

## Vacuum suction grippers ESG

**FESTO**



# Suction grippers ESG

Key features

## Product overview

Festo suction grippers offer outstanding functionality and quality.

An extensive, modular range of suction cups with connection attachments, in different shapes, materials and sizes, plus a wide selection of

suction cup holders, angle and height compensators and vacuum filters within the modular suction gripper

system, provide users with a huge range of possible combinations for a wide variety of applications.

## Suction grippers ESG

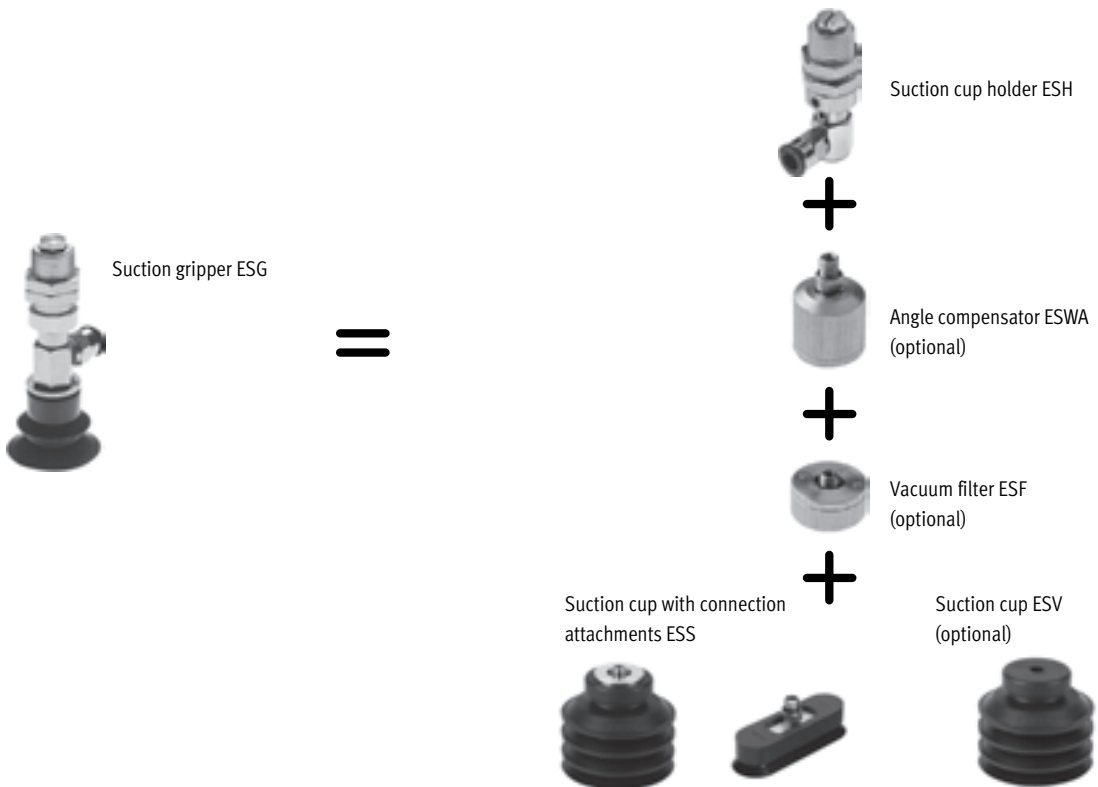
→ 7

Modular products with over 2000 variants

- The ideal solution for the transport of workpieces of different weights, surfaces and shapes
- Choose from:
  - 15 suction cup diameters
  - 6 different materials – including antistatic types
  - 6 suction cup shapes
  - Numerous suction cup holders
  - Optional accessories (vacuum filters and angle compensators)
- Wide range of variants
- A suitable solution for every task
- Wide range to suit applications with various temperature ranges and workpiece surfaces
- Suction cups made from silicone are approved for use in the food industry

## Suction gripper as a complete solution

## Suction gripper made of individual components



# Suction grippers ESG

Key features

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## Suction cups VAS/VASB

Sturdy and reliable

Technical data → Internet: vas

- The ideal solution for the transport of workpieces of different weights, surfaces and shapes
- Choose from:
  - 11 suction cup diameters
  - 2 suction cup shapes: round and bellows design
  - 3 materials: nitrile rubber, polyurethane and silicone for use in a wide variety of applications
- Wide range to suit applications with various temperature ranges and workpiece surfaces
- Suction cups made from silicone are approved for use in the food industry
- All tubing connection sizes correspond to a holder size



# Suction grippers ESG

Key features

## At a glance

The Festo suction gripper range offers a wide variety of possible combinations with a modular product system comprising more than 2000 variants. Choose from:

- 2 suction cup shapes:
  - Round, 15 different diameters
  - Oval, 11 different diameters
- 6 suction cup designs
- 6 different suction cup materials

- Numerous suction cup holders:
  - With and without height compensators
  - With various tubing connections: push-in connector, barbed connector, thread
- Optional accessories: vacuum filters, angle compensators and suction cup inserts

Even extremely small workpieces, e.g. in the electronics industry, can be conveyed gently and accurately. Additionally, all components included in the modular range are easily and quickly interchangeable in the event that requirements change. Suction grippers can be ordered complete, or as individual components.

### Cost savings thanks to:

- Modular range
- The low-cost suction cup can be replaced easily (wearing part)
- Reduced warehousing
- Long service life
- Low investment costs
- Large range – including industry-related solutions

## The complete solution

The suction gripper ESG comes already assembled to meet your specific requirements and is ready to use.

The suction cup shape and dimensions together form a part number which you can customise to form a type code by adding your own choice of suction cup material, holder type, tubing connectors and accessories.

The benefit to you: With just one part number and type code you can order your own complete suction gripper.



## The individual components

If, for instance, you have to handle a different workpiece surface finish, all you need to do is add the right suction cup.

The benefit to you: By adding individual components you can create new areas of application for your suction gripper ESG.

### Suction cup holder ESH

Technical data → Internet: [esh](#)

The area of application determines which is the right suction cup holder to use.

The suction cup or accessory is attached directly to the suction cup holder.

- 6 holder sizes
- 8 holder types
- 3 tubing connector options



### Suction cup ESS

Technical data → Internet: [ess](#)

The suction cup consists of the suction cup itself, plus the support plate with mounting.

Here too, the area of application of the suction gripper determines which is the right suction cup to use.

- 6 connection sizes: a tubing connector for every holder size
- 2 suction cup shapes
- 6 suction cup designs
- 6 suction cup materials



## Accessories

### Vacuum filter ESF

Technical data → Internet: [esf](#)

- For protecting vacuum generators from contamination or damage



### Angle compensator ESWA

Technical data → Internet: [eswa](#)

- The angle compensator ensures maximum suction cup grip for workpieces with uneven surfaces.



### Suction cup insert OASI

Technical data → Internet: [oasi](#)

- For conveying unstable and fragile workpieces



# Suction grippers ESG

Product range overview

FESTO

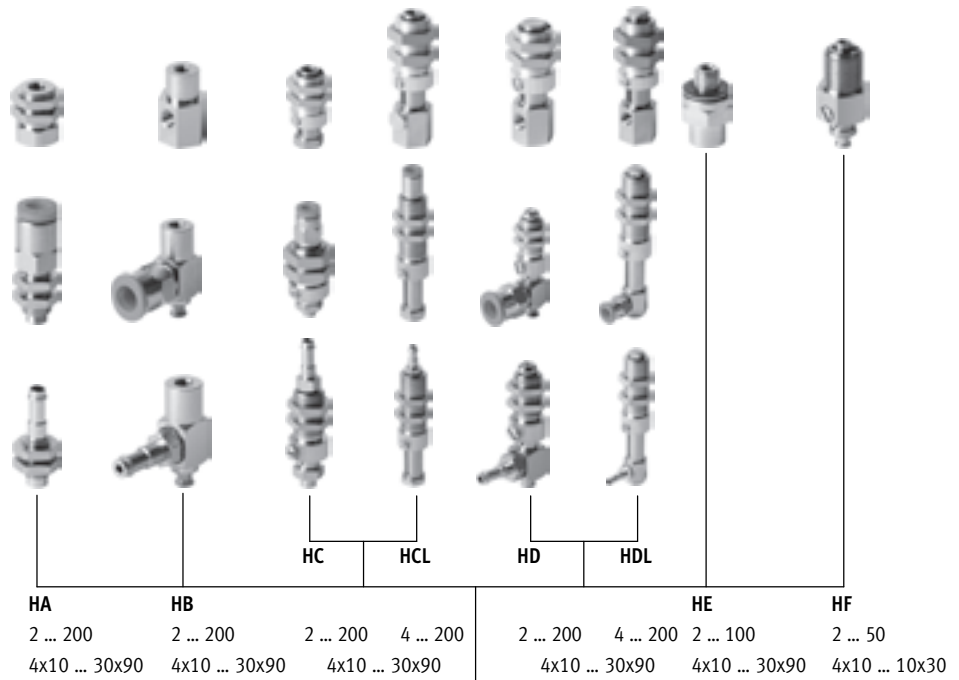
## Suction cup holders

Connection with G thread  
For suction cup  $\varnothing 60 \dots 200$  mm  
For suction cup size 15x45  $\dots$  30x90 mm

Push-in connector QS  
For suction cup  $\varnothing 2 \dots 50$  mm  
For suction cup size 4x10  $\dots$  10x30 mm

Barbed connector PK  
For suction cup  $\varnothing 2 \dots 50$  mm  
For suction cup size 4x10  $\dots$  10x30 mm

Holder type  
For suction cup  $\varnothing$  [mm]  
For suction cup size [mm]

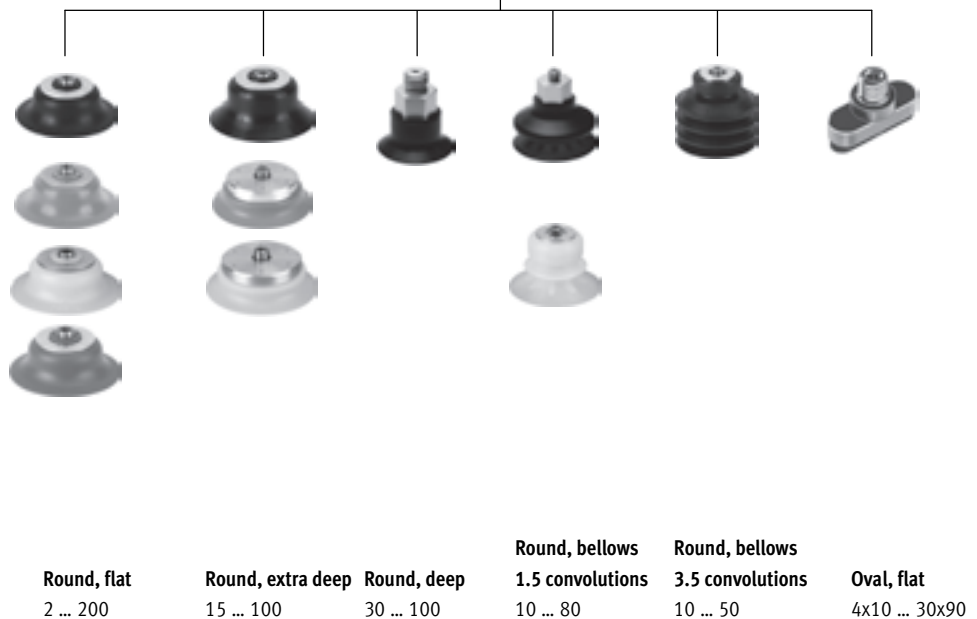


**Angle compensator**  
For suction cup 10  $\dots$  100 mm  
Only holder sizes 3, 4 and 5

**Vacuum filter**  
For suction cup 10  $\dots$  50 mm  
For suction cup size 4x10  $\dots$  30x90 mm  
Only holder sizes 3 and 4

## Suction cups with connection attachments

- Materials:
- FPM (fluoro elastomer)  
for suction cup  $\varnothing 2 \dots 200$  mm
  - NBR (nitrile rubber)  
for suction cup  $\varnothing 2 \dots 200$  mm
  - BR (butadiene rubber)  
anti-static  
for suction cup  $\varnothing 2 \dots 50$  mm
  - VMQ (silicone)  
for suction cup  $\varnothing 2 \dots 200$  mm
  - PUR (polyurethane)  
for suction cup  $\varnothing 2 \dots 200$  mm
  - Vulkollan®  
for suction cup  $\varnothing 30 \dots 100$  mm



# Suction grippers ESG

Type code

FESTO

ESG – 20 – S N – HC – QS

| Type |                 |
|------|-----------------|
| ESG  | Suction gripper |

### Suction cup with connection attachments, round/oval

| Suction cup Ø [mm] |   |
|--------------------|---|
|                    | 2, 4, 6, 8, 10, 15, 20, 30, 40, 50, 60, 80, 100, 150, 200 |

| Suction cup size [mm] |   |
|-----------------------|---|
|                       | 4x10, 4x20, 6x10, 6x20, 8x20, 8x30, 10x30, 15x45, 20x60, 25x75, 30x90 |

### Suction cup shape

|   |                                      |
|---|--------------------------------------|
| S | Round, flat                          |
| E | Round, extra deep                    |
| B | Round, bellows with 1.5 convolutions |
| C | Round, bellows with 3.5 convolutions |
| G | Round, deep                          |
| O | Oval, flat                           |

### Materials

|    |                                    |
|----|------------------------------------|
| F  | FPM (fluoro elastomer)             |
| N  | NBR (nitrile rubber)               |
| NA | BR (butadiene rubber), anti-static |
| S  | VMQ (silicone)                     |
| U  | PUR (polyurethane)                 |
| T  | Vulkollan®                         |

### Suction cup holder

|     |  |
|-----|--|
| HA  | Vacuum port on top, without height compensator   |
| HB  | Vacuum port on side, without height compensator  |
| HC  | Vacuum port on top, with height compensator  |
| HCL | Vacuum port on top, with long height compensator   |
| HD  | Vacuum port on side, with height compensator   |
| HDL | Vacuum port on side, with long height compensator  |
| HE  | Vacuum port on top, with threaded connection for direct screw-in, without height compensator |
| HF  | Vacuum port on top, with threaded connection for direct screw-in, with height compensator    |

### Vacuum port

|    |                           |
|----|---------------------------|
| QS | Push-in connector QS      |
| PK | Barbed fitting connection |
| G  | Threaded connection       |

 Note

Possible combinations can be found in the ordering data.

# Suction grippers ESG, suction cup Ø 2/4 mm

Technical data holder size 1

**Holder size 1**

For suction cup Ø 2/4 mm

Suction cup shape:

- Round, flat



| General technical data – Suction cup S                      |  |                    | Technical data → Internet: ess |                        |
|---|--|--------------------|--------------------------------|------------------------|
| Suction cup shape   |  | Suction cup Ø [mm] |                                |                        |
|   |  | 2                  | 4                              |                        |
| S – round, flat: material FPM, NBR, BR, VMQ (silicone), PUR |  |                    |                                |                        |
|   | Connection suction cup holder                        |                    | O.D 3 mm <sup>1)</sup>         | O.D 3 mm <sup>1)</sup> |
|   | Nominal width  | [mm]               | 0.6                            | 1.2                    |
|   | Holding force at nominal operating pressure –0.7 bar | [N]                | 0.1                            | 0.46                   |
|   | Suction cup volume                                   | [cm <sup>3</sup> ] | 0.002                          | 0.008                  |
|   | Min. workpiece radius                                | [mm]               | 10                             | 10                     |
|   | Weight   | [g]                | 0.1                            | 0.1                    |

1) Is inserted into the suction cup holder.

| Material types – Suction cup S |                         |                      |                               |   |                     |
|--------------------------------|-------------------------|----------------------|-------------------------------|---|---------------------|
| Material                       | F                       | N                    | NA                            | S   | U                   |
| Shore hardness                 | 60 ±5                   | 50 ±5                | 50 ±5                         | 50 ±5   | 60 ±5               |
| Suction cup                    | FPM<br>Colour: grey     | NBR<br>Colour: black | BR<br>Colour: black/white dot | VMQ (silicone)<br>Colour: transparent               | PUR<br>Colour: blue |
| Threaded plug                  | Nickel-plated brass     |                      |                               |   |                     |
| Note on materials              | RoHS-compliant          |                      |                               |   |                     |
|                                | Free of copper and PTFE |                      |                               |   |                     |
|                                | –                       |                      |                               | Contains PWIS (paint-wetting impairment substances) |                     |

| Operating and environmental conditions – Suction cup S |  |             |             |                                   |             |
|--|--|-------------|-------------|-----------------------------------|-------------|
| Material   | F  | N           | NA          | S                                 | U           |
| Operating medium                                       | Atmospheric air based on ISO 8573-1:2010 [7:-:-] |             |             |                                   |             |
| Ambient temperature [°C]                               | –10 ... +200                                     | –10 ... +70 | –10 ... +70 | –30 ... +180                      | –20 ... +60 |
| Corrosion resistance class CRC <sup>1)</sup>           | 1  |             |             |                                   |             |
| Special characteristics                                | –  | –           | Anti-static | –                                 | –           |
| Suitable for use in the food industry                  | –  | –           | –           | As per manufacturer's declaration | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

# Suction grippers ESG, suction cup $\varnothing$ 2/4 mm

Technical data holder size 1

| General technical data – Suction cup holder HA/HB/HC/HCL                          |                                       | Technical data → Internet: esh        |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>  |                                       | QS-4                                  | PK-3                             |
| HA – Vacuum port on top, mounting with lock nut, without height compensator       |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M6x0.75                               | M5x0.5                           |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 3 mm                    | $\varnothing$ 3 mm               |
|   | Nominal width [mm]                    | 3                                     | 2.5                              |
|   | Volume [cm <sup>3</sup> ]             | 0.239                                 | 0.09                             |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 6                                     | 3                                |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR                                   | NBR, steel                       |
|   | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| HB – Vacuum port on side, mounting with female thread, without height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M3                                    | M3                               |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 3 mm                    | $\varnothing$ 3 mm               |
|   | Nominal width [mm]                    | 3                                     | 2.5                              |
|   | Volume [cm <sup>3</sup> ]             | 0.228                                 | 0.108                            |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 5                                     | 4                                |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
|   | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| HC – Vacuum port on top, mounting with lock nut, with height compensator          |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M12x1                                 | M8x0.75                          |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 3 mm                    | $\varnothing$ 3 mm               |
|   | Nominal width [mm]                    | 2.4                                   | 1.2                              |
|   | Volume [cm <sup>3</sup> ]             | 0.385                                 | 0.117                            |
|   | Height compensator [mm]               | 3                                     | 3                                |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 17                                    | 8                                |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals   | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |
| HCL – Vacuum port on top, mounting with lock nut, with long height compensator    |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M12x1                                 | M12x1                            |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 3 mm                    | $\varnothing$ 3 mm               |
|   | Nominal width [mm]                    | 2.8                                   | 1.9                              |
|   | Volume [cm <sup>3</sup> ]             | 0.489                                 | 0.36                             |
|   | Height compensator [mm]               | 10                                    | 10                               |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 20                                    | 19                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals   | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |



# Suction grippers ESG, suction cup $\varnothing 2/4$ mm

Technical data holder size 1

| General technical data – Suction cup holder HD/HDL |      | Technical data → Internet: esh |
|--|------|--------------------------------|
| Vacuum port <b>1</b>                               | QS-4 | PK-3                           |

|   |                                       |                                       |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| HD – Vacuum port on side, mounting with lock nut, with height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M8x0.75                               | M8x0.75                          |
|   | Suction cup mounting <b>3</b>         | $\varnothing 3$ mm                    | $\varnothing 3$ mm               |
|   | Nominal width [mm]                    | 3                                     | 1.9                              |
|   | Volume [cm <sup>3</sup> ]             | 0.241                                 | 0.12                             |
|   | Height compensator [mm]               | 3                                     | 3                                |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 13                                    | 11                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |

|   |                                       |                                       |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M12x1                                 | M12x1                            |
|   | Suction cup mounting <b>3</b>         | $\varnothing 3$ mm                    | $\varnothing 3$ mm               |
|   | Nominal width [mm]                    | 3                                     | 1.9                              |
|   | Volume [cm <sup>3</sup> ]             | 0.272                                 | 0.15                             |
|   | Height compensator [mm]               | 10                                    | 10                               |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 29                                    | 28                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |

| General technical data – Suction cup holder HE |    | Technical data → Internet: esh |
|--|----|--------------------------------|
| Vacuum port <b>1</b>                           | M3 |                                |

|   |                               |  |
|---|-------------------------------|--|
| HE – Vacuum port on top, with threaded connection for direct screw-in, without height compensator |                               |  |
|   | Mounting thread <b>2</b>      | M3                                       |
|   | Suction cup mounting <b>3</b> | $\varnothing 3$ mm                       |
|   | Nominal width [mm]            | 1.2                                      |
|   | Volume [cm <sup>3</sup> ]     | 0.04                                     |
|   | Ambient temperature [°C]      | -10 ... +60                              |
|   | Weight [g]                    | 1  |
|   | Materials-holder              | Tempered steel                           |
|   | Materials-seals               | NBR, steel, wrought aluminium alloy, POM |
| Note on materials   | RoHS-compliant                |  |

| General technical data – Suction cup holder HF |       | Technical data → Internet: esh |
|--|-------|--------------------------------|
| Vacuum port <b>1</b>                           | M10x1 |                                |

|  |                                       |                    |
|--|---------------------------------------|--------------------|
| HF – Vacuum port on top, with threaded connection for direct screw-in, with height compensator |                                       |                    |
|  | Mounting thread <b>2</b>              | M10x1              |
|  | Suction cup mounting <b>3</b>         | $\varnothing 3$ mm |
|  | Nominal width [mm]                    | 2                  |
|  | Volume [cm <sup>3</sup> ]             | 0.108              |
|  | Height compensator [mm]               | 2.6                |
|  | Spring force (normal/min. length) [N] | 2/4                |
|  | Ambient temperature [°C]              | -10 ... +60        |
|  | Weight [g]                            | 14                 |
|  | Materials-holder                      | Tempered steel     |
|  | Materials-seals                       | NBR, POM           |
| Note on materials  | RoHS-compliant                        |                    |

# Suction grippers ESG, suction cup Ø 6/8 mm

Technical data holder size 2


**Holder size 2**

For suction cup Ø 6/8 mm

Suction cup shape:

- Round, flat



| General technical data – Suction cup S  |  | Technical data → Internet: ess |                         |
|---|--|--------------------------------|-------------------------|
| Suction cup shape   |  | Suction cup Ø [mm]             |                         |
|   |  | 6                              | 8                       |
| S – round, flat: material FPM, NBR, BR, VMQ (silicone), PUR                       |  |                                |                         |
|  | Connection suction cup holder                            | I.D. 4 mm <sup>1)</sup>        | I.D. 4 mm <sup>1)</sup> |
|   | Nominal size [mm]  | 2                              | 2                       |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 1.1                            | 2.3                     |
|   | Suction cup volume [cm <sup>3</sup> ]                    | 0.015                          | 0.030                   |
|   | Min. workpiece radius [mm]                               | 15                             | 20                      |
|   | Weight [g]   | 0.2                            | 0.2                     |

1) Is fitted into the suction cup holder.

| Material types – Suction cup S |                         |                      |                               |   |                     |
|--------------------------------|-------------------------|----------------------|-------------------------------|---|---------------------|
| Material                       | F                       | N                    | NA                            | S   | U                   |
| Shore hardness                 | 60 ±5                   | 50 ±5                | 50 ±5                         | 50 ±5   | 60 ±5               |
| Suction cup                    | FPM<br>Colour: grey     | NBR<br>Colour: black | BR<br>Colour: black/white dot | VMQ (silicone)<br>Colour: transparent               | PUR<br>Colour: blue |
| Threaded plug                  | Nickel-plated brass     |                      |                               |   |                     |
| Note on materials              | RoHS-compliant          |                      |                               |   |                     |
|                                | Free of copper and PTFE |                      |                               |   |                     |
|                                | –                       |                      |                               | Contains PWIS (paint-wetting impairment substances) |                     |

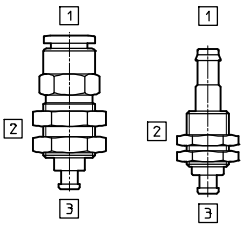
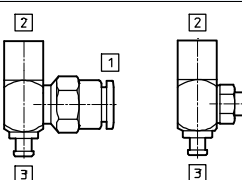
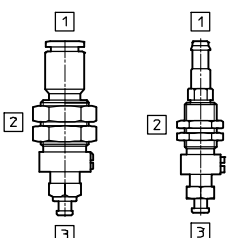
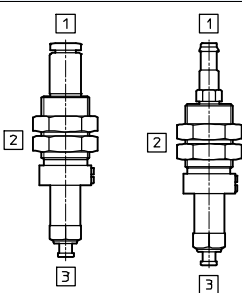
| Operating and environmental conditions – Suction cup S |  |             |             |                                   |             |
|--|--|-------------|-------------|-----------------------------------|-------------|
| Material   | F  | N           | NA          | S                                 | U           |
| Operating medium                                       | Atmospheric air based on ISO 8573-1:2010 [7:-:-] |             |             |                                   |             |
| Ambient temperature [°C]                               | –10 ... +200                                     | –10 ... +70 | –10 ... +70 | –30 ... +180                      | –20 ... +60 |
| Corrosion resistance class CRC <sup>1)</sup>           | 1  |             |             |                                   |             |
| Special characteristics                                | –  | –           | Anti-static | –                                 | –           |
| Suitable for use in the food industry                  | –  | –           | –           | As per manufacturer's declaration | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

# Suction grippers ESG, suction cup $\varnothing$ 6/8 mm

Technical data holder size 2

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| General technical data – Suction cup holder HA/HB/HC/HCL                                 |                                       | Technical data → Internet: esh        |                                  |
|--|---------------------------------------|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>   |                                       | QS-6                                  | PK-4                             |
| <b>HA – Vacuum port on top, mounting with lock nut, without height compensator</b>       |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M10x1                                 | M8x0.75                          |
|  | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|  | Nominal width [mm]                    | 2                                     | 2                                |
|  | Volume [cm <sup>3</sup> ]             | 0.501                                 | 0.169                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 12                                    | 7                                |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR                                   | NBR, steel                       |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |
| <b>HB – Vacuum port on side, mounting with female thread, without height compensator</b> |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M4                                    | M4                               |
|  | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|  | Nominal width [mm]                    | 2                                     | 2                                |
|  | Volume [cm <sup>3</sup> ]             | 0.418                                 | 0.188                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 13                                    | 11                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |
| <b>HC – Vacuum port on top, mounting with lock nut, with height compensator</b>          |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M12x1                                 | M8x0.75                          |
|  | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|  | Nominal width [mm]                    | 2.2                                   | 1.2                              |
|  | Volume [cm <sup>3</sup> ]             | 0.551                                 | 0.192                            |
|  | Height compensator [mm]               | 3                                     | 3                                |
|  | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 18                                    | 8                                |
| Materials-holder   | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel      |                                  |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |
| <b>HCL – Vacuum port on top, mounting with lock nut, with long height compensator</b>    |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M12x1                                 | M12x1                            |
|  | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|  | Nominal width [mm]                    | 2.2                                   | 2.2                              |
|  | Volume [cm <sup>3</sup> ]             | 0.519                                 | 0.398                            |
|  | Height compensator [mm]               | 10                                    | 10                               |
|  | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 20                                    | 19                               |
| Materials-holder   | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel      |                                  |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |

# Suction grippers ESG, suction cup $\varnothing$ 6/8 mm

FESTO

Technical data holder size 2

| General technical data – Suction cup holder HD/HDL                              |                                       | Technical data → Internet: esh        |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>  | QS-6                                  | PK-4                                  |                                  |
| HD – Vacuum port on side, mounting with lock nut, with height compensator       |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M8x0.75                               | M8x0.75                          |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|   | Nominal width [mm]                    | 1.8                                   | 1.8                              |
|   | Volume [cm <sup>3</sup> ]             | 0.417                                 | 0.183                            |
|   | Height compensator [mm]               | 3                                     | 3                                |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 15                                    | 12                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M12x1                                 | M12x1                            |
|   | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm                    | $\varnothing$ 4 mm               |
|   | Nominal width [mm]                    | 2.2                                   | 2.2                              |
|   | Volume [cm <sup>3</sup> ]             | 0.26                                  | 0.138                            |
|   | Height compensator [mm]               | 10                                    | 10                               |
|   | Spring force (normal/min. length) [N] | Max. 1                                | Max. 1                           |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 33                                    | 32                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |

| General technical data – Suction cup holder HE  |  | Technical data → Internet: esh |  |
|---|--|--------------------------------|--|
| Vacuum port <b>1</b>  | M5                                       |                                |  |
| HE – Vacuum port on top, with threaded connection for direct screw-in, without height compensator |  |                                |  |
|   | Mounting thread <b>2</b>                 | M5                             |  |
|   | Suction cup mounting <b>3</b>            | $\varnothing$ 4 mm             |  |
|   | Nominal width [mm]                       | 2                              |  |
|   | Volume [cm <sup>3</sup> ]                | 0.036                          |  |
|   | Ambient temperature [°C]                 | -10 ... +60                    |  |
|   | Weight [g]                               | 3                              |  |
|   | Materials-holder                         | Tempered steel                 |  |
| Materials-seals   | NBR, steel, wrought aluminium alloy, POM |                                |  |
| Note on materials   | RoHS-compliant                           |                                |  |

| General technical data – Suction cup holder HF   |                                       | Technical data → Internet: esh |  |
|--|---------------------------------------|--------------------------------|--|
| Vacuum port <b>1</b>   | M10x1                                 |                                |  |
| HF – Vacuum port on top, with threaded connection for direct screw-in, with height compensator |                                       |                                |  |
|  | Mounting thread <b>2</b>              | M10x1                          |  |
|  | Suction cup mounting <b>3</b>         | $\varnothing$ 4 mm             |  |
|  | Nominal width [mm]                    | 2                              |  |
|  | Volume [cm <sup>3</sup> ]             | 0.09                           |  |
|  | Height compensator [mm]               | 2.6                            |  |
|  | Spring force (normal/min. length) [N] | 2/4                            |  |
|  | Ambient temperature [°C]              | -10 ... +60                    |  |
|  | Weight [g]                            | 14                             |  |
|  | Materials-holder                      | Tempered steel                 |  |
|  | Materials-seals                       | NBR, POM                       |  |
| Note on materials  | RoHS-compliant                        |                                |  |

# Suction grippers ESG, suction cup Ø 10/15 mm

Technical data holder size 3





**Holder size 3**

For suction cup Ø 10/15 mm

Suction cup shape:

- Round, flat
- Round, extra deep
- Round, bellows, 1.5 convolutions
- Round, bellows, 3.5 convolutions



| General technical data – Suction cup S/E/B/C  |  | Technical data → Internet: ess |       |
|---|--|--------------------------------|-------|
| Suction cup shape   |  | Suction cup Ø [mm]             |       |
|   |  | 10                             | 15    |
| S – round, flat: material FPM, NBR, BR, VMQ (silicone), PUR                         |  |                                |       |
|    | Connection suction cup holder                            | M4                             | M4    |
|   | Nominal width [mm]                                       | 2                              | 2     |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 3.9                            | 8.5   |
|   | Suction cup volume [cm³]                                 | 0.050                          | 0.208 |
|   | Min. workpiece radius [mm]                               | 30                             | 35    |
|   | Weight [g]   | 1.5                            | 1.9   |
| E – round, extra deep: material FPM, NBR, VMQ (silicone), PUR                       |  |                                |       |
|  | Connection suction cup holder                            | –                              | M4    |
|   | Nominal width [mm]                                       | –                              | 2     |
|   | Holding force at nominal operating pressure –0.7 bar [N] | –                              | 9.8   |
|   | Suction cup volume [cm³]                                 | –                              | 0.35  |
|   | Min. workpiece radius [mm]                               | –                              | 20    |
|   | Weight [g]   | –                              | 1.9   |
| B – round, bellows 1.5 convolutions: material NBR, VMQ (silicone), PUR              |  |                                |       |
|  | Connection suction cup holder                            | M4                             | –     |
|   | Nominal size [mm]  | 2                              | –     |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 4.7                            | –     |
|   | Suction cup volume [cm³]                                 | 0.38                           | –     |
|   | Min. workpiece radius [mm]                               | 20                             | –     |
|   | Weight [g]   | 1.8                            | –     |
| C – round, bellows 3.5 convolutions: material NBR, VMQ (silicone)                   |  |                                |       |
|  | Connection suction cup holder                            | M4                             | –     |
|   | Nominal size [mm]  | 2                              | –     |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 3.9                            | –     |
|   | Suction cup volume [cm³]                                 | 0.29                           | –     |
|   | Min. workpiece radius [mm]                               | 25                             | –     |
|   | Weight [g]   | 1.6                            | –     |

## Suction grippers ESG, suction cup $\varnothing$ 10/15 mm

FESTO

Technical data holder size 3

| Material types – Suction cup |                         |                      |                                  |   |                     |
|------------------------------|-------------------------|----------------------|----------------------------------|---|---------------------|
| Material                     | F                       | N                    | NA                               | S   | U                   |
| Shore hardness               | 60 ±5                   | 60 ±5                | 50 ±5                            | 50 ±5   | 60 ±5               |
| Suction cup                  | FPM<br>Colour: grey     | NBR<br>Colour: black | BR<br>Colour: black/white<br>dot | VMQ (silicone)<br>Colour: transparent               | PUR<br>Colour: blue |
| Threaded plug                | Nickel-plated brass     |                      |                                  |   |                     |
| Note on materials            | RoHS-compliant          |                      |                                  |   |                     |
|                              | Free of copper and PTFE |                      |                                  |   |                     |
|                              | –                       |                      |                                  | Contains PWIS (paint-wetting impairment substances) |                     |

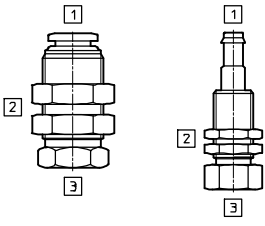
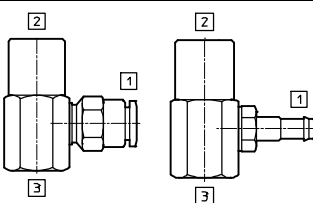
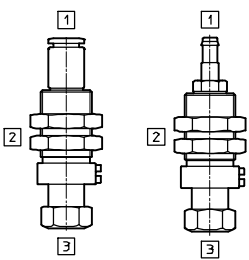
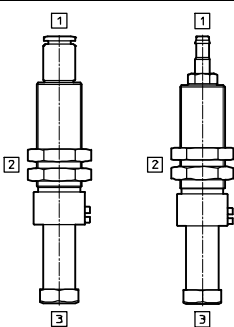
| Operating and environmental conditions – Suction cup |  |             |             |                                   |             |
|--|--|-------------|-------------|-----------------------------------|-------------|
| Material   | F  | N           | NA          | S                                 | U           |
| Operating medium                                     | Atmospheric air based on ISO 8573-1:2010 [7:-:-] |             |             |                                   |             |
| Ambient temperature [°C]                             | -10 ... +200                                     | -10 ... +70 | -10 ... +70 | -30 ... +180                      | -20 ... +60 |
| Corrosion resistance class CRC <sup>1)</sup>         | 1  |             |             |                                   |             |
| Special characteristics                              | –  | –           | Anti-static | –                                 | –           |
| Suitable for use in the food industry                | –  | –           | –           | As per manufacturer's declaration | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

# Suction grippers ESG, suction cup $\varnothing$ 10/15 mm

Technical data holder size 3

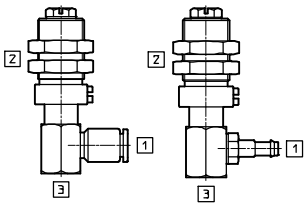
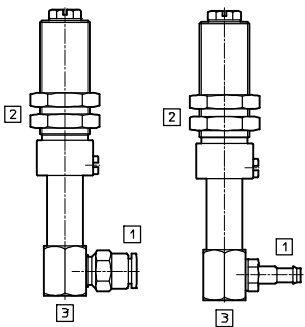
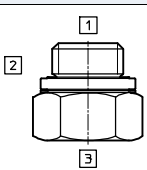
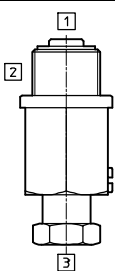
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| General technical data – Suction cup holder HA/HB/HC/HCL                                 |                                       | Technical data → Internet: esh        |                                  |
|--|---------------------------------------|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>   |                                       | QS-6                                  | PK-4                             |
| <b>HA – Vacuum port on top, mounting with lock nut, without height compensator</b>       |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M12x1                                 | M8x0.75                          |
|  | Suction cup mounting <b>3</b>         | M4                                    | M4                               |
|  | Nominal width [mm]                    | 5                                     | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 0.52                                  | 0.274                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 20                                    | 10                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR                                   | NBR, steel                       |
|  | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| <b>HB – Vacuum port on side, mounting with female thread, without height compensator</b> |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M6                                    | M6                               |
|  | Suction cup mounting <b>3</b>         | M4                                    | M4                               |
|  | Nominal width [mm]                    | 3.3                                   | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 0.539                                 | 0.313                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 29                                    | 27                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR, steel                            | NBR, steel                       |
|  | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| <b>HC – Vacuum port on top, mounting with lock nut, with height compensator</b>          |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|  | Suction cup mounting <b>3</b>         | M4                                    | M4                               |
|  | Nominal width [mm]                    | 3.4                                   | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 1.041                                 | 0.789                            |
|  | Height compensator [mm]               | 6                                     | 6                                |
|  | Spring force (normal/min. length) [N] | 2/5                                   | 2/5                              |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 34                                    | 32                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |
| <b>HCL – Vacuum port on top, mounting with lock nut, with long height compensator</b>    |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|  | Suction cup mounting <b>3</b>         | M4                                    | M4                               |
|  | Nominal width [mm]                    | 3.4                                   | 3                                |
|  | Volume [cm <sup>3</sup> ]             | 1.616                                 | 1.383                            |
|  | Height compensator [mm]               | 20                                    | 20                               |
|  | Spring force (normal/min. length) [N] | 1/3                                   | 1/3                              |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 48                                    | 46                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |

# Suction grippers ESG, suction cup $\varnothing$ 10/15 mm

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Technical data holder size 3

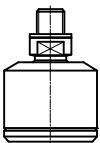
| General technical data – Suction cup holder HD/HDL  |  | Technical data → Internet: esh        |                                  |
|---|--|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>  | QS-6                                     | PK-4                                  |                                  |
| HD – Vacuum port on side, mounting with lock nut, with height compensator                         |  |                                       |                                  |
|                  | Mounting thread <b>2</b>                 | M14x1                                 | M14x1                            |
|   | Suction cup mounting <b>3</b>            | M4                                    | M4                               |
|   | Nominal width [mm]                       | 3.3                                   | 3                                |
|   | Volume [cm <sup>3</sup> ]                | 0.573                                 | 0.343                            |
|   | Height compensator [mm]                  | 6                                     | 6                                |
|   | Spring force (normal/min. length) [N]    | 2/5                                   | 2/5                              |
|   | Ambient temperature [°C]                 | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                               | 46                                    | 44                               |
|   | Materials-holder                         | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                          | NBR, steel                            | NBR, steel                       |
|   | Note on materials                        | RoHS-compliant                        | RoHS-compliant                   |
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator                   |  |                                       |                                  |
|                 | Mounting thread <b>2</b>                 | M14x1                                 | M14x1                            |
|   | Suction cup mounting <b>3</b>            | M4                                    | M4                               |
|   | Nominal width [mm]                       | 3.3                                   | 3                                |
|   | Volume [cm <sup>3</sup> ]                | 0.474                                 | 0.252                            |
|   | Height compensator [mm]                  | 20                                    | 20                               |
|   | Spring force (normal/min. length) [N]    | 1/3                                   | 1/3                              |
|   | Ambient temperature [°C]                 | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                               | 65                                    | 63                               |
|   | Materials-holder                         | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                          | NBR, steel                            | NBR, steel                       |
|   | Note on materials                        | RoHS-compliant                        | RoHS-compliant                   |
| General technical data – Suction cup holder HE  |  | Technical data → Internet: esh        |                                  |
| Vacuum port <b>1</b>  | G1/8                                     |                                       |                                  |
| HE – Vacuum port on top, with threaded connection for direct screw-in, without height compensator |  |                                       |                                  |
|                | Mounting thread <b>2</b>                 | G1/8                                  |                                  |
|   | Suction cup mounting <b>3</b>            | M4                                    |                                  |
|   | Nominal width [mm]                       | 3                                     |                                  |
|   | Volume [cm <sup>3</sup> ]                | 0.106                                 |                                  |
|   | Ambient temperature [°C]                 | -10 ... +60                           |                                  |
|   | Weight [g]                               | 11                                    |                                  |
|   | Materials-holder                         | Tempered steel                        |                                  |
| Materials-seals   | NBR, steel, wrought aluminium alloy, POM |                                       |                                  |
| Note on materials   | RoHS-compliant                           |                                       |                                  |
| General technical data – Suction cup holder HF  |  | Technical data → Internet: esh        |                                  |
| Vacuum port <b>1</b>  | M14x1                                    |                                       |                                  |
| HF – Vacuum port on top, with threaded connection for direct screw-in, with height compensator    |  |                                       |                                  |
|                | Mounting thread <b>2</b>                 | M14x1                                 |                                  |
|   | Suction cup mounting <b>3</b>            | M4                                    |                                  |
|   | Nominal width [mm]                       | 3.3                                   |                                  |
|   | Volume [cm <sup>3</sup> ]                | 0.40                                  |                                  |
|   | Height compensator [mm]                  | 6                                     |                                  |
|   | Spring force (normal/min. length) [N]    | 6/12                                  |                                  |
|   | Ambient temperature [°C]                 | -10 ... +60                           |                                  |
|   | Weight [g]                               | 54                                    |                                  |
|   | Materials-holder                         | Tempered steel                        |                                  |
|   | Materials-seals                          | NBR, POM                              |                                  |
|   | Note on materials                        | RoHS-compliant                        |                                  |

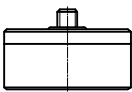



# Suction grippers ESG, suction cup $\varnothing$ 10/15 mm

Technical data holder size 3

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| Angle compensator ESWA  |                            | Technical data → Internet: eswa |
|---|----------------------------|---------------------------------|
|  | Pneumatic connection       | M4                              |
|   | Design                     | Ball joint                      |
|   | Angle compensation +/- [°] | 15                              |
|   | Operating pressure [bar]   | -0.95 ... +4                    |
|   | Ambient temperature [°C]   | 0 ... +60                       |
|   | Weight [g]                 | 9                               |
|   | Materials - housing        | Aluminium, nickel-plated brass  |
|   | Materials-seals            | NBR                             |
|   | Note on materials          | RoHS-compliant                  |

| Vacuum filter ESF   |  | Technical data → Internet: esf |
|---|--|--------------------------------|
|  | Pneumatic connection                               | M4                             |
|   | Flow rate at vacuum pressure [l/min]<br>=-0.75 bar | 100                            |
|   | Grade of filtration [µm]                           | 10                             |
|   | Operating pressure [bar]                           | -0.95 ... +4                   |
|   | Ambient temperature [°C]                           | 0 ... +60                      |
|   | Weight [g]   | 9                              |
|   | Materials - housing                                | Aluminium, nickel-plated brass |
|   | Materials-filter                                   | PVF                            |
|   | Materials-seals                                    | NBR                            |
| Note on materials   | RoHS-compliant                                     |                                |

| Suction cup insert OASI   |                                       | Technical data → Internet: oasi   |
|---|---------------------------------------|-----------------------------------|
| For suction cup shape round, bellows 3.5 convolutions                               | Suction cup $\varnothing$ [mm]        | 10                                |
|   |                                       |                                   |
|  | Type of mounting                      | Plug-in                           |
|   | Operating pressure [bar]              | -0.95 ... 0                       |
|   | Ambient temperature [°C]              | 5 ... +50                         |
|   | Suitable for use in the food industry | As per manufacturer's declaration |
|   | Weight [g]                            | 0.1                               |
|   | Materials-suction cup insert          | PE                                |
|   | Note on materials                     | RoHS-compliant                    |

# Suction grippers ESG, suction cup Ø 20/30/40/50 mm, oval



Technical data holder size 4






## Holder size 4

For suction cup Ø 20/30/40/50 mm  
and suction cup size  
4x10/4x20/6x10/6x20/8x20/8x30/  
10x30 mm

## Suction cup shape:

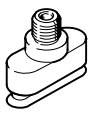
- Round, flat
- Round, extra deep
- Round, bellows, 1.5 convolutions
- Round, bellows, 3.5 convolutions
- Round, deep
- Oval, flat



| General technical data – Suction cup S/E/B/C/G  |  | Technical data → Internet: ess |       |            |              |
|---|--|--------------------------------|-------|------------|--------------|
| Suction cup shape   |  | Suction cup Ø [mm]             |       |            |              |
|   |  | 20                             | 30    | 40         | 50           |
| S – round, flat: material FPM, NBR, BR, VMQ (silicone), PUR   |  |                                |       |            |              |
|                                  | Connection suction cup holder                            | M6                             | M6    | M6         | M6           |
|   | Nominal width [mm]                                       | 3                              | 3     | 3          | 3            |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 16.3                           | 40.8  | 69.6       | 105.8        |
|   | Suction cup volume [cm <sup>3</sup> ]                    | 0.318                          | 0.867 | 1.566      | 2.387        |
|   | Min. workpiece radius [mm]                               | 60                             | 110   | 230        | 330          |
|   | Weight [g]   | 6.4                            | 9     | 16.3       | 22           |
| E – round, extra deep: material FPM, NBR, VMQ (silicone), PUR   |  |                                |       |            |              |
|                                | Connection suction cup holder                            | M6                             | M6    | M6         | M6           |
|   | Nominal width [mm]                                       | 3                              | 3     | 3          | 3            |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 17                             | 37.2  | 67.6       | 103.6        |
|   | Suction cup volume [cm <sup>3</sup> ]                    | 0.84                           | 2.12  | 4.04       | 7.9          |
|   | Min. workpiece radius [mm]                               | 30                             | 50    | 80         | 100          |
|   | Weight [g]   | 6.4                            | 9.2   | 16.9       | 23.4         |
| B – round, bellows 1.5 convolutions: material NBR, VMQ (silicone), PUR, Vulkollan® (technical values in brackets) |  |                                |       |            |              |
|                                | Connection suction cup holder                            | M6                             | M6    | M6         | M6           |
|   | Nominal width [mm]                                       | 3                              | 3     | 3 (2.5)    | 3 (2.5)      |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 12.9                           | 26.2  | 52.3 (59)  | 72.6 (100)   |
|   | Suction cup volume [cm <sup>3</sup> ]                    | 1.6                            | 4.07  | 8.87 (9.8) | 14.23 (17.6) |
|   | Min. workpiece radius [mm]                               | 40                             | 80    | 90 (35)    | 150 (40)     |
|   | Weight [g]   | 6.7                            | 9.9   | 18.7 (18)  | 24.7 (24)    |
| C – round, bellows 3.5 convolutions: material NBR, VMQ (silicone)   |  |                                |       |            |              |
|                                | Connection suction cup holder                            | M6                             | M6    | M6         | M6           |
|   | Nominal width [mm]                                       | 3                              | 3     | 3          | 3            |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 8.2                            | 20.8  | 42.4       | 63.4         |
|   | Suction cup volume [cm <sup>3</sup> ]                    | 2.75                           | 9.47  | 19.72      | 38.92        |
|   | Min. workpiece radius [mm]                               | 50                             | 80    | 100        | 180          |
|   | Weight [g]   | 6.9                            | 12.2  | 21.9       | 32.1         |
| G – round, deep: material Vulkollan®  |  |                                |       |            |              |
|                                | Connection suction cup holder                            | –                              | M6    | M6         | M6           |
|   | Nominal width [mm]                                       | –                              | 2.5   | 2.5        | 2.5          |
|   | Holding force at nominal operating pressure –0.7 bar [N] | –                              | 36    | 64         | 97           |
|   | Suction cup volume [cm <sup>3</sup> ]                    | –                              | 2.4   | 5.4        | 11.2         |
|   | Min. workpiece radius [mm]                               | –                              | 26    | 35         | 40           |
|   | Weight [g]   | –                              | 12    | 14         | 17           |

# Suction grippers ESG, suction cup $\varnothing$ 20/30/40/50 mm, oval

Technical data holder size 4

| General technical data – Suction cup O  |  |                       |       |       |       |       |       |       |      |
|---|--|-----------------------|-------|-------|-------|-------|-------|-------|------|
| Suction cup shape   |  | Suction cup size [mm] |       |       |       |       |       |       |      |
|   |  | 4x10                  | 4x20  | 6x10  | 6x20  | 8x20  | 8x30  | 10x30 |      |
| O – oval, flat: material NBR  |  |                       |       |       |       |       |       |       |      |
|  | Connection suction cup holder                            |                       | M6    | M6    | M6    | M6    | M6    | M6    | M6   |
|   | Nominal width [mm]                                       |                       | 2.5   | 2.5   | 2.5   | 2.5   | 2.5   | 2.5   | 2.5  |
|   | Holding force at nominal operating pressure –0.7 bar [N] |                       | 2     | 3.4   | 2.9   | 5.9   | 8     | 10.9  | 15.2 |
|   | Suction cup volume [cm <sup>3</sup> ]                    |                       | 0.064 | 0.112 | 0.106 | 0.196 | 0.256 | 0.376 | 0.35 |
|   | Weight [g]   |                       | 2     | 2.5   | 2     | 2.5   | 2.5   | 3     | 2.9  |

| Material types – Suction cup                     |                         |                                       |                                   |   |                     |  |                         |
|--|-------------------------|---------------------------------------|-----------------------------------|---|---------------------|--|-------------------------|
| Material   | F                       | N                                     | NA                                | S   | U                   | T                                      |                         |
| Shore hardness                                   | 60 ±5                   | 60 ±5                                 | 50 ±5                             | 50 ±5   | 60 ±5               | 72 ±5                                  |                         |
| Suction cup                                      | FPM<br>Colour: grey     | NBR<br>Colour: black                  | BR<br>Colour: black/<br>white dot | VMQ (silicone)<br>Colour:<br>transparent            | PUR<br>Colour: blue | Vulkollan®<br>Colour: reddish<br>brown |                         |
| Threaded plug for suction cup $\varnothing$ [mm] | 20, 30                  | Nickel-plated brass                   |                                   |   |                     | Wrought aluminium alloy                |                         |
|  |                         | Galvanised and chrome-plated steel    |                                   |   |                     |  |                         |
|  | 40, 50                  | Nickel-plated brass                   |                                   |   |                     |  | Wrought aluminium alloy |
|  |                         | Nickel-plated wrought aluminium alloy |                                   |   |                     |  |                         |
| Galvanised and chrome-plated steel               |                         |                                       |                                   |   |                     |  |                         |
| Note on materials                                | RoHS-compliant          |                                       |                                   |   |                     | –                                      |                         |
|  | Free of copper and PTFE |                                       |                                   |   |                     |  |                         |
|  | –                       |                                       |                                   | Contains PWIS (paint-wetting impairment substances) |                     |  |                         |

| Operating and environmental conditions – Suction cup |  |             |             |                                   |             |             |
|--|--|-------------|-------------|-----------------------------------|-------------|-------------|
| Material   | F  | N           | NA          | S                                 | U           | T           |
| Operating medium                                     | Atmospheric air based on ISO 8573-1:2010 [7:-:-] |             |             |                                   |             |             |
| Ambient temperature [°C]                             | –10 ... +200                                     | –10 ... +70 | –10 ... +70 | –30 ... +180                      | –20 ... +60 | –10 ... +80 |
| Corrosion resistance class CRC <sup>1)</sup>         | 1  |             |             |                                   |             | 2           |
| Special characteristics                              | –  | –           | Anti-static | –                                 | –           | –           |
| Suitable for use in the food industry                | –  | –           | –           | As per manufacturer's declaration | –           | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

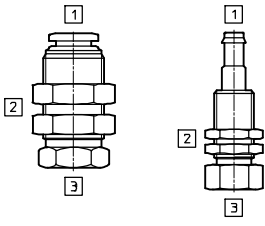
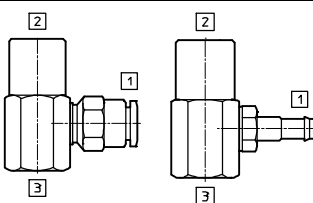
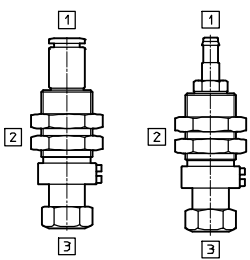
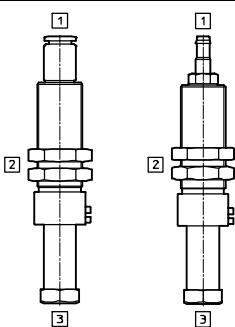
Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

# Suction grippers ESG, suction cup $\varnothing$ 20/30/40/50 mm, oval

FESTO

Technical data holder size 4

| General technical data – Suction cup holder HA/HB/HC/HCL                                 |                                       | Technical data → Internet: esh        |                                  |
|--|---------------------------------------|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>   | QS-6                                  | PK-4                                  |                                  |
| <b>HA – Vacuum port on top, mounting with lock nut, without height compensator</b>       |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M14x1                                 | M12x1                            |
|  | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|  | Nominal width [mm]                    | 5                                     | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 0.719                                 | 0.668                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 30                                    | 23                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR                                   | NBR, steel                       |
|  | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| <b>HB – Vacuum port on side, mounting with female thread, without height compensator</b> |                                       |                                       |                                  |
|         | Mounting thread <b>2</b>              | M6                                    | M6                               |
|  | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|  | Nominal width [mm]                    | 5                                     | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 0.646                                 | 0.416                            |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 27                                    | 25                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|  | Materials-seals                       | NBR, steel                            | NBR, steel                       |
|  | Note on materials                     | RoHS-compliant                        | RoHS-compliant                   |
| <b>HC – Vacuum port on top, mounting with lock nut, with height compensator</b>          |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|  | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|  | Nominal width [mm]                    | 3.4                                   | 2.5                              |
|  | Volume [cm <sup>3</sup> ]             | 1.153                                 | 0.911                            |
|  | Height compensator [mm]               | 6                                     | 6                                |
|  | Spring force (normal/min. length) [N] | 5/10                                  | 5/10                             |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 33                                    | 31                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |
| <b>HCL – Vacuum port on top, mounting with lock nut, with long height compensator</b>    |                                       |                                       |                                  |
|       | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|  | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|  | Nominal width [mm]                    | 3.4                                   | 3                                |
|  | Volume [cm <sup>3</sup> ]             | 1.78                                  | 1.535                            |
|  | Height compensator [mm]               | 20                                    | 20                               |
|  | Spring force (normal/min. length) [N] | 1/9                                   | 1/9                              |
|  | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|  | Weight [g]                            | 47                                    | 45                               |
|  | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
| Materials-seals  | NBR, steel                            | NBR, steel                            |                                  |
| Note on materials  | RoHS-compliant                        | RoHS-compliant                        |                                  |

# Suction grippers ESG, suction cup $\varnothing$ 20/30/40/50 mm, oval

Technical data holder size 4

| General technical data – Suction cup holder HD/HDL |      | Technical data → Internet: esh |
|--|------|--------------------------------|
| Vacuum port <b>1</b>                               | QS-6 | PK-4                           |

|   |                                       |                                       |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| HD – Vacuum port on side, mounting with lock nut, with height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|   | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|   | Nominal width [mm]                    | 5                                     | 3                                |
|   | Volume [cm <sup>3</sup> ]             | 0.678                                 | 0.449                            |
|   | Height compensator [mm]               | 6                                     | 6                                |
|   | Spring force (normal/min. length) [N] | 5/10                                  | 5/10                             |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 45                                    | 43                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |

|   |                                       |                                       |                                  |
|---|---------------------------------------|---------------------------------------|----------------------------------|
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator |                                       |                                       |                                  |
|   | Mounting thread <b>2</b>              | M14x1                                 | M14x1                            |
|   | Suction cup mounting <b>3</b>         | M6                                    | M6                               |
|   | Nominal width [mm]                    | 5                                     | 3                                |
|   | Volume [cm <sup>3</sup> ]             | 0.37                                  | 0.448                            |
|   | Height compensator [mm]               | 20                                    | 20                               |
|   | Spring force (normal/min. length) [N] | 1/9                                   | 1/9                              |
|   | Ambient temperature [°C]              | 0 ... +60                             | -10 ... +60                      |
|   | Weight [g]                            | 65                                    | 63                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel, POM | Tempered steel, high-alloy steel |
|   | Materials-seals                       | NBR, steel                            | NBR, steel                       |
| Note on materials   | RoHS-compliant                        | RoHS-compliant                        |                                  |

| General technical data – Suction cup holder HE |      | Technical data → Internet: esh |
|--|------|--------------------------------|
| Vacuum port <b>1</b>                           | G1/8 |                                |

|   |                               |  |
|---|-------------------------------|--|
| HE – Vacuum port on top, with threaded connection for direct screw-in, without height compensator |                               |  |
|   | Mounting thread <b>2</b>      | G1/8                                     |
|   | Suction cup mounting <b>3</b> | M6                                       |
|   | Nominal width [mm]            | 4  |
|   | Volume [cm <sup>3</sup> ]     | 0.289                                    |
|   | Ambient temperature [°C]      | -10 ... +60                              |
|   | Weight [g]                    | 11                                       |
|   | Materials-holder              | Tempered steel                           |
|   | Materials-seals               | NBR, steel, wrought aluminium alloy, POM |
| Note on materials   | RoHS-compliant                |  |

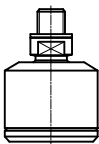
| General technical data – Suction cup holder HF |       | Technical data → Internet: esh |
|--|-------|--------------------------------|
| Vacuum port <b>1</b>                           | M14x1 |                                |

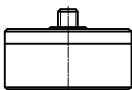
|  |                                       |                |
|--|---------------------------------------|----------------|
| HF – Vacuum port on top, with threaded connection for direct screw-in, with height compensator |                                       |                |
|  | Mounting thread <b>2</b>              | M14x1          |
|  | Suction cup mounting <b>3</b>         | M6             |
|  | Nominal width [mm]                    | 4              |
|  | Volume [cm <sup>3</sup> ]             | 0.655          |
|  | Height compensator [mm]               | 6              |
|  | Spring force (normal/min. length) [N] | 6/12           |
|  | Ambient temperature [°C]              | -10 ... +60    |
|  | Weight [g]                            | 52             |
|  | Materials-holder                      | Tempered steel |
|  | Materials-seals                       | NBR, POM       |
| Note on materials  | RoHS-compliant                        |                |


# Suction grippers ESG, suction cup $\varnothing$ 20/30/40/50 mm, oval

FESTO

Technical data holder size 4

| Angle compensator ESWA  |                        | Technical data → Internet: eswa |              |  |
|---|------------------------|---------------------------------|--------------|--|
|  | Pneumatic connection   | M6                              |              |  |
|   | Design                 | Ball joint                      |              |  |
|   | Angle compensation +/- | [°]                             | 15           |  |
|   | Operating pressure     | [bar]                           | -0.95 ... +4 |  |
|   | Ambient temperature    | [°C]                            | 0 ... +60    |  |
|   | Weight                 | [g]                             | 19           |  |
|   | Materials - housing    | Aluminium, nickel-plated brass  |              |  |
|   | Materials-seals        | NBR                             |              |  |
|   | Note on materials      | RoHS-compliant                  |              |  |

| Vacuum filter ESF   |                              | Technical data → Internet: esf   |                                       |  |
|---|------------------------------|--|---------------------------------------|--|
|   |                              | Suction cup $\varnothing$ 20 mm,<br>Suction cup size 4x10 ... 10x30 mm | Suction cup $\varnothing$ 30/40/50 mm |  |
|  | Pneumatic connection         | M6   |                                       |  |
|   | Flow rate at vacuum pressure | [l/min]  | 260                                   |  |
|   | = -0.75 bar                  |  | 270                                   |  |
|   | Grade of filtration          | [ $\mu$ m]   | 10                                    |  |
|   | Operating pressure           | [bar]  | -0.95 ... +4                          |  |
|   | Ambient temperature          | [°C]   | 0 ... +60                             |  |
|   | Weight                       | [g]  | 19                                    |  |
|   | Materials - housing          | Aluminium, nickel-plated brass   |                                       |  |
|   | Materials-filter             | PVF  |                                       |  |
| Materials-seals   | NBR                          |  |                                       |  |
| Note on materials   | RoHS-compliant               |  |                                       |  |

| Suction cup insert OASI   |                                       | Technical data → Internet: oasi   |             |     |     |     |
|---|---------------------------------------|-----------------------------------|-------------|-----|-----|-----|
| For suction cup shape round, bellows 3.5 convolutions                               |                                       | Suction cup $\varnothing$ [mm]    |             |     |     |     |
|   |                                       | 20                                | 30          | 40  | 50  |     |
|  | Type of mounting                      | Push-in                           |             |     |     |     |
|   | Operating pressure                    | [bar]                             | -0.95 ... 0 |     |     |     |
|   | Ambient temperature                   | [°C]                              | 5 ... +50   |     |     |     |
|   | Suitable for use in the food industry | As per manufacturer's declaration |             |     |     |     |
|   | Weight                                | [g]                               | 0.6         | 2.1 | 2.9 | 5.9 |
|   | Materials-suction cup insert          | PE                                |             |     |     |     |
|   | Note on materials                     | RoHS-compliant                    |             |     |     |     |

# Suction grippers ESG, suction cup Ø 60/80/100 mm, oval

Technical data holder size 5





**Holder size 5**


For suction cup Ø 60/80/100 mm  
and suction cup size  
15x45/20x60/25x75/30x90 mm

Suction cup shape:

- Round, flat
- Round, extra deep
- Round, bellows, 1.5 convolutions
- Round, deep
- Oval, flat



| General technical data – Suction cup S/E/B/G   |  | Technical data → Internet: ess |             |        |
|--|--|--------------------------------|-------------|--------|
| Suction cup shape  |  | Suction cup Ø [mm]             |             |        |
|  |  | 60                             | 80          | 100    |
| <b>S – round, flat: material FPM, NBR, VMQ (silicone), PUR</b>   |  |                                |             |        |
|   | Connection suction cup holder                            | M10                            | M10         | M10    |
|  | Nominal width [mm]                                       | 6                              | 6           | 6      |
|  | Holding force at nominal operating pressure –0.7 bar [N] | 166.1                          | 309.7       | 503.6  |
|  | Suction cup volume [cm³]                                 | 3.953                          | 19.312      | 29.779 |
|  | Min. workpiece radius [mm]                               | 350                            | 400         | 460    |
|  | Weight [g]   | 49                             | 133         | 222    |
| <b>E – round, extra deep: material FPM, NBR, VMQ (silicone), PUR</b>   |  |                                |             |        |
|                                       | Connection suction cup holder                            | M10                            | M10         | M10    |
|  | Nominal width [mm]                                       | 6                              | 6           | 6      |
|  | Holding force at nominal operating pressure –0.7 bar [N] | 162.5                          | 275         | 440.8  |
|  | Suction cup volume [cm³]                                 | 19.77                          | 51.61       | 84.66  |
|  | Min. workpiece radius [mm]                               | 120                            | 160         | 200    |
|  | Weight [g]   | 48                             | 141         | 228    |
| <b>B – round, bellows 1.5 convolutions: material NBR, VMQ (silicone), PUR, Vulkollan® (technical values in brackets)</b> |  |                                |             |        |
|                                       | Connection suction cup holder                            | –                              | M10         | –      |
|  | Nominal size [mm]  | –                              | 6 (2.5)     | –      |
|  | Holding force at nominal operating pressure –0.7 bar [N] | –                              | 213.6 (237) | –      |
|  | Suction cup volume [cm³]                                 | –                              | 63.9 (59.1) | –      |
|  | Min. workpiece radius [mm]                               | –                              | 430 (100)   | –      |
|  | Height compensator [mm]                                  | –                              | 10 (10.5)   | –      |
|  | Weight [g]   | –                              | 139 (84.5)  | –      |
| <b>G – round, deep: material Vulkollan®</b>  |  |                                |             |        |
|                                       | Connection suction cup holder                            | M10                            | M10         | M10    |
|  | Nominal width [mm]                                       | 2.5                            | 5.5         | 5.5    |
|  | Holding force at nominal operating pressure –0.7 bar [N] | 134                            | 245         | 375    |
|  | Suction cup volume [cm³]                                 | 11.3                           | 28.6        | 53.9   |
|  | Min. workpiece radius [mm]                               | 75                             | 100         | 135    |
|  | Height compensator [mm]                                  | 6                              | 7.5         | 9      |
|  | Weight [g]   | 20                             | 28          | 86.5   |

| General technical data – Suction cup O  |  | Suction cup size [mm] |       |       |       |
|---|--|-----------------------|-------|-------|-------|
| Suction cup shape   |  | 15x45                 | 20x60 | 25x75 | 30x90 |
| <b>O – oval, flat: material NBR</b>   |  |                       |       |       |       |
|  | Connection suction cup holder                            | M10                   | M10   | M10   | M10   |
|   | Nominal width [mm]                                       | 6                     | 6     | 6     | 6     |
|   | Holding force at nominal operating pressure –0.7 bar [N] | 32                    | 62.8  | 92.5  | 134.4 |
|   | Suction cup volume [cm³]                                 | 1.57                  | 3.69  | 6.7   | 10.17 |
|   | Weight [g]   | 23.8                  | 30.8  | 46.8  | 55.3  |

# Suction grippers ESG, suction cup $\varnothing$ 60/80/100 mm, oval

FESTO

Technical data holder size 5

| Material types – Suction cup                     |                         |                                       |   |                     |                                     |
|--|-------------------------|---------------------------------------|---|---------------------|-------------------------------------|
| Material   | F                       | N                                     | S   | U                   | T                                   |
| Shore hardness                                   | 60 ±5                   | 60 ±5                                 | 50 ±5   | 60 ±5               | 72 ±5                               |
| Suction cup                                      | FPM<br>Colour: grey     | NBR<br>Colour: black                  | VMQ (silicone)<br>Colour: transparent               | PUR<br>Colour: blue | Vulkollan®<br>Colour: reddish brown |
| Threaded plug for suction cup $\varnothing$ [mm] | 60                      | Steel, nickel-plated                  |   |                     | Wrought aluminium alloy             |
|  |                         | Nickel-plated wrought aluminium alloy |   |                     |                                     |
|  |                         | Galvanised and chrome-plated steel    |   |                     |                                     |
|  | 80, 100                 | Steel, nickel-plated                  |   |                     | Wrought aluminium alloy             |
|  |                         | POM                                   |   |                     |                                     |
|  |                         | Galvanised and chrome-plated steel    |   |                     |                                     |
| Note on materials                                | RoHS-compliant          |                                       |   |                     |                                     |
|  | Free of copper and PTFE |                                       |   |                     |                                     |
|  | –                       |                                       | Contains PWIS (paint-wetting impairment substances) |                     | –                                   |

| Operating and environmental conditions – Suction cup |   |             |                                   |             |             |
|--|---|-------------|-----------------------------------|-------------|-------------|
| Material   | F   | N           | S                                 | U           | T           |
| Operating medium                                     | Atmospheric air based on ISO 8573-1:2010 [7:--:-] |             |                                   |             |             |
| Ambient temperature [°C]                             | -10 ... +200                                      | -10 ... +70 | -30 ... +180                      | -20 ... +60 | -10 ... +80 |
| Corrosion resistance class CRC <sup>1)</sup>         | 1   |             |                                   |             | 2           |
| Suitable for use in the food industry                | –   | –           | As per manufacturer's declaration | –           | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

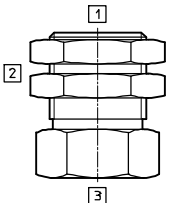
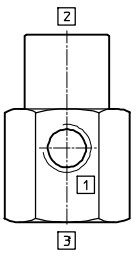
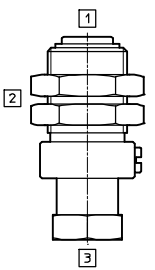
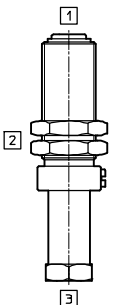
Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.



# Suction grippers ESG, suction cup $\varnothing$ 60/80/100 mm, oval

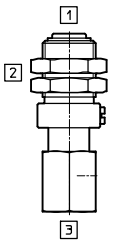
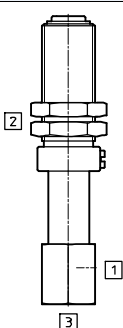
Technical data holder size 5

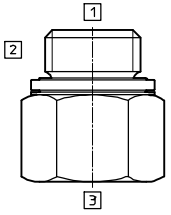
| General technical data – Suction cup holder HA/HB/HC/HCL                            |                                       | Technical data → Internet: esh   |
|---|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>  | G $\frac{1}{8}$                       |                                  |
| HA – Vacuum port on top, mounting with lock nut, without height compensator         |                                       |                                  |
|    | Mounting thread <b>2</b>              | M20x1                            |
|   | Suction cup mounting <b>3</b>         | M10                              |
|   | Nominal width [mm]                    | 8                                |
|   | Volume [cm <sup>3</sup> ]             | 1.862                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 84                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
|   | Note on materials                     | RoHS-compliant                   |
| HB – Vacuum port on side, mounting with female thread, without height compensator   |                                       |                                  |
|    | Mounting thread <b>2</b>              | M 8                              |
|   | Suction cup mounting <b>3</b>         | M10                              |
|   | Nominal width [mm]                    | 8.5                              |
|   | Volume [cm <sup>3</sup> ]             | 1.921                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 91                               |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
|   | Note on materials                     | RoHS-compliant                   |
| HC – Vacuum port on top, mounting with lock nut, with height compensator            |                                       |                                  |
|  | Mounting thread <b>2</b>              | M22x1                            |
|   | Suction cup mounting <b>3</b>         | M10                              |
|   | Nominal width [mm]                    | 8.4                              |
|   | Volume [cm <sup>3</sup> ]             | 3.327                            |
|   | Height compensator [mm]               | 10                               |
|   | Spring force (normal/min. length) [N] | 8/18                             |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 112                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
|   | Note on materials                     | RoHS-compliant                   |
| HCL – Vacuum port on top, mounting with lock nut, with long height compensator      |                                       |                                  |
|  | Mounting thread <b>2</b>              | M22x1                            |
|   | Suction cup mounting <b>3</b>         | M10                              |
|   | Nominal width [mm]                    | 8.4                              |
|   | Volume [cm <sup>3</sup> ]             | 6.06                             |
|   | Height compensator [mm]               | 30                               |
|   | Spring force (normal/min. length) [N] | 10/16                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 169                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
|   | Note on materials                     | RoHS-compliant                   |

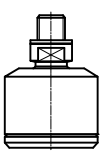
# Suction grippers ESG, suction cup $\varnothing$ 60/80/100 mm, oval

FESTO

Technical data holder size 5

| General technical data – Suction cup holder HD/HDL                                 |                                       | Technical data → Internet: esh   |
|--|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>   | G1/8                                  |                                  |
| HD – Vacuum port on side, mounting with lock nut, with height compensator          |                                       |                                  |
|   | Mounting thread <b>2</b>              | M22x1                            |
|  | Suction cup mounting <b>3</b>         | M10                              |
|  | Nominal width [mm]                    | 8.5                              |
|  | Volume [cm <sup>3</sup> ]             | 2.072                            |
|  | Height compensator [mm]               | 10                               |
|  | Spring force (normal/min. length) [N] | 8/18                             |
|  | Ambient temperature [°C]              | -10 ... +60                      |
|  | Weight [g]                            | 195                              |
|  | Materials-holder                      | Tempered steel, high-alloy steel |
|  | Note on materials                     | RoHS-compliant                   |
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator    |                                       |                                  |
|  | Mounting thread <b>2</b>              | M22x1                            |
|  | Suction cup mounting <b>3</b>         | M10                              |
|  | Nominal width [mm]                    | 8.5                              |
|  | Volume [cm <sup>3</sup> ]             | 1.667                            |
|  | Height compensator [mm]               | 30                               |
|  | Spring force (normal/min. length) [N] | 10/16                            |
|  | Ambient temperature [°C]              | -10 ... +60                      |
|  | Weight [g]                            | 273                              |
|  | Materials-holder                      | Tempered steel, high-alloy steel |
|  | Note on materials                     | RoHS-compliant                   |

| General technical data – Suction cup holder HE  |                               | Technical data → Internet: esh           |
|---|-------------------------------|--|
| Vacuum port <b>1</b>  | G1/4                          |  |
| HE – Vacuum port on top, with threaded connection for direct screw-in, without height compensator |                               |  |
|                | Mounting thread <b>2</b>      | G1/4                                     |
|   | Suction cup mounting <b>3</b> | M10                                      |
|   | Nominal width [mm]            | 7  |
|   | Volume [cm <sup>3</sup> ]     | 1.227                                    |
|   | Ambient temperature [°C]      | -10 ... +60                              |
|   | Weight [g]                    | 24                                       |
|   | Materials-holder              | Tempered steel                           |
|   | Materials-seals               | NBR, steel, wrought aluminium alloy, POM |
| Note on materials   | RoHS-compliant                |  |

| Angle compensator ESWA  |                            | Technical data → Internet: eswa |
|---|----------------------------|---------------------------------|
|  | Pneumatic connection       | M10                             |
|   | Design                     | Ball joint                      |
|   | Angle compensation +/- [°] | 15                              |
|   | Operating pressure [bar]   | -0.95 ... +4                    |
|   | Ambient temperature [°C]   | 0 ... +60                       |
|   | Weight [g]                 | 57                              |
|   | Materials - housing        | Aluminium, nickel-plated brass  |
|   | Materials-seals            | NBR                             |
|   | Note on materials          | RoHS-compliant                  |

# Suction grippers ESG, suction cup Ø 150/200 mm

Technical data holder size 6


**Holder size 6**

For suction cup Ø 150/200 mm

Suction cup shape:

- Round, flat



| General technical data – Suction cup S  |  |                    | Technical data → Internet: ess |         |
|---|--|--------------------|--------------------------------|---------|
| Suction cup shape   |  | Suction cup Ø [mm] |                                |         |
|   |  | 150                | 200                            |         |
| S – round, flat: material FPM, NBR, VMQ (silicone), PUR                           |  |                    |                                |         |
|  | Connection suction cup holder                        |                    | M20x2                          | M20x2   |
|   | Nominal size   | [mm]               | 10                             | 10      |
|   | Holding force at nominal operating pressure –0.7 bar | [N]                | 900                            | 1610    |
|   | Suction cup volume                                   | [cm³]              | 173.826                        | 245.454 |
|   | Min. workpiece radius                                | [mm]               | 480                            | 680     |
|   | Weight   | [g]                | 719                            | 1198    |

| Material types – Suction cup S |  |                      |                                       |                     |
|--------------------------------|--|----------------------|---------------------------------------|---------------------|
| Material                       | F  | N                    | S                                     | U                   |
| Shore hardness                 | 60 ±5  | 50 ±5                | 50 ±5                                 | 60 ±5               |
| Suction cup                    | FPM<br>Colour: grey  | NBR<br>Colour: black | VMQ (silicone)<br>Colour: transparent | PUR<br>Colour: blue |
| Threaded plug                  | Steel, nickel-plated<br>NBR<br>Galvanised and chrome-plated steel                                  |                      |                                       |                     |
| Note on materials              | RoHS-compliant<br>Free of copper and PTFE<br>– Contains PWIS (paint-wetting impairment substances) |                      |                                       |                     |

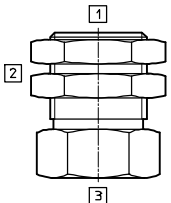
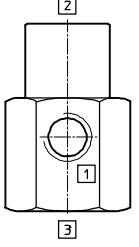
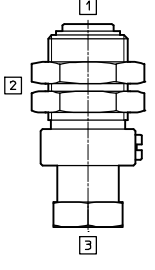
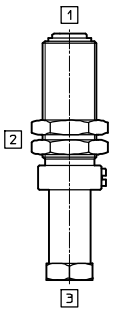
| Operating and environmental conditions – Suction cup S |   |             |                                   |             |
|--|---|-------------|-----------------------------------|-------------|
| Material   | F   | N           | S                                 | U           |
| Operating medium                                       | Atmospheric air based on ISO 8573-1:2010 [7:--:-] |             |                                   |             |
| Ambient temperature [°C]                               | –10 ... +200                                      | –10 ... +70 | –30 ... +180                      | –20 ... +60 |
| Corrosion resistance class CRC <sup>1)</sup>           | 1   |             |                                   |             |
| Suitable for use in the food industry                  | –   | –           | As per manufacturer's declaration | –           |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

# Suction grippers ESG, suction cup $\varnothing$ 150/200 mm

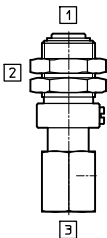
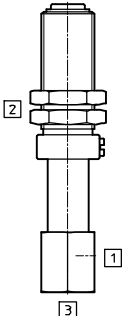
FESTO

Technical data holder size 6

| General technical data – Suction cup holder HA/HB/HC/HCL                            |                                       | Technical data → Internet: esh   |
|---|---------------------------------------|----------------------------------|
| Vacuum port <b>1</b>  | G $\frac{1}{4}$                       |                                  |
| HA – Vacuum port on top, mounting with lock nut, without height compensator         |                                       |                                  |
|    | Mounting thread <b>2</b>              | M24x2                            |
|   | Suction cup mounting <b>3</b>         | M20x2                            |
|   | Nominal size [mm]                     | 10                               |
|   | Volume [cm <sup>3</sup> ]             | 7.234                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 200                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
|   | Note on materials                     | RoHS-compliant                   |
| HB – Vacuum port on side, mounting with female thread, without height compensator   |                                       |                                  |
|    | Mounting thread <b>2</b>              | M16                              |
|   | Suction cup mounting <b>3</b>         | M20x2                            |
|   | Nominal size [mm]                     | 10                               |
|   | Volume [cm <sup>3</sup> ]             | 7.25                             |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 271                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
| Note on materials   | RoHS-compliant                        |                                  |
| HC – Vacuum port on top, mounting with lock nut, with height compensator            |                                       |                                  |
|  | Mounting thread <b>2</b>              | M30x2                            |
|   | Suction cup mounting <b>3</b>         | M20x2                            |
|   | Nominal size [mm]                     | 10                               |
|   | Volume [cm <sup>3</sup> ]             | 11.537                           |
|   | Height compensator [mm]               | 20                               |
|   | Spring force (normal/min. length) [N] | 12/22                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 472                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
| Note on materials   | RoHS-compliant                        |                                  |
| HCL – Vacuum port on top, mounting with lock nut, with long height compensator      |                                       |                                  |
|  | Mounting thread <b>2</b>              | M30x2                            |
|   | Suction cup mounting <b>3</b>         | M20x2                            |
|   | Nominal size [mm]                     | 10                               |
|   | Volume [cm <sup>3</sup> ]             | 16.325                           |
|   | Height compensator [mm]               | 40                               |
|   | Spring force (normal/min. length) [N] | 15/32                            |
|   | Ambient temperature [°C]              | -10 ... +60                      |
|   | Weight [g]                            | 560                              |
|   | Materials-holder                      | Tempered steel, high-alloy steel |
| Note on materials   | RoHS-compliant                        |                                  |

# Suction grippers ESG, suction cup $\varnothing$ 150/200 mm

Technical data holder size 6

| General technical data – Suction cup holder HD/HDL                                 |  | Technical data → Internet: esh   |
|--|--|----------------------------------|
| Vacuum port <span style="border: 1px solid black; padding: 0 2px;">1</span>        | G $\frac{1}{4}$  |                                  |
| HD – Vacuum port on side, mounting with lock nut, with height compensator          |  |                                  |
|   | Mounting thread <span style="border: 1px solid black; padding: 0 2px;">2</span>      | M30x2                            |
|  | Suction cup mounting <span style="border: 1px solid black; padding: 0 2px;">3</span> | M20x2                            |
|  | Nominal size [mm]  | 10                               |
|  | Volume [cm <sup>3</sup> ]  | 13.171                           |
|  | Height compensator [mm]  | 20                               |
|  | Spring force (normal/min. length) [N]  | 12/22                            |
|  | Ambient temperature [°C]   | -10 ... +60                      |
|  | Weight [g]   | 472                              |
|  | Materials-holder   | Tempered steel, high-alloy steel |
|  | Note on materials  | RoHS-compliant                   |
| HDL – Vacuum port on side, mounting with lock nut, with long height compensator    |  |                                  |
|  | Mounting thread <span style="border: 1px solid black; padding: 0 2px;">2</span>      | M30x2                            |
|  | Suction cup mounting <span style="border: 1px solid black; padding: 0 2px;">3</span> | M20x2                            |
|  | Nominal size [mm]  | 10                               |
|  | Volume [cm <sup>3</sup> ]  | 16.968                           |
|  | Height compensator [mm]  | 40                               |
|  | Spring force (normal/min. length) [N]  | 15/32                            |
|  | Ambient temperature [°C]   | -10 ... +60                      |
|  | Weight [g]   | 560                              |
|  | Materials-holder   | Tempered steel, high-alloy steel |
|  | Note on materials  | RoHS-compliant                   |

# Suction grippers ESG – round design

Ordering data – Modular products



| M Mandatory data →      |               |                  |               |  |
|-------------------------|---------------|------------------|---------------|--|
| Holder size             | Module no.    | Gripper function | Suction cup Ø | Suction cup shape/suction cup material |
| 1                       | 189167        | ESG              | 2             | SF, SN, SNA, SS, SU                    |
|                         | 189168        |                  | 4             | EN, EU, ES, EF                         |
| 2                       | 189169        |                  | 6             | BN, BU, BS, BT                         |
|                         | 189170        |                  | 8             | CN, CS                                 |
| 3                       | 189171        |                  | 10            | GT                                     |
|                         | 189172        |                  | 15            |  |
| 4                       | 189173        |                  | 20            |  |
|                         | 189174        |                  | 30            |  |
|                         | 189175        |                  | 40            |  |
|                         | 189176        |                  | 50            |  |
| 5                       | 189177        |                  | 60            |  |
|                         | 189178        |                  | 80            |  |
|                         | 189179        | 100              |               |  |
| 6                       | 189180        | 150              |               |  |
|                         | 189181        | 200              |               |  |
| <b>Ordering example</b> |               |                  |               |  |
|                         | <b>189167</b> | <b>ESG</b>       | <b>2</b>      | <b>SN</b>                              |

| Ordering table – Suction cup Ø 2 ... 50 mm |  |   |                                    |        |        |                                     |                |                        |                      |        |                 |      |               |      |
|--|--|---|------------------------------------|--------|--------|-------------------------------------|----------------|------------------------|----------------------|--------|-----------------|------|---------------|------|
| Size                                       | Ø 2                                    | Ø 4   | Ø 6                                | Ø 8    | Ø 10   | Ø 15                                | Ø 20           | Ø 30                   | Ø 40                 | Ø 50   | Condi-<br>tions | Code | Entry<br>code |      |
| Holder size                                | 1                                      |   | 2                                  |        | 3      |                                     | 4              |                        |                      |        |                 |      |               |      |
| M  | Module no.                             | 189167  | 189168                             | 189169 | 189170 | 189171                              | 189172         | 189173                 | 189174               | 189175 | 189176          |      |               |      |
|  | Gripper function                       | Suction gripper   |                                    |        |        |                                     |                |                        |                      |        |                 |      | ESG           |      |
|  | Suction cup Ø [mm]                     | 2   | 4                                  | 6      | 8      | 10                                  | 15             | 20                     | 30                   | 40     | 50              |      | -...          |      |
|  | Suction cup shape/suction cup material | Flat  | FPM (fluoro elastomer)             |        |        |                                     |                |                        |                      |        |                 |      |               | -SF  |
|  |  |   | NBR (nitrile rubber)               |        |        |                                     |                |                        |                      |        |                 |      |               | -SN  |
|  |  |   | BR (butadiene rubber), anti-static |        |        |                                     |                |                        |                      |        |                 |      |               | -SNA |
|  |  |   | VMQ (silicone)                     |        |        |                                     |                |                        |                      |        |                 |      |               | -SS  |
|  |  |   | PUR (polyurethane)                 |        |        |                                     |                |                        |                      |        |                 |      |               | -SU  |
|  |  | Extra deep  | -                                  |        |        |                                     |                | FPM (fluoro elastomer) |                      |        |                 |      | -EF           |      |
|  |  |   | -                                  |        |        |                                     |                | NBR (nitrile rubber)   |                      |        |                 |      | -EN           |      |
|  |  |   | -                                  |        |        |                                     |                | VMQ (silicone)         |                      |        |                 |      | -ES           |      |
|  |  |   | -                                  |        |        |                                     |                | PUR (polyurethane)     |                      |        |                 |      | -EU           |      |
|  |  | Bellows, 1.5 convo-<br>lutions                                    | -                                  |        |        |                                     | NBR            | -                      | NBR (nitrile rubber) |        |                 |      | -BN           |      |
|  |  |   | -                                  |        |        |                                     | VMQ            | -                      | VMQ (silicone)       |        |                 |      | -BS           |      |
|  |  |   | -                                  |        |        |                                     | PUR            | -                      | PUR (polyurethane)   |        |                 |      | -BU           |      |
|  |  |   | -                                  |        |        |                                     | Vulkollan®     |                        |                      |        |                 |      | -BT           |      |
|  |  | Bellows, 3.5 convo-<br>lutions                                    | -                                  |        |        |                                     | NBR            | -                      | NBR (nitrile rubber) |        |                 |      | -CN           |      |
|  | -                                      |   |                                    |        | VMQ    | -                                   | VMQ (silicone) |                        |                      |        | -CS             |      |               |      |
|  | Deep                                   | -   |                                    |        |        |                                     |                | Vulkollan®             |                      |        |                 | -GT  |               |      |
|  | Suction cup holder                     | Male thread, 2 nuts, port on top                                  |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HA           |      |
|  |  | Female thread, port on side                                       |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HB           |      |
|  |  | Male thread, 2 nuts, port on top, height compensator              |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HC           |      |
|  |  | Male thread, 2 nuts, port on top, long height compensator         |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HCL          |      |
|  |  | Male thread, 2 nuts, port on side, height compensator             |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HD           |      |
|  |  | Male thread, 2 nuts, port on side, long height compensator        |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HDL          |      |
|  |  | External thread, port on top, screw-in thread                     |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HE           |      |
|  |  | External thread, port on top, screw-in thread, height compensator |                                    |        |        |                                     |                |                        |                      |        |                 |      | -HF           |      |
|  | Vacuum port                            | Push-in connector for plastic tubing                              |                                    |        |        |                                     |                |                        |                      |        |                 | 1    | -QS           |      |
|  |  | Barbed fitting connection for plastic tubing                      |                                    |        |        |                                     |                |                        |                      |        |                 | 1    | -PK           |      |
| O  | Angle compensator                      | -   |                                    |        |        | Universal joint with 30° deflection |                |                        |                      |        |                 | -WA  |               |      |
|  | Vacuum filter                          | -   |                                    |        |        | Vacuum filter                       |                |                        |                      |        |                 | -F   |               |      |
|  | Suction cup insert                     | -   |                                    |        |        | PE                                  | -              | PE                     |                      |        |                 | 2    | -ES           |      |

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# Suction grippers ESG – round design

Ordering data – Modular products



| M Mandatory data                               |                    | O Options                |                      |                           |
|--|--------------------|--------------------------|----------------------|---------------------------|
| <b>Suction cup holder</b>                      | <b>Vacuum port</b> | <b>Angle compensator</b> | <b>Vacuum filter</b> | <b>Suction cup insert</b> |
| HA<br>HB<br>HC<br>HCL<br>HD<br>HDL<br>HE<br>HF | QS<br>PK<br>G      | WA                       | F                    | ES                        |
| - HA   | - QS               | -                        | -                    | -                         |

| Ordering table – Suction cup Ø 60 ... 200 mm |                                     |  |               |               |               |                 |            |               |             |
|--|-------------------------------------|--|---------------|---------------|---------------|-----------------|------------|---------------|-------------|
| Size   | Ø 60                                | Ø 80   | Ø 100         | Ø 150         | Ø 200         | Condi-<br>tions | Code       | Entry<br>code |             |
| Holder size                                  | 5                                   |  |               | 6             |               |                 |            |               |             |
| M Module no.                                 | <b>189177</b>                       | <b>189178</b>  | <b>189179</b> | <b>189180</b> | <b>189181</b> |                 |            |               |             |
| Gripper function                             | Suction gripper                     |  |               |               |               |                 | <b>ESG</b> |               | ESG         |
| Suction cup Ø [mm]                           | 60                                  | 80   | 100           | 150           | 200           |                 | ~...       |               |             |
| Suction cup shape/suction cup material       | Flat                                | FPM (fluoro elastomer)                                     |               |               |               |                 |            |               |             |
|  |                                     | NBR (nitrile rubber)                                       |               |               |               |                 |            |               | <b>-SF</b>  |
| VMQ (silicone)                               |                                     |  |               |               |               |                 | <b>-SN</b> |               |             |
| PUR (polyurethane)                           |                                     |  |               |               |               |                 | <b>-SS</b> |               |             |
| Suction cup material                         | Extra deep                          | FPM (fluoro elastomer)                                     |               |               |               |                 |            |               | <b>-SU</b>  |
|  |                                     | NBR (nitrile rubber)                                       |               |               |               |                 |            |               | <b>-EF</b>  |
|  |                                     | VMQ (silicone)   |               |               |               |                 |            |               | <b>-EN</b>  |
|  |                                     | PUR (polyurethane)   |               |               |               |                 |            |               | <b>-ES</b>  |
| Bellows, 1.5 convolutions                    | -                                   | NBR (nitrile rubber)                                       |               | -             |               |                 |            |               | <b>-EU</b>  |
|  |                                     | VMQ (silicone)   |               | -             |               |                 |            |               | <b>-BN</b>  |
|  |                                     | PUR (polyurethane)   |               | -             |               |                 |            |               | <b>-BS</b>  |
|  |                                     | Vulkollan®   |               | -             |               |                 |            |               | <b>-BU</b>  |
| Suction cup holder                           | Deep                                | Vulkollan®   |               |               |               |                 |            |               | <b>-BT</b>  |
|  |                                     | Male thread, 2 nuts, port on top                           |               |               |               |                 |            |               | <b>-GT</b>  |
|  |                                     | Female thread, port on side                                |               |               |               |                 |            |               | <b>-HA</b>  |
|  |                                     | Male thread, 2 nuts, port on top, height compensator       |               |               |               |                 |            |               | <b>-HB</b>  |
|  |                                     | Male thread, 2 nuts, port on top, long height compensator  |               |               |               |                 |            |               | <b>-HC</b>  |
|  |                                     | Male thread, 2 nuts, port on side, height compensator      |               |               |               |                 |            |               | <b>-HCL</b> |
|  |                                     | Male thread, 2 nuts, port on side, long height compensator |               |               |               |                 |            |               | <b>-HDL</b> |
|  |                                     | External thread, port on top, screw-in thread              |               |               |               |                 |            |               | <b>-HD</b>  |
| Vacuum port                                  | Threaded connection                 |  |               |               |               |                 |            |               | <b>-HE</b>  |
| O Angle compensator                          | Universal joint with 30° deflection |  |               |               |               |                 |            |               | <b>-G</b>   |
|  |                                     |  |               |               |               |                 |            |               | <b>-WA</b>  |

- 1 QS, PK Not with suction cup holder HE, HF.
- 2 ES Can only be selected in combination with suction cup shape/suction cup material CN, CS
- 3 G Cannot be combined with suction cup holder HE

# Suction grippers ESG – oval design

Ordering data – Modular products



**M** Mandatory data →

| Holder size | Module no.              | Gripper function | Suction cup size | Suction cup shape/material |   |    |
|-------------|-------------------------|------------------|------------------|----------------------------|---|----|
| 4           | 189182                  | ESG              | 4x10             | ON                         |   |    |
|             | 189183                  |                  | 4x20             |                            |   |    |
|             | 189184                  |                  | 6x10             |                            |   |    |
|             | 189185                  |                  | 6x20             |                            |   |    |
|             | 189186                  |                  | 8x20             |                            |   |    |
|             | 189187                  |                  | 8x30             |                            |   |    |
|             | 189188                  |                  | 10x30            |                            |   |    |
| 5           | 189189                  | ESG              | 15x45            | ON                         |   |    |
|             | 189190                  |                  | 20x60            |                            |   |    |
|             | 189191                  |                  | 25x75            |                            |   |    |
|             | 189192                  |                  | 30x90            |                            |   |    |
|             | <b>Ordering example</b> |                  |                  |                            |   |    |
|             |                         | ESG              | -                |                            | - | ON |

| Ordering table – Suction cup dimensions 4x10 ... 10x30 mm |   |                      |               |               |               |               |               |             |             |            |     |
|---|---|----------------------|---------------|---------------|---------------|---------------|---------------|-------------|-------------|------------|-----|
| Size (suction cup dimensions)                             | 4x10  | 4x20                 | 6x10          | 6x20          | 8x20          | 8x30          | 10x30         | Condi-tions | Code        | Entry code |     |
| Holder size   | 4   |                      |               |               |               |               |               |             |             |            |     |
| <b>M</b> Module no.                                       | <b>189182</b>   | <b>189183</b>        | <b>189184</b> | <b>189185</b> | <b>189186</b> | <b>189187</b> | <b>189188</b> |             |             |            |     |
| Gripper function  | Suction gripper   |                      |               |               |               |               |               |             | <b>ESG</b>  | ESG        |     |
| Suction cup size [mm]                                     | 4x10  | 4x20                 | 6x10          | 6x20          | 8x20          | 8x30          | 10x30         |             | -...        |            |     |
| Suction cup shape/suction cup material                    | Flat  | NBR (nitrile rubber) |               |               |               |               |               |             |             | <b>-ON</b> | -ON |
| Suction cup holder  | Male thread, 2 nuts, port on top                                  |                      |               |               |               |               |               |             | <b>-HA</b>  |            |     |
|   | Female thread, port on side                                       |                      |               |               |               |               |               |             | <b>-HB</b>  |            |     |
|   | Male thread, 2 nuts, port on top, height compensator              |                      |               |               |               |               |               |             | <b>-HC</b>  |            |     |
|   | Male thread, 2 nuts, port on top, long height compensator         |                      |               |               |               |               |               |             | <b>-HCL</b> |            |     |
|   | Male thread, 2 nuts, port on side, height compensator             |                      |               |               |               |               |               |             | <b>-HD</b>  |            |     |
|   | Male thread, 2 nuts, port on side, long height compensator        |                      |               |               |               |               |               |             | <b>-HDL</b> |            |     |
|   | External thread, port on top, screw-in thread                     |                      |               |               |               |               |               |             | <b>-HE</b>  |            |     |
|   | External thread, port on top, screw-in thread, height compensator |                      |               |               |               |               |               |             | <b>-HF</b>  |            |     |
| Vacuum port   | Push-in connector for plastic tubing                              |                      |               |               |               |               |               | 1           | <b>-QS</b>  |            |     |
|   | Barbed fitting connection for plastic tubing                      |                      |               |               |               |               |               | 1           | <b>-PK</b>  |            |     |
| <b>O</b> Vacuum filter                                    | Vacuum filter   |                      |               |               |               |               |               |             | <b>-F</b>   |            |     |

1 QS, PK Not with suction cup holder HE, HF.

Transfer order code



# Suction grippers ESG – oval design

Ordering data – Modular products

| M Mandatory data  |  | O Options                    |
|---|--|------------------------------|
| <b>Suction cup holder</b><br>HA<br>HB<br>HC<br>HCL<br>HD<br>HDL<br>HE<br>HF |  | <b>Port</b><br>QS<br>PK<br>G |
|   |  | <b>Vacuum filter</b><br>F    |
| -   |  | -                            |

| Ordering table – Suction cup dimensions 15x45 ... 30x90 mm |  |                      |               |               |             |             |            |
|--|--|----------------------|---------------|---------------|-------------|-------------|------------|
| Size (suction cup dimensions)                              | 15x45  | 20x60                | 25x75         | 30x90         | Condi-tions | Code        | Entry code |
| Holder size  | 5  |                      |               |               |             |             |            |
| M Module no.   | <b>189189</b>  | <b>189190</b>        | <b>189191</b> | <b>189192</b> |             |             |            |
| Gripper function   | Suction gripper  |                      |               |               |             | <b>ESG</b>  | ESG        |
| Suction cup size [mm]                                      | 15x45  | 20x60                | 25x75         | 30x90         |             | -...        |            |
| Suction cup shape/ suction cup material                    | Flat   | NBR (nitrile rubber) |               |               |             | <b>-ON</b>  | -ON        |
| Suction cup holder   | Male thread, 2 nuts, port on top                           |                      |               |               |             | <b>-HA</b>  |            |
|  | Female thread, port on side                                |                      |               |               |             | <b>-HB</b>  |            |
|  | Male thread, 2 nuts, port on top, height compensator       |                      |               |               |             | <b>-HC</b>  |            |
|  | Male thread, 2 nuts, port on top, long height compensator  |                      |               |               |             | <b>-HCL</b> |            |
|  | Male thread, 2 nuts, port on side, height compensator      |                      |               |               |             | <b>-HD</b>  |            |
|  | Male thread, 2 nuts, port on side, long height compensator |                      |               |               |             | <b>-HDL</b> |            |
|  | External thread, port on top, screw-in thread              |                      |               |               |             | <b>-HE</b>  |            |
| Port   | Threaded connection  |                      |               |               |             | <b>-G</b>   |            |

Transfer order code

-  -  -

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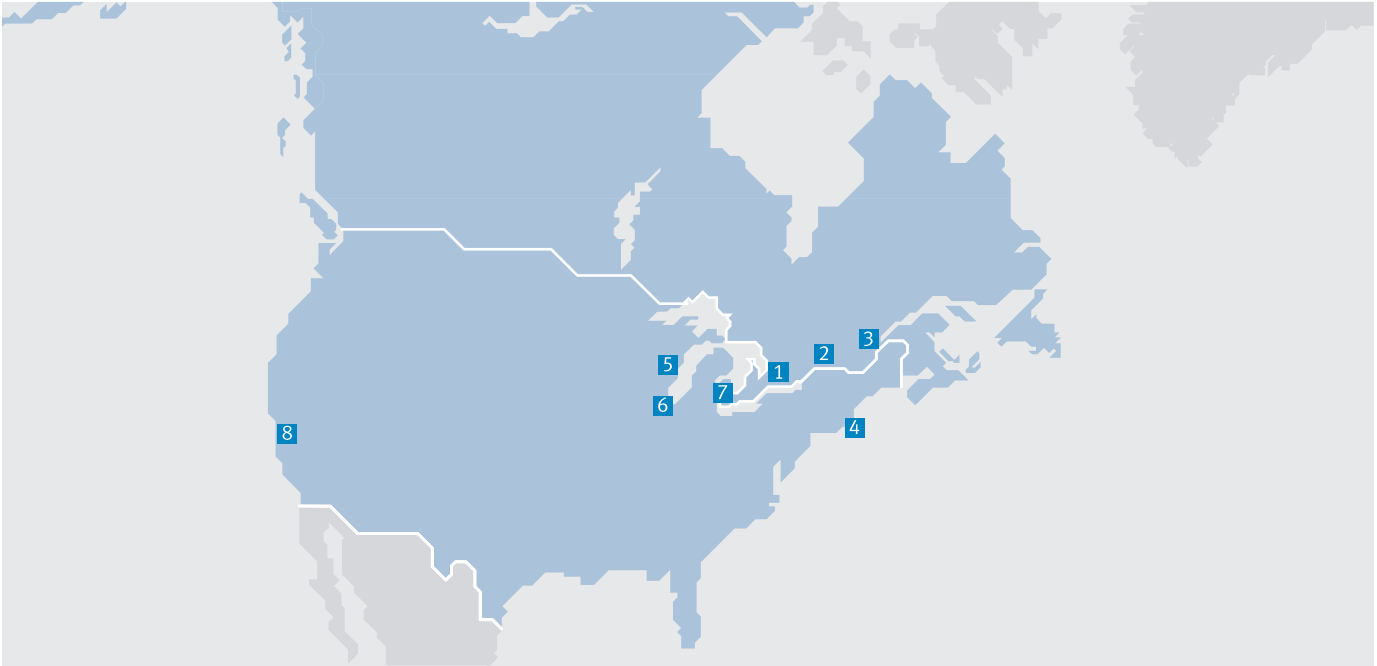


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