

# High Rigidity Pad **ZP3E Series** RoHS

Model Selection

ø32, ø40, ø50, ø63, ø80, ø100, ø125

Flat Type with Groove, Bellows Type with Ribs and Groove

**Stable suction position, Improved ease of removal**

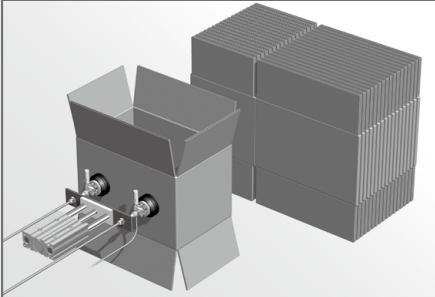
**Number of mounting screws reduced (4 pcs. → 1 pc.)**

**Pad and metal parts can be disposed of separately.**

**Improved uneven workpiece surface suction**



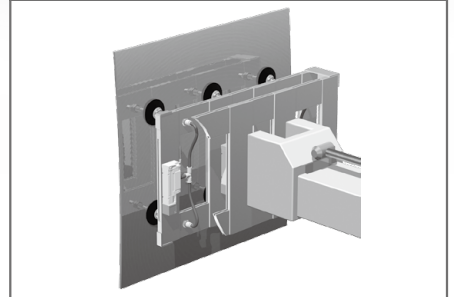
For carton formers/palletizers



For the adsorption of glass workpieces



For the adsorption of car bodies



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ZP3E High Rigidity

Flat Type with Groove

Ball Joint, Flat Type with Groove

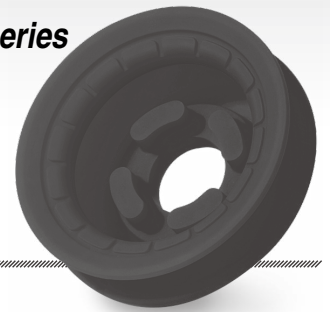
Bellows Type with Ribs and Groove

Ball Joint, Bellows Type with Ribs and Groove

Construction

Mounting Bracket Assembly

Precautions



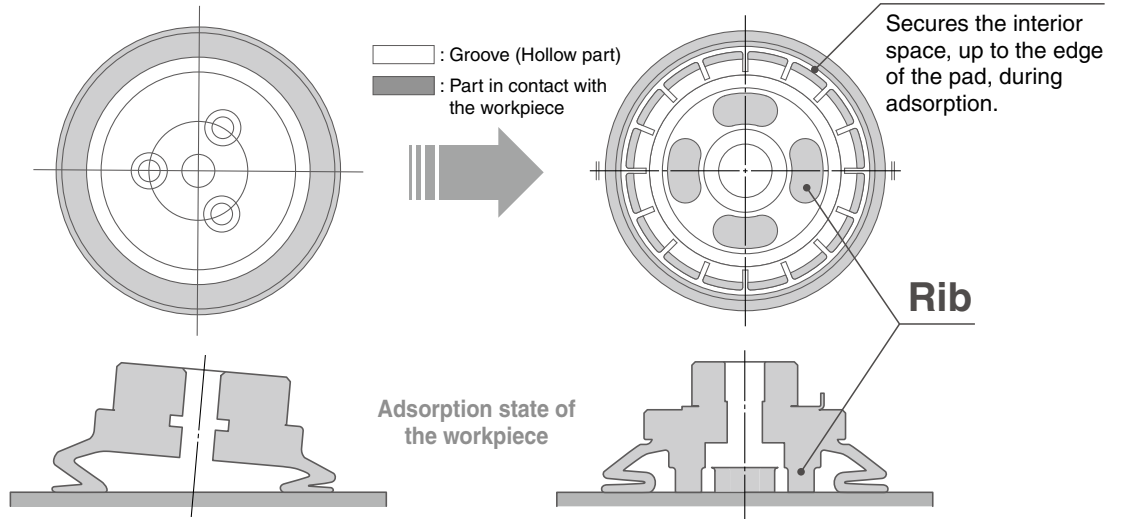
## Stability of suction position

Groove and rib formed to adsorb with entire surface

- Groove on the adsorption surface secures the interior space.
- The ribs reduce inclinations during the transport of workpieces.

ZP (Existing model/Bellows pad)

ZP3E (Bellows pad)



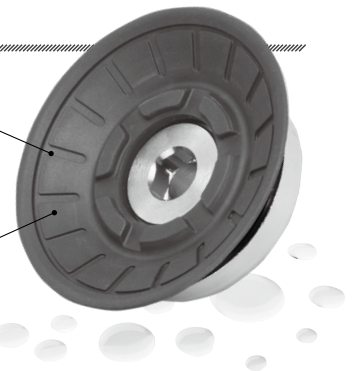
## Improved ease of removal

### With groove

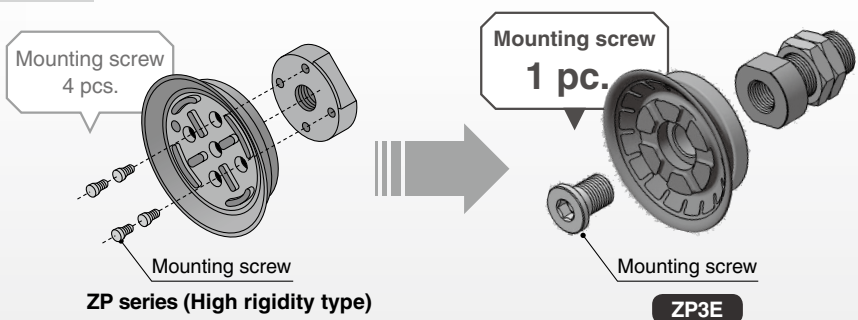
The dents and bumps on the adsorption surface prevent workpieces from sticking to the pad. This facilitates easy removal.

### Shot-blasted

Micro-dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.



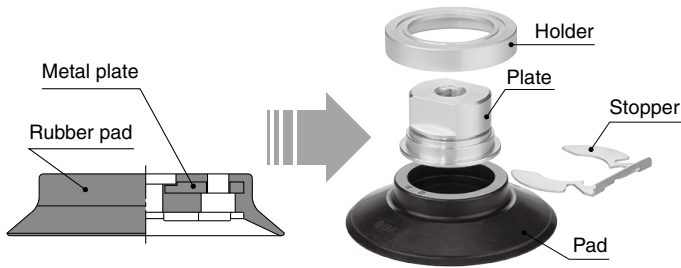
## Reduced number of mounting screws



## Can be disposed of separately

The rubber pad and metal parts can be separated.

The metal parts and rubber parts can be separated completely.

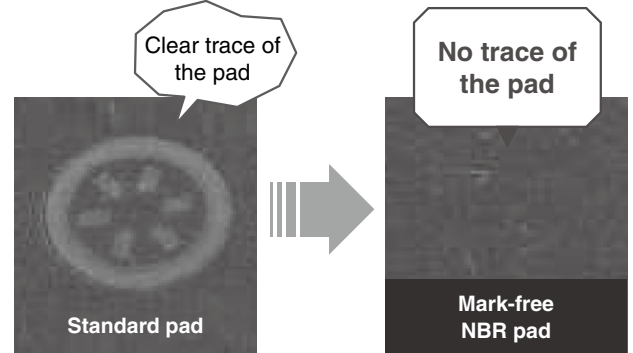


ZP series (High rigidity type)

ZP3E

## Mark-free

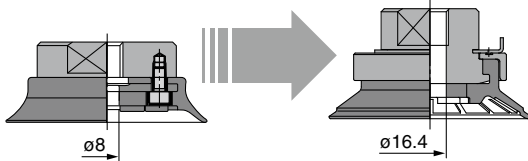
For use where adsorption marks must not be left on workpieces



## Suction flow rate increased

Applicable to workpieces with large suction flow rates and high permeability and to vacuum blow pumps with large suction flow rates

**Double suction port size**  
(Pad diameter:  $\phi 63$ ,  $\phi 80$ )  
Compared with the ZP series



Pad diameter	ZP (Existing model)		ZP3E	
	Suction port	Area [mm <sup>2</sup> ]	Suction port	Area [mm <sup>2</sup> ]
$\phi 32$	—	—		
$\phi 40$	$\phi 6$	28.3	$\phi 8.4$	55.4
$\phi 50$				
$\phi 63$	$\phi 8$	50.2		
$\phi 80$			$\phi 16.4$	211
$\phi 100$	$\phi 10$	78.52		
$\phi 125$				

## Ball joint type pad with reduced weight

Weight reduced by changes to the internal structure and materials

\* The pad material weighed was NBR.

Weight reduced by up to **290 g**



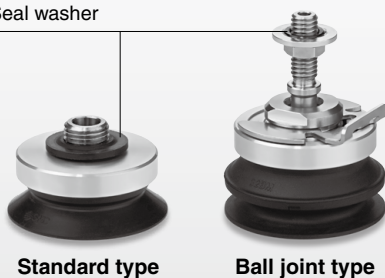
Pad diameter	ZP2/Flat type	ZP3E/Flat type with groove
	Weight [g]	Weight [g]
$\phi 32$	—	56
$\phi 40$	91	57
$\phi 50$	110	75
$\phi 63$	230	150
$\phi 80$	270	160
$\phi 100$	430	190
$\phi 125$	560	270

## Direct mounting type with a male thread has been added.

Direct mounting

- Reduced height
- Easy mounting due to tightening only requiring a hexagonal wrench

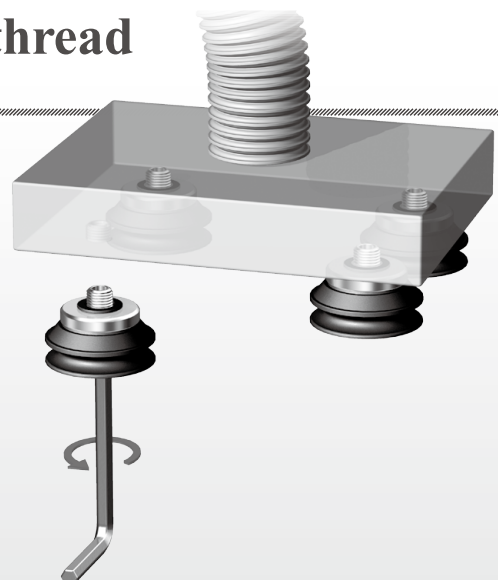
Seal washer

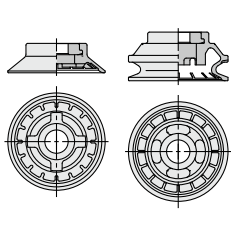
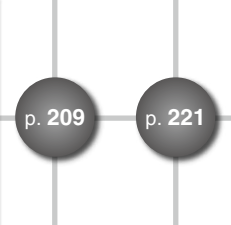
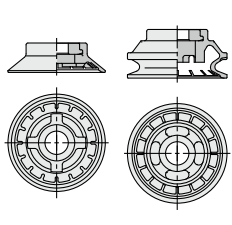
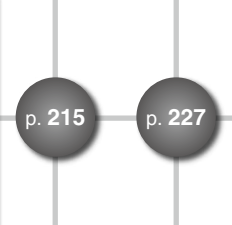
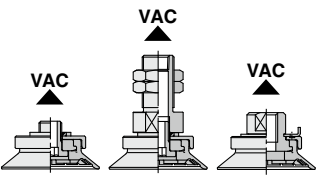

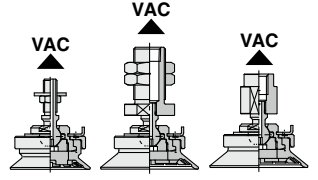
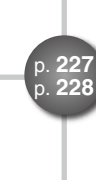
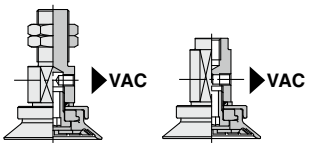

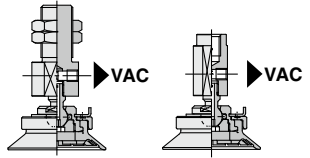

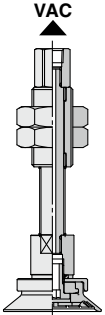

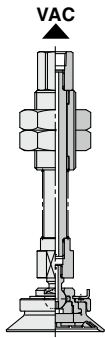

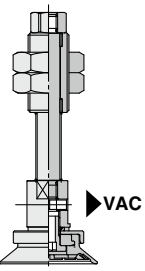

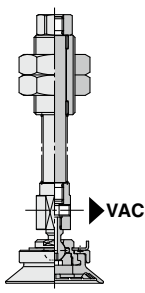



Standard type

Ball joint type

ZP3E



		Standard Type		Ball Joint Type	
		Vacuum inlet direction		Vacuum inlet direction	
		Flat type with groove	Bellows type with ribs and groove	Flat type with groove	Bellows type with ribs and groove
Vacuum inlet direction	Single unit				
		p. 209	p. 221	p. 215	p. 227
Vertical	ZP3E-T With adapter				
		p. 209 p. 210	p. 221 p. 222	p. 215 p. 216	p. 227 p. 228
Lateral	ZP3E-Y With adapter				
		p. 211	p. 223	p. 217	p. 229 p. 230
Vertical	ZP3E-T With buffer				
		p. 212	p. 224	p. 218	p. 231
Lateral	ZP3E-Y With buffer				
		p. 213	p. 225	p. 219	p. 232

# High Rigidity Pad *ZP3E* Series Specifications

## Pad Material

Material	NBR (Nitrile rubber)	Silicone rubber*1*2	Urethane rubber	FKM (Fluoro rubber)	Mark-free NBR
Color of rubber	Black	White	Navy blue	Black	
Rubber hardness (Shore A: ±5°)	50		50	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).

## Adapter Specifications



### Vacuum Inlet Direction **Vertical** T Type/ZP3E-T

Connection		Male thread				Female thread	
Pad diameter		ø32 to ø50		ø63 to ø125		ø32 to ø50	ø63 to ø125
Connection thread		M10 x 1	M14 x 1	M16 x 1.5	M16 x 1.5	M8 x 1.25 M10 x 1.5	M12 x 1.75 M18 x 1.5
Vacuum inlet	Female thread	Use the connection thread.	Rc1/8	Use the connection thread.	Rc1/8	Use the connection thread.	Use the connection thread.



### Vacuum Inlet Direction **Lateral** Y Type/ZP3E-Y

Connection		Male thread		Female thread	
Pad diameter		ø32 to ø50		ø63 to ø125	
Connection thread		M14 x 1	M16 x 1.5	M8 x 1.25	M12 x 1.75
Vacuum inlet	Female thread	M5 x 0.8	Rc1/8	M5 x 0.8	Rc1/8

## Buffer Specifications



Pad diameter		ø32 to ø50			ø63 to ø125		
Non-rotating specification		JB: Rotating, With bushing					
Stroke [mm]		10	30	50	10	30	50
Connection thread		M18 x 1.5			M22 x 1.5		
Spring reactive force [N]	At 0 stroke	5.0			10.0		
	At full stroke	6.5	8.5	10.5	11.5	13.5	15.5

## Adapter Specifications (Ball Joint Type)

Ball joint rotating angle	30°
---------------------------	-----



### Vacuum Inlet Direction **Vertical** T Type/ZP3E-TF

Connection	Male thread				Female thread	
Pad diameter	ø32 to ø50		ø63 to ø125		ø32 to ø50	ø63 to ø125
Connection thread	M6 x 1	M14 x 1	M12 x 1.25	M16 x 1.5	M8 x 1.25	M12 x 1.75
Vacuum inlet	Female thread	Use the connection thread.	Rc1/8	Use the connection thread.	Rc1/8	Use the connection thread.



### Vacuum Inlet Direction **Lateral** Y Type/ZP3E-YF

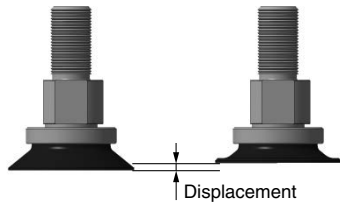
Connection	Male thread		Female thread		
Pad diameter	ø32 to ø50	ø63 to ø125	ø32 to ø50	ø63 to ø125	
Connection thread	M14 x 1	M16 x 1.5	M8 x 1.25	M12 x 1.75	
Vacuum inlet	Female thread	M5 x 0.8	Rc1/8	M5 x 0.8	Rc1/8

## Buffer Specifications (Ball Joint Type)



Pad diameter		ø32 to ø50			ø63 to ø125		
Non-rotating specification		JB: Rotating, With bushing					
Stroke [mm]		10	30	50	10	30	50
Connection thread		M18 x 1.5			M22 x 1.5		
Spring reactive force [N]	At 0 stroke	5.0			10.0		
	At full stroke	6.5	8.5	10.5	11.5	13.5	15.5

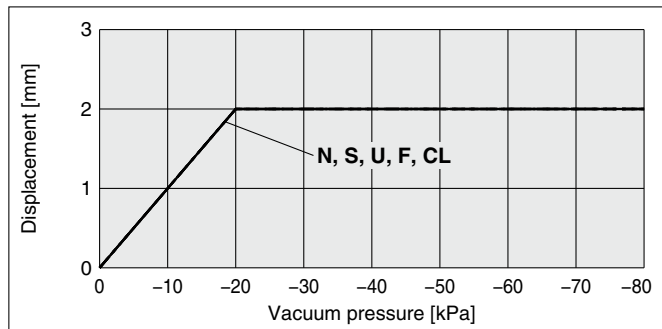
**Pad Displacement to Vacuum Pressure (Flat Type with Groove)**



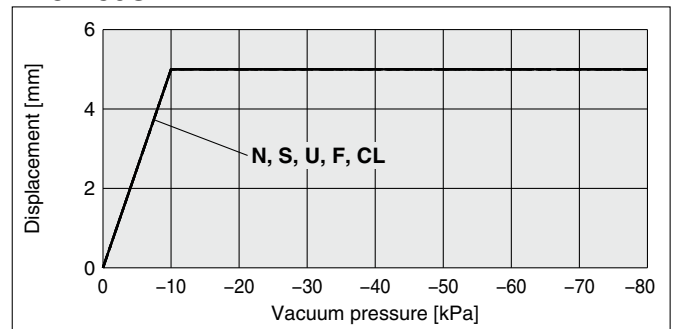
The data shown below are only for reference and are not guaranteed. These values depend on the operating environment, workpiece mass and transfer method. Therefore, thorough research and confirmation are necessary before use.

NBR (N): ——— Silicone rubber (S): ······ Urethane rubber (U): - - - - FKM (F): - · - · - Mark-free NBR (CL): - · - · -

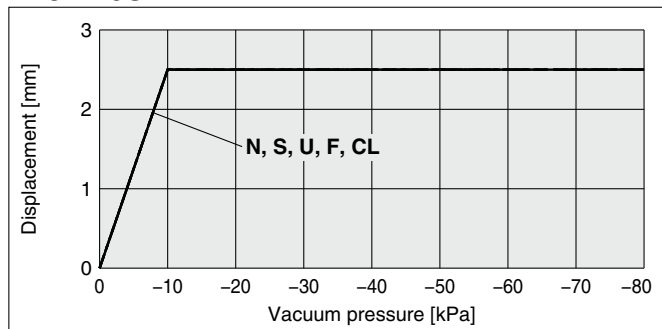
**ZP3E-32UM** □



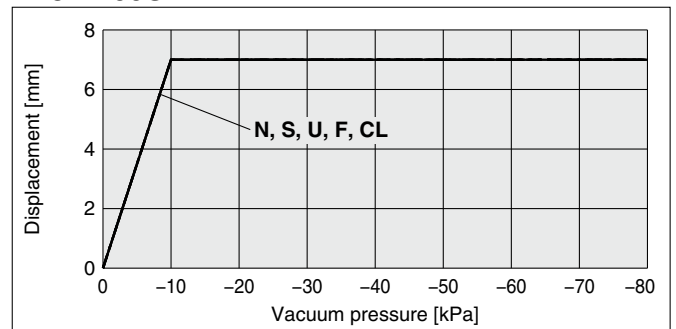
**ZP3E-80UM** □



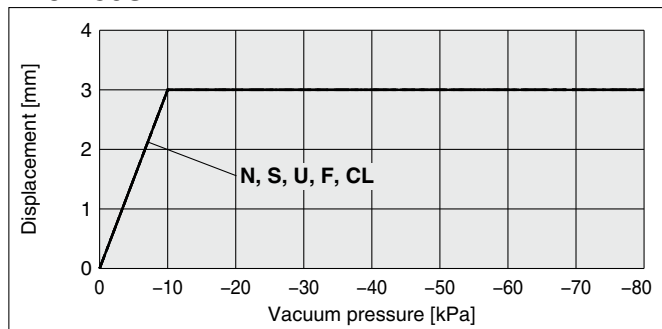
**ZP3E-40UM** □



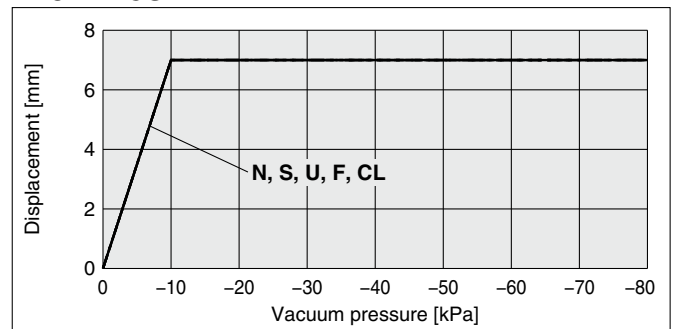
**ZP3E-100UM** □



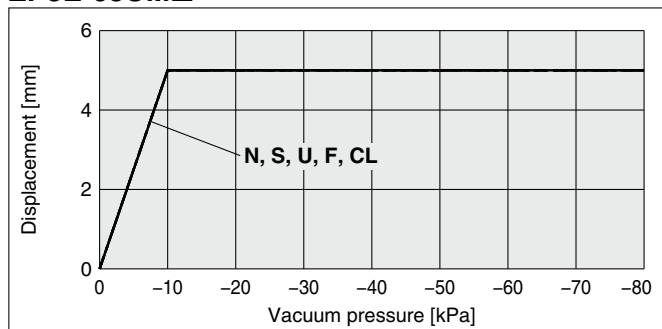
**ZP3E-50UM** □



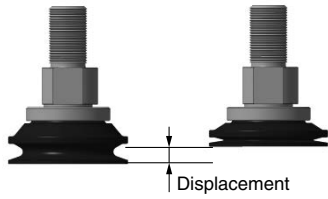
**ZP3E-125UM** □



**ZP3E-63UM** □



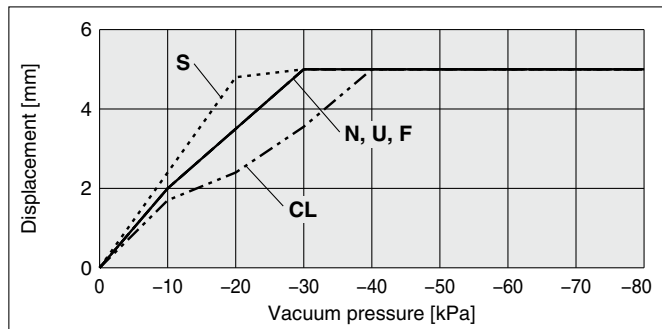
**Pad Displacement to Vacuum Pressure (Bellows Type with Groove)**



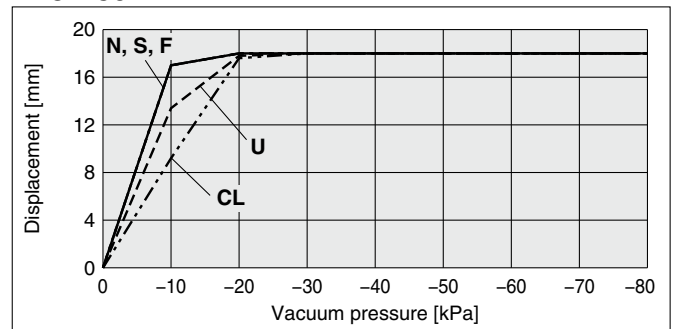
The data shown below are only for reference and are not guaranteed. These values depend on the operating environment, workpiece mass and transfer method. Therefore, thorough research and confirmation are necessary before use.

NBR (N): ——— Silicone rubber (S): ······ Urethane rubber (U): - - - - FKM (F): - · - · - · Mark-free NBR (CL): - - - - -

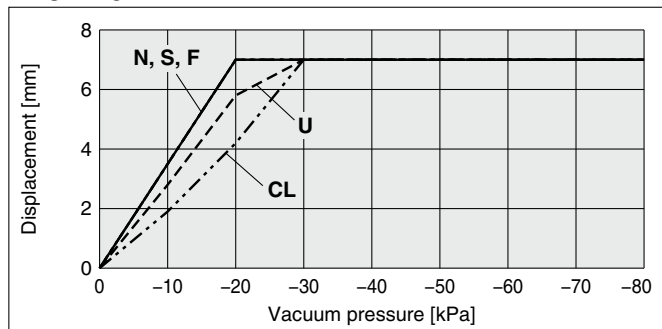
**ZP3E-32BM** □



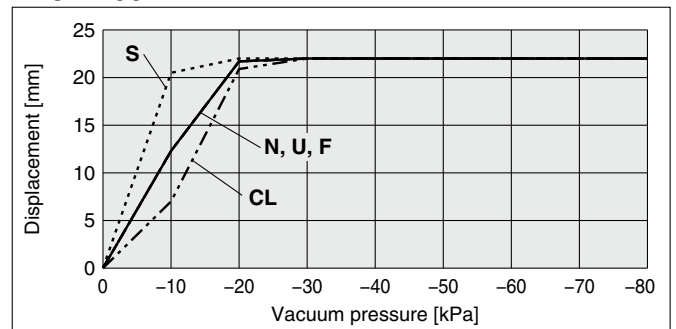
**ZP3E-80BM** □



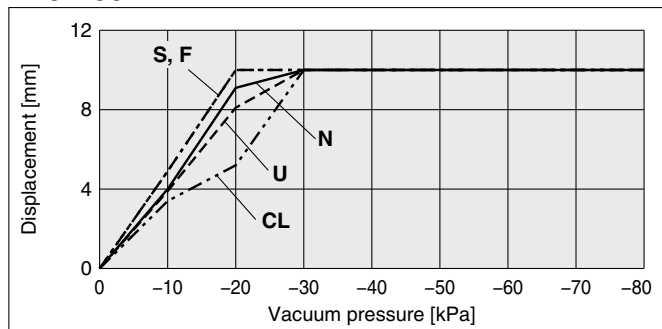
**ZP3E-40BM** □



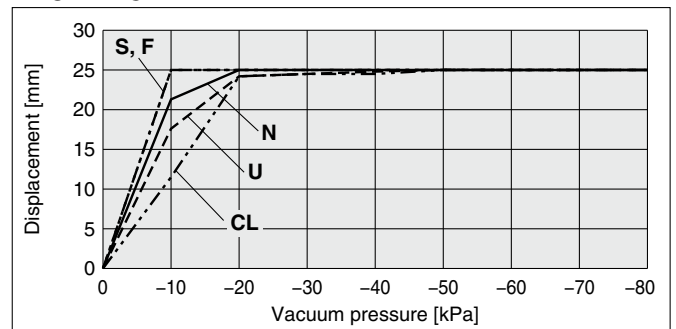
**ZP3E-100BM** □



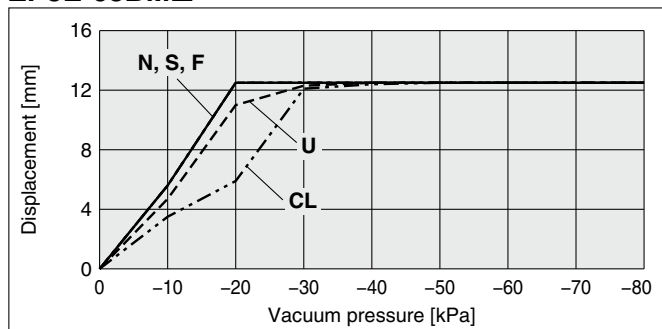
**ZP3E-50BM** □



**ZP3E-125BM** □



**ZP3E-63BM** □







# High Rigidity Pad

## Flat Type with Groove

# ZP3E Series



Model Selection

### How to Order

	Dimensions/Models	Construction	Mounting Bracket Assembly
<b>Pad unit</b> ZP3E - <b>32 UM N - P</b>	p. 209	p. 233	From p. 237
<b>With adapter</b> ZP3E - <b>T 32 UM N - A10</b>	From p. 209	From p. 233	From p. 237
<b>With buffer</b> ZP3E - <b>T 32 UM N JB 10</b>	From p. 212	p. 234	p. 240

● Flat type with groove

#### 1 Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

#### 2 Pad diameter

32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

#### 3 Material

N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
CL	Mark-free NBR

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

#### 4 Buffer specification

JB	Rotating, With bushing
----	------------------------

#### 5 Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
10	●
30	●
50	●

#### 6 Connection thread

○: ZP3E-T/Vertical ●: ZP3E-Y/Lateral

6 Connection thread			Vacuum inlet		Pad diameter [mm]	
Type	Symbol	Size	Type	Size	ø32 to ø50	ø63 to ø125
Male thread	A10	M10 x 1	Use the connection thread.		○	—
	A16	M16 x 1.5			—	○
	B8	M8 x 1.25			○	—
Female thread	B10	M10 x 1.5			○	—
	B12	M12 x 1.75			—	○
	B18	M18 x 1.5			—	○
Male thread	AL14	M14 x 1	Female thread	Rc1/8	○	—
	AL16	M16 x 1.5		M5 x 0.8	●	—
Female thread	B8	M8 x 1.25		Rc1/8	—	○●
				M5 x 0.8	●	—
	B12	M12 x 1.75		Rc1/8	—	●

#### 7 Plate

Nil	Without plate
P	With plate

ZP3E High Rigidity

Flat Type with Groove

Ball Joint, Flat Type with Groove

Bellows Type with Ribs and Groove

Ball Joint, Bellows Type with Ribs and Groove

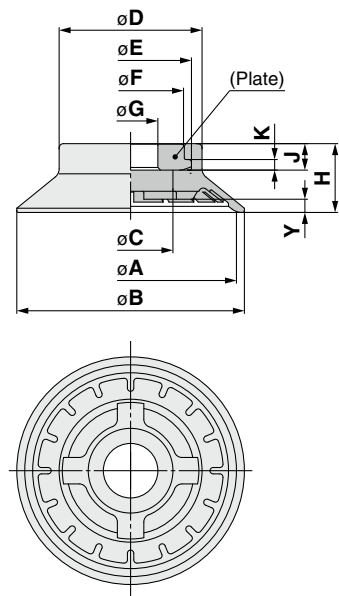
Construction

Mounting Bracket Assembly

Precautions

**Dimensions/Models**

Single unit  $\varnothing 32$  to  $\varnothing 125$



ZP3E - **32** UM **N** - **P**

① ② ③ Plate

Nil	Without plate
P	With plate

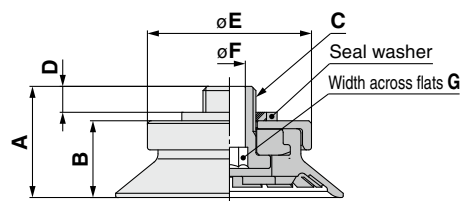
Model	① Pad dia.	Form	② Material	③ Plate	A	B	C	D	E	F	G	H	J	K	Y
	40		S	P	40	43									
	50		U		50	53	36	31	27	13.5	3				
	63		F		63	66	24	45	39	34	16.3	19.5	8	3	5
	80		CL		80	83									
	100				100	103									
	125				125	128		73	65	58					

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Construction p. 233  
Mounting Bracket Assembly From p. 237

With adapter  $\varnothing 32$  to  $\varnothing 125$

Vacuum inlet direction **Vertical**



Construction p. 233  
Adapter Assembly p. 237

ZP3E - T **32** UM **N** - **A10**

① ② ③ Connection thread (Male thread)

A10	M10 x 1
A16	M16 x 1.5

Model	Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread	A	B	C	D	E	F	G
		40		S	A10	21.5	15	40				
		50		U		30.5	21.1	M16 x 1.5	7.4	48.9	10	10
		63		F	A16					60.1		
		80		CL	A16					77.8		
		100				33	23.6					
		125										

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

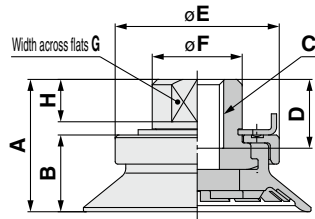
Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T **32** UM **N** - **B8**

①                      ②                      ③

Vacuum inlet direction **Vertical**



Construction p. 233  
Adapter Assembly p. 238

③ Connection thread (Female thread)

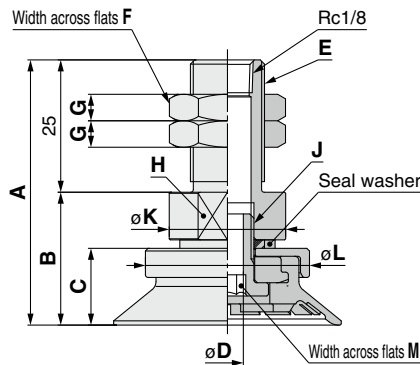
<b>B8</b>	M8 x 1.25
<b>B10</b>	M10 x 1.5
<b>B12</b>	M12 x 1.75
<b>B18</b>	M18 x 1.5

		Model			A	B	C	D	E	F	G	H			
Vacuum inlet direction	① Pad dia.	② Form	③ Material	③ Connection thread											
ZP3E	T	UM	N S U F CL	B8	25	14.5	M8 x 1.25	9.5	31	17	14	8			
					40	15			40						
				B10	25	14.5	M10 x 1.5	13	31						
					50	15			40						
				B12	63	21.5	M12 x 1.75	12	50				32	24	12
					80	24			61						
	B18	100	24	M18 x 1.5	18	78.6									
		125				50									
		63				61									
		80				78.6									
		100													
		125													

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

ZP3E - T **32** UM **N** - **AL14**

①                      ②                      ③



Construction p. 233  
Adapter Assembly p. 237

③ Connection thread (Male thread)

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

		Model														
Vacuum inlet direction	① Pad dia.	② Form	③ Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M
ZP3E	T	UM	N S U F CL	AL14	50.1	25.1	14.5	6	M14 x 1	19	4	Width across flats 19	M10 x 1	22	31	6
					40	25.6	15								40	
				AL16	63.1	38.1	21.1	10	M16 x 1.5	22	6	Width across flats 24	M16 x 1.5	48.9		
					80	40.6	23.6								60.1	
					100									77.8		
					125											

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**Dimensions/Models**

**With adapter**  $\varnothing 32$  to  $\varnothing 125$

**ZP3E - Y** **32** **UM** **N** - **AL14**

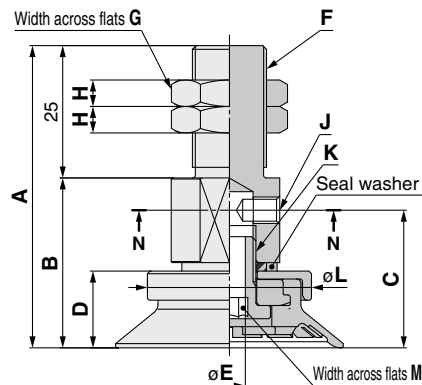
①

②

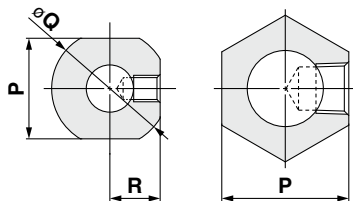
③ **Connection thread (Male thread)**

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

Vacuum inlet direction **Lateral**



**N-N** ( $\varnothing 32$  to  $\varnothing 50$ )    **N-N** ( $\varnothing 63$  to  $\varnothing 125$ )



**Construction** p. 233

**Adapter Assembly** p. 239

		Model																															
ZP3E	Y	Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R												
					32	UM	N S U F CL	AL14	57.1	32.1	26	14.5	6	M14 x 1	19	4	M5 x 0.8/ Effective thread depth 5	M10 x 1	31	6	Width across flats 19	22	9.5										
			40			57.6			32.6	26.5	15																	40					
			63			AL16		72.6	47.6	37.6	21.1	10	M16 x 1.5	22	6	Rc1/8	M16 x 1.5	48.9	10	Width across flats 24													
			80					75.1	50.1	40.1	23.6																						
			100																														
			125																														

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

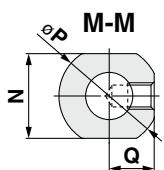
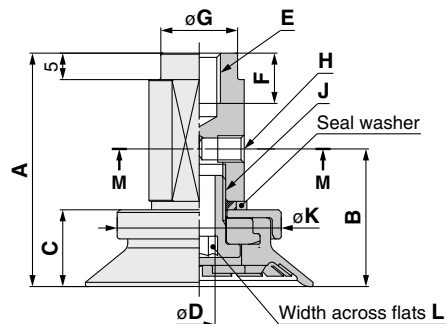
**ZP3E - Y** **32** **UM** **N** - **B8**

①

②

③ **Connection thread (Female thread)**

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75



**Construction** p. 234

**Adapter Assembly** p. 239

		Model																															
ZP3E	Y	Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	N	P	Q													
					32	UM	N S U F CL	B8	44.1	26	14.5	6	M8 x 1.25	9.5	14.5	M5 x 0.8/ Effective thread depth 5	M10 x 1	31	6	16	19	8.5											
			40			44.6			26.5	15																		40					
			63			B12		61.6	37.6	21.1	10	M12 x 1.75	12	19	Rc1/8	M16 x 1.5	48.9	10	24	28	12.5												
			80					64.1	40.1	23.6																							
			100																														
			125																														

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Dimensions/Models

With buffer  $\varnothing 32$  to  $\varnothing 125$

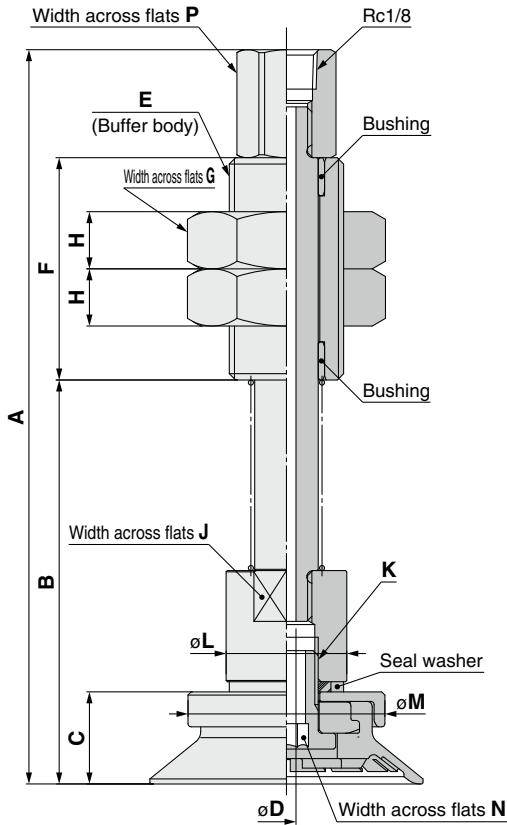
ZP3E - T **32** UM **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 234  
Buffer Assembly p. 240

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P															
		① Pad dia.	② Form	③ Material <sup>*1</sup>	④ Buffer spec.															⑤ Buffer stroke														
ZP3E	T	32 40	UM	N S U F CL	JB	10	115.6	63.6	3	M18 x 1.5	35	27	11	16	M10 x 1	19	31	6	14															
						30	140.6	88.6												15														
						50	160.6	108.6																										
						10	116.1	64.1																										
						50	UM	N S U F CL												JB	30	141.1	89.1	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28	48.9	10	17
																					50	161.1	109.1											
		10	151.1	81.1																														
		30	176.1	106.1																														
		63 80	UM	N S U F CL	JB				50	196.1	126.1	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28		60.1	10	17											
									10	153.6	83.6																							
						30	178.6	108.6																										
						50	198.6	128.6																										
		100	UM	N S U F CL	JB	10	153.6	83.6	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28	60.1	10	17															
						30	178.6	108.6																										
						50	198.6	128.6																										
						10	153.6	83.6																										
125	UM	N S U F CL	JB	30	178.6	108.6	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28	60.1	10	17																	
				50	198.6	128.6																												
				10	153.6	83.6																												
				30	178.6	108.6																												

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**Dimensions/Models**

**With buffer**  $\varnothing 32$  to  $\varnothing 125$

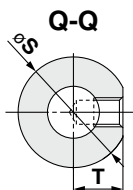
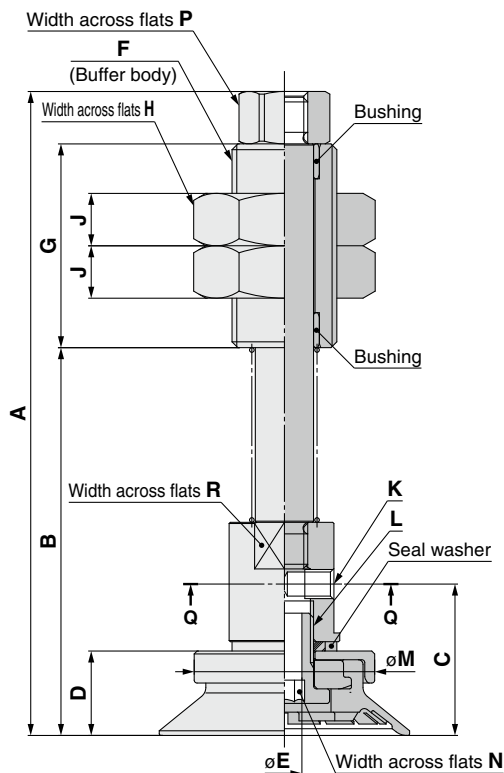
ZP3E - Y **32** UM **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Lateral**

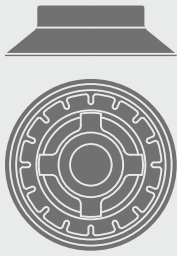


Construction p. 234

Buffer Assembly p. 240

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T					
		① Pad dia.	② Form	③ Material <sup>*1</sup>	④ Buffer spec.																						
ZP3E	Y	32	UM	N S U F CL	JB	10	110.6	66.6	26	14.5	6	M18 x 1.5	35	27	11	M5 x 0.8/ Effective thread depth 5	M10 x 1	31	6	14	16	19	8.5				
						30	135.6	91.6																			
		50				10	111.1	67.1	26.5	15	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	60.1	10	17	24	28	12.5				
						30	136.1	92.1																			
		63				10	148.1	88.1	37.6	21.1	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	60.1	10	17	24	28	12.5				
						30	173.1	113.1																			
		80				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	60.1	10	17	24	28	12.5				
						30	175.6	115.6																			
		100				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	60.1	10	17	24	28	12.5				
						30	175.6	115.6																			
		125				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	60.1	10	17	24	28	12.5				
						30	175.6	115.6																			

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR



# High Rigidity Pad

## Flat Type with Groove Ball Joint Type

# ZP3E Series



Model Selection

### How to Order

	Pad unit	Dimensions/Models	Construction	Mounting Bracket Assembly
	ZP3E - <b>32</b> <b>UM</b> <b>N</b>	p. 215	p. 235	From p. 241
	With adapter ZP3E - <b>T</b> <b>F</b> <b>32</b> <b>UM</b> <b>N</b> - <b>AL6</b>	From p. 215	From p. 235	From p. 241
	With buffer ZP3E - <b>T</b> <b>F</b> <b>32</b> <b>UM</b> <b>N</b> <b>JB</b> <b>10</b>	From p. 218	p. 236	p. 244

①
②
③
④
⑤

● Ball joint
● Flat type with groove

#### ① Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

#### ② Pad diameter

32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

#### ③ Material

N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
CL	Mark-free NBR

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

#### ④ Buffer specification

JB	Rotating, With bushing
----	------------------------

#### ⑤ Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
10	●
30	●
50	●

#### ⑥ Connection thread

○: ZP3E-T/Vertical ●: ZP3E-Y/Lateral

⑥ Connection thread		Vacuum inlet		Pad diameter [mm]		
Type	Symbol	Type	Size	ø32 to ø50	ø63 to ø125	
Male thread	AL6	M6 x 1		○	—	
	AL12	M12 x 1.25		—	○	
	AL14	M14 x 1	Female thread	Rc1/8	○	—
				M5 x 0.8	●	—
AL16	M16 x 1.5	—	Rc1/8	—	○●	
Female thread	B8	M8 x 1.25		○	—	
	B12	M12 x 1.75		—	○	
	B8	M8 x 1.25	Female thread	M5 x 0.8	●	—
				Rc1/8	—	●

ZP3E High Rigidity

Flat Type with Groove

Ball Joint, Flat Type with Groove

Bellows Type with Ribs and Groove

Ball Joint, Bellows Type with Ribs and Groove

Construction

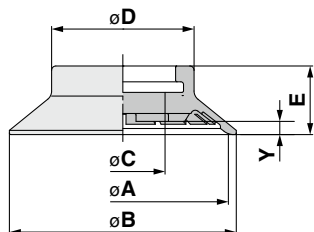
Mounting Bracket Assembly

Precautions

## Dimensions/Models

Single unit  $\varnothing 32$  to  $\varnothing 125$

ZP3E - **32** UM **N**  
 ① ②



Construction p. 235  
 Mounting Bracket Assembly From p. 241

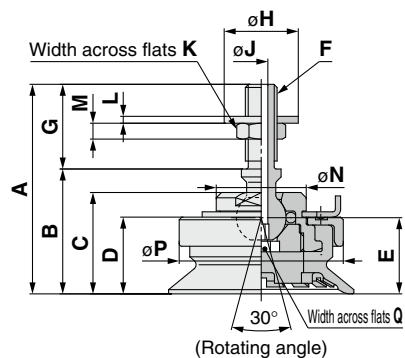
Model				A	B	C	D	E	Y
① Pad dia.	Form	② Material							
ZP3E	32	UM	N S U F CL	32	35	16	27	13	2
	40			40	43				2.5
	50			50	53		3		
	63			63	66	24	45	19.5	5
	80			80	83				
	100			100	103		56	22	7
125	125	128	73						

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T F **32** UM **N** - **AL6**  
 ① ② ③

Vacuum inlet direction **Vertical**



Construction p. 235  
 Adapter Assembly p. 241

③ Connection thread (Male thread)

AL6	M6 x 1
AL12	M12 x 1.25

Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q				
Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread																			
ZP3E	TF	UM	N S U F CL	AL6	32	39.6	23.6	19.2	14.5	14.4	M6 x 1	16	14	2.5	8	1.3	4	17	31				
					40	40.1	24.1	19.7	15	14.9									40				
				AL12	63	56.5	36.5	30.5	21.5	22.6	M12 x 1.25	20	24.3	4	19	2	7	32	50				
					80	59	39	33	24	25.1										61			
				100	59	39	33	24	25.1														4
				125	59	39	33	24	25.1														

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR



Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T F **32** UM **N** - **B8**

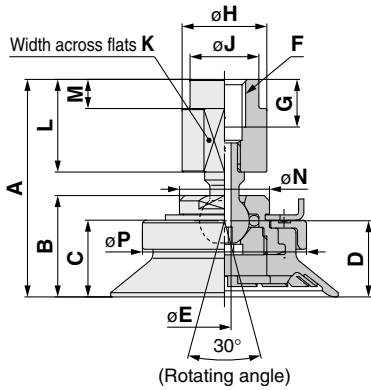
①

②

③ Connection thread (Female thread)

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75

Vacuum inlet direction **Vertical**

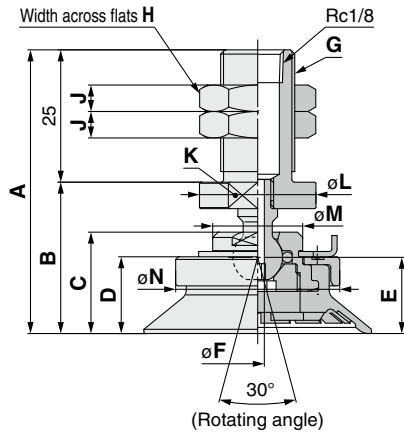


Model	Vacuum inlet direction	① Pad dia.	Form	② <sup>*1</sup> Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	N	P		
						ZP3E	TF	32	UM	N S U F CL	B8	41.1	19.2	14.5	14.4	2.5	M8 x 1.25	9	16	13	14
		40		41.6	19.7	15	14.9														
		63		B12	63.5	30.5	21.5	22.6	4		M12 x 1.75	11	26	18	22	27	6	32	61	50	
		80																		66	33
		100																			
		125																			

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Construction p. 235

Adapter Assembly p. 242



ZP3E - T F **32** UM **N** - **AL14**

①

②

③ Connection thread (Male thread)

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

Model	Vacuum inlet direction	① Pad dia.	Form	② <sup>*1</sup> Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	N		
						ZP3E	TF	32	UM	N S U F CL	AL14	53.6	28.6	19.2	14.5	14.4	2.5	M14 x 1	19	4
		40		54.1	29.1	19.7	15	14.9												
		63		AL16	66.5	41.5	30.5	21.5	22.6		4	M16 x 1.5	22	6	Width across flats 24	32	61	78.6	50	
		80																	69	44
		100																		
		125																		

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Construction p. 235

Adapter Assembly p. 242

## Dimensions/Models

### With adapter $\varnothing 32$ to $\varnothing 125$

#### ZP3E - YF 32 UM N - AL14

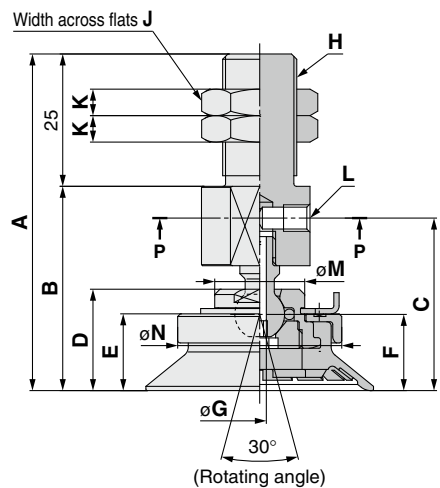
①

②

③ Connection thread (Male thread)

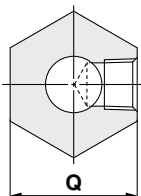
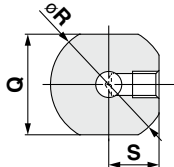
<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

Vacuum inlet direction **Lateral**



**P-P**  
( $\varnothing 32$  to  $\varnothing 50$ )

**P-P**  
( $\varnothing 63$  to  $\varnothing 125$ )



Construction p. 235

Adapter Assembly p. 243

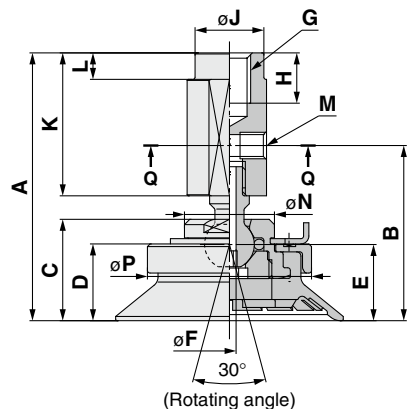
#### ZP3E - YF 32 UM N - B8

①

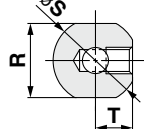
②

③ Connection thread (Female thread)

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75



**Q-Q**



Construction p. 236

Adapter Assembly p. 243

Model		①	Form	② <sup>*1</sup>	③	A	B	C	D	E	F	G	H	J	K	L	M	N	Q	R	S		
Vacuum inlet direction	Pad dia.	①	Form	Material	Connection thread																		
ZP3E	YF	32	UM	N S U F CL	AL14	63.6	38.6	32.6	19.2	14.5	14.4	2.5	M14 x 1	19	4	M5 x 0.8/ Effective thread depth 5	17	31	19	22	9.5		
		40				39.1	33.1	19.7	15	14.9	40												
		63				80	AL16	88.5	63.5	53.5	30.5	21.5	22.6	4	M16 x 1.5	22	6	Rc1/8	32	50	24		
		100						91	66	56	33	24	25.1							61			
		125																					

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Model		①	Form	② <sup>*1</sup>	③	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T		
Vacuum inlet direction	Pad dia.	①	Form	Material	Connection thread																			
ZP3E	YF	32	UM	N S U F CL	B8	50.6	33.1	19.2	14.5	14.4	2.5	M8 x 1.25	9.5	13	27	5	M5 x 0.8/ Effective thread depth 5	17	31	14	16	7		
		40				33.6	19.7	15	14.9	40														
		63				80	B12	76.5	53.5	30.5	21.5	22.6	4	M12 x 1.75	11.5	18	40	6	Rc1/8	32	50	22	26	11
		100						79	56	33	24	25.1									61			
		125																						

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Dimensions/Models

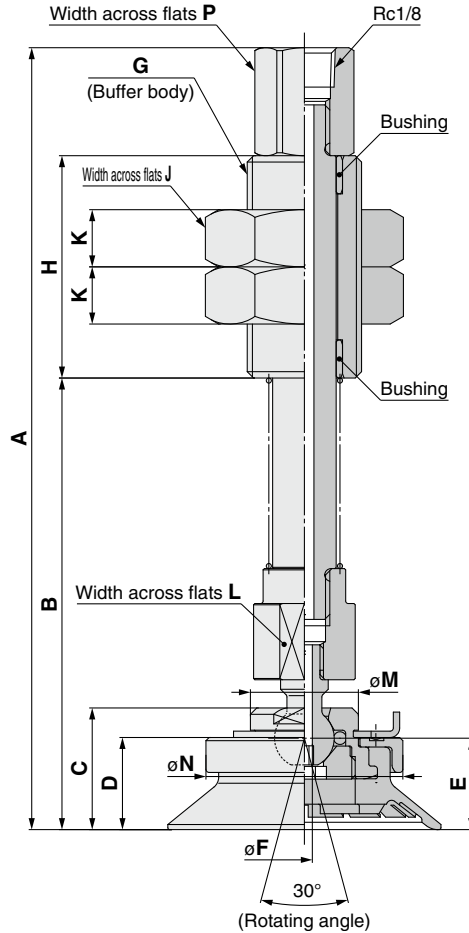
With buffer  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T F **32** UM **N** **JB** **10**

① ② ④

③ Buffer specification  
**JB** Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 236  
 Buffer Assembly p. 244

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P					
		① Pad dia.	② Form	③ Material	④ Buffer spec.																			
ZP3E	TF	32	UM	N S U F CL	JB	10	71.1	19.2	14.5	14.4	2.5	M18 x 1.5	35	27	11	14	17	31	14					
						40	96.1																	
						50	116.1																	
		50				10	71.6	19.7	15	14.9								35		27	11	14	17	40
						30	96.6																	
						50	116.6																	
	63	80	10	30	21.5	22.6	4	M22 x 1.5	50	30	8	22	32	50										
															30	123.5								
															50	143.5								
	100	10	30	24	25.1	61								M22 x 1.5	50	30	8	22	32	61				
																					30	126		
																					50	146		
125	10	30	24	25.1	78.6		M22 x 1.5	50	30	8	22	32	78.6											
																				30	126			
																				50	146			

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

## Dimensions/Models

With buffer  $\varnothing 32$  to  $\varnothing 125$

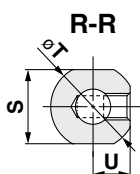
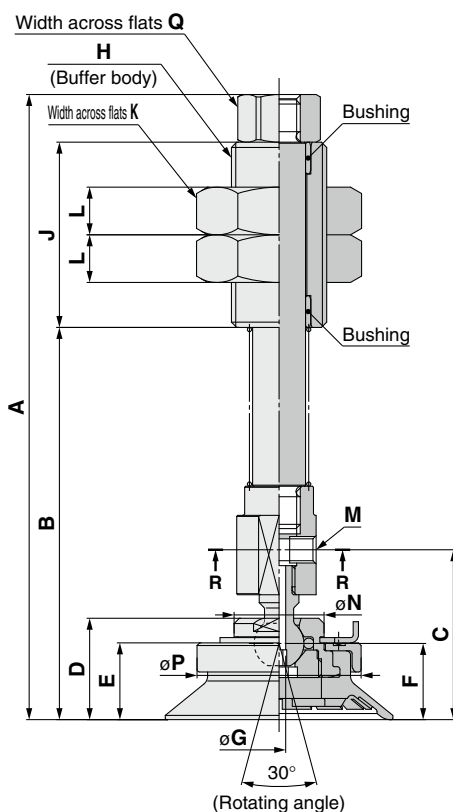
ZP3E - Y F **32** UM **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Lateral**

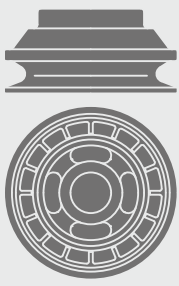


Construction p. 236

Buffer Assembly p. 244

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	T	U		
		① Pad dia.	② Form	②*1 Material	③ Buffer spec.																			④ Buffer stroke	
ZP3E	YF	32 40	UM	NSUFCL	JB	10	118.1	74.1	32.1	19.2	14.5	14.4	2.5	M18 x 1.5	35	27	11	M5 x 0.8/ Effective thread depth 5	17	31	14	14	16	7	
						30	143.1	99.1												40					
		50				163.1	119.1																		
		50				10	118.6	74.6	32.6	19.7	15	14.9	4	M22 x 1.5	50	30	8	Rc1/8	32	61	17	22	26	11	
						30	143.6	99.6																	50
		50				163.6	119.6																		
		63 80				10	165	105	53.5	30.5	21.5	22.6	4	M22 x 1.5	50	30	8	Rc1/8	32	61	17	22	26	11	
						30	190	130																	50
		50				210	150																		
		100				10	167.5	107.5	56	33	24	25.1	4	M22 x 1.5	50	30	8	Rc1/8	32	61	17	22	26	11	
						30	192.5	132.5																	50
		50				212.5	152.5																		
		125				10	167.5	107.5	56	33	24	25.1	4	M22 x 1.5	50	30	8	Rc1/8	32	61	17	22	26	11	
						30	192.5	132.5																	50
						50	212.5	152.5																	

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR



# High Rigidity Pad

## Bellows Type with Ribs and Groove

# ZP3E Series



Model Selection

### How to Order

	Dimensions/Models	Construction	Mounting Bracket Assembly
<b>Pad unit</b>	ZP3E - <b>32</b> <b>BM</b> <b>N</b> - <b>P</b>	p. 221	p. 233 From p. 237
<b>With adapter</b>	ZP3E - <b>T</b> <b>32</b> <b>BM</b> <b>N</b> - <b>A10</b>	From p. 221	From p. 233 From p. 237
<b>With buffer</b>	ZP3E - <b>T</b> <b>32</b> <b>BM</b> <b>N</b> <b>JB</b> <b>10</b>	From p. 224	p. 234 p. 240

● Bellows type with ribs and groove

#### 1 Vacuum inlet direction

Nil	Pad unit
<b>T</b>	Vertical
<b>Y</b>	Lateral

#### 2 Pad diameter

<b>32</b>	ø32
<b>40</b>	ø40
<b>50</b>	ø50
<b>63</b>	ø63
<b>80</b>	ø80
<b>100</b>	ø100
<b>125</b>	ø125

#### 3 Material

<b>N</b>	NBR
<b>S</b>	Silicone rubber*1
<b>U</b>	Urethane rubber
<b>F</b>	FKM
<b>CL</b>	Mark-free NBR

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

#### 4 Buffer specification

<b>JB</b>	Rotating, With bushing
-----------	------------------------

#### 5 Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
<b>10</b>	●
<b>30</b>	●
<b>50</b>	●

#### 6 Connection thread

○: ZP3E-T/Vertical ●: ZP3E-Y/Lateral

6 Connection thread			Vacuum inlet		Pad diameter [mm]	
Type	Symbol	Size	Type	Size	ø32 to ø50	ø63 to ø125
Male thread	<b>A10</b>	M10 x 1	Use the connection thread.		○	—
	<b>A16</b>	M16 x 1.5			—	○
	<b>B8</b>	M8 x 1.25			○	—
Female thread	<b>B10</b>	M10 x 1.5			○	—
	<b>B12</b>	M12 x 1.75			—	○
	<b>B18</b>	M18 x 1.5			—	○
Male thread	<b>AL14</b>	M14 x 1	Female thread	Rc1/8	○	—
	<b>AL16</b>	M16 x 1.5		M5 x 0.8	●	—
Female thread	<b>B8</b>	M8 x 1.25		Rc1/8	—	○●
	<b>B12</b>	M12 x 1.75		M5 x 0.8	●	—
				Rc1/8	—	●

#### 7 Plate

<b>Nil</b>	Without plate
<b>P</b>	With plate

ZP3E High Rigidity

Flat Type with Groove

Ball Joint, Flat Type with Groove

Bellows Type with Ribs and Groove

Ball Joint, Bellows Type with Ribs and Groove

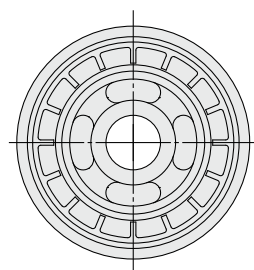
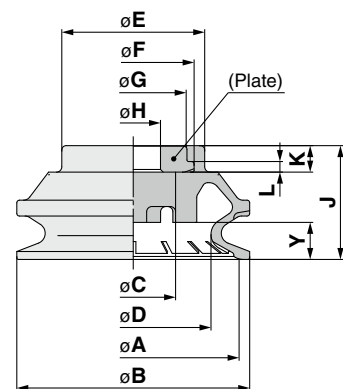
Construction

Mounting Bracket Assembly

Precautions

**Dimensions/Models**

Single unit  $\varnothing 32$  to  $\varnothing 125$



ZP3E - **32** BM **N** - **P**

① ② ③ Plate

Nil	Without plate
P	With plate

Model	① Pad dia.	Form	② Material	③ Plate	A	B	C	D	E	F	G	H	J	K	L	Y
	40		S		40	44	16	29.4				10.3	21.5	5	2	7
	50		U		50	54		37	36	31	27		25			10
	63		F		63	68		45.8	45	39	34		33			12.5
	80		CL		80	85	24	57	56	49.5	43	16.3	41	8	3	18
	100				100	106		71.5	73	65	58		50.5			22
	125				125	133		90.3	88	80	71		60			25

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Construction p. 233

Mounting Bracket Assembly From p. 237

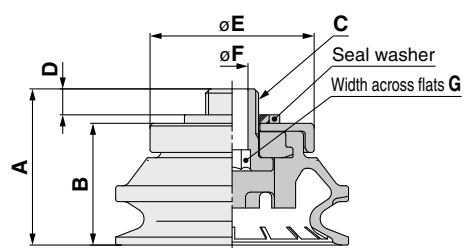
With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T **32** BM **N** - **A10**

① ② ③ Connection thread (Male thread)

A10	M10 x 1
A16	M16 x 1.5

Vacuum inlet direction **Vertical**



Construction p. 233

Adapter Assembly p. 237

Model	Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread	A	B	C	D	E	F	G
		40		S		29.5	23	40				
		50		U		33	26.5	48.9				
		63		F		44	34.6	M16 x 1.5	7.4	60.1	10	10
		80		CL	A16	52	42.6			77.8		
		100				61.5	52.1			93		
		125				71	61.6					

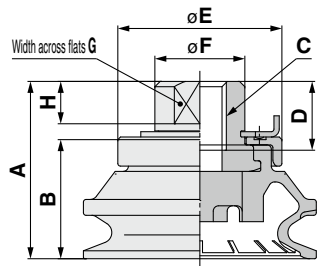
\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T **32** BM **N** - **B8**

Vacuum inlet direction **Vertical**



Construction p. 233  
Adapter Assembly p. 238

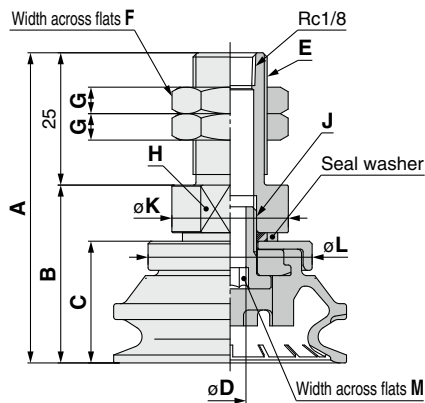
**3** Connection thread (Female thread)

<b>B8</b>	M8 x 1.25
<b>B10</b>	M10 x 1.5
<b>B12</b>	M12 x 1.75
<b>B18</b>	M18 x 1.5

		Model			A	B	C	D	E	F	G	H	
Vacuum inlet direction	<b>1</b> Pad dia.	Form	<b>2</b> Material	<b>3</b> Connection thread									
ZP3E	T	BM	N S U F CL	<b>B8</b>	32	31.5	21	M8 x 1.25	9.5	31	17	14	8
					40	33.5	23						
					50	37	26.5						
					32	31.5	21	M10 x 1.5	13	31			
					40	33.5	23						
					50	37	26.5						
	63	49.5	35	M12 x 1.75	12	50	32	24	12				
	80	57.5	43										
	100	67	52.5										
	125	76.5	62	M18 x 1.5	18	93.8	32	24	12				
	63	49.5	35										
	80	57.5	43										
100	67	52.5											
125	76.5	62											

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

ZP3E - T **32** BM **N** - **AL14**



Construction p. 233  
Adapter Assembly p. 237

**3** Connection thread (Male thread)

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

		Model			A	B	C	D	E	F	G	H	J	K	L	M	
Vacuum inlet direction	<b>1</b> Pad dia.	Form	<b>2</b> Material	<b>3</b> Connection thread													
ZP3E	T	BM	N S U F CL	<b>AL14</b>	32	56.6	31.6	21	6	M14 x 1	19	4	Width across flats 19	M10 x 1	22	31	6
					40	58.6	33.6	23									
					50	62.1	37.1	26.5									
					63	76.6	51.6	34.6	10	M16 x 1.5	22	6	Width across flats 24	M16 x 1.5	48.9	10	
					80	84.6	59.6	42.6									
					100	94.1	69.1	52.1									
	125	103.6	78.6	61.6													

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**Dimensions/Models**

**With adapter**  $\varnothing 32$  to  $\varnothing 125$

**ZP3E - Y** **32** **BM** **N** - **AL14**

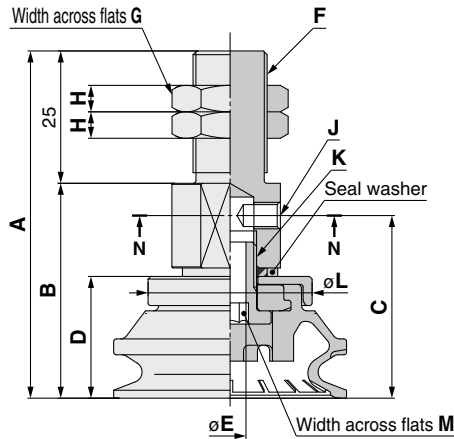
①

②

③ **Connection thread (Male thread)**

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

Vacuum inlet direction **Lateral**

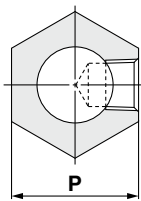
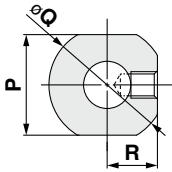


		Model																	
Vacuum inlet direction	① Pad dia.	Form	② <sup>*1</sup> Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R
					ZP3E	Y	BM	N S U F CL	AL14	63.6	38.6	32.5	21	6	M14 x 1	19	4	M5 x 0.8/ Effective thread depth 5	M10 x 1
40	40.6	34.5	23	40															
50	44.1	38	26.5	40															
				AL16	86.1	61.1	51.1	34.6	10	M16 x 1.5	22	6	Rc1/8	M16 x 1.5	48.9	10	Width across flats 24		
63	69.1	59.1	42.6	60.1															
80	78.6	68.6	52.1	77.8															
100	103.6	88.1	61.6	93															
125	113.1	88.1	61.6	93															

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**N-N**  
( $\varnothing 32$  to  $\varnothing 50$ )

**N-N**  
( $\varnothing 63$  to  $\varnothing 125$ )



**Construction** p. 233  
**Adapter Assembly** p. 239

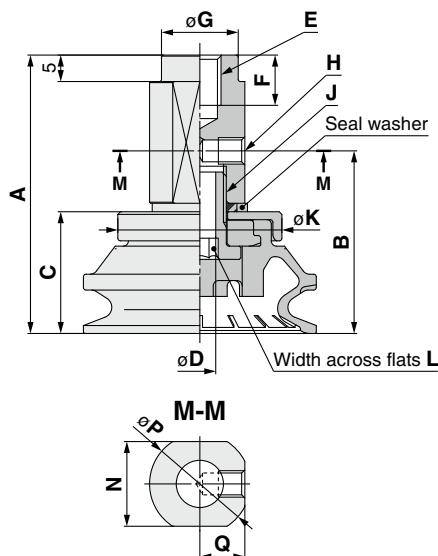
**ZP3E - Y** **32** **BM** **N** - **B8**

①

②

③ **Connection thread (Female thread)**

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75



		Model																
Vacuum inlet direction	① Pad dia.	Form	② <sup>*1</sup> Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	N	P	Q
					ZP3E	Y	BM	N S U F CL	B8	50.6	32.5	21	6	M8 x 1.25	9.5	14.5	M5 x 0.8/ Effective thread depth 5	M10 x 1
40	52.6	34.5	23	40														
50	56.1	38	26.5	40														
				B12	75.1	51.1	34.6	10	M12 x 1.75	12	19	Rc1/8	M16 x 1.5	48.9	10	24	28	12.5
63	83.1	59.1	42.6	60.1														
80	92.6	68.6	52.1	77.8														
100	102.1	78.1	61.6	93														
125	113.1	88.1	61.6	93														

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**Construction** p. 234  
**Adapter Assembly** p. 239



Dimensions/Models

With buffer  $\varnothing 32$  to  $\varnothing 125$

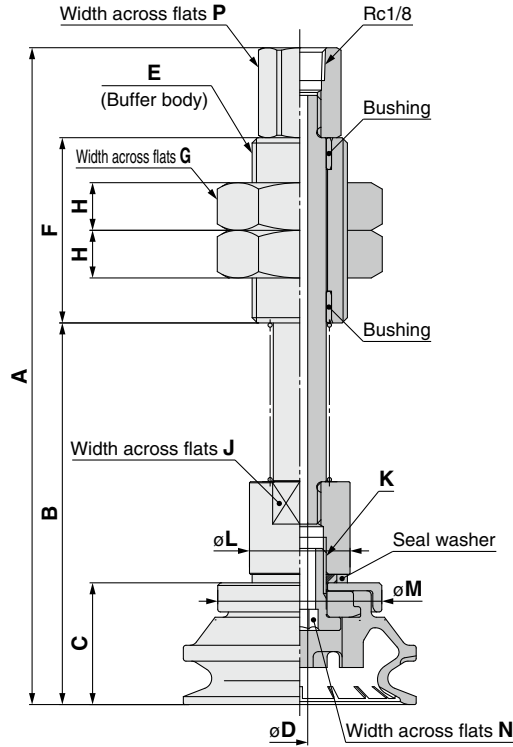
ZP3E - T **32** **BM** **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 234  
Buffer Assembly p. 240

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P										
		① Pad dia.	② Form	③ Material	④ Buffer spec.																								
ZP3E	T	32	BM	N S U F C L	JB	10	122.1	70.1	21	M18 x 1.5	35	27	11	16	M10 x 1	19	31	6	14										
						30	147.1	95.1																					
						50	167.1	115.1																					
						10	124.1	72.1	23																				
						30	149.1	97.1																					
						50	169.1	117.1																					
						10	127.6	75.6	26.5																				
						30	152.6	100.6																					
						50	172.6	120.6																					
						10	164.6	94.6																					
						30	189.6	119.6	34.6											M22 x 1.5	50	30	8	24	M16 x 1.5	28	48.9	10	17
						50	209.6	139.6																					
		10	172.6	102.6																									
		30	197.6	127.6	42.6																								
		50	217.6	147.6																									
		10	182.1	112.1																									
		30	207.1	137.1	52.1																								
		50	227.1	157.1																									
		10	191.6	121.6																									
		30	216.6	146.6	61.6																								
50	236.6	166.6																											

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

## Dimensions/Models

With buffer  $\varnothing 32$  to  $\varnothing 125$

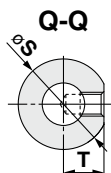
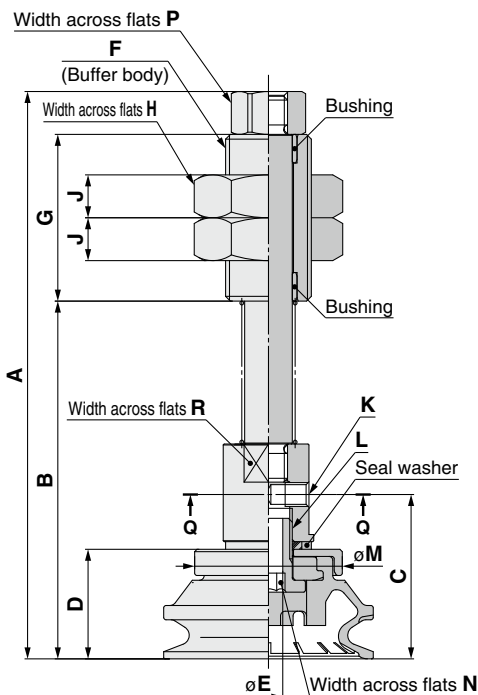
ZP3E - Y **32** BM **N** **JB** **10**

①                      ②                      ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 234

Buffer Assembly p. 240

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	
		① Pad dia.	② Form	② <sup>*1</sup> Material	③ Buffer spec.																		④ Buffer stroke
ZP3E	Y	32	BM	N S U F CL	JB	10	117.1	73.1	32.5	21	6	M18 x 1.5	35	27	11	M5 x 0.8/ Effective thread depth 5	M10 x 1	31	6	14	16	19	8.5
						30	142.1	98.1															
						50	162.1	118.1	34.5	23													
						10	119.1	75.1															
						30	144.1	100.1	38	26.5													
						50	164.1	120.1															
		10	122.6	78.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	10	17	24	28	12.5							
		30	147.6	103.6																			
		50	167.6	123.6													51.1	34.6					
		10	161.6	101.6																			
		30	186.6	126.6													68.6	52.1					
		50	206.6	146.6																			
		10	169.6	109.6	78.1	61.6																	
		30	194.6	134.6																			
		50	214.6	154.6			93																
		10	179.1	119.1																			
		30	204.1	144.1																			
		50	224.1	164.1																			
		10	188.6	128.6																			
		30	213.6	153.6																			
50	233.6	173.6																					

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR



# High Rigidity Pad

Bellows Type with Ribs and Groove Ball Joint Type

## ZP3E Series



Model Selection

### How to Order

	Dimensions/Models	Construction	Mounting Bracket Assembly
<b>Pad unit</b>	ZP3E - <b>32</b> <b>BM</b> <b>N</b>	p. 227	p. 235 From p. 241
<b>With adapter</b>	ZP3E - <b>T</b> <b>F</b> <b>32</b> <b>BM</b> <b>N</b> - <b>AL6</b>	From p. 227	From p. 235 From p. 241
<b>With buffer</b>	ZP3E - <b>T</b> <b>F</b> <b>32</b> <b>BM</b> <b>N</b> <b>JB</b> <b>10</b>	From p. 231	p. 236 p. 244

①
②
③
④
⑤

● Ball joint
● Bellows type with ribs and groove

#### ① Vacuum inlet direction

Symbol	Pad unit
Nil	Pad unit
T	Vertical
Y	Lateral

#### ② Pad diameter

Symbol	Pad diameter
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125

#### ③ Material

Symbol	Material
N	NBR
S	Silicone rubber*1
U	Urethane rubber
F	FKM
CL	Mark-free NBR

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

#### ④ Buffer specification

Symbol	Buffer specification
JB	Rotating, With bushing

#### ⑤ Buffer stroke

Stroke [mm]	Pad diameter	
	All sizes	
10	●	
30	●	
50	●	

#### ⑥ Connection thread

○: ZP3E-T/Vertical ●: ZP3E-Y/Lateral

⑥ Connection thread		Vacuum inlet		Pad diameter [mm]		
Type	Symbol	Type	Size	ø32 to ø50	ø63 to ø125	
Male thread	AL6	Use the connection thread.		○	—	
	AL12	Use the connection thread.		—	○	
	AL14	M14 x 1	Female thread	Rc1/8	○	—
				M5 x 0.8	●	—
AL16	M16 x 1.5	Female thread	Rc1/8	—	○●	
Female thread	B8	Use the connection thread.		○	—	
	B12	Use the connection thread.		—	○	
	B8	M8 x 1.25	Female thread	M5 x 0.8	●	—
				Rc1/8	—	●

ZP3E High Rigidity

Flat Type with Groove

Ball Joint, Flat Type with Groove

Bellows Type with Ribs and Groove

Ball Joint, Bellows Type with Ribs and Groove

Construction

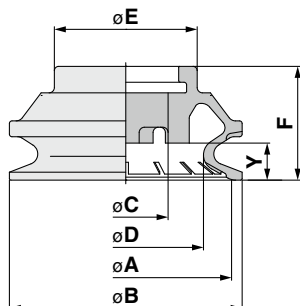
Mounting Bracket Assembly

Precautions

## Dimensions/Models

Single unit  $\varnothing 32$  to  $\varnothing 125$

ZP3E - **32** BM **N**  
① ②



Construction p. 235  
Mounting Bracket Assembly From p. 241

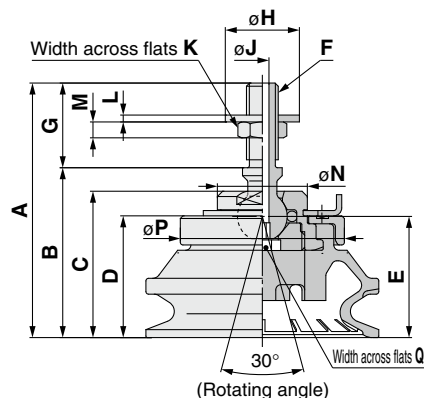
Model	① Pad dia.	Form	② Material	A	B	C	D	E	F	Y
ZP3E	32	BM	N S U F CL	32	35	16	23.3	27	19.5	5
	40			44	29.4		21.5		7	
	50			54	37		36	25	10	
	63			24	63	68	45.8	45	33	12.5
	80				85	57	56	41	18	
	100				106	71.5	73	50.5	22	
	125				133	90.3	88	60	25	

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - T F **32** BM **N** - **AL6**  
① ② ③

Vacuum inlet direction **Vertical**



Construction p. 235  
Adapter Assembly p. 241

③ Connection thread  
(Male thread)

AL6	M6 x 1
AL12	M12 x 1.25

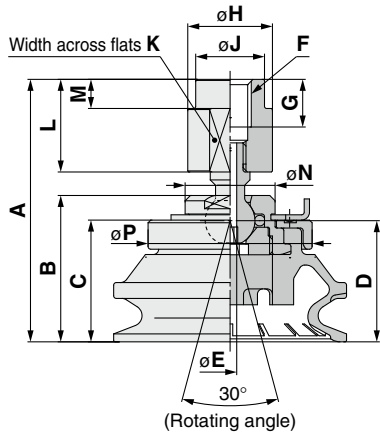
Model	Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
																					*1
ZP3E	TF	BM	N S U F CL	AL6	AL6	46.1	30.1	25.7	21	20.9	M6 x 1	16	14	2.5	8	1.3	4	17	31	2.5	
						48.1	32.1	27.7	23	22.9									26.4		
						51.6	35.6	31.2	26.5	26.4											
						AL12	70	50	44	35	36.1	M12 x 1.25	20	24.3	4	19	2	7	32	61	4
							78	58	52	43	44.1									78.6	
							87.5	67.5	61.5	52.5	53.6									93.8	
							97	77	71	62	63.1										

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

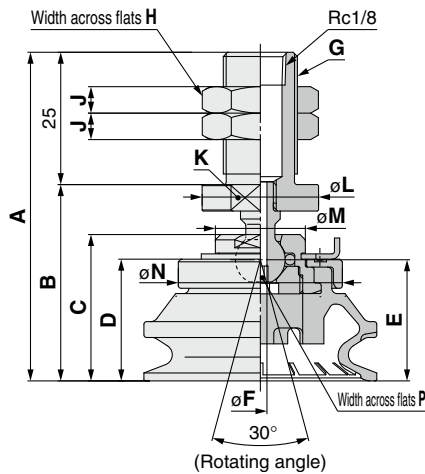
Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

Vacuum inlet direction **Vertical**



Construction p. 235  
Adapter Assembly p. 242



Construction p. 235  
Adapter Assembly p. 242

ZP3E - T F **32** BM **N** - **B8**

1

2

3 Connection thread (Female thread)

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75

Model	Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	N	P
						ZP3E	TF	32	BM	N	B8	47.6	25.7	21	20.9	2.5	M8 x 1.25	9	16
		40		S		49.6	27.7	23	22.9										40
		50		U		53.1	31.2	26.5	26.4										50
		63		F		77	44	35	36.1										61
		80		CL		85	52	43	44.1	4	M12 x 1.75	11	26	18	22	27	6	32	78.6
		100				94.5	61.5	52.5	53.6										83.8
		125				104	71	62	63.1										93.8

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

ZP3E - T F **32** BM **N** - **AL14**

1

2

3 Connection thread (Male thread)

<b>AL14</b>	M14 x 1
<b>AL16</b>	M16 x 1.5

Model	Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Connection thread	A	B	C	D	E	F	G	H	J	K	L	M	N
						ZP3E	TF	32	BM	N	AL14	60.1	35.1	25.7	21	20.9	2.5	M14 x 1
		40		S		62.1	37.1	27.7	23	22.9								40
		50		U		65.6	40.6	31.2	26.5	26.4								50
		63		F		80	55	44	35	36.1								61
		80		CL		88	63	52	43	44.1	4	M16 x 1.5	22	6	Width across flats 24	32		78.6
		100				97.5	72.5	61.5	52.5	53.6								83.8
		125				107	82	71	62	63.1								93.8

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - Y F **32** BM **N** - **AL14**

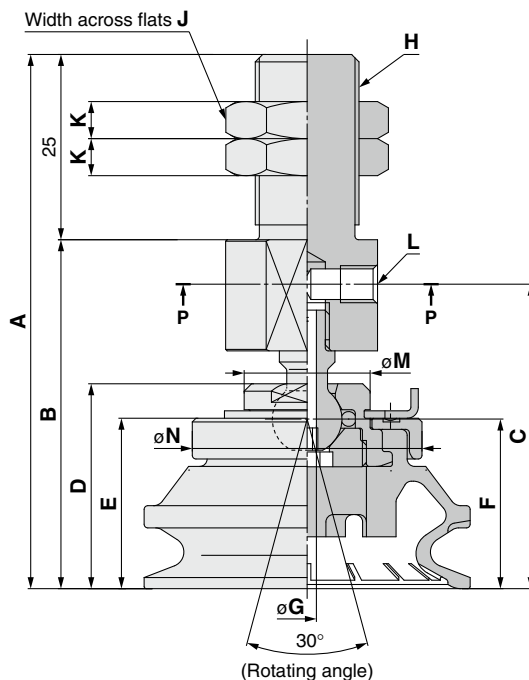
①

②

③ Connection thread (Male thread)

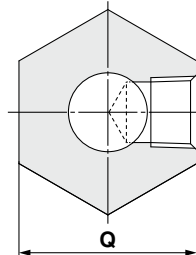
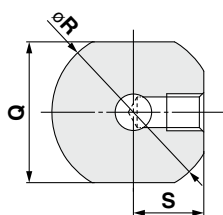
AL14	M14 x 1
AL16	M16 x 1.5

Vacuum inlet direction **Lateral**



P-P  
( $\varnothing 32$  to  $\varnothing 50$ )

P-P  
( $\varnothing 63$  to  $\varnothing 125$ )



Construction p. 235

Adapter Assembly p. 243

Model					A	B	C	D	E	F	G	H	J	K	L	M	N	Q	R	S		
Vacuum inlet direction	① Pad dia.	Form	② Material <sup>*1</sup>	③ Connection thread																		
ZP3E	YF	BM	N S U F CL	AL14	32	70.1	45.1	39.1	25.7	21	20.9	2.5	M14 x 1	19	4	M5 x 0.8/ Effective thread depth 5	17	31	19	22	9.5	
					40	72.1	47.1	41.1	27.7	23	22.9											
					50	75.6	50.6	44.6	31.2	26.5	26.4											
				AL16	63	102	77	67	44	35	36.1	4	M16 x 1.5	22	6	Fc1/8	32	61	24	24	24	93.8
					80	110	85	75	52	43	44.1											
					100	119.5	94.5	84.5	61.5	52.5	53.6											
					125	129	104	94	71	62	63.1											

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

Dimensions/Models

With adapter  $\varnothing 32$  to  $\varnothing 125$

ZP3E - Y F **32** BM **N** - **B8**

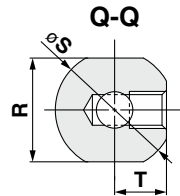
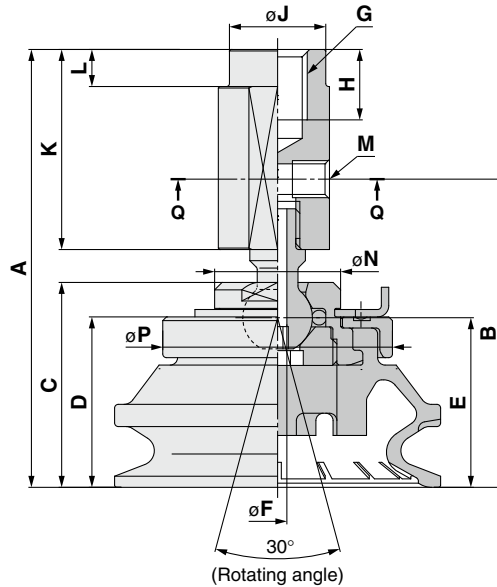
①

②

③ Connection thread (Female thread)

<b>B8</b>	M8 x 1.25
<b>B12</b>	M12 x 1.75

Vacuum inlet direction **Lateral**



Construction p. 236

Adapter Assembly p. 243

		Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T					
ZP3E	Vacuum inlet direction	①	Form	②	③																							
		Pad dia.		Material <sup>*1</sup>	Connection thread																							
YF	BM	32	CL	N	B8	57.1	39.6	25.7	21	20.9	2.5	M8 x 1.25	9.5	13	27	5	M5 x 0.8/ Effective thread depth 5	17	31	14	16	7						
						59.1	41.6	27.7	23	22.9									40									
						62.6	45.1	31.2	26.5	26.4									50									
						100	CL	80	CL	F	B12	90	67	44	35	36.1	4	M12 x 1.75	11.5	18	40	6	Fc1/8	32	61	22	26	11
												98	75	52	43	44.1									78.6			
												107.5	84.5	61.5	52.5	53.6									81.8			
												117	94	71	62	63.1									93.8			

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

**Dimensions/Models**

**With buffer**  $\varnothing 32$  to  $\varnothing 125$

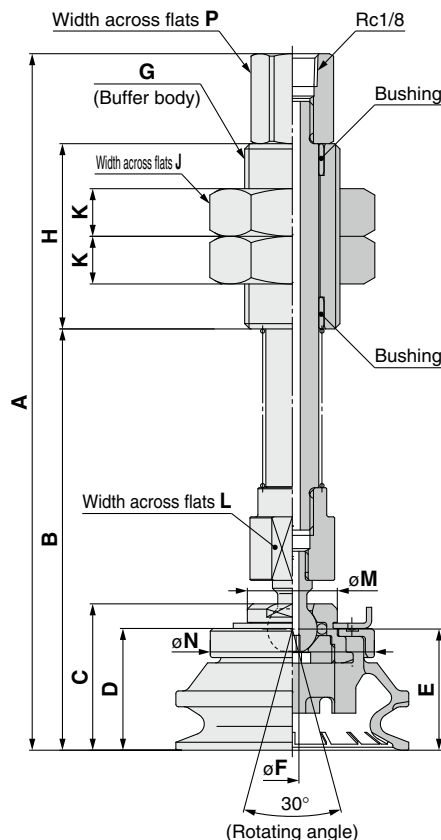
ZP3E - T F **32** BM **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 236

Buffer Assembly p. 244

	Vacuum inlet direction	Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P																									
		① Pad dia.	② Form	② <sup>*1</sup> Material	③ Buffer spec.															④ Buffer stroke																								
ZP3E	TF	32	BM	N S U F C L	JB	10	129.6	77.6	25.7	21	20.9	2.5	M18 x 1.5	35	27	11	14	17	31	14																								
						30	154.6	102.6																																				
						50	174.6	122.6																																				
						40	BM	N S U F C L	JB	10	131.6								79.6		27.7	23	22.9	4	M22 x 1.5	50	30	8	22	32	61	17												
										30	156.6								104.6																									
										50	176.6								124.6																									
										50	BM								N S U F C L		JB	10	135.1								83.1		31.2	26.5	26.4	4	M22 x 1.5	50	30	8	22	32	78.6	17
																						30	160.1								108.1													
																						50	180.1								128.1													
						63	BM	N S U F C L	JB													10	182	112	44	35	36.1	4	M22 x 1.5	50	30	8	22	32	93.8								17	
																						30	207	137																				
																						50	227	157																				
		80	BM	N S U F C L	JB					10	190	120	52	43	44.1	4	M22 x 1.5	50	30	8	22	32	93.8	17																				
										30	215	145																																
										50	235	165																																
						100	BM	N S U F C L	JB	10	199.5	129.5	61.5	52.5	53.6								4		M22 x 1.5	50	30	8	22	32	93.8	17												
										30	224.5	154.5																																
										50	244.5	174.5																																
		125	BM	N S U F C L	JB					10	209	139	71	62	63.1	4	M22 x 1.5	50	30	8	22	32		93.8							17													
										30	234	164																																
50	254									184																																		

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR



Dimensions/Models

With buffer  $\varnothing 32$  to  $\varnothing 125$

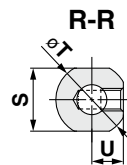
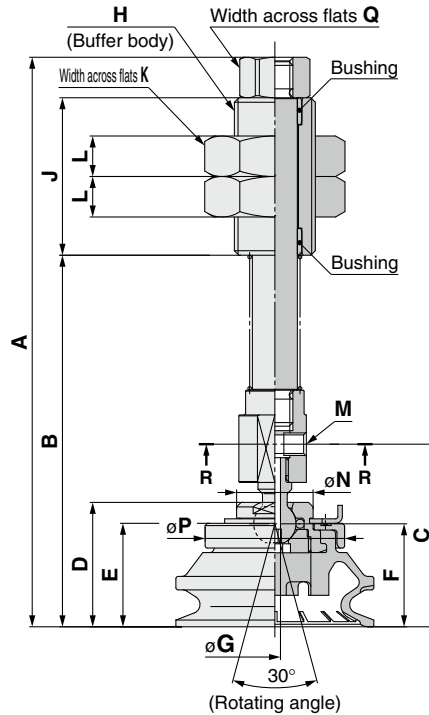
ZP3E - Y F **32** BM **N** **JB** **10**

① ② ④

③ Buffer specification

**JB** Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 236

Buffer Assembly p. 244

Model	Vacuum inlet direction	① Pad dia.	② Form	③ Material	④ Buffer spec.	⑤ Buffer stroke	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	T	U					
ZP3E	YF	32	BM	NSUFL	JB	10	124.6	80.6																					
						30	149.6	105.6	38.6	25.7	21	20.9																	
						50	169.6	125.6																					
						10	126.6	82.6															M5 x 0.8/ Effective thread depth 5	31					
						30	151.6	107.6	40.6	27.7	23	22.9	2.5	M18 x 1.5	35	27	11							17		14	14	16	7
						50	171.6	127.6																					
		10				130.1	86.1																						
		30				155.1	111.1	44.1	31.2	26.5	26.4																		
		50				175.1	131.1																						
		10				178.5	118.5																						
		30				203.5	143.5	67	44	35	36.1													50					
		50				223.5	163.5																						
		10				186.5	126.5																						
		30				211.5	151.5	75	52	43	44.1														61				
		50				231.5	171.5																						
		10				196	136										4	M22 x 1.5	50	30	8	Rc1/8	32		17	22	26	11	
		30				221	161	84.5	61.5	52.5	53.6														78.6				
		50				241	181																						
		10				205.5	145.5																						
		30				230.5	170.5	94	71	62	63.1														93.8				
50	250.5	190.5																											

\*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

# High Rigidity Pad **ZP3E Series**

Standard Type

## Construction

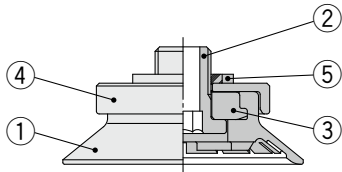
With adapter

Flat type with groove:  $\phi 32$  to  $\phi 125$

Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

Vacuum inlet direction **Vertical** T Type/ZP3E-T

ZP3E-T□-A□

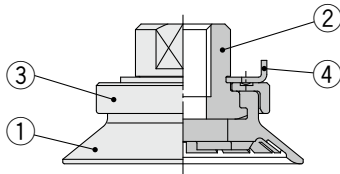


### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Set screw	Brass (Electroless nickel plating)	
3	Plate	Aluminum alloy (Clear anodized)	
4	Holder	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$
		Structural steel (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Steel strip/NBR	

Vacuum inlet direction **Vertical** T Type/ZP3E-T

ZP3E-T□-B□

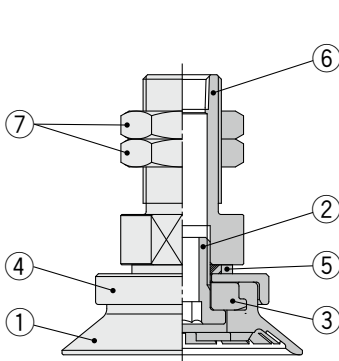


### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Aluminum alloy (Clear anodized)	
3	Holder	Aluminum alloy (Clear anodized)	
4	Stopper	Stainless steel	

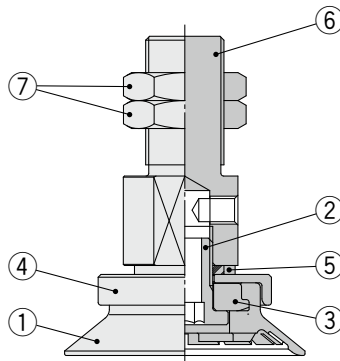
Vacuum inlet direction **Vertical**  
T Type/ZP3E-T

ZP3E-T□-AL□



Vacuum inlet direction **Lateral**  
Y Type/ZP3E-Y

ZP3E-Y□-AL□



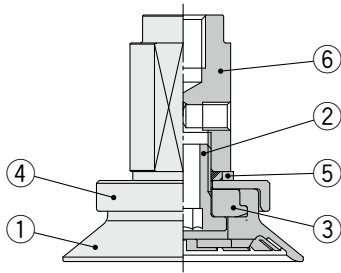
### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Set screw	Brass (Electroless nickel plating)	
3	Plate	Aluminum alloy (Clear anodized)	
4	Holder	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$
		Structural steel (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Steel strip/NBR	
6	Adapter	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$
		Brass (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$
7	Nut	Steel (Zinc chromated)	Pad diameter: $\phi 32$ to $\phi 50$ M14 x 1
		Special steel (Zinc chromated)	Pad diameter: $\phi 63$ to $\phi 125$ M16 x 1.5

**With adapter** Flat type with groove:  $\phi 32$  to  $\phi 125$  | Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

Vacuum inlet direction **Lateral** Y Type/ZP3E-Y

ZP3E-Y□-B□



**Component Parts**

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Set screw	Brass (Electroless nickel plating)	
3	Plate	Aluminum alloy (Clear anodized)	
4	Holder	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$
		Structural steel (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Steel strip/NBR	
6	Adapter	Aluminum alloy (Clear anodized)	

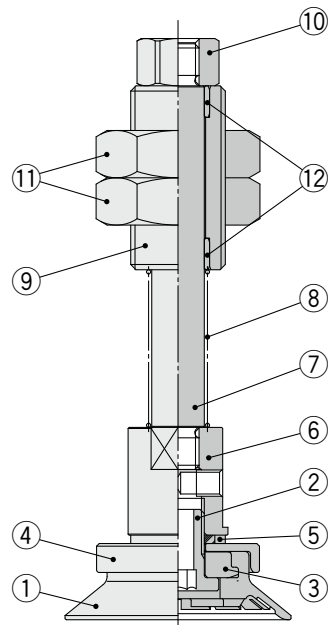
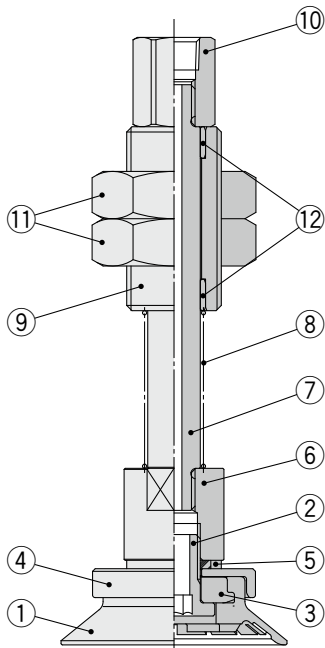
**With buffer** Flat type with groove:  $\phi 32$  to  $\phi 125$  | Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

Vacuum inlet direction **Vertical**  
T Type/ZP3E-T

Vacuum inlet direction **Lateral**  
Y Type/ZP3E-Y

ZP3E-T□

ZP3E-Y□



**Component Parts**

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Set screw	Brass (Electroless nickel plating)	
3	Plate	Aluminum alloy (Clear anodized)	
4	Holder	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$
		Structural steel (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Soft iron/NBR (Zinc chromated)	
6	Adapter	Aluminum alloy (Clear anodized)	
7	Piston rod	Structural steel (Hard chrome plating)	
8	Return spring	Stainless steel	
9	Buffer body	Brass (Electroless nickel plating)	
10	Buffer adapter	Brass (Electroless nickel plating)	
11	Nut	Steel (Zinc chromated)	M18 x 1.5
		Structural steel (Nickel plating)	M22 x 1.5
12	Bushing	—	

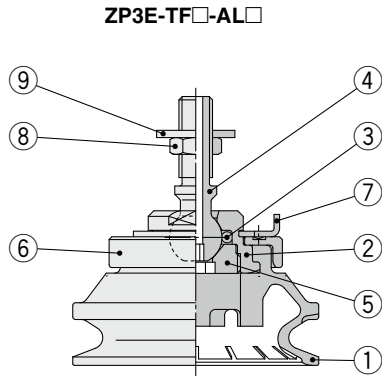
# High Rigidity Pad **ZP3E Series**

Ball Joint Type

## Construction

With adapter Flat type with groove:  $\phi 32$  to  $\phi 125$  Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

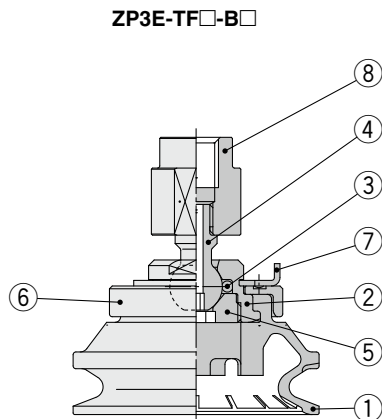
Vacuum inlet direction **Vertical** T Type/ZP3E-TF



### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	Pad diameter: $\phi 32$ to $\phi 50$
		Aluminum alloy (Clear anodized)	Pad diameter: $\phi 63$ to $\phi 125$
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless steel	
8	Nut	Steel (Zinc chromated)	M14 x 1
		Special steel (Zinc chromated)	M16 x 1.5
9	Seal washer	Soft iron/NBR (Zinc chromated)	

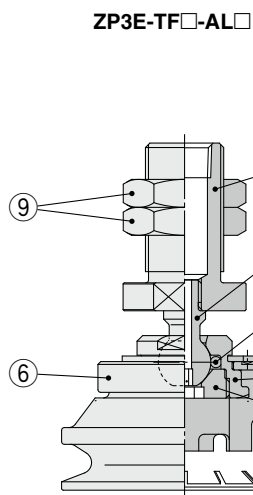
Vacuum inlet direction **Vertical** T Type/ZP3E-TF



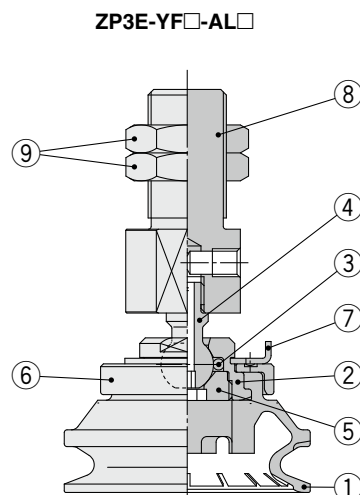
### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless steel	
8	Adapter	Aluminum alloy (Clear anodized)	

Vacuum inlet direction **Vertical**  
T Type/ZP3E-TF



Vacuum inlet direction **Lateral**  
Y Type/ZP3E-YF



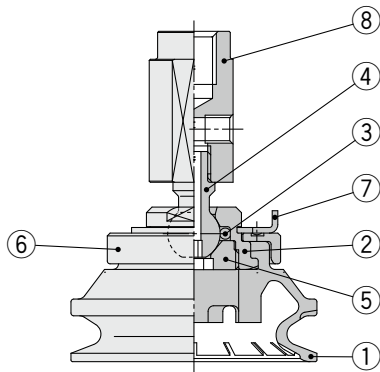
### Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless steel	
8	Adapter	Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$ M14 x 1
		Brass (Electroless nickel plating)	Pad diameter: $\phi 63$ to $\phi 125$ M16 x 1.5
9	Nut	Steel (Zinc chromated)	M14 x 1
		Special steel (Zinc chromated)	M16 x 1.5

**With adapter** Flat type with groove:  $\phi 32$  to  $\phi 125$  Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

Vacuum inlet direction **Lateral** Y Type/ZP3E-YF

ZP3E-YF□-B□



**Component Parts**

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless steel	
8	Adapter	Aluminum alloy (Clear anodized)	

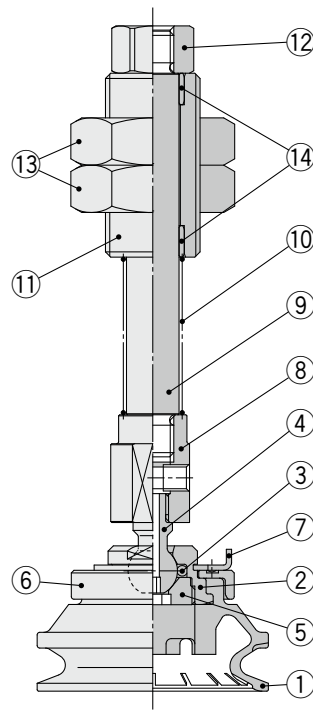
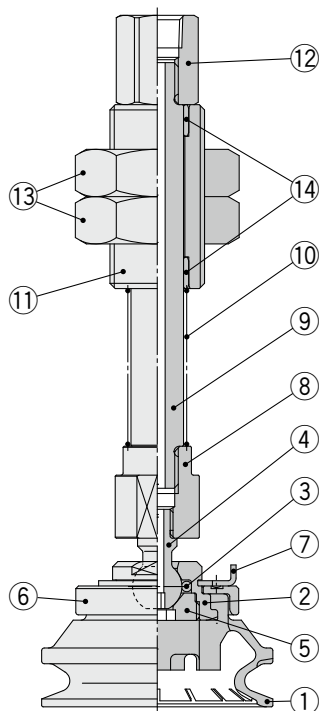
**With buffer** Flat type with groove:  $\phi 32$  to  $\phi 125$  Bellows type with ribs and groove:  $\phi 32$  to  $\phi 125$

Vacuum inlet direction **Vertical**  
T Type/ZP3E-TF

Vacuum inlet direction **Lateral**  
Y Type/ZP3E-YF

ZP3E-TF□

ZP3E-YF□



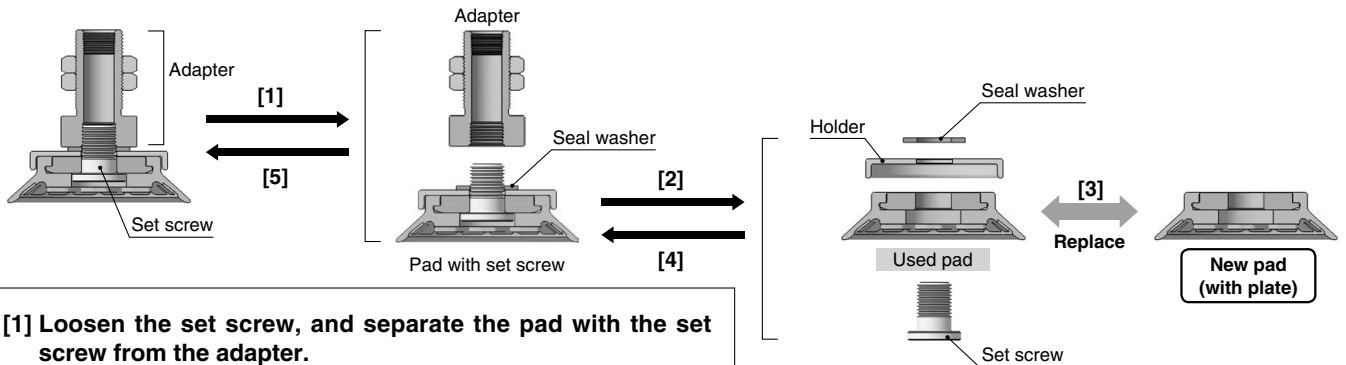
**Component Parts**

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	Pad diameter: $\phi 32$ to $\phi 50$
		Aluminum alloy (Clear anodized)	Pad diameter: $\phi 63$ to $\phi 125$
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless steel	
8	Adapter	Aluminum alloy (Clear anodized)	
9	Piston rod	Structural steel (Electroless nickel plating)	
10	Return spring	Stainless steel	
11	Buffer body	Brass (Electroless nickel plating)	
12	Buffer adapter	Brass (Electroless nickel plating)	
13	Nut	Steel (Zinc chromated)	M18 x 1.5
		Structural steel (Nickel plating)	M22 x 1.5
14	Bushing	—	

# ZP3E Series

## How to Replace the Pad

### With Set Screw



- [1] Loosen the set screw, and separate the pad with the set screw from the adapter.
- [2] Remove the seal washer from the pad with the set screw and separate it into seal washer, holder, pad and set screw. \*1
- [3] Replace the pad (with plate) with a new one.
- [4] Insert the set screw from the suction side of the new pad, and mount the holder and seal washer in order.
- [5] Mount the adapter onto the set screw. \*2

\*1 When mounting and removing the seal washer, rotate the set screw while the seal washer is being held.

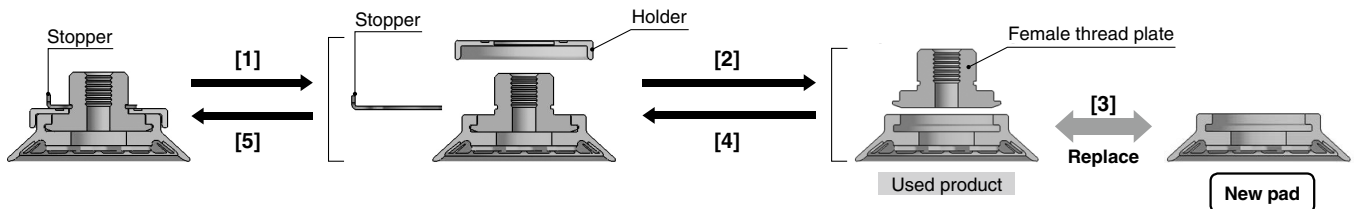
\*2 Refer to the tightening torque shown in Table 1 for adapter mounting.

Table 1: Recommended Set Screw Tightening Torque

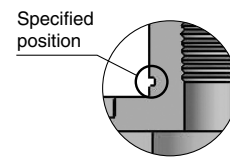
Pad diameter	Product specifications		Tightening torque [N·m]
	Product part no.	Mounting thread size	
ø32 to ø50	ZP3E-(32 to 50)UM□□	M10 x 1	8 to 10
	ZP3E-(32 to 50)BM□□		
ø63 to ø125	ZP3E-(63 to 125)UM□□	M16 x 1.5	13 to 15
	ZP3E-(63 to 125)BM□□		

\* Refer to "Pad Unit (with Plate)" shown below for the replacement method for pads with plate.

### With Stopper (with Female Thread Plate/with Ball Joint Unit)

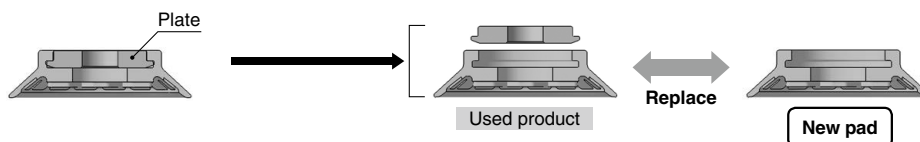


- [1] Pull out the stopper horizontally and remove the holder from the product.
- [2] Remove the female plate.
- [3] Replace the pad with a new one.
- [4] Insert the female thread plate into the new pad.
- [5] Mount the holder and insert the stopper into the specified position.



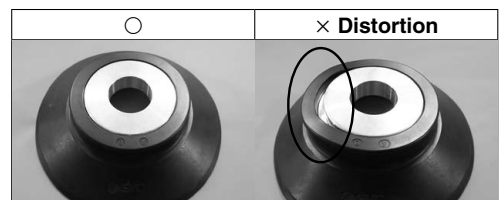
\* Refer to "Pad Unit (with Plate)" shown below for the replacement method for pads with plate.

### Pad Unit (with Plate)



Remove the plate and replace the pad with a new one. Reassemble the product.

\* Press the outer circumference of the plate insertion area by hand to eliminate distortion.



\* The same replacement method is applicable to the replacement of the pad unit with a female thread plate or ball joint unit.



# High Rigidity Pad

## Specific Product Precautions

Be sure to read this before handling the products.

Refer to page 375 for safety instructions. For vacuum equipment and vacuum pad precautions, refer to pages 376 to 379.

### Mounting

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

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

#### High Rigidity ZP3E Series

Model	Connection thread	Tightening torque [N·m]
ZP3E-□(32 to 50)□JB□	M18 x 1.5	28 to 32
ZP3E-□(63 to 125)□JB□	M22 x 1.5	45 to 50