

## Compact cylinders ADN-S/AEN-S

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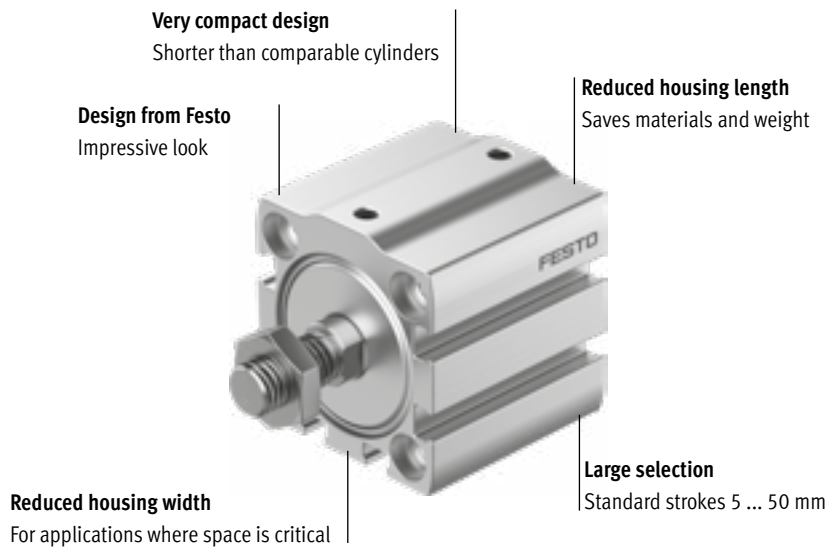
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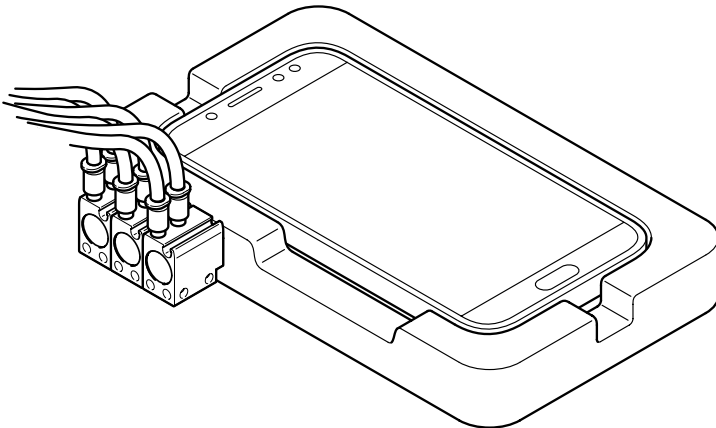
## Characteristics

### At a glance



### Application example

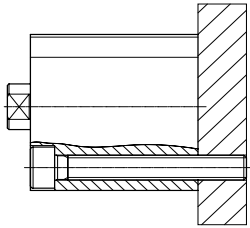
Long-term tests of smartphone keys



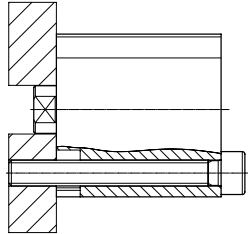
## Characteristics

### Mounting options

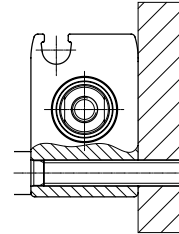
From the front  
 $\varnothing 6 \dots 10$



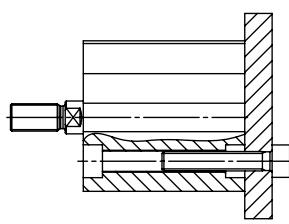
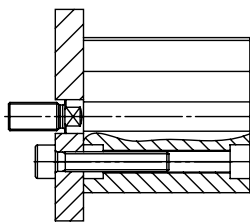
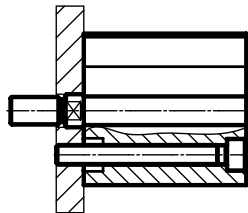
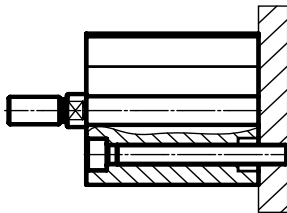
From the rear




From the side



$\varnothing 12 \dots 63$



-  - **Note**  
 $\varnothing 12 \dots 63$  mm:  
 Hole pattern conforms to ISO 21287

### For manufacturing lithium-ion batteries

ADN-S-...-F1A

Recommended for production facilities for the manufacture of lithium-ion batteries.

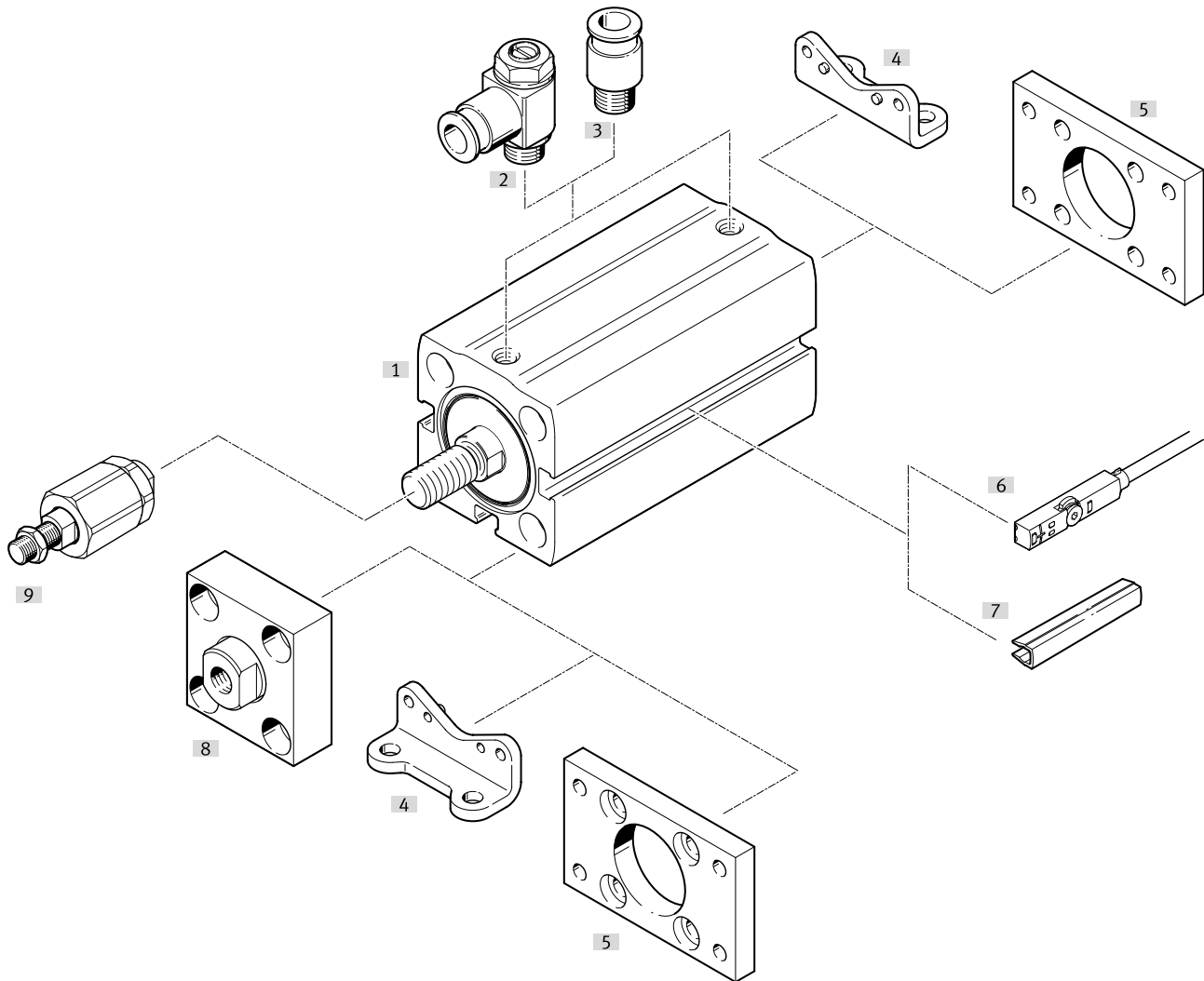
Metals with more than 1% copper, zinc or nickel by mass are excluded from use.

Exceptions are nickel in steel, chemically nickel-plated surfaces, circuit boards, cables, electrical plug connectors and coils

### Accessories

Your Festo contact partner can provide information about which accessories are suitable for manufacturing lithium-ion batteries.

Peripherals overview



## Peripherals overview

| Accessories |  |                          |  |                 |
|-------------|--|--------------------------|--|-----------------|
|             | Type/order code                                      | For piston $\varnothing$ | Description  | → Page/Internet |
| [1]         | Compact cylinder<br>ADN-S                            | 6 ... 63                 | Double-acting cylinder   | 6               |
|             | Compact cylinder<br>AEN-S                            | 6 ... 63                 | Single-acting cylinder   | 22              |
| [2]         | One-way flow control valve<br>GRLA/GRLZ              | 12 ... 63                | For regulating speed   | 38              |
| [3]         | Push-in fitting<br>QS                                | 12 ... 63                | For connecting tubing with standard O.D.                                 | qs              |
| [4]         | Foot mounting<br>HNA                                 | 12 ... 63                | For bearing or end caps  | 34              |
| [5]         | Flange mounting<br>FNC                               | 12 ... 63                | For bearing or end caps  | 36              |
| [6]         | Proximity switch<br>SMT-10                           | 6 ... 10                 | Can be integrated in the cylinder profile barrel                         | 38              |
|             | Proximity switch<br>SMT-8M                           | 12 ... 63                |  | 39              |
|             | Position transmitter<br>SDAS-MHS/SDAT-MHS<br>SMAT-8M | 12 ... 63                |  | 39              |
| [7]         | Slot cover<br>ABP-5-S                                | 12 ... 63                | For protecting the sensor cables and the sensor slots from contamination | 39              |
| [8]         | Coupling piece<br>KSG/KSZ                            | 32 ... 63                | To compensate for radial deviations                                      | 33              |
| [9]         | Self-aligning rod coupler<br>FK                      | 12 ... 63                | To compensate for radial and angular deviations                          | 33              |

## Type codes

| 001   | Series                          |
|-------|---------------------------------|
| ADN-S | Compact cylinder, double-acting |

| 002 | Design type |
|-----|-------------|
| S   | Short       |

| 003 | Piston diameter [mm] |
|-----|----------------------|
| 6   | 6                    |
| 10  | 10                   |
| 12  | 12                   |
| 16  | 16                   |
| 20  | 20                   |
| 25  | 25                   |
| 32  | 32                   |
| 40  | 40                   |
| 50  | 50                   |
| 63  | 63                   |

| 004 | Stroke [mm] |
|-----|-------------|
| 5   | 5           |
| 10  | 10          |
| 15  | 15          |
| 20  | 20          |
| 25  | 25          |
| 30  | 30          |
| 35  | 35          |
| 40  | 40          |
| 45  | 45          |
| 50  | 50          |

| 005 | Piston rod thread type |
|-----|------------------------|
| A   | Male thread            |
| I   | Female thread          |

| 006 | Cushioning                                    |
|-----|---|
|     | No cushioning                                 |
| P   | Elastic cushioning rings/plates on both sides |

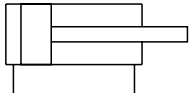
| 007 | Position sensing     |
|-----|----------------------|
|     | None                 |
| A   | For proximity sensor |

| 008 | Special material properties  |
|-----|--|
|     | None   |
| F1A | Recommended for production facilities for the manufacture of lithium-ion batteries |

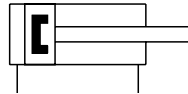
## Data sheet

## Function

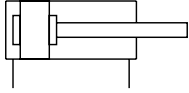
ADN-S



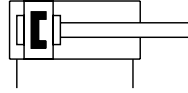
ADN-S...-A



ADN-S...-P



ADN-S...-P-A



-  $\varnothing$  - Diameter  
6 ... 63 mm

- | - Stroke length  
5 ... 50 mm

## General technical data

| Piston $\varnothing$ | 6                    | 10 | 12   | 16 | 20 | 25                                    | 32 | 40   | 50 | 63 |  |
|----------------------|----------------------|----|--|----|----|---------------------------------------|----|------|----|----|--|
| Design               | Piston               |    |  |    |    |                                       |    |      |    |    |  |
|                      | Piston rod           |    |  |    |    |                                       |    |      |    |    |  |
| Mode of operation    | Double-acting        |    |  |    |    |                                       |    |      |    |    |  |
| Piston rod end       | Male thread          |    |  |    |    |                                       |    |      |    |    |  |
|                      | Female thread        |    |  |    |    |                                       |    |      |    |    |  |
| Pneumatic connection | M3                   |    |  | M5 |    |                                       |    | G1/8 |    |    |  |
| Stroke [mm]          | 5, 10                |    | 5, 10, 15, 20, 25, 30, 35                  |    |    | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 |    |      |    |    |  |
| Cushioning           | -                    |    | Elastic cushioning rings/pads at both ends |    |    |                                       |    |      |    |    |  |
| Position sensing     | Via proximity switch |    |  |    |    |                                       |    |      |    |    |  |
| Type of mounting     | With through-hole    |    |  |    |    |                                       |    |      |    |    |  |
|                      | -                    |    | With female thread                         |    |    |                                       |    |      |    |    |  |
|                      | -                    |    | With accessories                           |    |    |                                       |    |      |    |    |  |
| Mounting position    | Any                  |    |  |    |    |                                       |    |      |    |    |  |

## Operating and environmental conditions

| Piston $\varnothing$                              | 6  | 10          | 12          | 16        | 20         | 25 | 32 | 40 | 50         | 63 |
|---|--|-------------|-------------|-----------|------------|----|----|----|------------|----|
| Operating pressure <sup>1)</sup>                  |  |             |             |           |            |    |    |    |            |    |
|   | [MPa]  | 0.2 ... 0.8 | 0.1 ... 0.8 | 0.1 ... 1 | 0.06 ... 1 |    |    |    | 0.04 ... 1 |    |
|   | [bar]  | 2 ... 8     | 1 ... 8     | 1 ... 10  | 0.6 ... 10 |    |    |    | 0.4 ... 10 |    |
| Operating medium                                  | Compressed air to ISO 8573-1:2010 [7:4:4]  |             |             |           |            |    |    |    |            |    |
| Information on the operating medium               | Lubricated operation possible (in which case lubricated operation will always be required) |             |             |           |            |    |    |    |            |    |
| Ambient temperature <sup>2)</sup> [°C]            | -10 ... +60  |             |             | 0 ... +60 |            |    |    |    |            |    |
| Corrosion resistance class CRC <sup>3)</sup>      | 2  |             |             |           |            |    |    |    |            |    |
| Battery manufacturing [F1A] and female thread [I] | 2  |             |             |           |            |    | 2  |    |            |    |
| Battery manufacturing [F1A] and male thread [A]   | 2  |             |             |           |            |    | 0  |    |            |    |

1) The minimum pressure values in the retracting direction may be slightly higher after an extended idle time.

2) Note operating range of proximity switches.

3) Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standards-based parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Data sheet

| Forces [N] and impact energy [J]                 |       |       |      |      |      |      |      |     |      |      |
|--|-------|-------|------|------|------|------|------|-----|------|------|
| Piston $\varnothing$                             | 6     | 10    | 12   | 16   | 20   | 25   | 32   | 40  | 50   | 63   |
| Theoretical force at 0.6 MPa (6 bar), advancing  | 17    | 47    | 68   | 121  | 188  | 295  | 483  | 754 | 1178 | 1870 |
| Theoretical force at 0.6 MPa (6 bar), retracting | 9.4   | 30.2  | 51   | 90   | 141  | 247  | 415  | 686 | 1057 | 1750 |
| Impact energy in the end positions               |       |       |      |      |      |      |      |     |      |      |
| ADN-S  | 0.006 | 0.012 | 0.06 | 0.1  | 0.14 | 0.18 | 0.26 | -   |      |      |
| ADN-S-...-A                                      | 0.006 | 0.012 | 0.07 | 0.15 | 0.2  | 0.3  | 0.4  | 0.7 | 1    | 1.3  |

| Weights [g]          |                         |    |
|----------------------|-------------------------|----|
| Piston $\varnothing$ | 6                       | 10 |
| Product weight       |                         |    |
| with 5 mm stroke     | 9.2/10.9 <sup>1)</sup>  |    |
| with 10 mm stroke    | 11.9/13.6 <sup>1)</sup> |    |
| Moving mass          |                         |    |
| with 5 mm stroke     | 1.5/1.6 <sup>1)</sup>   |    |
| with 10 mm stroke    | 2.3/2.4 <sup>1)</sup>   |    |

1) With position sensing

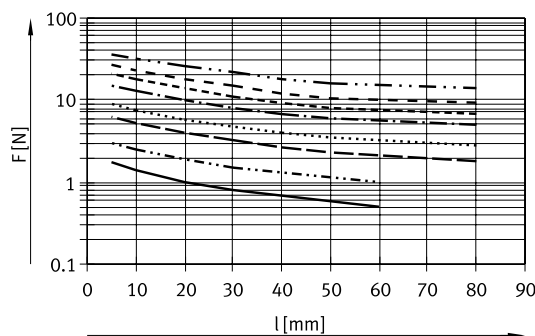
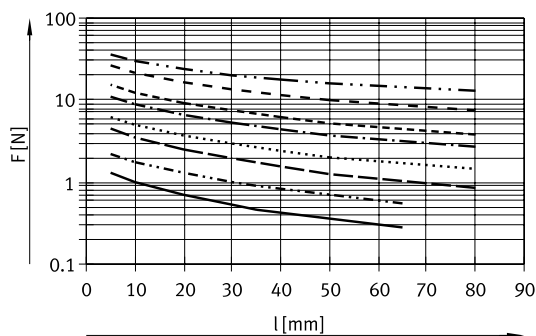
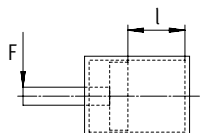
| Weights [g]                        |                     |                       |                     |                     |                       |                   |                   |                   |  |
|------------------------------------|---------------------|-----------------------|---------------------|---------------------|-----------------------|-------------------|-------------------|-------------------|--|
| Piston $\varnothing$               | 12                  | 16                    | 20                  | 25                  | 32                    | 40                | 50                | 63                |  |
| Product weight with 0 mm stroke    | 26/33 <sup>1)</sup> | 32.5/42 <sup>1)</sup> | 51/65 <sup>1)</sup> | 70/88 <sup>1)</sup> | 107/117 <sup>1)</sup> | 304 <sup>1)</sup> | 324 <sup>1)</sup> | 499 <sup>1)</sup> |  |
| Additional weight per 10 mm stroke | 15/15 <sup>1)</sup> | 18/18 <sup>1)</sup>   | 26/26 <sup>1)</sup> | 30/30 <sup>1)</sup> | 36/36 <sup>1)</sup>   | 45 <sup>1)</sup>  | 63 <sup>1)</sup>  | 77 <sup>1)</sup>  |  |
| Moving mass with 0 mm stroke       | 3.5/6 <sup>1)</sup> | 6/11 <sup>1)</sup>    | 11/18 <sup>1)</sup> | 17/25 <sup>1)</sup> | 31/37 <sup>1)</sup>   | 62 <sup>1)</sup>  | 104 <sup>1)</sup> | 151 <sup>1)</sup> |  |
| Additional mass per 10 mm stroke   | 2/2 <sup>1)</sup>   | 4/4 <sup>1)</sup>     | 6/6 <sup>1)</sup>   | 6/6 <sup>1)</sup>   | 9/9 <sup>1)</sup>     | 9 <sup>1)</sup>   | 16 <sup>1)</sup>  | 16 <sup>1)</sup>  |  |

1) With position sensing

Max. transverse load  $F_q$  as a function of projection  $l$

Without sensing

With sensing



- $\varnothing$  12
- · - · -  $\varnothing$  16
- - -  $\varnothing$  20
- · · · ·  $\varnothing$  25
- · - · -  $\varnothing$  32
- - -  $\varnothing$  40
- - -  $\varnothing$  50
- · - · -  $\varnothing$  63

Note

Transverse loads must not be applied to piston  $\varnothing$  6 ... 10. Additional information is available at [www.festo.com/sp](http://www.festo.com/sp) → User documentation.



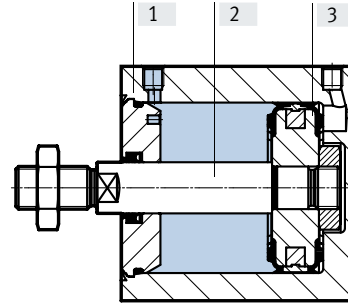
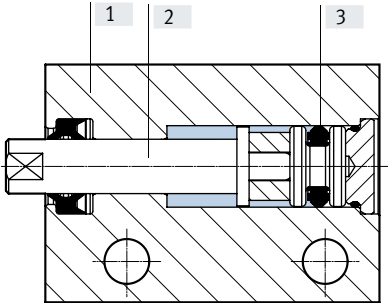
## Data sheet

## Materials

Sectional view

Ø 6 ... 10

Ø 12 ... 63



## Compact cylinders

|     |                   |  |
|-----|-------------------|--|
| [1] | Housing           | Anodised wrought aluminium alloy   |
| [2] | Piston rod        | High-alloy stainless steel   |
| [3] | Seals             | NBR, TPE-U(PU)   |
| -   | Note on materials | RoHS-compliant   |
|     | PWIS conformity   | VDMA24364-B2-L   |
|     | Cleanroom class   | Class 6 to ISO 14644-1   |
|     | ADN-S....-F1A     | Metals with more than 1% copper, zinc or nickel by mass are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, circuit boards, cables, electrical plug connectors and coils |

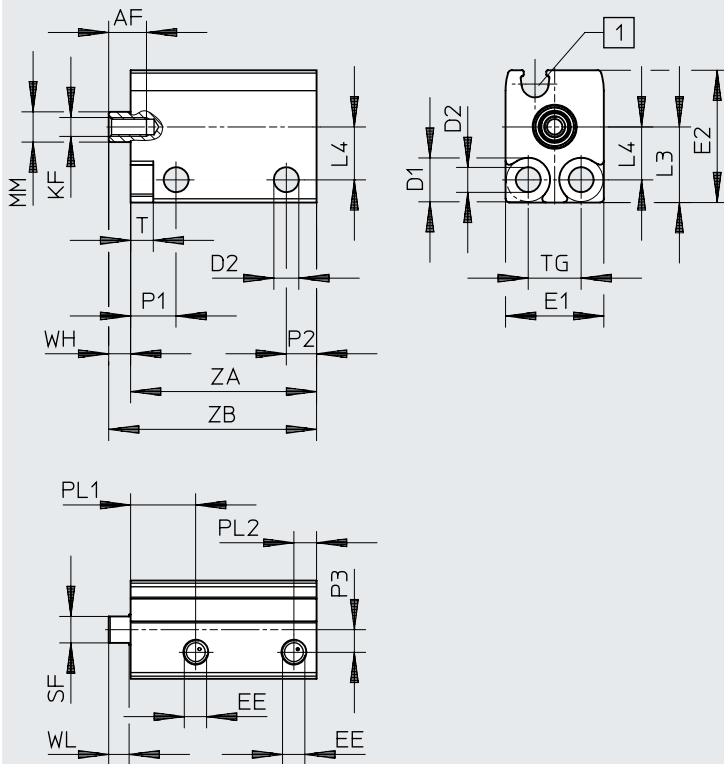
Data sheet

Dimensions

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

∅ 6 ... 10

With female thread



[1] C-slot for proximity switch



| ∅  | AF | D1<br>∅<br>H13 | D2<br>∅ | EE | E1         | E2           | KF   | L3 | L4 | MM<br>∅ |
|----|----|----------------|---------|----|------------|--------------|------|----|----|---------|
| 6  | 5  | 5.8            | 3.3     | M3 | max.<br>13 | max.<br>17.5 | M2.5 | 10 | 7  | 4       |
| 10 | 6  |                |         |    | 13.5       | 20.5         | M3   | 11 | 8  | 6       |

| ∅  | P1 | P2 | P3  | PL2 | SF  | T | TG | WH | WL  |
|----|----|----|-----|-----|-----|---|----|----|-----|
| 6  | 6  | 4  | 3   | 3   | 3.5 | 3 | 7  | 3  | 2.7 |
| 10 |    |    | 3.2 |     | 5   |   |    |    |     |

| ∅  | Stroke<br>[mm] | Position<br>sensing | PL1 | ZA<br>+0.3 | ZB<br>±0.35 |
|----|----------------|---------------------|-----|------------|-------------|
| 6  | 5              | –                   | 8.6 | 20.5       | 23.5        |
|    |                | ■                   | 8.6 | 24.5       | 27.5        |
|    | 10             | –                   | 8.6 | 25.5       | 28.5        |
|    |                | ■                   | 8.6 | 29.5       | 32.5        |
| 10 | 5              | –                   | 9.2 | 20.5       | 23.5        |
|    |                | ■                   | 9.9 | 24.5       | 27.5        |
|    | 10             | –                   | 9.2 | 25.5       | 28.5        |
|    |                | ■                   | 9.9 | 29.5       | 32.5        |

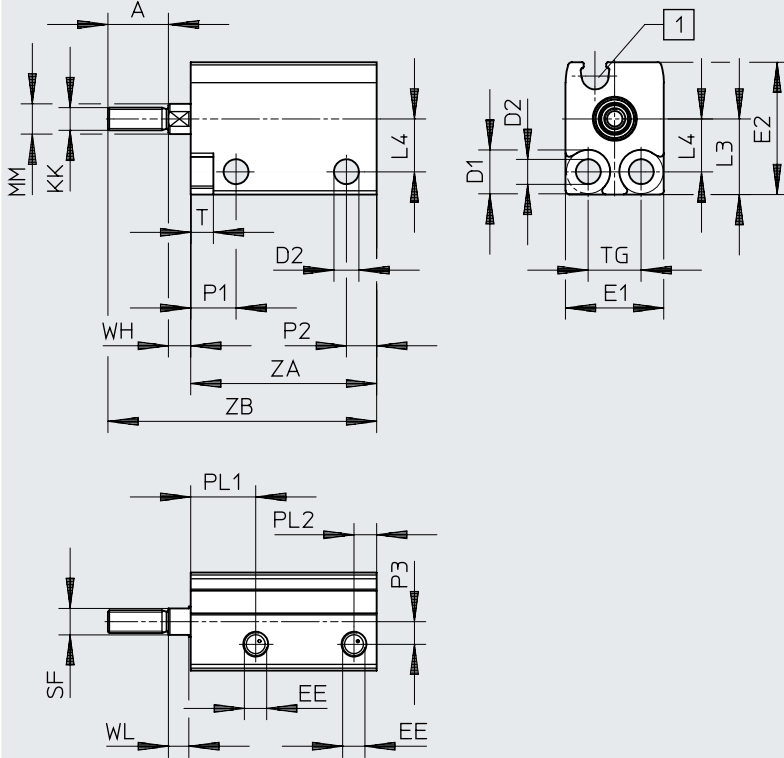
Data sheet

Dimensions

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∅ 6 ... 10

With male thread



[1] C-slot for proximity switch

| ∅<br>[mm] | A  | D1<br>∅<br>H13 | D2<br>∅ | EE | E1<br>max. | E2<br>max. | KK | L3 | L4 | MM<br>∅ |
|-----------|----|----------------|---------|----|------------|------------|----|----|----|---------|
| 6         | 8  | 5.8            | 3.3     | M3 | 13         | 17.5       | M3 | 10 | 7  | 4       |
| 10        | 10 |                |         |    | 13.5       | 20.5       | M4 | 11 | 8  | 6       |

| ∅<br>[mm] | P1 | P2 | P3  | PL2 | SF  | T | TG<br>±0.1 | WH | WL  |
|-----------|----|----|-----|-----|-----|---|------------|----|-----|
| 6         | 6  | 4  | 3   | 3   | 3.5 | 3 | 7          | 3  | 2.7 |
| 10        |    |    | 3.2 |     | 5   |   |            |    |     |

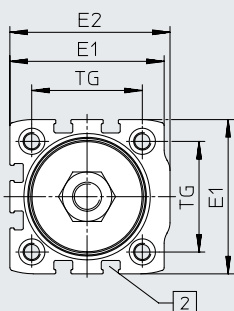
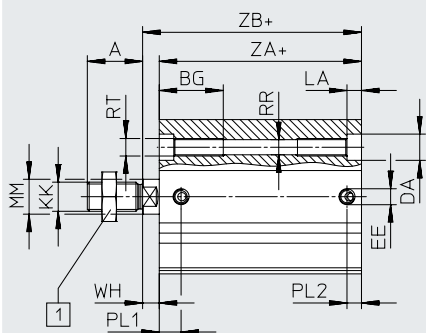
| ∅<br>[mm] | Stroke<br>[mm] | Position<br>sensing | PL1 | ZA<br>+0.3 | ZB<br>±0.35 |
|-----------|----------------|---------------------|-----|------------|-------------|
| 6         | 5              | —                   | 8.6 | 20.5       | 31.5        |
|           |                | ■                   | 8.6 | 24.5       | 35.5        |
|           | 10             | —                   | 8.6 | 25.5       | 36.5        |
|           |                | ■                   | 8.6 | 29.5       | 40.5        |
| 10        | 5              | —                   | 9.2 | 20.5       | 33.5        |
|           |                | ■                   | 9.9 | 24.5       | 37.5        |
|           | 10             | —                   | 9.2 | 25.5       | 38.5        |
|           |                | ■                   | 9.9 | 29.5       | 42.5        |

Data sheet

Dimensions

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

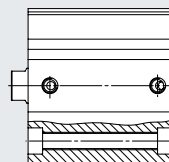
∅ 12 ... 63



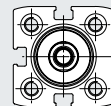
Through thread

∅ 12 ... 25; ZA 0 ... 40

∅ 32 ... 63; ZA 0 ... 50



∅ 12 ... 25



+ = plus stroke length

[1] Hex nut DIN 439-B only from ∅ 32 upwards

[2] T-slot for proximity switch

| ∅    | A    | BG   | DA<br>∅ | E1                    | E2                    | EE   | KK       | LA   | MM<br>∅ | PL1 |
|------|------|------|---------|-----------------------|-----------------------|------|----------|------|---------|-----|
| [mm] | -0.5 | min. | F9      |                       |                       |      |          | ±0.1 | h8      |     |
| 12   | 10   | 19   | 6       | 27 <sub>+0.15</sub>   | 27.5 <sub>+0.15</sub> | M5   | M5       | 3.5  | 6       | 5   |
| 16   | 12   | 19   | 6       | 29 <sub>+0.15</sub>   | 30 <sub>+0.15</sub>   | M5   | M6       | 3.5  | 8       | 6   |
| 20   | 16   | 20   | 7.5     | 34.5 <sub>+0.15</sub> | 35.5 <sub>+0.15</sub> | M5   | M8       | 5    | 10      | 6   |
| 25   | 16   | 20   | 7.5     | 38.5 <sub>+0.15</sub> | 39.5 <sub>+0.15</sub> | M5   | M8       | 5    | 10      | 5.5 |
| 32   | 19   | 22   | 9       | 45 <sub>+0.15</sub>   | 47 <sub>+0.15</sub>   | M5   | M10x1.25 | 5    | 12      | 6.1 |
| 40   | 19   | 22   | 9       | 53 <sub>+0.15</sub>   | 55 <sub>+0.15</sub>   | M5   | M10x1.25 | 5    | 12      | 7.5 |
| 50   | 22   | 23   | 11      | 63 <sub>+0.2</sub>    | 66 <sub>+0.2</sub>    | G1/8 | M12x1.25 | 5    | 16      | 8.2 |
| 63   | 22   | 23   | 11      | 75 <sub>+0.2</sub>    | 78.5 <sub>+0.2</sub>  | G1/8 | M12x1.25 | 5    | 16      | 8.5 |

| ∅    | PL2 | RR<br>∅ | RT | TG   | WH<br>+1 | ZA   |             | ZB   |             |
|------|-----|---------|----|------|----------|------|-------------|------|-------------|
|      |     |         |    |      |          | +0.2 | [A]<br>+0.2 | +1.2 | [A]<br>+1.2 |
| [mm] |     |         |    |      |          |      |             |      |             |
| 12   | 5   | 3.5     | M4 | 16   | 2.5      | 15.5 | 19.5        | 18   | 22          |
| 16   | 5   | 3.5     | M4 | 18   | 3        | 16   | 20.5        | 19   | 23.5        |
| 20   | 5   | 4.2     | M5 | 22   | 3        | 17.5 | 22          | 20.5 | 25          |
| 25   | 5   | 4.2     | M5 | 26   | 3.5      | 19   | 23.5        | 22.5 | 27          |
| 32   | 5   | 5.2     | M6 | 32.5 | 4        | 21.5 | 25          | 25.5 | 29          |
| 40   | 5   | 5.2     | M6 | 38   | 5        | 26   | 29.5        | 31   | 34.5        |
| 50   | 7.5 | 6.8     | M8 | 46.5 | 7        | 29   | 32          | 36   | 39          |
| 63   | 8   | 6.8     | M8 | 56.5 | 7        | 32   | 35          | 39   | 42          |

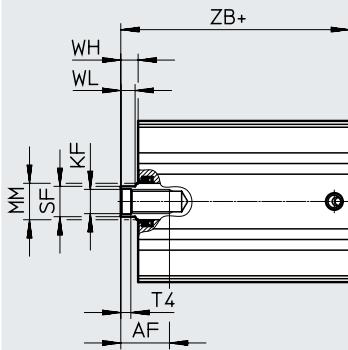
## Data sheet

## Dimensions

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∅ 12 ... 63

With female thread



+ = plus stroke length

| ∅<br>[mm] | AF<br>min. | KF  | MM<br>∅<br>h8 | SF<br>h13 | T4  | WH<br>+1 | WL<br>-0.15 | ZB   |             |
|-----------|------------|-----|---------------|-----------|-----|----------|-------------|------|-------------|
|           |            |     |               |           |     |          |             | +1.2 | [A]<br>+1.2 |
| 12        | 8          | M3  | 6             | 5         | 1.5 | 2.5      | 2.7         | 18   | 22          |
| 16        | 10         | M4  | 8             | 7         | 1.5 | 3        | 3.5         | 19   | 23.5        |
| 20        | 11         | M6  | 10            | 9         | 2.6 | 3        | 4           | 20.5 | 25          |
| 25        | 11         | M6  | 10            | 9         | 2.6 | 3.5      | 4.2         | 22.5 | 27          |
| 32        | 12         | M8  | 12            | 10        | 3.3 | 4        | 4.7         | 25.5 | 29          |
| 40        | 16         | M8  | 12            | 10        | 3.3 | 5        | 4.7         | 31   | 34.5        |
| 50        | 16         | M10 | 16            | 13        | 4.7 | 7        | 6.5         | 36   | 39          |
| 63        | 20         | M10 | 16            | 13        | 4.7 | 7        | 6.5         | 39   | 42          |

Data sheet

★ Core Range

Ordering data – With elastic cushioning rings/pads at both ends

| Piston ø<br>[mm] | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|------------------|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
|                  |                                 | Part no.                          | Type              | Part no.                        | Type              |
| 12               | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|                  | 5                               | ★ 8076407                         | ADN-S-12-5-I-P    | ★ 8091419                       | ADN-S-12-5-A-P    |
|                  | 10                              | ★ 8076419                         | ADN-S-12-10-I-P   | ★ 8091428                       | ADN-S-12-10-A-P   |
|                  | 15                              | ★ 8076417                         | ADN-S-12-15-I-P   | ★ 8091416                       | ADN-S-12-15-A-P   |
|                  | 20                              | ★ 8076415                         | ADN-S-12-20-I-P   | ★ 8091420                       | ADN-S-12-20-A-P   |
|                  | 25                              | ★ 8076413                         | ADN-S-12-25-I-P   | ★ 8091426                       | ADN-S-12-25-A-P   |
|                  | 30                              | ★ 8076411                         | ADN-S-12-30-I-P   | ★ 8091423                       | ADN-S-12-30-A-P   |
|                  | 35                              | ★ 8076409                         | ADN-S-12-35-I-P   | ★ 8091418                       | ADN-S-12-35-A-P   |
|                  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|                  | 5                               | ★ 8076406                         | ADN-S-12-5-I-P-A  | ★ 8091427                       | ADN-S-12-5-A-P-A  |
|                  | 10                              | ★ 8076418                         | ADN-S-12-10-I-P-A | ★ 8091424                       | ADN-S-12-10-A-P-A |
|                  | 15                              | ★ 8076416                         | ADN-S-12-15-I-P-A | ★ 8091422                       | ADN-S-12-15-A-P-A |
|                  | 20                              | ★ 8076414                         | ADN-S-12-20-I-P-A | ★ 8091429                       | ADN-S-12-20-A-P-A |
|                  | 25                              | ★ 8076412                         | ADN-S-12-25-I-P-A | ★ 8091421                       | ADN-S-12-25-A-P-A |
| 30               | ★ 8076410                       | ADN-S-12-30-I-P-A                 | ★ 8091417         | ADN-S-12-30-A-P-A               |                   |
| 35               | ★ 8076408                       | ADN-S-12-35-I-P-A                 | ★ 8091425         | ADN-S-12-35-A-P-A               |                   |

|    |                                 |                   |                   |                   |                   |
|----|---------------------------------|-------------------|-------------------|-------------------|-------------------|
| 16 | <b>Without position sensing</b> |                   |                   |                   |                   |
|    | 5                               | ★ 8076393         | ADN-S-16-5-I-P    | ★ 8091671         | ADN-S-16-5-A-P    |
|    | 10                              | ★ 8076405         | ADN-S-16-10-I-P   | ★ 8091670         | ADN-S-16-10-A-P   |
|    | 15                              | ★ 8076403         | ADN-S-16-15-I-P   | ★ 8091677         | ADN-S-16-15-A-P   |
|    | 20                              | ★ 8076401         | ADN-S-16-20-I-P   | ★ 8091666         | ADN-S-16-20-A-P   |
|    | 25                              | ★ 8076399         | ADN-S-16-25-I-P   | ★ 8091665         | ADN-S-16-25-A-P   |
|    | 30                              | ★ 8076397         | ADN-S-16-30-I-P   | ★ 8091672         | ADN-S-16-30-A-P   |
|    | 35                              | ★ 8076395         | ADN-S-16-35-I-P   | ★ 8091676         | ADN-S-16-35-A-P   |
|    | <b>With position sensing</b>    |                   |                   |                   |                   |
|    | 5                               | ★ 8076392         | ADN-S-16-5-I-P-A  | ★ 8091668         | ADN-S-16-5-A-P-A  |
|    | 10                              | ★ 8076404         | ADN-S-16-10-I-P-A | ★ 8091678         | ADN-S-16-10-A-P-A |
|    | 15                              | ★ 8076402         | ADN-S-16-15-I-P-A | ★ 8091667         | ADN-S-16-15-A-P-A |
|    | 20                              | ★ 8076400         | ADN-S-16-20-I-P-A | ★ 8091674         | ADN-S-16-20-A-P-A |
|    | 25                              | ★ 8076398         | ADN-S-16-25-I-P-A | ★ 8091675         | ADN-S-16-25-A-P-A |
| 30 | ★ 8076396                       | ADN-S-16-30-I-P-A | ★ 8091669         | ADN-S-16-30-A-P-A |                   |
| 35 | ★ 8076394                       | ADN-S-16-35-I-P-A | ★ 8091673         | ADN-S-16-35-A-P-A |                   |

Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries

| Piston ø<br>[mm] | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|------------------|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
|                  |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 12               | <b>With position sensing</b> |                                   |                       |                                 |                       |
|                  | 5                            | ★ 8142562                         | ADN-S-12-5-I-P-A-F1A  | ★ 8142576                       | ADN-S-12-5-A-P-A-F1A  |
|                  | 10                           | ★ 8142563                         | ADN-S-12-10-I-P-A-F1A | ★ 8142577                       | ADN-S-12-10-A-P-A-F1A |
|                  | 15                           | ★ 8142564                         | ADN-S-12-15-I-P-A-F1A | ★ 8142578                       | ADN-S-12-15-A-P-A-F1A |
|                  | 20                           | ★ 8142565                         | ADN-S-12-20-I-P-A-F1A | ★ 8142579                       | ADN-S-12-20-A-P-A-F1A |
|                  | 25                           | ★ 8142566                         | ADN-S-12-25-I-P-A-F1A | ★ 8142580                       | ADN-S-12-25-A-P-A-F1A |
|                  | 30                           | ★ 8142567                         | ADN-S-12-30-I-P-A-F1A | ★ 8142581                       | ADN-S-12-30-A-P-A-F1A |
| 35               | ★ 8142568                    | ADN-S-12-35-I-P-A-F1A             | ★ 8142582             | ADN-S-12-35-A-P-A-F1A           |                       |
| 16               | <b>With position sensing</b> |                                   |                       |                                 |                       |
|                  | 5                            | ★ 8142728                         | ADN-S-16-5-I-P-A-F1A  | ★ 8142735                       | ADN-S-16-5-A-P-A-F1A  |
|                  | 10                           | ★ 8142729                         | ADN-S-16-10-I-P-A-F1A | ★ 8142736                       | ADN-S-16-10-A-P-A-F1A |
|                  | 15                           | ★ 8142730                         | ADN-S-16-15-I-P-A-F1A | ★ 8142737                       | ADN-S-16-15-A-P-A-F1A |
|                  | 20                           | ★ 8142731                         | ADN-S-16-20-I-P-A-F1A | ★ 8142738                       | ADN-S-16-20-A-P-A-F1A |
|                  | 25                           | ★ 8142732                         | ADN-S-16-25-I-P-A-F1A | ★ 8142739                       | ADN-S-16-25-A-P-A-F1A |
|                  | 30                           | ★ 8142733                         | ADN-S-16-30-I-P-A-F1A | ★ 8142740                       | ADN-S-16-30-A-P-A-F1A |
| 35               | ★ 8142734                    | ADN-S-16-35-I-P-A-F1A             | ★ 8142741             | ADN-S-16-35-A-P-A-F1A           |                       |

## Data sheet

## ★ Core Range

| Ordering data – With elastic cushioning rings/pads at both ends |                                 |                                   |                   |                                 |                   |
|---|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|   |                                 | Part no.                          | Type              | Part no.                        | Type              |
| 20  | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|   | 5                               | ★ 8076323                         | ADN-S-20-5-I-P    | ★ 8091431                       | ADN-S-20-5-A-P    |
|   | 10                              | ★ 8076341                         | ADN-S-20-10-I-P   | ★ 8091449                       | ADN-S-20-10-A-P   |
|   | 15                              | ★ 8076339                         | ADN-S-20-15-I-P   | ★ 8091447                       | ADN-S-20-15-A-P   |
|   | 20                              | ★ 8076337                         | ADN-S-20-20-I-P   | ★ 8091445                       | ADN-S-20-20-A-P   |
|   | 25                              | ★ 8076335                         | ADN-S-20-25-I-P   | ★ 8091443                       | ADN-S-20-25-A-P   |
|   | 30                              | ★ 8076333                         | ADN-S-20-30-I-P   | ★ 8091441                       | ADN-S-20-30-A-P   |
|   | 35                              | ★ 8076331                         | ADN-S-20-35-I-P   | ★ 8091439                       | ADN-S-20-35-A-P   |
|   | 40                              | ★ 8076329                         | ADN-S-20-40-I-P   | ★ 8091437                       | ADN-S-20-40-A-P   |
|   | 45                              | ★ 8076327                         | ADN-S-20-45-I-P   | ★ 8091435                       | ADN-S-20-45-A-P   |
|   | 50                              | ★ 8076325                         | ADN-S-20-50-I-P   | ★ 8091433                       | ADN-S-20-50-A-P   |
|   | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 5                               | ★ 8076322                         | ADN-S-20-5-I-P-A  | ★ 8091430                       | ADN-S-20-5-A-P-A  |
|   | 10                              | ★ 8076340                         | ADN-S-20-10-I-P-A | ★ 8091448                       | ADN-S-20-10-A-P-A |
|   | 15                              | ★ 8076338                         | ADN-S-20-15-I-P-A | ★ 8091446                       | ADN-S-20-15-A-P-A |
|   | 20                              | ★ 8076336                         | ADN-S-20-20-I-P-A | ★ 8091444                       | ADN-S-20-20-A-P-A |
|   | 25                              | ★ 8076334                         | ADN-S-20-25-I-P-A | ★ 8091442                       | ADN-S-20-25-A-P-A |
|   | 30                              | ★ 8076332                         | ADN-S-20-30-I-P-A | ★ 8091440                       | ADN-S-20-30-A-P-A |
|   | 35                              | ★ 8076330                         | ADN-S-20-35-I-P-A | ★ 8091438                       | ADN-S-20-35-A-P-A |
|   | 40                              | ★ 8076328                         | ADN-S-20-40-I-P-A | ★ 8091436                       | ADN-S-20-40-A-P-A |
|   | 45                              | ★ 8076326                         | ADN-S-20-45-I-P-A | ★ 8091434                       | ADN-S-20-45-A-P-A |
|   | 50                              | ★ 8076324                         | ADN-S-20-50-I-P-A | ★ 8091432                       | ADN-S-20-50-A-P-A |

| Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries |                              |                                   |                       |                                 |                       |
|---|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|   |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 20  | <b>With position sensing</b> |                                   |                       |                                 |                       |
|   | 5                            | ★ 8142756                         | ADN-S-20-5-I-P-A-F1A  | ★ 8142766                       | ADN-S-20-5-A-P-A-F1A  |
|   | 10                           | ★ 8142757                         | ADN-S-20-10-I-P-A-F1A | ★ 8142767                       | ADN-S-20-10-A-P-A-F1A |
|   | 15                           | ★ 8142758                         | ADN-S-20-15-I-P-A-F1A | ★ 8142768                       | ADN-S-20-15-A-P-A-F1A |
|   | 20                           | ★ 8142759                         | ADN-S-20-20-I-P-A-F1A | ★ 8142769                       | ADN-S-20-20-A-P-A-F1A |
|   | 25                           | ★ 8142760                         | ADN-S-20-25-I-P-A-F1A | ★ 8142770                       | ADN-S-20-25-A-P-A-F1A |
|   | 30                           | ★ 8142761                         | ADN-S-20-30-I-P-A-F1A | ★ 8142771                       | ADN-S-20-30-A-P-A-F1A |
|   | 35                           | ★ 8142762                         | ADN-S-20-35-I-P-A-F1A | ★ 8142772                       | ADN-S-20-35-A-P-A-F1A |
|   | 40                           | ★ 8142763                         | ADN-S-20-40-I-P-A-F1A | ★ 8142773                       | ADN-S-20-40-A-P-A-F1A |
|   | 45                           | ★ 8142764                         | ADN-S-20-45-I-P-A-F1A | ★ 8142774                       | ADN-S-20-45-A-P-A-F1A |
|   | 50                           | ★ 8142765                         | ADN-S-20-50-I-P-A-F1A | ★ 8142775                       | ADN-S-20-50-A-P-A-F1A |

Data sheet

★ Core Range

Ordering data – With elastic cushioning rings/pads at both ends

| Piston ø<br>[mm] | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|------------------|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
|                  |                                 | Part no.                          | Type              | Part no.                        | Type              |
| 25               | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|                  | 5                               | ★ 8076343                         | ADN-S-25-5-I-P    | ★ 8092103                       | ADN-S-25-5-A-P    |
|                  | 10                              | ★ 8076361                         | ADN-S-25-10-I-P   | ★ 8092102                       | ADN-S-25-10-A-P   |
|                  | 15                              | ★ 8076359                         | ADN-S-25-15-I-P   | ★ 8092107                       | ADN-S-25-15-A-P   |
|                  | 20                              | ★ 8076357                         | ADN-S-25-20-I-P   | ★ 8092091                       | ADN-S-25-20-A-P   |
|                  | 25                              | ★ 8076355                         | ADN-S-25-25-I-P   | ★ 8092092                       | ADN-S-25-25-A-P   |
|                  | 30                              | ★ 8076353                         | ADN-S-25-30-I-P   | ★ 8092099                       | ADN-S-25-30-A-P   |
|                  | 35                              | ★ 8076351                         | ADN-S-25-35-I-P   | ★ 8092097                       | ADN-S-25-35-A-P   |
|                  | 40                              | ★ 8076349                         | ADN-S-25-40-I-P   | ★ 8092094                       | ADN-S-25-40-A-P   |
|                  | 45                              | ★ 8076347                         | ADN-S-25-45-I-P   | ★ 8092106                       | ADN-S-25-45-A-P   |
|                  | 50                              | ★ 8076345                         | ADN-S-25-50-I-P   | ★ 8092105                       | ADN-S-25-50-A-P   |
|                  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|                  | 5                               | ★ 8076342                         | ADN-S-25-5-I-P-A  | ★ 8092104                       | ADN-S-25-5-A-P-A  |
|                  | 10                              | ★ 8076360                         | ADN-S-25-10-I-P-A | ★ 8092093                       | ADN-S-25-10-A-P-A |
|                  | 15                              | ★ 8076358                         | ADN-S-25-15-I-P-A | ★ 8092096                       | ADN-S-25-15-A-P-A |
|                  | 20                              | ★ 8076356                         | ADN-S-25-20-I-P-A | ★ 8092109                       | ADN-S-25-20-A-P-A |
|                  | 25                              | ★ 8076354                         | ADN-S-25-25-I-P-A | ★ 8092100                       | ADN-S-25-25-A-P-A |
|                  | 30                              | ★ 8076352                         | ADN-S-25-30-I-P-A | ★ 8092098                       | ADN-S-25-30-A-P-A |
|                  | 35                              | ★ 8076350                         | ADN-S-25-35-I-P-A | ★ 8092108                       | ADN-S-25-35-A-P-A |
|                  | 40                              | ★ 8076348                         | ADN-S-25-40-I-P-A | ★ 8092095                       | ADN-S-25-40-A-P-A |
| 45               | ★ 8076346                       | ADN-S-25-45-I-P-A                 | ★ 8092110         | ADN-S-25-45-A-P-A               |                   |
| 50               | ★ 8076344                       | ADN-S-25-50-I-P-A                 | ★ 8092101         | ADN-S-25-50-A-P-A               |                   |

Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries

| Piston ø<br>[mm] | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|------------------|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
|                  |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 25               | <b>With position sensing</b> |                                   |                       |                                 |                       |
|                  | 5                            | ★ 8142806                         | ADN-S-25-5-I-P-A-F1A  | ★ 8142826                       | ADN-S-25-5-A-P-A-F1A  |
|                  | 10                           | ★ 8142807                         | ADN-S-25-10-I-P-A-F1A | ★ 8142827                       | ADN-S-25-10-A-P-A-F1A |
|                  | 15                           | ★ 8142808                         | ADN-S-25-15-I-P-A-F1A | ★ 8142828                       | ADN-S-25-15-A-P-A-F1A |
|                  | 20                           | ★ 8142809                         | ADN-S-25-20-I-P-A-F1A | ★ 8142829                       | ADN-S-25-20-A-P-A-F1A |
|                  | 25                           | ★ 8142810                         | ADN-S-25-25-I-P-A-F1A | ★ 8142830                       | ADN-S-25-25-A-P-A-F1A |
|                  | 30                           | ★ 8142811                         | ADN-S-25-30-I-P-A-F1A | ★ 8142831                       | ADN-S-25-30-A-P-A-F1A |
|                  | 35                           | ★ 8142812                         | ADN-S-25-35-I-P-A-F1A | ★ 8142832                       | ADN-S-25-35-A-P-A-F1A |
|                  | 40                           | ★ 8142813                         | ADN-S-25-40-I-P-A-F1A | ★ 8142833                       | ADN-S-25-40-A-P-A-F1A |
|                  | 45                           | ★ 8142814                         | ADN-S-25-45-I-P-A-F1A | ★ 8142834                       | ADN-S-25-45-A-P-A-F1A |
|                  | 50                           | ★ 8142815                         | ADN-S-25-50-I-P-A-F1A | ★ 8142835                       | ADN-S-25-50-A-P-A-F1A |



## Data sheet

## ★ Core Range

| Ordering data – With elastic cushioning rings/pads at both ends |                                 |                                   |                   |                                 |                   |
|---|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|   |                                 | Part no.                          | Type              | Part no.                        | Type              |
| 32  | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|   | 5                               | ★ 8076364                         | ADN-S-32-5-I-P    | ★ 8091452                       | ADN-S-32-5-A-P    |
|   | 10                              | ★ 8076382                         | ADN-S-32-10-I-P   | ★ 8091461                       | ADN-S-32-10-A-P   |
|   | 15                              | ★ 8076380                         | ADN-S-32-15-I-P   | ★ 8091460                       | ADN-S-32-15-A-P   |
|   | 20                              | ★ 8076378                         | ADN-S-32-20-I-P   | ★ 8091453                       | ADN-S-32-20-A-P   |
|   | 25                              | ★ 8076376                         | ADN-S-32-25-I-P   | ★ 8091467                       | ADN-S-32-25-A-P   |
|   | 30                              | ★ 8076374                         | ADN-S-32-30-I-P   | ★ 8091465                       | ADN-S-32-30-A-P   |
|   | 35                              | ★ 8076372                         | ADN-S-32-35-I-P   | ★ 8091456                       | ADN-S-32-35-A-P   |
|   | 40                              | ★ 8076370                         | ADN-S-32-40-I-P   | ★ 8091450                       | ADN-S-32-40-A-P   |
|   | 45                              | ★ 8076368                         | ADN-S-32-45-I-P   | ★ 8091451                       | ADN-S-32-45-A-P   |
|   | 50                              | ★ 8076366                         | ADN-S-32-50-I-P   | ★ 8091462                       | ADN-S-32-50-A-P   |
|   | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 5                               | ★ 8076363                         | ADN-S-32-5-I-P-A  | ★ 8091464                       | ADN-S-32-5-A-P-A  |
|   | 10                              | ★ 8076381                         | ADN-S-32-10-I-P-A | ★ 8091457                       | ADN-S-32-10-A-P-A |
|   | 15                              | ★ 8076379                         | ADN-S-32-15-I-P-A | ★ 8091469                       | ADN-S-32-15-A-P-A |
|   | 20                              | ★ 8076377                         | ADN-S-32-20-I-P-A | ★ 8091468                       | ADN-S-32-20-A-P-A |
|   | 25                              | ★ 8076375                         | ADN-S-32-25-I-P-A | ★ 8091459                       | ADN-S-32-25-A-P-A |
|   | 30                              | ★ 8076373                         | ADN-S-32-30-I-P-A | ★ 8091454                       | ADN-S-32-30-A-P-A |
|   | 35                              | ★ 8076371                         | ADN-S-32-35-I-P-A | ★ 8091463                       | ADN-S-32-35-A-P-A |
|   | 40                              | ★ 8076369                         | ADN-S-32-40-I-P-A | ★ 8091455                       | ADN-S-32-40-A-P-A |
| 45  | ★ 8076367                       | ADN-S-32-45-I-P-A                 | ★ 8091466         | ADN-S-32-45-A-P-A               |                   |
| 50  | ★ 8076365                       | ADN-S-32-50-I-P-A                 | ★ 8091458         | ADN-S-32-50-A-P-A               |                   |

| Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries |                              |                                   |                       |                                 |                       |
|---|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|   |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 32  | <b>With position sensing</b> |                                   |                       |                                 |                       |
|   | 5                            | ★ 8142846                         | ADN-S-32-5-I-P-A-F1A  | ★ 8142866                       | ADN-S-32-5-A-P-A-F1A  |
|   | 10                           | ★ 8142847                         | ADN-S-32-10-I-P-A-F1A | ★ 8142867                       | ADN-S-32-10-A-P-A-F1A |
|   | 15                           | ★ 8142848                         | ADN-S-32-15-I-P-A-F1A | ★ 8142868                       | ADN-S-32-15-A-P-A-F1A |
|   | 20                           | ★ 8142849                         | ADN-S-32-20-I-P-A-F1A | ★ 8142869                       | ADN-S-32-20-A-P-A-F1A |
|   | 25                           | ★ 8142850                         | ADN-S-32-25-I-P-A-F1A | ★ 8142870                       | ADN-S-32-25-A-P-A-F1A |
|   | 30                           | ★ 8142851                         | ADN-S-32-30-I-P-A-F1A | ★ 8142871                       | ADN-S-32-30-A-P-A-F1A |
|   | 35                           | ★ 8142852                         | ADN-S-32-35-I-P-A-F1A | ★ 8142872                       | ADN-S-32-35-A-P-A-F1A |
|   | 40                           | ★ 8142853                         | ADN-S-32-40-I-P-A-F1A | ★ 8142873                       | ADN-S-32-40-A-P-A-F1A |
|   | 45                           | ★ 8142854                         | ADN-S-32-45-I-P-A-F1A | ★ 8142874                       | ADN-S-32-45-A-P-A-F1A |
|   | 50                           | ★ 8142855                         | ADN-S-32-50-I-P-A-F1A | ★ 8142875                       | ADN-S-32-50-A-P-A-F1A |

Data sheet

★ Core Range

Ordering data – With elastic cushioning rings/pads at both ends

| Piston ø<br>[mm] | Stroke<br>[mm]               | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|------------------|------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
|                  |                              | Part no.                          | Type              | Part no.                        | Type              |
| 40               | <b>With position sensing</b> |                                   |                   |                                 |                   |
|                  | 5                            | ★ 5138606                         | ADN-S-40-5-I-P-A  | ★ 8092050                       | ADN-S-40-5-A-P-A  |
|                  | 10                           | ★ 5138607                         | ADN-S-40-10-I-P-A | ★ 8092067                       | ADN-S-40-10-A-P-A |
|                  | 15                           | ★ 5138608                         | ADN-S-40-15-I-P-A | ★ 8092053                       | ADN-S-40-15-A-P-A |
|                  | 20                           | ★ 5138609                         | ADN-S-40-20-I-P-A | ★ 8092064                       | ADN-S-40-20-A-P-A |
|                  | 25                           | ★ 5138610                         | ADN-S-40-25-I-P-A | ★ 8092056                       | ADN-S-40-25-A-P-A |
|                  | 30                           | ★ 5138611                         | ADN-S-40-30-I-P-A | ★ 8092061                       | ADN-S-40-30-A-P-A |
|                  | 35                           | ★ 5138612                         | ADN-S-40-35-I-P-A | ★ 8092051                       | ADN-S-40-35-A-P-A |
|                  | 40                           | ★ 5138613                         | ADN-S-40-40-I-P-A | ★ 8092059                       | ADN-S-40-40-A-P-A |
|                  | 45                           | ★ 5138614                         | ADN-S-40-45-I-P-A | ★ 8092065                       | ADN-S-40-45-A-P-A |
|                  | 50                           | ★ 5138615                         | ADN-S-40-50-I-P-A | ★ 8092054                       | ADN-S-40-50-A-P-A |

Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries

| Piston ø<br>[mm] | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|------------------|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
|                  |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 40               | <b>With position sensing</b> |                                   |                       |                                 |                       |
|                  | 5                            | ★ 8142876                         | ADN-S-40-5-I-P-A-F1A  | ★ 8142886                       | ADN-S-40-5-A-P-A-F1A  |
|                  | 10                           | ★ 8142877                         | ADN-S-40-10-I-P-A-F1A | ★ 8142887                       | ADN-S-40-10-A-P-A-F1A |
|                  | 15                           | ★ 8142878                         | ADN-S-40-15-I-P-A-F1A | ★ 8142888                       | ADN-S-40-15-A-P-A-F1A |
|                  | 20                           | ★ 8142879                         | ADN-S-40-20-I-P-A-F1A | ★ 8142889                       | ADN-S-40-20-A-P-A-F1A |
|                  | 25                           | ★ 8142880                         | ADN-S-40-25-I-P-A-F1A | ★ 8142890                       | ADN-S-40-25-A-P-A-F1A |
|                  | 30                           | ★ 8142881                         | ADN-S-40-30-I-P-A-F1A | ★ 8142891                       | ADN-S-40-30-A-P-A-F1A |
|                  | 35                           | ★ 8142882                         | ADN-S-40-35-I-P-A-F1A | ★ 8142892                       | ADN-S-40-35-A-P-A-F1A |
|                  | 40                           | ★ 8142883                         | ADN-S-40-40-I-P-A-F1A | ★ 8142893                       | ADN-S-40-40-A-P-A-F1A |
|                  | 45                           | ★ 8142884                         | ADN-S-40-45-I-P-A-F1A | ★ 8142894                       | ADN-S-40-45-A-P-A-F1A |
|                  | 50                           | ★ 8142885                         | ADN-S-40-50-I-P-A-F1A | ★ 8142895                       | ADN-S-40-50-A-P-A-F1A |

## Data sheet

## ★ Core Range

| Ordering data – With elastic cushioning rings/pads at both ends |                              |                                   |                   |                                 |                   |
|---|------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|   |                              | Part no.                          | Type              | Part no.                        | Type              |
| 50  | <b>With position sensing</b> |                                   |                   |                                 |                   |
|   | 5                            | ★ 5138188                         | ADN-S-50-5-I-P-A  | ★ 8092081                       | ADN-S-50-5-A-P-A  |
|   | 10                           | ★ 5138189                         | ADN-S-50-10-I-P-A | ★ 8092073                       | ADN-S-50-10-A-P-A |
|   | 15                           | ★ 5138190                         | ADN-S-50-15-I-P-A | ★ 8092085                       | ADN-S-50-15-A-P-A |
|   | 20                           | ★ 5138191                         | ADN-S-50-20-I-P-A | ★ 8092076                       | ADN-S-50-20-A-P-A |
|   | 25                           | ★ 5138192                         | ADN-S-50-25-I-P-A | ★ 8092075                       | ADN-S-50-25-A-P-A |
|   | 30                           | ★ 5138193                         | ADN-S-50-30-I-P-A | ★ 8092074                       | ADN-S-50-30-A-P-A |
|   | 35                           | ★ 5138194                         | ADN-S-50-35-I-P-A | ★ 8092071                       | ADN-S-50-35-A-P-A |
|   | 40                           | ★ 5138195                         | ADN-S-50-40-I-P-A | ★ 8092087                       | ADN-S-50-40-A-P-A |
|   | 45                           | ★ 5138196                         | ADN-S-50-45-I-P-A | ★ 8092079                       | ADN-S-50-45-A-P-A |
|   | 50                           | ★ 5138197                         | ADN-S-50-50-I-P-A | ★ 8092086                       | ADN-S-50-50-A-P-A |

| Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries |                              |                                   |                       |                                 |                       |
|---|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|   |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 50  | <b>With position sensing</b> |                                   |                       |                                 |                       |
|   | 5                            | ★ 8142897                         | ADN-S-50-5-I-P-A-F1A  | ★ 8142907                       | ADN-S-50-5-A-P-A-F1A  |
|   | 10                           | ★ 8142898                         | ADN-S-50-10-I-P-A-F1A | ★ 8142908                       | ADN-S-50-10-A-P-A-F1A |
|   | 15                           | ★ 8142899                         | ADN-S-50-15-I-P-A-F1A | ★ 8142909                       | ADN-S-50-15-A-P-A-F1A |
|   | 20                           | ★ 8142900                         | ADN-S-50-20-I-P-A-F1A | ★ 8142910                       | ADN-S-50-20-A-P-A-F1A |
|   | 25                           | ★ 8142901                         | ADN-S-50-25-I-P-A-F1A | ★ 8142911                       | ADN-S-50-25-A-P-A-F1A |
|   | 30                           | ★ 8142902                         | ADN-S-50-30-I-P-A-F1A | ★ 8142912                       | ADN-S-50-30-A-P-A-F1A |
|   | 35                           | ★ 8142903                         | ADN-S-50-35-I-P-A-F1A | ★ 8142913                       | ADN-S-50-35-A-P-A-F1A |
|   | 40                           | ★ 8142904                         | ADN-S-50-40-I-P-A-F1A | ★ 8142914                       | ADN-S-50-40-A-P-A-F1A |
|   | 45                           | ★ 8142905                         | ADN-S-50-45-I-P-A-F1A | ★ 8142915                       | ADN-S-50-45-A-P-A-F1A |
|   | 50                           | ★ 8142906                         | ADN-S-50-50-I-P-A-F1A | ★ 8142916                       | ADN-S-50-50-A-P-A-F1A |

Data sheet

★ Core Range

| Ordering data – With elastic cushioning rings/pads at both ends |                              |                                   |                   |                                 |                   |
|---|------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|   |                              | Part no.                          | Type              | Part no.                        | Type              |
| 63  | <b>With position sensing</b> |                                   |                   |                                 |                   |
|   | 5                            | ★ 5132663                         | ADN-S-63-5-I-P-A  | ★ 8092130                       | ADN-S-63-5-A-P-A  |
|   | 10                           | ★ 5132664                         | ADN-S-63-10-I-P-A | ★ 8092128                       | ADN-S-63-10-A-P-A |
|   | 15                           | ★ 5132665                         | ADN-S-63-15-I-P-A | ★ 8092135                       | ADN-S-63-15-A-P-A |
|   | 20                           | ★ 5132666                         | ADN-S-63-20-I-P-A | ★ 8092120                       | ADN-S-63-20-A-P-A |
|   | 25                           | ★ 5132667                         | ADN-S-63-25-I-P-A | ★ 8092121                       | ADN-S-63-25-A-P-A |
|   | 30                           | ★ 5132668                         | ADN-S-63-30-I-P-A | ★ 8092125                       | ADN-S-63-30-A-P-A |
|   | 35                           | ★ 5132669                         | ADN-S-63-35-I-P-A | ★ 8092133                       | ADN-S-63-35-A-P-A |
|   | 40                           | ★ 5132670                         | ADN-S-63-40-I-P-A | ★ 8092134                       | ADN-S-63-40-A-P-A |
|   | 45                           | ★ 5132671                         | ADN-S-63-45-I-P-A | ★ 8092138                       | ADN-S-63-45-A-P-A |
|   | 50                           | ★ 5132672                         | ADN-S-63-50-I-P-A | ★ 8092119                       | ADN-S-63-50-A-P-A |

| Ordering data – With elastic cushioning rings/pads at both ends and recommended for production plants for manufacturing lithium-ion batteries |                              |                                   |                       |                                 |                       |
|---|------------------------------|-----------------------------------|-----------------------|---------------------------------|-----------------------|
| Piston ø<br>[mm]  | Stroke<br>[mm]               | I – Piston rod with female thread |                       | A – Piston rod with male thread |                       |
|   |                              | Part no.                          | Type                  | Part no.                        | Type                  |
| 63  | <b>With position sensing</b> |                                   |                       |                                 |                       |
|   | 5                            | ★ 8142917                         | ADN-S-63-5-I-P-A-F1A  | ★ 8142927                       | ADN-S-63-5-A-P-A-F1A  |
|   | 10                           | ★ 8142918                         | ADN-S-63-10-I-P-A-F1A | ★ 8142928                       | ADN-S-63-10-A-P-A-F1A |
|   | 15                           | ★ 8142919                         | ADN-S-63-15-I-P-A-F1A | ★ 8142929                       | ADN-S-63-15-A-P-A-F1A |
|   | 20                           | ★ 8142920                         | ADN-S-63-20-I-P-A-F1A | ★ 8142930                       | ADN-S-63-20-A-P-A-F1A |
|   | 25                           | ★ 8142921                         | ADN-S-63-25-I-P-A-F1A | ★ 8142931                       | ADN-S-63-25-A-P-A-F1A |
|   | 30                           | ★ 8142922                         | ADN-S-63-30-I-P-A-F1A | ★ 8142932                       | ADN-S-63-30-A-P-A-F1A |
|   | 35                           | ★ 8142923                         | ADN-S-63-35-I-P-A-F1A | ★ 8142933                       | ADN-S-63-35-A-P-A-F1A |
|   | 40                           | ★ 8142924                         | ADN-S-63-40-I-P-A-F1A | ★ 8142934                       | ADN-S-63-40-A-P-A-F1A |
|   | 45                           | ★ 8142925                         | ADN-S-63-45-I-P-A-F1A | ★ 8142935                       | ADN-S-63-45-A-P-A-F1A |
|   | 50                           | ★ 8142926                         | ADN-S-63-50-I-P-A-F1A | ★ 8142936                       | ADN-S-63-50-A-P-A-F1A |

## Data sheet

| Ordering data – Without cushioning |                                 |                                   |                 |                                 |                 |
|------------------------------------|---------------------------------|-----------------------------------|-----------------|---------------------------------|-----------------|
| Piston Ø<br>[mm]                   | Stroke<br>[mm]                  | I – Piston rod with female thread |                 | A – Piston rod with male thread |                 |
|                                    |                                 | Part no.                          | Type            | Part no.                        | Type            |
| 6                                  | <b>Without position sensing</b> |                                   |                 |                                 |                 |
|                                    | 5                               | 4886885                           | ADN-S-6-5-I     | 8080598                         | ADN-S-6-5-A     |
|                                    | 10                              | 4886886                           | ADN-S-6-10-I    | 8080596                         | ADN-S-6-10-A    |
|                                    | <b>With position sensing</b>    |                                   |                 |                                 |                 |
|                                    | 5                               | 5173732                           | ADN-S-6-5-I-A   | 8080597                         | ADN-S-6-5-A-A   |
|                                    | 10                              | 5173733                           | ADN-S-6-10-I-A  | 8080595                         | ADN-S-6-10-A-A  |
| 10                                 | <b>Without position sensing</b> |                                   |                 |                                 |                 |
|                                    | 5                               | 4887523                           | ADN-S-10-5-I    | 8080589                         | ADN-S-10-5-A    |
|                                    | 10                              | 4887524                           | ADN-S-10-10-I   | 8080588                         | ADN-S-10-10-A   |
|                                    | <b>With position sensing</b>    |                                   |                 |                                 |                 |
|                                    | 5                               | 5177082                           | ADN-S-10-5-I-A  | 8080587                         | ADN-S-10-5-A-A  |
|                                    | 10                              | 5177085                           | ADN-S-10-10-I-A | 8080590                         | ADN-S-10-10-A-A |

| Ordering data – Without cushioning and recommended for production plants for manufacturing lithium-ion batteries |                                 |                                   |                     |                                 |                     |
|--|---------------------------------|-----------------------------------|---------------------|---------------------------------|---------------------|
| Piston Ø<br>[mm]   | Stroke<br>[mm]                  | I – Piston rod with female thread |                     | A – Piston rod with male thread |                     |
|  |                                 | Part no.                          | Type                | Part no.                        | Type                |
| 6  | <b>Without position sensing</b> |                                   |                     |                                 |                     |
|  | 5                               | 8142509                           | ADN-S-6-5-I-F1A     | 8142513                         | ADN-S-6-5-A-F1A     |
|  | 10                              | 8142510                           | ADN-S-6-10-I-F1A    | 8142514                         | ADN-S-6-10-A-F1A    |
|  | <b>With position sensing</b>    |                                   |                     |                                 |                     |
|  | 5                               | 8142511                           | ADN-S-6-5-I-A-F1A   | 8142515                         | ADN-S-6-5-A-A-F1A   |
|  | 10                              | 8142512                           | ADN-S-6-10-I-A-F1A  | 8142516                         | ADN-S-6-10-A-A-F1A  |
| 10   | <b>Without position sensing</b> |                                   |                     |                                 |                     |
|  | 5                               | 8142518                           | ADN-S-10-5-I-F1A    | 8142522                         | ADN-S-10-5-A-F1A    |
|  | 10                              | 8142519                           | ADN-S-10-10-I-F1A   | 8142523                         | ADN-S-10-10-A-F1A   |
|  | <b>With position sensing</b>    |                                   |                     |                                 |                     |
|  | 5                               | 8142520                           | ADN-S-10-5-I-A-F1A  | 8142517                         | ADN-S-10-5-A-A-F1A  |
|  | 10                              | 8142521                           | ADN-S-10-10-I-A-F1A | 8142524                         | ADN-S-10-10-A-A-F1A |

Type codes

| 001          | Series                          |
|--------------|---------------------------------|
| <b>AEN-S</b> | Compact cylinder, single-acting |

| 002      | Design type |
|----------|-------------|
| <b>S</b> | Short       |

| 003       | Piston diameter |
|-----------|-----------------|
| <b>6</b>  | 6               |
| <b>10</b> | 10              |
| <b>12</b> | 12              |
| <b>16</b> | 16              |
| <b>20</b> | 20              |
| <b>25</b> | 25              |
| <b>32</b> | 32              |
| <b>40</b> | 40              |
| <b>50</b> | 50              |
| <b>63</b> | 63              |

| 004       | Stroke |
|-----------|--------|
| <b>5</b>  | 5      |
| <b>10</b> | 10     |
| <b>25</b> | 25     |

| 005      | Piston rod thread type |
|----------|------------------------|
| <b>A</b> | Male thread            |
| <b>I</b> | Female thread          |

| 006      | Cushioning                                    |
|----------|---|
| <b>P</b> | Elastic cushioning rings/plates on both sides |

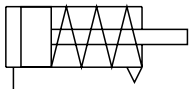
  

| 007      | Position sensing     |
|----------|----------------------|
|          | None                 |
| <b>A</b> | For proximity sensor |

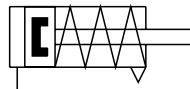
## Data sheet

## Function

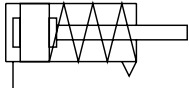
AEN-S



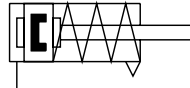
AEN-S-...-A



AEN-S-...-P



AEN-S-...-P-A



⌀ - Diameter  
6 ... 63 mm

l - Stroke length  
5 ... 25 mm

## General technical data

| Piston ⌀             | 6                    | 10 | 12 | 16 | 20   | 25 | 32 | 40 | 50     | 63 |  |
|----------------------|----------------------|----|----|----|--|----|----|----|--------|----|--|
| Design               | Piston               |    |    |    |  |    |    |    |        |    |  |
|                      | Piston rod           |    |    |    |  |    |    |    |        |    |  |
| Mode of operation    | Single-acting        |    |    |    |  |    |    |    |        |    |  |
|                      | Pushing              |    |    |    |  |    |    |    |        |    |  |
| Piston rod end       | Male thread          |    |    |    |  |    |    |    |        |    |  |
|                      | Female thread        |    |    |    |  |    |    |    |        |    |  |
| Pneumatic connection | M3                   |    |    |    | M5   |    |    |    | G1/8   |    |  |
| Stroke [mm]          | 5, 10                |    |    |    | 5, 10, 25                                  |    |    |    | 10, 25 |    |  |
| Cushioning           | -                    |    |    |    | Elastic cushioning rings/pads at both ends |    |    |    |        |    |  |
| Position sensing     | Via proximity switch |    |    |    |  |    |    |    |        |    |  |
| Type of mounting     | With through-hole    |    |    |    |  |    |    |    |        |    |  |
|                      | -                    |    |    |    | With female thread                         |    |    |    |        |    |  |
|                      | -                    |    |    |    | With accessories                           |    |    |    |        |    |  |
| Mounting position    | Any                  |    |    |    |  |    |    |    |        |    |  |

## Operating and environmental conditions

| Piston ⌀                                     | 6  | 10              | 12              | 16         | 20 | 25        | 32 | 40 | 50 | 63 |
|--|--|-----------------|-----------------|------------|----|-----------|----|----|----|----|
| Operating pressure <sup>1)</sup>             |  |                 |                 |            |    |           |    |    |    |    |
|  | [MPa]  | 0.25 ...<br>0.8 | 0.15 ...<br>0.8 | 0.15 ... 1 |    | 0.1 ... 1 |    |    |    |    |
|  | [bar]  | 2.5 ... 8       | 1.5 ... 8       | 1.5 ... 10 |    | 1 ... 10  |    |    |    |    |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |                 |                 |            |    |           |    |    |    |    |
| Information on the operating medium          | Lubricated operation possible (in which case lubricated operation will always be required) |                 |                 |            |    |           |    |    |    |    |
| Ambient temperature <sup>2)</sup> [°C]       | -10 ... +60  |                 |                 | 0 ... +60  |    |           |    |    |    |    |
| Corrosion resistance class CRC <sup>3)</sup> | 2  |                 |                 |            |    |           |    |    |    |    |

1) The minimum pressure values in the retracting direction may be slightly higher after an extended idle time.

2) Note operating range of proximity switches.

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

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Data sheet

| <b>Forces [N] and impact energy [J]</b>          |   |       |       |       |       |      |      |     |      |      |
|--|---|-------|-------|-------|-------|------|------|-----|------|------|
| Piston ø   | 6   | 10    | 12    | 16    | 20    | 25   | 32   | 40  | 50   | 63   |
| Theoretical force at 0.6 MPa (6 bar), advancing  | 13  | 42    | 60    | 95    | 162   | 259  | 439  | 700 | 1106 | 1780 |
| Theoretical force at 0.6 MPa (6 bar), retracting | See "Theoretical spring force for retraction" |       |       |       |       |      |      |     |      |      |
| Impact energy in the end positions               |   |       |       |       |       |      |      |     |      |      |
| AEN-S  | 0.006   | 0.012 | 0.022 | 0.038 | 0.055 | 0.09 | 0.18 | –   |      |      |
| AEN-S-...A                                       | 0.006   | 0.012 | 0.022 | 0.038 | 0.055 | 0.3  | 0.4  | 0.7 | 1    | 1.3  |

| <b>Weights [g]</b> |                        |                       |
|--------------------|------------------------|-----------------------|
| Piston ø           | 6                      | 10                    |
| Product weight     |                        |                       |
| with 5 mm stroke   | 9.2/10.9 <sup>1)</sup> | 12.2/17 <sup>1)</sup> |
| with 10 mm stroke  | 11.9/15 <sup>1)</sup>  | 15.4/19 <sup>1)</sup> |
| Moving mass        |                        |                       |
| with 5 mm stroke   | 1.5/1.6 <sup>1)</sup>  | 4.1/4.5 <sup>1)</sup> |
| with 10 mm stroke  | 2.3/2.4 <sup>1)</sup>  | 5.3/5.7 <sup>1)</sup> |

1) With position sensing

| <b>Weights [g]</b>                 |                     |                       |                     |                     |                       |                   |                   |                   |
|------------------------------------|---------------------|-----------------------|---------------------|---------------------|-----------------------|-------------------|-------------------|-------------------|
| Piston ø                           | 12                  | 16                    | 20                  | 25                  | 32                    | 40                | 50                | 63                |
| Product weight with 0 mm stroke    | 26/33 <sup>1)</sup> | 32.5/42 <sup>1)</sup> | 51/65 <sup>1)</sup> | 70/88 <sup>1)</sup> | 107/117 <sup>1)</sup> | 304 <sup>1)</sup> | 324 <sup>1)</sup> | 499 <sup>1)</sup> |
| Additional weight per 10 mm stroke | 15/15 <sup>1)</sup> | 18/18 <sup>1)</sup>   | 26/26 <sup>1)</sup> | 30/30 <sup>1)</sup> | 36/36 <sup>1)</sup>   | 45 <sup>1)</sup>  | 63 <sup>1)</sup>  | 77 <sup>1)</sup>  |
| Moving mass with 0 mm stroke       | 3.5/6 <sup>1)</sup> | 6/11 <sup>1)</sup>    | 11/18 <sup>1)</sup> | 17/25 <sup>1)</sup> | 31/37 <sup>1)</sup>   | 62 <sup>1)</sup>  | 104 <sup>1)</sup> | 151 <sup>1)</sup> |
| Additional mass per 10 mm stroke   | 2/2 <sup>1)</sup>   | 4/4 <sup>1)</sup>     | 6/6 <sup>1)</sup>   | 6/6 <sup>1)</sup>   | 9/9 <sup>1)</sup>     | 9 <sup>1)</sup>   | 16 <sup>1)</sup>  | 16 <sup>1)</sup>  |

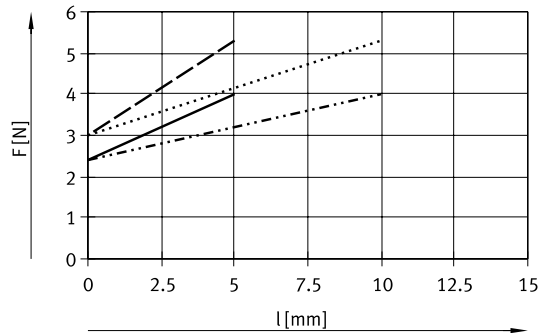
1) With position sensing



## Data sheet

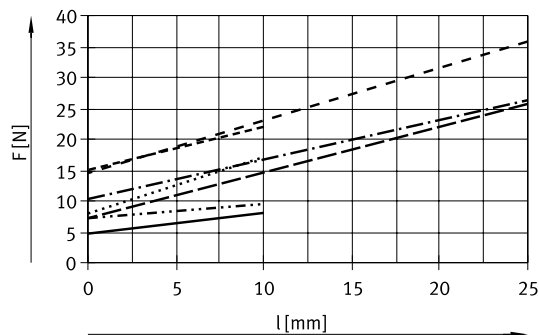
### Theoretical spring force for retraction

∅ 6 ... 10



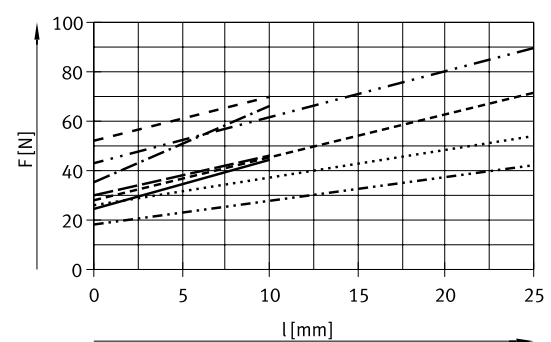
— AEN-S-6-5  
 ..... AEN-S-6-10  
 - - - AEN-S-10-5  
 - · - · - AEN-S-10-10

∅ 12 ... 25



— AEN-S-12-5/10  
 ..... AEN-S-16-5/10  
 - - - AEN-S-16-25  
 - · - · - AEN-S-20-5/10  
 - · - · - AEN-S-20-25  
 - - - AEN-S-25-5/10  
 - - - AEN-S-25-25

∅ 32 ... 63



— AEN-S-32-5/10  
 ..... AEN-S-32-25  
 - - - AEN-S-40-5/10  
 - · - · - AEN-S-40-25  
 - · - · - AEN-S-50-10  
 - - - AEN-S-50-25  
 - - - AEN-S-63-10  
 - · - · - AEN-S-63-25

### Note

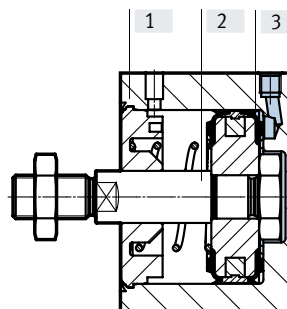
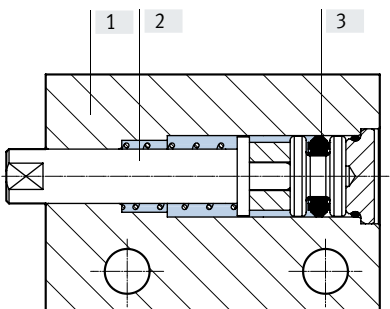
The degree of friction depends on the mounting position and the type of load involved. Single-acting cylinders should as far as possible be operated without transverse loads.

### Materials

Sectional view

∅ 6 ... 10

∅ 12 ... 63



### Compact cylinders

|     |                   |                                  |
|-----|-------------------|----------------------------------|
| [1] | Housing           | Anodised wrought aluminium alloy |
| [2] | Piston rod        | High-alloy stainless steel       |
| [3] | Seals             | NBR, TPE-U(PU)                   |
| -   | Note on materials | RoHS-compliant                   |
| -   | PWIS conformity   | VDMA24364-B2-L                   |

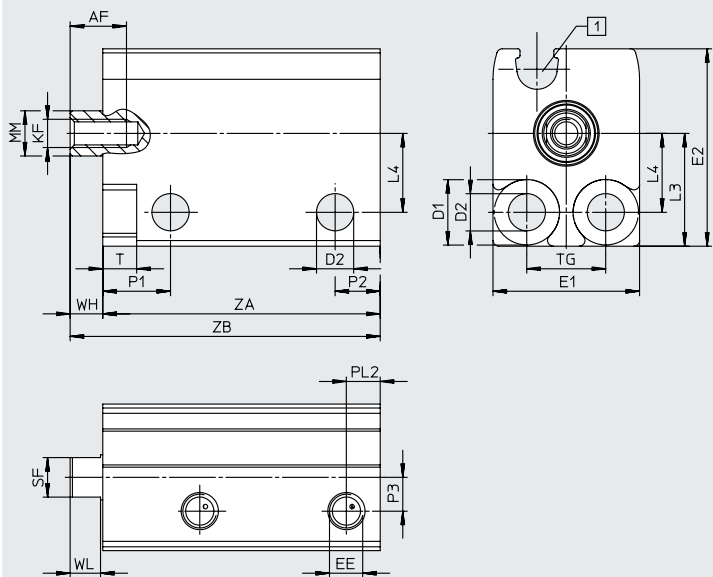
Data sheet

Dimensions

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

∅ 6 ... 10

With female thread



[1] C-slot for proximity switch

| ∅<br>[mm] | AF<br>min. | D1<br>∅<br>H13 | D2<br>∅ | EE | E1<br>max. | E2<br>max. | KF   | L3 | L4 | MM<br>∅ |
|-----------|------------|----------------|---------|----|------------|------------|------|----|----|---------|
| 6         | 5          | 5.8            | 3.3     | M3 | 13         | 17.5       | M2.5 | 10 | 7  | 4       |
| 10        | 6          |                |         |    | 13.5       | 20.5       | M3   | 11 | 8  | 6       |

| ∅<br>[mm] | P1 | P2 | P3  | PL2 | SF  | T | TG<br>±0.1 | WH | WL  |
|-----------|----|----|-----|-----|-----|---|------------|----|-----|
| 6         | 6  | 4  | 3   | 3   | 3.5 | 3 | 7          | 3  | 2.7 |
| 10        |    |    | 3.2 |     | 5   |   |            |    |     |

| ∅<br>[mm] | Stroke<br>[mm] | Position<br>sensing | ZA<br>+0.3 | ZB<br>±0.35 |
|-----------|----------------|---------------------|------------|-------------|
| 6         | 5              | —                   | 20.5       | 23.5        |
|           |                | ■                   | 24.5       | 27.5        |
|           | 10             | —                   | 25.5       | 28.5        |
|           |                | ■                   | 29.5       | 32.5        |
| 10        | 5              | —                   | 20.5       | 23.5        |
|           |                | ■                   | 24.5       | 27.5        |
|           | 10             | —                   | 25.5       | 28.5        |
|           |                | ■                   | 29.5       | 32.5        |

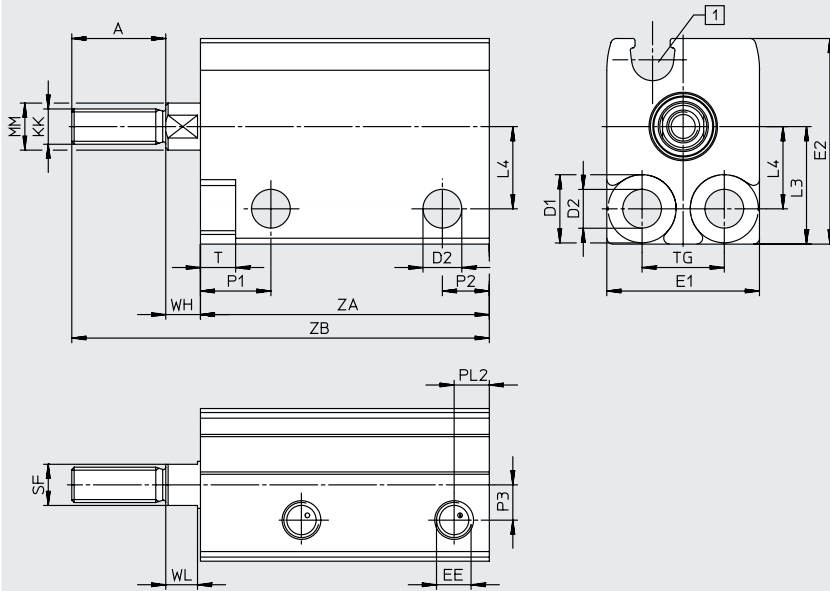
Data sheet

Dimensions

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∅ 6 ... 10

With male thread



[1] C-slot for proximity switch

| ∅  | A  | D1<br>∅<br>H13 | D2<br>∅ | EE | E1   | E2   | KK | L3 | L4 | MM<br>∅ |
|----|----|----------------|---------|----|------|------|----|----|----|---------|
| 6  | 8  | 5.8            | 3.3     | M3 | max. | max. | M3 | 10 | 7  | 4       |
| 10 | 10 |                |         |    | 13   | 17.5 |    |    |    |         |

| ∅  | P1 | P2 | P3  | PL2 | SF  | T | TG | WH | WL  |
|----|----|----|-----|-----|-----|---|----|----|-----|
| 6  | 6  | 4  | 3   | 3   | 3.5 | 3 | 7  | 3  | 2.7 |
| 10 |    |    | 3.2 |     | 5   |   |    |    |     |

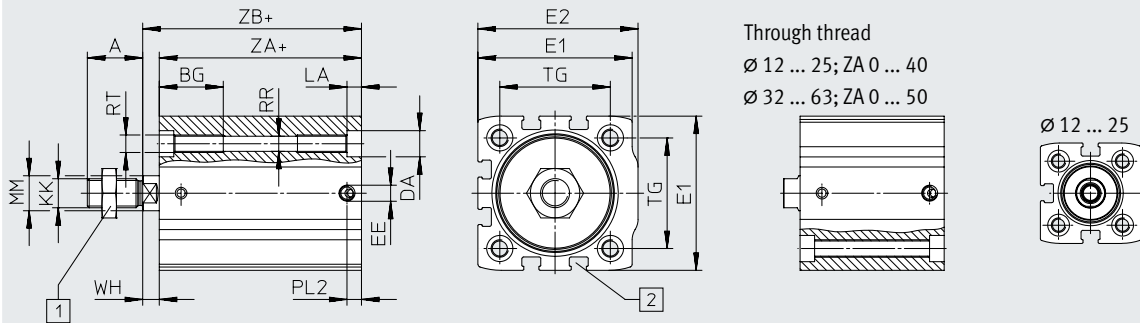
| ∅  | Stroke<br>[mm] | Position<br>sensing | ZA<br>+0.3 | ZB<br>±0.35 |
|----|----------------|---------------------|------------|-------------|
| 6  | 5              | —                   | 20.5       | 31.5        |
|    |                | ■                   | 24.5       | 35.5        |
|    | 10             | —                   | 25.5       | 36.5        |
|    |                | ■                   | 29.5       | 40.5        |
| 10 | 5              | —                   | 20.5       | 33.5        |
|    |                | ■                   | 24.5       | 37.5        |
|    | 10             | —                   | 25.5       | 38.5        |
|    |                | ■                   | 29.5       | 42.5        |

Data sheet

Dimensions

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∅ 12 ... 63



\* = plus stroke length

[1] Hex nut DIN 439-B only from ∅ 32 upwards

[2] T-slot for proximity switch

| ∅    | A    | BG   | DA<br>∅ | E1        | E2        | EE   | KK       |
|------|------|------|---------|-----------|-----------|------|----------|
| [mm] | -0.5 | min. | F9      |           |           |      |          |
| 12   | 10   | 19   | 6       | 27±0.15   | 27.5±0.15 | M5   | M5       |
| 16   | 12   | 19   | 6       | 29±0.15   | 30±0.15   | M5   | M6       |
| 20   | 16   | 20   | 7.5     | 34.5±0.15 | 35.5±0.15 | M5   | M8       |
| 25   | 16   | 20   | 7.5     | 38.5±0.15 | 39.5±0.15 | M5   | M8       |
| 32   | 19   | 22   | 9       | 45±0.15   | 47±0.15   | M5   | M10x1.25 |
| 40   | 19   | 22   | 9       | 53±0.15   | 55±0.15   | M5   | M10x1.25 |
| 50   | 22   | 23   | 11      | 63±0.2    | 66±0.2    | G1/8 | M12x1.25 |
| 63   | 22   | 23   | 11      | 75±0.2    | 78.5±0.2  | G1/8 | M12x1.25 |

| ∅    | LA   | MM<br>∅ | PL2 | RR<br>∅ | RT | TG   | WH  |
|------|------|---------|-----|---------|----|------|-----|
| [mm] | ±0.1 | h8      |     |         |    |      | +1  |
| 12   | 3.5  | 6       | 5   | 3.5     | M4 | 16   | 2.5 |
| 16   | 3.5  | 8       | 5   | 3.5     | M4 | 18   | 3   |
| 20   | 5    | 10      | 5   | 4.2     | M5 | 22   | 3   |
| 25   | 5    | 10      | 5   | 4.2     | M5 | 26   | 3.5 |
| 32   | 5    | 12      | 5   | 5.2     | M6 | 32.5 | 4   |
| 40   | 5    | 12      | 5   | 5.2     | M6 | 38   | 5   |
| 50   | 5    | 16      | 7.5 | 6.8     | M8 | 46.5 | 7   |
| 63   | 5    | 16      | 8   | 6.8     | M8 | 56.5 | 7   |

## Data sheet

| For ø<br>[mm] | Stroke<br>[mm] | Position<br>sensing | ZA   | ZB   |      |
|---------------|----------------|---------------------|------|------|------|
|               |                |                     | +0.2 | +1.2 |      |
| 12            | 5              | –                   | 20.5 | 23   |      |
|               |                | ■                   | 24.5 | 27   |      |
|               | 10             | –                   | 25.5 | 28   |      |
|               |                | ■                   | 29.5 | 32   |      |
|               | 16             | 5                   | –    | 21   | 24   |
|               |                |                     | ■    | 25.5 | 28.5 |
| 10            |                | –                   | 26   | 29   |      |
|               |                | ■                   | 30.5 | 33.5 |      |
| 25            |                | –                   | 43   | 46   |      |
|               |                | ■                   | 48.5 | 51.5 |      |
| 20            | 5              | –                   | 22.5 | 25.5 |      |
|               |                | ■                   | 27   | 30   |      |
|               | 10             | –                   | 27.5 | 30.5 |      |
|               |                | ■                   | 32   | 35   |      |
|               | 25             | –                   | 45.5 | 48.5 |      |
|               |                | ■                   | 50   | 53   |      |
| 25            | 5              | –                   | 24   | 27.5 |      |
|               |                | ■                   | 28.5 | 32   |      |
|               | 10             | –                   | 29   | 32.5 |      |
|               |                | ■                   | 33.5 | 37   |      |
|               | 25             | –                   | 47   | 50.5 |      |
|               |                | ■                   | 51.5 | 55   |      |
| 32            | 5              | –                   | 26.5 | 30.5 |      |
|               |                | ■                   | 30   | 34   |      |
|               | 10             | –                   | 31.5 | 35.5 |      |
|               |                | ■                   | 35   | 39   |      |
|               | 25             | –                   | 49.5 | 53.5 |      |
|               |                | ■                   | 53   | 57   |      |
| 40            | 5              | –                   | 31   | 36   |      |
|               |                | ■                   | 34.5 | 39.5 |      |
|               | 10             | –                   | 36   | 41   |      |
|               |                | ■                   | 39.5 | 44.5 |      |
|               | 25             | –                   | 54   | 59   |      |
|               |                | ■                   | 57.5 | 62.5 |      |
| 50            | 10             | –                   | 39   | 46   |      |
|               |                | ■                   | 42   | 49   |      |
|               | 25             | –                   | 56.5 | 63.5 |      |
|               |                | ■                   | 60   | 67   |      |
| 63            | 10             | –                   | 42   | 49   |      |
|               |                | ■                   | 45   | 52   |      |
|               | 25             | –                   | 59.5 | 66.5 |      |
|               |                | ■                   | 62.5 | 69.5 |      |

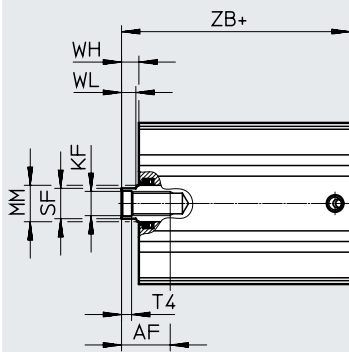
Data sheet

Dimensions

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∅ 12 ... 63

With female thread



\* = plus stroke length

| ∅    | AF   | KF  | MM | SF  | T4  | WH  | WL    |
|------|------|-----|----|-----|-----|-----|-------|
| [mm] | min. |     | ∅  |     |     |     |       |
|      |      |     | h8 | h13 |     | +1  | -0.15 |
| 12   | 8    | M3  | 6  | 5   | 1.5 | 2.5 | 2.7   |
| 16   | 10   | M4  | 8  | 7   | 1.5 | 3   | 3.5   |
| 20   | 11   | M6  | 10 | 9   | 2.6 | 3   | 4     |
| 25   | 11   | M6  | 10 | 9   | 2.6 | 3.5 | 4.2   |
| 32   | 12   | M8  | 12 | 10  | 3.3 | 4   | 4.7   |
| 40   | 16   | M8  | 12 | 10  | 3.3 | 5   | 4.7   |
| 50   | 16   | M10 | 16 | 13  | 4.7 | 7   | 6.5   |
| 63   | 20   | M10 | 16 | 13  | 4.7 | 7   | 6.5   |

## Data sheet

| For ø<br>[mm] | Stroke<br>[mm] | Position<br>sensing | ZB   |
|---------------|----------------|---------------------|------|
|               |                |                     | +1.2 |
| 12            | 5              | –                   | 23   |
|               |                | ■                   | 27   |
|               | 10             | –                   | 28   |
|               |                | ■                   | 32   |
| 16            | 5              | –                   | 24   |
|               |                | ■                   | 28.5 |
|               | 10             | –                   | 29   |
|               |                | ■                   | 33.5 |
|               | 25             | –                   | 46   |
|               |                | ■                   | 51.5 |
| 20            | 5              | –                   | 25.5 |
|               |                | ■                   | 30   |
|               | 10             | –                   | 30.5 |
|               |                | ■                   | 35   |
|               | 25             | –                   | 48.5 |
|               |                | ■                   | 53   |
| 25            | 5              | –                   | 27.5 |
|               |                | ■                   | 32   |
|               | 10             | –                   | 32.5 |
|               |                | ■                   | 37   |
|               | 25             | –                   | 50.5 |
|               |                | ■                   | 55   |
| 32            | 5              | –                   | 30.5 |
|               |                | ■                   | 34   |
|               | 10             | –                   | 35.5 |
|               |                | ■                   | 39   |
|               | 25             | –                   | 53.5 |
|               |                | ■                   | 57   |
| 40            | 5              | –                   | 36   |
|               |                | ■                   | 39.5 |
|               | 10             | –                   | 41   |
|               |                | ■                   | 44.5 |
|               | 25             | –                   | 59   |
|               |                | ■                   | 62.5 |
| 50            | 10             | –                   | 46   |
|               |                | ■                   | 49   |
|               | 25             | –                   | 63.5 |
|               |                | ■                   | 67   |
| 63            | 10             | –                   | 49   |
|               |                | ■                   | 52   |
|               | 25             | –                   | 66.5 |
|               |                | ■                   | 69.5 |

Data sheet

| Ordering data – Without cushioning                                     |                                 |                                   |                   |                                 |                   |
|--|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston ø<br>[mm]   | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|  |                                 | Part no.                          | Typee             | Part no.                        | Typee             |
| 6  | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 4984929                           | AEN-S-6-5-I       | 8080593                         | AEN-S-6-5-A       |
|  | 10                              | 4984930                           | AEN-S-6-10-I      | 8080594                         | AEN-S-6-10-A      |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 5267300                           | AEN-S-6-5-I-A     | 8080591                         | AEN-S-6-5-A-A     |
|  | 10                              | 5267301                           | AEN-S-6-10-I-A    | 8080592                         | AEN-S-6-10-A-A    |
| 10   | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 4891759                           | AEN-S-10-5-I      | 8080583                         | AEN-S-10-5-A      |
|  | 10                              | 4891760                           | AEN-S-10-10-I     | 8080586                         | AEN-S-10-10-A     |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 5269268                           | AEN-S-10-5-I-A    | 8080584                         | AEN-S-10-5-A-A    |
|  | 10                              | 5269269                           | AEN-S-10-10-I-A   | 8080585                         | AEN-S-10-10-A-A   |
| <b>Ordering data – With elastic cushioning rings/pads at both ends</b> |                                 |                                   |                   |                                 |                   |
| Piston ø<br>[mm]   | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|  |                                 | Part no.                          | Typee             | Part no.                        | Typee             |
| 12   | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 8076479                           | AEN-S-12-5-I-P    | 8092150                         | AEN-S-12-5-A-P    |
|  | 10                              | 8076476                           | AEN-S-12-10-I-P   | 8092149                         | AEN-S-12-10-A-P   |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 8076475                           | AEN-S-12-5-I-P-A  | 8092152                         | AEN-S-12-5-A-P-A  |
|  | 10                              | 8076477                           | AEN-S-12-10-I-P-A | 8092151                         | AEN-S-12-10-A-P-A |
| 16   | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 8076496                           | AEN-S-16-5-I-P    | 8092144                         | AEN-S-16-5-A-P    |
|  | 10                              | 8076492                           | AEN-S-16-10-I-P   | 8092143                         | AEN-S-16-10-A-P   |
|  | 25                              | 8076497                           | AEN-S-16-25-I-P   | 8092140                         | AEN-S-16-25-A-P   |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 8076495                           | AEN-S-16-5-I-P-A  | 8092142                         | AEN-S-16-5-A-P-A  |
| 10   | 8076493                         | AEN-S-16-10-I-P-A                 | 8092139           | AEN-S-16-10-A-P-A               |                   |
| 25   | 8076494                         | AEN-S-16-25-I-P-A                 | 8092141           | AEN-S-16-25-A-P-A               |                   |
| 20   | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 8076501                           | AEN-S-20-5-I-P    | 8092220                         | AEN-S-20-5-A-P    |
|  | 10                              | 8076499                           | AEN-S-20-10-I-P   | 8092219                         | AEN-S-20-10-A-P   |
|  | 25                              | 8076503                           | AEN-S-20-25-I-P   | 8092224                         | AEN-S-20-25-A-P   |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 8076502                           | AEN-S-20-5-I-P-A  | 8092222                         | AEN-S-20-5-A-P-A  |
| 10   | 8076498                         | AEN-S-20-10-I-P-A                 | 8092221           | AEN-S-20-10-A-P-A               |                   |
| 25   | 8076500                         | AEN-S-20-25-I-P-A                 | 8092223           | AEN-S-20-25-A-P-A               |                   |
| 25   | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|  | 5                               | 8076509                           | AEN-S-25-5-I-P    | 8092182                         | AEN-S-25-5-A-P    |
|  | 10                              | 8076507                           | AEN-S-25-10-I-P   | 8092179                         | AEN-S-25-10-A-P   |
|  | 25                              | 8076504                           | AEN-S-25-25-I-P   | 8092180                         | AEN-S-25-25-A-P   |
|  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|  | 5                               | 8076506                           | AEN-S-25-5-I-P-A  | 8092177                         | AEN-S-25-5-A-P-A  |
| 10   | 8076505                         | AEN-S-25-10-I-P-A                 | 8092178           | AEN-S-25-10-A-P-A               |                   |
| 25   | 8076508                         | AEN-S-25-25-I-P-A                 | 8092181           | AEN-S-25-25-A-P-A               |                   |



## Data sheet/accessories

| Ordering data – With elastic cushioning rings/pads at both ends |                                 |                                   |                   |                                 |                   |
|---|---------------------------------|-----------------------------------|-------------------|---------------------------------|-------------------|
| Piston $\varnothing$<br>[mm]                                    | Stroke<br>[mm]                  | I – Piston rod with female thread |                   | A – Piston rod with male thread |                   |
|   |                                 | Part no.                          | Typee             | Part no.                        | Typee             |
| 32  | <b>Without position sensing</b> |                                   |                   |                                 |                   |
|   | 5                               | 8076512                           | AEN-S-32-5-I-P    | 8092167                         | AEN-S-32-5-A-P    |
|   | 10                              | 8076510                           | AEN-S-32-10-I-P   | 8092164                         | AEN-S-32-10-A-P   |
|   | 25                              | 8076514                           | AEN-S-32-25-I-P   | 8092163                         | AEN-S-32-25-A-P   |
|   | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 5                               | 8076511                           | AEN-S-32-5-I-P-A  | 8092165                         | AEN-S-32-5-A-P-A  |
| 10  | 8076515                         | AEN-S-32-10-I-P-A                 | 8092166           | AEN-S-32-10-A-P-A               |                   |
| 25  | 8076513                         | AEN-S-32-25-I-P-A                 | 8092168           | AEN-S-32-25-A-P-A               |                   |
| 40  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 5                               | 5149290                           | AEN-S-40-5-I-P-A  | 8092162                         | AEN-S-40-5-A-P-A  |
|   | 10                              | 5149291                           | AEN-S-40-10-I-P-A | 8092161                         | AEN-S-40-10-A-P-A |
|   | 25                              | 5149292                           | AEN-S-40-25-I-P-A | 8092160                         | AEN-S-40-25-A-P-A |
| 50  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 10                              | 5137803                           | AEN-S-50-10-I-P-A | 8092153                         | AEN-S-50-10-A-P-A |
|   | 25                              | 5137804                           | AEN-S-50-25-I-P-A | 8092154                         | AEN-S-50-25-A-P-A |
| 63  | <b>With position sensing</b>    |                                   |                   |                                 |                   |
|   | 10                              | 5132651                           | AEN-S-63-10-I-P-A | 8092148                         | AEN-S-63-10-A-P-A |
|   | 25                              | 5132652                           | AEN-S-63-25-I-P-A | 8092146                         | AEN-S-63-25-A-P-A |

## Accessories

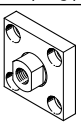
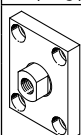
## Ordering data – Piston rod attachments

Data sheets → Internet: piston rod attachment

| Designation   | For $\varnothing$ | Part no. | Typee       |
|---|-------------------|----------|-------------|
| <b>Self-aligning rod coupler FK</b>   |                   |          |             |
|  | 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 |

## Ordering data – Piston rod attachments

Data sheets → Internet: piston rod attachment

| Designation   | For $\varnothing$ | Part no. | Typee        |
|---|-------------------|----------|--------------|
| <b>Coupling piece KSG</b>   |                   |          |              |
|  | 32, 40            | 32963    | KSG-M10x1.25 |
|   | 50, 63            | 32964    | KSG-M12x1.25 |
| <b>Coupling piece KSZ</b>   |                   |          |              |
|  | 32, 40            | 36125    | KSZ-M10x1.25 |
|   | 50, 63            | 36126    | KSZ-M12x1.25 |

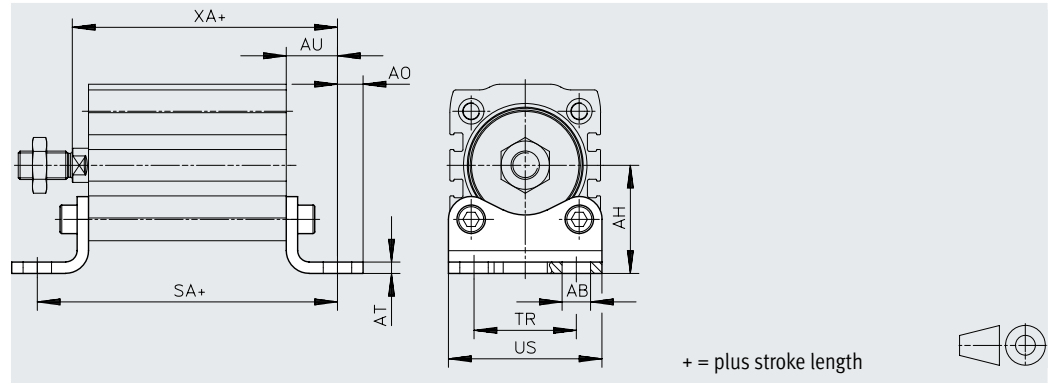
## Accessories

### Foot mounting HNA

Material:

Galvanised steel

RoHS-compliant



#### Dimensions and ordering data

| For $\varnothing$<br>[mm] | AB<br>$\varnothing$<br>H14 | AH<br>JS14 | AO   | AT<br>$\pm 0.5$ | AU<br>$\pm 0.2$ | SA <sup>2)</sup> |             | TR<br>$\pm 0.2$ | US<br>-0.5 | XA <sup>2)</sup> |             | CRC <sup>1)</sup> | Weight<br>[g] | Basic version |        |
|---------------------------|----------------------------|------------|------|-----------------|-----------------|------------------|-------------|-----------------|------------|------------------|-------------|-------------------|---------------|---------------|--------|
|                           |                            |            |      |                 |                 | +0.2             | [A]<br>+0.2 |                 |            | +1.2             | [A]<br>+1.2 |                   |               | Part no.      | Typee  |
| 12                        | 5.8                        | 21         | 5    | 3               | 13              | 41.5             | 45.5        | 16              | 26         | 31               | 35          | 1                 | 39            | 537237        | HNA-12 |
| 16                        | 5.8                        | 22         | 4.75 | 3               | 13              | 42               | 46.5        | 18              | 27.5       | 32               | 36.5        | 1                 | 42            | 537238        | HNA-16 |
| 20                        | 7                          | 27         | 6.25 | 4               | 16              | 49.5             | 54          | 22              | 34.5       | 36.5             | 41          | 1                 | 84            | 537239        | HNA-20 |
| 25                        | 7                          | 29         | 6.25 | 4               | 16              | 51               | 55.5        | 26              | 38.5       | 38.5             | 43          | 1                 | 90            | 537240        | HNA-25 |
| 32                        | 7                          | 33.5       | 7    | 4               | 16              | 53.5             | 57          | 32              | 46         | 41.5             | 45          | 1                 | 123           | 537241        | HNA-32 |
| 40                        | 10                         | 38         | 9    | 4               | 18              | 62               | 65.5        | 36              | 54         | 49               | 52.5        | 1                 | 157           | 537242        | HNA-40 |
| 50                        | 10                         | 45         | 8    | 5               | 21              | 71               | 74          | 45              | 64         | 57               | 60          | 1                 | 278           | 537243        | HNA-50 |
| 63                        | 10                         | 50         | 8    | 5               | 21              | 74               | 77          | 50              | 75         | 60               | 63          | 1                 | 328           | 537244        | HNA-63 |

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

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

2) Deviating dimensions in the case of strokes 5, 10 and 25 → page 35

## Accessories

| For ø<br>[mm] | Stroke<br>[mm] | Position<br>sensing | SA    | XA   |      |
|---------------|----------------|---------------------|-------|------|------|
|               |                |                     | +0.2  | +1.2 |      |
| 12            | 5              | –                   | 46.5  | 36   |      |
|               |                | ■                   | 50.5  | 40   |      |
|               | 10             | –                   | 51.5  | 41   |      |
|               |                | ■                   | 55.5  | 45   |      |
| 16            | 5              | –                   | 47    | 37   |      |
|               |                | ■                   | 51.5  | 41.5 |      |
|               | 10             | –                   | 52    | 42   |      |
|               |                | ■                   | 56.5  | 46.5 |      |
|               | 25             | –                   | 69    | 59   |      |
|               |                | ■                   | 74.5  | 64.5 |      |
| 20            | 5              | –                   | 54.5  | 41.5 |      |
|               |                | ■                   | 59    | 46   |      |
|               | 10             | –                   | 59.5  | 46.5 |      |
|               |                | ■                   | 64    | 51   |      |
|               | 25             | –                   | 77.5  | 64.5 |      |
|               |                | ■                   | 82    | 69   |      |
|               | 25             | 5                   | –     | 56   | 43.5 |
|               |                |                     | ■     | 60.5 | 48   |
| 10            |                | –                   | 61    | 48.5 |      |
|               |                | ■                   | 65.5  | 53   |      |
| 25            |                | –                   | 79    | 66.5 |      |
|               |                | ■                   | 83.5  | 71   |      |
| 32            |                | 5                   | –     | 58.5 | 46.5 |
|               |                |                     | ■     | 62   | 50   |
|               | 10             | –                   | 63.5  | 51.5 |      |
|               |                | ■                   | 67    | 55   |      |
|               | 25             | –                   | 81.5  | 69.5 |      |
|               |                | ■                   | 85    | 73   |      |
|               | 40             | 5                   | –     | 67   | 54   |
|               |                |                     | ■     | 70.5 | 57.5 |
| 10            |                | –                   | 72    | 59   |      |
|               |                | ■                   | 75.5  | 62.5 |      |
| 25            |                | –                   | 90    | 77   |      |
|               |                | ■                   | 93.5  | 80.5 |      |
| 50            | 10             | –                   | 81    | 67   |      |
|               |                | ■                   | 84    | 70   |      |
|               | 25             | –                   | 98.5  | 84.5 |      |
|               |                | ■                   | 102   | 88   |      |
| 63            | 10             | –                   | 84    | 70   |      |
|               |                | ■                   | 87    | 73   |      |
|               | 25             | –                   | 101.5 | 87.5 |      |
|               |                | ■                   | 104.5 | 90.5 |      |

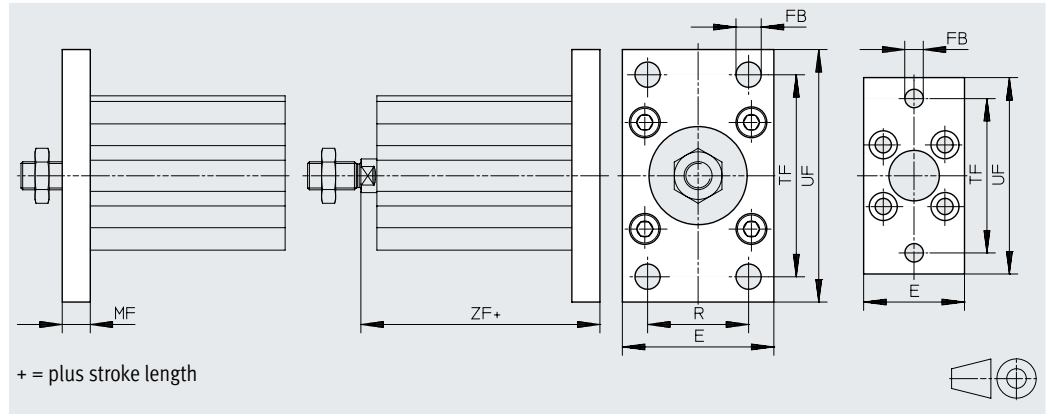
## Accessories

### Flange mounting FNC

Material:

Galvanised steel

RoHS-compliant



#### Dimensions and ordering data

| For $\varnothing$<br>[mm] | E  | FB<br>$\varnothing$ | MF | R  | TF  | UF<br>$\pm 1$ | ZF <sup>2)</sup> |             | Basic version     |               |          |        |
|---------------------------|----|---------------------|----|----|-----|---------------|------------------|-------------|-------------------|---------------|----------|--------|
|                           |    |                     |    |    |     |               | +0.2             | [A]<br>+0.2 | CRC <sup>1)</sup> | Weight<br>[g] | Part no. | Type   |
| 12                        | 28 | 5.5                 | 8  | –  | 40  | 50            | 26               | 30          | 1                 | 79            | 537245   | FNC-12 |
| 16                        | 29 | 5.5                 | 8  | –  | 43  | 55            | 27               | 31.5        | 1                 | 88            | 537246   | FNC-16 |
| 20                        | 36 | 6.6                 | 8  | –  | 55  | 70            | 28.5             | 33          | 1                 | 141           | 537247   | FNC-20 |
| 25                        | 40 | 6.6                 | 8  | –  | 60  | 76            | 30.5             | 35          | 1                 | 165           | 537248   | FNC-25 |
| 32                        | 45 | 7                   | 10 | 32 | 64  | 80            | 35.5             | 39          | 1                 | 221           | ★ 174376 | FNC-32 |
| 40                        | 54 | 9                   | 10 | 36 | 72  | 90            | 41               | 44.5        | 1                 | 291           | ★ 174377 | FNC-40 |
| 50                        | 65 | 9                   | 12 | 45 | 90  | 110           | 48               | 51          | 1                 | 536           | ★ 174378 | FNC-50 |
| 63                        | 75 | 9                   | 12 | 50 | 100 | 120           | 51               | 54          | 1                 | 679           | ★ 174379 | FNC-63 |

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



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

2) Deviating dimensions in the case of strokes 5, 10 and 25 → page 1


## Accessories

| For ø<br>[mm] | Stroke<br>[mm] | Position<br>sensing | ZF<br>+0.2 |
|---------------|----------------|---------------------|------------|
| 12            | 5              | –                   | 31         |
|               |                | ■                   | 35         |
|               | 10             | –                   | 36         |
|               |                | ■                   | 40         |
| 16            | 5              | –                   | 32         |
|               |                | ■                   | 36.5       |
|               | 10             | –                   | 37         |
|               |                | ■                   | 41.5       |
|               | 25             | –                   | 54         |
|               |                | ■                   | 59.5       |
| 20            | 5              | –                   | 33.5       |
|               |                | ■                   | 38         |
|               | 10             | –                   | 38.5       |
|               |                | ■                   | 43         |
|               | 25             | –                   | 56.5       |
|               |                | ■                   | 61         |
| 25            | 5              | –                   | 35.5       |
|               |                | ■                   | 40         |
|               | 10             | –                   | 40.5       |
|               |                | ■                   | 45         |
|               | 25             | –                   | 58.5       |
|               |                | ■                   | 63         |
| 32            | 5              | –                   | 40.5       |
|               |                | ■                   | 44         |
|               | 10             | –                   | 45.5       |
|               |                | ■                   | 49         |
|               | 25             | –                   | 63.5       |
|               |                | ■                   | 67         |
| 40            | 5              | –                   | 46         |
|               |                | ■                   | 49.5       |
|               | 10             | –                   | 51         |
|               |                | ■                   | 54.5       |
|               | 25             | –                   | 69         |
|               |                | ■                   | 72.5       |
| 50            | 10             | –                   | 58         |
|               |                | ■                   | 61         |
|               | 25             | –                   | 75.5       |
|               |                | ■                   | 79         |
| 63            | 10             | –                   | 61         |
|               |                | ■                   | 64         |
|               | 25             | –                   | 78.5       |
|               |                | ■                   | 81.5       |



Accessories

| Ordering data – One-way flow control valves                                      |  |                       |              |                 | Data sheets → Internet: grla |        |              |  |
|--|--|-----------------------|--------------|-----------------|------------------------------|--------|--------------|--|
|  | Connection for $\varnothing$   | for tubing O.D.       | Material     | Part no.        | Typee                        |        |              |  |
| <b>For exhaust air</b>   |  |                       |              |                 |                              |        |              |  |
|  | 6, 10  | 3                     | Metal design | 175041          | GRLA-M3-QS-3                 |        |              |  |
|  | 12, 16, 20, 25, 32, 40   | 3                     |              | ★ 193137        | GRLA-M5-QS-3-D               |        |              |  |
|  |  | 4                     |              | ★ 193138        | GRLA-M5-QS-4-D               |        |              |  |
|  |  | 6                     |              | ★ 193139        | GRLA-M5-QS-6-D               |        |              |  |
|  |  | 3                     |              | ★ 193142        | GRLA-1/8-QS-3-D              |        |              |  |
|  | 50, 63   | 4                     |              | ★ 193143        | GRLA-1/8-QS-4-D              |        |              |  |
|  |  | 6                     |              | ★ 193144        | GRLA-1/8-QS-6-D              |        |              |  |
|  |  | 8                     |              | ★ 193145        | GRLA-1/8-QS-8-D              |        |              |  |
|  |  | <b>For supply air</b> |              |                 |                              |        |              |  |
|  |  | 6, 10                 |              | 3               | Metal design                 | 175043 | GRLZ-M3-QS-3 |  |
| 12, 16, 20, 25, 32, 40   |  | 3                     | ★ 193153     | GRLZ-M5-QS-3-D  |                              |        |              |  |
|  |  | 4                     | ★ 193154     | GRLZ-M5-QS-4-D  |                              |        |              |  |
|  |  | 6                     | ★ 193155     | GRLZ-M5-QS-6-D  |                              |        |              |  |
|  |  | 3                     | ★ 193156     | GRLZ-1/8-QS-3-D |                              |        |              |  |
| 50, 63   |  | 4                     | ★ 193157     | GRLZ-1/8-QS-4-D |                              |        |              |  |
|  |  | 6                     | ★ 193158     | GRLZ-1/8-QS-6-D |                              |        |              |  |
|  |  | 8                     | ★ 193159     | GRLZ-1/8-QS-8-D |                              |        |              |  |

Proximity switches for piston  $\varnothing$  6 ... 10

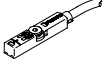
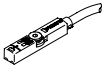
| Ordering data – Proximity switches for C-slot, magneto-resistive                   |                                 |                  |   |                  | Data sheets → Internet: smt |                            |
|--|---------------------------------|------------------|---|------------------|-----------------------------|----------------------------|
|  | Type of mounting                | Switching output | Electrical connection, outlet direction of connection | Cable length [m] | Part no.                    | Typee                      |
| <b>N/O contact</b>   |                                 |                  |   |                  |                             |                            |
|  | Inserted in the slot from above | PNP              | Plug M8x1, 3-pin, in-line                             | 0.3              | ★ 551375                    | SMT-10M-PS-24V-E-0.3-L-M8D |
|  |                                 |                  | Cable, 3-wire, in-line                                | 2.5              | ★ 551373                    | SMT-10M-PS-24V-E-2.5-L-OE  |
|  |                                 | NPN              | Plug M8x1, 3-pin, in-line                             | 0.3              | ★ 551379                    | SMT-10M-NS-24V-E-0.3-L-M8D |
|  |                                 |                  | Cable, 3-wire, in-line                                | 2.5              | ★ 551377                    | SMT-10M-NS-24V-E-2.5-L-OE  |

Ordering data – Connecting cables



| Ordering data – Connecting cables  |                              |                              |                  |          | Data sheets → Internet: nebu |  |
|--|------------------------------|------------------------------|------------------|----------|------------------------------|--|
|  | Electrical connection, left  | Electrical connection, right | Cable length [m] | Part no. | Typee                        |  |
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire      | 2.5              | ★ 541333 | NEBU-M8G3-K-2.5-LE3          |  |
|  |                              |                              | 5                | ★ 541334 | NEBU-M8G3-K-5-LE3            |  |
|  | Angled socket, M8x1, 3-pin   | Cable, open end, 3-wire      | 2.5              | ★ 541338 | NEBU-M8W3-K-2.5-LE3          |  |
|  |                              |                              | 5                | ★ 541341 | NEBU-M8W3-K-5-LE3            |  |

## Accessories

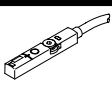
Proximity switches for piston  $\varnothing$  12 ... 63

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



## Ordering data – Connecting cables

| Ordering data – Connecting cables   |                              |                              |                  |          |                     | Data sheets → Internet: nebu |
|---|------------------------------|------------------------------|------------------|----------|---------------------|------------------------------|
|   | Electrical connection, left  | Electrical connection, right | Cable length [m] | Part no. | Typee               |                              |
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire      | 2.5              | ★ 541333 | NEBU-M8G3-K-2.5-LE3 |                              |
|   |                              |                              | 5                | ★ 541334 | NEBU-M8G3-K-5-LE3   |                              |
|  | Angled socket, M8x1, 3-pin   | Cable, open end, 3-wire      | 2.5              | ★ 541338 | NEBU-M8W3-K-2.5-LE3 |                              |
|   |                              |                              | 5                | ★ 541341 | NEBU-M8W3-K-5-LE3   |                              |



Position transmitters for piston  $\varnothing$  12 ... 63

| Ordering data – Position transmitters for T-slot                                    |                                     |   |                                 |                           |                  |          | Data sheets → Internet: sdas     |
|---|-------------------------------------|---|---------------------------------|---------------------------|------------------|----------|----------------------------------|
|   | Position measuring range            | Description   | Type of mounting                | Electrical connection     | Cable length [m] | Part no. | Typee                            |
|  | Depends on the piston $\varnothing$ | Choice of two operating modes:<br>• Two adjustable switching outputs<br>• IO-Link | Inserted in the slot from above | Plug M8x1, 4-pin, in-line | 0.3              | 8063974  | SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8 |
|   |                                     |   |                                 | Cable, open end           | 2.5              | 8063975  | SDAS-MHS-M40-1L-PNLK-PN-E-2.5-LE |

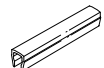
## Ordering data – Position transmitters for T-slot

| Ordering data – Position transmitters for T-slot                                    |                          |                     |          |                                 |                           | Data sheets → Internet: position transmitter |          |                             |
|---|--------------------------|---------------------|----------|---------------------------------|---------------------------|--|----------|-----------------------------|
|   | Position measuring range | Analogue output [V] | [mA]     | Type of mounting                | Electrical connection     | Cable length [m]                             | Part no. | Typee                       |
|  | 0 ... 50                 | –                   | 4 ... 20 | Inserted in the slot from above | Plug M8x1, 4-pin, in-line | 0.3  | 1531265  | SDAT-MHS-M50-1L-SA-E-0.3-M8 |
|  | 0 ... 40                 | 0 ... 10            | –        | Inserted in the slot from above | Plug M8x1, 4-pin, in-line | 0.3  | 553744   | SMAT-8M-U-E-0.3-M8D         |

## Ordering data – Connecting cables

| Ordering data – Connecting cables   |                              |                              |                  |          |                     | Data sheets → Internet: nebu |
|---|------------------------------|------------------------------|------------------|----------|---------------------|------------------------------|
|   | Electrical connection, left  | Electrical connection, right | Cable length [m] | Part no. | Typee               |                              |
|  | Straight socket, M8x1, 4-pin | Cable, open end, 4-wire      | 2.5              | 541342   | NEBU-M8G4-K-2.5-LE4 |                              |
|   |                              |                              | 5                | 541343   | NEBU-M8G4-K-5-LE4   |                              |
|  | Angled socket, M8x1, 4-pin   | Cable, open end, 4-wire      | 2.5              | 541344   | NEBU-M8W4-K-2.5-LE4 |                              |
|   |                              |                              | 5                | 541345   | NEBU-M8W4-K-5-LE4   |                              |

## Ordering data – Slot cover for T-slot

| Ordering data – Slot cover for T-slot   |            |          |          | Data sheets → Internet: abp |
|---|------------|----------|----------|-----------------------------|
|   | Mounting   | Length   | Part no. | Typee                       |
|  | Insertable | 2x 0.5 m | 151680   | ABP-5-S                     |