

5 Grippers



- + Mechanical grippers:
parallel gripper, three-point gripper, angle gripper, swivel gripper
- + Feed separator: complete control units for separating workpieces in the supply process
- + Accessories

Highlights



DHPS

Parallel gripper

- + Sturdy and precise T-slot guidance of the gripper jaws
- + High gripping force and compact size

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DHWS

Angle gripper


- + Improved gripper jaw guide (link guided movement)
- + Internal fixed flow control, does away with the need for external flow control in 90% of applications

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| Angle gripper DHWS | 600 |
| Radial gripper DHRS | 606 |





Software tool

| | | |
|---|---|---|
| Product finder for grippers  | <p>A secure grip is a question of the right calculation. In this case, calculation of weight, direction of movement, distances, etc. The software tool immediately determines which type of gripper – parallel, three-point, angle or swivel gripper – and which size best matches your requirements.</p> | <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools. |
|---|---|---|


5 Parallel grippers

| |  Parallel gripper DHPS |  Parallel gripper HGPD |  Electric parallel gripper HGPLE |  Parallel gripper HGPT-B |
|---|--|--|--|--|
| Total gripping force at 6 bar, closing | 25 ... 910 N | 94 ... 3716 N | | 106 ... 6300 N |
| Stroke per gripper jaw | 2 ... 12.5 mm | 3 ... 20 mm | 30 ... 80 mm | 1.5 ... 25 mm |
| Position sensing | Via Hall sensor, via proximity sensor | Via proximity sensor | Via integrated angular displacement encoder | Via proximity sensor |
| Gripping force backup | During closing, during opening | During closing, during opening | | During closing, during opening |
| Description | <ul style="list-style-type: none"> • Sturdy and precise T-slot guidance of the gripper jaws • High gripping force and compact size • Max. repetition accuracy • Wide range of options for mounting on drives | <ul style="list-style-type: none"> • Ideal for very harsh environments • Precise gripping even at high torque load • Max. gripping force at optimum installation space/force ratio • 8 sizes with up to 40 mm total stroke • Repetition accuracy of 0 ... 0.05 mm | <ul style="list-style-type: none"> • Electrically actuated gripper with long stroke • Free, speed-controlled selection of gripping positions • Long stroke allows use with workpieces of different sizes • Adjustable gripping force for highly sensitive and large, heavy workpieces • Very high torque resistance, very high accuracy • Short opening and closing times • Minimal installation costs • See product documentation for gripping force on our website | <ul style="list-style-type: none"> • Sturdy and powerful • With T-slot guide • Suitable for external and internal gripping • Gripper jaw guide protected by sealing air against dust • High-force variant (F) available |
| → Page/online | 589 | hgpd | hgple | hgpt |


Parallel grippers

| Type |  Parallel gripper HGPL |  Parallel gripper HGPP |  Parallel gripper HGPC |  Parallel gripper HGP |
|---|--|---|---|--|
| Total gripping force at 6 bar, closing | 158 ... 2742 N | 80 ... 830 N | 44 ... 126 N | 160 ... 340 N |
| Stroke per gripper jaw | 20 ... 150 mm | 2 ... 12.5 mm | 3 ... 7 mm | 5 ... 7.5 mm |
| Position sensing | Via proximity sensor | Via Hall sensor, via inductive sensor | Via proximity sensor | Via proximity sensor |
| Gripping force backup | | During closing, during opening | During closing | |
| Description | <ul style="list-style-type: none"> Space-saving, high forces and torques Controlled, precise and centred gripping Long stroke: long guide length for the gripper jaws Suitable for external and internal gripping Opening stroke can be adjusted to optimise time | <ul style="list-style-type: none"> High-precision gripper jaw guide Suitable for external and internal gripping Very flexible thanks to versatile attachment, mounting and application options | <ul style="list-style-type: none"> Compact, low cost, reliable operation, long service life High force with minimal volume Suitable for external and internal gripping | <ul style="list-style-type: none"> Double-acting piston drive With protective dust cap for use in dusty environments (protection class IP54) Self-centring Suitable for external and internal gripping High gripping force and compact size Max. repetition accuracy Internal fixed flow control Versatile thanks to externally adaptable gripper fingers Wide range of options for mounting on drive units |
| → Page/online | hgpl | hgpp | hgpc | hgp |




Parallel grippers

| Type |  Parallel gripper HGPM |
|---|---|
| Total gripping force at 6 bar, closing | 16 ... 35 N |
| Stroke per gripper jaw | 2 ... 3 mm |
| Position sensing | None |
| Gripping force backup | |
| Description | <ul style="list-style-type: none"> Micro gripper: compact, handy design Versatile thanks to externally adaptable gripper fingers Mounting options with clamping spigot, with flange mounting, with Z stroke compensation |
| → Page/online | hgpm |




Three-point grippers

| |  |  |  |
|--|--|---|---|
| Type | Three-point gripper DHDS | Three-point gripper HGDD | Three-point gripper HGDT |
| Total gripping force at 6 bar, closing | 87 ... 750 N | 336 ... 2745 N | 207 ... 2592 N |
| Stroke per gripper jaw | 2.5 ... 6 mm | 4 ... 12 mm | 1.5 ... 10 mm |
| Position sensing | Via Hall sensor, via proximity sensor | Via proximity sensor | Via proximity sensor |
| Gripping force backup | During closing | During closing, during opening | During closing, during opening |
| Description | <ul style="list-style-type: none"> Sturdy and precise T-slot guidance of the gripper jaws High gripping force and compact size Max. repetition accuracy Wide range of options for mounting on drives | <ul style="list-style-type: none"> Ideal for very harsh environments Precise gripping with centric movements despite high torque loads 5 sizes with up to 12 mm stroke/jaw Repetition accuracy of 0 ... 0.05 mm | <ul style="list-style-type: none"> Synchronous movement of gripper jaws With T-slot guide Suitable for external and internal gripping Gripper jaw guide protected by sealing air against dust High-force variant (F) available |
| → Page/online | 595 | hgdd | hgdt |


Angle grippers

| |  |  |  |
|---|---|---|---|
| Type | Angle gripper DHWS | Angle gripper HGWC | Angle gripper HGWM |
| Total gripping torque at 6 bar, closing | 30 ... 1362 Ncm | 22 ... 144 Ncm | 22 ... 64 Ncm |
| Max. opening angle | 40° | 30 ... 80° | 14 ... 18.5° |
| Position sensing | Via Hall sensor, via proximity sensor | Via proximity sensor | None |
| Gripping force backup | During closing | | |
| Description | <ul style="list-style-type: none"> Improved gripper jaw guide Link guided movement Internal fixed flow control, does away with the need for external flow control in 90% of applications Max. repetition accuracy Wide range of options for mounting on drives | <ul style="list-style-type: none"> High force with minimal volume Internal fixed flow control, does away with the need for external flow control in 90% of applications Suitable for external and internal gripping Repetition accuracy 0.05 mm Compact and cost-effective | <ul style="list-style-type: none"> Micro angle gripper: compact, handy design Mounting options with clamping spigot, with flange mounting, with Z stroke compensation Versatile thanks to externally adaptable gripper fingers |
| → Page/online | 600 | hgwc | hgwm |


Radial grippers

| Type |  Radial gripper DHRS |  Radial gripper HGRT |  Radial gripper HGRC |
|---|--|---|---|
| Total gripping torque at 6 bar, closing | 15 ... 660 Ncm | 158 ... 7754 Ncm | 22 ... 144 Ncm |
| Max. opening angle | 180° | 180° | 180° |
| Position sensing | Via Hall sensor, via proximity sensor | Via proximity sensor, via inductive sensor | Via proximity sensor |
| Description | <ul style="list-style-type: none"> • Lateral gripper jaw support for high torque loads • Self-centring • Gripper jaw centring options • Max. repetition accuracy | <ul style="list-style-type: none"> • Secure gripping thanks to precise, polished plain-bearing guides • Gripping force backup via compression springs holds the gripped workpiece securely in the event of pressure failure • Compression spring also boosts the gripping force for applications involving heavier loads • Optimum cycle times thanks to freely adjustable opening angle of up to max. 90° per gripper finger. This prevents possible collisions due to the gripper jaws opening too wide | <ul style="list-style-type: none"> • High force with minimal volume • Internal fixed flow control, does away with the need for external flow control in 90% of applications • Suitable for external and internal gripping • Repetition accuracy 0.05 mm • Compact and cost-effective |
| → Page/online | 606 | hgrt | hgrc |

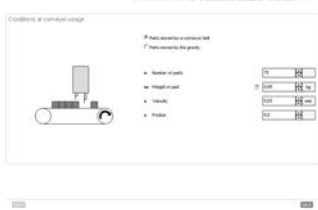
Swivel/gripper units

| Type |  Swivel/gripper unit HGDS |
|--|--|
| Total gripping force at 6 bar, closing | 74 ... 168 N |
| Stroke per gripper jaw | 2.5 ... 7 mm |
| Swivel angle | 210° |
| Position sensing gripper | For proximity sensor |
| Description | <ul style="list-style-type: none"> • Combination of parallel gripper and swivel module • Swivel angle infinitely adjustable • Precise end stop with elastic cushioning or integrated shock absorber |
| → Page/online | hgds |



Bellows grippers

| | |
|----------------------------------|--|
| |  |
| Type | Bellows gripper DHEB |
| Bellows stroke | 3.5 ... 25 mm |
| Min. diameter to be gripped | 8 ... 66 mm |
| Max. diameter to be gripped | 11 ... 85 mm |
| Max. operating frequency gripper | 0 ... 4 Hz |
| Description | <ul style="list-style-type: none"> • 11 sizes for gripping diameter from 8 to 85 mm • Direction of movement: bellows upwards or downwards • Different bellows materials: EPDM or silicone • Air connection on the side or from above • Optimised process sequence with increased quality: prevents the workpieces from being scratched • Additional reliability: optional sensing via proximity or position sensor |
| → Page/online | dheb |

Software tool

| | | |
|--|--|---|
| <p>Feed separators</p>  | <p>This tool helps you to select the right separator of the type HPV from Festo for your application. Let yourself be guided by the program and enter the general parameters and you will receive at least one suggestion for the product best suited to your application.</p> | <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools. |
|--|--|---|

Feed separators

| | | |
|---------------------------------------|---|---|
| |  |  |
| Type | Feed separator HPVS | Feed separator HPV |
| Mode of operation | Double-acting | Double-acting |
| Piston Ø | 10 mm, 14 mm, 22 mm | 10 mm, 14 mm, 22 mm |
| Stroke | 10 ... 60 mm | 20 ... 60 mm |
| Theoretical force at 6 bar, advancing | 45 ... 225 N | 45 ... 225 N |
| Description | <ul style="list-style-type: none"> • Version with one plunger • With non-rotating piston rod • Proximity sensor SME/SMT-8 can be integrated in the housing | <ul style="list-style-type: none"> • Version with two plungers • With twin piston, non-rotating piston rod and locking mechanism • Cost-effective: replaces at least two drives in the feed process • Proximity sensor SME/SMT-8 can be integrated in the housing |
| → Page/online | hpvs | hpv |



Overview/Configuration/Ordering
→ www.festo.com/catalogue/dhps



Additional information/Support/User documentation
→ www.festo.com/sp/dhps

Mechanical grippers
Parallel grippers

DHPS



- + Sturdy and precise T-slot guidance of the gripper jaws
- + High gripping force and compact size
- + Maximum repetition accuracy
- + Wide range of options for mounting on drives

Parallel grippers DHPS

5



- Oval piston for high gripping forces
- Gripping forces of up to 483 N
- With T-slot guide
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhps

Product range overview

| Type/function | Size | Stroke per gripper jaw [mm] | Gripping force per gripper jaw [N] | Product options | | |
|---------------|--------------------|-----------------------------|------------------------------------|-----------------|----|----|
| | | | | A | NO | NC |
| DHPS | | | | | | |
| Double-acting | 6 | 2 | 13.5 ... 15 | ■ | - | - |
| | 10, 16, 20, 25, 35 | 3 ... 12.5 | 34.5 ... 483 | ■ | ■ | ■ |

Product options

A Position sensing NO Opening gripping force backup NC Closing gripping force backup

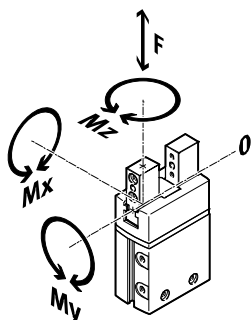
Data sheet



| Technical data | | Dimensions → 594 | | | | | |
|---|-------------|------------------|------|-----|-----|------|------|
| Size | | 6 | 10 | 16 | 20 | 25 | 35 |
| Pneumatic port | | M3 | | | M5 | G1/8 | |
| Stroke per gripper jaw | [mm] | 2 | 3 | 5 | 6.5 | 7.5 | 12.5 |
| Gripping force per gripper jaw at 6 bar | Opening [N] | 15 | 39 | 105 | 162 | 249 | 483 |
| | Closing [N] | 13.5 | 34.5 | 96 | 147 | 228 | 450 |
| Total gripping force at 6 bar | Opening [N] | 30 | 80 | 210 | 320 | 500 | 970 |
| | Closing [N] | 25 | 70 | 190 | 290 | 450 | 910 |
| Repetition accuracy ¹⁾ | [mm] | ≤0.02 | | | | | |
| Max. operating frequency | [Hz] | 4 | | | 3 | 2 | |

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

Forces and 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 |

Data sheet

| Operating conditions | | Without gripping force backup | With gripping force backup |
|-----------------------------------|-------|-------------------------------|----------------------------|
| Operating pressure | [bar] | 2 ... 8 | 4 ... 8 |
| Ambient temperature ¹⁾ | [°C] | +5 ... +60 | |

1) Note operating range of proximity sensors.

| Materials | |
|-----------------|---------------------------------------|
| Housing | Hard anodised wrought aluminium alloy |
| Gripper jaw | High-alloy stainless steel |
| Cover cap | PA |
| Piston | POM |
| Piston rod | Tempered steel |
| Reversing lever | Hardened sintered steel |
| Seals | NBR |

Order code

| | | | | | | | | |
|------------------------------|-----------------------|------|---|--|---|---|---|--|
| | | DHPS | - | | - | A | - | |
| Type | | | | | | | | |
| DHPS | Parallel gripper | | | | | | | |
| Size | | | | | | | | |
| 06, 10, 16, 20, 25, 35 | | | | | | | | |
| Position sensing | | | | | | | | |
| A | Via proximity sensors | | | | | | | |
| Gripping force backup | | | | | | | | |
| - | None | | | | | | | |
| NO | Opening | | | | | | 1 | |
| NC | Closing | | | | | | 1 | |

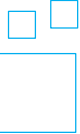
1) Not with size 6 mm

Order example:

DHPS-25-A-NC

Parallel gripper DHPS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

| | | | | |
|---|-----------------------------|--|--|--|
|  | Configurable product | This product and all its options can be ordered using the configurator. | The configurator can be found under | Enter the type code in the search field. |
| | | | Products on the DVD or www.festo.com/catalogue/... | |

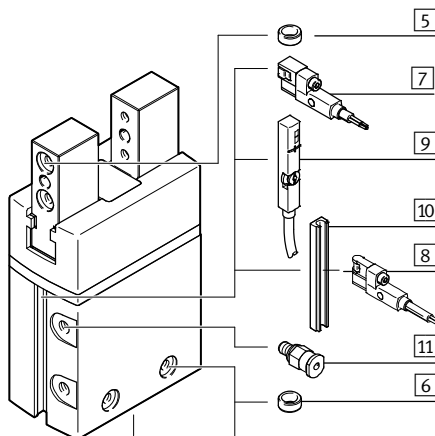
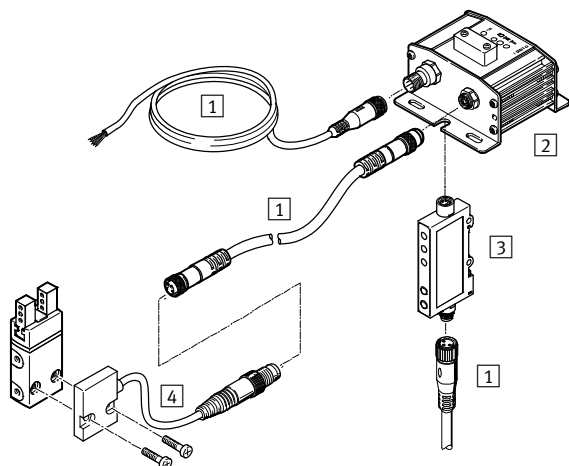
Parallel grippers DHPS

Accessories

DHPS-06

DHPS-10 ... 35

5






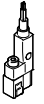


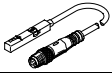

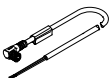
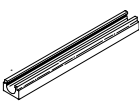
| | | → Page/online |
|---|-------------------------|---------------|
| 1 | Connecting cable NEBU | 592 |
| 2 | Evaluation unit SMH-AE1 | 592 |
| 3 | Signal converter SVE4 | 592 |
| 4 | Position sensor SMH-S1 | 592 |
| 5 | Centring sleeve ZBH | 593 |
| 6 | Centring sleeve ZBH | 593 |
| 7 | Proximity sensor SMT-8 | 593 |

| | | → Page/online |
|----|-----------------------------------|----------------------|
| 8 | Proximity sensor SMT-10 | 593 |
| 9 | Position transmitter SMAT-8M/SDAT | 593 |
| 10 | Bondable sensor rail HGP-SL | 593 |
| 11 | Push-in fitting QS | 1098 |
| - | Connecting cable NEBU | 593 |
| - | One-way flow control valve GRLA | 593 |
| - | Drive/Gripper connections | dhps |

Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type | |
|---|---|------------------|----------|----------------------|--|
| 1 Connecting cable | | | | | |
| | Connection between position sensor and signal converter/evaluation unit | | | | |
| | - | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 | |
| | Connection between evaluation unit and controller | | | | |
| | - | 2.5 | 541330 | NEBU-M12G5-K-2.5-LE5 | |
| | - | 5.0 | 541331 | NEBU-M12G5-K-5-LE5 | |
| | Connection between signal converter and controller | | | | |
| | - | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | - | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| 2 Evaluation unit, for size 6 Technical data online: → smh-ae | | | | | |
| | PNP | - | 175708 | SMH-AE1-PS3-M12 | |
| | NPN | - | 175709 | SMH-AE1-NS3-M12 | |
| 3 Signal converter, for size 6 Technical data online: → sve4 | | | | | |
| | PNP | - | 544216 | SVE4-HS-R-HM8-2P-M8 | |
| | NPN | - | 544219 | SVE4-HS-R-HM8-2N-M8 | |
| 4 Position sensor, for size 6 Technical data online: → smh-s1 | | | | | |
| | Plug | - | 175710 | SMH-S1-HGP06 | |


Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type | |
|---|---|------------------|----------|----------------------------|--------------------------------------|
| 5 | Centring sleeve for centring on the gripper jaws¹⁾²⁾ | | | | Technical data online: → zbh |
|  | 10 | – | 189652 | ZBH-5 | |
| | 16, 20 | – | 186717 | ZBH-7 | |
| | 25, 35 | – | 150927 | ZBH-9 | |
| 6 | Centring sleeve for centring the gripper¹⁾³⁾ | | | | Technical data online: → zbh |
|  | 6, 10 | – | 189652 | ZBH-5 | |
| | 16, 20 | – | 186717 | ZBH-7 | |
| | 25 | – | 150927 | ZBH-9 | |
| | 35 | – | 189653 | ZBH-12 | |
| 7 | Proximity sensor for T-slot, for size 10 ... 35, magneto-resistive – N/O contact | | | | Technical data online: → smt |
|  | PNP, cable | 2.5 | 547859 | SMT-8G-PS-24V-E-2,5Q-OE | |
| | PNP, plug | 0.3 | 547860 | SMT-8G-PS-24V-E-0,3Q-M8D | |
| 8 | Proximity sensor for C-slot, for size 10 ... 35, magneto-resistive – N/O contact | | | | Technical data online: → smt |
|  | PNP, cable | 2.5 | 547862 | SMT-10G-PS-24V-E-2,5Q-OE | |
| | PNP, plug | 0.3 | 547863 | SMT-10G-PS-24V-E-0,3Q-M8D | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541333 | NEBU-M8G3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541334 | NEBU-M8G3-K-5-LE3 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541338 | NEBU-M8W3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541341 | NEBU-M8W3-K-5-LE3 | |
| 9 | Position transmitter for T-slot, for size 10 ... 35 | | | | Technical data online: → smat |
|  | Plug | 0.3 | 553744 | SMAT-8M-U-E-0,3-M8D | |
| | Plug | 0.3 | 1531265 | SDAT-MHS-M50-1L-SA-E-Q3-M8 | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | – | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | – | 5.0 | 541345 | NEBU-M8W4-K-5-LE4 | |
| 10 | Bondable sensor rail | | | | |
|  | 10 | – | 535582 | HGP-SL-10-10 | |
| | 16 | – | 535583 | HGP-SL-10-16 | |
| | 20 | – | 535584 | HGP-SL-10-20 | |
| | 25 | – | 535585 | HGP-SL-10-25 | |
| | 35 | – | 535586 | HGP-SL-10-35 | |

1) Packaging unit 10 pieces

2) 4 included in the scope of delivery of the gripper.

3) 2 included in the scope of delivery of the gripper.

| Function | For size | Connection | | Part no. | Type |
|--|-----------|------------|------|----------|-----------------|
| | | Thread | O.D. | | |
| One-way flow control valve for exhaust air flow control¹⁾ with slotted head screw, metal | | | | | |
|  | 6, 10, 16 | M3 | 3 | 175041 | GRLA-M3-QS-3 |
| | 20 | | 4 | ★ 193138 | GRLA-M5-QS-4-D |
| | 25, 35 | G1/8 | 6 | ★ 193144 | GRLA-1/8-QS-6-D |

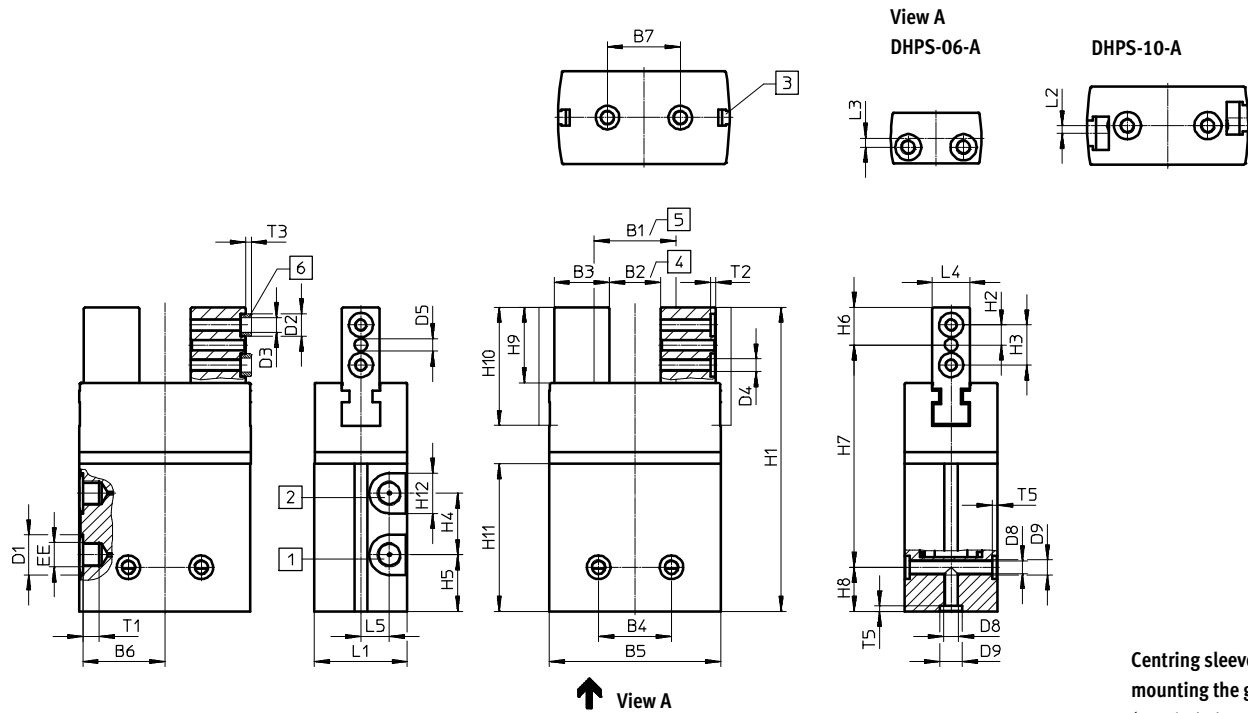
1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate need to be selected to guarantee the optimal flow control function and cylinder speed.

Parallel grippers DHPS

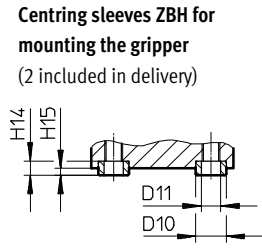
Dimensions

Download CAD data → www.festo.com

5



- 1 Supply port, opening
- 2 Supply port, closing
- 3 Slot for proximity sensor
- 4 Normal position for DHPS-...-A and DHPS-...-A-NC
- 5 Normal position for DHPS-...-A-NO
- 6 Centring sleeves ZBH (size 10 and above: 4 included in the scope of delivery)



| Size | B1 | B2 | B3 | B4 ¹⁾ | B5 | B6 | B7 ¹⁾ | D1 | D2 | D3 | D4 | D5 | D8 | D9 |
|------|------|------|-------|------------------|------|-------|------------------|----|------------|-----|----|---------|-----------|----|
| | ±0.5 | ±0.5 | -0.03 | | ±0.1 | | | ∅ | ∅ H8/h7 | ∅ | | ∅ H8 | ∅ +0.1 | |
| 6 | 10 | 6 | 5.5 | 11 | 18 | 8.65 | 11 | 7 | - | - | M2 | 1.5 | 2.5 | M3 |
| 10 | 21.8 | 15.8 | 7 | 16 | 32 | 15.4 | 16 | 7 | 5 | 3.2 | M3 | 2 | 2.5 | M3 |
| 16 | 27.8 | 17.8 | 13 | 25 | 47 | 22.65 | 25 | 7 | 7 | 5.3 | M4 | 3 | 3.3 | M4 |
| 20 | 30 | 17 | 17.5 | 25 | 55.6 | 26.65 | 25 | 10 | 7 | 5.3 | M4 | 4 | 3.3 | M4 |
| 25 | 35.4 | 20.4 | 22 | 29 | 68.2 | 32.65 | 29 | 16 | 9 | 6.4 | M5 | 4 | 5.1 | M6 |
| 35 | 56 | 31 | 27 | 33 | 88 | 42.25 | 33 | 16 | 9 | 6.4 | M6 | 5 | 6.4 | M8 |

| Size | D10 | D11 | EE | H1 | H2 | H3 ¹⁾ | H4 | H5 | H6 | H7 | H8 ²⁾ | H9 | H10 |
|------|---------|-----|----|------|-----|------------------|------|------|------|-------|------------------|------|------|
| | ∅ H7 | ∅ | | | | | | | | ±0.2 | | | |
| 6 | - | - | M3 | 45.5 | 2.9 | 5.8 | 15 | 4 | 5 | 33 | 7.5 | 9.55 | 15.8 |
| 10 | 5 | 3.2 | M3 | 66 | 4 | 8 | 15.5 | 10.5 | 7.5 | 51 | 7.5 | 15.2 | 23 |
| 16 | 7 | 5.3 | M3 | 80 | 5.5 | 11 | 18 | 11 | 10 | 62.5 | 7.5 | 20 | 32.5 |
| 20 | 7 | 5.3 | M5 | 101 | 7 | 14 | 23 | 16 | 12.5 | 81 | 7.5 | 25 | 39.5 |
| 25 | 9 | 6.4 | G½ | 121 | 8 | 16 | 24.5 | 22.5 | 15 | 88.5 | 17.5 | 30 | 47 |
| 35 | 9 | 6.4 | G½ | 142 | 8.5 | 17 | 29 | 24 | 16 | 108.5 | 17.5 | 32 | 53 |

| Size | H11 | H12 | H14 | H15 | L1 | L2 | L3 ¹⁾ | L4 | L5 | T1 | T2 | T3 | T5 |
|------|------|-----|------|------|----------------------|-----|------------------|----|------|-----|-----|-----|-----|
| | | | -0.2 | -0.3 | | | | | | | | | |
| 6 | 25.3 | 7 | - | - | 10 ^{+0,1} | - | 1.8 | 5 | 1.5 | 3.5 | - | - | 1.2 |
| 10 | 35 | 7 | 2.4 | 1.2 | 15.5 ^{+0,1} | 1.5 | - | 7 | 5 | 5 | 1.2 | 1.2 | 1.2 |
| 16 | 38.1 | 7 | 3 | 1.4 | 22 ^{+0,1} | - | - | 10 | 7 | 6 | 1.6 | 1.4 | 1.6 |
| 20 | 50 | 10 | 3 | 1.4 | 30±0,1 | - | - | 12 | 9 | 6 | 1.6 | 1.4 | 1.6 |
| 25 | 58.8 | 16 | 4 | 1.9 | 37±0,1 | - | - | 15 | 11.3 | 6.5 | 2.1 | 1.9 | 2.1 |
| 35 | 65.3 | 16 | 4 | 1.9 | 45 ^{+0,1} | - | - | 20 | 13.5 | 6.5 | 2.1 | 1.9 | 2.6 |

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



Overview/Configuration/Ordering
→ www.festo.com/catalogue/dhds



Additional information/Support/User documentation
→ www.festo.com/sp/dhds

Mechanical grippers
Three-point grippers

DHDS



- + Sturdy and precise T-slot guidance of the gripper jaws
- + High gripping force and compact size
- + Maximum repetition accuracy
- + Wide range of options for mounting on drives

Three-point grippers DHDS

5



- High gripping forces
- Gripping forces of up to 280 N
- With T-slot guide
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhds

Product range overview

| Type/Function | Size | Stroke per gripper jaw [mm] | Gripping force per gripper jaw [N] | Product options | |
|---------------|------------|-----------------------------|------------------------------------|-----------------|----|
| | | | | A | NC |
| DHDS | | | | | |
| Double-acting | 16, 32, 50 | 2.5 ... 6 | 29 ... 280 | ■ | ■ |

Product options

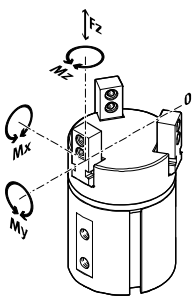
A Position sensing

NC Closing gripping force backup

Data sheet



Technical data



Dimensions → 599

| Size | 16 | 32 | 50 |
|---|-------------|-----|------|
| Pneumatic port | M3 | M5 | G1/8 |
| Stroke per gripper jaw [mm] | 2.5 | 3.9 | 6 |
| Gripping force per gripper jaw at 6 bar | Opening [N] | 135 | 280 |
| | Closing [N] | 115 | 250 |
| Total gripping force at 6 bar | Opening [N] | 405 | 840 |
| | Closing [N] | 87 | 345 |
| Repetition accuracy ¹⁾ [mm] | ≤0.04 | | |
| Max. operating frequency [Hz] | ≤4 | | |
| Max. permissible force F_z [N] | 50 | 150 | 250 |
| Max. permissible torque M_x [Nm] | 2 | 9 | 24 |
| Max. permissible torque M_y [Nm] | 2 | 9 | 24 |
| Max. permissible torque M_z [Nm] | 2 | 9 | 24 |

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

Operating conditions

| | Without gripping force backup | With gripping force backup |
|--|-------------------------------|----------------------------|
| Operating pressure [bar] | 2 ... 8 | 4 ... 8 |
| Ambient temperature ²⁾ [°C] | +5 ... +60 | |

2) Note operating range of proximity sensors.

Materials

| | |
|-----------------|---------------------------------------|
| Housing | Hard anodised wrought aluminium alloy |
| Gripper jaw | High-alloy stainless steel |
| Cover cap | PA |
| Piston | POM |
| Reversing lever | Hardened sintered steel |
| Seals | NBR |

Order code

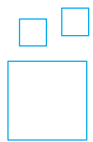
| DHDS | | A | | | | | | | | | |
|--|-----------------------|---|--|------|---------------------|------|------------|------------------|-----------------------|-----------------------|-----------------|
| <table border="1"> <tr> <th>Type</th> <td>Three-point gripper</td> </tr> <tr> <th>Size</th> <td>16, 32, 50</td> </tr> <tr> <th>Position sensing</th> <td>Via proximity sensors</td> </tr> <tr> <th>Gripping force backup</th> <td>None Closing</td> </tr> </table> | | | | Type | Three-point gripper | Size | 16, 32, 50 | Position sensing | Via proximity sensors | Gripping force backup | None Closing |
| Type | Three-point gripper | | | | | | | | | | |
| Size | 16, 32, 50 | | | | | | | | | | |
| Position sensing | Via proximity sensors | | | | | | | | | | |
| Gripping force backup | None Closing | | | | | | | | | | |

Order example:

DHDS-32-A-NC

Three-point gripper DHDS - size 32 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

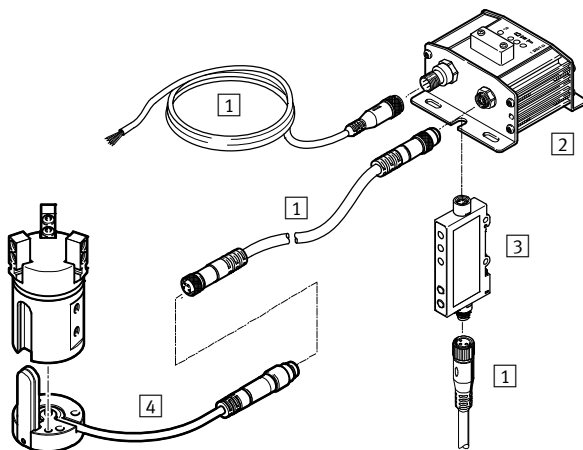
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

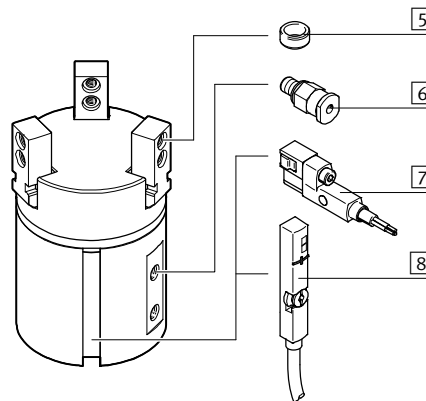
Enter the type code in the search field.

Accessories

DHDS-16



DHDS-32, 50



| | | → Page/online |
|---|-------------------------|---------------|
| 1 | Connecting cable NEBU | 598 |
| 2 | Evaluation unit SMH-AE1 | 598 |
| 3 | Signal converter SVE4 | 598 |
| 4 | Position sensor SMH-S1 | 598 |



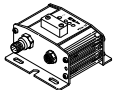

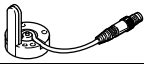




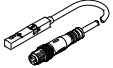

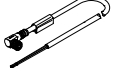
| | | → Page/online |
|---|---------------------------------|----------------------|
| 7 | Proximity sensor SMT-8 | 598 |
| 8 | Position transmitter SMAT-8M | 598 |
| - | Connecting cable NEBU | 598 |
| - | One-way flow control valve GRLA | 598 |
| - | Drive/Gripper connections | dhds |

Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type |
|---|-------------------------|------------------|----------|----------------------|
| 1 | Connecting cable | | | |
| Connection between position sensor and signal converter/evaluation unit | | | | |
| | - | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 |


Three-point grippers DHDS

Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type |
|---|--|------------------|--------------------|---|
| 1 Connecting cable | | | | |
|  | Connection between evaluation unit and controller | | | |
| | – | 2.5 | 541330 | NEBU-M12G5-K-2.5-LE5 |
| – | 5.0 | 541331 | NEBU-M12G5-K-5-LE5 | |
|  | Connection between signal converter and controller | | | |
| | – | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 |
| – | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| 2 Evaluation unit, for size 16 | | | | Technical data online: → smh-ae |
|  | PNP | – | 175708 | SMH-AE1-PS3-M12 |
| | NPN | – | 175709 | SMH-AE1-NS3-M12 |
| 3 Signal converter, for size 16 | | | | Technical data online: → sve4 |
|  | PNP | – | 544216 | SVE4-HS-R-HM8-2P-M8 |
| | NPN | – | 544219 | SVE4-HS-R-HM8-2N-M8 |
| 4 Position sensor, for size 16 | | | | Technical data online: → smh-s1 |
|  | Plug | – | 175713 | SMH-S1-HGD16 |
| 5 Centring sleeve¹⁾²⁾ | | | | Technical data online: → zbh |
|  | 16, 32 | – | 189652 | ZBH-5 |
| | 50 | – | 186717 | ZBH-7 |
| 7 Proximity sensor for T-slot, for size 32 ... 50, magneto-resistive – N/O contact | | | | Technical data online: → smt |
|  | PNP, cable | 2.5 | 547859 | SMT-8G-PS-24V-E-2,5Q-OE |
| | PNP, plug | 0.3 | 547860 | SMT-8G-PS-24V-E-0,3Q-M8D |
| Connecting cable, straight socket | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541333 | NEBU-M8G3-K-2.5-LE3 |
| | – | 5.0 | ★ 541334 | NEBU-M8G3-K-5-LE3 |
| Angled socket | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541338 | NEBU-M8W3-K-2.5-LE3 |
| | – | 5.0 | ★ 541341 | NEBU-M8W3-K-5-LE3 |
| 8 Position transmitter for T-slot, for size 32 ... 50 | | | | Technical data online: → smat |
|  | Plug | 0.3 | 553744 | SMAT-8M-U-E-0,3-M8D |
| Connecting cable, straight socket | | | | Technical data → 1161 |
|  | – | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 |
| | – | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 |
| Angled socket | | | | Technical data → 1161 |
|  | – | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 |
| | – | 5.0 | 541345 | NEBU-M8W4-K-5-LE4 |

1) Packaging unit 10 pieces

2) 6 included in the scope of delivery of the gripper.

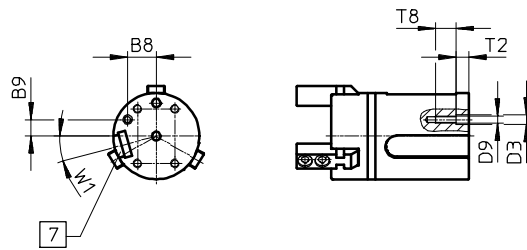
| Function | For size | Connection | | Part no. | Type |
|--|----------|-------------------------------|------|----------|---|
| | | Thread | O.D. | | |
| One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal | | | | | |
|  | 16 | M3 | 3 | 175041 | GRLA-M3-QS-3 |
| | 32 | M5 | 4 | ★ 193138 | GRLA-M5-QS-4-D |
| | 50 | G ¹ / ₈ | 6 | ★ 193144 | GRLA- ¹ / ₈ -QS-6-D |

3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate needs to be selected to guarantee the optimal flow control function and cylinder speed.

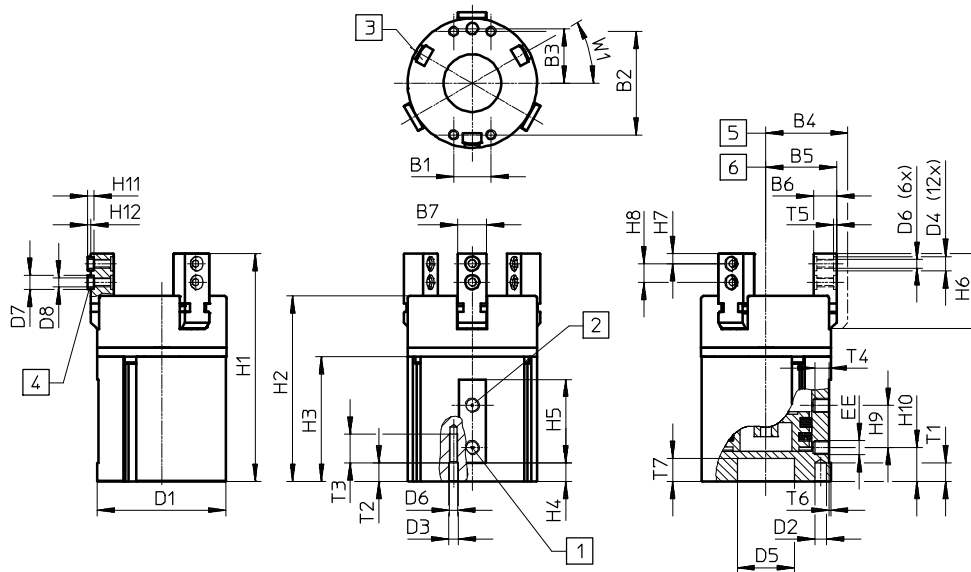
Dimensions

Download CAD data → www.festo.com

DHDS-16



DHDS-32, 50



- 1 Supply port, opening
- 2 Supply port, closing
- 3 Slot for proximity sensor
- 4 Centring sleeve ZBH
(6 included in the scope of delivery)
- 5 Gripper jaw open
- 6 Gripper jaw closed
- 7 Slot for position sensor

| Size | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
|------|----|----|-------|------|------|-------------|-------|------|------|
| | | | ±0.02 | ±0.5 | ±0.5 | -0.02/-0.05 | -0.02 | -0.1 | -0.1 |
| 16 | 13 | 19 | 11.5 | 20 | 17.5 | 7 | 6 | 9.96 | 5.75 |
| 32 | 13 | 36 | 19 | 28.5 | 24.6 | 8 | 10 | - | - |
| 50 | 25 | 54 | 30 | 43 | 37 | 12 | 14 | - | - |

| Size | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 |
|------|----|---------|---------|---------|------------------|----|---------|-----|------|
| | ∅ | ∅ H8 | ∅ H8 | ∅ H8 | ∅ +0.05/+0.02 | D6 | ∅ h7 | ∅ | |
| 16 | 30 | 3 | 3.2 | 5 | - | M3 | 5 | 3.2 | M2.5 |
| 32 | 45 | 4 | 3.5 | 5 | 20 | M3 | 5 | 3.2 | - |
| 50 | 70 | 5 | 6 | 7 | 30 | M5 | 7 | 5.3 | - |

| Size | EE | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 ¹⁾ | H9 |
|------|-----------------|-------|------|------|-----|----|------|-----|------------------|------|
| 16 | M3 | 60 | 47.9 | 32.6 | 4.5 | 24 | 21.5 | 3 | 6 | 12 |
| 32 | M5 | 78 | 63.2 | 42.2 | 5.2 | 29 | 26 | 3.5 | 6.5 | 14.7 |
| 50 | G $\frac{1}{8}$ | 107.5 | 86.5 | 56 | 6.7 | 40 | 37 | 5 | 10 | 22 |

| Size | H10 | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | W1 |
|------|------|------|------|----|------|------|------|----|----|-----|
| | | Min. | Min. | +1 | -0.5 | +0.1 | ±0.2 | | ±1 | |
| 16 | 11 | 4.5 | 4.5 | 8 | 4 | 1.2 | 1 | - | 7 | 15° |
| 32 | 10.5 | 6.5 | 6.5 | 10 | 4 | 1.1 | 0.5 | 8 | - | 30° |
| 50 | 16 | 7 | 7 | 18 | 6 | 1.6 | 1 | 9 | - | 30° |

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



Overview/Configuration/Order

→ www.festo.com/catalogue/dhws

Additional information/Support/User documentation

→ www.festo.com/sp/dhwsMechanical grippers
Angle grippers

DHWS



- + Improved gripper jaw guide
- + Link guided movement
- + Internal fixed flow control
- + Maximum repetition accuracy
- + Wide range of options for mounting on drives



- Link guided movement
- Gripping torques of up to 1497 Ncm
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhws

Product range overview

| Type/Function | Size | Opening angle [°] | Total gripping torque [Ncm] | Product options | |
|---------------|----------------|----------------------|--------------------------------|-----------------|----|
| | | | | A | NC |
| DHWS | | | | | |
| Double-acting | 10 | 40 | 30 ... 43 | ■ | – |
| | 16, 25, 32, 40 | 40 | 114 ... 1497 | ■ | ■ |

Product options

A Position sensing

NC Closing gripping force backup

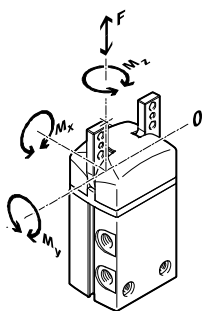
Data sheet



| Technical data | | | | | | Dimensions → 605 |
|-----------------------------------|------------|-------|----|-----|------|------------------|
| Size | 10 | 16 | 25 | 32 | 40 | |
| Pneumatic port | M3 | | M5 | | G1/8 | |
| Opening angle per gripper jaw | [°] 20 | | | | | |
| Total gripping torque at 6 bar | Opening | [Ncm] | 43 | 129 | 386 | 810 |
| | Closing | [Ncm] | 30 | 114 | 356 | 746 |
| Repetition accuracy ¹⁾ | [mm] ≤0.04 | | | | | |
| Max. operating frequency | [Hz] 4 | | | | | |
| | | | | 3 | | |

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

Forces and torques



| Size | | 10 | 16 | 25 | 32 | 40 |
|-------------------------------|------|-----|-----|-----|-----|-----|
| Max. permissible force F_z | [N] | 25 | 50 | 90 | 120 | 200 |
| Max. permissible torque M_x | [Nm] | 0.6 | 1.6 | 3.6 | 6 | 13 |
| Max. permissible torque M_y | [Nm] | 0.6 | 1.6 | 3.6 | 6 | 13 |
| Max. permissible torque M_z | [Nm] | 0.6 | 1.6 | 3.6 | 6 | 13 |

Data sheet

| Operating conditions | | Without gripping force backup | With gripping force backup |
|-----------------------------------|-------|-------------------------------|----------------------------|
| Operating pressure | [bar] | 2 ... 8 | 4 ... 8 |
| Ambient temperature ¹⁾ | [°C] | +5 ... +60 | |

1) Note operating range of proximity sensors.

| Materials | |
|-----------------|---------------------------------------|
| Housing | Hard anodised wrought aluminium alloy |
| Gripper jaw | High-alloy stainless steel |
| Cover cap | PA |
| Piston | POM |
| Link | Tempered steel |
| Reversing lever | Hardened sintered steel |
| Seals | NBR |

Order code

| | | | | | | | |
|------------------------------|-----------------------|---|--|---|---|---|--|
| DHWS | | - | | - | A | - | |
| Type | | | | | | | |
| DHWS | Angle gripper | | | | | | |
| Size | | | | | | | |
| 10, 16, 25, 32, 40 | | | | | | | |
| Position sensing | | | | | | | |
| A | Via proximity sensors | | | | | | |
| Gripping force backup | | | | | | | |
| - | None | | | | | | |
| NC | Closing ¹⁾ | | | | | | |

¹⁾ Not with size 10 mm

Order example:

DHWS-25-A-NC

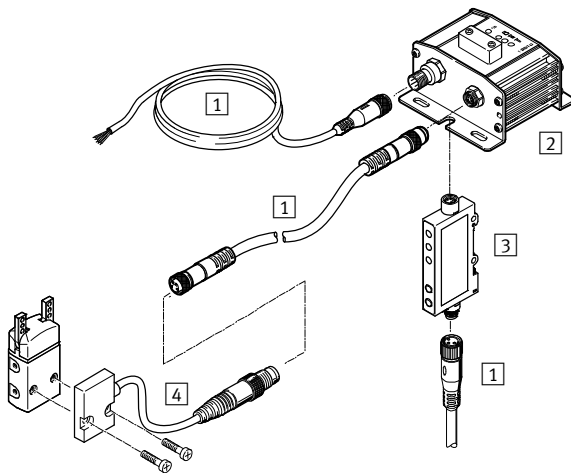
Angle gripper DHWS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

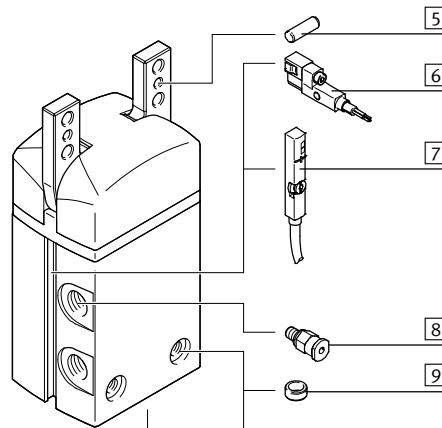
| | | | | |
|---|------------------------------------|---|---|---|
|  | <p>Configurable product</p> | <p>This product and all its options can be ordered using the configurator.</p> | <p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p> | <p>Enter the type code in the search field.</p> |
|---|------------------------------------|---|---|---|

Accessories

DHWS-10



DHWS-16 ... 40







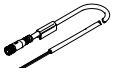


| | | → Page/online |
|---|-------------------------|---------------|
| 1 | Connecting cable NEBU | 603 |
| 2 | Evaluation unit SMH-AE1 | 603 |
| 3 | Signal converter SVE4 | 603 |
| 4 | Position sensor SMH-S1 | 603 |
| 5 | Centring pin | - |
| 6 | Proximity sensor SMT-8 | 604 |

| | | → Page/online |
|---|---------------------------------|----------------------|
| 7 | Position transmitter SMAT-8M | 604 |
| 8 | Push-in fitting QS | 1098 |
| 9 | Centring sleeve ZBH | 604 |
| - | Connecting cable NEBU | 604 |
| - | One-way flow control valve GRLA | 604 |
| - | Drive/Gripper connections | dhws |

Accessories – Ordering data


| | For size | Cable length [m] | Part no. | Type | |
|--|---|------------------|----------|----------------------|--|
| 1 Connecting cable | | | | | |
| | Connection between position sensor and signal converter/evaluation unit | | | | |
| | - | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 | |
| | Connection between evaluation unit and controller | | | | |
| | - | 2.5 | 541330 | NEBU-M12G5-K-2.5-LE5 | |
| | - | 5.0 | 541331 | NEBU-M12G5-K-5-LE5 | |
| | Connection between signal converter and controller | | | | |
| | - | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | - | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| 2 Evaluation unit, for size 10 Technical data online: → smh-ae | | | | | |
| | PNP | - | 175708 | SMH-AE1-PS3-M12 | |
| | NPN | - | 175709 | SMH-AE1-NS3-M12 | |
| 3 Signal converter, for size 10 Technical data online: → sve4 | | | | | |
| | PNP | - | 544216 | SVE4-HS-R-HM8-2P-M8 | |
| | NPN | - | 544219 | SVE4-HS-R-HM8-2N-M8 | |
| 4 Position sensor, for size 10 Technical data online: → smh-s1 | | | | | |
| | Plug | - | 175711 | SMH-S1-HGW10 | |

Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type | |
|---|------------|------------------|----------|----------------------------|--|
| 6 Proximity sensor for T-slot, for size 16 ... 40, magneto-resistive – N/O contact | | | | | Technical data online: → smt |
|  | PNP, cable | 2.5 | 547859 | SMT-8G-PS-24V-E-2,5Q-OE | |
| | PNP, plug | 0.3 | 547860 | SMT-8G-PS-24V-E-0,3Q-M8D | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541333 | NEBU-M8G3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541334 | NEBU-M8G3-K-5-LE3 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541338 | NEBU-M8W3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541341 | NEBU-M8W3-K-5-LE3 | |
| 7 Position transmitter for T-slot, for size 16 ... 40 | | | | | Technical data online: → smt |
|  | Plug | 0.3 | 553744 | SMAT-8M-U-E-0,3-M8D | |
| | Plug | 0.3 | 1531265 | SDAT-MHS-M50-1L-SA-E-03-M8 | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | – | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | – | 5.0 | 541345 | NEBU-M8W4-K-5-LE4 | |
| 9 Centring sleeve¹⁾²⁾ | | | | | Technical data online: → zbh |
|  | 10, 16 | – | 189652 | ZBH-5 | |
| | 25 | – | 186717 | ZBH-7 | |
| | 32 | – | 150927 | ZBH-9 | |
| | 40 | – | 189653 | ZBH-12 | |

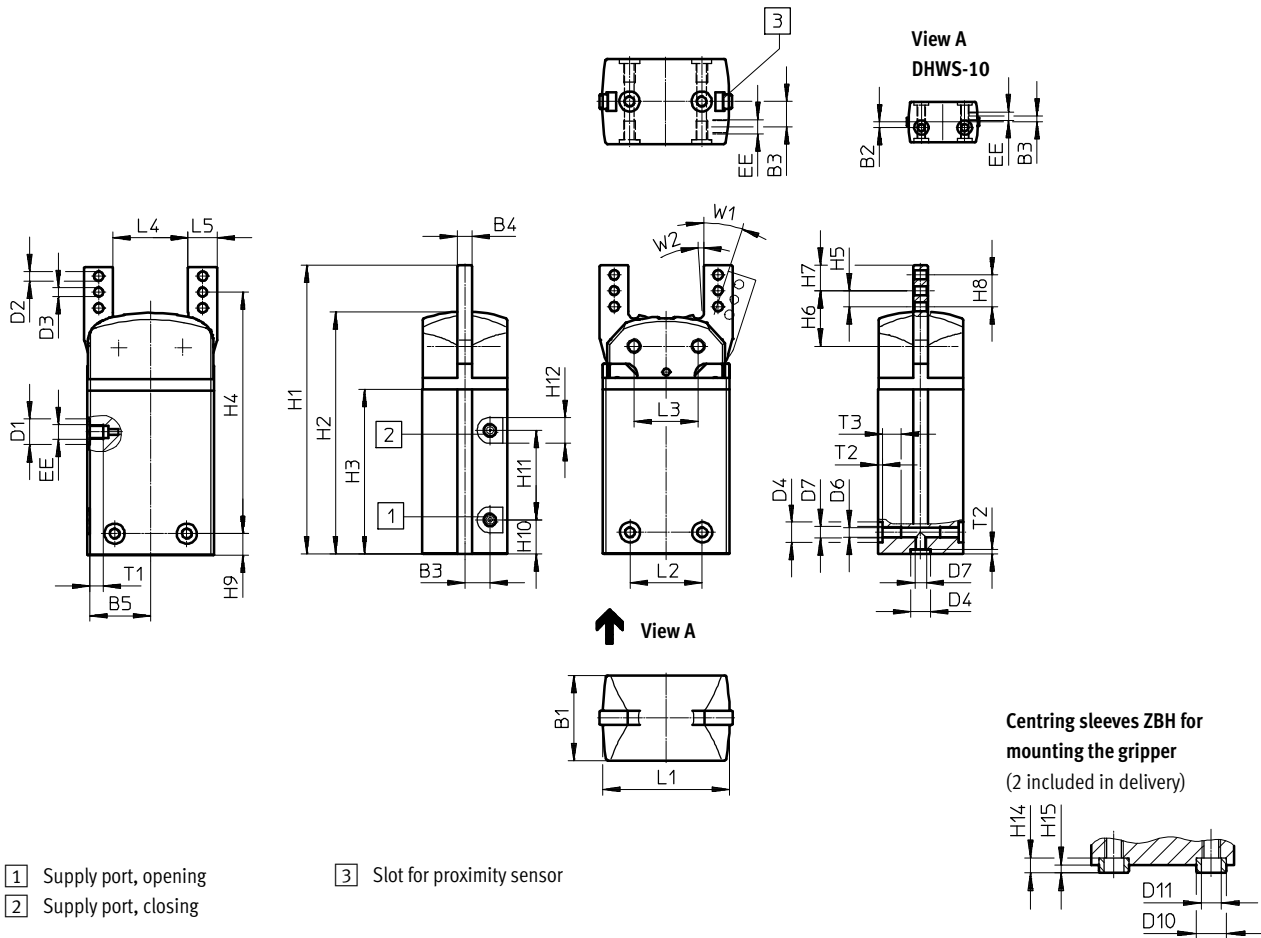
1) Packaging unit 10 pieces

2) 2 included in the scope of delivery of the gripper.

| Function | For size | Connection | | Part no. | Type |
|--|----------|-------------------------------|------|----------|---|
| | | Thread | O.D. | | |
| One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal | | | | | |
|  | 10, 16 | M3 | 3 | 175041 | GRLA-M3-QS-3 |
| | 25 | M5 | 4 | ★ 193138 | GRLA-M5-QS-4-D |
| | 32, 40 | G ¹ / ₈ | 6 | ★ 193144 | GRLA- ¹ / ₈ -QS-6-D |

3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate need to be selected to guarantee the optimal flow control function and cylinder speed.

Dimensions

Download CAD data → www.festo.com

- 1 Supply port, opening
2 Supply port, closing

- 3 Slot for proximity sensor

Centring sleeves ZBH for
mounting the gripper
(2 included in delivery)

| Size | B1 ±0.05 | B2 ¹⁾ | B3 | B4 -0.03/ -0.05 | B5 | D1 ∅ | D2 ∅ ±0.1 | D3 ∅ H8 | D4 ∅ H8/h7 | D6 ∅ +0.1 | D7 | D10 ∅ H7 | D11 ∅ |
|------|-------------|------------------|------|-----------------------|------|---------|-----------------|---------------|------------------|-----------------|-----|----------------|----------|
| 10 | 14 | 2 | 2 | 3 | 11.6 | 7 | 2.2 | 2 | 5 | 2.4 | M3 | 5 | 3.2 |
| 16 | 19 | - | 5.8 | 4 | 16 | - | 3.2 | 2.5 | 5 | 2.5 | M3 | 5 | 3.2 |
| 25 | 29.5 | - | 8.75 | 5 | 21 | 9 | 3.2 | 3 | 7 | 3.3 | M4 | 7 | 5.3 |
| 32 | 38 | - | 11 | 6 | 24 | 15 | 4.3 | 3 | 9 | 5.1 | M6 | 9 | 6.4 |
| 40 | 49 | - | 11 | 8 | 28.4 | 15 | 5.3 | 4 | 12 | 6.4 | M 8 | 12 | 10.3 |

| Size | EE | H1 | H2 | H3 | H4 ±0.2 | H5 | H6 ±0.05 | H7 | H8 | H9 ²⁾ | H10 | H11 |
|------|------|------|-------|------|------------|-----|-------------|------|----|------------------|-------|-----|
| 10 | M3 | 56.3 | 46 | 30.8 | 38.25 | 3.5 | 10.95 | 5.75 | 7 | 12.3 | 8.8 | 16 |
| 16 | M3 | 81 | 67 | 45.5 | 66 | 4.5 | 15.5 | 7.5 | 9 | 7.5 | 12.25 | 23 |
| 25 | M5 | 100 | 84 | 57 | 83.7 | 5.5 | 19.2 | 8.8 | 11 | 7.5 | 11.8 | 31 |
| 32 | G1/8 | 116 | 96.2 | 65 | 100.5 | 6.5 | 22.5 | 11 | 13 | 11 | 20 | 25 |
| 40 | G1/8 | 129 | 108.4 | 71.5 | 99.5 | 7 | 24.5 | 12 | 14 | 17.5 | 9 | 46 |

| Size | H12 | H14 | H15 | L1 | L2 ¹⁾ | L3 | L4 | L5 -0.02/ -0.05 | T1 | T2 | T3 | W1 | W2 |
|------|-----|-----|-----|----|------------------|------|----|-----------------------|-----|-----|---------|----|----|
| 10 | 7 | 2.4 | 1.2 | 24 | 15 | 12.4 | 14 | 5.5 | 3.5 | 1.2 | through | 18 | 3 |
| 16 | 7 | 2.4 | 1.2 | 34 | 16 | 17 | 18 | 8 | 4.5 | 1.2 | 5.8 | 18 | 3 |
| 25 | 9 | 3 | 1.4 | 44 | 25 | 22.2 | 26 | 10 | 4.5 | 1.6 | 6.4 | 18 | 3 |
| 32 | 15 | 4 | 1.9 | 53 | 29 | 25.8 | 29 | 12 | 7.5 | 2.1 | 12.9 | 18 | 3 |
| 40 | 15 | 5 | 2.4 | 59 | 33 | 30 | 32 | 15 | 6 | 2.6 | 13.4 | 18 | 3 |

- 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



Overview/Configuration/Ordering
→ www.festo.com/catalogue/dhrs



Additional information/Support/User documentation
→ www.festo.com/sp/dhrs

Mechanical grippers
Radial grippers

DHRS



- + Lateral gripper jaw support for high torque loads
- + Self-centring
- + Gripper jaw centring options
- + Max. repetition accuracy



- High torque load
- Gripping torques of up to 725 Ncm
- Self-centring
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhrs

Product range overview

| Type/Function | Size | Opening angle [°] | Total gripping torque [Ncm] | Product overview | |
|---------------|----------------|----------------------|--------------------------------|------------------|----|
| | | | | A | NC |
| DHRS | | | | | |
| Double-acting | 10 | 180 | 15 ... 21 | ■ | – |
| | 16, 25, 32, 40 | 180 | 55 ... 725 | ■ | ■ |

Product overview

A Position sensing

NC Closing gripping force backup

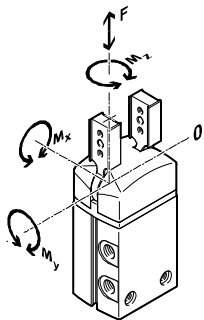
Data sheet



| Technical data | | | | | | Dimensions → 611 | |
|-----------------------------------|-----------|-------|----|----|------|------------------|-----|
| Size | 10 | 16 | 25 | 32 | 40 | | |
| Pneumatic connection | M3 | | M5 | | G1/8 | | |
| Max. opening angle | 180 [°] | | | | | | |
| Total gripping torque at 6 bar | Opening | [Ncm] | 21 | 62 | 233 | 423 | 725 |
| | Closing | [Ncm] | 15 | 55 | 215 | 390 | 660 |
| Repetition accuracy ¹⁾ | ≤0.1 [mm] | | | | | | |
| Max. operating frequency | 4 [Hz] | | 3 | | 2 | | |

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

Forces and torques



| Size | 10 | 16 | 25 | 32 | 40 | |
|-------------------------------|------|-----|-----|-----|-----|-----|
| Max. permissible force F_z | [N] | 30 | 40 | 75 | 120 | 200 |
| Max. permissible torque M_x | [Nm] | 0.8 | 1.3 | 3.2 | 6.2 | 14 |
| Max. permissible torque M_y | [Nm] | 0.8 | 1.3 | 3.2 | 6.2 | 14 |
| Max. permissible torque M_z | [Nm] | 0.8 | 1.3 | 3.2 | 6.2 | 14 |

Radial grippers DHRS

Data sheet

| Operating conditions | | Without gripping force backup | With gripping force backup |
|-----------------------------------|-------|-------------------------------|----------------------------|
| Operating pressure | [bar] | 2 ... 8 | 4 ... 8 |
| Ambient temperature ¹⁾ | [°C] | +5 ... +60 | |

1) Note operating range of proximity sensors.

| Materials | |
|-------------|---------------------------------------|
| Housing | Hard anodised wrought aluminium alloy |
| Gripper jaw | High-alloy stainless steel |
| Cover cap | PA |
| Piston | POM |
| Link | Tempered steel |
| Seals | NBR |

5

Order code

DHRS

--

A

-

| Type | |
|------|----------------|
| DHRS | Radial gripper |

| Size | |
|--------------------|--|
| 10, 16, 25, 32, 40 | |

| Position sensing | |
|------------------|-----------------------|
| A | Via proximity sensors |

| Gripping force backup | |
|-----------------------|---|
| - | None |
| NC | Closing 1 |

1 Not with size 10 mm.

Order example:

DHRS-25-A-NC

Radial gripper DHRS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

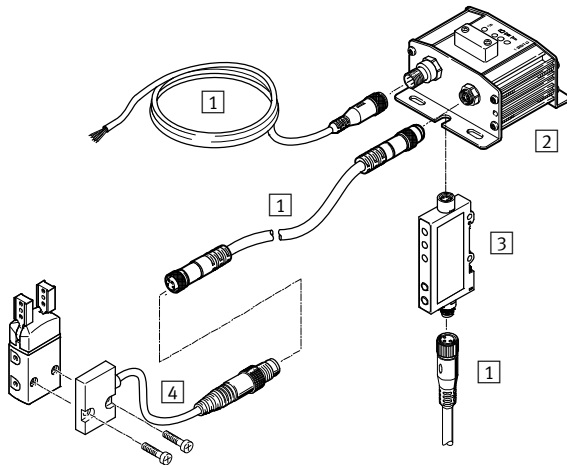
The configurator can be found under Products on the DVD or

[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

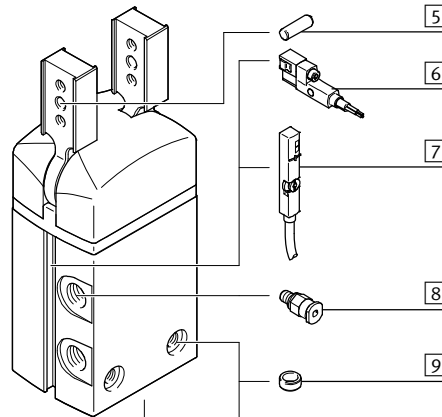
Enter the type code in the search field.

Accessories

DHRS-10






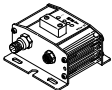
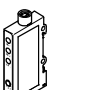
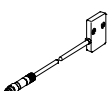
DHRS-16 ... 40







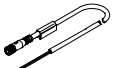


| | | → Page/online |
|---|-------------------------|---------------|
| 1 | Connecting cable NEBU | 609 |
| 2 | Evaluation unit SMH-AE1 | 609 |
| 3 | Signal converter SVE4 | 609 |
| 4 | Position sensor SMH-S1 | 609 |
| 5 | Centring pin | - |
| 6 | Proximity sensor SMT-8 | 610 |

| | | → Page/online |
|---|-----------------------------------|----------------------|
| 7 | Position transmitter SMAT-8M/SDAT | 610 |
| 8 | Push-in fitting QS | 1098 |
| 9 | Centring sleeve ZBH | 610 |
| - | Connecting cable NEBU | 610 |
| - | One-way flow control valve GRLA | 610 |
| - | Drive/Gripper connections | dhRS |

Accessories – Ordering data


| | For size | Cable length [m] | Part no. | Type | |
|--|---|------------------|---------------|-----------------------------|--|
| 1 Connecting cable | | | | | |
|  | Connection between evaluation unit/signal converter and position sensor | | | | |
| - | | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 | |
|  | Connection between evaluation unit and controller | | | | |
| - | | 2.5 | 541330 | NEBU-M12G5-K-2.5-LE5 | |
| - | | 5.0 | 541331 | NEBU-M12G5-K-5-LE5 | |
|  | Connection between signal converter and controller | | | | |
| - | | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| - | | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| 2 Evaluation unit, for size 10 Technical data online: → smh-ae | | | | | |
|  | PNP | - | 175708 | SMH-AE1-PS3-M12 | |
| | NPN | - | 175709 | SMH-AE1-NS3-M12 | |
| 3 Signal converter, for size 10 Technical data online: → sve4 | | | | | |
|  | PNP | - | 544216 | SVE4-HS-R-HM8-2P-M8 | |
| | NPN | - | 544219 | SVE4-HS-R-HM8-2N-M8 | |
| 4 Position sensor, for size 10 Technical data online: → smh-s1 | | | | | |
|  | Plug | - | 175712 | SMH-S1-HGR10 | |

Accessories – Ordering data

| | For size | Cable length [m] | Part no. | Type | |
|---|------------|---------------------|----------|----------------------------|---|
| | | | | | |
| 6 Proximity sensor for T-slot, for size 16 ... 40, magneto-resistive – N/O contact | | | | | Technical data online: → smt |
|  | PNP, cable | 2.5 | 547859 | SMT-8G-PS-24V-E-2,5Q-OE | |
| | PNP, plug | 0.3 | 547860 | SMT-8G-PS-24V-E-0,3Q-M8D | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541333 | NEBU-M8G3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541334 | NEBU-M8G3-K-5-LE3 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | ★ 541338 | NEBU-M8W3-K-2.5-LE3 | |
| | – | 5.0 | ★ 541341 | NEBU-M8W3-K-5-LE3 | |
| 7 Position transmitter for T-slot, for size 16 ... 40 | | | | | Technical data online: → smat |
|  | Plug | 0.3 | 553744 | SMAT-8M-U-E-0,3-M8D | |
| | Plug | 0.3 | 1531265 | SDAT-MHS-M50-1L-SA-E-03-M8 | |
| Connecting cable, straight socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | – | 5.0 | 541343 | NEBU-M8G4-K-5-LE4 | |
| Angled socket | | | | | Technical data → 1161 |
|  | – | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | – | 5.0 | 541345 | NEBU-M8W4-K-5-LE4 | |
| 9 Centring sleeve¹⁾²⁾ | | | | | Technical data online: → zbh |
|  | 10, 16 | – | 189652 | ZBH-5 | |
| | 25 | – | 186717 | ZBH-7 | |
| | 32 | – | 150927 | ZBH-9 | |
| | 40 | – | 189653 | ZBH-12 | |

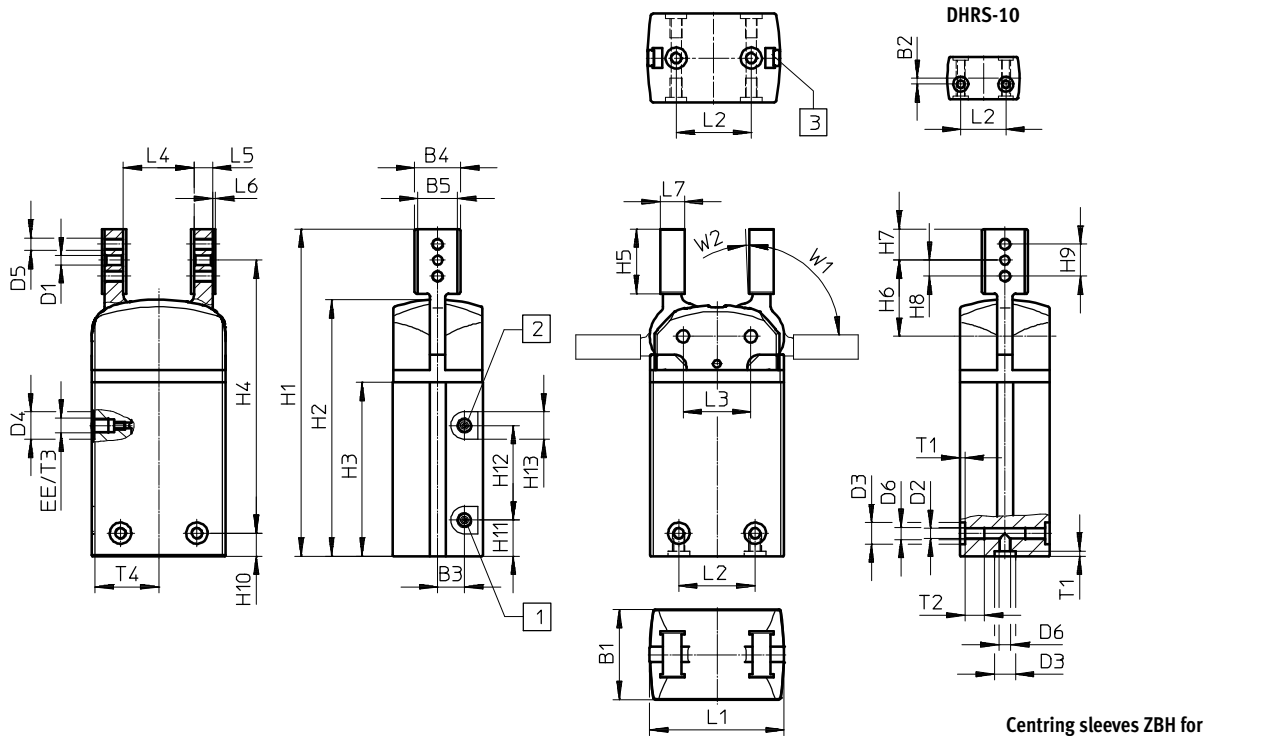
1) Packaging unit 10 pieces

2) 2 included in the scope of delivery of the gripper.

| Function | For size | Connection | | Part no. | Type |
|--|----------|-------------------------------|------|----------|----------------------|
| | | Thread | O.D. | | |
| One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal | | | | | Technical data → 758 |
|  | 10, 16 | M3 | 3 | 175041 | GRLA-M3-QS-3 |
| | 25 | M5 | 4 | ★ 193138 | GRLA-M5-QS-4-D |
| | 32, 40 | G ¹ / ₈ | 6 | ★ 193144 | GRLA-1/8-QS-6-D |

3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate needs to be selected to guarantee the optimal flow control function and cylinder speed.

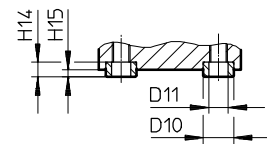
Dimensions

Download CAD data → www.festo.com

- 1 Supply port, opening
2 Supply port, closing

- 3 Slot for proximity sensor

Centring sleeves ZBH for
mounting the gripper
(2 included in delivery)



| Size | B1 ±0.05 | B2 ¹⁾ | B3 | B4 | B5 +0.03/ +0.01 | D1 ∅ H8 | D2 ∅ +0.1 | D3 ∅ H8/h7 | D4 ∅ | D5 | D6 | D10 ∅ h7 | D11 ∅ | EE |
|------|-------------|------------------|------|-----|-----------------------|---------------|-----------------|------------------|---------|------|----|----------------|----------|-----------------|
| 10 | 14 | 2 | 2 | 8.5 | 6.5 | 2 | 2.4 | 5 | 7 | M2.5 | M3 | 5 | 3.2 | M3 |
| 16 | 19 | – | 5.8 | 14 | 10 | 2 | 2.5 | 5 | – | M3 | M3 | 5 | 3.2 | M3 |
| 25 | 29.5 | – | 8.75 | 15 | 13 | 3 | 3.3 | 7 | 9 | M4 | M4 | 7 | 5.3 | M5 |
| 32 | 38 | – | 11 | 16 | 14 | 4 | 5.1 | 9 | 15 | M5 | M6 | 9 | 6.4 | G $\frac{1}{8}$ |
| 40 | 49 | – | 11 | 24 | 20 | 5 | 6.4 | 12 | 15 | M6 | M8 | 12 | 10.3 | G $\frac{1}{8}$ |

| Size | H1 | H2 | H3 | H4 ±0.25 | H5 ±0.2 | H6 ±0.05 | H7 –0.1 | H8 | H9 | H10 ²⁾ | H11 | H12 | H13 | H14 –0.2 |
|------|-------|-------|------|-------------|------------|-------------|------------|------|------|-------------------|-------|-----|-----|-------------|
| 10 | 60.8 | 46 | 30.8 | 42.25 | 13.8 | 14.95 | 6.25 | 4 | 8 | 12.3 | 8.8 | 16 | 7 | 2.4 |
| 16 | 88.2 | 70.5 | 49 | 73.7 | 16.5 | 19.7 | 7 | 4 | 8 | 7.5 | 12.25 | 23 | 7 | 2.4 |
| 25 | 107.2 | 84 | 57 | 89.45 | 21.2 | 24.95 | 10.25 | 5.25 | 10.5 | 7.5 | 11.8 | 31 | 9 | 3 |
| 32 | 128.5 | 96.2 | 65 | 103.5 | 29.5 | 32 | 14 | 7 | 14 | 11 | 20 | 25 | 15 | 4 |
| 40 | 140 | 108.4 | 71.5 | 108.7 | 29.5 | 33.7 | 13.8 | 8 | 16 | 17.5 | 9 | 46 | 15 | 5 |

| Size | H15 –0.3 | L1 ±0.05 | L2 ¹⁾ | L3 ±0.02 | L4 | L5 ±0.05 | L6 | L7 | T1 +0.1 | T2 +1 | T3 +0.5 | T4 | W1 ±2° | W2 +3° |
|------|-------------|-------------|------------------|-------------|------|-------------|-----|----|------------|----------|------------|------|-----------|-----------|
| 10 | 1.2 | 24 | 15 | 12.4 | 12 | 4 | 0.5 | 5 | 1.2 | through | 3.5 | 11.6 | 90 | 2 |
| 16 | 1.2 | 33.4 | 16 | 17 | 21 | 4 | 1 | 6 | 1.2 | 5.8 | 4.5 | 16 | 90 | 2 |
| 25 | 1.4 | 44 | 25 | 22.2 | 23.2 | 6 | 1 | 8 | 1.6 | 6.4 | 4.5 | 21 | 90 | 2 |
| 32 | 1.9 | 51 | 29 | 25.8 | 24.8 | 8 | 1 | 10 | 2.1 | 12.9 | 6.5 | 24 | 90 | 2 |
| 40 | 2.4 | 59 | 33 | 30 | 29.6 | 10 | 1 | 12 | 2.6 | 13.4 | 6 | 28.4 | 90 | 2 |

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

