

Vacuum Pad Series ZP

With buffer

Non-rotating
 $\phi 2$ to $\phi 8$: Stroke 6, 10, 15, 25 mm
 $\phi 10$ to $\phi 32$: Stroke 10, 20, 30, 40, 50 mm
 $\phi 40$, $\phi 50$: Stroke 10, 20, 30, 50 mm

Type	Without buffer			With buffer		
	Vacuum entry port	Mounting	VAC	Vacuum entry port	Mounting	VAC
13-11-2 to 13-11-27 Series ZPT Vertical vacuum entry	Male thread	(Common)		Female thread	Buffer body	
	Female thread	(Common)		Barb fitting	Buffer body	
13-11-28 to 13-11-43 Series ZPR Lateral vacuum entry with One-touch fitting	One-touch fitting	Male thread		One-touch fitting	Buffer body	
	One-touch fitting	Female thread		One-touch fitting	Buffer body	
13-11-44 to 13-11-57 Series ZPY Lateral vacuum entry with Barb fitting	Barb fitting	Male thread		Barb fitting	Buffer body	
	Barb fitting	Female thread		Barb fitting	Buffer body	

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Pad form (Compatible with all models)	Flat (U)	Flat with ribs (C)	Deep (D)	Bellows (B)	Thin flat (UT) Thin with ribs (CT)										
Pad diameter	2 x 4	3.5 x 7	4 x 10	$\phi 2$	$\phi 4$	$\phi 6$	$\phi 8$	$\phi 10$	$\phi 13$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Deep	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bellows	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thin flat	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Pad diameter ($\phi 2$ to $\phi 125$)	$\phi 2$ to $\phi 125$ (Option: $\phi 150$ to $\phi 250$)

Pad material	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with green mark), Conductive NBR (Black with one white mark), Conductive silicon rubber (Black with two white marks)

Pad selection Refer to technical data on pages 13-1-10 to 13-1-19 for the calculation of lift force and response time.

Made to Order 1. Elliptic pad 2. Large size pad

Pad Material and Characteristics

○: Little or no influence ○: Can be used depending on conditions X: Not suitable

Characteristics	Durometer HS ($\pm 5^\circ$)	Operating temperature range ($^\circ\text{C}$)	Oil resistance gasoline	Oil resistance benzol	Base resistance	Acid resistance	Weatherability	Ozone resistance	Abrasion resistance	Waterproof	Solvent resistance (Benzene, toluene)
NBR	50°	0 to 120	○	X	○	○	X	X	○	○	X
Silicon rubber	40°	-30 to 200	X	X	○	X	○	○	X	○	X
Urethane rubber	60°	0 to 60	○	X	X	X	○	○	○	X	X
Fluoro rubber	60°	0 to 250	○	○	X	○	○	○	○	○	○
Conductive NBR	50°	0 to 100	○	X	○	X	○	X	○	○	X
Conductive silicon rubber	50°	-10 to 200	X	X	○	X	○	○	X	○	X

* The above table covers only general characteristics of subject rubber materials. Pad materials used by SMC pass the JIS standards; however the actual performance depends on operating conditions.



Vacuum Pad: Vertical Vacuum Entry Without Buffer Series ZPT



Specifications

Vacuum entry	Direction		Vertical	
	Connection		Male thread	Female thread
	Thread diameter	$\phi 2$ to $\phi 8$ 2004, 3507, 4010 Thin section series ($\phi 10$ to $\phi 16$)		M5 x 0.8, M6 x 1
$\phi 10$ to $\phi 16$		M5 x 0.8, M6 x 1	M5 x 0.8, M6 x 1, Rc $\frac{1}{8}$	
$\phi 20$ to $\phi 32$		M6 x 1, M8 x 1	M5 x 0.8, M6 x 1, M8 x 1.25, Rc $\frac{1}{8}$	
$\phi 40, \phi 50$		M6 x 1, M8 x 1	M6 x 1, M8 x 1.25, Rc $\frac{1}{8}$	
Mounting			Use connection for vacuum entry	

Pad Type

Pad form	Flat	Flat with ribs	Deep	Bellows	Thin flat/Thin flat with ribs
Pad diameter (mm)	2, 4, 6, 8, 2 x 4, 3.5 x 7, 4 x 10, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40	6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16
Material (Color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with green mark) Conductive NBR (Black with one white mark), Conductive silicon rubber (Black with two white marks)				
Durometer	NBR (50°), Silicon rubber (40°), Urethane rubber/Fluoro rubber (60°) Conductive NBR (50°), Conductive silicon rubber (50°)				

Weight/Male Thread (Female thread)

(g)

Model	Flat		Flat with ribs				Deep				Bellows								
	M4	M5	M6	M8	Rc $\frac{1}{8}$	M5	M6	M8	Rc $\frac{1}{8}$	M5	M6	M8	Rc $\frac{1}{8}$	M4	M5	M6	M8	Rc $\frac{1}{8}$	
ZPT02 to ZPT08	— (3.5)	2.5 (3)	3.5 (—)	—	—	—	—	—	—	—	—	—	—	— (3.5) (except $\phi 2, \phi 4$)	2.5 (3) (except $\phi 2, \phi 4$)	3.5 (—) (except $\phi 2, \phi 4$)	—	—	—
ZPT10	—	10 (6.5)	12 (6)	—	— (13)	10 (6.5)	12 (6)	—	— (12)	10 (7)	12 (6)	— (13)	—	—	—	—	—	—	—
ZPT13	—	—	—	—	—	—	—	—	—	11 (7)	15 (7)	15 (13)	—	—	—	—	—	—	—
ZPT16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ZPT20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ZPT25	—	— (8.5)	15 (8)	26 (17)	— (16)	— (8.5)	15 (8)	26 (17)	— (16)	— (10)	15 (10)	15 (18)	— (17)	—	— (8.5)	15 (8)	16 (17)	— (16)	—
ZPT32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ZPT40	—	—	28 (26)	30 (25)	— (23)	—	28 (26)	30 (25)	— (16)	—	30 (28)	32 (26)	— (20)	—	—	28 (26)	30 (25)	— (23)	—
ZPT50	—	—	30 (29)	32 (27)	— (25)	—	32 (30)	34 (29)	— (27)	—	—	—	—	—	—	30 (29)	32 (27)	— (25)	—

* (): Figures for female thread connections



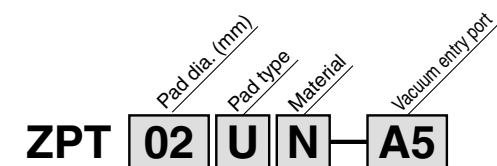
P. 13-11-65 to 13-11-68

Model

Model	Pad dia. (mm)	Applicable pad form						Connection/Thread dia.		Model	Pad dia. (mm)	Applicable pad form				Connection/Thread dia.		
		Flat (U)	Flat with ribs (C)	Deep (D)	Bellows (B)	Thin flat (UT)	Thin flat with ribs (CT)	Male thread	Female thread			Flat (U)	Flat with ribs (C)	Deep (D)	Bellows (B)	Male thread	Female thread	
ZPT2004U□-□	2 x 4	●	—	—	—	—	—	M5 x 0.8 M6 x 1	M4 x 0.7 M5 x 0.8	ZPT10□□-□	10	●	●	●	●	M5 x 0.8 M6 x 1	M5 x 0.8 M6 x 1 Rc $\frac{1}{8}$	
ZPT3507U□-□	3.5 x 7	●	—	—	—	—	ZPT13□□-□			13	●	●	—	●				
ZPT4010U□-□	4 x 10	●	—	—	—	—	ZPT16□□-□			16	●	●	●	●				
ZPT02U□-□	2	●	—	—	—	—	ZPT20□□-□			20	●	●	—	●	M6 x 1 M8 x 1	M5 x 0.8 M6 x 1 M8 x 1.25 Rc $\frac{1}{8}$		
ZPT04U□-□	4	●	—	—	—	—	ZPT25□□-□			25	●	●	●	●				
ZPT06□□-□	6	●	—	—	●	—	ZPT32□□-□			32	●	●	—	●	M6 x 1 M8 x 1	M6 x 1 M8 x 1.25 Rc $\frac{1}{8}$		
ZPT08□□-□	8	●	—	—	●	—	ZPT40□□-□			40	●	●	●	●				
ZPT10□□-□	10	—	—	—	—	●	ZPT50□□-□			50	●	●	—	●				
ZPT13□□-□	13	—	—	—	—	●												
ZPT16□□-□	16	—	—	—	—	●												

How to Order

Series ZPT
Without buffer



Pad diameter (mm)

2004	2 x 4
3507	3.5 x 7
4010	4 x 10
02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

Vacuum entry/Mounting thread diameter

Connection	Symbol	Thread diameter	ø2 to ø8 2 x 4, 3.5 x 7, 4 x 10 ø10 to ø16 (Thin section series)	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	A5	M5 x 0.8	●	●	—	—
	A6	M6 x 1	●	●	●	●
	A8	M8 x 1	—	—	●	●
Female thread	B4	M4 x 0.7	●	—	—	—
	B5	M5 x 0.8	●	●	●	—
	B6	M6 x 1	—	●	●	●
	B8	M8 x 1.25	—	—	●	●
	B01	Rc 1/8	—	●	●	●

Pad type

(Refer to "Table (1)" for applications.)



U	Flat
C	Flat with ribs
D	Deep
B	Bellows
UT	Thin flat
CT	Thin flat with ribs

Table (1) Pad Diameter/Pad Type

Type	Diameter (mm)														
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	10	13	16	20	25	32	40	50
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
Deep	—	—	—	—	—	—	—	●	—	●	—	●	—	●	—
Bellows	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●
Thin flat	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR (ø2 to ø16)
GS*	Conductive silicon rubber (ø2 to ø16)

* ø20 and larger are manufactured upon a receipt of order.

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

⚠ Precautions

Be sure to read before handling. Refer to pages 13-15-3 to 13-15-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to page 13-1-5 for Precautions on every series.

Cautions on Design

⚠ Warning

- In cases where workpieces are heavy or dangerous, etc., take measures to address a possible loss of adsorption force (installation of drop prevention guides, etc.).

In the case of transportation by vacuum adsorption using vacuum pads, adsorption force is lost when there is a drop in vacuum pressure. Furthermore, since vacuum pressure can also deteriorate due to wear and cracking of pads, and vacuum leakage from piping, etc., be certain to perform maintenance on vacuum equipment.

Selection

⚠ Caution

- The pad materials differ depending upon the operating environment.

An appropriate pad material should be selected. Furthermore, since vacuum pads are manufactured for use with industrial products, they should not have direct contact with pharmaceuticals or food products, etc.

- Depending upon the weight and shape of the workpieces, the diameter, quantity and shape of pads will vary.

Use the pad lifting force table for reference. Also, the pads selected will differ based upon conditions other than the above, such as the condition of the workpiece surface (presence or absence of oil or water), the workpiece material and its gas permeability. Confirmation is necessary by actually performing vacuum adsorption testing on the subject workpieces.

- Use a buffer for adsorption on fragile workpieces.

The cushioning by the buffer is necessary when there is variation in the height of workpieces. When further positioning of pads and workpieces is desired, a detent buffer can be used.

- The life of a buffer will be reduced if the lateral force is applied to the buffer shaft. Note that sometimes a load is applied to the buffer by a piping tube (pulling or pressing, etc. in a lateral direction).

- Do not apply an impact or large forces to a pad when adsorbing a workpiece.

This will cause deformation, cracking and wear of the pad to be accelerated. The stiffening ribs, etc. should touch lightly, while staying within the pad skirt's deformation range. Positioning should be performed accurately. Especially in the case of small diameter pads.

- When transporting in an upward direction, factors such as acceleration, wind pressure and impact force must be considered in addition to a workpiece weight.

Use caution particularly when lifting items such as glass plates and circuit boards, because a large force will be applied by the wind pressure. When a workpiece which is oriented vertically is transported horizontally, large forces are applied by acceleration when movement is started and stopped. Further, in cases where the pad and a workpiece can slip easily, accelerations and decelerations of horizontal movement should be kept low.

- When transporting flat workpieces that have large surface areas using multiple pads, care must be taken when arranging the pads to balance the workpiece.

Maintenance

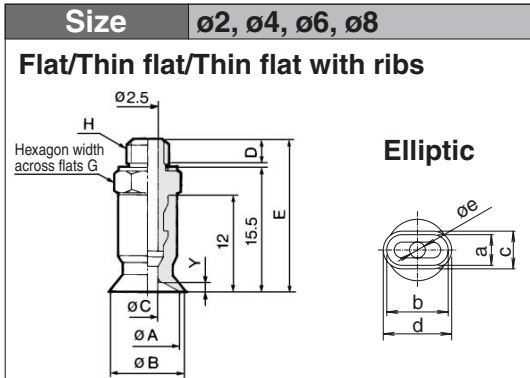
⚠ Caution

- Perform pad maintenance regularly.

Since pads are essentially rubber, deterioration is unavoidable. The rate of deterioration depends upon factors such as conditions of use, environment and temperature. Regular maintenance should be performed. If any damage, splitting, cracking or abrasion has occurred in a pad which appears to be harmful, replace it immediately. Also, take care not to damage the outside of the pad.

Series ZPT

Connection	Male thread	Pad Form	Flat/Flat with ribs/Deep/Thin flat/ Thin flat with ribs/Elliptic
Vacuum Entry Port	Vertical	Mounting	Use connection for vacuum



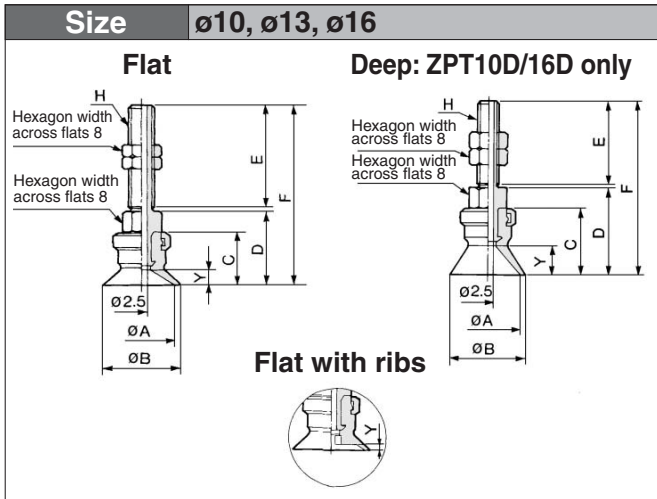
Flat/Thin Flat/Thin Flat with Ribs

Model	ϕA	ϕB	ϕC	H: M5 x 0.8			H: M6 x 1			Y		
				D	E	G	D	E	G			
ZPT02U	2	2.6	1.2	2.5	3	19	7	4	20	8	0.8	
ZPT04U	4	4.8	1.6									
ZPT06U	6	7										
ZPT08U	8	9										
ZPT10UT	10	11										
ZPT13UT	13	14										
ZPT16UT	16	17										
ZPT10CT	10	11										0.8
ZPT13CT	13	14										1
ZPT16CT	16	17										

Elliptic

Model	a	b	c	d	ϕe	Y
ZPT2004U	2	4	2.6	4.6	1.2	0.3
ZPT3507U	3.5	7	4.3	7.8	1.8	0.5
ZPT4010U	4	10	5	11	2	0.8

* Dimensions of D, E, G are the same.

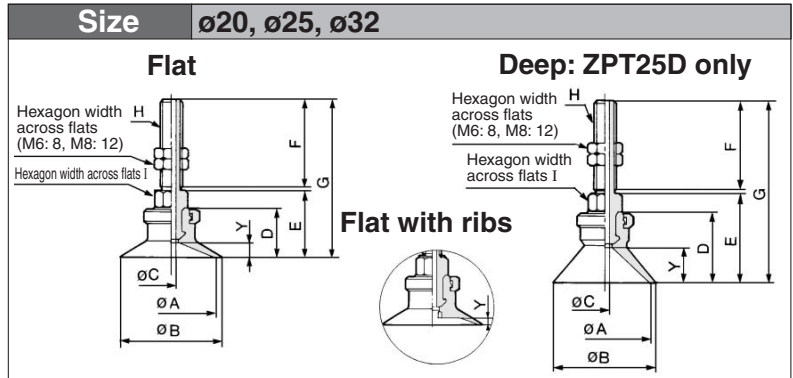


Flat/Flat with Ribs

Model	ϕA	ϕB	C	D	H: M5 x 0.8		H: M6 x 1		Y	
					E	F	E	F	Flat	Flat with ribs
ZPT10 ^U _C	10	12	12	17	20	38	25	43	3	1.7
ZPT13 ^U _C	13	15								1.8
ZPT16 ^U _C	16	18	12.5	17.5						38.5

Deep

Model	ϕA	ϕB	C	D	H: M5 x 0.8		H: M6 x 1		Y
					E	F	E	F	
ZPT10D	10	12	15	20	20	41	25	46	6
ZPT16D	16	18	16	21	20	42	25	47	7

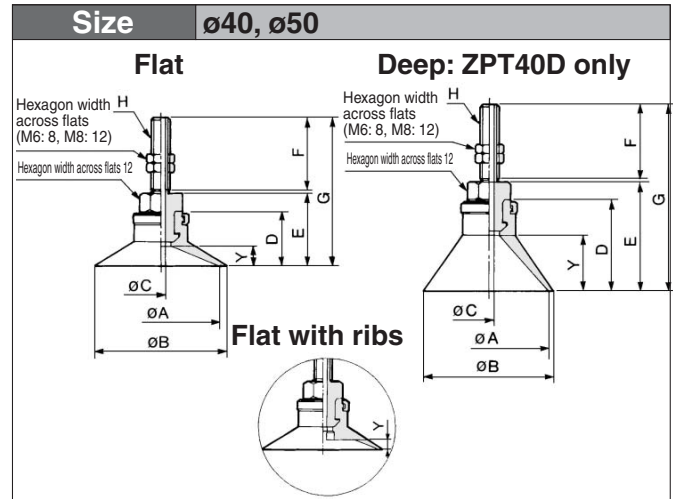


Flat/Flat with Ribs

Model	ϕA	ϕB	D	H: M6 x 1					H: M8 x 1					Y						
				ϕC	E	F	G	I	ϕC	E	F	G	I	Flat	Flat with ribs					
ZPT20 ^U _C	20	23	14	3	19	25	45	8	3.5	24	15	40	12	4	1.7					
ZPT25 ^U _C	25	28													19.5	45.5	24.5	40.5	4.5	1.8
ZPT32 ^U _C	32	35													14.5					2.3

Deep

Model	ϕA	ϕB	D	H: M6 x 1					H: M8 x 1					Y
				ϕC	E	F	G	I	ϕC	E	F	G	I	
ZPT25D	25	28	20	3	25	25	51	8	3.5	30	15	46	12	10



Flat/Flat with Ribs

Model	ϕA	ϕB	D	E	H: M6 x 1			H: M8 x 1			Y					
					ϕC	F	G	ϕC	F	G	Flat	Flat with ribs				
ZPT40 ^U _C	40	43	18.5	24.5	3	25	50.5	4.5	15	40.5	6.5	3.3				
ZPT50 ^U _C	50	53	19.5	25.5									51.5	41.5	7.5	3.8

Deep

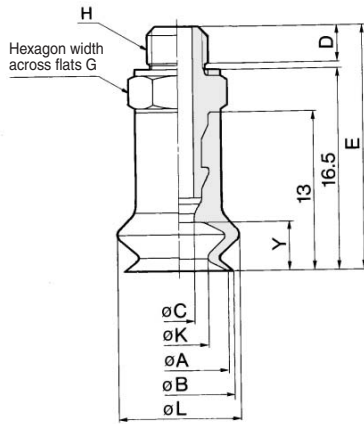
Model	ϕA	ϕB	D	E	H: M6 x 1			H: M8 x 1			Y
					ϕC	F	G	ϕC	F	G	
ZPT40D	40	43	29	35.5	3	25	61	4.5	15	51	17

Vacuum Pad: Vertical Vacuum Entry without Buffer **Series ZPT**

Connection	Male thread	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Use connection for vacuum entry

Size $\phi 6, \phi 8$

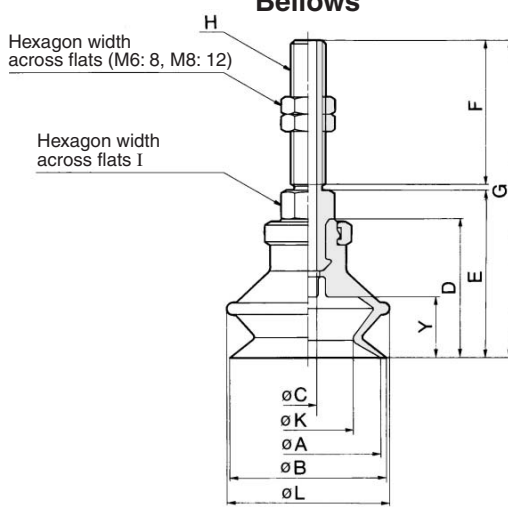
Bellows



Model	ϕA	ϕB	ϕC	H: M5 x 0.8			H: M6 x 1			ϕK	ϕL	Y
				D	E	G	D	E	G			
ZPT06B	6	7	2.5	3	20	7	4	21	8	3.3	9.1	4
ZPT08B	8	9	2.5	3	20	7	4	21	8	4.7	10.1	4

Size $\phi 20, \phi 25, \phi 32$

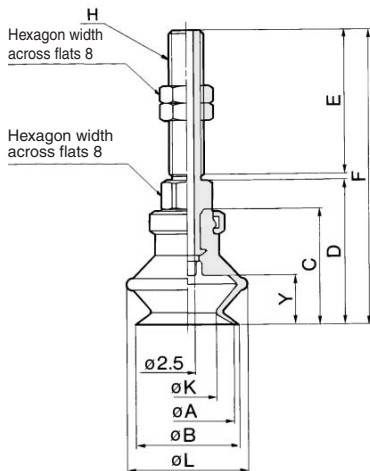
Bellows



Model	ϕA	ϕB	D	H: M6 x 1					H: M8 x 1					ϕK	ϕL	Y
				ϕC	E	F	G	I	ϕC	E	F	G	I			
ZPT20B	20	22	23.5	28.5	28.5	54.5	33.5	33.5	49.5	12.4	25	10.5				
ZPT25B	25	27	24	3	29	25	55	8	3.5	34	15	50	12	15.6	28	10.5
ZPT32B	32	34	29		34		60			39		55		18.9	37	14

Size $\phi 10, \phi 13, \phi 16$

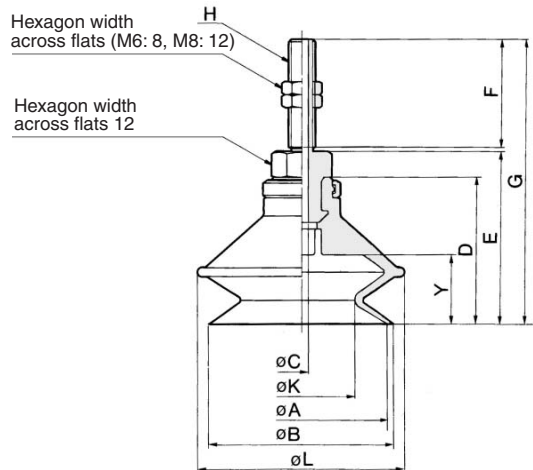
Bellows



Model	ϕA	ϕB	ϕC	D	H: M5 x 0.8		H: M6 x 1		ϕK	ϕL	Y
					E	F	E	F			
ZPT10B	10	12	16	21	20	42	25	47	5.5	13.8	5.5
ZPT13B	13	15	18.5	23.5	20	44.5	25	49.5	8.7	19	7.5
ZPT16B	16	18	20	25	20	46	25	51	9.9	21	8.5

Size $\phi 40, \phi 50$

Bellows



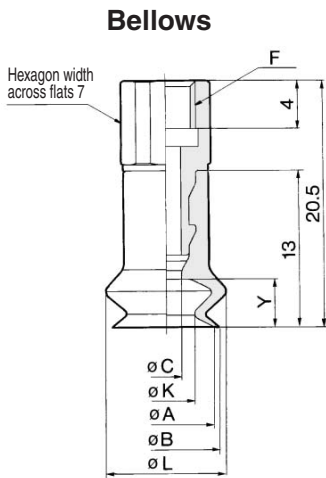
Model	ϕA	ϕB	D	E	H: M6 x 1			H: M8 x 1			ϕK	ϕL	Y
					ϕC	F	G	ϕC	F	G			
ZPT40B	40	43	34	40	3	25	66	4.5	15	56	24.4	48	16
ZPT50B	50	53	38	44	3	25	70	4.5	15	60	32.4	57	19

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Vacuum Pad:
Vertical Vacuum Entry without Buffer Series ZPT

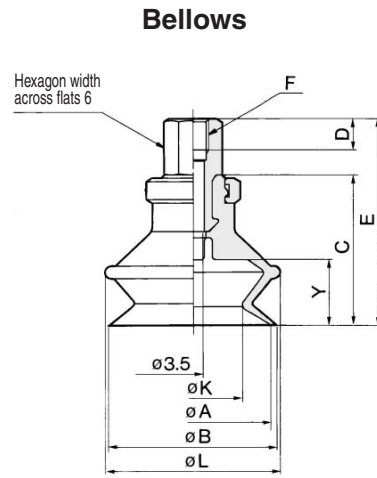
Connection	Female thread	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Use connection for vacuum entry

Size **ø6, ø8**



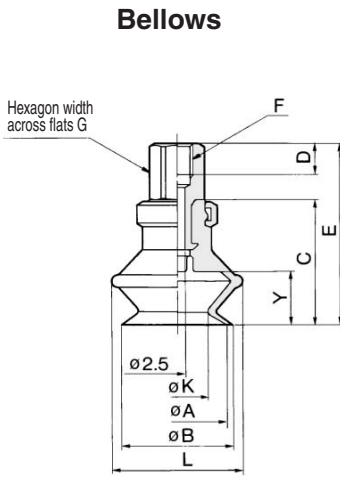
Model	øA	øB	øC	F	øK	øL	Y
ZPT06B	6	7	2.5	M4 x 0.7	3.3	9.1	4
ZPT08B	8	9		M5 x 0.8	4.7	10.1	

Size **ø20, ø25, ø32**



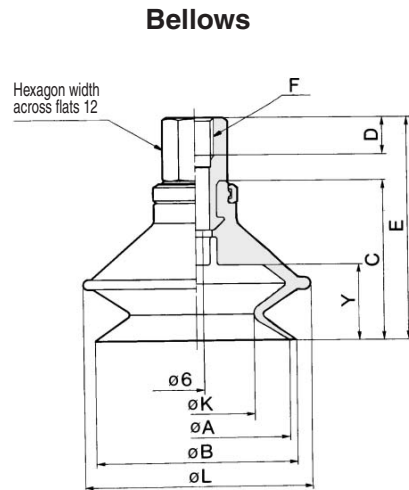
Model	øA	øB	øC	F: M5 x 0.8			F: M6 x 1			F: M8 x 1.25			F: Rc 1/8			øK	øL	Y
				D	E	G	D	E	G	D	E	G	D	E	G			
ZPT20B	20	22	23.5	5	32.5	8	6	32.5	8	8	38.5	6.2	38.5	12	12.4	25	10.5	
ZPT25B	25	27	24	5	33	8	6	33	8	8	39	12	39	12	15.6	28	10.5	
ZPT32B	32	34	29	5	38	8	6	38	8	8	44	12	44	12	18.9	37	14	

Size **ø10, ø13, ø16**



Model	øA	øB	øC	F: M5 x 0.8			F: M6 x 1			F: Rc 1/8			øK	øL	Y		
				D	E	G	D	E	G	D	E	G					
ZPT10B	10	12	16	5	25	8	6	25	8	6.2	31	12	31	12	5.5	13.8	5.5
ZPT13B	13	15	18.5	5	27.5	8	6	27.5	8	6.2	33.5	12	33.5	12	8.7	19	7.5
ZPT16B	16	18	20	5	29	8	6	29	8	6.2	35	12	35	12	9.9	21	8.5

Size **ø40, ø50**



Model	øA	øB	øC	F: M6 x 1			F: M8 x 1.25			F: Rc 1/8			E	øK	øL	Y
				D	E	G	D	E	G	D	E	G				
ZPT40B	40	43	34	6	6	8	6.2	47.5	24.4	48	16	47.5	24.4	48	16	
ZPT50B	50	53	38	6	6	8	6.2	51.5	32.4	57	19	51.5	32.4	57	19	

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.



Vacuum Pad: Vertical Vacuum Entry With Buffer

Series ZPT



Specifications

Vacuum entry direction		Vertical				
Vacuum entry	Applicable tube dia.	Connection		Female thread	Barb fitting	One-touch fitting
		ø2 to ø8 2 x 4, 3.5 x 7, 4 x 10 Thin section series (ø10 to ø16)		M3 x 0.5 M5 x 0.8	ø4 Nylon tube ø4 Urethane tube	ø4 tube ø6 tube
		ø10 to ø32		M5 x 0.8	ø6 Nylon tube ø6 Urethane tube	ø4 tube ø6 tube
ø40, ø50		M5 x 0.8 Rc 1/8	ø6 Nylon tube ø6 Urethane tube	ø6 tube ø8 tube		
Connection	Thread dia.	ø2 to ø8				
		ø10 to ø32				
		ø40, ø50				
Buffer type		Rotating (J)/Non-rotating (K)				
Buffer stroke		For ø2 to ø8 — 6, 10, 15, 25 mm				
		For ø10 to ø32 — 10, 20, 30, 40, 50 mm				
		For ø40, ø50 — 10, 20, 30, 50 mm				

Spring Reactive Force (N)

Pad dia. (mm)	0 stroke	Stroke end
ø2 to ø8 *	0.8 N	1.2 N
ø10 to ø32	1.0 N	3.0 N
ø40, ø50	2.0 N	5.0 N

* Refer to ø2 to ø8 for Thin flat, Thin flat with ribs and Elipse type.

Pad Type

Pad form	Flat	Flat with ribs	Deep	Bellows
Pad diameter (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40	6, 8, 10, 13, 16, 20, 25, 32, 40, 50
Material (Color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with green mark) Conductive NBR (Black with one white mark), Conductive silicon rubber (Black with two white marks)			
Durometer	NBR (50°), Silicon rubber (40°), Urethane rubber/Fluoro rubber (60°) Conductive NBR (50°), Conductive silicon rubber (50°)			

Weight

Stroke (mm)	Pad form Vacuum entry port Model	Flat/Flat with ribs						Deep						Bellows							
		Female thread			One-touch fitting			Barb fitting N□U□	Female thread			One-touch fitting			Barb fitting N□U□	Female thread			One-touch fitting		
		B3	B5	B01	04	06	08		B5	B01	04	06	08	B3		B5	B01	04	06	08	
6	ZPT2004 3507 4010 ZPT02 to 08 thin section series 10 to 16	22	24	—	26	27	—	22	—	—	—	—	—	22	24	—	26	27	—	22	
	ZPT10 to 16	—	26	—	29	30	—	25	27	—	29	30	—	25	—	27	—	30	31	—	26
10	ZPT20 25	—	29	—	31	33	—	27	30	—	32	33	—	28	—	31	—	34	35	—	30
	ZPT32	—	57	—	33	34	—	30	—	—	—	—	—	—	36	—	38	39	—	34	
10	ZPT40	—	129	132	—	133	141	129	131	134	—	134	143	129	—	141	144	—	145	153	140
	ZPT50	—	135	138	—	139	147	133	—	—	—	—	—	—	148	151	—	152	160	147	

Weight by Stroke (g)

Model	Stroke (mm)						
	10	15	20	25	30	40	50
ZPT2004 3507 4010 ZPT02 to 08 thin section series 10 to 16	+6	+7	—	+8	—	—	—
ZPT10 to 25	—	—	+11	—	+13	+23	+24
ZPT40 to 50	—	—	+38	—	+40	—	+67



P. 13-11-65 to 13-11-68

How to Order

Series ZPT With buffer

ZPT 16 U GS K 20 06 A10

Pad diameter (mm)

2004	2 x 4
3507	3.5 x 7
4010	4 x 10
02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

Mounting thread diameter/ Male thread
(Refer to "Table (3)" for applications.)

Vacuum entry port
(Refer to "Table (3)" for applications.)

Buffer stroke
(Refer to "Table (2)" for applications.)

Buffer type

J	Rotating
K	Non-rotating

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR (ø2 to ø16)
GS*	Conductive silicon rubber (ø2 to ø16)

* ø20 or large are manufactured upon receipt of order.

Pad type
(“Table (1)” for applications.)

U	Flat
C	Flat with ribs
D	Deep
B	Bellows
UT	Thin flat
CT	Thin flat with ribs

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Table (1) Pad Diameter/Pad Type

Type	Diameter (mm)														
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	10	13	16	20	25	32	40	50
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
Deep	—	—	—	—	—	—	—	●	●	●	—	●	—	●	—
Bellows	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●
Thin flat	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—

Table (2) Pad Diameter/Stroke

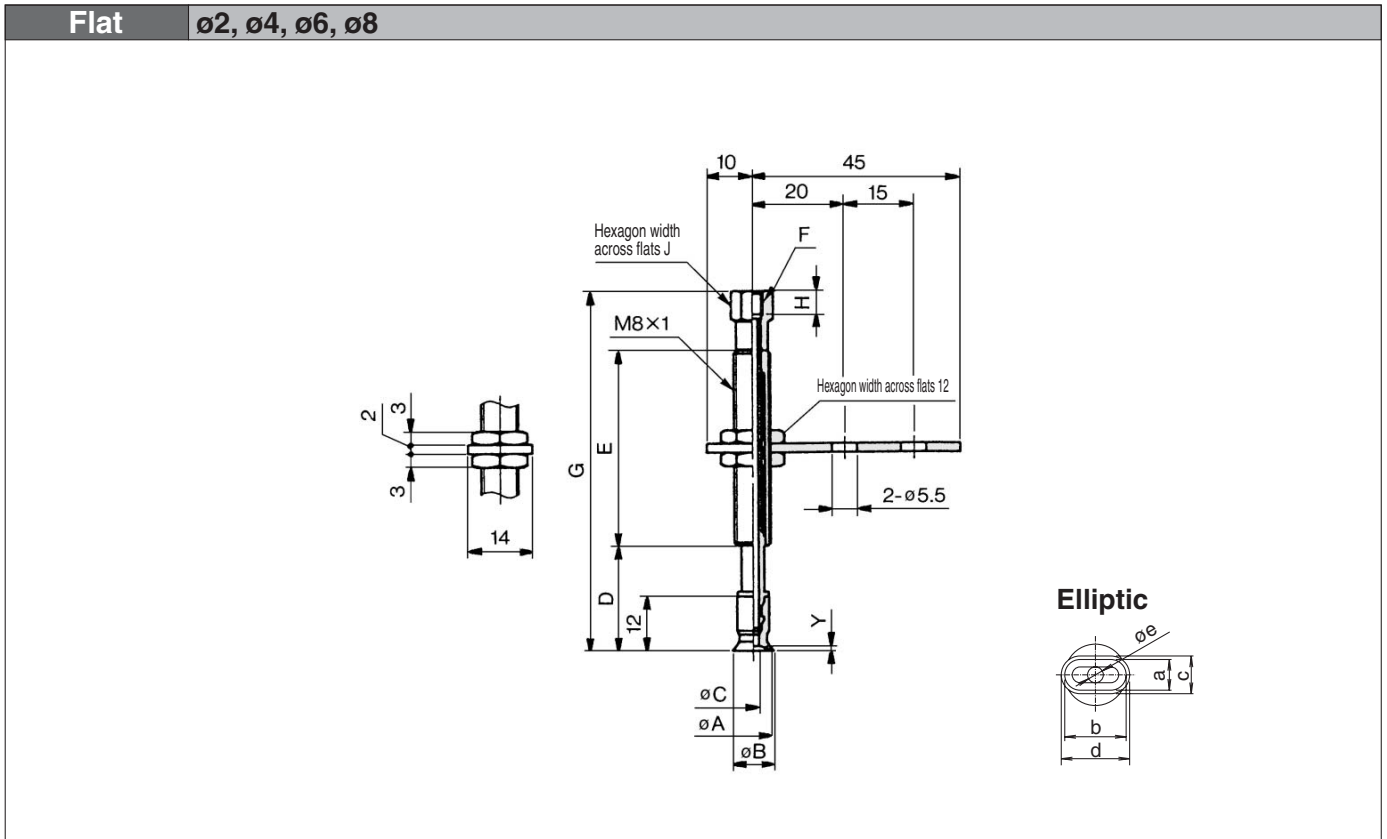
Stroke(mm)	Diameter (mm)																	
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	Thin flat/Thin flat with ribs			10	13	16	20	25	32	40	50
								10	13	16								
6	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
20	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
30	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
40	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	—	—
50	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●

Table (3) Vacuum Entry/Mounting Thread Diameter

		Symbol	Thread dia./Port size	ø2 to ø8	ø10 to ø32	ø40, ø50
				2 x 4, 3.5 x 7, 4 x 10 Thin section series ø10 to ø16		
Vacuum entry	Female thread	B3	M3 x 0.5	●	—	—
		B5	M5 x 0.8	●	●	●
		B01	Rc 1/8	—	—	●
	Barb fitting	N4	ø4 Nylon tube	●	—	—
		N6	ø6 Nylon tube	—	●	●
		U4	ø4 Urethane tube	●	—	—
		U6	ø6 Urethane tube	—	●	●
	One-touch fitting	04	ø4 tube	●	●	—
		06	ø6 tube	●	●	●
08		ø8 tube	—	—	●	
Mounting	Male thread	A8	M8 x 1	●	—	—
		A10	M10 x 1	—	●	—
		A14	M14 x 1	—	—	●

Series ZPT

Connection	Female thread (Buffer)	Pad Form	Flat/Thin flat/Thin flat with ribs/Elliptic
Vacuum Entry Port	Vertical	Mounting	Buffer body



Flat

Model	A	B	C	Y
ZPT02U□□□□□-B□-A8	2	2.6	1.2	0.8
ZPT04U□□□□□-B□-A8	4	4.8	1.6	
ZPT06U□□□□□-B□-A8	6	7	2.5	
ZPT08U□□□□□-B□-A8	8	9	1	

Elliptic

Model	a	b	c	d	øe	Y
ZPT2004U	2	4	2.6	4.6	1.2	0.3
ZPT3507U	3.5	7	4.3	7.8	1.8	0.5
ZPT4010U	4	10	5	11	2	0.8

Thin Flat/Thin Flat with Ribs

Model	A	B	C	Y
ZPT10UT	10	11	2.5	1
ZPT13UT	13	14		1.5
ZPT16UT	16	17		0.8
ZPT10CT	10	11		1
ZPT13CT	13	14		
	16	17		

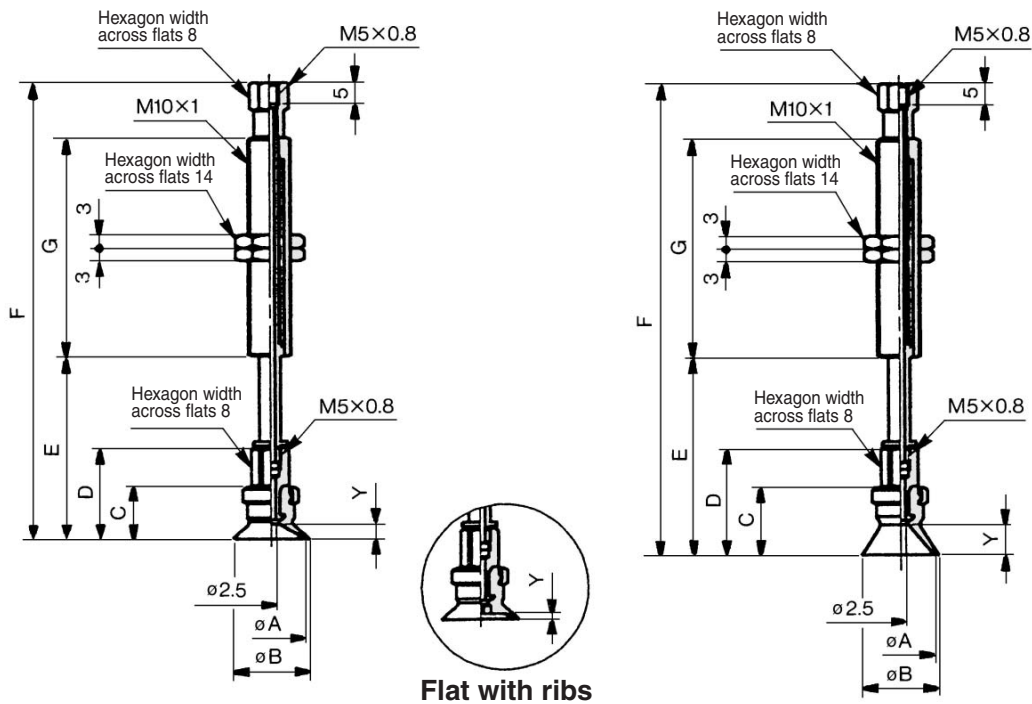
Dimensions by Stroke

Model	D	E	F: M3 x 0.5			F: M5 x 0.8		
			G	H	J	G	H	J
ZPT□□□□□□ 6-B□-A8	18	15	44	3	6	46	5	8
ZPT□□□□□□ 10-B□-A8	23	77						
ZPT□□□□□□ 15-B□-A8	28	82						
ZPT□□□□□□ 25-B□-A8	38	92						

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Female thread (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs $\phi 10, \phi 13, \phi 16$	Deep $\phi 10, \phi 16$
--	--------------------------------



Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT10 ^U _C □□□□□-B5-A10	10	12	12	21	3	1.7
ZPT13 ^U _C □□□□□-B5-A10	13	15			1.8	
ZPT16 ^U _C □□□□□-B5-A10	16	18	12.5	21.5	3.5	1.2

Dimensions by Stroke

Model	$\phi 10, \phi 13$		$\phi 16$		G
	E	F	E	F	
ZPT□□ ^U _C □□□□10-B5-A10	32.5	68.5	33	69	23
ZPT□□ ^U _C □□□□20-B5-A10	42.5	106.5	43	107	51
ZPT□□ ^U _C □□□□30-B5-A10	52.5	116.5	53	117	
ZPT□□ ^U _C □□□□40-B5-A10	62.5	152.5	63	153	77
ZPT□□ ^U _C □□□□50-B5-A10	72.5	162.5	73	163	

Deep

Model	A	B	C	D	Y
ZPT10D□□□□□-B5-A10	10	12	15	24	6
ZPT16D□□□□□-B5-A10	16	18	16	25	7

Dimensions by Stroke

Model	$\phi 10$		$\phi 16$		G
	E	F	E	F	
ZPT□□D□□□□10-B5-A10	35.5	71.5	36.5	72.5	23
ZPT□□D□□□□20-B5-A10	45.5	109.5	46.5	110.5	51
ZPT□□D□□□□30-B5-A10	55.5	119.5	56.5	120.5	
ZPT□□D□□□□40-B5-A10	65.5	155.5	66.5	156.5	77
ZPT□□D□□□□50-B5-A10	75.5	165.5	76.5	166.5	

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

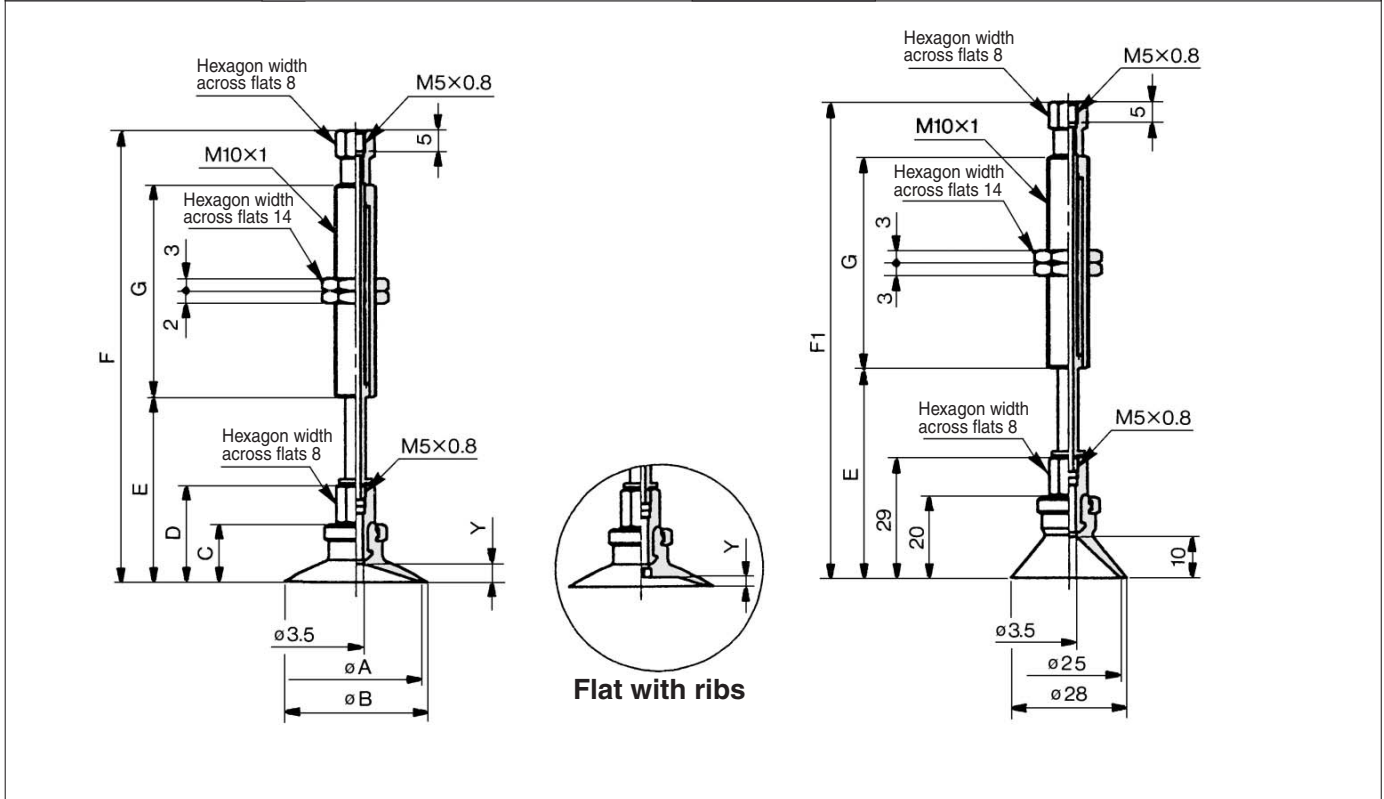
AMJ

Misc.

Series ZPT

Connection	Female thread (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs	ø20, ø25, ø32	Deep	ø25
----------------------------	----------------------	-------------	------------



Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT20 ^U _C □□□□-B5-A10	20	23	14	23	4	1.7
ZPT25 ^U _C □□□□-B5-A10	25	28				1.8
ZPT32 ^U _C □□□□-B5-A10	32	35	14.5	23.5	4.5	2.3

Deep

Model	E	F	G
ZPT25D□□□10-B5-A10	40.5	76.5	23
ZPT25D□□□20-B5-A10	50.5	114.5	51
ZPT25D□□□30-B5-A10	60.5	124.5	
ZPT25D□□□40-B5-A10	70.5	160.5	77
ZPT25D□□□50-B5-A10	80.5	170.5	

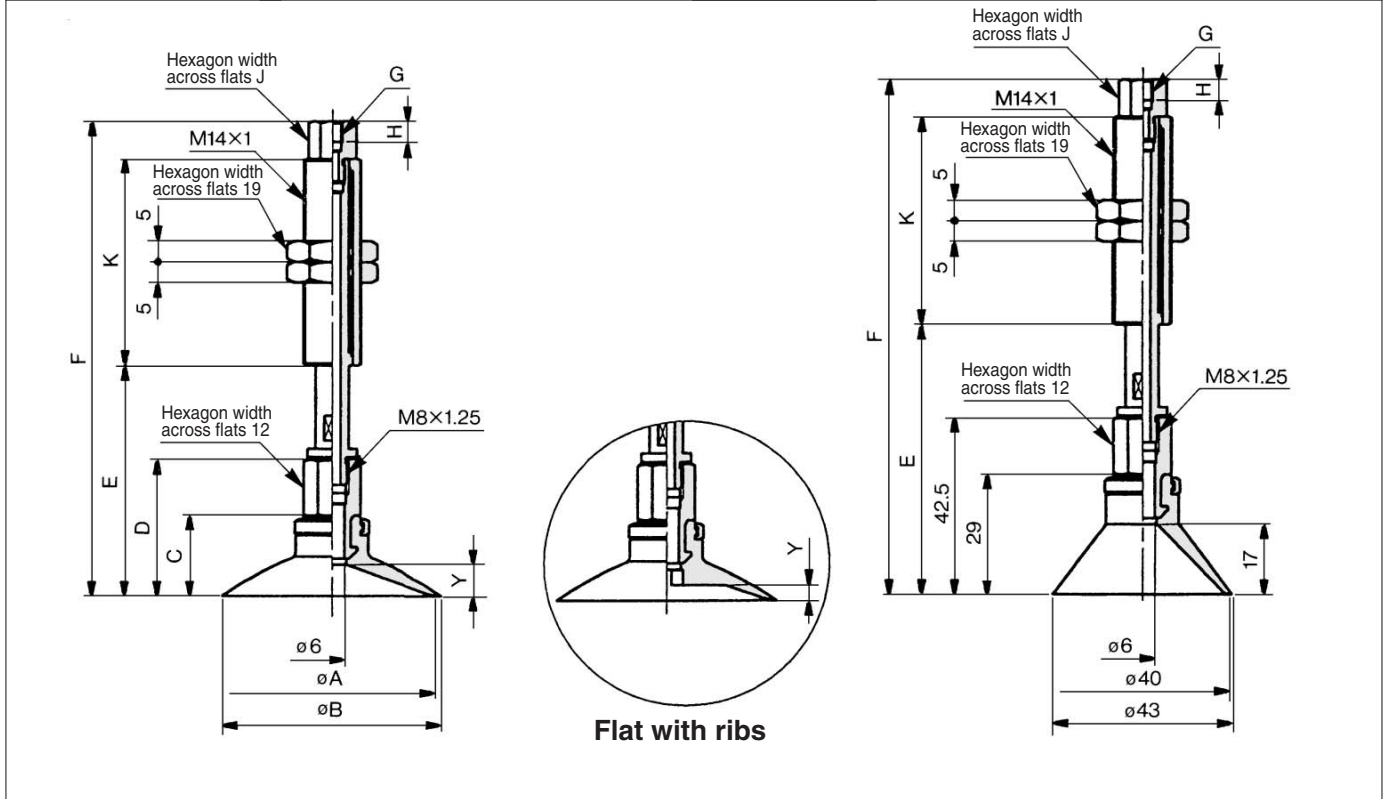
Dimensions by Stroke

Model	ø20, ø25		ø32		G
	E	F	E	F	
ZPT□□ ^U _C □□□10-B5-A10	34.5	70.5	35	71	23
ZPT□□ ^U _C □□□20-B5-A10	44.5	108.5	45	109	51
ZPT□□ ^U _C □□□30-B5-A10	54.5	118.5	55	119	
ZPT□□ ^U _C □□□40-B5-A10	64.5	154.5	65	155	77
ZPT□□ ^U _C □□□50-B5-A10	74.5	164.5	75	165	

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Female thread (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs $\phi 40, \phi 50$	Deep $\phi 40$
---	-----------------------



- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT40 ^U _C □□□□□-B□□-A14	40	43	18.5	32	6.5	3.3
ZPT50 ^U _C □□□□□-B□□-A14	50	53	19.5	33	7.5	3.8

Dimensions by Stroke

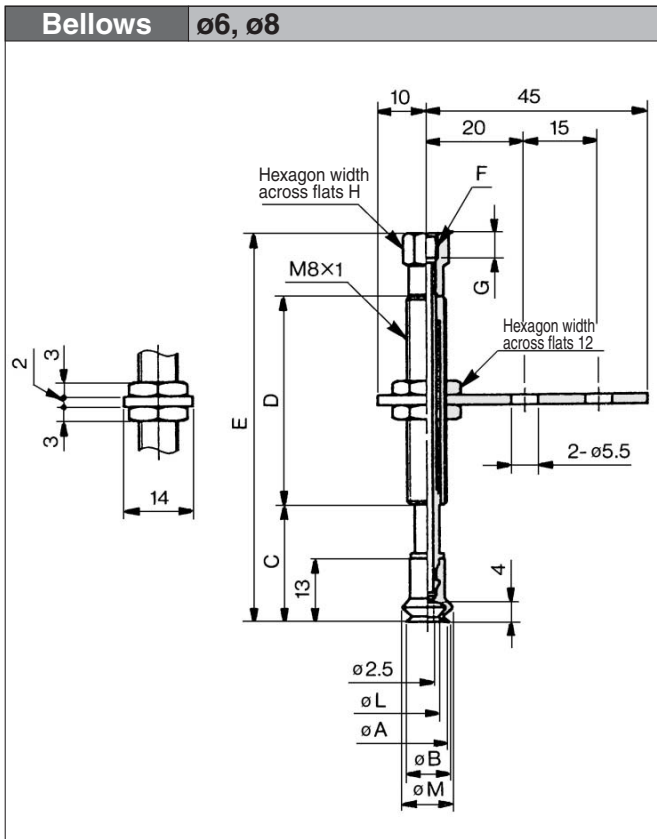
Model	E		G: M5 x 0.8			G: Rc 1/8			K		
	$\phi 40$	$\phi 50$	F		H	J	F				
			$\phi 40$	$\phi 50$			$\phi 40$	$\phi 50$			
ZPT□□ ^U _C □□□□10-B□□-A14	44.5	45.5	109.5	110.5	5	10	111	112	6.2	13	50
ZPT□□ ^U _C □□□□20-B□□-A14	54.5	55.5	113.5	114.5			116.5	117.5			
ZPT□□ ^U _C □□□□30-B□□-A14	64.5	65.5	123.5	124.5			126.5	127.5			
ZPT□□ ^U _C □□□□50-B□□-A14	84.5	85.5	168.5	169.5			171.5	172.5			75

Deep

Model	E	G: M5 x 0.8			G: Rc 1/8			K
		F	H	J	F	H	J	
ZPT40D□□□□10-B□□-A14	55	120	5	10	121.5	6.2	13	50
ZPT40D□□□□20-B□□-A14	65	124			127			
ZPT40D□□□□30-B□□-A14	75	134			137			
ZPT40D□□□□50-B□□-A14	95	179			182			

Series ZPT

Connection	Female thread (Buffer)	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Buffer body

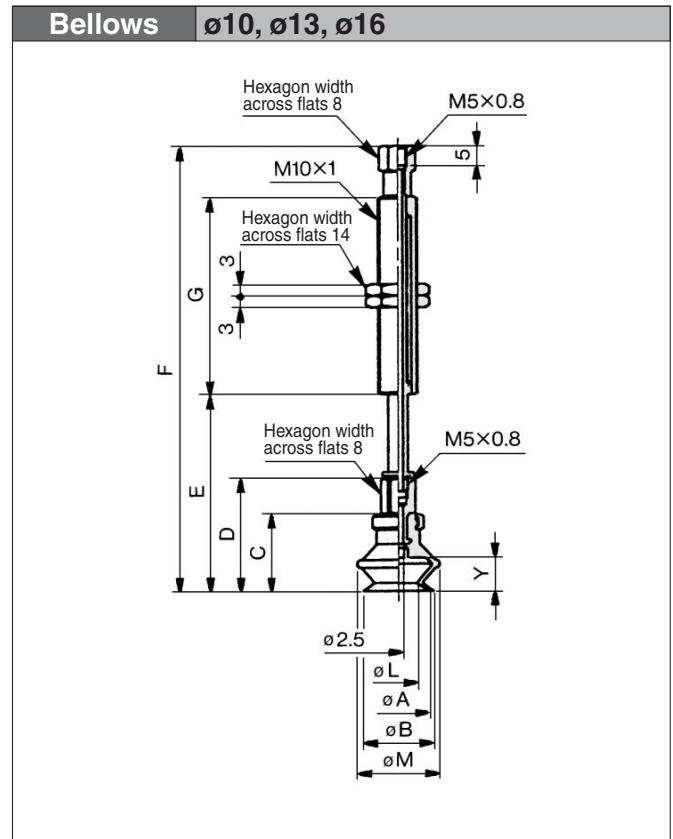


Bellows

Model	A	B	L	M
ZPT06B□□□□-B□-A8	6	7	3.3	9.1
ZPT08B□□□□-B□-A8	8	9	4.7	10.1

Dimensions by Stroke

Model	C	D	F: M3 x 0.5			F: M5 x 0.8		
			E	G	H	E	G	H
ZPT□□B□□□ 6-B□-A8	19	15	45			47		
ZPT□□B□□□10-B□-A8	24		78			80	5	8
ZPT□□B□□□15-B□-A8	29	43	83	3	6	85		
ZPT□□B□□□25-B□-A8	39		93			95		



Bellows

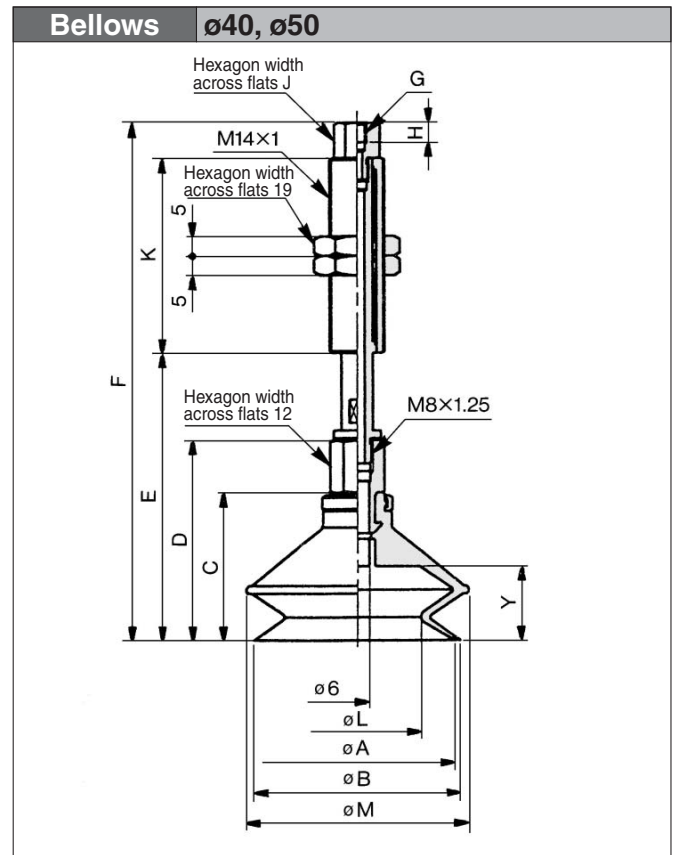
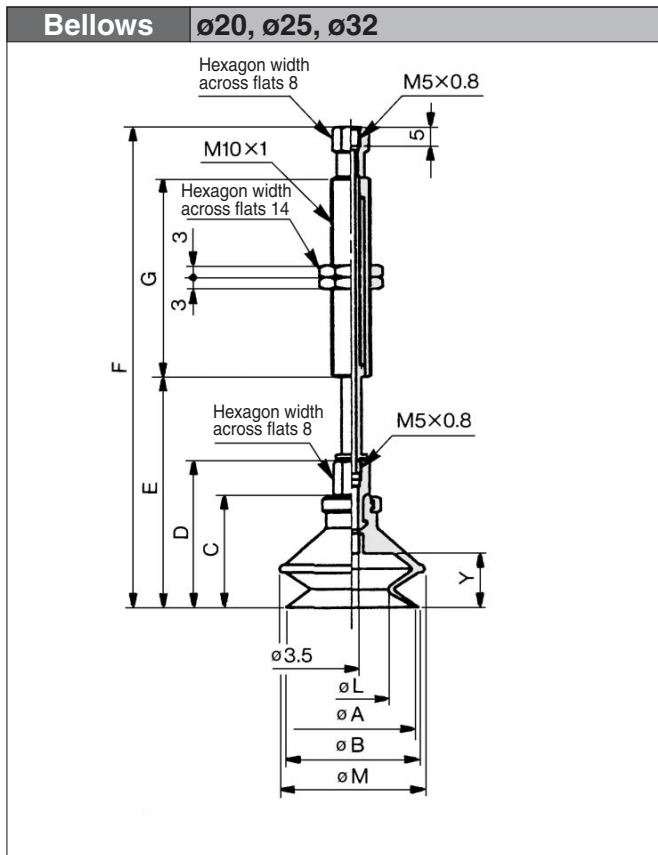
Model	A	B	C	D	L	M	Y
ZPT10B□□□□-B5-A10	10	12	16	25	5.5	13.8	5.5
ZPT13B□□□□-B5-A10	13	15	18.5	27.5	8.7	19	7.5
ZPT16B□□□□-B5-A10	16	18	20	29	9.9	21	8.5

Dimensions by Stroke

Model	$\phi 10$		$\phi 13$		$\phi 16$		G
	E	F	E	F	E	F	
ZPT□□B□□□10-B5-A10	36.5	72.5	39	75	40.5	76.5	23
ZPT□□B□□□20-B5-A10	46.5	110.5	49	113	50.5	114.5	51
ZPT□□B□□□30-B5-A10	56.5	120.5	59	123	60.5	124.5	
ZPT□□B□□□40-B5-A10	66.5	156.5	69	159	70.5	160.5	77
ZPT□□B□□□50-B5-A10	76.5	166.5	79	169	80.5	170.5	

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Female thread (Buffer)	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Buffer body



Bellows

Model	A	B	C	D	L	M	Y
ZPT20B□□□□□-B5-A10	20	22	23.5	32.5	12.4	25	10.5
ZPT25B□□□□□-B5-A10	25	27	24	33	15.6	28	
ZPT32B□□□□□-B5-A10	32	34	29	38	18.9	37	

Dimensions by Stroke

Model	ø20		ø25		ø32		G
	E	F	E	F	E	F	
ZPT□□B□□□□10-B5-A10	44	80	44.5	80.5	49.5	85.5	23
ZPT□□B□□□□20-B5-A10	54	118	54.5	118.5	59.5	123.5	51
ZPT□□B□□□□30-B5-A10	64	128	64.5	128.5	69.5	133.5	
ZPT□□B□□□□40-B5-A10	74	164	74.5	164.5	79.5	169.5	77
ZPT□□B□□□□50-B5-A10	84	174	84.5	174.5	89.5	179.5	

Bellows

Model	A	B	C	D	L	M	Y
ZPT40B□□□□□-B□□-A14	40	43	34	47.5	24.4	48	16
ZPT50B□□□□□-B□□-A14	50	53	38	51.5	32.4	57	19

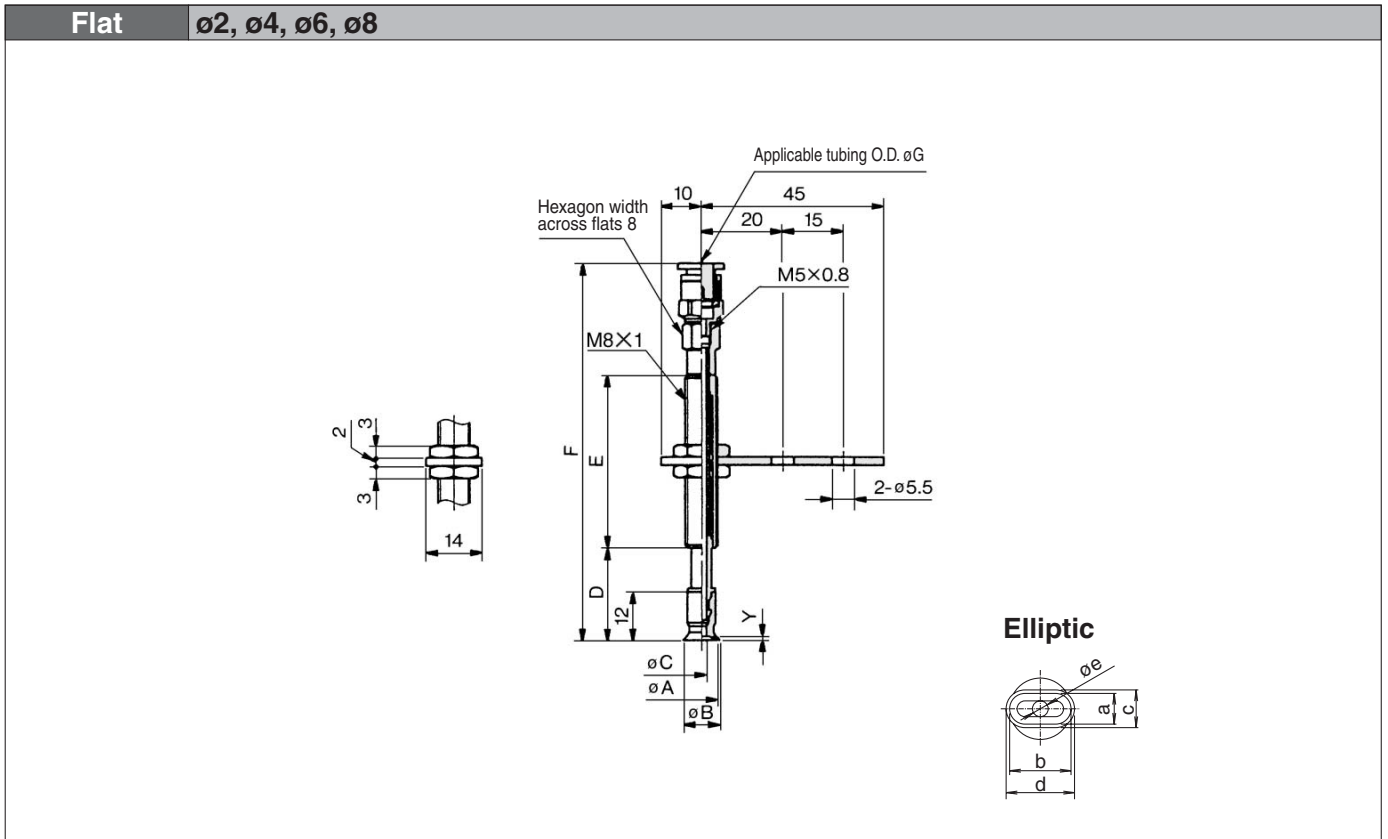
Dimensions by Stroke

Model	E		G: M5 x 0.8				G: Rc 1/8				K
	ø40	ø50	F		H	J	F		H	J	
			ø40	ø50			ø40	ø50			
ZPT□□B□□□□10-B□□-A14	60	64	125	129	5	10	126.5	130.5	6.2	13	50
ZPT□□B□□□□20-B□□-A14	70	74	129	133			132	136			
ZPT□□B□□□□30-B□□-A14	80	84	139	143			142	146			
ZPT□□B□□□□50-B□□-A14	100	104	184	188			187	191			

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP**
- ZCU
- AMJ
- Misc.

Series ZPT

Connection	One-touch fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep/Thin flat Thin flat with ribs/Elliptic
Vacuum Entry Port	Vertical	Mounting	Buffer body



Flat

Model	A	B	C	Y
ZPT02U□□□□□-0□-A8	2	2.6	1.2	0.8
ZPT04U□□□□□-0□-A8	4	4.8	1.6	
ZPT06U□□□□□-0□-A8	6	7	2.5	
ZPT08U□□□□□-0□-A8	8	9	1	

Elliptic

Model	a	b	c	d	øe	Y
ZPT2004U	2	4	2.6	4.6	1.2	0.3
ZPT3507U	3.5	7	4.3	7.8	1.8	0.5
ZPT4010U	4	10	5	11	2	0.8

Thin Flat/Thin Flat with Ribs

Model	A	B	C	Y
ZPT10UT	10	11	2.5	1
ZPT13UT	13	14		1.5
ZPT16UT	16	17		0.8
ZPT10CT	10	11		1
ZPT13CT	13	14		
ZPT16CT	16	17		

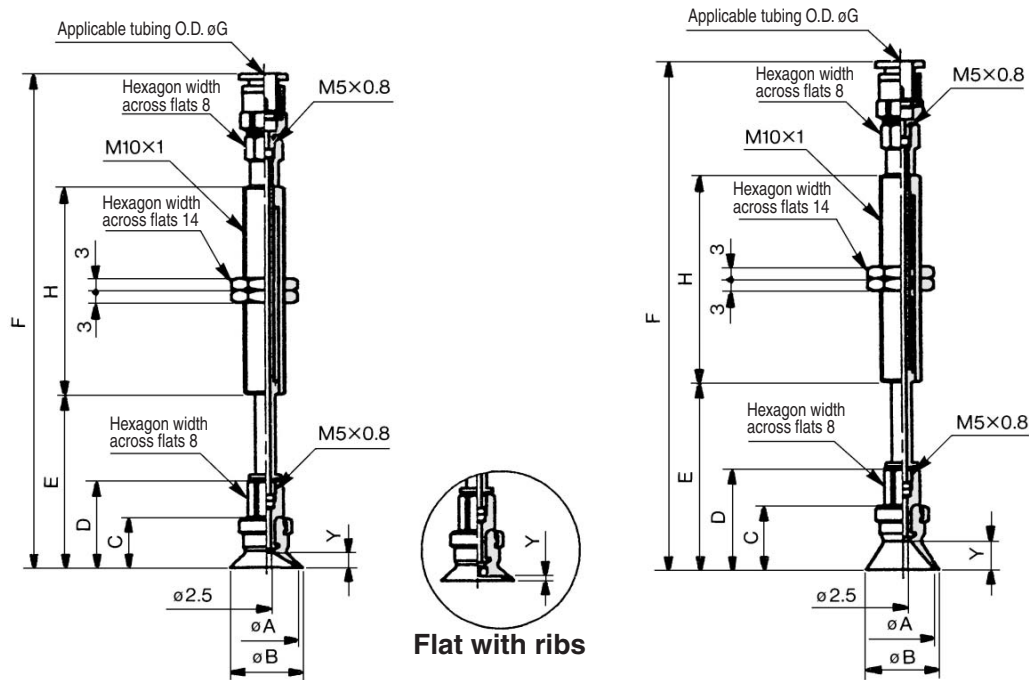
Dimensions by Stroke

Model	D	E	F	
			G: ø4	G: ø6
ZPT□□□□□□ 6-0□-A8	18	15	60	61
ZPT□□□□□□10-0□-A8	23	43	93	94
ZPT□□□□□□15-0□-A8	28		98	99
ZPT□□□□□□25-0□-A8	38		108	109

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	One-touch fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs $\phi 10, \phi 13, \phi 16$	Deep $\phi 10, \phi 16$
--	--------------------------------



Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT10 ^U _C □□□□□-0□-A10	10	12	12	21	3	1.7
ZPT13 ^U _C □□□□□-0□-A10	13	15			1.8	
ZPT16 ^U _C □□□□□-0□-A10	16	18	12.5	21.5	3.5	1.2

Dimensions by Stroke

Model	$\phi 10, \phi 13$			$\phi 16$			H
	E	F		E	F		
		G: $\phi 4$	G: $\phi 6$		G: $\phi 4$	G: $\phi 6$	
ZPT□□ ^U _C □□□□10-0□-A10	32.5	82.5	83.5	33	83	84	23
ZPT□□ ^U _C □□□□20-0□-A10	42.5	120.5	121.5	43	121	122	51
ZPT□□ ^U _C □□□□30-0□-A10	52.5	130.5	131.5	53	131	132	
ZPT□□ ^U _C □□□□40-0□-A10	62.5	166.5	167.5	63	167	168	77
ZPT□□ ^U _C □□□□50-0□-A10	72.5	176.5	177.5	73	177	178	

Deep

Model	A	B	C	D	Y
ZPT10D□□□□□-0□-A10	10	12	15	24	6
ZPT16D□□□□□-0□-A10	16	18	16	25	7

Dimensions by Stroke

Model	$\phi 10$			$\phi 16$			H
	E	F		E	F		
		G: $\phi 4$	G: $\phi 6$		G: $\phi 4$	G: $\phi 6$	
ZPT□□D□□□□10-0□-A10	35.5	85.5	86.5	36.5	86.5	87.5	23
ZPT□□D□□□□20-0□-A10	45.5	123.5	124.5	46.5	124.5	125.5	51
ZPT□□D□□□□30-0□-A10	55.5	133.5	134.5	56.5	134.5	135.5	
ZPT□□D□□□□40-0□-A10	65.5	169.5	170.5	66.5	170.5	171.5	77
ZPT□□D□□□□50-0□-A10	75.5	179.5	180.5	76.5	180.5	181.5	

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

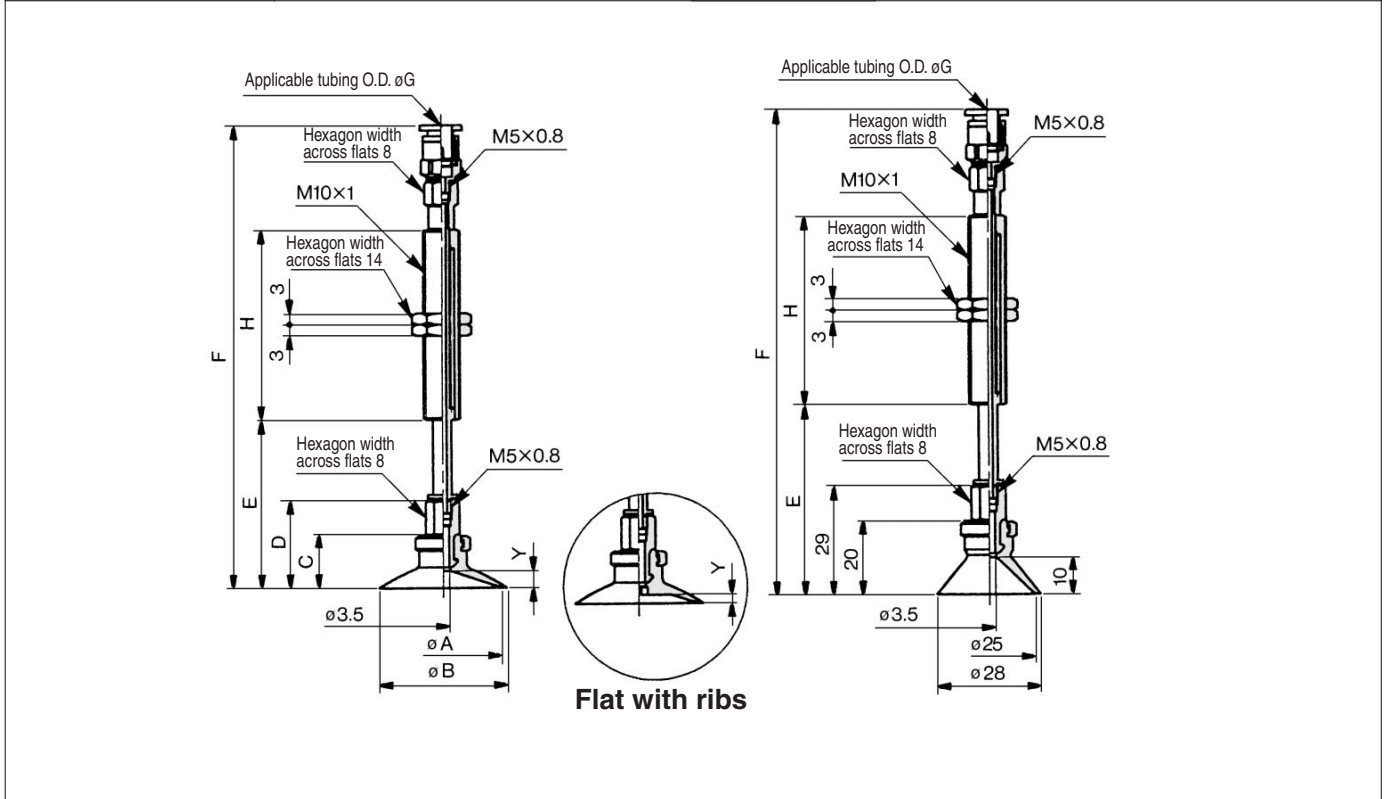
AMJ

Misc.

Series ZPT

Connection	One-touch fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs	ø20, ø25, ø32	Deep	ø25
----------------------------	----------------------	-------------	------------



Flat Type/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT20 _C □□□□□-0□-A10	20	23	14	23	4	1.7
ZPT25 _C □□□□□-0□-A10	25	28				1.8
ZPT32 _C □□□□□-0□-A10	32	35	14.5	23.5	4.5	2.3

Dimensions by Stroke

Model	ø20, ø25			ø32			H
	E	F		E	F		
		G: ø4	G: ø6		G: ø4	G: ø6	
ZPT□□ _C □□□□□10-0□-A10	34.5	84.5	85.5	35	85	86	23
ZPT□□ _C □□□□□20-0□-A10	44.5	122.5	123.5	45	123	124	51
ZPT□□ _C □□□□□30-0□-A10	54.5	132.5	133.5	55	133	134	51
ZPT□□ _C □□□□□40-0□-A10	64.5	168.5	169.5	65	169	170	77
ZPT□□ _C □□□□□50-0□-A10	74.5	178.5	179.5	75	179	180	77

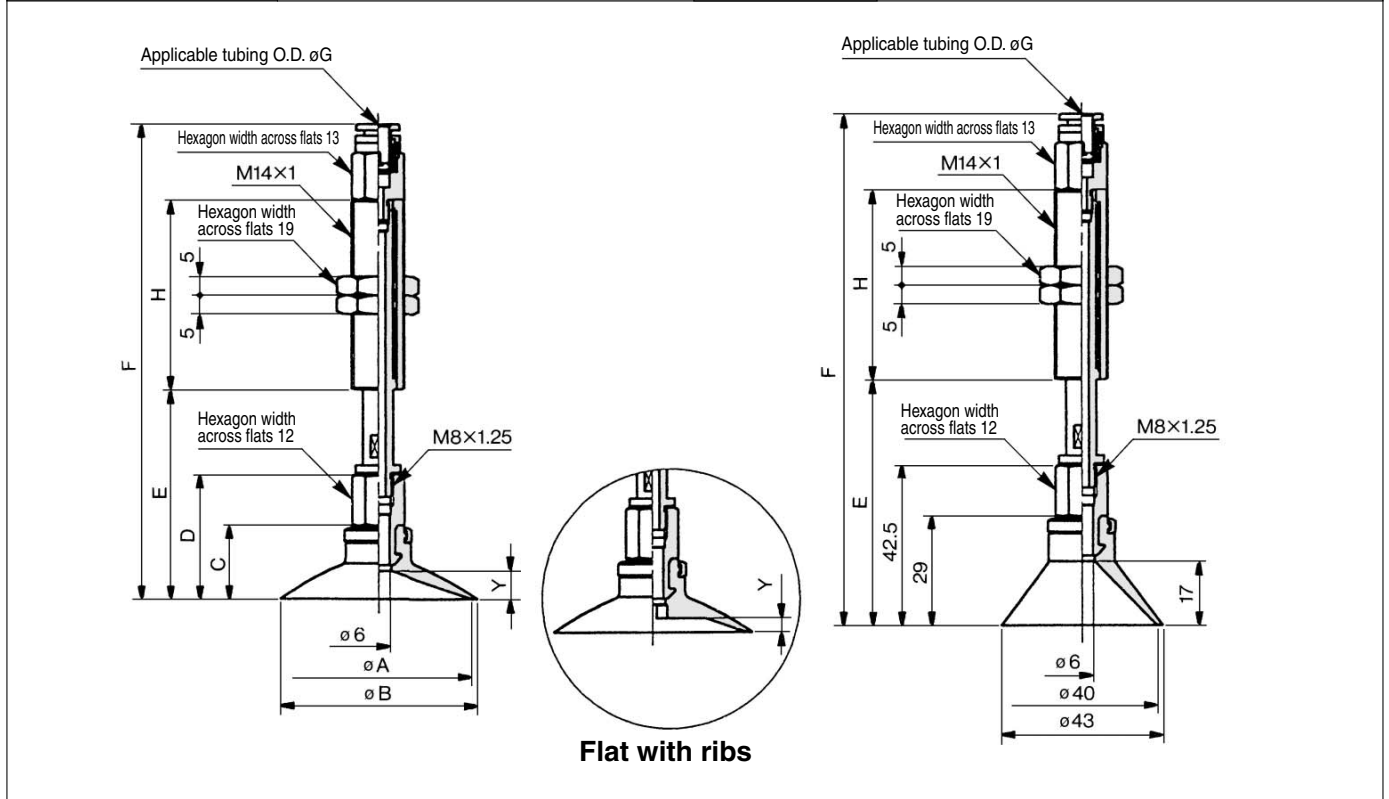
Deep

Model	E	F		H
		G: ø4	G: ø6	
ZPT25D□□□□□10-0□-A10	40.5	90.5	91.5	23
ZPT25D□□□□□20-0□-A10	50.5	128.5	129.5	51
ZPT25D□□□□□30-0□-A10	60.5	138.5	139.5	
ZPT25D□□□□□40-0□-A10	70.5	174.5	175.5	77
ZPT25D□□□□□50-0□-A10	80.5	184.5	185.5	

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	One-touch fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs	ø40, ø50	Deep	ø40
----------------------------	-----------------	-------------	------------



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT40 _C □□□□□-0□-A14	40	43	18.5	32	6.5	3.3
ZPT50 _C □□□□□-0□-A14	50	53	19.5	33	7.5	3.8

Dimensions by Stroke

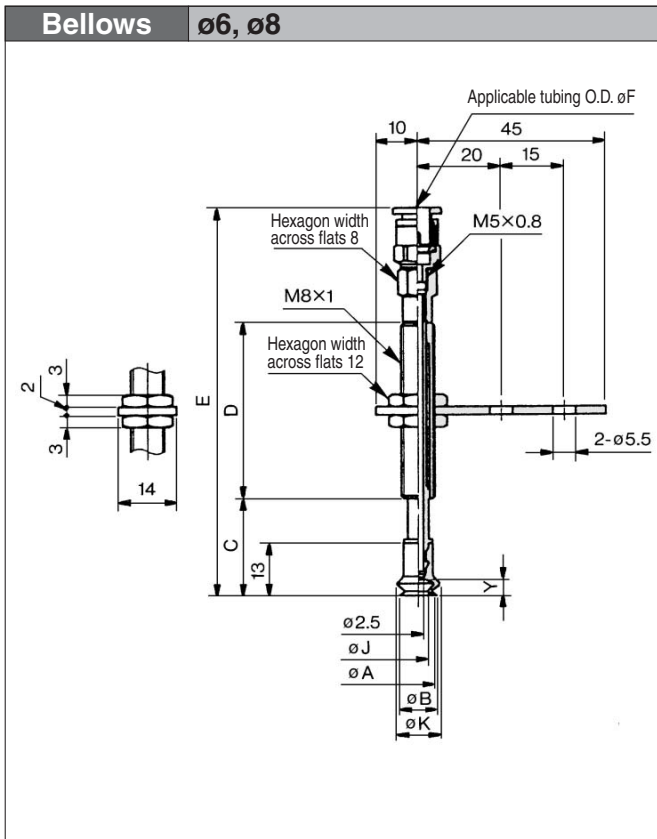
Model	ø40			ø50			H
	E	F		E	F		
		G: ø6	G: ø8		G: ø6	G: ø8	
ZPT□□ _C □□□□□10-0□-A14	44.5	129.5	135	45.5	130.5	136	50
ZPT□□ _C □□□□□20-0□-A14	54.5	124.4	129.4	55.5	125.4	130.4	
ZPT□□ _C □□□□□30-0□-A14	64.5	134.4	139.4	65.5	135.4	140.4	
ZPT□□ _C □□□□□50-0□-A14	84.5	179.4	184.4	85.5	180.4	185.4	

Deep

Model	E	F		H
		G: ø6	G: ø8	
ZPT40D□□□□10-0□-A14	55	140	145.5	50
ZPT40D□□□□20-0□-A14	65	134.9	139.9	
ZPT40D□□□□30-0□-A14	75	144.9	149.9	
ZPT40D□□□□50-0□-A14	95	189.9	194.9	

Series ZPT

Connection	One-touch fitting (Buffer)	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Buffer body

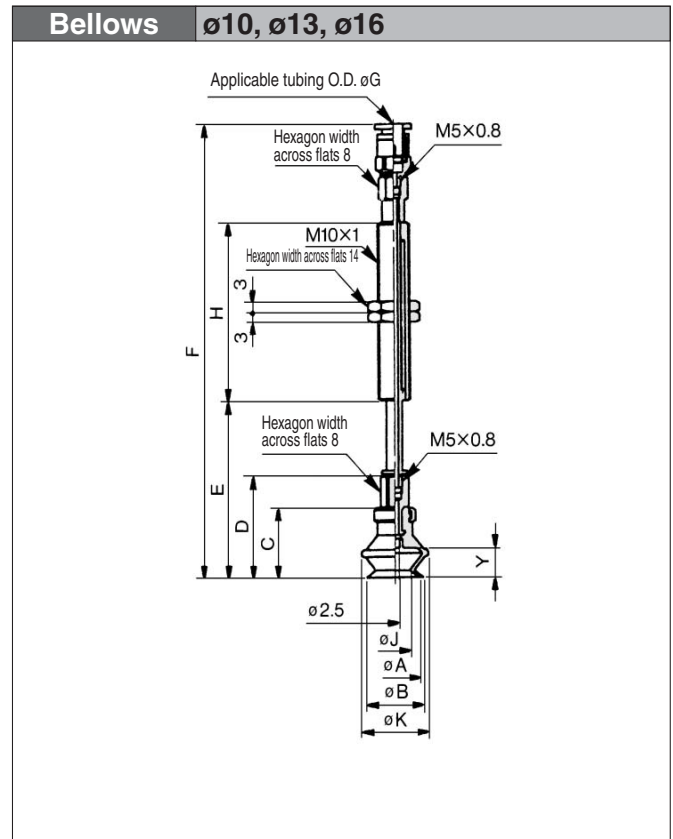


Bellows

Model	A	B	J	K
ZPT06B□□□□-0□-A8	6	7	3.3	9.1
ZPT08B□□□□-0□-A8	8	9	4.7	10.1

Dimensions by Stroke

Model	C	D	E	
			F: $\phi 4$	F: $\phi 6$
ZPT□□B□□□ 6-0□-A8	19	15	61	62
ZPT□□B□□□10-0□-A8	24		94	95
ZPT□□B□□□15-0□-A8	29	43	99	100
ZPT□□B□□□25-0□-A8	39		109	110



Bellows

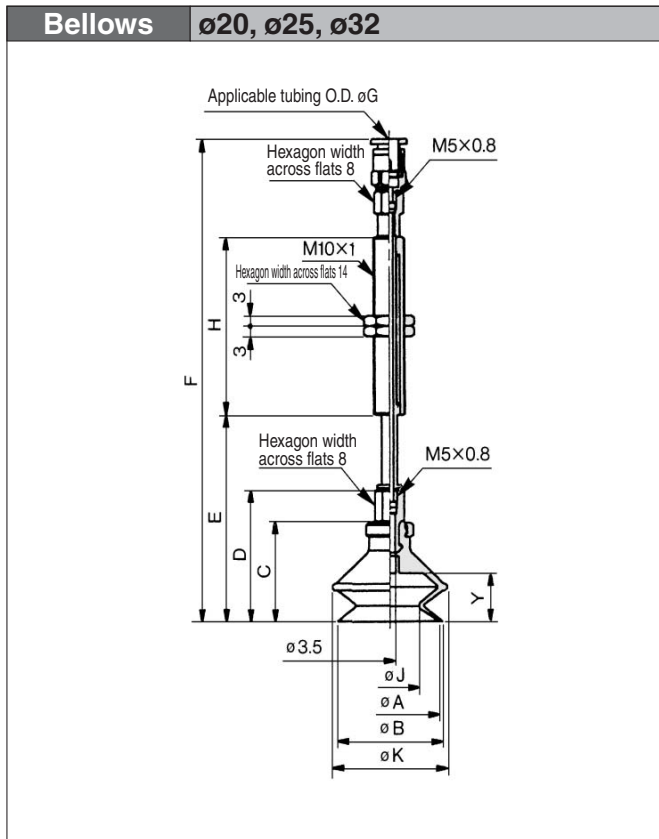
Model	A	B	C	D	J	K	Y
ZPT10B□□□□-0□-A10	10	12	16	25	5.5	13.8	5.5
ZPT13B□□□□-0□-A10	13	15	18.5	27.5	8.7	19	7.5
ZPT16B□□□□-0□-A10	16	18	20	29	9.9	21	8.5

Dimensions by Stroke

Model	$\phi 10$		$\phi 13$		$\phi 16$		H			
	E	F	E	F	E	F				
		G: $\phi 4$		G: $\phi 6$		G: $\phi 4$		G: $\phi 6$	G: $\phi 4$	G: $\phi 6$
ZPT□□B□□□10-0□-A10	36.5	86.5	87.5	39	89	90	40.5	90.5	91.5	23
ZPT□□B□□□20-0□-A10	46.5	124.5	125.5	49	127	128	50.5	128.5	129.5	51
ZPT□□B□□□30-0□-A10	56.5	134.5	135.5	59	137	138	60.5	138.5	139.5	51
ZPT□□B□□□40-0□-A10	66.5	170.5	171.5	69	173	174	70.5	174.5	185.5	77
ZPT□□B□□□50-0□-A10	76.5	180.5	181.5	79	183	184	80.5	184.5	185.5	77

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	One-touch fitting (Buffer)	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Buffer body

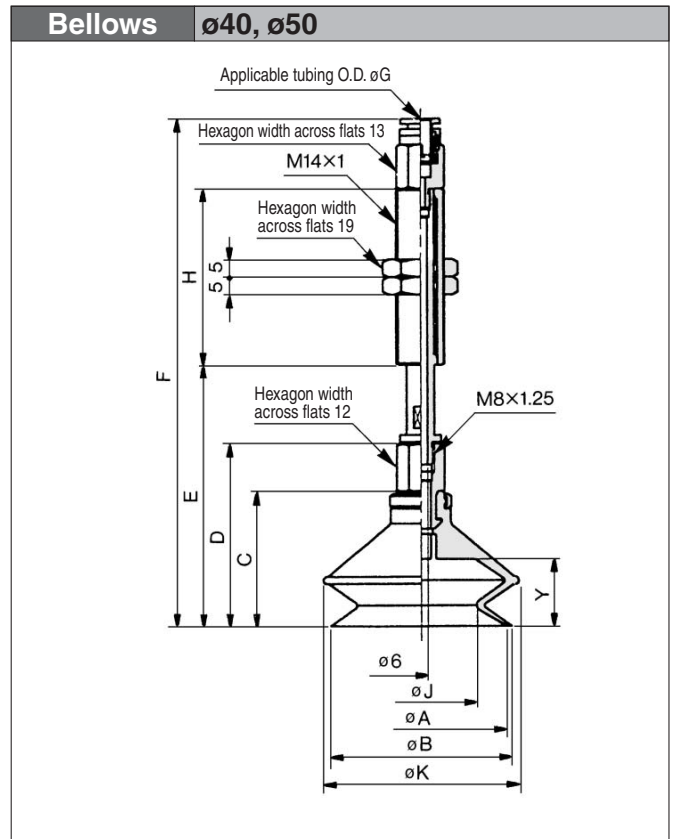


Bellows

Model	A	B	C	D	J	K	Y
ZPT20B□□□□-0□-A10	20	22	23.5	32.5	12.4	25	10.5
ZPT25B□□□□-0□-A10	25	27	24	33	15.6	28	
ZPT32B□□□□0□-A10	32	34	29	38	18.9	37	

Dimensions by Stroke

Model	ø20		ø25		ø32		H
	E	F	E	F	E	F	
		G: ø4		G: ø6		G: ø4	
ZPT□□B□□□10-0□-A10	44	94 95	44.5 94.5	95.5	49.5	99.5 100.5	23
ZPT□□B□□□20-0□-A10	54	132 133	54.5 132.5	133.5	59.5	137.5 138.5	51
ZPT□□B□□□30-0□-A10	64	142 143	64.5 142.5	143.5	69.5	147.5 148.5	77
ZPT□□B□□□40-0□-A10	74	178 179	74.5 178.5	179.5	79.5	183.5 184.5	
ZPT□□B□□□50-0□-A10	84	188 189	84.5 188.5	189.5	89.5	193.5 194.5	



Bellows

Model	A	B	C	D	J	K	Y
ZPT40B□□□□-0□-A14	40	43	34	47.5	24.4	48	16
ZPT50B□□□□-0□-A14	50	53	38	51.5	32.4	57	19

Dimensions by Stroke

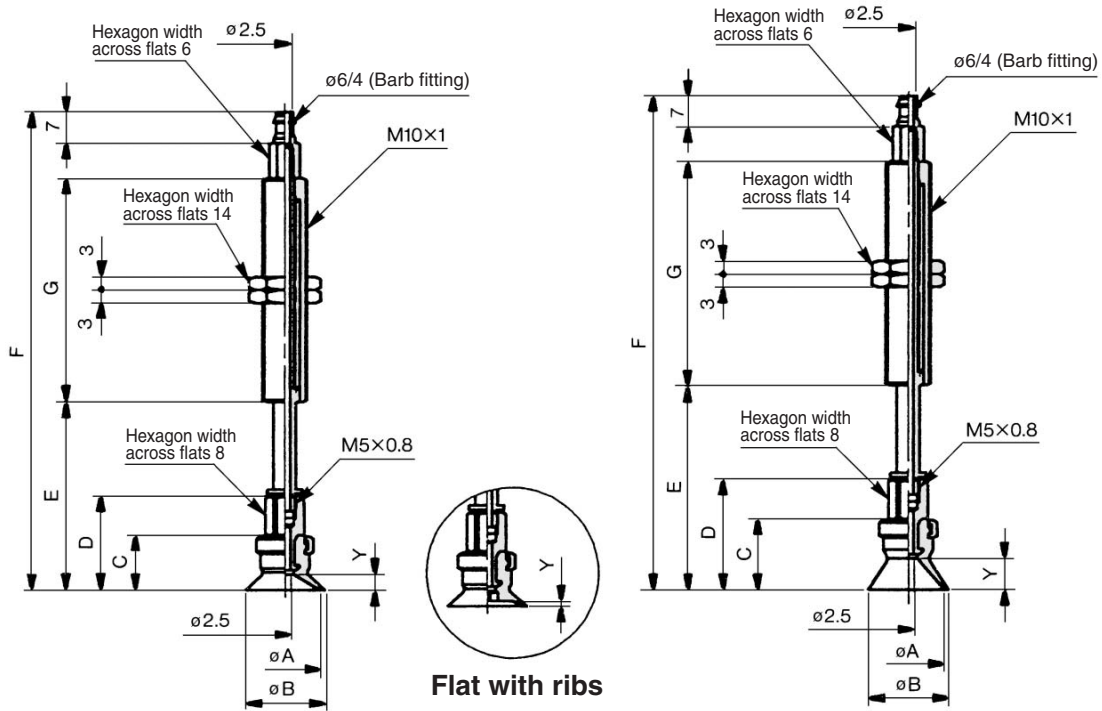
Model	ø40		ø50		H
	E	F	E	F	
		G: ø6		G: ø8	
ZPT□□B□□□10-0□-A14	60	145 150.5	64	149 154.5	50
ZPT□□B□□□20-0□-A14	70	139.9 144.9	74	143.9 148.9	
ZPT□□B□□□30-0□-A14	80	149.9 154.9	84	153.9 158.9	
ZPT□□B□□□50-0□-A14	100	194.9 199.9	104	198.9 203.9	

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Barb fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs	ø10, ø13, ø16	Deep	ø10, ø16
----------------------------	---------------	-------------	----------



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT10 ^U _C □□□□□□-□6-A10	10	12	12	21	3	1.7
ZPT13 ^U _C □□□□□□-□6-A10	13	15				1.8
ZPT16 ^U _C □□□□□□-□6-A10	16	18	12.5	21.5	3.5	1.2

Dimensions by Stroke

Model	ø10, ø13		ø16		G
	E	F	E	F	
ZPT□□ ^U _C □□□□□10-□6-A10	32.5	70.5	33	71	23
ZPT□□ ^U _C □□□□□20-□6-A10	42.5	108.5	43	109	51
ZPT□□ ^U _C □□□□□30-□6-A10	52.5	118.5	53	119	
ZPT□□ ^U _C □□□□□40-□6-A10	62.5	154.5	63	155	77
ZPT□□ ^U _C □□□□□50-□6-A10	72.5	164.5	73	165	

Deep

Model	A	B	C	D	Y
ZPT10D□□□□□□-□6-A10	10	12	15	24	6
ZPT16D□□□□□□-□6-A10	16	18	16	25	7

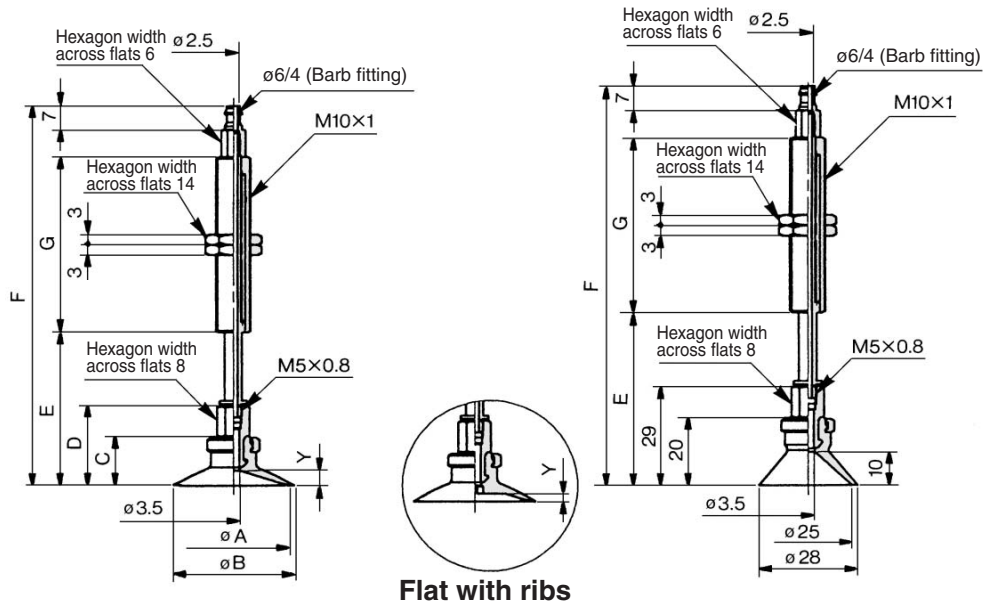
Dimensions by Stroke

Model	ø10		ø16		G
	E	F	E	F	
ZPT□□D□□□□10-□6-A10	35.5	73.5	36.5	74.5	23
ZPT□□D□□□□20-□6-A10	45.5	111.5	46.5	112.5	51
ZPT□□D□□□□30-□6-A10	55.5	121.5	56.5	122.5	
ZPT□□D□□□□40-□6-A10	65.5	157.7	66.5	158.5	77
ZPT□□D□□□□50-□6-A10	75.5	167.5	76.5	168.5	

Series ZPT

Connection	Barb fitting (Buffer)	Pad Form	Flat/Flat with Ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs	ø20, ø25, ø32	Deep	ø25
---------------------	---------------	------	-----



Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT20 _C □□□□□□-□6-A10	20	23	14	23	4	1.7
ZPT25 _C □□□□□□-□6-A10	25	28	14	23	4	1.8
ZPT32 _C □□□□□□-□6-A10	32	35	14.5	23.5	4.5	2.3

Deep

Model	E	F	G
ZPT25D□□□□10-□6-A10	40.5	78.5	23
ZPT25D□□□□20-□6-A10	50.5	116.5	51
ZPT25D□□□□30-□6-A10	60.5	126.5	
ZPT25D□□□□40-□6-A10	70.5	162.5	77
ZPT25D□□□□50-□6-A10	80.5	172.5	

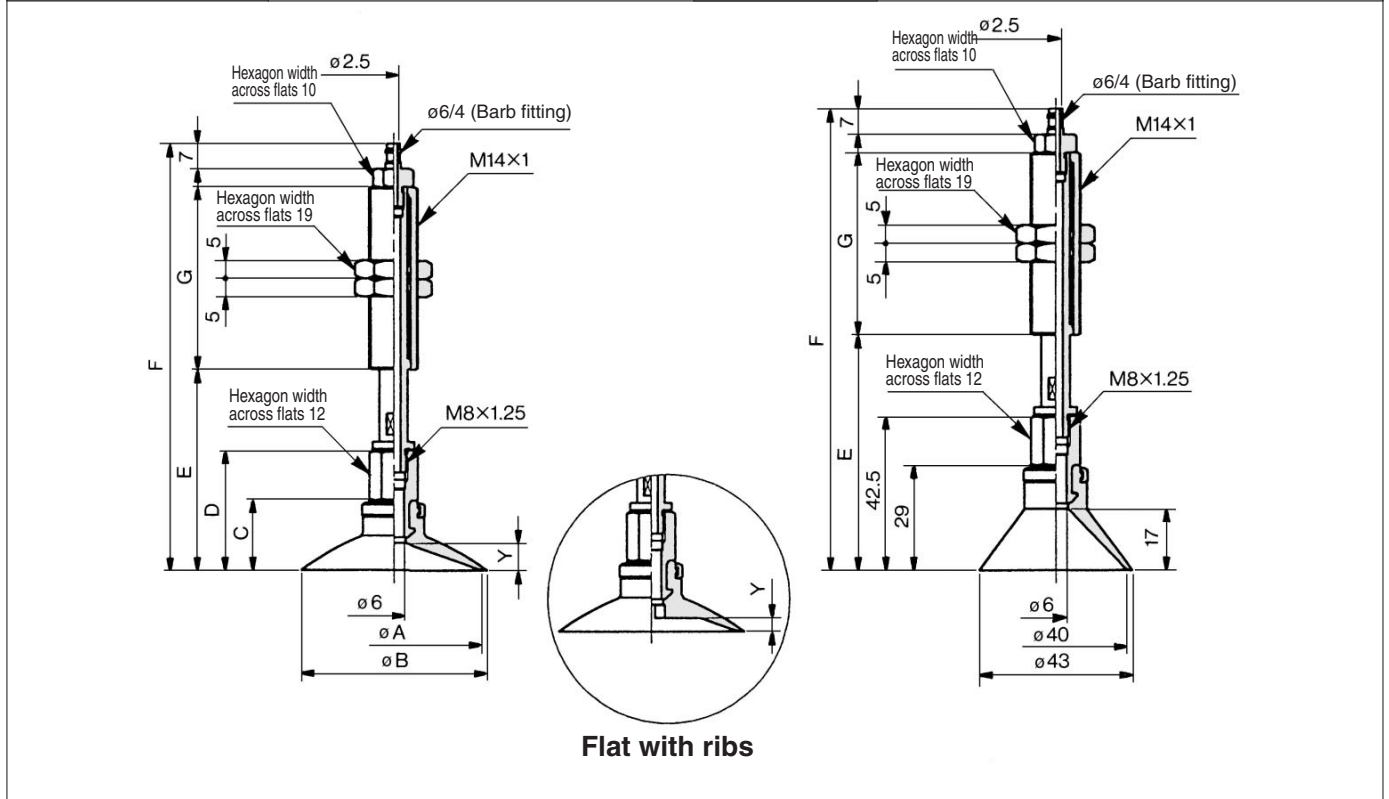
Dimensions by Stroke

Model	ø20, ø25		ø32		G
	E	F	E	F	
ZPT□□ _C □□□□□□10-□6-A10	34.5	72.5	35	73	23
ZPT□□ _C □□□□□□20-□6-A10	44.5	110.5	45	111	51
ZPT□□ _C □□□□□□30-□6-A10	54.5	120.5	55	121	
ZPT□□ _C □□□□□□40-□6-A10	64.5	156.5	65	157	77
ZPT□□ _C □□□□□□50-□6-A10	74.5	166.5	75	167	

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Barb fitting (Buffer)	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Vertical	Mounting	Buffer body

Flat/Flat with ribs $\phi 40, \phi 50$	Deep $\phi 40$
---	-----------------------



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Flat/Flat with Ribs

Model	A	B	C	D	Y	
					Flat	Flat with ribs
ZPT40 $\frac{U}{C}$ □□□□-□6-A14	40	43	18.5	32	6.5	3.3
ZPT50 $\frac{U}{C}$ □□□□-□6-A14	50	53	19.5	33	7.5	3.8

Dimensions by Stroke

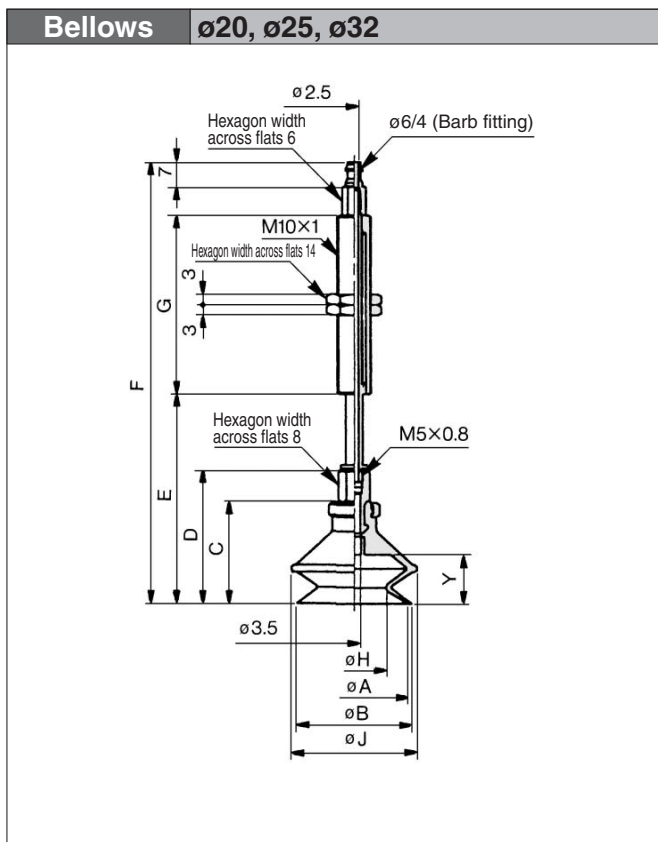
Model	$\phi 40$		$\phi 50$		G
	E	F	E	F	
ZPT□□ $\frac{U}{C}$ □□□□10-□6-A14	44.5	113.5	45.5	114.5	50
ZPT□□ $\frac{U}{C}$ □□□□20-□6-A14	54.5	116.5	55.5	117.5	
ZPT□□ $\frac{U}{C}$ □□□□30-□6-A14	64.5	126.5	65.5	127.5	
ZPT□□ $\frac{U}{C}$ □□□□50-□6-A14	84.5	171.5	85.5	172.5	

Deep

Model	E	F	G
ZPT40D□□□10-□6-A14	55	124	50
ZPT40D□□□20-□6-A14	65	127	
ZPT40D□□□30-□6-A14	75	137	
ZPT40D□□□50-□6-A14	95	182	

Vacuum Pad: Vertical Vacuum Entry with Buffer **Series ZPT**

Connection	Barb fitting (Buffer)	Pad Form	Bellows
Vacuum Entry Port	Vertical	Mounting	Buffer body

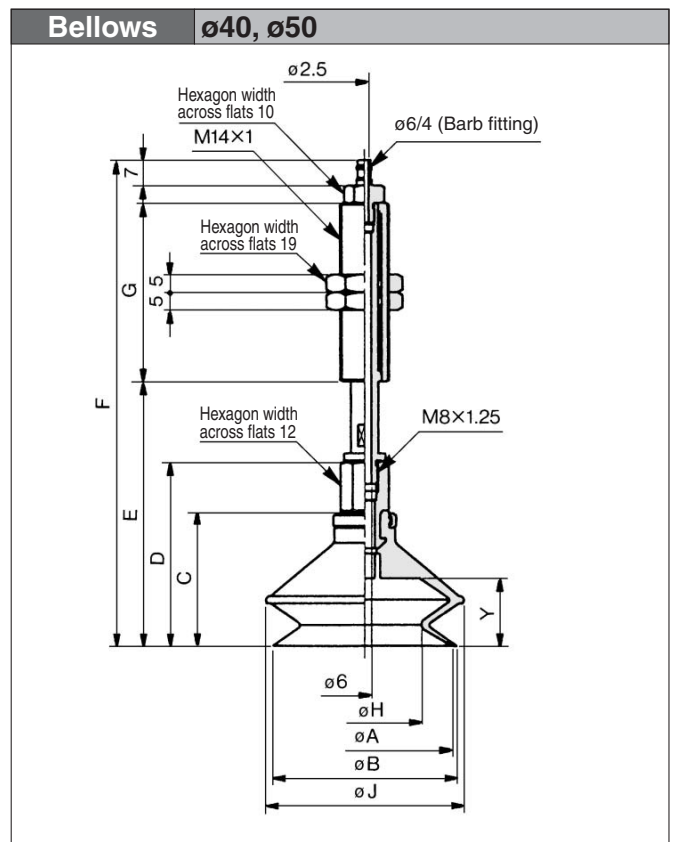


Bellows

Model	A	B	C	D	H	J	Y
ZPT20B□□□□□□-□6-A10	20	22	23.5	32.5	12.4	25	10.5
ZPT25B□□□□□□-□6-A10	25	27	24	33	15.6	28	
ZPT32B□□□□□□-□6-A10	32	34	29	38	18.9	37	

Dimensions by Stroke

Model	$\phi 20$		$\phi 25$		$\phi 32$		G
	E	F	E	F	E	F	
ZPT□□B□□□□10-□6-A10	44	82	44.5	82.5	49.5	87.5	23
ZPT□□B□□□□20-□6-A10	54	120	54.5	120.5	59.5	125.5	51
ZPT□□B□□□□30-□6-A10	64	130	64.5	130.5	69.5	135.5	
ZPT□□B□□□□40-□6-A10	74	166	74.5	166.5	79.5	171.5	77
ZPT□□B□□□□50-□6-A10	84	176	84.5	176.5	89.5	181.5	



Bellows

Model	A	B	C	D	H	J	Y
ZPT40B□□□□□□-□6-A14	40	43	34	47.5	24.4	48	16
ZPT50B□□□□□□-□6-A14	50	53	38	51.5	32.4	57	19

Dimensions by Stroke

Model	$\phi 40$		$\phi 50$		G
	E	F	E	F	
ZPT□□B□□□□10-□6-A14	60	129	64	133	50
ZPT□□B□□□□20-□6-A14	70	132	74	136	
ZPT□□B□□□□30-□6-A14	80	142	84	146	
ZPT□□B□□□□50-□6-A14	100	187	104	191	75

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.



Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting Without Buffer

Series ZPR



Specifications

Vacuum entry	Direction		Lateral	
	Connection		One-touch fitting	
Applicable tube dia.	2 x 4, 3.5 x 7, 4 x 10 Thin section series (ø10 to ø16) ø2 to ø8		ø4, ø6 tube	
	ø10 to ø16		ø4, ø6 tube	
	ø20 to ø32		ø4, ø6, ø8 tube	
	ø40 to ø50		ø6, ø8 tube	
Mounting	Connection		Male thread	Female thread
	2 x 4, 3.5 x 7, 4 x 10 Thin section series (ø10 to ø16) ø2 to ø8		M5 x 0.8, M6 x 1	M4 x 0.7, M5 x 0.8
	ø10 to ø16		M5 x 0.8, M6 x 1	M5 x 0.8, M6 x 1
	ø20 to ø32		M6 x 1, M8 x 1	M5 x 0.8, M6 x 1, M8 x 1.25
ø40 to ø50		M6 x 1, M8 x 1	M6 x 1, M8 x 1.25	

Pad Type

Pad form	Flat	Flat with ribs	Deep	Bellows	Thin flat/Thin flat with ribs
Pad diameter (mm)	2, 4, 6, 8, 2 x 4, 3.5 x 7, 4 x 10, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40	6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16
Material (Color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with green mark) Conductive NBR (Black with one white mark), Conductive silicon rubber (Black with two white marks)				
Durometer	NBR (50°), Silicon rubber (40°), Urethane rubber/Fluoro rubber (60°) Conductive NBR (50°), Conductive silicon rubber (50°)				

Weight/Male Thread (Female thread)

(g)

Model	Flat				Flat with ribs			Deep			Bellows			
	M4	M5	M6	M8	M5	M6	M8	M5	M6	M8	M4	M5	M6	M8
ZPR02 to 08 2004, 3507, 4010 Thin section series 10 to 16	— (19)	26 (20)	27 (—)	—	—	—	—	—	—	—	(19) (Except ø2, ø4)	26(20) (Except ø2, ø4)	27(—) (Except ø2, ø4)	—
ZPR10	—	—	—	—	—	—	—	29 (23)	30 (22)	—	—	—	—	—
ZPR13	—	29 (23)	31 (21)	—	29 (23)	31 (22)	—	—	—	—	—	29 (23)	31 (22)	—
ZPR16	—	—	—	—	—	—	—	31 (23)	31 (22)	—	—	—	—	—
ZPR20	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ZPR25	—	— (51)	57 (50)	61 (48)	— (51)	57 (50)	61 (48)	— (51)	65 (50)	68 (48)	—	— (51)	57 (50)	61 (48)
ZPR32	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ZPR40	—	—	64 (56)	67 (54)	—	64 (56)	67 (54)	—	65 (57)	68 (55)	—	—	64 (56)	67 (54)
ZPR50	—	—	66 (58)	69 (56)	—	67 (59)	70 (57)	—	—	—	—	—	66 (58)	69 (56)

(): Figures for female thread connections.

Made to Order P. 13-11-65 to 13-11-68

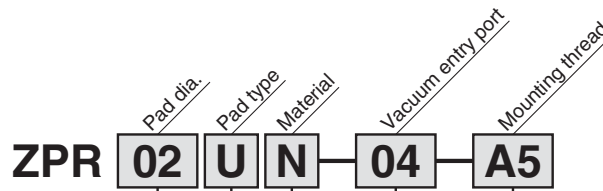
Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting without Buffer Series ZPR

Model

Model	Pad dia. (ømm)	Pad form						Vacuum entry port (One-touch fitting)	Mounting									
		Flat (U)	Flat with ribs (C)	Deep (D)	Bellows (B)	Thin flat (UT)	Thin flat with ribs (CT)		Male thread	Female thread								
ZPR2004	2 x 4	●	—	—	—	—	—	● ø4, ø6 tube	● M5 x 0.8 M6 x 1	● M4 x 0.7 M5 x 0.8								
ZPR3507	3.5 x 7																	
ZPR4010	4 x 10																	
ZPR02	2																	
ZPR04	4																	
ZPR06	6																	
ZPR08	8																	
ZPR10	10																	
ZPR13	13										●	●	—	—	—	●	●	●
ZPR16	16																	
ZPR20	20																	
ZPR25	25																	
ZPR32	32																	
ZPR40	40																	
ZPR50	50																	
		●	●	●	●	—	—	—	—									

How to Order

Series ZPR
Without Buffer



Pad diameter (mm)

2004	2 x 4
3507	3.5 x 7
4010	4 x 10
02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

Pad type



(Refer to "Table (1)" for applications.)

U	Flat
C	Flat with ribs
D	Deep
B	Bellows
UT	Thin flat
CT	Thin flat with ribs

Mounting thread

(Refer to "Table (2)" for applications.)



Vacuum entry port

(Refer to "Table (2)" for applications.)



Table (2) Vacuum Entry/Mounting Thread Diameter

Connection		Symbol	Thread dia./ Port size	ø2 to ø8 2 x 4 3.5 x 7 4 x 10 ø10 to ø16 (This section series)	ø10 to ø16	ø20 to ø32	ø40, ø50
Vacuum entry	One-touch fitting	04	ø4 tube	●	●	●	—
		06	ø6 tube	●	●	●	●
		08	ø8 tube	—	—	●	●
Mounting	Male thread	A5	M5 x 0.8	●	●	—	—
		A6	M6 x 1	●	●	●	●
		A8	M8 x 1	—	—	●	●
	Female thread	B4	M4 x 0.7	●	—	—	—
		B5	M5 x 0.8	●	●	●	—
		B6	M6 x 1	—	●	●	●
		B8	M8 x 1.25	—	—	●	●

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN *	Conductive NBR (ø2 to ø16)
GS *	Conductive silicon rubber (ø2 to ø16)

* ø20 and larger are manufactured upon a receipt of order.

Table (1) Pad Diameter/Pad Type

Type	Dia. (mm)														
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	10	13	16	20	25	32	40	50
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
Deep	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bellows	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●
Thin flat	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

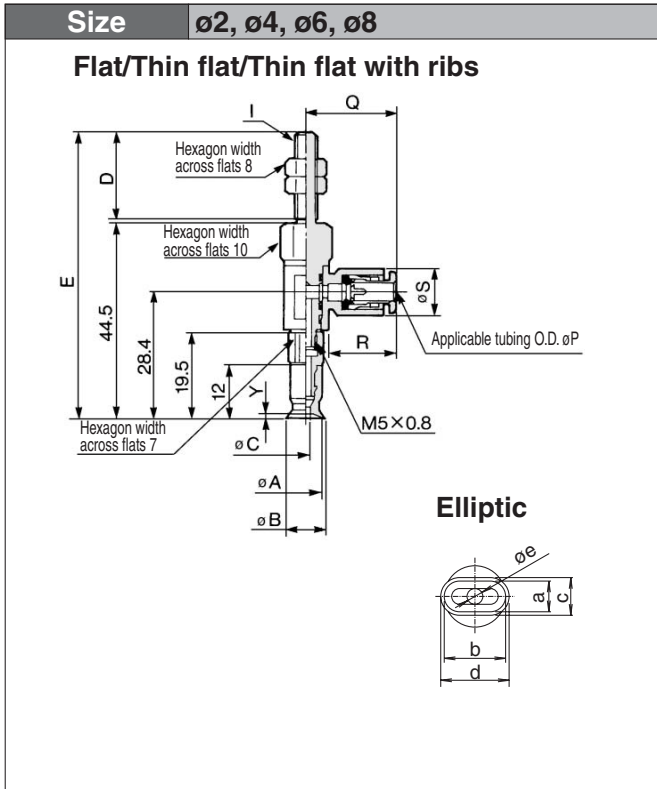
ZCU

AMJ

Misc.

Series ZPR

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep/Thin flat/ Thin flat with ribs/Elliptic
Vacuum Entry Port	Lateral	Mounting	Male thread



Flat

Model	ϕA	ϕB	ϕC	I: M5 x 0.8		I: M6 x 1		Y
				D	E	D	E	
ZPR02U	2	2.6	1.2	20	65.5	25	70.5	0.8
ZPR04U	4	4.8	1.6					
ZPR06U	6	7	2.5					
ZPR08U	8	9	2.5					

Applicable Tubing

Applicable tubing O. D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8

Elliptic

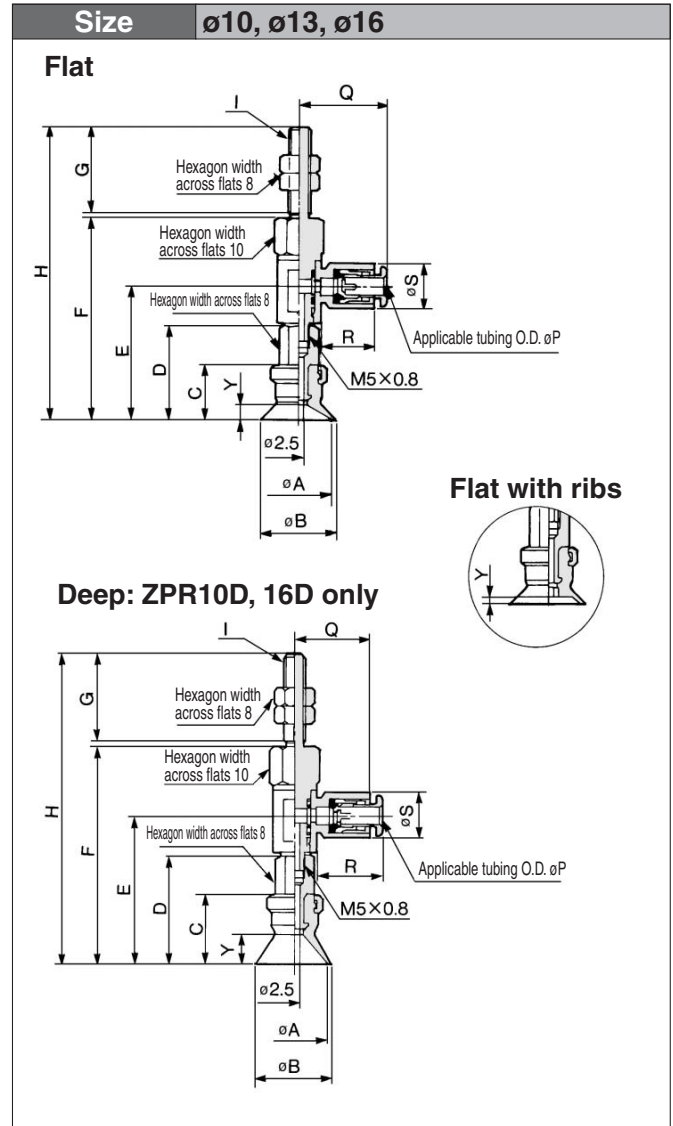
Model	a	b	c	d	ϕe	Y
ZPR2004U	2	4	2.6	4.6	1.2	0.3
ZPR3507U	3.5	7	4.3	7.8	1.8	0.5
ZPR4010U	4	10	5	11	2	0.8

* Dimensions of D, E, are the same.

Thin Flat/Thin Flat with Ribs

Model	A	B	Y
ZPR10UT	10	11	1
ZPR13UT	13	14	1.5
ZPR16UT	16	17	
ZPR10CT	10	11	0.8
ZPR13CT	13	14	1
ZPR16CT	16	17	

* Dimensions of D, E, are the same.



Flat/Flat with Ribs

Model	ϕA	ϕB	C	D	E	F	I: M5 x 0.8		I: M6 x 1		Y	
							G	H	G	H	Flat	Flat with ribs
ZPR10 ^U _C	10	12					20	67	25	72	3	1.7
ZPR13 ^U _C	13	15	12	21	29.9	46						
ZPR16 ^U _C	16	18	12.5	21.5	30.4	46.5						

Deep

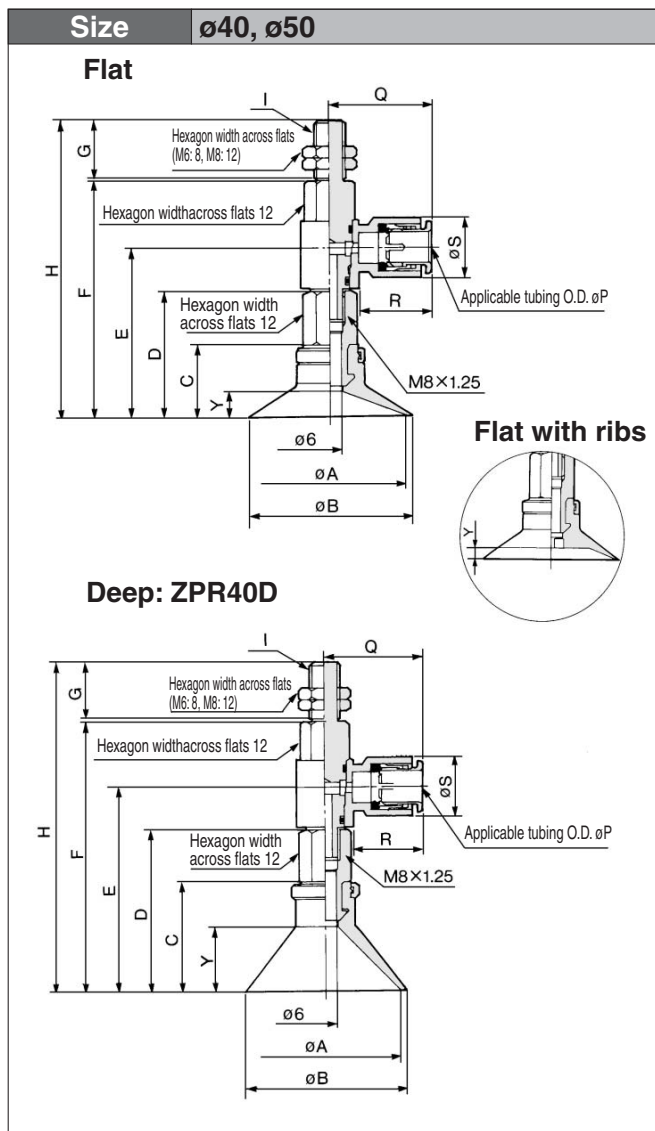
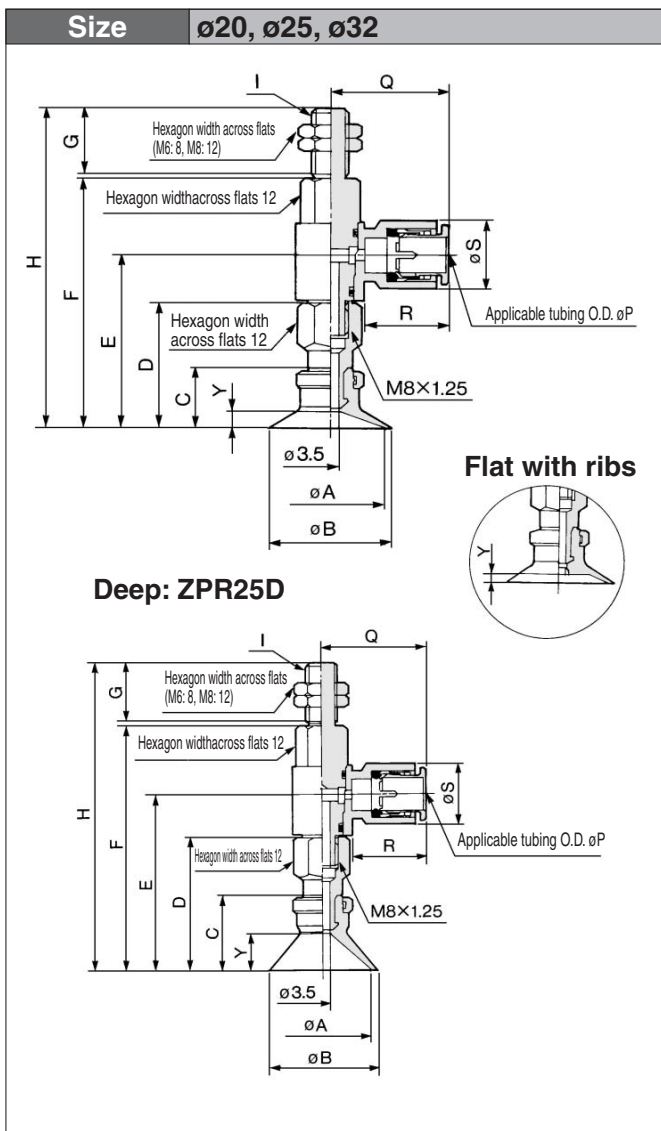
Model	ϕA	ϕB	C	D	E	F	I: M5 x 0.8		I: M6 x 1		Y
							G	H	G	H	
ZPR10D	10	12	15	24	32.9	49	20	70	25	75	6
ZPR16D	16	18	16	25	33.9	50					

Applicable Tubing

Applicable tubing O. D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting without Buffer **Series ZPR**

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Lateral	Mounting	Male thread



- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Flat/Flat with Ribs

Model	ϕA	ϕB	C	D	E	F	I: M6 x 1		I: M8 x 1		Y	
							G	H	G	H	Flat	Flat with ribs
ZPR20 ^U _C	20	23										1.7
ZPR25 ^U _C	25	28	14	29	39.8	57.6	25	83.5	15	73.5	4	1.8
ZPR32 ^U _C	32	35	14.5	29.5	40.3	58.1		84		74	4.5	2.3

Deep

Model	ϕA	ϕB	C	D	E	F	I: M6 x 1		I: M8 x 1		Y
							G	H	G	H	
ZPR25D	25	28	20	35	48.5	63.6	25	89.5	15	79.5	10

Applicable Tubing

Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	23.3	15.8	10.4
$\phi 6$	6	24.3	16.8	12.8
$\phi 8$	8	26.2	18.7	15.2

Flat/Flat with Ribs

Model	ϕA	ϕB	C	D	E	F	I: M6 x 1		I: M8 x 1		Y	
							G	H	G	H	Flat	Flat with ribs
ZPR40 ^U _C	40	43	18.5	32	42.8	60.6						
ZPR50 ^U _C	50	53	19.5	33	43.8	61.6	25	86.5	15	76.5	6.5	3.3
								87.5		77.5	7.5	3.8

Deep

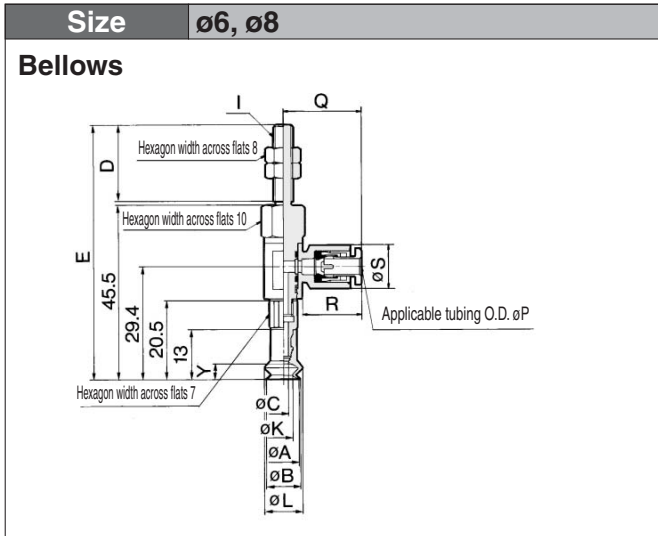
Model	ϕA	ϕB	C	D	E	F	I: M6 x 1		I: M8 x 1		Y
							G	H	G	H	
ZPR40D	40	43	29	42.5	53.3	71.1	25	97	15	87	17

Applicable Tubing

Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 6$	6	24.3	16.8	12.8
$\phi 8$	8	26.2	18.7	15.2

Series ZPR

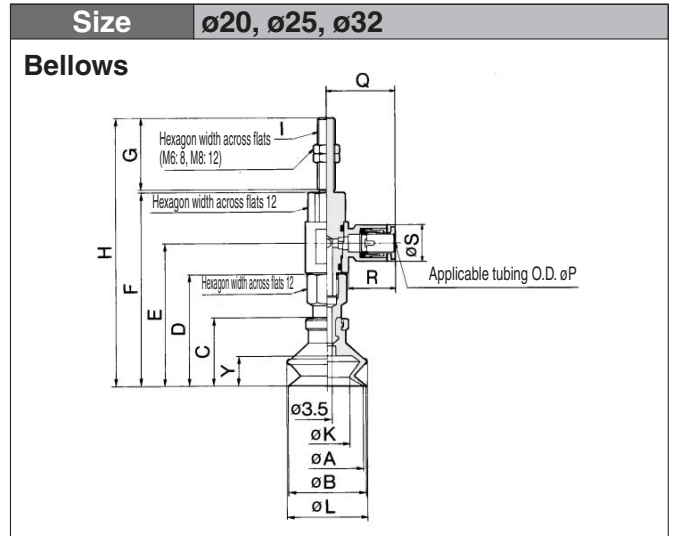
Connection	One-touch fitting	Pad Form	Bellows
Vacuum Entry Port	Lateral	Mounting	Male thread



Model	øA	øB	øC	I: M5 x 0.8		I: M6 x 1		øK	øL	Y
				D	E	D	E			
ZPR06B	6	7						3.3	9.1	4
ZPR08B	8	9	2.5	20	66.5	25	71.5	4.7	10.1	

Applicable Tubing

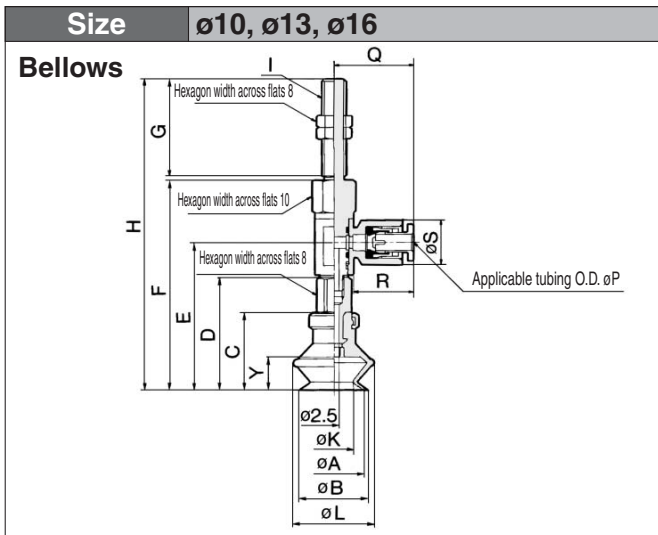
Applicable tubing O.D.	øP	Q	R	øS
ø4	4	20.6	15.6	10.4
ø6	6	21.6	16.6	12.8



Model	øA	øB	C	D	E	F	I: M6 x 1		I: M8 x 1		øK	øL	Y
							G	H	G	H			
ZPR20B	20	22	23.5	38.5	49.3	67.1		93		83	12.4	25	10.5
ZPR25B	25	27	24	39	49.8	67.6	25	93.5	15	83.5	15.6	28	10.5
ZPR32B	32	34	29	44	54.8	72.6		98.5		88.5	18.9	37	14

Applicable Tubing

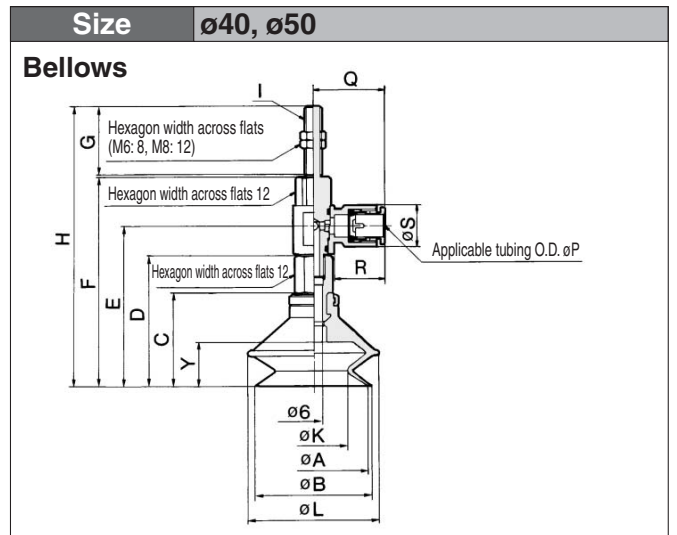
Applicable tubing O.D.	øP	Q	R	øS
ø4	4	23.3	15.8	10.4
ø6	6	24.3	16.8	12.8
ø8	8	26.2	18.7	15.2



Model	øA	øB	C	D	E	F	I: M5 x 0.8		I: M6 x 1		øK	øL	Y
							G	H	G	H			
ZPR10B	10	12	16	25	33.9	50		71		76	5.5	13.8	5.5
ZPR13B	13	15	18.5	27.5	36.4	52.5	20	73.5	25	78.5	8.7	19	7.5
ZPR16B	16	18	20	29	37.9	54		75		80	9.9	21	8.5

Applicable Tubing

Applicable tubing O.D.	øP	Q	R	øS
ø4	4	20.6	15.6	10.4
ø6	6	21.6	16.6	12.8



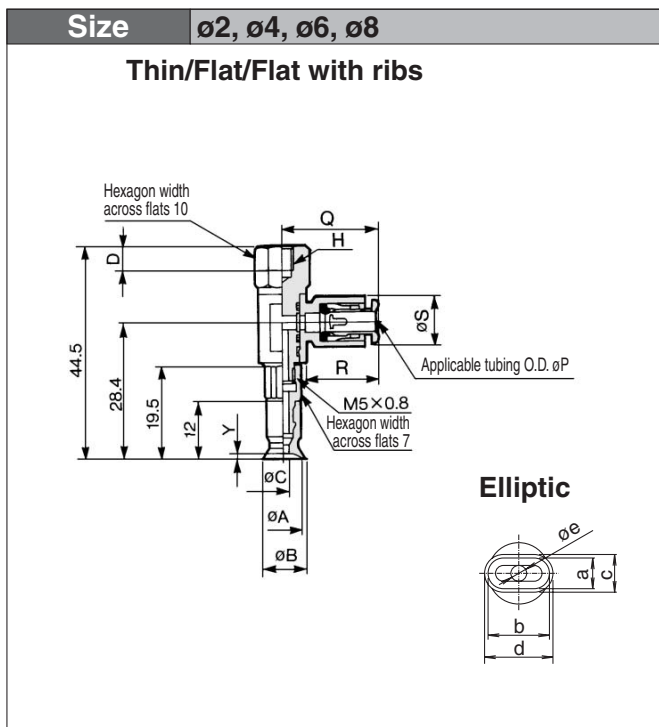
Model	øA	øB	C	D	E	F	I: M6 x 1		I: M8 x 1		øK	øL	Y
							G	H	G	H			
ZPR40B	40	43	34	47.5	58.3	76.1		102		92	24.4	48	16
ZPR50B	50	53	38	51.5	62.3	80.1	25	106	15	96	32.4	57	19

Applicable Tubing

Applicable tubing O.D.	øP	Q	R	øS
ø6	6	24.3	16.8	12.8
ø8	8	26.2	18.7	15.2

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting without Buffer **Series ZPR**

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep/Thin/Thin with ribs/Elliptic
Vacuum Entry Port	Lateral	Mounting	Female thread



Flat

Model	ϕA	ϕB	ϕC	H: M4 x 0.7	H: M5 x 0.8	Y
				D	D	
ZPR02U	2	2.6	1.2	4	5	0.8
ZPR04U	4	4.8	1.6			
ZPR06U	6	7	2.5			
ZPR08U	8	9	2.5			

Applicable Tubing

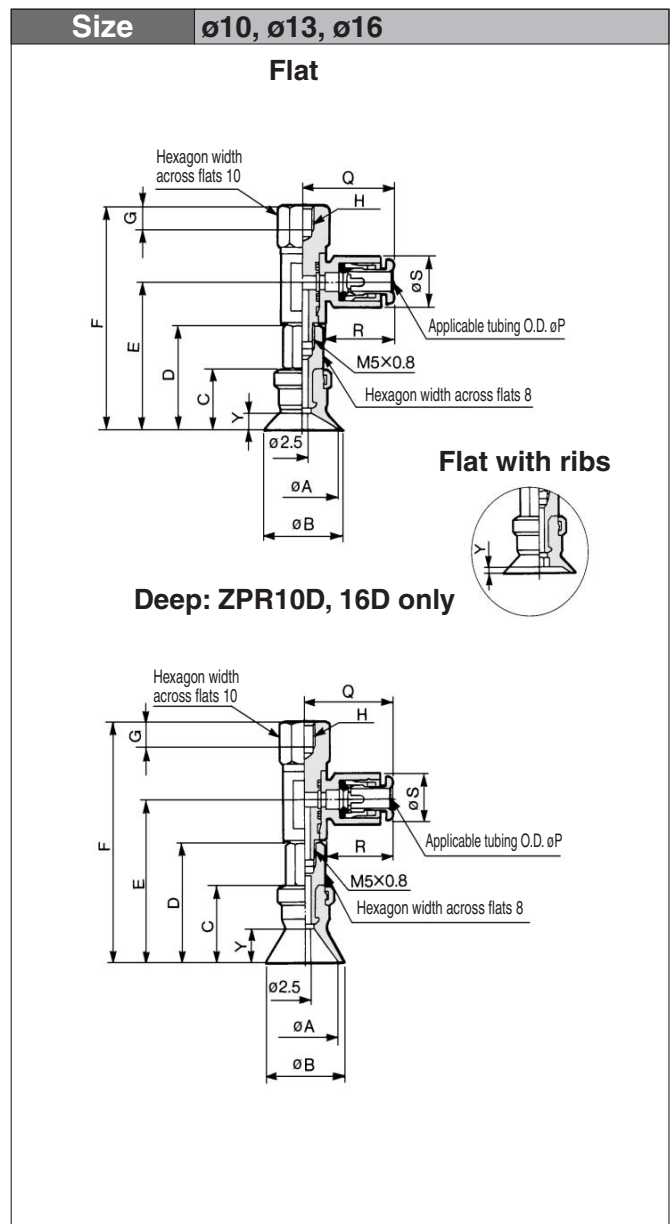
Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8

Model	a	b	c	d	ϕe	Y
ZPR2004U	2	4	2.6	4.6	1.2	0.3
ZPR3507U	3.5	7	4.3	7.8	1.8	0.5
ZPR4010U	4	10	5	11	2	0.8

* Dimensions of D are the same.

Model	A	B	C	Y
ZPR10UT	10	11	2.5	1
ZPR13UT	13	14		1.5
ZPR16UT	16	17		0.8
ZPR10CT	10	11		1
ZPR13CT	13	14		
ZPR16CT	16	17		

* Dimensions of D are the same.



Flat/Flat with Ribs

Model	ϕA	ϕB	C	D	E	F	H: M5 x 0.8	H: M6 x 1	Y	
							G	G	Flat	Flat with ribs
ZPR10 ^U _C	10	12	12	21	29.9	46	5	6	3	1.7
ZPR13 ^U _C	13	15	12	21	29.9	46				1.8
ZPR16 ^U _C	16	18	12.5	21.5	30.4	46.5			3.5	1.2

Deep

Model	ϕA	ϕB	C	D	E	F	H: M5 x 0.8	H: M6 x 1	Y
							G	G	
ZPR10D	10	12	15	24	32.9	49	5	6	6
ZPR16D	16	18	16	25	33.9	50			7

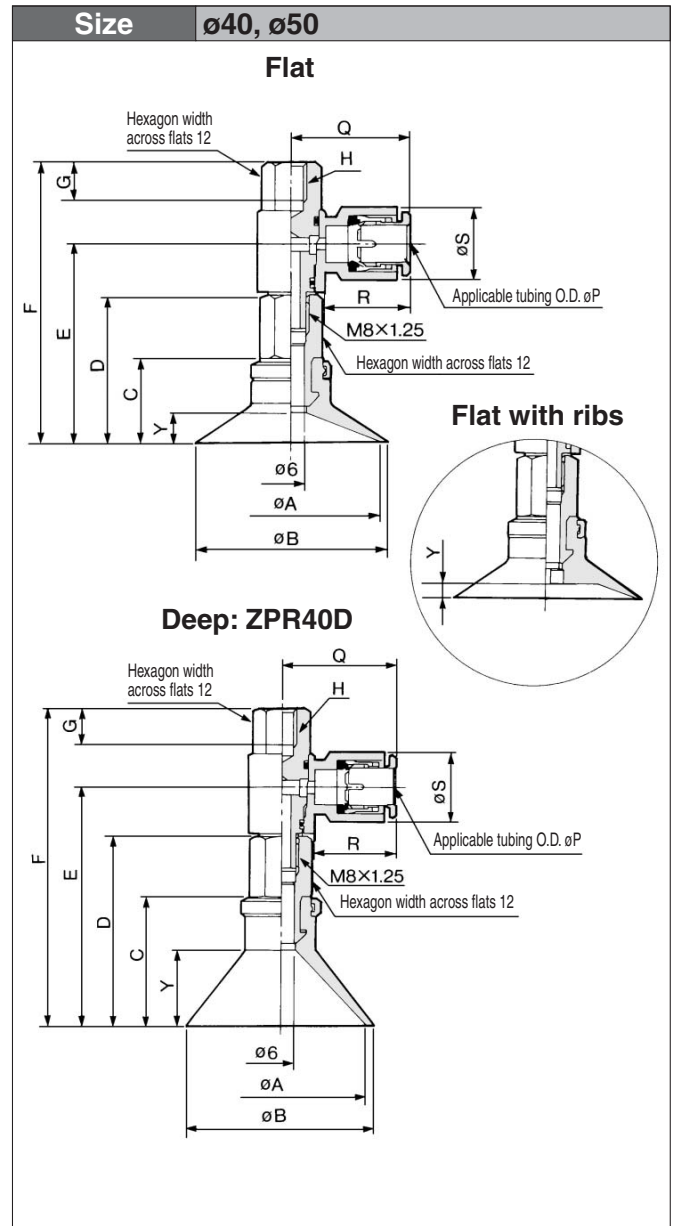
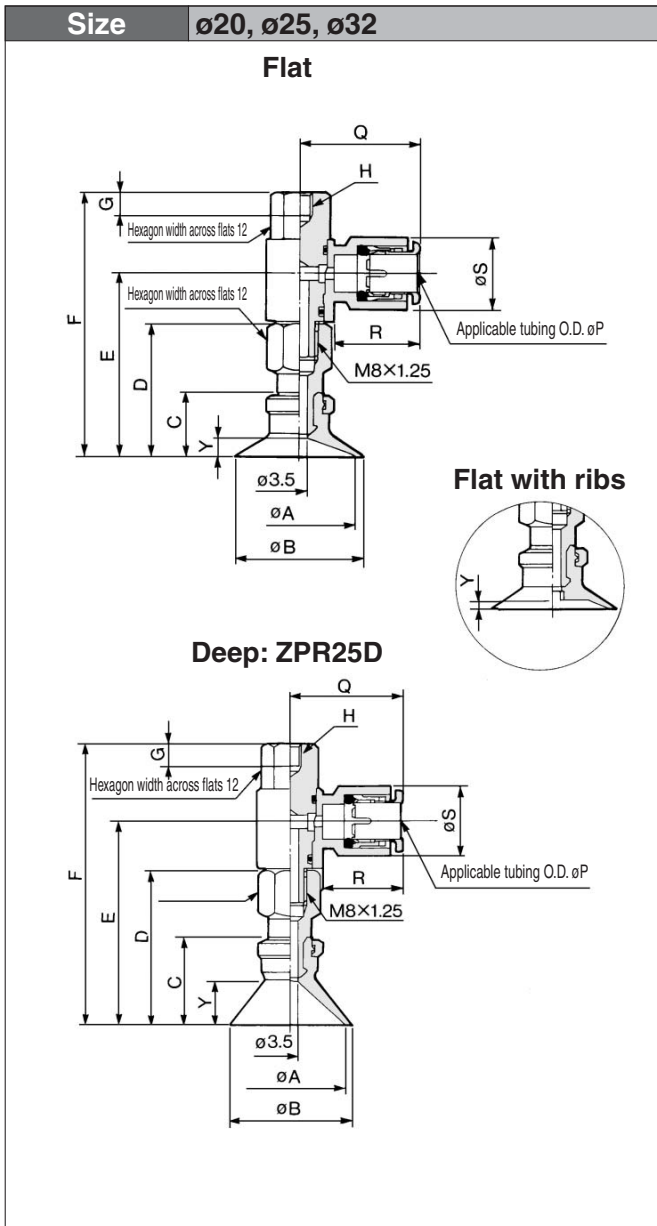
Applicable Tubing

Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Series ZPR

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Lateral	Mounting	Female thread



Flat/Flat with Ribs

Model	øA	øB	C	D	E	F	H: M5 x 0.8	H: M6 x 1	H: M8 x 1.25	Y	
							G	G	G	Flat	Flat with ribs
ZPR20 ^U _C	20	23	14	29	39.8	57.6	5	6	8	4	1.7
ZPR25 ^U _C	25	28									1.8
ZPR32 ^U _C	32	35	14.5	29.5	40.3	58.1					4.5

Deep

Model	øA	øB	C	D	E	F	H: M5 x 0.8	H: M6 x 1	H: M8 x 1.25	Y
							G	G	G	
ZPR25D	25	28	20	35	45.8	63.6	5	6	8	10

Applicable Tubing

Applicable tubing O.D.	øP	Q	R	øS
ø4	4	23.3	15.8	10.4
ø6	6	24.3	16.8	12.8
ø8	8	26.2	18.7	15.2

Flat/Flat with Ribs

Model	øA	øB	C	D	E	F	H: M6 x 1	H: M8 x 1.25	Y	
							G	G	Flat	Flat with ribs
ZPR40 ^U _C	40	43	18.5	32	42.8	60.6	6	8	6.5	3.3
ZPR50 ^U _C	50	53	19.5	33	43.8	61.6			7.5	3.8

Deep

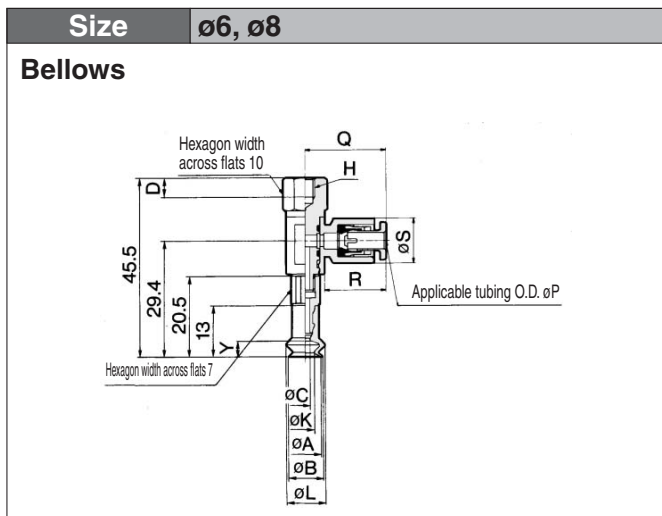
Model	øA	øB	C	D	E	F	H: M6 x 1	H: M8 x 1.25	Y
							G	G	
ZPR40D	40	43	29	42.5	53.3	71.1	6	8	17

Applicable Tubing

Applicable tubing O.D.	øP	Q	R	øS
ø6	6	24.3	16.8	12.8
ø8	8	26.2	18.7	15.2

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting without Buffer **Series ZPR**

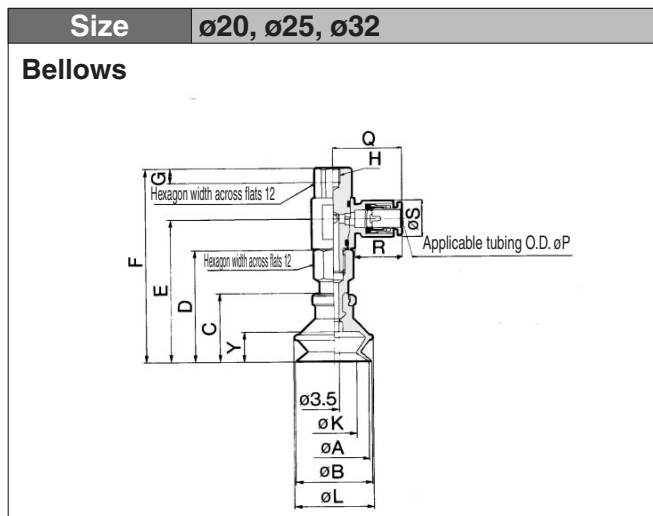
Connection	One-touch fitting	Pad Form	Bellows
Vacuum Entry Port	Lateral	Mounting	Female thread



Model	ϕA	ϕB	ϕC	H: M4 x 0.7		ϕK	ϕL	Y
				D	D			
ZPR06B	6	7	2.5	4	5	3.3	9.1	4
ZPR08B	8	9	2.5	4	5	4.7	10.1	4

Applicable Tubing

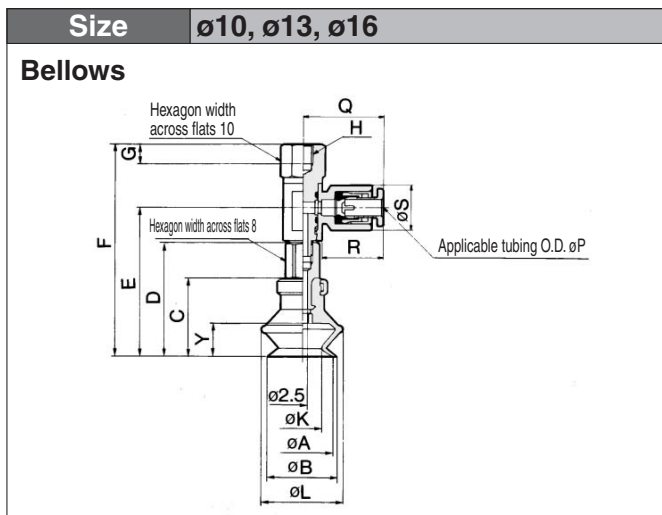
Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8



Model	ϕA	ϕB	C	D	E	F	H: M5 x 0.8			ϕK	ϕL	Y
							G	G	G			
ZPR20B	20	22	23.5	38.5	49.3	67.1	5	6	8	12.4	25	10.5
ZPR25B	25	27	24	39	49.8	67.6	5	6	8	15.6	28	10.5
ZPR32B	32	34	29	44	54.8	72.6	5	6	8	18.9	37	14

Applicable Tubing

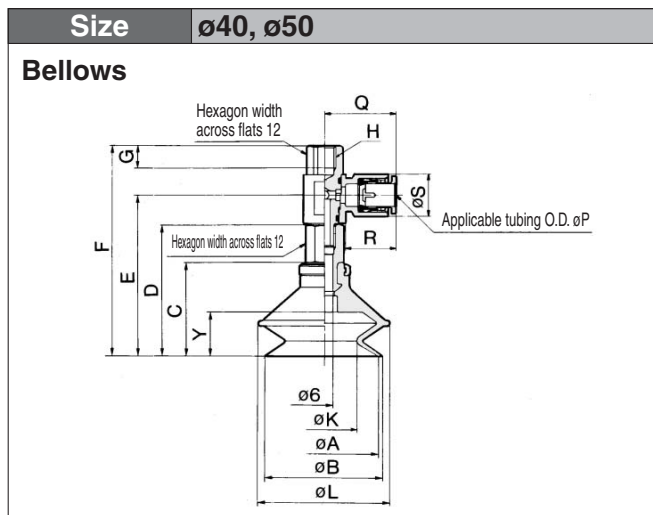
Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	23.3	15.8	10.4
$\phi 6$	6	24.3	16.8	12.8
$\phi 8$	8	26.2	18.7	15.2



Model	ϕA	ϕB	C	D	E	F	H: M5 x 0.8		ϕK	ϕL	Y
							G	G			
ZPR10B	10	12	16	25	33.9	50	5	6	5.5	13.8	5.5
ZPR13B	13	15	18.5	27.5	36.4	52.5	5	6	8.7	19	7.5
ZPR16B	16	18	20	29	37.9	54	5	6	9.9	21	8.5

Applicable Tubing

Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 4$	4	20.6	15.6	10.4
$\phi 6$	6	21.6	16.6	12.8



Model	ϕA	ϕB	C	D	E	F	H: M6 x 1		H: M8 x 1.25		ϕK	ϕL	Y
							G	G	G	G			
ZPR40B	40	43	34	47.5	58.3	76.1	6	8	24.4	48	16		
ZPR50B	50	53	38	51.5	62.3	80.1	6	8	32.4	57	19		

Applicable Tubing

Applicable tubing O.D.	ϕP	Q	R	ϕS
$\phi 6$	6	24.3	16.8	12.8
$\phi 8$	8	26.2	18.7	15.2

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.



Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting With Buffer

Series ZPR



Specifications

Vacuum entry	Direction		Lateral
	Connection		Air suction filter
Applicable tube dia.	2 x 4, 3.5 x 7, 4 x 10 Thin section series (ø10 to ø16) ø2 to ø8		ø4, ø6 tube
	ø10 to ø16		ø4, ø6 tube
	ø20 to ø32		ø4, ø6, ø8 tube
	ø40, ø50		ø6, ø8 tube
Mounting	2 x 4, 3.5 x 7, 4 x 10 Thin section series (ø10 to ø16) ø2 to ø8		M8 x 1 Male thread
	ø10 to ø16		M10 x 1 Male thread
	ø20 to ø32		M10 x 1 Male thread
	ø40, ø50		M14 x 1 Male thread
Buffer type			Rotating (J)/Non-rotating (K)
Buffer stroke			For ø2 to ø8 — 6, 10, 15, 25 mm
			For ø10 to ø32 — 10, 20, 30, 40, 50 mm
			For ø40, ø50 — 10, 20, 30, 50 mm

Pad Type

Pad form	Flat	Flat with ribs	Deep	Bellows	Thin flat/Thin flat with ribs
Pad dia. (mm)	2, 4, 6, 8, 2 x 4, 3.5 x 7, 4 x 10, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40	6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16
Material (Color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with green mark) Conductive NBR (Black with one white mark), Conductive silicon rubber (Black with two white marks)				
Durometer	NBR (50°), Silicon rubber (40°), Urethane rubber/Fluoro rubber (60°) Conductive NBR (50°), Conductive silicon rubber (50°)				

Spring Reactive Force

Dia. (mm)	0 stroke	Stroke end
ø2 to ø8	0.8 N	1.2 N
ø10 to ø32	1.0 N	3.0 N
ø40, ø50	2.0 N	5.0 N

* Refer to ø2 to ø8 for Thin flat, Thin flat with ribs and Elipse type.

Weight

(g)

Stroke (mm)	Pad form Vacuum entry port	Flat/Flat with ribs			Deep			Bellows		
		04	06	08	04	06	08	04	06	08
6	Model 2004, 3507, 4010 ZPR02 to 08 Thin section flat series (10 to 16)	38	39	—	—	—	—	38	39	—
10	ZPR10 to 16	39	40	—	39	40	—	40	41	—
10	ZPR ²⁰ ₂₅	54	55	56	55	56	57	57	58	59
	ZPR32	56	57	58	—	—	—	61	62	63
10	ZPR40	—	126	127	—	128	129	—	138	139
	ZPR50	—	132	133	—	—	—	—	145	146

Weight by Stroke

(g)

Model	Stroke (mm)						
	10	15	20	25	30	40	50
ZPR02 to 08	+7	+8	—	+9	—	—	—
ZPR10 to 25	—	—	+12	—	+14	+26	+28
ZPR40 to 50	—	—	—	—	—	—	+30



P. 13-11-65 to 13-11-68

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting with Buffer **Series ZPR**

How to Order

**Series ZPR
With buffer**

ZPR 16 U GS K 20 06 A10

Pad diameter (mm)

2004	2 x 4
3507	3.5 x 7
4010	4 x 10
02	ø2
04	ø4
06	ø6
08	ø8
10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50



(Refer to "Table (1)" for applications.)

Pad type

U	Flat
C	Flat with ribs
D	Deep
B	Bellows
UT	Thin flat
CT	Thin flat with ribs

Mounting thread



(Refer to "Table (3)" for applications.)

Vacuum entry port



(Refer to "Table (3)" for applications.)

Buffer stroke



(Refer to "Table (2)" for applications.)

Buffer type

J	Rotating
K	Non-rotating

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN *	Conductive NBR (ø2 to ø16)
GS *	Conductive silicon rubber (ø2 to ø16)

* ø20 or large are manufactured upon receipt of order.

Table (1) Pad Diameter/Pad Type

Type	Dia. (mm)														
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	10	13	16	20	25	32	40	50
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
Deep	—	—	—	—	—	—	—	—	—	●	●	●	●	●	—
Bellows	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●
Thin flat	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	●	●	●	—	—	—	—	—

Table (2) Pad Diameter/Stroke

Stroke(mm)	Dia. (mm)																	
	2 x 4	3.5 x 7	4 x 10	2	4	6	8	Thin flat/ Thin flat with ribs			10	13	16	20	25	32	40	50
								10	13	16								
6	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
20	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—
30	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●
40	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	—	—	—
50	—	—	—	—	—	—	—	—	—	—	●	●	●	●	●	●	●	●

Table (3) Vacuum Entry/Mounting Thread Diameter

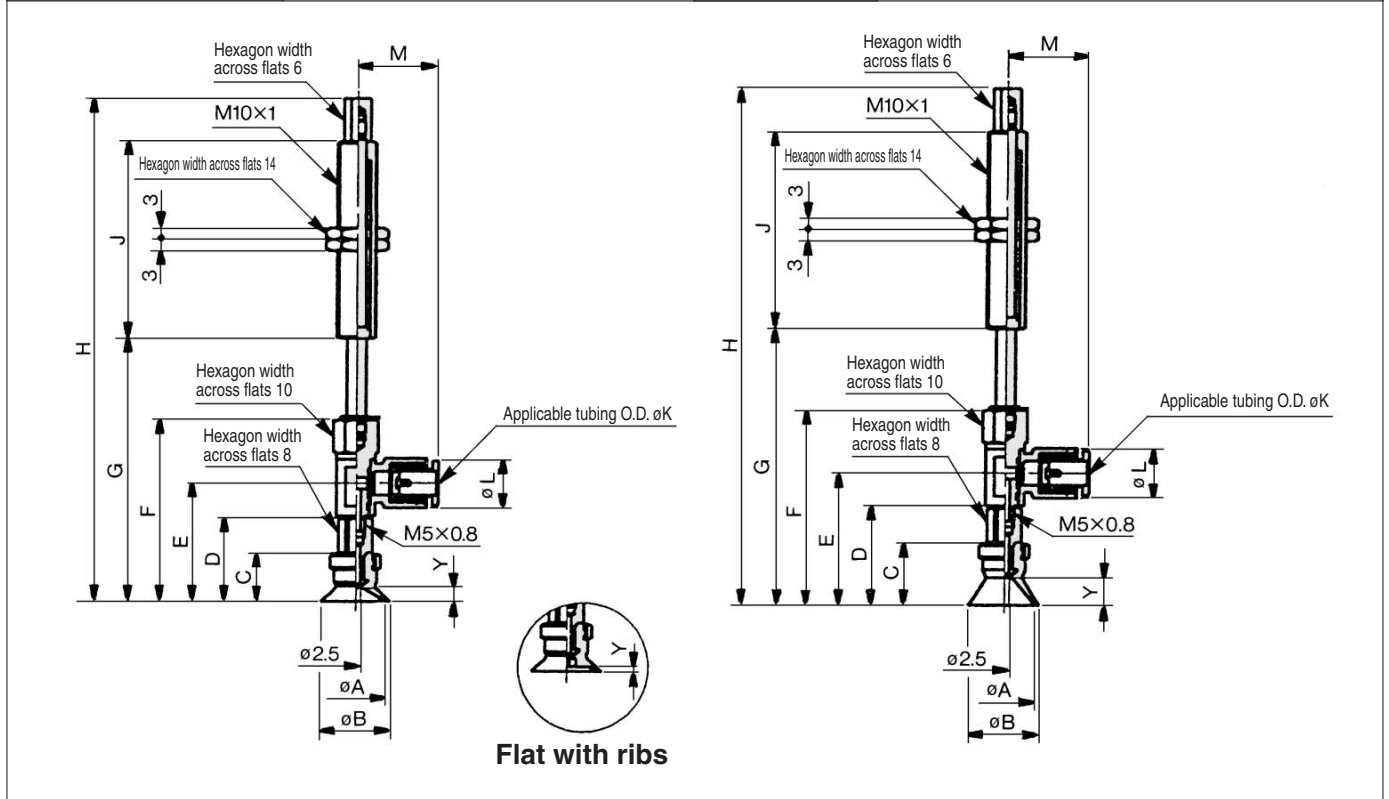
	Symbol	Thread dia./ Port size	ø2 to ø8 2 x 4, 3.5 x 7.4 x 10 ø10 to ø16 (This section series)	ø10 to ø16	ø20 to ø32	ø40, ø50
Vacuum entry One-touch fitting	04	ø4 tube	●	●	●	—
	06	ø6 tube	●	●	●	●
	08	ø8 tube	—	—	●	●
Mounting Male thread	A8	M8 x 1	●	—	—	—
	A10	M10 x 1	—	●	●	—
	A14	M14 x 1	—	—	—	●

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting with Buffer **Series ZPR**

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Lateral	Mounting	Male thread

Flat/Flat with ribs	ø10, ø13, ø16	Deep	ø10, ø16
----------------------------	---------------	-------------	----------



- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP**
- ZCU
- AMJ
- Misc.

Flat/Flat with Ribs

Model	A	B	C	D	E	F	Y	
							Flat	Flat with ribs
ZPR10□□□□□□-0□-A10	10	12	12	21	29.9	46	3	1.7
ZPR13□□□□□□-0□-A10	13	15	12	21	29.9	46	3	1.8
ZPR16□□□□□□-0□-A10	16	18	12.5	21.5	30.4	46.5	3.5	1.2

Dimensions by Stroke

Model	ø10, ø13		ø16		J
	G	H	G	H	
ZPR□□□□□□10-0□-A10	57	91	57.5	91.5	23
ZPR□□□□□□20-0□-A10	67	129	67.5	129.5	51
ZPR□□□□□□30-0□-A10	77	139	77.5	139.5	
ZPR□□□□□□40-0□-A10	87	175	87.5	175.5	77
ZPR□□□□□□50-0□-A10	97	185	97.5	185.5	

Deep

Model	A	B	C	D	E	F	Y
ZPR10D□□□□□□-0□-A10	10	12	15	24	32.9	49	6
ZPR16D□□□□□□-0□-A10	16	18	16	25	33.9	50	7

Dimensions by Stroke

Model	ø10		ø16		J
	G	H	G	H	
ZPR□□□□□□10-0□-A10	60	83	61	84	23
ZPR□□□□□□20-0□-A10	70	132	71	133	51
ZPR□□□□□□30-0□-A10	80	142	81	143	
ZPR□□□□□□40-0□-A10	90	178	91	179	77
ZPR□□□□□□50-0□-A10	100	188	101	189	

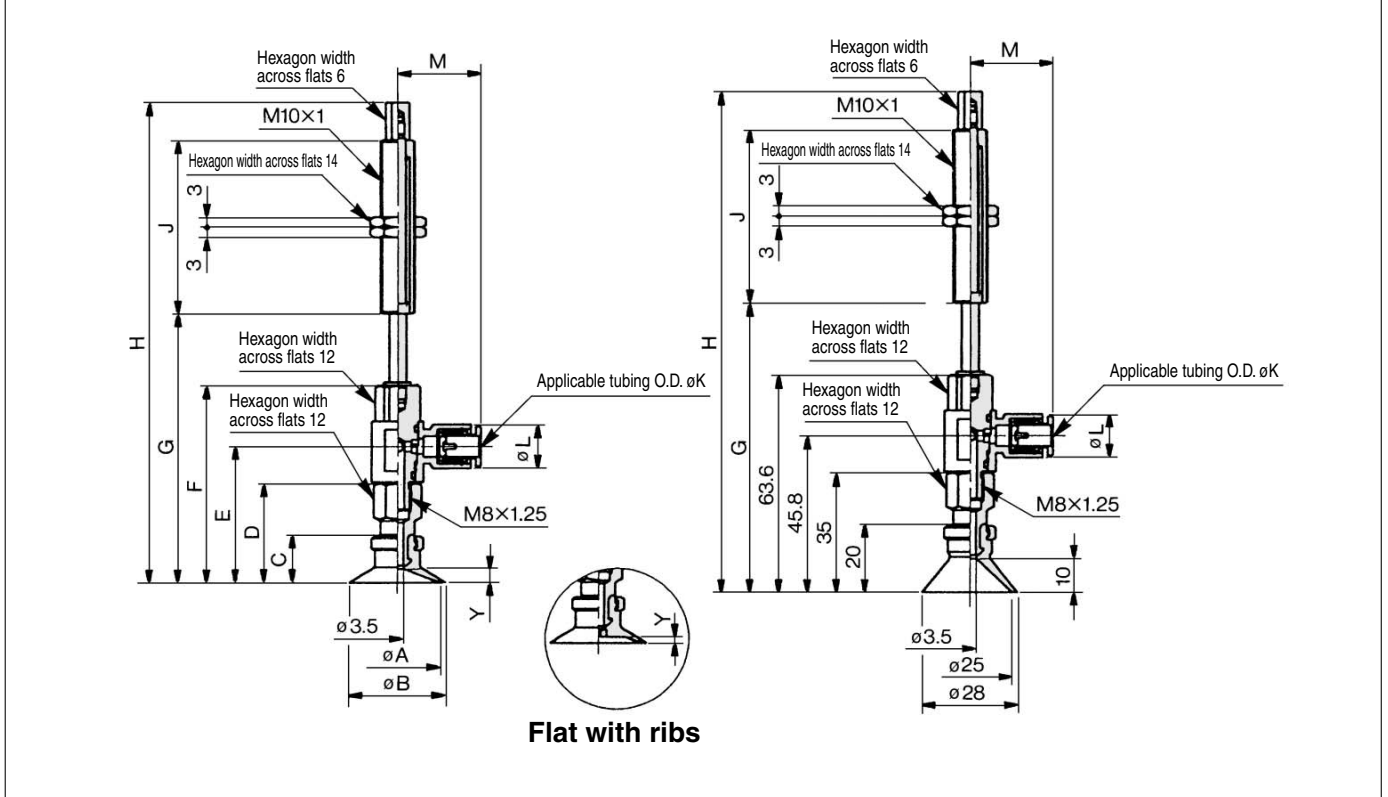
One-touch Fitting

Model	K	L	M
ZPR□□□□□□□□-04-A10	4	10.4	20.6
ZPR□□□□□□□□-06-A10	6	12.8	21.6

Series ZPR

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Lateral	Mounting	Male thread

Flat/Flat with ribs	ø20, ø25, ø32	Deep	ø25
----------------------------	----------------------	-------------	------------



Flat/Flat with Ribs

Model	A	B	C	D	E	F	Y	
							Flat	Flat with ribs
ZPR20 ^U _C □□□□-0□-A10	20	23	14	29	39.8	57.6	4	1.7
ZPR25 ^U _C □□□□-0□-A10	25	28						1.8
ZPR32 ^U _C □□□□-0□-A10	32	35	14.5	29.5	40.3	58.1	4.5	2.3

Dimensions by Stroke

Model	ø20, ø25		ø32		J
	G	H	G	H	
ZPR ^U _C □□□□10-0□-A10	68.6	102.6	69.1	103.1	23
ZPR ^U _C □□□□20-0□-A10	78.6	140.6	79.1	141.1	51
ZPR ^U _C □□□□30-0□-A10	88.6	150.6	89.1	151.1	
ZPR ^U _C □□□□40-0□-A10	98.6	186.6	99.1	187.1	77
ZPR ^U _C □□□□50-0□-A10	108.6	196.6	109.6	197.1	

Deep

Model	G	H	J
ZPR25D□□□□10-0□-A10	74.6	108.6	23
ZPR25D□□□□20-0□-A10	84.6	146.6	51
ZPR25D□□□□30-0□-A10	94.6	156.6	
ZPR25D□□□□40-0□-A10	104.6	192.6	77
ZPR25D□□□□50-0□-A10	114.6	202.6	

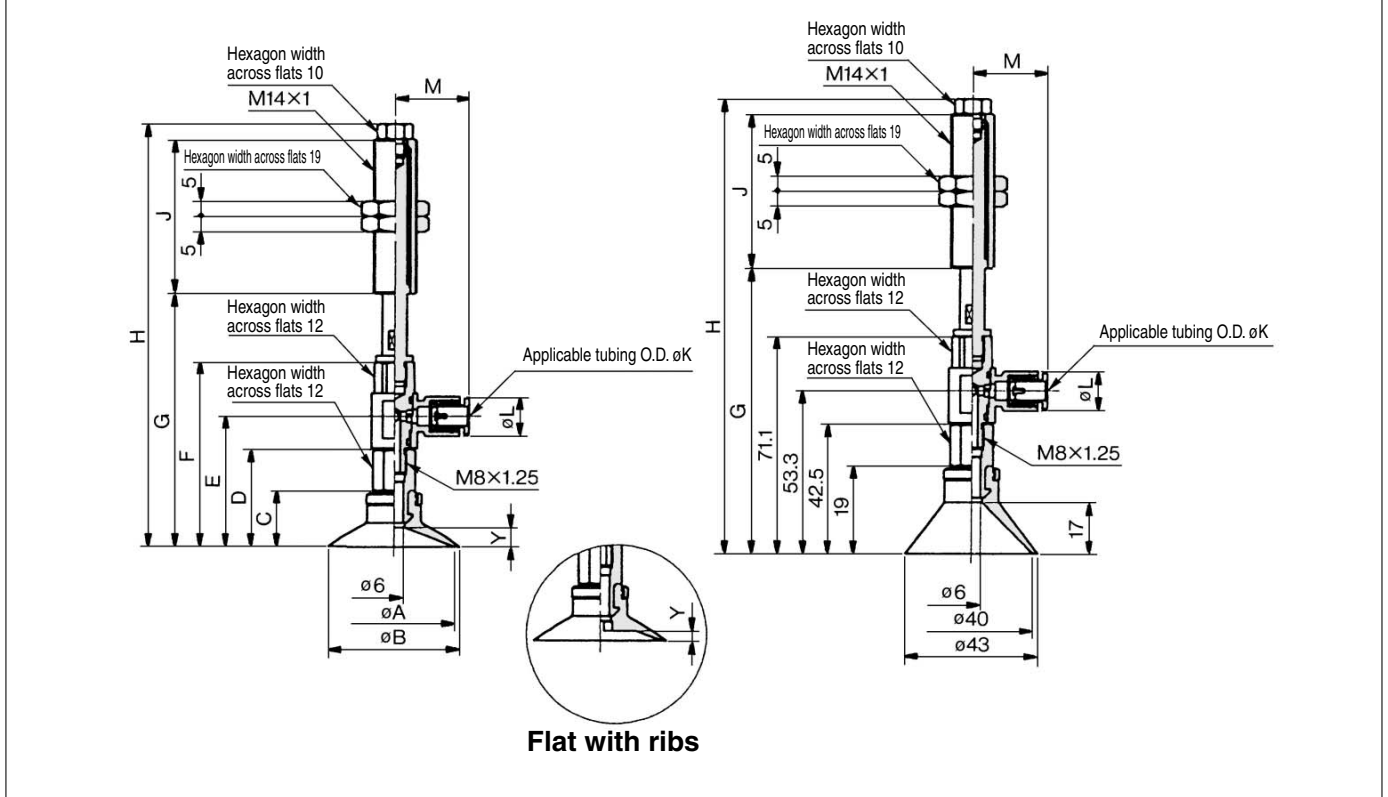
One-touch Fitting

Model	K	L	M
ZPR□□□□□□□□-04-A10	4	10.4	23.3
ZPR□□□□□□□□-06-A10	6	12.8	24.3
ZPR□□□□□□□□-08-A10	8	15.2	26.2

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting with Buffer **Series ZPR**

Connection	One-touch fitting	Pad Form	Flat/Flat with ribs/Deep
Vacuum Entry Port	Lateral	Mounting	Male thread

Flat/Flat with ribs $\phi 40, \phi 50$	Deep $\phi 40$
---	-----------------------



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Flat/Flat with Ribs

Model	A	B	C	D	E	F	Y	
							Flat	Flat with ribs
ZPR40□□□□□□□□-0□-A14	40	43	18.5	32	42.8	60.6	6.5	3.3
ZPR50□□□□□□□□-0□-A14	50	53	19.5	33	43.8	61.6	7.5	3.8

Dimensions by Stroke

Model	$\phi 40$		$\phi 50$		J
	G	H	G	H	
ZPR□□□□□□□□□□□□□□-10-0□-A14	72.6	140.6	73.6	141.6	50
ZPR□□□□□□□□□□□□□□-20-0□-A14	82.6	137.6	83.6	138.6	
ZPR□□□□□□□□□□□□□□-30-0□-A14	92.6	147.6	93.6	148.6	
ZPR□□□□□□□□□□□□□□-50-0□-A14	112.6	192.6	113.6	193.6	

Deep

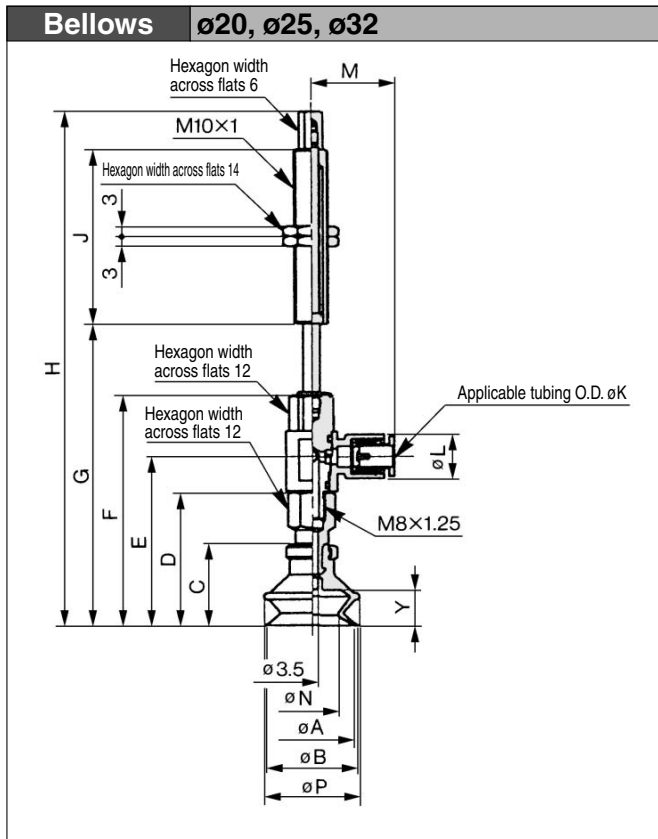
Model	G	H	J
ZPR40D□□□□□□□□□□□□□□-10-0□-A14	83.1	151.1	50
ZPR40D□□□□□□□□□□□□□□-20-0□-A14	93.1	148.1	
ZPR40D□□□□□□□□□□□□□□-30-0□-A14	103.1	158.1	
ZPR40D□□□□□□□□□□□□□□-50-0□-A14	123.1	203.1	

One-touch Fitting

Model	K	L	M
ZPR□□□□□□□□□□□□□□-06-A14	6	12.8	24.3
ZPR□□□□□□□□□□□□□□-08-A14	8	15.2	26.2

Vacuum Pad: Lateral Vacuum Entry with One-touch Fitting with Buffer Series ZPR

Connection	One-touch fitting	Pad Form	Bellows
Vacuum Entry Port	Lateral	Mounting	Male thread

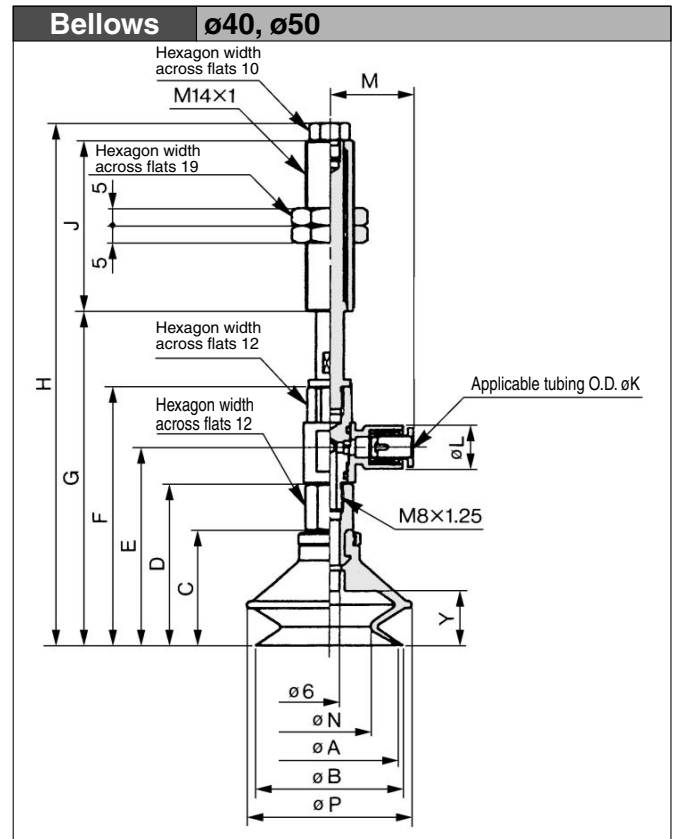


Bellows

Model	A	B	C	D	E	F	N	P	Y
ZPR20B□□□□□-0□-A10	20	22	23.5	38.5	49.3	67.1	12.4	25	10.5
ZPR25B□□□□□-0□-A10	25	27	24	39	49.8	67.6	15.6	28	
ZPR32B□□□□□-0□-A10	32	34	29	44	54.8	72.6	18.9	37	14

Dimensions by Stroke

Model	ø20		ø25		ø32		J	K: ø4		K: ø6		K: ø8	
	G	H	G	H	G	H		L	M	L	M	L	M
	ZPR□□B□□□□10-0□-A10	78.1	112.1	78.6	112.6	83.6		117.6	23				
ZPR□□B□□□□20-0□-A10	88.1	150.1	88.6	150.6	93.6	155.6	51						
ZPR□□B□□□□30-0□-A10	98.1	160.1	98.6	160.6	103.6	165.6	77	10.4	23.3	12.8	24.3	15.2	26.2
ZPR□□B□□□□40-0□-A10	108.1	196.1	108.6	196.6	113.6	201.6							
ZPR□□B□□□□50-0□-A10	118.1	206.1	118.6	206.6	123.6	211.6							



Bellows

Model	A	B	C	D	E	F	N	P	Y
ZPR40B□□□□□-0□-A14	40	43	34	47.5	58.3	76.1	24.4	48	16
ZPR50B□□□□□-0□-A14	50	53	38	51.5	62.3	80.1	32.4	57	19

Dimensions by Stroke

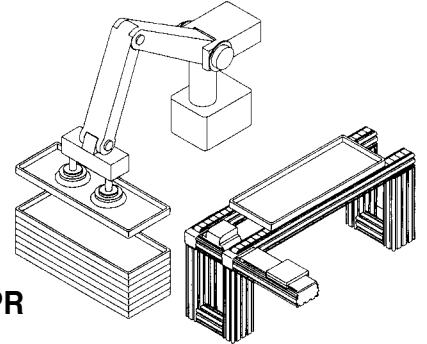
Model	ø40		ø50		J	K: ø6		K: ø8	
	G	H	G	H		L	M	L	M
	ZPR□□B□□□□10-0□-A14	88.1	156.1	92.1		160.1	50		
ZPR□□B□□□□20-0□-A14	98.1	153.1	102.1	157.1	50	12.8	24.3	15.2	26.2
ZPR□□B□□□□30-0□-A14	108.1	163.1	112.1	167.1	75				
ZPR□□B□□□□50-0□-A14	128.1	208.1	132.1	212.1	75				

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP**
- ZCU
- AMJ
- Misc.

Vacuum Pad: Large/Heavy Duty Type



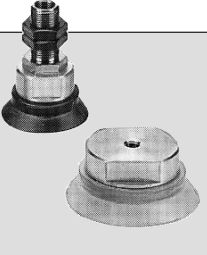
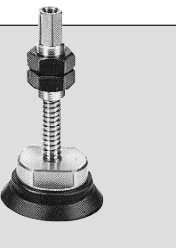
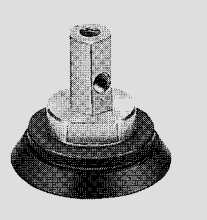

Series ZPT/ZPX

Ideal for heavy weight material or objects with a large surface area. Example: CRT, Car body



Pad diameter: $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$, $\phi 125$

Pad material: NBR, Silicon rubber, Urethane rubber, Fluoro rubber, EPR

Type	Without buffer		With buffer		Page
	Mounting	Vacuum entry port	Mounting	Vacuum entry port	
 Series ZPT Vertical vacuum entry	Male thread	Female thread	 Series ZPX Lateral vacuum entry	Female thread	13-11-72 to 13-11-76
	Female thread	Common		Female thread	
					
					13-11-77 to 13-11-80

Series ZPT ZPX	Pad dia.	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$
	Buffer stroke	25	○	○	○	○	○
	50	○	○	○	○	○	○
	75	○	○	○	○	○	○
	100	—	—	—	—	○	○

Pad Material and Characteristics

◎ : Little or no influence ○ : Can be used depending on conditions X : Not suitable

Characteristics	Durometer HS ($\pm 5^{\circ}\text{C}$)	Operating temperature range ($^{\circ}\text{C}$)	Oil resistance gasoline	Oil resistance benzol	Base resistance	Acid resistance	Weatherability	Ozone resistance	Abrasion resistance	Waterproof	Solvent resistance (Benzene, toluene)
NBR	50°	0 to 120	◎	X	○	○	X	X	◎	○	X
Silicon rubber	50°	-30 to 200	X	X	○	X	◎	◎	X	○	X
Urethane rubber	60°	0 to 60	◎	X	X	X	○	◎	◎	X	X
Fluoro rubber	60°	0 to 250	◎	◎	X	○	◎	◎	○	◎	◎
EPR	50°	-20 to 150	X	X	◎	○	◎	◎	○	◎	X

The above table covers only general characteristics of subject rubber materials.

Pad materials used by SMC pass the nominal JIS material standards; however, actual performance depends on operating conditions.

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Series ZPT/ZPX Model Selection

A vacuum pad diameter (ϕD) can be determined by calculation if the lifting force needed to perform the work function is known. The weight of the workpiece and any potential dynamic forces involved during movement (lifting, stopping, rotating, etc.) need to be considered. The area of one pad can be divided to an equivalent area of multiple pads (n) as necessary, based on these forces and the shape of the load.

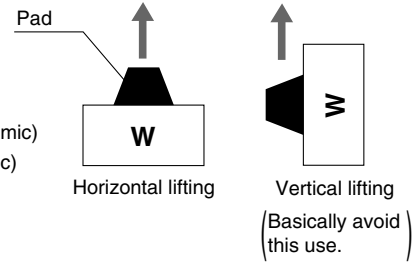
Calculation Method: Pad Diameter

A vacuum pad diameter with applied safety factor based on lifting orientation of workpiece (vertical or horizontal) can be derived from calculations or by using the Selection Graph shown below.

Calculation

$$\phi D = \sqrt{\frac{4}{3.14} \times \frac{1}{P} \times \frac{W}{n} \times t \times 1000}$$

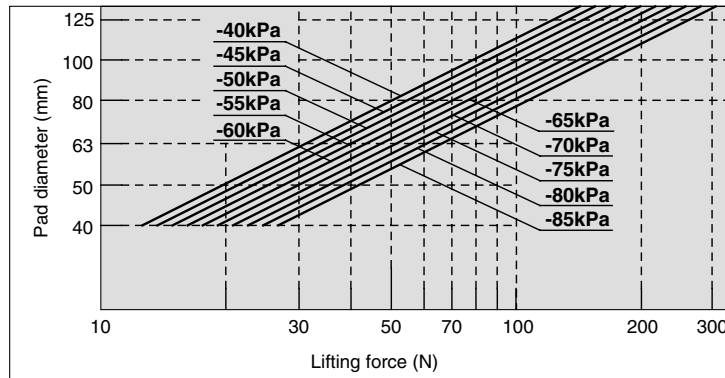
- ϕD : Pad diameter (mm)
- n : Number of pads used
- W : Lifting force (N)
- P : Stable vacuum pressure (kPa)
- t : Safety factor: Horizontal pad contact: 4 (dynamic)
Vertical pad contact: 8 (dynamic)



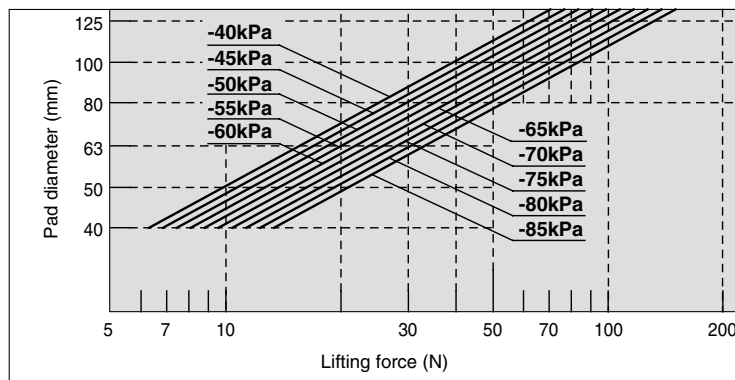
Selection Graph

The pad diameter required for horizontal (selection graphs (1) and (2)) or vertical contact can be found by setting the weight of the work the number of pads to contact the workpiece and the stable adsorption vacuum pressure.

Selection Graph (1) Selection Graph of Pad Diameter by Lift Force Horizontal (Reference value)



Selection Graph (2) Selection Graph of Pad Diameter by Lift Force Vertical (Reference value)



How to read

Example: Work load 20 kg (Lifting force: 196 N)
Conditions: Desired number of pads 5 pcs.
Working vacuum pressure -60 kPa
Horizontal lifting

<Selection procedure>

From left condition Lifting force per pad: $196 \text{ N} \div 5 \text{ pcs.} = 39.2 \text{ N}$
From Selection Graph (1) as horizontal lifting Lifting force 39.2 N
Extend to the y-axis from the corresponding point of vacuum pressure -60 kPa; result is to select a pad diameter bigger than 63 mm.

Series ZPT/ZPX

Application Data

Theoretical Lifting Force

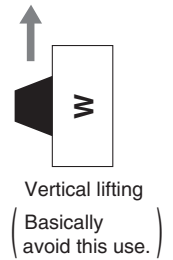
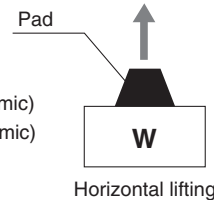
Theoretical lifting force for pad can be derived from calculations or taken directly from theoretical lifting force table.

Calculation

$$W = P \times S \times 0.1 \times \frac{1}{t}$$

W : Lifting force (N)
P : Stable vacuum pressure (kPa)
S : Pad area (cm²)
t : Factor of safety:

Horizontal pad contact : 4 (dynamic)
 Vertical pad contact : 8 (dynamic)



Theoretical Lifting Force

The theoretical lifting force (not including the safety factor) is found from the pad diameter and vacuum pressure. The required lifting force is then found by dividing the theoretical lifting force by the safety factor.

$$\text{Lifting force} = \text{Theoretical lifting force} \div t$$

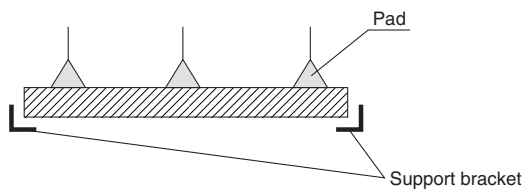
Theoretical Lifting Force (Theoretical lifting force = P x S x 0.1)

(N)

Pad diameter (mm)	ø40	ø50	ø63	ø80	ø100	ø125	
Adsorption area (cm ²)	12.6	19.6	31.2	50.3	78.5	122.7	
Vacuum pressure (kPa)	-85	107	167	264.9	427	667.3	1042.6
	-80	101	157	249.3	401.9	628	981.3
	-75	94.5	147	233.7	376.8	588.8	920
	-70	88.2	137	218.1	351.7	549.5	858.6
	-65	81.9	127	202.5	326.6	510.3	797.3
	-60	75.6	118	187	301.4	471	736
	-55	69.3	108	171.4	276.3	431.8	674.6
	-50	63.0	98.0	155.8	251.2	392.5	613.3
	-45	56.7	88.2	140.2	226.1	353.3	552
-40	50.4	78.4	124.6	201	314	490.7	

⚠ Precautions

1. The quantity and placement of pads should be considered when transferred work has a large surface area.

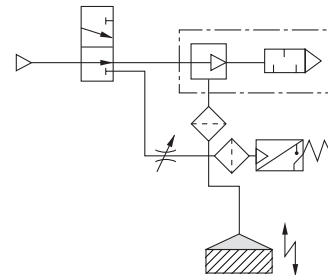


Install support brackets to prevent a workpiece from dropping according to your requirements.

2. Vacuum response time and vacuum breaking time are influenced by internal volume of large bellows size pad, which has more volume than the large flat ribbed type pad.

When response time is important, consider the following measures:

- Use a larger capacity ejector.
- Set a vacuum breaking valve.



Vacuum Pad: Large/Heavy Duty Type Vertical Vacuum Entry Without Buffer

Series ZPT



Specifications

Mounting	Vacuum entry direction	Vertical		
	Connection	Male thread	Female thread	
	Thread dia.	ø40, ø50	M14 x 1	M8 x 1.25, M10 x 1.5
		ø63, ø80	M16 x 1.5	M8 x 1.25, M10 x 1.5, M12 x 1.75, M16 x 1.5
	ø100, ø125	M16 x 1.5	M12 x 1.75, M16 x 1.5	
	Vacuum entry port	Rc 1/8	Use the mounting port	

Pad Type

Pad diameter (mm)	ø40, ø50, ø63, ø80, ø100, ø125
Material (color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with mark F), EPR (Black with mark E)
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

Weight

(g)

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	0	5	-1
ø50	-1	0	8	0
ø63	-2	0	16	0
ø80	-3	1	27	-1
ø100	-5	1	53	-1
ø125	-8	3	84	0

Weight (NBR)

Model	Weight (g)	Model	Weight (g)
ZPT40HN-A14	71	ZPT80HN-A16	178
ZPT40HN-B8	38	ZPT80HN-B8	144
ZPT40HN-B10	37	ZPT80HN-B10	143
ZPT50HN-A14	83	ZPT80HN-B12	141
ZPT50HN-B8	50	ZPT80HN-B16	139
ZPT50HN-B10	49	ZPT100HN-A16	350
ZPT63HN-A16	149	ZPT100HN-B12	301
ZPT63HN-B8	115	ZPT100HN-B16	299
ZPT63HN-B10	114	ZPT125HN-A16	414
ZPT63HN-B12	112	ZPT125HN-B12	365
ZPT63HN-B16	110	ZPT125HN-B16	363

Add or deduct the weight shown in the table on the left for other materials.

How to Order

ZPT 40 H N A14

Pad diameter (mm)

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

Vacuum entry/Mounting thread diameter

(Vacuum entry port)		ø40, ø50	ø63, ø80	ø100, ø125
A14	M14 x 1	●	—	—
A16	M16 x 1.5	—	●	●
B8	M8 x 1.25	●	●	—
B10	M10 x 1.5	●	●	—
B12	M12 x 1.75	—	●	●
B16	M16 x 1.5	—	●	●

Pad type

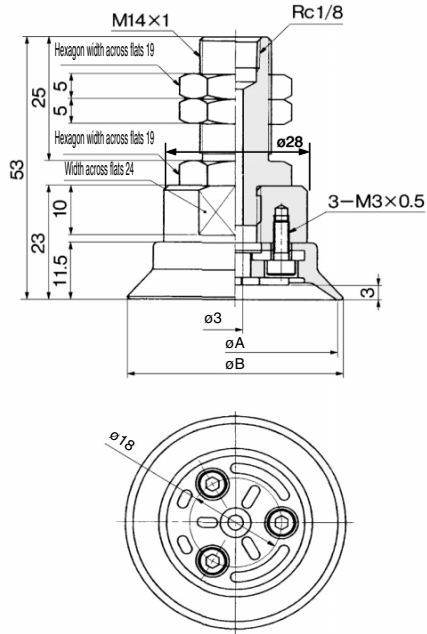
H	Heavy duty
---	------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
E	EPR

Vacuum Pad: Large/Heavy Duty Type Vertical Vacuum Entry without Buffer **Series ZPT**

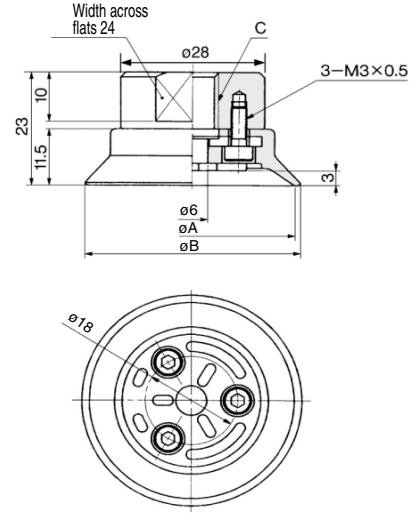
ZPT₅₀⁴⁰ H□-A14 (Male thread)



(mm)

Model	øA	øB
ZPT40H□-A14	40	42
ZPT50H□-A14	50	52

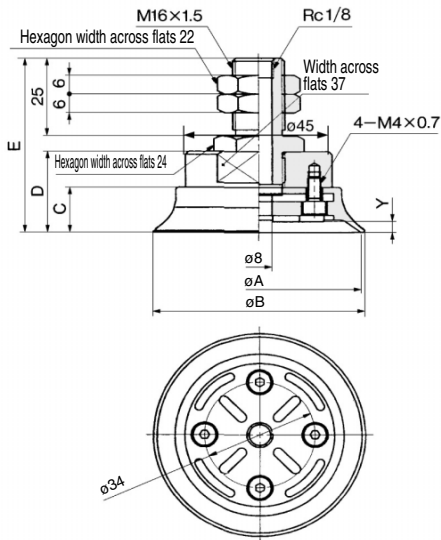
ZPT₅₀⁴⁰ H□-B□ (Female thread)



(mm)

Model	øA	øB	C
ZPT40H□-B8	40	42	M8 x 1.25
ZPT40H□-B10	40	42	M10 x 1.5
ZPT50H□-B8	50	52	M8 x 1.25
ZPT50H□-B10	50	52	M10 x 1.5

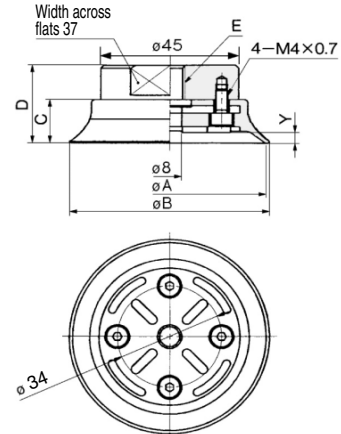
ZPT₈₀⁶³ 6380H□-A16 (Male thread)



(mm)

Model	øA	øB	C	D	E	Y
ZPT63H□-A16	63	65	14.5	26	56	3.5
ZPT80H□-A16	80	82	16.5	28	58	4.5

ZPT₈₀⁶³ H□-B□ (Female thread)



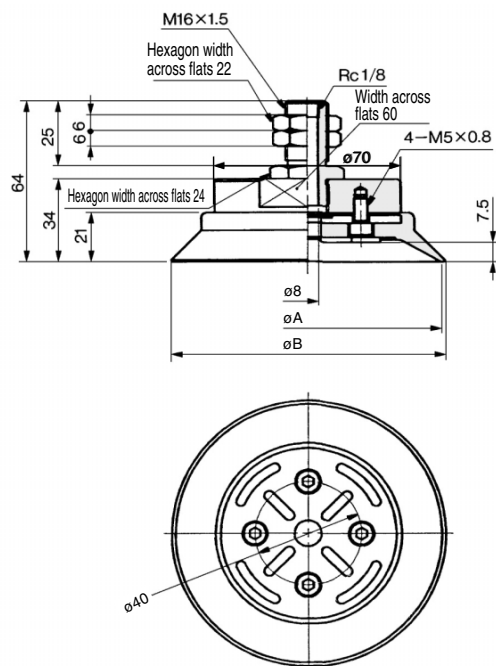
(mm)

Model	øA	øB	C	D	E	Y
ZPT63H□-B8	63	65	14.5	26	M8 x 1.25	3.5
ZPT63H□-B10	63	65	14.5	26	M10 x 1.5	3.5
ZPT63H□-B12	63	65	14.5	26	M12 x 1.75	3.5
ZPT63H□-B16	63	65	14.5	26	M16 x 1.5	3.5
ZPT80H□-B8	80	82	16.5	28	M8 x 1.25	4.5
ZPT80H□-B10	80	82	16.5	28	M10 x 1.5	4.5
ZPT80H□-B12	80	82	16.5	28	M12 x 1.75	4.5
ZPT80H□-B16	80	82	16.5	28	M16 x 1.5	4.5

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Series ZPT

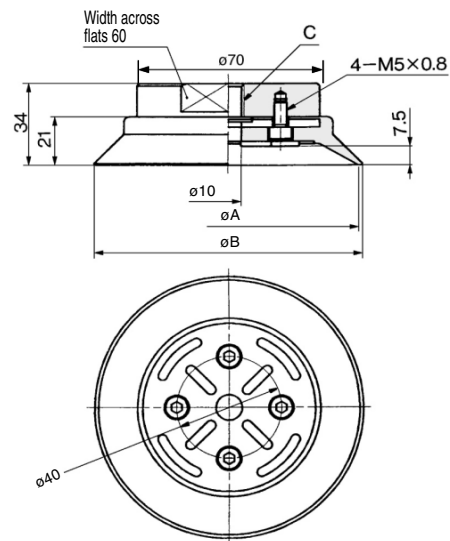
ZPT¹⁰⁰/₁₂₅ H□-A16 (Male thread)



(mm)

Model	øA	øB
ZPT100H□-A16	100	103
ZPT125H□-A16	125	128

ZPT¹⁰⁰/₁₂₅ H□-B□ (Female thread)



(mm)

Model	øA	øB	C
ZPT100H□-B12	100	103	M12 x 1.75
ZPT100H□-B16	100	103	M16 x 1.5
ZPT125H□-B12	125	128	M12 x 1.75
ZPT125H□-B16	125	128	M16 x 1.5

Vacuum Pad: Large/Heavy Duty Type Vertical Vacuum Entry With Buffer

Series ZPT



Specifications

Mounting	Vacuum entry direction	Vertical	
	Connection	Male thread	
	Thread dia.	ø40, ø50	M18 x 1.5
		ø63, ø80	M18 x 1.5
ø100, ø125		M22 x 1.5	
Vacuum entry port		Rc 1/8	

Buffer type		Rotating (J)
Buffer stroke	ø40 to ø80	25 mm, 50 mm, 75 mm
	ø100, ø125	25 mm, 50 mm, 75 mm, 100 mm

Pad Type

Pad diameter (mm)	ø40, ø50, ø63, ø80, ø100, ø125
Material (Color)	NBR (Black), Silicon rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with mark F), EPR (Black with mark E)
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

Weight

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	0	5	-1
ø50	-1	0	8	0
ø63	-2	0	16	0
ø80	-3	1	27	-1
ø100	-5	1	53	-1
ø125	-8	3	84	0

Weight (NBR)

Model	Weight (g)	Model	Weight (g)
ZPT40HNJ25-B01-A18	125	ZPT80HNJ50-B01-A18	251
ZPT40HNJ50-B01-A18	145	ZPT80HNJ75-B01-A18	272
ZPT40HNJ75-B01-A18	166	ZPT100HNJ25-B01-A22	489
ZPT50HNJ25-B01-A18	137	ZPT100HNJ50-B01-A22	529
ZPT50HNJ50-B01-A18	157	ZPT100HNJ75-B01-A22	574
ZPT50HNJ75-B01-A18	195	ZPT100HNJ100-B01-A22	613
ZPT63HNJ25-B01-A18	202	ZPT125HNJ25-B01-A22	553
ZPT63HNJ50-B01-A18	222	ZPT125HNJ50-B01-A22	593
ZPT63HNJ75-B01-A18	243	ZPT125HNJ75-B01-A22	638
ZPT80HNJ25-B01-A18	214	ZPT125HNJ100-B01-A22	677

Add or deduct the weight shown in the table on the left for order materials.

How to Order

ZPT 40 H N J 25 — B01 — A18

Pad diameter (mm)

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

Mounting thread

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

Vacuum entry

B01	Rc 1/8
-----	--------

Pad type

H	Heavy duty
---	------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
E	EPR

Buffer stroke (Rotating)

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

Spring Force

Pad diameter	ø40 to ø80	ø100, ø125
First mounting load	6.9 N	10 N
Second mounting load	11.8 N	15 N

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

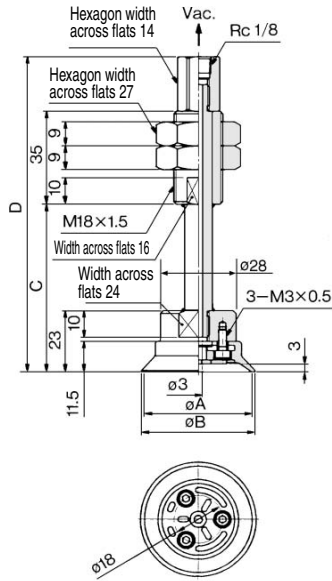
ZCU

AMJ

Misc.

Series ZPT

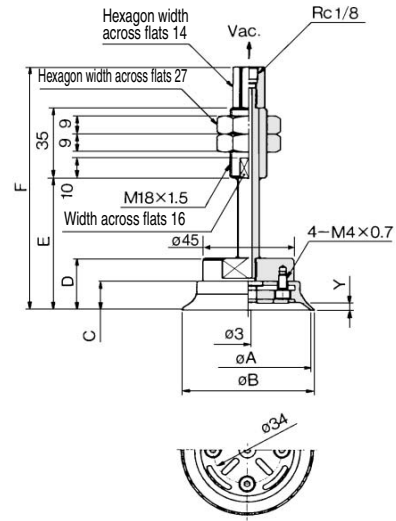
ZPT ⁴⁰/₅₀ H□J□-B01-A18 (With buffer)



(mm)

Model	øA	øB	C	D
ZPT40H□J25-B01-A18	40	42	63	118.5
ZPT40H□J50-B01-A18	40	42	98	153.5
ZPT40H□J75-B01-A18	40	42	134	189.5
ZPT50H□J25-B01-A18	50	52	63	118.5
ZPT50H□J50-B01-A18	50	52	98	153.5
ZPT50H□J75-B01-A18	50	52	134	189.5

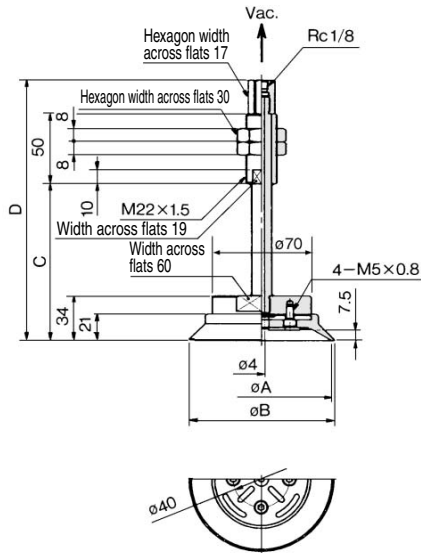
ZPT ⁶³/₈₀ H□J□-B01-A18 (With buffer)



(mm)

Model	øA	øB	C	D	E	F	Y
ZPT63H□J25-B01-A18	63	65	14.5	26	66	121.5	3.5
ZPT63H□J50-B01-A18	63	65	14.5	26	101	156.5	3.5
ZPT63H□J75-B01-A18	63	65	14.5	26	137	192.5	3.5
ZPT80H□J25-B01-A18	80	83	16.5	28	68	123.5	4.5
ZPT80H□J50-B01-A18	80	83	16.5	28	103	158.5	4.5
ZPT80H□J75-B01-A18	80	83	16.5	28	139	194.5	4.5

ZPT ¹⁰⁰/₁₂₅ H□J□-B01-A22 (With buffer)



(mm)

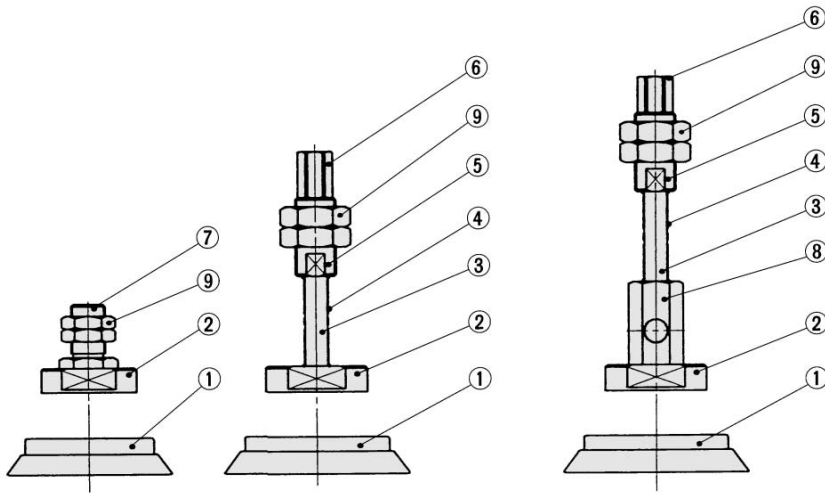
Model	øA	øB	C	D
ZPT100H□J25-B01-A22	100	103	78	152
ZPT100H□J50-B01-A22	100	103	114	188
ZPT100H□J75-B01-A22	100	103	154	228
ZPT100H□J100-B01-A22	100	103	189	263
ZPT125H□J25-B01-A22	125	128	78	152
ZPT125H□J50-B01-A22	125	128	114	188
ZPT125H□J75-B01-A22	125	128	154	228
ZPT125H□J100-B01-A22	125	128	189	263

Vacuum Pads for Heavy Duty Material Handling **Series ZPT/ZPX**

Construction

Series ZPT

Series ZPX



Component Parts

No.	Description	Material	Surface treatment
①	Pad	NBR, Silicone rubber, Urethane rubber, Fluoro rubber, EPR	—
②	Adapter plate	Aluminum	—
③	Piston rod	Carbon steel	Hard chrome plated
④	Spring	Stainless steel	—
⑤	Buffer body	Aluminum	—
⑥	Buffer adaptor	Brass	Electroless nickel plated
⑦	Adaptor A	Brass	Electroless nickel plated
⑧	X type adaptor	Brass	Electroless nickel plated
⑨	Mounting nut	Rolled steel	Black zinc chromated

Replacement Parts/Pad Unit

How to Order Pad Unit

ZP 40 H N

Pad dia. (mm) Material

Pad dia. (mm)	Material
40	NBR
50	Silicon rubber
63	Urethane rubber
80	Fluoro rubber
100	EPR
125	

Pad type

Pad type	Material
H	Heavy duty

Pad Unit Weight

(NBR)

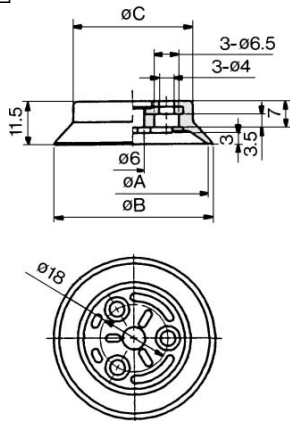
Model	Weight (g)
ZP40HN	15
ZP50HN	27
ZP63HN	57
ZP80HN	86
ZP100HN	160
ZP125HN	224

Add NBR weight to the table on the right for other materials.

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	0	5	-1
ø50	-1	0	8	0
ø63	-2	0	16	0
ø80	-3	1	27	-1
ø100	-5	1	53	-1
ø125	-8	3	84	0

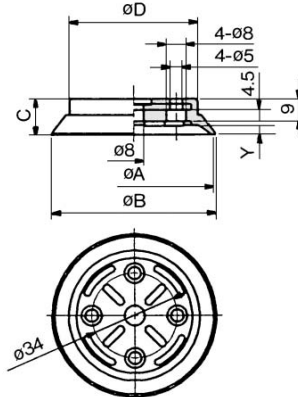
Dimensions

ZP₅₀⁴⁰H□



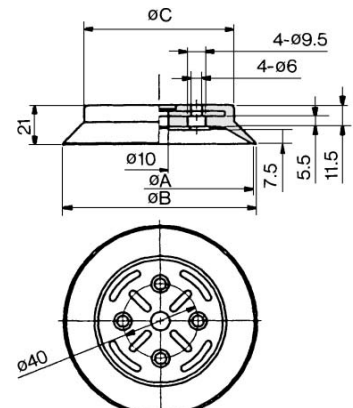
Model	øA	øB	øC
ZP40H□	40	42	32
ZP50H□	50	52	42

ZP₈₀⁶³H□



Model	øA	øB	C	D	Y
ZP63H□	63	65	14.5	50	3.5
ZP80H□	80	82	16.5	61	4.5

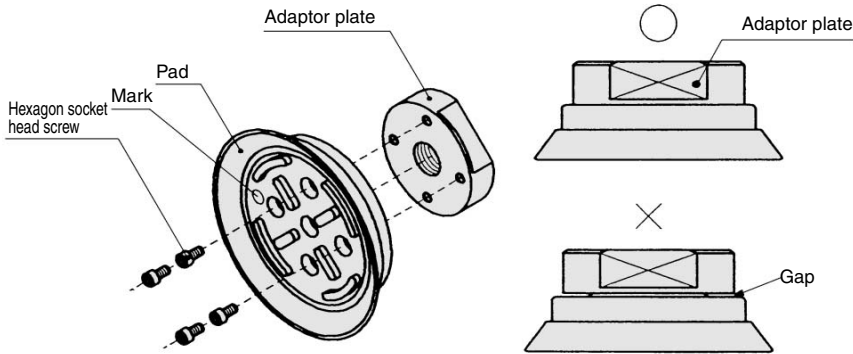
ZP₁₂₅¹⁰⁰H□



Model	øA	øB	øC
ZP100H□	100	103	80
ZP125H□	125	128	104

Series ZPT/ZPX

How to Assemble/Disassemble



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

How to Distinguish Different Pad Materials

Checking the mark on the pad's interior surface as shown in the figure on the left.

Material	Color	Mark
NBR	Black	—
Silicon rubber	White	—
Urethane rubber	Brown	—
Fluoro rubber	Black	ⓕ
EPR	Black	ⓔ

Replacement Parts/Mounting Nut

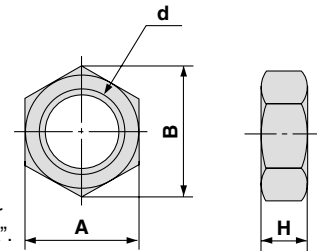
How to Order

ZPNA—M16

Mounting thread

M16	M16 x 1.5
M18	M18 x 1.5
M22	M22 x 1.5

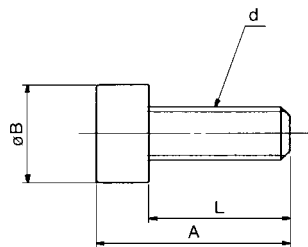
Mounting nut part number for "M14 x 1" is "SN-015A".



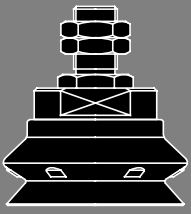
Model	A	B	d	H
SN-015A	19	21.9	M14 x 1	5
ZPNA-M16	22	25.4	M16 x 1.5	6
ZPNA-M18	27	31.2	M18 x 1.5	9
ZPNA-M22	30	34.6	M22 x 1.5	8

Bolts

Dimensions



A	øB	d	L
11	5.5	M3 x 0.5	8
12	7	M4 x 0.7	8
15	8.5	M5 x 0.8	10

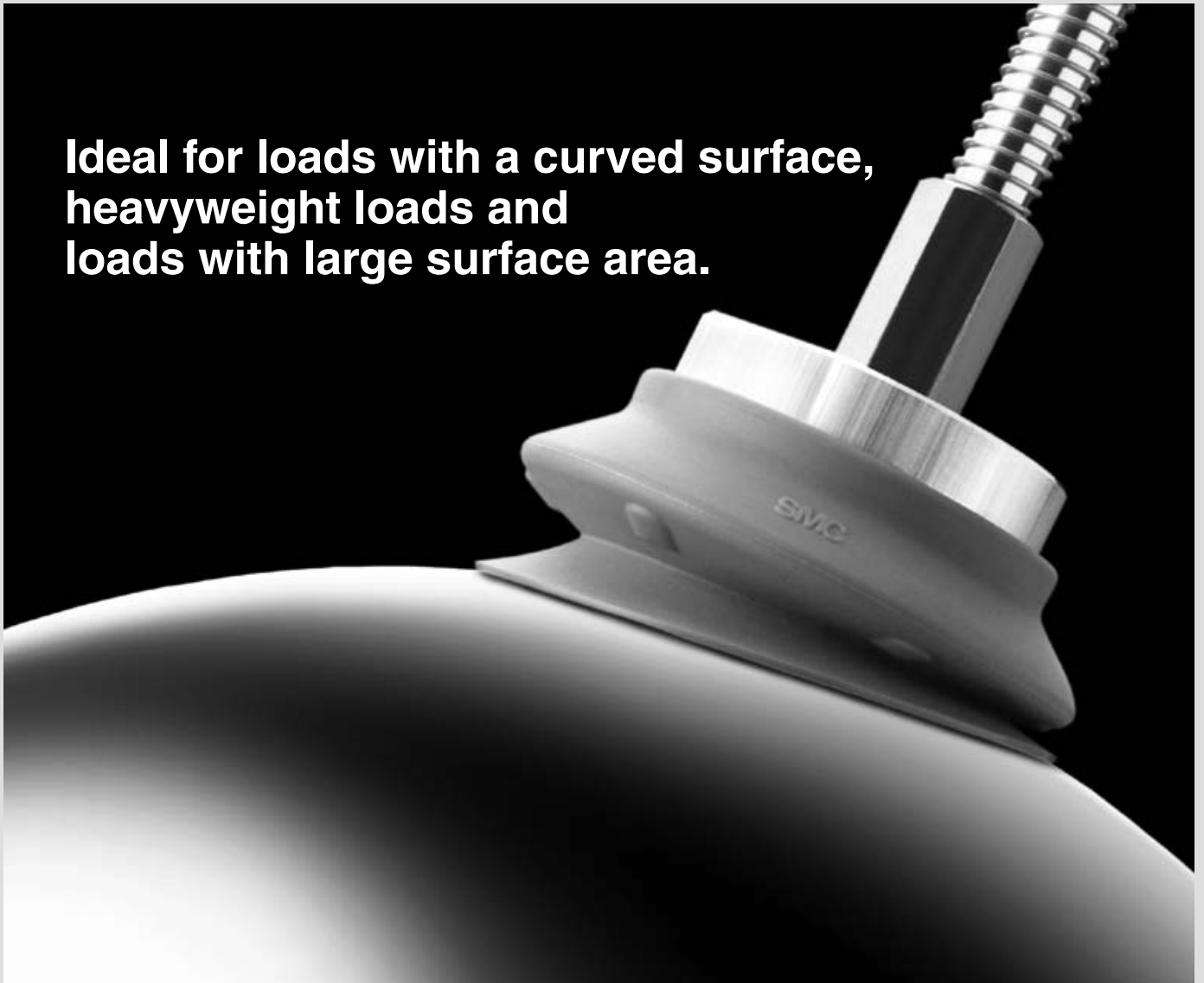


Vacuum Pad: Large Size Bellows Type

Series **ZPT/ZPX**

Pad Diameter: $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$, $\phi 125$

**Ideal for loads with a curved surface,
heavyweight loads and
loads with large surface area.**



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

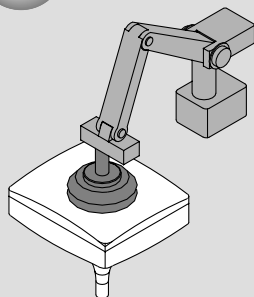
ZP

ZCU

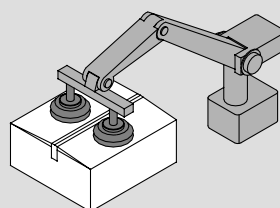
AMJ

Misc.

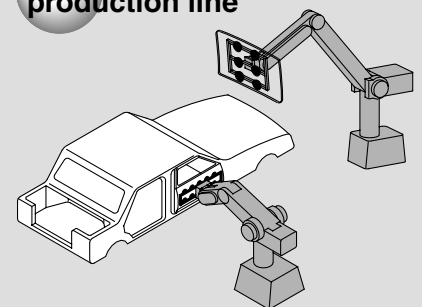
For transfer of CRT



For transfer of
cardboard box



For automotive
production line

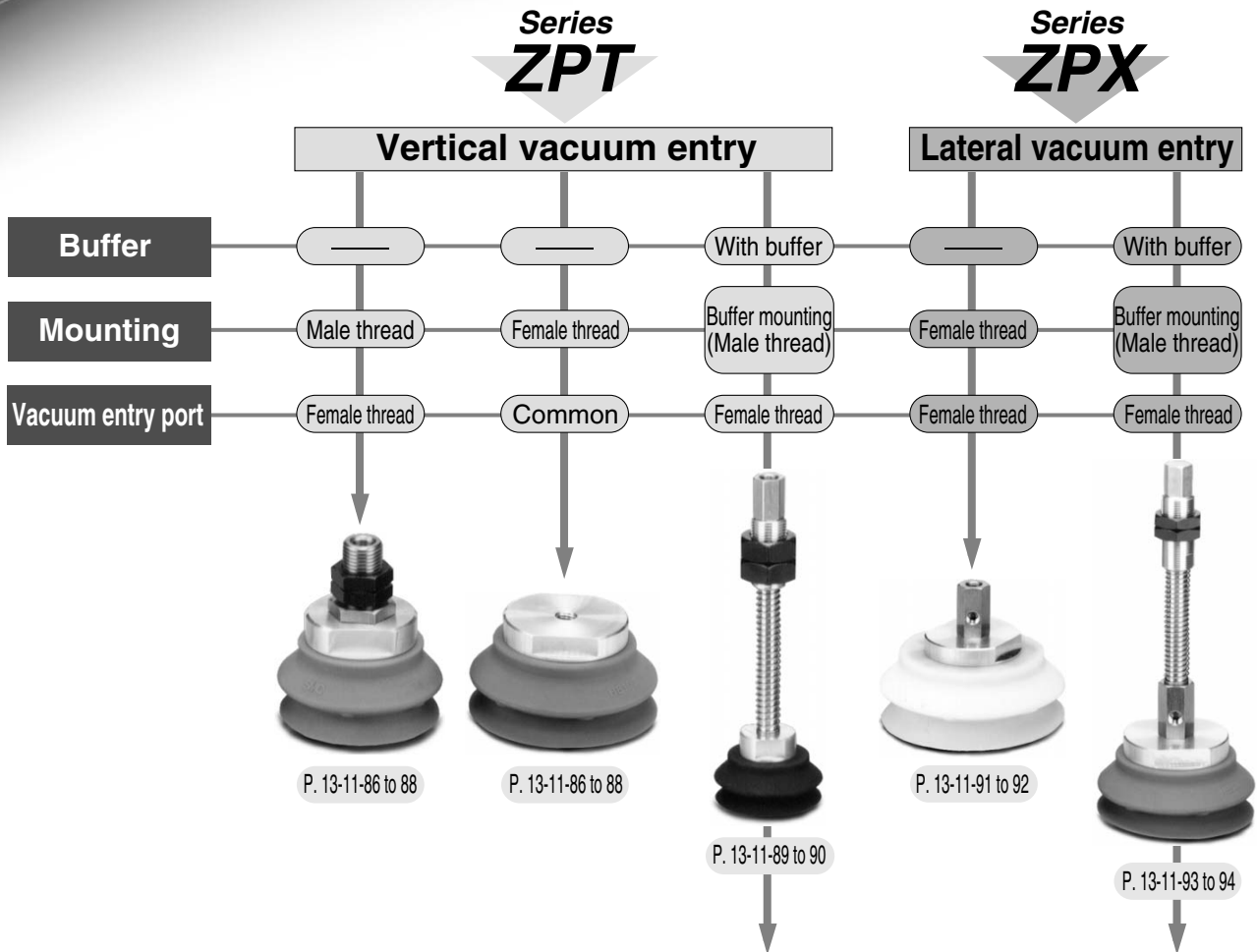


Vacuum Pad: Large Size Bellows Type

Series ZPT/ZPX

Pad diameter: $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$, $\phi 125$

Pad material: NBR, Silicone rubber, Urethane rubber, Fluoro rubber, EPR



Buffer stroke						
Pad dia.	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$
Buffer stroke (mm) 25	●	●	●	●	●	●
50	●	●	●	●	●	●
75	●	●	●	●	●	●
100	—	—	—	—	●	●

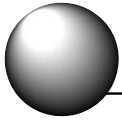
Pad Material and Characteristics

◎: Little or no influence ○: Can be used depending on conditions. X: Not suitable

Characteristics	Durometer HS ($\pm 5^\circ$)	Operating temperature range ($^\circ\text{C}$)	Oil resistance gasoline	Oil resistance benzol	Base resistance	Acid resistance	Weatherability	Ozone resistance	Abrasion resistance	Waterproof	Solvent resistance (Benzene, toluene)
NBR	50°	0 to 120	◎	X	○	○	X	X	◎	○	X
Silicon rubber	50°	-30 to 250	X	X	○	X		◎	X	○	X
Urethane rubber	60°	0 to 60	◎	X	X	X	○	◎	◎	X	X
Fluoro rubber	60°	0 to 250	◎	◎	X	◎	◎	◎	○	◎	◎
EPR	50°	-20 to 150	X	X	◎	○	◎	◎	○	◎	X

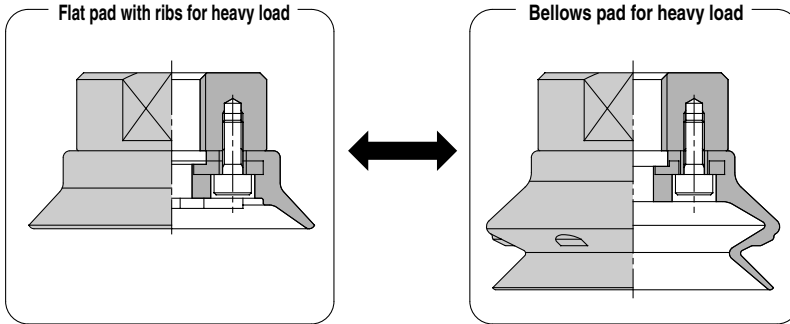
The above table covers only general characteristics of subject rubber materials.

Pad materials used by SMC pass the nominal JIS material standards; however, actual performance depends on operating conditions.

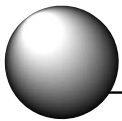


Interchangeable with flat pad with ribs for heavy loads.

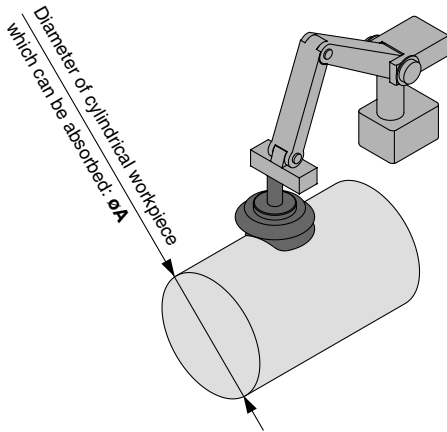
When changing to a different shape pad due to load change, the pad can be easily interchanged.



Possible combination——Same pad diameter, $\phi 40$ and $\phi 50$, $\phi 63$ and $\phi 80$, $\phi 100$ and $\phi 125$



Possible adsorption to cylindrical loads with easy fit to the load shape.



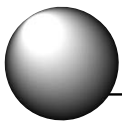
* Pushing force for adsorption is almost equivalent to return force of buffer spring.

Table (1) Diameter of Cylindrical Workpiece Which can be Absorbed. (Reference value)

Model	Dia. of cylindrical workpiece which can be absorbed: ϕA ⁽¹⁾
ZP 40HB□	$\phi 80$ or more
50HB□	$\phi 100$ or more
63HB□	$\phi 120$ or more
80HB□	$\phi 160$ or more
100HB□	$\phi 180$ or more
125HB□	$\phi 230$ or more

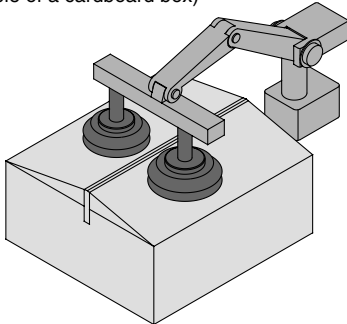
Note 1) Please consult with SMC when requiring a diameter smaller than shown in table.

Note 2) Regard values mentioned above as reference only, since actual valves may depend on operating conditions.

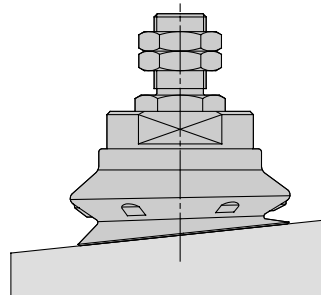


Pad shape permits adsorption to sloped surfaces.

- When a workpiece could be deformed during adsorption or transportation. (Example of a cardboard box)



- When the adsorption surface of a workpiece is slanted. (Maximum angle: 5° *)



* Regard values mentioned above as reference only, since actual valves may depend on operating conditions.

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Vacuum Pad: Large Size Bellows Type Vertical Vacuum Entry Without Buffer

Series ZPT



Specifications

Mounting	Vacuum entry direction	Vertical								
	Connection	Male thread	Female thread							
	Thread dia.	<table border="1"> <tr> <td>ø40, ø50</td> <td>M14 x 1</td> <td>M 8 x 1.25, M10 x 1.5</td> </tr> <tr> <td>ø63, ø80</td> <td>M16 x 1.5</td> <td>M 8 x 1.25, M10 x 1.5, M12 x 1.75, M16 x 1.5</td> </tr> <tr> <td>ø100, ø125</td> <td>M16 x 1.5</td> <td>M12 x 1.75, M16 x 1.5</td> </tr> </table>	ø40, ø50	M14 x 1	M 8 x 1.25, M10 x 1.5	ø63, ø80	M16 x 1.5	M 8 x 1.25, M10 x 1.5, M12 x 1.75, M16 x 1.5	ø100, ø125	M16 x 1.5
ø40, ø50	M14 x 1	M 8 x 1.25, M10 x 1.5								
ø63, ø80	M16 x 1.5	M 8 x 1.25, M10 x 1.5, M12 x 1.75, M16 x 1.5								
ø100, ø125	M16 x 1.5	M12 x 1.75, M16 x 1.5								
Vacuum entry port	Rc 1/8	Use the mounting port								

Pad Type

Pad diameter (mm)	ø40, ø50, ø63, ø80, ø100, ø125
Material (Color)	NBR (Black), Silicone rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with mark $\text{\textcircled{F}}$), EPR (Black with mark $\text{\textcircled{E}}$)
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

Weight

(g)

NBR

Model	Weight	Model	Weight
ZPT40HBN-A14	73	ZPT 80HBN-A16	195
-B8	40	-B8	161
-B10	39	-B10	160
ZPT50HBN-A14	89	-B12	158
-B8	56	-B16	156
-B10	55	ZPT100HBN-A16	396
ZPT63HBN-A16	155	-B12	347
-B8	121	-B16	345
-B10	120	ZPT125HBN-A16	580
-B12	118	-B12	531
-B16	116	-B16	529

Add NBR weight to below table for other materials.

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	+1	+10	0
ø50	-2	+1	+19	0
ø63	-3	+2	+37	0
ø80	-6	+2	+61	0
ø100	-12	+4	+121	-1
ø125	-22	+7	+228	-3

How to Order

ZPX 40 HB N A14

Pad diameter (mm)

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

Pad type

HB	Large bellows pad
----	-------------------

Vacuum entry/Mounting thread diameter

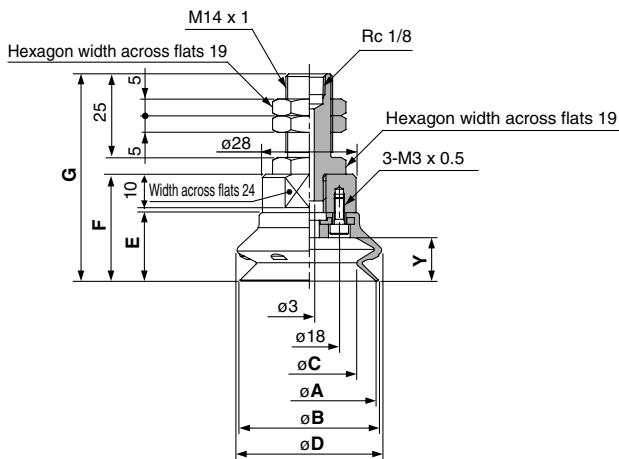
		ø40, ø50	ø63, ø80	ø100, ø125
A14	M14 x 1	●	—	—
A16	M16 x 1.5	—	●	●
B8	M 8 x 1.25	●	●	—
B10	M10 x 1.5	●	●	—
B12	M12 x 1.75	—	●	●
B16	M16 x 1.5	—	●	●

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
E	EPR

Vacuum Pad: Large Size Bellows Type Vertical Vacuum Entry without Buffer **Series ZPT**

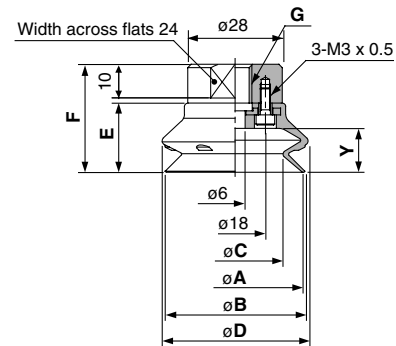
ZPT⁶³₈₀ HB□-A14 (Male thread)



Dimensions (mm)

Model	A	B	C	D	E	F	G	Y
ZPT40HB□-A14	40	41.4	28.4	43.2	20.5	32	62	13
ZPT50HB□-A14	50	51.9	35.7	54	24	35.5	65.5	16.5

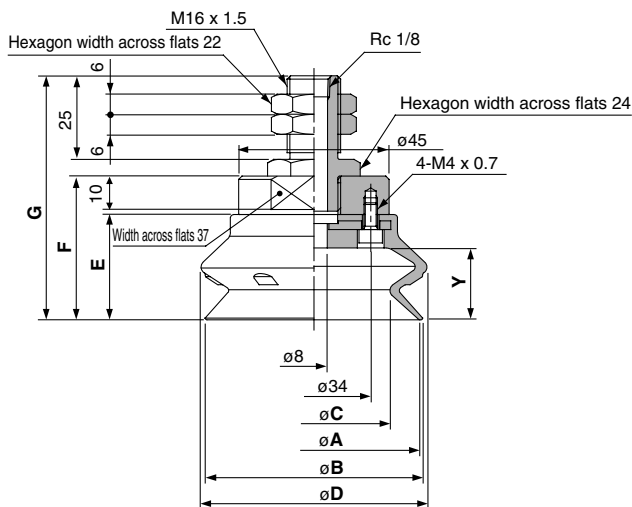
ZPT⁶³₈₀ HB□-B□ (Female thread)



Dimensions (mm)

Model	A	B	C	D	E	F	G	Y
ZPT40HB□-B8	40	41.4	28.4	43.2	20.5	32	M8 x 1.25	13
-B10							M10 x 1.5	
ZPT50HB□-B8							50	
-B10	M10 x 1.5							

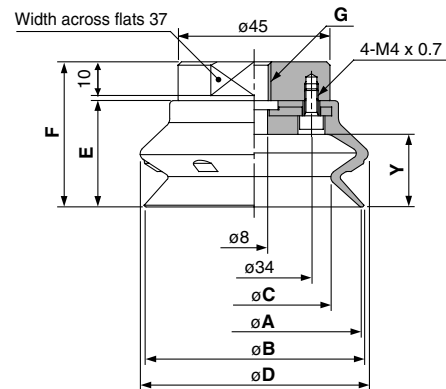
ZPT⁶³₈₀ HB□-A16 (Male thread)



Dimensions (mm)

Model	A	B	C	D	E	F	G	Y
ZPT63HB□-A16	63	65.1	45.5	67.6	31.5	43	73	21.5
ZPT80HB□-A16	80	83	58.4	85.1	37	48.5	78.5	27.5

ZPT⁶³₈₀ HB□-B□ (Female thread)



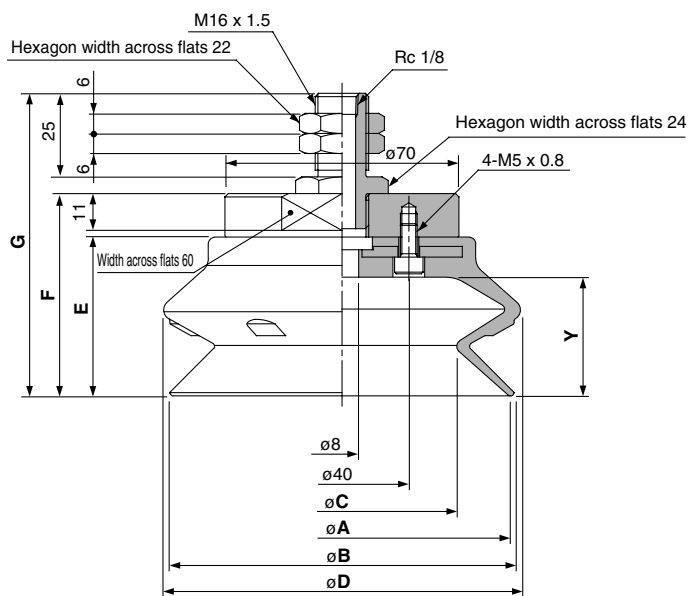
Dimensions (mm)

Model	A	B	C	D	E	F	G	Y
ZPT63HB□-B8	63	65.1	45.5	67.6	31.5	43	M8 x 1.25	21.5
-B10							M10 x 1.5	
-B12							M12 x 1.75	
-B16							M16 x 1.5	
ZPT80HB□-B8	80	83	58.4	85.1	37	48.5	M8 x 1.25	27.5
-B10							M10 x 1.5	
-B12							M12 x 1.75	
-B16							M16 x 1.5	

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Series ZPT

ZPT¹⁰⁰/₁₂₅ HB□-A16 (Male thread)

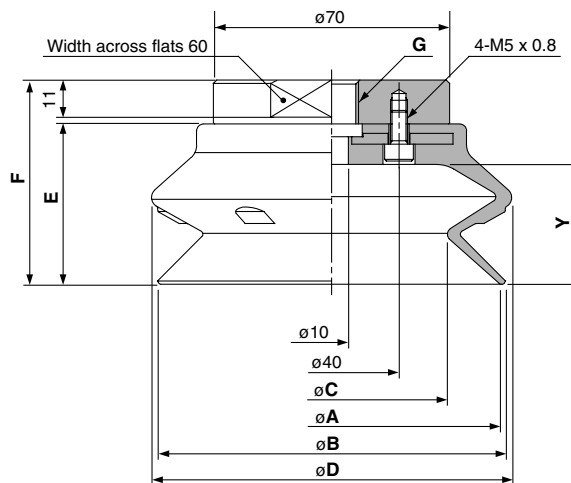


Dimensions

(mm)

Model	A	B	C	D	E	F	G	Y
ZPT100HB□-A16	100	103	68.5	107	47.5	60.5	90.5	35.5
ZPT125HB□-A16	125	128.5	88.5	135	56	69	99	44

ZPT¹⁰⁰/₁₂₅ HB□-B□ (Female thread)



Dimensions

(mm)

Model	A	B	C	D	E	F	G	Y
ZPT100HB□-B12	100	103.1	68.6	106.7	47.5	60.5	M12 x 1.75	35.5
M16 x 1.5								
ZPT125HB□-B12	125	128.5	88.6	135	56	69	M12 x 1.75	44
M16 x 1.5								

Vacuum Pad: Large Size Bellows Type Vertical Vacuum Entry With Buffer

Series ZPT



Specifications

Mounting	Vacuum entry direction	Vertical	Buffer type		Rotating (J)
	Connection	Male thread	Buffer stroke	ø40 to ø80	25, 50, 75 mm
	Thread dia.	ø40, ø50		M18 x 1.5	ø100, ø125
		ø63, ø80	M18 x 1.5		
	ø100, ø125	M22 x 1.5	Vacuum entry port Rc 1/8		

Pad Type

Pad diameter (mm)	ø40, ø50, ø63, ø80, ø100, ø125
Material (Color)	NBR (Black), Silicone rubber (White), Urethane rubber (Brown), Fluoro rubber (Black with mark®), EPR (Black with mark®)
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

Weight

(g)

NBR

Model	Weight	Model	Weight
ZPT40HBNJ25-B01-A18	127	ZPT 80HBNJ50-B01-A18	268
50-B01-A18	147	75-B01-A18	289
75-B01-A18	168	ZPT100HBNJ25-B01-A22	535
ZPT50HBNJ25-B01-A18	143	50-B01-A22	575
50-B01-A18	163	75-B01-A22	620
75-B01-A18	201	100-B01-A22	659
ZPT63HBNJ25-B01-A18	208	ZPT125HBNJ25-B01-A22	719
50-B01-A18	228	50-B01-A22	759
75-B01-A18	249	75-B01-A22	804
ZPT80HBNJ25-B01-A18	231	100-B01-A22	843

Add NBR weight to below table for other materials.

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	+1	+10	0
ø50	-2	+1	+19	0
ø63	-3	+2	+37	0
ø80	-6	+2	+61	0
ø100	-12	+4	+121	
ø125	-22	+7	+228	

How to Order

ZPT 40 HB N J 25 - B01 - A18

Pad diameter (mm)

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

Mounting thread

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

Vacuum entry

B01	Rc 1/8
-----	--------

Pad type

HB	Large bellows pad
----	-------------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
E	EPR

Applicable buffer stroke (Rotating)

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

Spring Force

Pad dia.	First mounting load	Second mounting load
ø40 to ø80	First mounting load	6.9 N
	Second mounting load	11.8 N
ø100, ø150	First mounting load	10 N
	Second mounting load	15 N

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

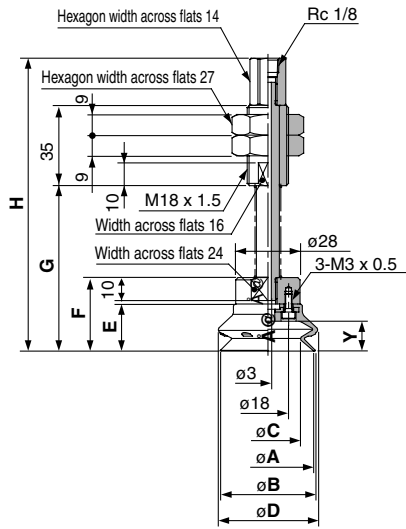
ZCU

AMJ

Misc.

Series ZPT

ZPT₄₀⁵⁰HB□J□-B01-A18 (Male thread)

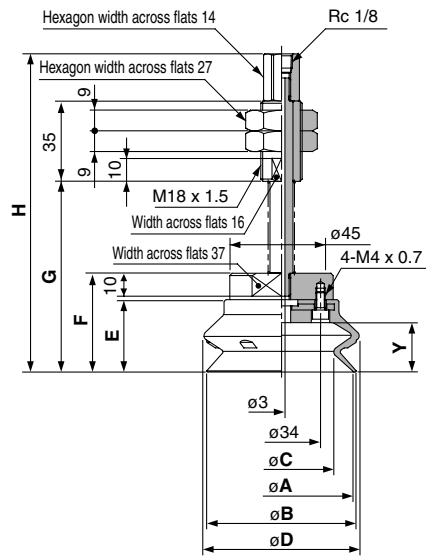


Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	Y
ZPT40HB□J25-B01-A18							72	127.5	
50-B01-A18	40	41.4	28.4	43.2	20.5	32	107	162.5	13
75-B01-A18							143	198.5	
ZPT50HB□J25-B01-A18							75.5	131	
50-B01-A18	50	51.9	35.7	54	24	35.5	110.5	166	16.5
75-B01-A18							146.5	202	

ZPT₆₃⁸⁰HB□J□-B01-A18 (Male thread)

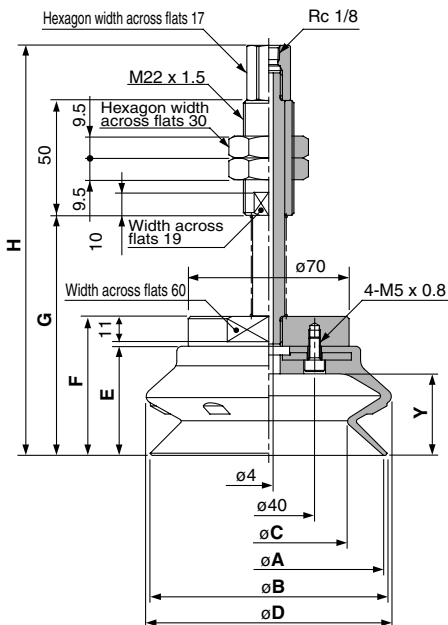


Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	Y
ZPT63HB□J25-B01-A18							83	138.5	
50-B01-A18	63	65.1	45.5	67.6	31.5	43	118	173.5	21.5
75-B01-A18							154	209	
ZPT80HB□J25-B01-A18							88.5	144	
50-B01-A18	80	83	58.5	85.1	37	48.5	123.5	179	27.5
75-B01-A18							159.5	215	

ZPT₁₀₀¹²⁵HB□J□-B01-A22 (Male thread)



Dimensions

(mm)

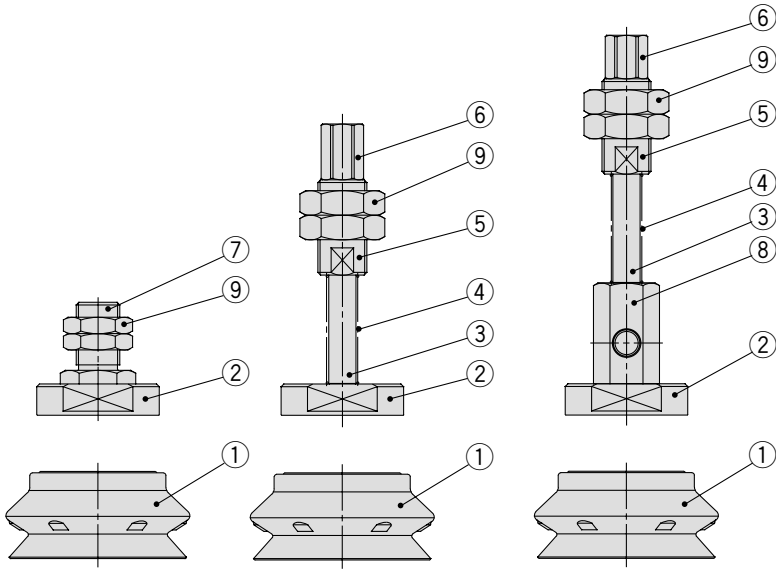
Model	A	B	C	D	E	F	G	H	Y
ZPT100HB□J25-B01-A22							104.5	178.5	
50-B01-A22	100	103.1	68.6	106.7	47.5	60.5	140.5	214.5	35.5
75-B01-A22							180.5	254.5	
100-B01-A22							215.5	289.5	
ZPT125HB□J25-B01-A22							113	187	
50-B01-A22	125	128.5	88.6	135	56	69	149	223	44
75-B01-A22							189	263	
100-B01-A22							224	298	

Vacuum Pad: Large Size Bellows Type Vertical Vacuum Entry with Buffer Series ZPT/ZPX

Construction

Series ZPT

Series ZPX



Component Parts

No.	Description	Material	Surface treatment
①	Pad	NBR, Silicone rubber, Urethane rubber, Fluoro rubber, EPR	—
②	Adapter plate	Aluminum	—
③	Piston rod	Carbon steel	Hard chrome plated
④	Spring	Stainless steel	—
⑤	Buffer body	Aluminum	—
⑥	Buffer adaptor	Brass	Electroless nickel plated
⑦	Adaptor A	Brass	Electroless nickel plated
⑧	X type adaptor	Brass	Electroless nickel plated
⑨	Mounting nut	Rolled steel	Black zinc chromated

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Replacement Parts/Pad Unit

How to Order

ZP 40 HB N

Pad diameter (mm)

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

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
E	EPR

Pad type

HB Large bellows pad

Weight

(g)

NBR

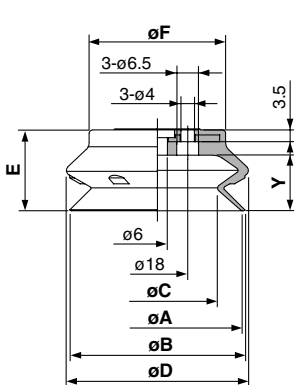
Model	Weight
ZP 40HBN	17
ZP 50HBN	33
ZP 63HBN	63
ZP 80HBN	103
ZP100HBN	206
ZP125HBN	390

Add NBR weight to below table for other materials.

Pad dia.	Silicon rubber	Urethane rubber	Fluoro rubber	EPR
ø40	-1	+1	+10	0
ø50	-2	+1	+19	0
ø63	-3	+2	+37	0
ø80	-6	+2	+61	0
ø100	-12	+4	+121	-1
ø125	-22	+7	+228	-3

Dimensions

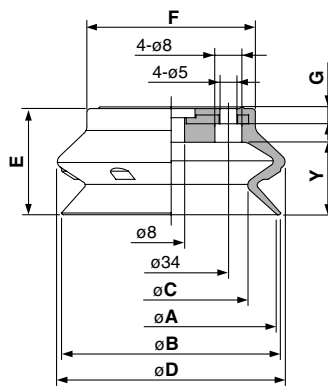
ZP₅₀⁴⁰HB□



Dimensions (mm)

Model	A	B	C	D	E	F	Y
ZP40HB□	40	41.4	28.4	43.2	20.5	30	13
ZP50HB□	50	51.9	35.7	54	24	40.5	16.5

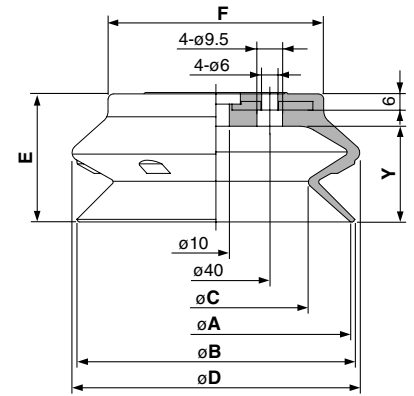
ZP₈₀⁶³HB□



Dimensions (mm)

Model	A	B	C	D	E	F	G	Y
ZP63HB□	63	65.1	45.5	67.6	31.5	50	4.5	21.5
ZP80HB□	80	83	58.4	85.1	37	64	5	27.5

ZP₁₂₅¹⁰⁰HB□



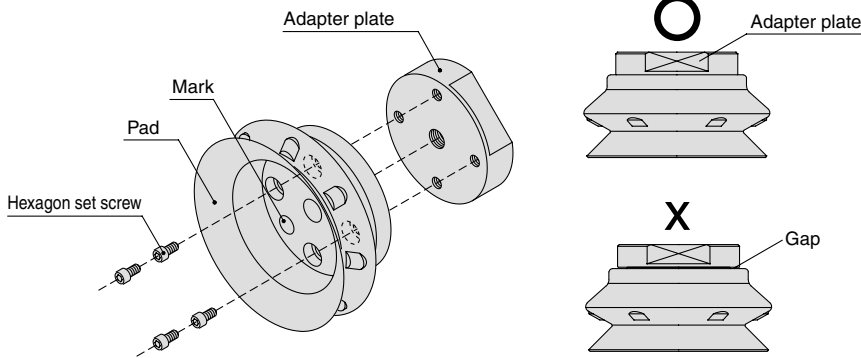
Dimensions (mm)

Model	A	B	C	D	E	F	Y
ZP100HB□	100	103.1	68.6	106.7	47.5	80	35.5
ZP125HB□	125	128.5	88.6	135	56	105	44

Series ZPT/ZPX

How to Assemble/Disassemble

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



How to Distinguish Different Pad Materials

Check for the indicator mark on the pad's interior surface as shown in the figure at left.

Material	Color	Mark
NBR	Black	—
Silicon rubber	White	—
Urethane rubber	Brown	—
Fluoro rubber	Black	⊕
EPR	Black	⊕

Replacement Parts/Mounting Nut

How to Order

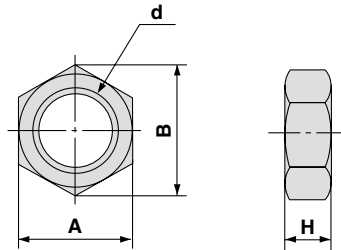
ZPNA — M16

Mounting thread

M16	M16 x 1.5
M18	M18 x 1.5
M22	M22 x 1.5

Mounting nut part number for "M14x1" is "SN-015A".

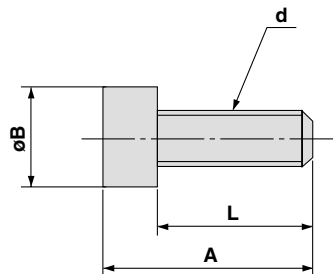
Dimensions



Model	A	B	d	H
SN-015A	19	21.9	M14 x 1	5
ZPNA-M16	22	25.4	M16 x 1.5	6
ZPNA-M18	27	31.2	M18 x 1.5	9
ZPNA-M22	30	34.6	M22 x 1.5	8

Bolts (Hexagonal Socket Head Cap Screw)

Dimensions



A	B	d	L
11	5.5	M3 x 0.5	8
12	7	M4 x 0.7	8
15	8.5	M5 x 0.8	10

Vacuum Pad: Ball Joint Type

Series *ZPT/ZPR*

Pad Diameter: $\varnothing 10$, $\varnothing 13$, $\varnothing 16$, $\varnothing 20$, $\varnothing 25$, $\varnothing 32$, $\varnothing 40$, $\varnothing 50$



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Series ZPT: Vertical Vacuum Entry Type
Series ZPR: Lateral Vacuum Entry Type One-touch Fitting

Vacuum Pad: Ball Joint Type

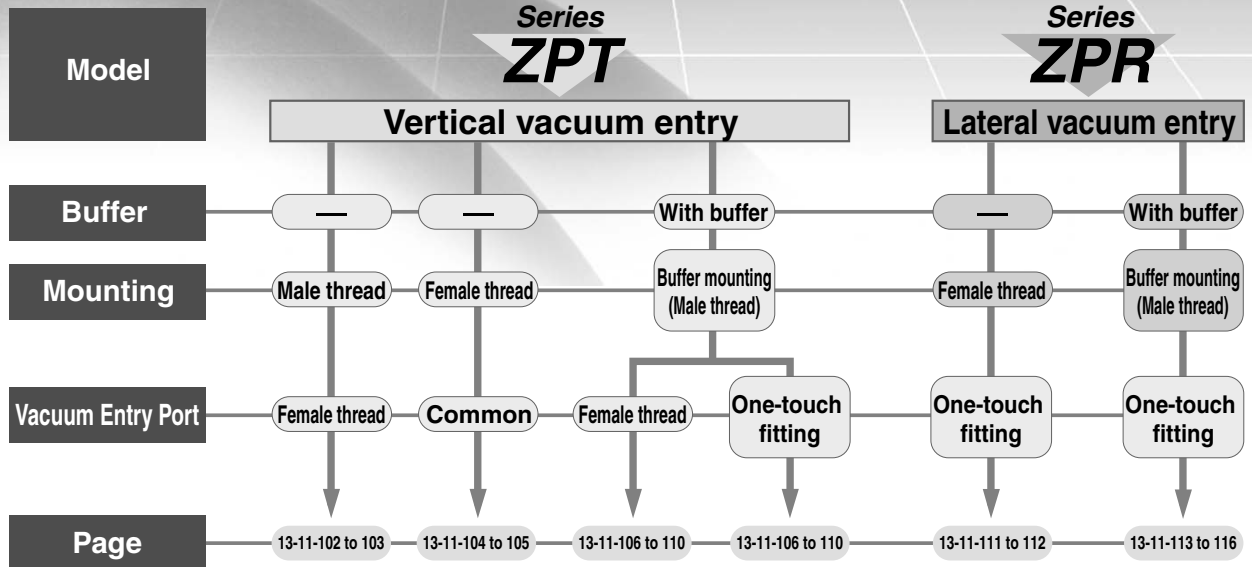
Series ZPT/ZPR

Pad diameter: $\phi 10, \phi 13, \phi 16, \phi 20, \phi 25, \phi 32, \phi 40, \phi 50$

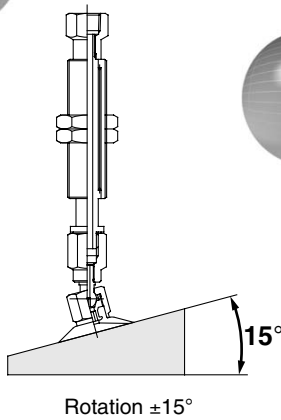
Pad material: NBR, Silicon rubber, Urethane rubber,

Fluoro rubber, Conductive NBR, Conductive silicon rubber

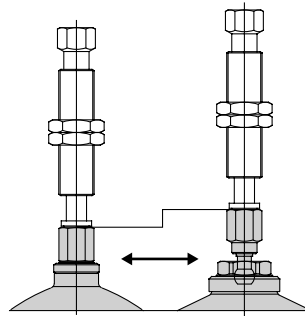
Series Variations



Adsorption is possible even on a slanted surface.



Interchangeable with standard type.



Exchangeable at the adapter

Buffer stroke

Pad dia.	$\phi 10$	$\phi 13$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$
10 mm	●	●	●	●	●	●	●	●
20 mm	●	●	●	●	●	●	●	●
30 mm	●	●	●	●	●	●	●	●
40 mm	●	●	●	—	—	—	—	—
50 mm	●	●	●	●	●	●	●	●

Pad Material and Characteristics

◎: Little or no influence ○: Can be used depending on conditions. X: Not suitable

Characteristics	Durometer HS ($\pm 5^\circ$)	Operating temperature range ($^\circ\text{C}$)	Oil resistance gasoline	Oil resistance benzol	Base resistance	Acid resistance	Weatherability	Ozone resistance	Abrasion resistance	Waterproof	Solvent resistance (Benzene, toluene)
NBR	50°	0 to 120	◎	X	○	○	○	X	◎	○	X
Silicon rubber	40°	-30 to 200	X	X	○	X	◎	◎	X	○	X
Urethane rubber	60°	0 to 60	◎	X	X	X	○	◎	◎	X	X
Fluoro rubber	60°	0 to 250	◎	◎	X	◎	◎	◎	○	◎	◎
Conductive NBR	50°	0 to 100	○	X	○	X	○	X	○	○	X
Conductive silicon rubber	50°	-10 to 200	X	X	○	X	◎	◎	X	○	X

The above table covers only general characteristics of subject rubber materials.

Pad material used by SMC pass the nominal JIS material standards; however, actual performance depends on operating conditions.

⚠️ Precautions

Be sure to read before handling. Refer to pages 13-15-3 to 13-15-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to page 13-1-5 for Precautions on every series.

Caution on Design

⚠️ Warning

- In case where the workpieces are heavy or dangerous objects, etc., take measures to address a possible loss of adsorption force (installation of drop prevention guide, etc.).**

In the case of transportation by vacuum adsorption using vacuum pads, adsorption force is lost when there is a drop in vacuum pressure.

Furthermore, since vacuum pressure can also deteriorate due to wear and cracking of pads, and vacuum leakage from piping, etc., be certain to perform maintenance on vacuum equipment.

Selection

⚠️ Caution

- The pad materials which can be used differ depending upon the operating environment.**

An appropriate pad material should be selected.

Furthermore, since vacuum pads are manufactured for use with industrial products, they should not come into direct contact with medicines or food products, etc.

- Depending upon the weight and shape of the workpieces, the diameter, quantity and shape of pads suitable for use will vary.**

Use the pad lifting force table for reference.

Also, the pads to be selected will differ based upon conditions other than the above, such as the condition of the workpiece surface (presence or absence of oil or water), the workpiece material and its gas permeability. Confirmation is necessary by actually performing vacuum adsorption on the subject workpieces.

- Use a buffer for adsorption on fragile workpieces.**

The cushioning performed by the buffer is also necessary when there is variation in the height of workpieces. When it is desired to perform further positioning of pads and workpieces, a detent buffer can be used.

- The life of the buffer will be reduced if lateral force is applied to the buffer shaft.**

Note that sometimes a load is applied to the buffer by a piping tube (pulling or pressing, etc. in a lateral direction).

- Do not apply an impact or large force to a pad when adsorbing a workpiece.**

This will cause deformation, cracking and wear of the pad to be accelerated. The stiffening ribs, etc. should touch lightly, while staying within the pad skirt's deformation range. Positioning should be performed accurately. Especially in the case of small diameter pads.

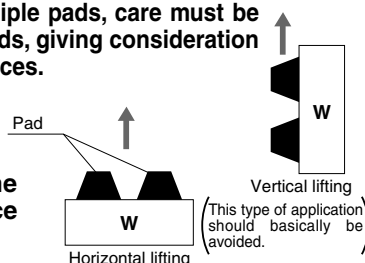
- When transporting in an upward direction, factors such as acceleration, wind pressure and impact force must be considered in addition to the workpiece weight.**

Use caution particularly when lifting items such as glass plates and circuit boards, because a large force will be applied by wind pressure. When a workpiece which is oriented vertically is transported horizontally, large forces are applied by acceleration when movement is started and stopped. Further, in cases where the pad and workpiece can slip easily, accelerations and decelerations of horizontal movement should be kept low.

- When transporting flat shaped workpieces that have large surface areas using multiple pads, care must be taken in arranging the pads, giving consideration to balance of the workpieces.**

- Use caution since the workpiece could rotate during transfer.**

Use of more than one pad for each workpiece is recommended.



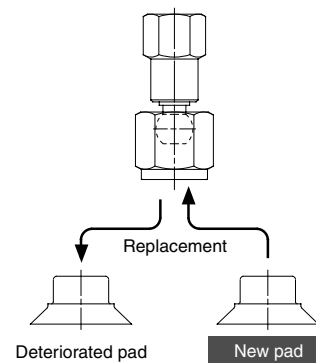
Maintenance

⚠️ Caution

- Perform pad maintenance regularly.**

Since pads are essentially rubber, deterioration is unavoidable. The rate of deterioration depends upon factors such as conditions of use, environment and temperature. Regular maintenance should be performed. If any damage, splitting, cracking or abrasion has occurred in a pad which appears to be harmful, replace it immediately.

Also, take care not to damage the outside of the pad.



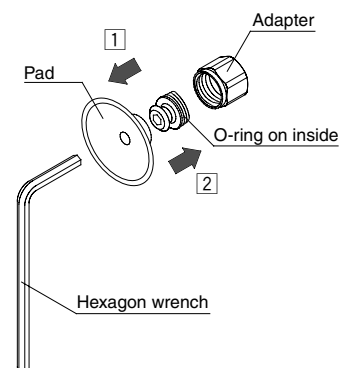
How to Assemble/Disassemble

⚠️ Caution

Pad diameter: $\varnothing 10$ to $\varnothing 32$

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

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

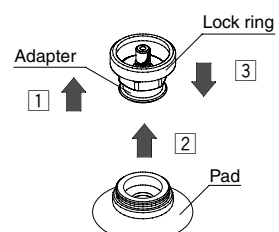


Pad diameter: $\varnothing 40$, $\varnothing 50$

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

- When holding the lock ring in the raised position, place a new pad onto the adapter.

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



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

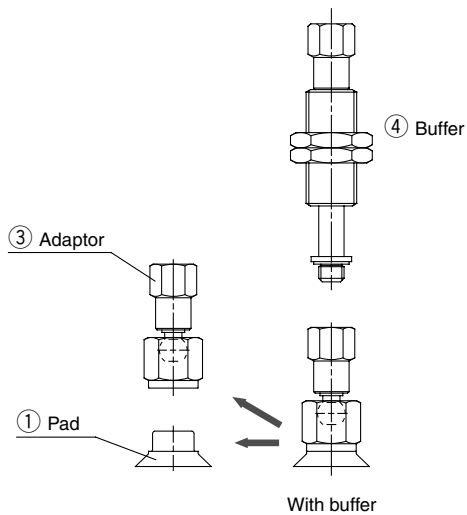
Misc.

Series ZPT/ZPR

Component Parts

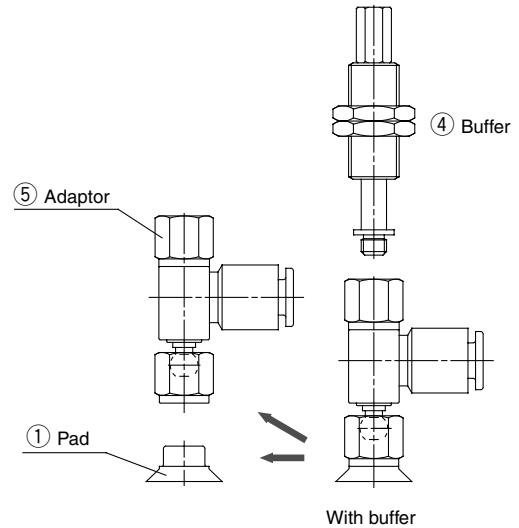
Series ZPT

Pad Diameter: $\phi 10$ to $\phi 32$

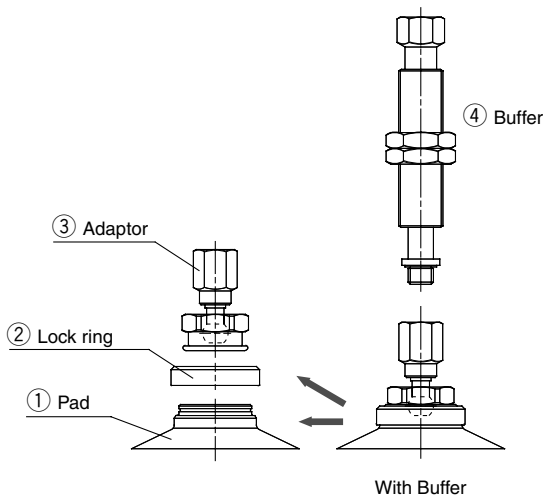


Series ZPR

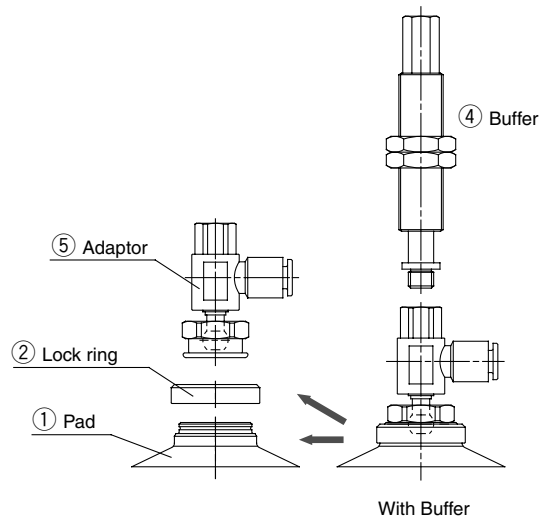
Pad Diameter: $\phi 10$ to $\phi 32$



Pad Diameter: $\phi 40$, $\phi 50$



Pad Diameter: $\phi 40$, $\phi 50$



Component Parts

No.	Description	Material	Note
①	Pad	NBR, Silicon rubber, Urethane rubber, Fluoro rubber, Conductive NBR, Conductive silicon rubber	
②	Lock ring	Aluminum	
③	Adaptor	Brass, Stainless steel	Electroless nickel plated
④	Buffer	Brass	Electroless nickel plated
⑤	Adaptor	Brass, Stainless steel, PBT	Electroless nickel plated

Series ZPT/ZPR Replacement Parts

Pad, Individual Unit

How to Order

ZP 10 F GN

Pad diameter (mm)

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

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN ⁺	Conductive NBR
GS ⁺	Conductive silicon rubber

* ø20 and larger are manufactured upon a receipt of order.

Pad type

F	Ball joint type
---	-----------------

Lock Ring, Individual Unit

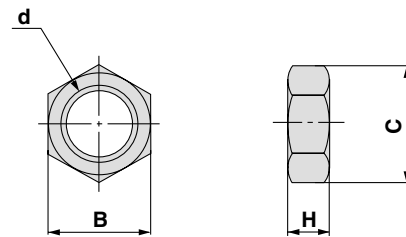
How to Order

ZPL F

For ball joint type (ø40, ø50)

Mounting Nut

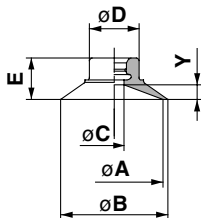
Dimensions



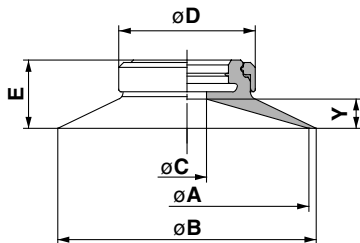
Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Dimensions

Ball joint type: ø10 to 32



Ball joint type: ø40, ø50



(mm)

Model	A	B	C	D	E	Y	
ZP10F□□	10	12	3	8.2	6.5	1.5	
ZP13F□□	13	15			7	2	
ZP16F□□	16	18			8.5	3	
ZP20F□□	20	22	4	10.2	9	5	
ZP25F□□	25	28			13		
ZP32F□□	32	35	8	28	14	6	
ZP40F□□	40	43			10	13	5
ZP50F□□	50	53			8	14	6

(mm)

Model	d	H	B	C
SNJ-015A	M10 x 1	3	14	16.2
SN-015A	M14 x 1	5	19	21.9
SNJ-010A	M8 x 1	3	12	13.9

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry Without Buffer/Male Thread Series ZPT



How to Order

ZPT **25** F **GN** — **B5** — **A8**

Pad diameter (mm)

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

Pad type

F	Ball joint type
---	-----------------

Mounting thread diameter/
Male thread

Symbol	Thread	Pad dia. (mm)
A8	M8 x 1	ø10 to ø16
A10	M10 x 1	ø20 to ø32
A14	M14 x 1	ø40, ø50

Vacuum entry port

B5	M5 x 0.8
----	----------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR
GS*	Conductive silicon rubber

* ø20 and larger are manufactured upon a receipt of order.

Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Specifications

Vacuum entry direction	Vertical		
Connection	Mounting	Vacuum entry port	
	Male thread	Female thread	
Pad diameter (mm)	ø10 to ø16	M8 x 1	M5 x 0.8
	ø20 to ø32	M10 x 1	
	ø40, ø50	M14 x 1	
Ball joint rotation	±15°		

Weight

(g)

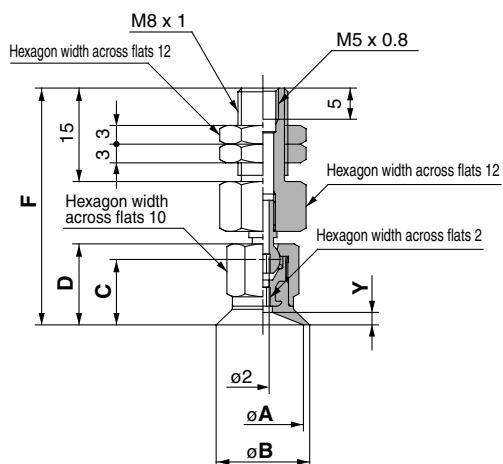
Pad dia. (mm)	Mounting (Male thread)	Vacuum entry (Female thread)
		M5 x 0.8
ø10 to ø16	M8 x 1	20
ø20 to ø32	M10 x 1	24
ø40, ø50	M14 x 1	55

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 white mark	Black with 2 white mark
Durometer	50°	40°	60°	60°	50°	50°

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry without Buffer/Male Thread **Series ZPT**

ZPT₁₀¹³₁₆F□□-B5-A8 (Without buffer/Male thread)

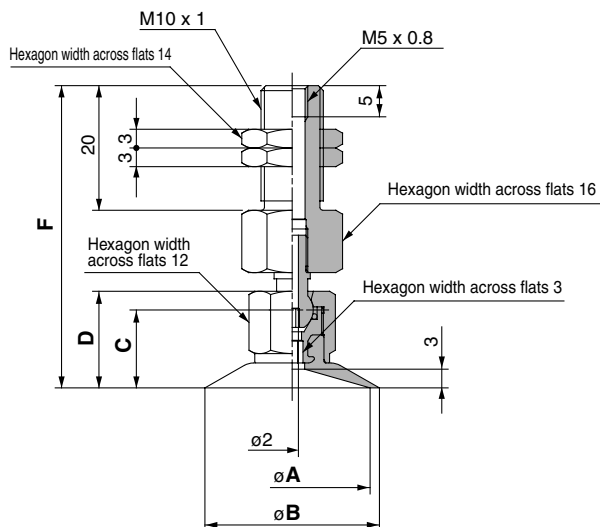


Dimensions

(mm)

Model	A	B	C	D	F	Y
ZPT10F□□-B5-A8	10	12	10	12.5	37.5	1.5
ZPT13F□□-B5-A8	13	15	10.5	13	38	
ZPT16F□□-B5-A8	16	18		13	38	

ZPT₂₀²⁵₃₂F□□-B5-A10 (Without buffer/Male thread)

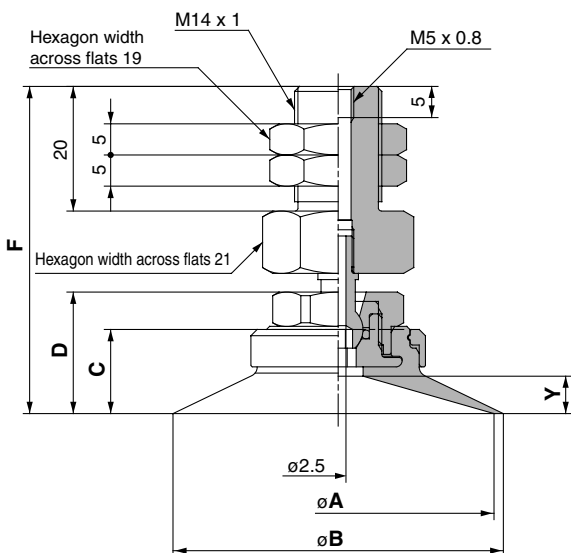


Dimensions

(mm)

Model	A	B	C	D	F
ZPT20F□□-B5-A10	20	22	12.5	15.5	48.5
ZPT25F□□-B5-A10	25	28			
ZPT32F□□-B5-A10	32	35			

ZPT₄₀^{50F□□-B5-A14 (Without buffer/Male thread)}



Dimensions

(mm)

Model	A	B	C	D	F	Y
ZPT40F□□-B5-A14	40	43	12.5	18.5	51.5	5
ZPT50F□□-B5-A14	50	53	13.5	19.5	52.5	6

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry Without Buffer/Female Thread

Series ZPT



How to Order

ZPT 20 F GS B01

Pad diameter (mm)

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

Pad type

F	Ball joint type
---	-----------------

Vacuum entry/
Mounting thread diameter

Connection	Symbol	Thread dia.	Pad dia. (mm)		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	B5	M5 x 0.8	●	●	—
	B8	M8 x 1.25	—	●	●
	B01	Rc 1/8	—	●	●

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR
GS*	Conductive silicon rubber

*ø20 and larger are manufactured upon a receipt of order.

Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Specifications

Vacuum entry direction	Vertical	
Connection	Connection/Vacuum entry	
	Female thread	
Pad dia. (mm)	ø10 to ø16	M5 x 0.8
		M5 x 0.8
	ø20 to ø32	M8 x 1.25
		Rc 1/8
	ø40, ø50	M8 x 1.25
		Rc 1/8
Ball joint rotation	±15°	

Weight

(g)

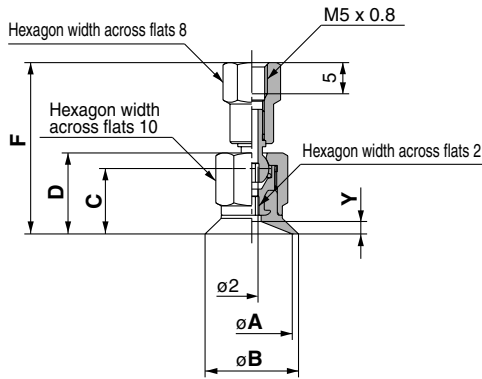
Pad dia. (mm)	Vacuum entry (Female thread)		
	M5 x 0.8	M8 x 1.25	Rc 1/8
ø10 to ø16	10	—	—
ø20 to ø32	14	17	19
ø40, ø50	—	47	46

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 white mark	Black with 2 white mark
Durometer	50°	40°	60°	60°	50°	50°

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry without Buffer/Female Thread **Series ZPT**

ZPT¹⁰₁₃¹⁶F□□-B5 (Without buffer/Female thread)

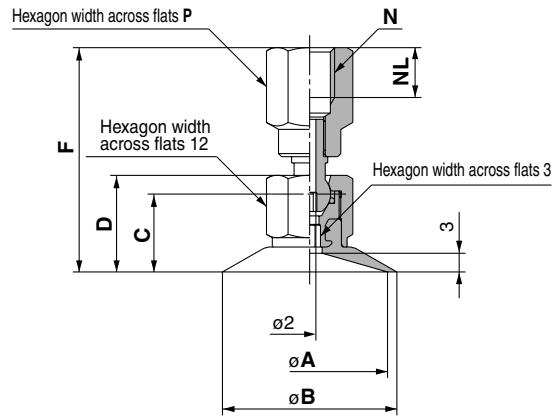


Dimensions

(mm)

Model	A	B	C	D	F	Y
ZPT10F□□-B5	10	12	10	12.5	27	1.5
ZPT13F□□-B5	13	15	10.5	13	27.5	
ZPT16F□□-B5	16	18				

ZPT²⁰₂₅³²F□□-B⁵₈⁰¹ (Without buffer/Female thread)

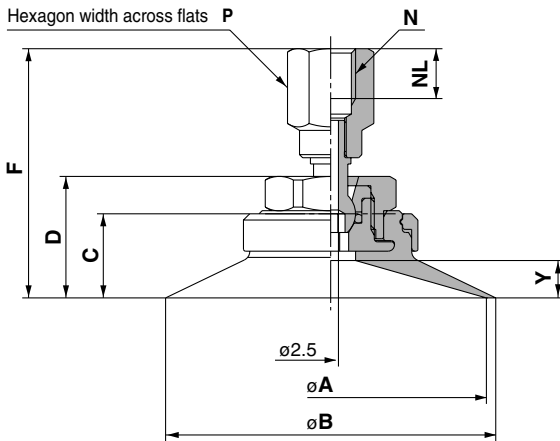


Dimensions

(mm)

Model	A	B	C	D	F	N	NL	P
ZPT20F□□-B5	20	22	12.5	15.5	32	M5 x 0.8	5	9
ZPT20F□□-B8					36	M8 x 1.25	8	12
ZPT20F□□-B01					36	Rc 1/8	6.2	14
ZPT25F□□-B5	25	28			32	M5 x 0.8	5	9
ZPT25F□□-B8					36	M8 x 1.25	8	12
ZPT25F□□-B01					36	Rc 1/8	6.2	14
ZPT32F□□-B5	32	35	13	16	32.5	M5 x 0.8	5	9
ZPT32F□□-B8					36.5	M8 x 1.25	8	12
ZPT32F□□-B01					36.5	Rc 1/8	6.2	14

ZPT⁴⁰_{50F□□-B⁸_{01 (Without buffer/Female thread)}}



Dimensions

(mm)

Model	A	B	C	D	F	N	NL	P	Y
ZPT40F□□-B8	40	43	12.5	18.5	39	M8 x 1.25	8	12	5
ZPT40F□□-B01						Rc 1/8	6.2	14	
ZPT50F□□-B8	50	53	13.5	19.5	40	M8 x 1.25	8	12	6
ZPT50F□□-B01						Rc 1/8	6.2	14	

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry With Buffer

Series ZPT

How to Order

ZPT 10 F GN J 20 04 A10

Pad diameter (mm)

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

Pad type

F	Ball joint type
---	-----------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR
GS*	Conductive silicon rubber

* ø20 and larger are manufactured upon a receipt of order.

Buffer type

J	Rotating
K	Non-rotating

Mounting thread diameter/Male thread
(Refer to "Table (1)" for applications.)

Vacuum entry port
(Refer to "Table (1)" for applications.)

Table (1) Vacuum Entry/Mounting Thread Diameter

Pad dia. (mm)		Mounting thread diameter (Male thread)			
		ø10 to ø16		ø20 to ø50	
Connection	Thread dia./Port size	Symbol	M10 x 1	M14 x 1	
			A10	A14	
Vacuum entry	Female thread	M5 x 0.8	B5	●	—
		Rc 1/8	B01	—	●
	One-touch fitting	ø4 tube	04	●	—
		ø6 tube	06	●	●
	ø8 tube	08	—	●	

Buffer stroke

Symbol	Stroke	Pad dia. (mm)	
		ø10 to ø16	ø20 to ø50
10	10 mm	●	●
20	20 mm	●	●
30	30 mm	●	●
40	40 mm	●	—
50	50 mm	●	●

Buffer Spring Reactive Force

Pad dia. (mm)	0 stroke	Stroke end
ø10 to ø16	1.0 N	3.0 N
ø20 to ø50	2.0 N	5.0 N

Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Pad Type

Pad form	Ball joint type					
Pad dia. (mm)	ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 white mark	Black with 2 white mark
Durometer	50°	40°	60°	60°	50°	50°

Vacuum Pad: Ball Joint Type Vertical Vacuum Entry with Buffer **Series ZPT**



Specifications

Vacuum entry direction		Vertical		
Connection		Mounting	Vacuum entry port	
		Buffer male thread	Female thread	One-touch fitting
Pad dia. (mm)	ø10 to ø16	M10 x 1	M5 x 0.8	ø4 tube
	ø20 to ø50	M14 x 1	Rc 1/8	ø6 tube
Ball joint rotation		±15°		

Buffer Type

Pad dia. (mm)	ø10 to ø16		ø20 to ø50	
Mounting	M10 x 1		M14 x 1	
Stroke (mm)	10, 20, 30, 40, 50		10, 20, 30, 50	
Spring reactive force	0 stroke	1.0 N	0 stroke	2.0 N
	Stroke end	3.0 N	Stroke end	5.0 N
Non-rotating specification	With no non-rotating (J), With non-rotating (K)			

Weight

Pad dia. (mm)	(g)				
	Vacuum entry port				
	Female thread		One-touch fitting		
	M5 x 0.8	Rc 1/8	ø4 tube	ø6 tube	ø8 tube
ø10 to ø16	30	—	32	33	—
ø20 to ø32	—	128	—	133	139
ø40, ø50	—	158	—	159	167

Weight by Stroke

Pad dia. (mm)	(g)			
	Stroke (mm)			
	20	30	40	50
ø10 to ø16	+10.5	+12.5	+22.5	+24
ø20 to ø50	+37.5	+40	—	+66.5

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

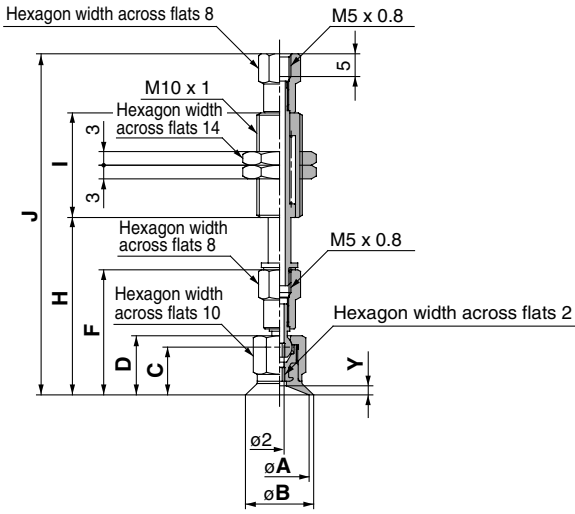
ZCU

AMJ

Misc.

Series ZPT

ZPT¹⁰₁₃¹⁶F□□J_K10-B5-A10 (With buffer/Female thread)



Dimensions: 10 mm Stroke

(mm)

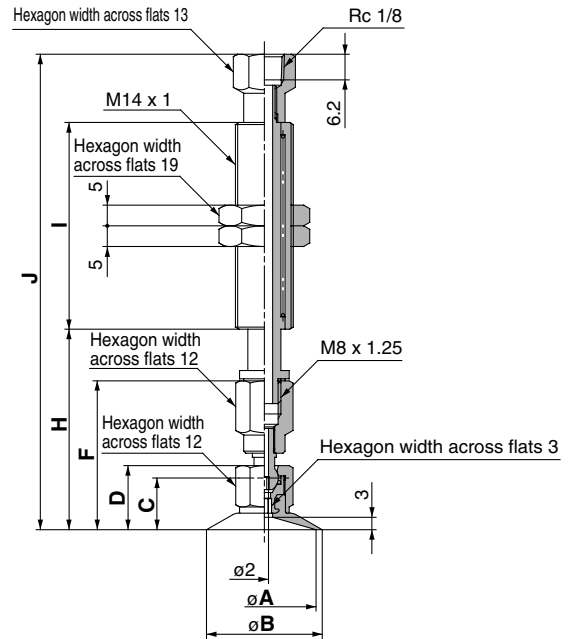
Model	A	B	C	D	F	H	I	J	Y
ZPT10F□□10-B5-A10	10	12	10	12.5	27	38.5	23	74.5	1.5
ZPT13F□□10-B5-A10	13	15	10.5	13	27.5	39		75	2
ZPT16F□□10-B5-A10	16	18		27.5	39	75		2	

Additional Dimensions by Stroke

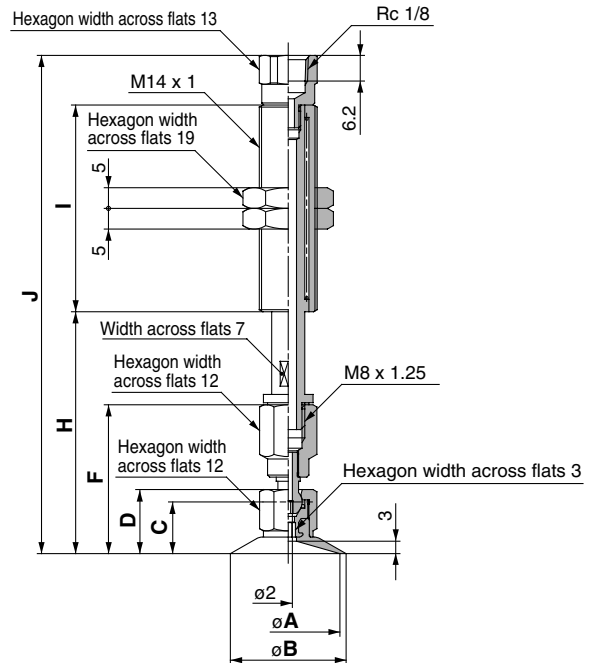
(mm)

Stroke	H	I	J
20	+10	+28	+38
30	+20		+48
40	+30	+54	+84
50	+40		+94

ZPT²⁰₂₅³²F□□J_K10-B01-A14 (With buffer/Female thread)



With a stroke of 10 mm



Stroke 20 to 50 mm

Dimensions: 10 mm Stroke

(mm)

Model	A	B	C	D	F	H	I	J
ZPT20F□□10-B01-A14	20	22	12.5	15.5	36	48.5	50	115
ZPT25F□□10-B01-A14	25	28		15.5	36.5	49		115.5
ZPT32F□□10-B01-A14	32	35		16	36.5	49		115.5

Additional Dimensions by Stroke

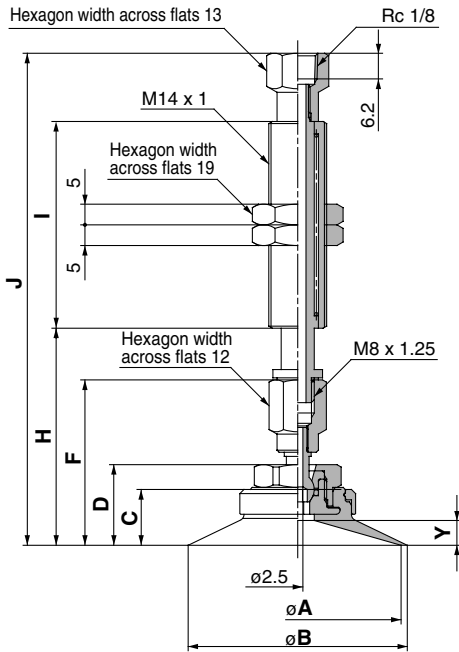
(mm)

Stroke	H	I	J
20	+10	±0	+5.5
30	+20		+15.5
50	+40	+25	+60.5

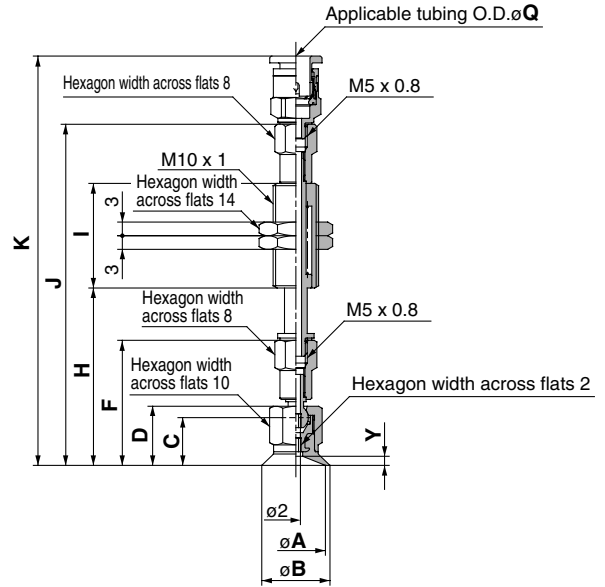
Vacuum Pad: Ball Joint Type Vertical Vacuum Entry with Buffer Series ZPT

ZPT⁴⁰₅₀F□□□^J_K10-B01-A14 (With buffer/Female thread)

ZPT¹⁰₁₃¹⁶F□□□^J_K10-0□-A10 (With buffer/One-touch fitting)



With a stroke of 10 mm

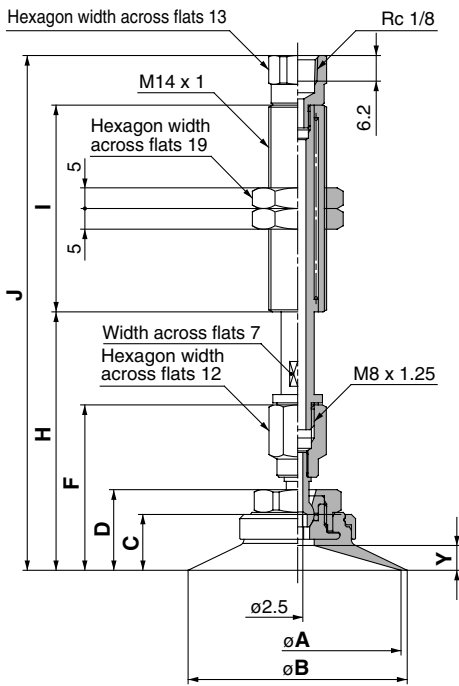


Dimensions: 10 mm Stroke

Model	A	B	C	D	F	H	I	J	Q: 4		Q: 6		Y
									K	K	K	K	
ZPT10F□□□10-0□-A10	10	12	10	12.5	27	38.5	23	74.5	88.5	89.5	1.5		
ZPT13F□□□10-0□-A10	13	15	10.5	13	27.5	39		75	89	90	2		
ZPT16F□□□10-0□-A10	16	18											

Additional Dimensions by Stroke

Stroke	H	I	J	K
20	+10	+28	+38	
30	+20		+48	
40	+30	+54	+84	
50	+40		+94	



Stroke 20 to 50 mm

Dimensions: 10 mm Stroke

Model	A	B	C	D	F	H	I	J	Y
ZPT40F□□□10-B01-A14	40	43	12.5	18.5	39	51.5	50	118	5
ZPT50F□□□10-B01-A14	50	53	13.5	19.5	40	52.5		119	6

Additional Dimensions by Stroke

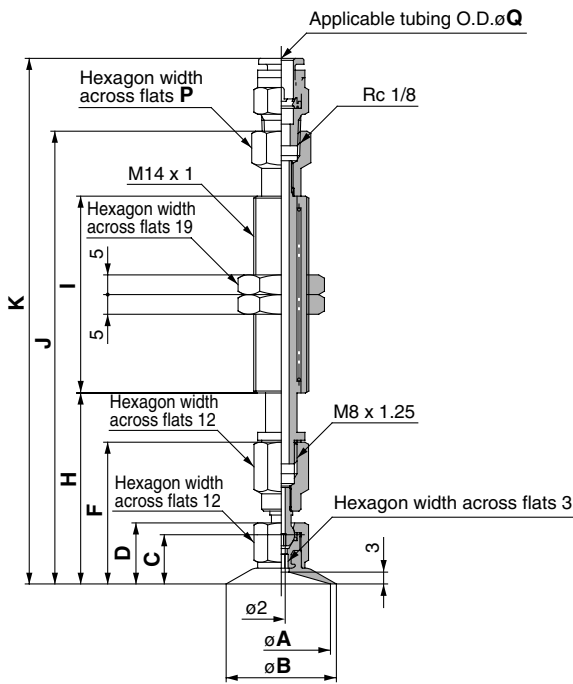
Stroke	H	I	J
20	+10		+5.5
30	+20	±0	+15.5
50	+40	+25	+60.5

- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

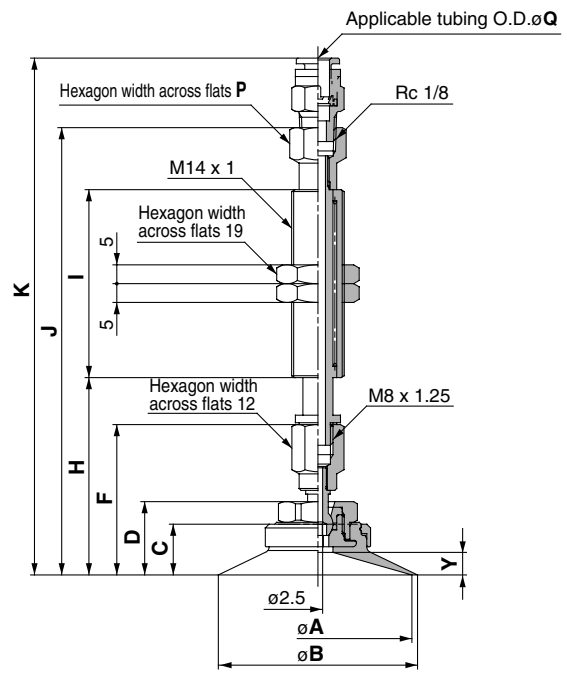
Series ZPT

ZPT²⁰₂₅₃₂F□□_K10-0□-A14 (With buffer/One-touch fitting)

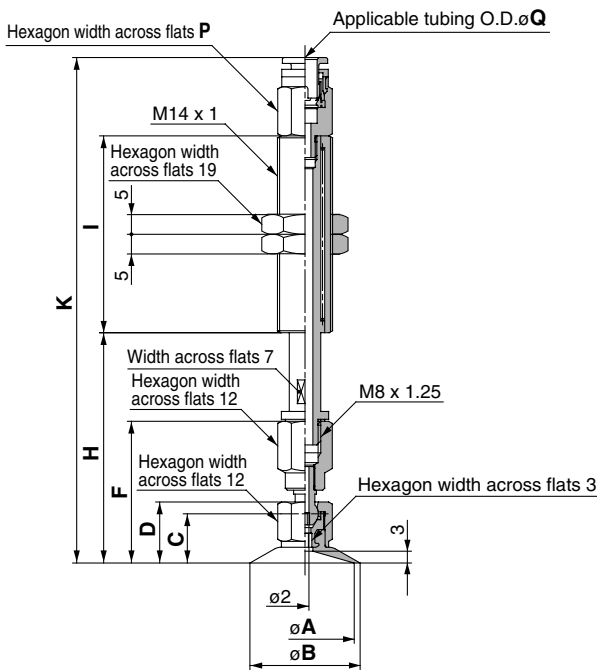
ZPT⁴⁰₅₀F□□_K10-0□-A14 (With buffer/One-touch fitting)



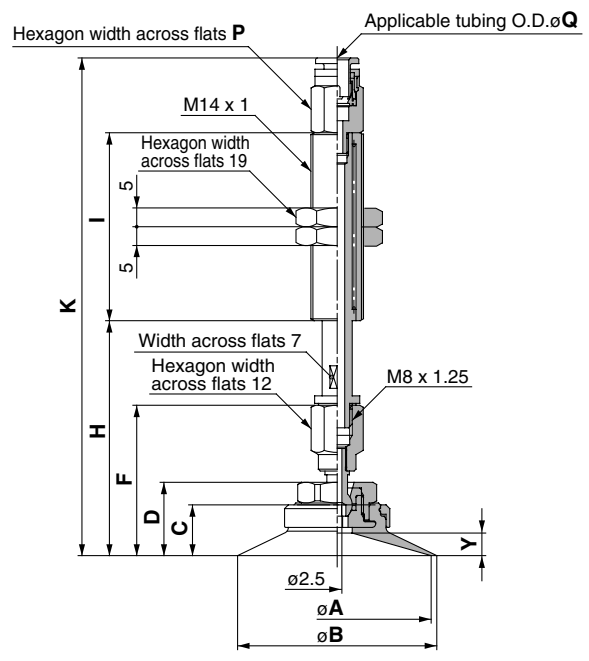
With a stroke of 10 mm



With a stroke of 10 mm



Stroke 20 to 50 mm



Stroke 20 to 50 mm

Dimensions: 10 mm Stroke

(mm)

Model	A	B	C	D	F	H	I	J	Q: 6		Q: 8	
									K	P	K	P
ZPT20F□□10-0□-A14	20	22										
ZPT25F□□10-0□-A14	25	28	12.5	15.5	36	48.5	50	115	133.5	13	137	13
ZPT32F□□10-0□-A14	32	35	13	16	36.5	49		115.5	134		135.5	

Additional Dimensions by Stroke

(mm)

Stroke	H	I	Q: 6		Q: 8	
			K	P	K	P
20	+10	±0	-5.1		-3.6	
30	+20	±0	+4.9	-1	+6.4	+1
50	+40	+25	+49.9		+51.4	

Dimensions: 10 mm Stroke

(mm)

Model	A	B	C	D	F	H	I	J	Q: 6		Q: 8		Y
									K	P	K	P	
ZPT40F□□10-0□-A14	40	43	12.5	18.5	39	51.5	50	118	136.5	13	140	13	5
ZPT50F□□10-0□-A14	50	53	13.5	19.5	40	52.5		119	137.5		141	13	6

Additional Dimensions by Stroke

(mm)

Stroke	H	I	Q: 6		Q: 8	
			K	P	K	P
20	+10	±0	-5.1		-3.6	
30	+20	±0	+4.9	-1	+6.4	+1
50	+40	+25	+9.9		+51.4	

Vacuum Pad: Ball Joint Type Lateral Vacuum Entry Without Buffer/Female Thread Series ZPR



How to Order

ZPR **10** **F** **GS** — **06** — **B5**

Pad diameter (mm)

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

Pad type

F	Ball joint type
---	-----------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR
GS*	Conductive silicon rubber

* ø20 and larger are manufactured upon a receipt of order.

Mounting thread diameter/
Female thread

(Refer to "Table (1)" for applications.)

Vacuum entry port

(Refer to "Table (1)" for applications.)

Table (1) Vacuum Entry/Mounting Thread Diameter

Pad dia. (mm)		Mounting thread diameter				
		ø10 to ø16		ø20 to ø50		
Connection	Thread dia./ Port size	Symbol	M5 x 0.8	M5 x 0.8	M8 x 1.25	
	Vacuum entry	One-touch fitting	ø4 tube	04	●	—
ø6 tube			06	●	●	●
ø8 tube			08	—	●	●

Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Specifications

Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Female thread	One-touch fitting
Pad dia. (mm)	ø10 to ø16	M5 x 0.8	ø4 tube
			ø6 tube
	ø20 to ø50	M5 x 0.8	ø6 tube
			ø8 tube
		M8 x 1.25	ø6 tube
			ø8 tube
Ball joint rotation		±15°	

Weight

Pad dia. (mm)	Mounting female thread	Vacuum entry (One-touch fitting)		
		ø4 tube	ø6 tube	ø8 tube
ø10 to ø16	M5 x 0.8	18	19	—
	M5 x 0.8	—	22	23
ø20 to ø32	M8 x 1.25	—	21	22
	M5 x 0.8	—	58	60
ø40, ø50	M8 x 1.25	—	57	59

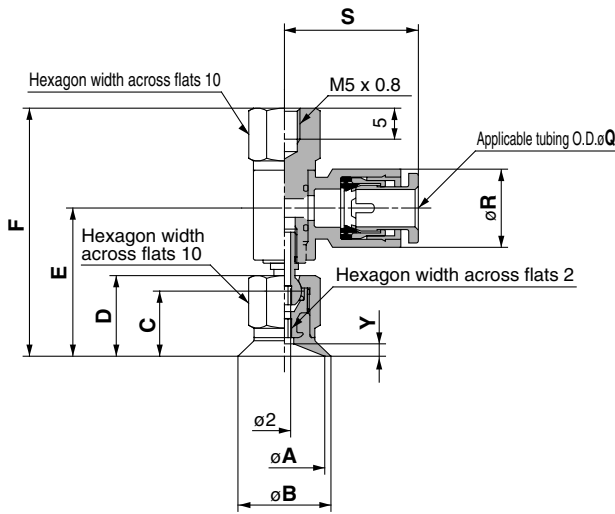
(g)

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 white mark	Black with 2 white mark
Durometer	50°	40°	60°	60°	50°	50°

Series ZPR

ZPR¹⁰₁₆F□□-0□-B5 (Without buffer/Female thread)



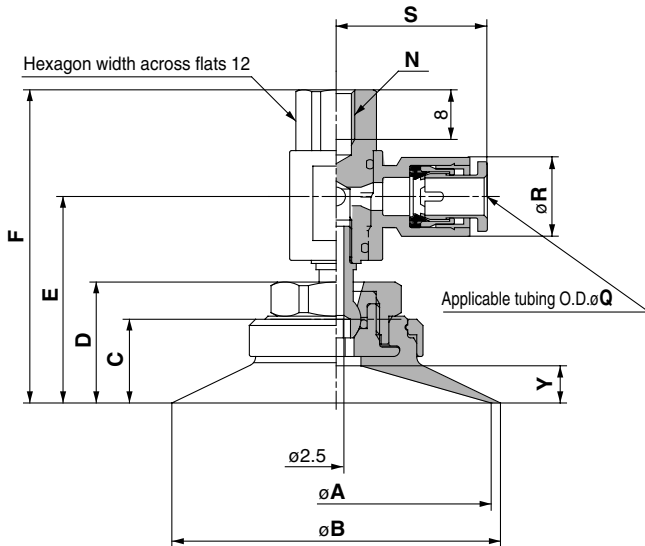
Dimensions (mm)

Model	A	B	C	D	E	F	Y
ZPR10F□□-0□-B5	10	12	10	12.5	23.4	39.5	1.5
ZPR13F□□-0□-B5	13	15	10.5	13	23.9	40	2
ZPR16F□□-0□-B5	16	18					

Dimensions by Tubing Diameter (mm)

Pad diameter (mm)	Q: 4		Q: 6	
	R	S	R	S
φ10 to φ16	10.4	20.6	12.8	21.6

ZPR⁴⁰₅₀F□□-0□-B8 (Without buffer/Female thread)



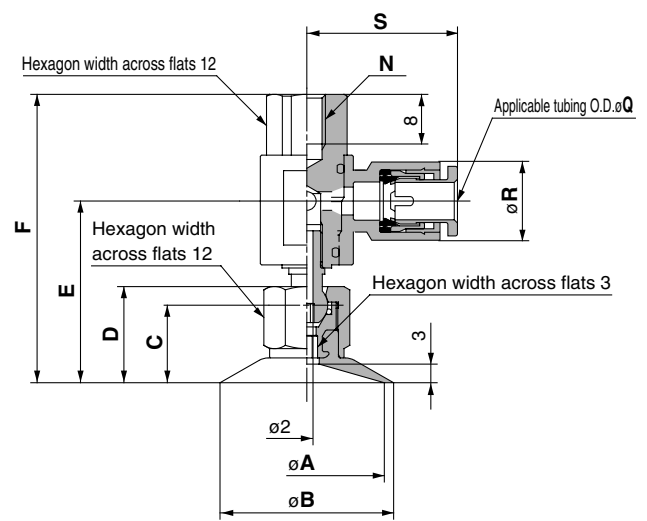
Dimensions (mm)

Model	A	B	C	D	E	F	N	Y
ZPR40F□□-0□-B8	40	43	12.5	18.5	32.3	49.5	M8 x 1.25	5
ZPR50F□□-0□-B8	50	53	13.5	19.5	33.3	50.5		6

Dimensions by Tubing Diameter (mm)

Pad diameter (mm)	Q: 6		Q: 8	
	R	S	R	S
φ40, φ50	12.8	24.3	15.2	26.2

ZPR²⁰₂₅⁵₃₂F□□-0□-B₈ (Without buffer/Female thread)



Dimensions (mm)

Model	A	B	C	D	E	F	N
ZPR20F□□-0□-B5	20	22	12.5	15.5	29.3	46.5	M5 x 0.8
M8 x 1.25							
ZPR25F□□-0□-B5	25	28	13	16	29.8	47	M5 x 0.8
M8 x 1.25							
ZPR32F□□-0□-B5	32	35	13	16	29.8	47	M5 x 0.8
M8 x 1.25							

Dimensions by Tubing Diameter (mm)

Pad diameter (mm)	Q: 6		Q: 8	
	R	S	R	S
φ20 to φ32	12.8	24.3	15.2	26.2

Vacuum Pad: Ball Joint Type

Lateral Vacuum Entry

With Buffer

Series ZPR

How to Order

ZPR 10 F GN J 30 06 A10

Pad diameter (mm)

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

Pad type

F	Ball joint type
---	-----------------

Material

N	NBR
S	Silicon rubber
U	Urethane rubber
F	Fluoro rubber
GN*	Conductive NBR
GS*	Conductive silicon rubber

* ø20 and larger are manufactured upon a receipt of order.

Buffer type

J	Rotating
K	Non-rotating

Mounting thread diameter/Male thread
(Refer to "Table (1)" for applications.)

Vacuum entry port
(Refer to "Table (1)" for applications.)

Table (1) Vacuum entry/Mounting Thread Diameter

		Mounting thread diameter (Male thread)			
		Pad dia. (mm)			
		ø10 to ø16	ø20 to ø50		
Connection		Thread dia./Port size	M10 x 1	M14 x 1	
		Symbol	A10	A14	
Vacuum entry	One-touch fitting	ø4 tube	04	●	—
		ø6 tube	06	●	●
		ø8 tube	08	—	●

Buffer stroke

Symbol	Stroke	Pad dia. (mm)	
		ø10 to ø16	ø20 to ø50
10	10 mm	●	●
20	20 mm	●	●
30	30 mm	●	●
40	40 mm	●	—
50	50 mm	●	●

Buffer Spring Reactive Force

Pad dia. (mm)	0 stroke	Stroke end
ø10 to ø16	1.0 N	3.0 N
ø20 to ø50	2.0 N	5.0 N

Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Pad Type

Pad form	Ball joint type					
Pad dia. (mm)	ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 white mark	Black with 2 white mark
Durometer	50°	40°	60°	60°	50°	50°

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Series ZPR



Specifications

Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Male thread	One-touch fitting
Pad dia. (mm)	ø10 to ø16	M10 x 1	ø4 tube
	ø20 to ø50	M14 x 1	ø6 tube
Ball joint rotation		±15°	

Buffer Type

Pad dia. (mm)	ø10 to ø16		ø20 to ø50	
Mounting	M10 x 1		M14 x 1	
Stroke (mm)	10, 20, 30, 40, 50		10, 20, 30, 50	
Spring reactive force	0 stroke	1.0 N	0 stroke	2.0 N
	Stroke end	3.0 N	Stroke end	5.0 N
Non-rotating specification	With no non-rotating (J), With non-rotating (K)			

Weight

(g)

Pad dia. (mm)	Vacuum entry port		
	One-touch fitting		
	ø4 tube	ø6 tube	ø8 tubing
ø10 to ø16	34	35	—
ø20 to ø32	—	38	39
ø40, ø50	—	134	136

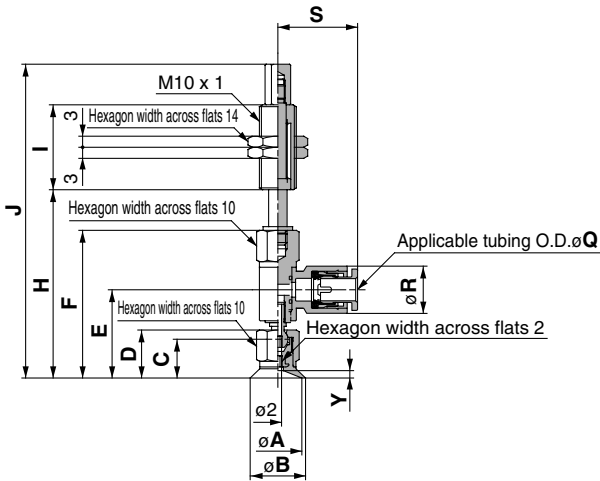
Weight by Stroke

(g)

Pad dia. (mm)	Stroke (mm)			
	20	30	40	50
ø10 to ø16	+10.5	+12.5	+22.5	+24
ø20 to ø50	+37.5	+40	—	+66.5

Vacuum Pad: Ball Joint Type Lateral Vacuum Entry with Buffer **Series ZPR**

ZPR¹⁰₁₃¹⁶F□□^J_K10-0□-A10 (With buffer)



Dimensions: 10 mm Stroke (mm)

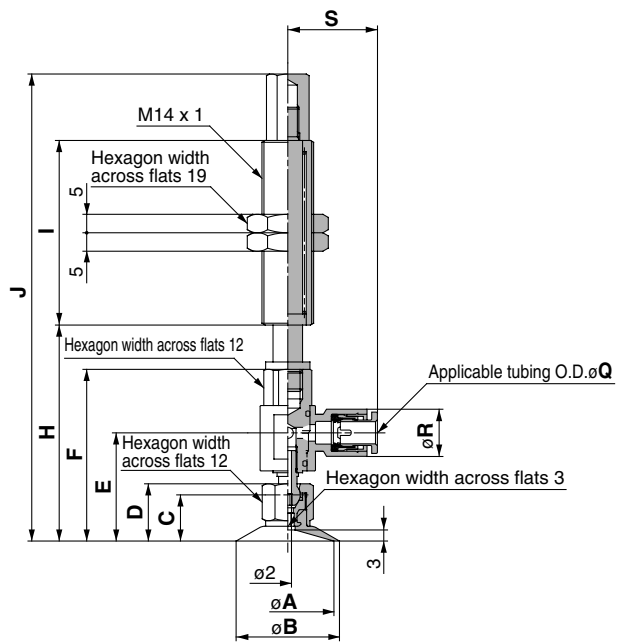
Model	A	B	C	D	E	F	H	I	J
ZPR10F□□10-0□-A10	10	12	10	12.5	23.4	39.5	50.5	23	84.5
ZPR13F□□10-0□-A10	13	15	10.5	13	23.9	40	51		85
ZPR16F□□10-0□-A10	16	18							85

Model	Q: 4		Q: 6		Y
	R	S	R	S	
ZPR10F□□10-0□-A10					1.5
ZPR13F□□10-0□-A10	10.4	20.6	12.8	21.6	2
ZPR16F□□10-0□-A10					

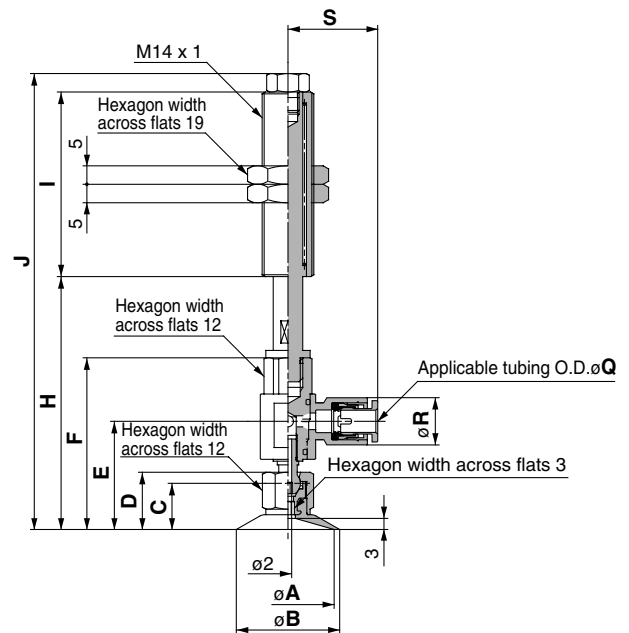
Additional Dimensions by Stroke (mm)

Stroke	H	I	J
20	+10	+28	+38
30	+20		+48
40	+30	+54	+84
50	+40		+94

ZPR²⁰₂₅³²F□□^J_K10-0□-A14 (With buffer)



With a stroke of 10 mm



Stroke 20 to 50 mm

Dimensions: 10 mm Stroke (mm)

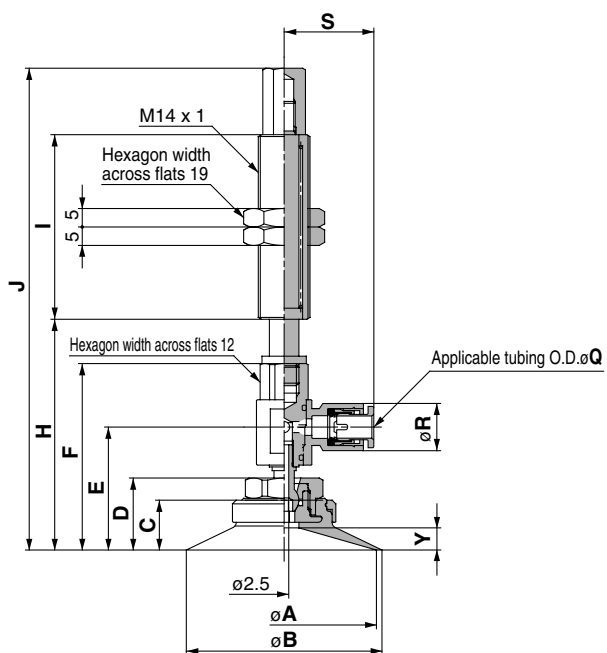
Model	A	B	C	D	E	F	H	I	J
ZPR20F□□10-0□-A14	20	22	12.5	15.5	29.3	46.5	58.5	50	126.5
ZPR25F□□10-0□-A14	25	28	13	16	29.8	47	59		127
ZPR32F□□10-0□-A14	32	35							127

Model	Q: 6		Q: 8		Stroke	H	I	J
	R	S	R	S				
ZPR20F□□10-0□-A14					20	+10		-3
ZPR25F□□10-0□-A14	12.8	24.3	15.2	26.2	30	+20	±0	+7
ZPR32F□□10-0□-A14					50	+40	+25	+52

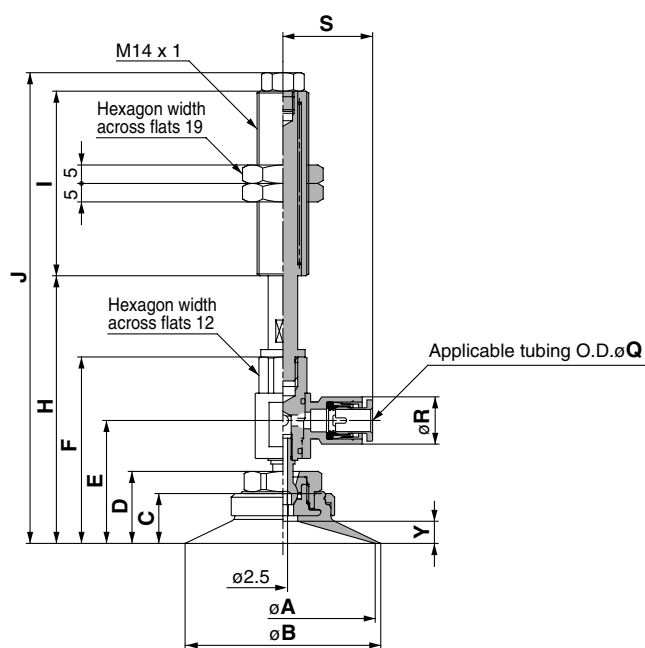
- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP
- ZCU
- AMJ
- Misc.

Series ZPR

ZPR⁴⁰₅₀F□□□K0-0□-A14 (With buffer)



With a stroke of 10 mm



Stroke 20 to 50 mm

Dimensions: 10 mm Stroke

(mm)

Model	A	B	C	D	E	F	H	I	J	Q: 6		Q: 8		Y
										R	S	R	S	
ZPR40F□□□10-0□-A14	40	43	12.5	18.5	32.3	49.5	61.5	50	129.5	12.8	24.3	15.2	26.2	5
ZPR50F□□□10-0□-A14	50	53	13.5	19.5	33.3	50.5	62.5		130.5					6

Additional Dimensions by Stroke

(mm)

Stroke	H	I	J
20	+10		-3
30	+20	±0	+7
50	+40	+25	+52