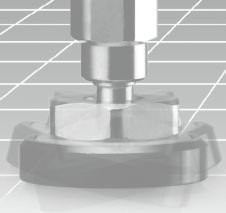
Vacuum Pad: Ball Joint Type

Series ZPT/ZPR

Pad Diameter: ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50

***Series ZPT*: Vertical Vacuum Entry Type**

***Series ZPR*: Lateral Vacuum Entry Type One-touch Fitting**



Vacuum Pad: Ball Joint Type

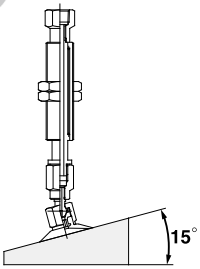
Series ZPT/ZPR

Pad diameter: ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50
Pad material: NBR, Silicone rubber, Urethane rubber,
FKM, Conductive NBR, Conductive silicone rubber

Series Variations

Model	Series ZPT			Series ZPR	
	Vertical vacuum entry			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.1341, 1342	P.1343, 1344	P.1345 to 1349	P.1345 to 1349	P.1350, 1351	P.1352 to 1355

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	●	●	●	●	●	●	●	●

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

How to Order

ZPT 25 F GN – B5 – A8

Pad diameter

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

Pad type

F	Ball joint type

Material

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

Vacuum entry port

B5	M5 x 0.8

Mounting

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

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

Specifications

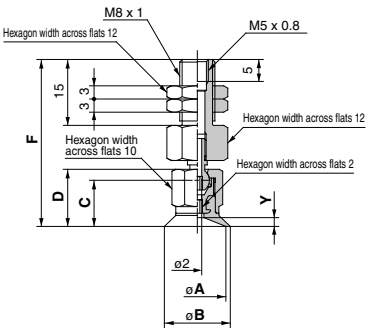
Vacuum entry direction		Vertical	
Connection		Mounting	Vacuum entry port
		Male thread	Female thread
Pad diameter	**ø10 to ø16**	M8 x 1	M5 x 0.8
	ø20 to ø32	M10 x 1	
	ø40, ø50	M14 x 1	
Ball joint rotation		30°	

Weight

(g)

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

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

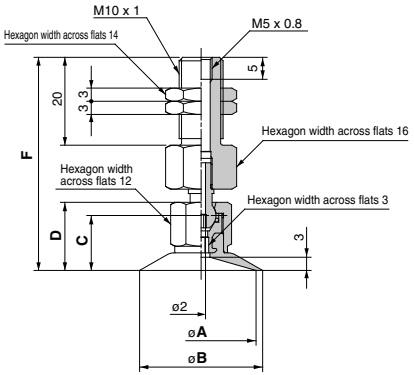


Dimensions

(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)

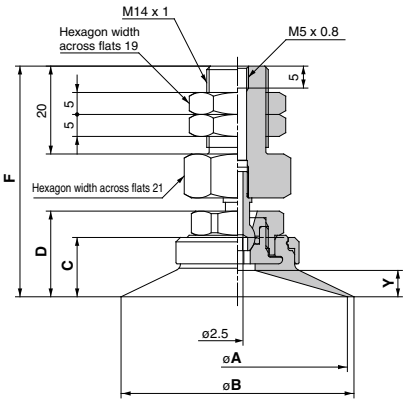


Dimensions

(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

RoHS

How to Order

ZPT [20] [F] [GS] – [B01]

Pad diameter

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

Pad type

F	Ball joint type

Material

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

Vacuum entry/ Mounting diameter

Connection	Symbol	Mounting	Pad dia. ø10 to ø16	Pad dia. ø20 to ø32	Pad dia. ø40, ø50
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

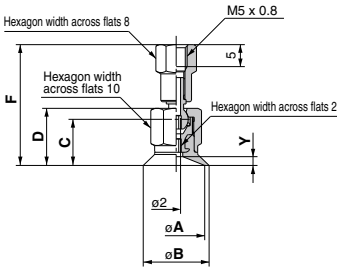
Vacuum entry direction		Vertical
Connection		Connection/Vacuum entry
		Female thread
Pad diameter	**ø10 to ø16**	M5 x 0.8
	ø20 to ø32	M5 x 0.8
		M8 x 1.25
		1/8 (Rc, NPT, NPTF)
	ø40, ø50	M8 x 1.25
		1/8 (Rc, NPT, NPTF)
Ball joint rotation		30°

Weight

(g)

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

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

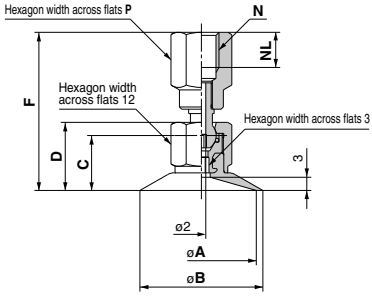


Dimensions

(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)

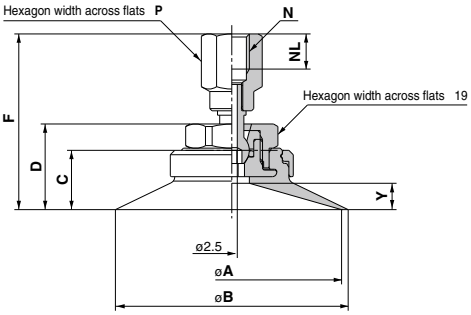


Dimensions

(mm)

Model	A	B	C	D	N: M5 x 0.8			N: M8 x 1.25			N: 1/8 (Rc, NPT, NPTF)	
					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: 1/8 (Rc, NPT, NPTF)	
					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

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

Pad type

F	Ball joint type

Material

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

Buffer type

J	Rotating
K	Non-rotating

Buffer stroke

Symbol	Stroke	Pad dia. ø10 to ø16	Pad dia. 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
(Refer to "Table (1)" for applications.)

Table (1) Vacuum Entry/Mounting

			Mounting	
Pad dia.			**ø10 to ø16**	**ø20 to ø50**
Connection	Thread dia./ Port size	Symbol	M10 x 1	M14 x 1
			A10	A14
Vacuum entry: Female thread	M5 x 0.8	**B5**	●	—
	Rc 1/8	**B01**	—	●
	NPT 1/8	**N01**	—	●
	NPTF 1/8	**T01**	—	●
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	2.5 to 3.5
M14 x 1	6.5 to 7.5

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

Specifications

Vacuum entry direction		Vertical		
Connection		Mounting	Vacuum entry port	
		Buffer male thread	Female thread	One-touch fitting
Pad dia.	ø10 to ø16	M10 x 1	M5 x 0.8	ø4 tube
				ø6 tube
	ø20 to ø50	M14 x 1	1/8 (Rc, NPT, NPTF)	ø6 tube
				ø8 tube
Ball joint rotation		30°		

Buffer Type

Pad dia.	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
	Full Stroke	3.0 N	Full Stroke	5.0 N
Non-rotating specification	Without non-rotating (J), With non-rotating (K)			

Weight

(g)

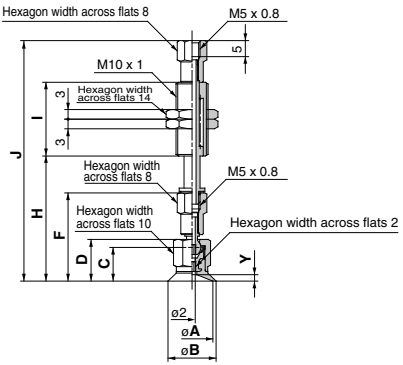
Pad dia.	Vacuum entry port				
	Female thread		One-touch fitting		
	M5 x 0.8	1/8 (Rc, NPT, NPTF)	ø4 tube	ø6 tube	ø8 tube
ø10 to ø16	30	—	32	33	—
ø20 to ø32	—	128	—	133	139
ø40, ø50	—	158	—	159	167

Weight by Stroke

(g)

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

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



Dimensions: 10 mm Stroke

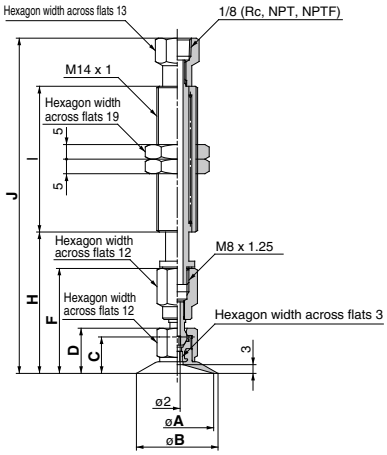
(mm)

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							

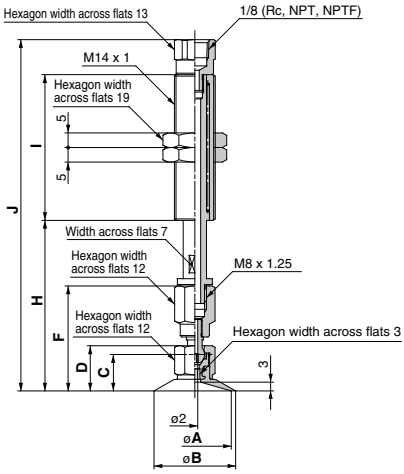
Additional Dimensions by Stroke (mm)

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

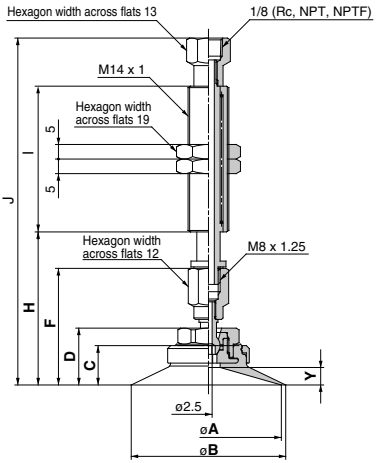
(mm)

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

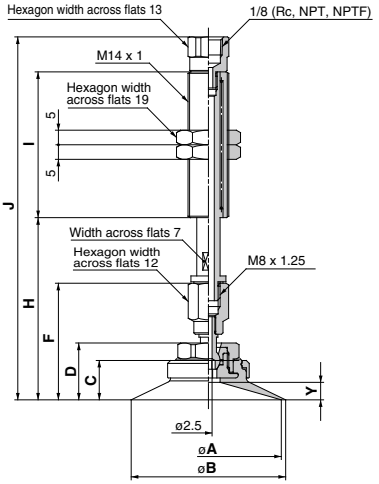
Additional Dimensions by Stroke (mm)

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)

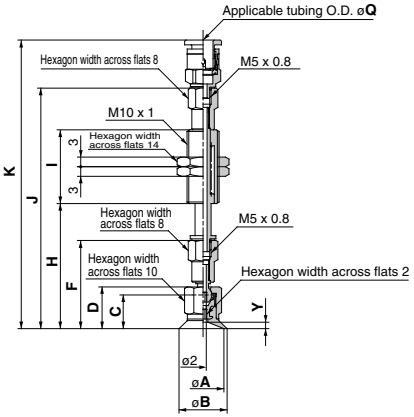
Model	A	B	C	D	F	H	I	J	Y
ZPT40F□□□10-□01-A14	40	43	12.5	18.5	39	51.5	50	118	5
ZPT50F□□□10-□01-A14	50	53	13.5	19.5	40	52.5		119	6

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)

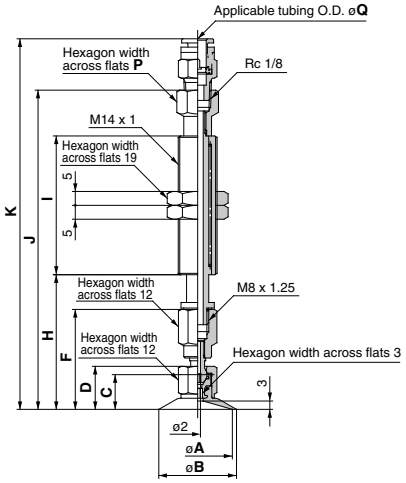
Model	A	B	C	D	F	H	I	J	Q: 4 K	Q: 6 K	Y
ZPT10F□□□10-0□-A10	10	12	10	12.5	27	38.5	23	74.5	88.5	89.5	1.5
ZPT13F□□□10-0□-A10	13	15	10.5	13	27.5	39		75	89	90	2
ZPT16F□□□10-0□-A10	16	18									

Additional Dimensions by Stroke

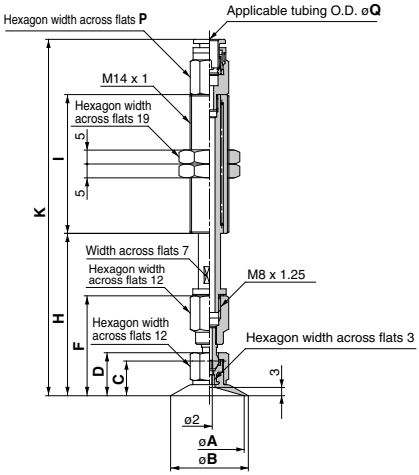
(mm)

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 K10-0□-A14 (With buffer/One-touch fitting)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Strokes

(mm)

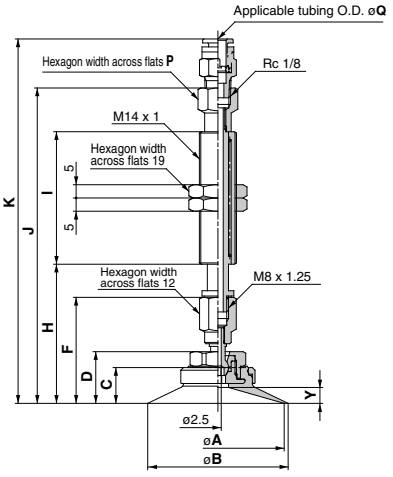
Model	A	B	C	D	F	H	I	J	Q: 6 K	Q: 6 P	Q: 8 K	Q: 8 P
ZPT20F□□□10-0□-A14	20	22	12.5	15.5	36	48.5	50	115	133.5	13	137	13
ZPT25F□□□10-0□-A14	25	28										
ZPT32F□□□10-0□-A14	32	35	13	16	36.5	49		115.5	134		135.5	

Additional Dimensions by Stroke

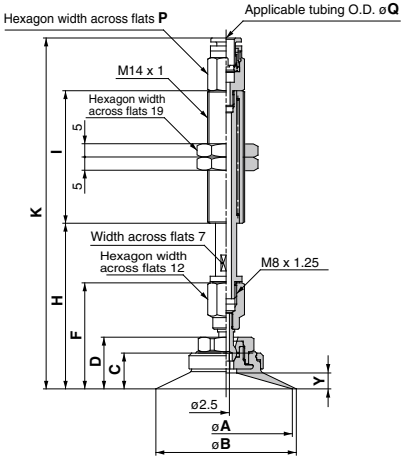
(mm)

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 K10-0□-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

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

Pad type

F	Ball joint type

Material

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

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

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

Table (1) Vacuum Entry/Mounting

				Mounting thread diameter		
Pad dia.				**ø10 to ø16**	**ø20 to ø50**	
Connection		Thread dia./ Port size		M5 x 0.8	M5 x 0.8	M8 x 125
			Symbol	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

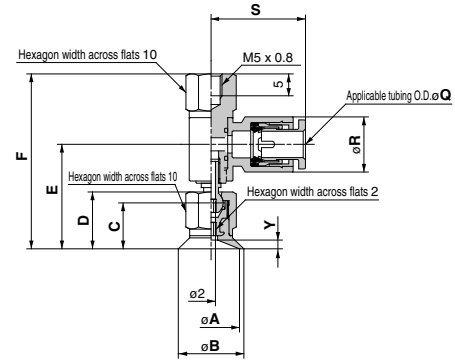
Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Female thread	One-touch fitting
Pad dia.	**ø10 to ø16**	M5 x 0.8	ø4 tube
			ø6 tube
	ø20 to ø50	M5 x 0.8	ø6 tube
			ø8 tube
		M8 x 1.25	ø6 tube
			ø8 tube
Ball joint rotation		30°	

Weight

(g)

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

ZPR$^{10}_{13}_{16}$F□□-0□-B5 (Without buffer/Female thread)



Dimensions

(mm)

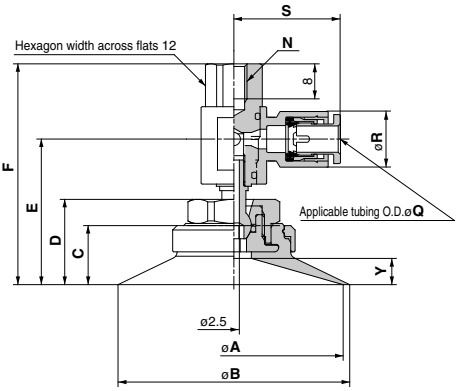
Model	A	B	C	D	E	F	Y
ZPR10F□□-0□-B5	10	12	10	12.5	23.4	39.5	1.5
ZPR13F□□-0□-B5	13	15	10.5	13	23.9	40	2
ZPR16F□□-0□-B5	16	18					

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$^{40}_{50}$F□□-0□-B8 (Without buffer/Female thread)



Dimensions

(mm)

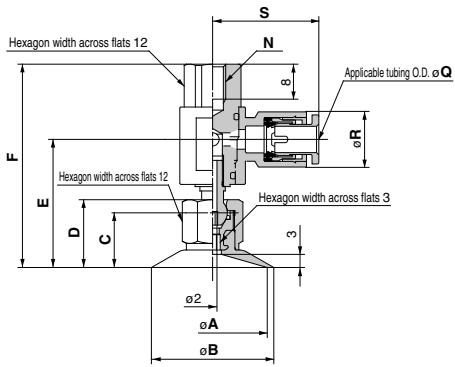
Model	A	B	C	D	E	F	N	Y
ZPR40F□□-0□-B8	40	43	12.5	18.5	32.3	49.5	M8 x 1.25	5
ZPR50F□□-0□-B8	50	53	13.5	19.5	33.3	50.5		6

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

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

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

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

Pad type

F	Ball joint type

Material

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

Buffer type

J	Rotating
K	Non-rotating

Buffer stroke

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

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

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

Table (1) Vacuum Entry/Mounting

			Mounting	
Pad dia.			**ø10 to ø16**	**ø20 to ø50**
Connection	Thread dia./ Port size	Symbol	M10 x 1	M14 x 1
			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	2.5 to 3.5
M14 x 1	6.5 to 7.5

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

Specifications

Vacuum entry direction		Lateral	
Connection		Mounting	Vacuum entry port
		Male thread	One-touch fitting
Pad dia.	**ø10 to ø16**	M10 x 1	ø4 tube
			ø6 tube
	ø20 to ø50	M14 x 1	ø6 tube
			ø8 tube
Ball joint rotation		30°	

Buffer Type

Pad dia.	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
	Full Stroke	3.0 N	Full Stroke	5.0 N
Non-rotating specification	Without non-rotating (J), With non-rotating (K)			

Weight

(g)

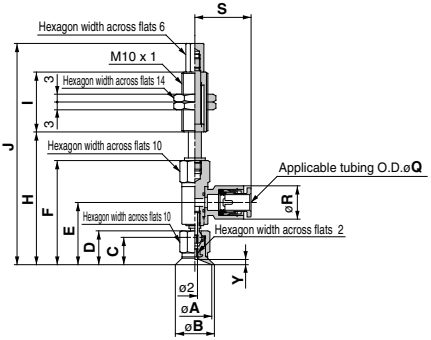
Pad dia.	Vacuum entry port		
	One-touch fitting		
	ø4 tube	ø6 tube	ø8 tube
ø10 to ø16	34	35	—
ø20 to ø32	—	38	39
ø40, ø50	—	134	136

Weight by Stroke

(g)

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

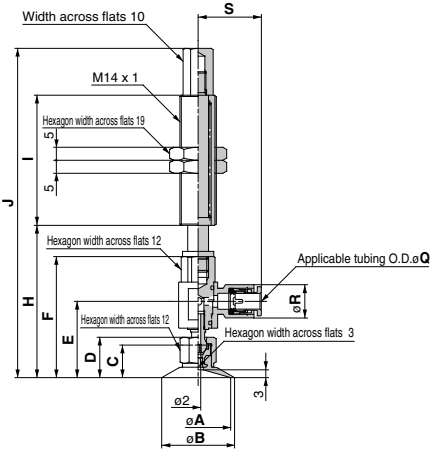
Model	Q: 4		Q: 6		Y
	R	S	R	S	
ZPR10F□□□10-0□-A10	10.4	20.6	12.8	21.6	1.5
ZPR13F□□□10-0□-A10					2
ZPR16F□□□10-0□-A10					

Additional Dimensions by Stroke

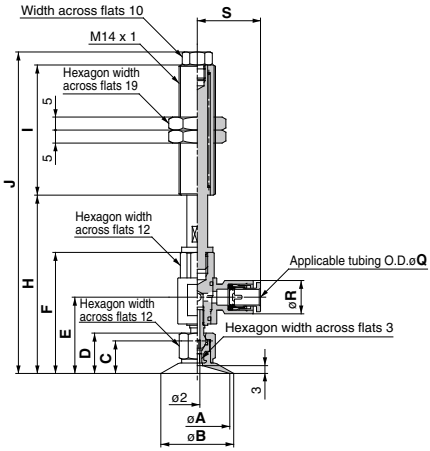
(mm)

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)

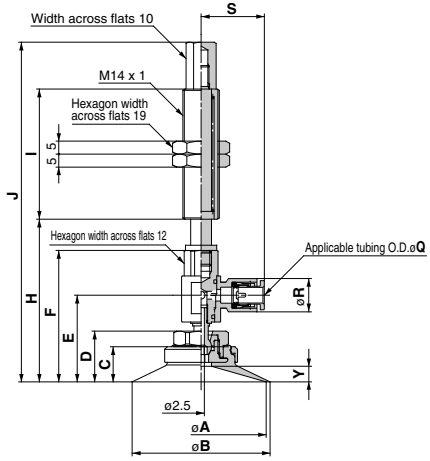
Model	Q: 6		Q: 8	
	R	S	R	S
ZPR20F□□□10-0□-A14	12.8	24.3	15.2	26.2
ZPR25F□□□10-0□-A14				
ZPR32F□□□10-0□-A14				

Additional Dimensions by Stroke

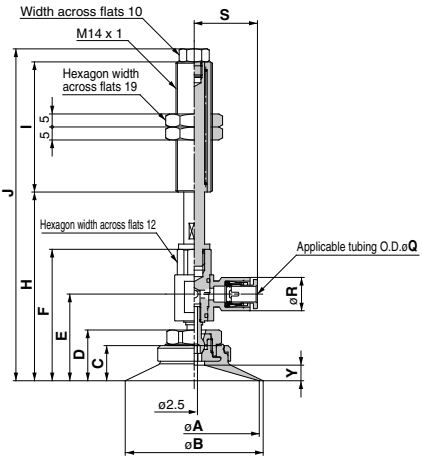
(mm)

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

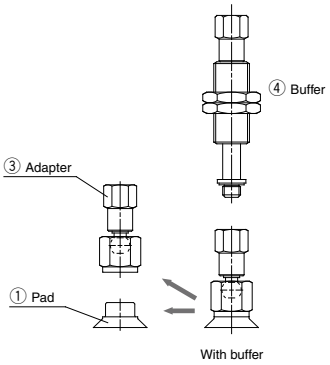
(mm)

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

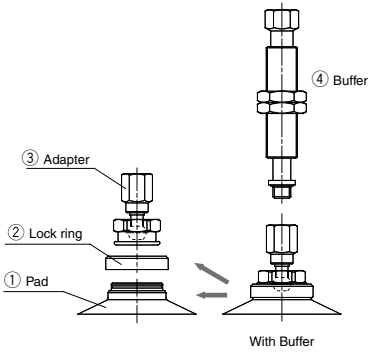
Component Parts

Series ZPT

Pad Diameter: ø10 to ø32

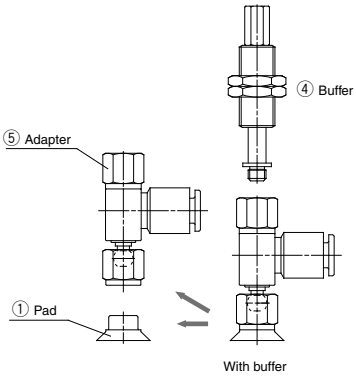


Pad Diameter: ø40, ø50

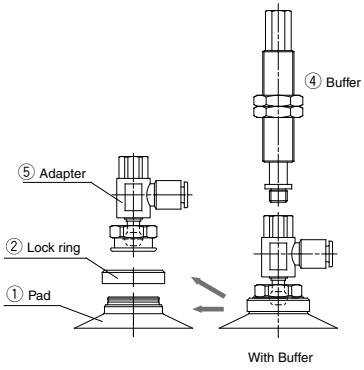


Series ZPR

Pad Diameter: ø10 to ø32



Pad Diameter: ø40, ø50



Compornent Parts

No.	Description	Material	Note
1	**Pad**	NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone 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

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	Silicone rubber
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

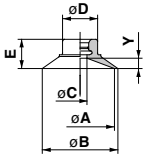
Pad type

F	Ball joint type

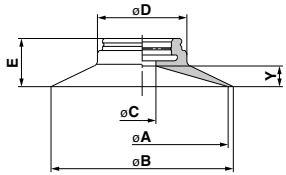
Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

Dimensions

Ball joint type: ø10 to ø32



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

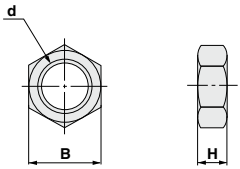
How to Order

ZPL F

For ball joint type (ø40, ø50)

Mounting Nut

Dimensions



(mm)

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

Series ZPT/ZPR
Specific Product Precautions

Be sure to read before handling.
Refer to front matter 35 for Safety Instructions and pages 899 to 901 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.

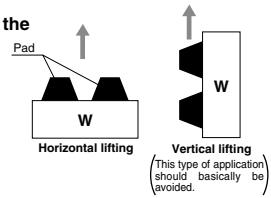
This will cause deformation, cracking and wear of the pad to be accelerated. The stiffening ribs, etc. should touch lightly, while staying within the pad skirt's deformation range. Positioning should be performed accurately. Especially in the case of small diameter pads.

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.

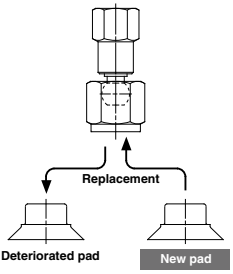


Maintenance

⚠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.



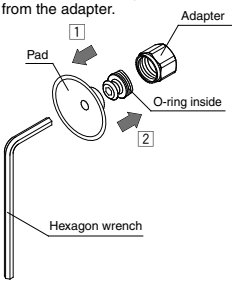
How to Assemble/Disassemble

⚠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.