air Pallet clamp

Double acting air

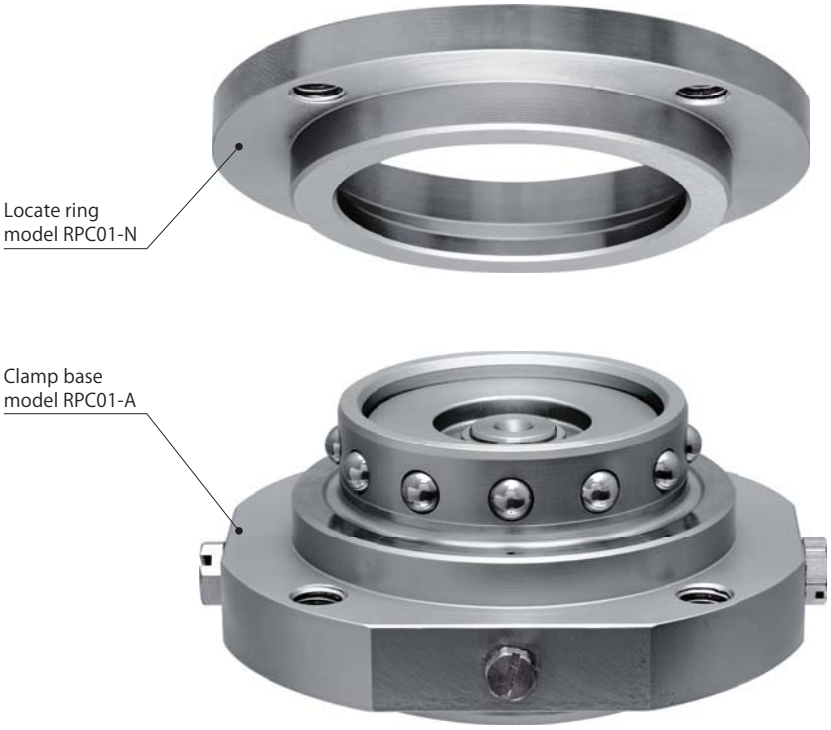
model RPC PAT.P.

Air pallet clamp
model RPC

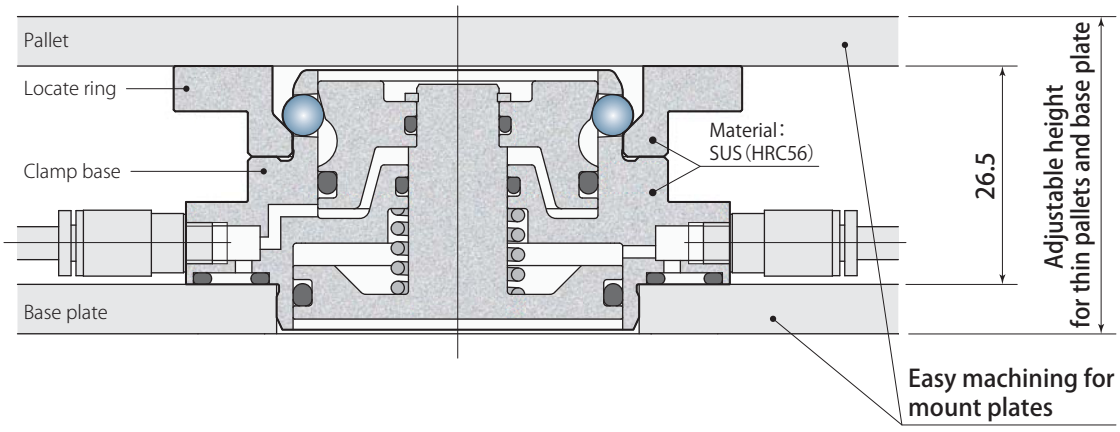
Pascal

www.pascaleng.co.jp

model **RPC** PAT.P.



Easily programmable for assembly and transport



Specifications

RPC01-

N Locate ring

A Clamp base

Pressure range		MPa	0.2–0.5
Clamping force	Air pressure 0 MPa	kN	0.09
	Air pressure 0.2MPa	kN	0.56
	Air pressure 0.3MPa	kN	0.79
	Air pressure 0.4MPa	kN	1.02
	Air pressure 0.5MPa	kN	1.25
Clamping force calculation (P: Air pressure MPa)		kN	2.32×P+0.09
Cylinder capacity	Clamp	cm^3	4.6
	Unclamp	cm^3	3.2
Full stroke		mm	4.0
Lift stroke		mm	1.0
Lift force	Air pressure 0.2MPa	kN	0.10
	Air pressure 0.3MPa	kN	0.18
	Air pressure 0.4MPa	kN	0.26
	Air pressure 0.5MPa	kN	0.34
Lift force calculation (P: Unclamping air pressure MPa)			0.79×P-0.06
Mass	Locate ring	g	115
	Clamp base	g	410
Recommended tightening torque of mounting screws*1	M5 Using	N·m	4.0
	M6 Using	N·m	5.9

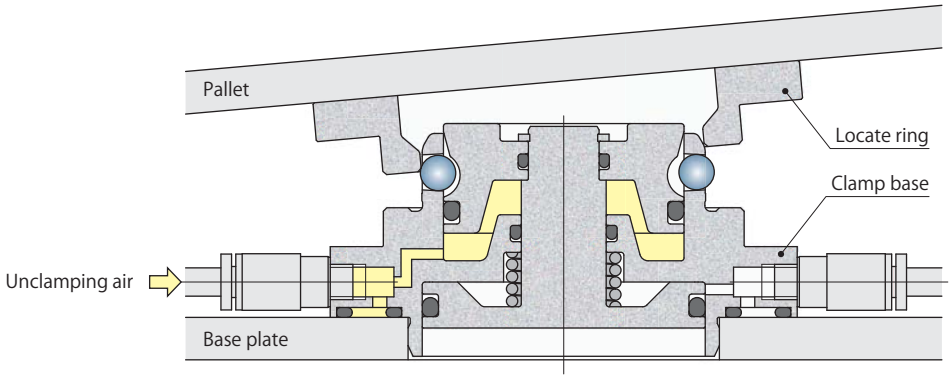
- Proof pressure: 0.75 MPa
- Operating temperature: 0–70 ℃
- Fluid used: Air*2
- Oil supply: Not required
- This product cannot be used in adverse environment where it is exposed to cutting fluid or metal chips.

*1: ISO R898 class 12.9

*2: Supply the dry and filtered air. Particulate size 5 μm or less is recommended.

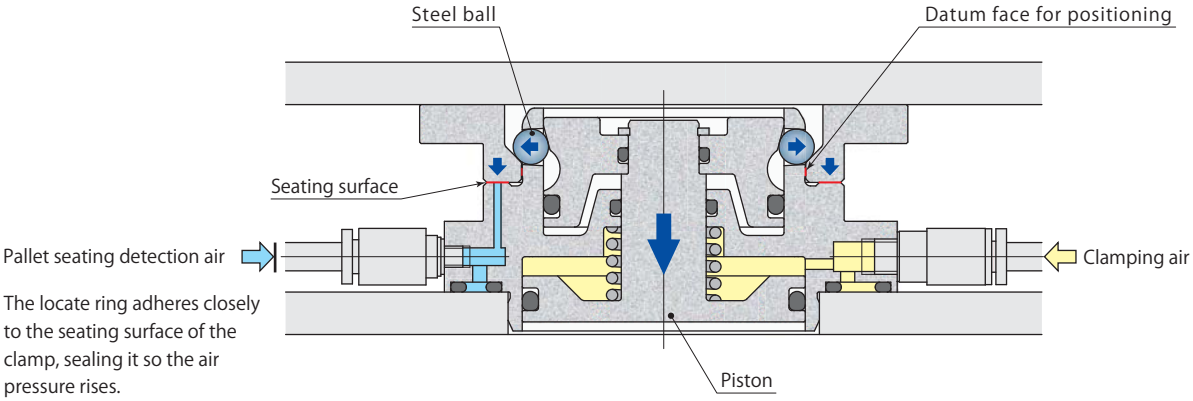
Pallet setting

- The clamp can be engaged even if the pallet is not leveled. (Allowable tilting angle 5°)
  Be careful not to overload the clamp base.



Clamping

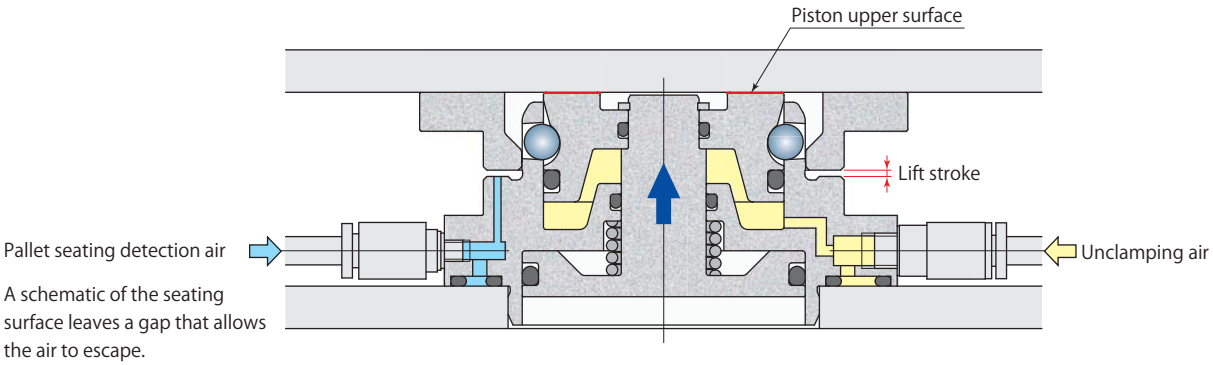
- The supplied air to the clamp causes the piston to stroke down and push the steel ball bearing out, substantially lowering the locate ring.



The locate ring adheres closely to the seating surface of the clamp, sealing it so the air pressure rises.

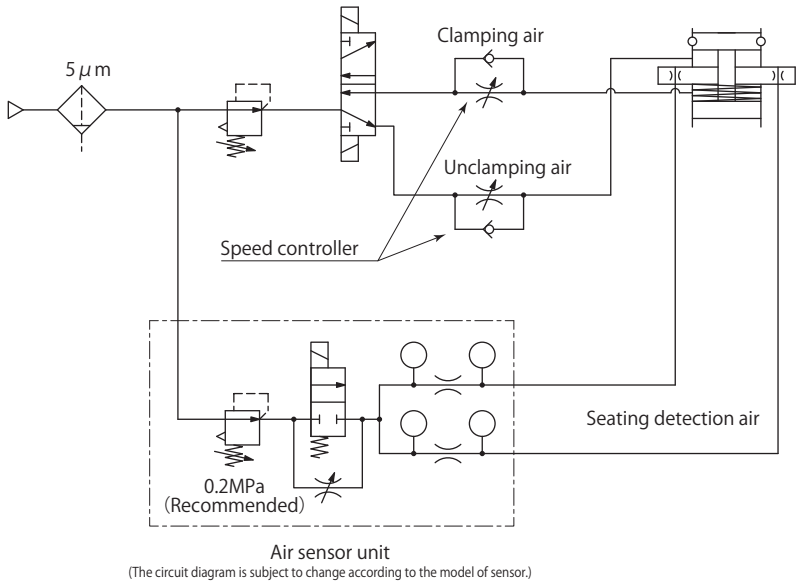
Unclamping

- The piston is pushed up by the unclamping air and the pallet is lifted up by the piston.



A schematic of the seating surface leaves a gap that allows the air to escape.

Pneumatic circuit diagram



- Adjust full stroking time to be more than 1 second by a speed controller to avoid impact at the time of clamp or unclamp action.

Air sensor unit recommended condition of use

Supplier and model	ISA3-F/G series manufactured by SMC
	GPS2-05、GPS3-E series manufactured by CKD
Air supply pressure	0.2 MPa
Inner diameter of piping	ø4 mm
Overall piping length	5 m or less

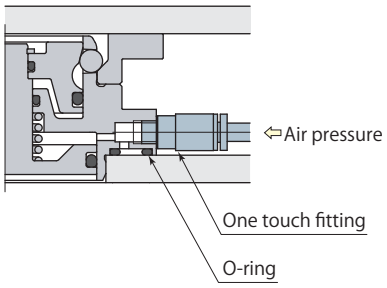
- Supply the dry and filtered air. Particulate size 5μm or less is recommended.
- Use a solenoid valve with needle for air sensor unit and control it supplying air all the time in order to eliminate intrusion of chips or coolant.
- There is a case that air sensing cannot be made successfully as designed when it is used out of the usage shown on the left. Contact Technical service center for more details.
- Refer to the sensor supplier's instruction manual for the details of setting.
- Sensing performance such as detectable time and pressure differs depending on the supplier and model number of the sensor. Select the right model referring to sensor's application and characteristics.

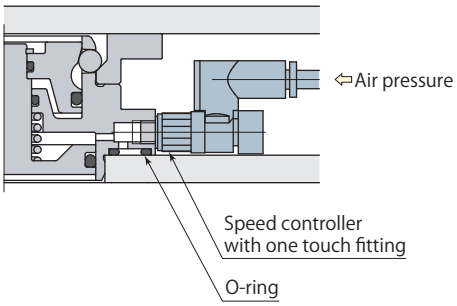
Piping Method

● The following two options are available according the jig space.

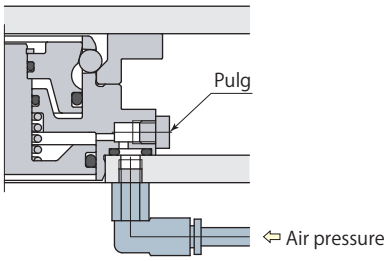
Direct piping

● Detach the plug and screw the fitting directly onto the air entry port of the clamp.
No need to drill a hole for piping in the plate.





Piping via plate

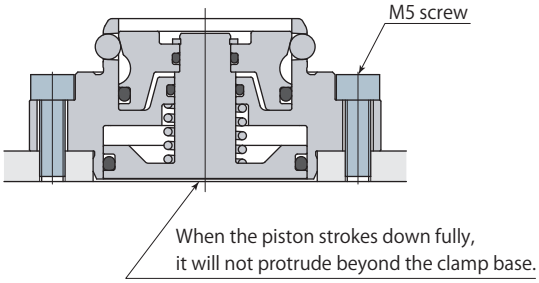


Mounting on the plate

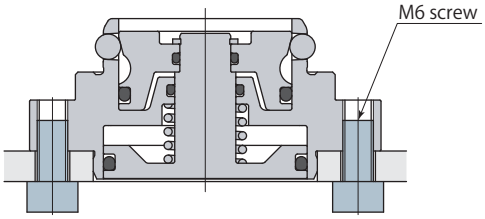
● The clamp can be bolted from either the top or the bottom. Be careful that the thread size varies depending on the direction of the bolt.

Clamp base

Upper surface mounting

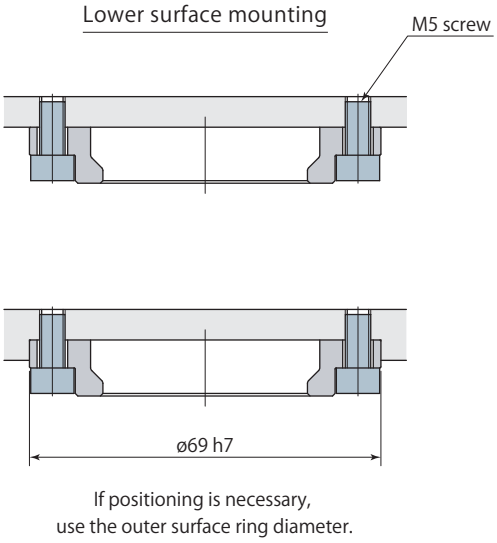


Lower surface mounting

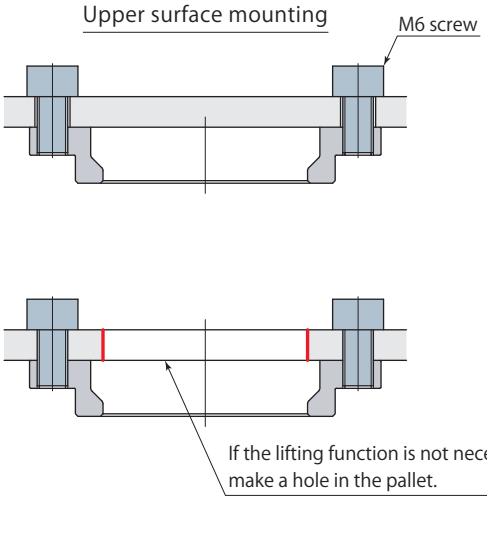


Locate ring

Lower surface mounting



Upper surface mounting

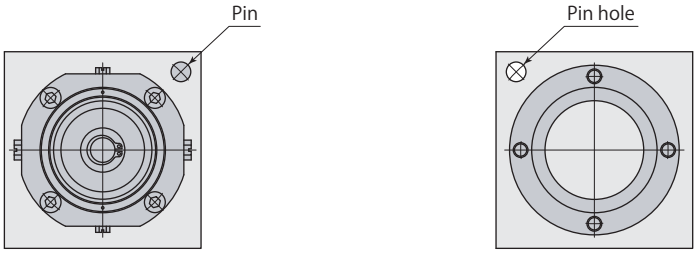


Composition

● Determine the quantity of clamps according to the required amount of force.

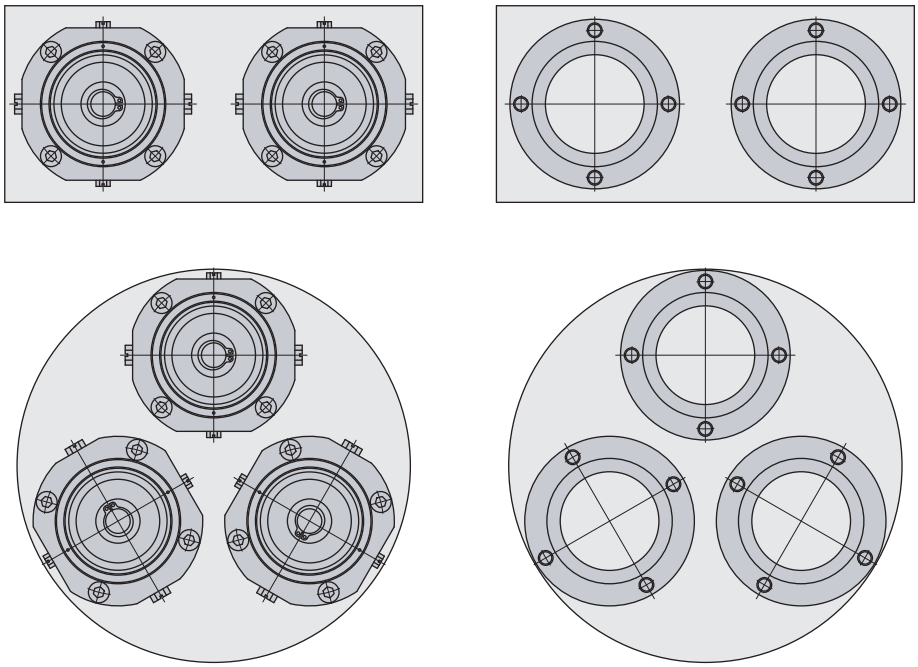
1 pc

● If you need to determine the phase rotation direction, use a pin.

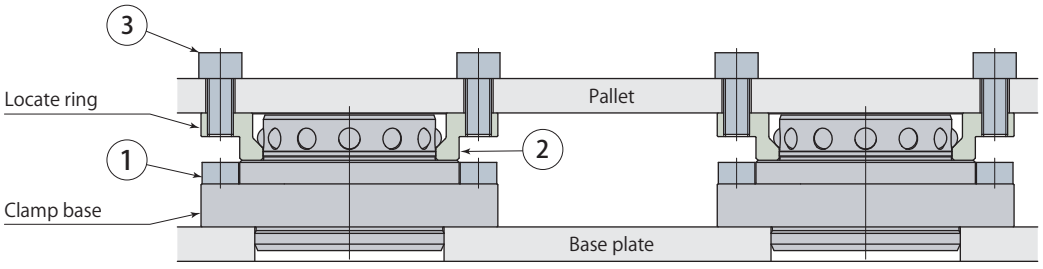


2 pcs and more

● The clamp can be freely positioned according to the plate specifications.

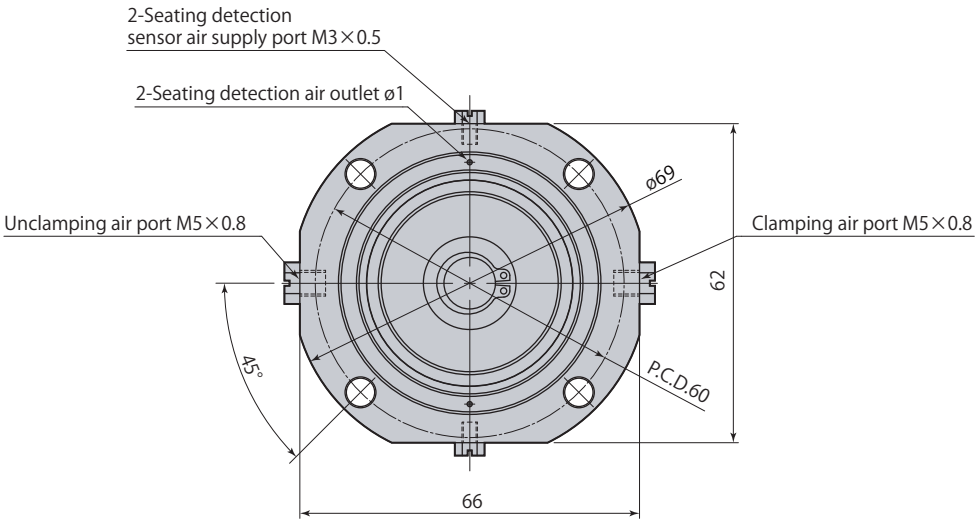


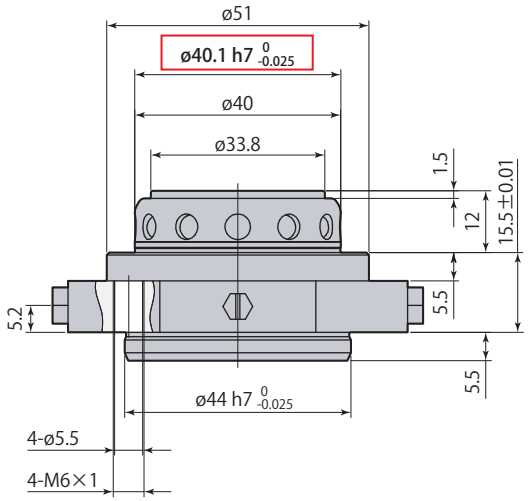
Installation



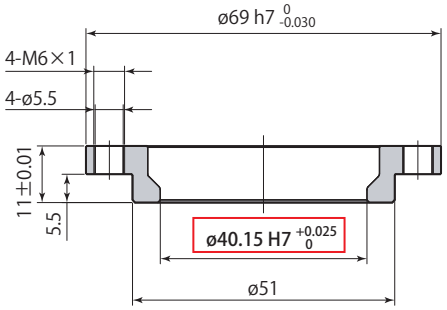
① Install the clamp base onto the base plate.
② Clamp the locate ring onto the clamp base.
③ Fasten the screws of the locate ring for final positioning.
Machining is simple because pitch accuracy between the clamps and the plate is unnecessary.

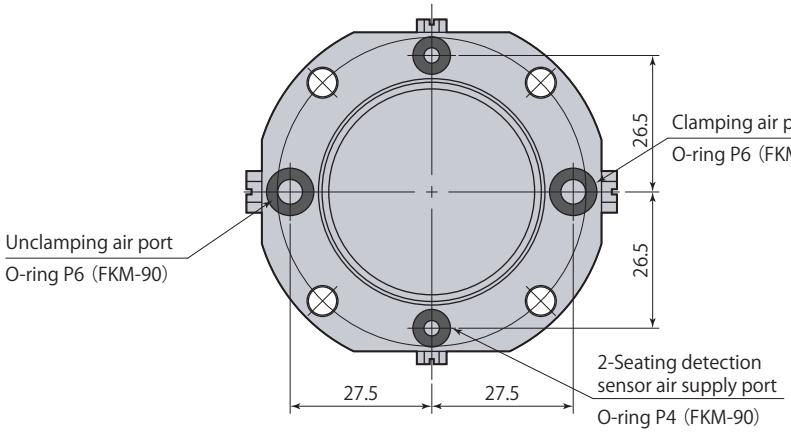
Dimensions



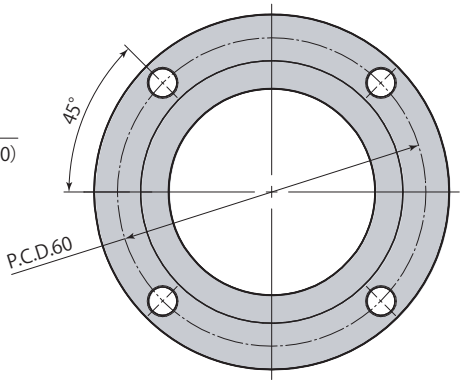


Unclamp





Clamp base

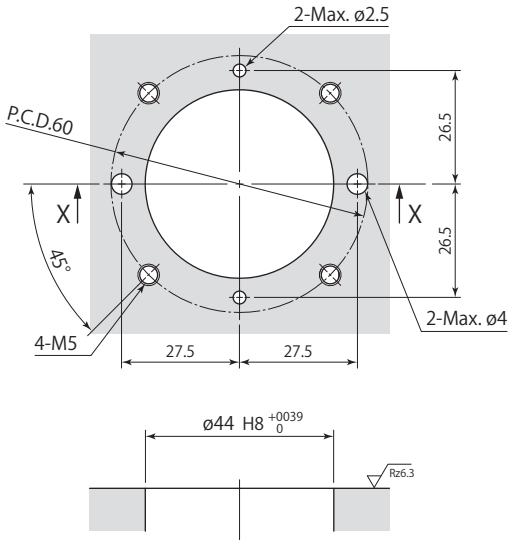


Locate ring

Mounting details

Clamp base

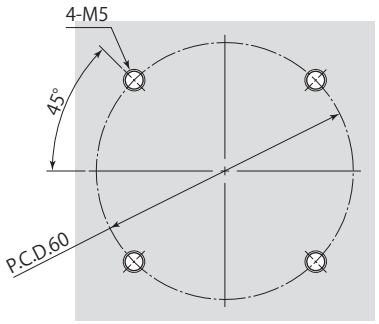
Bolting on the top



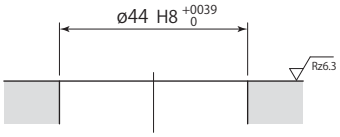
X-X

Locate ring

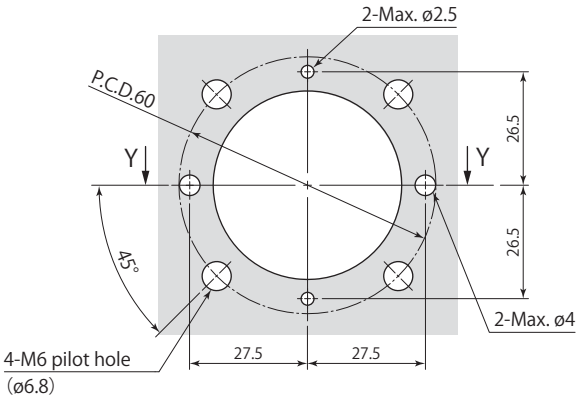
Bolting from the bottom



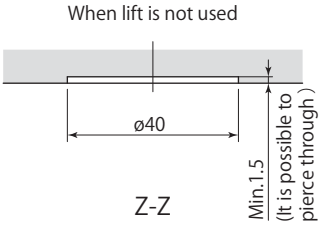
Bolting from the bottom



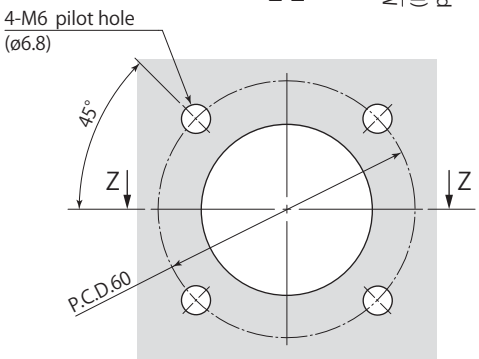
Y-Y



Bolting on the top



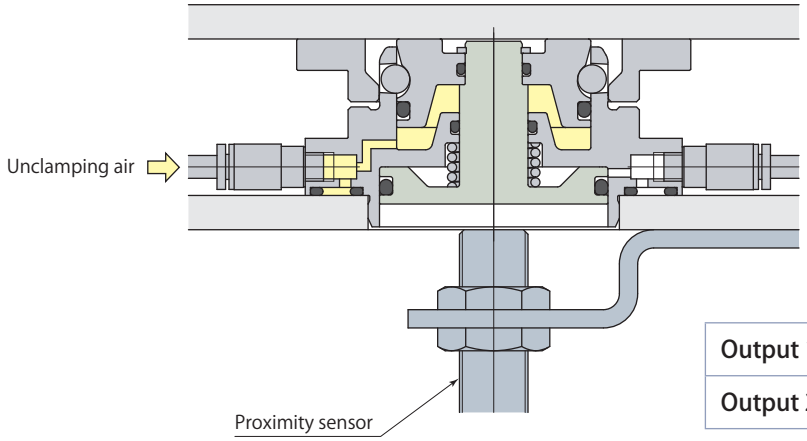
Z-Z



The clamp is detected by a proximity sensor

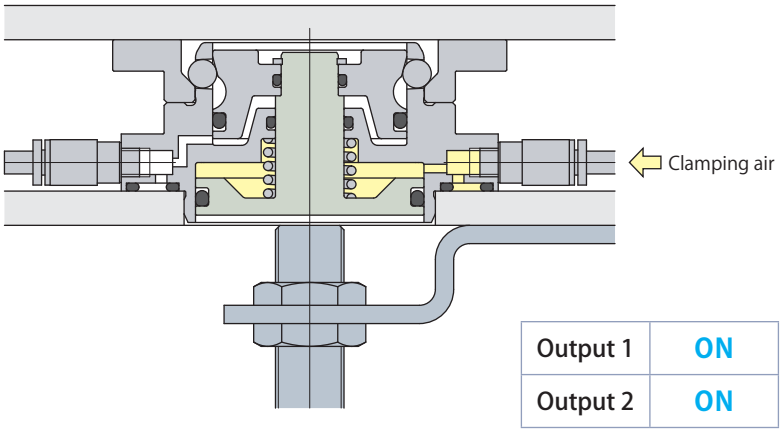
● The clamping status can be detected with a multi-setting proximity sensor that detects distance.
Recommended proximity sensor: Azbil H3C-HC03 Series
Refer to the sensor supplier's instruction manual for the details of setting.

Unclamping status



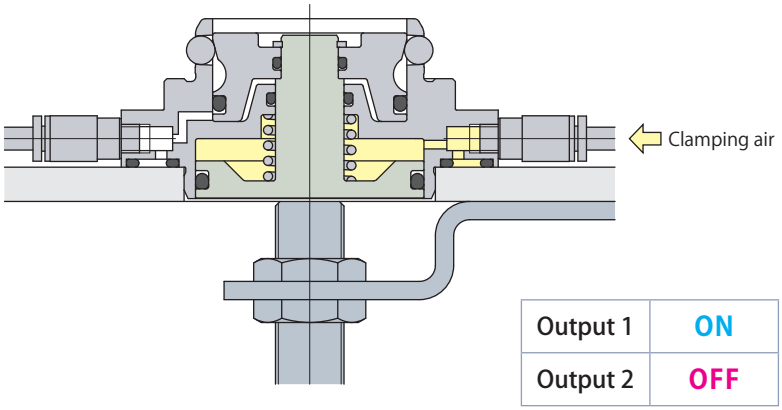
Output 1	OFF
Output 2	ON

Clamping status



Output 1	ON
Output 2	ON

Piston stroke-end position



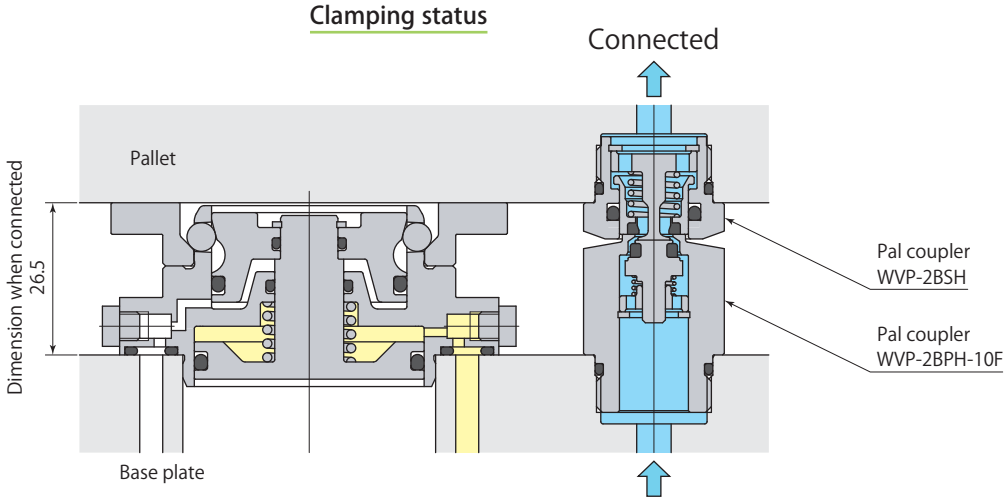
Output 1	ON
Output 2	OFF

● The sensor must be installed so as not to come into contact with the piston.

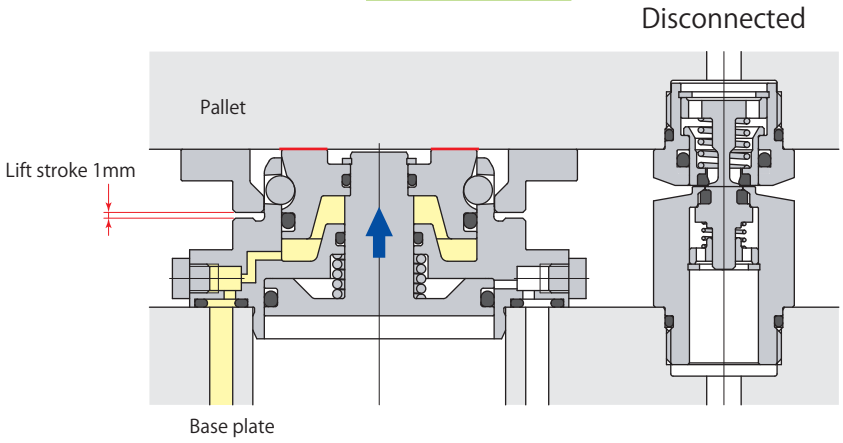
Decoupling according to the clamp stroke

● Coupling/Decoupling can be done by the stroke of the pallet clamp.
For the coupler, refer to the general catalog (CLS-35E).

Clamping status

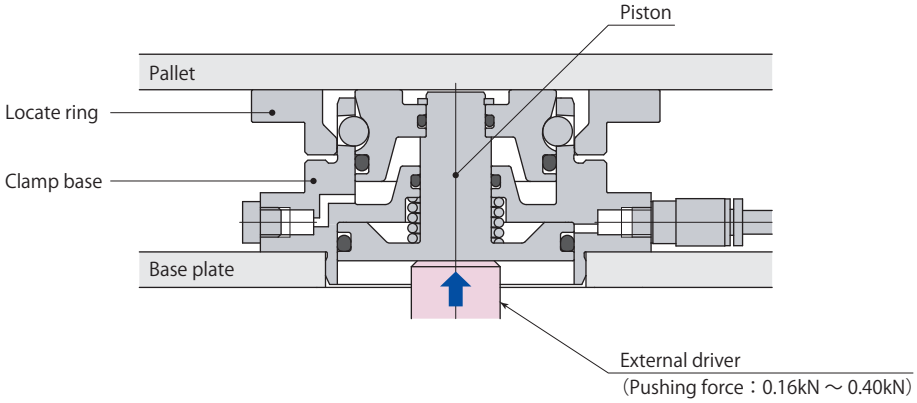


Unclamping status



Unclamping by an external mechanism

● Sample diagram as shown below demonstrates how to unclamp by using an external mechanism to press the lower part of the piston.



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