

Parallel grippers DHPS



Parallel grippers DHPS

Key features

FESTO

At a glance

General information

- Resilient and precise T-slot guide of the gripper jaws
- Oval piston for high gripping forces
- High gripping forces with compact dimensions
- Gripper jaw centring options
- Max. repetition accuracy
- Gripping force retention
- Internal fixed flow control
- Wide range of options for mounting on drive units

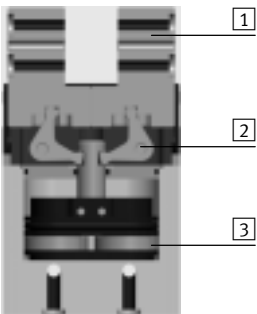
- Sensor technology:
 - Adaptable position sensor for the small grippers
 - Integratable proximity sensors for the medium and large grippers

Flexible range of applications

- Can be used as a double-acting and single-acting gripper
- Compression spring for supplementary or retaining gripping forces
- Suitable for external and internal gripping

The technology in detail

Gripper closed



Gripper open



- 1 Gripper jaw
- 2 Reversing lever
- 3 Piston with magnet

-  - Note

Gripper selection
sizing software

→ www.festo.com

Position sensing/force control

With position transmitter SMAT-8M, SDAT



Analogue positional feedback possible

- Analogue output
 - 0 ... 10 V
 - 4 ... 20 mA

With proportional pressure regulator VPPM



Infinite adjustment of the gripping force possible

- Setpoint input
 - 0 ... 10 V
 - 4 ... 20 mA

With proximity sensor SMT-8G/-10G



Multiple positions can be sensed:

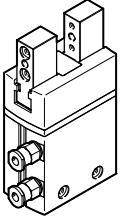
- Open
- Closed
- Workpiece gripped

Parallel grippers DHPS

Key features

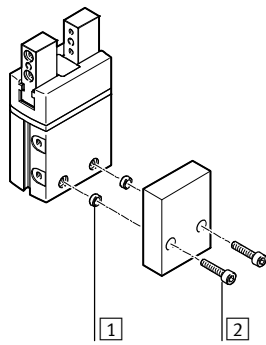
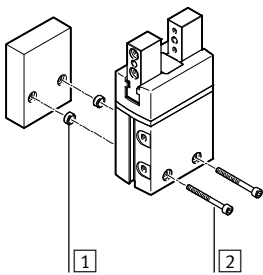
Supply ports

At the side

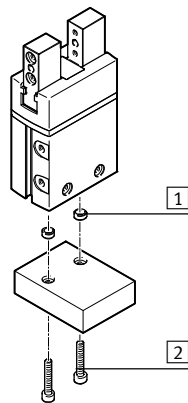


Mounting options

At the side

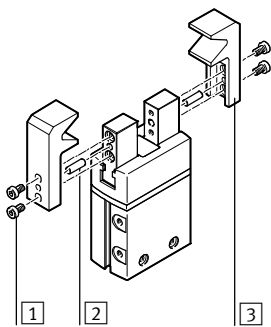


From underneath



- 1 Centring sleeves
- 2 Mounting screws

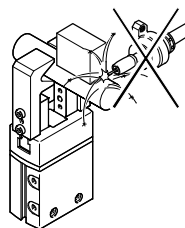
Mounting options for external gripper fingers



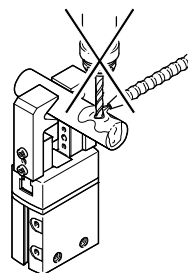
- 1 Mounting screws
- 2 Centring pins
- 3 Gripper fingers

Note

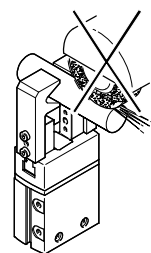
These grippers are not designed for the following or similar sample applications:



- Welding spatter



- Machining
- Aggressive media



- Grinding dust

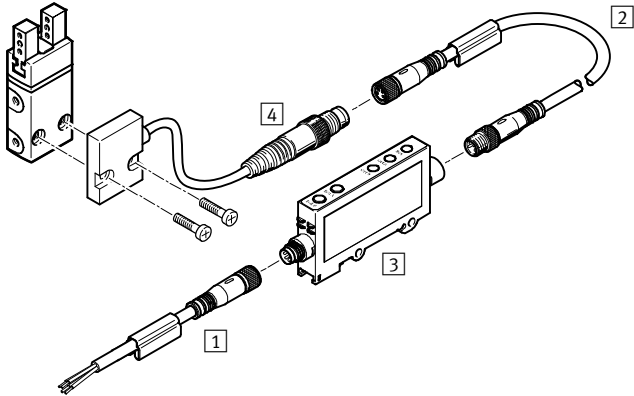
Parallel grippers DHPS

Peripherals overview

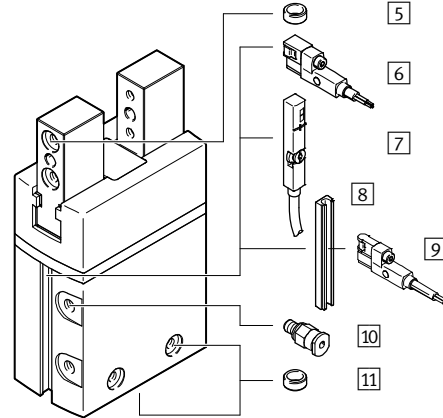
FESTO

Peripherals overview

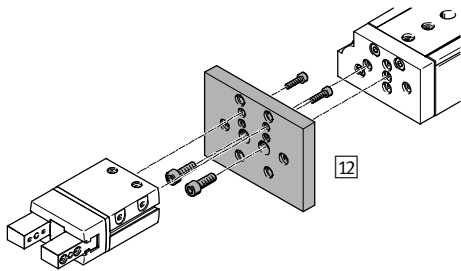
DHPS-6



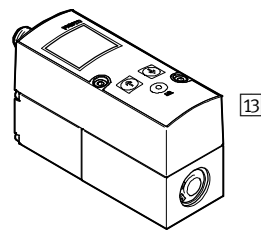
DHPS-10 ... 35



System product for handling and assembly technology



Proportional pressure regulator VPPM



Parallel grippers DHPS

Peripherals overview

| Accessories | | | | |
|-------------|---|-----------|--|-----------------|
| | Type | Size | Description | → Page/Internet |
| 1 | Connecting cable NEBU | 6 | <ul style="list-style-type: none"> • Connection between signal converter and controller | 21 |
| 2 | Connecting cable NEBU | 6 | <ul style="list-style-type: none"> • Connection between position sensor and signal converter | 21 |
| 3 | Signal converter SVE4 | 6 | <ul style="list-style-type: none"> • For evaluating signals for position sensor SMH-S1 | 21 |
| 4 | Position sensor SMH-S1 | 6 | <ul style="list-style-type: none"> • Adaptable and integratable sensor technology, for sensing the piston position | 21 |
| 5 | Centring sleeve ZBH | 6 ... 35 | <ul style="list-style-type: none"> • For centring the gripper fingers on the gripper jaws • The delivery scope of the gripper for size 10 and above includes 4 centring sleeves | 20 |
| 6 | Proximity sensor SMT-8G | 10 ... 35 | <ul style="list-style-type: none"> • For sensing the piston position • Proximity sensor does not project past the housing at the bottom | 22 |
| 7 | Position transmitter SMAT-8M | 10 ... 35 | <ul style="list-style-type: none"> • Continuously senses the position of the piston. Has an analogue output with an output signal in proportion to the piston position. | 22 |
| | Position transmitter SDAT | 35 | | |
| 8 | Bondable sensor rail HGP-SL | 10 ... 35 | <ul style="list-style-type: none"> • Enables the use of proximity sensors SME/SMT-10 | 20 |
| 9 | Proximity sensor SMT-10G | 10 ... 35 | <ul style="list-style-type: none"> • For sensing the piston position • Proximity sensor does not project past the housing at the bottom • With sensor rail HGP-SL10-... | 22 |
| 10 | Push-in fitting QS | 6 ... 35 | <ul style="list-style-type: none"> • For connecting compressed air tubing with standard O.D. | qs |
| 11 | Centring sleeve ZBH | 6 ... 35 | <ul style="list-style-type: none"> • For centring the gripper when mounting • The scope of delivery of the gripper includes 2 centring sleeves | 20 |
| 12 | Adapter kit DHAA, HMSV, HAPG, HAPS, HMVA | 6 ... 35 | <ul style="list-style-type: none"> • Connecting plate between drive and gripper | 16 |
| 13 | Proportional pressure regulator VPPM | 6 ... 35 | <ul style="list-style-type: none"> • For infinite adjustment of the gripping force | vppm |

Parallel grippers DHPS

Type codes

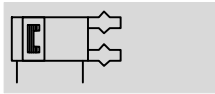
| | | | | | | | | |
|---------------------------------|----------------------|------|---|----|---|---|---|--|
| | | DHPS | - | 16 | - | A | - | |
| Type | | | | | | | | |
| DHPS | Parallel gripper | | | | | | | |
| Size | | | | | | | | |
| Position sensing | | | | | | | | |
| A | Via proximity sensor | | | | | | | |
| Gripping force retention | | | | | | | | |
| NO | Opening | | | | | | | |
| NC | Closing | | | | | | | |

Parallel grippers DHPS

Technical data

FESTO

Function
Double-acting
DHPS-...-A



Size
6 ... 35 mm

Total stroke
4 ... 25 mm

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Function – Variants
Single-acting or
with gripping force retention ...
... opening DHPS-...-NO



... closing DHPS-...-NC



| General technical data | | | | | | |
|---|---|--------|--|--------|--------|--------|
| Size | 6 | 10 | 16 | 20 | 25 | 35 |
| Design | Lever Forced motion sequence | | | | | |
| Mode of operation | Double-acting | | | | | |
| Gripper function | Parallel | | | | | |
| Guide | Plain-bearing guide | | | | | |
| Gripping force retention | – | NO, NC | NO, NC | NO, NC | NO, NC | NO, NC |
| Number of gripper jaws | 2 | | | | | |
| Max. load per external gripper finger ¹⁾ [g] | 10 | 60 | 150 | 250 | 350 | 450 |
| Stroke per gripper jaw [mm] | 2 | 3 | 5 | 6.5 | 7.5 | 12.5 |
| Pneumatic connection | M3 | M3 | M3 | M5 | G1/8 | G1/8 |
| Repetition accuracy ²⁾ [mm] | ≤ 0.02 | | | | | |
| Max. interchangeability [mm] | ± 0.2 | | | | | |
| Max. operating frequency [Hz] | 4 | | 3 | | 2 | |
| Rotational symmetry [mm] | < Ø 0.2 | | | | | |
| Position sensing | Via position sensor | | Via proximity sensor, position transmitter | | | |
| Type of mounting | Via through-hole and centring sleeve Via female thread and centring sleeve | | | | | |
| Mounting position | Any | | | | | |

1) Valid for unthrottled operation

2) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws

| Operating and environmental conditions | | | | | | |
|--|--|----|----|----|----|----|
| Size | 6 | 10 | 16 | 20 | 25 | 35 |
| Min. operating pressure | | | | | | |
| DHPS-...-A [bar] | 2 | | | | | |
| DHPS-...-A-N [bar] | – | 4 | | | | |
| Max. operating pressure [bar] | 8 | | | | | |
| Operating medium | Compressed air in accordance with ISO 8573-1:2010 [7:4:4] | | | | | |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) | | | | | |
| Ambient temperature ¹⁾ [°C] | +5 ... +60 | | | | | |
| Corrosion resistance class CRC ²⁾ | 1 | | | | | |

1) Note operating range of proximity sensors

2) 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).

Parallel grippers DHPS

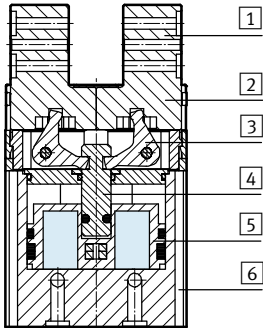
Technical data

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| Weight [g] | | | | | | |
|--------------|----|----|-----|-----|-----|------|
| Size | 6 | 10 | 16 | 20 | 25 | 35 |
| DHPS-...-A | 19 | 67 | 184 | 380 | 700 | 1285 |
| DHPS-...-A-N | - | 68 | 188 | 387 | 713 | 1345 |

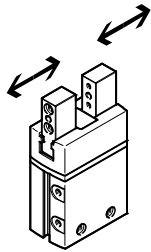
Materials

Sectional view



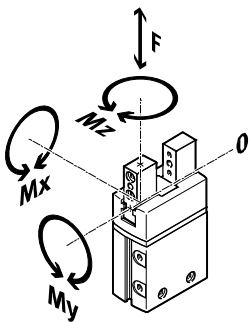
| Parallel gripper | | |
|------------------|-------------------|---|
| 1 | Gripper jaw | High-alloy stainless steel |
| 2 | Cover cap | Polyamide |
| 3 | Reversing lever | Hardened sintered steel |
| 4 | Piston rod | Tempered steel |
| 5 | Piston | Polyacetal |
| 6 | Housing | Hard anodised wrought aluminium alloy |
| - | Seals | Nitrile rubber |
| - | Note on materials | Free of copper and PTFE RoHS-compliant |

Gripping force [N] at 6 bar



| Size | 6 | 10 | 16 | 20 | 25 | 35 | |
|--------------------------------|---------|------|------|-----|-----|-----|-----|
| Gripping force per gripper jaw | | | | | | | |
| DHPS-...-A | Opening | 15 | 39 | 105 | 162 | 249 | 483 |
| | Closing | 13.5 | 34.5 | 96 | 147 | 228 | 450 |
| Total gripping force | | | | | | | |
| DHPS-...-A | Opening | 30 | 80 | 210 | 320 | 500 | 970 |
| | Closing | 25 | 70 | 190 | 290 | 450 | 910 |

Characteristic load values at the gripper jaws



The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads due to the workpiece or external gripper fingers and

acceleration forces occurring during movement.

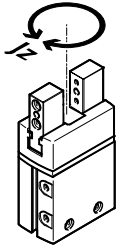
The zero coordinate line (gripper jaw guide) must be taken into consideration for the calculation of torques.

| Size | 6 | 10 | 16 | 20 | 25 | 35 | |
|-------------------------------|------|-----|----|-----|-----|-----|-----|
| Max. permissible force F_z | [N] | 10 | 60 | 150 | 250 | 350 | 450 |
| Max. permissible torque M_x | [Nm] | 0.5 | 3 | 8 | 14 | 30 | 50 |
| Max. permissible torque M_y | [Nm] | 0.5 | 3 | 8 | 14 | 30 | 50 |
| Max. permissible torque M_z | [Nm] | 0.5 | 3 | 8 | 14 | 30 | 50 |

Parallel grippers DHPS

Technical data

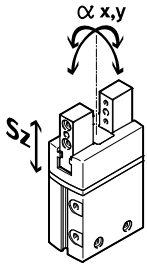
Mass moment of inertia [kgm²x10⁻⁴]



Mass moment of inertia of the parallel gripper in relation to the central axis, without external gripper fingers, without load.

| Size | 6 | 10 | 16 | 20 | 25 | 35 |
|---------------|------|------|------|------|------|-------|
| DHPS-...-A | 0.01 | 0.08 | 0.47 | 1.49 | 3.83 | 12.70 |
| DHPS-...-A-NO | – | 0.08 | 0.47 | 1.52 | 3.92 | 12.83 |
| DHPS-...-A-NC | – | 0.08 | 0.47 | 1.49 | 3.84 | 12.73 |

Gripper jaw backlash



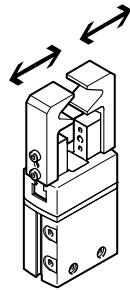
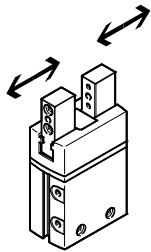
The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the housing. The values entered in the table for the backlash were calculated in accordance with the traditional accumulative tolerance method.

| Size | 6 | 10 | 16 | 20 | 25 | 35 |
|--|------|-------|------|----|----|----|
| Max. gripper jaw backlash Sz | [mm] | ≤D.02 | | | | |
| Max. gripper jaw angular backlash ax, ay | [°] | ≤D.1 | ≤D.5 | | | |

Opening and closing times [ms] at 6 bar

Without external gripper fingers

With external gripper fingers



The indicated opening and closing times [ms] were measured at room temperature at an operating pressure of 6 bar with horizontally mounted grippers without additional gripper

fingers. The grippers must be throttled for greater loads [g]. Opening and closing times must then be adjusted accordingly.

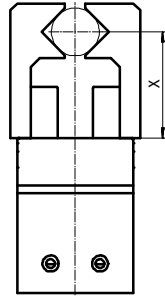
| Size | | 6 | 10 | 16 | 20 | 25 | 35 |
|---|---------|----|-----|-----|-----|-----|-----|
| Without external gripper fingers | | | | | | | |
| DHPS-...-A | Opening | 8 | 21 | 33 | 59 | 48 | 95 |
| | Closing | 17 | 28 | 41 | 87 | 63 | 123 |
| DHPS-...-A-NO | Opening | – | 19 | 32 | 58 | 45 | 88 |
| | Closing | – | 30 | 50 | 97 | 78 | 151 |
| DHPS-...-A-NC | Opening | – | 58 | 48 | 72 | 68 | 131 |
| | Closing | – | 24 | 37 | 62 | 52 | 99 |
| With external gripper fingers (as a function of the load) | | | | | | | |
| DHPS-... | 20 g | 50 | – | – | – | – | – |
| | 100 g | – | 50 | – | – | – | – |
| | 125 g | – | 100 | – | – | – | – |
| | 150 g | – | 200 | – | – | – | – |
| | 200 g | – | – | 100 | – | – | – |
| | 250 g | – | – | 200 | – | – | – |
| | 300 g | – | – | 300 | 100 | – | – |
| | 350 g | – | – | – | 200 | – | – |
| | 400 g | – | – | – | 300 | 100 | – |
| | 500 g | – | – | – | – | 200 | – |
| 600 g | – | – | – | – | 300 | 200 | |
| 750 g | – | – | – | – | – | 300 | |

Parallel grippers DHPS

Technical data

Gripping force F_H per gripper jaw as a function of operating pressure and lever arm x

The gripping forces as a function of operating pressure and lever arm can be determined from the following graphs.

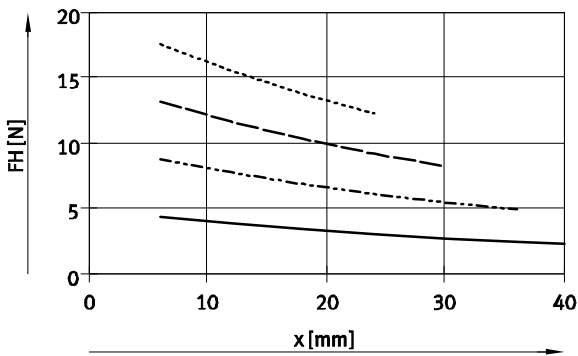


Note
Gripper selection
sizing software
→ www.festo.com

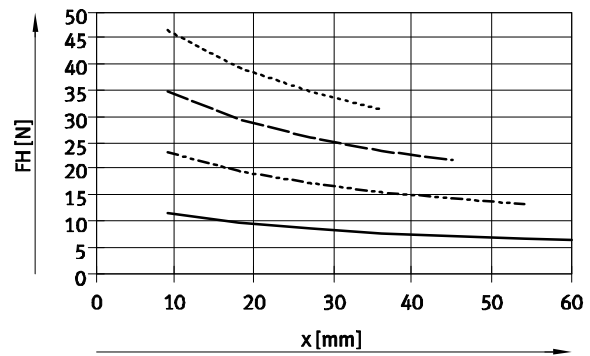
- 2 bar
- - - 4 bar
- · - 6 bar
- · · 8 bar

External gripping (closing)

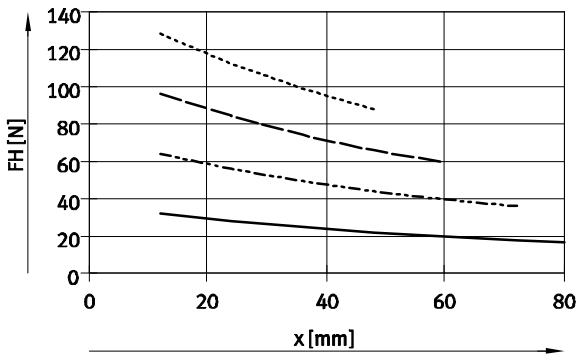
DHPS-6



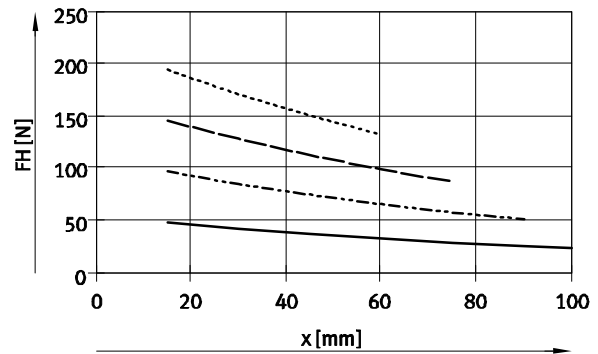
DHPS-10



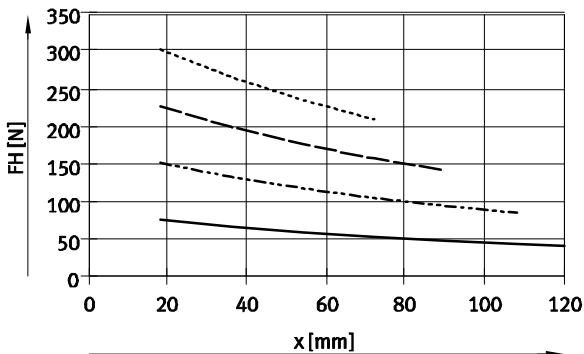
DHPS-16



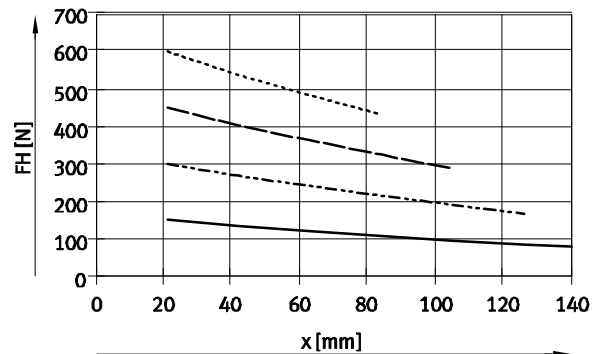
DHPS-20



DHPS-25



DHPS-35

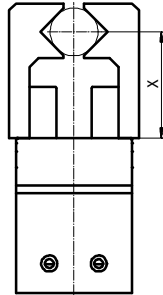


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Gripping force F_H per gripper jaw as a function of operating pressure and lever arm x

The gripping forces as a function of operating pressure and lever arm can be determined from the following graphs.

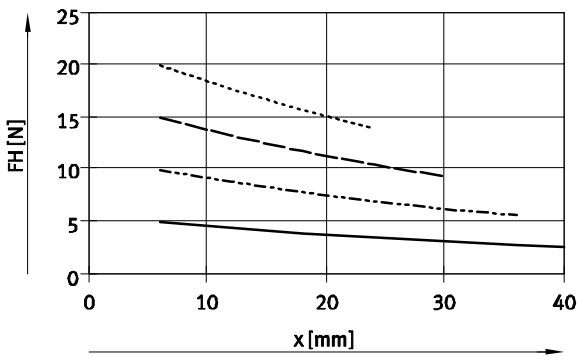


Note
Gripper selection
sizing software
→ www.festo.com

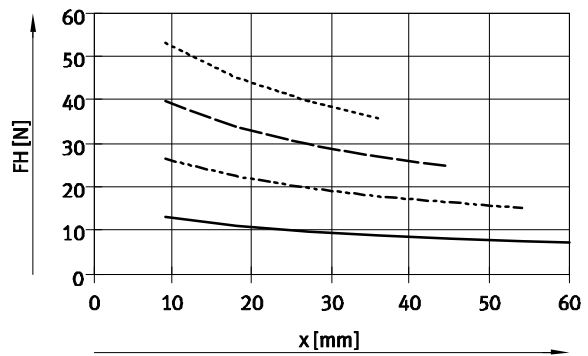
- 2 bar
- - - 4 bar
- · - 6 bar
- · · 8 bar

Internal gripping (opening)

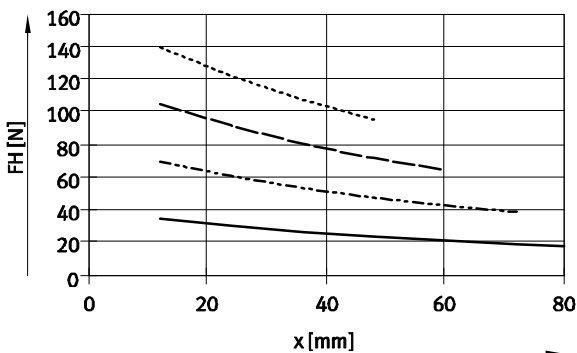
DHPS-6



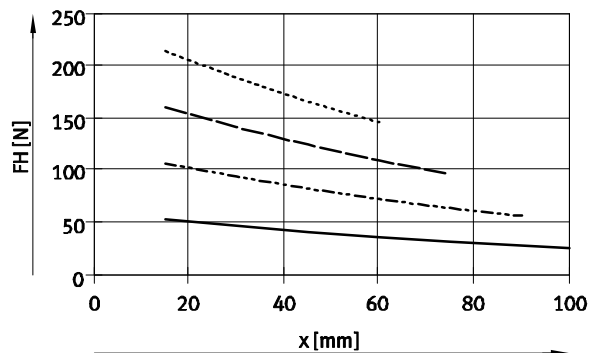
DHPS-10



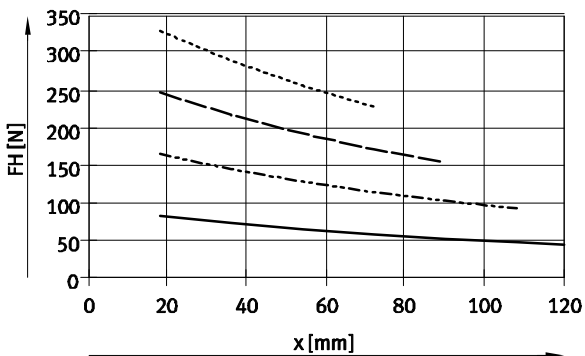
DHPS-16



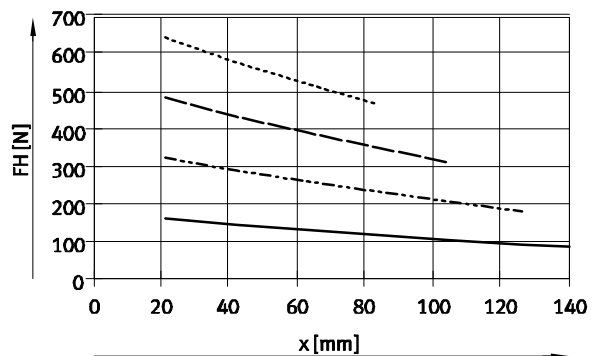
DHPS-20



DHPS-25



DHPS-35



Parallel grippers DHPS

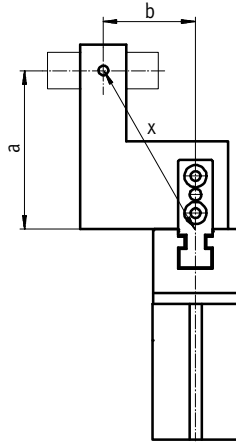
Technical data

Gripping force F_H per gripper jaw at 6 bar as a function of lever arm x and eccentricity a and b

The following formula must be used to calculate the lever arm x with eccentric gripping:

$$x = \sqrt{a^2 + b^2}$$

The gripping force F_H can be read from the graphs (→ page 10/11) using the calculated value x .



Calculation example

Given:

Distance $a = 25$ mm

Distance $b = 20$ mm

To be calculated:

The gripping force at 6 bar, with a DHPS-16, used as an external gripper

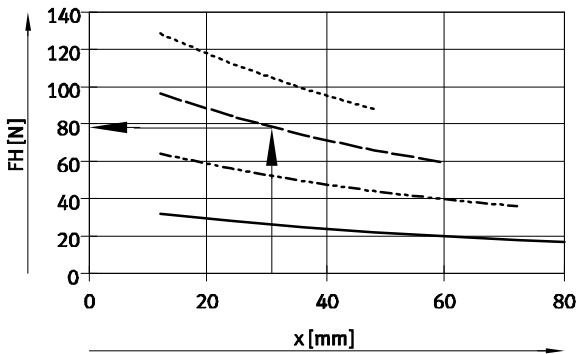
Procedure:

Calculating the lever arm x

$$x = \sqrt{25^2 + 20^2}$$

$$x = 32$$
 mm

The graph (→ page 10) gives a value of $F_H = 79$ N for the gripping force.



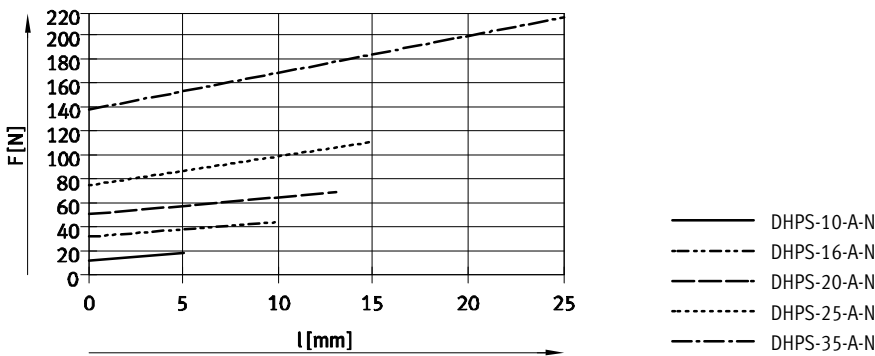
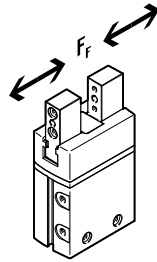
Parallel grippers DHPS

Technical data

Spring force F_F as a function of size and total gripper jaw stroke l

Gripping force retention for DHPS-...-N...

The spring forces F_F as a function of gripper jaw stroke l can be determined from the following graph.



Spring force F_F as a function of size, gripper jaw stroke l and lever arm x per gripper finger

The lever arm x must be taken into consideration when determining the actual spring force F_{Ftotal} . The formulae for calculating the spring force are provided in the table below.

| Gripping force retention | Size | F_{Ftotal} per gripper finger |
|--------------------------|------|---------------------------------|
| NO, NC | 10 | $-0.02 \cdot x + 0.5 \cdot F_F$ |
| | 16 | $-0.08 \cdot x + 0.5 \cdot F_F$ |
| | 20 | $-0.1 \cdot x + 0.5 \cdot F_F$ |
| | 25 | $-0.12 \cdot x + 0.5 \cdot F_F$ |
| | 35 | $-0.19 \cdot x + 0.5 \cdot F_F$ |

Determination of the actual gripping forces F_{Gr} for DHPS-...-NO and DHPS-...-NC as a function of application

The parallel grippers with integrated spring type DHPS-...-NO (opening gripping force retention) and DHPS-...-NC (closing gripping force retention) can be used as

- single-acting grippers

- grippers with supplementary gripping force and
- grippers with gripping force retention depending on requirements.

In order to calculate the available gripping forces F_{Gr} (per gripper jaw),

the gripping force (F_H) and spring force (F_{Ftotal}) must be combined accordingly.

Application

| Single-acting | Supplementary gripping force | Gripping force retention |
|--|---|--|
| <ul style="list-style-type: none"> • Gripping with spring force: $F_{Gr} = F_{Ftotal}$ • Gripping with pressure force: $F_{Gr} = F_H - F_{Ftotal}$ | <ul style="list-style-type: none"> • Gripping with pressure and spring force: $F_{Gr} = F_H + F_{Ftotal}$ | <ul style="list-style-type: none"> • Gripping with spring force: $F_{Gr} = F_{Ftotal}$ |

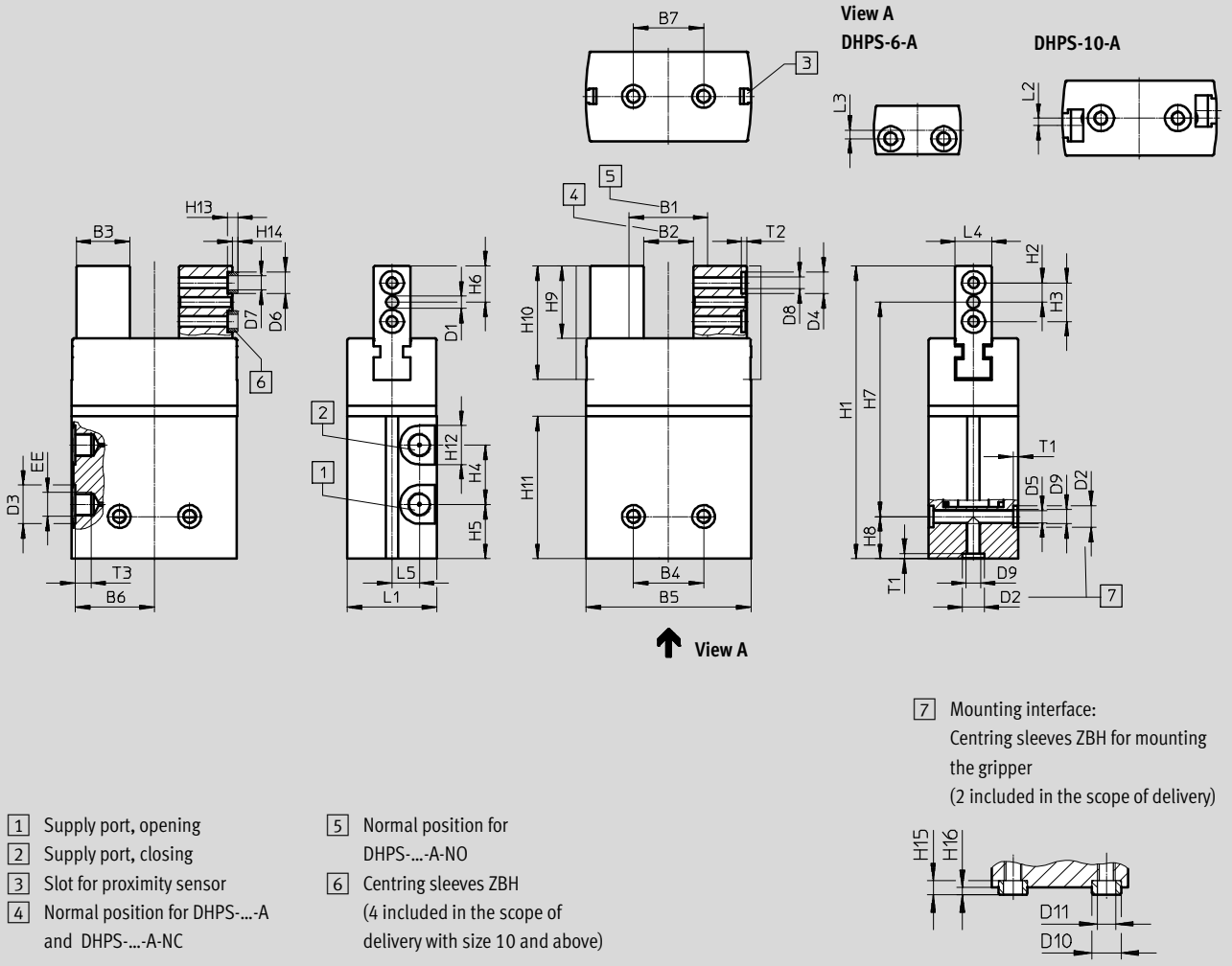
Parallel grippers DHPS

Technical data

FESTO

Dimensions

Download CAD data → www.festo.com



| Size | B1 | B2 | B3 | B4 ¹⁾ | B5 | B6 | B7 ¹⁾ | D1 | D2 | D3 | D4 |
|------|------|------|-------|------------------|------|-------|------------------|---------|---------|----|---------|
| [mm] | ±0.5 | ±0.5 | -0.03 | | ±0.1 | | | ∅ H8 | ∅ H8 | ∅ | ∅ H8 |
| 6 | 10 | 6 | 5.5 | 11 | 18 | 8.65 | 11 | 1.5 | 5 | 7 | - |
| 10 | 21.8 | 15.8 | 7 | 16 | 32 | 15.4 | 16 | 2 | 5 | 7 | 5 |
| 16 | 27.8 | 17.8 | 13 | 25 | 47 | 22.65 | 25 | 3 | 7 | 7 | 7 |
| 20 | 30 | 17 | 17.5 | 25 | 55.6 | 26.65 | 25 | 4 | 7 | 10 | 7 |
| 25 | 35.4 | 20.4 | 22 | 29 | 68.2 | 32.65 | 29 | 4 | 9 | 16 | 9 |
| 35 | 56 | 31 | 27 | 33 | 88 | 42.25 | 33 | 5 | 12 | 16 | 9 |

1) Tolerance for centring hole ±0.02 mm; tolerance for thread ±0.1 mm

Parallel grippers DHPS

Technical data

| Size [mm] | D5 ∅ +0.1 | D6 ∅ h7 | D7 ∅ | D8 | D9 | D10 ∅ h7 | D11 ∅ | EE | H1 | H2 | H3 ¹⁾ |
|--------------|-----------------|---------------|---------|----|----|----------------|----------|-----------------|------|-----|------------------|
| 6 | 2.5 | – | – | M2 | M3 | – | – | M3 | 45.5 | 2.9 | 5.8 |
| 10 | 2.5 | 5 | 3.2 | M3 | M3 | 5 | 3.2 | M3 | 66 | 4 | 8 |
| 16 | 3.3 | 7 | 5.3 | M4 | M4 | 5 | 3.2 | M3 | 80 | 5.5 | 11 |
| 20 | 3.3 | 7 | 5.3 | M4 | M4 | 7 | 5.3 | M5 | 101 | 7 | 14 |
| 25 | 5.1 | 9 | 6.4 | M5 | M6 | 9 | 6.4 | G $\frac{1}{8}$ | 121 | 8 | 16 |
| 35 | 6.4 | 9 | 6.4 | M6 | M8 | 12 | 10.3 | G $\frac{1}{8}$ | 142 | 8.5 | 17 |

| Size [mm] | H4 | H5 | H6 | H7 ±0.2 | H8 ²⁾ | H9 | H10 | H11 | H12 | H13 –0.2 | H14 –0.3 |
|--------------|------|------|------|------------|------------------|------|------|------|-----|-------------|-------------|
| 6 | 15 | 4 | 5 | 33 | 7.5 | 9.55 | 15.8 | 25.3 | 7 | – | – |
| 10 | 15.5 | 10.5 | 7.5 | 51 | 7.5 | 15.2 | 23 | 35 | 7 | 2.4 | 1.2 |
| 16 | 18 | 11 | 10 | 62.5 | 7.5 | 20 | 32.5 | 38.1 | 7 | 3 | 1.4 |
| 20 | 23 | 16 | 12.5 | 81 | 7.5 | 25 | 39.5 | 50 | 10 | 3 | 1.4 |
| 25 | 24.5 | 22.5 | 15 | 88.5 | 17.5 | 30 | 47 | 58.8 | 16 | 4 | 1.9 |
| 35 | 29 | 24 | 16 | 108.5 | 17.5 | 32 | 53 | 65.3 | 16 | 4 | 1.9 |

| Size [mm] | H15 –0.2 | H16 –0.3 | L1 | L2 | L3 ¹⁾ | L4 –0.05 | L5 | T1 +0.1 | T2 +0.1 | T3 +0.5 |
|--------------|-------------|-------------|----------------------|-----|------------------|-------------|------|------------|------------|------------|
| 6 | – | – | 10 ^{+0.1} | – | 1.8 | 5 | 1.5 | 1.2 | – | 3.5 |
| 10 | 2.4 | 1.2 | 15.5 ^{+0.1} | 1.5 | – | 7 | 5 | 1.2 | 1.2 | 5 |
| 16 | 3 | 1.4 | 22 ^{+0.1} | – | – | 10 | 7 | 1.6 | 1.6 | 6 |
| 20 | 3 | 1.4 | 30±0.1 | – | – | 12 | 9 | 1.6 | 1.6 | 6 |
| 25 | 4 | 1.9 | 37±0.1 | – | – | 15 | 11.3 | 2.1 | 2.1 | 6.5 |
| 35 | 4 | 1.9 | 45 ^{+0.1} | – | – | 20 | 13.5 | 2.6 | 2.1 | 6.5 |

1) Tolerance for centring hole ±0.02 mm; tolerance for thread ±0.1 mm

2) Tolerance for centring hole –0.05 mm; tolerance for thread ±0.1 mm

| Ordering data | | | | | | | | | | |
|---------------|---|-----------|--|--------------|----------|--------------|--|--|--|--|
| Size [mm] | Double-acting without compression spring | | Single-acting or with gripping force retention | | | | | | | |
| | Part No. | Type | Opening | | Closing | | | | | |
| | Part No. | Type | Part No. | Type | Part No. | Type | | | | |
| 6 | 1254039 | DHPS-6-A | – | – | – | – | | | | |
| 10 | 1254040 | DHPS-10-A | 1254041 | DHPS-10-A-NO | 1254042 | DHPS-10-A-NC | | | | |
| 16 | 1254043 | DHPS-16-A | 1254044 | DHPS-16-A-NO | 1254045 | DHPS-16-A-NC | | | | |
| 20 | 1254046 | DHPS-20-A | 1254047 | DHPS-20-A-NO | 1254048 | DHPS-20-A-NC | | | | |
| 25 | 1254049 | DHPS-25-A | 1254050 | DHPS-25-A-NO | 1254051 | DHPS-25-A-NC | | | | |
| 35 | 1254052 | DHPS-35-A | 1254053 | DHPS-35-A-NO | 1254054 | DHPS-35-A-NC | | | | |


Parallel grippers DHPS



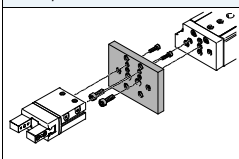
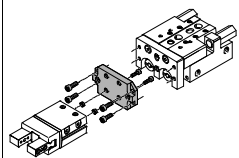
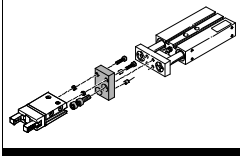
Accessories



Adapter kit
HMSV, HAPG, HAPS

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

 Note
The kit includes the individual mounting interface as well as the necessary mounting material.

| Permissible drive/gripper combinations with adapter kit | | | | | | Download CAD data → www.festo.com | |
|---|---------------|-----------------|---|---|-------------------|--|---------|
| Combination | Drive Size | Gripper Size | Mounting option | | Adapter kit | | |
| | | |  |  | CRC ¹⁾ | Part No. | Type |
| | | | | | | | |
| DGSL/DHPS | DGSL | DHPS | | | HMSV | | |
|  | 4, 6 | 6 | ■ | ■ | 2 | 548783 | HMSV-53 |
| | 8, 10 | 10 | ■ | ■ | | 548784 | HMSV-54 |
| | 12, 16 | 16 | ■ | ■ | | 548785 | HMSV-55 |
| | 20, 25 | 20, 25 | ■ | ■ | | 548786 | HMSV-56 |
| SLT/DHPS | SLT | DHPS | | | HAPS | | |
|  | 6 | 6 | ■ | – | 2 | 178447 | HAPS-1 |
| | 16 | 10 | ■ | – | | 178449 | HAPS-3 |
| | 20 | 16, 20 | ■ | – | | 178450 | HAPS-4 |
| | 25 | 25 | ■ | – | | 178451 | HAPS-5 |
| DPZ/DHPS | DPZ | DHPS | | | HAPG | | |
|  | 10, 16 | 10 | ■ | – | 2 | 163250 | HAPG-1 |
| | 16 | 16, 20 | ■ | – | | 163251 | HAPG-2 |
| | 20 | 16, 20 | ■ | – | | 163252 | HAPG-3 |
| | 25, 32 | 25 | ■ | – | | 163253 | HAPG-4 |

1) 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.


Parallel grippers DHPS



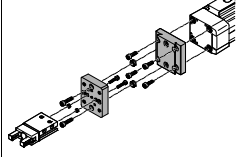
Accessories

FESTO

Adapter kit
HMSV, HAPG, HMVA

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

 Note
The kit includes the individual mounting interface as well as the necessary mounting material.

| Permissible drive/gripper combinations with adapter kit | | | | | Download CAD data → www.festo.com | | |
|---|---|--------------------------|---|---|--|------------------|---------------|
| Combination | Drive Size | Gripper Size | Mounting option | | Adapter kit | | |
| | | |  |  | CRC ¹⁾ | Part No. | Type |
| | | | | | | | |
| DGPL, DGE-..., DGEA/DHPS | DG... | DHPS | | | | HMVA, HAPG, HMSV | |
|  | Direct mounting | | | | | | |
| | 18 ²⁾ , 25, 32 ³⁾ | 6 | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 196788 | HMVA-DLA18/25 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 192706 | HAPG-37-S1 |
| | 40 | 6 | <input type="checkbox"/> | <input type="checkbox"/> | | 196790 | HMVA-DLA40 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 192706 | HAPG-37-S1 |
| | 18 ²⁾ , 25, 32 ³⁾ | 10 | <input type="checkbox"/> | <input type="checkbox"/> | | 196788 | HMVA-DLA18/25 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 192705 | HAPG-36-S1 |
| | 40 | 10 | <input type="checkbox"/> | <input type="checkbox"/> | | 196790 | HMVA-DLA40 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 192705 | HAPG-36-S1 |
| | 18 ²⁾ , 25, 32 ³⁾ | 16 | <input type="checkbox"/> | <input type="checkbox"/> | | 196788 | HMVA-DLA18/25 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 193922 | HAPG-37-S4 |
| | 40 | 16 | <input type="checkbox"/> | <input type="checkbox"/> | | 196790 | HMVA-DLA40 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 193922 | HAPG-37-S4 |
| | Dovetail mounting | | | | | | |
| | 18 ²⁾ , 25 | 10 | <input type="checkbox"/> | <input type="checkbox"/> | 2 | 196788 | HMVA-DLA18/25 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 177767 | HMSV-27 |
| | 32 ³⁾ | 10 | <input type="checkbox"/> | <input type="checkbox"/> | | 196789 | HMVA-DL32 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 177767 | HMSV-27 |
| | 40 | 10 | <input type="checkbox"/> | <input type="checkbox"/> | | 196790 | HMVA-DLA40 |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | 177767 | HMSV-27 |
| 18 ²⁾ , 25 | 16 | <input type="checkbox"/> | <input type="checkbox"/> | 196788 | | HMVA-DLA18/25 | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177768 | | HMSV-28 | |
| 32 ³⁾ | 16 | <input type="checkbox"/> | <input type="checkbox"/> | 196789 | | HMVA-DL32 | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177768 | | HMSV-28 | |
| 40 | 16 | <input type="checkbox"/> | <input type="checkbox"/> | 196790 | | HMVA-DLA40 | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177768 | | HMSV-28 | |
| 32 ³⁾ | 25 | <input type="checkbox"/> | <input type="checkbox"/> | 196790 | | HMVA-DL32 | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177769 | | HMSV-29 | |
| 40 | 25 | <input type="checkbox"/> | <input type="checkbox"/> | 196790 | | HMVA-DLA40 | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177769 | | HMSV-29 | |
| 40 | 35 | <input type="checkbox"/> | <input type="checkbox"/> | 196790 | HMVA-DLA40 | | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | 177770 | HMSV-30 | | |

1) 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.

2) Only for DGEA-...

3) Only for DGPL


Parallel grippers DHPS



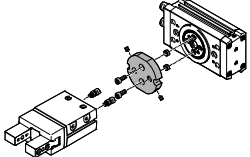
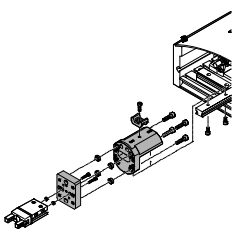
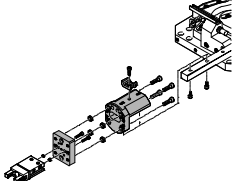
Accessories



Adapter kit
DHAA, HAPG

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

 Note
The kit includes the individual mounting interface as well as the necessary mounting material.

| Permissible drive/gripper combinations with adapter kit | | | | | | Download CAD data → www.festo.com | |
|---|---------------|-----------------|---|---|-------------------|--|---------------------|
| Combination | Drive Size | Gripper Size | Mounting option | | Adapter kit | | |
| | | |  |  | CRC ¹⁾ | Part No. | Type |
| | | | | | | | |
|  | DRRD | DHPS | | | DHAA | | |
| | 8 | 6 | ■ | ■ | 2 | 2808892 | DHAA-G-Q11-8-B1-6 |
| | 10 | 6 | ■ | ■ | | 2807644 | DHAA-G-Q11-10-B1-6 |
| | 12 | 6 | ■ | ■ | | 2805783 | DHAA-G-Q11-12-B1-6 |
| | 12 | 10 | ■ | ■ | | 2802687 | DHAA-G-Q11-12-B1-10 |
| | 16 | 10 | ■ | ■ | | 2190504 | DHAA-G-Q11-16-B1-10 |
| | 16 | 16 | ■ | ■ | | 2190393 | DHAA-G-Q11-16-B1-16 |
| | 16 | 20 | ■ | ■ | | 2187838 | DHAA-G-Q11-16-B1-20 |
| | 20 | 16 | ■ | ■ | | 2190284 | DHAA-G-Q11-20-B1-16 |
| | 20 | 20 | ■ | ■ | | 2187713 | DHAA-G-Q11-20-B1-20 |
| | 20 | 25 | ■ | ■ | | 2185820 | DHAA-G-Q11-20-B1-25 |
| | 25 | 16 | ■ | ■ | | 1471634 | DHAA-G-Q11-25-B1-16 |
| | 25 | 20 | ■ | ■ | | 1722652 | DHAA-G-Q11-25-B1-20 |
| | 25 | 25 | ■ | ■ | | 1725707 | DHAA-G-Q11-25-B1-25 |
| | 32 | 25 | ■ | ■ | | 2186909 | DHAA-G-Q11-32-B1-25 |
| | 32 | 35 | ■ | ■ | | 2187316 | DHAA-G-Q11-32-B1-35 |
| 35, 40 | 35 | ■ | ■ | 2187606 | | DHAA-G-Q11-35/40-B1-35 | |
|  | HSP | DHPS | | | HAPG | | |
| | 12 | 6 | ■ | – | 2 | 192709 | HAPG-60-S1 |
| | 16 | 6 | ■ | – | | 540881 | HAPG-70-B |
| | | | | | | 192706 | HAPG-37-S1 |
| | 16 | 10 | ■ | – | | 540882 | HAPG-71-B |
| | | | | | | 192705 | HAPG-36-S1 |
| 25 | 10 | ■ | – | 540882 | | HAPG-71-B | |
| | | | | 192705 | HAPG-36-S1 | | |
| 25 | 16 | ■ | – | 540883 | HAPG-72-B | | |
| | | | | 193922 | HAPG-37-S4 | | |
|  | HSW | DHPS | | | HAPG | | |
| | 12, 16 | 6 | ■ | – | 2 | 192706 | HAPG-37-S1 |
| 12, 16 | 6 | ■ | – | 540882 | | HAPG-71-B | |
| | | | | 192705 | | HAPG-36-S1 | |
| 12, 16 | 10 | ■ | – | 540882 | | HAPG-71-B | |
| | | | | | | | |

1) 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.


Parallel grippers DHPS

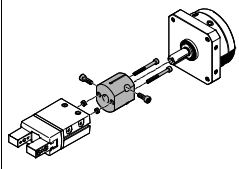
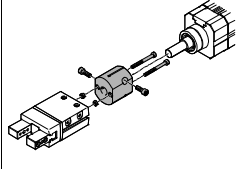
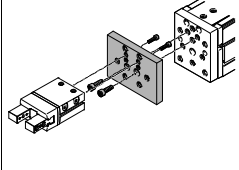
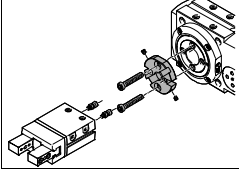
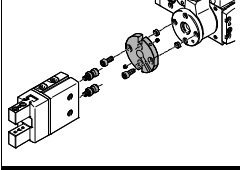
Accessories



Adapter kit
HAPG

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

 Note
The kit includes the individual mounting interface as well as the necessary mounting material.

| Permissible drive/gripper combinations with adapter kit | | | | | Download CAD data → www.festo.com | | |
|---|------------|---------|-----------------|--------|--|----------|-------------|
| Combination | Drive | Gripper | Mounting option | | Adapter kit | | |
| | | | Size | Size | CRC ¹⁾ | Part No. | Type |
| | | | | | | | |
|  | DSM:....FW | DHPS | | | HAPG | | |
| | 6, 8, 10 | 6 | ■ | ■ | 2 | 187568 | HAPG-34 |
| | DSM:.... | DHPS | | | HAPG | | |
| | 12 | 10 | ■ | ■ | 2 | 163266 | HAPG-17 |
| | 16 | 10 | ■ | ■ | | 163267 | HAPG-18 |
| | 16 | 16, 20 | ■ | ■ | | 163268 | HAPG-19 |
| | 25 | 16, 20 | ■ | ■ | | 163269 | HAPG-20 |
| 25 | 25 | ■ | ■ | 163270 | | HAPG-21 | |
| 32 | 25 | ■ | ■ | 163271 | HAPG-22 | | |
|  | DSL | DHPS | | | HAPG | | |
| | 16 | 10 | ■ | ■ | 2 | 163266 | HAPG-17 |
| | 20 | 10 | ■ | ■ | | 163267 | HAPG-18 |
| | 20 | 16, 20 | ■ | ■ | | 163268 | HAPG-19 |
| | 25 | 16, 20 | ■ | ■ | | 163269 | HAPG-20 |
| | 25 | 25 | ■ | ■ | | 163270 | HAPG-21 |
| | 32 | 25 | ■ | ■ | | 163271 | HAPG-22 |
|  | EGSL | DHPS | | | HMSV | | |
| | 35 | 6 | ■ | ■ | 2 | 548783 | HMSV-53 |
| | | | | | | 1088262 | HMSV-70 |
| | 35 | 10 | ■ | ■ | | 548784 | HMSV-54 |
| | | | | | | 1088262 | HMSV-70 |
| 45, 55 | 16 | ■ | ■ | 548785 | | HMSV-55 | |
| 75 | 20, 25 | ■ | ■ | 548786 | HMSV-56 | | |
|  | ERMB | DHPS | | | HAPG | | |
| | 20 | 16, 20 | ■ | ■ | 2 | 184479 | HAPG-SD2-3 |
| | 25 | 16, 20 | ■ | ■ | | 184482 | HAPG-SD2-6 |
| | 20 | 25 | ■ | ■ | | 184480 | HAPG-SD2-4 |
| | 25 | 25 | ■ | ■ | | 184483 | HAPG-SD2-7 |
| | 32 | 25 | ■ | ■ | | 184485 | HAPG-SD2-9 |
| | 32 | 35 | ■ | ■ | | 184486 | HAPG-SD2-10 |
| | | | | | | | |
|  | EHMB | DHPS | | | HAPG | | |
| | 20 | 25 | ■ | ■ | 2 | 184485 | HAPG-SD2-9 |
| | 20 | 35 | ■ | ■ | | 184486 | HAPG-SD2-10 |
| | 25, 32 | 35 | ■ | ■ | | 526027 | HAPG-SD2-21 |
| | | | | | | | |

1) 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.

Parallel grippers DHPS

Accessories

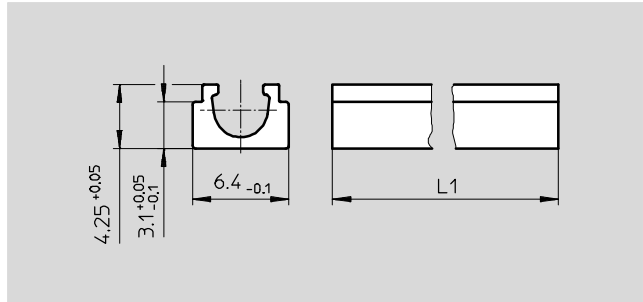
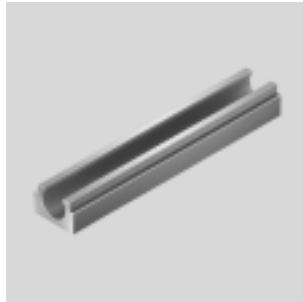


Sensor rail HGP-SL

can be glued into place

Material:

Wrought aluminium alloy



| Dimensions and ordering data | | | | |
|------------------------------|----|------------|----------|--------------|
| For size [mm] | L1 | Weight [g] | Part No. | Type |
| 10 | 35 | 1.4 | 535582 | HGP-SL-10-10 |
| 16 | 38 | 1.5 | 535583 | HGP-SL-10-16 |
| 20 | 50 | 2.0 | 535584 | HGP-SL-10-20 |
| 25 | 58 | 2.3 | 535585 | HGP-SL-10-25 |
| 35 | 65 | 2.6 | 535586 | HGP-SL-10-35 |

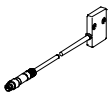
| Ordering data | | | | | | |
|---------------------|---------------|--|--------------------------------|----------|--------|------------------|
| | For size [mm] | Description | Weight [g] | Part No. | Type | PU ¹⁾ |
| Centring sleeve ZBH | | | Technical data → Internet: zbh | | | |
| | 10 | For centring the gripper fingers on the gripper jaws | 1 | 189652 | ZBH-5 | 10 |
| | 16, 20 | | 1 | 186717 | ZBH-7 | |
| | 25, 35 | | 1 | 150927 | ZBH-9 | |
| | 6, 10 | For centring the gripper when mounting | 1 | 189652 | ZBH-5 | |
| | 16, 20 | | 1 | 186717 | ZBH-7 | |
| | 25 | | 1 | 150927 | ZBH-9 | |
| | 35 | | 1 | 189653 | ZBH-12 | |

1) Packaging unit

Parallel grippers DHPS

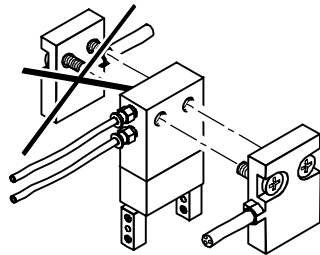
Accessories

FESTO

| Ordering data | | | | | | |
|---|----------|------------|----------|--------------|-----------------------------------|--|
| Type | For size | Weight [g] | Part No. | Type | Technical data → Internet: smh-s1 | |
|  | 6 | 20 | 175710 | SMH-S1-HGP06 | | |


Installation instructions for position sensor SMH-S1


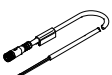
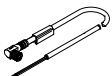
To guarantee the functionality of the position sensor, the outlet for the cable and the compressed air tubing must be facing the same direction during installation.



Signal converter SVE4 for position sensor SMH-S1

- Converts analogue signals into switching points
- Switching function freely programmable with teach-in
- Threshold value, hysteresis or window comparator


| Ordering data | | | | | | |
|---|----------|--------------------|-------------------|------------------|------------|----------------------------|
| Type | For size | Input connection | Output connection | Switching output | Weight [g] | Part No. Type |
|  | 6 | Socket M8x1, 4-pin | Plug M8x1, 4-pin | 2x PNP | 19 | 544216 SVE4-HS-R-HM8-2P-M8 |
| | | | | 2x NPN | | 544219 SVE4-HS-R-HM8-2N-M8 |


| Ordering data – Connecting cables | | | | | Technical data → Internet: nebu | |
|---|------------------------------|------------------------------|------------------|----------|---------------------------------|--|
| | Electrical connection, left | Electrical connection, right | Cable length [m] | Part No. | Type | |
| Connection between position sensor and signal converter | | | | | | |
|  | Straight socket, M8x1, 4-pin | Straight plug, M8x1, 4-pin | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 | |
| Connection between signal converter and controller | | | | | | |
|  | Straight socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | | | 5 | 541343 | NEBU-M8G4-K-5-LE4 | |
|  | Angled socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | | | 5 | 541345 | NEBU-M8W4-K-5-LE4 | |



Parallel grippers DHPS

Accessories

FESTO

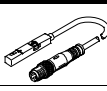
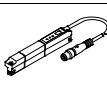
| Proximity sensor for size 10 ... 35 | | | | | | |
|---|-----------------------------------|---|------------------|------------------|----------|--------------------------------|
| Ordering data – Proximity sensors for T-slot, magneto-resistive | | | | | | Technical data → Internet: smt |
| | Type of mounting | Electrical connection, connection direction | Switching output | Cable length [m] | Part No. | Type |
| N/O contact | | | | | | |
|  | Insertable in the slot lengthwise | Cable, 3-wire, lateral | PNP | 2.5 | 547859 | SMT-8G-PS-24V-E-2,5Q-OE |
| | | Plug M8x1, 3-pin, lateral | | 0.3 | 547860 | SMT-8G-PS-24V-E-0,3Q-M8D |
| | | Cable, 3-wire, lateral | NPN | 2.5 | 8065028 | SMT-8G-NS-24V-E-2,5Q-OE |
| | | Plug M8x1, 3-pin, lateral | | 0.3 | 8065027 | SMT-8G-NS-24V-E-0,3Q-M8D |

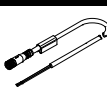

| Proximity sensor for size 10 ... 35, with sensor rail HGP-SL10-... | | | | | | |
|---|-----------------------------------|---|------------------|------------------|----------|--------------------------------|
| Ordering data – Proximity sensors for C-slot, magneto-resistive | | | | | | Technical data → Internet: smt |
| | Type of mounting | Electrical connection, connection direction | Switching output | Cable length [m] | Part No. | Type |
| N/O contact | | | | | | |
|  | Insertable in the slot lengthwise | Cable, 3-wire, lateral | PNP | 2.5 | 547862 | SMT-10G-PS-24V-E-2,5Q-OE |
| | | Plug M8x1, 3-pin, lateral | | 0.3 | 547863 | SMT-10G-PS-24V-E-0,3Q-M8D |
| | | Cable, 3-wire, lateral | NPN | 2.5 | 8065030 | SMT-10G-NS-24V-E-2,5Q-OE |
| | | Plug M8x1, 3-pin, lateral | | 0.3 | 8065029 | SMT-10G-NS-24V-E-0,3Q-M8D |

| Ordering data – Connecting cables | | | | | | Technical data → Internet: nebu |
|---|------------------------------|------------------------------|------------------|----------|---------------------|---------------------------------|
| | Electrical connection, left | Electrical connection, right | Cable length [m] | Part No. | Type | |
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire | 2.5 | 541333 | NEBU-M8G3-K-2.5-LE3 | |
| | | | 5 | 541334 | NEBU-M8G3-K-5-LE3 | |
|  | Angled socket, M8x1, 3-pin | Cable, open end, 3-wire | 2.5 | 541338 | NEBU-M8W3-K-2.5-LE3 | |
| | | | 5 | 541341 | NEBU-M8W3-K-5-LE3 | |

Position transmitter

The position transmitter continuously senses the position of the piston. It has an analogue output with an output signal in proportion to the piston position.

| Ordering data – Position transmitters for T-slot | | | | | | | Technical data → Internet: position transmitter | | |
|---|-----------|--------------------------|-----------------|----------|-------------------------------|---------------------------|---|----------|-----------------------------|
| | For size | Position measuring range | Analogue output | | Type of mounting | Electrical connection | Cable length [m] | Part No. | Type |
| | | | [V] | [mA] | | | | | |
|  | 10 ... 35 | 0 ... 40 | 0 ... 10 | – | Insertable in slot from above | Plug M8x1, 4-pin, in-line | 0.3 | 553744 | SMAT-8M-U-E-0,3-M8D |
|  | 35 | 0 ... 50 | – | 4 ... 20 | Insertable in slot from above | Plug M8x1, 4-pin, in-line | 0.3 | 1531265 | SDAT-MHS-M50-1L-SA-E-0.3-M8 |

| Ordering data – Connecting cables | | | | | | Technical data → Internet: nebu |
|---|------------------------------|------------------------------|------------------|----------|---------------------|---------------------------------|
| | Electrical connection, left | Electrical connection, right | Cable length [m] | Part No. | Type | |
|  | Straight socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | | | 5 | 541343 | NEBU-M8G4-K-5-LE4 | |
|  | Angled socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | | | 5 | 541345 | NEBU-M8W4-K-5-LE4 | |