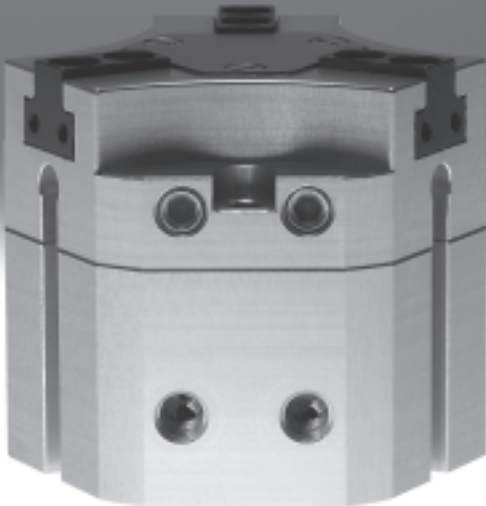


# Heavy-duty three-point grippers HGDT



# Heavy-duty three-point grippers HGDT

Key features

## At a glance

The force generated by the linear motion is translated into the gripper jaw movement via a force-guided triple wedge mechanism. This also guarantees synchronous movement of the gripper jaw. The virtually backlash-free slideway is realised using ground-in gripper jaws.

A wide range of uses:

- Double-acting gripper
- Compression springs for supplementing or retaining gripper forces, or for use as a single-acting gripper with only one compressed air connection
- Suitable for external and internal gripping

Sealing air connection:

Compressed air flows past the gripper jaw when sealing air (max. 0.5 bar) is connected.

This prevents particles and soluble oil, etc. from entering the gripper jaw guides.

There are two variants available:

Standard – HGDT-...

Stroke per gripper jaw:

3 ... 10 mm

Total gripping force:

207 ... 1,728 N

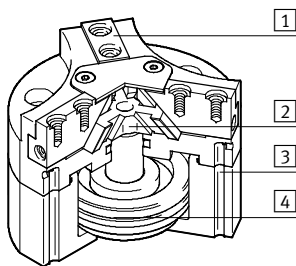
High force – HGDT-...-F

Stroke per gripper jaw:

1.5 ... 5 mm

Total gripping force:

411 ... 3,372 N



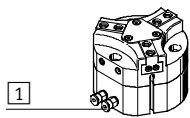
- 1 Gripper jaw
- 2 Triple wedge mechanism
- 3 Slot for proximity sensor
- 4 Piston with magnet

-  - Note

Design software for gripper selection  
 → [www.festo.com](http://www.festo.com)

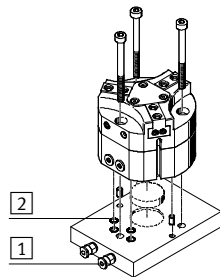
## Wide range of supply ports

Direct from the front



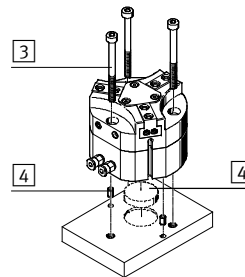
- 1 Supply ports
- 2 O-rings

Via adapter plate from underneath



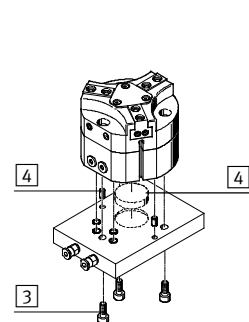
## Mounting options


Direct mounting from above



- 3 Mounting screws
- 4 Centring pins or centring disc

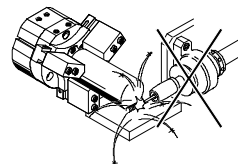
Via adapter plate from underneath



-  - Note

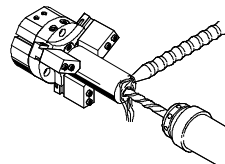
These grippers are not suitable or are of limited suitability for the following application examples:

Not suitable for:

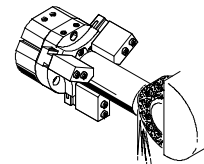


- Welding splashes

Of limited suitability for:



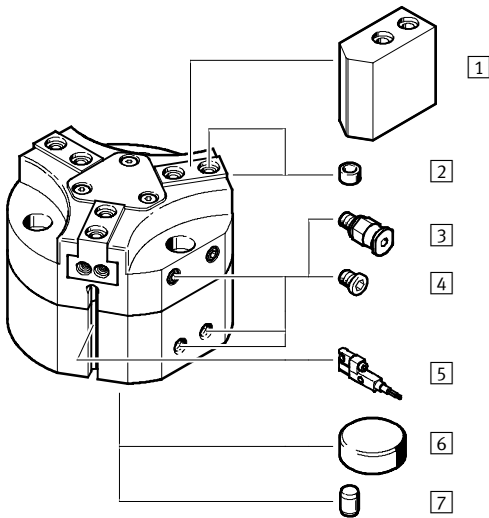
- Machining with sealing air possible
- Aggressive media only possible after consultation with Festo



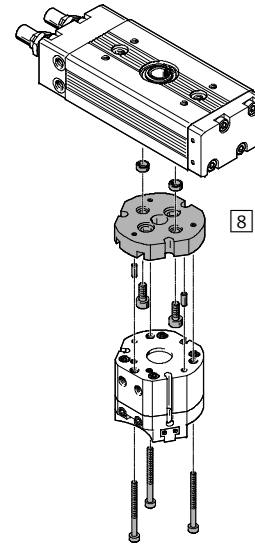
# Heavy-duty three-point grippers HGDT

Peripherals overview and type codes

Peripherals overview



System product for handling and assembly technology



| Accessories |                                    |  |            |
|-------------|------------------------------------|--|------------|
| Type        | Brief description                  | → Page/Internet  |            |
| 1           | Gripper jaw blank<br>BUB-HGDT      | Blank specially matched to the gripper jaws for custom production of gripper fingers | 17         |
| 2           | Centring sleeve<br>ZBH             | For centring gripper jaw blanks/gripper fingers on the gripper jaws                  | 18         |
| 3           | Push-in fitting<br>QS              | For connecting compressed air tubing with standard O.D.                              | quick star |
| 4           | Blanking plug<br>B                 | For sealing supply ports when using ports at the front                               | 18         |
| 5           | Proximity sensor<br>SMT-10/SMT-10G | For sensing the piston position, 3 slots available                                   | 18         |
| 6           | Central mounting<br>SLZZ           | For centring the gripper during mounting   | 18         |
| 7           | Dowel pin                          | For centring the gripper during mounting   | -          |
| 8           | Adapter kit<br>HMSV, HAPG          | Drive/gripper connections  | 15         |

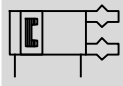
Type codes



|                              |                      |   |    |   |   |   |   |   |    |
|------------------------------|----------------------|---|----|---|---|---|---|---|----|
| HGDT                         |                      | - | 25 | - | A | - | F | - | G1 |
| <b>Type</b>                  |                      |   |    |   |   |   |   |   |    |
| HGDT                         | Three-point gripper  |   |    |   |   |   |   |   |    |
| <b>Size</b>                  |                      |   |    |   |   |   |   |   |    |
| <b>Position sensing</b>      |                      |   |    |   |   |   |   |   |    |
| A                            | Via proximity sensor |   |    |   |   |   |   |   |    |
| <b>Force variant</b>         |                      |   |    |   |   |   |   |   |    |
| F                            | High force           |   |    |   |   |   |   |   |    |
| <b>Gripping force backup</b> |                      |   |    |   |   |   |   |   |    |
| G1                           | Opening              |   |    |   |   |   |   |   |    |
| G2                           | Closing              |   |    |   |   |   |   |   |    |

# Heavy-duty three-point grippers HGDT

## Technical data

Function  
Double-acting  
HGDT-...-A



-  Size  
25 ... 63
-  Stroke  
1.5 ... 10 mm



Single-acting or  
with gripping force retention ...  
... opening HGDT-...-G1



... closing HGDT-...-G2



| General technical data                              |                   | 25  | 35 | 40 | 50   | 63   |
|---|-------------------|---|----|----|------|------|
| Size  |                   | 25  | 35 | 40 | 50   | 63   |
| Constructional design                               |                   | Wedge-shaped actuator<br>Force-guided motion sequence |    |    |      |      |
| Mode of operation                                   |                   | Double-acting   |    |    |      |      |
| Gripper function                                    |                   | 3-point   |    |    |      |      |
| Number of gripper jaws                              |                   | 3   |    |    |      |      |
| Max. load per external gripper finger <sup>1)</sup> | [g]               | 10  | 30 | 70 | 160  | 250  |
| Stroke per gripper jaw                              | HGDT-...-A [mm]   | 3   | 4  | 6  | 8    | 10   |
|   | HGDT-...-A-F [mm] | 1.5   | 2  | 3  | 4    | 5    |
| Pneumatic connection                                |                   | M5  | M5 | M5 | G1/8 | G1/8 |
| Pneumatic connection for sealing air                |                   | M5  |    |    |      |      |
| Repetition accuracy <sup>2)</sup>                   | [mm]              | ≤0.03   |    |    |      |      |
| Max. operating frequency                            | [Hz]              | ≤4  |    |    |      |      |
| Position sensing                                    |                   | Via proximity sensor                                  |    |    |      |      |
| Type of mounting                                    |                   | Via through-hole, locating pin or centring disc       |    |    |      |      |
|   |                   | Via female thread, locating pin or centring disc      |    |    |      |      |
| Mounting position                                   |                   | Any   |    |    |      |      |

1) Valid for unthrottled operation

2) Concentric to the central shaft

| Operating and environmental conditions       |                     |  |
|--|---------------------|--|
| Min. operating pressure                      | HGDT-... [bar]      | 3  |
|  | HGDT-...-G... [bar] | 4  |
| Max. operating pressure                      | [bar]               | 8  |
| Sealing air operating pressure               | [bar]               | 0 ... 0.5  |
| 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 <sup>1)</sup>            | [°C]                | +5 ... +60   |
| Corrosion resistance class CRC <sup>2)</sup> |                     | 2  |

1) Note operating range of proximity sensors

2) Corrosion resistance class 2 as per Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

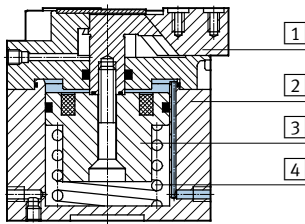
# Heavy-duty three-point grippers HGDT

Technical data

| Weight [g]  |     |     |     |       |       |
|-------------|-----|-----|-----|-------|-------|
| Size        | 25  | 35  | 40  | 50    | 63    |
| HGDT-...    | 185 | 307 | 712 | 1,104 | 1,873 |
| HGDT-...-G1 | 203 | 337 | 840 | 1,592 | 2,469 |
| HGDT-...-G2 | 203 | 385 | 837 | 1,440 | 2,543 |

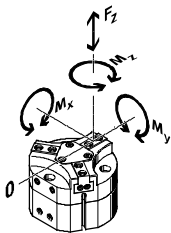
## Materials

Sectional view



| Three-point gripper |  |
|---------------------|--|
| 1                   | Gripper jaw<br>Hardened steel  |
| 2                   | Housing<br>Aluminium, coated with CompCote                               |
| 3                   | Piston<br>Anodised aluminium   |
| 4                   | Spring<br>Spring steel   |
| -                   | Seals<br>Nitrile rubber  |
| -                   | Note on materials<br>Free of copper, PTFE and silicone<br>RoHS-compliant |

## Characteristic load values at the gripper jaws

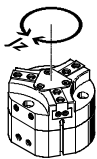


The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads due to the workpiece or external gripper fingers and acceleration forces occurring during movement.

The zero coordinate line (gripper finger point of rotation) must be taken into consideration for the calculation of torques.

| Size                          |      | 25  | 35  | 40  | 50    | 63    |
|-------------------------------|------|-----|-----|-----|-------|-------|
| Max. permissible force $F_z$  | [N]  | 350 | 400 | 800 | 1,500 | 2,500 |
| Max. permissible torque $M_x$ | [Nm] | 7   | 15  | 30  | 50    | 80    |
| Max. permissible torque $M_y$ | [Nm] | 10  | 10  | 20  | 30    | 50    |
| Max. permissible torque $M_z$ | [Nm] | 5   | 10  | 25  | 40    | 60    |

## Moment of inertia [kgcm<sup>2</sup>]



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

| Size        |  | 25   | 35   | 40   | 50    | 63    |
|-------------|--|------|------|------|-------|-------|
| HGDT-...    |  | 0.48 | 1.17 | 4.37 | 11.05 | 28.77 |
| HGDT-...-G1 |  | 0.5  | 1.37 | 5.59 | 15.33 | 42.44 |
| HGDT-...-G2 |  | 0.5  | 1.37 | 5.23 | 13.92 | 39.50 |

# Heavy-duty three-point grippers HGDT

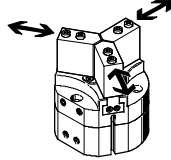
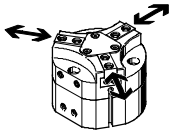
Technical data

FESTO

## Opening and closing times [ms] at 6 bar

Without external gripper fingers

With external gripper fingers

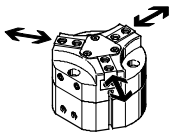


The indicated opening and closing times [ms] have been measured at room temperature at an operating pressure of 6 bar with horizontally mounted gripper without additional

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

| Size  |                 |         | 25  | 35  | 40  | 50  | 63  |
|---|-----------------|---------|-----|-----|-----|-----|-----|
| <b>Without external gripper fingers</b>   |                 |         |     |     |     |     |     |
| Standard  | HGDT-...-A      | opening | 28  | 40  | 62  | 85  | 152 |
|   |                 | closing | 25  | 45  | 59  | 75  | 142 |
|   | HGDT-...-A-G1   | opening | 27  | 32  | 58  | 32  | 48  |
|   |                 | closing | 33  | 56  | 160 | 146 | 246 |
|   | HGDT-...-A-G2   | opening | 33  | 46  | 111 | 61  | 159 |
|   |                 | closing | 25  | 35  | 87  | 70  | 107 |
| High force  | HGDT-...-A-F    | opening | 20  | 43  | 48  | 96  | 163 |
|   |                 | closing | 30  | 39  | 49  | 83  | 162 |
|   | HGDT-...-A-F-G1 | opening | 25  | 29  | 63  | 31  | 70  |
|   |                 | closing | 61  | 67  | 190 | 170 | 299 |
|   | HGDT-...-A-F-G2 | opening | 38  | 53  | 117 | 88  | 169 |
|   |                 | closing | 33  | 36  | 104 | 65  | 128 |
| <b>With external gripper fingers per gripper finger (as a function of the load)</b> |                 |         |     |     |     |     |     |
| HGDT-...  | 20 g            | 80      | -   | -   | -   | -   | -   |
|   | 30 g            | 100     | 130 | -   | -   | -   | -   |
|   | 70 g            | 150     | 200 | 115 | -   | -   | -   |
|   | 100 g           | 180     | 240 | 140 | -   | -   | -   |
|   | 150 g           | 220     | 290 | 170 | -   | -   | -   |
|   | 200 g           | -       | 335 | 200 | 190 | -   | -   |
|   | 250 g           | -       | -   | 220 | 210 | 190 | -   |
|   | 300 g           | -       | -   | -   | 230 | 200 | -   |
|   | 400 g           | -       | -   | -   | 270 | 230 | -   |
|   | 500 g           | -       | -   | -   | -   | 260 | -   |

## Gripping force [N] at 6 bar



| Size   |              |         | 25  | 35    | 40    | 50    | 63    |
|--|--------------|---------|-----|-------|-------|-------|-------|
| <b>Gripping force per gripper jaw</b>                                      |              |         |     |       |       |       |       |
| Standard   | HGDT-...-A   | opening | 82  | 164   | 229   | 347   | 576   |
|  |              | closing | 69  | 152   | 206   | 307   | 551   |
| High force   | HGDT-...-A-F | opening | 180 | 294   | 367   | 740   | 1,124 |
|  |              | closing | 148 | 274   | 330   | 625   | 864   |
| <b>Total gripping force</b>  |              |         |     |       |       |       |       |
| Standard   | HGDT-...-A   | opening | 246 | 492   | 687   | 1,041 | 1,728 |
|  |              | closing | 207 | 456   | 618   | 921   | 1,653 |
| High force   | HGDT-...-A-F | opening | 540 | 882   | 1,101 | 2,220 | 3,372 |
|  |              | closing | 444 | 822   | 990   | 1,875 | 2,592 |
| <b>Total gripping force with spring support (gripping force retention)</b> |              |         |     |       |       |       |       |
| Standard   | HGDT-...-A   | opening | 286 | 555   | 814   | 1,159 | 2,186 |
|  |              | closing | 228 | 547   | 712   | 1,052 | 2,172 |
| High force   | HGDT-...-A-F | opening | 708 | 1,254 | 1,629 | 2,800 | 4,456 |
|  |              | closing | 612 | 1,194 | 1,518 | 2,655 | 4,338 |

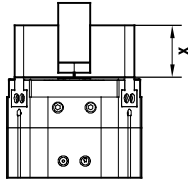
# Heavy-duty three-point grippers HGDT

Technical data

## Standard – HGDT-...

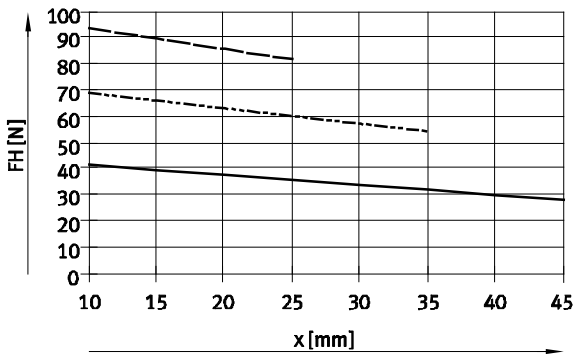
### Gripping force $F_{Grip}$ per gripper jaw as a function of operating pressure and lever arm x

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

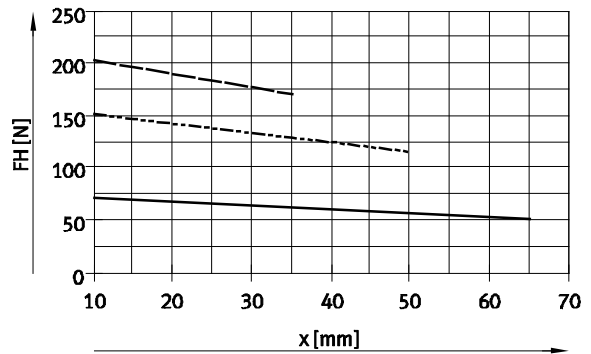


## External gripping (closing)

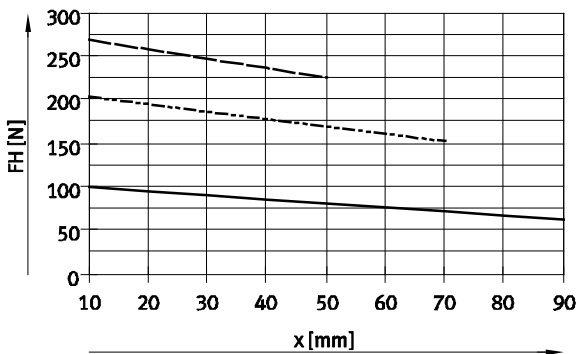
### HGDT-25-A



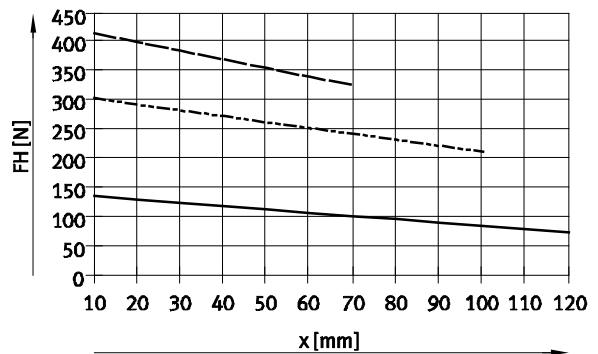
### HGDT-35-A



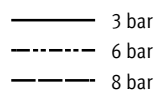
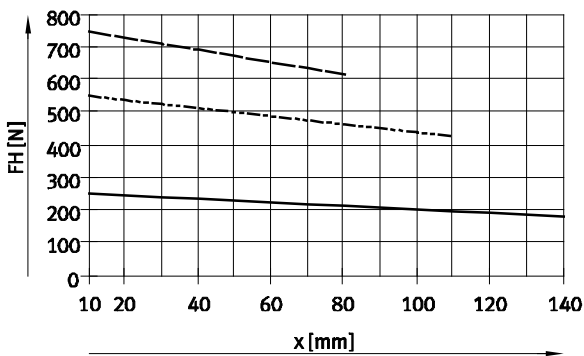
### HGDT-40-A



### HGDT-50-A



### HGDT-63-A



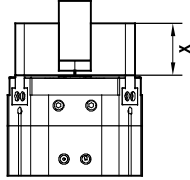
# Heavy-duty three-point grippers HGDT

Technical data

## Standard – HGDT-...

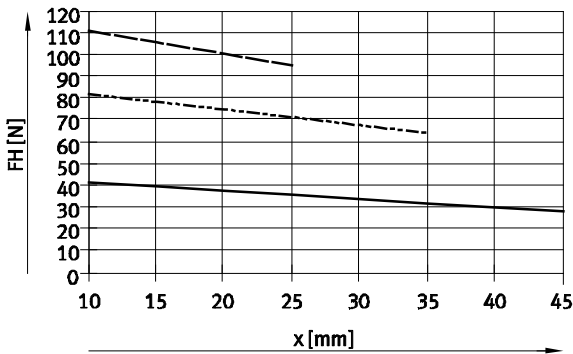
### Gripping force $F_{Grip}$ per gripper jaw as a function of operating pressure and lever arm $x$

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

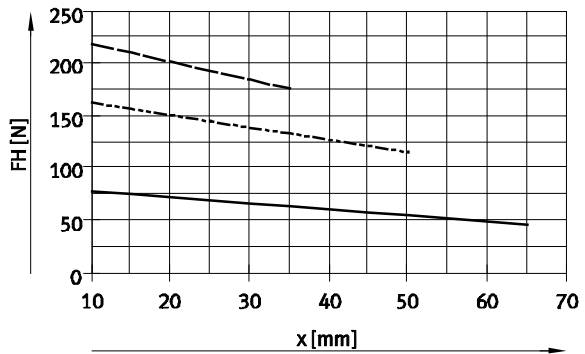


## Internal gripping (opening)

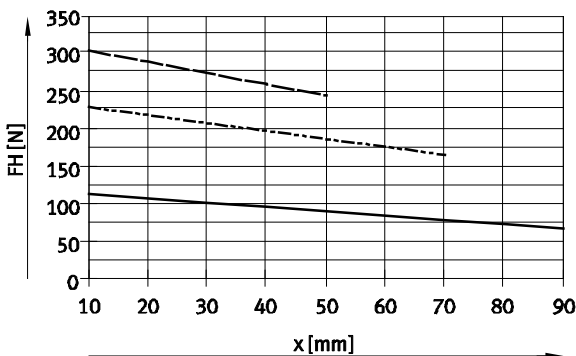
HGDT-25-A



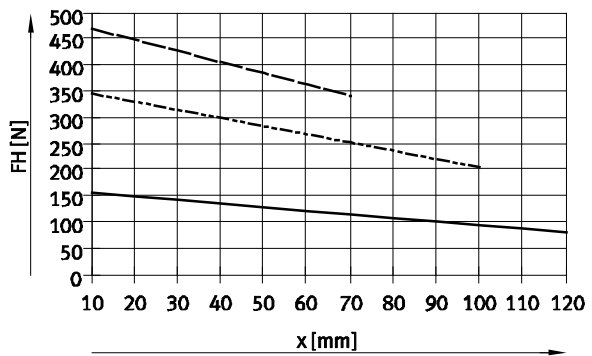
HGDT-35-A



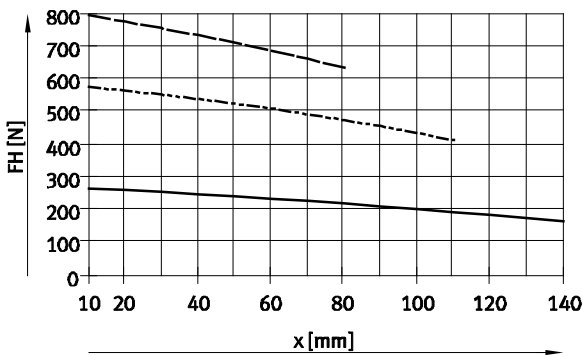
HGDT-40-A



HGDT-50-A



HGDT-63-A



- 3 bar
- - - 6 bar
- · - 8 bar



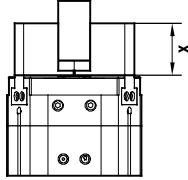
# Heavy-duty three-point grippers HGDT

Technical data

## High force – HGDT...-F

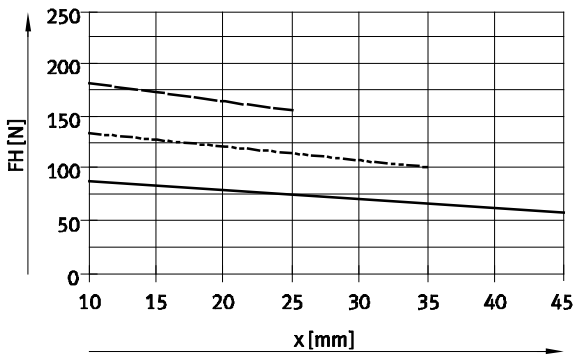
Gripping force  $F_{Grip}$  per gripper jaw as a function of operating pressure and lever arm  $x$

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

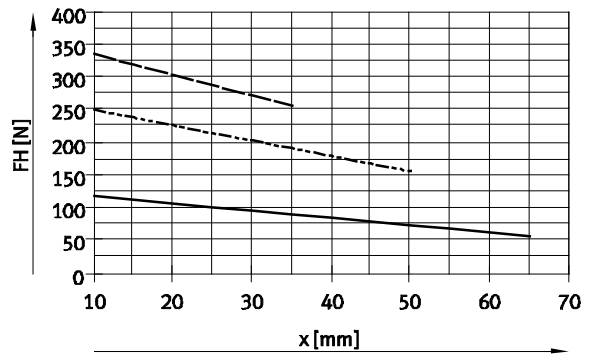


## External gripping (closing)

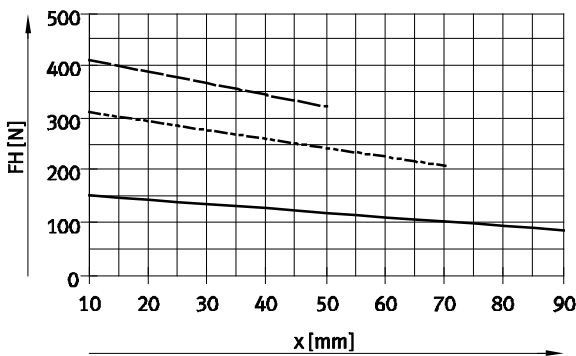
HGDT-25-A-F



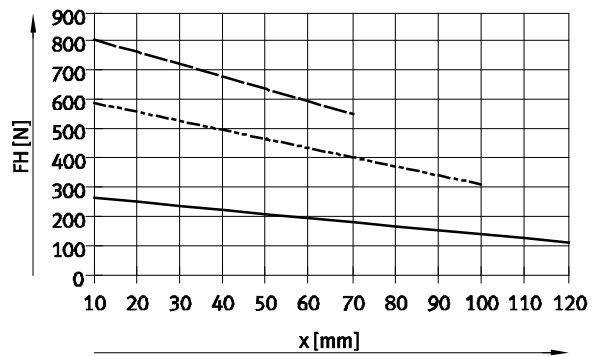
HGDT-35-A-F



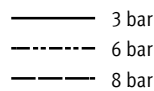
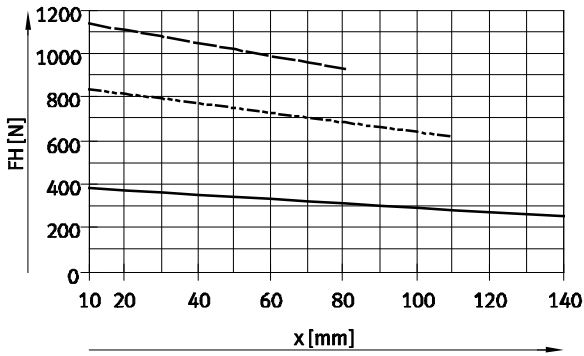
HGDT-40-A-F



HGDT-50-A-F



HGDT-63-A



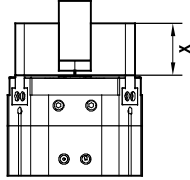
# Heavy-duty three-point grippers HGDT

Technical data

## High force – HGDT...-F

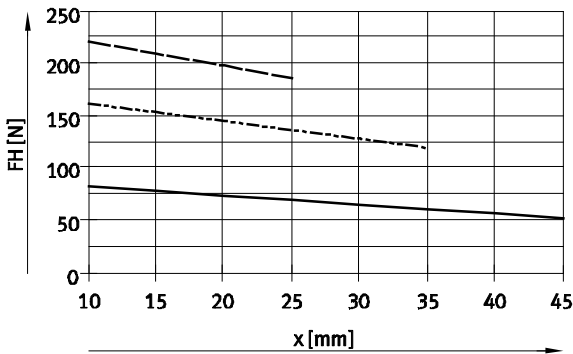
Gripping force  $F_{Grip}$  per gripper jaw as a function of operating pressure and lever arm  $x$

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

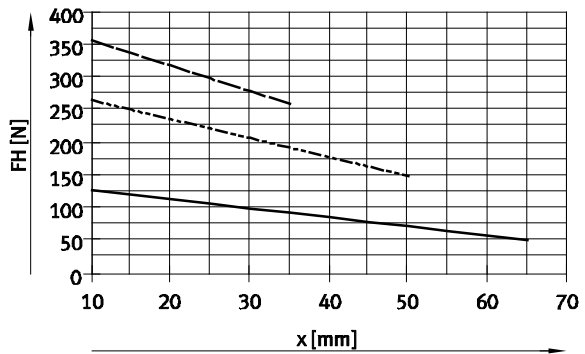


### Internal gripping (opening)

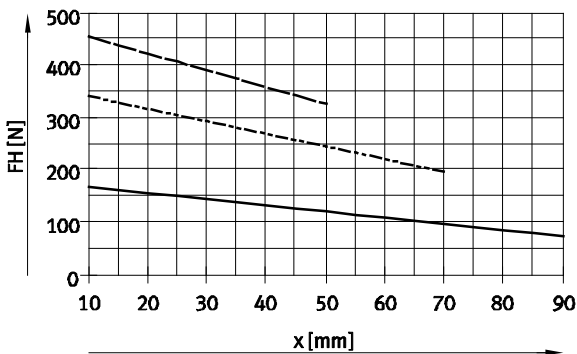
HGDT-25-A-F



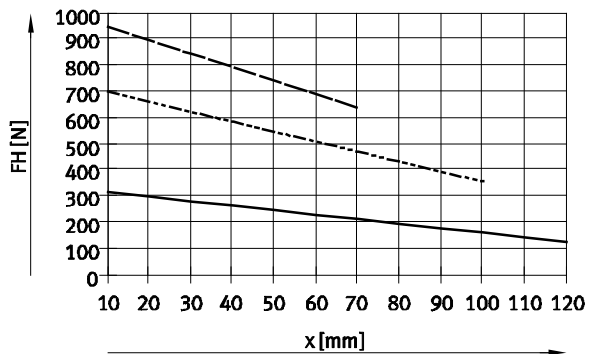
HGDT-35-A-F



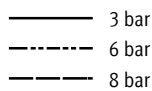
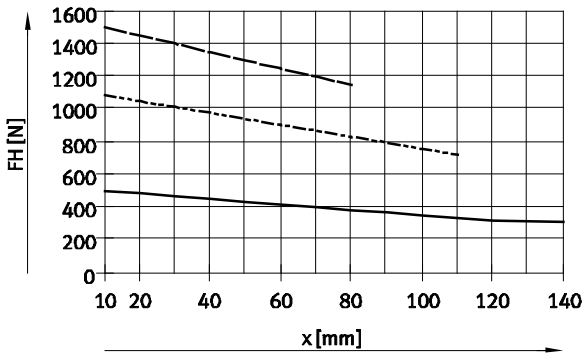
HGDT-40-A-F



HGDT-50-A-F



HGDT-63-A-F



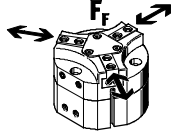
# Heavy-duty three-point grippers HGDT

Technical data

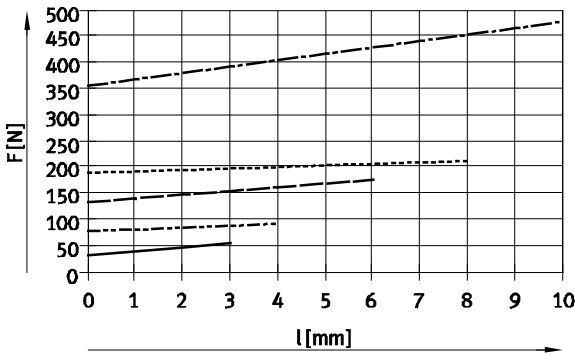
## Spring force $F_S$ as a function of size, gripper jaw stroke $l$ and gripper length $x$ , per gripper finger

Gripping force retention for HGDT-...-G...

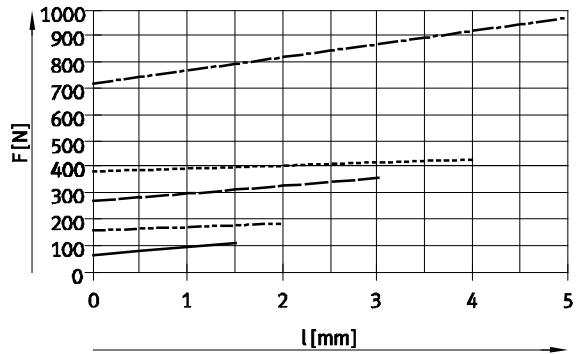
The spring forces  $F_S$  as a function of the gripper jaw stroke can be determined from the following graph.



### Standard – HGDT-...



### High force – HGDT-...-F-...



- HGDT-25-A-G...
- - - HGDT-35-A-G...
- HGDT-40-A-G...

- - - HGDT-50-A-G...
- - - HGDT-63-A-G...

- HGDT-25-A-F-G...
- - - HGDT-35-A-F-G...
- HGDT-40-A-F-G...

- - - HGDT-50-A-F-G...
- - - HGDT-63-A-F-G...

The lever arm  $x$  [mm] must be taken into consideration when determining the actual spring force  $F_{Stotal}$ .

The formulae for calculating the spring force are provided in the table below.

| Size | $F_{Stotal}$ , per gripper finger |                          |
|------|-----------------------------------|--------------------------|
|      | Standard – HGDT-...               | High force – HGDT-...-F  |
| 25   | $-0.3 * x + 0.85 * F_S$           | $-2.24 * x + 0.64 * F_S$ |
| 35   | $-0.5 * x + 0.75 * F_S$           | $-0.97 * x + 0.7 * F_S$  |
| 40   | $-0.5 * x + 0.8 * F_S$            | $-1.45 * x + 0.66 * F_S$ |
| 50   | $-0.6 * x + 0.7 * F_S$            | $-0.97 * x + 0.51 * F_S$ |
| 63   | $-0.6 * x + 0.75 * F_S$           | $-2.35 * x + 0.72 * F_S$ |

## Determining the actual gripping forces $F_{Gr}$ for HGDT-...-A-G1 and HGDT-...-A-G2 as a function of the application, per gripper finger

The three-point grippers with integrated spring type HGDT-...-G1 (opening gripping force retention) and HGDT-...-G2 (closing gripping force retention) can be used as:

- single-acting grippers

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

In order to calculate the available gripping forces  $F_{Gr}$  (per gripper finger), the gripping force ( $F_{Grip}$ ) and spring

force ( $F_{Stotal}$ ) must be combined accordingly.

### Application forces per gripper finger

#### Single-acting

- Gripping with spring force:  
 $F_{Gr} = F_{Stotal}$
- Gripping with pressure force:  
 $F_{Gr} = F_{Grip} - F_{Stotal}$

#### Supplementary gripping force

- Gripping with pressure and spring force:  
 $F_{Gr} = F_{Grip} + F_{Stotal}$

#### Gripping force retention

- Gripping with spring force:  
 $F_{Gr} = F_{Stotal}$

# Heavy-duty three-point grippers HGDT

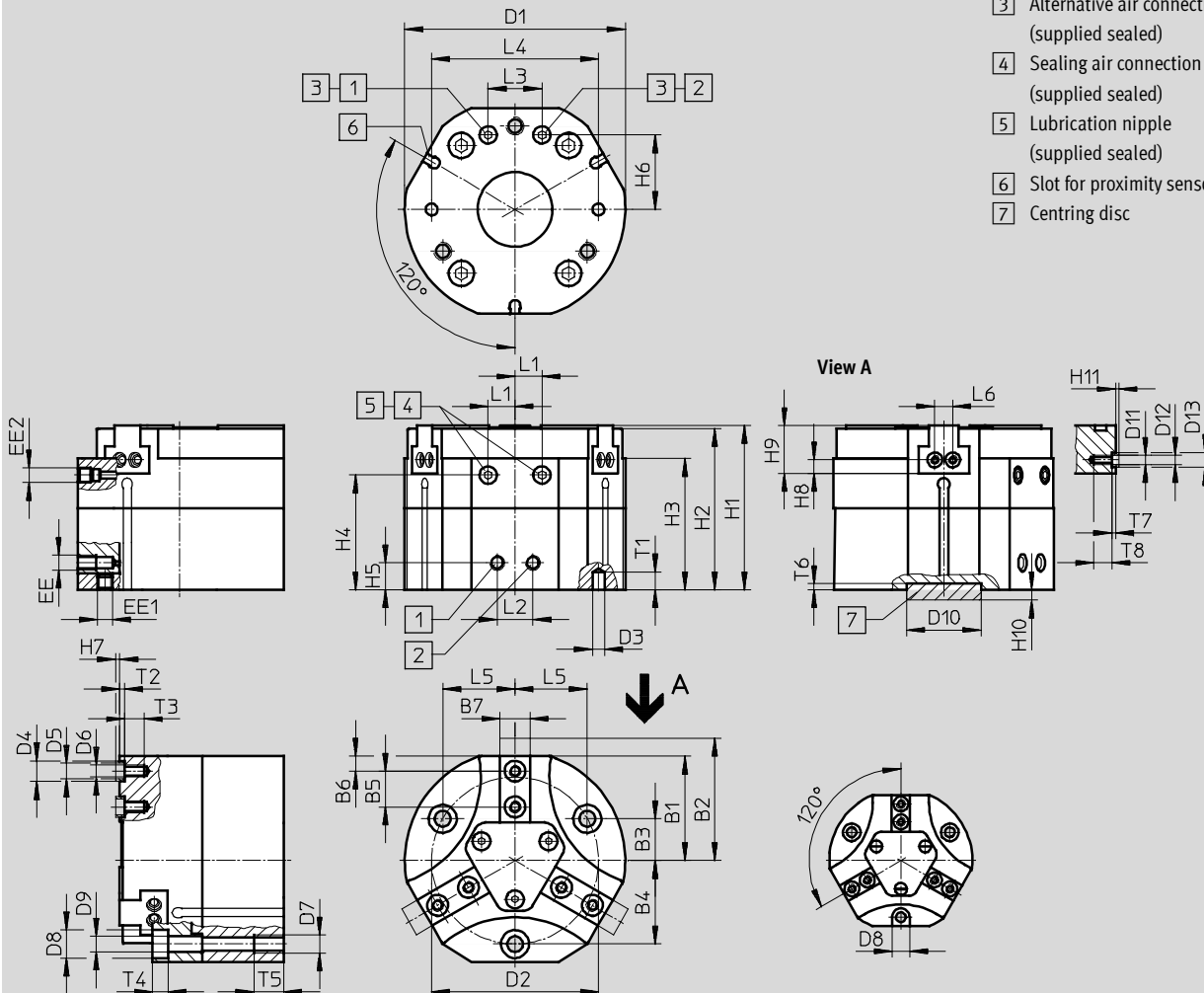
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

- 1 Supply port, opening
- 2 Supply port, closing
- 3 Alternative air connection (supplied sealed)
- 4 Sealing air connection (supplied sealed)
- 5 Lubrication nipple (supplied sealed)
- 6 Slot for proximity sensor
- 7 Centring disc



| Size           | B1   | B2            |                | B3   | B4 | B5    | B6    | B7            | D1        | D2        |
|----------------|------|---------------|----------------|------|----|-------|-------|---------------|-----------|-----------|
|                |      | with HGDT-... | with HGDT-...F |      |    |       |       |               |           |           |
| [mm]           | ±0.5 | ±0.5          | ±0.5           |      |    | ±0.02 | ±0.02 | -0.05<br>-0.1 | ∅<br>±0.1 | ∅<br>±0.1 |
| HGDT-25-A      | 22   | 25            | 23.5           | 9.5  | 19 | 6     | 3     | 6             | 48        | 38        |
| HGDT-25-A-G... |      |               |                |      |    |       |       |               |           |           |
| HGDT-35-A      | 27   | 31            | 29             | 11   | 22 | 8     | 4     | 6.5           | 58        | 44        |
| HGDT-35-A-G... |      |               |                |      |    |       |       |               |           |           |
| HGDT-40-A      | 35   | 41            | 38             | 14   | 28 | 12    | 5     | 10            | 74        | 56        |
| HGDT-40-A-G... |      |               |                |      |    |       |       |               |           |           |
| HGDT-50-A      | 43.5 | 51.5          | 47.5           | 17.5 | 35 | 15    | 6     | 12            | 93        | 70        |
| HGDT-50-A-G... |      |               |                |      |    |       |       |               |           |           |
| HGDT-63-A      | 54   | 64            | 59             | 22.5 | 45 | 18    | 10    | 14            | 116       | 90        |
| HGDT-63-A-G... |      |               |                |      |    |       |       |               |           |           |

# Heavy-duty three-point grippers HGDT

Technical data

| Size<br>[mm]   | D3<br>∅<br>H8 | D4<br>∅<br>H8/h7 | D5<br>∅ | D6<br>∅ | D7<br>∅ | D8<br>∅<br>H13 | D9<br>∅<br>H13 | D10<br>∅<br>H8 | D11 | D12<br>∅ | D13<br>∅<br>H8/h7 | EE                            | EE1 |
|----------------|---------------|------------------|---------|---------|---------|----------------|----------------|----------------|-----|----------|-------------------|-------------------------------|-----|
| HGDT-25-A      | 3             | 5                | 3.2     | M3      | M4      | 5.9            | 3.3            | 14             | M2  | -        | -                 | M5                            | M3  |
| HGDT-25-A-G... |               |                  |         |         |         |                |                |                |     |          |                   |                               |     |
| HGDT-35-A      | 3             | 5                | 3.2     | M3      | M4      | 5.9            | 3.3            | 25             | M3  | 3.2      | 5                 | M5                            | M3  |
| HGDT-35-A-G... |               |                  |         |         |         |                |                |                |     |          |                   |                               |     |
| HGDT-40-A      | 4             | 7                | 5.3     | M4      | M6      | 9.4            | 5.1            | 25             | M3  | 3.2      | 5                 | M5                            | M5  |
| HGDT-40-A-G... |               |                  |         |         |         |                |                |                |     |          |                   |                               |     |
| HGDT-50-A      | 5             | 9                | 6.4     | M6      | M8      | 10.2           | 6.4            | 25             | M5  | 5.3      | 7                 | G <sup>1</sup> / <sub>8</sub> | M5  |
| HGDT-50-A-G... |               |                  |         |         |         |                |                |                |     |          |                   |                               |     |
| HGDT-63-A      | 5             | 9                | 6.4     | M6      | M8      | 10.4           | 6.4            | 25             | M5  | 5.3      | 7                 | G <sup>1</sup> / <sub>8</sub> | M5  |
| HGDT-63-A-G... |               |                  |         |         |         |                |                |                |     |          |                   |                               |     |

| Size<br>[mm]   | EE2 | H1<br>±0.05 | H2<br>±0.05 | H3   | H4   | H5<br>±0.1 | H6<br>±0.1 | H7<br>-0.3 | H8       | H9<br>-0.02 | H10<br>-0.2 | H11<br>-0.3 | L1<br>±0.5 |
|----------------|-----|-------------|-------------|------|------|------------|------------|------------|----------|-------------|-------------|-------------|------------|
| HGDT-25-A      | M5  | 41.5        | 40.5        | 32.5 | 29.3 | 9          | 13.5       | 1.1        | 2.25±0.1 | 8.5         | 3.5         | -           | 6          |
| HGDT-25-A-G... |     |             |             |      |      |            |            |            |          |             |             |             |            |
| HGDT-35-A      | M5  | 46          | 45          | 37   | 33.5 | 9          | 18.5       | 1.1        | 3±0.02   | 12          | 3.5         | 1.1         | 7          |
| HGDT-35-A-G... |     | 52          | 51          | 43   | 39.5 |            |            |            |          |             |             |             |            |
| HGDT-40-A      | M5  | 55          | 54          | 44   | 38.4 | 9          | 25         | 1.4        | 4.5±0.02 | 16          | 3.5         | 1.1         | 9          |
| HGDT-40-A-G... |     | 72          | 71          | 61   | 55.4 |            |            |            |          |             |             |             |            |
| HGDT-50-A      | M5  | 64.5        | 63.5        | 50.5 | 45   | 12         | 32         | 1.9        | 5.5±0.02 | 19          | 3.5         | 1.4         | 9          |
| HGDT-50-A-G... |     | 82          | 81          | 68   | 62.5 |            |            |            |          |             |             |             |            |
| HGDT-63-A      | M5  | 69          | 68          | 50   | 44.5 | 12         | 42         | 1.9        | 5.5±0.02 | 22          | 3.5         | 1.4         | 12         |
| HGDT-63-A-G... |     | 96          | 95          | 77   | 71.5 |            |            |            |          |             |             |             |            |

| Size<br>[mm]   | L2<br>±0.1 | L3<br>±0.1 | L4<br>±0.02 | L5    | L6      | T1<br>min. | T2<br>+0.1 | T3<br>min. | T4<br>+0.2 | T5<br>min. | T6<br>+0.1 | T7<br>+0.1 | T8<br>min. |
|----------------|------------|------------|-------------|-------|---------|------------|------------|------------|------------|------------|------------|------------|------------|
| HGDT-25-A      | 12         | 12         | 38          | 16.45 | 6±0.1   | 3.5        | 1.3        | 5          | 3.2        | 8          | 2          | -          | 3          |
| HGDT-25-A-G... |            |            |             |       |         |            |            |            |            |            |            |            |            |
| HGDT-35-A      | 12         | 15         | 45          | 19.05 | 6±0.02  | 5          | 1.3        | 5.5        | 3.2        | 8          | 2          | 1.3        | 6          |
| HGDT-35-A-G... |            |            |             |       |         |            |            |            |            |            |            |            |            |
| HGDT-40-A      | 12         | 18         | 56          | 24.25 | 6±0.02  | 6          | 1.6        | 6.5        | 5.1        | 10         | 2          | 1.3        | 6          |
| HGDT-40-A-G... |            |            |             |       |         |            |            |            |            |            |            |            |            |
| HGDT-50-A      | 24         | 18         | 70          | 30.31 | 13±0.02 | 8          | 2.1        | 10.5       | 6.1        | 12         | 2          | 1.6        | 9          |
| HGDT-50-A-G... |            |            |             |       |         |            |            |            |            |            |            |            |            |
| HGDT-63-A      | 24         | 24         | 90          | 38.97 | 13±0.02 | 8          | 2.1        | 10.5       | 6.1        | 12         | 2          | 1.6        | 9          |
| HGDT-63-A-G... |            |            |             |       |         |            |            |            |            |            |            |            |            |

# Heavy-duty three-point grippers HGDT



Technical data

| Ordering data     |   |             |  |                |                          |
|-------------------|---|-------------|--|----------------|--------------------------|
| Size<br>[mm]      | Double-acting<br>without compression spring |             | Single-acting or with gripping force retention |                |                          |
|                   | Part No.                                    | Type        | opening<br>Part No.                            | Type           | closing<br>Part No. Type |
| <b>Standard</b>   |   |             |  |                |                          |
| 25                | 540859                                      | HGDT-25-A   | 540860   | HGDT-25-A-G1   | 540861 HGDT-25-A-G2      |
| 35                | 540862                                      | HGDT-35-A   | 540863   | HGDT-35-A-G1   | 540864 HGDT-35-A-G2      |
| 40                | 540865                                      | HGDT-40-A   | 540866   | HGDT-40-A-G1   | 540867 HGDT-40-A-G2      |
| 50                | 540868                                      | HGDT-50-A   | 540869   | HGDT-50-A-G1   | 540870 HGDT-50-A-G2      |
| 63                | 540871                                      | HGDT-63-A   | 540872   | HGDT-63-A-G1   | 540873 HGDT-63-A-G2      |
| <b>High force</b> |   |             |  |                |                          |
| 25                | 560177                                      | HGDT-25-A-F | 560178   | HGDT-25-A-F-G1 | 560179 HGDT-25-A-F-G2    |
| 35                | 560180                                      | HGDT-35-A-F | 560181   | HGDT-35-A-F-G1 | 560182 HGDT-35-A-F-G2    |
| 40                | 560183                                      | HGDT-40-A-F | 560184   | HGDT-40-A-F-G1 | 560185 HGDT-40-A-F-G2    |
| 50                | 560186                                      | HGDT-50-A-F | 560187   | HGDT-50-A-F-G1 | 560188 HGDT-50-A-F-G2    |
| 63                | 560189                                      | HGDT-63-A-F | 560190   | HGDT-63-A-F-G1 | 560191 HGDT-63-A-F-G2    |


# Heavy-duty three-point grippers HGDT

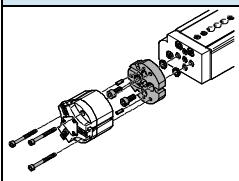
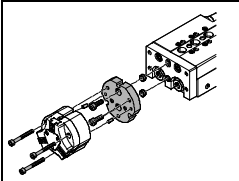
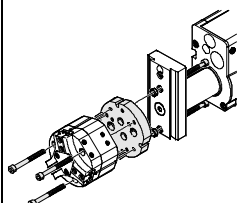
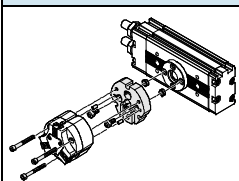
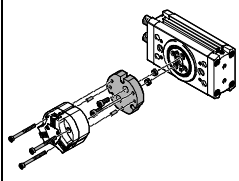
Accessories

FESTO

Adapter kit  
HAPG, DHAA

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 → <a href="http://www.festo.com">www.festo.com</a> |                                 |
|---|--|---------|-------------|--|---------------------------------|
| Combination   | Drive  | Gripper | Adapter kit |  |                                 |
|   |  |         | Size        | Size   | CRC <sup>1)</sup> Part No. Type |
| DGSL/HGDT   | DGSL   | HGDT    | HAPG        |  |                                 |
|    | 16   | 25      | 2           | 542439   | HAPG-SD2-32                     |
|   | 16   | 35      |             | 542436   | HAPG-94                         |
|   | 20, 25   | 35      |             | 548805   | ZBV-9-7                         |
|   | 20, 25   | 40      |             | 542436   | HAPG-94                         |
|   | 25   | 50      |             | 542437   | HAPG-95                         |
|   |  |         |             |  | 542443                          |
|   |  |         | 548806      | ZBV-12-9   |                                 |
| SLT/HGDT  | SLT  | HGDT    | HAPG        |  |                                 |
|   | 16   | 25      | 2           | 542433   | HAPG-97                         |
|   | 20   | 25      |             | 542439   | HAPG-SD2-32                     |
|   | 16   | 35      |             | 542435   | HAPG-99                         |
|   | 20, 25   | 35      |             | 542436   | HAPG-94                         |
|   | 20, 25   | 40      |             | 542437   | HAPG-95                         |
|   | 25   | 50      |             | 542443   | HAPG-SD2-36                     |
| HMP/HGDT  | HMP  | HGDT    | HAPG        |  |                                 |
|  | 16   | 35      | 2           | 542434   | HAPG-98                         |
|   | 16, 20, 25   | 40      |             | 542437   | HAPG-95                         |
|   | 20, 25, 32   | 50      |             | 542443   | HAPG-SD2-36                     |
|   | 25, 32   | 63      |             | 542438   | HAPG-96                         |
| DRQD/HGDT   | DRQD   | HGDT    | HAPG        |  |                                 |
|  | 16 <sup>2)</sup>                                       | 25      | 2           | 542439   | HAPG-SD2-32                     |
|   | 20 <sup>2)</sup> , 25 <sup>3)</sup>                    | 25      |             | 542440   | HAPG-SD2-33                     |
|   | 20 <sup>2)</sup> , 25 <sup>3)</sup> , 32 <sup>3)</sup> | 35      |             | 542441   | HAPG-SD2-34                     |
|   | 25 <sup>3)</sup> , 35 <sup>3)</sup>                    | 40      |             | 542442   | HAPG-SD2-35                     |
|   | 32 <sup>3)</sup>                                       | 50      |             | 542443   | HAPG-SD2-36                     |
| DRRD/HGDT   | DRRD   | HGDT    | DHAA        |  |                                 |
|  | 16   | 25      | 2           | 2079812  | DHAA-G-Q11-16-B7/B7G-25         |
|   | 20   | 25      |             | 2079695  | DHAA-G-Q11-20-B7/B7G-25         |
|   | 20   | 35      |             | 2077056  | DHAA-G-Q11-20-B7-35             |
|   | 25   | 35      |             | 1735057  | DHAA-G-Q11-25-B7-35             |
|   | 25   | 40      |             | 1735103  | DHAA-G-Q11-25-B7-40             |
|   | 32   | 40      |             | 2077253  | DHAA-G-Q11-32-B7-40             |
|   | 32   | 50      |             | 2077335  | DHAA-G-Q11-32-B7-50             |
|   | 35   | 50      |             | 2079063  | DHAA-G-Q11-35-B7-50             |
|   | 35, 40   | 63      |             | 2079274  | DHAA-G-Q11-35/40-B7-63          |

1) Corrosion resistance class 2 according to Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

2) Possible in combination with DRQD-...-E422 (flanged shaft with energy through-feed).

3) Possible in combination with DRQD-...-E444 (flanged shaft with energy through-feed).


# Heavy-duty three-point grippers HGDT

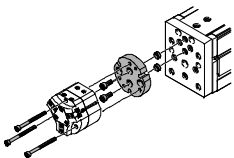
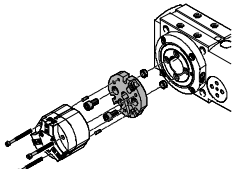
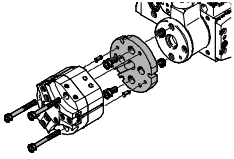
Accessories

FESTO

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 → <a href="http://www.festo.com">www.festo.com</a> |
|---|------------|---------|-------------------|----------|-------------|--|
| Combination   | Drive      | Gripper | Adapter kit       |          |             |  |
|   | Size       | Size    | CRC <sup>1)</sup> | Part No. | Type        |  |
|    | EGSL       | HGDT    | HAPG              |          |             |  |
|   | 35         | 25      | 2                 | 542433   | HAPG-97     |  |
|   | 45, 55     | 25      |                   | 542439   | HAPG-SD2-32 |  |
|   | 45, 55, 75 | 35      |                   | 542436   | HAPG-94     |  |
|   | 75         | 40      |                   | 542437   | HAPG-95     |  |
|   | 75         | 50      |                   | 542443   | HAPG-SD2-36 |  |
|   | ERMB       | HGDT    | HAPG              |          |             |  |
|   | 20, 25     | 25      | 2                 | 542440   | HAPG-SD2-33 |  |
|   | 20, 25, 32 | 35      |                   | 542441   | HAPG-SD2-34 |  |
|   | 25, 32     | 40      |                   | 542442   | HAPG-SD2-35 |  |
|   | 32         | 50      |                   | 542443   | HAPG-SD2-36 |  |
|  | EHMB       | HGDT    | HAPG              |          |             |  |
|   | 20         | 35      | 2                 | 542441   | HAPG-SD2-34 |  |
|   | 20         | 40      |                   | 542442   | HAPG-SD2-35 |  |
|   | 20         | 50      |                   | 542443   | HAPG-SD2-36 |  |

1) Corrosion resistance class 2 according to Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.



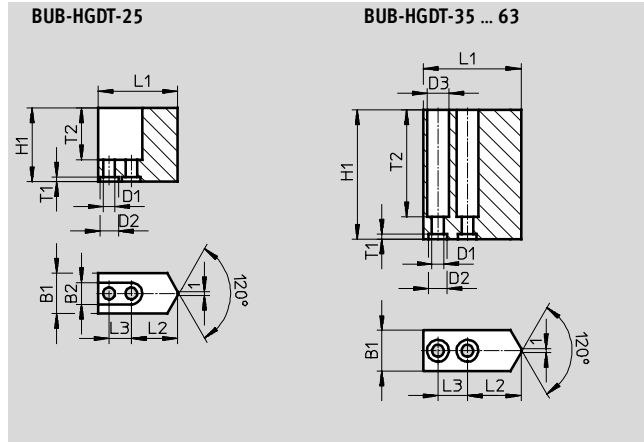
# Heavy-duty three-point grippers HGDT

Accessories

FESTO

Gripper jaw blank BUB-HGDT  
(scope of delivery: 3 pieces)

Material:  
Wrought aluminium alloy  
Free of copper, PTFE and silicone



| Dimensions and ordering data |       |       |          |         |            |       |       |
|------------------------------|-------|-------|----------|---------|------------|-------|-------|
| For size                     | B1    | B2    | D1       | D2      | D3         | H1    | L1    |
| [mm]                         | ±0.05 | +0.22 | ∅<br>H13 | ∅<br>H8 | ∅<br>+0.22 | ±0.05 | ±0.05 |
| 25                           | 11    | 5.9   | 3.2      | 5       | -          | 20    | 21.6  |
| 35                           | 11    | -     | 3.2      | 5       | 5.9        | 35    | 26.5  |
| 40                           | 16    | -     | 4.3      | 7       | 7.4        | 50    | 34    |
| 50                           | 20    | -     | 6.3      | 9       | 10.4       | 65    | 42    |
| 63                           | 24    | -     | 6.3      | 9       | 10.4       | 80    | 52    |




| For size | L2  | L3  | T1   | T2 | Weight per blank [g] | Part No. | Type        |
|----------|---|---|------|----|----------------------|----------|-------------|
| [mm]     | ±0.02 <sup>1)</sup><br>±0.1 <sup>2)</sup> | ±0.01 <sup>1)</sup><br>±0.1 <sup>1)</sup> | +0.1 |    |                      |          |             |
| 25       | 12.6                                      | 6   | 1.3  | 14 | 10                   | 541101   | BUB-HGDT-25 |
| 35       | 14.5                                      | 8   | 1.3  | 29 | 22                   | 541102   | BUB-HGDT-35 |
| 40       | 17  | 12  | 1.6  | 45 | 59                   | 541103   | BUB-HGDT-40 |
| 50       | 21  | 15  | 2.1  | 58 | 112                  | 541104   | BUB-HGDT-50 |
| 63       | 24  | 18  | 2.1  | 73 | 222                  | 541105   | BUB-HGDT-63 |

1) For centring  
2) For through-hole


# Heavy-duty three-point grippers HGDT


Accessories



FESTO

| Ordering data  |                |   |            |               |                   |                  |
|--|----------------|---|------------|---------------|-------------------|------------------|
|  | For size [mm]  | Remarks   | Weight [g] | Part No.      | Type              | PU <sup>1)</sup> |
| <b>Centring sleeve ZBH</b> <span style="float: right;">Technical data → Internet: zbh</span>       |                |   |            |               |                   |                  |
|                   | 25, 35         | For centring gripper jaw blanks/gripper fingers on the gripper jaws | 1          | <b>189652</b> | <b>ZBH-5</b>      | 10               |
|  | 40             |   | 1          | <b>186717</b> | <b>ZBH-7</b>      |                  |
|  | 50, 63         |   | 1          | <b>150927</b> | <b>ZBH-9</b>      |                  |
|  | 35, 40         | For lateral centring of gripper fingers on the gripper jaws         | 1          | <b>189652</b> | <b>ZBH-5</b>      |                  |
|  | 50, 63         |   | 1          | <b>186717</b> | <b>ZBH-7</b>      |                  |
| <b>Central mounting SLZZ</b> <span style="float: right;">Technical data → Internet: slzz</span>    |                |   |            |               |                   |                  |
|                   | 25             | For centring the gripper during mounting                            | 21         | <b>150900</b> | <b>SLZZ-16/10</b> | -                |
|  | 35, 40, 50, 63 |   | 40         | <b>150901</b> | <b>SLZZ-25/16</b> |                  |
| <b>Blanking plug B</b> <span style="float: right;">Technical data → Internet: blanking plug</span> |                |   |            |               |                   |                  |
|                   | 25 ... 63      | For sealing the supply ports  | 0.6        | <b>30979</b>  | <b>B-M3-S9</b>    | 10               |
|  |                |   | 1          | <b>174308</b> | <b>B-M5-B</b>     |                  |
|  |                |   | 5          | <b>3568</b>   | <b>B-1/8</b>      |                  |

1) Packaging unit

| 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                              |                                |
| <b>N/O contact</b>  |                                   |   |                  |                  |               |                                   |                                |
|  | Insertable in the slot from above | Cable, 3-wire, in-line                      | PNP              | 2.5              | <b>551373</b> | <b>SMT-10M-PS-24V-E-2,5-L-OE</b>  |                                |
|   |                                   | Plug M8x1, 3-pin, in-line                   |                  | 0.3              | <b>551375</b> | <b>SMT-10M-PS-24V-E-0,3-L-M8D</b> |                                |

| 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                             |                                |
| <b>N/O contact</b>  |                                   |   |                  |                  |               |                                  |                                |
|  | Insertable in the slot lengthwise | Cable, 3-wire, lateral                      | PNP              | 2.5              | <b>547862</b> | <b>SMT-10G-PS-24V-E-2,5Q-OE</b>  |                                |
|   |                                   | Plug M8x1, 3-pin, lateral                   |                  | 0.3              | <b>547863</b> | <b>SMT-10G-PS-24V-E-0,3Q-M8D</b> |                                |

| 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              | <b>541333</b> | <b>NEBU-M8G3-K-2.5-LE3</b> |  |                                 |
|   |                              |                              | 5                | <b>541334</b> | <b>NEBU-M8G3-K-5-LE3</b>   |  |                                 |
|  | Angled socket, M8x1, 3-pin   | Cable, open end, 3-wire      | 2.5              | <b>541338</b> | <b>NEBU-M8W3-K-2.5-LE3</b> |  |                                 |
|   |                              |                              | 5                | <b>541341</b> | <b>NEBU-M8W3-K-5-LE3</b>   |  |                                 |