

Vacuum Pad with Ejector

Pad Diameter: \varnothing 63, \varnothing 80

RoHS

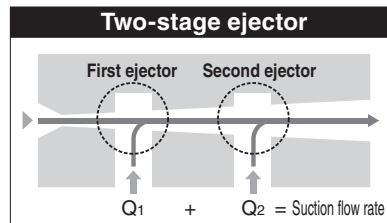
Ejector and pad are integrated.
Space saving and reduced piping labour!

Two-stage ejector

More efficient ejector

Suction flow rate **50 % increased^{*1}** Air consumption **30 % reduced^{*1}**

^{*1} Compared with SMC single stage ejector



With One-touch fitting

Metric: \varnothing 4, \varnothing 6

Inch: \varnothing 5/32", \varnothing 1/4"

Strainer

Prevents access of contamination through the pad suction port.

Improved ease of removal^{*2}

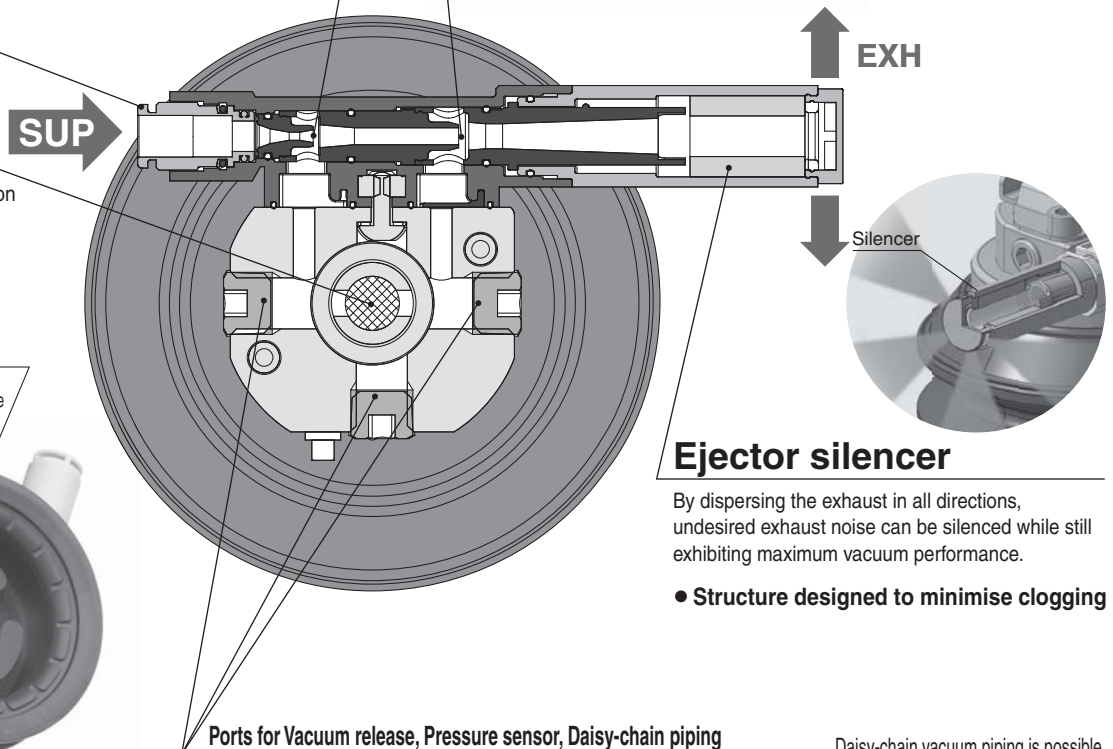
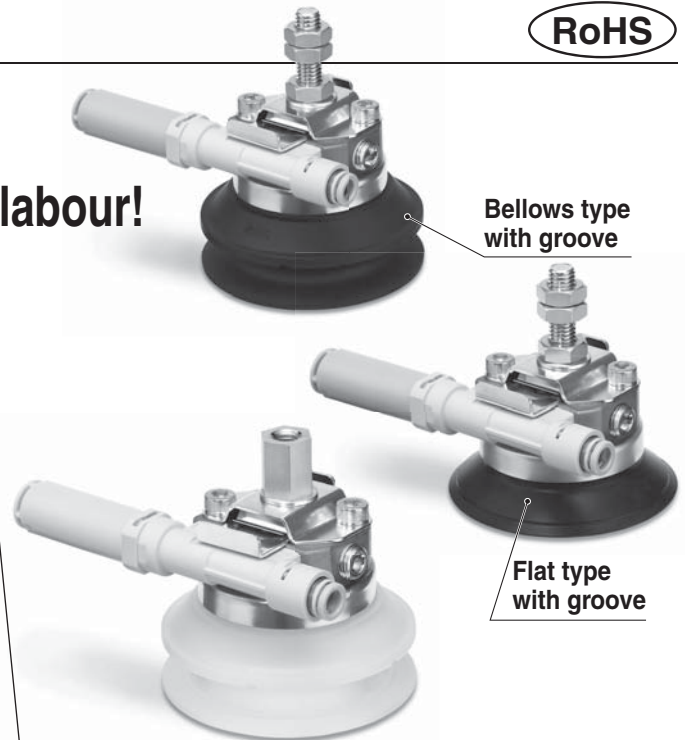
With groove

Dents and bumps on the adsorption surface prevent the workpiece from sticking to it. This facilitates easy removal.

Shot-blasted

Micro-dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.

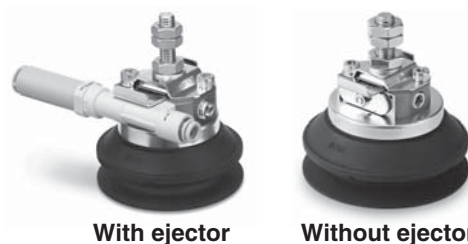
^{*2} Compared with current ZP series



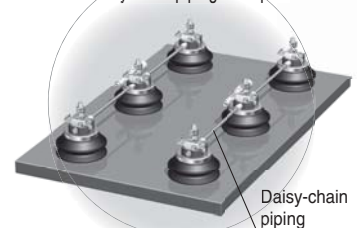
Ejector silencer

By dispersing the exhaust in all directions, undesired exhaust noise can be silenced while still exhibiting maximum vacuum performance.

• Structure designed to minimise clogging



Daisy-chain vacuum piping is possible.
<Daisy-chain piping example>



ZHP Series

SMC

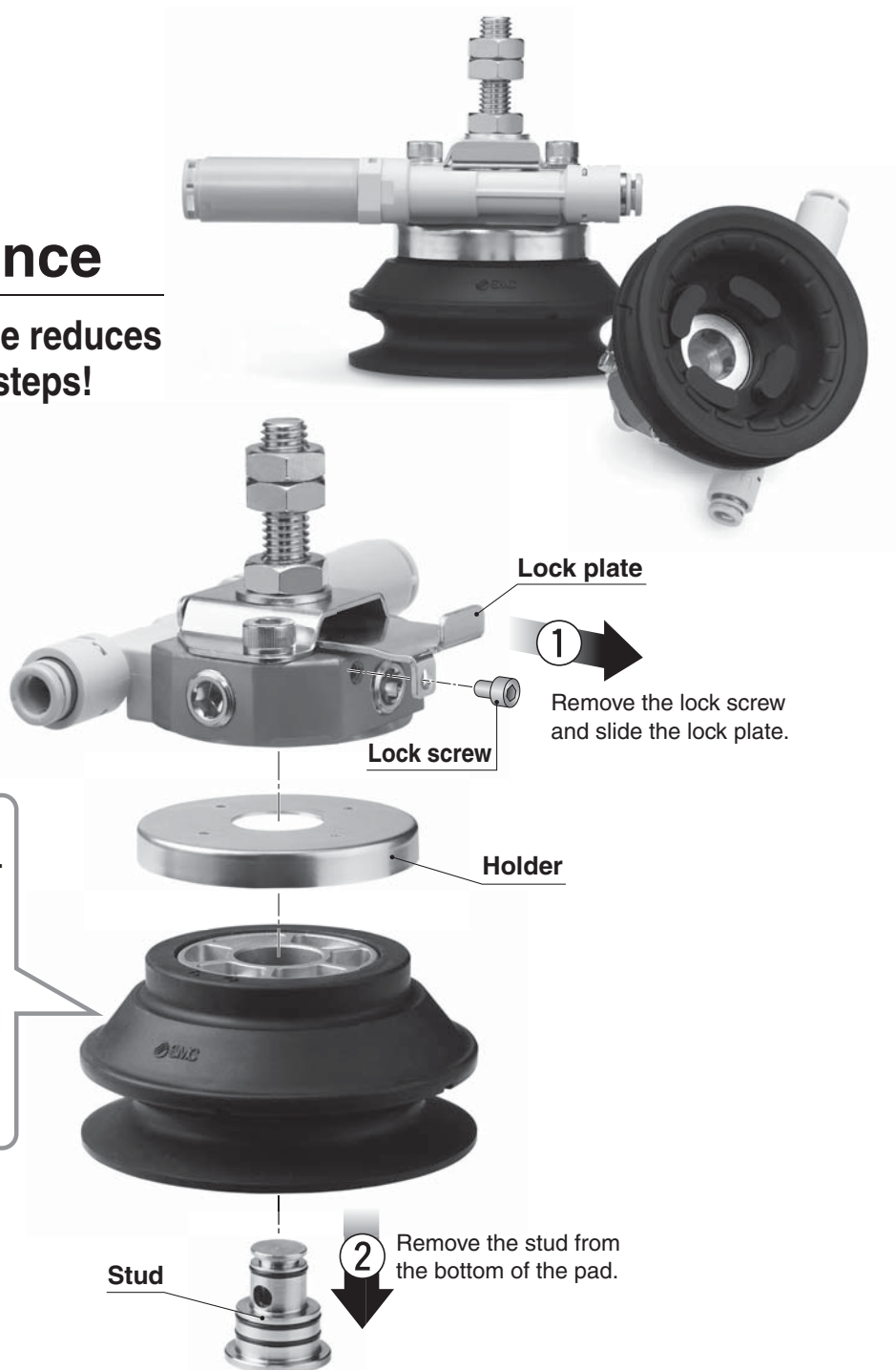
14-EU632-B-UK

Easier maintenance

Mounting with the lock plate reduces the pad replacement work steps!

Uses an isolated structure.

- The lock plate is used to facilitate separation.
- Rubber and metal parts can be disposed of separately.

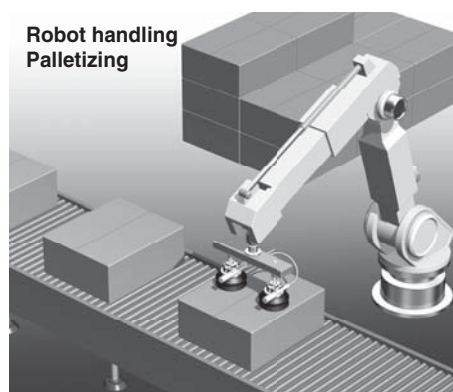


Pad diameter	Pad form	Pad material	Mounting	Nozzle nominal size *2 [mm]
Ø 63	Bellows type with groove	NBR (Black) *1 Silicone rubber (White)	Metric size (Male thread/Female thread) M8 M10	Ø 0.7 Ø 1.0
Ø 80	Flat type with groove	Urethane rubber (Brown) FKM (Black) *1	Inch size (Male thread/Female thread) 5/16-18UNC 3/8-16UNC	Ø 1.2 Ø 1.5

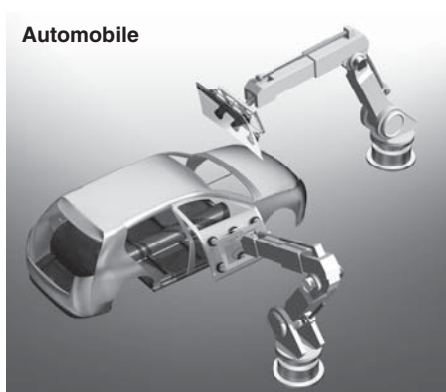
*1 Refer to the back cover for identification method.

*2 With ejector

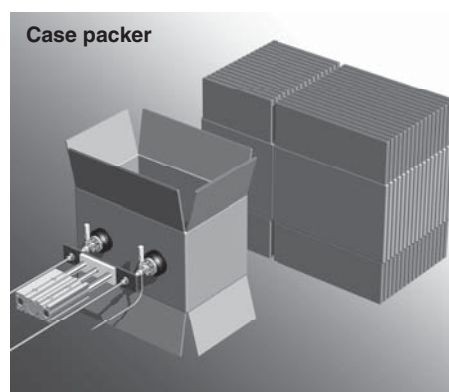
Application Examples



Robot handling
Palletizing



Automobile



Case packer

Vacuum Pad with Ejector

ZHP Series

Ø 63, Ø 80

RoHS

How to Order

Without ejector

ZHP 80 BM N B - 00

With ejector

ZHP 80 BM N B - 10 C6 S

Pad diameter

63	Ø 63
80	Ø 80

Pad form

BM	Bellows type with groove
UM	Flat type with groove

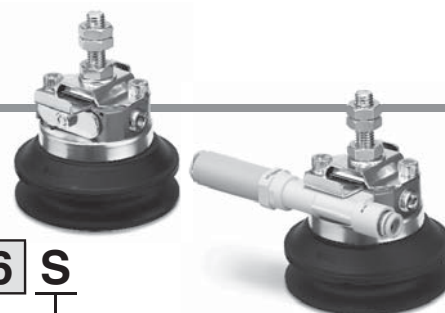
Pad material

N	NBR (Black)*
S	Silicone rubber (White)
U	Urethane rubber (Brown)
F	FKM (Black)*

* Refer to the back cover for identification method.

Mounting

Symbol	Type	Thread	Size
A	Metric size	Male thread	M8
B		Female thread	M10
C		Male thread	M8
D		Female thread	M10
E	Inch size	Male thread	5/16-18UNC
F		Female thread	3/8-16UNC
G		Male thread	5/16-18UNC
H		Female thread	3/8-16UNC



Exhaust release

S	Silencer exhaust
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Supply (P) port

Symbol	Type	Port size
C4	Metric	Ø 4 One-touch fitting
C6		Ø 6 One-touch fitting
N3	Inch	Ø 5/32" One-touch fitting
N7		Ø 1/4" One-touch fitting

Ejector/
Nozzle nominal size [mm]

07	Nozzle: Ø 0.7
10	Nozzle: Ø 1.0
12	Nozzle: Ø 1.2
15	Nozzle: Ø 1.5

Ejector Specifications

	ZHP□□□-07□	ZHP□□□-10□	ZHP□□□-12□	ZHP□□□-15□
Nozzle nominal size [mm]	0.7	1.0	1.2	1.5
Max. suction flow rate [l/min (ANR)]*	30	52	63	78
Air consumption [l/min (ANR)]*	24	40	58	87
Vacuum pressure reached [kPa]	-91			
Standard supply pressure [MPa]	0.35			

* Standard supply pressure

Response Time

Pad dia.	Nozzle size	ZHP□BM□-07□	ZHP□BM□-10□	ZHP□BM□-12□	ZHP□BM□-15□
Ø 63		295	143	120	86
Ø 80		455	221	190	140

Response time means a period of time that the vacuum pressure reaches -57 kPa after the externally installed valve has been turned ON when the bellows type pad is used and the supply pressure is 0.35 MPa.

Weight

Material: NBR, Mounting: A [g]

ZHP63BMNA-□C6S	184
ZHP80BMNA-□C6S	224
ZHP63UMNA-□C6S	167
ZHP80UMNA-□C6S	175

- For the ZHP□□□A-00 (without ejector), weight shown above -12 g.
- When the mounting symbol is other than "A", add the weight ① shown in the table on the right to the weight described in the table above.
- When the material is other than NBR, add the weight ② shown in the table on the right to the weight described in the table above.
- This weight includes the accessory weight.

① Weight Difference by Mounting Style [g]

B	C	D	E	F	G	H
20	-5	14	7	25	1	11

② Weight Difference by Material [g]

Pad diameter/form	Silicone rubber	Urethane rubber	FKM
ZHP63BM	-2.9	0	20.3
ZHP80BM	-5.0	0	35.1
ZHP63UM	-1.5	0	10.6
ZHP80UM	-2.1	0	15.5

Recommended Work Load

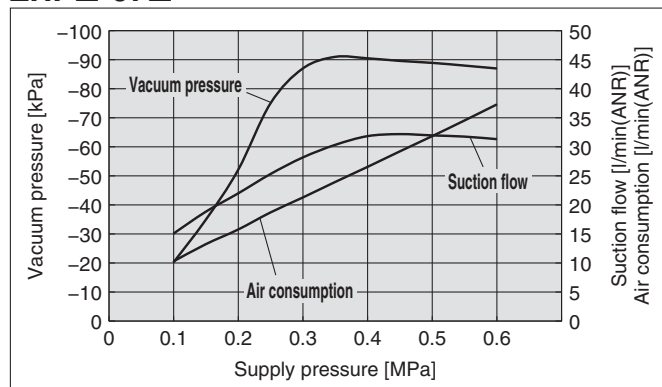
	ZHP63□	ZHP80□
Horizontal lifting	66	106
Vertical lifting	33	53

Use this product with the recommended work load or less. The transfer work over the recommended work load may cause the vacuum pressure to decrease by the air leak. The work load shown above is the value when the vacuum pressure reaches -85 kPa, and that is calculated by multiplying the theoretical value by a safety factor of "1/4" for the horizontal lifting or "1/8" for the vertical lifting. The vacuum pressure reached may vary depending on the workpiece (permeability, etc.) Calculate the actual work load in accordance with the vacuum pressure reached.

Exhaust Characteristics/Flow-rate Characteristics (Representative Value)

Exhaust Characteristics

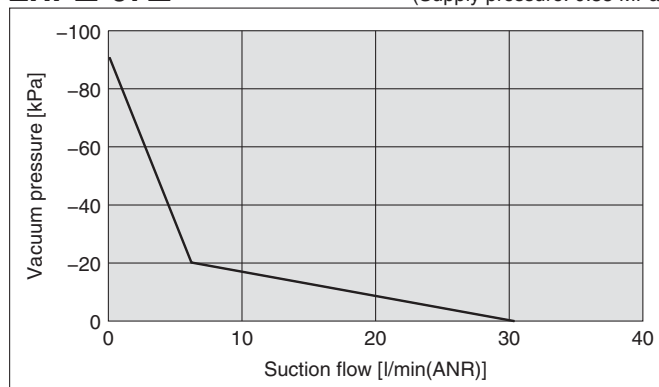
ZHP□-07□



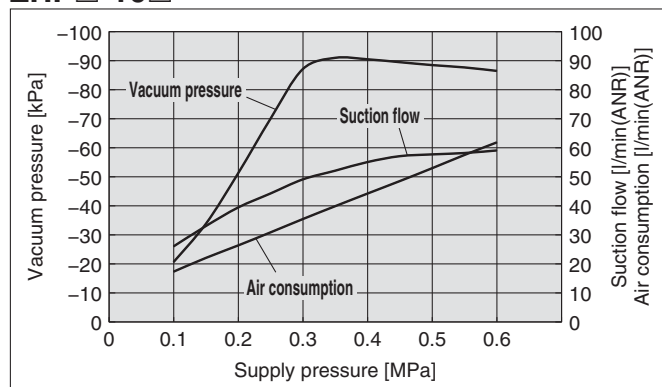
Flow Rate Characteristics

ZHP□-07□

(Supply pressure: 0.35 MPa)

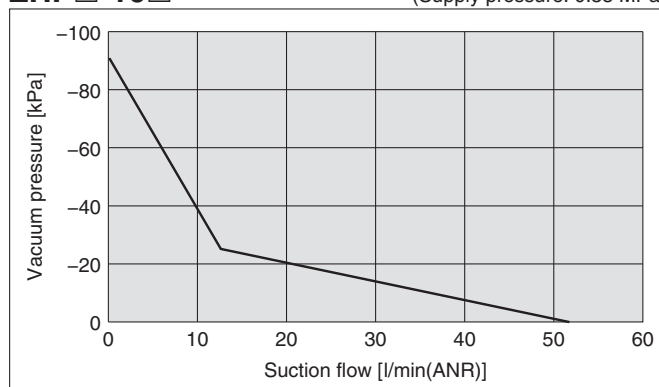


ZHP□-10□

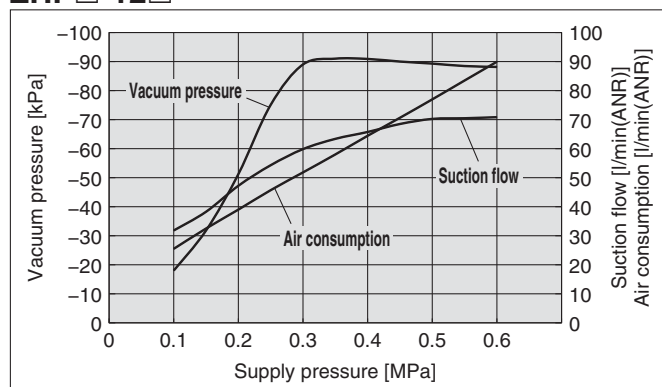


ZHP□-10□

(Supply pressure: 0.35 MPa)

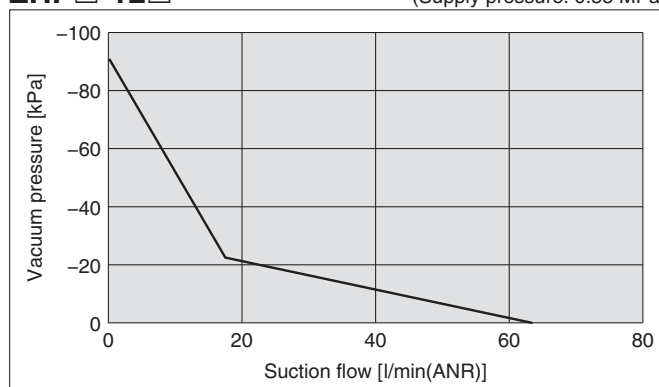


ZHP□-12□

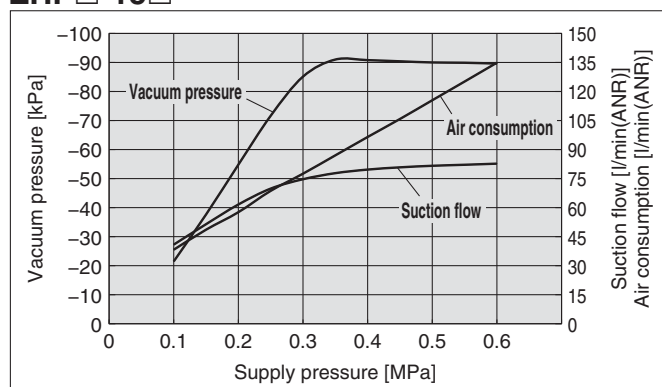


ZHP□-12□

(Supply pressure: 0.35 MPa)

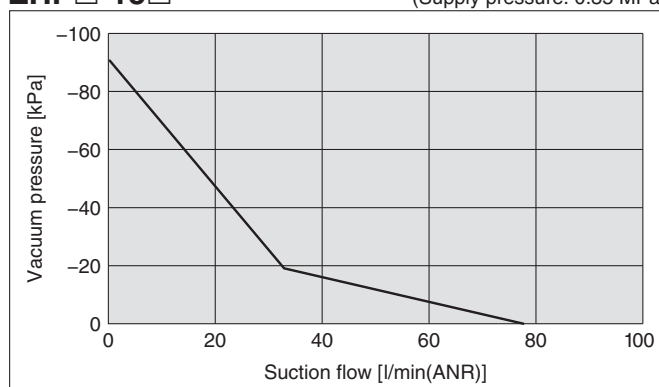


ZHP□-15□

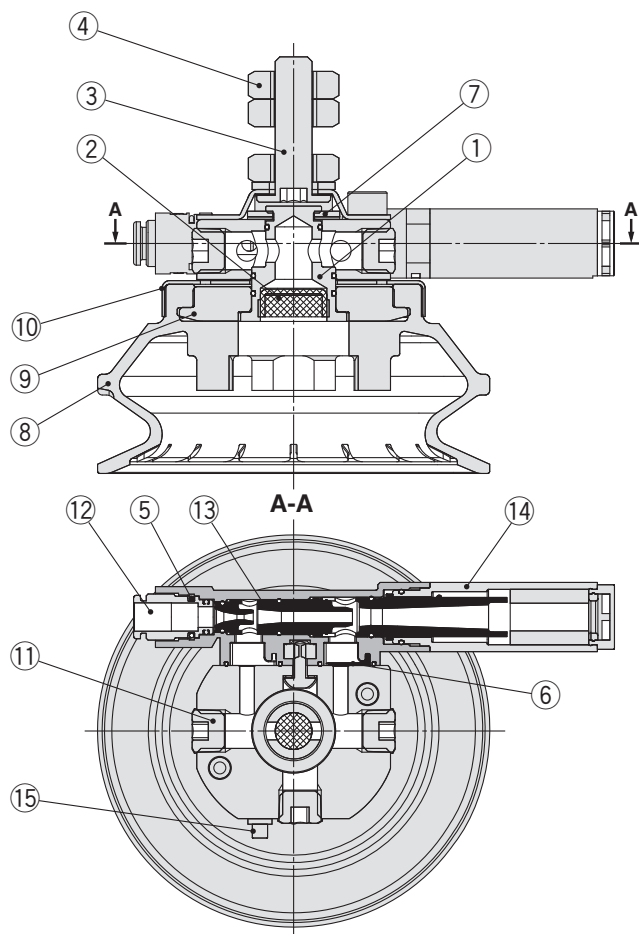


ZHP□-15□

(Supply pressure: 0.35 MPa)



Construction



Component Parts

No.	Description	Note
1	Stud	
2	Strainer	
3	Mounting bracket	
4	Lock nut	2 pcs. included for male thread mounting (Not included for female thread mounting)
5	Lock pin	
6	Check valve	
7	Lock plate	

Replacement Parts

No.	Description	Part no.	Note
8	Pad	ZP3E-□□□	Flat/Bellows type with groove
9	Plate	ZHP1-PL□-A	
10	Holder		
11	Plug*	TB00148 TB00055	Included for metric size Included for inch size
12	One-touch fitting	KJH□-C2	
13	Ejector assembly	ZK2-EJ□W-A	
14	Silencer assembly	ZHP1-SA1-A	
15	Lock screw	CA00284	Included

* 3 pieces are included in one product. (The part numbers are for 1 piece.)

Replacement Parts/How to Order

⑧ Pad

ZP3E - 80 BM N

• Pad material

N	NBR
S	Silicone rubber
U	Urethane rubber
F	FKM

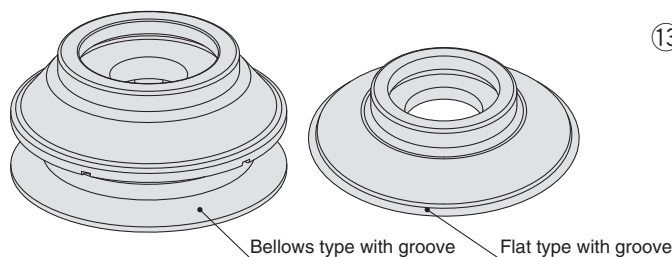
• Pad form

BM	Bellows type with groove
UM	Flat type with groove

• Pad diameter

63	Ø 63
80	Ø 80

* When changing the pad diameter, replace also the plate.



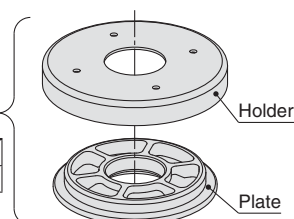
⑨ ⑩ Plate assembly*

ZHP1 - PL 1 - A

• Size (Applicable pad dia./form)

1	Ø 63/Ø 80: Flat type, Ø 63: Bellows type
2	Ø 80: Bellows type

* Part number for a set of plate and holder



⑫ One-touch fitting (The order lot is 10 pieces.)

KJH 06 - C2

• Applicable tubing O.D.

04	Ø 4
06	Ø 6
03	Ø 5/32"
07	Ø 1/4"

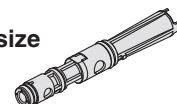


⑬ Ejector assembly

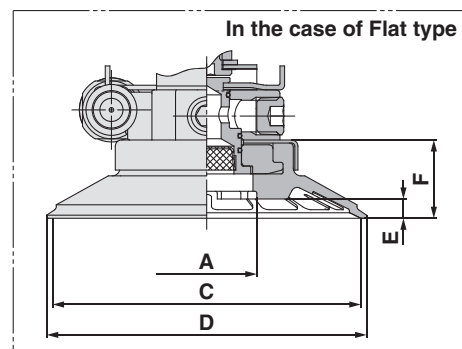
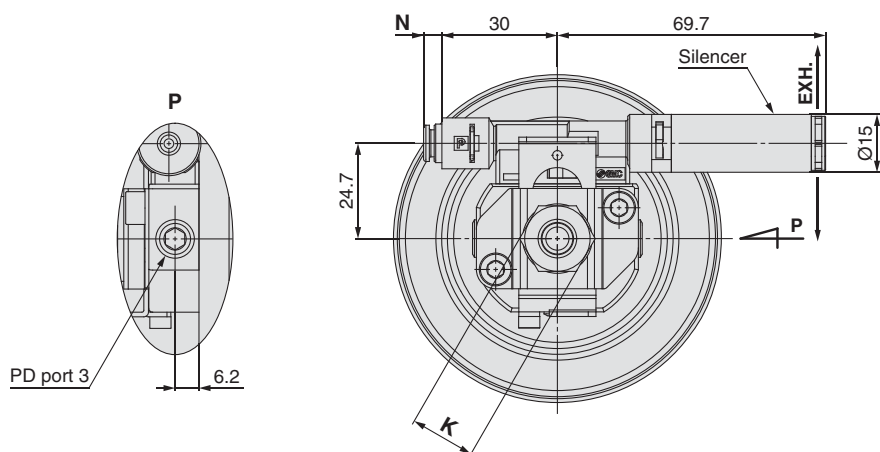
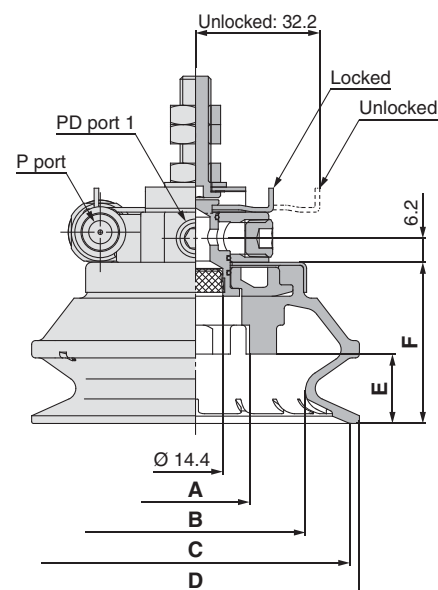
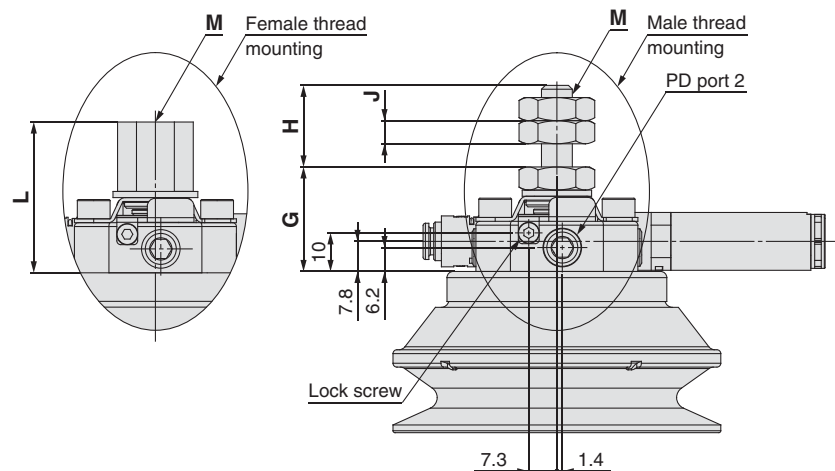
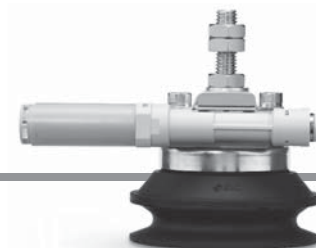
ZK2 - EJ 10 W - A

• Nozzle nominal size

07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5



Dimensions



PD port size
Metric size: Rc 1/8
Inch size: NPT 1/8

Dimensions

Dimensions						[mm]
	A	B	C	D	E	F
ZHP63BM	Ø 26	Ø 45.8	Ø 63	Ø 68	12.5	33.8
ZHP80BM	Ø 28	Ø 57	Ø 80	Ø 85	18	41.8
ZHP63UM	Ø 26	—	Ø 63	Ø 66	5	20.3
ZHP80UM	Ø 26	—	Ø 80	Ø 83	5	20.3

Supply Port Dimensions

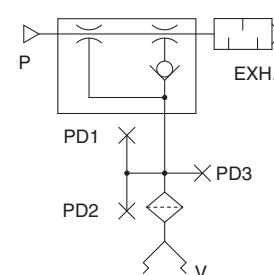
Dimensions [mm]	
	N
C4	4.7
C6	4.7
N3	4.7
N7	7.3

Adapter Dimensions (by Mounting Style)

	G	H	J	K	L	M
ZHP□□□A-□□S	25.7	22.6	5	13	—	M8
ZHP□□□B-□□S	27.1	21.2	6	17	—	M10
ZHP□□□C-□□S	—	—	—	13	36.7	M8 depth 10
ZHP□□□D-□□S	—	—	—	17	39.1	M10 depth 10
ZHP□□□E-□□S	27.45	21.8	6.75	12.7	—	5/16-18UNC
ZHP□□□F-□□S	29.43	26.82	8.33	14.28	—	3/8-16UNC
ZHP□□□G-□□S	—	—	—	12.7	41.7	5/16-18UNC depth 11
ZHP□□□H-□□S	—	—	—	14.28	44.1	3/8-16UNC depth 11

For symbols G and H (inch-type female thread), the dimension K becomes the width across flats.

Circuit



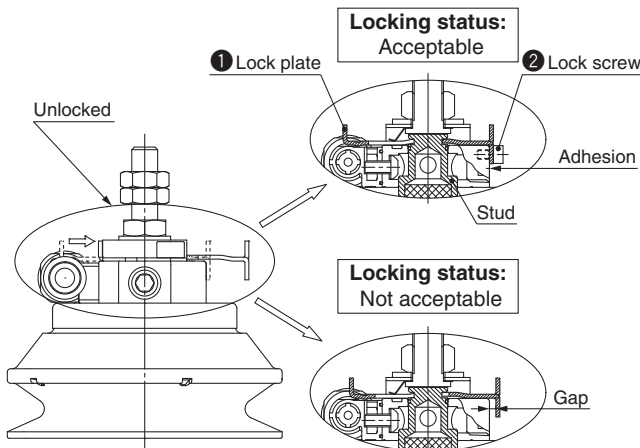


ZHP Series

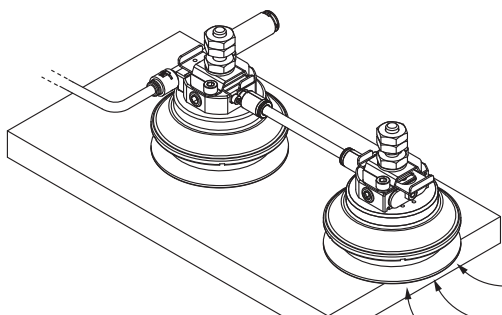
Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Vacuum Equipment Precautions, refer to "Handling Precautions for SMC Products" on SMC website, <http://www.smc.eu>

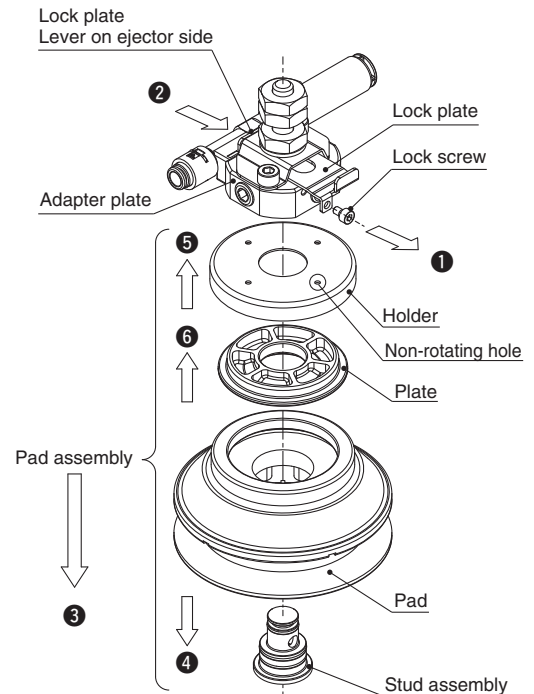
1. Use the product while strictly observing the precautions on vacuum equipment and taking the safety into consideration. Additionally, select a pad size and material suitable for the workpiece to be adsorbed and the operating environment. Take safety measures so that any accident, such as workpiece drop does not occur during adsorption transfer. For details, refer to the Best Pneumatics No. 4 catalogue.
2. After the pad has been replaced, lock the lock plate completely before use. (Refer to ① shown in the figure below.) If the lock plate is not locked completely, the pad may drop due to the vibration or load during operation.
3. To ensure the safety, be sure to mount the lock screw on the lock plate before use. (Refer to ② shown in the figure below.) If the lock plate comes off during operation, this may cause a serious accident, such as pad drop or workpiece drop.



4. If the adsorption time delay or incorrect adsorption occurs, the vacuum leak due to worn out pad or strainer clogging may be the cause. Perform the periodic maintenance so that any trouble such as workpiece drop does not occur.
5. When connecting multiple pads to one ejector through the vacuum communication, other pads also cannot adsorb if incorrect adsorption occurs in one pad. Take safety measures so that the workpiece does not drop during transfer.



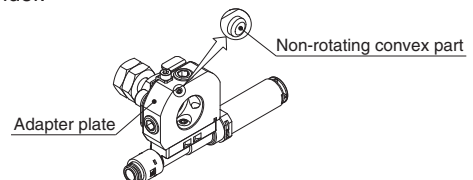
6. Replace the pad while referring to the figure below.



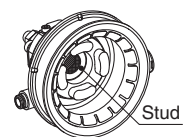
- ① Remove the lock screw.
- ② Push the lever (on the ejector side) of the lock plate to slide it to a position where it stops completely.
- ③ Pull out the pad assembly.
- ④ Pull out the stud assembly from the pad assembly.
- ⑤ Remove the holder.
- ⑥ Remove the plate from the pad.
- ⑦ Mount the pad in the reverse order of steps above.

Cautions on pad mounting

- When mounting the pad assembly on the adapter plate, adjust the position so that the non-rotating convex part on the bottom of the adapter plate enters the non-rotating hole in the holder.



- When locking the lock plate, push in the stud assembly through the pad. If the stud assembly is not pushed into the adapter plate completely, the lock plate does not lock, causing pad drop or vacuum leak.



7. Recommended One-touch fitting to be mounted at the PD port is the KQ2S06-01□S or KQ2S07-34□S.

One-touch fitting may interfere with the top surface of the pad depending on the fitting dimensions. This may cause the One-touch fitting not to be mounted.



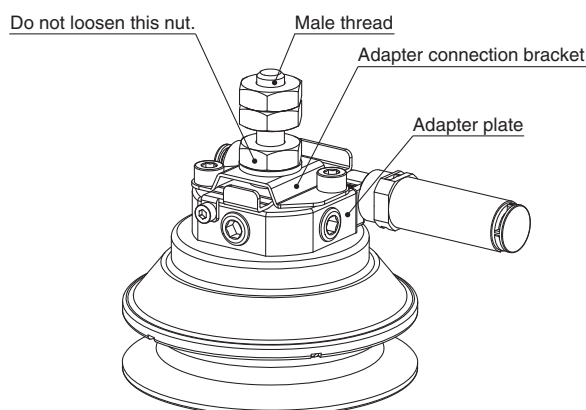
ZHP Series

Specific Product Precautions 2

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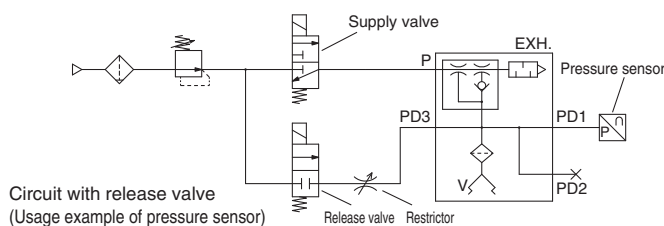
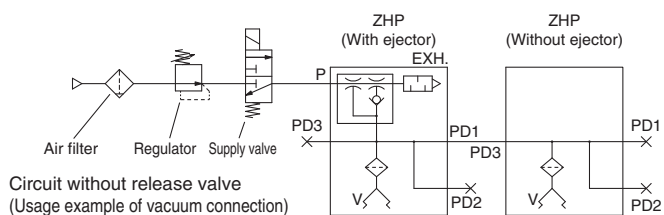
8. When supplying the vacuum release air to the PD port, select an appropriate product suitable for the specifications so that the R port of the 2 port or 3 port valve is blocked and does not leak.

9. When using the male thread mounting type product, do not loosen the bottom nut shown in the figure below. (The bottom nut is intended to secure the connection between the bracket for the adapter connection and the male thread.)



10. Ejector exhaust may be directly released from the ejector silencer in the direction of workpieces. Please contact SMC if this affects adsorption.

11. Circuit examples



12. Pad material and appearance colour

The appearance colour of the pad may vary depending on the material.

Material	Appearance colour
NBR	Black
Silicone rubber	White
Urethane rubber	Brown
FKM	Black*

* FKM and NBR have the same colour.
But, "F" mark is indicated on the inside of the pad when the plate is removed.



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Estonia	+372 6510370	www.smc-pneumatics.ee	smc@smc-pneumatics.ee
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