

## B15MF



### Suction cup with short bellows, mark free

- ▶ Suction cup of TPU, a mark free material that leaves no trace on the object being handled.
- ▶ Suitable for level adjustment.
- ▶ Lifting movement to separate small and thin objects.
- ▶ Only lightweight objects should be handled when the lifting force is parallel to the surface.

### Lifting forces & Technical data

| Lifting force vertical to the surface, N, at vacuum level |         |         | Lifting force parallel to the surface, N, at vacuum level |         |         | Volume<br>cm <sup>3</sup> | Min. curve radius<br>mm | Max. vertical movement<br>mm | Weight rubber part<br>g |
|-----------------------------------------------------------|---------|---------|-----------------------------------------------------------|---------|---------|---------------------------|-------------------------|------------------------------|-------------------------|
| 20 -kPa                                                   | 60 -kPa | 90 -kPa | 20 -kPa                                                   | 60 -kPa | 90 -kPa |                           |                         |                              |                         |
| 4.0                                                       | 8.0     | 12.0    | 4.5                                                       | 7.0     | 10.0    | 1.1                       | 11                      | 2.0                          | 1.3                     |

### Material specifications

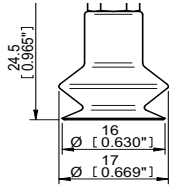
| Material                        | Colour            | Hardness °Shore A | Temperature range °C |
|---------------------------------|-------------------|-------------------|----------------------|
| Thermoelastic polyurethane, TPU | Transparent white | 81                | -20–80               |

### Material resistance

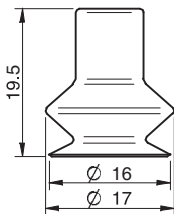
| Wear resistance | Oil       | Weather & Ozone | Hydrolysis | Petrol | Concentrated acids | Alcohol | Oxidation |
|-----------------|-----------|-----------------|------------|--------|--------------------|---------|-----------|
| Excellent       | Excellent | Excellent       | Poor       | Poor   | Poor               | Good    | Good      |

## Ordering information

| Complete suction cups                                 | Art. No. |
|-------------------------------------------------------|----------|
| Suction cup B15MF Thermoelastic polyurethane, M5 male | 3250069  |



| Rubber parts                                 | Art. No. |
|----------------------------------------------|----------|
| Suction cup B15MF Thermoelastic polyurethane | 3150264  |



| Fittings               | Art. No. |
|------------------------|----------|
| Fitting M5 male, 10-15 | 3107030  |

For further information and dimensioned drawings, see section *Suction cups/grippers Fittings*.

## B20MF



### Suction cup with short bellows, mark free

- ▶ Suction cup of TPU, a mark free material that leaves no trace on the object being handled.
- ▶ Suitable for level adjustment.
- ▶ Lifting movement to separate small and thin objects.
- ▶ Only lightweight objects should be handled when the lifting force is parallel to the surface.

### Lifting forces & Technical data

| Lifting force vertical to the surface, N, at vacuum level |         |         | Lifting force parallel to the surface, N, at vacuum level |         |         | Volume<br>cm <sup>3</sup> | Min. curve radius<br>mm | Max. vertical movement<br>mm | Weight rubber part<br>g |
|-----------------------------------------------------------|---------|---------|-----------------------------------------------------------|---------|---------|---------------------------|-------------------------|------------------------------|-------------------------|
| 20 -kPa                                                   | 60 -kPa | 90 -kPa | 20 -kPa                                                   | 60 -kPa | 90 -kPa |                           |                         |                              |                         |
| 4.5                                                       | 15.5    | 21.0    | 6.3                                                       | 11.0    | 19.0    | 2.7                       | 11                      | 8.0                          | 2.0                     |

### Material specifications

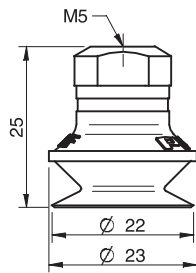
| Material                        | Colour            | Hardness °Shore A | Temperature range °C |
|---------------------------------|-------------------|-------------------|----------------------|
| Thermoelastic polyurethane, TPU | Transparent white | 81                | -20–80               |

### Material resistance

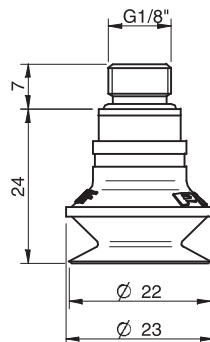
| Wear resistance | Oil       | Weather & Ozone | Hydrolysis | Petrol | Concentrated acids | Alcohol | Oxidation |
|-----------------|-----------|-----------------|------------|--------|--------------------|---------|-----------|
| Excellent       | Excellent | Excellent       | Poor       | Poor   | Poor               | Good    | Good      |

## Ordering information

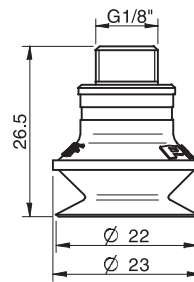
|   | Complete suction cups                                                                                  | Art. No. |
|---|--------------------------------------------------------------------------------------------------------|----------|
| A | Suction cup B20MF Thermoelastic polyurethane, M5 female                                                | 0101182  |
| A | Suction cup B20MF Thermoelastic polyurethane, M5 female, with dual flow control valve                  | 0101188  |
| B | Suction cup B20MF Thermoelastic polyurethane, G1/8" male, with mesh filter                             | 0101183  |
| B | Suction cup B20MF Thermoelastic polyurethane, G1/8" male, with dual flow control valve and mesh filter | 0101189  |
| C | Suction cup B20MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter                   | 0101187  |
| C | Suction cup B20MF Thermoelastic polyurethane, G1/8" male/M5 fem., with dual flow control valve         | 0101191  |
| D | Suction cup B20MF Thermoelastic polyurethane, 5xM5 female                                              | 0101186  |
| D | Suction cup B20MF Thermoelastic polyurethane, 5xM5 female, with dual flow control valve                | 0101192  |



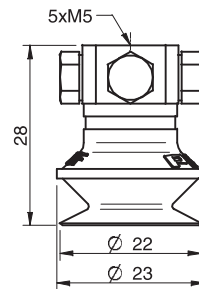
A



B

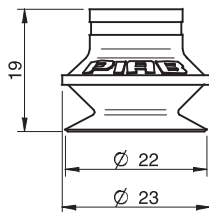


C



D

|  | Rubber parts                                 | Art. No. |
|--|----------------------------------------------|----------|
|  | Suction cup B20MF Thermoelastic polyurethane | 0101111  |



|  | Fittings                                                         | Art. No. |
|--|------------------------------------------------------------------|----------|
|  | Fitting M5 female                                                | 3250003  |
|  | Fitting M5 female, with dual flow control valve                  | 3251001  |
|  | Fitting G1/8" male, with mesh filter                             | 3250085  |
|  | Fitting G1/8" male, with mesh filter and dual flow control valve | 3251002  |
|  | Fitting G1/8" male/M5 female, with mesh filter                   | 0101152  |
|  | Fitting G1/8" male/M5 female, with dual flow control valve       | 3251004  |
|  | Fitting 5xM5 female                                              | 0100260  |
|  | Fitting 5xM5 female, with dual flow control valve                | 3251005  |

For further information and dimensioned drawings, see section Suction cups/grippers Fittings.

## F15MF



### Flat suction cup with cleats, mark free

- ▶ Suction cup of TPU, a mark free material that leaves no trace on the object being handled.
- ▶ Suitable for flat surfaces.
- ▶ Good stability and little inherent movement.
- ▶ Recommended when the lifting force is parallel to the surface of the object.

### Lifting forces & Technical data

| Lifting force vertical to the surface, N, at vacuum level |         |         | Lifting force parallel to the surface, N, at vacuum level |         |         | Volume<br>cm <sup>3</sup> | Min. curve<br>radius<br>mm | Max.<br>vertical<br>movement<br>mm | Weight<br>rubber<br>part<br>g |
|-----------------------------------------------------------|---------|---------|-----------------------------------------------------------|---------|---------|---------------------------|----------------------------|------------------------------------|-------------------------------|
| 20 -kPa                                                   | 60 -kPa | 90 -kPa | 20 -kPa                                                   | 60 -kPa | 90 -kPa |                           |                            |                                    |                               |
| 4.0                                                       | 8.0     | 12.0    | 4.5                                                       | 9.0     | 14.5    | 0.37                      | 17                         | 1.0                                | 0.8                           |

### Material specifications

| Material                        | Colour            | Hardness<br>°Shore A | Temperature range<br>°C |
|---------------------------------|-------------------|----------------------|-------------------------|
| Thermoelastic polyurethane, TPU | Transparent white | 81                   | -20-80                  |

### Material resistance

| Wear<br>resistance | Oil       | Weather<br>& Ozone | Hydrolysis | Petrol | Concentrated<br>acids | Alcohol | Oxidation |
|--------------------|-----------|--------------------|------------|--------|-----------------------|---------|-----------|
| Excellent          | Excellent | Excellent          | Poor       | Poor   | Poor                  | Good    | Good      |

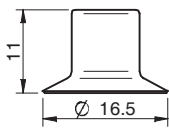
# Suction cups/grippers Thermoplastic polyurethane



## Ordering information

| Complete suction cups                                 | Art. No. |
|-------------------------------------------------------|----------|
| Suction cup F15MF Thermoelastic polyurethane, M5 male | 3250074  |

| Rubber parts                                 | Art. No. |
|----------------------------------------------|----------|
| Suction cup F15MF Thermoelastic polyurethane | 3150269  |



| Fittings               | Art. No. |
|------------------------|----------|
| Fitting M5 male, 10–15 | 3107030  |

For further information and dimensioned drawings, see section *Suction cups/grippers Fittings*.

## F20MF



### Flat suction cup with cleats, mark free

- ▶ Suction cup of TPU, a mark free material that leaves no trace on the object being handled.
- ▶ Suitable for flat surfaces.
- ▶ Good stability and little inherent movement.
- ▶ Recommended when the lifting force is parallel to the surface of the object.

### Lifting forces & Technical data

| Lifting force vertical to the surface, N, at vacuum level |         |         | Lifting force parallel to the surface, N, at vacuum level |         |         | Volume<br>cm <sup>3</sup> | Min. curve<br>radius<br>mm | Max.<br>vertical<br>movement<br>mm | Weight<br>rubber<br>part<br>g |
|-----------------------------------------------------------|---------|---------|-----------------------------------------------------------|---------|---------|---------------------------|----------------------------|------------------------------------|-------------------------------|
| 20 -kPa                                                   | 60 -kPa | 90 -kPa | 20 -kPa                                                   | 60 -kPa | 90 -kPa |                           |                            |                                    |                               |
| 3.6                                                       | 14.5    | 22.0    | 8.0                                                       | 14.5    | 21.0    | 1.0                       | 18                         | 2.0                                | 1.2                           |

### Material specifications

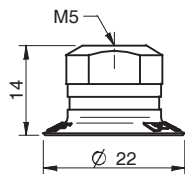
| Material                        | Colour            | Hardness<br>°Shore A | Temperature range<br>°C |
|---------------------------------|-------------------|----------------------|-------------------------|
| Thermoelastic polyurethane, TPU | Transparent white | 81                   | -20-80                  |

### Material resistance

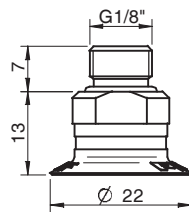
| Wear<br>resistance | Oil       | Weather<br>& Ozone | Hydrolysis | Petrol | Concentrated<br>acids | Alcohol | Oxidation |
|--------------------|-----------|--------------------|------------|--------|-----------------------|---------|-----------|
| Excellent          | Excellent | Excellent          | Poor       | Poor   | Poor                  | Good    | Good      |

## Ordering information

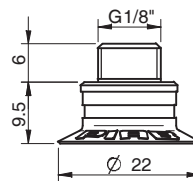
|   | Complete suction cups                                                                                  | Art. No. |
|---|--------------------------------------------------------------------------------------------------------|----------|
| A | Suction cup F20MF Thermoelastic polyurethane, M5 female                                                | 0101281  |
| B | Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter                             | 0101282  |
| B | Suction cup F20MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve | 0101288  |
| C | Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 female, with mesh filter                 | 0101286  |
| C | Suction cup F20MF Thermoelastic polyurethane, G1/8" male / M5 fem., with dual flow control valve       | 0101290  |
| D | Suction cup F20MF Thermoelastic polyurethane, 5xM5 female                                              | 0101285  |
| D | Suction cup F20MF Thermoelastic polyurethane, 5xM5 female, with dual flow control valve                | 0101291  |



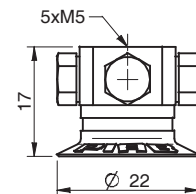
A



B

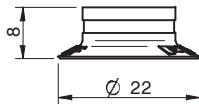


C



D

|  | Rubber parts                                 | Art. No. |
|--|----------------------------------------------|----------|
|  | Suction cup F20MF Thermoelastic polyurethane | 0101139  |



|  | Fittings                                                         | Art. No. |
|--|------------------------------------------------------------------|----------|
|  | Fitting M5 female                                                | 3250003  |
|  | Fitting M5 female, with dual flow control valve                  | 3251001  |
|  | Fitting G1/8" male, with mesh filter                             | 3250085  |
|  | Fitting G1/8" male, with mesh filter and dual flow control valve | 3251002  |
|  | Fitting G1/8" male/M5 female, with mesh filter                   | 0101152  |
|  | Fitting G1/8" male/M5 female, with dual flow control valve       | 3251004  |
|  | Fitting 5xM5 female                                              | 0100260  |
|  | Fitting 5xM5 female, with dual flow control valve                | 3251005  |
|  | Fitting G1/8" male/M5 female, PA                                 | 3150196  |

For further information and dimensioned drawings, see section Suction cups/grippers Fittings.



## F25MF



### Flat suction cup with cleats, mark free

- ▶ Suction cup of TPU, a mark free material that leaves no trace on the object being handled.
- ▶ Suitable for flat surfaces.
- ▶ Good stability and little inherent movement.
- ▶ Recommended when the lifting force is parallel to the surface of the object.

### Lifting forces & Technical data

| Lifting force vertical to the surface, N, at vacuum level |         |         | Lifting force parallel to the surface, N, at vacuum level |         |         | Volume<br>cm <sup>3</sup> | Min. curve<br>radius<br>mm | Max.<br>vertical<br>movement<br>mm | Weight<br>rubber<br>part<br>g |
|-----------------------------------------------------------|---------|---------|-----------------------------------------------------------|---------|---------|---------------------------|----------------------------|------------------------------------|-------------------------------|
| 20 -kPa                                                   | 60 -kPa | 90 -kPa | 20 -kPa                                                   | 60 -kPa | 90 -kPa |                           |                            |                                    |                               |
| 6.3                                                       | 24.5    | 35.5    | 9.0                                                       | 24.5    | 36.3    | 1.1                       | 23                         | 1.5                                | 1.7                           |

### Material specifications

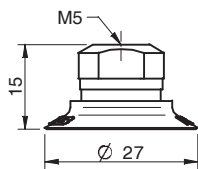
| Material                        | Colour            | Hardness<br>°Shore A | Temperature range<br>°C |
|---------------------------------|-------------------|----------------------|-------------------------|
| Thermoelastic polyurethane, TPU | Transparent white | 81                   | -20–80                  |

### Material resistance

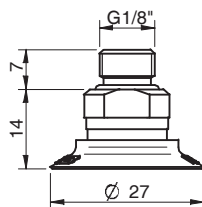
| Wear<br>resistance | Oil       | Weather<br>& Ozone | Hydrolysis | Petrol | Concentrated<br>acids | Alcohol | Oxidation |
|--------------------|-----------|--------------------|------------|--------|-----------------------|---------|-----------|
| Excellent          | Excellent | Excellent          | Poor       | Poor   | Poor                  | Good    | Good      |

## Ordering information

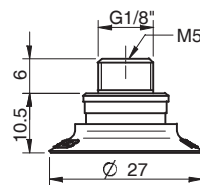
|   | Complete suction cups                                                                                  | Art. No. |
|---|--------------------------------------------------------------------------------------------------------|----------|
| A | Suction cup F25MF Thermoelastic polyurethane, M5 female                                                | 0101314  |
| A | Suction cup F25MF Thermoelastic polyurethane, M5 female, with dual flow control valve                  | 0101320  |
| B | Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter                             | 0101315  |
| B | Suction cup F25MF Thermoelastic polyurethane, G1/8" male, with mesh filter and dual flow control valve | 0101321  |
| C | Suction cup F25MF Thermoelastic polyurethane, G1/8" male/M5 female, with mesh filter                   | 0101319  |
| D | Suction cup F25MF Thermoelastic polyurethane, 5xM5 female                                              | 0101318  |



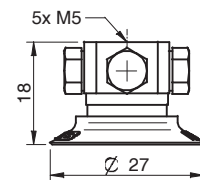
A



B

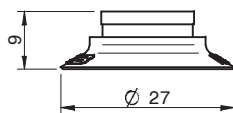


C



D

|  | Rubber parts                                 | Art. No. |
|--|----------------------------------------------|----------|
|  | Suction cup F25MF Thermoelastic polyurethane | 0101140  |



|  | Fittings                                                         | Art. No. |
|--|------------------------------------------------------------------|----------|
|  | Fitting M5 female                                                | 3250003  |
|  | Fitting M5 female, with dual flow control valve                  | 3251001  |
|  | Fitting G1/8" male, with mesh filter                             | 3250085  |
|  | Fitting G1/8" male, with mesh filter and dual flow control valve | 3251002  |
|  | Fitting G1/8" male/M5 female, with mesh filter                   | 0101152  |
|  | Fitting G1/8" male/M5 female, with dual flow control valve       | 3251004  |
|  | Fitting 5xM5 female                                              | 0100260  |
|  | Fitting 5xM5 female, with dual flow control valve                | 3251005  |
|  | Fitting G1/8" male/M5 female, PA                                 | 3150196  |

For further information and dimensioned drawings, see section Suction cups/grippers Fittings.