

Vacuum Pad: Ball Joint Type

ZPT/ZPR Series

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



Ball joint type ideal for adsorption on a slanted work surfaces



ZP3

ZP3E

ZP2

ZP2V

ZP

ZPT
ZPR

XT661

ZPT Series: Vertical Vacuum Entry Type

ZPR Series: Lateral Vacuum Entry Type One-touch Fitting



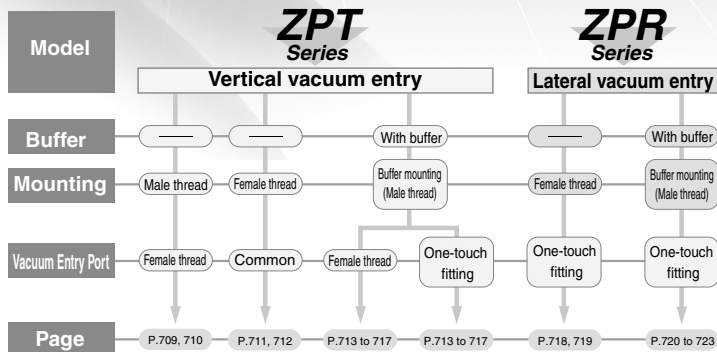
Vacuum Pad: Ball Joint Type

ZPT/ZPR Series

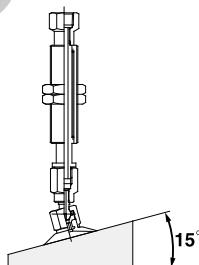
Pad diameter: $\varnothing 10$, $\varnothing 13$, $\varnothing 16$, $\varnothing 20$, $\varnothing 25$, $\varnothing 32$, $\varnothing 40$, $\varnothing 50$

Pad material: NBR, Silicone rubber, Urethane rubber, FKM, Conductive NBR, Conductive silicone rubber

Series Variations



Adsorption is possible even on a slanted surface.



Inclination 15°
(Rotation 30°)

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

Vacuum Pad: Ball Joint Type

Vertical Vacuum Entry

Without Buffer/Male Thread

ZPT Series



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
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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

Vacuum entry port

B5	M5 x 0.8
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Material

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

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

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

ZP3

ZP3E

ZP2

ZP2V

ZP

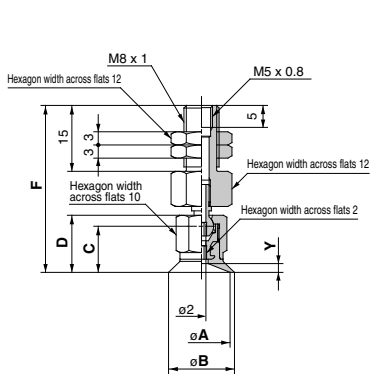
ZPT

ZPR

XT661

ZPT Series

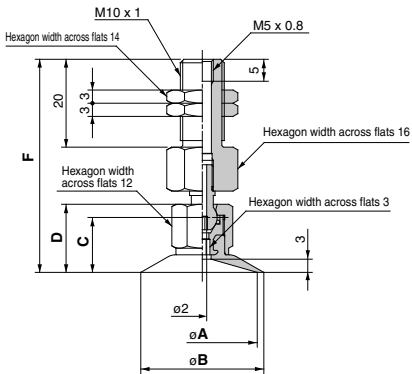
ZPT¹⁰₁₃¹⁶F□□-B5-A8 (Without buffer/Male thread)



Dimensions (mm)

Model	A	B	C	D	F	Y
ZPT10F□□-B5-A8	10	12	10	12.5	37.5	1.5
ZPT13F□□-B5-A8	13	15	10.5	13	38	
ZPT16F□□-B5-A8	16	18				2

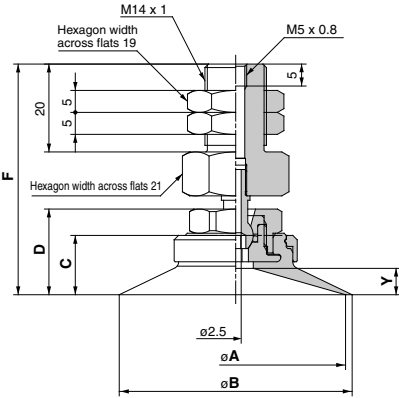
ZPT²⁰₂₅³²F□□-B5-A10 (Without buffer/Male thread)



Dimensions (mm)

Model	A	B	C	D	F
ZPT20F□□-B5-A10	20	22	12.5	15.5	48.5
ZPT25F□□-B5-A10	25	28			
ZPT32F□□-B5-A10	32	35	13	16	49

ZPT⁴⁰₅₀F□□-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

ZPT Series

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
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Vacuum entry/
Mounting diameter

Connection	Symbol	Mounting	Pad dia.		
			ø10 to ø16	ø20 to ø32	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	—	●	●

Material

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

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
		M5 x 0.8
	ø20 to ø32	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

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

ZP3

ZP3E

ZP2

ZP2V

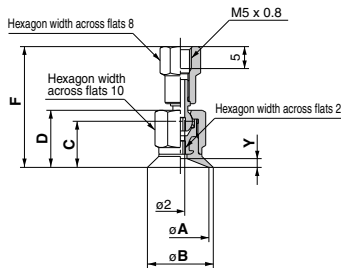
ZP

ZPT
ZPR

XT661

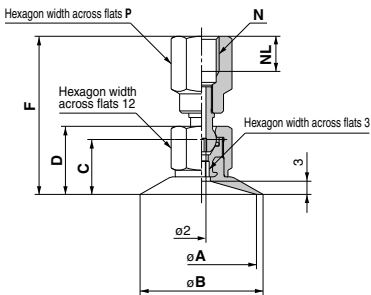
ZPT Series

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



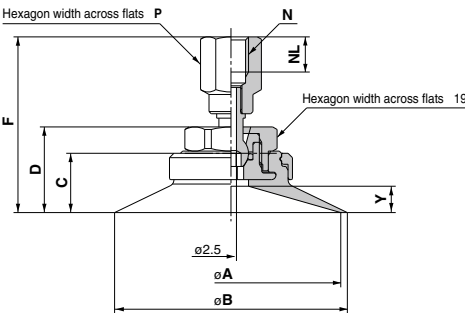
Dimensions (mm)						
Model	A	B	C	D	F	Y
ZPT10F□□-B5	10	12	10	12.5	27	1.5
ZPT13F□□-B5	13	15	10.5	13	27.5	
ZPT16F□□-B5	16	18				2

ZPT²⁰₂₅³²F□□-B^{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	P
ZPT20F□□-□□□	20	22	12.5	15.5	32			36			36		
ZPT25F□□-□□□	25	28				5	9		8	12			14
ZPT32F□□-□□□	32	35	13	16	32			36.5			36.5		

ZPT⁴⁰₅₀F□□-B^{B8}_{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	NL	P	
ZPT40F□□-□□□	40	43	12.5	18.5	39			39			14
ZPT50F□□-□□□	50	53	13.5	19.5	40			40			

Vacuum Pad: Ball Joint Type

Vertical Vacuum Entry: With Buffer

ZPT Series

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
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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	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

Pad dia.			Mounting	
			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	●
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.

ZP3

ZP3E

ZP2

ZP2V

ZP

ZPT

ZPR

XT661



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
	ø20 to ø50	M14 x 1	1/8 (Rc, NPT, NPTF)	ø6 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

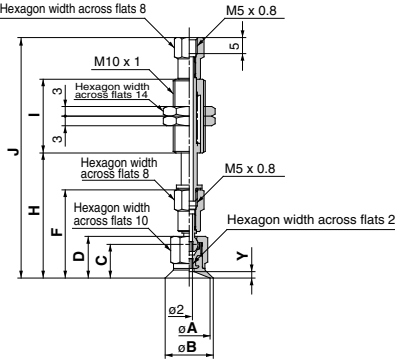
Pad dia.	Vacuum entry port					(g)
	Female thread		One-touch fitting			
	M5 x 0.8	1/8 (Rc, NPT, NPTF)	ø4 tube	ø6 tube	ø8 tube	
ø10 to ø16	30	—	32	33	—	
ø20 to ø32	—	128	—	133	139	
ø40, ø50	—	158	—	159	167	

Weight by Stroke

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

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

ZPT¹⁰₁₃¹⁶**F**□□^J**k10-B5-A10** (With buffer/Female thread)



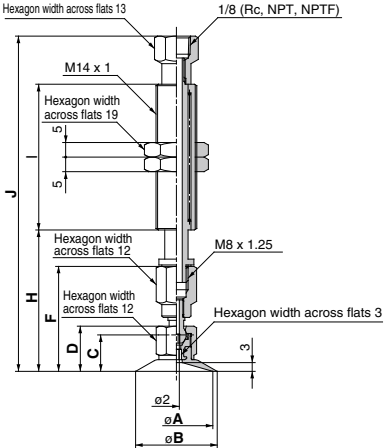
Dimensions: 10 mm Stroke

Model	A	B	C	D	F	H	I	J	Y
ZPT10F□□k10-B5-A10	10	12	10	12.5	27	38.5		74.5	1.5
ZPT13F□□k10-B5-A10	13	15					23		
ZPT16F□□k10-B5-A10	16	18	10.5	13	27.5	39		75	2

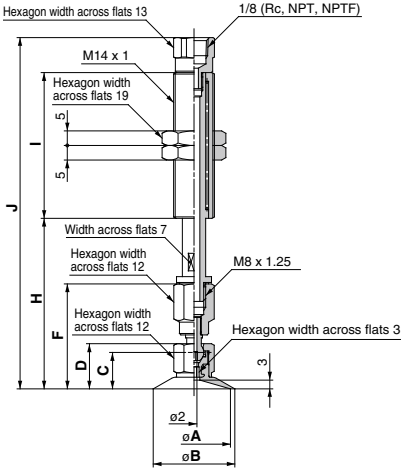
Additional Dimensions by Stroke (mm)

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

ZPT²⁰₂₅³²**F**□□^J**k10-01-A14** (With buffer/Female thread)



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Stroke

Model	A	B	C	D	F	H	I	J
ZPT20F□□k10-01-A14	20	22						
ZPT25F□□k10-01-A14	25	28	12.5	15.5	36	48.5	50	115
ZPT32F□□k10-01-A14	32	35	13	16	36.5	49		115.5

Additional Dimensions by Stroke (mm)

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

ZP3

ZP3E

ZP2

ZP2V

ZP

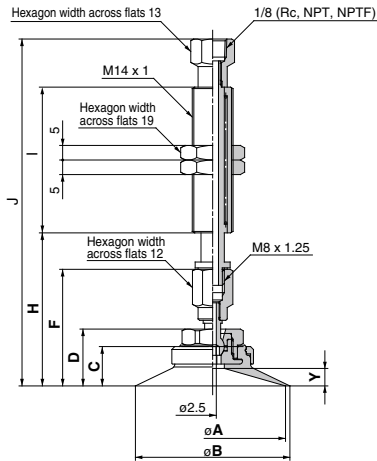
ZPT

ZPR

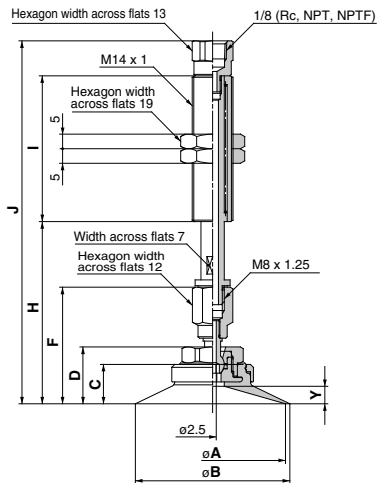
XT661

ZPT Series

ZPT⁴⁰₅₀F□□□^JK10-□01-A14 (With buffer/Female thread)



Stroke: 10 mm



Stroke: 20 to 50 mm

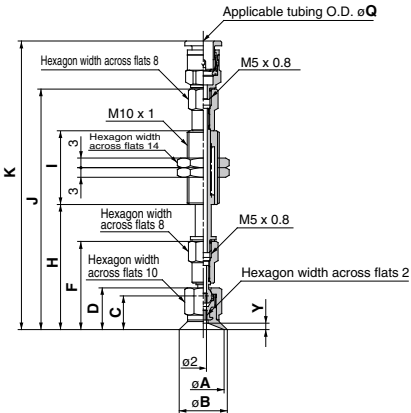
Dimensions: 10 mm Stroke

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

Additional Dimensions by Stroke

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

ZPT¹⁰₁₆F□□□^JK10-0□-A10 (With buffer/One-touch fitting)



Dimensions: 10 mm Stroke

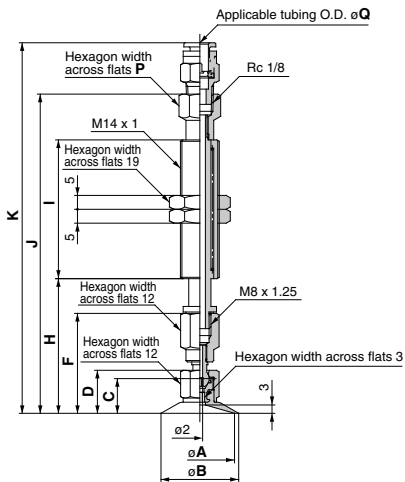
Model	A	B	C	D	F	H	I	J	Q: 4	Q: 6	Y
ZPT10F□□□□10-0□-A10	10	12	10	12.5	27	38.5			74.5	88.5	1.5
ZPT13F□□□□10-0□-A10	13	15					23				
ZPT16F□□□□10-0□-A10	16	18	10.5	13	27.5	39			75	89	2

Additional Dimensions by Stroke (mm)

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

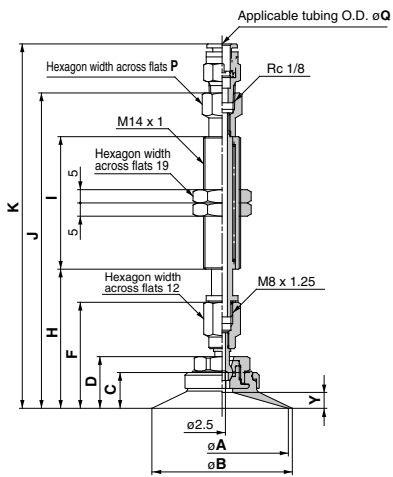
ZPT Series

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

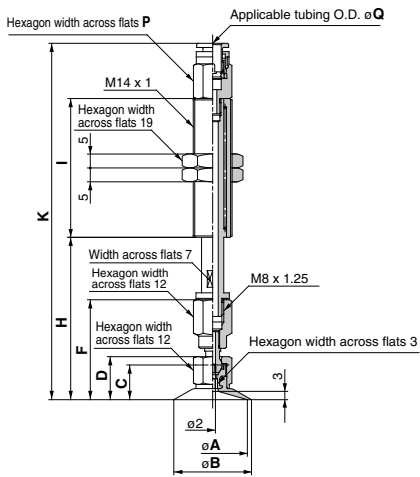


Stroke: 10 mm

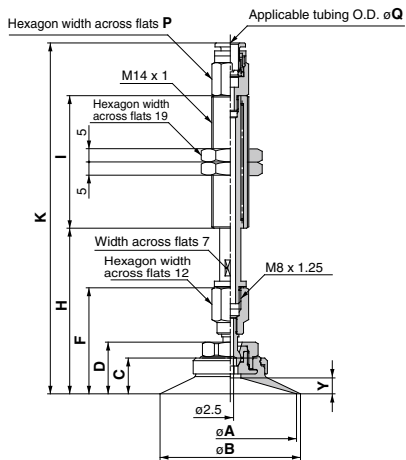
ZPT⁴⁰₅₀F□□ J_K10-0□-A14 (With buffer/One-touch fitting)



Stroke: 10 mm



Stroke: 20 to 50 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Strokes

Dimensions: 10 mm Strokes (mm)											
Model	A	B	C	D	F	H	I	J	K	P	Q
ZPT20□□□□□□□□□□-A14	20	22	12.5	15.5	36	48.5	50	115	133.5	13	137
ZPT25F□□□□□□□□□□-A14	25	28	15	18	36	48.5	50	115	134	13	137
ZPT32F□□□□□□□□□□-A14	32	35	13	16	36.5	49	50	115.5	134	13	137

Additional Dimensions by Stroke

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

Dimensions: 10 mm Strokes

Dimensions: 10 mm Strokes (mm)

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

Additional Dimensions by Stroke

by Stroke				(mm)			
Stroke	H	I	Q: 6		Q: 8		
			K	P	K	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

ZPR Series



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
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Material

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

Mounting

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

Vacuum entry port

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

Table (1) Vacuum Entry/Mounting

Pad dia.			Mounting thread diameter		
			ø10 to ø16	ø20 to ø32	ø40 to ø50
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.	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°	

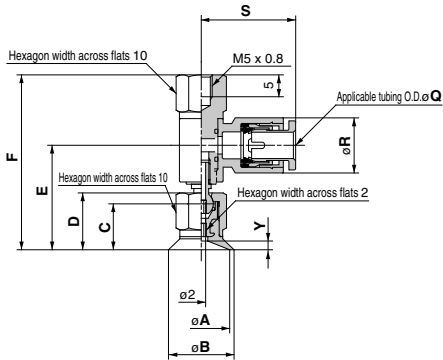
Weight

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

(g)

Lateral Vacuum Entry: Without Buffer **ZPR Series**

ZPR¹⁰₁₃F□□-0□-B5 (Without buffer/Female thread)
16



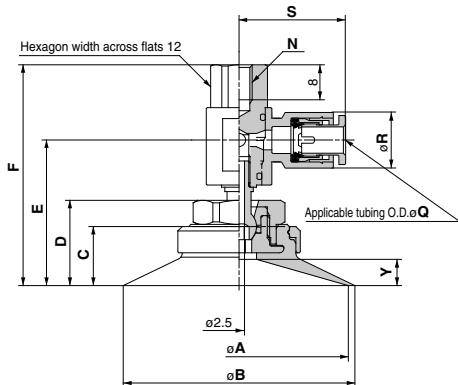
Dimensions (mm)

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

Dimensions by Tubing Diameter (mm)

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

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



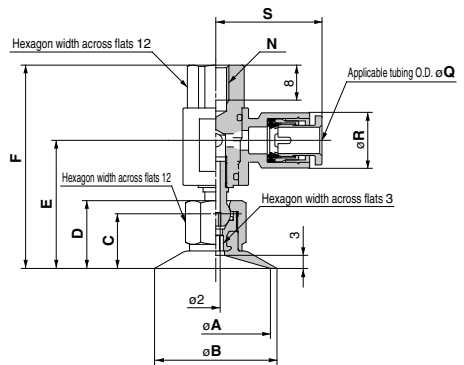
Dimensions (mm)

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

Dimensions by Tubing Diameter (mm)

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

ZPR²⁰₂₅F□□-0□-B⁵₈ (Without buffer/Female thread)
32



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	13	16	29.8	47	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
φ20 to φ32	12.8	24.3	15.2	26.2

ZP3

ZP3E

ZP2

ZP2V

ZP

ZPT

ZPR

XT661

Vacuum Pad: Ball Joint Type

Lateral Vacuum Entry

With Buffer

ZPR Series

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

Mounting

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

Vacuum entry port

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

Table (1) Vacuum Entry/Mounting

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

Buffer stroke

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

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
	ø20 to ø50	M14 x 1	ø6 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	

ZP3

ZP3E

ZP2

ZP2V

ZP

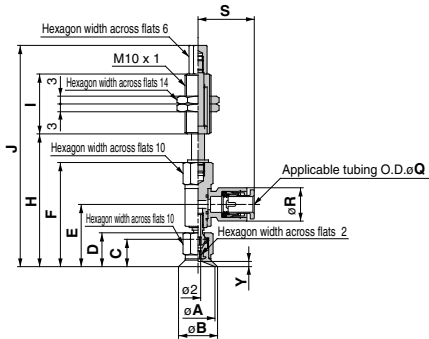
ZPT

ZPR

XT661

ZPR Series

ZPR¹⁰13F□□J□□K10-0□-A10 (With buffer)
16



Dimensions: 10 mm Stroke

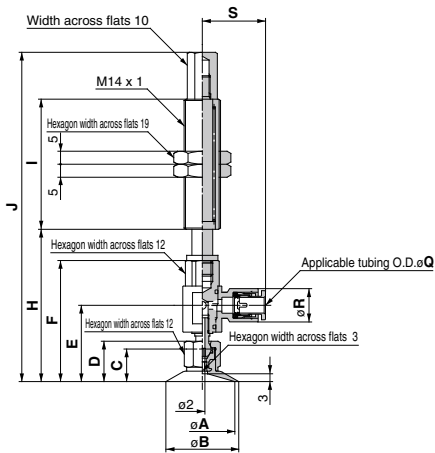
Model	A	B	C	D	E	F	H	I	J
ZPR10F□□□10-0□-A10	10	12	10	12.5	23.4	39.5	50.5		84.5
ZPR13F□□□10-0□-A10	13	15						23	
ZPR16F□□□10-0□-A10	16	18							85

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

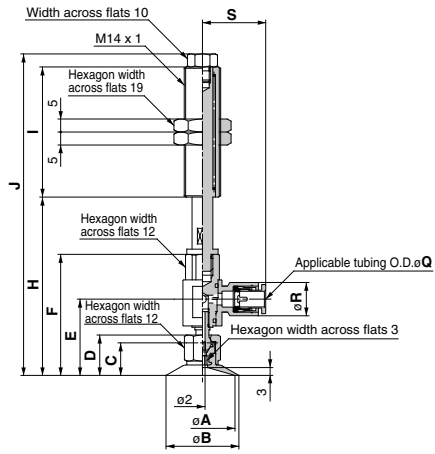
Additional Dimensions by Stroke

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

ZPR²⁰25F□□J□□K10-0□-A14 (With buffer)
32



Stroke: 10 mm



Stroke: 20 to 50 mm

Dimensions: 10 mm Stroke

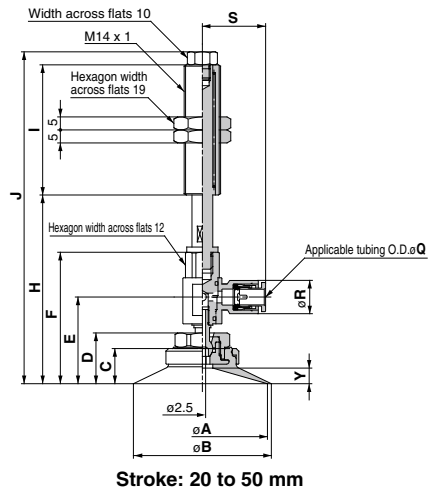
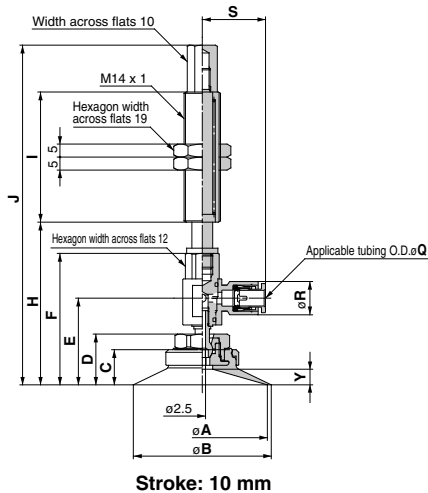
Model	A	B	C	D	E	F	H	I	J
ZPR20F□□□10-0□-A14	20	22	12.5	15.5	29.3	46.5	58.5		126.5
ZPR25F□□□10-0□-A14	25	28						50	
ZPR32F□□□10-0□-A14	32	35	13	16	29.8	47	59		127

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

Additional Dimensions by Stroke

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

ZPR⁴⁰₅₀F□□^JK10-0□-A14 (With buffer)



Dimensions: 10 mm Stroke

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

- ZP3
- ZP3E
- ZP2
- ZP2V
- ZP
- ZPT
- ZPR
- XT661

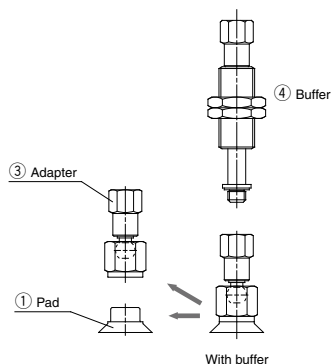


ZPT/ZPR Series

Component Parts

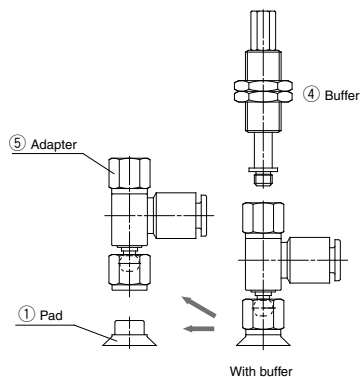
ZPT Series

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

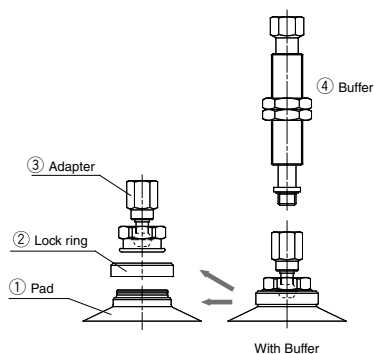


ZPR Series

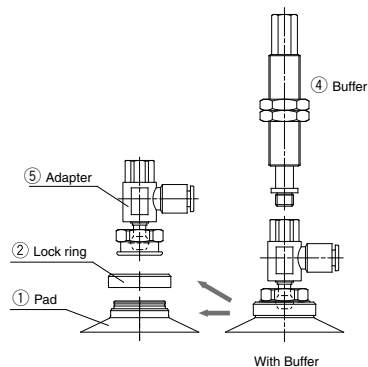
Pad Diameter: $\varnothing 10$ to $\varnothing 32$



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



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



Component 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

ZPT/ZPR Series 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

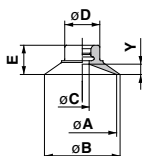
Pad type

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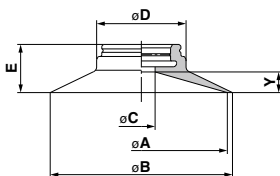
Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

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

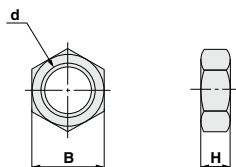
How to Order

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

ZP3

ZP3E

ZP2

ZP2V

ZP

ZPT
ZPR

XT661



ZPT/ZPR Series

Specific Product Precautions

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 49 to 51 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.

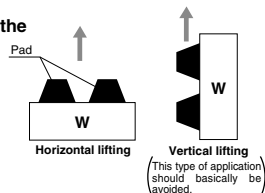
6. When transporting in an upward direction, factors such as acceleration, wind pressure and impact force must be considered in addition to the workpiece weight.

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.



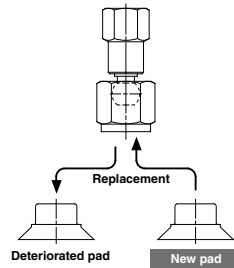
Maintenance

⚠ 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 occurred in a pad which appears to be harmful, replace it immediately.

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



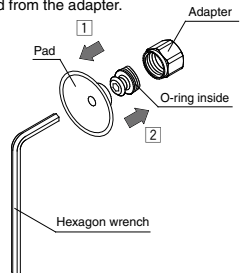
How to Assemble/Disassemble

⚠ Caution

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

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: $\phi 40$, $\phi 50$

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.

