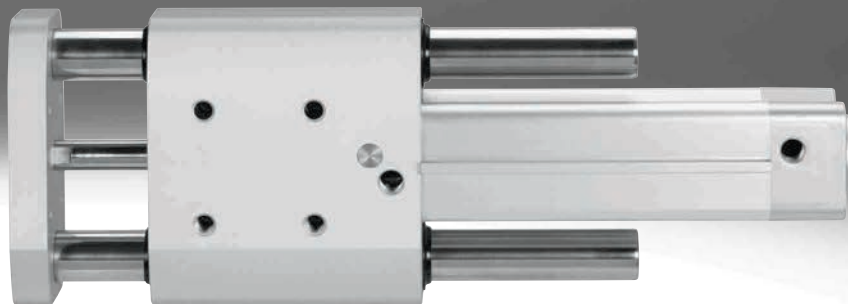


Guided drives DGRF-C, clean design

FESTO



Key features and product range overview

At a glance

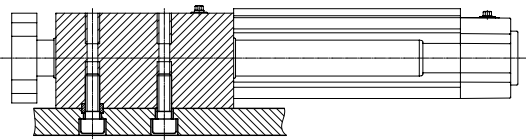
- The guided drive is used wherever hygiene, ease of cleaning and resistance are important, predominantly in dry and splash zones in the food and packaging industry.
- Corrosion-resistant in harsh environmental conditions
- Easy-to-clean design
- NSF H1-compliant lubrication
- Resistant to conventional cleaning agents
- For hygiene reasons, the threads on the end caps should be sealed with suitable plug screws
- With a dry-running seal (A3), the drive will continue to function reliably even if the lubricant has been washed away due to frequent cleaning.

Areas of application:

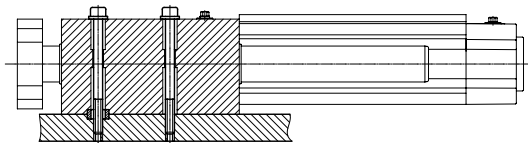
- Bottling systems in the beverage industry
 - Labelling and palletising machines
- Milk processing
 - Filling ice cream and yoghurt containers, etc.
- Meat processing
- Confectionery production
- Production of baked goods
- Packaging industry
 - Food, pharmaceuticals, cosmetics, chemicals, beverages and tobacco

Mounting options

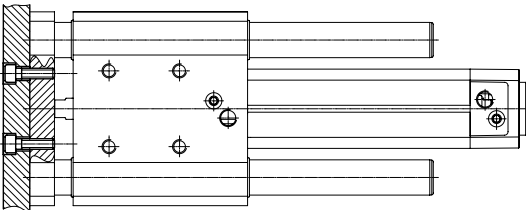
From underneath



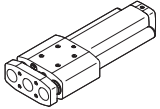
From above



On the yoke plate



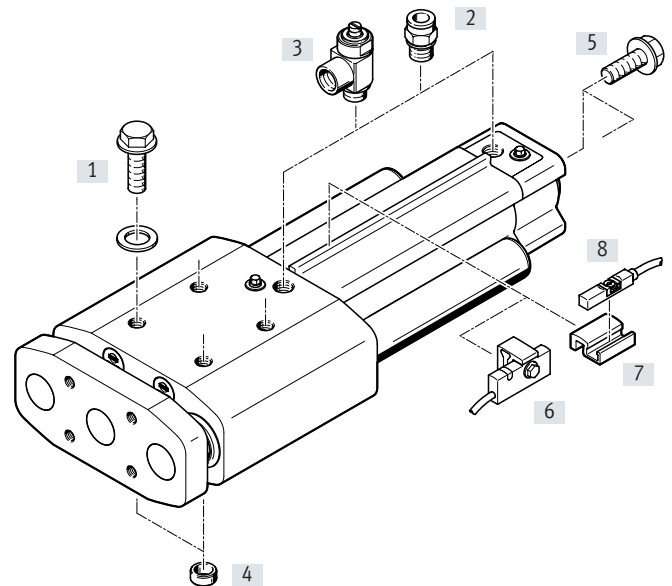
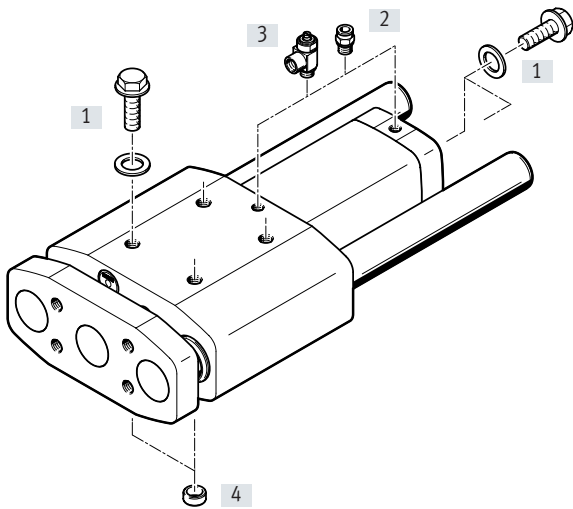
Product range overview

| Function | Type | Piston diameter | Stroke | Cushioning | | | Position sensing A | Mounting rail R | Unlubricated operation A3 |
|---------------|---|-----------------|------------|------------|-----|-----|-----------------------|--------------------|---------------------------------|
| | | | | P | PPV | PPS | | | |
| Double-acting |  | 20, 25 | 10 ... 400 | ■ | – | – | – | – | ■ |
| | | 32 | 10 ... 400 | ■ | ■ | ■ | ■ | ■ | ■ |
| | | 40, 50, 63 | 10 ... 400 | – | ■ | ■ | ■ | ■ | ■ |

Peripherals overview

Piston diameter 20, 25

Piston diameter 32, 40, 50, 63



| Accessories | | Description | DGRF...- | | | → Page/ Internet |
|-------------|---|---|----------|-----------------|-----|---------------------|
| | | | P | PPV | PPS | |
| [1] | Plug screw DAMD | <ul style="list-style-type: none"> For sealing unused mounting threads Screws are not included in the scope of delivery of the drive Cover plate is included in scope of delivery of the screw | ■ | ■ | ■ | 15 |
| [2] | Push-in fitting NPQH/CRQS/CRQSL/NPQP | <ul style="list-style-type: none"> For connecting compressed air tubing with standard O.D. | ■ | ■ | ■ | 13 |
| [3] | One-way flow control valve CRGRLA/VFOH | <ul style="list-style-type: none"> For regulating speed | ■ | ■ | ■ | 14 |
| [4] | Centring sleeve ZBH | <ul style="list-style-type: none"> For centring the guided drive Two centring sleeves included in the scope of delivery | ■ | ■ | ■ | 15 |
| [5] | Plug screw DAMD | <ul style="list-style-type: none"> For sealing unused mounting threads Screws are not included in the scope of delivery of the drive | ■ | ■ | ■ | 15 |
| [6] | Proximity sensor SMT-C1 | <ul style="list-style-type: none"> For sensing the piston rod position Proximity sensor is fitted on the sensor mounting rail | ■ | ■ | ■ | 12 |
| [7] | Mounting kit SMB-8-C | <ul style="list-style-type: none"> For fitting the proximity sensor CRSMT-8M Mounting kit is fitted on the sensor mounting rail | – | ■ ¹⁾ | ■ | 12 |
| [8] | Proximity sensor CRSMT-8M | <ul style="list-style-type: none"> For sensing the piston rod position | – | ■ ¹⁾ | ■ | 12 |

1) Possible when ordering drives from 02/2014 (series E2).

Type codes

| | | |
|-------------|---|--|
| 001 | Series | |
| DGRF | Guided drive, double-acting, clean design | |

| | | |
|------------|------------------------|--|
| 002 | Product version | |
| C | Easy-to-clean design | |

| | | |
|------------|---------------|--|
| 003 | Guide | |
| GF | Plain bearing | |

| | | |
|------------|------------------------|--|
| 004 | Piston diameter | |
| 20 | 20 | |
| 25 | 25 | |
| 32 | 32 | |
| 40 | 40 | |
| 50 | 50 | |
| 63 | 63 | |

| | | |
|------------|---------------|--|
| 005 | Stroke | |
| ... | 10 ... 400 | |

| | | |
|------------|---|--|
| 006 | Cushioning | |
| P | Elastic cushioning rings/plates on both sides | |
| PPS | Pneumatic cushioning, self-adjusting at both ends | |
| PPV | Pneumatic cushioning, adjustable at both ends | |

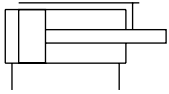
| | | |
|------------|-------------------------|--|
| 007 | Position sensing | |
| | None | |
| A | For proximity sensor | |


| | | |
|------------|----------------------------------|--|
| 008 | Sensor mounting, external | |
| | None | |
| R | Mounting rail for sensors | |


| | | |
|------------|----------------------------|--|
| 009 | Scraper variant | |
| | None | |
| A3 | For unlubricated operation | |

Data sheet

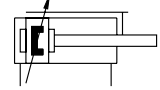
P cushioning



 Diameter
 20 ... 63 mm

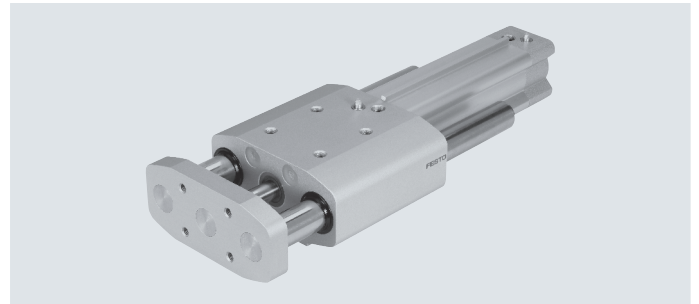
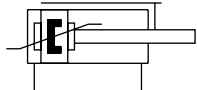
 Stroke length
 10 ... 400 mm

PPV cushioning



 www.festo.com

PPS cushioning


General technical data

| Piston diameter | 20 | 25 | 32 | 40 | 50 | 63 | |
|----------------------------------|----------------------|---------------------------------------|----------------------|------|---|------|--|
| Pneumatic connection | M5 | M5 | G1/8 | G1/4 | G1/4 | G3/8 | |
| Mode of operation | Double-acting | | | | | | |
| Design | Guide | | | | | | |
| | Guide rods with yoke | | | | | | |
| Guide | Plain-bearing guide | | | | | | |
| Cushioning | P | Elastic cushioning rings at both ends | | | - | | |
| | PPV | - | | | Pneumatic cushioning, adjustable at both ends | | |
| | PPS | - | | | Pneumatic cushioning, self-adjusting at both ends | | |
| Cushioning length | [mm] | - | | 20 | 20 | 22 | |
| Position sensing | - | | Via proximity sensor | | | | |
| Type of mounting | With through-hole | | | | | | |
| | Via female thread | | | | | | |
| Mounting position | Any | | | | | | |
| Torsional backlash ¹⁾ | [°] | 0.13 | 0.11 | 0.10 | 0.09 | 0.07 | |

1) Retracted state, without load

Operating and environmental conditions

| Piston diameter | 20 | 25 | 32 | 40 | 50 | 63 |
|--|--|-------------|----------|----------|------------|------------|
| Variant | | | P | PPV/PPS | | |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | | | |
| Note on the operating/pilot medium | Lubricated operation possible (in which case lubricated operation will always be required) | | | | | |
| Operating pressure | [bar] | 2.5 ... 10 | 2 ... 10 | 2 ... 12 | 2 ... 12 | 1.5 ... 12 |
| | A3 [bar] | 2 ... 10 | | 2 ... 12 | 1.5 ... 12 | |
| Ambient temperature | [°C] | -20 ... +80 | | | | |
| Food-safe ¹⁾ | → Supplementary information on materials | | | | | |
| Corrosion resistance class CRC ²⁾ | 3 | | | | | |

1) Additional information is available at www.festo.com/sp → Certificates.

2) Corrosion resistance class CRC 3 to Festo standard FN 940070

High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

Data sheet


| Forces [N] and impact energy [J] | | | | | | |
|---|-----|-----|-----|-----|------|------|
| Piston diameter | 20 | 25 | 32 | 40 | 50 | 63 |
| Theoretical force at 6 bar, advancing | 189 | 295 | 483 | 754 | 1178 | 1870 |
| Theoretical force at 6 bar, retracting | 141 | 247 | 415 | 633 | 990 | 1682 |
| Max. impact energy in the end positions with P cushioning | 0.2 | 0.3 | 0.4 | – | – | – |

Permissible impact velocity: $v_{perm.}$ Permissible impact velocity
 E Max. impact energy
 m_1 Moving mass (drive)
 m_2 Moving payload

$$v = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

Maximum permissible mass:

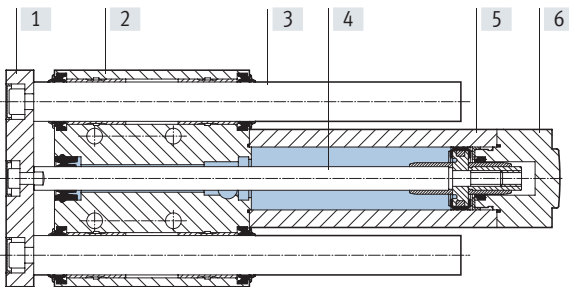
$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

 **Note**
 These specifications represent the maximum values that can be achieved. The maximum permissible impact energy must be observed.

| Weight [g] | | | | | | | |
|------------------------------------|-----|------|------|---------|------|------|------|
| Piston diameter Variant | 20 | 25 | 32 | | 40 | 50 | 63 |
| | | | P | PPV/PPS | | | |
| Product weight with 0 mm stroke | 885 | 1199 | 2090 | 2305 | 3000 | 4800 | 6405 |
| Additional weight per 10 mm stroke | 52 | 55 | 80 | 78 | 90 | 140 | 143 |
| Moving mass with 0 mm stroke | 417 | 486 | 902 | 904 | 1065 | 1792 | 2114 |
| Moving mass per 10 mm stroke | 38 | 38 | 58 | 58 | 65 | 102 | 102 |

Materials

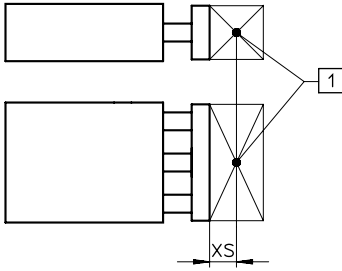
Sectional view



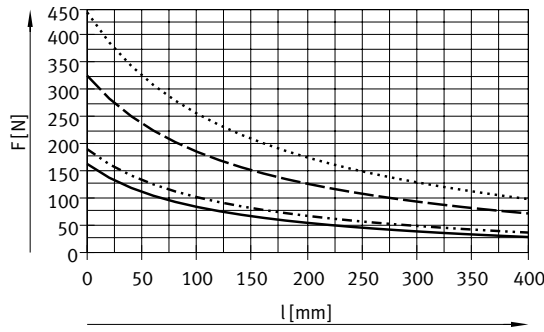
| Guided drive | |
|----------------------|---|
| [1] Yoke plate | Anodised wrought aluminium alloy |
| [2] Housing | Anodised wrought aluminium alloy |
| [3] Guide rod | High-alloy stainless steel |
| [4] Piston rod | High-alloy stainless steel |
| [5] Cylinder barrel | Anodised wrought aluminium alloy |
| [6] Cover | |
| DGRF...-20/-25/-32-P | Anodised wrought aluminium alloy |
| DGRF...-32-PPV/PPS | Coated die-cast aluminium |
| DGRF...-40/-50/-63 | Coated die-cast aluminium |
| – Seal | |
| DGRF... | TPE-U (PUR) media seal (modified for resistance to hydrolysis and cleaning) |
| DGRF...-A3 | PE |
| Note on materials | RoHS-compliant |

Data sheet

Max. effective load F as a function of stroke l

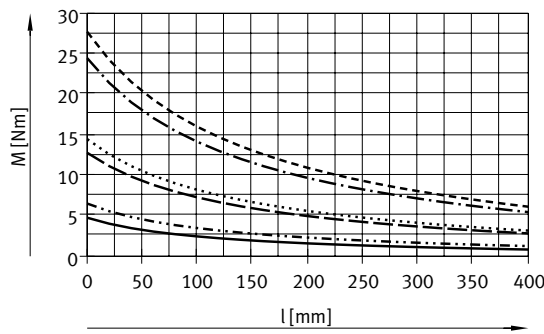
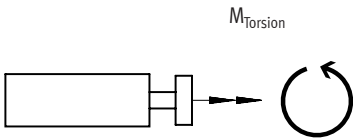


- Load data is based on a distance from the centre of gravity of XS = 50 mm
 - Load data can be requested for larger distances
- [1] Centre of gravity of payload



- ø 20
- ø 25
- - - ø 32/40
- · - · ø 50/63

Max. torque load M as a function of stroke l

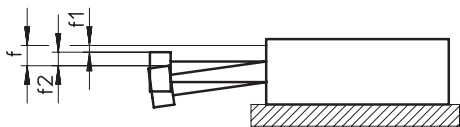


- ø 20
- ø 25
- - - ø 32
- · - · ø 40
- - - - ø 50
- - - - ø 63

Data sheet

Deflection of the piston rod

Deflection f_1 due to bearing clearance as a function of stroke l



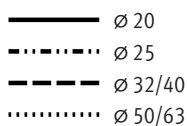
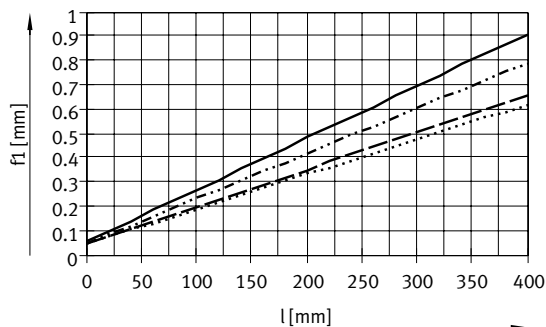
$$f = f_1 + f_2$$

f = Total deflection of the piston rod

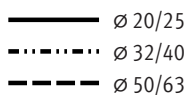
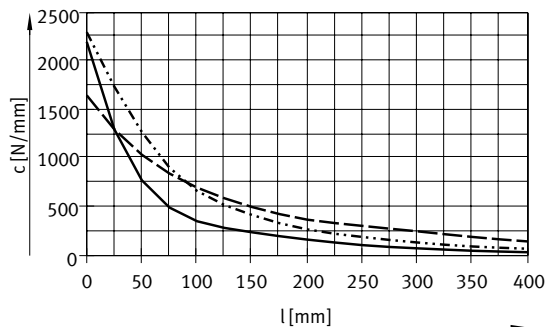
f_1 = Deflection due to bearing clearance

f_2 = Deflection due to transverse load

Deflection f_1 ,
due to bearing clearance as a function of stroke l



Deflection f_2 ,
due to payload F and rigidity c as a function of stroke l

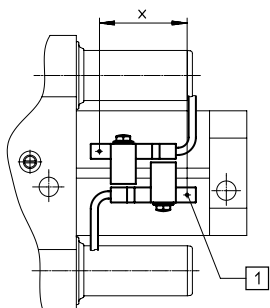


End-position sensing

With proximity sensor SMT-C1

A minimum stroke is required to be able to sense both end positions at the cylinder.

- [1] Position of the proximity sensor within the housing.

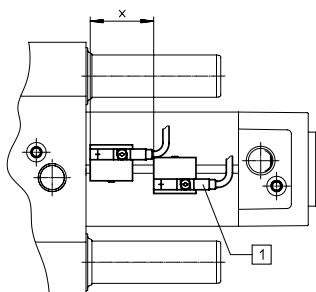


| Piston diameter | 32 | 40 | 50 | 63 |
|-----------------------|----|----|----|----|
| Minimum stroke x [mm] | 35 | 35 | 35 | 30 |

With mounting kit SMB-8-C and proximity sensor CRSMT-8M

A minimum stroke is required to be able to sense both end positions at the cylinder.

- [1] Position of the proximity sensor within the housing.



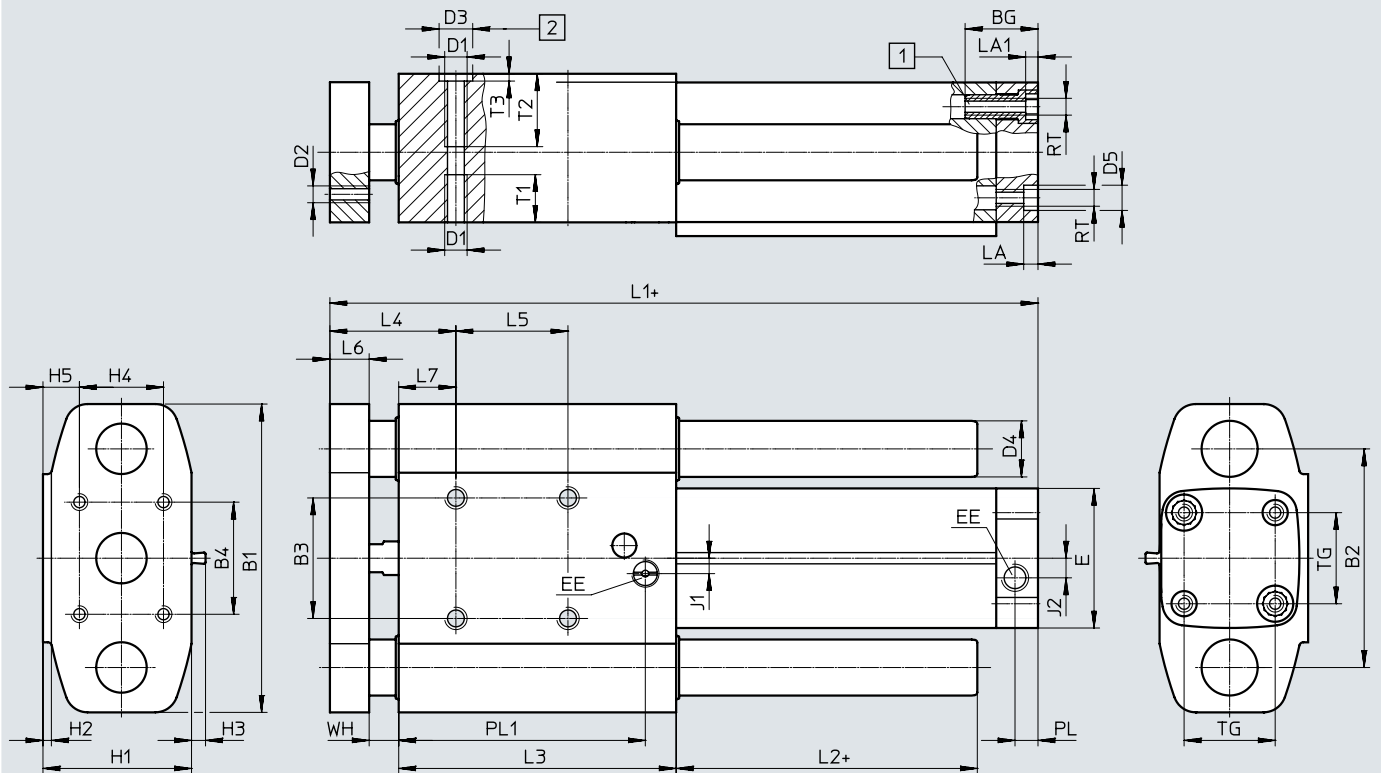
| Piston diameter | 32 | 40 | 50 | 63 |
|-----------------------|----|----|----|----|
| Minimum stroke x [mm] | 30 | 30 | 30 | 30 |

Data sheet

Dimensions

Download CAD data → www.festo.com

DGRF...-P – Elastic cushioning rings at both ends



+ = plus stroke length

[1] Socket head screw with female thread

[2] Centring holes for centring sleeve ZBH

| ∅ | BG | B1 | B2 | B3 ²⁾ | B4 | D1 | D2 | D3 ³⁾ | D4 | D5 | E | EE |
|------|------|-----|----|------------------|----|----|----|------------------|----|------|----|------|
| [mm] | | | | | | | | ∅ H7 | ∅ | ∅ F9 | | |
| 20 | 19.5 | 83 | 58 | 30 | 30 | M6 | M5 | 9 | 16 | 9 | 37 | M5 |
| 25 | 19.5 | 95 | 68 | 35 | 40 | M6 | M6 | 9 | 16 | 9 | 42 | M5 |
| 32 | 26 | 110 | 78 | 43 | 40 | M8 | M6 | 12 | 20 | 9 | 50 | G1/8 |

| ∅ | H1 | H2 | H3 ¹⁾ | H4 | H5 | J1 | J2 | L1 | L2 | L3 | L4 | L5 |
|------|----|----|------------------|----|------|-----|----|---------------|-----|----|------------|----|
| [mm] | | | | | | | | | | | | |
| 20 | 39 | 2 | - | 20 | 10.5 | 0 | 0 | 115 +1.4/-0.8 | 7 | 68 | 40 +1/-0.9 | 30 |
| 25 | 44 | 2 | - | 20 | 13 | 0 | 0 | 126 +1.4/-0.8 | 7 | 77 | 40 +1/-0.9 | 40 |
| 32 | 53 | 3 | 5 | 30 | 13 | 5.5 | 7 | 152.8 ±1.1 | 7.4 | 99 | 45 +0.9/-1 | 40 |

| ∅ | L6 | L7 | LA | LA1 | PL | PL1 | RT | T1 | T2 | T3 | TG | WH |
|------|----|------|-----|-----|-----|-----|----|----|----|-----|------|----------------|
| [mm] | | | | | | | | | | | | |
| 20 | 12 | 18 | 4.9 | 4.6 | 6 | 62 | M5 | 13 | 20 | 2.1 | 22 | 10 +0.5/-0.7 |
| 25 | 12 | 18 | 4.9 | 4.6 | 6 | 71 | M5 | 13 | 25 | 2.1 | 26 | 10 +0.5/-0.7 |
| 32 | 14 | 20.4 | 5.1 | 4.6 | 8.2 | 88 | M6 | 17 | 26 | 2.6 | 32.5 | 10.7 +0.3/-0.9 |

1) Only in combination with sensor mounting rail (DGRF-32...-R)

2) Tolerance between the centring holes ±0.02 mm

3) Two centring sleeves included in the scope of delivery

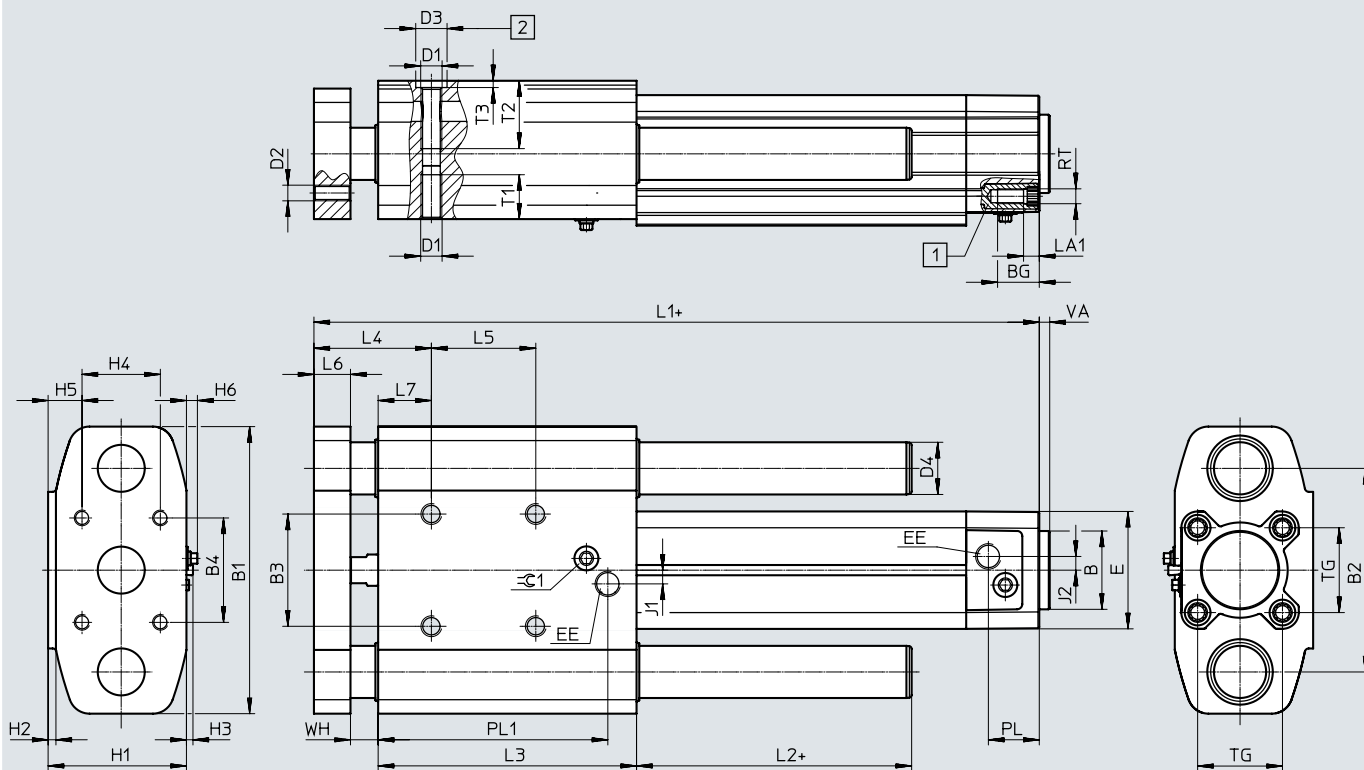
Data sheet

Dimensions

Download CAD data → www.festo.com

DGRF-...-PPV – Pneumatic cushioning, adjustable at both ends,

DGRF-...-PPS – Pneumatic cushioning, self-adjusting at both ends



+ = plus stroke length

[1] Socket head screw with female thread

[2] Centring holes for centring sleeve ZBH

| ∅ | B ∅ d11 | BG | B1 | B2 | B3 ²⁾ | B4 | D1 | D2 | D3 ³⁾ ∅ H7 | D4 ∅ | E | EE | H1 | H2 |
|----|---------------|----|-----|-----|------------------|----|-----|----|-----------------------------|---------|----|------|----|----|
| 32 | 30 | 16 | 110 | 78 | 43 | 40 | M8 | M6 | 12 | 20 | 45 | G1/8 | 53 | 3 |
| 40 | 35 | 16 | 120 | 88 | 51 | 50 | M8 | M6 | 12 | 20 | 54 | G1/4 | 61 | 3 |
| 50 | 40 | 17 | 148 | 110 | 64 | 60 | M8 | M8 | 12 | 25 | 64 | G1/4 | 73 | 3 |
| 63 | 45 | 17 | 162 | 125 | 80 | 80 | M10 | M8 | 12 | 25 | 75 | G3/8 | 84 | 3 |

| ∅ | H3 ¹⁾ | H4 | H5 | H6 | J1 | J2 | L1 | L2 | L3 | L4 | L5 |
|----|------------------|----|------|-----|-----|-----|-----------------|-----|-----|--------------|----|
| 32 | 2.5 | 30 | 13 | 5.6 | 5.3 | 5.3 | 177.6 +1.9/-1.2 | 7.4 | 99 | 45 +1.5/-1.1 | 40 |
| 40 | 3 | 30 | 17 | 5.6 | 4 | 4 | 183.5 +1.9/-1.3 | 7.5 | 99 | 45 +1.5/-1.1 | 40 |
| 50 | 2 | 40 | 18 | 7.5 | 5.5 | 5.5 | 193.5 +1.7/-1.3 | 7.7 | 105 | 50 +1.3/-1.2 | 40 |
| 63 | 2 | 40 | 23.5 | 9.3 | 6.3 | 6.3 | 207.3 +1.7/-1.3 | 7.5 | 105 | 50 +1.3/-1.2 | 40 |

| ∅ | L6 | L7 | LA1 | PL | PL1 | RT | T1 | T2 | T3 | TG | VA | WH | ⊕ 1 |
|----|----|------|-----|------|-----|----|----|----|-----|------|----|--------------|-----|
| 32 | 14 | 20.4 | 5.6 | 19.5 | 88 | M6 | 17 | 26 | 2.6 | 32.5 | 4 | 10.6 +1/-0.9 | 4 |
| 40 | 14 | 20.5 | 5.6 | 22.5 | 83 | M6 | 17 | 26 | 2.6 | 38 | 4 | 10.5 ±1/-1 | 4 |
| 50 | 16 | 22.7 | 6.1 | 22.5 | 89 | M8 | 17 | 20 | 2.6 | 46.5 | 4 | 11.3 +0.8/-1 | 4 |
| 63 | 20 | 18.5 | 6.1 | 27.5 | 88 | M8 | 17 | 24 | 2.6 | 56.5 | 4 | 11.5 +0.8/-1 | 4 |

1) Only in combination with sensor mounting rail (DGRF-...-R)

2) Tolerance between the centring holes ±0.02 mm

3) Two centring sleeves included in the scope of delivery

Ordering data – Modular product system

| Ordering table | | | | | | | | | |
|---------------------------|---------------------------------------|---------------|------------------------------------|---|---------------|---------------|-----------------|-------------|------------|
| Size | 20 | 25 | 32 | 40 | 50 | 63 | Condi- tions | Code | Enter code |
| Module no. | 562216 | 562217 | 563366 | 562219 | 562220 | 562221 | | | |
| Function | Guided drive | | | | | | | DGRF | DGRF |
| Product version | Easy-to-clean design | | | | | | | -C | -C |
| Guide | Plain-bearing guide | | | | | | | -GF | -GF |
| Piston diameter [mm] | 20 | 25 | 32 | 40 | 50 | 63 | | -... | |
| Stroke [mm] | 10 ... 400 | | | | | | | -... | |
| Cushioning | Elastic cushioning rings at both ends | | | - | | | | -P | |
| | - | | | Pneumatic cushioning, adjustable at both ends | | | | -PPV | |
| | - | | | Pneumatic cushioning, self-adjusting at both ends | | | | -PPS | |
| Position sensing | - | | Via proximity sensor | | | | [1] | A | |
| Sensor mounting, external | - | | Mounting rail for proximity sensor | | | | [1] | -R | |
| Wiper variant | Standard | | | | | | | | |
| | For unlubricated operation | | | | | | | -A3 | |

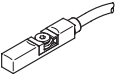
[1] A, R Always present with piston diameter 32 ... 63.

Accessories

Permissible with DGRF-...-PPV¹⁾/-PPS:

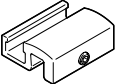
Ordering data – Proximity sensor for T-slot, magneto-resistive

Data sheets → Internet: smt

| | Type of mounting | Switching output | Electrical connection | Cable length [m] | Part no. | Type |
|--|--|------------------|-----------------------|------------------|----------|---------------------------|
| N/O contact | | | | | | |
|  | Inserted in the slot from above, flush with the mounting kit | PNP | Cable, 3-wire | 5.0 | 574380 | CRSMT-8M-PS-24V-K-5.0-OE |
| | | | Cable, 3-wire | 10.0 | 574381 | CRSMT-8M-PS-24V-K-10.0-OE |
| | | | Plug M8x1, 3-pin | 0.3 | 574383 | CRSMT-8M-PS-24V-K-0.3-M8D |
| | | | Plug M12x1, 3-pin | 0.3 | 574382 | CRSMT-8M-PS-24V-K-0.3-M12 |

1) Possible when ordering drives from 02/2014 (series E2).

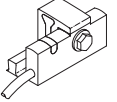
Ordering data – Mounting kit

| | Description | Part no. | Type |
|--|--|----------|---------|
|  | For fitting the proximity sensor CRSMT-8M on the mounting rail | 1806790 | SMB-8-C |

Permissible with DGRF-...-P/-PPV/-PPS:



Ordering data – Proximity sensor for T-slot, magneto-resistive

Data sheets → Internet: smt







| | Type of mounting | Switching output | Electrical connection | Cable length [m] | Part no. | Type |
|---|-----------------------------|------------------|-----------------------|------------------|----------|-------------------------|
| N/O contact | | | | | | |
|  | Fitted on the mounting rail | PNP | Cable, 3-wire | 5.0 | 571339 | SMT-C1-PS-24V-K-5.0-OE |
| | | | Plug M8x1, 3-pin | 0.3 | 571342 | SMT-C1-PS-24V-K-0.3-M8D |
| | | | Plug M12x1, 3-pin | 0.3 | 571341 | SMT-C1-PS-24V-K-0.3-M12 |

Ordering data – Connecting cables for SMT-C1-...

Data sheets → Internet: nebu


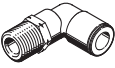

| | Electrical connection, left | Electrical connection, right | Cable length [m] | Part no. | Type |
|--|-------------------------------|------------------------------|------------------|----------|----------------------|
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire | 2.5 | 541333 | NEBU-M8G3-K-2.5-LE3 |
| | | | 5 | 541334 | NEBU-M8G3-K-5-LE3 |
| | Straight socket, M12x1, 5-pin | Cable, open end, 3-wire | 2.5 | 541363 | NEBU-M12G5-K-2.5-LE3 |
| | | | 5 | 541364 | NEBU-M12G5-K-5-LE3 |
|  | Angled socket, M8x1, 3-pin | Cable, open end, 3-wire | 2.5 | 541338 | NEBU-M8W3-K-2.5-LE3 |
| | | | 5 | 541341 | NEBU-M8W3-K-5-LE3 |
| | Angled socket, M12x1, 5-pin | Cable, open end, 3-wire | 2.5 | 541367 | NEBU-M12W5-K-2.5-LE3 |
| | | | 5 | 541370 | NEBU-M12W5-K-5-LE3 |

Accessories



| Ordering data – Push-in fittings | | | | | | | Data sheets → Internet: qs | | | | |
|---|---|---|--|--|---------------------|-----------------------|----------------------------|-------------------------|----------------------|-------------------------|---|
| | Connection Thread | Tubing O.D. | Material | Weight [g] | Part no. | Type | PU ²⁾ | | | | |
| With external hex | | | | | | | | | | | |
|  | M5 | 4 | High-alloy stainless steel | 4.2 | 1857681 | NPCK-C-D-M5-K4 | 1 | | | | |
| | | G1/8 | | 6 | 14.1 | 1366257 | | NPCK-C-D-G18-K6 | | | |
| | | | | 8 | 13.4 | 1490383 | | NPCK-C-D-G18-K8 | | | |
| | G1/4 | 8 | | 28.85 | 1691701 | NPCK-C-D-G14-K8 | | | | | |
| | | 10 | | 32.9 | 1489336 | NPCK-C-D-G14-K10 | | | | | |
| | G3/8 | 10 | | 51.15 | 1489614 | NPCK-C-D-G38-K10 | | | | | |
|  | M5 | 4 | | Nickel-plated brass, with sealing ring | 5.8 | 578334 | NPQH-D-M5-Q4-P10 | 10 | | | |
| | | G1/8 | | | 6 | 11.2 | 578335 | | NPQH-D-M5-Q6-P10 | | |
| | | | | | 8 | 6.3 | 578338 | | NPQH-D-G18-Q4-P10 | | |
| | 6 | | | | 9.2 | 578339 | NPQH-D-G18-Q6-P10 | | | | |
| | G1/4 | 8 | 11.9 | | 578340 | NPQH-D-G18-Q8-P10 | | | | | |
| | | 6 | 13.1 | | 578341 | NPQH-D-G14-Q6-P10 | | | | | |
| | | 8 | 14.1 | | 578342 | NPQH-D-G14-Q8-P10 | | | | | |
| | G3/8 | 10 | 17.5 | | 578343 | NPQH-D-G14-Q10-P10 | | | | | |
| | | 8 | 20.6 | | 578345 | NPQH-D-G38-Q8-P10 | | | | | |
| | | 10 | 22.7 | | 578346 | NPQH-D-G38-Q10-P10 | | | | | |
| | | 12 | 29.8 | | 578347 | NPQH-D-G38-Q12-P10 | | | | | |
| | |  | M5 | | 4 | Stainless steel | 6.0 | | 162860 | CRQS-M5-4 ¹⁾ | 1 |
| R1/8 | | | | 6 | 8.4 | | 162861 | CRQS-M5-6 ¹⁾ | | | |
| | 4 | | | 8.7 | 132643 | | CRQS-1/8-4 | | | | |
| | 6 | | 9.9 | 162862 | CRQS-1/8-6 | | | | | | |
| R1/4 | 8 | | 12 | 162863 | CRQS-1/8-8 | | | | | | |
| | 6 | | 18 | 132644 | CRQS-1/4-6 | | | | | | |
| | 8 | | 18 | 162864 | CRQS-1/4-8 | | | | | | |
| R3/8 | 10 | | 22 | 162865 | CRQS-1/4-10 | | | | | | |
| | 10 | | 29 | 162866 | CRQS-3/8-10 | | | | | | |
| | 12 | | 37 | 162867 | CRQS-3/8-12 | | | | | | |
| |  | | R1/8 | 4 | Polypropylene | | 2.5 | 133041 | NPQP-D-R18-Q4-FD-P10 | 10 | |
| | | | | 6 | | | 3.0 | 133043 | NPQP-D-R18-Q6-FD-P10 | | |
| | | 8 | | | | 4.5 | 133045 | NPQP-D-R18-Q8-FD-P10 | | | |
| R1/4 | | 6 | 3.5 | | | 133044 | NPQP-D-R14-Q6-FD-P10 | | | | |
| | | 8 | 4.5 | 133046 | | NPQP-D-R14-Q8-FD-P10 | | | | | |
| | | 10 | 7.0 | 133047 | | NPQP-D-R14-Q10-FD-P10 | | | | | |
| R3/8 | 10 | 8.0 | 133048 | NPQP-D-R38-Q10-FD-P10 | | | | | | | |
| | 12 | 12.0 | 133049 | NPQP-D-R38-Q12-FD-P10 | | | | | | | |
| | With internal hex | | | | | | | | | | |
|  | M5 | 4 | Nickel-plated brass, with sealing ring | 4.5 | | 578370 | NPQH-DK-M5-Q4-P10 | 10 | | | |
| | | G1/8 | | 6 | | 8.8 | 578371 | | NPQH-DK-M5-Q6-P10 | | |
| | | | | 4 | | 6.2 | 578374 | | NPQH-DK-G18-Q4-P10 | | |
| | G1/4 | 8 | | 9.1 | 578375 | NPQH-DK-G18-Q6-P10 | | | | | |
| | | 8 | | 12.8 | 578376 | NPQH-DK-G18-Q8-P10 | | | | | |
| | | 10 | | 14.4 | 578377 | NPQH-DK-G14-Q8-P10 | | | | | |
| G3/8 | 12 | 18.6 | | 578378 | NPQH-DK-G14-Q10-P10 | | | | | | |
| 28.2 | 578379 | NPQH-DK-G38-Q12-P10 | | | | | | | | | |
|  | M5 | 4 | | Stainless steel | 5 | 132328 | CRQS-M5-4-I ¹⁾ | | 1 | | |
| | | 6 | | | 7.7 | 132329 | CRQS-M5-6-I ¹⁾ | | | | |
| | R1/8 | 6 | | | 8.4 | 132330 | CRQS-1/8-6-I | | | | |
| | | 8 | | | 12 | 132331 | CRQS-1/8-8-I | | | | |
| | R1/4 | 8 | 15 | | 132332 | CRQS-1/4-8-I | | | | | |
| | | 10 | 21 | | 132333 | CRQS-1/4-10-I | | | | | |
| | | 10 | 24 | | 132334 | CRQS-3/8-10-I | | | | | |

- 1) With sealing ring
- 2) Packaging unit

Accessories


| Ordering data – Push-in L-fittings | | | | | | Data sheets → Internet: qs | |
|--|--|-------------|--|------------|---------------|----------------------------|------------------|
| | Connection Thread | Tubing O.D. | Material | Weight [g] | Part no. | Type | PU ²⁾ |
| With external hex | | | | | | | |
|  | M5 | 4 | Nickel-plated brass, with sealing ring | 8.9 | 578276 | NPQH-L-M5-Q4-P10 | 10 |
| | | 6 | | 12.2 | 578277 | NPQH-L-M5-Q6-P10 | |
| | G1/8 | 4 | | 16.3 | 578280 | NPQH-L-G18-Q4-P10 | |
| | | 6 | | 19.3 | 578281 | NPQH-L-G18-Q6-P10 | |
| | | 8 | | 22.2 | 578282 | NPQH-L-G18-Q8-P10 | |
| | G1/4 | 6 | | 22.4 | 578283 | NPQH-L-G14-Q6-P10 | |
| | | 8 | | 25.8 | 578284 | NPQH-L-G14-Q8-P10 | |
| | | 10 | | 33.1 | 578285 | NPQH-L-G14-Q10-P10 | |
| | | 12 | | 59.6 | 578286 | NPQH-L-G14-Q12-P10 | |
| | G3/8 | 8 | | 36.7 | 578287 | NPQH-L-G38-Q8-P10 | |
| | | 10 | | 38.2 | 578288 | NPQH-L-G38-Q10-P10 | |
| | | 12 | | 58.2 | 578289 | NPQH-L-G38-Q12-P10 | |
|  | M5 | 4 | Stainless steel | 12 | 162870 | CRQSL-M5-4 ¹⁾ | 1 |
| | | 6 | | 18 | 162871 | CRQSL-M5-6 ¹⁾ | |
| | R1/8 | 4 | | 14 | 132598 | CRQSL-1/8-4 | |
| | | 6 | | 19 | 162872 | CRQSL-1/8-6 | |
| | | 8 | | 26 | 162873 | CRQSL-1/8-8 | |
| | R1/4 | 6 | | 26 | 132599 | CRQSL-1/4-6 | |
| | | 8 | | 30 | 162874 | CRQSL-1/4-8 | |
| | | 10 | | 42 | 162875 | CRQSL-1/4-10 | |
| | R3/8 | 10 | | 49 | 162876 | CRQSL-3/8-10 | |
| | | 12 | | 65 | 162877 | CRQSL-3/8-12 | |
| | | | | | | | |
| |  | R1/8 | | 4 | Polypropylene | 4.0 | |
| 6 | | | 5.0 | 133053 | | NPQP-L-R18-Q6-FD-P10 | |
| 8 | | | 7.0 | 133055 | | NPQP-L-R18-Q8-FD-P10 | |
| R1/4 | | 6 | 5.5 | 133054 | | NPQP-L-R14-Q6-FD-P10 | |
| | | 8 | 7.5 | 133056 | | NPQP-L-R14-Q8-FD-P10 | |
| | | 10 | 12 | 133057 | | NPQP-L-R14-Q10-FD-P10 | |
| R3/8 | | 10 | 13 | 133058 | | NPQP-L-R38-Q10-FD-P10 | |
| | | 12 | 18 | 133059 | | NPQP-L-R38-Q12-FD-P10 | |
| | | | | | | | |


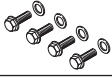

- 1) With sealing ring
2) Packaging unit

| Ordering data – One-way flow control valves | | | | | Data sheets → Internet: crgla | |
|--|-------------------|---------------------------------|---|----------|-------------------------------|------------------|
| | Connection Thread | For push-in fitting | Material | Part no. | Type | PU ¹⁾ |
|  | M5 | CRQS/CRQSL/CRQST, QS | Electropolished stainless steel casting | 161403 | CRGRLA-M5-B | 1 |
| | G1/8 | | | 161404 | CRGRLA-1/8-B | |
| | G1/4 | | | 161405 | CRGRLA-1/4-B | |
| | G3/8 | | | 161406 | CRGRLA-3/8-B | |
|  | G1/8 | Push-in connector is integrated | Nickel-plated brass | 578797 | VFOH-LE-A-G18-Q4 | 1 |
| | | | | 578798 | VFOH-LE-A-G18-Q6 | |
| | | | | 578799 | VFOH-LE-A-G18-Q8 | |
| | G1/4 | | | 578800 | VFOH-LE-A-G14-Q8 | |
| | | | | 578801 | VFOH-LE-A-G14-Q10 | |

- 1) Packaging unit

Accessories

| Ordering data – Plastic tubing, standard O.D. | | Type | Data sheets → Internet: tubing |
|---|---|--------------|--------------------------------|
|  | Approved for use in the food zone and resistant to hydrolysis | PUN-H | |
| | Good resistance to chemicals and hydrolysis | PLN | |
| | Pneumatic tubing with resistance to high temperatures and chemicals | PFAN | |

| Ordering data – Plug screws, corrosion-resistant | | | | | |
|---|-----------------------|------------------|----------------|-------------------------|------------------|
| | For Ø | Description | Part no. | Type | PU ¹⁾ |
| For mounting thread on the guide | | | | | |
|  | 20, 25 | With cover plate | 543715 | DAMD-P-M6-12-R1 | 4 |
| | 32, 40, 50 | | 543716 | DAMD-P-M8-16-R1 | |
| | 63 | | 543717 | DAMD-P-M10-16-R1 | |
| For mounting thread on the end cap | | | | | |
|  | 20, 25 | With cover plate | 543714 | DAMD-P-M5-10-R1 | 4 |
| | 32 ²⁾ | | 543715 | DAMD-P-M6-12-R1 | |
|  | 32 ³⁾ , 40 | – | 1355016 | DAMD-PS-M6-12-R1 | |
| | 50, 63 | | 650121 | DAMD-PS-M8-16-R1 | |

- 1) Packaging unit
 2) For drives with P cushioning
 3) For drives with PPV/PPS cushioning

| Ordering data – Centring sleeves | | Type | Data sheets → Internet: zbh |
|---|----------------|----------------|-----------------------------|
| | For Ø | Part no. | PU ¹⁾ |
|  | 20, 25 | 8137184 | 10 |
| | 32, 40, 50, 63 | 8137185 | |

- 1) Packaging unit

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