

Compact Type ZP3 Series

RoHS

Model Selection

ø1.5, ø2, ø3.5, ø4, ø6, ø8, ø10, ø13, ø16

Flat Type, Flat Type with Groove, Bellows Type, Bellows Type with Ribs

Overall length shortened For the flat type (Pad diameter: ø2)

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

Bellows Type with Ribs

Construction

Mounting Bracket Assembly

Precautions

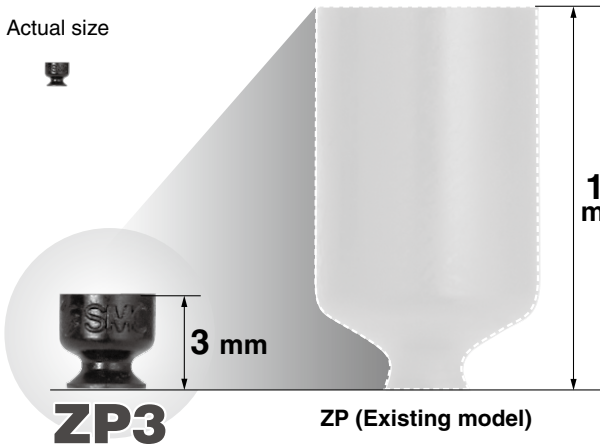
Pad unit

Max. 9 mm shorter

With adapter

Max. 11 mm shorter

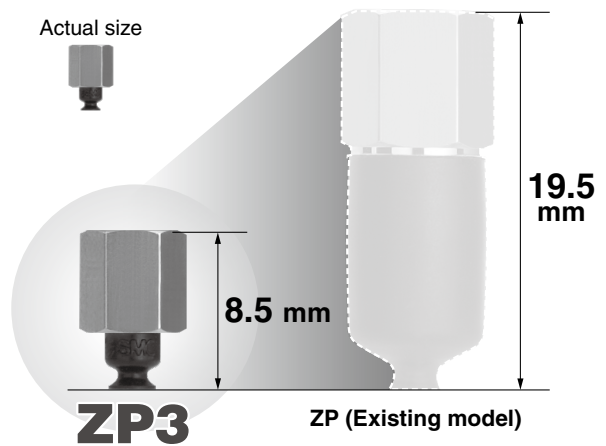
Actual size



ZP3

ZP (Existing model)

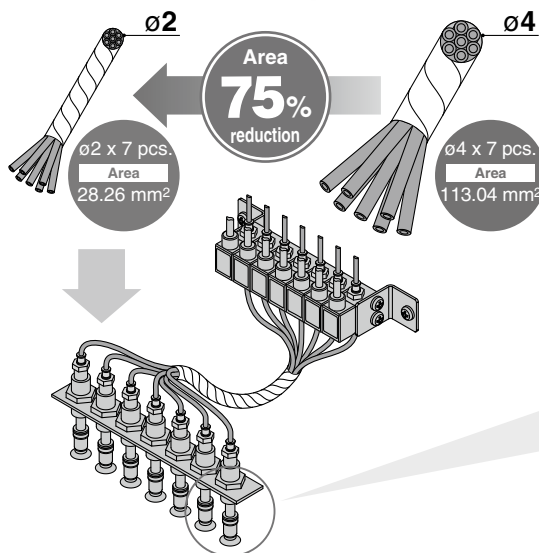
Actual size



ZP3

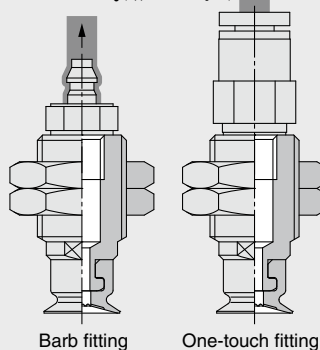
ZP (Existing model)

Space saving ø2 piping reduces working space!



Vertical

- Male thread
- Female thread
- Barb fitting (Applicable tubing: ø2)
- One-touch fitting (Applicable tubing: ø2)

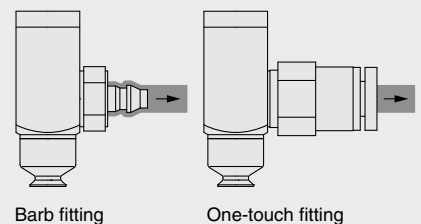


Barb fitting

One-touch fitting

Lateral

- Female thread
- Barb fitting (Applicable tubing: ø2)
- One-touch fitting (Applicable tubing: ø2)



Barb fitting

One-touch fitting

CONTENTS

Compact Type ZP3 Series

Features.....	p. 133
Variations.....	p. 134
Specifications.....	p. 135
Flat Type	
· How to Order.....	p. 136
· Dimensions/Models.....	p. 137
Flat Type with Groove	
· How to Order.....	p. 142
· Dimensions/Models.....	p. 143

Bellows Type

· How to Order.....	p. 148
· Dimensions/Models.....	p. 149

Bellows Type with Ribs

· How to Order.....	p. 154
· Dimensions/Models.....	p. 155
Construction.....	p. 160
Mounting Bracket Assembly.....	p. 162
Specific Product Precautions.....	p. 165



Improved functions

Improved removability

Adsorption surface is shot-blasted

Micro-dents and bumps on the surface facilitate easy removal.

With groove

Less contact surface with the workpiece makes it easy to remove.



Construction to prevent the pad from coming off

The new shape of the part which connects with the adapter prevents the pad from coming off.



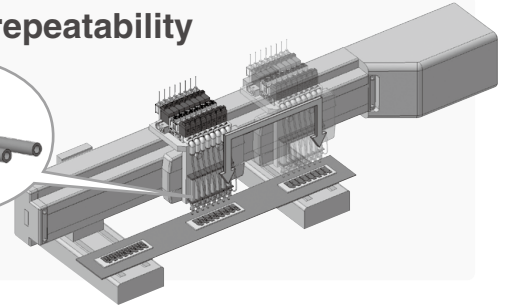
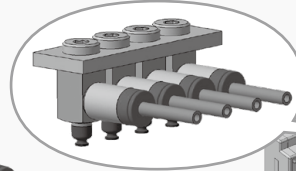
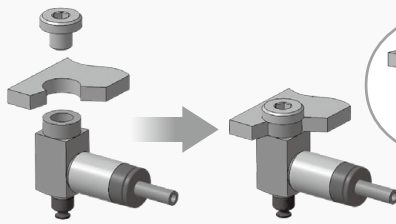
Pad diameter from $\phi 1.5$

Easier identification

SMC logo mark

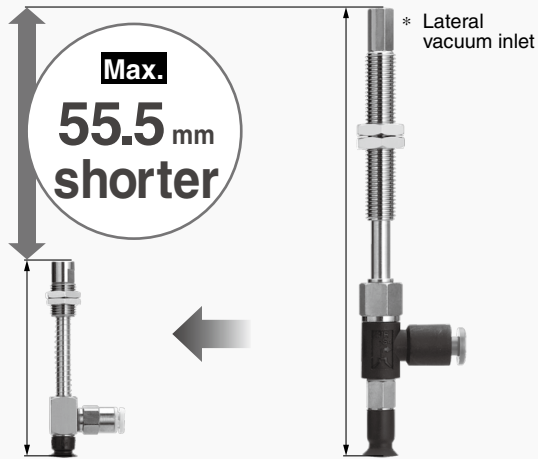


Fixing boss which allows for easy mounting and repeatability



Compact buffer body

Overall length shortened



ZP3

ZP

Pad diameter $\phi 8$, Flat type, With One-touch fitting

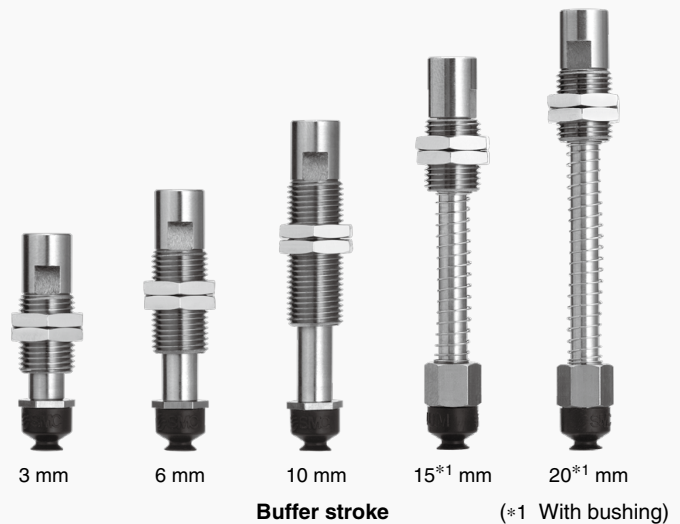
ZP3

Stroke	Overall length [mm]
3	40
6	46
10	56
15	59
20	66.5
25	—

ZP

Stroke	Overall length [mm]
3	—
6	78.5
10	109.5
15	114.5
20	—
25	124.5

Short stroke type: 3 mm available



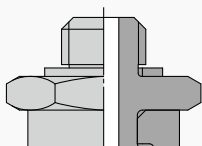
Buffer stroke

(*1 With bushing)

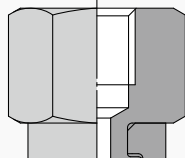
Pad diameter	Buffer specifications	Stroke [mm]				
		3	6	10	15	20
$\phi 1.5, \phi 2, \phi 3.5$	Rotating, Non-rotating	●	●	—	—	—
	Rotating	●	●	●	—	—
$\phi 4, \phi 6, \phi 8, \phi 10, \phi 13, \phi 16$	Rotating, With bushing	—	—	—	●	●
	Non-rotating	●	●	●	●	●

Wide selection of piping

Male thread

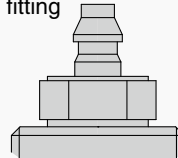


Female thread

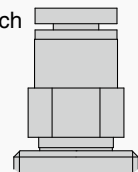



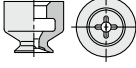

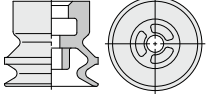


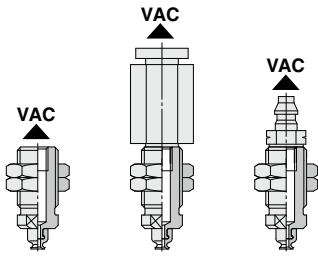
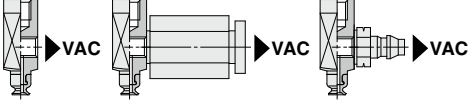
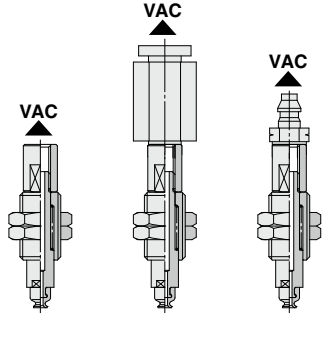
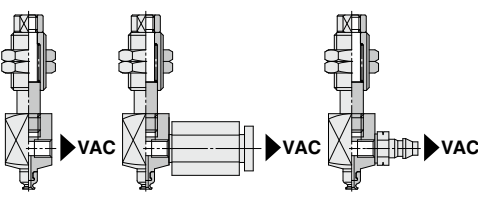
For $\phi 2$ piping!

Barb fitting



One-touch fitting



		Vacuum inlet direction							
		Flat type	Flat type with groove	Bellows type	Bellows type with ribs				
Vacuum inlet direction	Single unit					p. 137	p. 143	p. 149	p. 155
	Vertical	ZP3-T With adapter			p. 137	p. 143	p. 149	p. 155	
		ZP3-T With adapter			p. 138	p. 144	p. 150	p. 156	
		Lateral	ZP3-Y With adapter			p. 139	p. 145	p. 151	p. 157
			ZP3-T With buffer			p. 140	p. 146	p. 152	p. 158
	Lateral	ZP3-Y With buffer			p. 141	p. 147	p. 153	p. 159	

Model Selection

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

Bellows Type with Ribs

Construction

Mounting Bracket Assembly

Precautions

Compact Type *ZP3 Series* Specifications

Pad Material

Material	NBR (Nitrile rubber)	Silicone rubber *1*2	Urethane rubber	FKM (Fluoro rubber)	Conductive NBR (Nitrile rubber)	Conductive silicone rubber	Semiconductive silicone rubber
Color of rubber	Black	White	Brown	Black			
Rubber hardness (Shore A: ±5°)	60		55 to 60	60			55

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: 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." (Ministry of Health and Welfare Notification No. 370, 1959).

Adapter Specifications

Vacuum Inlet Direction **Vertical** T Type/ZP3-T

Connection		Male thread					Female thread		
Pad diameter		ø1.5 to ø3.5		ø4 to ø8		ø10 to ø16		ø1.5 to ø3.5	ø4 to ø16
Connection thread		M3 x 0.5	M6 x 0.75	M5 x 0.8	M10 x 1	M5 x 0.8	M12 x 1	M3 x 0.5	M5 x 0.8
Vacuum inlet	Female thread	Use the connection thread.	M3 x 0.5	Use the connection thread.	M5 x 0.8	Use the connection thread.	M5 x 0.8	Use the connection thread.	Use the connection thread.
	One-touch fitting		ø2, ø4		ø2, ø4		ø2, ø4, ø6		
	Barb fitting*1		ø2, ø4		ø2, ø4		ø2, ø4, ø6		

*1 ø2 polyurethane tubing, ø4, ø6 soft tubing

Vacuum Inlet Direction **Lateral** Y Type/ZP3-Y

Connection		Female thread		
Pad diameter		ø1.5 to ø3.5	ø4 to ø8	ø10 to ø16
Connection thread		M3 x 0.5	M5 x 0.8	M5 x 0.8
Vacuum inlet	Female thread	M3 x 0.5	M5 x 0.8	M5 x 0.8
	One-touch fitting	ø2, ø4	ø2, ø4	ø2, ø4, ø6
	Barb fitting*1	ø2, ø4	ø2, ø4	ø2, ø4, ø6

*1 ø2 polyurethane tubing, ø4, ø6 soft tubing

Buffer Specifications

Pad diameter		ø1.5 to ø3.5		ø4 to ø16		
Non-rotating specification		J: Rotating	K: Non-rotating	J: Rotating	JB: Rotating, With bushing	K: Non-rotating
Stroke [mm]		3, 6		3, 6, 10	15, 20	3, 6, 10, 15, 20
Connection thread		M6 x 0.75	M8 x 0.75	M8 x 0.75		
Spring reactive force [N]	At 0 stroke	0.2		0.2		
	At full stroke	0.4	0.5	0.5		



Compact Type

Flat Type

ZP3 Series

Pad diameter: $\varnothing 1.5, \varnothing 2, \varnothing 3.5$



Model Selection

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

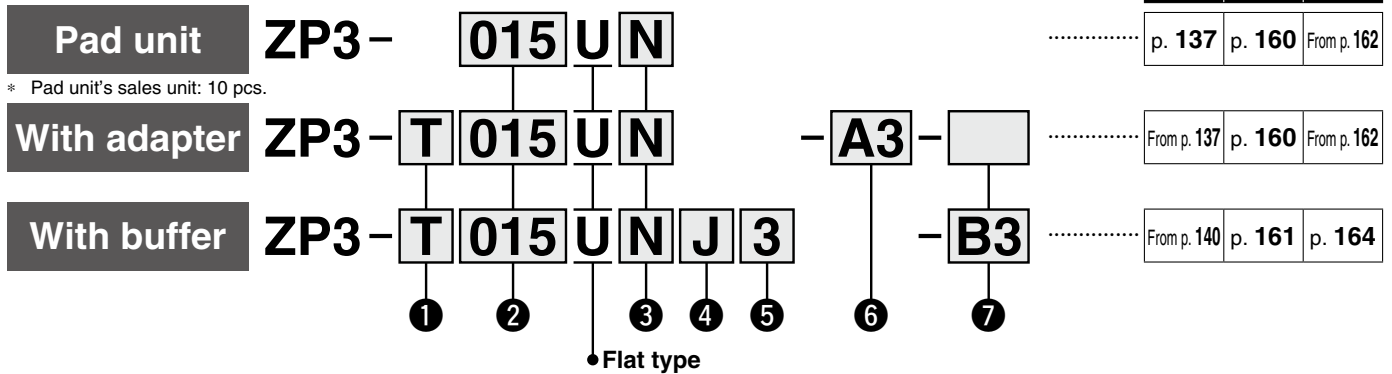
Bellows Type with Ribs

Construction

Mounting Bracket Assembly

Precautions

How to Order



① Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

② Pad diameter

015	$\varnothing 1.5$
02	$\varnothing 2$
035	$\varnothing 3.5$

③ Material

N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

④ Buffer specification

J	Rotating
K	Non-rotating

⑤ Buffer stroke

Stroke [mm]	Pad diameter	
	All sizes	
3	●	○
6	●	○

With adapter

⑥ Connection thread/ ⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

Type	⑥ Connection thread		Type	⑦ Vacuum inlet		Pad diameter
	Symbol	Size		Symbol	Size	
Male thread	A3	M3 x 0.5	—	Nil	—*1	○
			Female thread	B3	M3 x 0.5	○
	A6	M6 x 0.75	One-touch fitting	02	$\varnothing 2$	○
			Barb fitting	04	$\varnothing 4$	○
				U2	For $\varnothing 2$ polyurethane tubing*2	○
U4	For $\varnothing 4$ soft tubing*3	○				
	Female thread	B3	M3 x 0.5	—	Nil	—*1
Female thread				B3	M3 x 0.5	●
One-touch fitting				02	$\varnothing 2$	●
Barb fitting				04	$\varnothing 4$	●
				U2	For $\varnothing 2$ polyurethane tubing	●
U4	For $\varnothing 4$ soft tubing	●				

*1 Use the connection thread.

*2 Polyurethane tube piping

*3 Soft nylon/Polyurethane tube piping

With buffer

⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

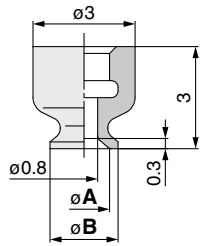
Type	Symbol	Size	Pad diameter	
			○●	○●
Female thread	B3	M3 x 0.5	○●	○●
One-touch fitting	02	$\varnothing 2$	○●	○●
	04	$\varnothing 4$	○●	○●
Barb fitting	U2	For $\varnothing 2$ polyurethane tubing	○●	○●
	U4	For $\varnothing 4$ soft tubing	○●	○●

* It is not necessary to select a connection thread.

* The pad, mounting nut, and fitting are shipped together but do not come assembled.

Dimensions/Models

Single unit $\varnothing 1.5$ to $\varnothing 3.5$



Construction p. 160

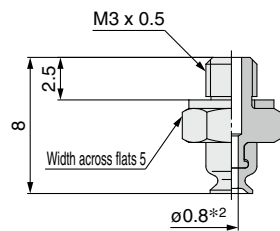
Mounting Bracket Assembly From p. 162

ZP3 - **015** **U** **N**
① ②

Model				A	B
① Pad dia.	Form	② Material ^{*1}			
ZP3	015	U	N S U F GN GS	1.5	2
	02			2	2.5
	035			3.5	4

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

With adapter $\varnothing 1.5$ to $\varnothing 3.5$



Construction p. 160

Adapter Assembly p. 162

ZP3 - T **015** **U** **N** - **A3**
① ② ③

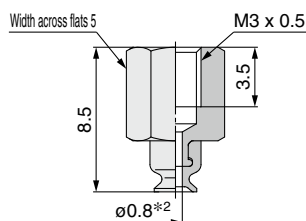
③ Connection thread
(Male thread)

A3	M3 x 0.5
-----------	----------

Model					
	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread
ZP3	T	015 02 035	U	N S U F GN GS	A3

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad



Construction p. 160

Adapter Assembly p. 162

ZP3 - T **015** **U** **N** - **B3**
① ② ③

③ Connection thread
(Female thread)

B3	M3 x 0.5
-----------	----------

Model					
	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread
ZP3	T	015 02 035	U	N S U F GN GS	B3

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With adapter $\varnothing 1.5$ to $\varnothing 3.5$

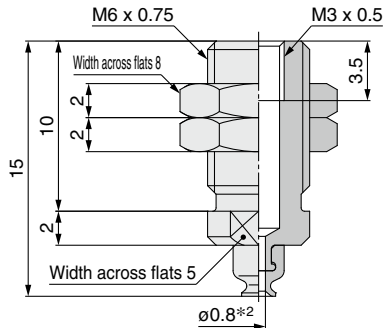
ZP3 - T 015 U N - A6 - B3

① ②

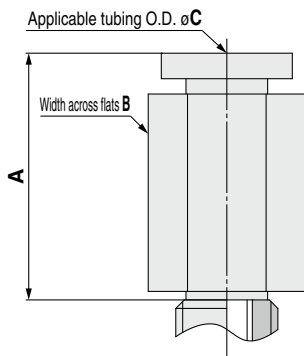
Connection thread (Male thread)
A6 M6 x 0.75

④ Vacuum inlet

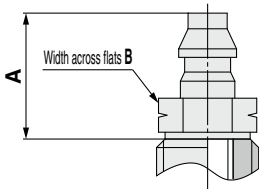
B3	M3 x 0.5	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	One-touch fitting
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	



Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 160

Adapter Assembly p. 163

Model						
	Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet
ZP3	T	015 02 035	U	N S U F GN GS	A6	B3

Dimensions Per Vacuum Inlet: One-touch Fitting

Model							A	B	C	Fitting part min. hole size	Fitting part no.
	Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet					
ZP3	T	015 02 035	U	N S U F GN GS	A6	02	13	5.5	2	$\varnothing 1.2$	KQ2H02-M3G
						04	14.5	8	4		KQ2H04-M3G

Dimensions Per Vacuum Inlet: Barb Fitting

Model							A	B	Fitting part min. hole size	Fitting part no.
	Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet				
ZP3	T	015 02 035	U	N S U F GN GS	A6	U2	6.5	4.5	$\varnothing 0.9$	M-3AU-2
						U4	7.4	5	$\varnothing 1.2$	M-3AU-4-X83

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With adapter $\phi 1.5$ to $\phi 3.5$

ZP3 - Y **015** **U** **N** - **B3** - **B3**

①

②

③

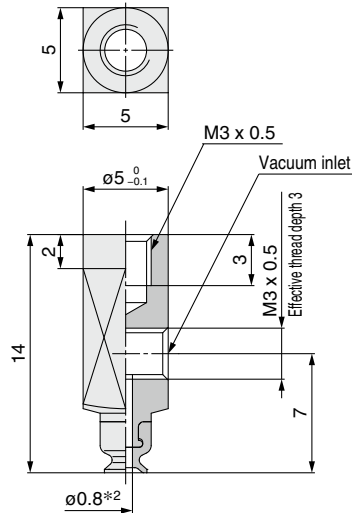
④

Connection thread
(Female thread)

B3	M3 x 0.5
-----------	----------

4 Vacuum inlet

B3	M3 x 0.5	Female thread
02	$\phi 2$	One-touch fitting
04	$\phi 4$	One-touch fitting
U2	For $\phi 2$ polyurethane tubing	Barb fitting
U4	For $\phi 4$ soft tubing	

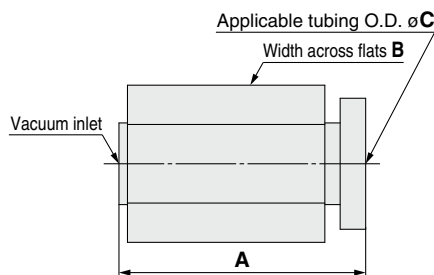


Model					
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet
ZP3	Y	015 02 035	U	N S U F GN GS	B3 B3

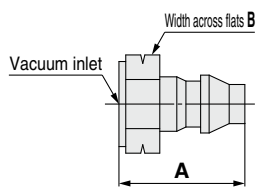
Dimensions Per Vacuum Inlet: One-touch Fitting

Model						A	B	C	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet					
ZP3	Y	015 02 035	U	N S U F GN GS	B3	02	13	5.5	$\phi 1.2$	KQ2H02-M3G
							04	14.5		8

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

Model						A	B	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet					
ZP3	Y	015 02 035	U	N S U F GN GS	B3	U2	6.5	4.5	$\phi 0.9$	M-3AU-2
						U4	7.4	5	$\phi 1.2$	M-3AU-4-X83

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160

Adapter Assembly p. 162

Dimensions/Models

With buffer $\varnothing 1.5$ to $\varnothing 3.5$

ZP3 - T 015 U N J 3 - B3

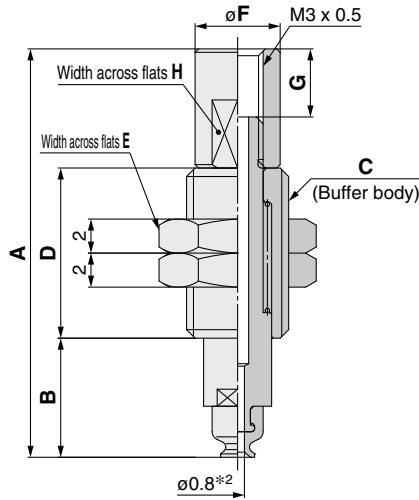
① ② ③ ④ ⑤

⑤ Vacuum inlet

Buffer specification ③

J	Rotating
K	Non-rotating

B3	M3 x 0.5	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	One-touch fitting
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	

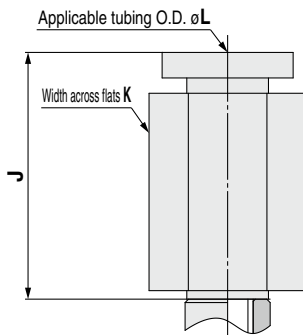


		Model					A	B	C	D	E	F	G	H
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet								
ZP3	T	015 02 035	U	N S U F GN GS	J	3	24	7	M6 x 0.75	10	8	5	4	4
						6				31				
					K	3	26.5	8	M8 x 0.75	11	10	7	3	6
						6				33				

Dimensions Per Vacuum Inlet: One-touch Fitting

		Model					J	K	L	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
ZP3	T	015 02 035	U	N S U F GN GS	J K	3 6	13	5.5	2	$\varnothing 1.2$	KQ2H02-M3G
											02

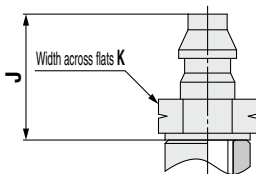
Vacuum inlet: One-touch fitting



Dimensions Per Vacuum Inlet: Barb Fitting

		Model					J	K	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP3	T	015 02 035	U	N S U F GN GS	J K	3 6	6.5	4.5	$\varnothing 0.9$	M-3AU-2
										U2

Vacuum inlet: Barb fitting



*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction	p. 161
Buffer Assembly	p. 164

Dimensions/Models

With buffer $\varnothing 1.5$ to $\varnothing 3.5$

ZP3 - Y 015 U N J 3 - B3

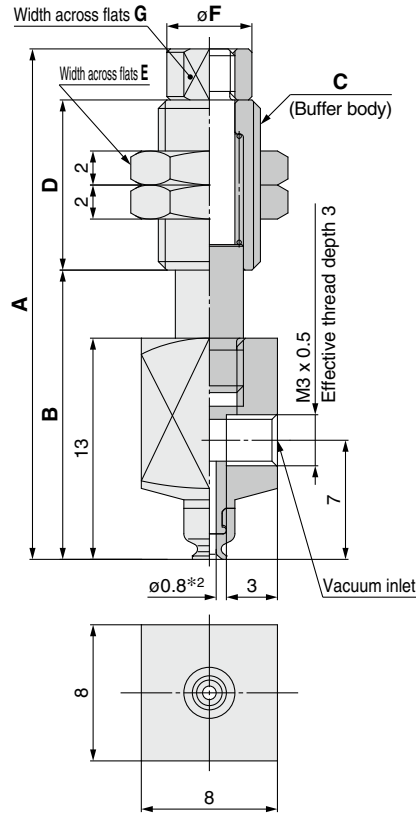
① ② ③ ④

⑤ Vacuum inlet

Buffer specification ③

J	Rotating
K	Non-rotating

B3	M3 x 0.5	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
U2	For $\varnothing 2$ polyurethane tubing	
U4	For $\varnothing 4$ soft tubing	



		Model					A	B	C	D	E	F	G	
	Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet							
ZP3	Y	015 02 035	U	N S U F GN GS	J	3	B3	30	17	M6 x 0.75	10	8	5	4
						6		37	20		14			
					K	3	34	17	M8 x 0.75	11	10	7	6	
						6	40.5	20		14.5				

Dimensions Per Vacuum Inlet: One-touch Fitting

		Model					H	J	K	Fitting part min. hole size	Fitting part no.	
	Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
ZP3	Y	015 02 035	U	N S U F GN GS	J K	3 6	02	13	5.5	2	$\varnothing 1.2$	KQ2H02-M3G
							04	14.5	8	4		KQ2H04-M3G

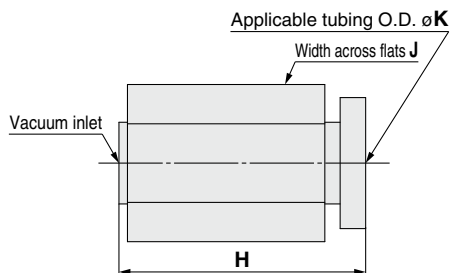
Dimensions Per Vacuum Inlet: Barb Fitting

		Model					H	J	Fitting part min. hole size	Fitting part no.	
	Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP3	Y	015 02 035	U	N S U F GN GS	J K	3 6	U2	6.5	4.5	$\varnothing 0.9$	M-3AU-2
							U4	7.4	5	$\varnothing 1.2$	M-3AU-4-X83

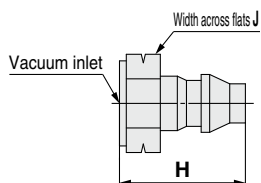
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 161

Buffer Assembly p. 164



Compact Type Flat Type with Groove

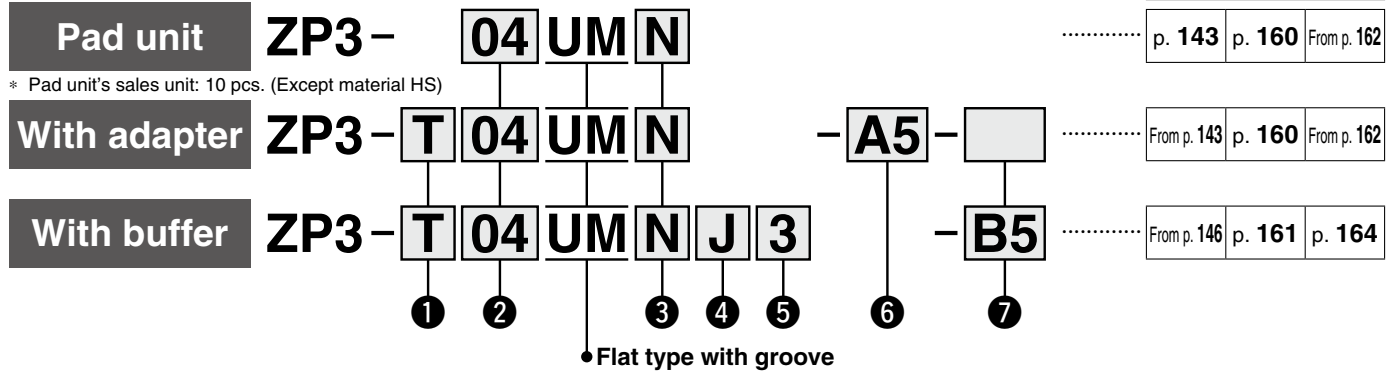
ZP3 Series

Pad diameter: $\varnothing 4$, $\varnothing 6$, $\varnothing 8$, $\varnothing 10$, $\varnothing 13$, $\varnothing 16$



Model Selection

How to Order



Dimensions/Models	Construction	Mounting Bracket Assembly
p. 143	p. 160	From p. 162

① Vacuum inlet direction

Symbol	Pad unit
Nil	Pad unit
T	Vertical
Y	Lateral

② Pad diameter

Symbol	Size
04	$\varnothing 4$
06	$\varnothing 6$
08	$\varnothing 8$
10	$\varnothing 10$
13	$\varnothing 13$
16	$\varnothing 16$

③ Material

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber
HS	Semiconductive silicone rubber

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"
*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: 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." (Ministry of Health and Welfare Notification No. 370, 1959).

④ Buffer specification

Symbol	Buffer specification
J	Rotating
JB	Rotating, With bushing
K	Non-rotating

⑤ Buffer stroke

Stroke [mm]	Buffer specification		
	J	JB	K
3	●	—	●
6	●	—	●
10	●	—	●
15	—	●	●
20	—	●	●

With adapter

⑥ Connection thread/ ⑦ Vacuum inlet ○: ZP3-T/Vertical ●: ZP3-Y/Lateral

Type	⑥ Connection thread		⑦ Vacuum inlet		Pad diameter [mm]			
	Symbol	Size	Symbol	Size	$\varnothing 4$ to $\varnothing 8$	$\varnothing 10$ to $\varnothing 16$		
Male thread	A5	M5 x 0.8	—	Nil	Use the connection thread.	○ ○		
			A10	M10 x 1	Female thread	B5	M5 x 0.8	○ —
					One-touch fitting	02	$\varnothing 2$	○ —
					04	$\varnothing 4$	○ —	
			A12	M12 x 1	Barb fitting	U2	For $\varnothing 2$ polyurethane tubing*1	○ —
						U4	For $\varnothing 4$ soft tubing*2	○ —
	U6	For $\varnothing 6$ soft tubing*2				○ —		
	Female thread	B5	M5 x 0.8	Female thread	B5	M5 x 0.8	— ○	
				One-touch fitting	02	$\varnothing 2$	— ○	
					04	$\varnothing 4$	— ○	
					06	$\varnothing 6$	— ○	
				Barb fitting	U2	For $\varnothing 2$ polyurethane tubing*1	— ○	
U4					For $\varnothing 4$ soft tubing*2	— ○		
U6	For $\varnothing 6$ soft tubing*2	— ○						

With buffer

⑦ Vacuum inlet ○: ZP3-T/Vertical ●: ZP3-Y/Lateral

Type	Symbol	Size	Pad diameter [mm]	
			$\varnothing 4$ to $\varnothing 8$	$\varnothing 10$ to $\varnothing 16$
Female thread	B5	M5 x 0.8	○ ●	○ ●
One-touch fitting	02	$\varnothing 2$	○ ●	○ ●
	04	$\varnothing 4$	○ ●	○ ●
	06	$\varnothing 6$	—	○ ●
Barb fitting	U2	For $\varnothing 2$ polyurethane tubing*1	○ ●	○ ●
	U4	For $\varnothing 4$ soft tubing*2	○ ●	○ ●
	U6	For $\varnothing 6$ soft tubing*2	—	○ ●

*1 Polyurethane tube piping
*2 Soft nylon/Polyurethane tube piping
* It is not necessary to select a connection thread.

* The pad, mounting nut, and fitting are shipped together but do not come assembled.

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

Bellows Type with Ribs

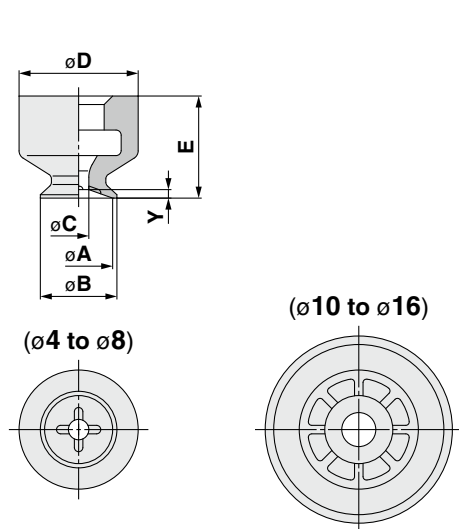
Construction

Mounting Bracket Assembly

Precautions

Dimensions/Models

Single unit $\phi 4$ to $\phi 16$



ZP3 - **04** UM **N**

① ②

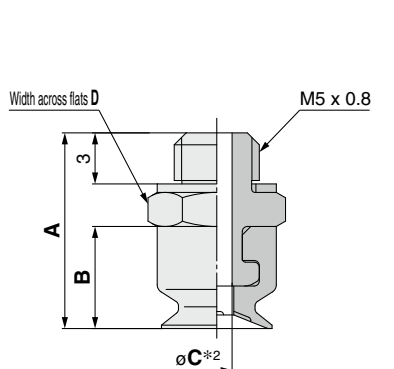
Model	① Pad dia.	Form	② Material ^{*1}	A	B	C	D	E	Y
	06		S	6	6.5	2			
	08		U	8	8.5				
	10		F	10	11	9	7	7	1
	13		GN	13	14				
	16		GS	16	17				

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

Construction p. 160

Mounting Bracket Assembly From p. 162

With adapter $\phi 4$ to $\phi 16$



ZP3 - T **04** UM **N** - **A5**

① ② ③

③ Connection thread
(Male thread)

A5 M5 x 0.8

Model	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread	A	B	C ^{*2}	D
		06		S					
		08		U					
		10		F		12.5	7	1.8	10
		13		GN					
		16		GS					

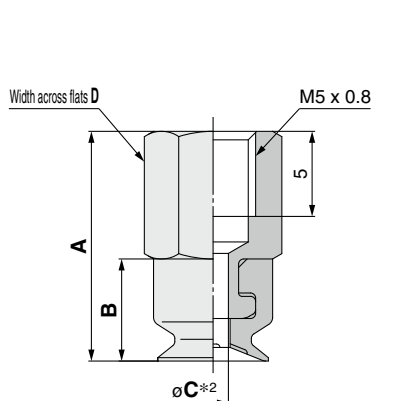
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160

Adapter Assembly p. 162

With adapter $\phi 4$ to $\phi 16$



ZP3 - T **04** UM **N** - **B5**

① ② ③

③ Connection thread
(Female thread)

B5 M5 x 0.8

Model	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread	A	B	C ^{*2}	D
		06		S					
		08		U					
		10		F		14.5	7	1.8	10
		13		GN					
		16		GS					

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

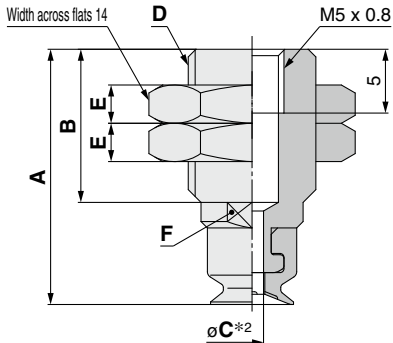
Construction p. 160

Adapter Assembly p. 162

Dimensions/Models

With adapter $\phi 4$ to $\phi 16$

Pad diameter: $\phi 4$ to $\phi 6$



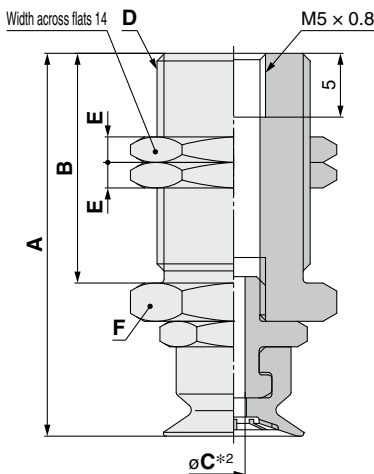
ZP3 - T 04 UM N - A10 - B5

① Pad dia. ② Material ③ Connection thread (Male thread) ④ Vacuum inlet

A10	M10 x 1
A12	M12 x 1

B5	M5 x 0.8	Female thread
02	$\phi 2$	One-touch fitting
04	$\phi 4$	
06	$\phi 6$	
U2	For $\phi 2$ polyurethane tubing	Barb fitting
U4	For $\phi 4$ soft tubing	
U6	For $\phi 6$ soft tubing	

Pad diameter: $\phi 10$ to $\phi 16$

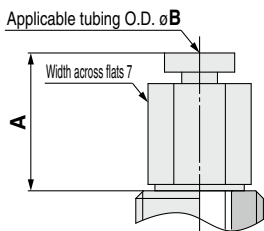


		Model				A	B	C*2	D	E	F
Vacuum inlet direction	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread						
ZP3	T	04	UM	N S U F GN GS HS	A10	B5	1.2	M10 x 1	3	Width across flats 7	
		06 08									
		10 13 16			A12	1.8	M12 x 1	2	Width across flats 14		

Dimensions Per Vacuum Inlet: One-touch Fitting

		Model				A	B	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread					④ Vacuum inlet
ZP3	T	04 06 08	UM	N S U F GN GS HS	A10	02	10.8	2	$\phi 1.4$	KQ2H02-M5N
						04	3	4	$\phi 1.8$	
		10 13 16			A12	02	10.8	2	$\phi 1.4$	KQ2H02-M5N
						04	3	4	$\phi 1.8$	
					06		3.2	6	$\phi 1.8$	

Vacuum inlet: One-touch fitting ($\phi 2$)

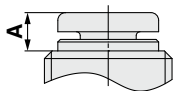


Dimensions Per Vacuum Inlet: Barb Fitting

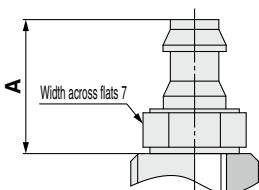
		Model				A	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread				④ Vacuum inlet
ZP3	T	04 06 08	UM	N S U F GN GS HS	A10	U2	6.5	$\phi 0.9$	M-5AU-2
						U4	8.5	$\phi 1.8$	M-5AU-4
		10 13 16			A12	U2	6.5	$\phi 0.9$	M-5AU-2
						U4	8.5	$\phi 1.8$	M-5AU-4
					U6		10.5	$\phi 2.5$	M-5AU-6

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Vacuum inlet: Built-in One-touch fitting ($\phi 4, \phi 6$)



Vacuum inlet: Barb fitting



Dimensions/Models

With adapter $\varnothing 4$ to $\varnothing 16$

ZP3 - Y **04** UM **N** - **B5** - **B5**

①

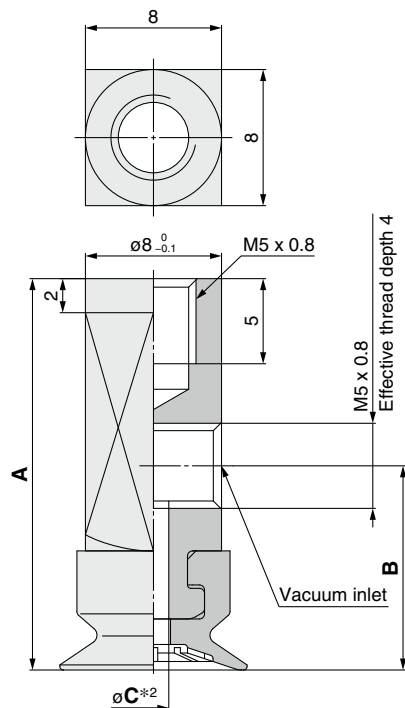
②

Connection thread
(Female thread)

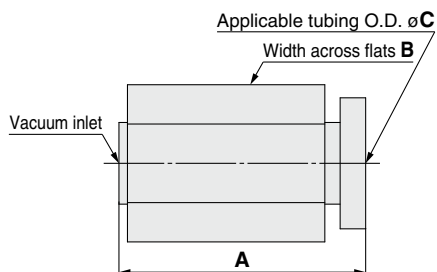
B5	M5 x 0.8
-----------	----------

④ Vacuum inlet

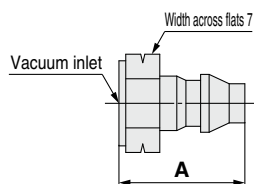
B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	



Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 160

Adapter Assembly p. 162

		Model					A	B	C*2
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet				
ZP3	Y	04	UM	N S U F GN GS HS	B5	B5	22	11	1.2
		06							
		08							
		10							
	13	16					23	12	2

Dimensions Per Vacuum Inlet: One-touch Fitting

		Model					A	B	C	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet						
ZP3	Y	04	UM	N S U F GN GS HS	B3	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N
						04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
						02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N
						04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
		10				13	16	10	6	KQ2H06-M5N	

Dimensions Per Vacuum Inlet: Barb Fitting

		Model					A	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet				
ZP3	Y	04	UM	N S U F GN GS HS	B5	U2	6.5	$\varnothing 0.9$	M-5AU-2
						U4	8.5	$\varnothing 1.8$	M-5AU-4
		U2				6.5	$\varnothing 0.9$	M-5AU-2	
									U4
		U6				10.5	$\varnothing 2.5$	M-5AU-6	

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With buffer $\varnothing 4$ to $\varnothing 16$

ZP3 - T **04** **UM** **N** **J** **3** - **B5**

1

2

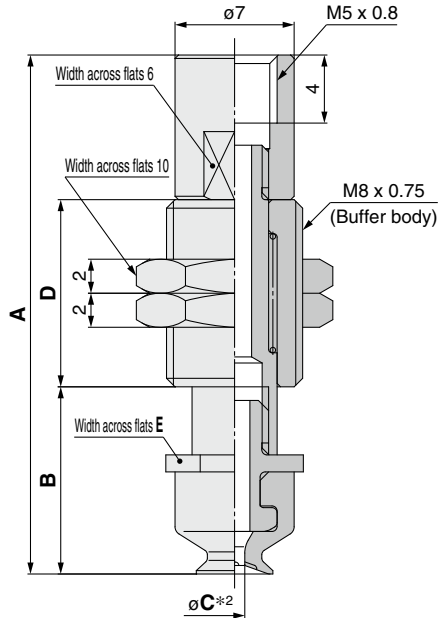
4

5 Vacuum inlet

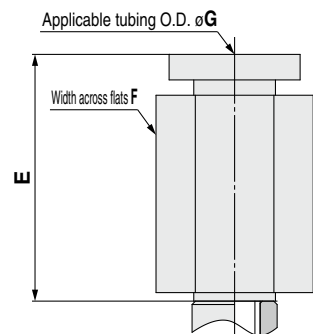
Buffer specification 3

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

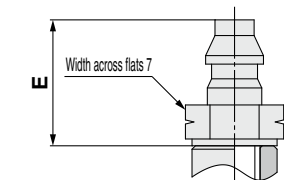
B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	
		Barb fitting



Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 161

Buffer Assembly p. 164

Model	Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	A	B	C*2	D	E	
ZP3	T	04	UM	N S U F GN GS HS	J K	3 6 10	B5	30.5	11	1.2	11	7	
								37	14		14.5		
								47	18		20.5		
		06 08			J K	3 6 10		30.5	11	1.8	11		
								37	14		14.5		
								47	18		20.5		
	04 06 08	JB K	3 6 10 15 20	B5	62.5	44	1.2	10					
					62.5	44			20.5				
					55	36.5			14.5				
					10 13 16	J K	3 6 10		B5	31.5	12	1.8	11
										38	15		14.5
										48	19		20.5
JB K	15 20	B5	56	37.5	1.8	10							
			63.5	45		10							

Dimensions Per Vacuum Inlet: One-touch Fitting

Model	Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	E	F	G	Fitting part min. hole size	Fitting part no.	
ZP3	T	04 06 08	UM	N S U F GN GS HS	J K	3 6 10	02 04 06	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N	
								14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N	
								10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N	
		10 13 16			JB K	6 10 15 20		B5	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
									14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
									14.7	10	6	$\varnothing 2.5$	KQ2H06-M5N

Dimensions Per Vacuum Inlet: Barb Fitting

Model	Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	E	Fitting part min. hole size	Fitting part no.	
ZP3	T	04 06 08	UM	N S U F GN GS HS	J K	3 6 10	U2 U4 U2 U4 U6	6.5	$\varnothing 0.9$	M-5AU-2	
								8.5	$\varnothing 1.8$	M-5AU-4	
								6.5	$\varnothing 0.9$	M-5AU-2	
		10 13 16			JB K	6 10 15 20		B5	8.5	$\varnothing 1.8$	M-5AU-4
									8.5	$\varnothing 1.8$	M-5AU-4
									10.5	$\varnothing 2.5$	M-5AU-6

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With buffer $\varnothing 4$ to $\varnothing 16$

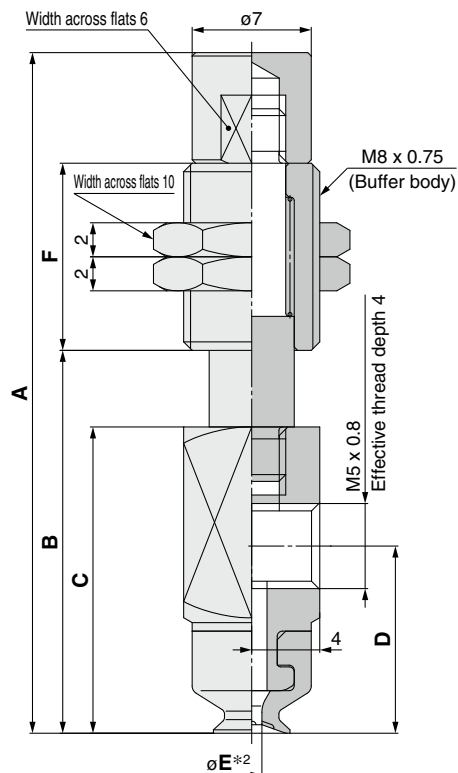
ZP3 - Y **04** **UM** **N** **J** **3** - **B5**

①

②

④

⑤ Vacuum inlet



Buffer specification ③

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

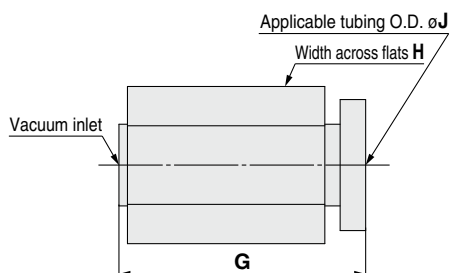
B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	

		Model					A	B	C	D	E*2	F
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet						
ZP3	Y	04	UM	N S U F GN GS HS	J K	B5	3	40	22.5	18	11	11
							6	46	25			14.5
							10	56	29			20.5
		3			40		22.5	11				
		6			46		25	14.5				
		10			56		29	20.5				
	06 08	JB K	15	59	42.5	1.2	10					
			20	66.5	50							
			15	59	42.5							
	10 13 16	J K	JB K	3	41	23.5	1.8	10				
				6	47	26						
				10	57	30						
15 20	JB K	JB K	15	60	43.5	1.8	10					
			20	67.5	57							
			20	67.5	57							

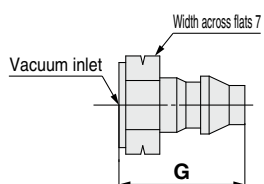
Dimensions Per Vacuum Inlet: One-touch Fitting

		Model					G	H	J	Fitting part min. hole size	Fitting part no.		
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet							
ZP3	Y	04 06 08	UM	N S U F GN GS HS	J K	3 6 10 15 20	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N	
							04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N	
							02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N	
		10 13 16			JB K		JB K	04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
								06	14.7	10	6	$\varnothing 2.5$	KQ2H06-M5N
								06	14.7	10	6	$\varnothing 2.5$	KQ2H06-M5N

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

		Model					G	Fitting part min. hole size	Fitting part no.		
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
ZP3	Y	04 06 08	UM	N S U F GN GS HS	J K	3 6 10 15 20	U2	6.5	$\varnothing 0.9$	M-5AU-2	
							U4	8.5	$\varnothing 1.8$	M-5AU-4	
							U2	6.5	$\varnothing 0.9$	M-5AU-2	
		10 13 16			JB K		JB K	U4	8.5	$\varnothing 1.8$	M-5AU-4
								U4	8.5	$\varnothing 1.8$	M-5AU-4
								U6	10.5	$\varnothing 2.5$	M-5AU-6

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber, HS: Semiconductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 161

Buffer Assembly p. 164

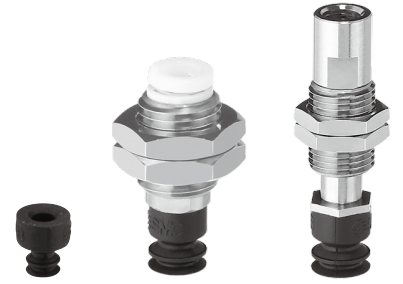


Compact Type

Bellows Type

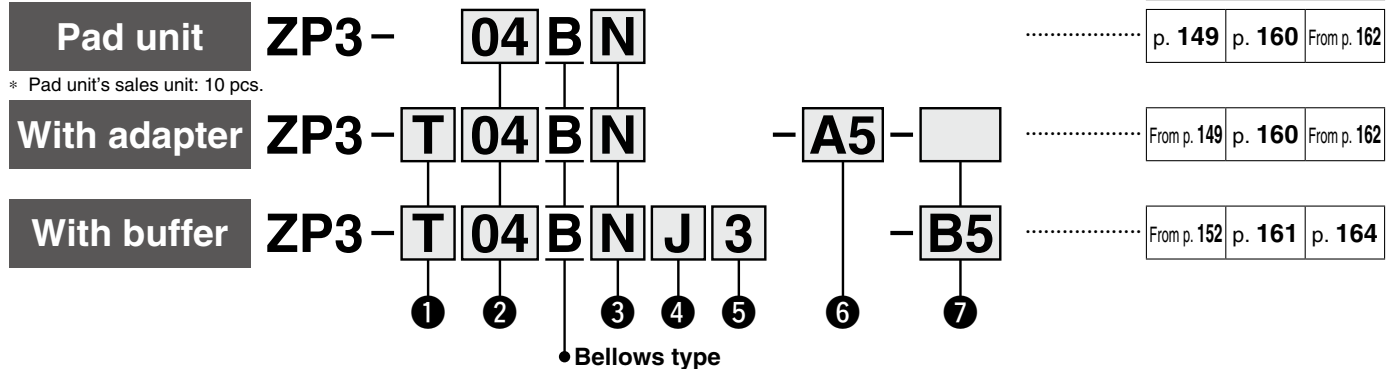
ZP3 Series

Pad diameter: $\varnothing 4$, $\varnothing 6$, $\varnothing 8$



Model Selection

How to Order



① Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

② Pad diameter

04	$\varnothing 4$
06	$\varnothing 6$
08	$\varnothing 8$

③ Material

N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

④ Buffer specification

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

⑤ Buffer stroke

Stroke [mm]	Buffer specification		
	J	JB	K
3	●	—	●
6	●	—	●
10	●	—	●
15	—	●	●
20	—	●	●

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

With adapter

⑥ Connection thread/ ⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

⑥ Connection thread			⑦ Vacuum inlet			Pad diameter
Type	Symbol	Size	Type	Symbol	Size	All sizes
Male thread	A5	M5 x 0.8	—	Nil	Use the connection thread.	○
			Female thread	B5	M5 x 0.8	○
	A10	M10 x 1	One-touch fitting	02	$\varnothing 2$	○
			Barb fitting	04	$\varnothing 4$	○
				U2	For $\varnothing 2$ polyurethane tubing	○
Female thread	B5	M5 x 0.8	—	Nil	Use the connection thread.	○
			Female thread	B5	M5 x 0.8	●
			One-touch fitting	02	$\varnothing 2$	●
			Barb fitting	04	$\varnothing 4$	●
				U2	For $\varnothing 2$ polyurethane tubing*1	●
U4	For $\varnothing 4$ soft tubing*2	●				

*1 Polyurethane tube piping

*2 Soft nylon/Polyurethane tube piping

With buffer

⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

Type	Symbol	Size	Pad diameter
			All sizes
Female thread	B5	M5 x 0.8	○●
One-touch fitting	02	$\varnothing 2$	○●
	04	$\varnothing 4$	○●
Barb fitting	U2	For $\varnothing 2$ polyurethane tubing*1	○●
	U4	For $\varnothing 4$ soft tubing*2	○●

* It is not necessary to select a connection thread.

* The pad, mounting nut, and fitting are shipped together but do not come assembled.

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

Bellows Type with Ribs

Construction

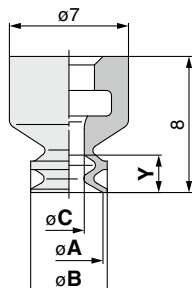
Mounting Bracket Assembly

Precautions

Dimensions/Models

Single unit $\varnothing 4$ to $\varnothing 8$

ZP3 - **04** **B** **N**
① ②



Construction p. 160

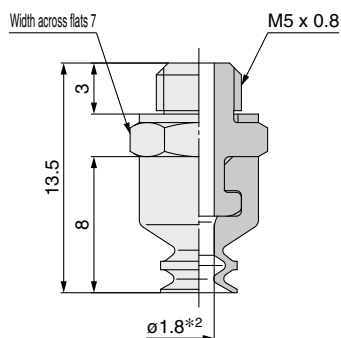
Mounting Bracket Assembly From p. 162

Model				A	B	C	Y
① Pad dia.	Form	② Material ^{*1}					
ZP3	04	B	N S U F GN GS	4	4.5	1.8	2.2
	06			6	7	2	3
	08			8	9		

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

With adapter $\varnothing 4$ to $\varnothing 8$

ZP3 - T **04** **B** **N** - **A5**
① ② ③



Construction p. 160

Adapter Assembly p. 162

③ Connection thread
(Male thread)

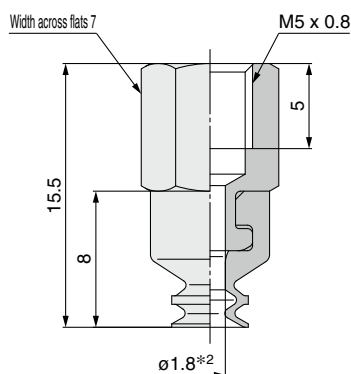
A5 M5 x 0.8

Model					
	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread
ZP3	T	04 06 08	B	N S U F GN GS	A5

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

ZP3 - T **04** **B** **N** - **B5**
① ② ③



Construction p. 160

Adapter Assembly p. 162

③ Connection thread
(Female thread)

B5 M5 x 0.8

Model					
	Vacuum inlet direction	① Pad dia.	Form	② Material ^{*1}	③ Connection thread
ZP3	T	04 06 08	B	N S U F GN GS	B5

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With adapter $\varnothing 4$ to $\varnothing 8$

ZP3 - T 04 B N - A10 - B5

①

②

③

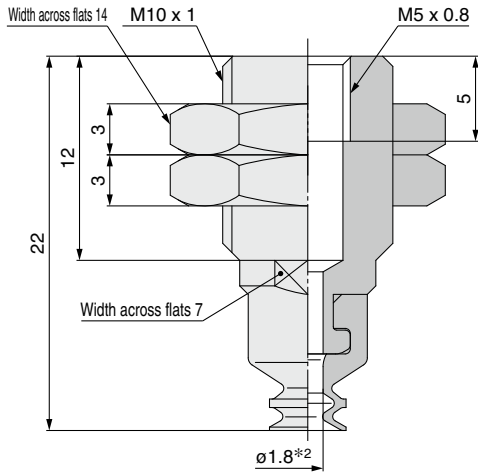
④

Connection thread (Female thread)

A10	M10 x 1
------------	---------

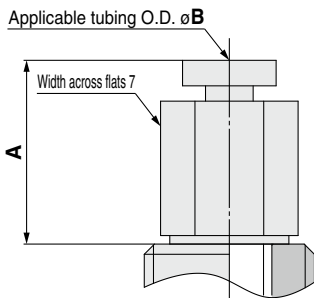
④ Vacuum inlet

B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	Barb fitting
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	



Model		①	②	③	④
Vacuum inlet direction	Pad dia.	Form	Material*1	Connection thread	Vacuum inlet
ZP3	T	04 06 08	B	N S U F GN GS	A10 B5

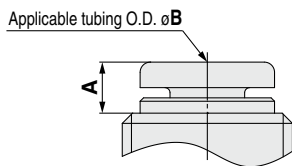
Vacuum inlet: One-touch fitting ($\varnothing 2$)



Dimensions Per Vacuum Inlet: One-touch Fitting

Model		①	②	③	④	A	B	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	Pad dia.	Form	Material*1	Connection thread	Vacuum inlet				
ZP3	T	04 06 08	B	N S U F GN GS	A10				
						02	10.8	2	$\varnothing 1.4$
					04	3	4	$\varnothing 1.8$	

Vacuum inlet: Built-in One-touch fitting ($\varnothing 4$)



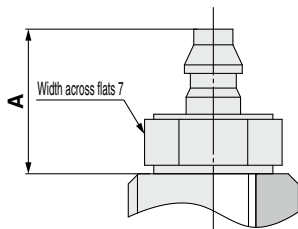
Dimensions Per Vacuum Inlet: Barb Fitting

Model		①	②	③	④	A	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	Pad dia.	Form	Material*1	Connection thread	Vacuum inlet			
ZP3	T	04 06 08	B	N S U F GN GS	A10			
						U2	6.5	$\varnothing 0.9$
					U4	8.5	$\varnothing 1.8$	M-5AU-4

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Vacuum inlet: Barb fitting



Construction	p. 160
Adapter Assembly	p. 163

Dimensions/Models

With adapter $\varnothing 4$ to $\varnothing 8$

ZP3 - Y **04** **B** **N** - **B5** - **B5**

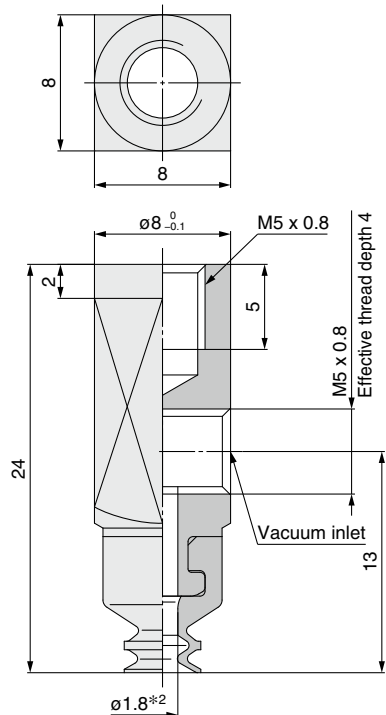
① ②

③
Connection thread
(Female thread)

B5	M5 x 0.8
-----------	----------

④ Vacuum inlet

B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	Barb fitting
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	

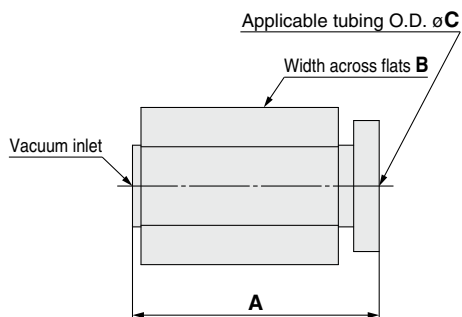


Model					
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet
ZP3	Y	04 06 08	B	N S U F GN GS	B5 B5

Dimensions Per Vacuum Inlet: One-touch Fitting

Model						A	B	C	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet					
ZP3	Y	04 06 08	B	N S U F GN GS	B5				$\varnothing 1.4$	KQ2H02-M5N

Vacuum inlet: One-touch fitting



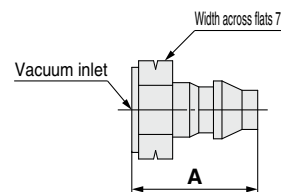
Dimensions Per Vacuum Inlet: Barb Fitting

Model						A	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	① Pad dia.	Form	② Material*1	③ Connection thread	④ Vacuum inlet				
ZP3	Y	04 06 08	B	N S U F GN GS	B5			$\varnothing 0.9$	M-5AU-2

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Vacuum inlet: Barb fitting



Construction p. 160

Adapter Assembly p. 162

Dimensions/Models

With buffer $\varnothing 4$ to $\varnothing 8$

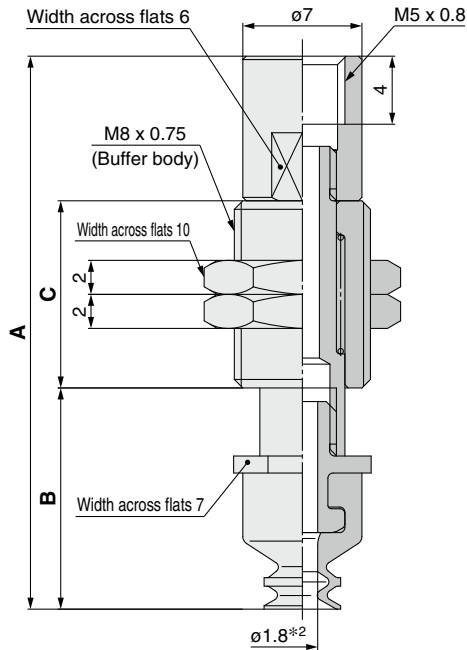
ZP3 - T 04 B N J 3 - B5

① ② ③ ④ ⑤ Vacuum inlet

Buffer specification ③

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	Barb fitting
U2	For $\varnothing 2$ polyurethane tubing	
U4	For $\varnothing 4$ soft tubing	

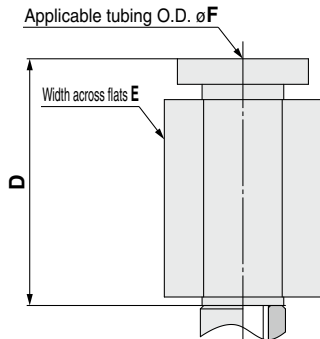


		Model						A	B	C
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP3	T	04 06 08	B	N S U F GN GS	J K	3	B5	32.5	13	11
						6		39	16	14.5
						10		49	20	20.5
					JB K	15		57	38.5	10
						20		64.5	46	

Dimensions Per Vacuum Inlet: One-touch Fitting

		Model						D	E	F	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet							
ZP3	T	04 06 08	B	N S U F GN GS	J K	3	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N	
						6							
						10							
					JB K	15		04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
						20							

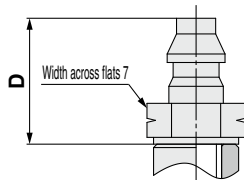
Vacuum inlet: One-touch fitting



Dimensions Per Vacuum Inlet: Barb Fitting

		Model						D	Fitting part min. hole size	Fitting part no.		
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet						
ZP3	T	04 06 08	B	N S U F GN GS	J K	3	U2	6.5	$\varnothing 0.9$	M-5AU-2		
						6						
						10						
					JB K	15		U4	8.5	$\varnothing 1.8$	M-5AU-4	
						20						

Vacuum inlet: Barb fitting

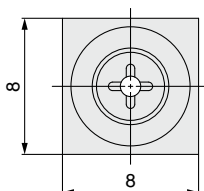
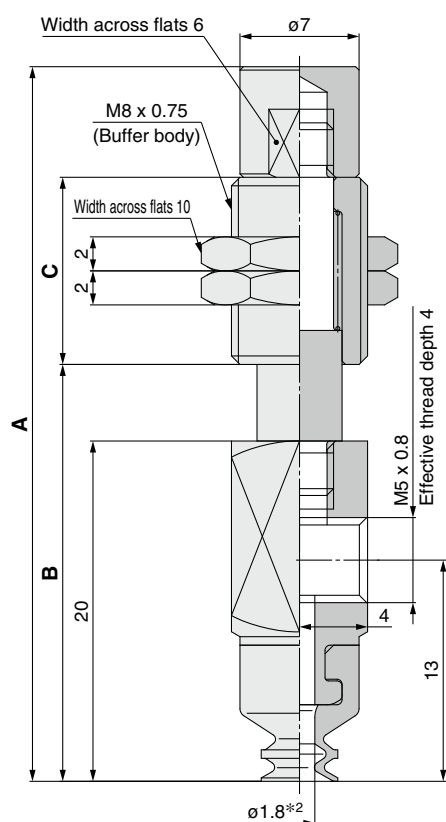


- Construction p. 161
- Buffer Assembly p. 164

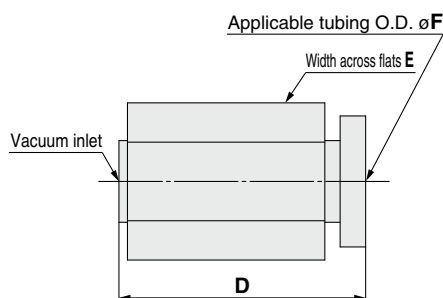
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

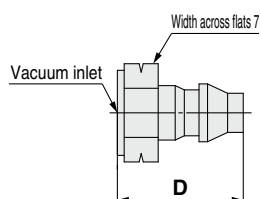
With buffer $\varnothing 4$ to $\varnothing 8$



Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



ZP3 - Y 04 B N J 3 - B5

①	②	③	④	⑤ Vacuum inlet
Buffer specification ③				
J	Rotating			
JB	Rotating, With bushing			
K	Non-rotating			
B5	M5 x 0.8	Female thread		
02	$\varnothing 2$	One-touch fitting		
04	$\varnothing 4$	Barb fitting		
U2	For $\varnothing 2$ polyurethane tubing			
U4	For $\varnothing 4$ soft tubing			

Model							A	B	C	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP3	Y	04 06 08	B	N S U F GN GS	J	3	B5	42	24.5	11
					K	6		48	27	14.5
					JB K	10		58	31	20.5
						15		61	44.5	10
						20		68.5	52	

Dimensions Per Vacuum Inlet: One-touch Fitting

Model							D	E	F	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
ZP3	Y	04 06 08	B	N S U F GN GS	J JB K	3	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N
						6					
						10	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
						15					
						20					

Dimensions Per Vacuum Inlet: Barb Fitting

Model							D	Fitting part min. hole size	Fitting part no.
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet			
ZP3	Y	04 06 08	B	N S U F GN GS	J JB K	U2	6.5	$\varnothing 0.9$	M-5AU-2
						U4			
							8.5	$\varnothing 1.8$	M-5AU-4

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad



Compact Type

Bellows Type with Ribs

ZP3 Series

Pad diameter: $\varnothing 10, \varnothing 13, \varnothing 16$



Model Selection

ZP3 Compact

Flat Type

Flat Type with Groove

Bellows Type

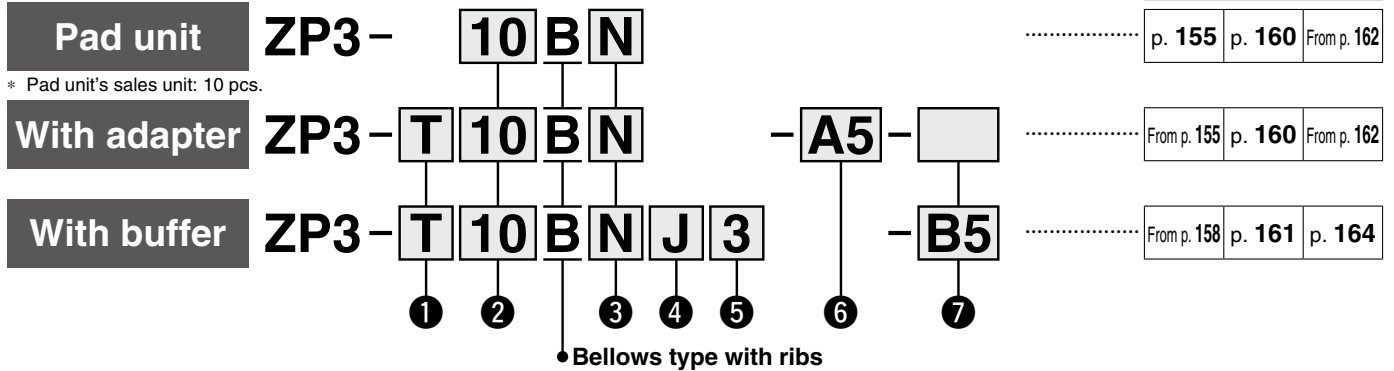
Bellows Type with Ribs

Construction

Mounting Bracket Assembly

Precautions

How to Order



① Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

② Pad diameter

10	$\varnothing 10$
13	$\varnothing 13$
16	$\varnothing 16$

③ Material

N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

④ Buffer specification

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

⑤ Buffer stroke

Stroke [mm]	Buffer specification		
	J	JB	K
3	●	—	●
6	●	—	●
10	●	—	●
15	—	●	●
20	—	●	●

With adapter

⑥ Connection thread/⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

⑥ Connection thread			⑦ Vacuum inlet			Pad diameter
Type	Symbol	Size	Type	Symbol	Size	All sizes
Male thread	A5	M5 x 0.8	—	Nil	Use the connection thread.	○
			Female thread	B5	M5 x 0.8	○
			One-touch fitting	02	$\varnothing 2$	○
	04	$\varnothing 4$		○		
	06	$\varnothing 6$		○		
	Female thread	B5	M5 x 0.8	—	Nil	Use the connection thread.
Female thread				B5	M5 x 0.8	●
One-touch fitting				02	$\varnothing 2$	●
		04	$\varnothing 4$	●		
		06	$\varnothing 6$	●		
Barb fitting		U2	For $\varnothing 2$ polyurethane tubing*1	U2	For $\varnothing 2$ polyurethane tubing*1	●
	U4			For $\varnothing 4$ soft tubing*2	●	
	U6			For $\varnothing 6$ soft tubing*2	●	

*1 Polyurethane tube piping
*2 Soft nylon/Polyurethane tube piping

With buffer

⑦ Vacuum inlet

○: ZP3-T/Vertical ●: ZP3-Y/Lateral

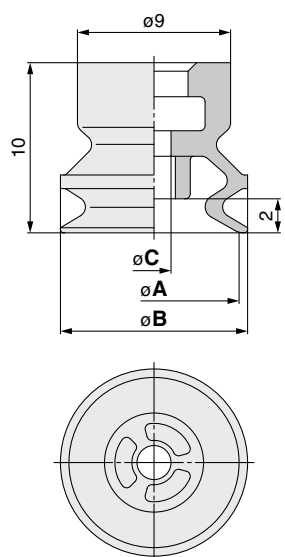
Type	Symbol	Size	Pad diameter
Female thread	B5	M5 x 0.8	○●
	02	$\varnothing 2$	○●
One-touch fitting	04	$\varnothing 4$	○●
	06	$\varnothing 6$	○●
	Barb fitting	U2	For $\varnothing 2$ polyurethane tubing
U4		For $\varnothing 4$ soft tubing	○●
U6		For $\varnothing 6$ soft tubing	○●

* It is not necessary to select a connection thread.

* The pad, mounting nut, and fitting are shipped together but do not come assembled.

Dimensions/Models

Single unit $\varnothing 10$ to $\varnothing 16$



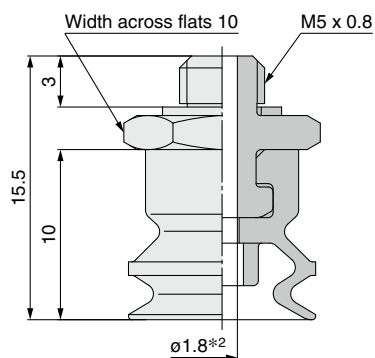
ZP3 - **10** **B** **N**
① ②

Model	Model		A	B	C	
	① Pad dia.	② Form				
ZP3	10	B	N S U F GN GS	10	11	2
	13			13	14	3
	16			16	17	

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

Construction p. 160
 Mounting Bracket Assembly From p. 162

With adapter $\varnothing 10$ to $\varnothing 16$



ZP3 - T **10** **B** **N** - **A5**
① ② ③

③ Connection thread
(Male thread)

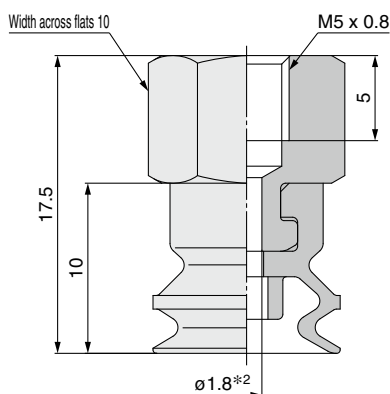
A5 M5 x 0.8

Model	Vacuum inlet direction	Model		③ Connection thread
		① Pad dia.	② Form	
ZP3	T	10	B	N S U F GN GS
		13		
		16		

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160
 Adapter Assembly p. 162



ZP3 - T **10** **B** **N** - **B5**
① ② ③

③ Connection thread
(Female thread)

B5 M5 x 0.8

Model	Vacuum inlet direction	Model		③ Connection thread
		① Pad dia.	② Form	
ZP3	T	10	B	N S U F GN GS
		13		
		16		

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160
 Adapter Assembly p. 162

Dimensions/Models

With adapter $\varnothing 10$ to $\varnothing 16$

ZP3 - T 10 B N - A12 - B5

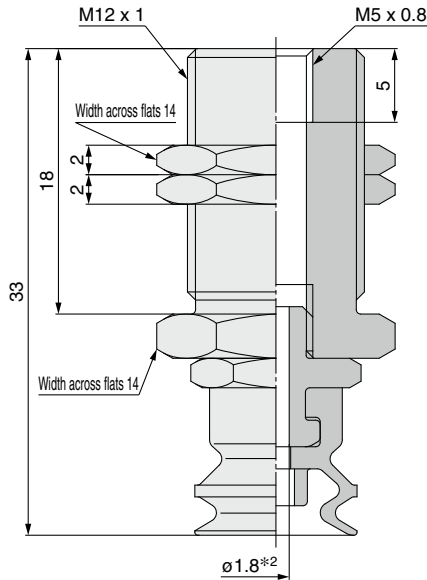
① ②

Connection thread (Male thread)

A12	M12 x 1
------------	---------

④ Vacuum inlet

B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	

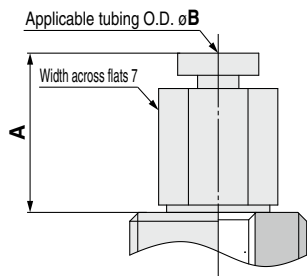


Model						
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet
ZP3	T	10 13 16	B	N S U F GN GS	A12	B5

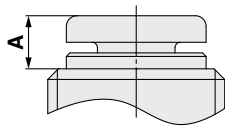
Dimensions Per Vacuum Inlet: One-touch Fitting

Model						A	B	Fitting part min. hole size	Fitting part no.	
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread					④ Vacuum inlet
ZP3	T	10 13 16	B	N S U F GN GS	A12	02	10.8	2	$\varnothing 1.4$	KQ2H02-M5N
						04	3	4	$\varnothing 1.8$	
						06	3.2	6		

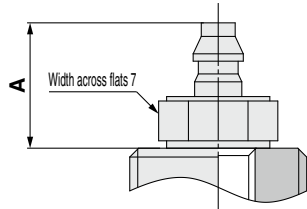
Vacuum inlet: One-touch fitting



Vacuum inlet: Built-in One-touch fitting ($\varnothing 4, \varnothing 6$)



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

Model						A	Fitting part min. hole size	Fitting part no.	
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread				④ Vacuum inlet
ZP3	T	10 13 16	B	N S U F GN GS	A12	U2	6.5	$\varnothing 0.9$	M-5AU-2
						U4	8.5	$\varnothing 1.8$	M-5AU-4
						U6	10.5	$\varnothing 2.5$	M-5AU-6

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160
Adapter Assembly p. 163

Dimensions/Models

With adapter $\varnothing 10$ to $\varnothing 16$

ZP3 - Y **10** **B** **N** - **B5** - **B5**

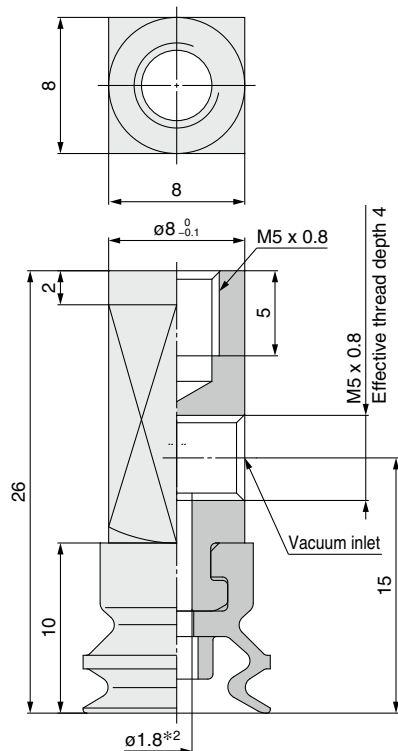
① ②

③
Connection thread
(Female thread)

B5	M5 x 0.8
----	----------

④ Vacuum inlet

B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	

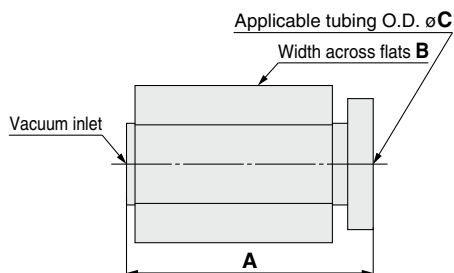


	Model					
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet
ZP3	Y	10 13 16	B	N S U F GN GS	B5	B5

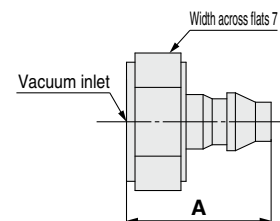
Dimensions Per Vacuum Inlet: One-touch Fitting

	Model						A	B	C	Fitting part min. hole size	Fitting part no.
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet					
ZP3	Y	10 13 16	B	N S U F GN GS	B5	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N
						04	14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
						06					

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

	Model						A	Fitting part min. hole size	Fitting part no.
	Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread	④ Vacuum inlet			
ZP3	Y	10 13 16	B	N S U F GN GS	B5	U2	6.5	$\varnothing 0.9$	M-5AU-2
						U4	8.5	$\varnothing 1.8$	M-5AU-4
						U6	10.5	$\varnothing 2.5$	M-5AU-6

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction p. 160

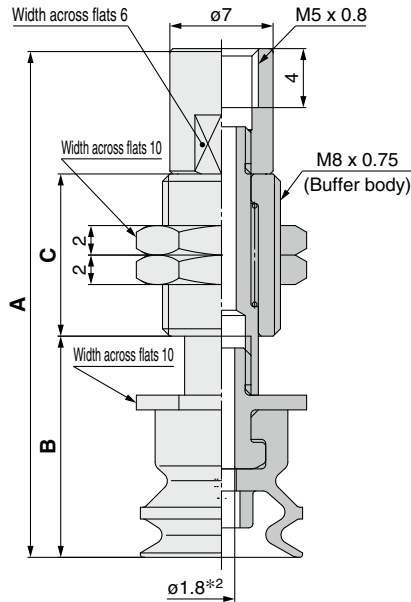
Adapter Assembly p. 162

Dimensions/Models

With buffer $\varnothing 10$ to $\varnothing 16$

ZP3 - T 10 B N J 3 - B5

①
②
④
⑤ Vacuum inlet



Buffer specification ③

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

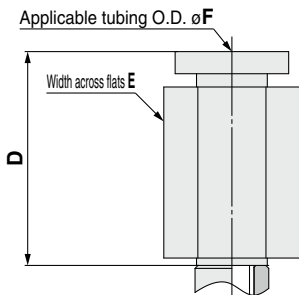
⑤ Vacuum inlet		
B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	

Model						A	B	C	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke				⑤ Vacuum inlet
ZP3	T	B	N S U F GN GS	J K	3	B5	34.5	15	11
					6		41	18	14.5
					10		51	22	20.5
					15		59	40.5	
					20		66.5	48	10

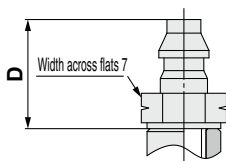
Dimensions Per Vacuum Inlet: One-touch Fitting

Model						D	E	F	Fitting part min. hole size	Fitting part no.			
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke						⑤ Vacuum inlet		
ZP3	T	B	N S U F GN GS	J JB K	3	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N		
					6						14.7	$\varnothing 2.5$	KQ2H04-M5N
					10								KQ2H06-M5N
					15								
					20								

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

Model						D	Fitting part min. hole size	Fitting part no.					
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke				⑤ Vacuum inlet				
ZP3	T	B	N S U F GN GS	J JB K	3	U2	6.5	$\varnothing 0.9$	M-5AU-2				
					6					U4	8.5	$\varnothing 1.8$	M-5AU-4
					10								
					15								
					20								

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction	p. 161
Buffer Assembly	p. 164

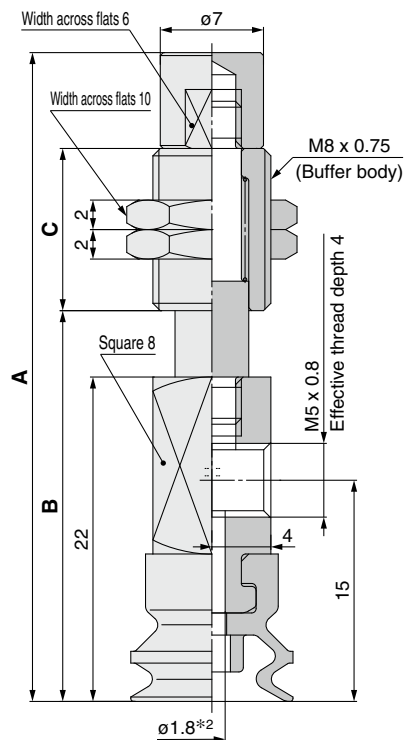
Dimensions/Models

With buffer $\varnothing 10$ to $\varnothing 16$

ZP3 - Y **10** **B** **N** **J** **3** - **B5**

① ② ③ ④

⑤ Vacuum inlet



Buffer specification ③

J	Rotating
JB	Rotating, With bushing
K	Non-rotating

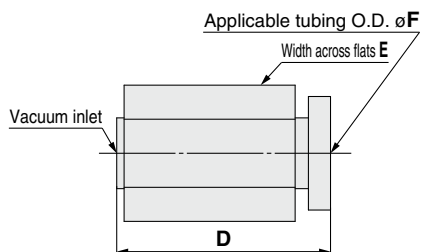
B5	M5 x 0.8	Female thread
02	$\varnothing 2$	One-touch fitting
04	$\varnothing 4$	
06	$\varnothing 6$	
U2	For $\varnothing 2$ polyurethane tubing	Barb fitting
U4	For $\varnothing 4$ soft tubing	
U6	For $\varnothing 6$ soft tubing	

		Model					A	B	C	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP3	Y	10 13 16	B	N S U F GN GS	J K JB K	3	B5	44	26.5	11
						6		50	29	14.5
						10		60	33	20.5
						15		63	46.5	
						20		70.5	54	10

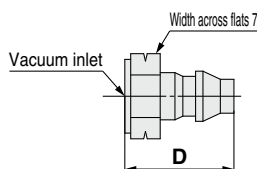
Dimensions Per Vacuum Inlet: One-touch Fitting

		Model					D	E	F	Fitting part min. hole size	Fitting part no.	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet						
ZP3	Y	10 13 16	B	N S U F GN GS	J K JB K	3	02	10.8	7	2	$\varnothing 1.4$	KQ2H02-M5N
						6		14.7	8	4	$\varnothing 2.5$	KQ2H04-M5N
						10			10	6		
						15						
						20		06				

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: Barb Fitting

		Model					D	Fitting part min. hole size	Fitting part no.			
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet						
ZP3	Y	10 13 16	B	N S U F GN GS	J K JB K	3	U2	6.5	$\varnothing 0.9$	M-5AU-2		
						6		8.5	$\varnothing 1.8$	M-5AU-4		
						10			10.5		$\varnothing 2.5$	M-5AU-6
						15						
						20		U6				

*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

*2 Indicates the minimum hole size of the adapter or vacuum pad

Construction	p. 161
Buffer Assembly	p. 164

Compact Type ZP3 Series Construction

Model
Selection

With adapter

Flat type: $\varnothing 1.5$ to $\varnothing 3.5$

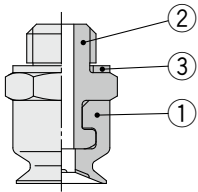
Flat type with groove: $\varnothing 4$ to $\varnothing 16$

Bellows type: $\varnothing 4$ to $\varnothing 8$

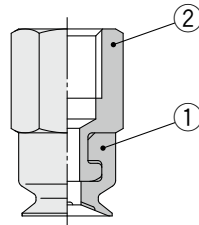
Bellows type with ribs: $\varnothing 10$ to $\varnothing 16$

Vacuum inlet direction **Vertical** T Type/ZP3-T

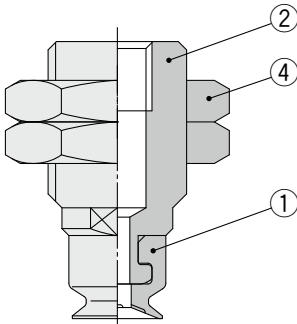
ZP3-T□-A□



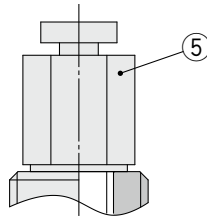
ZP3-T□-B□



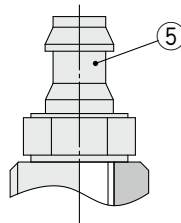
ZP3-T□-A□-B□



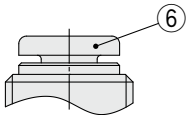
ZP3-T□-A□-(02/04)



ZP3-T□-A□-(U2/U4/U6)



ZP3-T□-A10-04
ZP3-T□-A12-(04/06)



Component Parts

No.	Description	Material	Note	
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with groove Bellows type Bellows type with ribs	
		Semiconductive silicone rubber	Flat type with groove	
		2	Adapter	Brass (Electroless nickel plating)
		3	Gasket	Stainless steel/NBR
4	Nut	Structural steel (Trivalent chromated)	M6 x 0.75 M12 x 1	
		Steel (Zinc chromated)	M10 x 1	
5	Fitting	—		
6	Cassette	—		

ZP3
Compact

Flat Type

Flat Type
with Groove

Bellows Type

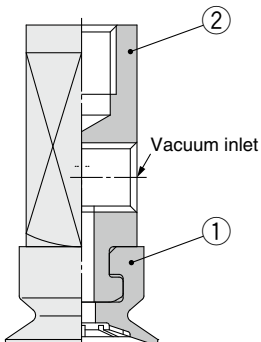
Bellows Type
with Ribs

Construction

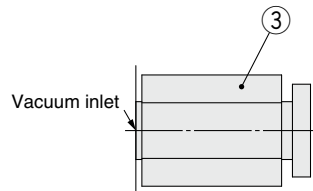
Mounting
Bracket
Assembly

Vacuum inlet direction **Lateral** Y Type/ZP3-Y

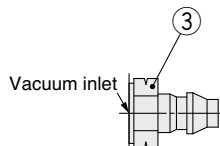
ZP3-Y□-B□-B□



ZP3-Y□-B□-(02/04/06)



ZP3-Y□-B□-(U2/U4/U6)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with groove Bellows type Bellows type with ribs
		Semiconductive silicone rubber	Flat type with groove
		2	Adapter
3	Fitting	—	

Precautions

With buffer

Flat type: $\varnothing 1.5$ to $\varnothing 3.5$

Flat type with groove: $\varnothing 4$ to $\varnothing 16$

Bellows type: $\varnothing 4$ to $\varnothing 8$

Bellows type with ribs: $\varnothing 10$ to $\varnothing 16$

Vacuum inlet direction **Vertical** T Type/ZP3-T

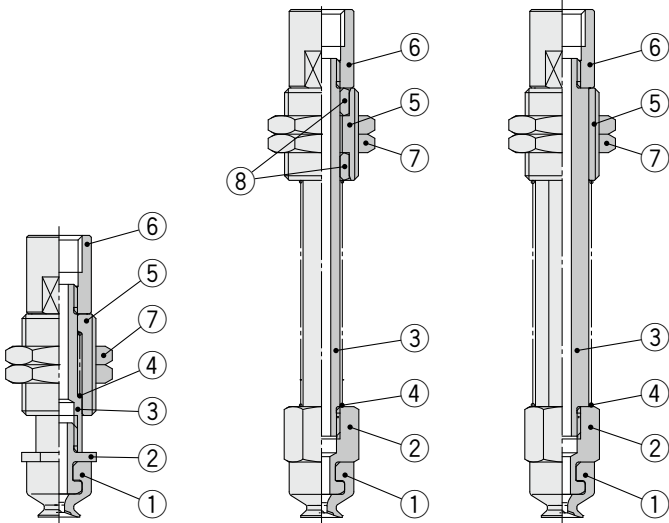
ZP3-T□(J/K)□-B□

ZP3-T□JB□-B□

ZP3-T□K(15/20)□-B□

ZP3-T□-(02/04/06)

ZP3-T□-(U2/U4/U6)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with groove Bellows type Bellows type with ribs
		Semiconductive silicone rubber	Flat type with groove
2	Adapter	Brass (Electroless nickel plating)	
3	Piston rod	Stainless steel	
4	Return spring	Stainless steel	
5	Buffer body	Brass (Electroless nickel plating)	
6	Buffer adapter	Brass (Electroless nickel plating)	
7	Nut	Structural steel (Trivalent chromated)	M6 x 0.75 M8 x 0.75
8	Bushing	—	
9	Fitting	—	

Vacuum inlet direction **Lateral** Y Type/ZP3-Y

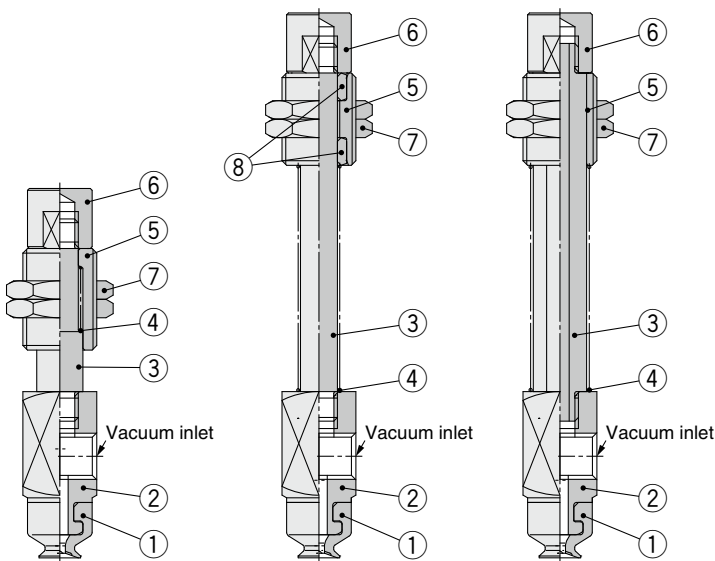
ZP3-Y□(J/K)□-B□

ZP3-Y□JP□-B□

ZP3-Y□K(15/20)□-B□

ZP3-Y□-(02/04/06)

ZP3-Y□-(U2/U4/U6)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with groove Bellows type Bellows type with ribs
		Semiconductive silicone rubber	Flat type with groove
2	Adapter	Brass (Electroless nickel plating)	
3	Piston rod	Stainless steel	
4	Return spring	Stainless steel	
5	Buffer body	Brass (Electroless nickel plating)	
6	Buffer adapter	Brass (Electroless nickel plating)	
7	Nut	Structural steel (Trivalent chromated)	M6 x 0.75 M8 x 0.75
8	Bushing	—	
9	Fitting	—	



Basic/Compact Type Specific Product Precautions

Be sure to read this before handling the products. Refer to page 375 for safety instructions. For vacuum equipment and vacuum pad precautions, refer to pages 376 to 379.

Mounting

1. Tighten the screw within the specified torque range when mounting the buffer.

Tightening with a torque outside of the specified range may cause malfunction.

Basic Type ZP Series

Model	Connection thread	Tightening torque [N·m]
ZP□(2 to 8)□(J/K)□-□-A8	M8 x 1	1.5 to 2.0
ZP□(10 to 32)□(J/K)□-□-A10	M10 x 1	2.5 to 3.5
ZP□(40/50)□(J/K)□-□-A14	M14 x 1	6.5 to 7.5

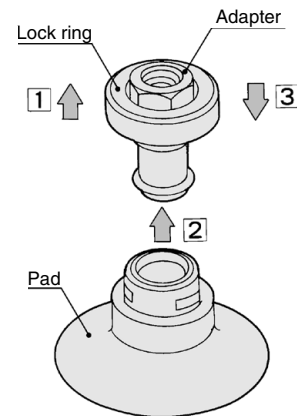
Compact Type ZP3 Series

Model	Connection thread	Tightening torque [N·m]
ZP3-□(015 to 035)□J□-□	M6 x 0.75	1.5 to 1.8
ZP3-□(015 to 035)□K□-□	M8 x 0.75	2.0 to 2.5
ZP3-□(04 to 16)□(J/JB/K)□-□		

How to Replace the Pad

1. How to replace the pad of the basic type ZP series

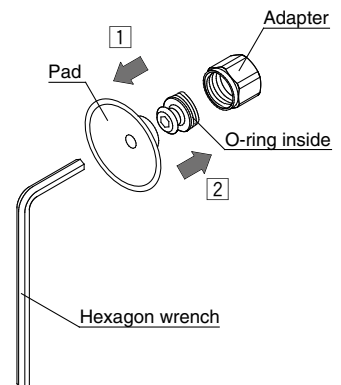
- 1 Pull the lock ring upward, and, after lifting it up to the adapter, remove the old pad by pulling it downward.
- 2 While holding the lock ring in the raised position, place a new pad onto the adapter.
- 3 Confirm that the pad is securely in place, and then return the lock ring to its original position.



2. How to replace the pad of the basic (ball joint) type ZP series

Pad diameter: $\varnothing 10$ to $\varnothing 32$

- 1 Insert a hexagon wrench into the bottom of the pad, loosen the screw, and remove the old pad from the adapter.
- 2 Place a new pad on the adapter, and, after confirming that the O-ring is in place, retighten the screw with the hexagon wrench.



Pad diameter: $\varnothing 40$, $\varnothing 50$

- 1 Pull the lock ring upward, and, after lifting it up to the adapter, remove the old pad by pulling it downward.
- 2 While holding the lock ring in the raised position, place a new pad onto the adapter.
- 3 Confirm that the pad is securely in place, and then return the lock ring to its original position.

