Basic Pad *ZP* Series

RoHS

ø2, ø4, ø6, ø8, ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50

Flat Type, Flat Type with Ribs, Bellows Type, Thin Flat Type, Thin Flat Type with Ribs, Deep Type

12 sizes, 6 types of pad forms, and a wide range of adapter variations

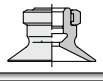
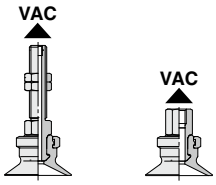
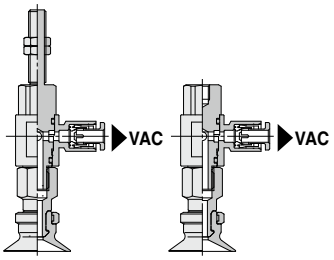
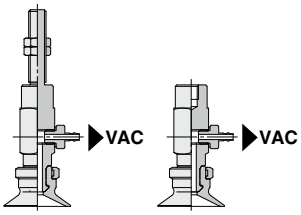
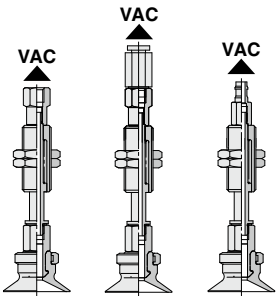
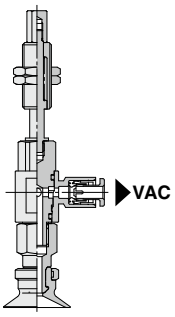
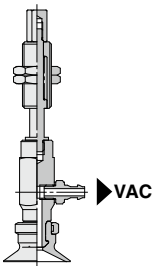
Pad form	Application
Flat type	For workpieces with flat and undeformed surfaces
Flat type with ribs	For workpieces which are easily deformed Workpieces can be removed easily thanks to the ribs.
Bellows type	For use where there is no space for a buffer or for workpieces with inclined surfaces
Thin flat type	For soft workpieces such as thin sheets or vinyl Wrinkling or deformation during adsorption can be reduced.
Thin flat type with ribs	For soft workpieces such as thin sheets or vinyl Workpieces can be removed easily thanks to the ribs.
Deep type	For workpieces with curved surfaces or for spherical workpieces

Mounting bracket	Application
Ball joint	For workpieces with inclined or curved surfaces
With adapter	The adapter can be selected according to the installation conditions.
With buffer	For workpieces of varying heights The buffer can reduce the impact to the workpiece during adsorption.

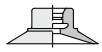
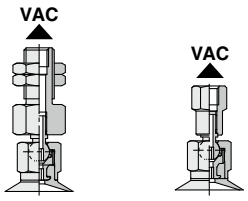
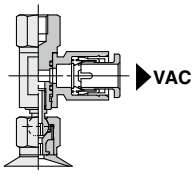
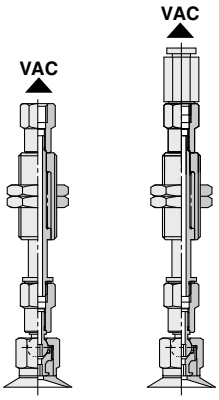
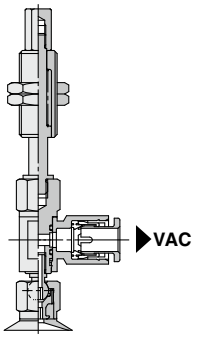
CONTENTS

Basic Pad *ZP* Series

Variations

Vacuum inlet direction			Flat type	Flat type with ribs	Bellows type	Thin flat type	Thin flat type with ribs	Deep type
Vacuum inlet direction	Single unit		p. 32	p. 51	p. 68	p. 87	p. 96	p. 105
Vertical	ZPT With adapter		p. 33 p. 34	p. 51 p. 52	p. 69 p. 70	p. 87	p. 96	p. 105 p. 106
Lateral	ZPR With adapter		p. 35 p. 37	p. 53 p. 54	p. 71 p. 73	p. 88 p. 89	p. 97 p. 98	p. 107 p. 108
Lateral	ZPY With adapter		p. 39 p. 41	p. 55 p. 56	p. 75 p. 77	p. 90 p. 91	p. 99 p. 100	p. 109 p. 110
Vertical	ZPT With buffer		p. 43	p. 57	p. 79	p. 92	p. 101	p. 111
Lateral	ZPR With buffer		p. 46	p. 59	p. 82	p. 93	p. 102	p. 113
Lateral	ZPY With buffer		p. 48	p. 60	p. 84	p. 94	p. 103	p. 114

Ball Joint Type

Vacuum inlet direction		Vacuum inlet direction	Flat type
	Single unit		p. 62
Vertical	ZPT With adapter		p. 62 p. 63
Lateral	ZPR With adapter		p. 64
Vertical	ZPT With buffer		p. 65
Lateral	ZPR With buffer		p. 66

Basic Pad *ZP Series*
Specifications

Pad Material

Material	NBR (Nitrile rubber)	Silicone rubber*1*2	Urethane rubber	FKM (Fluoro rubber)	Conductive NBR (Nitrile rubber)	Conductive silicone rubber
Color of rubber	Black	White	Brown	Black		
Rubber hardness (Shore A: ±5°)	50	40	50 to 60	60	50 to 65	50 to 60

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

Adapter Specifications

Vertical

Vacuum Inlet Direction Vertical T Type/ZPT

Connection		Male thread			Female thread			
Pad diameter		ø2 to ø8	ø10 to ø16	ø20 to ø50	ø2 to ø8*1	ø10 to ø16	ø20 to ø32	ø40, ø50
Connection thread		M5 x 0.8 M6 x 1		M6 x 1 M8 x 1	M4 x 0.7 M5 x 0.8	M5 x 0.8 M6 x 1 1/8 (Rc, NPT, NPTF)	M5 x 0.8 M6 x 1 M8 x 1.25 1/8 (Rc, NPT, NPTF)	M6 x 1 M8 x 1.25 1/8 (Rc, NPT, NPTF)
Vacuum inlet	Female thread	Use the connection thread.	M3 x 0.5	M3 x 0.5 M5 x 0.8	Use the connection thread.			

*1 Refer to ø2 to ø8 for the thin flat type and thin flat type with ribs.

Lateral

Vacuum Inlet Direction Lateral R Type/ZPR

Connection		Male thread			Female thread			
Pad diameter		ø2 to ø16	ø20 to ø32	ø40, ø50	ø2 to ø8*1	ø10 to ø16	ø20 to ø32	ø40, ø50
Connection thread		M5 x 0.8 M6 x 1	M6 x 1 M8 x 1		M4 x 0.7 M5 x 0.8	M5 x 0.8 M6 x 1	M5 x 0.8 M6 x 1 M8 x 1.25	M6 x 1 M8 x 1.25
Vacuum inlet	One-touch fitting	ø4, ø6	ø4, ø6, ø8	ø6, ø8	ø4, ø6		ø4, ø6, ø8	ø6, ø8

*1 Refer to ø2 to ø8 for the thin flat type and thin flat type with ribs.

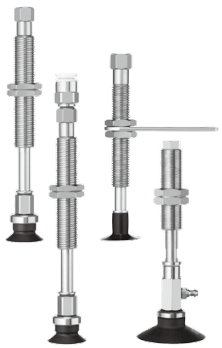
Vacuum Inlet Direction Lateral Y Type/ZPY

Connection		Male thread			Female thread			
Pad diameter		ø2 to ø16	ø20 to ø32	ø40, ø50	ø2 to ø8*1	ø10 to ø16	ø20 to ø32	ø40, ø50
Connection thread		M5 x 0.8 M6 x 1	M6 x 1 M8 x 1		M4 x 0.7 M5 x 0.8	M5 x 0.8 M6 x 1	M5 x 0.8 M6 x 1 M8 x 1.25	M6 x 1 M8 x 1.25
Vacuum inlet	Barb fitting*2	ø4, ø6		ø6	ø4, ø6			ø6

*1 Refer to ø2 to ø8 for the thin flat type and thin flat type with ribs.
*2 Applicable tubing: Nylon tubing, Soft tubing

Buffer Specifications

Vertical
Lateral



Pad diameter		ø2 to ø8*1	ø10 to ø32	ø40, ø50
Non-rotating specification		J: Rotating, K: Non-rotating		
Stroke [mm]		6, 10, 15, 25	10, 20, 30, 40, 50	10, 20, 30, 50
Connection thread		M8 x 1	M10 x 1	M14 x 1
Spring reactive force [N]	At 0 stroke	0.8	1.0	2.0
	At full stroke	1.2	3.0	5.0

*1 Refer to ø2 to ø8 for the thin flat type and thin flat type with ribs.

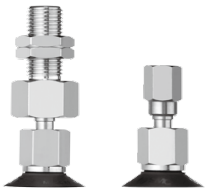
Specifications

Adapter Specifications (Ball Joint Type)

Ball joint rotating angle	30°

Vacuum Inlet Direction Vertical T Type/ZPT□F

Vertical



Connection	Male thread			Female thread		
Pad diameter	ø10 to ø16	ø20 to ø32	ø40, ø50	ø10 to ø16	ø20 to ø32	ø40, ø50
Connection thread	M8 x 1	M10 x 1	M14 x 1	M5 x 0.8	M5 x 0.8 M8 x 1.25 1/8 (Rc, NPT, NPTF)	M8 x 1.25 1/8 (Rc, NPT, NPTF)
Vacuum inlet	M5 x 0.8			Use the connection thread.		

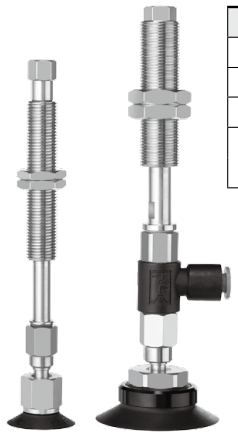
Vacuum Inlet Direction Lateral R Type/ZPR□F

Lateral

Connection		Female thread		
Pad diameter		ø10 to ø16	ø20 to ø32	ø40, ø50
Connection thread		M5 x 0.8	M5 x 0.8 M8 x 1.25	M5 x 0.8 M8 x 1.25
Vacuum inlet	One-touch fitting	ø4, ø6	ø6, ø8	ø6, ø8

Buffer Specifications (Ball Joint Type)

Vertical Lateral



Pad diameter		ø10 to ø16	ø20 to ø50
Non-rotating specification		J: Rotating, K: Non-rotating	
Stroke [mm]		10, 20, 30, 40, 50	10, 20, 30, 50
Connection thread		M10 x 1	M14 x 1
Spring reactive force [N]	At 0 stroke	1.0	2.0
	At full stroke	3.0	5.0

Basic Pad

Flat Type

ZP Series

How to Order

	Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit ZP 02 U N – [8]	p. 32	p. 115, p. 117	From p. 121
With adapter ZP T 02 U N – A5 – [ ]	From p. 33	p. 115, p. 117	From p. 121
With buffer ZP T 02 U N J 6 – B3 – A8	From p. 43	p. 116, p. 118	From p. 124

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less)

❶ ❷ U (Flat type) ❸ ❹ ❺ ❻ ❼ ❽

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Material

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

❷ Pad diameter

02	ø2	**16**	ø16
04	ø4	**20**	ø20
06	ø6	**25**	ø25
08	ø8	**32**	ø32
10	ø10	**40**	ø40
13	ø13	**50**	ø50

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter [mm]											
	ø2	ø4	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
6	●	●	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	—	—	—	—	—	—	—	—
20	—	—	—	—	●	●	●	●	●	●	●	●
25	●	●	●	●	—	—	—	—	—	—	—	—
30	—	—	—	—	●	●	●	●	●	●	●	●
40	—	—	—	—	●	●	●	●	●	●	—	—
50	—	—	—	—	●	●	●	●	●	●	●	●

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

With adapter

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	○∗1	—	—	—
	A6	M6 x 1	○∗1	—	—	—
Female thread	**Nil**	M3 x 0.5	—	○ (❼Connection thread: A5/A6)	○ (❼Connection thread: A6)	○ (❼Connection thread: A6)
		M5 x 0.8	—	—	○ (❼Connection thread: A8)	○ (❼Connection thread: A8)
	B4	M4 x 0.7	○	—	—	—
	B5	M5 x 0.8	○	○	○	—
	B6	M6 x 1	—	○	○	○
	B8	M8 x 1.25	—	—	○	○
	B01	Rc1/8	—	○	○	○
	N01	NPT1/8	—	○	○	○
	T01	NPTF1/8	—	○	○	○
One-touch fitting	**04**	ø4	●	●	●	—
	06	ø6	●	●	●	●
	08	ø8	—	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗2	△	△	△	—
	N6	For ø6 nylon tubing∗2	△	△	△	△
	U4	For ø4 soft tubing∗3	△	△	△	—
	U6	For ø6 soft tubing∗3	△	△	△	△

∗1 Use the connection thread. ∗2 Nylon tube piping ∗3 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	●△	○∗1●△	—	—
	A6	M6 x 1	●△	○∗1●△	○∗1●△	○∗1●△
	A8	M8 x 1	—	—	○∗1●△	○∗1●△
Female thread	**B4**	M4 x 0.7	●△	—	—	—
	B5	M5 x 0.8	●△	●△	●△	—
	B6	M6 x 1	—	●△	●△	●△
	B8	M8 x 1.25	—	—	●△	●△

∗1 ○: ZPT/Vertical comes with a vacuum inlet (female thread).

With buffer

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**B3**	M3 x 0.5	○	—	—	—
	B5	M5 x 0.8	○	○	○	○
	B01	Rc1/8	—	—	—	○
	N01	NPT1/8	—	—	—	○
	T01	NPTF1/8	—	—	—	○
One-touch fitting	**04**	ø4	○●	○●	○●	—
	06	ø6	○●	○●	○●	○●
	08	ø8	—	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△	△	△	—
	N6	For ø6 nylon tubing∗1	△	○△	○△	○△
	U4	For ø4 soft tubing∗2	○△	△	△	—
	U6	For ø6 soft tubing∗2	△	○△	○△	○△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A8**	M8 x 1	○●△	—	—	—
	A10	M10 x 1	—	○●△	○●△	—
	A14	M14 x 1	—	—	—	○●△

❽ Lock ring

Symbol	Pad diameter [mm]	
	ø2 to ø8	ø10 to ø50
Nil	None∗1	With lock ring
X19	None∗1	Without lock ring

∗1 The lock ring cannot be used for pad diameters ø2 to ø8.

Lock ring unit

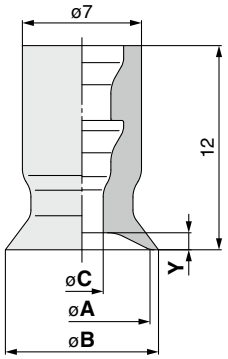
Part no.	Pad diameter [mm]
ZPL1	ø10 to ø16
ZPL2	ø20 to ø32
ZPL3	ø40, ø50

∗ The pad, lock ring, mounting nut, fitting, and buffer plate are shipped together but do not come assembled.

Dimensions/Models

Single unit ø2 to ø8

ZP 02 U N
❶ ❷



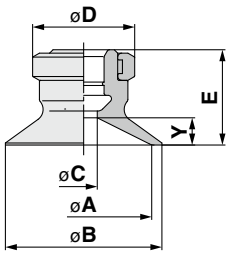
Model ❶ Pad dia.	Form	❷ *1 Material	A	B	C	Y
ZP 02	U	N S U F GN GS	2	2.6	1.2	0.5
ZP 04	U	N S U F GN GS	4	4.8	1.6	0.8
ZP 06	U	N S U F GN GS	6	7	2.5	0.8
ZP 08	U	N S U F GN GS	8	9	2.5	1

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

Construction p. 115
Mounting Bracket Assembly From p. 121

Single unit ø10 to ø50

ZP 10 U N
❶ ❷



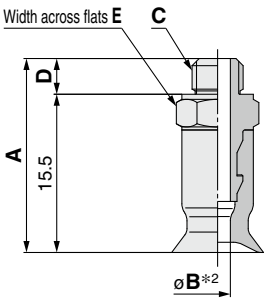
Model ❶ Pad dia.	Form	❷ *1 Material	A	B	C	D	E	Y
ZP 10	U	N S U F GN GS	10	12	4	13	12	3
ZP 13	U	N S U F GN GS	13	15	4	13	12	3
ZP 16	U	N S U F GN GS	16	18	4	13	12.5	3.5
ZP 20	U	N S U F GN GS	20	23	4	15	14	4
ZP 25	U	N S U F GN GS	25	28	4	15	14	4
ZP 32	U	N S U F GN GS	32	35	4	15	14.5	4.5
ZP 40	U	N S U F GN GS	40	43	7	18	18.5	6.5
ZP 50	U	N S U F GN GS	50	53	7	18	19.5	7.5

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

Construction p. 117
Mounting Bracket Assembly From p. 121

Dimensions/Models

With adapter ø2 to ø8



Construction p. 115
Adapter Assembly p. 121

ZPT 02 U N - A5
❶ ❷ ❸

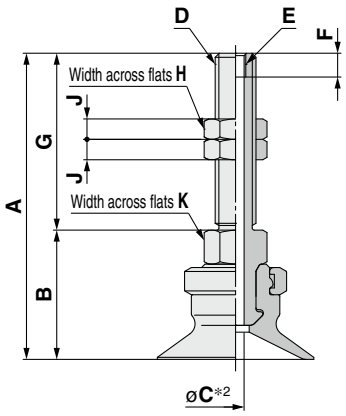
❸ **Vacuum inlet (Male thread)**

A5	M5 x 0.8
A6	M6 x 1

Model						A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet					
ZP	T	02	U	N S U F GN GS	A5	19	1.2	M5 x 0.8	3.5	7
		04					1.6			
		06 08					2.5			
		02			A6	20	1.2	M6 x 1	4.5	8
		04					1.6			
		06 08					2.5			

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

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT 10 U N - A5
❶ ❷ ❸

❸ **Connection thread (Male thread)**

A5	M5 x 0.8 (M3 x 0.5 With female thread)
A6	M6 x 1 (M3 x 0.5 With female thread)
A8	M8 x 1 (M5 x 0.8 With female thread)

Model						A	B	C*2	D	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Connection thread										
ZP	T	10 13	U	N S U F GN GS	A5	38	17	2.5	M5 x 0.8	M3 x 0.5	3.5	21	8	4	8
		16				38.5	17.5								
		10 13			A6	43	17	2.5	M6 x 1	M3 x 0.5	3.5	26	8	4	8
		16				43.5	17.5								
		20 25				45	19								
		32				45.5	19.5								
		40				50.5	24.5								12
		50				51.5	25.5								
		20 25			A8	40	24	4	M8 x 1	M5 x 0.8	5	16	12	4	12
		32				40.5	24.5								
		40						4.2							
		50				41.5	25.5								

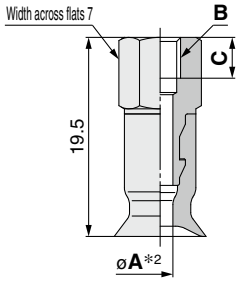
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Recommended Gasket Part Nos.

Part no.	D vacuum inlet (Male thread)
WCS5X0.8	M5 x 0.8
WCS6X1	M6 x 1
WCS8X1	M8 x 1

Dimensions/Models

With adapter ø2 to ø8



Construction p. 115
Adapter Assembly p. 121

ZPT 02 U N - B4
❶ ❷ ❸

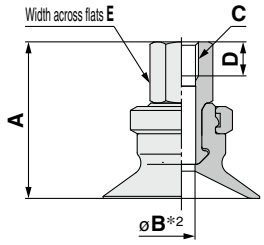
❸ Vacuum inlet (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model						A*2	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet			
ZP	T	02	U	N S U F GN GS	B4	1.2	M4 x 0.7	4
		04				1.6		
		06 08				2.5		
		02			B5	1.2	M5 x 0.8	5
		04				1.6		
		06 08				2.5		

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

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT 10 U N - B5
❶ ❷ ❸

❸ Vacuum inlet (Female thread)

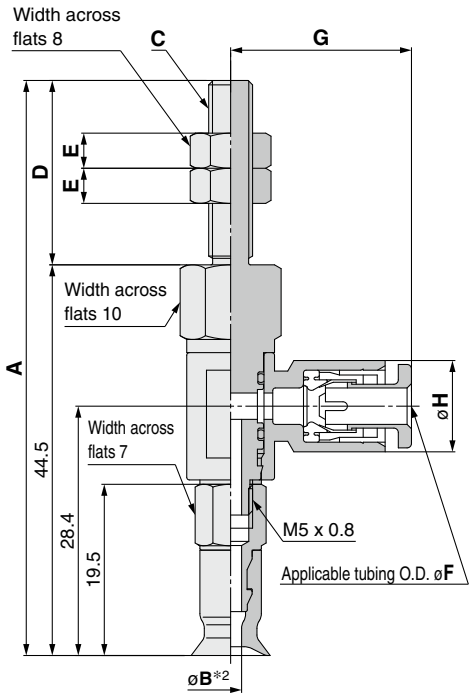
B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

Model						A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet					
ZP	T	10 13	U	N S U F GN GS	B5	21	2.5	M5 x 0.8	5	8
		16				21.5				
		20 25				23	4			
		32				23.5				
		10 13			B6	21	2.5	M6 x 1	6	8
		16				21.5				
		20 25				23	4			
		32				23.5				
		40				32	4.9			12
		50				33				
		20 25			B8	29	3.5	M8 x 1.25	8	12
		32				29.5				
		40				32	6.6			
		50				33				
		10 13			B01 N01 T01	27	2.5	Rc1/8 NPT1/8 NPTF1/8	—	12
		16				27.5				
		20 25				29	3.5			
		32				29.5				
		40				32	7			
		50				33				

*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 adapter/One-touch fitting ø2 to ø8



Construction p. 115
Adapter Assembly p. 122

ZPR 02 U N – 04 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread					
ZP	R	02	U	N S U F GN GS	04 06	A5	65.5	1.2	M5 x 0.8	21	4
		04						1.6			
		06 08						2.5			
		02				A6	70.5	1.2	M6 x 1	26	4
		04						1.6			
		06 08						2.5			

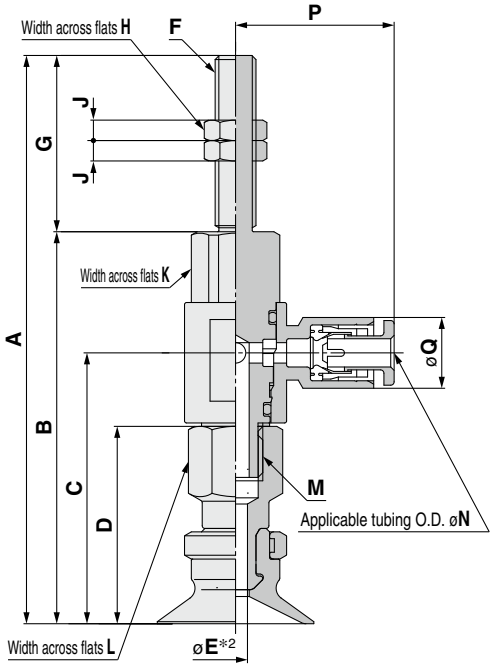
Dimensions Per Vacuum Inlet

Model							F	G	H	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	02 04 06 08	U	N S U F GN GS	04	A5 A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/One-touch fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 122

ZPR 10 U N - 04 - A5

❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D	*2 E	F	G	H	J	K	L	M
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread												
ZP	R	10, 13	U	N, S, U, F, GN, GS	04, 06, 08	A5	67	46	29.9	21	2.5	M5 x 0.8	21	8	4	10	8	M5 x 0.8
		16					67.5	46.5	30.4	21.5								
		10, 13				A6	72	46	29.9	21	2.5	M6 x 1	26	8	4	10	8	M5 x 0.8
		16					72.5	46.5	30.4	21.5								
		20, 25					83.5	57.6	39.8	29	3.5		25.9			12	12	M8 x 1.25
		32					84	58.1	40.3	29.5								
		40					86.5	60.6	42.8	32	4							
		50					87.5	61.6	43.8	33								
		20, 25				A8	73.5	57.6	39.8	29	3.5	M8 x 1	15.9	12	4	12	12	M8 x 1.25
		32					74	58.1	40.3	29.5								
		40					76.5	60.6	42.8	32	4							
		50					77.5	61.6	43.8	33								

Dimensions Per Vacuum Inlet

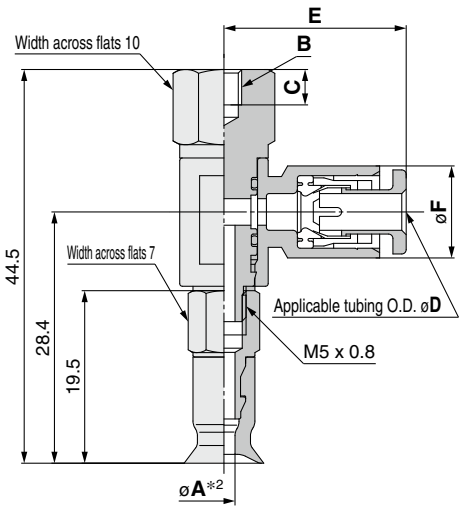
Model							N	P	Q	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10, 13, 16	U	N, S, U, F, GN, GS	04	A5, A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20, 25, 32			04	A6, A8	4	23.3	10.4	ø3
					06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6
		40, 50			06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6

*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 adapter/One-touch fitting ø2 to ø8



Construction p. 115
Adapter Assembly p. 122

ZPR 02 U N – 04 – B4

❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model							A*2	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	R	02	U	N S U F GN GS	04 06	B4	1.2	M4 x 0.7	4
		04					1.6		
		06 08					2.5		
		02				B5	1.2	M5 x 0.8	5
		04					1.6		
		06 08					2.5		

Dimensions Per Vacuum Inlet

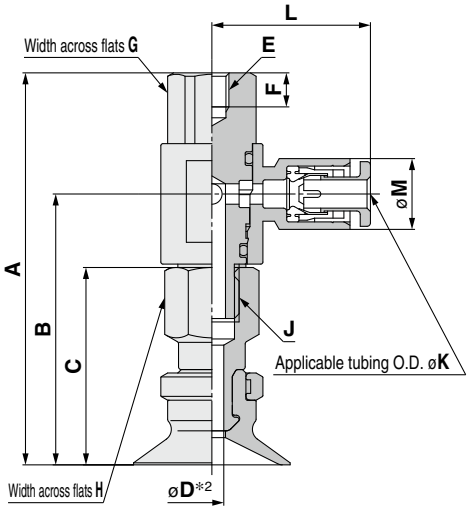
Model							D	E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	02 04 06 08	U	N S U F GN GS	04	B4 B5	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/One-touch fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 122

ZPR 10 U N - 04 - B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C	D*2	E	F	G	H	J
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread									
ZP	R	10, 13	U	NSUFGNGS	04, 06, 08	B5	46	29.9	21	2.5	M5 x 0.8	5	10	8	M5 x 0.8
		16					46.5	30.4	21.5						
		20, 25					57.6	39.8	29	3.5			12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		10, 13				B6	46	29.9	21	2.5	M6 x 1	6	10	8	M5 x 0.8
		16					46.5	30.4	21.5						
		20, 25					57.6	39.8	29	3.5			12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		40					60.6	42.8	32	4					
		50					61.6	43.8	33						
		20, 25				B8	57.6	39.8	29	3.5	M8 x 1.25	8	12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		40					60.6	42.8	32	4					
		50					61.6	43.8	33						

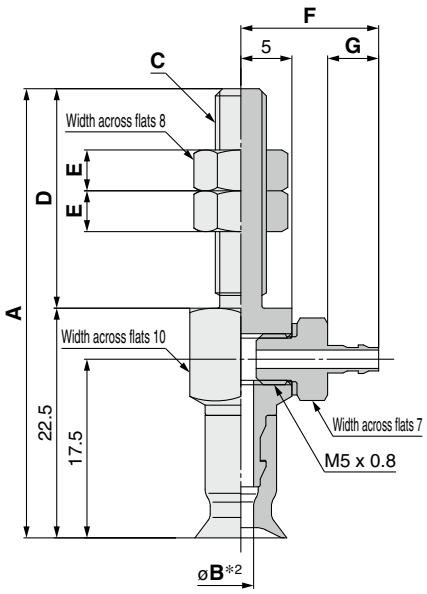
Dimensions Per Vacuum Inlet

Model							K	L	M	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10, 13, 16	U	NSUFGNGS	04	B5, B6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20, 25, 32			04	B5	4	23.3	10.4	ø3
					06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6
		40, 50			06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6

*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 adapter/barb fitting ø2 to ø8



ZPY 02 U N – N4 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B*2	C	D	E
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread					
ZP	**Y**	**02**	**U**	**N S U F GN GS**	**N4 N6 U4 U6**	**A5**	44	1.2	M5 x 0.8	21.5	4
		04						1.6			
		06 08						2.5			
		02				**A6**	49.5	1.2	M6 x 1	27	4
		04						1.6			
		06 08						2.5			

Dimensions Per Vacuum Inlet

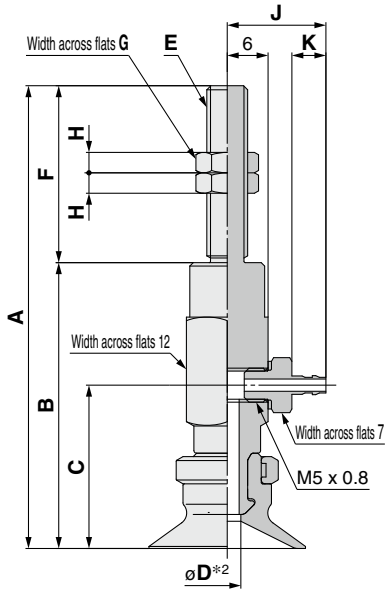
Model							F	G	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	**Y**	**02 04 06 08**	**U**	**N S U F GN GS**	**N4 U4**	**A5 A6**	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Construction p. 115
Adapter Assembly p. 123

Dimensions/Models

With adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY ❶10 U ❷N – ❸N4 – ❹A5

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D*2	E	F	G	H
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread								
ZP	Y	10 13	U	N S U F GN GS	N4 N6 U4 U6	A5	59	38	22	2.5	M5 x 0.8	21	8	4
		16					59.5	38.5	22.5					
		10 13				A6	64	38	22	2.5	M6 x 1	26	8	4
		16					64.5	38.5	22.5					
		20 25					68	42	24	3.5				
		32					68.5	42.5	24.5					
		40					72.5	46.5	28.5	6				
		50					73.5	47.5	29.5					
		20 25				A8	58	42	24	3.5	M8 x 1	16	12	4
		32					58.5	42.5	24.5					
		40					62.5	46.5	28.5	6				
		50					63.5	47.5	29.5					

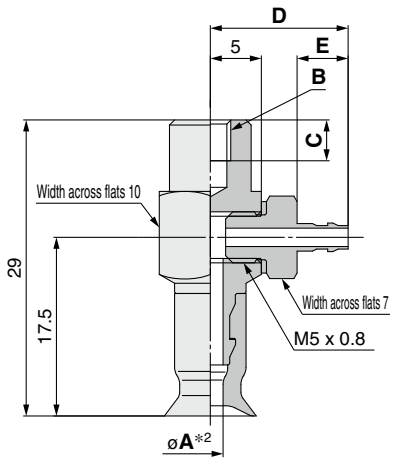
Dimensions Per Vacuum Inlet

Model							J	K	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16 20 25 32	U	N S U F GN GS	N4 U4	A5 A6	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40 50			N6 U6	A6 A8	16.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø2 to ø8



Construction p. 115
Adapter Assembly p. 123

ZPY ❶02 U ❷N – N4 – B4

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model							A*2	B	C
Vacuum inlet direction		❶ Pad dia.	Form	❷ Material*1	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	02	U	N S U F GN GS	N4 N6 U4 U6	B4	1.2	M4 x 0.7	4
		04					1.6		
		06 08					2.5		
		02				B5	1.2	M5 x 0.8	5
		04					1.6		
		06 08					2.5		

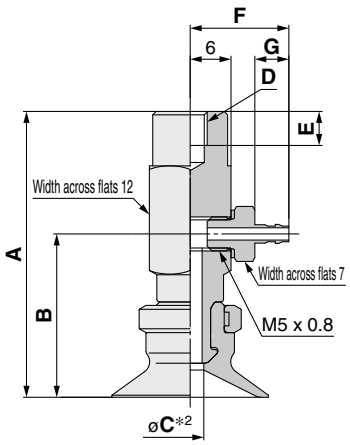
Dimensions Per Vacuum Inlet

Model							D	E	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ Material*1	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	02 04 06 08	U	N S U F GN GS	N4 U4	B4 B5	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY 10 U N – N4 – B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C*2	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread					
ZP	Y	10 13	U	N S U F GN GS	N4 N6 U4 U6	B5	38	22	2.5	M5 x 0.8	5
		16					38.5	22.5			
		20 25					42	24	3.5		
		32					42.5	24.5			
		10 13				B6	38	22	2.5	M6 x 1	6
		16					38.5	22.5			
		20 25					42	24	3.5		
		32					42.5	24.5			
		40					46.5	28.5	6		
		50					47.5	29.5			
		20 25				B8	42	24	3.5	M8 x 1.25	8
		32					42.5	24.5			
		40					46.5	28.5	6		
		50					47.5	29.5			

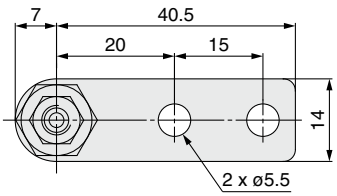
Dimensions Per Vacuum Inlet

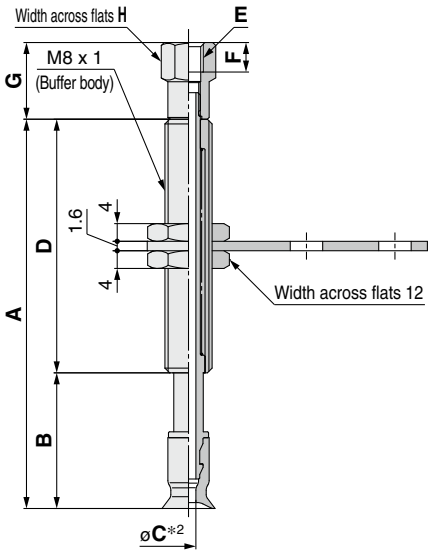
Model							F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	U	N S U F GN GS	N4 U4	B4 B5	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		20 25 32			N4 U4	B5 B6 B8	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40 50			N6 U6	B6 B8	16.5	7	ø2.5

*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

Dimensions/Models

With buffer ø2 to ø8





ZPT 02 U N J 6 - B3 - A8

❶ ❷ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

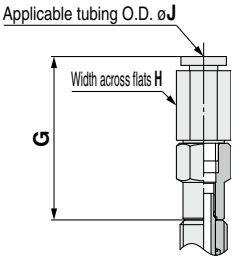
A8	M8 x 1

❺ Vacuum inlet

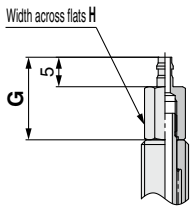
B3	M3 x 0.5	Female thread	
B5	M5 x 0.8		
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6		KQ2H06-M5N
N4	For ø4 nylon tubing	Barb fitting	
U4	For ø4 soft tubing		

Model									A	B	C*2	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	02	U	N S U F GN GS	J K	6	B3 B5 04 06 N4 U4	A8	33	18	1.2	15
						10			66	23		43
						15			71	28		
						25			81	38		
		04				6			33	18	1.6	15
						10			66	23		43
						15			71	28		
						25			81	38		
		06 08				6			33	18	J: 2.5 K: 2	15
						10			66	23		43
						15			71	28		
						25			81	38		

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 116
Buffer Assembly p. 124

Dimensions Per Vacuum Inlet: Female Thread

Model									E	F	G	H
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	02 04 06 08	U	N S U F GN GS	J K	6 10 15 25	B3	A8	M3 x 0.5	3	11	6
							B5		M5 x 0.8	5	13	8

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									G	H	J	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	02 04 06 08	U	N S U F GN GS	J K	6 10 15 25	04	A8	27.7	8	4	ø2.5
							06			10	6	

Dimensions Per Vacuum Inlet: Barb Fitting

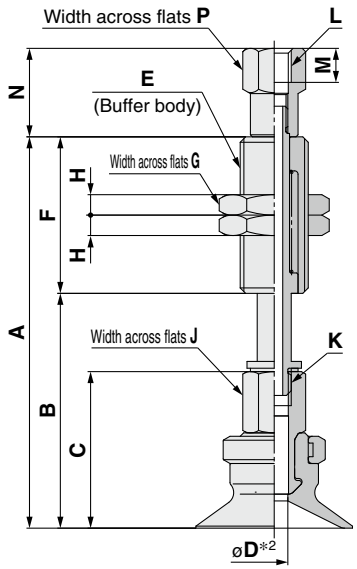
Model									G	H	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	02 04 06 08	U	N S U F GN GS	J K	6 10 15 25	N4	A8	14	6	ø1.8
							U4				

*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 ø10 to ø50



Construction p. 118
Buffer Assembly p. 124

ZPT 10 U N J 10 - B5 - A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Female thread)

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

Model									A	B	C	D*2	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	T	10, 13	U	N, S, U, F, GN, GS	J, K	10	B5, 04, 06, N6, U6	A10	55.5	32.5	21	J: 2.5, K: 2	M10 x 1	23	14	3	8	M5 x 0.8
						20			93.5	42.5				51				
						30			103.5	52.5								
						40			139.5	62.5				77				
						50			149.5	72.5								
		16				10			56	33	21.5			23				
						20			94	43				51				
						30			104	53								
						40			140	63				77				
						50			150	73								
		20, 25				10			57.5	34.5	23			23				
						20			95.5	44.5				51				
						30			105.5	54.5								
						40			141.5	64.5				77				
						50			151.5	74.5								
		32				10			58	35	23.5			23				
						20			96	45				51				
						30			106	55								
						40			142	65				77				
						50			152	75								
		40				10	B5, B01, N01, T01, 06, 08, N6, U6	A14	94.5	44.5	32	4	M14 x 1	50	19	4	12	M8 x 1.25
						20			104.5	54.5								
						30			114.5	64.5				75				
						50			159.5	84.5								
		50				10			95.5	45.5	33			50				
						20			105.5	55.5								
						30			115.5	65.5				75				
						50			160.5	85.5								

Dimensions Per Vacuum Inlet: Female Thread

Model									L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10, 13, 16, 20, 25, 32	U	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	B5	A10	M5 x 0.8	5	13	8
		40, 50				10	B5	A14	M5 x 0.8	4.5	15	10
						20, 30, 50				5	9	
						10	B01, N01, T01		Rc1/8, NPT1/8, NPTF1/8	—	16.5	13
						20, 30, 50					12	

*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 ø10 to ø50

ZPT 10 U N J 10 – 04 – A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

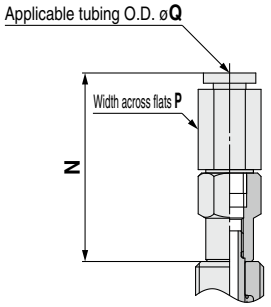
❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

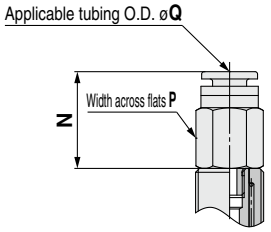
❺ Vacuum inlet

			Pad diameter	
			ø10 to ø32	ø40, ø50 (10 st only)
04	ø4	One-touch fitting	KQ2H04-M5N	
06	ø6		KQ2H06-M5N	KQ2H06-01NS
08	ø8			KQ2H08-01NS
N6	For ø6 nylon tubing	Barb fitting		
U6	For ø6 soft tubing			

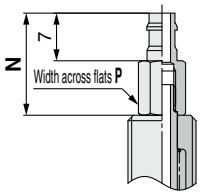
Vacuum inlet: One-touch fitting



Vacuum inlet: Built-in One-touch fitting
Pad diameter: ø40, ø50 (Buffer stroke: 20 to 50 st)



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: One-touch Fitting

Model									N	P	Q	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16 20 25 32	U	N S U F GN GS	J K	10 20 30 40 50	04	A10	27.7	8	4	ø2.5
							06			10	6	
		40 50				10	06	A14	31.8	10	6	ø4.5
							08		35.9	14	8	ø6
						20 30 50	06		19.9	12	6	ø3
							08		24.9	14	8	

Dimensions Per Vacuum Inlet: Barb Fitting

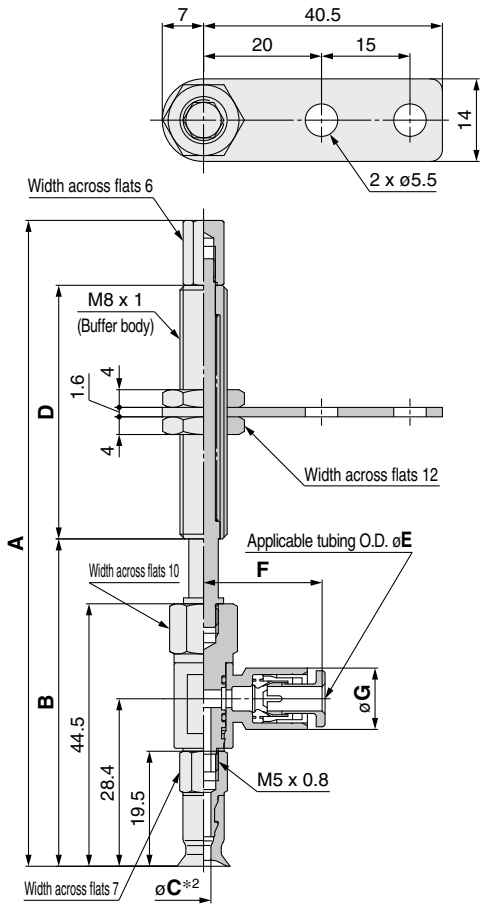
Model									N	P	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	10 13 16 20 25 32	U	N S U F GN GS	J K	10 20 30 40 50	N6	A10	15	6	ø2.5
							U6				
		40 50				10	N6	A14	19	10	
							U6				
						20 30 50	N6		12		
							U6				

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

Construction p. 118
Buffer Assembly p. 124

Dimensions/Models

With buffer/One-touch fitting ø2 to ø8



Construction p. 116
Buffer Assembly p. 125

ZPR 02 U N J 6 - 04 - A8
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

Model									A	B	C*2	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	02	U	N S U F GN GS	J K	6	04 06	A8	78.5	52.5	1.2	15
						10			109.5	55.5		43
						15			114.5	60.5		
						25			124.5	70.5		
		04				6			78.5	52.5	1.6	15
						10			109.5	55.5		43
						15			114.5	60.5		
						25			124.5	70.5		
		06 08				6			78.5	52.5	2.5	15
						10			109.5	55.5		43
						15			114.5	60.5		
						25			124.5	70.5		

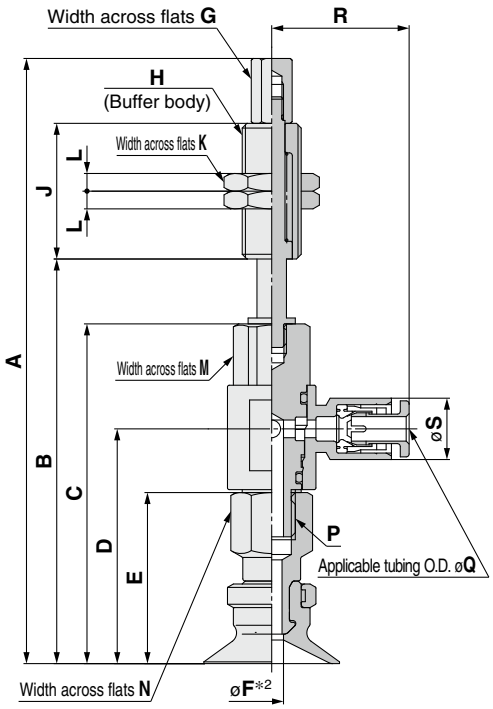
Dimensions Per Vacuum Inlet

Model									E	F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	02 04 06 08	U	N S U F GN GS	J K	6 10 15 25	04	A8	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4

*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 ø10 to ø50



Construction p. 118
Buffer Assembly p. 125

ZPR ❶10 U ❷N ❸J ❹10 - ❺04 - ❻A10

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

Model									A	B	C	D	E	*2 F	G	H	J	K	L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread														
ZP	R	10, 13	U	NSUFGNGS	JK	10	04, 06	A10	91	57	46	29.9	21	2.5	6	M10 x 1	23	14	3	10	8	M5 x 0.8
						20			129	67							51					
						30			139	77							77					
						40			175	87												
						50			185	97												
		16				10			91.5	57.5	46.5	30.4	21.5				23					
						20			129.5	67.5							51					
						30			139.5	77.5							77					
						40			175.5	87.5												
						50			185.5	97.5												
		20, 25				10	04, 06, 08		102.6	68.6	57.6	39.8	29	3.5			23			12	12	M8 x 1.25
						20			140.6	78.6							51					
						30			150.6	88.6							77					
						40			186.6	98.6												
						50			196.6	108.6												
		32				10			103.1	69.1	58.1	40.3	29.5				23					
						20			141.1	79.1							51					
						30			151.1	89.1												
						40			187.1	99.1							77					
						50			197.1	109.6												
		40				10	06, 08	A14	140.6	72.6	60.6	42.8	32	4	10	M14 x 1	50	19	4	12	12	M8 x 1.25
						20			137.6	82.6												
						30			147.6	92.6												
						50			192.6	112.6							75					
		50				10			141.6	73.6	61.6	43.8	33				50					
						20			138.6	83.6												
						30			148.6	93.6												
						50			193.6	113.6							75					

Dimensions Per Vacuum Inlet

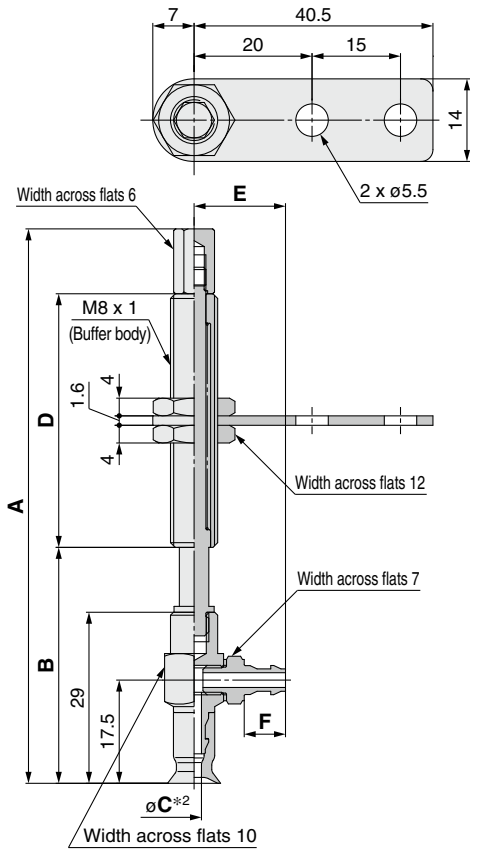
Model									Q	R	S	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	10, 13, 16	U	NSUFGNGS	JK	10, 20, 30, 40, 50	04	A10	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4
		20, 25, 32				10, 20, 30, 40, 50	04		4	23.3	10.4	ø3
							06		6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6
		40, 50				10, 20, 30, 50	06	A14	6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6

*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/barb fitting ø2 to ø8



Construction p. 116
Buffer Assembly p. 126

ZPY 02 U N J 6 – N4 – A8
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C*2	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	Y	02	U	N S U F GN GS	J K	6	N4 N6 U4 U6	A8	63	37	1.2	15
						10			94	40		43
						15			99	45		
						25			109	55		
		04				6			63	37	1.6	15
						10			94	40		43
						15			99	45		
						25			109	55		
		06 08				6			63	37	2.5	15
						10			94	40		43
						15			99	45		
						25			109	55		

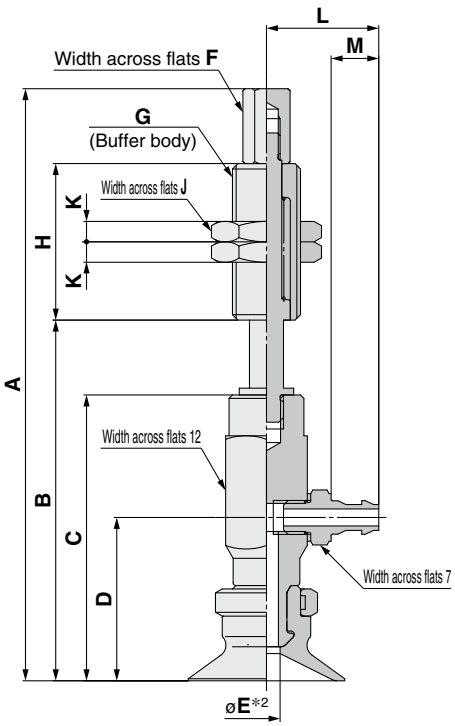
Dimensions Per Vacuum Inlet

Model									E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	02 04 06 08	U	N S U F GN GS	J K	6 10 15 25	N4 U4	A8	13.5	5	ø1.8
							N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With buffer/barb fitting ø10 to ø50



Construction p. 118
Buffer Assembly p. 126

ZPY ❶10 U ❷N ❸J ❹10 - ❺N4 - ❻A10

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C	D	*2 E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	Y	10, 13	U	N, S, U, F, GN, GS	J, K	10	N4, N6, U4, U6	A10	83	49	38	22	2.5	6	M10 x 1	23	14	3
						20			121	59						51		
						30			131	69						77		
						40			167	79								
						50			177	89								
		16				10			83.5	49.5	38.5	22.5				23		
						20			121.5	59.5						51		
						30			131.5	69.5						77		
						40			167.5	79.5								
						50			177.5	89.5								
		20, 25				10			87	53	42	24	3.5	6	M10 x 1	23	14	3
						20			125	63						51		
						30			135	73						77		
						40			171	83								
						50			181	93								
		32				10			87.5	53.5	42.5	24.5				23		
						20			125.5	63.5						51		
						30			135.5	73.5						77		
						40			171.5	83.5								
						50			181.5	93.5								
		40				10	N6, U6	A14	126.5	58.5	46.5	28.5	6	10	M14 x 1	50	19	4
						20			123.5	68.5								
						30			133.5	78.5								
						50			178.5	98.5						75		
		50				10			127.5	59.5	47.5	29.5				50		
						20			124.5	69.5								
						30			134.5	79.5								
						50			179.5	99.5						75		

Dimensions Per Vacuum Inlet

Model									L	M	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10, 13, 16, 20, 25, 32	U	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	N4, U4	A10	14.5	5	ø1.8
							N6, U6		16.5	7	ø2.5
		40, 50					N6, U6	A14	16.5	7	ø2.5

*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

Basic Pad

Flat Type with Ribs

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 C N – ☐	p. **51**	p. **117**	From p. **121**
With adapter	ZP T 10 C N – A5 – ☐	From p. **51**	p. **117**	From p. **121**
With buffer	ZP T 10 C N J 10 – B5 – A10	From p. **57**	p. **118**	From p. **124**

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

● Flat type with ribs

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❷ Pad diameter

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

❸ Material

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

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter [mm]							
	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
10	●	●	●	●	●	●	●	●
20	●	●	●	●	●	●	●	●
30	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	—	—
50	●	●	●	●	●	●	●	●

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

With adapter

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**Nil**	M3 x 0.5	○ (❼Connection thread: A5/A6)	○ (❼Connection thread: A6)	○ (❼Connection thread: A6)
		M5 x 0.8	—	○ (❼Connection thread: A8)	○ (❼Connection thread: A8)
	B5	M5 x 0.8	○	○	—
	B6	M6 x 1	○	○	○
	B8	M8 x 1.25	—	○	○
	B01	Rc1/8	○	○	○
	N01	NPT1/8	○	○	○
	T01	NPTF1/8	○	○	○
One-touch fitting	**04**	ø4	●	●	—
	06	ø6	●	●	●
	08	ø8	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	△	△	△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	△	△	△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	○∗1●△	—	—
	A6	M6 x 1	○∗1●△	○∗1●△	○∗1●△
	A8	M8 x 1	—	○∗1●△	○∗1●△
Female thread	**B5**	M5 x 0.8	●△	●△	—
	B6	M6 x 1	●△	●△	●△
	B8	M8 x 1.25	—	●△	●△

∗1 ○: ZPT/Vertical comes with a vacuum inlet (female thread).

With buffer

❻ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb 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	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	○△	○△	○△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	○△	○△	○△

∗1 Nylon tube piping
∗2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

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

❽ Lock ring

Symbol	Pad diameter
	All sizes
Nil	With lock ring
X19	Without lock ring

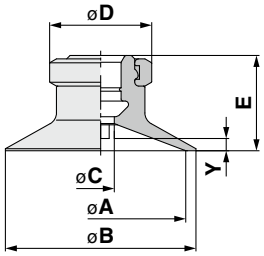
Lock ring unit

Part no.	Pad diameter [mm]
ZPL1	ø10 to ø16
ZPL2	ø20 to ø32
ZPL3	ø40, ø50

∗ The pad, mounting nut, fitting, and buffer plate are shipped together but do not come assembled.

Dimensions/Models

Single unit ø10 to ø50



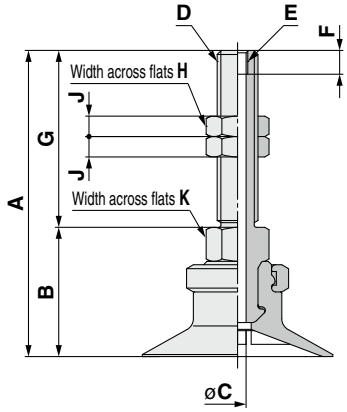
Construction p. 117
Mounting Bracket Assembly From p. 121

ZP 10 C N
❶ ❷

Model ❶ Pad dia.	Form	❷ *1 Material	A	B	C	D	E	Y
ZP 10	C	N S U F GN GS	10	12	4	13	12	1.7
13			13	15				1.8
16			16	18			12.5	1.2
20			20	23		15	14	1.7
25			25	28				1.8
32			32	35			14.5	2.3
40			40	43	7	18	18.5	3.3
50			50	53			19.5	3.8

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

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT 10 C N - A5
❶ ❷ ❸

❸ **Connection thread (Male thread)**

A5	M5 x 0.8 (M3 x 0.5 With female thread)
A6	M6 x 1 (M3 x 0.5 With female thread)
A8	M8 x 1 (M5 x 0.8 With female thread)

Model Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Connection thread	A	B	C	D	E	F	G	H	J	K
ZP T	10 13	C	N S U F GN GS	A5	38	17	2.5	M5 x 0.8	M3 x 0.5	3.5	21	8	4	8
	16				38.5	17.5								
	10 13			A6	43	17	2.5	M6 x 1	M3 x 0.5	3.5	26	8	4	8
	16				43.5	17.5								
	20 25				45	19								
	32				45.5	19.5								
	40				50.5	24.5								12
	50				51.5	25.5								
	20 25			A8	40	24	4	M8 x 1	M5 x 0.8	5	16	12	4	12
	32				40.5	24.5								
	40						4.2							
	50				41.5	25.5								

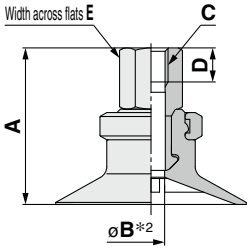
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

Recommended Gasket Part Nos.

Part no.	D vacuum inlet (Male thread)
WCS5X0.8	M5 x 0.8
WCS6X1	M6 x 1
WCS8X1	M8 x 1

Dimensions/Models

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT ❶10 C ❷N – ❸B5

❸ Vacuum inlet (Female thread)

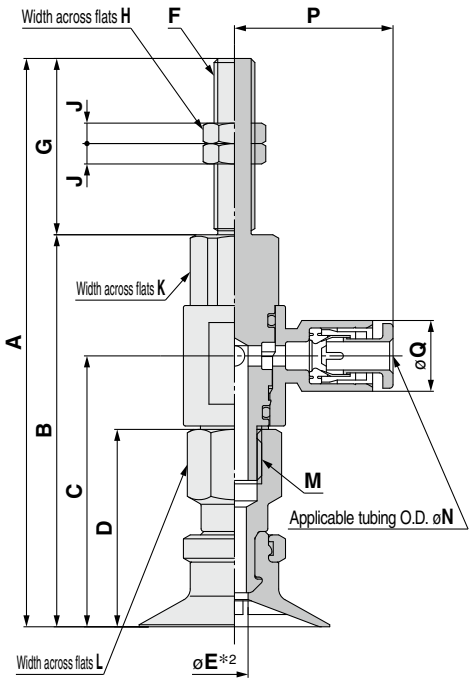
B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

Model						A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet					
ZP	T	10, 13	C	N, S, U, F, GN, GS	B5	21	2.5	M5 x 0.8	5	8
		16				21.5				
		20, 25				23	4			
		32				23.5				
		10, 13			B6	21	2.5	M6 x 1	6	8
		16				21.5				
		20, 25				23	4			
		32				23.5				
		40				32	4.9			12
		50				33				
		20, 25			B8	29	3.5	M8 x 1.25	8	12
		32				29.5				
		40				32	6.6			
		50				33				
		10, 13			B01, N01, T01	27	2.5	Rc1/8, NPT1/8, NPTF1/8	—	12
		16				27.5				
		20, 25				29	3.5			
		32				29.5				
		40				32	7			
		50				33				

*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 adapter/One-touch fitting ø10 to ø50



ZPR 10 C N – 04 – A5

❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Construction p. 117
Adapter Assembly p. 122

Model							A	B	C	D	*2 E	F	G	H	J	K	L	M
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread												
ZP	R	10 13	C	N S U F GN GS	04 06 08	A5	67	46	29.9	21	2.5	M5 x 0.8	21	8	4	10	8	M5 x 0.8
		16					67.5	46.5	30.4	21.5								
		10 13				A6	72	46	29.9	21	2.5	M6 x 1	26	8	4	10	8	M5 x 0.8
		16					72.5	46.5	30.4	21.5			25.9			12	12	M8 x 1.25
		20 25					83.5	57.6	39.8	29	3.5							
		32					84	58.1	40.3	29.5								
		40					86.5	60.6	42.8	32	4							
		50					87.5	61.6	43.8	33								
		20 25				A8	73.5	57.6	39.8	29	3.5	M8 x 1	15.9	12	4	12	12	M8 x 1.25
		32					74	58.1	40.3	29.5								
		40					76.5	60.6	42.8	32	4							
		50					77.5	61.6	43.8	33								

Dimensions Per Vacuum Inlet

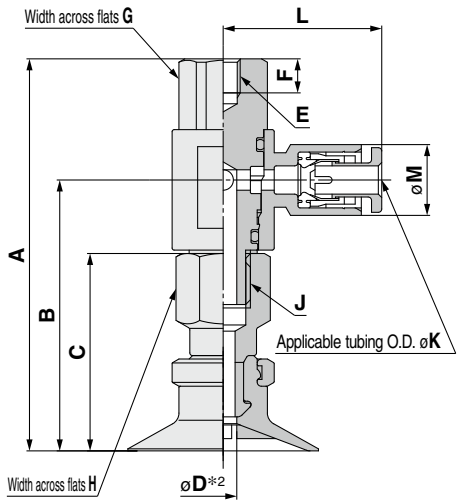
Model							N	P	Q	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	C	N S U F GN GS	04	A5 A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20 25 32			04	A6 A8	4	23.3	10.4	ø3
					06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6
		40 50			06	A6	6	24.3	12.8	ø4.5
					08	A8	8	26.2	15.2	ø6

*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 adapter/One-touch fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 122

ZPR 10 C N – 04 – B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C	D*2	E	F	G	H	J
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread									
ZP	R	10 13	C	NSUFGNGS	04 06 08	B5	46	29.9	21	2.5	M5 x 0.8	5	10	8	M5 x 0.8
		16					46.5	30.4	21.5						
		20 25					57.6	39.8	29	3.5			12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		10 13				B6	46	29.9	21	2.5	M6 x 1	6	10	8	M5 x 0.8
		16					46.5	30.4	21.5						
		20 25					57.6	39.8	29	3.5			12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		40					60.6	42.8	32	4					
		50					61.6	43.8	33						
		20 25				B8	57.6	39.8	29	3.5	M8 x 1.25	8	12	12	M8 x 1.25
		32					58.1	40.3	29.5						
		40					60.6	42.8	32	4					
		50					61.6	43.8	33						

Dimensions Per Vacuum Inlet

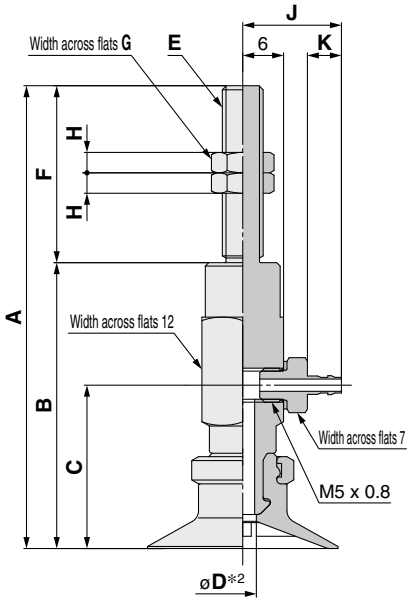
Model							K	L	M	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	C	NSUFGNGS	04	B5	4	20.6	10.4	ø3
					06	B6	6	21.6	12.8	ø4
		20 25 32			04	B5	4	23.3	10.4	ø3
					06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6
		40 50			06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6

*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 adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY ❶10 C ❷N – N4 – A5

❸ **Vacuum inlet (Barb fitting)**

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ **Connection thread (Male thread)**

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D*2	E	F	G	H
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material*1	❸ Vacuum inlet	❹ Connection thread								
ZP	Y	10 13	C	N S U F GN GS	N4 N6 U4 U6	A5	59	38	22	2.5	M5 x 0.8	21	8	4
		16					59.5	38.5	22.5					
		10 13				A6	64	38	22	2.5	M6 x 1	26	8	4
		16					64.5	38.5	22.5					
		20 25					68	42	24	3.5				
		32					68.5	42.5	24.5					
		40					72.5	46.5	28.5	6				
		50					73.5	47.5	29.5					
		20 25				A8	58	42	24	3.5	M8 x 1	16	12	4
		32					58.5	42.5	24.5					
		40					62.5	46.5	28.5	6				
		50					63.5	47.5	29.5					

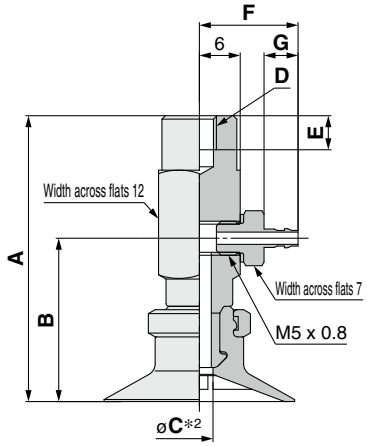
Dimensions Per Vacuum Inlet

Model							J	K	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material*1	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16 20 25 32	C	N S U F GN GS	N4 U4	A5 A6	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40 50			N6 U6	A6 A8	16.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY 10 C N – N4 – B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C*2	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread					
ZP	Y	10, 13	C	N, S, U, F, GN, GS	N4, N6, U4, U6	B5	38	22	2.5	M5 x 0.8	5
		16					38.5	22.5			
		20, 25					42	24	3.5		
		32					42.5	24.5			
		10, 13				B6	38	22	2.5	M6 x 1	6
		16					38.5	22.5			
		20, 25					42	24	3.5		
		32					42.5	24.5			
		40					46.5	28.5	6		
		50					47.5	29.5			
		20, 25				B8	42	24	3.5	M8 x 1.25	8
		32					42.5	24.5			
		40					46.5	28.5	6		
		50					47.5	29.5			

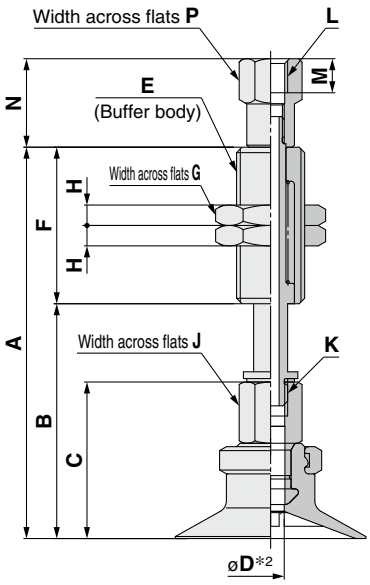
Dimensions Per Vacuum Inlet

Model							F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10, 13, 16	C	N, S, U, F, GN, GS	N4, U4	B4, B5	14.5	5	ø1.8
					N6, U6		16.5	7	ø2.5
		20, 25, 32			N4, U4	B5, B6, B8	14.5	5	ø1.8
					N6, U6		16.5	7	ø2.5
		40, 50			N6, U6	B6, B8	16.5	7	ø2.5

*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

Dimensions/Models

With buffer ø10 to ø50



Construction p. 118
Buffer Assembly p. 124

ZPT 10 C N J 10 - B5 - A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Female thread)

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

Model									A	B	C	D*2	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	T	10 13	C	N S U F GN GS	J K	10	B5 04 06 N6 U6	A10	55.5	32.5	21	J: 2.5 K: 2	M10 x 1	23	14	3	8	M5 x 0.8
						20			93.5	42.5				51				
						30			103.5	52.5				77				
						40			139.5	62.5								
						50			149.5	72.5								
		16				10			56	33	21.5			23				
						20			94	43				51				
						30			104	53				77				
						40			140	63								
						50			150	73								
		20 25				10			57.5	34.5	23			23				
						20			95.5	44.5				51				
						30			105.5	54.5				77				
						40			141.5	64.5								
						50			151.5	74.5								
		32				10			58	35	23.5			23				
						20			96	45				51				
						30			106	55				77				
						40			142	65								
						50			152	75								
		40				10	B5 B01 N01 T01 06 08 N6 U6	A14	94.5	44.5	32	4	M14 x 1	50	19	4	12	M8 x 1.25
						20			104.5	54.5								
						30			114.5	64.5				75				
						50			159.5	84.5								
		50				10			95.5	45.5	33			50				
						20			105.5	55.5								
						30			115.5	65.5				75				
						50			160.5	85.5								

Dimensions Per Vacuum Inlet: Female Thread

Model									L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16 20 25 32	C	N S U F GN GS	J K	10 20 30 40 50	B5	A10	M5 x 0.8	5	13	8
		40 50				10	B5	A14	M5 x 0.8	4.5	15	10
						20 30 50				5	9	
						10	B01 N01 T01		Rc1/8 NPT1/8 NPTF1/8	—	16.5	13
						20 30 50					12	

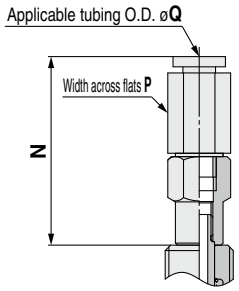
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Dimensions/Models

With buffer ø10 to ø50

ZPT 10 C N J 10 – 04 – A10
❶ ❷ ❹ ❺ ❻

Vacuum inlet: One-touch fitting



❸ Buffer specification

J	Rotating
K	Non-rotating

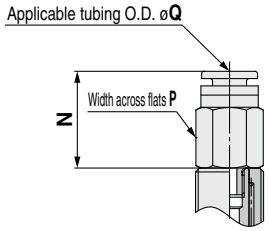
❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

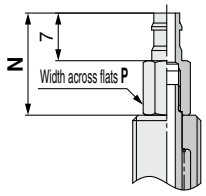
❺ Vacuum inlet

			Pad diameter	
			ø10 to ø32	ø40, ø50 (10 st only)
04	ø4	One-touch fitting	KQ2H04-M5N	
06	ø6		KQ2H06-M5N	KQ2H06-01NS
08	ø8			KQ2H08-01NS
N6	For ø6 nylon tubing	Barb fitting		
U6	For ø6 soft tubing			

Vacuum inlet: Built-in One-touch fitting
Pad diameter: ø40, ø50 (Buffer stroke: 20 to 50 st)



Vacuum inlet: Barb fitting



Dimensions Per Vacuum Inlet: One-touch Fitting

Model									N	P	Q	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10, 13, 16, 20, 25, 32	C	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	04	A10	27.7	8	4	ø2.5
							06			10	6	
		40, 50				10	06	A14	31.8	10	6	ø4.5
							08		35.9	14	8	ø6
						20, 30, 50	06		19.9	12	6	ø3
							08		24.9	14	8	

Dimensions Per Vacuum Inlet: Barb Fitting

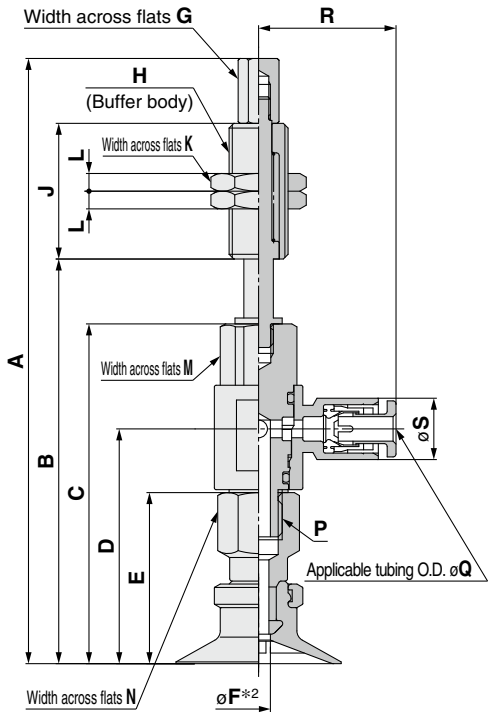
Model									N	P	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	10, 13, 16, 20, 25, 32	C	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	N6	A10	15	6	ø2.5
							U6				
		40, 50				10	N6	A14	19	10	
							U6				
						20, 30, 50	N6		12		
							U6				

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

Construction p. 118
Buffer Assembly p. 124

Dimensions/Models

With buffer/One-touch fitting ø10 to ø50



Construction p. 118
Buffer Assembly p. 125

ZPR 10 C N J 10 - 04 - A10

❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

Model									A	B	C	D	E	*2 F	G	H	J	K	L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread														
ZP	R	10, 13	C	N, S, U, F, GN, GS	J, K	10	04, 06	A10	91	57	46	29.9	21	2.5	6	M10 x 1	23	14	3	10	8	M5 x 0.8
						20			129	67							51					
						30			139	77							77					
						40			175	87												
						50			185	97												
		16				10			91.5	57.5	46.5	30.4	21.5				23					
						20			129.5	67.5							51					
						30			139.5	77.5							77					
						40			175.5	87.5												
						50		A10	185.5	97.5												
		20, 25				10	04, 06, 08		102.6	68.6	57.6	39.8	29	3.5			23			12	12	M8 x 1.25
						20			140.6	78.6							51					
						30			150.6	88.6							77					
						40			186.6	98.6												
						50			196.6	108.6												
		32				10			103.1	69.1	58.1	40.3	29.5				23					
						20			141.1	79.1							51					
						30			151.1	89.1												
						40			187.1	99.1							77					
						50			197.1	109.6												
		40				10	06, 08	A14	140.6	72.6	60.6	42.8	32	4	10	M14 x 1	50	19	4	12	12	M8 x 1.25
						20			137.6	82.6												
						30			147.6	92.6												
						50			192.6	112.6							75					
		50				10			141.6	73.6	61.6	43.8	33				50					
						20			138.6	83.6												
						30			148.6	93.6												
						50			193.6	113.6							75					

Dimensions Per Vacuum Inlet

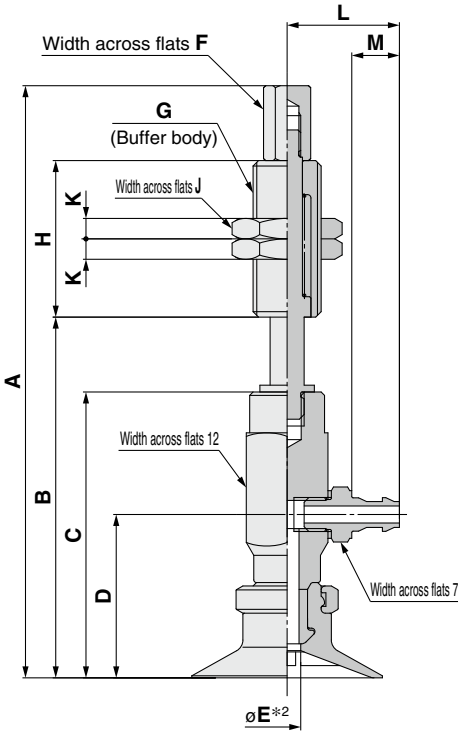
Model									Q	R	S	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	10, 13, 16	C	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	04	A10	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4
		20, 25, 32				10, 20, 30, 40, 50	04		4	23.3	10.4	ø3
							06		6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6
		40, 50				10, 20, 30, 50	06	A14	6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6

*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/barb fitting ø10 to ø50



Construction p. 118
Buffer Assembly p. 126

ZPY 10 C N J 10 – N4 – A10
(1) (2) (4)

Buffer specification (3)

J	Rotating
K	Non-rotating

(6) Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

(5) Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C	D	*2 E	F	G	H	J	K
	Vacuum inlet direction	(1) Pad dia.	Form	(2) *1 Material	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread										
ZP	Y	10, 13	C	N, S, U, F, GN, GS	J, K	10	N4, N6, U4, U6	A10	83	49	38	22	2.5	6	M10 x 1	23	14	3
						20			121	59						51		
						30			131	69						77		
						40			167	79								
						50			177	89								
		16				10			83.5	49.5	38.5	22.5				23		
						20			121.5	59.5						51		
						30			131.5	69.5						77		
						40			167.5	79.5								
						50			177.5	89.5								
		20, 25				10			87	53	42	24	3.5	6	M10 x 1	23	14	3
						20			125	63						51		
						30			135	73						77		
						40			171	83								
						50			181	93								
		32				10			87.5	53.5	42.5	24.5				23		
						20			125.5	63.5						51		
						30			135.5	73.5						77		
						40			171.5	83.5								
						50			181.5	93.5								
		40				10	N6, U6	A14	126.5	58.5	46.5	28.5	6	10	M14 x 1	50	19	4
						20			123.5	68.5								
						30			133.5	78.5						75		
						50			178.5	98.5								
		50				10			127.5	59.5	47.5	29.5				50		
						20			124.5	69.5								
						30			134.5	79.5								
						50			179.5	99.5						75		

Dimensions Per Vacuum Inlet

Model									L	M	Fitting part min. hole size
	Vacuum inlet direction	(1) Pad dia.	Form	(2) *1 Material	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread			
ZP	Y	10, 13, 16, 20, 25, 32	C	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	N4, U4	A10	14.5	5	ø1.8
							N6, U6		16.5	7	ø2.5
		40, 50					N6, U6	A14	16.5	7	ø2.5

*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

Basic Pad
Flat Type Ball Joint Type
ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	**ZP 10 F N**	p. **62**	p. **119**	From p. **127**
With adapter	**ZP T 10 F N – B5 – A8**	From p. **62**	p. **119**	From p. **127**
With buffer	**ZP T 10 F N J 10 – B5 – A10**	From p. **65**	p. **120**	From p. **129**

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less only)

❶ ❷ ❸ ❹ ❺ ❻ ❼

● **Ball joint type**

❶ Vacuum inlet direction

T	Vertical
R	Lateral (With One-touch fitting)

❷ Pad diameter

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

❺ Buffer stroke

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

❸ Material

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

❹ 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

❻ Vacuum inlet/ ❼ Connection thread

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

❻ Vacuum inlet			❼ 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	Female thread	**B5**	M5 x 0.8	○	○	—
				B8	M8 x 1.25	—	○	○
				B01	Rc1/8	—	○	○
				N01	NPT1/8	—	○	○
				T01	NPTF1/8	—	○	○
One-touch fitting	**04**	ø4		**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

❻ 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	—	○●	○●

❼ 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

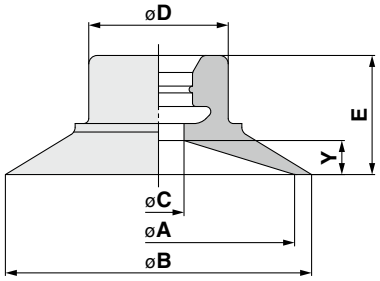
Part no.	Pad diameter [mm]
ZPLF	ø40, ø50

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

SMC

Dimensions/Models

Single unit ø10 to ø50



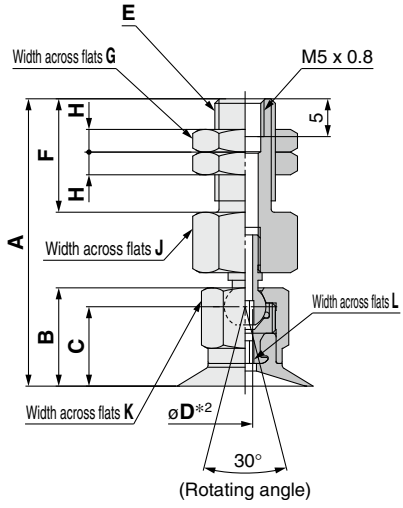
Construction p. 119
Mounting Bracket Assembly From p. 127

ZP 10 F N
❶ ❷

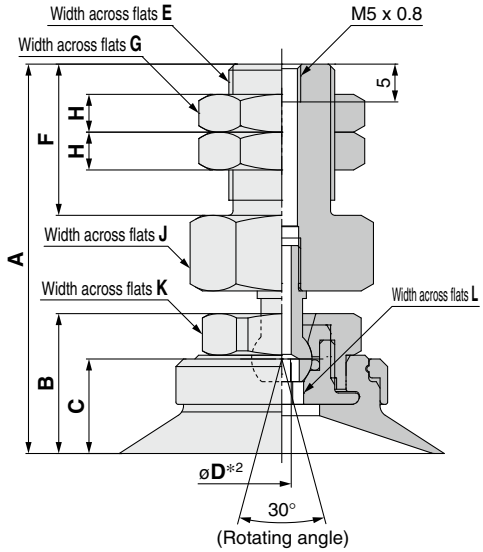
Model ❶ Pad dia.	Form	❷ *1 Material	A	B	C	D	E	Y
10	F	N S U F GN GS	10	12	3	8.2	6.5	1.5
13			13	15			7	2
16			16	18				
20			20	22	4	10.2	8.5	3
25			25	28				
32			32	35			9	
40			40	43	10	26	13	5
50			50	53	8		14	6

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

With adapter ø10 to ø50



ø10 to ø32



ø40, ø50

ZPT 10 F N - B5 - A8
❶ ❷ ❸ ❹

❸ Vacuum inlet (Female thread)

B5	M5 x 0.8

❹ Connection thread (Male thread)

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

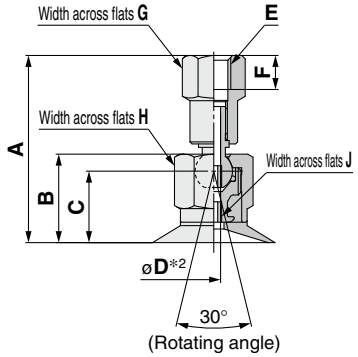
Model Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread	A	B	C	*2 D	E	F	G	H	J	K	L
ZP T	10	F	N S U F GN GS	B5	A8	37.5	12.5	10	2	M8 x 1	15	12	4	12	10	2
	13 16					38	13	10.5								
	20 25				A10	48.5	15.5	12.5	2	M10 x 1	20	14	3	16	12	3
	32					49	16	13								
	40				A14	51.5	18.5	12.5	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

Construction p. 119
Adapter Assembly p. 127

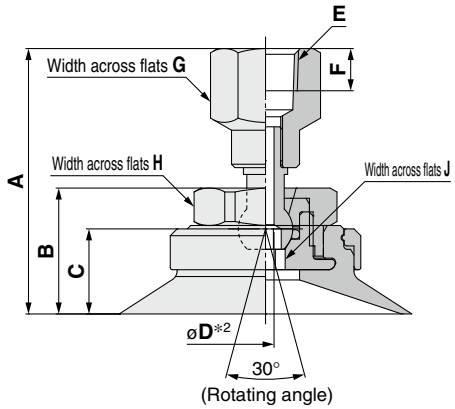
Dimensions/Models

With adapter ø10 to ø50



(Rotating angle)

ø10 to ø32



(Rotating angle)

ø40, ø50

ZPT 10 F N – B5
❶ ❷ ❸ Vacuum inlet (Female thread)

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

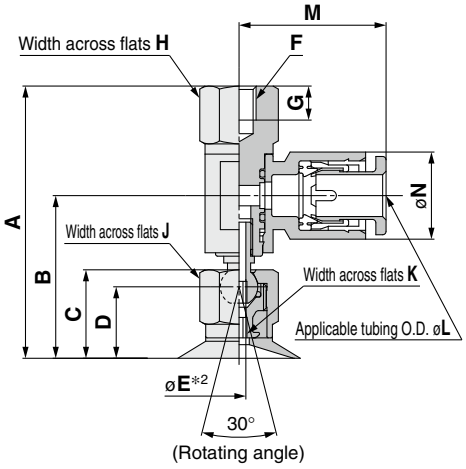
Model						A	B	C	D*2	E	F	G	H	J
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet									
ZP	T	10	F	N S U F GN GS	B5	27	12.5	10	2	M5 x 0.8	5	8	10	2
		13 16				27.5	13	10.5						
		20 25				32	15.5	12.5				9	12	3
		32				32.5	16	13						
		20 25			B8	36	15.5	12.5	2	M8 x 1.25	8	12	12	3
		32				36.5	16	13						
		40				39	18.5	12.5	2.5				19	5
		50				40	19.5	13.5						
		20 25			B01 N01 T01	36	15.5	12.5	2	Rc1/8 NPT1/8 NPTF1/8	/	14	12	3
		32				36.5	16	13						
		40				39	18.5	12.5	2.5				19	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

Construction p. 119
Adapter Assembly p. 127

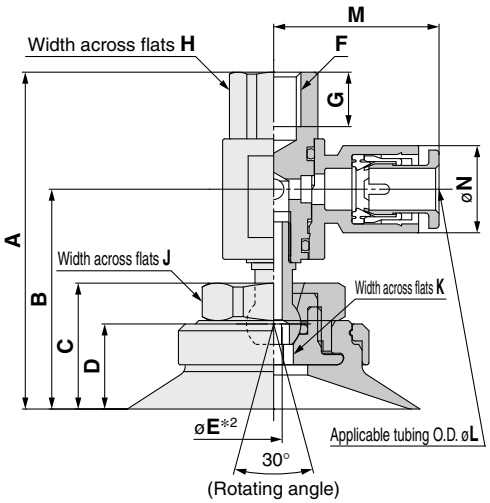
Dimensions/Models

With adapter/One-touch fitting ø10 to ø50



(Rotating angle)

ø10 to ø32



(Rotating angle)

ø40, ø50

ZPR ❶10 F ❷N - ❸04 - ❹B5

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Female thread)

B5	M5 x 0.8
B8	M8 x 1.25

Model							A	B	C	D	E *2	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread										
ZP	R	10	F	N S U F GN GS	04 06 08	B5	39.5	23.4	12.5	10	2	M5 x 0.8	5	10	10	2
		13 16					40	23.9	13	10.5						
		20 25					46.5	29.3	15.5	12.5			8	12	12	3
		32					47	29.8	16	13						
		40					49.5	32.3	18.5	12.5	2.5				19	5
		50					50.5	33.3	19.5	13.5						
		20 25				B8	46.5	29.3	15.5	12.5	2	M8 x 1.25	8	12	12	3
		32					47	29.8	16	13						
		40					49.5	32.3	18.5	12.5	2.5				19	5
		50					50.5	33.3	19.5	13.5						

Dimensions Per Vacuum Inlet

Model							L	M	N	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	F	N S U F GN GS	04	B5	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20 25 32 40 50			06	B5 B8	6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6

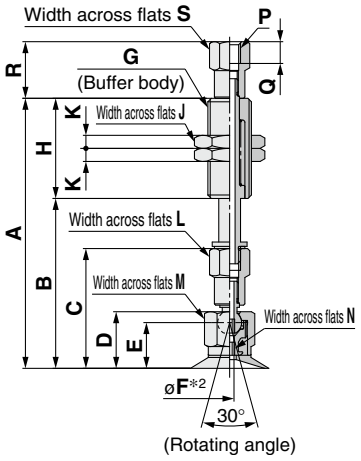
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

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

Construction p. 119
Adapter Assembly p. 128

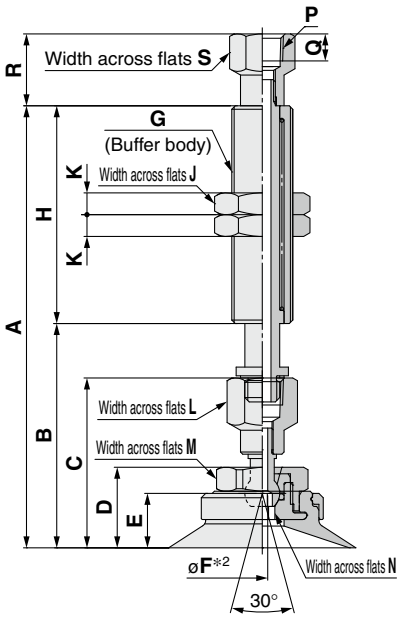
Dimensions/Models

With buffer ø10 to ø50



(Rotating angle)

ø10 to ø32



(Rotating angle)

ø40, ø50

ZPT 10 F N J 10 – B5 – A10

❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

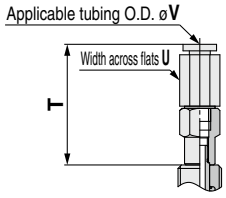
A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet

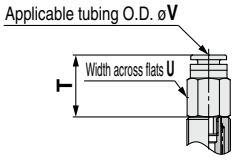
			Pad diameter	
			ø10 to ø16	ø20 to ø50 (10 st only)
B5	M5 x 0.8	Female thread		
B01	Rc1/8			
N01	NPT1/8			
T01	NPTF1/8			
04	ø4	One-touch fitting	KQ2H04-M5N	
06	ø6		KQ2H06-M5N	KQ2H06-01NS
08	ø8			KQ2H08-01NS

Model																													
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread	A	B	C	D	E	*2 F	G	H	J	K	L	M	N	P	Q	R	S
ZP	T	10	F	N S U F GN GS	J K	10	B5	A10	61.5	38.5	27	12.5	10	2	M10 x 1	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															
						50			155.5	78.5															
		13 16				10			62	39	27.5	13	10.5			23									
						20			100	49						51									
						30			110	59															
						40			146	69						77									
						50			156	79															
		20 25				10	B01 N01 T01	A14	98.5	48.5	36	15.5	12.5	2	M14 x 1	50	19	4	12	12	3	Rc1/8 NPT1/8 NPTF1/8	16.5	13	
						20			108.5	58.5													12		
						30			118.5	68.5						75							16.5		
						50			163.5	88.5															
		32				10			99	49	36.5	16	13			50							12		
						20			109	59															
						30			119	69						75							16.5		
						50			164	89															
		40				10			101.5	51.5	39	18.5	12.5	2.5		50				19	5		12		
						20			111.5	61.5															
						30			121.5	71.5						75							16.5		
						50			166.5	91.5															
		50				10			102.5	52.5	40	19.5	13.5			50							12		
						20			112.5	62.5															
						30			122.5	72.5						75							16.5		
						50			167.5	92.5															

Vacuum inlet: One-touch fitting



Vacuum inlet: Built-in One-touch fitting
Pad diameter: ø20 to ø50 (Buffer stroke: 20 to 50 st)



Dimensions Per Vacuum Inlet: One-touch Fitting

Model									T	U	V	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	F	N S U F GN GS	J K	10 20 30 40 50	04	A10	27.7	8	4	ø2.5
							06			10	6	
		20 25 32 40 50				10	06	A14	31.8	10	6	ø4.5
							08		35.9	14	8	ø6
						20 30 50	06		19.9	12	6	ø3
							08		24.9	14	8	

*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

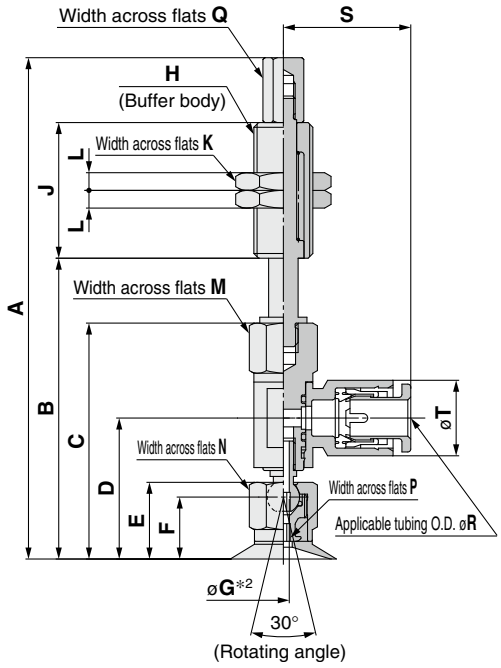
Construction p. 120

Buffer Assembly p. 129

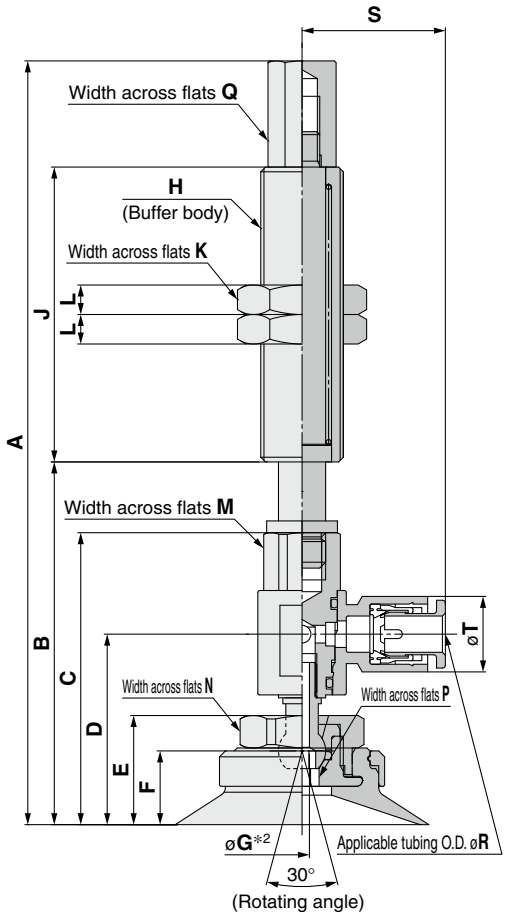
SMC

Dimensions/Models

With buffer/One-touch fitting ø10 to ø50



ø10 to ø32



ø40, ø50

ZPR 10 F N J 10 - 04 - A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

Model	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread	A	B	C	D	E	F	*2 G	H	J	K	L	M	N	P	Q
ZP	R	10	F	NSUFGNGS	J K	10	04 06	A10	84.5	50.5	39.5	23.4	12.5	10	2	M10 x 1	23	14	3	10	10	2	6
						20			122.5	60.5							51						
						30			132.5	70.5													
						40			168.5	80.5							77						
						50			178.5	90.5													
		13 16				10			85	51	40	23.9	13	10.5			23						
						20			123	61							51						
						30			133	71													
						40			169	81							77						
						50			179	91													
		20 25				10	06 08		126.5	58.5	46.5	29.3	15.5	12.5	2		50	19	4	12	12	3	10
						20			123.5	68.5													
						30			133.5	78.5													
						50			178.5	98.5							75						
		32				10			127	59	47	29.8	16	13			50						
						20			124	69													
						30			134	79													
						50			179	99							75						
		40				10			129.5	61.5	49.5	32.3	18.5	12.5	2.5		50				19	5	
						20			126.5	71.5													
						30			136.5	81.5													
						50			181.5	101.5							75						
		50				10			130.5	62.5	50.5	33.3	19.5	13.5			50						
						20			127.5	72.5													
						30			137.5	82.5													
						50			182.5	102.5							75						

Dimensions Per Vacuum Inlet: One-touch Fitting

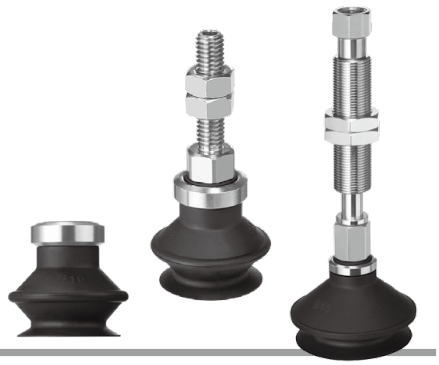
Model	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread	R	S	T	Fitting part min. hole size
ZP	R	10 13 16	F	NSUFGNGS	J K	10 20 30 40 50	04	A10	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4
		20 25 32 40 50				10	06	A14	6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6
						20 30 50	06		6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6

*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

Construction p. 120
Buffer Assembly p. 130

Basic Pad
Bellows Type
ZP Series



How to Order

	Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit ZP 06 B N – ☐	p. 68	p. 115 p. 117	From p. 121
With adapter ZP T 06 B N – A5 – ☐	From p. 69	p. 115 p. 117	From p. 121
With buffer ZP T 06 B N J 6 – B3 – A8	From p. 79	p. 116 p. 118	From p. 124

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

● Bellows type

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❷ Pad diameter

06	ø6	**20**	ø20
08	ø8	**25**	ø25
10	ø10	**32**	ø32
13	ø13	**40**	ø40
16	ø16	**50**	ø50

❸ Material

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

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter [mm]									
	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
6	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●
15	●	●	—	—	—	—	—	—	—	—
20	—	—	●	●	●	●	●	●	●	●
25	●	●	—	—	—	—	—	—	—	—
30	—	—	●	●	●	●	●	●	●	●
40	—	—	●	●	●	●	●	●	—	—
50	—	—	●	●	●	●	●	●	●	●

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

With adapter

❻ Vacuum inlet ○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	○*1	—	—	—
	A6	M6 x 1	○*1	—	—	—
Female thread	**Nil**	M3 x 0.5	—	○ (❼Connection thread: A5/A6)	○ (❼Connection thread: A6)	○ (❼Connection thread: A6)
		M5 x 0.8	—	—	○ (❼Connection thread: A8)	○ (❼Connection thread: A8)
	B4	M4 x 0.7	○	—	—	—
	B5	M5 x 0.8	○	○	○	—
	B6	M6 x 1	—	○	○	○
	B8	M8 x 1.25	—	—	○	○
	B01	Rc1/8	—	○	○	○
	N01	NPT1/8	—	○	○	○
	T01	NPTF1/8	—	○	○	○
One-touch fitting	**04**	ø4	●	●	●	—
	06	ø6	●	●	●	●
	08	ø8	—	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing*2	△	△	△	—
	N6	For ø6 nylon tubing*2	△	△	△	△
	U4	For ø4 soft tubing*3	△	△	△	—
	U6	For ø6 soft tubing*3	△	△	△	△

*1 Use the connection thread. *2 Nylon tube piping *3 Soft nylon/Polyurethane tube piping

❼ Connection thread ○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	●△	○*1●△	—	—
	A6	M6 x 1	●△	○*1●△	○*1●△	○*1●△
	A8	M8 x 1	—	—	○*1●△	○*1●△
Female thread	**B4**	M4 x 0.7	●△	—	—	—
	B5	M5 x 0.8	●△	●△	●△	—
	B6	M6 x 1	—	●△	●△	●△
	B8	M8 x 1.25	—	—	●△	●△

*1 It is not necessary to select a connection thread for ○: ZPT/Vertical.

With buffer

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]			
			ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**B3**	M3 x 0.5	○	—	—	—
	B5	M5 x 0.8	○	○	○	○
	B01	Rc1/8	—	—	—	○
	N01	NPT1/8	—	—	—	○
	T01	NPTF1/8	—	—	—	○
One-touch fitting	**04**	ø4	○●	○●	○●	—
	06	ø6	○●	○●	○●	○●
	08	ø8	—	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing*1	○△	△	△	—
	N6	For ø6 nylon tubing*1	△	○△	○△	○△
	U4	For ø4 soft tubing*2	○△	△	△	—
	U6	For ø6 soft tubing*2	△	○△	○△	○△

*1 Nylon tube piping *2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]			
			ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A8**	M8 x 1	○●△	—	—	—
	A10	M10 x 1	—	○●△	○●△	—
	A14	M14 x 1	—	—	—	○●△

❽ Lock ring

Symbol	Pad diameter [mm]	
	ø6, ø8	ø10 to ø50
Nil	None*1	With lock ring
X19		Without lock ring

*1 The lock ring cannot be used for pad diameters ø6 and ø8.

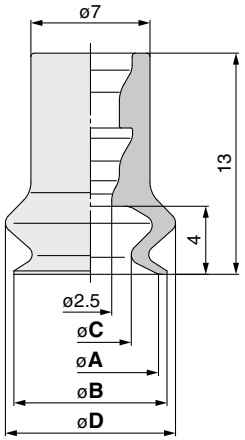
Lock ring unit

Part no.	Pad diameter [mm]
ZPL1	ø10 to ø16
ZPL2	ø20 to ø32
ZPL3	ø40, ø50

* The pad, lock ring, mounting nut, fitting, and buffer plate are shipped together but do not come assembled.

Dimensions/Models

Single unit ø6 to ø8



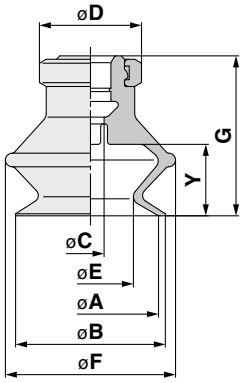
ZP 06 B N
❶ ❷

Model				A	B	C	D
	❶ Pad dia.	Form	❷ *1 Material				
ZP	06	B	N S U F GN GS	6	7	3.4	9
	08			8	9	4.8	10

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

Construction p. 115
Mounting Bracket Assembly From p. 121

Single unit ø10 to ø50



ZP 10 B N
❶ ❷

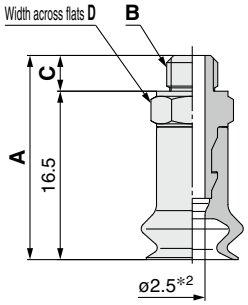
Model				A	B	C	D	E	F	G	Y
	❶ Pad dia.	Form	❷ *1 Material								
ZP	10	B	N S U F GN GS	10	12	4	13	5.5	13.5	16	5.5
	13			13	15			8.7	19	18.5	7.5
	16			16	18			10	21	20	8.5
	20			20	22		15	12.6	25	23.5	10.5
	25			25	27			16	28	24	
	32			32	34			18.9	37	29	14
	40			40	43	7	18	24.4	47	34	16
	50			50	53			33.4	57	38	19

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

Construction p. 117
Mounting Bracket Assembly From p. 121

Dimensions/Models

With adapter ø6 to ø8



Construction p. 115
Adapter Assembly p. 121

ZPT 06 B N - A5
❶ ❷ ❸

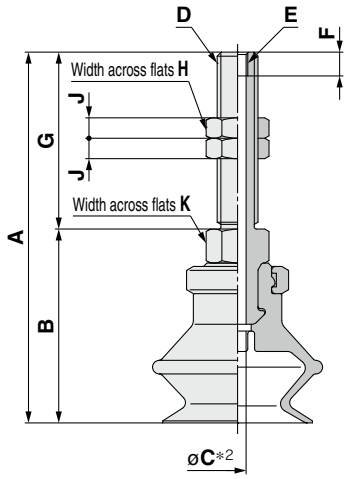
❸ **Vacuum inlet (Male thread)**

A5	M5 x 0.8
A6	M6 x 1

Model						A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet				
ZP	T	06 08	B	N S U F GN GS	A5	20	M5 x 0.8	3.5	7
					A6	21	M6 x 1	4.5	8

*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

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT 10 B N - A5
❶ ❷ ❸

❸ **Connection thread (Male thread)**

A5	M5 x 0.8 (M3 x 0.5 With female thread)
A6	M6 x 1 (M3 x 0.5 With female thread)
A8	M8 x 1 (M5 x 0.8 With female thread)

Model						A	B	C*2	D	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Connection thread										
ZP	T	10	B	N S U F GN GS	A5	42	21	2.5	M5 x 0.8	M3 x 0.5	3.5	21	8	4	8
		13				44.5	23.5								
		16				46	25								
		10			A6	47	21	2.5	M6 x 1	M3 x 0.5	3.5	26	8	4	8
		13				49.5	23.5								
		16				51	25								
		20				54.5	28.5								
		25				55	29								
		32				60	34								
		40				66	40								12
		50				70	44								
		20			A8	49.5	33.5	4	M8 x 1	M5 x 0.8	5	16	12	4	12
		25				50	34								
		32				55	39								
		40				56	40	4.2							
		50				60	44								

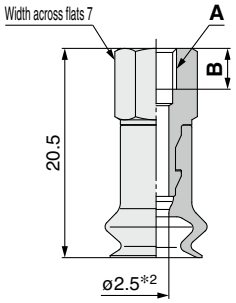
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Recommended Gasket Part Nos.

Part no.	D vacuum inlet (Male thread)
WCS5X0.8	M5 x 0.8
WCS6X1	M6 x 1
WCS8X1	M8 x 1

Dimensions/Models

With adapter ø6 to ø8



Construction p. 115
Adapter Assembly p. 121

ZPT 06 B N - B4
❶ ❷ ❸

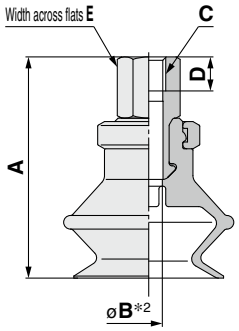
❸ Vacuum inlet (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model						A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet		
ZP	T	06 08	B	N S U F GN GS	B4	M4 x 0.7	4
					B5	M5 x 0.8	5

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

With adapter ø10 to ø50



Construction p. 117
Adapter Assembly p. 121

ZPT 10 B N - B5
❶ ❷ ❸

❸ Vacuum inlet (Female thread)

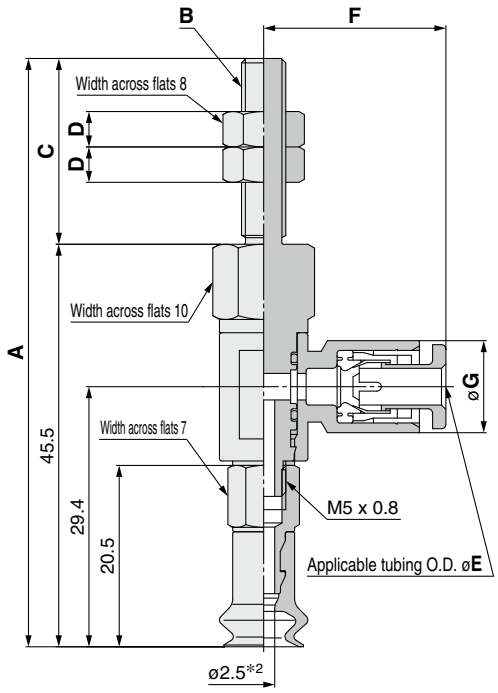
B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

Model						A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet					
ZP	T	10	B	N S U F GN GS	B5	25	2.5	M5 x 0.8	5	8
		13				27.5				
		16				29				
		20				32.5	4			
		25				33				
		32				38				
		10			B6	25	2.5	M6 x 1	6	8
		13				27.5				
		16				29				
		20				32.5	4			
		25				33				
		32				38				
		40				47.5	4.9			12
		50				51.5				
		20			B8	38.5	3.5	M8 x 1.25	8	12
		25				39				
		32				44				
		40				47.5	6.6			
		50				51.5				
		10			B01 N01 T01	31	2.5	Rc1/8 NPT1/8 NPTF1/8	—	12
		13				33.5				
		16				35				
		20				38.5	3.5			
		25				39				
		32				44				
		40				47.5	7			
		50				51.5				

*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

Dimensions/Models

With adapter/One-touch fitting ø6 to ø8



Construction p. 115
Adapter Assembly p. 122

ZPR 06 B N – 04 – A5

❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread					
ZP	R	06 08	B	N S U F GN GS	04 06	A5	66.5	M5 x 0.8	21	4	ø3
						A6	71.5	M6 x 1	26	4	ø4

Dimensions Per Vacuum Inlet

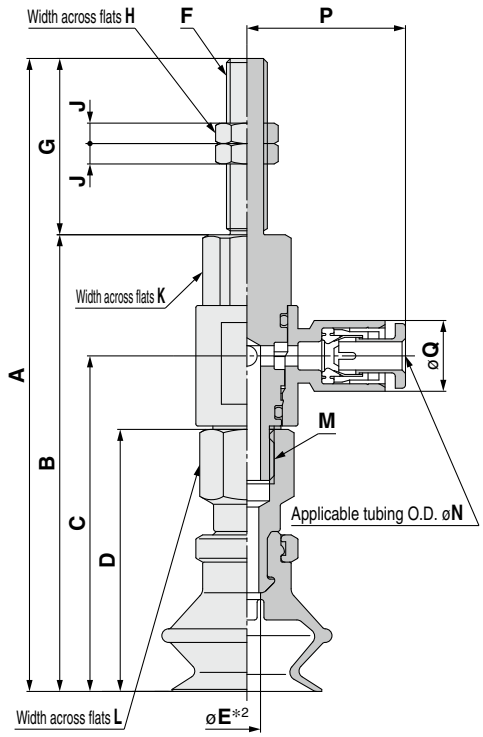
Model							E	F	G
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread			
ZP	R	06 08	B	N S U F GN GS	04	A5 A6	4	20.6	10.4
					06		6	21.6	12.8

*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 adapter/One-touch fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 122

ZPR 10 B N - 04 - A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D	*2 E	F	G	H	J	K	L	M
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread												
ZP	R	10	B	N S U F GN GS	04 06 08	A5	71	50	33.9	25	2.5	M5 x 0.8	21	8	4	10	8	M5 x 0.8
		13					73.5	52.5	36.4	27.5								
		16					75	54	37.9	29								
		10				A6	76	50	33.9	25	2.5	M6 x 1	26	8	4	10	8	M5 x 0.8
		13					78.5	52.5	36.4	27.5								
		16					80	54	37.9	29								
		20					93	67.1	49.3	38.5	3.5		25.9			12	12	M8 x 1.25
		25					93.5	67.6	49.8	39								
		32					98.5	72.6	54.8	44								
		40					102	76.1	58.3	47.5	4							
		50					106	80.1	62.3	51.5								
		20				A8	83	67.1	49.3	38.5	3.5	M8 x 1	15.9	12	4	12	12	M8 x 1.25
		25					83.5	67.6	49.8	39								
		32					88.5	72.6	54.8	44								
		40					92	76.1	58.3	47.5	4							
		50					96	80.1	62.3	51.5								

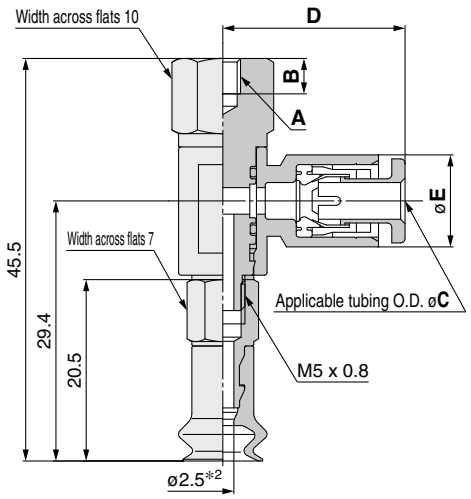
Dimensions Per Vacuum Inlet

Model							N	P	Q	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	B	N S U F GN GS	04	A5 A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20 25 32			04	A6 A8	4	23.3	10.4	ø3
					06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6
		40 50			06	A6 A8	6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6

*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 adapter/One-touch fitting ø6 to ø8



Construction p. 115
Adapter Assembly p. 122

ZPR ❶06 B ❷N – ❸04 – ❹B4

❹ **Connection thread (Female thread)**

B4	M4 x 0.7
B5	M5 x 0.8

❸ **Vacuum inlet (One-touch fitting)**

04	ø4
06	ø6

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread		
ZP	R	06 08	B	N S U F GN GS	04 06	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

Dimensions Per Vacuum Inlet

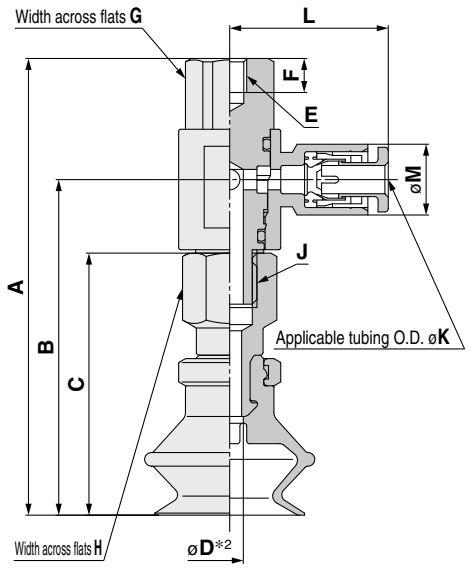
Model							C	D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	06 08	B	N S U F GN GS	04	B4 B5	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/One-touch fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 122

ZPR 10 B N - 04 - B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C	D*2	E	F	G	H	J
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread									
ZP	R	10	B	N S U F GN GS	04 06 08	B5	50	33.9	25	2.5	M5 x 0.8	5	10	8	M5 x 0.8
		13					52.5	36.4	27.5						
		16					54	37.9	29						
		20					67.1	49.3	38.5	3.5			12	12	M8 x 1.25
		25					67.6	49.8	39						
		32					72.6	54.8	44						
		10				B6	50	33.9	25	2.5	M6 x 1	6	10	8	M5 x 0.8
		13					52.5	36.4	27.5						
		16					54	37.9	29						
		20					67.1	49.3	38.5	3.5			12	12	M8 x 1.25
		25					67.6	49.8	39						
		32					72.6	54.8	44						
		40					76.1	58.3	47.5	4					
		50					80.1	62.3	51.5						
		20				B8	67.1	49.3	38.5	3.5	M8 x 1.25	8	12	12	M8 x 1.25
		25					67.6	49.8	39						
		32					72.6	54.8	44						
		40					76.1	58.3	47.5	4					
		50					80.1	62.3	51.5						

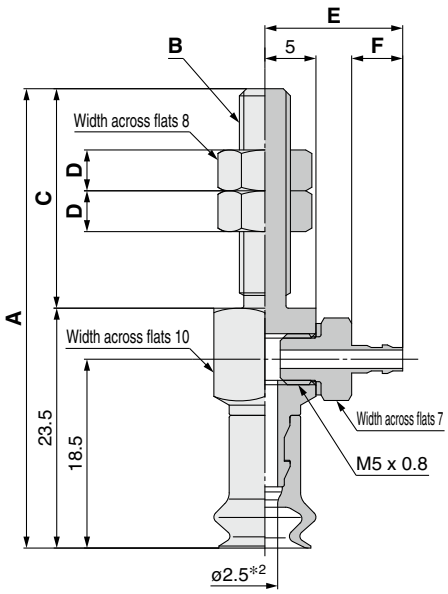
Dimensions Per Vacuum Inlet

Model							K	L	M	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	B	N S U F GN GS	04	B5 B6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4
		20 25 32			04	B5	4	23.3	10.4	ø3
					06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6
		40 50			06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6

*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 adapter/barb fitting ø6 to ø8



Construction p. 115
Adapter Assembly p. 123

ZPY 06 B N – N4 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	Y	06 08	B	N S U F GN GS	N4 N6 U4 U6	A5	45	M5 x 0.8	21.5	4
						A6	50.5	M6 x 1	27	4

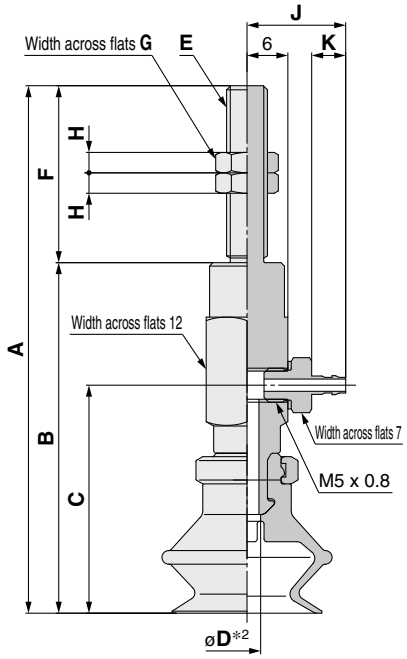
Dimensions Per Vacuum Inlet

Model							E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	06 08	B	N S U F GN GS	N4 U4	A5 A6	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY 10 B N – N4 – A5
❶ ❷ ❸ ❹

❸ **Vacuum inlet (Barb fitting)**

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ **Connection thread (Male thread)**

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D*2	E	F	G	H
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread								
ZP	Y	10	B	NSUFGNGS	N4 N6 U4 U6	A5	63	42	26	2.5	M5 x 0.8	21	8	4
		13					65.5	44.5	28.5					
		16					67	46	30					
		10				A6	68	42	26	2.5	M6 x 1	26	8	4
		13					70.5	44.5	28.5					
		16					72	46	30					
		20					77.5	51.5	33.5	3.5				
		25					78	52	34					
		32					83	57	39					
		40					88	62	44	6				
		50					92	66	48					
		20				A8	67.5	51.5	33.5	3.5	M8 x 1	16	12	4
		25					68	52	34					
		32					73	57	39					
		40					78	62	44	6				
		50					82	66	48					

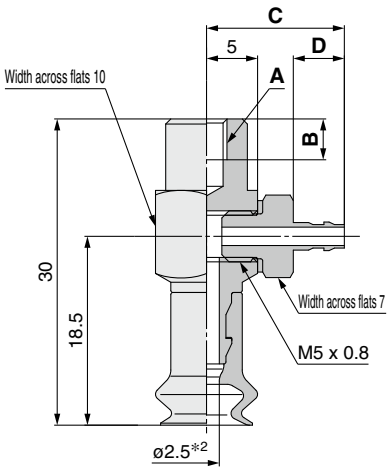
Dimensions Per Vacuum Inlet

Model							J	K	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16 20 25 32	B	NSUFGNGS	N4 U4	A5 A6	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40 50			N6 U6	A6 A8	16.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø6 to ø8



Construction p. 115
Adapter Assembly p. 123

ZPY 06 B N – N4 – B4
❶ ❷ ❸ ❹

❸ **Vacuum inlet (Barb fitting)**

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ **Connection thread (Female thread)**

B4	M4 x 0.7
B5	M5 x 0.8

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread		
ZP	**Y**	**06 08**	**B**	**N S U F GN GS**	**N4 N6 U4 U6**	**B4**	M4 x 0.7	4
						B5	M5 x 0.8	5

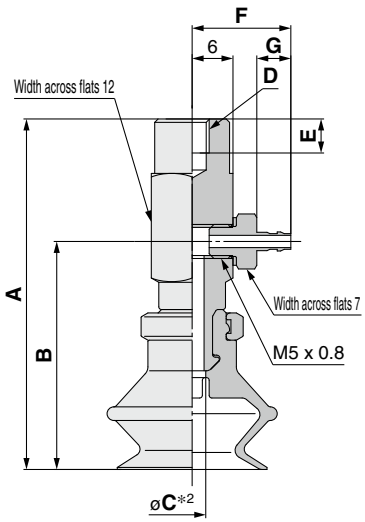
Dimensions Per Vacuum Inlet

Model							C	D	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	**Y**	**06 08**	**B**	**N S U F GN GS**	**N4 U4**	**B4 B5**	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø50



Construction p. 117
Adapter Assembly p. 123

ZPY 10 B N – N4 – B5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C*2	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread					
ZP	Y	10	B	N S U F GN GS	N4 N6 U4 U6	B5	42	26	2.5	M5 x 0.8	5
		13					44.5	28.5			
		16					46	30			
		20					51.5	33.5	3.5		
		25					52	34			
		32					57	39			
		10				B6	42	26	2.5	M6 x 1	6
		13					44.5	28.5			
		16					46	30			
		20					51.5	33.5	3.5		
		25					52	34			
		32					57	39			
		40					62	44	6		
		50					66	48			
		20				B8	51.5	33.5	3.5	M8 x 1.25	8
		25					52	34			
		32					57	39			
		40					62	44	6		
		50					66	48			

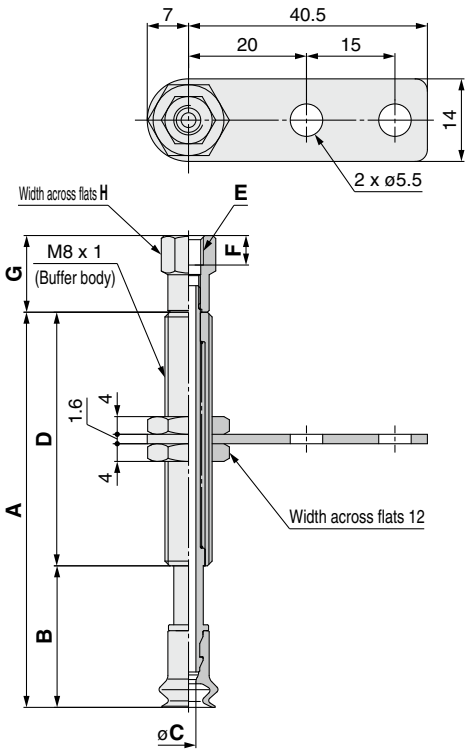
Dimensions Per Vacuum Inlet

Model							F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	B	N S U F GN GS	N4 U4	B4 B5	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		20 25 32			N4 U4	B5 B6 B8	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40 50			N6 U6	B6 B8	16.5	7	ø2.5

*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

Dimensions/Models

With buffer ø6 to ø8



ZPT 06 B N J 6 – B3 – A8
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet

B3	M3 x 0.5	Female thread	
B5	M5 x 0.8		
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6		KQ2H06-M5N
N4	For ø4 nylon tubing	Barb fitting	
U4	For ø4 soft tubing		

Model									A	B	C*2	D
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	06 08	B	N S U F GN GS	J K	6	B3 B5 04 06 N4 U4	A8	34	19	J: 2.5 K: 2	15
						10			67	24		43
						15			72	29		
						25			82	39		

Dimensions Per Vacuum Inlet: Female Thread

Model									E	F	G	H
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	06 08	B	N S U F GN GS	J K	6 10 15 25	B3	A8	M3 x 0.5	3	11	6
							B5		M5 x 0.8	5	13	8

Dimensions Per Vacuum Inlet: One-touch Fitting

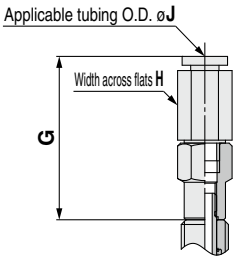
Model									G	H	J	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	06 08	B	N S U F GN GS	J K	6 10 15 25	04	A8	27.7	8	4	ø2.5
							06			10	6	

Dimensions Per Vacuum Inlet: Barb Fitting

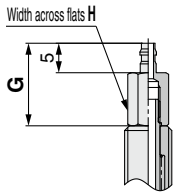
Model									G	H	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	06 08	B	N S U F GN GS	J K	6 10 15 25	N4	A8	14	6	ø1.8
							U4				

*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

Vacuum inlet: One-touch fitting



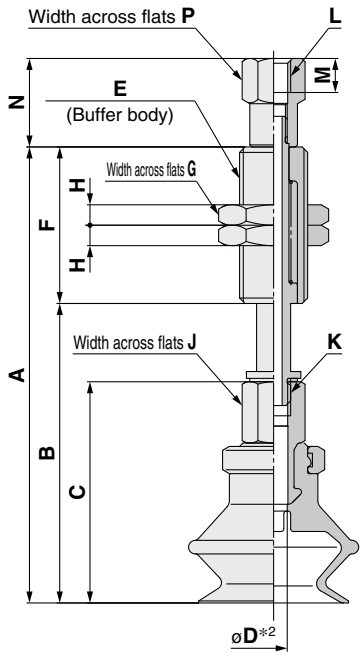
Vacuum inlet: Barb fitting



Construction p. 116
Buffer Assembly p. 124

Dimensions/Models

With buffer ø10 to ø50



Construction p. 118
Buffer Assembly p. 124

ZPT 10 B N J 10 – B5 – A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❺ Vacuum inlet (Female thread)

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

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

Model									A	B	C	D*2	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	T	10	B	N S U F GN GS	J K	10	B5 04 06 N6 U6	A10	59.5	36.5	25	J: 2.5 K: 2	M10 x 1	23	14	3	8	M5 x 0.8
						20			97.5	46.5				51				
						30			107.5	56.5								
						40			143.5	66.5				77				
						50			153.5	76.5								
		13				10			62	39	27.5			23				
						20			100	49				51				
						30			110	59								
						40			146	69				77				
						50			156	79								
		16				10			63.5	40.5	29			23				
						20			101.5	50.5				51				
						30			111.5	60.5								
						40			147.5	70.5				77				
						50			157.5	80.5								
		20				10			67	44	32.5			23				
						20			105	54				51				
						30			115	64								
						40			151	74				77				
						50			161	84								
		25				10			67.5	44.5	33			23				
						20			105.5	54.5				51				
						30			115.5	64.5								
						40			151.5	74.5				77				
						50			161.5	84.5								
		32				10			72.5	49.5	38			23				
						20			110.5	59.5				51				
						30			120.5	69.5								
						40			156.5	79.5				77				
						50			166.5	89.5								
		40				10	B5 06 08 N6 U6	A14	110	60	47.5	4	M14 x 1	50	19	4	12	M8 x 1.25
						20			120	70								
						30			130	80								
						50			175	100				75				
		50				10			114	64	51.5			50				
						20			124	74								
						30			134	84								
						50			179	104				75				

Dimensions Per Vacuum Inlet: Female Thread

Model									L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16 20 25 32	B	N S U F GN GS	J K	10 20 30 40 50	B5	A10	M5 x 0.8	5	13	8
		40 50				10 20 30 50	B5	A14	M5 x 0.8	4.5	15	10
										5	9	
						10 20 30 50	B01 N01 T01		Rc1/8 NPT1/8 NPTF1/8	—	16.5	13
											12	

*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 ø10 to ø50

ZPT 10 B N J 10 – 04 – A10
(1) (2) (3) (4) (5) (6)

Buffer specification (3)

J	Rotating
K	Non-rotating

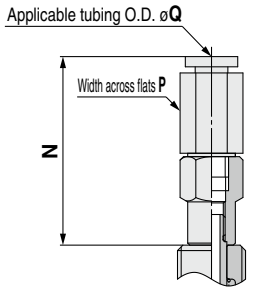
(6) Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

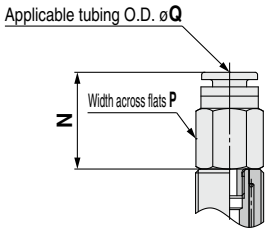
(5) Vacuum inlet

			Pad diameter	
			ø10 to ø32	ø40, ø50 (10 st only)
04	ø4	One-touch fitting	KQ2H04-M5N	
06	ø6		KQ2H06-M5N	KQ2H06-01NS
08	ø8			KQ2H08-01NS
N6	For ø6 nylon tubing	Barb fitting		
U6	For ø6 soft tubing			

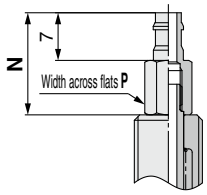
Vacuum inlet: One-touch fitting



Vacuum inlet: Built-in One-touch fitting
Pad diameter: ø40, ø50 (Buffer stroke: 20 to 50 st)



Vacuum inlet: Barb fitting



Construction p. 118
Buffer Assembly p. 124

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									N	P	Q	Fitting part min. hole size
	Vacuum inlet direction	(1) Pad dia.	Form	(2) *1 Material	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread				
ZP	T	10, 13, 16, 20, 25, 32	B	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	04	A10	27.7	8	4	ø2.5
							06			10	6	
		40, 50				10	06	A14	31.8	10	6	ø4.5
							08		35.9	14	8	ø6
						20, 30, 50	06		19.9	12	6	ø3
							08		24.9	14	8	

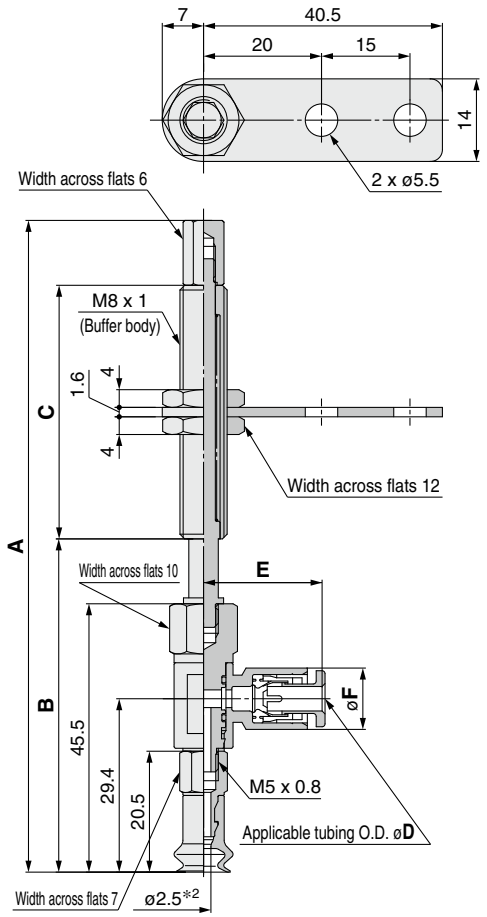
Dimensions Per Vacuum Inlet: Barb Fitting

Model									N	P	Fitting part min. hole size
	Vacuum inlet direction	(1) Pad dia.	Form	(2) *1 Material	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread			
ZP	T	10, 13, 16, 20, 25, 32	B	N, S, U, F, GN, GS	J, K	10, 20, 30, 40, 50	N6	A10	15	6	ø2.5
							U6				
		40, 50				10	N6	A14	19	10	
							U6				
						20, 30, 50	N6		12		
							U6				

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

Dimensions/Models

With buffer/One-touch fitting ø6 to ø8



Construction p. 116
Buffer Assembly p. 125

ZPR 06 B N J 6 - 04 - A8

❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	R	06 08	B	N S U F GN GS	J K	6	04 06	A8	79.5	53.5	15
						10			110.5	56.5	43
						15			115.5	61.5	
						25			125.5	71.5	

Dimensions Per Vacuum Inlet

Model									D	E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	06 08	B	N S U F GN GS	J K	6 10 15 25	04	A8	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4

*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 ø10 to ø50

ZPR 10 B N J 10 – 04 – A10
(1) (2) (4)

(3) Buffer specification

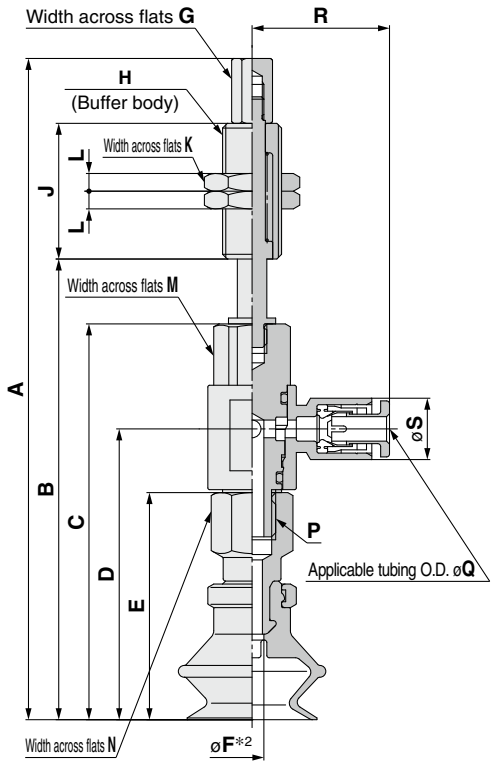
J	Rotating
K	Non-rotating

(5) Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

(6) Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1



Construction p. 118
Buffer Assembly p. 125

Model: Vacuum inlet direction	(1) Pad dia.	Form	(2) Material *1	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread	A	B	C	D	E	F *2	G	H	J	K	L	M	N	P
ZP R	10	B	N S U F GN GS	J K	10 20 30 40 50	04 06	A10	95 61 / 133 71 / 143 81 / 179 91 / 189 101		50	33.9	25	2.5	6	M10 x 1	23 51 77	14	3	10	8	M5 x 0.8
	13							97.5 63.5 / 135.5 73.5 / 145.5 83.5 / 181.5 93.5 / 191.5 103.5		52.5	36.4	27.5				23 51 77					
	16							99 65 / 137 75 / 147 85 / 183 95 / 193 105		54	37.9	29				23 51 77					
	20					04 06		112.1 78.1 / 150.1 88.1 / 160.1 98.1 / 196.1 108.1 / 206.1 118.1		67.1	49.3	38.5				23 51 77			12	12	M8 x 1.25
	25					04 06 08		112.6 78.6 / 150.6 88.6 / 160.6 98.6 / 196.6 108.6 / 206.6 118.6		67.6	49.8	39	3.5			23 51 77					
	32							117.6 83.6 / 155.6 93.6 / 165.6 103.6 / 201.6 113.6 / 211.6 123.6		72.6	54.8	44				23 51 77					
	40					06 08	A14	156.1 88.1 / 153.1 98.1 / 163.1 108.1 / 208.1 128.1		76.1	58.3	47.5	4	10	M14 x 1	50 75	19	4	12	12	M8 x 1.25
	50							160.1 92.1 / 157.1 102.1 / 167.1 112.1 / 212.1 132.1		80.1	62.3	51.5				50 75					

Dimensions Per Vacuum Inlet

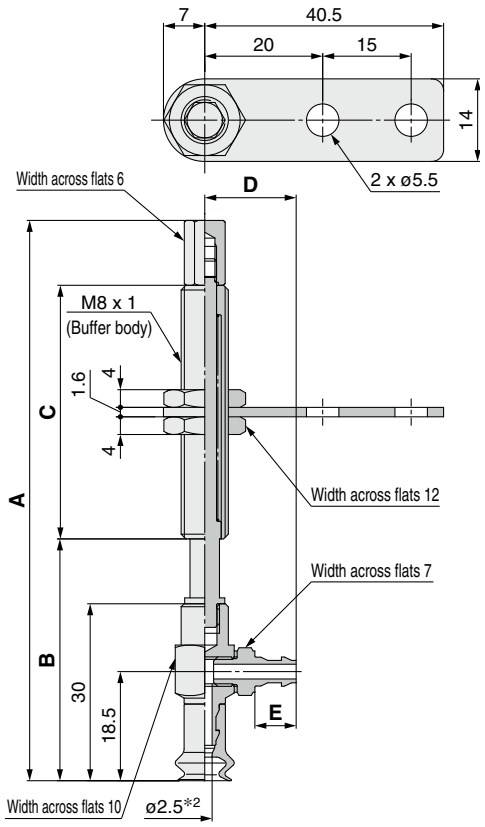
Model: Vacuum inlet direction	(1) Pad dia.	Form	(2) Material *1	(3) Buffer spec.	(4) Buffer stroke	(5) Vacuum inlet	(6) Connection thread	Q	R	S	Fitting part min. hole size
ZP R	10 13 16	B	N S U F GN GS	J K	10 20 30 40 50	04	A10	4	20.6	10.4	ø3
						06		6	21.6	12.8	ø4
	20 25 32				10 20 30 40 50	04		4	23.3	10.4	ø3
						06		6	24.3	12.8	ø4.5
						08		8	26.2	15.2	ø6
	40 50				10 20 30 50	06	A14	6	24.3	12.8	ø4.5
						08		8	26.2	15.2	ø6

*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/barb fitting ø6 to ø8



Construction p. 116
Buffer Assembly p. 126

ZPY 06 B N J 6 – N4 – A8
❶ ❷ ❹

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	06 08	B	N S U F GN GS	J K	6	N4 N6 U4 U6	A8	64	38	15
						10			95	41	43
						15			100	46	
						25			110	56	

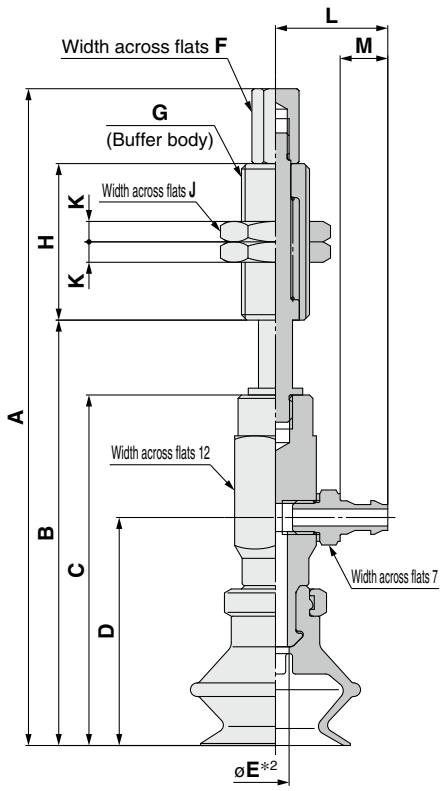
Dimensions Per Vacuum Inlet

Model									D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	06 08	B	N S U F GN GS	J K	6 10 15 25	N4 U4	A8	13.5	5	ø1.8
							N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With buffer/barb fitting ø10 to ø50



Construction p. 118
Buffer Assembly p. 126

ZPY 10 B N J 10 – N4 – A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C	D	*2 E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	Y	10	B	N S U F GN GS	J K	10	N4 N6 U4 U6	A10	87	53	42	26	2.5	6	M10 x 1	23	14	3
						20			125	63						51		
						30			135	73								
						40			171	83						77		
						50			181	93								
		13				10			89.5	55.5	44.5	28.5				23		
						20			127.5	65.5						51		
						30			137.5	75.5								
						40			173.5	85.5						77		
						50			183.5	95.5								
		16				10			91	57	46	30				23		
						20			129	67						51		
						30			139	77								
						40			175	87						77		
						50			185	97								
		20				10			96.5	62.5	51.5	33.5				23		
						20			134.5	72.5						51		
						30			144.5	82.5								
						40			180.5	92.5						77		
						50			190.5	102.5								
		25				10			97	63	52	34	3.5	6	M10 x 1	23	14	3
						20			135	73						51		
						30			145	83								
						40			181	93						77		
						50			191	103								
		32				10			102	68	57	39				23		
						20			140	78						51		
						30			150	88								
						40			186	98						77		
						50			196	108								
		40				10	N6 U6	A14	142	74	62	44	6	10	M14 x 1	50	19	4
						20			139	84								
						30			149	94								
						50			194	114						75		
		50				10			146	78	66	48				50		
						20			143	88								
						30			153	98								
						50			198	118						75		

Dimensions Per Vacuum Inlet

Model									L	M	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 13 16 20 25 32	B	N S U F GN GS	J K	10 20 30 40 50	N4 U4	A10	14.5	5	ø1.8
							N6 U6		16.5	7	ø2.5
		40 50					N6 U6	A14	16.5	7	ø2.5

*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

Basic Pad
Thin Flat Type
ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 UT N	p. 87	p. 115	From p. 121
With adapter	ZP T 10 UT N – A5 –	From p. 87	p. 115	From p. 121
With buffer	ZP T 10 UT N J 6 – B3 – A8	From p. 92	p. 116	From p. 124

∗ Pad unit's sales unit: 10 pcs.

❶ ❷ ❸ ❹ ❺ ❻ ❼

Thin flat type

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❷ Pad diameter

10	ø10
13	ø13
16	ø16

❸ Material

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

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

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
6	●
10	●
15	●
25	●

With adapter

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	A5	M5 x 0.8	○
	A6	M6 x 1	○
Female thread	B4	M4 x 0.7	○
	B5	M5 x 0.8	○
One-touch fitting	04	ø4	●
	06	ø6	●
Barb fitting	N4	For ø4 nylon tubing	△
	N6	For ø6 nylon tubing	△
	U4	For ø4 soft tubing	△
	U6	For ø6 soft tubing	△

❼ Connection thread

●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	A5	M5 x 0.8	●△
	A6	M6 x 1	●△
Female thread	B4	M4 x 0.7	●△
	B5	M5 x 0.8	●△

It is not necessary to select a connection thread for ○:ZPT/Vertical.
Use the vacuum inlet.

∗ The pad, mounting nut, fitting, and buffer plate are shipped together but do not come assembled.

With buffer

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter
			All sizes
Female thread	B3	M3 x 0.5	○
	B5	M5 x 0.8	○
One-touch fitting	04	ø4	○●
	06	ø6	○●
Barb fitting	N4	For ø4 nylon tubing∗1	○△
	N6	For ø6 nylon tubing∗1	△
	U4	For ø4 soft tubing∗2	○△
	U6	For ø6 soft tubing∗2	△

∗1 Nylon tube piping
∗2 Soft nylon/Polyurethane tube piping

❼ Connection thread

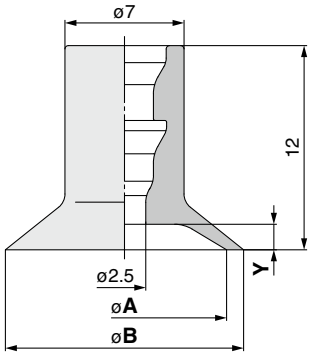
○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	A8	M8 x 1	○●△

Dimensions/Models

Single unit ø10 to ø16

ZP 10 UT N
❶ ❷



Construction	p. 115
Mounting Bracket Assembly	From p. 121

Model				A	B	Y
	❶ Pad dia.	Form	❷ *1 Material			
ZP	10	UT	N S U F GN GS	10	11	1
	13			13	14	1.5
	16			16	17	

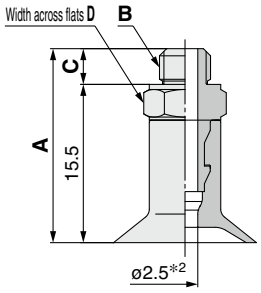
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

With adapter ø10 to ø16

ZPT 10 UT N – A5
❶ ❷ ❸

❸ **Vacuum inlet (Male thread)**

A5	M5 x 0.8
A6	M6 x 1



Construction	p. 115
Adapter Assembly	p. 121

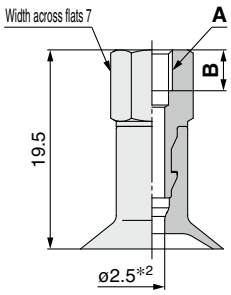
Model						A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet				
ZP	T	10 13 16	UT	N S U F GN GS	A5	19	M5 x 0.8	3.5	7
					A6	20	M6 x 1	4.5	8

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

ZPT 10 UT N – B4
❶ ❷ ❸

❸ **Vacuum inlet (Female thread)**

B4	M4 x 0.7
B5	M5 x 0.8



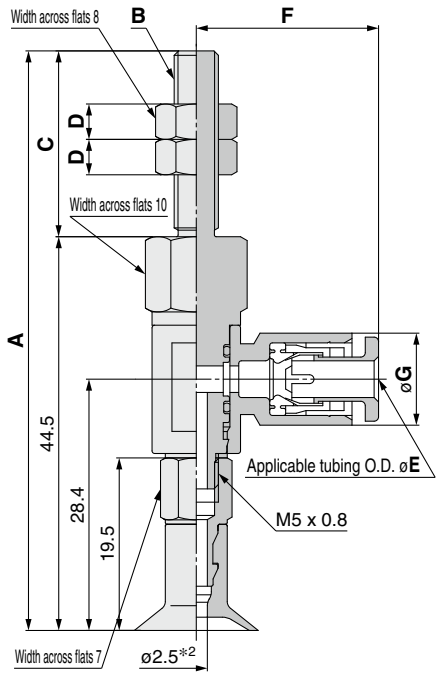
Construction	p. 115
Adapter Assembly	p. 121

Model						A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet		
ZP	T	10 13 16	UT	N S U F GN GS	B4	M4 x 0.7	4
					B5	M5 x 0.8	5

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

Dimensions/Models

With adapter/One-touch fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 122

ZPR ❶10 UT ❷N – ❸04 – ❹A5

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	UT	N S U F GN GS	04 06	A5	65.5	M5 x 0.8	21	4
						A6	70.5	M6 x 1	26	4

Dimensions Per Vacuum Inlet

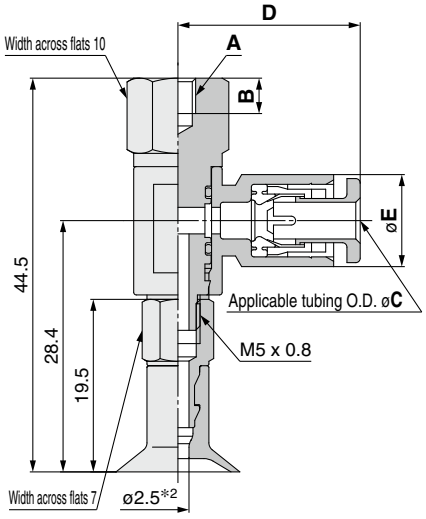
Model							E	F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	UT	N S U F GN GS	04	A5 A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/One-touch fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 122

ZPR ❶10 UT ❷N – ❸04 – ❹B4

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread		
ZP	R	10 13 16	UT	N S U F GN GS	04 06	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

Dimensions Per Vacuum Inlet

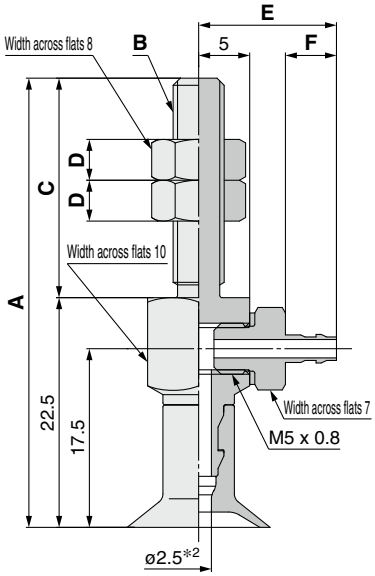
Model							C	D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	UT	N S U F GN GS	04	B4 B5	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/barb fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 123

ZPY ❶10 UT ❷N – N4 – A5

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	Y	10 13 16	UT	N S U F GN GS	N4 N6 U4 U6	A5	44	M5 x 0.8	21.5	4
						A6	49.5	M6 x 1	27	4

Dimensions Per Vacuum Inlet

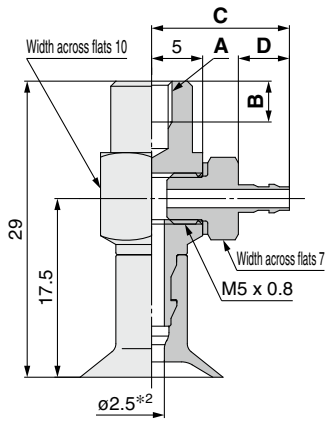
Model							E	F	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	UT	N S U F GN GS	N4 U4	A5 A6	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 123

ZPY ❶10 UT ❷N – N4 – B4

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 tubing	M-5AU-6

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread		
ZP	Y	10 13 16	UT	N S U F GN GS	N4 N6 U4 U6	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

Dimensions Per Vacuum Inlet

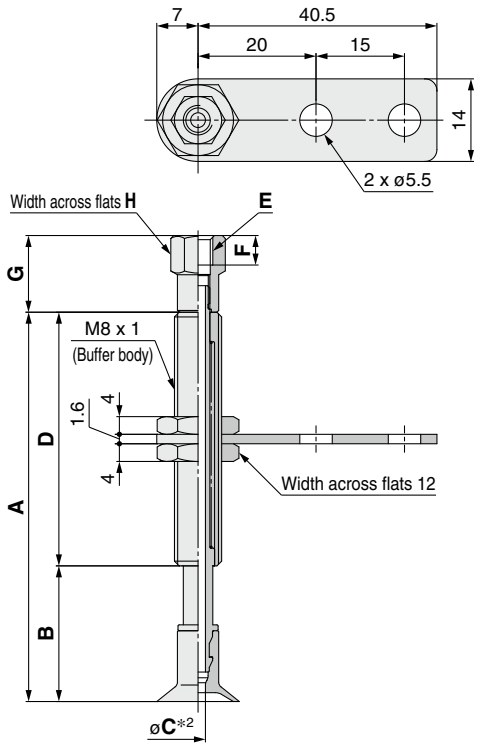
Model							C	D	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	UT	N S U F GN GS	N4 U4	B4 B5	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With buffer ø10 to ø16



ZPT 10 UT N J 6 - B3 - A8

❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet

B3	M3 x 0.5	Female thread	
B5	M5 x 0.8		
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6		KQ2H06-M5N
N4	For ø4 nylon tubing	Barb fitting	
U4	For ø4 soft tubing		

Model									A	B	C*2	D
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	UT	N S U F GN GS	J K	6	B3 B5 04 06 N4 U4	A8	33	18	J: 2.5 K: 2	15
						10			66	23		43
						15			71	28		
						25			81	38		

Dimensions Per Vacuum Inlet: Female Thread

Model									E	F	G	H
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	UT	N S U F GN GS	J K	6 10 15 25	B3	A8	M3 x 0.5	3	11	6
							B5		M5 x 0.8	5	13	8

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									G	H	J	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	UT	N S U F GN GS	J K	6 10 15 25	04	A8	27.7	8	4	ø2.5
							06			10	6	

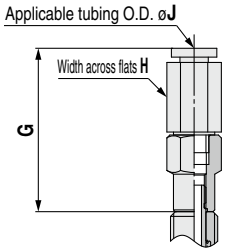
Dimensions Per Vacuum Inlet: Barb Fitting

Model									G	H	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	10 13 16	UT	N S U F GN GS	J K	6 10 15 25	N4	A8	14	6	ø1.8
							U4				

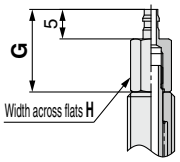
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

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

Vacuum inlet: One-touch fitting



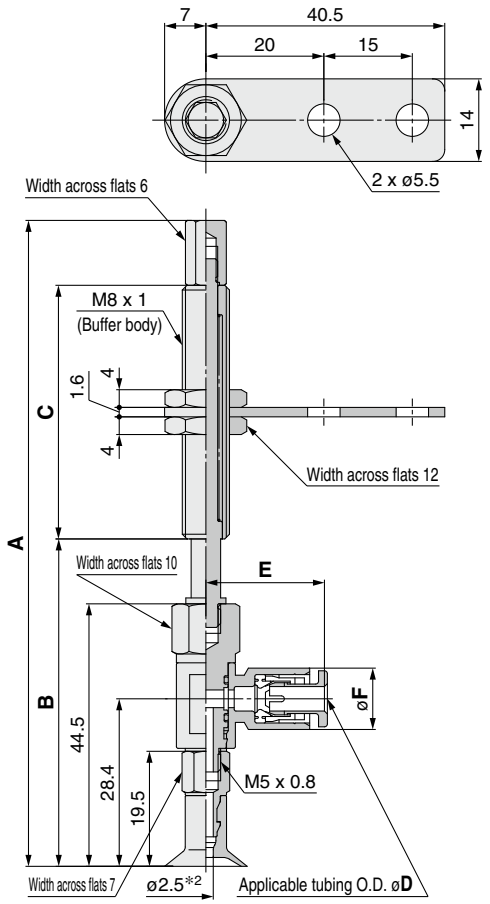
Vacuum inlet: Barb fitting



Construction p. 116
Buffer Assembly p. 124

Dimensions/Models

With buffer/One-touch fitting ø10 to ø16



ZPR ❶10 UT ❷N ❸J ❹6 - ❺04 - ❻A8

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	R	10 13 16	UT	N S U F GN GS	J K	6	04 06	A8	78.5	52.5	15
						10			109.5	55.5	43
						15			114.5	60.5	
						25			124.5	70.5	

Dimensions Per Vacuum Inlet

Model									D	E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	10 13 16	UT	N S U F GN GS	J K	6 10 15 25	04	A8	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4

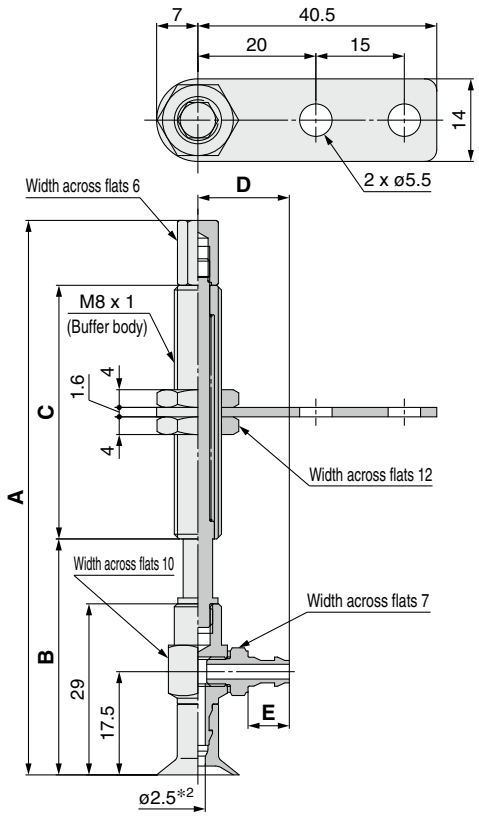
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

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

Construction p. 116
Buffer Assembly p. 125

Dimensions/Models

With buffer/barb fitting ø10 to ø16



Construction p. 116
Buffer Assembly p. 126

ZPY ❶10 UT ❷N ❸J ❹6 – ❺N4 – ❻A8

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 13 16	UT	N S U F GN GS	J K	6	N4 N6 U4 U6	A8	63	37	15
						10			94	40	43
						15			99	45	
						25			109	55	

Dimensions Per Vacuum Inlet

Model									D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 13 16	UT	N S U F GN GS	J K	6 10 15 25	N4 U4	A8	13.5	5	ø1.8
							N6 U6		15.5	7	ø2.5

*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

Basic Pad

Thin Flat Type with Ribs

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 CT N	p. **96**	p. **115**	From p. **121**
With adapter	ZP T 10 CT N – A5 –	From p. **96**	p. **115**	From p. **121**
With buffer	ZP T 10 CT N J 6 – B3 – A8	From p. **101**	p. **116**	From p. **124**

∗ Pad unit's sales unit: 10 pcs.

❶ ❷ ❸ ❹ ❺ ❻ ❼

● Thin flat type with ribs

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❷ Pad diameter

10	ø10
13	ø13
16	ø16

❸ Material

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

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

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
6	●
10	●
15	●
25	●

With adapter

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	**A5**	M5 x 0.8	○
	A6	M6 x 1	○
Female thread	**B4**	M4 x 0.7	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	●
	06	ø6	●
Barb fitting	**N4**	For ø4 nylon tubing	△
	N6	For ø6 nylon tubing	△
	U4	For ø4 soft tubing	△
	U6	For ø6 soft tubing	△

❼ Connection thread

●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	**A5**	M5 x 0.8	●△
	A6	M6 x 1	●△
Female thread	**B4**	M4 x 0.7	●△
	B5	M5 x 0.8	●△

It is not necessary to select a connection thread for ○:ZPT/Vertical.
Use the vacuum inlet.

With buffer

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter
			All sizes
Female thread	**B3**	M3 x 0.5	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	○●
	06	ø6	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△
	N6	For ø6 nylon tubing∗1	△
	U4	For ø4 soft tubing∗2	○△
	U6	For ø6 soft tubing∗2	△

∗1 Nylon tube piping
∗2 Soft nylon/Polyurethane tube piping

❼ Connection thread

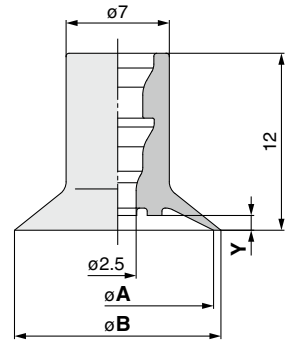
○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

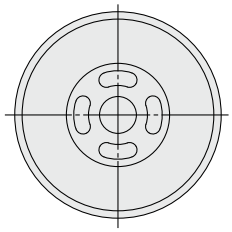
Type	Symbol	Size	Pad diameter
			All sizes
Male thread	**A8**	M8 x 1	○●△

∗ The pad, mounting nut, and buffer plate are shipped together but do not come assembled.

Dimensions/Models

Single unit ø10 to ø16





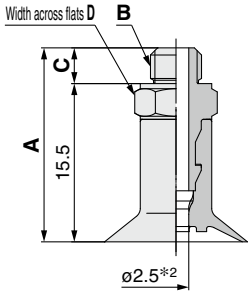
ZP 10 CT N
❶ ❷

Model ❶ Pad dia.	Form	❷ *1 Material	A	B	Y
10	CT	N S U F GN GS	10	11	0.8
13			13	14	1
16			16	17	

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

Construction p. 115
Mounting Bracket Assembly From p. 121

With adapter ø10 to ø16



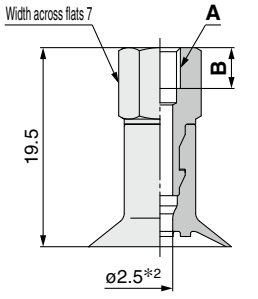
ZPT 10 CT N – A5
❶ ❷ ❸ Vacuum inlet (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	A	B	C	D
T	10 13 16	CT	N S U F GN GS	A5	19	M5 x 0.8	3.5	7
				A6	20	M6 x 1	4.5	8

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

Construction p. 115
Adapter Assembly p. 121



ZPT 10 CT N – B4
❶ ❷ ❸ Vacuum inlet (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

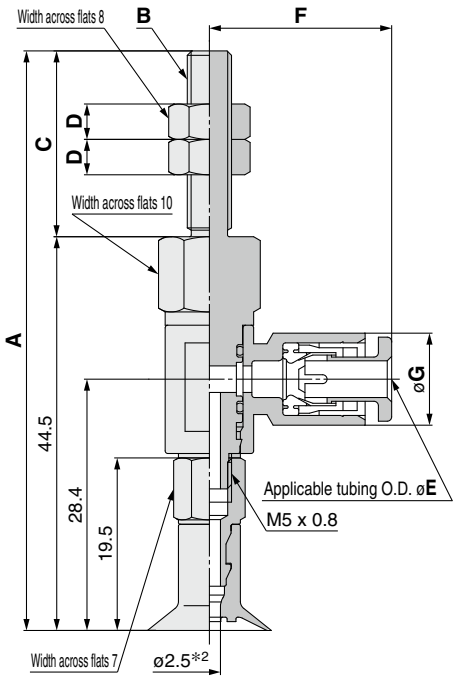
Model Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	A	B
T	10 13 16	CT	N S U F GN GS	B4	M4 x 0.7	4
				B5	M5 x 0.8	5

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

Construction p. 115
Adapter Assembly p. 121

Dimensions/Models

With adapter/One-touch fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 122

ZPR 10 CT N - 04 - A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	CT	N S U F GN GS	04 06	A5	65.5	M5 x 0.8	21	4
						A6	70.5	M6 x 1	26	4

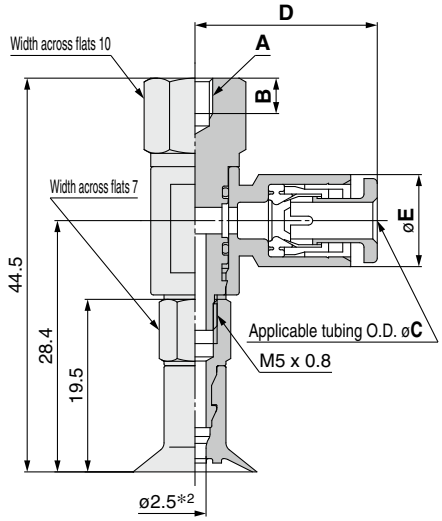
Dimensions Per Vacuum Inlet

Model							E	F	G	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	CT	N S U F GN GS	04	A5 A6	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/One-touch fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 122

ZPR 10 CT N – 04 – B4

❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread		
ZP	R	10 13 16	CT	N S U F GN GS	04 06	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

Dimensions Per Vacuum Inlet

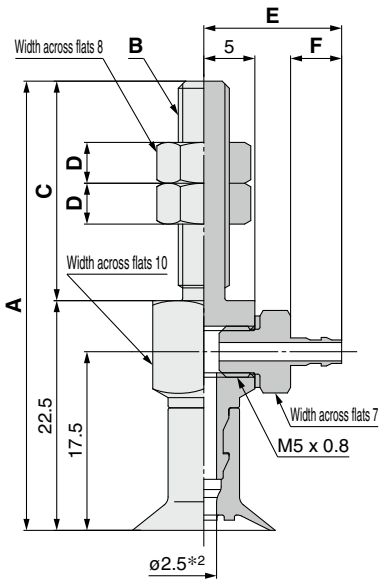
Model							C	D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ Material *1	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10 13 16	CT	N S U F GN GS	04	B4 B5	4	20.6	10.4	ø3
					06		6	21.6	12.8	ø4

*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 adapter/barb fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 123

ZPY 10 CT N – N4 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1

Model							A	B	C	D
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	Y	10 13 16	CT	N S U F GN GS	N4 N6 U4 U6	A5	44	M5 x 0.8	21.5	4
						A6	49.5	M6 x 1	27	4

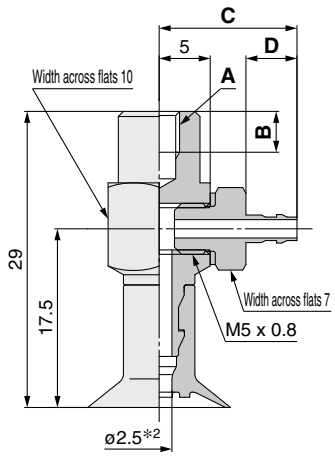
Dimensions Per Vacuum Inlet

Model							E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	CT	N S U F GN GS	N4 U4	A5 A6	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø16



Construction p. 115
Adapter Assembly p. 123

ZPY 10 CT N – N4 – B4
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 tubing	M-5AU-6

❹ Connection thread (Female thread)

B4	M4 x 0.7
B5	M5 x 0.8

Model							A	B
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread		
ZP	Y	10 13 16	CT	N S U F GN GS	N4 N6 U4 U6	B4	M4 x 0.7	4
						B5	M5 x 0.8	5

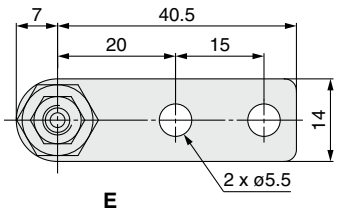
Dimensions Per Vacuum Inlet

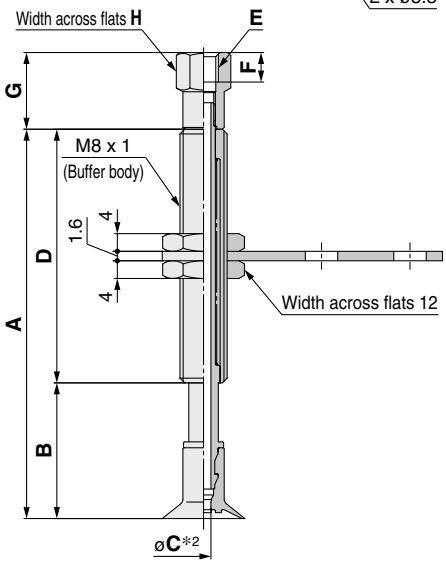
Model							C	D	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 13 16	CT	N S U F GN GS	N4 U4	B4 B5	13.5	5	ø1.8
					N6 U6		15.5	7	ø2.5

*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

Dimensions/Models

With buffer ø10 to ø16





ZPT 10 CT N J 6 - B3 - A8

❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet

B3	M3 x 0.5	Female thread	
B5	M5 x 0.8		
04	ø4	One-touch fitting	KQ2H04-M5N
06	ø6		KQ2H06-M5N
N4	For ø4 nylon tubing	Barb fitting	
U4	For ø4 soft tubing		

Model									A	B	C*2	D
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	CT	N S U F GN GS	J K	6	B3 B5 04 06 N4 U4	A8	33	18	J: 2.5 K: 2	15
						10			66	23		43
						15			71	28		
						25			81	38		

Dimensions Per Vacuum Inlet: Female Thread

Model									E	F	G	H
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	CT	N S U F GN GS	J K	6 10 15 25	B3	A8	M3 x 0.5	3	11	6
							B5		M5 x 0.8	5	13	8

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									G	H	J	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 13 16	CT	N S U F GN GS	J K	6 10 15 25	04	A8	27.7	8	4	ø2.5
							06			10	6	

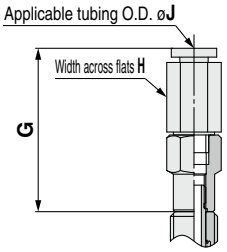
Dimensions Per Vacuum Inlet: Barb Fitting

Model									G	H	Fitting part min. hole size
	❶ Vacuum inlet direction	❶ Pad dia.	❶ Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	10 13 16	CT	N S U F GN GS	J K	6 10 15 25	N4	A8	14	6	ø1.8
							U4				

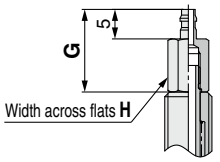
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber

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

Vacuum inlet: One-touch fitting



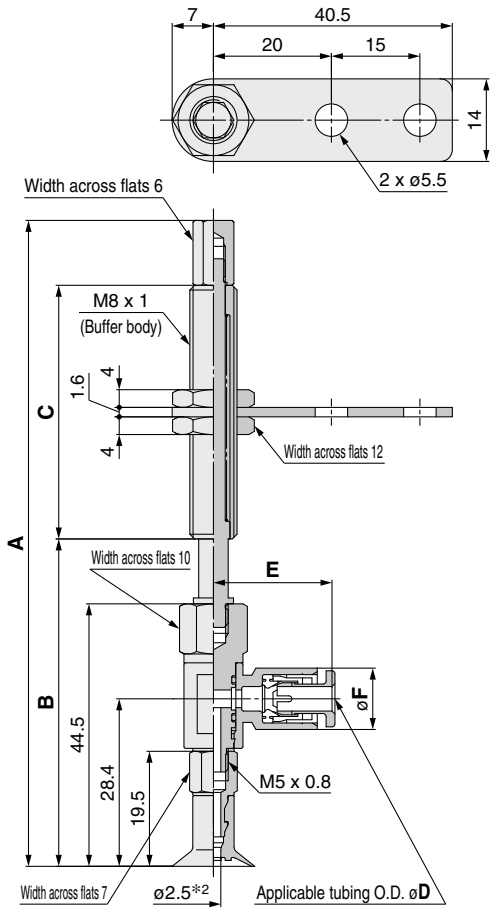
Vacuum inlet: Barb fitting



Construction p. 116
Buffer Assembly p. 124

Dimensions/Models

With buffer/One-touch fitting ø10 to ø16



ZPR 10 CT N J 6 - 04 - A8
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	R	10 13 16	CT	N S U F GN GS	J K	6	04 06	A8	78.5	52.5	15
						10			109.5	55.5	43
						15			114.5	60.5	
						25			124.5	70.5	

Dimensions Per Vacuum Inlet

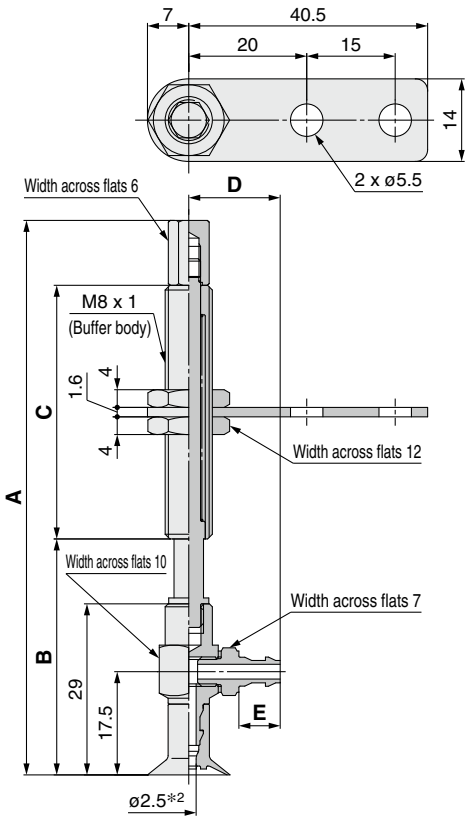
Model									D	E	F	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	10 13 16	CT	N S U F GN GS	J K	6 10 15 25	04	A8	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4

*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

Construction p. 116
Buffer Assembly p. 125

Dimensions/Models

With buffer/barb fitting ø10 to ø16



Construction p. 116
Buffer Assembly p. 126

ZPY 10 CT N J 6 – N4 – A8
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A8	M8 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 13 16	CT	N S U F GN GS	J K	6	N4 N6 U4 U6	A8	63	37	15
						10			94	40	43
						15			99	45	
						25			109	55	

Dimensions Per Vacuum Inlet

Model									D	E	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 13 16	CT	N S U F GN GS	J K	6 10 15 25	N4 U4	A8	13.5	5	ø1.8
							N6 U6		15.5	7	ø2.5

*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

Basic Pad
Deep Type
ZP Series


How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 D N – □	p. 105	p. 117	From p. 121
With adapter	ZP T 10 D N – A5 – □	From p. 105	p. 117	From p. 121
With buffer	ZP T 10 D N J 10 – B5 – A10	From p. 111	p. 118	From p. 124

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

● Deep type

❶ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❷ Pad diameter

10	ø10
16	ø16
25	ø25
40	ø40

❸ Material

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

❹ Buffer specification

J	Rotating
K	Non-rotating

❺ Buffer stroke

Stroke [mm]	Pad diameter [mm]			
	ø10	ø16	ø25	ø40
10	●	●	●	●
20	●	●	●	●
30	●	●	●	●
40	●	●	●	—
50	●	●	●	●

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

With adapter

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Female thread	**Nil**	M3 x 0.5	○ (❼Connection thread: A5/A6)	○ (❼Connection thread: A6)	○ (❼Connection thread: A6)
		M5 x 0.8	—	○ (❼Connection thread: A8)	○ (❼Connection thread: A8)
	B5	M5 x 0.8	○	○	—
	B6	M6 x 1	○	○	○
	B8	M8 x 1.25	—	○	○
	B01	Rc1/8	○	○	○
	N01	NPT1/8	○	○	○
	T01	NPTF1/8	○	○	○
One-touch fitting	**04**	ø4	●	●	—
	06	ø6	●	●	●
	08	ø8	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing*1	△	△	—
	N6	For ø6 nylon tubing*1	△	△	△
	U4	For ø4 soft tubing*2	△	△	—
	U6	For ø6 soft tubing*2	△	△	△

*1 Nylon tube piping *2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Male thread	**A5**	M5 x 0.8	○*1●△	—	—
	A6	M6 x 1	○*1●△	○*1●△	○*1●△
	A8	M8 x 1	—	○*1●△	○*1●△
Female thread	**B5**	M5 x 0.8	●△	●△	—
	B6	M6 x 1	●△	●△	●△
	B8	M8 x 1.25	—	●△	●△

*1 ○: ZPT/Vertical comes with a vacuum inlet (female thread).

With buffer

❻ Vacuum inlet

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
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	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing*1	△	△	—
	N6	For ø6 nylon tubing*1	○△	○△	○△
	U4	For ø4 soft tubing*2	△	△	—
	U6	For ø6 soft tubing*2	○△	○△	○△

*1 Nylon tube piping
*2 Soft nylon/Polyurethane tube piping

❼ Connection thread

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

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Male thread	**A10**	M10 x 1	○●△	○●△	—
	A14	M14 x 1	—	—	○●△

❽ Lock ring

Symbol	Pad diameter
	All sizes
Nil	With lock ring
X19	Without lock ring

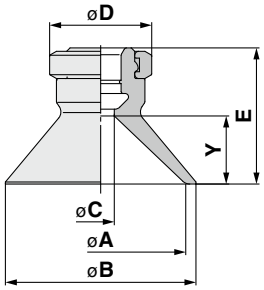
Lock ring unit

Part no.	Pad diameter [mm]
ZPL1	ø10, ø16
ZPL2	ø25
ZPL3	ø40

* The pad, lock ring, mounting nut, fitting, and buffer plate are shipped together but do not come assembled.

Dimensions/Models

Single unit ø10 to ø40



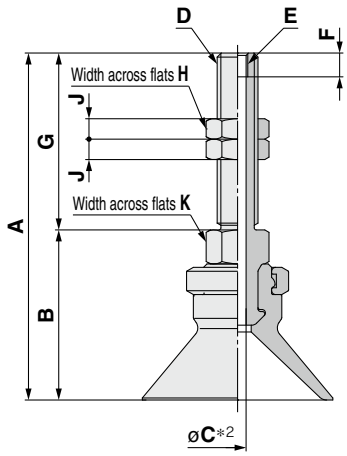
Construction p. 117
Mounting Bracket Assembly From p. 121

ZP 10 D N
❶ ❷

Model ❶ Pad dia.	Form	❷ *1 Material	A	B	C	D	E	Y
ZP 10	D	N S U F GN GS	10	12	4	13	15	6
ZP 16	D	N S U F GN GS	16	18	4	13	16	7
ZP 25	D	N S U F GN GS	25	28	4	15	20	10
ZP 40	D	N S U F GN GS	40	43	7	18	29	17

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

With adapter ø10 to ø40



Construction p. 117
Adapter Assembly p. 121

ZPT 10 D N - A5
❶ ❷ ❸

❸ **Connection thread (Male thread)**

A5	M5 x 0.8 (M3 x 0.5 With female thread)
A6	M6 x 1 (M3 x 0.5 With female thread)
A8	M8 x 1 (M5 x 0.8 With female thread)

Model Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Connection thread	A	B	C*2	D	E	F	G	H	J	K
ZP T	10	D	N S U F GN GS	A5	41	20	2.5	M5 x 0.8	M3 x 0.5	3.5	21	8	4	8
	16				42	21								
	10			A6	46	20	2.5	M6 x 1	M3 x 0.5	3.5	26	8	4	8
	16				47	21								
	25				51	25								
	40				61	35.5								12
	25			A8	46	30	4	M8 x 1	M5 x 0.8	5	16	12	4	12
	40				51	35.5	4.2							

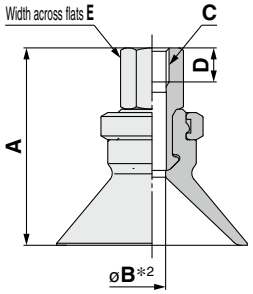
*1 N: NBR, S: Silicone rubber, U: Urethane rubber, F: FKM, GN: Conductive NBR, GS: Conductive silicone rubber
*2 Indicates the minimum hole size of the adapter or vacuum pad

Recommended Gasket Part Nos.

Part no.	D vacuum inlet (Male thread)
WCS5X0.8	M5 x 0.8
WCS6X1	M6 x 1
WCS8X1	M8 x 1

Dimensions/Models

With adapter ø10 to ø40



Construction p. 117
Adapter Assembly p. 121

ZPT ❶10 D ❷N – ❸B5

❸ Vacuum inlet (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25
B01	Rc1/8
N01	NPT1/8
T01	NPTF1/8

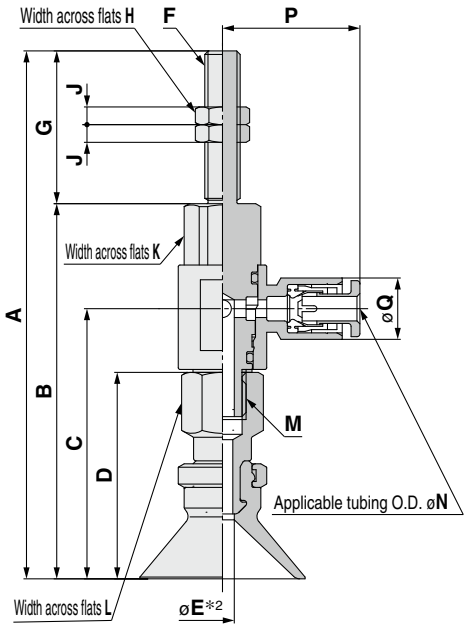
Model						A	B*2	C	D	E
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet					
ZP	T	10	D	N S U F GN GS	B5	24	2.5	M5 x 0.8	5	8
		16				25				
		25				29	4			
		10			B6	24	2.5	M6 x 1	6	8
		16				25				
		25				29	4			
		40				42.5	4.9			12
		25			B8	35	3.5	M8 x 1.25	8	12
		40				42.5	6.6			
		10			B01 N01 T01	30	2.5	Rc1/8 NPT1/8 NPTF1/8	—	12
		16				31				
		25				35	3.5			
		40				42.5	7			

*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 adapter/One-touch fitting ø10 to ø40



Construction p. 117
Adapter Assembly p. 122

ZPR 10 D N – 04 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D	*2 E	F	G	H	J	K	L	M
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread												
ZP	R	10	D	N S U F GN GS	04 06 08	A5	70	49	32.9	24	2.5	M5 x 0.8	21	8	4	10	8	M5 x 0.8
		16					71	50	33.9	25								
		10				A6	75	49	32.9	24	2.5	M6 x 1	26	8	4	10	8	M5 x 0.8
		16					76	50	33.9	25								
		25					89.5	63.6	45.8	35	3.5					12	12	M8 x 1.25
		40					97	71.1	53.3	42.5	4							
		25				A8	79.5	63.6	45.8	35	3.5	M8 x 1	16	12	4	12	12	M8 x 1.25
		40					87	71.1	53.3	42.5	4							

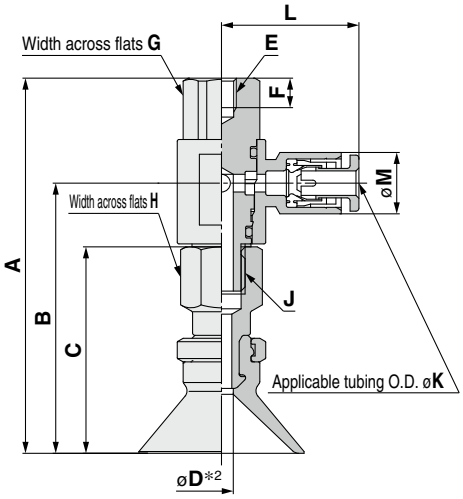
Dimensions Per Vacuum Inlet

Model							N	P	Q	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10	D	N S U F GN GS	04	A5	4	20.6	10.4	ø3
		16			06	A6	6	21.6	12.8	ø4
		25			04	A6 A8	4	23.3	10.4	ø3
					06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6
		40			06		6	24.3	12.8	ø4.5
					08		8	26.2	15.2	ø6

*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 adapter/One-touch fitting ø10 to ø40



Construction p. 117
Adapter Assembly p. 122

ZPR ❶10 D ❷N – ❸04 – ❹B5

❸ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

❹ Connection thread (Female thread)

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model							A	B	C	*2 D	E	F	G	H	J
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread									
ZP	R	10	D	NSUFGNGS	04 06 08	B5	49	32.9	24	2.5	M5 x 0.8	5	10	8	M5 x 0.8
		16					50	33.9	25						
		25					63.6	45.8	35	3.5			12	12	M8 x 1.25
		10				B6	49	32.9	24	2.5	M6 x 1	6	10	8	M5 x 0.8
		16					50	33.9	25						
		25					63.6	45.8	35	3.5			12	12	M8 x 1.25
		40					71.1	53.3	42.5	4					
		25				B8	63.6	45.8	35	3.5	M8 x 1.25	8	12	12	M8 x 1.25
		40					71.1	53.3	42.5	4					

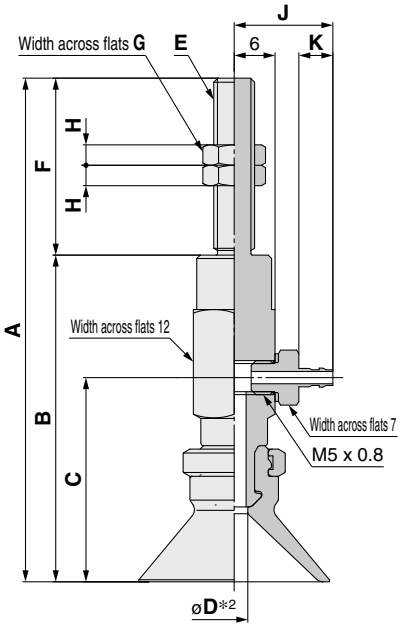
Dimensions Per Vacuum Inlet

Model							K	L	M	Fitting part min. hole size
Vacuum inlet direction		❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread				
ZP	R	10	D	NSUFGNGS	04	B5	4	20.6	10.4	ø3
		16			06	B6	6	21.6	12.8	ø4
		25			04	B5	4	23.3	10.4	ø3
					06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6
		40			06	B6	6	24.3	12.8	ø4.5
					08	B8	8	26.2	15.2	ø6

*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 adapter/barb fitting ø10 to ø40



Construction p. 117
Adapter Assembly p. 123

ZPY 10 D N – N4 – A5
❶ ❷ ❸ ❹

❸ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ Connection thread (Male thread)

A5	M5 x 0.8
A6	M6 x 1
A8	M8 x 1

Model							A	B	C	D*2	E	F	G	H
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread								
ZP	Y	10	D	N S U F GN GS	N4 N6 U4 U6	A5	62	41	25	2.5	M5 x 0.8	21	8	4
		16					63	42	26					
		10				A6	67	41	25	2.5	M6 x 1	26	8	4
		16					68	42	26					
		25					74	48	30	3.5				
		40					83	57	39	6				
		25				A8	64	48	30	3.5	M8 x 1	16	12	4
		40					73	57	39	6				

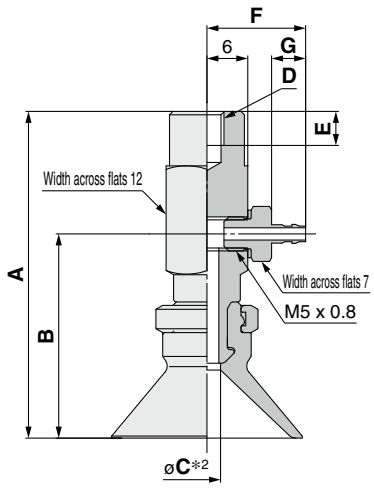
Dimensions Per Vacuum Inlet

Model							J	K	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread			
ZP	Y	10 16 25	D	N S U F GN GS	N4 U4	A5 A6	14.5	5	ø1.8
					N6 U6		16.5	7	ø2.5
		40			N6 U6	A6 A8	16.5	7	ø2.5

*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

Dimensions/Models

With adapter/barb fitting ø10 to ø40



Construction p. 117
Adapter Assembly p. 123

ZPY ❶10 D ❷N – N4 – B5

❸ **Vacuum inlet (Barb fitting)**

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

❹ **Connection thread (Female thread)**

B5	M5 x 0.8
B6	M6 x 1
B8	M8 x 1.25

Model: Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread	A	B	C*2	D	E
ZP Y	10	D	N S U F GN GS	N4 N6 U4 U6	B5	41	25	2.5	M5 x 0.8	5
	16					42	26			
	25					48	30	3.5		
	10				B6	41	25	2.5	M6 x 1	6
	16					42	26			
	25					48	30	3.5		
	40					57	39	6		
	25				B8	48	30	3.5	M8 x 1.25	8
	40					57	39	6		

Dimensions Per Vacuum Inlet

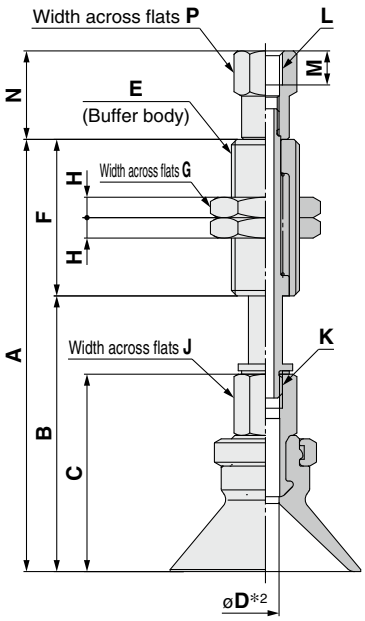
Model: Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Vacuum inlet	❹ Connection thread	F	G	Fitting part min. hole size
ZP Y	10 16	D	N S U F GN GS	N4 U4	B4 B5	14.5	5	ø1.8
				N6 U6		16.5	7	ø2.5
	25			N4 U4	B5 B6 B8	14.5	5	ø1.8
				N6 U6		16.5	7	ø2.5
	40			N6 U6	B6 B8	16.5	7	ø2.5

*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

Dimensions/Models

With buffer ø10 to ø40



Construction p. 118
Buffer Assembly p. 124

ZPT 10 D N J 10 - B5 - A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Female thread)

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

Model									A	B	C	D*2	E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	T	10	D	N S U F GN GS	J K	10	B5 04 06 N6 U6	A10	58.5	35.5	24	J: 2.5 K: 2	M10 x 1	23	14	3	8	M5 x 0.8
						20			96.5	45.5				51				
						30			106.5	55.5								
						40			142.5	65.5				77				
						50			152.5	75.5								
		16				10			59.5	36.5	25			23				
						20			97.5	46.5				51				
						30			107.5	56.5								
						40			143.5	66.5				77				
						50			153.5	76.5								
		25				10			63.5	40.5	29			23				
						20			101.5	50.5				51				
						30			111.5	60.5								
						40			147.5	70.5				77				
						50			157.5	80.5								
		40				10	B5 B01 N01 T01 06 08 N6 U6	A14	105	55	42.5	4	M14 x 1	50	19	4	12	M8 x 1.25
						20			115	65								
						30			125	75								
						50			170	95				75				

Dimensions Per Vacuum Inlet: Female Thread

Model									L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 16 25	D	N S U F GN GS	J K	10 20 30 40 50	B5	A10	M5 x 0.8	5	13	8
		40				10	B5	A14	M5 x 0.8	4.5	15	10
						20 30 50				5	9	
						10	B01 N01 T01		Rc1/8 NPT1/8 NPTF1/8		16.5	13
						20 30 50					12	

*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 ø10 to ø40

ZPT 10 D N J 10 – 04 – A10
❶ ❷ ❸ ❹ ❺ ❻

❸ Buffer specification

J	Rotating
K	Non-rotating

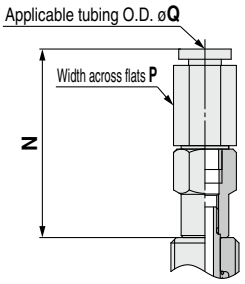
❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

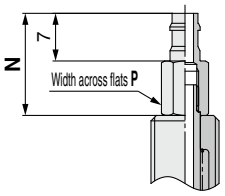
❺ Vacuum inlet

			Pad diameter	
			ø10 to ø25	ø40
04	ø4	One-touch fitting	KQ2H04-M5N	
06	ø6		KQ2H06-M5N	KQ2H06-01NS
08	ø8			KQ2H08-01NS
N6	For ø6 nylon tubing	Barb fitting		
U6	For ø6 soft tubing			

Vacuum inlet: One-touch fitting



Vacuum inlet: Barb fitting



Construction p. 118
Buffer Assembly p. 124

Dimensions Per Vacuum Inlet: One-touch Fitting

Model									N	P	Q	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	T	10 16 25	D	N S U F GN GS	J K	10 20 30 40 50	04	A10	27.7	8	4	ø2.5
							06			10	6	
		40				10	06	A14	31.8	10	6	ø4.5
							08		35.9	14	8	ø6
						20 30 50	06		19.9	12	6	ø3
							08		24.9	14	8	

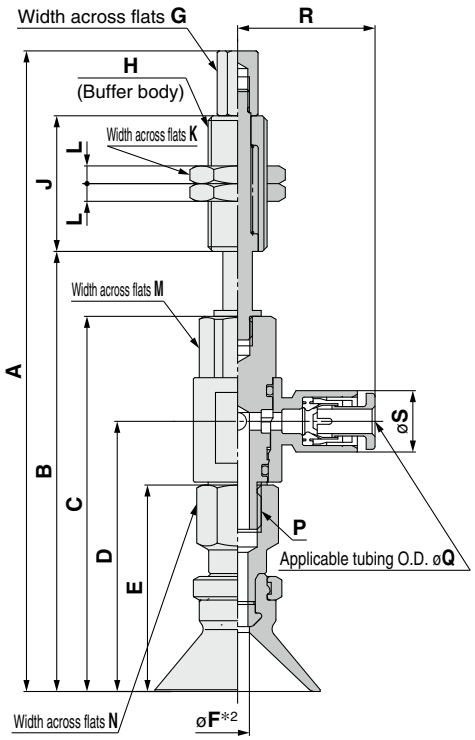
Dimensions Per Vacuum Inlet: Barb Fitting

Model									N	P	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	T	10 16 25	D	N S U F GN GS	J K	10 20 30 40 50	N6	A10	15	6	ø2.5
							U6				
		40				10	N6	A14	19	10	
							U6				
						20 30 50	N6		12		
							U6				

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

Dimensions/Models

With buffer/One-touch fitting ø10 to ø40



Construction p. 118
Buffer Assembly p. 125

ZPR ❶10 D ❷N ❸J ❹10 - ❺04 - ❻A10

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (One-touch fitting)

04	ø4
06	ø6
08	ø8

Model									A	B	C	D	E	*2 F	G	H	J	K	L	M	N	P
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread														
ZP	R	10	D	NSUFGNGS	JK	10	04 06	A10	94	60	49	32.9	24	2.5	6	M10 x 1	23	14	3	10	8	M5 x 0.8
						20			132	70							51					
						30			142	80												
						40			178	90							77					
						50			188	100												
		16				10			95	61	50	33.9	25				23					
						20			133	71							51					
						30			143	81												
						40			179	91							77					
						50			189	101												
		25				10	04 06 08		108.6	74.6	63.6	45.8	35	3.5			23			12	12	M8 x 1.25
						20			146.6	84.6							51					
						30			156.6	94.6												
						40			192.6	104.6							77					
						50			202.6	114.6												
		40				10	06 08	A14	151.1	83.1	71.1	53.3	42.5	4	10	M14 x 1	50	19	4	12	12	M8 x 1.25
						20			148.1	93.1												
						30			158.1	103.1												
						50			203.1	123.1							75					

Dimensions Per Vacuum Inlet

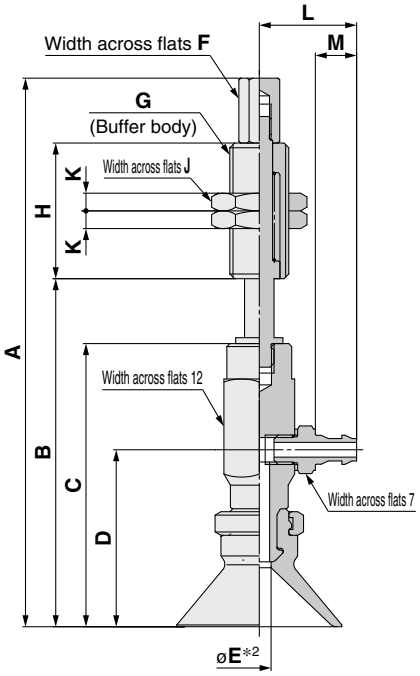
Model									Q	R	S	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread				
ZP	R	10 16	D	NSUFGNGS	JK	10 20 30 40 50	04	A10	4	20.6	10.4	ø3
							06		6	21.6	12.8	ø4
		25				10 20 30 40 50	04		4	23.3	10.4	ø3
							06		6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6
		40				10 20 30 50	06	A14	6	24.3	12.8	ø4.5
							08		8	26.2	15.2	ø6

*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/barb fitting ø10 to ø40



Construction p. 118
Buffer Assembly p. 126

ZPY ❶10 D ❷N ❸J ❹10 – ❺N4 – ❻A10

❸ Buffer specification

J	Rotating
K	Non-rotating

❻ Connection thread (Male thread)

A10	M10 x 1
A14	M14 x 1

❺ Vacuum inlet (Barb fitting)

N4	For ø4 nylon tubing	M-5AN-4
N6	For ø6 nylon tubing	M-5AN-6
U4	For ø4 soft tubing	M-5AU-4
U6	For ø6 soft tubing	M-5AU-6

Model									A	B	C	D	*2 E	F	G	H	J	K
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread										
ZP	Y	10	D	N S U F GN GS	J K	10	N4 N6 U4 U6	A10	86	52	41	25	2.5	6	M10 x 1	23	14	3
						20			124	62						51		
						30			134	72								
						40			170	82						77		
						50			180	92								
		16				10			87	53	42	26				23		
						20			125	63						51		
						30			135	73								
						40			171	83						77		
						50			181	93								
		25				10			93	59	48	30	3.5	6	M10 x 1	23	14	3
						20			131	69						51		
						30			141	79								
						40			177	89						77		
						50			187	99								
		40				10	N6 U6	A14	137	69	57	39	6	10	M14 x 1	50	19	4
						20			134	79								
						30			144	89								
						50			189	109						75		

Dimensions Per Vacuum Inlet

Model									L	M	Fitting part min. hole size
	Vacuum inlet direction	❶ Pad dia.	Form	❷ *1 Material	❸ Buffer spec.	❹ Buffer stroke	❺ Vacuum inlet	❻ Connection thread			
ZP	Y	10 16 25	D	N S U F GN GS	J K	10 20 30 40 50	N4 U4	A10	14.5	5	ø1.8
							N6 U6		16.5	7	ø2.5
		40				10 20 30 50	N6 U6	A14	16.5	7	ø2.5

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

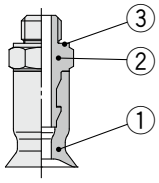
*2 Indicates the minimum hole size of the adapter or vacuum pad

Basic Pad *ZP Series*
Construction

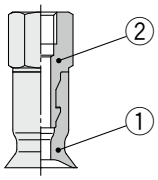
With adapter | **Flat type: ø2 to ø8** | **Bellows type: ø6 to ø8** | **Thin flat type/Thin flat type with ribs: ø10 to ø16**

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

ZPT□-(A5/A6)



ZPT□-(B4/B5)

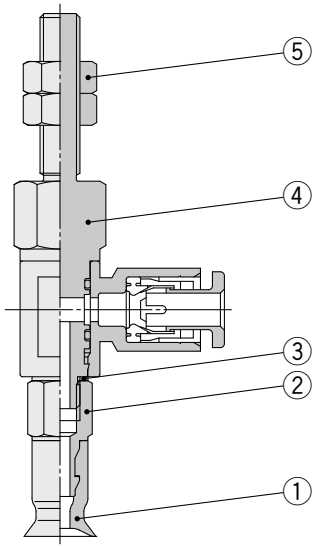


Component Parts

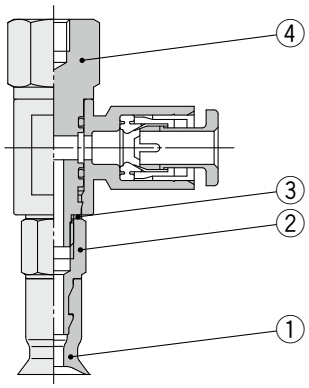
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Gasket**	Stainless steel/NBR	

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

ZPR□-(04/06)-(A5/A6)



ZPR□-(04/06)-(B4/B5)

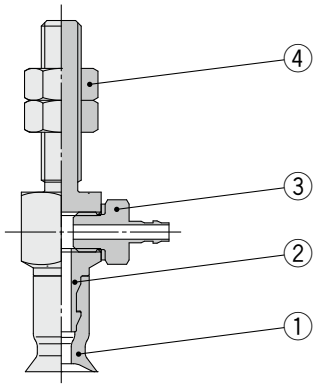


Component Parts

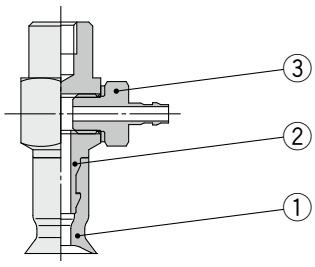
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Gasket**	Stainless steel/NBR	
4	**Adapter** **(With One-touch fitting)**	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	**Nut**	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1

Vacuum inlet direction **Lateral** Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-(A5/A6)



ZPY□-(N4/N6/U4/U6)-(B4/B5)



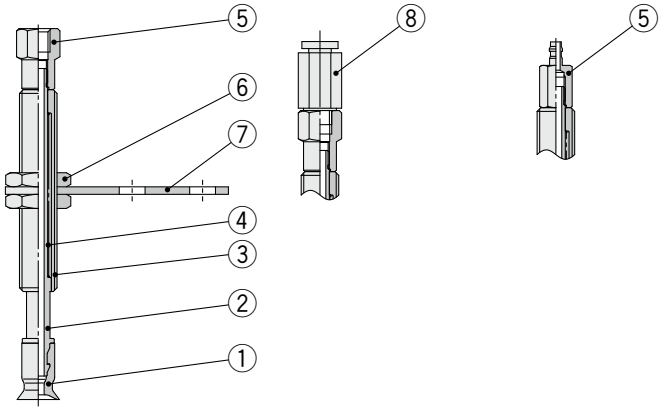
Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Barb fitting**	—	
4	**Nut**	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1

With buffer | **Flat type: ø2 to ø8** | **Bellows type: ø6 to ø8** | **Thin flat type/Thin flat type with ribs: ø10 to ø16**

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

ZPT□-(B3/B5)-A8 **ZPT□-(04/06)-A8** **ZPT□-(N4/U4)-A8**

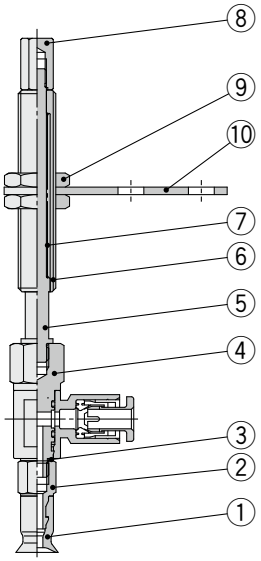


Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Piston rod**	Stainless steel	
3	**Buffer body**	Brass (Electroless nickel plating)	
4	**Return spring**	Stainless steel	
5	**Buffer adapter**	Brass (Electroless nickel plating)	
6	**Nut**	Carbon steel (Zinc chromated)	M8 x 1
7	**Buffer plate**	Steel (Trivalent chromated)	
8	**Fitting**	—	

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

ZPR□-(04/06)-A8

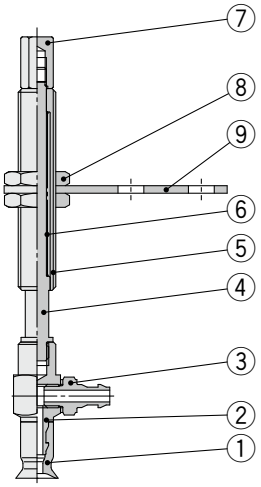


Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Gasket**	Stainless steel 304/NBR	
4	**Adapter** (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
5	**Piston rod**	Stainless steel	
6	**Buffer body**	Brass (Electroless nickel plating)	
7	**Return spring**	Stainless steel	
8	**Buffer adapter**	Brass (Electroless nickel plating)	
9	**Nut**	Carbon steel (Zinc chromated)	M8 x 1
10	**Buffer plate**	Steel (Trivalent chromated)	

Vacuum inlet direction **Lateral** Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-A8



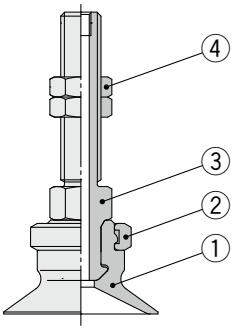
Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Bellows type Thin flat type Thin flat type with ribs
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Barb fitting**	—	
4	**Piston rod**	Stainless steel	
5	**Buffer body**	Brass (Electroless nickel plating)	
6	**Return spring**	Stainless steel	
7	**Buffer adapter**	Brass (Electroless nickel plating)	
8	**Nut**	Carbon steel (Zinc chromated)	M8 x 1
9	**Buffer plate**	Steel (Trivalent chromated)	

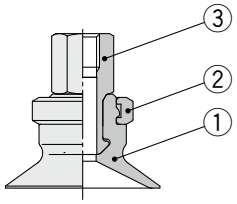
With adapter | **Flat type: ø10 to ø50** | **Flat type with ribs: ø10 to ø50** | **Bellows type: ø10 to ø50** | **Deep type: ø10 to ø40**

Vacuum inlet direction Vertical T Type/ZPT

ZPT□-(A5/A6/A8)



ZPT□-(B5/B6/B8/B01/N01/T01)

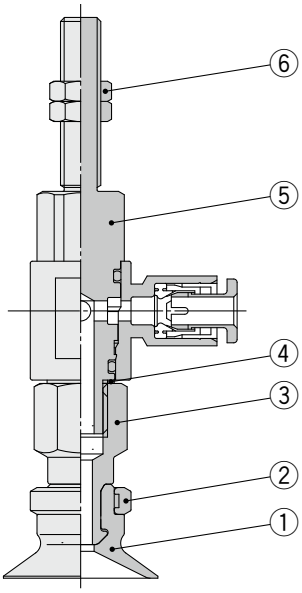


Component Parts

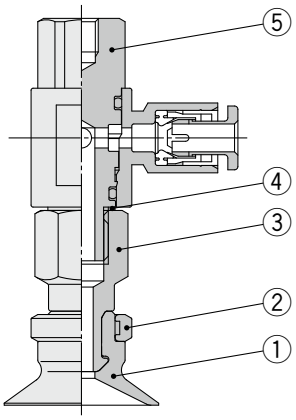
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Nut**	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1
		Carbon steel (Zinc chromated)	M8 x 1

Vacuum inlet direction Lateral R Type/ZPR

ZPR□-(04/06/08)-(A5/A6/A8)



ZPR□-(04/06/08)-(B5/B6/B8)

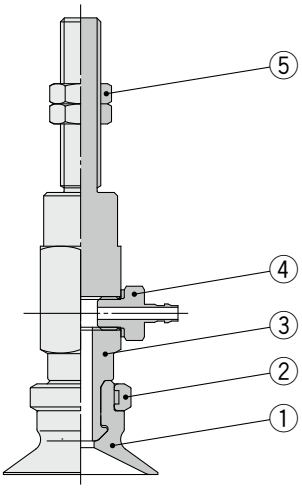


Component Parts

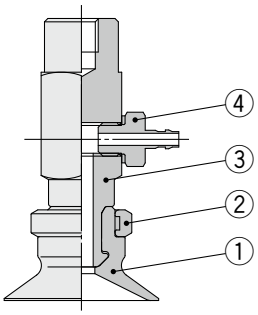
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Gasket**	Stainless steel 304/NBR	
5	**Adapter** **(With One-touch fitting)**	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
6	**Nut**	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1
		Carbon steel (Zinc chromated)	M8 x 1

Vacuum inlet direction Lateral Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-(A5/A6/A8)



ZPY□-(N4/N6/U4/U6)-(B5/B6/B8)



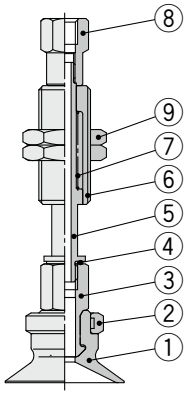
Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Barb fitting**	—	
5	**Nut**	Rolled steel (Zinc chromated)	M5 x 0.8 M6 x 1
		Carbon steel (Zinc chromated)	M8 x 1

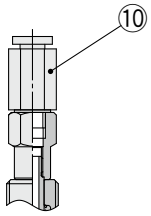
With buffer | Flat type: ø10 to ø50 | Flat type with ribs: ø10 to ø50 | Bellows type: ø10 to ø50 | Deep type: ø10 to ø40

Vacuum inlet direction Vertical T Type/ZPT

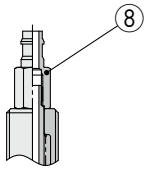
ZPT□-(B5/B01/N01/T01)-(A10/A14)



ZPT□-(04/06/08)-(A10/A14)



ZPT□-(N6/U6)-(A10/A14)

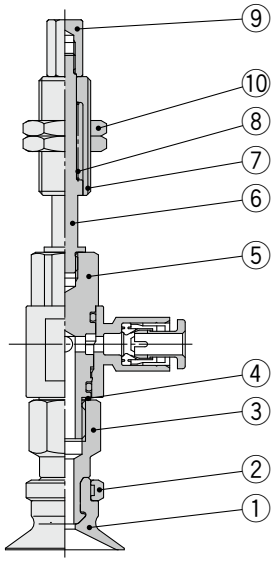


Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Gasket**	Stainless steel/NBR	
5	**Piston rod**	Stainless steel	
6	**Buffer body**	Brass (Electroless nickel plating)	
7	**Return spring**	Stainless steel	
8	**Buffer adapter**	Brass (Electroless nickel plating)	
9	**Nut**	Steel (Zinc chromated)	M10 x 1 M14 x 1
10	**Fitting**	—	

Vacuum inlet direction Lateral R Type/ZPR

ZPR□-(04/06/08)-(A10/A14)

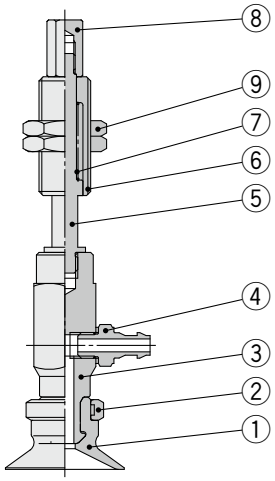


Component Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Gasket**	Stainless steel/NBR	
5	**Adapter** (With One-touch fitting)	Brass (Electroless nickel plating), PBT, NBR, Stainless steel, POM	
6	**Piston rod**	Stainless steel	
7	**Buffer body**	Brass (Electroless nickel plating)	
8	**Return spring**	Stainless steel	
9	**Buffer adapter**	Brass (Electroless nickel plating)	
10	**Nut**	Steel (Zinc chromated)	M10 x 1 M14 x 1

Vacuum inlet direction Lateral Y Type/ZPY

ZPY□-(N4/N6/U4/U6)-(A10/A14)



Component Parts

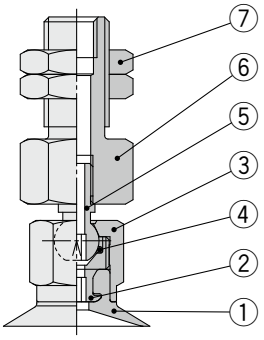
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type Flat type with ribs Bellows type Deep type
2	**Lock ring**	Brass (Electroless nickel plating)	
3	**Adapter**	Brass (Electroless nickel plating)	
4	**Barb fitting**	—	
5	**Piston rod**	Stainless steel	
6	**Buffer body**	Brass (Electroless nickel plating)	
7	**Return spring**	Stainless steel	
8	**Buffer adapter**	Brass (Electroless nickel plating)	
9	**Nut**	Steel (Zinc chromated)	M10 x 1 M14 x 1

Construction

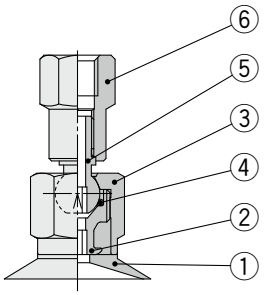
With adapter **Flat type: ø10 to ø50**

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

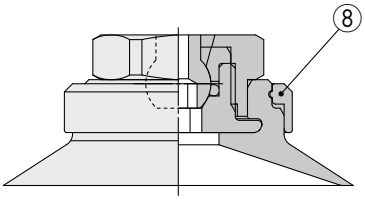
ZPT□F□-B5-(A8/A10/A14)



ZPT□F□-(B5/B8/B01/N01/T01)



ø10 to ø32



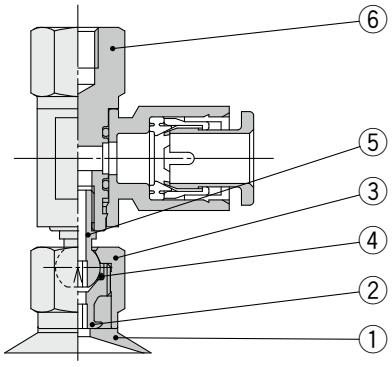
ø40, ø50

Component Parts

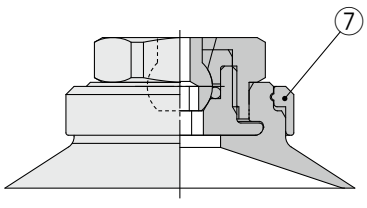
No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber	Flat type
2	**Adapter**	Brass (Electroless nickel plating)	
3	**Shaft cover**	Stainless steel	
4	**O-ring**	FKM	
5	**Shaft**	Stainless steel	
6	**Shaft adapter**	Brass (Electroless 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: ø40, ø50

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

ZPR□F□-(04/06/08)-(B5/B8)



ø10 to ø32



ø40, ø50

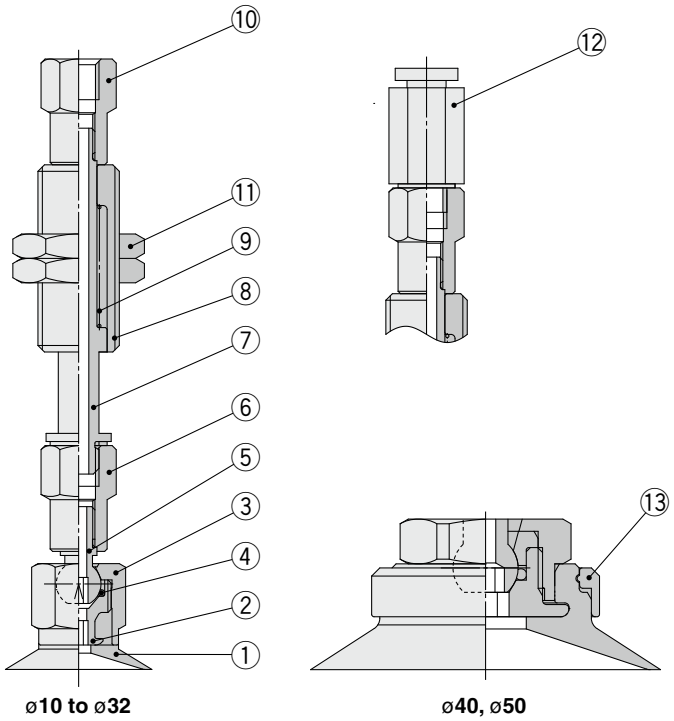
Component Parts

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: ø40, ø50

With buffer **Flat type: ø10 to ø50**

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

ZPT□F□-(B5/B01/N01/T01)-(A10/A14) **ZPT□F□-(04/06/08)-(A10/A14)**



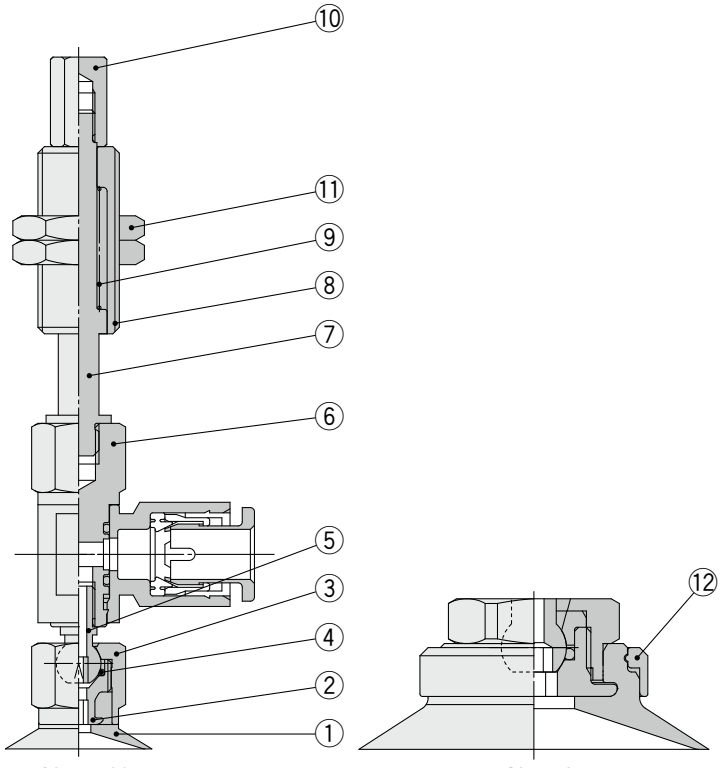
ø10 to ø32 **ø40, ø50**

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: ø40, ø50

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

ZPR□F□-(04/06/08)-(A10/A14)



ø10 to ø32 **ø40, ø50**

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: ø40, ø50

Basic/Compact Type 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.

Basic Type ZP Series

Model	Connection thread	Tightening torque [N·m]
ZP□(2 to 8)□(J/K)□-□-A8	M8 x 1	1.5 to 2.0
ZP□(10 to 32)□(J/K)□-□-A10	M10 x 1	2.5 to 3.5
ZP□(40/50)□(J/K)□-□-A14	M14 x 1	6.5 to 7.5

Compact Type ZP3 Series

Model	Connection thread	Tightening torque [N·m]
ZP3-□(015 to 035)□J□-□	M6 x 0.75	1.5 to 1.8
ZP3-□(015 to 035)□K□-□	M8 x 0.75	2.0 to 2.5
ZP3-□(04 to 16)□(J/JB/K)□-□		

2. Tighten the vacuum inlet male thread adapter (with a gasket seal) within the specified torque range.

Basic Type ZP Series

Model	Connection thread	Tightening torque [N·m]
ZPT□□-A5	M5 x 0.8	1.3 to 1.7
ZPT□□-A6	M6 x 1	1.6 to 2.0

Compact Type ZP3 Series

Model	Connection thread	Tightening torque [N·m]
ZP3-T(015 to 035)U□-A3	M3 x 0.5	0.2 to 0.25
ZP3-T(04 to 16)□□-A5	M5 x 0.8	1.3 to 1.7

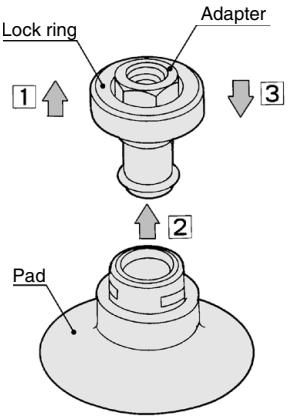
How to Replace the Pad

1. How to replace the pad of the basic type ZP series

1 Pull the lock ring upward, and, after lifting it up to the adapter, remove the old pad by pulling it downward.

2 While holding the lock ring in the raised position, place a new pad onto the adapter.

3 Confirm that the pad is securely in place, and then return the lock ring to its original position.

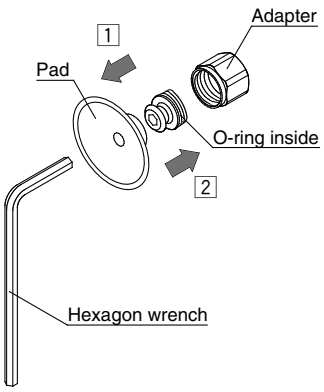


2. How to replace the pad of the basic (ball joint) type ZP series

Pad diameter: ø10 to ø32

1 Insert a hexagon wrench into the bottom of the pad, loosen the screw, and remove the old pad from the adapter.

2 Place a new pad on the adapter, and, after confirming that the O-ring is in place, retighten the screw with the hexagon wrench.



Pad diameter: ø40, ø50

1 Pull the lock ring upward, and, after lifting it up to the adapter, remove the old pad by pulling it downward.

2 While holding the lock ring in the raised position, place a new pad onto the adapter.

3 Confirm that the pad is securely in place, and then return the lock ring to its original position.