

High Rigidity Pad **ZP3E Series** RoHS

ø32, ø40, ø50, ø63, ø80, ø100, ø125

Flat Type with Groove, Bellows Type with Ribs and Groove

Stable suction position, Improved ease of removal

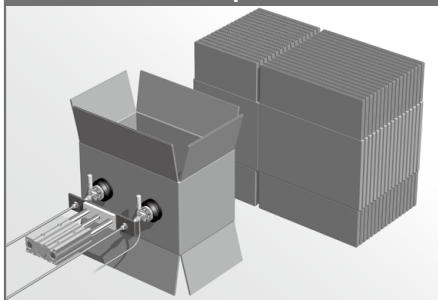
**Number of mounting screws reduced
(4 pcs. → 1 pc.)**

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

**Improved uneven workpiece
surface suction**



For carton formers/palletizers

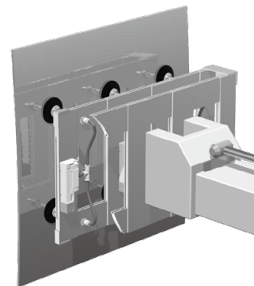


For the adsorption of glass workpieces

For use where adsorption marks must not be left on workpieces



For the adsorption of car bodies



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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)

Groove

Secures the interior space, up to the edge of the pad, during adsorption.

Rib

□ : Groove (Hollow part)
■ : Part in contact with the workpiece

Adsorption state of the workpiece

Improved ease of removal

With groove

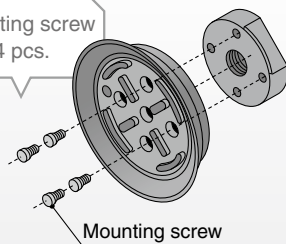
The dents and bumps on the adsorption surface prevent workpieces from sticking to the pad. This facilitates easy removal.

Shot-blasted

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

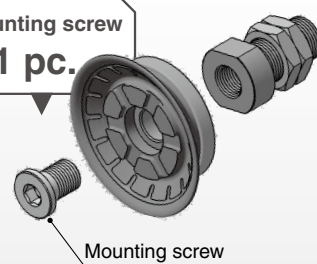
Reduced number of mounting screws

Mounting screw
4 pcs.



ZP series (High rigidity type)

Mounting screw
1 pc.

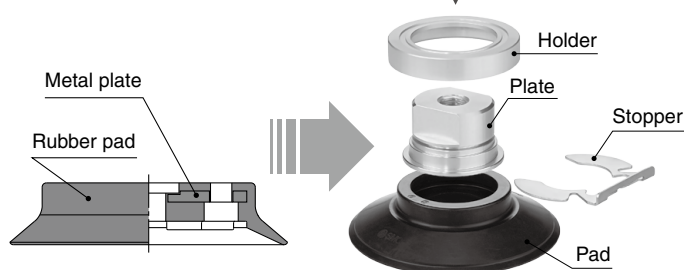


ZP3E

Can be disposed of separately

The rubber pad and metal parts can be separated.

The metal parts and rubber parts can be separated completely.

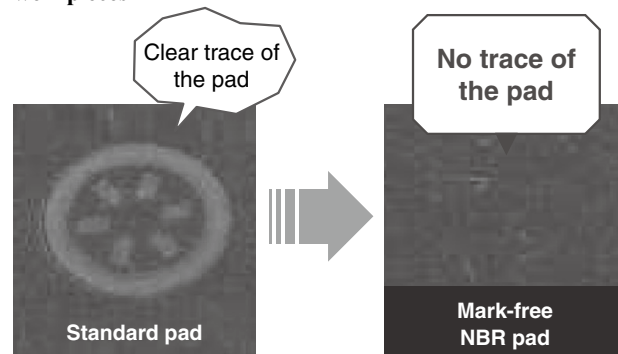


ZP series (High rigidity type)

ZP3E

Mark-free

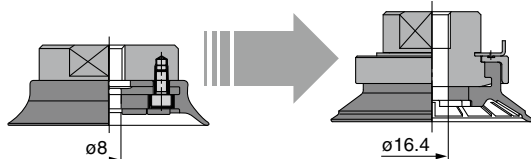
For use where adsorption marks must not be left on workpieces



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 ²]	Suction port	Area [mm ²]
$\phi 32$	—	—	$\phi 8.4$	55.4
$\phi 40$	$\phi 6$	28.3		
$\phi 50$	$\phi 8$	50.2		
$\phi 63$	$\phi 8$	50.2		
$\phi 80$	$\phi 8$	50.2	$\phi 16.4$	211
$\phi 100$	$\phi 10$	78.52		
$\phi 125$	$\phi 10$	78.52		

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**



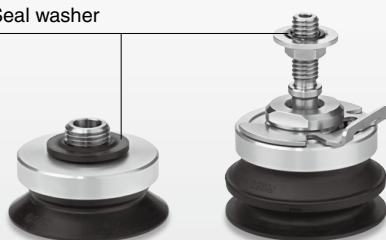
Pad diameter	ZP2/Flat type	ZP3E/Flat type with groove
	Weight [g]	Weight [g]
$\phi 32$	—	56
$\phi 40$	91	57
$\phi 50$	110	75
$\phi 63$	230	150
$\phi 80$	270	160
$\phi 100$	430	190
$\phi 125$	560	270

Direct mounting type with a male thread has been added.

Direct mounting

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

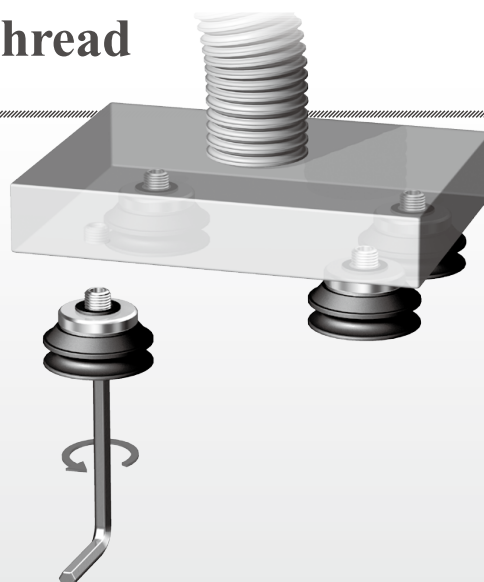
Seal washer



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				
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

Model
Selection

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: $\pm 5^\circ$)	50		50	60	
Identification (Stamp)	—	—	—	Ⓕ	—

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

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

Adapter Specifications



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.



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

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

ZP3E
High Rigidity

Flat Type
with Groove

Ball Joint, Flat Type
with Groove

Ballows Type
with Ribs and Groove

Ball Joint, Ballows Type
with Ribs and Groove

Construction

Mounting
Bracket
Assembly

Precautions

Adapter Specifications (Ball Joint Type)

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

Vertical



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.

Lateral



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

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

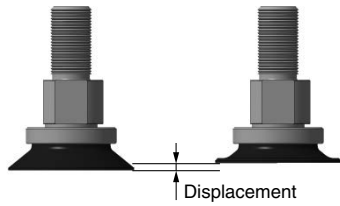
Buffer Specifications (Ball Joint Type)

Vertical



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

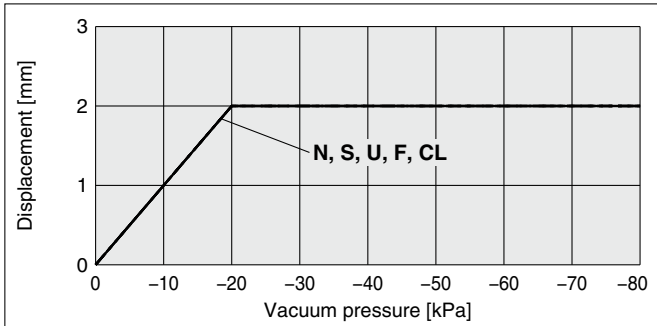
Pad Displacement to Vacuum Pressure (Flat Type with Groove)



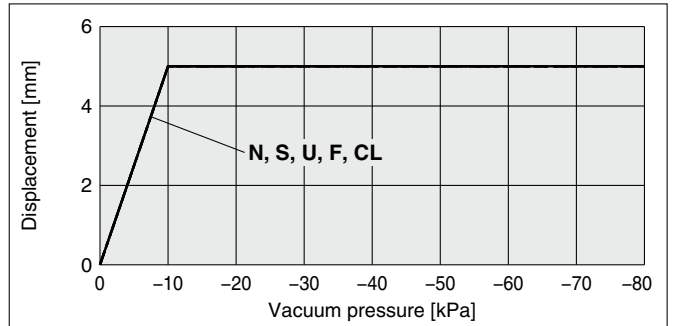
The data shown below are only for reference and are not guaranteed. These values depend on the operating environment, workpiece mass and transfer method. Therefore, thorough research and confirmation are necessary before use.

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

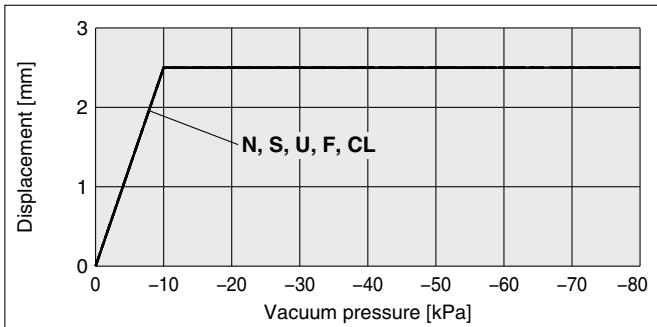
ZP3E-32UM□



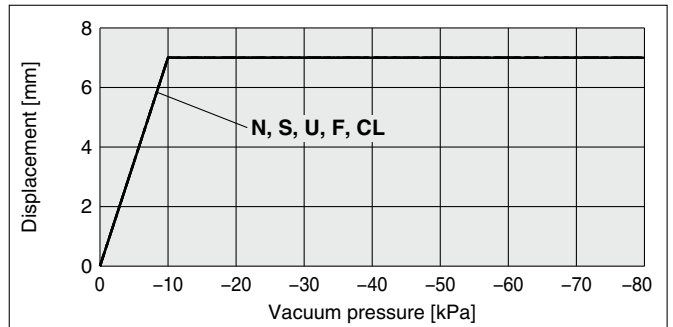
ZP3E-80UM□



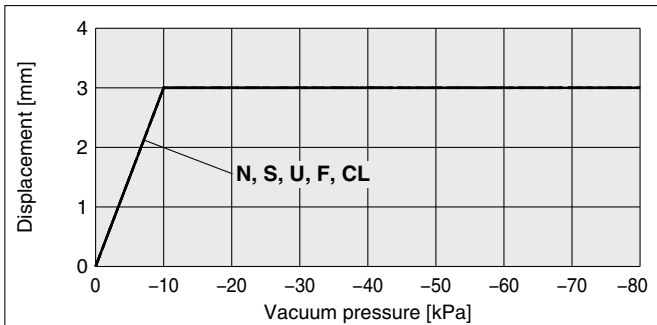
ZP3E-40UM□



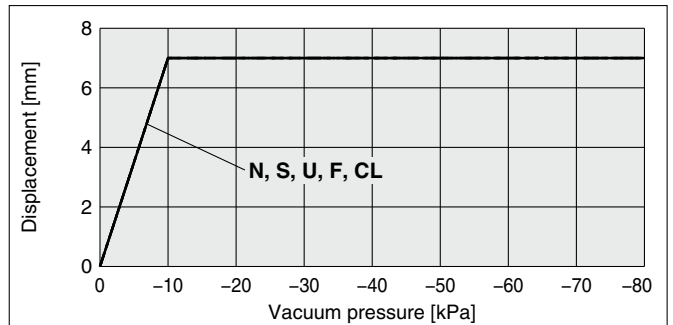
ZP3E-100UM□



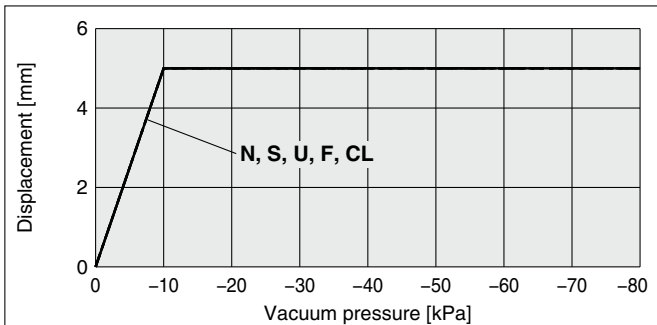
ZP3E-50UM□



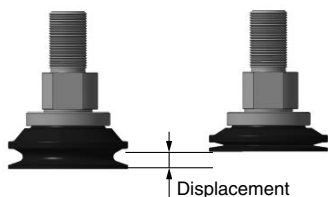
ZP3E-125UM□



ZP3E-63UM□



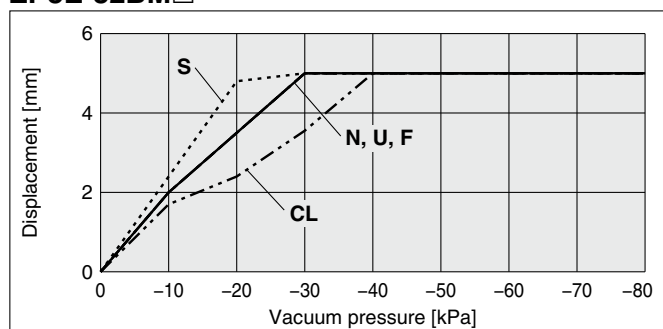
Pad Displacement to Vacuum Pressure (Bellows Type with Groove)



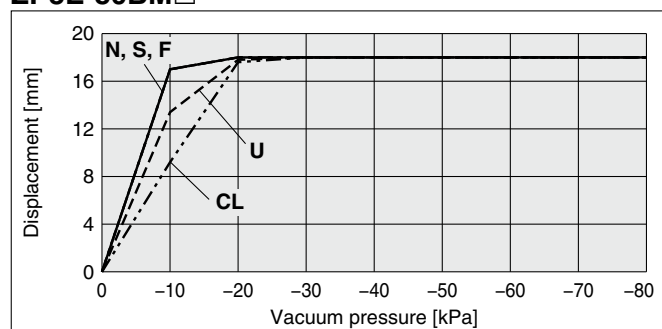
The data shown below are only for reference and are not guaranteed. These values depend on the operating environment, workpiece mass and transfer method. Therefore, thorough research and confirmation are necessary before use.

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

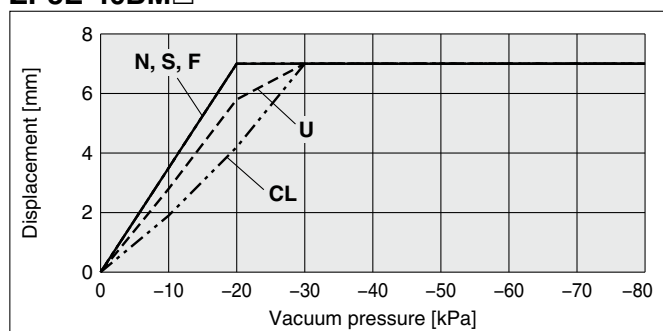
ZP3E-32BM□



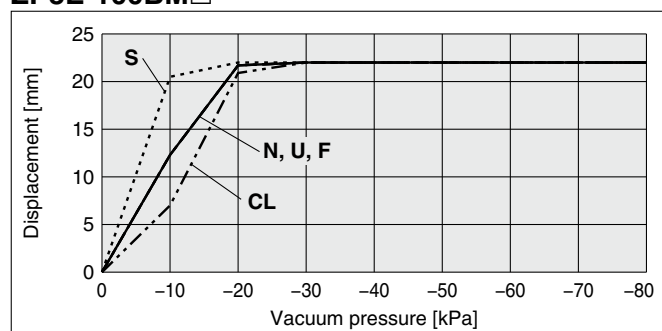
ZP3E-80BM□



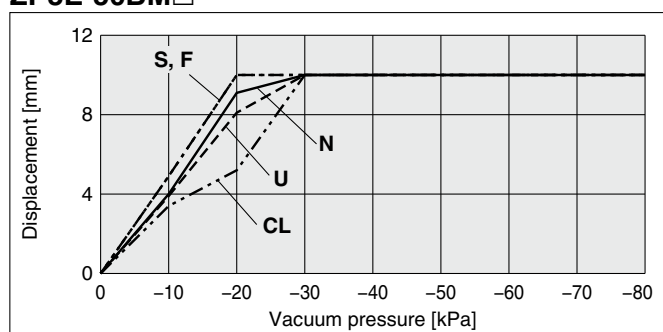
ZP3E-40BM□



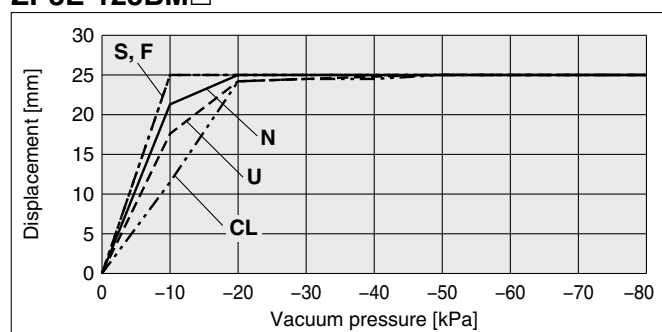
ZP3E-100BM□



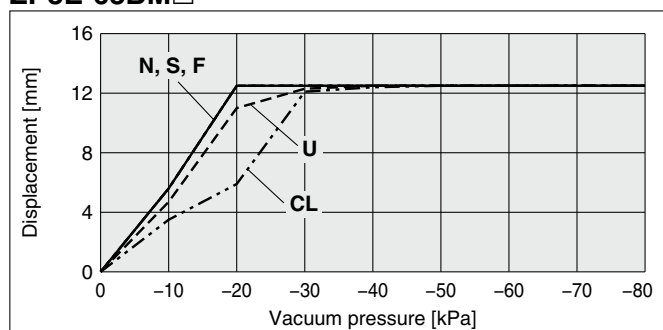
ZP3E-50BM□



ZP3E-125BM□



ZP3E-63BM□





High Rigidity Pad

Flat Type with Groove

ZP3E Series



Model Selection

How to Order

	Pad unit	ZP3E -	32	UM	N	-	P		Dimensions/ Models	Construction	Mounting Bracket Assembly
			7						p. 209	p. 233	From p. 237
	With adapter	ZP3E -	T	32	UM	N	-	A10	From p. 209	From p. 233	From p. 237
			6								
	With buffer	ZP3E -	T	32	UM	N	JB	10	From p. 212	p. 234	p. 240
			1	2	3	4	5				
								• 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 *2
U	Urethane rubber
F	FKM
CL	Mark-free NBR

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

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

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			—	○
Female thread	B8	M8 x 1.25			○	—
	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	○	—
				M5 x 0.8	●	—
	AL16	M16 x 1.5		Rc1/8	—	○●
Female thread	B8	M8 x 1.25		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

Ballows Type
with Ribs and Groove

Ball Joint, Ballows Type
with Ribs and Groove

Construction

Mounting
Bracket
Assembly

Precautions

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

Dimensions/Models

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

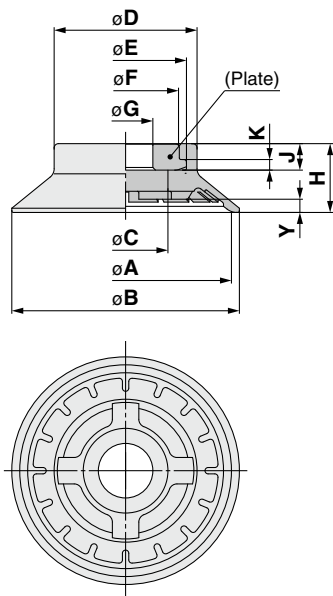
ZP3E - **32** UM **N** - **P**

①

②

③ Plate

Nil	Without plate
P	With plate



Model				A	B	C	D	E	F	G	H	J	K	Y	
① Pad dia.	Form	② Material	③ Plate												
ZP3E	32	UM	N S U F CL	Nil P	32	35	16	27	23	20	10.3	13	5	2	2
	40				40	43		36	31	27		13.5			2.5
	50				50	53					45				39
	63				63	66	56	49.5	43	22	7				
	80				80	83	73	65	58						
	100				100	103									
	125				125	128									

*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 $\varnothing 125$

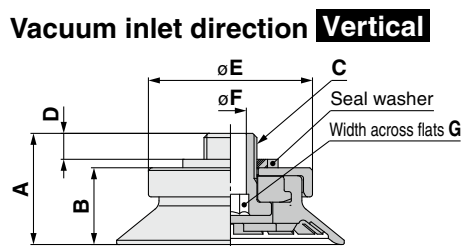
ZP3E - T **32** UM **N** - **A10**

①

②

③ Connection thread
(Male thread)

A10	M10 x 1
A16	M16 x 1.5



Construction p. 233

Adapter Assembly p. 237

Model					A	B	C	D	E	F	G	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Connection thread								
ZP3E	T	32	UM	N S U F CL	A10	21						14.5
		40				21.5	15	40				
		50			A16	30.5	21.1	M16 x 1.5	7.4	48.9	10	10
		63				33	23.6		7.4	60.1		
		80										
		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 - T **32** UM **N** - **B8**

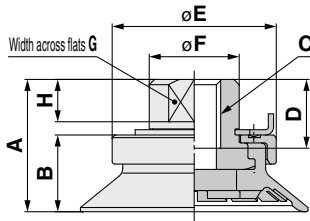
①

②

③ Connection thread
(Female thread)

B8	M8 x 1.25
B10	M10 x 1.5
B12	M12 x 1.75
B18	M18 x 1.5

Vacuum inlet direction **Vertical**



Construction	p. 233
Adapter Assembly	p. 238

Model				A	B	C	D	E	F	G	H
Vacuum inlet direction	① Pad dia.	② Form	③ Material								
ZP3E	T	UM	N S U F CL	B8	25	14.5	M8 x 1.25	9.5	17	14	8
					32	14.5		31			
					40	15		40			
					50	15		40			
				B10	25	14.5	M10 x 1.5	13	32	24	12
					32	14.5		31			
					40	15		40			
					50	15		40			
				B12	36	21.5	M12 x 1.75	12	32	24	12
					63	21.5		50			
					80	24		61			
					100	24		78.6			
				B18	36	21.5	M18 x 1.5	18	32	24	12
					63	21.5		50			
					80	24		61			
					100	24		78.6			

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

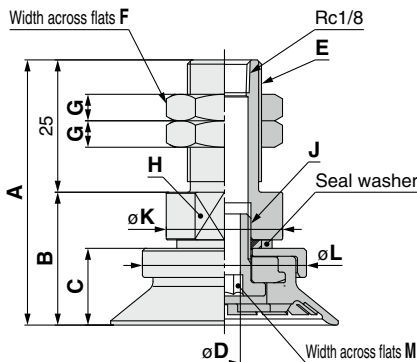
ZP3E - T **32** UM **N** - **AL14**

①

②

③ Connection thread
(Male thread)

AL14	M14 x 1
AL16	M16 x 1.5



Construction	p. 233
Adapter Assembly	p. 237

Model				A	B	C	D	E	F	G	H	J	K	L	M									
Vacuum inlet direction	① Pad dia.	② Form	③ Material																					
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								
					50.6	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	10
						65.6	40.6								23.6								60.1	
								77.8																

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

Dimensions/Models

With adapter $\phi 32$ to $\phi 125$

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

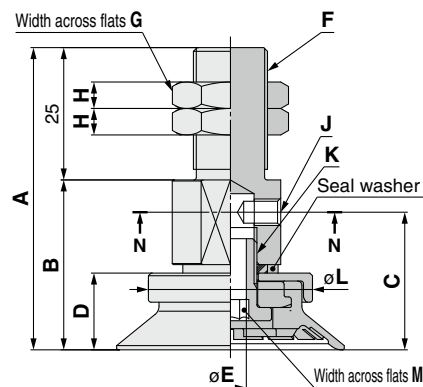
①

②

③ Connection thread
(Male thread)

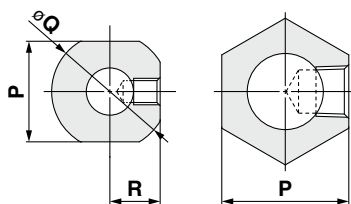
AL14	M14 x 1
AL16	M16 x 1.5

Vacuum inlet direction **Lateral**



N-N
($\phi 32$ to $\phi 50$)

N-N
($\phi 63$ to $\phi 125$)



Construction p. 233

Adapter Assembly p. 239

Model					A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R	
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Connection thread																
ZP3E	Y	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	24	10
		80				75.1	50.1	40.1	23.6							60.1				
		100														77.8				
125																				

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

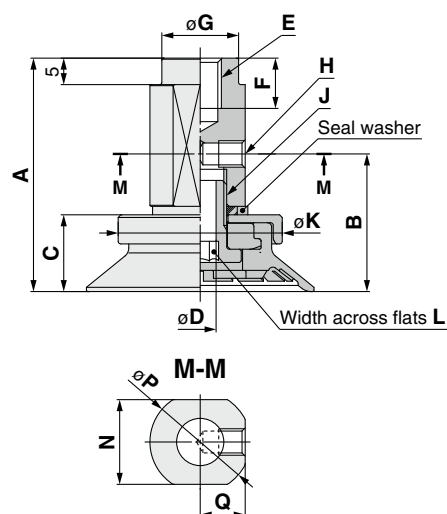
ZP3E - Y **32** UM **N** - **B8**

①

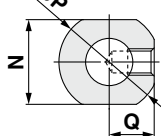
②

③ Connection thread
(Female thread)

B8	M8 x 1.25
B12	M12 x 1.75



M-M



Construction p. 234

Adapter Assembly p. 239

		Model																	
	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
ZP3E	Y	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							60.1				
		125													77.8				

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

Dimensions/Models

With buffer $\phi 32$ to $\phi 125$

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

①

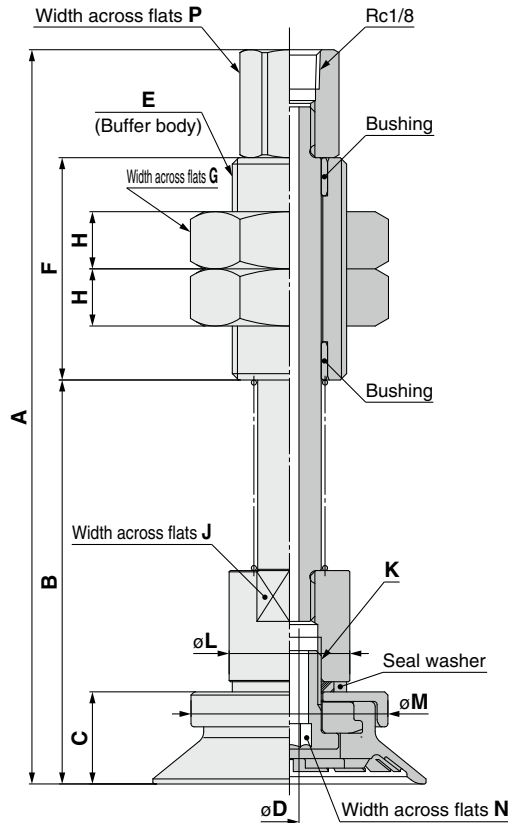
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 234
Buffer Assembly p. 240

Model							A	B	C	D	E	F	G	H	J	K	L	M	N	P										
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke																									
ZP3E	T	32 40	UM	N S U F CL	JB	10	115.6	63.6	14.5	3	M18 x 1.5	35	27	11	16	M10 x 1	19	31	6	14										
						30	140.6	88.6																						
						50	160.6	108.6																						
						10	116.1	64.1	15									3			M18 x 1.5	35	27	11	16	M10 x 1	19	40	6	14
						30	141.1	89.1																						
						50	161.1	109.1																						
		10				151.1	81.1	21.1	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28	48.9		10	17										
		30				176.1	106.1																							
		50				196.1	126.1																							
		10				153.6	83.6	23.6									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	23.6	4	M22 x 1.5	50	30	8	24	M16 x 1.5	28			77.8	10							17			
		30				178.6	108.6																							
		50				198.6	128.6																							

*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

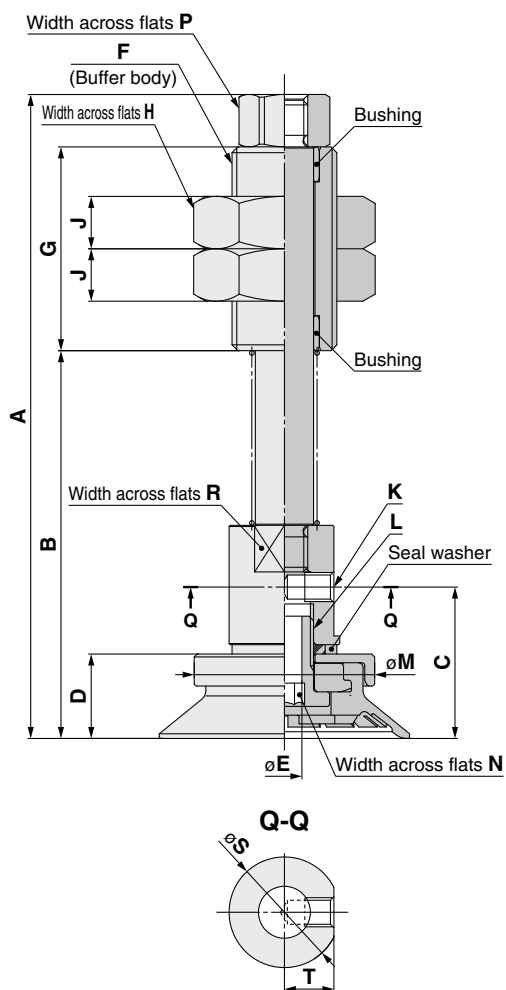
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 234

Buffer Assembly p. 240

Model							A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T		
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke																				
ZP3E	Y	32 40	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										40							
		50				10	111.1	67.1	26.5	15	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	48.9	10	17	24	28	12.5		
						30	136.1	92.1										60.1							
		63 80				10	156.1	112.1	37.6	21.1	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	77.8	10	17	24	28	12.5
						30	173.1	113.1												77.8					
		100				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	77.8	10	17	24	28	12.5		
						30	175.6	115.6										77.8							
		125				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	77.8	10	17	24	28	12.5		
						30	175.6	115.6										77.8							
		125				10	150.6	90.6	40.1	23.6	10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	77.8	10	17	24	28	12.5		
						30	175.6	115.6										77.8							

*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	ZP3E -	32	UM	N		
With adapter	ZP3E -	T	F	32	UM	N - AL6
With buffer	ZP3E -	T	F	32	UM	N JB 10
		1		2		3 4 5
		Ball joint		Flat type with groove		

Dimensions/ Models	Construction	Mounting Bracket Assembly
p. 215	p. 235	From p. 241

From p. 215	From p. 235	From p. 241
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From p. 218	p. 236	p. 244
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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 *2
U	Urethane rubber
F	FKM
CL	Mark-free NBR

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

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

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	AL6	M6 x 1	Use the connection thread.		○	—
	AL12	M12 x 1.25			—	○
	AL14	M14 x 1	Female thread	Rc1/8	○	—
	AL16	M16 x 1.5		M5 x 0.8	●	—
Female thread	B8	M8 x 1.25	Use the connection thread.		○	—
	B12	M12 x 1.75			—	○
	B8	M8 x 1.25	Female thread	M5 x 0.8	●	—
	B12	M12 x 1.75		Rc1/8	—	●

ZP3E
High Rigidity

Flat Type
with Groove

Ball Joint, Flat Type
with Groove

Belows Type
with Ribs and Groove

Ball Joint, Belows Type
with Ribs and Groove

Construction

Mounting
Bracket
Assembly

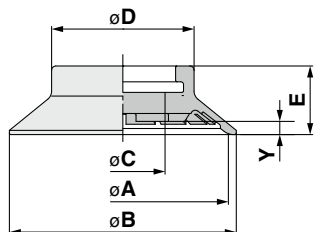
Precautions

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

Dimensions/Models

Single unit $\phi 32$ to $\phi 125$

ZP3E - **32** UM **N**
① ②



Construction p. 235

Mounting Bracket Assembly From p. 241

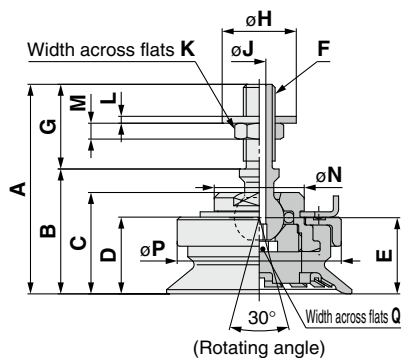
Model				A	B	C	D	E	Y
①	②	③	④						
Pad dia.	Form	Material							
ZP3E	UM	N S U F CL	32	32	35	16	27	13	2
			40	40	43				2.5
			50	50	53				3
			63	63	66	24	45	19.5	5
			80	80	83				
			100	100	103				
			125	125	128				

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

With adapter $\phi 32$ to $\phi 125$

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

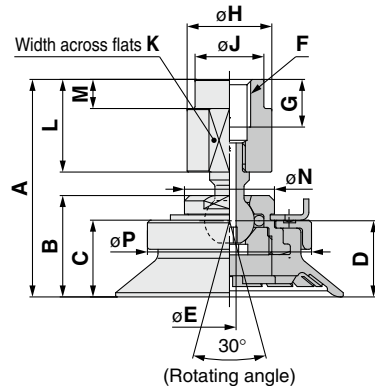
Model				A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Vacuum inlet direction	①	②	③															
	Pad dia.	Form	Material															
ZP3E	TF	UM	N S U F CL	32	39.6	23.6	19.2	14.5	14.4	M6 x 1	16	14	2.5	8	1.3	4	17	31
				40	40.1	24.1	19.7	15	14.9									40
				50	56.5	36.5	30.5	21.5	22.6	M12 x 1.25	20	24.3	4	19	2	7	32	50
				63	59	39	33	24	25.1									61
				80														78.6
				100														
				125														

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

Dimensions/Models

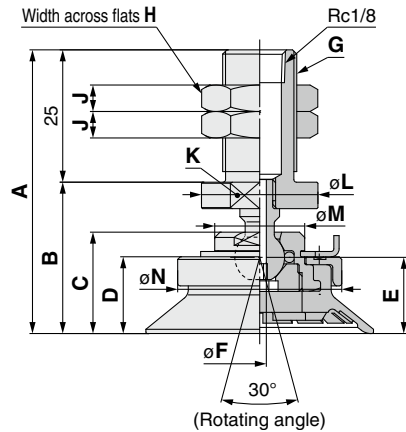
With adapter $\phi 32$ to $\phi 125$

Vacuum inlet direction **Vertical**



Construction p. 235

Adapter Assembly p. 242



Construction p. 235

Adapter Assembly p. 242

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

1

2

3 Connection thread
(Female thread)

B8	M8 x 1.25
B12	M12 x 1.75

Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P	
Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread															
ZP3E	TF	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	17.5	5.5	17	31	
					41.6	19.7	15	14.9										40	
					B12	63.5	30.5	21.5	22.6	4	M12 x 1.75	11	26	18	22	27	6	32	50
						66	33	24	25.1										61
									78.6										

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

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

1

2

3 Connection thread
(Male thread)

AL14	M14 x 1
AL16	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	UM	N S U F CL	AL14	53.6	28.6	19.2	14.5	14.4	2.5	M14 x 1	19	4	Width across flats 19	22	17	31
					54.1	29.1	19.7	15	14.9								40
					66.5	41.5	30.5	21.5	22.6		M16 x 1.5	22	6	Width across flats 24			50
					69	44	33	24	25.1	4							61
				AL16													78.6

*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 F **32** UM **N** - **AL14**

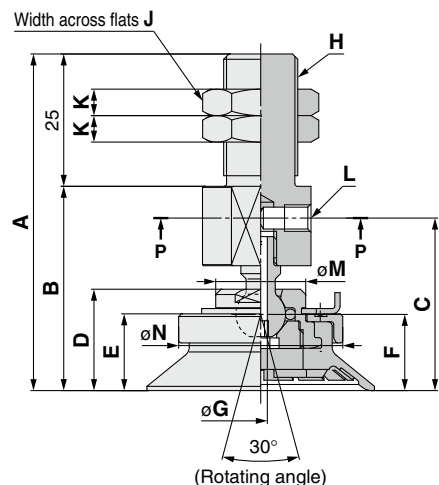
①

②

③ Connection thread (Male thread)

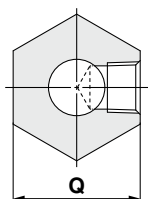
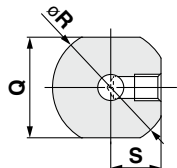
AL14	M14 x 1
AL16	M16 x 1.5

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

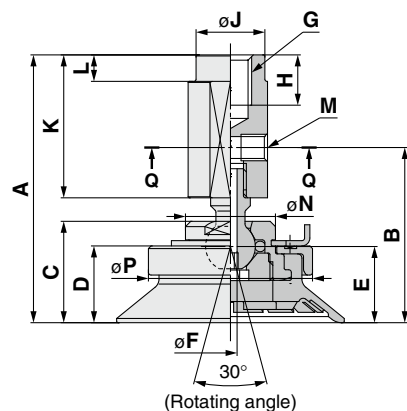
ZP3E - Y F **32** UM **N** - **B8**

①

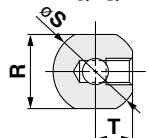
②

③ Connection thread (Female thread)

B8	M8 x 1.25
B12	M12 x 1.75



Q-Q



Construction p. 236

Adapter Assembly p. 243

Model		①	Form	②	③	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
Vacuum inlet direction	Pad dia.			*1 Material	Connection thread																	
ZP3E	YF	32	UM	N	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				64.1	39.1	33.1	19.7	15	14.9							40				
		50				88.5	63.5	53.5	30.5	21.5	22.6	4	M16 x 1.5	22	6	Rc1/8	32	50				
		80				91	66	56	33	24	25.1							61	24			
		100																78.6				
ZP3E	YF	125	UM	N	AL16																	

*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

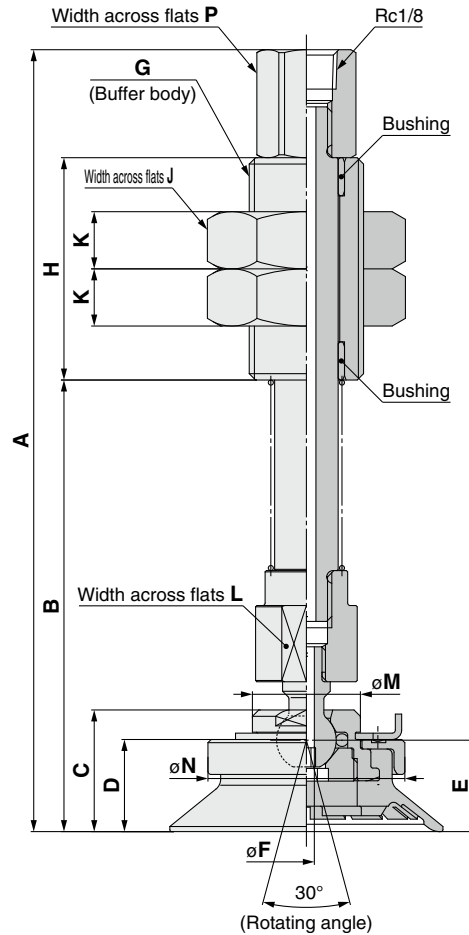
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 236

Buffer Assembly p. 244

Model							A	B	C	D	E	F	G	H	J	K	L	M	N	P
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke															
ZP3E	TF	32 40	UM	N S U F CL	JB	10	123.1	71.1	19.2	14.5	14.4	2.5	M18 x 1.5	35	27	11	14	17	31	14
						30	148.1	96.1												
						50	168.1	116.1												
		10				123.6	71.6	19.7	15	14.9	40									
		30				148.6	96.6													
		50				168.6	116.6													
		10				168.5	98.5	30.5	21.5	22.6									50	
		30				193.5	123.5													
		50				213.5	143.5													
		10				171	101	33	24	25.1	4	M22 x 1.5	50	30	8	22	32	61		17
		30				196	126													
		50				216	146													
		10				171	101											78.6		
		30				196	126													
		50				216	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

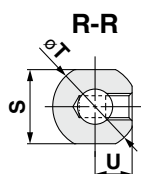
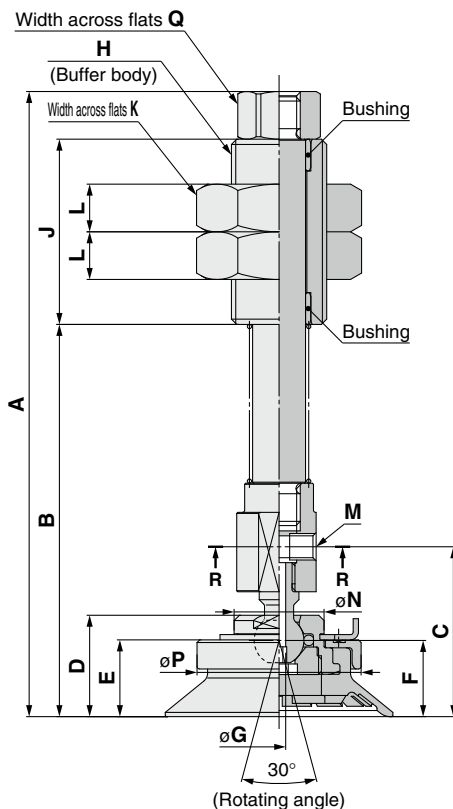
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 236

Buffer Assembly p. 244

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 40	UM	N S U F CL	JB	10	118.1	74.1																
						30	143.1	99.1	32.1	19.2	14.5	14.4												
						50	163.1	119.1																
						10	118.6	74.6																
						30	143.6	99.6	32.6	19.7	15	14.9												
						50	163.6	119.6																
						10	165	105																
						30	190	130	53.5	30.5	21.5	22.6												
						50	210	150																
						10	167.5	107.5																
						30	192.5	132.5																
						50	212.5	152.5																
						10	167.5	107.5	56	33	24	25.1												
						30	192.5	132.5																
						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

Pad unit	ZP3E –	32	BM	N	–	P		p. 221	p. 233	From p. 237	
						7					
With adapter	ZP3E –	T	32	BM	N	–	A10		From p. 221	From p. 233	From p. 237
							6				
With buffer	ZP3E –	T	32	BM	N	JB	10		From p. 224	p. 234	p. 240
		1	2		3	4	5				

• Bellows type with ribs and groove

1 Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

2 Pad diameter

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

3 Material

N	S	U	F	CL
NBR	Silicone rubber*1 *2	Urethane rubber	FKM	Mark-free NBR

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

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

4 Buffer specification

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

5 Buffer stroke

Stroke [mm]	Pad diameter
10	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	—	○●
	B12	M12 x 1.75		M5 x 0.8	●	—
				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

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

Dimensions/Models

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

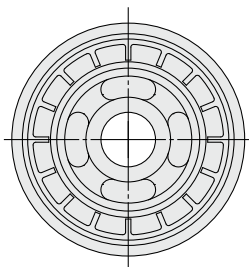
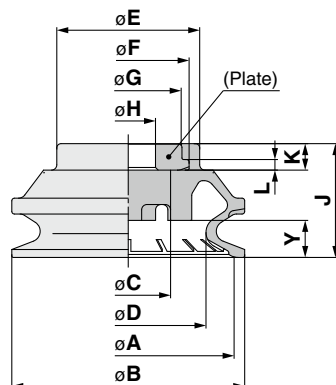
ZP3E - **32** BM **N** - **P**

①

②

③ Plate

Nil	Without plate
P	With plate



Model				A	B	C	D	E	F	G	H	J	K	L	Y
①	②	③	④												
Pad dia.	Form	Material	Plate												
32	BM	N S U F CL	Nil P	32	35	16	23.3	27	23	20	10.3	19.5	5	2	5
40				40	44		29.4	36	31	27		21.5			7
50				50	54		37	45	39	34		25			10
63				63	68	24	45.8	45	39	34	16.3	33	8	3	12.5
80				80	85		57	56	49.5	43		41			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**

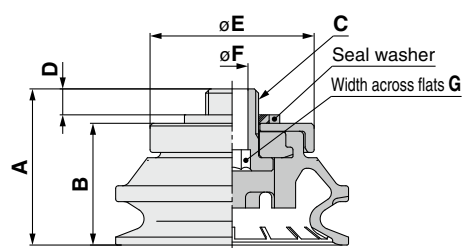
①

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					A	B	C	D	E	F	G			
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Connection thread										
ZP3E	T	32	BM	N S U F CL	A10	27.5	21	M10 x 1	4.9	31	6	6		
		40				29.5	23							
		50				33	26.5							
		63				44	34.6							
		80			A16	52	42.6	M16 x 1.5	7.4	48.9	60.1	10	10	
		100				61.5	52.1							77.8
		125				71	61.6							93

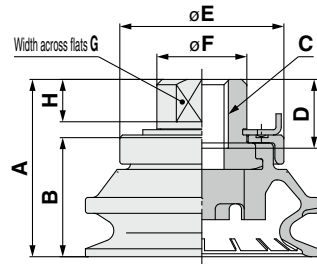
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

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

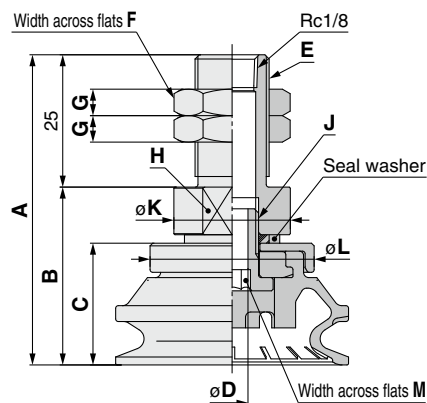
3 Connection thread
(Female thread)

B8	M8 x 1.25
B10	M10 x 1.5
B12	M12 x 1.75
B18	M18 x 1.5

Model					A	B	C	D	E	F	G	H
Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Connection thread								
ZP3E	T	BM	N S U F CL	B8	31.5	21	M8 x 1.25	9.5	31	17	14	8
					33.5	23			40			
					37	26.5						
					31.5	21			31			
				B10	33.5	23	M10 x 1.5	13	40			
					37	26.5			50			
					49.5	35			61			
					57.5	43			78.6			
				B12	67	52.5	M12 x 1.75	12	93.8	32	24	12
					76.5	62			50			
					49.5	35			61			
					57.5	43			78.6			
				B18	67	52.5	M18 x 1.5	18	93.8			
					76.5	62			50			
					49.5	35			61			
					57.5	43			78.6			

*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)

AL14	M14 x 1
AL16	M16 x 1.5

Model					A	B	C	D	E	F	G	H	J	K	L	M
Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Connection thread												
ZP3E	T	BM	N S U F CL	AL14	56.6	31.6	21	6	M14 x 1	19	4	Width across flats 19	M10 x 1	22	31	6
					58.6	33.6	23								40	
					62.1	37.1	26.5								48.9	
					76.6	51.6	34.6								60.1	
				AL16	84.6	59.6	42.6	10	M16 x 1.5	22	6	Width across flats 24	M16 x 1.5		77.8	10
					94.1	69.1	52.1								93	
					103.6	78.6	61.6									
				AL14	56.6	31.6	21	6	M14 x 1	19	4	Width across flats 19	M10 x 1	22	31	6
					58.6	33.6	23								40	
					62.1	37.1	26.5								48.9	
					76.6	51.6	34.6								60.1	
				AL16	84.6	59.6	42.6	10	M16 x 1.5	22	6	Width across flats 24	M16 x 1.5		77.8	10
					94.1	69.1	52.1								93	
					103.6	78.6	61.6									

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

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

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

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

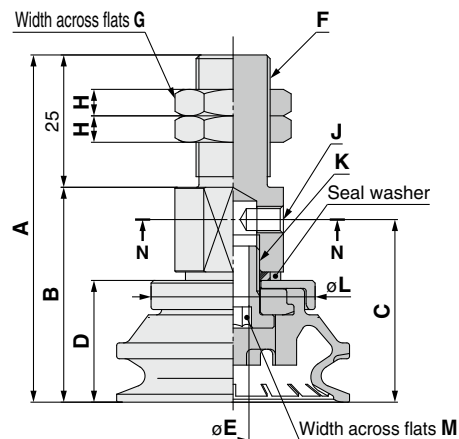
①

②

③ Connection thread
(Male thread)

AL14	M14 x 1
AL16	M16 x 1.5

Vacuum inlet direction **Lateral**



Model					A	B	C	D	E	F	G	H	J	K	L	M	P	Q	R	
Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread																
ZP3E	Y	BM	N S U F CL	AL14	32	63.6	38.6	32.5	21	6	M14 x 1	19	4	M5 x 0.8/ Effective thread depth 5	M10 x 1	31	6	Width across flats 19	22	9.3
					40	65.6	40.6	34.5	23											
					50	69.1	44.1	38	26.5											
					63	86.1	61.1	51.1	34.6											
				80	94.1	69.1	59.1	42.6	10	M16 x 1.5	22	6	Rc1/8	M16 x 1.5	60.1	10	Width across flats 24			
				100	103.6	78.6	68.6	52.1												
				125	113.1	88.1	78.1	61.6												

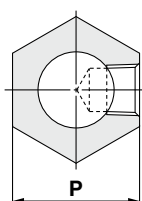
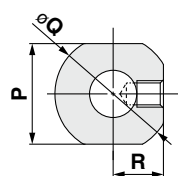
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, CL: Mark-free NBR

N-N

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

N-N

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



Construction p. 233

Adapter Assembly p. 239

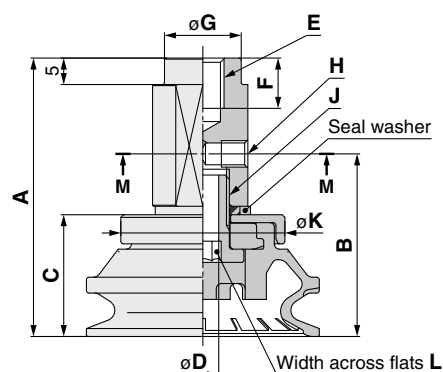
ZP3E - Y **32** BM **N** - **B8**

①

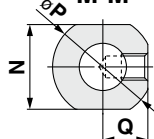
②

③ Connection thread
(Female thread)

B8	M8 x 1.25
B12	M12 x 1.75



M-M



Model					A	B	C	D	E	F	G	H	J	K	L	N	P	Q
Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread														
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	31	6	16	19	8.5
					52.6	34.5	23											
					56.1	38	26.5											
					75.1	51.1	34.6											
				B12	83.1	59.1	42.6	10	M12 x 1.75	12	19	Rc1/8	M16 x 1.5	60.1	10	24	28	12.5
					92.6	68.6	52.1											
					102.1	78.1	61.6											

*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

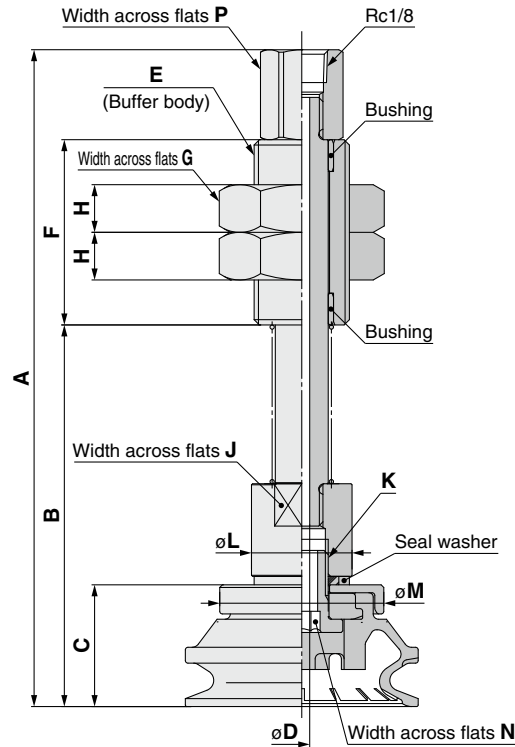
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 234

Buffer Assembly p. 240

		Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P										
		Vacuum inlet direction	① Pad dia.	Form	② ^{3/1} Material	③ Buffer spec.															④ Buffer stroke									
ZP3E	T	32	BM	N S U F CL	JB	10	122.1	70.1	21	3	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																						
		40				10	127.6	75.6	26.5																					
						30	152.6	100.6																						
						50	172.6	120.6																						
		63				10	164.6	94.6	34.6									4			M22 x 1.5	50	30	8	24	M16 x 1.5	28	48.9	10	17
						30	189.6	119.6																						
						50	209.6	139.6																						
						10	172.6	102.6		42.6																				
						30	197.6	127.6																						
						50	217.6	147.6																						
		80				10	182.1	112.1	52.1																					
						30	207.1	137.1																						
						50	227.1	157.1																						
						10	191.6	121.6		61.6																				
						30	216.6	146.6																						
						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

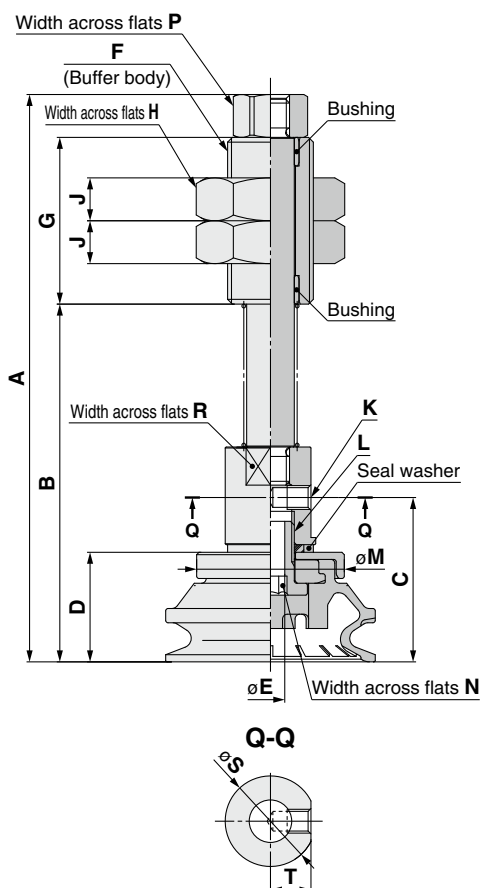
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 234

Buffer Assembly p. 240

Model							A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T																								
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Buffer spec.	④ Buffer stroke																																										
ZP3E	Y	32	BM	N S U F CL	JB	10	117.1	73.1			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	32.5	21																																					
						50	162.1	118.1																																							
		40				10	119.1	75.1										10						M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	48.9	10	17	24	28	12.5												
						30	144.1	100.1	34.5	23																																					
						50	164.1	120.1																																							
		50				10	122.6	78.6																						10						M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5	40	10	17	24	28	12.5
						30	147.6	103.6	38	26.5																																					
						50	167.6	123.6																																							
		63				10	161.6	101.6			10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5		60.1	10	17	24	28																			12.5					
						30	186.6	126.6	51.1	34.6																																					
						50	206.6	146.6																																							
		80				10	169.6	109.6										10	M22 x 1.5					50	30	8	Rc1/8	M16 x 1.5	77.8		10	17	24	28	12.5												
						30	194.6	134.6	59.1	42.6																																					
						50	214.6	154.6																																							
		100				10	179.1	119.1																					10	M22 x 1.5						50	30	8	Rc1/8	M16 x 1.5	93		10	17	24	28	12.5
						30	204.1	144.1	68.6	52.1																																					
						50	224.1	164.1																																							
		125				10	188.6	128.6			10	M22 x 1.5	50	30	8	Rc1/8	M16 x 1.5			93	10	17	24																		28	12.5					
						30	213.6	153.6	78.1	61.6																																					
						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

	Pad unit	ZP3E -	32	BM	N		Dimensions/ Models	Construction	Mounting Bracket Assembly
							p. 227	p. 235	From p. 241
	With adapter	ZP3E -	T	F	32	BM N - AL6	From p. 227	From p. 235	From p. 241
	With buffer	ZP3E -	T	F	32	BM N JB 10	From p. 231	p. 236	p. 244
			1	2	3	4	5		
			Ball joint						

1 Vacuum inlet direction

Nil	Pad unit
T	Vertical
Y	Lateral

2 Pad diameter

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

3 Material

N	S	U	F	CL
NBR	Silicone rubber*1 *2	Urethane rubber	FKM	Mark-free NBR

*1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."
 *2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

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	AL6	M6 x 1	Use the connection thread.		○	—
	AL12	M12 x 1.25			—	○
	AL14	M14 x 1	Female thread	Rc1/8	○	—
	AL16	M16 x 1.5		M5 x 0.8	●	—
Female thread	B8	M8 x 1.25	Use the connection thread.		○	—
	B12	M12 x 1.75			—	○
	B8	M8 x 1.25	Female thread	M5 x 0.8	●	—
	B12	M12 x 1.75		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

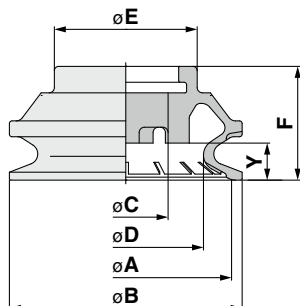
Precautions

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

Dimensions/Models

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

ZP3E - **32** BM **N**
① ②



Construction p. 235

Mounting Bracket Assembly From p. 241

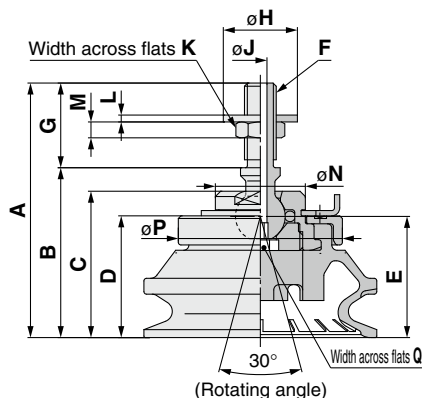
Model				A	B	C	D	E	F	Y
①	②	③	④							
Pad dia.	Form	Material								
32	BM	N S U F CL	16	32	35	16	23.3	27	19.5	5
40				40	44		29.4		21.5	7
50				50	54		37		25	10
63			24	63	68	24	45.8	45	33	12.5
80				80	85		57	56	41	18
100				100	106		71.5	73	50.5	22
125				125	133		90.3	88	60	25

*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**



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	②	③															
	Pad dia.	Form	Material															
ZP3E	TF	BM	N S U F CL	AL6	46.1	30.1	25.7	21	20.9	M6 x 1	16	14	2.5	8	1.3	4	17	31
					48.1	32.1	27.7	23	22.9									40
					51.6	35.6	31.2	26.5	26.4									50
				AL12	70	50	44	35	36.1	M12 x 1.25	20	24.3	4	19	2	7	32	61
					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

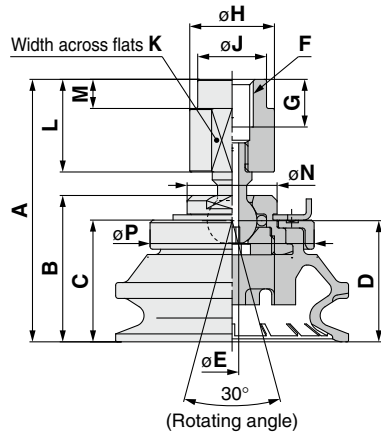
Construction p. 235

Adapter Assembly p. 241

Dimensions/Models

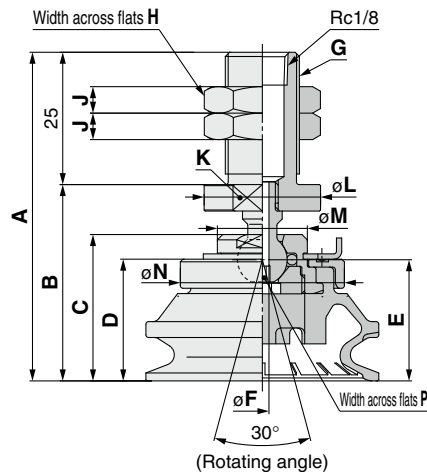
With adapter $\varnothing 32$ to $\varnothing 125$

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)

B8	M8 x 1.25
B12	M12 x 1.75

Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P
Vacuum inlet direction	① Pad dia.	Form	② Material	③ Connection thread														
ZP3E	TF	BM	N S U F CL	B8	47.6	25.7	21	20.9	2.5	M8 x 1.25	9	16	13	14	17.5	5.5	17	31
					49.6	27.7	23	22.9										40
					53.1	31.2	26.5	26.4										50
				B12	77	44	35	36.1	4	M12 x 1.75	11	26	18	22	27	6	32	61
					85	52	43	44.1										78.6
					94.5	61.5	52.5	53.6										93.8
					104	71	62	63.1										

*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)

AL14	M14 x 1
AL16	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	BM	N S U F CL	AL14	60.1	35.1	25.7	21	20.9	2.5	M14 x 1	19	4	Width across flats 19	22	17	31
					62.1	37.1	27.7	23	22.9								
					65.6	40.6	31.2	26.5	26.4								40
				AL16	80	55	44	35	36.1	4	M16 x 1.5	22	6	Width across flats 24	32	50	61
					88	63	52	43	44.1								
					97.5	72.5	61.5	52.5	53.6								

*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 F **32** BM **N** - **AL14**

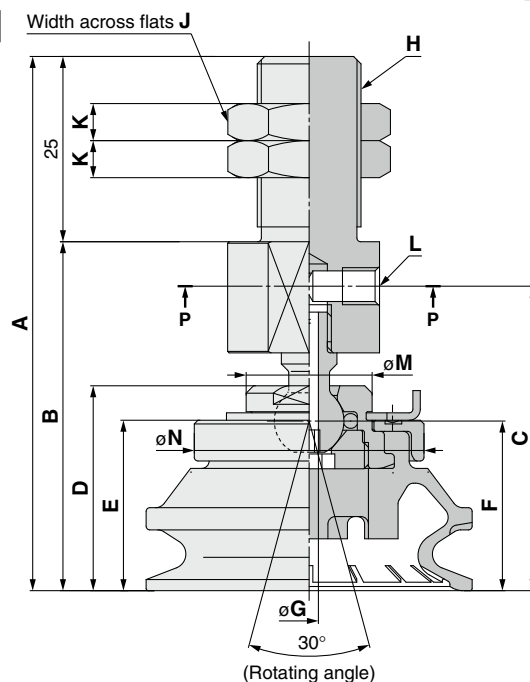
①

②

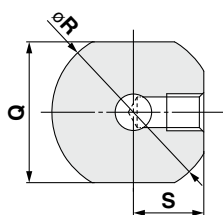
③ Connection thread
(Male thread)

AL14	M14 x 1
AL16	M16 x 1.5

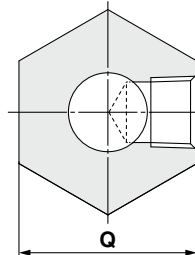
Vacuum inlet direction **Lateral**



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	③ Connection thread																	
ZP3E	YF	32	BM	N S U F CL	AL14	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							40			
		50				75.6	50.6	44.6	31.2	26.5	26.4							50			
		63				102	77	67	44	35	36.1							61			
		80			AL16	110	85	75	52	43	44.1	4	M16 x 1.5	22	6	Rc1/8	32	78.6	24	24	9.5
		100				119.5	94.5	84.5	61.5	52.5	53.6							78.6			
		125				129	104	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 adapter $\varnothing 32$ to $\varnothing 125$

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

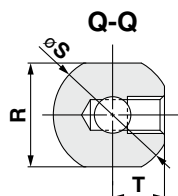
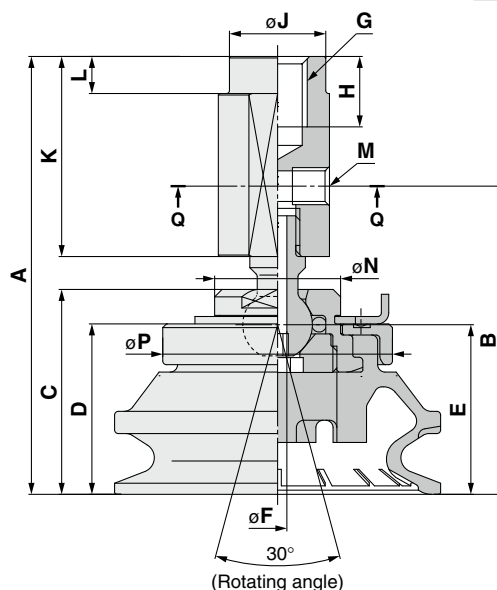
①

②

③ Connection thread
(Female thread)

B8	M8 x 1.25
B12	M12 x 1.75

Vacuum inlet direction **Lateral**



Construction p. 236

Adapter Assembly p. 243

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

Model					A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	
Vacuum inlet direction	① Pad dia.	Form	② ^{#1} Material	③ Connection thread																		
ZP3E	YF	32	BM	N S U F CL	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
		40				59.1	41.6	27.7	23	22.9									40			
		50				62.6	45.1	31.2	26.5	26.4									50			
		63				90	67	44	35	36.1									61			
		80			B12	98	75	52	43	44.1	4	M12 x 1.75	11.5	18	40	6	Rc1/8	32	78.6	22	26	11
		100				107.5	84.5	61.5	52.5	53.6									61			
		125				117	94	71	62	63.1									78.6			

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

①

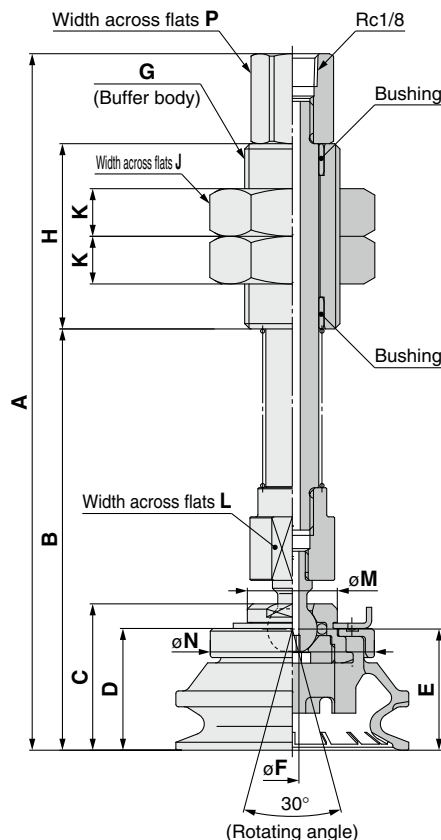
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Vertical**



Construction p. 236

Buffer Assembly p. 244

Model						A	B	C	D	E	F	G	H	J	K	L	M	N	P																				
Vacuum inlet direction	① Pad dia.	Form	② ^{*1} 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																																
		10				131.6	79.6																																
		40				30	156.6	104.6	27.7	23	22.9								4	M22 x 1.5	50	30	8	22	32	40	17												
						50	176.6	124.6																															
		50				10	135.1	83.1	31.2	26.5	26.4																	50	30	8	22	32	78.6	17					
						30	160.1	108.1																															
		63				50	180.1	128.1	44	35	36.1															61.5	52.5								53.6	71	62	63.1	93.8
						10	182	112																															
		80				30	207	137	52	43	44.1																	71	62	63.1	93.8								
						50	227	157																															
		100				10	190	120	61.5	52.5	53.6	93.8																											
						30	215	145																															
		125				50	235	165	71	62	63.1																												
						10	199.5	129.5																															
						30	224.5	154.5	71	62	63.1																												
						50	244.5	174.5																															
						10	209	139	71	62	63.1																												
						30	234	164																															
						50	254	184	71	62	63.1																												
						10	209	139																															

*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

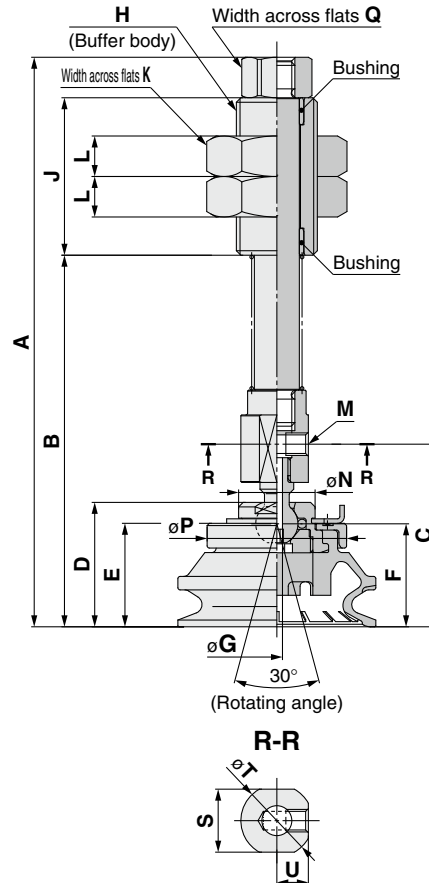
②

④

③ Buffer specification

JB Rotating, With bushing

Vacuum inlet direction **Lateral**



Construction p. 236

Buffer Assembly p. 244

Model							A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	T	U																										
Vacuum inlet direction	① Pad dia.	Form	② ³⁻¹ Material	③ Buffer spec.	④ Buffer stroke																																													
ZP3E	YF	32	BM	N S U F C L	JB	10	124.6	80.6	38.6	25.7	21	20.9	2.5	M18 x 1.5	35	27	11	M5 x 0.8/ Effective thread depth 5	17	31	14	14	16	7																										
						30	149.6	105.6																																										
		50				169.6	125.6																																											
		10				126.6	82.6	40.6	27.7	23	22.9	44.1								31.2					26.5	26.4	4	M22 x 1.5	50	30	8	Rc1/8	32	40	17	22	26	11												
		30				151.6	107.6																																											
		50				171.6	127.6																																											
		10				130.1	86.1	67	44	35	36.1																							75					52	43	44.1	84.5	61.5	52.5	53.6	94	71	62	63.1	93.8
		30				155.1	111.1																																											
		50				175.1	131.1																																											
		10				178.5	118.5	75	52	43	44.1		84.5	61.5	52.5	53.6	94	71	62		63.1	93.8																												
		30				203.5	143.5																																											
		50				223.5	163.5																																											
		10				186.5	126.5	84.5	61.5	52.5	53.6	94								71			62	63.1	93.8																									
		30				211.5	151.5																																											
		50				231.5	171.5																																											
		10				196	136	84.5	61.5	52.5	53.6															94	71	62	63.1	93.8																				
		30				221	161																																											
		50				241	181																																											
		10				205.5	145.5	94	71	62	63.1		93.8																																					
		30				230.5	170.5																																											
		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**

Construction

Standard Type

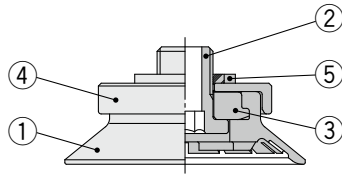
With adapter

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□

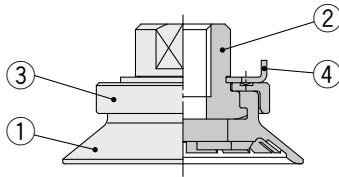


Component Parts

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) Structural steel (Electroless nickel plating)	Pad diameter: $\phi 32$ to $\phi 50$ Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Steel strip/NBR	

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

ZP3E-T□-B□

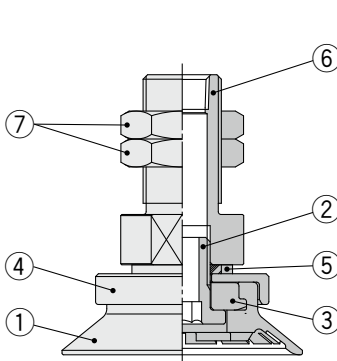


Component Parts

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	

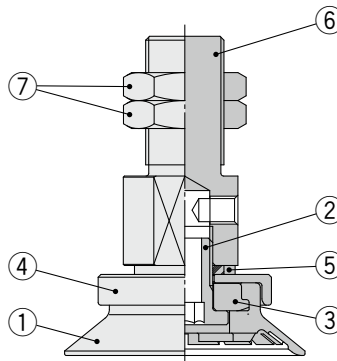
Vacuum inlet direction **Vertical**
T Type/ZP3E-T

ZP3E-T□-AL□



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

ZP3E-Y□-AL□



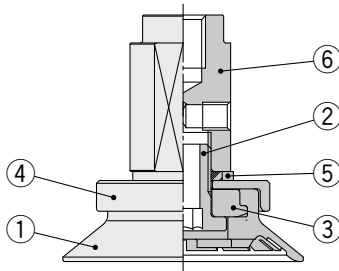
Component Parts

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) Structural steel (Electroless nickel plating)	Pad diameter: $\phi 32$ to $\phi 50$ Pad diameter: $\phi 63$ to $\phi 125$
5	Seal washer	Steel strip/NBR	
6	Adapter	Aluminum alloy (Clear anodized) Brass (Electroless nickel plating)	Pad diameter: $\phi 32$ to $\phi 50$ Pad diameter: $\phi 63$ to $\phi 125$
7	Nut	Steel (Zinc chromated) Special steel (Zinc chromated)	Pad diameter: $\phi 32$ to $\phi 50$ M14 x 1 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

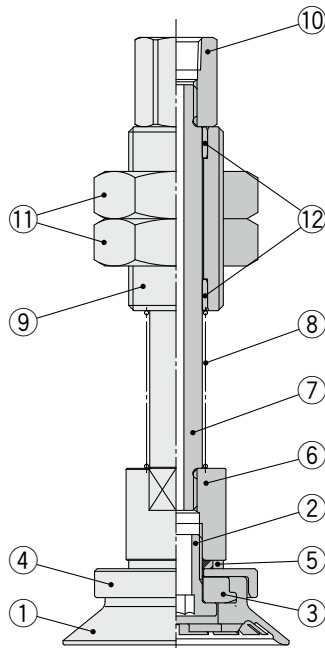
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Set screw	Brass (Electroless nickel plating)	
3	Plate	Aluminum alloy (Clear anodized)	
4	Holder	Aluminum alloy (Clear anodized) Structural steel (Electroless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

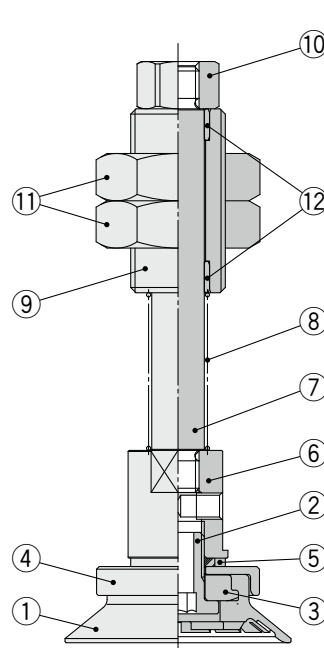
Vacuum inlet direction **Vertical**
T Type/ZP3E-T

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) Structural steel (Electroless nickel plating)	Pad diameter: $\phi 32$ to $\phi 50$ 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) Structural steel (Nickel plating)	M18 x 1.5 M22 x 1.5
12	Bushing	—	

High Rigidity Pad *ZP3E Series*

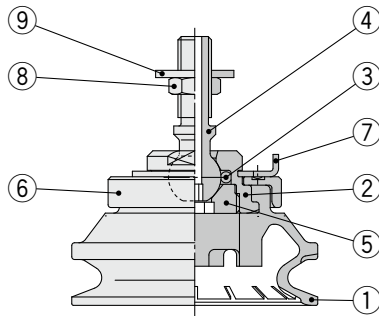
Construction

Ball Joint Type

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

ZP3E-TF□-AL□

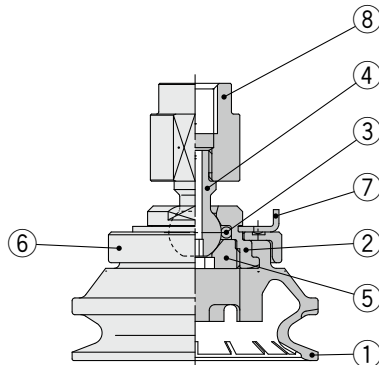


Component Parts

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	Plate	Stainless steel Aluminum alloy (Clear anodized)	Pad diameter: $\phi 32$ to $\phi 50$ 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) Special steel (Zinc chromated)	M14 x 1 M16 x 1.5
9	Seal washer	Soft iron/NBR (Zinc chromated)	

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

ZP3E-TF□-B□

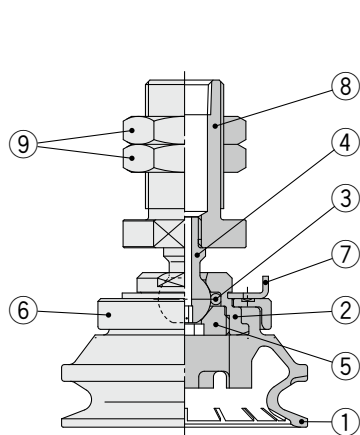


Component Parts

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)	

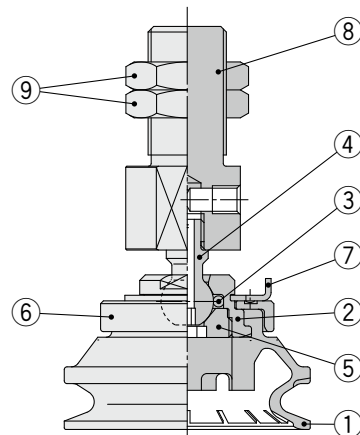
Vacuum inlet direction **Vertical**
T Type/ZP3E-TF

ZP3E-TF□-AL□



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

ZP3E-YF□-AL□



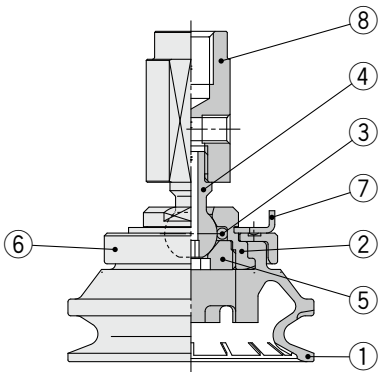
Component Parts

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	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) Brass (Electroless nickel plating)	Pad diameter: $\phi 32$ to $\phi 50$ M14 x 1 Pad diameter: $\phi 63$ to $\phi 125$ M16 x 1.5
9	Nut	Steel (Zinc chromated) Special steel (Zinc chromated)	M14 x 1 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

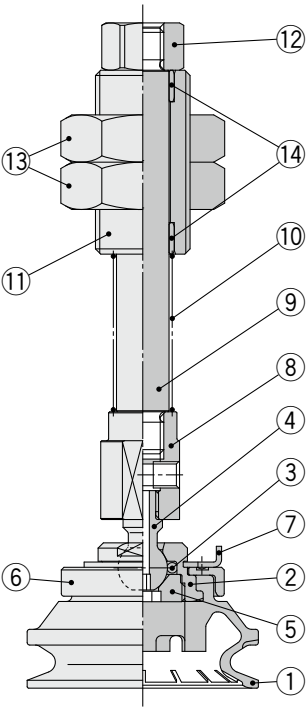
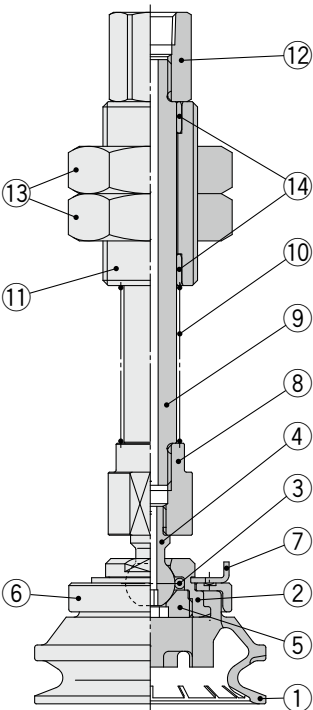
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Mark-free NBR	Flat type with groove Bellows type with ribs and groove
2	Plate	Stainless steel	
3	O-ring	FKM	
4	Shaft	Stainless steel	
5	Shaft ring	Stainless steel	
6	Holder	Aluminum alloy (Clear anodized)	
7	Stopper	Stainless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

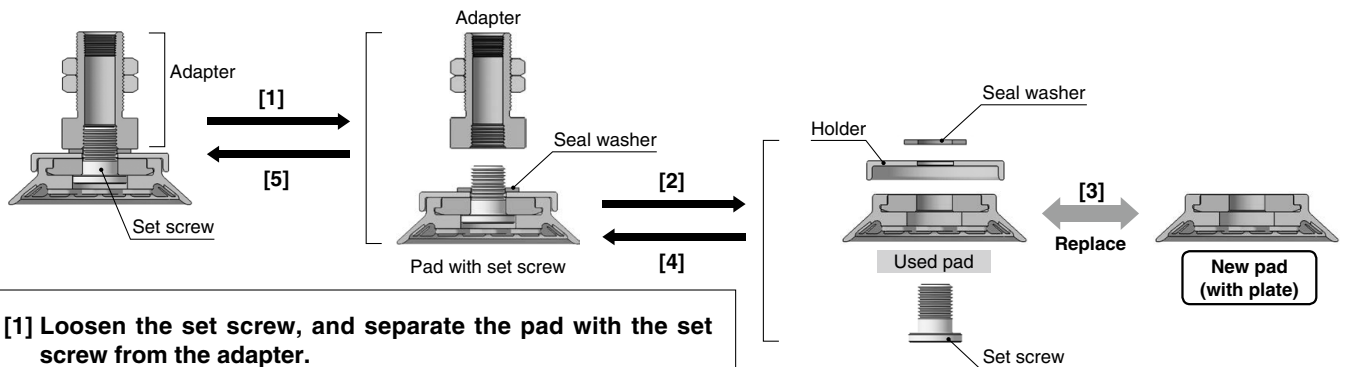


Component Parts

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	—	

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 surface 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.

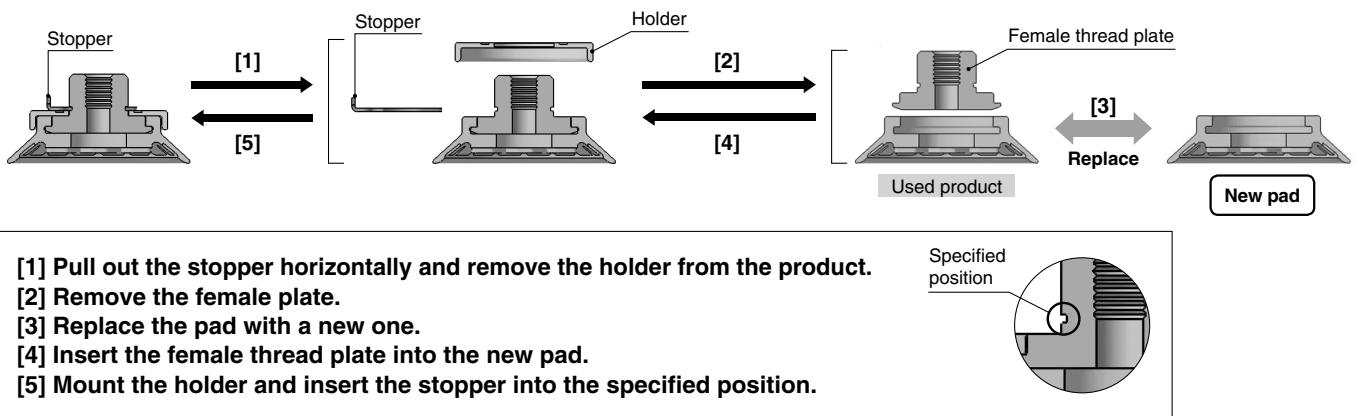
*2 Refer to the tightening torque shown in Table 1 for adapter mounting.

Table 1: Recommended Set Screw Tightening Torque

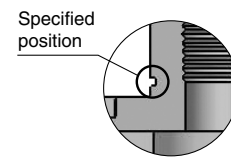
Product specifications			Tightening torque [N·m]
Pad diameter	Product part no.	Mounting thread size	
ø32 to ø50	ZP3E-(32 to 50)UM□□	M10 x 1	8 to 10
	ZP3E-(32 to 50)BM□□		
ø63 to ø125	ZP3E-(63 to 125)UM□□	M16 x 1.5	13 to 15
	ZP3E-(63 to 125)BM□□		

* 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)

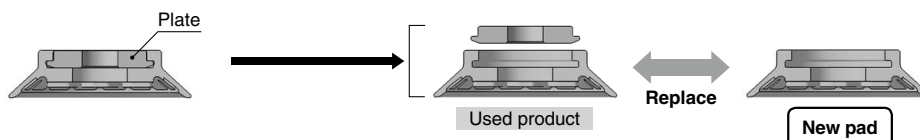


- [1] Pull out the stopper horizontally and remove the holder from the product.
- [2] Remove the female plate.
- [3] Replace the pad with a new one.
- [4] Insert the female thread plate into the new pad.
- [5] Mount the holder and insert the stopper into the specified position.



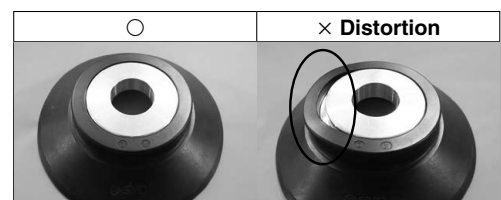
* Refer to "Pad Unit (with Plate)" shown below for the replacement method for pads with plate.

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.

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

Model
Selection

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

ZP3E
High Rigidity

Flat Type
with Groove

Ball Joint, Flat Type
with Groove

Belows Type
with Ribs and Groove

Ball Joint, Belows Type
with Ribs and Groove

Construction

Mounting
Bracket
Assembly

Precautions