Compact cylinders ADN/AEN, to ISO 21287

Festo core product range
Covers 80% of your automation tasks

Worldwide: Always in stock
Superb: Festo quality at an attractive price
Easy: Reduces procurement and storing complexity

★ Generally ready for shipping ex works in 24 hours
★ Held in stock in 13 service centres worldwide
★ More than 2200 product variants
★ Generally ready for shipping ex works in 5 days
★ Assembled for you in 4 service centres worldwide
★ Up to $6 \times 10^{12}$ variants per product series
Compact cylinders ADN/AEN, to ISO 21287

Key features

At a glance

- Sensor slots on three sides for flush mounting of proximity sensors
- Piston rod with choice of male or female thread
- Mounting option: Female thread and through-hole

More than the standard

- The compact cylinder series ADN/AEN complies with the standard ISO 21287
- The ADN/AEN is distinguished by its compact design and broad area of application thanks to the large number of variants
- The variants can be configured according to individual needs thanks to the modular product system

Powerful

- Integrated cushioning for absorbing residual energy
- Long service life thanks to exceptional cushioning characteristics and minimal friction factors

Convenient

- Easy to mount with a comprehensive range of mounting accessories for just about every type of installation
- Highly flexible thanks to the wide range of variants
- Contactless position sensing using proximity sensors

Reliable

- Optimised manufacturing methods, patented technology and more than 40 years of experience in the field of cylinders make Festo and ADN/AEN a great team

Mounting options

With through screw

Direct mounting

Cushioning types

- Cushioning P
- Cushioning PPS

Mode of operation

- The drive is equipped with polymer flexible end-position cushioning
- The drive is equipped with self-adjusting, pneumatic end-position cushioning

Application

- Small loads
- Low speeds
- Small cushioning capacity
- Larger loads
- Higher speeds
- Larger cushioning capacity

Advantages

- No adjustment required
- Time-saving
- No adjustment required
- Up to four times greater cushioning capacity than ADN...-P
- Time-saving
- Noise reduction

Size comparison between ISO 21287 and ISO 15552

- Space savings of up to 50% compared with the standard ISO 15552

Cushioning capacity of ISO 21287 and ISO 15552

In terms of cushioning capacity, the compact cylinder ADN...-PPS fills the gap between ADN...-P and standard cylinders with ISO 15552.
### Compact cylinders ADN, to ISO 21287

#### Key features

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Key features</th>
<th>Description</th>
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<tbody>
<tr>
<td>S1</td>
<td>Reinforced piston rod</td>
<td>Increased lateral forces. Absorbs many times more lateral force than a basic cylinder</td>
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<tr>
<td>S2</td>
<td>Through piston rod</td>
<td>For working at both ends with the same force in the forward and return stroke, for attaching external stops</td>
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<tr>
<td>S6</td>
<td>Heat-resistant seals</td>
<td>Temperature resistance up to max. 120 °C</td>
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<td>S10</td>
<td>Constant motion (slow speed) at low piston speeds</td>
<td>Suitable for slow stroke movements at a constant, judder-free speed over the full stroke of the cylinder. Seal contains silicone grease (not free of paint-wetting impairment substances)</td>
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<td>S11</td>
<td>Low friction</td>
<td>The special seals considerably reduce system wear. This corresponds to a considerably lower response pressure. Seal contains silicone grease (not free of paint-wetting impairment substances)</td>
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<td>S20</td>
<td>Through, hollow piston rod</td>
<td>For supplying vacuum, small parts, media, etc.</td>
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<td>Extended male piston rod thread</td>
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<td>K5</td>
<td>Special piston rod thread</td>
<td>Metric standard thread to ISO</td>
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<td>K8</td>
<td>Extended piston rod</td>
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<td>K10</td>
<td>Smooth anodised aluminium piston rod</td>
<td>Ideal for use in welding environments: – Protection against welding spatter – Small working loads – Harder surface compared to steel – Long service life</td>
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<td>KP</td>
<td>With clamping unit</td>
<td>Integrated clamping unit on the piston rod</td>
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<td>EL</td>
<td>With end-position locking</td>
<td>Protection locking in the end position as a drop guard. If there is a drop in pressure, the piston rod is secured in its end position to prevent it from dropping</td>
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<td>Q</td>
<td>Square piston rod</td>
<td>Protection against rotation. For correctly oriented feeding</td>
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<td>R3</td>
<td>High corrosion protection</td>
<td>All external cylinder surfaces comply with corrosion resistance class 3 to Festo standard 940 070. The piston rod is made from corrosion and acid resistant steel</td>
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<td>R8</td>
<td>Dust protection (wiper seal)</td>
<td>The cylinder is equipped with a hard-chrome plated piston rod and a rigid wiper seal, which protects against dry, dusty media</td>
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<td>TL</td>
<td>Captive rating plate</td>
<td>Laser etched rating plate. For easy identification of components when it comes to replacement, even after years in a harsh environment</td>
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<td>TT</td>
<td>Low temperature</td>
<td>Temperature resistance down to max. –40 °C</td>
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Software tools and configuration of Festo modular products

⇒ www.festo.com
## Compact cylinders ADN, to ISO 21287

### Product range overview

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<th>Version</th>
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## Compact cylinders ADN, to ISO 21287

### Product range overview

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<th>Female piston rod thread</th>
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<th>Extended piston rod</th>
<th>Smooth anodised piston rod</th>
<th>Heat resistant seals max. 120 °C</th>
<th>Slow speed (constant motion)</th>
<th>Low friction</th>
<th>High corrosion protection</th>
<th>Dust protection</th>
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**Page/Internet**

## Compact cylinders ADN, to ISO 21287

### Product range overview

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<th>Stroke</th>
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<th>Cushioning</th>
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### Compact cylinders ADN, to ISO 21287

#### Product range overview

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#### Standard hole pattern, non-rotating with yoke

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#### Standard hole pattern, high-force cylinder

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#### Standard hole pattern, multi-position cylinder

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# Compact cylinders AEN, to ISO 21287

## Product overview

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## Compact cylinders AEN, to ISO 21287

### Product overview

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### Basic version

- **AEN** | Pulling

### Non-rotating with square piston rod

- **AEN-...-Q**
Compact cylinders ADN/AEN, to ISO 21287
Peripherals overview
## Mounting attachments and accessories

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**Compact cylinders ADN, to ISO 21287**

**Type codes**

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**Piston Ø [mm]**

**Stroke [mm]**

**Piston rod thread**

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**Position sensing**

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**Variant**

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

Subject to change – 2018/07
Compact cylinders ADN, to ISO 21287

Technical data

Function
P cushioning

PPS cushioning

- Diameter
  12 ... 125 mm
- Stroke length
  1 ... 500 mm
- www.festo.com

Variants ➔ page 3

ADN- ... -A-P-A
ADN- ... -I-P-A
ADN- ... -A-P-A-S20
ADN- ... -A-P-A-Q
ADN- ... -A-P-A-S20

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Technical data – Basic version and variants

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2018/07 – Subject to change ➔ Internet: www.festo.com/catalogue/...
### Compact cylinders ADN, to ISO 21287

**Technical data**

#### Technical data – Basic version and variants

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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.

Corrosion resistance class CRC 3 to Festo standard FN 940070

High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.
Compact cylinders ADN, to ISO 21287

Technical data

Forces [N] and impact energy [J]

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<td>1750</td>
<td>2827</td>
<td>4524</td>
<td>7069</td>
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</table>

Max. impact energy in the end positions

| –                      | 0.07| 0.15| 0.2 | 0.3 | 0.4 | 0.7 | 1   | 1.3 | 1.8 | 2.5 | 3.3 |
| S1                     | –   | –   | –   | 0.3 | –   | 0.7 | –   | –   | 2.5 | –   | –   |
| S6                     | 0.035| 0.075| 0.1 | 0.15| 0.2 | 0.35| 0.5 | 0.65| 0.9 | 1.25| 1.75|
| K10                    | –   | –   | 0.16| 0.24| 0.32| 0.56| 0.8 | 1   | 1.4 | 2   | 2.6 |
| S20                    | –   | 0.016| 0.024| 0.083| 0.15| 0.39| 0.48| 0.62| 0.8 | 0.9 | 0.95|

Note

This data represents the maximum values that can be achieved. The maximum permissible impact energy must be observed.

In combination with PPS cushioning, the maximum impact energy is still obtained.

Permissible impact velocity:

\[ v_{\text{perm.}} = \sqrt{\frac{2 \times E_{\text{perm.}}}{m_{\text{dead}} + m_{\text{load}}}} \]

Maximum permissible load:

\[ m_{\text{load}} = \frac{2 \times E_{\text{perm.}}}{v_{\text{perm.}}^2} - m_{\text{dead}} \]

Max. energy conversion capacity [J]

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Max. lateral force \( F_q \) as a function of the projection \( x \)

\( \varnothing \) 12 … 63

\( \varnothing \) 80 … 125
Max. lateral force \( F_q \) as a function of the projection \( x \) and the lever arm \( a \)

- **Q** – Square piston rod
- \( \varnothing 12 \)
- \( \varnothing 16 \)
- \( \varnothing 20/25 \)
- \( \varnothing 32/40 \)

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<th>( a = 10 \text{ mm} )</th>
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**Note**
- Torques on the piston rod are to be excluded with projections greater than those shown in the graphs.
- If \( a = 0 \), the corresponding lateral load line of the basic ADN version can be used (page 15).
Compact cylinders ADN, to ISO 21287

Technical data

Max. lateral force $F_q$ as a function of the projection $x$ and the lever arm $a$

$Q$ – Square piston rod

$\varnothing$ 50/63

$\varnothing$ 80/100

$\varnothing$ 125

Note

Torques on the piston rod are to be excluded with projections greater than those shown in the graphs.

If $a = 0$, the corresponding lateral load line of the basic ADN version can be used (page 15).
Compact cylinders ADN, to ISO 21287

Technical data

Max. lateral force $F_q$ as a function of the projection $x$

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<tr>
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<th>2000</th>
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S1 – Reinforced piston rod

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Weight [g]

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Materials

Sectional view

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<td>Steel, zinc flake coating</td>
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## Compact cylinders ADN, to ISO 21287

### Technical data

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<th>G</th>
<th>J2</th>
<th>J3</th>
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$+$ = plus stroke length

#### Dimensions – Basic version

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$+$ = plus stroke length

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Compact cylinders ADN, to ISO 21287

Technical data

Dimensions – Variants

Basic version

S2 – Through piston rod

S20 – Through, hollow piston rod

K2 – Extended male piston rod thread

K5 – Special piston rod thread

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Note

In combination with variants S2/S20, the piston rod thread is extended at both ends.

Hex nut DIN 439-B only with Ø 32 – 125

+ = plus stroke length

++ = plus 2x stroke length

+ = plus stroke length

+ = plus stroke length
Compact cylinders ADN, to ISO 21287

**Technical data**

**Dimensions – Variants**

**K8 – Extended piston rod**

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**R8 – Dust protection / TT – Low temperature**

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- Note
  - In combination with variants S2/S20, the piston rod is extended at one end.

Hex nut DIN 439-B
  - only with Ø 32 – 125
  - + = plus stroke length
### Compact cylinders ADN, to ISO 21287

**Technical data**

#### Dimensions – Variants

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<td>Q-S20 – Square, through, hollow piston rod</td>
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<td>Q-K2 – Square piston rod with extended male thread</td>
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<td>Q-K5 – Square, special piston rod thread</td>
<td><img src="image9" alt="Diagram" /></td>
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**Note**

In combination with variants S2/S20, the piston rod thread is extended at both ends.

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---

1. Hex nut DIN 439-B only with Ø 32 – 125
   - = plus stroke length
   ++ = plus 2x stroke length

---

2. Hex nut DIN 439-B only with Ø 32 – 125
   - = plus stroke length
   ++ = plus 2x stroke length

---

3. Hex nut DIN 439-B only with Ø 32 – 125
   - = plus stroke length

---

4. Hex nut DIN 439-B only with Ø 32 – 125
   - = plus stroke length

### Compact cylinders ADN, to ISO 21287

#### Technical data

**Dimensions – Variants**

Q-K8 – Square, extended piston rod

![Diagram of Q-K8 cylinder](image)

- **Note**
  - In combination with variants S2/S20, the piston rod is extended at one end on the square piston rod.

- **Hex nut DIN 439-B**
  - only with \( \Phi \) 32 ... 125
  - \( + = \) plus stroke length

#### Table: \( \Phi \) \( \text{mm} \) – A – A1 – A2 – AF – AF3 – B1 – D7 – D8 – D9

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<th>A2</th>
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<th>B1</th>
<th>D7</th>
<th>D8</th>
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2018/07 – Subject to change


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23
### Compact cylinders ADN, to ISO 21287

#### Technical data

**Dimensions – Variants**

S1 – Reinforced piston rod

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<th>T2 +0.1</th>
<th>TG ±0.2</th>
<th>VD +1.3</th>
<th>WH ±0.3</th>
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+ = plus stroke length

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### Compact cylinders ADN, to ISO 21287

#### Technical data

**Dimensions – Variants**

**S1 – Reinforced piston rod**

- Hex nut DIN 439-B
- Only with \( \Phi \) 40 ... 100
- \(+ = \) plus stroke length

**S1-K2 – Reinforced piston rod with extended male thread**

- Hex nut DIN 439-B
- Only with \( \Phi \) 40 ... 100
- \(+ = \) plus stroke length

**S1-K5 – Extended piston rod with special piston rod thread**

- Hex nut DIN 439-B
- Only with \( \Phi \) 40 ... 100
- \(+ = \) plus stroke length

**S1-K8 – Reinforced piston rod with extended piston rod**

- Hex nut DIN 439-B
- Only with \( \Phi \) 40 ... 100
- \(+ = \) plus stroke length

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## Technical data

### Compact cylinders ADN, to ISO 21287

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Festo core product range

★ Generally ready for shipping ex works in 24 hours
★ Generally ready for shipping ex works in 5 days

<!-- Internet: www.festo.com/catalogue/... -->

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## Compact cylinders ADN, to ISO 21287

### Technical data

#### Core product range

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#### Festo core product range

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days
## Compact cylinders ADN, to ISO 21287

### Technical data

**Festo core product range**

### Ordering data

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<th>Piston Ø [mm]</th>
<th>Stroke [mm]</th>
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<th>A – Male piston rod thread</th>
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**Subject to change – 2018/07**

**Festo core product range**

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days


Both ends
## Compact cylinders ADN, to ISO 21287

### Technical data

#### Ordering data

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<th>P – Flexible cushioning rings/pads at both ends</th>
<th>A – Male piston rod thread</th>
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### Compact cylinders ADN, to ISO 21287

**Ordering data – Modular products, basic version and variants**

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- **M** Mandatory data
- **O** Options

#### Transfer order code

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ADN          [ ] [ ] [ ] [ ] [ ] [ ] [A]
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- **Festo core product range**
  - ★ Generally ready for shipping ex works in 24 hours
  - ★★★ Generally ready for shipping ex works in 5 days

---

Notes:

1. Not with piston rod type 520.
   - Not with extended male thread K2
2. Not with improved running performance K10, temperature resistance S6, low temperature TT, wiper seal R8
   - Minimum stroke 5 mm
## Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

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<td>-R3</td>
<td></td>
</tr>
<tr>
<td>Captive rating plate</td>
<td>Laser etched rating plate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>-R30</td>
<td></td>
</tr>
<tr>
<td>Low temperature [°C]</td>
<td>-40 ... +80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>-TT</td>
<td></td>
</tr>
<tr>
<td>Wiper seal</td>
<td>Dust protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>-R8</td>
<td></td>
</tr>
</tbody>
</table>

### Options

- **M**: Mandatory data
- **O**: Options

### Note

NSF-H1 lubricants are used in combination with R3 and in combination with R3 and K2, K5 or K8.

### Transfer order code

- **S2, S20**: Not with improved running performance K10.
- **K8**: Not with extended male thread K2.
- **K10**: Not with extended male thread K2.
- **R3**: Not with corrosion protection R3.
- **R3**: Not with captive rating plate TL.
- **R8**: Not with wiper seal R8.
- **TT, R8**: Not with improved running performance K10.
- **TT**: Not with temperature resistance S6.
- **TT**: Not with wiper seal R8.

### Festo core product range

- **★ Generally ready for shipping ex works in 24 hours**
- **☆ Generally ready for shipping ex works in 5 days**
### Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

#### Ordering table

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
<th>125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>ADN</td>
<td>ADN</td>
<td>ADN</td>
<td>ADN</td>
<td>ADN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Compact cylinder, double-acting, based on ISO 21287</th>
<th>ADN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston Ø</td>
<td>Compact cylinder, double-acting, based on ISO 21287</td>
<td>ADN</td>
</tr>
<tr>
<td>Stroke</td>
<td>1 … 400 1 … 500</td>
<td>ADN</td>
</tr>
<tr>
<td>Piston rod thread</td>
<td>Male thread</td>
<td>ADN</td>
</tr>
<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>ADN</td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td>ADN</td>
</tr>
</tbody>
</table>

#### Transfer order code

- **ADN**
- **Enter code**

#### Festo core product range

- ★ Generally ready for shipping ex works in 24 hours
- ★★ Generally ready for shipping ex works in 5 days

---

**Notes:**

- Not with piston rod type S20.
- Not with improved running performance K10, temperature resistance S6, low temperature TT, wiper seal R8.
- Minimum stroke 5 mm

---

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

Subject to change – 2018/07
## Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

### Ordering table

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<th>125</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Piston rod type</strong></td>
<td>Through piston rod</td>
<td>Through, hollow piston rod</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td><strong>-S2</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 ... 400</td>
<td>1 ... 500</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td><strong>-S20</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Extended male thread</strong></td>
<td>Piston rod with extended male thread</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td><strong>-K2</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 ... 20</td>
<td>1 ... 30</td>
<td>1 ... 40</td>
<td></td>
<td></td>
<td></td>
<td><strong>-K5</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Piston rod with special thread</strong></td>
<td>M12</td>
<td>M12</td>
<td>M16</td>
<td>M16</td>
<td>M16</td>
<td>M20</td>
<td><strong>-S2</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M16</td>
<td>M16</td>
<td>M20</td>
<td>M20</td>
<td>M20</td>
<td>M20</td>
<td><strong>-S20</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M20x1.5</td>
<td>M20x1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>-K5</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Female thread</strong></td>
<td>M8</td>
<td>M8</td>
<td>M10</td>
<td>M10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Conditions

- **Code**
  - 0: Enter code
  - 2: Through piston rod
  - 1: Through, hollow piston rod
  - 3: Piston rod with extended male thread
  - 4: Smooth anodised aluminium coated piston rod
  - 5: Heat-resistant seals up to max. 120 °C
  - 6: High corrosion protection
  - 7: Laser etched rating plate
  - 8: Dust protection
  - 9: Not with captive rating plate TL
  - 3: Not with wiper seal R8.
  - 4: The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length.
  - 5: Not with special piston rod thread K5.
  - 6: Not with temperature resistance S6.
  - 7: Not with temperature resistance S6.
  - 8: Not with wiper seal R8.

### Note

NSF-H1 lubricants are used in combination with R3 and in combination with R3 and K2, K5 or K8.

### Transfer order code

- **Mandatory data**
  - **Options**

---

Festo core product range

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days

Internet: www.festo.com/catalogue/...
### Ordering table

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<thead>
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<th>32</th>
<th>40</th>
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<th>Code</th>
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<td>536203</td>
<td>536218</td>
<td>536233</td>
<td>536250</td>
<td>536267</td>
<td>536288</td>
<td>ADN</td>
<td>ADN</td>
</tr>
</tbody>
</table>

#### Function
- Compact cylinder, double-acting, based on ISO 21287

#### Piston
- Male thread
- Female thread

#### Stroke
- Male thread
- Female thread

#### Piston rod thread
- Male thread
- Female thread

#### Cushioning
- Flexible cushioning rings/pads at both ends

#### Position sensing
- Via proximity sensor

#### Ordering table

<table>
<thead>
<tr>
<th>Male thread extended</th>
<th>Extended male piston rod thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>1 ... 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special piston rod thread</th>
<th>Male thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6</td>
<td>M6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female thread</th>
<th>-P</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Piston rod extended</th>
<th>Extended piston rod</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>1 ... 300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improved running performance</th>
<th>Smooth anodised aluminium coated piston rod</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>1 ... 300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constant motion</th>
<th>Slow speed (constant motion at low piston speeds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>20 ... 300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low friction</th>
<th>Low friction</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>20 ... 300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corrosion protection</th>
<th>High corrosion protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>20 ... 300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Captive rating plate</th>
<th>Laser etched rating plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mm]</td>
<td>20 ... 300</td>
</tr>
</tbody>
</table>

#### Transfer order code

- ADN
- -.P
- -.A
- -.P
- -.P
- -.A
- -.A

#### Note

NSF-H1 lubricants are used in combination with R3 and in combination with R3 and K2, K5 or K8.
**Compact cylinders ADN, to ISO 21287**

Ordering data – Modular products, S10 – Version with constant motion, S11 – Version with low friction

<table>
<thead>
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<th>Cond.</th>
<th>Code</th>
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<tr>
<td>0</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>O</td>
<td></td>
</tr>
</tbody>
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### Ordering table

<table>
<thead>
<tr>
<th>Size</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>63</td>
</tr>
<tr>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>125</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module No.</th>
<th>536309</th>
<th>536330</th>
<th>536351</th>
<th>536372</th>
<th>536393</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Compact cylinder, double-acting, based on ISO 21287</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>[mm]</td>
</tr>
<tr>
<td>50</td>
<td>63</td>
</tr>
<tr>
<td>1 ... 400</td>
<td>1 ... 500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male thread</td>
</tr>
<tr>
<td>Female thread</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cushioning</th>
<th>Flexible cushioning rings/pads at both ends</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Position sensing</th>
<th>Via proximity sensor</th>
</tr>
</thead>
</table>

### Male thread extended

<table>
<thead>
<tr>
<th>Special piston rod thread</th>
<th>Male thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>M12</td>
</tr>
<tr>
<td>M16</td>
<td>M16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female thread</th>
<th>M8</th>
<th>M10</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Improved running performance</th>
<th>Smooth anodised aluminium coated piston rod</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Restricted stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ... 30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constant motion</th>
<th>Slow speed (constant motion at low piston speeds)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Restricted stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ... 400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low friction</th>
<th>Low friction</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Corrosion protection</th>
<th>High corrosion protection</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Captive rating plate</th>
<th>Laser etched rating plate</th>
</tr>
</thead>
</table>

### Notes

NSF-H1 lubricants are used in combination with R3 and in combination with R3 and K2, K5 or K8.

### Transfer order code

- **ADN**
- **-**
- **PA**
- **-**
- **-**
- **-**
- **-**
- **-**
- **-**
- **-**
- **-**

**Internet:** www.festo.com/catalogue/...
Compact cylinders ADN, to ISO 21287
Ordering data – Modular products, Q – Version with square piston rod, non-rotating

<table>
<thead>
<tr>
<th>Size</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
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<tr>
<td>Module No.</td>
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</tr>
<tr>
<td>Function</td>
<td>Compact cylinder, double-acting, based on ISO 21287</td>
<td>ADN</td>
<td>ADN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston ( \varnothing ) [mm]</td>
<td>32</td>
<td>16</td>
<td>20</td>
<td>25</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>Stroke [mm]</td>
<td>1 ... 300</td>
<td>1 ... 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston rod thread</td>
<td>Male thread</td>
<td>( \star ) (-)</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female thread</td>
<td>( \star ) (-)</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>( \star ) (-)</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td>( \star ) (-)</td>
<td>(-)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Protection against torsion | Square piston rod | \( \star \) \(-\) | \(-\) |
| Type of piston rod | Through piston rod | \( \star \) \(-\) | \(-\) |
| Male thread extended [mm] | Through, hollow piston rod | \( \star \) \(-\) | \(-\) |
| | Restricted stroke | \( \star \) \(-\) | \(-\) |
| | 1 ... 200 | \( \star \) \(-\) | \(-\) |
| | 1 ... 300 | \( \star \) \(-\) | \(-\) |
| Male thread extended [mm] | Extended male piston rod thread | \( \star \) \(-\) | \(-\) |
| | 1 ... 10 | \( \star \) \(-\) | \(-\) |
| | 1 ... 20 | \( \star \) \(-\) | \(-\) |
| Special piston rod thread | M6 | M8 | M10x1.25 | M10x1.25 | M10 | M10 |
| Piston rod extended [mm] | Extended piston rod | \( \star \) \(-\) | \(-\) |
| | 1 ... 300 | \( \star \) \(-\) | \(-\) |
| | 1 ... 400 | \( \star \) \(-\) | \(-\) |
| Temperature resistance | Heat-resistant seals up to max. 120 °C | \( \star \) \(-\) | \(-\) |
| Corrosion protection | High corrosion protection | \( \star \) \(-\) | \(-\) |
| Captive rating plate | Laser etched rating plate | \( \star \) \(-\) | \(-\) |

1 | I | Not with piston rod type S20
   | Not with extended male thread K2
2 | K8 | The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length
3 | R3 | Not with captive rating plate TL.

- Note
NSF-H1 lubricants are used in combination with R3 and in combination with R3 and Q, K2, K5 or K8.

Festo core product range

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days

| Transfer order code | ADN | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) | \(-\) |

Subject to change – 2018/07
Compact cylinders ADN, to ISO 21287
Ordering data – Modular products, Q – Version with square piston rod, non-rotating

<table>
<thead>
<tr>
<th>Size</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module No.</td>
<td>536309</td>
<td>536330</td>
<td>536351</td>
<td>536372</td>
<td>536393</td>
<td>ADN</td>
<td>ADN</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Compact cylinder, double-acting, based on ISO 21287</td>
<td>ADN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston</td>
<td>[mm]</td>
<td>50</td>
<td>63</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>[mm]</td>
<td>1 ... 400</td>
<td>1 ... 500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston rod thread</td>
<td></td>
<td>Male thread</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Protection against torsion | Square piston rod | Q |
| Type of piston rod | Through piston rod | S2 |
| Male thread extended | 1 ... 300 | 1 ... 400 | S20 |
| Special piston rod thread | M12 | M16 | M20 | K5 |
| Piston rod extended | Extended piston rod | 1 ... 400 | 1 ... 500 | K8 |
| Temperature resistance | Heat-resistant seals up to max. 120 °C | S6 |
| Corrosion protection | High corrosion protection | R3 |
| Captive rating plate | Laser etched rating plate | TL |

Note
NSF-H1 lubricants are used in combination with R3 and in combination with R3 and Q, K2, K5 or K8.

M Mandatory data
O Options

Transfer order code

Festo core product range
★ Generally ready for shipping ex works in 24 hours
★ Generally ready for shipping ex works in 5 days

2018/07 – Subject to change

Internet: www.festo.com/catalogue/...
## Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, S1 – Version with reinforced piston rod

### Ordering table

<table>
<thead>
<tr>
<th>Size</th>
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<th>Code</th>
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</thead>
<tbody>
<tr>
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<td>536288</td>
<td>536330</td>
<td>536372</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Compact cylinder, double-acting, based on ISO 21287</td>
<td>ADN</td>
<td>ADN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Piston Ø [mm]</strong></td>
<td>25</td>
<td>40</td>
<td>63</td>
<td>100</td>
<td>~</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stroke [mm]</strong></td>
<td>5 ... 300</td>
<td>10 ... 400</td>
<td>30 ... 500</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Piston rod thread</strong></td>
<td>Male thread</td>
<td>-A</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cushioning</strong></td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>-P</td>
<td>-P</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Position sensing</strong></td>
<td>Via proximity sensor</td>
<td>-A</td>
<td>-A</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Male thread extended [mm]</strong></td>
<td>1 ... 20</td>
<td>1 ... 30</td>
<td>-K2</td>
<td></td>
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<tr>
<td><strong>Special piston rod thread</strong></td>
<td>M10x1.25</td>
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<tr>
<td><strong>Female thread</strong></td>
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<td>M10</td>
<td>-</td>
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<tr>
<td><strong>Piston rod extended [mm]</strong></td>
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<td><strong>Temperature resistance</strong></td>
<td>Heat-resistant seals up to max. 120 °C</td>
<td>-S6</td>
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<tr>
<td><strong>Reinforced piston rod</strong></td>
<td>Reinforced piston rod or extended piston rod bearing</td>
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<tr>
<td><strong>Captive rating plate</strong></td>
<td>Laser etched rating plate</td>
<td>-TL</td>
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</table>

**Transfer order code**

```
ADN - - - - - - - P - A - - - - - - - S1 -
```

---

**M** Mandatory data

**O** Options

---

1. Not with extended male thread K2
2. The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length
Compact cylinders ADN-KP, standard port pattern, with clamping unit

Type codes

<table>
<thead>
<tr>
<th>Type</th>
<th>Double-acting</th>
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<td>Compact cylinder</td>
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<table>
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<th>Piston ⊙ [mm]</th>
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<table>
<thead>
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<th>Stroke [mm]</th>
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<table>
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<th>KP</th>
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<table>
<thead>
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<th>Piston rod thread</th>
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<td></td>
<td>I</td>
<td>Female thread</td>
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<th>Cushioning</th>
<th>P</th>
<th>Flexible cushioning rings/pads at both ends</th>
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<table>
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<th>Position sensing</th>
<th>A</th>
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<table>
<thead>
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<th>Variant</th>
<th>K2</th>
<th>Extended male piston rod thread</th>
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<td>TL</td>
<td>Captive rating plate</td>
</tr>
</tbody>
</table>
## Technical data

### Function

- **Diameter**
  - 20 … 100 mm
- **Stroke length**
  - 10 … 500 mm

### Variants

- K2
- K5
- K8

### Note

Additional measures are required for use in safety-related control systems; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.

## General technical data

<table>
<thead>
<tr>
<th>Piston Ø</th>
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<td>G1/8</td>
<td>G1/8</td>
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<td>M5</td>
<td>M5</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
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<tr>
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<td>M5</td>
<td>M5</td>
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<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
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<td>M10, M12</td>
<td>M12, M16</td>
<td>M16, M20, M20x1.5</td>
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<td></td>
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<tr>
<td>Flexible cushioning rings/pads at both ends</td>
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<tr>
<td>Via proximity sensor</td>
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<td>Via through-holes</td>
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<td></td>
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</tr>
</tbody>
</table>

## Operating and environmental conditions

| Operating medium                      | Compressed air in accordance with ISO 8573-1:2010 [7/4:4] |
| Note on operating/pilot medium        | Operation with lubricated medium possible (in which case lubricated operation will always be required) |
| Operating pressure [bar]              | 1.5 … 10 |
| Min. release pressure [bar]           | 3 |
| Ambient temperature [°C]              | -10 … +80 |
| Corrosion resistance class CRC [2]    | 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.
Compact cylinders ADN-KP, standard port pattern, with clamping unit

**Technical data**

<table>
<thead>
<tr>
<th>Impact energy [J]</th>
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<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. impact energy at the end positions</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.7</td>
<td>1.0</td>
<td>1.3</td>
<td>1.8</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Permissible impact velocity:

\[ v_{\text{perm.}} = \sqrt{\frac{2 \times E_{\text{perm.}}}{m_{\text{dead}} + m_{\text{load}}}} \]

Maximum permissible load:

\[ m_{\text{load}} = \frac{2 \times E_{\text{perm.}}}{E_{\text{perm.}}} - m_{\text{dead}} \]

<table>
<thead>
<tr>
<th>Forces [N]</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
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<tbody>
<tr>
<td>Theoretical force at 6 bar, advancing</td>
<td>188</td>
<td>295</td>
<td>483</td>
<td>754</td>
<td>1178</td>
<td>1870</td>
<td>3016</td>
<td>4712</td>
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<tr>
<td>Theoretical force at 6 bar, retracting</td>
<td>141</td>
<td>247</td>
<td>415</td>
<td>653</td>
<td>990</td>
<td>1682</td>
<td>2721</td>
<td>4418</td>
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<tr>
<td>Static holding force</td>
<td>350</td>
<td>350</td>
<td>600</td>
<td>1000</td>
<td>1400</td>
<td>2000</td>
<td>3000</td>
<td>5000</td>
</tr>
</tbody>
</table>

- Note

The specified holding force refers to a static load. If this value is exceeded, slippage may occur. Dynamic forces occurring during operation must not exceed the static holding force. The clamping unit is not backlash-free in the clamped condition if varying loads are applied to the piston rod.

Activation:
The clamping unit may only be released if the forces at the piston have reached equilibrium. Otherwise, there is a risk of accidents due to sudden movement of the piston rod. Blocking off the air supply at both ends (e.g. with a 5/3-way valve) does not provide any safety.

Max. lateral force \( F_q \) as a function of the projection \( x \)

<table>
<thead>
<tr>
<th>Weight [g]</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product weight with 0 mm stroke</td>
<td>282</td>
<td>344</td>
<td>503</td>
<td>789</td>
<td>1268</td>
<td>1894</td>
<td>3973</td>
<td>5497</td>
</tr>
<tr>
<td>Additional weight per 10 mm stroke</td>
<td>22</td>
<td>26</td>
<td>29</td>
<td>45</td>
<td>60</td>
<td>68</td>
<td>93</td>
<td>112</td>
</tr>
<tr>
<td>Moving load with 0 mm stroke</td>
<td>53</td>
<td>63</td>
<td>100</td>
<td>173</td>
<td>296</td>
<td>368</td>
<td>755</td>
<td>932</td>
</tr>
<tr>
<td>Additional load per 10 mm stroke</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>16</td>
<td>25</td>
<td>25</td>
<td>39</td>
<td>39</td>
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</table>
## Compact cylinders ADN-KP, standard port pattern, with clamping unit

### Technical data

#### Materials

<table>
<thead>
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<th>Material</th>
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<tbody>
<tr>
<td>Cover</td>
<td>Anodised aluminium</td>
</tr>
<tr>
<td>Cylinder barrel</td>
<td>Anodised aluminium</td>
</tr>
<tr>
<td>Piston rod</td>
<td>High-alloy steel</td>
</tr>
<tr>
<td>Flange screws</td>
<td>Galvanised steel (Ø 20 ... 63)</td>
</tr>
<tr>
<td></td>
<td>Standard screws, galvanised steel (Ø 80 ... 100)</td>
</tr>
<tr>
<td>Seals</td>
<td>Polyurethane, nitrile rubber</td>
</tr>
<tr>
<td>Note on materials</td>
<td>RoHS compliant</td>
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</tbody>
</table>

#### Sectional view

![Sectional view of compact cylinder](image)
## Compact cylinders ADN-KP, standard port pattern, with clamping unit

### Technical data

**Dimensions – Basic version**

<table>
<thead>
<tr>
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<th>D1</th>
<th>D2</th>
<th>D5</th>
<th>E</th>
<th>E1</th>
<th>EE</th>
<th>G</th>
<th>G1</th>
<th>H1</th>
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<td>g9</td>
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<td>25</td>
<td>26</td>
<td>9</td>
<td>20</td>
<td>g9</td>
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<td>M5</td>
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<td>27</td>
<td>12</td>
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<td>12g9</td>
<td>47</td>
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<td>40</td>
<td>38</td>
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<td>30</td>
<td>12g9</td>
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<td>G1/8</td>
<td>60.4</td>
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<td>89</td>
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<td>50</td>
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<table>
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<th>Ø [mm]</th>
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<th>MM</th>
<th>PL</th>
<th>PL1</th>
<th>RT</th>
<th>SF</th>
<th>T2</th>
<th>TG</th>
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</tbody>
</table>
**Compact cylinders ADN-KP, standard port pattern, with clamping unit**

**Technical data**

**Dimensions – Variants**

**Basic version**

![Diagram](image)

- **K2 – Extended male piston rod thread**
  - Hex nut to DIN 439-B only with $\varnothing$ 32 ... 100
  - $^+$ = plus stroke length

- **K5 – Special piston rod thread**
  - Hex nut to DIN 439-B only with $\varnothing$ 32 ... 100
  - $^+$ = plus stroke length

- **K8 – Extended piston rod**
  - Hex nut to DIN 439-B only with $\varnothing$ 32 ... 100
  - $^+$ = plus stroke length

Download CAD data ➔ [www.festo.com](http://www.festo.com)
## Compact cylinders ADN-KP, standard port pattern, with clamping unit

### Technical data

<table>
<thead>
<tr>
<th>(\varnothing ) [mm]</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>AF</th>
<th>AFS</th>
<th>KF</th>
<th>KFS</th>
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<tr>
<td>20</td>
<td>16</td>
<td>1 ... 300</td>
<td>14</td>
<td>12</td>
<td>M6</td>
<td>M5</td>
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<tr>
<td>25</td>
<td>19</td>
<td>1 ... 400</td>
<td>16</td>
<td>14</td>
<td>M8</td>
<td>M6</td>
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<td>32</td>
<td>22</td>
<td>20</td>
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<td>M10</td>
<td>M8</td>
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<td></td>
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<tr>
<td>40</td>
<td>28</td>
<td>1 ... 500</td>
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<td>M12</td>
<td>M10</td>
<td></td>
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<tr>
<td>50</td>
<td>1 ... 300</td>
<td>14</td>
<td>12</td>
<td>M6</td>
<td>M5</td>
<td></td>
<td></td>
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<tr>
<td>60</td>
<td>2 ... 400</td>
<td>16</td>
<td>14</td>
<td>M8</td>
<td>M6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>2 ... 500</td>
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<td>20</td>
<td>M10</td>
<td>M8</td>
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<tr>
<td>100</td>
<td>2 ... 600</td>
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<td>20</td>
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<td>M10</td>
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<table>
<thead>
<tr>
<th>(\varnothing ) [mm]</th>
<th>KK</th>
<th>KKS</th>
<th>T3</th>
<th>T4</th>
<th>WH</th>
<th>ZB</th>
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<tr>
<td>20</td>
<td>M8</td>
<td>M10x1.25</td>
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<td>5.5</td>
<td>80.8</td>
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<td>25</td>
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<td>M10</td>
<td>2.6</td>
<td>3.3</td>
<td>6</td>
<td>83.1</td>
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<td>32</td>
<td>M10x1.25</td>
<td>M10x1.25</td>
<td>2.6</td>
<td>3.3</td>
<td>6.1</td>
<td>91.4</td>
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<td>40</td>
<td>M12</td>
<td>M12x1.25</td>
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<td>4.7</td>
<td>8.2</td>
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<td>50</td>
<td>M12x1.25</td>
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<td>4.7</td>
<td>8.1</td>
<td>118.9</td>
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<tr>
<td>60</td>
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<td>M16</td>
<td>4.7</td>
<td>6.1</td>
<td>8.9</td>
<td>145.4</td>
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<tr>
<td>80</td>
<td>M16x1.5</td>
<td>M16x1.5</td>
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<td>6.1</td>
<td>9</td>
<td>154.1</td>
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<tr>
<td>100</td>
<td>M16x1.5</td>
<td>M20x1.5</td>
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<td>9</td>
<td>154.1</td>
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</table>
## Compact cylinders ADN-KP, standard port pattern, with clamping unit

### Ordering data – Modular products

<table>
<thead>
<tr>
<th>Size</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
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<tbody>
<tr>
<td>Module No.</td>
<td>548206</td>
<td>548207</td>
<td>548208</td>
<td>548209</td>
<td>ADN</td>
<td>ADN</td>
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<tr>
<td>Function</td>
<td>Compact cylinder, double-acting, standard port pattern, with clamping unit</td>
<td>ADN</td>
<td>ADN</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Piston Ø [mm]</td>
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<td>25</td>
<td>32</td>
<td>40</td>
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<tr>
<td>Stroke [mm]</td>
<td>30 … 300</td>
<td>25 … 400</td>
<td>32 … 400</td>
<td>40 … 400</td>
<td></td>
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</tr>
<tr>
<td>Clamping unit</td>
<td>Integrated</td>
<td>KP</td>
<td>KP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston rod thread</td>
<td>Male thread</td>
<td>-A</td>
<td>-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female thread</td>
<td>1</td>
<td>-I</td>
<td>-I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>-P</td>
<td>-P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td>-A</td>
<td>-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Male thread extended | [mm] | Extended male piston rod thread | 1 … 20 |   |   |   |
| Special piston rod thread | Male thread | M10x1.25 | M10x1.25 | M10 | M10 | K5 |
| | Female thread | M5 | M10 | M6 | M12 |   |
| Piston rod extended | [mm] | Extended piston rod | 1 … 300 | 1 … 400 |   |   |
| Captive rating plate | Laser etched rating plate |   |   |   |   |

### Notes

1. i Not with extended male thread K2
2. K8 The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

### Transfer order code

ADN - - - KP - - P - A
### Compact cylinders ADN-KP, standard port pattern, with clamping unit

**Ordering table**

<table>
<thead>
<tr>
<th>Size</th>
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<th>100</th>
<th>Conditions</th>
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<tbody>
<tr>
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<td>548212</td>
<td>548213</td>
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<td>Function</td>
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<td>ADN</td>
<td>ADN</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Piston Ø (mm)</td>
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<td>80</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td>Stroke (mm)</td>
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<td>30 - 500</td>
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<tr>
<td>Clamping unit</td>
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<td>-KP</td>
<td>-KP</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Piston rod thread</td>
<td>Male thread</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female thread</td>
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<td>-1</td>
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<td></td>
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<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td>-P</td>
<td>-P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td>-A</td>
<td>-A</td>
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<table>
<thead>
<tr>
<th>Male thread extended (mm)</th>
<th>1 - 20</th>
<th>1 - 30</th>
<th>-K2</th>
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<tbody>
<tr>
<td>Special piston rod thread Male thread</td>
<td>M12</td>
<td>M12</td>
<td>M16</td>
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<td>Female thread</td>
<td>M8</td>
<td>M10</td>
<td>M10</td>
</tr>
<tr>
<td>Piston rod extended (mm)</td>
<td>1 - 400</td>
<td>1 - 500</td>
<td>-K8</td>
</tr>
<tr>
<td>Captive rating plate</td>
<td>Laser etched rating plate</td>
<td>-TL</td>
<td>-</td>
</tr>
</tbody>
</table>

---

1. Not with extended male thread K2
2. The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length
### Compact cylinders ADN-EL, standard port pattern, with end position lock

**Type codes**

<table>
<thead>
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<th>Type</th>
<th>Double-acting</th>
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<td>Compact cylinder</td>
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<table>
<thead>
<tr>
<th>Piston Ø [mm]</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Stroke [mm]</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>End position lock</th>
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<tbody>
<tr>
<td>ELB</td>
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<tr>
<td>ELV</td>
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<tr>
<td>ELH</td>
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<table>
<thead>
<tr>
<th>Piston rod thread</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>I</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cushioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
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<table>
<thead>
<tr>
<th>Position sensing</th>
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<td>A</td>
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<table>
<thead>
<tr>
<th>Variant</th>
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<tr>
<td>K2</td>
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<td>K5</td>
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<td>K8</td>
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<tr>
<td>TL</td>
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</tbody>
</table>
Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

Function

- Diameter
  20 … 100 mm
- Stroke length
  10 … 500 mm

Variants

- K2
- K5
- K8

Technical data

Piston Ø

<table>
<thead>
<tr>
<th>Diameter</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td>Female piston rod thread</td>
<td>M5</td>
<td>M5</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
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<tr>
<td>Male piston rod thread</td>
<td>M5</td>
<td>M6</td>
<td>M8</td>
<td>M10</td>
<td>M12</td>
<td>M6</td>
<td>M8</td>
<td>M10</td>
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<tr>
<td>Max. axial backlash with end position locked [mm]</td>
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<td>2.1</td>
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<td>Constructional design</td>
<td>Piston</td>
<td>Piston rod</td>
<td>Cylinder barrel</td>
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<td>End position lock</td>
<td>ELB</td>
<td>At both ends</td>
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<td>At front</td>
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<td>ELH</td>
<td>At rear</td>
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<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
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<td></td>
<td></td>
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<tr>
<td>Type of mounting</td>
<td>Via female threads</td>
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<td>Mounting position</td>
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<td></td>
</tr>
</tbody>
</table>

Note

- No screws with a head or similar may be used in place of the end position lock, as there is a risk that the function will be impaired if they are screwed in too deeply.
- The exhaust hole must not be closed.
- Locking can be performed from any stroke position, once the drive is brought mechanically into its end position.
- The end position lock has been designed to guard against the load dropping in case of pressure failure.
- Operation of the cylinder in conjunction with a 3-way valve (especially with the function "mid-position closed" and those with "metallic sealing") should be avoided. The residual pressure that is enclosed on the locking side of the cylinder can release the locking function.
- The cylinder must not be operated with external stops (e.g. shock absorber, buffer, oil brake, etc.):
  - It may not be possible to reliably reach the internal end position.
  - The locking mechanism can wear out prematurely. (In the event of pressure drop in the opposite chamber to less than the locking pressure, the locking piston will prematurely fall to its end position.)

Additional measures are required for use in safety-related control systems; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.
## Compact cylinders ADN-EL, standard port pattern, with end position lock

### Technical data

#### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Piston</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating medium</td>
<td>Compressed air in accordance with ISO 8573-1:2010 (7/4:4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note on operating/pilot medium</td>
<td>Operation with lubricated medium possible (in which case lubricated operation will always be required)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure [bar]</td>
<td>2.5 ... 10</td>
<td>1.5 ... 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature (^{1)} \ [\degree C]</td>
<td>−20 ... +80</td>
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<tr>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

#### Forces [N]

<table>
<thead>
<tr>
<th>Piston</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical force at 6 bar, advancing</td>
<td>188</td>
<td>295</td>
<td>483</td>
<td>754</td>
<td>1178</td>
<td>1870</td>
<td>3016</td>
<td>4712</td>
</tr>
<tr>
<td>Theoretical force at 6 bar, retracting</td>
<td>141</td>
<td>247</td>
<td>415</td>
<td>686</td>
<td>1057</td>
<td>1750</td>
<td>2827</td>
<td>4524</td>
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<tr>
<td>Static holding force</td>
<td>250</td>
<td>500</td>
<td>2000</td>
<td>5000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sizing example

- **Note**

  When sizing pneumatic cylinders it is recommended as a basic principle that only 50% of the indicated theoretical forces (see above) be used.

**Given:**

Installation position = Vertical
Workpiece load = 44 kg

\[ F = m \times g = 44 \, \text{kg} \times 9.81 \, \text{m/s}^2 = 431.6 \, \text{N} \]

**To be calculated:**

Suitable piston \( \odot \)

**Analysis with 32 mm piston \( \odot \):**

Theoretical force at 6 bar, advancing = 483 N

50% of the theoretical force = 241.5 N

Static holding force with 32 mm piston \( \odot \) = 500 N

The static force on the end position lock is within the permissible range (max. 500 N) with a workpiece load of 44 kg (431.6 N), however the cylinder would be at 89% capacity.

**Result:**

A cylinder with a piston \( \odot \) of 40 mm is therefore recommended for this application.

### Impact energy [J]

<table>
<thead>
<tr>
<th>Piston</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. impact energy at the end positions</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.7</td>
<td>1</td>
<td>1.3</td>
<td>1.8</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Permissible impact velocity:**

\[ v_{\text{perm}} = \sqrt{\frac{2 \times E_{\text{perm}}}{m_{\text{dead}} + m_{\text{load}}}} \]

**Maximum permissible load:**

\[ m_{\text{load}} = \frac{2 \times E_{\text{perm}}}{v^2} - m_{\text{dead}} \]

**Max. lateral force \( F_q \) as a function of the projection \( x \)**

[Graph showing max. lateral force \( F_q \) as a function of the projection \( x \) for different piston diameters (20, 25, 32, 40, 50, 63, 80, 100 mm).]
# Compact cylinders ADN-EL, standard port pattern, with end position lock

## Technical data

<table>
<thead>
<tr>
<th>Weight [g]</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
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## Materials

### Sectional view

![Sectional View](image)

### Compact cylinder

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### Cover
- Anodised aluminium

### Cylinder barrel
- Anodised aluminium

### Piston rod
- High-alloy steel

### Flange screws
- 20...63 Galvanised steel
- 80...100 Standard screws, galvanised steel

### Seals
- Polyurethane, nitrile rubber

### Note on materials
- RoHS compliant
Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

Dimensions – Basic version

<table>
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<tr>
<th>ELB – End position lock at both ends</th>
<th>Download CAD data → <a href="http://www.festo.com">www.festo.com</a></th>
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- ELB – End position lock at both ends
- ELV – End position lock at front
- ELH – End position lock at rear

+ = plus stroke length

Download CAD data → www.festo.com
### Compact cylinders ADN-EL, standard port pattern, with end position lock

#### Technical data

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#### Dimensions

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**Compact cylinders ADN-EL, standard port pattern, with end position lock**

**Technical data**

### Dimensions – Variants

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**K2 – Extended male piston rod thread**

- Hex nut to DIN 439-B
- Only with \( \varnothing \) 32 ... 100
- \( + \) = plus stroke length

**K5 – Special piston rod thread**

- Hex nut to DIN 439-B
- Only with \( \varnothing \) 32 ... 100
- \( + \) = plus stroke length

**K8 – Extended piston rod**

- Hex nut to DIN 439-B
- Only with \( \varnothing \) 32 ... 100
- \( + \) = plus stroke length
## Compact cylinders ADN-EL, standard port pattern, with end position lock

**Technical data**

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## Ordering data – Modular products

### Compact cylinders ADN-EL, standard port pattern, with end position lock

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#### Male thread extended

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<tr>
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<td>Laser etched rating plate</td>
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### Notes:
1. Not with extended male thread K2
2. The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

### Transfer order code

| ADN | - | - | - | - | P | - | A |
Compact cylinders ADN-EL, standard port pattern, with end position lock

Ordering table

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1 I Not with extended male thread K2
2 K8 The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length.

Options

- M Mandatory data
- O Options

Transfer order code

Internet: www.festo.com/catalogue/...
Compact cylinders AEN, to ISO 21287

**Type codes**

<table>
<thead>
<tr>
<th>Type</th>
<th>Single-acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEN</td>
<td>Compact cylinder</td>
</tr>
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<table>
<thead>
<tr>
<th>Piston ( \odot ) [mm]</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Stroke [mm]</th>
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</table>

| Piston rod thread | A | Male thread |
|---------------------------------|
| I | Female thread |

<table>
<thead>
<tr>
<th>Cushioning</th>
</tr>
</thead>
</table>

| P | Flexible cushioning rings/pads at both ends |

<table>
<thead>
<tr>
<th>Position sensing</th>
</tr>
</thead>
</table>

| A | Via proximity sensor |

<table>
<thead>
<tr>
<th>Variant</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Z</th>
<th>Single-acting, pulling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>Square piston rod</td>
</tr>
<tr>
<td>K2</td>
<td>Extended male piston rod thread</td>
</tr>
<tr>
<td>K5</td>
<td>Special piston rod thread</td>
</tr>
<tr>
<td>K8</td>
<td>Extended piston rod</td>
</tr>
<tr>
<td>K10</td>
<td>Smooth anodised piston rod</td>
</tr>
<tr>
<td>S6</td>
<td>Heat-resistant seals up to max. 120 °C</td>
</tr>
<tr>
<td>TL</td>
<td>Captive rating plate</td>
</tr>
</tbody>
</table>
## Compact cylinders AEN, to ISO 21287

### Technical data

#### Function
- **pulling**

#### Variants
- S6
- K2
- K5
- K8
- K10
- Q

#### General technical data

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
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<tbody>
<tr>
<td>Stroke length (mm)</td>
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<td>2</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>15</td>
<td>18</td>
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#### Technical data – Basic version and variants

##### Piston Ø

<table>
<thead>
<tr>
<th>Ø</th>
<th>12</th>
<th>16</th>
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<tbody>
<tr>
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<td>20</td>
<td>25</td>
<td>32</td>
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<tr>
<td>Cushioning</td>
<td>Flexible cushioning rings/pads at both ends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Via through-hole</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting position</td>
<td>Any</td>
<td></td>
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<table>
<thead>
<tr>
<th>Ø</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female piston rod thread</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>G1/8</td>
</tr>
<tr>
<td>Male piston rod thread</td>
<td>M5</td>
<td>M6</td>
<td>M5</td>
<td>M6</td>
<td>M8</td>
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</table>

<table>
<thead>
<tr>
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<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
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<tbody>
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<td>Flexible cushioning rings/pads at both ends</td>
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<tr>
<td>Position sensing</td>
<td>Via proximity sensor</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Via through-hole</td>
<td></td>
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<tr>
<td>Mounting position</td>
<td>Any</td>
<td></td>
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<table>
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<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td>Female piston rod thread</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
<td>G1/8</td>
</tr>
<tr>
<td>Male piston rod thread</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
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<table>
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<tr>
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<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female piston rod thread</td>
<td>M5</td>
<td>M5</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
</tr>
<tr>
<td>Male piston rod thread</td>
<td>M10</td>
<td>M12</td>
<td>M12</td>
<td>M10</td>
<td>M10</td>
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</table>

<table>
<thead>
<tr>
<th>Ø</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female piston rod thread</td>
<td>M10x1.25</td>
<td>M12x1.25</td>
<td>M12x1.25</td>
<td>M16x1.5</td>
<td>M16x1.5</td>
</tr>
<tr>
<td>Male piston rod thread</td>
<td>M10; M12</td>
<td>M12; M16</td>
<td>M16; M20; M20x1.5</td>
<td>M16; M20; M20x1.5</td>
<td>M16; M20; M20x1.5</td>
</tr>
</tbody>
</table>

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2018/07 – Subject to change

Internet: www.festo.com/catalogue/...
Compact cylinders AEN, to ISO 21287

Technical data

### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Piston</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating medium</td>
<td>Compressed air in accordance with ISO 8573-1:2010 [7:4:4]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note on operating/pilot medium</td>
<td>Operation with lubricated medium possible (in which case lubricated operation will always be required)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure [bar]</td>
<td>–</td>
<td>1.5 ... 10</td>
<td>1 ... 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>1.7 ... 10</td>
<td>2.2 ... 10</td>
<td>1.3 ... 10</td>
<td>0.7 ... 10</td>
<td>0.6 ... 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>1.5 ... 10</td>
<td>1 ... 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>–</td>
<td>–20 ... +80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S6</td>
<td>0 ... +120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrosion resistance class CRC</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

### Forces (N) and impact energy (J)

<table>
<thead>
<tr>
<th>Piston</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEN</td>
<td>56</td>
<td>95</td>
<td>162</td>
<td>259</td>
<td>441</td>
<td>702</td>
<td>1098</td>
<td>1783</td>
<td>2899</td>
<td>4511</td>
</tr>
<tr>
<td>AEN-…-Z, pulling</td>
<td>39</td>
<td>65</td>
<td>115</td>
<td>211</td>
<td>373</td>
<td>634</td>
<td>977</td>
<td>1663</td>
<td>2610</td>
<td>4323</td>
</tr>
<tr>
<td>Max. impact energy in the end positions</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.08</td>
<td>0.1</td>
<td>0.15</td>
<td>0.18</td>
<td>0.28</td>
<td>0.35</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Permissible impact velocity: 
\[ v_{\text{perm.}} = \sqrt{\frac{2 \times E_{\text{perm.}}}{m_{\text{dead}} + m_{\text{load}}}} \]
Max. impact energy: 
\[ E_{\text{perm.}} \]
Moving load (drive): 
\[ m_{\text{load}} \]
Moving effective load: 
\[ m_{\text{load}} \]

### Spring return force F as a function of the stroke l

<table>
<thead>
<tr>
<th>Piston</th>
<th>12 ... 20</th>
<th>25 ... 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>F [N]</td>
<td>l [mm]</td>
<td>F [N]</td>
</tr>
</tbody>
</table>

Note
The degree of friction depends upon the mounting position and the type of load involved. Single-acting cylinders should as far as possible be operated without lateral forces.
## Technical data

### Weight [g]

<table>
<thead>
<tr>
<th>Piston</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product weight with 0 mm stroke</td>
<td>77</td>
<td>79</td>
<td>131</td>
<td>156</td>
<td>265</td>
<td>346</td>
<td>540</td>
<td>722</td>
<td>1300</td>
<td>2154</td>
</tr>
<tr>
<td>Additional weight per 10 mm stroke</td>
<td>12</td>
<td>14</td>
<td>21</td>
<td>23</td>
<td>30</td>
<td>37</td>
<td>51</td>
<td>59</td>
<td>79</td>
<td>98</td>
</tr>
<tr>
<td>Moving load with 0 mm stroke</td>
<td>9</td>
<td>15</td>
<td>30</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>140</td>
<td>180</td>
<td>400</td>
<td>570</td>
</tr>
<tr>
<td>Additional load per 10 mm stroke</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>16</td>
<td>16</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

### Materials

#### Sectional view

#### Compact cylinder

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing and end cap</td>
<td>Anodised aluminium (12 ... 80), Coated die-cast aluminium (100)</td>
</tr>
<tr>
<td>Cylinder barrel</td>
<td>Anodised aluminium</td>
</tr>
<tr>
<td>Piston rod</td>
<td>High-alloy steel</td>
</tr>
<tr>
<td>Flange screws</td>
<td>High-alloy steel (12 ... 16), Galvanised steel (20 ... 63), Standard screws, galvanised steel (80 ... 100)</td>
</tr>
<tr>
<td>Seals</td>
<td>Polyurethane, Fluoro elastomer</td>
</tr>
</tbody>
</table>

Note on materials: RoHS-compliant
Compact cylinders AEN, to ISO 21287

Technical data

Dimensions – Basic version

Ø 12 … 63

Ø 32 … 63

Ø 12 … 25

Ø 12

+ = plus stroke length

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Ø 80 … 100

+ = plus stroke length

Dimensions – Basic version

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## Technical data

### Compact cylinders AEN, to ISO 21287

<table>
<thead>
<tr>
<th>( \varnothing ) [mm]</th>
<th>BG</th>
<th>D1 ( \varnothing ) H9</th>
<th>D5 ( \varnothing )</th>
<th>E</th>
<th>EE</th>
<th>G</th>
<th>J2</th>
<th>J3</th>
<th>LA</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>17</td>
<td>9</td>
<td>6(^{f9})</td>
<td>27.5 (+0.3)</td>
<td>10.5</td>
<td>2</td>
<td>–</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>19,5</td>
<td>9</td>
<td>6(^{f9})</td>
<td>29 (+0.3)</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>26</td>
<td>12</td>
<td>12(^{f9})</td>
<td>65.5 (+0.3)</td>
<td>15</td>
<td>6</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>27</td>
<td>15</td>
<td>15</td>
<td>95.5 (+0.6)</td>
<td>16.5</td>
<td>11.5</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>26</td>
<td>15</td>
<td>113.5 (+0.6)</td>
<td>21.5</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>( \varnothing ) [mm]</th>
<th>MM ( \varnothing )</th>
<th>PL (+0.2)</th>
<th>RT</th>
<th>SF</th>
<th>T2</th>
<th>TG</th>
<th>ZA</th>
<th>ZB</th>
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<tbody>
<tr>
<td>12</td>
<td>6</td>
<td>6</td>
<td>M4</td>
<td>5</td>
<td>16</td>
<td>35</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>7</td>
<td>M5</td>
<td>9</td>
<td>32.5</td>
<td>44</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>9</td>
<td>M6</td>
<td>10</td>
<td>38</td>
<td>45</td>
<td>51.1</td>
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</tr>
<tr>
<td>25</td>
<td>12</td>
<td>8.2</td>
<td>M8</td>
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<td>M10</td>
<td>17</td>
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<td>72</td>
<td>54</td>
<td>62.9</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
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<td></td>
<td>89</td>
<td>67</td>
<td>76</td>
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</table>
### Dimensions – Variants

#### Basic version

<table>
<thead>
<tr>
<th>Variant</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z – pulling</td>
<td>Hex nut DIN 439-B only with ( \varnothing ) 32 – 100</td>
<td>+ = plus stroke length</td>
</tr>
<tr>
<td>K2 – Extended male piston rod thread</td>
<td>Hex nut DIN 439-B only with ( \varnothing ) 32 – 100</td>
<td>+ = plus stroke length</td>
</tr>
<tr>
<td>K5 – Special piston rod thread</td>
<td>Hex nut DIN 439-B only with ( \varnothing ) 32 – 100</td>
<td>+ = plus stroke length</td>
</tr>
<tr>
<td>K8 – Extended piston rod</td>
<td>Hex nut DIN 439-B only with ( \varnothing ) 32 – 100</td>
<td>+ = plus stroke length</td>
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</tbody>
</table>

---

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## Compact cylinders AEN, to ISO 21287

### Technical data

<table>
<thead>
<tr>
<th>∅ [mm]</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>AF min.</th>
<th>AF5 min.</th>
<th>KF</th>
<th>KF5</th>
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<tbody>
<tr>
<td></td>
<td>–0.5</td>
<td>1..10</td>
<td>1..300</td>
<td>1..1200</td>
<td>1..2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>1..10</td>
<td>1..300</td>
<td>8</td>
<td>–</td>
<td>M3</td>
<td>–</td>
</tr>
<tr>
<td>16</td>
<td>12</td>
<td>1..10</td>
<td>1..300</td>
<td>10</td>
<td>–</td>
<td>M4</td>
<td>–</td>
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<tr>
<td>20</td>
<td>16</td>
<td>1..10</td>
<td>1..300</td>
<td>14</td>
<td>12</td>
<td>M6</td>
<td>M5</td>
</tr>
<tr>
<td>25</td>
<td>19</td>
<td>1..10</td>
<td>1..300</td>
<td>16</td>
<td>14</td>
<td>M8</td>
<td>M6</td>
</tr>
<tr>
<td>32</td>
<td>22</td>
<td>1..10</td>
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Compact cylinders AEN, to ISO 21287

Technical data

**Dimensions – Variants**

**Q – Square piston rod**

![Square piston rod diagram]

1. Hex nut DIN 439-B
   only with \( \Phi \) 32 … 100

   + = plus stroke length

**Q – Z – pulling**

![Z-pulling diagram]

1. Hex nut DIN 439-B
   only with \( \Phi \) 32 … 100

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

**Q-K2 – Square piston rod with extended male thread**

![Q-K2 diagram]

1. Hex nut DIN 439-B
   only with \( \Phi \) 32 … 100

   + = plus stroke length

**Q-K5 – Square, special piston rod thread**

![Q-K5 diagram]

+ = plus stroke length

**Q-K8 – Square, extended piston rod**

![Q-K8 diagram]

1. Hex nut DIN 439-B
   only with \( \Phi \) 32 … 100

   + = plus stroke length
### Compact cylinders AEN, to ISO 21287

#### Technical data

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## Compact cylinders AEN, to ISO 21287

### Ordering data – Modular products, basic version and variants

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### Function
- Compact cylinder, single-acting, based on ISO 21287

### Piston Ø [mm]
- 12
- 16
- 20
- 25
- 32

### Stroke [mm]
- 3 ... 10
- 1 ... 25

### Type of thread
- Male thread
- Female thread

### Cushioning
- Flexible cushioning rings/pads at both ends

### Position sensing
- Via proximity sensor

### Effective direction of action
- Single-acting, pulling

### Male thread extended [mm]
- 1 ... 10
- 1 ... 20

### Special piston rod thread
- Male thread
  - M6
  - M8

### Female thread
- M5

### Piston rod extended [mm]
- 1 ... 10
- 1 ... 25

### Improved running performance
- Smooth anodised aluminium coated piston rod

### Temperature resistance
- Heat-resistant seals up to max. 120 °C

### Captive rating plate
- Laser etched rating plate

### Transfer order code

- **mandatory data**
- **options**

### Order code

- AEN
- -
- -
- -
- -
- P
- A

---

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<tr>
<td>K8</td>
<td>Improved running performance</td>
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<tr>
<td>S6</td>
<td>Temperature resistance</td>
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<tr>
<td>TL</td>
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1. I Not with extended male thread K2
2. K2, K5 Not with improved running performance K10
# Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, basic version and variants

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**Transfer order code**

- [ ] [ ] [ ] [ ] [ ] [ ] [ ]

**Mandatory data**

- [ ] [ ] [ ] [ ] [ ] [ ]

**Options**

- [ ] [ ] [ ] [ ] [ ] [ ] [ ]
### Compact cylinders AEN, to ISO 21287

**Ordering data – Modular products, Q – Version with square piston rod, non-rotating**

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- **Piston Ø [mm]**: 16, 20, 25, 32
- **Stroke [mm]**: 3 ... 25
- **Type of thread**:
  - Male thread
  - Female thread
- **Cushioning**:
  - Flexible cushioning rings/pads at both ends
- **Position sensing**:
  - Via proximity sensor

#### Options

- **Effective direction of action**:
  - Single-acting, pulling
- **Protection against torsion**:
  - Square piston rod
- **Male thread extended [mm]**:
  - Extended male piston rod thread
  - 1 ... 10
  - 1 ... 20
- **Special piston rod thread**:
  - Male thread
  - M8
  - M10x1.25
  - M10x1.25
  - M10
- **Piston rod extended [mm]**:
  - Extended piston rod
  - 1 ... 25
- **Temperature resistance**:
  - Heat-resistant seals up to max. 120 °C
- **Captive rating plate**:
  - Laser etched rating plate

#### Transfer order code

```
AEN - - - - P - A
```

### Notes

- **Mandatory data**
- **Options**

---

Subject to change – 2018/07
## Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, Q – Version with square piston rod, non-rotating

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Mandatory data

Options

Transfer order code

- Q -
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Foot mounting HNA/HNA-...-R3

Material:
HNA: Galvanised steel
HNA-...-R3: Steel with protective coating
Free of copper and PTFE
RoHS-compliant

Dimensions and ordering data

For Ø [mm] AB Ø H14 JS14 AO ±0.5 ±0.2 AT ±0.2 SA ±0.2 TR ±0.5 US XA ±
12 5.8 21 5 3 13 61 16 26 52.2
16 22 4.75 3 14 69 22 34.5 52.9
20 7 27 6.25 4 16 71 26 38.5 58.7
25 29 33.5 7 4 16 71 26 38.5 58.7
32 35 10 8 5 21 87 45 64 74.2
40 10 12 3.5 9 18 81 36 54 69.2
50 45 10 8 5 21 87 45 64 74.2
63 12 10.5 3 18 81 36 54 69.2
80 12 10.5 3 18 81 36 54 69.2
100 14.5 74 12.5 6 25 110 110 103

For Ø [mm] Basic version CRC 1) Weight [g] Part No. Type CRC 1) Weight [g] Part No. Type
12 1 39 537237 HNA-12 3 39 537252 HNA-12-R3
16 1 42 537238 HNA-16 3 42 537253 HNA-16-R3
20 1 84 537239 HNA-20 3 84 537254 HNA-20-R3
25 1 90 537240 HNA-25 3 90 537255 HNA-25-R3
32 1 123 537241 HNA-32 3 123 537256 HNA-32-R3
40 1 157 537242 HNA-40 3 157 537257 HNA-40-R3
50 1 278 537243 HNA-50 3 278 537258 HNA-50-R3
63 1 328 537244 HNA-63 3 328 537259 HNA-63-R3
80 1 634 537249 HNA-80 3 634 537260 HNA-80-R3
100 1 814 537250 HNA-100 3 814 537261 HNA-100-R3

1) Corrosion resistance class CRC 1 to Festo standard PN 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).
Corrosion resistance class CRC 3 to Festo standard PN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Internet: www.festo.com/catalogue/...
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Flange mounting FNC

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

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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).

Festo core product range
★ Generally ready for shipping ex works in 24 hours
★ Generally ready for shipping ex works in 5 days

2018/07 – Subject to change  ➤ Internet: www.festo.com/catalogue/...
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Swivel flange
SNCL/SNCL---R3

Material:
SNCL: 12 ... 25: Wrought aluminium alloy
SNCL: 32 ... 125: Die-cast aluminium
SNCL---R3: Wrought aluminium alloy with protective coating
Free of copper and PTFE
RoHS-compliant

Dimensions and ordering data

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For Ø

Basic version

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R3 – High corrosion protection

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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).

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.

Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Festo core product range

★ Generally ready for shipping ex works in 24 hours
★ Generally ready for shipping ex works in 5 days

Internet: www.festo.com/catalogue/...
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Swivel flange
SNCS/CRSNC/SNCS-…-R3

Material:
SNCS 32 ... 50: Die-cast aluminium
SNCS 63 ... 125:
Wrought aluminium alloy
CRSNC 32 ... 80:
High-alloy stainless steel
SNCS-…-R3: 100 ... 125: Wrought aluminium alloy with protective coating
RoHS-compliant

+ = plus stroke length

**Dimensions and ordering data**

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**Basic version**

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**High corrosion protection**

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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).

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.

Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (also FN 940082) using appropriate media.

**Festo core product range**

⭐ Generally ready for shipping ex works in 24 hours
⭐⭐ Generally ready for shipping ex works in 5 days

2018/07 – Subject to change

Internet: www.festo.com/catalogue/...
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Clevis foot LBG/LBG-R3
The clevis foot is secured against rotation with a dowel pin.

Material:
LBG 32 ... 63: Special steel casting
LBG 80 ... 125: Nodular graphite cast iron
LBG-...-R3: High-alloy stainless steel
Free of copper and PTFE
RoHS-compliant

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1) Corrosion resistance class CRC 2 to Festo standard FN 940670
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.

Corrosion resistance class CRC 3 to Festo standard FN 940670
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.
Compact cylinders ADN/AEN, to ISO 21287

Multi-position kit DPNA

Material:
Flange: Wrought aluminium alloy
Screws: Galvanised steel
Free of copper and PTFE
RoHS-compliant

Dimensions and ordering data

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Note
The maximum overall stroke length may not be exceeded when combining cylinders and multi-position kits.

1) Corrosion resistance class CRC 2 to Festo standard FN 940670

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.
### Compact cylinders ADN/AEN, to ISO 21287

**Accessories**

**Clevis foot LBN**

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

#### Dimensions and ordering data

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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).

**Clevis foot CRLBN, stainless steel**

Material:
- High-alloy steel
- Free of copper and PTFE
- RoHS-compliant

#### Dimensions and ordering data

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1) Corrosion resistance class CRC 4 to Festo standard FN 940070
- Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (also FN 940082) using appropriate media.

---

**Festo core product range**

- ★ Generally ready for shipping ex works in 24 hours
- ☆ Generally ready for shipping ex works in 5 days


Subject to change – 2018/07
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Swivel flange

SNCB/SNCB-…-R3

Material:
SNCB: Die-cast aluminium
SNCB-…-R3: Die-cast aluminium with protective coating
Free of copper and PTFE
RoHS-compliant

Dimensions and ordering data

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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).

Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Festo core product range
★ Generally ready for shipping ex works in 24 hours
☆ Generally ready for shipping ex works in 5 days

2018/07 – Subject to change

Internet: www.festo.com/catalogue/...
Compact cylinders ADN/AEN, to ISO 21287

Trunnion flange ZNCF/CRZNG

Material:
ZNCF: Special steel casting
CRZNG: Electrolytically polished special steel casting
Free of copper and PTFE
RoHS-compliant

Dimensions and ordering data

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+ = plus stroke length

1) 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.

Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (also FN 940082) using appropriate media.
Compact cylinders ADN/AEN, to ISO 21287

Accessories

Trunnion support LNZG

Material:
Trunnion support: Anodised aluminium
Plain bearing: Plastic
Free of copper and PTFE
RoHS-compliant

---

**Dimensions and ordering data**

<table>
<thead>
<tr>
<th>For Ø [mm]</th>
<th>CR D11</th>
<th>DA H13</th>
<th>FK Ø ±0.1</th>
<th>FN H13</th>
<th>FS H13</th>
<th>H13</th>
<th>HB Ø H13</th>
<th>KE H13</th>
<th>NH ±0.2</th>
<th>TH</th>
<th>UL</th>
<th>CRC1)</th>
<th>Weight [g]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>12</td>
<td>11</td>
<td>15</td>
<td>10.5</td>
<td>15</td>
<td>6.6</td>
<td>6.8</td>
<td>18</td>
<td>32</td>
<td>46</td>
<td>2</td>
<td>83</td>
<td>32959</td>
<td>LNZG-32</td>
<td></td>
</tr>
<tr>
<td>40, 50</td>
<td>16</td>
<td>15</td>
<td>18</td>
<td>36</td>
<td>12</td>
<td>18</td>
<td>9</td>
<td>9</td>
<td>21</td>
<td>36</td>
<td>55</td>
<td>2</td>
<td>129</td>
<td>32960</td>
<td>LNZG-40/50</td>
</tr>
<tr>
<td>63, 80</td>
<td>20</td>
<td>18</td>
<td>20</td>
<td>40</td>
<td>13</td>
<td>20</td>
<td>11</td>
<td>11</td>
<td>23</td>
<td>42</td>
<td>65</td>
<td>2</td>
<td>178</td>
<td>32961</td>
<td>LNZG-63/80</td>
</tr>
<tr>
<td>100, 125</td>
<td>25</td>
<td>20</td>
<td>25</td>
<td>50</td>
<td>16</td>
<td>26.5</td>
<td>14</td>
<td>13</td>
<td>28.5</td>
<td>50</td>
<td>75</td>
<td>2</td>
<td>306</td>
<td>32962</td>
<td>LNZG-100/125</td>
</tr>
</tbody>
</table>

1) 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.
### Compact cylinders ADN/AEN, to ISO 21287

#### Accessories

#### Ordering data – Piston rod attachments

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod eye SGS</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>9254</td>
<td>SGS-M6</td>
</tr>
<tr>
<td>20, 25</td>
<td></td>
<td>9255</td>
<td>SGS-M8</td>
</tr>
<tr>
<td>32, 40</td>
<td></td>
<td>9261</td>
<td>SGS-M10x1,25</td>
</tr>
<tr>
<td>50, 63</td>
<td></td>
<td>9262</td>
<td>SGS-M12x1,25</td>
</tr>
<tr>
<td>80, 100</td>
<td></td>
<td>9263</td>
<td>SGS-M16x1,5</td>
</tr>
<tr>
<td>125</td>
<td></td>
<td>9264</td>
<td>SGS-M20x1,5</td>
</tr>
</tbody>
</table>

| Rod clevis SG | 12    |          |      |
|              | 16    | 3110     | SG-M6 |
|              | 20, 25| 3111     | SG-M8 |
|              | 32, 40| 6144     | SG-M10x1,25 |
|              | 50, 63| 6145     | SG-M12x1,25 |
|              | 80, 100| 6146     | SG-M16x1,5 |
|              | 125   | 6147     | SG-M20x1,5 |

| Coupling piece KSG | 12, 16, 20, 25 |          |       |
|                    | 32         | 32963    | KSG-M10x1,25 |
|                    | 50, 63     | 32964    | KSG-M12x1,25 |
|                    | 80, 100    | 32965    | KSG-M16x1,5 |
|                    | 125        | 32966    | KSG-M20x1,5 |

| Adapter AD | 12    |          |      |
|           | 16    | 157328   | AD-M6-M5 |
|           |       | 157329   | AD-M6-1/8 |
|           |       | 157330   | AD-M6-1/4 |
|           | 20    | 157331   | AD-M8-1/8 |
|           |       | 157332   | AD-M8-1/4 |
|           | 32    | 157333   | AD-M10x1,25-1/8 |
|           | 40    | 157334   | AD-M10x1,25-1/4 |
|           | 50    | 160256   | AD-M12x1,25-1/4 |
|           | 63    | 160257   | AD-M12x1,25-3/8 |

#### Technical data – Internet: piston-rod attachment

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod clevis SGA used in combination with rod eye SGS</td>
<td>12, 16, 20, 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32, 40</td>
<td></td>
<td>32954</td>
<td>SGA-M10x1,25</td>
</tr>
<tr>
<td>50, 63</td>
<td></td>
<td>10767</td>
<td>SGA-M12x1,25</td>
</tr>
<tr>
<td>80, 100</td>
<td></td>
<td>10768</td>
<td>SGA-M16x1,25</td>
</tr>
<tr>
<td>125</td>
<td></td>
<td>10769</td>
<td>SGA-M20x1,25</td>
</tr>
</tbody>
</table>

| Self-aligning rod coupler FK | 12     | 30984     | FK-M5                              |
|                              | 16     | 2061      | FK-M6                              |
|                              | 20, 25 | 2062      | FK-M8                              |
|                              | 32, 40 | 6140      | FK-M10x1,25                        |
|                              | 50, 63 | 6141      | FK-M12x1,25                        |
|                              | 80, 100| 6142      | FK-M16x1,5                         |
|                              | 125    | 6143      | FK-M20x1,5                         |

| Coupling piece KSZ | 12     |          |       |
|                   | 16     | 36123     | KSZ-M6 |
|                   | 20, 25 | 36124     | KSZ-M8 |
|                   | 32, 40 | 36125     | KSZ-M10x1,25 |
|                   | 50, 63 | 36126     | KSZ-M12x1,25 |
|                   | 80, 100| 36127     | KSZ-M16x1,5 |
|                   | 125    | 36128     | KSZ-M20x1,5 |

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**Festo core product range**

★ Generally ready for shipping ex works in 24 hours

★☆ Generally ready for shipping ex works in 5 days

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> Internet: www.festo.com/catalogue/...

Subject to change – 2018/07
Compact cylinders ADN/AEN, to ISO 21287

### Accessories

#### Ordering data – Corrosion and acid resistant piston rod attachments

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod eye CRSGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>195580</td>
<td>CRSGS-M6</td>
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</tr>
<tr>
<td>16, 20</td>
<td>195581</td>
<td>CRSGS-M8</td>
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<tr>
<td>32, 40</td>
<td>195582</td>
<td>CRSGS-M10x1,25</td>
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<tr>
<td>50, 63</td>
<td>195583</td>
<td>CRSGS-M12x1,25</td>
<td></td>
</tr>
<tr>
<td>80, 100</td>
<td>195584</td>
<td>CRSGS-M16x1,5</td>
<td></td>
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<tr>
<td>125</td>
<td>195585</td>
<td>CRSGS-M20x1,5</td>
<td></td>
</tr>
</tbody>
</table>

#### Self-aligning rod coupler CRFK

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>32, 40</td>
<td>2305778</td>
<td>CRFK-M10x1,25</td>
<td></td>
</tr>
<tr>
<td>50, 63</td>
<td>2305779</td>
<td>CRFK-M12x1,25</td>
<td></td>
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<tr>
<td>80, 100</td>
<td>2490673</td>
<td>CRFK-M16x1,5</td>
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</tr>
<tr>
<td>125</td>
<td>2545677</td>
<td>CRFK-M20x1,5</td>
<td></td>
</tr>
</tbody>
</table>

#### Ordering data – Mounting attachments

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clevis foot LBG for rod eye SGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32, 40</td>
<td>31761</td>
<td>LBG-32</td>
<td></td>
</tr>
<tr>
<td>50, 63</td>
<td>31762</td>
<td>LBG-40</td>
<td></td>
</tr>
<tr>
<td>80, 100</td>
<td>31763</td>
<td>LBG-50</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>31764</td>
<td>LBG-63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31765</td>
<td>LBG-80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31766</td>
<td>LBG-100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-angle clevis foot LQG for rod eye SGS</td>
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<td></td>
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</tr>
<tr>
<td>32, 40</td>
<td>31768</td>
<td>LQG-32</td>
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</tr>
<tr>
<td>50, 63</td>
<td>31769</td>
<td>LQG-40</td>
<td></td>
</tr>
<tr>
<td>80, 100</td>
<td>31770</td>
<td>LQG-50</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>31771</td>
<td>LQG-63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31772</td>
<td>LQG-80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31773</td>
<td>LQG-100</td>
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</tr>
</tbody>
</table>

#### Ordering data – Mounting attachments, R3 – High corrosion protection

<table>
<thead>
<tr>
<th>Designation</th>
<th>For Ø</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clevis foot LBG-R3 for rod eye CRSGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32, 40</td>
<td>2078790</td>
<td>LBG-32-R3</td>
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</tr>
<tr>
<td>50, 63</td>
<td>2078792</td>
<td>LBG-40-R3</td>
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<td>80, 100</td>
<td>2078794</td>
<td>LBG-50-R3</td>
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<td>2078795</td>
<td>LBG-63-R3</td>
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<tr>
<td></td>
<td>2078799</td>
<td>LBG-100-R3</td>
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</tbody>
</table>

#### Ordering data – One-way flow control valves

<table>
<thead>
<tr>
<th>Connection</th>
<th>Material</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>For exhaust air</td>
<td>Metal design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12, 16, 20, 25</td>
<td>3</td>
<td>193137</td>
<td>GRLA-M5-QS-3-D</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>193138</td>
<td>GRLA-M5-QS-4-D</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>193139</td>
<td>GRLA-M5-QS-6-D</td>
</tr>
<tr>
<td>32, 40, 50, 63, 80, 100</td>
<td>3</td>
<td>193142</td>
<td>GRLA-1/8-QS-3-D</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>193143</td>
<td>GRLA-1/8-QS-4-D</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>193144</td>
<td>GRLA-1/8-QS-6-D</td>
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<td>8</td>
<td>193145</td>
<td>GRLA-1/8-QS-8-D</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>193146</td>
<td>GRLA-1/4-QS-6-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>193147</td>
<td>GRLA-1/4-QS-8-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>193148</td>
<td>GRLA-1/4-QS-10-D</td>
</tr>
</tbody>
</table>

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**Festo core product range**

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days

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Focuses on the compact cylinders ADN/AEN, to ISO 21287, detailing the ordering data for various components such as corrosion and acid resistant piston rod attachments, mounting attachments, and one-way flow control valves. The technical data for these components is available online. Festo core product range is prominently highlighted with delivery times noted.
## Accessories

### Ordering data – One-way flow control valves

<table>
<thead>
<tr>
<th>Connection</th>
<th>Material</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ø</td>
<td>For tubing O.D.</td>
<td>193153</td>
<td>GRLZ-M5-QS-3-D</td>
</tr>
<tr>
<td>12, 16, 20, 25</td>
<td>Metal design</td>
<td>193154</td>
<td>GRLZ-M5-QS-4-D</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>193155</td>
<td>GRLZ-M5-QS-6-D</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>193156</td>
<td>GRLZ-1/8-QS-3-D</td>
</tr>
<tr>
<td>32, 40, 50, 63, 80, 100</td>
<td></td>
<td>193157</td>
<td>GRLZ-1/8-QS-4-D</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>193158</td>
<td>GRLZ-1/8-QS-6-D</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>193159</td>
<td>GRLZ-1/8-QS-8-D</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8</td>
<td></td>
<td>151195</td>
<td>GRLZ-1/4-B</td>
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</table>

### Ordering data – Proximity sensors for T-slot, magneto-resistive

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switch output</th>
<th>Electrical connection</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td>NPN</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>574335</td>
<td>SMT-8M-A-PS-24V-E-2,5-OE</td>
</tr>
<tr>
<td></td>
<td>Plug M8x1, 3-pin</td>
<td>0.3</td>
<td>574334</td>
<td>SMT-8M-A-PS-24V-E-0,3-M8D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plug M12x1, 3-pin</td>
<td>0.3</td>
<td>574337</td>
<td>SMT-8M-A-PS-24V-E-0,3-M12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NPN</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>574338</td>
<td>SMT-8M-A-NS-24V-E-2,5-OE</td>
</tr>
<tr>
<td></td>
<td>Plug M8x1, 3-pin</td>
<td>0.3</td>
<td>574339</td>
<td>SMT-8M-A-NS-24V-E-0,3-M8D</td>
<td></td>
</tr>
<tr>
<td>N/C contact</td>
<td>NPN</td>
<td>Cable, 3-wire</td>
<td>7.5</td>
<td>574340</td>
<td>SMT-8M-A-PO-24V-E-7,5-OE</td>
</tr>
</tbody>
</table>

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**Festo core product range**

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days

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**Subject to change – 2018/07**


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Internet: grlz

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Internet: smt

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Subject to change – 2018/07
### Compact cylinders ADN/AEN, to ISO 21287

**Accessories**

#### Ordering data – Proximity sensors for T-slot, magnetic reed

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Switch output</th>
<th>Electrical connection</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O contact</td>
<td></td>
<td>Contacting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertable in the slot from above, flush with cylinder profile</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>543862</td>
<td>SME-8M-DS-24V-K-2.5-0E</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.0</td>
<td>543863</td>
<td>SME-8M-DS-24V-K-5.0-0E</td>
</tr>
<tr>
<td>Insertable in the slot lengthwise, flush with the cylinder profile</td>
<td>Cable, 3-wire</td>
<td>2.5</td>
<td>543872</td>
<td>SME-8M-ZS-24V-K-2.5-0E</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug M8x1, 3-pin</td>
<td>0.3</td>
<td>543861</td>
<td>SME-8M-DS-24V-K-0.3-MBD</td>
</tr>
<tr>
<td>N/C contact</td>
<td></td>
<td>Contacting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertable in the slot lengthwise, flush with the cylinder profile</td>
<td>Cable, 3-wire</td>
<td>7.5</td>
<td>160251</td>
<td>SME-8-0-K-LED-24</td>
<td></td>
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</tbody>
</table>

#### Ordering data – Connecting cables

<table>
<thead>
<tr>
<th>Electrical connection, left</th>
<th>Electrical connection, right</th>
<th>Cable length [m]</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight socket, M8x1, 3-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541333</td>
<td>NEBU-M8G3-K-2.5-LE3</td>
</tr>
<tr>
<td>Straight socket, M12x1, 5-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541363</td>
<td>NEBU-M12G5-K-2.5-LE3</td>
</tr>
<tr>
<td>Angled socket, M8x1, 3-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541338</td>
<td>NEBU-M8W3-K-2.5-LE3</td>
</tr>
<tr>
<td>Angled socket, M12x1, 5-pin</td>
<td>Cable, open end, 3-wire</td>
<td>2.5</td>
<td>541367</td>
<td>NEBU-M12W5-K-2.5-LE3</td>
</tr>
</tbody>
</table>

#### Ordering data – Rectangular proximity sensors, pneumatic

<table>
<thead>
<tr>
<th>Pneumatic connection</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/2-way valve, normally closed</td>
<td>178563</td>
<td>SMPO-8E</td>
</tr>
</tbody>
</table>

#### Ordering data – Mounting kits for proximity sensors SMPO-8E

<table>
<thead>
<tr>
<th>Assembly</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamped in T-slot</td>
<td>178230</td>
<td>SMB-8E</td>
</tr>
</tbody>
</table>

#### Ordering data – Slot cover for T-slot

<table>
<thead>
<tr>
<th>Assembly</th>
<th>Length</th>
<th>Part No.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertable from above</td>
<td>2x 0.5 m</td>
<td>151680</td>
<td>ABP-5-S</td>
</tr>
</tbody>
</table>

**Festo core product range**

- Generally ready for shipping ex works in 24 hours
- Generally ready for shipping ex works in 5 days