300
MBID16A	M5	13	55.9			44	280				570
MBID16B			63.9								750
MBID16C	M6	14	92.6					0.15~0.4 **)	1	0.6	1800
MBID16D			118.1								2900
MBID16E				4	90°				2	0.8	6500
MBID16F			133.4			26	170				4800

**) The recommended tightening torque to machine the jaws for custom fit is 20 N·m.
***) The groove for locking ring(width/depth 3.2mm) is only for MBID16C~F.

Furnished With

- 1 of hex nut
- MBID16C,16D:1 of locking ring
- MBID16E,16F:2 of locking rings (different sizes)

Feature

- Can hold workpieces on an inside diameter.
- Perfect for multiple-parts holding arrangement.
- Using hydraulic pull cylinders to clamp instead of using hex wrenchs allows automation.
- Can be machined to suit your workpieces.
- The fluoroplastic coated of the tapered screw helps to prevent the fixation of parts.

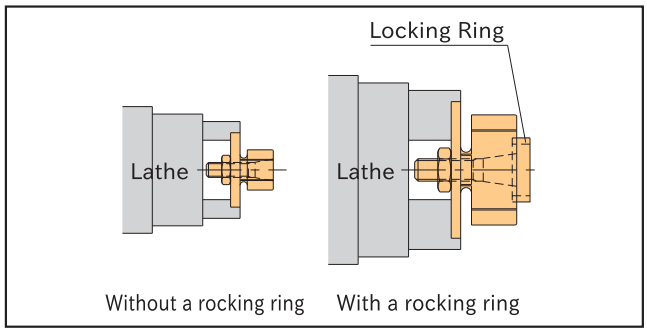
Note

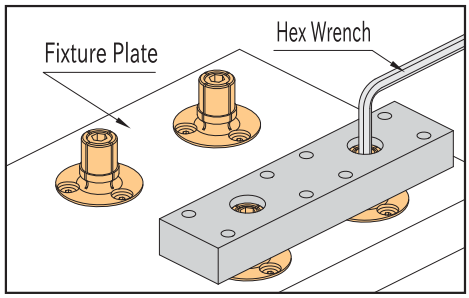
- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- The minimum radius of corners at the machined part should be 0.5mm for clamping small workpieces.To prevent stress concentration on these corners, make the radius as large as possible.
- If the radius will interfere with the bottom of the workpiece bore, we suggest a ring or rest-pads be fixed to the flange.
- If the application has minimal clamping surface (shallow bore) and the ring groove and the cutout interfere or come close to each other, we suggest machining the top of the clamp clean to remove the grooves, and then machine the clamp to suit your workpieces.
- For MBID16C,16D insert the locking ring provided to the groove and tighten the tapered screw and then machine the clamp to the size. When the the workpiece bore is smaller than the locking ring bore, machine the clamp without the locking ring, as stated in the Machining Instructions
- MBID16E,16F have 2 locking rings, but only single ring is needed for machining the clamp.The bigger locking ring is recommended.

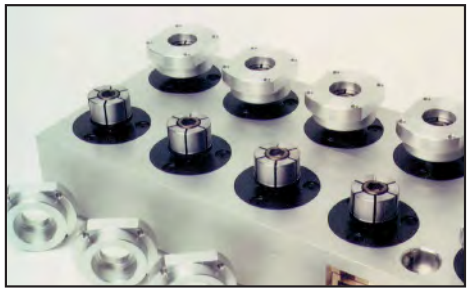
How To Use

〈Machining and Installation Instructions〉

1. Measure the diameter of the clamp without tapered screw.
2. Use the nut provided, on the back of the clamp, and tighten the tapered screw to expand the clamp to the recommended expansion of diameter. (For MBID16C~F, insert the locking ring provided and tighten the tapered screw.)
3. Machine a pocket in the fixture with the close tolerance "D" dimension and make tapped holes per "M 1 " column. Make a tapped hole from the "M" column in the center of the pocket for the tapered screw.





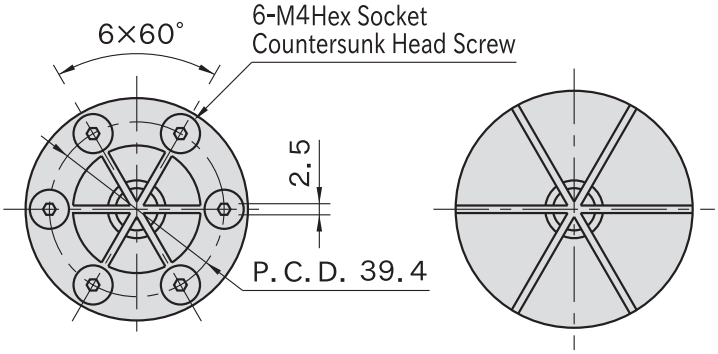


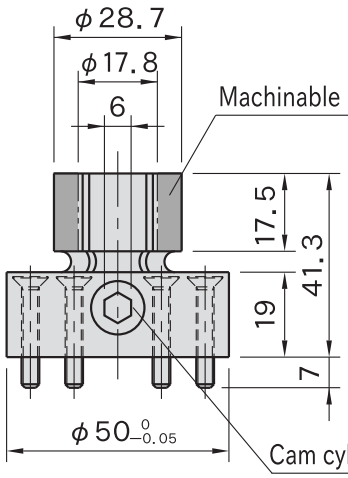
MBSID SIDE LOCK ID HOLDING CLAMPS

RoHS

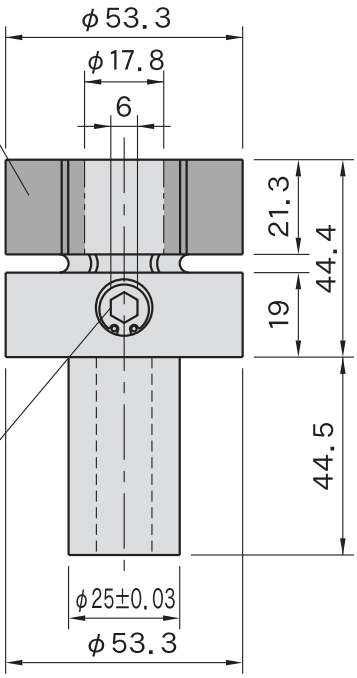
MBSID -M
(Mill Version)

MBSID -L
(Lathe Version)

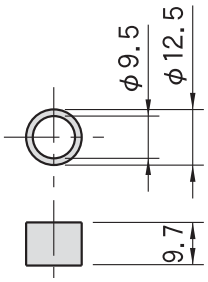




MBSID -M
(Mill Version)



MBSID -L
(Lathe Version)



Locking Ring

Body	Cam cylinder	Tapered Plunger	Spring
SUM24L Steel Black oxide finished	SCM440 steel Black oxide finished HRC39~45	SCM440 steel Fluoroplastic coated HRC52	SWP

Part Number	Adaptable Workpiece Dia. *)	Clamping Force (kN)	Allowable Screw Torque (N·m)	Recommended Expansion Range of Dia **)	Allowable Expansion of Dia.	Weight (g)
MBSID-M	φ17.8~φ28.7	15	47	0.02~0.18	0.30	358
MBSID-L	φ17.8~φ53.3					720

*)You need to machine the clamp to suit the diameter of your wo rkpieces.
**) The recommended tightening torque to machine the diameter f or custom fit is 13.5N·m.

Furnished Parts

1 of locking ring

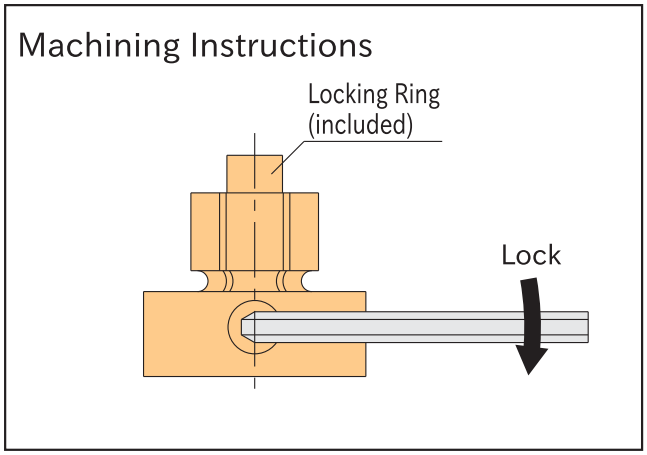
Features:

- Can hold workpieces on an inside diameter by turning a socket head cam cylinder on the side.
- Perfect for multiple-parts holding arrangement.
- Can be machinable to suit your workpieces.

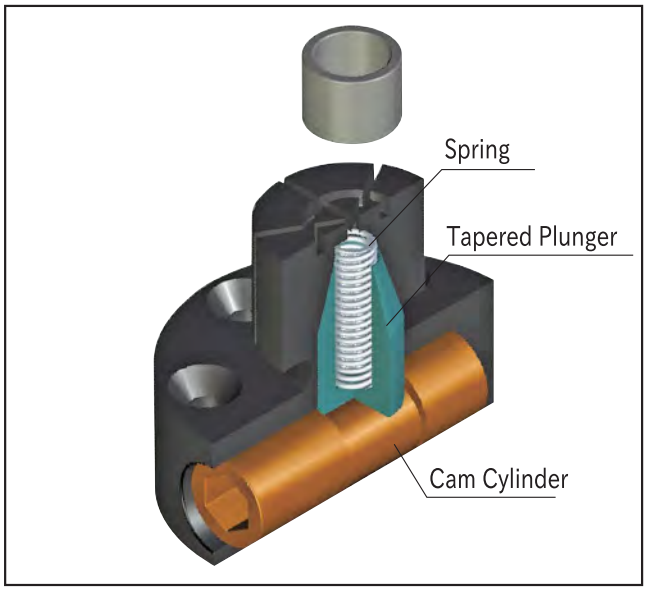
Notes:

- Do not tighten the clamp screw without the workpiece set to prevent damage and deformation.
- The minimum radius of corners at the machined part should be 0.5mm for clamping small workpieces. To prevent stress concentration on these corners, make the radius as large as possible.
- If the radius will interfere with the bottom of the workpiece bore, we suggest a ring or rest-pads be fixed to the flange.

How To Use



Insert the locking ring to the groove of the upper surface and clamp it, and then machine the clamp to your bore size.



Rotating the cam cylinder both clockwise and counterclockwise expands the clamp.

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