Bernoulli Gripper

With Coanda Grip

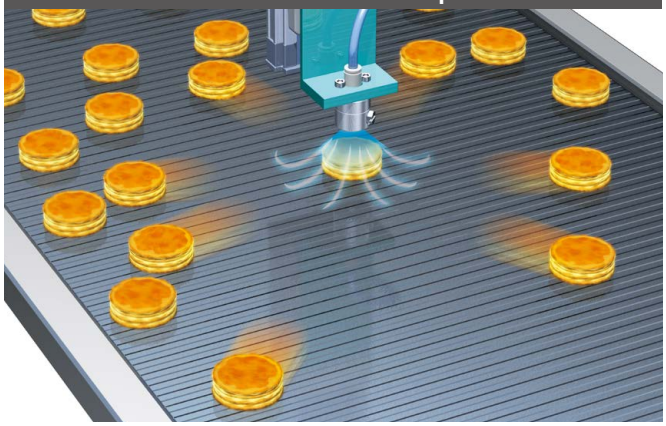
ø20, ø30, ø40, ø60, ø80

New

RoHS

Reduces the impact of air flow on light-weight workpieces and adjacent workpieces

Without Coanda Grip

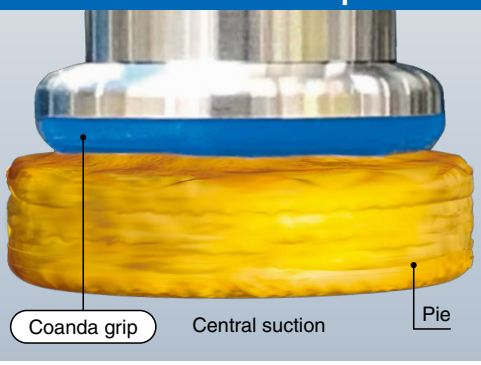


The workpieces may be dispersed by air blow.

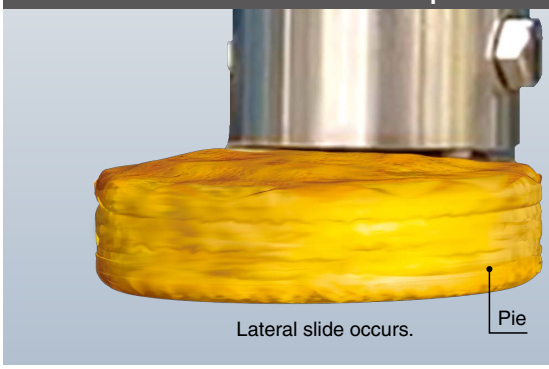
Prevents lateral slide when suctioning the workpiece

There is no risk of suctioning of powder matter adhering on the workpiece into the device and pipe, as the workpiece is suctioned while air is blow.

With Coanda Grip



Without Coanda Grip



Body material **Stainless steel**

Coanda grip

Uses a material compliant with FDA (U.S. Food and Drug Administration) regulations as well as Food Sanitation Act standards

Body material **Aluminum**

Vibration suppression cover

Reduces the vibrating sound when suctioning a thin workpiece by a maximum of 17 dB [A]*1

*1 Comparison with model without damping cover

Video

* Please use the product in accordance with the specifications provided in the catalogs/operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.

ZNC-C Series

SMC

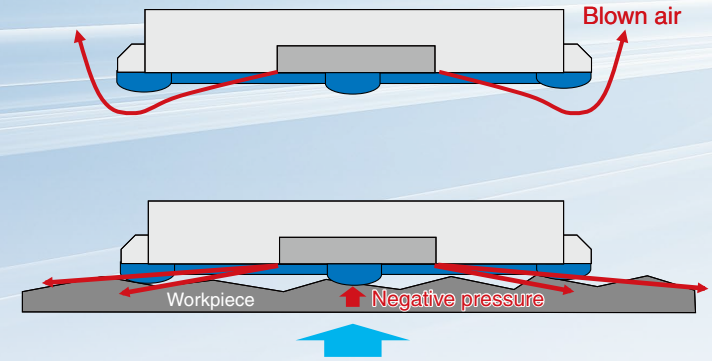
CAT.ES100-156A

With Coanda Grip

Prevents blowing away of workpiece before suctioning and lateral sliding of workpiece during suctioning

As the blown air is led upwards due to the Coanda effect, blowing away of light-weight workpieces such as trays can be reduced. Placing rubber on the circumference on the suction side changes the state from non-contact to contact. This allows a slippery workpiece with an irregular surface to be gripped. When using a soft workpiece such as cloth or paper, it may come into contact with the gripper and generate a vibration noise. In this case, a vibration suppression cover is recommended.

* Only the rubber of the Coanda grip can be replaced.
* The attachment of Coanda grip reduces the lifting force.
* Coanda effect: a phenomenon in which the fluid flows along the convex surface of an object



Piping Port

Multi-port

Can be used as a sensor port or release port

■ Release port

Workpieces can be removed easily.

■ A pressure sensor option can be selected.

Detects the presence of a workpiece

* Connects to the multi-port

Body material **Aluminum**

Air supply port

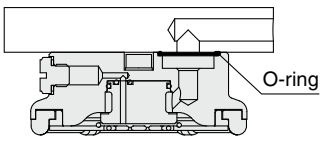
Piping from 2 directions (top and side) is possible.

* This is not applicable to the horizontal pipes of ZNC20 and 80.

Requires no piping

Direct porting is possible.

* The O-ring can be ordered separately or prepared by the customer. (For details, refer to page 13.)



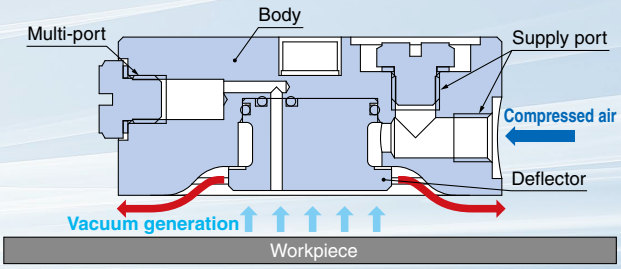
Body material **Stainless steel**

Anti-corrosive type

Construction and Working Principle

By supplying clean air, the clogging of foreign matter can be prevented.

Bernoulli gripper construction



Series Variations

Material	Size	Air supply port		Multi-port	Mounting plate	Attachment		Pressure sensor
						With Coanda grip		
		Top	Side				With vibration suppression cover (Stainless steel)	
Aluminum	**20**	●	—	●	●	Silicone rubber (Heat/ozone resistant) FDA and Food Sanitation Act compliant	With or without	With or without
	30	●	●	●	—			
	40	●	●	●	—			
	60	●	●	●	—			
	80	●	—	●	—			
Stainless steel	**20**	●	—	●	●			
	30	●	●	●	—			
	40	●	●	●	—			
	60	●	●	●	—			
	80	●	—	●	—			

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ZNC-C Series
Model Selection

Selection Procedure

[Basic type]

Step 1 **Calculate the lifting force.**

$$W = M \times g \times t \times \frac{1}{n}$$

W: Required lifting force [N]
M: Workpiece mass [kg]
g : Gravitational acceleration [= 9.8 m/s^2]
t : Safety factor (Recommended value: 2 or more)
n : Number of Bernoulli grippers [pcs.]

Selection example

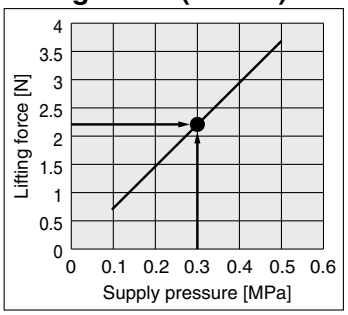
Workpiece mass: **M** = 0.18 kg
Safety factor: **t** = 2
Number of Bernoulli grippers: **n** = 2 pcs.

Required lifting force: $W = 0.18 \times 9.8 \times 2 \times \frac{1}{2} \approx 1.8$ **N**

Basic type
Workpiece: Smooth and non-permeable
Operating pressure: 0.3 MPa

Step 2 **Model selection**

Lifting Force (ZNC40)



The lifting force in relation to the supply pressure for each size can be confirmed using the graph.
For the ZNC40, as the lifting force is 2.2 N when the supply pressure is 0.3 MPa, the lifting force is greater than the required lifting force. Therefore, the product can be used. If the lifting force is less than the required lifting force, considering rethinking the size, number of grippers to be used, or operating pressure.

The lifting force changes depending on the shape, size, surface unevenness, breathability, flexibility, etc., of the workpiece. Use the selection result as a reference value and perform verification and confirmation on the actual machine.

Bernoulli Gripper
With Coanda Grip
ZNC-C Series

How to Order

Size 20 ZNC 20 □ □ – C □ □

Sizes 30 to 80 ZNC 40 □ □ – C □ □

❶ ❷ ❸ ❹ ❺

❶ Body size

20	ø20 mm
30	ø30 mm
40	ø40 mm
60	ø60 mm
80	ø80 mm

❷ Body material

Nil	Aluminum
S	Stainless steel

❸ Mounting plate

Nil	None
T	Aluminum
TS	Stainless steel

* The mounting plate is shipped together with the product but does not come assembled.
* The piping methods for types with and without a mounting plate are shown in Table 1 below.

❹ Attachment

Nil	Without vibration suppression cover
V	With vibration suppression cover

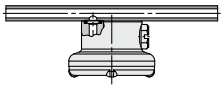
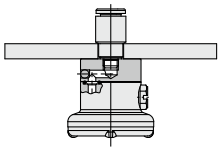
* It is not possible to additionally install or remove the vibration suppression cover.

❺ Sensor

Nil	None
S	With pressure sensor Part no.: **PSE541-M5-X2**

* The pressure sensor is shipped together with the product but does not come assembled.

Table 1. Piping

Without mounting plate	Body ported (Requires no piping)  Can be used by connecting the piping inside the mounting surface with the supply port on the top surface of the product
With mounting plate	Top ported  Can be used by mounting a fitting on the supply port on the top surface of the product and connecting

Coanda Grip Only / Part No.

ZNCM – 40 C

Body size

20	ø20 mm	**60**	ø60 mm
30	ø30 mm	**80**	ø80 mm
40	ø40 mm		

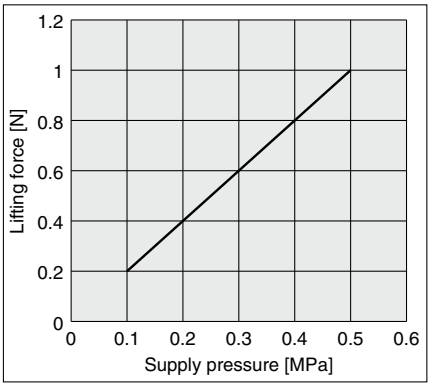
Specifications

Model			ZNC20	ZNC30	ZNC40	ZNC60	ZNC80
Lifting force [N]∗1, ∗3			1.0	2.3	3.7	8.2	15.4
Air consumption [L/min (ANR)]∗2, ∗3			131	138	182	182	255
Type			Bernoulli				
Fluid			Air				
Operating pressure			0.1 to 0.5 MPa				
Proof pressure			0.75 MPa				
Ambient and operating temperatures∗4	**Body material**	**Aluminum**	–5 to 80°C (0 to 50°C)				
		Stainless steel					
Grease			Grease-free				
Weight [g]∗5	**Body material**	**Aluminum**	24	44	70	150	247
		Stainless steel	44	88	154	350	607
Pressure sensor∗6			PSE541-M5-X2 (Grease-free) Rated pressure range: 0 to –101 kPa				

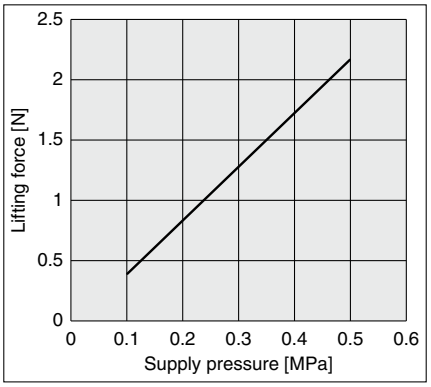
∗1 Lifting force at the max. supply pressure
Values when a flat, non-breathable workpiece is adsorbed
∗2 Air consumption at the max. supply pressure
∗3 (For the ZNC20, 30, 40, and 60) The values are for when the connection is as follows: Fitting min. hole diameter: ø2.5, Tubing size: ø6 x 4, Length: 500 mm
(For the ZNC80) The values are for when the connection is as follows: Fitting min. hole diameter: ø4.5, Tubing size: ø6 x 4, Length: 500 mm
∗4 No freezing or condensation. The values in ( ) are for models with a pressure sensor.
∗5 The weight value is for the type without a mounting plate or plug. For the ZNC20, add the mounting plate weight if needed. (Aluminum: 6.5 g, Stainless steel: 17.6 g)
∗6 For pressure sensor details, refer to the PSE540 series in the **Web Catalog** and the Operation Manual.

Lifting Force

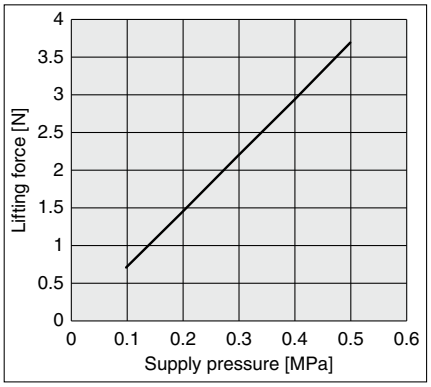
ZNC20□



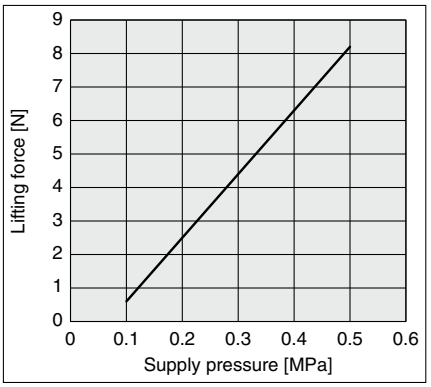
ZNC30□



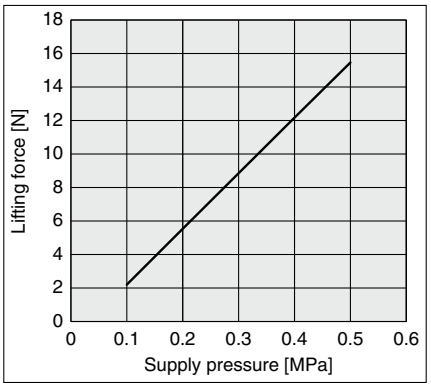
ZNC40□



ZNC60□

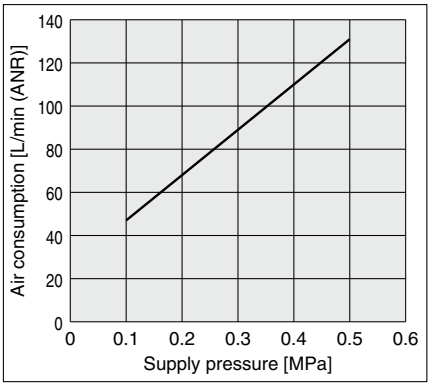


ZNC80□

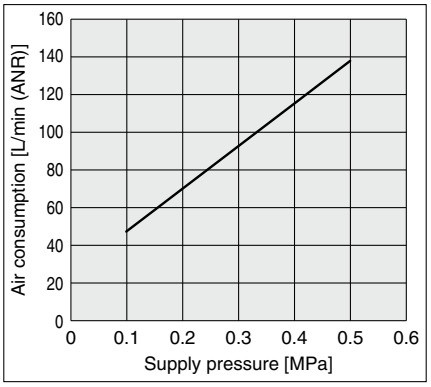


Air Consumption

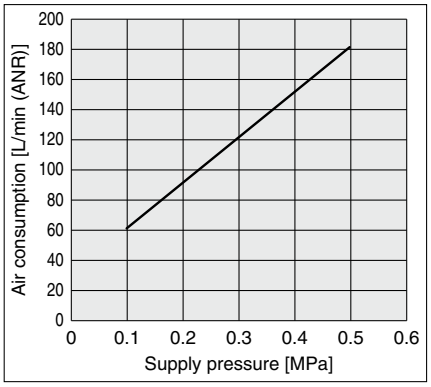
ZNC20□



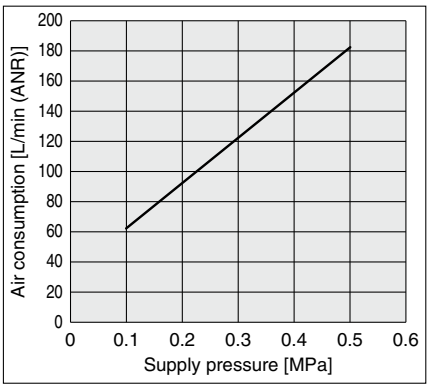
ZNC30□



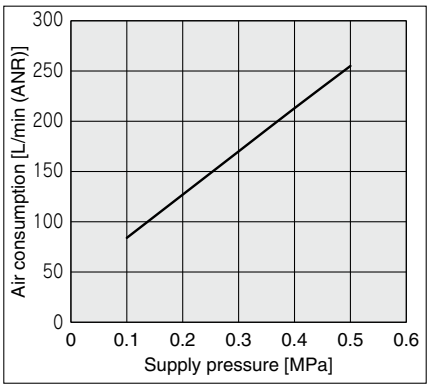
ZNC40□



ZNC60□

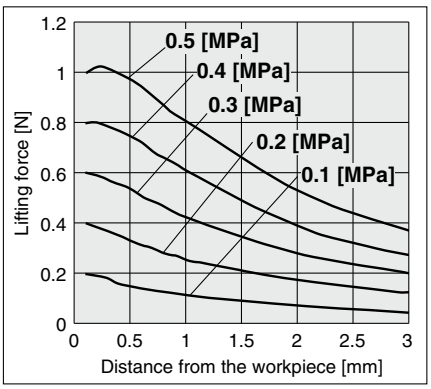


ZNC80□

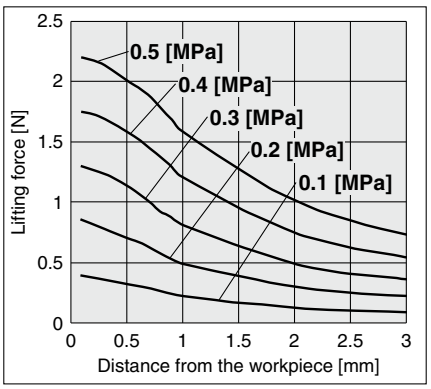


Lifting Force–Distance from the Workpiece

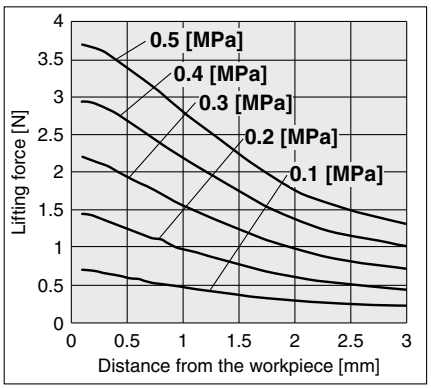
ZNC20□



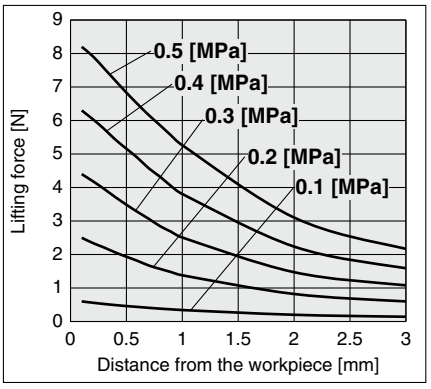
ZNC30□



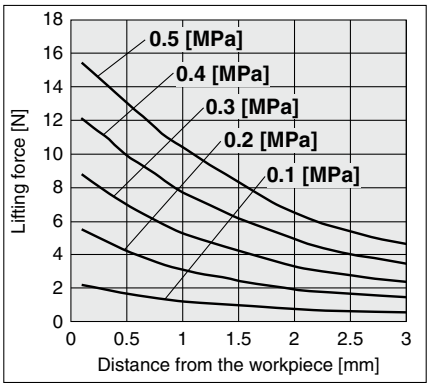
ZNC40□



ZNC60□



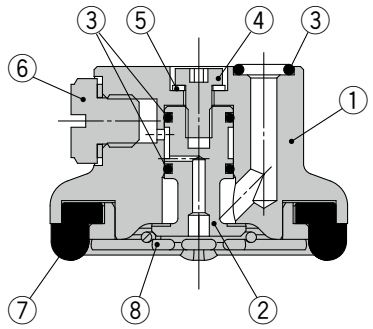
ZNC80□



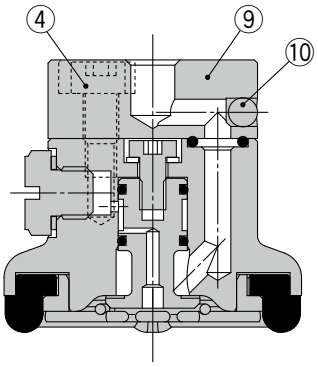
∗ The lifting force changes depending on the shape, size, surface unevenness, breathability, flexibility, etc., of the workpiece. Use the values shown in the graphs above as a reference, and confirm using the actual machine.

Construction

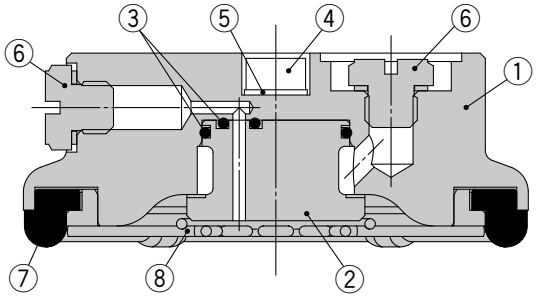
ø20 (Without mounting plate)



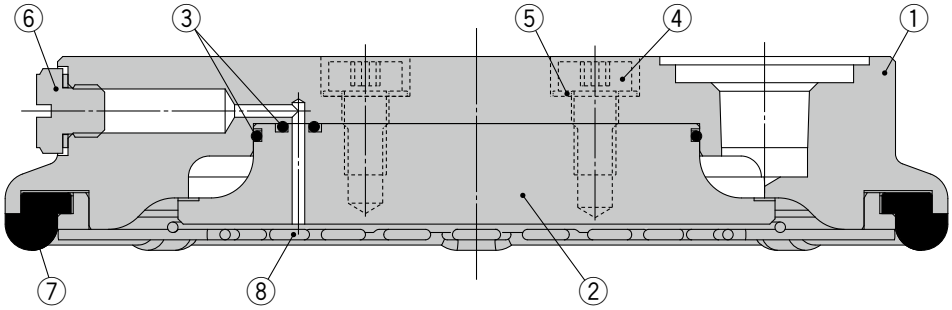
ø20 (With mounting plate)



ø30, ø40, ø60



ø80



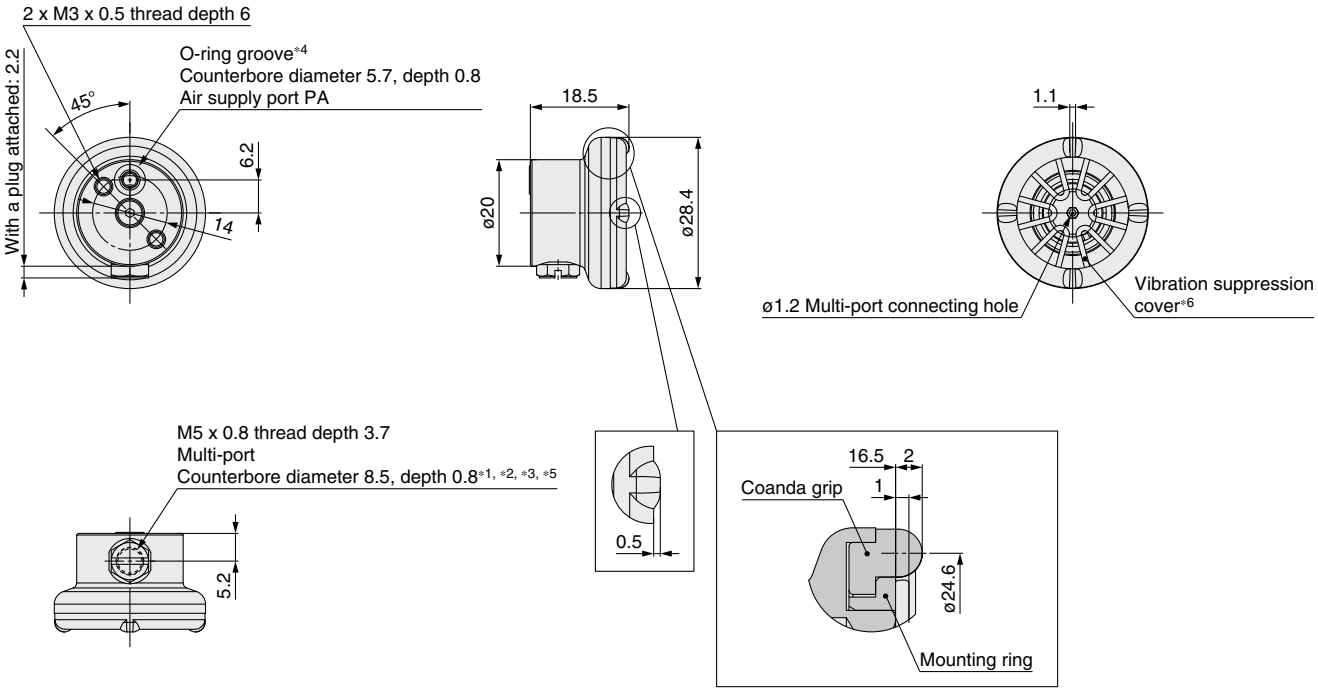
Component Parts

No.	Description	Material (Surface treatment)	Note	
1	**Body C**	Aluminum alloy (Anodized)	Body specification	Aluminum
		Stainless steel		Stainless steel
2	**Deflector C**	Aluminum alloy (Anodized)	Body specification	Aluminum
		Stainless steel		Stainless steel
3	**O-ring**	FKM		
4	**Hexagon socket head cap screw**	Stainless steel		
5	**Flat washer**	Stainless steel		
6	**Plug**	Stainless steel / FKM		
7	**Coanda grip**	Silicone rubber*1, *2		
8	**Vibration suppression cover**	Stainless steel	With vibration suppression cover	
9	**Mounting plate**	Aluminum alloy (Anodized)	Aluminum	
		Stainless steel	Stainless steel	
10	**Steel ball**	Stainless steel		

*1 Compliant with the FDA's (U.S. Food and Drug Administration) 21CFR§177.2600 dissolution test

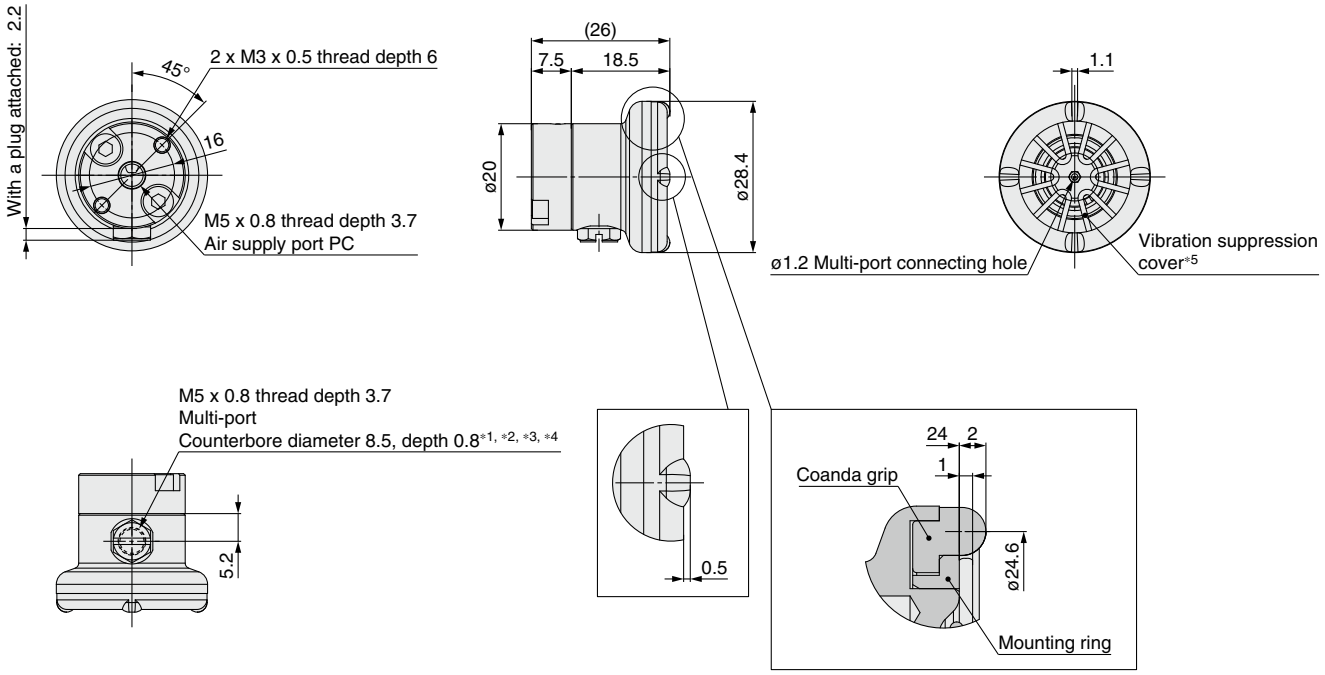
*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

Dimensions: Ø20 (Without mounting plate)



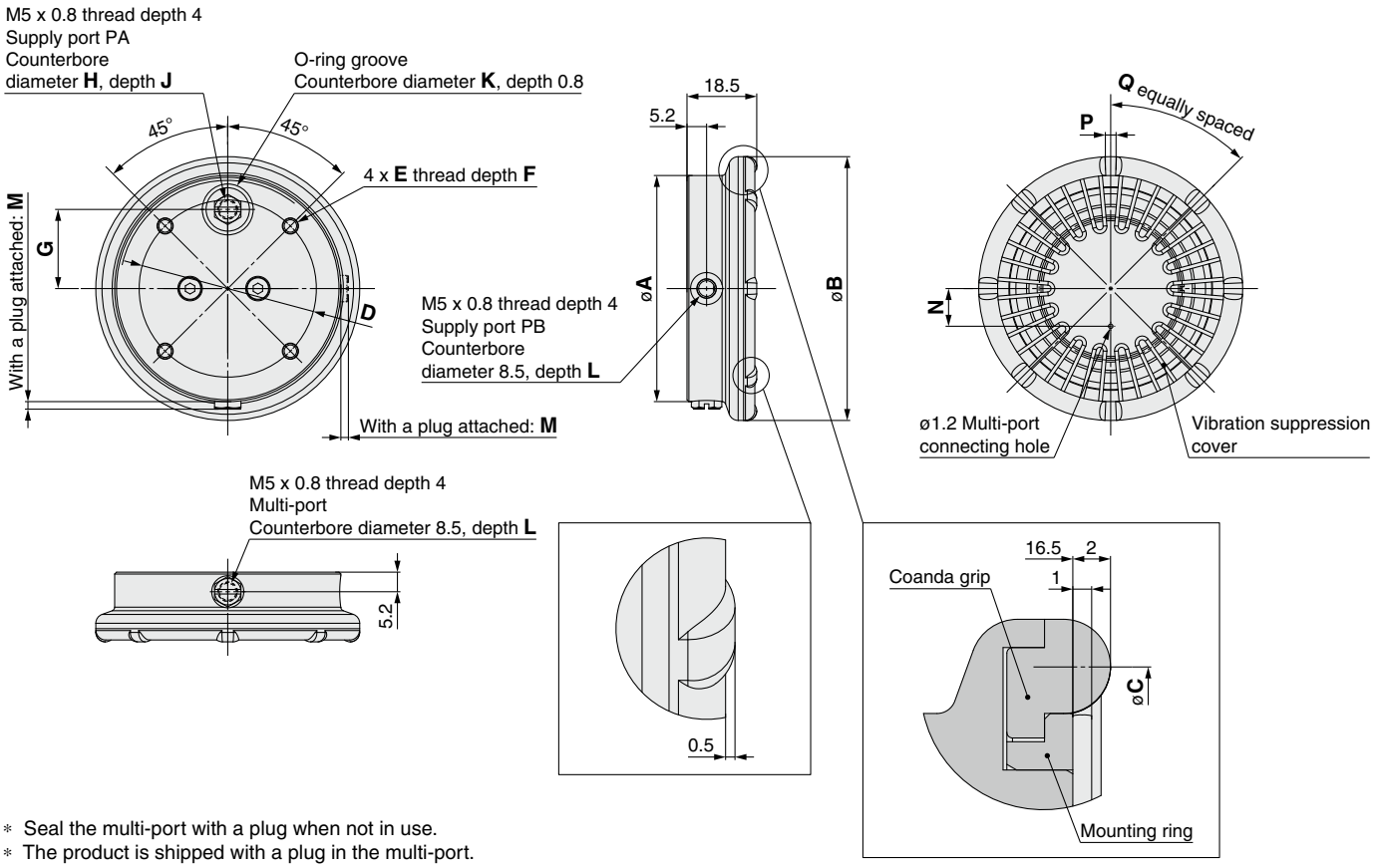
*1 Seal the multi-port with a plug when not in use.
*2 The product is shipped with a plug in the multi-port.
After determining which port to use, it is recommended that adhesive be applied to the threads of the multi-port.
*3 When connecting a pipe fitting to a multi-port gripper, use a tube fitting with an outer diameter dimension of ø10 or below.
If the outer diameter dimension is large, the fitting may protrude from the product or product mounting surface, which may lead to interference with the mounting part.
*4 An O-ring (5.7 x 3.7 x 1) is included with the product.
*5 Use the multi-port as a sensor mounting or release port.
*6 It is not possible to additionally install or remove the vibration suppression cover.
* The pressure sensor is shipped together with the product but does not come assembled.
* For pressure sensor details, refer to the PSE540 series in the **Web Catalog** and the Operation Manual.

Dimensions: Ø20 (With mounting plate)



*1 Seal the multi-port with a plug when not in use.
*2 The product is shipped with a plug in the multi-port.
After determining which port to use, it is recommended that adhesive be applied to the threads of the multi-port.
*3 When connecting a pipe fitting to a multi-port gripper, use a tube fitting with an outer diameter dimension of ø10 or below.
If the outer diameter dimension is large, the fitting may protrude from the product or product mounting surface, which may lead to interference with the mounting part.
*4 Use the multi-port as a sensor mounting or release port.
*5 It is not possible to additionally install or remove the vibration suppression cover.
* The mounting plate is shipped together with the product but does not come assembled.
* The mounting plate comes with mounting screws and an O-ring (5.7 x 3.7 x 1).
* The pressure sensor is shipped together with the product but does not come assembled.
* For pressure sensor details, refer to the PSE540 series in the **Web Catalog** and the Operation Manual.

Dimensions: ø30, ø40, ø60



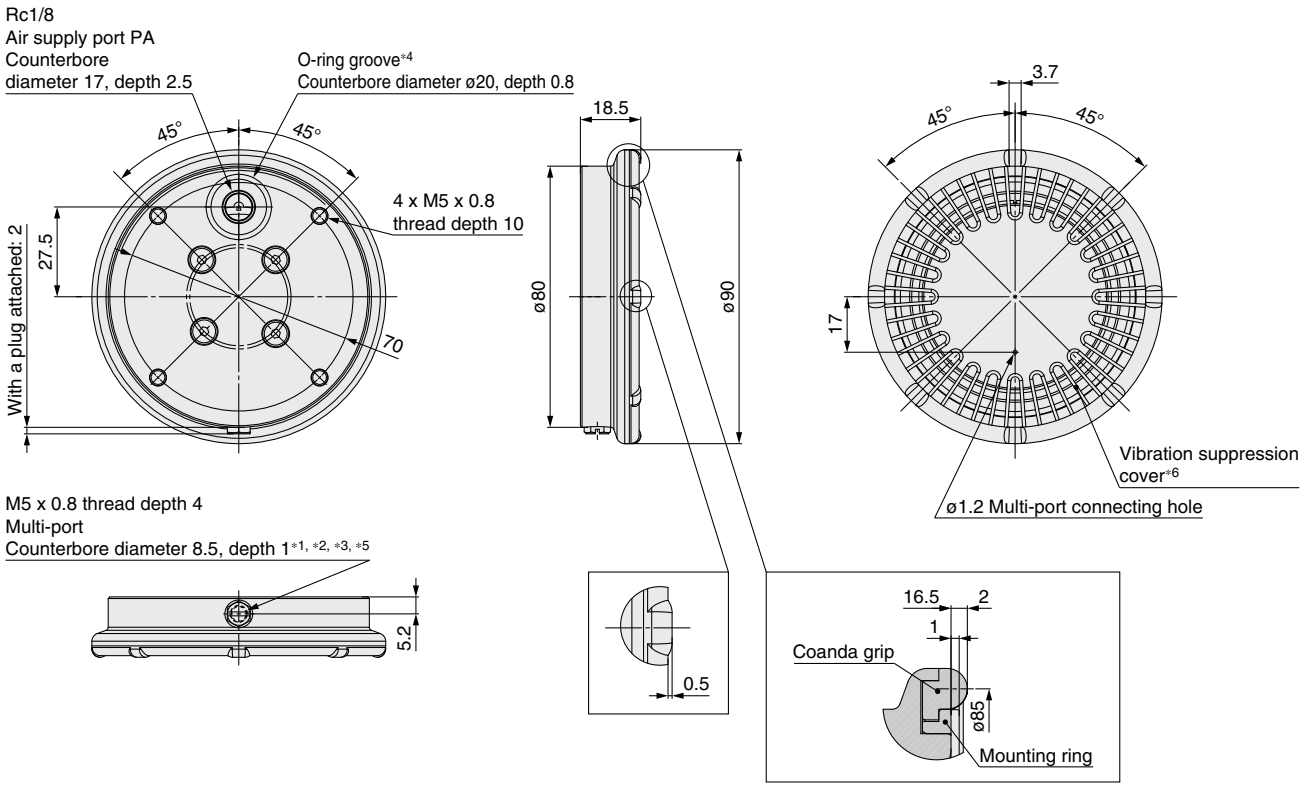
* Seal the multi-port with a plug when not in use.
* The product is shipped with a plug in the multi-port.
  After determining which port to use, it is recommended that adhesive be applied to the threads of the multi-port.
* When connecting a pipe fitting to a multi-port gripper, use a tube fitting with an outer diameter dimension of ø10 or below.
  If the outer diameter dimension is large, the fitting may protrude from the product or product mounting surface, which may lead to interference with the mounting part.
* The O-ring is not included. If needed, it can be ordered separately or prepared by the customer.
* The pressure sensor is shipped together with the product but does not come assembled.
* For pressure sensor details, refer to the PSE540 series in the **Web Catalog** and the Operation Manual.
* Use the multi-port as a sensor mounting or release port.
* It is not possible to additionally install or remove the vibration suppression cover.

Dimensions

[mm]

Model			A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
	Outer body dia.	Body material															
ZNC	30	Nil	30	38.4	34.6	23	M3 x 0.5	6	8.7	8.5	3.3	10.5	0.8	2.2	—	1.5	60
		S															
	40	Nil	40	48.4	44	32	M4 x 0.7	8	11	11.5	3.6	13.5	1	2	3.5	1.9	60
		S															
	60	Nil	60	70	65	47			21						10	2.8	45
		S															

Dimensions: ø80



*1 Seal the multi-port with a plug when not in use.
*2 The product is shipped with a plug in the multi-port.
After determining which port to use, it is recommended that adhesive be applied to the threads of the multi-port.
*3 When connecting a pipe fitting to a multi-port gripper, use a tube fitting with an outer diameter dimension of ø10 or below.
If the outer diameter dimension is large, the fitting may protrude from the product or product mounting surface, which may lead to interference with the mounting part.
*4 The O-ring is not included. If needed, it can be ordered separately or prepared by the customer.
*5 Use the multi-port as a sensor mounting or release port.
*6 It is not possible to additionally install or remove the vibration suppression cover.
* The pressure sensor is shipped together with the product but does not come assembled.
* For pressure sensor details, refer to the PSE540 series in the **Web Catalog** and the Operation Manual.

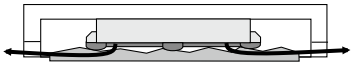
ZNC-C Series
Specific Product Precautions 1

Be sure to read this before handling the products.

Design / Selection

1. The Bernoulli gripper with Coanda grip retains the suction state by coming in contact with the workpiece, but the type of workpiece, conditions, and operation conditions, may cause the workpiece to slide laterally. Consider an external guide, etc., for safety design.

The workpiece may fall due to the influence of external force or inertial force during workpiece transportation. This can cause injury or damage the equipment.



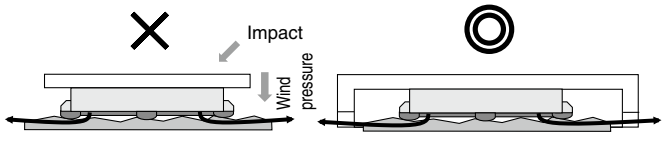
Restrain horizontal movement with a guide.

2. The product performance of the Bernoulli gripper varies greatly depending on the type of workpiece. Please make your selection carefully.

The lifting force changes depending on the shape, size, surface unevenness, breathability, flexibility, etc., of the workpiece.

3. Select the Bernoulli gripper with sufficient margin for acceleration/deceleration, vibration, shock, and wind pressure during workpiece transportation.

Ensure a safety factor for the allowable lifting force. The recommended value is 2 or more. If necessary, reduce external force and install a wind pressure prevention cover to design a safe application.

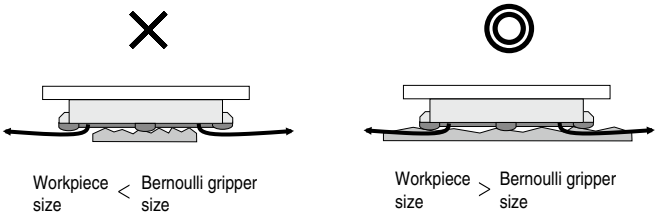


4. The lifting force of the Bernoulli gripper with Coanda grip depends on the distance from the workpiece. Set the position of the gripper during suction after sufficiently considering the characteristics of the lifting force and the distance to the workpiece.

5. Please use the product in accordance with the specifications provided in the catalogs/operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.

6. The product performance described in the catalog is based on the condition that the workpiece is larger than the product suction surface, and the workpiece is smooth and non-breathable.

If the workpiece is smaller than the product suction surface, the lifting force may be reduced or it may not be possible to lift. Please check with customer's equipment before use.



Mounting

1. Be careful not to drop or hit the product to avoid scratches and dents.

Even slight deformation of the suction surface can decrease product performance.

2. When installing the product, tighten it with an appropriate tightening torque.

If excessive or insufficient tightening torque is applied, sealing failure or loose screws may result. Adhesive is recommended for screws.

Body Mounting

Model	Body material	Screw size	Max. screw-in depth [mm]	Tightening torque [N·m]
ZNC(20, 30)	Aluminum	M3 x 0.5	6	0.63
ZNC(20, 30)S	Stainless steel			0.63
ZNC(40, 60)	Aluminum	M4 x 0.7	8	1.5
ZNC(40, 60)S	Stainless steel			1.5
ZNC80	Aluminum	M5 x 0.8	10	3
ZNC80S	Stainless steel			3

3. When installing tube fitting (supply port), pressure sensor (multi-port), and plugs, tighten them with an appropriate tightening torque. Retighten all bolts regularly.

If excessive or insufficient tightening torque is applied, loose screws may result. Loose bolts may cause air leakage or falling of parts. Retighten them regularly and apply adhesive.

Supply Port

Model	Body material	Screw size	Max. screw-in depth [mm]	Tightening torque [N·m]
ZNC (20, 30, 40, 60)	Aluminum	M5 x 0.8	4	1 to 1.5
ZNC (20, 30, 40, 60)S	Stainless steel			1 to 1.5
ZNC80	Aluminum	R1/8	—	7
ZNC80S	Stainless steel			7

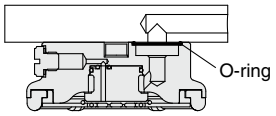
4. When mounting the product directly without piping, smooth the mounting surface (Recommended surface roughness: Rz 25 or less) and use an appropriate O-ring. (Only the ZNC20□ has an O-ring attached. For other series, please procure it separately or prepare it by yourself.)

Installation on a mounting surface with a rough surface, scratches or dents, or mounting an unsuitable O-ring may cause sealing failure.

O-rings

Model	Single unit part no.	Size
ZNC20□	ZNCM-20DR	5.7 x 3.7 x 1 (Included)
ZNC30□	ZNCM-30DR	10.5 x 8.5 x 1
ZNC(40, 60)□	ZNCM-40DR	13.5 x 11.5 x 1
ZNC80□	ZNCM-80DR	20 x 18 x 1

∗ Sales unit: 10 pcs.



ZNC-C Series
Specific Product Precautions 2

Be sure to read this before handling the products.

Air Supply

1. Use compressed air and control the cleanliness.

Install an air filter, air dryer, or a mist separator. A system with a quality grade of No. C or higher in the air preparation equipment model selection guide of the **Web Catalog** is recommended.

Handling

1. The Bernoulli gripper with Coanda grip will make contact with the workpiece to function.

2. When a thin and soft workpiece is adsorbed, a high-frequency sound may be generated. This generation of sound is due to the vibration of the workpiece and is not a product abnormality.

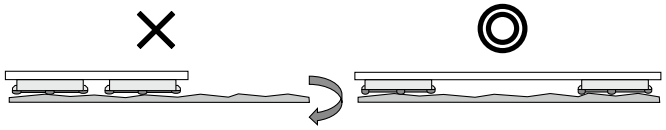
Sound generation may be reduced by reducing the supply pressure or using the vibration suppression cover.

3. Depending on the type of workpiece and usage conditions, the pressure sensor may not be able to detect the workpiece or the sensor value may differ.

The vacuum pressure changes depending on the type of workpiece and the conditions of use. Be sure to conduct testing with the actual device and workpiece before operation.

4. When arranging the Bernoulli grippers, consider the position of the center of gravity of the workpiece to maintain balance.

If the mounting position of the product and the position of the center of gravity of the workpiece are misaligned, moment may be generated due to the weight of the workpiece, which may cause it to fall.



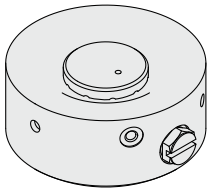
Moment generation

Handling

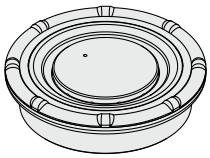
5. It is not possible to install the Coanda grip to the basic model.

It is not possible to install the Coanda grip to the basic model, this is due to the difference in body shape between the standard and Coanda grip equipped product. It is also not possible to additionally install the vibration suppression cover to the model equipped with Coanda grip and not equipped with vibration suppression cover. Note that the vibration suppression cover cannot be dismounted from the body.

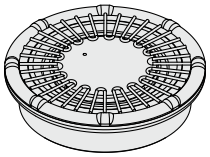
It is possible to replace the Coanda grip alone.



Basic type



With Coanda grip Without vibration suppression cover



With Coanda grip With vibration suppression cover

Example) For the **ZNC(30, 40, 60, 80)**□

ZNC-C Series
Specific Product Precautions 3
Be sure to read this before handling the products.

Handling

6. Use fittings with the following specifications or use the recommended fittings on page 16.

If the fitting dimensions are not compatible with the product, it may interfere with the product body. Therefore, such fittings cannot be used. For example, if the external dimensions of the fitting are too large, the following types of interference may occur. (See the precautions for each type of piping below.)

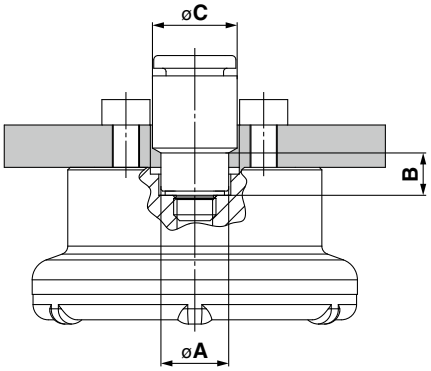
And if the min. hole diameter of the air supply port fitting is too small, the product may fail to operate properly.

[Top ported] It may interfere with the product mounting bolt.

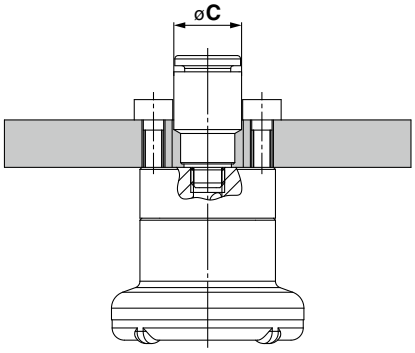
[Side ported, Multi-port] It may protrude from the product mounting surface, interfering with the mounting portion.

Top ported

ZNC(30, 40, 60, 80)

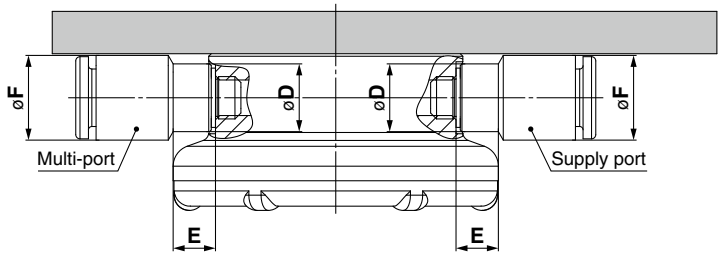


ZNC20
Top ported, With mounting plate

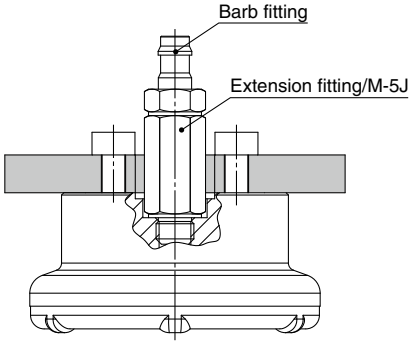


Side ported, Multi-port

* The horizontal pipes of ZNC (20 and 80) are not compatible.
* Please be mindful about the positional relationship between the supply port and multi-port.



Extension fitting/M-5J usage example



Specifications [mm]

Model	Top ported			Side ported			Multi-port			Min. hole diameter
	A	B	C	D	E	F	D	E	F	
ZNC20	—	—	10 or less	—	—	—	8.3 or less	1 or more	10 or less	2.5 or more
ZNC30	8.3 or less	3.6 or more	10 or less	8.3 or less	1 or more	10 or less				
ZNC(40, 60)	11.3 or less	3.9 or more	11 or less	8.3 or less	1.2 or more	10 or less	8.3 or less	1.2 or more	10 or less	
ZNC80	16.8 or less	2.7 or more	—	—	—	—				4.5 or more

Handling

Recommended Fitting Part Numbers List

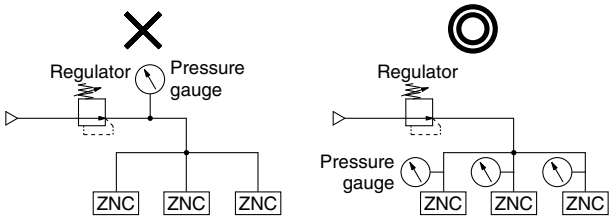
Series	Variations	Model	Top ported				Side ported	Multi-port
			ZNC20	ZNC30	ZNC (40, 60)	ZNC80	ZNC (30, 40, 60)	ZNC (20, 30, 40, 60, 80)
One-touch fittings	Male connector	**KQ2H04-M5□**	●	○	●	—	●	●
		KQ2H06-M5□	—	—	●	—	—	—
		KQ2H06-01□S	—	—	—	●	—	—
		KQ2H08-01□S	—	—	—	●	—	—
	Hexagon socket head male connector	**KQ2S04-M5□**	●	●	●	—	●	●
		KQ2S06-M5□	●	●	●	—	●	●
		KQ2S06-01□S	—	—	—	●	—	—
		KQ2S08-01□S	—	—	—	●	—	—
Metric size/ Uni One-touch fittings/ Gasket seal	Male connector	**KQ2H06-U01□**	—	—	—	●	—	—
		KQ2H08-U01□	—	—	—	●	—	—
	Hexagon socket head male connector	**KQ2S06-U01□**	—	—	—	●	—	—
		KQ2S08-U01□	—	—	—	●	—	—
Metric size/ One-touch fittings/ Face seal	Male connector	**KQ2H06-01□P**	—	—	—	●	—	—
		KQ2H08-01□P	—	—	—	●	—	—
	Hexagon socket head male connector	**KQ2S06-01□P**	—	—	—	●	—	—
		KQ2S08-01□P	—	—	—	●	—	—
Metal One-touch fittings	Male connector	**KQB2H04-M5**	—	—	●	—	—	—
		KQB2H06-01S	—	—	—	●	—	—
		KQB2H08-01S	—	—	—	●	—	—
	Hexagon socket head male connector	**KQB2S04-M5**	●	○	●	—	●	●
		KQB2S06-01S	—	—	—	●	—	—
		KQB2S08-01S	—	—	—	●	—	—
Miniature fittings	Barb fitting for nylon tubing	**M-5AN-6**	●	○	●	—	●	●
	Barb fitting for soft tubing	**M-5AU-6**	●	○	●	—	●	●
	Hose nipple	**M-5H-6**	●	○	○	—	—	—
Stainless steel One-touch fittings	Male connector	**KQ2H04-M5G1**	●	○	●	—	●	●
		KQ2H06-M5G1	—	—	●	—	—	—
		KQ2H06-01GS1	—	—	—	●	—	—
		KQ2H08-01GS	—	—	—	●	—	—
	Hexagon socket head male connector	**KQ2S04-M5G1**	●	●	●	—	●	●
		KQ2S06-M5G1	●	●	●	—	—	—
		KQ2S06-01GS1	—	—	—	●	—	—
		KQ2S08-01GS	—	—	—	●	—	—
One-touch fittings/ Stainless steel 316	Male connector	**KQG2H04-M5**	—	—	●	—	—	—
		KQG2H06-01S	—	—	—	●	—	—
		KQG2H08-01S	—	—	—	●	—	—
	Hexagon socket head male connector	**KQG2S04-M5**	●	○	●	—	●	●
		KQG2S06-01S	—	—	—	●	—	—
		KQG2S08-01S	—	—	—	●	—	—
Miniature fittings/ Stainless steel 316	Barb fitting for soft tubing	**MS-5AU-6**	●	○	●	—	●	●
	Hose nipple	**MS-5H-6**	●	○	○	—	—	—

∗ ●: Applicable, ○: Extension fitting/M-5J required separately
∗ □: A (Brass), N (Brass + Electroless nickel plating)

7. When multiple Bernoulli grippers are to be operated simultaneously, adjust the individual piping pressure of each gripper to the set pressure.

When the pressure is set just before a piping branch, the piping pressure in each pipe will decline, resulting in the product failing to operate properly.

The catalog values are for when the connection between the pressure gauge and the Bernoulli gripper is as follows: Fitting min. hole diameter: ø2.5 (ø20, ø30, ø40, ø60), Fitting min. hole diameter: ø4.5 (ø80), Tubing size: ø6 x ø4, Length: 500 mm



ZNC-C Series
Specific Product Precautions 5

Be sure to read this before handling the products.

Maintenance

1. Do not disassemble or modify the body of the product.

If the disassembled and/or modified, the functions and performance may not be achieved and the product will not be warrantied.

2. In periodical inspections, check the following items and replace the parts if necessary.

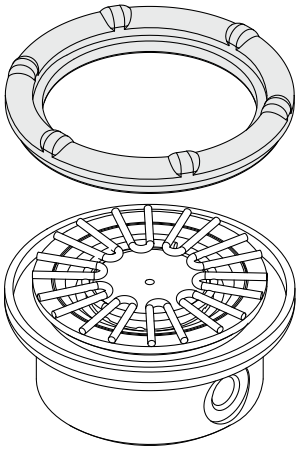
a) Scratches, gouges, abrasion, corrosion
b) Air leakage (Retighten the fitting and plugs.)
c) Twisting, crushing, and turning of connected tubes
d) Hardening, deterioration, and softening of connected tubes
e) Cracks, chipping, wear, and deformation of the Coanda grip

3. Read below for the replacement method of the Coanda grip.

If the Coanda grip is not mounted correctly, the product performance may reduce and the Coanda grip may break.

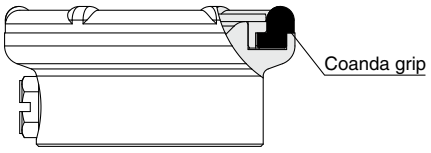
1

After dismounting the Coanda grip, insert a new Coanda grip to the body.



2

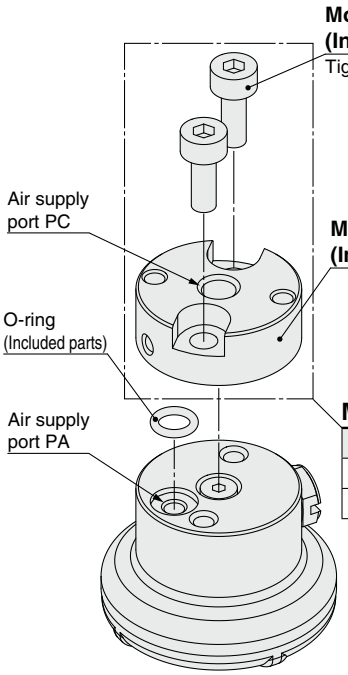
Insert the Coanda grip to the position shown in the figure below.
Confirm that the Coanda grip is installed along the whole circumference as shown in the figure.



Assembly

The mounting plate is shipped together with the product but does not come assembled. Please follow the assembly instructions below.

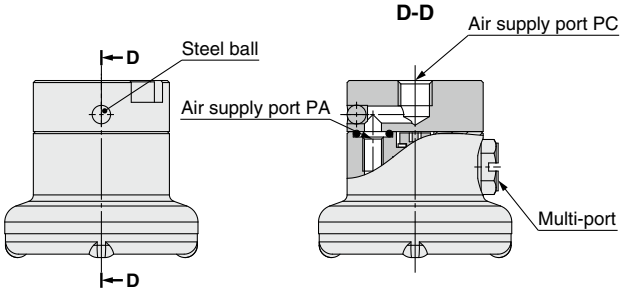
Mounting method



Mounting Plate Part Nos.

Single unit part no.	Mounting plate material
ZNCM-20T	Aluminum
ZNCM-20TS	Stainless steel

Mounting direction



Install the mounting plate so that when the multi-port is on the right side, the steel ball is on the left (opposite) side. The air supply ports PA and PC communicate with each other.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing business.
Use in non-manufacturing business is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

⚠ Warning

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Safety Instructions	Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.

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