

Linear/swivel clamp CLR



# Linear/swivel clamp CLR

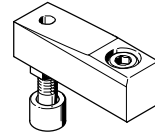
Key features

FESTO

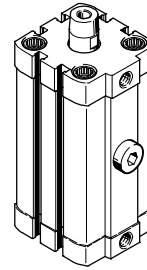
## Functional description

The linear/swivel clamp CLR is used for all types of clamping. Through the combination of the linear and swivel motion of the piston rod, it is possible to insert and remove workpieces even beyond the clamping range. It is

possible to choose between versions swivelling to the right or to the left, while the CLR also boasts a linear stroke with diameters of 40 and larger.



Clamping finger:  
Can be ordered as an accessory



## Optimal range

- Uncomplicated mechanical system
- Sturdy design
- Long service life
- Low purchasing, assembly and maintenance costs
- New: CLR with dust and welding spatter protection

## Flexible

- Swivel direction can be adjusted subsequently
- Compact dimensions for tight installation spaces

## Easy to install

- The port pattern corresponds to ISO 21287, meaning that foot and flange mountings from the standard accessories range can be used
- Female threads in the bearing and end caps enable easy assembly of the cylinder either directly or using mounting accessories

## Practical

- Clamping finger including plug-on rubber cap to protect sensitive surfaces available as accessory
- Clamping finger can be freely adjusted across a full 360°
- Can be repaired using set of wearing parts
- Corresponding accessories such as tubing, flow control valves and push-in fittings

## Swivel direction



Swivel motion to the right

View from above of the piston rod side with the piston rod retracted. Clockwise swivel direction.



Swivel motion to the left

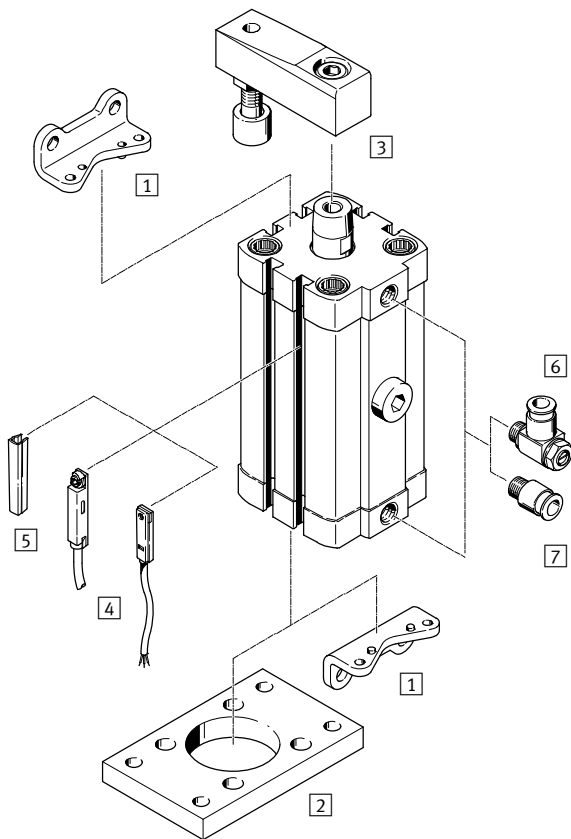
View from above of the piston rod side with the piston rod retracted. Anticlockwise swivel direction.



Straight

# Linear/swivel clamp CLR

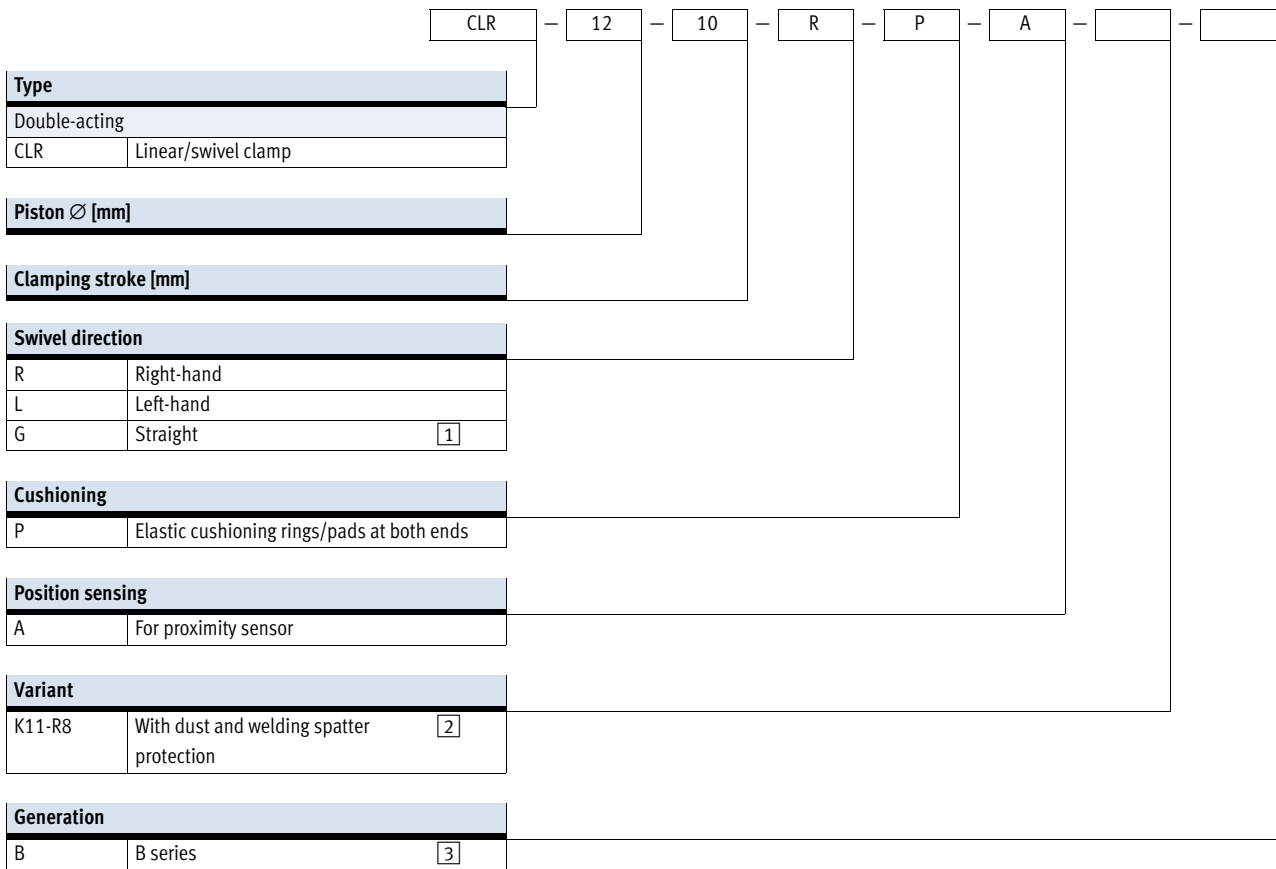
Peripherals overview



| Mounting components and accessories |                                    |  |
|-------------------------------------|------------------------------------|--|
|                                     | Brief description                  | → Page/Internet  |
| 1                                   | Foot mounting<br>HNA               | For bearing or end caps<br>14  |
| 2                                   | Flange mounting<br>FNC             | For end caps<br>15   |
| 3                                   | Clamping finger<br>CLR-...-FS      | Comprising clamping finger, mounting screw, tightening bolt, lock nut and dust cap<br>15 |
| 4                                   | Proximity sensor<br>SME/SMT        | Can be integrated in the cylinder profile barrel<br>17                                   |
| 5                                   | Slot cover<br>ABP-5-S              | For protecting the sensor cable and keeping dirt out of the sensor slots<br>17           |
| 6                                   | One-way flow control valve<br>GRLA | For speed regulation<br>16   |
| 7                                   | Push-in fitting<br>QS              | For connecting compressed air tubing with standard O.D.<br>quick star                    |

# Linear/swivel clamp CLR

Type codes



1 Only with piston Ø 40 ... 63 mm

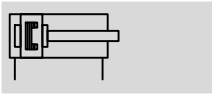
2 Only with piston Ø 25 ... 63 mm

3 Only with piston Ø 32 mm

# Linear/swivel clamp CLR

Technical data

Function



- - Diameter  
12 ... 63 mm
- - Clamping stroke  
10, 20, 50 mm
- - [www.festo.com](http://www.festo.com)



| General technical data         |  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
|--------------------------------|--|-------------|----|----|-------|------|------|-------|----|----|----|-----------------------|----|----|----|----|----|--|
| Piston Ø                       | 12   | 16          | 20 | 25 | 32    | 40   | 50   | 63    |    |    |    |                       |    |    |    |    |    |  |
| Pneumatic connection           | M5   | M5          | M5 | M5 | G1/8  | G1/8 | G1/8 | G1/8  |    |    |    |                       |    |    |    |    |    |  |
| Piston rod thread              | M3   | M4          | M6 | M6 | M8    | M8   | M10  | M10   |    |    |    |                       |    |    |    |    |    |  |
| Operating medium               | Compressed air to ISO 8573-1:2010 [7:4:4]  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Note on operating/pilot medium | Lubricated operation possible (in which case lubricated operation will always be required) |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Design                         | Piston   |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
|                                | Piston rod   |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
|                                | Cylinder barrel  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Cushioning                     | Elastic cushioning rings/pads at both ends   |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Position sensing               | For proximity sensor   |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Type of mounting               | With through-hole  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
|                                | With female thread   |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
|                                | Via accessories  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Mounting position              | Any  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Clamping range                 | ≥ 2 mm before the end position is reached  |             |    |    |       |      |      |       |    |    |    |                       |    |    |    |    |    |  |
| Clamping stroke <sup>1)</sup>  | [mm]   | 10          | 20 | 10 | 20    | 10   | 20   | 10    | 20 | 10 | 20 | 10                    | 20 | 20 | 50 | 20 | 50 |  |
| Total stroke <sup>2)</sup>     | [mm]   | 19          | 29 | 20 | 30    | 22   | 32   | 23    | 33 | 28 | 38 | 28                    | 38 | 41 | 71 | 43 | 73 |  |
| Swivel direction               |  | Right, left |    |    |       |      |      |       |    |    |    | Right, left, straight |    |    |    |    |    |  |
| Swivel angle                   | [°]  | 90 ±4       |    |    | 90 ±3 |      |      | 90 ±2 |    |    |    |                       |    |    |    |    |    |  |

1) The clamping stroke corresponds to the linear stroke used for clamping  
 2) The total stroke comprises the clamping stroke and the swivel stroke

| Operating and environmental conditions       |                  |
|--|------------------|
| Operating pressure                           | [bar] 2 ... 10   |
| Ambient temperature <sup>1)</sup>            | [°C] -10 ... +80 |
| Corrosion resistance class CRC <sup>2)</sup> | 2                |

1) Note operating range of proximity sensors  
 2) Corrosion resistance class CRC 2 to Festo standard FN 940070  
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

# Linear/swivel clamp CLR

FESTO

Technical data

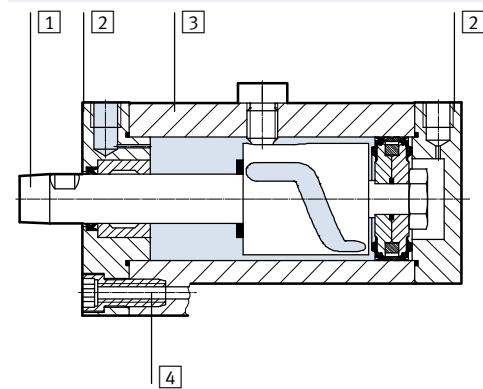
| Forces [N] without clamping finger  |    |    |     |     |     |     |     |      |
|-------------------------------------|----|----|-----|-----|-----|-----|-----|------|
| Piston Ø                            | 12 | 16 | 20  | 25  | 32  | 40  | 50  | 63   |
| Theoretical clamping force at 6 bar | 51 | 90 | 121 | 227 | 362 | 633 | 990 | 1682 |

| Forces [N] with clamping finger CLR-...-FS, 5 mm before end of stroke |       |    |    |     |     |     |     |     |      |
|---|-------|----|----|-----|-----|-----|-----|-----|------|
| Piston Ø  | 12    | 16 | 20 | 25  | 32  | 40  | 50  | 63  |      |
| Effective clamping force at   | 2 bar | 12 | 17 | 35  | 63  | 111 | 176 | 271 | 441  |
|   | 4 bar | 23 | 36 | 73  | 127 | 216 | 355 | 508 | 823  |
|   | 6 bar | 34 | 53 | 109 | 188 | 313 | 536 | 716 | 1386 |

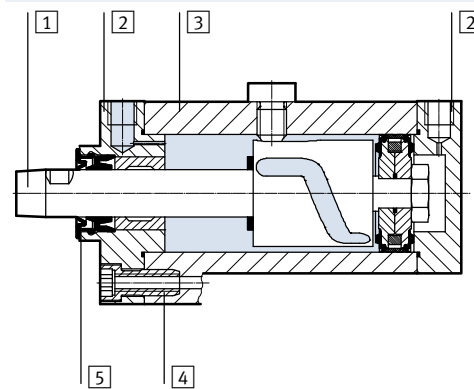
## Materials

Sectional view

Basic design



K11-R8 With dust and welding spatter protection



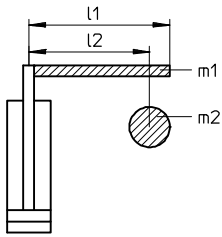
| Linear/swivel clamp    | Basic design                            | K11-R8                                     |
|------------------------|---|--|
| 1 Piston rod           | High-alloy stainless steel              | Surface-treated high-alloy stainless steel |
| 2 Bearing and end caps | Coated wrought aluminium alloy          |  |
| 3 Cylinder barrel      | Smooth anodised wrought aluminium alloy |  |
| 4 Flange screws        | Galvanised steel                        |  |
| 5 Hard scraper         | -                                       | Polyphenylene sulphide, flame-retardant    |
| - Seals                | Nitrile rubber, polyurethane            |  |

| Weight [g]               |       |     |     |     |     |     |      |      |      |
|--------------------------|-------|-----|-----|-----|-----|-----|------|------|------|
| Piston Ø                 | 12    | 16  | 20  | 25  | 32  | 40  | 50   | 63   |      |
| Basic design             |       |     |     |     |     |     |      |      |      |
| Product weight at stroke | 10 mm | 135 | 160 | 335 | 395 | 685 | 880  | -    | -    |
|                          | 20 mm | 160 | 190 | 385 | 455 | 765 | 985  | 1650 | 2100 |
|                          | 50 mm | -   | -   | -   | -   | -   | -    | 2115 | 2635 |
| Variant K11-R8           |       |     |     |     |     |     |      |      |      |
| Product weight at stroke | 10 mm | -   | -   | -   | 410 | 700 | 895  | -    | -    |
|                          | 20 mm | -   | -   | -   | 470 | 785 | 1010 | 1690 | 2100 |
|                          | 50 mm | -   | -   | -   | -   | -   | -    | 2155 | 2625 |

# Linear/swivel clamp CLR

Technical data

## Maximum permissible mass moment of inertia $J_0$



- $m_1$  = mass of the clamping finger
- $l_1$  = length of the clamping finger
- $m_2$  = mass of the screw
- $l_2$  = centre distance between screw and piston rod

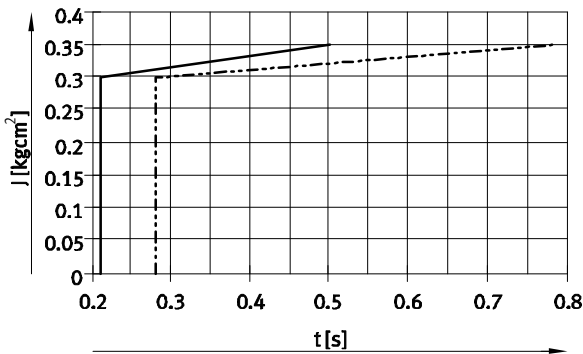
**Note**  
 The permissible mass moment of inertia at the piston rod depends on the cylinder's speed. The moment can easily be calculated using this formula. The software program "mass moments of inertia", available on the electronic catalogue, can also be used for calculation purposes.

Maximum permissible mass moment of inertia:

$$J_0 = \frac{m_1 \times l_1^2}{3} + m_2 \times l_2^2$$

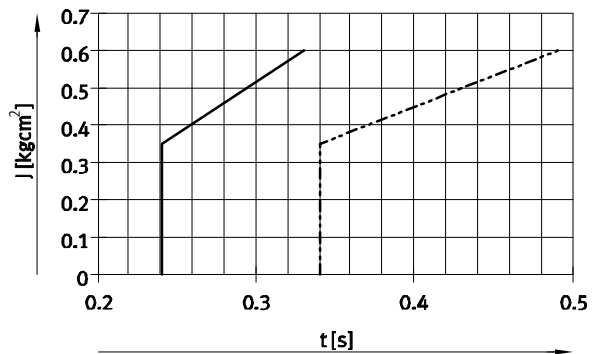
## Mass moment of inertia $J$ as a function of the time $t$ required for a single stroke

Ø 12

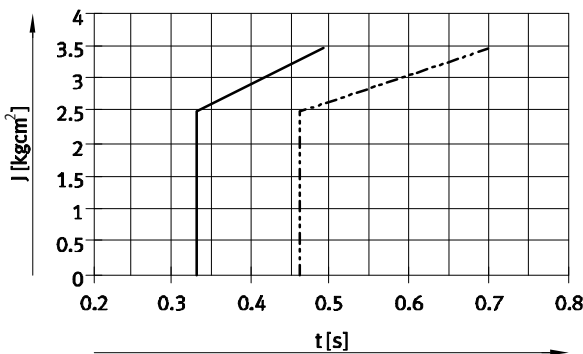


- 10 mm stroke
- - - 20 mm stroke

Ø 16

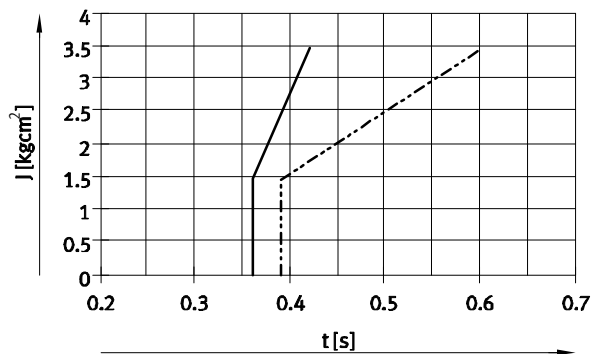


Ø 20



- 10 mm stroke
- - - 20 mm stroke

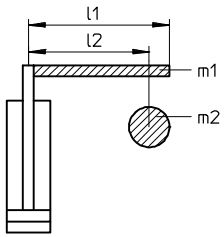
Ø 25



# Linear/swivel clamp CLR

Technical data

## Maximum permissible mass moment of inertia $J_0$



- $m_1$  = mass of the clamping finger
- $l_1$  = length of the clamping finger
- $m_2$  = mass of the screw
- $l_2$  = centre distance between screw and piston rod

Note

The permissible mass moment of inertia at the piston rod depends on the cylinder's speed. The moment can easily be calculated using this

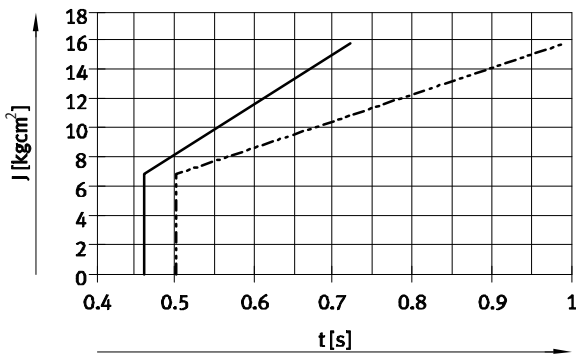
formula. The software program "mass moments of inertia", available on the electronic catalogue, can also be used for calculation purposes.

Maximum permissible mass moment of inertia:

$$J_0 = \frac{m_1 \times l_1^2}{3} + m_2 \times l_2^2$$

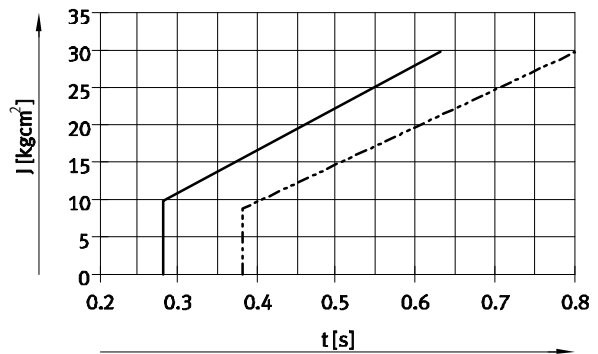
## Mass moment of inertia $J$ as a function of the time $t$ required for a single stroke

Ø 32

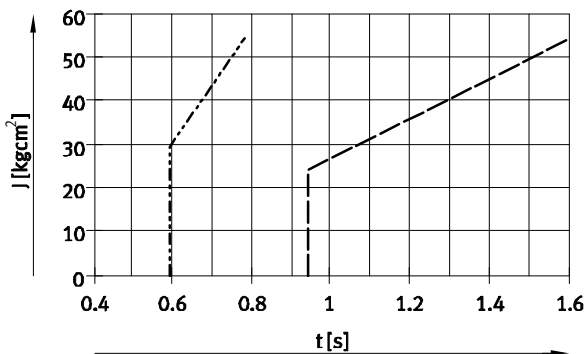


- 10 mm stroke
- - - 20 mm stroke

Ø 40

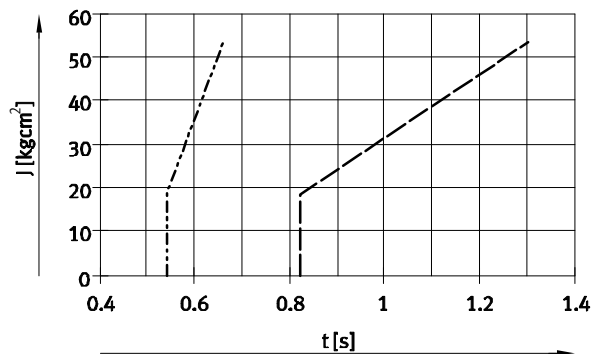


Ø 50



- - - 20 mm stroke
- 50 mm stroke

Ø 63





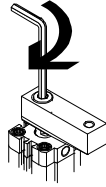
# Linear/swivel clamp CLR

Technical data

## Assembling a clamping finger

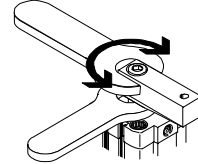
### Step 1

- Place the clamping finger on the cone of the piston rod
- Screw the mounting screw into the threaded hole of the piston rod until the clamping finger can still just be turned



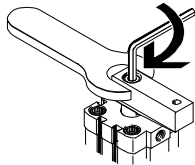
### Step 2

- Hold the piston rod in place at the spanner flat using a spanner
- Turn the clamping finger with a second spanner until the alignment corresponds to the application



### Step 3

- Tighten the mounting screw using the tightening torque below



## Tightening torques [Nm]

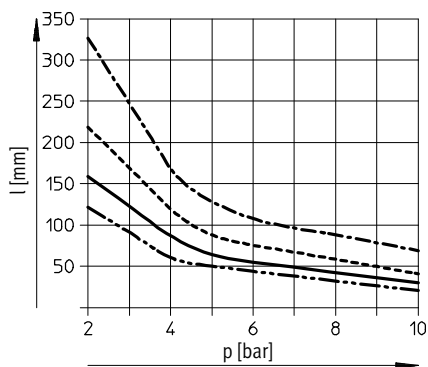
| Piston $\varnothing$                         | 12  | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
|--|-----|----|----|----|----|----|----|----|
| Max. tightening torque clamping finger screw | 1.2 | 3  | 12 | 12 | 24 | 24 | 47 | 47 |

Note

No calculations are required when using the Festo clamping finger. The accessory is matched to the cylinder and can be operated without flow control at the maximum permissible

pressure. When manufacturing the clamping finger in-house, the following values must be checked and calculations performed.

## Maximum permissible clamping arm length $l$ as a function of the operating pressure $p$



$\varnothing$  12/16  
 $\varnothing$  20/25  
 $\varnothing$  32/40  
 $\varnothing$  50/63

# Linear/swivel clamp CLR

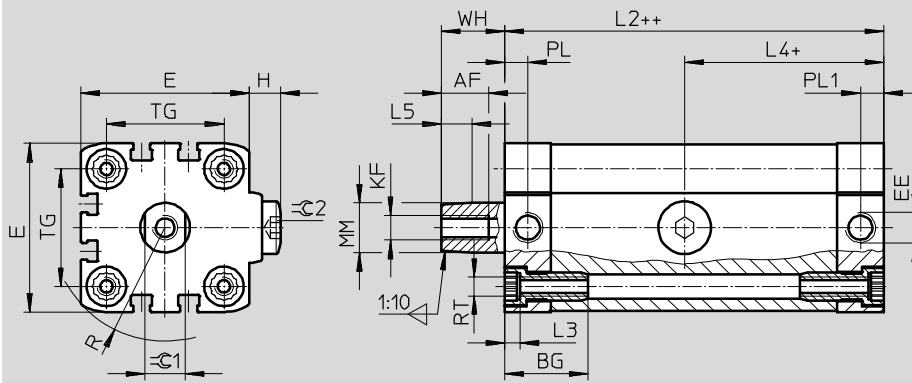
Technical data



## Dimensions

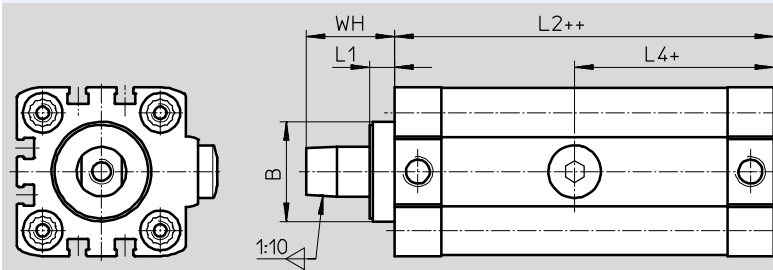
Download CAD data → [www.festo.com](http://www.festo.com)

Basic design Ø 12 ... 63



+ = plus clamping stroke length  
 ++ = plus 2x clamping stroke length

Variant K11-R8 Ø 25 ... 63



+ = plus clamping stroke length  
 ++ = plus 2x clamping stroke length


| Ø    | AF | BG   | B     | E    | EE    | H     | KF    | L1  | L2    | L3    | L4   |
|------|----|------|-------|------|-------|-------|-------|-----|-------|-------|------|
| [mm] |    |      |       |      |       |       |       |     |       |       |      |
| 12   | 10 | 17   | -     | 27.5 | M5    | 3.25  | M3    | -   | 60.6  | 3.5   | 21.8 |
| 16   | 12 |      |       | 29   |       |       | M4    |     | 62.5  |       | 23.5 |
| 20   | 15 |      |       | 19.5 |       |       | 35.5  |     | M6    |       | 8.1  |
| 25   |    | 28.4 | 39.5  |      | 82.5  | 46.55 |       |     |       |       |      |
| 32   |    | 26   | 32.2  | 47   | G1/8  | 7.65  | 101   | 4.6 | 53.05 |       |      |
| 40   |    |      |       | 54.5 |       |       | 102.5 |     | 54.3  |       |      |
| 50   | 27 |      |       | 38.2 |       |       | 65.5  |     | M10   | 117.9 | 58.8 |
| 63   |    | 75.5 | 124.9 |      | 62.75 |       |       |     |       |       |      |


| Ø    | L5   | MM Ø | PL  | PL1  | R    | RT | TG   | WH   |        | ⊖C1 | ⊖C2 |
|------|------|------|-----|------|------|----|------|------|--------|-----|-----|
| [mm] |      |      |     |      |      |    |      |      | K11-R8 |     |     |
| 12   | 4.9  | 6    | 6   | 15.1 | 18.2 | M4 | 16   | 10.9 | -      | 5   | 3   |
| 16   |      | 8    | 6.5 | 15   |      |    | 19.3 |      |        | 18  |     |
| 20   | 7.4  | 12   | 6   | 6    | 23.7 | M5 | 22   | 16.4 | 24.5   | 10  | 5   |
| 25   |      |      |     |      |      |    | 26.3 |      |        |     |     |
| 32   | 9.9  | 16   | 7.5 | 7.5  | 31.5 | M6 | 32.5 | 20.4 | 28.5   | 13  | 6   |
| 40   |      |      |     |      |      |    | 36.7 |      |        |     |     |
| 50   | 10.3 | 20   | 7.5 | 7.5  | 44.3 | M8 | 46.5 | 20.8 | 28.5   | 17  | 8   |
| 63   |      |      |     |      |      |    | 51.5 |      |        |     |     |

# Linear/swivel clamp CLR

Technical data

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| Ordering data – Swivel direction right  |               |             |          |                   |
|---|---------------|-------------|----------|-------------------|
| Type  | Piston Ø [mm] | Stroke [mm] | Part No. | Type              |
|  | 12            | 10          | 535431   | CLR-12-10-R-P-A   |
|   |               | 20          | 535433   | CLR-12-20-R-P-A   |
|   | 16            | 10          | 535435   | CLR-16-10-R-P-A   |
|   |               | 20          | 535437   | CLR-16-20-R-P-A   |
|   | 20            | 10          | 535439   | CLR-20-10-R-P-A   |
|   |               | 20          | 535441   | CLR-20-20-R-P-A   |
|   | 25            | 10          | 535443   | CLR-25-10-R-P-A   |
|   |               | 20          | 535445   | CLR-25-20-R-P-A   |
|   | 32            | 10          | 543177   | CLR-32-10-R-P-A-B |
|   |               | 20          | 543179   | CLR-32-20-R-P-A-B |
|   | 40            | 10          | 535453   | CLR-40-10-R-P-A   |
|   |               | 20          | 535456   | CLR-40-20-R-P-A   |
|   | 50            | 20          | 535459   | CLR-50-20-R-P-A   |
|   |               | 50          | 535462   | CLR-50-50-R-P-A   |
|   | 63            | 20          | 535465   | CLR-63-20-R-P-A   |
|   |               | 50          | 535468   | CLR-63-50-R-P-A   |


| Ordering data – Swivel direction right, with dust and welding spatter protection    |               |             |          |                          |
|---|---------------|-------------|----------|--------------------------|
| Type  | Piston Ø [mm] | Stroke [mm] | Part No. | Type                     |
|  | 25            | 10          | 535483   | CLR-25-10-R-P-A-K11-R8   |
|   |               | 20          | 535485   | CLR-25-20-R-P-A-K11-R8   |
|   | 32            | 10          | 535487   | CLR-32-10-R-P-A-B-K11-R8 |
|   |               | 20          | 535490   | CLR-32-20-R-P-A-B-K11-R8 |
|   | 40            | 10          | 535493   | CLR-40-10-R-P-A-K11-R8   |
|   |               | 20          | 535496   | CLR-40-20-R-P-A-K11-R8   |
|   | 50            | 20          | 535499   | CLR-50-20-R-P-A-K11-R8   |
|   |               | 50          | 535502   | CLR-50-50-R-P-A-K11-R8   |
|   | 63            | 20          | 535505   | CLR-63-20-R-P-A-K11-R8   |
|   |               | 50          | 535508   | CLR-63-50-R-P-A-K11-R8   |

# Linear/swivel clamp CLR

Technical data


**FESTO**


| Ordering data – Swivel direction left   |                  |                |          |                   |
|---|------------------|----------------|----------|-------------------|
| Type  | Piston Ø<br>[mm] | Stroke<br>[mm] | Part No. | Type              |
|  | 12               | 10             | 535432   | CLR-12-10-L-P-A   |
|   |                  | 20             | 535434   | CLR-12-20-L-P-A   |
|   | 16               | 10             | 535436   | CLR-16-10-L-P-A   |
|   |                  | 20             | 535438   | CLR-16-20-L-P-A   |
|   | 20               | 10             | 535440   | CLR-20-10-L-P-A   |
|   |                  | 20             | 535442   | CLR-20-20-L-P-A   |
|   | 25               | 10             | 535444   | CLR-25-10-L-P-A   |
|   |                  | 20             | 535446   | CLR-25-20-L-P-A   |
|   | 32               | 10             | 543178   | CLR-32-10-L-P-A-B |
|   |                  | 20             | 543180   | CLR-32-20-L-P-A-B |
|   | 40               | 10             | 535454   | CLR-40-10-L-P-A   |
|   |                  | 20             | 535457   | CLR-40-20-L-P-A   |
|   | 50               | 20             | 535460   | CLR-50-20-L-P-A   |
|   |                  | 50             | 535463   | CLR-50-50-L-P-A   |
|   | 63               | 20             | 535466   | CLR-63-20-L-P-A   |
|   |                  | 50             | 535469   | CLR-63-50-L-P-A   |


| Ordering data – Swivel direction left, with dust and welding spatter protection     |                  |                |          |                          |
|---|------------------|----------------|----------|--------------------------|
| Type  | Piston Ø<br>[mm] | Stroke<br>[mm] | Part No. | Type                     |
|  | 25               | 10             | 535484   | CLR-25-10-L-P-A-K11-R8   |
|   |                  | 20             | 535486   | CLR-25-20-L-P-A-K11-R8   |
|   | 32               | 10             | 535488   | CLR-32-10-L-P-A-B-K11-R8 |
|   |                  | 20             | 535491   | CLR-32-20-L-P-A-B-K11-R8 |
|   | 40               | 10             | 535494   | CLR-40-10-L-P-A-K11-R8   |
|   |                  | 20             | 535497   | CLR-40-20-L-P-A-K11-R8   |
|   | 50               | 20             | 535500   | CLR-50-20-L-P-A-K11-R8   |
|   |                  | 50             | 535503   | CLR-50-50-L-P-A-K11-R8   |
|   | 63               | 20             | 535506   | CLR-63-20-L-P-A-K11-R8   |
|   |                  | 50             | 535509   | CLR-63-50-L-P-A-K11-R8   |

# Linear/swivel clamp CLR

Technical data

| Ordering data – Swivel direction straight   |               |             |          |                 |
|---|---------------|-------------|----------|-----------------|
| Type  | Piston Ø [mm] | Stroke [mm] | Part No. | Type            |
|  | 40            | 10          | 535455   | CLR-40-10-G-P-A |
|   |               | 20          | 535458   | CLR-40-20-G-P-A |
|   | 50            | 20          | 535461   | CLR-50-20-G-P-A |
|   |               | 50          | 535464   | CLR-50-50-G-P-A |
|   | 63            | 20          | 535467   | CLR-63-20-G-P-A |
|   |               | 50          | 535470   | CLR-63-50-G-P-A |

| Ordering data – Swivel direction straight, with dust and welding spatter protection |               |             |          |                        |
|---|---------------|-------------|----------|------------------------|
| Type  | Piston Ø [mm] | Stroke [mm] | Part No. | Type                   |
|    | 40            | 10          | 535495   | CLR-40-10-G-P-A-K11-R8 |
|   |               | 20          | 535498   | CLR-40-20-G-P-A-K11-R8 |
|   | 50            | 20          | 535501   | CLR-50-20-G-P-A-K11-R8 |
|   |               | 50          | 535504   | CLR-50-50-G-P-A-K11-R8 |
|   | 63            | 20          | 535507   | CLR-63-20-G-P-A-K11-R8 |
|   |               | 50          | 535510   | CLR-63-50-G-P-A-K11-R8 |

 Note

The swivel direction can easily be adjusted subsequently.  
 E.g.: A CLR-12-10-R-P-A with right-hand swivel can be converted to the left-hand swivel variant CLR-12-10-L-P-A by loosening the guide pin and rotating the slotted guide plate.

# Linear/swivel clamp CLR

Accessories

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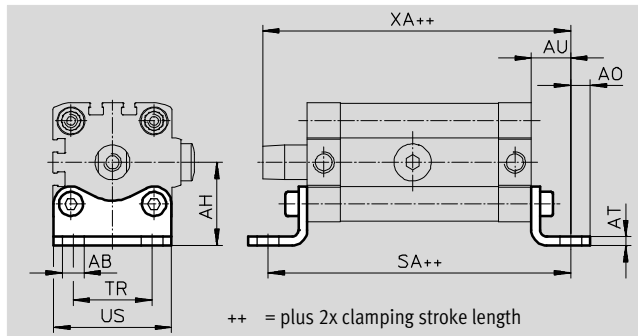
## Foot mounting HNA

### Materials:

Galvanised steel

Free of copper and PTFE


RoHS-compliant



| Dimensions and ordering data |                            |      |       |    |    |       |     |       |       |                   |               |          |        |
|------------------------------|----------------------------|------|-------|----|----|-------|-----|-------|-------|-------------------|---------------|----------|--------|
| For $\varnothing$<br>[mm]    | AB<br>$\varnothing$<br>H14 | AH   | AO    | AT | AU | SA    | TR  | US    | XA    | CRC <sup>1)</sup> | Weight<br>[g] | Part No. | Type   |
| 12                           | 5.8                        | 21   | 5     | 3  | 13 | 86.6  | 16  | 26    | 84.5  | 1                 | 39            | 537237   | HNA-12 |
| 16                           |                            | 22   | 4.75  |    |    | 88.5  | 18  | 27.5  | 86.4  | 1                 | 42            | 537238   | HNA-16 |
| 20                           | 7                          | 27   | 6.25  | 4  | 16 | 111.5 | 22  | 34.5  | 111.9 | 1                 | 84            | 537239   | HNA-20 |
| 25                           |                            | 29   |       |    |    | 114.5 | 26  | 38.5  | 114.9 | 1                 | 90            | 537240   | HNA-25 |
| 32                           |                            | 33.5 |       |    |    | 7     | 133 | 32    | 46    | 137.4             | 1             | 123      | 537241 |
| 40                           | 10                         | 38   | 9     | 5  | 21 | 138.5 | 36  | 54    | 140.9 | 1                 | 157           | 537242   | HNA-40 |
| 50                           |                            | 45   | 159.5 |    |    | 45    | 64  | 159.7 | 1     | 278               | 537243        | HNA-50   |        |
| 63                           |                            | 50   | 166.9 |    |    | 50    | 75  | 166.7 | 1     | 328               | 537244        | HNA-63   |        |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

-  - Note  
The foot mounting HNA can only be used for the variant K11-R8 with a diameter of 40 or over.

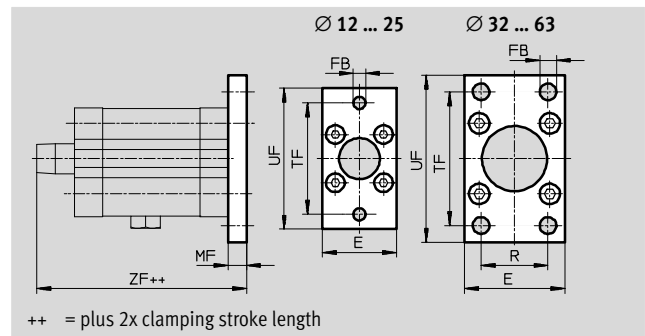
# Linear/swivel clamp CLR

Accessories



## Flange mounting FNC

Materials:  
Galvanised steel  
Free of copper and PTFE  
RoHS-compliant



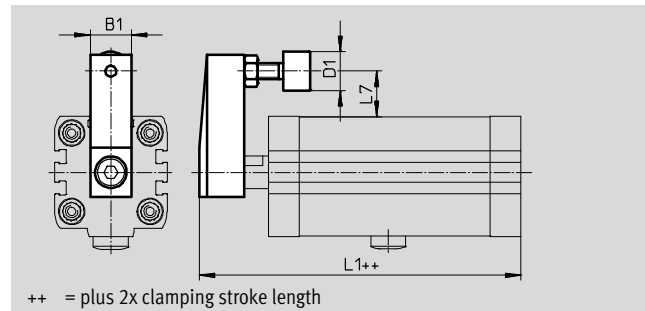
| Dimensions and ordering data |    |          |    |    |     |     |       |                   |        |          |        |
|------------------------------|----|----------|----|----|-----|-----|-------|-------------------|--------|----------|--------|
| For Ø                        | E  | FB       | MF | R  | TF  | UF  | ZF    | CRC <sup>1)</sup> | Weight | Part No. | Type   |
| [mm]                         |    | Ø<br>H13 |    |    |     |     |       |                   | [g]    |          |        |
| 12                           | 28 | 5.5      | 8  | -  | 40  | 50  | 79.5  | 1                 | 79     | 537245   | FNC-12 |
| 16                           | 29 |          |    |    | 43  | 55  | 81.4  | 1                 | 88     | 537246   | FNC-16 |
| 20                           | 36 | 6.6      |    |    | 55  | 70  | 103.9 | 1                 | 141    | 537247   | FNC-20 |
| 25                           | 40 |          |    |    | 60  | 76  | 106.9 | 1                 | 165    | 537248   | FNC-25 |
| 32                           | 45 | 7        | 10 | 32 | 64  | 80  | 131.4 | 1                 | 221    | 174376   | FNC-32 |
| 40                           | 54 | 9        |    | 36 | 72  | 90  | 132.9 | 1                 | 291    | 174377   | FNC-40 |
| 50                           | 65 |          | 12 | 45 | 90  | 110 | 150.7 | 1                 | 536    | 174378   | FNC-50 |
| 63                           | 75 |          |    | 50 | 100 | 120 | 157.7 | 1                 | 679    | 174379   | FNC-63 |

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

## Clamping finger CLR-...-FS

Materials: clamping finger:  
12 ... 40: anodised aluminium  
50 ... 63: high-alloy stainless steel  
Mounting screw, tightening bolt, lock nut: galvanised steel  
Dust cap: neoprene



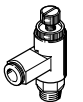




| For Ø | B1 | D1 | L1<br>+1.1/-1.2 |        | L7    | Part No. | Type         |
|-------|----|----|-----------------|--------|-------|----------|--------------|
| [mm]  |    | Ø  | Basic design    | K11-R8 |       |          |              |
| 12    | 10 | 11 | 76.5            | -      | 11.8  | 535551   | CLR-12-FS    |
| 16    | 11 |    | 79.4            |        | 12.25 | 535552   | CLR-16-FS    |
| 20    | 16 | 15 | 104.4           |        | 17.5  | 535553   | CLR-20/25-FS |
| 25    |    |    | 107.4           | 115.5  | 15.5  | 535554   | CLR-32/40-FS |
| 32    | 20 | 19 | 133.3           | 141.4  | 25.75 |          |              |
| 40    |    |    | 134.8           | 142.9  | 22    |          |              |
| 50    | 25 | 24 | 153.2           | 160.85 | 32.5  | 535555   | CLR-50/63-FS |
| 63    |    |    | 160.2           | 167.85 | 27.5  |          |              |

# Linear/swivel clamp CLR


Accessories

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| Ordering data – One-way flow control valves   |            |   |                  | Technical data → Internet: grl |                 |
|---|------------|---|------------------|--------------------------------|-----------------|
|   | Connection |   | Material         | Part No.                       | Type            |
|   | Thread     | For tubing O.D. [mm]  |                  |                                |                 |
| For exhaust air   |            |   |                  |                                |                 |
|    | M5         | 3   | Metal design     | 193137                         | GRLA-M5-QS-3-D  |
|   |            | 4   |                  | 193138                         | GRLA-M5-QS-4-D  |
|   |            | 6   |                  | 193139                         | GRLA-M5-QS-6-D  |
|   | G1/8       | 3   |                  | 193142                         | GRLA-1/8-QS-3-D |
|   |            | 4   |                  | 193143                         | GRLA-1/8-QS-4-D |
|   |            | 6   |                  | 193144                         | GRLA-1/8-QS-6-D |
|   |            | 8   |                  | 193145                         | GRLA-1/8-QS-8-D |
|   |            |  |                  | G1/8                           | 4               |
| 6   | 578798     |   | VFOH-LE-A-G18-Q6 |                                |                 |
| 8   | 578799     |   | VFOH-LE-A-G18-Q8 |                                |                 |
|    | G1/8       | 6   | 162965           | GRLA-1/8-QS-6-RS-B             |                 |
|   |            | 8   | 162966           | GRLA-1/8-QS-8-RS-B             |                 |
| For supply air  |            |   |                  |                                |                 |
|  | M5         | 3   | Metal design     | 193153                         | GRLZ-M5-QS-3-D  |
|   |            | 4   |                  | 193154                         | GRLZ-M5-QS-4-D  |
|   |            | 6   |                  | 193155                         | GRLZ-M5-QS-6-D  |
|   | G1/8       | 3   |                  | 193156                         | GRLZ-1/8-QS-3-D |
|   |            | 4   |                  | 193157                         | GRLZ-1/8-QS-4-D |
|   |            | 6   |                  | 193158                         | GRLZ-1/8-QS-6-D |
|   |            | 8   |                  | 193159                         | GRLZ-1/8-QS-8-D |

| Ordering data – One-way flow control valves   |                      |                      |              | Technical data → Internet: grla |                 |
|---|----------------------|----------------------|--------------|---------------------------------|-----------------|
|   | Connection           |                      | Material     | Part No.                        | Type            |
|   | Thread <sup>1)</sup> | For tubing I.D. [mm] |              |                                 |                 |
| For exhaust air   |                      |                      |              |                                 |                 |
|  | M5                   | 3                    | Metal design | 151161                          | GRLA-M5-PK-3-B  |
|   |                      | 4                    |              | 151162                          | GRLA-M5-PK-4-B  |
|   | G1/8                 | 3                    |              | 151166                          | GRLA-1/8-PK-3-B |
|   |                      | 4                    |              | 151167                          | GRLA-1/8-PK-4-B |
|   |                      | 6                    |              | 151168                          | GRLA-1/8-PK-6-B |

1) Union nut for barbed connector only with screw-in thread G1/8

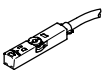
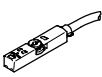
| Ordering data – Tubing  |                      |   | Technical data → Internet: pun |        |
|---|----------------------|---|--------------------------------|--------|
|   | Flame-retardant      | Material  |                                |        |
|  | Standard O.D. tubing | For use in the immediate vicinity of welding applications | Polyurethane                   | PUN-V0 |

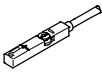





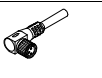
# Linear/swivel clamp CLR

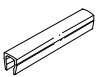
Accessories

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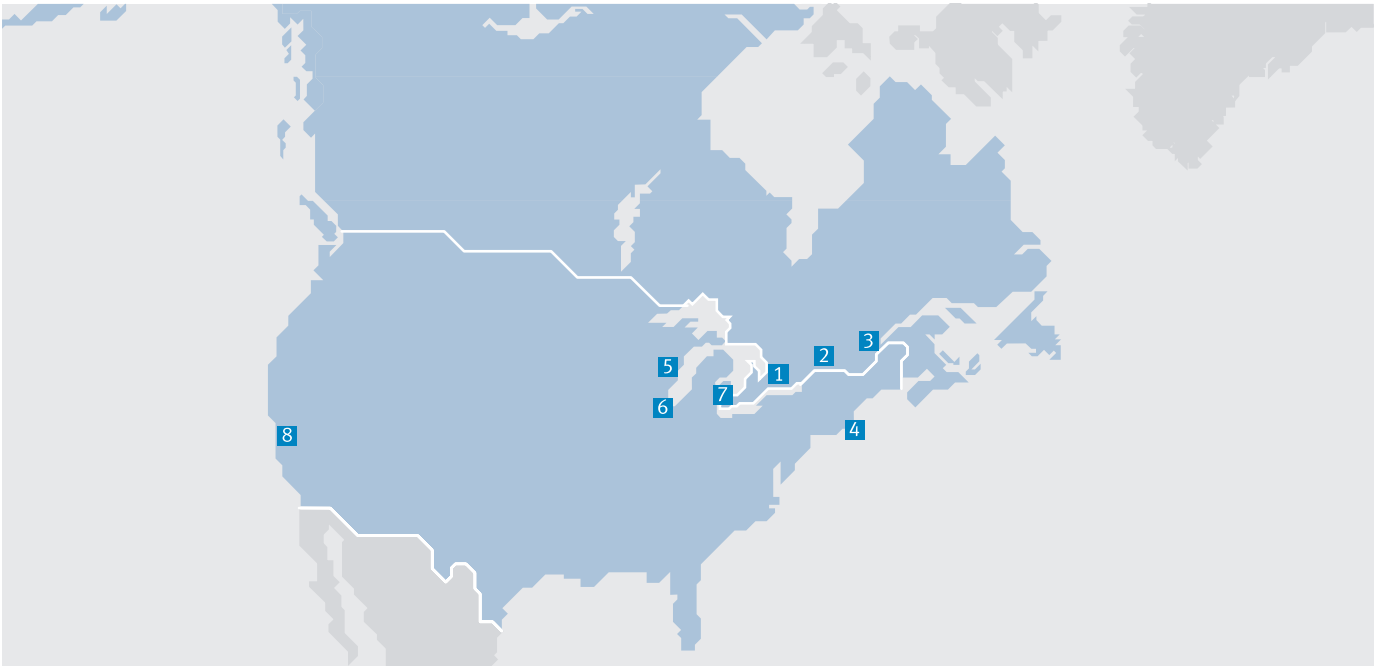
| Ordering data – Proximity sensor for T-slot, magneto-resistive                    |  |                  |                       |                  | Technical data → Internet: smt |                           |
|---|--|------------------|-----------------------|------------------|--------------------------------|---------------------------|
|   | Type of mounting   | Switching output | Electrical connection | Cable length [m] | Part No.                       | Type                      |
| <b>N/O contact</b>  |  |                  |                       |                  |                                |                           |
|  | Inserted in the slot from above, flush with the cylinder profile, short design | PNP              | Cable, 3-wire         | 2.5              | 574335                         | SMT-8M-A-PS-24V-E-2,5-OE  |
|   |  |                  | Plug M8x1, 3-pin      | 0.3              | 574334                         | SMT-8M-A-PS-24V-E-0,3-M8D |
|   |  | NPN              | Cable, 3-wire         | 2.5              | 574338                         | SMT-8M-A-NS-24V-E-2,5-OE  |
|   |  |                  | Plug M8x1, 3-pin      | 0.3              | 574339                         | SMT-8M-A-NS-24V-E-0,3-M8D |
| <b>N/C contact</b>  |  |                  |                       |                  |                                |                           |
|  | Inserted in the slot from above, flush with the cylinder profile, short design | PNP              | Cable, 3-wire         | 7.5              | 574340                         | SMT-8M-A-PO-24V-E-7,5-OE  |

| Ordering data – Proximity sensors for T-slot, magnetic reed                         |  |                  |                       |                  | Technical data → Internet: sme |                         |
|---|--|------------------|-----------------------|------------------|--------------------------------|-------------------------|
|   | Type of mounting   | Switching output | Electrical connection | Cable length [m] | Part No.                       | Type                    |
| <b>N/O contact</b>  |  |                  |                       |                  |                                |                         |
|   | Inserted in the slot from above, flush with the cylinder profile   | Contacting       | Cable, 3-wire         | 2.5              | 543862                         | SME-8M-DS-24V-K-2,5-OE  |
|   |  |                  |                       | 5.0              | 543863                         | SME-8M-DS-24V-K-5,0-OE  |
|   |  |                  | Cable, 2-wire         | 2.5              | 543872                         | SME-8M-ZS-24V-K-2,5-OE  |
|   |  |                  | Plug M8x1, 3-pin      | 0.3              | 543861                         | SME-8M-DS-24V-K-0,3-M8D |
|  | Insertable in the slot lengthwise, flush with the cylinder profile | Contacting       | Cable, 3-wire         | 2.5              | 150855                         | SME-8-K-LED-24          |
|   |  |                  | Plug M8x1, 3-pin      | 0.3              | 150857                         | SME-8-S-LED-24          |
| <b>N/C contact</b>  |  |                  |                       |                  |                                |                         |
|  | Insertable in the slot lengthwise, flush with the cylinder profile | Contacting       | Cable, 3-wire         | 7.5              | 160251                         | SME-8-O-K-LED-24        |

| Ordering data – Connecting cables   |                               |                              |                  | Technical data → Internet: nebu |                      |
|---|-------------------------------|------------------------------|------------------|---------------------------------|----------------------|
|   | Electrical connection, left   | Electrical connection, right | Cable length [m] | Part No.                        | Type                 |
|  | Straight socket, M8x1, 3-pin  | Cable, open end, 3-wire      | 2.5              | 541333                          | NEBU-M8G3-K-2.5-LE3  |
|   |                               |                              | 5                | 541334                          | NEBU-M8G3-K-5-LE3    |
|   | Straight socket, M12x1, 5-pin | Cable, open end, 3-wire      | 2.5              | 541363                          | NEBU-M12G5-K-2.5-LE3 |
|   |                               |                              | 5                | 541364                          | NEBU-M12G5-K-5-LE3   |
|  | Angled socket, M8x1, 3-pin    | Cable, open end, 3-wire      | 2.5              | 541338                          | NEBU-M8W3-K-2.5-LE3  |
|   |                               |                              | 5                | 541341                          | NEBU-M8W3-K-5-LE3    |
|   | Angled socket, M12x1, 5-pin   | Cable, open end, 3-wire      | 2.5              | 541367                          | NEBU-M12W5-K-2.5-LE3 |
|   |                               |                              | 5                | 541370                          | NEBU-M12W5-K-5-LE3   |

| Ordering data – Slot cover for T-slot   |                     |            |          |         |
|---|---------------------|------------|----------|---------|
|   | Mounting            | Length [m] | Part No. | Type    |
|  | Inserted from above | 2x 0.5     | 151680   | ABP-5-S |

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