

# Vacuum Pad Series ZP

## With buffer

Non-rotating  
 ø2 to ø8: Stroke 6, 10, 15, 25 mm  
 ø10 to ø32: Stroke 10, 20, 30, 40, 50 mm  
 ø40, ø50: 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 <b>Series ZPT</b> <b>Vertical vacuum entry</b>	Male thread	(Common)		Female thread	Buffer body	
	Female thread	(Common)		Barb fitting	Buffer body	
13-11-28 to 13-11-43 <b>Series ZPR</b> <b>Lateral vacuum entry with One-touch fitting</b>	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 <b>Series ZPY</b> <b>Lateral vacuum entry with Barb fitting</b>	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	ø2	ø4	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat with ribs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Deep	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bellows	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thin flat	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thin flat with ribs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Pad diameter (ø2 to ø125)	ø2 to ø125 (Option: ø150 to ø250)

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.

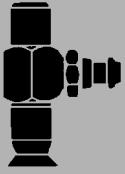
**Made to Order** 1. Elliptic pad 2. Large size pad

### Pad Material and Characteristics

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

Characteristics	Durometer HS (±5°)	Operating temperature range (°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: Lateral Vacuum Entry with Barb Fitting Without Buffer

## Series ZPY



### Specifications

Vacuum entry	Direction		Lateral	
	Connection		Barb 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 Nylon tube, ø4, ø6 Urethane tube	
	ø10 to ø16		ø4, ø6 Nylon tube, ø4, ø6 Urethane tube	
	ø20 to ø32		ø4, ø6 Nylon tube, ø4, ø6 Urethane tube	
	ø40, ø50		ø6 Nylon tube, ø6 Urethane 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 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°)				

### Weight/Male Thread (Female thread)

(g)

Model	Flat			Flat with ribs			Deep			Bellows		
	M5	M6	M8	M5	M6	M8	M5	M6	M8	M5	M6	M8
ZPY02 to 08 2004 3507 4010 10 to 16 (Thin section series)	15 (11)	15	—	—	—	—	—	—	—	15 (11) except ø2, ø4	15 (11) except ø2, ø4	—
ZPY10	—	—	—	—	—	—	31 (27)	33 (26)	—	—	—	—
ZPY13	32 (25)	33 (25)	—	32 (25)	33 (25)	—	—	—	—	—	33 (25)	33 (—)
ZPY16	—	—	—	—	—	—	32 (27)	38 (27)	—	—	—	—
ZPY20	—	—	—	—	—	—	—	—	—	—	—	—
ZPY25	— (30)	38 (30)	38 (29)	— (30)	38 (30)	38 (29)	— (30)	38 (30)	38 (28)	— (30)	38 (30)	38 (29)
ZPY32	—	—	—	—	—	—	—	—	—	—	—	—
ZPY40	—	43 (36)	47 (34)	—	42 (35)	46 (33)	—	44 (37)	48 (35)	—	43 (36)	47 (34)
ZPY50	—	44 (38)	49 (35)	—	46 (38)	50 (37)	—	—	—	—	44 (38)	49 (35)

\* ( ): Figures for female thread connections.



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

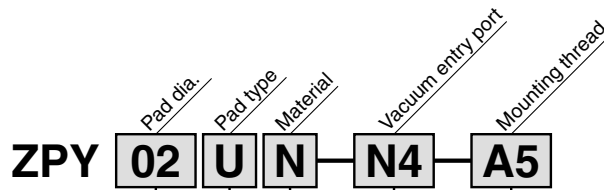
# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting without Buffer **Series ZPY**

## Model

Model	Pad dia. (ømm)	Pad form						Vacuum entry port (Barb fitting)	Mounting	
		Flat (U)	Flat with ribs (C)	Deep (D)	Bellows (B)	Thin flat (UT)	Thin flat with ribs (CT)		Male thread	Female thread
ZPY2004	2 x 4	●	—	—	—	—	—	● ø4, ø6 tube	● M5 x 0.8 M6 x 1	● M4 x 0.7 M5 x 0.8
ZPY3507	3.5 x 7									
ZPY4010	4 x 10									
ZPY02	2									
ZPY04	4	●	—	—	—	—	—			● M5 x 0.8 M6 x 1
ZPY06	6	●	—	—	●	—	—			
ZPY08	8	●	—	—	●	—	—			● M5 x 0.8 M6 x 1
ZPY10	10	●	●	●	●	●	●			
ZPY13	13	●	●	—	●	●	●			
ZPY16	16	●	●	●	●	●	●			
ZPY20	20	●	●	—	●	—	—	● ø4, ø6 tube	● M6 x 1 M8 x 1	● M5 x 0.8 M6 x 1 M8 x 1.25
ZPY25	25	●	●	●	●	—	—			
ZPY32	32	●	●	—	●	—	—			
ZPY40	40	●	●	●	●	—	—			
ZPY50	50	●	●	—	●	—	—	● ø6 tube	● M6 x 1 M8 x 1	● M6 x 1 M8 x 1.25

## How to Order

**Series ZPY  
Without buffer**



### Pad diameter (mm)

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

### 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	ø10 to ø16	ø20 to ø32	ø40, ø50
Vacuum entry	Barb fitting	N4	ø4 Nylon tube	●	●	●	—
		N6	ø6 Nylon tube	●	●	●	●
		U4	ø4 Urethane tube	●	●	●	—
		U6	ø6 Urethane 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 or 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

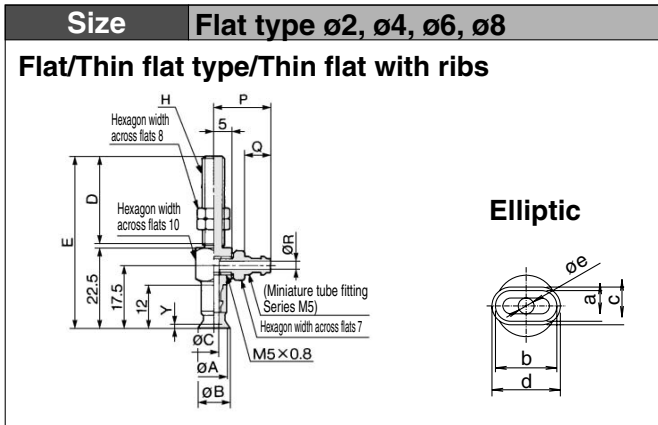
ZCU

AMJ

Misc.

# Series ZPY

<b>Connection</b>	<b>Barb Fitting</b>	<b>Pad Form</b>	<b>Flat/Flat with ribs/Deep/ Thin flat/Thin flat with ribs/Elliptic</b>
<b>Vacuum Entry Port</b>	<b>Lateral</b>	<b>Mounting</b>	<b>Male thread</b>



**Flat**

Model	$\phi A$	$\phi B$	$\phi C$	H: M5 x 0.8		H: M6 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
				D	E	D	E					
ZPY02U	2	2.6	1.2	20	44	25	49.5	0.8	N4 (Nylon tube $\phi 4/2.5$ )	13.5	5	1.8
ZPY04U	4	4.8	1.6									
ZPY06U	6	7	2.5									
ZPY08U	8	9	2.5									
Model	a	b	c	d	$\phi e$	Y	U4 (Soft tube $\phi 4/2.5$ )	U6 (Soft tube $\phi 6/4$ )				
ZPY2004U	2	4	2.6	4.6	1.2	0.3	13.5	5	1.8			
ZPY3507U	3.5	7	4.3	7.8	1.8	0.5	15.5	7	2.5			
ZPY4010U	4	10	5	11	2	0.8						

**Applicable Tubing**

Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY20 <sub>U</sub>	20	23	14	24	42	25	68	15	58	4	N4 (Nylon tube $\phi 4/2.5$ )	14.5	5	1.8
ZPY25 <sub>U</sub>	25	28	14	24	42	25	68	15	58	4				
ZPY32 <sub>U</sub>	32	35	14.5	24.5	42.5	25	68.5	15	58.5	4.5				
ZPY40 <sub>U</sub>	40	43	18.5	28.5	46.5	25	72.5	15	62.5	6.5	N6 (Nylon tube $\phi 6/4$ )	16.5	7	2.5
ZPY50 <sub>U</sub>	50	53	19.5	29.5	47.5	25	73.5	15	63.5	7.5				

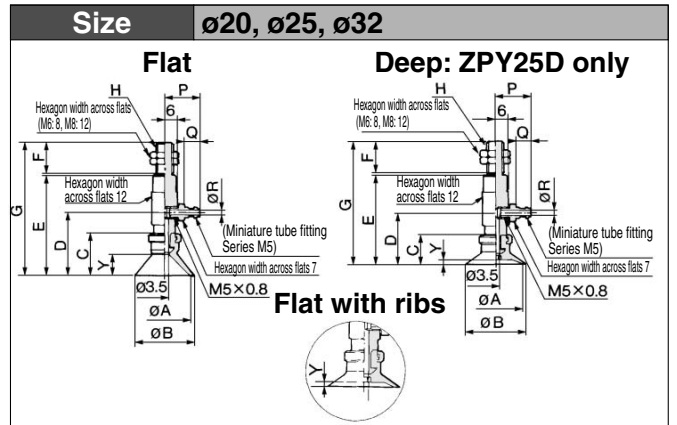
**Deep**

Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY25D	25	28	20	30	48	25	74	15	64	10	14.5	5	1.8	
ZPY40D	40	43	29	39	57	25	83	15	73	17	16.5	7	2.5	

**Model**

Model	A	B	C	Y
ZPY10UT	10	11	2.5	1
ZPY13UT	13	14		1.5
ZPY16UT	16	17		0.8
ZPY10CT	10	11		1
ZPY13CT	13	14		
ZPY16CT	16	17		

\* Dimensions of D, E are the same.

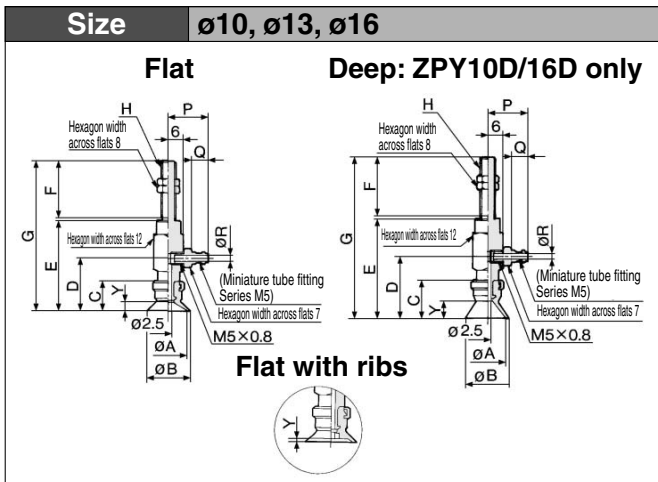


**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY20 <sub>U</sub>	20	23	14	24	42	25	68	15	58	4	N4 (Nylon tube $\phi 4/2.5$ )	14.5	5	1.8
ZPY25 <sub>U</sub>	25	28	14	24	42	25	68	15	58	4				
ZPY32 <sub>U</sub>	32	35	14.5	24.5	42.5	25	68.5	15	58.5	4.5				
ZPY40 <sub>U</sub>	40	43	18.5	28.5	46.5	25	72.5	15	62.5	6.5	N6 (Nylon tube $\phi 6/4$ )	16.5	7	2.5
ZPY50 <sub>U</sub>	50	53	19.5	29.5	47.5	25	73.5	15	63.5	7.5				

**Deep**

Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY25D	25	28	20	30	48	25	74	15	64	10	14.5	5	1.8	
ZPY40D	40	43	29	39	57	25	83	15	73	17	16.5	7	2.5	

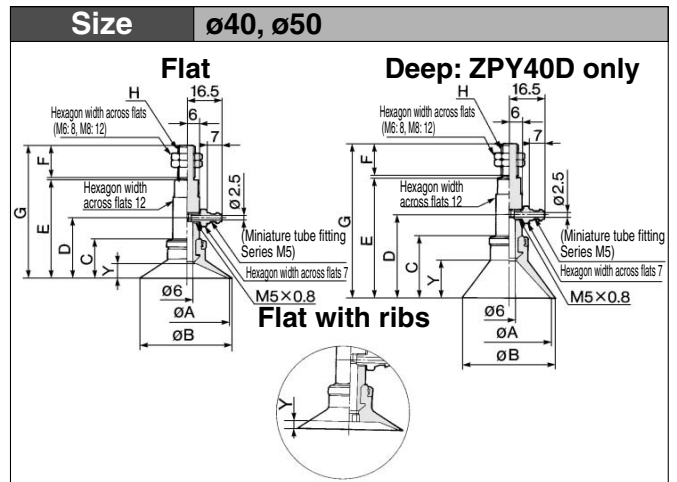


**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	C	D	E	H: M5 x 0.8		H: M6 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY10 <sub>U</sub>	10	12	12	22	38	20	59	25	64	3	N4 (Nylon tube $\phi 4/2.5$ )	14.5	5	1.8
ZPY13 <sub>U</sub>	13	15	12	22	38	20	59	25	64	3				
ZPY16 <sub>U</sub>	16	18	12.5	22.5	38.5	20	59.5	25	64.5	3.5				
ZPY10 <sub>U</sub>	10	12	15	25	41	20	62	25	67	6	N6 (Nylon tube $\phi 6/4$ )	16.5	7	2.5
ZPY16 <sub>U</sub>	16	18	16	26	42	20	63	25	68	7				

**Deep**

Model	$\phi A$	$\phi B$	C	D	E	H: M5 x 0.8		H: M6 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY10D	10	12	15	25	41	20	62	25	67	6	14.5	5	1.8	
ZPY16D	16	18	16	26	42	20	63	25	68	7	16.5	7	2.5	



**Flat/Flat with Ribs**

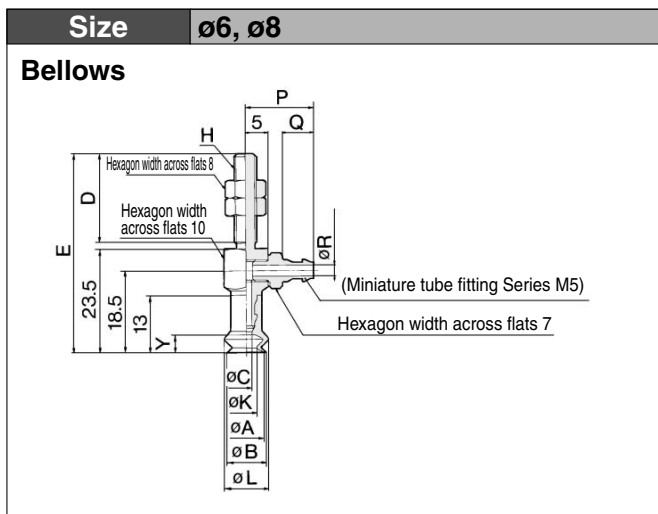
Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY40 <sub>U</sub>	40	43	18.5	28.5	46.5	25	72.5	15	62.5	6.5	N6 (Nylon tube $\phi 6/4$ )	16.5	7	2.5
ZPY50 <sub>U</sub>	50	53	19.5	29.5	47.5	25	73.5	15	63.5	7.5				

**Deep**

Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		Y	Applicable tube O.D.	P	Q	$\phi R$
						F	G	F	G					
ZPY40D	40	43	29	39	57	25	83	15	73	17	16.5	7	2.5	

# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting without Buffer **Series ZPY**

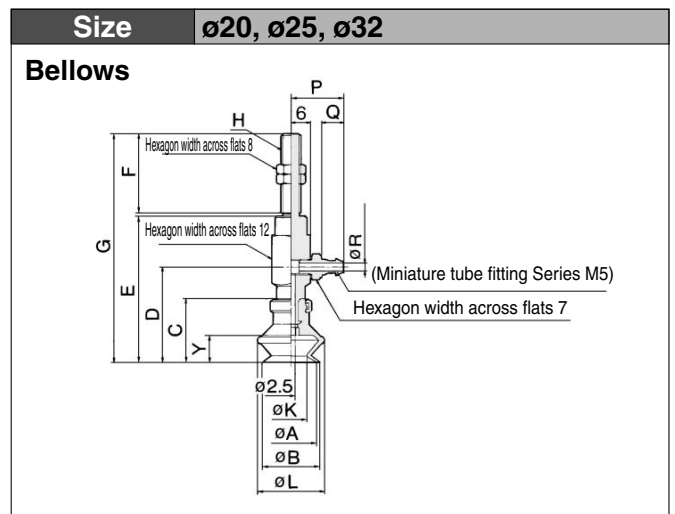
<b>Connection</b>	<b>Barb Fitting</b>	<b>Pad Form</b>	<b>Bellows</b>
<b>Vacuum Entry Port</b>	<b>Lateral</b>	<b>Mounting</b>	<b>Male thread</b>



Model	$\phi A$	$\phi B$	$\phi C$	H: M5 x 0.8		H: M6 x 1		$\phi K$	$\phi L$	Y
				D	E	D	E			
ZPY06B	6	7	2.5	20	45	25	50.5	3.3	9.1	4
ZPY08B	8	9	2.5	20	45	25	50.5	4.7	10.1	4

**Applicable Tubing**

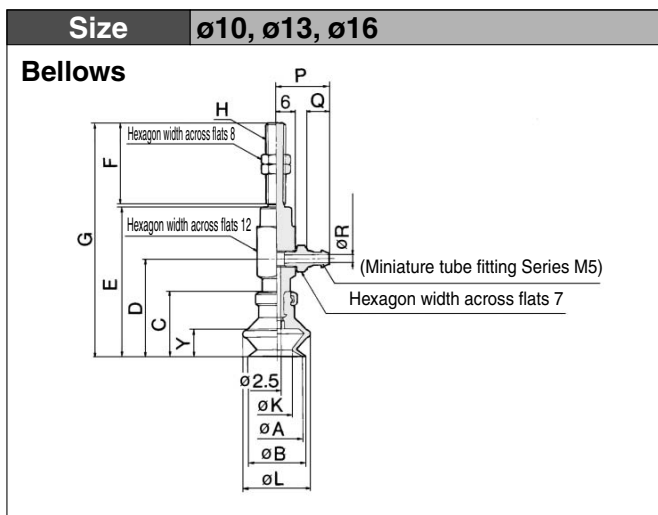
Applicable tubing	P	Q	$\phi R$
N4 (Nylon tube, $\phi 4/2.5$ )	13.5	5	1.8
N6 (Nylon tube, $\phi 6/4$ )	15.5	7	2.5
U4 (Urethane tube, $\phi 4/2.5$ )	13.5	5	1.8
U6 (Urethane tube, $\phi 6/4$ )	15.5	7	2.5



Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		$\phi K$	$\phi L$	Y
						F	G	F	G			
ZPY20B	20	22	23.5	33.5	51.5	25	79.5	15	69.5	12.4	25	10.5
ZPY25B	25	27	24	34	52	25	80	15	70	15.6	28	10.5
ZPY32B	32	34	29	39	57	25	85	15	75	18.9	37	14

**Applicable Tubing**

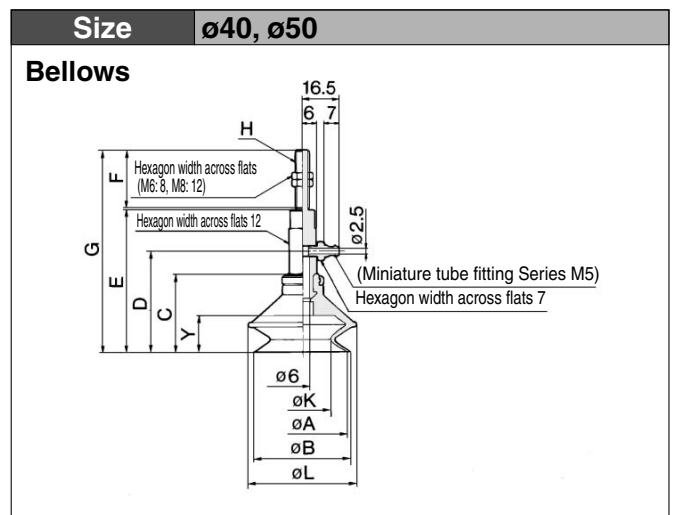
Applicable tubing	P	Q	$\phi R$
N4 (Nylon tube, $\phi 4/2.5$ )	14.5	5	1.8
N6 (Nylon tube, $\phi 6/4$ )	16.5	7	2.5
U4 (Urethane tube, $\phi 4/2.5$ )	14.5	5	1.8
U6 (Urethane tube, $\phi 6/4$ )	16.5	7	2.5



Model	$\phi A$	$\phi B$	C	D	E	H: M5 x 0.8		H: M6 x 1		$\phi K$	$\phi L$	Y
						F	G	F	G			
ZPY10B	10	12	16	26	42	20	63	25	68	5.5	13.8	5.5
ZPY13B	13	15	18.5	28.5	44.5	20	65.5	25	70.5	8.7	19	7.5
ZPY16B	16	18	20	30	46	20	67	25	72	9.9	21	8.5

**Applicable Tubing**

Applicable tubing	P	Q	$\phi R$
N4 (Nylon tube, $\phi 4/2.5$ )	14.5	5	1.8
N6 (Nylon tube, $\phi 6/4$ )	16.5	7	2.5
U4 (Urethane tube, $\phi 4/2.5$ )	14.5	5	1.8
U6 (Urethane tube, $\phi 6/4$ )	16.5	7	2.5

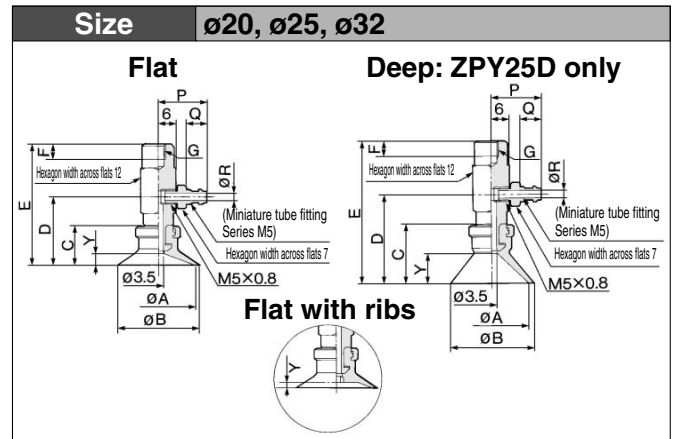
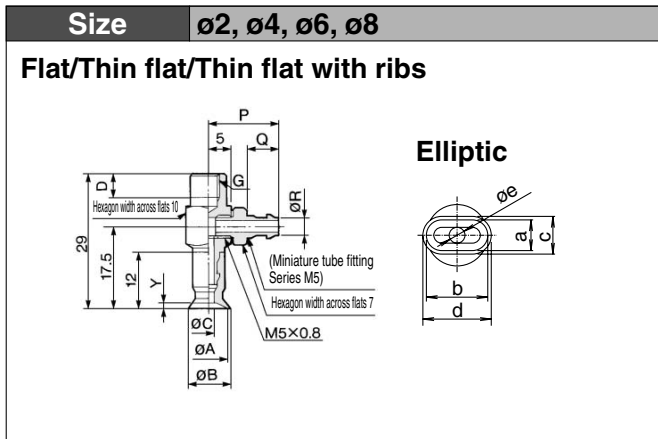


Model	$\phi A$	$\phi B$	C	D	E	H: M6 x 1		H: M8 x 1		$\phi K$	$\phi L$	Y
						F	G	F	G			
ZPY40B	40	43	34	44	62	25	88	15	78	24.4	48	16
ZPY50B	50	53	38	48	66	25	92	15	82	32.4	57	19

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

# Series ZPY

<b>Connection</b>	<b>Barb fitting</b>	<b>Pad Form</b>	<b>Flat/Flat with ribs/Deep/Thin flat/Thin flat with ribs/Elliptic</b>
<b>Vacuum Entry Port</b>	<b>Lateral</b>	<b>Mounting</b>	<b>Female thread</b>



**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	$\phi C$	G: M4 x 0.7		Y	Applicable tube O. D.	P	Q	$\phi R$
				D	D					
ZPY02U	2	2.6	1.2	4	5	0.8	N4 (Nylon tube $\phi 4/2.5$ )	13.5	5	1.8
ZPY04U	4	4.8	1.6							
ZPY06U	6	7	2.5							
ZPY08U	8	9	2.5			1	N6 (Nylon tube $\phi 6/4$ )	15.5	7	2.5

Model	a	b	c	d	$\phi e$	Y	U4 (Soft tube $\phi 4/2.5$ )	P	Q	$\phi R$
ZPY3507U	3.5	7	4.3	7.8	1.8	0.5	U6 (Soft tube $\phi 6/4$ )	15.5	7	2.5
ZPY4010U	4	10	5	11	2	0.8				

**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	C	D	E	G: M5 x 0.8			Y	Applicable tube O. D.	P	Q	$\phi R$
						F	F	F					
ZPY20U	20	23	14	24	42	5	6	8	4	N4 (Nylon tube $\phi 4/2.5$ )	14.5	5	1.8
ZPY25U	25	28											
ZPY32U	32	35	14.5	24.5	42.5								

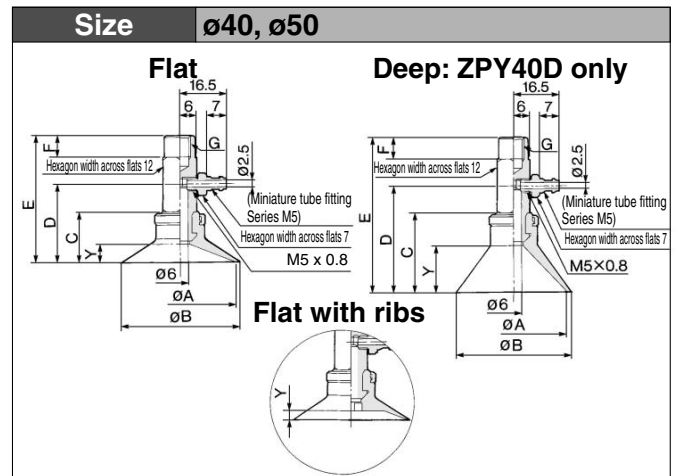
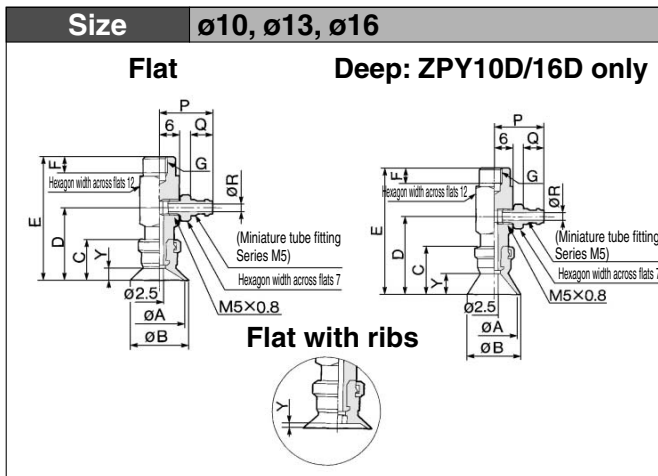
  

**Deep**

Model	$\phi A$	$\phi B$	C	D	E	G: M5 x 0.8			Y	Applicable tube O. D.	P	Q	$\phi R$
						F	F	F					
ZPY25D	25	28	20	30	48	5	6	8	10	U4 (Soft tube $\phi 4/2.5$ )	14.5	5	1.8
										U6 (Soft tube $\phi 6/4$ )	16.5	7	2.5

Model	A	B	C	Y
ZPY10UT	10	11	2.5	1
ZPY13UT	13	14		1.5
ZPY16UT	16	17		
ZPY10CT	10	11	1	0.8
ZPY13CT	13	14		
ZPY16CT	16	17		

\* Dimensions of D are the same.



**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	C	D	E	G: M5 x 0.8		Y	Applicable tube O. D.	P	Q	$\phi R$
						F	F					
ZPY10U	10	12	12	22	38	5	6	3	N4 (Nylon tube $\phi 4/2.5$ )	14.5	5	1.8
ZPY13U	13	15										
ZPY16U	16	18										

Model	$\phi A$	$\phi B$	C	D	E	G: M5 x 0.8		Y	U4 (Soft tube $\phi 4/2.5$ )	P	Q	$\phi R$
						F	F					
ZPY10D	10	12	15	25	41	5	6	6	U6 (Soft tube $\phi 6/4$ )	14.5	5	1.8
ZPY16D	16	18	16	26	42							

**Flat/Flat with Ribs**

Model	$\phi A$	$\phi B$	C	D	E	G: M6 x 1		Y	Applicable tube O. D.	P	Q	$\phi R$
						F	F					
ZPY40U	40	43	18.5	28.5	46.5	6	8	6.5	3.3	14.5	5	1.8
ZPY50U	50	53	19.5	29.5	47.5							

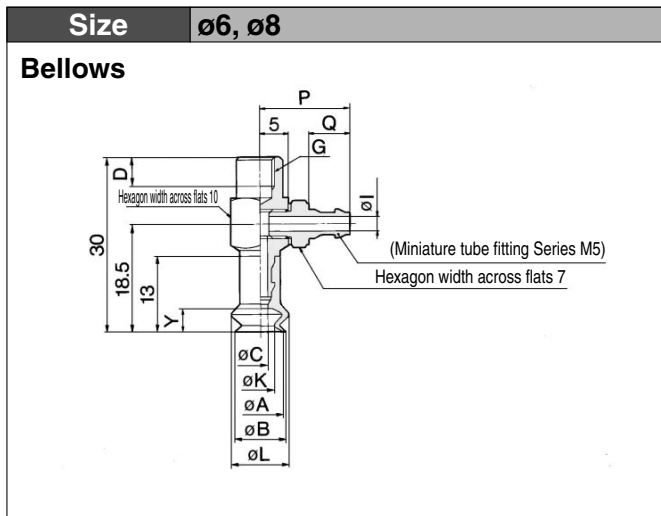
**Deep**

Model	$\phi A$	$\phi B$	C	D	E	G: M6 x 1		Y
						F	F	
ZPY40D	40	43	29	39	57	6	8	17



# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting without Buffer **Series ZPY**

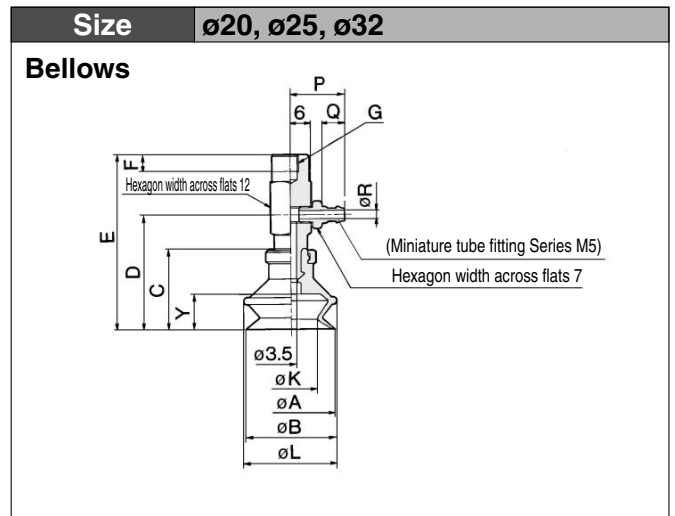
<b>Connection</b>	<b>Barb fitting</b>	<b>Pad Form</b>	<b>Bellows</b>
<b>Vacuum Entry Port</b>	<b>Lateral</b>	<b>Mounting</b>	<b>Female thread</b>



Model	øA	øB	øC	G: M4 x 0.7		G: M5 x 0.8		øK	øL	Y
				D	D	øK	øL			
ZPY06B	6	7	2.5	4	5	3.3	9.1	4		
ZPY08B	8	9	2.5	4	5	4.7	10.1	4		

**Applicable Tubing**

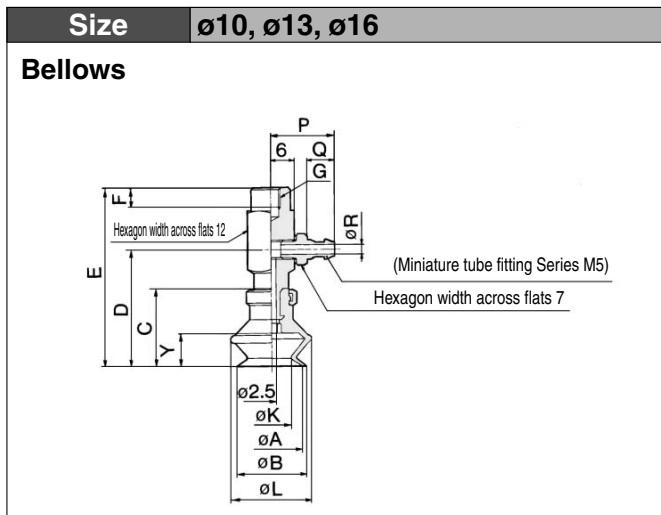
Applicable tube	P	Q	øR
N4 (Nylon tube, ø4/2.5)	13.5	5	1.8
N6 (Nylon tube, ø6/4)	15.5	7	2.5
U4 (Urethane tube, ø4/2.5)	13.5	5	1.8
U6 (Urethane tube, ø6/4)	15.5	7	2.5



Model	øA	øB	C	D	E	G: M5 x 0.8			øK	øL	Y
						F	F	F			
ZPY20B	20	22	23.5	33.5	51.5	5	6	8	12.4	25	10.5
ZPY25B	25	27	24	34	52	5	6	8	15.6	28	10.5
ZPY32B	32	34	29	39	57	5	6	8	18.9	37	14

**Applicable Tubing**

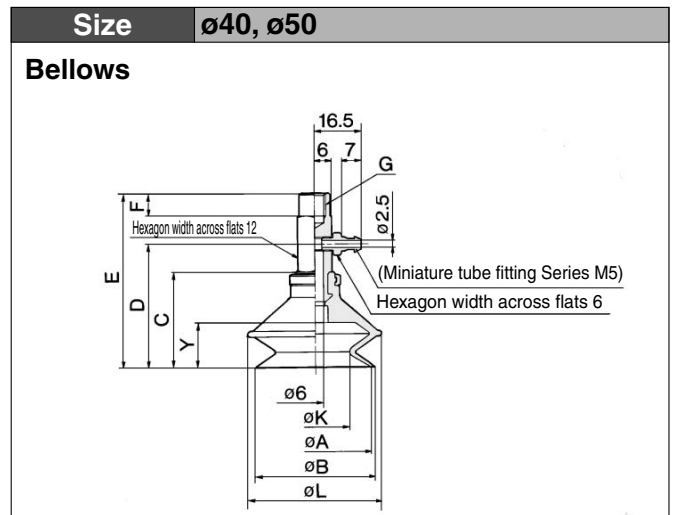
Applicable tube	P	Q	øR
N4 (Nylon tube, ø4/2.5)	14.5	5	1.8
N6 (Nylon tube, ø6/4)	16.5	7	2.5
U4 (Urethane tube, ø4/2.5)	14.5	5	1.8
U6 (Urethane tube, ø6/4)	16.5	7	2.5



Model	øA	øB	C	D	E	G: M5 x 0.8		G: M6 x 1		øK	øL	Y
						F	F	øK	øL			
ZPY10B	10	12	16	26	42	5	6	5.5	13.8	5.5		
ZPY13B	13	15	18.5	28.5	44.5	5	6	8.7	19	7.5		
ZPY16B	16	18	20	30	46	5	6	9.9	21	8.5		

**Applicable Tubing**

Applicable tube	P	Q	øR
N4 (Nylon tube, ø4/2.5)	14.5	5	1.8
N6 (Nylon tube, ø6/4)	16.5	7	2.5
U4 (Urethane tube, ø4/2.5)	14.5	5	1.8
U6 (Urethane tube, ø6/4)	16.5	7	2.5



Model	øA	øB	C	D	E	G: M6 x 1		G: M8 x 1.25		øK	øL	Y
						F	F	øK	øL			
ZPY40B	40	43	34	44	62	6	8	24.4	48	16		
ZPY50B	50	53	38	48	66	6	8	32.4	57	19		

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



# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting With Buffer

## Series ZPY

### Specifications



Vacuum entry	Direction Connection		Lateral Barb fitting
	Applicable tubing dia.	2 x 4, 3.5 x 7, 4 x 10 ø10 to ø16 (Thin section series) ø2 to ø8	
Mounting	Thread dia.	ø10 to ø16	ø4, ø6 Nylon tube, ø4, ø6 Urethane tube
		ø20 to ø32	ø4, ø6 Nylon tube, ø4, ø6 Urethane tube
		ø40, ø50	ø6 Nylon tube, ø6 Urethane tube
		M8 x 1 Male thread	
		ø10 to ø16	M10 x 1 Male thread
		ø20 to ø32	M10 x 1 Male thread
		ø40 to 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 (N)

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		Flat/ Flat with ribs	Deep	Bellows
	Model				
6	ZPY2004	33	—	33	
	ZPY3507				
	ZPY4010				
	ZPY02 to 08				
	ZPY10 to 16 (Thin section series)				
10	ZPY 10 to 16	45	45	46	
	ZPY 20 25	50	51	53	
10	ZPY 32	52	—	58	
	ZPY 40	115	117	127	
	ZPY 50	132	—	134	

### Weight by Stroke (g)

Model	Stroke (mm)						
	10	15	20	25	30	40	50
ZPY02 to 08	+7	+8	—	+9	—	—	—
ZPY10 to 25	—	—	+12	—	+14	+26	+28
ZPY40, 50	—	—	-5.5	—	-5.5	—	+30



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



# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting with Buffer **Series ZPY**

## How to Order

**Series ZPY  
With buffer**

ZPY 16 U GS K 20 U6 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	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 (Thin section series)	ø10 to ø32	ø40, ø50
Vacuum entry One-touch fitting	N4	ø4 Nylon tube	●	●	—
	N6	ø6 Nylon tube	●	●	●
	U4	ø4 Urethane tube	●	●	—
	U6	ø6 Urethane 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.



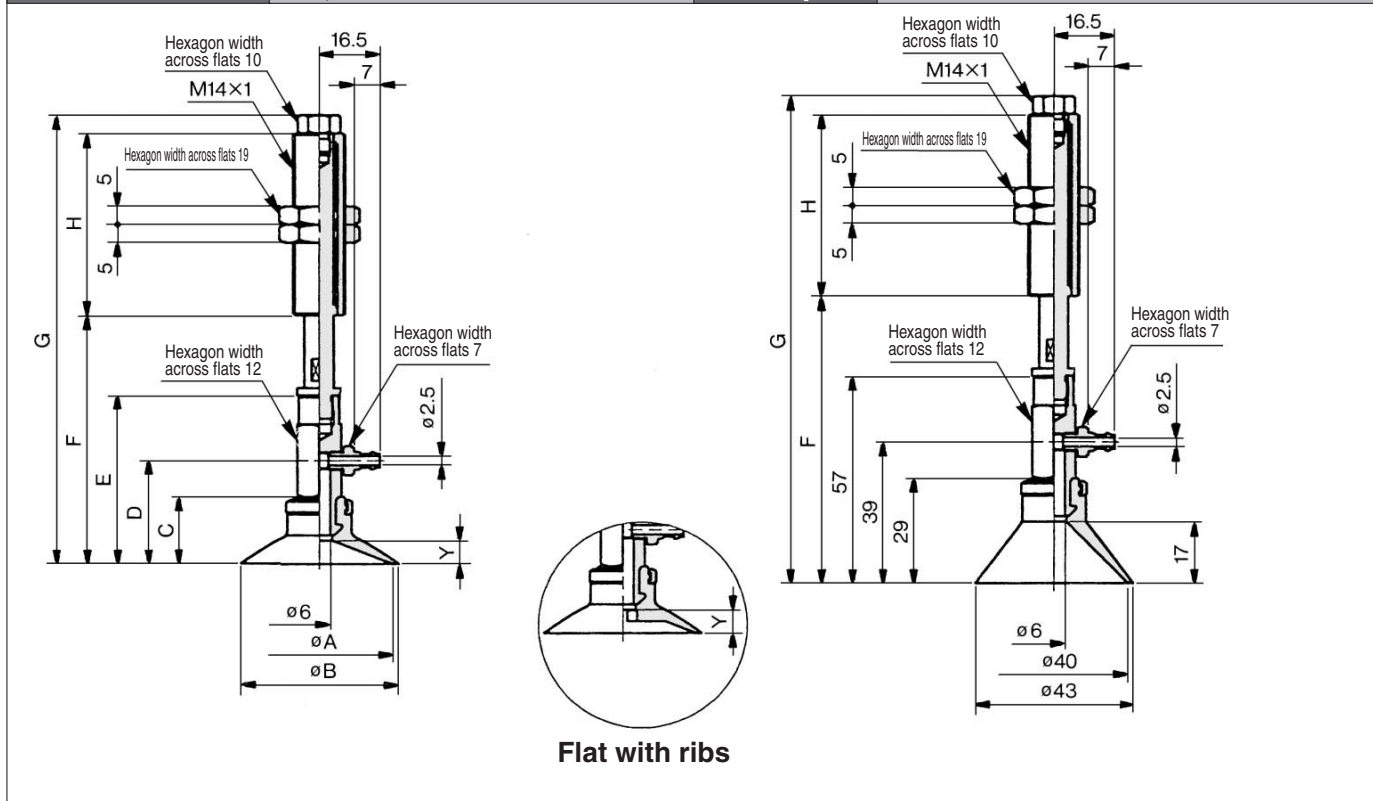




# Vacuum Pad: Lateral Vacuum Entry with Barb Fitting with Buffer **Series ZPY**

<b>Connection</b>	Barb fitting	<b>Pad Form</b>	Flat/Flat with ribs/Deep
<b>Vacuum Entry Port</b>	Lateral	<b>Mounting</b>	Male thread

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



### Flat/Flat with Ribs

Model	A	B	C	D	E	Y	
						Flat	Flat with ribs
ZPY40 <sup>U</sup> <sub>C</sub> □□□□□□-□6-A14	40	43	18.5	28.5	46.5	6.5	3.3
ZPY50 <sup>U</sup> <sub>C</sub> □□□□□□-□6-A14	50	53	19.5	29.5	47.5	7.5	3.8

### Deep

Model	F	G	H
ZPY40D□□□□10-□6-A14	69	137	
ZPY40D□□□□20-□6-A14	79	134	50
ZPY40D□□□□30-□6-A14	89	144	
ZPY40D□□□□50-□6-A14	109	189	75

### Dimensions by Stroke

Model	$\phi 40$		$\phi 50$		H
	F	G	F	G	
ZPY□□ <sup>U</sup> <sub>C</sub> □□□□10-□6-A14	58.5	126.5	59.5	127.5	50
ZPY□□ <sup>U</sup> <sub>C</sub> □□□□20-□6-A14	68.5	123.5	69.5	124.5	
ZPY□□ <sup>U</sup> <sub>C</sub> □□□□30-□6-A14	78.5	133.5	79.5	134.5	
ZPY□□ <sup>U</sup> <sub>C</sub> □□□□50-□6-A14	98.5	178.5	99.5	179.5	

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





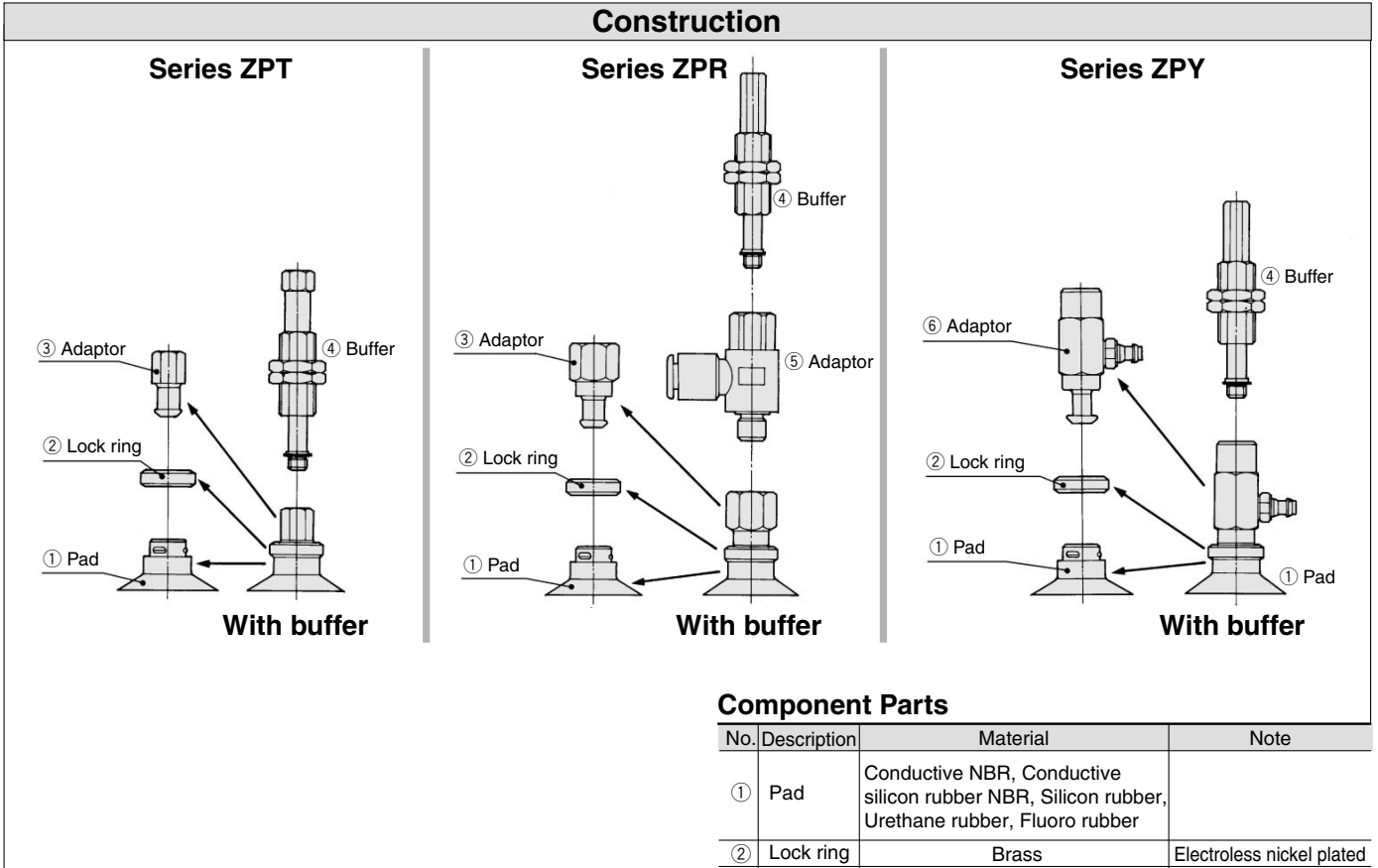


## Vacuum Pad/Components



Refer to page 13-11-62 to 13-11-64 for part numbers of ③ to ⑥.

### Construction

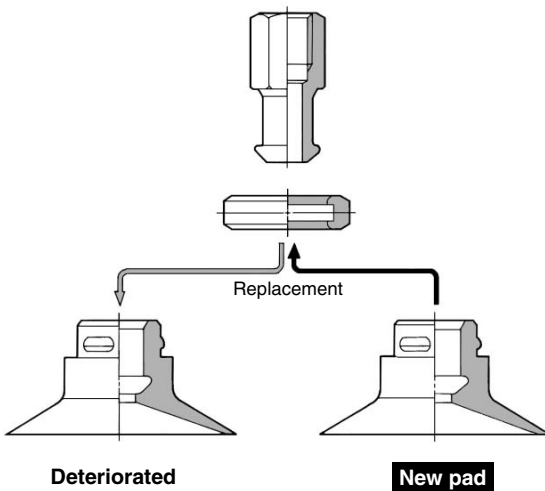


### Component Parts

No.	Description	Material	Note
①	Pad	Conductive NBR, Conductive silicon rubber NBR, Silicon rubber, Urethane rubber, Fluoro rubber	
②	Lock ring	Brass	Electroless nickel plated
③	Adapter	Brass	Electroless nickel plated
④	Buffer	Brass	Electroless nickel plated
⑤	Adapter	Brass, PBT	Electroless nickel plated
⑥	Adapter	Brass	Electroless nickel plated

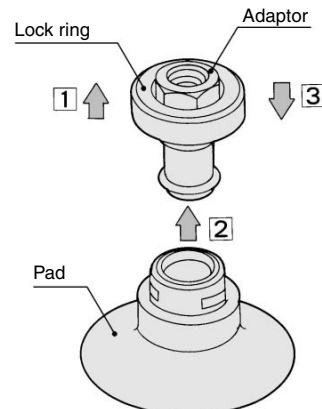
### Maintenance of Pad

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 surface of the pad.



### How to Replace

1. Pull the lock ring upward, and after lifting it to the adaptor, remove the old pad by pulling it downward.
2. While holding the lock ring in the raised position, place a new pad onto the adaptor.
3. Confirm that the pad is securely in place, and then return the lock ring to its original position.



## Replacement Parts: Pad Unit (With lock ring/Without lock ring)

### How to Order Pad Unit

**ZP 10 U N X19**

• Pad dia. (mm)

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

• Lock ring

Nil	With lock ring
-X19	Without lock ring (ø10 or larger)

• Pad type

U	Flat
C	Flat with ribs
D	Deep
B	Bellows

• 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.

### How to Order Lock Ring Unit

**ZPL 1**

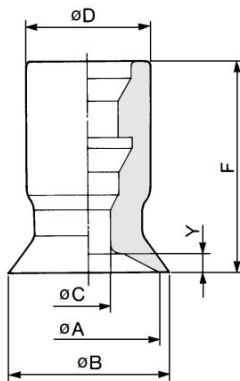
• Applicable pad dia. (mm)

1	ø10 to ø16
2	ø20 to ø32
3	ø40, ø50

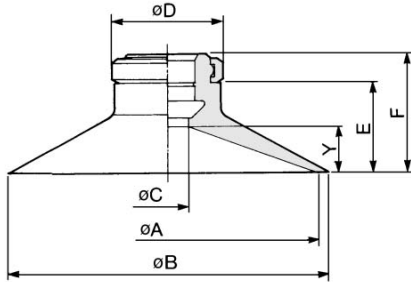
- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZY
- ZQ
- ZF
- ZP**
- ZCU
- AMJ
- Misc.

#### Flat (U)

ZP02U□ to 08U□



ZP10U□ to 50U□

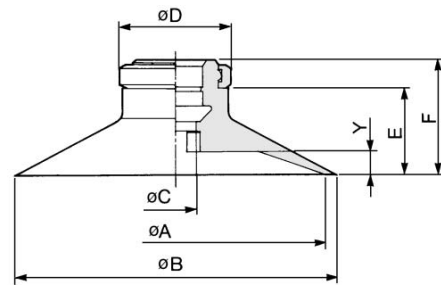


Model	Size	øA	øB	øC	øD	E	F	Y
ZP02U□	U02	2	2.6	1.2	7	—	12	0.8
ZP04U□	U04	4	4.8	1.6	7	—	12	0.8
ZP06U□	U06	6	7	2.5	7	—	12	0.8
ZP08U□	U08	8	9	2.5	7	—	12	1
ZP10U□	U10	10	12	4	13	7.7	12	3
ZP13U□	U13	13	15	4	13	7.7	12	3
ZP16U□	U16	16	18	4	13	8.2	12.5	3.5
ZP20U□	U20	20	23	4	15	9.5	14	4
ZP25U□	U25	25	28	4	15	9.5	14	4
ZP32U□	U32	32	35	4	15	10	14.5	4.5
ZP40U□	U40	40	43	7	18	13.7	18.5	6.5
ZP50U□	U50	50	53	7	18	14.7	19.5	7.5

\* Put in the symbol for material at the end of model no.

#### Flat with ribs (C)

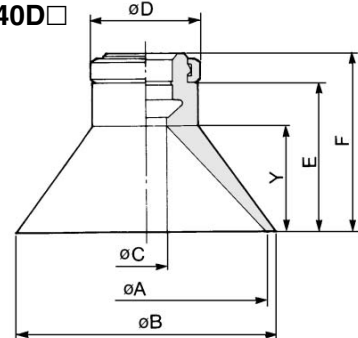
ZP10C□ to 50C□



Model	Size	øA	øB	øC	øD	E	F	Y
ZP10C□	C10	10	12	4	13	7.7	12	1.7
ZP13C□	C13	13	15	4	13	7.7	12	1.8
ZP16C□	C16	16	18	4	13	8.2	12.5	1.2
ZP20C□	C20	20	23	4	15	9.5	14	1.7
ZP25C□	C25	25	28	4	15	9.5	14	1.8
ZP32C□	C32	32	35	4	15	10	14.5	2.3
ZP40C□	C40	40	43	7	18	13.7	18.5	3.3
ZP50C□	C50	50	53	7	18	14.7	19.5	3.8

#### Deep (D)

ZP10D□ to 40D□

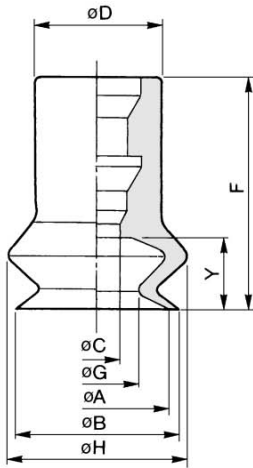


Model	Size	øA	øB	øC	øD	E	F	Y
ZP10D□	D10	10	12	4	13	10.7	15	6
ZP16D□	D16	16	18	4	13	11.7	16	7
ZP25D□	D25	25	28	4	15	15.5	20	10
ZP40D□	D40	40	43	7	18	24.2	29	17

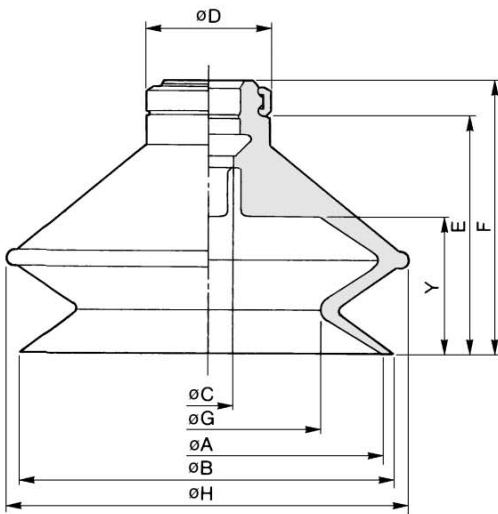
## Replacement Parts: Pad Unit (With lock ring/Without lock ring)

### Bellows (B)/With Lock Ring

Pad diameter:  $\phi 6$  to  $\phi 8$   
ZP06B□ to 08B□



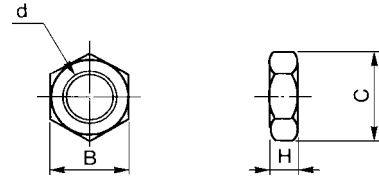
Pad diameter:  $\phi 10$  to  $\phi 50$   
ZP10B□ to 50B□



Model	Size	$\phi A$	$\phi B$	$\phi C$	$\phi D$	E	F	$\phi G$	$\phi H$	Y
ZP06B□	B06	6	7	2.5	7	—	13	3.3	9.1	4
ZP08B□	B08	8	9	2.5	7	—	13	4.7	10.1	4
ZP10B□	B10	10	12	4	13	11.7	16	5.5	13.8	5.5
ZP13B□	B13	13	15	4	13	14.2	18.5	8.7	19	7.5
ZP16B□	B16	16	18	4	13	15.7	20	9.9	21	8.5
ZP20B□	B20	20	22	4	15	19	23.5	12.4	25	10.5
ZP25B□	B25	25	27	4	15	19.5	24	15.6	28	10.5
ZP32B□	B32	32	34	4	15	24.5	29	18.9	37	14
ZP40B□	B40	40	43	7	18	29.2	34	24.4	48	16
ZP50B□	B50	50	53	7	18	33.2	38	32.4	57	19

\* Put in the symbol for material at the end of model no.

### Buffer Mounting Nut



Model	d	H	B	C
NTJ-015A	M5 x 0.8	4	8	9.2
SNJ-006A	M6 x 1	3	8	9.2
SNJ-010A	M8 x 1	3	12	13.9
SNJ-015A	M10 x 1	3	14	16.2
SN-015A	M14 x 1	5	19	21.9

**Replacement Parts: Pad Unit (With lock ring/Without lock ring)**

**How to Order/Pad Unit**

Thin flat (UT), Thin flat with ribs (CT)

ZP 10 UT N

Pad diameter ●

10	φ10
13	φ13
16	φ16

● Material

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

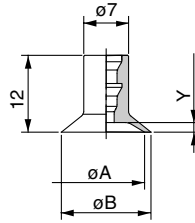
Pad type ●

UT	Thin flat
CT	Thin flat with ribs

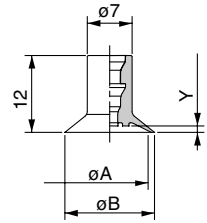
**Dimensions**

Thin flat

Thin flat with ribs



ZP□□UT□□



ZP□□CT□□

Dimensions (mm)

Model	A	B	Y
ZP10UT□□	10	11	1
ZP13UT□□	13	14	1.5
ZP16UT□□	16	17	1.5

Dimensions (mm)

Model	A	B	Y
ZP10CT□□	10	11	0.8
ZP13CT□□	13	14	1
ZP16CT□□	16	17	1

Elliptic

ZP 2004 U N

Pad diameter ●

2004	2 x 4 (Breadth x Length)
3507	3.5 x 7
4010	4 x 10

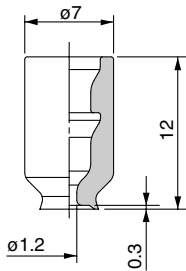
● Material

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

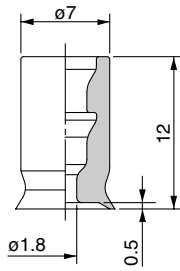
Pad type ●

U	Flat
---	------

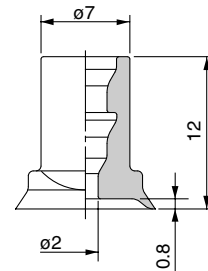
**Dimensions**



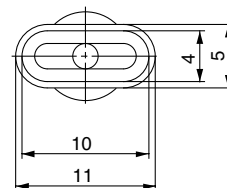
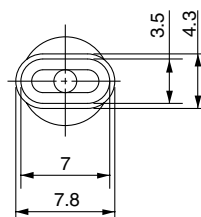
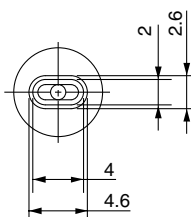
ZP2004U□□



ZP3507U□□



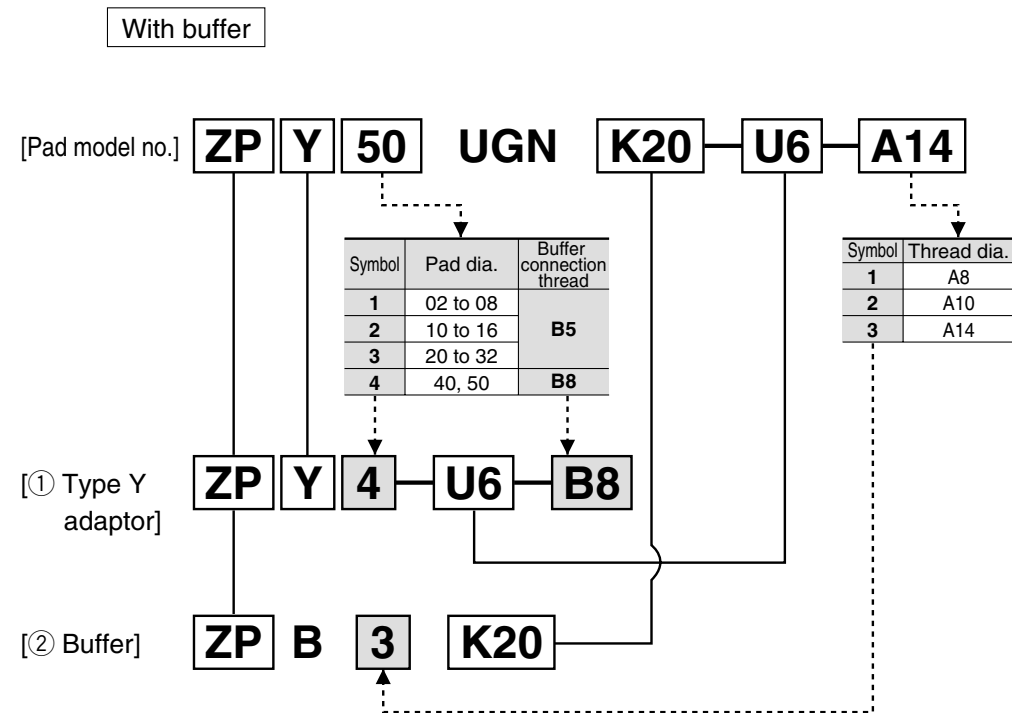
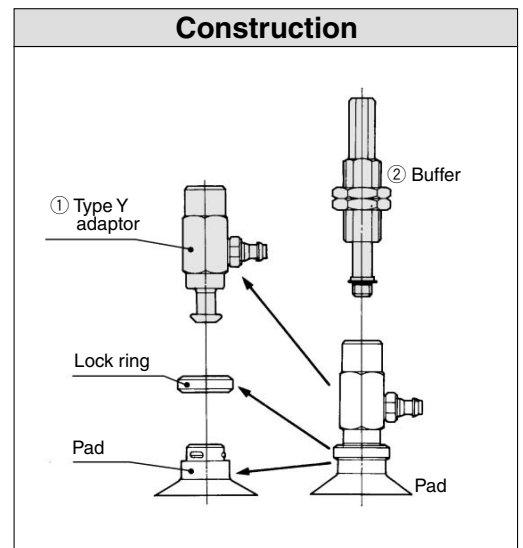
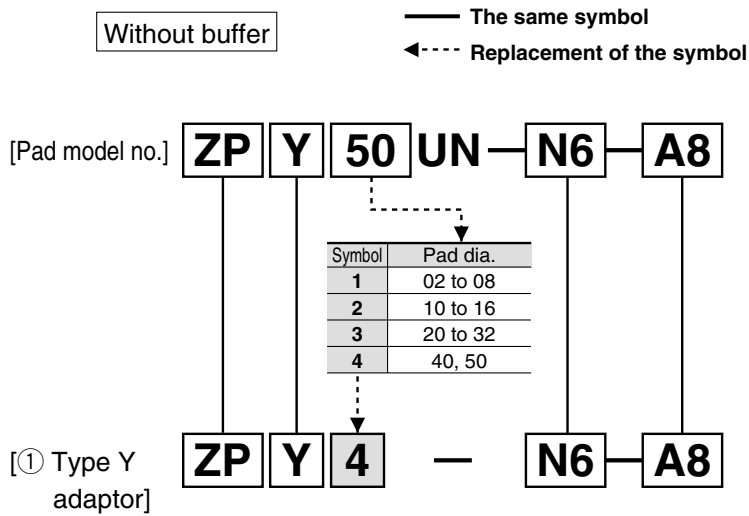
ZP4010U□□



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

# Series ZP

## Replacement Parts: Adaptor/Buffer (Series ZPY)



\* Refer to ø2 to ø8 for Thin flat, Thin flat with ribs, and Elliptic.



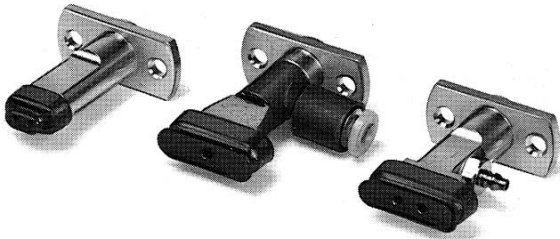
# Series ZP

# Made to Order Specifications:

Please consult with SMC for detailed specifications, dimensions and delivery.

## 1. Elliptic Pad/Without Buffer

Non-standard elliptic pads without buffer for Series ZPT, ZPR, and ZPY.



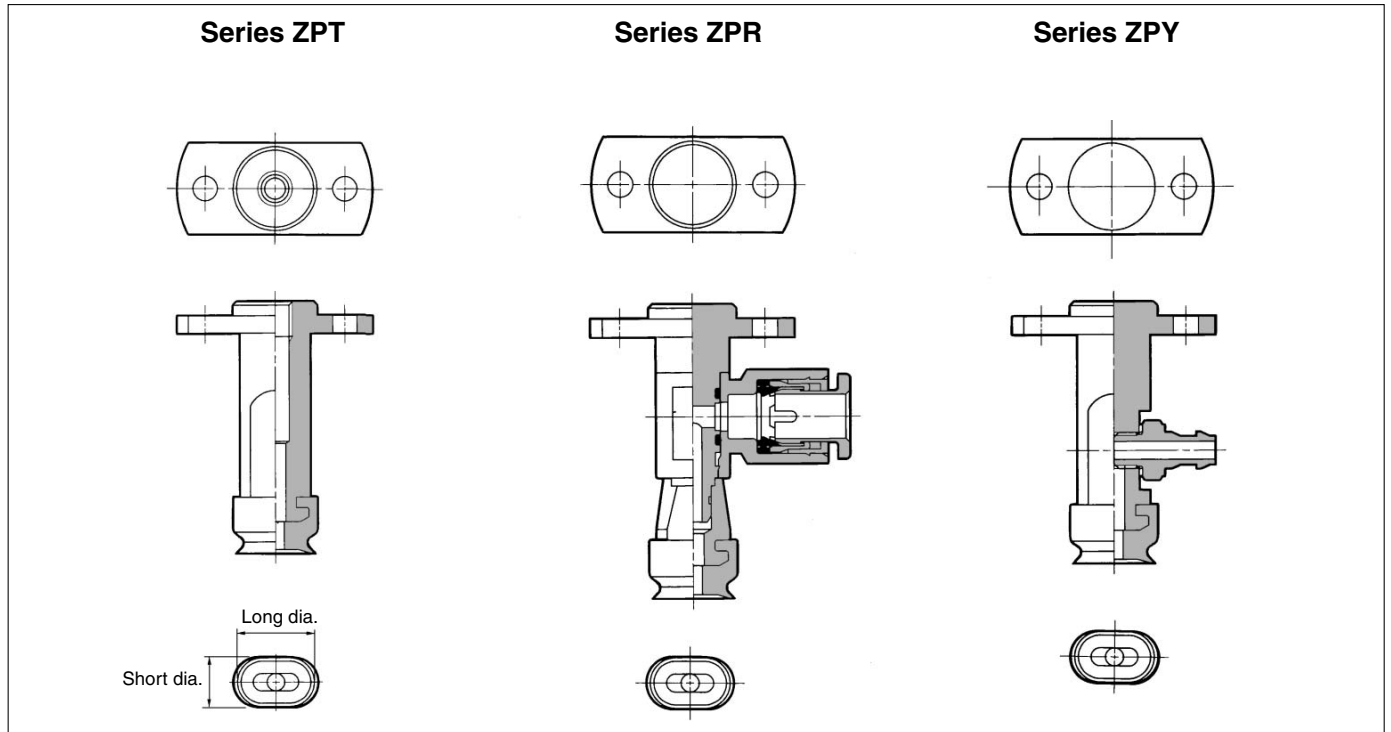
### Specifications

Applicable model		ZPT/ZPR/ZPY (Without buffer)		
Series		ZPT	ZPR	ZPY
Vacuum entry	Direction	Vertical	Lateral	Lateral
	Connection	Female thread	Air suction filter	Barb fitting
Mounting		Two $\phi 3.5$ mounting holes are provided. Mount the pad with bolts at the desired position.		
Pad material		NBR, Silicon rubber, Urethane rubber, Fluoro rubber, Conductive NBR, Conductive silicon rubber		

### Applicable Pad Diameter

Symbol	Breadth x Length (mm)	Symbol	Breadth x Length (mm)
3507	3.5 x 7	5030	5 x 30
4010	4 x 10	6010	6 x 10
4020	4 x 20	6020	6 x 20
4030	4 x 30	6030	6 x 30
5010	5 x 10	8020	8 x 20
5020	5 x 20	8030	8 x 30

### Dimensions



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

# Made to Order Specifications:

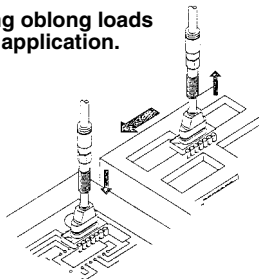
Please consult with SMC for detailed specifications, dimensions and delivery.

## 2. Elliptic Pad/With Buffer

Non-standard elliptic pads with buffer for Series ZPT, ZPR, and ZPY.



Suitable for picking oblong loads in a space-saving application.



### Specifications

Applicable model	ZPT/ZPR/ZPY (With buffer)		
Series	ZPT	ZPR	ZPY
Direction	Vertical	Lateral	Lateral
Vacuum entry	Female thread Barb fitting Air suction filter	Air suction filter	Barb fitting
Mounting	Male thread	Male thread	Male/Female thread
Buffer type	Non-rotating (K)		
Pad material	NBR, Silicon rubber, Urethane rubber, Fluoro rubber, Conductive NBR, Conductive silicon rubber		

\* Please consult with SMC for applicable strokes.

### Applicable Pad Diameter

Symbol	Breadth x Length (mm)	Symbol	Breadth x Length (mm)
3507	3.5 x 7	5030	5 x 30
4010	4 x 10	6010	6 x 10
4020	4 x 20	6020	6 x 20
4030	4 x 30	6030	6 x 30
5010	5 x 10	8020	8 x 20
5020	5 x 20	8030	8 x 30

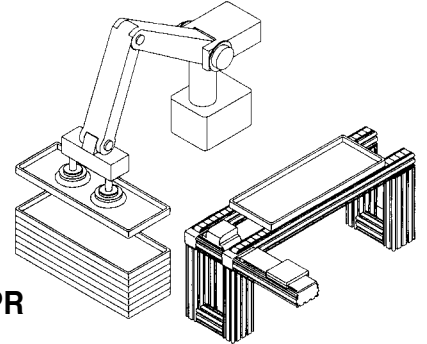
### Dimensions

Series ZPT	Series ZPR	Series ZPY

# Vacuum Pad: Large/Heavy Duty Type



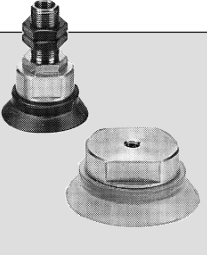
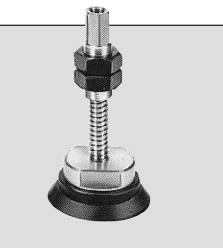
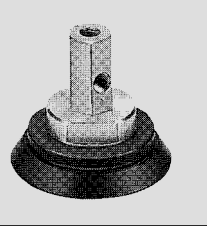

## Series ZPT/ZPX

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	
 <b>Series ZPT</b> Vertical vacuum entry	Male thread	Female thread	 <b>Series ZPX</b> 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 ( $\phi D$ ) 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.

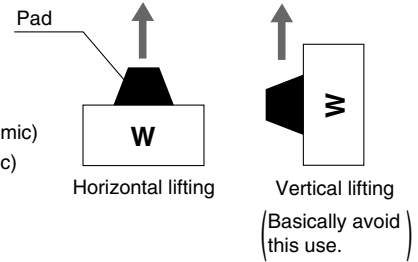
## Calculation Method: Pad Diameter

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

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

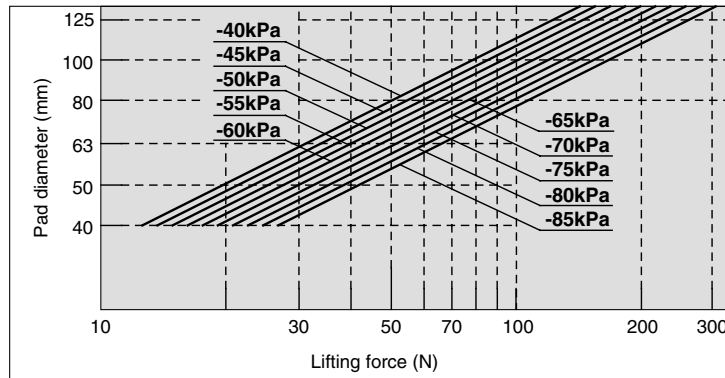
- $\phi D$  : Pad diameter (mm)
- $n$  : Number of pads used
- $W$  : Lifting force (N)
- $P$  : Stable vacuum pressure (kPa)
- $t$  : Safety factor: Horizontal pad contact: 4 (dynamic)  
Vertical pad contact: 8 (dynamic)



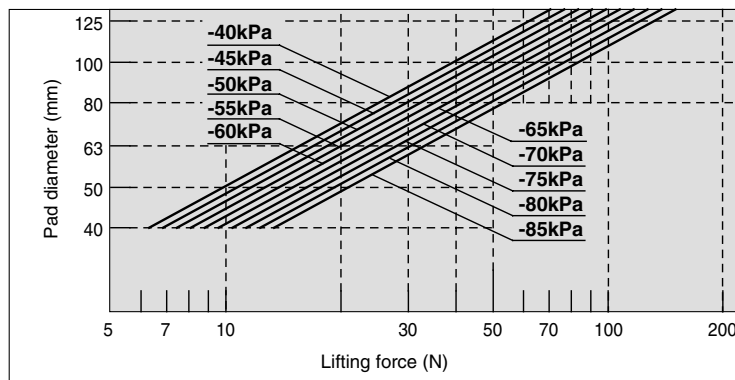
### Selection Graph

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

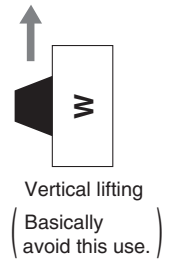
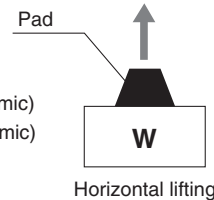
Theoretical lifting force for pad can be derived from calculations or taken directly from theoretical lifting force table.

### Calculation

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

**W** : Lifting force (N)  
**P** : Stable vacuum pressure (kPa)  
**S** : Pad area (cm<sup>2</sup>)  
**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.

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

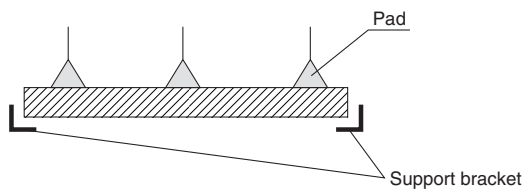
### Theoretical Lifting Force (Theoretical lifting force = P x S x 0.1)

(N)

Pad diameter (mm)	ø40	ø50	ø63	ø80	ø100	ø125	
Adsorption area (cm <sup>2</sup> )	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.

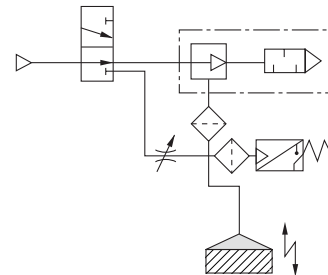


Install support brackets to prevent a workpiece from dropping according to your requirements.

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.

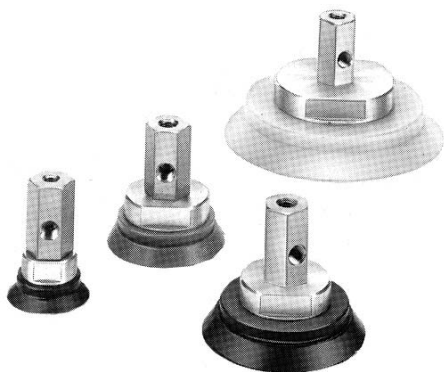
When response time is important, consider the following measures:

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



# Vacuum Pad: Large/Heavy Duty Type Lateral Vacuum Entry Without Buffer

## Series ZPX



### Specifications

Mounting	Vacuum entry direction	Lateral	
	Connection	Female thread	
	Thread dia.	ø40, ø50	M8 x 1.25, M10 x 1.5
		ø63, ø80	M10 x 1.5, M12 x 1.75
ø100, ø125		M10 x 1.5, M12 x 1.75	
Vacuum entry port		Rc 1/8	

### 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)
ZPX40H□-B01-B8	148	ZPX100H□-B01-B10	418
ZPX40H□-B01-B10	150	ZPX100H□-B01-B12	414
ZPX50H□-B01-B8	160	ZPX125H□-B01-B10	482
ZPX50H□-B01-B10	158	ZPX125H□-B01-B12	478
ZPX63H□-B01-B10	229		
ZPX63H□-B01-B12	219		
ZPX80H□-B01-B10	258		
ZPX80H□-B01-B12	254		

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

### How to Order

**ZPX 40 H N - B01 - B8**

Pad diameter (mm)

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

Mounting thread

	ø40, ø50	ø63, ø80	ø100, ø125
B8	M8 x 1.25	—	—
B10	M10 x 1.5	●	●
B12	M12 x 1.75	—	●

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

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

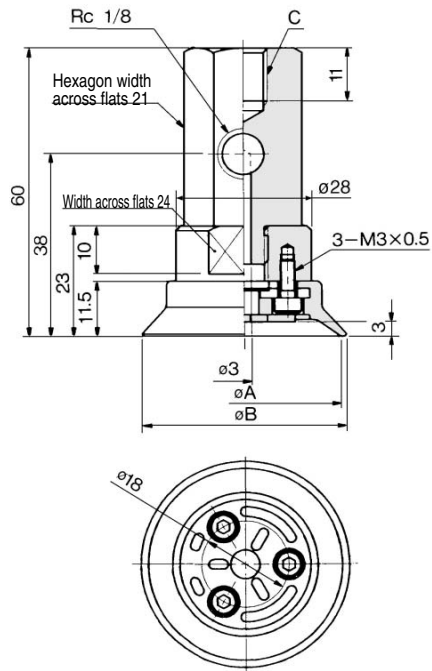
AMJ

Misc.



# Series ZPX

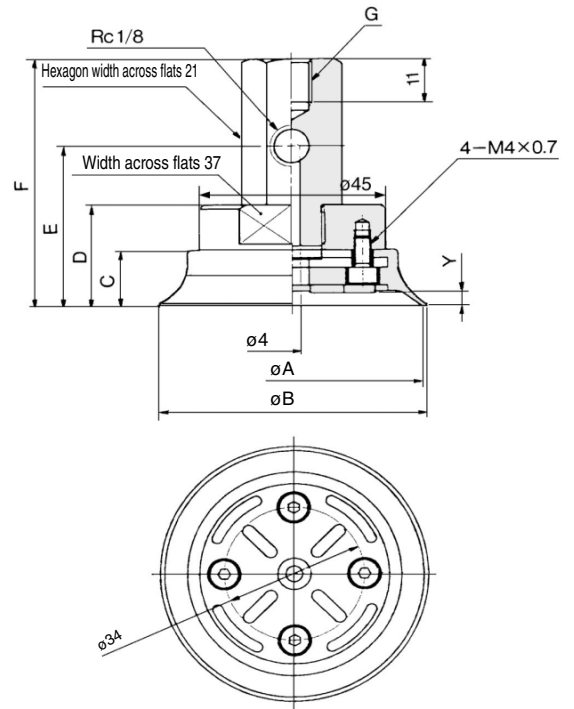
## ZPX<sub>40</sub><sup>50</sup> H□-B01-B□ (Female thread)



(mm)

Model	$\phi A$	$\phi B$	C
ZPX40H□-B01-B8	40	42	M8 x 1.25
ZPX40H□-B01-B10	40	42	M10 x 1.5
ZPX50H□-B01-B8	50	52	M8 x 1.25
ZPX50H□-B01-B10	50	52	M10 x 1.5

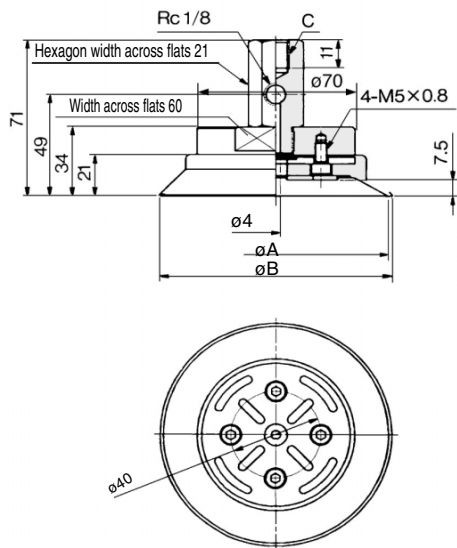
## ZPX<sub>63</sub><sup>80</sup> H□-B01-B□ (Female thread)



(mm)

Model	$\phi A$	$\phi B$	C	D	E	F	Y	G
ZPX63H□-B01-B10	63	65	14.5	26	41	63	3.5	M10 x 1.5
ZPX63H□-B01-B12	63	65	14.5	26	41	63	3.5	M12 x 1.75
ZPX80H□-B01-B10	80	82	16.5	28	43	65	4.5	M10 x 1.5
ZPX80H□-B01-B12	80	82	16.5	28	43	65	4.5	M12 x 1.75

## ZPX<sub>100</sub><sup>125</sup> H□-B01-B□ (Female thread)

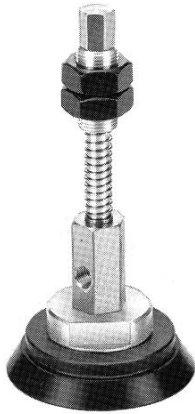


(mm)

Model	$\phi A$	$\phi B$	C
ZPX100H□-B01-B10	100	103	M10 x 1.5
ZPX100H□-B01-B12	100	103	M12 x 1.75
ZPX125H□-B01-B10	125	128	M10 x 1.5
ZPX125H□-B01-B12	125	128	M12 x 1.75

# Vacuum Pad: Large/Heavy Duty Type Lateral Vacuum Entry With Buffer

## Series ZPX



### 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 $\text{\textcircled{F}}$ ), EPR (Black with mark $\text{\textcircled{E}}$ )
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)
ZPX40HNJ25-B01-A18	266	ZPX80HNJ50-B01-A18	401
ZPX40HNJ50-B01-A18	287	ZPX80HNJ75-B01-A18	424
ZPX40HNJ75-B01-A18	310	ZPX100HNJ25-B01-A22	638
ZPX50HNJ25-B01-A18	278	ZPX100HNJ50-B01-A22	677
ZPX50HNJ50-B01-A18	299	ZPX100HNJ75-B01-A22	721
ZPX50HNJ75-B01-A18	322	ZPX100HNJ100-B01-A22	760
ZPX63HNJ25-B01-A18	351	ZPX125HNJ25-B01-A22	702
ZPX63HNJ50-B01-A18	372	ZPX125HNJ50-B01-A22	741
ZPX63HNJ75-B01-A18	395	ZPX125HNJ75-B01-A22	785
ZPX80HNJ25-B01-A18	380	ZPX125HNJ100-B01-A22	824

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

### How to Order

**ZPX 40 H N J 25 — B01 — A18**

#### Pad diameter (mm)

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

#### Pad type

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

#### Material

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

#### Mounting thread

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

#### Vacuum entry

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

#### Buffer stroke (Rotating)

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

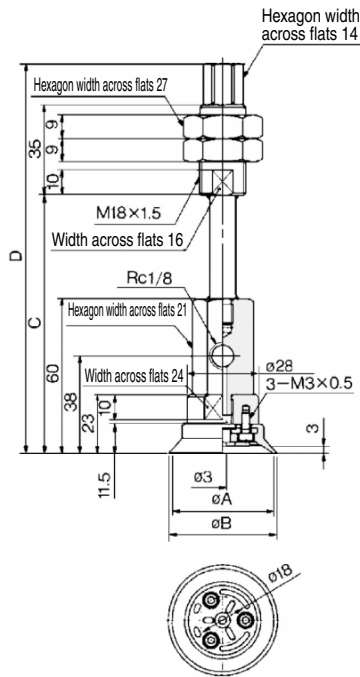
#### Spring Force

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 ZPX

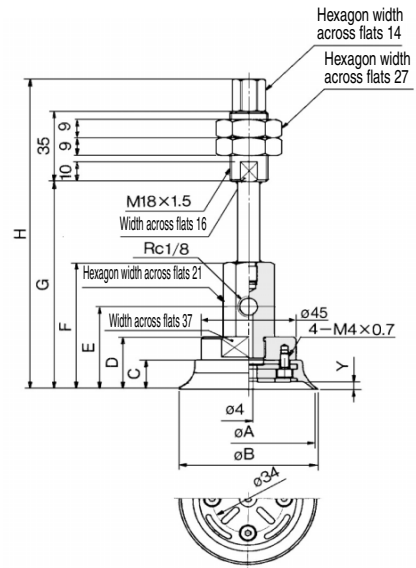
## ZPX<sub>40</sub><sup>50</sup> H□J□-B01-A18 (With buffer)



(mm)

Model	$\phi A$	$\phi B$	C	D
ZPX40H□J25-B01-A18	40	42	100	151
ZPX40H□J50-B01-A18	40	42	135	186
ZPX40H□J75-B01-A18	40	42	171	222
ZPX50H□J25-B01-A18	50	52	100	151
ZPX50H□J50-B01-A18	50	52	135	186
ZPX50H□J75-B01-A18	50	52	171	222

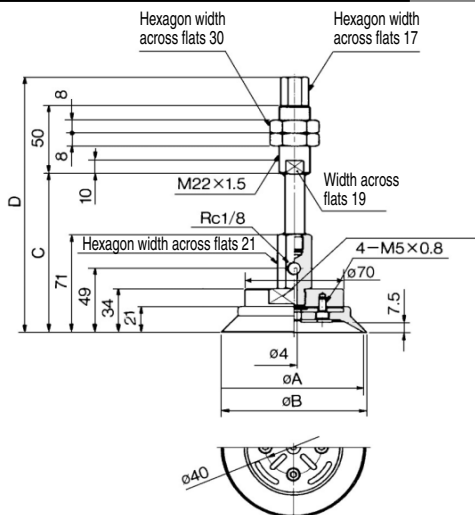
## ZPX<sub>63</sub><sup>80</sup> H□J□-B01-A18 (With buffer)



(mm)

Model	$\phi A$	$\phi B$	C	D	E	F	G	H	Y
ZPX63H□J25-B01-A18	63	65	14.5	26	41	63	103	154	3.5
ZPX63H□J50-B01-A18	63	65	14.5	26	41	63	136	189	3.5
ZPX63H□J75-B01-A18	63	65	14.5	26	41	63	172	225	3.5
ZPX80H□J25-B01-A18	80	82	16.5	28	43	65	105	156	4.5
ZPX80H□J50-B01-A18	80	82	16.5	28	43	65	138	191	4.5
ZPX80H□J75-B01-A18	80	82	16.5	28	43	65	174	227	4.5

## ZPX<sub>100</sub><sup>125</sup> H□J□-B01-A22 (With buffer)



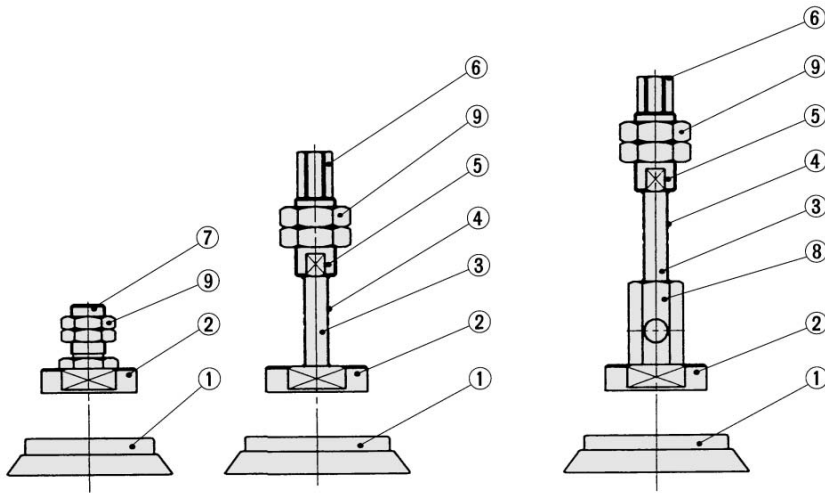
(mm)

Model	$\phi A$	$\phi B$	C	D
ZPX100H□J25-B01-A22	100	103	115	186
ZPX100H□J50-B01-A22	100	103	151	222
ZPX100H□J75-B01-A22	100	103	191	262
ZPX100H□J100-B01-A22	100	103	226	297
ZPX125H□J25-B01-A22	125	128	115	186
ZPX125H□J50-B01-A22	125	128	151	222
ZPX125H□J75-B01-A22	125	128	191	262
ZPX125H□J100-B01-A22	125	128	226	297

## 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	EPR

Pad type: H Heavy duty

### Pad Unit Weight

(NBR) (g)

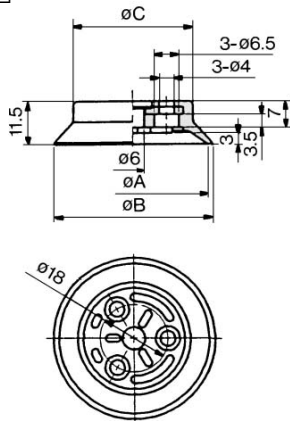
Model	Weight (g)
ZP40HN	15
ZP50HN	27
ZP63HN	57
ZP80HN	86
ZP100HN	160
ZP125HN	224

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

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

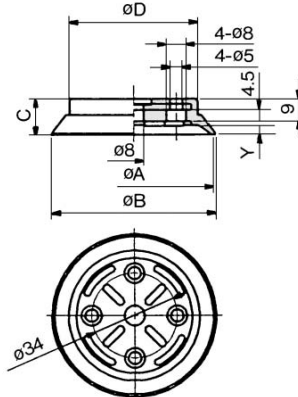
## Dimensions

### ZP<sub>50</sub><sup>40</sup>H□



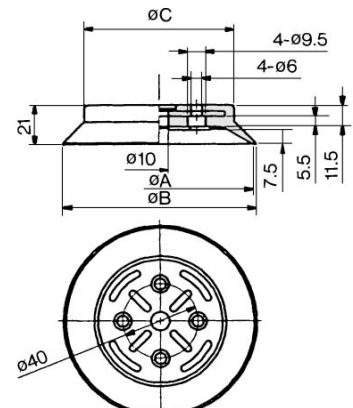
Model	øA	øB	øC
ZP40H□	40	42	32
ZP50H□	50	52	42

### ZP<sub>80</sub><sup>63</sup>H□



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

### ZP<sub>125</sub><sup>100</sup>H□

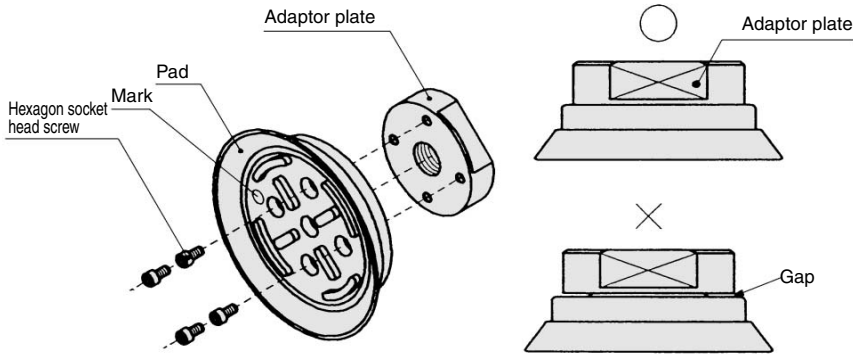


Model	øA	øB	øC
ZP100H□	100	103	80
ZP125H□	125	128	104

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

# 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

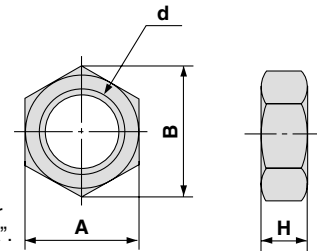
### How to Order

**ZPNA — M16**

#### Mounting thread

<b>M16</b>	M16 x 1.5
<b>M18</b>	M18 x 1.5
<b>M22</b>	M22 x 1.5

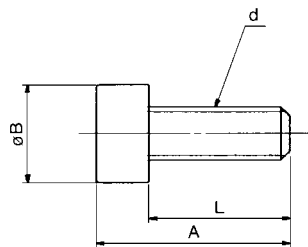
Mounting nut part number for "M14 x 1" is "SN-015A".



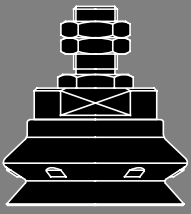
Model	A	B	d	H
SN-015A	19	21.9	M14 x 1	5
ZPNA-M16	22	25.4	M16 x 1.5	6
ZPNA-M18	27	31.2	M18 x 1.5	9
ZPNA-M22	30	34.6	M22 x 1.5	8

## 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

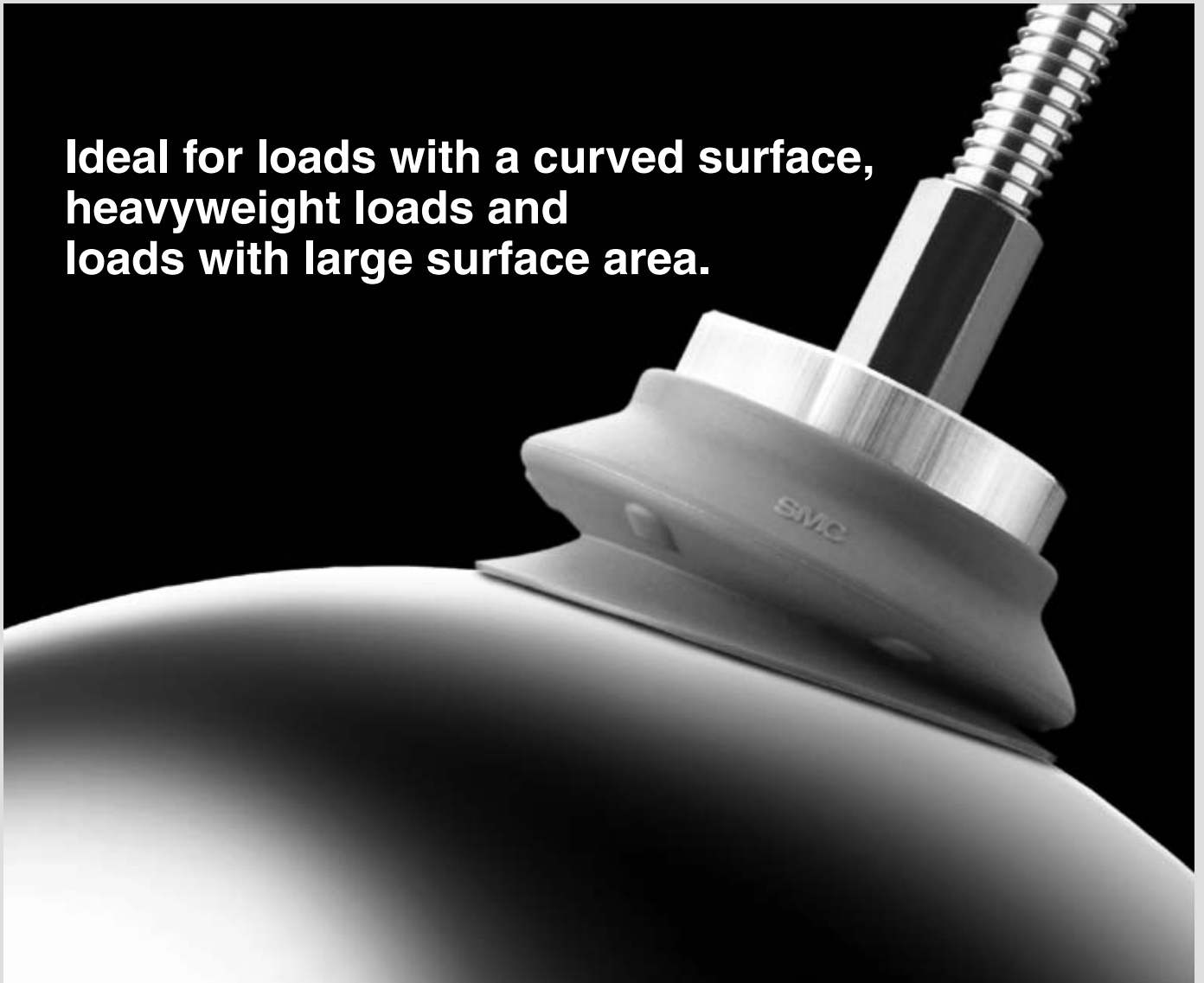


# Vacuum Pad: Large Size Bellows Type

## 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

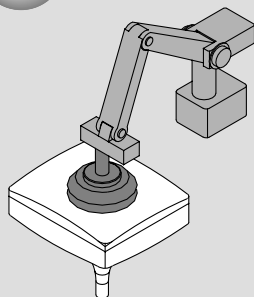
**ZP**

ZCU

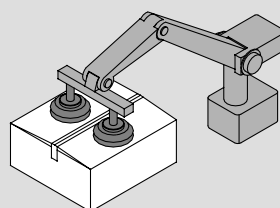
AMJ

Misc.

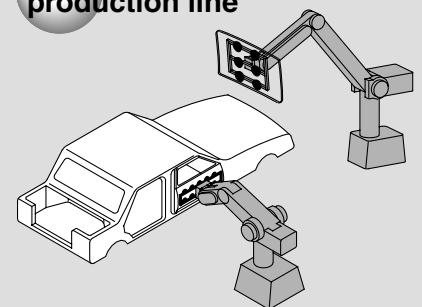
For transfer of CRT



For transfer of  
cardboard box



For automotive  
production line

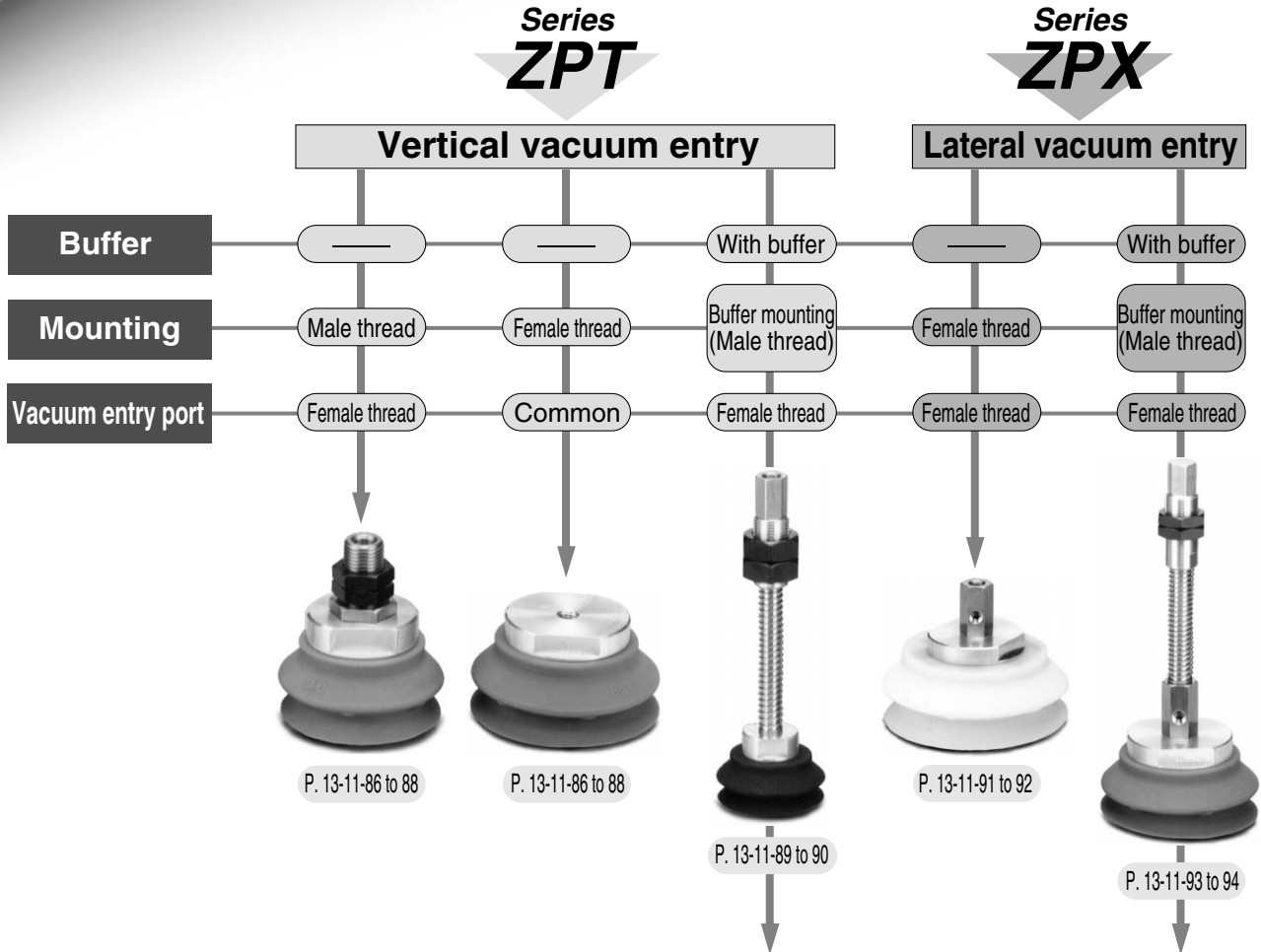


# Vacuum Pad: Large Size Bellows Type

# 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

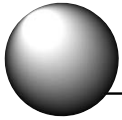
◎: Little or no influence ○: Can be used depending on conditions. X: Not suitable

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.

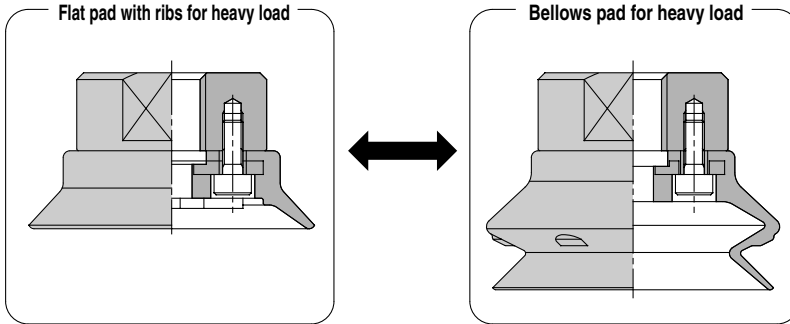
Pad materials used by SMC pass the nominal JIS material standards; however, actual performance depends on operating conditions.



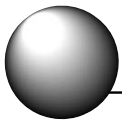


## Interchangeable with flat pad with ribs for heavy loads.

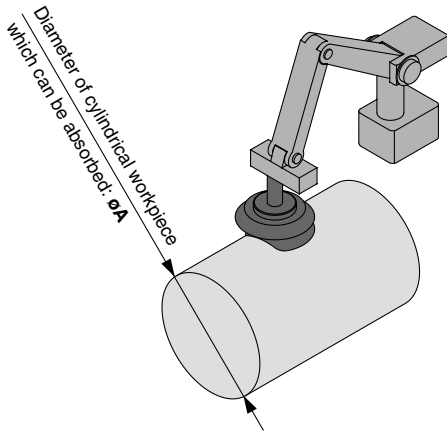
When changing to a different shape pad due to load change, the pad can be easily interchanged.



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.



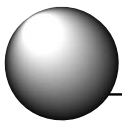
\* Pushing force for adsorption is almost equivalent to return force of buffer spring.

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

Model	Dia. of cylindrical workpiece which can be absorbed: $\phi A$ <sup>(1)</sup>
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

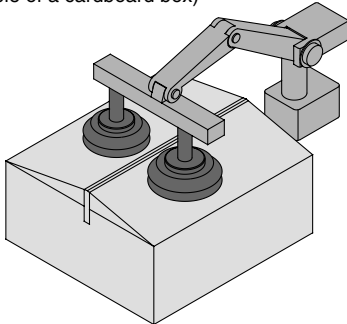
Note 1) Please consult with SMC when requiring a diameter smaller than shown in table.

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

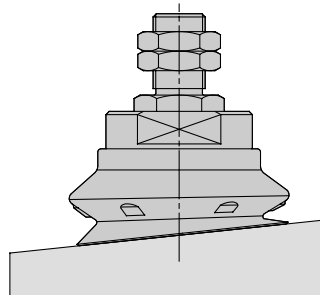


## Pad shape permits adsorption to sloped surfaces.

- 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:  $5^{\circ}$ \*)



\* 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 Lateral Vacuum Entry Without Buffer

## Series ZPX



### Specifications

Mounting	Vacuum entry direction	Lateral	
	Connection	Female thread	
	Thread dia.	ø40, ø50	M8 x 1.25 M10 x 1.5
		ø63, ø80	M10 x 1.5 M12 x 1.75
ø100, ø125		M10 x 1.5 M12 x 1.75	
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 $\text{\textcircled{F}}$ ), EPR (Black with mark $\text{\textcircled{E}}$ )
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

### Weight

(g)

#### NBR

Model	Weight	Model	Weight
ZPX40HBN-B01-B8	150	ZPX 80HBN-B01-B10	275
-B10	152	-B12	271
ZPX50HBN-B01-B8	166	ZPX100HBN-B01-B10	464
-B10	164	-B12	460
ZPX63HBN-B01-B10	235	ZPX125HBN-B01-B10	648
-B12	225	-B12	644

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 - B01 - B10**

Pad diameter (mm)

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

Pad type

HB Large bellows pad

Mounting thread

		ø40, ø50	ø63, ø80	ø100, ø125
B 8	M8 x 1.25	●	—	—
B10	M10 x 1.5	●	●	●
B12	M12 x 1.75	—	●	●

Vacuum entry

B01 Rc 1/8

Material

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

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

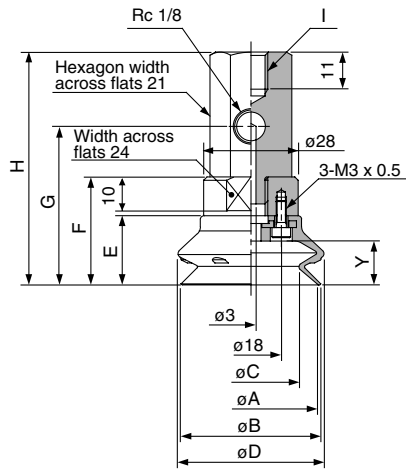
ZCU

AMJ

Misc.

# Series ZPX

## ZPX<sub>40</sub><sup>50</sup>HB□-B01-B□ (Female thread)

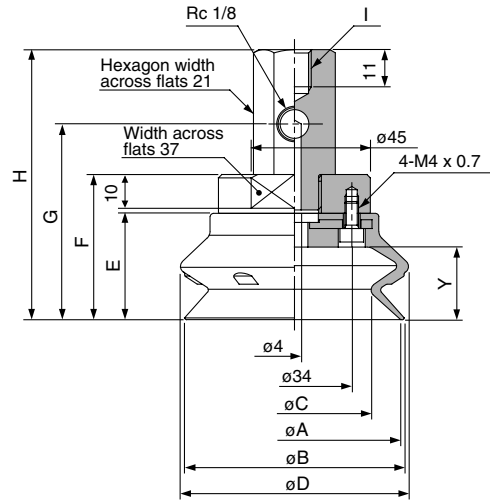


### Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	I	Y
ZPX40HB□-B01-B8	40	41.4	28.4	43.2	20.5	32	47	69	M8 x 1.25	13
-B10									M10 x 1.5	
ZPX50HB□-B01-B8	50	51.9	35.7	54	24	35.5	50.5	72.5	M8 x 1.25	16.5
-B10									M10 x 1.5	

## ZPX<sub>65</sub><sup>80</sup>HB□-B01-B□ (Female thread)

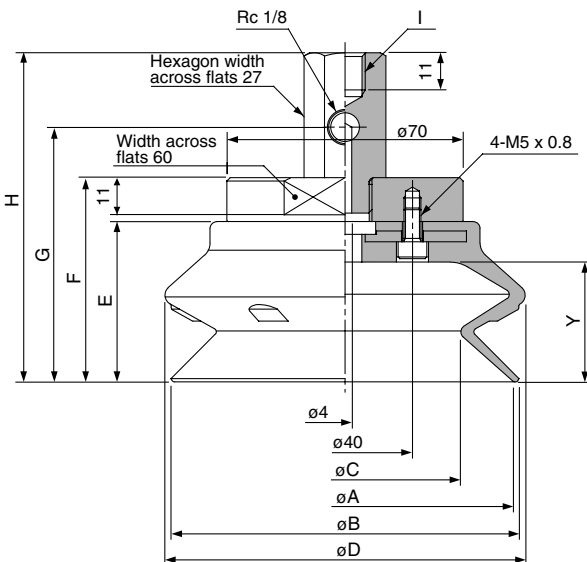


### Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	I	Y
ZPX63HB□-B01-B10	63	65.1	45.5	67.6	31.5	43	58	80	M10 x 1.5	21.5
-B12									M12 x 1.75	
ZPX80HB□-B01-B10	80	83	58.4	85.1	37	48.5	63.5	85.5	M10 x 1.5	27.5
-B12									M12 x 1.75	

## ZPX<sub>125</sub><sup>100</sup>HB□-B01-B□ (Female thread)



### Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	I	Y
ZPX100HB□-B01-B10	100	103.1	68.6	106.7	47.5	60.5	75.5	97.5	M10 x 1.5	35.5
-B12									M12 x 1.75	
ZPX125HB□-B01-B10	125	128.5	88.6	135	56	69	84	106	M10 x 1.5	44
-B12									M12 x 1.75	

# Vacuum Pad: Large Size Bellows Type Lateral Vacuum Entry With Buffer

## Series ZPX



### Specifications

Mounting	Vacuum entry direction	Lateral	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 (E)), EPR (Black with mark (E))
Durometer	NBR/Silicone rubber/EPR (50°), Urethane/Fluoro rubber (60°)

### Weight

(g)

#### NBR

Model	Weight	Model	Weight
ZPX40HBNJ25-B01-A18	268	ZPX 80HBNJ50-B01-A18	418
50-B01-A18	289	75-B01-A18	441
75-B01-A18	312	ZPX100HBNJ25-B01-A22	684
ZPX50HBNJ25-B01-A18	284	50-B01-A22	723
50-B01-A18	305	75-B01-A22	767
75-B01-A18	328	100-B01-A22	806
ZPX63HBNJ25-B01-A18	357	ZPX125HBNJ25-B01-A22	868
50-B01-A18	378	50-B01-A22	907
75-B01-A18	401	75-B01-A22	951
ZPX80HBNJ25-B01-A18	397	100-B01-A22	990

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 J 25 - B01 - A18

Pad diameter (mm)

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

Pad type

HB Large bellows pad

Material

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

Mounting thread

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

Vacuum entry

B01 Rc 1/8

Applicable buffer stroke (Rotating)

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

#### Spring Force

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

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

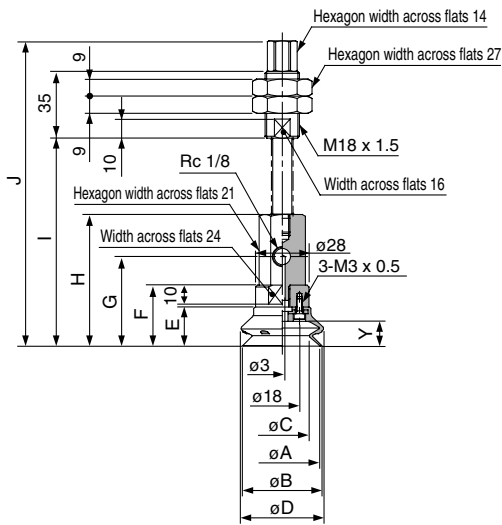
ZCU

AMJ

Misc.

# Series ZPX

## ZPX<sub>50</sub><sup>40</sup>HB□J□-B01-A18 (Male thread)

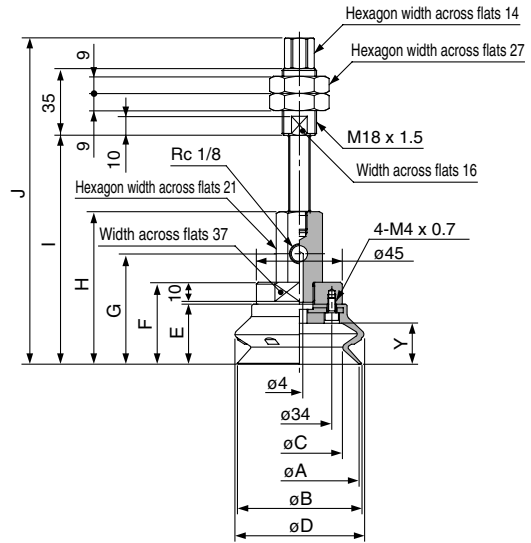


### Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	I	J	Y
ZPX40HB□J25-B01-A18									109	160	
50-B01-A18	40	41.4	28.4	43.2	20.5	32	47	69	144	195	13
75-B01-A18									180	231	
ZPX50HB□J25-B01-A18									112.5	163.5	
50-B01-A18	50	51.9	35.7	54	24	35.5	50.5	72.5	147.5	198.5	16.5
75-B01-A18									183.5	234.5	

## ZPX<sub>80</sub><sup>63</sup>HB□J□-B01-A18 (Male thread)

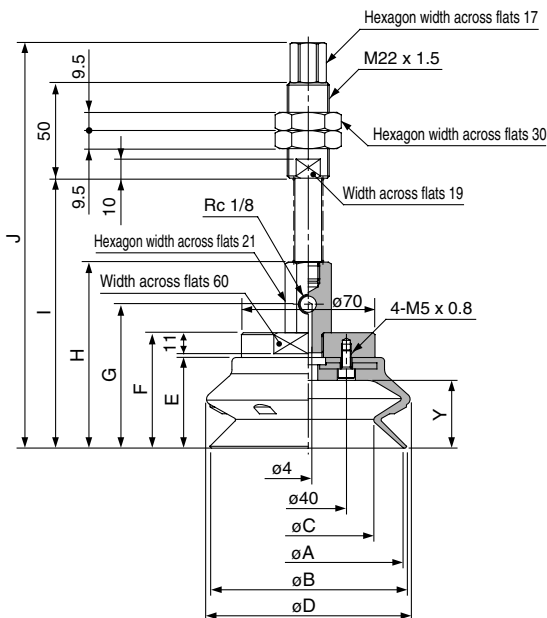


### Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	I	J	Y
ZPX63HB□J25-B01-A18									120	171	
50-B01-A18	63	65.1	45.5	67.6	31.5	43	58	80	155	206	21.5
75-B01-A18									191	242	
ZPX80HB□J25-B01-A18									125.5	176.5	
50-B01-A18	80	83	58.4	85.1	37	48.5	63.5	85.5	160.5	211.5	27.5
75-B01-A18									196.5	247.5	

## ZPX<sub>125</sub><sup>100</sup>HB□J□-B01-A22 (Male thread)



### Dimensions

(mm)

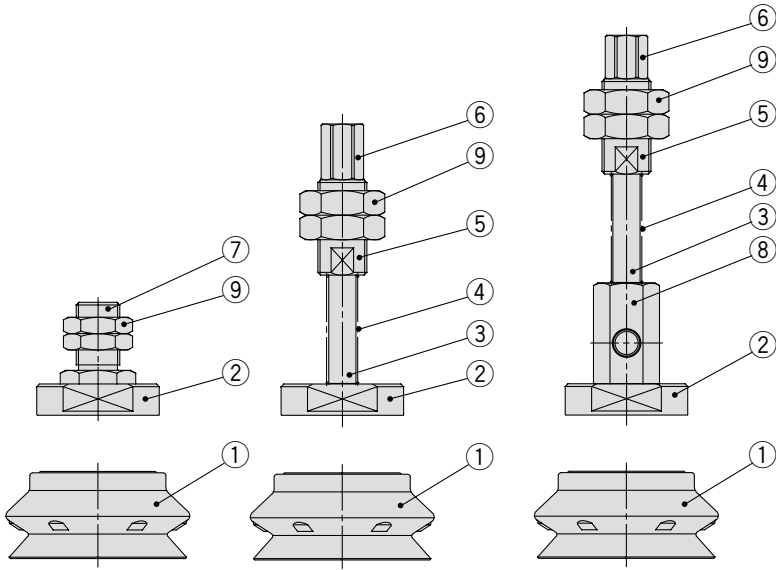
Model	A	B	C	D	E	F	G	H	I	J	Y
ZPX100HB□J25-B01-A22									141.5	212.5	
50-B01-A22	100	103.1	68.6	106.7	47.5	60.5	75.5	97.5	177.5	248.5	35.5
75-B01-A22									217.5	288.5	
100-B01-A22									252.5	323.5	
ZPX125HB□J25-B01-A22									150	221	
50-B01-A22	125	128.5	88.6	135	56	69	84	106	186	257	44
75-B01-A22									226	297	
100-B01-A22									261	332	

# 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**

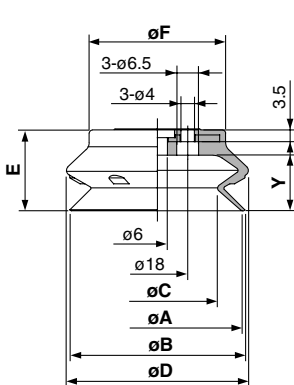
Model	Weight
ZP 40HBN	17
ZP 50HBN	33
ZP 63HBN	63
ZP 80HBN	103
ZP100HBN	206
ZP125HBN	390

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

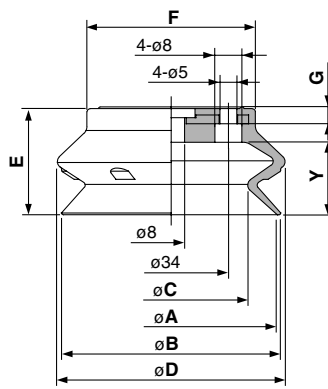
ZP<sub>50</sub><sup>40</sup>HB□



**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

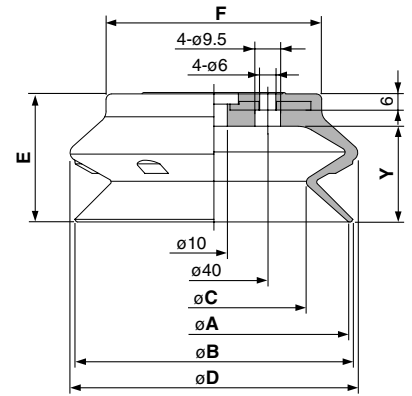
ZP<sub>80</sub><sup>63</sup>HB□



**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

ZP<sub>125</sub><sup>100</sup>HB□



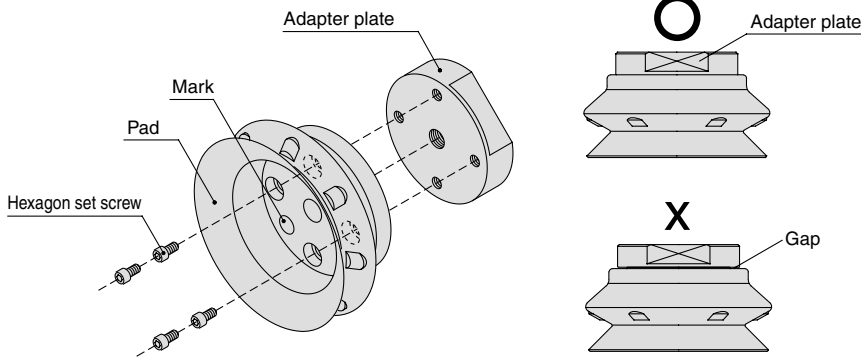
**Dimensions (mm)**

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

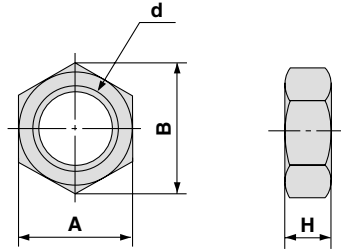
**ZPNA — M16**

#### Mounting thread

<b>M16</b>	M16 x 1.5
<b>M18</b>	M18 x 1.5
<b>M22</b>	M22 x 1.5

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

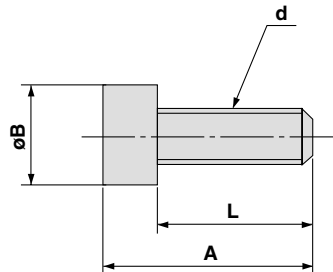
### Dimensions



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