



Basic Pad

Flat Type Ball Joint Type

ZP Series



How to Order

	Pad unit	With adapter	With buffer	Dimensions/Models	Construction	Mounting Bracket Assembly
	ZP 10 F N	ZP T 10 F N - B5 - A8	ZP T 10 F N J 10 - B5 - A10	p. 62	p. 119	From p. 127
* Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less only)						
				From p. 62	p. 119	From p. 127
				From p. 65	p. 120	From p. 129

①
②
③
④
⑤
⑥
⑦

● Ball joint type

① Vacuum inlet direction

T	Vertical
R	Lateral (With One-touch fitting)

② Pad diameter

10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

⑤ Buffer stroke

Stroke [mm]	Pad diameter [mm]	
	ø10 to ø16	ø20 to ø50
10	●	●
20	●	●
30	●	●
40	●	—
50	●	●

③ Material

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

④ Buffer specification

J	Rotating
K	Non-rotating

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

With adapter

⑥ Vacuum inlet/⑦ Connection thread

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

⑥ Vacuum inlet			⑦ Connection thread			Pad diameter [mm]		
Type	Symbol	Size	Type	Symbol	Size	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	B5	M5 x 0.8	Male thread	A8	M8 x 1	○	—	—
				A10	M10 x 1	—	○	—
				A14	M14 x 1	—	—	○
—	Nil	—*1	—	B5	M5 x 0.8	○	○	—
				B8	M8 x 1.25	—	○	○
				B01	Rc1/8	—	○	○
				N01	NPT1/8	—	○	○
				T01	NPTF1/8	—	○	○
				B5	M5 x 0.8	●	—	—
				B8	M8 x 1.25	—	●	●
One-touch fitting	04	ø4	Female thread	B5	M5 x 0.8	—	—	—
				B8	M8 x 1.25	—	●	●
				B5	M5 x 0.8	—	●	●
	06	ø6		B8	M8 x 1.25	—	●	●
	08	ø8		B5	M5 x 0.8	—	●	●
				B8	M8 x 1.25	—	●	●

*1 Use the connection thread.

With buffer

⑥ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	B5	M5 x 0.8	○	—	—
	B01	Rc1/8	—	○	○
	N01	NPT1/8	—	○	○
	T01	NPTF1/8	—	○	○
One-touch fitting	04	ø4	○●	—	—
	06	ø6	○●	○●	○●
	08	ø8	—	○●	○●

⑦ Connection thread ○: ZPT/Vertical ●: ZPR/Lateral

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	A10	M10 x 1	○●	—	—
	A14	M14 x 1	—	○●	○●

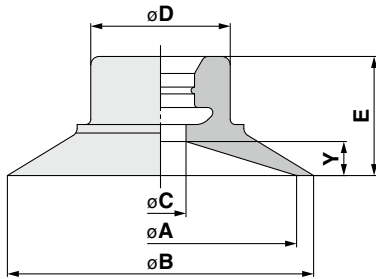
Lock ring unit

Part no.	Pad diameter [mm]
ZPLF	ø40, ø50

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

Dimensions/Models

Single unit $\varnothing 10$ to $\varnothing 50$



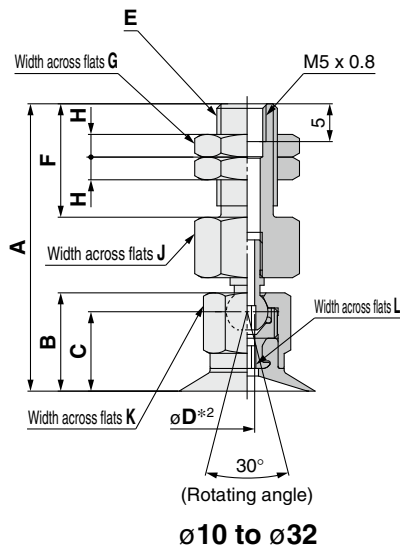
Construction p. 119
Mounting Bracket Assembly From p. 127

ZP **10** **F** **N**
① ②

Model	① Pad dia.	Form	② ^{*1} Material	A	B	C	D	E	Y
	10	F	N S U F GN GS	10	12	3	8.2	6.5	1.5
	13			13	15			7	2
	16			16	18				
	20			20	22	4	10.2	8.5	3
	25			25	28				
	32			32	35				
	40			40	43	10	26	13	5
	50			50	53	8		14	6

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

With adapter $\varnothing 10$ to $\varnothing 50$



ZPT **10** **F** **N** - **B5** - **A8**
① ② ④

Vacuum inlet (Female thread) ③

④ Connection thread (Male thread)

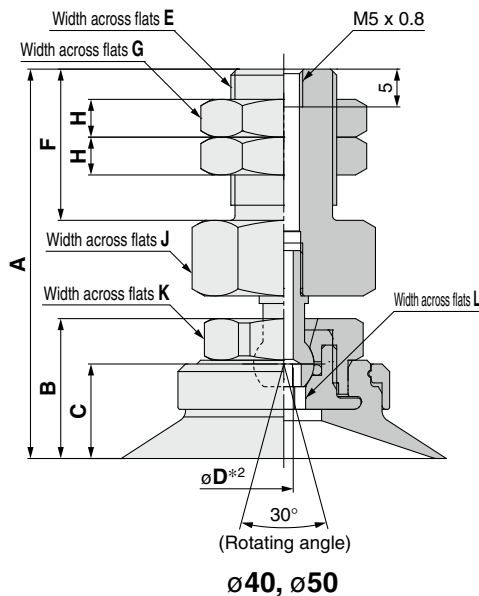
B5 M5 x 0.8

A8	M8 x 1
A10	M10 x 1
A14	M14 x 1

Model	Vacuum inlet direction	① Pad dia.	Form	② ^{*1} Material	③ Vacuum inlet	④ Connection thread	A	B	C	*2 D	E	F	G	H	J	K	L
	T	10	F	N S U F GN GS	B5	A8	37.5	12.5	10	2	M8 x 1	15	12	4	12	10	2
		13					38	13	10.5								
		16					48.5	15.5	12.5								
		20					49	16	13	2	M10 x 1	20	14	3	16	12	3
		25					51.5	18.5	12.5								
		32					52.5	19.5	13.5								
		40					52.5	19.5	13.5	2.5	M14 x 1	20	19	4	21	19	5
		50					52.5	19.5	13.5								

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

*2 Indicates the minimum hole size of the adapter or vacuum pad



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Adapter Assembly p. 127

Model Selection

ZP Basic

Flat Type

Flat Type with Ribs

Flat, Ball Joint Type

Bellows Type

Thin Flat Type

Thin Flat Type with Ribs

Deep Type

Construction

Mounting Bracket Assembly

Precautions

Dimensions/Models

With adapter $\varnothing 10$ to $\varnothing 50$

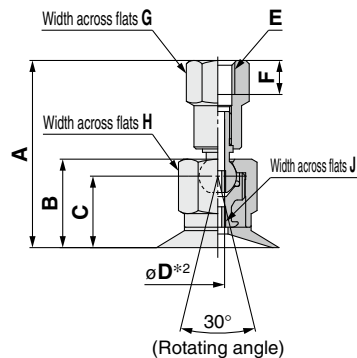
ZPT **10** F **N** - **B5**

①

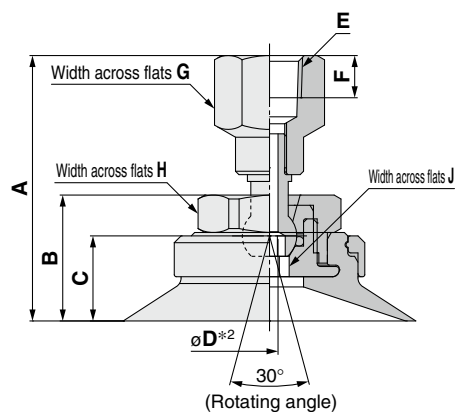
②

③ Connection thread (Female thread)

B5	M5 x 0.8
B8	M8 x 1.25
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8



$\varnothing 10$ to $\varnothing 32$



$\varnothing 40, \varnothing 50$

		Model			A	B	C	D*2	E	F	G	H	J	
Vacuum inlet direction	① Pad dia.	Form	②*1 Material	③ Connection thread										
ZP	T	F	N S U F GN GS	B5	10	27	12.5	10	2	M5 x 0.8	5	8	10	2
					13	27.5	13	10.5						
					16	32	15.5	12.5						
					20	32.5	16	13						
					25	36	15.5	12.5						
					32	36.5	16	13						
				B8	20	39	18.5	12.5	2.5	M8 x 1.25	8	12	12	3
					25	40	19.5	13.5						
					32	36	15.5	12.5						
					40	39	18.5	12.5						
					50	40	19.5	13.5						
					50	40	19.5	13.5						
B01 N01 T01	20	36	15.5	12.5	2	Rc1/8 NPT1/8 NPTF1/8	/	14	12	3				
	25	36.5	16	13										
	32	39	18.5	12.5										
	40	40	19.5	13.5										
	50	40	19.5	13.5										
	50	40	19.5	13.5										

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

*2 Indicates the minimum hole size of the adapter or vacuum pad

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Dimensions/Models

With adapter/One-touch fitting $\varnothing 10$ to $\varnothing 50$

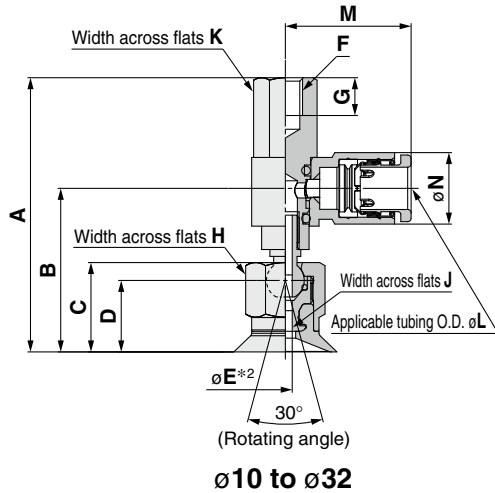
ZPR **10** F **N** - **04** - **B5**

① Pad dia.
② Form
③ Vacuum inlet
(One-touch fitting)

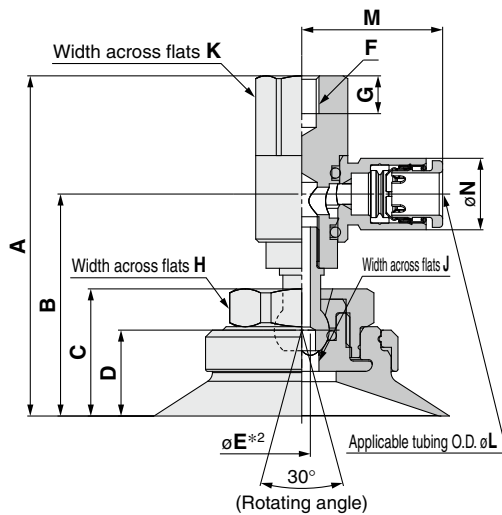
④ Connection thread
(Female thread)

04	$\varnothing 4$
06	$\varnothing 6$
08	$\varnothing 8$

B5	M5 x 0.8
B8	M8 x 1.25



$\varnothing 10$ to $\varnothing 32$



$\varnothing 40, \varnothing 50$

		Model				A	B	C	D	*2 E	F	G	H	J
Vacuum inlet direction	① Pad dia.	Form	② *1 Material	③ Vacuum inlet	④ Connection thread									
ZP	R	F	N S U F GN GS	04 06 08	B5	10	39.5	23.4	12.5	10	M5 x 0.8	5.5	10	2
						13	40	23.9	13	10.5				
						16	40	23.9	13	10.5				
						20	46.5	29.3	15.5	12.5				
						25	46.5	29.3	15.5	12.5				
						32	47	29.8	16	13				
	R	F	N S U F GN GS	04 06 08	B8	40	49.5	32.3	18.5	12.5	M8 x 1.25	8.5	12	3
						50	50.5	33.3	19.5	13.5				
						20	46.5	29.3	15.5	12.5				
						25	46.5	29.3	15.5	12.5				
						32	47	29.8	16	13				
						40	49.5	32.3	18.5	12.5				
R	F	N S U F GN GS	04 06 08	B8	50	50.5	33.3	19.5	13.5	M8 x 1.25	8.5	12	3	
					20	46.5	29.3	15.5	12.5					
					25	46.5	29.3	15.5	12.5					
					32	47	29.8	16	13					
					40	49.5	32.3	18.5	12.5					
					50	50.5	33.3	19.5	13.5					

Dimensions Per Vacuum Inlet

		Model				K	L	M	N	Fitting part min. hole size
Vacuum inlet direction	① Pad dia.	Form	② *1 Material	③ Vacuum inlet	④ Connection thread					
ZP	R	F	N S U F GN GS	04	B5	8	4	17.5	8.2	$\varnothing 2.5$
				06	B5	12	6	20.5	10.4	$\varnothing 4.5$

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

*2 Indicates the minimum hole size of the adapter or vacuum pad

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Adapter Assembly	p. 128

Model Selection

ZP Basic

Flat Type

Flat Type with Ribs

Flat, Ball Joint Type

Bellows Type

Thin Flat Type

Thin Flat Type with Ribs

Deep Type

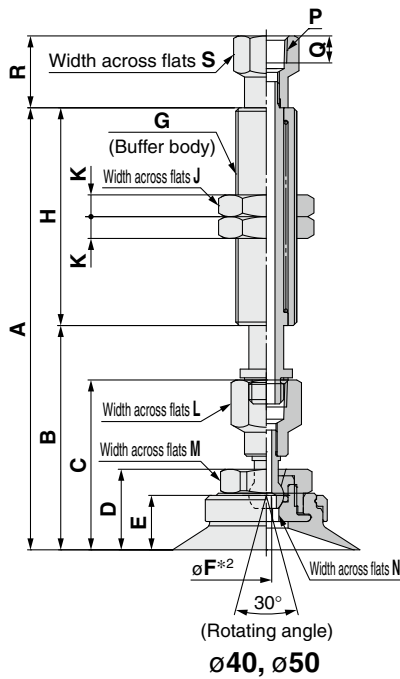
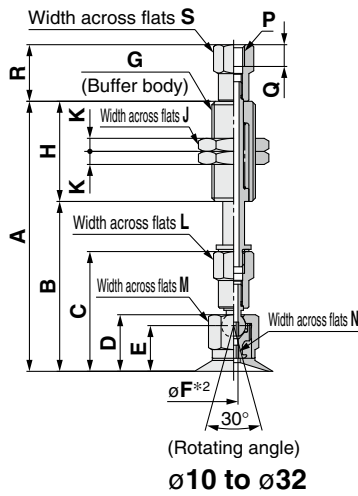
Construction

Mounting Bracket Assembly

Precautions

Dimensions/Models

With buffer $\varnothing 10$ to $\varnothing 50$



ZPT **10** F **N** **J** **10** - **B5** - **A10**

Buffer specification **3**

J	Rotating
K	Non-rotating

6 Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

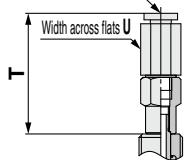
5 Vacuum inlet

		Pad diameter			
		$\varnothing 10$ to $\varnothing 16$	$\varnothing 20$ to $\varnothing 50$ (10 st only)		
B5	M5 x 0.8	Female thread			
B01	Rc1/8				
N01	NPT1/8				
T01	NPTF1/8	One-touch fitting	KQ2H04-M5N		
04	$\varnothing 4$			KQ2H06-M5N	KQ2H06-01NS
06	$\varnothing 6$				
08	$\varnothing 8$				

Model												A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S					
Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	6 Connection thread																										
ZP	T	F	N S U F G S	J K	10	B5	A10	61.5	38.5	27	12.5	10	2	M10 x1	23	14	3	8	10	2	M5 x 0.8	5	13	8									
					20			99.5	48.5						51																		
					30			109.5	58.5						77																		
					40			145.5	68.5						23																		
					50			155.5	78.5						51																		
					10			62	39						77																		
					20			100	49						23																		
					30			110	59						51																		
					40			146	69						77																		
					50			156	79																								
					10			98.5	48.5						2										M14 x1	19	4	12	19	5	13	12	16.5
					20			108.5	58.5																								
	30	118.5	68.5	75																													
	50	163.5	88.5	12																													
	10	99	49	50																													
	20	109	59	75																													
	30	119	69	50																													
	50	164	89	75																													
	10	101.5	51.5	2.5	M14 x1	19	4	12	19	5	13	12	16.5																				
	20	111.5	61.5											50																			
	30	121.5	71.5											75																			
	50	166.5	91.5											12																			
	10	102.5	52.5											50																			
	20	112.5	62.5											75																			
30	122.5	72.5	50																														
50	167.5	92.5	75																														

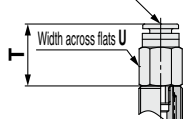
Vacuum inlet: One-touch fitting

Applicable tubing O.D. $\varnothing V$



Vacuum inlet: Built-in One-touch fitting Pad diameter: $\varnothing 20$ to $\varnothing 50$ (Buffer stroke: 20 to 50 st)

Applicable tubing O.D. $\varnothing V$



Dimensions Per Vacuum Inlet: One-touch Fitting

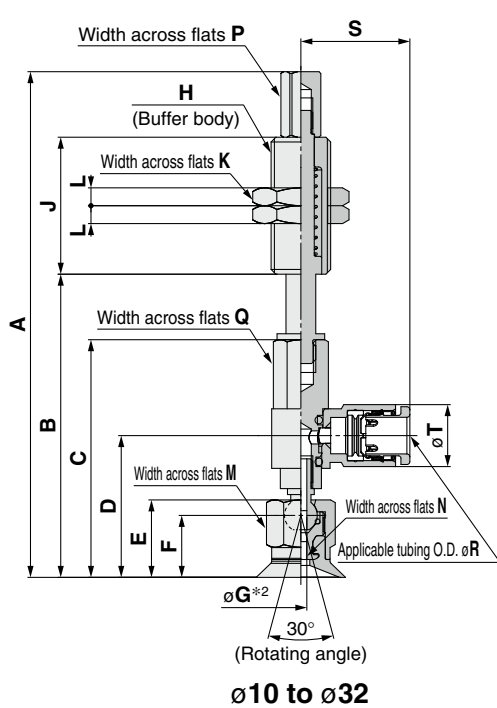
Model												T	U	V	Fitting part min. hole size
Vacuum inlet direction	1 Pad dia.	Form	2 Material	3 Buffer spec.	4 Buffer stroke	5 Vacuum inlet	6 Connection thread								
ZP	T	F	N S U F G S	J K	10	A10	A10	27.7	8	4	$\varnothing 2.5$				
					20										
					30										
					40										
					50										
					10							A14	19.9	12	6
	20														
	30														
	50														
	10	A14	24.9	14	8	$\varnothing 3$									
	20														
	30														
50															

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

*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With buffer/One-touch fitting $\varnothing 10$ to $\varnothing 50$



ZPR **10** F **N** **J** **10** - **04** - **A10**

1 2 3 4 5 6

Buffer specification 3

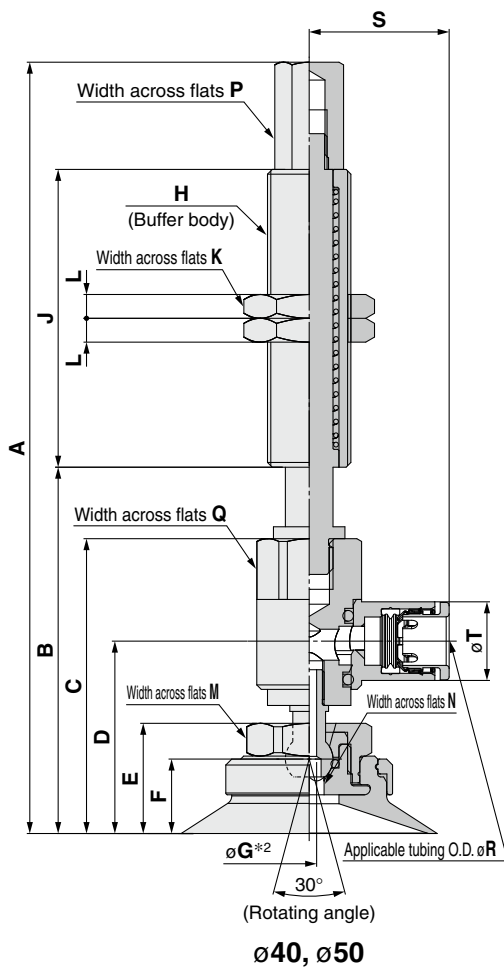
J	Rotating
K	Non-rotating

6 Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

5 Vacuum inlet (One-touch fitting)

04	$\varnothing 4$
06	$\varnothing 6$
08	$\varnothing 8$



$\varnothing 40, \varnothing 50$

Model	Vacuum inlet direction	1 Pad dia.	2 Form	3 Material	4 Buffer spec.	5 Vacuum inlet	6 Connection thread	A	B	C	D	E	F	G ^{*2}	H	J	K	L	M	N	P									
								84.5	50.5						23															
ZP	R	10	F	N	J	10	04	A10	84.5	50.5																				
									122.5	60.5																				
									132.5	70.5	39.5	23.4	12.5	10																
									168.5	80.5																				
									178.5	90.5																				
									85	51												2	M10 x 1	14	3	10	2	6		
		123							61																					
		133							71	40	23.9	13	10.5																	
		169							81																					
		179							91																					
		126.5							58.5																					
		123.5							68.5																					
	133.5	78.5	46.5	29.3	15.5	12.5																								
	178.5	98.5																												
	127	59												2							12	3								
	124	69																												
	134	79	47	29.8	16	13																								
	179	99																												
	129.5	61.5																												
	126.5	71.5																												
	136.5	81.5	49.5	32.3	18.5	12.5																								
	181.5	101.5																												
	130.5	62.5												2.5							19	5								
	127.5	72.5																												
137.5	82.5	50.5	33.3	19.5	13.5																									
182.5	102.5																													

Dimensions Per Vacuum Inlet: One-touch Fitting

Model	Vacuum inlet direction	1 Pad dia.	2 Form	3 Material	4 Buffer spec.	5 Vacuum inlet	6 Connection thread	Q	R	S	T	Fitting part min. hole size																							
ZP	R	10	F	N	J	10	04	A10	8	4	17.5	8.2	$\varnothing 2.5$																						
														06	6	18.3	10.4	$\varnothing 4$																	
																			08	12	6	20.5	10.4	$\varnothing 4.5$											
																									16	8	23.5	13.2	$\varnothing 6$						
																														20	12	6	20.5	10.4	$\varnothing 4.5$
		50					16	8	23.5	13.2	$\varnothing 6$																								

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

Model Selection

ZP Basic

Flat Type

Flat Type with Ribs

Flat, Ball Joint Type

Bellows Type

Thin Flat Type

Thin Flat Type with Ribs

Deep Type

Construction

Mounting Bracket Assembly

Precautions

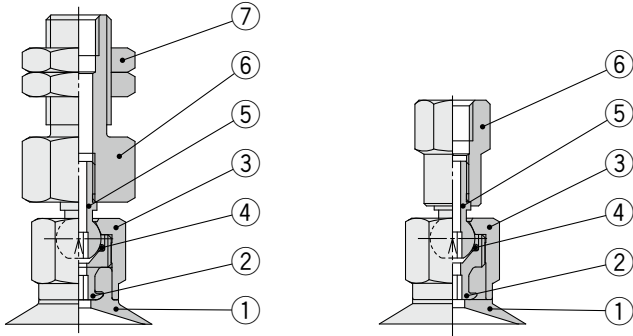
Ball Joint Type Basic Pad **ZP Series** Construction

With adapter Flat type: $\phi 10$ to $\phi 50$

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

ZPT□F□-B5-(A8/A10/A14)

ZPT□F□-(B5/B8/B01/N01/T01)



$\phi 10$ to $\phi 32$

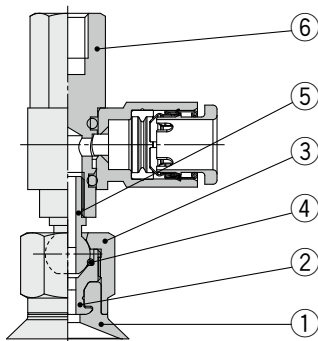
$\phi 40, \phi 50$

Component Parts

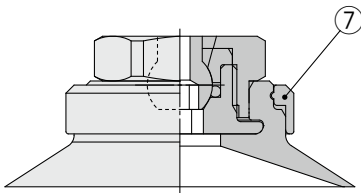
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Shaft cover	Stainless steel	
4	O-ring	FKM	
5	Shaft	Stainless steel	
6	Shaft adapter	Brass (Electroless nickel plating)	
7	Nut	Carbon steel (Zinc chromated)	M8 x 1
		Steel (Zinc chromated)	M10 x 1 M14 x 1
8	Lock ring	Aluminum (Clear anodized)	Pad diameter: $\phi 40, \phi 50$

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

ZPR□F□-(04/06/08)-(B5/B8)



$\phi 10$ to $\phi 32$



$\phi 40, \phi 50$

Component Parts

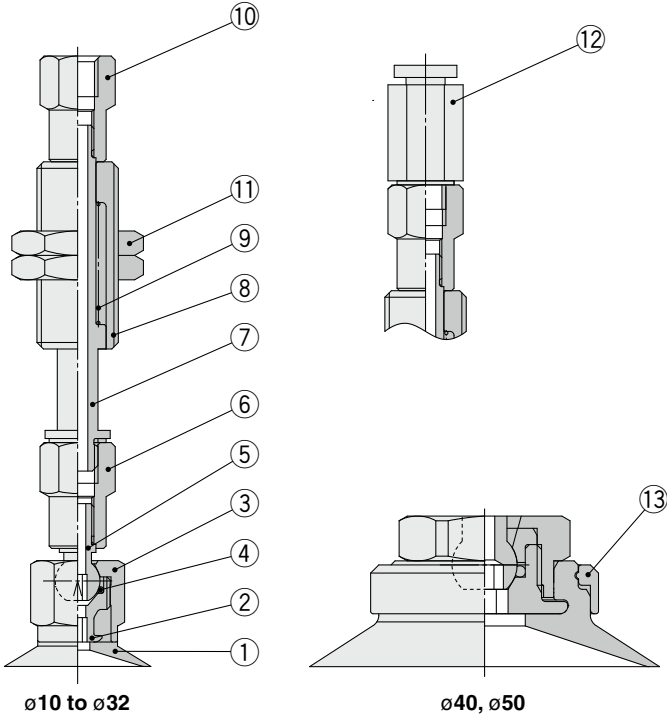
No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Shaft cover	Stainless steel	
4	O-ring	FKM	
5	Shaft	Stainless steel	
6	Shaft adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
7	Lock ring	Aluminum (Clear anodized)	Pad diameter: $\phi 40, \phi 50$

With buffer Flat type: $\phi 10$ to $\phi 50$

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

ZPT□F□-(B5/B01/N01/T01)-(A10/A14)

ZPT□F□-(04/06/08)-(A10/A14)

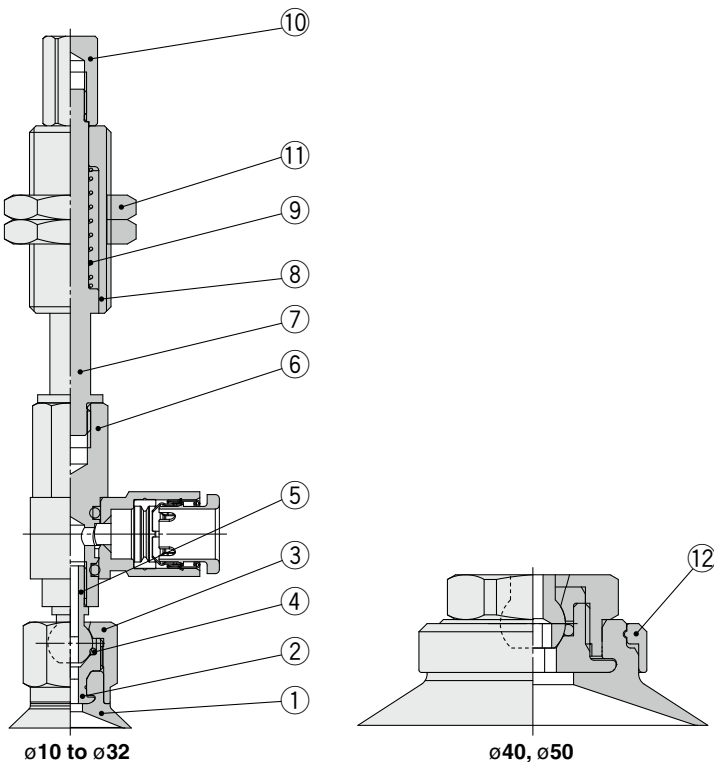


Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Shaft cover	Stainless steel	
4	O-ring	FKM	
5	Shaft	Stainless steel	
6	Shaft adapter	Brass (Electroless nickel plating)	
7	Piston rod	Stainless steel	
8	Buffer body	Brass (Electroless nickel plating)	
9	Return spring	Stainless steel	
10	Buffer adapter	Brass (Electroless nickel plating)	
11	Nut	Steel (Zinc chromated)	M10 x 1 M14 x 1
12	Fitting	—	
13	Lock ring	Aluminum (Clear anodized)	Pad diameter: $\phi 40, \phi 50$

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

ZPR□F□-(04/06/08)-(A10/A14)



Component Parts

No.	Description	Material	Note
1	Pad	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type
2	Adapter	Brass (Electroless nickel plating)	
3	Shaft cover	Stainless steel	
4	O-ring	FKM	
5	Shaft	Stainless steel	
6	Shaft adapter (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
7	Piston rod	Stainless steel	
8	Buffer body	Brass (Electroless nickel plating)	
9	Return spring	Stainless steel	
10	Buffer adapter	Brass (Electroless nickel plating)	
11	Nut	Steel (Zinc chromated)	M10 x 1 M14 x 1
12	Lock ring	Aluminum (Clear anodized)	Pad diameter: $\phi 40, \phi 50$