

# Bellows Pad (4.5-Stage)

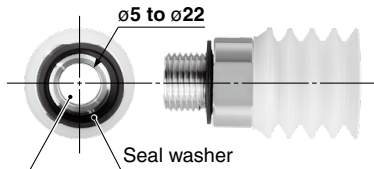
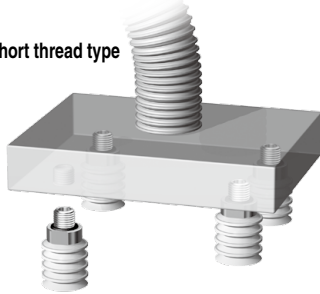
Symbol/Form

ZJ: Bellows type

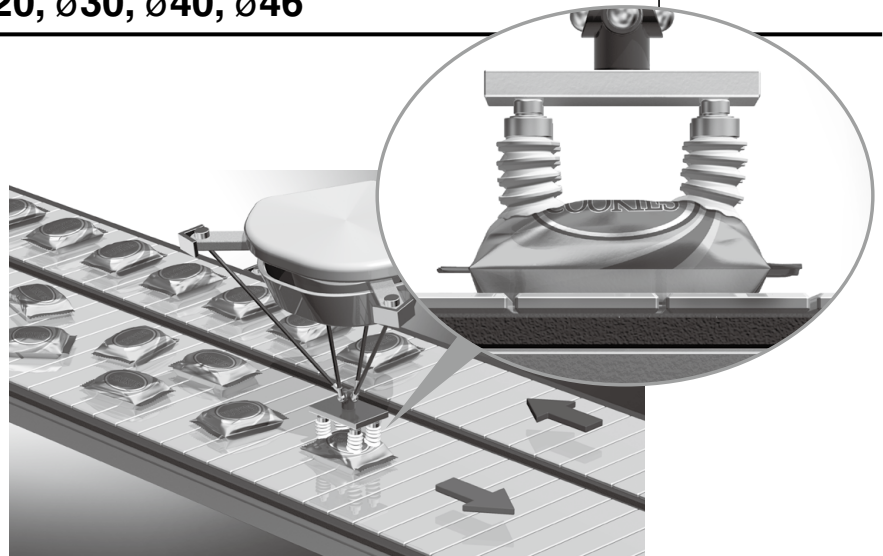
Pad diameter  $\varnothing 15, \varnothing 20, \varnothing 30, \varnothing 40, \varnothing 46$

- For adsorbing workpieces moving at high speeds
- Follows various shapes of workpieces
- Pad material: Silicone rubber (Rubber hardness: A40, A50, A60)

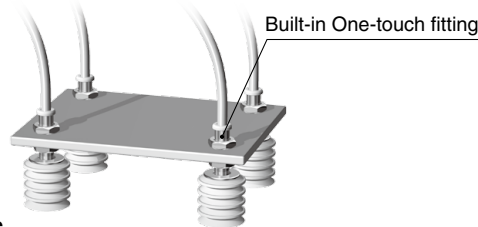
• Short thread type



- Large opening size (short thread type):  $\varnothing 5$  to  $\varnothing 22$   
For vacuum blower pumps with high suction flow rates



• One-touch fitting type



## How to Order

Pad unit **ZP2 - B15 ZJ S**

Pad diameter	
Symbol	Pad diameter
B15	$\varnothing 15^{*1}$
B20	$\varnothing 20^{*1}$
B30	$\varnothing 30^{*1}$
40	$\varnothing 40$
46	$\varnothing 46$

\*1 Pad O.D.

Pad form	
Symbol	Form
ZJ	Bellows type (4.5-stage)

• Pad material

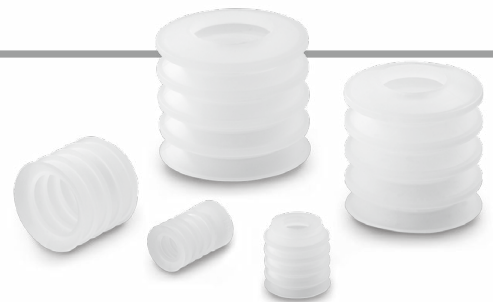
Symbol	Material	Applicable pad diameter					
		$\varnothing 15$	$\varnothing 20$	$\varnothing 30$	$\varnothing 40$	$\varnothing 46$	
N	NBR	—	—	—	●	●	
U	Urethane rubber	—	—	—	●	●	
F	FKM	—	—	—	●	●	
GN	Conductive NBR	—	—	—	●	●	
GS	Conductive silicone rubber (Black)	—	—	—	●	●	
S	Silicone rubber*1*2 (White)	Rubber hardness (Shore A: $\pm 5^\circ$ )	40	●	●	—	—
			50	—	—	—	●
S6	Silicone rubber*1 High-hardness type (White)	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 Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Ministry of Health and Welfare Notification No. 370, 1959).

### Mounting Bracket Part Nos.

Adapter Assembly p. 281



Model Selection

For Special Applications

Mark-free

For Film Adsorption

Multistage

Flat

Nozzle

Sponge

For Disk Adsorption

For Panel Holding

Ball Spine Buffer

Construction

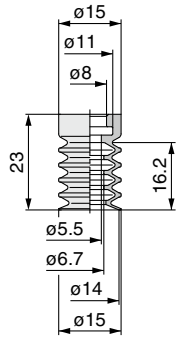
Mounting Bracket Assembly

Precautions

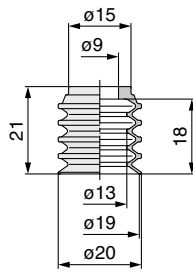
# Bellows Pad (4.5-Stage) **ZP2 Series**

## Dimensions: Pad Unit

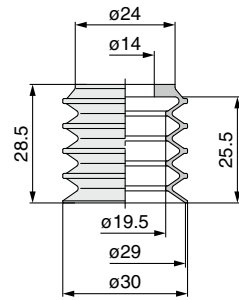
**ZP2-B15ZJS** □



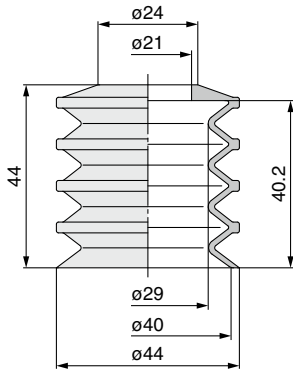
**ZP2-B20ZJS** □



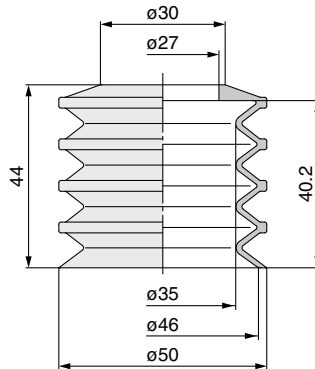
**ZP2-B30ZJS** □



**ZP2-40ZJ** □



**ZP2-46ZJ** □



Weight	[g]
ZP2-B15ZJS □	2.0
ZP2-B20ZJS □	2.0
ZP2-B30ZJS □	4.5
ZP2-40ZJN	16.0
ZP2-40ZJS □	15.0
ZP2-40ZJU	16.0
ZP2-40ZJF	25.0
ZP2-40ZJGN	16.0
ZP2-40ZJGS	16.0
ZP2-46ZJN	19.0
ZP2-46ZJS □	17.0
ZP2-46ZJU	19.0
ZP2-46ZJF	30.0
ZP2-46ZJGN	19.0
ZP2-46ZJGS	19.0

## How to Order

Vertical vacuum inlet with adapter

**ZP2 - T B15 ZJ S - A10 - 06**



**Pad diameter**

Symbol	Pad diameter
<b>B15</b>	ø15*1
<b>B20</b>	ø20*1
<b>B30</b>	ø30*1
<b>40</b>	ø40
<b>46</b>	ø46

\*1 Pad O.D.

**Pad form**

Symbol	Form
<b>ZJ</b>	Bellows type (4.5-stage)

**Pad material**

Symbol	Material	Applicable pad diameter						
		ø15	ø20	ø30	ø40	ø46		
<b>N</b>	NBR	—	—	—	●	●		
<b>U</b>	Urethane rubber	—	—	—	●	●		
<b>F</b>	FKM	—	—	—	●	●		
<b>GN</b>	Conductive NBR	—	—	—	●	●		
<b>GS</b>	Conductive silicone rubber (Black)	—	—	—	●	●		
<b>S</b>	Silicone rubber*1*2 (White)	Rubber hardness (Shore A: ±5°)	40	●	●	●	—	—
			50	—	—	—	●	●
<b>S6</b>	Silicone rubber*1*2 High-hardness type (White)	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 Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Ministry of Health and Welfare Notification No. 370, 1959).

**Vacuum inlet**

Symbol	Vacuum inlet	Connection thread					
		A10	A16	A20	A30	AL12	AL14
<b>Nil</b>	Short thread	●	●	●	●	—	—
<b>06</b>	One-touch fitting(ø6)	—	—	—	—	●	●

**Connection thread**

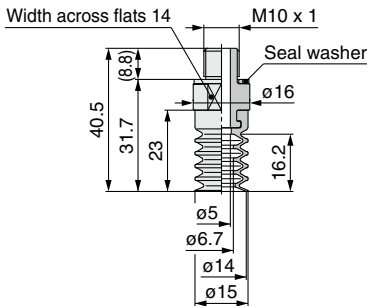
Type	Symbol	Size	ø15	ø20	ø30	ø40	ø46
Short thread	<b>A10</b>	M10 x 1	●	●	—	—	—
	<b>A16</b>	M16 x 1.5	—	—	●	—	—
	<b>A20</b>	M20 x 1.5	—	—	—	●	—
	<b>A30</b>	M30 x 1.5	—	—	—	—	●
One-touch fitting	<b>AL12</b>	M12 x 1	●	●	—	—	—
	<b>AL14</b>	M14 x 1	—	—	●	●	●

\* The pad is shipped together but does not come assembled.

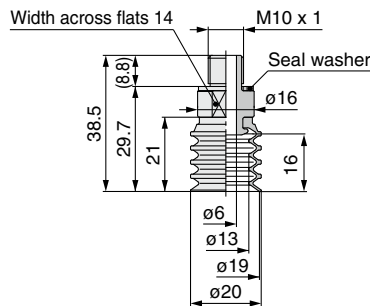
## Dimensions

### ■ Vacuum inlet: Short thread type

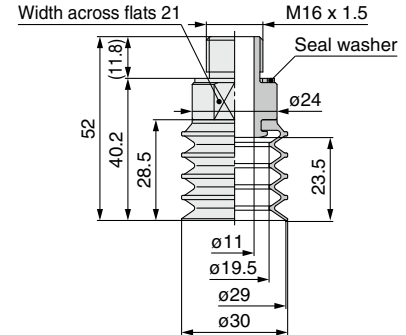
#### ZP2-TB15ZJS□-A10



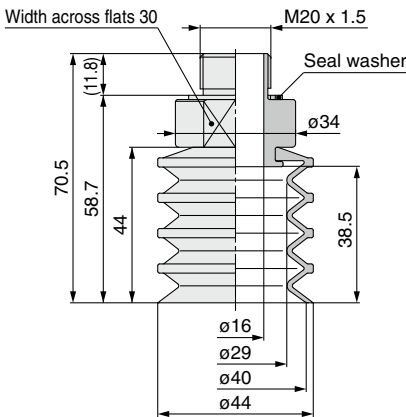
#### ZP2-TB20ZJS□-A10



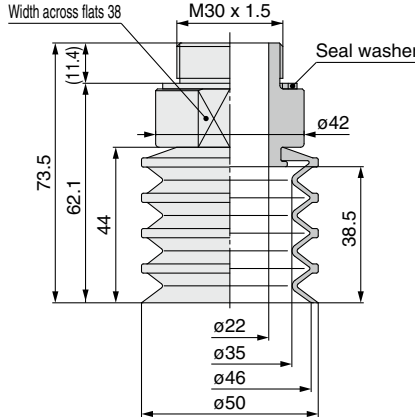
#### ZP2-TB30ZJS□-A16



#### ZP2-T40ZJ□-A20



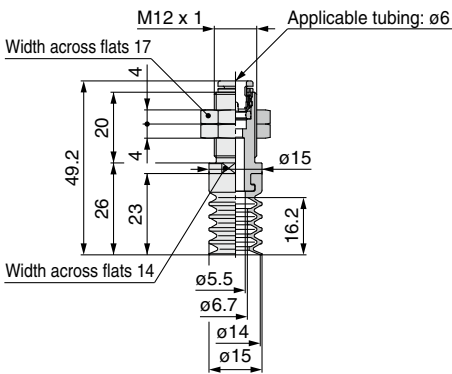
#### ZP2-T46ZJ□-A30



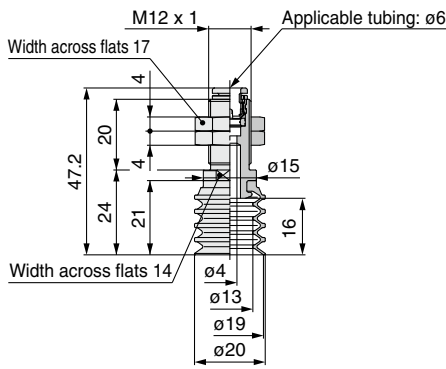
Weight	[g]
ZP2-TB15ZJS□-A10	9.0
ZP2-TB20ZJS□-A10	9.0
ZP2-TB30ZJS□-A16	20.5
ZP2-T40ZN-A20	51.0
ZP2-T40ZJS□-A20	50.0
ZP2-T40ZJU-A20	51.0
ZP2-T40ZJF-A20	60.0
ZP2-T40ZJGN-A20	51.0
ZP2-T40ZJGS-A20	51.0
ZP2-T46ZJN-A30	84.0
ZP2-T46ZJS□-A30	82.0
ZP2-T46ZJU-A30	84.0
ZP2-T46ZJF-A30	95.0
ZP2-T46ZJGN-A30	84.0
ZP2-T46ZJGS-A30	84.0

### ■ Vacuum inlet: One-touch fitting type

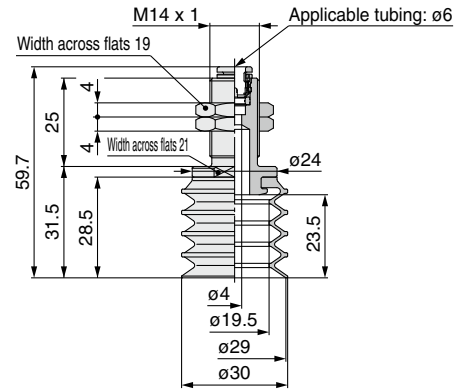
#### ZP2-TB15ZJS□-AL12-06



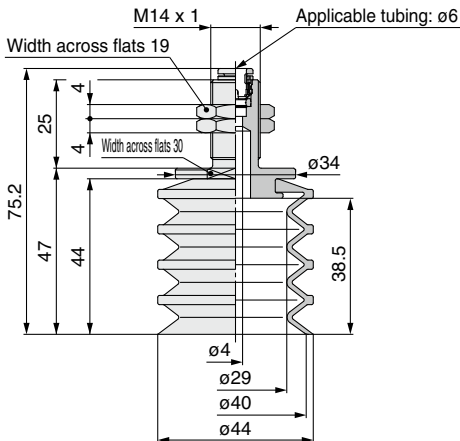
#### ZP2-TB20ZJS□-AL12-06



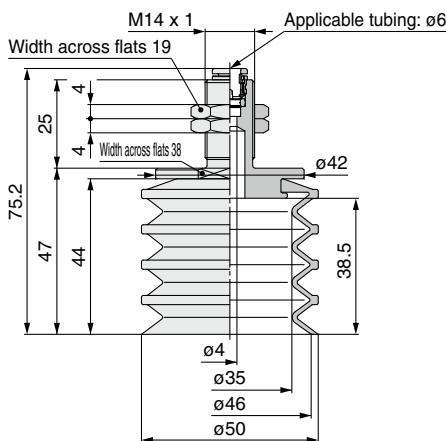
#### ZP2-TB30ZJS□-AL14-06



#### ZP2-T40ZJ□-AL14-06



#### ZP2-T46ZJ□-AL14-06

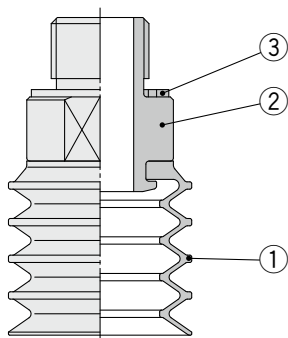


Weight	[g]
ZP2-TB15ZJS□-AL12-06	17.0
ZP2-TB20ZJS□-AL12-06	17.0
ZP2-TB30ZJS□-AL14-06	26.5
ZP2-T40ZJN-AL14-06	46.0
ZP2-T40ZJS□-AL14-06	45.0
ZP2-T40ZJU-AL14-06	46.0
ZP2-T40ZJF-AL14-06	55.0
ZP2-T40ZJGN-AL14-06	46.0
ZP2-T40ZJGS-AL14-06	46.0
ZP2-T46ZJN-AL14-06	56.0
ZP2-T46ZJS□-AL14-06	54.0
ZP2-T46ZJU-AL14-06	56.0
ZP2-T46ZJF-AL14-06	67.0
ZP2-T46ZJGN-AL14-06	56.0
ZP2-T46ZJGS-AL14-06	56.0

# Bellows Pad (4.5-Stage) **ZP2 Series**

## Component Parts

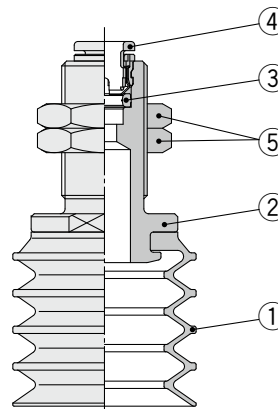
### ■ Short thread type (Pad with adapter)



#### Component Parts

No.	Description	Material (Surface treatment)
1	<b>Pad</b>	Refer to the pad material (page 276).
2	<b>Adapter</b>	Aluminum alloy (Anodized)
3	<b>Seal washer</b>	Structural steel/NBR

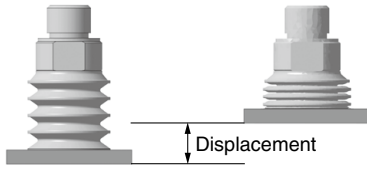
### ■ One-touch fitting type (Pad with adapter)



#### Component Parts

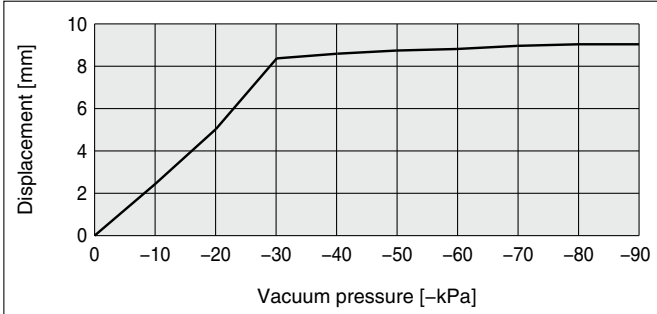
No.	Description	Material (Surface treatment)
1	<b>Pad</b>	Refer to the pad material (page 276).
2	<b>Adapter</b>	Aluminum alloy (Anodized)
3	<b>Seal</b>	NBR
4	<b>Cassette</b>	—
5	<b>Nut</b>	Steel (Zinc chromated)

## Pad Displacement to Vacuum Pressure (Pad material: Silicone rubber)

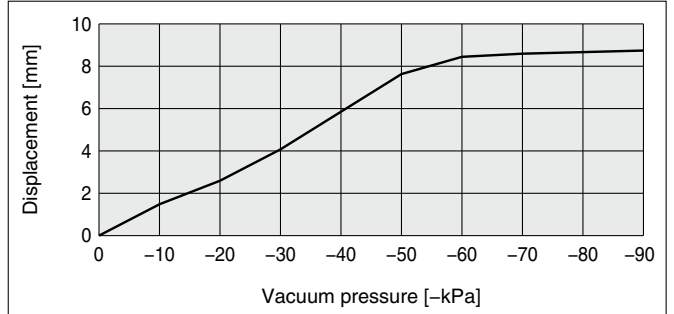


The data shown below are not guaranteed but actual measured (initial value). These values depend on the operating environment, workpiece weight and transfer method, so they cannot be guaranteed by SMC. Thorough research and confirmation are necessary before use.

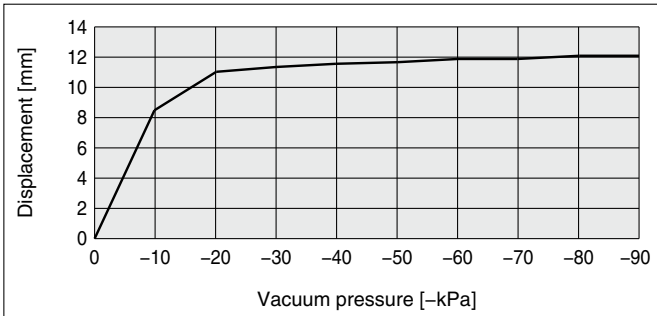
**ZP2-B15ZJS**



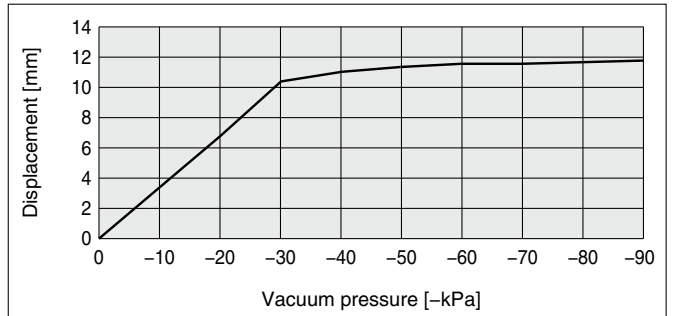
**ZP2-B15ZJS6**



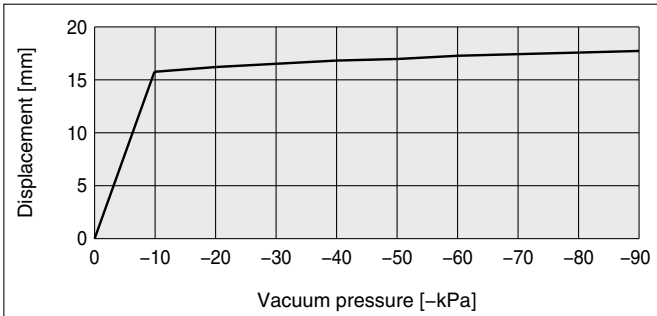
**ZP2-B20ZJS**



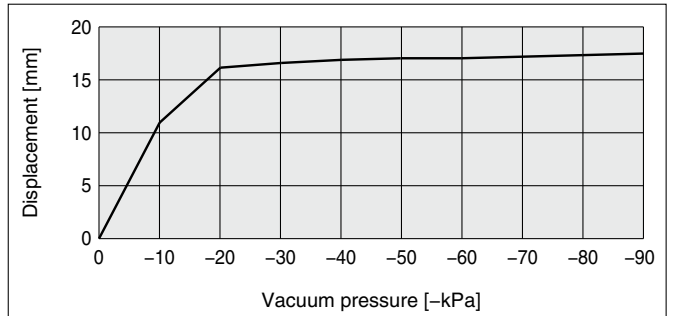
**ZP2-B20ZJS6**



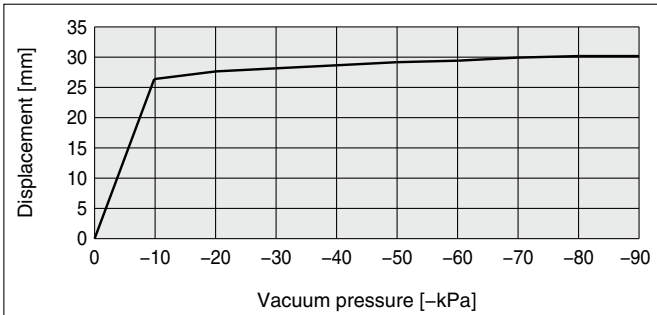
**ZP2-B30ZJS**



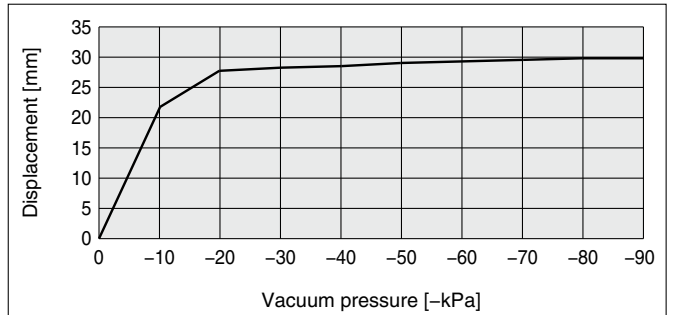
**ZP2-B30ZJS6**



**ZP2-40ZJS**



**ZP2-46ZJS**



Model Selection

For Special Applications

Mark-free

For Film Adsorption

Multistage

Flat

Nozzle

Sponge

For Disk Adsorption

For Panel Holding

Ball Spine Buffer

Construction

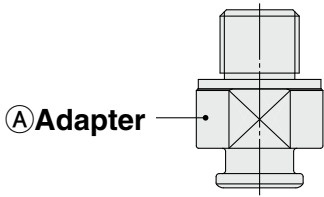
Mounting Bracket Assembly

Precautions

# Bellows Pad (4.5-Stage) *ZP2 Series*

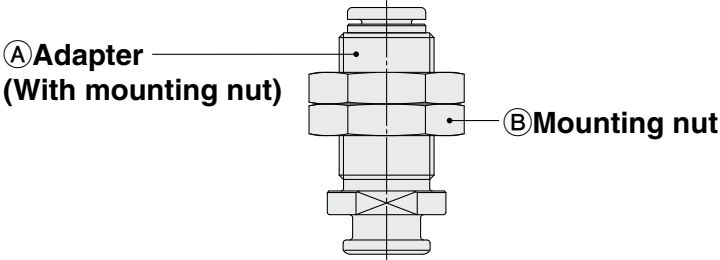
## Mounting Bracket Assembly

### Adapter Assembly

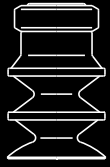
Product part no.	<p style="text-align: center;">ZP2 - T ① ZJ □ - ②</p> <p style="text-align: center;">             Pad diameter ●      Bellows type ●      Pad material ●      Connection thread (Male thread) ●         </p>
Component parts	 <p>① Adapter</p>

		Symbol	① Pad diameter symbol						
			B15	B20	B30	40	46		
① Adapter	② Connection thread Male thread (Short thread)	M10 x 1	A10	ZP2A-Z31-1P	ZP2A-Z31-2P	—			
		M16 x 1.5	A16	—		ZP2A-Z31-3P	—		
		M20 x 1.5	A20	—			ZP2A-Z31-4P	—	
		M30 x 1.5	A30	—				ZP2A-Z31-5P	

### Adapter Assembly

Product part no.	<p style="text-align: center;">ZP2 - T ① ZJ □ - ② ③</p> <p style="text-align: center;">             Pad diameter ●      Bellows type ●      Pad material ●      Vacuum inlet (One-touch fitting) ●      Connection thread (Male thread) ●         </p>
Component parts	 <p>① Adapter (With mounting nut)</p> <p>② Mounting nut</p>

		Symbol			Symbol	① Pad diameter symbol					
						B15	B20	B30	40	46	
① Adapter	② Connection thread Male thread	M12 x 1	AL12	③ Vacuum inlet One-touch fitting	ø6	06	ZP2A-Z32-1	ZP2A-Z32-2	—		
		M14 x 1	AL14				—		ZP2A-Z32-3	ZP2A-Z32-4	ZP2A-Z32-5
② Mounting nut (Single unit)				M12 x 1	ZPNA-M12C		—				
				M14 x 1	—		ZPNA-M14				



# Bellows Pad (2.5/3.5-Stage)

Symbol/Form

J: Bellows type

Pad diameter  $\phi 6, \phi 9, \phi 10, \phi 14, \phi 15, \phi 16, \phi 25, \phi 30$

- For use where there is no space for a buffer (spring type)
- For workpieces with inclined adsorption surfaces

\* The pad and lock ring are shipped together.

### Mounting Bracket Part Nos.

Adapter Assembly p. 283 to 285



### How to Order

Pad unit **ZP2 - 06 J N - X19**

Symbol	Pad diameter	Blast type
<b>06</b>	$\phi 6$	—
<b>09</b>	$\phi 9$	—
<b>B10</b>	$\phi 10$	●
<b>14</b>	$\phi 14$	—
<b>B15</b>	$\phi 15$	●
<b>16</b>	$\phi 16$	—
<b>B25</b>	$\phi 25$	●
<b>B30</b>	$\phi 30$	●

\* Blast type: Workpieces can be removed easily.

### Pad material

Symbol	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"

### With/Without lock ring

Symbol	With lock ring	Without lock ring*2
<b>Nil</b>	With lock ring	Without lock ring*2
<b>X19</b>	Without lock ring*2	Without lock ring*2

\*2  $\phi 6, \phi 10,$  and  $\phi 15$  are not available.

### Pad form

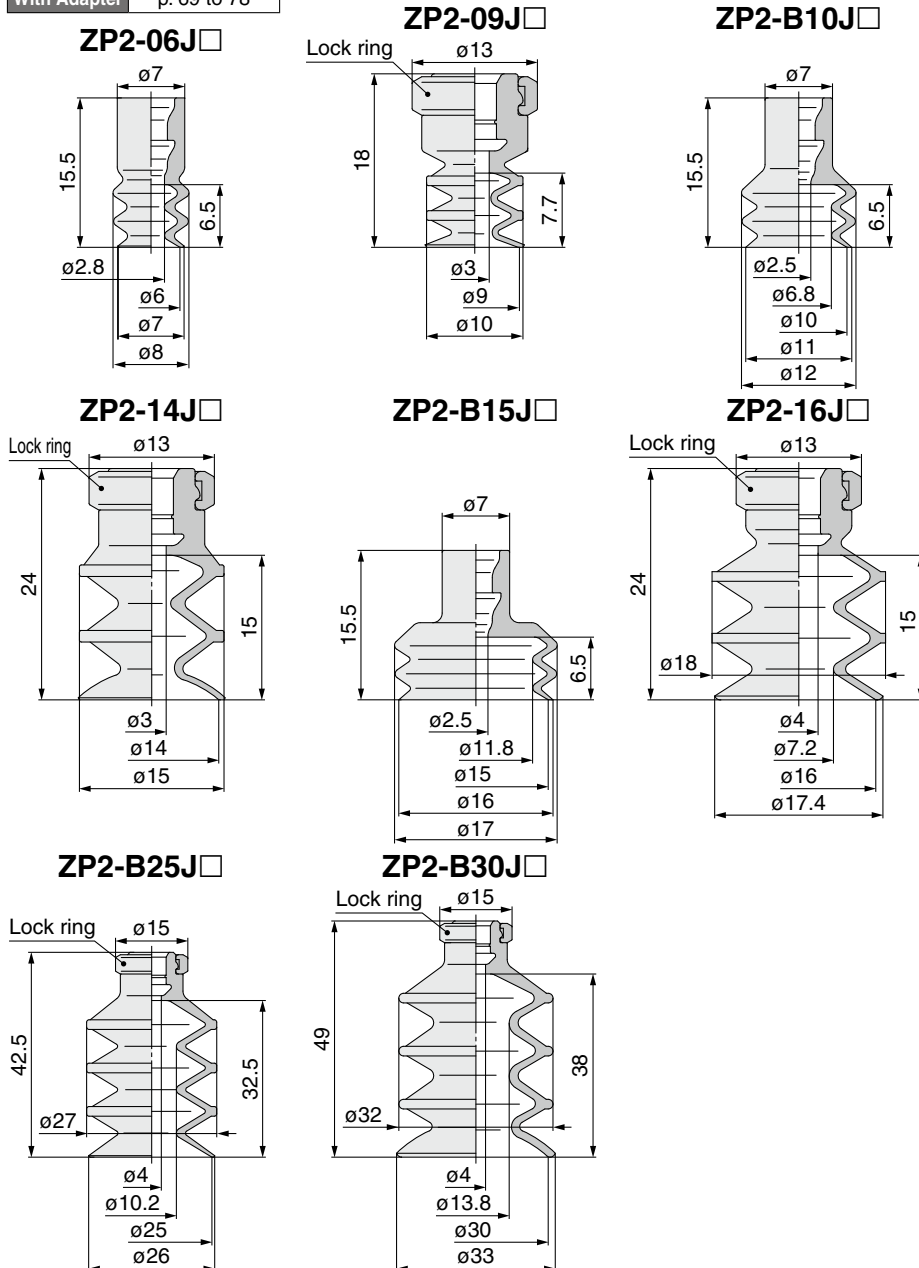
Symbol	Form
<b>J</b>	Bellows type (2.5/3.5-stage)



### Dimensions: Pad Unit

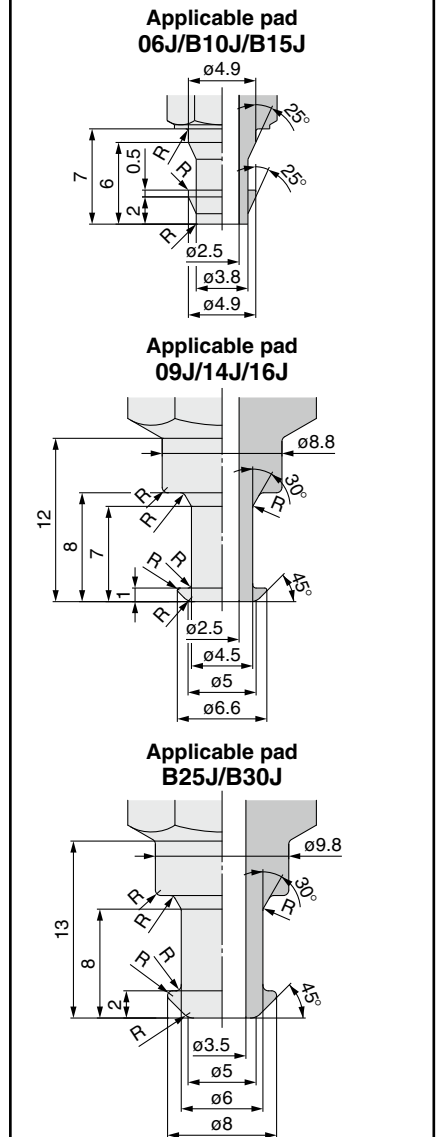
\* The dimensions of the mounting bracket are the same as the ZP series. Refer to the mounting bracket dimensions on the following pages.

With Adapter p. 69 to 78



### Adapter Mounting Dimensions

If an adapter will be made by the customer, design the adapter with the dimensions shown below.

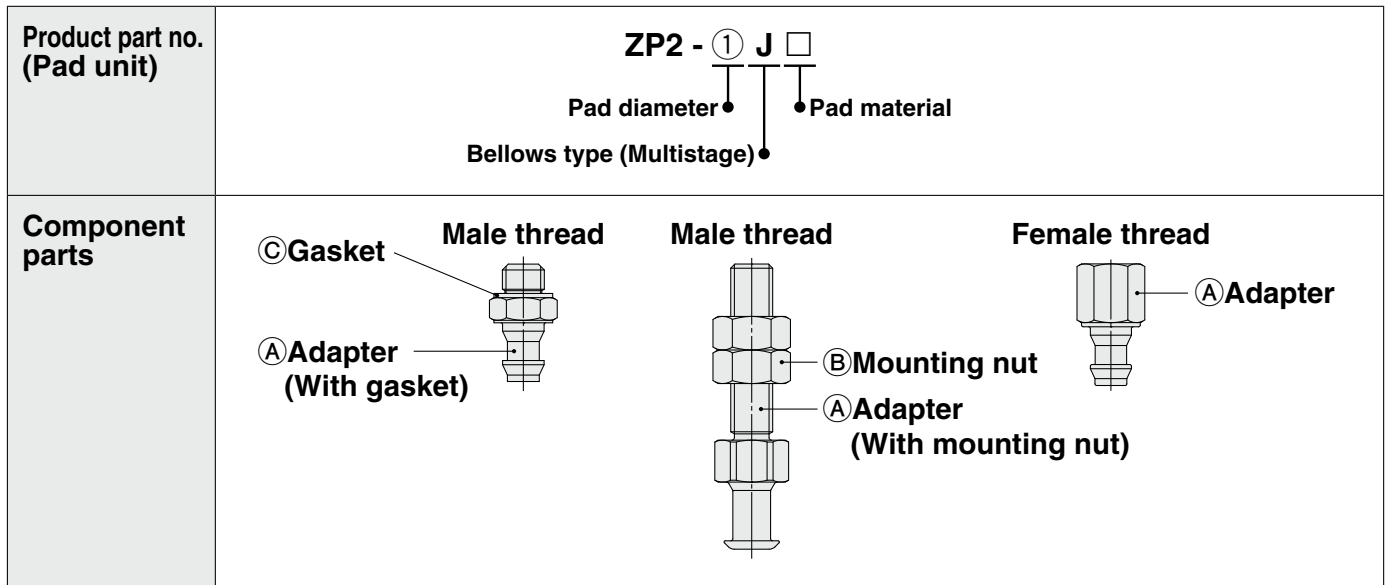


\* The R part has to be smooth with no corners.

Model Selection  
For Special Applications  
Mark-free  
For Film Adsorption  
Multistage  
Flat  
Nozzle  
Sponge  
For Disk Adsorption  
For Panel Holding  
Ball Spine Buffer  
Construction  
Mounting Bracket Assembly  
Precautions

# Bellows Pad (2.5/3.5-Stage) *ZP2 Series* Mounting Bracket Assembly

## Adapter Assembly

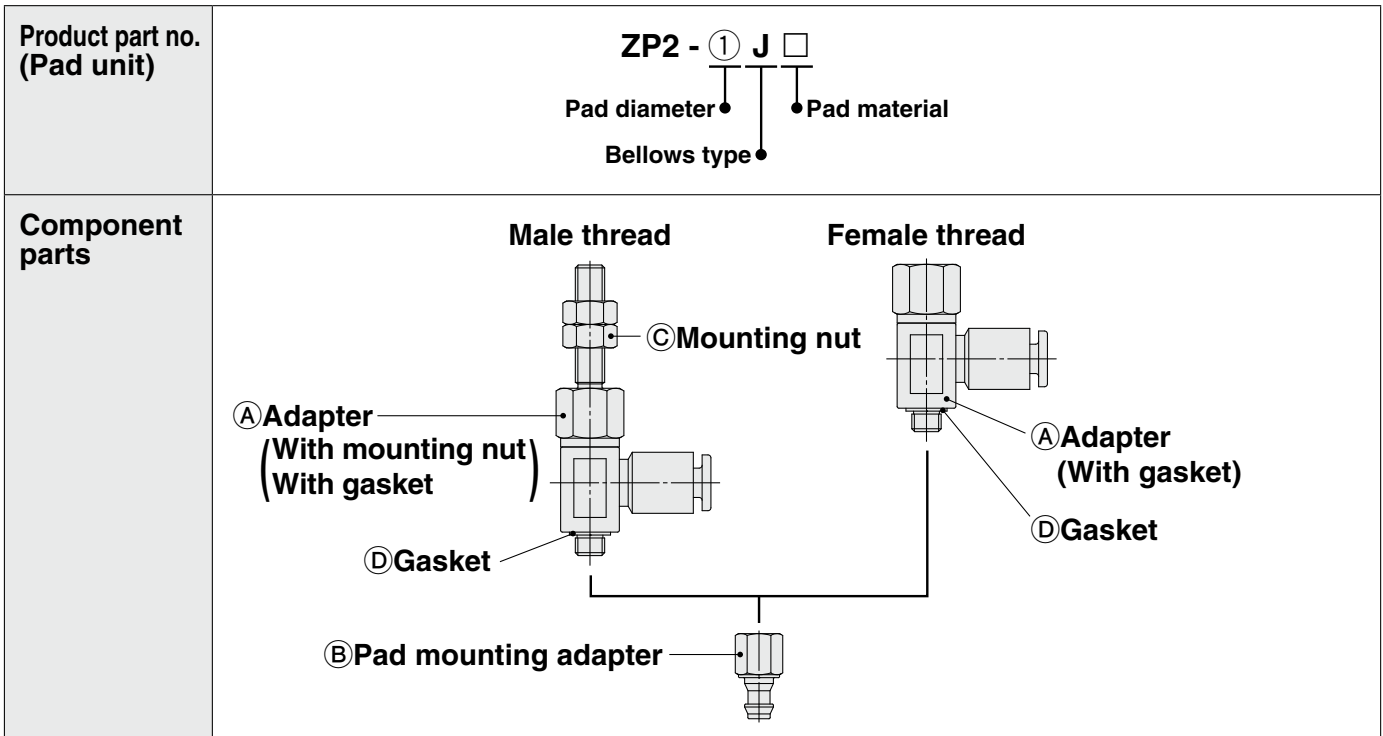


						① Pad diameter symbol							
						06	B10	B15	09	14	16	B25	B30
① Adapter	Vacuum inlet	Male thread	M5 x 0.8	Male thread	Use the connection thread.	ZPT1-A5			—			—	
			M6 x 1			ZPT1-A6			—			—	
		Female thread	Connection thread	Male thread	M5 x 0.8	—			ZPT2-A5			—	
					M6 x 1	—			ZPT2-A6			ZPT3-A6	
				Female thread	M8 x 1	—			—			ZPT3-A8	
					M4 x 0.7	ZPT1-B4			—			—	
	M5 x 0.8		ZPT1-B5			ZPT2-B5			—				
	M6 x 1		—			ZPT2-B6			ZPT3-B6				
	M8 x 1.25		—			—			ZPT3-B8				
	Rc1/8		—			ZPT2-B01			ZPT3-B01				
	NPT1/8	—			ZPT2-N01			ZPT3-N01					
	NPTF1/8	—			ZPT2-T01			ZPT3-T01					
	② Mounting nut (Single unit)	M5 x 0.8		—			NTJ-015A			—			
		M6 x 1		—			SNJ-006C			—			
M8 x 1		—			—			RB08J					
③ Gasket (Single unit)	For M5 x 0.8	10 pcs.*1	ZP-5G2			—			—				
		100 pcs.*1	M-5G2			—			—				
	For M6 x 1	10 pcs.*1	ZP-6G2			—			—				
		100 pcs.*1	M-6G			—			—				

\*1 The gasket (single unit) sales unit is shown.



**Adapter Assembly: With One-touch Fitting**

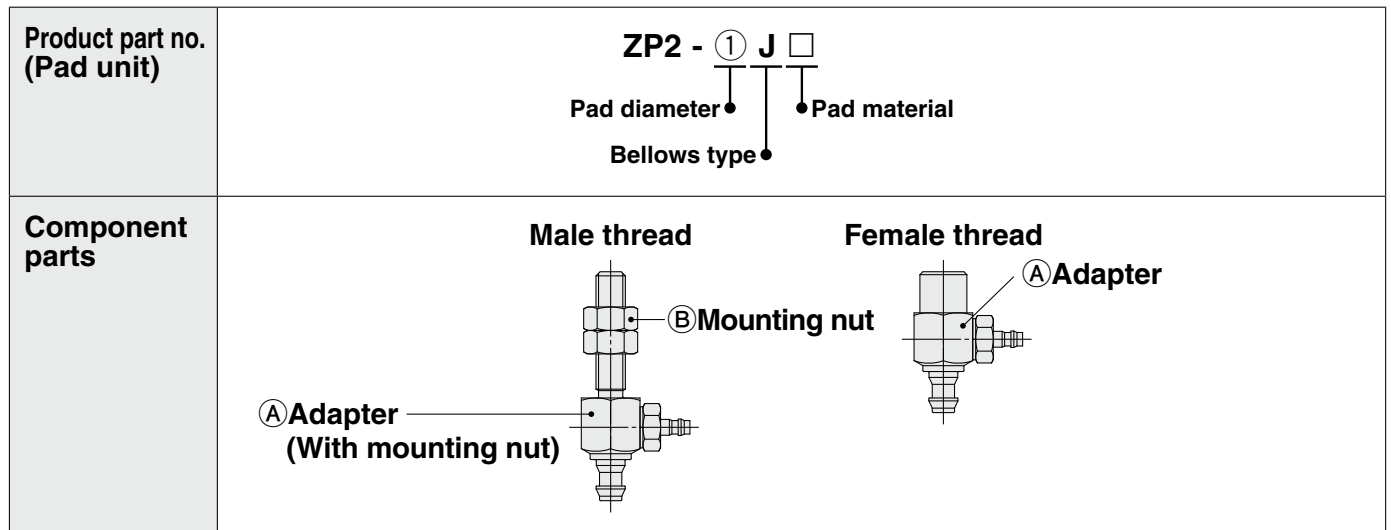


		① Pad diameter symbol								
		06	B10	B15	09	14	16	B25	B30	
① Adapter	Vacuum inlet	④ Connection thread	Male thread	M5 x 0.8	ZPRS-04-A5		ZPRS-04-A5			
				M6 x 1	ZPRS-04-A6		ZPRS-04-A6	ZPRL-04-A6		
				M8 x 1	—		—	ZPRL-04-A8		
		Female thread	M4 x 0.7	ZPRS-04-B4		—				
			M5 x 0.8	ZPRS-04-B5		ZPRS-04-B5	ZPRL-04-B5			
			M6 x 1	—		ZPRS-04-B6	ZPRL-04-B6			
	④ Connection thread	Male thread	M8 x 1.25	—		—	ZPRL-04-B8			
			M5 x 0.8	ZPRS-06-A5		ZPRS-06-A5				
			M6 x 1	ZPRS-06-A6		ZPRS-06-A6	ZPRL-06-A6			
		Female thread	M8 x 1	—		—	ZPRL-06-A8			
			M4 x 0.7	ZPRS-06-B4		—				
			M5 x 0.8	ZPRS-06-B5		ZPRS-06-B5	ZPRL-06-B5			
④ Connection thread	Male thread	M6 x 1	—		—	ZPRL-06-B6				
		M8 x 1.25	—		—	ZPRL-06-B8				
		M6 x 1	—		—	ZPRL-08-A6				
	Female thread	M8 x 1	—		—	ZPRL-08-A8				
		M5 x 0.8	—		—	ZPRL-08-B5				
		M6 x 1	—		—	ZPRL-08-B6				
④ Connection thread	Male thread	M8 x 1.25	—		—	ZPRL-08-B8				
		M6 x 1	—		—					
		M8 x 1	—		—					
② Pad mounting adapter			ZPT1-B5		ZPT2-B5		ZPT3-B8			
③ Mounting nut (Single unit)	M5 x 0.8	NTJ-015A		NTJ-015A						
	M6 x 1	SNJ-006C		SNJ-006C		SNJ-006C				
	M8 x 1	—		—		RB08J				
④ Gasket (Single unit)	10 pcs.*1	ZP-5G2		ZP-5G2		ZP-8G2				
	100 pcs.*1	M-5G2		M-5G2		—				

\*1 The gasket (single unit) sales unit is shown.

Bellows Pad (2.5/3.5-Stage)  
Mounting Bracket Assembly **ZP2 Series**

**Adapter Assembly: With Barb Fitting**



						① Pad diameter symbol								
						06	B10	B15	09	14	16	B25	B30	
① Adapter	Vacuum inlet	For nylon tubing	ø4	Male thread	M5 x 0.8	ZPY1-N4-A5		ZPY2-N4-A5						
					M6 x 1	ZPY1-N4-A6		ZPY2-N4-A6			ZPY3-N4-A6			
				M8 x 1	—				ZPY3-N4-A8					
			Female thread	M4 x 0.7	ZPY1-N4-B4									
				M5 x 0.8	ZPY1-N4-B5		ZPY2-N4-B5		ZPY3-N4-B5					
				M6 x 1	—		ZPY2-N4-B6		ZPY3-N4-B6					
		ø6	Male thread	M8 x 1.25	—			ZPY3-N4-B8						
				M5 x 0.8	ZPY1-N6-A5		ZPY2-N6-A5							
				M6 x 1	ZPY1-N6-A6		ZPY2-N6-A6		ZPY3-N6-A6					
			Female thread	M8 x 1	—			ZPY3-N6-A8						
				M4 x 0.7	ZPY1-N6-B4									
				M5 x 0.8	ZPY1-N6-B5		ZPY2-N6-B5		ZPY3-N6-B5					
	For soft tubing	ø4	Male thread	M6 x 1	ZPY1-U4-A6		ZPY2-U4-A6		ZPY3-U4-A6					
				M8 x 1	—			ZPY3-U4-A8						
			Female thread	M4 x 0.7	ZPY1-U4-B4									
		M5 x 0.8		ZPY1-U4-B5		ZPY2-U4-B5		ZPY3-U4-B5						
		M6 x 1		—		ZPY2-U4-B6		ZPY3-U4-B6						
		ø6	Male thread	M8 x 1.25	—			ZPY3-U4-B8						
	M5 x 0.8			ZPY1-U6-A5		ZPY2-U6-A5								
	M6 x 1			ZPY1-U6-A6		ZPY2-U6-A6		ZPY3-U6-A6						
	Female thread		M8 x 1	—			ZPY3-U6-A8							
			M4 x 0.7	ZPY1-U6-B4										
			M5 x 0.8	ZPY1-U6-B5		ZPY2-U6-B5		ZPY3-U6-B5						
	② Mounting nut (Single unit)			M6 x 1	—		ZPY2-U6-B6		ZPY3-U6-B6					
M8 x 1.25				—			ZPY3-U6-B8							
M5 x 0.8				NTJ-015A		NTJ-015A		—						
			M6 x 1	SNJ-006C		SNJ-006C		SNJ-006C						
			M8 x 1	—		—		RB08J						