

## Mini slide DGSS

**FESTO**



## Characteristics

### At a glance

[Link dgss](#)

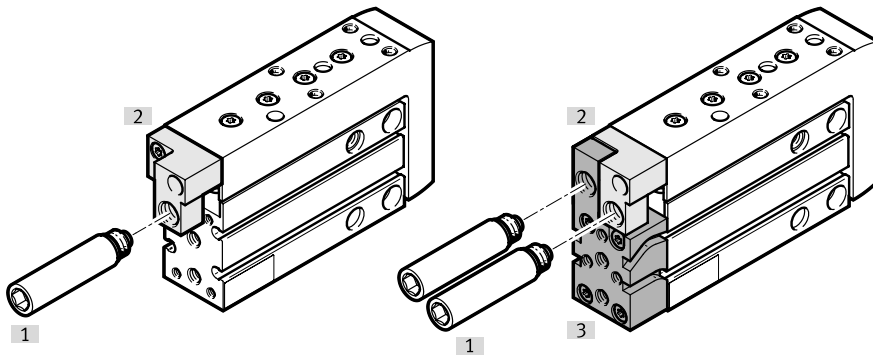
- Compact drive
- Optimum price/performance ratio
- Slide and yoke plate as a single component
- Excellent positioning accuracy
- Precise and resilient rolling bearing guide
- Operation possible without additional cushioning elements.
- Optional: stroke adjustment and external cushioning using accessories
- Very flexible thanks to wide choice of mounting and attachment options
- Simple design thanks to symmetrical mounting interface

### Diagrams

[Link dgss](#)


The diagrams shown in this document are also available online. These can be used to display precise values.

### Overview



External cushioning via accessories:

- [1] Shock absorber DYEF/DYSS
- [2] Stop kit DADP-...-F
- [3] Stop kit DADP-...-R (stop kit DADP-...-F included in the scope of delivery)

### Cushioning

End-position cushioning has the following functions:

- Reduces kinetic energy in the end positions
- Avoids vibrations
- Reduces noise generation

Operation possible without additional cushioning elements.

Can be operated with external cushioning components:

- Higher permissible energy (payload and speed)
- Reduced cycle times
- Easy stroke reduction possible from one side
- Precision end-position adjustment

#### [E1] Elastomer cushioning, double-sided, stroke not adjustable

- Standard design
- Internal cushioning, without stroke adjustment
- Elastic cushioning
- For lower cushioning energy
- Without metal fixed stop

#### [P] Elastic cushioning rings/plates on both sides

- External cushioning via shock absorber DYEF-G8-...-Y1, with stroke adjustment
- Elastic cushioning
- For medium cushioning energy
- Stroke reduction to the next smaller stroke is possible
- Without metal fixed stop
- Available from stroke 10 mm

## Characteristics

|                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 |                                                                                                                                                                                                                                                                                                                                |                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| [P1]                                                                                                                                                                                                                                                                                                                                                                                            | Elastomer cushioning, adjustable on both sides, with fixed stop | [E]                                                                                                                                                                                                                                                                                                                            | Elastomer cushioning, short, on both sides |
| <ul style="list-style-type: none"> <li>• External cushioning via shock absorber DYEF-G8-...-Y1F, with stroke adjustment</li> <li>• Elastic cushioning</li> <li>• For low to mid-range cushioning energies</li> <li>• Stroke reduction to the next smaller stroke is possible</li> <li>• With metal fixed stop for a very precise end position</li> <li>• Available from stroke 10 mm</li> </ul> |                                                                 | <ul style="list-style-type: none"> <li>• External cushioning via shock absorber DYEF-G8-S-...-Y1, with stroke adjustment</li> <li>• Elastic cushioning</li> <li>• For medium cushioning energy</li> <li>• Stroke reduction, space-saving</li> <li>• Without metal fixed stop</li> <li>• Available from stroke 10 mm</li> </ul> |                                            |
| [Y12]                                                                                                                                                                                                                                                                                                                                                                                           | Shock absorber, self-adjusting, linear at both ends, external   |                                                                                                                                                                                                                                                                                                                                |                                            |
| <ul style="list-style-type: none"> <li>• External cushioning via shock absorber DYSS-G8-...-Y1F, with stroke adjustment</li> <li>• Hydraulic cushioning</li> <li>• For high cushioning energy</li> <li>• Stroke reduction to the next smaller stroke is possible</li> <li>• With metal fixed stop for a very precise end position</li> <li>• Available from stroke 10 mm</li> </ul>             |                                                                 |                                                                                                                                                                                                                                                                                                                                |                                            |

### Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

### Special material properties

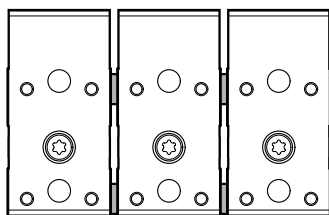
Product:

- Recommended for production systems for manufacturing lithium-ion batteries
- Metals with more than 1% copper, zinc or nickel by mass are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, circuit boards, cables, electrical plug connectors and coils

Accessories:

- Please contact your Festo representative for information on which accessories are suitable for manufacturing lithium-ion batteries

### Application example



With the centring sleeves ABAZ, several mini slides can be easily mounted next to each, thus saving space. That is also how the required distance to the proximity switches is maintained and trouble-free function is guaranteed.

Type code

| 001  | Series     |  |
|------|------------|--|
| DGSS | Mini slide |  |
| 002  | Size [mm]  |  |
| 6    | 6          |  |
| 10   | 10         |  |
| 16   | 16         |  |
| 20   | 20         |  |

| 003 | Stroke [mm] |  |
|-----|-------------|--|
| 5   | 5           |  |
| 10  | 10          |  |
| 15  | 15          |  |
| 20  | 20          |  |
| 25  | 25          |  |
| 30  | 30          |  |
| 40  | 40          |  |
| 50  | 50          |  |
| 60  | 60          |  |

| 004 | Cushioning                                                |  |
|-----|-----------------------------------------------------------|--|
| E1  | Elastomer cushioning, double-sided, stroke not adjustable |  |

| 005 | Position sensing     |  |
|-----|----------------------|--|
| A   | For proximity sensor |  |

# Datasheet

| General technical data            |                                                              |        |         |       |
|-----------------------------------|--------------------------------------------------------------|--------|---------|-------|
| Size [mm]                         | 6                                                            | 10     | 16      | 20    |
| Piston diameter                   | 6 mm                                                         | 10 mm  | 16 mm   | 20 mm |
| Stroke                            | 5 mm, 10 mm, 15 mm, 20 mm, 25 mm, 30 mm, 40 mm, 50 mm, 60 mm |        |         |       |
| Design                            | Yoke<br>Piston rod<br>Slide                                  |        |         |       |
| Guide                             | Recirculating ball bearing guide                             |        |         |       |
| Mode of operation                 | Double-acting                                                |        |         |       |
| Type of mounting                  | With through-hole<br>Via female thread                       |        |         |       |
| Pneumatic connection              | M3                                                           | M5     |         |       |
| Cushioning                        | Elastomer cushioning, double-sided, stroke not adjustable    |        |         |       |
| Cushioning length                 | 0.9 mm                                                       | 1.5 mm | 0.65 mm | 1 mm  |
| Position detection                | Via proximity switch                                         |        |         |       |
| Mounting position                 | optional                                                     |        |         |       |
| Max. speed <sup>1)</sup>          | 0.5 m/s                                                      |        |         |       |
| Repetition accuracy <sup>2)</sup> | <= 0.3 mm                                                    |        |         |       |

- 1) DGSS-6 with cushioning -P/-E/-Y12: 0.5 m/s  
 DGSS-6 with cushioning -P1: 0.45 m/s  
 DGSS-10 ... 20 with cushioning -P/-E/-Y12: 0.8 m/s  
 DGSS-10 ... 20 with cushioning -P1: 0.5 m/s
- 2) DGSS-6 ... 20 with cushioning -P/-E: ≤ 0.3 mm  
 DGSS-6 ... 20 with cushioning -P1/-Y12: ≤ 0.01 mm

| Operating and ambient conditions             |                                                                                            |                  |    |    |
|----------------------------------------------|--------------------------------------------------------------------------------------------|------------------|----|----|
| Size [mm]                                    | 6                                                                                          | 10               | 16 | 20 |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                  |    |    |
| Note on operating and pilot medium           | Lubricated operation possible (in which case lubricated operation will always be required) |                  |    |    |
| Operating pressure <sup>1)</sup>             | 0.15 ... 0.8 MPa                                                                           | 0.1 ... 0.8 MPa  |    |    |
| Operating pressure <sup>2)</sup>             | 1.5 ... 8 bar                                                                              | 1 ... 8 bar      |    |    |
| Operating pressure <sup>3)</sup>             | 21.75 ... 116 psi                                                                          | 14.5 ... 116 psi |    |    |
| Ambient temperature                          | -10 ... 60°C                                                                               |                  |    |    |
| Corrosion resistance class CRC <sup>4)</sup> | 1 - Low corrosion stress                                                                   |                  |    |    |

- 1) DGSS-6/10: The min. operating pressure may increase slightly after an idle period > 24 h.  
 2) DGSS-6/10: The min. operating pressure may increase slightly after an idle period > 24 h.  
 3) DGSS-6/10: The min. operating pressure may increase slightly after an idle period > 24 h.  
 4) More information [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)

| Forces                                                       |      |      |       |       |
|--------------------------------------------------------------|------|------|-------|-------|
| Size [mm]                                                    | 6    | 10   | 16    | 20    |
| Theoretical force at 0.6 MPa (6 bar, 87 psi), advance stroke | 17 N | 47 N | 121 N | 188 N |
| Theoretical force at 0.6 MPa (6 bar, 87 psi), return stroke  | 13 N | 39 N | 104 N | 158 N |

| Impact energy                                |        |         |        |        |
|----------------------------------------------|--------|---------|--------|--------|
| Size [mm]                                    | 6      | 10      | 16     | 20     |
| Impact energy in end positions <sup>1)</sup> | 0.01 J | 0.018 J | 0.03 J | 0.05 J |

- 1) DGSS-6 with cushioning -P/-E: 0.014 J  
 DGSS-6 with cushioning -P1: 0.005 J  
 DGSS-6 with cushioning -Y12: 0.06 J (energy per stroke)  
 DGSS-10 with cushioning -P/-E: 0.06 J  
 DGSS-10 with cushioning -P1: 0.02 J  
 DGSS-10 with cushioning -Y12: 0.3 J (energy per stroke)  
 DGSS-16 with cushioning -P/-E: 0.11 J  
 DGSS-16 with cushioning -P1: 0.03 J  
 DGSS-16 with cushioning -Y12: 0.58 J (energy per stroke)  
 DGSS-20 with cushioning -P/-E: 0.21 J  
 DGSS-20 with cushioning -P1: 0.04 J  
 DGSS-20 with cushioning -Y12: 1.15 J (energy per stroke)

## Datasheet

## Impact energy for cushioning -P/-P1/-E/-E1 – Formula

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

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

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

V = permissible impact velocity

E = max. impact energy

m1 = moving mass (drive)

m2 = moving payload

## Impact energy for cushioning -Y12 – formula

$$V = \sqrt{\frac{2 \cdot (E - (F + (m_1 + m_2) \cdot g \cdot \sin(\alpha)) \cdot s)}{m_1 + m_2}}$$

$$m_2 = \frac{E - F \cdot s}{\frac{1}{2} \cdot v^2 + g \cdot s \cdot \sin(\alpha)} - m_1$$

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

V = permissible impact velocity

E = kinetic impact energy

F = cylinder force minus friction force

m1 = moving mass (drive)

m2 = moving payload

g = acceleration due to gravity

s = shock absorber stroke (values → DYSS catalogue)

a = angle of impact

v = impact velocity

## Weight for DGSS-6

|                |      |       |       |       |       |       |       |       |       |
|----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size [mm]      | 6    |       |       |       |       |       |       |       |       |
| Stroke         | 5 mm | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 40 mm | 50 mm | 60 mm |
| Product weight | 64 g | 68 g  | 75 g  | 80 g  | 89 g  | 95 g  | 107 g | 120 g | 134 g |
| Moving mass    | 27 g | 28 g  | 31 g  | 32 g  | 36 g  | 37 g  | 41 g  | 46 g  | 51 g  |

## Weight for DGSS-10

|                |       |       |       |       |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size [mm]      | 10    |       |       |       |       |       |       |       |       |
| Stroke         | 5 mm  | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 40 mm | 50 mm | 60 mm |
| Product weight | 117 g | 124 g | 134 g | 144 g | 154 g | 164 g | 183 g | 202 g | 222 g |
| Moving mass    | 52 g  | 56 g  | 59 g  | 63 g  | 67 g  | 71 g  | 77 g  | 84 g  | 92 g  |

## Weights for DGSS-16

|                |       |       |       |       |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size [mm]      | 16    |       |       |       |       |       |       |       |       |
| Stroke         | 5 mm  | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 40 mm | 50 mm | 60 mm |
| Product weight | 191 g | 202 g | 214 g | 227 g | 241 g | 253 g | 279 g | 306 g | 330 g |
| Moving mass    | 86 g  | 92 g  | 97 g  | 103 g | 109 g | 114 g | 125 g | 137 g | 147 g |

## Weights for DGSS-20

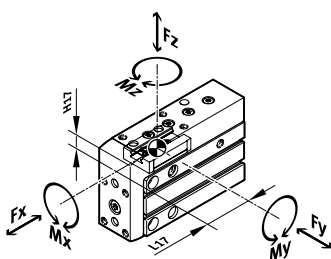
|                |       |       |       |       |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size [mm]      | 20    |       |       |       |       |       |       |       |       |
| Stroke         | 5 mm  | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 40 mm | 50 mm | 60 mm |
| Product weight | 379 g | 389 g | 407 g | 432 g | 450 g | 477 g | 513 g | 564 g | 600 g |
| Moving mass    | 156 g | 161 g | 166 g | 179 g | 184 g | 199 g | 209 g | 235 g | 246 g |

## Datasheet

### Materials

|                                                    |                                                                                                                                                          |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material cover                                     | Wrought aluminium alloy                                                                                                                                  |
| Material housing                                   | Wrought aluminium alloy                                                                                                                                  |
| Material piston rod                                | High-alloy stainless steel                                                                                                                               |
| Material guide                                     | NBR<br>PA<br>High-alloy steel                                                                                                                            |
| Material seals                                     | NBR<br>PU                                                                                                                                                |
| Note on materials                                  | RoHS-compliant                                                                                                                                           |
| LABS (PWIS) conformity                             | VDMA24364-C1-L                                                                                                                                           |
| Suitability for the production of Li-ion batteries | Suitable for battery production according to the Festo internal definition of the degree of severity F1A with restrictions regarding the use of Cu/Zn/Ni |

### Dynamic load values



The indicated forces and torques refer to the centre of the guide. They must not be exceeded in dynamic operation. Special attention must be paid to the deceleration process.

The values for the position of the guide centre (H17, L17) can be found in the chapter Dimensions.

### Dynamic load values – formula

$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

If the drive is simultaneously subjected to several of the indicated forces and torques, the following equation must be satisfied in addition to the indicated maximum loads.

$f_v$  = load comparison factor

$F1$  = dynamic value

$F2$  = maximum value

### Dynamic load values for DGSS-6

|                   |        |       |       |       |        |       |        |        |       |
|-------------------|--------|-------|-------|-------|--------|-------|--------|--------|-------|
| Size [mm]         | 6      |       |       |       |        |       |        |        |       |
| Stroke            | 5 mm   | 10 mm | 15 mm | 20 mm | 25 mm  | 30 mm | 40 mm  | 50 mm  | 60 mm |
| Max. force $F_y$  | 296 N  |       |       |       | 274 N  | 258 N | 235 N  | 218 N  | 205 N |
| Max. force $F_z$  | 296 N  |       |       |       | 274 N  | 258 N | 235 N  | 218 N  | 205 N |
| Max. moment $M_x$ | 0.8 Nm |       |       |       | 0.7 Nm |       | 0.6 Nm |        |       |
| Max. moment $M_y$ | 0.7 Nm |       |       |       | 0.6 Nm |       |        | 0.5 Nm |       |
| Max. moment $M_z$ | 0.7 Nm |       |       |       | 0.6 Nm |       |        | 0.5 Nm |       |

### Dynamic load values for DGSS-10

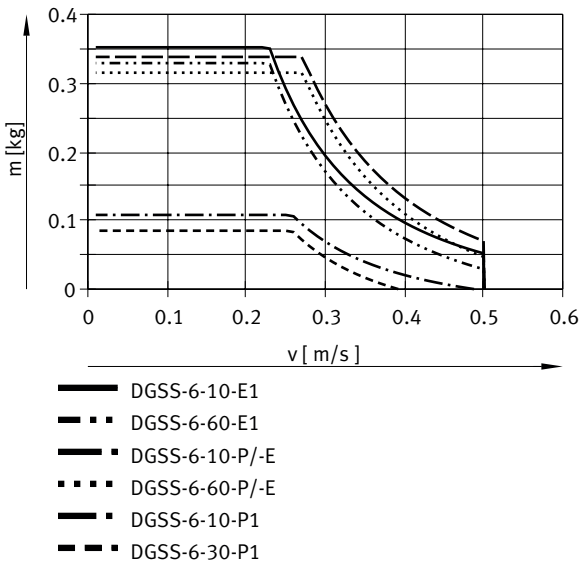
|                   |        |       |       |       |        |        |        |        |        |
|-------------------|--------|-------|-------|-------|--------|--------|--------|--------|--------|
| Size [mm]         | 10     |       |       |       |        |        |        |        |        |
| Stroke            | 5 mm   | 10 mm | 15 mm | 20 mm | 25 mm  | 30 mm  | 40 mm  | 50 mm  | 60 mm  |
| Max. force $F_y$  | 826 N  |       |       |       | 766 N  | 721 N  | 655 N  | 608 N  | 572 N  |
| Max. force $F_z$  | 826 N  |       |       |       | 766 N  | 721 N  | 655 N  | 608 N  | 572 N  |
| Max. moment $M_x$ | 3 Nm   |       |       |       | 2.8 Nm | 2.7 Nm | 2.4 Nm | 2.2 Nm | 2.1 Nm |
| Max. moment $M_y$ | 2.6 Nm |       |       |       | 2.4 Nm | 2.3 Nm | 2.1 Nm | 1.9 Nm | 1.8 Nm |
| Max. moment $M_z$ | 2.6 Nm |       |       |       | 2.4 Nm | 2.3 Nm | 2.1 Nm | 1.9 Nm | 1.8 Nm |

Datasheet

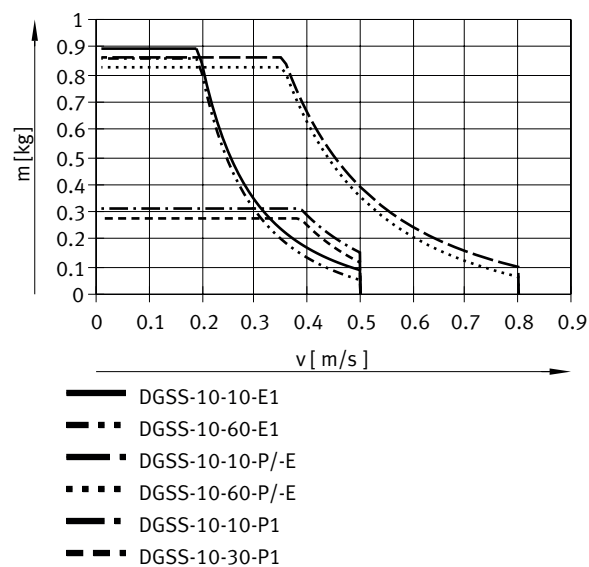
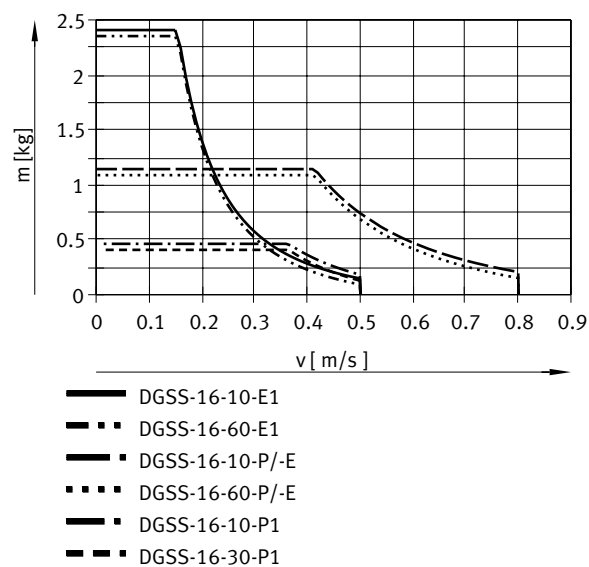
| Dynamic load values for DGSS-16 |        |       |       |       |        |        |        |        |        |
|---------------------------------|--------|-------|-------|-------|--------|--------|--------|--------|--------|
| Size [mm]                       | 16     |       |       |       |        |        |        |        |        |
| Stroke                          | 5 mm   | 10 mm | 15 mm | 20 mm | 25 mm  | 30 mm  | 40 mm  | 50 mm  | 60 mm  |
| Max. force F <sub>y</sub>       | 925 N  |       |       |       | 859 N  | 808 N  | 734 N  | 682 N  | 641 N  |
| Max. force F <sub>z</sub>       | 925 N  |       |       |       | 859 N  | 808 N  | 734 N  | 682 N  | 641 N  |
| Max. moment M <sub>x</sub>      | 4.4 Nm |       |       |       | 4 Nm   | 3.8 Nm | 3.5 Nm | 3.2 Nm | 3 Nm   |
| Max. moment M <sub>y</sub>      | 2.6 Nm |       |       |       | 2.4 Nm | 2.3 Nm | 2.1 Nm | 1.9 Nm | 1.8 Nm |
| Max. moment M <sub>z</sub>      | 2.6 Nm |       |       |       | 2.4 Nm | 2.3 Nm | 2.1 Nm | 1.9 Nm | 1.8 Nm |

| Dynamic load values for DGSS-20 |         |       |       |       |         |         |         |         |         |
|---------------------------------|---------|-------|-------|-------|---------|---------|---------|---------|---------|
| Size [mm]                       | 20      |       |       |       |         |         |         |         |         |
| Stroke                          | 5 mm    | 10 mm | 15 mm | 20 mm | 25 mm   | 30 mm   | 40 mm   | 50 mm   | 60 mm   |
| Max. force F <sub>y</sub>       | 1,560 N |       |       |       | 1,448 N | 1,363 N | 1,238 N | 1,149 N | 1,082 N |
| Max. force F <sub>z</sub>       | 1,560 N |       |       |       | 1,448 N | 1,363 N | 1,238 N | 1,149 N | 1,082 N |
| Max. moment M <sub>x</sub>      | 10.1 Nm |       |       |       | 9.4 Nm  | 8.9 Nm  | 8 Nm    | 7.5 Nm  | 7 Nm    |
| Max. moment M <sub>y</sub>      | 5.1 Nm  |       |       |       | 4.7 Nm  | 4.4 Nm  | 4 Nm    | 3.7 Nm  | 3.5 Nm  |
| Max. moment M <sub>z</sub>      | 5.1 Nm  |       |       |       | 4.7 Nm  | 4.4 Nm  | 4 Nm    | 3.7 Nm  | 3.5 Nm  |

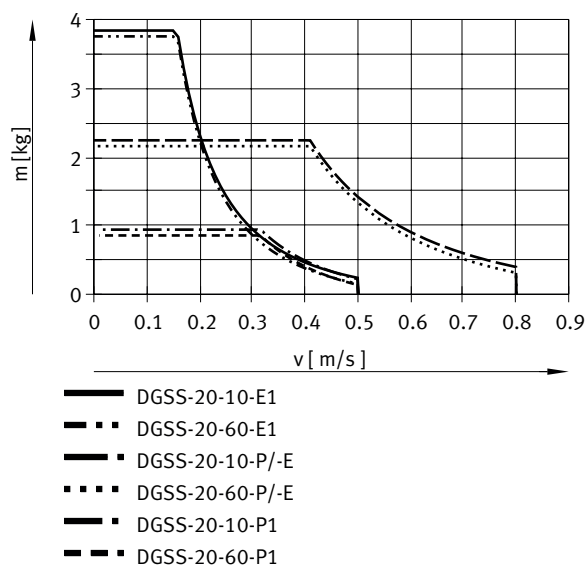
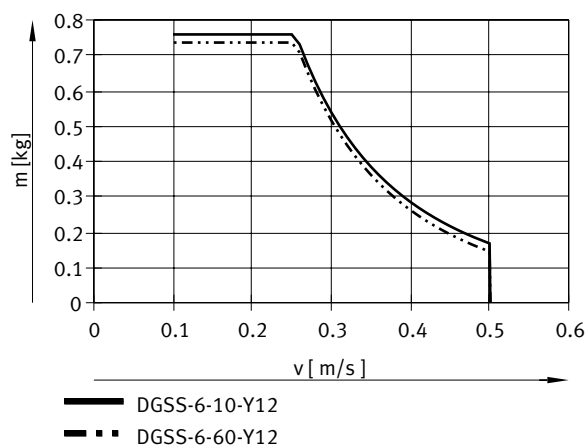
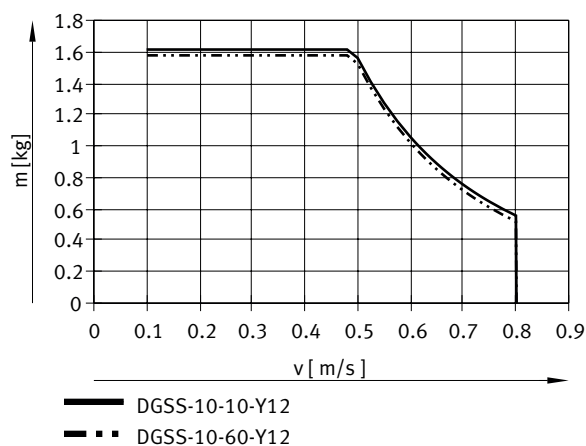
Payload m as a function of impact velocity v and cushioning -P/-P1/-E/-E1 for DGSS-6



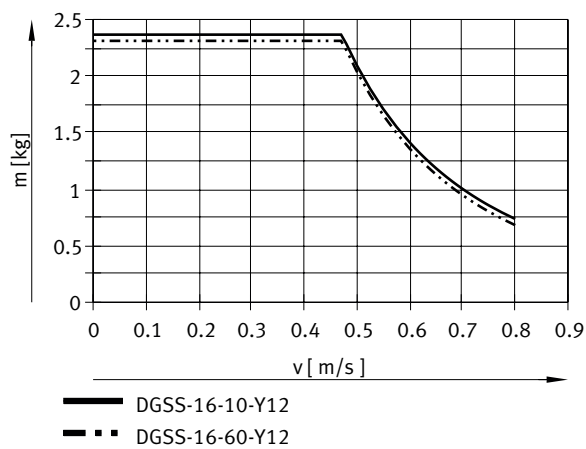
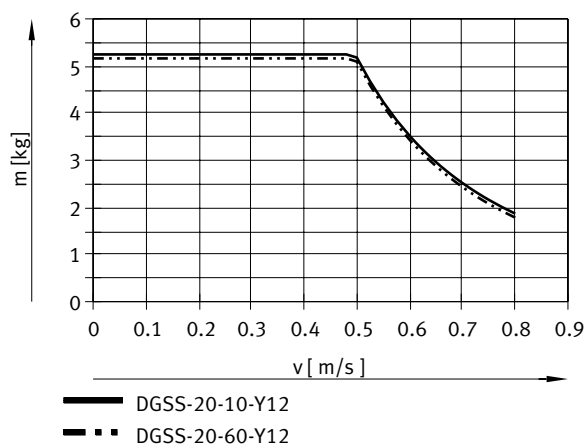
## Datasheet

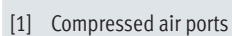
Payload  $m$  as a function of impact velocity  $v$  and cushioning -P/-P1/-E/-E1 for DGSS-10Payload  $m$  as a function of impact velocity  $v$  and cushioning -P/-P1/-E/-E1 for DGSS-16

## Datasheet

Payload  $m$  as a function of impact velocity  $v$  and cushioning -P/-P1/-E/-E1 for DGSS-20Payload  $m$  as a function of impact velocity  $v$  and cushioning -Y12 for DGSS-6Payload  $m$  as a function of impact velocity  $v$  and cushioning -Y12 for DGSS-10

## Datasheet

Payload  $m$  as a function of impact velocity  $v$  and cushioning -Y12 for DGSS-16Payload  $m$  as a function of impact velocity  $v$  and cushioning -Y12 for DGSS-20

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

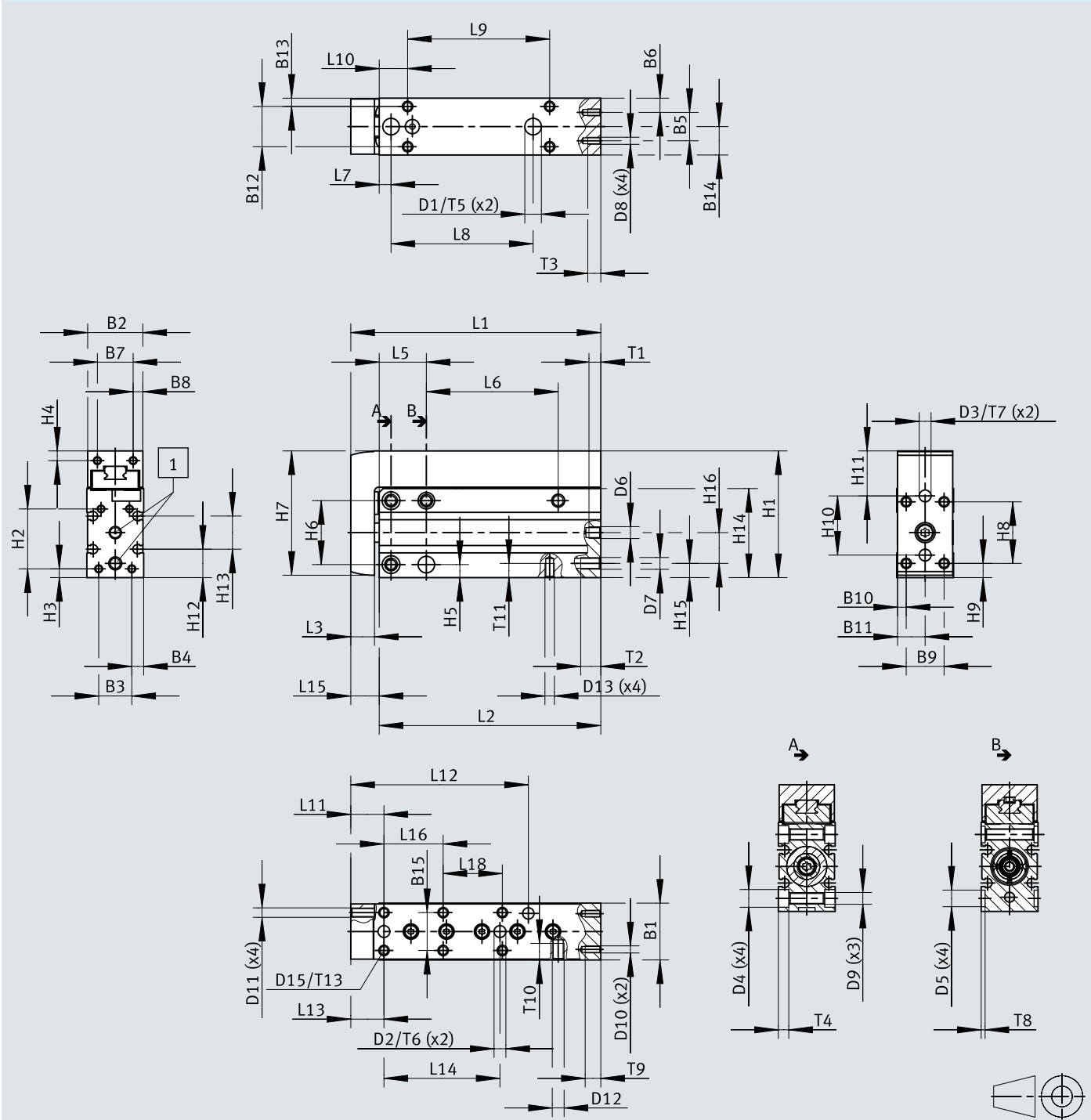
## Dimensions

|                | B1<br>±0,2 | B2<br>±0,1 | B3   | B4  | B5   | B6  | B7  | B8  | B9 | B10 | B11 | B12 | B13 | B14 | B15 | D1<br>Ø<br>H7 | D2<br>Ø<br>H7 | D3<br>Ø<br>H7 | D4<br>Ø<br>H7 |
|----------------|------------|------------|------|-----|------|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|---------------|---------------|---------------|---------------|
| DGSS-6-5-E1A   | 16         | 15,3       | 10   | 3   | 10   | 3   | —   | —   | 9  | 3,2 | 7,7 | 10  | 3   | 8   | 9   | 5             | 5             | 5             | 6             |
| DGSS-6-10-E1A  |            |            |      |     |      |     | 9,9 | 2,7 |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-15-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-20-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-25-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-30-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-40-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-50-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-6-60-E1A  |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-5-E1A  | 20         | 19,3       | 12,5 | 3,8 | 12,5 | 3,8 | —   | —   | 11 | 4,2 | 9,7 | 13  | 3,5 | 10  | 11  | 7             | 5             | 5             | 7,5           |
| DGSS-10-10-E1A |            |            |      |     |      |     | 12  | 3,7 |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-15-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-20-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-25-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-30-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-40-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-50-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |
| DGSS-10-60-E1A |            |            |      |     |      |     |     |     |    |     |     |     |     |     |     |               |               |               |               |

|                | D5<br>Ø<br>H7 | D6 | D7 | D8   | D9 | D10  | D11 | D12 | D13 | D15 | H1 | H2   | H3  | H4  | H5 | H6 | H7<br>±0,2 | H8  | H9 |    |    |    |
|----------------|---------------|----|----|------|----|------|-----|-----|-----|-----|----|------|-----|-----|----|----|------------|-----|----|----|----|----|
| DGSS-6-5-E1A   | 5             | M3 | M3 | M2   | M4 | —    | M3  | —   | M3  | M3  | 39 | 19,5 | 2,5 | —   | 5  | 19 | 38         | 15  | 7  |    |    |    |
| DGSS-6-10-E1A  |               |    |    |      |    | M2   |     |     |     |     |    |      |     | M4  |    |    |            |     |    |    |    |    |
| DGSS-6-15-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    | —  |    |    |
| DGSS-6-20-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    | M4 |    |
| DGSS-6-25-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-6-30-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-6-40-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-6-50-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-6-60-E1A  |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-5-E1A  | —             | M5 | M5 | M2,5 | M5 | —    | M4  | —   | M4  | M4  | 47 | 20,8 | 3,7 | 3,6 | 23 | 46 | 18         | 7,5 |    |    |    |    |
| DGSS-10-10-E1A | 7             |    |    |      |    | M2,5 |     |     |     |     |    |      |     |     |    |    |            |     | M4 | M5 |    | M4 |
| DGSS-10-15-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-20-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-25-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-30-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-40-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-50-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |
| DGSS-10-60-E1A |               |    |    |      |    |      |     |     |     |     |    |      |     |     |    |    |            |     |    |    |    |    |

Dimensions

Dimensions – DGSS-6 ... 10-E1 (part 2 of 4) [Download CAD data](http://www.festo.com) [www.festo.com](http://www.festo.com)



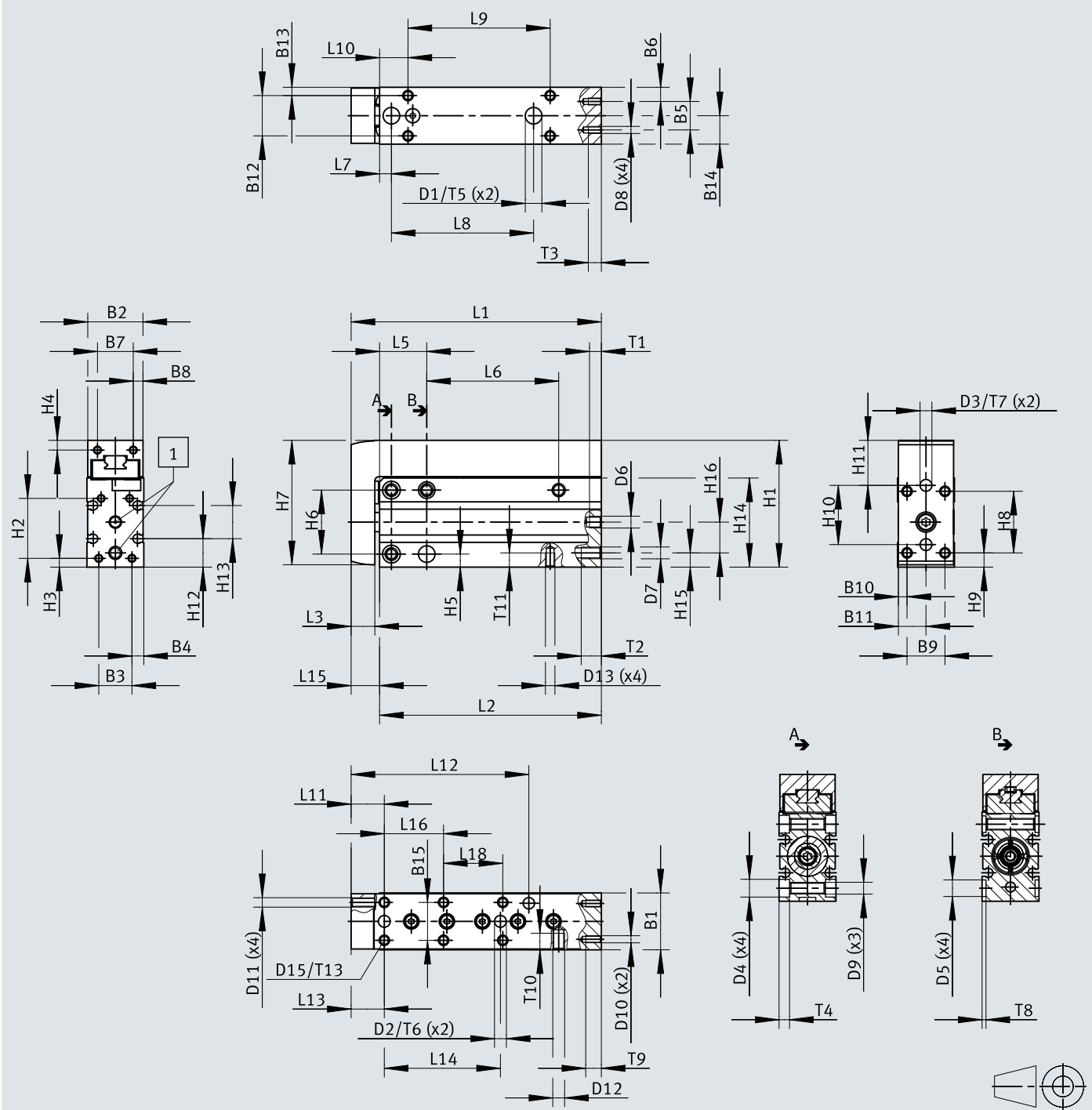
[1] Compressed air ports

## Dimensions

|                |     |      |      |     |      |      |      |      |      |     |      |      |    |     |    |    |     |     |
|----------------|-----|------|------|-----|------|------|------|------|------|-----|------|------|----|-----|----|----|-----|-----|
|                | H10 | H11  | H12  | H13 | H14  | H15  | H16  | L1   | L2   | L3  | L4   | L5   | L6 | L7  | L8 | L9 | L10 | L11 |
| DGSS-6-5-E1A   | 18  | 15,5 | 11,2 | 6,6 | 28,2 | 5    | 10,5 | 42,5 | 34,5 | 6   | 4    | 12   | -  | 3,5 | 20 | 10 | 10  | 8   |
| DGSS-6-10-E1A  |     |      |      |     |      |      |      | 47,5 | 39,5 |     |      |      |    |     |    | 15 |     |     |
| DGSS-6-15-E1A  |     |      |      |     |      |      |      | 52,5 | 44,5 |     |      |      |    |     |    | 20 |     |     |
| DGSS-6-20-E1A  |     |      |      |     |      |      |      | 57,5 | 49,5 |     |      |      |    |     |    | 25 |     |     |
| DGSS-6-25-E1A  |     |      |      |     |      |      |      | 62,5 | 54,5 |     |      |      |    |     |    | 30 |     |     |
| DGSS-6-30-E1A  |     |      |      |     |      |      |      | 67,5 | 59,5 |     |      |      | 35 |     |    |    |     |     |
| DGSS-6-40-E1A  |     |      |      |     |      |      |      | 77,5 | 69,5 |     |      |      | 45 |     |    |    |     |     |
| DGSS-6-50-E1A  |     |      |      |     |      |      |      | 87,5 | 79,5 |     |      |      | 55 |     |    |    |     |     |
| DGSS-6-60-E1A  |     |      |      |     |      |      |      | 97,5 | 89,5 |     |      |      | 65 |     |    |    |     |     |
| DGSS-10-5-E1A  |     | 21,5 | 13   | 7   | 33   | 11,5 | 8    | 5    | 19,5 | -   | 19,5 | 15,5 | 10 | 12  | 11 |    |     |     |
| DGSS-10-10-E1A |     |      |      |     |      |      |      |      |      |     |      |      | 56 |     |    | 46 | 15  |     |
| DGSS-10-15-E1A |     |      |      |     |      |      |      |      |      |     |      |      | 61 |     |    | 51 | 20  |     |
| DGSS-10-20-E1A |     |      |      |     |      |      |      |      |      |     |      |      | 66 |     |    | 56 | 25  |     |
| DGSS-10-25-E1A |     |      |      |     |      |      |      |      |      |     |      |      | 71 |     |    | 61 | 30  |     |
| DGSS-10-30-E1A |     |      |      |     |      |      |      |      |      | 76  |      | 66   | 35 |     |    |    |     |     |
| DGSS-10-40-E1A |     |      |      |     |      |      |      |      |      | 86  |      | 76   | 45 |     |    |    |     |     |
| DGSS-10-50-E1A |     |      |      |     |      |      |      |      |      | 96  |      | 86   | 55 |     |    |    |     |     |
| DGSS-10-60-E1A |     |      |      |     |      |      |      |      |      | 106 |      | 96   | 65 |     |    |    |     |     |

|                |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |
|----------------|-----|------|-----|-----|-----|-----|------|-----|------|-------|-----|-----|-----|-------|------|------|------|------|----|----|----|----|----|
|                | L12 | L13  | L14 | L15 | L16 | L18 | T1   | T2  | T3   | T4    | T5  | T6  | T7  | T8    | T9   | T10  | T11  | T13  |    |    |    |    |    |
|                |     |      |     |     |     |     | max. | ±1  | max. | ±0,05 |     |     |     | ±0,05 | max. | max. | max. | max. |    |    |    |    |    |
| DGSS-6-5-E1A   | -   | 10,5 | 15  | 8   | 10  | -   | 4,5  | 5   | 6    | 3,3   | 1,4 | 1,4 | 1,4 | 1,4   | -    | 5,5  | 5    | 4,5  |    |    |    |    |    |
| DGSS-6-10-E1A  | 37  |      |     |     | 43  |     |      |     |      |       |     |     |     |       | 20   |      |      |      |    |    |    |    |    |
| DGSS-6-15-E1A  | 41  |      |     |     |     |     |      |     |      |       |     |     |     |       | 30   |      |      |      |    |    |    |    |    |
| DGSS-6-20-E1A  | 28  |      |     |     |     |     |      |     |      |       |     |     |     |       | 20   |      |      |      | 20 |    |    |    |    |
| DGSS-6-25-E1A  |     |      |     |     |     |     |      |     |      |       |     |     |     |       | 43   |      |      |      | 25 | 25 |    |    |    |
| DGSS-6-30-E1A  |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 30 | 30 |    |    |    |
| DGSS-6-40-E1A  |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 20 | 20 |    |    |    |
| DGSS-6-50-E1A  |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    | 25 | 25 |    |
| DGSS-6-60-E1A  |     |      |     |     |     |     |      |     |      |       |     |     |     |       | 30   |      |      |      |    |    |    |    | 30 |
| DGSS-10-5-E1A  | -   | 11   | 16  | 10  | 10  | -   | 6    | 8,5 | 4    | 4,4   | 1,7 | 1,7 | 1,7 | -     | 6,2  | 7    | 6    |      |    |    |    |    |    |
| DGSS-10-10-E1A | 46  |      |     |     | 20  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |
| DGSS-10-15-E1A | 51  |      |     |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |
| DGSS-10-20-E1A | 53  |      |     |     | 30  |     |      |     |      |       |     |     |     | 20    |      |      |      | 20   |    |    |    |    |    |
| DGSS-10-25-E1A |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 46 | 25 | 25 |    |    |
| DGSS-10-30-E1A |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    | 30 | 30 |
| DGSS-10-40-E1A |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |
| DGSS-10-50-E1A |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |
| DGSS-10-60-E1A |     |      |     |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |    |    |    |

Dimensions



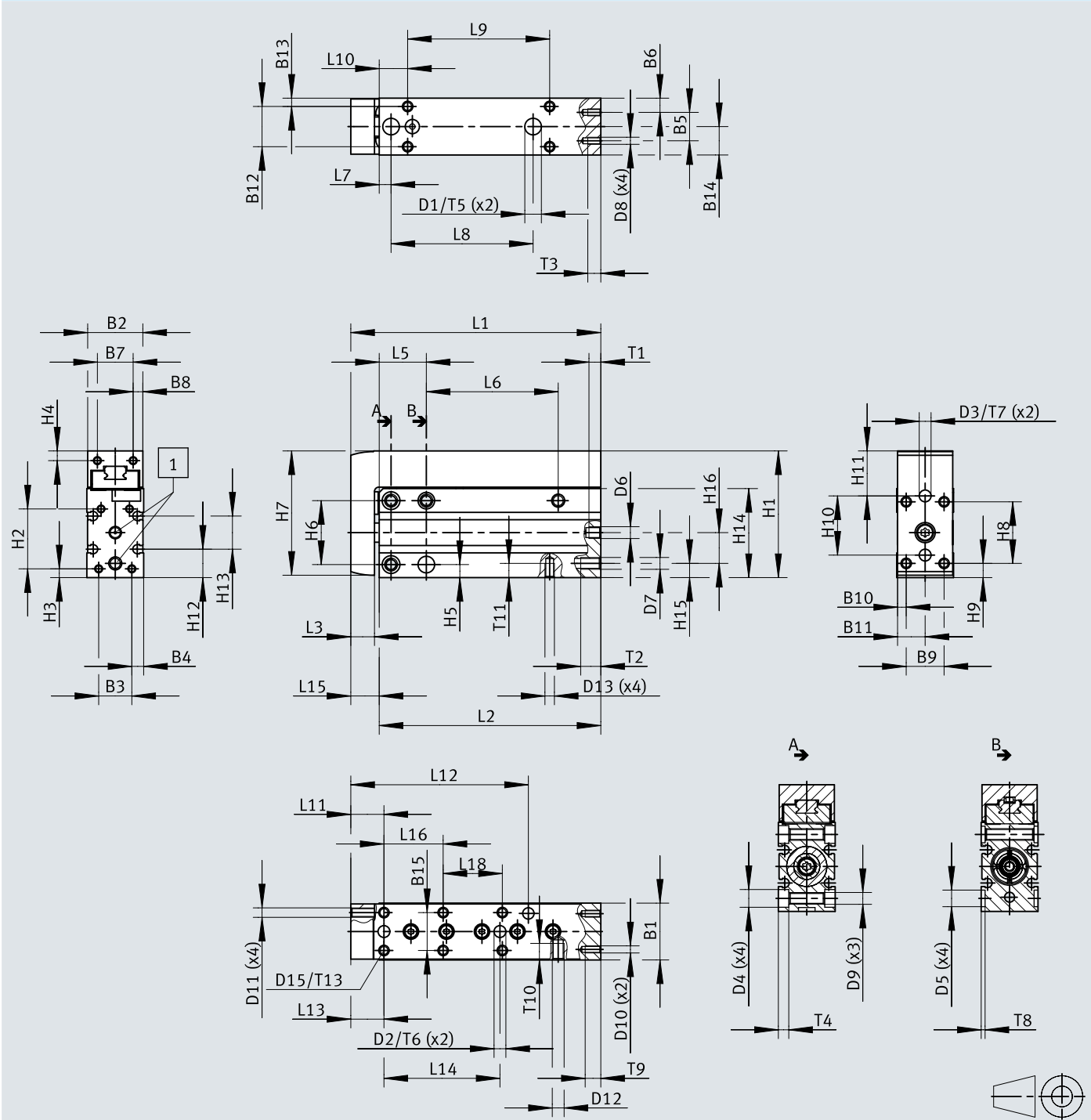
[1] Compressed air ports

## Dimensions

|                |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
|----------------|------------|------------|------|-----|------|-----|------|-----|----|-----|------|-----|-----|-----|-----|---------------|---------------|---------------|---------------|
|                | B1<br>±0,2 | B2<br>±0,1 | B3   | B4  | B5   | B6  | B7   | B8  | B9 | B10 | B11  | B12 | B13 | B14 | B15 | D1<br>Ø<br>H7 | D2<br>Ø<br>H7 | D3<br>Ø<br>H7 | D4<br>Ø<br>H7 |
| DGSS-16-5-E1A  | 24         | 23,3       | 14   | 5   | 12   | 6   | —    | —   | 16 | 3,7 | 11,7 | 17  | 3,5 | 12  | 16  | 7             | 5             | 5             | 7,5           |
| DGSS-16-10-E1A |            |            |      |     |      |     | 15,1 | 4,1 |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-15-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-20-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-25-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-30-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-40-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-50-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-16-60-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-5-E1A  | 32         | 31,3       | 21,6 | 5,2 | 21,6 | 5,2 | —    | —   | 20 | 5,7 | 15,7 | 20  | 6   | 16  | 20  | 9             | 7             | 7             | 9,3           |
| DGSS-20-10-E1A |            |            |      |     |      |     | 21,7 | 4,8 |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-15-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-20-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-25-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-30-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-40-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-50-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |
| DGSS-20-60-E1A |            |            |      |     |      |     |      |     |    |     |      |     |     |     |     |               |               |               |               |

|                |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
|----------------|---------------|----|----|----|----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|----|------------|----|----|---|----|
|                | D5<br>Ø<br>H7 | D6 | D7 | D8 | D9 | D10 | D11 | D12 | D13 | D15 | H1   | H2   | H3  | H4  | H5  | H6 | H7<br>±0,2 | H8 | H9 |   |    |
| DGSS-16-5-E1A  | 7             | M5 | M5 | M3 | M5 | —   | M4  | —   | M4  | M4  | 53,5 | 25,3 | 3,7 | —   | 5,5 | 27 | 52,5       | 26 | 6  |   |    |
| DGSS-16-10-E1A |               |    |    |    |    | M3  |     | M4  |     |     |      |      |     | 4,1 |     |    |            |    |    |   |    |
| DGSS-16-15-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    | — |    |
| DGSS-16-20-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   | M5 |
| DGSS-16-25-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-16-30-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-16-40-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-16-50-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-16-60-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-20-5-E1A  | 9             | M5 | M5 | M4 | M6 | —   | M4  | —   | M5  | M5  | 64,5 | 26,7 | 5   | —   | 6   | 34 | 63,5       | 34 | 6  |   |    |
| DGSS-20-10-E1A |               |    |    |    |    | M4  |     | M4  |     |     |      |      |     | 4,8 |     |    |            |    |    |   |    |
| DGSS-20-15-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    | — |    |
| DGSS-20-20-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   | M6 |
| DGSS-20-25-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-20-30-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-20-40-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-20-50-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |
| DGSS-20-60-E1A |               |    |    |    |    |     |     |     |     |     |      |      |     |     |     |    |            |    |    |   |    |

Dimensions



[1] Compressed air ports

## Dimensions

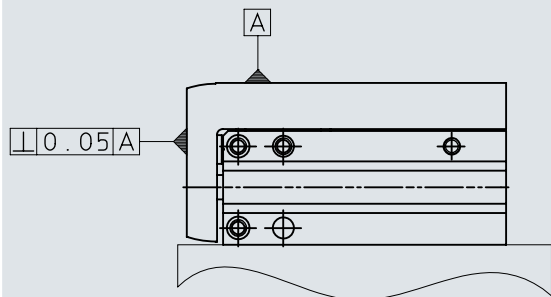
|                | H10 | H11 | H12 | H13 | H14  | H15 | H16 | L1    | L2    | L3 | L4 | L5   | L6 | L7  | L8 | L9 | L10 | L11 |
|----------------|-----|-----|-----|-----|------|-----|-----|-------|-------|----|----|------|----|-----|----|----|-----|-----|
| DGSS-16-5-E1A  | 25  | 19  | 12  | 14  | 37,6 | 6   | 13  | 60,6  | 48,6  | 10 | 5  | 19,9 | -  | 5   | 32 | 15 | 12  | 14  |
| DGSS-16-10-E1A |     |     |     |     |      |     |     | 65,6  | 53,6  |    |    |      |    |     |    | 20 |     |     |
| DGSS-16-15-E1A |     |     |     |     |      |     |     | 70,6  | 58,6  |    |    |      |    |     |    | 25 |     |     |
| DGSS-16-20-E1A |     |     |     |     |      |     |     | 75,6  | 63,6  |    |    |      |    |     |    | 30 |     |     |
| DGSS-16-25-E1A |     |     |     |     |      |     |     | 80,6  | 68,6  |    |    |      |    |     | 37 | 35 |     |     |
| DGSS-16-30-E1A |     |     |     |     |      |     |     | 85,6  | 73,6  |    |    |      | 40 |     |    |    |     |     |
| DGSS-16-40-E1A |     |     |     |     |      |     |     | 95,6  | 83,6  |    |    |      | 60 |     | 50 |    |     |     |
| DGSS-16-50-E1A |     |     |     |     |      |     |     | 105,6 | 93,6  |    |    |      |    |     | 60 |    |     |     |
| DGSS-16-60-E1A |     |     |     |     |      |     |     | 115,6 | 103,6 |    |    |      |    |     | 70 |    |     |     |
| DGSS-20-5-E1A  | 34  | 22  | 17  | 10  | 46,3 | 7   | 16  | 73    | 60,5  | 10 | 6  | 37   | -  | 6,5 | 31 | 15 | 15  |     |
| DGSS-20-10-E1A |     |     |     |     |      |     |     | 78    | 65,5  |    |    |      |    |     |    | 20 |     |     |
| DGSS-20-15-E1A |     |     |     |     |      |     |     | 83    | 70,5  |    |    |      |    |     |    | 25 |     |     |
| DGSS-20-20-E1A |     |     |     |     |      |     |     | 88    | 75,5  |    |    |      |    |     | 50 | 30 |     |     |
| DGSS-20-25-E1A |     |     |     |     |      |     |     | 93    | 80,5  |    |    |      |    |     |    | 35 |     |     |
| DGSS-20-30-E1A |     |     |     |     |      |     |     | 98    | 85,5  |    |    |      | 70 |     | 45 |    |     |     |
| DGSS-20-40-E1A |     |     |     |     |      |     |     | 108   | 95,5  |    |    |      |    |     | 55 |    |     |     |
| DGSS-20-50-E1A |     |     |     |     |      |     |     | 118   | 105,5 |    |    |      |    |     | 65 |    |     |     |
| DGSS-20-60-E1A |     |     |     |     |      |     |     | 128   | 115,5 |    |    |      |    |     | 70 |    |     |     |

|                | L12 | L13  | L14  | L15 | L16 | L18 | T1   | T2  | T3   | T4    | T5  | T6  | T7  | T8    | T9   | T10  | T11  | T13  |    |    |   |   |   |     |     |     |     |
|----------------|-----|------|------|-----|-----|-----|------|-----|------|-------|-----|-----|-----|-------|------|------|------|------|----|----|---|---|---|-----|-----|-----|-----|
|                |     |      |      |     |     |     | max. | ±1  | max. | ±0,05 |     |     |     | ±0,05 | max. | max. | max. | max. |    |    |   |   |   |     |     |     |     |
| DGSS-16-5-E1A  | –   | 55,8 | 19   | 12  | 10  | –   | 5    | 8,5 | 5,5  | 4,4   | 1,7 | 1,4 | 1,4 | 1,7   | –    | –    | 6    | 6    |    |    |   |   |   |     |     |     |     |
| DGSS-16-10-E1A | 60  |      |      |     | 20  |     |      |     |      |       |     |     |     |       | 6,6  |      |      |      | –  |    |   |   |   |     |     |     |     |
| DGSS-16-15-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-16-20-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-16-25-E1A | 30  |      |      |     | 7   |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-16-30-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-16-40-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-16-50-E1A | 34  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 20 | 20 |   |   |   |     |     |     |     |
| DGSS-16-60-E1A | 75  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 25 | 25 |   |   |   |     |     |     |     |
| DGSS-20-5-E1A  | 65  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      | 30 | 30 | – | – | 8 | 2,1 | 1,7 | 1,7 | 2,1 |
| DGSS-20-10-E1A | 67  |      | 20   | 20  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-15-E1A | 23  |      |      |     |     | 6,5 | 8    | 2,1 | 1,7  | 1,7   | 2,1 | 7,5 | –   | 8     | 6    |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-20-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      | 41   |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-25-E1A |     |      | 12,5 |     |     |     |      |     |      |       |     |     |     |       |      |      | 30   |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-30-E1A | 20  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-40-E1A |     |      |      |     | 25  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-50-E1A |     |      | 25   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
| DGSS-20-60-E1A |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      | 30   |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      | 30   |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                | 30  |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     | 30  |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      | 30   |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     | 30   |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     | 30   |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      | 30    |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      | 30  |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     | 30  |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     | 30   |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      | 30  |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |
|                |     |      |      |     |     |     |      |     |      |       |     |     |     |       |      |      |      |      |    |    |   |   |   |     |     |     |     |

## Dimensions

### Dimensions – DGSS-...-E1 perpendicularity

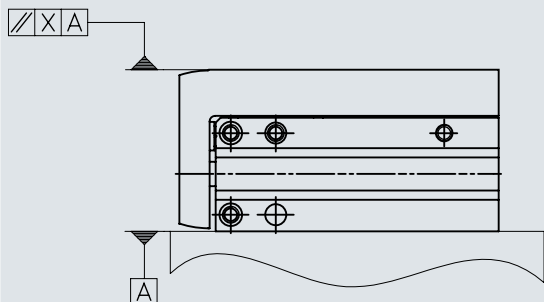
Download CAD data [www.festo.com](https://www.festo.com)



[1] The term perpendicularity refers to the alignment accuracy between the slide surface and the yoke plate.

## Dimensions

### Dimensions – DGSS-...-E1 parallelism

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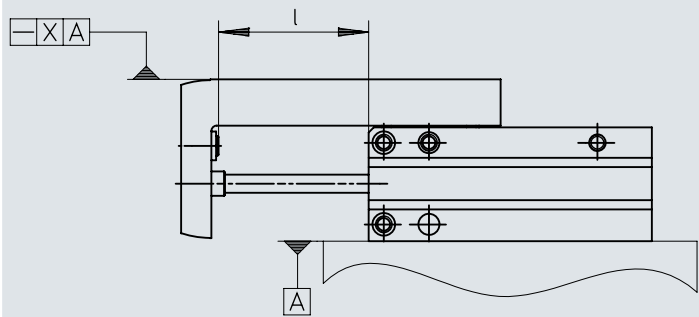
[1] The term parallelism refers to the alignment accuracy between the mounting surface and the slide surface in the longitudinal direction.

|                       | 1)   |
|-----------------------|------|
| DGSS-6-5 ... 30-E1A   | 0,08 |
| DGSS-6-40 ... 60-E1A  | 0,1  |
| DGSS-10-5 ... 30-E1A  | 0,08 |
| DGSS-10-40 ... 60-E1A | 0,1  |
| DGSS-16-5 ... 30-E1A  | 0,08 |
| DGSS-16-40 ... 60-E1A | 0,1  |
| DGSS-20-5 ... 30-E1A  | 0,1  |
| DGSS-20-40 ... 60-E1A | 0,15 |

1) Parallelism

Dimensions

Dimensions – DGSS-...-E1 linearity Download CAD data [www.festo.com](http://www.festo.com)



- [1] l = stroke
- [2] The term linearity refers to the alignment accuracy between the mounting surface and the slide surface in relation to the stroke.

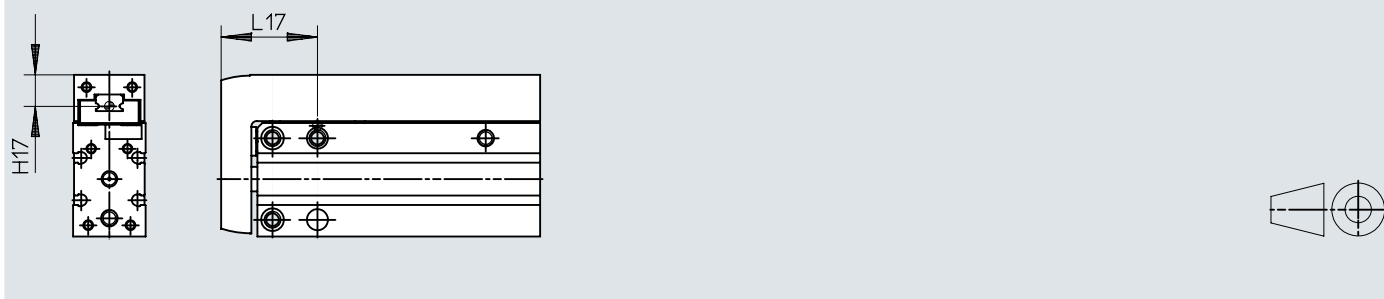
|                       | 1)    |
|-----------------------|-------|
| DGSS-6-5 ... 30-E1A   | 0,035 |
| DGSS-6-40 ... 60-E1A  | 0,05  |
| DGSS-10-5 ... 30-E1A  | 0,035 |
| DGSS-10-40 ... 60-E1A | 0,05  |
| DGSS-16-5 ... 30-E1A  | 0,035 |
| DGSS-16-40 ... 60-E1A | 0,05  |
| DGSS-20-5 ... 30-E1A  | 0,035 |
| DGSS-20-40 ... 60-E1A | 0,05  |

1) Linearity

## Dimensions

### Dimensions – DGSS-...-E1 guide centre and additional stroke/cushioning stroke

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|                 | H17  | L17  |
|-----------------|------|------|
| DGSS-6-...-E1A  | 7,9  | 20   |
| DGSS-10-...-E1A | 9,6  | 28,1 |
| DGSS-16-...-E1A | 10,4 | 31,9 |
| DGSS-20-...-E1A | 10,8 | 35,9 |

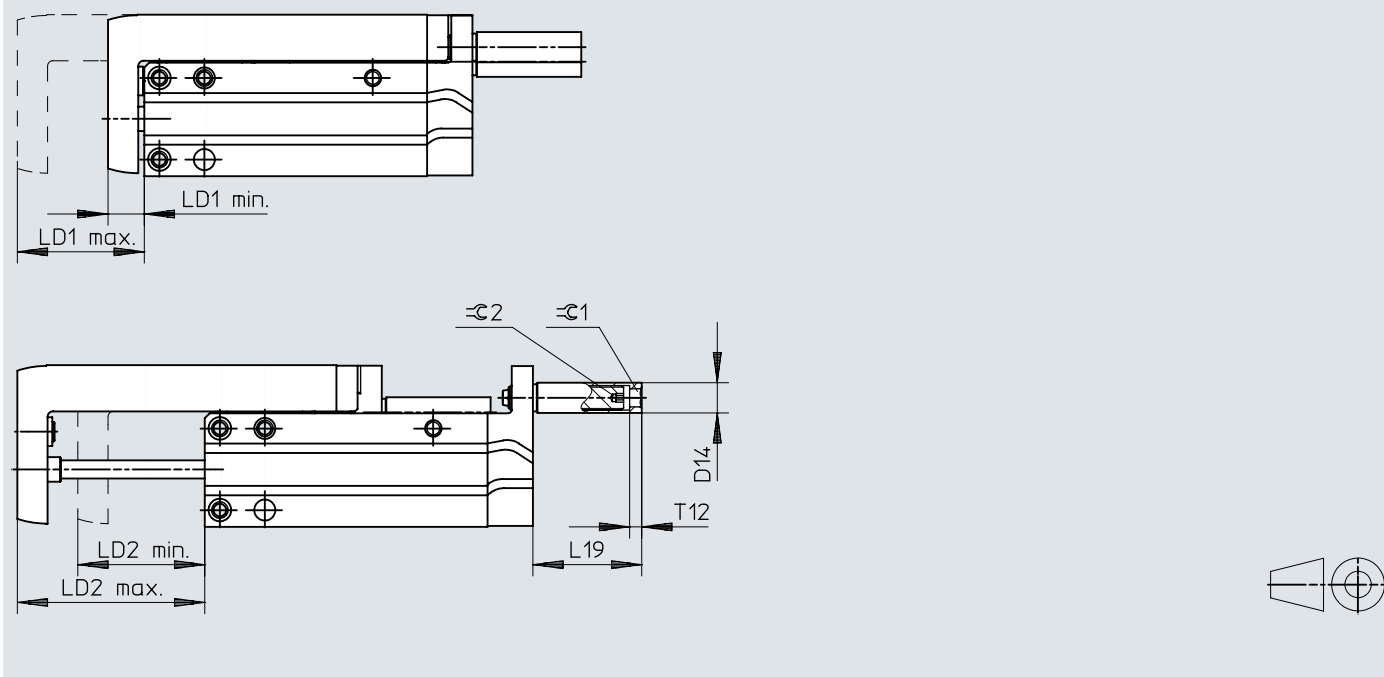
|                 | 1)   | 2)   | 3)   | 4)   |
|-----------------|------|------|------|------|
| DGSS-6-...-E1A  | 1,85 | 0,7  | 0,9  | 0,25 |
| DGSS-10-...-E1A | 2,15 | 0,4  | 1,5  |      |
| DGSS-16-...-E1A | 1,9  | 0,65 | 0,65 | 0,6  |
| DGSS-20-...-E1A |      | 0,4  | 1    | 0,5  |

- 1) Max. additional stroke = additional stroke without cushioning + max. cushioning stroke for the retracted/extended end position.
- 2) Additional stroke without cushioning. Without pressurisation and with cushioning.
- 3) Max. cushioning stroke for the retracted end position.
- 4) Max. cushioning stroke for the extended end position.

## Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYE-F-G8-...-Y1 (cushioning -P)

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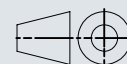
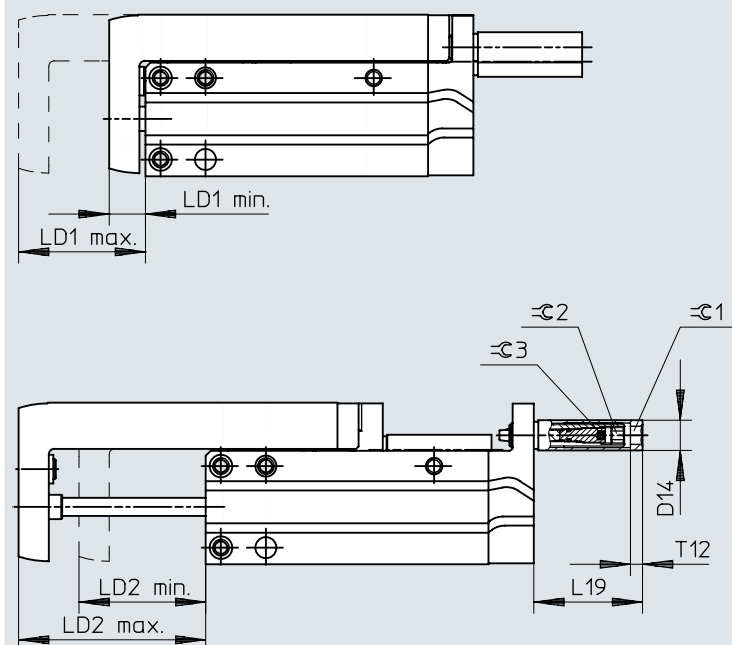


|                | D14<br>$\varnothing$ | L19 | LD1  |      |      | LD2  |      |      | T12 | $\varnothing 1$ | $\varnothing 2$ |
|----------------|----------------------|-----|------|------|------|------|------|------|-----|-----------------|-----------------|
|                |                      |     | 1)   | min. | max. | 1)   | min. | max. |     |                 |                 |
| DGSS-16-10-E1A | 10                   | 36  | 22,4 | 12,4 | 34,7 | 10   | 12,4 | 22,4 | 4   | 6               | 2,5             |
| DGSS-16-15-E1A |                      |     |      |      |      |      | 17,4 | 27,4 |     |                 |                 |
| DGSS-16-20-E1A |                      |     |      |      |      |      | 22,4 | 32,4 |     |                 |                 |
| DGSS-16-25-E1A |                      |     |      |      |      |      | 27,4 | 37,4 |     |                 |                 |
| DGSS-16-30-E1A |                      |     |      |      |      |      | 32,4 | 42,4 |     |                 |                 |
| DGSS-16-40-E1A |                      |     |      |      |      |      | 42,4 | 52,4 |     |                 |                 |
| DGSS-16-50-E1A |                      |     |      |      |      |      | 52,4 | 62,4 |     |                 |                 |
| DGSS-16-60-E1A |                      |     |      |      |      |      | 62,4 | 72,4 |     |                 |                 |
| DGSS-20-10-E1A | 13                   | 39  | 20,7 | 12,8 | 33,5 | 10   | 12,8 | 22,8 | 5   | 8               | 3               |
| DGSS-20-15-E1A |                      |     |      |      |      | 15   | 27,8 |      |     |                 |                 |
| DGSS-20-20-E1A |                      |     |      |      |      | 19,1 | 13,7 | 32,8 |     |                 |                 |
| DGSS-20-25-E1A |                      |     |      |      |      |      | 18,7 | 37,8 |     |                 |                 |
| DGSS-20-30-E1A |                      |     |      |      |      |      | 32,8 | 42,8 |     |                 |                 |
| DGSS-20-40-E1A |                      |     |      |      |      |      | 33,7 | 52,8 |     |                 |                 |
| DGSS-20-50-E1A |                      |     |      |      |      |      | 43,7 | 62,8 |     |                 |                 |
| DGSS-20-60-E1A |                      |     |      |      |      |      | 53,7 | 72,8 |     |                 |                 |

1) Setting range

## Dimensions

**Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYE-F-G8-...-Y1F (cushioning -P1)**

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## Dimensions

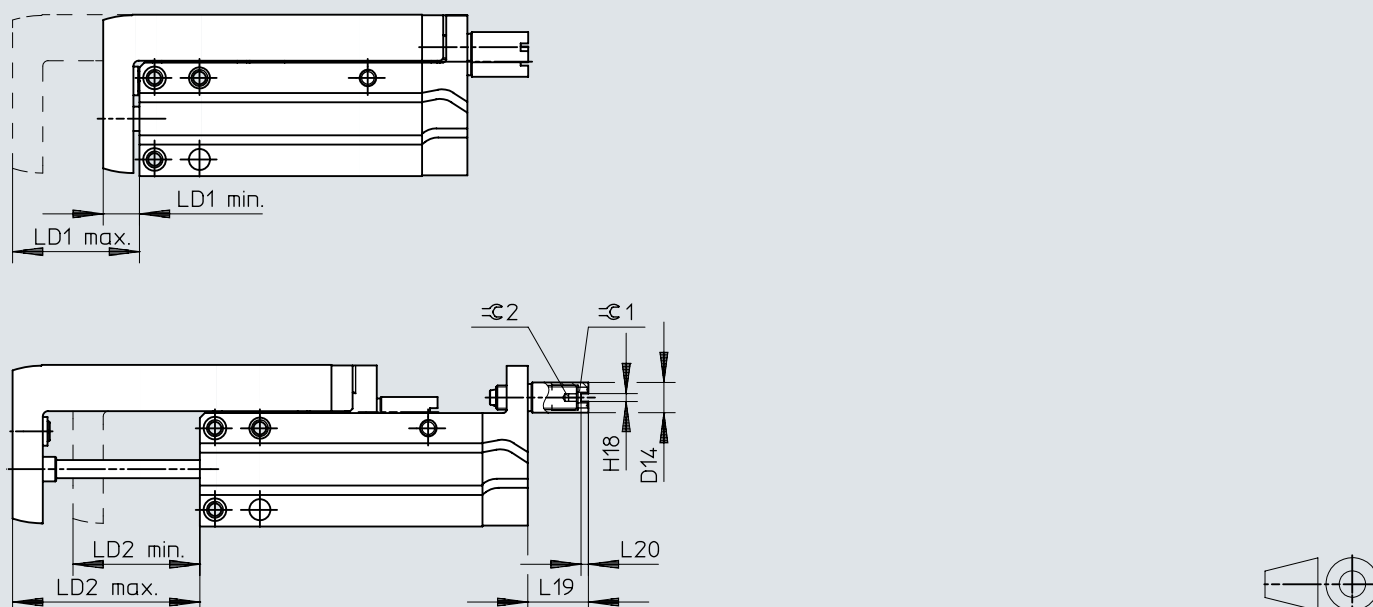
|                | D14<br>Ø | L19 | LD1  |      |      | LD2  |      |      | T12 | ≅1 | ≅2  |
|----------------|----------|-----|------|------|------|------|------|------|-----|----|-----|
|                |          |     | 1)   | min. | max. | 1)   | min. | max. |     |    |     |
| DGSS-6-10-E1A  | 6        | 22  | 11,2 | 8,8  | 20   | 10   | 8,8  | 18,8 | 2   | 3  | 2,5 |
| DGSS-6-15-E1A  |          |     |      |      |      | 10,3 | 13,5 | 23,8 |     |    |     |
| DGSS-6-20-E1A  |          |     |      |      |      |      | 18,5 | 28,8 |     |    |     |
| DGSS-6-25-E1A  |          |     |      |      |      |      | 23,5 | 33,8 |     |    |     |
| DGSS-6-30-E1A  |          |     |      |      |      |      | 28,5 | 38,8 |     |    |     |
| DGSS-6-40-E1A  |          |     |      |      |      |      | 38,5 | 48,8 |     |    |     |
| DGSS-6-50-E1A  |          |     |      |      |      |      | 48,5 | 58,8 |     |    |     |
| DGSS-6-60-E1A  |          |     |      |      |      |      | 58,5 | 68,8 |     |    |     |
| DGSS-10-10-E1A | 8        | 31  | 13   | 11,5 | 24,5 | 10   | 11,5 | 21,5 | 3   | 5  | 4   |
| DGSS-10-15-E1A |          |     |      |      |      | 15   |      | 26,5 |     |    |     |
| DGSS-10-20-E1A |          |     |      |      |      | 17,5 | 14   | 31,5 |     |    |     |
| DGSS-10-25-E1A |          |     |      |      |      |      | 19   | 36,5 |     |    |     |
| DGSS-10-30-E1A |          |     |      |      |      |      | 24   | 41,5 |     |    |     |
| DGSS-10-40-E1A |          |     |      |      |      |      | 34   | 51,5 |     |    |     |
| DGSS-10-50-E1A |          |     |      |      |      |      | 44   | 61,5 |     |    |     |
| DGSS-10-60-E1A |          |     |      |      |      |      | 54   | 71,5 |     |    |     |
| DGSS-16-10-E1A | 10       | 36  | 21,2 | 12,9 | 34   | 10   | 12,9 | 22,9 | 4   | 6  | 5   |
| DGSS-16-15-E1A |          |     |      |      |      | 15   |      | 27,9 |     |    |     |
| DGSS-16-20-E1A |          |     |      |      |      | 20   |      | 32,9 |     |    |     |
| DGSS-16-25-E1A |          |     |      |      |      | 20,4 | 17,5 | 37,9 |     |    |     |
| DGSS-16-30-E1A |          |     |      |      |      |      | 22,5 | 42,9 |     |    |     |
| DGSS-16-40-E1A |          |     |      |      |      |      | 32,5 | 52,9 |     |    |     |
| DGSS-16-50-E1A |          |     |      |      |      |      | 42,5 | 62,9 |     |    |     |
| DGSS-16-60-E1A |          |     |      |      |      |      | 52,5 | 72,9 |     |    |     |
| DGSS-20-10-E1A | 13       | 39  | 19,4 | 13,3 | 32,7 | 10   | 13,3 | 23,3 | 5   | 8  | 6   |
| DGSS-20-15-E1A |          |     |      |      |      | 15   |      | 28,3 |     |    |     |
| DGSS-20-20-E1A |          |     |      |      |      | 18,8 | 14,5 | 33,3 |     |    |     |
| DGSS-20-25-E1A |          |     |      |      |      |      | 19,5 | 38,3 |     |    |     |
| DGSS-20-30-E1A |          |     |      |      |      |      | 24,5 | 43,3 |     |    |     |
| DGSS-20-40-E1A |          |     |      |      |      |      | 34,5 | 53,3 |     |    |     |
| DGSS-20-50-E1A |          |     |      |      |      |      | 44,5 | 63,3 |     |    |     |
| DGSS-20-60-E1A |          |     |      |      |      |      | 54,5 | 73,3 |     |    |     |

1) Setting range

## Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYEF-G8-S-...-Y1 (cushioning -E)

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[1] Restricted nominal stroke with shock absorbers DYEF-G8-S-...-Y1 (cushioning -E).

[2] Example for DGSS-16-25: Nominal stroke = LD2max. – LD1min. = 36,3 – 15,3 = 21 mm

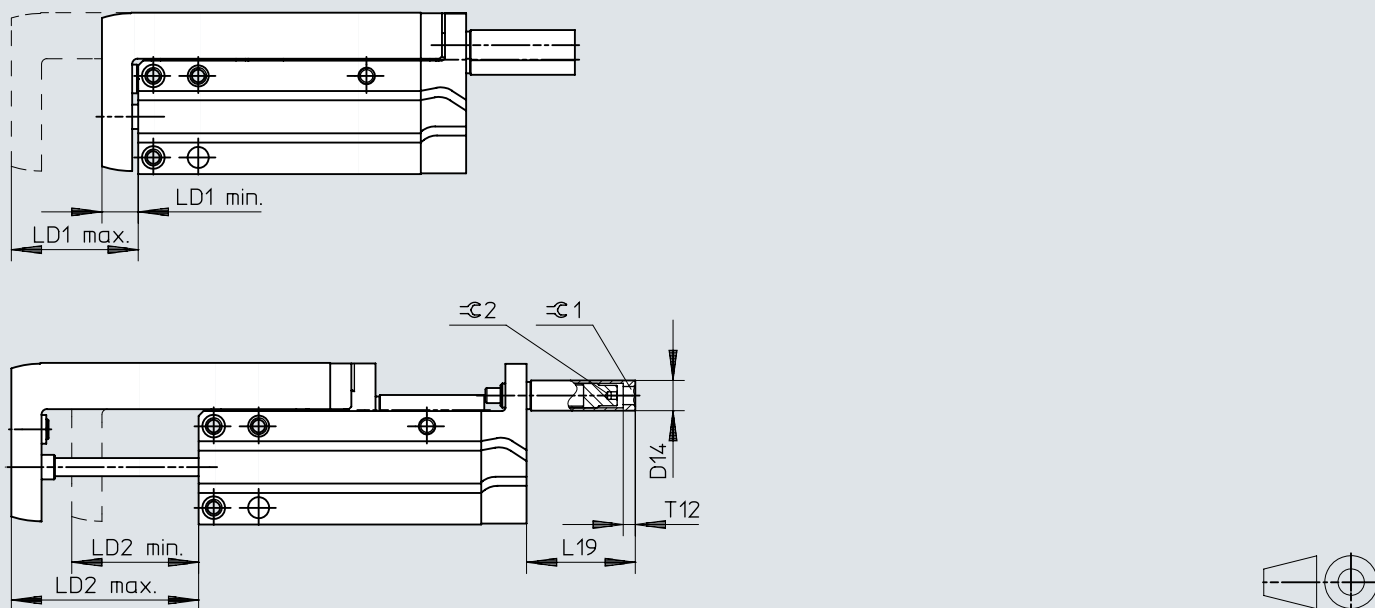
|                | D14<br>ø | H18 | L19  | L20 | LD1 |      |      | LD2 |      |      | 1) | 2)  |
|----------------|----------|-----|------|-----|-----|------|------|-----|------|------|----|-----|
|                |          |     |      |     | 1)  | min. | max. | 1)  | min. | max. |    |     |
| DGSS-16-10-E1A | 10       | 2,6 | 20,1 | 2,5 | 8,1 | 15,3 | 23,4 | 8,1 | 15,3 | 21,3 | 6  | 2,5 |
| DGSS-16-15-E1A |          |     |      |     |     |      |      |     | 18,2 | 26,3 |    |     |
| DGSS-16-20-E1A |          |     |      |     |     |      |      |     | 23,2 | 31,3 |    |     |
| DGSS-16-25-E1A |          |     |      |     |     |      |      |     | 28,2 | 36,3 |    |     |
| DGSS-16-30-E1A |          |     |      |     |     |      |      |     | 33,2 | 41,3 |    |     |
| DGSS-16-40-E1A |          |     |      |     |     |      |      |     | 43,2 | 51,3 |    |     |
| DGSS-16-50-E1A |          |     |      |     |     |      |      |     | 53,2 | 61,3 |    |     |
| DGSS-16-60-E1A | 13       | 3,1 | 21,4 | 3   | 6,9 | 15,1 | 21,9 | 7,4 | 63,2 | 71,3 | 8  | 3   |
| DGSS-20-10-E1A |          |     |      |     |     |      |      |     | 15,3 | 22,7 |    |     |
| DGSS-20-15-E1A |          |     |      |     |     |      |      |     | 20,3 | 27,7 |    |     |
| DGSS-20-20-E1A |          |     |      |     |     |      |      |     | 25,3 | 32,7 |    |     |
| DGSS-20-25-E1A |          |     |      |     |     |      |      |     | 30,3 | 37,7 |    |     |
| DGSS-20-30-E1A |          |     |      |     |     |      |      |     | 35,3 | 42,7 |    |     |
| DGSS-20-40-E1A |          |     |      |     |     |      |      |     | 45,3 | 52,7 |    |     |
| DGSS-20-50-E1A |          |     |      |     |     |      |      |     | 55,3 | 62,7 |    |     |
| DGSS-20-60-E1A |          |     |      |     |     |      |      |     | 65,3 | 72,7 |    |     |

1) Setting range

## Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYSS-G8-...-Y1F (cushioning -Y12)

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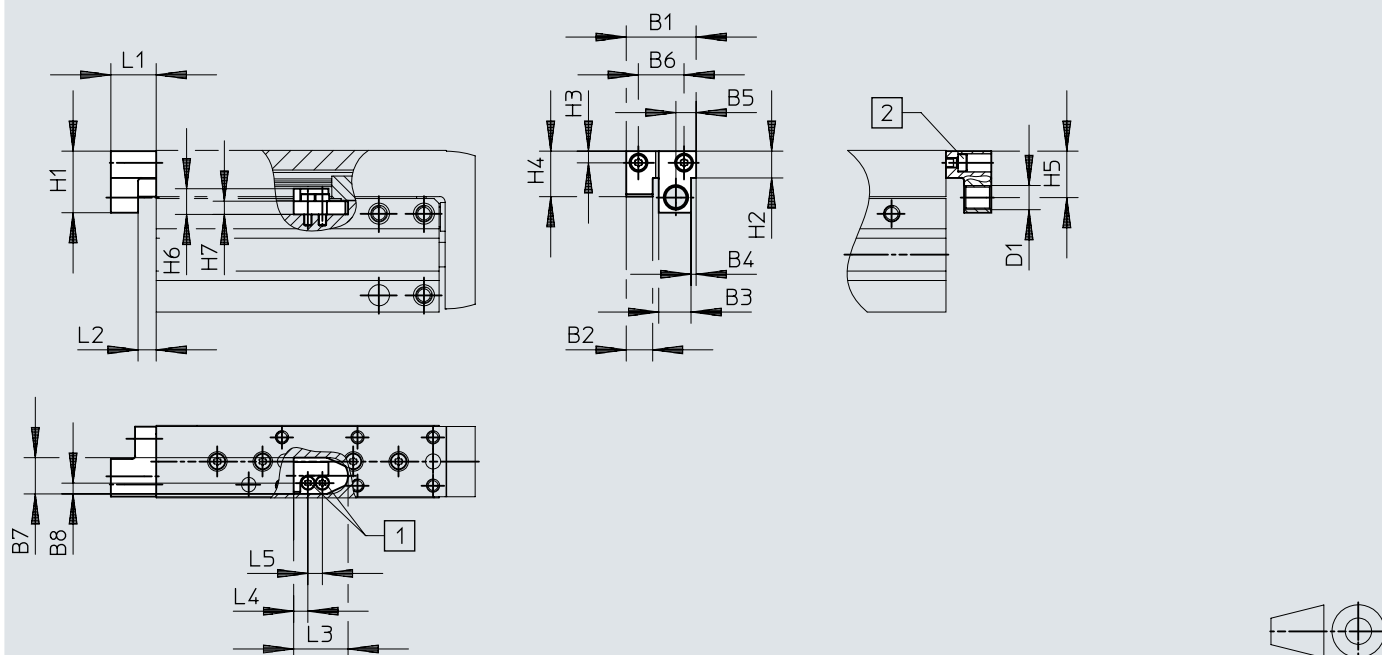


|                | D14<br>ø | L19 | LD1  |      |      | LD2 |      |      | T12 | C1 | C2  |
|----------------|----------|-----|------|------|------|-----|------|------|-----|----|-----|
|                |          |     | 1)   | min. | max. | 1)  | min. | max. |     |    |     |
| DGSS-16-10-E1A | 10       | 36  | 15,8 | 12,9 | 28,6 | 10  | 12,9 | 22,9 | 4   | 6  | 2,5 |
| DGSS-16-15-E1A |          |     |      |      |      |     | 17,9 | 27,9 |     |    |     |
| DGSS-16-20-E1A |          |     |      |      |      |     | 22,9 | 32,9 |     |    |     |
| DGSS-16-25-E1A |          |     |      |      |      |     | 27,9 | 37,9 |     |    |     |
| DGSS-16-30-E1A |          |     |      |      |      |     | 32,9 | 42,9 |     |    |     |
| DGSS-16-40-E1A |          |     |      |      |      |     | 42,9 | 52,9 |     |    |     |
| DGSS-16-50-E1A |          |     |      |      |      |     | 52,9 | 62,9 |     |    |     |
| DGSS-16-60-E1A |          |     |      |      |      |     | 62,9 | 72,9 |     |    |     |
| DGSS-20-10-E1A | 13       | 39  | 13,6 | 13,3 | 26,9 | 5   | 13,3 | 18,9 | 5   | 8  | 3   |
| DGSS-20-15-E1A |          |     |      |      |      | 10  |      | 23,3 |     |    |     |
| DGSS-20-20-E1A |          |     |      |      |      | 13  | 15,3 | 28,3 |     |    |     |
| DGSS-20-25-E1A |          |     |      |      |      |     | 20,3 | 33,3 |     |    |     |
| DGSS-20-30-E1A |          |     |      |      |      |     | 25,3 | 38,3 |     |    |     |
| DGSS-20-40-E1A |          |     |      |      |      |     | 30,3 | 43,3 |     |    |     |
| DGSS-20-50-E1A |          |     |      |      |      |     | 40,3 | 53,3 |     |    |     |
| DGSS-20-60-E1A |          |     |      |      |      |     | 50,3 | 63,3 |     |    |     |

1) Setting range

## Dimensions

### Dimensions – Stop kit DADP-SP-G9-...-F

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[1] DADP-SP-G9-6-F: M2x6 screw / DADP-SP-G9-10-F: M2.5x8 screw / DADP-SP-G9-16-F: M2.5x8 screw / DADP-SP-G9-20-F: M3x12 screw

[2] DADP-SP-G9-6-F: M2x8 screw / DADP-SP-G9-10-F: M2.5x10 screw / DADP-SP-G9-16-F: M3x10 screw / DADP-SP-G9-20-F: M4x10 screw

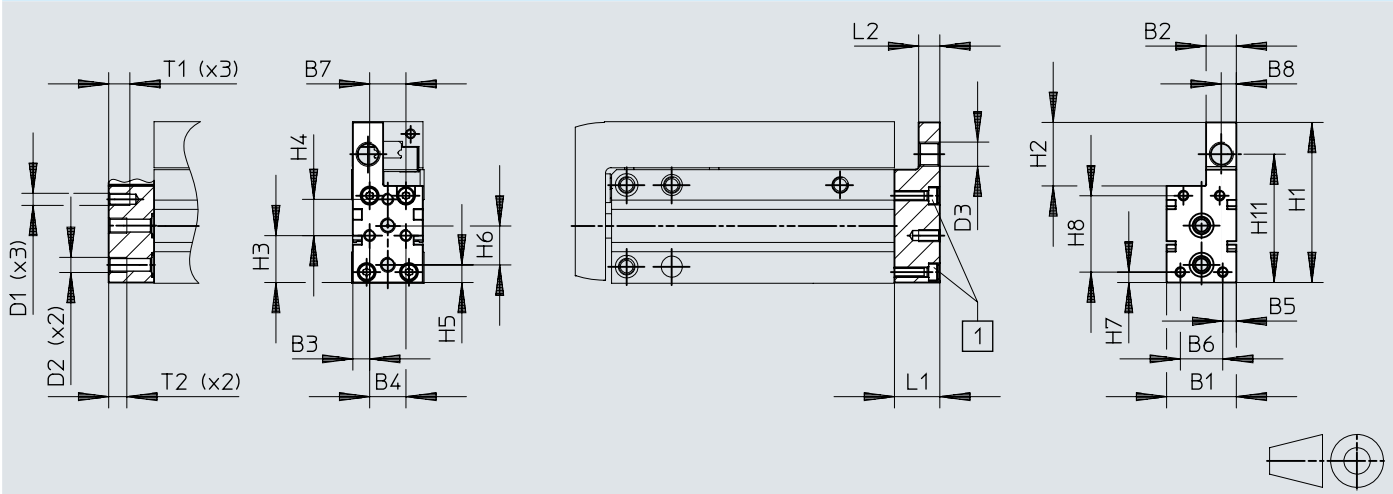
|                 | B1   | B2  | B3   | B4  | B5  | B6   | B7    | B8  | D1    | H1   | H2   |
|-----------------|------|-----|------|-----|-----|------|-------|-----|-------|------|------|
|                 | -0,1 |     |      |     |     |      | -0,05 |     |       |      |      |
| DADP-SP-G9-16-F | 23,1 | 8,7 | 10,7 | 1,7 | 6,7 | 15,1 | 12    | 3,6 | M8x1  | 20,4 | 8,9  |
| DADP-SP-G9-20-F | 31,1 | 13  | 13,4 | 2,8 | 9,5 | 21,7 | 15    |     | M10x1 | 27,1 | 13,2 |

|                 | H3  | H4   | H5   | H6   | H7   | L1   | L2 | L3 | L4  | L5  |
|-----------------|-----|------|------|------|------|------|----|----|-----|-----|
|                 |     |      |      | -0,1 | -0,1 |      |    |    |     |     |
| DADP-SP-G9-16-F | 3,9 | 15,1 | 15,4 | 8,5  | 4,4  | 15   | 6  | 18 | 4,7 | 4,8 |
| DADP-SP-G9-20-F | 4,6 | 17,4 | 20,4 | 13   | 7,4  | 20,5 | 9  | 22 | 9   | 6   |

Dimensions

Dimensions – Stop kit DADP-SP-G9-....-R Download CAD data [www.festo.com](http://www.festo.com)



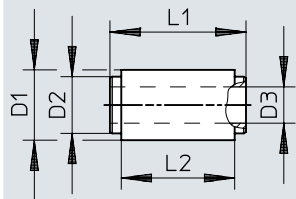
[1] DADP-SP-G9-6-R: M2x14 screw / DADP-SP-G9-10-R: M2.5x18 screw / DADP-SP-G9-16-R: M3x16 screw / DADP-SP-G9-20-R: M4x22 screw

|                 | B1   | B2   | B3  | B4 | B5  | B6   | B7 | B8  | D1 | D2 | D3    |
|-----------------|------|------|-----|----|-----|------|----|-----|----|----|-------|
|                 | -0,1 | -0,1 |     |    |     |      |    |     |    |    |       |
| DADP-SP-G9-16-R | 23,1 | 10   | 5,6 | 12 | 4,6 | 14   | 12 | 5   | M4 | M5 | M8x1  |
| DADP-SP-G9-20-R | 31   | 14,1 | 7   | 17 | 4,7 | 21,6 | 17 | 7,3 | M5 |    | M10x1 |

|                 | H1   | H2   | H3   | H4 | H5  | H6 | H7  | H8   | H11  | L1   | L2  |
|-----------------|------|------|------|----|-----|----|-----|------|------|------|-----|
|                 | -0,1 |      |      |    |     |    |     |      |      |      |     |
| DADP-SP-G9-16-R | 52,9 | 21   | 15,5 | 12 | 5,8 | 13 | 3,4 | 25,3 | 42,4 | 15   | 7   |
| DADP-SP-G9-20-R | 63,9 | 27,9 | 16   | 16 | 6,7 | 16 | 4,7 | 26,7 | 52   | 20,5 | 9,8 |

## Dimensions

### Dimensions – Centring sleeve ABAZ-G9-HD

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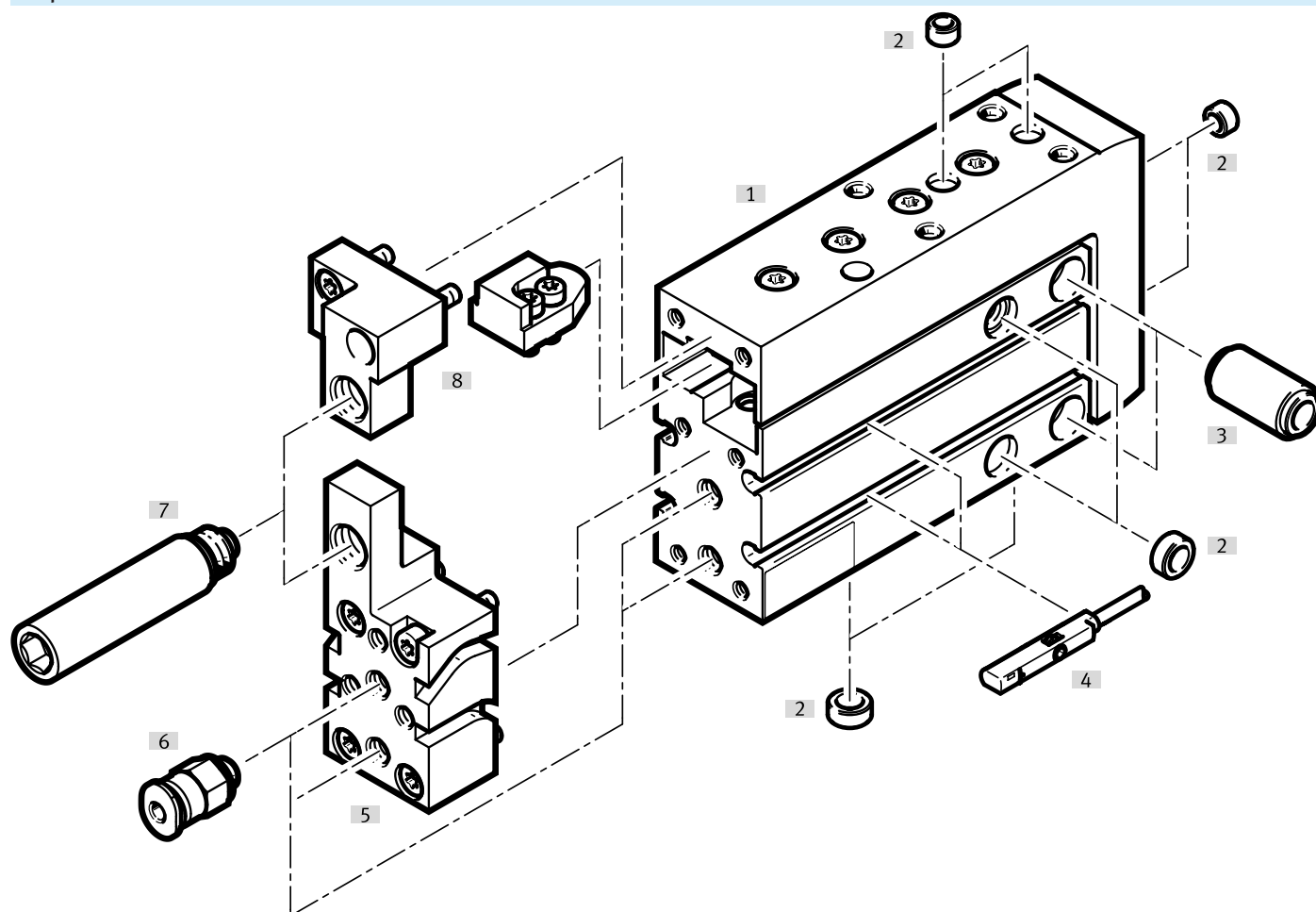
|               | D1<br>ø | D2<br>ø<br>g8 | D3<br>ø | L1 | L2 |
|---------------|---------|---------------|---------|----|----|
| ABAZ-G9-HD-10 | 9,3     | 7,5           | 4,8     | 18 | 15 |
| ABAZ-G9-HD-20 | 11,3    | 9,3           | 5,8     |    |    |

## Ordering data

| Mini slide DGSS                                                                  |      |        |                                                                 |          |                |
|----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------|----------|----------------|
|                                                                                  | Size | Stroke | Cushioning                                                      | Part no. | Type           |
|  | 6    | 5 mm   | Elastomer cushioning,<br>double-sided, stroke<br>not adjustable | 8164050  | DGSS-6-5-E1A   |
|                                                                                  |      | 10 mm  |                                                                 | 8164051  | DGSS-6-10-E1A  |
|                                                                                  |      | 15 mm  |                                                                 | 8164052  | DGSS-6-15-E1A  |
|                                                                                  |      | 20 mm  |                                                                 | 8164053  | DGSS-6-20-E1A  |
|                                                                                  |      | 25 mm  |                                                                 | 8164054  | DGSS-6-25-E1A  |
|                                                                                  |      | 30 mm  |                                                                 | 8164055  | DGSS-6-30-E1A  |
|                                                                                  |      | 40 mm  |                                                                 | 8164056  | DGSS-6-40-E1A  |
|                                                                                  |      | 50 mm  |                                                                 | 8164057  | DGSS-6-50-E1A  |
|                                                                                  |      | 60 mm  |                                                                 | 8164058  | DGSS-6-60-E1A  |
|                                                                                  | 10   | 5 mm   |                                                                 | 8164059  | DGSS-10-5-E1A  |
|                                                                                  |      | 10 mm  |                                                                 | 8164060  | DGSS-10-10-E1A |
|                                                                                  |      | 15 mm  |                                                                 | 8164061  | DGSS-10-15-E1A |
|                                                                                  |      | 20 mm  |                                                                 | 8164062  | DGSS-10-20-E1A |
|                                                                                  |      | 25 mm  |                                                                 | 8164063  | DGSS-10-25-E1A |
|                                                                                  |      | 30 mm  |                                                                 | 8164064  | DGSS-10-30-E1A |
|                                                                                  |      | 40 mm  |                                                                 | 8164065  | DGSS-10-40-E1A |
|                                                                                  |      | 50 mm  |                                                                 | 8164066  | DGSS-10-50-E1A |
|                                                                                  |      | 60 mm  |                                                                 | 8164067  | DGSS-10-60-E1A |
|                                                                                  | 16   | 5 mm   |                                                                 | 8164068  | DGSS-16-5-E1A  |
|                                                                                  |      | 10 mm  |                                                                 | 8164069  | DGSS-16-10-E1A |
|                                                                                  |      | 15 mm  |                                                                 | 8164070  | DGSS-16-15-E1A |
|                                                                                  |      | 20 mm  |                                                                 | 8164071  | DGSS-16-20-E1A |
|                                                                                  |      | 25 mm  |                                                                 | 8164072  | DGSS-16-25-E1A |
|                                                                                  |      | 30 mm  |                                                                 | 8164073  | DGSS-16-30-E1A |
|                                                                                  |      | 40 mm  |                                                                 | 8164074  | DGSS-16-40-E1A |
|                                                                                  |      | 50 mm  |                                                                 | 8164075  | DGSS-16-50-E1A |
|                                                                                  |      | 60 mm  |                                                                 | 8164076  | DGSS-16-60-E1A |
|                                                                                  | 20   | 5 mm   |                                                                 | 8164077  | DGSS-20-5-E1A  |
|                                                                                  |      | 10 mm  |                                                                 | 8164078  | DGSS-20-10-E1A |
|                                                                                  |      | 15 mm  |                                                                 | 8164079  | DGSS-20-15-E1A |
|                                                                                  |      | 20 mm  |                                                                 | 8164080  | DGSS-20-20-E1A |
|                                                                                  |      | 25 mm  |                                                                 | 8164081  | DGSS-20-25-E1A |
|                                                                                  |      | 30 mm  |                                                                 | 8164082  | DGSS-20-30-E1A |
|                                                                                  |      | 40 mm  |                                                                 | 8164083  | DGSS-20-40-E1A |
|                                                                                  |      | 50 mm  |                                                                 | 8164084  | DGSS-20-50-E1A |
|                                                                                  |      | 60 mm  |                                                                 | 8164085  | DGSS-20-60-E1A |

## Peripherals

### Peripherals overview



| Accessories                         |                                                                                                                                                                                                                                                                         |  | → Link               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------|
| Type/order code                     | Description                                                                                                                                                                                                                                                             |  |                      |
| [1] Mini slide DGSS                 | Compact version                                                                                                                                                                                                                                                         |  | <a href="#">dgss</a> |
| [2] Centring sleeve ZBH             | <ul style="list-style-type: none"> <li>For centring loads and attachments</li> <li>Centring sleeves are not in the scope of delivery of the mini slide</li> </ul>                                                                                                       |  | <a href="#">38</a>   |
| [3] Centring sleeve ABAZ            | For mounting several mini slides next to each other                                                                                                                                                                                                                     |  | <a href="#">37</a>   |
| [4] Proximity switch SMT-10M        | <ul style="list-style-type: none"> <li>For round slot</li> <li>For position sensing</li> </ul>                                                                                                                                                                          |  | <a href="#">35</a>   |
| [4] Proximity switch SMT-10G        | <ul style="list-style-type: none"> <li>For round slot</li> <li>For position sensing</li> </ul>                                                                                                                                                                          |  | <a href="#">36</a>   |
| [5] Stop kit DADP-...-R             | <ul style="list-style-type: none"> <li>For mounting shock absorbers</li> <li>For cushioning the extended and retracted end position</li> <li>Stop kit DADP-...-F included in the scope of delivery</li> </ul>                                                           |  | <a href="#">36</a>   |
| [6] Push-in fitting QSM             | For connecting tubing with standard O.D                                                                                                                                                                                                                                 |  | <a href="#">35</a>   |
| [6] One-way flow control valve GRLA | For regulating speed                                                                                                                                                                                                                                                    |  | <a href="#">35</a>   |
| [7] Shock absorber DYEF-G8-...-Y1   | <ul style="list-style-type: none"> <li>Cushioning -P</li> <li>For cushioning the end positions</li> <li>Elastic cushioning rings/pads at both ends without metal fixed stop</li> <li>Threaded sleeve included in the scope of delivery</li> </ul>                       |  | <a href="#">37</a>   |
| [7] Shock absorber DYEF-G8-S-...-Y1 | <ul style="list-style-type: none"> <li>Cushioning -E</li> <li>For cushioning the end positions</li> <li>Elastic cushioning rings/pads at both ends without metal fixed stop</li> <li>Short design</li> <li>Threaded sleeve included in the scope of delivery</li> </ul> |  | <a href="#">37</a>   |
| [7] Shock absorber DYSS-G8-...-Y1F  | <ul style="list-style-type: none"> <li>Cushioning -Y12</li> <li>For cushioning the end positions</li> <li>Self-adjusting, hydraulic</li> <li>Threaded sleeve included in the scope of delivery</li> </ul>                                                               |  | <a href="#">37</a>   |

Peripherals

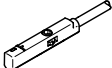
| Accessories                       |                                                                                                                                                                                                                                                   | → Link             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Type/order code                   | Description                                                                                                                                                                                                                                       |                    |
| [7] Shock absorber DYEFG8-...-Y1F | <ul style="list-style-type: none"><li>• Cushioning P1</li><li>• For cushioning the end positions</li><li>• Elastic cushioning rings/pads at both ends with metal fixed stop</li><li>• Threaded sleeve included in the scope of delivery</li></ul> | <a href="#">37</a> |
| [8] Stop kit DADP-...-F           | <ul style="list-style-type: none"><li>• For mounting shock absorbers</li><li>• For cushioning the extended end position</li></ul>                                                                                                                 | <a href="#">36</a> |

## Accessories

| Push-in fitting QSM                                                               |                        |                                     |                   |                |          |          |
|-----------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------|----------------|----------|----------|
|                                                                                   | Pneumatic connection 1 | Pneumatic connection, port 2        | Note on materials | Product weight | Part no. | Type     |
|  | Male thread M3         | For tubing outer diameter of 3 mm   | RoHS-compliant    | 1.1 g          | ★ 153301 | QSM-M3-3 |
|                                                                                   | Male thread M5         | For tubing outside diameter of 3 mm |                   | 3.4 g          | 153302   | QSM-M5-3 |
|                                                                                   |                        | For tubing outside diameter of 4 mm |                   | 3.2 g          | ★ 153304 | QSM-M5-4 |
|                                                                                   |                        | For tubing outside diameter of 6 mm |                   | 4.5 g          | ★ 153306 | QSM-M5-6 |

| Push-in fitting QSM-...-I                                                         |                        |                                     |                   |                |          |              |
|-----------------------------------------------------------------------------------|------------------------|-------------------------------------|-------------------|----------------|----------|--------------|
|                                                                                   | Pneumatic connection 1 | Pneumatic connection, port 2        | Note on materials | Product weight | Part no. | Type         |
|  | Male thread M3         | For tubing outer diameter of 3 mm   | RoHS-compliant    | 2.3 g          | 133001   | QSM-M3-3-I-R |
|                                                                                   |                        | For tubing outside diameter of 4 mm |                   | 2.2 g          | 133002   | QSM-M3-4-I-R |
|                                                                                   | Male thread M5         | For tubing outer diameter of 3 mm   |                   | 3.2 g          | 153313   | QSM-M5-3-I   |
|                                                                                   |                        | For tubing outside diameter of 4 mm |                   | 3 g            | ★ 153315 | QSM-M5-4-I   |
|                                                                                   |                        | For tubing outside diameter of 6 mm |                   | 4.4 g          | ★ 153317 | QSM-M5-6-I   |

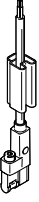
| One-way flow control valve GRLA                                                     |                              |                        |                   |                |          |                |
|-------------------------------------------------------------------------------------|------------------------------|------------------------|-------------------|----------------|----------|----------------|
|                                                                                     | Pneumatic connection, port 2 | Pneumatic connection 1 | Note on materials | Product weight | Part no. | Type           |
|  | M3                           | Push-in connector 3 mm | RoHS-compliant    | 7 g            | 175041   | GRLA-M3-QS-3   |
|                                                                                     | M5                           |                        |                   | 13 g           | 193137   | GRLA-M5-QS-3-D |
|                                                                                     |                              | Push-in connector 4 mm |                   |                | ★ 193138 | GRLA-M5-QS-4-D |
|                                                                                     |                              | Push-in connector 6 mm |                   |                | ★ 193139 | GRLA-M5-QS-6-D |

| Proximity switch SMT-10M for round slot, magneto-resistive                          |                                                  |                        |                       |              |          | Link <a href="#">smt</a>   |
|-------------------------------------------------------------------------------------|--------------------------------------------------|------------------------|-----------------------|--------------|----------|----------------------------|
|                                                                                     | Type of mounting                                 | Switching output       | Electrical connection | Cable length | Part no. | Type                       |
|  | Screw-clamped, Insertable in the slot from above | 3-wire NPN N/O contact | Open end              | 2.5 m        | ★ 551377 | SMT-10M-NS-24V-E-2,5-L-OE  |
|                                                                                     |                                                  |                        | Plug M8, A-coded      | 0.3 m        | 551379   | SMT-10M-NS-24V-E-0,3-L-M8D |
|                                                                                     |                                                  | 3-wire PNP N/O contact | Open end              | 2.5 m        | ★ 551373 | SMT-10M-PS-24V-E-2,5-L-OE  |
|                                                                                     |                                                  |                        | Plug M8, A-coded      | 0.3 m        | ★ 551375 | SMT-10M-PS-24V-E-0,3-L-M8D |
|                                                                                     |                                                  | 2-wire PNP N/O contact | Open end              | 2.5 m        | 551382   | SMT-10M-ZS-24V-E-2,5-L-OE  |

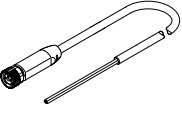
## Accessories

## Proximity switch SMT-10G for round slot, magneto-resistive

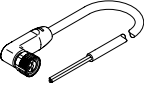
Link [smt](#)

|                                                                                  | Type of mounting                                     | Switching output       | Electrical connection | Cable length | Part no. | Type                      |
|----------------------------------------------------------------------------------|------------------------------------------------------|------------------------|-----------------------|--------------|----------|---------------------------|
|  | Clamped in C-slot, Insertable in the slot lengthwise | 3-wire NPN N/O contact | Open end              | 2.5 m        | 8065030  | SMT-10G-NS-24V-E-2,5Q-OE  |
|                                                                                  |                                                      |                        | Plug M8, A-coded      | 0.3 m        | 8065029  | SMT-10G-NS-24V-E-0,3Q-M8D |
|                                                                                  |                                                      | 3-wire PNP N/O contact | Open end              | 2.5 m        | 547862   | SMT-10G-PS-24V-E-2,5Q-OE  |
|                                                                                  |                                                      |                        | Plug M8, A-coded      | 0.3 m        | 547863   | SMT-10G-PS-24V-E-0,3Q-M8D |

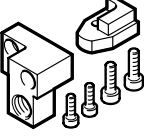
## Connecting cables NEBA, straight

|                                                                                  | Electrical connection 1, connector system | Electrical connection 2, connector system | Electrical connection 2, number of connections/cores | Cable length | Part no.  | Type                  |
|----------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------------|--------------|-----------|-----------------------|
|  | M8x1, A-coded, to EN 61076-2-104          | Open end                                  | 3                                                    | 2.5 m        | ★ 8078223 | NEBA-M8G3-U-2.5-N-LE3 |
|                                                                                  |                                           |                                           |                                                      | 5 m          | ★ 8078224 | NEBA-M8G3-U-5-N-LE3   |

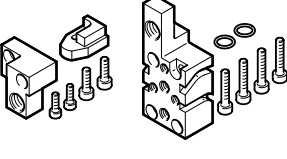
## Connecting cables NEBA, angled

|                                                                                    | Electrical connection 1, connector system | Electrical connection 2, connector system | Electrical connection 2, number of connections/cores | Cable length | Part no.  | Type                  |
|------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------------|--------------|-----------|-----------------------|
|  | M8x1, A-coded, to EN 61076-2-104          | Open end                                  | 3                                                    | 2.5 m        | ★ 8078230 | NEBA-M8W3-U-2.5-N-LE3 |
|                                                                                    |                                           |                                           |                                                      | 5 m          | ★ 8078231 | NEBA-M8W3-U-5-N-LE3   |

## Stop kit DADP-...-F

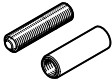
|                                                                                    | Size | Material stops   | Note on materials | Product weight | Part no. | Type            |
|------------------------------------------------------------------------------------|------|------------------|-------------------|----------------|----------|-----------------|
|  | 6    | High-alloy steel | RoHS-compliant    | 12 g           | 8173536  | DADP-SP-G9-6-F  |
|                                                                                    | 10   |                  |                   | 27 g           | 8173537  | DADP-SP-G9-10-F |
|                                                                                    | 16   |                  |                   | 36 g           | 8173538  | DADP-SP-G9-16-F |
|                                                                                    | 20   |                  |                   | 87 g           | 8173539  | DADP-SP-G9-20-F |

## Stop kit DADP-...-R

|                                                                                    | Size <sup>1)</sup> | Material plate                   | Note on materials | Product weight | Part no. | Type            |
|------------------------------------------------------------------------------------|--------------------|----------------------------------|-------------------|----------------|----------|-----------------|
|  | 6                  | Anodised wrought aluminium alloy | RoHS-compliant    | 24 g           | 8173532  | DADP-SP-G9-6-R  |
|                                                                                    | 10                 |                                  |                   | 52 g           | 8173533  | DADP-SP-G9-10-R |
|                                                                                    | 16                 |                                  |                   | 68 g           | 8173534  | DADP-SP-G9-16-R |
|                                                                                    | 20                 |                                  |                   | 160 g          | 8173535  | DADP-SP-G9-20-R |

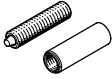
1) Scope of delivery: DADP-...-R and DADP-...-F stop kits

## Accessories

| Shock absorber DYEF-G8-...-Y1 (cushioning -P)                                     |                           |                                                                     |                  |                |                |                           |
|-----------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------|------------------|----------------|----------------|---------------------------|
|                                                                                   | Description <sup>1)</sup> | Cushioning                                                          | Material housing | Product weight | Part no.       | Type                      |
|  | For size 6                | Elastic cushioning rings/pads at both ends without metal fixed stop | High-alloy steel | 5 g            | <b>8073902</b> | <b>DYEF-G8-M4-Y1</b>      |
|                                                                                   |                           |                                                                     |                  |                | <b>8131070</b> | <b>DYEF-G8-M4-Y1-F1A</b>  |
|                                                                                   | For size 10               |                                                                     |                  | 11.7 g         | <b>8073904</b> | <b>DYEF-G8-M6-Y1</b>      |
|                                                                                   |                           |                                                                     |                  |                | <b>8131072</b> | <b>DYEF-G8-M6-Y1-F1A</b>  |
|                                                                                   | For size 16               |                                                                     |                  | 23 g           | <b>8073905</b> | <b>DYEF-G8-M8-Y1</b>      |
|                                                                                   |                           |                                                                     |                  |                | <b>8131073</b> | <b>DYEF-G8-M8-Y1-F1A</b>  |
|                                                                                   | For size 20               |                                                                     |                  | 41 g           | <b>8073906</b> | <b>DYEF-G8-M10-Y1</b>     |
|                                                                                   |                           |                                                                     |                  |                | <b>8131074</b> | <b>DYEF-G8-M10-Y1-F1A</b> |

1) Scope of delivery: 1 cushioning component and 1 threaded sleeve

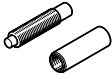
DYEF-...-F1A: Recommended for production facilities for manufacturing lithium-ion batteries. More information: [www.festo.com/x/topic/bat](http://www.festo.com/x/topic/bat)

| Shock absorber DYEF-G8-...-Y1F (cushioning -P1)                                   |                           |                                                                  |                  |                |                |                        |
|-----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------|------------------|----------------|----------------|------------------------|
|                                                                                   | Description <sup>1)</sup> | Cushioning                                                       | Material housing | Product weight | Part no.       | Type                   |
|  | For size 6                | Elastic cushioning rings/pads at both ends with metal fixed stop | High-alloy steel | 4.5 g          | <b>8160234</b> | <b>DYEF-G8-M4-Y1F</b>  |
|                                                                                   | For size 10               |                                                                  |                  | 10.8 g         | <b>8160236</b> | <b>DYEF-G8-M6-Y1F</b>  |
|                                                                                   | For size 16               |                                                                  |                  | 20.9 g         | <b>8160237</b> | <b>DYEF-G8-M8-Y1F</b>  |
|                                                                                   | For size 20               |                                                                  |                  | 37.6 g         | <b>8160238</b> | <b>DYEF-G8-M10-Y1F</b> |

1) Scope of delivery: 1 cushioning component and 1 threaded sleeve

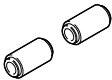
| Shock absorber DYEF-G8-S-...-Y1 (cushioning -E)                                     |                           |                                                                     |                  |                |                |                         |
|-------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------|------------------|----------------|----------------|-------------------------|
|                                                                                     | Description <sup>1)</sup> | Cushioning                                                          | Material housing | Product weight | Part no.       | Type                    |
|  | For size 6                | Elastic cushioning rings/pads at both ends without metal fixed stop | High-alloy steel | 3.5 g          | <b>8159470</b> | <b>DYEF-G8-S-M4-Y1</b>  |
|                                                                                     | For size 10               |                                                                     |                  | 6.9 g          | <b>8159472</b> | <b>DYEF-G8-S-M6-Y1</b>  |
|                                                                                     | For size 16               |                                                                     |                  | 14.6 g         | <b>8159473</b> | <b>DYEF-G8-S-M8-Y1</b>  |
|                                                                                     | For size 20               |                                                                     |                  | 26 g           | <b>8159474</b> | <b>DYEF-G8-S-M10-Y1</b> |

1) Scope of delivery: 1 cushioning component and 1 threaded sleeve

| Shock absorber DYSS-G8-...-Y1F (cushioning -Y12)                                    |                           |                |                  |                |                |                               |
|-------------------------------------------------------------------------------------|---------------------------|----------------|------------------|----------------|----------------|-------------------------------|
|                                                                                     | Description <sup>1)</sup> | Cushioning     | Material housing | Product weight | Part no.       | Type                          |
|  | For size 6                | Self-adjusting | High-alloy steel | 3.9 g          | <b>8073911</b> | <b>DYSS-G8-2-4-Y1F</b>        |
|                                                                                     |                           |                |                  |                | <b>8119980</b> | <b>DYSS-G8-2-4-Y1F-F1A</b>    |
|                                                                                     | For size 10               |                |                  | 10.2 g         | <b>8111384</b> | <b>DYSS-G8-4-4-Y1F-G2</b>     |
|                                                                                     |                           |                |                  |                | <b>8119982</b> | <b>DYSS-G8-4-4-Y1F-F1A-G2</b> |
|                                                                                     | For size 16               |                |                  | 16 g           | <b>8073914</b> | <b>DYSS-G8-5-5-Y1F</b>        |
|                                                                                     |                           |                |                  |                | <b>8119983</b> | <b>DYSS-G8-5-5-Y1F-F1A</b>    |
|                                                                                     | For size 20               |                |                  | 33 g           | <b>8073915</b> | <b>DYSS-G8-7-5-Y1F</b>        |
|                                                                                     |                           |                |                  |                | <b>8119984</b> | <b>DYSS-G8-7-5-Y1F-F1A</b>    |

1) Scope of delivery: 1 cushioning and 1 threaded sleeve

DYSS-...-F1A: recommended for production plants for manufacturing lithium-ion batteries. More information [www.festo.com/x/topic/bat](http://www.festo.com/x/topic/bat)

| Centring sleeve ABAZ                                                                |                  |                            |                   |                |                |                      |
|-------------------------------------------------------------------------------------|------------------|----------------------------|-------------------|----------------|----------------|----------------------|
|                                                                                     | Description      | Material sleeve            | Note on materials | Product weight | Part no.       | Type                 |
|  | For size 6       | High-alloy stainless steel | RoHS-compliant    | 2.4 g          | <b>8183326</b> | <b>ABAZ-G9-HD-6</b>  |
|                                                                                     | For sizes 10, 16 |                            |                   | 6.5 g          | <b>8183327</b> | <b>ABAZ-G9-HD-10</b> |
|                                                                                     | For size 20      |                            |                   | 7.9 g          | <b>8183328</b> | <b>ABAZ-G9-HD-20</b> |

| Centring sleeve ZBH-5                                                               |                     |                 |              |                |                |                |
|-------------------------------------------------------------------------------------|---------------------|-----------------|--------------|----------------|----------------|----------------|
|                                                                                     | Description         | Material sleeve | Size of pack | Product weight | Part no.       | Type           |
|  | For sizes 6, 10, 16 | Steel           | 10           | 1 g            | <b>8146543</b> | <b>ZBH-5-B</b> |

## Accessories

| Centring sleeve ZBH-7                                                            |                      |                 |              |                |                |                |
|----------------------------------------------------------------------------------|----------------------|-----------------|--------------|----------------|----------------|----------------|
|                                                                                  | Description          | Material sleeve | Size of pack | Product weight | Part no.       | Type           |
|  | For sizes 10, 16, 20 | Steel           | 10           | 1 g            | <b>8146544</b> | <b>ZBH-7-B</b> |

| Centring sleeve ZBH-9                                                            |             |                 |              |                |                |                |
|----------------------------------------------------------------------------------|-------------|-----------------|--------------|----------------|----------------|----------------|
|                                                                                  | Description | Material sleeve | Size of pack | Product weight | Part no.       | Type           |
|  | For size 20 | Steel           | 10           | 2 g            | <b>8137184</b> | <b>ZBH-9-B</b> |