

Oval Pad *ZP/ZP2 Series*

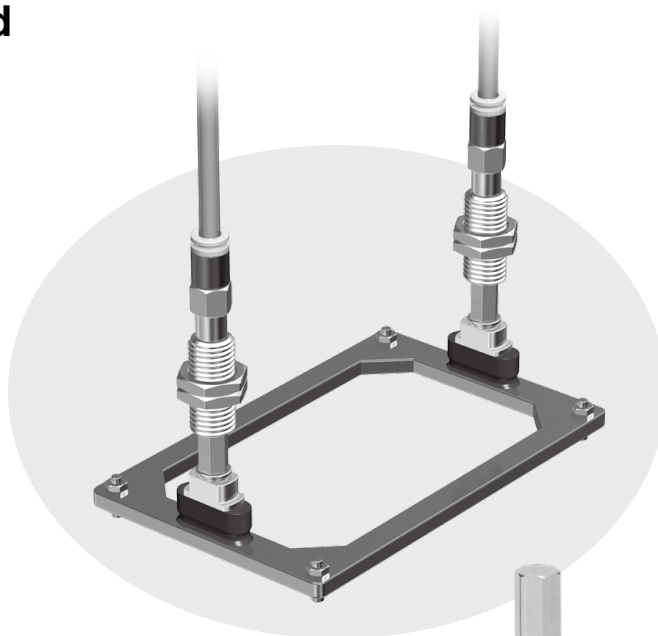
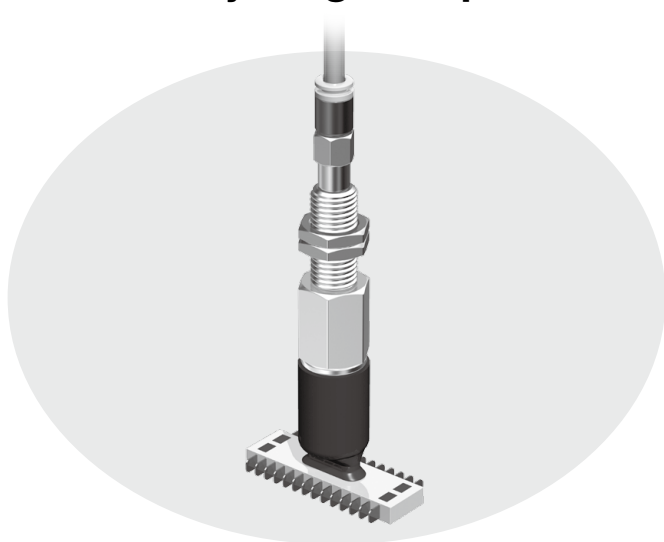
RoHS

Model
Selection

2 x 4, 3.5 x 7, 4 x 10, 4 x 20, 4 x 30, 5 x 10, 5 x 20, 5 x 30, 6 x 10, 6 x 20, 6 x 30, 8 x 20, 8 x 30

Oval Flat Type

For rectangular, vertically long, and horizontally long workpieces



ZP Series



ZP2 Series

ZP
Oval

ZP2
Oval

Construction

Mounting
Bracket
Assembly

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Construction

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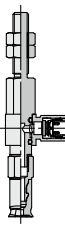
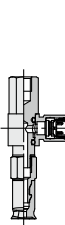
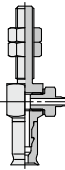
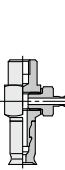
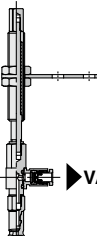
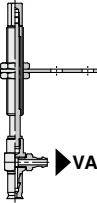
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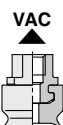
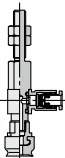
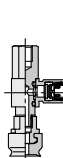
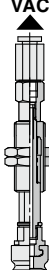
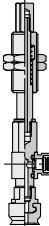
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Precautions

ZP Series

		Vacuum inlet direction	Oval flat type
Vacuum inlet direction	Single unit		p. 171
	Vertical ↑ ZPT With adapter	 	p. 171
Lateral →	ZPR With adapter	 	p. 172 p. 173
	ZPY With adapter	 	p. 174 p. 175
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	ZPY With buffer		p. 178

ZP2 Series

		Vacuum inlet direction	Oval flat type
Vacuum inlet direction	Single unit		p. 180
	Vertical ↑ ZP2-T With adapter		p. 180
Lateral →	ZP2-R With adapter	 	p. 181 p. 182
Vertical ↑	ZP2-T With buffer	 	p. 183
Lateral →	ZP2-R With buffer		p. 184

Oval Pad *ZP/ZP2 Series* Specifications

Model
Selection

Pad Material: ZP/ZP2 Series

Material	NBR (Nitrile rubber)	Silicone rubber*1*2	Urethane rubber	FKM (Fluoro rubber)	Conductive NBR (Nitrile rubber)	Conductive silicone rubber
Color of rubber	Black	White	Brown	Black		
Rubber hardness (Shore A: ±5°)	50	40	55 to 60	60	60 to 70	50 to 60

*1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

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

Adapter Specifications: ZP Series

Vacuum Inlet Direction **Vertical** T Type/ZPT

Connection	Male thread	Female thread
Pad size	2004, 3507, 4010	2004, 3507, 4010
Connection thread	M5 x 0.8 M6 x 1	M4 x 0.7 M5 x 0.8
Vacuum inlet	Use the connection thread.	

Vertical



Vacuum Inlet Direction **Lateral** R Type/ZPR

Connection	Male thread	Female thread
Pad size	2004, 3507, 4010	2004, 3507, 4010
Connection thread	M5 x 0.8 M6 x 1	M4 x 0.7 M5 x 0.8
Vacuum inlet	One-touch fitting	ø4, ø6

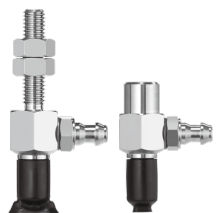
Lateral



Vacuum Inlet Direction **Lateral** Y Type/ZPY

Connection	Male thread	Female thread
Pad size	2004, 3507, 4010	2004, 3507, 4010
Connection thread	M5 x 0.8 M6 x 1	M4 x 0.7 M5 x 0.8
Vacuum inlet	Barb fitting (Nylon tubing)	ø4, ø6
	Barb fitting (Soft tubing)	

Lateral



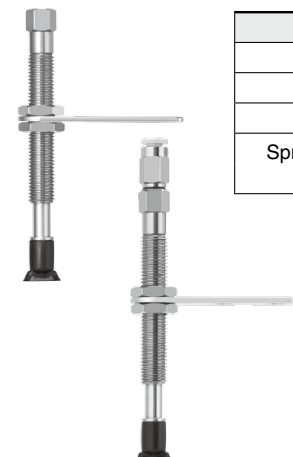
Buffer Specifications: ZP Series

Vertical

Lateral

Pad size		2004, 3507, 4010
Non-rotating specification		J: Rotating, K: Non-rotating
Stroke [mm]		6, 10, 15, 25
Connection thread		M8 x 1
Spring reactive force [N]	At 0 stroke	0.8
	At full stroke	1.2

Vertical



ZP
Oval

ZP2
Oval

Construction

Mounting
Bracket
Assembly

Precautions

Adapter Specifications: ZP2 Series

Vertical



Vacuum Inlet Direction **Vertical** T Type/ZP2-T

Connection	Female thread
Pad size	3507 to 8030
Connection thread	M5 x 0.8
Vacuum inlet	Use the connection thread.

Lateral



Vacuum Inlet Direction **Lateral** R Type/ZP2-R

Connection	Male thread	Female thread
Pad size	3507 to 8030	3507 to 8030
Connection thread	M5 x 0.8	M5 x 0.8
Vacuum inlet	One-touch fitting	ø4, ø6

Buffer Specifications: ZP2 Series

Vertical



Pad diameter		3507 to 8030
Non-rotating specification		K: Non-rotating
Stroke [mm]		10, 20, 30, 40, 50
Connection thread		M10 x 1
Spring reactive force [N]	At 0 stroke	1.0
	At full stroke	3.0



Oval Pad

Oval Flat Type

ZP Series



Model Selection

How to Order

	Pad unit	With adapter	With buffer
	ZP	ZP	ZP
		T	T
	20	20	20
	04	04	04
	U	U	U
	N	N	N
			J
			6
		A5	B3
			A8

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1 2 3 4 5 6 7 8 9

• Oval flat type

1 Adapter material

Nil	Brass
S*1	Stainless steel (Stainless steel 304)

*1 Only applicable to the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

2 Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

3/4 Pad size

Symbol	Breadth	4 Length		
		04	07	10
20	20	● (2 x 4)	—	—
	35	—	● (3.5 x 7)	—
	40	—	—	● (4 x 10)

5 Material

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

*1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

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

6 Buffer specification

J	Rotating
K	Non-rotating
JN	Rotating (Without buffer plate)
KN	Non-rotating (Without buffer plate)

7 Buffer stroke

Stroke [mm]	Pad size
	All sizes
6	●
10	●
15	●
25	●

With adapter

8 Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter All sizes
Male thread	A5	M5 x 0.8	○
	A6	M6 x 1	○
Female thread	B4	M4 x 0.7	○
	B5	M5 x 0.8	○
One-touch fitting	04	ø4	●
	06	ø6	●
Barb fitting	N4	For ø4 nylon tubing	△
	N6	For ø6 nylon tubing	△
	U4	For ø4 soft tubing	△
	U6	For ø6 soft tubing	△

9 Connection thread ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter All sizes
Male thread*1	A5	M5 x 0.8	●△
	A6	M6 x 1	●△
Female thread	B4	M4 x 0.7	●△
	B5	M5 x 0.8	●△

It is not necessary to select a connection thread for ○: ZPT/Vertical. Use the vacuum inlet.

*1 The mounting nut is shipped together with the product (unassembled).

With buffer

8 Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter All sizes
Female thread	B3	M3 x 0.5	○
	B5	M5 x 0.8	○
One-touch fitting	04	ø4	○●
	06	ø6	○●
Barb fitting	N4	For ø4 nylon tubing*1	○△
	N6	For ø6 nylon tubing*1	△
	U4	For ø4 soft tubing*2	○△
	U6	For ø6 soft tubing*2	△

*1 Nylon tube piping

*2 Soft nylon/Polyurethane tube piping

9 Connection thread ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter All sizes
Male thread*1	A8	M8 x 1	○●△

*1 The mounting nut, buffer plate, and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

ZP Oval

ZP2 Oval

Construction

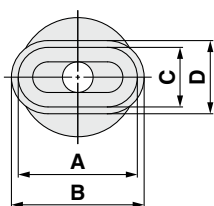
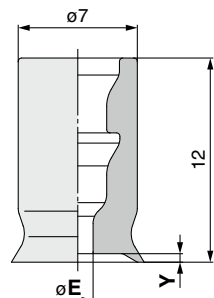
Mounting Bracket Assembly

Precautions

Dimensions/Models

Single unit **2 x 4 to 4 x 10**

ZP **2004** **U** **N**
① ②



Model				A	B	C	D	E	Y
① Pad size	Form	② Material							
ZP	2004	U	N S U F GN GS	4	4.6	2	2.6	1.2	0.3
	3507			7	7.8	3.5	4.3	1.8	0.5
	4010			10	11	4	5	2	0.8

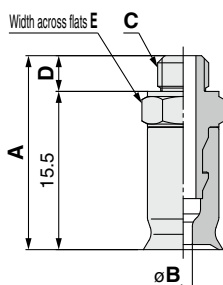
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

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Mounting Bracket Assembly From p. 189

With adapter **2 x 4 to 4 x 10**

ZP **T** **2004** **U** **N** - **A5**
① ② ③ ④



① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

④ Vacuum inlet (Male thread)

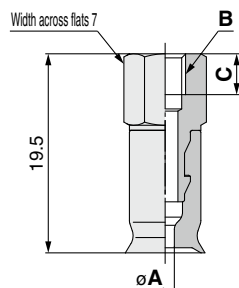
A5	M5 x 0.8
A6	M6 x 1

Model				A	B	C	D	E
① Adapter material	Vacuum inlet direction	② Pad size	Form					
ZP	Nil S	2004	U	A5	1.2	M5 x 0.8	3.5	7
		3507			1.8			
		4010			2			
		2004		A6	1.2	M6 x 1	4.5	8
		3507			1.8			
		4010			2			

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

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ZP **T** **2004** **U** **N** - **B4**
① ② ③ ④

① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

④ Vacuum inlet (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model				A	B	C
① Adapter material	Vacuum inlet direction	② Pad size	Form			
ZP	Nil S	2004	U	B4	1.2	M4 x 0.7
		3507			1.8	
		4010			2	
		2004		B5	1.2	M5 x 0.8
		3507			1.8	
		4010			2	

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

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Dimensions/Models

With adapter/One-touch fitting **2 x 4 to 4 x 10**

ZPR 2004 U N - 04 - A5

①

②

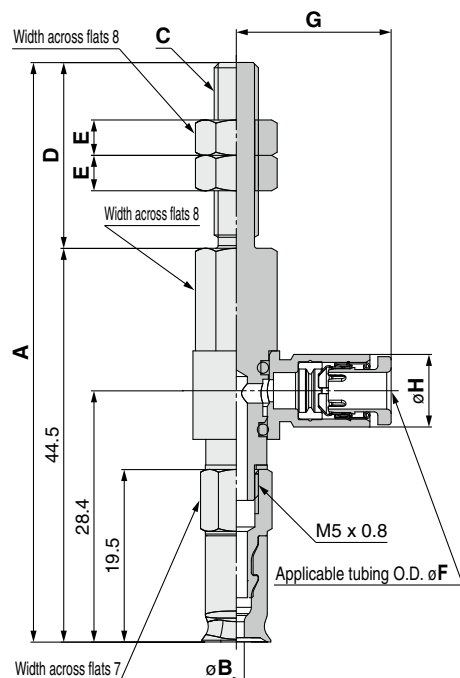
④

Connection thread
(Male thread)

Vacuum inlet
(One-touch fitting)

04	ø4
06	ø6

A5	M5 x 0.8
A6	M6 x 1



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Model						A	B	C	D	E
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread					
ZP	R	2004	N S U F GN GS	04 06	A5	65.5	1.2	M5 x 0.8	21	4
		3507					1.8			
		4010					2			
		2004			A6	70.5	1.2	M6 x 1	26	4
		3507					1.8			
		4010					2			

Dimensions Per Vacuum Inlet

Model						F	G	H	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread				
ZP	R	2004 3507 4010	U	N S U F GN GS	04	4	17.5	8.2	ø2.5
					06	6	18.3	10.4	ø4

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

ZP
Oval

ZP2
Oval

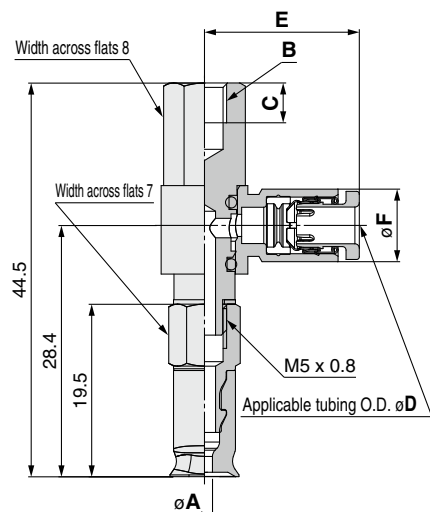
Construction

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Bracket
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Dimensions/Models

With adapter/One-touch fitting 2 x 4 to 4 x 10



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ZPR 2004 U N - 04 - B4

①

②

④

Connection thread
(Female thread)

Vacuum inlet
(One-touch fitting)

04	ø4
06	ø6

B4	M4 x 0.7
B5	M5 x 0.8

Model						A	B	C
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread			
ZP	2004	U	N S U F GN GS	04 06	B4	1.2	M4 x 0.7	4.5
	3507					1.8		
	4010					2		
	2004				B5	1.2	M5 x 0.8	5.5
	3507					1.8		
	4010					2		

Dimensions Per Vacuum Inlet

Model						D	E	F	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread				
ZP	2004	U	N S U F GN GS	04	B4 B5	4	17.5	8.2	ø2.5
	3507 4010			06		6	18.3	10.4	ø4

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

Dimensions/Models

With adapter/barb fitting **2 x 4 to 4 x 10**

ZPY **2004** U **N** - **N4** - **A5**

①

②

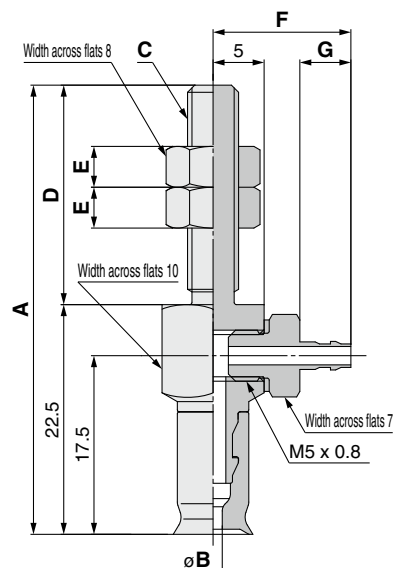
④

Connection thread
(Male thread)

Vacuum inlet
(Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

A5	M5 x 0.8
A6	M6 x 1



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Model						A	B	C	D	E
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread					
ZP	Y	U	N S U F GN GS	N4 N6 U4 U6	A5	44	1.2	M5 x 0.8	21.5	4
							1.8			
							2			
				N4 N6 U4 U6	A6	49.5	1.2	M6 x 1	27	4
							1.8			
							2			

Dimensions Per Vacuum Inlet

Model						F	G	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Vacuum inlet	④ Connection thread			
ZP	Y	U	N S U F GN GS	N4 U4	A5 A6	13.5	5	ø1.8
				N6 U6		15.5	7	ø2.5

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

ZP
Oval

ZP2
Oval

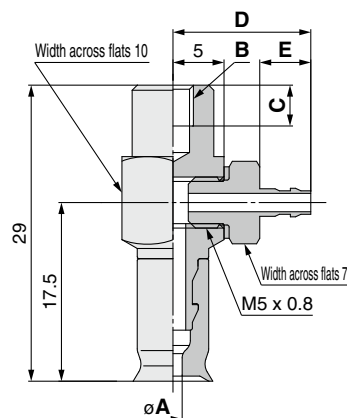
Construction

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Dimensions/Models

With adapter/barb fitting **2 x 4 to 4 x 10**



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ZPY **2004** U **N** - **N4** - **B4**

1

2

4

Connection thread
(Female thread)

Vacuum inlet
(Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

B4	M4 x 0.7
B5	M5 x 0.8

Model						A	B	C
Vacuum inlet direction	1 Pad size	Form	2 Material	3 Vacuum inlet	4 Connection thread			
ZP	Y	U	N S U F GN GS	N4 N6 U4 U6	B4	1.2	M4 x 0.7	4
						1.8		
						2		
				N4 N6 U4 U6	B5	1.2	M5 x 0.8	5
						1.8		
						2		

Dimensions Per Vacuum Inlet

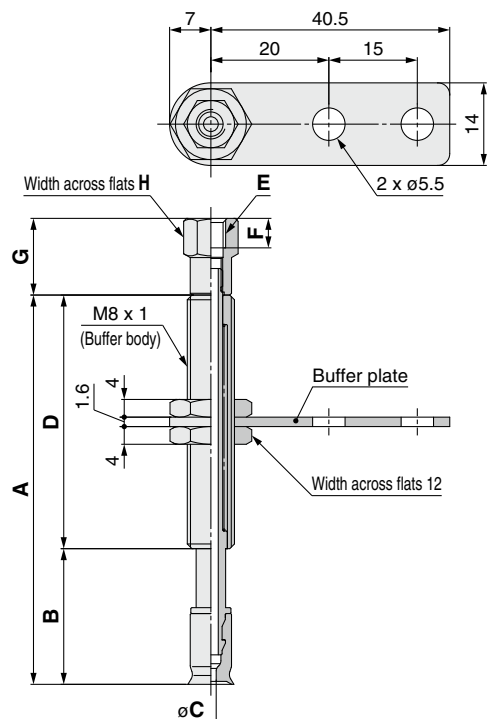
Model						D	E	Fitting part min. hole size
Vacuum inlet direction	1 Pad size	Form	2 Material	3 Vacuum inlet	4 Connection thread			
ZP	Y	U	N S U F GN GS	N4 U4	B4 B5	13.5	5	ø1.8
				N6 U6		15.5	7	ø2.5

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

Dimensions/Models

With buffer 2 x 4 to 4 x 10

The drawings show the type with a buffer plate.



ZPT **2004** **U** **N** **J** **6** - **B3** - **A8**

①

②

④

⑥

Connection thread
(Male thread)

A8 M8 x 1

Buffer specification ③

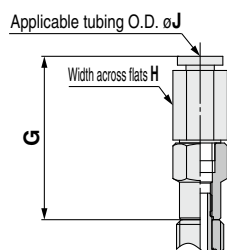
J	Rotating
K	Non-rotating
JN	Rotating (Without buffer plate)
KN	Non-rotating (Without buffer plate)

⑤ Vacuum inlet

B3	M3 x 0.5	Female thread	
B5	M5 x 0.8	Female thread	
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6	One-touch fitting	KQ2H06-M5N
N4	For ø4 nylon tubing	Barb fitting	
U4	For ø4 soft tubing	Barb fitting	

Model								A	B	C	D			
Vacuum inlet direction	① Pad size	Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread							
ZP	T	2004	U	N S U F GN GS	J K JN KN	6	B3 B5 04 06 N4 U4	A8	33	18	1.2	15		
						10			66	23		43		
						15			71	28				
						25			81	38				
	3507	U				6			33	18	1.8	15		
						10			66	23		43		
						15			71	28				
						25			81	38				
	4010	U				6			33	18	2	15		
						10			66	23		43		
						15			71	28				
						25			81	38				

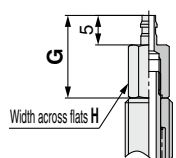
Vacuum inlet: One-touch fitting



Dimensions Per Vacuum Inlet: Female Thread

Model							E	F	G	H
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP	T	U	N S U F GN GS	J K JN KN	6	B3	M3 x 0.5	3	11	6
					10					
					15	B5	M5 x 0.8	5	13	8

Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: One-touch Fitting

Model							G	H	J	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
ZP	T	U	N S U F GN GS	J K JN KN	6	04	27.7	8	4	ø2.5
					10					
					15	06		10	6	

Construction p. 186

Buffer Assembly p. 192

Dimensions Per Vacuum Inlet: Barb Fitting

Model							G	H	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet			
ZP	T	U	N S U F GN GS	J K JN KN	6	N4	14	6	ø1.8
					10				
					15	U4			

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

ZP
Oval

ZP2
Oval

Construction

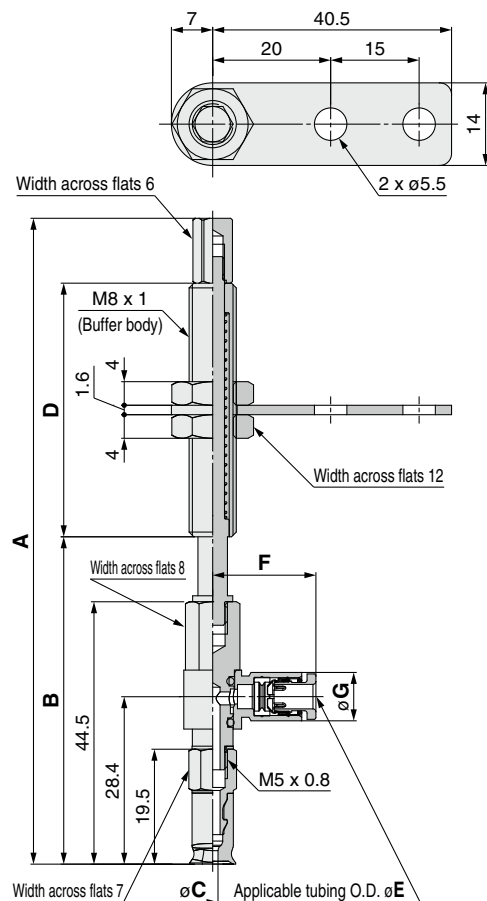
Mounting
Bracket
Assembly

Precautions

Dimensions/Models

With buffer/One-touch fitting 2 x 4 to 4 x 10

The drawings show the type with a buffer plate.



Construction	p. 186
Buffer Assembly	p. 193

ZPR **2004** **U** **N** **J** **6** - **04** - **A8**

1	2	3	4	5	6
		Buffer specification		Vacuum inlet (One-touch fitting)	Connection thread (Male thread)
J	K	JN	KN	04	06
Rotating	Non-rotating	Rotating (Without buffer plate)	Non-rotating (Without buffer plate)	ø4	ø6
					A8 M8 x 1

Model								A	B	C	D	
Vacuum inlet direction	① Pad size	Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread					
ZP	R	2004	N S U F GN GS	J K JN KN	6	04 06	A8	78.5	52.5	1.2	15	
					10			109.5	55.5		43	
					15			114.5	60.5			
					25			124.5	70.5			
		6			78.5			52.5	1.8	15		
		10			109.5			55.5		43		
		15			114.5			60.5				
		25			124.5			70.5				
	4010				6	78.5		52.5	2	15		
					10	109.5		55.5		43		
					15	114.5		60.5				
					25	124.5		70.5				

Dimensions Per Vacuum Inlet

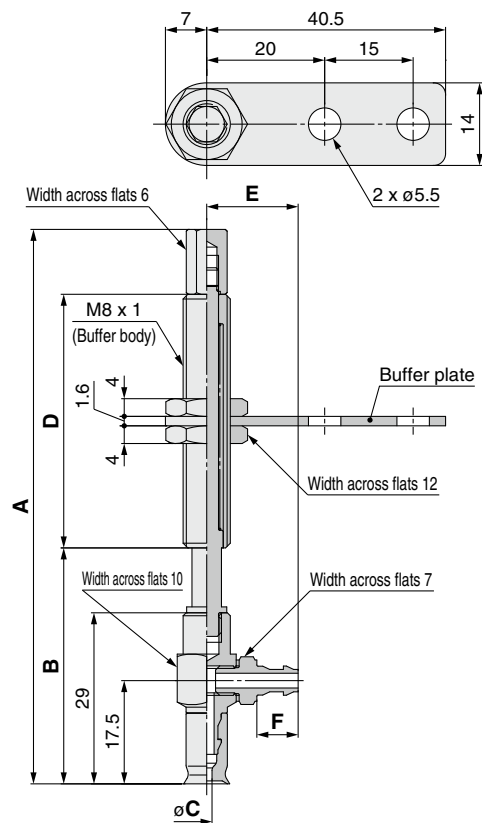
		Model						E	F	G	Fitting part min. hole size
Vacuum inlet direction	1 Pad size	Form	2 *1 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	6 Connection thread				
ZP	R	2004 3507 4010	U N S U F GN GS	J K JN KN	6	04	A8	4	17.5	8.2	ø2.5
					10 15 25			6	18.3	10.4	ø4

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

Dimensions/Models

With buffer/barb fitting 2 x 4 to 4 x 10

The drawings show the type with a buffer plate.



Construction	p. 186
Buffer Assembly	p. 194

ZPY 2004 U N J 6 - N4 - A8

①

②

④

⑥ Connection thread
(Male thread)

A8	M8 x 1
----	--------

⑤ Vacuum inlet
(Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Buffer specification ③

J	Rotating
K	Non-rotating
JN	Rotating (Without buffer plate)
KN	Non-rotating (Without buffer plate)

Model								A	B	C	D	
Vacuum inlet direction	① Pad size	Form	② Material ^{*1}	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread					
ZP	Y	2004	U	N S U F GN GS	J K JN KN	6	N4 N6 U4 U6	A8	63	37	1.2	15
						10			94	40		43
						15			99	45		
						25			109	55		
	3507	6				63			37	1.8	15	
		10				94			40		43	
		15				99			45			
		25				109			55			
	4010	6				63			37	2	15	
		10				94			40		43	
		15				99			45			
		25				109			55			

Dimensions Per Vacuum Inlet

Model								E	F	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	② *1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread			
ZP	Y	U	N S U F GN GS	J K JN KN	6	N4 U4	A8	13.5	5	ø1.8
					10 15 25	N6 U6		15.5	7	ø2.5

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

ZP
Oval

ZP2
Oval

Construction

Mounting
Bracket
Assembly

Precautions



How to Order

The diagram illustrates three different mounting bracket configurations for a unit. Each configuration is shown with a sequence of components and their corresponding dimensions and construction details.

	Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	 p. 180	p. 187	From p. 195
With adapter	 From p. 180	p. 187	p. 195
With buffer	 From p. 183	p. 188	From p. 196

Legend:

- Oval flat type
- Buffer specification: Non-rotating

1 Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral

④ Material

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

*1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

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

2/3 Pad size

Symbol		③ Length			
		07	10	20	30
② Breadth	35	● (3.5 x 7)	—	—	—
	40	—	● (4 x 10)	● (4 x 20)	● (4 x 30)
	50	—	● (5 x 10)	● (5 x 20)	● (5 x 30)
	60	—	● (6 x 10)	● (6 x 20)	● (6 x 30)
	80	—	—	● (8 x 20)	● (8 x 30)

5 Buffer stroke

Stroke [mm]	Pad size
	All sizes
10	●
20	●
30	●
40	●
50	●

With adapter

6 Vacuum inlet/7 Connection thread

○: ZP2-T/Vertical ●: ZP2-R/Lateral

⑥ Vacuum inlet			⑦ Connection thread			Pad size
Type	Symbol	Size	Type	Symbol	Size	All sizes
Female thread	B5	M5 x 0.8	—	Nil	—*1	○
One-touch fitting	04	ø4	Male thread	A5	M5 x 0.8	●
			Female thread	B5	M5 x 0.8	●
	06	ø6	Male thread	A5	M5 x 0.8	●
			Female thread	B5	M5 x 0.8	●

*1 Use the vacuum inlet.

With buffer

⑥ Vacuum inlet/⑦ Connection thread

○: ZP2-T/Vertical ●: ZP2-R/Lateral

⑥ Vacuum inlet			⑦ Connection thread			Pad size
Type	Symbol	Size	Type	Symbol	Size	All sizes
Female thread	B5	M5 x 0.8	Male thread	Nil	M10 x 1	○
One-touch	04	ø4		Nil		○●
Fitting	06	ø6		Nil		○●●

* The following parts are shipped together with the product (unassembled).

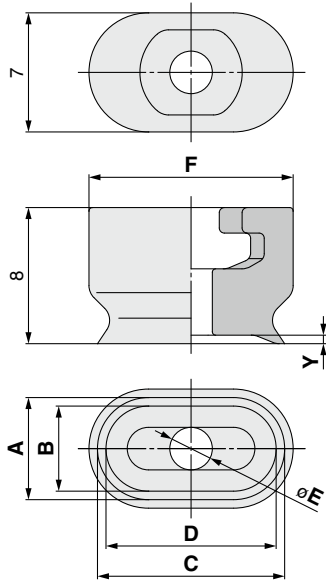
- Mounting nut for the types with an adapter or a buffer

- Buffer for the type with a buffer (Vacuum inlet: Vertical)

Dimensions/Models

Single unit **3.5 x 7 to 8 x 30**

ZP2 - 3507 W N
① ②



Model				Form	② Material	A	B	C	D	E	F	Y
①												
Pad size												
	Breadth	Length										
ZP2	35	07	W	N S U F GN GS	4.3	3.5	7.8	7	2 x 1.5	12	0.5	
	40	10			4.8	4	10.8	10				2.5
	50				6	5	11		20	2 x 1.8		
	60				7	6						21
	40	20			4.8	4	20.8	30	2 x 1.8	30		
	50				6	5	31				2 x 2.5	0.5
	60				7	6						
	80	9			8	30.8		30	30			
	40	30			4.8		4			31	30	30
	50				6		5					
	60				7	6	0.8					
	80	9			8	30.8		30	30			

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

Construction p. 187

Mounting Bracket Assembly From p. 195

ZP
Oval

ZP2
Oval

Construction

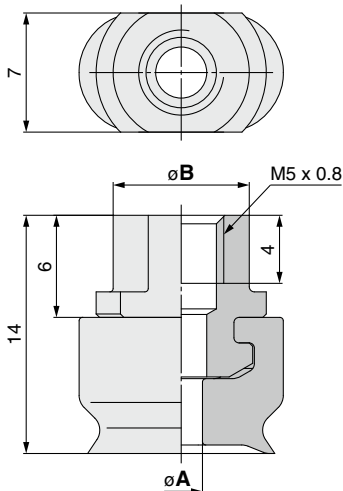
Mounting
Bracket
Assembly

With adapter **3.5 x 7 to 8 x 30**

ZP2 - T 3507 W N - B5
① ② ③

Vacuum inlet
(Female thread)

B5 M5 x 0.8



Model						A	B	
Vacuum inlet direction	① Pad size		Form	② Material	③ Vacuum inlet			
	Breadth	Length						
ZP2	T	35	07	W	N S U F GN GS	B5	2 x 1.5	8
		40	10				2.5	
		50					2 x 1.8	
		40					2 x 2	
		50	2.5					
		60	3					
		80	2 x 1.8				19	
		40	30					2 x 2.5
		50						
		60						
		80						

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

Construction p. 187

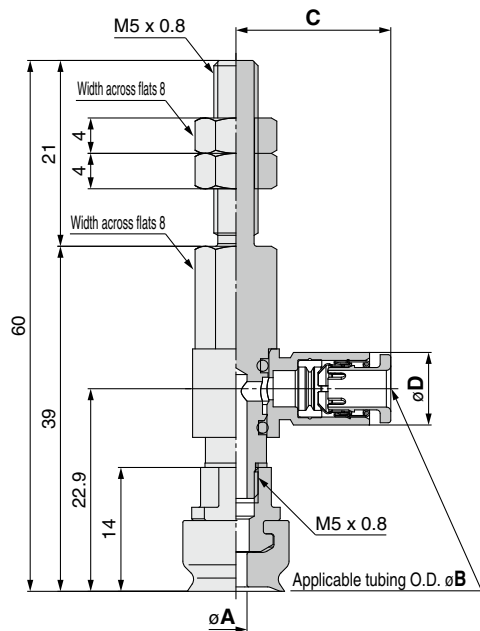
Adapter Assembly p. 195

Precautions

Dimensions/Models

With adapter/One-touch fitting 3.5 x 7 to 8 x 30

ZP2 - R 3507 W N - 04 - A5



Construction p. 187

Adapter Assembly p. 195

1 **2** **3** **4** **Connection thread (Male thread)**

Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

A5	M5 x 0.8
-----------	----------

Model							A	
Vacuum inlet direction	① Pad size		Form	② Material	③ Vacuum inlet	④ Connection thread		
ZP2	R	35	07	W	N S U F G N G S	04 06	A5	2 x 1.5
		40						2.5
		50	10					2 x 1.8
		60						2 x 2
		40	20					2.5
		50						3
		60						2 x 1.8
		80						2 x 2.5
		50	30					
		60						
80								

Dimensions Per Vacuum Inlet

Model							B	C	D	Fitting part min. hole size
Vacuum inlet direction	① Pad size Breadth Length		Form	② #1 Material	③ Vacuum inlet	④ Connection thread				
ZP2	R	35	07	W	N S U F G N S	04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
						04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
		40 50 60 80	10			04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
						04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
		40 50 60 80	20			04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
						04	4	17.5	8.2	ø2.5
						06	6	18.3	10.4	ø4
40 50 60 80	30	04	4	17.5	8.2	ø2.5				
		06	6	18.3	10.4	ø4				

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

Dimensions/Models

With adapter/One-touch fitting **3.5 x 7 to 8 x 30**

ZP2 - R **3507** W **N** - **04** - **B5**

①

②

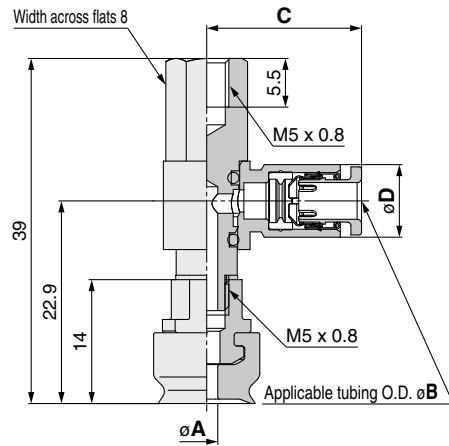
④

Connection thread
(Female thread)

B5 M5 x 0.8

Vacuum inlet
(One-touch fitting)

04	ø4
06	ø6



Construction p. 187

Adapter Assembly p. 195

Model						A		
Vacuum inlet direction	①	Form	②	③	④			
	Pad size		Material	Vacuum inlet	Connection thread			
	Breadth	Length						
ZP2	R	35	W	N S U F G N S	04 06	B5	2 x 1.5	
		40						
		50					10	2.5
		60						2 x 1.8
		40						2 x 2
		50					20	2.5
		60						3
		80						2 x 1.8
		40						
		50					30	2 x 2.5
		60						
		80						
80								

ZP
Oval

ZP2
Oval

Construction

Mounting
Bracket
Assembly

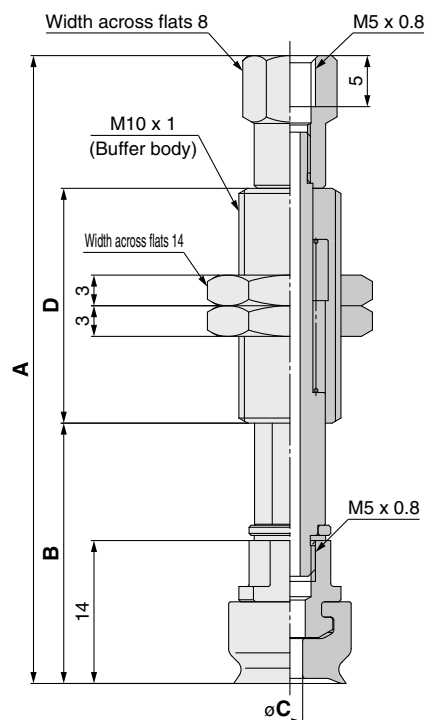
Dimensions Per Vacuum Inlet

Model						B	C	D	Fitting part min. hole size		
Vacuum inlet direction	① Pad size		Form	② #1 Material	③ Vacuum inlet					④ Connection thread	
ZP2	R	35	07	W	N S U F G N S	04	4	17.5	8.2	ø2.5	
						06	6	18.3	10.4	ø4	
		40	10			04	4	17.5	8.2	ø2.5	
		50				06	6	18.3	10.4	ø4	
		60	20			04	4	17.5	8.2	ø2.5	
		80				06	6	18.3	10.4	ø4	
		40				30	04	4	17.5	8.2	ø2.5
		50					06	6	18.3	10.4	ø4
		60	04				4	17.5	8.2	ø2.5	
		80					06	6	18.3	10.4	ø4

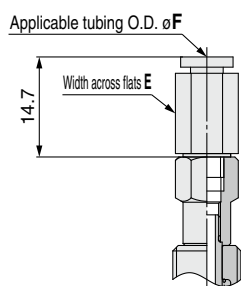
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

Dimensions/Models

With buffer 3.5 x 7 to 8 x 30



Vacuum inlet: One-touch fitting



Construction	p. 188
Buffer Assembly	p. 196

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									E	F	Fitting part min. hole size
Vacuum inlet direction	① Pad size		Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet				
	Breadth	Length									
ZP2	T	35	07	W	N S U F G N G S	K	10 20 30 40 50	04	8	4	ø2.5
								06	10	6	
		40 50 60	10					04	8	4	
								06	10	6	
		40 50 60 80	20					04	8	4	
								06	10	6	
		40 50 60 80	30					04	8	4	
								06	10	6	
								04	8	4	
								06	10	6	

ZP2 - T 3507 W N K 10 - B5

1

2

4

Buffer specification 3

K	Non-rotating
---	--------------

Vacuum inlet 5

B5	M5 x 0.8	Female thread	
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6		KQ2H06-M5N

Model									A	B	C	D
Vacuum inlet direction	① Pad size		Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
	Breadth	Length										
ZP2	T	35	07	W	N S U F G N G S	K	B5	10	99.5	35.5	51	
								30	109.5	45.5	77	
								40	145.5	55.5		
								50	155.5	65.5		
								40	10	10	61.5	25.5
		20	99.5							35.5	51	
		30	109.5							45.5	77	
		40	145.5							55.5		
		50	155.5							65.5		
		50 60						2.5	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		40						2 x 1.8	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		50	20					2 x 2	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		60						2.5	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		80						3	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		40	30					2 x 1.8	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	
		50 60 80						2 x 2.5	10	61.5	25.5	23
									20	99.5	35.5	51
									30	109.5	45.5	77
									40	145.5	55.5	
									50	155.5	65.5	

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

Dimensions/Models

With buffer/One-touch fitting **3.5 x 7 to 8 x 30**

ZP2 - R 3507 W N K 10 - 04

①

②

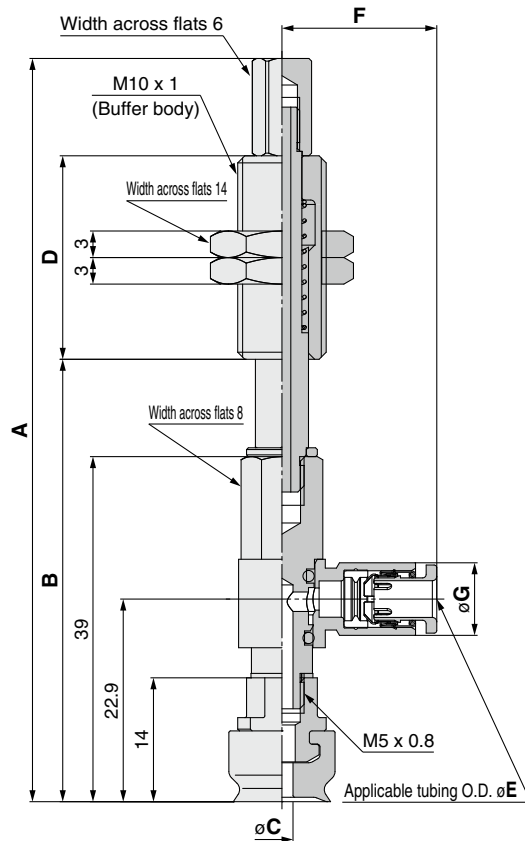
④

Buffer specification ③

K Non-rotating

Vacuum inlet ⑤
(One-touch fitting)

04	ø4
06	ø6



Construction p. 188

Buffer Assembly p. 197

Dimensions Per Vacuum Inlet

Model									E	F	G	Fitting part min. hole size	
Vacuum inlet direction	① Pad size		Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet						
	Breadth	Length											
ZP2	R	35	07	W	N S U F G N G S	K	10 20 30 40 50	04	4	17.5	8.2	ø2.5	
								06	6	18.3	10.4	ø4	
		40 50 60	10					04	4	17.5	8.2	ø2.5	
								06	6	18.3	10.4	ø4	
		40 50 60 80	20					04	4	17.5	8.2	ø2.5	
								06	6	18.3	10.4	ø4	
		40 50 60 80	30					04	4	17.5	8.2	ø2.5	
								06	6	18.3	10.4	ø4	

Model									A	B	C	D
Vacuum inlet direction	① Pad size Breadth	① Pad size Length	Form	② Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet					
ZP2	R	35	07	W	N S U F G N G S	K	10	04 06	84	50	2 x 1.5	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		40	10				10		84	50	2 x 1.5	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		50 60	10				10		84	50	2.5	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		40	20				10		84	50	2 x 1.8	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		50	20				10		84	50	2 x 2	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		60	20				10		84	50	2.5	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		80	20				10		84	50	3	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
		40	30				10		84	50	2 x 1.8	23
							20		122	60		51
							30		132	70		77
							40		168	80		77
50 60 80	30	10	84	50	2 x 2.5	23						
		20	122	60		51						
		30	132	70		77						
		40	168	80		77						

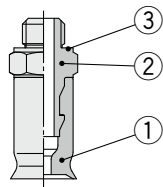
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

Oval Pad *ZP Series* Construction

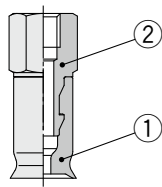
With adapter Oval flat type: 2004/3507/4010

Vacuum inlet direction **Vertical** T Type/ZP□T

ZP□T□-(A5/A6)



ZP□T□-(B4/B5)

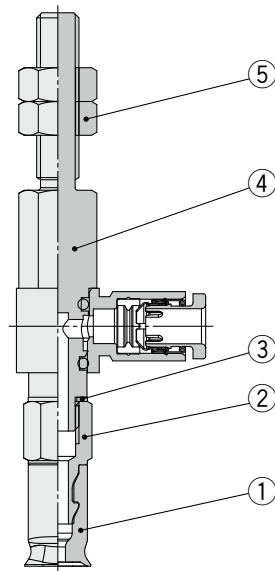


Component Parts

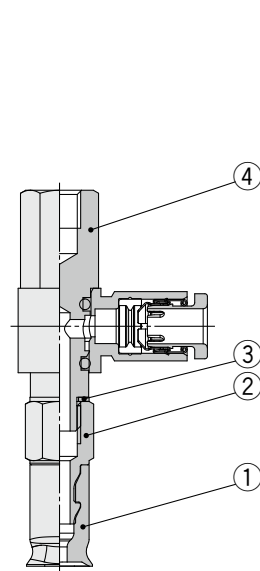
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	ZPT
		Stainless steel	ZPST
3	Gasket	Stainless steel/NBR	ZPT
		Stainless steel/FKM	ZPST

Vacuum inlet direction **Lateral** R Type/ZPR

ZPR□-(04/06)-(A5/A6)



ZPR□-(04/06)-(B4/B5)

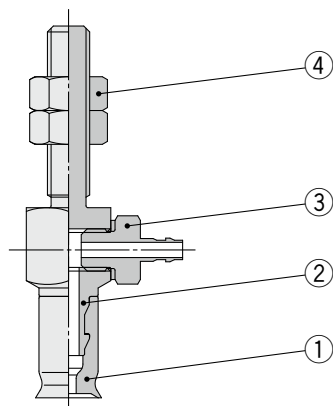


Component Parts

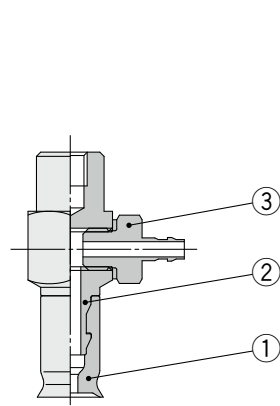
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel 304/NBR	
4	Adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	Nut	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1

Vacuum inlet direction **Lateral** Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-(A5/A6)



ZPY□-(N4/N6/U4/U6)-(B4/B5)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Barb fitting	—	
4	Nut	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1

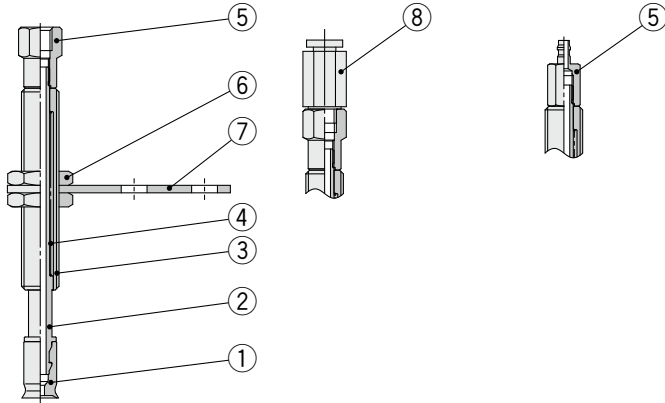
With buffer Oval flat type: 2004/3507/4010

Vacuum inlet direction **Vertical** T Type/ZPT

ZPT□-(B3/B5)-A8

ZPT□-(04/06)-A8

ZPT□-(N4/U4)-A8

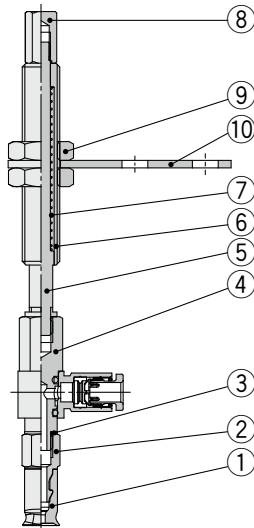


Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Piston rod	Stainless steel	
3	Buffer body	Brass (Electroless nickel plating)	
4	Return spring	Stainless steel	
5	Buffer adapter	Brass (Electroless nickel plating)	
6	Nut	Carbon steel (Zinc chromated)	M8 x 1
7	Buffer plate	Steel (Trivalent chromated)	
8	One-touch fitting	—	

Vacuum inlet direction **Lateral** R Type/ZPR

ZPR□-(04/06)-A8

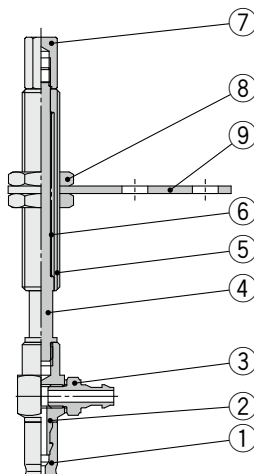


Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel 304/NBR	
4	Adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	Piston rod	Stainless steel	
6	Buffer body	Brass (Electroless nickel plating)	
7	Return spring	Stainless steel	
8	Buffer adapter	Brass (Electroless nickel plating)	
9	Nut	Carbon steel (Zinc chromated)	M8 x 1
10	Buffer plate	Steel (Trivalent chromated)	

Vacuum inlet direction **Lateral** Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-A8



Component Parts

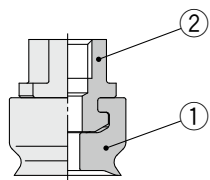
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Barb fitting	—	
4	Piston rod	Stainless steel	
5	Buffer body	Brass (Electroless nickel plating)	
6	Return spring	Stainless steel	
7	Buffer adapter	Brass (Electroless nickel plating)	
8	Nut	Carbon steel (Zinc chromated)	M8 x 1
9	Buffer plate	Steel (Trivalent chromated)	

Oval Pad **ZP2 Series** Construction

With adapter Oval flat type: 3507 to 8030

Vacuum inlet direction **Vertical** T Type/ZP2-T

ZP2-T□-B5



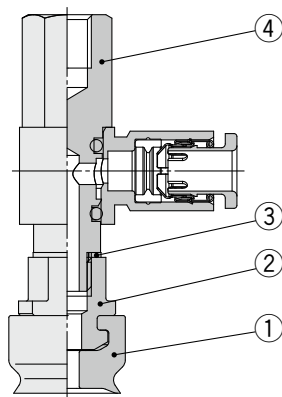
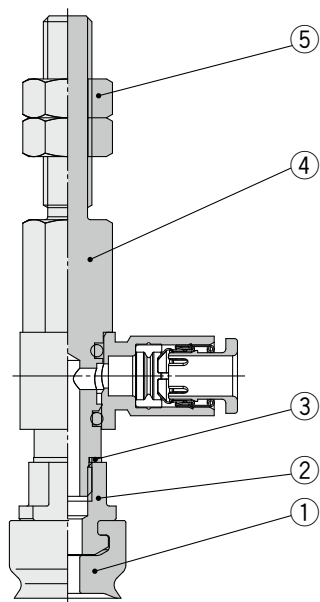
Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	

Vacuum inlet direction **Lateral** R Type/ZP2-R

ZP2-R□-(04/06)-A5

ZP2-R□-(04/06)-B5



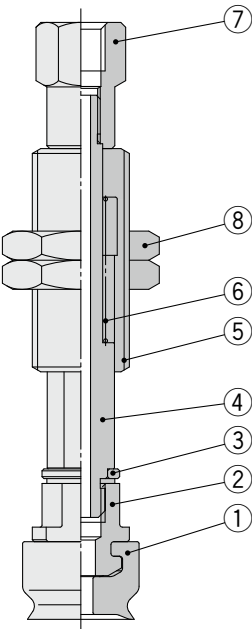
Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel/NBR	
4	Adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	Nut	Rolled steel (Zinc chromated)	M5 x 0.8

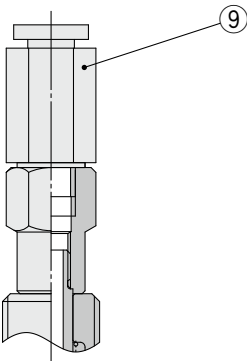
With buffer Oval flat type: 3507 to 8030

Vacuum inlet direction **Vertical** T Type/ZP2-T

ZP2-T□-B5



ZP2-T□-(04/06)

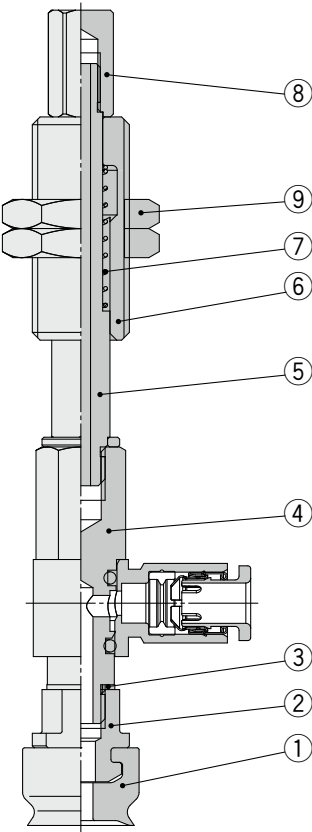


Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel/NBR	
4	Piston rod	Stainless steel	
5	Buffer body	Brass (Electroless nickel plating)	
6	Return spring	Stainless steel	
7	Buffer adapter	Brass (Electroless nickel plating)	
8	Nut	Steel (Zinc chromated)	M10 x 1
9	One-touch fitting	—	

Vacuum inlet direction **Lateral** R Type/ZP2-R

ZP2-R□-(04/06)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel/NBR	
4	Adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	Piston rod	Stainless steel	
6	Buffer body	Brass (Electroless nickel plating)	
7	Return spring	Stainless steel	
8	Buffer adapter	Brass (Electroless nickel plating)	
9	Nut	Steel (Zinc chromated)	M10 x 1



Oval Pad

Specific Product Precautions

Be sure to read this before handling the products.

For safety instructions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

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.

Oval Pad ZP Series

Model	Connection thread	Tightening torque [N·m]
ZP□(J/K)□-□-A8	M8 x 1	1.5 to 2.0

Oval Pad ZP2 Series

Model	Connection thread	Tightening torque [N·m]
ZP2-□K□-□	M10 x 1	2.5 to 3.5

2. Tighten the vacuum inlet male thread adapter (with a gasket seal) within the specified torque range.

Oval Pad ZP Series

Model	Connection thread	Tightening torque [N·m]
ZP□T□U□-A5	M5 x 0.8	1.3 to 1.7
ZP□T□U□-A6	M6 x 1	1.6 to 2.0