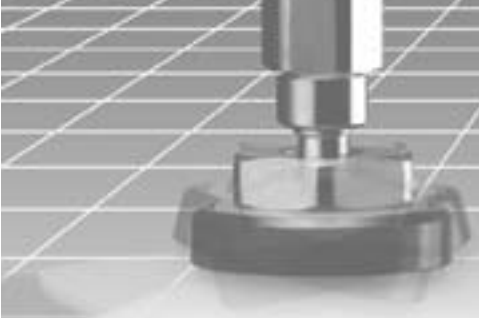


Vacuum Pad: Ball Joint Type

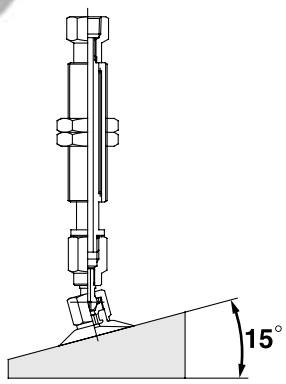
Series ZPT/ZPR

Pad diameter: ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50
Pad material: NBR, Silicon rubber, Urethane rubber, Fluororubber, Conductive NBR, Conductive silicon rubber

Series Variations

Model	Series ZPT: Vertical vacuum entry				Series ZPR: Lateral vacuum entry	
Buffer	—	—	With buffer		—	With buffer
Mounting	Male thread	Female thread	Buffer mounting (Male thread)		Female thread	Buffer mounting (Male thread)
Vacuum Entry Port	Female thread	Common	Female thread	One-touch fitting	One-touch fitting	One-touch fitting
Page	P.1218, 1219	P.1220, 1221	P.1222 to 1226	P.1222 to 1226	P.1227, 1228	P.1229 to 1232

Adsorption is possible even on a slanted surface.



Inclination 15°
(Rotation 30°)

Buffer stroke

Buffer stroke \ Pad dia.	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
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

Material \ 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	◎	×	○	○	×	×	◎	○	×
Silicon rubber	40°	–30 to 200	×	×	○	×	◎	◎	×	○	×
Urethane rubber	60°	0 to 60	◎	×	×	×	○	◎	◎	×	×
Fluororubber	60°	0 to 250	◎	◎	×	◎	◎	◎	○	◎	◎
Conductive NBR	50°	0 to 100	○	×	○	×	○	×	○	○	×
Conductive silicon rubber	50°	–10 to 200	×	×	○	×	◎	◎	×	○	×

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.

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

How to Orde

ZPT 25 F GN – B5 – A8

Pad diameter (mm)

10	10
13	13
16	16
20	20
25	25
32	32
40	40
50	50

Pad type

F	Ball joint type

Material

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

Vacuum entry port

B5	M5 x 0.8

Mounting thread diameter/ Male thread

Symbol	Thread	Pad dia. (mm)
A8	M8 x 1	10 to 16
A10	M10 x 1	20 to 32
A14	M14 x 1	40, 50

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)	**10 to 16**	M8 x 1	M5 x 0.8
	20 to 32	M10 x 1	
	40, 50	M14 x 1	
Ball joint rotation		30°	

Mass

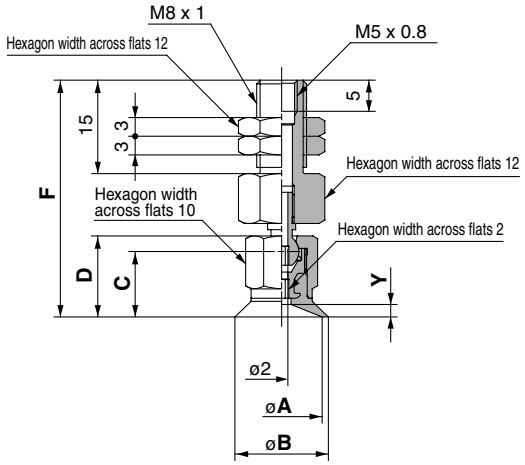
(g)

Pad dia. (mm)	Mounting (Male thread)	Vacuum entry (Female thread)
		M5 x 0.8
10 to 16	M8 x 1	20
20 to 32	M10 x 1	24
40, 50	M14 x 1	55

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	10, 13, 16, 20, 25, 32, 40, 50					
Material	NBR	Silicon rubber	Urethane rubber	Fluororubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 silver mark	Black with 2 silver mark
Durometer	50°	40°	60°	60°	50°	50°

ZPT$^{10}_{13}_{16}$F□□-B5-A8 (Without buffer/Male thread)

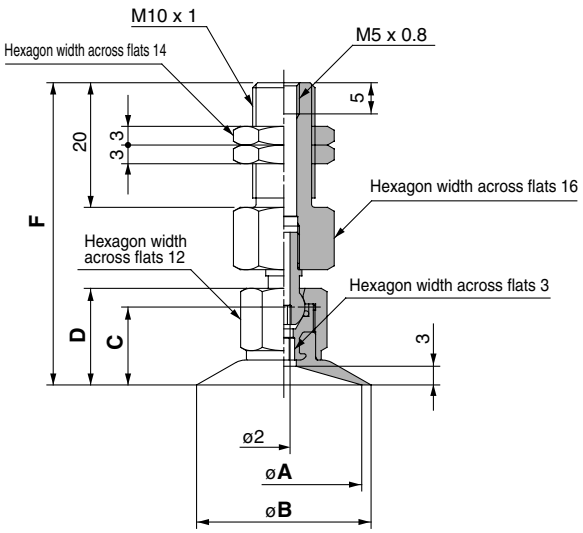


Dimensions

(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				2

ZPT$^{20}_{25}_{32}$F□□-B5-A10 (Without buffer/Male thread)

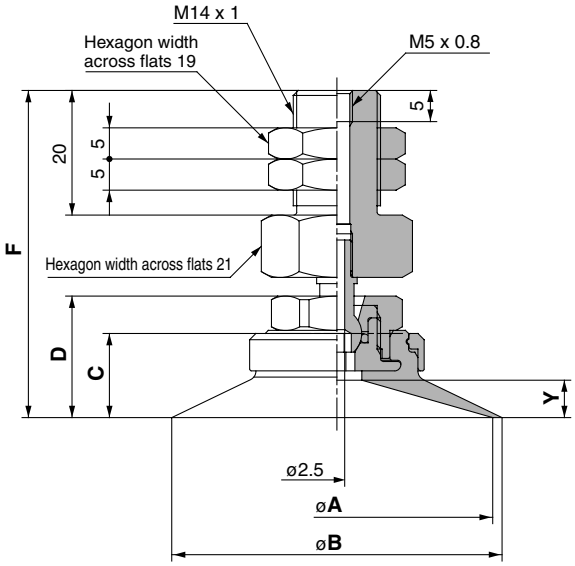


Dimensions

(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	13	16	49

ZPT$^{40}_{50}$F□□-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

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

How to Orde

ZPT 20 F GS – B01

Pad diameter (mm)

10	10
13	13
16	16
20	20
25	25
32	32
40	40
50	50

Pad type

F	Ball joint type

Material

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

Vacuum entry/ Mounting thread diameter

Connection	Symbol	Thread dia.	Pad dia. (mm)		
			10 to 16	**20 to 32**	**40, 50**
Female thread	**B5**	M5 x 0.8	●	●	—
	B8	M8 x 1.25	—	●	●
	B01	Rc 1/8	—	●	●
	N01	NPT 1/8	—	●	●
	T01	NPTF 1/8	—	●	●

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 diameter (mm)	**10 to 16**	M5 x 0.8
	20 to 32	M5 x 0.8
		M8 x 1.25
		1/8 (Rc, NPT, NPTF)
	40, 50	M8 x 1.25
		1/8 (Rc, NPT, NPTF)
Ball joint rotation		30°

Mass

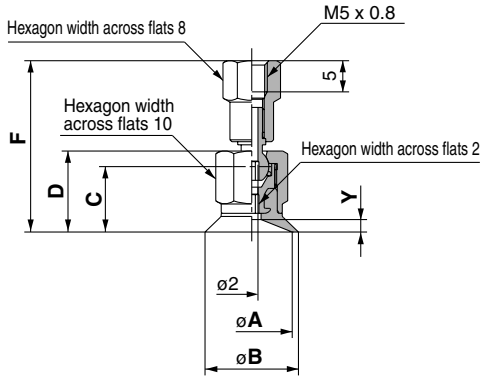
(g)

Pad dia. (mm)	Vacuum entry (Female thread)		
	M5 x 0.8	M8 x 1.25	1/8 (Rc, NPT, NPTF)
10 to 16	10	—	—
20 to 32	14	17	19
40, 50	—	47	46

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	10, 13, 16, 20, 25, 32, 40, 50					
Material	NBR	Silicon rubber	Urethane rubber	Fluororubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 silver mark	Black with 2 silver mark
Durometer	50°	40°	60°	60°	50°	50°

ZPT$^{10}_{13}_{16}$F□□-B5 (Without buffer/Female thread)

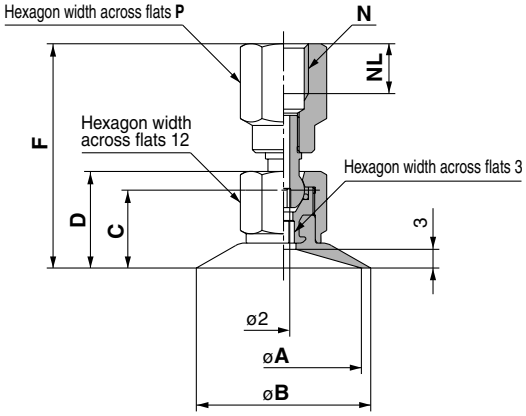


Dimensions

(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				2

ZPT$^{20}_{25}_{32}$F□□-$^{B5}_{B8}_{□01}$ (Without buffer/Female thread)

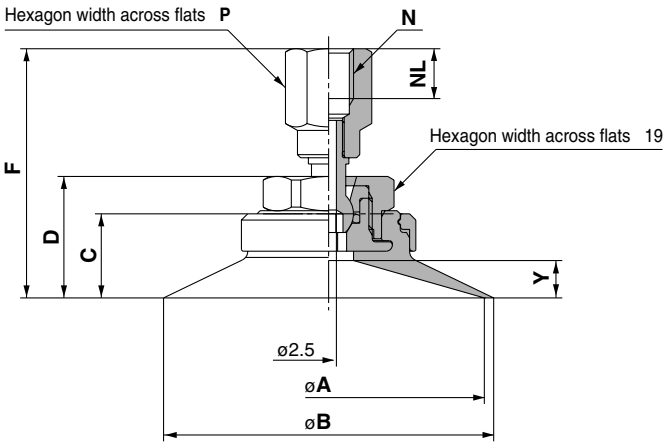


Dimensions

(mm)

Model	A	B	C	D	N: M5 x 0.8			N: M8 x 1.25			N: □01	
					F	NL	P	F	NL	P	F	P
ZPT20F□□-□□□	20	22	12.5	15.5	32	5	9	36	8	12	36	14
ZPT25F□□-□□□	25	28										
ZPT32F□□-□□□	32	35	13	16	32			36.5			36.5	

ZPT$^{40}_{50}$F□□-$^{B8}_{□01}$ (Without buffer/Female thread)



Dimensions

(mm)

Model	A	B	C	D	N: M8 x 1.25			N: □01	
					F	NL	P	F	P
ZPT40F□□-□□□	40	43	12.5	18.5	39	8	12	39	14
ZPT50F□□-□□□	50	53	13.5	19.5	40			40	

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	10
13	13
16	16
20	20
25	25
32	32
40	40
50	50

Pad type

F	Ball joint type

Material

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

Buffer type

J	Rotating
K	Non-rotating

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	●	●

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

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

Table (1) Vacuum Entry/Mounting Thread Diameter

				Mounting thread diameter (Male thread)	
Pad dia. (mm)				**10 to 16**	**20 to 50**
Connection		Thread dia./ Port size		M10 x 1	M14 x 1
			Symbol	A10	A14
Vacuum entry	Female thread	M5 x 0.8	**B5**	●	—
		Rc 1/8	**B01**	—	●
		NPT 1/8	**N01**	—	●
		NPTF 1/8	**T01**	—	●
	One-touch fitting	ø4 tube	**04**	●	—
		ø6 tube	**06**	●	●
		ø8 tube	**08**	—	●

Tightening torque (N·m)

Mounting thread dia.	Torque
M10 x 1	3.0 ±0.5
M14 x 1	7.0 ±0.5

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

Pad Type

Pad form	Ball joint type					
Pad dia. (mm)	10, 13, 16, 20, 25, 32, 40, 50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro-rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 silver mark	Black with 2 silver mark
Durometer	50°	40°	60°	60°	50°	50°

Specifications

Vacuum entry direction		Vertical		
Connection		Mounting	Vacuum entry port	
		Buffer male thread	Female thread	One-touch fitting
Pad dia. (mm)	10 to 16	M10 x 1	M5 x 0.8	ø4 tube
				ø6 tube
	20 to 50	M14 x 1	1/8 (Rc, NPT, NPTF)	ø6 tube
				ø8 tube
Ball joint rotation		30°		

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	Without non-rotating (J), With non-rotating (K)			

Mass

(g)

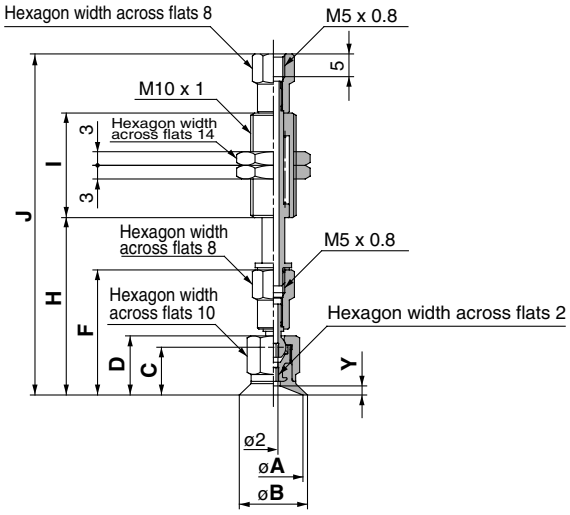
Pad dia. (mm)	Vacuum entry port				
	Female thread		One-touch fitting		
	M5 x 0.8	1/8 (Rc, NPT, NPTF)	ø4 tube	ø6 tube	ø8 tube
10 to 16	30	—	32	33	—
20 to 32	—	128	—	133	139
40, 50	—	158	—	159	167

Mass by Stroke

(g)

Pad dia. (mm)	Stroke (mm)			
	20	30	40	50
10 to 16	+10.5	+12.5	+22.5	+24
20 to 50	+37.5	+40	—	+66.5

ZPT$^{10}_{13}_{16}$F□□$^{J}_{K}$10-B5-A10 (With buffer/Female thread)



Dimensions: 10 mm Stroke

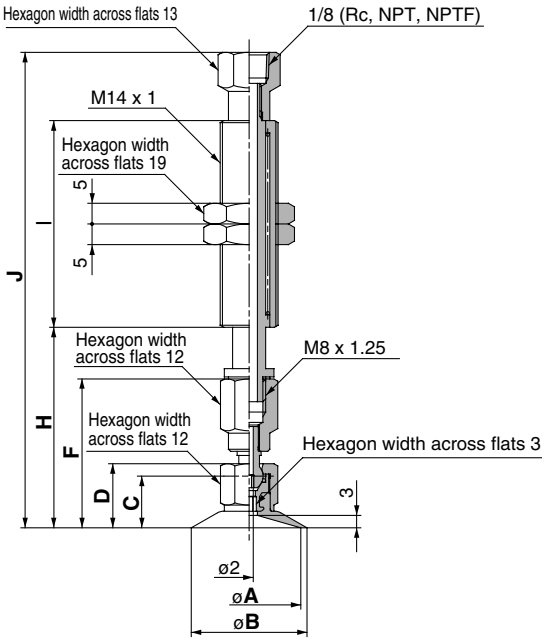
(mm)

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							

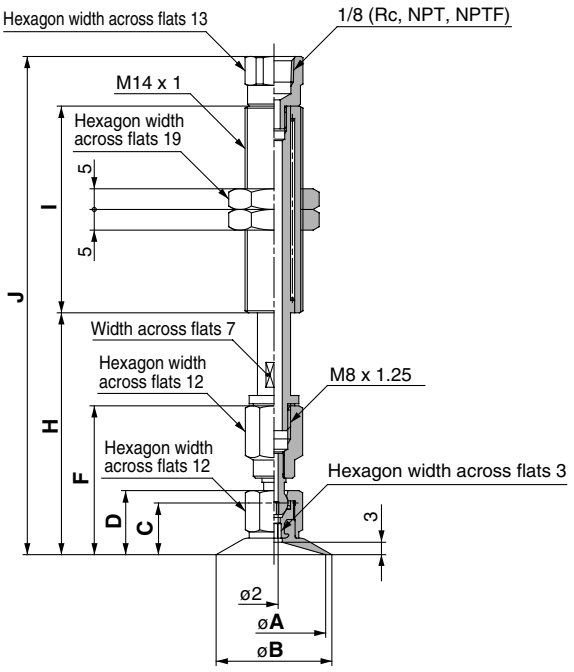
Additional Dimensions by Stroke (mm)

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

ZPT$^{20}_{25}_{32}$F□□$^{J}_{K}$10-□01-A14 (With buffer/Female thread)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Stroke

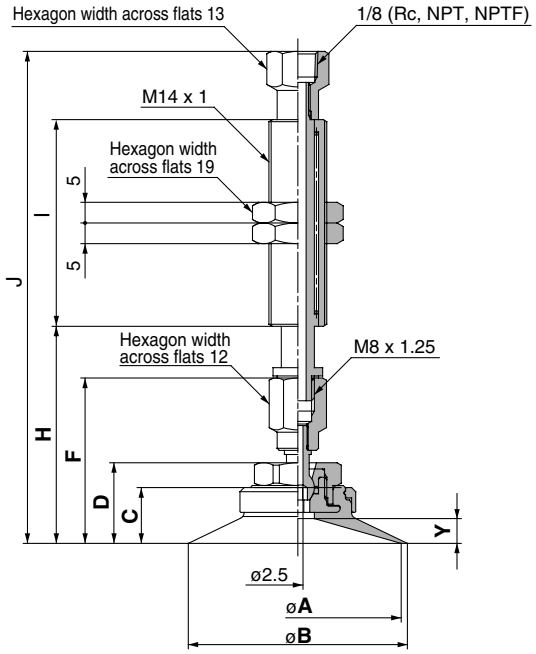
(mm)

Model	A	B	C	D	F	H	I	J
ZPT20F□□□10-□01-A14	20	22	12.5	15.5	36	48.5	50	115
ZPT25F□□□10-□01-A14	25	28						
ZPT32F□□□10-□01-A14	32	35	13	16	36.5	49		115.5

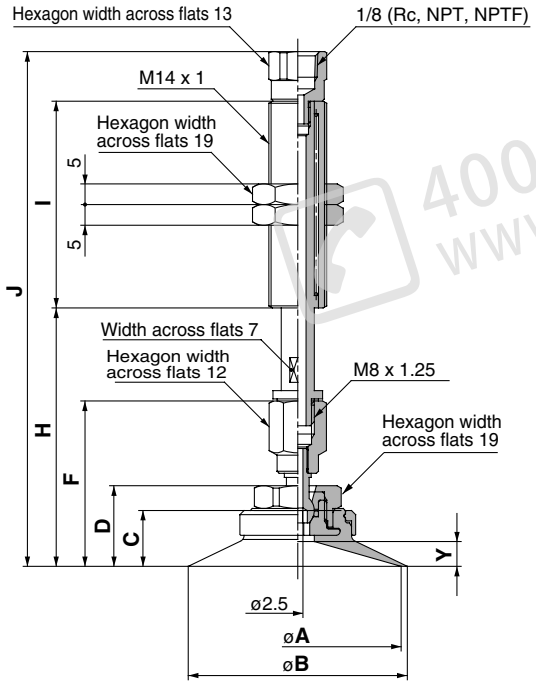
Additional Dimensions by Stroke (mm)

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

ZPT$^{40}_{50}$F□□$^{J}_{K}$10-□01-A14 (With buffer/Female thread)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Stroke

(mm)

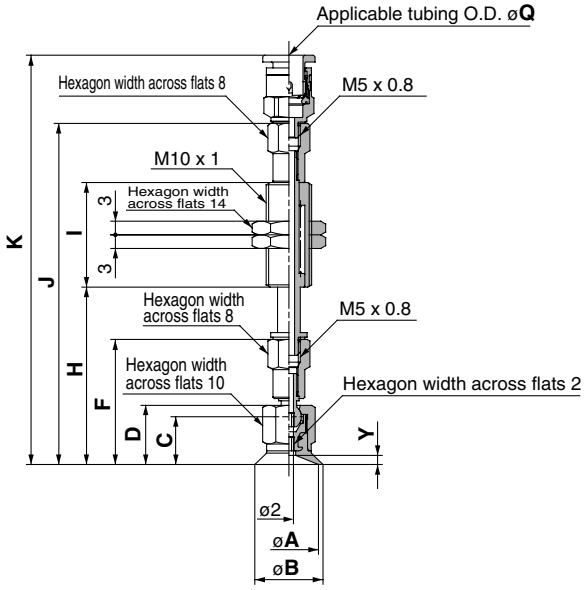
Model	A	B	C	D	F	H	I	J	Y
ZPT40F□□□10-□01-A14	40	43	12.5	18.5	39	51.5	50	118	5
ZPT50F□□□10-□01-A14	50	53	13.5	19.5	40	52.5		119	6

Additional Dimensions by Stroke

(mm)

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

ZPT$^{10}_{13}_{16}$F□□$^{J}_{K}$10-0□-A10 (With buffer/One-touch fitting)



Dimensions: 10 mm Stroke

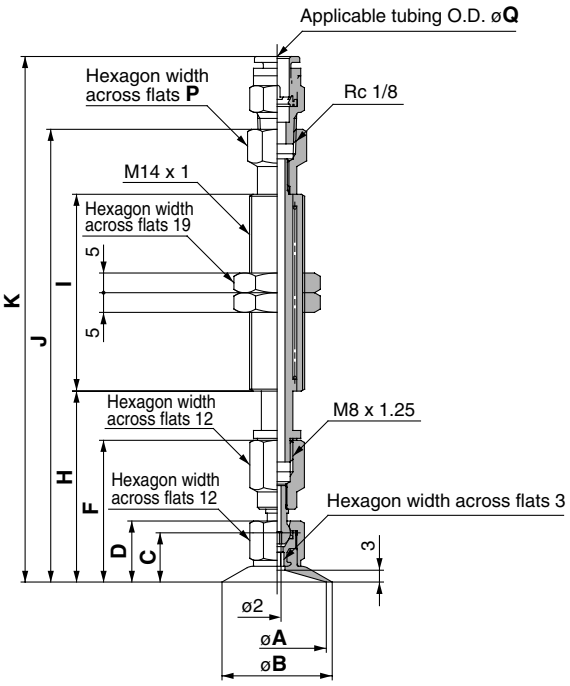
(mm)

Model	A	B	C	D	F	H	I	J	Q: 4 K	Q: 6 K	Y
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									

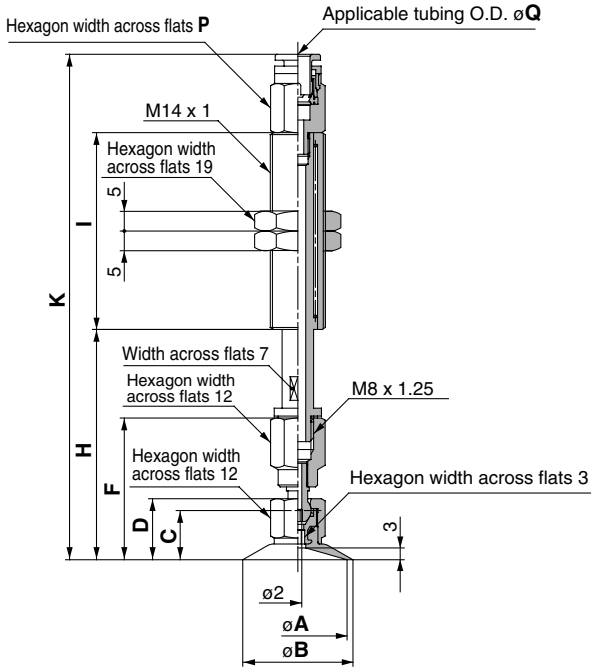
Additional Dimensions by Stroke (mm)

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

ZPT$^{20}_{25}_{32}$F□□$^{J}_{K}$10-0□-A14 (With buffer/One-touch fitting)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Strokes

(mm)

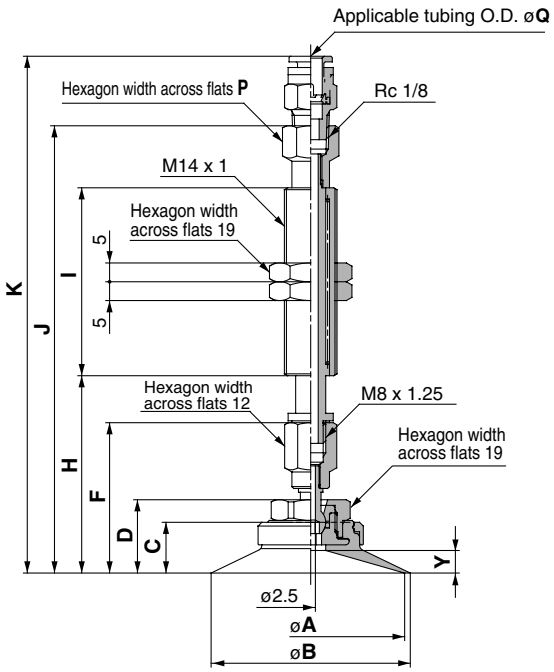
Model	A	B	C	D	F	H	I	J	Q: 6 K	Q: 6 P	Q: 8 K	Q: 8 P
ZPT20F□□□10-0□-A14	20	22	12.5	15.5	36	48.5	50	115	133.5	13	137	13
ZPT25F□□□10-0□-A14	25	28										
ZPT32F□□□10-0□-A14	32	35	13	16	36.5	49		115.5	134		135.5	

Additional Dimensions by Stroke

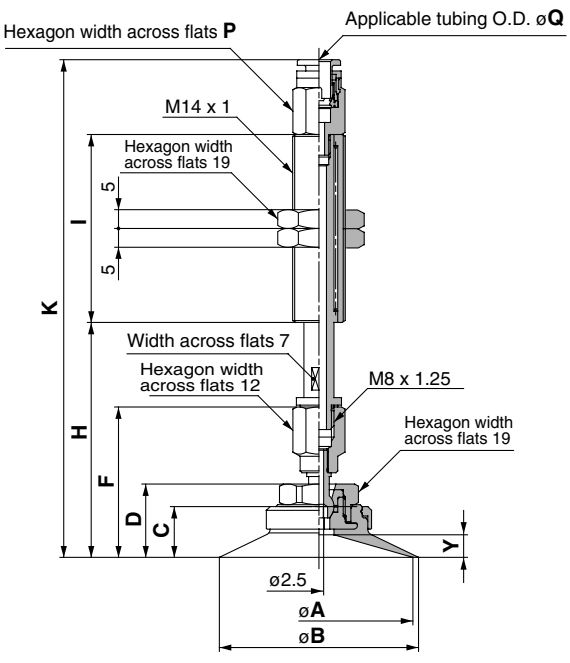
(mm)

Stroke	H	I	Q: 6 K	Q: 6 P	Q: 8 K	Q: 8 P
20	+10	±0	–5.1	–1	–5.6	+1
30	+20		+4.9		+4.4	
50	+40	+25	+49.9		+49.4	

ZPT$^{40}_{50}$F□□$^{J}_{K}$10-0□-A14 (With buffer/One-touch fitting)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Strokes

(mm)

Model	A	B	C	D	F	H	I	J	Q: 6 K	Q: 6 P	Q: 8 K	Q: 8 P	Y
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		6

Additional Dimensions by Stroke

(mm)

Stroke	H	I	Q: 6 K	Q: 6 P	Q: 8 K	Q: 8 P
20	+10	±0	–5.1	–1	–5.6	+1
30	+20		+4.9		+4.4	
50	+40	+25	+49.9		+49.4	

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	10
13	13
16	16
20	20
25	25
32	32
40	40
50	50

Pad type

F	Ball joint type

Material

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

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

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

Table (1) Vacuum Entry/Mounting Thread Diameter

				Mounting thread diameter		
Pad dia. (mm)				**10 to 16**	**20 to 50**	
Connection		Thread dia./ Port size	Symbol	M5 x 0.8	M5 x 0.8	M8 x 1.25
				B5	B5	B8
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.

Specifications

Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Female thread	One-touch fitting
Pad dia. (mm)	**10 to 16**	M5 x 0.8	ø4 tube
			ø6 tube
	20 to 50	M5 x 0.8	ø6 tube
			ø8 tube
		M8 x 1.25	ø6 tube
			ø8 tube
Ball joint rotation		30°	

Mass

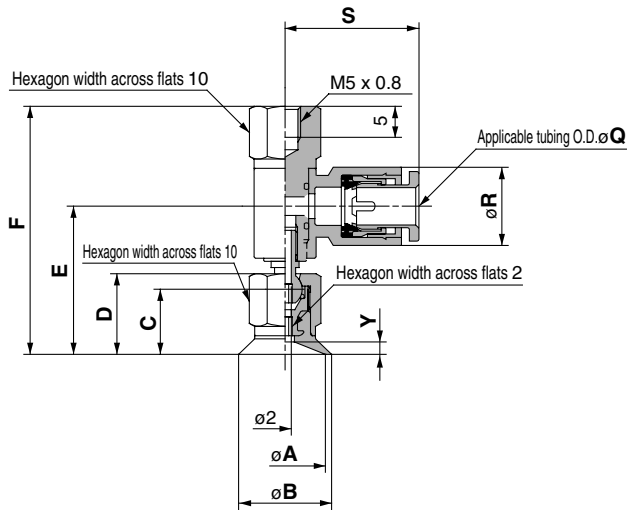
(g)

Pad dia. (mm)	Mounting female thread	Vacuum entry (One-touch fitting)		
		ø4 tube	ø6 tube	ø8 tube
10 to 16	M5 x 0.8	18	19	—
20 to 32	M5 x 0.8	—	22	23
	M8 x 1.25	—	21	22
40, 50	M5 x 0.8	—	58	60
	M8 x 1.25	—	57	59

Pad Type

Pad form	Ball joint type					
Pad diameter (mm)	10, 13, 16, 20, 25, 32, 40, 50					
Material	NBR	Silicon rubber	Urethane rubber	Fluororubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 silver mark	Black with 2 silver mark
Durometer	50°	40°	60°	60°	50°	50°

ZPR 10/13/16 F□□-0□-B5 (Without buffer/Female thread)



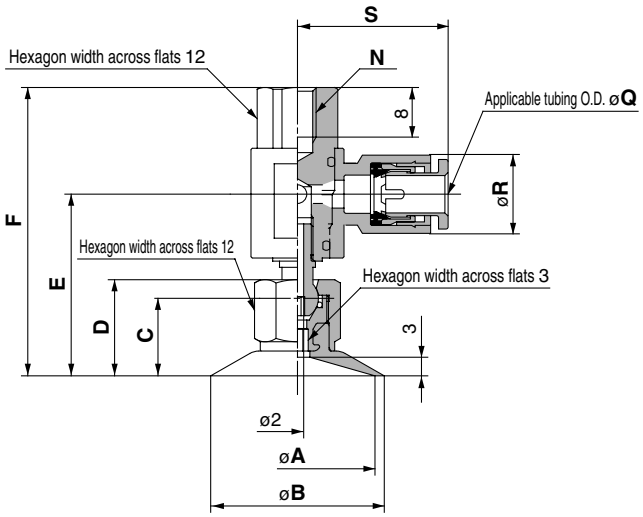
Dimensions (mm)

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
ø10 to ø16	10.4	20.6	12.8	21.6

ZPR 20/25/32 F□□-0□-B 5/8 (Without buffer/Female thread)



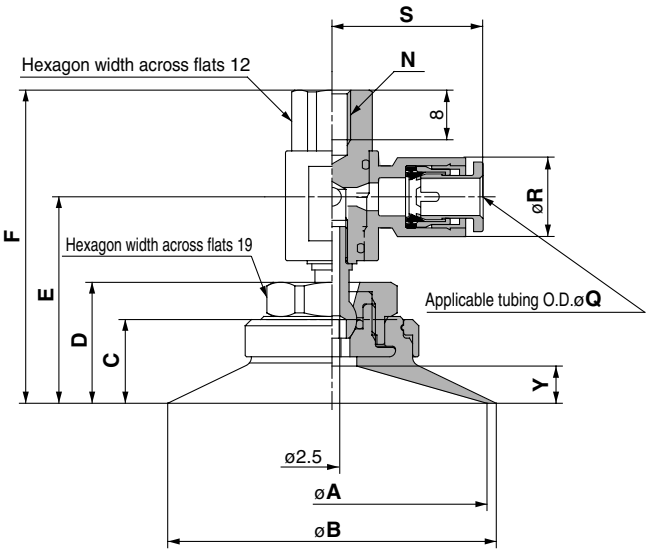
Dimensions (mm)

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
ZPR20F□□-0□-B8							M8 x 1.25
ZPR25F□□-0□-B5	25	28					M5 x 0.8
ZPR25F□□-0□-B8							M8 x 1.25
ZPR32F□□-0□-B5	32	35	13	16	29.8	47	M5 x 0.8
ZPR32F□□-0□-B8							M8 x 1.25

Dimensions by Tubing Diameter (mm)

Pad diameter (mm)	Q: 6		Q: 8	
	R	S	R	S
ø20 to ø32	12.8	24.3	15.2	26.2

ZPR 40/50 F□□-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
ø40, ø50	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	10
13	13
16	16
20	20
25	25
32	32
40	40
50	50

Pad type

F	Ball joint type

Material

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

Buffer type

J	Rotating
K	Non-rotating

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	●	●

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

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

Table (1) Vacuum Entry/Mounting Thread Diameter

				Mounting thread diameter (Male thread)	
Pad dia. (mm)				**10 to 16**	**20 to 50**
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**	—	●

Tightening torque (N·m)

Mounting thread dia.	Torque
M10 x 1	3.0 ±0.5
M14 x 1	7.0 ±0.5

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

Pad Type

Pad form	Ball joint type					
Pad dia. (mm)	10, 13, 16, 20, 25, 32, 40, 50					
Material	NBR	Silicon rubber	Urethane rubber	Fluoro-rubber	Conductive NBR	Conductive silicon rubber
Color	Black	White	Brown	Black with green mark	Black with 1 silver mark	Black with 2 silver mark
Durometer	50°	40°	60°	60°	50°	50°

Specifications

Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Male thread	One-touch fitting
Pad dia. (mm)	10 to 16	M10 x 1	ø4 tube
			ø6 tube
	20 to 50	M14 x 1	ø6 tube
			ø8 tube
Ball joint rotation		30°	

Buffer Type

Pad dia. (mm)	10 to 16		20 to 50	
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	Without non-rotating (J), With non-rotating (K)			

Mass

(g)

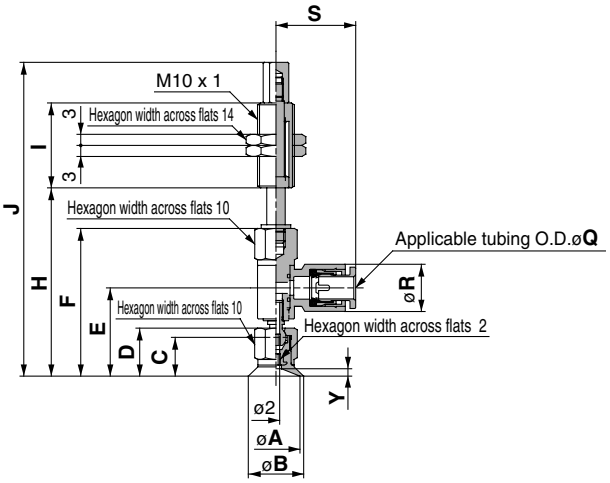
Pad dia. (mm)	Vacuum entry port		
	One-touch fitting		
	ø4 tube	ø6 tube	ø8 tube
10 to 16	34	35	—
20 to 32	—	38	39
40, 50	—	134	136

Mass by Stroke

(g)

Pad dia. (mm)	Stroke (mm)			
	20	30	40	50
10 to 16	+10.5	+12.5	+22.5	+24
20 to 50	+37.5	+40	—	+66.5

ZPR 10/13/16 F□□ J/K 10-0□-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							

(mm)

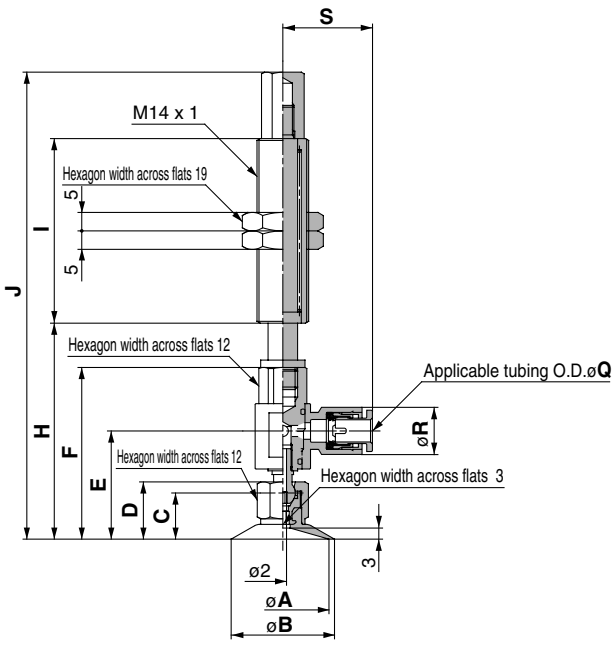
Model	Q: 4		Q: 6		Y
	R	S	R	S	
ZPR10F□□□10-0□-A10	10.4	20.6	12.8	21.6	1.5
ZPR13F□□□10-0□-A10					2
ZPR16F□□□10-0□-A10					

Additional Dimensions by Stroke

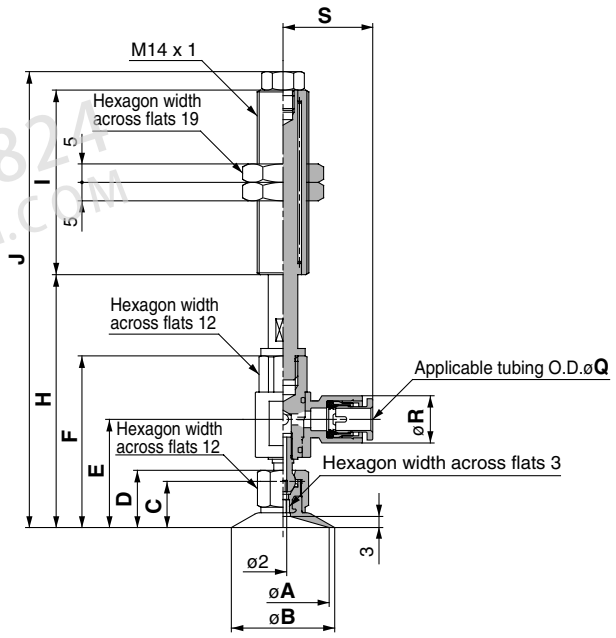
(mm)

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

ZPR 20/25/32 F□□ J/K 10-0□-A14 (With buffer)



Stroke: 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							
ZPR32F□□□10-0□-A14	32	35	13	16	29.8	47	59		127

(mm)

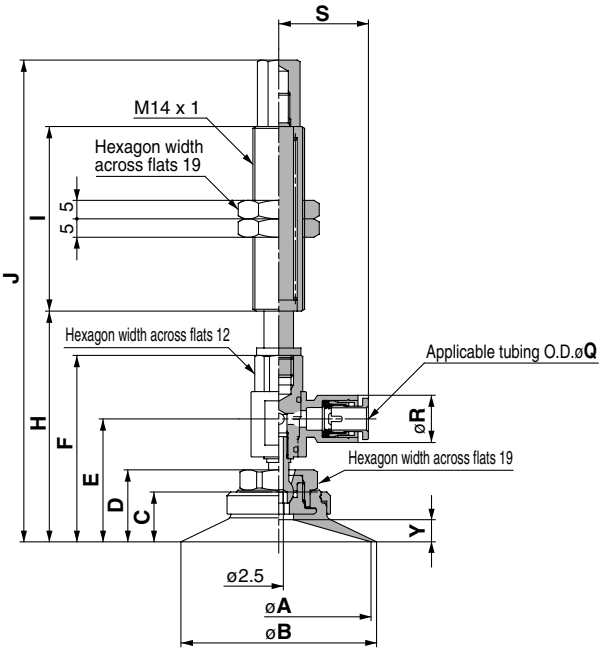
Model	Q: 6		Q: 8	
	R	S	R	S
ZPR20F□□□10-0□-A14	12.8	24.3	15.2	26.2
ZPR25F□□□10-0□-A14				
ZPR32F□□□10-0□-A14				

Additional Dimensions by Stroke

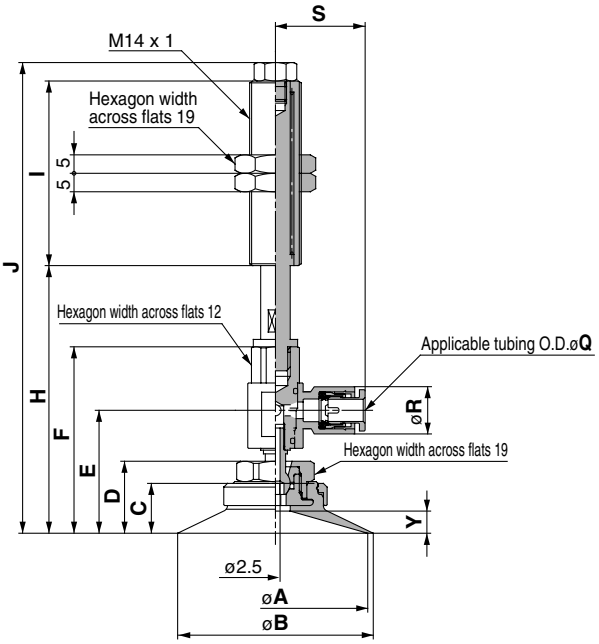
(mm)

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

ZPR$^{40}_{50}$F□□$^{J}_{K}$10-0□-A14 (With buffer)



Stroke: 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

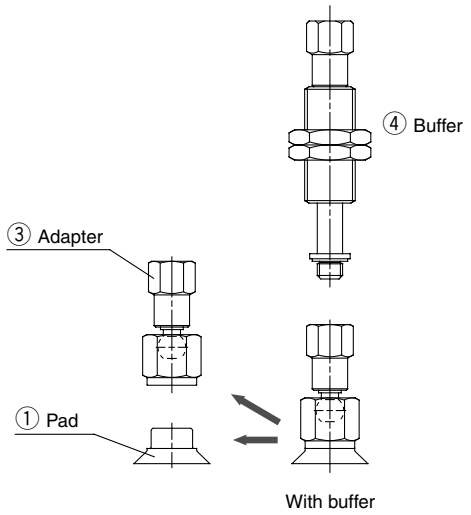
(mm)

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

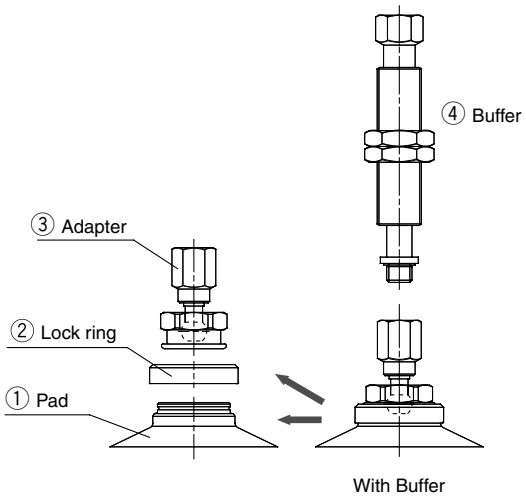
Series ZPT/ZPR
Component Parts

Series ZPT

Pad Diameter: ø10 to ø32

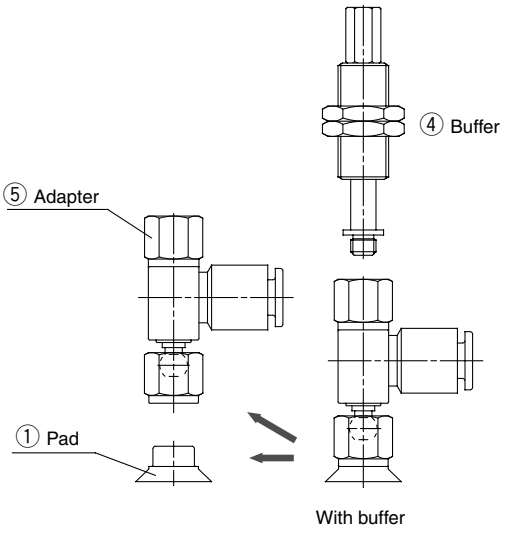


Pad Diameter: ø40, ø50

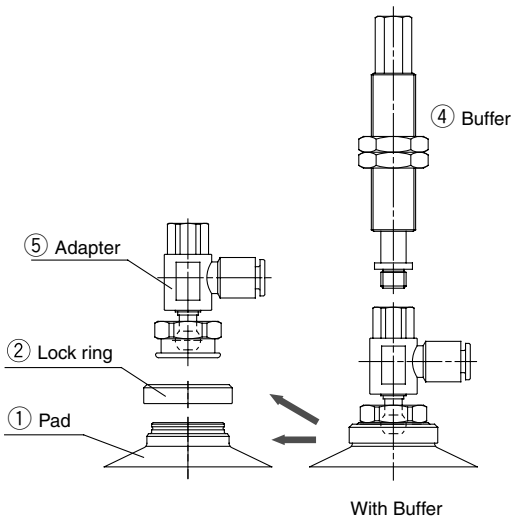


Series ZPR

Pad Diameter: ø10 to ø32



Pad Diameter: ø40, ø50



Compornent Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicon rubber, Urethane rubber, Fluororubber, Conductive NBR, Conductive silicon rubber	
2	**Lock ring**	Aluminum	Black anodized
3	**Adapter**	Brass, Stainless steel	Electroless nickel plated
4	**Buffer**	Brass	Electroless nickel plated
5	**Adapter**	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	Fluororubber
GN	Conductive NBR
GS	Conductive silicon rubber

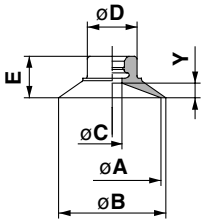
Pad type

F	Ball joint type

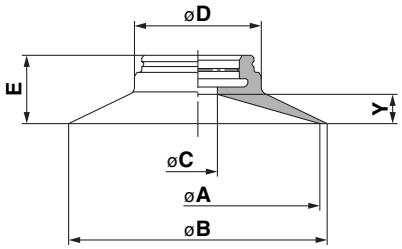
Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

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				
ZP20F□□	20	22	4	10.2	8.5	3
ZP25F□□	25	28				
ZP32F□□	32	35			9	
ZP40F□□	40	43	10	26	13	5
ZP50F□□	50	53	8		14	6

Lock Ring, Individual Unit

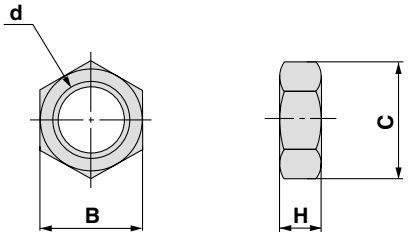
How to Order

ZPL F

For ball joint type (ø40, ø50)

Mounting Nut

Dimensions



(mm)

Model	d	H	B	C
ZPNA-M10	M10 x 1	3	14	16.2
ZPNA-M14	M14 x 1	5	19	21.9
ZPNA-M8	M8 x 1	3	12	13.9

Series ZPT/ZPR
Specific Product Precautions

Be sure to read before handling.
Refer to front matters 38 and 39 for Safety Instructions and pages 844 to 846 for Vacuum Equipment Precautions.

Caution on Design

⚠Warning

1. 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

1. 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.

2. 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.

3. 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.

4. 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).

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

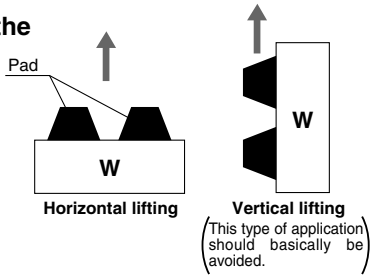
This will cause deformation, cracking and wear of the pad to be accelerated. The stiffening ribs, etc. should touch lightly, while staying within the pad skirt's deformation range. Positioning should be performed accurately. Especially in the case of small diameter pads.

6. 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.

7. 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.

8. Use caution since the workpiece could rotate during transfer.
Use of more than one pad for each workpiece is recommended.

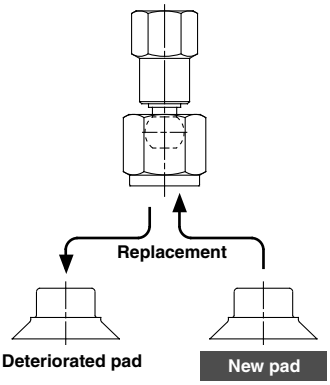


Maintenance

⚠Caution

1. 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 occured in a pad which appears to be harmful, replace it immediately.
Also, take care not to damage the outside of the pad.



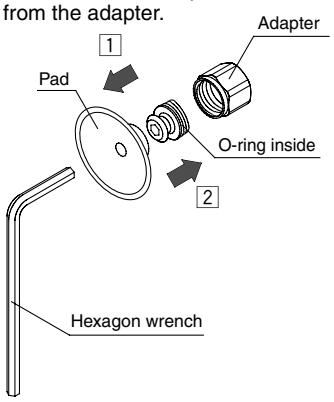
How to Assemble/Disassemble

⚠Caution

Pad diameter: ø10 to ø32

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

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



Pad diameter: ø40, ø50

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

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

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