

# Made to Order ZP/ZP2 Series

Ø2 to Ø340

Compact/Short-type, Thin Flat, Bellows, High Rigidity

Model Selection

## Compact/Short-type

Ø2 to Ø15

Compact, Space saving

p. 304



## Thin Flat

Ø5 to Ø20

For the adsorption of soft workpieces such as thin sheets or vinyl

p. 312



## Bellows

Ø2 to Ø20

For use where there is no space for a buffer (spring type)

p. 314



## High Rigidity

Ø32 to Ø340

For heavy or large workpieces

p. 317



Made to Order

ZP2V

XT661

MHM




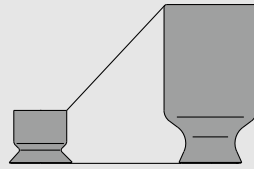







## Pad Material: ZP/ZP2 Series








Material	NBR (Nitrile rubber)	Silicone rubber*1*2	Urethane rubber	FKM (Fluoro rubber)	CR (Chloroprene rubber)	EPDM (Ethylene propylene diene rubber)	Conductive NBR (Nitrile rubber)	Conductive silicone rubber
Color of rubber	Black	White	Brown	Black				
Rubber hardness (Shore A: ±5°)	50	40 to 50	55 to 60	60	50		50 to 70	45 to 60
Identification (Stamp)	—	—	—	Ⓕ	Ⓒ	Ⓔ	—	—

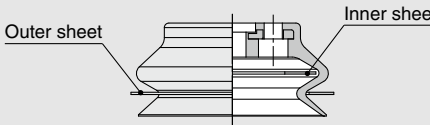










\*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

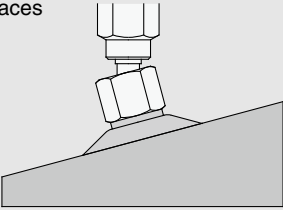
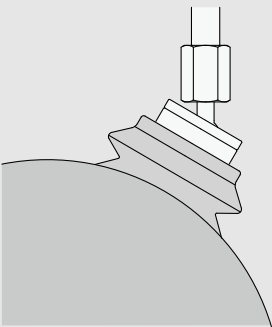
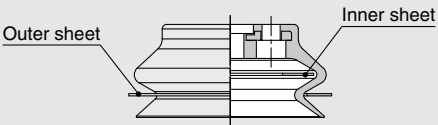
\*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article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

Precautions

Variations	Symbol	Pad		Page	
		Form	Diameter		
<b>Compact Pad</b> <b>Flat type</b> For the adsorption of general workpieces For the adsorption of workpieces with flat, non-deformed surfaces <b>Flat type with ribs</b> For workpieces which are likely to deform or for the reliable release of workpieces <b>Bellows type</b> For the adsorption of workpieces with inclined surfaces	 Single unit    With adapter	U	Flat type	ø3, ø4	304
	 Single unit    With adapter	C	Flat type with ribs	ø6, ø7, ø8	304
	 Single unit    With adapter	B	Bellows type	ø6, ø8	304
<b>Short-type Pad</b> Space saving in the height direction 	 Single unit    With adapter	MU	Flat type	ø2, ø3.5 ø4, ø5, ø6 ø8, ø10 ø15	305
	 Single unit    With adapter	EU		ø2, ø4, ø6 ø8, ø15	308
	 Single unit    With adapter	AU		ø2, ø3, ø4 ø6, ø8	311
<b>Thin Flat Pad</b> For the adsorption of soft workpieces such as thin sheets or vinyl Wrinkling or deformation during adsorption is reduced.	 Single unit    With adapter	UT	Thin flat type (Skirt)	ø5, ø6, ø11 ø14, ø18 ø20	312
<b>Bellows Pad</b> For use where there is no space for a buffer (spring type) For the adsorption of workpieces with inclined surfaces 	 Single unit    With adapter	MB	Bellows type	ø4, ø6, ø8 ø10, ø15 ø20	314
	 Single unit    With adapter	ZJ		ø2, ø4 ø5, ø6	316

Variations	Symbol	Pad		Page	
		Form	Diameter		
<b>Blast-type Pad</b> Features blast treatment to create fine unevenness on the surface Workpieces can be removed easily.	 Single unit    With adapter	<b>U</b>	Flat type	ø4	<b>304</b>
	 Single unit    With adapter	<b>C</b>	Flat type with ribs	ø6, ø8	<b>304</b>
	 Single unit    With adapter	<b>B</b>	Bellows type	ø6, ø8	<b>304</b>
	 Single unit    With adapter	<b>MU</b>	Flat type	ø2, ø3.5 ø4, ø5, ø6 ø8, ø10 ø15	<b>305</b>
	 Single unit    With adapter	<b>EU</b>	Flat type	ø2, ø4, ø6	<b>308</b>
	 Single unit    With adapter	<b>AU</b>	Flat type	ø8	<b>311</b>
	 Single unit    With adapter	<b>MB</b>	Bellows type	ø4, ø6, ø8 ø10, ø15 ø20	<b>314</b>

Variations	Symbol	Pad		Page	
		Form	Diameter		
<p><b>High Rigidity Pad</b></p> <p><b>High rigidity (Flat type with ribs)</b> Ideal for heavy or large workpieces such as CRT tubes and automobile bodies</p> <p><b>High rigidity (Bellows type)</b> · Ideal for workpieces with curved surfaces · Ideal for heavy or large workpieces</p> <p><b>With sheet</b> Prevents the bellows part from sticking during press-and-hold applications and applications in which the workpiece is adsorbed for a long period of time, improving service life</p> 	 <p>Single unit</p>	<p><b>H</b></p> <p>High rigidity (Flat type with ribs)</p>	<p>∅40, ∅50 ∅63, ∅80 ∅100, ∅125</p>	333	
				 <p>With adapter: Vacuum inlet direction <b>Vertical</b></p>	334
				 <p>With adapter: Vacuum inlet direction <b>Lateral</b></p>	337
				 <p>With buffer: Vacuum inlet direction <b>Vertical</b></p>	339
				 <p>With buffer: Vacuum inlet direction <b>Lateral</b></p>	341
				 <p>Single unit</p>	<p><b>HB</b></p> <p>High rigidity (Bellows type)</p>
	 <p>With adapter: Vacuum inlet direction <b>Vertical</b></p>			334	
	 <p>With adapter: Vacuum inlet direction <b>Lateral</b></p>			337	
	 <p>With buffer: Vacuum inlet direction <b>Vertical</b></p>			339	
	 <p>With buffer: Vacuum inlet direction <b>Lateral</b></p>			341	

Variations	Symbol	Pad		Page
		Form	Diameter	
<b>High Rigidity Ball Joint Pad</b> For the adsorption of workpieces with inclined surfaces 	H	High rigidity (Flat type with ribs)	ø40 ø50 ø63 ø80 ø100 ø125	321
				322
				323
				325
<b>High Rigidity Ball Joint Pad (Bellows Type)</b> For the adsorption of workpieces with inclined or curved surfaces   <b>With sheet</b> Prevents the bellows part from sticking during press-and-hold applications and applications in which the workpiece is adsorbed for a long period of time, improving service life 	HB	High rigidity (Bellows type)	ø40 ø50 ø63 ø80 ø100 ø125	327
				328
				329
				331

Model Selection

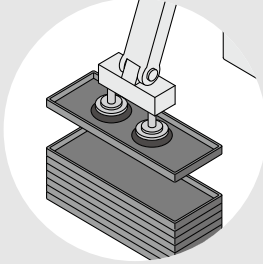




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Precautions

Variations	Symbol	Pad		Page	
		Form	Diameter		
<b>High Rigidity Pad</b> For heavy or large workpieces 		<b>H</b>	High rigidity (Flat type with ribs)	<b>ø32, ø300 ø340</b>	<b>317</b>
		<b>HT</b>	High rigidity (Thin flat type with ribs)	<b>ø150, ø250</b>	<b>317</b>
		<b>HB</b>	High rigidity (Bellows type)	<b>ø32, ø150</b>	<b>319</b>
		<b>HW</b>	High rigidity (Oval type)	<b>30 x 50</b>	<b>320</b>



# Compact Pad

Pad diameter  $\varnothing 3, \varnothing 4, \varnothing 6, \varnothing 7, \varnothing 8$

Symbol/Form

U: Flat type  
C: Flat type with ribs  
B: Bellows type

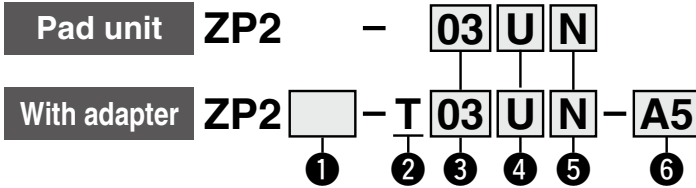
■ 5 types of  $\varnothing 3$  to  $\varnothing 8$  are added.

Mounting Bracket Part Nos.

Adapter Assembly p. 313



## How to Order



### 1 Adapter material

Symbol	Material
Nil	Brass
S	Stainless steel (Stainless steel 304)

### 2 Vacuum inlet direction

Symbol	Vacuum inlet direction
T	Vertical

### 3 Pad diameter/4 Pad form

Symbol	Size	4 Pad form		
		U Flat type	C Flat type with ribs	B Bellows type
03	$\varnothing 3$	●	—	—
B04	$\varnothing 4$	●	—	—
B06	$\varnothing 6$	—	●	●
07	$\varnothing 7$	—	●	—
B08	$\varnothing 8$	—	●	●

### 5 Pad material

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

### 6 Connection thread

Symbol	Thread size	Type
A5	M5 x 0.8	Male
A6	M6 x 1	thread
B4	M4 x 0.7	Female
B5	M5 x 0.8	thread

\*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).

Model Selection

Made to Order

ZP2V

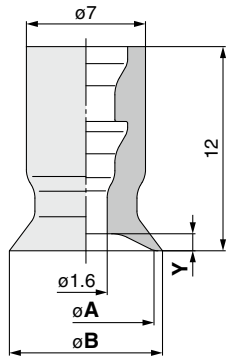
XT661

MHM

Precautions

## Dimensions/Models

### Flat type (Single unit)

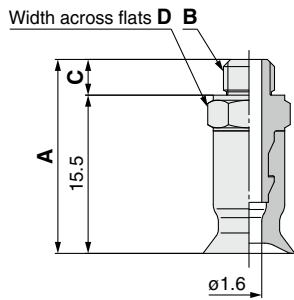


**ZP2 - 03 U N**  
 ① ②

	Model			A	B	Y
	① Pad diameter	Type	② Material*1			
ZP2	03	U	N S U F GN GS	2.8	3.3	0.5
	B04			4	4.7	0.8

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

### Flat type with adapter



**ZP2 - T 03 U N - A5**  
 ① ② ③ ④

#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

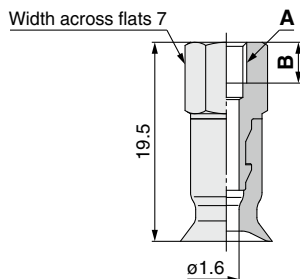
#### ④ Connection thread

A5	M5 x 0.8
A6	M6 x 1

	Model						A	B	C	D
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread				
ZP2	Nil S	T	03 B04	U	N S U F GN GS	A5	19	M5 x 0.8	3.5	7
						A6	20	M6 x 1	4.5	8

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

### Flat type with adapter



**ZP2 - T 03 U N - B4**  
 ① ② ③ ④

#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

#### ④ Connection thread

B4	M4 x 0.7
B5	M5 x 0.8

	Model						A	B
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread		
ZP2	Nil S	T	03 B04	U	N S U F GN GS	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

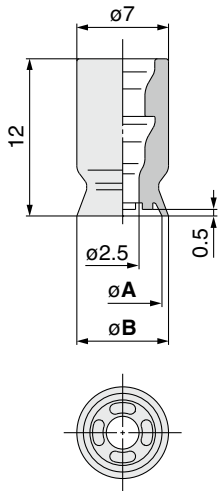
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber



**Dimensions/Models**

**Flat type with ribs (Single unit)**

ZP2 - **B06** C **N**  
 ① ②

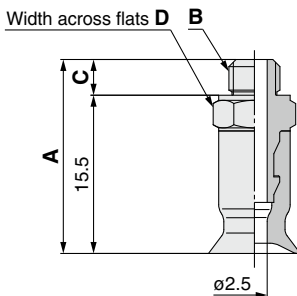


	Model			A	B
	① Pad diameter	Type	② Material*1		
ZP2	B06	C	N S U F GN GS	6	6.9
	07			7.1	8
	B08			8	8.8

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

**Flat type with ribs (With adapter)**

ZP2  - T **B06** C **N** - **A5**  
 ① ② ③ ④



① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

④ Connection thread

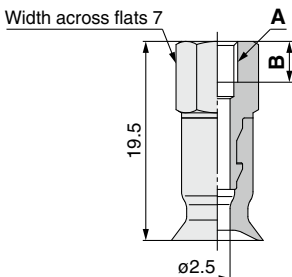
A5	M5 x 0.8
A6	M6 x 1

	Model						A	B	C	D
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread				
ZP2	Nil S	T	B06 07 B08	C	N S U F GN GS	A5	19	M5 x 0.8	3.5	7
						A6	20	M6 x 1	4.5	8

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

**Flat type with ribs (With adapter)**

ZP2  - T **B06** C **N** - **B4**  
 ① ② ③ ④



① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

④ Connection thread

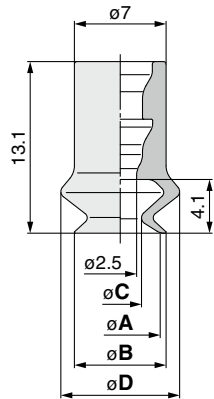
B4	M4 x 0.7
B5	M5 x 0.8

	Model						A	B
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread		
ZP2	Nil S	T	B06 07 B08	C	N S U F GN GS	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

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

## Dimensions/Models

### Bellows type (Single unit)

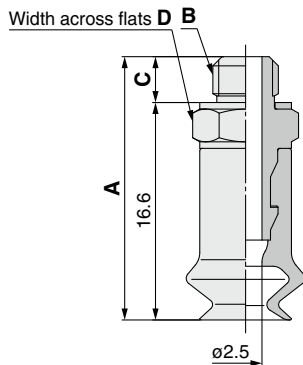


ZP2 - **B06** B **N**  
 ① ②

	Model			A	B	C	D
	① Pad diameter	Type	② Material*1				
ZP2	B06	B	N S U F GN GS	6.1	7	3.2	9.1
	B08			8.1	9	4.7	10.1

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

### Bellows type with adapter



ZP2  - T **B06** B **N** - **A5**  
 ① ② ③ ④

#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

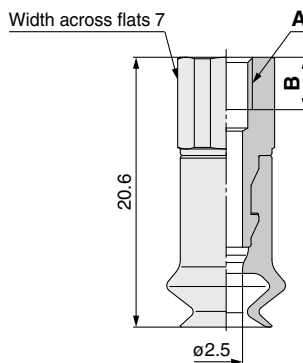
#### ④ Connection thread

A5	M5 x 0.8
A6	M6 x 1

	Model						A	B	C	D
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread				
ZP2	Nil S	T	B06 B08	B	N S U F GN GS	A5	20.1	M5 x 0.8	3.5	7
						A6	21.1	M6 x 1	4.5	8

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

### Bellows type with adapter



ZP2  - T **B06** B **N** - **B4**  
 ① ② ③ ④

#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

#### ④ Connection thread

B4	M4 x 0.7
B5	M5 x 0.8

	Model						A	B
	① Adapter material	Vacuum inlet direction	② Pad diameter	Type	③ Material*1	④ Connection thread		
ZP2	Nil S	T	B06 B08	B	N S U F GN GS	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

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

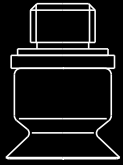
## Adapter Assembly

<b>Product part no.</b>	<p>ZP2 □ - T ① ② □ - ③</p> <p>Adapter material (Brass/Stainless steel) ●</p> <p>Pad diameter ●</p> <p>Pad form ●</p> <p>● Connection thread (Male/Female thread)</p> <p>● Pad material</p>
<b>Component parts</b>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Male thread</p> <p>● Gasket</p> <p>● Adapter (With gasket)</p> </div> <div style="text-align: center;"> <p>Female thread</p> <p>● Adapter</p> </div> </div>

						Symbol	① Pad diameter symbol				
							03	B04	B06	07	B08
② Pad form	Flat type					U	●	●	—	—	—
	Flat type with ribs					C	—	—	●	●	●
	Bellows type					B	—	—	●	—	●
③ Connection thread	● Adapter	Male thread	M5 x 0.8	Adapter material	Brass	A5	ZPT1-A5				
							Stainless steel	MS-5AU-6-X112			
			M6 x 1			A6	ZP□T1-A6*1				
		Female thread	M4 x 0.7			B4	ZP□T1-B4*1				
			M5 x 0.8			B5	ZP□T1-B5*1				
● Gasket (Single unit)	M5 x 0.8		Adapter material	Brass	10 pcs.*2	ZP-5G2					
					100 pcs.*2	M-5G2					
	M6 x 1				10 pcs.*2	ZP-6G2					
					100 pcs.*2	M-6G					
	M5 x 0.8				Stainless steel	10 pcs.*2	M-5G3				
	M6 x 1					1 pc.*2	M-6G-X34				

\*1 The adapter material symbol goes into the blank "□." (Nil: Brass, S: Stainless steel 304)

\*2 The gasket (single unit) sales unit is shown.



# Short-type Pad

Symbol/Form

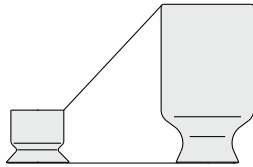
Pad diameter  $\varnothing 2, \varnothing 3.5, \varnothing 4, \varnothing 5, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 15$

MU: Flat type

■ Space saving in the height direction

■ Supports blast type\*1 pads

\*1 Allows for the easy removal of workpieces



## How to Order



Pad unit **ZP2 – B02 MU N**

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

### Pad diameter

Symbol	Pad diameter
B02	$\varnothing 2$
B035	$\varnothing 3.5$
B04	$\varnothing 4$
B05	$\varnothing 5$
B06	$\varnothing 6$
B08	$\varnothing 8$
B10	$\varnothing 10$
B15	$\varnothing 15$

### Pad form

Symbol	Form
MU	Flat type

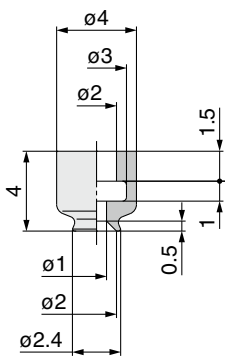
### Pad material

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

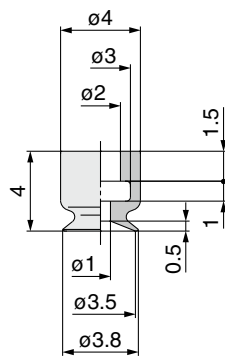
\*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

## Dimensions: Pad Unit

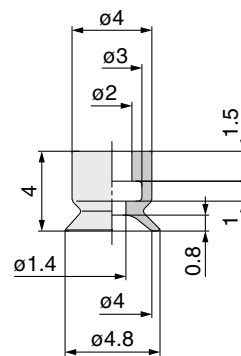
ZP2-B02MU□



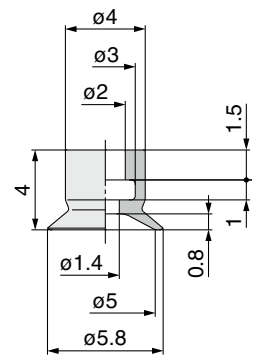
ZP2-B035MU□



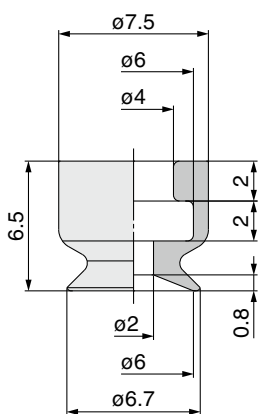
ZP2-B04MU□



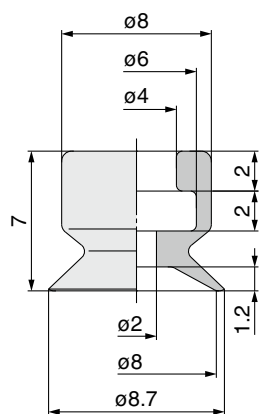
ZP2-B05MU□



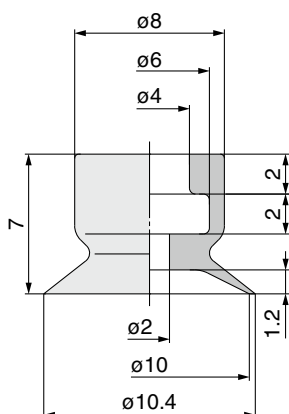
ZP2-B06MU□



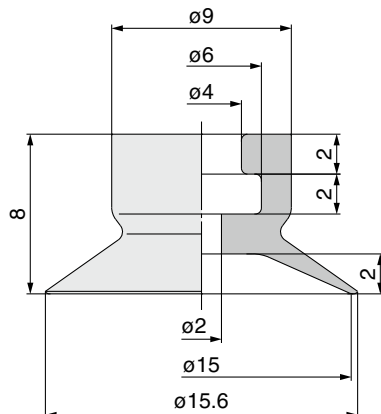
ZP2-B08MU□



ZP2-B10MU□



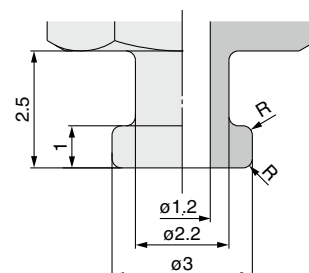
ZP2-B15MU□



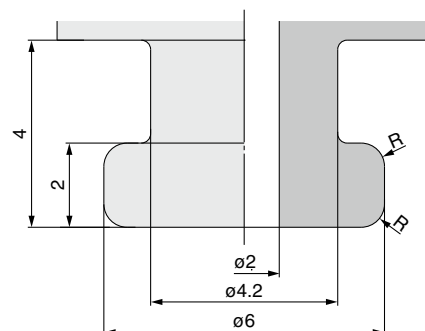
## Adapter Mounting Dimensions

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

Applicable pad  
B02MU/B035MU/B04MU/B05MU



Applicable pad  
B06MU/B08MU/B10MU/B15MU



\* The R part has to be smooth with no corners.  
\* Refer to page 306 for adapter applicable to the ZP2 series.



## How to Order

### With adapter **ZP2 - T B02 MU N - A3**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Pad diameter

Symbol	Pad diameter
B02	ø2
B035	ø3.5
B04	ø4
B05	ø5
B06	ø6
B08	ø8
B10	ø10
B15	ø15

Pad form

Symbol	Form
MU	Flat type

Mounting

Thread size	Pad diameter (Symbol)	B02	B035	B04	B05	B06	B08	B10	B15
A3 (M3 x 0.5 Male thread)		●	●	●	●	—	—	—	—
H5 (M5 x 0.8 Male thread)		—	—	—	—	●	●	●	●
B5 (M5 x 0.8 Female thread)		—	—	—	—	●	●	●	●

Pad material

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

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

Replacement Part Nos.

Model	Pad unit part no.*1	Adapter part no. (With gasket)	Gasket part no. (Single unit)
ZP2-TB02MU□-A3	ZP2-B02MU□		
ZP2-TB035MU□-A3	ZP2-B035MU□	ZP2A-M01P	M-3G2
ZP2-TB04MU□-A3	ZP2-B04MU□		
ZP2-TB05MU□-A3	ZP2-B05MU□		
ZP2-TB06MU□-H5	ZP2-B06MU□		
ZP2-TB08MU□-H5	ZP2-B08MU□	ZP2A-M02P	10 pcs.*2: ZP-5G2 100 pcs.*2: M-5G2
ZP2-TB10MU□-H5	ZP2-B10MU□		
ZP2-TB15MU□-H5	ZP2-B15MU□		
ZP2-TB06MU□-B5	ZP2-B06MU□		
ZP2-TB08MU□-B5	ZP2-B08MU□	ZP2A-M04	—
ZP2-TB10MU□-B5	ZP2-B10MU□		
ZP2-TB15MU□-B5	ZP2-B15MU□		

\*1 Pad unit's sales unit: 10 pcs.

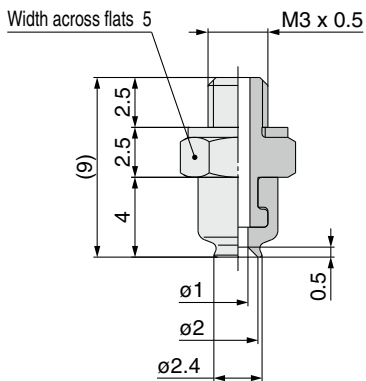
\*2 The gasket (single unit) sales unit is shown.

\* □ in the table indicates the pad material

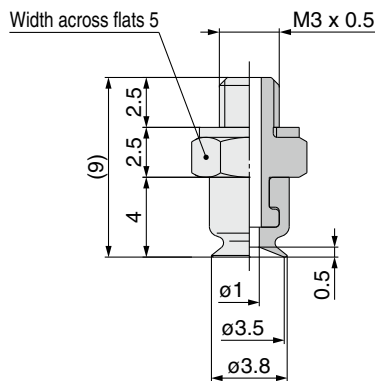
\* The pad is shipped together but does not come assembled.

## Dimensions: With Adapter

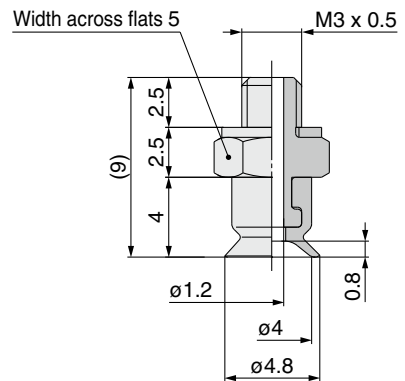
**ZP2-TB02MU□-A3**



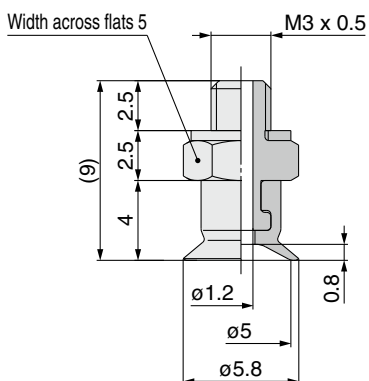
**ZP2-TB035MU□-A3**



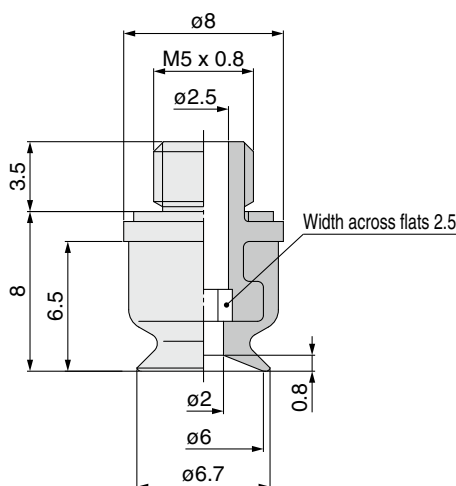
**ZP2-TB04MU□-A3**



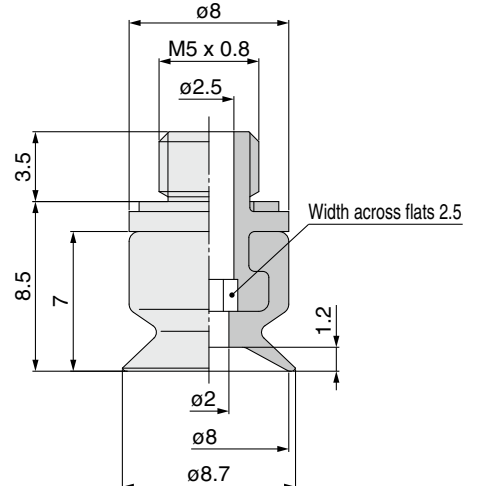
**ZP2-TB05MU□-A3**



**ZP2-TB06MU□-H5**

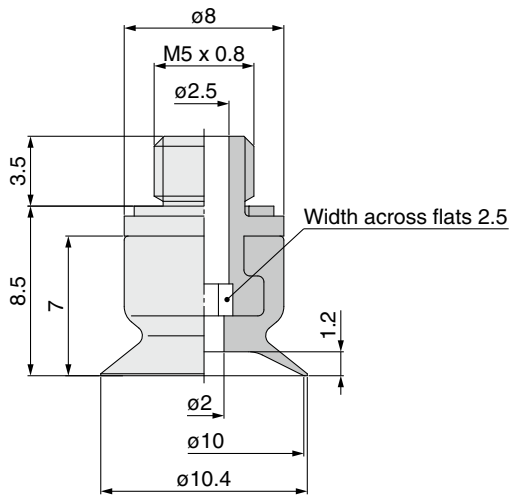


**ZP2-TB08MU□-H5**

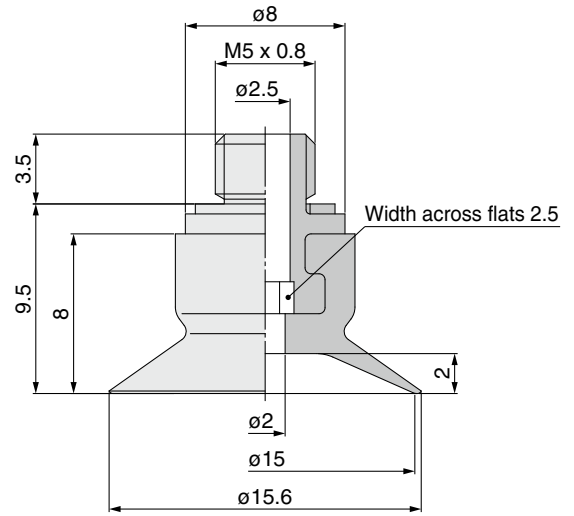


**Dimensions: With Adapter**

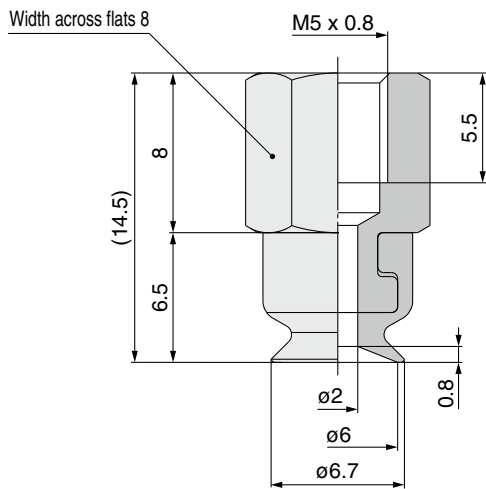
**ZP2-TB10MU□-H5**



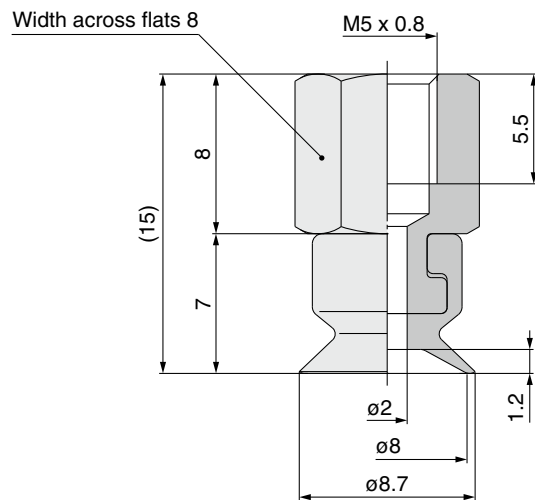
**ZP2-TB15MU□-H5**



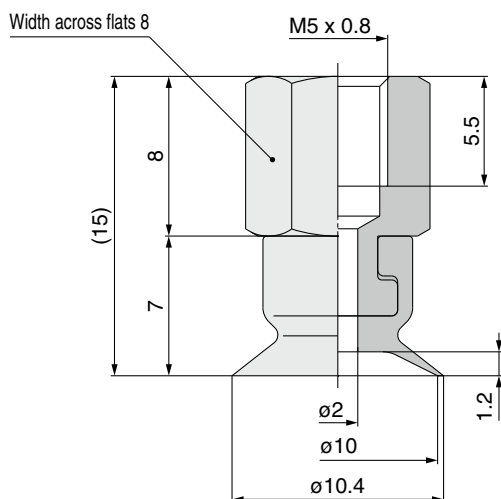
**ZP2-TB06MU□-B5**



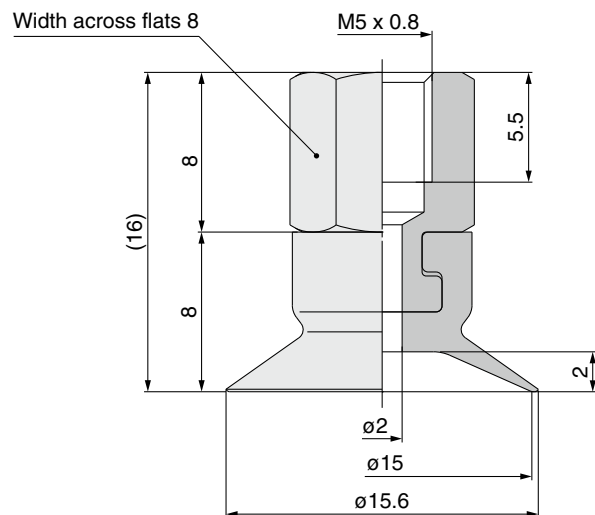
**ZP2-TB08MU□-B5**

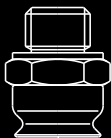


**ZP2-TB10MU□-B5**



**ZP2-TB15MU□-B5**





# Short-type Pad

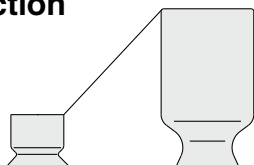
Symbol/Form

Pad diameter  $\phi 2, \phi 4, \phi 6, \phi 8, \phi 15$

EU: Flat type

Model Selection

Space saving in the height direction



## How to Order



Pad unit **ZP2 - B02 EU N**

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

### Pad diameter

Symbol	Pad diameter	Blast type
<b>B02</b>	$\phi 2$	●
<b>B04</b>	$\phi 4$	●
<b>B06</b>	$\phi 6$	●
<b>08</b>	$\phi 8$	—
<b>15</b>	$\phi 15$	—

\* 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

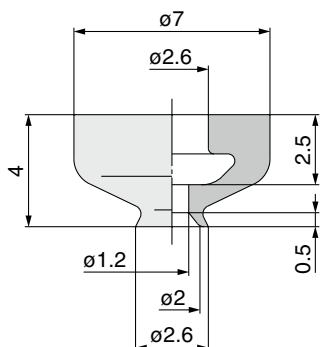
\*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

### Pad form

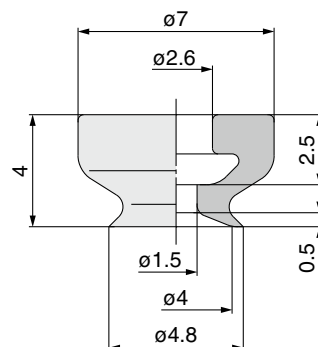
Symbol	Form
<b>EU</b>	Flat type

## Dimensions: Pad Unit

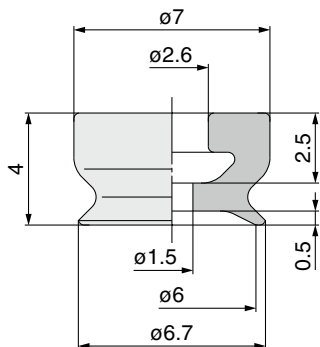
ZP2-B02EU□



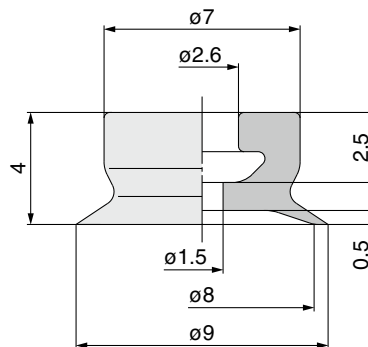
ZP2-B04EU□



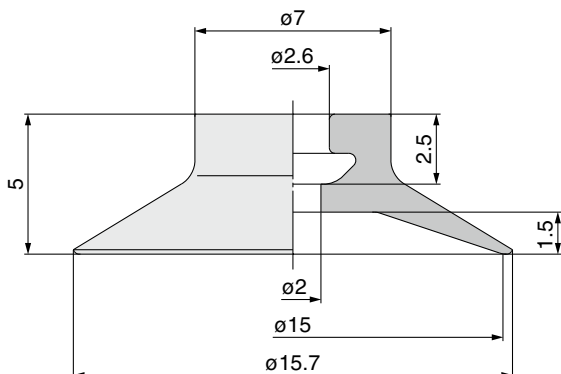
ZP2-B06EU□



ZP2-08EU□

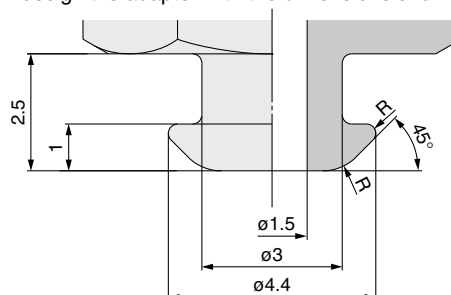


ZP2-15EU□



## 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.  
\* Refer to page 309 for adapter applicable to the ZP2 series.

Made to Order

ZP2V

XT661

MHM

Precautions

# Short-type Pad **ZP2 Series**

## How to Order



### With adapter **ZP2 - T B02 EU N - A5**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Pad diameter

Symbol	Pad diameter	Blast type
B02	ø2	●
B04	ø4	●
B06	ø6	●
08	ø8	—
15	ø15	—

\* Blast type: Workpieces can be removed easily.

Pad form

Symbol	Form
EU	Flat type

Mounting

Symbol	Thread size	Adapter type
A5	M5 x 0.8	Hexagon O.D.
H5	M5 x 0.8	Hexagon socket head

Pad material

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

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

Replacement Part Nos.

Model	Pad unit part no.*1	Adapter part no. (With gasket)	Gasket part no. (Single unit)
ZP2-TB02EU□-A5	ZP2-B02EU□	ZP2A-Z01P	10 pcs.*2: ZP-5G2 100 pcs.*2: M-5G2
ZP2-TB04EU□-A5	ZP2-B04EU□		
ZP2-TB06EU□-A5	ZP2-B06EU□	ZP2A-Z02P	10 pcs.*2: ZP-5G2 100 pcs.*2: M-5G2
ZP2-T08EU□-A5	ZP2-08EU□		
ZP2-T15EU□-A5	ZP2-15EU□		
ZP2-TB02EU□-H5	ZP2-B02EU□	ZP2A-Z01P	10 pcs.*2: ZP-5G2 100 pcs.*2: M-5G2
ZP2-TB04EU□-H5	ZP2-B04EU□		
ZP2-TB06EU□-H5	ZP2-B06EU□	ZP2A-Z02P	10 pcs.*2: ZP-5G2 100 pcs.*2: M-5G2
ZP2-T08EU□-H5	ZP2-08EU□		
ZP2-T15EU□-H5	ZP2-15EU□		

\*1 Pad unit's sales unit: 10 pcs.

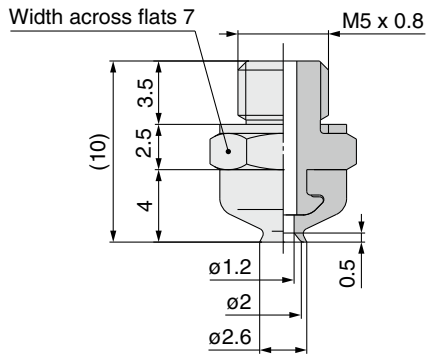
\*2 The gasket (single unit) sales unit is shown.

\* □ in the table indicates the pad material

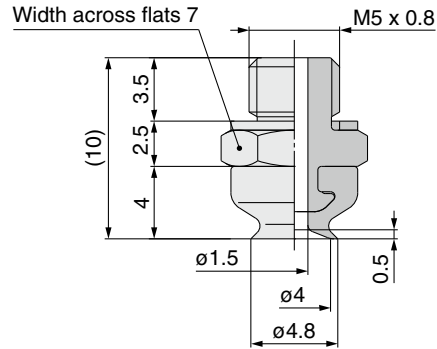
\* The pad is shipped together but does not come assembled.

## Dimensions: With Adapter

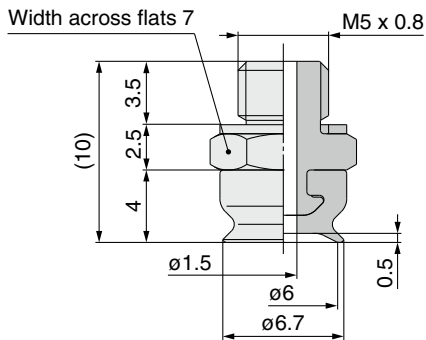
### ZP2-TB02EU□-A5



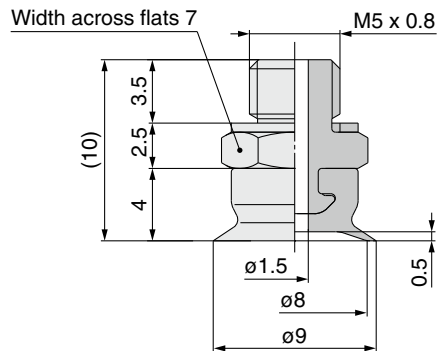
### ZP2-TB04EU□-A5



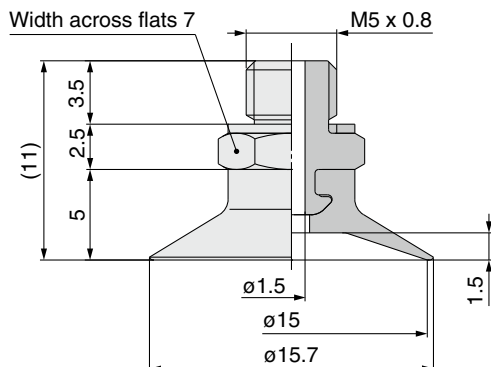
### ZP2-TB06EU□-A5



### ZP2-T08EU□-A5



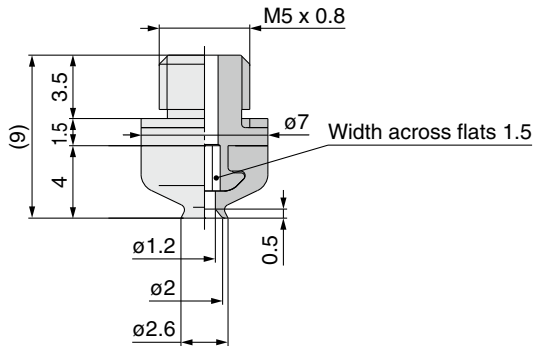
### ZP2-T15EU□-A5



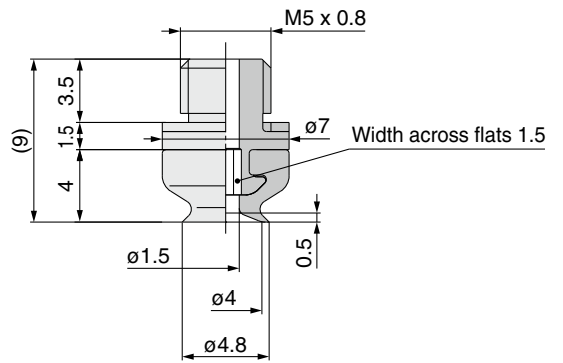


**Dimensions: With Adapter**

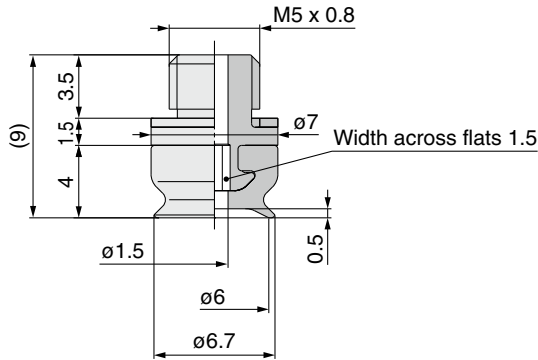
**ZP2-TB02EU□-H5**



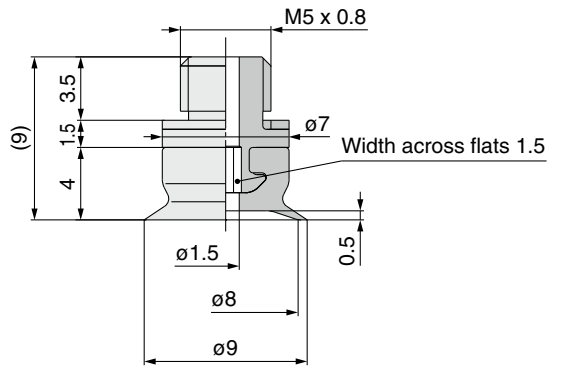
**ZP2-TB04EU□-H5**



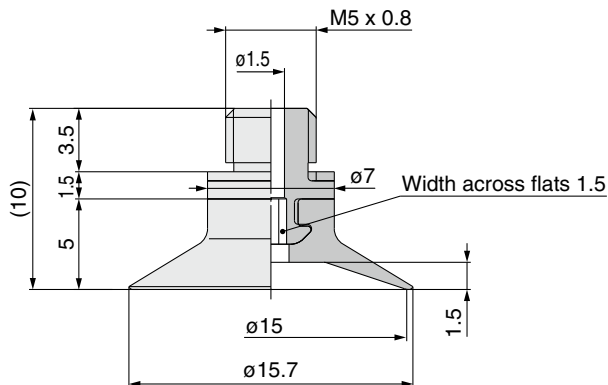
**ZP2-TB06EU□-H5**



**ZP2-T08EU□-H5**



**ZP2-T15EU□-H5**



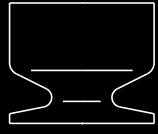
Made to Order

ZP2V

XT661

MHM

Precautions



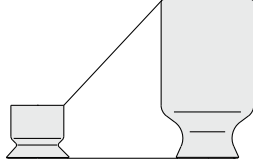
# Short-type Pad

Symbol/Form

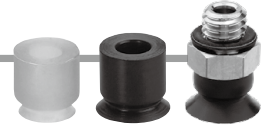
Pad diameter  $\varnothing 2, \varnothing 3, \varnothing 4, \varnothing 6, \varnothing 8$

AU: Flat type

## Space saving in the height direction



## How to Order



Pad unit **ZP2 - 02 AU N**

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

With adapter **ZP2 - T 02 AU N - A3**

① ② ③ ④

• Flat type

### ① Vacuum inlet direction

Symbol	Vacuum inlet direction
Nil	Pad unit
T	Vertical

### ② Pad diameter

Symbol	Pad diameter
02	$\varnothing 2$
03	$\varnothing 3$
04	$\varnothing 4$
06	$\varnothing 6$
B08	$\varnothing 8$

### ③ Pad material

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

### ④ Connection thread

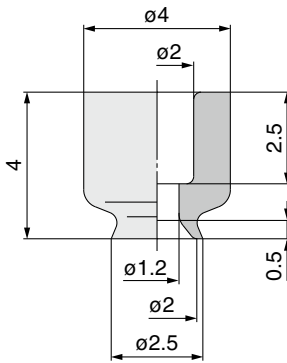
Symbol	Size	Pad diameter				
		$\varnothing 2$	$\varnothing 3$	$\varnothing 4$	$\varnothing 6$	$\varnothing 8$
A3	M3 x 0.5 Male thread	●	●	●	—	—
A5	M5 x 0.8 Male thread	—	—	—	●	●

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

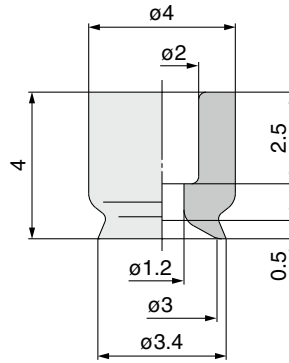
\*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act,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

## Dimensions: Pad Unit

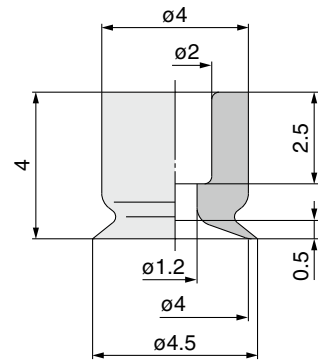
ZP2-02AU□



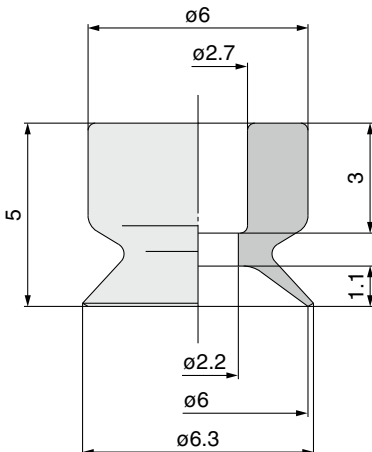
ZP2-03AU□



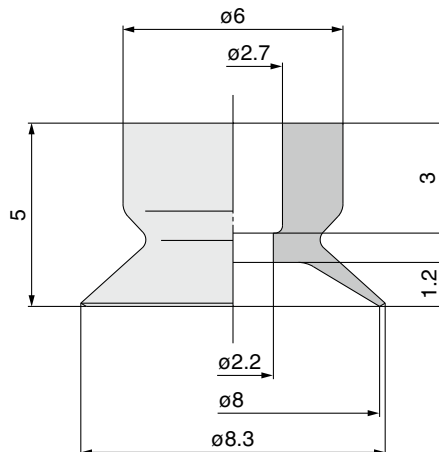
ZP2-04AU□



ZP2-06AU□

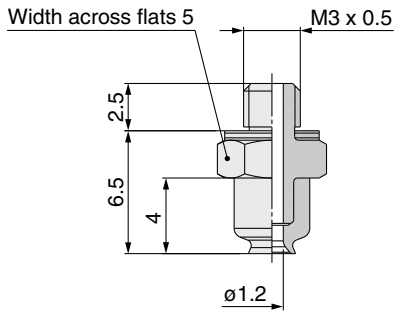


ZP2-B08AU□

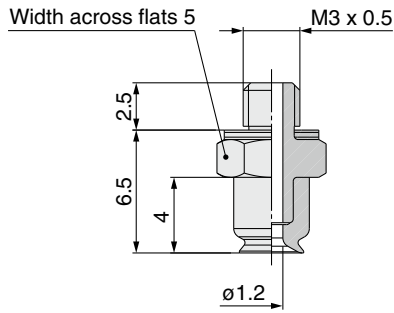


**Dimensions: With Adapter**

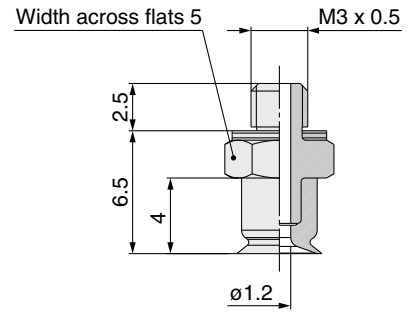
**ZP2-T02AU□-A3**



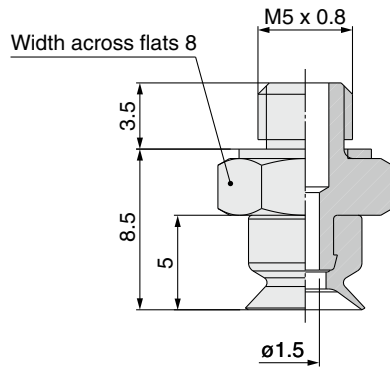
**ZP2-T03AU□-A3**



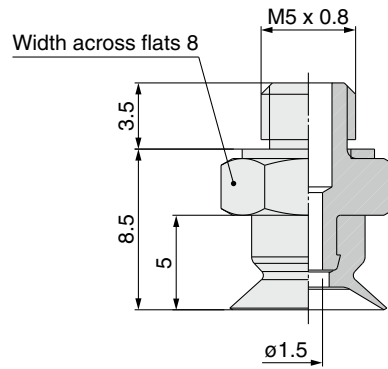
**ZP2-T04AU□-A3**



**ZP2-T06AU□-A5**



**ZP2-TB08AU□-A5**



Made to Order

ZP2V

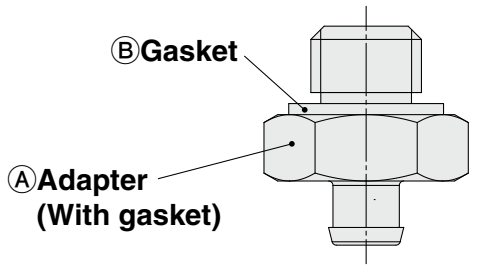
XT661

MHM

Precautions

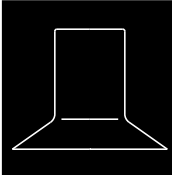
# Short-type Pad **ZP2 Series**

## ■ Adapter Assembly

Product part no.	<b>ZP2 - T ① AU □ - ②</b> Pad diameter ●      ● Connection thread (Male thread) Pad form ●      ● Pad material
Component parts	 <p>② Gasket</p> <p>① Adapter (With gasket)</p>

		Symbol	① Pad diameter symbol				
			02	03	04	06	B08
① Adapter	② Connection thread Male thread	M3 x 0.5	<b>A3</b>	<b>ZP2A-T1AU-A3</b>			—
		M5 x 0.8		—	<b>ZP2A-T2AU-A5</b>		
② Gasket (Single unit)	For M3 x 0.5	10 pcs.*1	<b>M-3G2</b>			—	
	For M5 x 0.8	10 pcs.*1	—			<b>ZP-5G2</b>	
		100 pcs.*1	—			<b>M-5G2</b>	

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



# Thin Flat Pad

Pad diameter  $\varnothing 5, \varnothing 6, \varnothing 11, \varnothing 14, \varnothing 18, \varnothing 20$

Symbol/Form

UT: Thin flat type (Skirt)

Model Selection

■ For the adsorption of soft workpieces such as thin sheets or vinyl  
Wrinkling or deformation during adsorption is reduced.

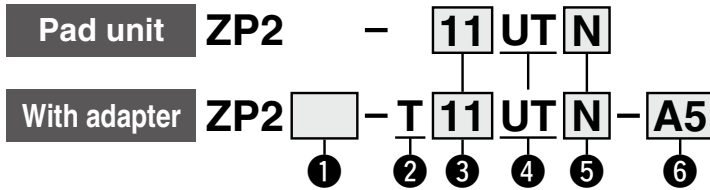
Mounting Bracket Part Nos.

Adapter Assembly p. 313



Made to Order

## How to Order



### 1 Adapter material

Symbol	Material
Nil	Brass
S	Stainless steel (Stainless steel 304)

### 2 Vacuum inlet direction

Symbol	Vacuum inlet direction
T	Vertical

### 3 Pad diameter

Symbol	Pad diameter
05	$\varnothing 5$
06	$\varnothing 6$
11	$\varnothing 11$
14	$\varnothing 14$
18	$\varnothing 18$
20	$\varnothing 20$

### 4 Pad form

Symbol	Form
UT	Thin flat type

### 5 Pad material

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

### 6 Connection thread

Symbol	Thread size	Type
A5	M5 x 0.8	Male thread
A6	M6 x 1	Male thread
B4	M4 x 0.7	Female thread
B5	M5 x 0.8	Female thread

\*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).

ZP2V

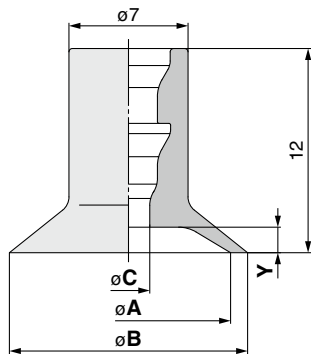
XT661

MHM

Precautions

## Dimensions/Models

### Compact pad (Single unit)/Thin flat



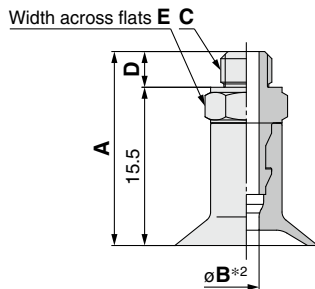
**ZP2 - 11 UT N**  
 ① ②

Model				A	B	C	Y
①	②	Type	Material*1				
Pad diameter							
ZP2	05	UT	N S U F GN GS	—	5	1.2	0.3
	06			—	6	0.8	
	11			11.5	12.5	2.5	1.2
	14			14.5	15.5		1.5
	18			18	19		1.8
	20			20	21		1.8

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

### Direct mounting with adapter (Male thread)

**ZP2 □ - T 11 UT N - A5**  
 ① ② ③ ④



#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

#### ④ Connection thread

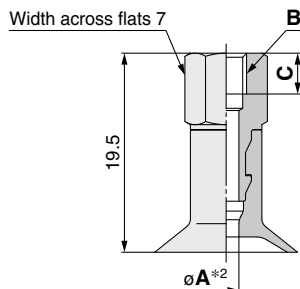
A5	M5 x 0.8
A6	M6 x 1

Model							A	B*2	C	D	E
①	Vacuum inlet direction	②	Type	③	④						
Adapter material		Pad diameter		Material*1	Connection thread						
ZP2	Nil S	T	UT	N S U F GN GS	A5	19	1.2	M5 x 0.8	3.5	7	
							0.8				
							2.5				
							1.2				
							0.8				
							2.5				
						20	1.2	M6 x 1	4.5	8	
							0.8				
							2.5				

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

### Direct mounting with adapter (Female thread)

**ZP2 □ - T 11 UT N - B4**  
 ① ② ③ ④



#### ① Adapter material

Nil	Brass
S	Stainless steel (Stainless steel 304)

#### ④ Connection thread

B4	M4 x 0.7
B5	M5 x 0.8

Model						A*2	B	C
①	Vacuum inlet direction	②	Type	③	④			
Adapter material		Pad diameter		Material*1	Connection thread			
ZP2	Nil S	T	UT	N S U F GN GS	B4	1.2	M4 x 0.7	4
						0.8		
						2.5		
						1.2		
						0.8		
						2.5		
					B5	1.2	M5 x 0.8	5
						0.8		
						2.5		

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

## Adapter Assembly

<b>Product part no.</b>	<p style="text-align: center;"> <b>ZP2</b> □ - T ① <b>UT</b> □ - ②                  Adapter material (Brass/Stainless steel)    Pad diameter    Pad form    Connection thread (Male/Female thread)    Pad material             </p>
<b>Component parts</b>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Male thread</b></p> <p>③ Gasket ① Adapter (With gasket)</p> </div> <div style="text-align: center;"> <p><b>Female thread</b></p> <p>① Adapter</p> </div> </div>

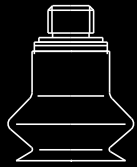
						Symbol	① Pad diameter symbol						
							05	06	11	14	18	20	
② Connection thread	① Adapter	Male thread	M5 x 0.8	Adapter material	Brass	A5	ZPT1-A5						
					Stainless steel		MS-5AU-6-X112						
		Female thread	M6 x 1	Adapter material	A6			ZP□T1-A6*1					
					B4			ZP□T1-B4*1					
					B5			ZP□T1-B5*1					
③ Gasket (Single unit)	M5 x 0.8		Adapter material	Brass	10 pcs.*2	ZP-5G2							
					100 pcs.*2	M-5G2							
	M6 x 1				10 pcs.*2	ZP-6G2							
				100 pcs.*2	M-6G								
	M5 x 0.8			Stainless steel	10 pcs.*2	M-5G3							
					M6 x 1		1 pc.*2	M-6G-X34					

\*1 The adapter material symbol goes into the blank "□." (Nil: Brass, S: Stainless steel 304)

\*2 The gasket (single unit) sales unit is shown.







# Bellows Pad

Symbol/Form

Pad diameter  $\varnothing 4, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 15, \varnothing 20$

MB: Bellows type

Model Selection

- For use where there is no space for a buffer (spring type)
- For the adsorption of workpieces with inclined surfaces
- Supports blast type\*<sup>1</sup> pads

\*1 Allows for the easy removal of workpieces

## How to Order

Pad unit **ZP2 - B04 MB N**



Symbol	Pad diameter
B04	$\varnothing 4$
B06	$\varnothing 6$
B08	$\varnothing 8$
B10	$\varnothing 10$
B15	$\varnothing 15$
B20	$\varnothing 20$

Symbol	Form
MB	Bellows type

### Pad material

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

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

Made to Order

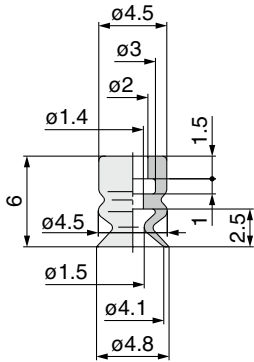
ZP2V

XT661

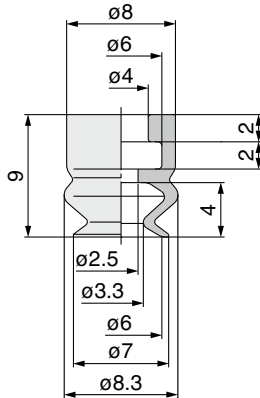
MHM

## Dimensions: Pad Unit

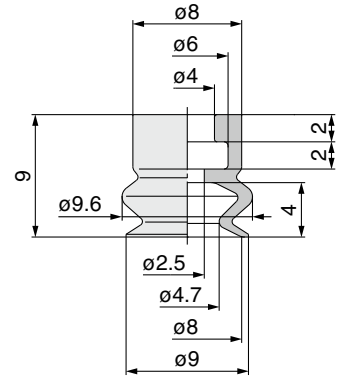
ZP2-B04MB □



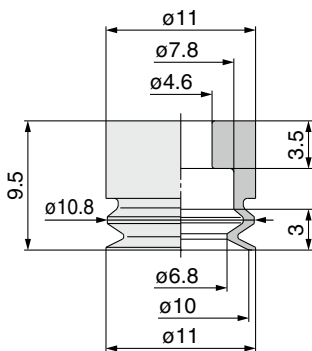
ZP2-B06MB □



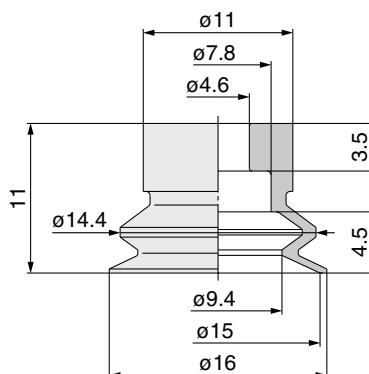
ZP2-B08MB □



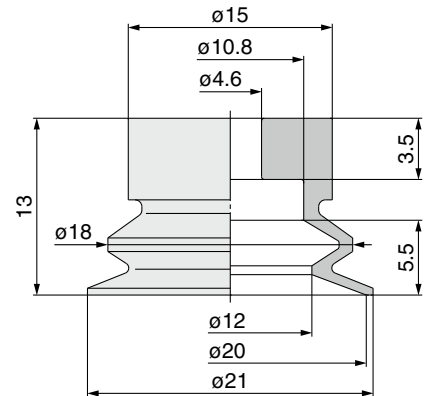
ZP2-B10MB □



ZP2-B15MB □



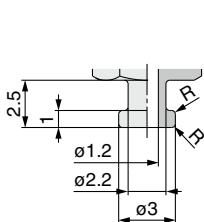
ZP2-B20MB □



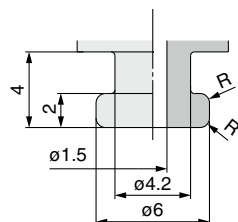
## Adapter Mounting Dimensions

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

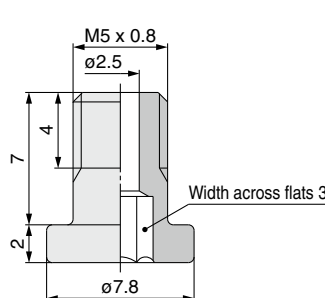
Applicable pad B04MB



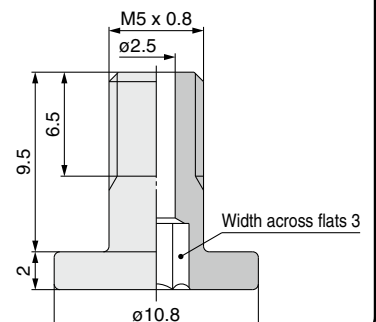
Applicable pad B06MB/B08MB



Applicable pad B10MB/B15MB



Applicable pad B20MB



\* The R part has to be smooth with no corners.  
\* Refer to page 315 for adapter applicable to the ZP2 series.

Precautions

## How to Order



### With adapter **ZP2 - T B04 MB N - A3**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Pad diameter

Symbol	Pad diameter
B04	ø4
B06	ø6
B08	ø8
B10	ø10
B15	ø15
B20	ø20

Mounting

Thread size (Symbol)	Pad diameter (Symbol)					
	B04	B06	B08	B10	B15	B20
A3 (M3 x 0.5 Male thread)	●	—	—	—	—	—
H5 (M5 x 0.8 Male thread)	—	●	●	●	●	●
B5 (M5 x 0.8 Female thread)	—	●	●	—	—	—

Pad material

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

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

Pad form

Symbol	Form
MB	Bellows type

Replacement Part Nos.

Model	Pad unit part no.*1	Adapter part no.	Gasket part no. (Single unit)
ZP2-TB04MB□-A3	ZP2-B04MB□	ZP2A-M01P*2	M-3G2
ZP2-TB06MB□-H5	ZP2-B06MB□	ZP2A-M02P*2	10 pcs.*3: ZP-5G2 100 pcs.*3: M-5G2
ZP2-TB08MB□-H5	ZP2-B08MB□	ZP2A-M05	—
ZP2-TB10MB□-H5	ZP2-B10MB□	ZP2A-M05	—
ZP2-TB15MB□-H5	ZP2-B15MB□	ZP2A-M06	—
ZP2-TB20MB□-H5	ZP2-B20MB□	ZP2A-M06	—
ZP2-TB06MB□-B5	ZP2-B06MB□	ZP2A-M04	—
ZP2-TB08MB□-B5	ZP2-B08MB□	ZP2A-M04	—

\*1 Pad unit's sales unit: 10 pcs.

\*2 With gasket

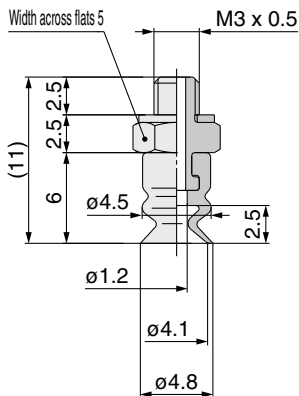
\*3 The gasket (single unit) sales unit is shown.

\* □ in the table indicates the pad material

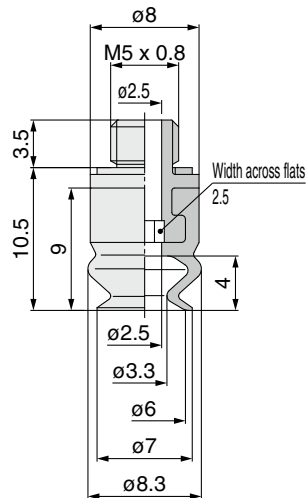
\* The pad is shipped together but does not come assembled.

## Dimensions: With Adapter

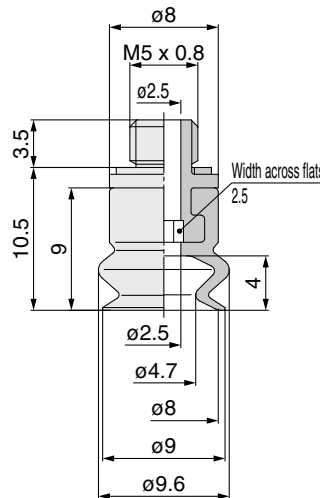
ZP2-TB04MB□□-A3



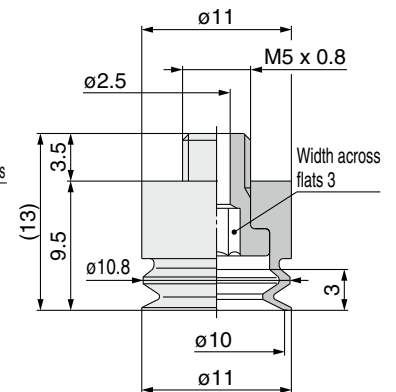
ZP2-TB06MB□-H5



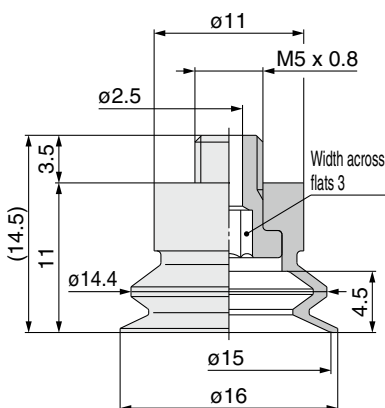
ZP2-TB08MB□-H5



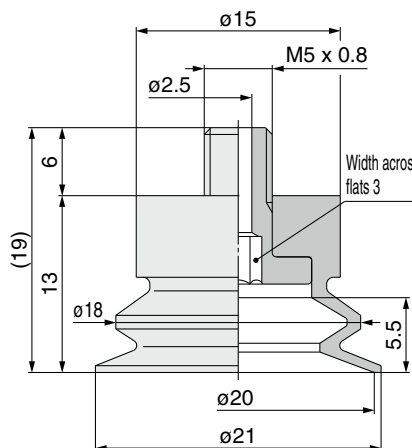
ZP2-TB10MB□-H5



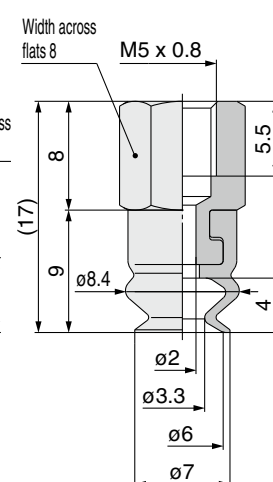
ZP2-TB15MB□-H5



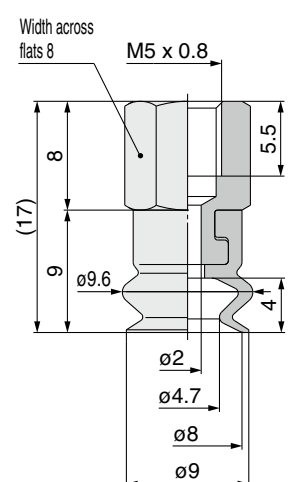
ZP2-TB20MB□-H5

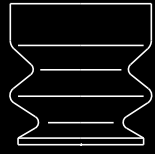


ZP2-TB06MB□-B5



ZP2-TB08MB□-B5





# Bellows Pad

Pad diameter  $\varnothing 2, \varnothing 4, \varnothing 5, \varnothing 6$

Symbol/Form

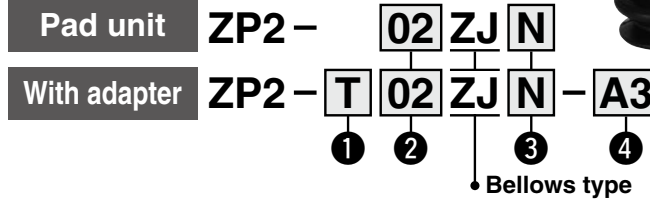
ZJ: Bellows type

Model Selection

■ For use where there is no space for a buffer (spring type)

■ For the adsorption of workpieces with inclined surfaces

## How to Order



### ① Vacuum inlet direction

Symbol	Vacuum inlet direction
Nil	Pad unit
T	Vertical

### ③ Pad material

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

### ④ Connection thread

Symbol	Size	Pad diameter			
		$\varnothing 2$	$\varnothing 4$	$\varnothing 5$	$\varnothing 6$
A3	M3 x 0.5 Male thread	●	●	—	—
A5	M5 x 0.8 Male thread	—	—	●	●

### ② Pad diameter

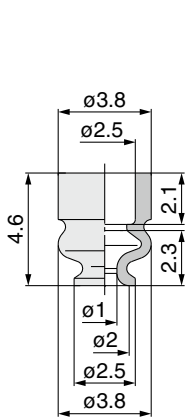
Symbol	Pad diameter
02	$\varnothing 2$
04	$\varnothing 4$
05	$\varnothing 5$
06	$\varnothing 6$

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

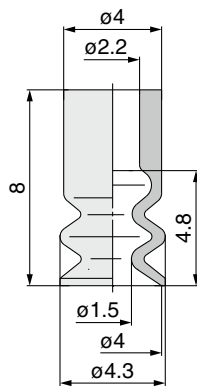
\*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article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

## Dimensions: Pad Unit

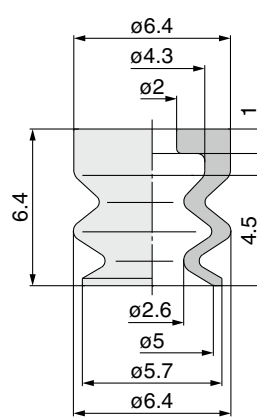
ZP2-02ZJ □ [0.1 g]



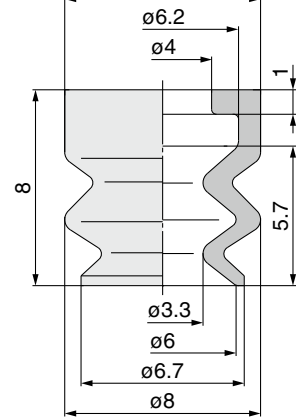
ZP2-04ZJ □ [0.1 g]



ZP2-05ZJ □ [0.2 g]



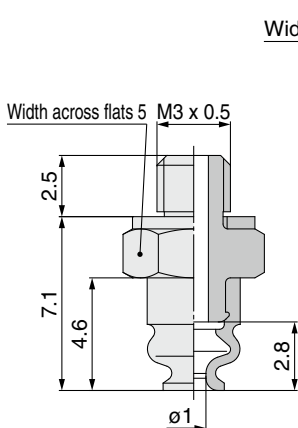
ZP2-06ZJ □ [0.3 g]



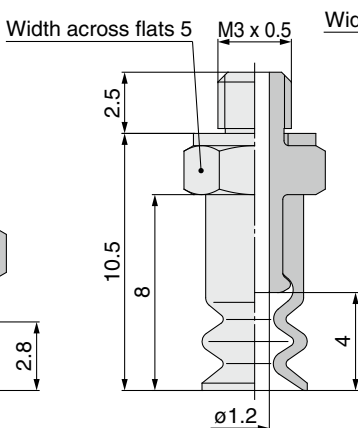
\* Due to the small diameter of the ZP2-02ZJ, the pad portion may shrink before adsorption depending on the suction flow rate. For this reason, operate with the suction flow rate set to 2 [L/min (ANR)] or lower.

## Dimensions: With Adapter

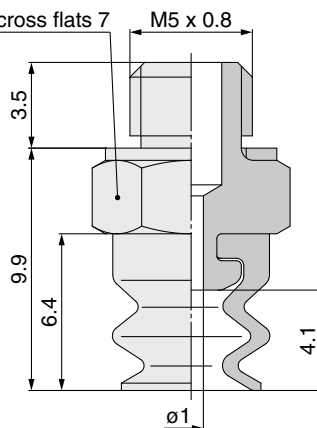
ZP2-T02ZJ □ -A3



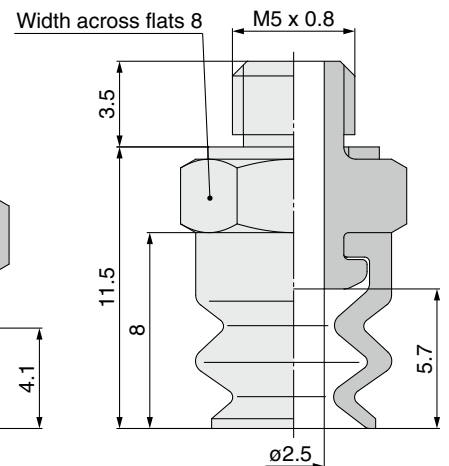
ZP2-T04ZJ □ -A3



ZP2-T05ZJ □ -A5



ZP2-T06ZJ □ -A5



Made to Order

ZP2V

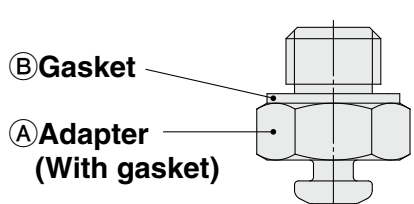
XT661

MHM

Precautions

# Bellows Pad *ZP2 Series* Mounting Bracket Assembly

## Adapter Assembly

<b>Product part no.</b>	<p>ZP2 - T ① ZJ □ - ②</p> <p>Pad diameter      Bellows type      Pad material      Connection thread (Male thread)</p>
<b>Component parts</b>	 <p>Ⓑ Gasket</p> <p>Ⓐ Adapter (With gasket)</p>

		Symbol	① Pad diameter symbol			
			02	04	05	06
Ⓐ Adapter ② Connection thread Male thread	M3 x 0.5	A3	ZP2A-T02ZJ-A3	ZP2A-T04ZJ-A3	—	—
	M5 x 0.8	A5	—	—	ZP2A-T05ZJ-A5	ZP2A-T06ZJ-A5
Ⓑ Gasket (Single unit)	For M3 x 0.5	10 pcs.*1	M-3G2		—	
	For M5 x 0.8	10 pcs.*1	—		ZP-5G2	
		100 pcs.*1	—		M-5G2	

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



# High Rigidity Pad

**Symbol/Form**  
**H:** High rigidity (Flat type with ribs)  
**HT:** High rigidity (Thin flat type with ribs)

Pad diameter  $\varnothing 32, \varnothing 150, \varnothing 250, \varnothing 300, \varnothing 340$

■ Reinforced pad to prevent deformation when transferring heavy or large workpieces

### How to Order

Pad unit **ZP2-32 H N**



Pad diameter

Symbol	Pad diameter
<b>32</b>	$\varnothing 32$
<b>150</b>	$\varnothing 150$
<b>250</b>	$\varnothing 250$
<b>300</b>	$\varnothing 300$
<b>340</b>	$\varnothing 340$

Pad material

Symbol	Material
<b>N</b>	NBR
<b>S</b>	Silicone rubber*1
<b>F</b>	FKM
<b>C</b>	CR

\*1 Silicone rubber is only applicable to the  $\varnothing 32$  pad. Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

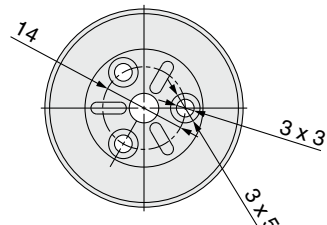
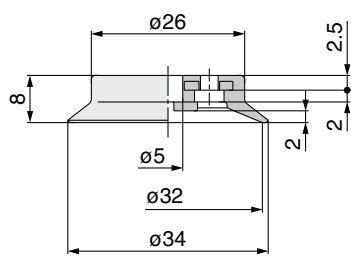
### Pad form—Pad diameter

Pad form	Pad diameter (Symbol)				
	32	150	250	300	340
<b>H</b> (Flat type with ribs)	●	—	—	●	●
<b>HT</b> (Thin flat type with ribs)	—	●	●	—	—

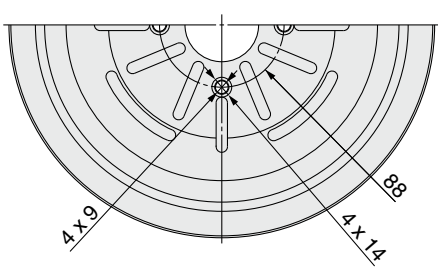
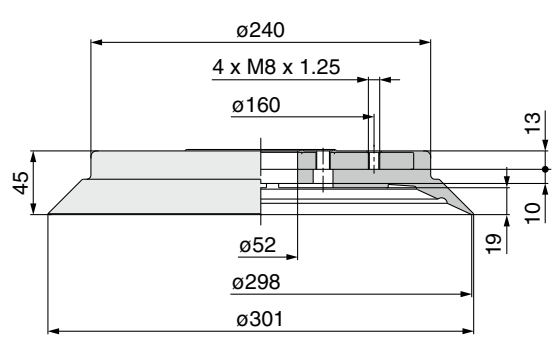
\* The mounting adapter is available as a special order.

### Dimensions: Pad Unit

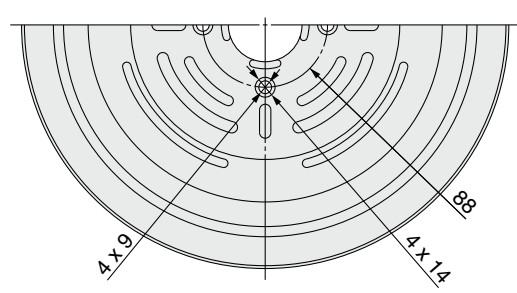
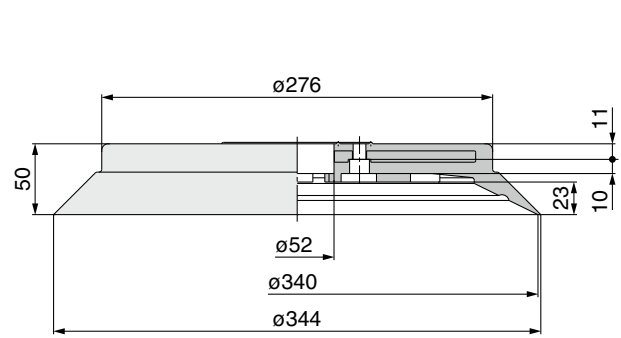
**ZP2-32H□**



**ZP2-300H□**

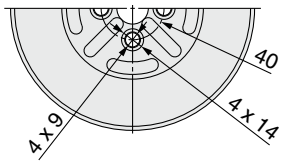
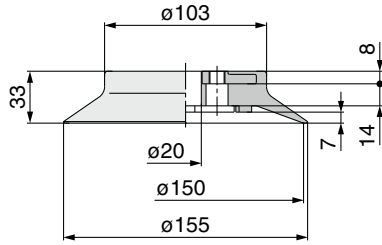


**ZP2-340H□**

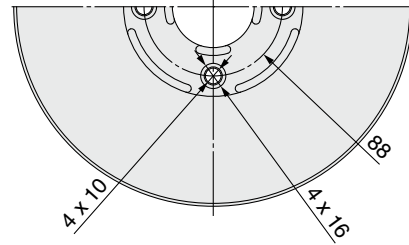
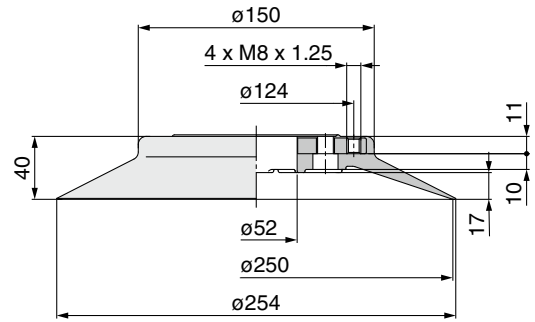


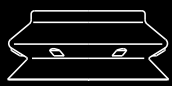
**Dimensions**

**ZP2-150HT□**



**ZP2-250HT□**





# High Rigidity Pad

Pad diameter  $\phi 32, \phi 150$

Symbol/Form

HB: High rigidity (Bellows type)

■ For heavy or large workpieces

## How to Order



Pad unit **ZP2-32 HB N**

• Pad diameter

Symbol	Pad diameter
<b>32</b>	$\phi 32$
<b>150</b>	$\phi 150$

• Pad material

Symbol	Material
<b>N</b>	NBR
<b>S</b>	Silicone rubber*1
<b>F</b>	FKM
<b>C</b>	CR

\*1 Silicone rubber is only applicable to the  $\phi 32$  pad. Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

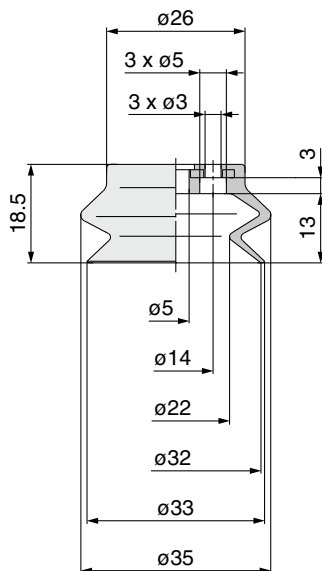
• Pad form

Symbol	Form
<b>HB</b>	High rigidity (Bellows type)

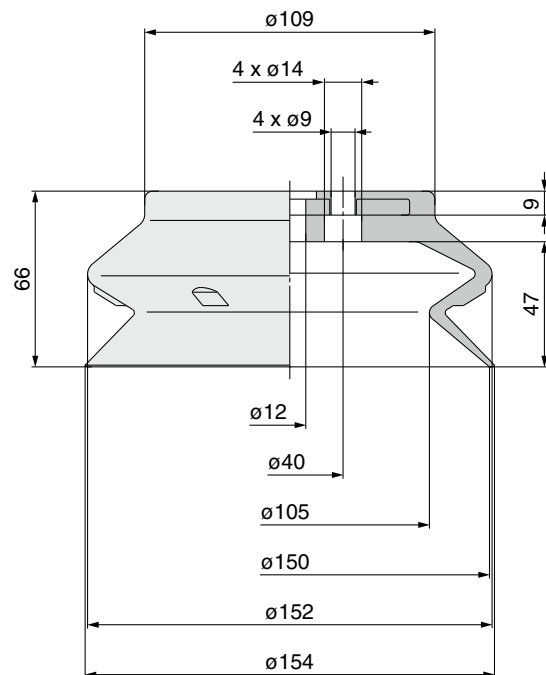
\* The mounting adapter is available as a special order.

## Dimensions: Pad Unit

ZP2-32HB □



ZP2-150HB □







# High Rigidity Pad

Symbol/Form

Pad size **30 x 50**

HW: High rigidity (Oval type)

Model Selection

■ For heavy or large workpieces

## How to Order



Pad unit **ZP2 - 3050 HW N**

### Pad size

Symbol	Pad size
<b>3050</b>	30 x 50

### Pad material

Symbol	Material
<b>N</b>	NBR
<b>S</b>	Silicone rubber*1
<b>F</b>	FKM
<b>C</b>	CR

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

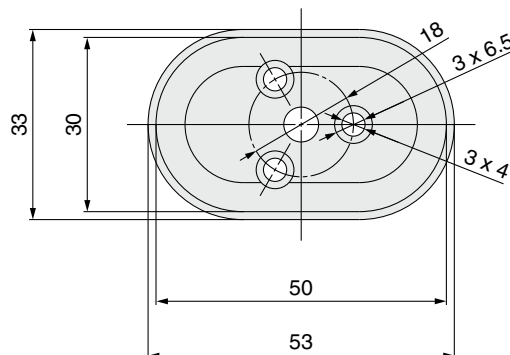
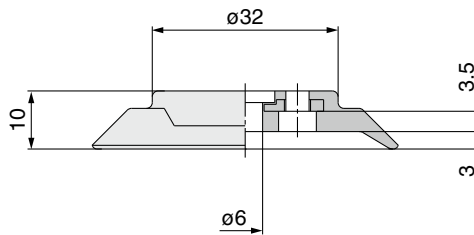
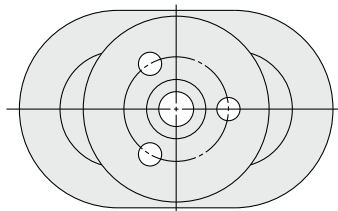
### Pad form

Symbol	Form
<b>HW</b>	High rigidity (Oval type)

\* For details on mounting brackets, refer to the special applications section of the pad on pages 255 to 263.

## Dimensions: Pad Unit

ZP2-3050HW□



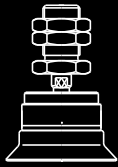
Made to Order

ZP2V

XT661

MHM

Precautions



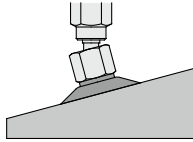
# High Rigidity Ball Joint Pad

Symbol/Form

H: High rigidity  
(Flat type with ribs)

Pad diameter  $\varnothing 40, \varnothing 50, \varnothing 63, \varnothing 80, \varnothing 100, \varnothing 125$

■ For the adsorption of work-pieces with inclined surfaces



## Replacement Part Nos.

Model	Pad unit part no.	Adapter assembly part no.
ZP2-TF40H□	ZP40H□	ZP2A-TF1 With three M3 bolts
ZP2-TF50H□	ZP50H□	ZP2A-TF1 With three M3 bolts
ZP2-TF63H□	ZP63H□	ZP2A-TF2 With four M4 bolts
ZP2-TF80H□	ZP80H□	ZP2A-TF2 With four M4 bolts
ZP2-TF100H□	ZP100H□	ZP2A-TF3 With four M5 bolts
ZP2-TF125H□	ZP125H□	ZP2A-TF3 With four M5 bolts

\* □ in the table indicates the pad material

## How to Order

With adapter **ZP2 – T F 40 H N**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Specification (mechanism)

Symbol	Specification
F	Ball joint

Pad diameter

Symbol	Pad diameter
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$
80	$\varnothing 80$
100	$\varnothing 100$
125	$\varnothing 125$

Pad form

Symbol	Form
H	High rigidity (Flat type with ribs)

Vacuum inlet direction **Vertical**

• Pad material (□)

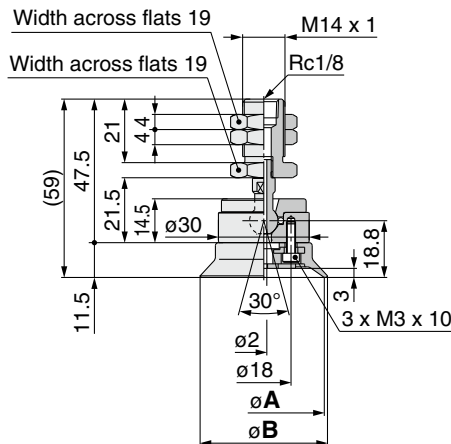
Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

\*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).

## Dimensions: With Adapter

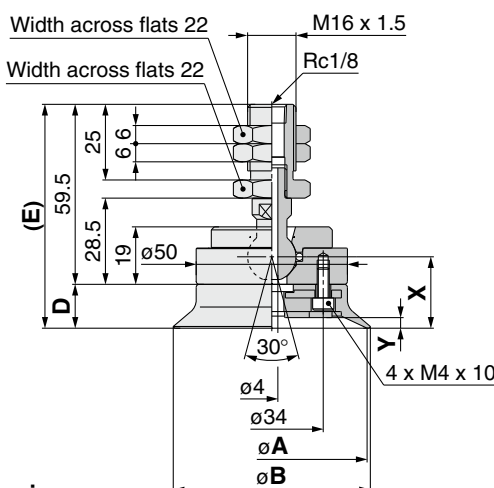
ZP2-TF<sup>40</sup><sub>50</sub>H□



### Dimensions

Model	A	B
ZP2-TF40H□	40	42.1
ZP2-TF50H□	50	52.1

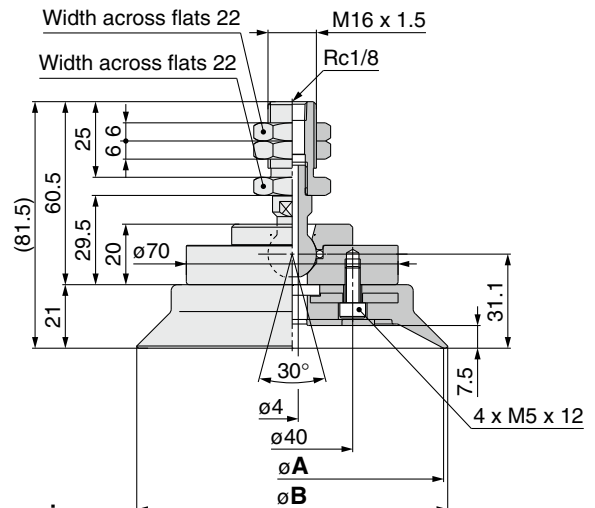
ZP2-TF<sup>63</sup><sub>80</sub>H□



### Dimensions

Model	A	B	D	E	X	Y
ZP2-TF63H□	63	65.2	14.5	74	23.6	3.5
ZP2-TF80H□	80	82.1	16.5	76	25.6	4.5

ZP2-TF<sup>100</sup><sub>125</sub>H□



### Dimensions

Model	A	B
ZP2-TF100H□	100	102.8
ZP2-TF125H□	125	127.7

## How to Order



Vacuum inlet direction **Lateral**

### With adapter **ZP2 - X F 40 H N**

Vacuum inlet direction

Symbol	Direction
X	Lateral

Specification (mechanism)

Symbol	Specification
F	Ball joint

Pad diameter

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Pad form

Symbol	Form
H	High rigidity (Flat type with ribs)

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

\*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).

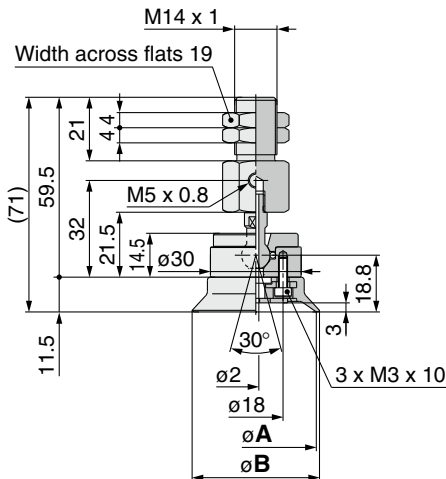
### Replacement Part Nos.

Model	Pad unit part no.	Adapter assembly part no.	
ZP2-XF40H□	ZP40H□	ZP2A-XF1	With three M3 bolts
ZP2-XF50H□	ZP50H□		
ZP2-XF63H□	ZP63H□	ZP2A-XF2	With four M4 bolts
ZP2-XF80H□	ZP80H□		
ZP2-XF100H□	ZP100H□	ZP2A-XF3	With four M5 bolts
ZP2-XF125H□	ZP125H□		

\* □ in the table indicates the pad material

## Dimensions: With Adapter

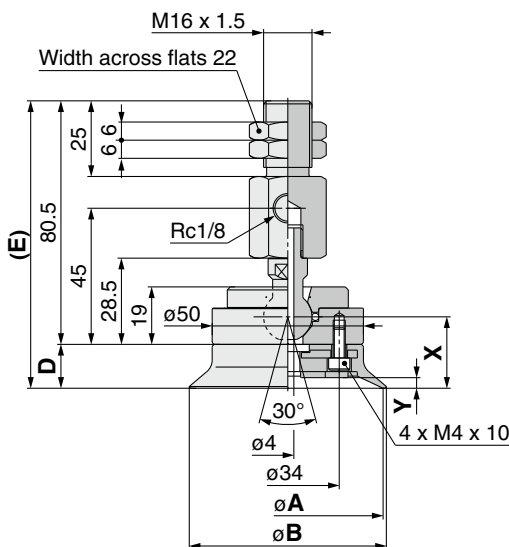
### ZP2-XF<sup>40</sup>/<sub>50</sub>H□



### Dimensions

Model	A	B
ZP2-XF40H□	40	42.1
ZP2-XF50H□	50	52.1

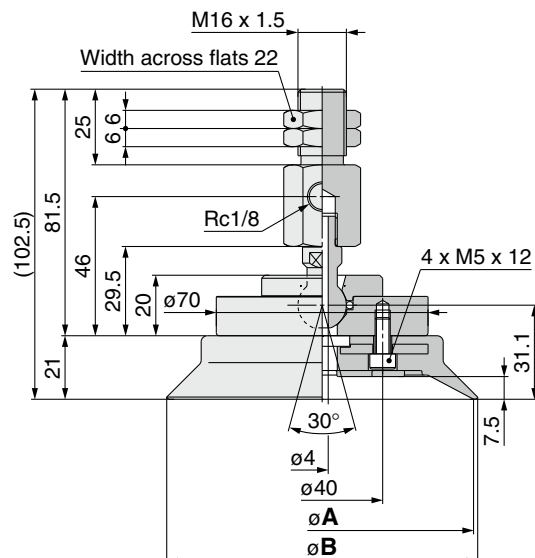
### ZP2-XF<sup>63</sup>/<sub>80</sub>H□



### Dimensions

Model	A	B	D	E	X	Y
ZP2-XF63H□	63	65.2	14.5	95	23.6	3.5
ZP2-XF80H□	80	82.1	16.5	97	25.6	4.5

### ZP2-XF<sup>100</sup>/<sub>125</sub>H□



### Dimensions

Model	A	B
ZP2-XF100H□	100	102.8
ZP2-XF125H□	125	127.7

# High Rigidity Ball Joint Pad **ZP2 Series**

## How to Order

With buffer **ZP2 - T F 40 H N JB 25**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Specification (mechanism)

Symbol	Specification
F	Ball joint

Pad diameter

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Pad form

Symbol	Form
H	High rigidity (Flat type with ribs)

Buffer stroke (■)

Stroke	Pad diameter			
	ø40 ø50	ø63 ø80	ø100 ø125	
25	●	●	●	
50	●	●	●	
75	●	●	●	
100	—	●	●	

Buffer specification

Symbol	Specification
JB	Rotating With bushing Material: Brass
JF	Rotating With bushing Material: Structural steel

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

- \*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).



Vacuum inlet direction **Vertical**

## Replacement Part Nos.

Model	Pad unit part no.	Buffer assembly part no.		
ZP2-TF40H□(JB/JF)25	ZP40H□	ZP2B-TF1(JB/JF)25	With three M3 bolts	
ZP2-TF40H□(JB/JF)50		ZP2B-TF1(JB/JF)50		
ZP2-TF40H□(JB/JF)75		ZP2B-TF1(JB/JF)75		
ZP2-TF50H□(JB/JF)25	ZP50H□	ZP2B-TF1(JB/JF)25		With four M4 bolts
ZP2-TF50H□(JB/JF)50		ZP2B-TF1(JB/JF)50		
ZP2-TF50H□(JB/JF)75		ZP2B-TF1(JB/JF)75		
ZP2-TF63H□(JB/JF)25	ZP63H□	ZP2B-TF2(JB/JF)25	With four M4 bolts	
ZP2-TF63H□(JB/JF)50		ZP2B-TF2(JB/JF)50		
ZP2-TF63H□(JB/JF)75		ZP2B-TF2(JB/JF)75		
ZP2-TF63H□(JB/JF)100	ZP80H□	ZP2B-TF2(JB/JF)100		With four M5 bolts
ZP2-TF80H□(JB/JF)25		ZP2B-TF2(JB/JF)25		
ZP2-TF80H□(JB/JF)50		ZP2B-TF2(JB/JF)50		
ZP2-TF80H□(JB/JF)75	ZP100H□	ZP2B-TF2(JB/JF)75	With four M5 bolts	
ZP2-TF80H□(JB/JF)100		ZP2B-TF2(JB/JF)100		
ZP2-TF100H□(JB/JF)25		ZP2B-TF3(JB/JF)25		
ZP2-TF100H□(JB/JF)50	ZP125H□	ZP2B-TF3(JB/JF)50		With four M5 bolts
ZP2-TF100H□(JB/JF)75		ZP2B-TF3(JB/JF)75		
ZP2-TF100H□(JB/JF)100		ZP2B-TF3(JB/JF)100		
ZP2-TF125H□(JB/JF)25	ZP125H□	ZP2B-TF3(JB/JF)25	With four M5 bolts	
ZP2-TF125H□(JB/JF)50		ZP2B-TF3(JB/JF)50		
ZP2-TF125H□(JB/JF)75		ZP2B-TF3(JB/JF)75		
ZP2-TF125H□(JB/JF)100		ZP2B-TF3(JB/JF)100		

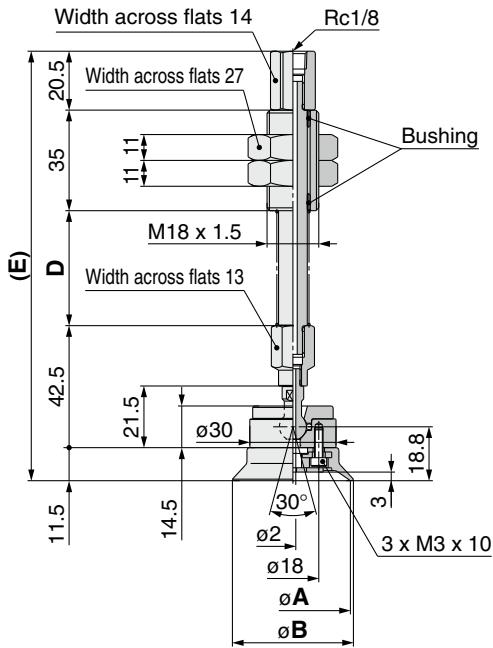
\* □ in the table indicates the pad material

## Buffer Specifications

Pad diameter		ø40, ø50	ø63, ø80, ø100, ø125
Stroke [mm]		25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9	10
	At full stroke	11.8	15
Buffer specifications	JB	Rotating With bushing Buffer body material: Brass Nut tightening torque: 28 to 32 N·m   Nut tightening torque: 45 to 50 N·m	
	JF	Rotating With bushing Buffer body material: Structural steel Nut tightening torque: 48 to 52 N·m   Nut tightening torque: 75 to 80 N·m	

## Dimensions: With Buffer

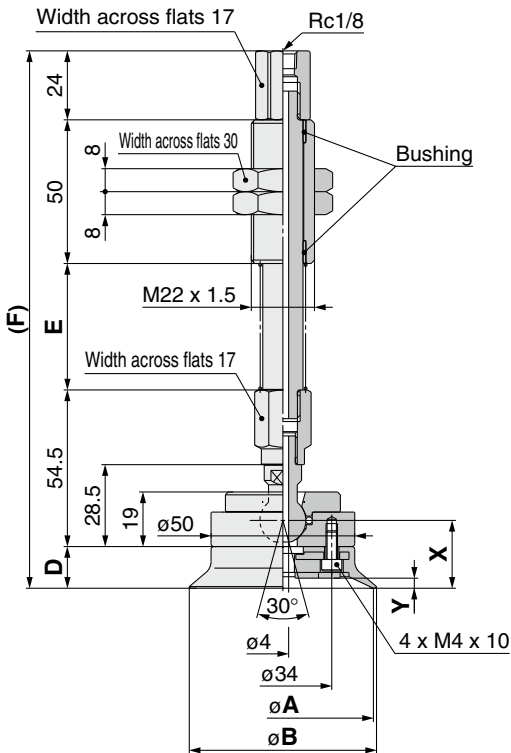
### ZP2-TF<sup>40</sup>H □ JB ■ 50H □ JF ■



**Dimensions**

Model	A	B	D	E
ZP2-TF40H □ (JB/JF)25	40	42.1	40	149.5
ZP2-TF40H □ (JB/JF)50			75	184.5
ZP2-TF40H □ (JB/JF)75			111	220.5
ZP2-TF50H □ (JB/JF)25	50	52.1	40	149.5
ZP2-TF50H □ (JB/JF)50			75	184.5
ZP2-TF50H □ (JB/JF)75			111	220.5

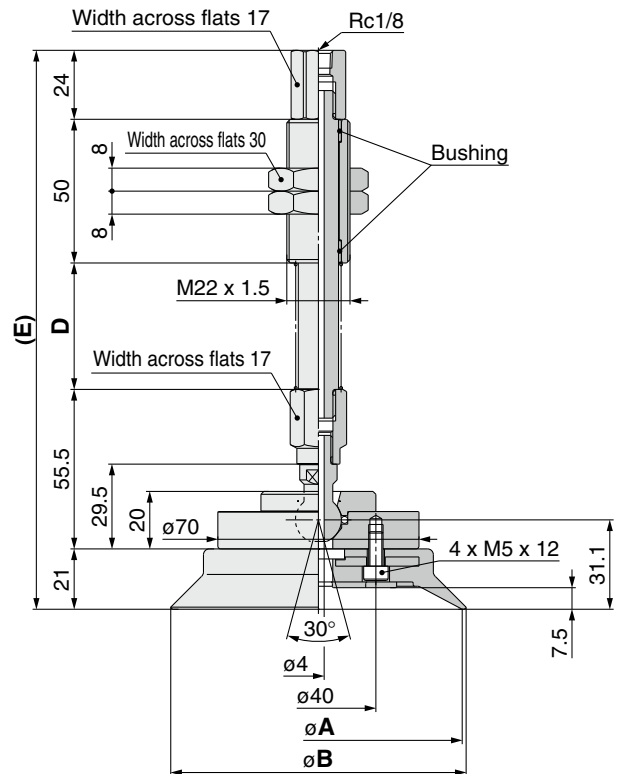
### ZP2-TF<sup>63</sup>H □ JB ■ 80H □ JF ■



**Dimensions**

Model	A	B	D	E	F	X	Y
ZP2-TF63H □ (JB/JF)25	63	65.2	14.5	44	187	23.6	3.5
ZP2-TF63H □ (JB/JF)50				80	223		
ZP2-TF63H □ (JB/JF)75				120	263		
ZP2-TF63H □ (JB/JF)100	80	82.1	16.5	44	189	25.6	4.5
ZP2-TF80H □ (JB/JF)25				80	225		
ZP2-TF80H □ (JB/JF)75				120	265		
ZP2-TF80H □ (JB/JF)100				155	300		

### ZP2-TF<sup>100</sup>H □ JB ■ 125H □ JF ■



**Dimensions**

Model	A	B	D	E
ZP2-TF100H □ (JB/JF)25	100	102.8	44	194.5
ZP2-TF100H □ (JB/JF)50			80	230.5
ZP2-TF100H □ (JB/JF)75			120	270.5
ZP2-TF100H □ (JB/JF)100	125	127.7	155	305.5
ZP2-TF125H □ (JB/JF)25			44	194.5
ZP2-TF125H □ (JB/JF)50			80	230.5
ZP2-TF125H □ (JB/JF)75			120	270.5
ZP2-TF125H □ (JB/JF)100			155	305.5

# High Rigidity Ball Joint Pad **ZP2 Series**

## How to Order

With buffer **ZP2 - X F 40 H N JB 25**

Vacuum inlet direction

Symbol	Direction
X	Lateral

Specification (mechanism)

Symbol	Specification
F	Ball joint

Pad diameter

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Pad form

Symbol	Form
H	High rigidity (Flat type with ribs)

Buffer stroke (■)

Stroke	Pad diameter			
	ø40 ø50	ø63 ø80	ø100	ø125
25	●	●	●	●
50	●	●	●	●
75	●	●	●	●
100	—	●	●	●

Buffer specification

Symbol	Specification
JB	Rotating With bushing Material: Brass
JF	Rotating With bushing Material: Structural steel

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

- \*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).



Vacuum inlet direction **Lateral**

## Replacement Part Nos.

Model	Pad unit part no.	Buffer assembly part no.
ZP2-XF40H□(JB/JF)25	ZP40H□	ZP2B-XF1(JB/JF)25
ZP2-XF40H□(JB/JF)50		ZP2B-XF1(JB/JF)50
ZP2-XF40H□(JB/JF)75		ZP2B-XF1(JB/JF)75
ZP2-XF50H□(JB/JF)25	ZP50H□	ZP2B-XF1(JB/JF)25
ZP2-XF50H□(JB/JF)50		ZP2B-XF1(JB/JF)50
ZP2-XF50H□(JB/JF)75		ZP2B-XF1(JB/JF)75
ZP2-XF63H□(JB/JF)25	ZP63H□	ZP2B-XF2(JB/JF)25
ZP2-XF63H□(JB/JF)50		ZP2B-XF2(JB/JF)50
ZP2-XF63H□(JB/JF)75		ZP2B-XF2(JB/JF)75
ZP2-XF63H□(JB/JF)100		ZP2B-XF2(JB/JF)100
ZP2-XF80H□(JB/JF)25	ZP80H□	ZP2B-XF2(JB/JF)25
ZP2-XF80H□(JB/JF)50		ZP2B-XF2(JB/JF)50
ZP2-XF80H□(JB/JF)75		ZP2B-XF2(JB/JF)75
ZP2-XF80H□(JB/JF)100		ZP2B-XF2(JB/JF)100
ZP2-XF100H□(JB/JF)25	ZP100H□	ZP2B-XF3(JB/JF)25
ZP2-XF100H□(JB/JF)50		ZP2B-XF3(JB/JF)50
ZP2-XF100H□(JB/JF)75		ZP2B-XF3(JB/JF)75
ZP2-XF100H□(JB/JF)100		ZP2B-XF3(JB/JF)100
ZP2-XF125H□(JB/JF)25	ZP125H□	ZP2B-XF3(JB/JF)25
ZP2-XF125H□(JB/JF)50		ZP2B-XF3(JB/JF)50
ZP2-XF125H□(JB/JF)75		ZP2B-XF3(JB/JF)75
ZP2-XF125H□(JB/JF)100		ZP2B-XF3(JB/JF)100

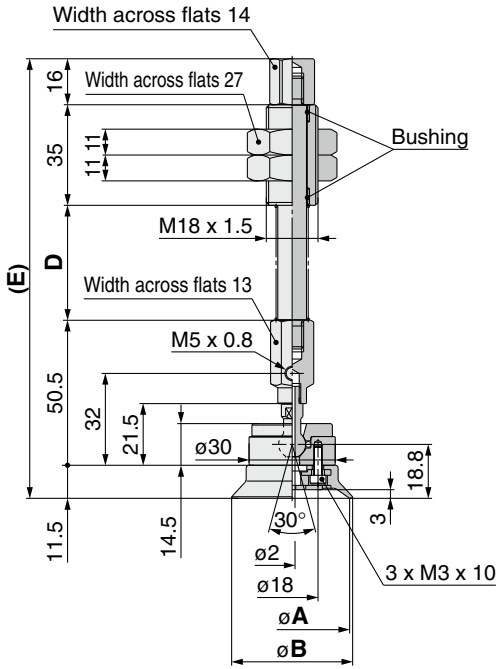
\* □ in the table indicates the pad material

## Buffer Specifications

Pad diameter		ø40, ø50	ø63, ø80, ø100, ø125
Stroke [mm]		25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9	10
	At full stroke	11.8	15
Buffer specifications	JB	Rotating With bushing Buffer body material: Brass Nut tightening torque: 28 to 32 N·m   Nut tightening torque: 45 to 50 N·m	
	JF	Rotating With bushing Buffer body material: Structural steel Nut tightening torque: 48 to 52 N·m   Nut tightening torque: 75 to 80 N·m	

## Dimensions: With Buffer

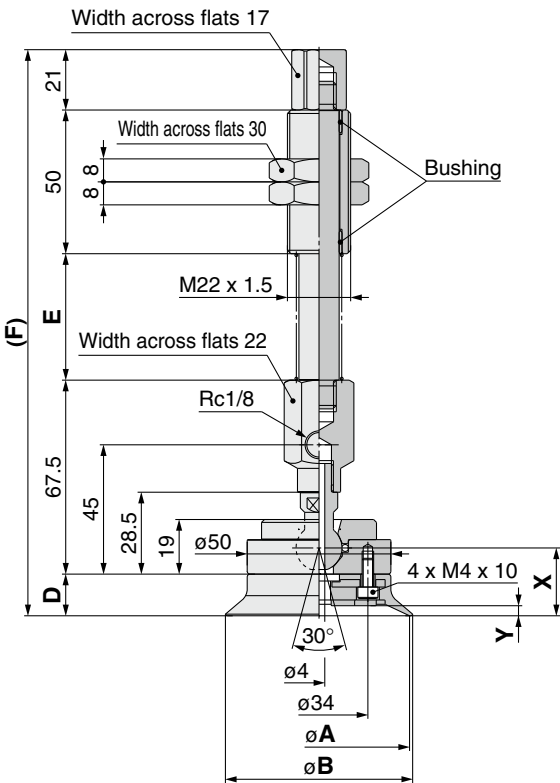
ZP2-XF<sup>40</sup><sub>50</sub>H □ JB / JF ■



Dimensions

Model	A	B	D	E
ZP2-XF40H □ (JB/JF)25	40	42.1	40	153
ZP2-XF40H □ (JB/JF)50			75	188
ZP2-XF40H □ (JB/JF)75			111	224
ZP2-XF50H □ (JB/JF)25	50	52.1	40	153
ZP2-XF50H □ (JB/JF)50			75	188
ZP2-XF50H □ (JB/JF)75			111	224

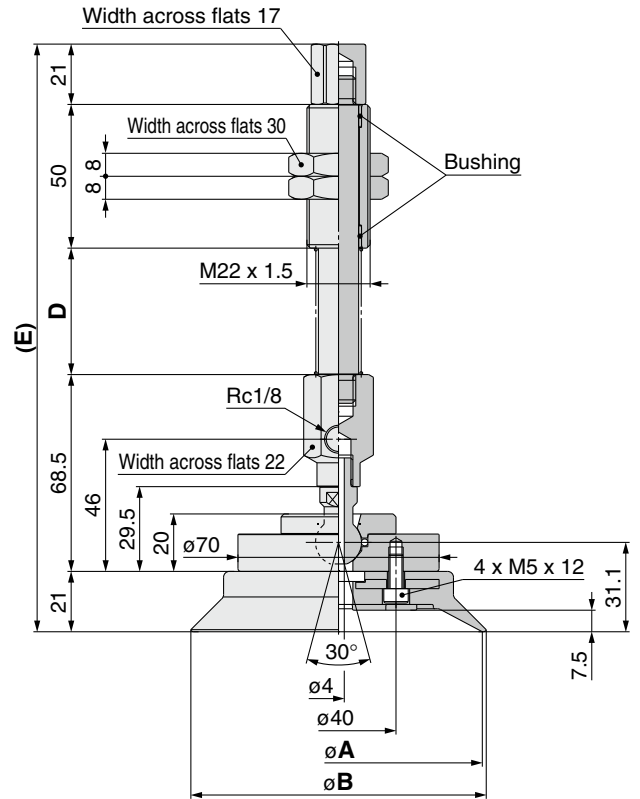
ZP2-XF<sup>63</sup><sub>80</sub>H □ JB / JF ■



Dimensions

Model	A	B	D	E	F	X	Y
ZP2-XF63H □ (JB/JF)25	63	65.2	14.5	44	197	23.6	3.5
ZP2-XF63H □ (JB/JF)50				80	233		
ZP2-XF63H □ (JB/JF)75				120	273		
ZP2-XF63H □ (JB/JF)100	80	82.1	16.5	155	308	25.6	4.5
ZP2-XF80H □ (JB/JF)25				44	199		
ZP2-XF80H □ (JB/JF)50				80	235		
ZP2-XF80H □ (JB/JF)75				120	275		
ZP2-XF80H □ (JB/JF)100				155	310		

ZP2-XF<sup>100</sup><sub>125</sub>H □ JB / JF ■



Dimensions

Model	A	B	D	E
ZP2-XF100H □ (JB/JF)25	100	102.8	44	204.5
ZP2-XF100H □ (JB/JF)50			80	240.5
ZP2-XF100H □ (JB/JF)75			120	280.5
ZP2-XF100H □ (JB/JF)100	125	127.7	155	315.5
ZP2-XF125H □ (JB/JF)25			44	204.5
ZP2-XF125H □ (JB/JF)50			80	240.5
ZP2-XF125H □ (JB/JF)75			120	280.5
ZP2-XF125H □ (JB/JF)100			155	315.5



# High Rigidity Ball Joint Pad

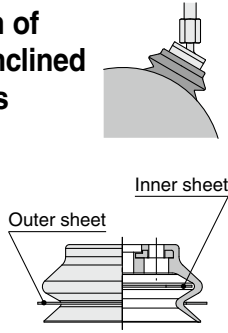
Symbol/Form

HB: High rigidity (Bellows type)

Pad diameter  $\varnothing 40, \varnothing 50, \varnothing 63, \varnothing 80, \varnothing 100, \varnothing 125$

■ For the adsorption of workpieces with inclined or curved surfaces

• With sheet  
Prevents the bellows part from sticking during press-and-hold applications and applications in which the workpiece is adsorbed for a long period of time, improving service life  
For sheet unit part numbers and dimensions, refer to page 342-1.



### Replacement Part Nos.

Model	Pad unit part no.	Adapter assembly part no.
ZP2-TF40HB□	ZP40HB□	ZP2A-TF1 With three M3 bolts
ZP2-TF50HB□	ZP50HB□	ZP2A-TF2 With four M4 bolts
ZP2-TF63HB□	ZP63HB□	ZP2A-TF3 With four M5 bolts
ZP2-TF80HB□	ZP80HB□	
ZP2-TF100HB□	ZP100HB□	
ZP2-TF125HB□	ZP125HB□	

\* □ in the table indicates the pad material

### How to Order

With adapter **ZP2-TF40HB-N-PS**

Vacuum inlet direction

Symbol	Direction
T	Vertical

Specification (mechanism)

Symbol	Specification
F	Ball joint

Pad diameter

Symbol	Pad diameter
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$
80	$\varnothing 80$
100	$\varnothing 100$
125	$\varnothing 125$

Pad form

Symbol	Form
HB	High rigidity (Bellows type)

Sheet (△)

Symbol	Material
Nil	Without sheet
PS	With sheet

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

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

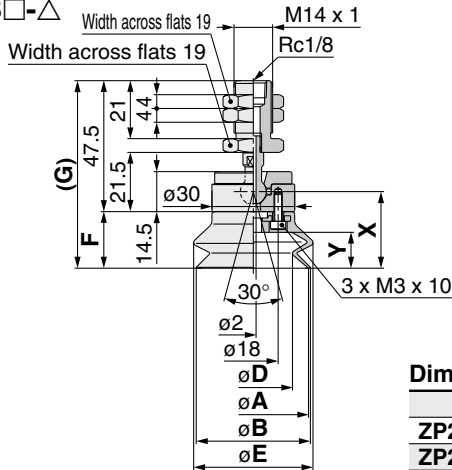
\*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article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



Vacuum inlet direction  
**Vertical**

### Dimensions: With Adapter

ZP2-TF<sup>40</sup><sub>50</sub>HB□-△

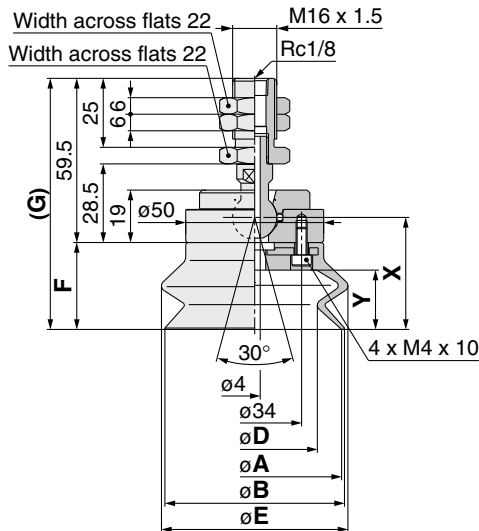


### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-TF40HB□	40	41.4	28.3	42.3	20.5	68	27.8	13
ZP2-TF50HB□	50	52	36.2	52.7	24	71.5	31.3	16.5

For pad unit dimensions with a sheet, refer to page 333.

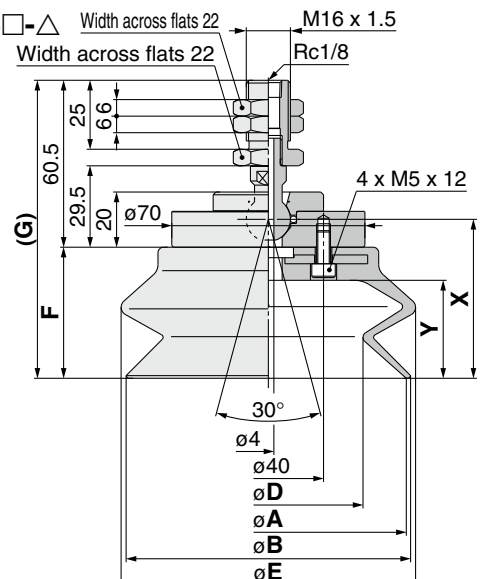
ZP2-TF<sup>63</sup><sub>80</sub>HB□-△



### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-TF63HB□	63	65.1	46	66.4	31.5	91	40.6	21.5
ZP2-TF80HB□	80	82.8	60.1	83.8	37	96.5	46.1	27.5

ZP2-TF<sup>100</sup><sub>125</sub>HB□-△



### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-TF100HB□	100	103	72.5	103.9	47.5	108	57.6	35.5
ZP2-TF125HB□	125	128.5	92.2	131.6	56	116.5	66.1	44



Model Selection

## How to Order

With adapter **ZP2 - X F 40 HB N - PS**

**Vacuum inlet direction**

Symbol	Direction
X	Lateral

**Specification (mechanism)**

Symbol	Specification
F	Ball joint

**Pad diameter**

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

**Pad form**

Symbol	Form
HB	High rigidity (Bellows type)

**Pad material (□)**

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

**Sheet (△)**

Nil	Without sheet
PS	With sheet



Vacuum inlet direction **Lateral**

### Replacement Part Nos.

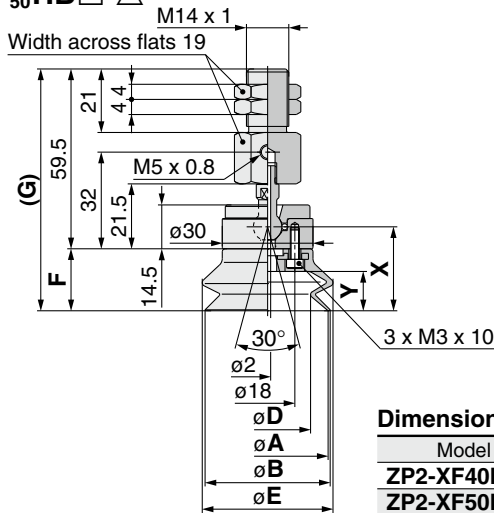
Model	Pad unit part no.	Adapter assembly part no.	
ZP2-XF40HB□	ZP40HB□	ZP2A-XF1	With three M3 bolts
ZP2-XF50HB□	ZP50HB□	ZP2A-XF2	With four M4 bolts
ZP2-XF63HB□	ZP63HB□		
ZP2-XF80HB□	ZP80HB□	ZP2A-XF3	With four M5 bolts
ZP2-XF100HB□	ZP100HB□		
ZP2-XF125HB□	ZP125HB□		

\*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).

\* □ in the table indicates the pad material

## Dimensions: With Adapter

ZP2-XF<sup>40</sup><sub>50</sub>HB□-△

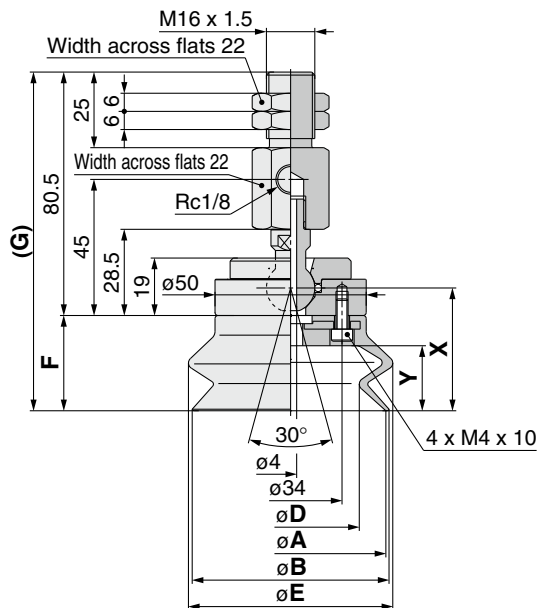


### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-XF40HB□	40	41.4	28.3	42.3	20.5	80	27.8	13
ZP2-XF50HB□	50	52	36.2	52.7	24	83.5	31.3	16.5

For pad unit dimensions with a sheet, refer to page 333.

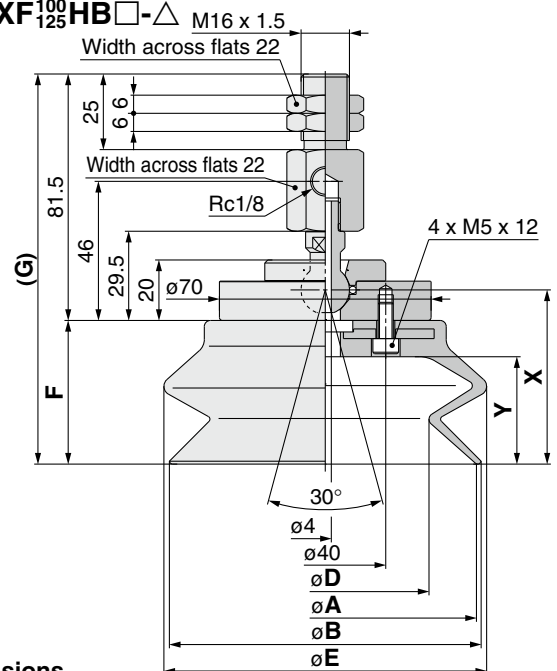
ZP2-XF<sup>63</sup><sub>80</sub>HB□-△



### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-XF63HB□	63	65.1	46	66.4	31.5	112	40.6	21.5
ZP2-XF80HB□	80	82.8	60.1	83.8	37	117.5	46.1	27.5

ZP2-XF<sup>100</sup><sub>125</sub>HB□-△



### Dimensions

Model	A	B	D	E	F	G	X	Y
ZP2-XF100HB□	100	103	72.5	103.9	47.5	129	57.6	35.5
ZP2-XF125HB□	125	128.5	92.2	131.6	56	137.5	66.1	44

Made to Order

ZP2V

XT661

MHM

Precautions

# High Rigidity Ball Joint Pad **ZP2 Series**

## How to Order

**With buffer** **ZP2 - T F 40 HB N JB 25 - PS**

**Vacuum inlet direction**

Symbol	Direction
T	Vertical

**Specification (mechanism)**

Symbol	Specification
F	Ball joint

**Pad diameter**

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

**Pad form**

Symbol	Form
HB	High rigidity (Bellows type)

**Sheet (△)**

Nil	Without sheet
PS	With sheet

**Buffer stroke (■)**

Stroke	Pad diameter			
	ø40 ø50	ø63 ø80	ø100 ø125	
25	●	●	●	
50	●	●	●	
75	●	●	●	
100	—	●	●	

**Buffer specification**

Symbol	Specification
JB	Rotating With bushing Material: Brass
JF	Rotating With bushing Material: Structural steel

**Pad material (□)**

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

\*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).



**Vacuum inlet direction**  
**Vertical**

## Replacement Part Nos.

Model	Pad unit part no.	Buffer assembly part no.	
ZP2-TF40HB□(JB/JF)25	ZP40HB□	ZP2B-TF1(JB/JF)25	With three M3 bolts
ZP2-TF40HB□(JB/JF)50		ZP2B-TF1(JB/JF)50	
ZP2-TF40HB□(JB/JF)75		ZP2B-TF1(JB/JF)75	
ZP2-TF50HB□(JB/JF)25	ZP50HB□	ZP2B-TF1(JB/JF)25	With three M3 bolts
ZP2-TF50HB□(JB/JF)50		ZP2B-TF1(JB/JF)50	
ZP2-TF50HB□(JB/JF)75		ZP2B-TF1(JB/JF)75	
ZP2-TF63HB□(JB/JF)25	ZP63HB□	ZP2B-TF2(JB/JF)25	With four M4 bolts
ZP2-TF63HB□(JB/JF)50		ZP2B-TF2(JB/JF)50	
ZP2-TF63HB□(JB/JF)75		ZP2B-TF2(JB/JF)75	
ZP2-TF63HB□(JB/JF)100	ZP80HB□	ZP2B-TF2(JB/JF)100	With four M4 bolts
ZP2-TF80HB□(JB/JF)25		ZP2B-TF2(JB/JF)25	
ZP2-TF80HB□(JB/JF)50		ZP2B-TF2(JB/JF)50	
ZP2-TF80HB□(JB/JF)75	ZP100HB□	ZP2B-TF2(JB/JF)75	With four M5 bolts
ZP2-TF80HB□(JB/JF)100		ZP2B-TF2(JB/JF)100	
ZP2-TF100HB□(JB/JF)25		ZP2B-TF3(JB/JF)25	
ZP2-TF100HB□(JB/JF)50	ZP125HB□	ZP2B-TF3(JB/JF)50	With four M5 bolts
ZP2-TF100HB□(JB/JF)75		ZP2B-TF3(JB/JF)75	
ZP2-TF100HB□(JB/JF)100		ZP2B-TF3(JB/JF)100	
ZP2-TF125HB□(JB/JF)25	ZP125HB□	ZP2B-TF3(JB/JF)25	With four M5 bolts
ZP2-TF125HB□(JB/JF)50		ZP2B-TF3(JB/JF)50	
ZP2-TF125HB□(JB/JF)75		ZP2B-TF3(JB/JF)75	
ZP2-TF125HB□(JB/JF)100		ZP2B-TF3(JB/JF)100	

\* □ in the table indicates the pad material

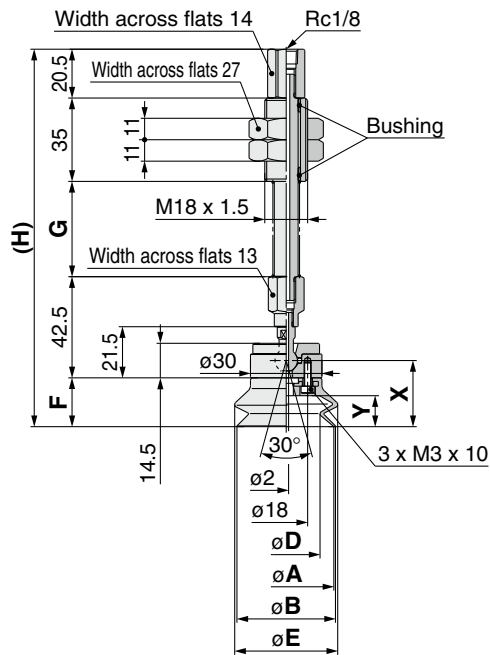
## Buffer Specifications

Pad diameter		ø40, ø50	ø63, ø80, ø100, ø125
Stroke [mm]		25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9	10
	At full stroke	11.8	15
Buffer specifications	JB	Rotating With bushing Buffer body material: Brass Nut tightening torque: 28 to 32 N·m   Nut tightening torque: 45 to 50 N·m	
	JF	Rotating With bushing Buffer body material: Structural steel Nut tightening torque: 48 to 52 N·m   Nut tightening torque: 75 to 80 N·m	

## Dimensions: With Buffer

For pad unit dimensions with a sheet, refer to page 333.

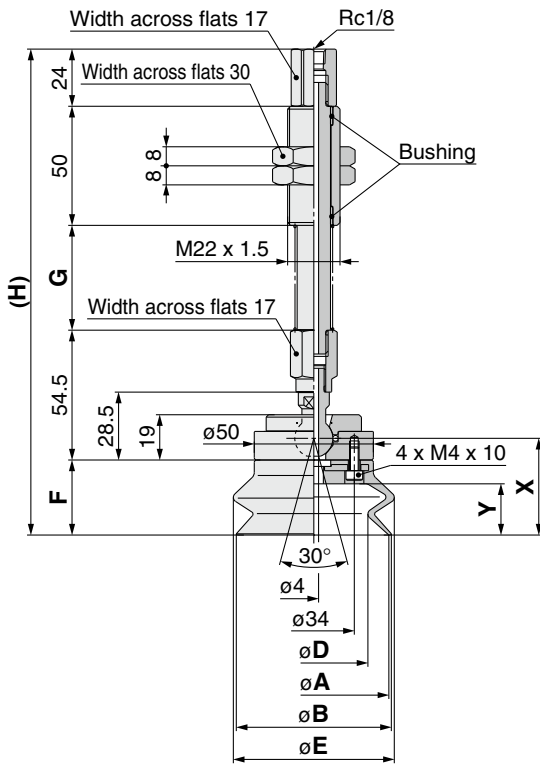
### ZP2-TF<sup>40</sup><sub>50</sub>HB□<sup>JB</sup><sub>JF</sub>■-△



### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-TF40HB□(JB/JF)25						40	158.5		
ZP2-TF40HB□(JB/JF)50	40	41.4	28.3	42.3	20.5	75	193.5	27.8	13
ZP2-TF40HB□(JB/JF)75						111	229.5		
ZP2-TF50HB□(JB/JF)25						40	162		
ZP2-TF50HB□(JB/JF)50	50	52	36.2	52.7	24	75	197	31.3	16.5
ZP2-TF50HB□(JB/JF)75						111	233		

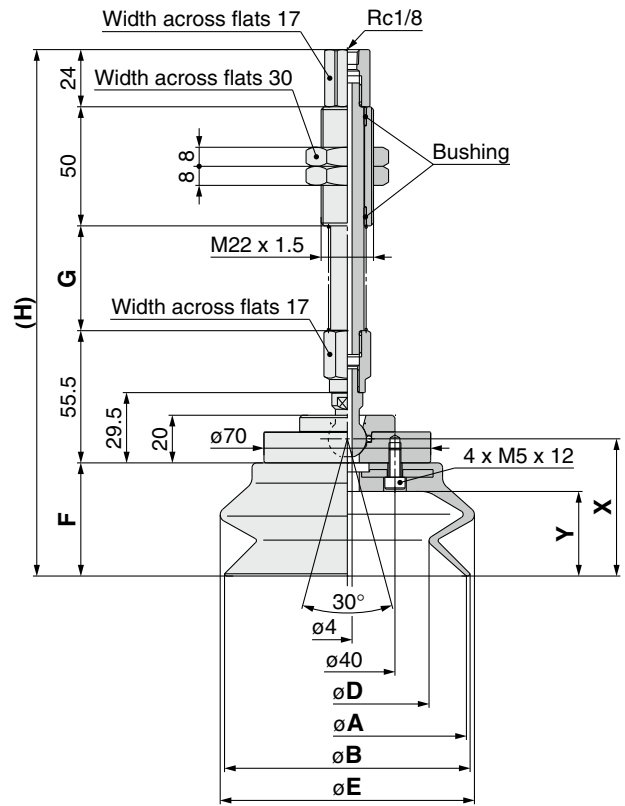
### ZP2-TF<sup>63</sup><sub>80</sub>HB□<sup>JB</sup><sub>JF</sub>■-△



### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-TF63HB□(JB/JF)25						44	204		
ZP2-TF63HB□(JB/JF)50	63	65.1	46	66.4	31.5	80	240	40.6	21.5
ZP2-TF63HB□(JB/JF)75						120	280		
ZP2-TF63HB□(JB/JF)100						155	315		
ZP2-TF80HB□(JB/JF)25						44	209.5		
ZP2-TF80HB□(JB/JF)50	80	82.8	60.1	83.8	37	80	245.5	46.1	27.5
ZP2-TF80HB□(JB/JF)75						120	285.5		
ZP2-TF80HB□(JB/JF)100						155	320.5		

### ZP2-TF<sup>100</sup><sub>125</sub>HB□<sup>JB</sup><sub>JF</sub>■-△



### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-TF100HB□(JB/JF)25						44	221		
ZP2-TF100HB□(JB/JF)50	100	103	72.5	103.9	47.5	80	257	57.6	35.5
ZP2-TF100HB□(JB/JF)75						120	297		
ZP2-TF100HB□(JB/JF)100						155	332		
ZP2-TF125HB□(JB/JF)25						44	229.5		
ZP2-TF125HB□(JB/JF)50	125	128.5	92.2	131.6	56	80	265.5	66.1	44
ZP2-TF125HB□(JB/JF)75						120	305.5		
ZP2-TF125HB□(JB/JF)100						155	340.5		

# High Rigidity Ball Joint Pad **ZP2 Series**

## How to Order

With buffer **ZP2 - X F 40 HB N JB 25 - PS**

Vacuum inlet direction ●

Symbol	Direction
X	Lateral

Specification (mechanism) ●

Symbol	Specification
F	Ball joint

Pad diameter ●

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Pad form ●

Symbol	Form
HB	High rigidity (Bellows type)

Sheet (△)

Nil	Without sheet
PS	With sheet

Buffer stroke (■)

Stroke	Pad diameter			
	ø40 ø50	ø63 ø80	ø100 ø125	
25	●	●	●	
50	●	●	●	
75	●	●	●	
100	—	●	●	

Buffer specification

Symbol	Specification
JB	Rotating With bushing Material: Brass
JF	Rotating With bushing Material: Structural steel

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

- \*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).



Vacuum inlet direction  
**Lateral**

## Replacement Part Nos.

Model	Pad unit part no.	Buffer assembly part no.	
ZP2-XF40HB□(JB/JF)25	ZP40HB□	ZP2B-XF1(JB/JF)25	With three M3 bolts
ZP2-XF40HB□(JB/JF)50		ZP2B-XF1(JB/JF)50	
ZP2-XF40HB□(JB/JF)75		ZP2B-XF1(JB/JF)75	
ZP2-XF50HB□(JB/JF)25	ZP50HB□	ZP2B-XF1(JB/JF)25	With four M4 bolts
ZP2-XF50HB□(JB/JF)50		ZP2B-XF1(JB/JF)50	
ZP2-XF50HB□(JB/JF)75		ZP2B-XF1(JB/JF)75	
ZP2-XF63HB□(JB/JF)25	ZP63HB□	ZP2B-XF2(JB/JF)25	With four M4 bolts
ZP2-XF63HB□(JB/JF)50		ZP2B-XF2(JB/JF)50	
ZP2-XF63HB□(JB/JF)75		ZP2B-XF2(JB/JF)75	
ZP2-XF63HB□(JB/JF)100	ZP80HB□	ZP2B-XF2(JB/JF)100	With four M5 bolts
ZP2-XF80HB□(JB/JF)25		ZP2B-XF2(JB/JF)25	
ZP2-XF80HB□(JB/JF)50		ZP2B-XF2(JB/JF)50	
ZP2-XF80HB□(JB/JF)75	ZP100HB□	ZP2B-XF2(JB/JF)75	With four M5 bolts
ZP2-XF80HB□(JB/JF)100		ZP2B-XF2(JB/JF)100	
ZP2-XF100HB□(JB/JF)25		ZP2B-XF3(JB/JF)25	
ZP2-XF100HB□(JB/JF)50	ZP125HB□	ZP2B-XF3(JB/JF)50	With four M5 bolts
ZP2-XF100HB□(JB/JF)75		ZP2B-XF3(JB/JF)75	
ZP2-XF100HB□(JB/JF)100		ZP2B-XF3(JB/JF)100	
ZP2-XF125HB□(JB/JF)25	ZP125HB□	ZP2B-XF3(JB/JF)25	With four M5 bolts
ZP2-XF125HB□(JB/JF)50		ZP2B-XF3(JB/JF)50	
ZP2-XF125HB□(JB/JF)75		ZP2B-XF3(JB/JF)75	
ZP2-XF125HB□(JB/JF)100		ZP2B-XF3(JB/JF)100	

\* □ in the table indicates the pad material

## Buffer Specifications

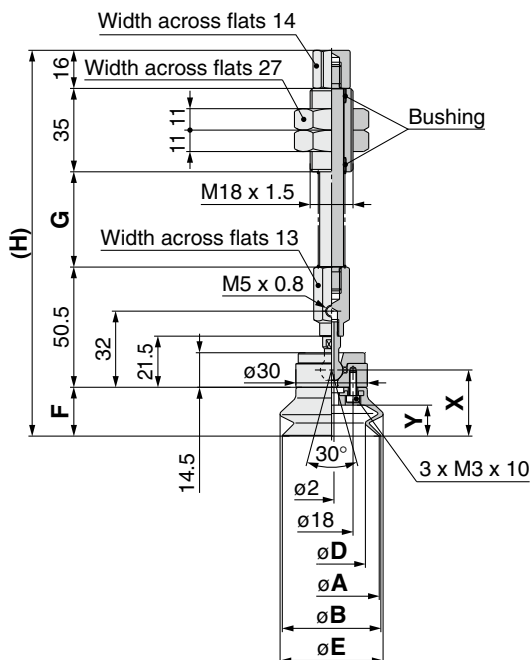
Pad diameter		ø40, ø50	ø63, ø80, ø100, ø125
Stroke [mm]		25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9	10
	At full stroke	11.8	15
Buffer specifications	JB	Rotating With bushing Buffer body material: Brass Nut tightening torque: 28 to 32 N·m   Nut tightening torque: 45 to 50 N·m	
	JF	Rotating With bushing Buffer body material: Structural steel Nut tightening torque: 48 to 52 N·m   Nut tightening torque: 75 to 80 N·m	

Model Selection

## Dimensions: With Buffer

ZP2-XF<sup>40</sup><sub>50</sub>HB□JB/JF■-△

For pad unit dimensions with a sheet, refer to page 333.

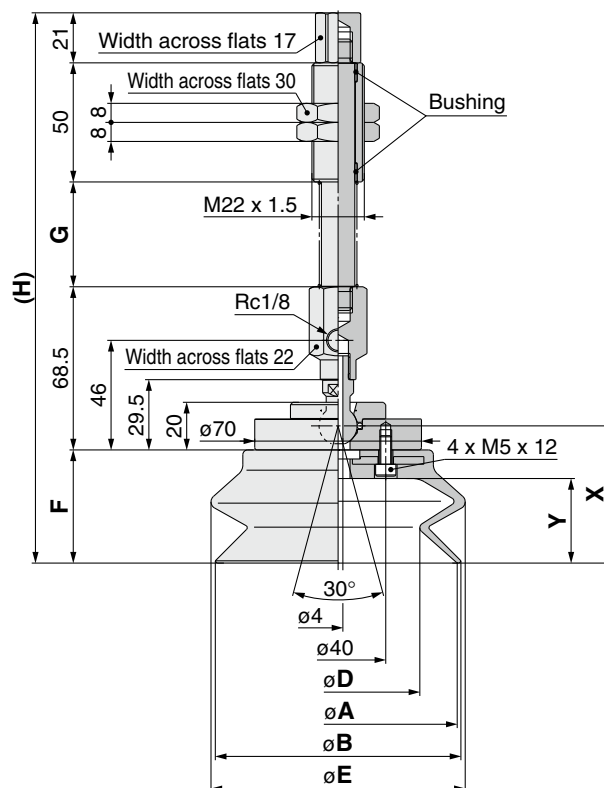
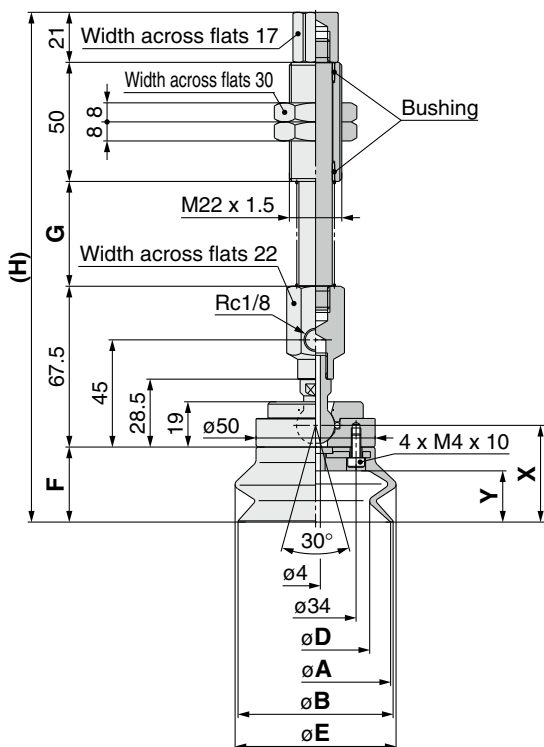


### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-XF40HB□(JB/JF)25						40	162		
ZP2-XF40HB□(JB/JF)50	40	41.4	28.3	42.3	20.5	75	197	27.8	13
ZP2-XF40HB□(JB/JF)75						111	233		
ZP2-XF50HB□(JB/JF)25						40	165.5		
ZP2-XF50HB□(JB/JF)50	50	52	36.2	52.7	24	75	200.5	31.3	16.5
ZP2-XF50HB□(JB/JF)75						111	236.5		

ZP2-XF<sup>63</sup><sub>80</sub>HB□JB/JF■-△

ZP2-XF<sup>100</sup><sub>125</sub>HB□JB/JF■-△



### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-XF63HB□(JB/JF)25						44	214		
ZP2-XF63HB□(JB/JF)50	63	65.1	46	66.4	31.5	80	250	40.6	21.5
ZP2-XF63HB□(JB/JF)75						120	290		
ZP2-XF63HB□(JB/JF)100						155	325		
ZP2-XF80HB□(JB/JF)25						44	219.5		
ZP2-XF80HB□(JB/JF)50	80	82.8	60.1	83.8	37	80	255.5	46.1	27.5
ZP2-XF80HB□(JB/JF)75						120	295.5		
ZP2-XF80HB□(JB/JF)100						155	330.5		

### Dimensions

Model	A	B	D	E	F	G	H	X	Y
ZP2-XF100HB□(JB/JF)25						44	231		
ZP2-XF100HB□(JB/JF)50	100	103	72.5	103.9	47.5	80	267	57.6	35.5
ZP2-XF100HB□(JB/JF)75						120	307		
ZP2-XF100HB□(JB/JF)100						155	342		
ZP2-XF125HB□(JB/JF)25						44	239.5		
ZP2-XF125HB□(JB/JF)50	125	128.5	92.2	131.6	56	80	275.5	66.1	44
ZP2-XF125HB□(JB/JF)75						120	315.5		
ZP2-XF125HB□(JB/JF)100						155	350.5		

Made to Order

ZP2V

XT661

MHM

Precautions

# High Rigidity Pad

Symbol/Form

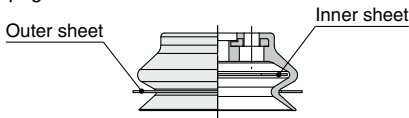
**H:** High rigidity  
(Flat type with ribs)  
**HB:** High rigidity  
(Bellows type)

Pad diameter  $\varnothing 40, \varnothing 50, \varnothing 63, \varnothing 80, \varnothing 100, \varnothing 125$

■ Reinforced pad prevents deformation when transferring heavy or large workpieces.

• With sheet

Prevents the bellows part from sticking during press-and-hold applications and applications in which the workpiece is adsorbed for a long period of time, improving service life  
For sheet unit part numbers and dimensions, refer to page 342-1.



## How to Order

Pad unit **ZP 40 H N - PS**

Symbol	Pad diameter
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$
80	$\varnothing 80$
100	$\varnothing 100$
125	$\varnothing 125$

• Pad material

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

• Sheet (Bellows type only)

Nil	Without sheet
PS	With sheet

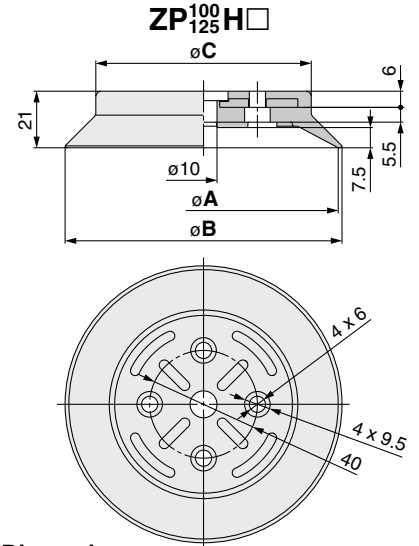
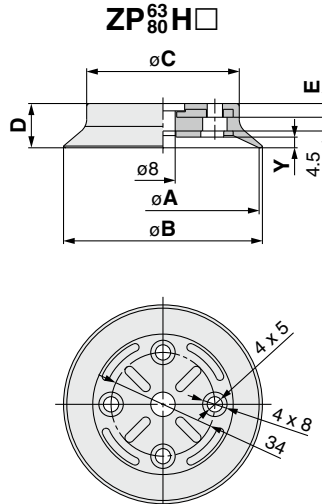
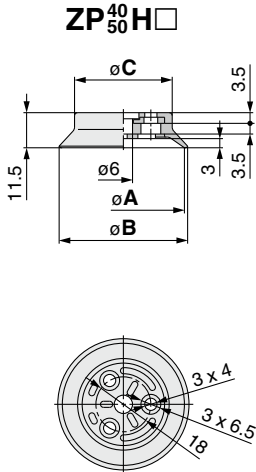
• Pad form

Symbol	Form
H	High rigidity (Flat type with ribs)
HB	High rigidity (Bellows type)

\*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).

## Dimensions: Pad Unit

\* For the bellows type pads, the dimensions with a sheet are shown.



### Dimensions

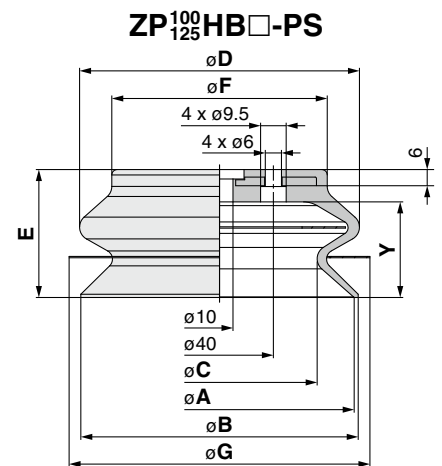
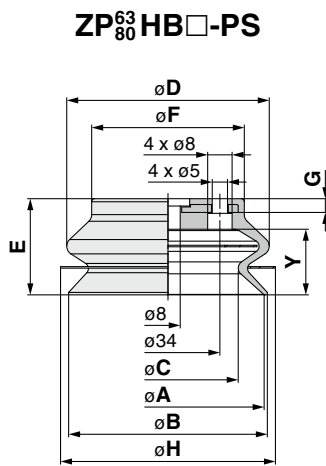
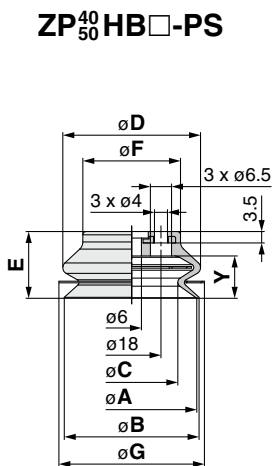
Model	A	B	C
ZP40H□	40	42.1	32
ZP50H□	50	52.1	42

### Dimensions

Model	A	B	C	D	E	Y
ZP63H□	63	65.2	50	14.5	4.5	3.5
ZP80H□	80	82.1	61	16.5	5	4.5

### Dimensions

Model	A	B	C
ZP100H□	100	102.8	80
ZP125H□	125	127.7	104



### Dimensions

Model	A	B	C	D	E	F	G	Y
ZP40HB□-PS	40	41.4	28.3	42.3	20.5	30	44.7	13
ZP50HB□-PS	50	52	36.2	52.7	24	40.5	56.9	16.5

### Dimensions

Model	A	B	C	D	E	F	G	H	Y
ZP63HB□-PS	63	65.1	46	66.4	31.5	50	4.5	70.4	21.5
ZP80HB□-PS	80	82.8	60.1	83.8	37	64	5	91.7	27.5

### Dimensions

Model	A	B	C	D	E	F	G	Y
ZP100HB□-PS	100	103	72.5	103.9	47.5	80	111.7	35.5
ZP125HB□-PS	125	128.5	92.2	131.6	56	105	138.5	44

Model Selection

## How to Order



Vacuum inlet direction **Vertical**

With adapter **ZPT 40 H N - A14 - PS**

### Pad diameter

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

### Sheet (Δ) (Bellows type only)

Nil	Without sheet
PS	With sheet

### Mounting thread size (Vacuum inlet)

Mounting	Thread	Symbol	Thread size	Pad diameter		
				ø40, ø50	ø63, ø80	ø100, ø125
Male thread	M14 x 1	A14	Rc1/8	●	—	—
		A14N	NPT1/8	●	—	—
		A14T	NPTF1/8	●	—	—
	M16 x 1.5	A16	Rc1/8	—	●	●
		A16N	NPT1/8	—	●	●
		A16T	NPTF1/8	—	●	●
Female thread	B8	M8 x 1.25	●	●	—	
	B10	M10 x 1.5	●	●	●	
	B12	M12 x 1.75	—	●	●	
	B16	M16 x 1.5	—	●	●	

### Pad form (\*)

Symbol	Form
H	High rigidity (Flat type with ribs)
HB	High rigidity (Bellows type)

### Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

\*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).

### Replacement Part Nos.

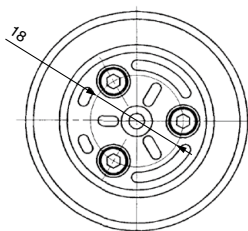
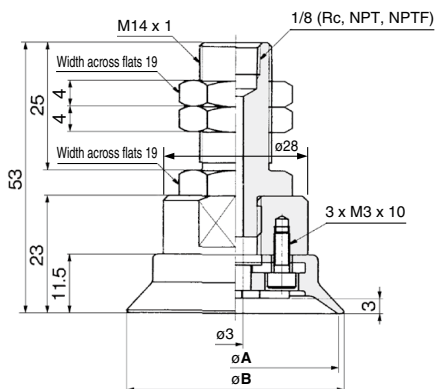
Model	Pad unit part no.	Adapter assembly part no.	Model	Pad unit part no.	Adapter assembly part no.
ZPT40*□-A14		ZPA-T1-B01	ZPT40*□-B8	ZPA-T1-B8	With three M3 bolts
ZPT40*□-A14N	ZP40*□	ZPA-T1-N01	ZPT40*□-B10	ZPA-T1-B10	
ZPT40*□-A14T		ZPA-T1-T01	ZPT50*□-B8	ZPA-T1-B8	
ZPT50*□-A14		ZPA-T1-B01	ZPT50*□-B10	ZPA-T1-B10	With four M4 bolts
ZPT50*□-A14N	ZP50*□	ZPA-T1-N01	ZPT63*□-B8	ZPA-T2-B8	
ZPT50*□-A14T		ZPA-T1-T01	ZPT63*□-B10	ZPA-T2-B10	
ZPT63*□-A16		ZPA-T2-B01	ZPT63*□-B12	ZPA-T2-B12	With four M5 bolts
ZPT63*□-A16N	ZP63*□	ZPA-T2-N01	ZPT63*□-B16	ZPA-T2-B16	
ZPT63*□-A16T		ZPA-T2-T01	ZPT80*□-B8	ZPA-T2-B8	
ZPT80*□-A16		ZPA-T2-B01	ZPT80*□-B10	ZPA-T2-B10	With four M5 bolts
ZPT80*□-A16N	ZP80*□	ZPA-T2-N01	ZPT80*□-B12	ZPA-T2-B12	
ZPT80*□-A16T		ZPA-T2-T01	ZPT80*□-B16	ZPA-T2-B16	
ZPT100*□-A16		ZPA-T3-B01	ZPT100*□-B12	ZPA-T3-B12	With four M5 bolts
ZPT100*□-A16N	ZP100*□	ZPA-T3-N01	ZPT100*□-B16	ZPA-T3-B16	
ZPT100*□-A16T		ZPA-T3-T01	ZPT125*□-B12	ZPA-T3-B12	
ZPT125*□-A16		ZPA-T3-B01	ZPT125*□-B16	ZPA-T3-B16	
ZPT125*□-A16N	ZP125*□	ZPA-T3-N01			
ZPT125*□-A16T		ZPA-T3-T01			

\* \* in the table indicates the pad form  
\* □ in the table indicates the pad material

## Dimensions: With Adapter

For pad unit dimensions with a sheet, refer to page 333.

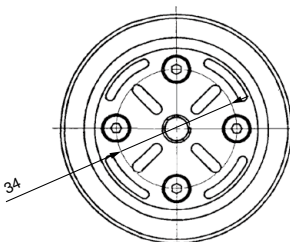
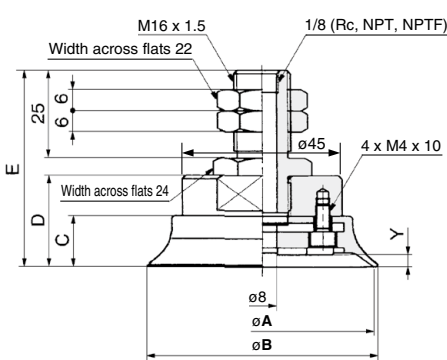
### ZPT 40<sup>50</sup>H□-A14 (Male thread)



### Dimensions

Model	A	B
ZPT40H□-A14	40	42.1
ZPT50H□-A14	50	52.1

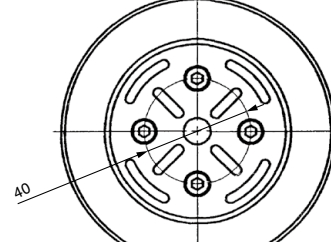
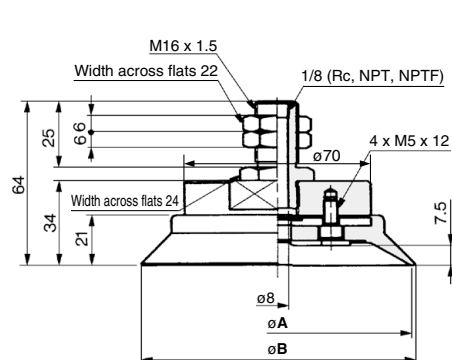
### ZPT 63<sup>80</sup>H□-A16 (Male thread)



### Dimensions

Model	A	B	C	D	E	Y
ZPT63H□-A16	63	65.2	14.5	26	56	3.5
ZPT80H□-A16	80	82.1	16.5	28	58	4.5

### ZPT 100<sup>125</sup>H□-A16 (Male thread)



### Dimensions

Model	A	B
ZPT100H□-A16	100	102.8
ZPT125H□-A16	125	127.7

Made to Order

ZP2V

XT661

MHM

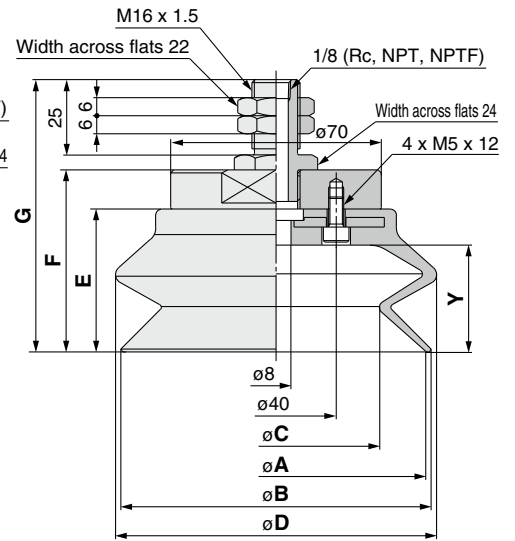
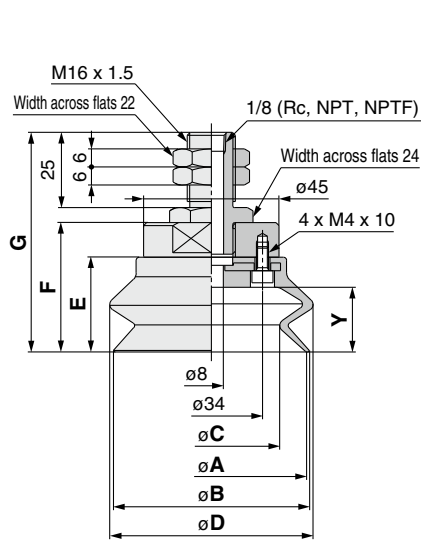
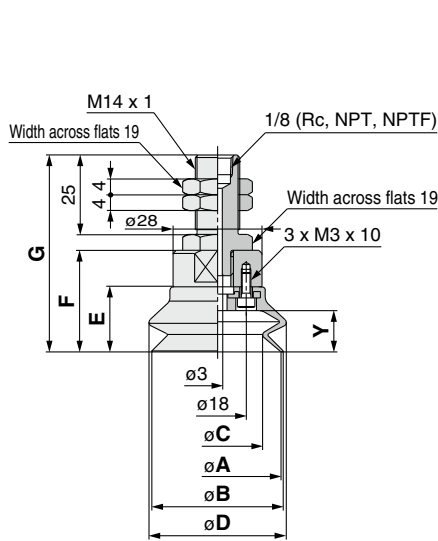
Precautions

# High Rigidity Pad **ZP Series**

## Dimensions: With Adapter

For pad unit dimensions with a sheet, refer to page 333.

**ZPT<sub>40</sub><sup>50</sup>HB□-A14-△ (Male thread)**    **ZPT<sub>63</sub><sup>80</sup>HB□-A16-△ (Male thread)**    **ZPT<sub>100</sub><sup>125</sup>HB□-A16-△ (Male thread)**



### Dimensions

Model	A	B	C	D
ZPT40HB□-A14	40	41.4	28.3	42.3
ZPT50HB□-A14	50	52	36.2	52.7

Model	E	F	G	Y
ZPT40HB□-A14	20.5	32	62	13
ZPT50HB□-A14	24	35.5	65.5	16.5

### Dimensions

Model	A	B	C	D
ZPT63HB□-A16	63	65.1	46	66.4
ZPT80HB□-A16	80	82.8	60.1	83.8

Model	E	F	G	Y
ZPT63HB□-A16	31.5	43	73	21.5
ZPT80HB□-A16	37	48.5	78.5	27.5

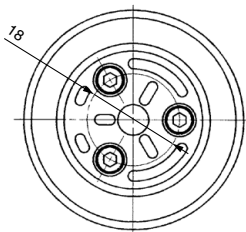
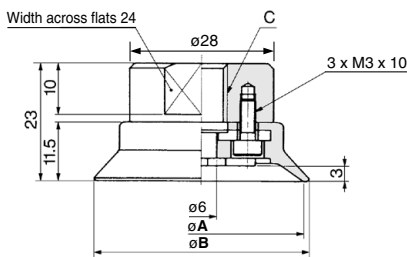
### Dimensions

Model	A	B	C	D
ZPT100HB□-A16	100	103	72.5	103.9
ZPT125HB□-A16	125	128.5	92.2	131.6

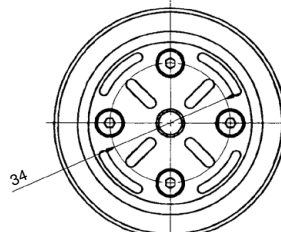
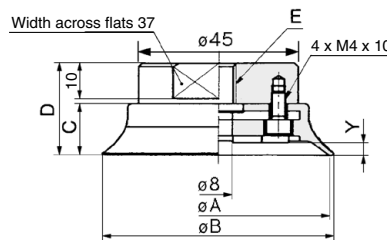
  

Model	E	F	G	Y
ZPT100HB□-A16	47.5	60.5	90.5	35.5
ZPT125HB□-A16	56	69	99	44

**ZPT<sub>40</sub><sup>50</sup>H□-B□ (Female thread)**



**ZPT<sub>63</sub><sup>80</sup>H□-B□ (Female thread)**



### Dimensions

Model	A	B	C
ZPT40H□-B8	40	42.1	M8 x 1.25
ZPT40H□-B10	40	42.1	M10 x 1.5
ZPT50H□-B8	50	52.1	M8 x 1.25
ZPT50H□-B10	50	52.1	M10 x 1.5

### Dimensions

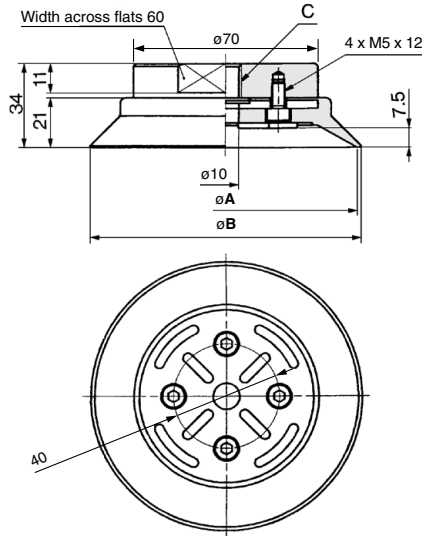
Model	A	B	C	D	E	Y
ZPT63H□-B8	63	65.2	14.5	26	M8 x 1.25	3.5
M10 x 1.5						
M12 x 1.75						
ZPT63H□-B16	80	82.1	16.5	28	M16 x 1.5	4.5
ZPT80H□-B8					M8 x 1.25	
ZPT80H□-B10					M10 x 1.5	
ZPT80H□-B12					M12 x 1.75	
ZPT80H□-B16	ZPT80H□-B16	M16 x 1.5				



## Dimensions: With Adapter

For pad unit dimensions with a sheet, refer to page 333.

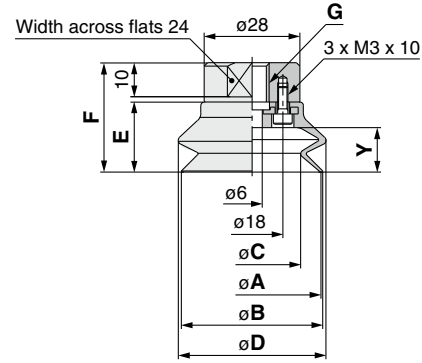
### ZPT<sup>100</sup><sub>125</sub>H□-B□ (Female thread)



#### Dimensions

Model	A	B	C
ZPT100H□-B12	100	102.8	M12 x 1.75
ZPT100H□-B16			M16 x 1.5
ZPT125H□-B12	125	127.7	M12 x 1.75
ZPT125H□-B16			M16 x 1.5

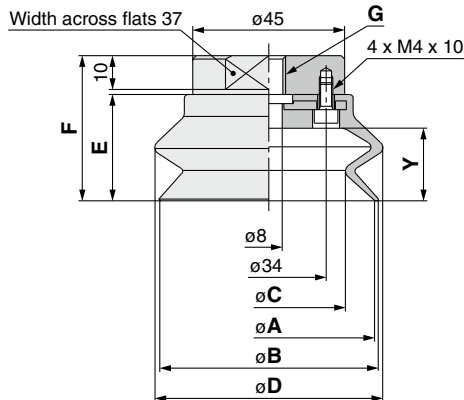
### ZPT<sup>40</sup><sub>50</sub>HB□-B□-△ (Female thread)



#### Dimensions

Model	A	B	C	D	E	F	G	Y
ZPT40HB□-B8	40	41.4	28.3	42.3	20.5	32	M8 x 1.25	13
ZPT40HB□-B10							M10 x 1.5	
ZPT50HB□-B8	50	52	36.2	52.7	24	35.5	M8 x 1.25	16.5
ZPT50HB□-B10							M10 x 1.5	

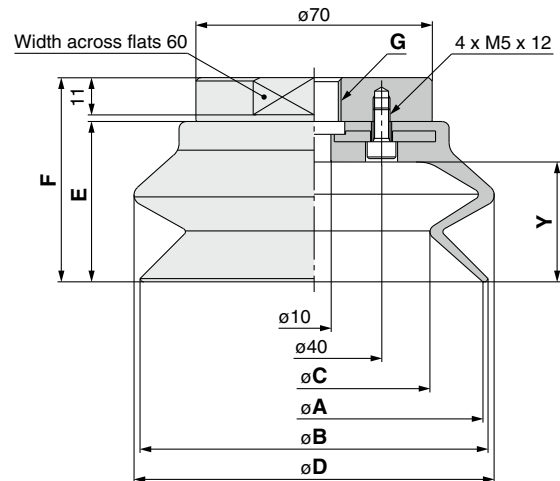
### ZPT<sup>63</sup><sub>80</sub>HB□-B□-△ (Female thread)



#### Dimensions

Model	A	B	C	D	E	F	G	Y
ZPT63HB□-B8	63	65.1	46	66.4	31.5	43	M8 x 1.25	21.5
ZPT63HB□-B10							M10 x 1.5	
ZPT63HB□-B12							M12 x 1.75	
ZPT63HB□-B16							M16 x 1.5	
ZPT80HB□-B8	80	82.8	60.1	83.8	37	48.5	M8 x 1.25	27.5
ZPT80HB□-B10							M10 x 1.5	
ZPT80HB□-B12							M12 x 1.75	
ZPT80HB□-B16							M16 x 1.5	

### ZPT<sup>100</sup><sub>125</sub>HB□-B□-△ (Female thread)



#### Dimensions

Model	A	B	C	D	E	F	G	Y
ZPT100HB□-B12	100	103	72.5	103.9	47.5	60.5	M12 x 1.75	35.5
ZPT100HB□-B16							M16 x 1.5	
ZPT125HB□-B12	125	128.5	92.2	131.6	56	69	M12 x 1.75	44
ZPT125HB□-B16							M16 x 1.5	

# High Rigidity Pad **ZP Series**

## How to Order

With adapter **ZPX 40 H N - B01 - B8 - PS**

**Pad diameter**

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

**Pad form (\*)**

Symbol	Form
H	High rigidity (Flat type with ribs)
HB	High rigidity (Bellows type)

**Vacuum inlet thread size**

Symbol	Thread size
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

**Sheet (Δ) (Bellows type only)**

	Without sheet	With sheet
Nil		
PS		

Vacuum inlet direction **Lateral**

### Mounting thread size

Symbol	Thread size	Pad diameter		
		ø40, ø50	ø63, ø80	ø100, ø125
B8	M8 x 1.25	●	—	—
B10	M10 x 1.5	●	●	●
B12	M12 x 1.75	—	●	●

**Pad material (□)**

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

### Replacement Part Nos.

Model	Pad unit part no.	Adapter assembly part no.	Model	Pad unit part no.	Adapter assembly part no.
ZPX40*□-B01-B8	ZP40*□	ZPA-X1-B01-B8	ZPX80*□-B01-B10	ZP80*□	ZPA-X2-B01-B10
ZPX40*□-N01-B8		ZPA-X1-N01-B8	ZPX80*□-N01-B10		ZPA-X2-N01-B10
ZPX40*□-T01-B8		ZPA-X1-T01-B8	ZPX80*□-T01-B10		ZPA-X2-T01-B10
ZPX40*□-B01-B10		ZPA-X1-B01-B10	ZPX80*□-B01-B12		ZPA-X2-B01-B12
ZPX40*□-N01-B10	ZPA-X1-N01-B10	ZPA-X1-T01-B10	ZPX80*□-N01-B12	ZPA-X2-N01-B12	
ZPX40*□-T01-B10	ZPA-X1-T01-B10	ZPA-X1-T01-B10	ZPX80*□-T01-B12	ZPA-X2-T01-B12	
ZPX50*□-B01-B8	ZP50*□	ZPA-X1-B01-B8	ZPX100*□-B01-B10	ZP100*□	ZPA-X3-B01-B10
ZPX50*□-N01-B8		ZPA-X1-N01-B8	ZPX100*□-N01-B10		ZPA-X3-N01-B10
ZPX50*□-T01-B8		ZPA-X1-T01-B8	ZPX100*□-T01-B10		ZPA-X3-T01-B10
ZPX50*□-B01-B10		ZPA-X1-B01-B10	ZPX100*□-B01-B12		ZPA-X3-B01-B12
ZPX50*□-N01-B10	ZPA-X1-N01-B10	ZPA-X1-T01-B10	ZPX100*□-N01-B12	ZPA-X3-N01-B12	
ZPX50*□-T01-B10	ZPA-X1-T01-B10	ZPA-X1-T01-B10	ZPX100*□-T01-B12	ZPA-X3-T01-B12	
ZPX63*□-B01-B10	ZP63*□	ZPA-X2-B01-B10	ZPX125*□-B01-B10	ZP125*□	ZPA-X3-B01-B10
ZPX63*□-N01-B10		ZPA-X2-N01-B10	ZPX125*□-N01-B10		ZPA-X3-N01-B10
ZPX63*□-T01-B10		ZPA-X2-T01-B10	ZPX125*□-T01-B10		ZPA-X3-T01-B10
ZPX63*□-B01-B12		ZPA-X2-B01-B12	ZPX125*□-B01-B12		ZPA-X3-B01-B12
ZPX63*□-N01-B12	ZPA-X2-N01-B12	ZPA-X2-T01-B12	ZPX125*□-N01-B12	ZPA-X3-N01-B12	
ZPX63*□-T01-B12	ZPA-X2-T01-B12	ZPA-X2-T01-B12	ZPX125*□-T01-B12	ZPA-X3-T01-B12	

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

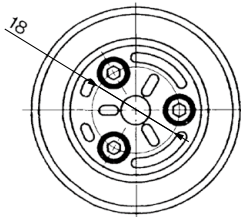
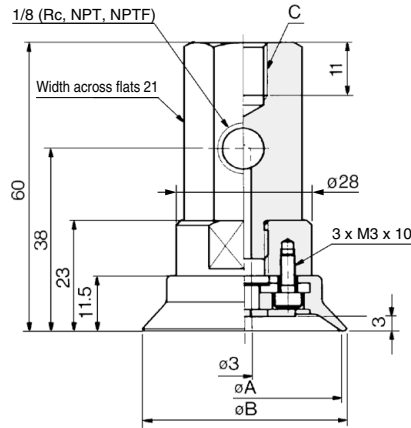
\*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article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

\* \* in the table indicates the pad form  
 \* □ in the table indicates the pad material

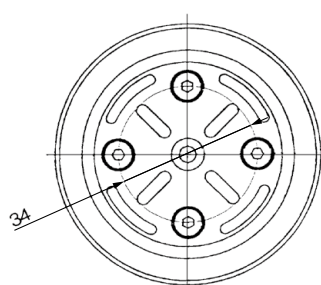
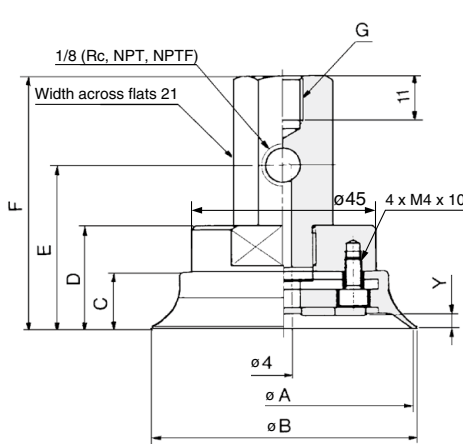
## Dimensions: With Adapter

For pad unit dimensions with a sheet, refer to page 333.

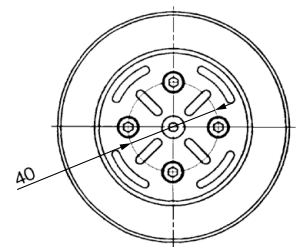
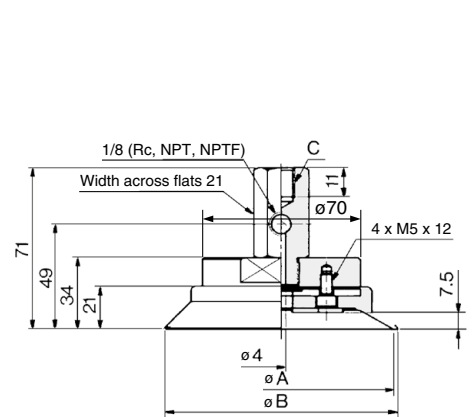
**ZPX<sub>40</sub><sup>40</sup>H□-□01-B<sub>8</sub><sup>B8</sup>**



**ZPX<sub>63</sub><sup>63</sup>H□-□01-B<sub>10</sub><sup>B10</sup>**



**ZPX<sub>125</sub><sup>100</sup>H□-□01-B<sub>12</sub><sup>B12</sup>**



### Dimensions

Model	A	B	C
ZPX40H□-□01-B8	40	42.1	M8 x 1.25
ZPX40H□-□01-B10			M10 x 1.5
ZPX50H□-□01-B8	50	52.1	M8 x 1.25
ZPX50H□-□01-B10			M10 x 1.5

### Dimensions

Model	A	B	C	D	E	F	Y	G
ZPX63H□-□01-B10	63	65.2	14.5	26	41	63	3.5	M10 x 1.5
ZPX63H□-□01-B12								M12 x 1.75
ZPX80H□-□01-B10	80	82.1	16.5	28	43	65	4.5	M10 x 1.5
ZPX80H□-□01-B12								M12 x 1.75

### Dimensions

Model	A	B	C
ZPX100H□-□01-B10	100	102.8	M10 x 1.5
ZPX100H□-□01-B12			M12 x 1.75
ZPX125H□-□01-B10	125	127.7	M10 x 1.5
ZPX125H□-□01-B12			M12 x 1.75

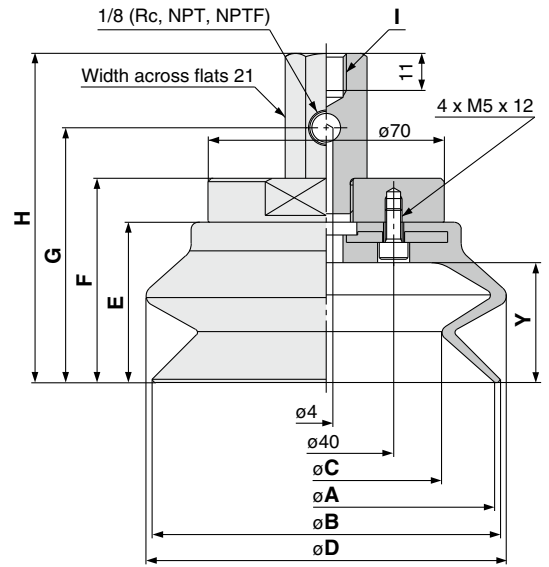
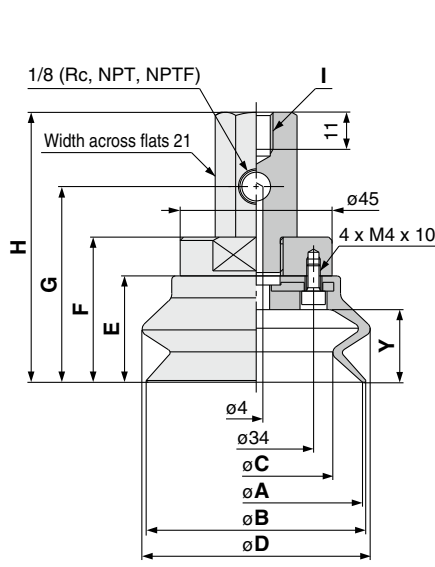
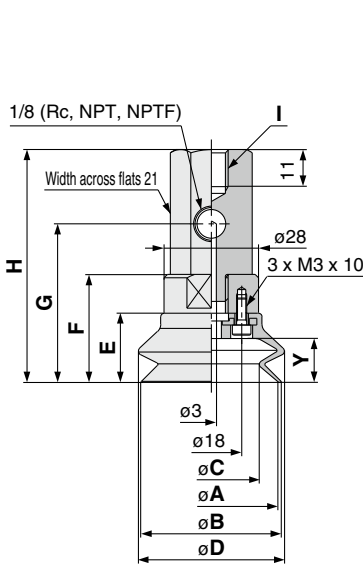
## Dimensions: With Adapter

For pad unit dimensions with a sheet, refer to page 333.

**ZPX<sub>40</sub><sup>40</sup>HB□-□01-B8-B10-△**

**ZPX<sub>63</sub><sup>63</sup>HB□-□01-B10-B12-△**

**ZPX<sub>100</sub><sup>100</sup>HB□-□01-B10-B12-△**



### Dimensions

Model	A	B	C	D	E	F
ZPX40HB□-□01-B8	40	41.4	28.3	42.3	20.5	32
ZPX40HB□-□01-B10						
ZPX50HB□-□01-B8	50	52	36.2	52.7	24	35.5
ZPX50HB□-□01-B10						

Model	G	H	I	Y
ZPX40HB□-□01-B8	47	69	M8 x 1.25	13
ZPX40HB□-□01-B10			M10 x 1.5	
ZPX50HB□-□01-B8	50.5	72.5	M8 x 1.25	16.5
ZPX50HB□-□01-B10			M10 x 1.5	

### Dimensions

Model	A	B	C	D	E	F
ZPX63HB□-□01-B10	63	65.1	46	66.4	31.5	43
ZPX63HB□-□01-B12						
ZPX80HB□-□01-B10	80	82.8	60.1	83.8	37	48.5
ZPX80HB□-□01-B12						

Model	G	H	I	Y
ZPX63HB□-□01-B10	58	80	M10 x 1.5	21.5
ZPX63HB□-□01-B12			M12 x 1.75	
ZPX80HB□-□01-B10	63.5	85.5	M10 x 1.5	27.5
ZPX80HB□-□01-B12			M12 x 1.75	

### Dimensions

Model	A	B	C	D	E	F
ZPX100HB□-□01-B10	100	103	72.5	103.9	47.5	60.5
ZPX100HB□-□01-B12						
ZPX125HB□-□01-B10	125	128.5	92.2	131.6	56	69
ZPX125HB□-□01-B12						

Model	G	H	I	Y
ZPX100HB□-□01-B10	75.5	97.5	M10 x 1.5	35.5
ZPX100HB□-□01-B12			M12 x 1.75	
ZPX125HB□-□01-B10	84	106	M10 x 1.5	44
ZPX125HB□-□01-B12			M12 x 1.75	

Made to Order

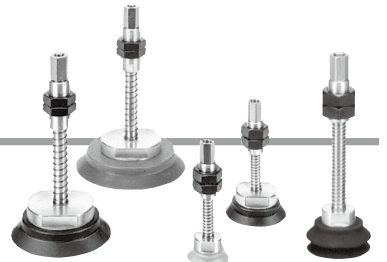
ZP2V

XT661

MHM

# High Rigidity Pad **ZP Series**

## How to Order



**With buffer** **ZPT 40 H N J 25 - B01 - A18 - PS**

Pad diameter

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

Pad form (\*)

Symbol	Form
H	High rigidity (Flat type with ribs)
HB	High rigidity (Bellows type)

Vacuum inlet thread size

Symbol	Thread size
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

Sheet (Δ)  
(Bellows type only)

Nil	Without sheet
PS	With sheet

Vacuum inlet direction **Vertical**

Mounting thread size

Symbol	Thread size
A18	M18 x 1.5 (ø40 to ø80)
A22	M22 x 1.5 (ø100, ø125)

Pad material (□)

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

Buffer body material (★)

Symbol	Material
J	Aluminum alloy
JB	Brass + With bushing
JF	Structural steel + With bushing

Buffer stroke (■)

Stroke	ø40	ø50	ø63	ø80	ø100	ø125
25	●	●	●	●	●	●
50	●	●	●	●	●	●
75	●	●	●	●	●	●
100	—	—	—	—	●	●

Replacement Part Nos.

Model	Pad unit part no.	Buffer assembly part no.
ZPT40*□★25-(B/N/T)01-A18	ZP40*□	ZPB-T1★25-(B/N/T)01
ZPT40*□★50-(B/N/T)01-A18		ZPB-T1★50-(B/N/T)01
ZPT40*□★75-(B/N/T)01-A18		ZPB-T1★75-(B/N/T)01
ZPT50*□★25-(B/N/T)01-A18	ZP50*□	ZPB-T1★25-(B/N/T)01
ZPT50*□★50-(B/N/T)01-A18		ZPB-T1★50-(B/N/T)01
ZPT50*□★75-(B/N/T)01-A18		ZPB-T1★75-(B/N/T)01
ZPT63*□★25-(B/N/T)01-A18	ZP63*□	ZPB-T2★25-(B/N/T)01
ZPT63*□★50-(B/N/T)01-A18		ZPB-T2★50-(B/N/T)01
ZPT63*□★75-(B/N/T)01-A18		ZPB-T2★75-(B/N/T)01
ZPT80*□★25-(B/N/T)01-A18	ZP80*□	ZPB-T2★25-(B/N/T)01
ZPT80*□★50-(B/N/T)01-A18		ZPB-T2★50-(B/N/T)01
ZPT80*□★75-(B/N/T)01-A18		ZPB-T2★75-(B/N/T)01
ZPT100*□★25-(B/N/T)01-A22	ZP100*□	ZPB-T3★25-(B/N/T)01
ZPT100*□★50-(B/N/T)01-A22		ZPB-T3★50-(B/N/T)01
ZPT100*□★75-(B/N/T)01-A22		ZPB-T3★75-(B/N/T)01
ZPT100*□★100-(B/N/T)01-A22	ZP125*□	ZPB-T3★100-(B/N/T)01
ZPT125*□★25-(B/N/T)01-A22		ZPB-T3★25-(B/N/T)01
ZPT125*□★50-(B/N/T)01-A22		ZPB-T3★50-(B/N/T)01
ZPT125*□★75-(B/N/T)01-A22	ZPB-T3★75-(B/N/T)01	
ZPT125*□★100-(B/N/T)01-A22	ZPB-T3★100-(B/N/T)01	

\*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).

## Buffer Specifications (Rotating)

Pad diameter		ø40 to ø80	ø100, ø125
Stroke [mm]		25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9	10
	At full stroke	11.8	15

Nut Tightening Torque

[N·m]

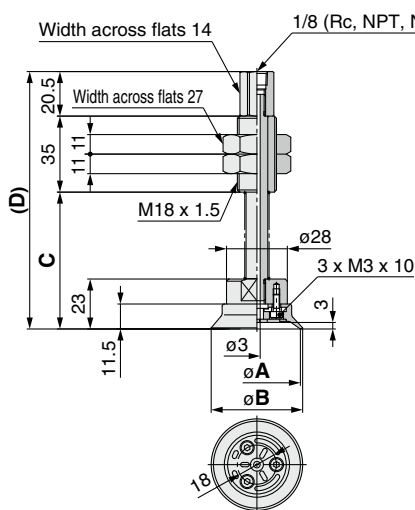
Mounting thread size	Buffer body material		
	Aluminum alloy	Brass + With bushing	Structural steel + With bushing
M18 x 1.5	9.5 to 10.5	28 to 32	48 to 52
M22 x 1.5	9.5 to 10.5	45 to 50	75 to 80

\* in the table indicates the pad form  
□ in the table indicates the pad material  
★ in the table indicates the buffer body material

For pad unit dimensions with a sheet, refer to page 333.

## Dimensions: With Buffer

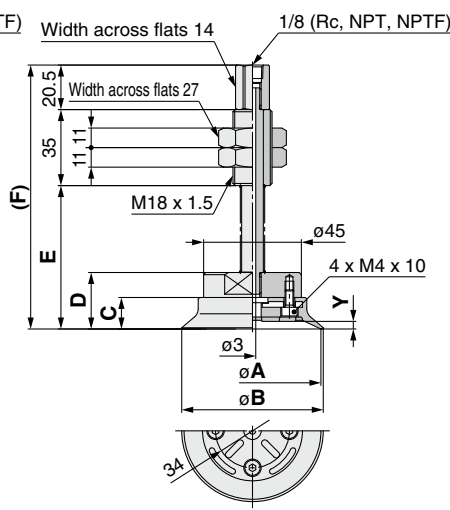
ZPT<sub>50</sub><sup>40</sup>H□★■-□01-A18



Dimensions

Model	A	B	C	D
ZPT40H□★25-□01-A18		63	118.5	
ZPT40H□★50-□01-A18	40	42.1	98	153.5
ZPT40H□★75-□01-A18		134	189.5	
ZPT50H□★25-□01-A18		63	118.5	
ZPT50H□★50-□01-A18	50	52.1	98	153.5
ZPT50H□★75-□01-A18		134	189.5	

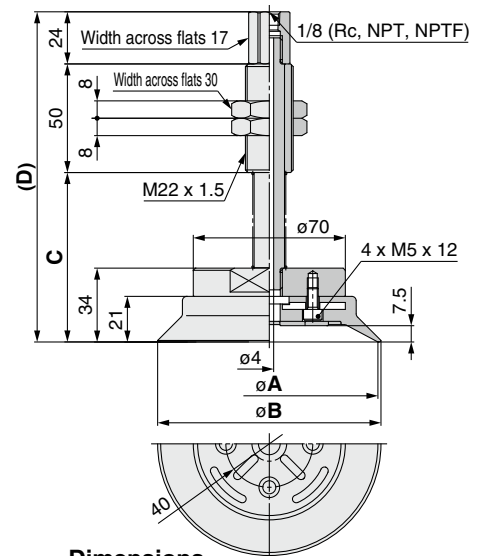
ZPT<sub>80</sub><sup>63</sup>H□★■-□01-A18



Dimensions

Model	A	B	C	D	E	F	Y
ZPT63H□★25-□01-A18		66	121.5				
ZPT63H□★50-□01-A18	63	65.2	14.5	26	101	156.5	3.5
ZPT63H□★75-□01-A18		137	192.5				
ZPT80H□★25-□01-A18		68	123.5				
ZPT80H□★50-□01-A18	80	82.1	16.5	28	103	158.5	4.5
ZPT80H□★75-□01-A18		139	194.5				

ZPT<sub>125</sub><sup>100</sup>H□★■-□01-A22



Dimensions

Model	A	B	C	D
ZPT100H□★25-□01-A22			78	152
ZPT100H□★50-□01-A22	100	102.8	114	188
ZPT100H□★75-□01-A22			154	228
ZPT125H□★25-□01-A22			78	152
ZPT125H□★50-□01-A22	125	127.7	114	188
ZPT125H□★75-□01-A22			154	228
ZPT125H□★100-□01-A22			189	263

## Dimensions: With Buffer

For pad unit dimensions with a sheet, refer to page 333.

Made to Order

ZP2V

XT661

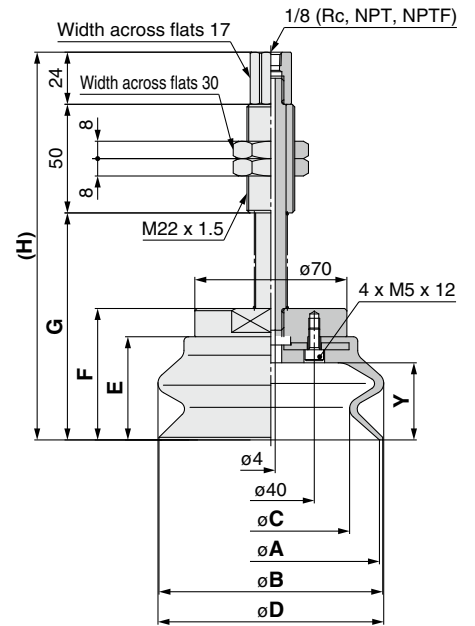
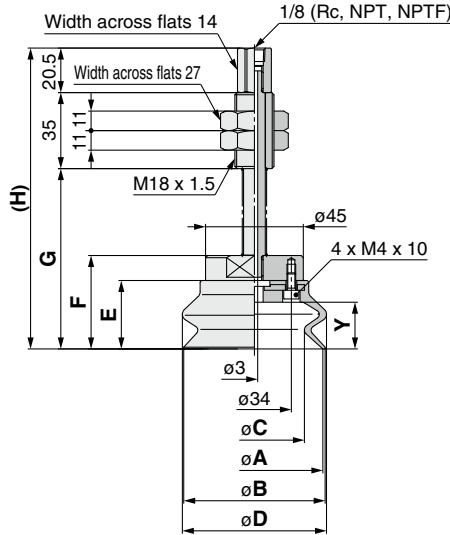
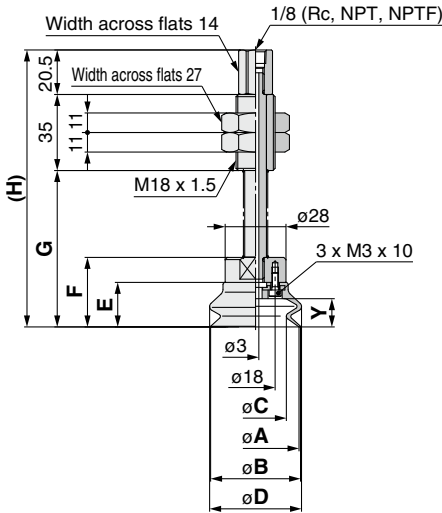
MHM

Precautions

ZPT<sup>40</sup><sub>50</sub>HB□★■-□01-A18-△

ZPT<sup>63</sup><sub>80</sub>HB□★■-□01-A18-△

ZPT<sup>100</sup><sub>125</sub>HB□★■-□01-A22-△



### Dimensions

Model	A	B	C	D	E
ZPT40HB□★25-□01-A18					
ZPT40HB□★50-□01-A18	40	41.4	28.3	42.3	20.5
ZPT40HB□★75-□01-A18					
ZPT50HB□★25-□01-A18					
ZPT50HB□★50-□01-A18	50	52	36.2	52.7	24
ZPT50HB□★75-□01-A18					

Model	F	G	H	Y
ZPT40HB□★25-□01-A18	72	127.5		
ZPT40HB□★50-□01-A18	32	107	162.5	13
ZPT40HB□★75-□01-A18		143	198.5	
ZPT50HB□★25-□01-A18		75.5	131	
ZPT50HB□★50-□01-A18	35.5	110.5	166	16.5
ZPT50HB□★75-□01-A18		146.5	202	

### Dimensions

Model	A	B	C	D	E
ZPT63HB□★25-□01-A18					
ZPT63HB□★50-□01-A18	63	65.1	46	66.4	31.5
ZPT63HB□★75-□01-A18					
ZPT80HB□★25-□01-A18					
ZPT80HB□★50-□01-A18	80	82.8	60.1	83.8	37
ZPT80HB□★75-□01-A18					

Model	F	G	H	Y
ZPT63HB□★25-□01-A18		83	138.5	
ZPT63HB□★50-□01-A18	43	118	173.5	21.5
ZPT63HB□★75-□01-A18		154	209.5	
ZPT80HB□★25-□01-A18		88.5	144	
ZPT80HB□★50-□01-A18	48.5	123.5	179	27.5
ZPT80HB□★75-□01-A18		159.5	215	

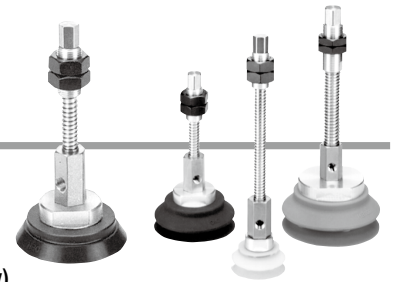
### Dimensions

Model	A	B	C	D	E
ZPT100HB□★25-□01-A22					
ZPT100HB□★50-□01-A22	100	103	72.5	103.9	47.5
ZPT100HB□★75-□01-A22					
ZPT100HB□★100-□01-A22					
ZPT125HB□★25-□01-A22					
ZPT125HB□★50-□01-A22	125	128.5	92.2	131.6	56
ZPT125HB□★75-□01-A22					
ZPT125HB□★100-□01-A22					

Model	F	G	H	Y
ZPT100HB□★25-□01-A22		104.5	178.5	
ZPT100HB□★50-□01-A22	60.5	140.5	214.5	35.5
ZPT100HB□★75-□01-A22		180.5	254.5	
ZPT100HB□★100-□01-A22		215.5	289.5	
ZPT125HB□★25-□01-A22		113	187	
ZPT125HB□★50-□01-A22	69	149	223	44
ZPT125HB□★75-□01-A22		189	263	
ZPT125HB□★100-□01-A22		224	298	

# High Rigidity Pad **ZP Series**

## How to Order



**With buffer** **ZPX 40 H N J 25 - B01 - A18 - PS**

**Pad diameter**

Symbol	Pad diameter
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

**Pad form (\*)**

Symbol	Form
H	High rigidity (Flat type with ribs)
HB	High rigidity (Bellows type)

**Vacuum inlet thread size**

Symbol	Thread size
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

**Sheet (Δ) (Bellows type only)**

Symbol	Without sheet	With sheet
Nil		
PS		

Vacuum inlet direction **Lateral**

**Pad material (□)**

Symbol	Material
N	NBR
S	Silicone rubber*1*2
U	Urethane rubber
F	FKM
E	EPDM

**Buffer body material (★)**

Symbol	Material
J	Aluminum alloy
JB	Brass + With bushing
JF	Structural steel + With bushing

**Buffer stroke (■)**

Stroke	ø40	ø50	ø63	ø80	ø100	ø125
25	●	●	●	●	●	●
50	●	●	●	●	●	●
75	●	●	●	●	●	●
100	—	—	—	—	●	●

**Mounting thread size**

Symbol	Thread size
A18	M18 x 1.5 (ø40 to ø80)
A22	M22 x 1.5 (ø100, ø125)

\*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).

## Buffer Specifications (Rotating)

Pad diameter	ø40 to ø80	ø100, ø125
Stroke [mm]	25, 50, 75	25, 50, 75, 100
Spring reactive force [N]	At 0 stroke	6.9
	At full stroke	10

## Nut Tightening Torque

[N·m]

Mounting thread size	Buffer body material		
	Aluminum alloy	Brass + With bushing	Structural steel + With bushing
M18 x 1.5	9.5 to 10.5	28 to 32	48 to 52
M22 x 1.5	9.5 to 10.5	45 to 50	75 to 80

## Replacement Part Nos.

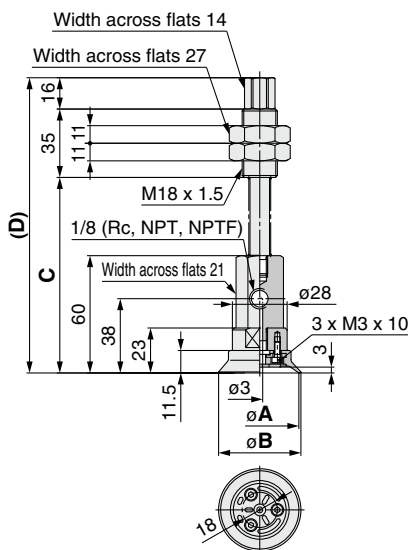
Model	Pad unit part no.	Buffer assembly part no.
ZPX40*□★25-(B/N/T)01-A18	ZP40*□	ZPB-X1★25-(B/N/T)01
ZPX40*□★50-(B/N/T)01-A18		ZPB-X1★50-(B/N/T)01
ZPX40*□★75-(B/N/T)01-A18		ZPB-X1★75-(B/N/T)01
ZPX50*□★25-(B/N/T)01-A18	ZP50*□	ZPB-X1★25-(B/N/T)01
ZPX50*□★50-(B/N/T)01-A18		ZPB-X1★50-(B/N/T)01
ZPX50*□★75-(B/N/T)01-A18		ZPB-X1★75-(B/N/T)01
ZPX63*□★25-(B/N/T)01-A18	ZP63*□	ZPB-X2★25-(B/N/T)01
ZPX63*□★50-(B/N/T)01-A18		ZPB-X2★50-(B/N/T)01
ZPX63*□★75-(B/N/T)01-A18		ZPB-X2★75-(B/N/T)01
ZPX80*□★25-(B/N/T)01-A18	ZP80*□	ZPB-X2★25-(B/N/T)01
ZPX80*□★50-(B/N/T)01-A18		ZPB-X2★50-(B/N/T)01
ZPX80*□★75-(B/N/T)01-A18		ZPB-X2★75-(B/N/T)01
ZPX100*□★25-(B/N/T)01-A22	ZP100*□	ZPB-X3★25-(B/N/T)01
ZPX100*□★50-(B/N/T)01-A22		ZPB-X3★50-(B/N/T)01
ZPX100*□★75-(B/N/T)01-A22		ZPB-X3★75-(B/N/T)01
ZPX100*□★100-(B/N/T)01-A22	ZP125*□	ZPB-X3★100-(B/N/T)01
ZPX125*□★25-(B/N/T)01-A22		ZPB-X3★25-(B/N/T)01
ZPX125*□★50-(B/N/T)01-A22		ZPB-X3★50-(B/N/T)01
ZPX125*□★75-(B/N/T)01-A22	ZPB-X3★75-(B/N/T)01	
ZPX125*□★100-(B/N/T)01-A22	ZPB-X3★100-(B/N/T)01	

\* in the table indicates the pad form  
 □ in the table indicates the pad material  
 ★ in the table indicates the buffer body material

For pad unit dimensions with a sheet, refer to page 333.

## Dimensions: With Buffer

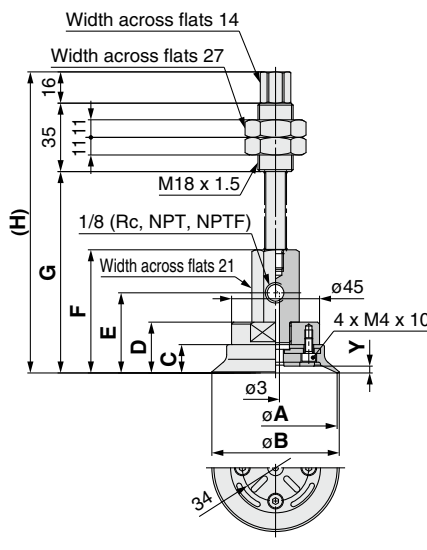
ZPX<sub>40</sub><sup>40</sup>H□★■-□01-A18



### Dimensions

Model	A	B	C	D
ZPX40H□★25-□01-A18			100	151
ZPX40H□★50-□01-A18	40	42.1	135	186
ZPX40H□★75-□01-A18			171	222
ZPX50H□★25-□01-A18			100	151
ZPX50H□★50-□01-A18	50	52.1	135	186
ZPX50H□★75-□01-A18			171	222

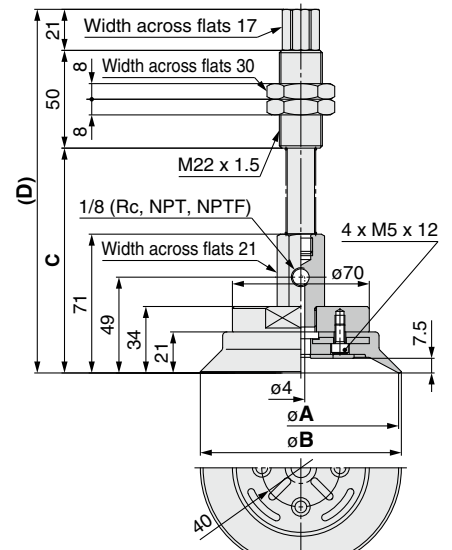
ZPX<sub>63</sub><sup>63</sup>H□★■-□01-A18



### Dimensions

Model	A	B	C	D	E	F	G	H	Y
ZPX63H□★25-□01-A18			100	151			103	154	
ZPX63H□★50-□01-A18	63	65.2	14.5	26	41	63	138	189	3.5
ZPX63H□★75-□01-A18			174	225			174	225	
ZPX80H□★25-□01-A18			105	156			105	156	
ZPX80H□★50-□01-A18	80	82.1	16.5	28	43	65	140	191	4.5
ZPX80H□★75-□01-A18			176	227			176	227	

ZPX<sub>125</sub><sup>100</sup>H□★■-□01-A22



### Dimensions

Model	A	B	C	D
ZPX100H□★25-□01-A22			115	186
ZPX100H□★50-□01-A22	100	102.8	151	222
ZPX100H□★75-□01-A22			191	262
ZPX100H□★100-□01-A22			226	297
ZPX125H□★25-□01-A22			115	186
ZPX125H□★50-□01-A22	125	127.7	151	222
ZPX125H□★75-□01-A22			191	262
ZPX125H□★100-□01-A22			226	297

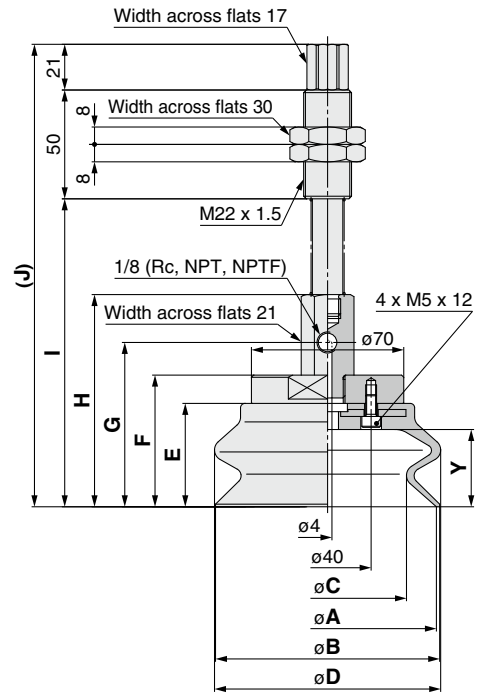
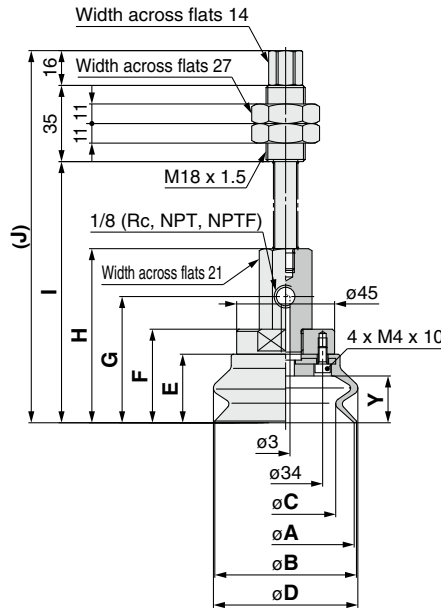
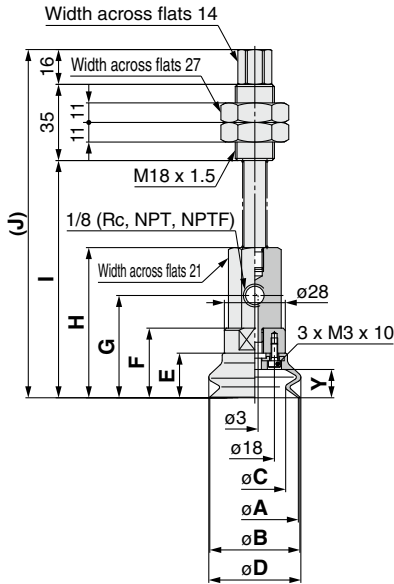
## Dimensions: With Buffer

For pad unit dimensions with a sheet, refer to page 333.

ZPX<sub>50</sub><sup>40</sup>HB□★■-□01-A18-△

ZPX<sub>80</sub><sup>63</sup>HB□★■-□01-A18-△

ZPX<sub>125</sub><sup>100</sup>HB□★■-□01-A22-△



### Dimensions

Model	A	B	C	D	E	F
ZPX40HB□★25-□01-A18						
ZPX40HB□★50-□01-A18	40	41.4	28.3	42.3	20.5	32
ZPX40HB□★75-□01-A18						
ZPX50HB□★25-□01-A18						
ZPX50HB□★50-□01-A18	50	52	36.2	52.7	24	35.5
ZPX50HB□★75-□01-A18						

Model	G	H	I	J	Y
ZPX40HB□★25-□01-A18			109	160	
ZPX40HB□★50-□01-A18	47	69	144	195	13
ZPX40HB□★75-□01-A18			180	231	
ZPX50HB□★25-□01-A18			112.5	163.5	
ZPX50HB□★50-□01-A18	50.5	72.5	147.5	198.5	16.5
ZPX50HB□★75-□01-A18			183.5	234.5	

### Dimensions

Model	A	B	C	D	E	F
ZPX63HB□★25-□01-A18						
ZPX63HB□★50-□01-A18	63	65.1	46	66.4	31.5	43
ZPX63HB□★75-□01-A18						
ZPX80HB□★25-□01-A18						
ZPX80HB□★50-□01-A18	80	82.8	60.1	83.8	37	48.5
ZPX80HB□★75-□01-A18						

Model	G	H	I	J	Y
ZPX63HB□★25-□01-A18			120	171	
ZPX63HB□★50-□01-A18	58	80	155	206	21.5
ZPX63HB□★75-□01-A18			191	242	
ZPX80HB□★25-□01-A18			125.5	176.5	
ZPX80HB□★50-□01-A18	63.5	85.5	160.5	211.5	27.5
ZPX80HB□★75-□01-A18			196.5	247.5	

### Dimensions

Model	A	B	C	D	E	F
ZPX100HB□★25-□01-A22						
ZPX100HB□★50-□01-A22	100	103	72.5	103.9	47.5	60.5
ZPX100HB□★75-□01-A22						
ZPX100HB□★100-□01-A22						
ZPX125HB□★25-□01-A22						
ZPX125HB□★50-□01-A22	125	128.5	92.2	131.6	56	69
ZPX125HB□★75-□01-A22						
ZPX125HB□★100-□01-A22						

Model	G	H	I	J	Y
ZPX100HB□★25-□01-A22			141.5	212.5	
ZPX100HB□★50-□01-A22	75.5	97.5	177.5	248.5	35.5
ZPX100HB□★75-□01-A22			217.5	288.5	
ZPX100HB□★100-□01-A22			252.5	323.5	
ZPX125HB□★25-□01-A22			150	221	
ZPX125HB□★50-□01-A22	84	106	186	257	44
ZPX125HB□★75-□01-A22			226	297	
ZPX125HB□★100-□01-A22			261	332	

Made to Order

ZP2V

XT661

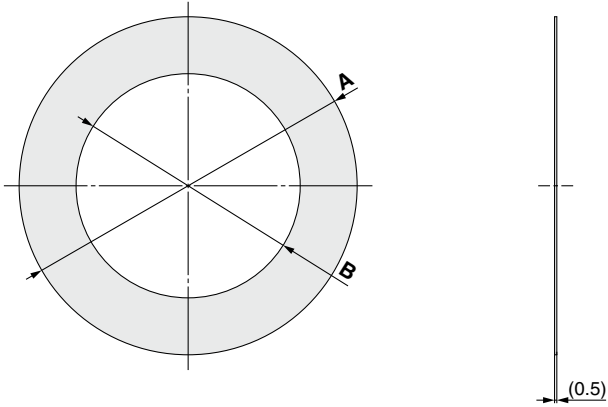
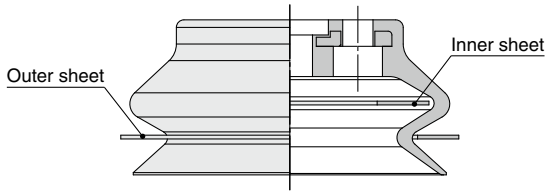
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Precautions





## High Rigidity Pad (Bellows Type) Sheet Part Nos.



### Replacement Parts

Inner/Outer sheet set	Sheet part no.		Material	Applicable pad part no.
	Unit			
	Inner sheet	Outer sheet		
ZPPS-40HB	ZPPS-40HB-1	ZPPS-40HB-2	PTFE	ZP40HB□
ZPPS-50HB	ZPPS-50HB-1	ZPPS-50HB-2		ZP50HB□
ZPPS-63HB	ZPPS-63HB-1	ZPPS-63HB-2		ZP63HB□
ZPPS-80HB	ZPPS-80HB-1	ZPPS-80HB-2		ZP80HB□
ZPPS-100HB	ZPPS-100HB-1	ZPPS-100HB-2		ZP100HB□
ZPPS-125HB	ZPPS-125HB-1	ZPPS-125HB-2		ZP125HB□

#### Dimensions (Inner sheet)

Model	A	B
ZPPS-40HB-1	36.8	23.1
ZPPS-50HB-1	46.1	30.1
ZPPS-63HB-1	58.3	37.1
ZPPS-80HB-1	74.5	49.4
ZPPS-100HB-1	93.5	61.3
ZPPS-125HB-1	117.4	78.1

#### Dimensions (Outer sheet)

Model	A	B
ZPPS-40HB-2	44.7	33.8
ZPPS-50HB-2	56.9	42.7
ZPPS-63HB-2	70.4	54.1
ZPPS-80HB-2	91.7	69.1
ZPPS-100HB-2	111.7	82
ZPPS-125HB-2	138.5	104.1



# Made to Order 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.

#### ZP High Rigidity Series

Model	Connection thread	Buffer body material	Tightening torque [N·m]
ZP□(40 to 80)□J□-□-□-□	M18 x 1.5	Aluminum alloy	9.5 to 10.5
ZP□(40 to 80)□JB□-□-□-□		Brass	28 to 32
ZP□(40 to 80)□JF□-□-□-□		Structural steel	48 to 52
ZP□(100/125)□J□-□-□-□	M22 x 1.5	Aluminum alloy	9.5 to 10.5
ZP□(100/125)□JB□-□-□-□		Brass	45 to 50
ZP□(100/125)□JF□-□-□-□		Structural steel	75 to 80

#### ZP2 High Rigidity Ball Joint Series

Model	Connection thread	Buffer body material	Tightening torque [N·m]
ZP2-□(40/50)□JB□-□	M18 x 1.5	Brass	28 to 32
ZP2-□(40/50)□JF□-□		Structural steel	48 to 52
ZP2-□(63 to 125)□JF□-□-□-□	M22 x 1.5	Brass	45 to 50
ZP2-□(63 to 125)□JF□-□-□-□		Structural steel	75 to 80

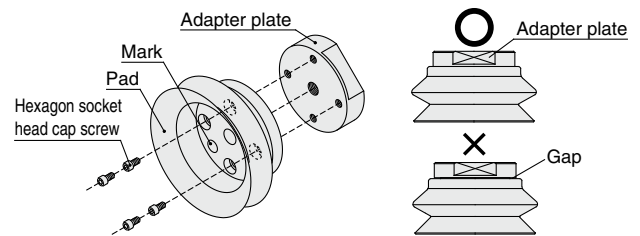
## Pad Mounting

### 1. How to mount the ZP/ZP2 high rigidity pad

Remove bolts with a hex key wrench from the pad underside. Tighten the new pad with the bolts ensuring there is no gap between the adapter plate and the pad.

#### Tightening Torque for Replacement of High Rigidity Pads

Pad diameter	Connection thread	Tightening torque [N·m]
ø40, ø50	M3 x 10	0.7 to 0.9
ø63, ø80	M4 x 10	0.9 to 1.1
ø100, ø125	M5 x 12	2.3 to 2.7



## Sheet Mounting

### 1. When mounting the sheet, be sure to insert it without allowing it to bend.

If the sheet is inserted in a bent state, it may fall out.