# Vacuum Pad: Ball Joint Type

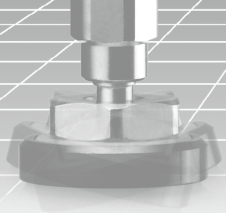
## *ZPT/ZPR* Series

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




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

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



## Vacuum Pad: Ball Joint Type

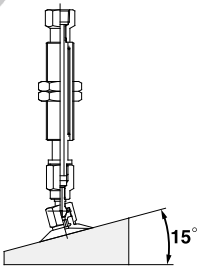
# ZPT/ZPR Series

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

### Series Variations

| Model | ZPT Series | | | | ZPR Series | |
|---|---|---|---|---|---|---|
| | 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.709, 710 | P.711, 712 | P.713 to 717 | P.713 to 717 | P.718, 719 | P.720 to 723 |

**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
# *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 |

**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

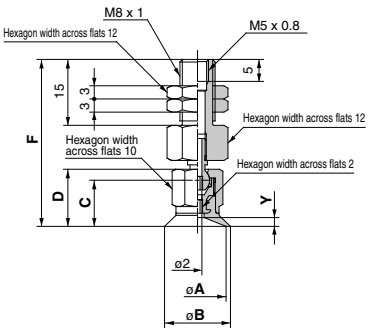
| | | | |
|---|---|---|---|
| **Vacuum entry direction** | | Vertical | |
| **Connection** | | Mounting | Vacuum entry port |
| | | Male thread | Female thread |
| **Pad diameter** | **ø10 to ø16** | M8 x 1 | M5 x 0.8 |
| | **ø20 to ø32** | M10 x 1 | |
| | **ø40, ø50** | M14 x 1 | |
| **Ball joint rotation**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

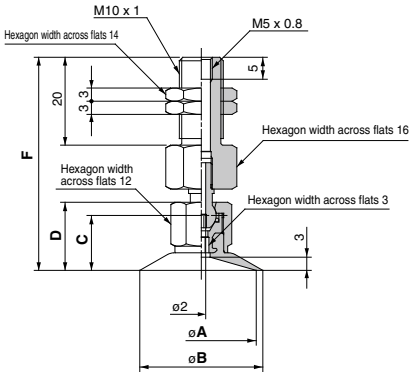



### Dimensions

(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)

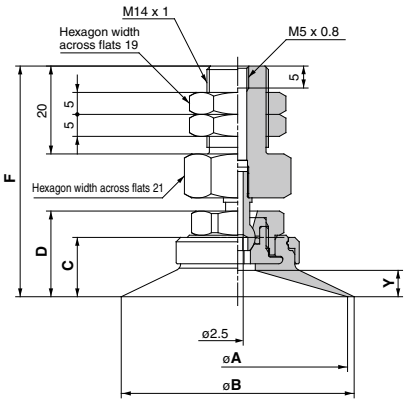



### Dimensions

(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
# *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 |

**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

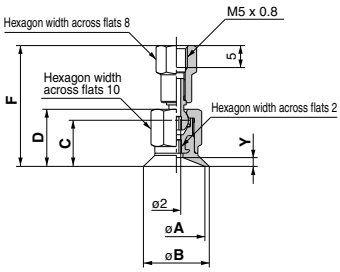
| | | |
|---|---|---|
| **Vacuum entry direction** | | Vertical |
| **Connection** | | Connection/Vacuum entry |
| | | Female thread |
| **Pad diameter** | **ø10 to ø16** | M5 x 0.8 |
| | **ø20 to ø32** | M5 x 0.8 |
| | | M8 x 1.25 |
| | | 1/8 (Rc, NPT, NPTF) |
| | **ø40, ø50** | M8 x 1.25 |
| | | 1/8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

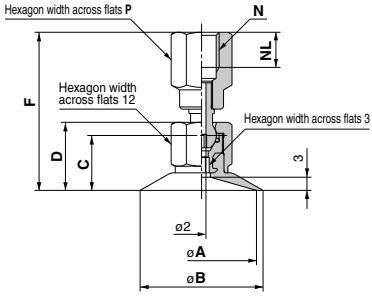



### Dimensions

(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)

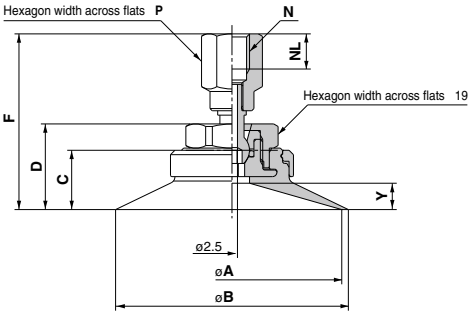



### Dimensions

(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
# *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 |

**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)

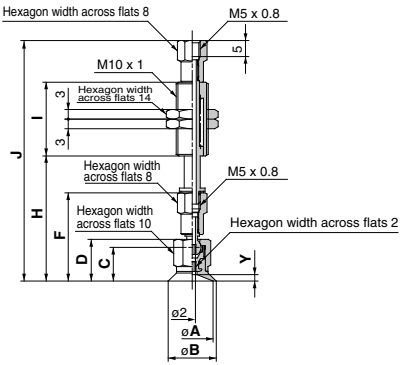
| Pad dia. | Vacuum entry port | | | | |
|---|---|---|---|---|---|
| | Female thread | | One-touch fitting | | |
| | M5 x 0.8 | 1/8 (Rc, NPT, NPTF) | ø4 tube | ø6 tube | ø8 tube |
| **ø10 to ø16** | 30 | — | 32 | 33 | — |
| **ø20 to ø32** | — | 128 | — | 133 | 139 |
| **ø40, ø50** | — | 158 | — | 159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

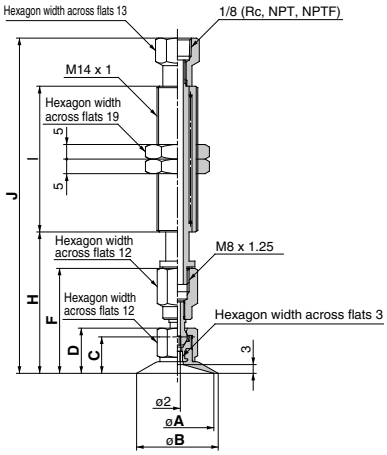
(mm)

| 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 | | | | | | | |

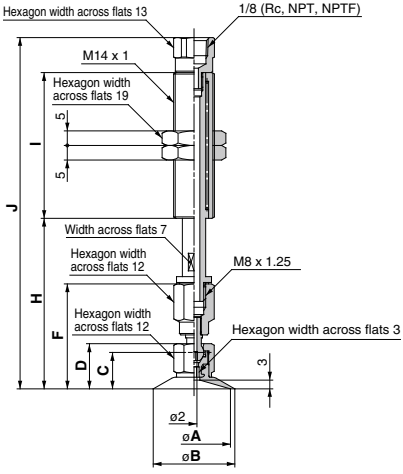
### Additional Dimensions by Stroke (mm)

| 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

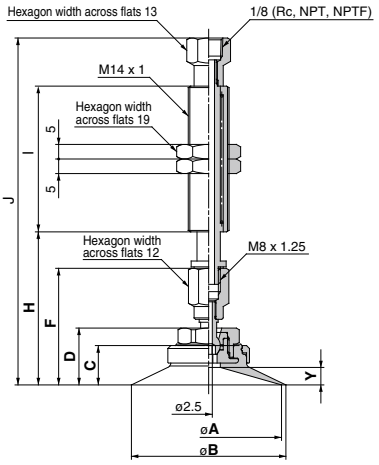
(mm)

| 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 |

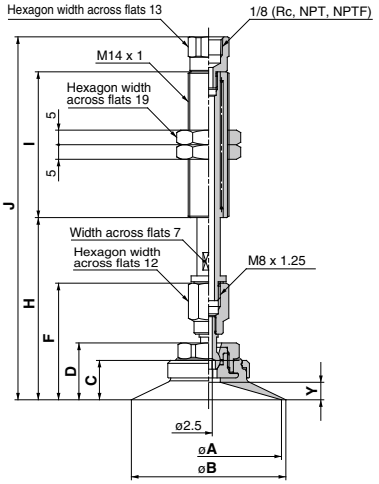
### Additional Dimensions by Stroke (mm)

| 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)

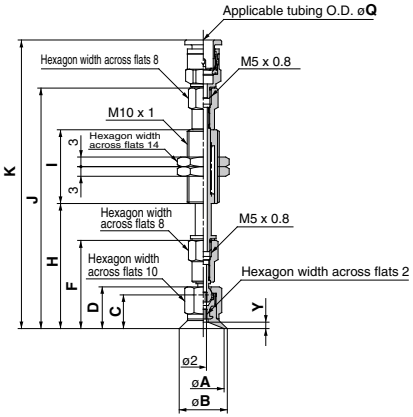
| Model | A | B | C | D | F | H | I | J | Y |
|---|---|---|---|---|---|---|---|---|---|
| **ZPT40F□□□10-□01-A14** | 40 | 43 | 12.5 | 18.5 | 39 | 51.5 | 50 | 118 | 5 |
| **ZPT50F□□□10-□01-A14** | 50 | 53 | 13.5 | 19.5 | 40 | 52.5 | | 119 | 6 |

### 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)

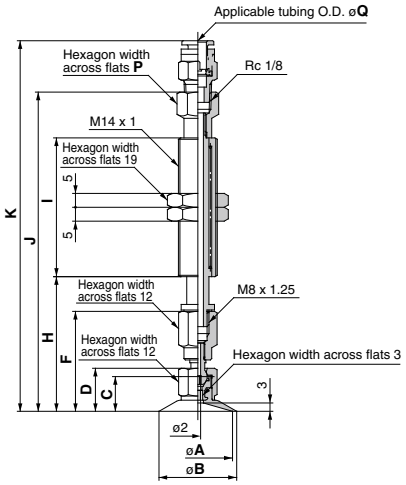
| Model | A | B | C | D | F | H | I | J | Q: 4 K | Q: 6 K | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ZPT10F□□□10-0□-A10** | 10 | 12 | 10 | 12.5 | 27 | 38.5 | 23 | 74.5 | 88.5 | 89.5 | 1.5 |
| **ZPT13F□□□10-0□-A10** | 13 | 15 | 10.5 | 13 | 27.5 | 39 | | 75 | 89 | 90 | 2 |
| **ZPT16F□□□10-0□-A10**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

### Additional Dimensions by Stroke

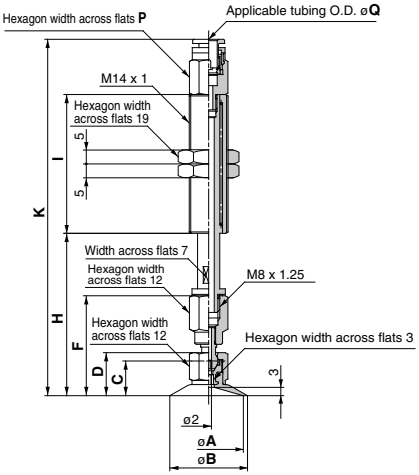
(mm)

| 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)

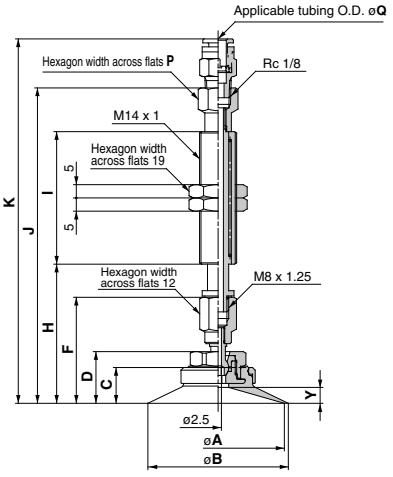
| Model | A | B | C | D | F | H | I | J | Q: 6 K | Q: 6 P | Q: 8 K | Q: 8 P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZPT20F□□□10-0□-A14 | 20 | 22 | 12.5 | 15.5 | 36 | 48.5 | 50 | 115 | 133.5 | 13 | 137 | 13 |
| ZPT25F□□□10-0□-A14 | 25 | 28 | | | | | | | | | | |
| ZPT32F□□□10-0□-A14 |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

### Additional Dimensions by Stroke

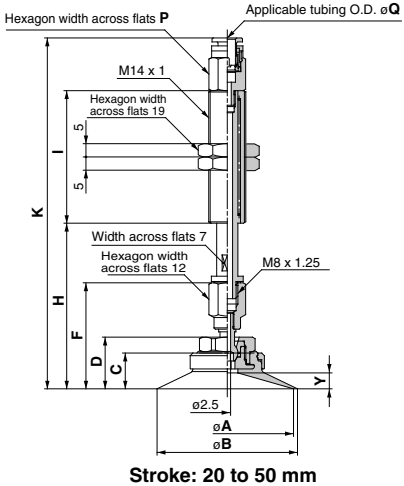
(mm)

| 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
# *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 |

**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 | Symbol | M5 x 0.8 | M5 x 0.8 | M8 x 125 |
| | | | | 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

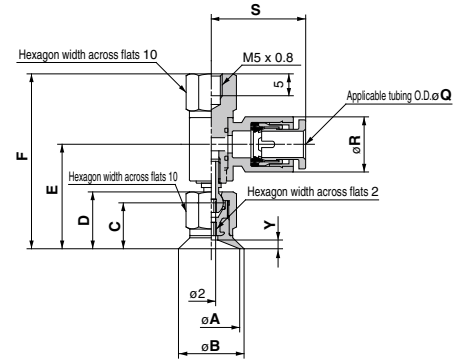
| **Vacuum entry direction** | | Lateral | |
|---|---|---|---|
| **Connection** | | Mounting | Vacuum entry port |
| | | Female thread | One-touch fitting |
| **Pad dia.** | **ø10 to ø16** | M5 x 0.8 | ø4 tube |
| | | | ø6 tube |
| | **ø20 to ø50** | M5 x 0.8 | ø6 tube |
| | | | ø8 tube |
| | | M8 x 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)



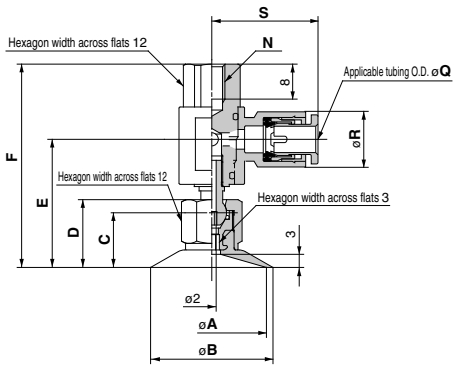

### Dimensions (mm)

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



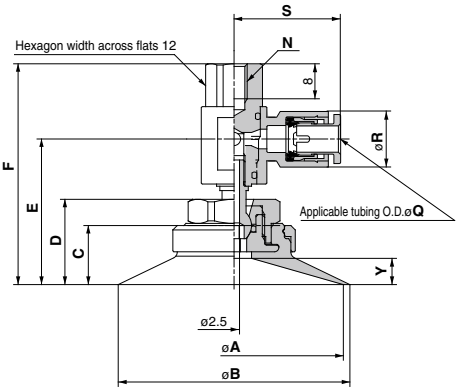

### Dimensions (mm)

| 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
# *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 |

**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 | 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)

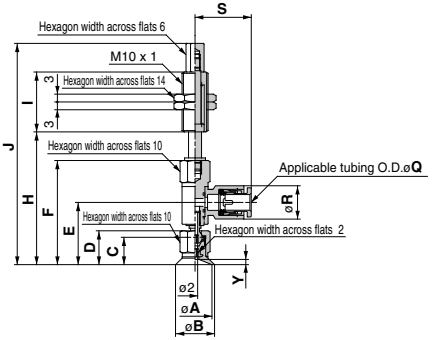
| Pad dia. | Vacuum entry port | | |
|---|---|---|---|
| | One-touch fitting | | |
| | ø4 tube | ø6 tube | ø8 tube |
| **ø10 to ø16** | 34 | 35 | — |
| **ø20 to ø32** | — | 38 | 39 |
| **ø40, ø50** | — | 134 | 136 |

## 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)

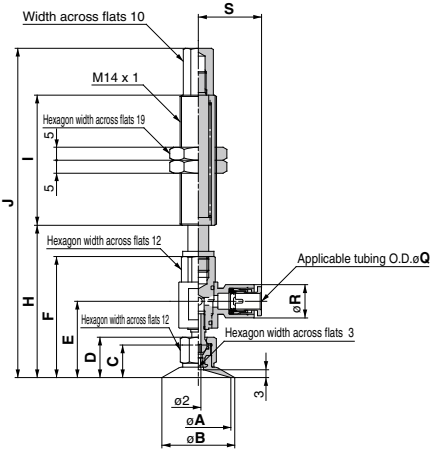
| Model | Q: 4 | | Q: 6 | | Y |
|---|---|---|---|---|---|
| | R | S | R | S | |
| ZPR10F□□□10-0□-A10 | 10.4 | 20.6 | 12.8 | 21.6 | 1.5 |
| ZPR13F□□□10-0□-A10 | | | | | 2 |
| ZPR16F□□□10-0□-A10 | | | | | |

### Additional Dimensions by Stroke

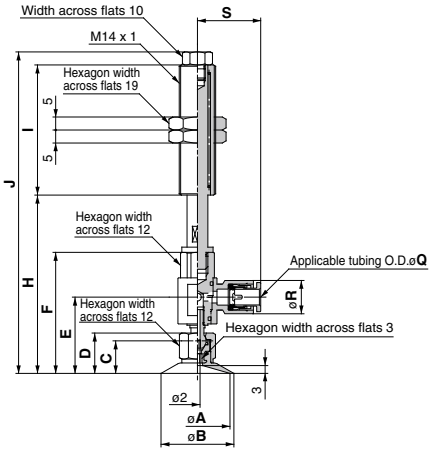
(mm)

| 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)

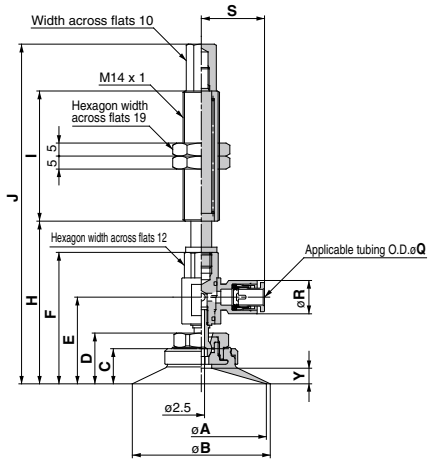
| Model | Q: 6 | | Q: 8 | |
|---|---|---|---|---|
| | R | S | R | S |
| ZPR20F□□□10-0□-A14 | 12.8 | 24.3 | 15.2 | 26.2 |
| ZPR25F□□□10-0□-A14 | | | | |
| ZPR32F□□□10-0□-A14 | | | | |

### Additional Dimensions by Stroke

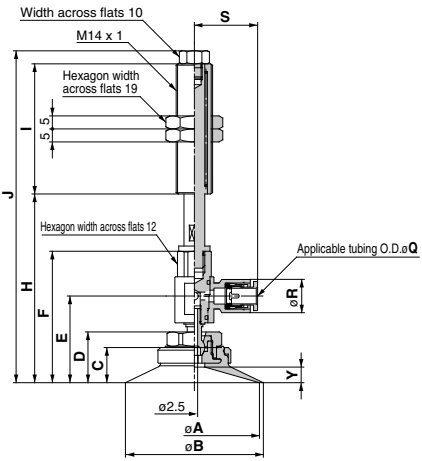
(mm)

| 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

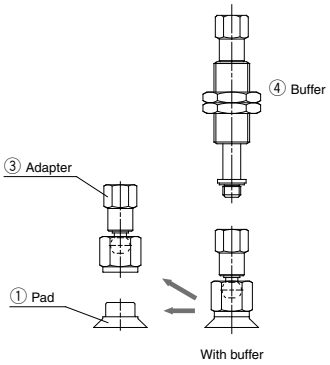
(mm)

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

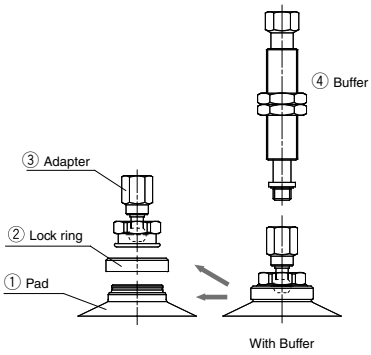
# *ZPT/ZPR Series*
# Component Parts

## ZPT Series

### Pad Diameter: ø10 to ø32

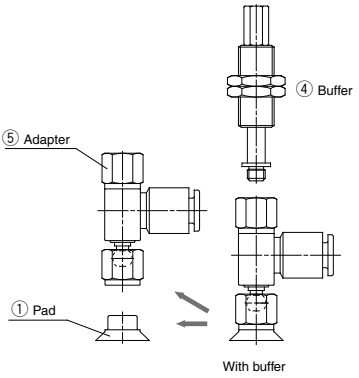



### Pad Diameter: ø40, ø50

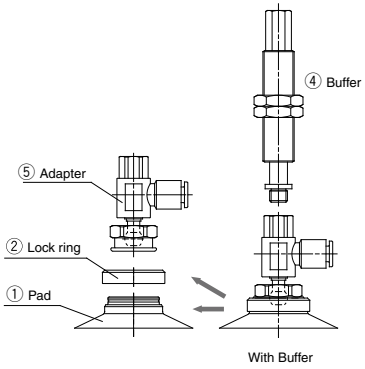



## ZPR Series

### 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 |

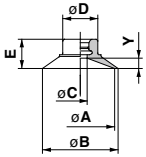
**Pad type**

| | |
|---|---|
| **F** | Ball joint type |

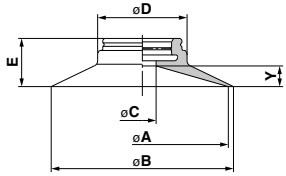
Note) Pads are exclusively ball joint type and are not interchangeable with other pads.

### 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

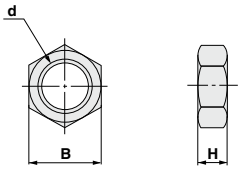
### How to Order

**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 |

# *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.**

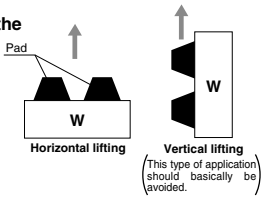
This will cause deformation, cracking and wear of the pad to be accelerated. The stiffening ribs, etc. should touch lightly, while staying within the pad skirt's deformation range. Positioning should be performed accurately. Especially in the case of small diameter pads.

**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.**

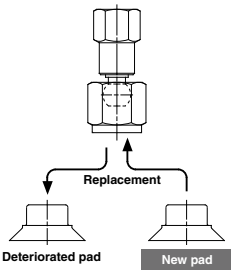



## Maintenance

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



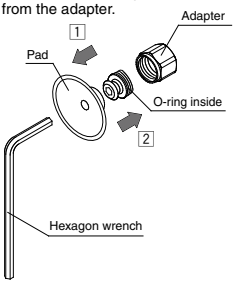

## How to Assemble/Disassemble

### ⚠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.