

# Oval Pad *ZP/ZP2 Series*

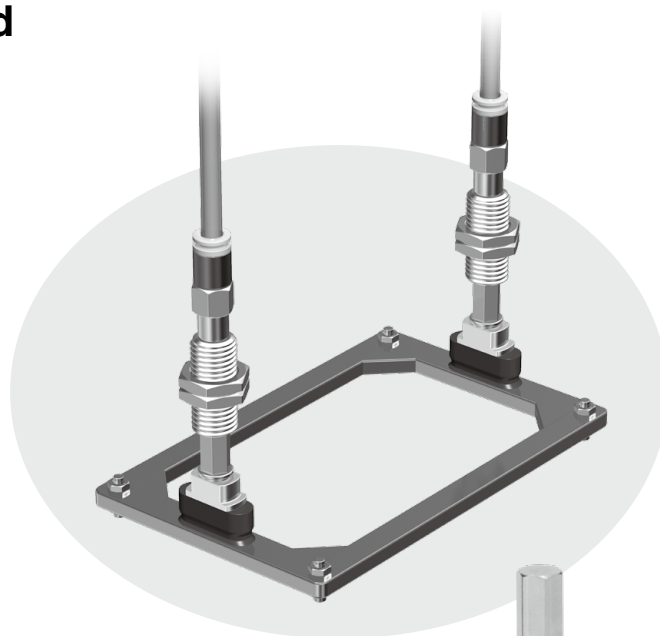
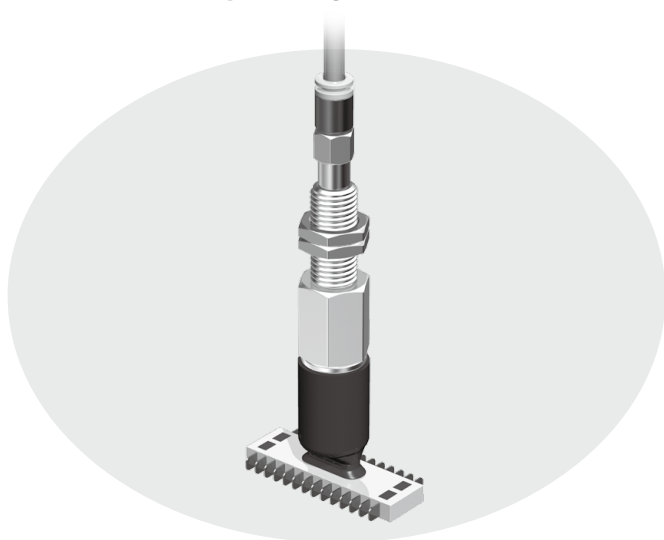
RoHS

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

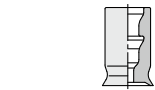

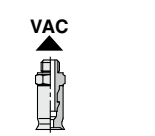
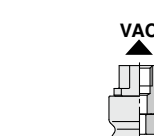
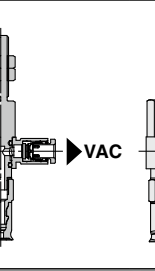
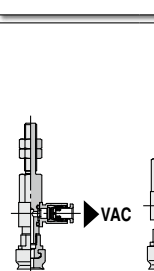
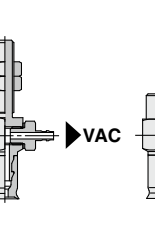
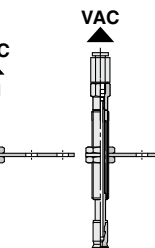
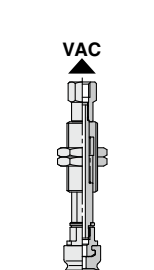
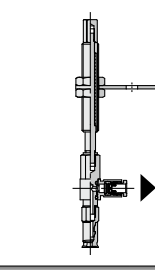
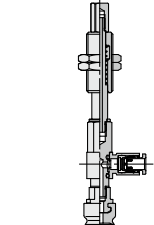
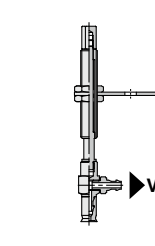
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Precautions

<b>ZP Series</b>		<b>ZP2 Series</b>	
		Vacuum inlet direction	Oval flat type
Vacuum inlet direction	Single unit		
Vertical	ZPT With adapter		
Lateral	ZPR With adapter		
Lateral	ZPY With adapter		
Vertical	ZPT With buffer		
Lateral	ZPR With buffer		
Lateral	ZPY With buffer		

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# Oval Pad *ZP/ZP2* Series Specifications

## 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 65	50 to 60

\*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 Japan 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: 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.	



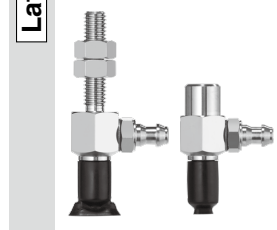
### Vacuum Inlet Direction **Lateral** R Type/ZPR

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	ø4, ø6



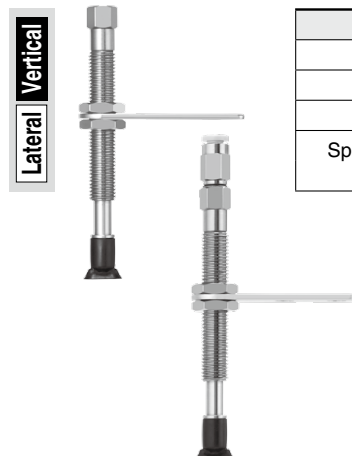
### Vacuum Inlet Direction **Lateral** Y Type/ZPY

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	ø4, ø6
	Barb fitting (Soft tubing)		



## Buffer Specifications: ZP Series

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



**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

Lateral



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

**ZP** **20** **04** **U** **N**

\* Pad unit's sales unit: 10 pcs.

#### With adapter

**ZP** **T** **20** **04** **U** **N** **A5**

#### With buffer

**ZP** **T** **20** **04** **U** **N** **J** **6** **B3** **A8**



● Oval flat type

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#### 1 Adapter material

<b>Nil</b>	Brass
<b>S*</b>	Stainless steel (Stainless steel 304)

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

#### 2 Vacuum inlet direction

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

#### 3/4 Pad size

Symbol	4 Length		
	<b>04</b>	<b>07</b>	<b>10</b>
3 Breadth	20 (2 x 4)	—	—
	35	—	—
	40	—	—

#### 5 Material

<b>N</b>	NBR
<b>S</b>	Silicone rubber*1 *2
<b>U</b>	Urethane rubber
<b>F</b>	FKM
<b>GN</b>	Conductive NBR
<b>GS</b>	Conductive 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 Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Ministry of Health and Welfare Notification No. 370, 1959)

#### 6 Buffer specification

<b>J</b>	Rotating
<b>K</b>	Non-rotating
<b>JN</b>	Rotating (Without buffer plate)
<b>KN</b>	Non-rotating (Without buffer plate)

#### 7 Buffer stroke

Stroke [mm]	Pad size
	All sizes
<b>6</b>	●
<b>10</b>	●
<b>15</b>	●
<b>25</b>	●

#### With adapter

#### 8 Vacuum inlet

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

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

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

#### 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	<b>B3</b>	M3 x 0.5	○
	<b>B5</b>	M5 x 0.8	○
One-touch fitting	<b>04</b>	ø4	○●
	<b>06</b>	ø6	○●
Barb fitting	<b>N4</b>	For ø4 nylon tubing*1	○△
	<b>N6</b>	For ø6 nylon tubing*1	△
	<b>U4</b>	For ø4 soft tubing*2	○△
	<b>U6</b>	For ø6 soft tubing*2	△

\*1 Nylon tube piping

\*2 Soft nylon/Polyurethane tube piping

#### 9 Connection thread

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

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	<b>A8</b>	M8 x 1	○●△

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

ZP Oval

ZP2 Oval

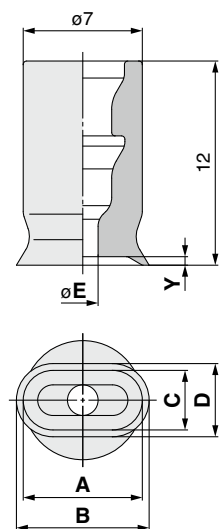
Construction

Mounting Bracket Assembly

Precautions

## Dimensions/Models

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



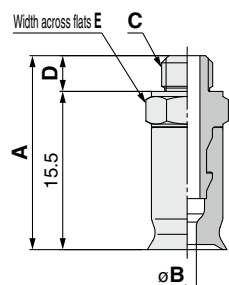
ZP **2004** U **N**  
① ②

Model			A	B	C	D	E	Y
① Pad size	Form	② Material <sup>*1</sup>						
ZP	U	2004	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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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)

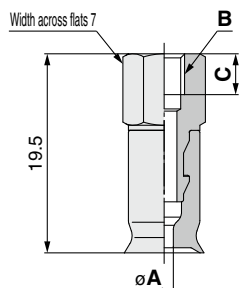
④ Vacuum inlet (Male thread)

A5	M5 x 0.8
A6	M6 x 1

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Model						A	B	C	D	E
① Adapter material	Vacuum inlet direction	② Pad size	Form	③ Material <sup>*1</sup>	④ Vacuum inlet					
ZP	Nil S	T	U	N S U F GN GS	A5	19	1.2	M5 x 0.8	3.5	7
							1.8			
							2			
					A6	20	1.2	M6 x 1	4.5	8
							1.8			
							2			

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



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

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Model						A	B	C	
① Adapter material	Vacuum inlet direction	② Pad size	Form	③ Material <sup>*1</sup>	④ Vacuum inlet				
ZP	Nil S	T	U	N S U F GN GS	B4	1.2	M4 x 0.7	4	
									1.8
									2
					B5	1.2	M5 x 0.8	5	
									1.8
									2

\*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 2 x 4 to 4 x 10**

ZPR **2004** **U** **N** - **04** - **A5**

①

②

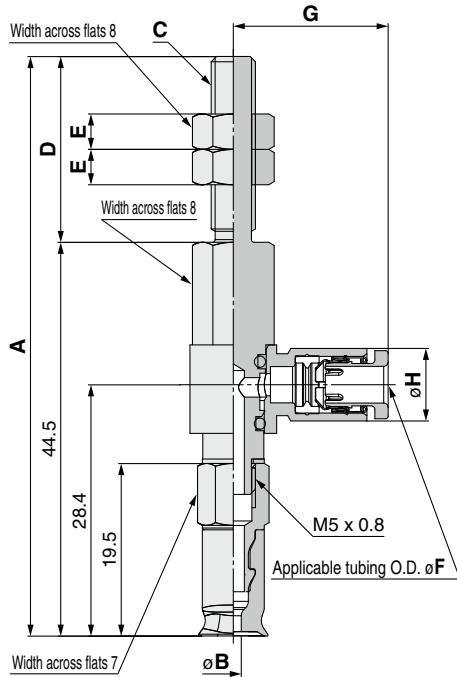
④

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	U	N S U F GN GS	04 06	A5	1.2	M5 x 0.8	21	4
		3507					1.8			
		4010				2	M6 x 1	26	4	
		2004				1.2				
3507	1.8	A6	2	M6 x 1	26	4				
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	U	N S U F GN GS	04	4	17.5	8.2	ø2.5
		3507			A5 A6				
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/One-touch fitting 2 x 4 to 4 x 10**

ZPR **2004** **U** **N** - **04** - **B4**

①

②

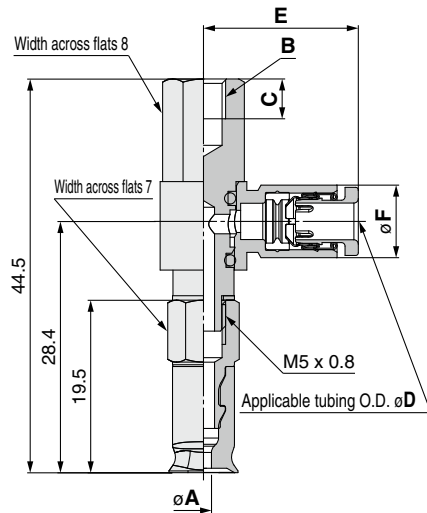
④

Connection thread  
(Female thread)

Vacuum inlet  
(One-touch fitting)

04	ø4
06	ø6

B4	M4 x 0.7
B5	M5 x 0.8



Construction	p. 185
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		Model				A	B	C	
Vacuum inlet direction	① Pad size	Form	②*1 Material	③ Vacuum inlet	④ Connection thread				
ZP	R	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	R	2004	U	N S U F GN GS	04	B4 B5	4	17.5	8.2	ø2.5
		3507			06		6			10.4
		4010								

\*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

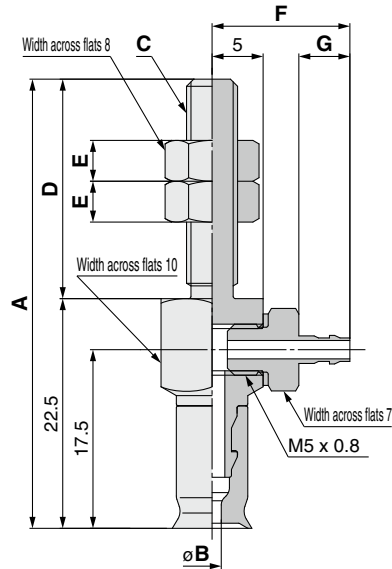
④

**Connection thread (Male thread)**

**Vacuum inlet (Barb fitting)**

<b>A5</b>	M5 x 0.8
<b>A6</b>	M6 x 1

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



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	Vacuum inlet direction	Model				A	B	C	D	E	
		① Pad size	Form	② Material	③ Vacuum inlet						④ Connection thread
ZP	Y	2004	U	N S U F GN GS	N4 N6 U4 U6	A5	44	1.2	M5 x 0.8	21.5	4
		3507						1.8			
		2004			A6	49.5	1.2	M6 x 1	27	4	
		3507					1.8				
		4010					2				

**Dimensions Per Vacuum Inlet**

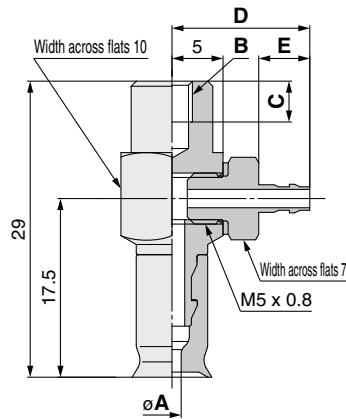
	Vacuum inlet direction	Model				F	G	Fitting part min. hole size
		① Pad size	Form	② Material	③ Vacuum inlet			
ZP	Y	2004	U	N S U F GN GS	N4 U4	13.5	5	ø1.8
		3507						
		4010			N6 U6	15.5	7	ø2.5

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

## Dimensions/Models

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

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



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① ② ③ ④  
Vacuum inlet (Barb fitting)  
④ Connection thread (Female thread)

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

<b>B4</b>	M4 x 0.7
<b>B5</b>	M5 x 0.8

	Vacuum inlet direction	Model				A	B	C	
		① Pad size	Form	② <sup>*1</sup> Material	③ Vacuum inlet				④ Connection thread
ZP	Y	2004	U	N S U F GN GS	N4 N6 U4 U6	B4	1.2	M4 x 0.7	4
		3507					1.8		
		4010					2		
		2004			B5	1.2	M5 x 0.8	5	
		3507				1.8			
		4010				2			

### Dimensions Per Vacuum Inlet

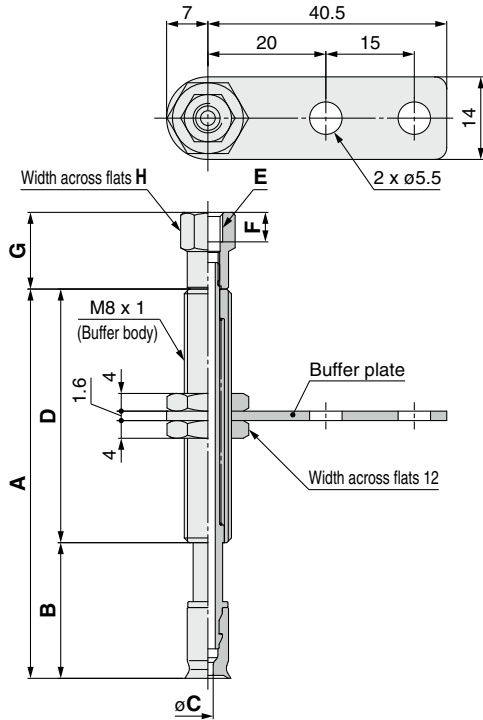
	Vacuum inlet direction	Model				D	E	Fitting part min. hole size	
		① Pad size	Form	② <sup>*1</sup> Material	③ Vacuum inlet				④ Connection thread
ZP	Y	2004 3507 4010	U	N S U F GN GS	N4 U4	B4 B5	13.5	5	ø1.8
		N6 U6			15.5		7	ø2.5	

\*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**

**Buffer specification** ③

<b>J</b>	Rotating
<b>K</b>	Non-rotating
<b>JN</b>	Rotating (Without buffer plate)
<b>KN</b>	Non-rotating (Without buffer plate)

**⑥ Connection thread (Male thread)**

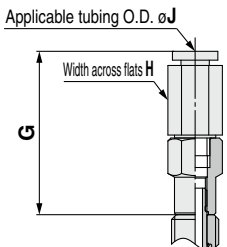
<b>A8</b>	M8 x 1
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**⑤ Vacuum inlet**

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

		Model						A	B	C	D	
Vacuum inlet direction	① Pad size	Form	②*1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread					
ZP	T	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		
								6	33	18	1.8	15
								10	66	23		43
		15	71	28								
		25	81	38								
		6	33	18	2	15						
		10	66	23		43						
		15	71	28								
		25	81	38								

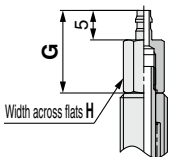
**Vacuum inlet: One-touch fitting**



**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	⑥ Connection thread				
ZP	T	U	N S U F GN GS	J K JN KN	6	B3 B5	A8	M3 x 0.5	3	11	6
					10 15 25			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	⑥ Connection thread				
ZP	T	U	N S U F GN GS	J K JN KN	6	04 06	A8	27.7	8	4	ø2.5
					10 15 25				10	6	

- Construction p. 186
- Buffer Assembly p. 192

**Dimensions Per Vacuum Inlet: Barb Fitting**

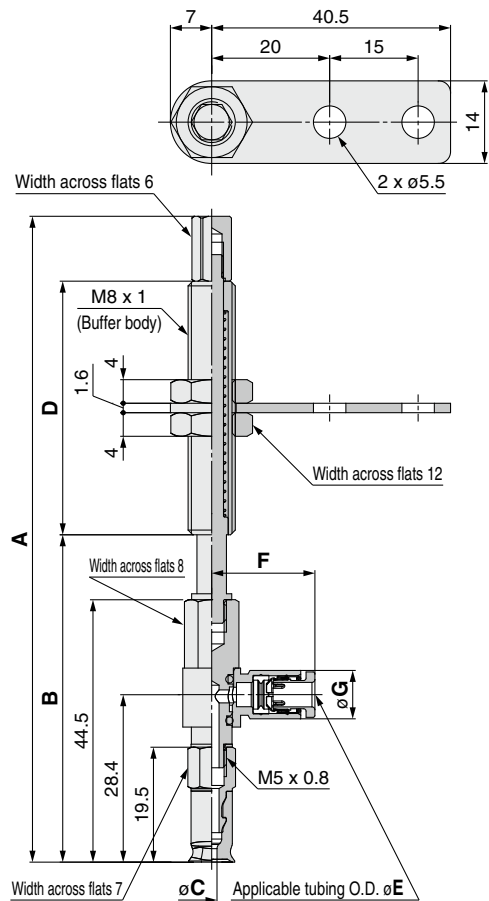
		Model						G	H	Fitting part min. hole size
Vacuum inlet direction	① Pad size	Form	②*1 Material	③ Buffer spec.	④ Buffer stroke	⑤ Vacuum inlet	⑥ Connection thread			
ZP	T	U	N S U F GN GS	J K JN KN	6	N4 U4	A8	14	6	ø1.8
					10 15 25					

\*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 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**

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

	Vacuum inlet direction	Model						A	B	C	D		
		<b>1</b> Pad size	Form	<b>2</b> *1 Material	<b>3</b> Buffer spec.	<b>4</b> Buffer stroke	<b>5</b> Vacuum inlet					<b>6</b> Connection thread	
ZP	R	2004	U	N S U F GN GS	J K JN KN	6	04	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										
	R	3507	U		N S U F GN GS	J K JN KN	6	06	A8	78.5	52.5	2	15
							10			109.5	55.5		43
							15			114.5	60.5		
		25				124.5	70.5						
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

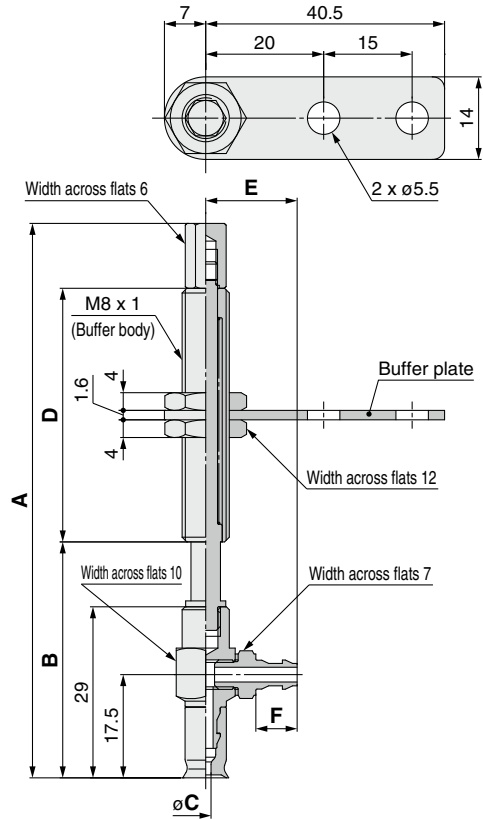
	Vacuum inlet direction	Model						E	F	G	Fitting part min. hole size	
		<b>1</b> Pad size	Form	<b>2</b> *1 Material	<b>3</b> Buffer spec.	<b>4</b> Buffer stroke	<b>5</b> Vacuum inlet					<b>6</b> Connection thread
ZP	R	2004 3507 4010	U	N S U F GN GS	J K JN KN	6	04	A8	4	17.5	8.2	ø2.5
						10 15 25			06	6	18.3	10.4

\*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 ③ ④

⑥ **Connection thread (Male thread)**

**A8** M8 x 1

**Buffer specification** ③

<b>J</b>	Rotating
<b>K</b>	Non-rotating
<b>JN</b>	Rotating (Without buffer plate)
<b>KN</b>	Non-rotating (Without buffer plate)

⑤ **Vacuum inlet (Barb fitting)**

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

		Model						A	B	C	D				
Vacuum inlet direction	① Pad size	Form	② *1 Material	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		43			
												25	109	55	15
												6	63	37	43
												10	94	40	15
					15	99	45	43							
					25	109	55	15							
					6	63	37	43							
					10	94	40	15							
					15	99	45	43							
					25	109	55	15							

**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	2004 3507 4010	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

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



# Oval Pad

## Oval Flat Type

# ZP2 Series



### How to Order

	Pad unit	Dimensions/Models	Construction	Mounting Bracket Assembly
	ZP2- <b>35</b> <b>07</b> <b>W</b> <b>N</b>	p. 180	p. 187	From p. 195
	ZP2- <b>T</b> <b>35</b> <b>07</b> <b>W</b> <b>N</b> - <b>B5</b> - <b>□</b>	From p. 180	p. 187	p. 195
	ZP2- <b>T</b> <b>35</b> <b>07</b> <b>W</b> <b>N</b> <b>K</b> <b>10</b> - <b>B5</b>	From p. 183	p. 188	From p. 196

①
②
③
④
⑤
⑥
⑦

• Oval flat type      • Buffer specification: Non-rotating

#### ① Vacuum inlet direction

<b>N</b>	Pad unit
<b>T</b>	Vertical
<b>R</b>	Lateral

#### 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)

#### ④ Material

<b>N</b>	NBR
<b>S</b>	Silicone rubber*1
<b>U</b>	Urethane rubber
<b>F</b>	FKM
<b>GN</b>	Conductive NBR
<b>GS</b>	Conductive silicone rubber

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

#### 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	<b>B5</b>	M5 x 0.8	—	<b>Nil</b>	—*1	○
One-touch fitting	<b>04</b>	ø4	Male thread	<b>A5</b>	M5 x 0.8	●
			Female thread	<b>B5</b>	M5 x 0.8	●
	<b>06</b>	ø6	Male thread	<b>A5</b>	M5 x 0.8	●
			Female thread	<b>B5</b>	M5 x 0.8	●

\*1 Use the vacuum inlet.

### With buffer

#### ⑥ Vacuum inlet/⑦ Connection thread

○: ZP2-T/Vertical ●: ZP2-R/Lateral

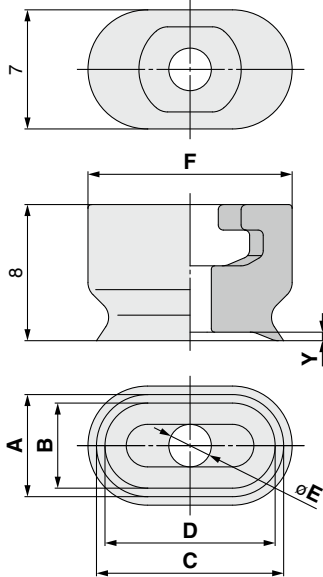
⑥ Vacuum inlet			⑦ Connection thread			Pad size
Type	Symbol	Size	Type	Symbol	Size	All sizes
Female thread	<b>B5</b>	M5 x 0.8	Male thread	<b>Nil</b>	M10 x 1	○
One-touch fitting	<b>04</b>	ø4		<b>Nil</b>		○●
	<b>06</b>	ø6		<b>Nil</b>		○●

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

**Dimensions/Models**

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

ZP2 - **3507** W **N**  
① ②



Model	① Pad size		Form	② Material	A	B	C	D	E	F	Y
	Breadth	Length									
	ZP2	35									
40		10	4.8	4	10.8	10	2.5				
50		10	6	5	11			20	2 x 1.8		
60		10	7	6	20.8	20	2 x 2				
40		20	4.8	4	21			20	2.5		
50		20	6	5	30.8	30	3				
60		20	7	6	2 x 1.8			30	0.8		
80		20	9	8	2 x 2.5	30	0.5				
40		30	4.8	4	31			30	0.8		
50		30	6	5		30	0.5				
60		30	7	6				30	0.8		
80		30	9	8		30	0.8				

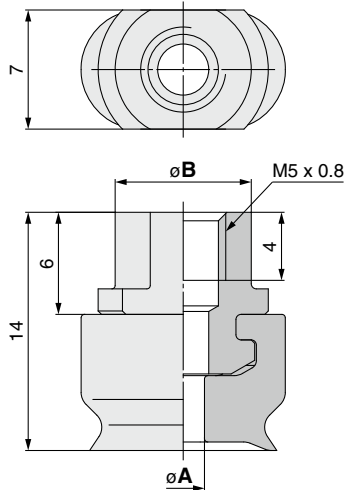
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

Construction p. 187

Mounting Bracket Assembly From p. 195

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

ZP2 - T **3507** W **N** - **B5**  
① ② ③



③ Vacuum inlet (Female thread)

**B5** M5 x 0.8

Model	Vacuum inlet direction	① Pad size		Form	② Material	③ Vacuum inlet	A	B			
		Breadth	Length								
		ZP2	T						W	N S U F GN GS	B5
40	10			2.5							
50	10			2 x 1.8	11						
60	10			2 x 2							
40	20			2.5	19						
50	20			3							
60	20			2 x 1.8							
40	30			2 x 2.5							
50	30										
60	30										
80	30										

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

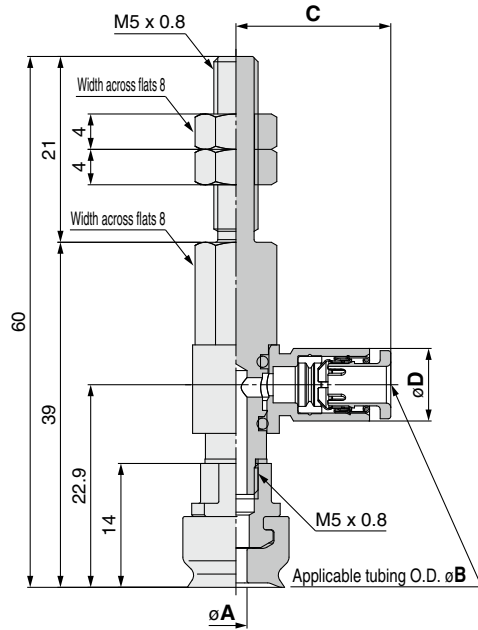
Construction p. 187

Adapter Assembly p. 195

**Dimensions/Models**

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

ZP2 - R **3507** W **N** - **04** - **A5**



<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b> Connection thread (Male thread)
<b>04</b>	$\phi 4$	<b>06</b>	<b>A5</b> M5 x 0.8

Model						A		
Vacuum inlet direction	1 Pad size		2 Form	3 Material	4 Vacuum inlet			
	Breadth	Length						
ZP2	R	35	07	W	N S U F GN GS	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							
	40	30						
	50		2 x 2.5					
	60							
	80							

- Construction p. 187
- Adapter Assembly p. 195

**Dimensions Per Vacuum Inlet**

Model						B	C	D	Fitting part min. hole size		
Vacuum inlet direction	1 Pad size		2 Form	3 Material	4 Vacuum inlet						
	Breadth	Length									
ZP2	R	35	07	W	N S U F GN GS	04 06	A5	4	17.5	8.2	$\phi 2.5$
		40						6	18.3	10.4	$\phi 4$
		50	10					4	17.5	8.2	$\phi 2.5$
		60						6	18.3	10.4	$\phi 4$
		40	20					4	17.5	8.2	$\phi 2.5$
		50						6	18.3	10.4	$\phi 4$
	60										
	80										
	40	30									
	50		4					17.5	8.2	$\phi 2.5$	
	60		6					18.3	10.4	$\phi 4$	
	80										

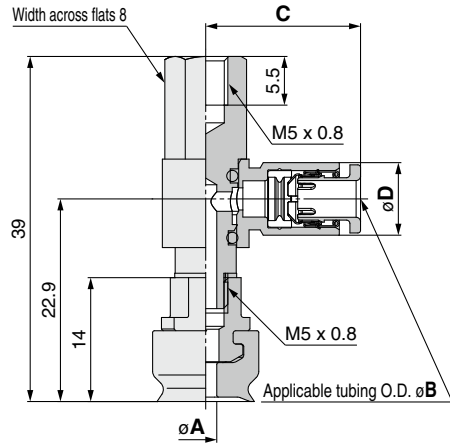
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber



**Dimensions/Models**

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

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



Construction p. 187  
Adapter Assembly p. 195

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Vacuum inlet (One-touch fitting)			Connection thread (Female thread)
<b>04</b>	ø4		<b>B5</b> M5 x 0.8
<b>06</b>	ø6		

Model							A	
Vacuum inlet direction	1 Pad size		2 Form	3 Material	4 Vacuum inlet	5 Connection thread		
	Breadth	Length		*1				
ZP2	R	35	07	W	N S U F GN GS	04 06	B5	2 x 1.5
		40						2.5
		50	10					2 x 1.8
		60						2 x 2
		40						2.5
		60	20					3
	80		2 x 1.8					
	40							
	50	30						
	60							
	80			2 x 2.5				

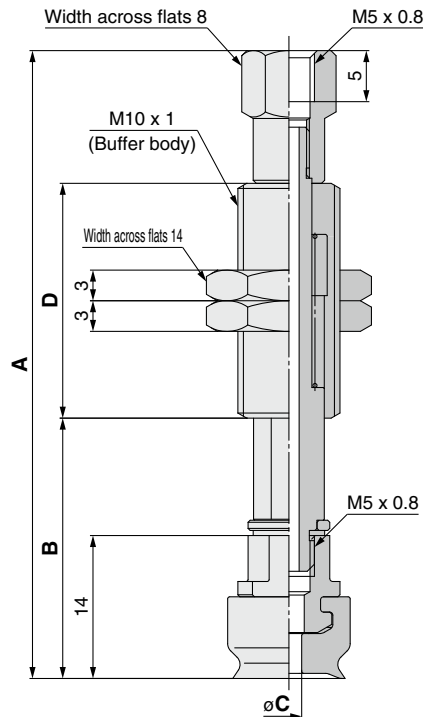
**Dimensions Per Vacuum Inlet**

Model							B	C	D	Fitting part min. hole size	
Vacuum inlet direction	1 Pad size		2 Form	3 Material	4 Vacuum inlet	5 Connection thread					
	Breadth	Length		*1							
ZP2	R	35	07	W	N S U F GN GS	04 06	B5	4	17.5	8.2	ø2.5
								6	18.3	10.4	ø4
		40	10					4	17.5	8.2	ø2.5
								6	18.3	10.4	ø4
		50	20					4	17.5	8.2	ø2.5
								6	18.3	10.4	ø4
	60	30	4			17.5	8.2	ø2.5			
			6			18.3	10.4	ø4			
	80		4			17.5	8.2	ø2.5			
			6			18.3	10.4	ø4			

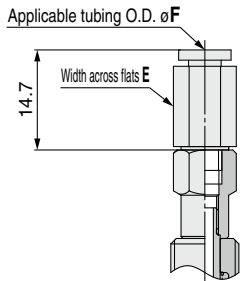
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

**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	Pad size ① Breadth Length	Form ②	Material ③	Buffer spec. ④	Buffer stroke ⑤						
ZP2	T	35 07	W	N S U F GN GS	K	10 20 30 40 50	04	8	4	ø2.5	
							06	10	6		
		40					04	8	4		
							06	10	6		
							50 60	04	8		4
								06	10		6
	20	40					04	8	4		
							06	10	6		
		50 60 80					04	8	4		
							06	10	6		
							30	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

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

		Model					A	B	C	D		
Vacuum inlet direction	Pad size ① Breadth Length	Form ②	Material ③	Buffer spec. ④	Buffer stroke ⑤							
ZP2	T	35 07	W	N S U F GN GS	K	B5	10	61.5	25.5	2 x 1.5	23	
							20	99.5	35.5			
							30	109.5	45.5			
							40	145.5	55.5			
							50	155.5	65.5			
							10	61.5	25.5		23	
							40	20	99.5	35.5	2 x 1.5	51
								30	109.5	45.5		
								40	145.5	55.5		
								50	155.5	65.5		
								10	61.5	25.5		23
								20	99.5	35.5		51
							50 60	30	109.5	45.5	2.5	51
								40	145.5	55.5		
								50	155.5	65.5		
								10	61.5	25.5		23
								20	99.5	35.5		51
								30	109.5	45.5		51
							40	30	109.5	45.5	2 x 1.8	51
								40	145.5	55.5		
								50	155.5	65.5		
								10	61.5	25.5		23
								20	99.5	35.5		51
								30	109.5	45.5		51
		50					30	109.5	45.5	2 x 2	51	
							40	145.5	55.5			
							50	155.5	65.5			
							10	61.5	25.5		23	
							20	99.5	35.5		51	
							30	109.5	45.5		51	
		60					30	109.5	45.5	2.5	51	
							40	145.5	55.5			
							50	155.5	65.5			
							10	61.5	25.5		23	
							20	99.5	35.5		51	
							30	109.5	45.5		51	
		80					30	109.5	45.5	3	51	
							40	145.5	55.5			
							50	155.5	65.5			
							10	61.5	25.5		23	
							20	99.5	35.5		51	
							30	109.5	45.5		51	
		40					30	109.5	45.5	2 x 1.8	51	
							40	145.5	55.5			
							50	155.5	65.5			
							10	61.5	25.5		23	
							20	99.5	35.5		51	
							30	109.5	45.5		51	
50 60 80	30	109.5	45.5	2 x 2.5	51							
	40	145.5	55.5									
	50	155.5	65.5									
	10	61.5	25.5		23							
	20	99.5	35.5		51							
	30	109.5	45.5		51							

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

**Dimensions/Models**

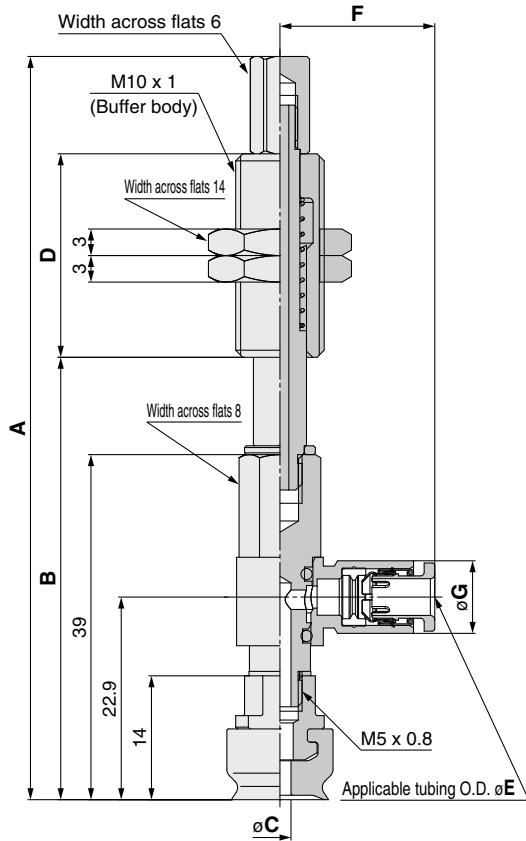
**With buffer/One-touch fitting 3.5 x 7 to 8 x 30**

**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								
Vacuum inlet direction	① Pad size Breadth Length	② Form	③ Material	④ Buffer spec.	⑤ Buffer stroke	⑤ Vacuum inlet	E	F	G	Fitting part min. hole size
	35 07									
	40 10									
	40 20									
	50 20									
	60 20									
	80 20									
	40 30									
	50 30									
	60 30									
	80 30									

		Model					A	B	C	D							
Vacuum inlet direction	① Pad size Breadth Length	② Form	③ Material	④ Buffer spec.	⑤ Buffer stroke	⑤ Vacuum inlet											
ZP2	R	W	N S U F GN GS	K	10	04 06	84	50	2 x 1.5	23							
							122	60		51							
							132	70		77							
							168	80									
														84	50	2 x 1.5	23
														122	60		51
														132	70		77
														168	80		
														178	90	2.5	23
														84	50		51
														122	60		77
														132	70		
								168	80	2 x 1.8	23						
								178	90		51						
								84	50		77						
								122	60								
								132	70	2 x 2	23						
								168	80		51						
								178	90		77						
								84	50								
								122	60	2.5	23						
								132	70		51						
								168	80		77						
								178	90								
								84	50	3	23						
								122	60		51						
								132	70		77						
								168	80								
								178	90	2 x 1.8	23						
								84	50		51						
								122	60		77						
								132	70								
								168	80	2 x 2.5	23						
								178	90		51						
								84	50		77						
								122	60								
							132	70	2 x 2.5	23							
							168	80		51							
							178	90		77							
							84	50									

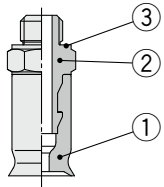
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

# Oval Pad *ZP Series* Construction

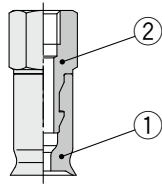
With adapter Oval flat type: 2004/3507/4010

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

ZP□T□-(A5/A6)



ZP□T□-(B4/B5)

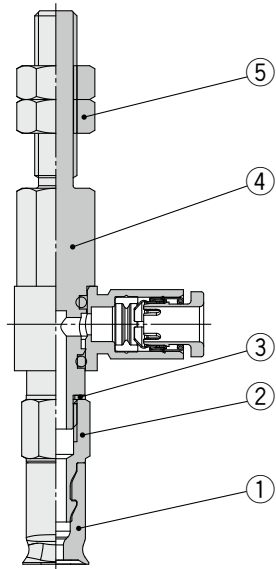


## Component Parts

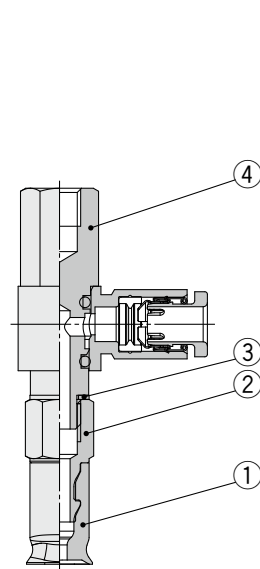
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	ZPT
		Stainless steel	ZPST
3	Gasket	Stainless steel/NBR	ZPT
		Stainless steel/FKM	ZPST

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

ZPR□-(04/06)-(A5/A6)



ZPR□-(04/06)-(B4/B5)

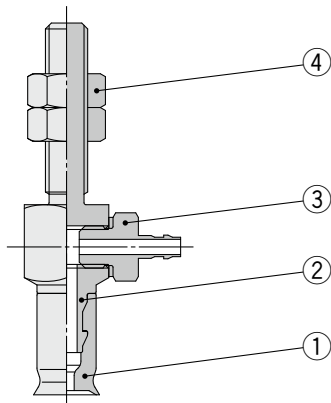


## Component Parts

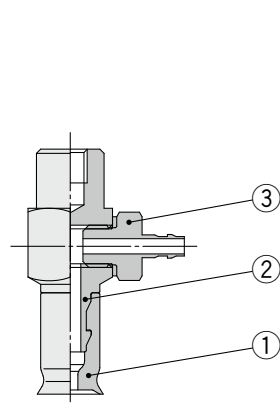
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Gasket	Stainless steel 304/NBR	
4	Adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless 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

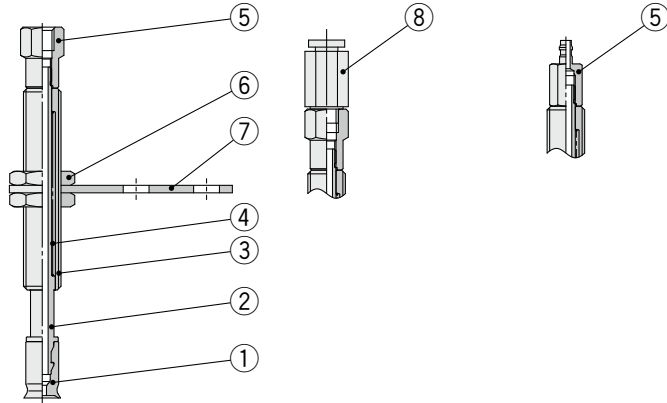
With buffer Oval flat type: 2004/3507/4010

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

ZPT□-(B3/B5)-A8

ZPT□-(04/06)-A8

ZPT□-(N4/U4)-A8

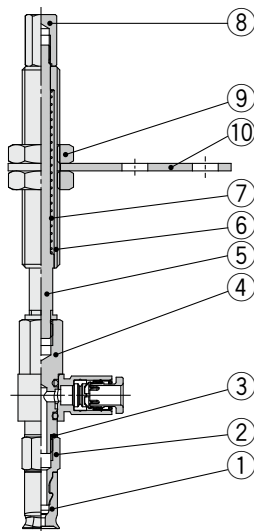


Component Parts

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

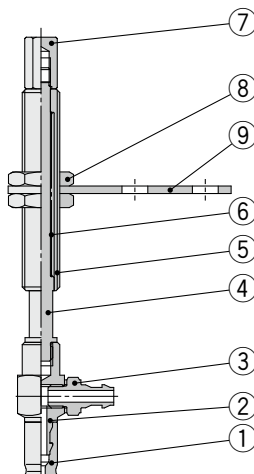


Component Parts

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

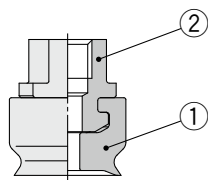
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Oval flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Barb fitting	—	
4	Piston rod	Stainless steel	
5	Buffer body	Brass (Electroless nickel plating)	
6	Return spring	Stainless 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



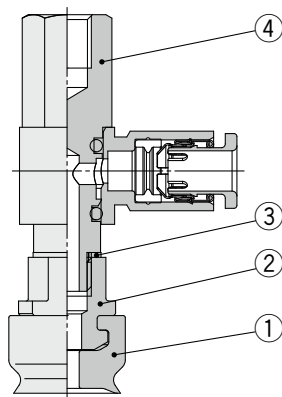
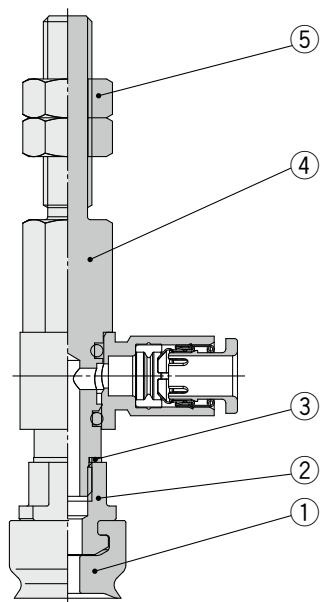
## Component Parts

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



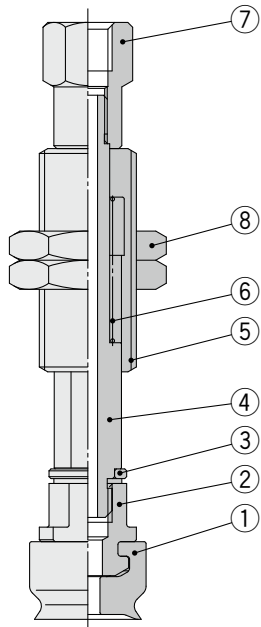
## Component Parts

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

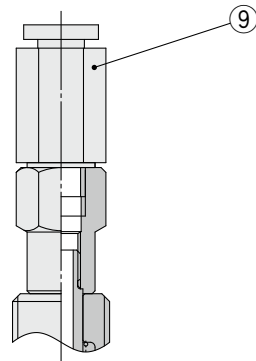
With buffer Oval flat type: 3507 to 8030

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

ZP2-T□-B5



ZP2-T□-(04/06)

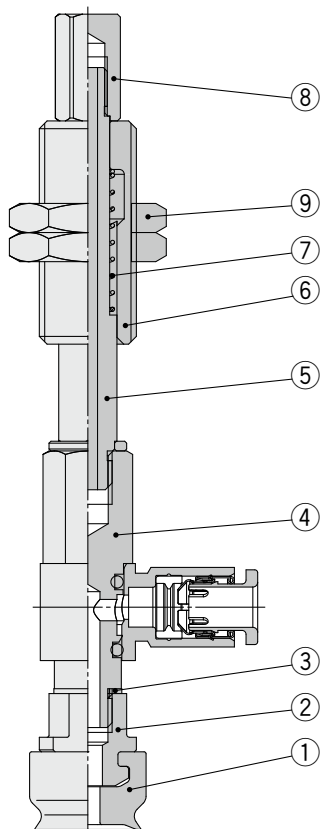


Component Parts

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. 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.

#### 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