

Bellows Pad (4.5-Stage)

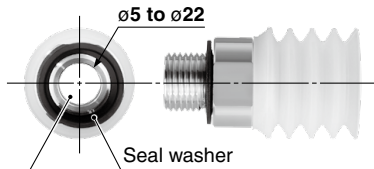
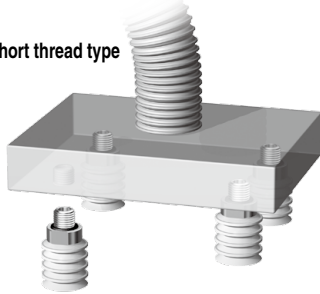
Symbol/Form

ZJ: Bellows type

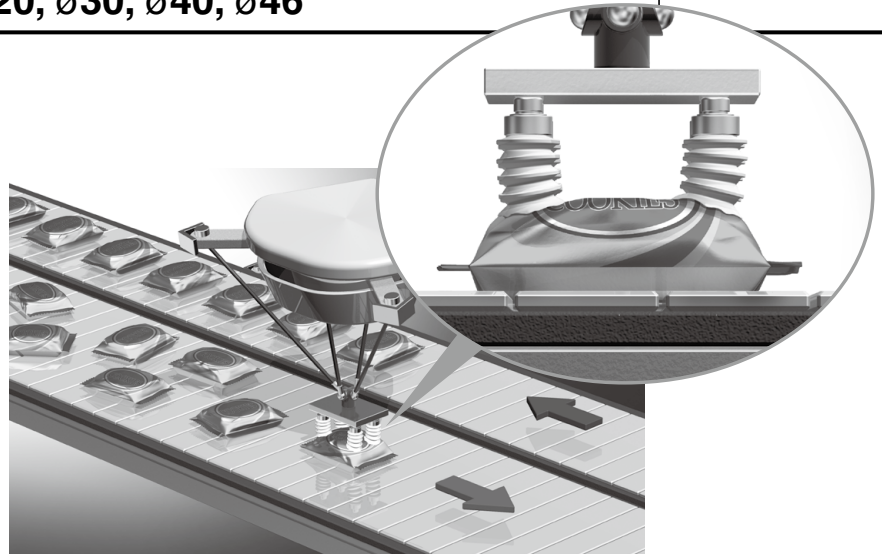
Pad diameter $\varnothing 15, \varnothing 20, \varnothing 30, \varnothing 40, \varnothing 46$

- For adsorbing workpieces moving at high speeds
- Follows various shapes of workpieces
- Pad material: Silicone rubber (Rubber hardness: A40, A50, A60)

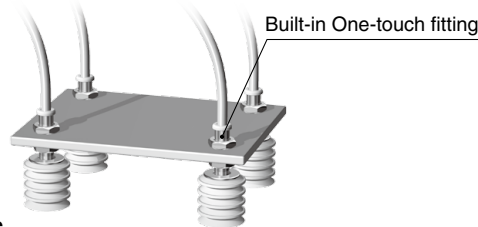
• Short thread type



- Large opening size (short thread type): $\varnothing 5$ to $\varnothing 22$
For vacuum blower pumps with high suction flow rates



• One-touch fitting type



How to Order

Pad unit **ZP2 - B15 ZJ S**

| Symbol | Pad diameter |
|------------|-----------------------|
| B15 | $\varnothing 15^{*1}$ |
| B20 | $\varnothing 20^{*1}$ |
| B30 | $\varnothing 30^{*1}$ |
| 40 | $\varnothing 40$ |
| 46 | $\varnothing 46$ |

*1 Pad O.D.

| Symbol | Form |
|-----------|--------------------------|
| ZJ | Bellows type (4.5-stage) |

• Pad material

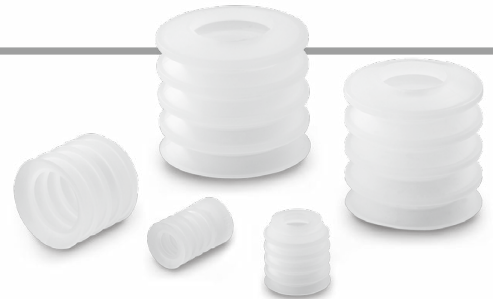
| Symbol | Material | Applicable pad diameter | | | | | |
|-----------|--|---|------------------|------------------|------------------|------------------|---|
| | | $\varnothing 15$ | $\varnothing 20$ | $\varnothing 30$ | $\varnothing 40$ | $\varnothing 46$ | |
| N | NBR | — | — | — | ● | ● | |
| U | Urethane rubber | — | — | — | ● | ● | |
| F | FKM | — | — | — | ● | ● | |
| GN | Conductive NBR | — | — | — | ● | ● | |
| GS | Conductive silicone rubber (Black) | — | — | — | ● | ● | |
| S | Silicone rubber*1*2 (White) | Rubber hardness (Shore A: $\pm 5^\circ$) | 40 | ● | ● | ● | — |
| | | | 50 | — | — | — | ● |
| S6 | Silicone rubber*1 High-hardness type (White) | 60 | ● | ● | ● | — | |

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Ministry of Health and Welfare Notification No. 370, 1959).

Mounting Bracket Part Nos.

Adapter Assembly p. 281



Model Selection

For Special Applications

Mark-free

For Film Adsorption

Multistage

Flat

Nozzle

Sponge

For Disk Adsorption

For Panel Holding

Ball Spine Buffer

Construction

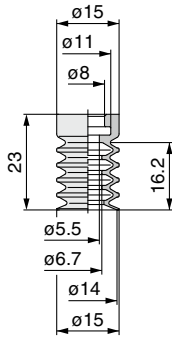
Mounting Bracket Assembly

Precautions

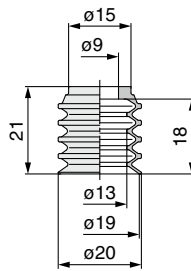
Bellows Pad (4.5-Stage) **ZP2 Series**

Dimensions: Pad Unit

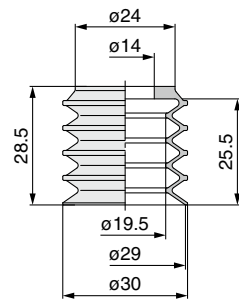
ZP2-B15ZJ □



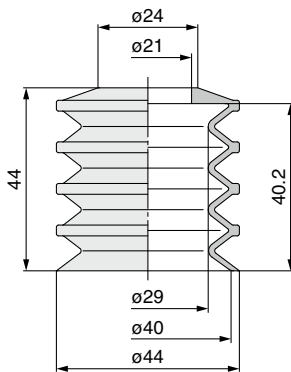
ZP2-B20ZJ □



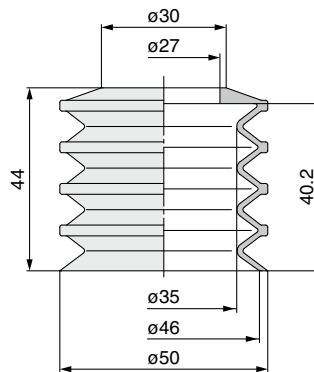
ZP2-B30ZJ □



ZP2-40ZJ □



ZP2-46ZJ □



| Weight | [g] |
|-------------|------|
| ZP2-B15ZJ □ | 2.0 |
| ZP2-B20ZJ □ | 2.0 |
| ZP2-B30ZJ □ | 4.5 |
| ZP2-40ZJN | 16.0 |
| ZP2-40ZJ □ | 15.0 |
| ZP2-40ZJU | 16.0 |
| ZP2-40ZJF | 25.0 |
| ZP2-40ZJGN | 16.0 |
| ZP2-40ZJGS | 16.0 |
| ZP2-46ZJN | 19.0 |
| ZP2-46ZJ □ | 17.0 |
| ZP2-46ZJU | 19.0 |
| ZP2-46ZJF | 30.0 |
| ZP2-46ZJGN | 19.0 |
| ZP2-46ZJGS | 19.0 |

How to Order

Vertical vacuum inlet with adapter

ZP2 - T B15 ZJ S - A10 - 06



Pad diameter

| Symbol | Pad diameter |
|------------|--------------|
| B15 | ø15*1 |
| B20 | ø20*1 |
| B30 | ø30*1 |
| 40 | ø40 |
| 46 | ø46 |

*1 Pad O.D.

Pad form

| Symbol | Form |
|-----------|--------------------------|
| ZJ | Bellows type (4.5-stage) |

Pad material

| Symbol | Material | Applicable pad diameter | | | | | |
|-----------|--|-------------------------|-----|-----|-----|-----|---|
| | | ø15 | ø20 | ø30 | ø40 | ø46 | |
| N | NBR | — | — | — | ● | ● | |
| U | Urethane rubber | — | — | — | ● | ● | |
| F | FKM | — | — | — | ● | ● | |
| GN | Conductive NBR | — | — | — | ● | ● | |
| GS | Conductive silicone rubber (Black) | — | — | — | ● | ● | |
| S | Silicone rubber*1*2 (White) | Rubber hardness | 40 | ● | ● | — | — |
| | | (Shore A: ±5°) | 50 | — | — | ● | ● |
| S6 | Silicone rubber*1*2 High-hardness type (White) | 60 | ● | ● | ● | — | |

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

*2 Compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Ministry of Health and Welfare Notification No. 370, 1959).

Vacuum inlet

| Symbol | Vacuum inlet | Connection thread | | | | | |
|------------|-----------------------|-------------------|-----|-----|-----|------|------|
| | | A10 | A16 | A20 | A30 | AL12 | AL14 |
| Nil | Short thread | ● | ● | ● | ● | — | — |
| 06 | One-touch fitting(ø6) | — | — | — | — | ● | ● |

Connection thread

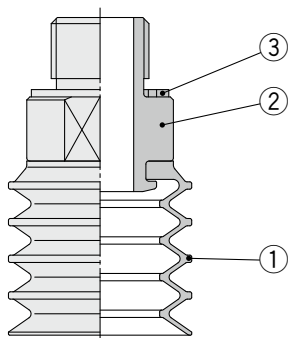
| Type | Symbol | Size | ø15 | ø20 | ø30 | ø40 | ø46 |
|-------------------|-------------|-----------|-----|-----|-----|-----|-----|
| Short thread | A10 | M10 x 1 | ● | ● | — | — | — |
| | A16 | M16 x 1.5 | — | — | ● | — | — |
| | A20 | M20 x 1.5 | — | — | — | ● | — |
| | A30 | M30 x 1.5 | — | — | — | — | ● |
| One-touch fitting | AL12 | M12 x 1 | ● | ● | — | — | — |
| | AL14 | M14 x 1 | — | — | ● | ● | ● |

* The pad is shipped together but does not come assembled.

Bellows Pad (4.5-Stage) **ZP2 Series**

Component Parts

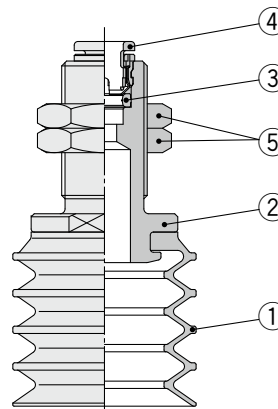
■ Short thread type (Pad with adapter)



Component Parts

| No. | Description | Material (Surface treatment) |
|-----|--------------------|---------------------------------------|
| 1 | Pad | Refer to the pad material (page 276). |
| 2 | Adapter | Aluminum alloy (Anodized) |
| 3 | Seal washer | Structural steel/NBR |

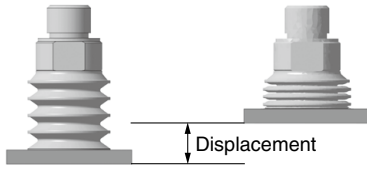
■ One-touch fitting type (Pad with adapter)



Component Parts

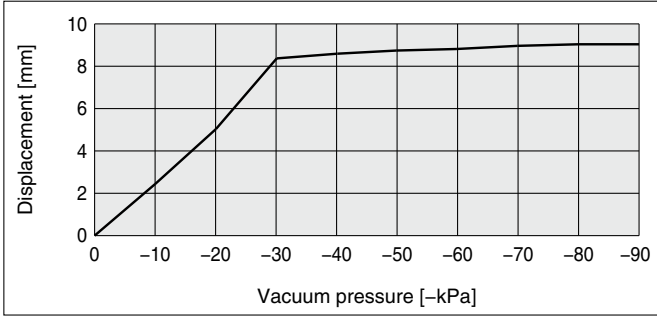
| No. | Description | Material (Surface treatment) |
|-----|-----------------|---------------------------------------|
| 1 | Pad | Refer to the pad material (page 276). |
| 2 | Adapter | Aluminum alloy (Anodized) |
| 3 | Seal | NBR |
| 4 | Cassette | — |
| 5 | Nut | Steel (Zinc chromated) |

Pad Displacement to Vacuum Pressure (Pad material: Silicone rubber)

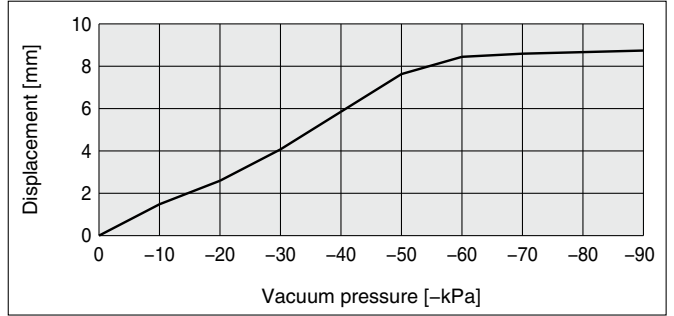


The data shown below are not guaranteed but actual measured (initial value). These values depend on the operating environment, workpiece weight and transfer method, so they cannot be guaranteed by SMC. Thorough research and confirmation are necessary before use.

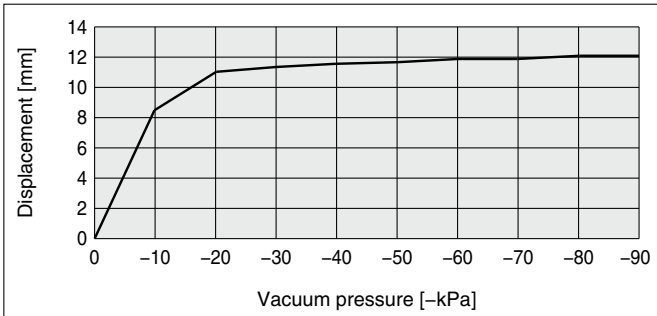
ZP2-B15ZJS



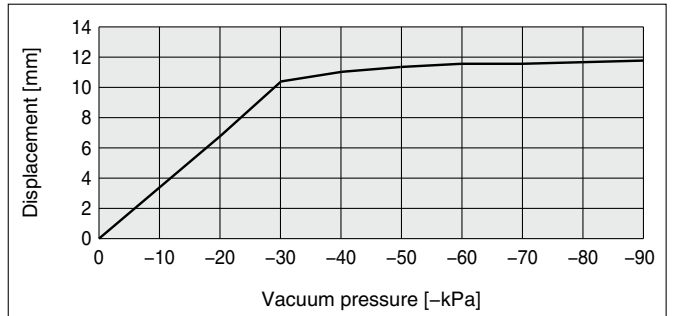
ZP2-B15ZJS6



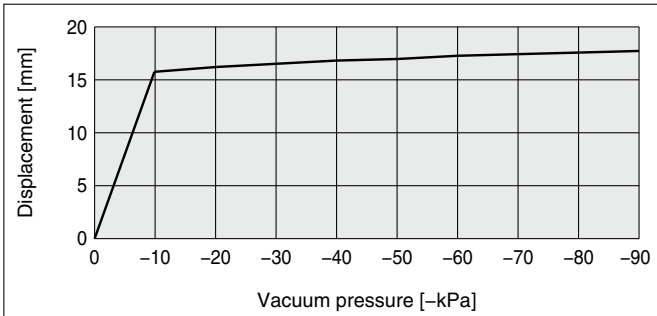
ZP2-B20ZJS



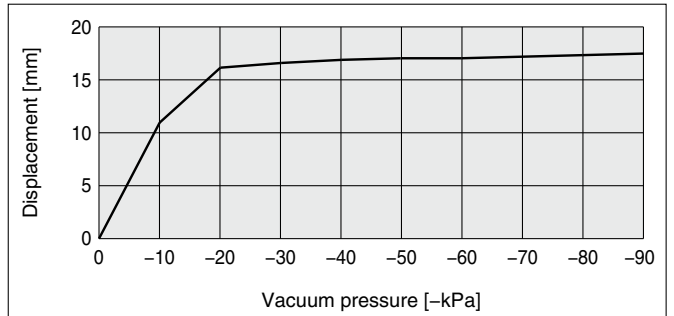
ZP2-B20ZJS6



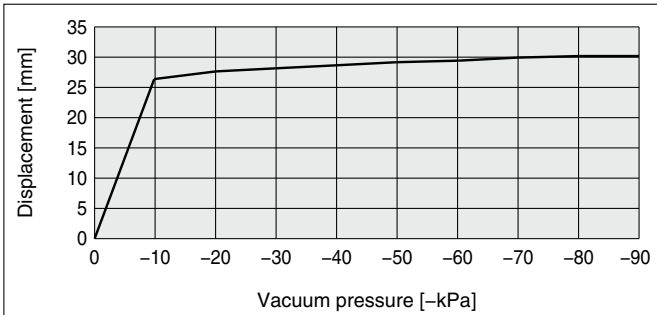
ZP2-B30ZJS



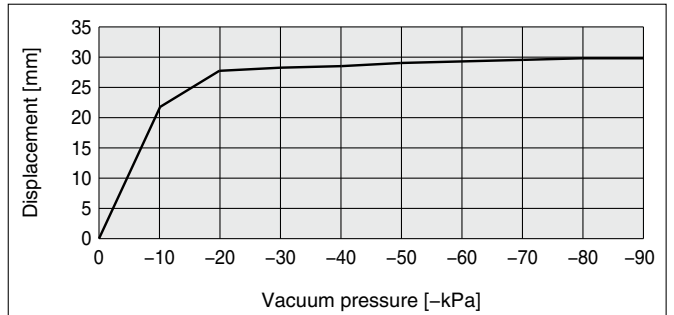
ZP2-B30ZJS6



ZP2-40ZJS



ZP2-46ZJS



Model Selection

For Special Applications

Mark-free

For Film Adsorption

Multistage

Flat

Nozzle

Sponge

For Disk Adsorption

For Panel Holding

Ball Spine Buffer

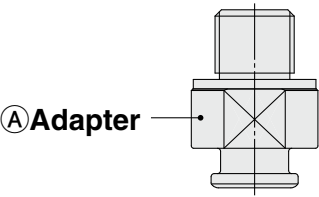
Construction

Mounting Bracket Assembly

Precautions

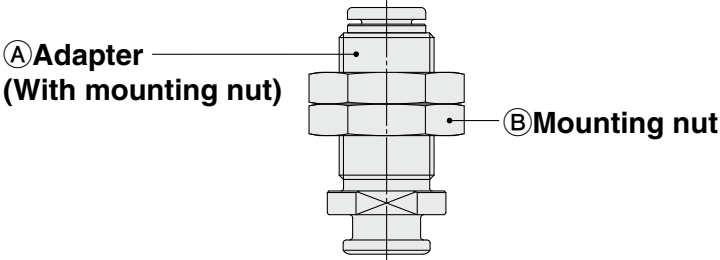
Bellows Pad (4.5-Stage) *ZP2 Series* Mounting Bracket Assembly

Adapter Assembly

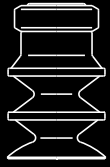
| | |
|------------------|--|
| Product part no. | <p style="text-align: center;">ZP2 - T ① ZJ □ - ②</p> <p style="text-align: center;"> Pad diameter ● Bellows type ● Pad material ● Connection thread (Male thread) ● </p> |
| Component parts |  <p>① Adapter</p> |

| | | Symbol | ① Pad diameter symbol | | | | | | |
|-----------|--|-----------|-----------------------|-------------|-------------|-------------|-------------|-------------|--|
| | | | B15 | B20 | B30 | 40 | 46 | | |
| ① Adapter | ② Connection thread Male thread (Short thread) | M10 x 1 | A10 | ZP2A-Z31-1P | ZP2A-Z31-2P | — | | | |
| | | M16 x 1.5 | A16 | — | | ZP2A-Z31-3P | — | | |
| | | M20 x 1.5 | A20 | — | | | ZP2A-Z31-4P | — | |
| | | M30 x 1.5 | A30 | — | | | | ZP2A-Z31-5P | |

Adapter Assembly

| | |
|------------------|--|
| Product part no. | <p style="text-align: center;">ZP2 - T ① ZJ □ - ② ③</p> <p style="text-align: center;"> Pad diameter ● Bellows type ● Pad material ● Vacuum inlet (One-touch fitting) ● Connection thread (Male thread) ● </p> |
| Component parts |  <p>① Adapter (With mounting nut)</p> <p>② Mounting nut</p> |

| | | Symbol | | | Symbol | ① Pad diameter symbol | | | | | |
|------------------------------|------------------------------------|---------|------|-------------------------------------|-----------|-----------------------|------------|------------|------------|------------|------------|
| | | | | | | B15 | B20 | B30 | 40 | 46 | |
| ① Adapter | ② Connection thread Male thread | M12 x 1 | AL12 | ③ Vacuum inlet One-touch fitting | ø6 | 06 | ZP2A-Z32-1 | ZP2A-Z32-2 | — | | |
| | | M14 x 1 | AL14 | | | | — | | ZP2A-Z32-3 | ZP2A-Z32-4 | ZP2A-Z32-5 |
| ② Mounting nut (Single unit) | | | | M12 x 1 | ZPNA-M12C | | — | | | | |
| | | | | M14 x 1 | — | | ZPNA-M14 | | | | |



Bellows Pad (2.5/3.5-Stage)

Symbol/Form

J: Bellows type

Pad diameter $\phi 6, \phi 9, \phi 10, \phi 14, \phi 15, \phi 16, \phi 25, \phi 30$

- For use where there is no space for a buffer (spring type)
- For workpieces with inclined adsorption surfaces

* The pad and lock ring are shipped together.

Mounting Bracket Part Nos.

Adapter Assembly p. 283 to 285



How to Order

Pad unit **ZP2 - 06 J N - X19**

| Pad diameter | | |
|--------------|--------------|------------|
| Symbol | Pad diameter | Blast type |
| 06 | $\phi 6$ | — |
| 09 | $\phi 9$ | — |
| B10 | $\phi 10$ | ● |
| 14 | $\phi 14$ | — |
| B15 | $\phi 15$ | ● |
| 16 | $\phi 16$ | — |
| B25 | $\phi 25$ | ● |
| B30 | $\phi 30$ | ● |

* Blast type: Workpieces can be removed easily.

Pad material

| Symbol | Material |
|-----------|----------------------------|
| N | NBR |
| S | Silicone rubber*1 |
| U | Urethane rubber |
| F | FKM |
| GN | Conductive NBR |
| GS | Conductive silicone rubber |

*1 Compliant with the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use"

With/Without lock ring

| | |
|------------|---------------------|
| Nil | With lock ring |
| X19 | Without lock ring*2 |

*2 $\phi 6, \phi 10,$ and $\phi 15$ are not available.

Pad form

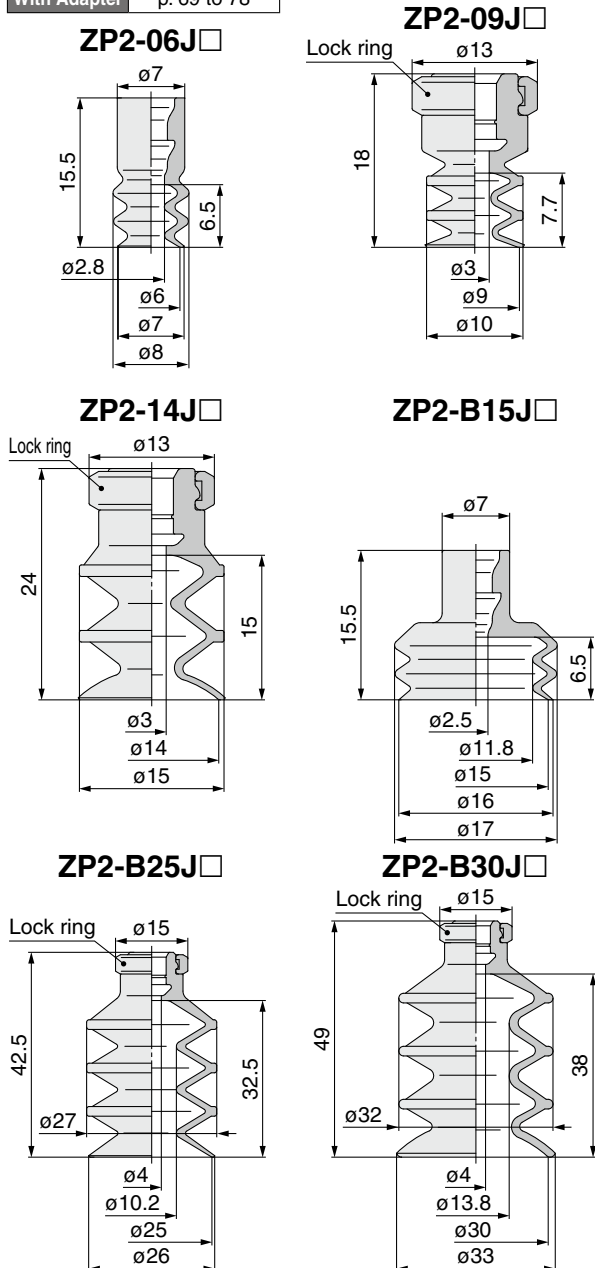
| Symbol | Form |
|----------|------------------------------|
| J | Bellows type (2.5/3.5-stage) |



Dimensions: Pad Unit

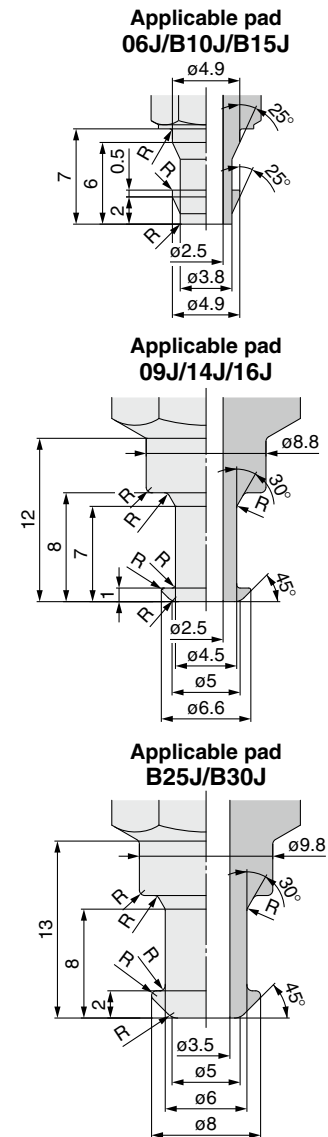
* The dimensions of the mounting bracket are the same as the ZP series. Refer to the mounting bracket dimensions on the following pages.

With Adapter p. 69 to 78



Adapter Mounting Dimensions

If an adapter will be made by the customer, design the adapter with the dimensions shown below.



* The R part has to be smooth with no corners.

Model Selection

For Special Applications

Mark-free

For Film Adsorption

Multistage

Flat

Nozzle

Sponge

For Disk Adsorption

For Panel Holding

Ball Spine Buffer

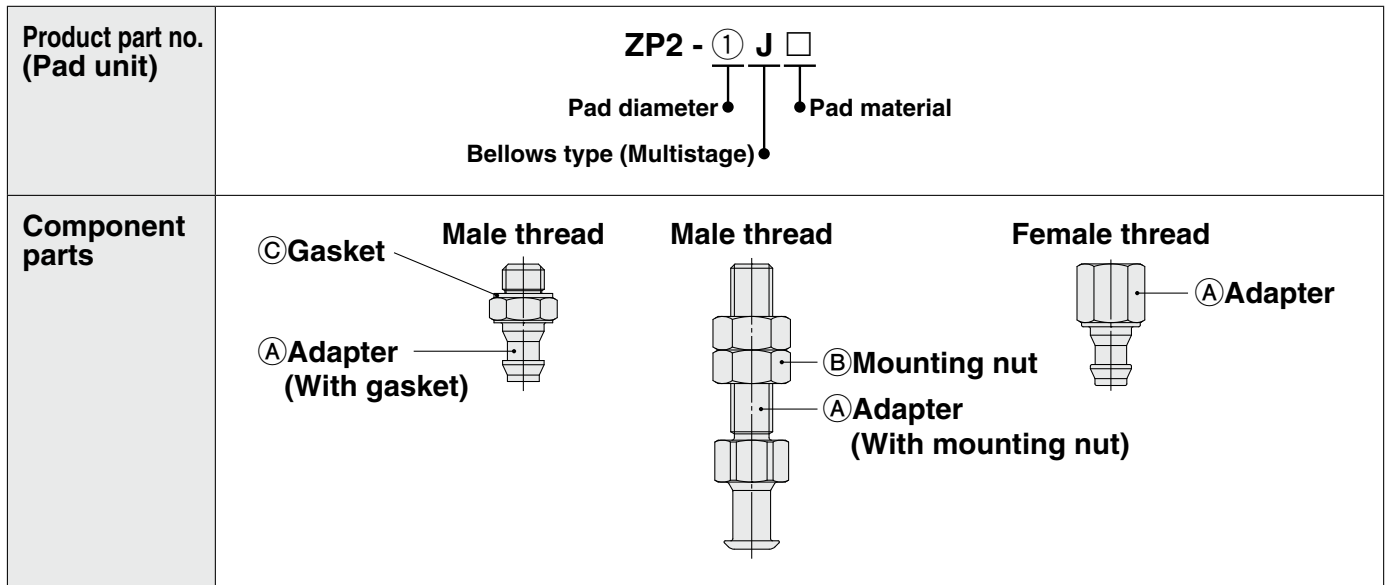
Construction

Mounting Bracket Assembly

Precautions

Bellows Pad (2.5/3.5-Stage) *ZP2 Series* Mounting Bracket Assembly

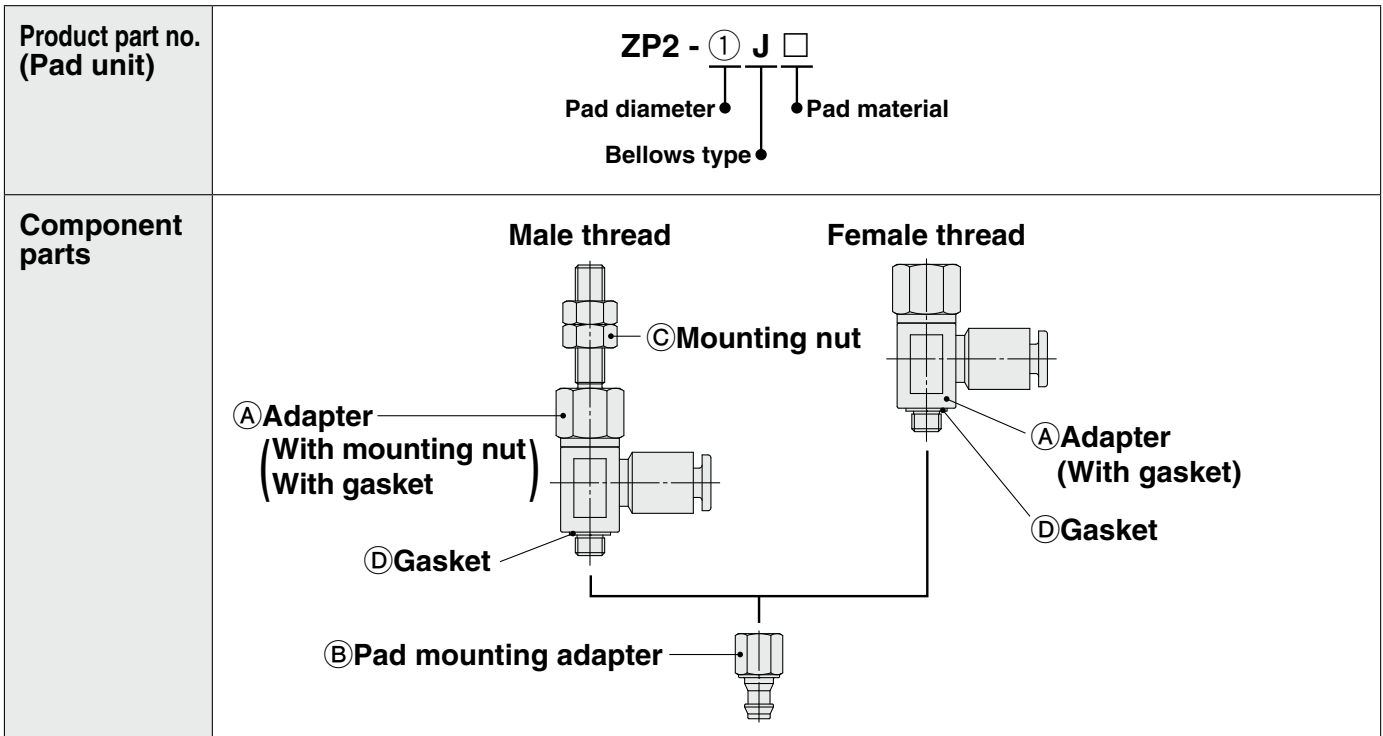
Adapter Assembly



| | | | | | | ① Pad diameter symbol | | | | | | | | |
|------------------------|------------------------------|-------------------|-------------|-------------|----------------------------|----------------------------|----------|-------|----|----------|----|-----|---------|--|
| | | | | | | 06 | B10 | B15 | 09 | 14 | 16 | B25 | B30 | |
| ① Adapter | Vacuum inlet | Male thread | M5 x 0.8 | Male thread | Use the connection thread. | ZPT1-A5 | | | — | | | — | | |
| | | | M6 x 1 | | | ZPT1-A6 | | | — | | | — | | |
| | Female thread | Connection thread | Male thread | M5 x 0.8 | Female thread | Use the connection thread. | — | | | ZPT2-A5 | | | — | |
| | | | | M6 x 1 | | | — | | | ZPT2-A6 | | | ZPT3-A6 | |
| | | | M8 x 1 | — | | | — | | | ZPT3-A8 | | | | |
| | | | M4 x 0.7 | ZPT1-B4 | | | — | | | — | | | | |
| | | M5 x 0.8 | ZPT1-B5 | | | | ZPT2-B5 | | | — | | | | |
| | | M6 x 1 | — | | | | ZPT2-B6 | | | ZPT3-B6 | | | | |
| | | M8 x 1.25 | — | | | | — | | | ZPT3-B8 | | | | |
| | | Rc1/8 | — | | | | ZPT2-B01 | | | ZPT3-B01 | | | | |
| | | NPT1/8 | — | | | | ZPT2-N01 | | | ZPT3-N01 | | | | |
| | | NPTF1/8 | — | | | | ZPT2-T01 | | | ZPT3-T01 | | | | |
| | ② Mounting nut (Single unit) | M5 x 0.8 | | — | | | NTJ-015A | | | — | | | | |
| | | M6 x 1 | | — | | | SNJ-006C | | | — | | | | |
| M8 x 1 | | — | | | — | | | RB08J | | | | | | |
| ③ Gasket (Single unit) | For M5 x 0.8 | 10 pcs.*1 | ZP-5G2 | | | — | | | — | | | | | |
| | | 100 pcs.*1 | M-5G2 | | | — | | | — | | | | | |
| | For M6 x 1 | 10 pcs.*1 | ZP-6G2 | | | — | | | — | | | | | |
| | | 100 pcs.*1 | M-6G | | | — | | | — | | | | | |

*1 The gasket (single unit) sales unit is shown.

Adapter Assembly: With One-touch Fitting

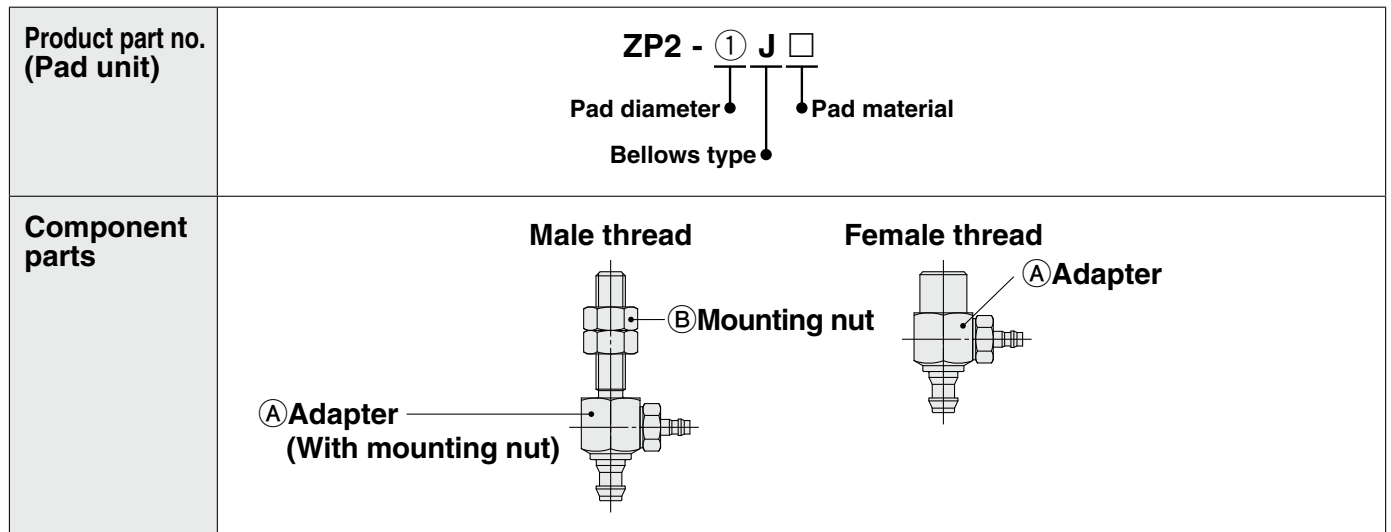


| | | ① Pad diameter symbol | | | | | | | | |
|------------------------------|-------------------|-----------------------|---------------|-------------------|---------------|---------------|------------|------------|------------|------------|
| | | 06 | B10 | B15 | 09 | 14 | 16 | B25 | B30 | |
| ① Adapter | Vacuum inlet | Connection thread | Male thread | M5 x 0.8 | ZPRS-04-A5 | | ZPRS-04-A5 | | | |
| | | | | M6 x 1 | ZPRS-04-A6 | | ZPRS-04-A6 | ZPRL-04-A6 | | |
| | | | | M8 x 1 | — | | — | ZPRL-04-A8 | | |
| | | | Female thread | M4 x 0.7 | ZPRS-04-B4 | | — | | | |
| | | | | M5 x 0.8 | ZPRS-04-B5 | | ZPRS-04-B5 | ZPRL-04-B5 | | |
| | | | | M6 x 1 | — | | ZPRS-04-B6 | ZPRL-04-B6 | | |
| | ø4 | Connection thread | Male thread | M8 x 1.25 | — | | — | ZPRL-04-B8 | | |
| | | | | Female thread | M5 x 0.8 | ZPRS-06-A5 | | ZPRS-06-A5 | | |
| | | | | | M6 x 1 | ZPRS-06-A6 | | ZPRS-06-A6 | ZPRL-06-A6 | |
| | | | M8 x 1 | | — | | — | ZPRL-06-A8 | | |
| | | | ø6 | Connection thread | Male thread | M4 x 0.7 | ZPRS-06-B4 | | — | |
| | | | | | | Female thread | M5 x 0.8 | ZPRS-06-B5 | | ZPRS-06-B5 |
| M6 x 1 | — | | | | | | ZPRS-06-B6 | ZPRL-06-B6 | | |
| ø8 | Connection thread | Male thread | | | M8 x 1.25 | | — | | — | ZPRL-06-B8 |
| | | | | | Female thread | M6 x 1 | — | | — | ZPRL-08-A6 |
| | | | | | | M8 x 1 | — | | — | ZPRL-08-A8 |
| Female thread | | M5 x 0.8 | — | | | — | ZPRL-08-B5 | | | |
| | | M6 x 1 | — | | — | ZPRL-08-B6 | | | | |
| | | M8 x 1.25 | — | | — | ZPRL-08-B8 | | | | |
| ② Pad mounting adapter | | | ZPT1-B5 | | ZPT2-B5 | | ZPT3-B8 | | | |
| ③ Mounting nut (Single unit) | M5 x 0.8 | NTJ-015A | | NTJ-015A | | — | | | | |
| | M6 x 1 | SNJ-006C | | SNJ-006C | | SNJ-006C | | | | |
| | M8 x 1 | — | | — | | RB08J | | | | |
| ④ Gasket (Single unit) | 10 pcs.*1 | ZP-5G2 | | ZP-5G2 | | ZP-8G2 | | | | |
| | 100 pcs.*1 | M-5G2 | | M-5G2 | | — | | | | |

*1 The gasket (single unit) sales unit is shown.

Bellows Pad (2.5/3.5-Stage)
Mounting Bracket Assembly **ZP2 Series**

Adapter Assembly: With Barb Fitting



| | | | | | | ① Pad diameter symbol | | | | | | | |
|------------------|---------------|------------------|---------------|-------------|------------|-----------------------|------------|------------|------------|------------|------------|------------|-----|
| | | | | | | 06 | B10 | B15 | 09 | 14 | 16 | B25 | B30 |
| ① Adapter | Vacuum inlet | For nylon tubing | ø4 | Male thread | M5 x 0.8 | ZPY1-N4-A5 | | | ZPY2-N4-A5 | | | | |
| | | | | Male thread | M6 x 1 | ZPY1-N4-A6 | | | ZPY2-N4-A6 | | | ZPY3-N4-A6 | |
| | | | | Male thread | M8 x 1 | — | | | — | | | ZPY3-N4-A8 | |
| | | | Female thread | M4 x 0.7 | ZPY1-N4-B4 | | | — | | | — | | |
| | | | | M5 x 0.8 | ZPY1-N4-B5 | | | ZPY2-N4-B5 | | | ZPY3-N4-B5 | | |
| | | | | M6 x 1 | — | | | ZPY2-N4-B6 | | | ZPY3-N4-B6 | | |
| | | ø6 | Male thread | M8 x 1.25 | — | | | — | | | ZPY3-N4-B8 | | |
| | | | | M5 x 0.8 | ZPY1-N6-A5 | | | ZPY2-N6-A5 | | | — | | |
| | | | | M6 x 1 | ZPY1-N6-A6 | | | ZPY2-N6-A6 | | | ZPY3-N6-A6 | | |
| | | | Female thread | M8 x 1 | — | | | — | | | ZPY3-N6-A8 | | |
| | | | | M4 x 0.7 | ZPY1-N6-B4 | | | — | | | — | | |
| | | | | M5 x 0.8 | ZPY1-N6-B5 | | | ZPY2-N6-B5 | | | ZPY3-N6-B5 | | |
| | ø4 | Male thread | M6 x 1 | — | | | ZPY2-N6-B6 | | | ZPY3-N6-B6 | | | |
| | | | M8 x 1.25 | — | | | — | | | ZPY3-N6-B8 | | | |
| | | | M5 x 0.8 | ZPY1-U4-A5 | | | ZPY2-U4-A5 | | | — | | | |
| | | Female thread | M6 x 1 | ZPY1-U4-A6 | | | ZPY2-U4-A6 | | | ZPY3-U4-A6 | | | |
| | | | M8 x 1 | — | | | — | | | ZPY3-U4-A8 | | | |
| | | | M4 x 0.7 | ZPY1-U4-B4 | | | — | | | — | | | |
| | ø6 | Male thread | M5 x 0.8 | ZPY1-U4-B5 | | | ZPY2-U4-B5 | | | ZPY3-U4-B5 | | | |
| | | | M6 x 1 | — | | | ZPY2-U4-B6 | | | ZPY3-U4-B6 | | | |
| | | | M8 x 1.25 | — | | | — | | | ZPY3-U4-B8 | | | |
| | | Female thread | M5 x 0.8 | ZPY1-U6-A5 | | | ZPY2-U6-A5 | | | — | | | |
| | | | M6 x 1 | ZPY1-U6-A6 | | | ZPY2-U6-A6 | | | ZPY3-U6-A6 | | | |
| | | | M8 x 1 | — | | | — | | | ZPY3-U6-A8 | | | |
| ø6 | Male thread | M4 x 0.7 | ZPY1-U6-B4 | | | — | | | — | | | | |
| | | M5 x 0.8 | ZPY1-U6-B5 | | | ZPY2-U6-B5 | | | ZPY3-U6-B5 | | | | |
| | | M6 x 1 | — | | | ZPY2-U6-B6 | | | ZPY3-U6-B6 | | | | |
| | Female thread | M8 x 1.25 | — | | | — | | | ZPY3-U6-B8 | | | | |
| | | M5 x 0.8 | NTJ-015A | | | NTJ-015A | | | — | | | | |
| | | M6 x 1 | SNJ-006C | | | SNJ-006C | | | SNJ-006C | | | | |
| ø6 | Female thread | M8 x 1 | — | | | — | | | RB08J | | | | |