

The logo for Airtec, featuring the word "airtec" in a bold, blue, sans-serif font. The letters "a" and "i" have small white circles above them, resembling rivets or bolts. The "t" has a horizontal bar extending to the left, also with a small white circle above it.

**airtec**

# Pneumatics Catalogue

**Air. Pressure. Motion.**

Version  
**115**



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Air. Pressure. Motion. ▶▶▶▶▶▶▶▶

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**Air. Pressure. Motion.** ▶▶▶▶▶▶▶▶



**Chapter 2**  
Mechanically operated valves



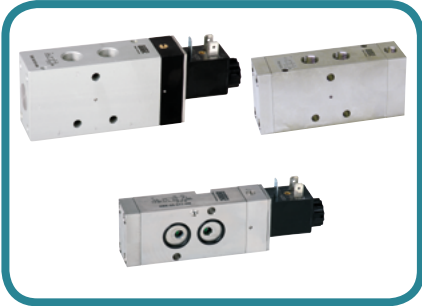
**Chapter 3**  
Pneumatically operated valves



**Chapter 4**  
Electrically operated valves



**Chapter 5**  
Standardized valve series



**Chapter 6**  
Low temperature valves



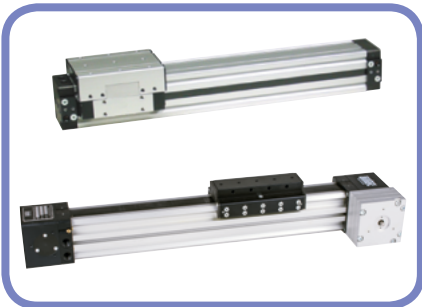
**Chapter 7**  
Valve terminals



**Chapter 8**  
Function valves



**Chapter 9**  
Pneumatic cylinders



**Chapter 10**  
Rodless cylinders



**Chapter 11**  
Vacuum technology



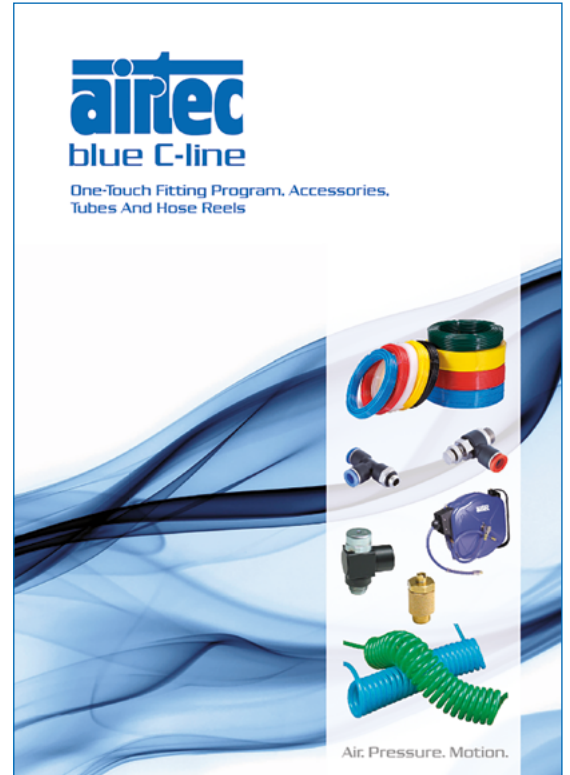
**Chapter 12**  
Air preparation units



**Chapter 13**  
Technical information



Other catalogues from AIRTEC-program



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Actuator  $\varnothing$  30 mm

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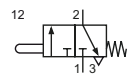


**Technical details**

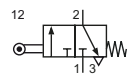
|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 2 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel (E), plastic (ER, EL), roller: stainless steel (ER), plastic (EL), lever: brass  |



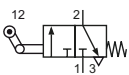
Mechanically operated seat valve.

**3/2-way valves**


E-25-310  
3/2-way, mechanical spring return, stem operated



ER-25-310  
3/2-way, mechanical spring return, roller operated



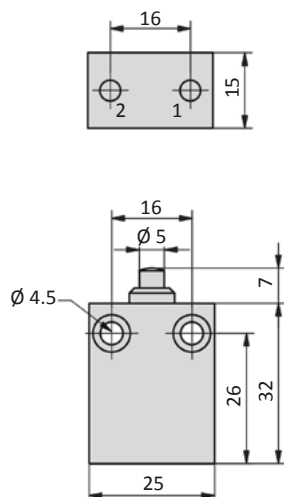
EL-25-310  
3/2-way, mechanical spring return, roller operated with free return

**Technical data**

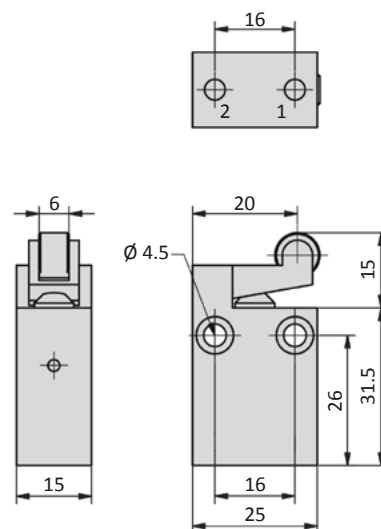
| Model-no.:                          | E-25-310 | ER-25-310 | EL-25-310 |
|-------------------------------------|----------|-----------|-----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12  | 0 ... 12  |
| <b>Flow rate (NI/min)</b>           | 80       | 80        | 80        |
| <b>Actuating force at 6 bar (N)</b> | 15       | 8         | 8         |
| <b>Pre-stroke (mm)</b>              | 1.25     | 1.5       | 1.5       |
| <b>Actuation stroke (mm)</b>        | 1.25     | 1.5       | 1.5       |
| <b>Pre actuation stroke (mm)</b>    | 1.5      | 1.2       | 1.2       |
| <b>Weight (kg)</b>                  | 0.035    | 0.046     | 0.044     |

**Dimensions**

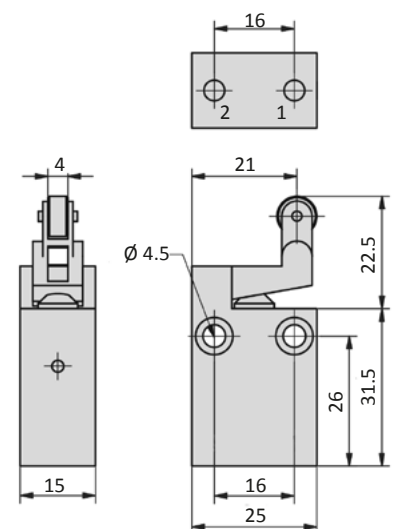
E-25-310



ER-25-310



EL-25-310



## Series E-28

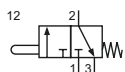
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass, stem, lever: stainless steel, roller: plastic  |

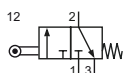


Mechanically operated seat valve.

### 3/2-way valves



**E-28-310**  
3/2-way, mechanical spring return, stem operated



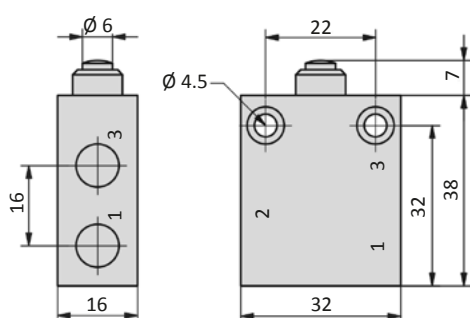
**ER-28-310**  
3/2-way, mechanical spring return, roller operated

### Technical data

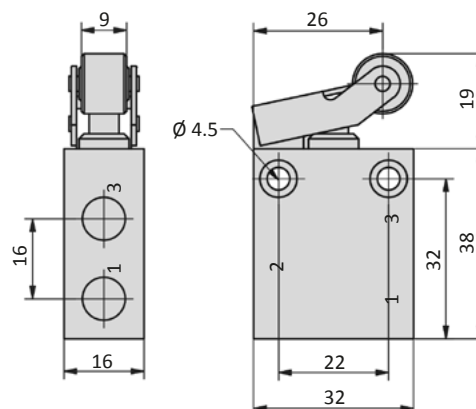
| Model-no.:                          | E-28-310 | ER-28-310 |
|-------------------------------------|----------|-----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12  |
| <b>Flow rate (l/min)</b>            | 210      | 210       |
| <b>Actuating force at 6 bar (N)</b> | 16       | 9         |
| <b>Pre-stroke (mm)</b>              | 1        | 2         |
| <b>Actuation stroke (mm)</b>        | 1        | 1         |
| <b>Pre actuation stroke (mm)</b>    | 2        | 2         |
| <b>Weight (kg)</b>                  | 0.053    | 0.063     |

### Dimensions

#### E-28-310



#### ER-28-310



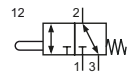
- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust

**Technical details**

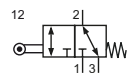
|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel (E), plastic (ER, EL), roller: plastic, lever: Al (anodized), brass  |



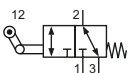
Mechanically operated spool valve.

**3/2-way valves**


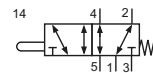
**E-18-310**  
3/2-way, mechanical spring return, stem operated



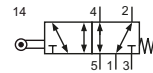
**ER-18-310**  
3/2-way, mechanical spring return, roller operated



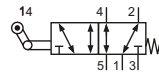
**EL-18-310**  
3/2-way, mechanical spring return, roller operated with free return

**5/2-way valves**


**E-18-510**  
5/2-way, mechanical spring return, stem operated



**ER-18-510**  
5/2-way, mechanical spring return, roller operated



**EL-18-510**  
5/2-way, mechanical spring return, roller operated with free return

**Technical data**

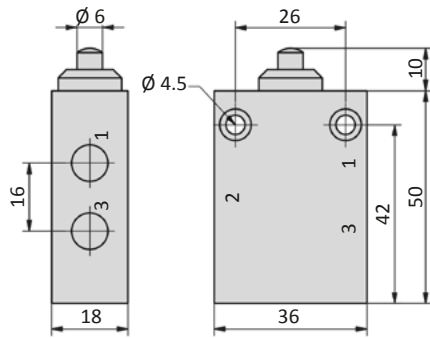
| Model-no.:                          | E-18-310 | ER-18-310 | EL-18-310 |
|-------------------------------------|----------|-----------|-----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12  | 0 ... 12  |
| <b>Flow rate (NI/min)</b>           | 320      | 320       | 320       |
| <b>Actuating force at 6 bar (N)</b> | 27       | 17        | 17        |
| <b>Pre-stroke (mm)</b>              | 1.5      | 2.5       | 2.5       |
| <b>Actuation stroke (mm)</b>        | 2.5      | 2.5       | 2.5       |
| <b>Pre actuation stroke (mm)</b>    | 1        | 3.5       | 3.5       |
| <b>Weight (kg)</b>                  | 0.094    | 0.102     | 0.099     |

| Model-no.:                          | E-18-510 | ER-18-510 | EL-18-510 |
|-------------------------------------|----------|-----------|-----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12  | 0 ... 12  |
| <b>Flow rate (NI/min)</b>           | 320      | 320       | 320       |
| <b>Actuating force at 6 bar (N)</b> | 27       | 17        | 17        |
| <b>Pre-stroke (mm)</b>              | 1.5      | 2.5       | 2.5       |
| <b>Actuation stroke (mm)</b>        | 2.5      | 2.5       | 2.5       |
| <b>Pre actuation stroke (mm)</b>    | 1        | 3.5       | 3.5       |
| <b>Weight (kg)</b>                  | 0.118    | 0.125     | 0.123     |

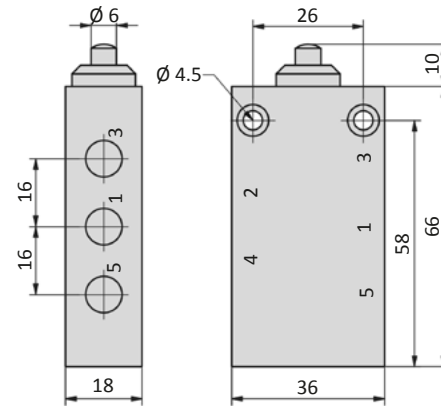
# Series E-18

## Dimensions

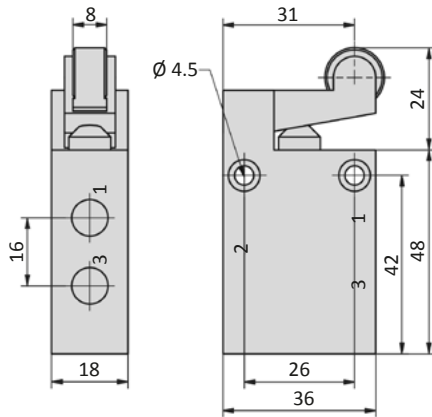
E-18-310



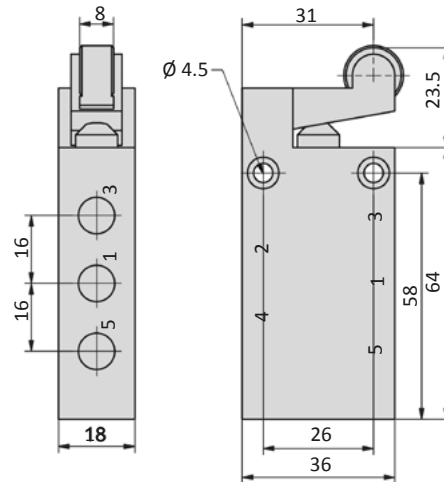
E-18-510



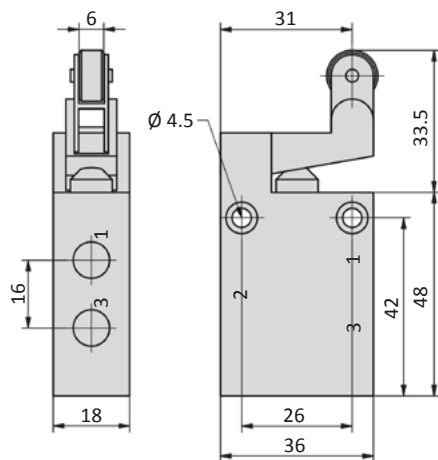
ER-18-310



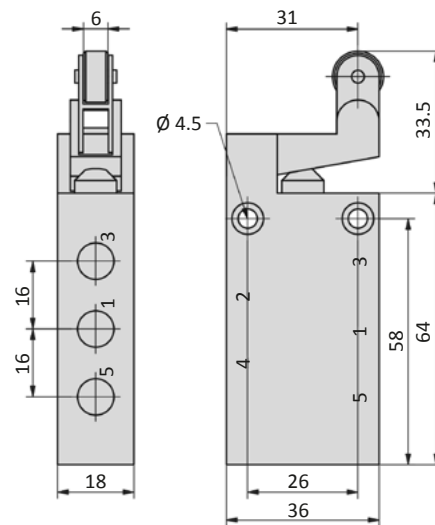
ER-18-510



EL-18-310



EL-18-510



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

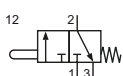


**Technical details**

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 2 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: FKM, NBR, inner parts: stainless steel, brass, stem: stainless steel  |



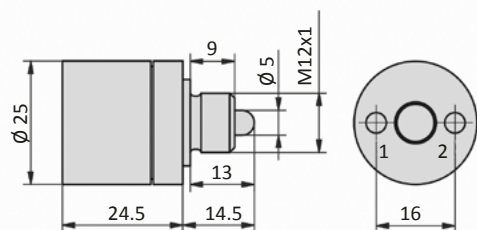
Mechanically operated seat valve.

**3/2-way valve**


E-30-311-M12  
 3/2-way, mechanical spring return,  
 stem operated

**Technical data**

|                                     |              |
|-------------------------------------|--------------|
| <b>Model-no.:</b>                   | E-30-311-M12 |
| <b>Operating pressure (bar)</b>     | 0 ... 12     |
| <b>Flow rate (NI/min)</b>           | 110          |
| <b>Actuating force at 6 bar (N)</b> | 21           |
| <b>Pre-stroke (mm)</b>              | 1            |
| <b>Actuation stroke (mm)</b>        | 1            |
| <b>Pre actuation stroke (mm)</b>    | 2            |
| <b>Weight (kg)</b>                  | 0.037        |

**Dimensions**
**E-30-311-M12**


- 1 = pressure inlet
- 2 = outlet

## Series T-25

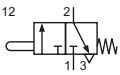
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 2.5 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel  |



Mechanically operated seat valve including mounting adapter for actuator installation.

### 3/2-way valve



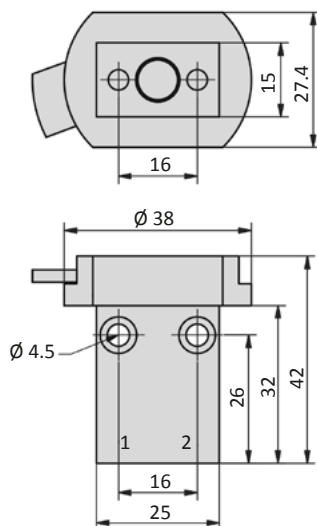
T-25-311  
3/2-way, mechanical spring return,  
stem operated

### Technical data

|                                     |          |
|-------------------------------------|----------|
| <b>Model-no.:</b>                   | T-25-311 |
| <b>Operating pressure (bar)</b>     | 0 ... 12 |
| <b>Flow rate (NI/min)</b>           | 95       |
| <b>Actuating force at 6 bar (N)</b> | 22       |
| <b>Actuation stroke (mm)</b>        | 4        |
| <b>Weight (kg)</b>                  | 0.042    |

### Dimensions

#### T-25-311



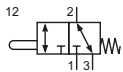
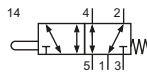
- 1 = pressure inlet  
2 = outlet

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel  |
|                          | T-28-311 in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

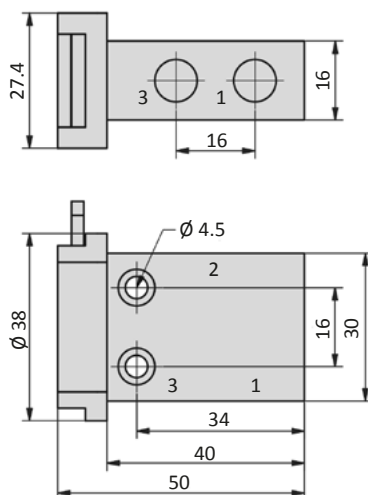
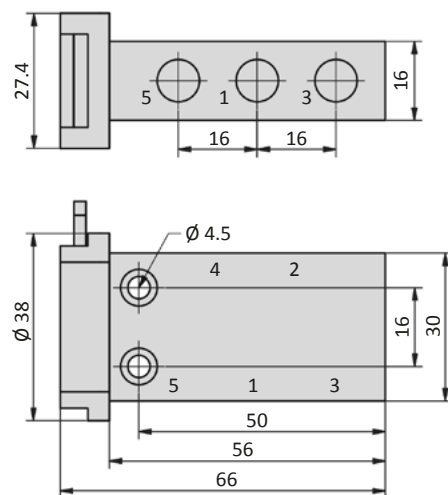


Mechanically operated spool valve including mounting adapter for actuator installation.

**3/2-way valve**

**T-28-311**  
 3/2-way, mechanical spring return, stem operated

**T-28-511**  
 5/2-way, mechanical spring return, stem operated

**Technical data**

| Model-no.:                          | T-28-311 | T-28-511 |
|-------------------------------------|----------|----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12 |
| <b>Flow rate (NI/min)</b>           | 450      | 465      |
| <b>Actuating force at 6 bar (N)</b> | 25       | 15       |
| <b>Actuation stroke (mm)</b>        | 4        | 4        |
| <b>Weight (kg)</b>                  | 0.058    | 0.075    |

**Dimensions**
**T-28-311**

**T-28-511**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

## Series T-30

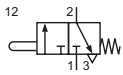
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

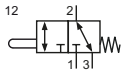


Mechanically operated seat valve (T-30-310) or spool valve (T-30-510) including mounting adapter for actuator mount.

### 3/2-way-Valves

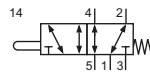


**T-30-310**  
3/2-way, mechanical spring return, stem operated



**T-30-310-ATEX**  
3/2-way, mechanical spring return, stem operated

### 5/2-way-Valves



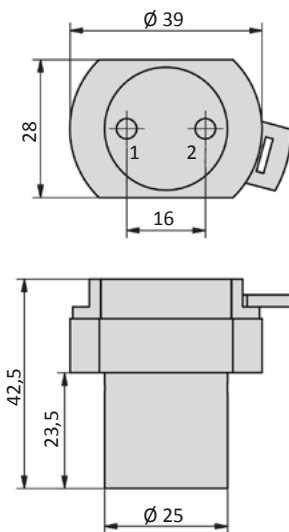
**T-30-510**  
5/2-way, mechanical spring return, stem operated

### Technical data

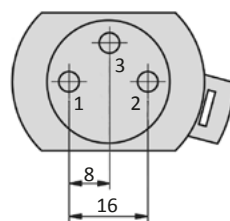
| Model-no.:                          | T-30-310 | T-30-510 |
|-------------------------------------|----------|----------|
| <b>Operating pressure (bar)</b>     | 0 ... 12 | 0 ... 12 |
| <b>Flow rate (NI/min)</b>           | 80       | 100      |
| <b>Nominal size (mm)</b>            | 2        | 2.4      |
| <b>Actuating force at 6 bar (N)</b> | 10       | 21       |
| <b>Actuation stroke (mm)</b>        | 4        | 4        |
| <b>Weight (kg)</b>                  | 0.052    | 0.076    |

### Dimensions

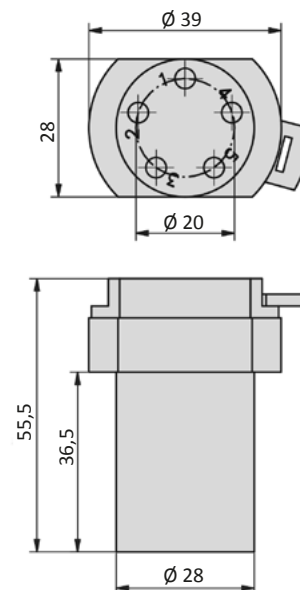
#### T-30-310



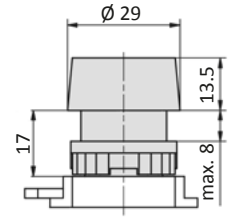
#### T-30-310-ATEX



#### T-30-510

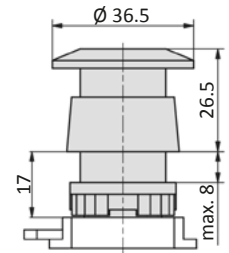


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

**18-T-23-011-xx Push button**


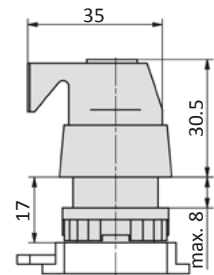
| Model-no.: 18-T-23-011-xx +         | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 13       | 23       |
| <b>Weight (incl. valve) (kg)</b>    | 0.057    | 0.073    | 0.090    | 0.067    | 0.091    |

Please complete: xx = colour ( 20 = green, 21 = green with white line, 30 = black, 40 = red, 42 = red with white circle, 50 = yellow, 60 = blue )

**18-T-23-012-xx Mushroom**


| Model-no.: 18-T-23-012-xx +         | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 13       | 23       |
| <b>Weight (incl. valve) (kg)</b>    | 0.062    | 0.078    | 0.095    | 0.072    | 0.096    |

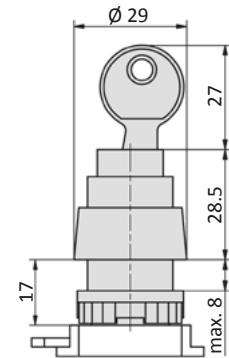
Please complete: xx = colour ( 20 = green, 30 = black, 40 = red )

**18-T-23-013 2 position switch**


| Model-no.: 18-T-23-013 +            | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 26       | 25       |
| <b>Weight (incl. valve) (kg)</b>    | 0.064    | 0.080    | 0.097    | 0.074    | 0.098    |

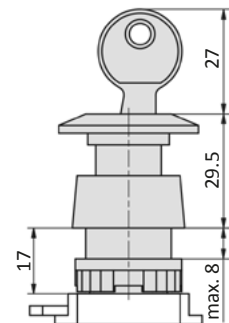
# Actuator $\varnothing$ 22.5 mm

## 18-T-23-014 Key-return



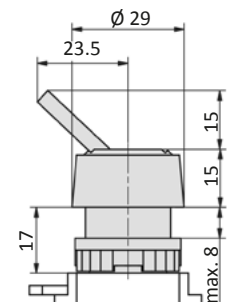
| Model-no.: 18-T-23-014 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 13       | 23       |
| Weight (incl. valve) (kg)    | 0.123    | 0.139    | 0.156    | 0.133    | 0.157    |

## 18-T-23-015 Stop, key-return

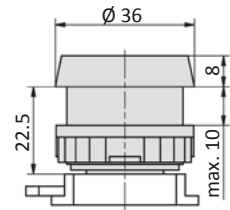


| Model-no.: 18-T-23-015 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 13       | 23       |
| Weight (incl. valve) (kg)    | 0.125    | 0.141    | 0.158    | 0.135    | 0.159    |

## 18-T-23-016 Toggle

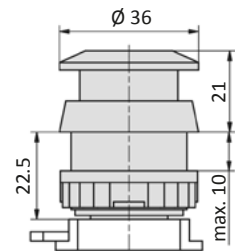


| Model-no.: 18-T-23-016 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 26       | 25       |
| Weight (incl. valve) (kg)    | 0.069    | 0.085    | 0.102    | 0.079    | 0.103    |

**18-T-30-011-xx Push button**


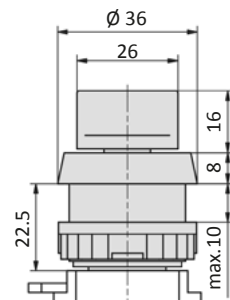
| Model-no.: 18-T-30-011-xx +  | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 15       | 24       |
| Weight (incl. valve) (kg)    | 0.066    | 0.082    | 0.099    | 0.076    | 0.100    |

Please complete: xx = colour ( 20 = green, 30 = black, 40 = red, 50 = yellow )

**18-T-30-012-xx Mushroom**


| Model-no.: 18-T-30-012-xx +  | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 15       | 24       |
| Weight (incl. valve) (kg)    | 0.071    | 0.087    | 0.104    | 0.081    | 0.105    |

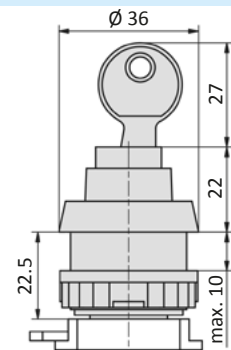
Please complete: xx = colour ( 30 = black, 40 = red )

**18-T-30-013 2 position switch**


| Model-no.: 18-T-30-013 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
|------------------------------|----------|----------|----------|----------|----------|
| Symbol                       |          |          |          |          |          |
| Actuating force at 6 bar (N) | 24       | 23       | 15       | 15       | 25       |
| Weight (incl. valve) (kg)    | 0.071    | 0.087    | 0.104    | 0.081    | 0.105    |

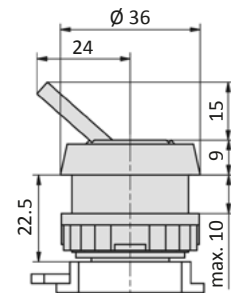
# Actuator $\varnothing$ 30 mm

## 18-T-30-014 Key-return



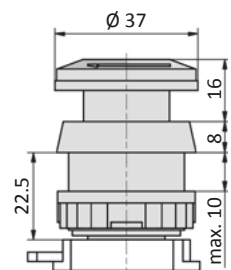
|                                     |          |          |          |          |          |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Model-no.:</b> 18-T-30-014 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 15       | 25       |
| <b>Weight (incl. valve) (kg)</b>    | 0.122    | 0.138    | 0.155    | 0.132    | 0.156    |

## 18-T-30-016 Toggle



|                                     |          |          |          |          |          |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Model-no.:</b> 18-T-30-016 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 9        | 11       |
| <b>Weight (incl. valve) (kg)</b>    | 0.069    | 0.085    | 0.102    | 0.079    | 0.103    |

## 18-T-30-018 Mushroom red, detent



|                                     |          |          |          |          |          |
|-------------------------------------|----------|----------|----------|----------|----------|
| <b>Model-no.:</b> 18-T-30-018 +     | T-25-311 | T-28-311 | T-28-511 | T-30-310 | T-30-510 |
| <b>Symbol</b>                       |          |          |          |          |          |
| <b>Actuating force at 6 bar (N)</b> | 24       | 23       | 15       | 31       | 25       |
| <b>Weight (incl. valve) (kg)</b>    | 0.077    | 0.093    | 0.110    | 0.087    | 0.111    |

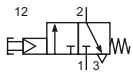


**Technical details**

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 3 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |



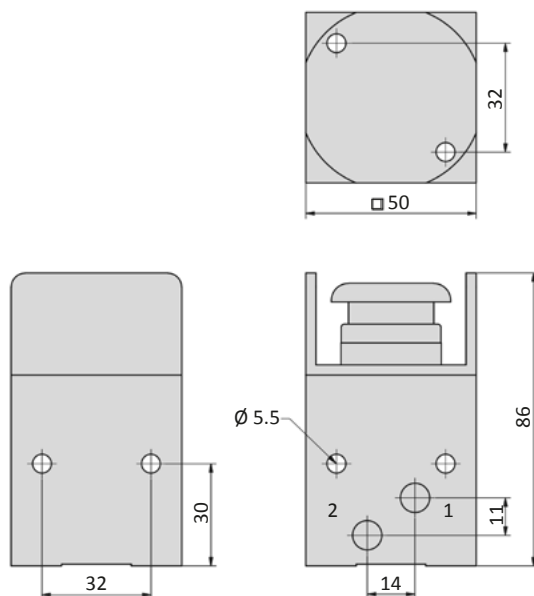
Servo-operated spool valve with low actuating force. The actuating is constantly pilot air supported and is venting\* in resting position on a small amount of air. \*(through a gap between holder and body)

**3/2-way valve**


ST-18-310  
3/2-way, mechanical spring return,  
push button

**Technical data**

|                                     |           |
|-------------------------------------|-----------|
| <b>Model-no.:</b>                   | ST-18-310 |
| <b>Operating pressure (bar)</b>     | 3 ... 10  |
| <b>Flow rate (NI/min)</b>           | 220       |
| <b>Actuating force at 6 bar (N)</b> | 3.5       |
| <b>Air consumption (NI/min)</b>     | 2.5       |
| <b>Weight (kg)</b>                  | 0.400     |

**Dimensions**
**ST-18-310**


- 1 = pressure inlet
- 2 = outlet

## Series TK-28

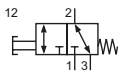
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass,  |

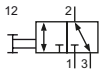


Manually operated spool valve.

### 3/2-way valves

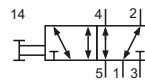


**TK-28-311**  
3/2-way, mechanical spring return, push function



**TK-28-320**  
3/2-way, two positions, actuator pull/push function

### 5/2-way valve



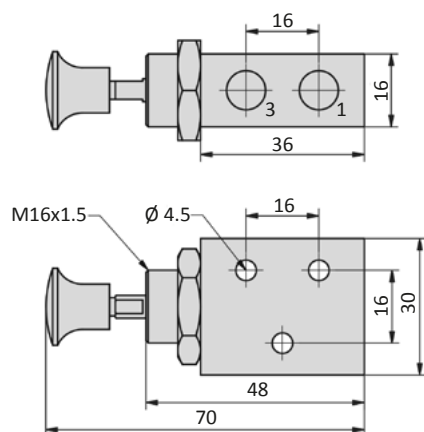
**TK-28-520**  
5/2-way, two positions, actuator pull/push function

### Technical data

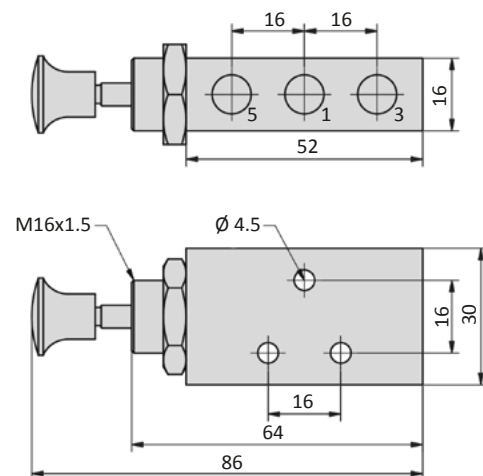
| Model-no.:                          | TK-28-311 | TK-28-320 | TK-28-520 |
|-------------------------------------|-----------|-----------|-----------|
| <b>Operating pressure (bar)</b>     | 2 ... 10  | 2 ... 10  | 2 ... 10  |
| <b>Flow rate (NI/min)</b>           | 500       | 500       | 480       |
| <b>Actuating force at 6 bar (N)</b> | 11        | 3         | 4         |
| <b>Weight (kg)</b>                  | 0.061     | 0.061     | 0.078     |

### Dimensions

#### TK-28-3xx



#### TK-28-520



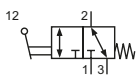
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

**Technical details**

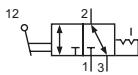
|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



Hand lever operated spool valve.

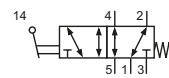
**3/2-way valves**


HF-xx-310  
3/2-way, hand lever, mechanical spring return

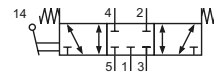


HR-xx-320  
3/2-way, two positions, hand lever, detent

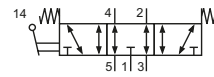
Please complete: xx = 18 for G1/8  
xx = 14 for G1/4  
xx = 12 for G1/2

**5/2- and 5/3-way valves**


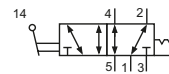
HF-xx-510  
5/2-way, hand lever, mechanical spring return



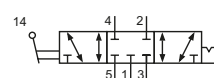
HF-xx-530  
5/3-way, center position closed, hand lever, spring return



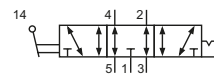
HF-xx-533  
5/3-way, center position exhausted, hand lever, spring return



HR-xx-520  
5/2-way, two positions, hand lever, detent



HR-xx-530  
5/3-way, center position closed, hand lever, detent



HR-xx-533  
5/3-way, center position exhausted, hand lever, detent

**Technical data**

| Model-no.:                          | HF-18-310 | HF-14-310 | HF-12-310 | HF-18-510 | HF-14-510 | HF-12-510 |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Connection</b>                   | G1/8      | G1/4      | G1/2      | G1/8      | G1/4      | G1/2      |
| <b>Nominal size (mm)</b>            | 6         | 9         | 14        | 6         | 9         | 14        |
| <b>Flow rate (NI/min)</b>           | 750       | 1580      | 3300      | 750       | 1580      | 3300      |
| <b>Operating pressure (bar)</b>     | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  |
| <b>Actuating force at 6 bar (N)</b> | 13        | 20        | 32        | 13        | 20        | 32        |
| <b>Weight (kg)</b>                  | 0.266     | 0.48      | 1.21      | 0.31      | 0.56      | 1.43      |

| Model-no.:                          | HF-18-530 | HF-14-530 | HF-12-530 | HF-18-533 | HF-14-533 | HF-12-533 |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Connection</b>                   | G1/8      | G1/4      | G1/2      | G1/8      | G1/4      | G1/2      |
| <b>Nominal size (mm)</b>            | 6         | 9         | 14        | 6         | 9         | 14        |
| <b>Flow rate (NI/min)</b>           | 780       | 1800      | 3300      | 780       | 1800      | 3300      |
| <b>Operating pressure (bar)</b>     | 0 ... 10  | 0 ... 12  | 0 ... 12  | 0 ... 10  | 0 ... 12  | 0 ... 12  |
| <b>Actuating force at 6 bar (N)</b> | 20        | 25        | 36        | 20        | 25        | 36        |
| <b>Weight (kg)</b>                  | 0.32      | 0.58      | 1.43      | 0.32      | 0.58      | 1.43      |

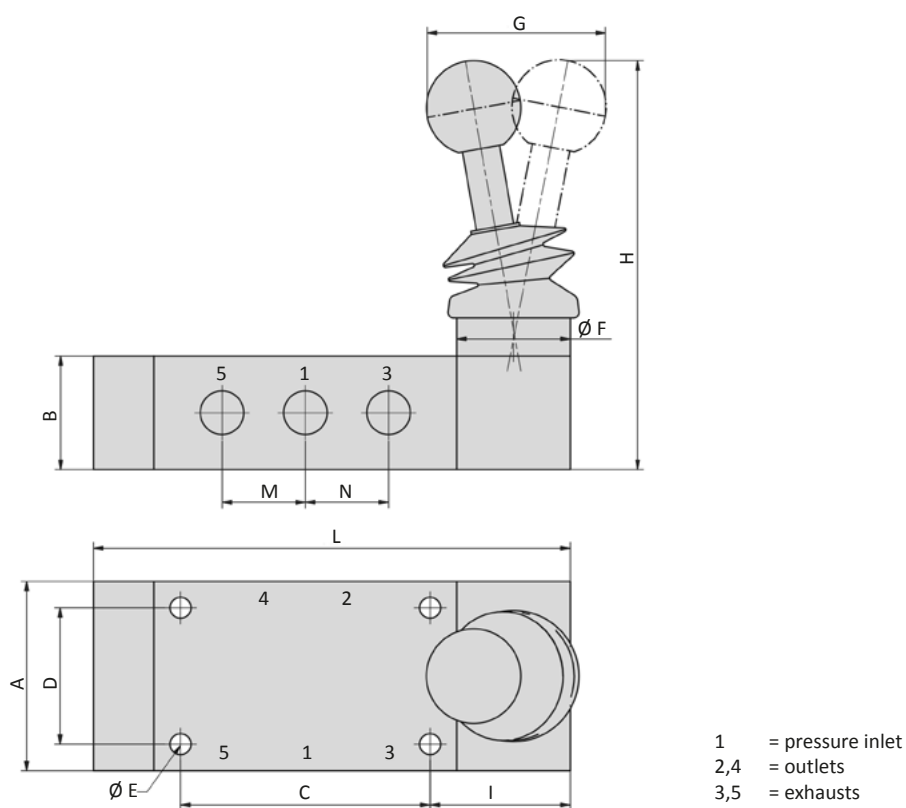
| Model-no.:                          | HR-18-320 | HR-14-320 | HR-12-320 | HR-18-520 | HR-14-520 | HR-12-520 |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Connection</b>                   | G1/8      | G1/4      | G1/2      | G1/8      | G1/4      | G1/2      |
| <b>Nominal size (mm)</b>            | 6         | 9         | 14        | 6         | 9         | 14        |
| <b>Flow rate (NI/min)</b>           | 750       | 1580      | 3300      | 750       | 1580      | 3300      |
| <b>Operating pressure (bar)</b>     | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  | 0 ... 12  |
| <b>Actuating force at 6 bar (N)</b> | 16        | 24        | 36        | 16        | 24        | 36        |
| <b>Weight (kg)</b>                  | 0.268     | 0.485     | 1.215     | 0.312     | 0.564     | 1.43      |

## Series HF, HR

### Technical data

| Model-no.:                   | HR-18-530 | HR-14-530 | HR-12-530 | HR-18-533 | HR-14-533 | HR-12-533 |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Connection                   | G1/8      | G1/4      | G1/2      | G1/8      | G1/4      | G1/2      |
| Nominal size (mm)            | 6         | 9         | 14        | 6         | 9         | 14        |
| Flow rate (NI/min)           | 780       | 1800      | 3300      | 780       | 1800      | 3300      |
| Operating pressure (bar)     | 0 ... 10  | 0 ... 12  | 0 ... 12  | 0 ... 10  | 0 ... 12  | 0 ... 12  |
| Actuating force at 6 bar (N) | 20        | 25        | 40        | 20        | 25        | 40        |
| Weight (kg)                  | 0.32      | 0.58      | 1.43      | 0.32      | 0.58      | 1.43      |

### Dimensions



| Model-no.: |           | A  | B  | C   | D  | Ø E | Ø F | G  | H   | I  | L   | M  | N  |
|------------|-----------|----|----|-----|----|-----|-----|----|-----|----|-----|----|----|
| HF-18-310  | HR-18-320 | 40 | 25 | 34  | 30 | 4.5 | 25  | 36 | 88  | 31 | 87  | -  | 18 |
| HF-14-310  | HR-14-320 | 50 | 30 | 44  | 36 | 5.5 | 30  | 46 | 112 | 37 | 104 | -  | 22 |
| HF-12-310  | HR-12-320 | 70 | 40 | 70  | 50 | 6.5 | 40  | 64 | 148 | 51 | 148 | -  | 36 |
| HF-18-510  | HR-18-520 | 40 | 25 | 52  | 30 | 4.5 | 25  | 36 | 88  | 31 | 105 | 18 | 18 |
| HF-14-510  | HR-14-520 | 50 | 30 | 66  | 36 | 5.5 | 30  | 46 | 112 | 37 | 126 | 22 | 22 |
| HF-12-510  | HR-12-520 | 70 | 40 | 106 | 50 | 6.5 | 40  | 64 | 148 | 51 | 184 | 36 | 38 |
| HF-18-53x  | HR-18-53x | 40 | 25 | 52  | 30 | 4.5 | 25  | 45 | 88  | 31 | 105 | 18 | 18 |
| HF-14-53x  | HR-14-53x | 50 | 30 | 66  | 36 | 5.5 | 30  | 53 | 112 | 37 | 126 | 22 | 22 |
| HF-12-53x  | HR-12-53x | 70 | 40 | 106 | 50 | 6.5 | 40  | 64 | 148 | 51 | 193 | 36 | 36 |

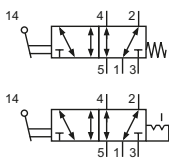
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Temperature range</b>  | 0°C ... +60°C   |
| <b>Operating pressure</b> | 0 ... 8 bar   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Body: Al (anodized), plastic, seals: NBR , inner parts: Al, steel   |



Hand lever operated spool valve.

**5/2-way valves**

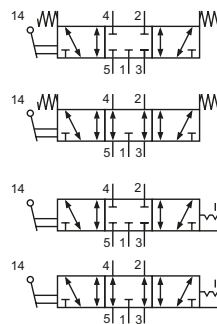


**84-4HF-xx-510**  
5/2-way, hand lever, mechanical spring return

**84-4HR-xx-520**  
5/2-way, two positions, hand lever, detent

Please complete: xx = 18 for G1/8  
xx = 14 for G1/4  
xx = 12 for G1/2

**5/3-way valves**



**84-4HF-xx-530**  
5/3-way, center position closed, hand lever, spring return

**84-4HF-xx-533**  
5/3-way, center position exhausted, hand lever, spring return

**84-4HR-xx-530**  
5/3-way, center position closed, hand lever, detent

**84-4HR-xx-533**  
5/3-way, center position exhausted, hand lever, detent

**Technical data**

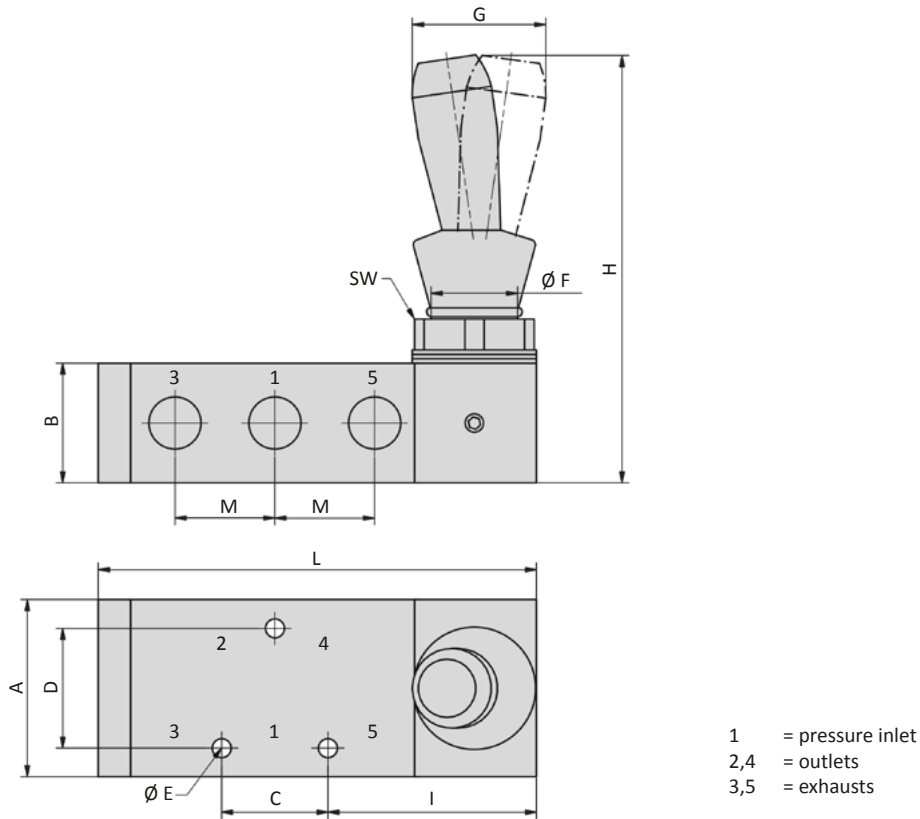
| Model-no.:                | 84-4HF-18-510 | 84-4HF-14-510 | 84-4HF-14-530 | 84-4HF-14-533 |
|---------------------------|---------------|---------------|---------------|---------------|
| <b>Connection</b>         | G1/8          | G1/4          | G1/4          | G1/4          |
| <b>Nominal size (mm)</b>  | 4.5           | 6             | 5             | 5             |
| <b>Flow rate (NI/min)</b> | 750           | 1350          | 980           | 980           |
| <b>Weight (kg)</b>        | 0.168         | 0.252         | 0.310         | 0.310         |

| Model-no.:                | 84-4HR-18-520 | 84-4HR-14-520 | 84-4HR-12-520 | 84-4HR-14-530 | 84-4HR-14-533 | 84-4HR-12-530 |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Connection</b>         | G1/8          | G1/4          | G1/2          | G1/4          | G1/4          | G1/2          |
| <b>Nominal size (mm)</b>  | 4.5           | 6             | 8             | 5             | 5             | 6.5           |
| <b>Flow rate (NI/min)</b> | 750           | 1350          | 2500          | 980           | 980           | 1600          |
| <b>Weight (kg)</b>        | 0.170         | 0.255         | 0.540         | 0.250         | 0.250         | 0.560         |

## Series 84-4HF, 84-4HR

### Dimensions



| Model-no.:    | A  | B  | C  | D  | ∅ E | ∅ F | G  | H     | I  | L     | M    | SW |
|---------------|----|----|----|----|-----|-----|----|-------|----|-------|------|----|
| 84-4HF-18-510 | 35 | 22 | 20 | 21 | 4.3 | 15  | 16 | 90    | 38 | 81.3  | 18   | 22 |
| 84-4HF-14-510 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 48 | 100.5 | 22.5 | 27 |
| 84-4HF-14-530 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 67 | 119.5 | 22.5 | 27 |
| 84-4HF-14-533 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 67 | 119.5 | 22.5 | 27 |
| 84-4HR-18-520 | 35 | 22 | 20 | 21 | 4.3 | 15  | 16 | 90    | 38 | 81.3  | 18   | 22 |
| 84-4HR-14-520 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 48 | 100.5 | 22.5 | 27 |
| 84-4HR-14-530 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 48 | 100.5 | 22.5 | 27 |
| 84-4HR-14-533 | 40 | 27 | 24 | 27 | 4.3 | 20  | 20 | 93    | 48 | 100.5 | 22.5 | 27 |
| 84-4HR-12-520 | 50 | 34 | 28 | 35 | 5.5 | 22  | 28 | 103.5 | 57 | 128.5 | 31.5 | -  |
| 84-4HR-12-530 | 50 | 34 | 28 | 35 | 5.5 | 22  | 30 | 108.5 | 57 | 128.5 | 31.5 | 27 |

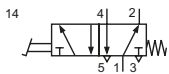
**Technical details**

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4  |
| <b>Nominal size (mm)</b> | 9   |
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR , inner parts: Al, steel  |

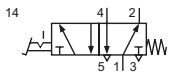


Foot pedal operated spool valve.

**5/2-way valves**



84-4FF-511-14-H  
5/2-way, pedal, mechanical spring return

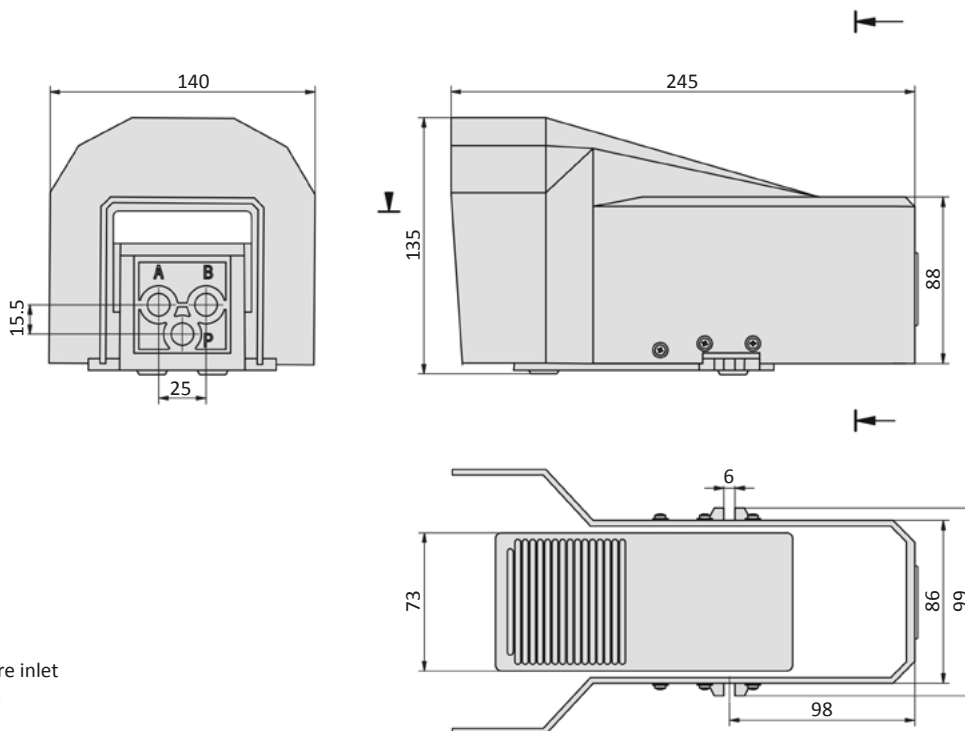


84-4FR-520-14-H  
5/2-way, two positions, pedal, detent

**Technical data**

| Model-no.:                      | 84-4FF-511-14-H | 84-4FR-520-14-H |
|---------------------------------|-----------------|-----------------|
| <b>Operating pressure (bar)</b> | 0 ... 8         | 0 ... 8         |
| <b>Flow rate (NI/min)</b>       | 530             | 530             |
| <b>Weight (kg)</b>              | 0.900           | 0.900           |

**Dimensions**



P = pressure inlet  
A,B = outlets





Series L-25 Page 3-02



Series BP-01 and BP-02 Page 3-12



Series L-28 Page 3-04



Series P-05 Page 3-06



Series P-07 Page 3-08



Series P-12 Page 3-10



# Series L-25

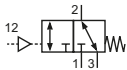
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 3.2 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

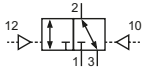


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

### 3/2-way valves

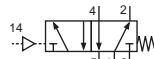


**L-25-311**  
3/2-way, single pilot, mechanical spring return

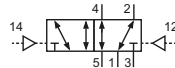


**L-25-320**  
3/2-way, double pilot

### 5/2-way valves



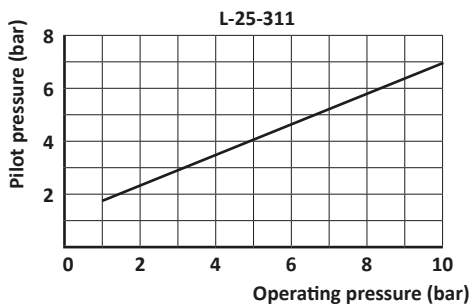
**L-25-511**  
5/2-way, single pilot, mechanical spring return



**L-25-520**  
5/2-way, double pilot

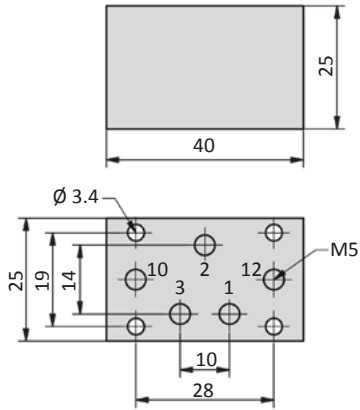
## Technical data

| Model-no.:                      | L-25-311    | L-25-320 | L-25-511 | L-25-520 |
|---------------------------------|-------------|----------|----------|----------|
| <b>Operating pressure (bar)</b> | 1 ... 10    | 0 ... 10 | 0 ... 10 | 0 ... 10 |
| <b>Pilot pressure (bar)</b>     | see diagram | 2 ... 10 | 3 ... 10 | 2 ... 10 |
| <b>Flow rate (NI/min)</b>       | 160         | 160      | 160      | 160      |
| <b>Weight (kg)</b>              | 0.065       | 0.068    | 0.084    | 0.085    |

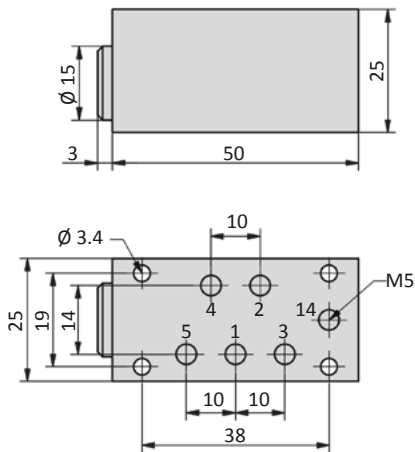


## Dimensions

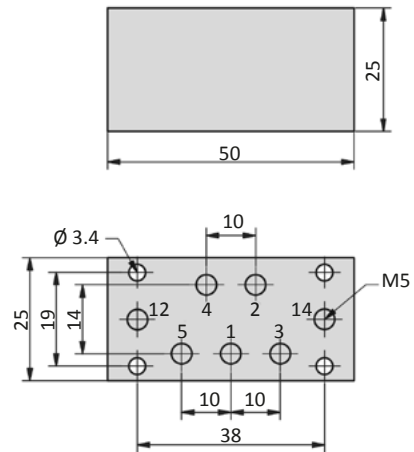
## L-25-3xx



## L-25-511



## L-25-520



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 10,12,14 = pilot ports

## Series L-28

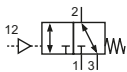
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

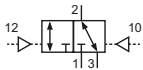


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

### 3/2-way valves

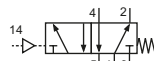


**L-28-311**  
3/2-way, single pilot, mechanical spring return

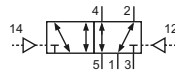


**L-28-320**  
3/2-way, double pilot

### 5/2-way valves



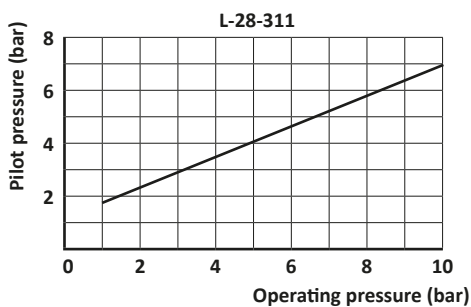
**L-28-511**  
5/2-way, single pilot, mechanical spring return

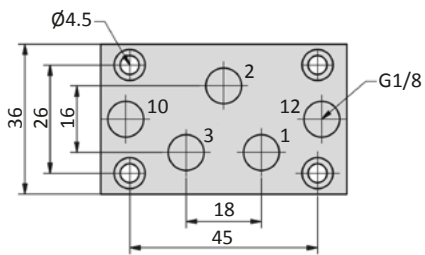
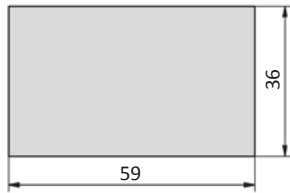
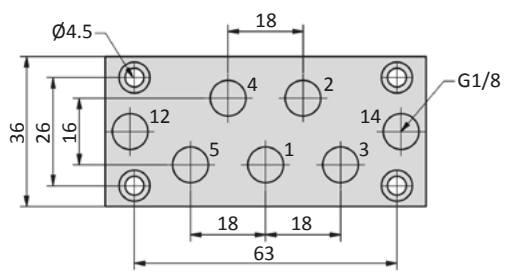
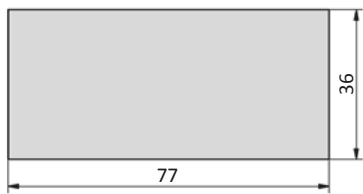


**L-28-520**  
5/2-way, double pilot

### Technical data

| Model-no.:                      | L-28-311    | L-28-320 | L-28-511 | L-28-520 |
|---------------------------------|-------------|----------|----------|----------|
| <b>Operating pressure (bar)</b> | 1 ... 10    | 0 ... 10 | 0 ... 10 | 0 ... 10 |
| <b>Pilot pressure (bar)</b>     | see diagram | 2 ... 10 | 3 ... 10 | 2 ... 10 |
| <b>Flow rate (NI/min)</b>       | 600         | 600      | 600      | 600      |
| <b>Weight (kg)</b>              | 0.192       | 0.195    | 0.254    | 0.250    |



**Dimensions**
**L-28-3xx**

**L-28-5xx**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 10,12,14 = pilot ports

## Series P-05

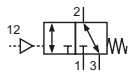
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

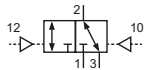


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

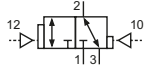
### 3/2-way valves



**P-05-311**  
3/2-way, single pilot, mechanical spring return

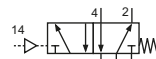


**P-05-320**  
3/2-way, double pilot

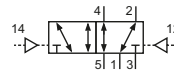


**P-05-322**  
3/2-way, double pilot, one side dominant

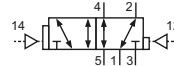
### 5/2- and 5/3-way valves



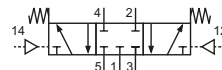
**P-05-511**  
5/2-way, single pilot, mechanical spring return



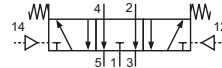
**P-05-520**  
5/2-way, double pilot



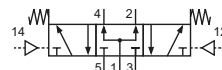
**P-05-522**  
5/2-way, double pilot, one side dominant



**P-05-530**  
5/3-way, center position closed



**P-05-533**  
5/3-way, center position exhausted

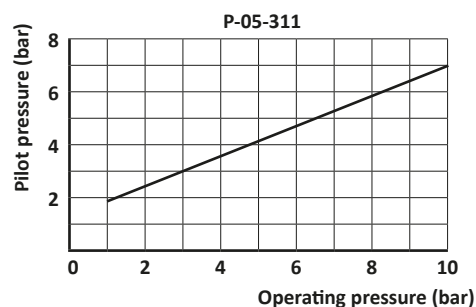


**P-05-534**  
5/3-way, center position pressurized

### Technical data

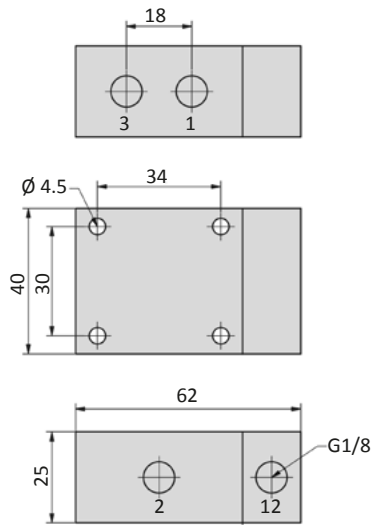
| Model-no.:                      | P-05-311    | P-05-320 | P-05-322 |
|---------------------------------|-------------|----------|----------|
| <b>Operating pressure (bar)</b> | 1 ... 10    | 0 ... 10 | 0 ... 10 |
| <b>Pilot pressure (bar)</b>     | see diagram | 2 ... 10 | 2 ... 10 |
| <b>Flow rate (NI/min)</b>       | 750         | 750      | 750      |
| <b>Weight (kg)</b>              | 0.158       | 0.195    | 0.2      |

| Model-no.:                      | P-05-511 | P-05-520 | P-05-522 | P-05-530 | P-05-533 | P-05-534 |
|---------------------------------|----------|----------|----------|----------|----------|----------|
| <b>Operating pressure (bar)</b> | 0 ... 10 | 0 ... 10 | 0 ... 10 | 0 ... 8  | 0 ... 8  | 0 ... 8  |
| <b>Pilot pressure (bar)</b>     | 3 ... 10 | 2 ... 10 | 2 ... 10 | 3 ... 8  | 3 ... 8  | 3 ... 8  |
| <b>Flow rate (NI/min)</b>       | 750      | 750      | 750      | 650      | 650      | 650      |
| <b>Weight (kg)</b>              | 0.205    | 0.245    | 0.245    | 0.245    | 0.245    | 0.245    |

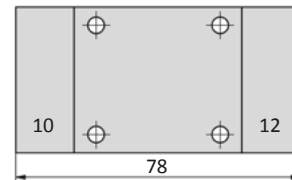


## Dimensions

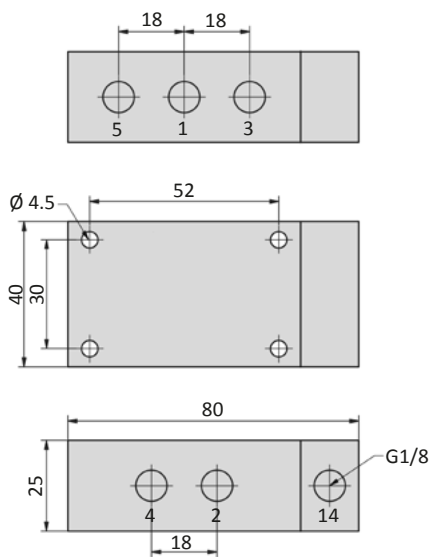
P-05-311



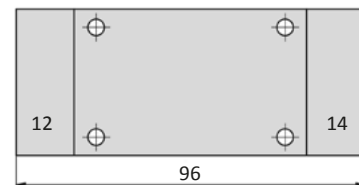
P-05-32x



P-05-511



P-05-52x, P-05-53x



- 1 = pressure inlet
  - 2,4 = outlets
  - 3,5 = exhausts
  - 10,12,14 = pilot ports
- Pilot ports can be repositioned by 180°.

## Accessories



Manifolds: page 4-10

## Series P-07

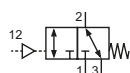
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4  |
| <b>Nominal size</b>      | 9 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

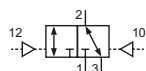


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

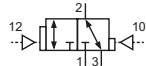
### 3/2-way valves



**P-07-311**  
3/2-way, single pilot, mechanical spring return

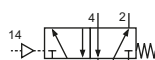


**P-07-320**  
3/2-way, double pilot

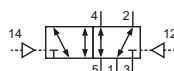


**P-07-322**  
3/2-way, double pilot, one side dominant

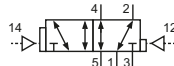
### 5/2- and 5/3-way valves



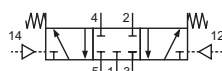
**P-07-511**  
5/2-way, single pilot, mechanical spring return



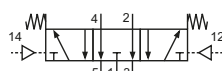
**P-07-520**  
5/2-way, double pilot



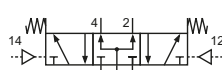
**P-07-522**  
5/2-way, double pilot, one side dominant



**P-07-530**  
5/3-way, center position closed



**P-07-533**  
5/3-way, center position exhausted

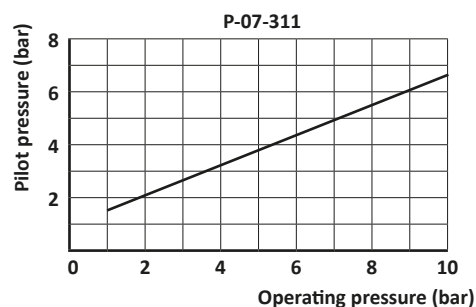


**P-07-534**  
5/3-way, center position pressurized

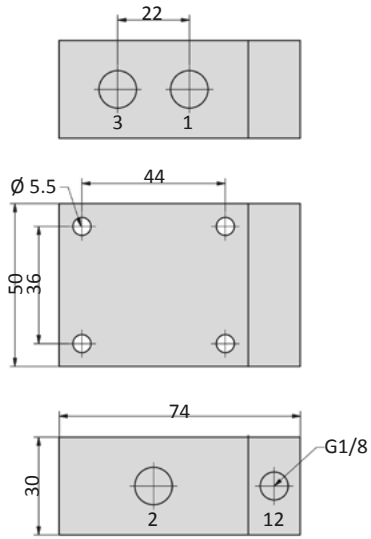
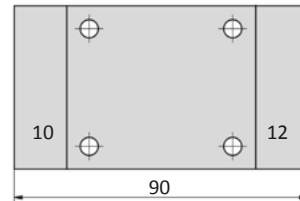
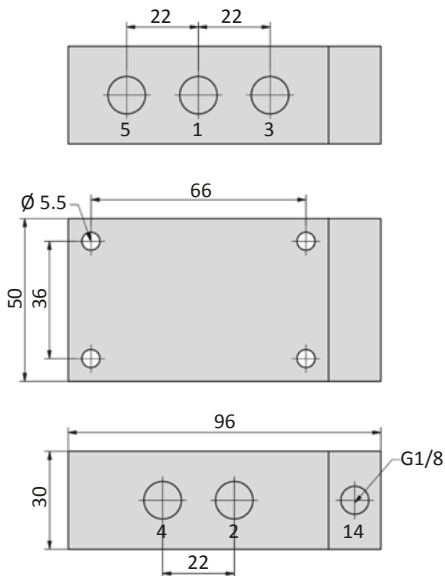
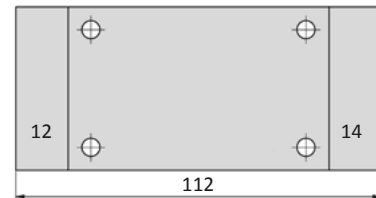
### Technical data

| Model-no.:                      | P-07-311    | P-07-320   | P-07-322   |
|---------------------------------|-------------|------------|------------|
| <b>Operating pressure (bar)</b> | 1 ... 10    | 0 ... 10   | 0 ... 10   |
| <b>Pilot pressure (bar)</b>     | see diagram | 1.5 ... 10 | 1.5 ... 10 |
| <b>Flow rate (NI/min)</b>       | 1580        | 1580       | 1580       |
| <b>Weight (kg)</b>              | 0.281       | 0.350      | 0.350      |

| Model-no.:                      | P-07-511 | P-07-520   | P-07-522   | P-07-530 | P-07-533 | P-07-534 |
|---------------------------------|----------|------------|------------|----------|----------|----------|
| <b>Operating pressure (bar)</b> | 0 ... 10 | 0 ... 10   | 0 ... 10   | 0 ... 8  | 0 ... 8  | 0 ... 8  |
| <b>Pilot pressure (bar)</b>     | 3 ... 10 | 1.5 ... 10 | 1.5 ... 10 | 3 ... 8  | 3 ... 8  | 3 ... 8  |
| <b>Flow rate (NI/min)</b>       | 1580     | 1580       | 1580       | 1300     | 1300     | 1300     |
| <b>Weight (kg)</b>              | 0.360    | 0.420      | 0.420      | 0.420    | 0.420    | 0.420    |





**Dimensions**
**P-07-311**

**P-07-32x**

**P-07-511**

**P-07-52x, P-07-53x**


- 1 = pressure inlet
  - 2,4 = outlets
  - 3,5 = exhausts
  - 10,12,14 = pilot ports
- Pilot ports can be repositioned by 180°.

**Accessories**


Manifolds: page 4-14

## Series P-12

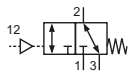
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/2  |
| <b>Nominal size</b>      | 14 mm   |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel  |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

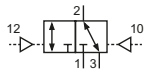


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

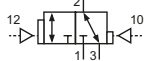
### 3/2-way valves



**P-12-311**  
3/2-way, single pilot, mechanical spring return

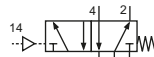


**P-12-320**  
3/2-way, double pilot

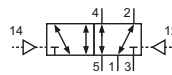


**P-12-322**  
3/2-way, double pilot, one side dominant

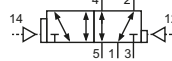
### 5/2- and 5/3-way valves



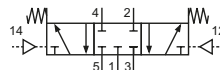
**P-12-511**  
5/2-way, single pilot, mechanical spring return



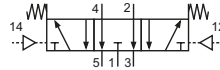
**P-12-520**  
5/2-way, double pilot



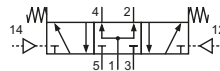
**P-12-522**  
5/2-way, double pilot, one side dominant



**P-12-530**  
5/3-way, center position closed



**P-12-533**  
5/3-way, center position exhausted



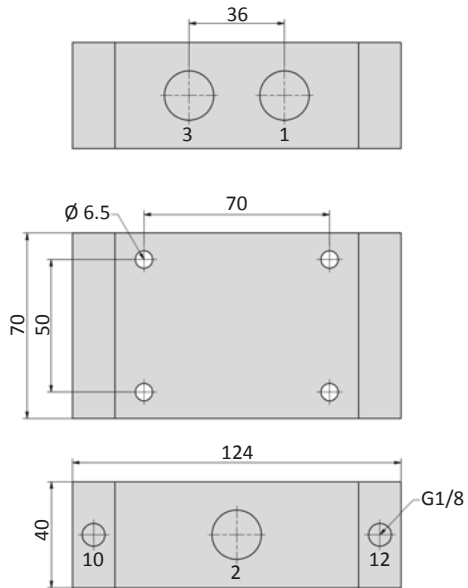
**P-12-534**  
5/3-way, center position pressurized

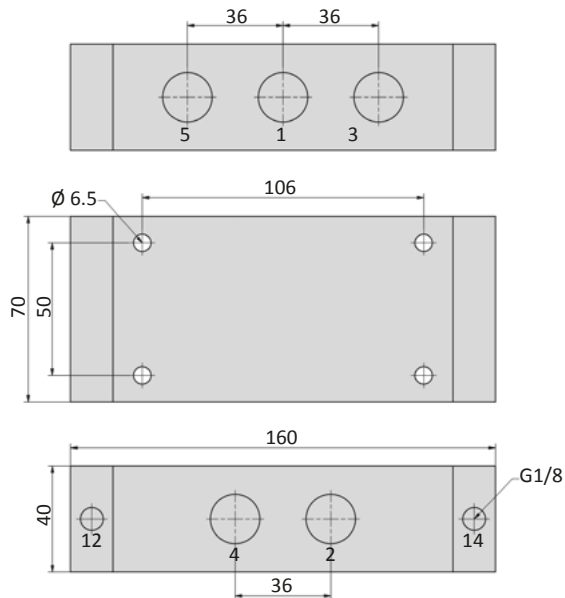
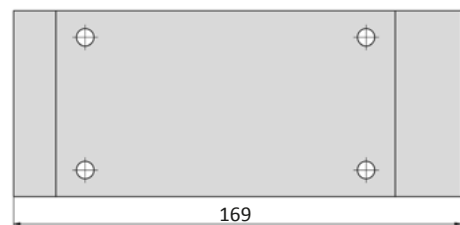
### Technical data

| Model-no.:                      | P-12-311 |  | P-12-320 |  | P-12-322 |  |
|---------------------------------|----------|--|----------|--|----------|--|
| <b>Operating pressure (bar)</b> | 1 ... 10 |  | 0 ... 10 |  | 0 ... 10 |  |
| <b>Pilot pressure (bar)</b>     | 2 ... 10 |  | 1 ... 10 |  | 1 ... 10 |  |
| <b>Flow rate (NI/min)</b>       | 3300     |  | 3300     |  | 3300     |  |
| <b>Weight (kg)</b>              | 0.830    |  | 0.855    |  | 0.855    |  |

| Model-no.:                      | P-12-511 | P-12-520 | P-12-522 | P-12-530 | P-12-533 | P-12-534 |
|---------------------------------|----------|----------|----------|----------|----------|----------|
| <b>Operating pressure (bar)</b> | 0 ... 10 | 0 ... 10 | 0 ... 10 | 0 ... 10 | 0 ... 10 | 0 ... 10 |
| <b>Pilot pressure (bar)</b>     | 2 ... 10 | 1 ... 10 | 1 ... 10 | 3 ... 10 | 3 ... 10 | 3 ... 10 |
| <b>Flow rate (NI/min)</b>       | 3300     | 3300     | 3300     | 3300     | 3300     | 3300     |
| <b>Weight (kg)</b>              | 1.065    | 1.080    | 1.080    | 1.080    | 1.080    | 1.080    |

**Dimensions**
**P-12-311, P-12-320**

**P-12-322**

**P-12-511, P-12-520, P-12-53x**

**P-12-522**


1 = pressure inlet

2,4 = outlets

3,5 = exhausts

10,12,14 = pilot ports

Pilot ports can be repositioned by 180°.

## Series BP-01 and BP-02



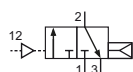
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | BP-01: G1/8<br>BP-02: G1/4  |
| <b>Nominal size</b>      | BP-01: 5 mm<br>BP-02: 7 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, PU, inner parts: Al, brass, plastic   |

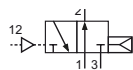


Pneumatically operated pool valve. The valve switches upon pressurization of the pilot port.

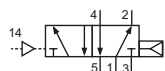
### 3/2- and 5/2-way valves



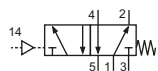
BP-01-310  
BP-02-310  
3/2-way, single pilot, air spring return, NC



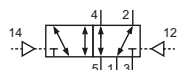
BP-01-312  
BP-02-312  
3/2-way, single pilot, air spring return, NO



BP-01-510  
BP-02-510  
5/2-way, single pilot, air spring return

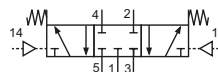


BP-01-511  
BP-02-511  
5/2-way, single pilot, mechanical spring return

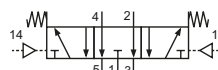


BP-01-520  
BP-02-520  
5/2-way, double pilot

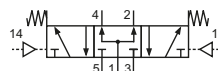
### 5/3-way valves



BP-01-530  
BP-02-530  
5/3-way, center position closed



BP-01-533  
BP-02-533  
5/3-way, center position exhausted



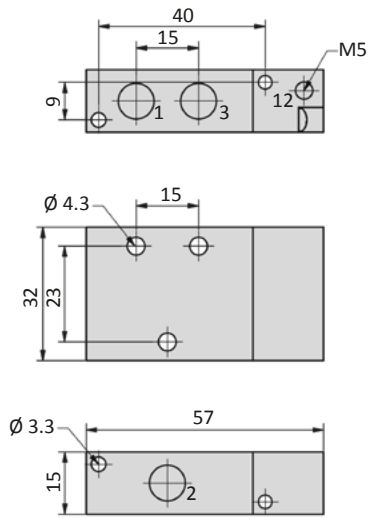
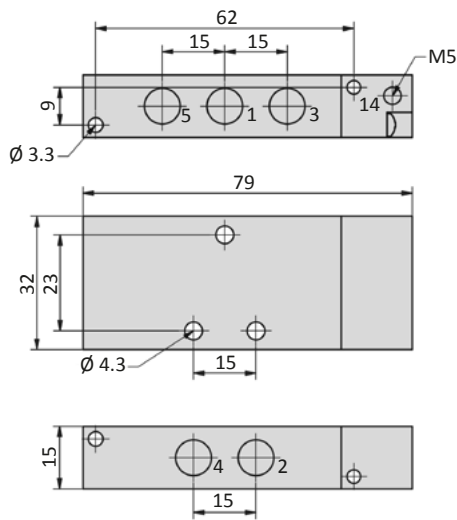
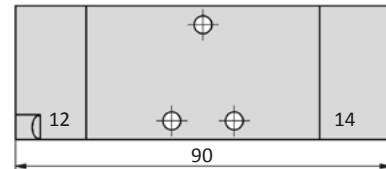
BP-01-534  
BP-02-534  
5/3-way, center position pressurized

### Technical data

| Model-no.:                      | BP-01-310   | BP-01-320   | BP-02-310   | BP-02-312   |
|---------------------------------|-------------|-------------|-------------|-------------|
| <b>Operating pressure (bar)</b> | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 |
| <b>Pilot pressure (bar)</b>     | 2 ... 8     | 2 ... 8     | 2 ... 8     | 2 ... 8     |
| <b>Flow rate (NI/min)</b>       | 660         | 600         | 1090        | 920         |
| <b>Weight (kg)</b>              | 0.065       | 0.066       | 0.125       | 0.125       |

| Model-no.:                      | BP-01-510   | BP-01-511   | BP-01-520   | BP-01-530   | BP-01-533   | BP-01-534   |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Operating pressure (bar)</b> | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 |
| <b>Pilot pressure (bar)</b>     | 2 ... 8     | 3 ... 8     | 2 ... 8     | 3 ... 8     | 3 ... 8     | 3 ... 8     |
| <b>Flow rate (NI/min)</b>       | 780         | 800         | 790         | 690         | 670         | 1030        |
| <b>Weight (kg)</b>              | 0.090       | 0.092       | 0.102       | 0.100       | 0.100       | 0.100       |

| Model-no.:                      | BP-02-510   | BP-02-511   | BP-02-520   | BP-02-530   | BP-02-533   | BP-02-534   |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Operating pressure (bar)</b> | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 | -0.95 ... 8 |
| <b>Pilot pressure (bar)</b>     | 2 ... 8     | 3 ... 8     | 2 ... 8     | 3 ... 8     | 3 ... 8     | 3 ... 8     |
| <b>Flow rate (NI/min)</b>       | 1700        | 1600        | 1540        | 1300        | 1470        | 1660        |
| <b>Weight (kg)</b>              | 0.185       | 0.185       | 0.210       | 0.202       | 0.202       | 0.202       |

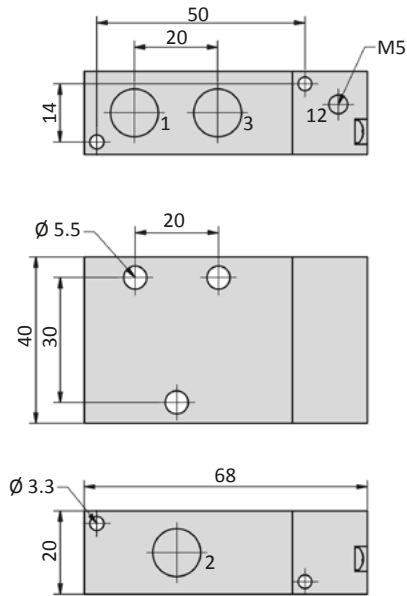
**Dimensions**
**BP-01-31x**

**BP-01-51x**

**BP-01-520, BP-01-53x**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 12,14 = pilot ports

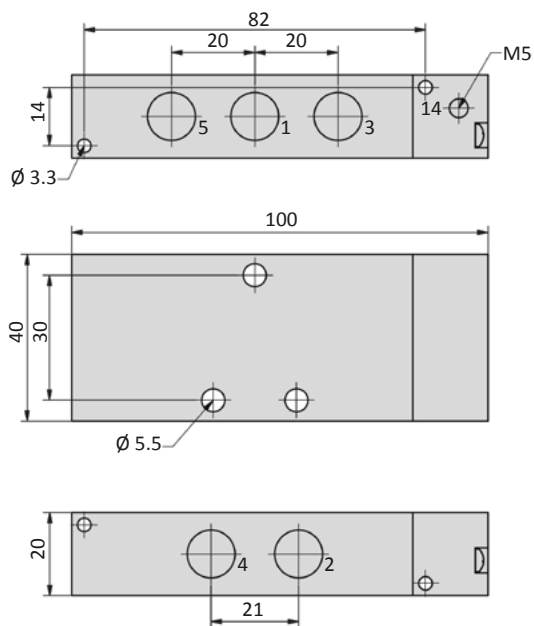
## Series BP-01 and BP-02

### Dimensions

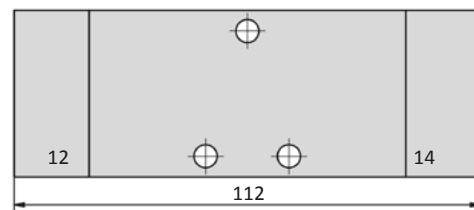
#### BP-02-31x



#### BP-02-51x



#### BP-02-520, BP-02-53x



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 12,14 = pilot ports







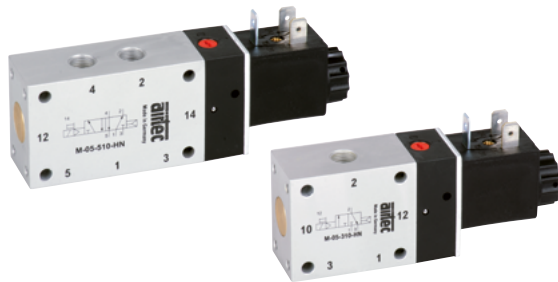
**Series M-04** Page 4-03



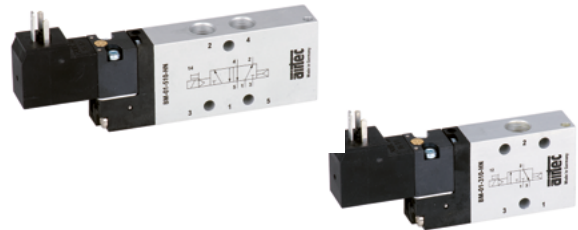
**Series KM-10** Page 4-18



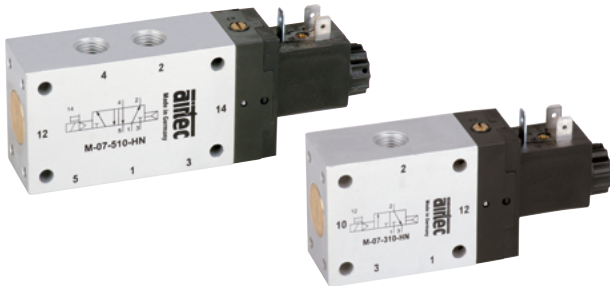
**Series M-05** Page 4-07



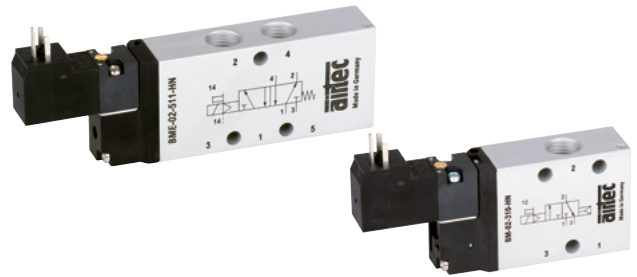
**Series BM-01** Page 4-22



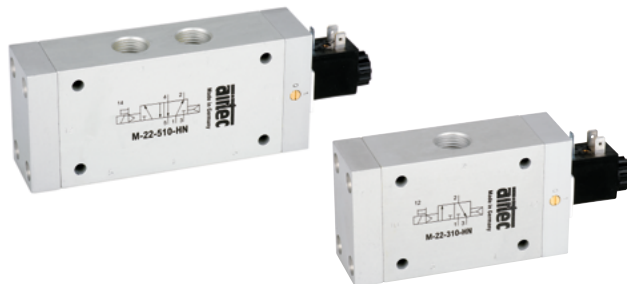
**Series M-07** Page 4-11



**Series BM-02** Page 4-22



**Series M-22** Page 4-15



**Series M-20** Page 4-30



**Series KM-09** Page 4-18



**Series MS-18** Page 4-32



# Table of contents

**Series MS-20** Page 4-34



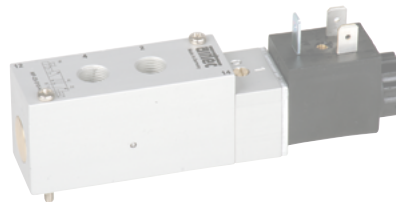
**Series MF-04** [www.airtec.de](http://www.airtec.de)



**Series MC-20** Page 4-36



**Series MF-05/ MF-25** [www.airtec.de](http://www.airtec.de)



**Accessories** Page 4-38



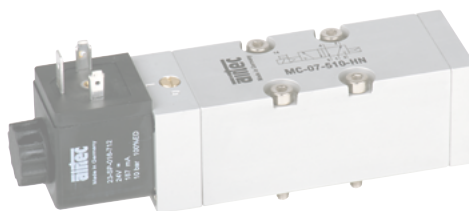
**Series MF-07** [www.airtec.de](http://www.airtec.de)



**Spare parts** Page 4-41



**Series MC-07** [www.airtec.de](http://www.airtec.de)



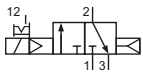
**Technical information** Page 4-46

**Technical details**

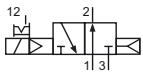
|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



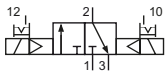
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

**3/2-way valves**


M-04-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC

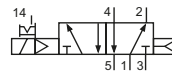


MO-04-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO

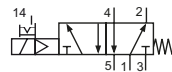


M-04-320-HN-xxx  
3/2-way, double solenoid

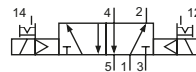
Please complete: xxx = electrical option

**5/2- and 5/3-way valves**


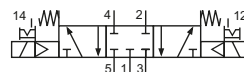
M-04-510-HN-xxx  
5/2-way, single solenoid, air spring return



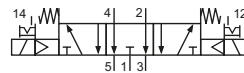
M-04-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



M-04-520-HN-xxx  
5/2-way, double solenoid



M-04-530-HN-xxx  
5/3-way, center position closed



M-04-533-HN-xxx  
5/3-way, center position exhausted

**Electrical options**

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx<br>Manual override on same side of ports |                    |
|-----------------|-------------------|------------|------------------------|---|--------------------|
|                 |                   |            |                        | 2 or 2 and 4                                  | 1, 3 or 1, 3 and 5 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441  | -411               |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461  | -431               |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442  | -412               |
| 24 V DC         | 4.8 W             |            | M 12                   | -042  | -012               |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462  | -432               |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -062  | -032               |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452  | -422               |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456  | -426               |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457  | -427               |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

## Series M-04

### Technical data

| Model-no.:                     | M-04-310          | MO-04-310         | M-04-320          | M-04-510          | M-04-511          | M-04-520          | M-04-530          | M-04-533          |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 2 ... 10          | 2 ... 10          | 2.5 ... 10        | 2,5 ... 10        | 3 ... 10          | 2,5 ... 10        | 3 ... 10          | 3 ... 10          |
| Pilot pressure* (bar)          | 2 ... 10          | 2 ... 10          | 2.5 ... 10        | 2,5 ... 10        | 3 ... 10          | 2,5 ... 10        | 3 ... 10          | 3 ... 10          |
| Flow rate (Nl/min)             | 360               | 360               | 360               | 360               | 360               | 360               | 360               | 360               |
| Response time (ms)<br>at 6 bar | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 12<br>off: 12 | on: 12<br>off: 14 | on: 13<br>off: 16 | on: 12<br>off: 12 | on: 15<br>off: 22 | on: 15<br>off: 22 |
| Weight (kg)                    | 0.185             | 0.185             | 0.315             | 0.210             | 0.220             | 0.335             | 0.335             | 0.335             |

\* max. 8 bar at 2.2 W and 2.5 W

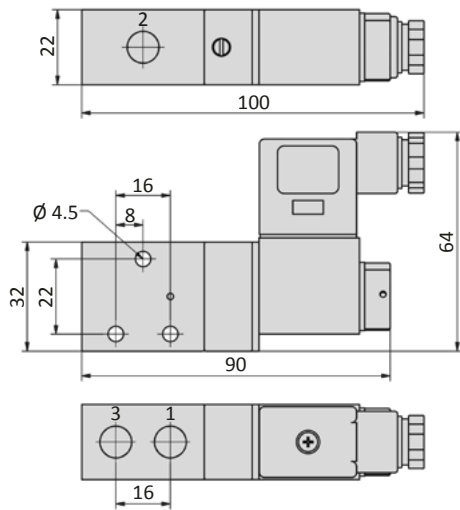
### Accessories



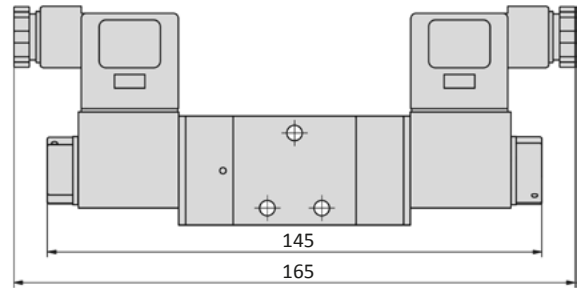
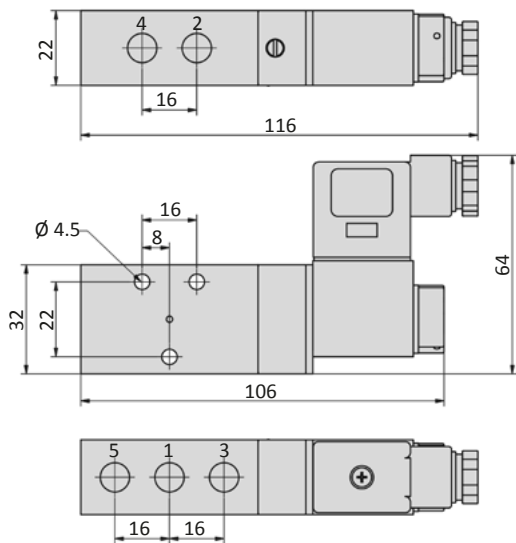
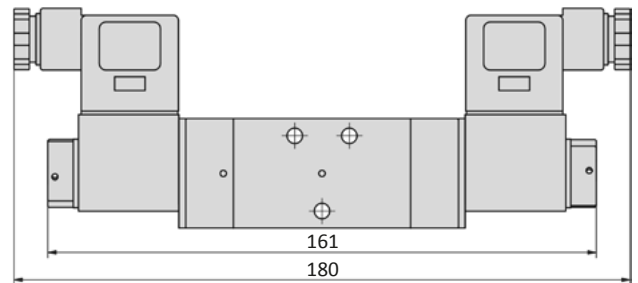
Plug sockets: page 4-38



Manifolds: page 4-06

**Dimensions**
**M-04-310-HN, MO-04-310-HN\***


\*For the NO version MO-04 the ports 1 and 3 are inverted.

**M-04-320-HN**

**M-04-510-HN, M-04-511-HN**

**M-04-520-HN, M-04-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

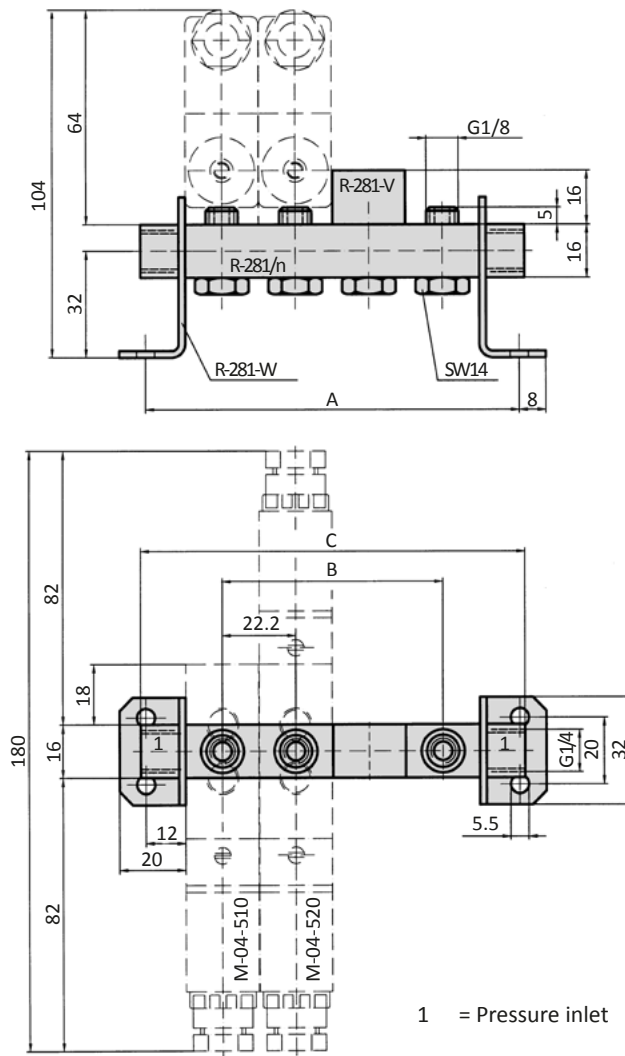
## Series M-04

### General information

The R-281/n manifold is suitable for the M-04 valve series. As well available are blind plates R-281-V for blank stations and mounting brackets R-281-W (pair). Hollow bolts and gaskets are included.



### Dimensions



| Model-no.: | A     | B     | C   | Weight (kg) |
|------------|-------|-------|-----|-------------|
| R-281/2    | 68.4  | 22.2  | 72  | 0.053       |
| R-281/3    | 90.6  | 44.4  | 94  | 0.074       |
| R-281/4    | 112.8 | 66.6  | 116 | 0.095       |
| R-281/5    | 135   | 88.8  | 138 | 0.116       |
| R-281/6    | 157.2 | 111   | 160 | 0.137       |
| R-281/8    | 201.6 | 155.5 | 204 | 0.179       |
| R-281/10   | 246   | 199.8 | 248 | 0.222       |

## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/8  |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

## 3/2-way valves

|  |   |
|--|---|
|  | M-05-310-HN-xxx<br>3/2-way, single solenoid, air spring return, NC                              |
|  | MO-05-310-HN-xxx<br>3/2-way, single solenoid, air spring return, NO                             |
|  | M-05-311-HN-xxx<br>3/2-way, single solenoid, mechanical spring return, NC                       |
|  | MO-05-311-HN-xxx<br>3/2-way, single solenoid, mechanical spring return, NO                      |
|  | ME-05-311-HN-xxx<br>3/2-way, single solenoid, external pilot pressure, mechanical spring return |
|  | M-05-320-HN-xxx<br>3/2-way, double solenoid   |
|  | ME-05-320-HN-xxx<br>3/2-way, double solenoid, external pilot pressure                           |

## 5/2- and 5/3-way valves

|  |   |
|--|---|
|  | M-05-510-HN-xxx<br>5/2-way, single solenoid, air spring return                                  |
|  | M-05-511-HN-xxx<br>5/2-way, single solenoid, mechanical spring return                           |
|  | ME-05-511-HN-xxx<br>5/2-way, single solenoid, external pilot pressure, mechanical spring return |
|  | M-05-520-HN-xxx<br>5/2-way, double solenoid   |
|  | ME-05-520-HN-xxx<br>5/2-way, double solenoid, external pilot pressure                           |
|  | M-05-530-HN-xxx<br>5/3-way, center position closed  |
|  | M-05-533-HN-xxx<br>5/3-way, center position exhausted   |
|  | M-05-534-HN-xxx<br>5/3-way, center position pressurized   |

Please complete: xxx = electrical option

## Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx<br>Manual override on same side of ports |                    |
|-----------------|-------------------|------------|------------------------|---|--------------------|
|                 |                   |            |                        | 2 or 2 and 4                                  | 1, 3 or 1, 3 and 5 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441  | -411               |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461  | -431               |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442  | -412               |
| 24 V DC         | 4.8 W             |            | M 12                   | -042  | -012               |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462  | -432               |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -062  | -032               |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452  | -422               |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456  | -426               |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457  | -427               |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

## Series M-05

### Technical data

|                                    |                   |                   |                   |                   |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | M-05-310          | MO-05-310         | M-05-311          | MO-05-311         | ME-05-311         | M-05-320          | ME-05-320         |
| <b>Operating pressure* (bar)</b>   | 2 ... 10          | 2 ... 10          | 3 ... 10          | 3 ... 10          | 0 ... 10          | 2 ... 10          | 0 ... 10          |
| <b>Pilot pressure* (bar)</b>       | 2 ... 10          | 2 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          | 2 ... 10          | 2 ... 10          |
| <b>Flow rate (Nl/min)</b>          | 750               | 750               | 750               | 750               | 750               | 750               | 750               |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 13<br>off: 18 | on: 12<br>off: 12 | on: 12<br>off: 12 |
| <b>Weight (kg)</b>                 | 0.255             | 0.255             | 0.260             | 0.260             | 0.308             | 0.400             | 0.426             |

|                                    |                   |                   |                   |                   |                   |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | M-05-510          | M-05-511          | ME-05-511         | M-05-520          | ME-05-520         | M-05-530          | M-05-533          | M-05-534          |
| <b>Operating pressure* (bar)</b>   | 2 ... 10          | 3 ... 10          | 0 ... 10          | 2 ... 10          | 0 ... 10          | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Pilot pressure* (bar)</b>       | 2 ... 10          | 3 ... 10          | 3 ... 10          | 2 ... 10          | 2 ... 10          | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Flow rate (Nl/min)</b>          | 750               | 750               | 750               | 750               | 750               | 650               | 650               | 650               |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 16 | on: 13<br>off: 18 | on: 15<br>off: 19 | on: 12<br>off: 12 | on: 12<br>off: 12 | on: 13<br>off: 18 | on: 13<br>off: 18 | on: 13<br>off: 18 |
| <b>Weight (kg)</b>                 | 0.295             | 0.300             | 0.360             | 0.440             | 0.470             | 0.440             | 0.440             | 0.440             |

\* max. 8 bar at 2.2 W and 2.5 W

### Accessories

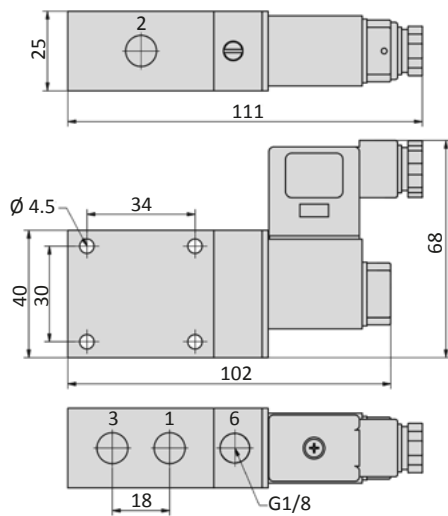


Plug sockets: page 4-38

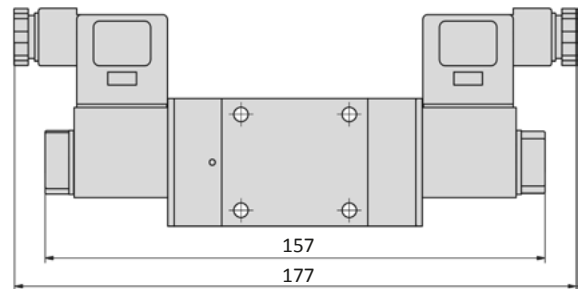
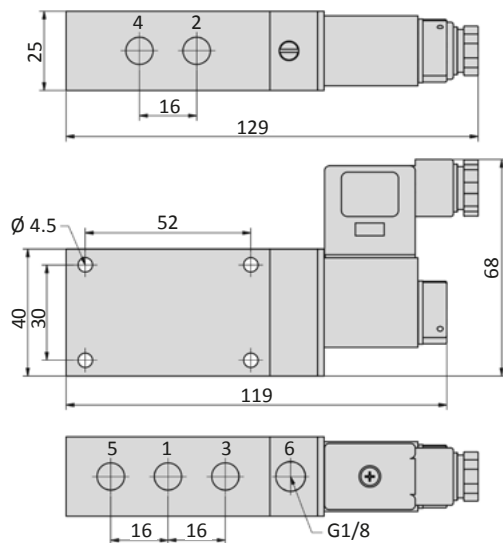
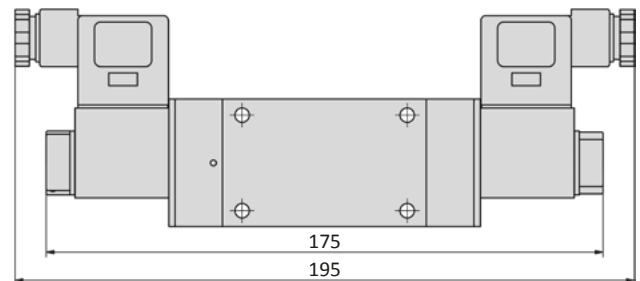


Manifolds: page 4-10



**Dimensions**
**M-05-31x-HN, MO-05-31x-HN\*, ME-05-31x-HN**


\*For the NO version MO-05 the ports 1 and 3 are inverted.

**M-05-320-HN, ME-05-320-HN**

**4**
**M-05-51x-HN, ME-05-511-HN**

**M-05-520-HN, ME-05-520-HN, M-05-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = external pilot pressure supply (only at ME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

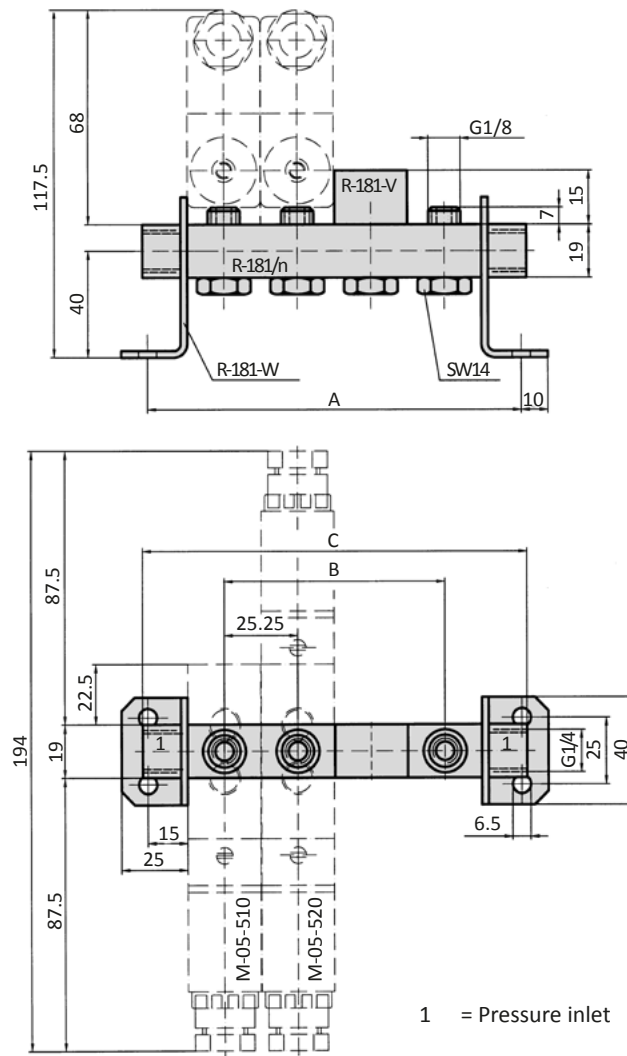
## Series M-05

### General information

The R-181/n manifold is suitable for the M-05 valve series. As well available are blind plates R-181-V for blank stations and mounting brackets R-181-W (pair). Hollow bolts and gaskets are included. The manifold is as well suitable for the pneumatically operated valve series P-05.



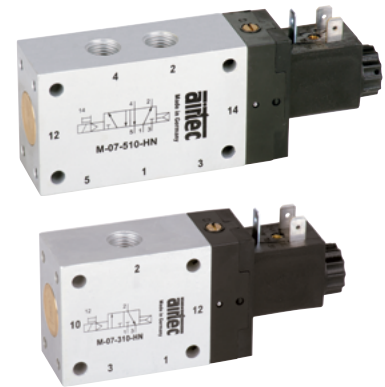
### Dimensions



| Model-no.: | A      | B      | C   | Weight (kg) |
|------------|--------|--------|-----|-------------|
| R-181/2    | 80.5   | 25.25  | 85  | 0.084       |
| R-181/3    | 105.75 | 50.5   | 110 | 0.113       |
| R-181/4    | 131    | 75.75  | 135 | 0.144       |
| R-181/5    | 156.25 | 101    | 160 | 0.174       |
| R-181/6    | 181.5  | 126.25 | 185 | 0.215       |
| R-181/8    | 232    | 176.75 | 235 | 0.266       |
| R-181/10   | 282.5  | 227.25 | 285 | 0.326       |
| R-181/12   | 333    | 277.75 | 335 | 0.385       |

## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4  |
| <b>Nominal size</b>      | 9 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

## 3/2-way valves

|  |  |
|--|--|
|  | <b>M-07-310-HN-xxx</b><br>3/2-way, single solenoid, air spring return, NC                              |
|  | <b>MO-07-310-HN-xxx</b><br>3/2-way, single solenoid, air spring return, NO                             |
|  | <b>M-07-311-HN-xxx</b><br>3/2-way, single solenoid, mechanical spring return, NC                       |
|  | <b>MO-07-311-HN-xxx</b><br>3/2-way, single solenoid, mechanical spring return, NO                      |
|  | <b>ME-07-311-HN-xxx</b><br>3/2-way, single solenoid, external pilot pressure, mechanical spring return |
|  | <b>M-07-320-HN-xxx</b><br>3/2-way, double solenoid   |
|  | <b>ME-07-320-HN-xxx</b><br>3/2-way, double solenoid, external pilot pressure                           |

Please complete: xxx = electrical option

## 5/2- and 5/3-way valves

|  |  |
|--|--|
|  | <b>M-07-510-HN-xxx</b><br>5/2-way, single solenoid, air spring return                                  |
|  | <b>M-07-511-HN-xxx</b><br>5/2-way, single solenoid, mechanical spring return                           |
|  | <b>ME-07-511-HN-xxx</b><br>5/2-way, single solenoid, external pilot pressure, mechanical spring return |
|  | <b>M-07-520-HN-xxx</b><br>5/2-way, double solenoid   |
|  | <b>ME-07-520-HN-xxx</b><br>5/2-way, double solenoid, external pilot pressure                           |
|  | <b>M-07-530-HN-xxx</b><br>5/3-way, center position closed  |
|  | <b>M-07-532-HN-xxx</b><br>5/3-way, center position safety  |
|  | <b>M-07-533-HN-xxx</b><br>5/3-way, center position exhausted   |
|  | <b>M-07-534-HN-xxx</b><br>5/3-way, center position pressurized   |

## Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -XXX<br>Manual override on same side of ports |                    |
|-----------------|-------------------|------------|------------------------|---|--------------------|
|                 |                   |            |                        | 2 or 2 and 4                                  | 1, 3 or 1, 3 and 5 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441  | -411               |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461  | -431               |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442  | -412               |
| 24 V DC         | 4.8 W             |            | M 12                   | -042  | -012               |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462  | -432               |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -062  | -032               |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452  | -422               |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456  | -426               |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457  | -427               |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

## Series M-07

### Technical data

| Model-no.:                     | M-07-310          | MO-07-310         | M-07-311          | MO-07-311         | ME-07-311         | M-07-320          | ME-07-320         |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 1.5 ... 10        | 1.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 0 ... 10          | 1.5 ... 10        | 0 ... 10          |
| Pilot pressure* (bar)          | 1.5 ... 10        | 1.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 1.5 ... 10        | 1.5 ... 10        |
| Flow rate (NI/min)             | 1580              | 1580              | 1580              | 1580              | 1580              | 1580              | 1580              |
| Response time (ms)<br>at 6 bar | on: 15<br>off: 19 | on: 15<br>off: 19 | on: 15<br>off: 19 | on: 15<br>off: 19 | on: 15<br>off: 22 | on: 14<br>off: 14 | on: 14<br>off: 14 |
| Weight (kg)                    | 0.375             | 0.375             | 0.380             | 0.380             | 0.450             | 0.520             | 0.578             |

| Model-no.:                     | M-07-510          | M-07-511          | ME-07-511         | M-07-520          | ME-07-520         |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 1.5 ... 10        | 2.5 ... 10        | 0 ... 10          | 2 ... 10          | 0 ... 10          |
| Pilot pressure* (bar)          | 1.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 2 ... 10          | 2 ... 10          |
| Flow rate (NI/min)             | 1580              | 1580              | 1580              | 1580              | 1580              |
| Response time (ms)<br>at 6 bar | on: 15<br>off: 19 | on: 15<br>off: 22 | on: 15<br>off: 19 | on: 14<br>off: 14 | on: 14<br>off: 14 |
| Weight (kg)                    | 0.455             | 0.465             | 0.530             | 0.620             | 0.650             |

| Model-no.:                     | M-07-530          | M-07-532          | M-07-533          | M-07-534          |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| Pilot pressure* (bar)          | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 1300              | 1280              | 1300              | 1300              |
| Response time (ms)<br>at 6 bar | on: 15<br>off: 22 | on: 35<br>off: 42 | on: 15<br>off: 22 | on: 15<br>off: 22 |
| Weight (kg)                    | 0.620             | 0.620             | 0.620             | 0.620             |

\* max. 8 bar at 2.2 W and 2.5 W

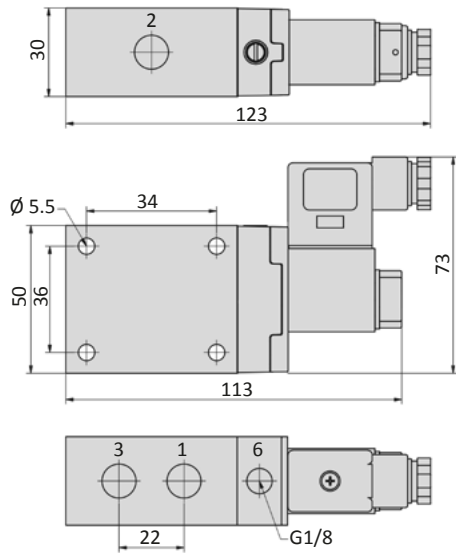
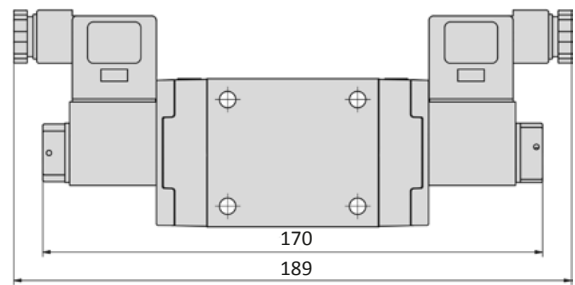
### Accessories



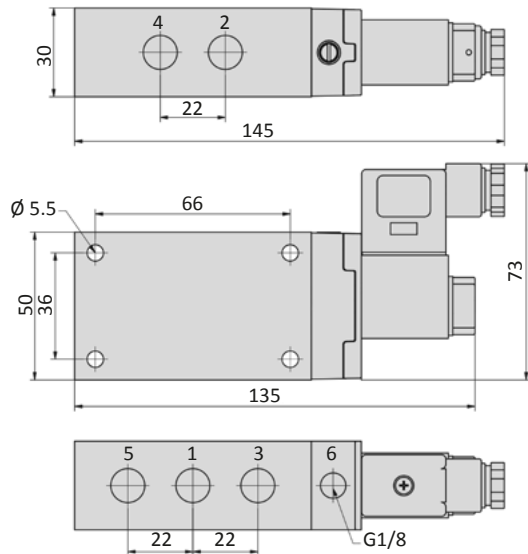
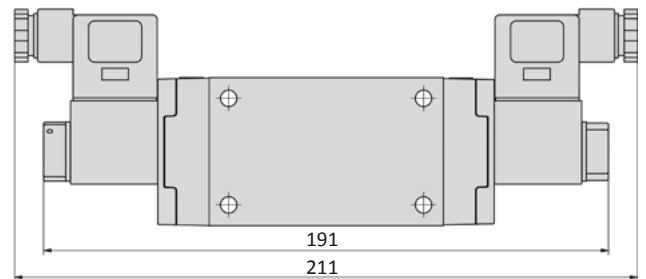
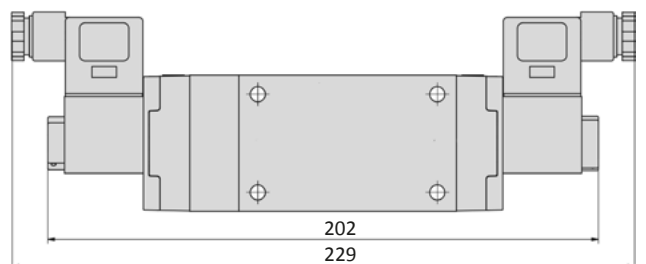
Plug sockets: page 4-38



Manifolds: page 4-14

**Dimensions**
**M-07-31x-HN, MO-07-31x-HN\*, ME-07-31x-HN**

**M-07-320-HN, ME-07-320-HN**


\*For the NO version MO-07 the ports 1 and 3 are inverted.

**M-07-51x-HN, ME-07-511-HN**

**M-07-520-HN, ME-07-520-HN, M-07-53x-HN**

**M-07-532-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = external pilot pressure supply (only at ME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

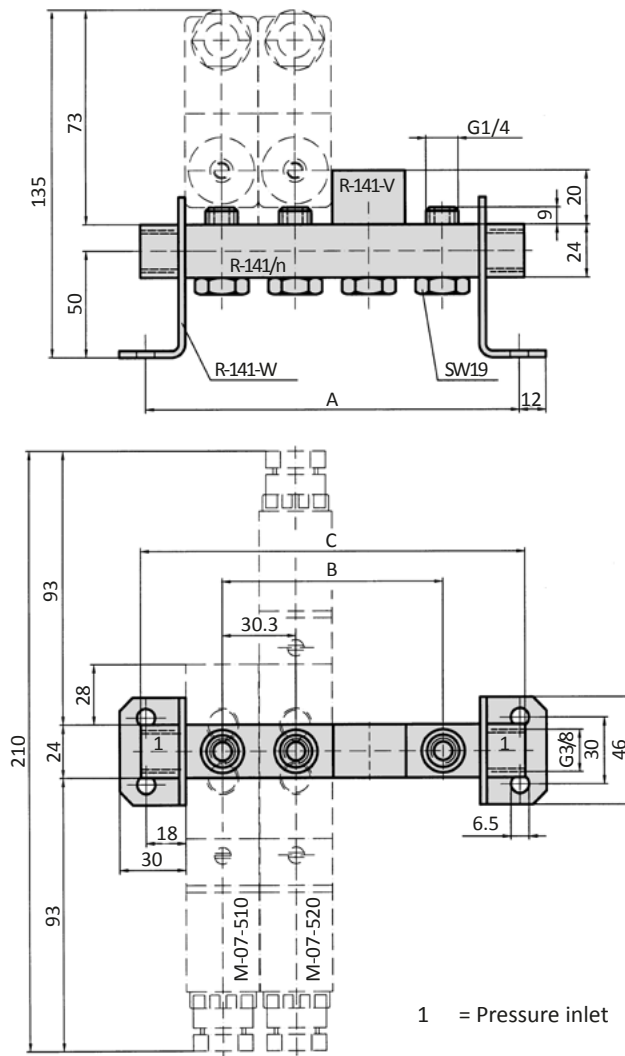
## Series M-07

### General information

The R-141/n manifold is suitable for the M-07 valve series. As well available are blind plates R-141-V for blank stations and mounting brackets R-141-W (pair). Hollow bolts and gaskets are included. The manifold is as well suitable for the pneumatically operated valve series P-07.



### Dimensions



| Model-no.: | A     | B     | C   | Weight (kg) |
|------------|-------|-------|-----|-------------|
| R-141/2    | 96.6  | 30.3  | 100 | 0.165       |
| R-141/3    | 126.9 | 60.6  | 130 | 0.227       |
| R-141/4    | 157.2 | 90.9  | 160 | 0.287       |
| R-141/5    | 187.5 | 121.2 | 190 | 0.349       |
| R-141/6    | 217.8 | 151.5 | 220 | 0.412       |
| R-141/8    | 248.1 | 181.8 | 250 | 0.473       |
| R-141/12   | 399.6 | 333.3 | 400 | 0.781       |

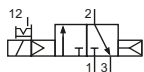
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/2  |
| <b>Nominal size</b>      | 14 mm   |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: Al, steel and plastic   |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

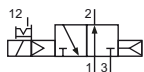


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

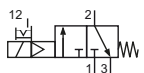
## 3/2-way valves



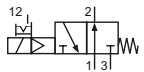
M-22-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC



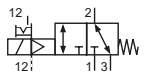
MO-22-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO



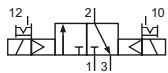
M-22-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



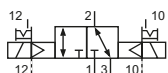
MO-22-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



ME-22-311-HN-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return

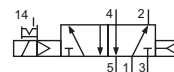


M-22-320-HN-xxx  
3/2-way, double solenoid

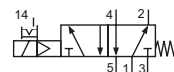


ME-22-320-HN-xxx  
3/2-way, double solenoid, external pilot pressure

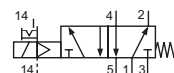
## 5/2- and 5/3-way valves



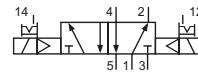
M-22-510-HN-xxx  
5/2-way, single solenoid, air spring return



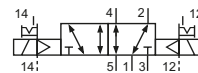
M-22-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



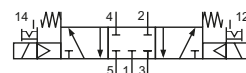
ME-22-511-HN-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



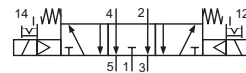
M-22-520-HN-xxx  
5/2-way, double solenoid



ME-22-520-HN-xxx  
5/2-way, double solenoid, external pilot pressure



M-22-530-HN-xxx  
5/3-way, center position closed



M-22-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

## Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx |
|-----------------|-------------------|------------|------------------------|------|
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -411 |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -431 |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -412 |
| 24 V DC         | 4.8 W             |            | M 12                   | -012 |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -432 |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -032 |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -422 |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -426 |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -427 |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

## Series M-22

### Technical data

| Model-no.:                     | M-22-310          | MO-22-310         | M-22-311          | MO-22-311         | ME-22-311         | M-22-320          | ME-22-320         |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 1 ... 10          | 1 ... 10          | 2 ... 10          | 2 ... 10          | 0 ... 10          | 1 ... 10          | 0 ... 10          |
| Pilot pressure* (bar)          | 1 ... 10          | 1 ... 10          | 2 ... 10          | 2 ... 10          | 2 ... 10          | 1 ... 10          | 1 ... 10          |
| Flow rate (Nl/min)             | 3300              | 3300              | 3300              | 3300              | 3300              | 3300              | 3300              |
| Response time (ms)<br>at 6 bar | on: 30<br>off: 58 | on: 30<br>off: 58 | on: 28<br>off: 68 | on: 28<br>off: 68 | on: 28<br>off: 68 | on: 20<br>off: 20 | on: 20<br>off: 20 |
| Weight (kg)                    | 0.910             | 0.910             | 0.965             | 0.965             | 0.965             | 0.984             | 0.984             |

| Model-no.:                     | M-22-510          | M-22-511          | ME-22-511         | M-22-520          | ME-22-520         | M-22-530          | M-22-533          |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 1 ... 10          | 2 ... 10          | 0 ... 10          | 1 ... 10          | 0 ... 10          | 3 ... 10          | 3 ... 10          |
| Pilot pressure* (bar)          | 1 ... 10          | 2 ... 10          | 2 ... 10          | 1 ... 10          | 1 ... 10          | 3 ... 10          | 3 ... 10          |
| Flow rate (Nl/min)             | 3300              | 3300              | 3300              | 3300              | 3300              | 3300              | 3300              |
| Response time (ms)<br>at 6 bar | on: 30<br>off: 59 | on: 20<br>off: 80 | on: 20<br>off: 80 | on: 22<br>off: 22 | on: 22<br>off: 22 | on: 30<br>off: 50 | on: 30<br>off: 50 |
| Weight (kg)                    | 1.150             | 1.180             | 1.160             | 1.260             | 1.260             | 1.250             | 1.250             |

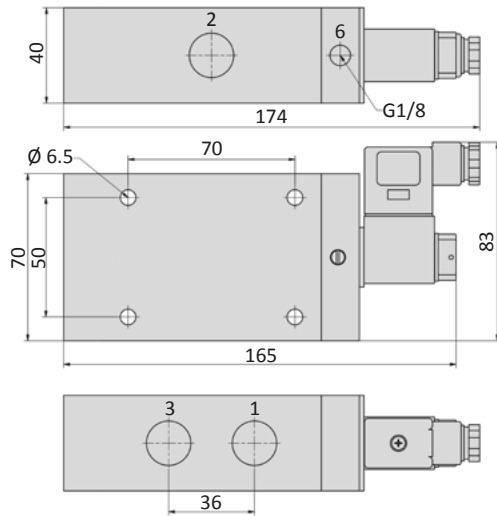
\* max. 8 bar at 2.2 W and 2.5 W

### Accessories

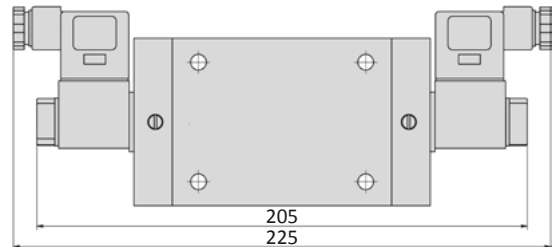
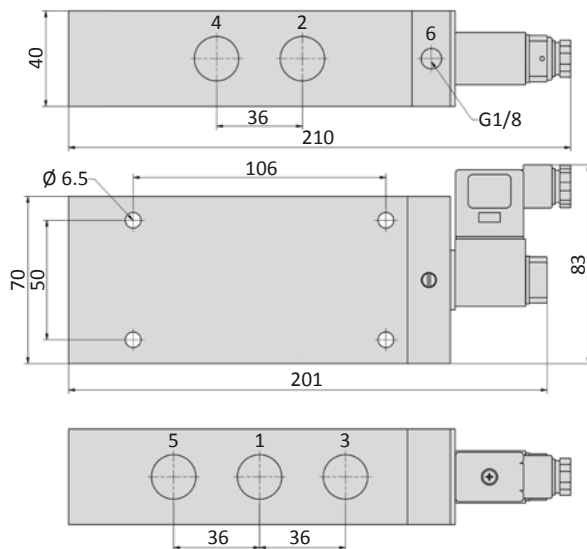
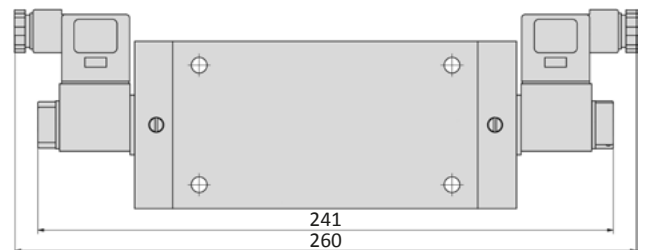


Plug sockets: page 4-38



**Dimensions**
**M-22-31x-HN, MO-22-31x-HN\*, ME-22-31x-HN**


\*For the NO version MO-22 the ports 1 and 3 are inverted.

**M-22-320-HN, ME-22-320-HN**

**4**
**M-22-51x-HN, ME-22-511-HN**

**M-22-520-HN, ME-22-520-HN, M-22-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = external pilot pressure supply (only at ME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

# Series KM-09 and KM-10

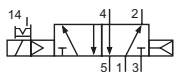
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | KM-09: G1/8<br>KM-10: G1/4  |
| <b>Nominal size</b>      | KM-09: 6 mm<br>KM-10: 9 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, stainless steel and brass  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

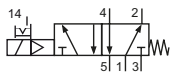


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

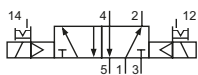
### 5/2-way valves



KM-09-510-HN-xxx  
KM-10-510-HN-xxx  
5/2-way, single solenoid, air spring return

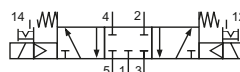


KM-09-511-HN-xxx  
KM-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return

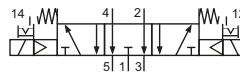


KM-09-520-HN-xxx  
KM-10-520-HN-xxx  
5/2-way, double solenoid

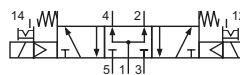
### 5/3-way valves



KM-09-530-HN-xxx  
KM-10-530-HN-xxx  
5/3-way, center position closed



KM-09-533-HN-xxx  
KM-10-533-HN-xxx  
5/3-way, center position exhausted



KM-09-534-HN-xxx  
KM-10-534-HN-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

## Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx<br>Manual override on same side of ports |            |
|-----------------|-------------------|------------|------------------------|---|------------|
|                 |                   |            |                        | 2 and 4                                       | 1, 3 and 5 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441  | -411       |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461  | -431       |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442  | -412       |
| 24 V DC         | 4.8 W             |            | M 12                   | -042  | -012       |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462  | -432       |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -062  | -032       |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452  | -422       |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456  | -426       |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457  | -427       |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

**Technical data**

|                                    |                   |                   |                   |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | KM-09-510         | KM-09-511         | KM-09-520         | KM-09-530         | KM-09-533         | KM-09-534         |
| <b>Operating pressure* (bar)</b>   | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          |
| <b>Pilot pressure* (bar)</b>       | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          | 3 ... 10          |
| <b>Flow rate (NI/min)</b>          | 950               | 810               | 950               | 680               | 680               | 680               |
| <b>Response time (ms) at 6 bar</b> | on: 15<br>off: 16 | on: 13<br>off: 28 | on: 15<br>off: 15 | on: 14<br>off: 16 | on: 14<br>off: 16 | on: 14<br>off: 16 |
| <b>Weight (kg)</b>                 | 0.230             | 0.231             | 0.330             | 0.330             | 0.330             | 0.330             |
| <b>Model-no.:</b>                  | KM-10-510         | KM-10-511         | KM-10-520         | KM-10-530         | KM-10-533         | KM-10-534         |
| <b>Operating pressure* (bar)</b>   | 2.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 3 ... 10          | 3 ... 10          | 3 ... 10          |
| <b>Pilot pressure* (bar)</b>       | 2.5 ... 10        | 2.5 ... 10        | 2.5 ... 10        | 3 ... 10          | 3 ... 10          | 3 ... 10          |
| <b>Flow rate (NI/min)</b>          | 2100              | 1800              | 2100              | 1500              | 1500              | 1500              |
| <b>Response time (ms) at 6 bar</b> | on: 18<br>off: 19 | on: 16<br>off: 27 | on: 18<br>off: 18 | on: 16<br>off: 22 | on: 16<br>off: 22 | on: 16<br>off: 22 |
| <b>Weight (kg)</b>                 | 0.470             | 0.470             | 0.630             | 0.630             | 0.630             | 0.630             |

\* max. 8 bar at 2.2 W and 2.5 W

**Accessories**


Plug sockets: page 4-38



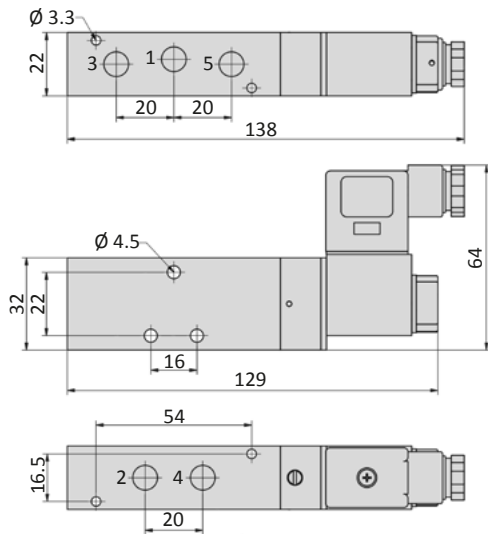
Manifolds and accessories: page 4-21



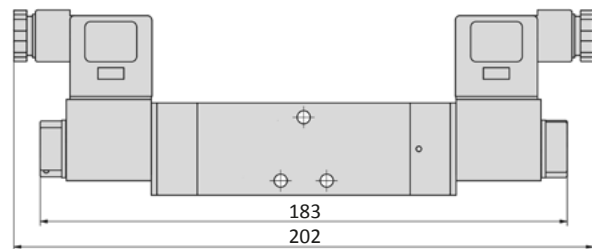
## Series KM-09 and KM-10

### Dimensions

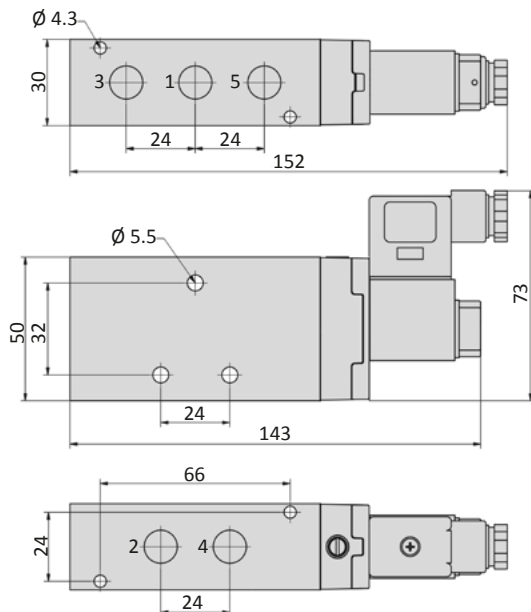
#### KM-09-51x-HN



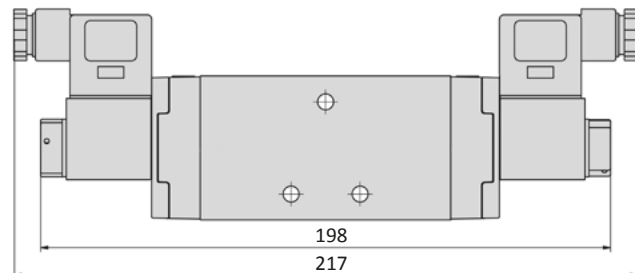
#### KM-09-520-HN, KM-09-53x-HN



#### KM-10-51x-HN



#### KM-10-520-HN, KM-10-53x-HN



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

# Series KM-09 and KM-10

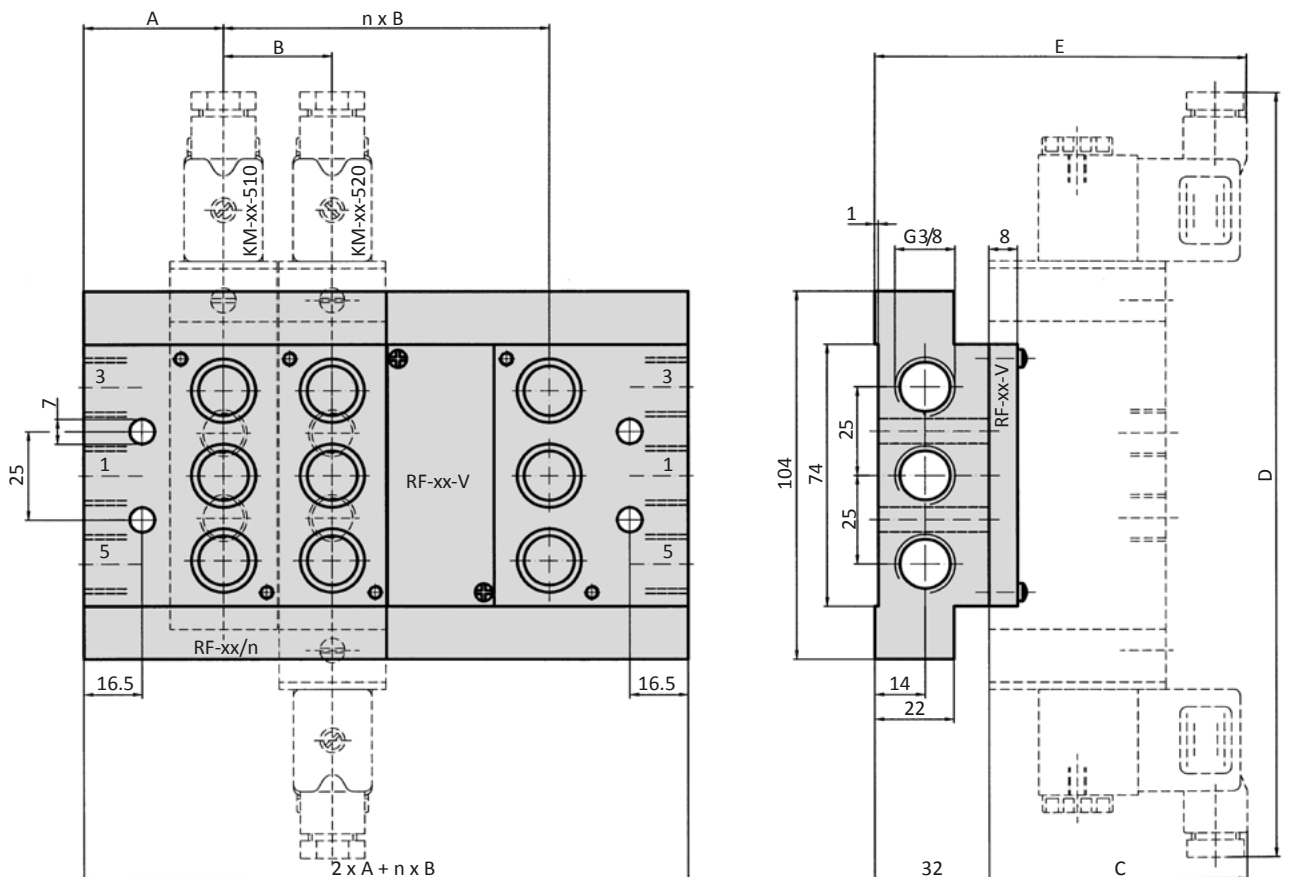
## General information

The RF-09/n and RF-10/n manifolds are suitable for the KM-09 and KM-10 valve series. This is a modular system and extendable. The RF-09 and RF-10 can be combined into one manifold with different valve sizes. Blind plates RF-09-V and RF-10-V are available for blank stations. All mounting screws and o-rings are included.



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## Dimensions



n = number of stations  
 1 = pressure inlet  
 3,5 = exhausts

| Model-no.: | A     | B    | C  | D   | E   |
|------------|-------|------|----|-----|-----|
| RF-09/n    | 35.25 | 22.5 | 64 | 202 | 96  |
| RF-10/n    | 39.25 | 30.5 | 73 | 217 | 105 |

| Model-no.:  | n       | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |
|-------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg) | RF-09/n | 0.415 | 0.550 | 0.680 | 0.810 | 0.990 | 1.060 | 1.190 | 1.320 |
|             | RF-10/n | 0.470 | 0.660 | 0.850 | 1.040 | 1.250 | 1.380 | 1.570 | 1.760 |

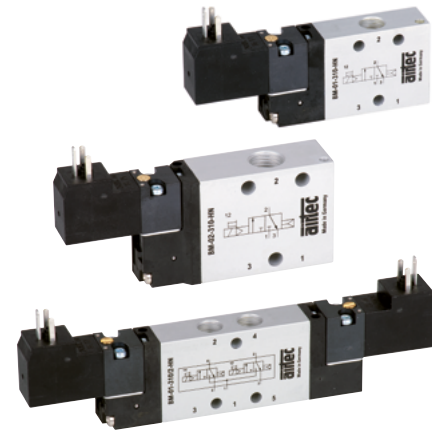
| Model-no.:  | n       | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg) | RF-09/n | 1.500 | 1.565 | 1.700 | 1.830 | 2.010 | 2.075 | 2.210 | 2.340 |
|             | RF-10/n | 1.970 | 2.100 | 2.290 | 2.480 | 2.690 | 2.820 | 3.010 | 3.200 |

# Series BM-01 and BM-02



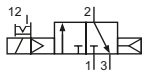
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | BM-01: G1/8<br>BM-02: G1/4  |
| <b>Nominal size</b>      | BM-01: 5 mm<br>BM-02: 7 mm  |
| <b>Temperature range</b> | -10°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, FKM and PU, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

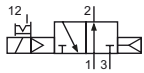


Electrically operated spool valve. The manual override is non-detent (HNT) or detent (HNR) and is operated by bolt or screwdriver.

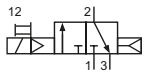
### 3/2-way valves



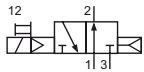
BM-01-310-HNR-xxx  
BM-02-310-HNR-xxx  
3/2-way, single solenoid, air spring return, NC



BM-01-312-HNR-xxx  
BM-02-312-HNR-xxx  
3/2-way, single solenoid, air spring return, NO

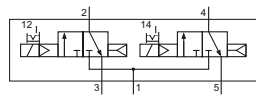


BM-01-310-HNT-xxx  
BM-02-310-HNT-xxx  
3/2-way, single solenoid, air spring return, NC

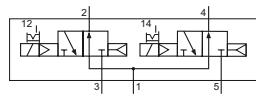


BM-01-312-HNT-xxx  
BM-02-312-HNT-xxx  
3/2-way, single solenoid, air spring return, NO

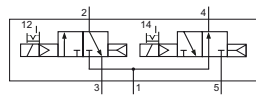
### 2 x 3/2-way valves



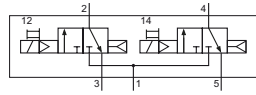
BM-01-310/2-HNR-xxx  
BM-02-310/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, NC



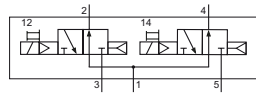
BM-01-312/2-HNR-xxx  
BM-02-312/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, NO



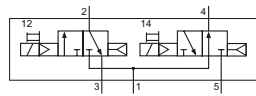
BM-01-314/2-HNR-xxx  
BM-02-314/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO



BM-01-310/2-HNT-xxx  
BM-02-310/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, NC



BM-01-312/2-HNT-xxx  
BM-02-312/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, NO



BM-01-314/2-HNT-xxx  
BM-02-314/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

Please complete: xxx = electrical option

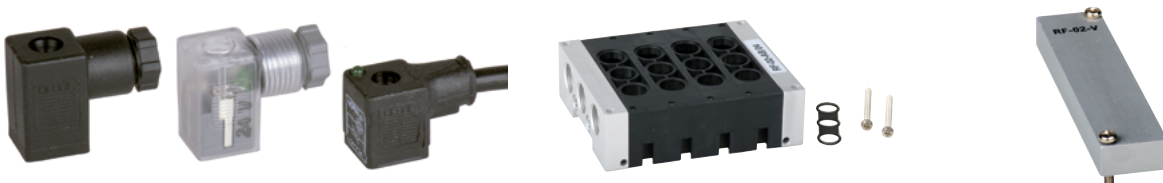
## Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection*1 | -XXX<br>electrical pins on same side of ports |                    |
|-----------------|-------------------|-----------|-------------------|---|--------------------|
|                 |                   |           |                   | 2 or 2 and 4                                  | 1, 3 or 1, 3 and 5 |
| 12 V DC         | 1 W               |           | Form C            | -461  | -431               |
| 24 V DC         | 1 W               |           | Form C            | -462  | -432               |
| 24 V DC         | 1 W               |           | M12               | -N62  | -                  |
| 24 V AC         | 3 VA              |           | Form C            | -452  | -422               |
| 115 V AC        | 3 VA              |           | Form C            | -456  | -426               |
| 230 V AC        | 3 VA              |           | Form C            | -457  | -427               |

\*1 Plug socket not included, suitable plug sockets see page 4-39.

**Technical data**

|                                    |                   |                   |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | BM-01-310         | BM-01-312         | BM-01-310/2       | BM-01-312/2       | BM-01-314/2       |
| <b>Operating pressure (bar)</b>    | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           |
| <b>Pilot pressure (bar)</b>        | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           |
| <b>Flow rate (NI/min)</b>          | 660               | 600               | 650               | 550               | 580               |
| <b>Response time (ms) at 6 bar</b> | on: 19<br>off: 32 | on: 16<br>off: 30 | on: 18<br>off: 34 | on: 18<br>off: 34 | on: 18<br>off: 34 |
| <b>Weight (kg)</b>                 | 0.108             | 0.110             | 0.154             | 0.154             | 0.154             |
| <b>Model-no.:</b>                  | BM-02-310         | BM-02-312         | BM-02-310/2       | BM-02-312/2       | BM-02-314/2       |
| <b>Operating pressure (bar)</b>    | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           |
| <b>Pilot pressure (bar)</b>        | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           | 2 ... 8           |
| <b>Flow rate (NI/min)</b>          | 1090              | 920               | 1050              | 1030              | NC: 1050. NO: 920 |
| <b>Response time (ms) at 6 bar</b> | on: 19<br>off: 23 | on: 25<br>off: 27 | on: 22<br>off: 24 | on: 22<br>off: 24 | on: 22<br>off: 24 |
| <b>Weight (kg)</b>                 | 0.150             | 0.150             | 0.250             | 0.250             | 0.250             |

**Accessories**


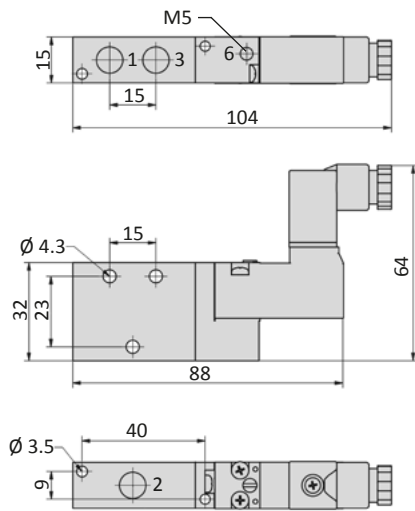
Plug sockets: page 4-39

Manifolds and accessories: page 4-29

## Series BM-01 and BM-02

### Dimensions

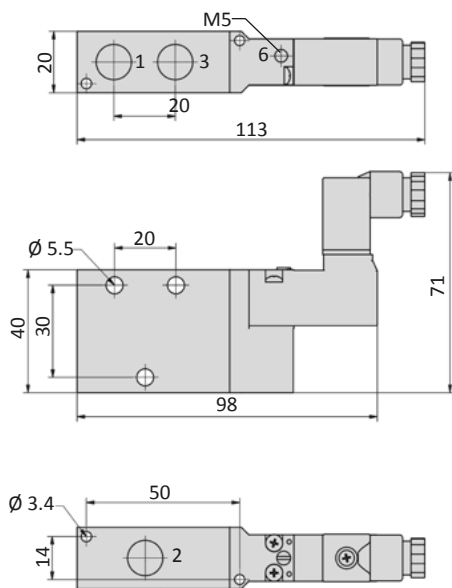
#### BM-01-31x-HNx



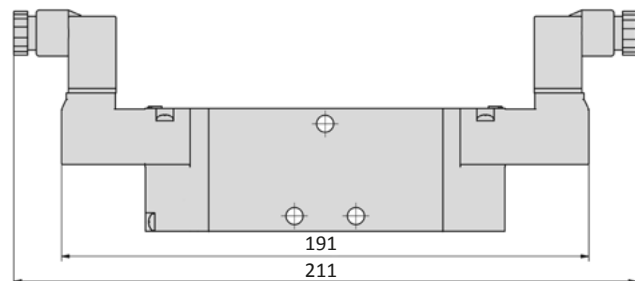
#### BM-01-31x/2-HNx



#### BM-02-31x-HNx



#### BM-02-31x/2-HNx



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = pilot air exhaust (only at BM-valves)
- 6 = external pilot pressure supply (only at BME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.



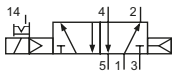
**Technical details**

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | BM-01: G1/8<br>BM-02: G1/4  |
| <b>Nominal size</b>      | BM-01: 5 mm<br>BM-02: 7 mm  |
| <b>Temperature range</b> | -10°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, FKM and PU, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

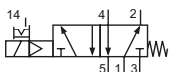


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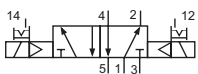
Electrically operated spool valve. The manual override is non-detent or detent and is operated by bolt or screwdriver.

**5/2-way valves**


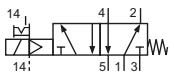
BM-01-510-HNR-xxx  
BM-02-510-HNR-xxx  
5/2-way, single solenoid, air spring return



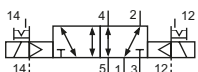
BM-01-511-HNR-xxx  
BM-02-511-HNR-xxx  
5/2-way, single solenoid, mechanical spring return



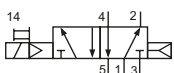
BM-01-520-HNR-xxx  
BM-02-520-HNR-xxx  
5/2-way, double solenoid



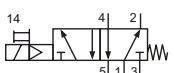
BME-01-511-HNR-xxx  
BME-02-511-HNR-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



BME-01-520-HNR-xxx  
BME-02-520-HNR-xxx  
5/2-way, double solenoid, external pilot pressure



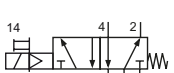
BM-01-510-HNT-xxx  
BM-02-510-HNT-xxx  
5/2-way, single solenoid, air spring return



BM-01-511-HNT-xxx  
BM-02-511-HNT-xxx  
5/2-way, single solenoid, mechanical spring return



BM-01-520-HNT-xxx  
BM-02-520-HNT-xxx  
5/2-way, double solenoid

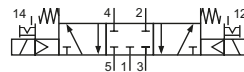


BME-01-511-HNT-xxx  
BME-02-511-HNT-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return

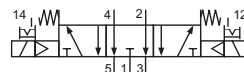


BME-01-520-HNT-xxx  
BME-02-520-HNT-xxx  
5/2-way, double solenoid, external pilot pressure

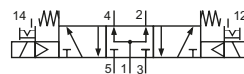
Please complete: xxx = electrical option

**5/3-way valves**


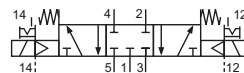
BM-01-530-HNR-xxx  
BM-02-530-HNR-xxx  
5/3-way, center position closed



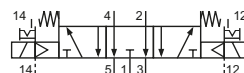
BM-01-533-HNR-xxx  
BM-02-533-HNR-xxx  
5/3-way, center position exhausted



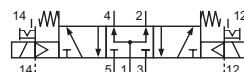
BM-01-534-HNR-xxx  
BM-02-534-HNR-xxx  
5/3-way, center position pressurized



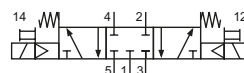
BME-01-530-HNR-xxx  
BME-02-530-HNR-xxx  
5/3-way, center position closed, external pilot pressure



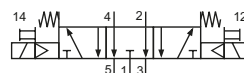
BME-01-533-HNR-xxx  
BME-02-533-HNR-xxx  
5/3-way, center position exhausted, external pilot pressure



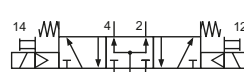
BME-01-534-HNR-xxx  
BME-02-534-HNR-xxx  
5/3-way, center position pressurized, external pilot pressure



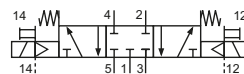
BM-01-530-HNT-xxx  
BM-02-530-HNT-xxx  
5/3-way, center position closed



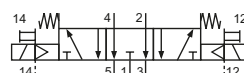
BM-01-533-HNT-xxx  
BM-02-533-HNT-xxx  
5/3-way, center position exhausted



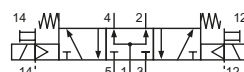
BM-01-534-HNT-xxx  
BM-02-534-HNT-xxx  
5/3-way, center position pressurized



BME-01-530-HNT-xxx  
BME-02-530-HNT-xxx  
5/3-way, center position closed, external pilot pressure



BME-01-533-HNT-xxx  
BME-02-533-HNT-xxx  
5/3-way, center position exhausted, external pilot pressure



BME-01-534-HNT-xxx  
BME-02-534-HNT-xxx  
5/3-way, center position pressurized, external pilot pressure

## Series BM-01 and BM-02

### Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection <sup>*1</sup> | -XXX<br>electrical pins on same side of ports |            |
|-----------------|-------------------|-----------|-------------------------------|---|------------|
|                 |                   |           |                               | 2 and 4                                       | 1, 3 and 5 |
| 12 V DC         | 1 W               |           | Form C                        | -461  | -431       |
| 24 V DC         | 1 W               |           | Form C                        | -462  | -432       |
| 24 V DC         | 1 W               |           | M12                           | -N62  | -          |
| 24 V AC         | 3 VA              |           | Form C                        | -452  | -422       |
| 115 V AC        | 3 VA              |           | Form C                        | -456  | -426       |
| 230 V AC        | 3 VA              |           | Form C                        | -457  | -427       |

\*1 Plug socket not included. suitable plug sockets see page 4-39.

### Technical data

| Model-no.:                     | BM-01-510         | BM-01-511         | BM-01-520         | BME-01-511        | BME-01-520        |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 2 ... 8           | 3 ... 8           | 2 ... 8           | -0.95 ... 8       | -0.95 ... 8       |
| Pilot pressure (bar)           | 2 ... 8           | 3 ... 8           | 2 ... 8           | 3 ... 8           | 2 ... 8           |
| Flow rate (NI/min)             | 780               | 800               | 790               | 800               | 790               |
| Response time (ms)<br>at 6 bar | on: 17<br>off: 32 | on: 15<br>off: 35 | on: 13<br>off: 13 | on: 15<br>off: 35 | on: 13<br>off: 13 |
| Weight (kg)                    | 0.118             | 0.120             | 0.156             | 0.126             | 0.168             |

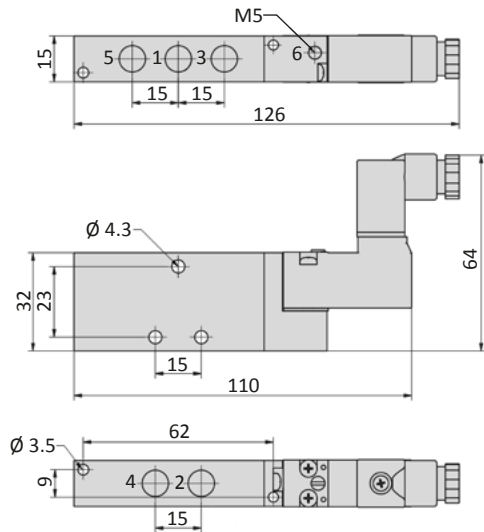
| Model-no.:                     | BM-01-530         | BM-01-533         | BM-01-534         | BME-01-530        | BME-01-533        | BME-01-534        |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 3 ... 8           | 3 ... 8           | 3 ... 8           | -0.95 ... 8       | -0.95 ... 8       | -0.95 ... 8       |
| Pilot pressure (bar)           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 690               | 670               | 1030              | 690               | 670               | 1030              |
| Response time (ms)<br>at 6 bar | on: 17<br>off: 17 | on: 16<br>off: 43 | on: 17<br>off: 49 | on: 17<br>off: 17 | on: 16<br>off: 43 | on: 17<br>off: 49 |
| Weight (kg)                    | 0.154             | 0.154             | 0.154             | 0.166             | 0.166             | 0.166             |

| Model-no.:                     | BM-02-510         | BM-02-511         | BM-02-520         | BME-02-511        | BME-02-520        |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 2 ... 8           | 3 ... 8           | 2 ... 8           | -0.95 ... 8       | -0.95 ... 8       |
| Pilot pressure (bar)           | 2 ... 8           | 3 ... 8           | 2 ... 8           | 3 ... 8           | 2 ... 8           |
| Flow rate (NI/min)             | 1700              | 1600              | 1540              | 1600              | 1540              |
| Response time (ms)<br>at 6 bar | on: 23<br>off: 33 | on: 13<br>off: 35 | on: 11<br>off: 11 | on: 13<br>off: 35 | on: 11<br>off: 11 |
| Weight (kg)                    | 0.220             | 0.220             | 0.270             | 0.220             | 0.270             |

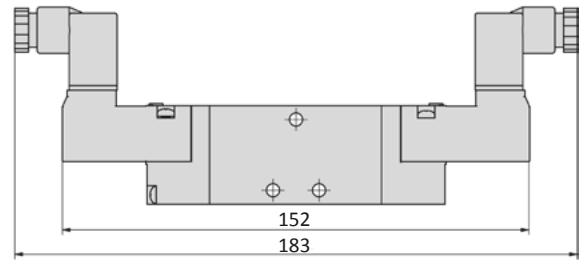
| Model-no.:                     | BM-02-530         | BM-02-533         | BM-02-534         | BME-02-530        | BME-02-533        | BME-02-534        |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 3 ... 8           | 3 ... 8           | 3 ... 8           | -0.95 ... 8       | -0.95 ... 8       | -0.95 ... 8       |
| Pilot pressure (bar)           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 1300              | 1470              | 1660              | 1300              | 1470              | 1660              |
| Response time (ms)<br>at 6 bar | on: 20<br>off: 26 | on: 26<br>off: 28 | on: 26<br>off: 33 | on: 20<br>off: 26 | on: 26<br>off: 28 | on: 26<br>off: 33 |
| Weight (kg)                    | 0.260             | 0.260             | 0.260             | 0.260             | 0.260             | 0.260             |

**Dimensions**

**BM-01-51x-HNx, BME-01-51x-HNx**

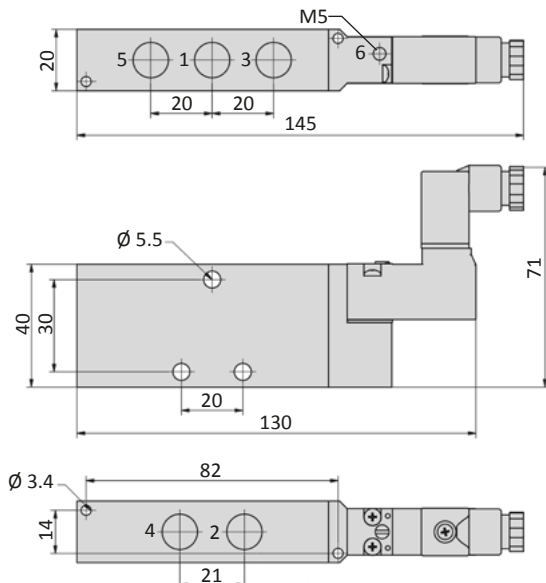


**BM-01-520-HNx, BME-01-520-HNx, BM-01-53x-HNx, BME-01-53x-HNx**

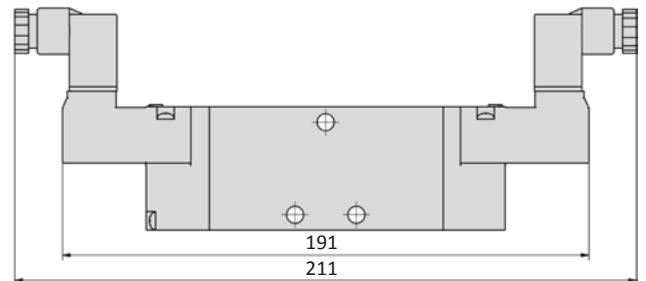


4

**BM-02-51x-HNx, BME-02-51x-HNx**



**BM-02-520-HNx, BME-02-520-HNx, BM-02-53x-HNx, BME-02-53x-HNx**



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = pilot air exhaust

Plug socket (not included in scope of delivery) can be repositioned by 180°.

**Accessories**



Plug sockets: page 4-39



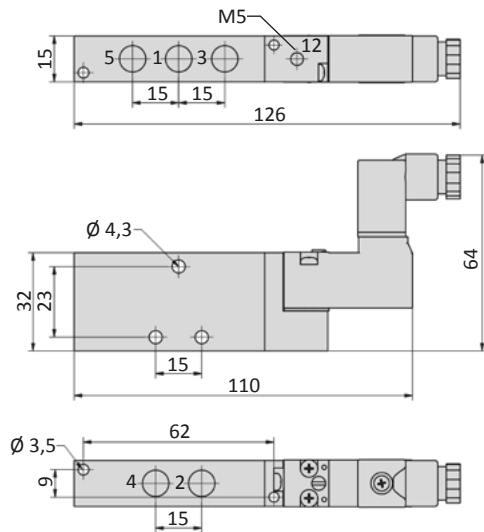
Manifolds and accessories: page 4-29



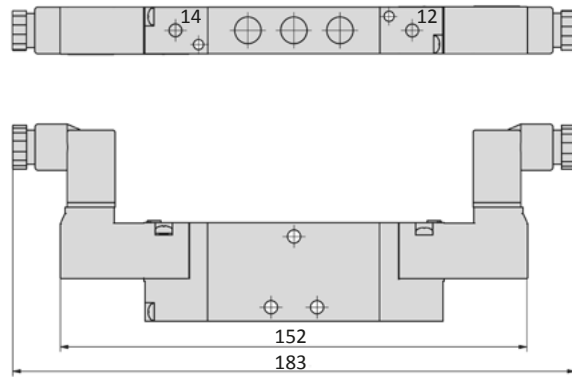
# Series BM-01 and BM-02

## Dimensions

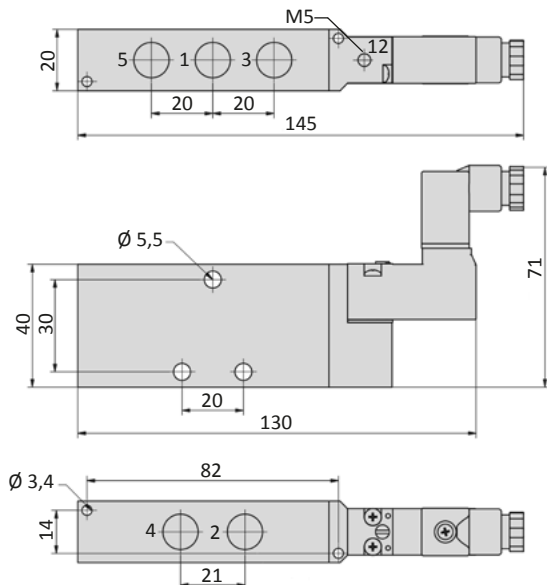
### BME-01-51x-HNx



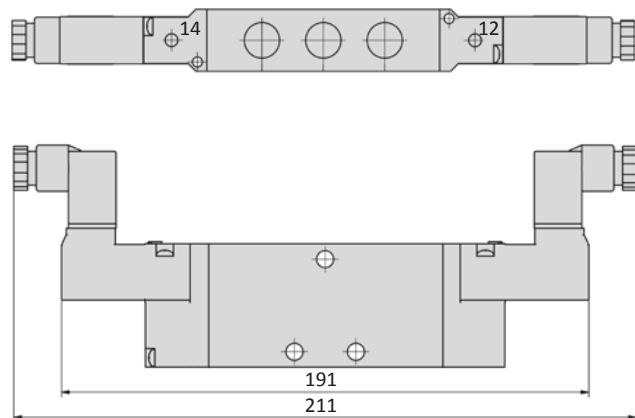
### BME-01-520-HNx, BME-01-53x-HNx



### BME-02-51x-HNx



### BME-02-520-HNx, BME-02-53x-HNx



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 12,14 = external pilot pressure supply

Plug socket (not included in scope of delivery) can be repositioned by 180°.

## Accessories



Plug sockets: page 4-39



Manifolds and accessories: page 4-29

# Series BM-01 and BM-02

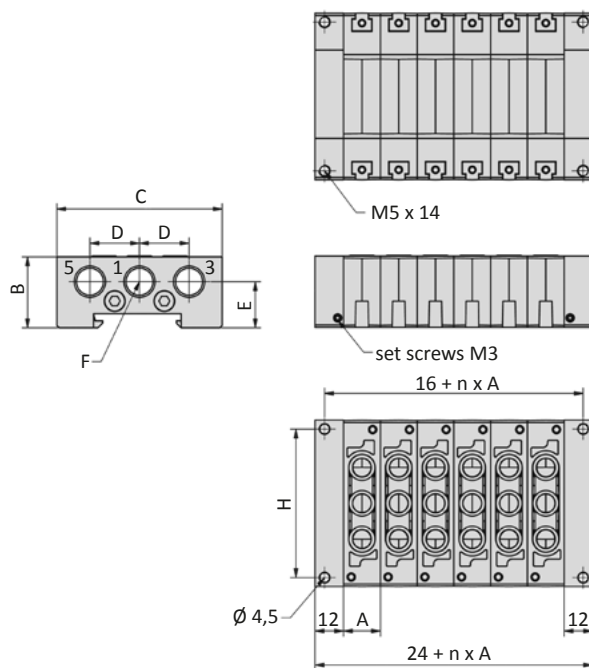
## General information

The RF-01-xx/n and RF-02-xx/n manifolds are suitable for the BM-01 and BM-02 valve series. The system is modular and can be extended up to 12 stations. Blind plates RF-01-V and RF-02-V are available. All mounting screws and gaskets are included.

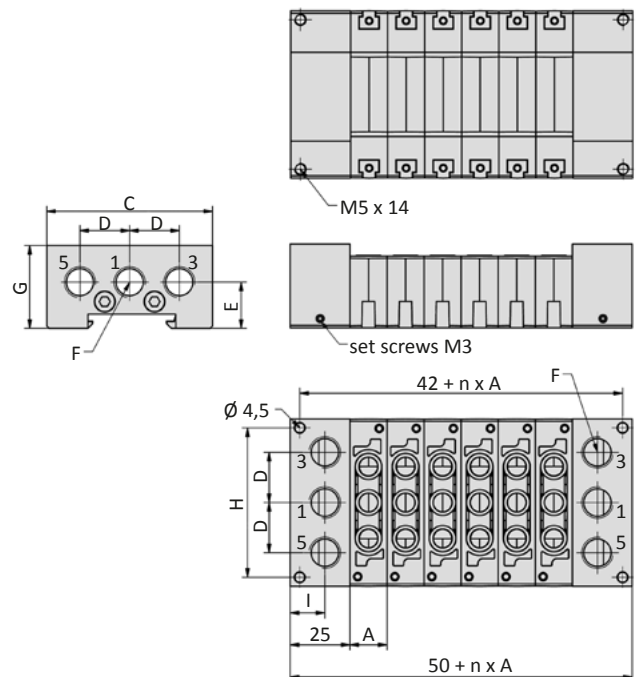


## Dimensions

### RF-01-AB, RF-02-AB



### RF-01-CD, RF-02-CD



n = number of stations  
 1 = pressure inlet  
 3,5 = exhausts

| Model-no.: | A    | B  | C  | D  | E    | F    | G  | H    | I    |
|------------|------|----|----|----|------|------|----|------|------|
| RF-01-xx/n | 15.7 | 30 | 70 | 21 | 19.5 | G1/4 | 35 | 62.5 | 14.5 |
| RF-02-xx/n | 20.5 | 32 | 90 | 25 | 20   | G3/8 | 38 | 82   | 12.5 |

| Model-no.:  | nn          | 02    | 03    | 04    | 05    | 06    | 07    | 08    | 09    | 10    | 11    | 12    |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg) | RF-01-AB/nn | 0.150 | 0.190 | 0.230 | 0.270 | 0.310 | 0.350 | 0.390 | 0.430 | 0.470 | 0.510 | 0.550 |
|             | RF-02-AB/nn | 0.230 | 0.270 | 0.310 | 0.350 | 0.390 | 0.430 | 0.470 | 0.510 | 0.550 | 0.590 | 0.630 |

| Model-no.:  | nn          | 02    | 03    | 04    | 05    | 06    | 07    | 08    | 09    | 10    | 11    | 12    |
|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg) | RF-01-CD/nn | 0.300 | 0.340 | 0.380 | 0.420 | 0.460 | 0.500 | 0.540 | 0.580 | 0.620 | 0.660 | 0.700 |
|             | RF-02-CD/nn | 0.420 | 0.460 | 0.500 | 0.540 | 0.580 | 0.620 | 0.660 | 0.700 | 0.740 | 0.780 | 0.820 |

## Series M-20

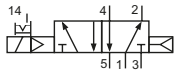
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 3 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

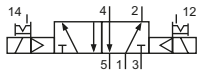


Electrically operated pool valve. The manual override is detent and is operated by screwdriver.

### 5/2-way valves

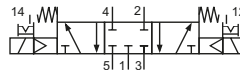


M-20-510-HN-xxx  
5/2-way, single solenoid, air spring return

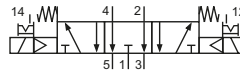


M-20-520-HN-xxx  
5/2-way, double solenoid

### 5/3-way valves



M-20-530-HN-xxx  
5/3-way, center position closed



M-20-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

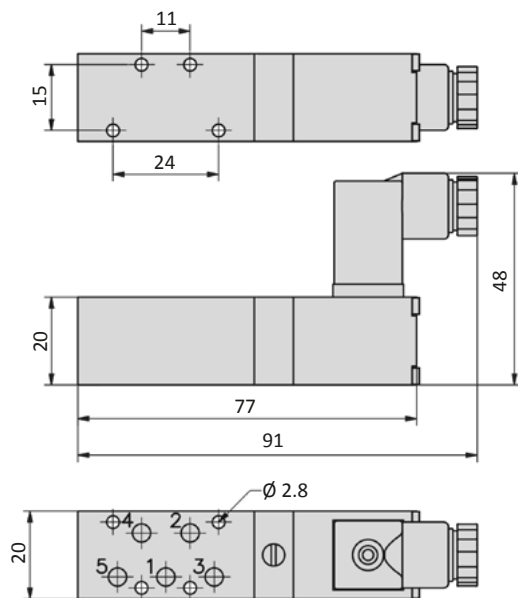
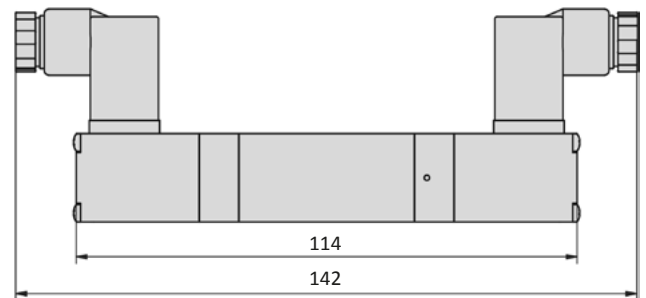
### Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection*1      | -xxx |
|-----------------|-------------------|-----------|------------------------|------|
| 12 V DC         | 2 W               |           | Form C industrial norm | -411 |
| 24 V DC         | 2 W               |           | Form C industrial norm | -412 |

\*1 Plug socket not included, suitable plug sockets see page 4-39.

**Technical data**

| Model-no.:                     | M-20-510          | M-20-520          | M-20-530          | M-20-533          |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 2.5 ... 8         | 2.5 ... 8         | 3 ... 8           | 3 ... 8           |
| Pilot pressure (bar)           | 2.5 ... 8         | 2.5 ... 8         | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 220               | 220               | 220               | 220               |
| Response time (ms)<br>at 6 bar | on: 12<br>off: 12 | on: 11<br>off: 11 | on: 15<br>off: 22 | on: 15<br>off: 22 |
| Weight (kg)                    | 0.098             | 0.156             | 0.162             | 0.162             |

**Dimensions**
**M-20-510-HN**

**M-20-520-HN, M-20-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts


Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil and manual override can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-39

## Series MS-18

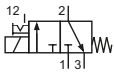
### Technical details

|   |   |
|---|---|
| <b>Connection</b>   | G1/8  |
| <b>Nominal size</b>   | 1.4 mm  |
| <b>Temperature range</b>  | -10°C ... +70°C   |
| <b>Medium</b>   | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>  | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>   | IP 65 according to EN 60529   |
|  | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

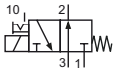


Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

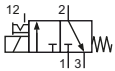
### 3/2-way valves



MS-18-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



MSO-18-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



MS-18-310/n-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option  
n = number of stations ( 2 to 6 )

### Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection <sup>*1</sup> | -xxx |
|-----------------|-------------------|------------|-------------------------------|------|
| 12 V DC         | 4.2 W             |            | Form B industrial norm        | -411 |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm        | -431 |
| 24 V DC         | 4.2 W             |            | Form B industrial norm        | -412 |
| 24 V DC         | 4.8 W             |            | M 12                          | -012 |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm        | -432 |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                          | -032 |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm        | -422 |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm        | -426 |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm        | -427 |

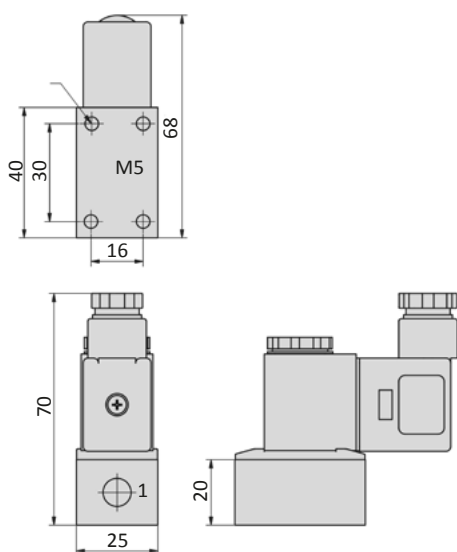
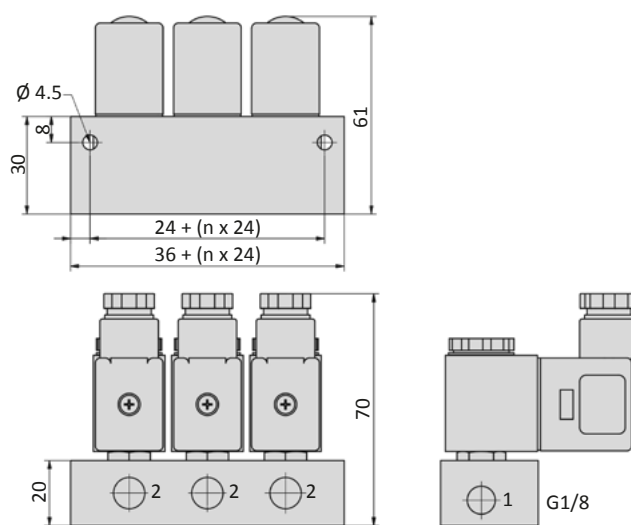
\*1 Plug socket not included. suitable plug sockets see page 4-38.



**Technical data**

| Model-no.:                  | MS-18-310         | MSO-18-310        | MS-18-310/n       |
|-----------------------------|-------------------|-------------------|-------------------|
| Pressure range* (bar)       | - 0.95 ... 10     | - 0.95 ... 10     | - 0.95 ... 10     |
| Flow rate (NI/min)          | 56                | 56                | 56                |
| Response time (ms) at 6 bar | on: 10<br>off: 12 | on: 10<br>off: 12 | on: 10<br>off: 12 |
| Weight (kg)                 | 0.150             | 0.150             | 0.150 + 0.140 * n |

\* max. 8 bar at 2.2 W and 2.5 W

**Dimensions**
**MS-18-310-HN**

**MS-18-310/n-HN**


n = number of stations ( 2 to 6 )

- 1 = pressure inlet ( outlet by MSO )
- 2 = outlet
- 3 = exhaust ( pressure inlet by MSO )

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-38

## Series MS-20

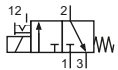
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | M5  |
| <b>Nominal size</b>      | 1.2 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: Al, steel and plastic   |
| <b>Protection</b>        | IP 65 according to EN 60529   |

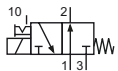


Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

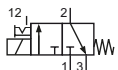
### 3/2-way-valves



MS-20-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



MSO-20-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



MS-20-310/n-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option  
n = number of stations ( 2 to 6 )

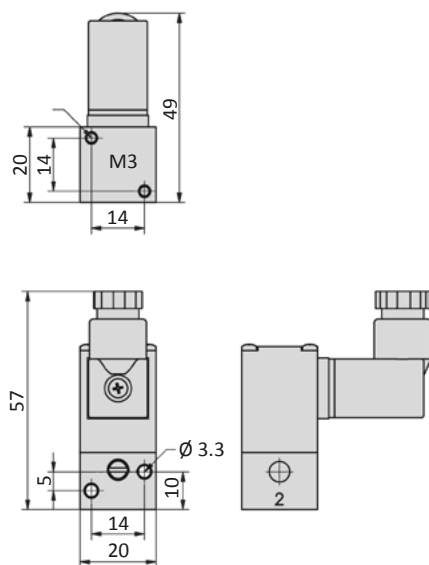
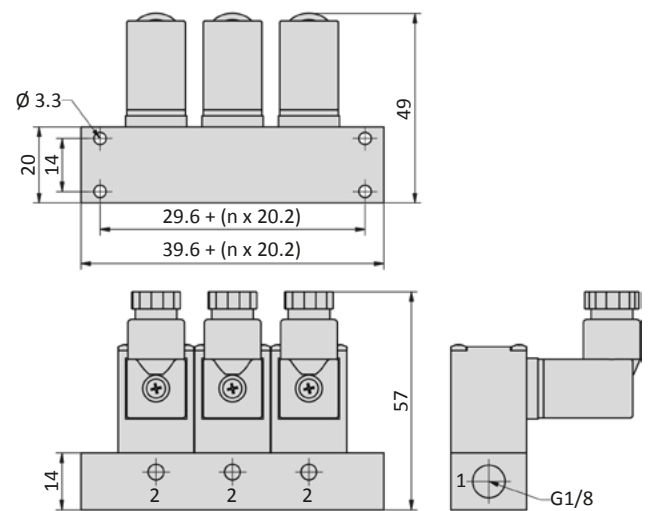
### Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection <sup>*1</sup> | -xxx |
|-----------------|-------------------|-----------|-------------------------------|------|
| 12 V DC         | 2 W               |           | Form C industrial norm        | -411 |
| 24 V DC         | 2 W               |           | Form C industrial norm        | -412 |

\*1 Plug socket not included, suitable plug sockets see page 4-39.

**Technical data**

| Model-no.:                  | MS-20-310       | MSO-20-310      | MS-20-310/n      |
|-----------------------------|-----------------|-----------------|------------------|
| Pressure range (bar)        | -0.95 ... 8     | -0.95 ... 8     | -0.95 ... 8      |
| Pilot pressure (bar)        | -               | -               | -                |
| Flow rate (NI/min)          | 38              | 38              | 38               |
| Response time (ms) at 6 bar | on: 8<br>off: 8 | on: 8<br>off: 8 | on: 8<br>off: 8  |
| Weight (kg)                 | 0.064           | 0.064           | 0.01 + 0.066 x n |

**Dimensions**
**MS-20-310-HN, MSO-20-310-HN**

**MS-20-310/n-HN**


n = number of stations ( 2 to 6 )

- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-39

# Series MC-20 and MD-20

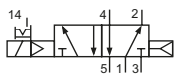
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | Sub-base mounting   |
| <b>Nominal size</b>      | 3 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

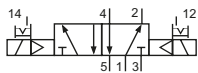


Electrically operated spool valve. The manual override is detent and is operated by screwdriver. Gaskets and screws are part of delivery.

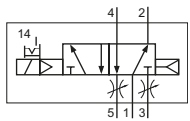
### 5/2-way valves



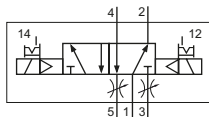
MC-20-510-HN-xxx  
5/2-way, single solenoid, air spring return



MC-20-520-HN-xxx  
5/2-way, double solenoid



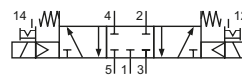
MD-20-510-HN-xxx  
5/2-way, single solenoid, air spring return, with exhaust throttles



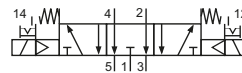
MD-20-520-HN-xxx  
5/2-way, double solenoid, with exhaust throttles

Please complete: xxx = electrical option

### 5/3-way valves



MC-20-530-HN-xxx  
5/3-way, center position closed



MC-20-533-HN-xxx  
5/3-way, center position exhausted

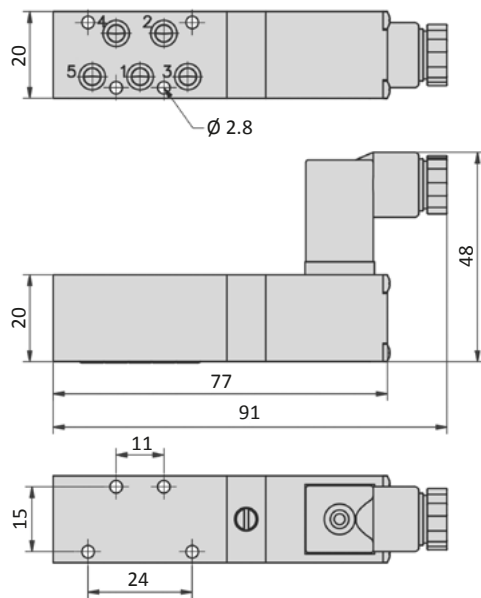
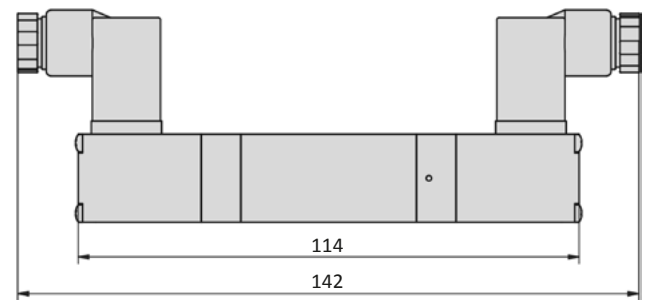
## Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection*1      | -xxx<br>Plug connections |              |
|-----------------|-------------------|-----------|------------------------|--------------------------|--------------|
|                 |                   |           |                        | opposite 1,2,3,4,5       | at 1,2,3,4,5 |
| 12 V DC         | 1 W               |           | Form C industrial norm | -411                     | -441         |
| 24 V DC         | 1 W               |           | Form C industrial norm | -412                     | -442         |

\*1 Plug socket not included, suitable plug sockets see page 4-39.

**Technical data**

| Model-no.:                     | MC-20-510<br>MD-20-510 | MC-20-520<br>MD-20-520 | MC-20-530         | MC-20-533         |
|--------------------------------|------------------------|------------------------|-------------------|-------------------|
| Operating pressure (bar)       | 2.5 ... 8              | 2.5 ... 8              | 3 ... 8           | 3 ... 8           |
| Pilot pressure (bar)           | 2.5 ... 8              | 2.5 ... 8              | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 220                    | 220                    | 220               | 220               |
| Response time (ms)<br>at 6 bar | on: 12<br>off: 12      | on: 11<br>off: 11      | on: 15<br>off: 22 | on: 15<br>off: 22 |
| Weight (kg)                    | 0.100                  | 0.156                  | 0.162             | 0.162             |

**Dimensions**
**MC-20-510-HN**

**MC-20-520-HN, MC-20-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-39

## Plug sockets

### Form A according to DIN EN 175301-803

|                     |   |
|---------------------|---|
| Overall width       | 27 mm   |
| Contact distance    | 18 mm   |
| Contacts            | 2P + E  |
| Protection          | IP 65 according to EN 60529 requires a profile gasket |
| For use with series | no standard   |



|                    |                          |                          |
|--------------------|--------------------------|--------------------------|
| Model-no.:         | 28-ST-03                 | 28-ST-11-112             |
| Voltage (AC/DC)    | 0 - 250 V                | 24 V                     |
| Status indicator   | no                       | yes                      |
| Protective circuit | no                       | yes (varistor)           |
| Connecting cable   | without                  | without                  |
| Wire cross section | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> |
| Ø Connecting cable | 6 - 8 mm                 | 6 - 8 mm                 |

### Form B according to DIN EN 175301-803

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | 10 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 requires a flat gasket |
| For use with series | no standard  |



|                    |                          |
|--------------------|--------------------------|
| Model-no.:         | 28-ST-01-G               |
| Voltage (AC/DC)    | 0 - 250 V                |
| Status indicator   | no                       |
| Protective circuit | no                       |
| Connecting cable   | without                  |
| Wire cross section | max. 1.5 mm <sup>2</sup> |
| Ø Connecting cable | 6 - 8 mm                 |

### Form B industrial norm

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | 11 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 requires a flat gasket                             |
| For use with series | M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03 |



|                    |                          |                          |                          |                          |                          |                          |                          |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Model-no.:         | 28-ST-01                 | 28-ST-04-112             | 28-ST-04-127             | 28-ST-06-112             | 28-ST-06-127             | 28-ST-06-K3-112*         | 28-ST-06-K3-127*         |
| Voltage (AC/DC)    | 0 - 250 V                | 10 - 50 V                | 70 - 250 V               | 24 V                     | 230 V                    | 24 V                     | 230 V                    |
| Status indicator   | no                       | yes                      | yes                      | yes                      | yes                      | yes                      | yes                      |
| Protective circuit | no                       | no                       | no                       | yes (varistor)           | yes (varistor)           | yes (varistor)           | yes (varistor)           |
| Connecting cable   | without                  | without                  | without                  | without                  | without                  | 3 m                      | 3 m                      |
| Wire cross section | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | 3 x 0.75 mm <sup>2</sup> | 3 x 0.75 mm <sup>2</sup> |
| Ø Connecting cable | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 |                          |                          |

\* These plug sockets are fitted with integrated flat gaskets.

## Form C according to DIN EN 175301-803

|                     |  |
|---------------------|--|
| Overall width       | 15 mm  |
| Contact distance    | 8 mm   |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 requires a flat gasket |
| For use with series | BM-01, BM-02                                       |



|                    |                           |                           |                           |                           |                           |                         |
|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------------|
| Model-no.:         | 28-ST-02-1                | 28-ST-09-1-112            | 28-ST-09-1-127            | 28-ST-10-1-112            | 28-ST-10-1-127            | 28-ST-10-1-K3-112 *     |
| Voltage (AC/DC)    | 0 - 250 V                 | 10 - 50 V                 | 70 - 250 V                | 24 V                      | 230 V                     | 24 V                    |
| Status indicator   | no                        | yes                       | yes                       | yes                       | yes                       | yes                     |
| Protective circuit | no                        | no                        | no                        | yes (varistor)            | yes (varistor)            | yes (varistor)          |
| Connecting cable   | without                   | without                   | without                   | without                   | without                   | 3 m                     |
| Wire cross section | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | 3 x 0.5 mm <sup>2</sup> |
| Ø Connecting cable | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  |                         |

|                    |                |
|--------------------|----------------|
| Model-no.:         | 28-ST-02-1-05  |
| Voltage (AC/DC)    | 24 V           |
| Status indicator   | yes            |
| Protective circuit | yes (varistor) |
| Connection         | M8             |



## Form C industrial norm

|                     |  |
|---------------------|--|
| Overall width       | 15 mm  |
| Contact distance    | 9.4 mm   |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 requires a flat gasket |
| For use with series | M-20, MC-20, MD-20, MS-20                          |



|                    |                           |                           |                           |                           |                           |                         |
|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------------|
| Model-no.:         | 28-ST-02-01               | 28-ST-09-112              | 28-ST-09-127              | 28-ST-10-112              | 28-ST-10-127              | 28-ST-10-K3-112 *       |
| Voltage (AC/DC)    | 0 - 250 V                 | 10 - 50 V                 | 70 - 250 V                | 24 V                      | 230 V                     | 24 V                    |
| Status indicator   | no                        | yes                       | yes                       | yes                       | yes                       | yes                     |
| Protective circuit | no                        | no                        | no                        | yes (varistor)            | yes (varistor)            | yes (varistor)          |
| Connecting cable   | without                   | without                   | without                   | without                   | without                   | 3 m                     |
| Wire cross section | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | max. 0.75 mm <sup>2</sup> | 3 x 0.5 mm <sup>2</sup> |
| Ø Connecting cable | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  | 4 - 6 mm                  |                         |

|                    |                |                |
|--------------------|----------------|----------------|
| Model-no.:         | 28-ST-02-2-05  | 28-ST-02-2-07  |
| Voltage (AC/DC)    | 24 V           | 24 V           |
| Status indicator   | yes            | yes            |
| Protective circuit | yes (varistor) | yes (varistor) |
| Connection         | M8             | M12            |

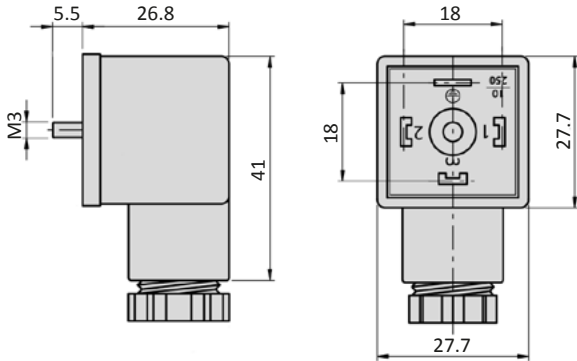


\* These plug sockets are fitted with integrated flat gaskets.

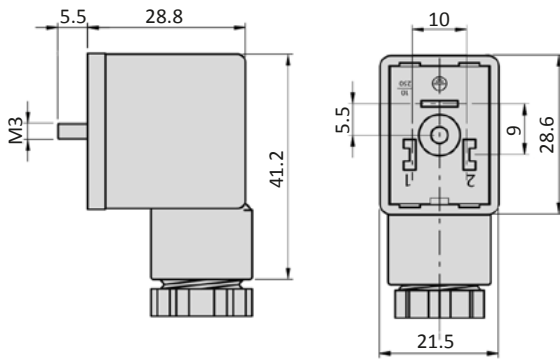
# Plug sockets

## Dimensions

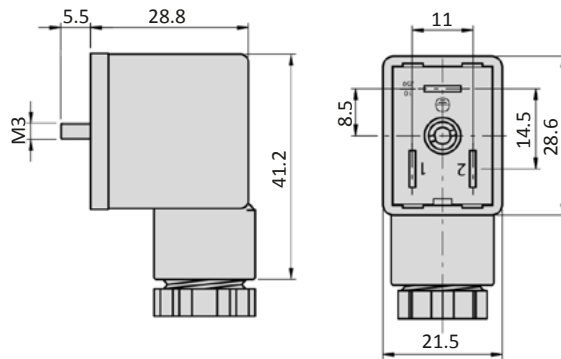
### Form A according to DIN EN 175301-803



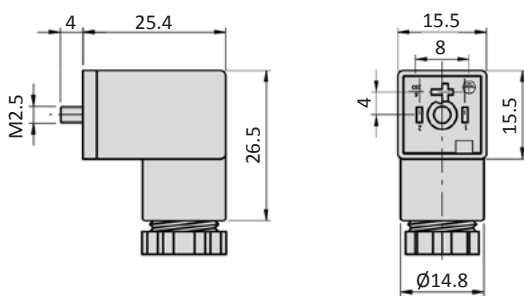
### Form B according to DIN EN 175301-803



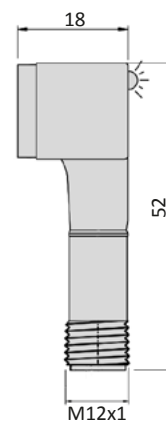
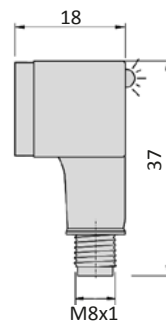
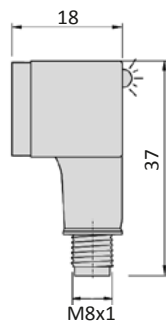
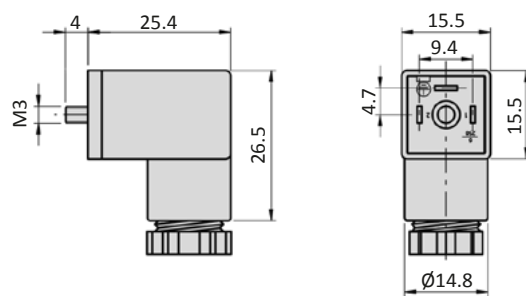
### Form B industrial norm



### Form C according to DIN EN 175301-803



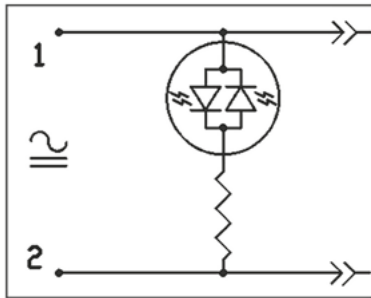
### Form C industrial norm



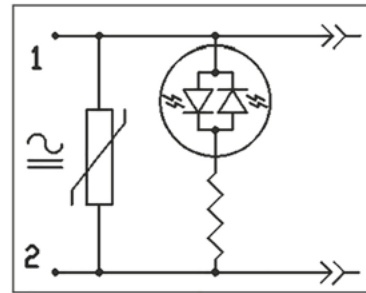


## Electrically circuits

### Status indicator (LED)



### Status indicator (LED) and protective circuit (varistor)



## Solenoid coils

### Form A according to DIN EN 175301-803

|                     |  |
|---------------------|--|
| Overall width       | 30 mm  |
| Contact distance    | 18 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 with connected plug socket |
| Duty cycle          | 100 %  |
| Temperature range*  | -20°C ... +50°C  |
| Voltage tolerance   | ± 10 %   |
| For use with series | no standard  |



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

| Model-no.:           | 23-SP-016-712                | 23-SP-016-722 | 23-SP-016-726  | 23-SP-016-727      |
|----------------------|------------------------------|---------------|----------------|--------------------|
| Voltage              | 24 V DC                      | 24 V AC       | 110/115 V AC   | 230 V AC/ 110 V DC |
| Power consumption DC | 4.5 W                        | -             | -              | 5.3 W              |
| Power consumption AC | -                            | 8.0 VA        | 7.6 VA/ 8.6 VA | 7.9 VA             |
| Specifics            | enhanced humidity resistance |               |                |                    |

### Form B according to DIN EN 175301-803

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | 10 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 with connected plug socket |
| Duty cycle          | 100 %  |
| Temperature range*  | -20°C ... +50°C  |
| Voltage tolerance   | ± 10 %   |
| For use with series | no standard  |



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

| Model-no.:           | 23-SP-011-G-412 | 23-SP-011-G-427 |
|----------------------|-----------------|-----------------|
| Voltage              | 24 V DC         | 230 V AC        |
| Power consumption DC | 4.2 W           | -               |
| Power consumption AC | -               | 4.0 VA          |

## Form B industrial norm

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | 11 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 with connected plug socket                         |
| Duty cycle          | 100 %  |
| Temperature range*  | -20°C ... +50°C  |
| Voltage tolerance   | ± 10 %   |
| For use with series | M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03 |

\* The max. applicable operating temperature depends on the temperature specification of the used valve.



4

|                      |               |               |               |               |               |               |               |
|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Model-no.:           | 23-SP-011-411 | 23-SP-011-412 | 23-SP-011-422 | 23-SP-011-426 | 23-SP-011-427 | 23-SP-012-431 | 23-SP-012-432 |
| Voltage              | 12 V DC       | 24 V DC       | 24 V AC       | 115 V AC      | 230 V AC      | 12 V DC       | 24 V DC       |
| Power consumption DC | 4.2 W         | 4.2 W         | -             | -             | -             | 2.2 W         | 2.2 W         |
| Power consumption AC | -             | -             | 4 VA          | 4 VA          | 4 VA          | -             | -             |

|                      |                              |                  |                 |                 |                 |
|----------------------|------------------------------|------------------|-----------------|-----------------|-----------------|
| Model-no.:           | 23-SP-011-1-711              | 23-SP-011-1-712  | 23-SP-011-1-725 | 23-SP-011-1-727 | 23-SP-012-1-732 |
| Voltage              | 12 V DC/ 24V AC              | 24 V DC/ 48 V AC | 110/115 V AC    | 230 V AC        | 24 V DC         |
| Power consumption DC | 4.6 W                        | 4.8 W            | -               | -               | 2.5 W           |
| Power consumption AC | 7.1 VA                       | 7.7 VA           | 6.0 VA/ 7.6 VA  | 7.9 VA          | -               |
| Specifics            | enhanced humidity resistance |                  |                 |                 |                 |

## M12 connection

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | -  |
| Contacts            | 2P   |
| Protection          | IP 65 according to EN 60529 with connected plug socket |
| Duty cycle          | 100 %  |
| Temperature range*  | -20°C ... +50°C  |
| Voltage tolerance   | ± 10 %   |
| For use with series | no standard  |

\* The max. applicable operating temperature depends on the temperature specification of the used valve.

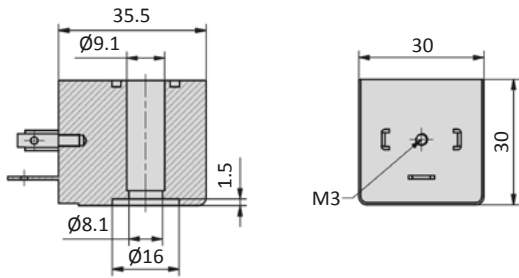


|                      |  |   |
|----------------------|--|---|
| Model-no.:           | 23-SP-011-5-012  | 23-SP-012-5-032   |
| Voltage              | 24 V DC  | 24 V DC   |
| Power consumption DC | 4.8 W  | 2.5 W   |
| Power consumption AC | -  | -   |
| Specifics            | Mounting on manifold not allowed.<br>With integrated LED and protective circuit. | Min. mounting distance for manifold mounting is 20 mm.<br>With integrated LED and protective circuit. |

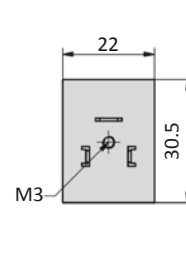
# Solenoid coils

## Dimensions

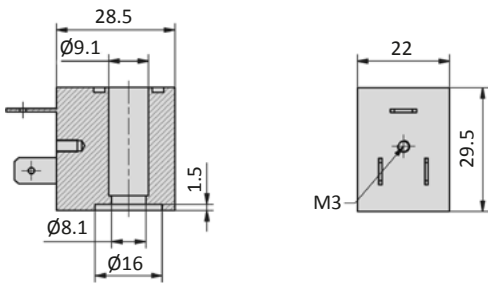
Form A according to DIN EN 175301-803



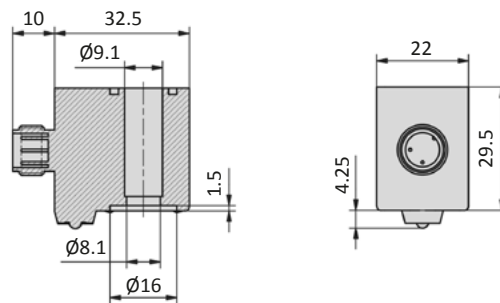
Form B according to DIN EN 175301-803



Form B industrial norm



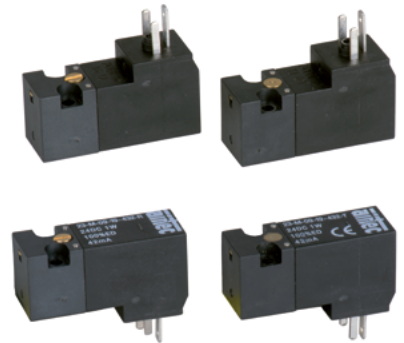
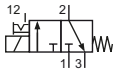
M12 connection



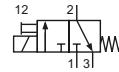
**Plug connection shape C according to DIN EN 175301-803**

|                            |  |
|----------------------------|--|
| <b>Overall width</b>       | 15 mm  |
| <b>Contact distance</b>    | 8 mm   |
| <b>Contacts</b>            | 2P + E   |
| <b>Protection</b>          | IP 65 according to EN 60529 with connected plug socket |
| <b>Duty cycle</b>          | 100 %  |
| <b>Temperature range*</b>  | -10°C ... +50°C  |
| <b>Voltage tolerance</b>   | ± 10 %   |
| <b>For use with series</b> | BM-01, BM-02   |

\* The max. applicable operating temperature depends on the temperature specification of the used valve.


**4**
**3/2-way valves**


23-M-09-19-xxx-R  
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



23-M-09-19-xxx-T  
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

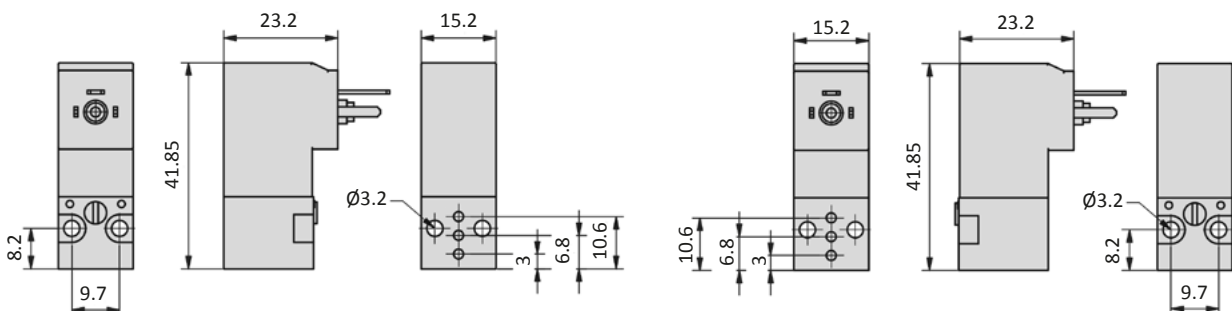
Please complete: xxx = electrical option

|                             |                  |                  |                  |                  |                  |
|-----------------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Model-no.:</b>           | 23-M-09-19-461-y | 23-M-09-19-462-y | 23-M-09-19-452-y | 23-M-09-19-456-y | 23-M-09-19-457-y |
| <b>Voltage</b>              | 12 V DC          | 24 V DC          | 24 V AC          | 115 V AC         | 230 V AC         |
| <b>Power consumption DC</b> | 1 W              | 1 W              | -                | -                | -                |
| <b>Power consumption AC</b> | -                | -                | 3 VA             | 3 VA             | 3 VA             |

electric connector on side of manual override

|                             |                  |                  |                  |                  |                  |
|-----------------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Model-no.:</b>           | 23-M-09-19-431-y | 23-M-09-19-432-y | 23-M-09-19-422-y | 23-M-09-19-426-y | 23-M-09-19-427-y |
| <b>Voltage</b>              | 12 V DC          | 24 V DC          | 24 V AC          | 115 V AC         | 230 V AC         |
| <b>Power consumption DC</b> | 1 W              | 1 W              | -                | -                | -                |
| <b>Power consumption AC</b> | -                | -                | 3 VA             | 3 VA             | 3 VA             |

electric connector opposite of manual override  
y = manual override (R = detent, T = non-detent)

**Dimensions**
**electric connector on side of manual override**
**electric connector opposite side of manual override**


## Pilot valves

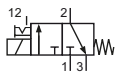
### M12 connection

|                            |  |
|----------------------------|--|
| <b>Overall width</b>       | 15 mm  |
| <b>Contact distance</b>    | -  |
| <b>Contacts</b>            | M12 plug   |
| <b>Protection</b>          | IP 67 according to EN 60529 with connected plug socket |
| <b>Duty cycle</b>          | 100 %  |
| <b>Temperature range*</b>  | -10°C ... +50°C  |
| <b>Voltage tolerance</b>   | ± 10 %   |
| <b>For use with series</b> | BM-01, BM-02   |

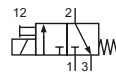


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

### 3/2-way valves



23-M-09-19-xxx-R  
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



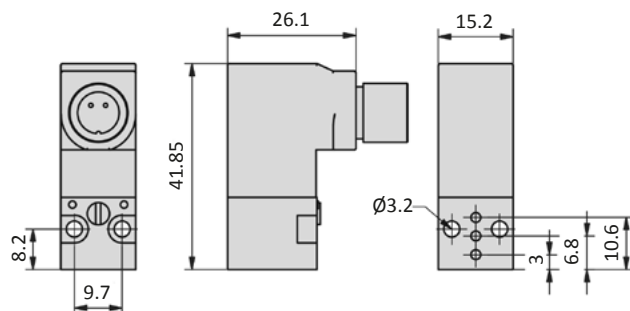
23-M-09-19-xxx-T  
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

Please complete: xxx = electrical option

|                             |   |                  |
|-----------------------------|---|------------------|
| <b>Model-no.:</b>           | 23-M-09-19-N42-T                              | 23-M-09-19-N62-R |
| <b>Voltage</b>              | 24 V DC                                       | 24 V DC          |
| <b>Power consumption DC</b> | 2.5 W   | 1 W              |
| <b>Power consumption AC</b> | -   | -                |
|                             | electric connector on side of manual override |                  |

### Dimensions

#### electric connector on side of manual override



| - HN * - * * *  |                       |   |                    |   |                      |
|-----------------|-----------------------|---|--------------------|---|----------------------|
| Manual override | Coil and plug options |   | Coil type          | Manual override position on side of       | Voltage              |
| HN detent       | 0                     | ATEX 2GD, encapsulated with casting compound width 30 mm                            | 23-SP-037          | 0 without indication ports 1/3/(5)        | 0 without indication |
| HNR detent      | 1                     | with coil and plug  | according to valve | 1 DC ports 1/3/(5)                        | 1 12 V               |
| HNT non-detent  | 2                     |   |                    | 2 AC ports 1/3/(5)                        | 2 24 V               |
|                 | 3                     |   |                    | 3 DC, low power consumption ports 1/3/(5) | 3 42 V               |
|                 | 4                     | with coil, without plug   | according to valve | 4 DC ports 2/(4)                          | 4 48 V               |
|                 | 5                     | without coil  | no                 | 5 AC ports 2/(4)                          | 5 110 V              |
|                 | 6                     | without pilot valve   | no                 | 6 DC, low power consumption ports 2/(4)   | 6 115 V              |
|                 | 7                     | with coil, with enhanced humidity resistance, without plug                          | according to valve | 7 without indication ports 2/(4)          | 7 230 V              |
|                 | 8                     | with coil, with enhanced humidity resistance, with plug                             | according to valve |   | 8 240 V              |
|                 | 9                     | ATEX 2GD, intrinsically safe, with plug width 30 mm                                 | 23-SP-038          |   | 9                    |
|                 | A                     | ATEX 3GD, without plug, width 30 mm   | 23-SP-040          |   | A 4 V                |
|                 | B                     | ATEX 3GD, with plug, width 30 mm  | 23-SP-040          |   | B 6 V                |
|                 | C                     | ATEX 3GD, without plug, width 22 mm   | 23-SP-041          |   | C 8 V                |
|                 | D                     |   |                    |   | D 61 V               |
|                 | E                     | ATEX 2GD, encapsulated with casting compound width 22 mm                            | 23-SP-036          |   | E 36 V               |
|                 | F                     | with coil, with enhanced humidity resistance, without plug, low temperature version | 23-SP-060-1        |   | F 9 V                |
|                 | G                     |   |                    |   |                      |
|                 | H                     | with coil shape B according to DIN EN 175301-803, with plug                         | 23-SP-011-G        |   |                      |
|                 | I                     | with coil shape B according to DIN EN 175301-803, without plug                      | 23-SP-011-G        |   |                      |
|                 | J                     | with coil shape A according to DIN EN 175301-803, without plug (if not standard)    | 23-SP-016          |   |                      |
|                 | K                     | with coil shape A according to DIN EN 175301-803, with plug (if not standard)       | 23-SP-016          |   |                      |
|                 | L                     | with coil, with plug with LED and protective circuit                                | according to valve |   |                      |
|                 | M                     | with coil, with plug with LED, without protective circuit                           | according to valve |   |                      |
|                 | N                     | with coil with M12 connection   | according to valve |   |                      |
|                 | O                     | with coil with M12 connection with LED and protective circuit                       | according to valve |   |                      |
|                 | P                     | without connector bridge, without plug  |                    |   |                      |
|                 | Q                     | with coil with cable  | according to valve |   |                      |
|                 | R                     | with cable up to 1 m length   | according to valve |   |                      |
|                 | S                     | with connector bridge, without plug   |                    |   |                      |
|                 | T                     |   |                    |   |                      |
|                 | U                     | ATEX 2GD, without coil (for coil 23-SP-036)   | no                 |   |                      |
|                 | V                     | ATEX 2GD, Flame proof enclosure and encapsulated with casting compound              | 23-SP-045          |   |                      |
|                 | W                     | ATEX 2GD / 3GD, without coil (for coil 23-SP-041 and 23-SP-045)                     | no                 |   |                      |
|                 | X                     | ATEX 3GD, without coil (for coil 23-SP-040 in 230V AC and 115V AC)                  | no                 |   |                      |
|                 | Y                     | ATEX 2GD, without coil (for coil 23-SP-038)   | no                 |   |                      |
|                 | Z                     | ATEX 2GD / 3GD, without coil (for coil 23-SP-040 in 24V DC and 23-SP-037)           | no                 |   |                      |

*Not all options are suitable for all valve series*





# Table of contents

Series PI-01, PI-02, PI-03 Page 5-02



Series MN-22 Page 5-14



Series PN-05 Page 5-04



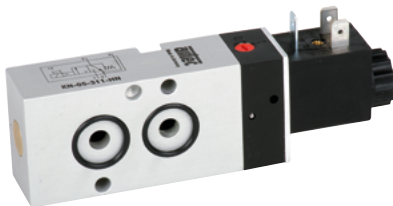
Flow control valves NAMUR Page 5-16



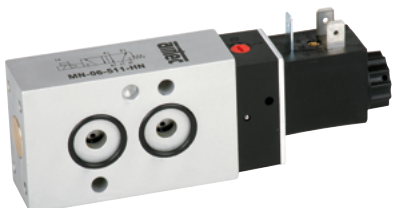
Series MI-01, MI-02, MI-03 Page 5-06



Series KN-05, KN-55 Page 5-10



Series MN-06 Page 5-12



# Series PI-01, PI-02, PI-03

## ISO 5599/1, Size 1 to 3

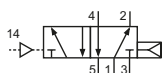
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | ISO 5599/1  |
| <b>Nominal size</b>      | Size 1: 9 mm<br>Size 2: 13 mm<br>Size 3: 14 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

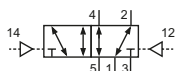


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

### 5/2-way valves

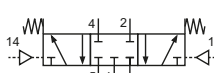


PI-01-511  
PI-02-511  
PI-03-511  
5/2-way, single pilot, mechanical spring return

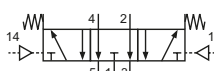


PI-01-520  
PI-02-520  
PI-03-520  
5/2-way, double pilot

### 5/3-way valves



PI-01-530  
PI-02-530  
PI-03-530  
5/3-way, center position closed



PI-01-533  
PI-02-533  
PI-03-533  
5/3-way, center position exhausted

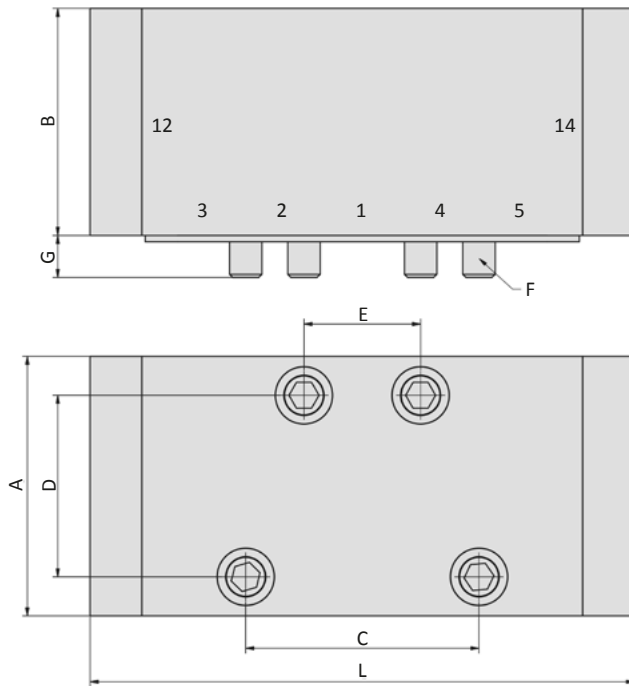
### Technical data

| Model-no.:                      | PI-01-511    | PI-01-520    | PI-01-530    | PI-01-533    |
|---------------------------------|--------------|--------------|--------------|--------------|
| <b>Operating pressure (bar)</b> | 0...10 bar   | 0...10 bar   | 0...10 bar   | 0...10 bar   |
| <b>Pilot pressure (bar)</b>     | 2.5...10 bar | 1.5...10 bar | 1.5...10 bar | 1.5...10 bar |
| <b>Flow rate (NI/min)</b>       | 1700         | 1700         | 1700         | 1700         |
| <b>Weight (kg)</b>              | 0.32         | 0.32         | 0.32         | 0.32         |

| Model-no.:                      | PI-02-511    | PI-02-520    | PI-02-530    | PI-02-533    |
|---------------------------------|--------------|--------------|--------------|--------------|
| <b>Operating pressure (bar)</b> | 0...10 bar   | 0...10 bar   | 0...10 bar   | 0...10 bar   |
| <b>Pilot pressure (bar)</b>     | 2.5...10 bar | 1.5...10 bar | 1.5...10 bar | 1.5...10 bar |
| <b>Flow rate (NI/min)</b>       | 2020         | 2020         | 2020         | 2020         |
| <b>Weight (kg)</b>              | 0.54         | 0.56         | 0.54         | 0.54         |

| Model-no.:                      | PI-03-511    | PI-03-520    | PI-03-530    | PI-03-533    |
|---------------------------------|--------------|--------------|--------------|--------------|
| <b>Operating pressure (bar)</b> | 0...10 bar   | 0...10 bar   | 0...10 bar   | 0...10 bar   |
| <b>Pilot pressure (bar)</b>     | 2.5...10 bar | 1.5...10 bar | 1.5...10 bar | 1.5...10 bar |
| <b>Flow rate (NI/min)</b>       | 4150         | 4150         | 4150         | 4150         |
| <b>Weight (kg)</b>              | 0.96         | 1.00         | 0.96         | 0.96         |

**Dimensions**



| Model-no.: | A  | B  | C  | D  | E  | F  | G  |
|------------|----|----|----|----|----|----|----|
| PI-01-5xx  | 40 | 35 | 36 | 28 | 18 | M5 | 8  |
| PI-02-5xx  | 50 | 40 | 48 | 38 | 24 | M6 | 8  |
| PI-03-5xx  | 65 | 45 | 64 | 48 | 32 | M8 | 13 |

**Accessories**



Manifolds and accessories: [www.airtec.de](http://www.airtec.de)

# Series PN-05 NAMUR

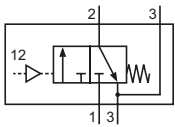
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), zinc coated steel, plastic, seals: NBR, inner parts: Al, steel and plastic   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



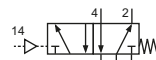
Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port. The location pin, screws and seals are included.

### 3/2-way valve

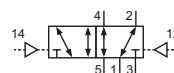


PN-05-311  
3/2-way, single pilot, mechanical spring return

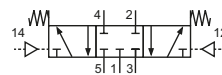
### 5/2- and 5/3-way valves



PN-05-511  
5/2-way, single pilot, mechanical spring return



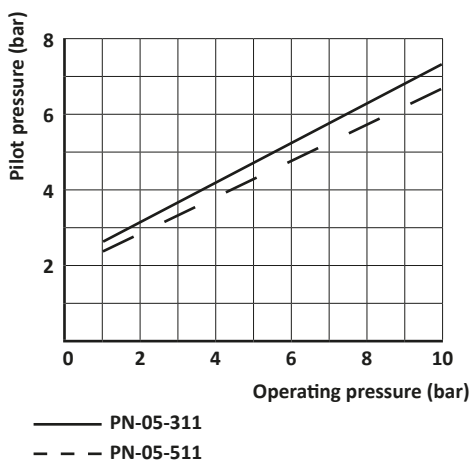
PN-05-520  
5/2-way, double pilot

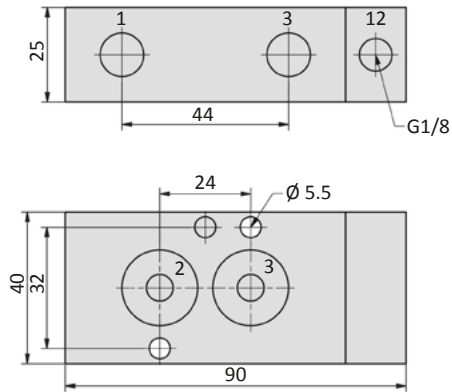
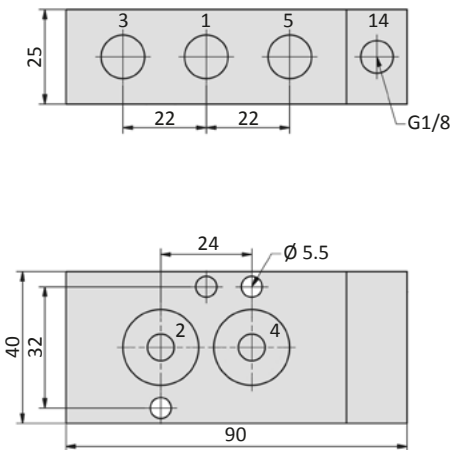
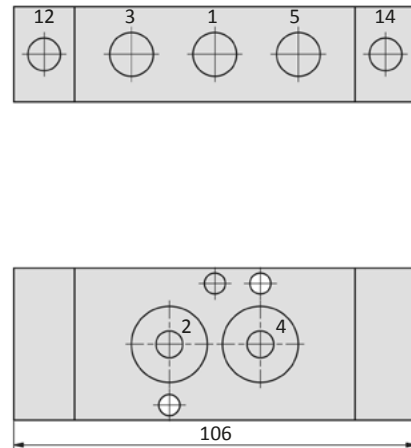


PN-05-530  
5/3-way, center position closed

## Technical data

| Model-no.:                      | PN-05-311   | PN-05-511   | PN-05-520  | PN-05-530  |
|---------------------------------|-------------|-------------|------------|------------|
| <b>Operating pressure (bar)</b> | 0...10 bar  | 0...10 bar  | 0...10 bar | 0...10 bar |
| <b>Pilot pressure (bar)</b>     | see diagram | see diagram | 2...10 bar | 3...10 bar |
| <b>Flow rate (NI/min)</b>       | 800         | 800         | 900        | 680        |
| <b>Weight (kg)</b>              | 0.22        | 0.22        | 0.26       | 0.28       |



**Dimensions**
**PN-05-311**

**PN-05-511**

**PN-05-520, P-05-530**


1 = pressure inlet

2,4 = outlets

3,5 = exhausts

12,14 = pilot ports

Pilot ports can be repositioned by 180°.

# Series MI-01, MI-02, MI-03

ISO 5599/1, Size 1 to 3

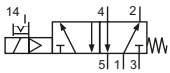
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | ISO 5599/1  |
| <b>Nominal size</b>      | Size 1: 9 mm<br>Size 2: 13 mm<br>Size 3: 14 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

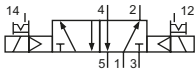


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

### 5/2-way valves

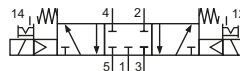


MI-01-511-HN-xxx  
MI-02-511-HN-xxx  
MI-03-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return

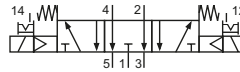


MI-01-520-HN-xxx  
MI-02-520-HN-xxx  
MI-03-520-HN-xxx  
5/2-way, double solenoid

### 5/3-way valves



MI-01-530-HN-xxx  
MI-02-530-HN-xxx  
MI-03-530-HN-xxx  
5/3-way, center position closed



MI-01-533-HN-xxx  
MI-02-533-HN-xxx  
MI-03-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

## Electrical options

| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx |
|-----------------|-------------------|------------|------------------------|------|
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -411 |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -431 |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -412 |
| 24 V DC         | 4.8 W             |            | M 12                   | -O12 |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -432 |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -O32 |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -422 |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -426 |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -427 |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

**Technical data**

| Model-no.:                  | MI-01-511         | MI-01-520         | MI-01-530         | MI-01-533         |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)   | 2.5...10          | 2...10            | 3...10            | 3...10            |
| Pilot pressure* (bar)       | 2.5...10          | 2...10            | 3...10            | 3...10            |
| Flow rate (NI/min)          | 1700              | 1700              | 1610              | 1610              |
| Response time (ms) at 6 bar | on: 15<br>off: 27 | on: 13<br>off: 13 | on: 17<br>off: 19 | on: 17<br>off: 19 |
| Weight (kg)                 | 0.480             | 0.645             | 0.620             | 0.620             |

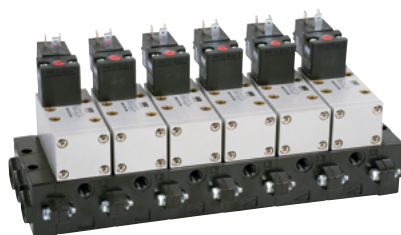
| Model-no.:                  | MI-02-511         | MI-02-520         | MI-02-530         | MI-02-533         |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)   | 2...10            | 2...10            | 3...10            | 3...10            |
| Pilot pressure* (bar)       | 2...10            | 2...10            | 3...10            | 3...10            |
| Flow rate (NI/min)          | 2020              | 2020              | 2020              | 2020              |
| Response time (ms) at 6 bar | on: 29<br>off: 57 | on: 17<br>off: 17 | on: 20<br>off: 27 | on: 20<br>off: 27 |
| Weight (kg)                 | 0.708             | 0.850             | 0.847             | 0.847             |

| Model-no.:                  | MI-03-511         | MI-03-520         | MI-03-530         | MI-03-533         |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)   | 2...10            | 2...10            | 3...10            | 3...10            |
| Pilot pressure* (bar)       | 2...10            | 2...10            | 3...10            | 3...10            |
| Flow rate (NI/min)          | 4150              | 4150              | 4150              | 4150              |
| Response time (ms) at 6 bar | on: 32<br>off: 57 | on: 20<br>off: 20 | on: 22<br>off: 55 | on: 22<br>off: 55 |
| Weight (kg)                 | 1.115             | 1.287             | 1.277             | 1.277             |

\* max. 8 bar at 2.2 W and 2.5 W

**Accessories**


Plug sockets: page 4-38



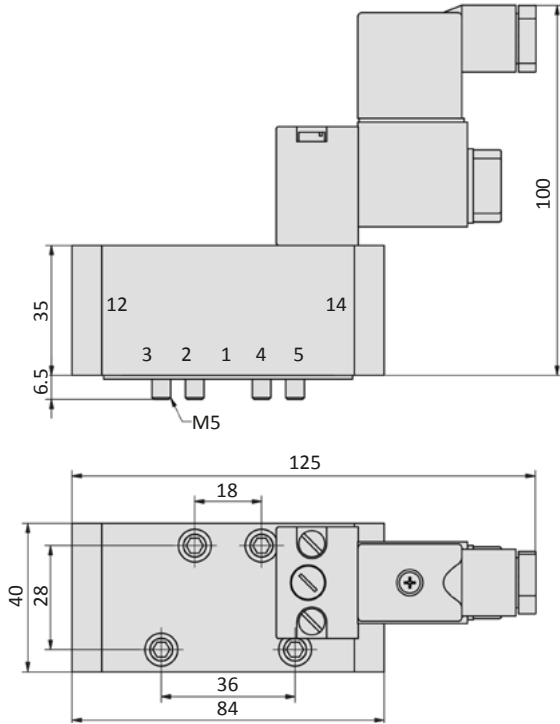
Manifolds and Accessories: [www.airtec.de](http://www.airtec.de)

# Series MI-01, MI-02, MI-03

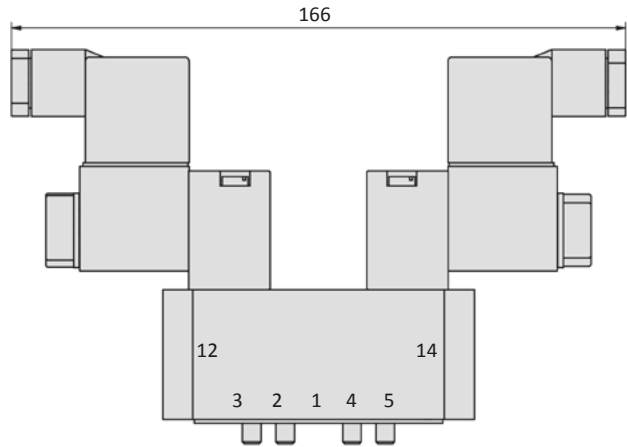
ISO 5599/1, Size 1 to 3

## Dimensions

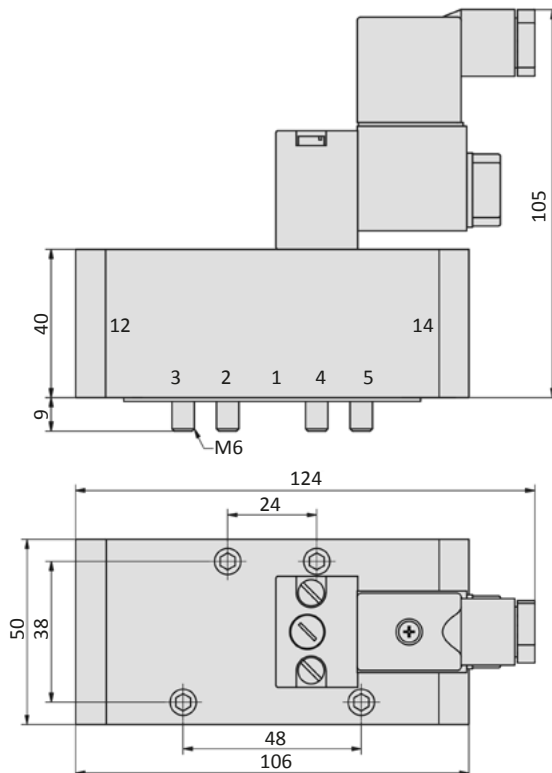
MI-01-511-HN



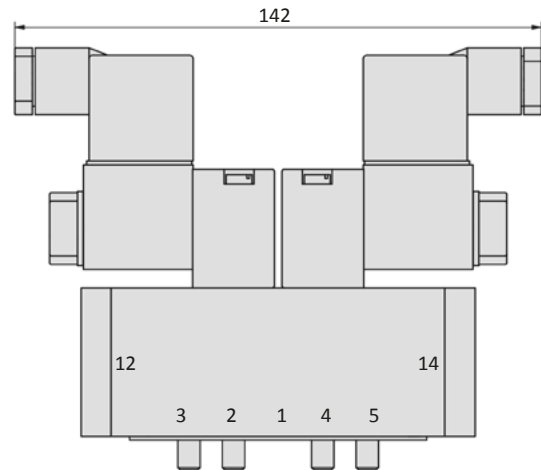
MI-01-520-HN, MI-01-53x-HN



MI-02-511-HN



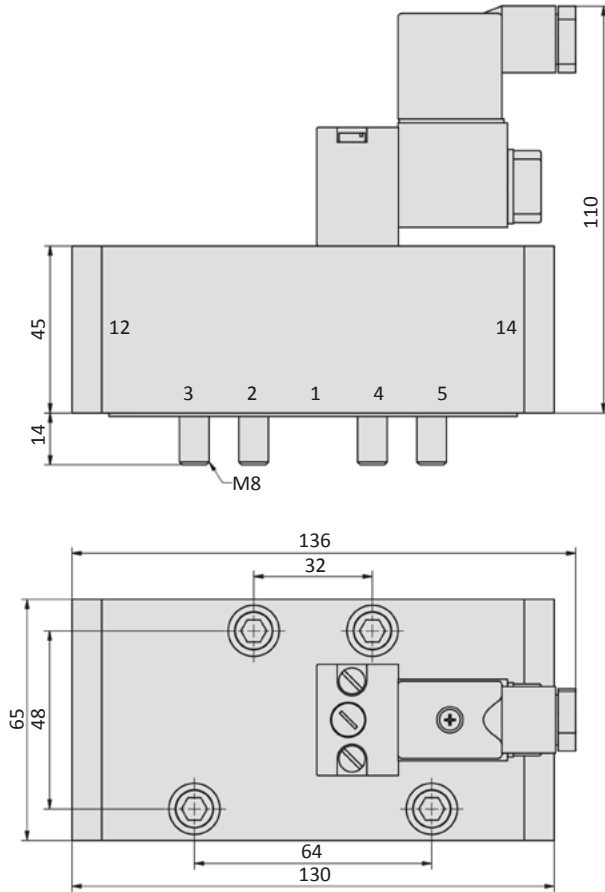
MI-02-520-HN, MI-02-53x-HN



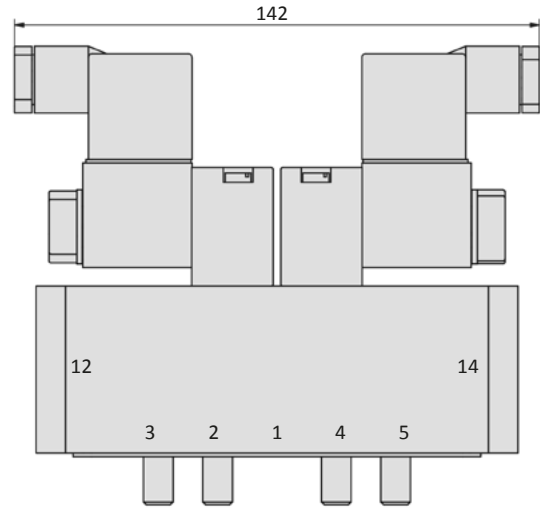


**Dimensions**

**MI-03-511-HN**



**MI-03-520-HN, MI-03-53x-HN**



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 2 x 90°.

# Series KN-05, KN-55

## NAMUR

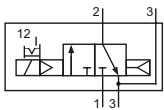
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

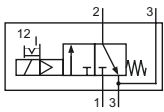


Electrically operated spool valve. The manual override is detent and is operated by screwdriver. The model KN-55 has a coil with enhanced humidity resistance and an additional gasket at the coil. The location pin, screws and seals are included.

### 3/2-way valves

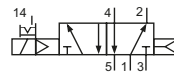


KN-05-310-HN-xxx  
KN-55-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC

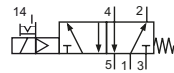


KN-05-311-HN-xxx  
KN-55-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

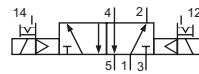
### 5/2- and 5/3-way valves



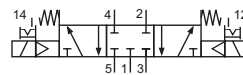
KN-05-510-HN-xxx  
KN-55-510-HN-xxx  
5/2-way, single solenoid, air spring return



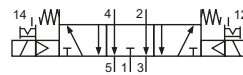
KN-05-511-HN-xxx  
KN-55-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



KN-05-520-HN-xxx  
KN-55-520-HN-xxx  
5/2-way, double solenoid



KN-05-530-HN-xxx  
KN-55-530-HN-xxx  
5/3-way, center position closed



KN-05-533-HN-xxx  
KN-55-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

### Electrical options

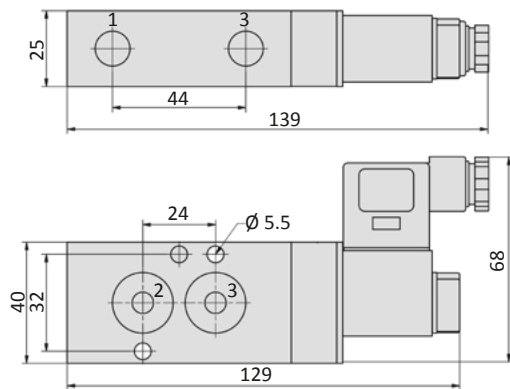
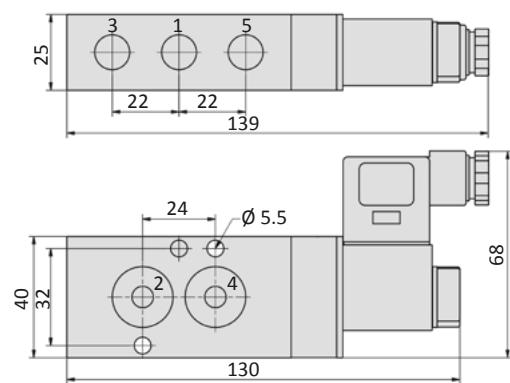
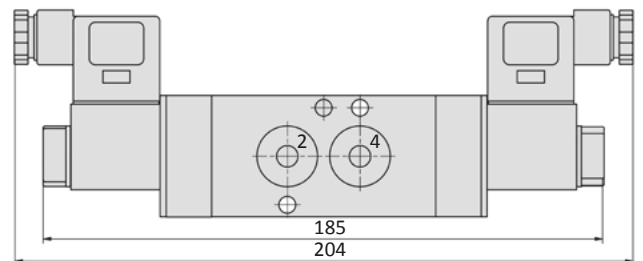
| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx  |       |
|-----------------|-------------------|------------|------------------------|-------|-------|
|                 |                   |            |                        | KN-05 | KN-55 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441  | -741  |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461  | -761  |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442  | -742  |
| 24 V DC         | 4.8 W             |            | M 12                   | -O42  | -     |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462  | -762  |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -O62  | -     |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452  | -752  |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456  | -756  |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457  | -757  |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

**Technical data**

| Model-no.:                     | KN-05-310<br>KN-55-310 | KN-05-311<br>KN-55-311 | KN-05-510<br>KN-55-510 | KN-05-511<br>KN-55-511 | KN-05-520<br>KN-55-520 | KN-05-530<br>KN-55-530 | KN-05-533<br>KN-55-533 |
|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Operating pressure* (bar)      | 3...10                 | 3...10                 | 3...10                 | 3...10                 | 2...10                 | 3...10                 | 3...10                 |
| Pilot pressure* (bar)          | 3...10                 | 3...10                 | 3...10                 | 3...10                 | 2...10                 | 3...10                 | 3...10                 |
| Flow rate (NI/min)             | 780                    | 780                    | 900                    | 800                    | 900                    | 680                    | 680                    |
| Response time (ms)<br>at 6 bar | on: 16<br>off: 18      | on: 13<br>off: 16      | on: 16<br>off: 17      | on: 16<br>off: 18      | on: 14<br>off: 14      | on: 14<br>off: 16      | on: 14<br>off: 16      |
| Weight (kg)                    | 0.320                  | 0.320                  | 0.320                  | 0.320                  | 0.440                  | 0.440                  | 0.440                  |

\* max. 8 bar at 2.2 W and 2.5 W

**Dimensions**
**KN-05-31x-HN, KN-55-31x-HN**

**KN-05-51x-HN, KN-55-51x-HN**

**KN-05-520-HN, KN-55-520-HN, KN-05-53x-HN, KN-55-53x-HN**

 1 = pressure inlet  
 2,4 = outlets  
 3,5 = exhausts

 Plug socket (not included in scope of delivery) can be repositioned by 180°.  
 Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-38

# Series MN-06

## NAMUR

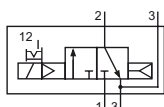
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

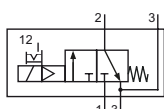


Electrically operated spool valve. The manual override is detent and is operated by screwdriver. The location pin, screws and seals are included.

### 3/2-way valves

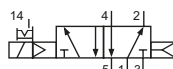


**MN-06-310-HN-xxx**  
3/2-way, single solenoid, air spring return, NC

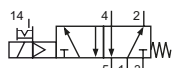


**MN-06-311-HN-xxx**  
3/2-way, single solenoid, mechanical spring return, NC

### 5/2- and 5/3-way valves



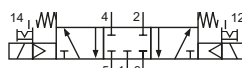
**MN-06-510-HN-xxx**  
5/2-way, single solenoid, air spring return



**MN-06-511-HN-xxx**  
5/2-way, single solenoid, mechanical spring return



**MN-06-520-HN-xxx**  
5/2-way, double solenoid



**MN-06-530-HN-xxx**  
5/3-way, center position closed

Please complete: xxx = electrical option

### Electrical options

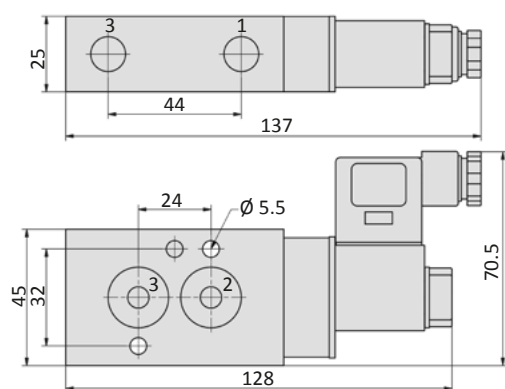
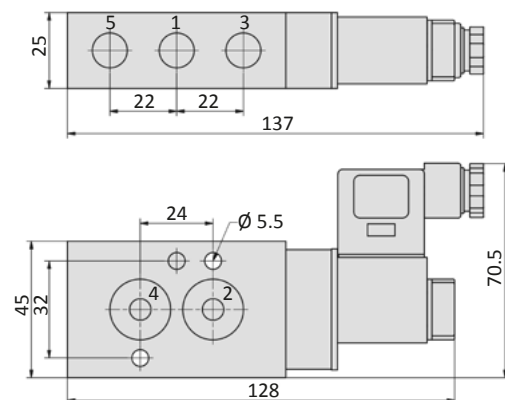
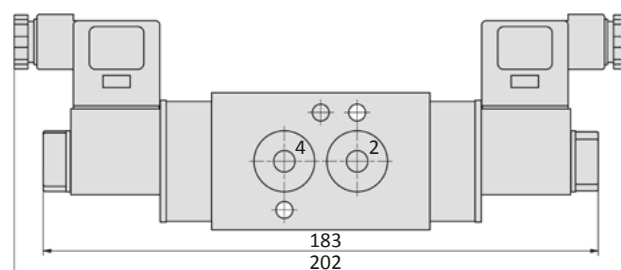
| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx |
|-----------------|-------------------|------------|------------------------|------|
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -441 |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -461 |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -442 |
| 24 V DC         | 4.8 W             |            | M 12                   | -O42 |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -462 |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -O62 |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -452 |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -456 |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -457 |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

**Technical data**

| Model-no.:                     | MN-06-310         | MN-06-311         | MN-06-510         | MN-06-511         | MN-06-520         | MN-06-530         |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure* (bar)      | 2...10            | 3...10            | 2...10            | 3...10            | 2...10            | 3...10            |
| Pilot pressure* (bar)          | 2...10            | 3...10            | 2...10            | 3...10            | 2...10            | 3...10            |
| Flow rate (NI/min)             | 750               | 750               | 750               | 750               | 750               | 650               |
| Response time (ms)<br>at 6 bar | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 13<br>off: 16 | on: 12<br>off: 12 | on: 13<br>off: 15 |
| Weight (kg)                    | 0.320             | 0.320             | 0.320             | 0.320             | 0.460             | 0.460             |

\* max. 8 bar at 2.2 W and 2.5 W

**Dimensions**
**MN-06-31x-HN**

**MN-06-51x-HN**

**MN-06-520-HN, MN-06-530-HN**

 1 = pressure inlet  
 2,4 = outlets  
 3,5 = exhausts

 Plug socket (not included in scope of delivery) can be repositioned by 180°.  
 Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-38

## Series MN-22

### NAMUR

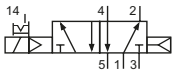
#### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/2, Namur   |
| <b>Nominal size</b>      | 14 mm   |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

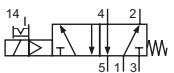


Electrically operated spool valve. The manual override is detent and is operated by screwdriver. The location pin, screws and seals are included.

#### 5/2- way valves



MN-22-510-HN-xxx  
5/2-way, single solenoid, air spring return



MN-22-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return

Please complete: xxx = electrical option

#### Electrical options

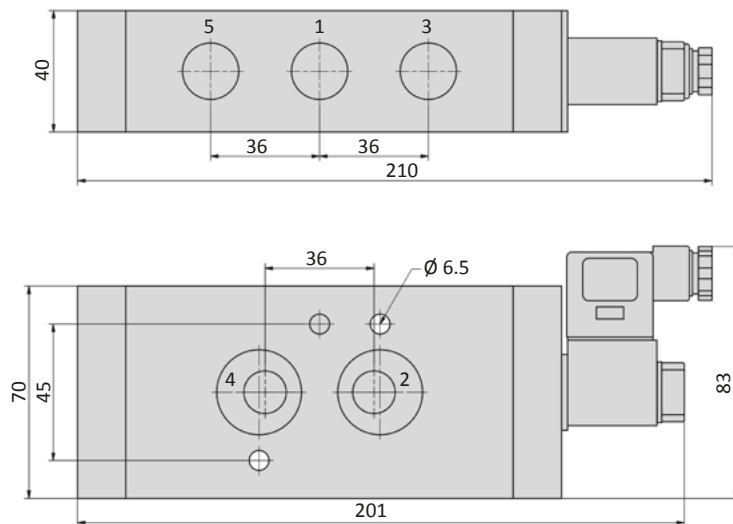
| Nominal voltage | Power consumption | Specifics  | Plug connection*1      | -xxx |
|-----------------|-------------------|------------|------------------------|------|
| 12 V DC         | 4.2 W             |            | Form B industrial norm | -411 |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -431 |
| 24 V DC         | 4.2 W             |            | Form B industrial norm | -412 |
| 24 V DC         | 4.8 W             |            | M 12                   | -O12 |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm | -432 |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                   | -O32 |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm | -422 |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm | -426 |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm | -427 |

\*1 Plug socket not included, suitable plug sockets see page 4-38.

**Technical data**

| Model-no.:                  | MN-22-510         | MN-22-511         |
|-----------------------------|-------------------|-------------------|
| Operating pressure* (bar)   | 1...10            | 3...10            |
| Pilot pressure* (bar)       | 1...10            | 3...10            |
| Flow rate (NI/min)          | 3300              | 3300              |
| Response time (ms) at 6 bar | on: 30<br>off: 59 | on: 20<br>off: 80 |
| Weight (kg)                 | 1.10              | 1.10              |

\* max. 8 bar at 2.2 W and 2.5 W

**Dimensions**
**MN-22-51x-HN**


1 = pressure inlet  
 2,4 = outlets  
 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
 Solenoid coil can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: page 4-38

# Flow control valves

## NAMUR

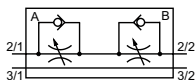
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | Namur   |
| <b>Nominal size</b>      | 5 mm  |
| <b>Flow rate</b>         | KN-063: 210 NI/min, KN-065: 290 NI/min  |
| <b>Weight</b>            | 0.170 kg  |
| <b>Temperature range</b> | -25°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized) seals: NBR inner parts: brass   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

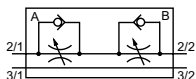


Flow control valves for speed regulation of pneumatically operated actuators. Mounting between NAMUR valve and actuator. Adjustable with screwdriver or manually. The location pin, screws and seals are included.

### 3/2-way

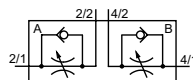


KN-063-DRS  
for 3/2-way valves,  
adjustable with screwdriver

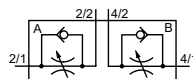


KN-063-DRH  
for 3/2-way valves,  
manually adjustable

### 5/2- and 5/3-way



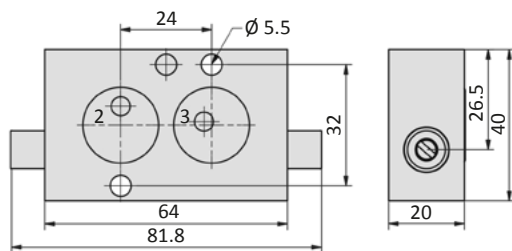
KN-065-DRS  
for 5/2-way- and 5/3-way valves,  
adjustable with screwdriver



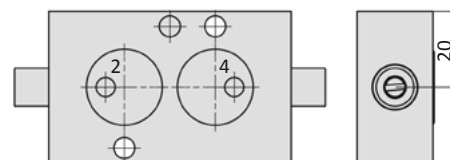
KN-065-DRH  
for 5/2-way- and 5/3-way valves,  
manually adjustable

### Dimensions

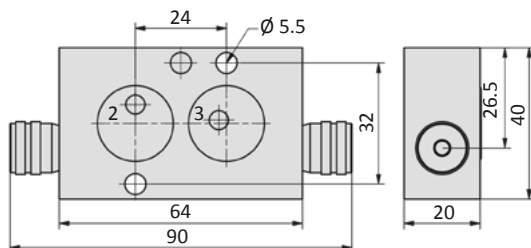
#### KN-063-DRS



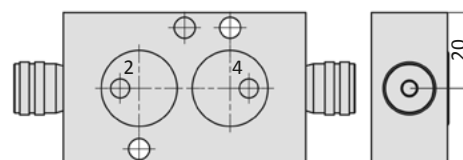
#### KN-065-DRS



#### KN-063-DRH



#### KN-065-DRH









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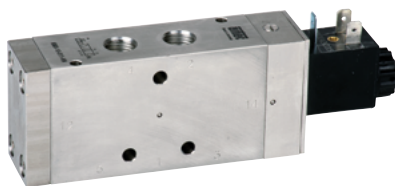
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**Series KMX-10**

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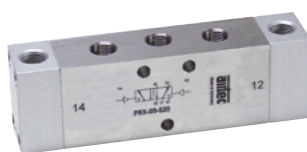
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**Accessories and spare parts**

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## Series ICK-09 and ICK-10

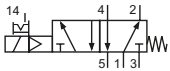
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | ICK-09: G1/8<br>ICK-10: G1/4  |
| <b>Nominal size</b>      | ICK-09: 6 mm<br>ICK-10: 9 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: FKM and PU, inner parts: Al, stainless steel and brass  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

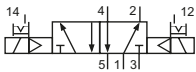


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

### 5/2-way valves

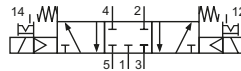


ICK-09-511-HN-xxx  
ICK-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



ICK-09-520-HN-xxx  
ICK-10-520-HN-xxx  
5/2-way, double solenoid

### 5/3-way valves



ICK-09-530-HN-xxx  
ICK-10-530-HN-xxx  
5/3-way, center position closed

Please complete: xxx = electrical option

### Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection*1      | -xxx<br>Manual override on same side of ports |            |
|-----------------|-------------------|-----------|------------------------|---|------------|
|                 |                   |           |                        | 2 and 4                                       | 1, 3 and 5 |
| 24 V DC         | 4.2 W             |           | Form B industrial norm | -F42  | -F12       |

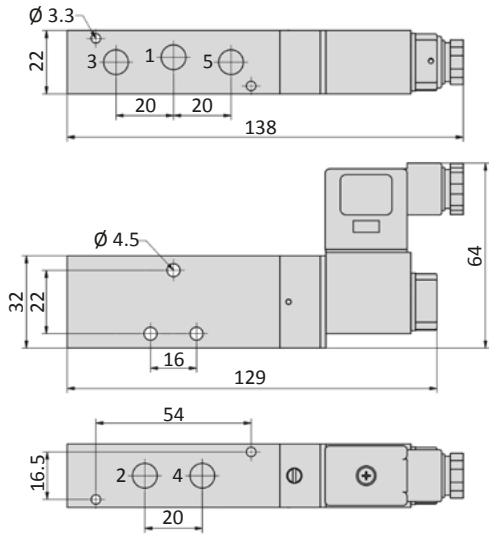
\*1 Plug socket not included, suitable plug sockets see page 6-14.

### Technical data

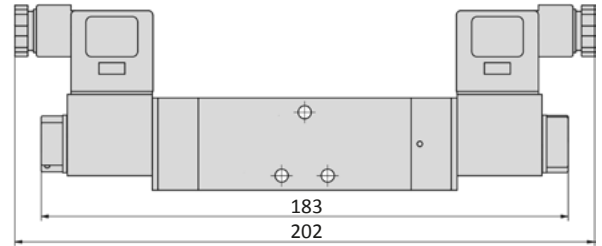
| Model-no.:                         | ICK-09-511        | ICK-09-520        | ICK-09-530        | ICK-10-511        | ICK-10-520        | ICK-10-530        |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Operating pressure (bar)</b>    | 3 ... 8           | 3 ... 8           | 3 ... 8           | 2.5 ... 8         | 2.5 ... 8         | 3 ... 8           |
| <b>Pilot pressure (bar)</b>        | 3 ... 8           | 3 ... 8           | 3 ... 8           | 2.5 ... 8         | 2.5 ... 8         | 3 ... 8           |
| <b>Flow rate (NI/min)</b>          | 810               | 950               | 680               | 1800              | 2100              | 1500              |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 28 | on: 15<br>off: 15 | on: 14<br>off: 16 | on: 16<br>off: 27 | on: 18<br>off: 18 | on: 16<br>off: 22 |
| <b>Weight (kg)</b>                 | 0.231             | 0.330             | 0.330             | 0.470             | 0.630             | 0.630             |

**Dimensions**

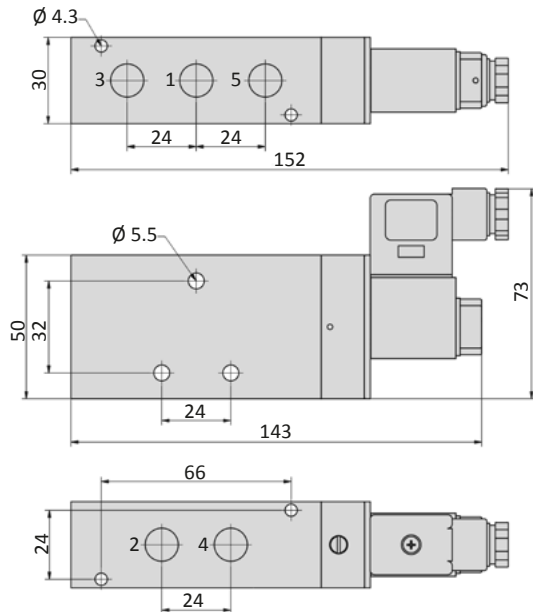
**ICK-09-511-HN**



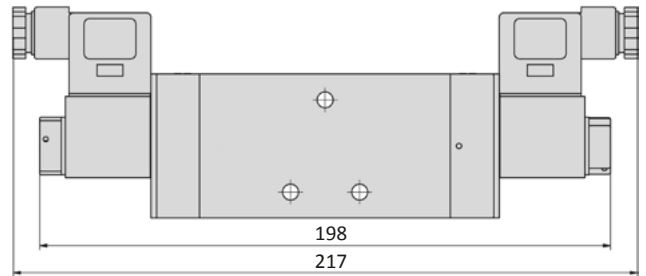
**ICK-09-520-HN, ICK-09-530-HN**



**ICK-10-511-HN**



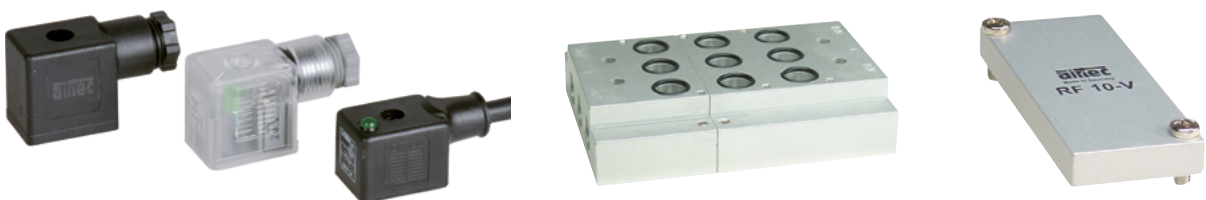
**ICK-10-520-HN, ICK-10-530-HN**



1 = pressure inlet  
2,4 = outlets  
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°. Solenoid coil can be repositioned.

**Accessories**



Plug sockets: page 6-14

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# Series KMX-09 and KMX-10



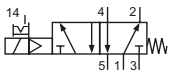
## Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | KMX-09: G1/8<br>KMX-10: G1/4  |
| <b>Nominal size</b>      | KMX-09: 6 mm<br>KMX-10: 9 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: stainless steel 1.4571, seals: FKM and PU, inner parts: stainless steel 1.4305  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

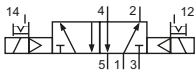


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

### 5/2-way valves

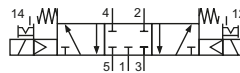


KMX-09-511-HN-xxx  
KMX-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



KMX-09-520-HN-xxx  
KMX-10-520-HN-xxx  
5/2-way, double solenoid

### 5/3-way valve



KMX-10-530-HN-xxx  
5/3-way, center position closed

Please complete: xxx = electrical option

## Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection*1      | -xxx<br>Manual override on same side of ports |            |
|-----------------|-------------------|-----------|------------------------|---|------------|
|                 |                   |           |                        | 2 and 4                                       | 1, 3 and 5 |
| 24 V DC         | 4.2 W             |           | Form B industrial norm | -F42  | -F12       |

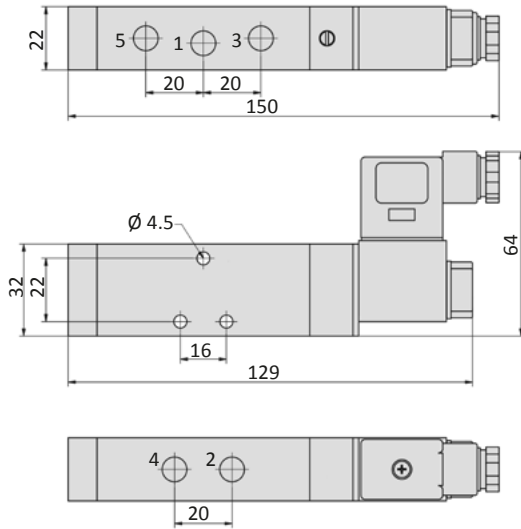
\*1 Plug socket not included, suitable plug sockets see page 6-14.

## Technical data

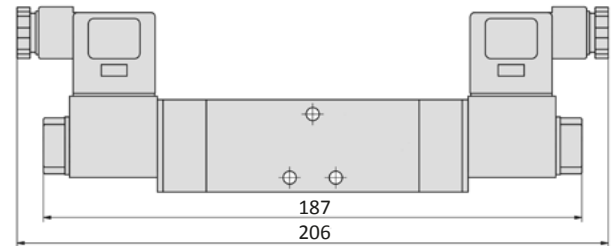
| Model-no.:                         | KMX-09-511        | KMX-09-520        | KMX-10-511        | KMX-10-520        | KMX-10-530        |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Operating pressure (bar)</b>    | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Pilot pressure (bar)</b>        | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Flow rate (NI/min)</b>          | 810               | 950               | 1800              | 2100              | 1500              |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 28 | on: 15<br>off: 15 | on: 16<br>off: 27 | on: 18<br>off: 18 | on: 16<br>off: 22 |
| <b>Weight (kg)</b>                 | 0.231             | 0.330             | 0.470             | 0.630             | 0.630             |

**Dimensions**

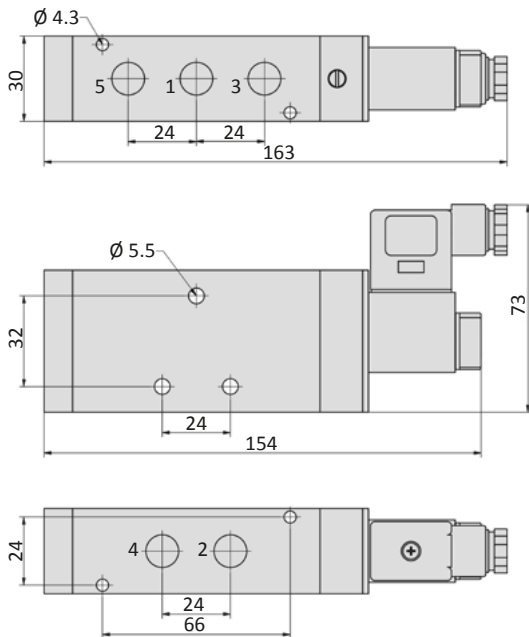
**KMX-09-511-HN**



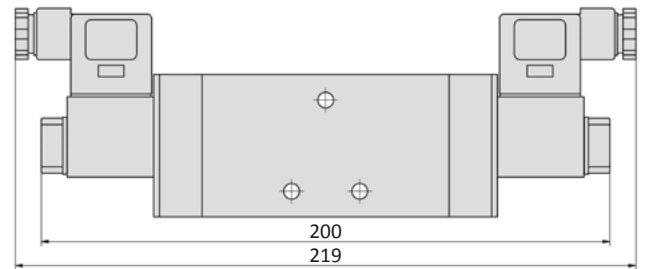
**KMX-09-520-HN**



**KMX-10-511-HN**



**KMX-10-520-HN, KMX-10-530-HN**



1 = pressure inlet  
2,4 = outlets  
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°. Solenoid coil can be repositioned.

**Accessories**



Plug sockets: page 6-14

## Series PKX-09 and PKX-10



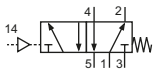
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | PKX-09: G1/8<br>PKX-10: G1/4  |
| <b>Nominal size</b>      | PKX-09: 6 mm<br>PKX-10: 9 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: stainless steel 1.4571, seals: FKM and PU, inner parts: stainless steel 1.4305  |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

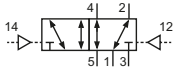


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

### 5/2-way valves

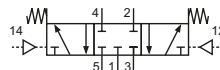


PKX-09-511  
PKX-10-511  
5/2-way, single pilot, mechanical spring return



PKX-09-520  
PKX-10-520  
5/2-way, double pilot

### 5/3-way valve



PKX-10-530  
5/3-way, center position closed

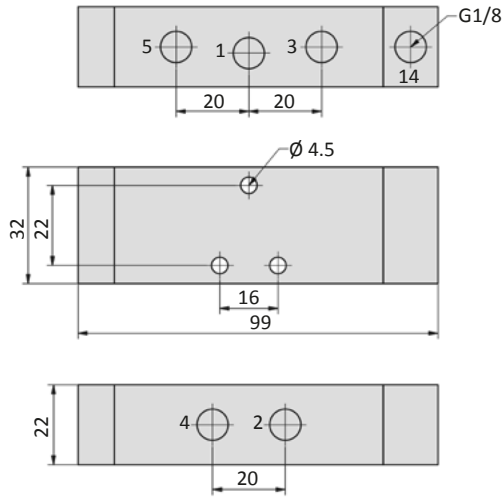
### Technical data

| Model-no.:                      | PKX-09-511 | PKX-09-520 | PKX-10-511 | PKX-10-520 | PKX-10-530 |
|---------------------------------|------------|------------|------------|------------|------------|
| <b>Operating pressure (bar)</b> | 3 ... 8    | 3 ... 8    | 3 ... 8    | 3 ... 8    | 3 ... 8    |
| <b>Pilot pressure (bar)</b>     | 3 ... 8    | 3 ... 8    | 3 ... 8    | 3 ... 8    | 3 ... 8    |
| <b>Flow rate (Nl/min)</b>       | 1080       | 1110       | 1980       | 1920       | 1770       |
| <b>Weight (kg)</b>              | 0.450      | 0.460      | 1.120      | 1.170      | 1.160      |

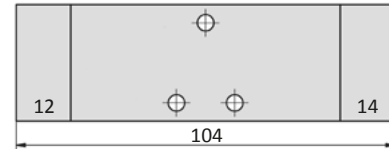


**Dimensions**

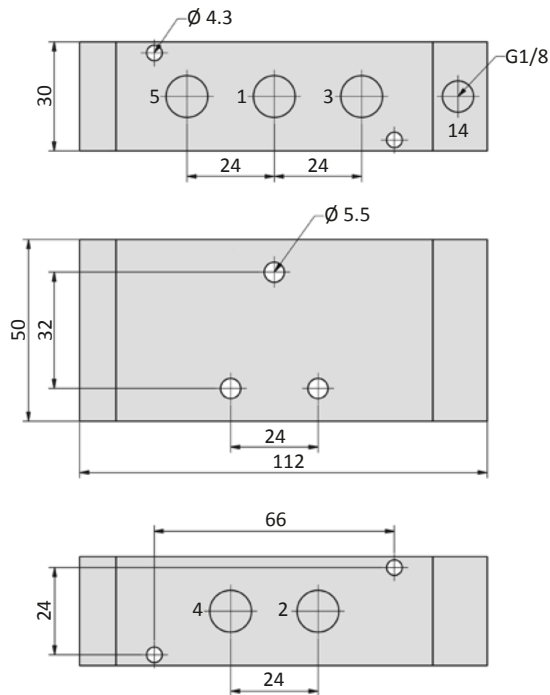
**PKX-09-511**



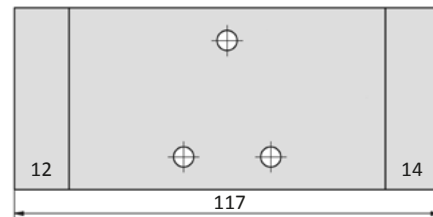
**PKX-09-520**



**PKX-10-511**



**PKX-10-520, PKX-10-530**



- 1 = pressure inlet
  - 2,4 = outlets
  - 3,5 = exhausts
  - 12,14 = pilot ports
- Pilot ports can be repositioned by 180°.

# Series ICKN-55

## NAMUR

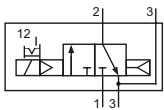
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: FKM , inner parts: Al, stainless steel and brass  |
| <b>Protection</b>        | IP 65 according to EN 60529   |

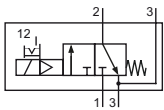


Electrically operated spool valve. The manual override is detent and is operated by screwdriver. The location pin, screws and seals are included.

### 3/2-way valves

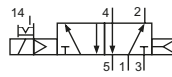


ICKN-55-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC

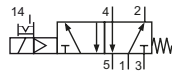


ICKN-55-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

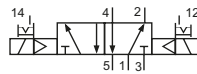
### 5/2- and 5/3-way valves



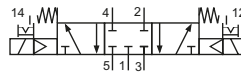
ICKN-55-510-HN-xxx  
5/2-way, single solenoid, air spring return



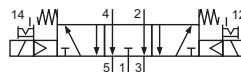
ICKN-55-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



ICKN-55-520-HN-xxx  
5/2-way, double solenoid



ICKN-55-530-HN-xxx  
5/3-way, center position closed



ICKN-55-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

### Electrical options

| Nominal Ivoltage | Power consumption | Specifics | Plug connection*1      | -xxx |
|------------------|-------------------|-----------|------------------------|------|
| 24 V DC          | 4.2 W             |           | Form B industrial norm | -F42 |

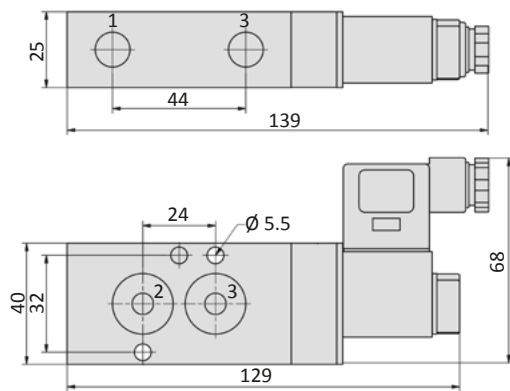
\*1 Plug socket not included, suitable plug sockets see page 6-14.

**Technical data**

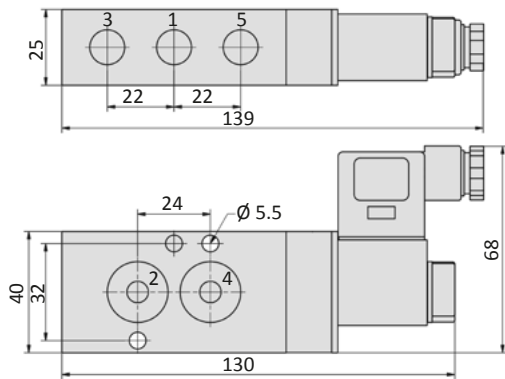
| Model-no.:                     | ICKN-55-310       | ICKN-55-311       | ICKN-55-510       | ICKN-55-511       | ICKN-55-520       | ICKN-55-530       | ICKN-55-533       |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Operating pressure (bar)       | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 2 ... 8           | 3 ... 8           | 3 ... 8           |
| Pilot pressure (bar)           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 3 ... 8           | 2 ... 8           | 3 ... 8           | 3 ... 8           |
| Flow rate (NI/min)             | 780               | 780               | 900               | 800               | 900               | 680               | 680               |
| Response time (ms)<br>at 6 bar | on: 16<br>off: 18 | on: 13<br>off: 16 | on: 16<br>off: 17 | on: 16<br>off: 18 | on: 14<br>off: 14 | on: 14<br>off: 16 | on: 14<br>off: 16 |
| Weight (kg)                    | 0.320             | 0.320             | 0.320             | 0.320             | 0.440             | 0.440             | 0.440             |

**Dimensions**

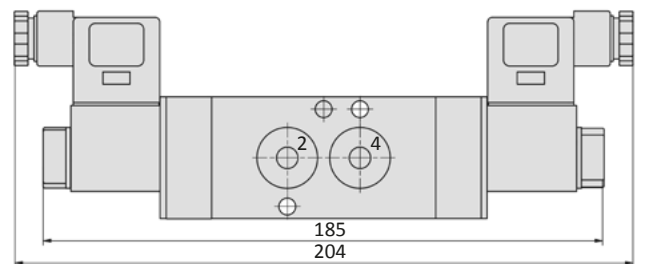
**ICKN-55-31x-HN**



**ICKN-55-51x-HN**



**ICKN-55-520-HN, ICKN-55-53x-HN**



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned.

**Accessories**



Plug sockets: page 6-14

# Series KNX-55

## NAMUR



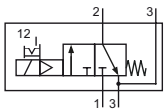
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: stainless steel 1.4571, seals: PU, NBR, inner parts: stainless steel 1.4305   |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



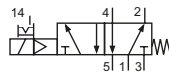
Electrically operated spool valve. The manual override is detent and is operated by screwdriver. The location pin, screws and seals are included.

### 3/2-way valve

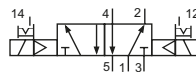


KNX-55-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

### 5/2- and 5/3-way valves



KNX-55-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



KNX-55-520-HN-xxx  
5/2-way, double solenoid

Please complete: xxx = electrical option

### Electrical options

| Nominal voltage | Power consumption | Specifics | Plug connection* <sup>1</sup> | -xxx |
|-----------------|-------------------|-----------|-------------------------------|------|
| 24 V DC         | 4.2 W             |           | Form B industrial norm        | -F42 |

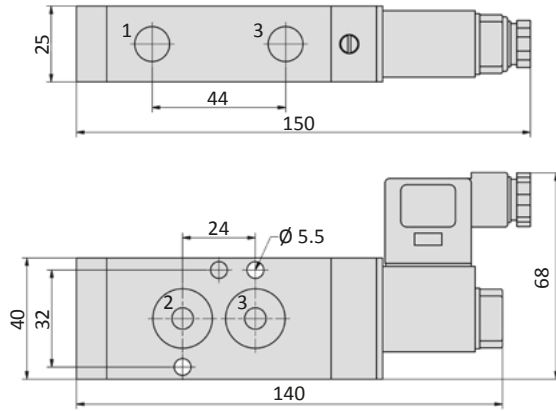
\*<sup>1</sup> Plug socket not included, suitable plug sockets see page 6-14.

### Technical data

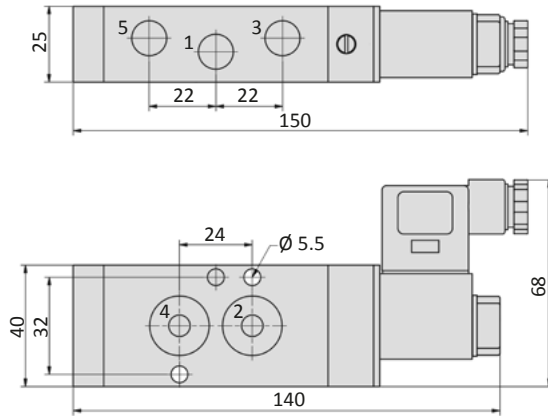
| Model-no.:                         | KNX-55-311        | KNX-55-511        | KNX-55-520        |
|------------------------------------|-------------------|-------------------|-------------------|
| <b>Operating pressure (bar)</b>    | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Pilot pressure (bar)</b>        | 3 ... 8           | 3 ... 8           | 3 ... 8           |
| <b>Flow rate (NI/min)</b>          | 1280              | 1060              | 1050              |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 47 | on: 12<br>off: 74 | on: 14<br>off: 14 |
| <b>Weight (kg)</b>                 | 0.670             | 0.660             | 0.720             |

**Dimensions**

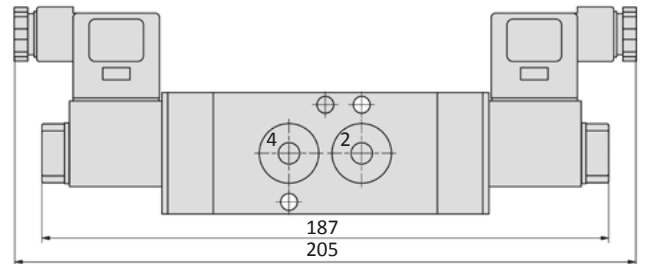
**KNX-55-311-HN**



**KNX-55-511-HN**



**KNX-55-520-HN**



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°. Solenoid coil can be repositioned.

**Accessories**



Plug sockets: page 6-14

# Series PNX-55

## NAMUR



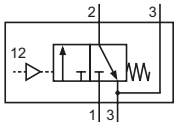
### Technical details

|                          |   |
|--------------------------|---|
| <b>Connection</b>        | G1/4, Namur   |
| <b>Nominal size</b>      | 6 mm  |
| <b>Temperature range</b> | -30°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: stainless steel 1.4571, seals: PU, NBR, inner parts: stainless steel 1.4305   |
| <b>Protection</b>        | IP 65 according to EN 60529   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |



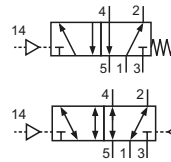
Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port. The location pin, screws and seals are included.

### 3/2-way valve



PNX-55-311  
3/2-way, single pilot, mechanical spring return

### 5/2- and 5/3-way valves



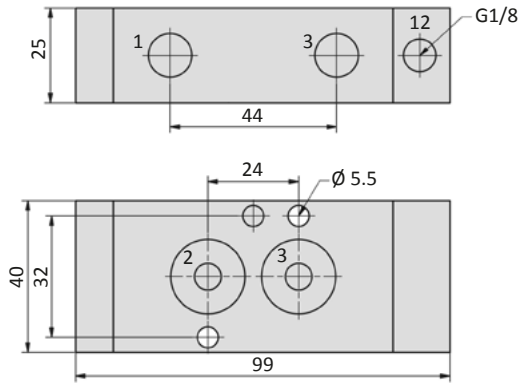
PNX-55-511  
5/2-way, single pilot, mechanical spring return  
PNX-55-520  
5/2-way, double pilot

### Technical data

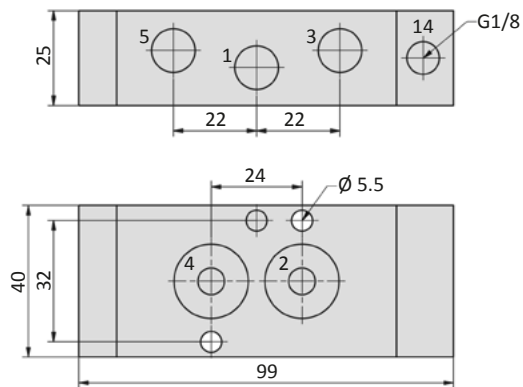
| Model-no.:                      | PNX-55-311  | PNX-55-511  | PNX-55-520  |
|---------------------------------|-------------|-------------|-------------|
| <b>Operating pressure (bar)</b> | 3 ... 8 bar | 3 ... 8 bar | 3 ... 8 bar |
| <b>Pilot pressure (bar)</b>     | 3 ... 8 bar | 3 ... 8 bar | 3 ... 8 bar |
| <b>Flow rate (NI/min)</b>       | 1280        | 1060        | 1050        |
| <b>Weight (kg)</b>              | 0.640       | 0.630       | 0.660       |

**Dimensions**

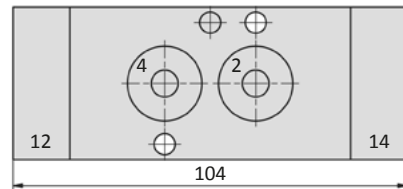
**PNX-55-311**



**PNX-55-511**



**PNX-55-520**



- 1 = pressure inlet
  - 2,4 = outlets
  - 3,5 = exhausts
  - 12,14 = pilot ports
- Pilot ports can be repositioned by 180°.

## Plug sockets

### Form B industrial norm

|                            |  |
|----------------------------|--|
| <b>Overall width</b>       | 22 mm  |
| <b>Contact distance</b>    | 11 mm  |
| <b>Contacts</b>            | 2P + E   |
| <b>Protection</b>          | IP 65 according to EN 60529 requires a flat gasket |
| <b>For use with series</b> | ICK-09, ICK-10, KMX-09, KMX-10, ICKN-55, KNX-55    |

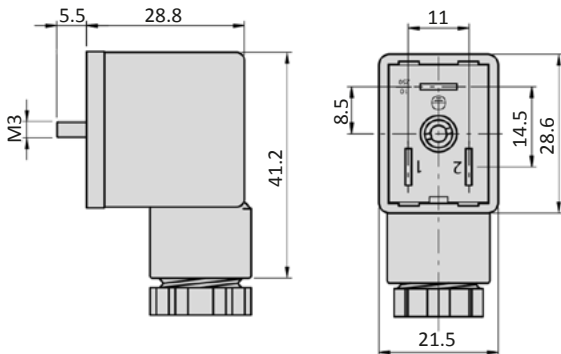


|                           |                          |                          |                          |                          |                          |                          |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Model-no.:</b>         | 28-ST-01                 | 28-ST-04-112             | 28-ST-04-127             | 28-ST-06-112             | 28-ST-06-127             | 28-ST-06-K3-112*         | 28-ST-06-K3-127*         |
| <b>Voltage (AC/DC)</b>    | 0 - 250 V                | 10 - 50 V                | 70 - 250 V               | 24 V                     | 230 V                    | 24 V                     | 230 V                    |
| <b>Status indicator</b>   | no                       | yes                      | yes                      | yes                      | yes                      | yes                      | yes                      |
| <b>Protective circuit</b> | no                       | no                       | no                       | yes (varistor)           | yes (varistor)           | yes (varistor)           | yes (varistor)           |
| <b>Connecting cable</b>   | without                  | without                  | without                  | without                  | without                  | 3 m                      | 3 m                      |
| <b>Wire cross section</b> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | max. 1.5 mm <sup>2</sup> | 3 x 0.75 mm <sup>2</sup> | 3 x 0.75 mm <sup>2</sup> |
| <b>Ø Connecting cable</b> | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 | 6 - 8 mm                 |                          |                          |

\* These plug sockets are fitted with integrated flat gaskets.

### Dimensions

#### Form B industrial norm





## Form B industrial norm

|                     |  |
|---------------------|--|
| Overall width       | 22 mm  |
| Contact distance    | 11 mm  |
| Contacts            | 2P + E   |
| Protection          | IP 65 according to EN 60529 with connected plug socket |
| Duty cycle          | 100 %  |
| Temperature range*  | -40°C ... +80°C  |
| Voltage tolerance   | ± 10 %   |
| For use with series | ICK-09, ICK-10, KMX-09, KMX-10, ICKN-55, KNX-55        |

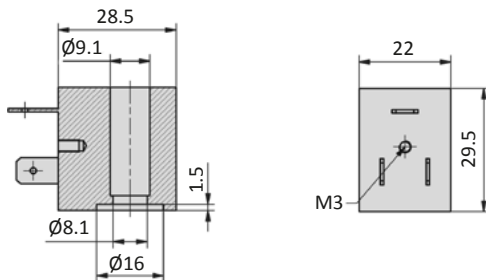


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

|                      |                 |
|----------------------|-----------------|
| Model-no.:           | 23-SP-060-1-712 |
| Voltage              | 24 V DC         |
| Power consumption DC | 4.2 W           |
| Power consumption AC | -               |

## Dimensions

### Form B industrial norm





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Series RE-04

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Series REF-10 and REF-14

Page 7-20



Series RE-19

Page 7-05



Series RE-10

Page 7-09



Series RE-46

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# Series RE-04



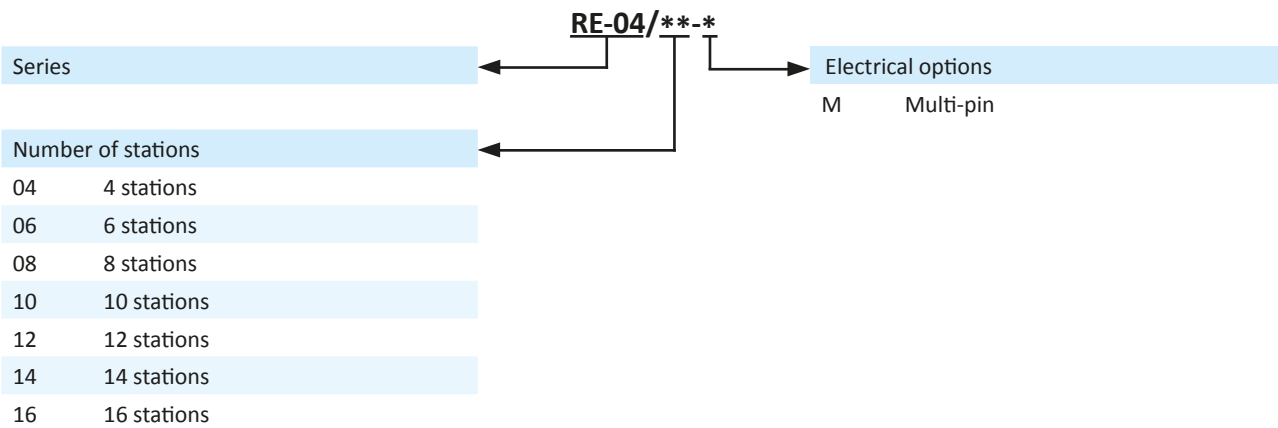
## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR   |
| <b>Protection</b>        | IP 65 according to EN 60529   |



Manifold system with integrated electrical connection including LED, manual override and built-in circuit protection. Double solenoid valves and 5/3-way valves require 2 stations on the manifold. The above order code covers only the manifold. The valves and the multi-pin plug with cable must be ordered separately. The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers on the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

## Order code

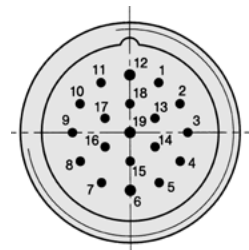


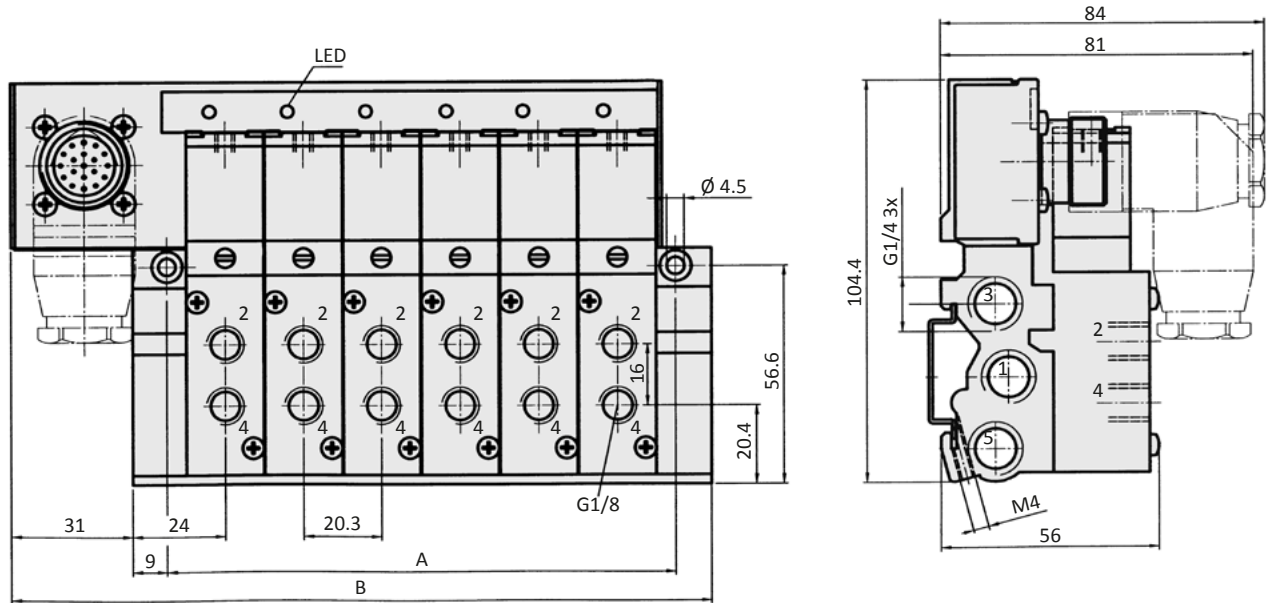
## Electrical options

### Multi-pin

The 19-pin multi plug (see page 7-04) has to be ordered separately.

| Pin | Function | Cable, 8-pin | Cable, 16-pin | Pin | Function | Cable, 8-pin  | Cable, 16-pin |
|-----|----------|--------------|---------------|-----|----------|---------------|---------------|
| 1   | valve 1  | black 1      | black 1       | 11  | valve 10 | -             | black 10      |
| 2   | valve 2  | black 2      | black 2       | 12  | PE       | green/ yellow | green/ yellow |
| 3   | valve 3  | black 3      | black 3       | 13  | valve 11 | -             | black 11      |
| 4   | valve 4  | black 4      | black 4       | 14  | valve 12 | -             | black 12      |
| 5   | valve 5  | black 5      | black 5       | 15  | valve 13 | -             | black 13      |
| 6   | GND      | black 9      | black 9       | 16  | valve 14 | -             | black 14      |
| 7   | valve 6  | black 6      | black 6       | 17  | valve 15 | -             | black 15      |
| 8   | valve 7  | black 7      | black 7       | 18  | valve 16 | -             | black 16      |
| 9   | valve 8  | black 8      | black 8       | 19  | GND      | -             | black 18      |
| 10  | valve 9  | -            | black 17      |     |          |               |               |



**Dimensions**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

| Model-no.: | A     | B     | Weight without valves (kg) |
|------------|-------|-------|----------------------------|
| RE-04/04-M | 90.9  | 140   | 0.51                       |
| RE-04/06-M | 131.5 | 180.6 | 0.72                       |
| RE-04/08-M | 172.1 | 221.2 | 0.93                       |
| RE-04/10-M | 212.7 | 261.8 | 1.14                       |
| RE-04/12-M | 253.3 | 302.4 | 1.35                       |
| RE-04/14-M | 293.9 | 343   | 1.56                       |
| RE-04/16-M | 334.5 | 383.6 | 1.77                       |

# Series RE-04

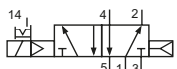
## Technical details

|                          |   |
|--------------------------|---|
| <b>Outlets</b>           | G1/8  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass  |
| <b>Nominal voltage</b>   | 24 V DC, ± 10%  |
| <b>Power consumption</b> | 2 W   |
| <b>Protection</b>        | IP 65 according to EN 60529   |

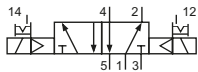


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

### 5/2-way valves

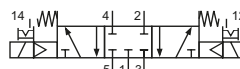


**MF-04-510-HN-412**  
5/2-way, single solenoid, air spring return

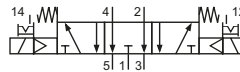


**MF-24-520-HN-412**  
5/2-way, double solenoid

### 5/3-way valves



**MF-24-530-HN-412**  
5/3-way, center position closed





**MF-24-533-HN-412**  
5/3-way, center position exhausted


## Technical data


| Model-no.:                         | MF-04-510-HN-412  | MF-24-520-HN-412  | MF-24-530-HN-412  | MF-24-533-HN-412  |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Required space</b>              | 1 station         | 2 stations        | 2 stations        | 2 stations        |
| <b>Operating pressure (bar)</b>    | 2.5...8           | 2.5...8           | 3...8             | 3...8             |
| <b>Pilot pressure (bar)</b>        | 2.5...8           | 2.5...8           | 3...8             | 3...8             |
| <b>Flow rate (NI/min)</b>          | 360               | 360               | 360               | 360               |
| <b>Response time (ms) at 6 bar</b> | on: 13<br>off: 16 | on: 11<br>off: 11 | on: 15<br>off: 22 | on: 15<br>off: 22 |
| <b>Weight (kg)</b>                 | 0.112             | 0.230             | 0.232             | 0.232             |

## Accessories

|   |                        |
|---|------------------------|
| <b>Model-no.:</b>   | RE-04-DT               |
|  | Pressure dividing plug |

|  |                             |
|--|-----------------------------|
| <b>Model-no.:</b>  | 28-ST-RE-10x-yy             |
|  | 19-pin multi plug, straight |
| x = 3  | 3 m cable                   |
| x = 7  | 7 m cable                   |
| yy = 8   | up to 8 stations            |
| yy = 16  | up to 16 stations           |

|   |             |
|---|-------------|
| <b>Model-no.:</b>   | RE-04-V-EP  |
|  | Blind plate |

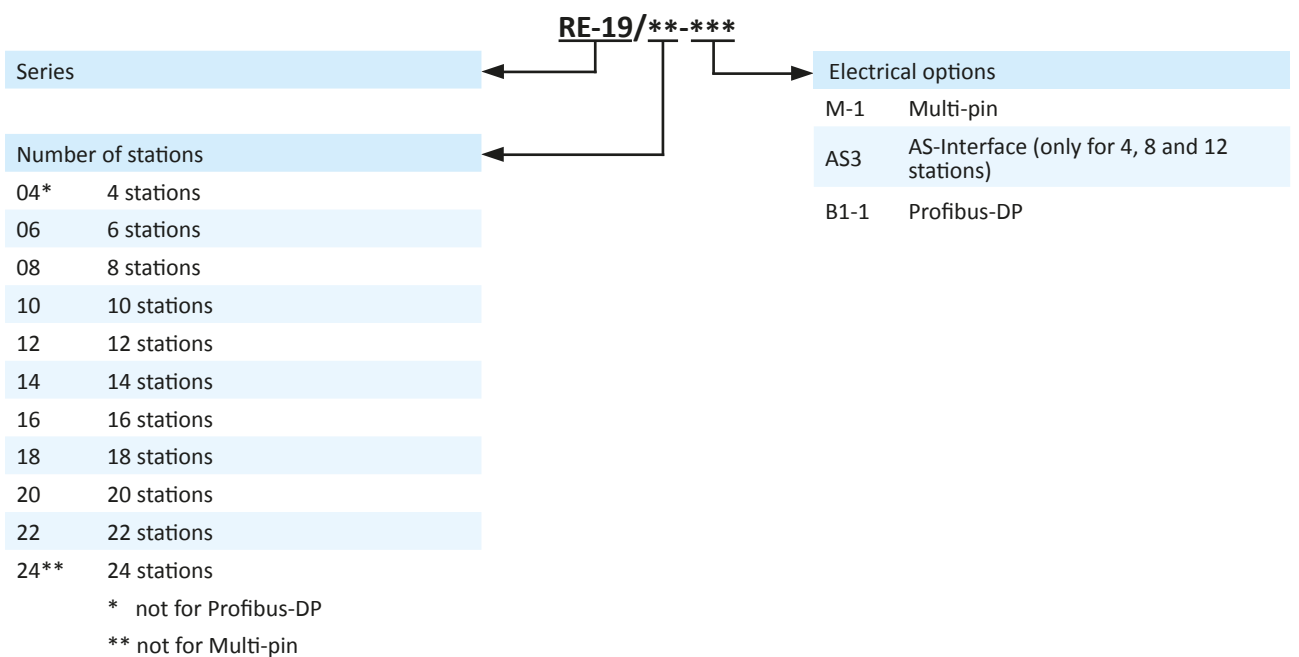
|  |                          |
|--|--------------------------|
| <b>Model-no.:</b>  | 28-ST-RE-11x-yy          |
|  | 19-pin multi plug, elbow |
| x = 3  | 3 m cable                |
| x = 7  | 7 m cable                |
| yy = 8   | up to 8 stations         |
| yy = 16  | up to 16 stations        |

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +50°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR   |
| <b>Protection</b>        | IP 65 according to EN 60529   |



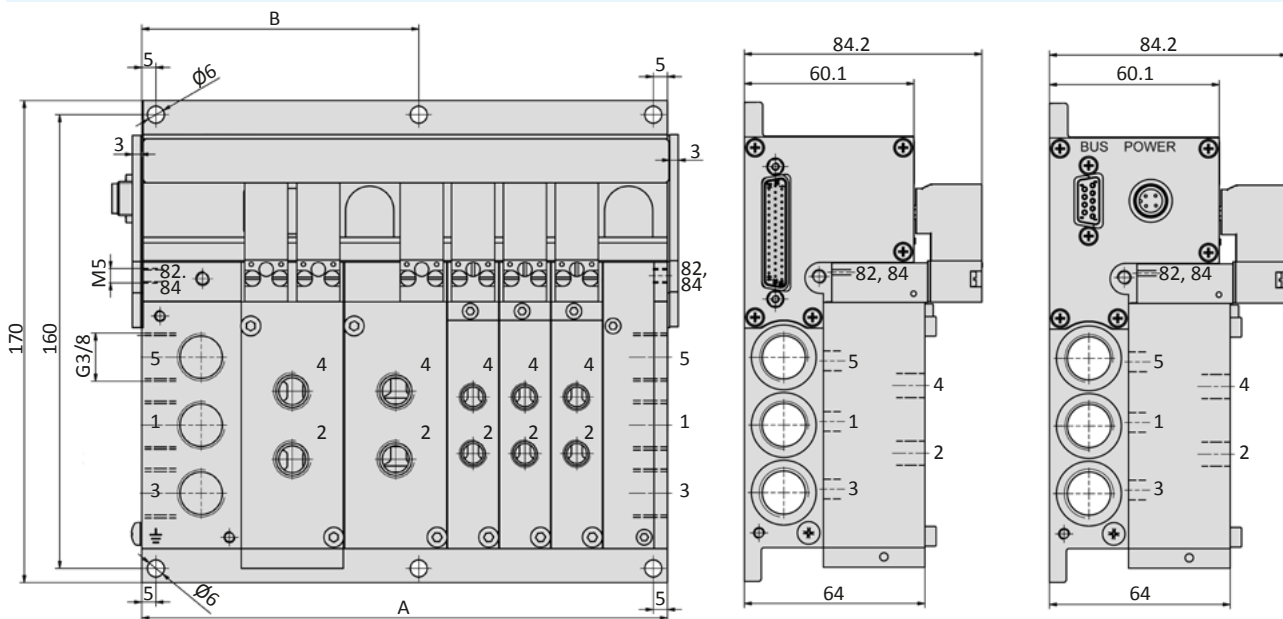
Manifold system with integrated electrical connection including LED indicators, manual override and built-in circuit protection. Valves with connection G1/4 require 2 stations on the manifold. The above order code covers only the manifold. The multi-pin plug with cable must be ordered separately. The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers at the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

**Order code**


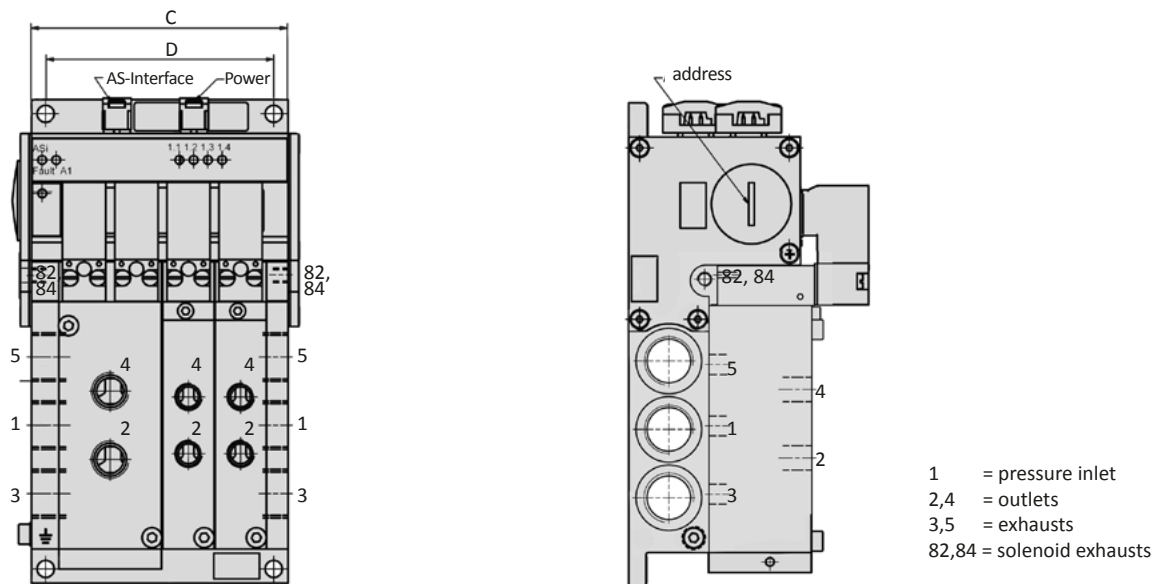
More detailed information about the installation you find in the manual at [www.airtec.de](http://www.airtec.de).

## Dimensions

### Multi-pin, Profibus-DP



### AS-Interface



| Model-no.:   |              | A   | B     | Weight without valves (kg) |
|--------------|--------------|-----|-------|----------------------------|
| RE-19/04-M-1 |              | 113 | -     | 0.93                       |
| RE-19/06-M-1 | RE-19/06-B-1 | 149 | -     | 1.26                       |
| RE-19/08-M-1 | RE-19/08-B-1 | 186 | -     | 1.59                       |
| RE-19/10-M-1 | RE-19/10-B-1 | 222 | -     | 1.92                       |
| RE-19/12-M-1 | RE-19/12-B-1 | 259 | 129.5 | 2.25                       |
| RE-19/14-M-1 | RE-19/14-B-1 | 295 | 147.5 | 2.58                       |
| RE-19/16-M-1 | RE-19/16-B-1 | 332 | 166   | 2.91                       |
| RE-19/18-M-1 | RE-19/18-B-1 | 369 | 184.5 | 3.24                       |
| RE-19/20-M-1 | RE-19/20-B-1 | 405 | 202.5 | 3.57                       |
| RE-19/22-M-1 | RE-19/22-B-1 | 442 | 221   | 3.90                       |
|              | RE-19/24-B-1 | 478 | 239   | 4.23                       |

| Model-no.:   | C   | D   | Weight without valves (kg) |
|--------------|-----|-----|----------------------------|
| RE-19/04-AS3 | 96  | 80  | 0.82                       |
| RE-19/08-AS3 | 165 | 155 | 1.48                       |
| RE-19/12-AS3 | 228 | 238 | 2.14                       |

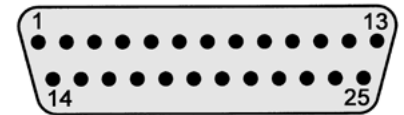


## Electrical options

### Multi-pin

The 25-pin multi plug (see page 7-07) has to be ordered separately.

| Pin | Function | Wire colour  | Pin | Function | Wire colour   |
|-----|----------|--------------|-----|----------|---------------|
| 1   | valve 1  | white        | 14  | valve 14 | brown/ green  |
| 2   | valve 2  | brown        | 15  | valve 15 | white/ yellow |
| 3   | valve 3  | green        | 16  | valve 16 | yellow/ brown |
| 4   | valve 4  | yellow       | 17  | valve 17 | white/ grey   |
| 5   | valve 5  | grey         | 18  | valve 18 | grey/ brown   |
| 6   | valve 6  | pink         | 19  | valve 19 | white/ pink   |
| 7   | valve 7  | blue         | 20  | valve 20 | pink/ brown   |
| 8   | valve 8  | red          | 21  | valve 21 | white/ blue   |
| 9   | valve 9  | black        | 22  | valve 22 | brown/ blue   |
| 10  | valve 10 | violet       | 23  | GND      | white/ red    |
| 11  | valve 11 | grey/ pink   | 24  | GND      | brown/ red    |
| 12  | valve 12 | red/ blue    | 25  | GND      | white/ black  |
| 13  | valve 13 | white/ green |     |          |               |



### Profibus-DP

|                                |   |
|--------------------------------|---|
| <b>Bus connector</b>           | bushing 9-pin D-SUB                         |
| <b>Power connector</b>         | plug 4-pin M12                              |
| <b>Baud rate</b>               | selectable between 9600 Bit/s and 12 Mbit/s |
| <b>Voltage</b>                 | 24 V DC $\pm$ 10%                           |
| <b>Address selection</b>       | by 2 decimal coded rotary switches.         |
| <b>Bus terminal resistance</b> | switchable ON - OFF                         |






7

### AS-Interface

|                          |  |
|--------------------------|--|
| <b>Bus connector</b>     | AS-Interface connector   |
| <b>Power connector</b>   | AS-Interface connector   |
| <b>Bus voltage</b>       | 18.5 ... 31.6 V DC   |
| <b>Power voltage</b>     | 24 V DC $\pm$ 10%  |
| <b>Address selection</b> | Each IC slave (max. 4 valves) 1 programming socket = 1 address |



### Accessories

|   |                        |  |                             |
|---|------------------------|--|-----------------------------|
| <b>Model-no.:</b>   | RE-19-DT               | <b>Model-no.:</b>  | 28-ST-68-M-xxx              |
|  | Pressure dividing plug |  | 25-pin multi plug, straight |
|   |                        | xxx = 105  | 5 m cable                   |
|   |                        | xxx = 110  | 10 m cable                  |
| <b>Model-no.:</b>   | RE-19-V-EP             |  |                             |
|  | Blind plate            |  |                             |

# Series RE-19

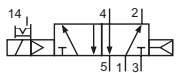
## Technical details

|                          |   |
|--------------------------|---|
| <b>Outlets</b>           | G1/8, G1/4  |
| <b>Temperature range</b> | -10°C ... +50°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass   |
| <b>Nominal voltage</b>   | 24 V DC, ± 10%  |
| <b>Power consumption</b> | 1 W   |
| <b>Protection</b>        | IP 65 according to EN 60529   |

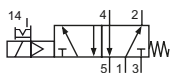


Electrically operated pool valve. The manual override is non-detent or detent and is operated by bolt or screwdriver.

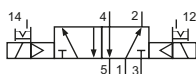
### 5/2-way valves



KF-09-510-HNx-442  
KF-10-510-HNx-442  
5/2-way, single solenoid, air spring return

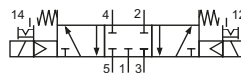


KF-09-511-HNx-442  
KF-10-511-HNx-442  
5/2-way, single solenoid, mechanical spring return

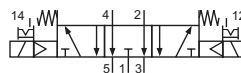


KF-10-520-HNx-442  
5/2-way, double solenoid

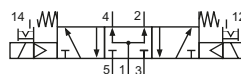
### 5/3-way valves



KF-10-530-HNx-442  
5/3-way, center position closed



KF-10-533-HNx-442  
5/3-way, center position exhausted



KF-10-534-HNx-442  
5/3-way, center position pressurized

Please complete: x = manual override ( R = detent, T = non-detent)

## Technical data

| Model-no.:                         | KF-09-510-HNx-442 | KF-09-511-HNx-442 | KF-10-510-HNx-442 | KF-10-511-HNx-442 |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Required space</b>              | 1 station         | 1 station         | 2 stations        | 2 stations        |
| <b>Outlets</b>                     | G1/8              | G1/8              | G1/4              | G1/4              |
| <b>Operating pressure (bar)</b>    | 3...8             | 3...8             | 2.5...8           | 2.5...8           |
| <b>Pilot pressure (bar)</b>        | 3...8             | 3...8             | 2.5...8           | 2.5...8           |
| <b>Nominal size (mm)</b>           | 6                 | 6                 | 9                 | 9                 |
| <b>Flow rate (NI/min)</b>          | 950               | 810               | 2100              | 1800              |
| <b>Response time (ms) at 6 bar</b> | on: 11<br>off: 20 | on: 10<br>off: 26 | on: 13<br>off: 26 | on: 18<br>off: 29 |
| <b>Weight (kg)</b>                 | 0.200             | 0.200             | 0.370             | 0.370             |

| Model-no.:                         | KF-10-520-HNx-442 | KF-10-530-HNx-442 | KF-10-533-HNx-442 | KF-10-534-HNx-442 |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Required space</b>              | 2 stations        | 2 stations        | 2 stations        | 2 stations        |
| <b>Outlets</b>                     | G1/4              | G1/4              | G1/4              | G1/4              |
| <b>Operating pressure (bar)</b>    | 2.5...8           | 3...8             | 3...8             | 3...8             |
| <b>Pilot pressure (bar)</b>        | 2.5...8           | 3...8             | 3...8             | 3...8             |
| <b>Nominal size (mm)</b>           | 9                 | 9                 | 9                 | 9                 |
| <b>Flow rate (NI/min)</b>          | 2100              | 1500              | 1500              | 1500              |
| <b>Response time (ms) at 6 bar</b> | on: 16<br>off: 16 | on: 16<br>off: 26 | on: 16<br>off: 26 | on: 16<br>off: 26 |
| <b>Weight (kg)</b>                 | 0.430             | 0.430             | 0.430             | 0.430             |

Please complete: x = manual override ( R = detent, T = non-detent)

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | +5°C ... +50°C  |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, FKM   |
| <b>Protection</b>        | IP 65 according to EN 60529   |



Manifold system with integrated electrical connection including LED indicators. Each station can accommodate two 3/2-way valves or one 5/2- or 5/3-way valve. All connections are accessible from the front. The valves and the multi-pin plug with cable must be ordered separately. The manifold can be mounted with 4 M5 screws from bottom or from top using the mounting bracket RE-10-B-01 or on a DIN-rail (screws are included). The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers on the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

**Order code**

| Series                         |                      | Pneumatical connections   |   |
|--------------------------------|----------------------|---------------------------|---|
| <p><b>RE-10/**-***-***</b></p> |                      | 040                       | tube connection Ø 4 at 2 and 4<br>G1/4 at 1                 |
| <p>Number of stations</p>      |                      | 041                       | tube connection Ø 4 at 2 and 4<br>tube connection Ø 8 at 1  |
| 04                             | 4 stations           | 042                       | tube connection Ø 4 at 2 and 4<br>tube connection Ø 10 at 1 |
| 06*                            | 6 stations           | 060                       | tube connection Ø 6 at 2 and 4<br>G1/4 at 1                 |
| 08                             | 8 stations           | 061                       | tube connection Ø 6 at 2 and 4<br>tube connection Ø 8 at 1  |
| 10*                            | 10 stations          | 062                       | tube connection Ø 6 at 2 and 4<br>tube connection Ø 10 at 1 |
| 12                             | 12 stations          |                           |   |
|                                | * only for Multi-pin | <p>Electrical options</p> |   |
|                                |                      | M-1                       | Multi-pin   |
|                                |                      | B1                        | Profibus-DP   |
|                                |                      | B6                        | CANopen   |

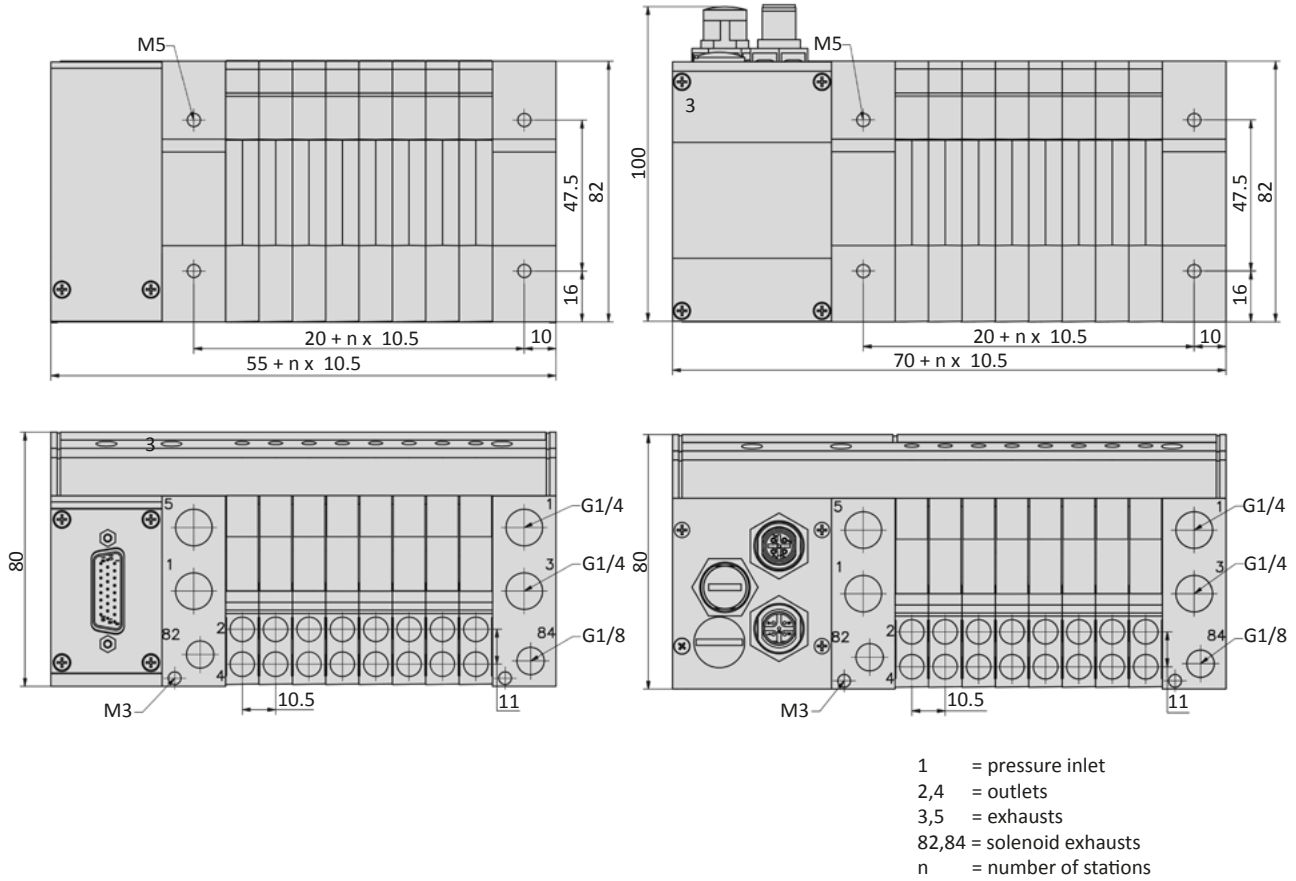


More detailed information about the installation you find in the manual at [www.airtec.de](http://www.airtec.de).

Dimensions

Multi-pin

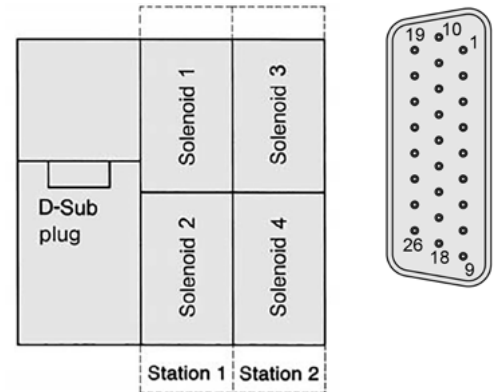
Bus connection



**Electrical options**
**Multi-pin**

The 26-pin multi plug (see page 7-13) has to be ordered separately.

| Pin | Function    | Wire colour  | Pin | Function    | Wire colour   |
|-----|-------------|--------------|-----|-------------|---------------|
| 1   | solenoid 1  | white        | 14  | solenoid 14 | brown/ green  |
| 2   | solenoid 2  | brown        | 15  | solenoid 15 | white/ yellow |
| 3   | solenoid 3  | green        | 16  | solenoid 16 | yellow/ brown |
| 4   | solenoid 4  | yellow       | 17  | solenoid 17 | white/ grey   |
| 5   | solenoid 5  | grey         | 18  | solenoid 18 | grey/ brown   |
| 6   | solenoid 6  | pink         | 19  | solenoid 19 | white/ pink   |
| 7   | solenoid 7  | blue         | 20  | solenoid 20 | pink/ brown   |
| 8   | solenoid 8  | red          | 21  | solenoid 21 | white/ blue   |
| 9   | solenoid 9  | black        | 22  | solenoid 22 | brown/ blue   |
| 10  | solenoid 10 | violet       | 23  | solenoid 23 | white/ red    |
| 11  | solenoid 11 | grey/ pink   | 24  | solenoid 24 | brown/ red    |
| 12  | solenoid 12 | red/ blue    | 25  | GND         | white/ black  |
| 13  | solenoid 13 | white/ green | 26  | -           | -             |


**Profibus-DP**

|                                |   |
|--------------------------------|---|
| <b>Bus connector</b>           | Bus In: plug M12 5-pin B-code<br>Bus Out: socket M12 5-pin B-code |
| <b>Power connector</b>         | plug M12 5-pin A-code   |
| <b>Baud rate</b>               | 9.6 Kbit/s ... 12 Mbit/s  |
| <b>Voltage</b>                 | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b>       | 4.3 W   |
| <b>Address selection</b>       | by 2 decimal coded rotary switches                                |
| <b>Bus terminal resistance</b> | external over Bus Out socket                                      |


**CANopen**

|                                |   |
|--------------------------------|---|
| <b>Bus connector</b>           | Bus In: plug M12 5-pin A-code<br>Bus Out: socket M12 5-pin A-code |
| <b>Power connector</b>         | plug M12 4-pin A-code   |
| <b>Baud rate</b>               | 10 Kbit/s ... 1 Mbit/s  |
| <b>Voltage</b>                 | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b>       | 4.3 W   |
| <b>Address selection</b>       | by 2 decimal coded rotary switches                                |
| <b>Bus terminal resistance</b> | external over Bus Out socket                                      |



# Series RE-10

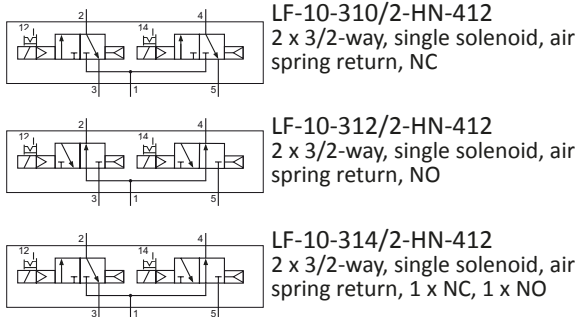
## Technical details

|                          |   |
|--------------------------|---|
| <b>Outlets</b>           | according to the pneumatical connections of the terminal  |
| <b>Nominal size</b>      | 4 mm  |
| <b>Temperature range</b> | +5°C ... +50°C  |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, FKM, PU inner parts: Al, stainless steel and brass  |
| <b>Nominal voltage</b>   | 24 V DC, ± 10%  |
| <b>Power consumption</b> | 0.8 W   |
| <b>Protection</b>        | IP 65 according to EN 60529   |

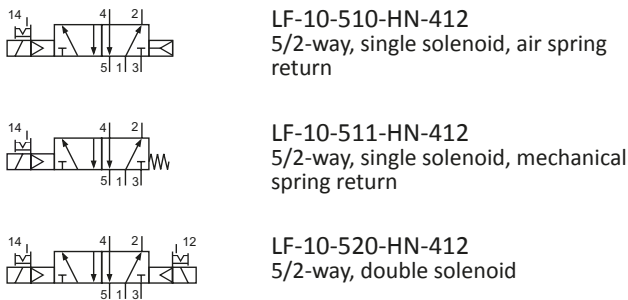


Electrically operated spool valve. The manual override is non-detent. The manual override is located on top of the terminal cover.

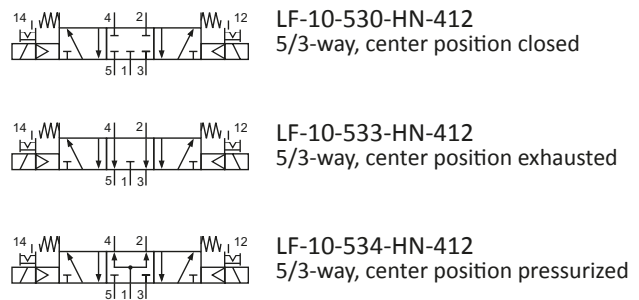
## 2 x 3/2-way valves



## 5/2-way valves



## 5/3-way valves



## Technical data






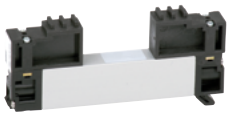
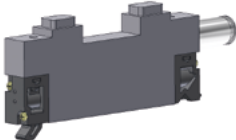
| Model-no.:                         | LF-10-310/2-HN-412 | LF-10-312/2-HN-412 | LF-10-314/2-HN-412  |
|------------------------------------|--------------------|--------------------|---------------------|
| <b>Operating pressure (bar)</b>    | 1.5...8            | 1.5...8            | 1.5...8             |
| <b>Pilot pressure (bar)</b>        | 1.5...8            | 1.5...8            | 1.5...8             |
| <b>Flow rate (NI/min)</b>          | 300                | 220                | 300 / 220 (NC / NO) |
| <b>Response time (ms) at 6 bar</b> | on: 14<br>off: 22  | on: 14<br>off: 22  | on: 14<br>off: 22   |
| <b>Weight (kg)</b>                 | 0.050              | 0.050              | 0.050               |

**Technical data**

|                                    |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | LF-10-510-HN-412  | LF-10-511-HN-412  | LF-10-520-HN-412  |
| <b>Operating pressure (bar)</b>    | 1.5...8           | 3...8             | 1.5...8           |
| <b>Pilot pressure (bar)</b>        | 1.5...8           | 3...8             | 1.5...8           |
| <b>Flow rate (NI/min)</b>          | 300               | 300               | 300               |
| <b>Response time (ms) at 6 bar</b> | on: 18<br>off: 28 | on: 14<br>off: 30 | on: 15<br>off: 15 |
| <b>Weight (kg)</b>                 | 0.044             | 0.042             | 0.052             |

|                                    |                   |                   |                   |
|------------------------------------|-------------------|-------------------|-------------------|
| <b>Model-no.:</b>                  | LF-10-530-HN-412  | LF-10-533-HN-412  | LF-10-534-HN-412  |
| <b>Operating pressure (bar)</b>    | 3.5...8           | 3.5...8           | 3.5...8           |
| <b>Pilot pressure (bar)</b>        | 3.5...8           | 3.5...8           | 3.5...8           |
| <b>Flow rate (NI/min)</b>          | 280               | 280               | 300               |
| <b>Response time (ms) at 6 bar</b> | on: 20<br>off: 30 | on: 16<br>off: 30 | on: 16<br>off: 30 |
| <b>Weight (kg)</b>                 | 0.050             | 0.050             | 0.050             |

**Accessories**

|   |                                  |  |   |
|---|----------------------------------|--|---|
| <b>Model-no.:</b>   | RE-10-DT-01                      | <b>Model-no.:</b>  | 28-ST-10-M1-26-xxx  |
|  | Pressure dividing plug P-canal   |  | 26-pin multi plug, straight<br>xxx = 105 5 m cable<br>xxx = 110 10 m cable  |
| <b>Model-no.:</b>   | RE-10-MS-01                      | <b>Model-no.:</b>  | 28-ST-RE-46-xx-yy   |
|  | Kit for DIN-rail mounting        |  | Connector kit<br>xx = 01 in- and output<br>xx = 02 with termination resistance<br>yy = B1 Profibus<br>yy = B6 CANopen |
| <b>Model-no.:</b>   | RE-10-B-01                       |  |   |
|  | Mounting bracket (pair)          |  |   |
| <b>Model-no.:</b>   | RE-10-V-EP                       |  |   |
|  | Blind plate                      |  |   |
| <b>Model-no.:</b>   | RE-10-P-01                       |  |   |
|  | Device for additional air supply |  |   |

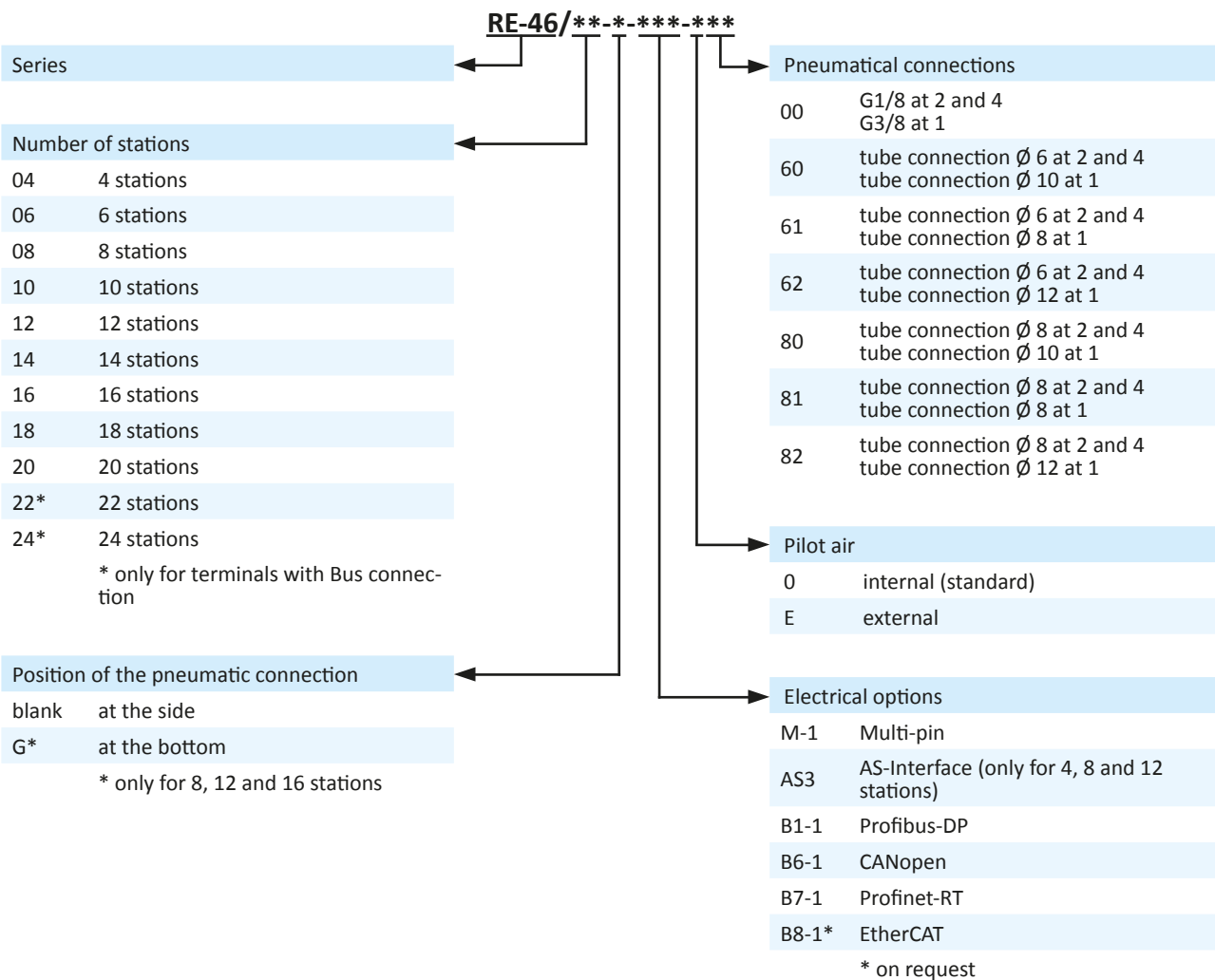
## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +50°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR  |
| <b>Protection</b>        | IP 65 according to EN 60529   |



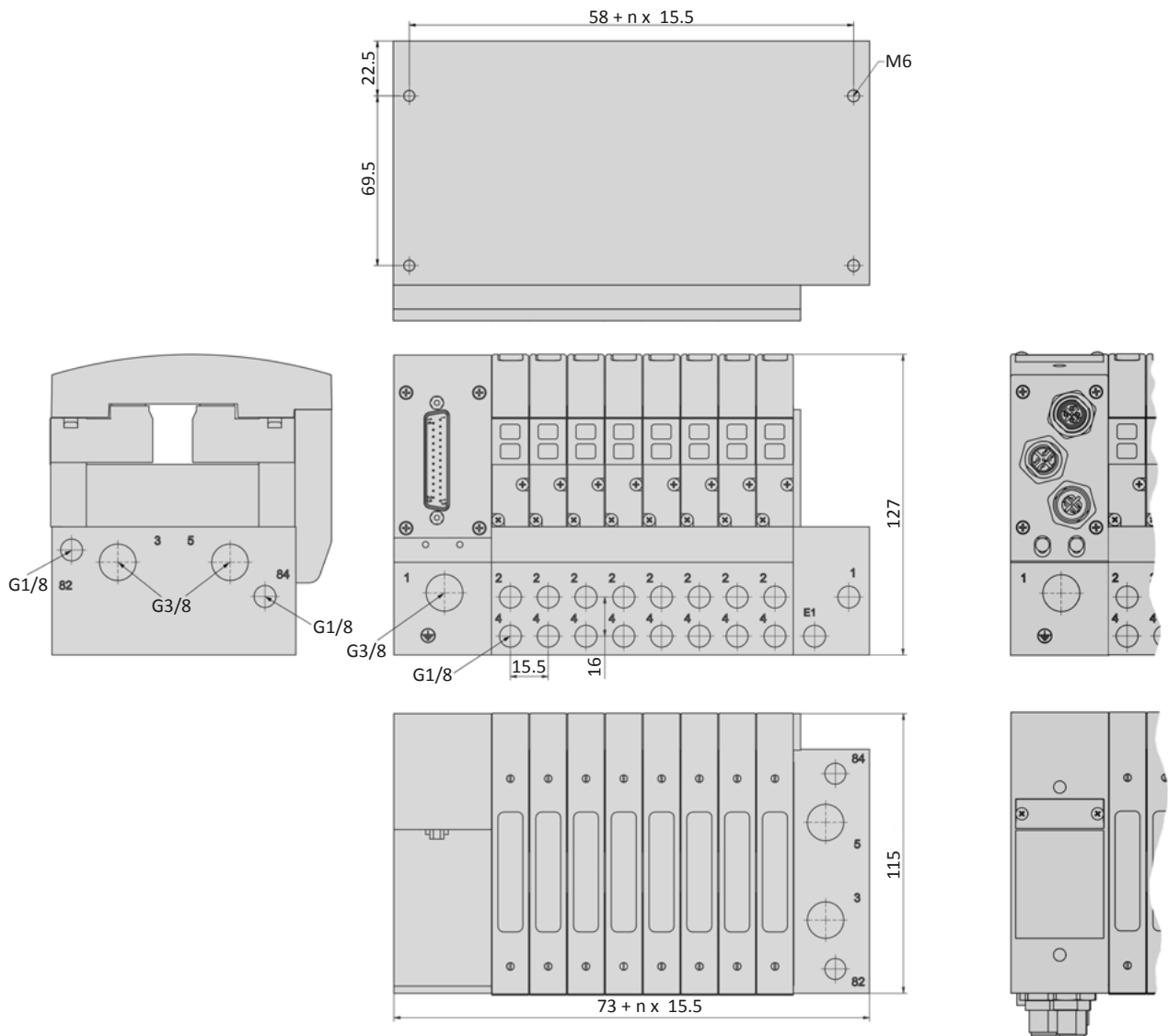
Manifold system with integrated electrical connection including LED indicators. Each station can accommodate two 3/2-way valves or one 5/2- or 5/3-way valve. All connections are accessible from the front. The valves and the multi-pin plug with cable must be ordered separately. The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers at the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

## Order code

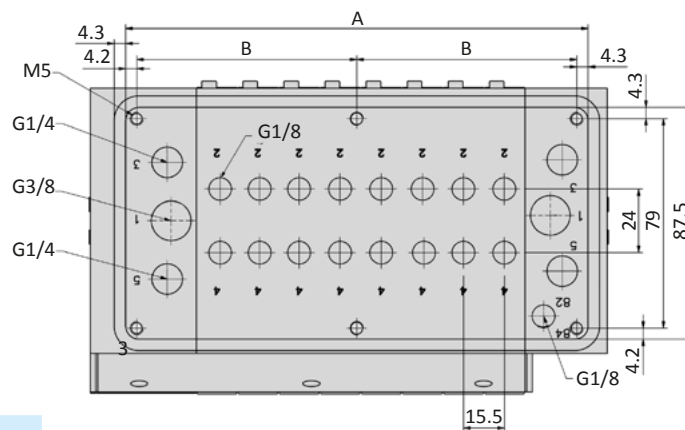


More detailed information about the installation you find in the manual at [www.airtec.de](http://www.airtec.de).



**Dimensions**
**Multi-pin, Bus connection**


7

**Version RE-46-G**


| Model-no.: | A     | B         |
|------------|-------|-----------|
| RE-46/08-G | 174.5 | 83 (2x)   |
| RE-46/12-G | 236.5 | 76 (3x)   |
| RE-46/16-G | 298.5 | 72.5 (4x) |

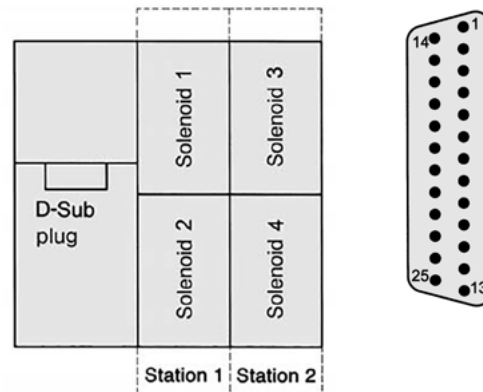
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 82,84 = solenoid exhausts
- n = number of stations

## Electrical options

## Multi-pin, 2 up to 12 stations

The 25-pin multi plug (see page 7-19) has to be ordered separately.

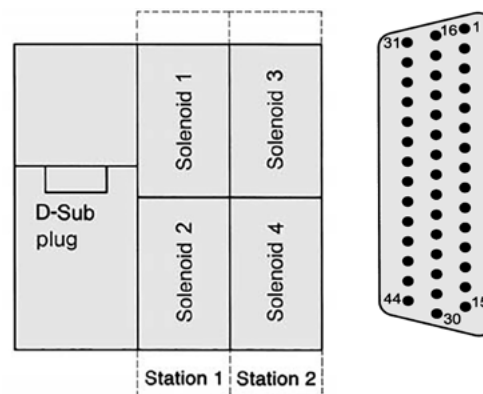
| Pin | Function    | Wire colour  | Pin | Function    | Wire colour   |
|-----|-------------|--------------|-----|-------------|---------------|
| 1   | GND         | white        | 14  | solenoid 2  | brown/ green  |
| 2   | solenoid 1  | brown        | 15  | solenoid 4  | white/ yellow |
| 3   | solenoid 3  | green        | 16  | solenoid 6  | yellow/ brown |
| 4   | solenoid 5  | yellow       | 17  | solenoid 8  | white/ grey   |
| 5   | solenoid 7  | grey         | 18  | solenoid 10 | grey/ brown   |
| 6   | solenoid 9  | pink         | 19  | solenoid 12 | white/ pink   |
| 7   | solenoid 11 | blue         | 20  | solenoid 14 | pink/ brown   |
| 8   | solenoid 13 | red          | 21  | solenoid 16 | white/ blue   |
| 9   | solenoid 15 | black        | 22  | solenoid 18 | brown/ blue   |
| 10  | solenoid 17 | violet       | 23  | solenoid 20 | white/ red    |
| 11  | solenoid 19 | grey/ pink   | 24  | solenoid 22 | brown/ red    |
| 12  | solenoid 21 | red/ blue    | 25  | GND         | white/ black  |
| 13  | solenoid 23 | white/ green |     |             |               |



## Multi-pin, 14 up to 20 stations

The 44-pin multi plug (see page 7-19) has to be ordered separately.

| Pin | Function    | Wire colour   | Pin | Function    | Wire colour   |
|-----|-------------|---------------|-----|-------------|---------------|
| 1   | GND         | white         | 23  | solenoid 20 | white/ red    |
| 2   | solenoid 3  | brown         | 24  | solenoid 23 | brown/ red    |
| 3   | solenoid 6  | green         | 25  | solenoid 26 | white/ black  |
| 4   | solenoid 9  | yellow        | 26  | solenoid 29 | brown/ black  |
| 5   | solenoid 12 | grey          | 27  | solenoid 32 | grey/ green   |
| 6   | solenoid 15 | pink          | 28  | solenoid 35 | yellow/ grey  |
| 7   | solenoid 18 | blue          | 29  | solenoid 38 | pink/ green   |
| 8   | solenoid 21 | red           | 30  | -           | yellow/ pink  |
| 9   | solenoid 24 | black         | 31  | solenoid 1  | green/ blue   |
| 10  | solenoid 27 | violet        | 32  | solenoid 4  | yellow/ blue  |
| 11  | solenoid 30 | grey/ pink    | 33  | solenoid 7  | green/ red    |
| 12  | solenoid 33 | red/ blue     | 34  | solenoid 10 | yellow/ red   |
| 13  | solenoid 36 | white/ green  | 35  | solenoid 13 | green/ black  |
| 14  | solenoid 39 | brown/ green  | 36  | solenoid 16 | yellow/ black |
| 15  | -           | white/ yellow | 37  | solenoid 19 | grey/ blue    |
| 16  | GND         | yellow/ brown | 38  | solenoid 22 | pink/ blue    |
| 17  | solenoid 2  | white/ grey   | 39  | solenoid 25 | grey/ red     |
| 18  | solenoid 5  | grey/ brown   | 40  | solenoid 28 | pink/ red     |
| 19  | solenoid 8  | white/ pink   | 41  | solenoid 31 | grey/ black   |
| 20  | solenoid 11 | pink/ brown   | 42  | solenoid 34 | pink/ black   |
| 21  | solenoid 14 | white/ blue   | 43  | solenoid 37 | blue/ black   |
| 22  | solenoid 17 | brown/ blue   | 44  | solenoid 40 | red/ black    |



## AS-Interface

|                   |   |
|-------------------|---|
| Bus connector     | AS-Interface connector  |
| Power connector   | AS-Interface connector  |
| Bus voltage       | 18.5 ... 31.6 V DC  |
| Power voltage     | 24 V DC $\pm$ 10%   |
| Address selection | Low voltage switch plug $\varnothing$ 1.3 mm, slave selection by DIP-switch |



## Electrical options

## Profibus-DP

|                                |   |
|--------------------------------|---|
| <b>Bus connector</b>           | Bus In: plug M12, 5-pin, B-code<br>Bus Out: socket M12, 5-pin, B-code |
| <b>Power connector</b>         | plug M12, 5-pin, A-code   |
| <b>Baud rate</b>               | 9.6 Kbit/s ... 12 Mbit/s, automatic adjustment                        |
| <b>Voltage</b>                 | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b>       | 2.9 W   |
| <b>Address selection</b>       | by 2 decimal coded rotary switches                                    |
| <b>Bus terminal resistance</b> | external over Bus Out socket  |



## CANopen

|                                |   |
|--------------------------------|---|
| <b>Bus connector</b>           | Bus In: plug M12, 5-pin, A-code<br>Bus Out: socket M12, 5-pin, A-code |
| <b>Power connector</b>         | plug M12, 5-pin, A-code   |
| <b>Baud rate</b>               | 10 Kbit/s ... 1 Mbit/s  |
| <b>Voltage</b>                 | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b>       | 2.9 W   |
| <b>Address selection</b>       | by 2 decimal coded rotary switches                                    |
| <b>Bus terminal resistance</b> | external over Bus Out socket  |



## Profinet-RT

|                          |   |
|--------------------------|---|
| <b>Bus connector</b>     | Bus In: socket M12, 4-pin, D-code<br>Bus Out: socket M12, 4-pin, D-code |
| <b>Power connector</b>   | plug M12, 5-pin, A-code   |
| <b>Baud rate</b>         | 100 Mbit/s, full duplex   |
| <b>Voltage</b>           | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b> | 3.6 W   |
| <b>Address selection</b> | by controller remote  |



## EtherCAT

|                          |   |
|--------------------------|---|
| <b>Bus connector</b>     | Bus In: socket M12, 4-pin, D-code<br>Bus Out: socket M12, 4-pin, D-code |
| <b>Power connector</b>   | plug M12, 5-pin, A-code   |
| <b>Baud rate</b>         | 100 Mbit/s, full duplex   |
| <b>Voltage</b>           | 24 V DC $\pm$ 10%   |
| <b>Power consumption</b> | 3.5 W   |



# Series RE-46



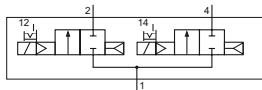
## Technical details

|                          |   |
|--------------------------|---|
| <b>Outlets</b>           | according to the pneumatical connections of the terminal  |
| <b>Temperature range</b> | -10°C ... +50°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR, inner parts: Al, stainless steel and brass  |
| <b>Nominal voltage</b>   | 24 V DC, ± 10%  |
| <b>Power consumption</b> | 1.3 W   |
| <b>Protection</b>        | IP 65 according to EN 60529   |



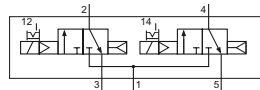
Electrically operated spool valve. The manual override is non-detent. The manual override is located on top of the valve cover.

### 2/2-way valve

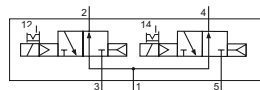


**KF-46-210/2-HN-S12**  
2 x 2/2-way, single solenoid, air spring return, NC

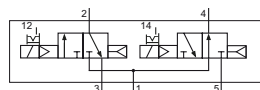
### 2 x 3/2-way valves



**KF-46-310/2-HN-S12**  
2 x 3/2-way, single solenoid, air spring return, NC

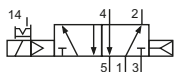


**KF-46-312/2-HN-S12**  
2 x 3/2-way, single solenoid, air spring return, NO

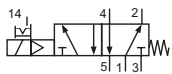


**KF-46-314/2-HN-S12**  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

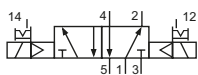
### 5/2-way valves



**KF-46-510-HN-S12**  
5/2-way, single solenoid, air spring return

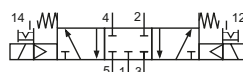


**KF-46-511-HN-S12**  
5/2-way, single solenoid, mechanical spring return

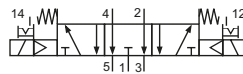


**KF-46-520-HN-S12**  
5/2-way, double solenoid

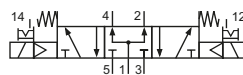
### 5/3-way valves



**KF-46-530-HN-S12**  
5/3-way, center position closed



**KF-46-533-HN-S12**  
5/3-way, center position exhausted



**KF-46-534-HN-S12**  
5/3-way, center position pressurized

## Technical data

| Model-no.:                         | KF-46-210/2-HN-S12 | KF-46-310/2-HN-S12 | KF-46-312/2-HN-S12 | KF-46-314/2-HN-S12  |
|------------------------------------|--------------------|--------------------|--------------------|---------------------|
| <b>Operating pressure (bar)</b>    | 2.5...8            | 2.5...8            | 2.5...8            | 2.5...8             |
| <b>Pilot pressure (bar) *</b>      | 2.5...8            | 2.5...8            | 2.5...8            | 2.5...8             |
| <b>Nominal size (mm)</b>           | 4.5                | 4.5                | 4.5                | 4.5                 |
| <b>Flow rate (NI/min)</b>          | 430                | 430                | 630                | 430 / 630 (NC / NO) |
| <b>Response time (ms) at 6 bar</b> | on: 15<br>off: 28  | on: 15<br>off: 28  | on: 15<br>off: 28  | on: 15<br>off: 28   |
| <b>Weight (kg)</b>                 | 0.188              | 0.188              | 0.188              | 0.188               |

\* Valves are not suitable for external pilot supply.







**Technical data**

| Model-no.:                         | KF-46-510-HN-S12  | KF-46-511-HN-S12  | KF-46-520-HN-S12  |
|------------------------------------|-------------------|-------------------|-------------------|
| <b>Internal pilot pressure</b>     |                   |                   |                   |
| Operating pressure (bar)           | 2.5...8           | 2.5...8           | 2.5...8           |
| Pilot pressure (bar)               | 2.5...8           | 2.5...8           | 2.5...8           |
| <b>External pilot pressure</b>     |                   |                   |                   |
| Operating pressure (bar)           | - *               | 0...10            | 0...10            |
| Pilot pressure (bar)               | - *               | 3...8             | 3...8             |
| <b>Nominal size (mm)</b>           | 6                 | 6                 | 6                 |
| <b>Flow rate (NI/min)</b>          | 950               | 810               | 950               |
| <b>Response time (ms) at 6 bar</b> | on: 15<br>off: 31 | on: 14<br>off: 33 | on: 20<br>off: 20 |
| <b>Weight (kg)</b>                 | 0.158             | 0.158             | 0.188             |

\* Valves are not suitable for external pilot supply.

| Model-no.:                         | KF-46-530-HN-S12  | KF-46-533-HN-S12  | KF-46-534-HN-S12  |
|------------------------------------|-------------------|-------------------|-------------------|
| <b>Internal pilot pressure</b>     |                   |                   |                   |
| Operating pressure (bar)           | 3...8             | 3...8             | 3...8             |
| Pilot pressure (bar)               | 3...8             | 3...8             | 3...8             |
| <b>External pilot pressure</b>     |                   |                   |                   |
| Operating pressure (bar)           | 0...10            | 0...10            | 0...10            |
| Pilot pressure (bar)               | 3...8             | 3...8             | 3...8             |
| <b>Nominal size (mm)</b>           | 6                 | 6                 | 6                 |
| <b>Flow rate (NI/min)</b>          | 680               | 680               | 680               |
| <b>Response time (ms) at 6 bar</b> | on: 20<br>off: 30 | on: 20<br>off: 30 | on: 20<br>off: 30 |
| <b>Weight (kg)</b>                 | 0.188             | 0.188             | 0.188             |

**Accessories**

|   |  |  |   |
|---|--|--|---|
| <b>Model-no.:</b>   | RE-19-DT   | <b>Model-no.:</b>  | 28-ST-46-M1-yy-xxx  |
|  | Pressure dividing plug   |  | 25- or 44-pin multi plug, straight<br>yy = 25 25-pin<br>yy = 44 44-pin<br>xxx = 105 5 m cable<br>xxx = 110 10 m cable         |
| <b>Model-no.:</b>   | RE-x6-V-EP   | <b>Model-no.:</b>  | 28-ST-RE-46-xx-yy   |
|  | x = 1<br>Blind plate, set<br><br>x = 4<br>Blind plate for valve and coil station |  | Connector kit<br><br>xx = 01 in- and output<br>xx = 02 with termination resistance<br><br>yy = B1 Profibus<br>yy = B6 CANopen |
| <b>Model-no.:</b>   | RE-46-RSV  | <b>Model-no.:</b>  | RE-46-B-01  |
|  | Check valve  |  | Mounting bracket (pair)   |

## Series REF-10 and REF-14

### Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | -10°C ... +50°C  |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, in each case free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below the lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), plastic, seals: NBR   |
| <b>Protection</b>        | IP 65 according to EN 60529  |



### Description

- Modular valve-terminal for pneumatic control systems
- Flexible and extendable
- Up to 24 stations can be incorporated into each terminal
- 2 valve sizes (10 mm and 14 mm width) can be mounted on the same terminal
- Outlet ports of the valve can be configured 3 ways. Upward, Lateral or Rear
- Din Rail mounting option
- Various Bus Systems and IO Link available
- Options:
  - internal or external pilot port
  - adapter plates for additional operating ports
  - pressure dividing plate in air channels 1, 3 and 5

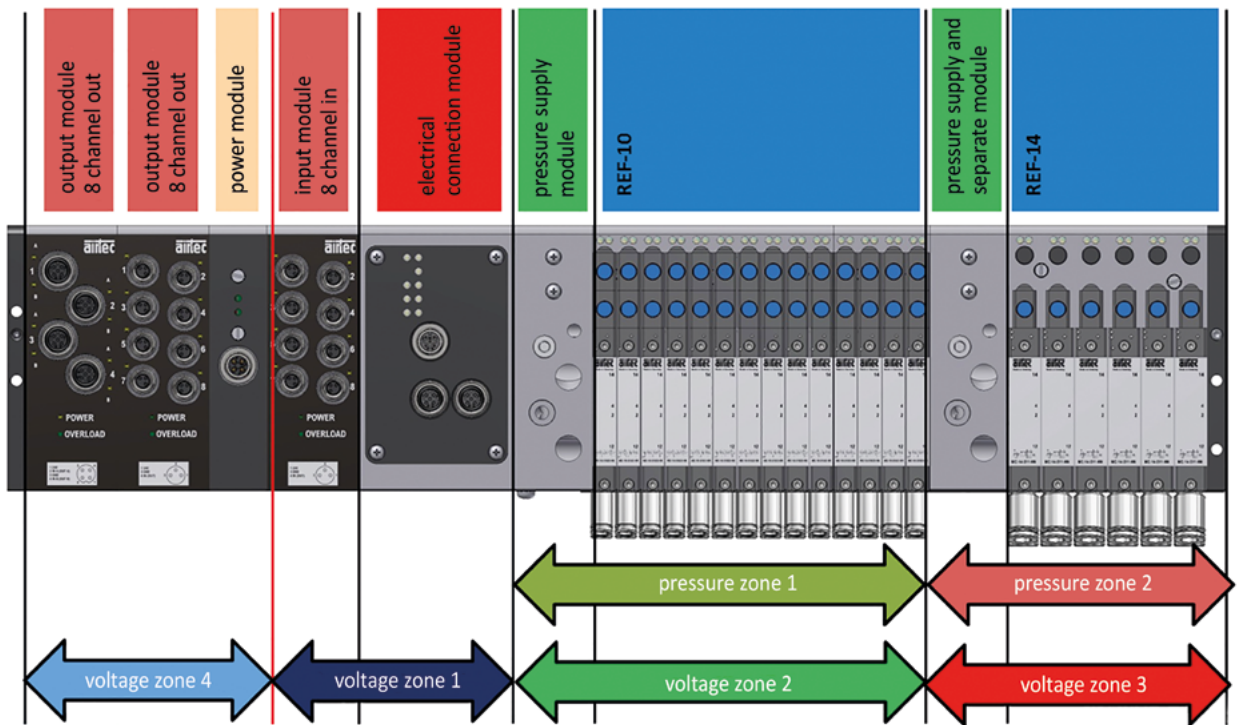
### Technical data

|                              |  |
|------------------------------|--|
| <b>Number of stations</b>    | 3 to 24  |
| <b>Electrical connection</b> | Multi-pin, IO-Link, CANopen, ProfiNet (IRT/RT), EtherCAT                     |
| <b>Voltage</b>               | 24 V DC ± 10%  |
| <b>Power consumption</b>     | max. 1,3 W solenoid, electronic according version                            |
| <b>Flow rate</b>             | 10 mm: 400 NI/min, 14 mm: 600 NI/min   |
| <b>Inlet/Exhaust Ports</b>   | 1, 3 and 5 G1/4, E1 (external pilot port) M7                                 |
| <b>Operating ports</b>       | M7 (10 mm valves), G1/8 (14 mm valves)                                       |
| <b>Operating pressure</b>    | 0 ... 8 bar (external pilot pressure), 3 ... 8 bar (internal pilot pressure) |
| <b>Pilot pressure</b>        | 3 ... 8 bar  |



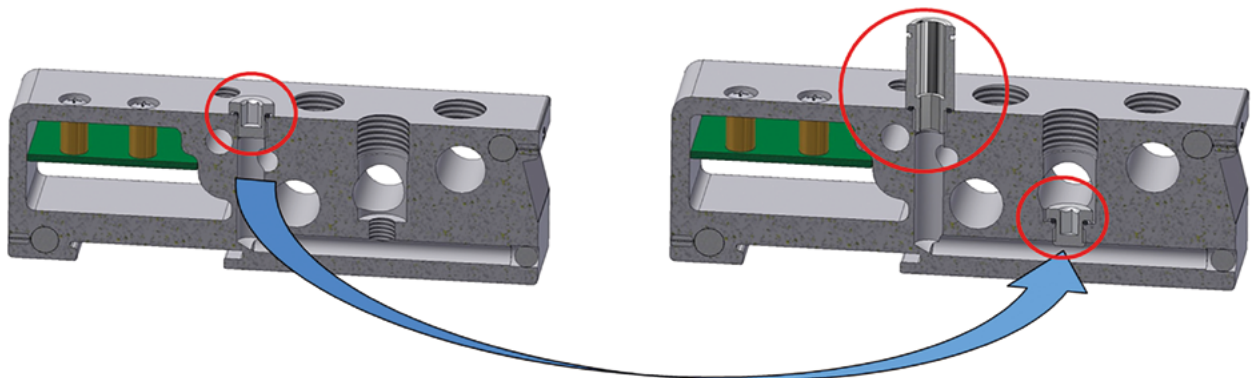
For further information please see: [www.airtec.de](http://www.airtec.de)

## Voltage- and pressure zones



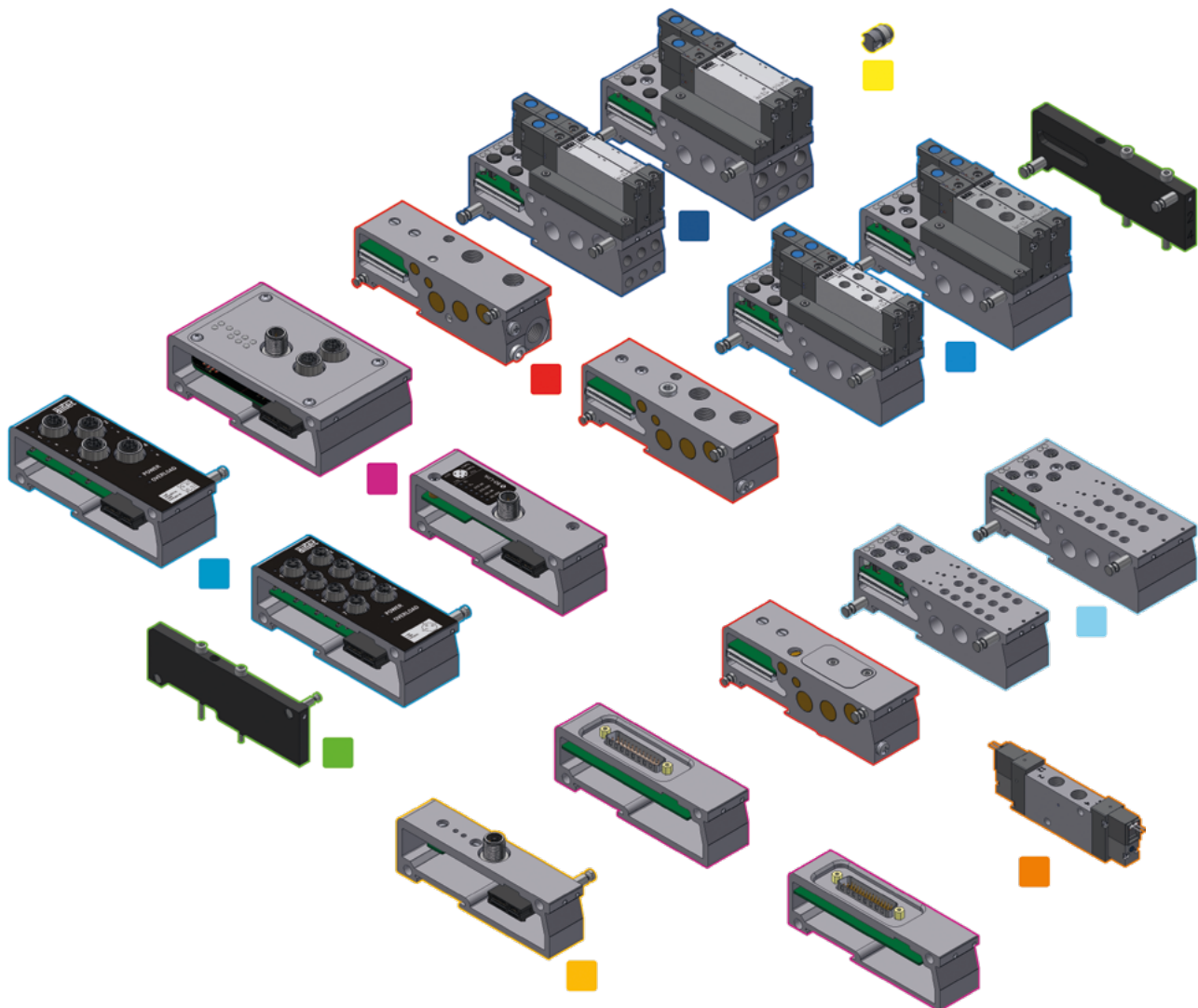
Up to 4 separate suitable voltage zones for emergency stops, voltage switch off's operated by separation- or power-module.

## Changing from internal to external pilot pressure



**Internal pilot pressure:**  
 - plug on pilot pressure port

**External pilot pressure:**  
 - plug displaced to port 1  
 - pilot port with M7 push in fitting



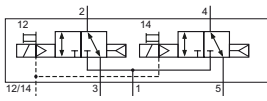
Electrical modules

- Bus-module, IO-Link, Multi-pin
- Input- and Output-module
- Power module

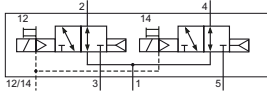
Pneumactical modules

- Manifolds with lateral outlet ports, MC-valves
- Manifolds without outlet ports, MF-valves
- Manifolds with rear outlet ports, MC-valves
- Adapter to allow dual operating pressures
- End plates
- M-valve for direct wiring
- Pressure dividing plate

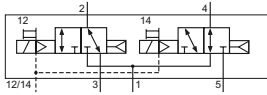


**Valve functions**


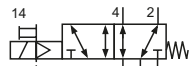
2 x 3/2-way, single solenoid, air spring return, NC



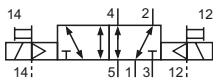
2 x 3/2-way, single solenoid, air spring return, NO



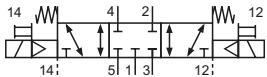
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO



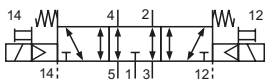
5/2-way, single solenoid, mechanical spring return



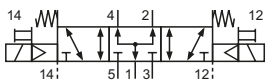
5/2-way, double solenoid



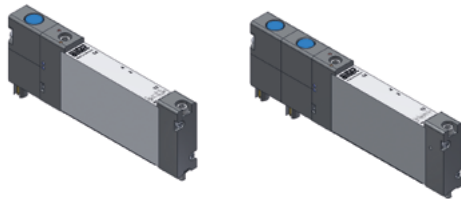
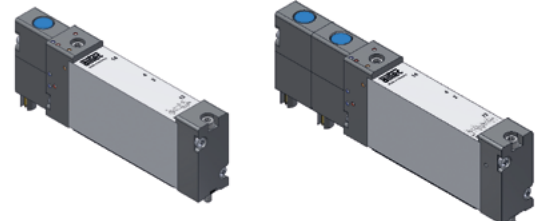
5/3-way, center position closed



5/3-way, center position exhausted



5/3-way, center position pressurized


**Valve series**
**MC-10**

**MC-14**


For further information please see:


[airtec.de](http://airtec.de)



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**Series SU Page 8-05**

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**Baureihe SUZ Page 8-06**

**Series PE Page 8-12**


## Series VZ

### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |



This valve may be used either normally open or normally closed.

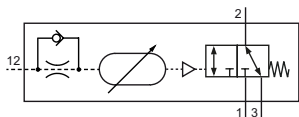
Normally closed: pressure inlet port 1 (P).

Normally open: pressure inlet port 3 (R).

A signal arriving at 12 (Z) switches the flow of the valve from 1 (P) to 2 (A) and closes port 3 (R) after the set time has expired.

Instead of supplying main pressure to either port 1 or 3, the branched signal line can be connected to 1 or 3. The signal line to port 1 or 3 must not be longer than the signal line to port 12.

### 3/2-way valves



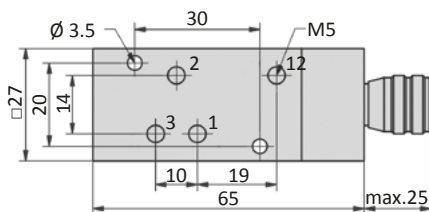
VZ  
3/2-way, single pilot,  
mechanical spring return,  
adjustable time delay

### Technical data

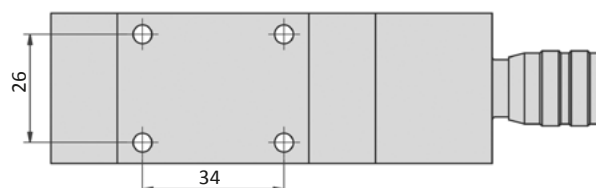
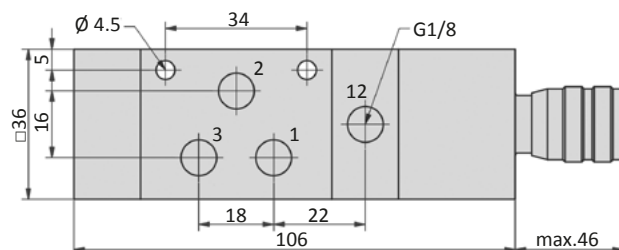
| Model-no.:               | VZ-25-310  | VZ-18-310  | VZ-18-310-20 |
|--------------------------|------------|------------|--------------|
| Connection               | M5         | G1/8       | G1/8         |
| Nominal size (mm)        | 3.2        | 6          | 6            |
| Operating pressure (bar) | 3 ... 10   | 3 ... 10   | 3 ... 10     |
| Pilot pressure (bar)     | 3 ... 10   | 3 ... 10   | 3 ... 10     |
| Time range (s)           | 0.25 ... 5 | 0.5 ... 10 | 1 ... 20     |
| Flow rate (Nl/min)       | 160        | 600        | 600          |
| Weight (kg)              | 0.135      | 0.360      | 0.360        |

### Dimensions

#### VZ-25-310



#### VZ-18-310, VZ-18-310-20



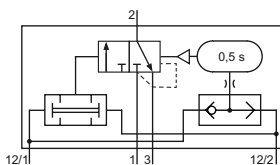
- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 12 = signal port

**Technical details**

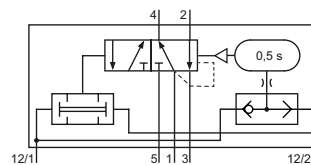
|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |



The valve operates after two input signals at 12 arriving within 0.5 s.  
 The valve is actuated as long as the signals continue.  
 If the input signals do not arrive within 0.5 s, the valve does not operate.  
 Both signals must be reset before the valve switches back on.

**3/2-way valve**


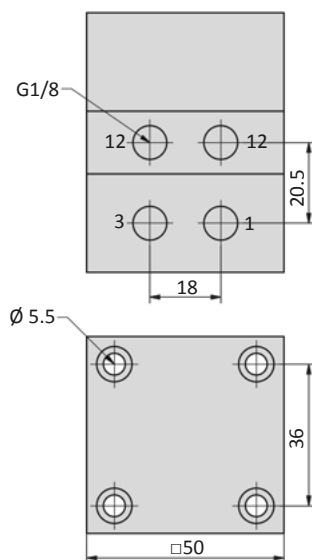
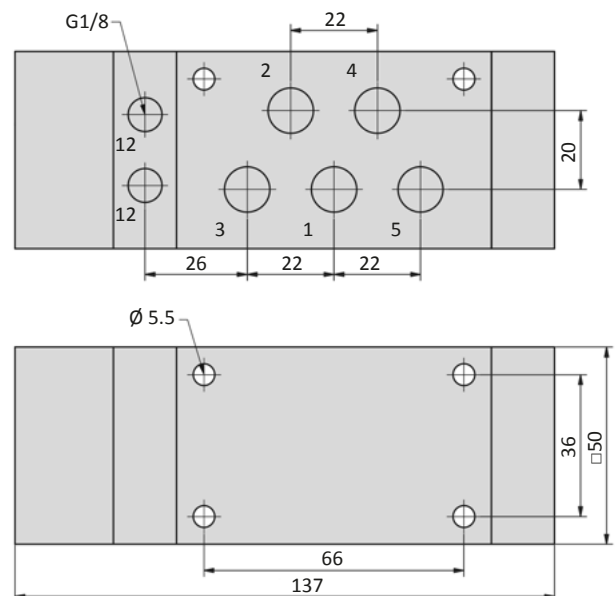
**SZ-18-310**  
two-signal controls,  
3/2-way

**5/2-way valve**


**SZ-14-510**  
two-signal controls,  
5/2-way

**Technical data**

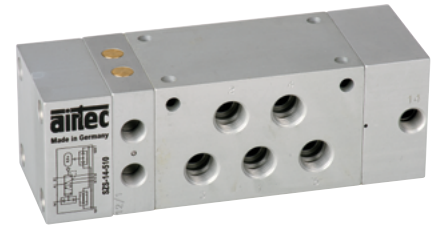
| Model-no.:                      | SZ-18-310 | SZ-14-510 |
|---------------------------------|-----------|-----------|
| <b>Connection</b>               | G1/8      | G1/4      |
| <b>Nominal size (mm)</b>        | 4         | 8         |
| <b>Operating pressure (bar)</b> | 4 ... 10  | 4 ... 10  |
| <b>Pilot pressure (bar)</b>     | 4 ... 10  | 4 ... 10  |
| <b>Flow rate (NI/min)</b>       | 280       | 1300      |
| <b>Weight (kg)</b>              | 0.360     | 0.825     |

**Dimensions**
**SZ-18-310**

**SZ-14-510**


## Series SZS

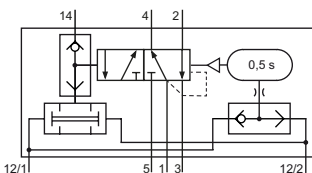
### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |



The valve operates after two input signals at 12 arriving within 0.5 s.  
 The valve is actuated as long as the signals continue.  
 If the input signals do not arrive within 0.5 s, the valve does not operate.  
 Both signals must be reset before the valve switches back on.  
 In addition, it has a self-locking device. A signal to 14 actuates the two-signal-control as a standard 5/2-valve. When the signal at 14 ends, the valve resets.

### 5/2-way valve



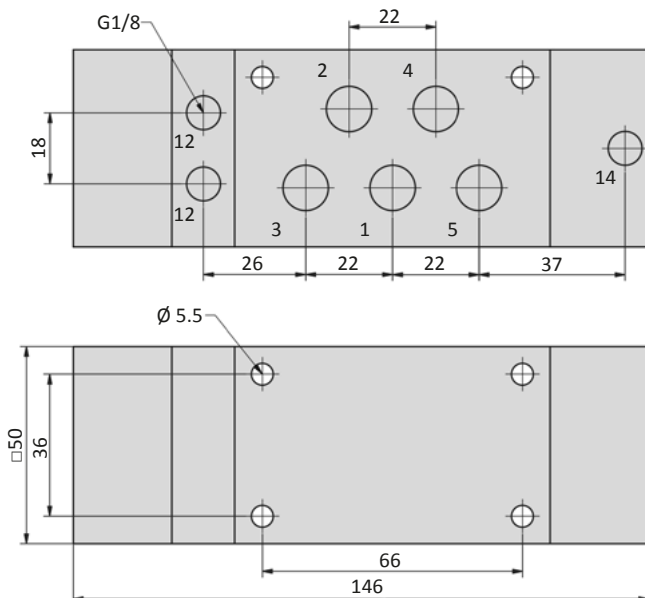
SZS-14-510  
two-signal controls,  
5/2-way

### Technical data

|                                 |            |
|---------------------------------|------------|
| <b>Model-no.:</b>               | SZS-14-510 |
| <b>Connection</b>               | G1/4       |
| <b>Nominal size (mm)</b>        | 8          |
| <b>Operating pressure (bar)</b> | 4 ... 10   |
| <b>Pilot pressure (bar)</b>     | 4 ... 10   |
| <b>Flow rate (NI/min)</b>       | 1300       |
| <b>Weight (kg)</b>              | 0.885      |

### Dimensions

#### SZS-14-510



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 12 = signal ports
- 14 = signal port

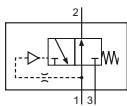
## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |



3/2-way one-shot valve. It converts a continuous pneumatic signal into a 0.3 s pulse.

## 3/2-way valve



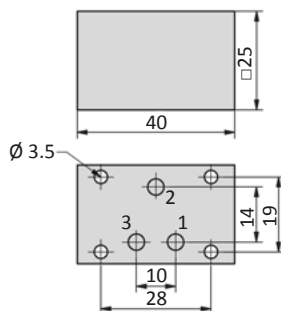
SU-25-310  
signal interrupter,  
3/2-way

## Technical data

|                                 |           |
|---------------------------------|-----------|
| <b>Model-no.:</b>               | SU-25-310 |
| <b>Connection</b>               | M5        |
| <b>Nominal size (mm)</b>        | 3.2       |
| <b>Operating pressure (bar)</b> | 3 ... 10  |
| <b>Pilot pressure (bar)</b>     | 3 ... 10  |
| <b>Duration of pulse (s)</b>    | 0.3       |
| <b>Reset time (s)</b>           | 0.1       |
| <b>Flow rate (NI/min)</b>       | 160       |
| <b>Weight (kg)</b>              | 0.063     |

## Dimensions

## SU-25-310



- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust

## Series SUZ

### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass   |

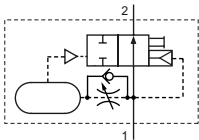


The valve is interrupting a permanent pneumatic signal and provides an impulse. The duration of the impulse is adjustable. Not activated, the incoming air at port 1 has free flow to port 2. Depending on the adjusted time at the adjusting screw (see drawing below), the valve will change position, closing using the model SUZ-18-210-H, or air is vented from port 2 to port 3 using model SUZ-18-310-H.

The valve will maintain this position until there is a new air signal at port one. This will switch the valve back to the NO position and keeps it open based on the adjusted time setting.

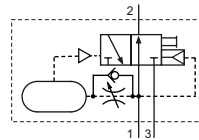
Operating the manual override is switching the valve back to its NO position.

### 2/2-way valve



SUZ-18-210-H  
signal interrupter,  
2/2-way, adjustable time delay,  
manual override non-detent

### 3/2-way valve



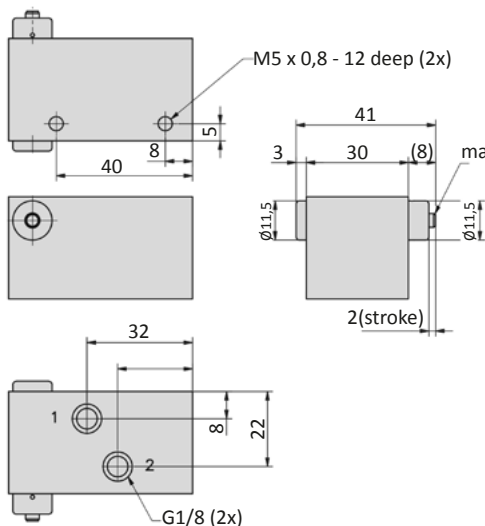
SUZ-18-310-H  
signal interrupter,  
3/2-way, adjustable time delay,  
manual override non-detent

### Technical data

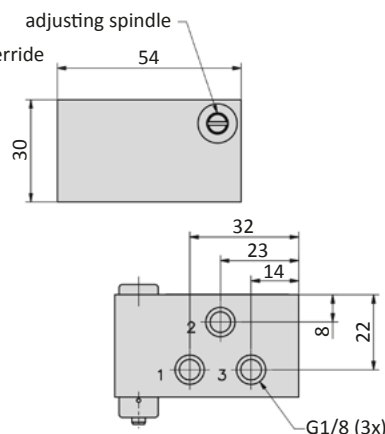
| Model-no.:               | SUZ-18-210-H | SUZ-18-310-H |
|--------------------------|--------------|--------------|
| Connection               | G1/8         | G1/8         |
| Nominal size (mm)        | 6            | 5,3          |
| Operating pressure (bar) | 3 ... 10     | 3 ... 10     |
| Pilot pressure (bar)     | 3 ... 10     | 3 ... 10     |
| Duration of pulse (s)    | 0,3 ... 5    | 0,3 ... 5    |
| Reset time (s)           | 0,1          | 0,1          |
| Flow rate (NI/min)       | 500          | 480          |
| Weight (kg)              | 0,135        | 0,135        |

### Dimensions

#### SUZ-18-210-H



#### SUZ-18-310-H



- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust

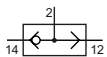


**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass   |



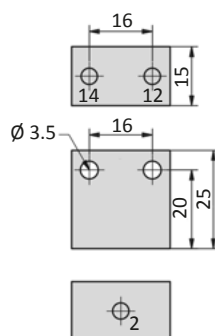
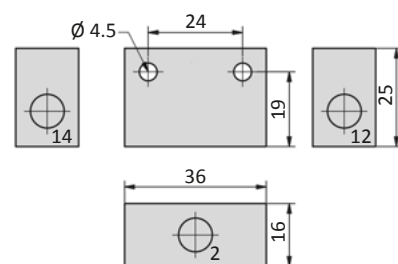
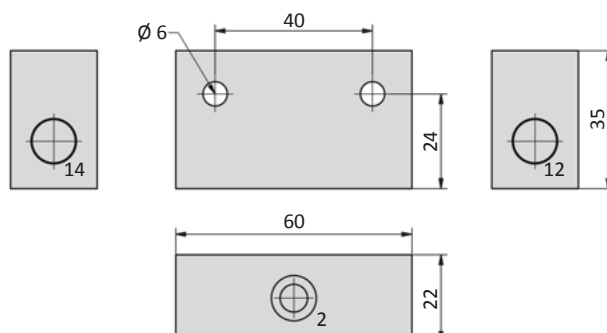
Output signal is present if one inlet is pressurized. The higher input signal (min. difference 0.2 bar) is dominant.

**OR valves**


OR-xx  
OR valve

**Technical data**

| Model-no.:                      | OR-25        | OR-18        | OR-14-01     |
|---------------------------------|--------------|--------------|--------------|
| <b>Connection</b>               | M5           | G1/8         | G1/4         |
| <b>Nominal size (mm)</b>        | 3.2          | 4            | 5.5          |
| <b>Operating pressure (bar)</b> | -0.95 ... 10 | -0.95 ... 10 | -0.95 ... 10 |
| <b>Min. difference (bar)</b>    | 0.2          | 0.2          | 0.2          |
| <b>Flow rate (NI/min)</b>       | 160          | 280          | 900          |
| <b>Weight (kg)</b>              | 0.026        | 0.038        | 0.110        |

**Dimensions**
**OR-25**

**OR-18**

**OR-14-01**


12, 14 = signal input  
2 = signal output

## Series AN

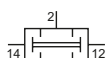
### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass   |



Output signal at port 2 is present if both inlets 12 and 14 are pressurized.  
If both pressures are different (min. 0.2 bar), the lower pressure is switched to 2.

### AND valves



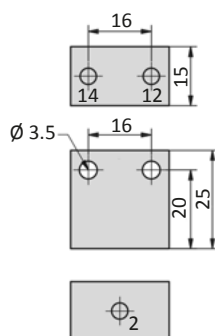
AN-xx  
AND valve

### Technical data

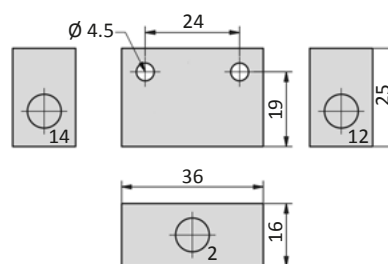
| Model-no.:                      | AN-25        | AN-18        |
|---------------------------------|--------------|--------------|
| <b>Connection</b>               | M5           | G1/8         |
| <b>Nominal size (mm)</b>        | 3.2          | 4            |
| <b>Operating pressure (bar)</b> | -0.95 ... 10 | -0.95 ... 10 |
| <b>Min. difference (bar)</b>    | 0.2          | 0.2          |
| <b>Flow rate (NI/min)</b>       | 160          | 280          |
| <b>Weight (kg)</b>              | 0.026        | 0.038        |

### Dimensions

#### AN-25



#### AN-18



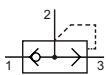
12, 14 = signal input  
2 = signal output

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR   |
|                          | Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)   |

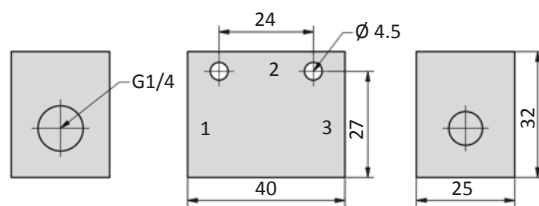
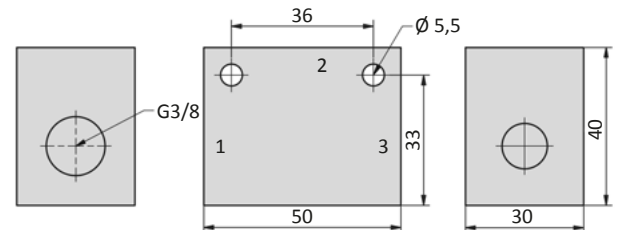
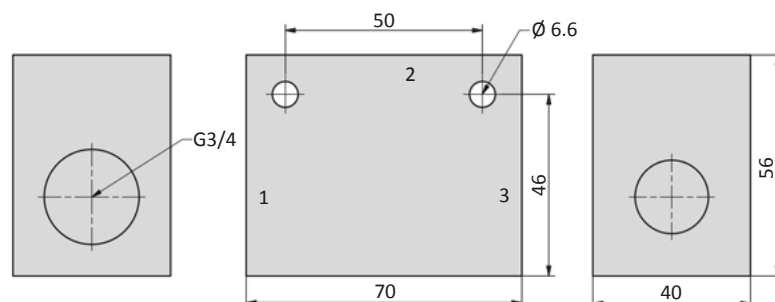


A quick exhaust valve is used to increase the speed of a pneumatic cylinder. The flow from the control valve to the cylinder ports is unrestricted. If valve port 1 is de-pressurized, air is exhausted from 2 to 3.

**SE valves**

 SE-xx  
quick exhaust valve

**Technical data**

| Model-no.:                      | SE-18      | SE-14      | SE-12      |
|---------------------------------|------------|------------|------------|
| <b>Connection</b>               | G1/8       | G1/4       | G1/2       |
| <b>Nominal size 1-2 (mm)</b>    | 5          | 7          | 12         |
| <b>Nominal size 2-3 (mm)</b>    | 8          | 10         | 16         |
| <b>Flow rate 1-2 (NI/min)</b>   | 600        | 1200       | 2800       |
| <b>Flow rate 2-3 (NI/min)</b>   | 1200       | 2400       | 5600       |
| <b>Operating pressure (bar)</b> | 0.5 ... 10 | 0.5 ... 10 | 0.5 ... 10 |
| <b>Weight (kg)</b>              | 0.070      | 0.125      | 0.310      |

**Dimensions**
**SE-18**

**SE-14**

**SE-12**


- 1 = inlet from valve
- 2 = outlet to cylinder
- 3 = exhaust

## Series DR

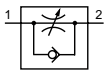
### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +70°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), seals: NBR   |



This valve is used for the speed control of a pneumatic cylinder. The flow rate can be regulated by turning the adjusting screw.

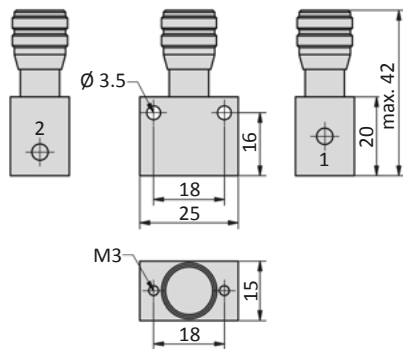
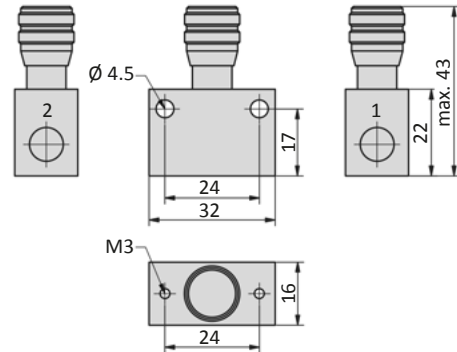
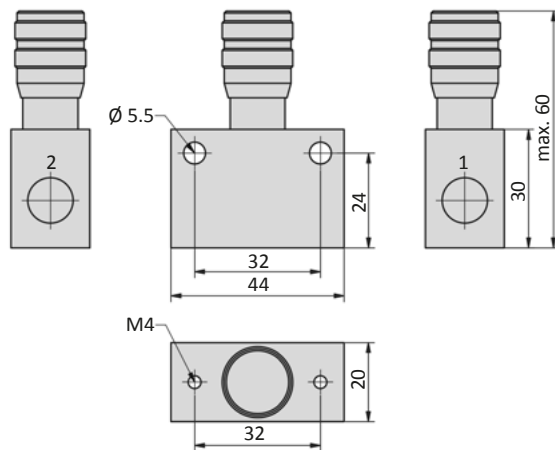
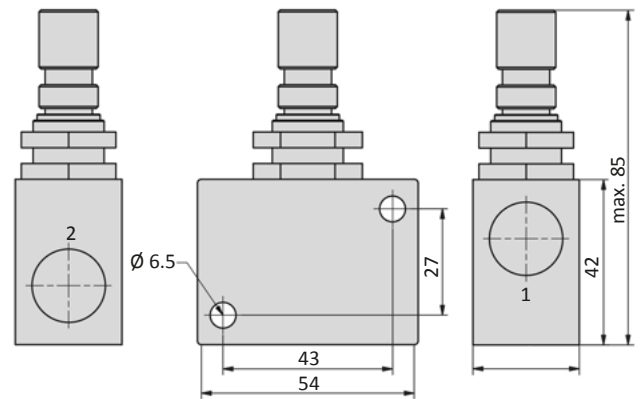
### DR valves



DR-xx  
flow control valve

### Technical data

| Model-no.:                      | DR-25       | DR-18      | DR-14      | DR-10      |
|---------------------------------|-------------|------------|------------|------------|
| <b>Connection</b>               | M5          | G1/8       | G1/4       | G1/2       |
| <b>Nominal size 1-2 (mm)</b>    | 0.5 ... 1.5 | 0.5 ... 2  | 1 ... 5    | 1 ... 7    |
| <b>Nominal size 2-1 (mm)</b>    | 2.5         | 4.5        | 7.5        | 11         |
| <b>Flow rate 1-2 (NI/min)</b>   | 5 ... 40    | 5 ... 90   | 50 ... 600 | 50 ... 600 |
| <b>Flow rate 2-1 (NI/min)</b>   | 120         | 480        | 1300       | 1400       |
| <b>Operating pressure (bar)</b> | 0.5 ... 10  | 0.5 ... 10 | 0.5 ... 10 | 2 ... 10   |
| <b>Weight (kg)</b>              | 0.034       | 0.040      | 0.098      | 0.215      |

**Dimensions**
**DR-25**

**DR-18**

**DR-14**

**DR-10**


- 1 = inlet  
2 = outlet

## Series PE

### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | -10°C ... +80°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Zinc coated steel, seals: NBR (PE-14), FKM (PE-18)  |



Adjustable diaphragm pressure switch. The pressure switch is pre-adjusted at 4 bar and is adjustable within the pressure range. The protective cup (PE-18) and plug connector (PE-14) are included.

### Pressure switch



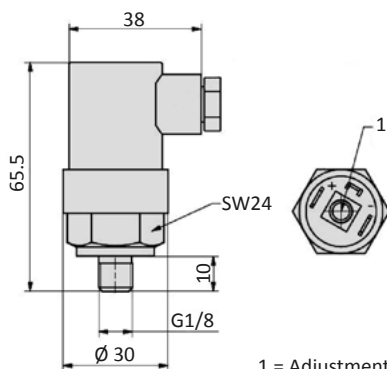
PE  
pressure switch

### Technical data

| Model-no.:                         | PE-18-01-40                 |          | PE-14-01-40                 |          |
|------------------------------------|-----------------------------|----------|-----------------------------|----------|
| <b>Connection</b>                  | G1/8                        |          | G1/4                        |          |
| <b>Pressure range (bar)</b>        | 1 ... 10                    |          | 1 ... 5                     |          |
| <b>Default setting (bar)</b>       | 4                           |          | 4                           |          |
| <b>Overpressure safety (bar)</b>   | 300                         |          | 300                         |          |
| <b>Repeatability (bar at 20°C)</b> | ± 0.5                       |          | ± 0.3                       |          |
| <b>Contact function</b>            | NO                          |          | Change-over contact         |          |
| <b>Max. operating voltage</b>      | 30 V DC                     | 250 V AC | 30 V DC                     | 250 V AC |
| <b>Max. current</b>                | 1 A                         | 0.5 A    | 3 A                         | 1 A      |
| <b>Protection</b>                  | IP 65 according to EN 60529 |          | IP 65 according to EN 60529 |          |
| <b>Weight (kg)</b>                 | 0.070                       |          | 0.140                       |          |

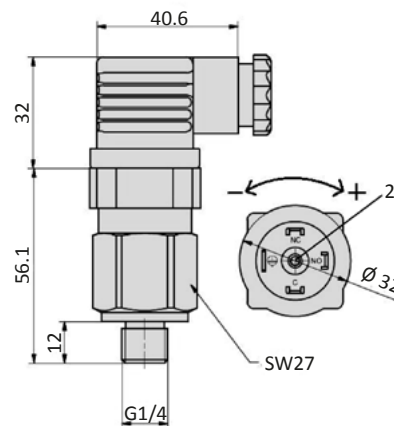
### Dimensions

#### PE-18-01-40



1 = Adjustment of pressure range  
(with screwdriver)

#### PE-14-01-40



2 = Adjustment of pressure range  
(with hex key)





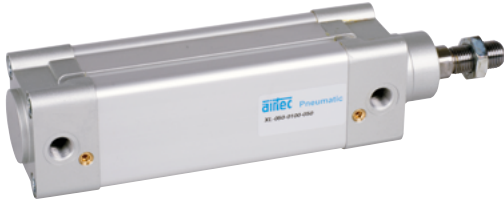


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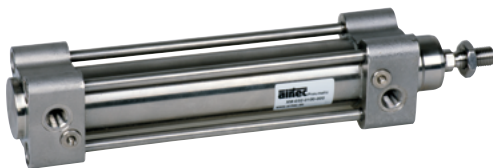
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**Series XM** Page 9-21

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**Series HMU** Page 9-51

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**Series NXD** Page 9-74

Series NXE Page 9-78

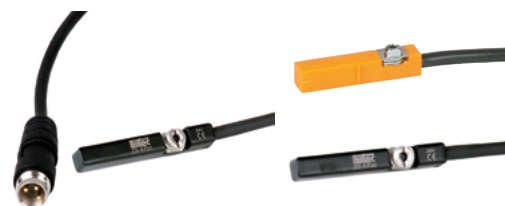
Mounting accessories Page 9-81



**Series LX** Page 9-86



**Proximity sensors and accessories** Page 9-90



**Series HM (Ø 32 - Ø 63)** [www.airtec.de](http://www.airtec.de)



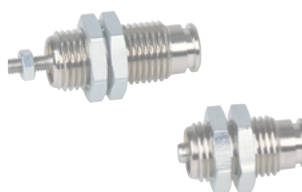
**Series CM (Ø 32 - Ø 63)** [www.airtec.de](http://www.airtec.de)



**Series ND and NDM** [www.airtec.de](http://www.airtec.de)



**Series HA and HB** [www.airtec.de](http://www.airtec.de)



**Series 1112** [www.airtec.de](http://www.airtec.de)

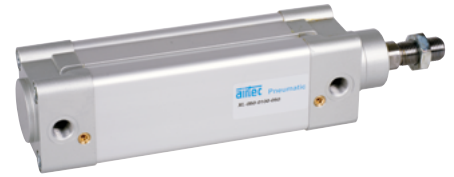


**Series XL, Version 070** [www.airtec.de](http://www.airtec.de)



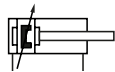
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C ( XL, XLD, XLL )<br>( XLH: -10°C ... +150°C, XLC/ XLCD: -40°C ...+80°C )  |
| <b>Max. stroke</b>        | 2800 mm   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al-die-cast (painted)<br>Piston rod: steel hard chrome plated (optional 1.4301)<br>Seals: PU, NBR (optional FKM)  |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

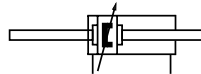


Double acting Al-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors. The sensors can be installed directly into the sensor grooves of the Al-profile. Standard stroke lengths in table below, additional lengths on request.

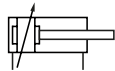
**Versions**



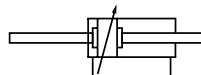
050, 054, 000, 004  
double acting, adjustable cushioning,  
with magnetic piston



450, 454, 400, 404  
double acting, double end piston rod, adjustab-  
le cushioning, with magnetic piston



152, 102  
double acting, adjustable cushioning



552, 502  
double acting, double end piston rod, adjusta-  
ble cushioning

**Order code**

| Series  |   | Options            |  |
|---|---|--------------------|--|
| XL  | standard                                    | ATEX               | cylinders in accordance with 2014/34/ EU (ATEX)                                |
| XLC   | low temperature version                     | E8                 | piston rod seal E8, two-part, with plastic scraper                             |
| XLCD  | low temperature version, with metal scraper | <b>Versions</b>    |  |
| XLD   | with metal scraper                          | 050                | standard version   |
| XLH   | high temperature version                    | 450                |  |
| XLL   | low friction version                        | 000                | piston rod stainless steel   |
|   |   | 400                |  |
| <b>Piston Ø</b>   |   | 054                | piston rod seal FKM  |
| 032   | 32 mm                                       | 454                |  |
| 040   | 40 mm                                       | 004                | piston rod stainless steel , piston rod seal FKM                               |
| 050   | 50 mm                                       | 404                |  |
| 063   | 63 mm                                       | 152                | high temperature version (without magnetic piston)                             |
| 080   | 80 mm                                       | 552                |  |
| 100   | 100 mm                                      | 102                | high temperature version, piston rod stainless steel (without magnetic piston) |
| 125   | 125 mm                                      | 502                |  |
| <i>Not all combinations are possible and available.</i>         |   | <b>Stroke (mm)</b> |  |
| * For longer stroke lengths please check the max buckling load. |   | XXXX               | max. 2800 mm*  |
|   |   | Standard           | 25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 mm                      |

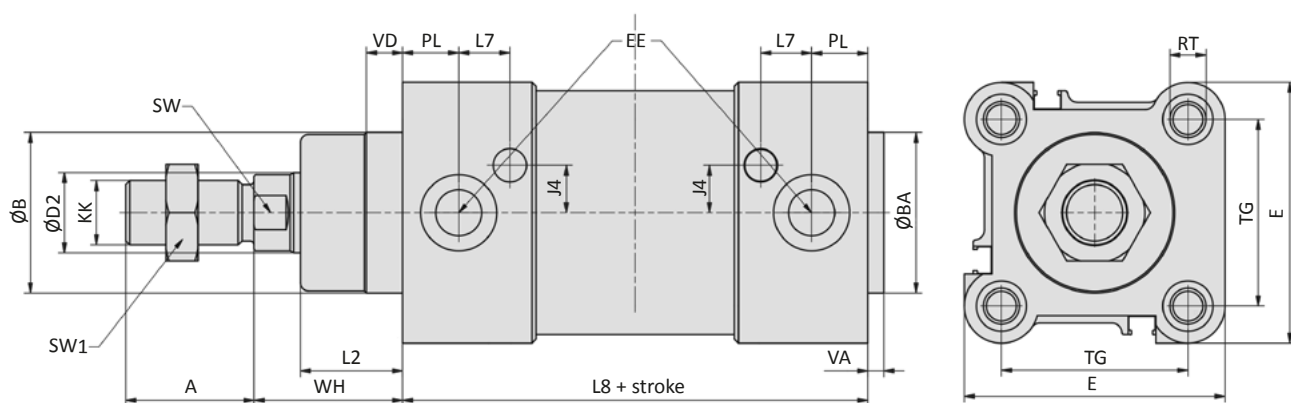
## Series XL

### ISO 15552, double acting

#### Technical data

| Model-no.:                | XL-032-... | XL-040-... | XL-050-... | XL-063-... | XL-080-... | XL-100-... | XL-125-... |
|---------------------------|------------|------------|------------|------------|------------|------------|------------|
| Piston $\varnothing$ (mm) | 32         | 40         | 50         | 63         | 80         | 100        | 125        |
| Force at 6 bar (N)        | Extension  | 434        | 678        | 1060       | 1682       | 2713       | 6623       |
|                           | Retraction | 373        | 570        | 890        | 1513       | 2448       | 6189       |
| Connection                | G1/8       | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G1/2       |
| Piston rod thread         | M10 x 1.25 | M12 x 1.25 | M16 x 1.5  | M16 x 1.5  | M20 x 1.5  | M20 x 1.5  | M27 x 2    |
| Cushioning length (mm)    | 27         | 29         | 32         | 32         | 32         | 32         | 42         |

#### Dimensions series XL

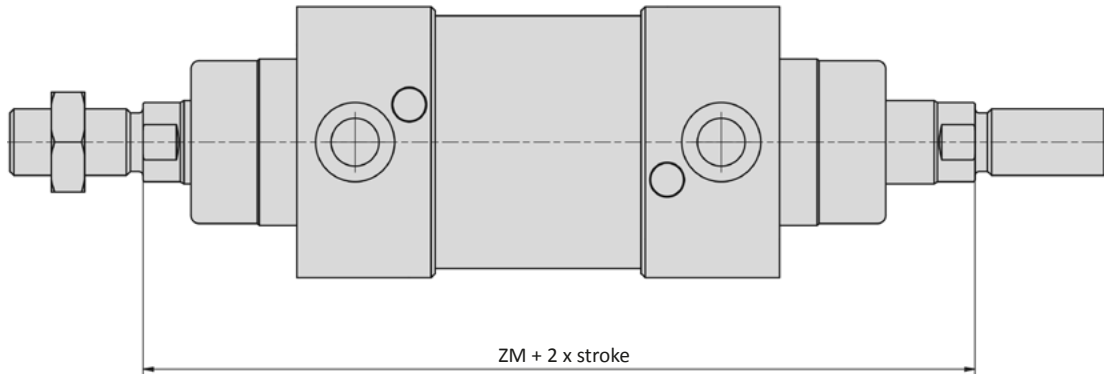


| Piston $\varnothing$ | A  | $\varnothing B$ | $\varnothing BA$ | $\varnothing D2$ | E     | EE   | J4  | KK         | L2   |
|----------------------|----|-----------------|------------------|------------------|-------|------|-----|------------|------|
| 32                   | 22 | 30              | 30               | 12               | 47    | G1/8 | 6   | M10 x 1.25 | 18   |
| 40                   | 24 | 35              | 35               | 16               | 54    | G1/4 | 9   | M12 x 1.25 | 22   |
| 50                   | 32 | 40              | 40               | 20               | 63    | G1/4 | 8   | M16 x 1.5  | 25.5 |
| 63                   | 32 | 45              | 45               | 20               | 74    | G3/8 | 9.5 | M16 x 1.5  | 25   |
| 80                   | 40 | 45              | 45               | 25               | 93.5  | G3/8 | 14  | M20 x 1.5  | 35   |
| 100                  | 40 | 55              | 55               | 25               | 110   | G1/2 | 15  | M20 x 1.5  | 38   |
| 125                  | 54 | 60              | 60               | 32               | 137.5 | G1/2 | 15  | M27 x 2    | 46   |

| Piston $\varnothing$ | L7    | L8  | PL   | RT  | SW | SW1 | TG   | VA | VD  | WH |
|----------------------|-------|-----|------|-----|----|-----|------|----|-----|----|
| 32                   | 11.5  | 94  | 12.5 | M6  | 10 | 17  | 32.5 | 4  | 9.5 | 26 |
| 40                   | 13    | 105 | 14   | M6  | 13 | 19  | 38   | 4  | 9.5 | 30 |
| 50                   | 12.75 | 106 | 14   | M8  | 17 | 24  | 46.5 | 4  | 9.5 | 37 |
| 63                   | 14.5  | 121 | 16.5 | M8  | 17 | 24  | 56.5 | 4  | 9.5 | 37 |
| 80                   | 13.75 | 128 | 17   | M10 | 22 | 30  | 72   | 4  | 10  | 46 |
| 100                  | 15.5  | 138 | 18   | M10 | 22 | 30  | 89   | 4  | 10  | 51 |
| 125                  | 20    | 160 | 18   | M12 | 27 | 41  | 110  | 6  | 11  | 65 |

| Piston $\varnothing$ (mm)      | 32    | 40    | 50    | 63    | 80    | 100   | 125   |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Weight 0 mm stroke (kg)        | 0.617 | 0.925 | 1.421 | 1.950 | 3.250 | 4.396 | 6.391 |
| Weight each 100 mm stroke (kg) | 0.286 | 0.403 | 0.528 | 0.597 | 0.861 | 0.946 | 1.517 |

Dimensions series XL (addition at double end piston rod)



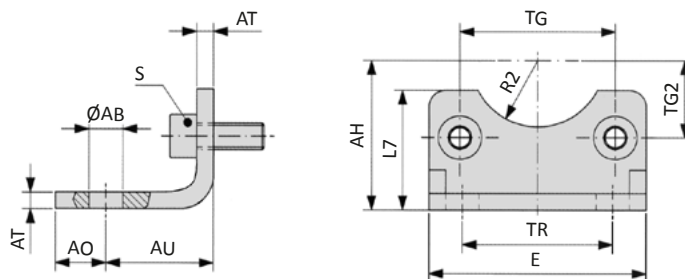
|                      |     |     |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|-----|-----|
| <b>Piston Ø (mm)</b> | 32  | 40  | 50  | 63  | 80  | 100 | 125 |
| <b>ZM</b>            | 146 | 165 | 180 | 195 | 220 | 240 | 290 |

|                           |       |       |       |       |       |       |       |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|
| <b>Piston Ø (mm)</b>      | 32    | 40    | 50    | 63    | 80    | 100   | 125   |
| <b>Weight (kg)</b>        |       |       |       |       |       |       |       |
| <b>0 mm stroke</b>        | 0.702 | 1.065 | 1.713 | 2.208 | 3.780 | 5.057 | 9.387 |
| <b>each 100 mm stroke</b> | 0.374 | 0.559 | 0.768 | 0.837 | 1.243 | 1.328 | 2.143 |

## Series XL

### Mounting accessories

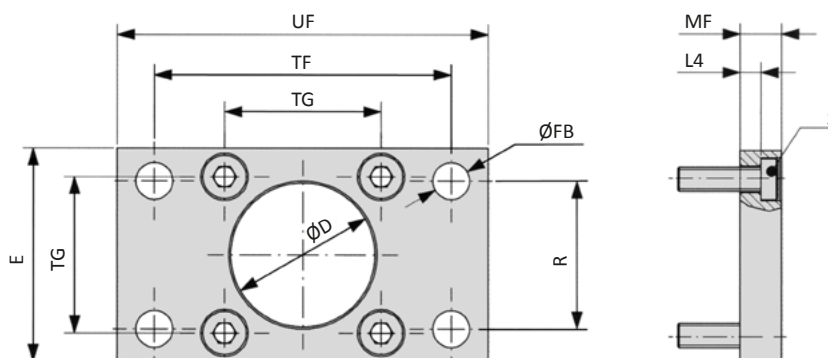
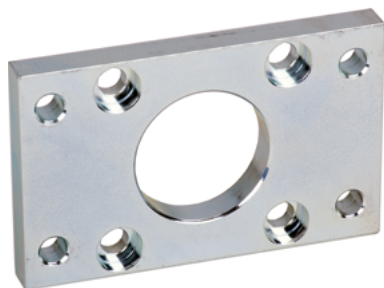
#### XLB-xxx-01 Foot mount



| Model-no.:                        | Ø AB | AH   | AO | AU    | AT | E   | L7 | R2   | S        | TG              | TG2   | TR   |
|-----------------------------------|------|------|----|-------|----|-----|----|------|----------|-----------------|-------|------|
| XLB-032-01                        | 7    | 32   | 11 | 24    | 4  | 45  | 30 | 15   | M6 x 16  | 32.5            | 16.25 | 32   |
| XLB-040-01                        | 10   | 36   | 8  | 28    | 4  | 52  | 30 | 17.5 | M6 x 16  | 38              | 19    | 36   |
| XLB-050-01                        | 10   | 45   | 15 | 32    | 5  | 65  | 36 | 20   | M8 x 20  | 46.5            | 23.25 | 45   |
| XLB-063-01                        | 10   | 50   | 13 | 32    | 5  | 75  | 35 | 22.5 | M8 x 20  | 56.5            | 28.25 | 50   |
| XLB-080-01                        | 12   | 63   | 14 | 41    | 6  | 95  | 47 | 22.5 | M10 x 20 | 72              | 36    | 63   |
| XLB-100-01                        | 14.5 | 71   | 16 | 41    | 6  | 115 | 53 | 27.5 | M10 x 20 | 89              | 44.5  | 75   |
| XLB-125-01                        | 16.5 | 90   | 25 | 45    | 8  | 140 | 70 | 30   | M12 x 25 | 110*            | 55    | 90   |
| <i>tolerances and adjustments</i> | H14  | JS16 |    | ± 0.2 |    |     |    | H15  |          | ± 0.2<br>*± 0.3 |       | JS14 |

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

#### XLB-xxx-02 Flange mount



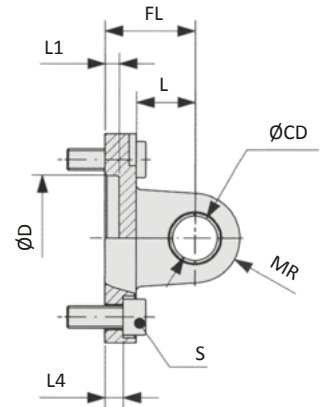
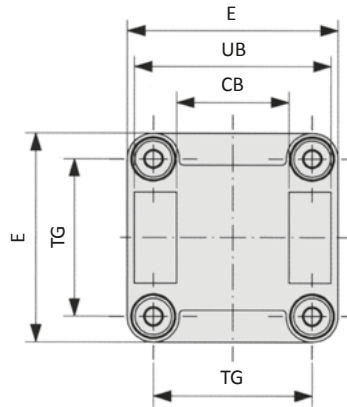
| Model-no.:                        | Ø D | E   | Ø FB | L4    | MF   | R    | S        | TF   | TG              | UF  |
|-----------------------------------|-----|-----|------|-------|------|------|----------|------|-----------------|-----|
| XLB-032-02                        | 30  | 45  | 7    | 5     | 10   | 32   | M6 x 20  | 64   | 32.5            | 80  |
| XLB-040-02                        | 35  | 52  | 9    | 5     | 10   | 36   | M6 x 20  | 72   | 38              | 90  |
| XLB-050-02                        | 40  | 65  | 9    | 6.5   | 12   | 45   | M8 x 20  | 90   | 46.5            | 110 |
| XLB-063-02                        | 45  | 75  | 9    | 6.5   | 12   | 50   | M8 x 20  | 100  | 56.5            | 120 |
| XLB-080-02                        | 45  | 95  | 12   | 9     | 16   | 63   | M10 x 25 | 126  | 72              | 150 |
| XLB-100-02                        | 55  | 115 | 14   | 9     | 16   | 75   | M10 x 25 | 150  | 89              | 170 |
| XLB-125-02                        | 60  | 140 | 16   | 10.5  | 20   | 90   | M12 x 25 | 180  | 110*            | 205 |
| <i>tolerances and adjustments</i> | H11 |     | H13  | - 0.5 | JS14 | JS14 |          | JS14 | ± 0.2<br>*± 0.3 |     |

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

**XLB-xxx-04 Clevis mount with bushing**



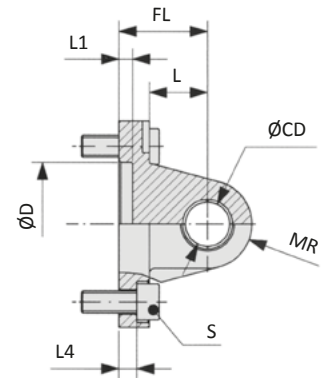
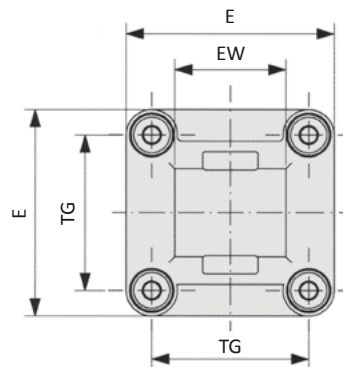
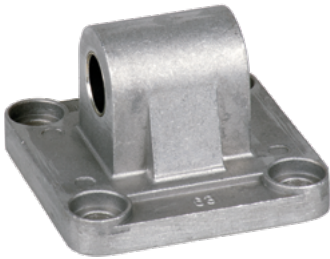
Inclusive clevis pin  
order no: XLB-xxx-48



| Model-no.:                        | CB  | Ø CD | Ø D | E   | FL    | L  | L1 | L4    | MR | S        | TG              | UB  |
|-----------------------------------|-----|------|-----|-----|-------|----|----|-------|----|----------|-----------------|-----|
| XLB-032-04                        | 26  | 10   | 30  | 45  | 22    | 13 | 5  | 5.5   | 10 | M6 x 20  | 32.5            | 45  |
| XLB-040-04                        | 28  | 12   | 35  | 52  | 25    | 16 | 5  | 5.5   | 12 | M6 x 20  | 38              | 52  |
| XLB-050-04                        | 32  | 12   | 40  | 65  | 27    | 16 | 5  | 6.5   | 12 | M8 x 20  | 46.5            | 60  |
| XLB-063-04                        | 40  | 16   | 45  | 75  | 32    | 21 | 5  | 6.5   | 16 | M8 x 20  | 56.5            | 70  |
| XLB-080-04                        | 50  | 16   | 45  | 95  | 36    | 22 | 5  | 10    | 16 | M10 x 25 | 72              | 90  |
| XLB-100-04                        | 60  | 20   | 55  | 115 | 41    | 27 | 5  | 10    | 20 | M10 x 25 | 89              | 110 |
| XLB-125-04                        | 70  | 25   | 60  | 140 | 50    | 30 | 7  | 10    | 25 | M12 x 25 | 110*            | 130 |
| <i>tolerances and adjustments</i> | H14 | H9   | H11 |     | ± 0.2 |    |    | ± 0.5 |    |          | ± 0.2<br>*± 0.3 | h13 |

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

**XLB-xxx-05 Swivel mount**

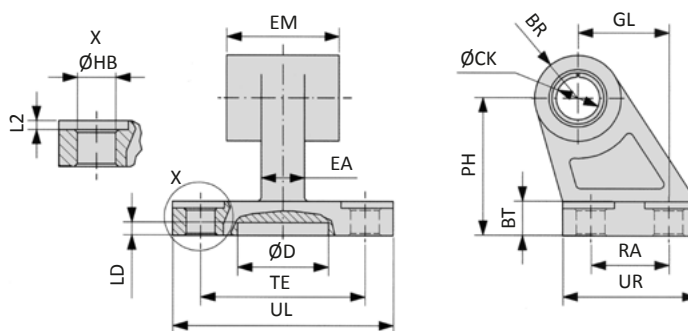


| Model-no.:                        | Ø CD | Ø D | E   | EW | FL    | L  | L1 | L4    | MR | S        | TG              |
|-----------------------------------|------|-----|-----|----|-------|----|----|-------|----|----------|-----------------|
| XLB-032-05                        | 10   | 30  | 45  | 26 | 22    | 13 | 5  | 5.5   | 10 | M6 x 20  | 32.5            |
| XLB-040-05                        | 12   | 35  | 52  | 28 | 25    | 16 | 5  | 5.5   | 12 | M6 x 20  | 38              |
| XLB-050-05                        | 12   | 40  | 65  | 32 | 27    | 16 | 5  | 6.5   | 12 | M8 x 20  | 46.5            |
| XLB-063-05                        | 16   | 45  | 75  | 40 | 32    | 21 | 5  | 6.5   | 16 | M8 x 20  | 56.5            |
| XLB-080-05                        | 16   | 45  | 95  | 50 | 36    | 22 | 5  | 10    | 16 | M10 x 25 | 72              |
| XLB-100-05                        | 20   | 55  | 115 | 60 | 41    | 27 | 5  | 10    | 20 | M10 x 25 | 89              |
| XLB-125-05                        | 25   | 60  | 140 | 70 | 50    | 30 | 7  | 10    | 25 | M12 x 25 | 110*            |
| <i>tolerances and adjustments</i> | H9   | H11 |     |    | ± 0.2 |    |    | ± 0.5 |    |          | ± 0.2<br>*± 0.3 |

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

## Series XL Mounting accessories

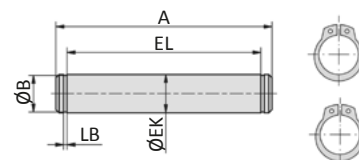
### XLB-xxx-06 Swivel mount 90°



| Model-no.:                        | BR   | BT | ØCK | Ø D | EA | EM | GL   | ØHB | L2  | LD | PH   | RA   | TE   | UL  | UR |
|-----------------------------------|------|----|-----|-----|----|----|------|-----|-----|----|------|------|------|-----|----|
| <b>XLB-032-06</b>                 | 10   | 8  | 10  | 21  | 10 | 26 | 21   | 6.6 | 1.6 | 3  | 32   | 18   | 38   | 51  | 31 |
| <b>XLB-040-06</b>                 | 11   | 10 | 12  | 21  | 15 | 28 | 24   | 6.6 | 1.6 | 3  | 36   | 22   | 41   | 54  | 35 |
| <b>XLB-050-06</b>                 | 13   | 12 | 12  | 21  | 16 | 32 | 33   | 9   | 1.6 | 3  | 45   | 30   | 50   | 65  | 45 |
| <b>XLB-063-06</b>                 | 15   | 14 | 16  | 21  | 16 | 40 | 37   | 9   | 1.6 | 3  | 50   | 35   | 52   | 67  | 50 |
| <b>XLB-080-06</b>                 | 15   | 14 | 16  | 21  | 20 | 50 | 47   | 11  | 2.5 | 3  | 63   | 40   | 66   | 86  | 60 |
| <b>XLB-100-06</b>                 | 19   | 17 | 20  | 11  | 20 | 60 | 55   | 11  | 2.5 | 3  | 71   | 50   | 76   | 96  | 70 |
| <b>XLB-125-06</b>                 | 22.5 | 20 | 25  | 21  | 30 | 70 | 70   | 14  | 3.2 | 3  | 90   | 60   | 94   | 124 | 90 |
| <i>tolerances and adjustments</i> |      |    | H9  |     |    |    | JS14 | H13 |     |    | JS15 | JS14 | JS14 |     |    |

Materials: Al, bushing steel and PTFE

### XLB-xxx-08 Clevis pin

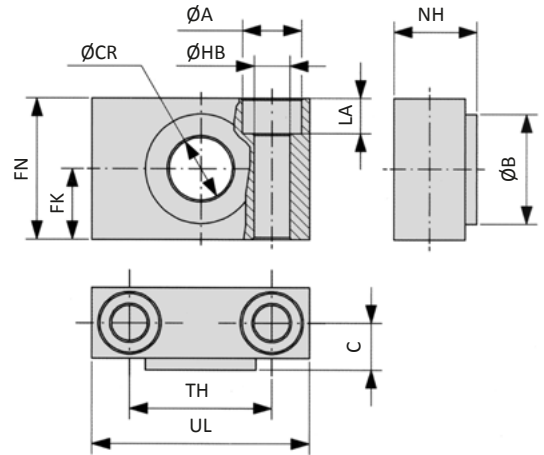
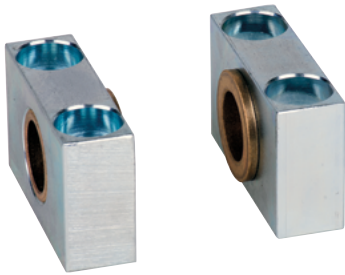


| Model-no.:                        | A   | Ø B  | Ø EK | EL        | LB  |
|-----------------------------------|-----|------|------|-----------|-----|
| <b>XLB-032-08</b>                 | 53  | 9.6  | 10   | 46        | 1.1 |
| <b>XLB-040-08</b>                 | 60  | 11.5 | 12   | 53        | 1.1 |
| <b>XLB-050-08</b>                 | 68  | 11.5 | 12   | 61        | 1.1 |
| <b>XLB-063-08</b>                 | 78  | 15.2 | 16   | 71        | 1.1 |
| <b>XLB-080-08</b>                 | 98  | 15.2 | 16   | 91        | 1.1 |
| <b>XLB-100-08</b>                 | 118 | 19   | 20   | 111       | 1.3 |
| <b>XLB-125-08</b>                 | 139 | 23.9 | 25   | 132*      | 1.3 |
| <i>tolerances and adjustments</i> |     |      | e8   | +2<br>*+3 |     |

Material: steel, zinc plated; 2 snap rings are included.



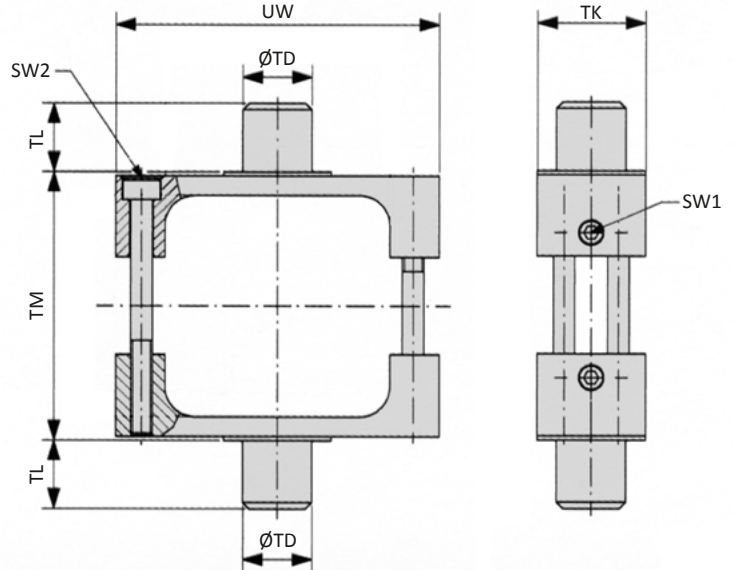
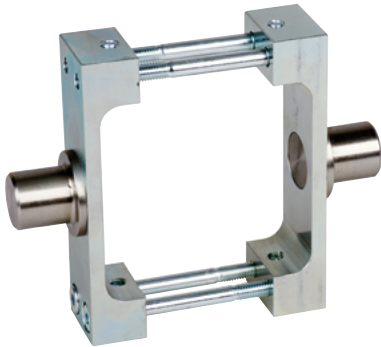
**XLB-xxx-09 Bearing block**



| Model-no.:                        | Ø A | Ø B | C    | Ø CR | FK    | FN | Ø HB | LA | NH   | TH    | UL |
|-----------------------------------|-----|-----|------|------|-------|----|------|----|------|-------|----|
| <b>XLB-032-09</b>                 | 11  | 22  | 10.5 | 12   | 15    | 30 | 6.6  | 7  | 18   | 32    | 46 |
| <b>XLB-040-09</b>                 | 15  | 28  | 12   | 16   | 18    | 36 | 9    | 9  | 21   | 36    | 55 |
| <b>XLB-063-09</b>                 | 18  | 32  | 13   | 20   | 20    | 40 | 11   | 11 | 23   | 42    | 65 |
| <b>XLB-100-09</b>                 | 20  | 39  | 16   | 25   | 25    | 50 | 14   | 13 | 28.5 | 50    | 75 |
| <i>tolerances and adjustments</i> |     |     |      | H9   | ± 0.1 |    | H13  |    |      | ± 0.2 |    |

Materials: Al, bronze bushing

**XLB-xxx-10 Trunnion mount**

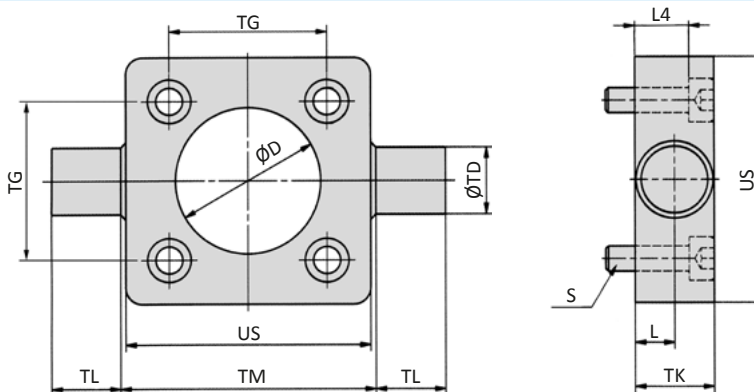
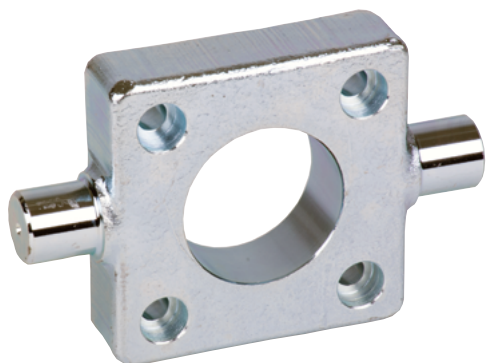


| Model-no.:                        | SW1 | SW2 | Ø TD | TK | TL  | TM  | UW  |
|-----------------------------------|-----|-----|------|----|-----|-----|-----|
| <b>XLB-032-10</b>                 | 3   | 2.5 | 12   | 25 | 12  | 50  | 65  |
| <b>XLB-040-10</b>                 | 3   | 3   | 16   | 25 | 16  | 63  | 75  |
| <b>XLB-050-10</b>                 | 3   | 4   | 16   | 30 | 16  | 75  | 95  |
| <b>XLB-063-10</b>                 | 3   | 4   | 20   | 30 | 20  | 90  | 105 |
| <b>XLB-080-10</b>                 | 3   | 4   | 20   | 30 | 20  | 110 | 130 |
| <b>XLB-100-10</b>                 | 4   | 5   | 25   | 40 | 25  | 132 | 145 |
| <b>XLB-125-10</b>                 | 4   | 6   | 25   | 40 | 25  | 160 | 175 |
| <i>tolerances and adjustments</i> |     |     | e9   |    | h14 | h14 |     |

Material: steel, zinc plated

## Series XL Mounting accessories

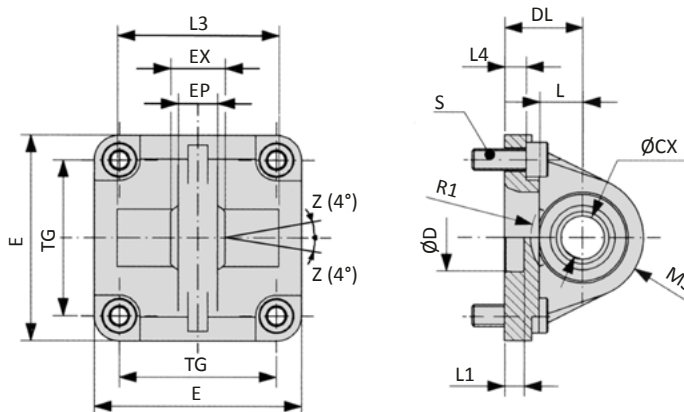
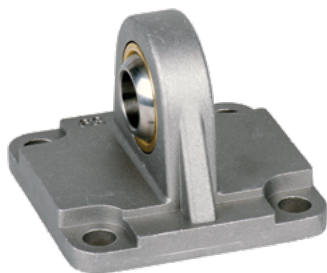
### XLB-xxx-11 Trunnion mount



| Model-no.:                        | Ø D  | L     | L4 | S        | Ø TD | TG              | TK | TL  | TM  | US  |
|-----------------------------------|------|-------|----|----------|------|-----------------|----|-----|-----|-----|
| XLB-032-11                        | 30   | 6.5   | 8  | M6 x 20  | 12   | 32.5            | 14 | 12  | 50  | 46  |
| XLB-040-11                        | 35   | 9     | 13 | M6 x 25  | 16   | 38              | 19 | 16  | 63  | 59  |
| XLB-050-11                        | 40   | 9     | 11 | M8 x 25  | 16   | 46.5            | 19 | 16  | 75  | 69  |
| XLB-063-11                        | 45   | 11.5  | 16 | M8 x 30  | 20   | 56.5            | 24 | 20  | 90  | 84  |
| XLB-080-11                        | 45   | 11.5  | 14 | M10 x 30 | 20   | 72              | 24 | 20  | 110 | 102 |
| XLB-100-11                        | 55   | 14    | 19 | M10 x 35 | 25   | 89              | 29 | 25  | 132 | 125 |
| XLB-125-11                        | 60   | 15    | 18 | M12 x 35 | 25   | 110*            | 30 | 25  | 160 | 150 |
| <i>tolerances and adjustments</i> | H 11 | + 0.2 |    |          | e9   | ± 0,2<br>*± 0,3 |    | h14 | h14 |     |

Material: steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

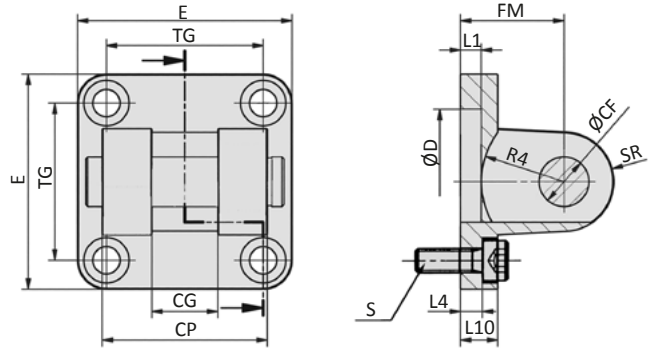
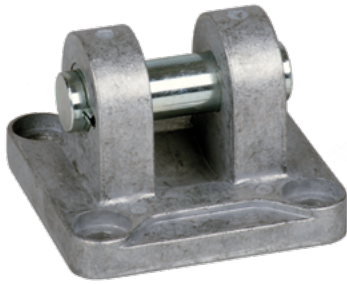
### XLB-xxx-12 Swivel mount with spherical bearing



| Model-no.:                        | Ø CX | Ø D | DL    | E   | EP   | EX    | L  | L1 | L3 | L4    | MS | R1 | S        | TG              |
|-----------------------------------|------|-----|-------|-----|------|-------|----|----|----|-------|----|----|----------|-----------------|
| XLB-032-12                        | 10   | 30  | 22    | 45  | 10.5 | 14    | 12 | 7  | -  | 5.5   | 16 | -  | M6 x 20  | 32.5            |
| XLB-040-12                        | 12   | 35  | 25    | 52  | 12   | 16    | 15 | 7  | -  | 5.5   | 18 | -  | M6 x 20  | 38              |
| XLB-050-12                        | 16   | 40  | 27    | 65  | 15   | 21    | 15 | 7  | 51 | 6.5   | 21 | 19 | M8 x 20  | 46.5            |
| XLB-063-12                        | 16   | 45  | 32    | 75  | 15   | 21    | 20 | 7  | -  | 6.5   | 23 | -  | M8 x 20  | 56.5            |
| XLB-080-12                        | 20   | 45  | 36    | 95  | 18   | 25    | 20 | 9  | 74 | 10    | 28 | 24 | M10 x 25 | 72              |
| XLB-100-12                        | 20   | 55  | 41    | 115 | 18   | 25    | 25 | 9  | -  | 10    | 30 | -  | M10 x 25 | 89              |
| XLB-125-12                        | 30   | 60  | 50    | 140 | 25   | 37    | 30 | 9  | -  | 10    | 40 | -  | M12 x 25 | 110*            |
| <i>tolerances and adjustments</i> | H7   | H11 | ± 0.2 |     |      | ± 0.1 |    |    |    | ± 0.5 |    |    |          | ± 0.2<br>*± 0.3 |

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

**XLB-xxx-14 Clevis mount small with pin**



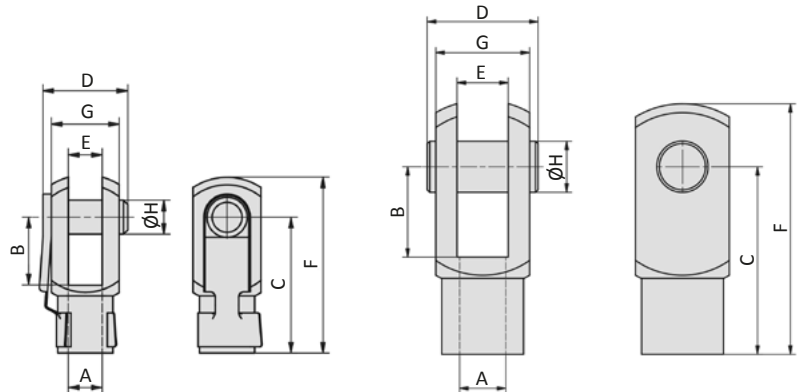
| Model-no.:                        | Ø CF | CG  | CP  | Ø D | E   | FM    | L1 | L4    | L10 | R4 | S        | SR | TG              |
|-----------------------------------|------|-----|-----|-----|-----|-------|----|-------|-----|----|----------|----|-----------------|
| <b>XLB-032-14</b>                 | 10   | 14  | 34  | 30  | 45  | 22    | 5  | 5.5   | 9   | 17 | M6 x 20  | 10 | 32.5            |
| <b>XLB-040-14</b>                 | 12   | 16  | 40  | 35  | 52  | 25    | 5  | 5.5   | 9   | 20 | M6 x 20  | 12 | 38              |
| <b>XLB-050-14</b>                 | 16   | 21  | 45  | 40  | 65  | 27    | 5  | 6.5   | 11  | 22 | M8 x 20  | 14 | 46.5            |
| <b>XLB-063-14</b>                 | 16   | 21  | 51  | 45  | 75  | 32    | 5  | 6.5   | 11  | 25 | M8 x 20  | 18 | 56.5            |
| <b>XLB-080-14</b>                 | 20   | 25  | 65  | 45  | 95  | 36    | 5  | 10    | 14  | 30 | M10 x 25 | 20 | 72              |
| <b>XLB-100-14</b>                 | 20   | 25  | 75  | 55  | 115 | 41    | 5  | 10    | 14  | 32 | M10 x 25 | 22 | 89              |
| <b>XLB-125-14</b>                 | 30   | 37  | 97  | 60  | 140 | 50    | 7  | 10    | 20  | 42 | M12 x 25 | 25 | 110*            |
| <i>tolerances and adjustments</i> | F7   | D10 | d12 | H11 |     | ± 0.2 |    | ± 0.5 |     |    |          |    | ± 0.2<br>*± 0.3 |

Materials: Al, bushing steel and PTFE, clevis pin steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

**RD-xx, FD-xxx Rod clevis**

Spring loaded pin (RD-25, FD-40...80)

Clevis pin with snap rings (FD-125)

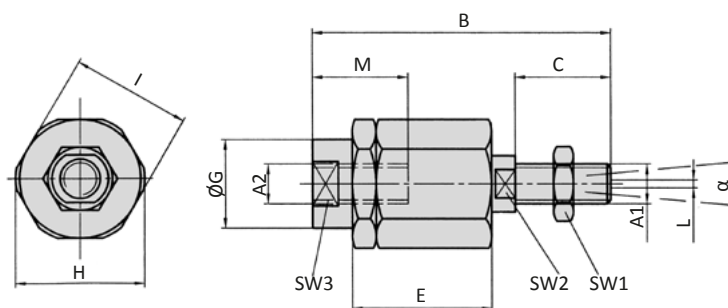


| Model-no.:    | for cylinder   | A          | B  | C   | D  | E  | F   | G  | Ø H |
|---------------|----------------|------------|----|-----|----|----|-----|----|-----|
| <b>RD-25</b>  | XL-032         | M10 x 1.25 | 20 | 40  | 26 | 10 | 52  | 20 | 10  |
| <b>FD-40</b>  | XL-040         | M12 x 1.25 | 24 | 48  | 32 | 12 | 62  | 24 | 12  |
| <b>FD-63</b>  | XL-050, XL-063 | M16 x 1.5  | 32 | 64  | 40 | 16 | 83  | 32 | 16  |
| <b>FD-80</b>  | XL-080, XL-100 | M20 x 1.5  | 40 | 80  | 50 | 20 | 105 | 40 | 20  |
| <b>FD-125</b> | XL-125         | M27 x 2    | 54 | 110 | 65 | 30 | 148 | 55 | 30  |

Material: steel, zinc plated

## Series XL Mounting accessories

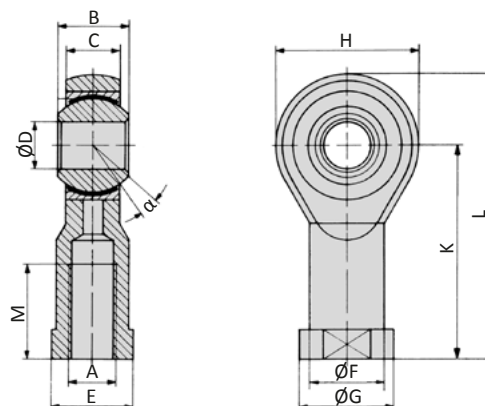
### FK-xxx Flexible coupling



| Model-no.: | for cylinder   | A1, A2     | B    | C  | D   | E  | Ø G | H  | I  | L | M  | SW1 | SW2 | SW3 | α  |
|------------|----------------|------------|------|----|-----|----|-----|----|----|---|----|-----|-----|-----|----|
| FK-32      | XL-032         | M10 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22  | 32 | 30 | 2 | 22 | 17  | 12  | 19  | 8° |
| FK-40      | XL-040         | M12 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22  | 32 | 30 | 2 | 22 | 19  | 12  | 19  | 8° |
| FK-63      | XL-050, XL-063 | M16 x 1.5  | 104  | 32 | 10  | 53 | 32  | 45 | 41 | 2 | 30 | 24  | 20  | 27  | 6° |
| FK-80      | XL-080, XL-100 | M20 x 1.5  | 119  | 40 | 10  | 53 | 32  | 45 | 41 | 2 | 37 | 30  | 20  | 27  | 6° |
| FK-125     | XL-125         | M27 x 2    | 147  | 54 | 10  | 60 | 57  | 70 | 65 | 2 | 48 | 41  | 24  | 54  | 8° |

Material: steel, zinc plated

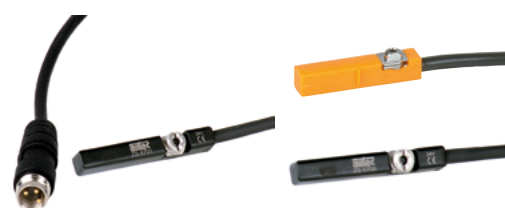
### RO-xx, FO-xxx Rod eye



| Model-no.: | for cylinder   | A          | B  | C    | Ø D | E  | Ø F  | Ø G | H  | K   | L   | M  | α   |
|------------|----------------|------------|----|------|-----|----|------|-----|----|-----|-----|----|-----|
| RO-25      | XL-032         | M10 x 1.25 | 14 | 10.5 | 10  | 17 | 15   | 19  | 28 | 43  | 57  | 20 | 13° |
| FO-40      | XL-040         | M12 x 1.25 | 16 | 12   | 12  | 19 | 17.5 | 22  | 32 | 50  | 66  | 22 | 13° |
| FO-63      | XL-050, XL-063 | M16 x 1.5  | 21 | 15   | 16  | 22 | 22   | 27  | 42 | 64  | 85  | 28 | 15° |
| FO-80      | XL-080, XL-100 | M20 x 1.5  | 25 | 18   | 20  | 30 | 27.5 | 34  | 50 | 77  | 102 | 33 | 14° |
| FO-125     | XL-125         | M27 x 2    | 37 | 25   | 30  | 41 | 40   | 50  | 70 | 110 | 145 | 51 | 17° |

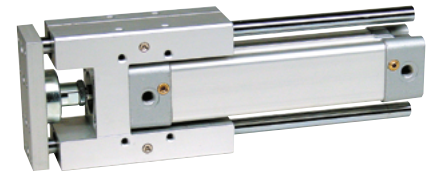
Materials: steel, zinc plated, bearing steel, bronze bushing

### Proximity sensors



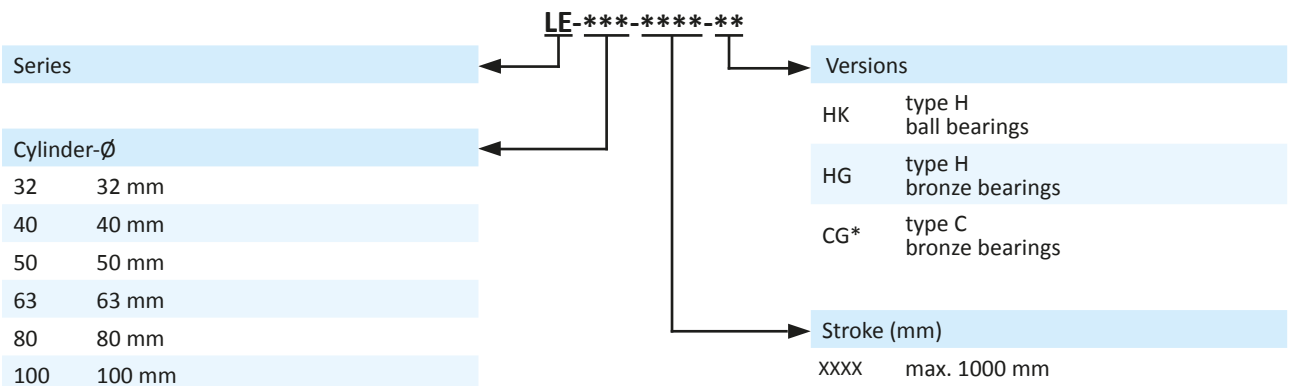
**Technical details**

|                           |                  |   |
|---------------------------|------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar     |   |
| <b>Temperature range</b>  | -30°C ... +100°C |   |
| <b>Max. stroke</b>        | 1000 mm          |   |
| <b>Materials</b>          | Body:            | Al (anodized)   |
|                           | Guide rod:       | steel hard chrome plated (bronze bearing)<br>steel, getempert (ball bearings) |
|                           | Bearing:         | sintered bronze (bronze bearing)<br>steel (ball bearings)                     |
|                           | Seals:           | NBR   |



Linear guide for piston rod cylinders in accordance with ISO 15552.

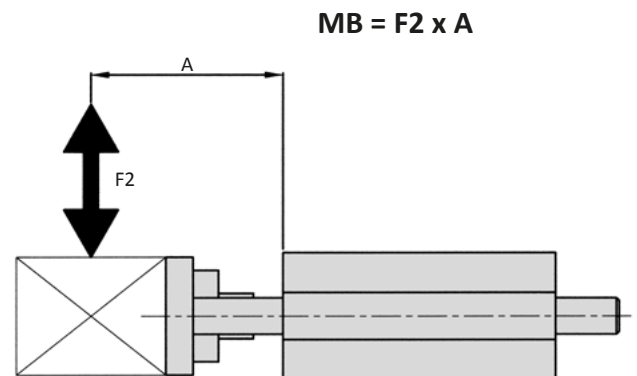
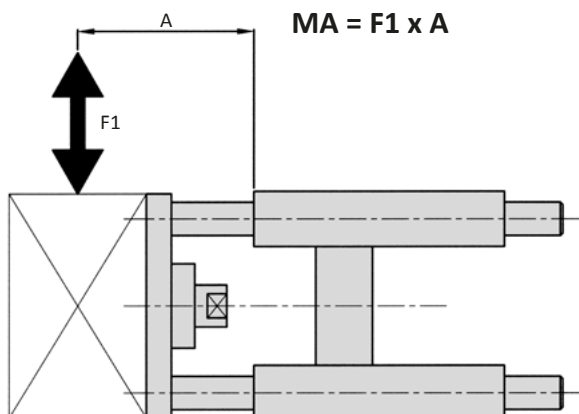
**Order code**



\* only up to Ø 63 mm

**Technical information**

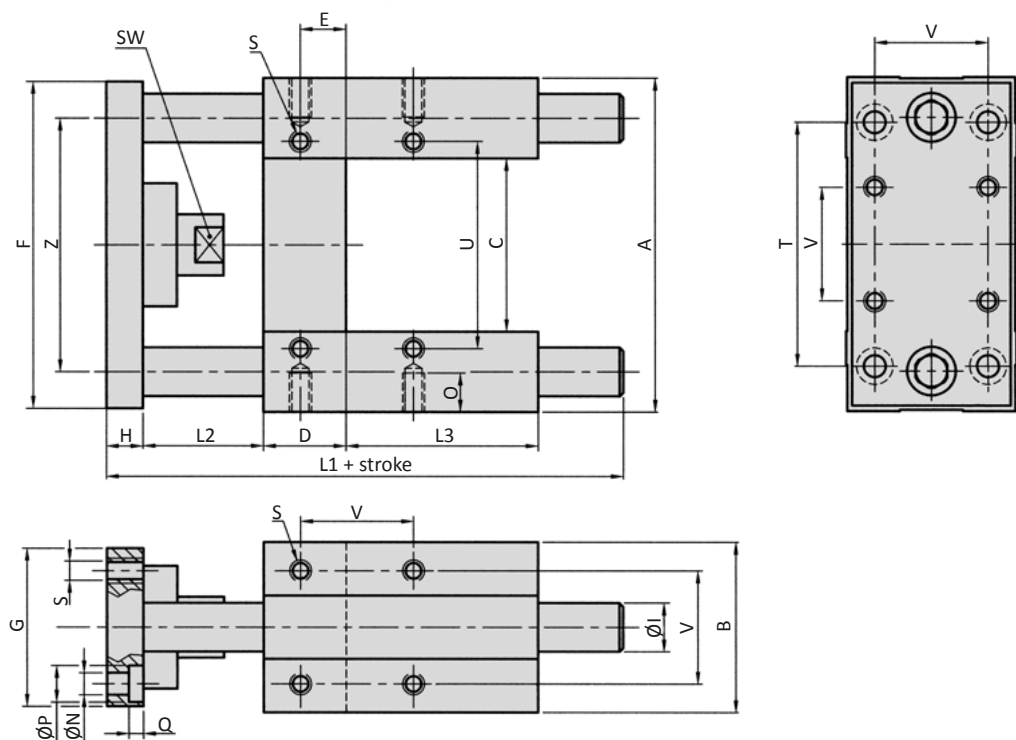
| Version | Piston Ø (mm)     | 32 | 40 | 50 | 63 | 80 | 100 |
|---------|-------------------|----|----|----|----|----|-----|
| CG      | max. load MA (Nm) | 13 | 21 | 21 | 26 | -  | -   |
|         | max. load MB (Nm) | 12 | 19 | 19 | 23 | -  | -   |
| HG      | max. load MA (Nm) | 20 | 35 | 50 | 60 | 72 | 80  |
|         | max. load MB (Nm) | 18 | 32 | 45 | 54 | 65 | 72  |
| HK      | max. load MA (Nm) | 16 | 29 | 42 | 48 | 60 | 60  |
|         | max. load MB (Nm) | 14 | 16 | 38 | 43 | 54 | 54  |



# Series LE

## Linear guides

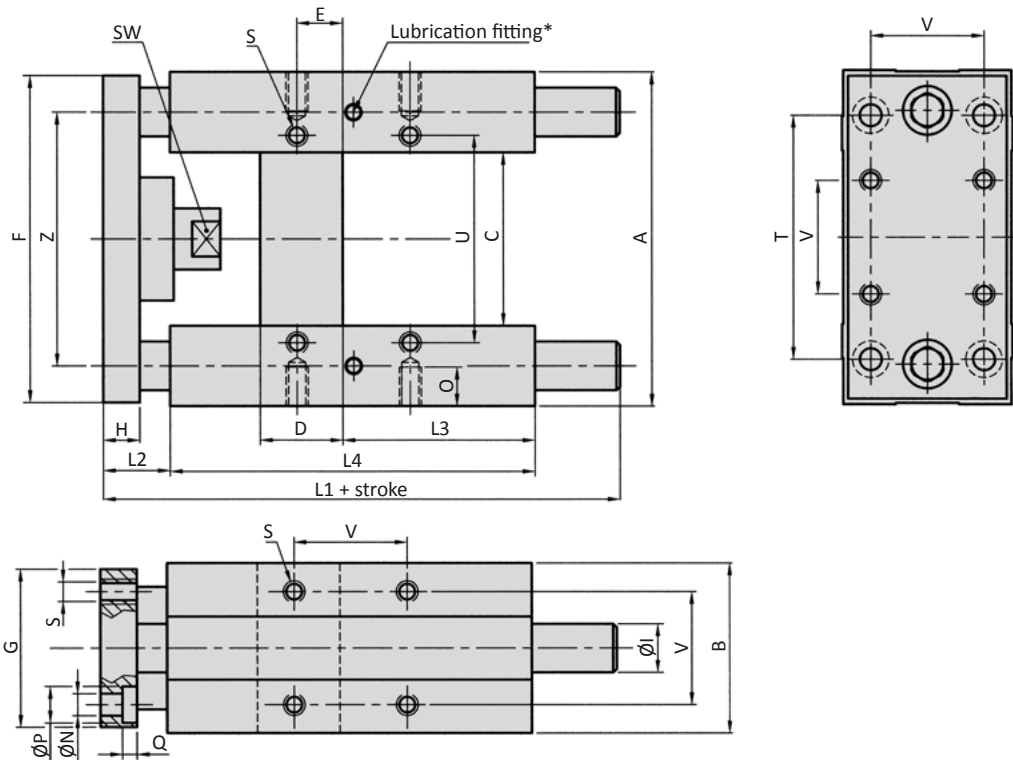
### Dimensions type CG



| Piston Ø | A   | B  | C    | D  | E    | F   | G  | H  | Ø I | L1  | L2 |
|----------|-----|----|------|----|------|-----|----|----|-----|-----|----|
| 32       | 97  | 49 | 51   | 17 | 9.25 | 93  | 45 | 12 | 12  | 120 | 42 |
| 40       | 115 | 58 | 58.2 | 21 | 11   | 112 | 55 | 12 | 16  | 130 | 43 |
| 50       | 137 | 70 | 70.2 | 25 | 18.8 | 134 | 65 | 15 | 20  | 143 | 49 |
| 63       | 152 | 85 | 85.2 | 25 | 15.3 | 147 | 80 | 15 | 20  | 161 | 49 |

| Piston Ø | L3 | Ø N | O  | Ø P | Q   | S  | SW | T   | U   | V    | Z   |
|----------|----|-----|----|-----|-----|----|----|-----|-----|------|-----|
| 32       | 31 | 6.6 | 12 | 11  | 6.5 | M6 | 15 | 78  | 61  | 32.5 | 74  |
| 40       | 37 | 6.6 | 12 | 11  | 6.5 | M6 | 15 | 84  | 69  | 38   | 87  |
| 50       | 34 | 9   | 16 | 15  | 8.5 | M8 | 20 | 100 | 85  | 46.5 | 104 |
| 63       | 51 | 9   | 16 | 15  | 9   | M8 | 20 | 105 | 100 | 56.5 | 119 |

| Piston Ø (mm) |                    | 32   | 40   | 50   | 63   |
|---------------|--------------------|------|------|------|------|
| Weight (kg)   | 0 mm stroke        | 0.80 | 1.30 | 2.30 | 3.00 |
|               | each 100 mm stroke | 0.18 | 0.32 | 0.50 | 0.50 |

**Dimensions types HG, HK**


\*only type HK

| Piston Ø | A   | B   | C     | D  | E    | F   | G   | H  | Ø I | L1    | L2 |
|----------|-----|-----|-------|----|------|-----|-----|----|-----|-------|----|
| 32       | 97  | 49  | 51    | 24 | 4.3  | 93  | 45  | 12 | 12  | 187   | 20 |
| 40       | 115 | 58  | 58.2  | 28 | 11   | 112 | 55  | 12 | 16  | 207   | 20 |
| 50       | 137 | 70  | 70.2  | 34 | 18.8 | 134 | 65  | 15 | 20  | 223   | 19 |
| 63       | 152 | 85  | 85.2  | 34 | 15.3 | 147 | 80  | 15 | 20  | 243** | 19 |
| 80       | 189 | 105 | 105.5 | 50 | 25   | 180 | 100 | 20 | 25  | 267   | 33 |
| 100      | 213 | 130 | 130.5 | 55 | 30   | 206 | 120 | 20 | 25  | 290   | 33 |

\*\* 225 mm only version HK

| Piston Ø | L3  | L4  | Ø N | O  | Ø P | Q   | S   | SW | T   | U   | V    | Z   |
|----------|-----|-----|-----|----|-----|-----|-----|----|-----|-----|------|-----|
| 32       | 75  | 125 | 6.6 | 12 | 11  | 6.5 | M6  | 15 | 78  | 61  | 32.5 | 74  |
| 40       | 80  | 140 | 6.6 | 12 | 11  | 6.5 | M6  | 15 | 84  | 69  | 38   | 87  |
| 50       | 78  | 148 | 9   | 16 | 15  | 8.5 | M8  | 20 | 100 | 85  | 46.5 | 104 |
| 63       | 106 | 178 | 9   | 16 | 15  | 9   | M8  | 20 | 105 | 100 | 56.5 | 119 |
| 80       | 111 | 195 | 11  | 20 | 18  | 11  | M10 | 26 | 130 | 130 | 72   | 148 |
| 100      | 128 | 218 | 11  | 20 | 18  | 11  | M10 | 26 | 150 | 150 | 89   | 173 |

| Piston Ø (mm) |                    | 32   | 40   | 50   | 63   | 80   | 100   |
|---------------|--------------------|------|------|------|------|------|-------|
| Weight        | 0 mm stroke        | 1.29 | 2.40 | 3.50 | 4.60 | 8.40 | 11.80 |
| HG (kg)       | each 100 mm stroke | 0.18 | 0.32 | 0.50 | 0.50 | 0.77 | 0.77  |
| Weight        | 0 mm stroke        | 1.20 | 2.30 | 3.40 | 4.40 | 8.20 | 11.60 |
| HK (kg)       | each 100 mm stroke | 0.18 | 0.32 | 0.50 | 0.50 | 0.77 | 0.77  |

## Series XLVK

### ISO 15552

#### Technical details

|                    |   |
|--------------------|---|
| Series cylinder    | XL  |
| Series valve       | KM-09 (up to $\varnothing$ 63 mm), KM-10 (up from $\varnothing$ 80 mm)  |
| Operating pressure | 3 ... 10 bar  |
| Temperature range  | -10°C ... +70°C   |
| Max. stroke        | 2800 mm   |
| Medium             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| Protection         | IP 65 according to EN 60529   |



Double acting Al-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors. The sensors can be installed directly into the sensor grooves of the Al-profile. The cylinder includes a 5/2- or 5/3-way valve with a high flow rate and compact dimensions. Standard stroke lengths in table below, additional lengths on request.

#### Order code

| Series               |        | Stroke (mm)        |               |
|----------------------|--------|--------------------|---------------|
| Series               |        | XXXX               | max. 2800 mm* |
| Piston $\varnothing$ |        | Electrical options |               |
| 032                  | 32 mm  | see table below    |               |
| 040                  | 40 mm  | Type               |               |
| 050                  | 50 mm  | see page 9-17      |               |
| 063                  | 63 mm  |                    |               |
| 080                  | 80 mm  |                    |               |
| 100                  | 100 mm |                    |               |
| 125                  | 125 mm |                    |               |

\* For longer stroke lengths please check the max buckling load.

#### Electrical options

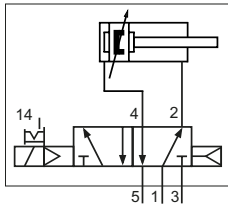
| Nominal voltage | Power consumption | Specifics  | Plug connection* <sup>1</sup> | -XXX<br>Manual override on same side of ports |            |
|-----------------|-------------------|------------|-------------------------------|---|------------|
|                 |                   |            |                               | 2 and 4                                       | 1, 3 and 5 |
| 12 V DC         | 4.2 W             |            | Form B industrial norm        | -441  | -411       |
| 12 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm        | -461  | -431       |
| 24 V DC         | 4.2 W             |            | Form B industrial norm        | -442  | -412       |
| 24 V DC         | 4.8 W             |            | M 12                          | -042  | -012       |
| 24 V DC         | 2.2 W             | max. 8 bar | Form B industrial norm        | -462  | -432       |
| 24 V DC         | 2.5 W             | max. 8 bar | M 12                          | -062  | -032       |
| 24 V AC         | 7/4 VA            |            | Form B industrial norm        | -452  | -422       |
| 115 V AC        | 7/4 VA            |            | Form B industrial norm        | -456  | -426       |
| 230 V AC        | 7/4 VA            |            | Form B industrial norm        | -457  | -427       |

\*<sup>1</sup> Plug socket not included, suitable plug sockets see page 4-38.

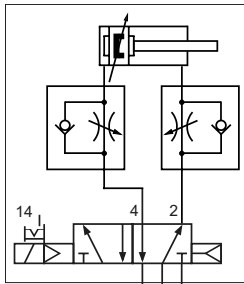


**Types**

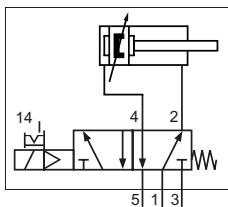
**single solenoid valve, normally retracted**



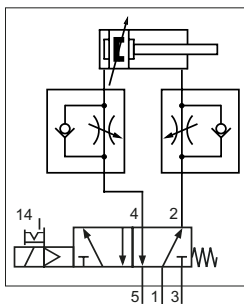
- 01** valve with air spring return, cylinder piston rod steel hard chrome plated
- 03** valve with air spring return, cylinder piston rod stainless steel



- 05** valve with air spring return, cylinder piston rod steel hard chrome plated, with mounted flow controls
- 07** valve with air spring return, cylinder piston rod stainless steel, with mounted flow controls

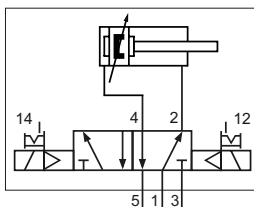


- 02** valve with mechanical spring return, cylinder piston rod steel hard chrome plated
- 04** valve with mechanical spring return, cylinder piston rod stainless steel

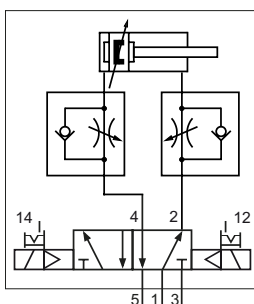


- 06** valve with mechanical spring return, cylinder piston rod steel hard chrome plated, with mounted flow controls
- 08** valve with mechanical spring return, cylinder piston rod stainless steel, with mounted flow controls

**double solenoid valve**

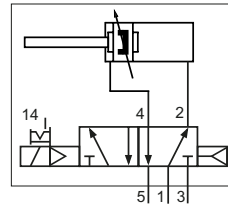


- 20** cylinder piston rod steel hard chrome plated
- 21** cylinder piston rod stainless steel

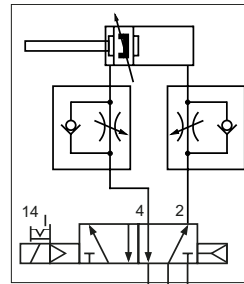


- 22** cylinder piston rod steel hard chrome plated, with mounted flow controls
- 23** cylinder piston rod stainless steel, with mounted flow controls

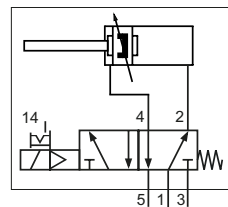
**single solenoid valve, normally extended**



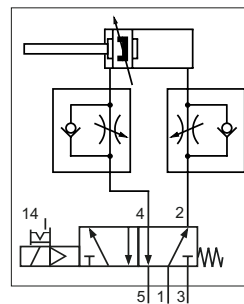
- 10** valve with air spring return, cylinder piston rod steel hard chrome plated
- 12** valve with air spring return, cylinder piston rod stainless steel



- 15** valve with air spring return, cylinder piston rod steel hard chrome plated, with mounted flow controls
- 17** valve with air spring return, cylinder piston rod stainless steel, with mounted flow controls

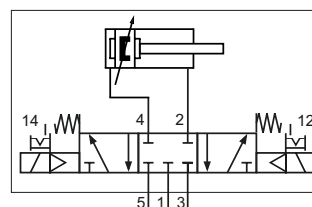


- 11** valve with mechanical spring return, cylinder piston rod steel hard chrome plated
- 13** valve with mechanical spring return, cylinder piston rod stainless steel

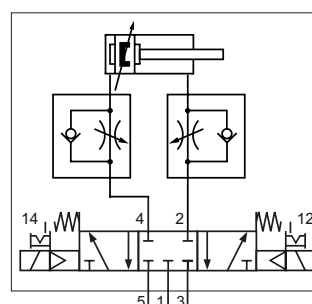


- 16** valve with mechanical spring return, cylinder piston rod steel hard chrome plated, with mounted flow controls
- 18** valve with mechanical spring return, cylinder piston rod stainless steel, with mounted flow controls

**5/3-way, center position closed**



- 25** cylinder piston rod steel hard chrome plated
- 26** cylinder piston rod stainless steel

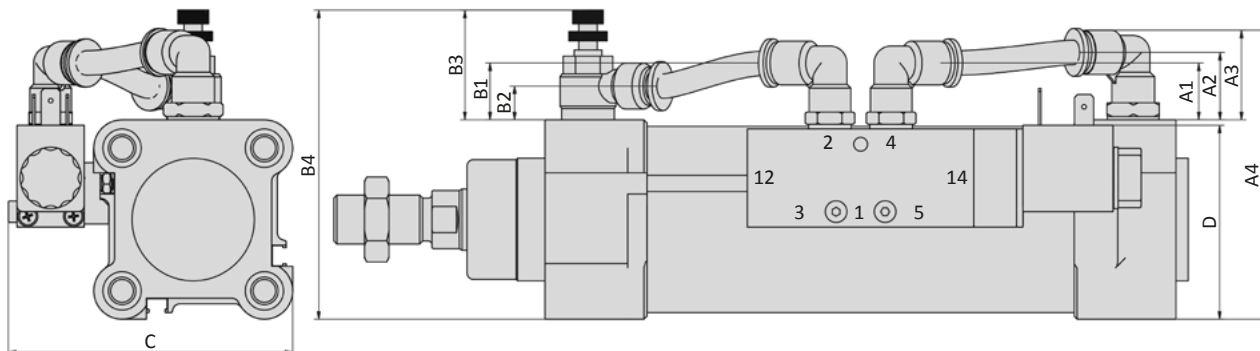


- 27** cylinder piston rod steel hard chrome plated, with mounted flow controls
- 28** cylinder piston rod stainless steel, with mounted flow controls

# Series XLVK

ISO 15552

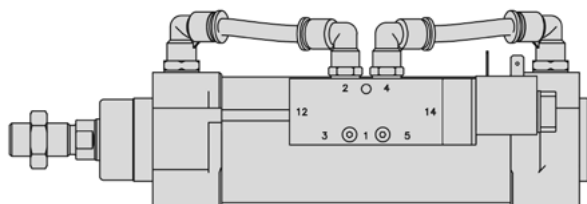
## Dimensions



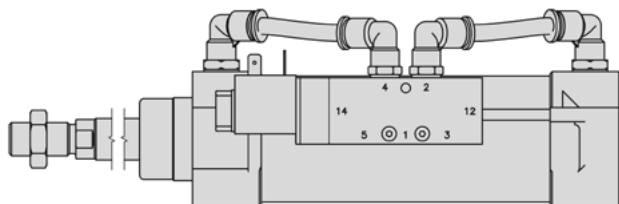
| Piston $\varnothing$ | A1   | A2   | A3   | A4    | B1   | B2   | B3 <sub>max</sub> | B4 <sub>max</sub> | C     | D      |
|----------------------|------|------|------|-------|------|------|-------------------|-------------------|-------|--------|
| 32                   | 20   | 21   | 28.5 | 76.5  | 20   | 9.5  | 34.5              | 81.5              | 76.5  | 47.7   |
| 40                   | 18.8 | 22   | 29.5 | 83.5  | 18.8 | 11   | 39.5              | 93.5              | 83.3  | 52.5   |
| 50                   | 18.6 | 22   | 29.5 | 94.5  | 18.6 | 11   | 39.5              | 102.5             | 92.9  | 63.3   |
| 63                   | 24   | 18.9 | 31.5 | 106.5 | 24   | 11.4 | 44                | 118               | 106.5 | 78.9   |
| 80                   | 22.8 | 18.9 | 30   | 124   | 26.4 | 13   | 44                | 137.5             | 132.9 | 86.5   |
| 100                  | 35.4 | 25.8 | 45   | 156   | 35.4 | 14.5 | 49.5              | 159.5             | 151.8 | 112.5  |
| 125                  | 26.3 | 25.3 | 36   | 175   | 16.3 | 14   | 49.5              | 187.5             | 178.4 | 131.4* |

\*versions with flow controls D = 121.4

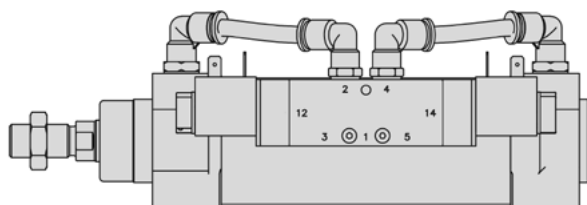
### single solenoid valve, normally retracted



### single solenoid valve, normally extended



### double solenoid valve, 5/3-way valve



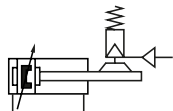
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | Brake system 3 ... 6 bar  |
| <b>Temperature range</b>  | -10°C ... +50°C   |
| <b>Max. stroke</b>        | 2800 mm   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al-die-cast (painted)<br>Piston rod: steel hard chrome plated<br>Seals: PU, NBR<br>Brake system: Al anodized, stainless steel, brass, bronze, POM, NBR, EPDM, PTFE, brake fluid DOT4              |



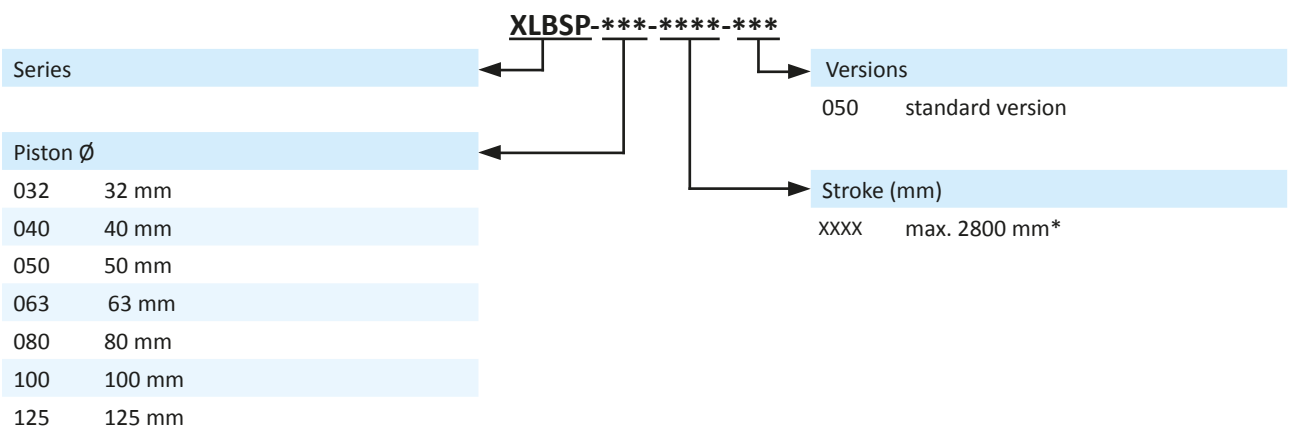
Double acting Al-profile cylinder with adjustable cushions and magnetic piston. It includes an extended piston rod and a pneumatic-hydraulic brake system which is mounted onto the cylinder. The brake should only be applied at piston speed of 0.2 m/s or lower. The system is NC and is released by applying pressure at the pilot port of the brake.

**Versions**



**XLBSP**  
passive brake system, double acting cylinder, adjustable cushioning, with magnetic piston

**Order code**



\* For longer stroke lengths please check the max buckling load.

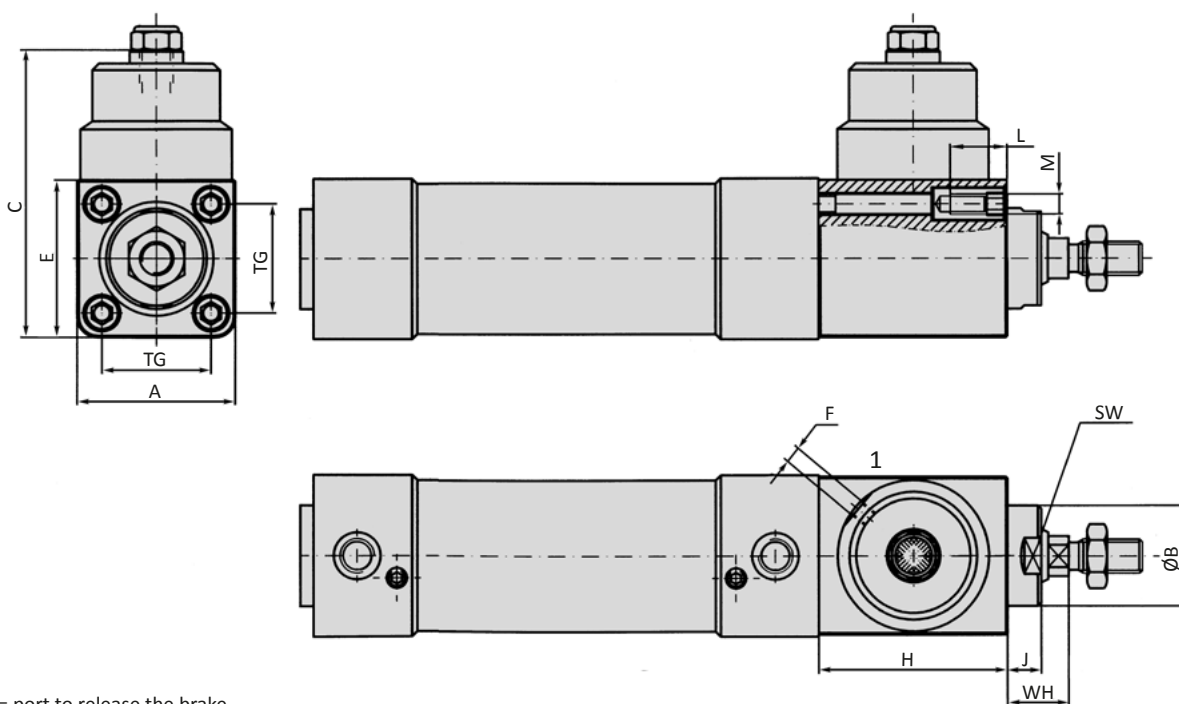
# Series XLBSP

## ISO 15552

### Technical data

| Model-no.:                        | XLBSP-032 | XLBSP-040  | XLBSP-050 | XLBSP-063 | XLBSP-080 | XLBSP-100 | XLBSP-125 |      |
|-----------------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|------|
| Piston Ø (mm)                     | 32        | 40         | 50        | 63        | 80        | 100       | 125       |      |
| Force at 6 bar (N)                | Extension | 434        | 678       | 1060      | 1682      | 2713      | 4239      | 6623 |
|                                   |           | Retraction | 373       | 570       | 890       | 1513      | 2448      | 3974 |
| Clamp force (N)                   | 600       |            | 890       | 1900      | 2500      | 3800      | 6000      | 9000 |
| Operating pressure cylinder (bar) | 1 ... 7   | 1 ... 7    | 1 ... 8   | 1 ... 8   | 1 ... 8   | 1 ... 8   | 1 ... 8   |      |
| Release pressure (bar)            | > 4.5     | > 4.5      | > 4.5     | > 4.5     | > 4.5     | > 4.5     | > 4.5     |      |

### Dimensions series XLBSP



1 = port to release the brake

| Piston Ø | A   | Ø B | C   | E    | F    | H   | J  | L  | M   | TG   | SW | WH |
|----------|-----|-----|-----|------|------|-----|----|----|-----|------|----|----|
| 32       | 47  | 30  | 103 | 47   | M5   | 56  | 10 | 17 | M6  | 32.5 | 28 | 26 |
| 40       | 52  | 35  | 108 | 52   | M5   | 62  | 10 | 17 | M6  | 38   | 32 | 30 |
| 50       | 65  | 40  | 130 | 70.5 | G1/8 | 74  | 20 | 20 | M8  | 46.5 | 36 | 37 |
| 63       | 74  | 45  | 137 | 77   | G1/8 | 74  | 20 | 20 | M8  | 56.5 | 41 | 37 |
| 80       | 95  | 45  | 155 | 95   | G1/8 | 95  | 20 | 22 | M10 | 72   | 42 | 46 |
| 100      | 115 | 55  | 170 | 115  | G1/8 | 115 | 15 | 22 | M10 | 89   | 50 | 51 |
| 125      | 138 | 60  | 193 | 138  | G1/8 | 138 | 20 | 25 | M12 | 110  | 50 | 65 |

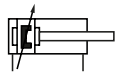
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C ( 0 ... +150°C for high temperature version)  |
| <b>Max. stroke</b>        | 1000 mm   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: AISI 304 (1.4301) or AISI 316 (1.4401)<br>End caps: AISI 304 (1.4301) or AISI 316 (1.4401)<br>Piston rod: AISI 304 (1.4301) or AISI 316 (1.4401)<br>Seals: PU, NBR, PBT, PTFE  |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

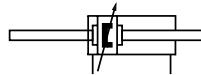


Double acting pneumatic cylinder with adjustable cushions and magnetic piston for proximity sensors.

**Versions**

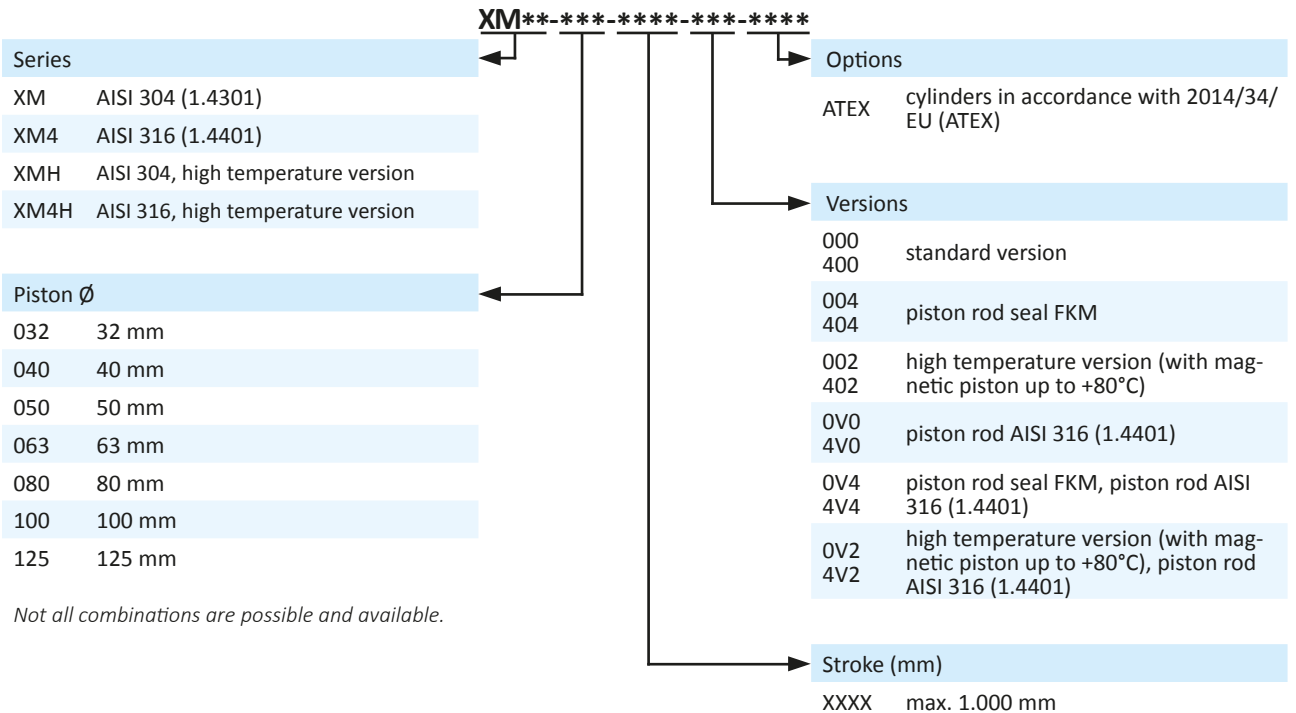


000, 002, 004, 0V0, 0V2, 0V4  
double acting, adjustable cushioning,  
with magnetic piston



400, 403, 404, 4V0, 4V2, 4V4  
double acting, double end piston rod, adjustab-  
le cushioning, with magnetic piston

**Order code**



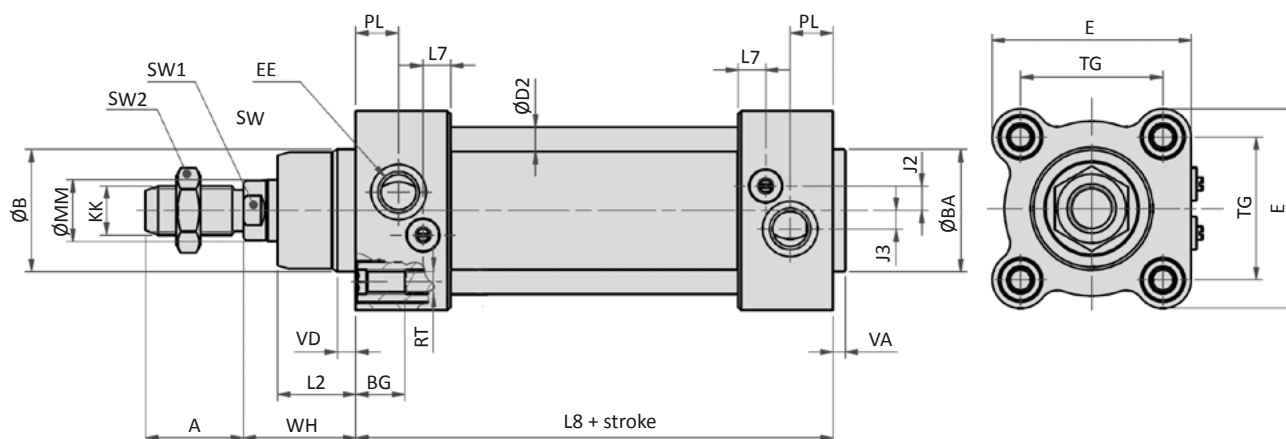
**Series XM**  
ISO 15552, double acting



**Technical data**

| Model-no.:                | XM-032-... | XM-040-... | XM-050-... | XM-063-... | XM-080-... | XM-100-... | XM-125-... |
|---------------------------|------------|------------|------------|------------|------------|------------|------------|
| Piston $\varnothing$ (mm) | 32         | 40         | 50         | 63         | 80         | 100        | 125        |
| Force at 6 bar (N)        | Extension  | 434        | 678        | 1060       | 1682       | 2713       | 4239       |
|                           | Retraction | 373        | 570        | 890        | 1513       | 2448       | 3974       |
| Connection                | G1/8       | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G1/2       |
| Piston rod thread         | M10 x 1.25 | M12 x 1.25 | M16 x 1.5  | M16 x 1.5  | M20 x 1.5  | M20 x 1.5  | M27 x 2    |
| Cushioning length (mm)    | 20         | 22         | 25         | 25         | 35         | 35         | 35         |

**Dimensions series XM (Versions: -000 and -010)**

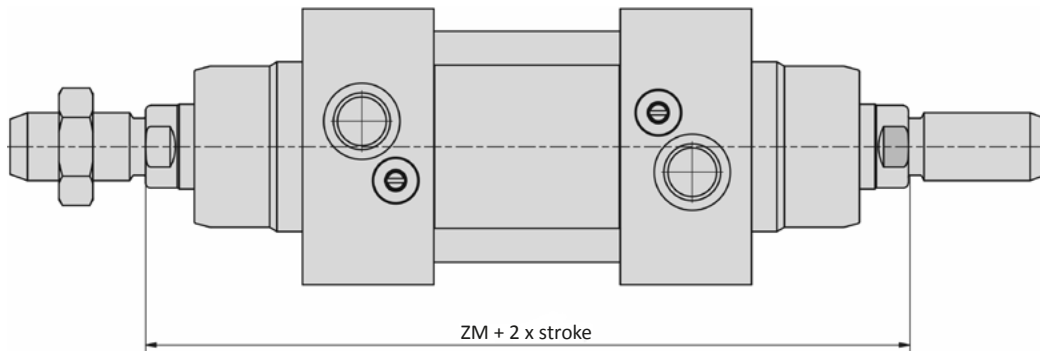


| Piston $\varnothing$ | A  | $\varnothing$ B | $\varnothing$ BA | BG | $\varnothing$ D2 | E   | EE   | J2  | J3  | KK         | L2   |
|----------------------|----|-----------------|------------------|----|------------------|-----|------|-----|-----|------------|------|
| 32                   | 22 | 30              | 30               | 16 | 6                | 48  | G1/8 | 6.6 | 5.3 | M10 x 1.25 | 18   |
| 40                   | 24 | 35              | 35               | 16 | 6                | 52  | G1/4 | 8.5 | 5   | M12 x 1.25 | 22   |
| 50                   | 32 | 40              | 40               | 16 | 8                | 65  | G1/4 | 8   | 6   | M16 x 1.5  | 25.5 |
| 63                   | 32 | 45              | 45               | 16 | 8                | 75  | G3/8 | 10  | 6.5 | M16 x 1.5  | 26   |
| 80                   | 40 | 45              | 45               | 18 | 10               | 95  | G3/8 | 8   | 8   | M20 x 1.5  | 32   |
| 100                  | 40 | 55              | 55               | 18 | 10               | 115 | G1/2 | 15  | 7   | M20 x 1.5  | 38   |
| 125                  | 54 | 60              | 60               | 20 | 12               | 140 | G1/2 | 13  | 7   | M27 x 2    | 46   |

| Piston $\varnothing$ | L7  | L8  | $\varnothing$ MM | PL | RT  | SW1 | SW2 | TG   | VA | VD | WH |
|----------------------|-----|-----|------------------|----|-----|-----|-----|------|----|----|----|
| 32                   | 7.2 | 94  | 12               | 13 | M6  | 10  | 17  | 32.5 | 4  | 5  | 26 |
| 40                   | 9.2 | 105 | 16               | 14 | M6  | 13  | 19  | 38   | 4  | 5  | 30 |
| 50                   | 9   | 106 | 20               | 14 | M8  | 17  | 24  | 46.5 | 4  | 6  | 37 |
| 63                   | 9.5 | 121 | 20               | 16 | M8  | 17  | 24  | 56.5 | 4  | 6  | 37 |
| 80                   | 11  | 128 | 25               | 16 | M10 | 22  | 30  | 72   | 4  | 7  | 46 |
| 100                  | 12  | 138 | 25               | 18 | M10 | 22  | 30  | 89   | 4  | 7  | 51 |
| 125                  | 12  | 160 | 32               | 18 | M12 | 27  | 41  | 110  | 6  | 10 | 65 |

| Piston $\varnothing$ (mm)      | 32    | 40    | 50    | 63    | 80    | 100   | 125    |
|--------------------------------|-------|-------|-------|-------|-------|-------|--------|
| Weight (kg) 0 mm stroke        | 0.960 | 1.455 | 2.370 | 2.550 | 6.030 | 9.420 | 14.550 |
| Weight (kg) each 100 mm stroke | 0.240 | 0.290 | 0.430 | 0.480 | 1.050 | 1.200 | 2.200  |

**Dimensions series XM (addition at double end piston rod)**

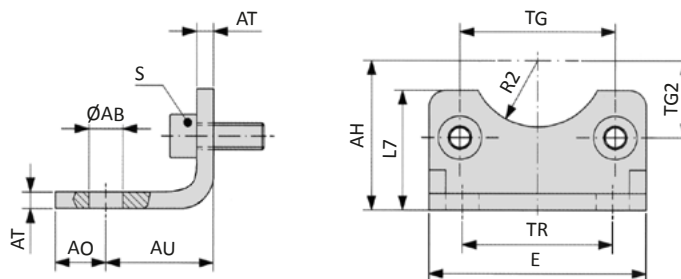
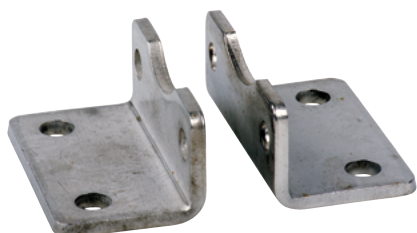


|                           |       |       |       |       |       |        |        |
|---------------------------|-------|-------|-------|-------|-------|--------|--------|
| <b>Piston Ø (mm)</b>      | 32    | 40    | 50    | 63    | 80    | 100    | 125    |
| <b>ZM</b>                 | 146   | 165   | 180   | 195   | 220   | 240    | 290    |
| <b>Piston Ø (mm)</b>      | 32    | 40    | 50    | 63    | 80    | 100    | 125    |
| <b>Weight (kg)</b>        |       |       |       |       |       |        |        |
| <b>0 mm stroke</b>        | 1.086 | 1.615 | 2.677 | 3.930 | 6.561 | 10.180 | 15.868 |
| <b>each 100 mm stroke</b> | 0.330 | 0.480 | 0.810 | 0.850 | 1.440 | 1.930  | 2.920  |

**Series XM**  
Mounting accessories



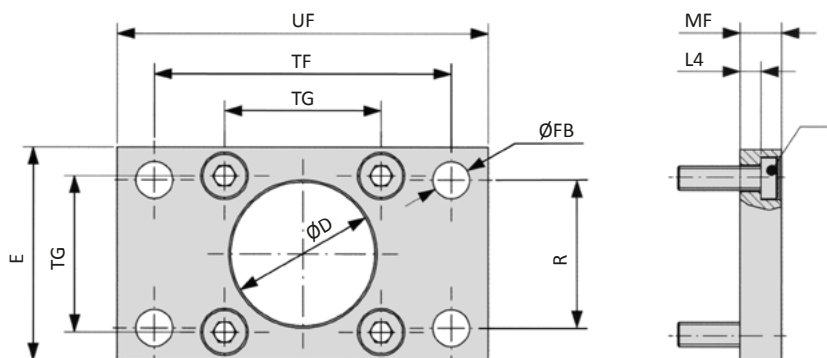
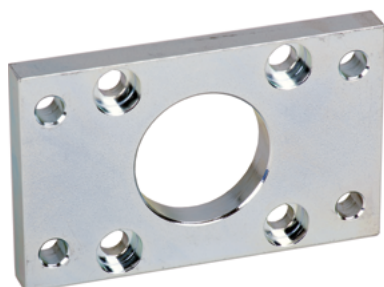
**CXM-xxx-01 Foot mount**



| Model-no.: | Ø AB | AH | AO | AU | AT | E   | L7 | R2   | S        | TG   | TG2   | TR |
|------------|------|----|----|----|----|-----|----|------|----------|------|-------|----|
| CXM-032-01 | 7    | 32 | 11 | 24 | 4  | 45  | 30 | 15   | M6 x 20  | 32.5 | 16.25 | 32 |
| CXM-040-01 | 10   | 36 | 8  | 28 | 4  | 52  | 30 | 17.5 | M6 x 20  | 38   | 19    | 36 |
| CXM-050-01 | 10   | 45 | 15 | 32 | 5  | 65  | 36 | 20   | M8 x 20  | 46.5 | 23.25 | 45 |
| CXM-063-01 | 10   | 50 | 13 | 32 | 5  | 75  | 35 | 22.5 | M8 x 20  | 56.5 | 28.25 | 50 |
| CXM-080-01 | 12   | 63 | 14 | 41 | 6  | 95  | 47 | 22.5 | M10 x 20 | 72   | 36    | 63 |
| CXM-100-01 | 14.5 | 71 | 16 | 41 | 6  | 115 | 53 | 27.5 | M10 x 20 | 89   | 44.5  | 75 |
| CXM-125-01 | 16.5 | 90 | 25 | 45 | 8  | 140 | 70 | 30   | M12 x 25 | 110  | 55    | 90 |

Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with EN ISO 4762 are included.

**CXM-xxx-02 Flange mount**



| Model-no.: | Ø D | E   | Ø FB | L4   | MF | R  | S        | TF  | TG   | UF  |
|------------|-----|-----|------|------|----|----|----------|-----|------|-----|
| CXM-032-02 | 30  | 45  | 7    | 5    | 10 | 32 | M6 x 20  | 64  | 32.5 | 80  |
| CXM-040-02 | 35  | 52  | 9    | 5    | 10 | 36 | M6 x 20  | 72  | 38   | 90  |
| CXM-050-02 | 40  | 65  | 9    | 6.5  | 12 | 45 | M8 x 20  | 90  | 46.5 | 110 |
| CXM-063-02 | 45  | 75  | 9    | 6.5  | 12 | 50 | M8 x 20  | 100 | 56.5 | 120 |
| CXM-080-02 | 45  | 95  | 12   | 9    | 16 | 63 | M10 x 25 | 126 | 72   | 150 |
| CXM-100-02 | 55  | 115 | 14   | 9    | 16 | 75 | M10 x 25 | 150 | 89   | 170 |
| CXM-125-02 | 60  | 140 | 16   | 10.5 | 20 | 90 | M12 x 25 | 180 | 110  | 205 |

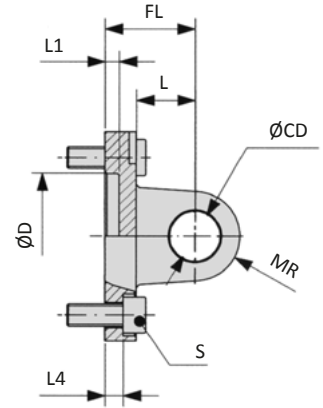
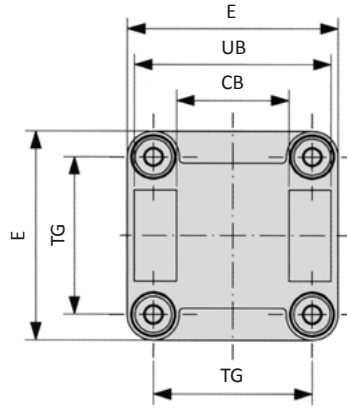
Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with DIN 7984 are included.



**CXM-xxx-03 Clevis mount**



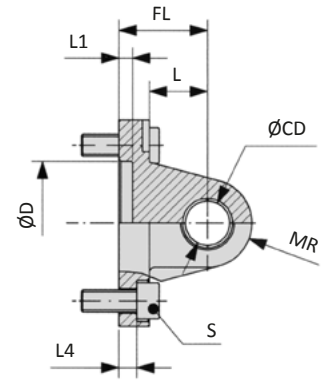
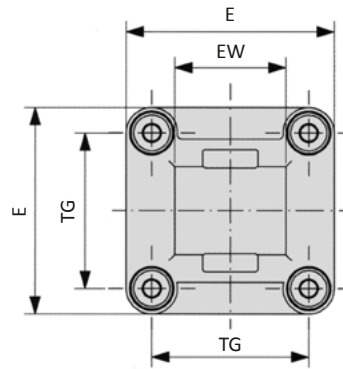
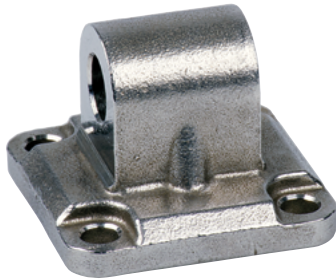
Inclusive clevis pin  
order no: CXM-xxx-38



| Model-no.: | CB | Ø CD | Ø D | E   | FL | L  | L1 | L4  | MR | S        | TG   | UB  |
|------------|----|------|-----|-----|----|----|----|-----|----|----------|------|-----|
| CXM-032-03 | 26 | 10   | 30  | 45  | 22 | 13 | 5  | 5.5 | 10 | M6 x 20  | 32.5 | 45  |
| CXM-040-03 | 28 | 12   | 35  | 52  | 25 | 16 | 5  | 5.5 | 12 | M6 x 20  | 38   | 52  |
| CXM-050-03 | 32 | 12   | 40  | 65  | 27 | 16 | 5  | 6.5 | 12 | M8 x 20  | 46.5 | 60  |
| CXM-063-03 | 40 | 16   | 45  | 75  | 32 | 21 | 5  | 6.5 | 16 | M8 x 20  | 56.5 | 70  |
| CXM-080-03 | 50 | 16   | 45  | 95  | 36 | 22 | 5  | 10  | 16 | M10 x 25 | 72   | 90  |
| CXM-100-03 | 60 | 20   | 55  | 115 | 41 | 27 | 5  | 10  | 20 | M10 x 25 | 89   | 110 |
| CXM-125-03 | 70 | 25   | 60  | 140 | 50 | 30 | 7  | 10  | 25 | M12 x 25 | 110  | 130 |

Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

**CXM-xxx-05 Swivel mount**



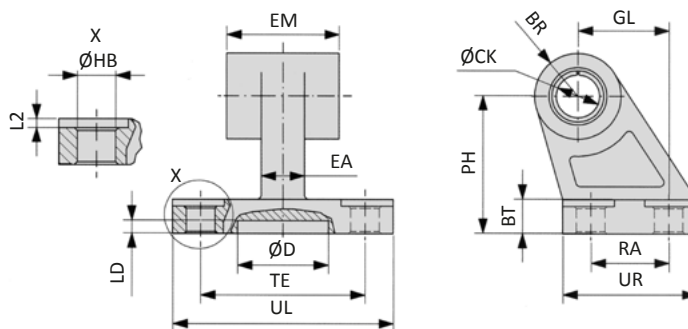
| Model-no.: | Ø CD | Ø D | E   | EW | FL | L  | L1 | L4  | MR | S        | TG   |
|------------|------|-----|-----|----|----|----|----|-----|----|----------|------|
| CXM-032-05 | 10   | 30  | 45  | 26 | 22 | 13 | 5  | 5.5 | 10 | M6 x 20  | 32.5 |
| CXM-040-05 | 12   | 35  | 52  | 28 | 25 | 16 | 5  | 5.5 | 12 | M6 x 20  | 38   |
| CXM-050-05 | 12   | 40  | 65  | 32 | 27 | 16 | 5  | 6.5 | 12 | M8 x 20  | 46.5 |
| CXM-063-05 | 16   | 45  | 75  | 40 | 32 | 21 | 5  | 6.5 | 16 | M8 x 20  | 56.5 |
| CXM-080-05 | 16   | 45  | 95  | 50 | 36 | 22 | 5  | 10  | 16 | M10 x 25 | 72   |
| CXM-100-05 | 20   | 55  | 115 | 60 | 41 | 27 | 5  | 10  | 20 | M10 x 25 | 89   |
| CXM-125-05 | 25   | 60  | 140 | 70 | 50 | 30 | 7  | 10  | 25 | M12 x 25 | 110  |

Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

## Series XM Mounting accessories



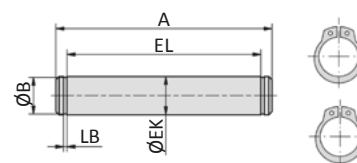
### CXM-xxx-06 Swivel mount 90°



| Model-no.: | BR   | BT | ØCK | Ø D | EA | EM | GL | ØHB | L2  | LD | PH | RA | TE | UL  | UR |
|------------|------|----|-----|-----|----|----|----|-----|-----|----|----|----|----|-----|----|
| CXM-032-06 | 10   | 8  | 10  | 21  | 10 | 26 | 21 | 6.6 | 1.6 | 3  | 32 | 18 | 38 | 51  | 31 |
| CXM-040-06 | 11   | 10 | 12  | 21  | 15 | 28 | 24 | 6.6 | 1.6 | 3  | 36 | 22 | 41 | 54  | 35 |
| CXM-050-06 | 13   | 12 | 12  | 21  | 16 | 32 | 33 | 9   | 1.6 | 3  | 45 | 30 | 50 | 65  | 45 |
| CXM-063-06 | 15   | 14 | 16  | 21  | 16 | 40 | 37 | 9   | 1.6 | 3  | 50 | 35 | 52 | 67  | 50 |
| CXM-080-06 | 15   | 14 | 16  | 21  | 20 | 50 | 47 | 11  | 2.5 | 3  | 63 | 40 | 66 | 86  | 60 |
| CXM-100-06 | 19   | 17 | 20  | 11  | 20 | 60 | 55 | 11  | 2.5 | 3  | 71 | 50 | 76 | 96  | 70 |
| CXM-125-06 | 22.5 | 20 | 25  | 21  | 30 | 70 | 70 | 14  | 3.2 | 3  | 90 | 60 | 94 | 124 | 90 |

Material: stainless steel AISI 304 (1.4301)

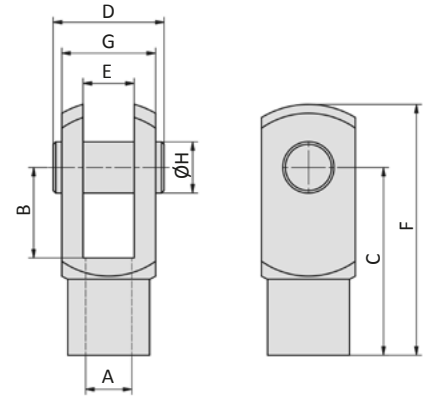
### CXM-xxx-08 Clevis pin



| Model-no.: | A   | Ø B  | Ø EK | EL   | LB  |
|------------|-----|------|------|------|-----|
| CXM-032-08 | 53  | 9.6  | 10   | 46   | 1.1 |
| CXM-040-08 | 60  | 11.5 | 12   | 53   | 1.1 |
| CXM-050-08 | 68  | 11.5 | 12   | 61   | 1.1 |
| CXM-063-08 | 78  | 15.2 | 16   | 71   | 1.1 |
| CXM-080-08 | 98  | 15.2 | 16   | 91   | 1.1 |
| CXM-100-08 | 118 | 19   | 20   | 111  | 1.3 |
| CXM-125-08 | 139 | 23.9 | 25   | 132* | 1.3 |

Material: stainless steel AISI 304 (1.4301); 2 snap rings are included.

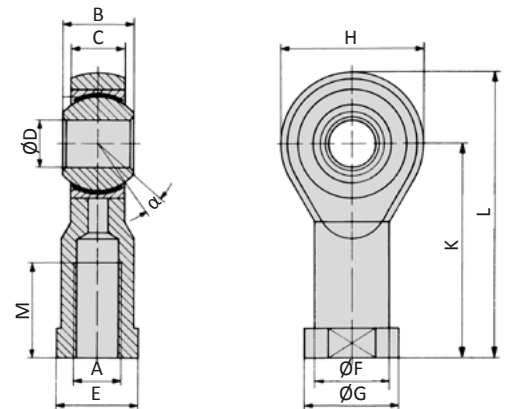
**PD-xx Rod clevis**



| Model-no.: | for cylinder   | A          | B  | C  | D  | E  | F   | G  | Ø H |
|------------|----------------|------------|----|----|----|----|-----|----|-----|
| PD-25      | XM-032         | M10 x 1.25 | 20 | 40 | 26 | 10 | 52  | 20 | 10  |
| PD-40      | XM-040         | M12 x 1.25 | 24 | 48 | 32 | 12 | 62  | 24 | 12  |
| PD-63      | XM-050, XM-063 | M16 x 1.5  | 32 | 64 | 40 | 16 | 83  | 32 | 16  |
| PD-80      | XM-080, XM-100 | M20 x 1.5  | 40 | 80 | 50 | 20 | 105 | 40 | 20  |

Material: stainless steel AISI 303 (1.4305)

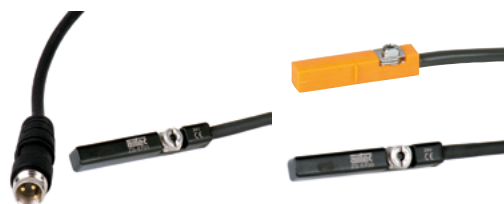
**PO-xx Rod eye**



| Model-no.: | for cylinder   | A          | B  | C    | Ø D | E  | Ø F  | Ø G | H  | K  | L   | M  | α   |
|------------|----------------|------------|----|------|-----|----|------|-----|----|----|-----|----|-----|
| PO-25      | XM-032         | M10 x 1.25 | 14 | 10.5 | 10  | 17 | 15   | 19  | 28 | 43 | 57  | 20 | 13° |
| PO-40      | XM-040         | M12 x 1.25 | 16 | 12   | 12  | 19 | 17.5 | 22  | 32 | 50 | 66  | 22 | 13° |
| PO-63      | XM-050, XM-063 | M16 x 1.5  | 21 | 15   | 16  | 22 | 22   | 27  | 42 | 64 | 85  | 28 | 15° |
| PO-80      | XM-080, XM-100 | M20 x 1.5  | 25 | 18   | 20  | 30 | 27.5 | 34  | 50 | 77 | 102 | 33 | 14° |

Materials: stainless steel AISI 331 (1.4057), bearing stainless steel AISI 316 Ti, PTFE coated, bushing stainless steel AISI 420 (1.4034)

**Proximity sensors**



# Baureihe XG

## ISO 1552, doppelwirkend

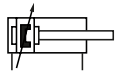
### Technische Merkmale der Baureihe

|                          |  |
|--------------------------|--|
| <b>Arbeitsdruck</b>      | 1 ... 10 bar   |
| <b>Temperaturbereich</b> | -20°C ... +80°C<br>( XGH: -10°C...+150°C )   |
| <b>max. Hub</b>          | 2.500 mm   |
| <b>Medium</b>            | Gefilterte, ölfreie und getrocknete Druckluft nach ISO 8573-1:2010, Klasse 7:2:4 - frei von aggressiven Bestandteilen. Abweichend davon muss der Drucktaupunkt mindestens 10°C unter der tiefsten auftretenden Umgebungstemperatur sein. |
| <b>Werkstoffe</b>        | Zylinderrohr: Aluminium, lackiert<br>Zylinderköpfe: Al-Druckguß, lackiert<br>Kolbenstange: Stahl, hartverchromt (optional 1.4301)<br>Dichtungen: PU, NBR (optional FKM)  |
|                          | Ausführungen nach 2014/34/EU (ATEX) lieferbar. (Kap. 13)   |

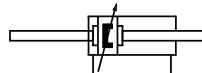


Doppelwirkender Pneumatikzylinder, beidseitig mit einstellbarer, pneumatischer Endlagendämpfung. Mit Positionserkennung zur berührungslosen Stellungenabfrage mit Zylinderschaltern. Sonderhublängen sind auf Wunsch lieferbar.

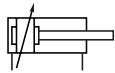
### Ausführungen



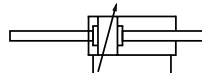
050, 054, 000, 004  
doppelwirkend, beidseitig einstellbare, pneumatische Endlagendämpfung, Positionserkennung



450, 454, 400, 404  
doppelwirkend, durchgehende Kolbenstange, beidseitig einstellbare, pneumatische Endlagendämpfung, Positionserkennung

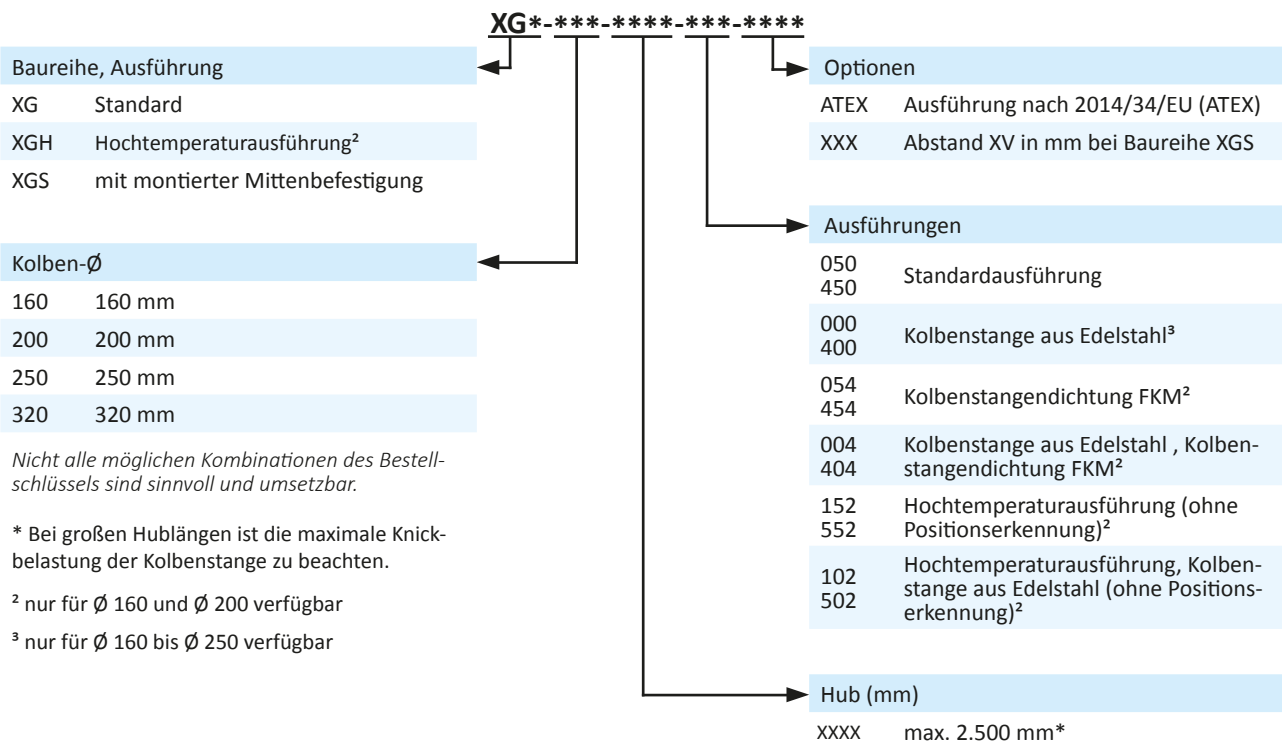


152, 102  
doppelwirkend, beidseitig einstellbare, pneumatische Endlagendämpfung



552, 502  
doppelwirkend, durchgehende Kolbenstange, beidseitig einstellbare, pneumatische Endlagendämpfung

### Bestellschlüssel



Nicht alle möglichen Kombinationen des Bestellschlüssels sind sinnvoll und umsetzbar.

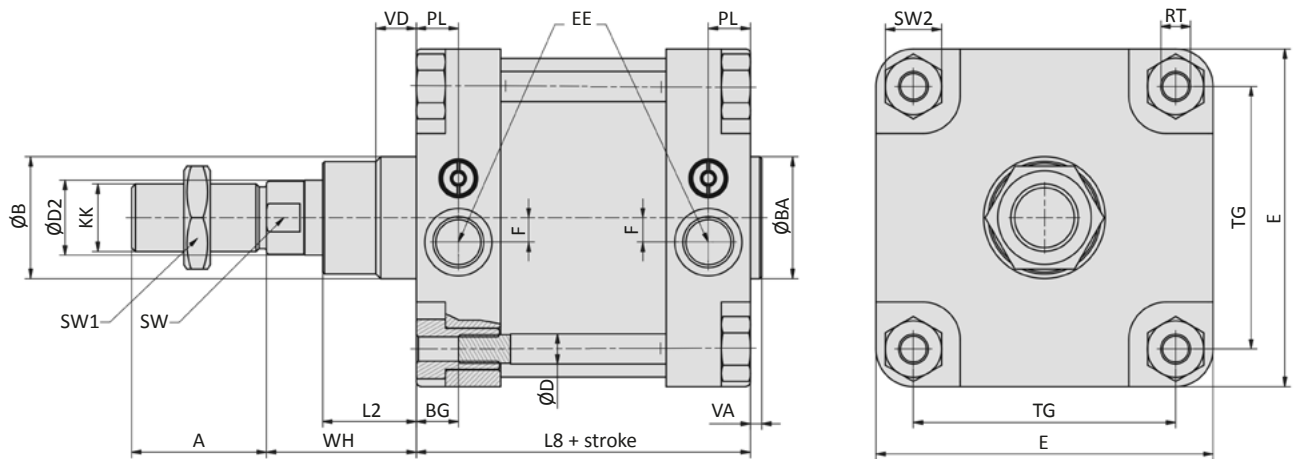
\* Bei großen Hublängen ist die maximale Knickbelastung der Kolbenstange zu beachten.

<sup>2</sup> nur für Ø 160 und Ø 200 verfügbar

<sup>3</sup> nur für Ø 160 bis Ø 250 verfügbar

**Technical data**

| Model-no.:                | XG-160-... | XG-200-... | XG-250-... | XG-320-... |
|---------------------------|------------|------------|------------|------------|
| Piston $\varnothing$ (mm) | 160        | 200        | 250        | 320        |
| Force at 6 bar (N)        | Extension  | 10852      | 16956      | 26494      |
|                           | Retraction | 10174      | 16278      | 25434      |
| Connection                | G3/4       | G3/4       | G1         | G1         |
| Piston rod thread         | M36 x 2    | M36 x 2    | M42 x 2    | M48 x 2    |
| Cushioning length (mm)    | 50         | 50         | 60         | 65         |

**Dimensions series XG**


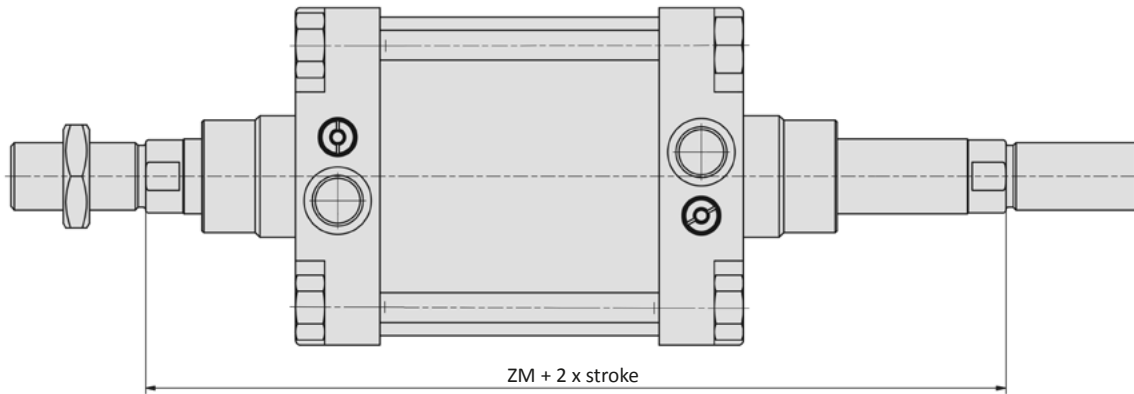
| Piston $\varnothing$ | A  | $\varnothing B$ | $\varnothing BA$ | BG   | $\varnothing D$ | $\varnothing D2$ | E   | EE   | F  | KK      | L2 |
|----------------------|----|-----------------|------------------|------|-----------------|------------------|-----|------|----|---------|----|
| 160                  | 72 | 65              | 65               | 22.5 | 16              | 40               | 180 | G3/4 | 13 | M36 x 2 | 50 |
| 200                  | 72 | 75              | 75               | 22.5 | 16              | 40               | 220 | G3/4 | 13 | M36 x 2 | 55 |
| 250                  | 84 | 90              | 90               | 25   | 20              | 50               | 268 | G1   | 15 | M42 x 2 | 67 |
| 320                  | 96 | 110             | 110              | 28   | 25              | 63               | 340 | G1   | 0  | M48 x 2 | 82 |

| Piston $\varnothing$ | L8    | PL   | RT  | SW | SW1 | SW2 | TG  | VA | VD   | WH  |
|----------------------|-------|------|-----|----|-----|-----|-----|----|------|-----|
| 160                  | 179.5 | 22.5 | M16 | 36 | 55  | 30  | 140 | 6  | 21.5 | 80  |
| 200                  | 180   | 22.5 | M16 | 36 | 55  | 30  | 175 | 6  | 26.5 | 95  |
| 250                  | 200   | 31   | M20 | 46 | 65  | 36  | 220 | 10 | 20   | 105 |
| 320                  | 220   | 31   | M24 | 55 | 75  | 46  | 270 | 10 | 20   | 120 |

| Piston $\varnothing$ (mm)      | 160  | 200  | 250  | 320  |
|--------------------------------|------|------|------|------|
| Weight (kg) 0 mm stroke        | 15.0 | 20.0 | 28.5 | 48.4 |
| Weight (kg) each 100 mm stroke | 2.0  | 2.5  | 3.8  | 6.2  |

**Series XG**  
ISO 1552, double acting

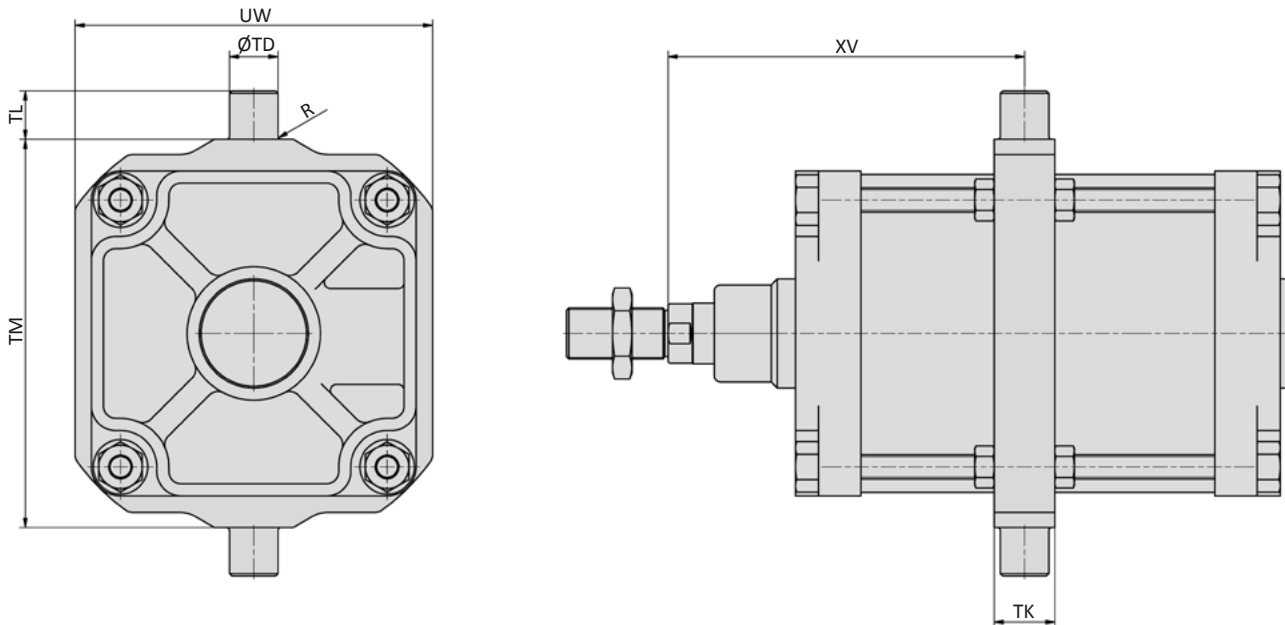
**Dimensions series XG (addition at double end piston rod)**



|                      |     |     |     |     |
|----------------------|-----|-----|-----|-----|
| <b>Piston Ø (mm)</b> | 160 | 200 | 250 | 320 |
| <b>ZM</b>            | 340 | 370 | 410 | 460 |

|                      |                           |      |      |      |      |
|----------------------|---------------------------|------|------|------|------|
| <b>Piston Ø (mm)</b> | 160                       | 200  | 250  | 320  |      |
| <b>Weight (kg)</b>   | <b>0 mm stroke</b>        | 16.9 | 22.5 | 32.3 | 54.8 |
|                      | <b>each 100 mm stroke</b> | 3.3  | 3.5  | 4.0  | 6.4  |

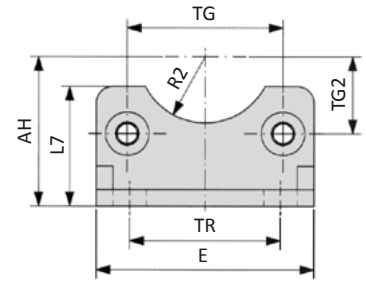
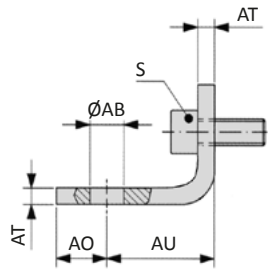
**Dimensions series XGS (addition at mounted trunnion mount)**



| <b>Piston Ø</b> | <b>R</b> | <b>Ø TD</b> | <b>TK</b> | <b>TL</b> | <b>TM</b> | <b>UW</b> | <b>XV<sub>min</sub></b> |
|-----------------|----------|-------------|-----------|-----------|-----------|-----------|-------------------------|
| <b>160</b>      | 2.5      | 32          | 40        | 32        | 200       | 190       | 153                     |
| <b>200</b>      | 2.5      | 32          | 40        | 32        | 250       | 240       | 168                     |
| <b>250</b>      | 2.5      | 40          | 50        | 40        | 320       | 295       | 200                     |
| <b>320</b>      | 2.5      | 50          | 70        | 50        | 400       | 370       | 231                     |

|                      |                           |      |      |      |      |
|----------------------|---------------------------|------|------|------|------|
| <b>Piston Ø (mm)</b> | 160                       | 200  | 250  | 320  |      |
| <b>Weight (kg)</b>   | <b>0 mm stroke</b>        | 19.2 | 27.3 | 41.0 | 72.6 |
|                      | <b>each 100 mm stroke</b> | 2.0  | 2.5  | 3.8  | 6.2  |

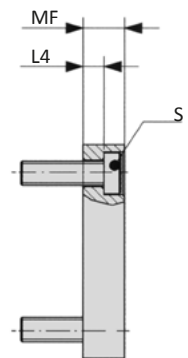
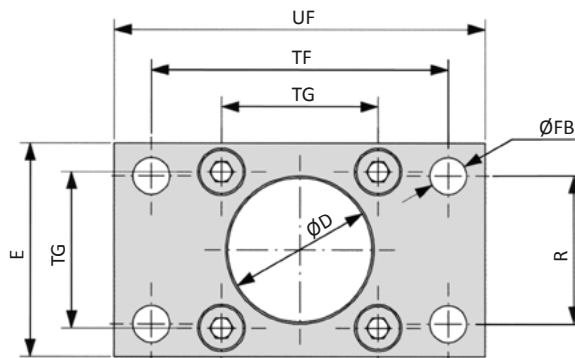
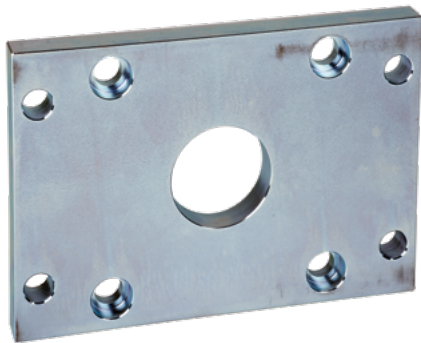
**VLB-xxx-01 Foot mount**



| Model-no.:                        | Ø AB | AH   | AO | AU    | AT  | E   | L7  | R2   | S        | TG    | TG2  | TR   |
|-----------------------------------|------|------|----|-------|-----|-----|-----|------|----------|-------|------|------|
| <b>VLB-160-01</b>                 | 18   | 115  | 15 | 60    | 9   | 180 | 100 | 32.5 | M16 x 30 | 140   | 70   | 115  |
| <b>VLB-200-01</b>                 | 22   | 135  | 30 | 70    | 12  | 220 | 100 | 37.5 | M16 x 30 | 175   | 87.7 | 135  |
| <b>VLB-250-01</b>                 | 26   | 165  | 25 | 75    | 14  | 270 | 150 | 45   | M20 x 40 | 220   | 110  | 165  |
| <i>tolerances and adjustments</i> | H14  | JS16 |    | ± 0.2 | ± 1 |     |     | H15  |          | ± 0.3 |      | JS14 |

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

**VLB-xxx-02 Flange mount**

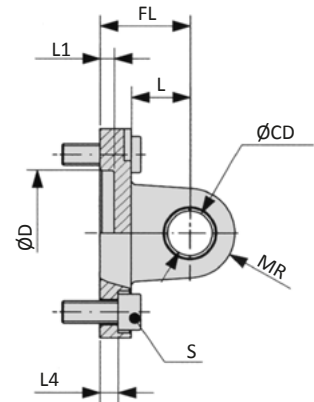
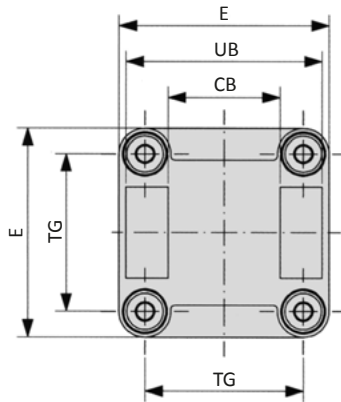


| Model-no.:                        | Ø D | E   | Ø FB | L4         | MF   | R    | S        | TF   | TG    | UF  |
|-----------------------------------|-----|-----|------|------------|------|------|----------|------|-------|-----|
| <b>VLB-160-02</b>                 | 65  | 180 | 18   | 9.5        | 20   | 115  | M16 x 30 | 230  | 140   | 260 |
| <b>VLB-200-02</b>                 | 75  | 220 | 22   | 12.5       | 25   | 135  | M16 x 30 | 270  | 175   | 300 |
| <b>VLB-250-02</b>                 | 90  | 285 | 26   | 10.5       | 25   | 165  | M20 x 30 | 330  | 220   | 400 |
| <b>VLB-320-02</b>                 | 110 | 350 | 33   | 15         | 30   | 200  | M24 x 40 | 400  | 270   | 470 |
| <i>tolerances and adjustments</i> | H11 |     | H13  | 0<br>- 0.5 | JS14 | JS14 |          | JS14 | ± 0.3 |     |

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

## Series XG Mounting accessories

### VLB-xxx-04 Clevis mount with bushing

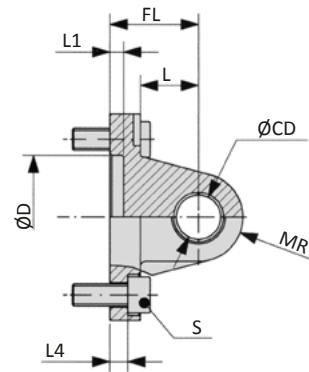
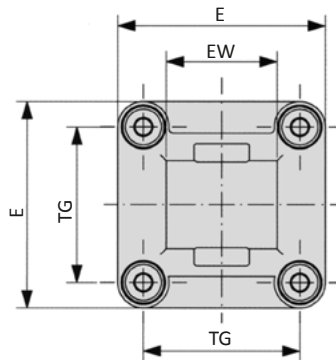


Inclusive clevis pin  
order no: **VLB-xxx-48**

| Model-no.:                        | CB  | Ø CD | Ø D | E   | FL    | L  | L1 | L4    | MR | S        | TG    | UB  |
|-----------------------------------|-----|------|-----|-----|-------|----|----|-------|----|----------|-------|-----|
| <b>VLB-160-04</b>                 | 90  | 30   | 65  | 180 | 55    | 35 | 7  | 10    | 25 | M16 x 30 | 140   | 170 |
| <b>VLB-200-04</b>                 | 90  | 30   | 75  | 220 | 60    | 35 | 7  | 11    | 25 | M16 x 30 | 175   | 170 |
| <b>VLB-250-04</b>                 | 110 | 40   | 90  | 270 | 70    | 45 | -  | 11    | 40 | M20 x 30 | 220   | 200 |
| <b>VLB-320-04</b>                 | 120 | 45   | 110 | 350 | 80    | 50 | -  | 15    | 45 | M24 x 40 | 270   | 220 |
| <i>tolerances and adjustments</i> | H14 | H9   | H11 |     | ± 0.2 |    |    | ± 0.5 |    |          | ± 0.3 | h13 |

Materials: Al, bushing steel and PTFE (Ø 250 and 320 without bushing); 4 screws in accordance with EN ISO 4762 are included.

### VLB-xxx-05 Swivel mount

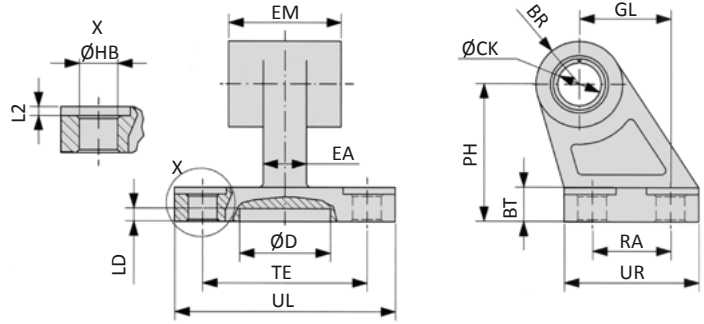


| Model-no.:                        | Ø CD | Ø D | E   | EW           | FL    | L  | L1 | L4    | MR | S        | TG    |
|-----------------------------------|------|-----|-----|--------------|-------|----|----|-------|----|----------|-------|
| <b>VLB-160-05</b>                 | 30   | 65  | 180 | 90           | 55    | 35 | 7  | 10    | 25 | M16 x 30 | 140   |
| <b>VLB-200-05</b>                 | 30   | 75  | 220 | 90           | 60    | 35 | 7  | 11    | 25 | M16 x 30 | 175   |
| <b>VLB-250-05</b>                 | 40   | 90  | 270 | 110          | 70    | 45 | 11 | 11    | 40 | M20 x 30 | 220   |
| <b>VLB-320-05</b>                 | 45   | 110 | 350 | 120          | 80    | 50 | 15 | 15    | 45 | M24 x 40 | 270   |
| <i>tolerances and adjustments</i> | H9   | H11 |     | -0.5<br>-1.2 | ± 0.2 |    |    | ± 0.5 |    |          | ± 0.3 |

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

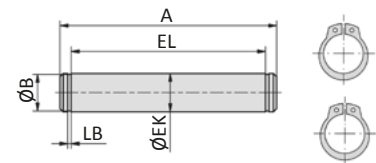


**VLB-xxx-06 Swivel mount 90°**



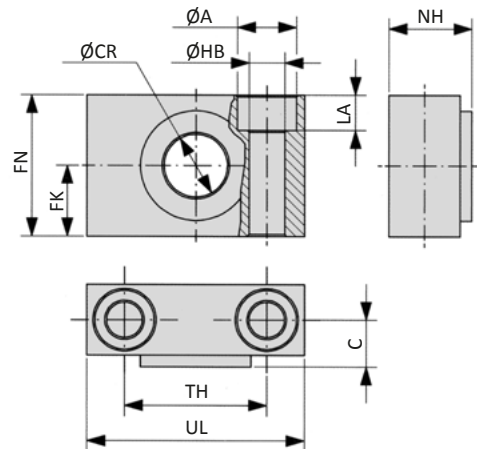
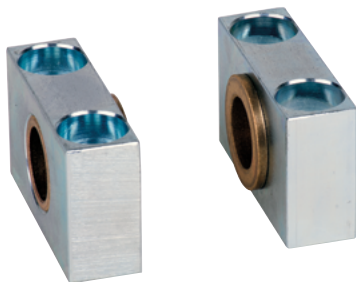
| Model-no.:                        | BR           | BT | Ø CK | Ø D | EA | EM           | GL   | Ø HB | L2 | LD | PH   | RA   | TE   | UL  | UR  |
|-----------------------------------|--------------|----|------|-----|----|--------------|------|------|----|----|------|------|------|-----|-----|
| <b>VLB-160-06</b>                 | 31.5         | 25 | 30   | 31  | 36 | 90           | 97   | 14   | 4  | 5  | 115  | 88   | 118  | 156 | 126 |
| <b>VLB-200-06</b>                 | 31.5         | 30 | 30   | 31  | 40 | 90           | 105  | 18   | 4  | 5  | 135  | 90   | 122  | 162 | 130 |
| <i>tolerances and adjustments</i> |              |    | H9   |     |    | -0.5<br>-1.5 | JS14 | H13  |    |    | JS15 | JS14 | JS14 |     |     |
|                                   | Material: Al |    |      |     |    |              |      |      |    |    |      |      |      |     |     |

**VLB-xxx-08 Clevis pin**



| Model-no.:                        | A  | Ø B  | Ø EK | EL       | LB   |
|-----------------------------------|--|------|------|----------|------|
| <b>VLB-200-08</b>                 | 178  | 28.6 | 30   | 171.5    | 1.60 |
| <b>VLB-250-08</b>                 | 211  | 37.5 | 40   | 202      | 1.85 |
| <b>VLB-320-08</b>                 | 234  | 42.5 | 45   | 222      | 1.85 |
| <i>tolerances and adjustments</i> |  |      | e8   | + 3<br>0 |      |
|                                   | Material: steel, zinc plated; 2 snap rings are included. |      |      |          |      |

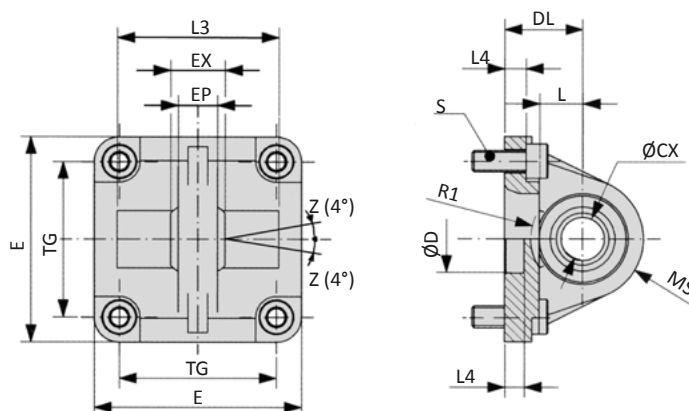
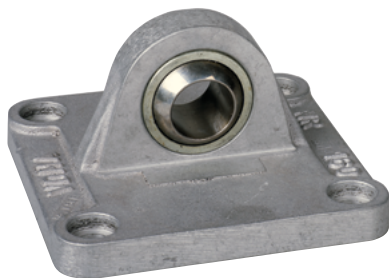
**VLB-xxx-09 Bearing block**



| Model-no.:                        | Ø A                           | C    | Ø CR | FK    | FN | Ø HB | LA | NH | TH    | UL  |
|-----------------------------------|-------------------------------|------|------|-------|----|------|----|----|-------|-----|
| <b>VLB-200-09</b>                 | 26                            | 22.5 | 32   | 30    | 60 | 18   | 17 | 40 | 60    | 92  |
| <b>VLB-250-09</b>                 | 33                            | 31   | 40   | 35    | 70 | 22   | 20 | 56 | 70    | 140 |
| <i>tolerances and adjustments</i> |                               |      | H9   | ± 0.2 |    | H13  |    |    | ± 0.3 |     |
|                                   | Materials: Al, bronze bushing |      |      |       |    |      |    |    |       |     |

## Series XG Mounting accessories

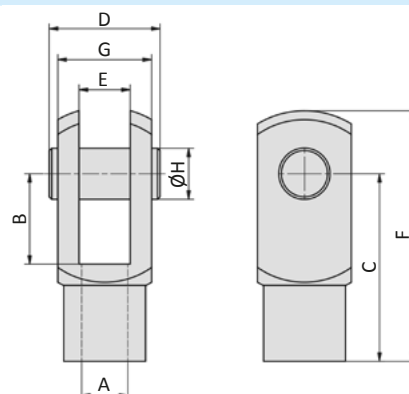
### VLB-xxx-12 Swivel mount with spherical bearing



| Model-no.:                        | Ø CX | Ø D | DL    | E   | EP | EX    | L  | L1 | L3 | L4    | MS | R1 | S        | TG    |
|-----------------------------------|------|-----|-------|-----|----|-------|----|----|----|-------|----|----|----------|-------|
| <b>VLB-160-12</b>                 | 35   | 65  | 55    | 180 | 28 | 43    | 35 | 7  | -  | 10    | 45 | -  | M16 x 30 | 140   |
| <b>VLB-200-12</b>                 | 35   | 75  | 60    | 220 | 28 | 43    | 35 | 7  | -  | 11    | 48 | -  | M16 x 30 | 175   |
| <i>tolerances and adjustments</i> | H7   | H11 | ± 0.2 |     |    | ± 0.1 |    |    |    | ± 0.5 |    |    |          | ± 0.3 |

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

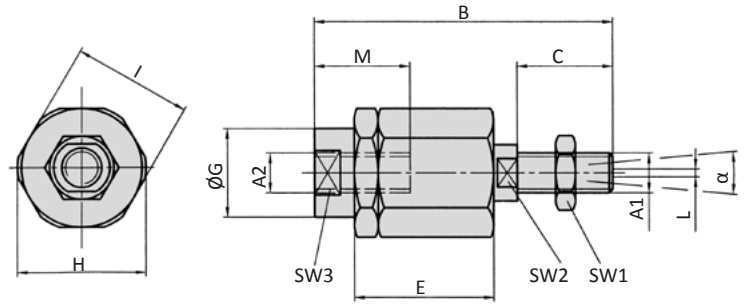
### FD-xxx Rod clevis



| Model-no.:    | for cylinder   | A       | B  | C   | D     | E  | F   | G  | H  |
|---------------|----------------|---------|----|-----|-------|----|-----|----|----|
| <b>FD-200</b> | XG-160, XG-200 | M36 x 2 | 72 | 144 | 84    | 35 | 188 | 70 | 35 |
| <b>FD-250</b> | XG-250         | M42 x 2 | 84 | 168 | 104.5 | 40 | 232 | 85 | 40 |
| <b>FD-320</b> | XG-320         | M48 x 2 | 96 | 192 | 117.5 | 50 | 265 | 96 | 50 |

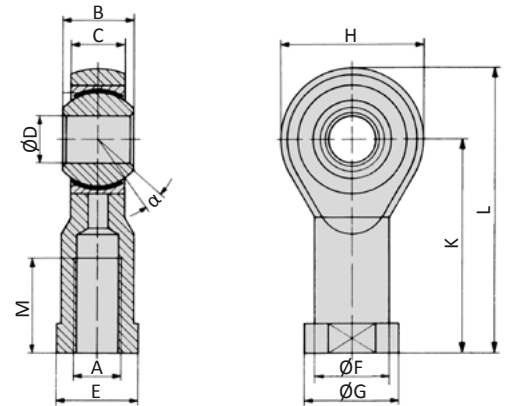
Material: steel, zinc plated

**FK-xxx Flexible coupling**



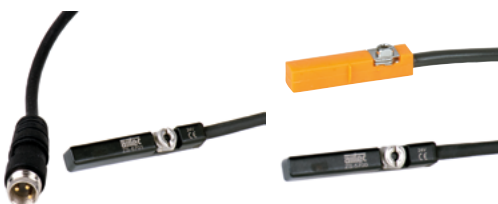
| Model-no.:                   | for cylinder   | A1, A2  | B   | C  | D    | E  | ØG | H  | I  | L | M  | SW1 | SW2 | SW3 | α  |
|------------------------------|----------------|---------|-----|----|------|----|----|----|----|---|----|-----|-----|-----|----|
| FK-200                       | XG-160, XG-200 | M36 x 2 | 190 | 72 | 15.5 | 77 | 57 | 75 | 70 | 2 | 68 | 32  | 54  | 55  | 8° |
| Material: steel, zinc plated |                |         |     |    |      |    |    |    |    |   |    |     |     |     |    |

**FO-xxx Rod eye**



| Model-no.:   | for cylinder   | A       | B  | C  | ØD | E  | ØF | ØG | H   | K   | L   | M  | α   |
|--|----------------|---------|----|----|----|----|----|----|-----|-----|-----|----|-----|
| FO-160/200   | XG-160, XG-200 | M36 x 2 | 43 | 28 | 35 | 50 | 46 | 58 | 80  | 125 | 165 | 56 | 16° |
| FO-250   | XG-250         | M42 x 2 | 49 | 33 | 40 | 55 | 53 | 65 | 91  | 142 | 187 | 60 | 16° |
| FO-320   | XG-320         | M48 x 2 | 60 | 45 | 50 | 60 | 65 | 75 | 117 | 162 | 218 | 65 | 14° |
| Materials: steel, zinc plated, bearing steel, bronze bushing |                |         |    |    |    |    |    |    |     |     |     |    |     |

**Proximity sensors**



# Series HM

## Mini cylinders ISO 6432, double acting

### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -30°C ... +80°C ( 0 ... +150°C for high temperature version)  |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: stainless steel<br>End caps: Al (anodized)<br>Piston rod: stainless steel<br>Seals: PU, NBR  |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |



Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings or adjustable cushions. Standard stroke lengths in table below, additional lengths on request.

### Versions

|  |  |  |  |
|--|--|--|--|
|  | HM, HMS, HMZ<br>double acting, with magnetic piston                    |  | HMDE<br>double acting, double end piston rod, with magnetic piston                         |
|  | HMP<br>double acting, adjustable cushioning, with magnetic piston      |  | HMPDE<br>double acting, double end piston rod, adjustable cushioning, with magnetic piston |
|  | HDH<br>double acting, high temperature version                         |  |  |
|  | HDPH<br>double acting, adjustable cushioning, high temperature version |  |  |

### Order code

| Series |                              | Options     |  |
|--------|------------------------------|-------------|--|
| HM     | standard                     | ATEX        | cylinders in accordance with 2014/34/EU (ATEX)           |
| HMP*   |                              | Stroke (mm) | XXX max. stroke see technical data                       |
| HMDE*  |                              | Standard#   | 10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400 mm |
| HMPDE* |                              | Piston Ø    | 08 8 mm  |
| HDH**  |                              |             | 10 10 mm   |
| HDPH*  |                              |             | 12 12 mm   |
| HMS*   | lateral air connection, rear |             | 16 16 mm   |
| HMZ*   | central air connection, rear |             | 20 20 mm   |
|        |                              |             | 25 25 mm   |

\* only for Ø 16, 20 and 25 mm

\*\* not for Ø 8 mm

# only for series HM and HMP in consideration of max. stroke

## Series HM

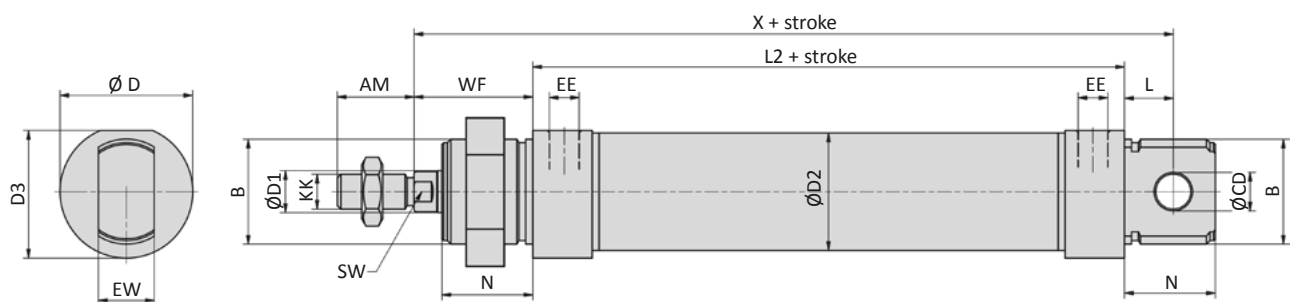
### Mini cylinders ISO 6432, double acting

#### Technical data

| Model-no.:                | HM-08-...  | HM-10-... | HM-12-... | Hxx-16-... | Hxx-20-... | Hxx-25-... |
|---------------------------|------------|-----------|-----------|------------|------------|------------|
| Piston $\varnothing$ (mm) | 8          | 10        | 12        | 16         | 20         | 25         |
| Force at 6 bar (N)        | Extension  | 27        | 42        | 61         | 109        | 265        |
|                           | Retraction | 20        | 36        | 46         | 93         | 223        |
| Connection                | M5         | M5        | M5        | M5         | G1/8       | G1/8       |
| Piston rod thread         | M4         | M4        | M6        | M6         | M8         | M10 x 1.25 |
| Max. stroke (mm)          | 100        | 200       | 500       | 900        | 900        | 900        |
| Cushioning length (mm)*   | -          | -         | -         | 15.5       | 17         | 19.5       |

\* only for series HMP, HMPDE, HDPH

#### Dimensions series HM, HMP, HDH, HDPH



| Piston $\varnothing$ | AM | B          | $\varnothing$ CD | $\varnothing$ D | $\varnothing$ D1 | $\varnothing$ D2 | D3   | EE   |
|----------------------|----|------------|------------------|-----------------|------------------|------------------|------|------|
| 8                    | 12 | M12 x 1.25 | 4                | 16              | 4                | 9.27             | 15   | M5   |
| 10                   | 12 | M12 x 1.25 | 4                | 16              | 4                | 11.27            | 15   | M5   |
| 12                   | 16 | M16 x 1.5  | 6                | 19              | 6                | 13.27            | 18   | M5   |
| 16                   | 16 | M16 x 1.5  | 6                | 19*             | 6                | 17.27            | 18   | M5   |
| 20                   | 20 | M22 x 1.5  | 8                | 27              | 8                | 21.27            | 25.5 | G1/8 |
| 25                   | 22 | M22 x 1.5  | 8                | 30              | 10               | 26.5             | 28.5 | G1/8 |

\* 21 mm for HMP, HMPDE, HDPH

| Piston $\varnothing$ | EW | KK         | L  | L2 | N   | SW | WF | X   |
|----------------------|----|------------|----|----|-----|----|----|-----|
| 8                    | 8  | M4         | 6  | 46 | 12  | -  | 16 | 64  |
| 10                   | 8  | M4         | 6  | 46 | 12  | -  | 16 | 64  |
| 12                   | 12 | M6         | 9  | 48 | 18  | 5  | 22 | 75  |
| 16                   | 12 | M6         | 9  | 53 | 18* | 5  | 22 | 82  |
| 20                   | 16 | M8         | 12 | 67 | 20  | 7  | 24 | 95  |
| 25                   | 16 | M10 x 1.25 | 12 | 68 | 22  | 9  | 28 | 104 |

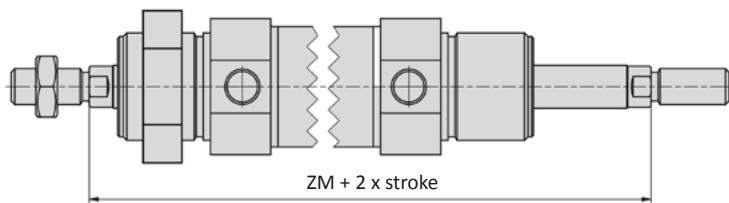
\* 17 mm for HMP, HMPDE, HDPH

## Series HM

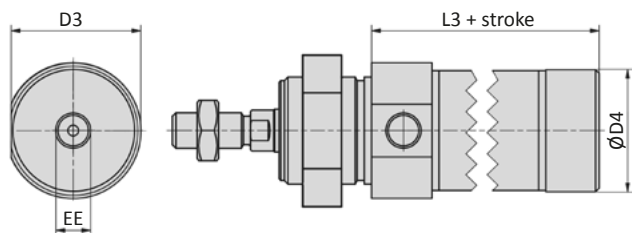
Mini cylinders ISO 6432, double acting

### Additional dimensions Series HMDE, HMPDE, HMZ, HMS

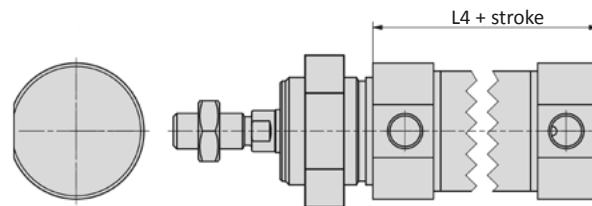
double end piston rod



#### Series HMZ



#### Series HMS



| Piston $\varnothing$ | ZM  | EE   | $\varnothing D$ | $\varnothing D4$ | L3 | L4   |
|----------------------|-----|------|-----------------|------------------|----|------|
| 16                   | 97  | M5   | 19              | 17.2             | 52 | 52.5 |
| 20                   | 115 | G1/8 | 27              | 22.2             | 65 | 67   |
| 25                   | 124 | G1/8 | 30              | 27               | 66 | 68   |

## Series HE

Mini cylinders ISO 6432, single acting

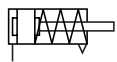
### Technical details

|                           |   |                |                 |           |               |             |                 |        |         |
|---------------------------|---|----------------|-----------------|-----------|---------------|-------------|-----------------|--------|---------|
| <b>Operating pressure</b> | 1 ... 10 bar  |                |                 |           |               |             |                 |        |         |
| <b>Temperature range</b>  | -30°C ... +80°C   |                |                 |           |               |             |                 |        |         |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.       |                |                 |           |               |             |                 |        |         |
| <b>Materials</b>          | <table border="0"> <tr> <td>Cylinder tube:</td> <td>stainless steel</td> </tr> <tr> <td>End caps:</td> <td>Al (anodized)</td> </tr> <tr> <td>Piston rod:</td> <td>stainless steel</td> </tr> <tr> <td>Seals:</td> <td>PU, NBR</td> </tr> </table> | Cylinder tube: | stainless steel | End caps: | Al (anodized) | Piston rod: | stainless steel | Seals: | PU, NBR |
| Cylinder tube:            | stainless steel   |                |                 |           |               |             |                 |        |         |
| End caps:                 | Al (anodized)   |                |                 |           |               |             |                 |        |         |
| Piston rod:               | stainless steel   |                |                 |           |               |             |                 |        |         |
| Seals:                    | PU, NBR   |                |                 |           |               |             |                 |        |         |



Single acting pneumatic cylinder with built-in cushioning rings.

### Versions



HE, HES, HEZ  
single acting, normally retracted

### Order code

| Series |                              | Options     |                                      |
|--------|------------------------------|-------------|--------------------------------------|
| HE     | standard                     | without     | standard version, normally retracted |
| HES*   | lateral air connection, rear |             |                                      |
| HEZ*   | central air connection, rear |             |                                      |
|        |                              | Stroke (mm) |                                      |
|        |                              | xxx         | 10, 25, 50                           |
|        |                              | Piston Ø    |                                      |
|        |                              | 08          | 8 mm                                 |
|        |                              | 10          | 10 mm                                |
|        |                              | 12          | 12 mm                                |
|        |                              | 16          | 16 mm                                |
|        |                              | 20          | 20 mm                                |
|        |                              | 25          | 25 mm                                |

\* only for Ø 16, 20 and 25 mm

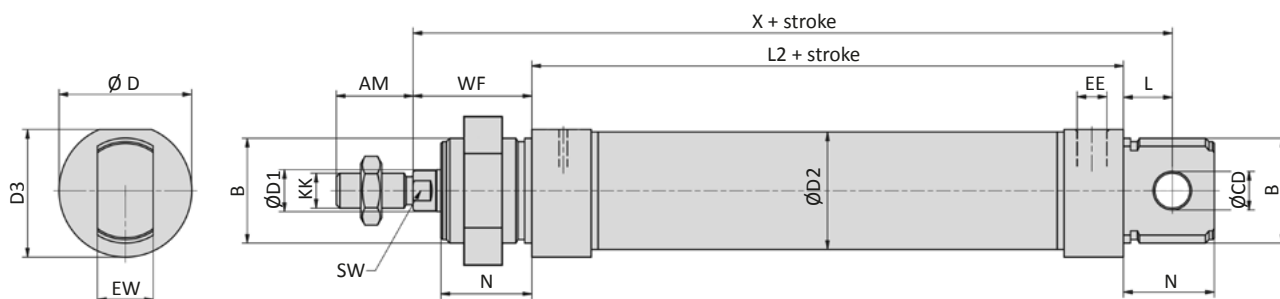
# Series HE

Mini cylinders ISO 6432, single acting

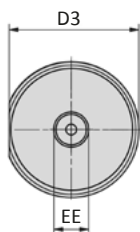
## Technical data

| Model-no.:                          |            | HE-08-...     | HE-10-...     | HE-12-...     | HEx-16-...    | HEx-20-...      | HEx-25-...      |
|-------------------------------------|------------|---------------|---------------|---------------|---------------|-----------------|-----------------|
| Piston Ø (mm)                       |            | 8             | 10            | 12            | 16            | 20              | 25              |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 19.0 ... 19.7 | 36.0 ... 36.7 | 51.7 ... 52.0 | 87.5 ... 90.0 | 142.8 ... 145.0 | 243.7 ... 245.0 |
|                                     | Retraction | 4.5 ... 5.2   | 4.5 ... 5.2   | 5.7 ... 6.0   | 15.0 ... 17.5 | 21.3 ... 23.5   | 18.2 ... 19.5   |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 19.0 ... 20.3 | 36.0 ... 37.3 | 51.7 ... 52.6 | 87.5 ... 93.5 | 142.8 ... 148.3 | 243.7 ... 247.0 |
|                                     | Retraction | 3.9 ... 5.2   | 3.9 ... 5.2   | 5.1 ... 6.0   | 11.5 ... 17.5 | 18.0 ... 23.5   | 16.2 ... 19.5   |
| Force at 6 bar and 50 mm stroke (N) | Extension  | 19.0 ... 21.7 | 36.0 ... 38.7 | 51.7 ... 53.6 | 87.5 ... 99.7 | 142.8 ... 153.8 | 243.7 ... 250.3 |
|                                     | Retraction | 2.5 ... 5.2   | 2.5 ... 5.2   | 4.1 ... 6.0   | 5.3 ... 17.5  | 12.5 ... 23.5   | 12.9 ... 19.5   |
| Connection                          |            | M5            | M5            | M5            | M5            | G1/8            | G1/8            |
| Piston rod thread                   |            | M4            | M4            | M6            | M6            | M8              | M10 x 1.25      |

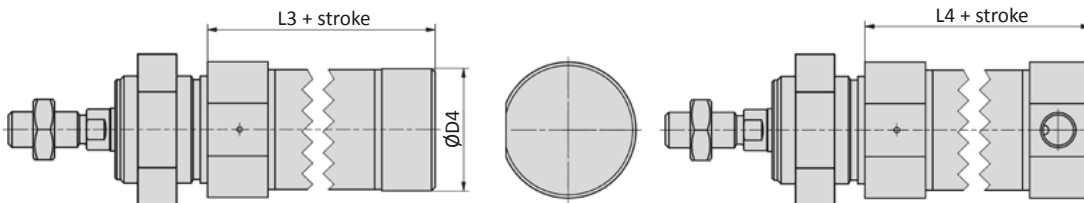
## Dimensions series HE



### Series HEZ



### Series HES

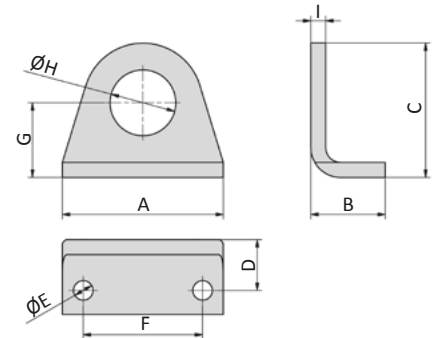


| Piston Ø | AM | B          | Ø CD | Ø D | Ø D1 | Ø D2  | D3   | Ø D4 | EE   |
|----------|----|------------|------|-----|------|-------|------|------|------|
| 8        | 12 | M12 x 1.25 | 4    | 16  | 4    | 9.27  | 15   | -    | M5   |
| 10       | 12 | M12 x 1.25 | 4    | 16  | 4    | 11.27 | 15   | -    | M5   |
| 12       | 16 | M16 x 1.5  | 6    | 19  | 6    | 13.27 | 18   | -    | M5   |
| 16       | 16 | M16 x 1.5  | 6    | 19  | 6    | 17.27 | 18   | 17.2 | M5   |
| 20       | 20 | M22 x 1.5  | 8    | 27  | 8    | 21.27 | 25.5 | 22.2 | G1/8 |
| 25       | 22 | M22 x 1.5  | 8    | 30  | 10   | 26.5  | 28.5 | 27   | G1/8 |

| Piston Ø | EW | KK         | L  | L2 | L3 | L4   | N  | SW | WF | X   |
|----------|----|------------|----|----|----|------|----|----|----|-----|
| 8        | 8  | M4         | 6  | 46 | -  | -    | 12 | -  | 16 | 64  |
| 10       | 8  | M4         | 6  | 46 | -  | -    | 12 | -  | 16 | 64  |
| 12       | 12 | M6         | 9  | 48 | -  | -    | 18 | 5  | 22 | 75  |
| 16       | 12 | M6         | 9  | 53 | 52 | 52.5 | 18 | 5  | 22 | 82  |
| 20       | 16 | M8         | 12 | 67 | 65 | 67   | 20 | 7  | 24 | 95  |
| 25       | 16 | M10 x 1.25 | 12 | 68 | 66 | 68   | 22 | 9  | 28 | 104 |



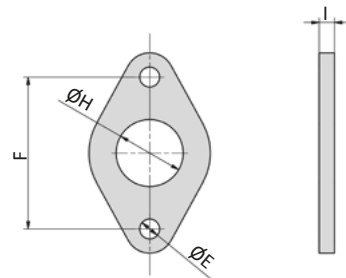
**RA-xx Foot mount**



| Model-no.: | for cylinder $\varnothing$ | A  | B  | C    | D  | $\varnothing E$ | F  | G  | $\varnothing H$ | I |
|------------|----------------------------|----|----|------|----|-----------------|----|----|-----------------|---|
| RA-10      | 8, 10                      | 35 | 16 | 26   | 11 | 4.5             | 25 | 16 | 12              | 3 |
| RA-16      | 12, 16                     | 42 | 20 | 32.5 | 14 | 5.5             | 32 | 20 | 16              | 4 |
| RA-25      | 20, 25                     | 54 | 25 | 45   | 17 | 6.6             | 40 | 25 | 22              | 5 |

Material: steel, zinc plated

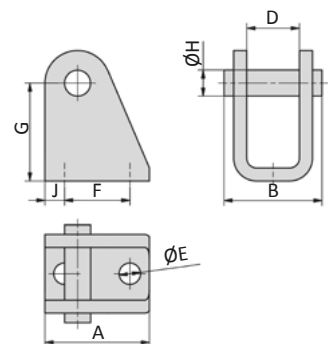
**RB-xx Flange mount**



| Model-no.: | for cylinder $\varnothing$ | $\varnothing E$ | F  | $\varnothing H$ | I |
|------------|----------------------------|-----------------|----|-----------------|---|
| RB-10      | 8, 10                      | 4.5             | 30 | 12              | 3 |
| RB-16      | 12, 16                     | 5.5             | 40 | 16              | 4 |
| RB-25      | 20, 25                     | 6.6             | 50 | 22              | 5 |

Material: steel, zinc plated

**RC-xx Clevis mount**



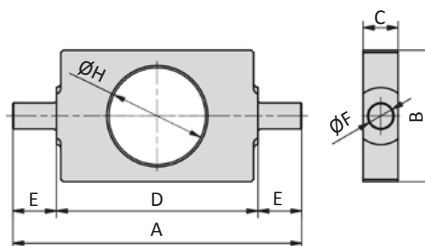
| Model-no.: | for cylinder $\varnothing$ | A  | B  | D    | $\varnothing E$ | F    | G  | $\varnothing H$ | J |
|------------|----------------------------|----|----|------|-----------------|------|----|-----------------|---|
| RC-10      | 8, 10                      | 20 | 17 | 8.1  | 4.5             | 12.5 | 24 | 4               | 5 |
| RC-16      | 12, 16                     | 25 | 23 | 12.1 | 5.5             | 15   | 27 | 6               | 5 |
| RC-30      | 20, 25                     | 32 | 30 | 16.1 | 6.6             | 20   | 30 | 8               | 6 |

Material: steel, zinc plated, 2 snap rings are included.

## Series HM

### Mounting accessories

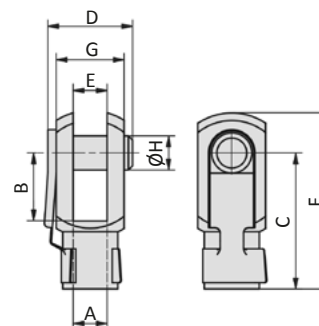
#### RH-xx Trunnion mount



| Model-no.: | for cylinder $\varnothing$ | A  | B  | C | D  | E  | $\varnothing F$ | $\varnothing H$ |
|------------|----------------------------|----|----|---|----|----|-----------------|-----------------|
| RH-10      | 8, 10                      | 38 | 20 | 6 | 26 | 6  | 4               | 12              |
| RH-16      | 12, 16                     | 58 | 25 | 8 | 38 | 10 | 6               | 16              |
| RH-25      | 20, 25                     | 66 | 30 | 8 | 46 | 10 | 6               | 22              |

Material: steel, zinc plated

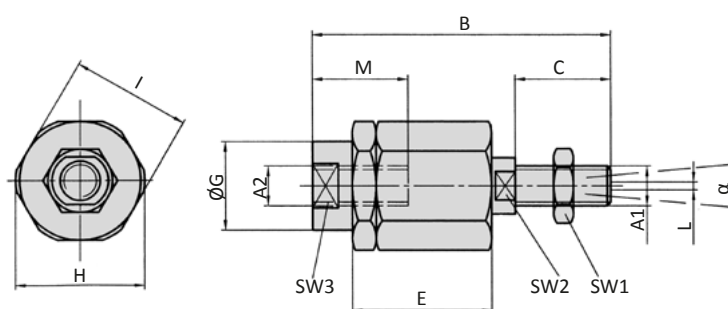
#### RD-xx Rod clevis



| Model-no.: | for cylinder $\varnothing$ | A          | B  | C  | D    | E  | F  | G  | $\varnothing H$ |
|------------|----------------------------|------------|----|----|------|----|----|----|-----------------|
| RD-10      | 8, 10                      | M4         | 8  | 16 | 11.5 | 4  | 21 | 8  | 4               |
| RD-16      | 12, 16                     | M6         | 12 | 24 | 16   | 6  | 31 | 12 | 6               |
| RD-20      | 20                         | M8         | 16 | 32 | 22   | 8  | 42 | 16 | 8               |
| RD-25      | 25                         | M10 x 1.25 | 20 | 40 | 26   | 10 | 52 | 20 | 10              |

Material: steel, zinc plated

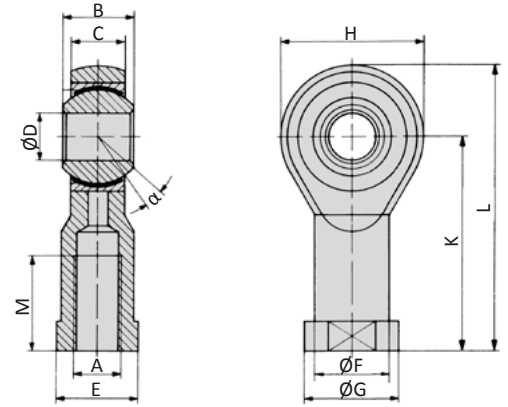
#### FK-xx Flexible coupling



| Model-no.: | for cylinder $\varnothing$ | A1, A2     | B    | C  | D   | E    | $\varnothing G$ | H    | I  | L | M    | SW1 | SW2 | SW3 | $\alpha$ |
|------------|----------------------------|------------|------|----|-----|------|-----------------|------|----|---|------|-----|-----|-----|----------|
| FK-16      | 12, 16                     | M6         | 35   | 11 | 2.5 | 17.5 | 8.5             | 14.5 | 13 | 1 | 12.5 | 10  | 5   | 7   | 6°       |
| FK-20      | 20                         | M8         | 57   | 21 | 5   | 26   | 12.5            | 19   | 17 | 2 | 16   | 13  | 7   | 11  | 8°       |
| FK-32      | 25                         | M10 x 1.25 | 71.5 | 20 | 7.5 | 35   | 22              | 32   | 30 | 2 | 22   | 17  | 12  | 19  | 8°       |

Material: steel, zinc plated

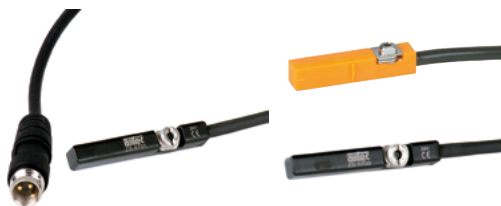
**RO-xx Rod eye**



| Model-no.: | for cylinder Ø | A          | B  | C    | Ø D | E  | Ø F  | Ø G | H  | K  | L  | M  | α   |
|------------|----------------|------------|----|------|-----|----|------|-----|----|----|----|----|-----|
| RO-16      | 12, 16         | M6         | 9  | 6.75 | 6   | 11 | 10   | 13  | 20 | 30 | 40 | 12 | 13° |
| RO-20      | 20             | M8         | 12 | 9    | 8   | 14 | 12.5 | 16  | 24 | 36 | 48 | 16 | 14° |
| RO-25      | 25             | M10 x 1.25 | 14 | 10.5 | 10  | 17 | 15   | 19  | 28 | 43 | 57 | 20 | 13° |

Materials: steel, zinc plated, bearing steel, bronze bushing

**Proximity sensors**



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For piston Ø 8, 10 and 12 mm only electronic switches (ZS-6700, ZS-6701, ZS-7300 or ZS-7302) can be used.

# Series LE

## Linear guides

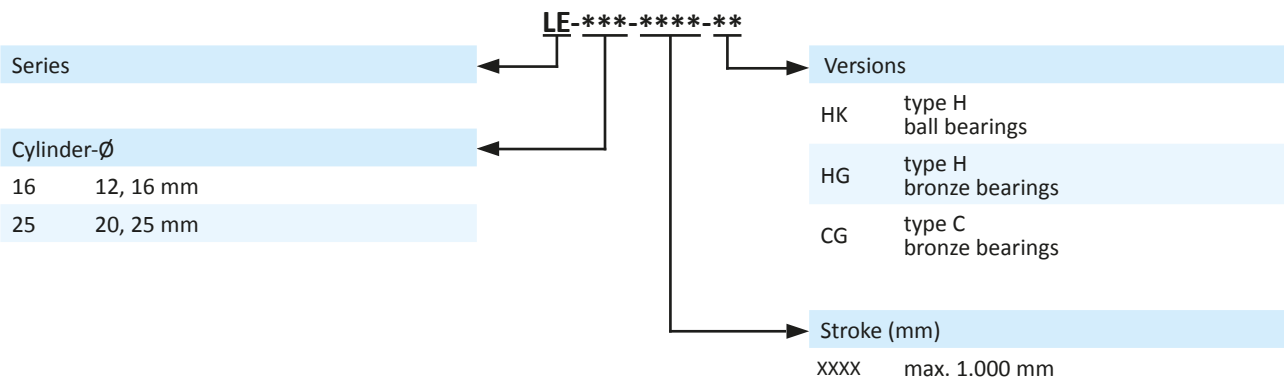
### Technical details

|                           |                  |  |
|---------------------------|------------------|--|
| <b>Operating pressure</b> | 1 ... 10 bar     |  |
| <b>Temperature range</b>  | -30°C ... +100°C |  |
| <b>Max. stroke</b>        | 1000 mm          |  |
| <b>Materials</b>          | Body:            | Al (anodized)  |
|                           | Guide rod:       | steel hard chrome plated (bronze bearing)<br>steel, tempered (ball bearings) |
|                           | Bearing:         | sintered bronze (bronze bearing)<br>steel (ball bearings)                    |
|                           | Seals:           | NBR  |



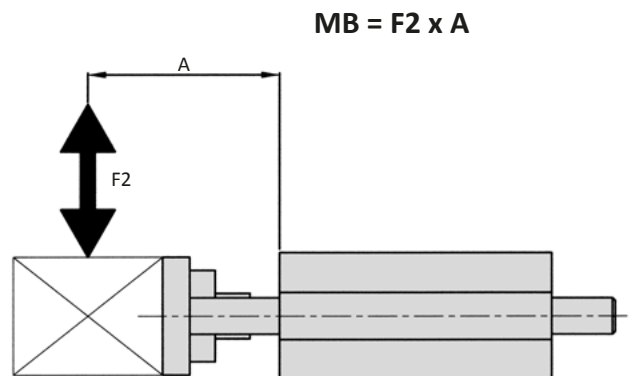
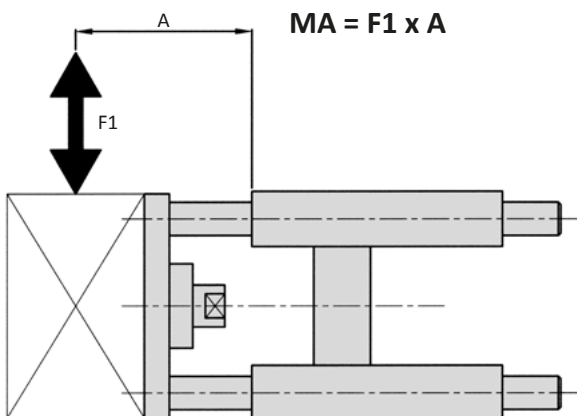
Linear guide for mini cylinder in accordance with ISO 6432.

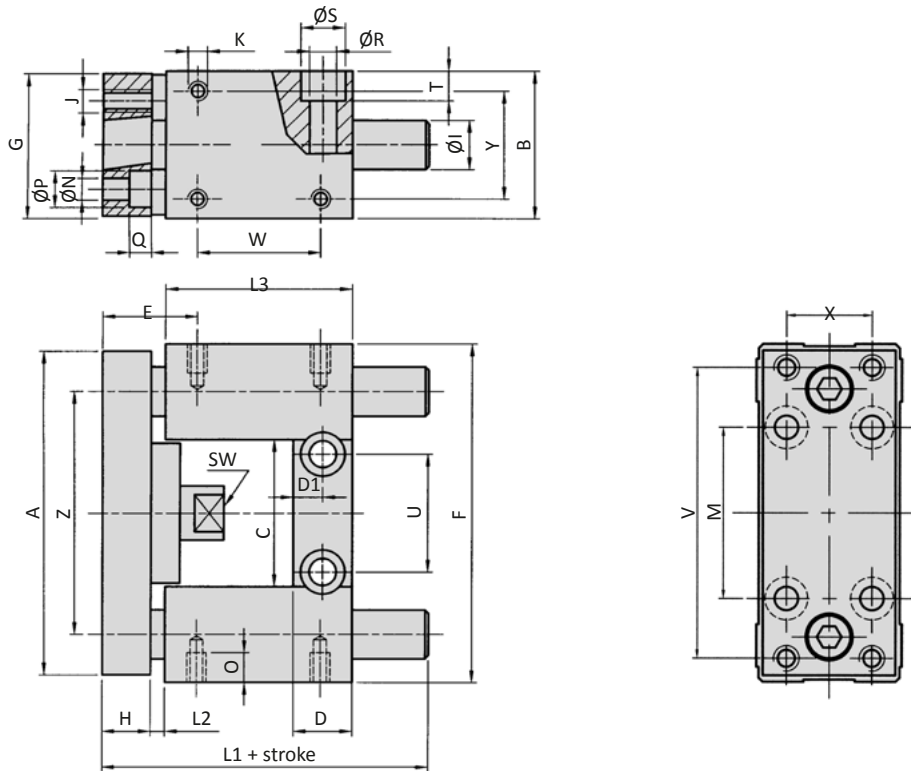
### Order code



### Technical information

| Version | ∅ (mm)            | 16  | 25 |
|---------|-------------------|-----|----|
| CG      | max. load MA (Nm) | 6   | 13 |
|         | max. load MB (Nm) | 5   | 12 |
| HG      | max. load MA (Nm) | 6.5 | 19 |
|         | max. load MB (Nm) | 5.8 | 17 |
| HK      | max. load MA (Nm) | 9   | 11 |
|         | max. load MB (Nm) | 8   | 10 |



**Dimensions type CG**


| Ø  | A  | B  | C  | D  | D1  | E     | F  | G  | H  | Ø I | J  | K  | L1   | L2 | L3 |
|----|----|----|----|----|-----|-------|----|----|----|-----|----|----|------|----|----|
| 16 | 66 | 30 | 30 | 12 | 6   | 19.5  | 69 | 29 | 10 | 10  | M4 | M4 | 66.5 | 3  | 38 |
| 25 | 78 | 34 | 37 | 17 | 8.5 | 21.75 | 79 | 32 | 12 | 12  | M5 | M6 | 83   | 3  | 48 |

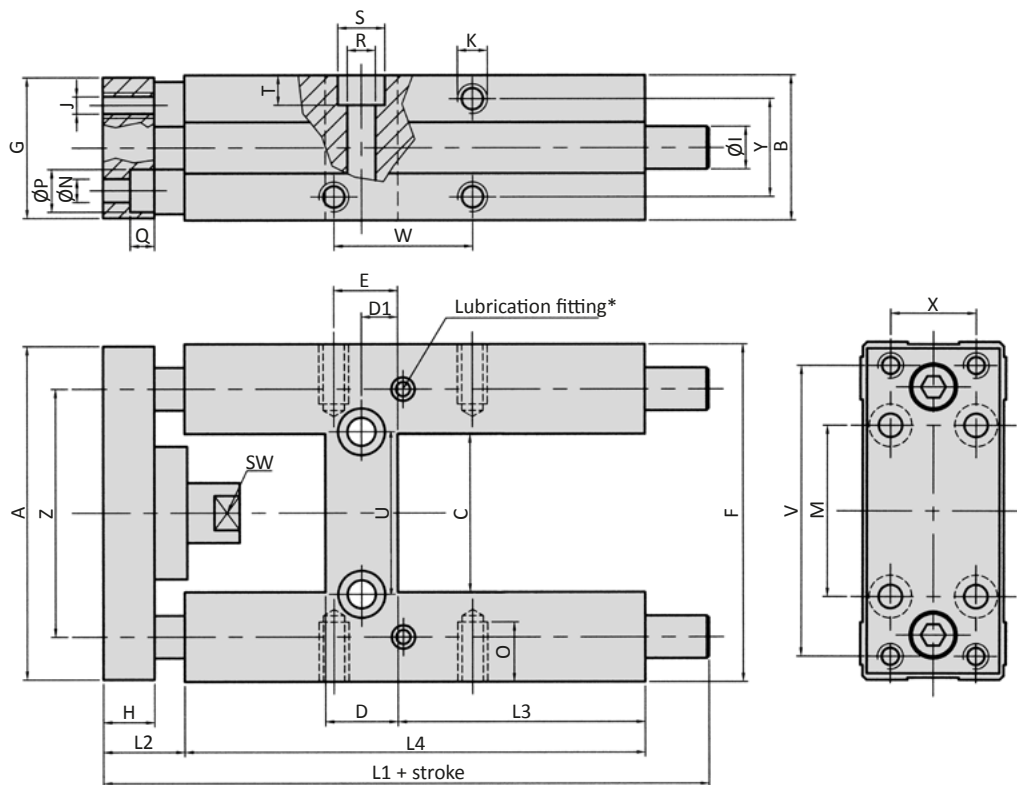
| Ø  | M  | Ø N | O | Ø P | Q   | Ø R | Ø S | SW | T | U  | V  | W    | X  | Y  | Z    |
|----|----|-----|---|-----|-----|-----|-----|----|---|----|----|------|----|----|------|
| 16 | 32 | 4.5 | 6 | 7.5 | 4.5 | 5.5 | 9   | 8  | 6 | 24 | 58 | 25   | 18 | 22 | 49.5 |
| 25 | 38 | 5.5 | 9 | 10  | 7.5 | 6.5 | 11  | 12 | 7 | 38 | 68 | 32.5 | 20 | 23 | 58   |

|             |                    |      |      |
|-------------|--------------------|------|------|
| Ø (mm)      |                    | 16   | 25   |
| Weight (kg) | 0 mm stroke        | 0.30 | 0.50 |
|             | each 100 mm stroke | 0.12 | 0.18 |

# Series LE

## Linear guides

### Dimensions type HG, HK



\*only type HK

| ∅  | A  | B  | C  | D  | D1  | E  | F  | G  | H  | ∅ I | ∅ I* | J  | K  | L1  | L2 | L3 |
|----|----|----|----|----|-----|----|----|----|----|-----|------|----|----|-----|----|----|
| 16 | 66 | 30 | 30 | 12 | 6   | 8  | 69 | 29 | 10 | 10  | 8    | M4 | M4 | 123 | 32 | 46 |
| 25 | 78 | 34 | 37 | 17 | 8.5 | 15 | 79 | 32 | 12 | 12  | 10   | M5 | M6 | 165 | 15 | 58 |

\* Version HK

| ∅  | L4  | M  | ∅ N | O | ∅ P | Q | ∅ R | ∅ S | SW | T   | U  | V  | W    | X  | Y  | Z    |
|----|-----|----|-----|---|-----|---|-----|-----|----|-----|----|----|------|----|----|------|
| 16 | 68  | 32 | 4.5 | 6 | 8   | 6 | 5.5 | 9   | 8  | 5.5 | 24 | 58 | 18   | 18 | 22 | 49.5 |
| 25 | 108 | 38 | 5.5 | 9 | 10  | 9 | 6.5 | 11  | 12 | 6.5 | 38 | 68 | 32.5 | 20 | 23 | 58   |

| ∅ (mm)  |                    | 16   | 25   |
|---------|--------------------|------|------|
| Weight  | 0 mm stroke        | 0.40 | 0.90 |
| HG (kg) | each 100 mm stroke | 0.12 | 0.18 |
| Weight  | 0 mm stroke        | 0.36 | 0.84 |
| HK (kg) | each 100 mm stroke | 0.08 | 0.12 |

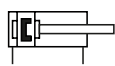
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -30°C ... +80°C ( 0 ... +150°C for high temperature version)  |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: AISI 304 (1.4301)<br>End caps: AISI 304 (1.4301)<br>Piston rod: AISI 316 (1.4401)<br>Seals: PU (optional FKM)  |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

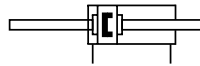


Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings.

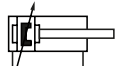
**Versions**



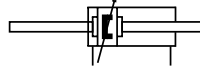
**CM**  
double acting, with magnetic piston



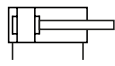
**CMDE**  
double acting, double end piston rod, with magnetic piston



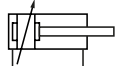
**CMP**  
double acting, adjustable cushioning, with magnetic piston



**CMPDE**  
double acting, double end piston rod, adjustable cushioning, with magnetic piston

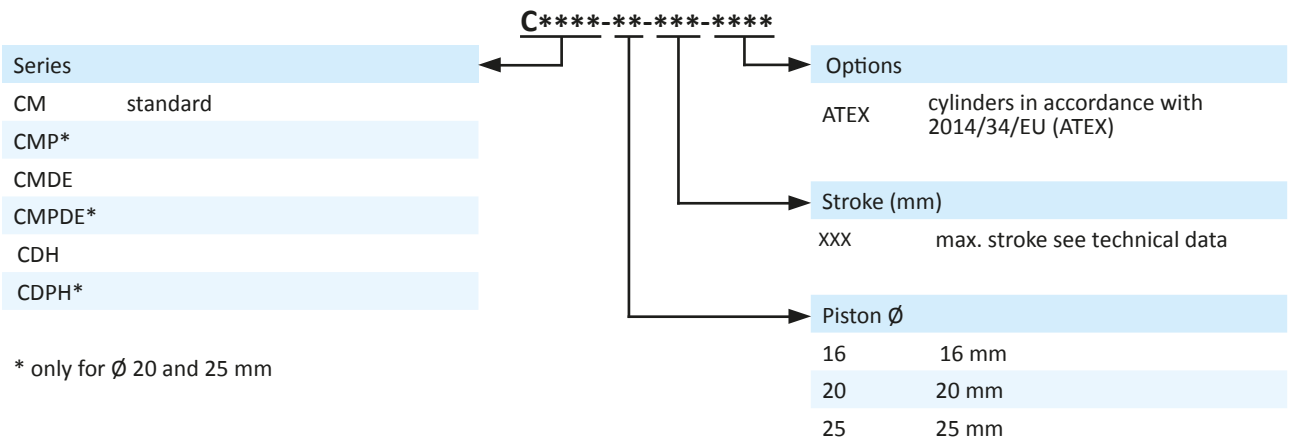


**CDH**  
double acting, high temperature version



**CDHP**  
double acting, adjustable cushioning, high temperature version

**Order code**



# Series CM

## Mini cylinders ISO 6432, double acting

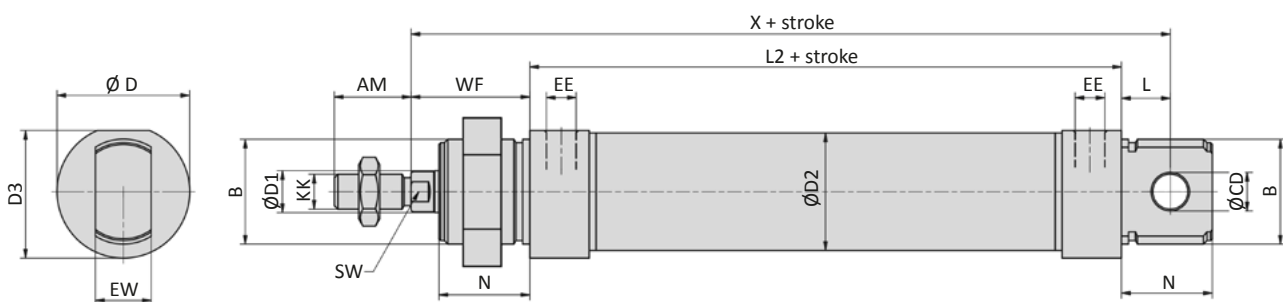


### Technical data

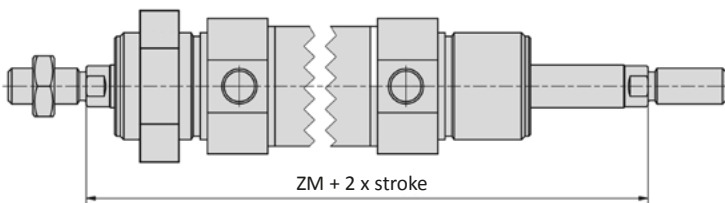
| Model-no.:              | Cxx-16-... | Cxx-20-... | Cxx-25-... |
|-------------------------|------------|------------|------------|
| Piston Ø (mm)           | 16         | 20         | 25         |
| Force at 6 bar (N)      | Extension  | 109        | 170        |
|                         | Retraction | 93         | 142        |
| Connection              | M5         | G1/8       | G1/8       |
| Piston rod thread       | M6         | M8         | M10 x 1.25 |
| Max. stroke (mm)        | 250        | 600        | 600        |
| Cushioning length (mm)* | 15.5       | 17         | 19.5       |

\* only for series CMP, CMPDE, CDHP

### Dimensions series CM, CMP, CDH, CDHP



### double end piston rod

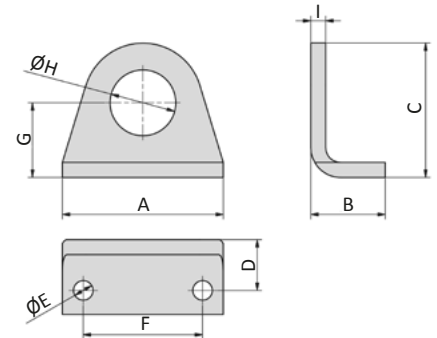


| Piston Ø | AM | B         | Ø CD | Ø D | Ø D1 | Ø D2  | D3   | EE   |
|----------|----|-----------|------|-----|------|-------|------|------|
| 16       | 16 | M16 x 1.5 | 6    | 19  | 6    | 17.27 | 18   | M5   |
| 20       | 20 | M22 x 1.5 | 8    | 27  | 8    | 21.27 | 25.5 | G1/8 |
| 25       | 22 | M22 x 1.5 | 8    | 30  | 10   | 26.5  | 28.5 | G1/8 |

| Piston Ø | EW | KK         | L  | L2 | N  | SW | WF | X   | ZM  |
|----------|----|------------|----|----|----|----|----|-----|-----|
| 16       | 12 | M6         | 9  | 53 | 18 | 5  | 22 | 82  | 97  |
| 20       | 16 | M8         | 12 | 67 | 20 | 7  | 24 | 95  | 115 |
| 25       | 16 | M10 x 1.25 | 12 | 68 | 22 | 9  | 28 | 104 | 124 |



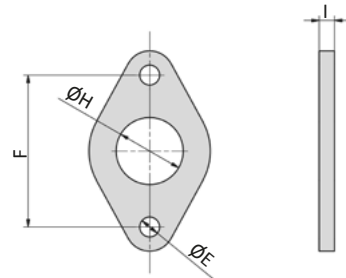
**PA-xx Foot mount**



| Model-no.: | for cylinder $\varnothing$ | A  | B  | C  | D  | $\varnothing E$ | F  | G  | $\varnothing H$ | I |
|------------|----------------------------|----|----|----|----|-----------------|----|----|-----------------|---|
| PA-16      | 16                         | 42 | 20 | 33 | 14 | 5.5             | 32 | 20 | 16.1            | 4 |
| PA-25      | 20, 25                     | 54 | 25 | 45 | 17 | 6.6             | 40 | 25 | 22.1            | 5 |

Material: stainless steel AISI 304 (1.4301)

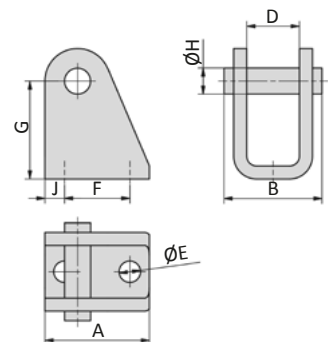
**PB-xx Flange mount**



| Model-no.: | for cylinder $\varnothing$ | $\varnothing E$ | F  | $\varnothing H$ | I |
|------------|----------------------------|-----------------|----|-----------------|---|
| PB-16      | 16                         | 5.5             | 40 | 16.1            | 4 |
| PB-25      | 20, 25                     | 6.6             | 50 | 22.1            | 5 |

Material: stainless steel AISI 304 (1.4301)

**PC-xx Clevis mount**



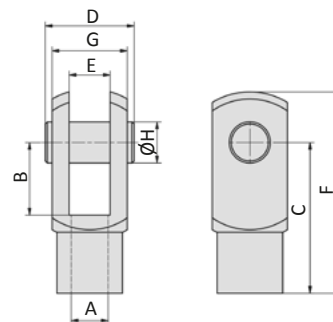
| Model-no.: | for cylinder $\varnothing$ | A  | B  | D    | $\varnothing E$ | F  | G  | $\varnothing H$ | J |
|------------|----------------------------|----|----|------|-----------------|----|----|-----------------|---|
| PC-16      | 16                         | 25 | 24 | 12.1 | 5.5             | 15 | 27 | 6               | 5 |
| PC-25      | 20, 25                     | 32 | 30 | 16.1 | 6.6             | 20 | 30 | 8               | 6 |

Material: stainless steel AISI 304 (1.4301), 2 snap rings are included.

## Series CM Mounting accessories



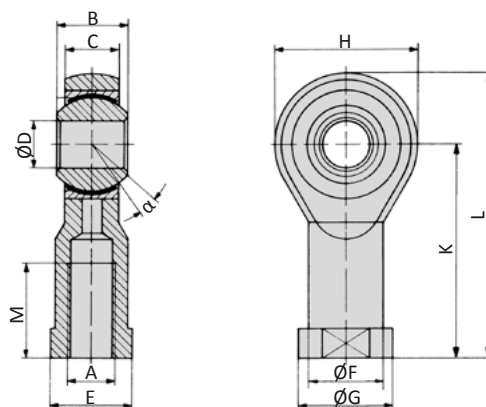
### PD-xx Rod clevis



| Model-no.: | for cylinder $\varnothing$ | A          | B  | C  | D  | E  | F  | G  | $\varnothing H$ |
|------------|----------------------------|------------|----|----|----|----|----|----|-----------------|
| PD-16      | 16                         | M6         | 12 | 24 | 16 | 6  | 31 | 12 | 6               |
| PD-20      | 20                         | M8         | 16 | 32 | 22 | 8  | 42 | 16 | 8               |
| PD-25      | 25                         | M10 x 1.25 | 20 | 40 | 26 | 10 | 52 | 20 | 10              |

Material: stainless steel AISI 303 (1.4305)

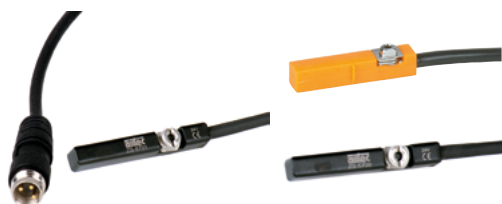
### PO-xx Rod eye



| Model-no.: | for cylinder $\varnothing$ | A          | B  | C    | $\varnothing D$ | E  | $\varnothing F$ | $\varnothing G$ | H  | K  | L  | M  | $\alpha$ |
|------------|----------------------------|------------|----|------|-----------------|----|-----------------|-----------------|----|----|----|----|----------|
| PO-16      | 16                         | M6         | 9  | 6.75 | 6               | 11 | 10              | 13              | 20 | 30 | 40 | 12 | 13°      |
| PO-20      | 20                         | M8         | 12 | 9    | 8               | 14 | 12.5            | 16              | 24 | 36 | 48 | 16 | 14°      |
| PO-25      | 25                         | M10 x 1.25 | 14 | 10.5 | 10              | 17 | 15              | 19              | 28 | 43 | 57 | 20 | 13°      |

Materials: stainless steel AISI 331 (1.4057), bearing stainless steel AISI 316 Ti, PTFE coated, bushing stainless steel AISI 420 (1.4034)

### Proximity sensors



## Series HMU

### Mini cylinders, double acting

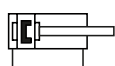
#### Technical details

|                           |   |                |                 |           |               |             |                 |        |         |
|---------------------------|---|----------------|-----------------|-----------|---------------|-------------|-----------------|--------|---------|
| <b>Operating pressure</b> | 1 ... 10 bar  |                |                 |           |               |             |                 |        |         |
| <b>Temperature range</b>  | -20°C ... +80°C   |                |                 |           |               |             |                 |        |         |
| <b>Max. stroke</b>        | 900 mm  |                |                 |           |               |             |                 |        |         |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.       |                |                 |           |               |             |                 |        |         |
| <b>Materials</b>          | <table border="0"> <tr> <td>Cylinder tube:</td> <td>stainless steel</td> </tr> <tr> <td>End caps:</td> <td>Al (anodized)</td> </tr> <tr> <td>Piston rod:</td> <td>stainless steel</td> </tr> <tr> <td>Seals:</td> <td>PU, NBR</td> </tr> </table> | Cylinder tube: | stainless steel | End caps: | Al (anodized) | Piston rod: | stainless steel | Seals: | PU, NBR |
| Cylinder tube:            | stainless steel   |                |                 |           |               |             |                 |        |         |
| End caps:                 | Al (anodized)   |                |                 |           |               |             |                 |        |         |
| Piston rod:               | stainless steel   |                |                 |           |               |             |                 |        |         |
| Seals:                    | PU, NBR   |                |                 |           |               |             |                 |        |         |

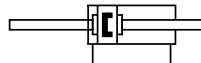


Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings or adjustable cushions.

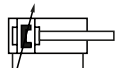
#### Versions



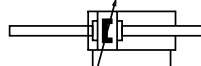
**HMU**  
double acting, with magnetic piston



**HMUDE**  
double acting, double end piston rod, with magnetic piston

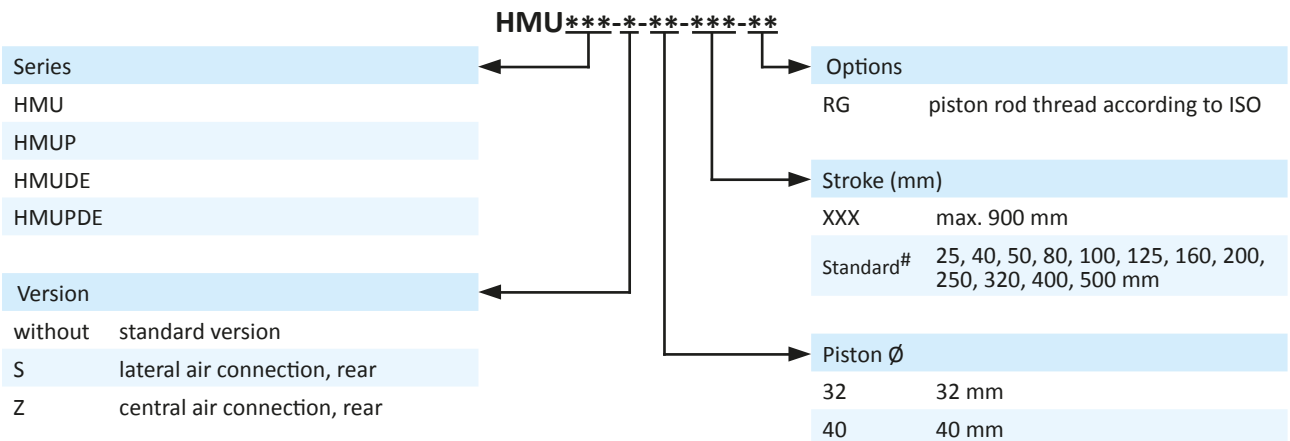


**HMUP**  
double acting, adjustable cushioning, with magnetic piston



**HMUPDE**  
double acting, double end piston rod, adjustable cushioning, with magnetic piston

#### Order code



# only for series HMU and HMUP

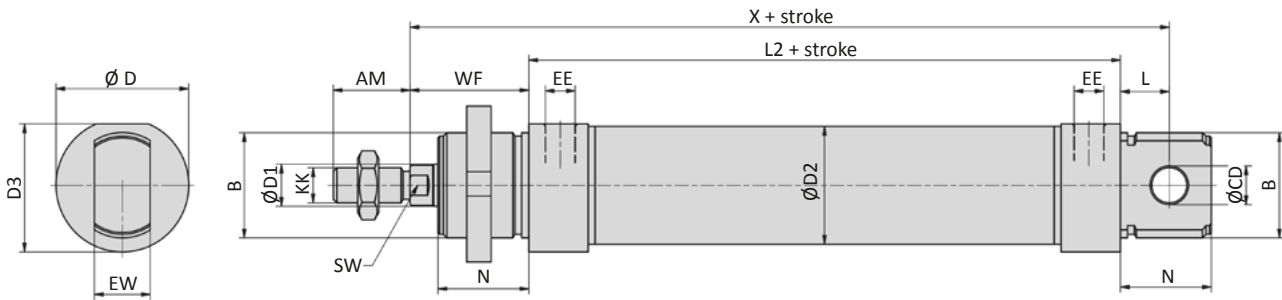
# Series HMU

## Mini cylinders, double acting

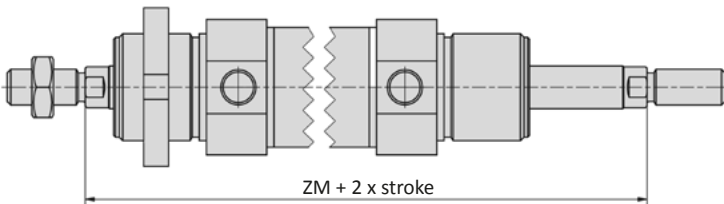
### Technical data

| Model-no.:                | HMU-32-... | HMU-40-... | HMUP-32-... | HMUP-40-... |
|---------------------------|------------|------------|-------------|-------------|
| Piston $\varnothing$ (mm) | 32         | 40         | 32          | 40          |
| Force at 6 bar (N)        | Extension  | 678        | 434         | 678         |
|                           | Retraction | 570        | 373         | 570         |
| Connection                | G1/8       | G1/4       | G1/8        | G1/4        |
| Piston rod thread         | M10 x 1.25 | M12 x 1.25 | M10 x 1.25  | M12 x 1.25  |
| Cushioning length (mm)    | -          | -          | 22.5        | 24.5        |

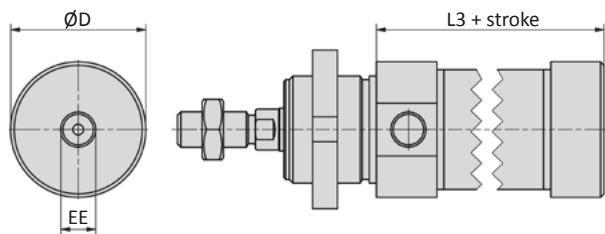
### Dimensions series HMU, HMUP



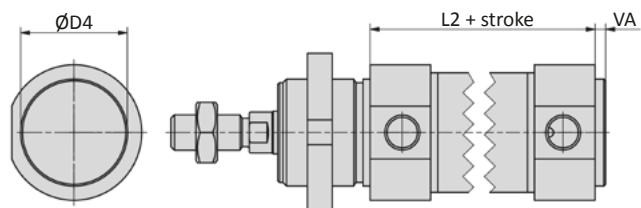
### double end piston rod



### Version -Z



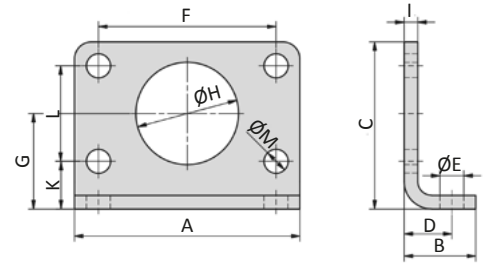
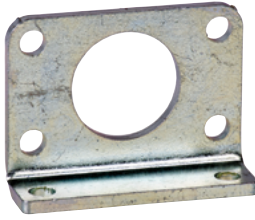
### Version -S



| Piston $\varnothing$ | AM | B         | $\varnothing$ CD | $\varnothing$ D | $\varnothing$ D1 | $\varnothing$ D2 | D3   | $\varnothing$ D4 | EE   | EW |
|----------------------|----|-----------|------------------|-----------------|------------------|------------------|------|------------------|------|----|
| 32                   | 22 | M30 x 1.5 | 10               | 38              | 12               | 33.6             | 36.5 | 30               | G1/8 | 16 |
| 40                   | 24 | M38 x 1.5 | 12               | 46              | 16               | 41.6             | 44   | 38               | G1/4 | 18 |

| Piston $\varnothing$ | KK         | L  | L2   | L3   | N  | SW | VA | WF | X     | ZM    |
|----------------------|------------|----|------|------|----|----|----|----|-------|-------|
| 32                   | M10 x 1.25 | 14 | 69.5 | 65.5 | 26 | 10 | 3  | 34 | 117.5 | 137.5 |
| 40                   | M12 x 1.25 | 16 | 84.5 | 77.5 | 30 | 13 | 4  | 39 | 139.5 | 162.5 |

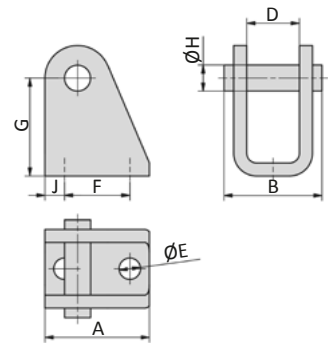
**RA-xx Foot mount**



| Model-no.: | A  | B  | C  | D  | Ø E | F  | G  | Ø H | I | K  | L  | Ø M |
|------------|----|----|----|----|-----|----|----|-----|---|----|----|-----|
| RA-32      | 66 | 21 | 49 | 14 | 7   | 52 | 28 | 30  | 4 | 14 | 28 | 7   |
| RA-40      | 80 | 30 | 58 | 20 | 9   | 60 | 33 | 38  | 5 | 18 | 30 | 9   |

Material: steel, zinc plated

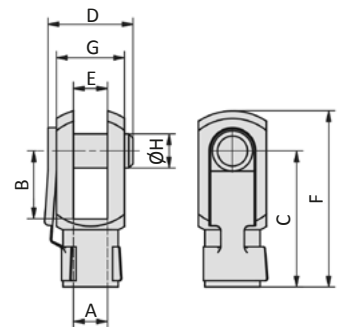
**RC-xx-1 Clevis mount**



| Model-no.: | A  | B    | D    | Ø E | F  | G  | Ø H | J   |
|------------|----|------|------|-----|----|----|-----|-----|
| RC-32-1    | 35 | 31.3 | 16.1 | 6.6 | 24 | 35 | 10  | 5.5 |
| RC-40-1    | 45 | 35.5 | 18.1 | 9   | 30 | 40 | 12  | 7.5 |

Material: steel, zinc plated, 2 snap rings are included.

**RD-xx, FD-xx Rod clevis**

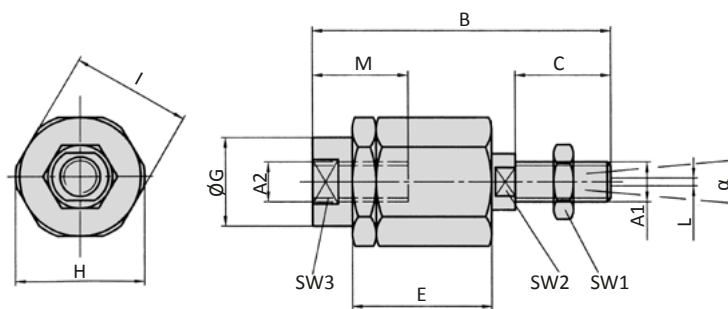


| Model-no.: | A          | B  | C  | D  | E  | F  | G  | Ø H |
|------------|------------|----|----|----|----|----|----|-----|
| RD-25      | M10 x 1.25 | 20 | 40 | 26 | 10 | 52 | 20 | 10  |
| FD-40      | M12 x 1.25 | 24 | 48 | 32 | 12 | 62 | 24 | 12  |

Material: steel, zinc plated

## Series HMU Mounting accessories

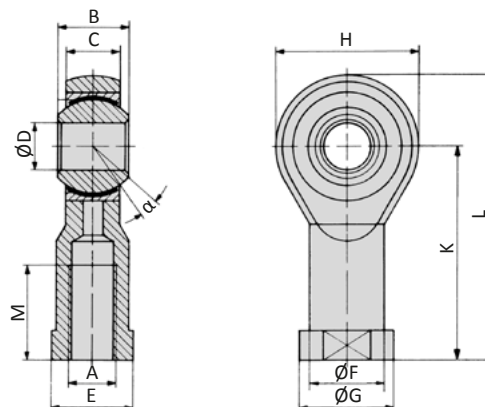
### FK-xx Flexible coupling



| Model-no.: | A1, A2     | B    | C  | D   | E  | Ø G | H  | I  | L | M  | SW1 | SW2 | SW3 | α  |
|------------|------------|------|----|-----|----|-----|----|----|---|----|-----|-----|-----|----|
| FK-32      | M10 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22  | 32 | 30 | 2 | 22 | 17  | 12  | 19  | 8° |
| FK-40      | M12 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22  | 32 | 30 | 2 | 22 | 19  | 12  | 19  | 8° |

Material: steel, zinc plated

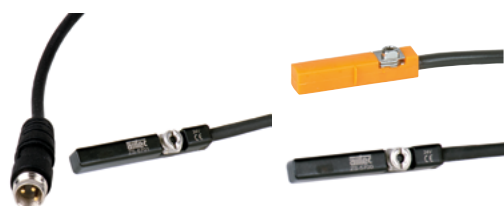
### RO-xx, FO-xx Rod eye



| Model-no.: | A          | B  | C    | Ø D | E  | Ø F  | Ø G | H  | K  | L  | M  | α   |
|------------|------------|----|------|-----|----|------|-----|----|----|----|----|-----|
| RO-25      | M10 x 1.25 | 14 | 10.5 | 10  | 17 | 15   | 19  | 28 | 43 | 57 | 20 | 13° |
| FO-40      | M12 x 1.25 | 16 | 12   | 12  | 19 | 17.5 | 22  | 32 | 50 | 66 | 22 | 13° |

Materials: steel, zinc plated, bearing steel, bronze bushing

### Proximity sensors



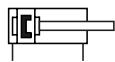
**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C<br>(NYDH: -10°C ... +150°C)   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al-die-cast (painted)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

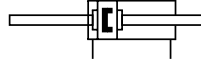


Double acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings. Standard stroke lengths in table below, additional lengths on request.

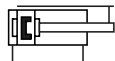
**Versions**



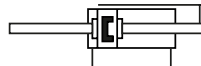
200, 210  
double acting, built-in cushioning rings, with magnetic piston



600, 610, 800, 810  
double acting, double end piston rod, built-in cushioning rings, with magnetic piston



220  
double acting, non rotating, built-in cushioning rings, with magnetic piston



620  
double acting, non rotating, double end piston rod, built-in cushioning rings, with magnetic piston

**Order code**

| Series      |   | Options  |  |
|-------------|---|----------|--|
| NYD         | standard                                | ATEX     | cylinders in accordance with 2014/34/EU (ATEX)   |
| NYDH        | high temperature version                |          |  |
| Piston Ø    |   | Versions |  |
| 020         | 20 mm                                   | 200      | standard version, male thread  |
| 025         | 25 mm                                   | 210      | standard version, female thread  |
| 032         | 32 mm                                   | 220      | non rotating   |
| 040         | 40 mm                                   | 602      | high temperature version (with magnetic piston up to 80°C effective), male thread                  |
| 050         | 50 mm                                   | 212      | high temperature version (with magnetic piston up to 80°C effective), female thread                |
| 063         | 63 mm                                   | 612      | high temperature version (with magnetic piston up to 80°C effective), non rotating + female thread |
| 080         | 80 mm                                   | 800**    | double end, through hollow piston rod, male thread   |
| 100         | 100 mm                                  | 810**    | double end, through hollow piston rod, female thread   |
| 125***      | 125 mm                                  |          |  |
| Stroke (mm) |   |          |  |
| XXX         | max. 250 mm                             |          |  |
| Standard    | 5, 10, 15, 20, 25, 30, 40, 50, 60*, 80* |          |  |

\* up from Ø 32 mm  
\*\* max. stroke 100 mm (up to Ø 25 mm) , 200 mm (up from Ø 32 mm)  
\*\*\* only version 200 and 210

*Not all combinations are possible and available.*

## Series NYD

### ISO 21287, double acting

#### Technical data

| Model-no.:         | NYD-020-... | NYD-025-... | NYD-032-... | NYD-040-... | NYD-050-... |            |
|--------------------|-------------|-------------|-------------|-------------|-------------|------------|
| Piston Ø (mm)      | 20          | 25          | 32          | 40          | 50          |            |
| Force at 6 bar (N) | Extension   | 170         | 265         | 434         | 678         | 1060       |
|                    | Retraction  | 127         | 223         | 373         | 617         | 951        |
| Connection         | M5          | M5          | G1/8        | G1/8        | G1/8        |            |
| Piston rod thread  | male        | M8          | M8          | M10 x 1.25  | M10 x 1.25  | M12 x 1.25 |
|                    | female      | M6          | M6          | M8          | M8          | M10        |

| Model-no.:         | NYD-063-... | NYD-080-... | NYD-100-... | NYD-125-... |           |
|--------------------|-------------|-------------|-------------|-------------|-----------|
| Piston Ø (mm)      | 63          | 80          | 100         | 125         |           |
| Force at 6 bar (N) | Extension   | 1682        | 2713        | 4239        | 6623      |
|                    | Retraction  | 1574        | 2543        | 3974        | 6345      |
| Connection         | G1/8        | G1/8        | G1/8        | G1/4        |           |
| Piston rod thread  | male        | M12 x 1.25  | M16 x 1.5   | M16 x 1.5   | M20 x 1.5 |
|                    | female      | M10         | M12         | M12         | M16       |

| Piston Ø (mm) | 20                 | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-200) | 0.143 | 0.178 | 0.240 | 0.301 | 0.471 | 0.661 | 1.066 | 1.793 |
|               | 0 mm stroke (-210) | 0.131 | 0.166 | 0.217 | 0.278 | 0.435 | 0.625 | 0.996 | 1.722 |
|               | each 10 mm stroke  | 0.024 | 0.028 | 0.029 | 0.030 | 0.048 | 0.057 | 0.088 | 0.115 |

| Piston Ø (mm) | 20                 | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-220) | 0.163 | 0.204 | 0.287 | 0.373 | 0.590 | 0.833 | 1.398 | 2.261 |
|               | each 10 mm stroke  | 0.028 | 0.034 | 0.035 | 0.038 | 0.062 | 0.071 | 0.114 | 0.139 |

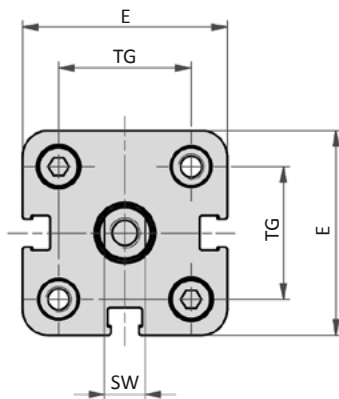
| Piston Ø (mm) | 20                 | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-600) | 0.140 | 0.175 | 0.232 | 0.293 | 0.463 | 0.653 | 1.050 | 1.833 |
|               | 0 mm stroke (-610) | 0.164 | 0.199 | 0.278 | 0.339 | 0.535 | 0.725 | 1.190 | 1.975 |
|               | each 10 mm stroke  | 0.030 | 0.034 | 0.037 | 0.038 | 0.064 | 0.073 | 0.114 | 0.149 |

| Piston Ø (mm) | 20                 | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-620) | 0.172 | 0.213 | 0.302 | 0.388 | 0.618 | 0.861 | 1.452 | 2.372 |
|               | each 10 mm stroke  | 0.034 | 0.040 | 0.043 | 0.046 | 0.078 | 0.087 | 0.140 | 0.173 |

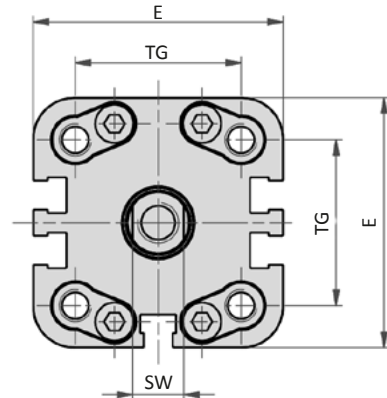


Dimensions series NYD (versions 200 and 210)

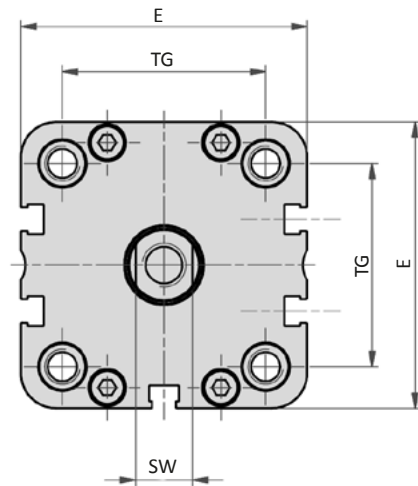
Ø 20 - 25



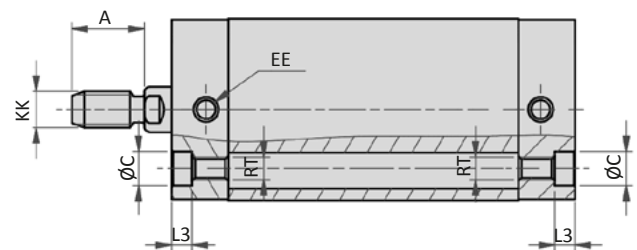
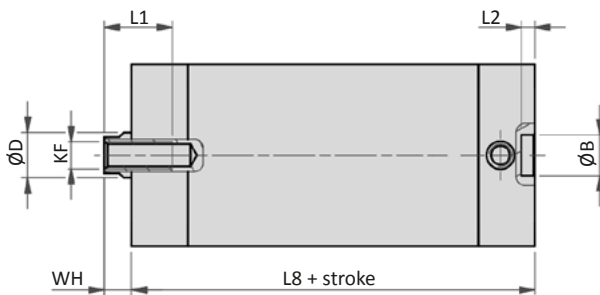
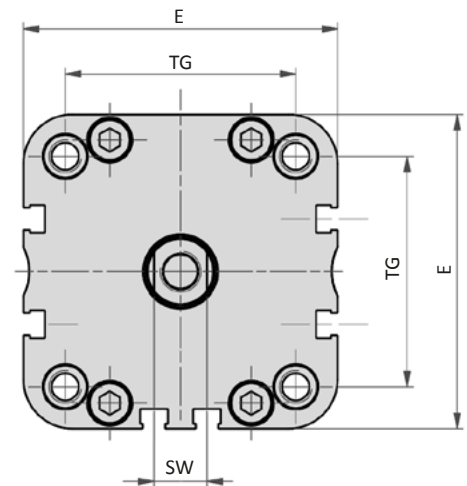
Ø 32



Ø 40 - 50



Ø 63 - 125



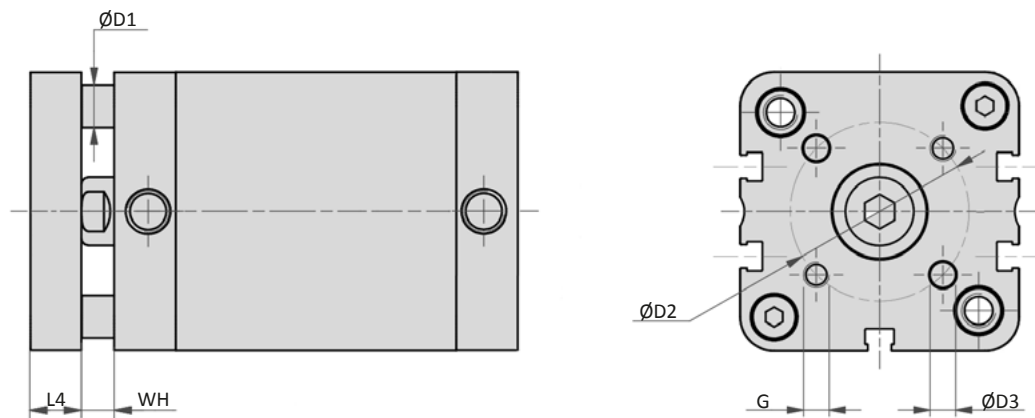
| Piston Ø | A  | Ø B | Ø C  | Ø D | E     | EE   | KF  | KK         | L1 | L2 | L3  | L8 | RT  | SW | TG   | WH  |
|----------|----|-----|------|-----|-------|------|-----|------------|----|----|-----|----|-----|----|------|-----|
| 20       | 16 | 9   | 7.5  | 10  | 36    | M5   | M6  | M8         | 15 | 3  | 4.5 | 37 | M5  | 8  | 22   | 6.5 |
| 25       | 16 | 9   | 7.5  | 10  | 40    | M5   | M6  | M8         | 15 | 3  | 4.5 | 39 | M5  | 8  | 26   | 6   |
| 32       | 19 | 9   | 9    | 12  | 49    | G1/8 | M8  | M10 x 1.25 | 16 | 3  | 5   | 44 | M6  | 10 | 32.5 | 6.5 |
| 40       | 19 | 9   | 9    | 12  | 54.5  | G1/8 | M8  | M10 x 1.25 | 16 | 3  | 5   | 45 | M6  | 10 | 38   | 7   |
| 50       | 22 | 12  | 10.5 | 16  | 65.5  | G1/8 | M10 | M12 x 1.25 | 17 | 4  | 5   | 45 | M8  | 13 | 46.5 | 8   |
| 63       | 22 | 12  | 10.5 | 16  | 77    | G1/8 | M10 | M12 x 1.25 | 17 | 4  | 5   | 49 | M8  | 13 | 56.5 | 8   |
| 80       | 28 | 12  | 13.5 | 20  | 95.5  | G1/8 | M12 | M16 x 1.5  | 20 | 4  | 3   | 54 | M10 | 17 | 72   | 9   |
| 100      | 28 | 12  | 13.5 | 25  | 113.5 | G1/8 | M12 | M16 x 1.5  | 20 | 4  | 3   | 67 | M10 | 22 | 89   | 10  |
| 125      | 40 | 12  | -    | 25  | 135   | G1/4 | M16 | M20 x 1.5  | 25 | 4  | -   | 81 | M12 | 22 | 110  | 11  |

# Series NYD

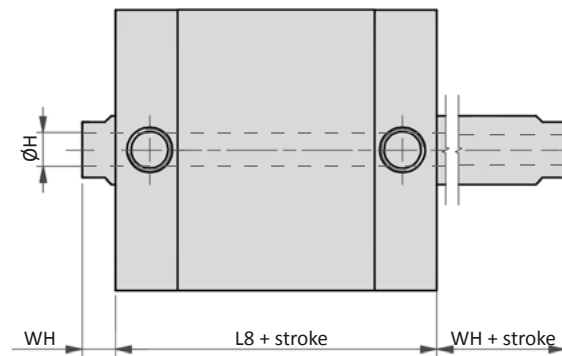
ISO 21287, double acting

## Dimensions series NYD (versions 220, 600, 610, 620, 800 and 810)

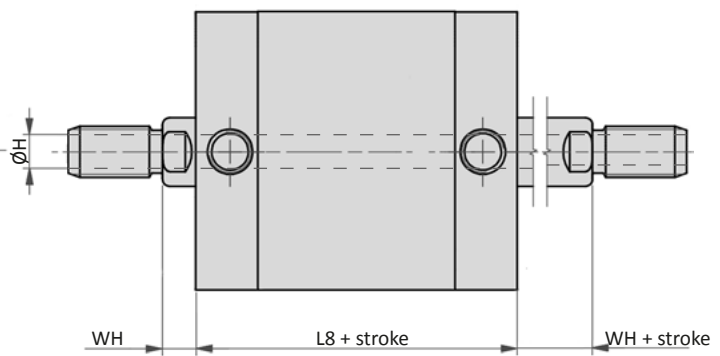
### Version 220



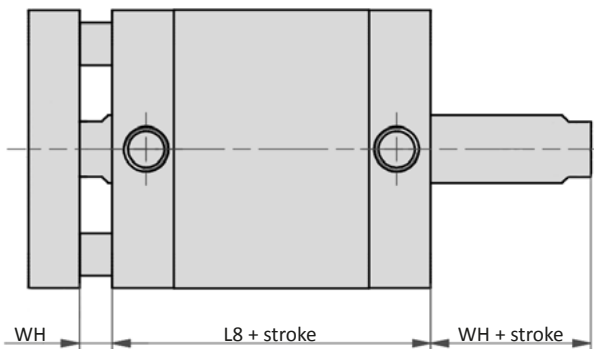
### Versions 610, 810



### Versions 600, 800



### Version 620



| Piston Ø | Ø D1 | Ø D2 | Ø D3 | G   | Ø H* | L4 | L8 | WH  |
|----------|------|------|------|-----|------|----|----|-----|
| 20       | 5    | 17   | 4    | M4  | 4    | 8  | 37 | 6.5 |
| 25       | 6    | 22   | 5    | M5  | 4    | 8  | 39 | 6   |
| 32       | 6    | 28   | 5    | M5  | 5    | 10 | 44 | 6.5 |
| 40       | 8    | 33   | 5    | M5  | 5    | 10 | 45 | 7   |
| 50       | 10   | 42   | 6    | M6  | 6    | 12 | 45 | 8   |
| 63       | 10   | 50   | 6    | M6  | 6    | 12 | 49 | 8   |
| 80       | 14   | 65   | 8    | M8  | 8    | 14 | 54 | 9   |
| 100      | 14   | 80   | 10   | M10 | 10   | 14 | 67 | 10  |

\* only for versions 800 and 810

## Series NYD

### High force and multiple positioning cylinder, double acting

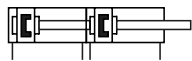
#### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al-die-cast (painted)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

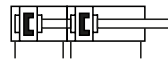


A back to back mounting of cylinders with same piston diameter is available up to 4 positions. Combining 2 to 3 cylinders with same piston diameter but different stroke lengths provides a max. of 4\* positions. Multiplying the force will be achieved by adding several cylinders with same diameter and same stroke length.

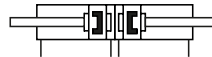
#### Versions



**NYDKx**  
high force cylinder, double acting, built-in cushioning rings, with magnetic piston, x-times force



**NYMy**  
multiple positioning cylinder, double acting, built-in cushioning rings, with magnetic piston, y+1 positions



**NYR2**  
multiple positioning cylinder, double acting, built-in cushioning rings, with magnetic piston

#### Order code

| Series   |   | Versions  |                                 |
|----------|---|---|---------------------------------|
| NYDK2    | high force cylinder, 2 x force                        | without   | only NYM2 and NYM3              |
| NYDK3    | high force cylinder, 3 x force                        | 200   | standard version, male thread   |
| NYDK4    | high force cylinder, 4 x force                        | 210   | standard version, female thread |
| NYM2     | multiple positioning cylinder, 2 strokes, 3 positions | Stroke (mm)<br>XXX XXX XXX stroke 1, stroke 2, stroke 3**<br>**stroke 2 and stroke 3 only for multiple positioning cylinder |                                 |
| NYM3     | multiple positioning cylinder, 3 strokes, 4 positions |   |                                 |
| NYR2     | multiple positioning cylinder, 2 strokes, 3 positions |   |                                 |
| AG*      | piston rod male thread                                |   |                                 |
| IG*      | piston rod female thread                              |   |                                 |
| Piston Ø |   |   |                                 |
| 020      | 20 mm   |   |                                 |
| 025      | 25 mm   |   |                                 |
| 032      | 32 mm   |   |                                 |
| 040      | 40 mm   |   |                                 |
| 050      | 50 mm   |   |                                 |
| 063      | 63 mm   |   |                                 |
| 080      | 80 mm   |   |                                 |
| 100      | 100 mm  |   |                                 |

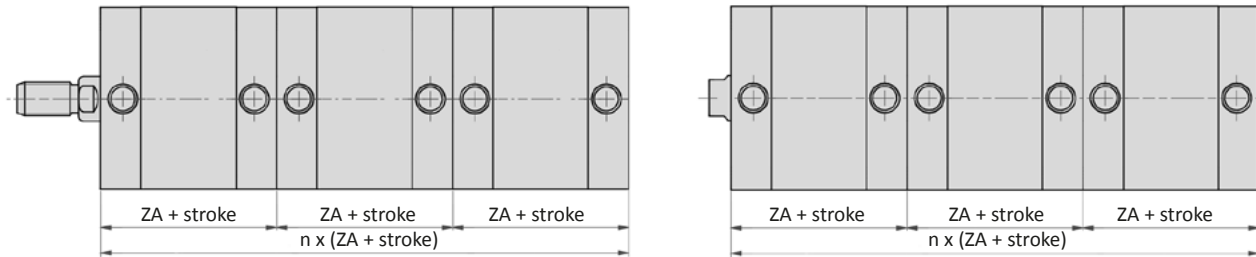
\* only for NYM2 and NYM3

## Series NYD

High force and multiple positioning cylinder, double acting

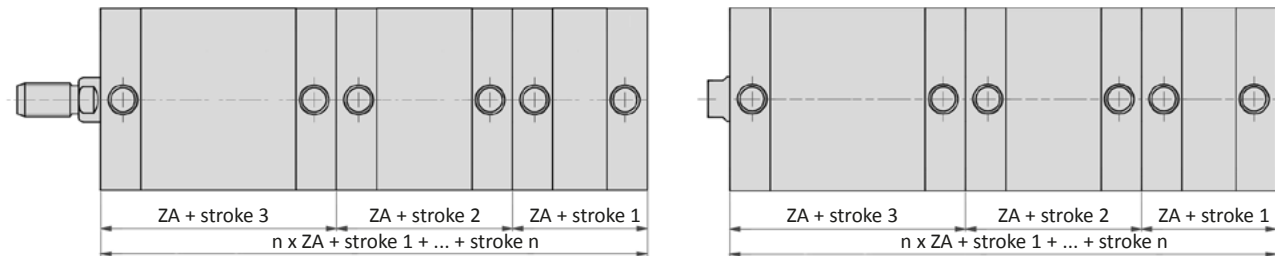
### Dimensions series NYD (versions NYDK, NYM, NYR)

#### Version NYDK



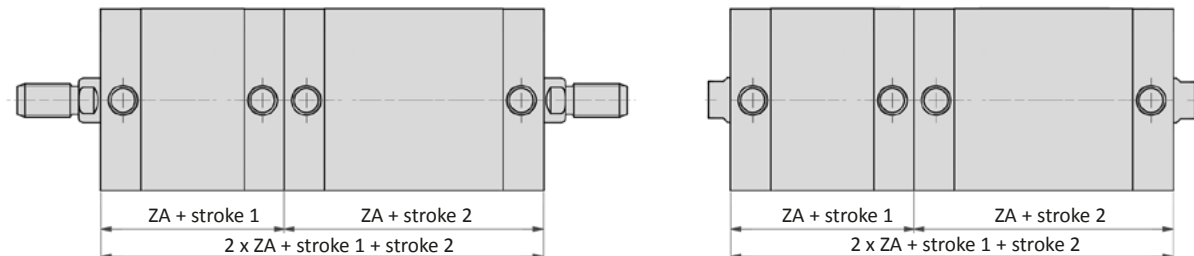
**!** For cylinder applications for NYDK3 and NYDK4 check mounting advices with our technical department.

#### Version NYM



**!** stroke 3 (max. total stroke) > stroke 2 > stroke 1

#### Version NYR



| Piston Ø (mm)                        | 20    | 25    | 32    | 40    | 50    | 63    | 80    | 100   |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>ZA</b>                            | 37    | 39    | 44    | 45    | 45    | 49    | 54    | 67    |
| <b>Weight (kg)</b>                   |       |       |       |       |       |       |       |       |
| 0 mm stroke (-200/-AG)               | 0.286 | 0.351 | 0.480 | 0.597 | 0.888 | 1.278 | 2.136 | 3.605 |
| 0 mm stroke (-210/-IG)               | 0.274 | 0.339 | 0.457 | 0.574 | 0.852 | 1.242 | 2.066 | 3.534 |
| surcharge for 3rd and more cylinders | 0.143 | 0.173 | 0.240 | 0.296 | 0.417 | 0.617 | 1.070 | 1.812 |
| each 10 mm stroke*                   | 0.024 | 0.028 | 0.029 | 0.030 | 0.048 | 0.057 | 0.088 | 0.115 |

\* total of all strokes

**Technical details**

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al-die-cast (painted)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |

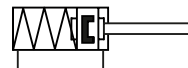


Single acting cylinder with magnetic piston for proximity sensors and built-in cushioning rings. Standard stroke lengths in table below, additional lengths on request.

**Versions**

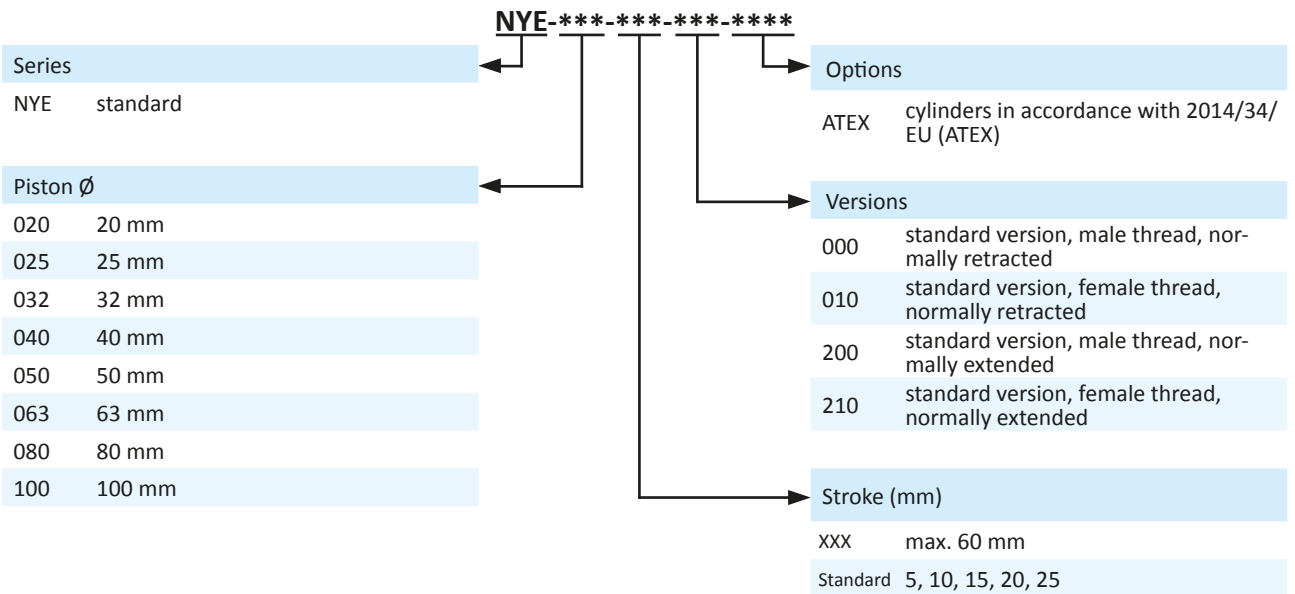


000, 010  
single acting, built-in cushioning rings,  
with magnetic piston,  
normally retracted



200, 210  
single acting, built-in cushioning rings,  
with magnetic piston,  
normally extended

**Order code**



**Technical data**

| Model-no.:               | NYE-020-... | NYE-025-... | NYE-032-... | NYE-040-... | NYE-050-... | NYE-063-... | NYE-080-... | NYE-100-... |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Piston Ø (mm)</b>     | 20          | 25          | 32          | 40          | 50          | 63          | 80          | 100         |
| <b>Connection</b>        | M5          | M5          | G1/8        | G1/8        | G1/8        | G1/8        | G1/8        | G1/8        |
| <b>Piston rod thread</b> | male M8     | M8          | M10 x 1.25  | M10 x 1.25  | M12 x 1.25  | M12 x 1.25  | M16 x 1.5   | M16 x 1.5   |
|                          | female M6   | M6          | M8          | M8          | M10         | M10         | M12         | M12         |
| <b>Weight (kg)</b>       |             |             |             |             |             |             |             |             |
| 0 mm stroke (-x00)*      | 0.143       | 0.178       | 0.240       | 0.301       | 0.471       | 0.661       | 1.066       | 1.793       |
| 0 mm stroke (-x10)*      | 0.131       | 0.166       | 0.217       | 0.278       | 0.435       | 0.625       | 0.996       | 1.722       |
| 0 mm stroke (-x00)**     | 0.167       | 0.202       | 0.264       | 0.325       | 0.495       | 0.685       | 1.114       | 1.841       |
| 0 mm stroke (-x10)**     | 0.155       | 0.190       | 0.241       | 0.302       | 0.459       | 0.649       | 1.044       | 1.770       |
| each 10 mm stroke        | 0.024       | 0.028       | 0.029       | 0.030       | 0.048       | 0.057       | 0.088       | 0.115       |

\* up to 30 mm stroke, \*\* from 35 mm stroke

## Series NYE

### ISO 21287, single acting

#### Technical data

| Model-no.:                          |            | NYE-020-xxx-0x0 | NYE-025-xxx-0x0 | NYE-032-xxx-0x0 | NYE-040-xxx-0x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 132 ... 137     | 223 ... 227     | 381 ... 386     | 609 ... 616     |
|                                     | Retraction | 33 ... 38       | 38 ... 42       | 48 ... 53       | 63 ... 70       |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 132 ... 141     | 223 ... 232     | 381 ... 392     | 609 ... 623     |
|                                     | Retraction | 29 ... 38       | 33 ... 42       | 42 ... 53       | 56 ... 70       |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 132 ... 146     | 223 ... 236     | 381 ... 397     | 609 ... 630     |
|                                     | Retraction | 24 ... 38       | 29 ... 42       | 37 ... 53       | 49 ... 70       |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 132 ... 151     | 223 ... 241     | 381 ... 403     | 609 ... 637     |
|                                     | Retraction | 19 ... 38       | 24 ... 42       | 31 ... 53       | 42 ... 70       |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 132 ... 155     | 223 ... 245     | 381 ... 408     | 609 ... 644     |
|                                     | Retraction | 15 ... 38       | 20 ... 42       | 26 ... 53       | 35 ... 70       |

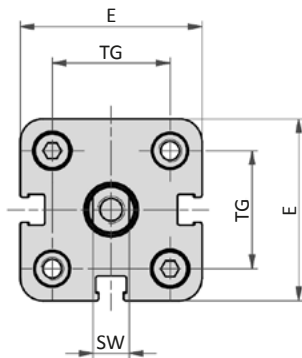
| Model-no.:                          |            | NYE-050-xxx-0x0 | NYE-063-xxx-0x0 | NYE-080-xxx-0x0 | NYE-100-xxx-0x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 985 ... 993     | 1586 ... 1594   | 2564 ... 2573   | 4027 ... 4039   |
|                                     | Retraction | 67 ... 75       | 89 ... 97       | 141 ... 150     | 202 ... 214     |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 985 ... 1001    | 1586 ... 1602   | 2564 ... 2581   | 4027 ... 4052   |
|                                     | Retraction | 59 ... 75       | 81 ... 97       | 133 ... 150     | 189 ... 214     |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 985 ... 1008    | 1586 ... 1610   | 2564 ... 2590   | 4027 ... 4064   |
|                                     | Retraction | 52 ... 75       | 73 ... 97       | 124 ... 150     | 177 ... 214     |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 985 ... 1016    | 1586 ... 1619   | 2564 ... 2599   | 4027 ... 4076   |
|                                     | Retraction | 44 ... 75       | 64 ... 97       | 115 ... 150     | 165 ... 214     |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 985 ... 1024    | 1586 ... 1627   | 2564 ... 2607   | 4027 ... 4089   |
|                                     | Retraction | 36 ... 75       | 56 ... 97       | 107 ... 150     | 152 ... 214     |

| Model-no.:                          |            | NYE-020-xxx-2x0 | NYE-025-xxx-2x0 | NYE-032-xxx-2x0 | NYE-040-xxx-2x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 33 ... 38       | 38 ... 42       | 48 ... 53       | 63 ... 70       |
|                                     | Retraction | 89 ... 94       | 181 ... 185     | 320 ... 325     | 548 ... 555     |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 29 ... 38       | 33 ... 42       | 42 ... 53       | 56 ... 70       |
|                                     | Retraction | 89 ... 98       | 181 ... 190     | 320 ... 331     | 548 ... 562     |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 24 ... 38       | 29 ... 42       | 37 ... 53       | 49 ... 70       |
|                                     | Retraction | 89 ... 103      | 181 ... 194     | 320 ... 336     | 548 ... 569     |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 19 ... 38       | 24 ... 42       | 31 ... 53       | 42 ... 70       |
|                                     | Retraction | 89 ... 108      | 181 ... 199     | 320 ... 342     | 548 ... 576     |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 15 ... 38       | 29 ... 42       | 26 ... 53       | 35 ... 70       |
|                                     | Retraction | 89 ... 112      | 181 ... 203     | 320 ... 347     | 548 ... 583     |

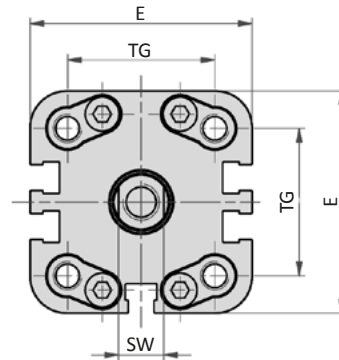
| Model-no.:                          |            | NYE-050-xxx-2x0 | NYE-063-xxx-2x0 | NYE-080-xxx-2x0 | NYE-100-xxx-2x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 67 ... 75       | 89 ... 97       | 141 ... 150     | 202 ... 214     |
|                                     | Retraction | 877 ... 885     | 1478 ... 1486   | 2395 ... 2404   | 3762 ... 3774   |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 59 ... 75       | 81 ... 97       | 133 ... 150     | 189 ... 214     |
|                                     | Retraction | 877 ... 893     | 1478 ... 1494   | 2395 ... 2412   | 3762 ... 3787   |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 52 ... 75       | 73 ... 97       | 124 ... 150     | 177 ... 214     |
|                                     | Retraction | 877 ... 900     | 1478 ... 1502   | 2395 ... 2421   | 3762 ... 3799   |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 44 ... 75       | 64 ... 97       | 115 ... 150     | 165 ... 214     |
|                                     | Retraction | 877 ... 908     | 1478 ... 1511   | 2395 ... 2430   | 3762 ... 3811   |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 36 ... 75       | 56 ... 97       | 107 ... 150     | 152 ... 214     |
|                                     | Retraction | 877 ... 916     | 1478 ... 1519   | 2395 ... 2438   | 3762 ... 3824   |

Dimensions series NYE

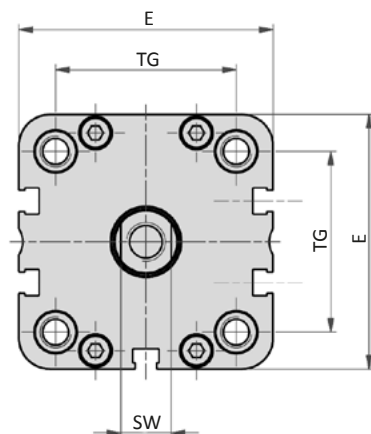
Ø 20 - 25



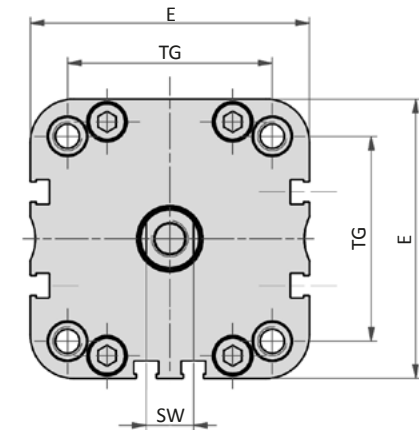
Ø 32



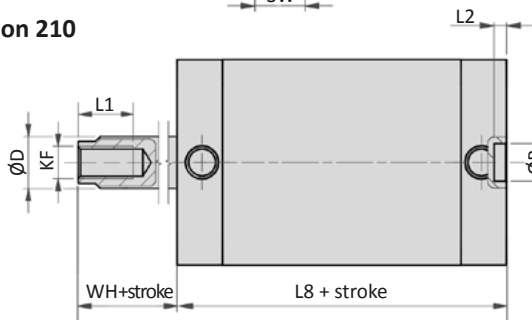
Ø 40 - 50



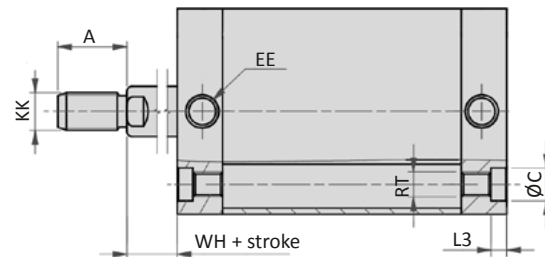
Ø 63 - 100



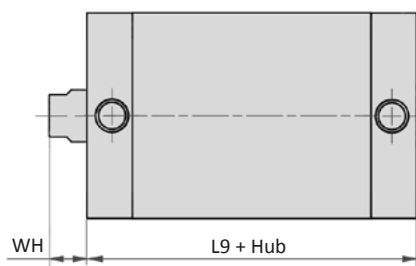
Version 210



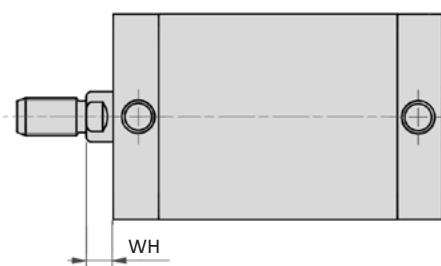
Version 200



Version 010



Version 000



| Piston Ø | A  | Ø B | Ø C  | Ø D | E     | EE   | KF  | KK         | L1 | L2 | L3  | L8* | L8** | L9* | L9** | RT  | SW | TG   | WH  |
|----------|----|-----|------|-----|-------|------|-----|------------|----|----|-----|-----|------|-----|------|-----|----|------|-----|
| 20       | 16 | 9   | 7,5  | 10  | 36    | M5   | M6  | M8         | 15 | 3  | 4,5 | 37  | 47   | 37  | 47   | M5  | 8  | 22   | 6,5 |
| 25       | 16 | 9   | 7,5  | 10  | 40    | M5   | M6  | M8         | 15 | 3  | 4,5 | 39  | 49   | 39  | 59   | M5  | 8  | 26   | 6   |
| 32       | 19 | 9   | 9    | 12  | 49    | G1/8 | M8  | M10 x 1,25 | 16 | 3  | 5   | 44  | 54   | 44  | 64   | M6  | 10 | 32,5 | 6,5 |
| 40       | 19 | 9   | 9    | 12  | 54,5  | G1/8 | M8  | M10 x 1,25 | 16 | 3  | 5   | 45  | 55   | 45  | 65   | M6  | 10 | 38   | 7   |
| 50       | 22 | 12  | 10,5 | 16  | 65,5  | G1/8 | M10 | M12 x 1,25 | 17 | 4  | 5   | 45  | 55   | 45  | 65   | M8  | 13 | 46,5 | 8   |
| 63       | 22 | 12  | 10,5 | 16  | 77    | G1/8 | M10 | M12 x 1,25 | 17 | 4  | 5   | 49  | 59   | 49  | 69   | M8  | 13 | 56,5 | 8   |
| 80       | 28 | 12  | 13,5 | 20  | 95,5  | G1/8 | M12 | M16 x 1,5  | 20 | 4  | 3   | 54  | 74   | 54  | 84   | M10 | 17 | 72   | 9   |
| 100      | 28 | 12  | 13,5 | 25  | 113,5 | G1/8 | M12 | M16 x 1,5  | 20 | 4  | 3   | 67  | 87   | 67  | 97   | M10 | 22 | 89   | 10  |

\* up to 30 mm stroke, \*\* from 35 mm stroke

## Series NYSE

Stopper cylinders, single acting

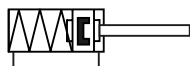
### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 2 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al (anodized)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |



Single acting compact cylinders with magnetic piston, built-in cushioning rings and return spring.

### Versions

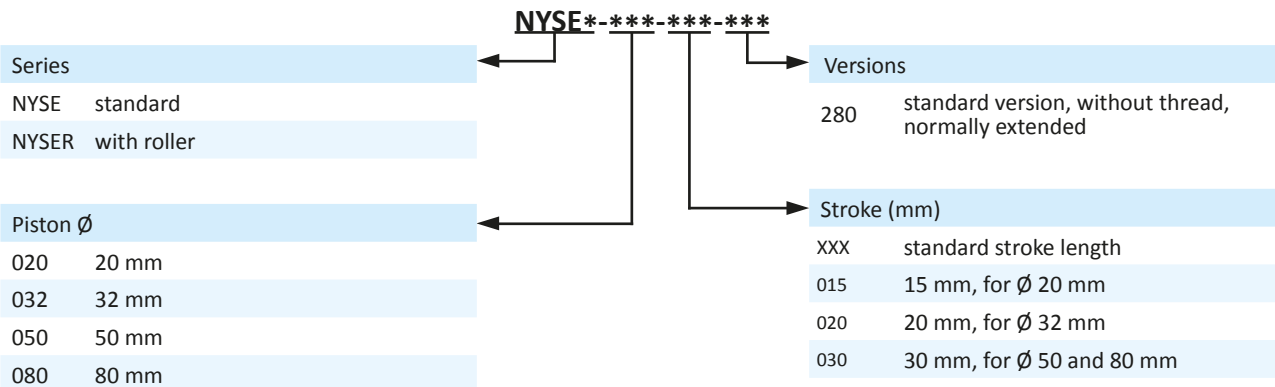


280  
single acting, built-in cushioning rings,  
with magnetic piston,  
normally extended



The cylinders are suitable as double acting as well.

### Order code



### Technical data

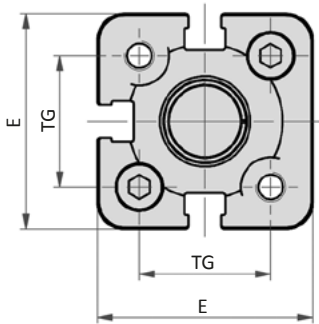
| Model-no.:              | NYSE*-020-... | NYSE*-032-... | NYSE*-050-... | NYSE*-080-... |
|-------------------------|---------------|---------------|---------------|---------------|
| <b>Piston Ø (mm)</b>    | 20            | 32            | 50            | 80            |
| <b>Stroke (mm)</b>      | 15            | 20            | 30            | 30            |
| <b>Connection</b>       | M5            | G1/8          | G1/8          | G1/8          |
| <b>Spring force (N)</b> | min.          | 28            | 36            | 49            |
|                         | max           | 36            | 51            | 78            |
| <b>Weight (kg)</b>      | NYSE          | 0.20          | 0.40          | 1.04          |
|                         | NYSER         | 0.24          | 0.46          | 1.30          |



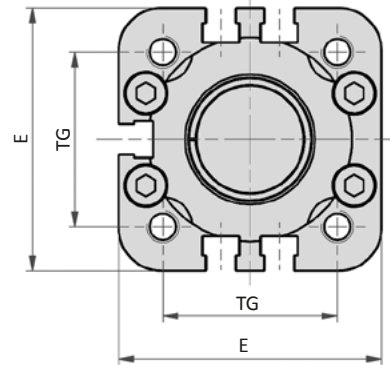
## Series NYSE Stopper cylinders, single acting

### Dimensions series NYSE and NYSER

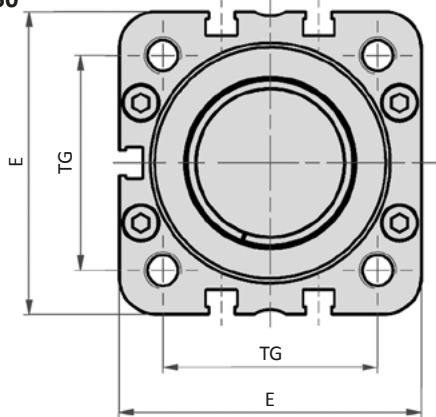
Ø 20



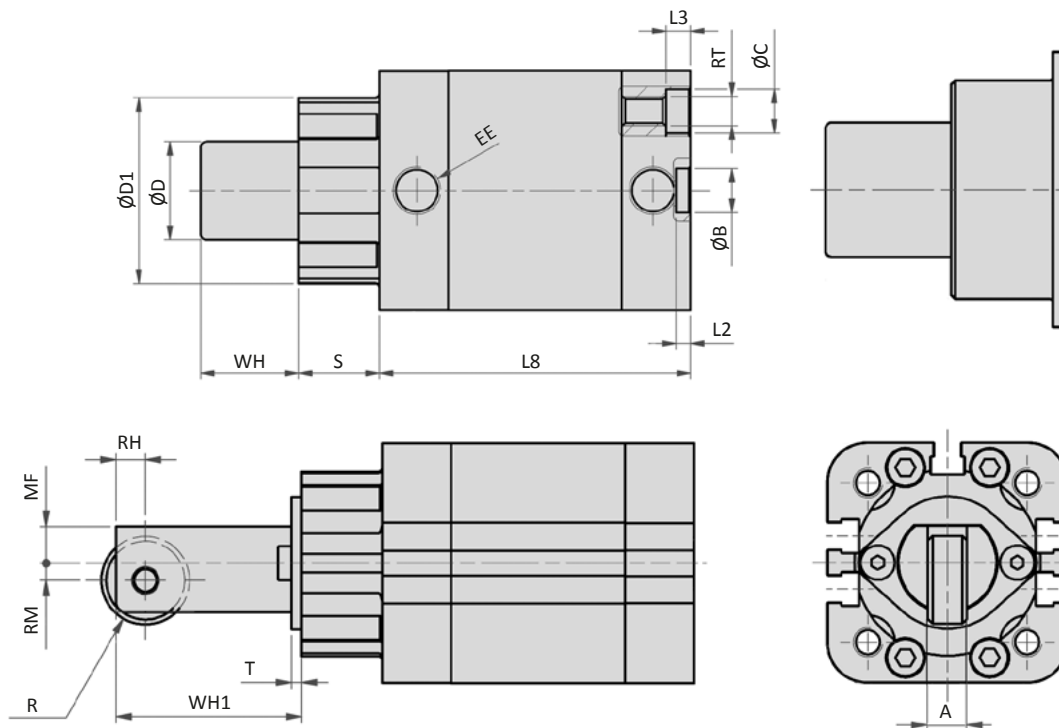
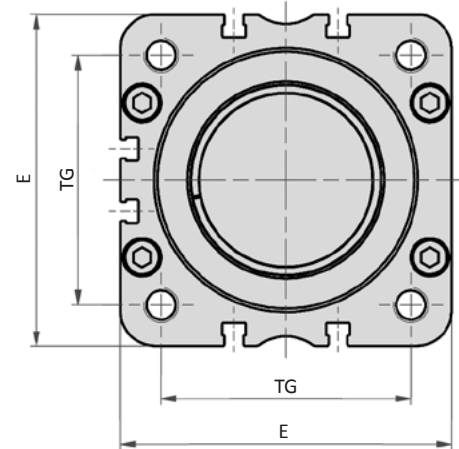
Ø 32



Ø 50



Ø 80

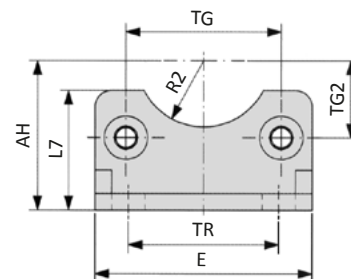
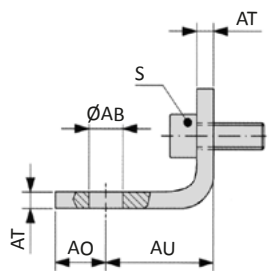


| Piston Ø | A  | Ø B | Ø C  | Ø D | Ø D1 | E    | EE   | L2 | L3  | L8  | MF  | R    | RH | RM  | RT  | S    | T | TG   | WH | WH1  |
|----------|----|-----|------|-----|------|------|------|----|-----|-----|-----|------|----|-----|-----|------|---|------|----|------|
| 20       | 4  | 9   | 7.5  | 12  | 26   | 36   | M5   | 3  | 4.5 | 53  | 4.5 | 5    | 3  | 2   | M5  | 11.5 | 2 | 22   | 15 | 24   |
| 32       | 8  | 9   | 9    | 20  | 38   | 49   | G1/8 | 3  | 5   | 64  | 7.5 | 9    | 6  | 3.5 | M6  | 16.5 | 2 | 32.5 | 20 | 38   |
| 50       | 10 | 12  | 10.5 | 32  | 52   | 65.5 | G1/8 | 4  | 5   | 75  | 12  | 12.5 | 6  | 7   | M8  | 24.5 | 2 | 46.5 | 30 | 50.5 |
| 80       | 18 | 12  | 13.5 | 50  | 76   | 95.5 | G1/8 | 4  | 4   | 126 | 18  | 18   | 10 | 11  | M10 | 15   | 3 | 72   | 30 | 63   |

## Series NYD

### Mounting accessories

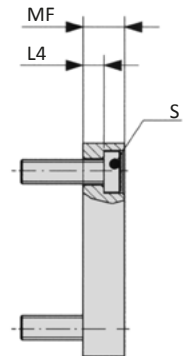
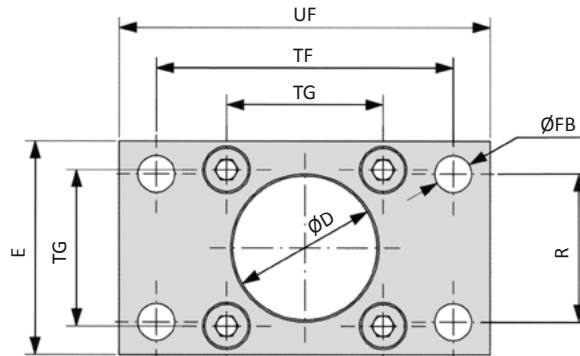
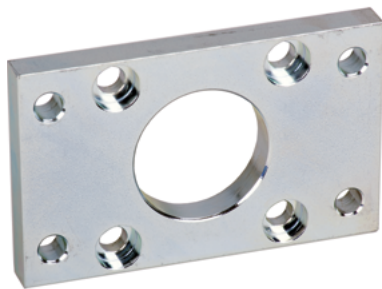
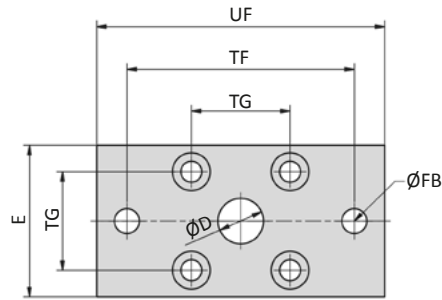
#### XLB-xxx-01 Foot mount



| Model-no.:                        | Ø AB | AH   | AO | AU    | AT | E   | L7 | R2   | S        | TG              | TG2   | TR   |
|-----------------------------------|------|------|----|-------|----|-----|----|------|----------|-----------------|-------|------|
| <b>XLB-032-01</b>                 | 7    | 32   | 11 | 24    | 4  | 45  | 30 | 15   | M6 x 16  | 32.5            | 16.25 | 32   |
| <b>XLB-040-01</b>                 | 10   | 36   | 8  | 28    | 4  | 52  | 30 | 17.5 | M6 x 16  | 38              | 19    | 36   |
| <b>XLB-050-01</b>                 | 10   | 45   | 15 | 32    | 5  | 65  | 36 | 20   | M8 x 20  | 46.5            | 23.25 | 45   |
| <b>XLB-063-01</b>                 | 10   | 50   | 13 | 32    | 5  | 75  | 35 | 22.5 | M8 x 20  | 56.5            | 28.25 | 50   |
| <b>XLB-080-01</b>                 | 12   | 63   | 14 | 41    | 6  | 95  | 47 | 22.5 | M10 x 20 | 72              | 36    | 63   |
| <b>XLB-100-01</b>                 | 14.5 | 71   | 16 | 41    | 6  | 115 | 53 | 27.5 | M10 x 20 | 89              | 44.5  | 75   |
| <b>XLB-125-01</b>                 | 16.5 | 90   | 25 | 45    | 8  | 140 | 70 | 30   | M12 x 25 | 110*            | 55    | 90   |
| <i>tolerances and adjustments</i> | H14  | JS16 |    | ± 0.2 |    |     |    | H15  |          | ± 0.2<br>*± 0.3 |       | JS14 |

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

**NXB-xxx-02, XLB-xxx-02 Flange mount**

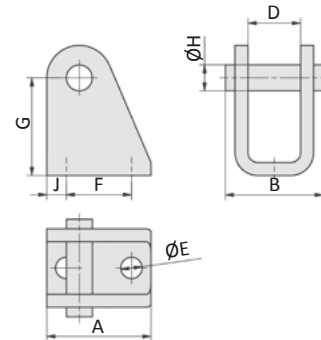


| Model-no.:                        | Ø D | E   | Ø FB | L4   | MF   | R    | S        | TF            | TG              | UF  |
|-----------------------------------|-----|-----|------|------|------|------|----------|---------------|-----------------|-----|
| <b>NXB-020-02</b>                 | 12  | 36  | 6.6  | 4.6  | 10   | -    | M5 x 20  | 55*           | 22              | 70  |
| <b>NXB-025-02</b>                 | 12  | 40  | 6.6  | 4.6  | 10   | -    | M5 x 20  | 60*           | 26              | 76  |
| <b>XLB-032-02</b>                 | 30  | 45  | 7    | 5    | 10   | 32   | M6 x 20  | 64            | 32.5            | 80  |
| <b>XLB-040-02</b>                 | 35  | 52  | 9    | 5    | 10   | 36   | M6 x 20  | 72            | 38              | 90  |
| <b>XLB-050-02</b>                 | 40  | 65  | 9    | 6.5  | 12   | 45   | M8 x 20  | 90            | 46.5            | 110 |
| <b>XLB-063-02</b>                 | 45  | 75  | 9    | 6.5  | 12   | 50   | M8 x 20  | 100           | 56.5            | 120 |
| <b>XLB-080-02</b>                 | 45  | 95  | 12   | 9    | 16   | 63   | M10 x 25 | 126           | 72              | 150 |
| <b>XLB-100-02</b>                 | 55  | 115 | 14   | 9    | 16   | 75   | M10 x 25 | 150           | 89              | 170 |
| <b>XLB-125-02</b>                 | 60  | 140 | 16   | 10.5 | 20   | 90   | M12 x 25 | 180           | 110*            | 205 |
| <i>tolerances and adjustments</i> | H11 |     | H13  | -0.5 | JS14 | JS14 |          | *JS13<br>JS14 | ± 0.2<br>*± 0.3 |     |

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

## Series NYD Mounting accessories

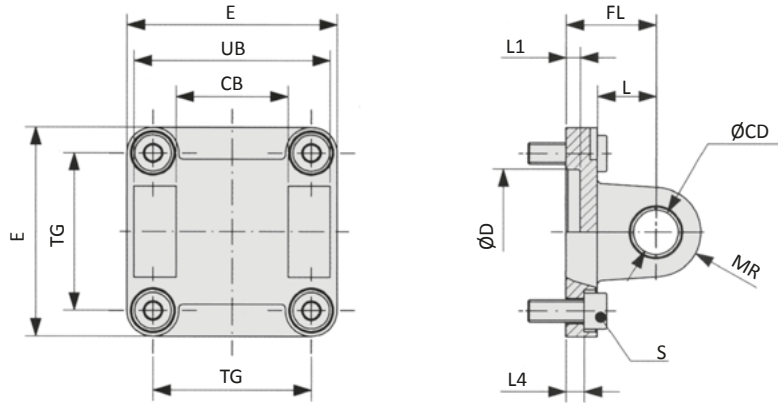
### RC-xx Clevis mount



| Model-no.:   | A  | B  | D    | Ø E | F  | G  | Ø H | J |
|--------------|----|----|------|-----|----|----|-----|---|
| <b>RC-30</b> | 32 | 30 | 16.1 | 6.6 | 20 | 30 | 8   | 6 |

Material: steel, zinc plated, 2 snap rings are included.

### XLB-xxx-04 Clevis mount with bushing



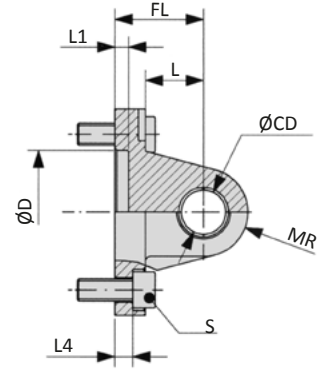
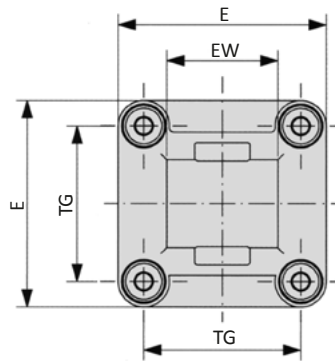
Inclusive clevis pin  
order no: **XLB-xxx-48**

| Model-no.:                        | CB  | Ø CD | Ø D | E   | FL    | L  | L1 | L4    | MR | S        | TG               | UB  |
|-----------------------------------|-----|------|-----|-----|-------|----|----|-------|----|----------|------------------|-----|
| <b>XLB-032-04</b>                 | 26  | 10   | 30  | 45  | 22    | 13 | 5  | 5.5   | 10 | M6 x 20  | 32.5             | 45  |
| <b>XLB-040-04</b>                 | 28  | 12   | 35  | 52  | 25    | 16 | 5  | 5.5   | 12 | M6 x 20  | 38               | 52  |
| <b>XLB-050-04</b>                 | 32  | 12   | 40  | 65  | 27    | 16 | 5  | 6.5   | 12 | M8 x 20  | 46.5             | 60  |
| <b>XLB-063-04</b>                 | 40  | 16   | 45  | 75  | 32    | 21 | 5  | 6.5   | 16 | M8 x 20  | 56.5             | 70  |
| <b>XLB-080-04</b>                 | 50  | 16   | 45  | 95  | 36    | 22 | 5  | 10    | 16 | M10 x 25 | 72               | 90  |
| <b>XLB-100-04</b>                 | 60  | 20   | 55  | 115 | 41    | 27 | 5  | 10    | 20 | M10 x 25 | 89               | 110 |
| <b>XLB-125-04</b>                 | 70  | 25   | 60  | 140 | 50    | 30 | 7  | 10    | 25 | M12 x 25 | 110*             | 130 |
| <i>tolerances and adjustments</i> | H14 | H9   | H11 |     | ± 0.2 |    |    | ± 0.5 |    |          | ± 0.2<br>* ± 0.3 | h13 |

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

## Series NYD Mounting accessories

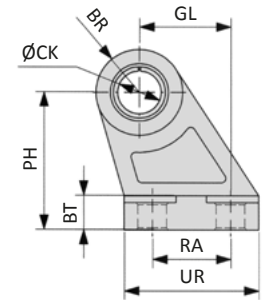
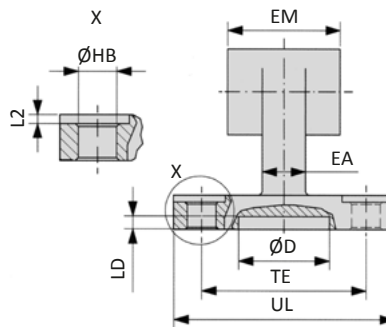
### NXB-xxx-04, XLB-xxx-05 Swivel mount



| Model-no.:                        | Ø CD | Ø D | E   | EW | FL | L     | L1 | L4  | MR    | S        | TG              |
|-----------------------------------|------|-----|-----|----|----|-------|----|-----|-------|----------|-----------------|
| NXB-020-04                        | 8    | 12  | 34  | 16 | 20 | 14    | 3  | 2.6 | 8     | M5 x 16  | 22              |
| NXB-025-04                        | 8    | 12  | 38  | 16 | 20 | 14    | 3  | 2.6 | 8     | M5 x 16  | 26              |
| XLB-032-05                        | 10   | 30  | 45  | 26 | 22 | 13    | 5  | 5.5 | 10    | M6 x 20  | 32.5            |
| XLB-040-05                        | 12   | 35  | 52  | 28 | 25 | 16    | 5  | 5.5 | 12    | M6 x 20  | 38              |
| XLB-050-05                        | 12   | 40  | 65  | 32 | 27 | 16    | 5  | 6.5 | 12    | M8 x 20  | 46.5            |
| XLB-063-05                        | 16   | 45  | 75  | 40 | 32 | 21    | 5  | 6.5 | 16    | M8 x 20  | 56.5            |
| XLB-080-05                        | 16   | 45  | 95  | 50 | 36 | 22    | 5  | 10  | 16    | M10 x 25 | 72              |
| XLB-100-05                        | 20   | 55  | 115 | 60 | 41 | 27    | 5  | 10  | 20    | M10 x 25 | 89              |
| XLB-125-05                        | 25   | 60  | 140 | 70 | 50 | 30    | 7  | 10  | 25    | M12 x 25 | 110*            |
| <i>tolerances and adjustments</i> | H9   | H11 |     |    |    | ± 0.2 |    |     | ± 0.5 |          | ± 0.2<br>*± 0.3 |

Materials: Al, bushing steel and PTFE (only XLB); 4 screws in accordance with EN ISO 4762 are included.

### XLB-xxx-06 Swivel mount 90°



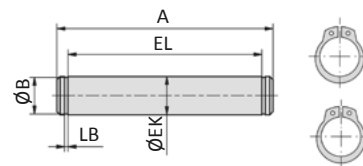
| Model-no.:                        | BR   | BT | ØCK | Ø D | EA | EM | GL   | ØHB | L2  | LD | PH   | RA   | TE   | UL  | UR |
|-----------------------------------|------|----|-----|-----|----|----|------|-----|-----|----|------|------|------|-----|----|
| XLB-032-06                        | 10   | 8  | 10  | 21  | 10 | 26 | 21   | 6.6 | 1.6 | 3  | 32   | 18   | 38   | 51  | 31 |
| XLB-040-06                        | 11   | 10 | 12  | 21  | 15 | 28 | 24   | 6.6 | 1.6 | 3  | 36   | 22   | 41   | 54  | 35 |
| XLB-050-06                        | 13   | 12 | 12  | 21  | 16 | 32 | 33   | 9   | 1.6 | 3  | 45   | 30   | 50   | 65  | 45 |
| XLB-063-06                        | 15   | 14 | 16  | 21  | 16 | 40 | 37   | 9   | 1.6 | 3  | 50   | 35   | 52   | 67  | 50 |
| XLB-080-06                        | 15   | 14 | 16  | 21  | 20 | 50 | 47   | 11  | 2.5 | 3  | 63   | 40   | 66   | 86  | 60 |
| XLB-100-06                        | 19   | 17 | 20  | 21  | 20 | 60 | 55   | 11  | 2.5 | 3  | 71   | 50   | 76   | 96  | 70 |
| XLB-125-06                        | 22.5 | 20 | 25  | 21  | 30 | 70 | 70   | 14  | 3.2 | 3  | 90   | 60   | 94   | 124 | 90 |
| <i>tolerances and adjustments</i> |      |    | H9  |     |    |    | JS14 | H13 |     |    | JS15 | JS14 | JS14 |     |    |

Material: Al, bushing steel and PTFE

## Series NYD

### Mounting accessories

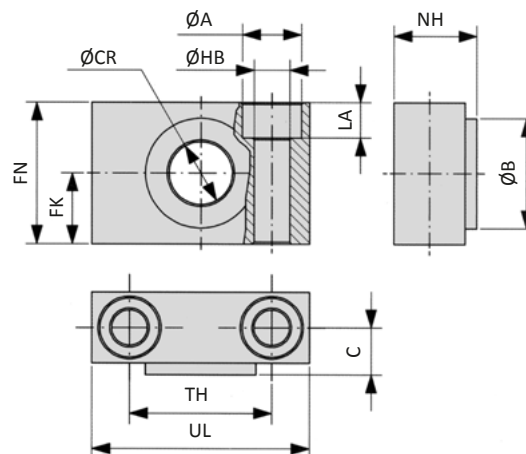
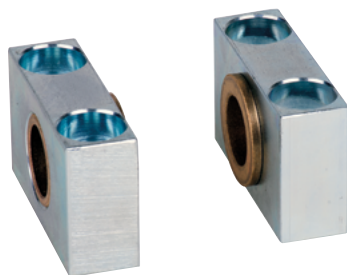
#### XLB-xxx-08 Clevis pin



| Model-no.:                        | A   | Ø B  | Ø EK | EL        | LB  |
|-----------------------------------|-----|------|------|-----------|-----|
| XLB-032-08                        | 53  | 9.6  | 10   | 46        | 1.1 |
| XLB-040-08                        | 60  | 11.5 | 12   | 53        | 1.1 |
| XLB-050-08                        | 68  | 11.5 | 12   | 61        | 1.1 |
| XLB-063-08                        | 78  | 15.2 | 16   | 71        | 1.1 |
| XLB-080-08                        | 98  | 15.2 | 16   | 91        | 1.1 |
| XLB-100-08                        | 118 | 19   | 20   | 111       | 1.3 |
| XLB-125-08                        | 139 | 23.9 | 25   | 132*      | 1.3 |
| <i>tolerances and adjustments</i> |     |      | e8   | +2<br>*+3 |     |

Material: steel, zinc plated; 2 snap rings are included.

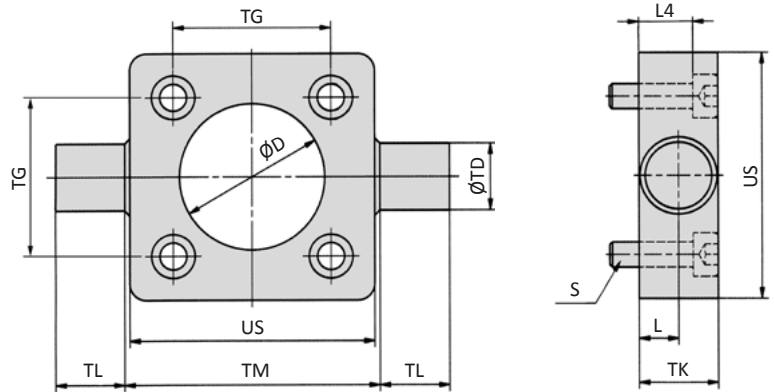
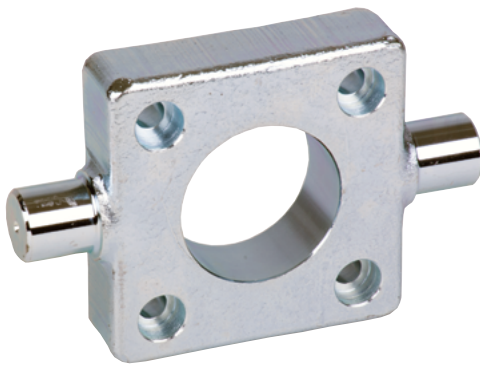
#### XLB-xxx-09 Bearing block



| Model-no.:                        | Ø A | Ø B | C    | Ø CR | FK    | FN | Ø HB | LA | NH   | TH    | UL |
|-----------------------------------|-----|-----|------|------|-------|----|------|----|------|-------|----|
| XLB-032-09                        | 11  | 22  | 10.5 | 12   | 15    | 30 | 6.6  | 7  | 18   | 32    | 46 |
| XLB-040-09                        | 15  | 28  | 12   | 16   | 18    | 36 | 9    | 9  | 21   | 36    | 55 |
| XLB-063-09                        | 18  | 32  | 13   | 20   | 20    | 40 | 11   | 11 | 23   | 42    | 65 |
| XLB-100-09                        | 20  | 39  | 16   | 25   | 25    | 50 | 14   | 13 | 28.5 | 50    | 75 |
| <i>tolerances and adjustments</i> |     |     |      | H9   | ± 0.1 |    | H13  |    |      | ± 0.2 |    |

Materials: Al, bronze bushing

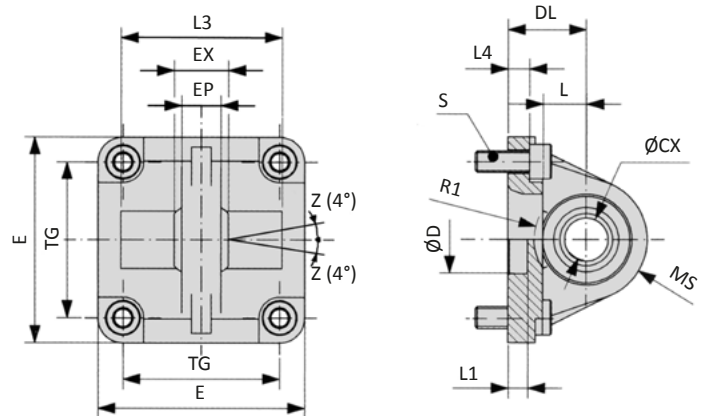
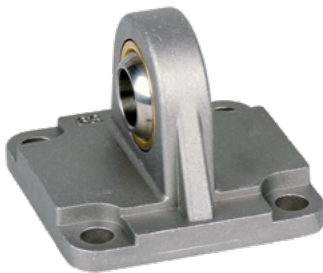
**XLB-xxx-11 Trunnion mount**



| Model-no.:                        | Ø D  | L     | L4 | S        | Ø TD | TG              | TK | TL  | Ø TM | US  |
|-----------------------------------|------|-------|----|----------|------|-----------------|----|-----|------|-----|
| XLB-032-11                        | 30   | 6.5   | 8  | M6 x 20  | 12   | 32.5            | 14 | 12  | 50   | 46  |
| XLB-040-11                        | 35   | 9     | 13 | M6 x 25  | 16   | 38              | 19 | 16  | 63   | 59  |
| XLB-050-11                        | 40   | 9     | 11 | M8 x 25  | 16   | 46.5            | 19 | 16  | 75   | 69  |
| XLB-063-11                        | 45   | 11.5  | 16 | M8 x 30  | 20   | 56.5            | 24 | 20  | 90   | 84  |
| XLB-080-11                        | 45   | 11.5  | 14 | M10 x 30 | 20   | 72              | 24 | 20  | 110  | 102 |
| XLB-100-11                        | 55   | 14    | 19 | M10 x 35 | 25   | 89              | 29 | 25  | 132  | 125 |
| XLB-125-11                        | 60   | 15    | 18 | M12 x 35 | 25   | 110*            | 30 | 25  | 160  | 150 |
| <i>tolerances and adjustments</i> | H 11 | + 0.2 |    |          | e9   | ± 0.2<br>*± 0.3 |    | h14 | h14  |     |

Material: steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

**XLB-xxx-12 Swivel mount with spherical bearing**

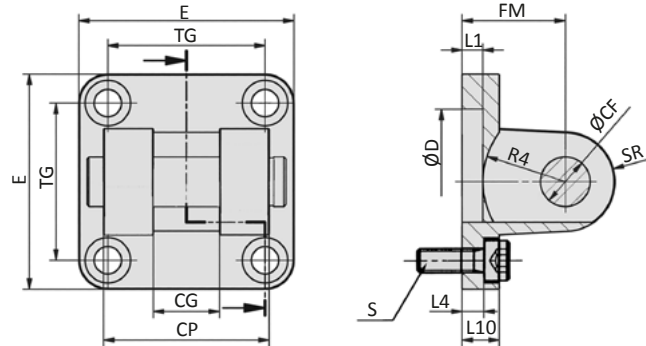
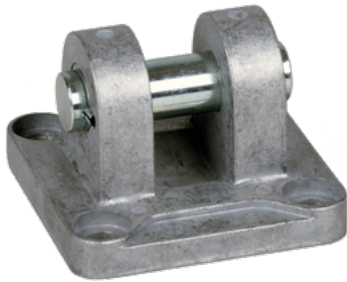


| Model-no.:                        | Ø CX | Ø D | DL    | E   | EP   | EX | L  | L1 | L3 | L4  | MS | R1 | S        | TG              |
|-----------------------------------|------|-----|-------|-----|------|----|----|----|----|-----|----|----|----------|-----------------|
| XLB-032-12                        | 10   | 30  | 22    | 45  | 10.5 | 14 | 12 | 7  | -  | 5.5 | 16 | -  | M6 x 20  | 32.5            |
| XLB-040-12                        | 12   | 35  | 25    | 52  | 12   | 16 | 15 | 7  | -  | 5.5 | 18 | -  | M6 x 20  | 38              |
| XLB-050-12                        | 16   | 40  | 27    | 65  | 15   | 21 | 15 | 7  | 51 | 6.5 | 21 | 19 | M8 x 20  | 46.5            |
| XLB-063-12                        | 16   | 45  | 32    | 75  | 15   | 21 | 20 | 7  | -  | 6.5 | 23 | -  | M8 x 20  | 56.5            |
| XLB-080-12                        | 20   | 45  | 36    | 95  | 18   | 25 | 20 | 9  | 74 | 10  | 28 | 24 | M10 x 25 | 72              |
| XLB-100-12                        | 20   | 55  | 41    | 115 | 18   | 25 | 25 | 9  | -  | 10  | 30 | -  | M10 x 25 | 89              |
| XLB-125-12                        | 30   | 60  | 50    | 140 | 25   | 37 | 30 | 9  | -  | 10  | 40 | -  | M12 x 25 | 110*            |
| <i>tolerances and adjustments</i> | H7   | H11 | ± 0.2 |     |      |    |    |    |    |     |    |    |          | ± 0.2<br>*± 0.3 |

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

## Series NYD Mounting accessories

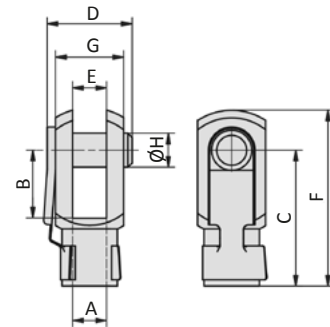
### XLB-xxx-14 Clevis mount small with pin



| Model-no.:                        | Ø CF | CG  | CP  | Ø D | E   | FM    | L1 | L4    | L10 | R4 | S        | SR | TG              |
|-----------------------------------|------|-----|-----|-----|-----|-------|----|-------|-----|----|----------|----|-----------------|
| <b>XLB-032-14</b>                 | 10   | 14  | 34  | 30  | 45  | 22    | 5  | 5.5   | 9   | 17 | M6 x 20  | 10 | 32.5            |
| <b>XLB-040-14</b>                 | 12   | 16  | 40  | 35  | 52  | 25    | 5  | 5.5   | 9   | 20 | M6 x 20  | 12 | 38              |
| <b>XLB-050-14</b>                 | 16   | 21  | 45  | 40  | 65  | 27    | 5  | 6.5   | 11  | 22 | M8 x 20  | 14 | 46.5            |
| <b>XLB-063-14</b>                 | 16   | 21  | 51  | 45  | 75  | 32    | 5  | 6.5   | 11  | 25 | M8 x 20  | 18 | 56.5            |
| <b>XLB-080-14</b>                 | 20   | 25  | 65  | 45  | 95  | 36    | 5  | 10    | 14  | 30 | M10 x 25 | 20 | 72              |
| <b>XLB-100-14</b>                 | 20   | 25  | 75  | 55  | 115 | 41    | 5  | 10    | 14  | 32 | M10 x 25 | 22 | 89              |
| <b>XLB-125-14</b>                 | 30   | 37  | 97  | 60  | 140 | 50    | 7  | 10    | 20  | 42 | M12 x 25 | 25 | 110*            |
| <i>tolerances and adjustments</i> | F7   | D10 | d12 | H11 |     | ± 0.2 |    | ± 0.5 |     |    |          |    | ± 0.2<br>*± 0.3 |

Materials: Al, bushing steel and PTFE, Clevis pin aus steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

### RD-xx, FD-xx Rod clevis

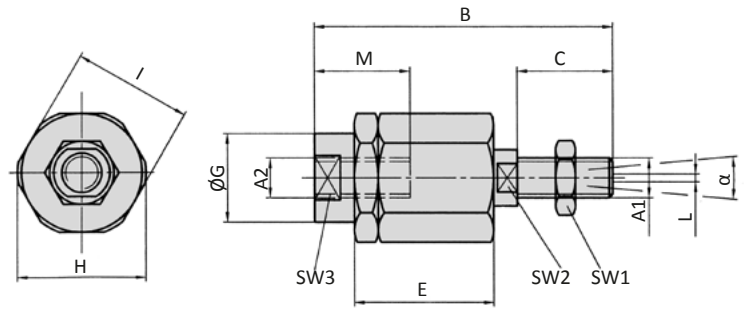


| Model-no.:   | for cylinder Ø | A          | B  | C  | D  | E  | F   | G  | Ø H |
|--------------|----------------|------------|----|----|----|----|-----|----|-----|
| <b>RD-20</b> | 20. 25         | M8         | 16 | 32 | 22 | 8  | 42  | 16 | 8   |
| <b>RD-25</b> | 32. 40         | M10 x 1.25 | 20 | 40 | 26 | 10 | 52  | 20 | 10  |
| <b>FD-40</b> | 50. 63         | M12 x 1.25 | 24 | 48 | 32 | 12 | 62  | 24 | 12  |
| <b>FD-63</b> | 80. 100        | M16 x 1.5  | 32 | 64 | 40 | 16 | 83  | 32 | 16  |
| <b>FD-80</b> | 125            | M20 x 1.5  | 40 | 80 | 50 | 20 | 105 | 40 | 20  |

Material: steel, zinc plated



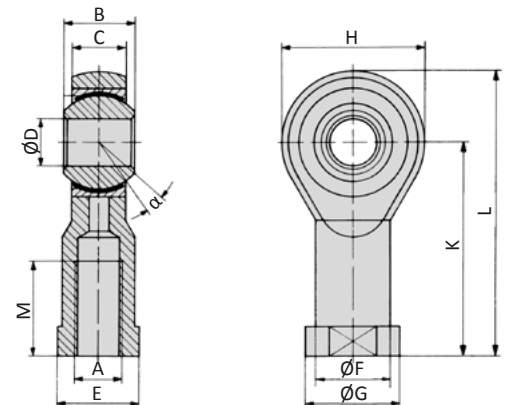
**FK-xx Flexible coupling**



| Model-no.: | for cylinder | A1, A2     | B    | C  | D   | E  | ØG   | H  | I  | L | M  | SW1 | SW2 | SW3 | α  |
|------------|--------------|------------|------|----|-----|----|------|----|----|---|----|-----|-----|-----|----|
| FK-20      | 20. 25       | M8         | 57   | 21 | 5   | 26 | 12.5 | 19 | 17 | 2 | 16 | 13  | 7   | 11  | 8° |
| FK-32      | 32. 40       | M10 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22   | 32 | 30 | 2 | 22 | 17  | 12  | 19  | 8° |
| FK-40      | 50. 63       | M12 x 1.25 | 71.5 | 20 | 7.5 | 35 | 22   | 32 | 30 | 2 | 22 | 19  | 12  | 19  | 8° |
| FK-63      | 80. 100      | M16 x 1.5  | 104  | 32 | 10  | 53 | 32   | 45 | 41 | 2 | 30 | 24  | 20  | 27  | 6° |
| FK-80      | 125          | M20 x 1.5  | 119  | 40 | 10  | 53 | 32   | 45 | 41 | 2 | 37 | 30  | 20  | 27  | 6° |

Material: steel, zinc plated

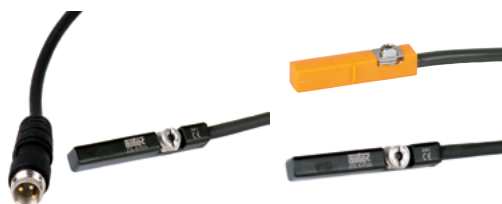
**RO-xx, FO-xx Rod eye**



| Model-no.: | for cylinder | A          | B  | C    | ØD | E  | ØF   | ØG | H  | K  | L   | M  | α   |
|------------|--------------|------------|----|------|----|----|------|----|----|----|-----|----|-----|
| RO-20      | 20. 25       | M8         | 12 | 9    | 8  | 14 | 12.5 | 16 | 24 | 36 | 48  | 16 | 14° |
| RO-25      | 32. 40       | M10 x 1.25 | 14 | 10.5 | 10 | 17 | 15   | 19 | 28 | 43 | 57  | 20 | 13° |
| FO-40      | 50. 63       | M12 x 1.25 | 16 | 12   | 12 | 19 | 17.5 | 22 | 32 | 50 | 66  | 22 | 13° |
| FO-63      | 80. 100      | M16 x 1.5  | 21 | 15   | 16 | 22 | 22   | 27 | 42 | 64 | 85  | 28 | 15° |
| FO-80      | 125          | M20 x 1.5  | 25 | 18   | 20 | 30 | 27.5 | 34 | 50 | 77 | 102 | 33 | 14° |

Materials: steel, zinc plated, bearing steel, bronze bushing

**Proximity sensors**



## Series NXD

Double acting

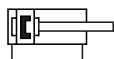
### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -10°C ... +80°C<br>(NXDH: 0°C ... +150°C)   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al (anodized)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |

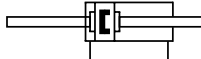


Double acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings. Standard stroke lengths in table below, additional lengths on request.

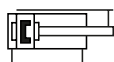
### Versions



200, 210  
double acting, built-in cushioning rings, with magnetic piston



600, 610  
double acting, double end piston rod, built-in cushioning rings, with magnetic piston



220  
double acting, non rotating, built-in cushioning rings, with magnetic piston

### Order code

**NXD\*--\*\*\*--\*\*\*--\*\*\***

#### Series

|      |                          |
|------|--------------------------|
| NXD  | standard                 |
| NXDH | high temperature version |

#### Piston Ø

|     |        |
|-----|--------|
| 012 | 12 mm  |
| 016 | 16 mm  |
| 020 | 20 mm  |
| 025 | 25 mm  |
| 032 | 32 mm  |
| 040 | 40 mm  |
| 050 | 50 mm  |
| 063 | 63 mm  |
| 080 | 80 mm  |
| 100 | 100 mm |

#### Versions

|     |  |
|-----|--|
| 200 | standard version, male thread  |
| 600 | standard version, male thread  |
| 210 | standard version, female thread  |
| 610 | standard version, female thread  |
| 220 | non rotating   |
| 202 | high temperature version (with magnetic piston up to 80°C effective), male thread                  |
| 602 | high temperature version (with magnetic piston up to 80°C effective), male thread                  |
| 212 | high temperature version (with magnetic piston up to 80°C effective), female thread                |
| 612 | high temperature version (with magnetic piston up to 80°C effective), female thread                |
| 222 | high temperature version (with magnetic piston up to 80°C effective), non rotating + female thread |

#### Stroke (mm)

|          |  |
|----------|--|
| XXX      | max. 250 mm**  |
| Standard | 5, 10, 15, 20, 25, 30, 40, 50*, 60**, 80***, 100**** |

\* from Ø 16 mm, \*\* from Ø 25 mm, \*\*\* from Ø 50 mm, \*\*\*\*from Ø 80 mm

Not all combinations are possible and available.

**Technical data**

| Model-no.:         | NXD-012-... | NXD-016-... | NXD-020-... | NXD-025-... | NXD-032-... |            |
|--------------------|-------------|-------------|-------------|-------------|-------------|------------|
| Piston Ø (mm)      | 12          | 16          | 20          | 25          | 32          |            |
| Force at 6 bar (N) | Extension   | 109         | 109         | 170         | 265         | 434        |
|                    | Retraction  | 81          | 81          | 127         | 223         | 373        |
| Connection         | M5          | M5          | M5          | M5          | G1/8        |            |
| Piston rod thread  | male        | M6          | M8          | M10 x 1.25  | M10 x 1.25  | M10 x 1.25 |
|                    | female      | M3          | M4          | M5          | M5          | M6         |

| Model-no.:         | NXD-040-... | NXD-050-... | NXD-063-... | NXD-080-... | NXD-100-... |           |
|--------------------|-------------|-------------|-------------|-------------|-------------|-----------|
| Piston Ø (mm)      | 40          | 50          | 63          | 80          | 100         |           |
| Force at 6 bar (N) | Extension   | 678         | 1060        | 1682        | 2713        | 4239      |
|                    | Retraction  | 617         | 951         | 1574        | 2543        | 3974      |
| Connection         | G1/8        | G1/8        | G1/8        | G1/8        | G1/4        |           |
| Piston rod thread  | male        | M10 x 1.25  | M12 x 1.25  | M12 x 1.25  | M16 x 1.5   | M20 x 1.5 |
|                    | female      | M6          | M8          | M8          | M10         | M12       |

| Piston Ø (mm) | 12                 | 16    | 20    | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-200) | 0.078 | 0.082 | 0.135 | 0.153 | 0.275 | 0.376 | 0.502 | 0.776 | 1.453 | 2.659 |
|               | 0 mm stroke (-210) | 0.074 | 0.074 | 0.121 | 0.139 | 0.261 | 0.362 | 0.481 | 0.755 | 1.402 | 2.560 |
|               | each 100 mm stroke | 0.170 | 0.170 | 0.270 | 0.310 | 0.410 | 0.500 | 0.630 | 0.780 | 1.180 | 1.600 |

| Piston Ø (mm) | 16                 | 20    | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-220) | 0.097 | 0.150 | 0.195 | 0.335 | 0.461 | 0.636 | 0.976 | 1.845 | 3.190 |
|               | each 100 mm stroke | 0.200 | 0.300 | 0.350 | 0.530 | 0.620 | 0.750 | 0.900 | 1.420 | 1.840 |

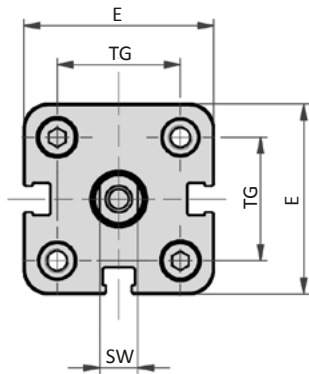
| Piston Ø (mm) | 12                 | 16    | 20    | 25    | 32    | 40    | 50    | 63    | 80    | 100   |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight (kg)   | 0 mm stroke (-600) | 0.097 | 0.108 | 0.170 | 0.188 | 0.325 | 0.426 | 0.591 | 0.865 | 1.617 | 2.958 |
|               | 0 mm stroke (-610) | 0.092 | 0.092 | 0.143 | 0.161 | 0.298 | 0.399 | 0.548 | 0.822 | 1.516 | 2.760 |
|               | each 100 mm stroke | 0.210 | 0.210 | 0.330 | 0.370 | 0.500 | 0.590 | 0.790 | 0.940 | 1.430 | 1.980 |

# Series NXD

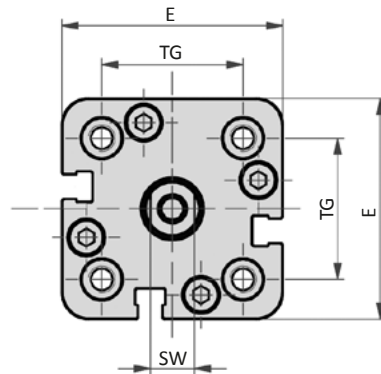
Double acting

## Dimensions series NXD (versions 200 and 210)

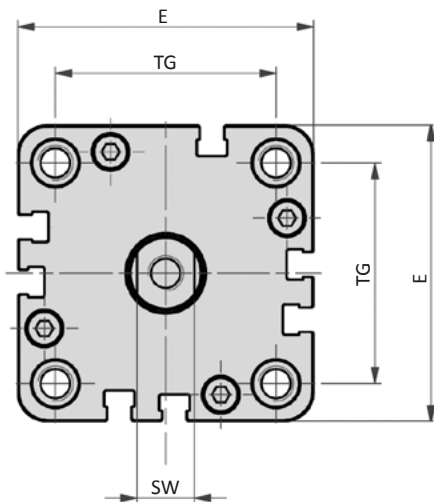
∅ 12 - 25



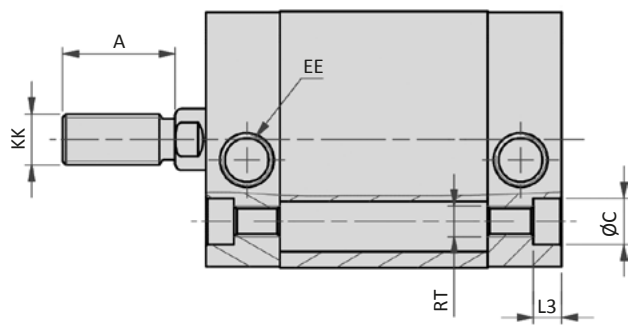
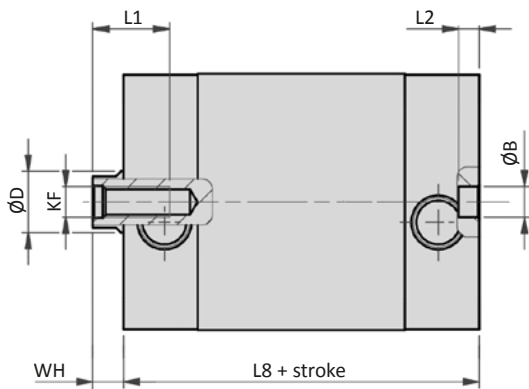
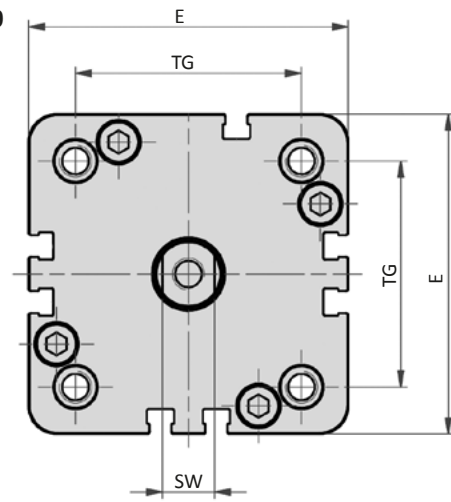
∅ 32 - 40



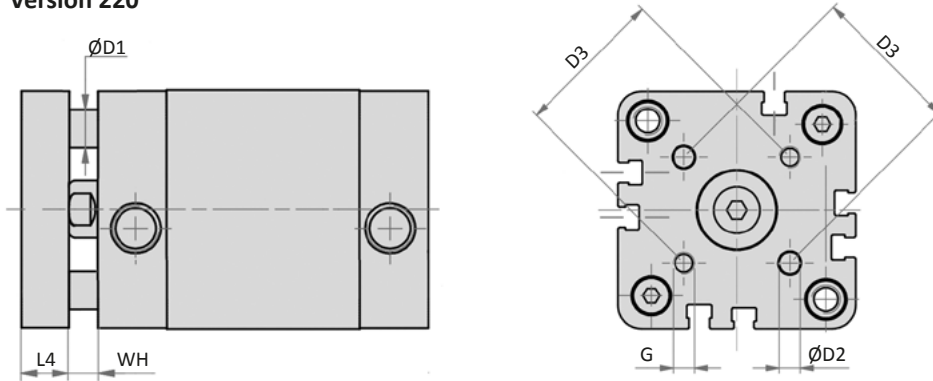
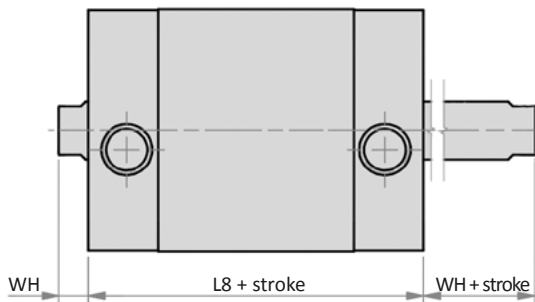
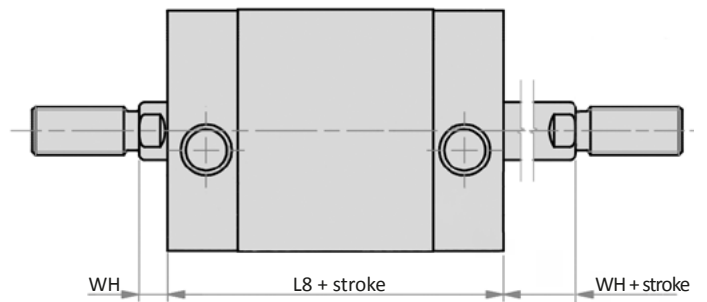
∅ 50



∅ 63 - 100



| Piston ∅ | A  | ∅ B | ∅ C  | ∅ D | E   | EE   | KF  | KK         | L1 | L2 | L3  | L8   | RT  | SW | TG  | WH  |
|----------|----|-----|------|-----|-----|------|-----|------------|----|----|-----|------|-----|----|-----|-----|
| 12       | 16 | 6   | 6    | 8   | 29  | M5   | M3  | M6         | 6  | 4  | 3.5 | 38   | M4  | 5  | 18  | 4.5 |
| 16       | 20 | 6   | 6    | 8   | 29  | M5   | M4  | M8         | 8  | 4  | 3.5 | 38   | M4  | 6  | 18  | 4.5 |
| 20       | 22 | 6   | 7.5  | 10  | 36  | M5   | M5  | M10 x 1.25 | 10 | 4  | 4.5 | 38   | M5  | 8  | 22  | 4.5 |
| 25       | 22 | 6   | 7.5  | 10  | 40  | M5   | M5  | M10 x 1.25 | 10 | 4  | 4.5 | 39.5 | M5  | 8  | 26  | 5.5 |
| 32       | 22 | 6   | 9    | 12  | 50  | G1/8 | M6  | M10 x 1.25 | 12 | 4  | 5.5 | 44.5 | M6  | 10 | 32  | 6   |
| 40       | 22 | 6   | 9    | 12  | 58  | G1/8 | M6  | M10 x 1.25 | 12 | 4  | 5.5 | 45.5 | M6  | 10 | 42  | 6.5 |
| 50       | 24 | 6   | 10.5 | 16  | 67  | G1/8 | M8  | M12 x 1.25 | 12 | 4  | 6.5 | 45.5 | M8  | 13 | 50  | 7.5 |
| 63       | 24 | 8   | 13.5 | 16  | 80  | G1/8 | M8  | M12 x 1.25 | 14 | 4  | 8.5 | 50   | M10 | 13 | 62  | 7.5 |
| 80       | 32 | 8   | 13.5 | 20  | 100 | G1/8 | M10 | M16 x 1.5  | 15 | 4  | 8.5 | 56   | M10 | 17 | 82  | 8   |
| 100      | 40 | 8   | 13.5 | 25  | 124 | G1/4 | M12 | M20 x 1.5  | 20 | 4  | 8.5 | 66.5 | M10 | 22 | 103 | 10  |

**Dimensions series NXD (Versions 220, 600 and 610)**
**Version 220**

**Version 610**

**Version 600**


| Piston Ø | Ø D1 | Ø D2 | D3 | G   | L4 | L8   | WH  |
|----------|------|------|----|-----|----|------|-----|
| 12       | -    | -    | -  | -   | -  | 38   | 4.5 |
| 16       | 5    | 3    | 14 | M3  | 6  | 38   | 4.5 |
| 20       | 5    | 4    | 17 | M4  | 8  | 38   | 4.5 |
| 25       | 6    | 5    | 22 | M5  | 8  | 39.5 | 5.5 |
| 32       | 8    | 5    | 28 | M5  | 10 | 44.5 | 6   |
| 40       | 10   | 5    | 33 | M5  | 10 | 45.5 | 6.5 |
| 50       | 10   | 6    | 42 | M6  | 12 | 45.5 | 7.5 |
| 63       | 10   | 6    | 50 | M6  | 12 | 50   | 7.5 |
| 80       | 14   | 8    | 65 | M8  | 14 | 56   | 8   |
| 100      | 14   | 10   | 80 | M10 | 14 | 66.5 | 10  |

# Series NXE

## Single acting

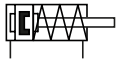
### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -10°C ... +80°C   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al (anodized)<br>Piston rod: stainless steel<br>Seals: PU, NBR (optional FKM)   |

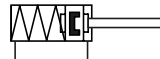


Single acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings. Standard stroke lengths in table below, additional lengths on request.

### Versions

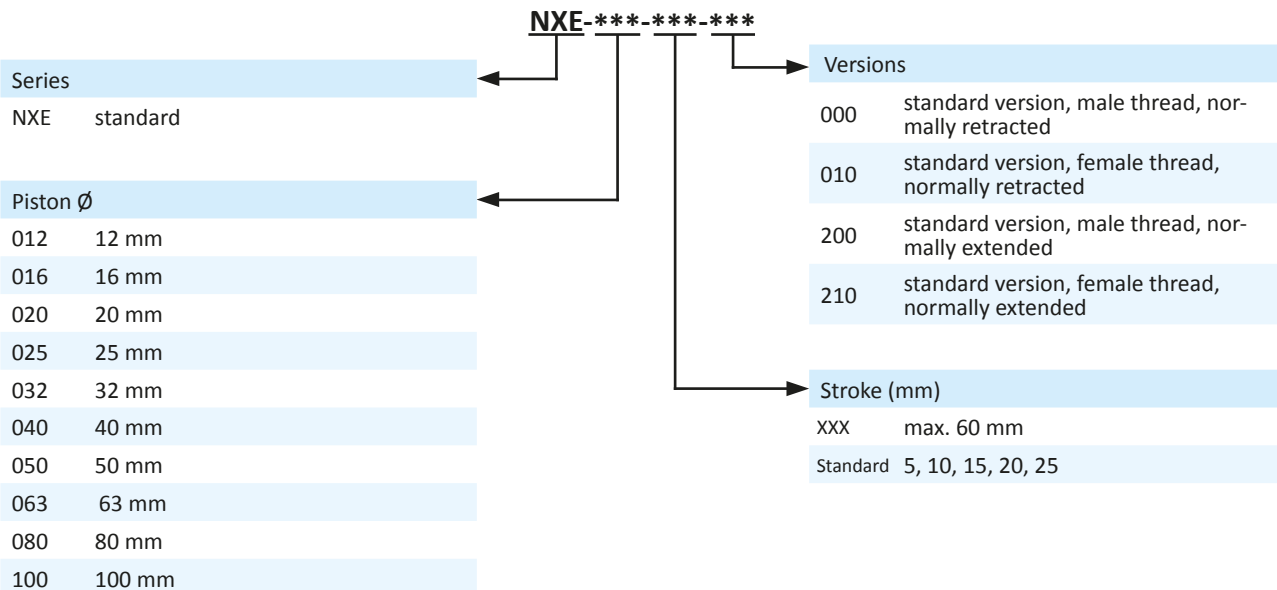


000, 010  
single acting, built-in cushioning rings, with magnetic piston, normally retracted



200, 210  
single acting, built-in cushioning rings, with magnetic piston, normally extended

### Order code



|                          |                      |             |             |             |             |
|--------------------------|----------------------|-------------|-------------|-------------|-------------|
| <b>Model-no.:</b>        | NXE-012-...          | NXE-016-... | NXE-020-... | NXE-025-... | NXE-032-... |
| <b>Piston Ø (mm)</b>     | 12                   | 16          | 20          | 25          | 32          |
| <b>Connection</b>        | M5                   | M5          | M5          | M5          | G1/8        |
| <b>Piston rod thread</b> | male M6<br>female M3 | M8          | M5          | M5          | M6          |

|                          |                              |             |             |             |             |
|--------------------------|------------------------------|-------------|-------------|-------------|-------------|
| <b>Model-no.:</b>        | NXE-040-...                  | NXE-050-... | NXE-063-... | NXE-080-... | NXE-100-... |
| <b>Piston Ø (mm)</b>     | 40                           | 50          | 63          | 80          | 100         |
| <b>Connection</b>        | G1/8                         | G1/8        | G1/8        | G1/8        | G1/4        |
| <b>Piston rod thread</b> | male M10 x 1.25<br>female M6 | M12 x 1.25  | M8          | M10         | M12         |

**Technical data**

| Model-no.:           | NXE- | 012-... | 016-... | 020-... | 025-... | 032-... | 040-... | 050-... | 063-... | 080-... | 100-... |
|----------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0 mm stroke (-x00)*  |      | 0.078   | 0.082   | 0.135   | 0.153   | 0.275   | 0.376   | 0.502   | 0.776   | 1.453   | 2.659   |
| 0 mm stroke (-x10)*  |      | 0.074   | 0.074   | 0.121   | 0.139   | 0.261   | 0.362   | 0.481   | 0.755   | 1.402   | 2.560   |
| 0 mm stroke (-x00)** |      | 0.095   | 0.099   | 0.162   | 0.215   | 0.357   | 0.476   | 0.628   | 0.932   | 1.807   | 3.139   |
| 0 mm stroke (-x10)** |      | 0.091   | 0.091   | 0.148   | 0.201   | 0.343   | 0.462   | 0.607   | 0.911   | 1.756   | 3.040   |
| each 100 mm stroke   |      | 0.170   | 0.170   | 0.270   | 0.310   | 0.410   | 0.500   | 0.630   | 0.780   | 1.180   | 1.600   |

\* up to 30 mm stroke, \*\* from 35 mm stroke

| Model-no.:                          |            | NXE-012-xxx-0x0 | NXE-016-xxx-0x0 | NXE-020-xxx-0x0 | NXE-025-xxx-0x0 | NXE-032-xxx-0x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 81 ... 83       | 81 ... 83       | 133 ... 136     | 224 ... 227     | 382 ... 386     |
|                                     | Retraction | 26 ... 28       | 26 ... 28       | 34 ... 37       | 38 ... 41       | 48 ... 52       |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 81 ... 86       | 81 ... 86       | 133 ... 139     | 224 ... 230     | 382 ... 389     |
|                                     | Retraction | 23 ... 28       | 23 ... 28       | 31 ... 37       | 35 ... 41       | 45 ... 52       |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 81 ... 88       | 81 ... 88       | 133 ... 142     | 224 ... 233     | 382 ... 393     |
|                                     | Retraction | 21 ... 28       | 21 ... 28       | 28 ... 37       | 32 ... 41       | 41 ... 52       |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 81 ... 90       | 81 ... 90       | 133 ... 145     | 224 ... 236     | 382 ... 397     |
|                                     | Retraction | 19 ... 28       | 19 ... 28       | 25 ... 37       | 29 ... 41       | 38 ... 52       |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 81 ... 92       | 81 ... 92       | 133 ... 148     | 224 ... 239     | 382 ... 400     |
|                                     | Retraction | 17 ... 28       | 17 ... 28       | 22 ... 37       | 26 ... 41       | 34 ... 52       |

| Model-no.:                          |            | NXE-040-xxx-0x0 | NXE-050-xxx-0x0 | NXE-063-xxx-0x0 | NXE-080-xxx-0x0 | NXE-100-xxx-0x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 611 ... 616     | 992 ... 997     | 1588 ... 1594   | 2568 ... 2574   | 4031 ... 4041   |
|                                     | Retraction | 63 ... 68       | 67 ... 75       | 89 ... 95       | 140 ... 147     | 200 ... 210     |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 611 ... 621     | 992 ... 1003    | 1588 ... 1600   | 2568 ... 2580   | 4031 ... 4051   |
|                                     | Retraction | 58 ... 68       | 61 ... 75       | 83 ... 95       | 134 ... 147     | 190 ... 210     |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 611 ... 626     | 992 ... 1008    | 1588 ... 1606   | 2568 ... 2586   | 4031 ... 4061   |
|                                     | Retraction | 53 ... 68       | 56 ... 75       | 77 ... 95       | 128 ... 147     | 180 ... 210     |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 611 ... 631     | 992 ... 1013    | 1588 ... 1612   | 2568 ... 2593   | 4031 ... 4071   |
|                                     | Retraction | 48 ... 68       | 51 ... 75       | 71 ... 95       | 121 ... 147     | 170 ... 210     |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 611 ... 636     | 992 ... 1018    | 1588 ... 1618   | 2568 ... 2599   | 4031 ... 4081   |
|                                     | Retraction | 43 ... 68       | 45 ... 75       | 65 ... 95       | 115 ... 147     | 160 ... 210     |

| Model-no.:                          |            | NXE-012-xxx-2x0 | NXE-016-xxx-2x0 | NXE-020-xxx-2x0 | NXE-025-xxx-2x0 | NXE-032-xxx-2x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 26 ... 28       | 26 ... 28       | 34 ... 37       | 38 ... 41       | 48 ... 52       |
|                                     | Retraction | 53 ... 55       | 53 ... 55       | 133 ... 136     | 224 ... 227     | 382 ... 386     |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 23 ... 28       | 23 ... 28       | 31 ... 37       | 35 ... 41       | 45 ... 52       |
|                                     | Retraction | 53 ... 58       | 53 ... 58       | 133 ... 139     | 224 ... 230     | 382 ... 389     |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 21 ... 28       | 21 ... 28       | 28 ... 37       | 32 ... 41       | 41 ... 52       |
|                                     | Retraction | 53 ... 60       | 53 ... 60       | 133 ... 142     | 224 ... 233     | 382 ... 393     |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 19 ... 28       | 19 ... 28       | 25 ... 37       | 29 ... 41       | 38 ... 52       |
|                                     | Retraction | 53 ... 62       | 53 ... 62       | 133 ... 145     | 224 ... 236     | 382 ... 397     |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 17 ... 28       | 17 ... 28       | 22 ... 37       | 26 ... 41       | 34 ... 52       |
|                                     | Retraction | 53 ... 64       | 53 ... 64       | 133 ... 148     | 224 ... 239     | 382 ... 400     |

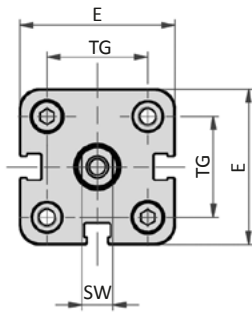
| Model-no.:                          |            | NXE-040-xxx-2x0 | NXE-050-xxx-2x0 | NXE-063-xxx-2x0 | NXE-080-xxx-2x0 | NXE-100-xxx-2x0 |
|-------------------------------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Force at 6 bar and 5 mm stroke (N)  | Extension  | 63 ... 68       | 67 ... 75       | 89 ... 95       | 140 ... 147     | 200 ... 210     |
|                                     | Retraction | 611 ... 616     | 992 ... 997     | 1588 ... 1594   | 2568 ... 2574   | 4031 ... 4041   |
| Force at 6 bar and 10 mm stroke (N) | Extension  | 58 ... 68       | 61 ... 75       | 83 ... 95       | 134 ... 147     | 190 ... 210     |
|                                     | Retraction | 611 ... 621     | 992 ... 1003    | 1588 ... 1600   | 2568 ... 2580   | 4031 ... 4051   |
| Force at 6 bar and 15 mm stroke (N) | Extension  | 53 ... 68       | 56 ... 75       | 77 ... 95       | 128 ... 147     | 180 ... 210     |
|                                     | Retraction | 611 ... 626     | 992 ... 1008    | 1588 ... 1606   | 2568 ... 2586   | 4031 ... 4061   |
| Force at 6 bar and 20 mm stroke (N) | Extension  | 48 ... 68       | 51 ... 75       | 71 ... 95       | 121 ... 147     | 170 ... 210     |
|                                     | Retraction | 611 ... 631     | 992 ... 1013    | 1588 ... 1612   | 2568 ... 2593   | 4031 ... 4071   |
| Force at 6 bar and 25 mm stroke (N) | Extension  | 43 ... 68       | 45 ... 75       | 65 ... 95       | 115 ... 147     | 160 ... 210     |
|                                     | Retraction | 611 ... 636     | 992 ... 1018    | 1588 ... 1618   | 2568 ... 2599   | 4031 ... 4081   |

# Series NXE

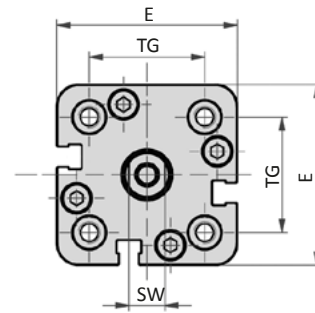
Single acting

## Dimensions series NXE

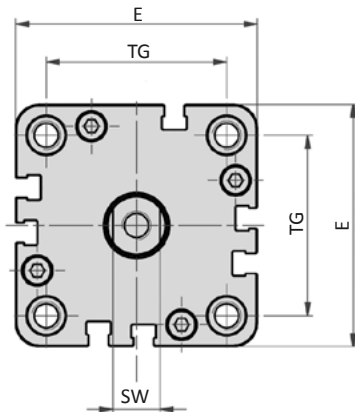
∅ 12 - 25



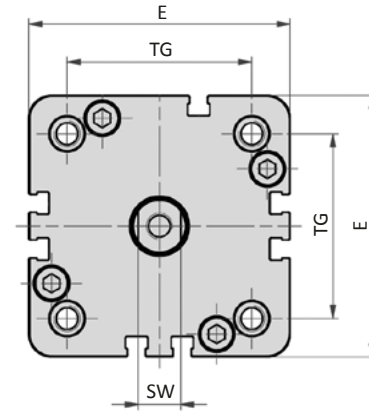
∅ 32-40



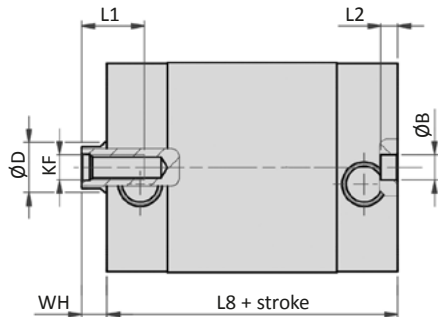
∅ 50



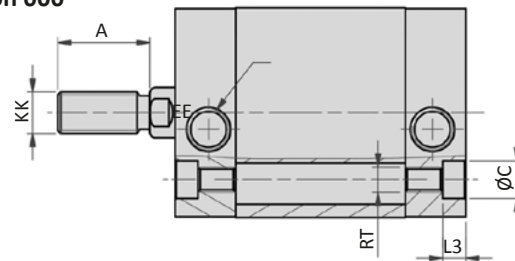
∅ 63 - 100



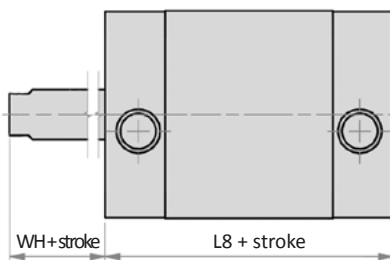
Version 010



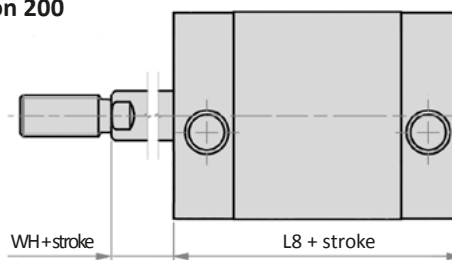
Version 000



Version 210



Version 200

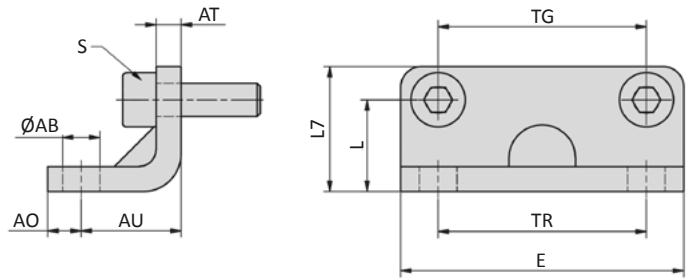


| Piston ∅ | A  | ∅ B | ∅ C  | ∅ D | E   | EE   | KF  | KK         | L1 | L2 | L3  | L8*  | L8** | RT  | SW | TG  | WH  |
|----------|----|-----|------|-----|-----|------|-----|------------|----|----|-----|------|------|-----|----|-----|-----|
| 12       | 16 | 6   | 6    | 8   | 29  | M5   | M3  | M6         | 6  | 4  | 3.5 | 38   | 48   | M4  | 5  | 18  | 4.5 |
| 16       | 20 | 6   | 6    | 8   | 29  | M5   | M4  | M8         | 8  | 4  | 3.5 | 38   | 48   | M4  | 6  | 18  | 4.5 |
| 20       | 22 | 6   | 7.5  | 10  | 36  | M5   | M5  | M10 x 1.25 | 10 | 4  | 4.5 | 38   | 48   | M5  | 8  | 22  | 4.5 |
| 25       | 22 | 6   | 7.5  | 10  | 40  | M5   | M5  | M10 x 1.25 | 10 | 4  | 4.5 | 39.5 | 59.5 | M5  | 8  | 26  | 5.5 |
| 32       | 22 | 6   | 9    | 12  | 50  | G1/8 | M6  | M10 x 1.25 | 12 | 4  | 5.5 | 44.5 | 64.5 | M6  | 10 | 32  | 6   |
| 40       | 22 | 6   | 9    | 12  | 58  | G1/8 | M6  | M10 x 1.25 | 12 | 4  | 5.5 | 45.5 | 65.5 | M6  | 10 | 42  | 6.5 |
| 50       | 24 | 6   | 10.5 | 16  | 67  | G1/8 | M8  | M12 x 1.25 | 12 | 4  | 6.5 | 45.5 | 65.5 | M8  | 13 | 50  | 7.5 |
| 63       | 24 | 8   | 13.5 | 16  | 80  | G1/8 | M8  | M12 x 1.25 | 14 | 4  | 8.5 | 50   | 70   | M10 | 13 | 62  | 7.5 |
| 80       | 32 | 8   | 13.5 | 20  | 100 | G1/8 | M10 | M16 x 1.5  | 15 | 4  | 8.5 | 56   | 86   | M10 | 17 | 82  | 8   |
| 100      | 40 | 8   | 13.5 | 25  | 124 | G1/4 | M12 | M20 x 1.5  | 20 | 4  | 8.5 | 66.5 | 96.5 | M10 | 22 | 103 | 10  |

\* up to 30 mm stroke, \*\* from 35 mm stroke



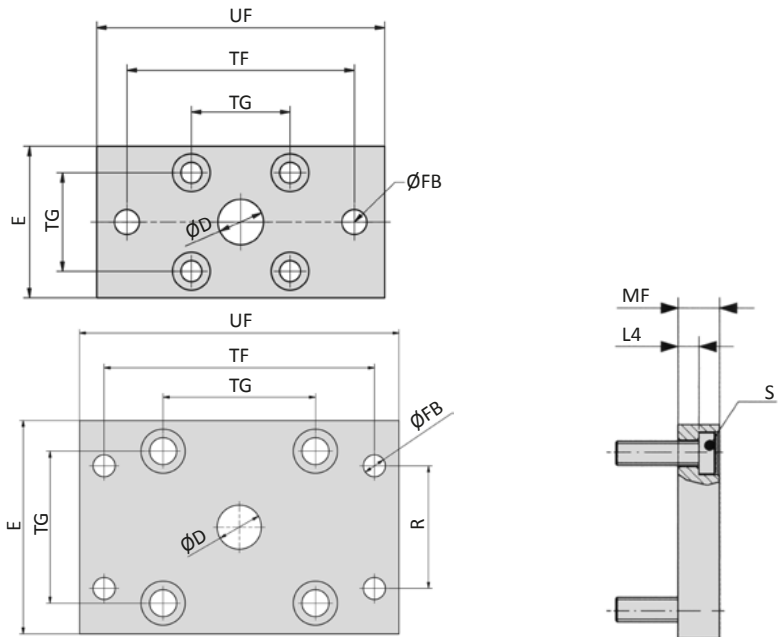
**NXB-xxx-01 Foot mount**



| Model-no.: | ∅ AB | AO | AU | AT | E   | L    | L7   | S        | TG  | TR  |
|------------|------|----|----|----|-----|------|------|----------|-----|-----|
| NXB-032-01 | 6.6  | 8  | 18 | 5  | 50  | 16   | 24   | M6 x 20  | 32  | 32  |
| NXB-040-01 | 9    | 8  | 20 | 5  | 60  | 21.5 | 29.5 | M6 x 20  | 42  | 42  |
| NXB-050-01 | 9    | 8  | 24 | 6  | 68  | 22   | 30   | M8 x 20  | 50  | 50  |
| NXB-063-01 | 11   | 12 | 27 | 6  | 84  | 28.5 | 39   | M8 x 20  | 62  | 62  |
| NXB-080-01 | 11   | 12 | 30 | 8  | 102 | 24.5 | 36.5 | M10 x 20 | 82  | 82  |
| NXB-100-01 | 13.5 | 12 | 33 | 8  | 123 | 26.5 | 38.5 | M10 x 20 | 103 | 103 |

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

**NXB-xxx-02 Flange mount**

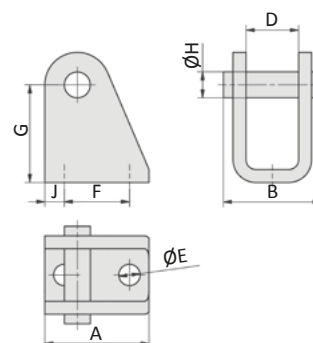


| Model-no.: | ∅ D | E   | ∅ FB | L4  | MF | R  | S        | TF  | TG  | UF  |
|------------|-----|-----|------|-----|----|----|----------|-----|-----|-----|
| NXB-016-02 | 10  | 29  | 5.5  | 4.6 | 10 | -  | M4 x 16  | 43  | 18  | 55  |
| NXB-020-02 | 12  | 36  | 6.6  | 4.6 | 10 | -  | M5 x 20  | 55  | 22  | 70  |
| NXB-025-02 | 12  | 40  | 6.6  | 4.6 | 10 | -  | M5 x 20  | 60  | 26  | 76  |
| NXB-032-02 | 14  | 50  | 7    | 3.6 | 10 | 32 | M6 x 20  | 65  | 32  | 80  |
| NXB-040-02 | 14  | 60  | 9    | 3.6 | 10 | 36 | M6 x 20  | 82  | 42  | 102 |
| NXB-050-02 | 18  | 68  | 9    | 3.4 | 12 | 45 | M8 x 25  | 90  | 50  | 110 |
| NXB-063-02 | 18  | 87  | 9    | 4.4 | 15 | 50 | M10 x 25 | 110 | 62  | 130 |
| NXB-080-02 | 23  | 107 | 12   | 4.4 | 15 | 63 | M10 x 25 | 135 | 82  | 160 |
| NXB-100-02 | 28  | 128 | 14   | 4.4 | 15 | 75 | M10 x 30 | 163 | 103 | 190 |

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

## Series NXD Mounting accessories

### RC-xx Clevis mount



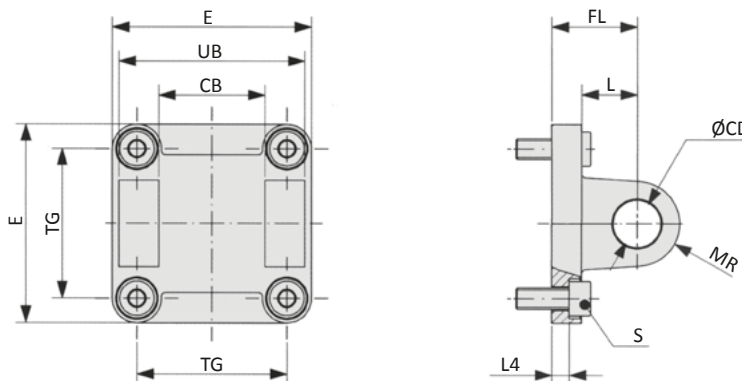
| Model-no.: | A  | B  | D    | Ø E | F  | G  | Ø H | J |
|------------|----|----|------|-----|----|----|-----|---|
| RC-16      | 25 | 23 | 12.1 | 5.5 | 15 | 27 | 6   | 5 |
| RC-30      | 32 | 30 | 16.1 | 6.6 | 20 | 30 | 8   | 6 |

Material: steel, zinc plated, 2 snap rings are included.

### NXB-xxx-03 Clevis mount



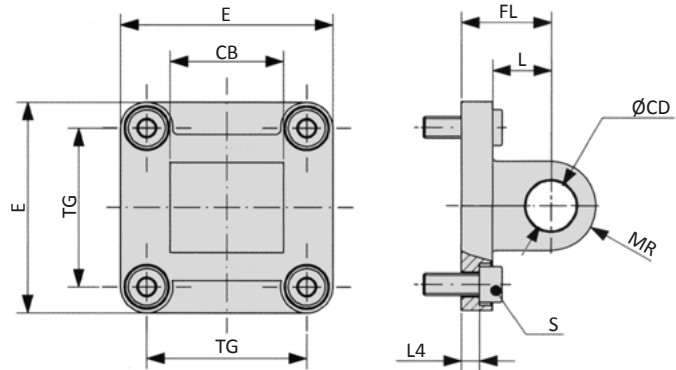
Inclusive clevis pin  
order no: **NXB-xxx-38**



| Model-no.: | CB | Ø CD | E   | FL | L  | L4  | MR   | S        | TG  | UB  |
|------------|----|------|-----|----|----|-----|------|----------|-----|-----|
| NXB-032-03 | 26 | 10   | 48  | 22 | 13 | 5.5 | 10   | M6 x 16  | 32  | 45  |
| NXB-040-03 | 28 | 12   | 58  | 25 | 16 | 5.5 | 12.5 | M6 x 16  | 42  | 52  |
| NXB-050-03 | 32 | 12   | 66  | 27 | 16 | 6.5 | 12.5 | M8 x 20  | 50  | 60  |
| NXB-063-03 | 40 | 16   | 83  | 32 | 21 | 6.5 | 15   | M10 x 25 | 62  | 70  |
| NXB-080-03 | 50 | 16   | 102 | 36 | 23 | 10  | 15   | M10 x 30 | 82  | 90  |
| NXB-100-03 | 60 | 20   | 123 | 41 | 26 | 10  | 20   | M10 x 30 | 103 | 110 |

Material: Al, 4 screws in accordance with EN ISO 4762 are included.

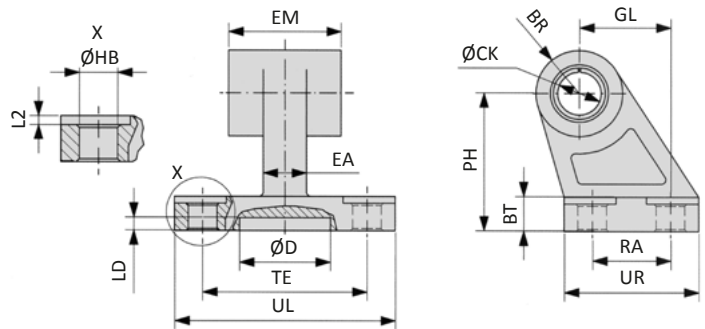
**NXB-xxx-04 Swivel mount**



| Model-no.: | CB | Ø CD | E  | FL | L  | L4  | MR | S       | TG |
|------------|----|------|----|----|----|-----|----|---------|----|
| NXB-016-04 | 12 | 6    | 27 | 16 | 10 | 2.6 | 6  | M4 x 12 | 18 |
| NXB-020-04 | 16 | 8    | 34 | 20 | 14 | 2.6 | 8  | M5 x 16 | 22 |
| NXB-025-04 | 16 | 8    | 38 | 20 | 14 | 2.6 | 8  | M5 x 16 | 26 |

Material: Al, 4 screws in accordance with EN ISO 4762 are included.

**XLB-xxx-06 Swivel mount 90°**

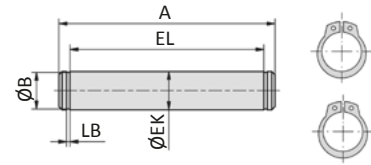


| Model-no.: | BR | BT | ØCK | Ø D | EA | EM | GL | ØHB | L2  | LD | PH | RA | TE | UL | UR |
|------------|----|----|-----|-----|----|----|----|-----|-----|----|----|----|----|----|----|
| XLB-032-06 | 10 | 8  | 10  | 21  | 10 | 26 | 21 | 6.6 | 1.6 | 3  | 32 | 18 | 38 | 51 | 31 |
| XLB-040-06 | 11 | 10 | 12  | 21  | 15 | 28 | 24 | 6.6 | 1.6 | 3  | 36 | 22 | 41 | 54 | 35 |
| XLB-050-06 | 13 | 12 | 12  | 21  | 16 | 32 | 33 | 9   | 1.6 | 3  | 45 | 30 | 50 | 65 | 45 |
| XLB-063-06 | 15 | 14 | 16  | 21  | 16 | 40 | 37 | 9   | 1.6 | 3  | 50 | 35 | 52 | 67 | 50 |
| XLB-080-06 | 15 | 14 | 16  | 21  | 20 | 50 | 47 | 11  | 2.5 | 3  | 63 | 40 | 66 | 86 | 60 |
| XLB-100-06 | 19 | 17 | 20  | 11  | 20 | 60 | 55 | 11  | 2.5 | 3  | 71 | 50 | 76 | 96 | 70 |

Materials: Al, bushing steel and PTFE

## Series NXD Mounting accessories

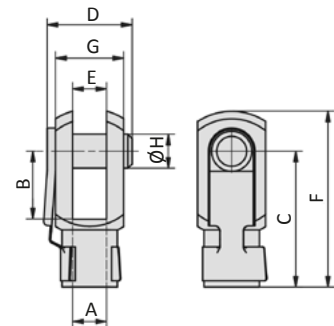
### XLB-xxx-08 Clevis pin



| Model-no.: | A   | Ø B  | Ø EK | EL  | LB  |
|------------|-----|------|------|-----|-----|
| XLB-032-08 | 53  | 9.6  | 10   | 46  | 1.1 |
| XLB-040-08 | 60  | 11.5 | 12   | 53  | 1.1 |
| XLB-050-08 | 68  | 11.5 | 12   | 61  | 1.1 |
| XLB-063-08 | 78  | 15.2 | 16   | 71  | 1.1 |
| XLB-080-08 | 98  | 15.2 | 16   | 91  | 1.1 |
| XLB-100-08 | 118 | 19   | 20   | 111 | 1.3 |

Material: steel, zinc plated; 2 snap rings are included.

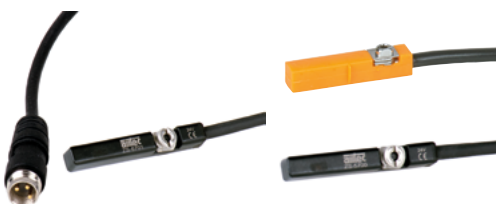
### RD-xx, FD-xx Rod clevis



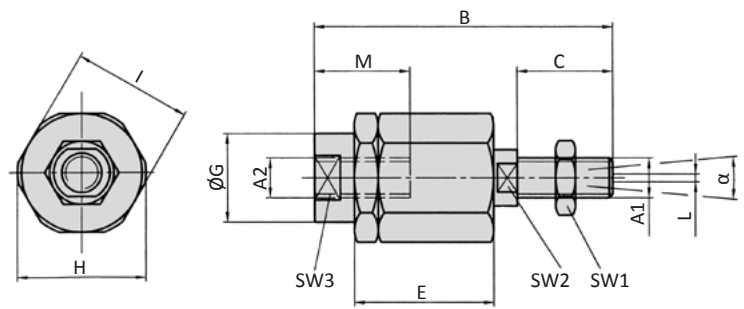
| Model-no.: | for cylinder Ø | A          | B  | C  | D  | E  | F   | G  | Ø H |
|------------|----------------|------------|----|----|----|----|-----|----|-----|
| RD-16      | 12             | M6         | 12 | 24 | 16 | 6  | 31  | 12 | 6   |
| RD-20      | 16             | M8         | 16 | 32 | 22 | 8  | 42  | 16 | 8   |
| RD-25      | 20 - 40        | M10 x 1.25 | 20 | 40 | 26 | 10 | 52  | 20 | 10  |
| FD-40      | 50, 63         | M12 x 1.25 | 24 | 48 | 32 | 12 | 62  | 24 | 12  |
| FD-63      | 80             | M16 x 1.5  | 32 | 64 | 40 | 16 | 83  | 32 | 16  |
| FD-80      | 100            | M20 x 1.5  | 40 | 80 | 50 | 20 | 105 | 40 | 20  |

Material: steel, zinc plated

### Proximity sensors



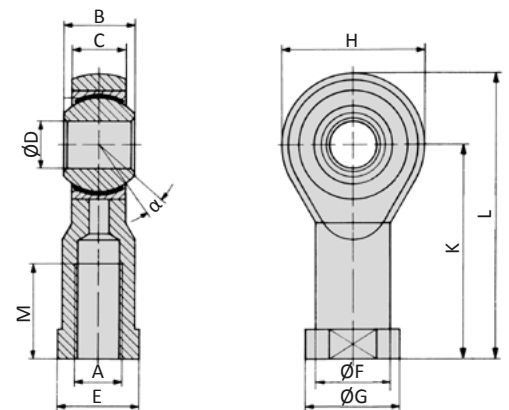
**FK-xx Flexible coupling**



| Model-no.: | for cylinder | A1, A2     | B    | C  | D   | E    | ØG   | H    | I  | L | M    | SW1 | SW2 | SW3 | α  |
|------------|--------------|------------|------|----|-----|------|------|------|----|---|------|-----|-----|-----|----|
| FK-16      | 12           | M6         | 35   | 11 | 2.5 | 17.5 | 8.5  | 14.5 | 13 | 1 | 12.5 | 10  | 5   | 7   | 6° |
| FK-20      | 16           | M8         | 57   | 21 | 5   | 26   | 12.5 | 19   | 17 | 2 | 16   | 13  | 7   | 11  | 8° |
| FK-32      | 20 - 40      | M10 x 1.25 | 71.5 | 20 | 7.5 | 35   | 22   | 32   | 30 | 2 | 22   | 17  | 12  | 19  | 8° |
| FK-40      | 50, 63       | M12 x 1.25 | 71.5 | 20 | 7.5 | 35   | 22   | 32   | 30 | 2 | 22   | 19  | 12  | 19  | 8° |
| FK-63      | 80           | M16 x 1.5  | 104  | 32 | 10  | 53   | 32   | 45   | 41 | 2 | 30   | 24  | 20  | 27  | 6° |
| FK-80      | 100          | M20 x 1.5  | 119  | 40 | 10  | 53   | 32   | 45   | 41 | 2 | 37   | 30  | 20  | 27  | 6° |

Material: steel, zinc plated

**RO-xx, FO-xx Rod eye**



| Model-no.: | for cylinder | A          | B  | C    | ØD | E  | ØF   | ØG | H  | K  | L   | M  | α   |
|------------|--------------|------------|----|------|----|----|------|----|----|----|-----|----|-----|
| RO-16      | 12           | M6         | 9  | 6.75 | 6  | 11 | 10   | 13 | 20 | 30 | 40  | 12 | 13° |
| RO-20      | 16           | M8         | 12 | 9    | 8  | 14 | 12.5 | 16 | 24 | 36 | 48  | 16 | 14° |
| RO-25      | 20 - 40      | M10 x 1.25 | 14 | 10.5 | 10 | 17 | 15   | 19 | 28 | 43 | 57  | 20 | 13° |
| FO-40      | 50, 63       | M12 x 1.25 | 16 | 12   | 12 | 19 | 17.5 | 22 | 32 | 50 | 66  | 22 | 13° |
| FO-63      | 80           | M16 x 1.5  | 21 | 15   | 16 | 22 | 22   | 27 | 42 | 64 | 85  | 28 | 15° |
| FO-80      | 100          | M20 x 1.5  | 25 | 18   | 20 | 30 | 27.5 | 34 | 50 | 77 | 102 | 33 | 14° |

Materials: steel, zinc plated, bearing steel, bronze bushing

## Series LX

### Guide units, double acting

#### Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 10 bar  |
| <b>Temperature range</b>  | -20°C ... +80°C   |
| <b>Operating speed</b>    | 50 ... 500 mm/s   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>          | Profile: Al (anodized)<br>Flange plate: steel (zinc plated)<br>Piston rod: stainless steel<br>Guide rod: stainless steel (-000), hardened steel (-100)<br>Seals: PU   |

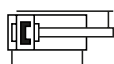


Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings. The sensors can be installed directly into the sensor grooves of the Al-profile.

The integrated cylinder and guide unit ensures precise and accurate movement.

Standard stroke lengths in table below, additional lengths on request.

#### Versions



000, 100  
double acting, built-in cushioning rings,  
with magnetic piston,  
guide unit

#### Order code

| Series   |          | LX-***-***-*** |  | Versions    |  |
|----------|----------|----------------|--|-------------|--|
| LX       | standard |                |  | 000         | standard version, bronze bearing                     |
|          |          |                |  | 100         | standard version, ball bearings                      |
| Piston Ø |          | LX-***-***-*** |  | Stroke (mm) |  |
| 020      | 20 mm    |                |  | XXX         | max. 200 mm  |
| 025      | 25 mm    |                |  | Standard    | 20*, 25**, 30*, 40*, 50, 75, 100, 125, 150, 175, 200 |
| 032      | 32 mm    |                |  |             |  |
| 040      | 40 mm    |                |  |             |  |
| 050      | 50 mm    |                |  |             |  |
| 063      | 63 mm    |                |  |             |  |

\* only for Ø 20 and 25 mm, \*\* only for Ø 32 - 63 mm

#### Technical data

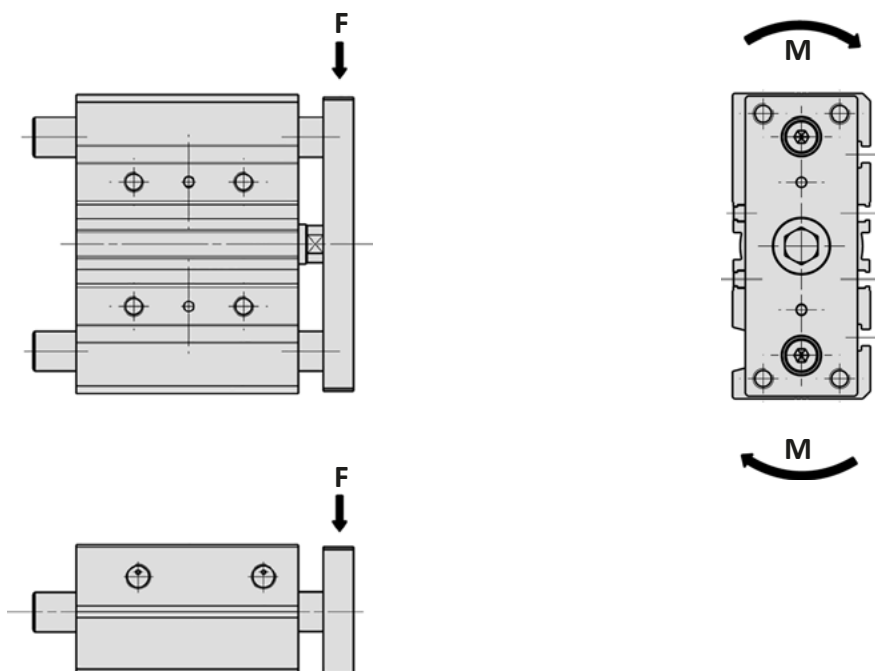
| Model-no.:                | LX-020-...        | LX-025-... | LX-032-... | LX-040-... | LX-050-... | LX-063-... |
|---------------------------|-------------------|------------|------------|------------|------------|------------|
| <b>Piston Ø (mm)</b>      | 20                | 25         | 32         | 40         | 50         | 63         |
| <b>Force at 6 bar (N)</b> | <b>Extension</b>  | 170        | 265        | 434        | 678        | 1060       |
|                           | <b>Retraction</b> | 127        | 204        | 326        | 570        | 890        |
| <b>Connection</b>         | G1/8              | G1/8       | G1/8       | G1/8       | G1/4       | G1/4       |

**Technical information**
**Maximum force (N)**

| Piston Ø (mm) | Stroke length (mm) | 20  | 25  | 30  | 40  | 50  | 75  | 100 | 125 | 150 | 175 | 200 |
|---------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 20            | Version 000        | 100 | -   | 93  | 81  | 73  | 114 | 93  | 98  | 85  | 75  | 67  |
|               | Version 100        | 110 | -   | 100 | 125 | 121 | 90  | 86  | 69  | 58  | 49  | 43  |
| 25            | Version 000        | 140 | -   | 120 | 115 | 103 | 165 | 135 | 150 | 131 | 116 | 104 |
|               | Version 100        | 142 | -   | 85  | 154 | 148 | 106 | 82  | 97  | 81  | 70  | 61  |
| 32            | Version 000        | -   | 253 | -   | -   | 214 | 225 | 208 | 225 | 198 | 176 | 159 |
|               | Version 100        | -   | 222 | -   | -   | 91  | 167 | 129 | 145 | 122 | 104 | 90  |
| 40            | Version 000        | -   | 251 | -   | -   | 197 | 215 | 206 | 224 | 196 | 175 | 157 |
|               | Version 100        | -   | 221 | -   | -   | 93  | 167 | 128 | 145 | 121 | 104 | 90  |
| 50            | Version 000        | -   | 317 | -   | -   | 273 | 267 | 299 | 257 | 225 | 200 | 179 |
|               | Version 100        | -   | 203 | -   | -   | 152 | 161 | 193 | 156 | 130 | 110 | 95  |
| 63            | Version 000        | -   | 316 | -   | -   | 273 | 267 | 299 | 257 | 225 | 200 | 179 |
|               | Version 100        | -   | 201 | -   | -   | 151 | 158 | 195 | 157 | 130 | 110 | 94  |

**Maximum torque (Nm)**

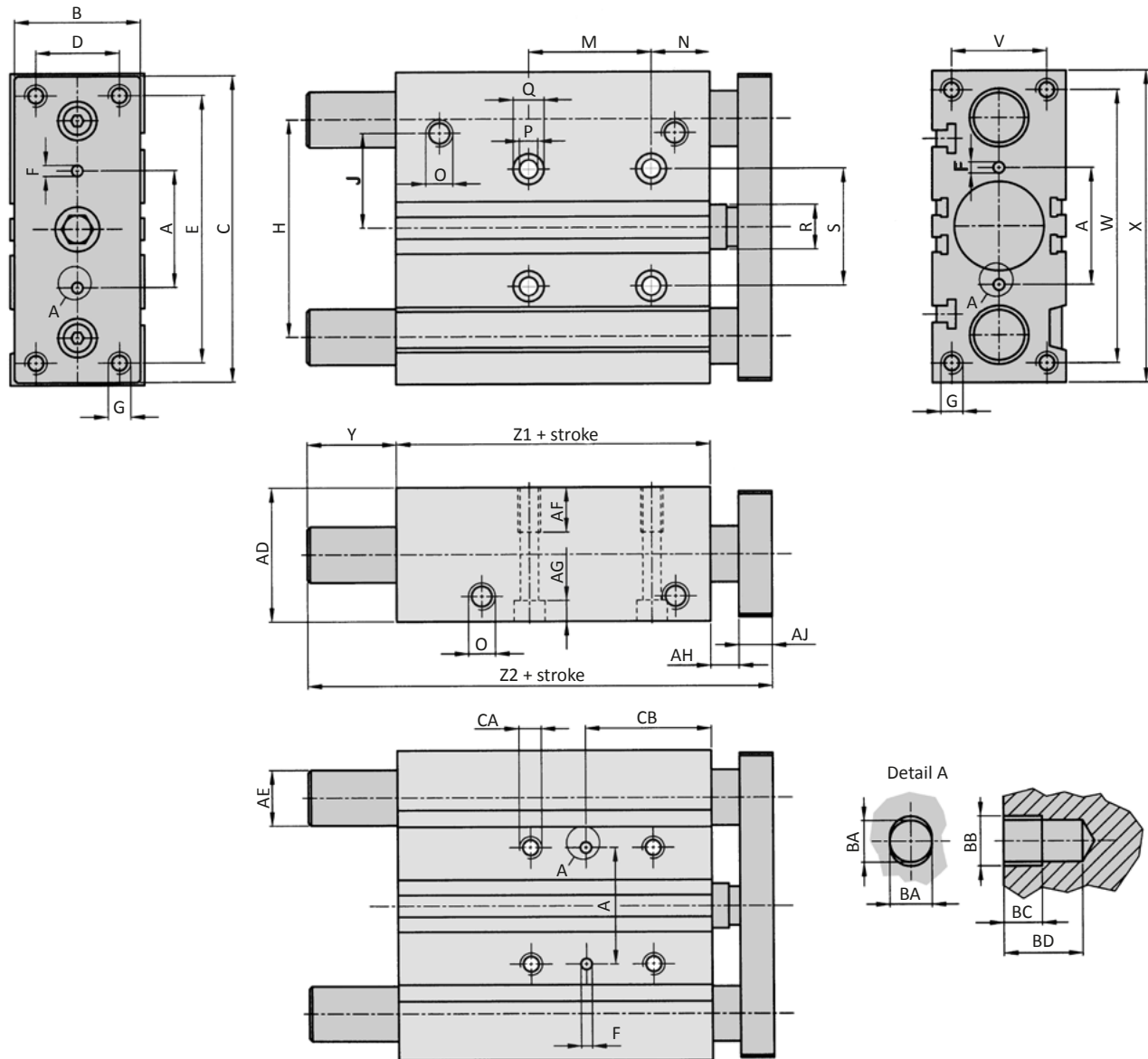
| Piston Ø (mm) | Stroke length (mm) | 20  | 25   | 30  | 40  | 50   | 75   | 100  | 125  | 150  | 175  | 200 |
|---------------|--------------------|-----|------|-----|-----|------|------|------|------|------|------|-----|
| 20            | Version 000        | 1.7 | -    | 1.5 | 1.2 | 1.0  | 2.9  | 2.8  | 2.6  | 2.3  | 2.0  | 1.8 |
|               | Version 100        | 3.0 | -    | 2.7 | 3.4 | 3.3  | 2.4  | 2.3  | 1.9  | 1.6  | 1.3  | 1.2 |
| 25            | Version 000        | 3.4 | -    | 2.9 | 3.6 | 3.3  | 4.2  | 4.3  | 3.8  | 3.2  | 2.7  | 2.3 |
|               | Version 100        | 3.5 | -    | 2.7 | 4.9 | 4.7  | 3.4  | 2.6  | 3.1  | 2.6  | 2.2  | 2.0 |
| 32            | Version 000        | -   | 6.7  | -   | -   | 6.5  | 7.2  | 7.0  | 6.6  | 5.6  | 4.8  | 4.1 |
|               | Version 100        | -   | 6.3  | -   | -   | 3.6  | 6.5  | 5.1  | 5.7  | 4.8  | 4.1  | 3.5 |
| 40            | Version 000        | -   | 8.7  | -   | -   | 7.3  | 9.2  | 8.8  | 9.6  | 8.4  | 7.5  | 6.7 |
|               | Version 100        | -   | 8.5  | -   | -   | 4.0  | 7.2  | 5.5  | 6.2  | 5.2  | 4.5  | 3.9 |
| 50            | Version 000        | -   | 15.4 | -   | -   | 12.9 | 12.6 | 13.4 | 12.1 | 11.3 | 10.1 | 9.8 |
|               | Version 100        | -   | 11.1 | -   | -   | 8.3  | 8.8  | 10.6 | 8.6  | 7.1  | 6.0  | 5.2 |
| 63            | Version 000        | -   | 15.1 | -   | -   | 14.3 | 16.6 | 17   | 14   | 11.3 | 9.7  | 9.1 |
|               | Version 100        | -   | 8.3  | -   | -   | 7.2  | 9.8  | 12.1 | 9.7  | 8.1  | 6.8  | 5.8 |



# Series LX

Guide units, double acting

## Dimensions



| Piston Ø | A  | B  | C   | D  | E   | Ø F   | G        | H   | J    | N  | O    | Ø P | Ø Q | Ø R | S  |
|----------|----|----|-----|----|-----|-------|----------|-----|------|----|------|-----|-----|-----|----|
| 20       | 28 | 30 | 81  | 18 | 70  | 3 x 6 | M5 x 13  | 54  | 25   | 17 | G1/8 | 5.5 | 9.5 | 10  | 28 |
| 25       | 34 | 40 | 91  | 26 | 78  | 4 x 6 | M6 x 15  | 64  | 28.5 | 17 | G1/8 | 5.5 | 9.5 | 12  | 34 |
| 32       | 42 | 45 | 110 | 30 | 96  | 4 x 6 | M8 x 20  | 78  | 34   | 21 | G1/8 | 6.5 | 11  | 16  | 42 |
| 40       | 50 | 45 | 118 | 30 | 104 | 4 x 6 | M8 x 20  | 86  | 38   | 22 | G1/8 | 6.5 | 11  | 16  | 50 |
| 50       | 66 | 60 | 146 | 40 | 130 | 5 x 8 | M10 x 22 | 110 | 47   | 24 | G1/4 | 8.5 | 14  | 20  | 66 |
| 63       | 80 | 70 | 158 | 50 | 130 | 5 x 8 | M10 x 22 | 124 | 55   | 24 | G1/4 | 8.5 | 14  | 20  | 80 |

| Piston Ø | V  | W   | X   | Z1   | AD | AF | AG  | AH | AJ | AK   | Ø BA | BB  | BC | BD | CA  |
|----------|----|-----|-----|------|----|----|-----|----|----|------|------|-----|----|----|-----|
| 20       | 24 | 72  | 83  | 37   | 36 | 12 | 5.5 | 6  | 10 | 11.5 | 3    | 3.5 | 3  | 6  | M6  |
| 25       | 30 | 82  | 93  | 37.5 | 42 | 12 | 5.5 | 6  | 10 | 13.5 | 4    | 4.5 | 3  | 6  | M6  |
| 32       | 34 | 98  | 112 | 37.5 | 48 | 16 | 7.5 | 10 | 12 | 15   | 4    | 4.5 | 3  | 6  | M8  |
| 40       | 40 | 106 | 120 | 44   | 54 | 16 | 7.5 | 10 | 12 | 18   | 4    | 4.5 | 3  | 6  | M8  |
| 50       | 46 | 130 | 148 | 44   | 64 | 20 | 9   | 13 | 15 | 21.5 | 5    | 6   | 4  | 8  | M10 |
| 63       | 58 | 142 | 162 | 49   | 78 | 20 | 9   | 13 | 15 | 28   | 5    | 6   | 4  | 8  | M10 |

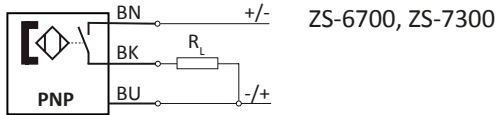
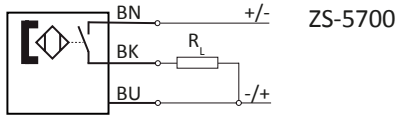
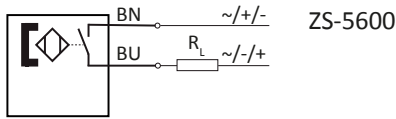


**Dimensions**

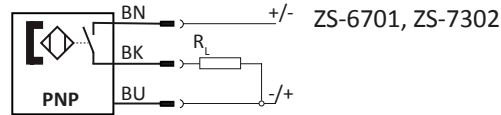
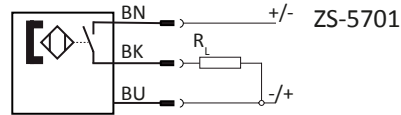
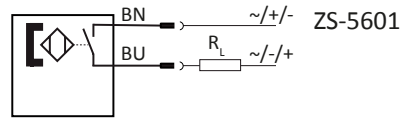
| Piston Ø | Stroke    | Version | Y    | Z2   | Ø AE | M   | CB |
|----------|-----------|---------|------|------|------|-----|----|
| 20       | 20 - 30   | 000     | 21.5 | 74.5 | 12   | 24  | 29 |
| 20       | 20 - 30   | 100     | 19   | 72   | 10   | 24  | 29 |
| 20       | 40 - 50   | 000     | 21.5 | 74.5 | 12   | 44  | 39 |
| 20       | 75 - 100  | 000     | 26.5 | 79.5 | 12   | 44  | 39 |
| 20       | 40 - 100  | 100     | 22   | 75   | 10   | 44  | 39 |
| 20       | 125 - 200 | 000     | 26.5 | 79.5 | 12   | 120 | 77 |
| 20       | 125 - 200 | 100     | 32   | 85   | 10   | 120 | 77 |
| 25       | 20        | 000     | 21   | 74.5 | 16   | 24  | 29 |
| 25       | 30        | 000     | 27   | 80.5 | 16   | 24  | 29 |
| 25       | 20 - 30   | 100     | 21   | 74.5 | 12   | 24  | 29 |
| 25       | 40 - 50   | 000     | 27   | 80.5 | 16   | 44  | 39 |
| 25       | 75 - 100  | 000     | 31.5 | 85   | 16   | 44  | 39 |
| 25       | 40 - 100  | 100     | 32   | 85.5 | 12   | 44  | 39 |
| 25       | 125 - 200 | 000     | 31.5 | 85   | 16   | 120 | 77 |
| 25       | 125 - 200 | 100     | 44.5 | 98   | 12   | 120 | 77 |
| 32       | 25        | 000     | 14   | 73.5 | 20   | 24  | 33 |
| 32       | 25        | 100     | 26.5 | 86   | 16   | 24  | 33 |
| 32       | 50        | 000     | 32   | 91.5 | 20   | 48  | 45 |
| 32       | 50        | 100     | 26.5 | 86   | 16   | 48  | 45 |
| 32       | 75 - 100  | 000     | 32   | 91.5 | 20   | 48  | 45 |
| 32       | 75 - 100  | 100     | 35.5 | 95   | 16   | 48  | 45 |
| 32       | 125 - 200 | 000     | 32   | 91.5 | 20   | 124 | 83 |
| 32       | 125 - 200 | 100     | 50.5 | 110  | 16   | 124 | 83 |
| 40       | 25        | 000     | 7.5  | 73.5 | 20   | 24  | 34 |
| 40       | 25        | 100     | 20   | 86   | 16   | 24  | 34 |
| 40       | 50 - 100  | 000     | 25.5 | 91.5 | 20   | 48  | 46 |
| 40       | 50        | 100     | 20   | 86   | 16   | 48  | 46 |
| 40       | 75 - 100  | 100     | 29   | 95   | 16   | 48  | 46 |
| 40       | 125 - 200 | 000     | 25.5 | 91.5 | 20   | 124 | 84 |
| 40       | 125 - 200 | 100     | 44   | 110  | 16   | 124 | 84 |
| 50       | 25        | 000     | 26.5 | 98.5 | 25   | 24  | 36 |
| 50       | 25        | 100     | 21   | 93   | 20   | 24  | 36 |
| 50       | 50 - 100  | 000     | 26.5 | 98.5 | 25   | 48  | 48 |
| 50       | 50 - 75   | 100     | 21   | 93   | 20   | 48  | 48 |
| 50       | 100       | 100     | 40   | 112  | 20   | 48  | 48 |
| 50       | 125 - 200 | 000     | 26.5 | 98.5 | 25   | 124 | 86 |
| 50       | 125 - 200 | 100     | 40   | 112  | 20   | 124 | 86 |
| 63       | 25        | 000     | 21.5 | 98.5 | 25   | 28  | 38 |
| 63       | 25        | 100     | 16   | 93   | 20   | 28  | 38 |
| 63       | 50 - 100  | 000     | 21.5 | 98.5 | 25   | 52  | 50 |
| 63       | 50 - 75   | 100     | 16   | 93   | 20   | 52  | 50 |
| 63       | 100       | 100     | 35   | 112  | 20   | 52  | 50 |
| 63       | 125 - 200 | 000     | 21.5 | 98.5 | 25   | 128 | 88 |
| 63       | 125 - 200 | 100     | 35   | 112  | 20   | 128 | 88 |

## Series ZS Proximity sensors

### Proximity sensors with cable



### Proximity sensors with plug



### Technical data

| Model-no.:                                     | ZS-5600             | ZS-5601                  | ZS-5700            | ZS-5701                  |
|--|---------------------|--------------------------|--------------------|--------------------------|
|  |                     |                          |                    |                          |
| <b>Design</b>                                  | 2-pole Reed sensor  | 2-pole Reed sensor       | 3-pole Reed sensor | 3-pole Reed sensor       |
| <b>Contact function</b>                        | NO                  | NO                       | NO                 | NO                       |
| <b>Rated operational voltage</b>               | 5 ... 240 V AC / DC | 5 ... 60 V AC / DC       | 5 ... 30 V DC      | 5 ... 30 V DC            |
| <b>Rated operational current I<sub>e</sub></b> | 3 ... 100 mA        | 3 ... 100 mA             | ≤ 500 mA           | ≤ 500 mA                 |
| <b>Max. voltage drop at I<sub>e</sub></b>      | ≤ 2.5               | ≤ 2.5                    | ≤ 0.1              | ≤ 0.1                    |
| <b>Breaking capacity</b>                       | 10 W                | 10 W                     | 10 W               | 10 W                     |
| <b>Cable length</b>                            | 3 m                 | 0.3 m with M8 connection | 5 m                | 0.3 m with M8 connection |
| <b>Temperature range</b>                       | -10 ... +70°C       | -10 ... +70°C            | -10 ... +70°C      | -10 ... +70°C            |
| <b>Protection</b>                              | IP 67               | IP 67                    | IP 67              | IP 67                    |
| <b>Switching status indication</b>             | LED red             | LED red                  | LED yellow         | LED yellow               |

| Model-no.:                                     | ZS-6700          | ZS-6701                  | ZS-7300   | ZS-7302                         |
|--|------------------|--------------------------|---|---------------------------------|
|  |                  |                          |   |                                 |
| <b>Design</b>                                  | 3-pole inductive | 3-pole inductive         | 3-pole inductive                                  | 3-pole inductive                |
| <b>Contact function</b>                        | NO               | NO                       | NO  | NO                              |
| <b>Output</b>                                  | PNP              | PNP                      | PNP   | PNP                             |
| <b>Rated operational voltage</b>               | 5 ... 30 V DC    | 5 ... 30 V DC            | 10 ... 30 V DC                                    | 10 ... 30 V DC                  |
| <b>Rated operational current I<sub>e</sub></b> | ≤ 200 mA         | ≤ 200 mA                 | ≤ 100 mA  | ≤ 100 mA                        |
| <b>Max. voltage drop at I<sub>e</sub></b>      | ≤ 1.0            | ≤ 1.0                    | ≤ 2.5   | ≤ 2.5                           |
| <b>Breaking capacity</b>                       | 6 W              | 6 W                      | 3 W   | 3 W                             |
| <b>Cable length</b>                            | 3 m              | 0.3 m with M8 connection | 6 m   | 0.3 m with M12 connection       |
| <b>Temperature range</b>                       | -10 ... +70°C    | -10 ... +70°C            | -20 ... +60°C                                     | -20 ... +60°C                   |
| <b>Protection</b>                              | IP 67            | IP 67                    | IP 67   | IP 67                           |
| <b>Switching status indication</b>             | LED green        | LED green                | LED yellow  | LED yellow                      |
|  | -                | -                        | II 3G Ex nA T4<br>II 3D Ex tD A22 IP67 T<br>125°C | II 3D Ex tc IIIC T125°C<br>Dc X |

**Cable with bushing for proximity sensors**

|                     |             |             |             |             |             |
|---------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Model-no.:</b>   | KA-30       | KA-50       | KA-51       | KA-100      | KA-101      |
| <b>Connection</b>   | M8, snap-in | M8, snap-in | M8, snap-in | M8, snap-in | M8, snap-in |
| <b>Version</b>      | straight    | straight    | elbow 90°   | straight    | elbow 90°   |
| <b>Cable length</b> | 3 m         | 5 m         | 5 m         | 10 m        | 10 m        |

**Mounting**

The sensors are mounted at the groove of the cylinder profile. It is fixed by turning the fixing screw at the sensor clockwise. The cover stripe XLB-011 (see below) can be used for protecting the sensor cable. A direct sensor mounting is possible for following series:

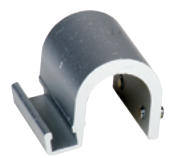
- Series XL**
- Series NXD, Series NXE**
- Series NYD, Series NYE, Series NYSE**
- Series LX**
- Series ZX**

For this cylinder series separate mounting brackets are necessary for the sensor mounting:

- Series XG, Series XM**
- Series HM, Series HE, Series HMU**
- Series CM**

**Mounting brackets for proximity sensors**

|                   |                    |                 |                                     |
|-------------------|--------------------|-----------------|-------------------------------------|
| <b>Model-no.:</b> | NT-250             | NT-500          | HTM-080/100-1                       |
| <b>Design</b>     | sensor mounting    | sensor mounting | mounting bracket for tie rod design |
| <b>For series</b> | HM, HE, CM, XG, XM | HMU             | XG-160, XG-200                      |



**Cover for sensor groove**

|                   |                                     |
|-------------------|-------------------------------------|
| <b>Model-no.:</b> | XLB-011                             |
| <b>Design</b>     | plastic profile, 50 cm length, blue |
| <b>For series</b> | XL, NXD, NXE, NYD, NYE, NYSE, LX    |

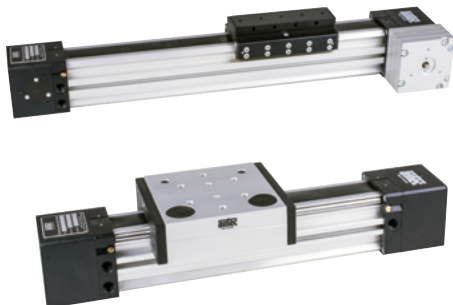




|                        |                   |
|------------------------|-------------------|
| <b>Series ZX</b>       | <b>Page 10-02</b> |
| Version S              | Page 10-03        |
| Version K              | Page 10-04        |
| Version SG             | Page 10-05        |
| Version KG             | Page 10-06        |
| Version SR             | Page 10-07        |
| Version KR             | Page 10-08        |
| Air connection options | Page 10-09        |
| Mounting parts         | Page 10-12        |
| Technical details      | Page 10-14        |



|                        |                   |
|------------------------|-------------------|
| <b>Series ZR</b>       | <b>Page 10-16</b> |
| Technical details      | Page 10-16        |
| Version S              | Page 10-20        |
| Version L              | Page 10-21        |
| Mounting parts         | Page 10-22        |
| Accessories            | Page 10-23        |
| Air connection options | Page 10-27        |



# Series ZX

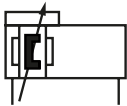
## Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 8 bar   |
| <b>Temperature range</b>  | -10°C ... +70°C   |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. If speeds exceed 1 m/s lubricated air is recommended. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>Outer parts: Al (anodized), Plastics<br>Seals: NBR, PU  |
|                           | Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)  |



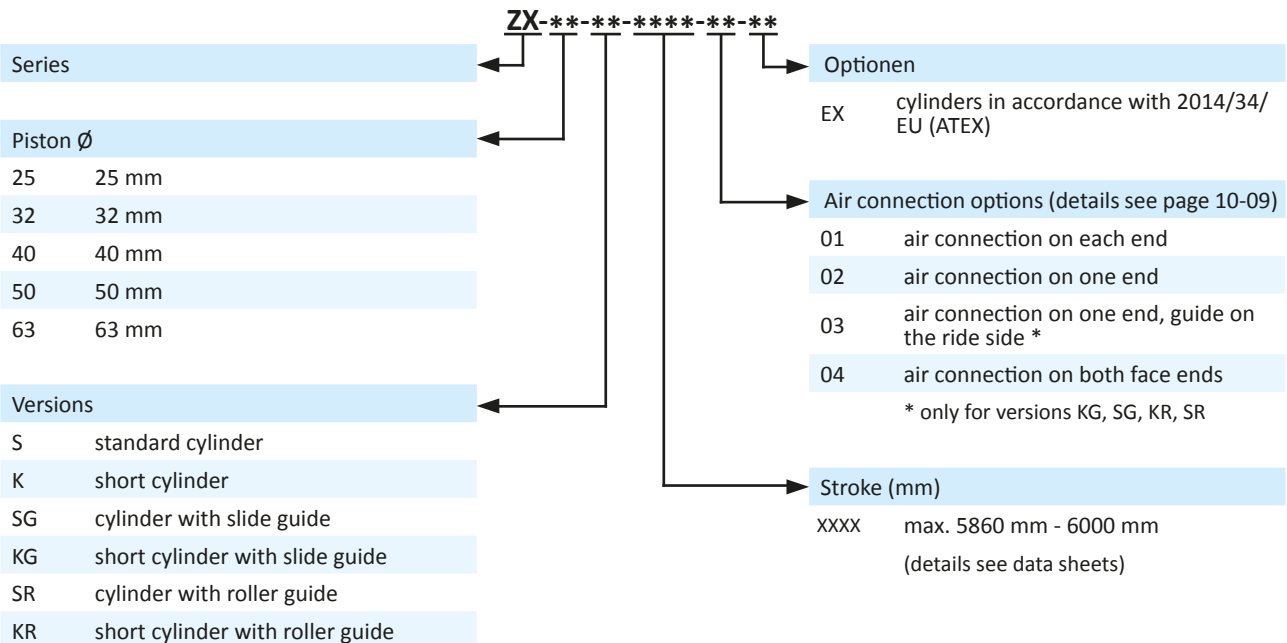
Double acting Al-profile rodless cylinder with integrated sensor grooves, adjustable cushions and permanent magnet for proximity sensors.  
The sensors can be installed directly into the sensor grooves of the Al-profile.

## Versions



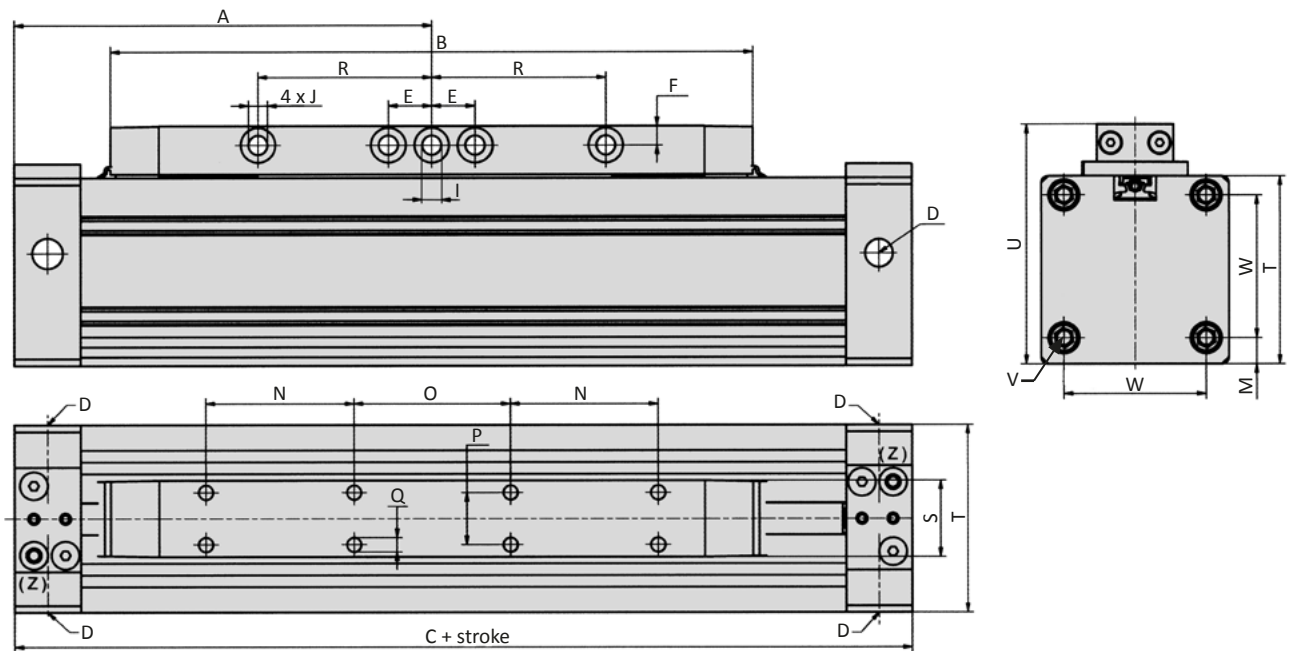
ZX-\*\*\*  
double acting, adjustable cushioning,  
with magnetic piston

## Order code



**Technical data**

| Model-no.:             | ZX-25-S-... | ZX-32-S-... | ZX-40-S-... | ZX-50-S-... | ZX-63-S-... |
|------------------------|-------------|-------------|-------------|-------------|-------------|
| Piston Ø (mm)          | 25          | 32          | 40          | 50          | 63          |
| Connection             | G1/8        | G1/8        | G1/4        | G3/8        | G3/8        |
| Cushioning length (mm) | 24          | 28          | 36          | 45          | 59          |
| Weight (kg)            |             |             |             |             |             |
| 0 mm stroke            | 0.88        | 1.40        | 2.41        | 5.30        | 8.10        |
| each 100 mm stroke     | 0.30        | 0.39        | 0.52        | 0.96        | 1.32        |
| max. stroke (mm)       | 6000        | 6000        | 5950        | 5910        | 5860        |

**Dimensions**


| Piston Ø | A   | B     | C   | D    | E    | F   | I  | J   | M    | N    |
|----------|-----|-------|-----|------|------|-----|----|-----|------|------|
| 25       | 100 | 149.6 | 200 | G1/8 | 12.5 | 5   | 6  | 4.5 | 4.5  | 20   |
| 32       | 120 | 184.5 | 240 | G1/8 | 12.5 | 5.5 | 6  | 5.5 | 7.5  | 42.5 |
| 40       | 150 | 222.6 | 300 | G1/4 | 12.5 | 7   | 7  | 6.5 | 7.5  | 35   |
| 50       | 175 | 262   | 350 | G3/8 | 17.5 | 9   | 10 | 8.5 | 12.5 | 45   |
| 63       | 200 | 300   | 400 | G3/8 | 25   | 9.5 | 10 | 8.5 | 14   | 80   |

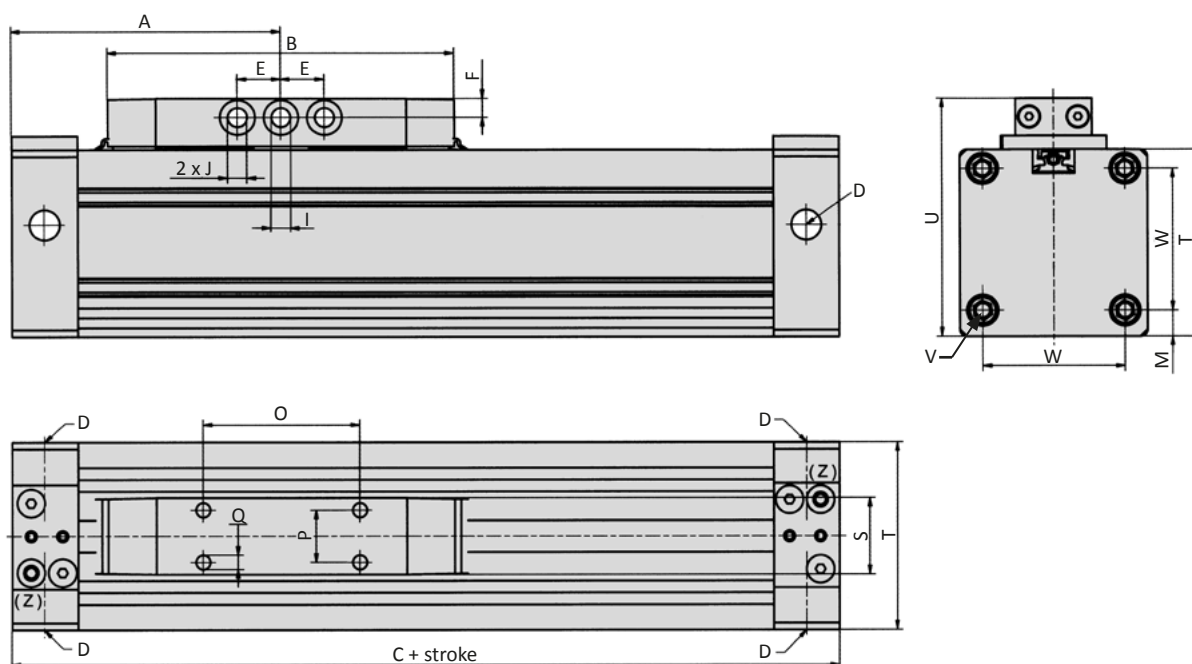
| Piston Ø | O  | P  | Q       | R  | S  | T   | U   | V       | W  |
|----------|----|----|---------|----|----|-----|-----|---------|----|
| 25       | 50 | 15 | M5 x 7  | 35 | 22 | 45  | 60  | M4 x 11 | 36 |
| 32       | 45 | 15 | M5 x 7  | 50 | 22 | 54  | 69  | M5 x 11 | 41 |
| 40       | 90 | 15 | M5 x 9  | 65 | 22 | 64  | 82  | M6 x 12 | 49 |
| 50       | 60 | 34 | M8 x 16 | 90 | 46 | 90  | 115 | M8 x 17 | 65 |
| 63       | 80 | 34 | M8 x 16 | 90 | 46 | 106 | 131 | M8 x 17 | 78 |

## Series ZX-K

### Technical data

| Model-no.:              | ZX-25-K-... | ZX-32-K-... | ZX-40-K-... | ZX-50-K-... | ZX-63-K-... |
|-------------------------|-------------|-------------|-------------|-------------|-------------|
| Piston Ø (mm)           | 25          | 32          | 40          | 50          | 63          |
| Connection              | G1/8        | G1/8        | G1/4        | G3/8        | G3/8        |
| Cushioning length (mm)  | 24          | 28          | 36          | 45          | 59          |
| Weight 0 mm stroke      | 0.62        | 0.96        | 1.65        | 3.50        | 5.40        |
| (kg) each 100 mm stroke | 0.30        | 0.39        | 0.52        | 0.96        | 1.32        |
| max. stroke (mm)        | 6000        | 6000        | 6000        | 6000        | 6000        |

### Dimensions



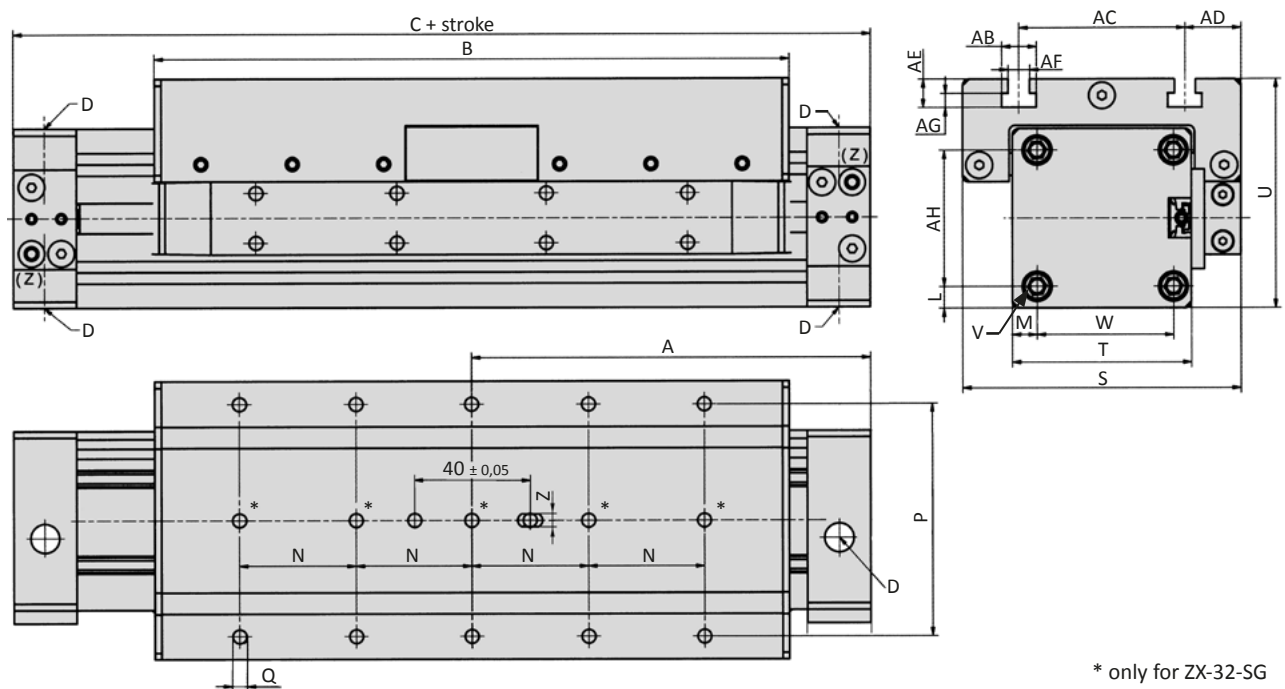
| Piston Ø | A    | B     | C   | D    | E    | F   | I  | J   | M    |
|----------|------|-------|-----|------|------|-----|----|-----|------|
| 25       | 67.5 | 84.6  | 135 | G1/8 | 12.5 | 5   | 6  | 4.5 | 4.5  |
| 32       | 77.5 | 99.6  | 155 | G1/8 | 12.5 | 5.5 | 6  | 5.5 | 7.5  |
| 40       | 95   | 112.6 | 190 | G1/4 | 12.5 | 7   | 7  | 6.5 | 7.5  |
| 50       | 105  | 122   | 210 | G3/8 | 17.5 | 9   | 10 | 8.5 | 12.5 |
| 63       | 125  | 150   | 250 | G3/8 | 25   | 9.5 | 10 | 8.5 | 14   |

| Piston Ø | O  | P  | Q       | S  | T   | U   | V       | W  |
|----------|----|----|---------|----|-----|-----|---------|----|
| 25       | 35 | 15 | M5 x 7  | 22 | 45  | 60  | M4 x 11 | 36 |
| 32       | 45 | 15 | M5 x 7  | 22 | 54  | 69  | M5 x 11 | 41 |
| 40       | 50 | 15 | M5 x 9  | 22 | 64  | 82  | M6 x 12 | 49 |
| 50       | 64 | 34 | M8 x 16 | 46 | 90  | 115 | M8 x 17 | 65 |
| 63       | 80 | 34 | M8 x 16 | 46 | 106 | 131 | M8 x 17 | 78 |



**Technical data**

| Model-no.:             | ZX-25-SG-... | ZX-32-SG-... | ZX-40-SG-... | ZX-50-SG-... | ZX-63-SG-... |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| Piston Ø (mm)          | 25           | 32           | 40           | 50           | 63           |
| Connection             | G1/8         | G1/8         | G1/4         | G3/8         | G3/8         |
| Cushioning length (mm) | 24           | 28           | 36           | 45           | 59           |
| Weight (kg)            |              |              |              |              |              |
| 0 mm stroke            | 1.31         | 2.09         | 3.58         | 7.28         | 11.02        |
| each 100 mm stroke     | 0.30         | 0.39         | 0.52         | 0.96         | 1.32         |
| max. stroke (mm)       | 6000         | 6000         | 5950         | 5910         | 5860         |

**Dimensions**


\* only for ZX-32-SG

| Piston Ø | A   | B   | C   | D    | L    | M    | N  | P  | Q       | S    | T   |
|----------|-----|-----|-----|------|------|------|----|----|---------|------|-----|
| 25       | 100 | 159 | 200 | G1/8 | 4.5  | 4.5  | 30 | 30 | M5 x 8  | 75   | 45  |
| 32       | 120 | 191 | 240 | G1/8 | 6.5  | 7.5  | 35 | 70 | M5 x 11 | 83.8 | 54  |
| 40       | 150 | 246 | 300 | G1/4 | 7.5  | 7.5  | 55 | 55 | M6 x 12 | 100  | 64  |
| 50       | 175 | 270 | 350 | G3/8 | 12.5 | 12.5 | 50 | 42 | M8 x 16 | 133  | 90  |
| 63       | 200 | 320 | 400 | G3/8 | 14   | 14   | 60 | 60 | M8 x 16 | 150  | 106 |

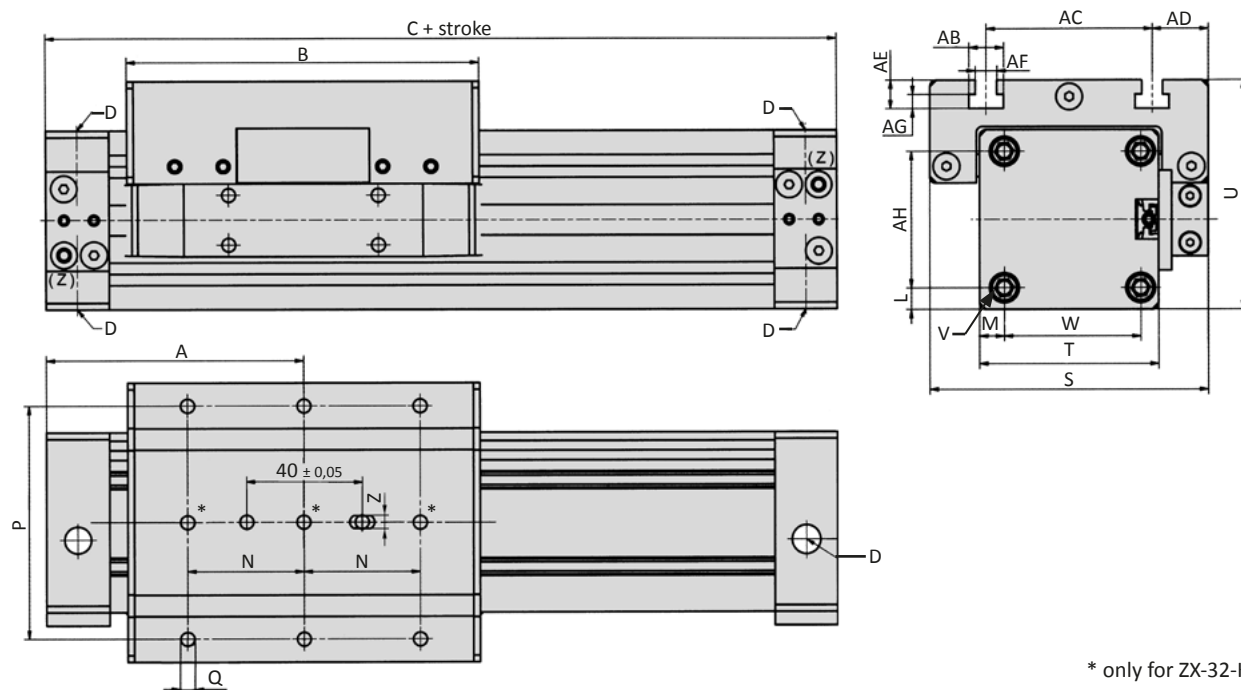
| Piston Ø | U     | V       | W  | Z       | AB   | AC  | AD   | AE  | AF  | AG  | AH |
|----------|-------|---------|----|---------|------|-----|------|-----|-----|-----|----|
| 25       | 59    | M4 x 11 | 36 | 4 x 4.4 | 10.4 | 50  | 12.5 | 8.6 | 6.4 | 4.3 | 36 |
| 32       | 69    | M5 x 11 | 41 | 4 x 4.4 | 10.4 | 50  | 16.9 | 8.6 | 6.4 | 4.3 | 41 |
| 40       | 79    | M6 x 12 | 49 | 4 x 4.4 | 10.4 | 80  | 10   | 8.6 | 6.4 | 4.3 | 49 |
| 50       | 112.5 | M8 x 17 | 65 | 4 x 4.4 | 10.4 | 94  | 23   | 8.6 | 6.4 | 4.3 | 65 |
| 63       | 134.5 | M8 x 17 | 78 | 4 x 4.4 | 10.4 | 110 | 24   | 8.6 | 6.4 | 4.3 | 78 |

## Series ZX-KG

### Technical data

| Model-no.:              | ZX-25-KG-... | ZX-32-KG-... | ZX-40-KG-... | ZX-50-KG-... | ZX-63-KG-... |
|-------------------------|--------------|--------------|--------------|--------------|--------------|
| Piston Ø (mm)           | 25           | 32           | 40           | 50           | 63           |
| Connection              | G1/8         | G1/8         | G1/4         | G3/8         | G3/8         |
| Cushioning length (mm)  | 24           | 28           | 36           | 45           | 59           |
| Weight 0 mm stroke      | 0.88         | 1.35         | 2.30         | 4.63         | 7.10         |
| (kg) each 100 mm stroke | 0.30         | 0.39         | 0.52         | 0.96         | 1.32         |
| max. stroke (mm)        | 6000         | 6000         | 6000         | 6000         | 6000         |

### Dimensions



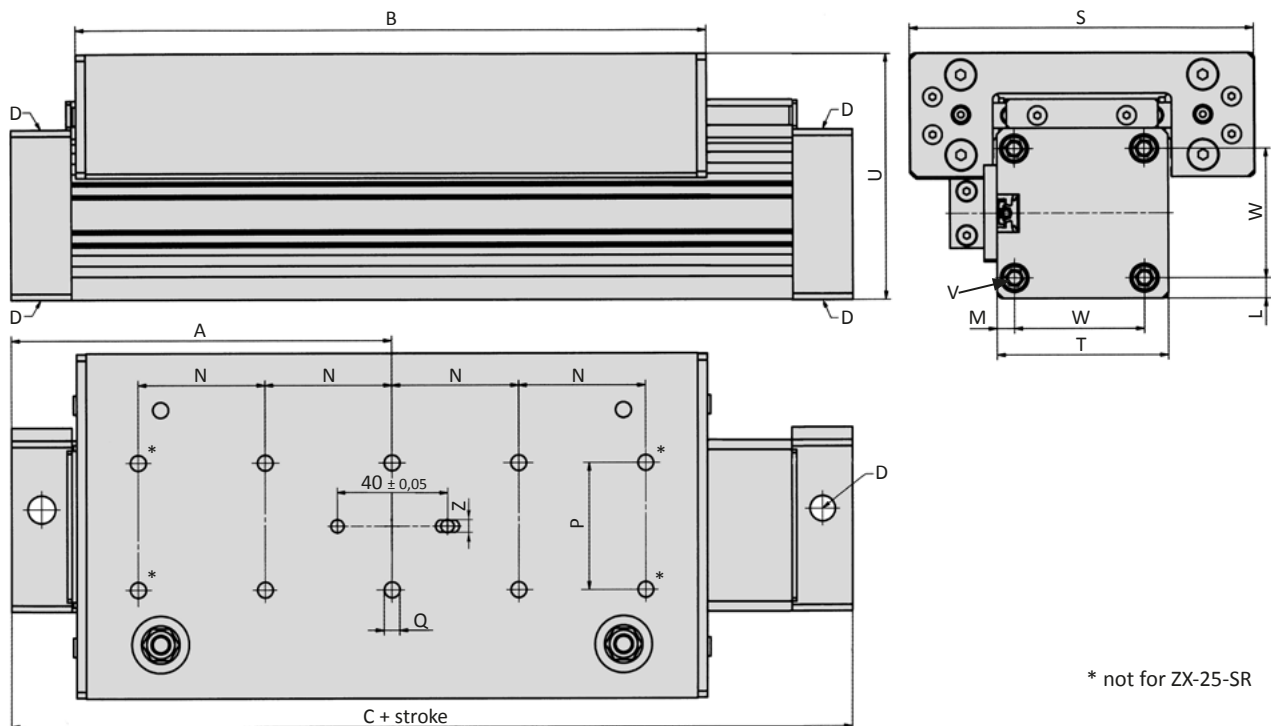
\* only for ZX-32-KG

| Piston Ø | A    | B   | C   | D    | L    | M    | N  | P  | Q       | S    | T   |
|----------|------|-----|-----|------|------|------|----|----|---------|------|-----|
| 25       | 67.5 | 94  | 135 | G1/8 | 4.5  | 4.5  | 30 | 30 | M5 x 8  | 75   | 45  |
| 32       | 77.5 | 106 | 155 | G1/8 | 6.5  | 7.5  | 35 | 70 | M5 x 11 | 83.8 | 54  |
| 40       | 95   | 136 | 190 | G1/4 | 7.5  | 7.5  | 55 | 55 | M6 x 12 | 100  | 64  |
| 50       | 105  | 148 | 210 | G3/8 | 12.5 | 12.5 | 50 | 42 | M8 x 16 | 133  | 90  |
| 63       | 125  | 180 | 250 | G3/8 | 14   | 14   | 60 | 60 | M8 x 16 | 150  | 106 |

| Piston Ø | U     | V       | W  | Z       | AB   | AC  | AD   | AE  | AF  | AG  | AH |
|----------|-------|---------|----|---------|------|-----|------|-----|-----|-----|----|
| 25       | 59    | M4 x 11 | 36 | 4 x 4.4 | 10.4 | 50  | 12.5 | 8.6 | 6.4 | 4.3 | 36 |
| 32       | 69    | M5 x 11 | 41 | 4 x 4.4 | 10.4 | 50  | 16.9 | 8.6 | 6.4 | 4.3 | 41 |
| 40       | 79    | M6 x 12 | 49 | 4 x 4.4 | 10.4 | 80  | 10   | 8.6 | 6.4 | 4.3 | 49 |
| 50       | 112.5 | M8 x 17 | 65 | 4 x 4.4 | 10.4 | 94  | 23   | 8.6 | 6.4 | 4.3 | 65 |
| 63       | 134.5 | M8 x 17 | 78 | 4 x 4.4 | 10.4 | 110 | 24   | 8.6 | 6.4 | 4.3 | 78 |

**Technical data**

| Model-no.:             | ZX-25-SR-... | ZX-32-SR-... | ZX-40-SR-... | ZX-50-SR-... | ZX-63-SR-... |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| Piston Ø (mm)          | 25           | 32           | 40           | 50           | 63           |
| Connection             | G1/8         | G1/8         | G1/4         | G3/8         | G3/8         |
| Cushioning length (mm) | 24           | 28           | 36           | 45           | 59           |
| Weight (kg)            |              |              |              |              |              |
| 0 mm stroke            | 1.97         | 2.96         | 5.89         | 9.10         | 13.17        |
| each 100 mm stroke     | 0.42         | 0.48         | 0.74         | 1.08         | 1.42         |
| max. stroke (mm)       | 6000         | 6000         | 5950         | 5910         | 5860         |

**Dimensions**


| Piston Ø | A   | B   | C   | D    | L    | M    | N  | P  |
|----------|-----|-----|-----|------|------|------|----|----|
| 25       | 100 | 160 | 200 | G1/8 | 4.5  | 4.5  | 40 | 40 |
| 32       | 120 | 201 | 240 | G1/8 | 6.5  | 5.5  | 40 | 40 |
| 40       | 150 | 252 | 300 | G1/4 | 7.5  | 7.5  | 55 | 55 |
| 50       | 175 | 270 | 350 | G3/8 | 12.5 | 12.5 | 55 | 55 |
| 63       | 200 | 320 | 400 | G3/8 | 14   | 14   | 70 | 70 |

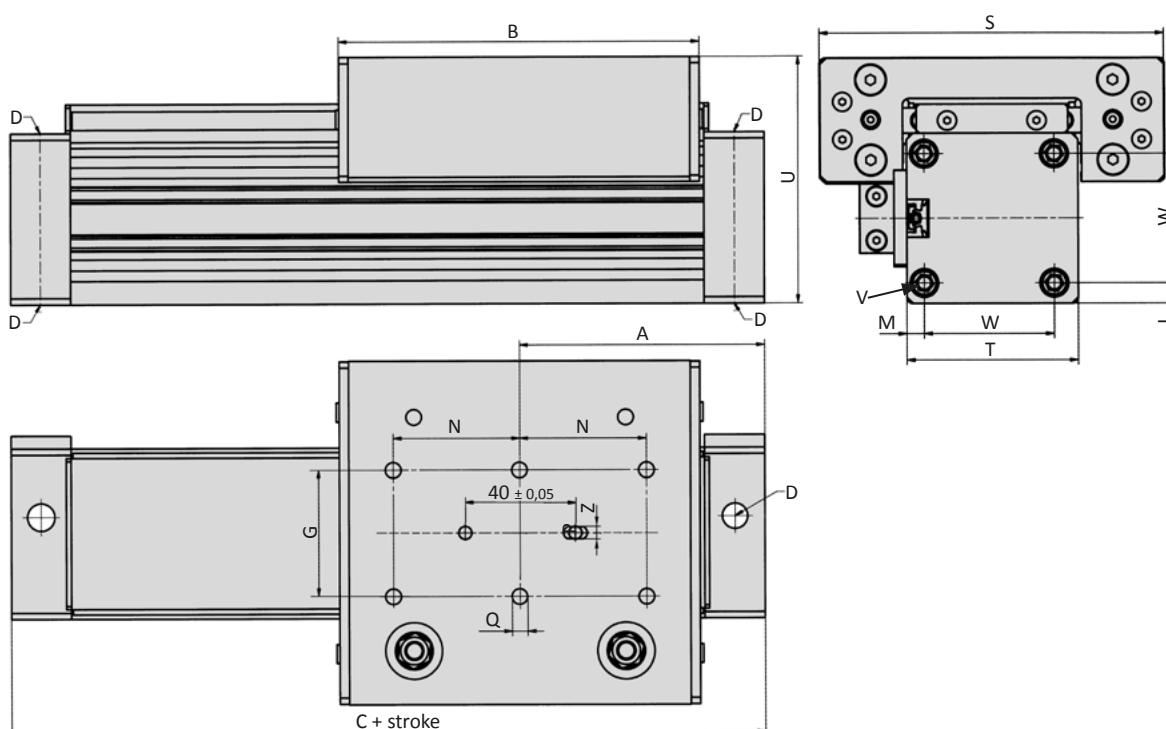
| Piston Ø | Q        | S     | T   | U    | V       | W  | Z       |
|----------|----------|-------|-----|------|---------|----|---------|
| 25       | M5 x 7.5 | 97    | 45  | 68.2 | M4 x 11 | 36 | 4 x 4.4 |
| 32       | M6 x 9   | 108.8 | 54  | 78   | M5 x 11 | 41 | 4 x 4.4 |
| 40       | M6 x 12  | 145   | 64  | 90.5 | M6 x 12 | 49 | 4 x 4.4 |
| 50       | M8 x 15  | 164   | 90  | 120  | M8 x 17 | 65 | 4 x 4.4 |
| 63       | M8 x 17  | 180   | 106 | 137  | M8 x 17 | 78 | 4 x 4.4 |

## Series ZX-KR

### Technical data

| Model-no.:                     | ZX-25-KR-... | ZX-32-KR-... | ZX-40-KR-... | ZX-50-KR-... | ZX-63-KR-... |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|
| Piston Ø (mm)                  | 25           | 32           | 40           | 50           | 63           |
| Connection                     | G1/8         | G1/8         | G1/4         | G3/8         | G3/8         |
| Cushioning length (mm)         | 24           | 28           | 36           | 45           | 59           |
| Weight 0 mm stroke (kg)        | 1.33         | 1.91         | 3.84         | 5.82         | 8.66         |
| Weight each 100 mm stroke (kg) | 0.42         | 0.48         | 0.74         | 1.08         | 1.42         |
| max. stroke (mm)               | 6000         | 6000         | 6000         | 6000         | 6000         |

### Dimensions

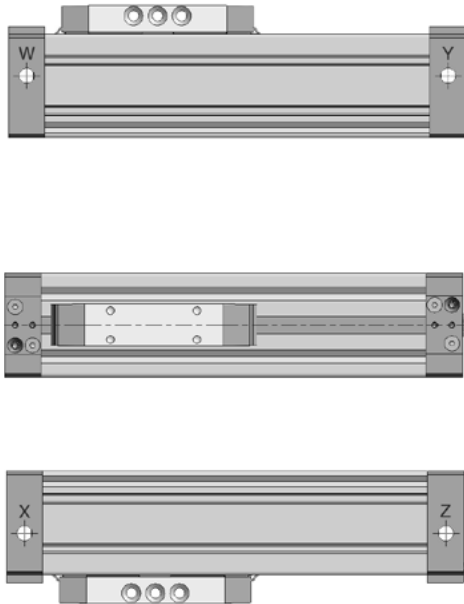


| Piston Ø | A    | B     | C   | D    | L    | M    | N  | P  |
|----------|------|-------|-----|------|------|------|----|----|
| 25       | 67,5 | 95    | 135 | G1/8 | 4.5  | 4.5  | 20 | 40 |
| 32       | 77,5 | 115   | 155 | G1/8 | 6.5  | 5.5  | 40 | 40 |
| 40       | 95   | 143,5 | 190 | G1/4 | 7.5  | 7.5  | 55 | 55 |
| 50       | 105  | 148   | 210 | G3/8 | 12.5 | 12.5 | 55 | 55 |
| 63       | 125  | 188   | 250 | G3/8 | 14   | 14   | 70 | 70 |

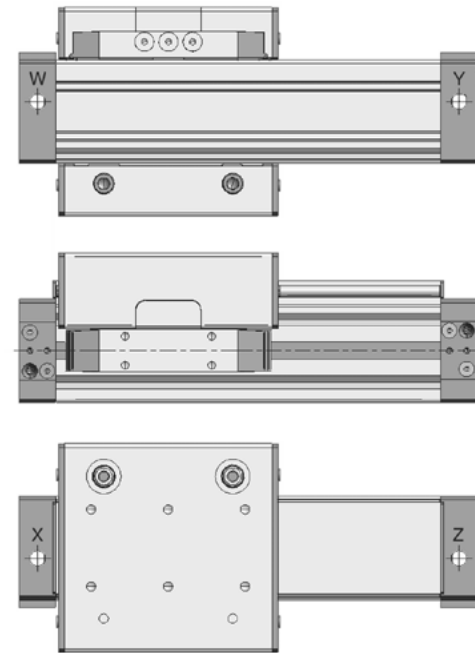
| Piston Ø | Q        | S     | T   | U    | V       | W  | Z       |
|----------|----------|-------|-----|------|---------|----|---------|
| 25       | M5 x 7.5 | 97    | 45  | 68.2 | M4 x 11 | 36 | 4 x 4.4 |
| 32       | M6 x 9   | 108.8 | 54  | 78   | M5 x 11 | 41 | 4 x 4.4 |
| 40       | M6 x 12  | 145   | 64  | 90.5 | M6 x 12 | 49 | 4 x 4.4 |
| 50       | M8 x 15  | 164   | 90  | 120  | M8 x 17 | 65 | 4 x 4.4 |
| 63       | M8 x 17  | 180   | 106 | 137  | M8 x 17 | 78 | 4 x 4.4 |

**Option -01 Air connection on each end**

**without guide**



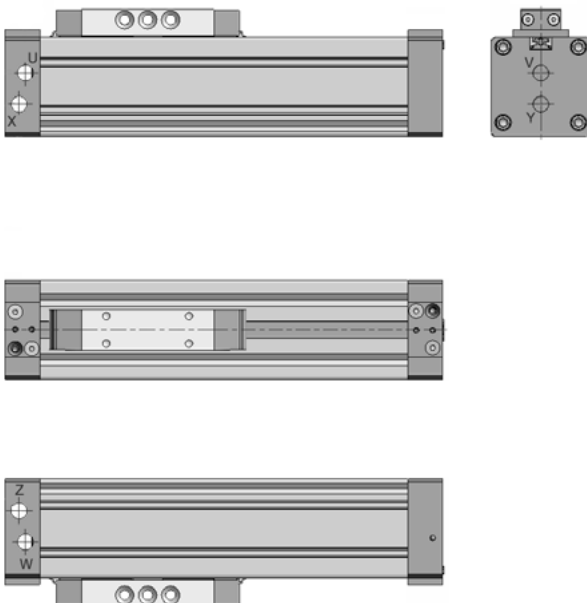
**with guide**



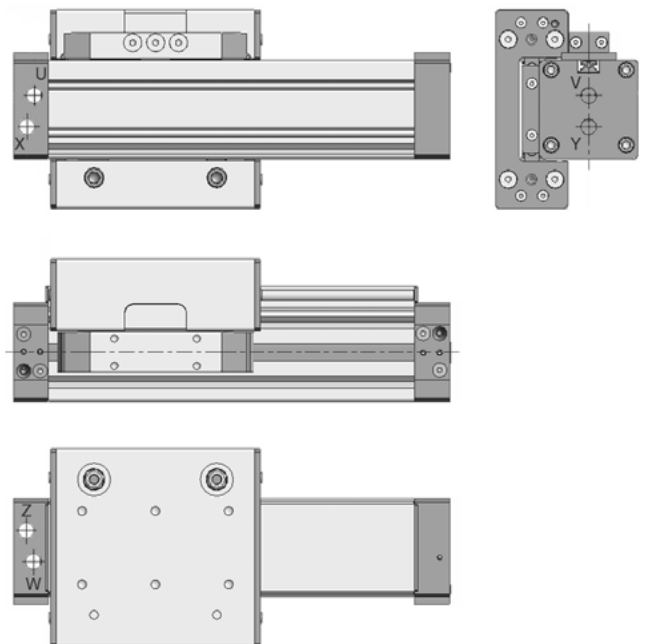
Option -01 cylinder comes with two pressure connections (ports W-X and ports Y-Z respectively) on each end. User is required to select one of two pressure connections on each end. Second port will require the installation of a sealing plug (2 plugs are supplied).

**Option -02 Air connection on one end**

**without guide**



**with guide**

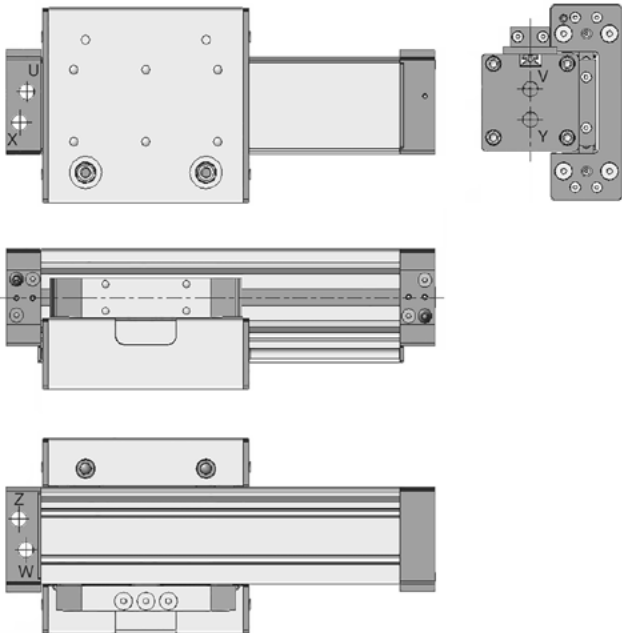


One cylinder head is supplied with 6 ports (3 for each direction, ports U-V-W air travels in one direction and ports X-Y-Z air travels in the opposite direction). User is required to select one of three pressure connections for each direction. The second and third ports will require the installation of a sealing plug (4 plugs are supplied).  
 With this option the slide guide is mounted on the left side of the piston driver.  
 Ports V and Y must be plugged when using a head mount.

## Series ZX

### Option -03 Air connection on one end

#### with guide



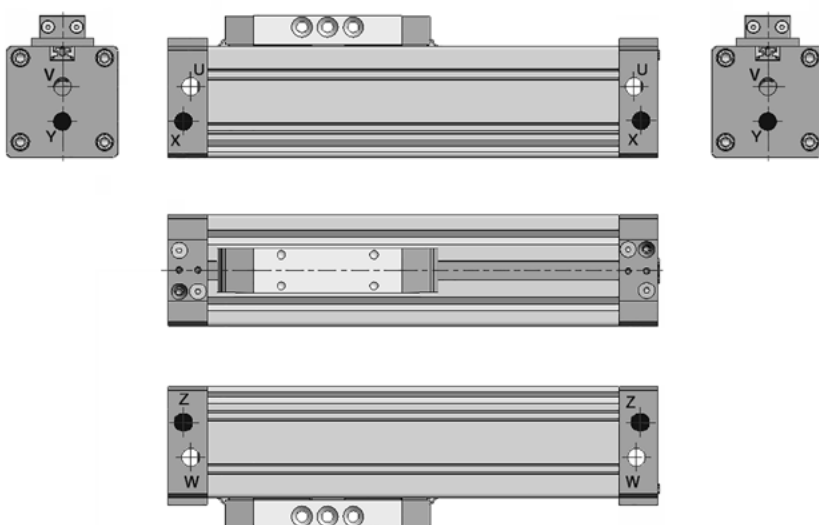
One cylinder head is supplied with 6 ports (3 for each direction, ports U-V-W air travels in one direction and ports X-Y-Z air travels in the opposite direction). User is required to select one of three pressure connections for each direction. The second and third ports will require the installation of a sealing plug (4 plugs are supplied).

With this option the slide guide is mounted on the right side of the piston driver.

Ports V and Y must be plugged when using a head mount.

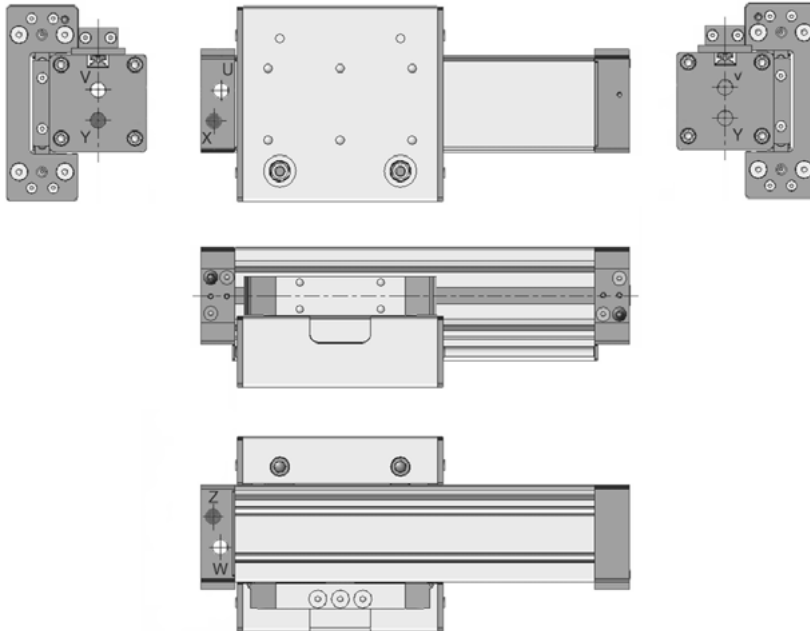
### Option -04 Air connection on both face ends

#### without guide



Option -04 Air connection on both face ends

with guide



Option -04 enables to connect pressure at both face ends or one face and one side port.

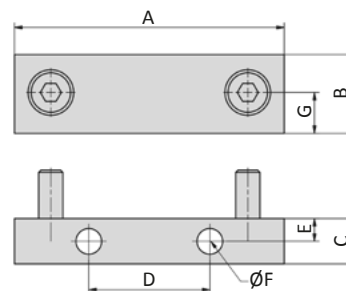
Therefore the head with 6 ports from option -02 is used at both ends. Now it is possible to use the upper ports (U-V-W). The lower ports (X-Y-Z) are plugged.

This option is for using ports at both cylinder heads only.

## Series ZX

### Mounting parts

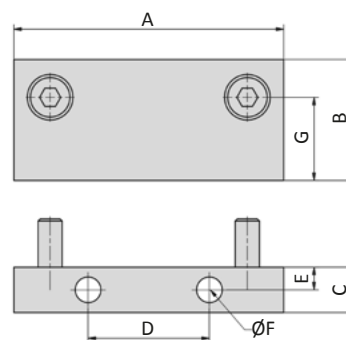
#### ZXB-xx-01 Head mount



| Model-no.: | A   | B  | C  | D  | E   | Ø F | G    |
|------------|-----|----|----|----|-----|-----|------|
| ZXB-25-01  | 45  | 10 | 10 | 22 | 5   | 5.5 | 4.5  |
| ZXB-32-01  | 51  | 16 | 15 | 25 | 7.5 | 7   | 7.5  |
| ZXB-40-01  | 64  | 16 | 15 | 25 | 7.5 | 9   | 7.5  |
| ZXB-50-01  | 89  | 26 | 15 | 40 | 7.5 | 8.5 | 12.5 |
| ZXB-63-01  | 105 | 29 | 15 | 50 | 7.5 | 8.5 | 14   |

Screws to mount the head mount to the cylinder are included.  
The face ports must be plugged when using a head mount.

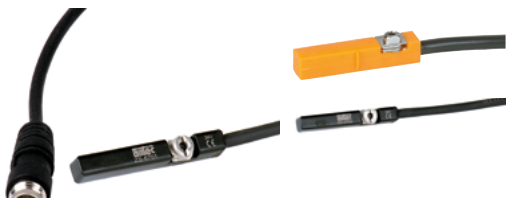
#### ZXB-xx-02 Head mount, tall



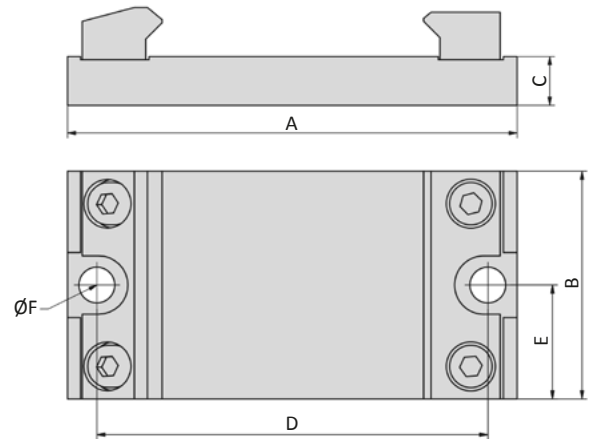
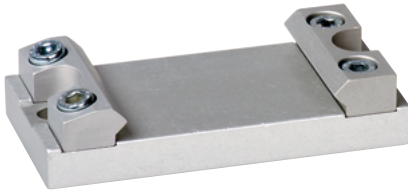
| Model-no.: | A   | B  | C  | D  | E   | Ø F | G    |
|------------|-----|----|----|----|-----|-----|------|
| ZXB-25-02  | 45  | 18 | 10 | 22 | 5   | 5.5 | 12.5 |
| ZXB-32-02  | 51  | 34 | 15 | 25 | 7.5 | 7   | 16.5 |
| ZXB-40-02  | 64  | 26 | 15 | 25 | 7.5 | 9   | 17.5 |
| ZXB-50-02  | 89  | 40 | 15 | 40 | 7.5 | 8.5 | 27.5 |
| ZXB-63-02  | 105 | 40 | 15 | 50 | 7.5 | 8.5 | 29   |

Screws to mount the head mount to the cylinder are included.  
The face ports must be plugged when using a head mount.

#### Proximity sensors

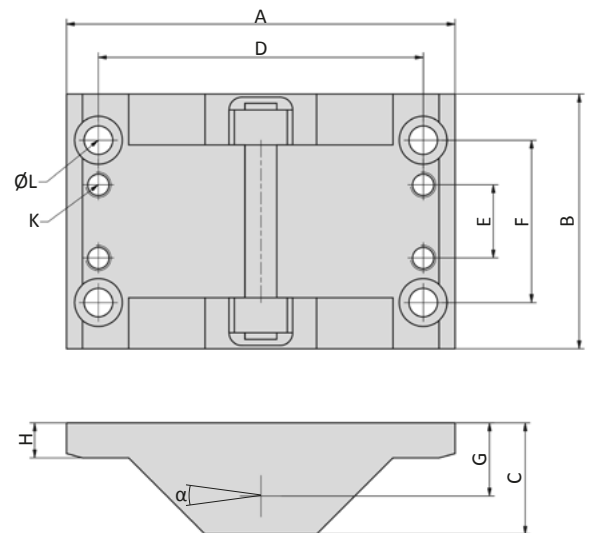
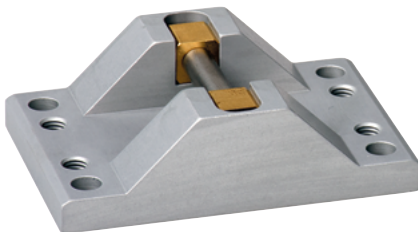




**ZXB-xx-10 Center mount**


| Model-no.: | A   | B  | C  | D    | E     | ØF  |
|------------|-----|----|----|------|-------|-----|
| ZXB-25-10  | 70  | 35 | 8  | 60   | 30    | 5.5 |
| ZXB-32-10* | 85  | 40 | 10 | 73   | 36.5  | 6.6 |
| ZXB-32-11* |     |    | 10 |      |       |     |
| ZXB-40-10  | 105 | 40 | 10 | 90.5 | 45.25 | 9   |
| ZXB-50-10  | 138 | 70 | 15 | 120  | 60    | 11  |
| ZXB-63-10  | 154 | 70 | 15 | 136  | 68    | 11  |

\*The model ZXB-32-10 is only suitable for bottom mount. For side mounting and versions SG, KG, SR and KR please use center mount ZXB-32-11.

**ZXB-xx-20 Alignment coupler**


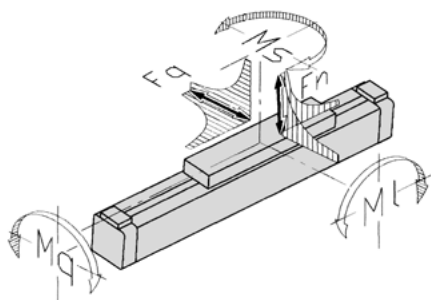
| Model-no.: | Cylinder Ø | A   | B  | C  | D   | E  | F  | G             | H  | K  | ØL  | α      |
|------------|------------|-----|----|----|-----|----|----|---------------|----|----|-----|--------|
| ZXB-25-20  | 25         | 80  | 54 | 24 | 66  | 20 | 40 | 18 ... 20     | 8  | M6 | 6.5 | 16°    |
| ZXB-25-20  | 32         | 80  | 54 | 24 | 66  | 20 | 40 | 17.9 ... 18.9 | 8  | M6 | 6.5 | 12°    |
| ZXB-40-20  | 40         | 80  | 54 | 24 | 66  | 20 | 40 | 18 ... 20     | 8  | M6 | 6.5 | 9°-12° |
| ZXB-50-20  | 50         | 122 | 80 | 35 | 102 | 23 | 51 | 23 ... 25     | 11 | M8 | 9   | 7°-10° |
| ZXB-50-20  | 63         | 122 | 80 | 35 | 102 | 23 | 51 | 23 ... 25     | 11 | M8 | 9   | 5°-9°  |

The alignment coupler is designed to be used with external guide systems. This coupler compensates for the mis-alignment between the rodless cylinder and the external guide system (supplied by customer). For use with cylinder series ZX-K and ZX-S.

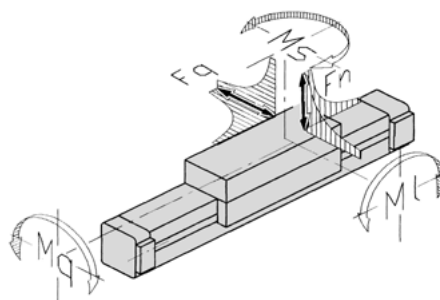
## Series ZX

### Forces and torques

#### ZX-xx-K, ZX-xx-S



#### ZX-xx-KG, ZX-xx-SG, ZX-xx-KR, ZX-xx-SR



| Model-no.: | Force (N) at 6 bar | $F_{n_{max}}$ (N) | $F_{q_{max}}$ (N) | $M_{l_{max}}$ (Nm) | $M_{q_{max}}$ (Nm) | $M_{s_{max}}$ (Nm) |
|------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|
| ZX-25-S    | 255                | 270               | -                 | 13                 | 2.5                | 11                 |
| ZX-25-K    | 255                | 270               | -                 | 8                  | 2.0                | 7                  |
| ZX-25-SG   | 250                | 580               | 580               | 23                 | 10.0               | 23                 |
| ZX-25-KG   | 250                | 340               | 340               | 9                  | 5.0                | 9                  |
| ZX-25-SR   | 250                | 850               | 1300              | 65                 | 35.0               | 105                |
| ZX-25-KR   | 250                | 850               | 1300              | 29                 | 35.0               | 64                 |
| ZX-32-S    | 420                | 300               | -                 | 30                 | 3.0                | 24                 |
| ZX-32-K    | 420                | 300               | -                 | 15                 | 3.0                | 12                 |
| ZX-32-SG   | 410                | 850               | 850               | 33                 | 15.0               | 33                 |
| ZX-32-KG   | 410                | 460               | 460               | 14                 | 6.5                | 14                 |
| ZX-32-SR   | 410                | 900               | 1500              | 79                 | 40.0               | 125                |
| ZX-32-KR   | 410                | 900               | 1500              | 36                 | 40.0               | 76                 |
| ZX-40-S    | 655                | 650               | -                 | 60                 | 4.0                | 54                 |
| ZX-40-K    | 655                | 650               | -                 | 30                 | 4.0                | 27                 |
| ZX-40-SG   | 640                | 1120              | 1120              | 60                 | 25.0               | 60                 |
| ZX-40-KG   | 640                | 600               | 600               | 25                 | 11.0               | 25                 |
| ZX-40-SR   | 640                | 1200              | 2000              | 190                | 45.0               | 118                |
| ZX-40-KR   | 640                | 1200              | 2000              | 85                 | 45.0               | 72                 |
| ZX-50-S    | 1000               | 800               | -                 | 80                 | 17.0               | 74                 |
| ZX-50-K    | 1000               | 800               | -                 | 38                 | 17.0               | 32                 |
| ZX-50-SG   | 1000               | 1550              | 1500              | 200                | 70.0               | 200                |
| ZX-50-KG   | 1000               | 820               | 800               | 60                 | 40.0               | 60                 |
| ZX-50-SR   | 1000               | 4100              | 2000              | 157                | 50.0               | 170                |
| ZX-50-KR   | 1000               | 1800              | 2000              | 67                 | 50.0               | 106                |
| ZX-63-S    | 1600               | 1400              | -                 | 110                | 17.0               | 100                |
| ZX-63-K    | 1600               | 1400              | -                 | 50                 | 17.0               | 48                 |
| ZX-63-SG   | 1600               | 2000              | 2000              | 300                | 102.0              | 300                |
| ZX-63-KG   | 1600               | 1100              | 1100              | 105                | 56.0               | 105                |
| ZX-63-SR   | 1600               | 5000              | 2000              | 196                | 55.0               | 208                |
| ZX-63-KR   | 1600               | 2500              | 2000              | 99                 | 55.0               | 134                |

The mounting surface of the assembled mass should not exceed a straightness tolerance of 0.1 mm to avoid additional tension or clearance in the guiding system.

### Complex loads

If more than one force and torque appear simultaneously, they have to be calculated by the formula:

$$\frac{F_n}{F_{n_{max}}} + \frac{F_q}{F_{q_{max}}} + \frac{M_l}{M_{l_{max}}} + \frac{M_q}{M_{q_{max}}} + \frac{M_s}{M_{s_{max}}} \leq 1$$

Information on forces and torques refers to speeds for slide guides (series S, K, SG and KG) of  $\leq 0.2$  m/s and speeds for roller guides (series SR and KR) of  $\leq 2$  m/s.

Where speeds exceed 0.2 m/s the permissible values of the slide guides are to be multiplied by the loading coefficient (see table below).

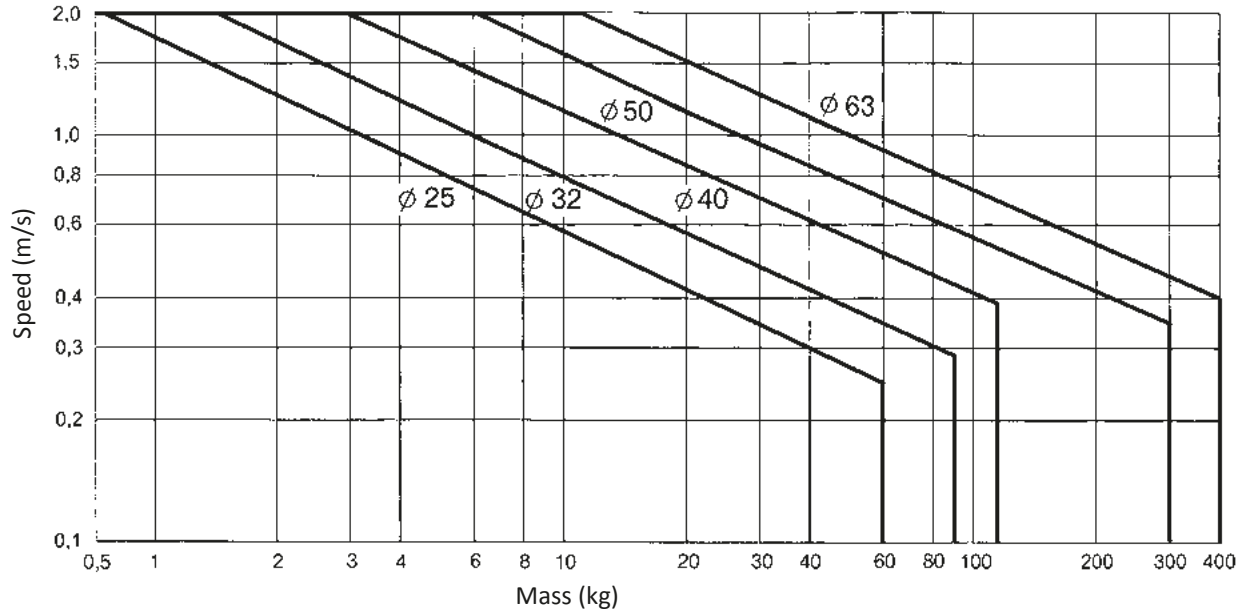
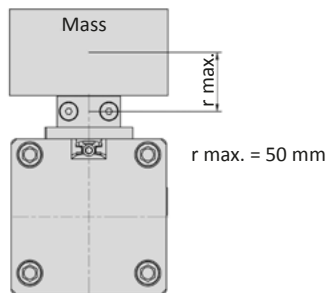
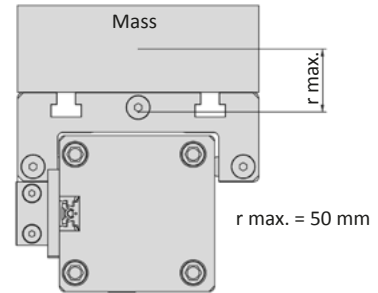
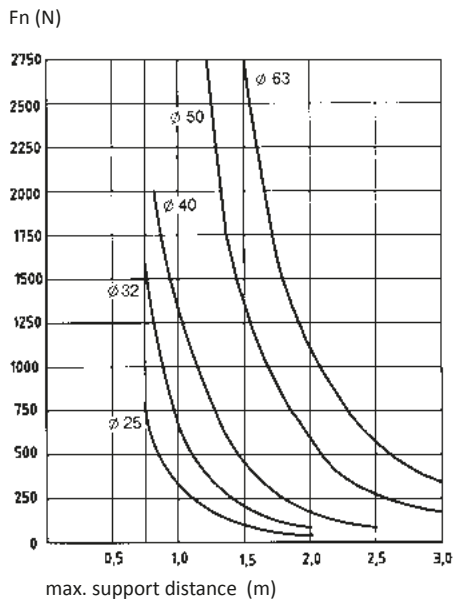
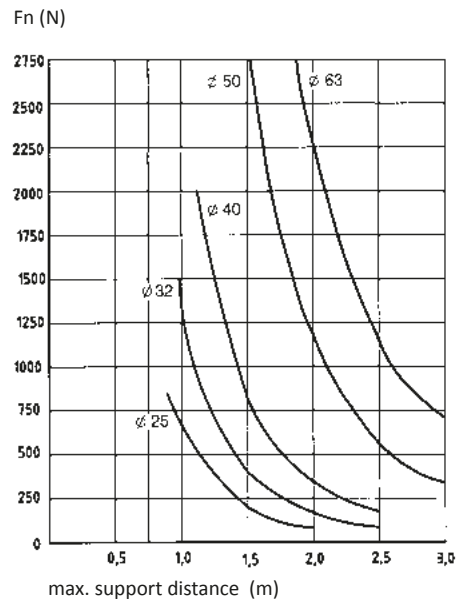
The information on torques refers to the center point of the slide which, in the case of the ZX-S and ZX-K cylinders, is the center of the tube. In versions with slide guides, the center point of the guide is in the slide.

| v (m/s) | 0.2 | 0.3  | 0.4 | 0.5 | 0.75 | 1   |
|---------|-----|------|-----|-----|------|-----|
| Factor  | 1   | 0.75 | 0.5 | 0.4 | 0.27 | 0.2 |

**Cushioning diagram**

If the application is out of the diagram range, an external shock absorber is required. The mounting position of shock absorbers must be close to the center of the mass.

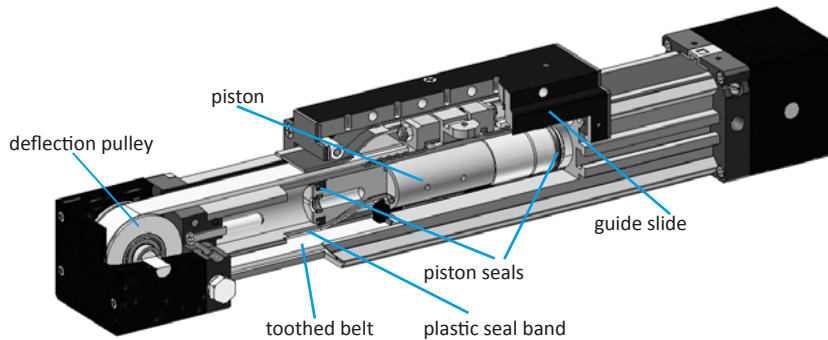
The data applies to a horizontal mounting position.


**ZX-xx-K, ZX-xx-S**

**ZX-xx-KG, ZX-xx-SG, ZX-xx-KR, ZX-xx-SR**

**Deflection**
**Deflection 0,5 mm**

**Deflection 1 mm**


## Series ZR

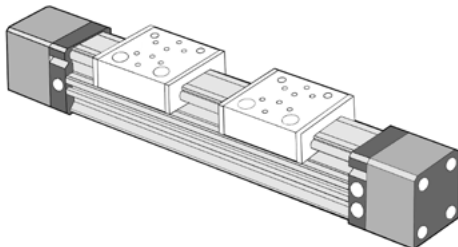
### Design and function

The toothed belt cylinder consists of an extruded cylinder tube with two chambers. They are connected to each other over the entire length of the cylinder. The pressure chamber is sealed by a PU seal strip. Between the two piston seals a pressure-free space is created. In this space the seal band is lifted to the inside and is passed through the piston. Simultaneously, a driver (piston bracket) grasps through the slot into the outer chamber. Since the outer chamber encloses the longitudinal slot, it does not expand under pressure. This results in minimal leakage and better flexural and torsional stiffness.



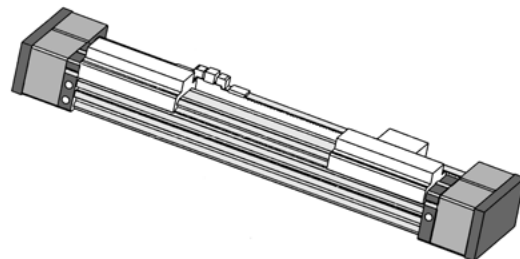
In the outer chamber, the piston bracket grips the toothed belt, which leads to a tension lock at the opposite side via the deflection pulley. Inside the slide, the cover belt is lifted from the slot, and the slide is connected to the tension lock. By this principle, dirt is kept away from the sealing strip enabling use under rough operating conditions. The force is transmitted, free of slip, to a shaft via the toothed belt pulley. As a result, several cylinders can be linked and operated synchronously, enabling torques from the off-center application forces. The cylinder can also be supplied with a brake mounted on the driven shaft without the use of an additional energy transmission chain. A cylinder supplied with a brake and encoder results in an inexpensive positioning system. Since the slide or roller guide is already integrated into the slide, a complete linear drive is available with this cylinder.

#### With 2 slides



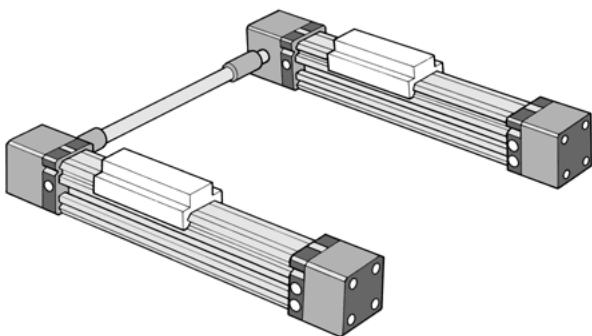
For higher loads.

#### As a gripping cylinder



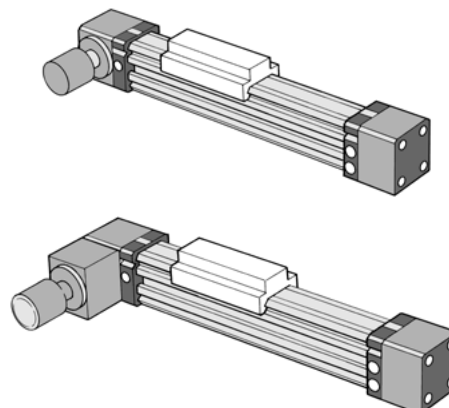
By mounting a second toothed belt and using a slide in tangential feed.

#### Synchronous running

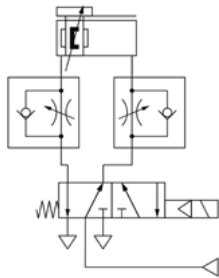


The system is suitable for synchronisation of 2 or more cylinders. ( see options )

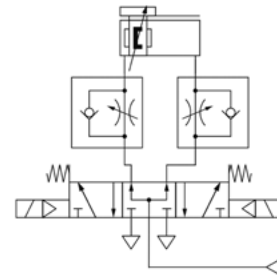
#### With brake / with encoder mount



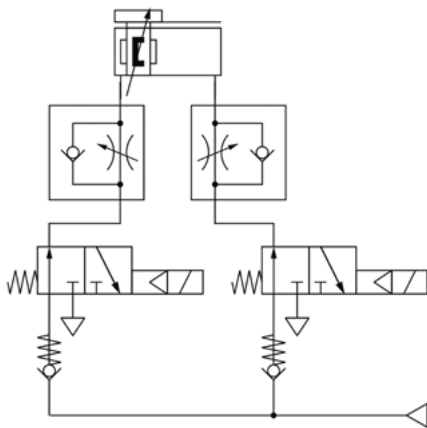
Since the running performance is stick slip free, an encoder mount is possible. A holding brake keeps the position. ( see options )

**Circuit examples**
**Control 1**


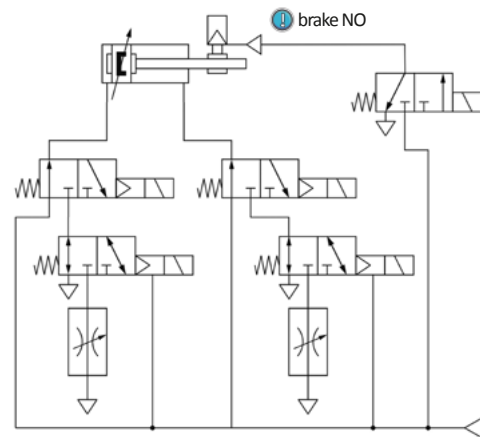
Simple system for controlling the slide from end to end. A flow control valve can be used to adjust the cylinder speed.

**Control 2**


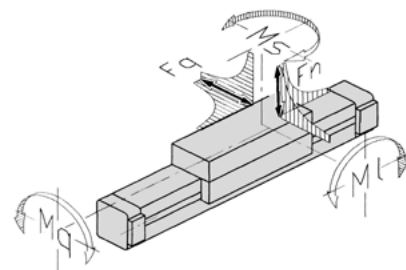
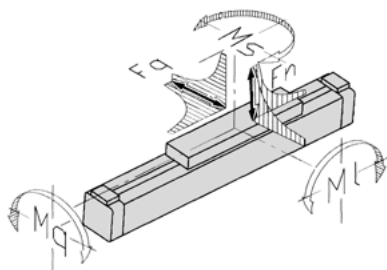
System to stop the cylinder on intermediate position with higher tolerances.

**Control 3**


This control circuit improves the positioning accuracy. The use of check valves reduces the stopping distance and also increases the load stiffness.

**Control 4**


This circuit example permits the selection of different speeds (rapid or inching) for either forward or reverse motion. The brake is activated by a 3/2 solenoid valve.

**Loads, forces and torques**


| Cylinder | Operating force * | Braking force** | $F_n$  | $F_q$  | $M_I$  | $M_q$ | $M_s$  |
|----------|-------------------|-----------------|--------|--------|--------|-------|--------|
| ZR-25    | 250 N             | 380 N           | 400 N  | 400 N  | 40 Nm  | 20 Nm | 30 Nm  |
| ZR-25S   | 250 N             | 380 N           | 400 N  | 400 N  | 80 Nm  | 40 Nm | 60 Nm  |
| ZR-40    | 640 N             | 750 N           | 800 N  | 800 N  | 75 Nm  | 30 Nm | 50 Nm  |
| ZR-40S   | 640 N             | 750 N           | 800 N  | 800 N  | 150 Nm | 60 Nm | 100 Nm |
| ZR-40L   | 640 N             | 750 N           | 1200 N | 1200 N | 95 Nm  | 45 Nm | 95 Nm  |

| v in m/s  | 0.2 | 0.3  | 0.4 | 0.5 | 0.75 | 1   |
|-----------|-----|------|-----|-----|------|-----|
| Factor*** | 1   | 0.75 | 0.5 | 0.4 | 0.27 | 0.2 |

\* at 6 bar

\*\* only at versions with brake, braking force at 6 bar, static

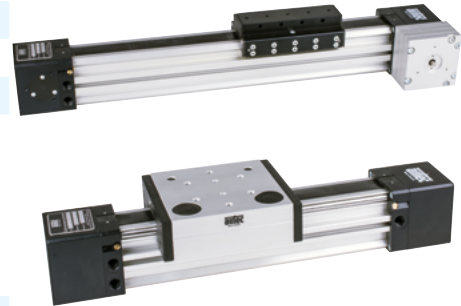
\*\*\* Force and torque data are based on the speed of the slide guideways of  $\leq 0.2$  m/s, in case of roller guides of  $\leq 2$  m/s.

If speed exceeds 0.2 m/s, the permissible values of the slide guideways must be multiplied by the factors from the table. For roller or ball guide types is no factor required.

# Series ZR

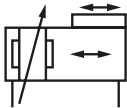
## Technical details

|                           |   |
|---------------------------|---|
| <b>Operating pressure</b> | 1 ... 8 bar   |
| <b>Temperature range</b>  | -15°C ... +70°C   |
| <b>max. Stroke</b>        | 4500 mm (4300 mm for ZR-**S)  |
| <b>Medium</b>             | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. If speeds exceed 1 m/s lubricated air is recommended. |
| <b>Materials</b>          | Cylinder tube: Al (anodized)<br>End caps: Al (anodized)<br>Seals: PA, NBR, PDF  |



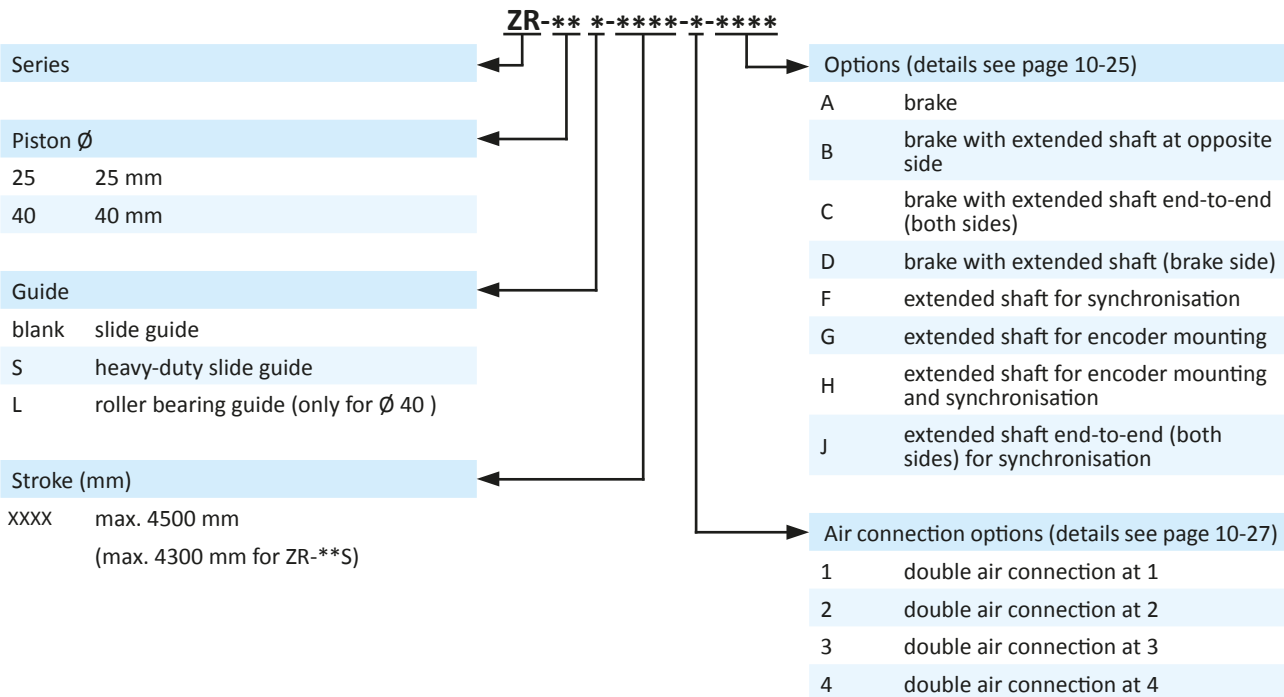
Double acting rodless toothed belt cylinder with adjustable cushions. The toothed belt is driven by the piston in a closed profile tube. The piston actuates a slide with an adjustable slide guideway.  
Note: Slide guide and piston are working in opposite direction.

## Versions



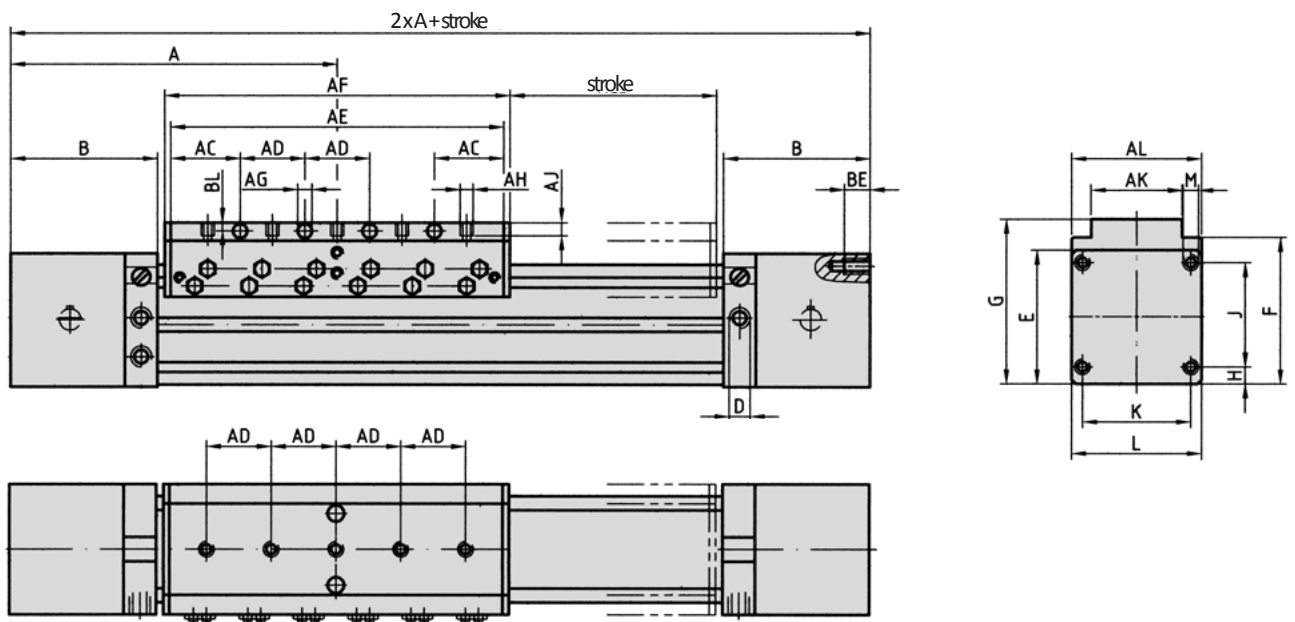
ZR-\*\*\*  
double acting, adjustable cushioning,  
with magnetic piston

## Order code



**Technical data**

|                                |       |       |        |        |        |
|--------------------------------|-------|-------|--------|--------|--------|
| <b>Model-no.:</b>              | ZR-25 | ZR-40 | ZR-25S | ZR-40S | ZR-40L |
| <b>Piston Ø (mm)</b>           | 25    | 40    | 25     | 40     | 40     |
| <b>Connection</b>              | G1/8  | G1/4  | G1/8   | G1/4   | G1/4   |
| <b>Cushioning length (mm)</b>  | 25    | 32    | 25     | 32     | 32     |
| <b>Weight 0 mm stroke</b>      | 2.18  | 3.19  | 2.58   | 3.59   | 4.84   |
| <b>(kg) each 100 mm stroke</b> | 0.40  | 0.50  | 0.40   | 0.50   | 0.70   |

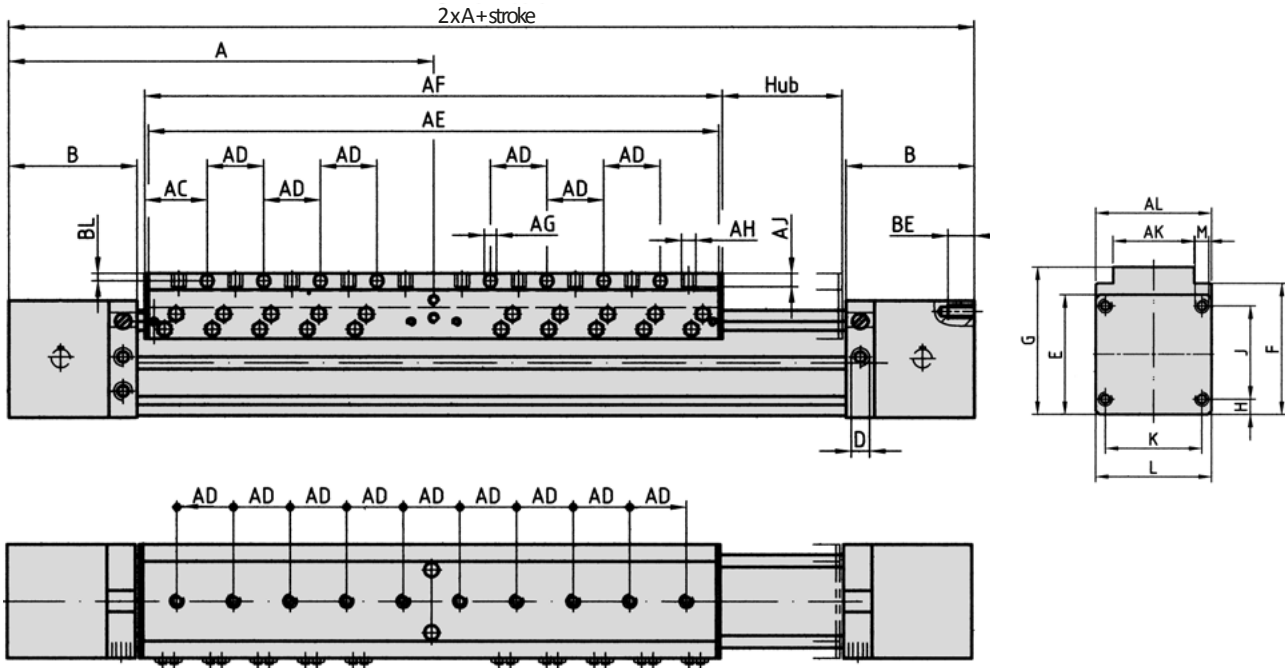
**Dimensions series ZR**


| Cylinder | A   | B  | D    | E    | F    | G    | H | J  | K  | L  | M  |
|----------|-----|----|------|------|------|------|---|----|----|----|----|
| ZR-25    | 150 | 68 | G1/8 | 62   | 67.5 | 76   | 8 | 48 | 50 | 60 | M5 |
| ZR-40    | 150 | 75 | G1/4 | 76.8 | 80.5 | 97.5 | 9 | 54 | 54 | 72 | M6 |

| Cylinder | AC | AD | AE  | AF  | AG  | AH | AJ  | AK | AL | BE | BL |
|----------|----|----|-----|-----|-----|----|-----|----|----|----|----|
| ZR-25    | 33 | 30 | 156 | 160 | 5.5 | M5 | 7   | 42 | 60 | 10 | 4  |
| ZR-40    | 25 | 30 | 140 | 148 | 5.5 | M5 | 8.5 | 40 | 72 | 12 | 6  |

# Series ZR

## Dimensions series ZR-S

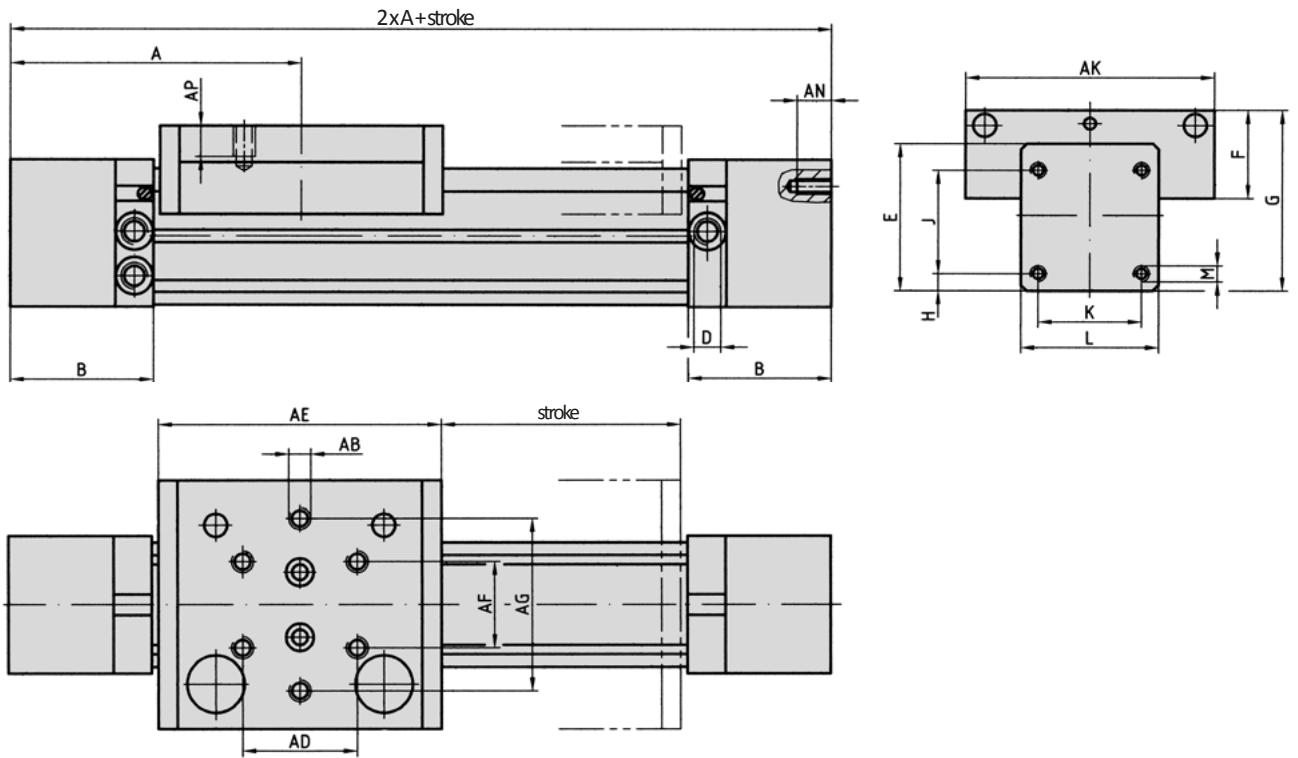


| Cylinder | A   | B  | D    | E    | F    | G    | H | J  | K  | L  | M  |
|----------|-----|----|------|------|------|------|---|----|----|----|----|
| ZR-25S   | 225 | 68 | G1/8 | 62   | 67.5 | 76   | 8 | 48 | 50 | 60 | M5 |
| ZR-40S   | 225 | 75 | G1/4 | 76.8 | 80.5 | 97.5 | 9 | 54 | 54 | 72 | M6 |

| Cylinder | AC | AD | AE  | AF  | AG  | AH | AJ  | AK | AL | BE | BL |
|----------|----|----|-----|-----|-----|----|-----|----|----|----|----|
| ZR-25S   | 35 | 30 | 306 | 310 | 5.5 | M5 | 7   | 42 | 60 | 10 | 4  |
| ZR-40S   | 29 | 30 | 290 | 298 | 5.5 | M5 | 8.5 | 40 | 72 | 12 | 6  |



Dimensions series ZR-L



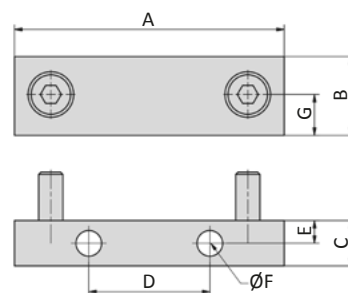
| Cylinder | A   | B  | D    | E    | F    | G    | H | J  | K  | L  |
|----------|-----|----|------|------|------|------|---|----|----|----|
| ZR-40L   | 150 | 75 | G1/4 | 76.8 | 46.1 | 94.4 | 9 | 54 | 54 | 72 |

| Cylinder | M  | AB | AD | AE  | AF | AG | AK  | AN | AP |
|----------|----|----|----|-----|----|----|-----|----|----|
| ZR-40L   | M6 | M8 | 60 | 148 | 45 | 90 | 130 | 12 | 15 |

## Series ZR

### Mounting parts

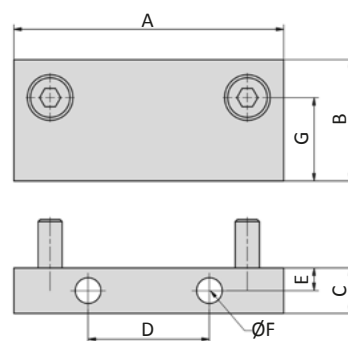
#### ZK-xx2 Head mount



| Model-no.: | A  | B  | C  | D  | E  | Ø F | G  |
|------------|----|----|----|----|----|-----|----|
| ZK-252     | 60 | 20 | 20 | 30 | 10 | 9   | 11 |
| ZK-402     | 71 | 20 | 20 | 30 | 10 | 9   | 11 |

Screws to mount the head mount to the cylinder are included.

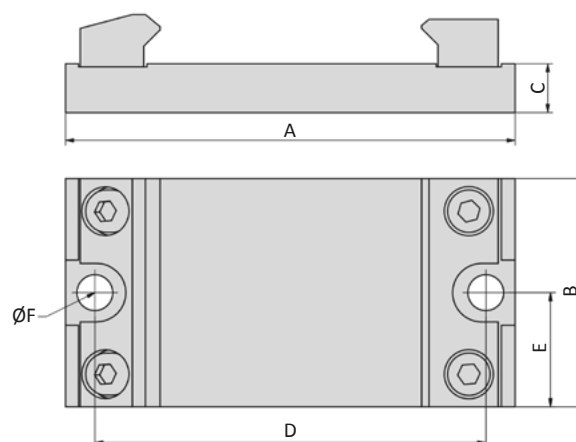
#### ZK-xx3 Head mount, tall (for use in combination with center mount)



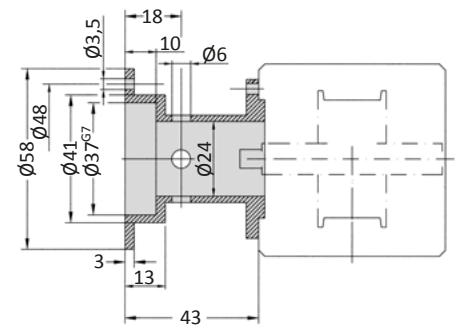
| Model-no.: | A  | B  | C  | D  | E  | Ø F | G  |
|------------|----|----|----|----|----|-----|----|
| ZK-253     | 60 | 30 | 20 | 30 | 10 | 9   | 17 |
| ZK-403     | 71 | 30 | 20 | 30 | 10 | 9   | 18 |

Screws to mount the head mount to the cylinder are included.

#### ZK-xx1 Center mount

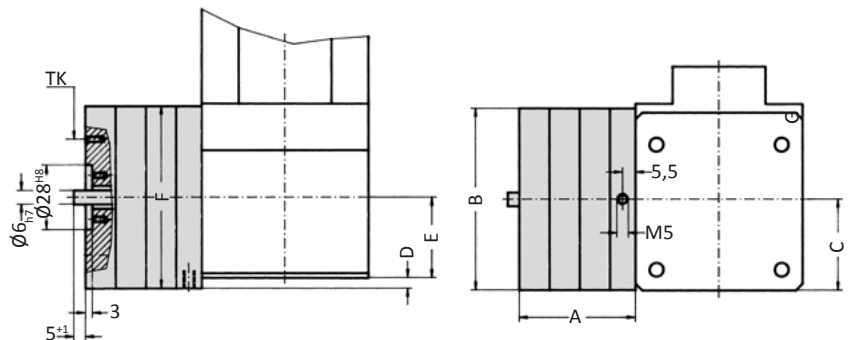


| Model-no.: | A   | B  | C  | D  | E    | Ø F |
|------------|-----|----|----|----|------|-----|
| ZK-251     | 90  | 60 | 10 | 75 | 37.5 | 9   |
| ZK-401     | 100 | 60 | 10 | 84 | 42   | 9   |

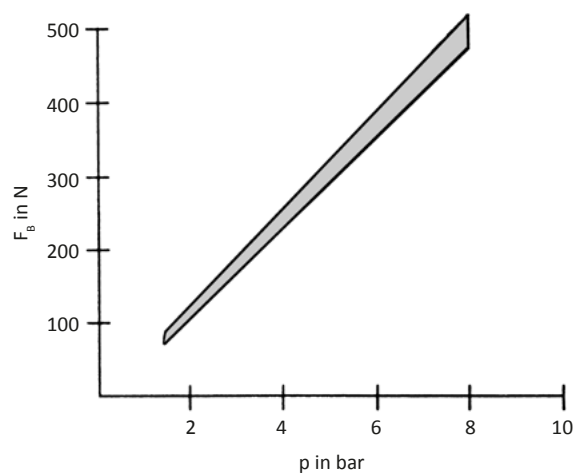
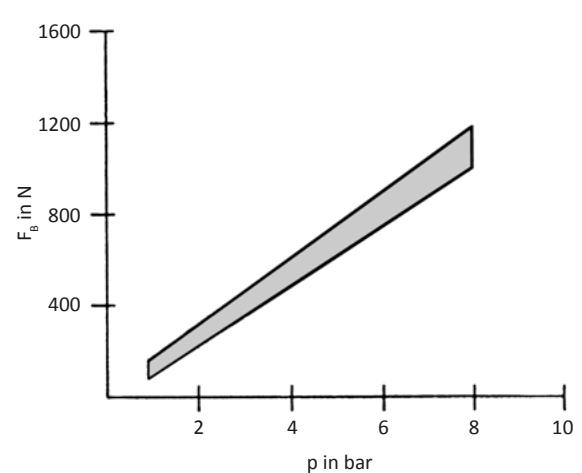
**ZA-3x Adapter for encoder mounting**


| Model-no.: | Mounting         |
|------------|------------------|
| ZA-36      | mounted on brake |
| ZA-37      | mounted on head  |

The adapters can be mounted on all cylinders of series ZR and will fit to all encoders with a 36 mm centering collar.

**BR-xx Brake**


| Model-no.: | A  | B    | C    | D   | E    | F    | TK                                |
|------------|----|------|------|-----|------|------|-----------------------------------|
| BR-25      | 43 | 61   | 31.2 | 2   | 27.5 | 51   | 45 (3 x M3 x 6 deep drawn offset) |
| BR-40      | 50 | 78.5 | 39.4 | 4.5 | 34.7 | 78.5 | 50 (3 x M3 x 7 deep drawn offset) |

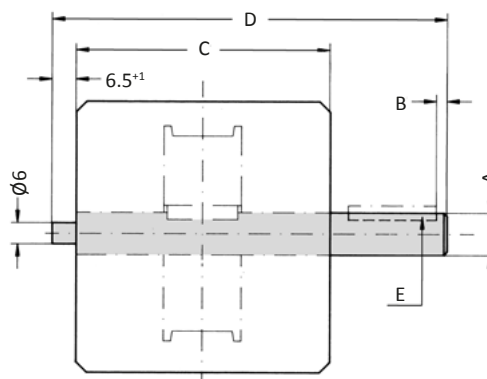
**BR-25 Braking force static**

**BR-40 Braking force static**


The brake is designed to hold the position. Do not use to stop the cylinder.

## Series ZR

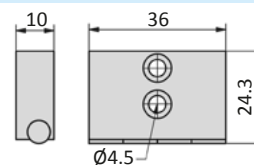
### Accessories

#### Extended shaft



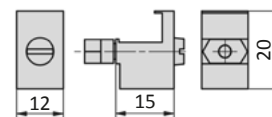
| Piston Ø | A                | B | C  | D   | E (key)             | slide travel (mm) per one rotation |
|----------|------------------|---|----|-----|---------------------|------------------------------------|
| 25       | 10 <sub>h7</sub> | 2 | 60 | 93  | 3 x 3 x 20 DIN 6885 | 135                                |
| 40       | 12 <sub>h7</sub> | 3 | 72 | 112 | 4 x 4 x 25 DIN 6885 | 185                                |

#### ZR-4006 Magnet



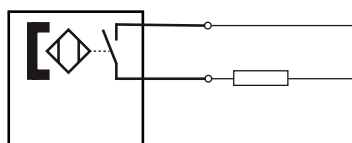
For use with our proximity sensor ZS-100.1. The magnet is mounted at the slide. Mounting screws are included. The model ZE-40L has the magnet already included.

#### ZR-4007 Mounting bracket for proximity sensors



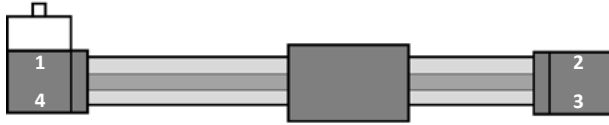
For direct mounting at the cylinder groove.

#### ZS-100.1 Proximity sensor



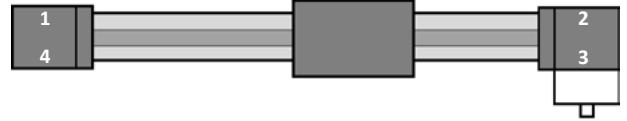
|  |                                       |
|--|---------------------------------------|
| Model-no.:                               | ZS-100.1                              |
| Design                                   | 2-pole Reed sensor                    |
| Contact function                         | NO                                    |
| Rated operational voltage                | 3 ... 250 V AC / DC                   |
| Rated operational current I <sub>e</sub> | 1 A                                   |
| Breaking capacity                        | 50 W bzw. 50 VA                       |
| Cable                                    | 2 x 0.25 mm <sup>2</sup> , 3 m length |
| Temperature range                        | -30 ... +80°C                         |
| Protection                               | IP 67                                 |
| Switching status indication              | LED red                               |
| Switching time                           | < 2 ms                                |
| Response time                            | < 0.1 ms                              |

**Option A1**



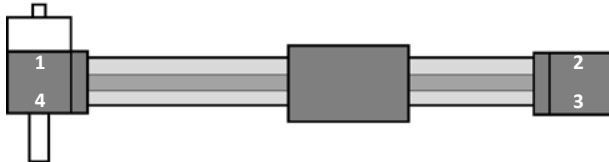
Brake with encoder connection mounted at 1

**Option A3**



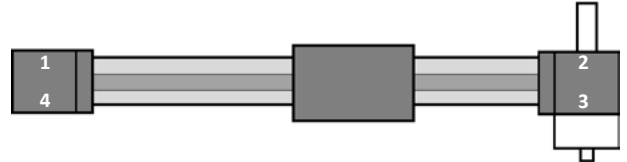
Brake with encoder connection mounted at 3

**Option B1**



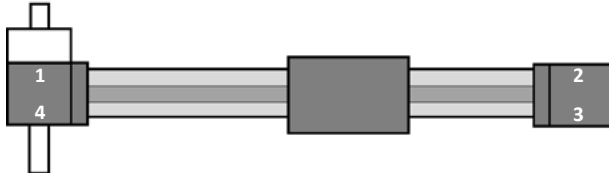
Brake at 1 with extended shaft for synchronisation at 4

**Option B3**



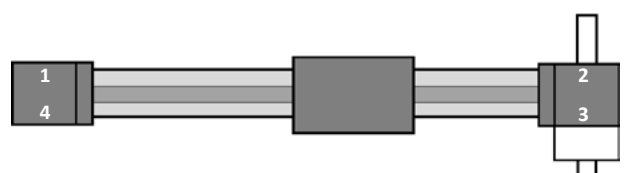
Brake at 3 with extended shaft for synchronisation at 2

**Option C1**



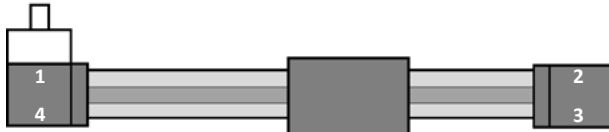
Brake at 1 with shaft for synchronisation at 1 and 4

**Option C3**



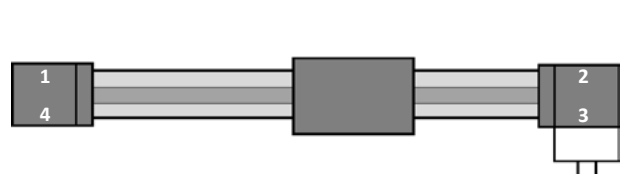
Brake at 3 with shaft for synchronisation at 2 and 3

**Option D1**



Brake at 1 with extended shaft for synchronisation at 1

**Option D3**



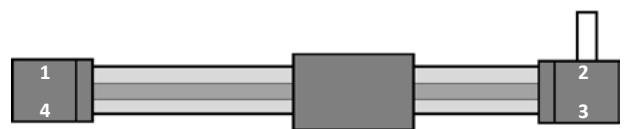
Brake at 3 with extended shaft for synchronisation at 3

**Option F1**



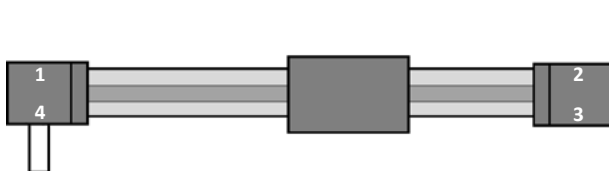
Shaft for synchronisation at 1

**Option F2**



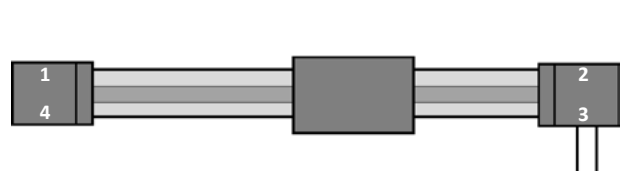
Shaft for synchronisation at 2

**Option F4**



Shaft for synchronisation at 4

**Option F3**



Shaft for synchronisation at 3

**Option G1**



Shaft for encoder connection at 1

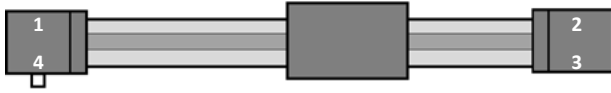
**Option G2**



Shaft for encoder connection at 2

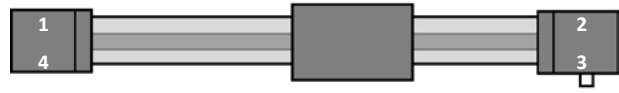
## Series ZR Accessories

### Option G4



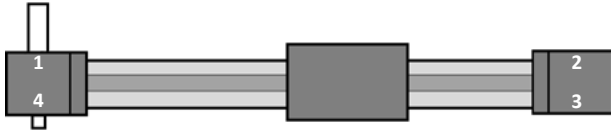
Shaft for encoder connection at 4

### Option G3



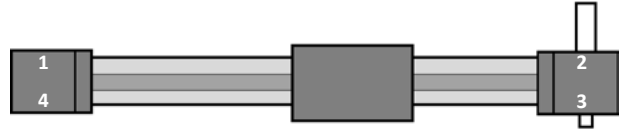
Shaft for encoder connection at 3

### Option H1



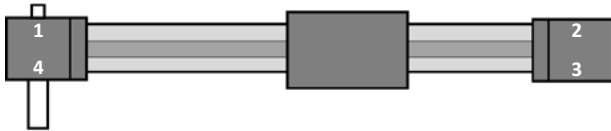
Shaft for encoder connection at 4 and synchronisation at 1

### Option H2



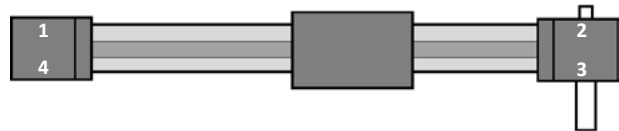
Shaft for encoder connection at 3 and synchronisation at 2

### Option H4



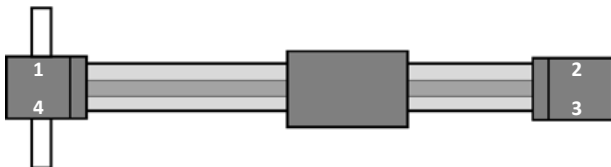
Shaft for encoder connection at 1 and synchronisation at 4

### Option H3



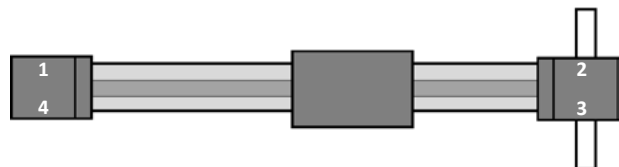
Shaft for encoder connection at 2 and synchronisation at 3

### Option J1



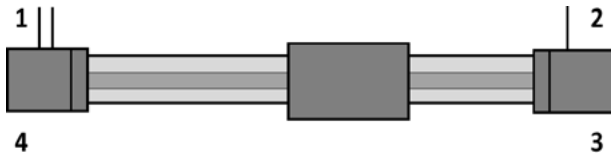
Shaft for synchronisation at 1 and 4

### Option J3

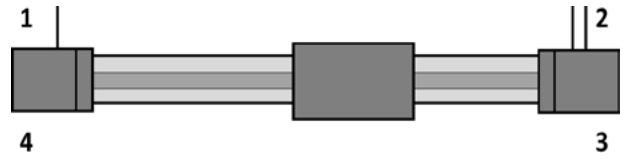


Shaft for synchronisation at 2 and 3

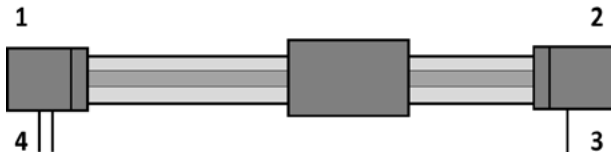
Option 1



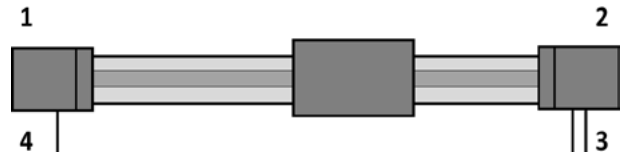
Option 2



Option 4



Option 3



The cylinder is supplied with three air connections. Two connections are necessary for operation, while the third is closed by a plug (included in the scope of delivery). The desired position of the double connection has to be specified in the order code after the stroke length by choosing the adequate number.





**Classic ejectors series HV Page 11-02**



**Multi-inlet ejectors series MIF Page 11-07**



**Classic ejectors series HF Page 11-03**



**Column ejectors series HV Page 11-04**



**Column ejectors series HF Page 11-05**



**Multi-inlet ejectors series MI Page 11-06**



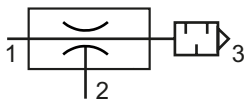
# Series HV

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), fittings: brass, nickel plated, silencer: plastic  |



Vacuum ejectors work according to the Venturi principle. The pressure and vacuum connection have an integrated filter which protects against large dirt particles. The granulate silencer is part of delivery. The HV series is developed for high vacuum level.



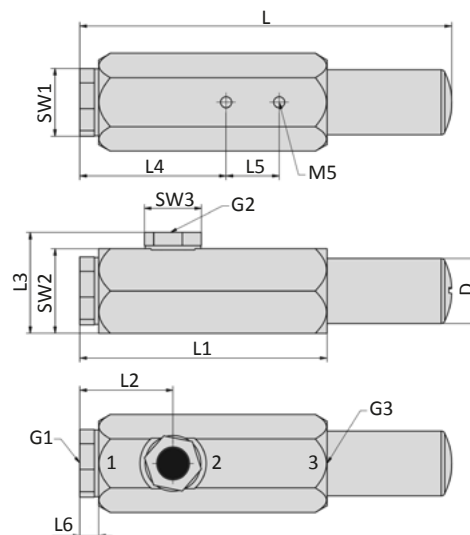
## Technical data

| Model-no.:                      | HV-33   | HV-63   | HV-93   | HV-133  | HV-333  | HV-533  |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| <b>Max. vacuum level (%)</b>    | 95      | 95      | 95      | 95      | 95      | 95      |
| <b>Flow rate (l/min)**</b>      | 4       | 10      | 15      | 30      | 40      | 45      |
| <b>Air consumption (l/min)*</b> | 25      | 45      | 70      | 120     | 300     | 480     |
| <b>Time to evacuate (s/l)**</b> | 7.50    | 3.20    | 2.00    | 0.95    | 0.53    | 0.42    |
| <b>Nozzle-Ø (mm)</b>            | 0.7     | 1.1     | 1.3     | 1.7     | 2.5     | 3.0     |
| <b>Operating pressure (bar)</b> | 4 ... 6 | 4 ... 6 | 4 ... 6 | 4 ... 6 | 4 ... 6 | 4 ... 6 |
| <b>Weight (kg)</b>              | 0.052   | 0.131   | 0.131   | 0.242   | 0.368   | 0.385   |

\* at 5 bar operating pressure

\*\* at 70% vacuum level and 5 bar operating pressure

## Dimensions



- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

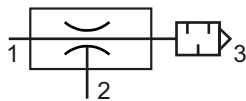
| Model-no.:    | L     | L1   | L2   | L3   | L4 | L5 | L6  | SW1 | SW2 | SW3 | G1   | G2   | G3   | Ø D  |
|---------------|-------|------|------|------|----|----|-----|-----|-----|-----|------|------|------|------|
| <b>HV-33</b>  | 76    | 49.5 | 23.5 | 27.8 | -  | -  | 6.5 | 17  | 17  | 13  | G1/8 | G1/8 | G1/8 | 15   |
| <b>HV-63</b>  | 129.5 | 82.5 | 33.5 | 34.5 | 47 | 16 | 6.5 | 24  | 19  | 13  | G1/4 | G1/8 | G3/8 | 24.5 |
| <b>HV-93</b>  | 129.5 | 82.5 | 33.5 | 34.5 | 47 | 16 | 6.5 | 24  | 19  | 13  | G1/4 | G1/8 | G3/8 | 24.5 |
| <b>HV-133</b> | 140   | 93   | 35   | 38   | 55 | 20 | 7   | 32  | 24  | 19  | G1/4 | G1/4 | G1/2 | 24.5 |
| <b>HV-333</b> | 207   | 110  | 35   | 38.1 | 52 | 29 | 7   | 32  | 24  | 19  | G1/4 | G1/4 | G3/4 | 48   |
| <b>HV-533</b> | 207   | 110  | 35   | 38.1 | 52 | 29 | 7   | 32  | 24  | 19  | G1/4 | G1/4 | G3/4 | 48   |

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), fittings: brass, nickel plated, silencer: plastic  |



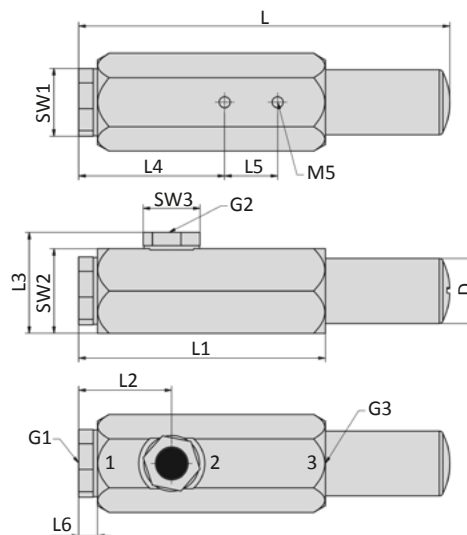
Vacuum ejectors work according to the Venturi principle. The pressure and vacuum connection have an integrated filter which protects against large dirt particles. The granulate silencer is part of delivery. The HF series is developed for high flow rates.


**Technical data**

| Model-no.:               | HF-133  | HF-333  | HF-533  |
|--------------------------|---------|---------|---------|
| Max. vacuum level (%)    | 60      | 65      | 80      |
| Flow rate (l/min)**      | 80      | 190     | 215     |
| Air consumption (l/min)* | 110     | 300     | 480     |
| Time to evacuate (s/l)** | 0.22    | 0.12    | 0.09    |
| Nozzle-Ø (mm)            | 1.7     | 2.5     | 3.0     |
| Operating pressure (bar) | 4 ... 6 | 4 ... 6 | 4 ... 6 |
| Weight (kg)              | 0.242   | 0.368   | 0.385   |

\* at 5 bar operating pressure

\*\* at 40% vacuum level and 5 bar operating pressure

**Dimensions**


- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

| Model-no.:    | L   | L1  | L2 | L3   | L4 | L5 | L6 | SW1 | SW2 | SW3 | G1   | G2   | G3   | Ø D  |
|---------------|-----|-----|----|------|----|----|----|-----|-----|-----|------|------|------|------|
| <b>HF-133</b> | 140 | 93  | 35 | 38   | 55 | 20 | 7  | 32  | 24  | 19  | G1/4 | G1/4 | G1/2 | 24.5 |
| <b>HF-333</b> | 207 | 110 | 35 | 38.1 | 52 | 29 | 7  | 32  | 24  | 19  | G1/4 | G1/4 | G3/4 | 48   |
| <b>HF-533</b> | 207 | 110 | 35 | 38.1 | 52 | 29 | 7  | 32  | 24  | 19  | G1/4 | G1/4 | G3/4 | 48   |

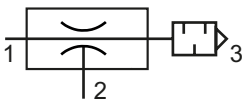
# Series HV

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), silencer: plastic  |



Vacuum ejectors work according to the Venturi principle. The granulate silencer is part of delivery. The HV series is developed for high vacuum level.



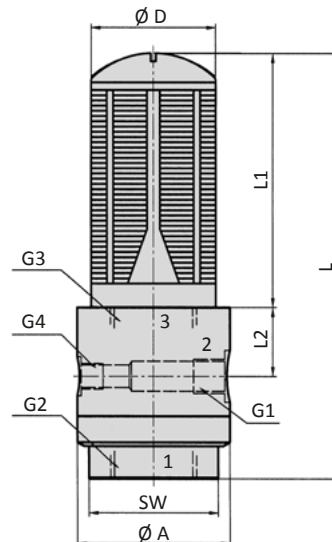
## Technical data

| Model-no.:                      | HV-80   | HV-150  | HV-300  | HV-600  |
|---------------------------------|---------|---------|---------|---------|
| <b>Max. vacuum level (%)</b>    | 80      | 85      | 85      | 85      |
| <b>Flow rate (l/min)**</b>      | 10      | 33      | 57      | 77      |
| <b>Air consumption (l/min)*</b> | 88      | 170     | 350     | 630     |
| <b>Time to evacuate (s/l)**</b> | 1.22    | 0.42    | 0.25    | 0.19    |
| <b>Operating pressure (bar)</b> | 3 ... 7 | 3 ... 7 | 3 ... 7 | 3 ... 7 |
| <b>Weight (kg)</b>              | 0.300   | 0.300   | 0.400   | 0.400   |

\* at 5 bar operating pressure

\*\* at 60% vacuum level and 5 bar operating pressure

## Dimensions



- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

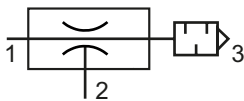
| Model-no.:    | Ø A | Ø D  | G1   | G2   | G3   | G4   | L   | L1 | L2 | SW |
|---------------|-----|------|------|------|------|------|-----|----|----|----|
| <b>HV-80</b>  | 48  | 24.5 | G1/4 | G1/2 | G1/2 | G1/8 | 109 | 47 | 25 | 40 |
| <b>HV-150</b> | 48  | 24.5 | G1/4 | G1/2 | G1/2 | G1/8 | 109 | 47 | 25 | 40 |
| <b>HV-300</b> | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |
| <b>HV-600</b> | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), silencer: plastic  |



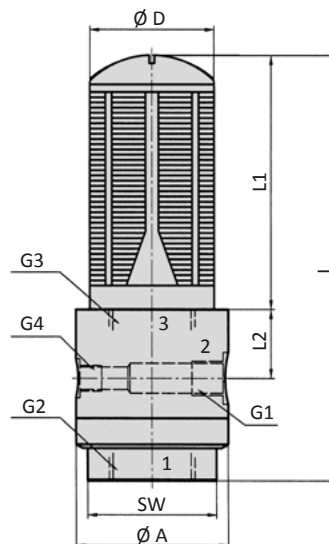
Vacuum ejectors work according to the Venturi principle. The granulate silencer is part of delivery. The HF series is developed for high flow rates.


**Technical data**

| Model-no.:               | HF-100  | HF-200  | HF-300  | HF-450  | HF-600  | HF-1150 | HF-1500 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|
| Max. vacuum level (%)    | 75      | 74      | 80      | 78      | 78      | 80      | 68      |
| Flow rate (l/min)**      | 40      | 95      | 135     | 130     | 200     | 407     | 436     |
| Air consumption (l/min)* | 108     | 220     | 320     | 480     | 650     | 1250    | 1600    |
| Time to evacuate (s/l)** | 0.180   | 0.100   | 0.060   | 0.016   | 0.011   | 0.021   | 0.021   |
| Operating pressure (bar) | 3 ... 7 | 3 ... 7 | 3 ... 7 | 3 ... 7 | 3 ... 7 | 3 ... 7 | 3 ... 7 |
| Weight (kg)              | 0.240   | 0.400   | 0.400   | 0.400   | 0.400   | 0.900   | 0.900   |

\* at 5 bar operating pressure

\*\* at 40% vacuum level and 5 bar operating pressure

**Dimensions**


- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

| Model-no.: | Ø A | Ø D  | G1   | G2   | G3   | G4   | L   | L1 | L2 | SW |
|------------|-----|------|------|------|------|------|-----|----|----|----|
| HF-100     | 48  | 24.5 | G1/4 | G1/2 | G1/2 | G1/8 | 109 | 47 | 25 | 40 |
| HF-200     | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |
| HF-300     | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |
| HF-450     | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |
| HF-600     | 59  | 48   | G1/4 | G1   | G1   | G1/8 | 163 | 97 | 28 | 50 |
| HF-1150    | 88  | 64   | G3/8 | G1½  | G2   | G1/8 | 180 | 90 | 38 | 69 |
| HF-1500    | 88  | 64   | G3/8 | G1½  | G2   | G1/8 | 180 | 90 | 38 | 69 |

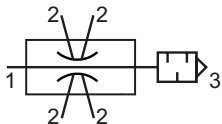
# Series MI

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), silencer: plastic  |



The MI series is based on the Venturi principle. The unit is available with 4, 6 or 8 vacuum ports. The vacuum is maintained on all ports, even in cases where one or several cups draw atmospheric pressure. The granulate silencer is part of delivery. The MI series is developed for high vacuum level.



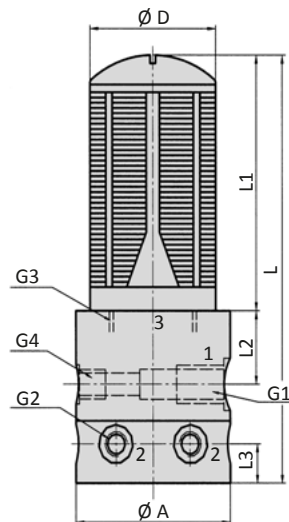
## Technical data

| Model-no.:                      | MI-4/20      | MI-4/40      | MI-6/30      | MI-6/55      | MI-8/40    |
|---------------------------------|--------------|--------------|--------------|--------------|------------|
| <b>Max. vacuum level (%)</b>    | 78           | 82           | 80           | 82           | 82         |
| <b>Number of vacuum ports</b>   | 4            | 4            | 6            | 6            | 8          |
| <b>Flow rate (l/min)**</b>      | 2            | 6            | 3            | 8            | 6          |
| <b>Air consumption (l/min)*</b> | 100 (4 x 25) | 168 (4 x 42) | 198 (6 x 33) | 390 (6 x 65) | 384 (8x48) |
| <b>Time to evacuate (s/l)**</b> | 6.7          | 2.4          | 3.7          | 1.7          | 2.2        |
| <b>Operating pressure (bar)</b> | 4.5 ... 6    | 4.5 ... 6    | 4.5 ... 6    | 4.5 ... 6    | 4.5 ... 6  |
| <b>Weight (kg)</b>              | 0.300        | 0.300        | 0.300        | 0.400        | 0.400      |

\* at 5 bar operating pressure

\*\* at 60% vacuum level and 5 bar operating pressure

## Dimensions



- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

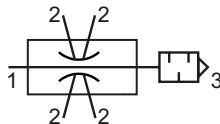
| Model-no.:     | Ø A | Ø D  | G1   | G2   | G3   | G4   | L   | L1 | L2 | L3 |
|----------------|-----|------|------|------|------|------|-----|----|----|----|
| <b>MI-4/20</b> | 48  | 24.5 | G1/4 | G1/8 | G1/2 | G1/8 | 109 | 47 | 25 | 15 |
| <b>MI-4/40</b> | 48  | 24.5 | G1/4 | G1/8 | G1/2 | G1/8 | 109 | 47 | 25 | 15 |
| <b>MI-6/30</b> | 48  | 24.5 | G1/4 | G1/8 | G1/2 | G1/8 | 109 | 47 | 25 | 15 |
| <b>MI-6/55</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MI-8/40</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Medium</b>            | Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. |
| <b>Materials</b>         | Body: Al (anodized), silencer: plastic  |



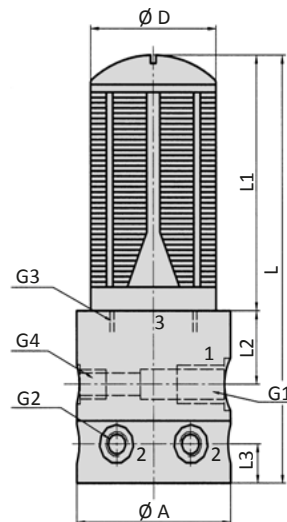
The MI series is based on the Venturi principle. The unit is available with 4, 6 or 8 vacuum ports. The vacuum is maintained on all ports, even in cases where one or several cups draw atmospheric pressure. The granulate silencer is part of delivery. The MIF series is developed for high flow rates.


**Technical data**

| Model-no.:                      | MIF-4/25   | MIF-4/60   | MIF-4/80   | MIF-6/40   | MIF-6/55   | MIF-8/30   | MIF-8/40   |
|---------------------------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Max. vacuum level (%)</b>    | 70         | 73         | 70         | 73         | 67         | 70         | 70         |
| <b>Number of vacuum ports</b>   | 4          | 4          | 4          | 6          | 6          | 8          | 8          |
| <b>Flow rate (l/min)**</b>      | 8          | 16         | 25         | 9          | 17         | 11         | 16         |
| <b>Air consumption (l/min)*</b> | 112 (4x28) | 240 (4x60) | 376 (4x94) | 240 (6x40) | 366 (6x61) | 240 (8x30) | 400 (8x50) |
| <b>Time to evacuate (s/l)**</b> | 1.1        | 0.6        | 0.4        | 0.8        | 0.6        | 0.8        | 0.6        |
| <b>Operating pressure (bar)</b> | 4.5 ... 6  | 4.5 ... 6  | 4.5 ... 6  | 4.5 ... 6  | 4.5 ... 6  | 4.5 ... 6  | 4.5 ... 6  |
| <b>Weight (kg)</b>              | 0.240      | 0.370      | 0.370      | 0.370      | 0.370      | 0.370      | 0.370      |

\* at 5 bar operating pressure

\*\* at 40% vacuum level and 5 bar operating pressure

**Dimensions**


- 1 = pressure inlet
- 2 = vacuum inlet
- 3 = exhaust

| Model-no.:      | Ø A | Ø D  | G1   | G2   | G3   | G4   | L   | L1 | L2 | L3 |
|-----------------|-----|------|------|------|------|------|-----|----|----|----|
| <b>MIF-4/25</b> | 48  | 24.5 | G1/4 | G1/8 | G1/2 | G1/8 | 109 | 47 | 25 | 15 |
| <b>MIF-4/60</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MIF-4/80</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MIF-6/40</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MIF-6/55</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MIF-8/30</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |
| <b>MIF-8/40</b> | 59  | 48   | G1/4 | G1/8 | G1   | G1/8 | 163 | 97 | 28 | 15 |





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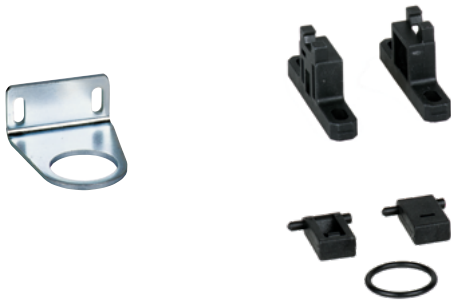


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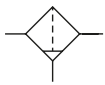
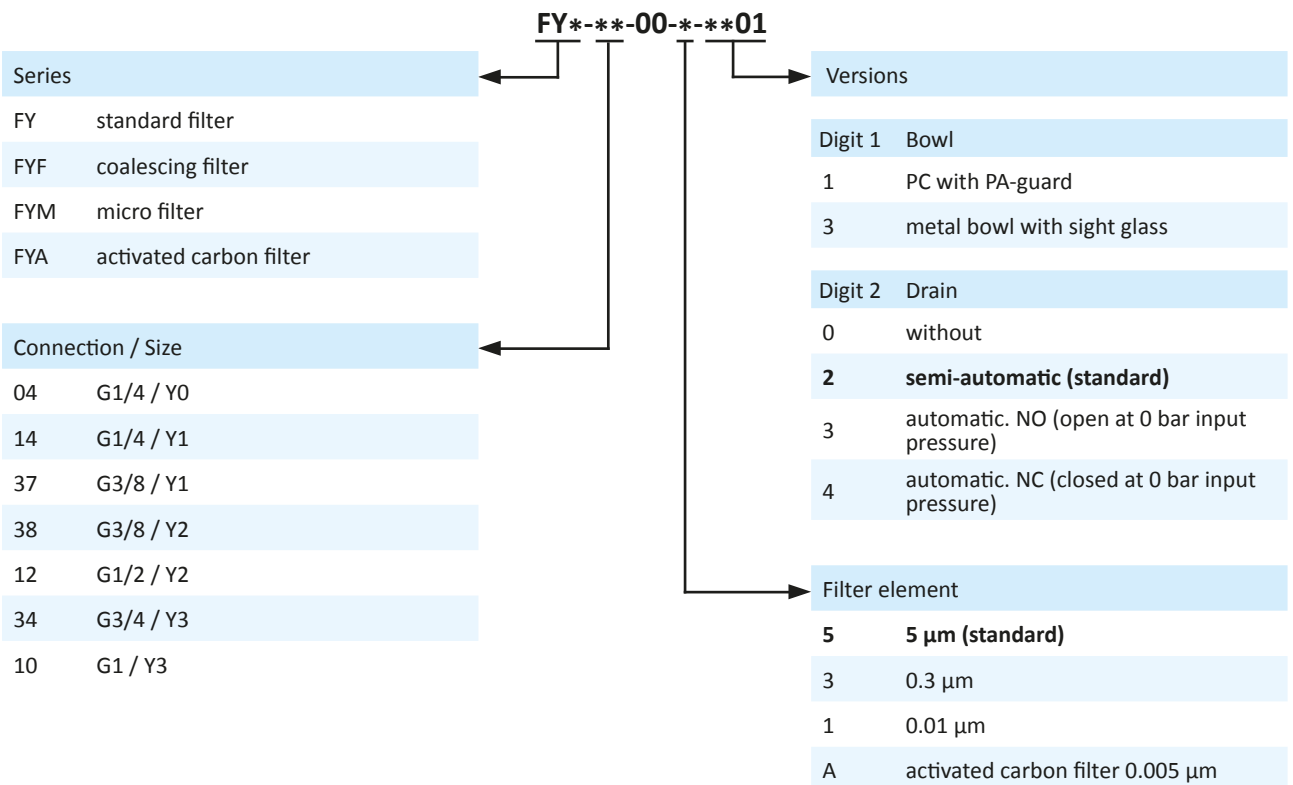
### Gauge MXA Page 12-57



**Technical details**

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +50°C  |
| <b>Input range</b>       | 1.5 ... 16 bar ( size Y0 max. 12 bar )                       |
| <b>Mounting</b>          | vertically, drain at bottom                                  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: Grivory (PA66), bowl: PC, seals: NBR, inner parts: POM |

Sintered filter according to the centrifugal force principle.


**Order code**


## Filter FY

### Technical data

| Model-no.:                     | FY-04-... | FY-14-... | FY-37-... | FY-38-... | FY-12-... | FY-34-... | FY-10-... |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Connection                     | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4      | G1        |
| Size                           | Y0        | Y1        | Y1        | Y2        | Y2        | Y3        | Y3        |
| Flow (NI/min)*                 | 1000      | 2000      | 2000      | 3500      | 5100      | 8000      | 8000      |
| Bowl volume (cm <sup>3</sup> ) | 16        | 28        | 28        | 49        | 49        | 87        | 87        |
| Weight (kg)                    | 0.13      | 0.25      | 0.24      | 0.42      | 0.40      | 0.89      | 0.86      |

\* Measured at p1 = 6 bar and Δp = 1 bar.

| Model-no.:                     | FYF-04-... | FYF-14-... | FYF-37-... | FYF-38-... | FYF-12-... | FYF-34-... | FYF-10-... |
|--------------------------------|------------|------------|------------|------------|------------|------------|------------|
| Connection                     | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4       | G1         |
| Size                           | Y0         | Y1         | Y1         | Y2         | Y2         | Y3         | Y3         |
| Flow (NI/min)*                 | 450        | 500        | 500        | 750        | 750        | 2000       | 2000       |
| Bowl volume (cm <sup>3</sup> ) | 16         | 28         | 28         | 49         | 49         | 87         | 87         |
| Weight (kg)                    | 0.13       | 0.28       | 0.27       | 0.46       | 0.44       | 1.02       | 0.95       |

\* Measured at p1 = 6 bar and Δp = 0.2 bar.

| Model-no.:                     | FYM-04-... | FYM-14-... | FYM-37-... | FYM-38-... | FYM-12-... | FYM-34-... | FYM-10-... |
|--------------------------------|------------|------------|------------|------------|------------|------------|------------|
| Connection                     | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4       | G1         |
| Size                           | Y0         | Y1         | Y1         | Y2         | Y2         | Y3         | Y3         |
| Flow (NI/min)*                 | 350        | 350        | 350        | 450        | 450        | 1500       | 1500       |
| Bowl volume (cm <sup>3</sup> ) | 16         | 28         | 28         | 49         | 49         | 87         | 87         |
| Weight (kg)                    | 0.13       | 0.28       | 0.27       | 0.46       | 0.44       | 1.02       | 0.95       |

\* Measured at p1 = 6 bar and Δp = 0.1 bar.

| Model-no.:     | FYA-04-... | FYA-14-... | FYA-37-... | FYA-38-... | FYA-12-... | FYA-34-... | FYA-10-... |
|----------------|------------|------------|------------|------------|------------|------------|------------|
| Connection     | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4       | G1         |
| Size           | Y0         | Y1         | Y1         | Y2         | Y2         | Y3         | Y3         |
| Flow (NI/min)* | 500        | 500        | 500        | 1600       | 1600       | 3000       | 3000       |
| Weight (kg)    | 0.14       | 0.26       | 0.25       | 0.44       | 0.42       | 0.97       | 0.91       |

\* Measured at p1 = 6 bar and Δp = 0.2 bar.

### Accessories

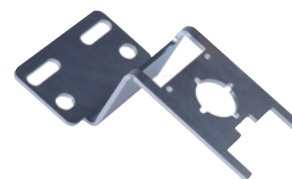
#### Coupling kits for wall mounting KPY-W



#### Coupling kits KPY-K



#### Mounting brackets WYP



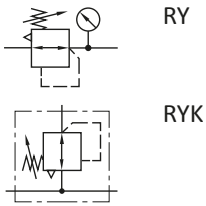
Details: Page 12-23

# Pressure regulator RY

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | max. 16 bar ( size Y0 max. 12 bar )   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases  |
| <b>Materials</b>         | Body: Grivory (PA66) and POM, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Pressure regulator with diaphragm and relieving feature.  
 Locking: rotary lock and padlock possible.



## Order code

| RY-**-**-0-00*1 |                                 | Series                              | Versions  |
|-----------------|---------------------------------|-------------------------------------|---|
| RY              | standard                        | Series                              | Digit 3 Gauge, flow direction                           |
| RYK             | with continuous pressure supply | Connection / Size                   | 0 without gauge, flow from left to right                |
|                 |                                 | 04 * G1/4 / Y0                      | 1 without gauge, flow from right to left                |
|                 |                                 | 14 G1/4 / Y1                        | 2 <b>with gauge, flow from left to right (standard)</b> |
|                 |                                 | 37 G3/8 / Y1                        | 3 with gauge, flow from right to left                   |
|                 |                                 | 38 G3/8 / Y2                        |   |
|                 |                                 | 12 G1/2 / Y2                        |   |
|                 |                                 | 34 G3/4 / Y3                        |   |
|                 |                                 | 10 G1 / Y3                          |   |
|                 |                                 | Output range                        |   |
|                 |                                 | 04 0.2 ... 4 bar                    |   |
|                 |                                 | 08 0.5 ... 8 bar                    |   |
|                 |                                 | 10 <b>0.5 ... 10 bar (standard)</b> |   |

\* RY-04 only with integrated gauge and flow from left to right available.

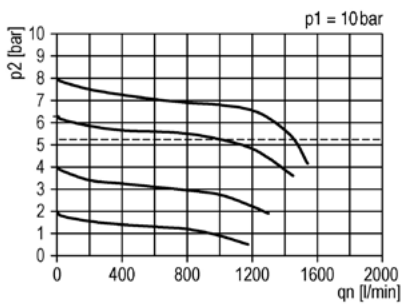
# Pressure regulator RY

## Technical data

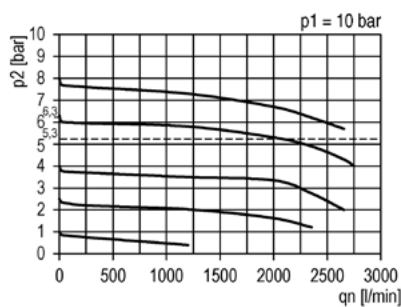
| Model-no.:               | RY-04-... | RY-14-... | RY-37-... | RY-38-... | RY-12-... | RY-34-...      | RY-10-...      |
|--------------------------|-----------|-----------|-----------|-----------|-----------|----------------|----------------|
| Connection               | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4           | G1             |
| Size                     | Y0        | Y1        | Y1        | Y2        | Y2        | Y3             | Y3             |
| Flow (NI/min)            | 1000      | 2200      | 2600      | 4300      | 5100      | 14000          | 14000          |
| Internal air consumption | -         | -         | -         | -         | -         | max. 1.5 l/min | max. 1.5 l/min |
| Weight (kg)              | 0.17      | 0.30      | 0.29      | 0.52      | 0.50      | 1.02           | 0.95           |

## Flow characteristic

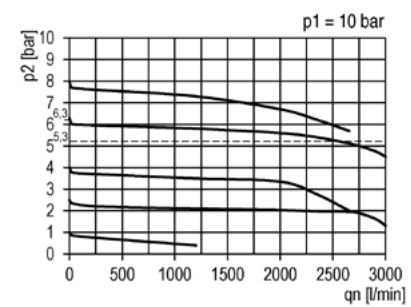
RY-04



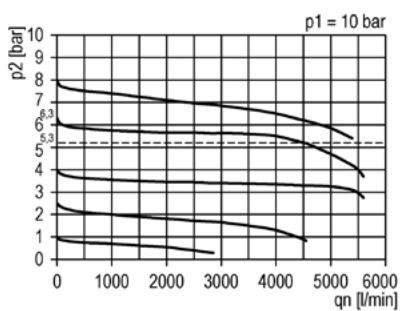
RY-14



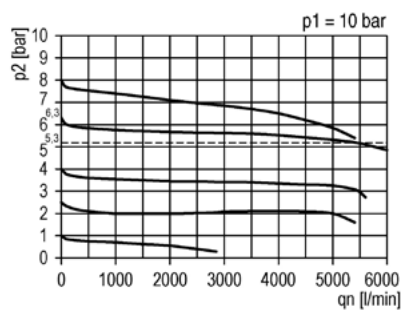
RY-37



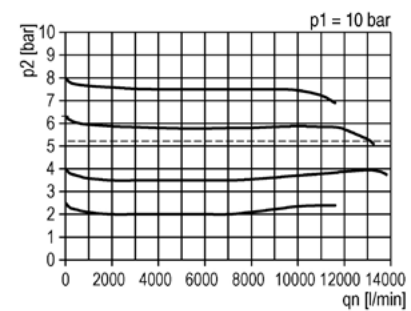
RY-38



RY-12



RY-34, RY-10

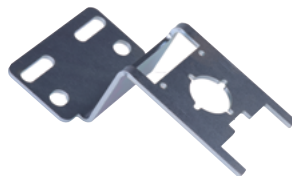


## Accessories

Mounting brackets WYL



Mounting brackets WYP



Coupling kits for wall mounting KPY-W



Coupling kits KPY-K



Mounting nut RMY



Details: see page 12-23



# Precision pressure regulator RYP

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | max. 16 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases  |
| <b>Materials</b>         | Body: Grivory (PA66) and POM, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Precision pressure regulator with diaphragm and relieving feature.  
 Locking: rotary lock and padlock possible.



## Order code

| RYP-***-**-0-00*1 |           | Series                              | Versions  |
|-------------------|-----------|-------------------------------------|---|
| 14                | G1/4 / Y1 | Series                              | Digit 3 Gauge, flow direction                       |
| 37                | G3/8 / Y1 | Connection / Size                   | 0 without gauge, flow from left to right (standard) |
| 38                | G3/8 / Y2 | Output range                        | 1 without gauge, flow from right to left            |
| 12                | G1/2 / Y2 | 01 0.1 ... 1 bar                    | 2 with gauge, flow from left to right               |
|                   |           | 02 0.1 ... 2 bar                    | 3 with gauge, flow from right to left               |
|                   |           | 04 0.2 ... 4 bar                    |   |
|                   |           | 08 0.5 ... 8 bar                    |   |
|                   |           | <b>10 0.5 ... 10 bar (standard)</b> |   |
|                   |           | 16 0.5 ... 16 bar                   |   |

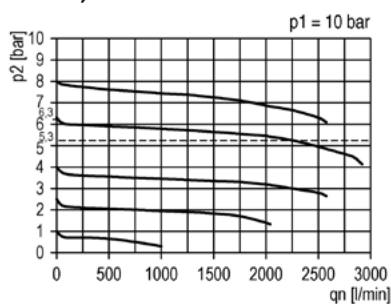
# Precision pressure regulator RYP

## Technical data

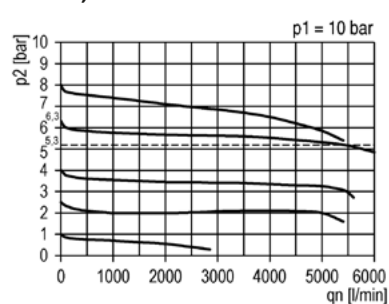
| Model-no.:               | RYP-14-...     | RYP-37-...     | RYP-38-...     | RYP-12-...     |
|--------------------------|----------------|----------------|----------------|----------------|
| Connection               | G1/4           | G3/8           | G3/8           | G1/2           |
| Size                     | Y1             | Y1             | Y2             | Y2             |
| Flow (NI/min)            | 2200           | 2200           | 5000           | 5000           |
| Internal air consumption | max. 2.6 l/min | max. 2.6 l/min | max. 2.6 l/min | max. 2.6 l/min |
| Weight (kg)              | 0.30           | 0.29           | 0.51           | 0.49           |

## Flow characteristic

RYP-14, RYP-37

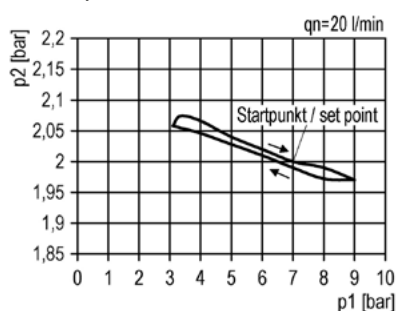


RYP-38, RYP-12

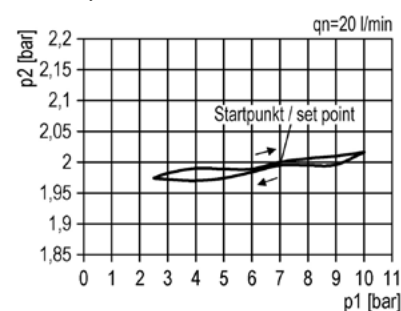


## Hysterese

RYP-14, RYP-37



RYP-38, RYP-12

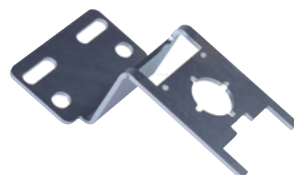


## Accessories

Mounting brackets WYL



Mounting brackets WYP



Coupling kits for wall mounting KPY-W



Coupling kits KPY-K



Mounting nut RMY

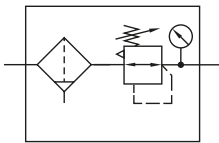


Details: see page 12-23

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | 1.5 ... 16 bar ( size Y0 max. 12 bar )  |
| <b>Mounting</b>          | vertically, drain at bottom   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases  |
| <b>Materials</b>         | Body: Grivory (PA66) and POM, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.  
Locking: rotary lock and padlock possible.



## Order code

| FRY-***-**-5-***1                   |   |
|-------------------------------------|---|
| <b>Series</b>                       | <b>Versions</b>   |
| <b>Connection / Size</b>            | <b>Digit 1 Bowl</b>                                     |
| 04 * G1/4 / Y0                      | 1 PC with PA-guard                                      |
| 14 G1/4 / Y1                        | 3 metal bowl with sight glass                           |
| 37 G3/8 / Y1                        | <b>Digit 2 Drain</b>                                    |
| 38 G3/8 / Y2                        | <b>2 semi-automatic (standard)</b>                      |
| 12 G1/2 / Y2                        | 3 automatic, NO (open at 0 bar input pressure)          |
| 34 G3/4 / Y3                        | 4 automatic, NC (closed at 0 bar input pressure)        |
| 10 G1 / Y3                          | <b>Digit 3 Gauge, flow direction</b>                    |
| <b>Output range</b>                 | 0 without gauge, flow from left to right                |
| 04 0.2 ... 4 bar                    | 1 without gauge, flow from right to left                |
| 08 0.5 ... 8 bar                    | <b>2 with gauge, flow from left to right (standard)</b> |
| <b>10 0.5 ... 10 bar (standard)</b> | 3 with gauge, flow from right to left                   |
| <b>Filter element</b>               |   |
| 5 5 µm                              |   |

\* FRY-04 only with integrated gauge and flow from left to right available.

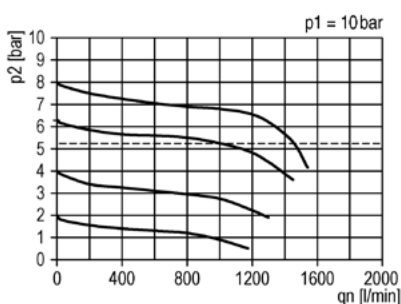
# Filter regulator FRY

## Technical data

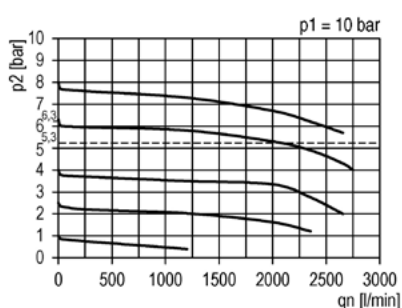
| Model-no.:                     | FRY-04-... | FRY-14-... | FRY-37-... | FRY-38-... | FRY-12-... | FRY-34-...     | FRY-10-...     |
|--------------------------------|------------|------------|------------|------------|------------|----------------|----------------|
| Connection                     | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4           | G1             |
| Size                           | Y0         | Y1         | Y1         | Y2         | Y2         | Y3             | Y3             |
| Flow (l/min)                   | 1000       | 2200       | 2600       | 4300       | 5200       | 14000          | 14000          |
| Internal air consumption       | -          | -          | -          | -          | -          | max. 1.5 l/min | max. 1.5 l/min |
| Bowl volume (cm <sup>3</sup> ) | 16         | 28         | 28         | 49         | 49         | 87             | 87             |
| Weight (kg)                    | 0.23       | 0.36       | 0.36       | 0.85       | 0.85       | 0.99           | 0.99           |

## Flow characteristic

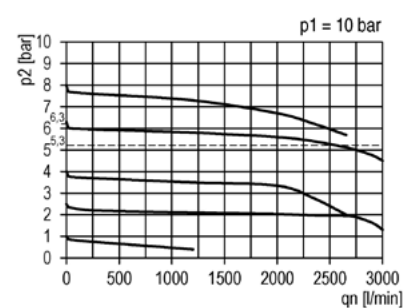
FRY-04



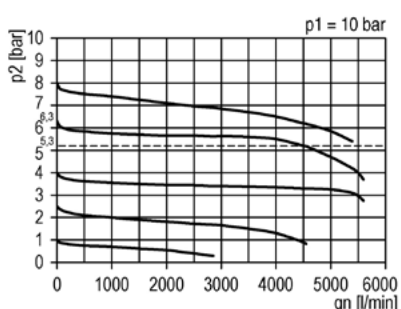
FRY-14



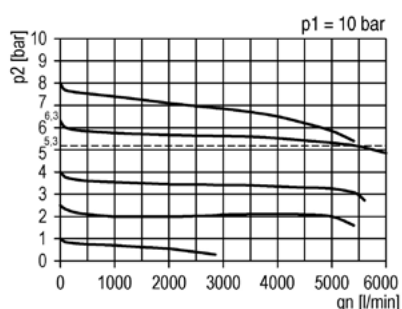
FRY-37



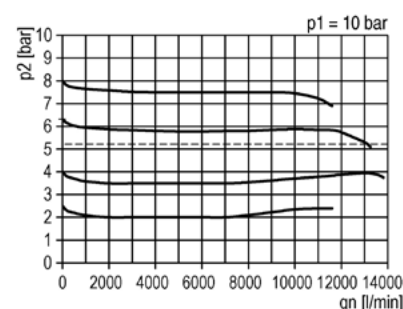
FRY-38



FRY-12



FRY-34, FRY-10

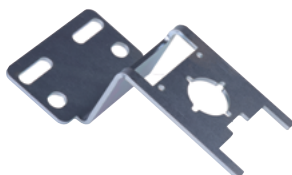


## Accessories

Mounting brackets WYL



Mounting brackets WYP



Coupling kits for wall mounting KPY-W



Coupling kits KPY-K



Mounting nut RMY

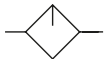


Details: see page 12-23

**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | max. 16 bar ( size Y0 max. 12 bar )                                 |
| <b>Mounting</b>          | vertically  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases          |
| <b>Materials</b>         | Body: Grivory (PA66), seals: NBR,<br>inner parts: plastic and brass |

Micro lubricator ( size Y0 )  
Lubricator with automatic oil filling ( scale Y1 to Y3 )


**Order code**

| Series |           | Versions |                             |
|--------|-----------|----------|-----------------------------|
|        |           | Digit 1  | Bowl                        |
| 04     | G1/4 / Y0 | 1        | PC with PA-guard            |
| 14     | G1/4 / Y1 | 3        | metal bowl with sight glass |
| 37     | G3/8 / Y1 |          |                             |
| 38     | G3/8 / Y2 |          |                             |
| 12     | G1/2 / Y2 |          |                             |
| 34     | G3/4 / Y3 |          |                             |
| 10     | G1 / Y3   |          |                             |

OY-\*\*-00-0-\*001

## Lubricator OY

### Technical data

| Model-no.:                                | OY-04-... | OY-14-... | OY-37-... | OY-38-... | OY-12-... | OY-34-... | OY-10-... |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Connection                                | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4      | G1        |
| Size                                      | Y0        | Y1        | Y1        | Y2        | Y2        | Y3        | Y3        |
| Flow (l/min)                              | 1400      | 2800      | 2800      | 8000      | 8000      | 16000     | 16000     |
| Lubricator operating limit (l/min)        | 30        | 100       | 100       | 70        | 70        | 115       | 115       |
| Bowl volume lubricator (cm <sup>3</sup> ) | 35        | 40        | 40        | 80        | 80        | 181       | 181       |
| Weight (kg)                               | 0.15      | 0.27      | 0.26      | 0.43      | 0.41      | 0.95      | 0.89      |

### Accessories

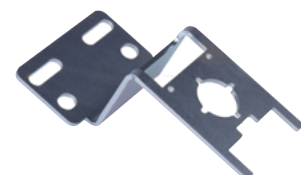
#### Coupling kits for wall mounting KPY-W



#### Coupling kits KPY-K



#### Mounting brackets WYP



Details: Page 12-23

# Two piece air service unit FROY

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | 1.5 ... 16 bar ( size Y0 max. 12 bar )  |
| <b>Mounting</b>          | vertically, drain at bottom   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases  |
| <b>Materials</b>         | Body: Grivory (PA66) and POM, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of filter, regulator and lubricator.  
 Locking: rotary lock and padlock possible.



## Order code

| FROY-***-**-5-***1  |   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
|---|---|--|------|---------------|----|---------------|-----------|----------------------------------|----|-----------|----|-----------|----|-----------|----|---------|--|---------|------|---|------------------|---|-----------------------------|---------|-------|----------|----------------------------------|---|--|---|--|---------|-----------------------|---|--|---|--|----------|---|---|-------------------------------------|
| Series  | Versions  |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <table border="1"> <tr> <th colspan="2">Connection / Size</th> </tr> <tr> <td>04 *</td> <td>G1/4 / Y0</td> </tr> <tr> <td>14</td> <td>G1/4 / Y1</td> </tr> <tr> <td>37</td> <td>G3/8 / Y1</td> </tr> <tr> <td>38</td> <td>G3/8 / Y2</td> </tr> <tr> <td>12</td> <td>G1/2 / Y2</td> </tr> <tr> <td>34</td> <td>G3/4 / Y3</td> </tr> <tr> <td>10</td> <td>G1 / Y3</td> </tr> </table> | Connection / Size                                     |  | 04 * | G1/4 / Y0     | 14 | G1/4 / Y1     | 37        | G3/8 / Y1                        | 38 | G3/8 / Y2 | 12 | G1/2 / Y2 | 34 | G3/4 / Y3 | 10 | G1 / Y3 | <table border="1"> <tr> <th>Digit 1</th> <th>Bowl</th> </tr> <tr> <td>1</td> <td>PC with PA-guard</td> </tr> <tr> <td>3</td> <td>metal bowl with sight glass</td> </tr> <tr> <th>Digit 2</th> <th>Drain</th> </tr> <tr> <td><b>2</b></td> <td><b>semi-automatic (standard)</b></td> </tr> <tr> <td>3</td> <td>automatic, NO (open at 0 bar input pressure)</td> </tr> <tr> <td>4</td> <td>automatic, NC (closed at 0 bar input pressure)</td> </tr> <tr> <th>Digit 3</th> <th>Gauge, flow direction</th> </tr> <tr> <td>0</td> <td>without gauge, flow from left to right</td> </tr> <tr> <td>1</td> <td>without gauge, flow from right to left</td> </tr> <tr> <td><b>2</b></td> <td><b>with gauge, flow from left to right (standard)</b></td> </tr> <tr> <td>3</td> <td>with gauge, flow from right to left</td> </tr> </table> | Digit 1 | Bowl | 1 | PC with PA-guard | 3 | metal bowl with sight glass | Digit 2 | Drain | <b>2</b> | <b>semi-automatic (standard)</b> | 3 | automatic, NO (open at 0 bar input pressure) | 4 | automatic, NC (closed at 0 bar input pressure) | Digit 3 | Gauge, flow direction | 0 | without gauge, flow from left to right | 1 | without gauge, flow from right to left | <b>2</b> | <b>with gauge, flow from left to right (standard)</b> | 3 | with gauge, flow from right to left |
| Connection / Size   |   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 04 *  | G1/4 / Y0   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 14  | G1/4 / Y1   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 37  | G3/8 / Y1   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 38  | G3/8 / Y2   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 12  | G1/2 / Y2   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 34  | G3/4 / Y3   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 10  | G1 / Y3   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| Digit 1   | Bowl  |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 1   | PC with PA-guard                                      |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 3   | metal bowl with sight glass                           |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| Digit 2   | Drain   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <b>2</b>  | <b>semi-automatic (standard)</b>                      |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 3   | automatic, NO (open at 0 bar input pressure)          |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 4   | automatic, NC (closed at 0 bar input pressure)        |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| Digit 3   | Gauge, flow direction                                 |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 0   | without gauge, flow from left to right                |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 1   | without gauge, flow from right to left                |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <b>2</b>  | <b>with gauge, flow from left to right (standard)</b> |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 3   | with gauge, flow from right to left                   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <table border="1"> <tr> <th colspan="2">Output range</th> </tr> <tr> <td>04</td> <td>0.2 ... 4 bar</td> </tr> <tr> <td>08</td> <td>0.5 ... 8 bar</td> </tr> <tr> <td><b>10</b></td> <td><b>0.5 ... 10 bar (standard)</b></td> </tr> </table>  | Output range  |  | 04   | 0.2 ... 4 bar | 08 | 0.5 ... 8 bar | <b>10</b> | <b>0.5 ... 10 bar (standard)</b> |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| Output range  |   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 04  | 0.2 ... 4 bar   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 08  | 0.5 ... 8 bar   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <b>10</b>   | <b>0.5 ... 10 bar (standard)</b>                      |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| <table border="1"> <tr> <th colspan="2">Filter element</th> </tr> <tr> <td>5</td> <td>5 µm</td> </tr> </table>  | Filter element  |  | 5    | 5 µm          |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| Filter element  |   |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |
| 5   | 5 µm  |  |      |               |    |               |           |                                  |    |           |    |           |    |           |    |         |  |         |      |   |                  |   |                             |         |       |          |                                  |   |  |   |  |         |                       |   |  |   |  |          |   |   |                                     |

\* FROY-04 only with integrated gauge and flow from left to right available.

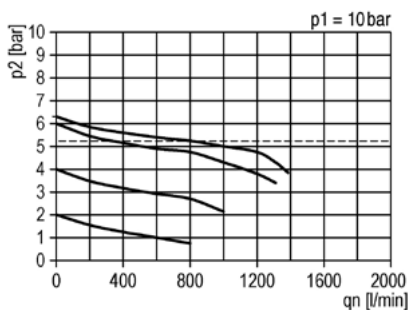
# Two piece air service unit FROY

## Technical data

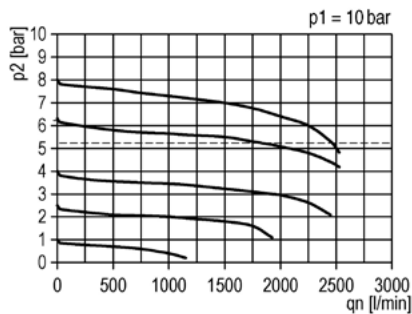
| Model-no.:                                | FROY-04-... | FROY-14-... | FROY-37-... | FROY-38-... | FROY-12-... | FROY-34-...    | FROY-10-...    |
|---|-------------|-------------|-------------|-------------|-------------|----------------|----------------|
| Connection                                | G1/4        | G1/4        | G3/8        | G3/8        | G1/2        | G3/4           | G1             |
| Size                                      | Y0          | Y1          | Y1          | Y2          | Y2          | Y3             | Y3             |
| Flow (NI/min)                             | 600         | 1800        | 1800        | 3500        | 3500        | 12000          | 12000          |
| Lubricator operating limit (NI/min)       | 30          | 100         | 100         | 70          | 70          | 115            | 115            |
| Internal air consumption                  | -           | -           | -           | -           | -           | max. 1.5 l/min | max. 1.5 l/min |
| Bowl volume (cm <sup>3</sup> )            | 16          | 28          | 28          | 49          | 49          | 87             | 87             |
| Bowl volume lubricator (cm <sup>3</sup> ) | 35          | 40          | 40          | 80          | 80          | 181            | 181            |
| Weight (kg)                               | 0.39        | 0.67        | 0.65        | 1.09        | 1.06        | 2.27           | 2.13           |

## Flow characteristic

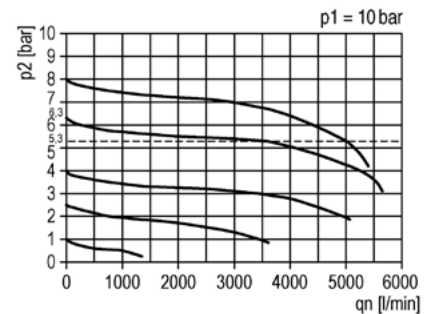
FROY-04



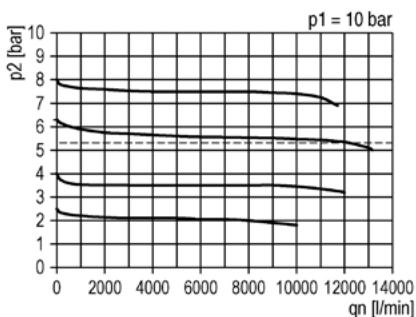
FROY-14, FROY-37



FROY-38, FROY-12



FROY-34, FROY-10

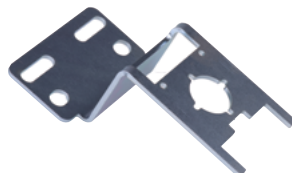


## Accessories

Mounting brackets WYL



Mounting brackets WYP



Coupling kits for wall mounting KPY-W



Coupling kits KPY-K



Mounting nut RMY



Details: see page 12-23

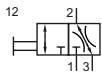


**Technical details**

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | max. 16 bar ( size Y0 max. 12 bar )                                 |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases          |
| <b>Materials</b>         | Body: Grivory (PA66), seals: NBR,<br>inner parts: plastic and brass |



3/2 directional control valve, operated by a knob, 3-fold.  
 Locking: rotary lock and padlock possible.  
 Silencer is mounted in exhaust.


**Order code**

|                   |           |                        |
|-------------------|-----------|------------------------|
|                   |           | <b>KY-**-00-0-0001</b> |
| Series            |           | ←                      |
| Connection / Size |           | ←                      |
| 04                | G1/4 / Y0 |                        |
| 14                | G1/4 / Y1 |                        |
| 37                | G3/8 / Y1 |                        |
| 38                | G3/8 / Y2 |                        |
| 12                | G1/2 / Y2 |                        |
| 34                | G3/4 / Y3 |                        |
| 10                | G1 / Y3   |                        |

**Technical data**

| Model-no.:                  | KY-04-... | KY-14-... | KY-37-... | KY-38-... | KY-12-... | KY-34-... | KY-10-... |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Connection</b>           | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4      | G1        |
| <b>Size</b>                 | Y0        | Y1        | Y1        | Y2        | Y2        | Y3        | Y3        |
| <b>Flow (1-2 in NI/min)</b> | 2300      | 1900      | 1900      | 11000     | 11000     | 25000     | 25000     |
| <b>Weight (kg)</b>          | 0.10      | 0.27      | 0.26      | 0.54      | 0.52      | 1.19      | 1.15      |

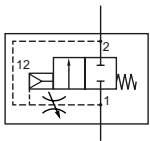
## Soft start valve DAY

### Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +50°C  |
| <b>Input range</b>       | 2.5 ... 16 bar ( size Y0 max. 12 bar )   |
| <b>Mounting</b>          | arbitrary  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                           |
| <b>Materials</b>         | Body: Grivory (PA66), seals: NBR,<br>inner parts: plastic, stainless steel and brass |



Poppet valve, operated by secondary pressure  
The filling time is adjustable.



### Order code

|                   |           |                         |
|-------------------|-----------|-------------------------|
|                   |           | <b>DAY-**-00-0-0001</b> |
| Series            |           | ←                       |
| Connection / Size |           | ←                       |
| 04                | G1/4 / Y0 |                         |
| 14                | G1/4 / Y1 |                         |
| 37                | G3/8 / Y1 |                         |
| 38                | G3/8 / Y2 |                         |
| 12                | G1/2 / Y2 |                         |
| 34                | G3/4 / Y3 |                         |
| 10                | G1 / Y3   |                         |

### Technical data

| Model-no.:           | DAY-04-... | DAY-14-... | DAY-37-... | DAY-38-... | DAY-12-... | DAY-34-... | DAY-10-... |
|----------------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Connection</b>    | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4       | G1         |
| <b>Size</b>          | Y0         | Y1         | Y1         | Y2         | Y2         | Y3         | Y3         |
| <b>Flow (NI/min)</b> | 2000       | 2000       | 2000       | 4500       | 4500       | 10000      | 10000      |
| <b>Weight (kg)</b>   | 0.14       | 0.24       | 0.22       | 0.54       | 0.52       | 0.79       | 0.63       |

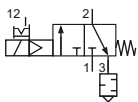
# 3/2-way inline valve VMY

## Technical details

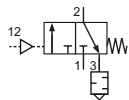
|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +50°C  |
| <b>Input range</b>       | electrically operated: 2 ... 10 bar<br>pneumatically operated: max. 16 bar ( size Y0 max. 12 bar )     |
| <b>Mounting</b>          | arbitrary  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: Grivory (PA66) and POM, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |
| <b>Protection</b>        | IP 65 according to EN 60529  |



3/2-way poppet valve, electrically or pneumatically operated.  
Silencer is mounted in exhaust.  
Plug socket is included.



electrically operated  
3/2-way, single solenoid, mechanical  
spring return, NC



pneumatically operated  
3/2-way, single pilot, mechanical  
spring return, NC

## Order code

| Series            |           | VMY-**-00-0-000* |         | Versions               |  |
|-------------------|-----------|------------------|---------|------------------------|--|
| Connection / Size |           | Digit 4          | Version |                        |  |
| 04                | G1/4 / Y0 |                  | A       | 24 V DC, 2.5 W         |  |
| 14                | G1/4 / Y1 |                  | D       | 115 V AC, 3 VA         |  |
| 37                | G3/8 / Y1 |                  | E       | 230 V AC, 3 VA         |  |
| 38                | G3/8 / Y2 |                  | F       | pneumatically operated |  |
| 12                | G1/2 / Y2 |                  |         |                        |  |
| 34                | G3/4 / Y3 |                  |         |                        |  |
| 10                | G1 / Y3   |                  |         |                        |  |

## Technical data

| Model-no.:                      | VMY-04-... | VMY-14-... | VMY-37-... | VMY-38-... | VMY-12-... | VMY-34-... | VMY-10-... |
|---------------------------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Connection</b>               | G1/4       | G1/4       | G3/8       | G3/8       | G1/2       | G3/4       | G1         |
| <b>Size</b>                     | Y0         | Y1         | Y1         | Y2         | Y2         | Y3         | Y3         |
| <b>Flow (1-2 in NI/min)</b>     | 2000       | 2000       | 2000       | 4300       | 4300       | 12500      | 12500      |
| <b>Weight(Version A-E) (kg)</b> | 0.22       | 0.28       | 0.27       | 0.59       | 0.58       | 0.78       | 0.71       |
| <b>Weight(Version F) (kg)</b>   | 0.19       | 0.25       | 0.24       | 0.56       | 0.55       | 0.75       | 0.68       |

## Non-return valve NY

### Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +50°C  |
| <b>Input range</b>       | 2.5 ... 16 bar ( size Y0 max. 12 bar )   |
| <b>Mounting</b>          | arbitrary  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                           |
| <b>Materials</b>         | Body: Grivory (PA66), seals: NBR,<br>inner parts: plastic, stainless steel and brass |



Poppet valve, spring loaded.



### Order code

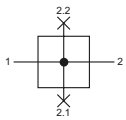
|                   |           |                        |  |
|-------------------|-----------|------------------------|--|
|                   |           | <b>NY-**-00-0-0001</b> |  |
| Series            |           | ←                      |  |
| Connection / Size |           | ←                      |  |
| 04                | G1/4 / Y0 |                        |  |
| 14                | G1/4 / Y1 |                        |  |
| 37                | G3/8 / Y1 |                        |  |
| 38                | G3/8 / Y2 |                        |  |
| 12                | G1/2 / Y2 |                        |  |
| 34                | G3/4 / Y3 |                        |  |
| 10                | G1 / Y3   |                        |  |

### Technical data

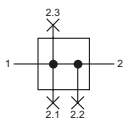
| Model-no.:          | NY-04-... | NY-14-... | NY-37-... | NY-38-... | NY-12-... | NY-34-... | NY-10-... |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Connection</b>   | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4      | G1        |
| <b>Size</b>         | Y0        | Y1        | Y1        | Y2        | Y2        | Y3        | Y3        |
| <b>Flow (l/min)</b> | 2000      | 2000      | 2000      | 4500      | 4500      | 10000     | 10000     |
| <b>Weight (kg)</b>  | 0.14      | 0.24      | 0.22      | 0.54      | 0.52      | 0.79      | 0.63      |

## Technical details

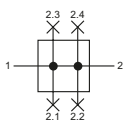
|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +50°C   |
| <b>Input range</b>       | max. 16 bar ( size Y0 max. 12 bar )                                 |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases          |
| <b>Materials</b>         | Body: Grivory (PA66), seals: NBR,<br>inner parts: plastic and brass |



Distributor block, 2 outlets  
Series KY-04, KY-34, KY-10



Distributor block, 3 outlets  
Series KY-14, KY-37



Distributor block, 4 outlets  
Series KY-38, KY-12

## Order code

|                   |                 |
|-------------------|-----------------|
| Series            | TY-**-00-0-0001 |
| Connection / Size |                 |
| 04                | G1/4 / Y0       |
| 14                | G1/4 / Y1       |
| 37                | G3/8 / Y1       |
| 38                | G3/8 / Y2       |
| 12                | G1/2 / Y2       |
| 34                | G3/4 / Y3       |
| 10                | G1 / Y3         |

## Distributor block TY

### Technical data

| Model-no.:                | TY-04-... | TY-14-... | TY-37-... | TY-38-... | TY-12-... | TY-34-... | TY-10-... |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Connection                | G1/4      | G1/4      | G3/8      | G3/8      | G1/2      | G3/4      | G1        |
| Size                      | Y0        | Y1        | Y1        | Y2        | Y2        | Y3        | Y3        |
| Connection 2.1 (bottom)   | G1/4      | G1/4      | G1/4      | G3/8      | G3/8      | G3/4      | G3/4      |
| Connection 2.2 (top)      | G1/4      | G1/4      | G1/4      | G1/4      | G1/4      | G3/4      | G3/4      |
| Connection 2.3 (front)    | -         | G1/4      | G1/4      | G3/8      | G3/8      | -         | -         |
| Connection 2.4 (backward) | -         | -         | -         | G3/8      | G3/8      | -         | -         |
| Flow (1-2 in NI/min)      | 2300      | 2700      | 2700      | 7250      | 7250      | 18000     | 18000     |
| Flow (1-2.1 in NI/min)    | 950       | 2000      | 2000      | 5500      | 5500      | 12000     | 12000     |
| Flow (1-2.2 in NI/min)    | 2000      | 2000      | 2000      | 22500     | 22500     | 8500      | 8500      |
| Flow (1-2.3 in NI/min)    | -         | 900       | 900       | 2300      | 2300      | -         | -         |
| Flow (1-2.4 in NI/min)    | -         | -         | -         | 2300      | 2300      | -         | -         |
| Weight (kg)               | 0.10      | 0.19      | 0.17      | 0.35      | 0.33      | 0.88      | 0.82      |

### Accessories

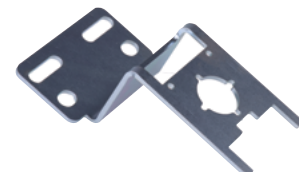
#### Coupling kits for wall mounting KPY-W



#### Coupling kits KPY-K



#### Mounting brackets WYP



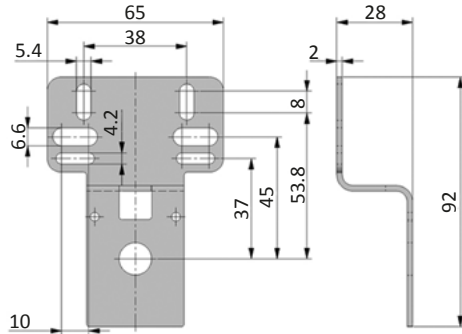
Details: see page 12-23

## Bracket kit WYP

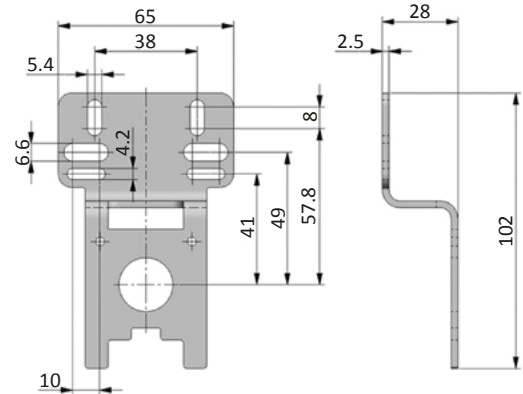
Bracket kit made of zinc coated steel.

The bracket can be mounted at the rear side after removing the rear cover of the unit. The 2 mounting screws are included.

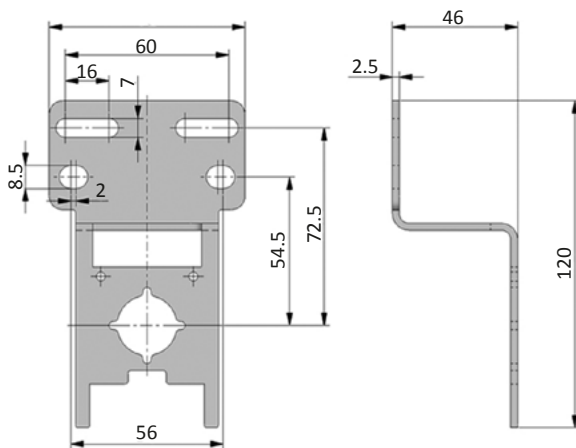
### WYP-00



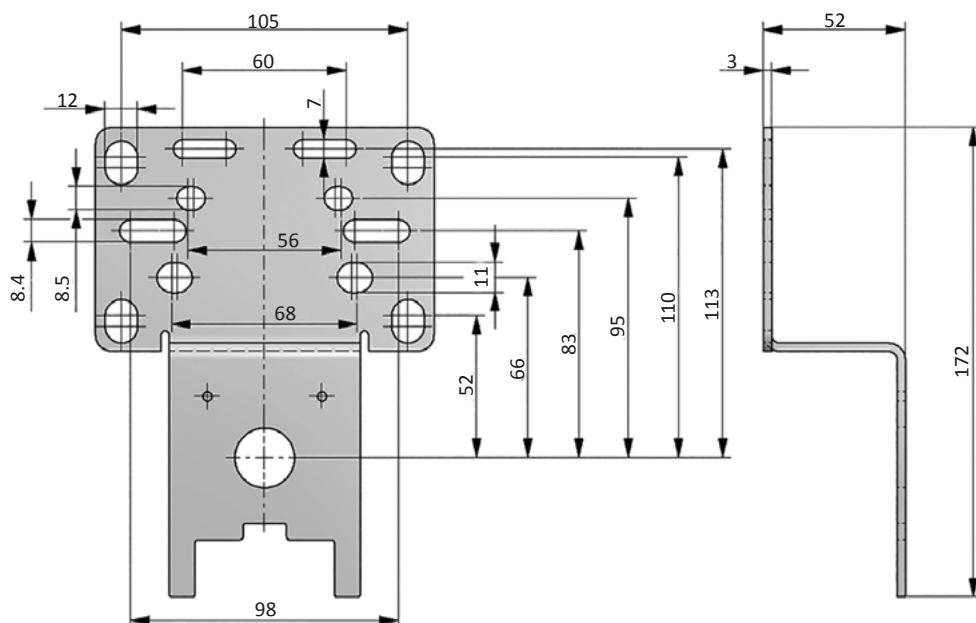
### WYP-01



### WYP-02



### WYP-03

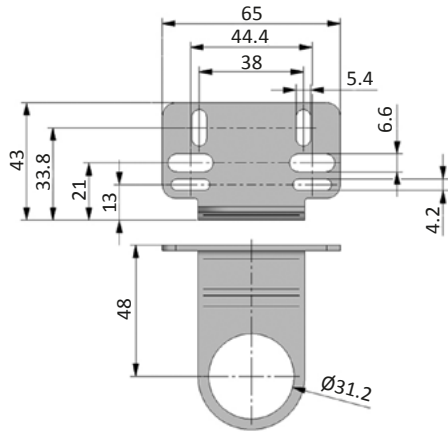


# Fastening elements

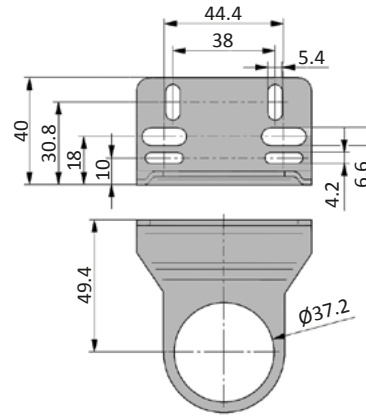
## Mounting brackets WYL

Mounting brackets made of zinc coated steel. Assembling with mounting nut (not included).

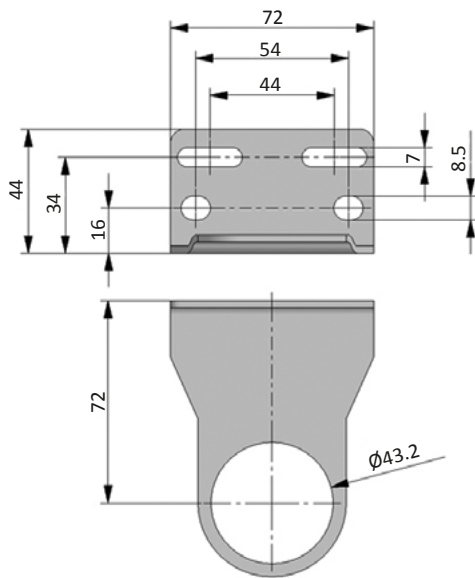
### WYL-00



### WYL-01



### WYL-02





## Coupling kits KPY-K

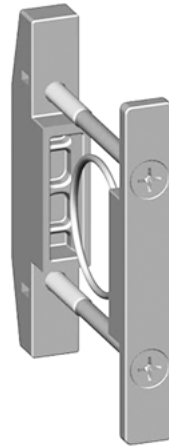
KPY-00-K, KPY-01-K



KPY-02-K

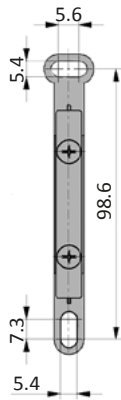
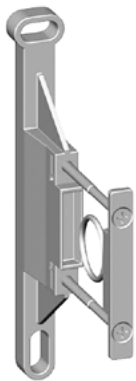


KPY-03-K

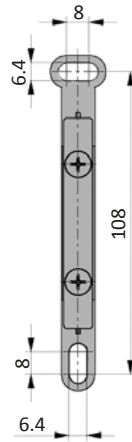
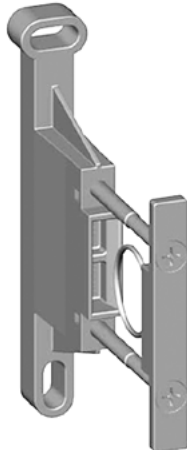


## Coupling kits for wall mounting KPY-W

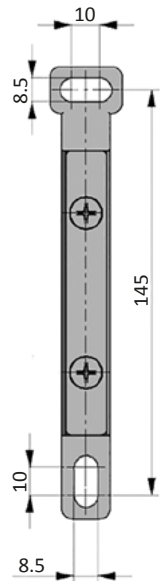
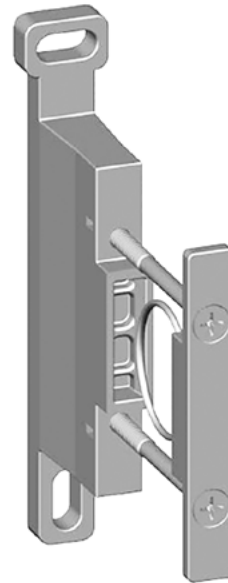
KPY-00-W, KPY-01-W



KPY-02-W



KPY-03-W



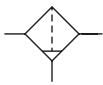
# Filter FX

## Technical details

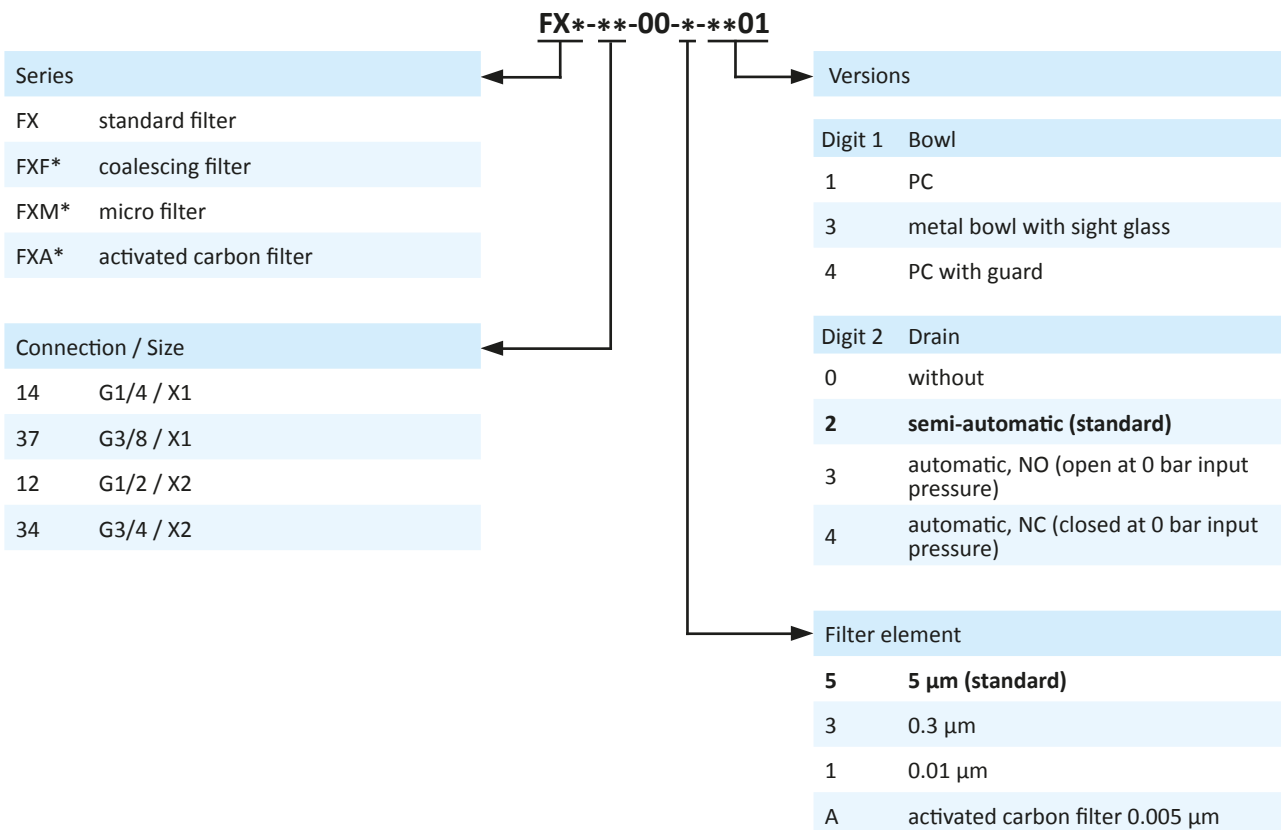
|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | 1.5 ... 16 bar  |
| <b>Mounting</b>          | vertically, drain at bottom                                   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases    |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: POM |



Sintered filter according to the centrifugal force principle.



## Order code



\* only for connections 14 and 12 available.

**Technical data**

| Model-no.:                     | FX-14-... | FX-37-... | FX-12-... | FX-34-... |
|--------------------------------|-----------|-----------|-----------|-----------|
| Connection                     | G1/4      | G3/8      | G1/2      | G3/4      |
| Size                           | X1        | X1        | X2        | X2        |
| Flow (NI/min)*                 | 2100      | 2100      | 4000      | 4000      |
| Bowl volume (cm <sup>3</sup> ) | 25        | 25        | 50        | 50        |
| Weight (kg)                    | 0.30      | 0.29      | 0.78      | 0.70      |

\* Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.

| Model-no.:                     | FXF-14-... | FXF-12-... | FXM-14-... | FXM-12-... | FXA-14-... | FXA-12-... |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| Connection                     | G1/4       | G1/2       | G1/4       | G1/2       | G1/4       | G1/2       |
| Size                           | X1         | X2         | X1         | X2         | X1         | X2         |
| Flow (NI/min)*                 | 380        | 1500       | 280        | 720        | 380        | 1500       |
| Bowl volume (cm <sup>3</sup> ) | 25         | 49         | 25         | 49         |            |            |
| Weight (kg)                    | 0.31       | 0.75       | 0.31       | 0.75       | 0.32       | 0.81       |

\* Measured at p<sub>1</sub> = 6 bar and Δp = 0.2 bar (for FXM Δp = 0.1 bar) .

**Accessories**
**Coupling kits KPX**

**Mounting brackets WX**


Details: see page 12-39

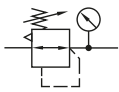
# Pressure regulator RX

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | max. 16 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                                      |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |



Pressure regulator with diaphragm and relieving feature.  
Locking: rotary lock possible.



## Order code

| Series   |  | Versions |   |
|--|--|----------|---|
| <p style="text-align: center;"><b>RX-***-**-0-00**</b></p> |  | Digit 3  | Gauge, flow direction                                 |
| <p>←</p>   |  | 0        | without gauge, flow from left to right                |
| <p>←</p>   |  | 1        | without gauge, flow from right to left                |
| <p>←</p>   |  | 2        | <b>with gauge, flow from left to right (standard)</b> |
| <p>←</p>   |  | 3        | with gauge, flow from right to left                   |
| <p>←</p>   |  | Digit 4  |   |
| <p>←</p>   |  | 1        | standard  |
| <p>←</p>   |  | 2        | key lockable  |

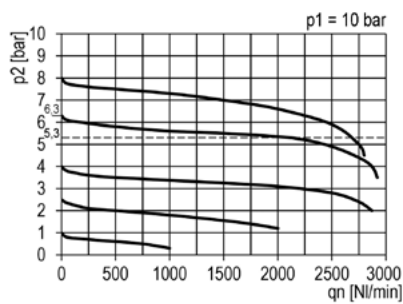
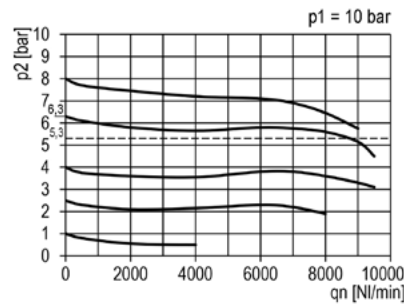
| Connection / Size |           |
|-------------------|-----------|
| 14                | G1/4 / X1 |
| 37                | G3/8 / X1 |
| 12                | G1/2 / X2 |
| 34                | G3/4 / X2 |

| Output range |                           |
|--------------|---------------------------|
| 03           | 0.2 ... 3 bar             |
| 06           | 0.5 ... 6 bar             |
| 10           | 0.5 ... 10 bar (standard) |

**Technical data**

| Model-no.:    | RX-14-... | RX-37-... | RX-12-... | RX-34-... |
|---------------|-----------|-----------|-----------|-----------|
| Connection    | G1/4      | G3/8      | G1/2      | G3/4      |
| Size          | X1        | X1        | X2        | X2        |
| Flow (NI/min) | 2000      | 2000      | 8800      | 8800      |
| Weight (kg)   | 0.32      | 0.31      | 0.80      | 0.77      |

**Flow characteristic**
**RX-14, RX-37**

**RX-12, RX-34**

**Accessories**
**Mounting brackets WK**

**Mounting brackets WX**

**Coupling kits KPX**

**Mounting nut RM**

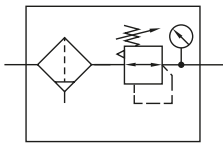

Details: see page 12-39

# Filter regulator FRX

## Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +60°C  |
| <b>Input range</b>       | 1.5 ... 16 bar   |
| <b>Mounting</b>          | vertically, drain at bottom  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.  
Locking: rotary lock possible.



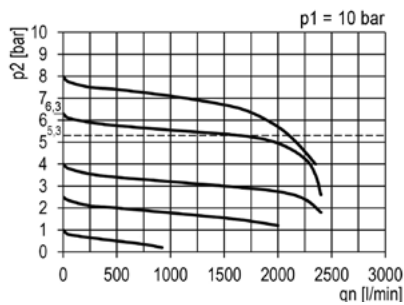
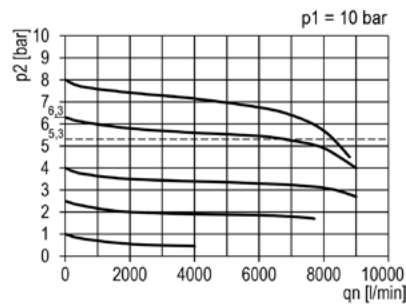
## Order code

| FRX-***-**-5-****                   |   |
|-------------------------------------|---|
| <b>Series</b>                       | <b>Versions</b>   |
| <b>Connection / Size</b>            | <b>Digit 1 Bowl</b>                                     |
| 14 G1/4 / X1                        | 1 PC  |
| 37 G3/8 / X1                        | 3 metal bowl with sight glass                           |
| 12 G1/2 / X2                        | 4 PC with guard   |
| 34 G3/4 / X2                        | <b>Digit 2 Drain</b>                                    |
| <b>Output range</b>                 | 2 <b>semi-automatic (standard)</b>                      |
| 03 0.2 ... 3 bar                    | 3 automatic, NO (open at 0 bar input pressure)          |
| 06 0.5 ... 6 bar                    | 4 automatic, NC (closed at 0 bar input pressure)        |
| 10 <b>0.5 ... 10 bar (standard)</b> | <b>Digit 3 Gauge, flow direction</b>                    |
| <b>Filter element</b>               | 0 without gauge, flow from left to right                |
| 5 5 µm                              | 1 without gauge, flow from right to left                |
|                                     | 2 <b>with gauge, flow from left to right (standard)</b> |
|                                     | 3 with gauge, flow from right to left                   |
|                                     | <b>Digit 4</b>  |
|                                     | 1 standard  |
|                                     | 2 key lockable  |

## Technical data

| Model-no.:                     | FRX-14-... | FRX-37-... | FRX-12-... | FRX-34-... |
|--------------------------------|------------|------------|------------|------------|
| Connection                     | G1/4       | G3/8       | G1/2       | G3/4       |
| Size                           | X1         | X1         | X2         | X2         |
| Flow (NI/min)                  | 1650       | 1650       | 6700       | 6700       |
| Bowl volume (cm <sup>3</sup> ) | 25         | 25         | 50         | 50         |
| Weight (kg)                    | 0.37       | 0.36       | 0.89       | 0.87       |

## Flow characteristic

**FRX-14, FRX-37**

**FRX-12, FRX-34**


## Accessories

**Mounting brackets WK**

**Mounting brackets WX**

**Coupling kits KPX**

**Mounting nut RM**


Details: see page 12-39

## Lubricator OX

### Technical details

|                   |   |
|-------------------|---|
| Temperature range | 0°C ... +60°C   |
| Input range       | max. 16 bar   |
| Mounting          | vertically  |
| Medium            | compressed air according to ISO 8573-1:2010, neutral gases        |
| Materials         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |

Proportional lubricator, can be filled with oil during operation.



### Order code

| Series            |           | OX-**-00-0-*001 |                             | Versions |  |
|-------------------|-----------|-----------------|-----------------------------|----------|--|
| Connection / Size |           | Digit 1         | Bowl                        |          |  |
| 14                | G1/4 / X1 | 1               | PC                          |          |  |
| 37                | G3/8 / X1 | 3               | metal bowl with sight glass |          |  |
| 12                | G1/2 / X2 | 4               | PC with guard               |          |  |
| 34                | G3/4 / X2 |                 |                             |          |  |

### Technical data

| Model-no.:                                | OX-14-... | OX-37-... | OX-12-... | OX-34-... |
|---|-----------|-----------|-----------|-----------|
| Connection                                | G1/4      | G3/8      | G1/2      | G3/4      |
| Size                                      | X1        | X1        | X2        | X2        |
| Flow (NI/min)                             | 1900      | 1900      | 5000      | 5000      |
| Lubricator operating limit (NI/min)       | 75        | 75        | 170       | 170       |
| Bowl volume lubricator (cm <sup>3</sup> ) | 50        | 50        | 125       | 125       |
| Weight (kg)                               | 0.31      | 0.30      | 0.79      | 0.75      |



# Two piece air service unit FROX

## Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +60°C  |
| <b>Input range</b>       | 1.5 ... 16 bar   |
| <b>Mounting</b>          | vertically, drain at bottom  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of filter, regulator and lubricator.  
Locking: rotary lock possible.



## Order code

| FROX-**-**-5-****                   |   |
|-------------------------------------|---|
| <b>Series</b>                       | <b>Versions</b>   |
| <b>Connection / Size</b>            | <b>Digit 1 Bowl</b>                                     |
| 14 G1/4 / X1                        | 1 PC  |
| 37 G3/8 / X1                        | 3 metal bowl with sight glass                           |
| 12 G1/2 / X2                        | 4 PC with guard   |
| 34 G3/4 / X2                        | <b>Digit 2 Drain</b>                                    |
| <b>Output range</b>                 | <b>2 semi-automatic (standard)</b>                      |
| 03 0.2 ... 3 bar                    | 3 automatic, NO (open at 0 bar input pressure)          |
| 06 0.5 ... 6 bar                    | 4 automatic, NC (closed at 0 bar input pressure)        |
| <b>10 0.5 ... 10 bar (standard)</b> | <b>Digit 3 Gauge, flow direction</b>                    |
| <b>Filter element</b>               | 0 without gauge, flow from left to right                |
| 5 5 µm                              | 1 without gauge, flow from right to left                |
|                                     | <b>2 with gauge, flow from left to right (standard)</b> |
|                                     | 3 with gauge, flow from right to left                   |
|                                     | <b>Digit 4</b>  |
|                                     | 1 standard  |
|                                     | 2 key lockable  |

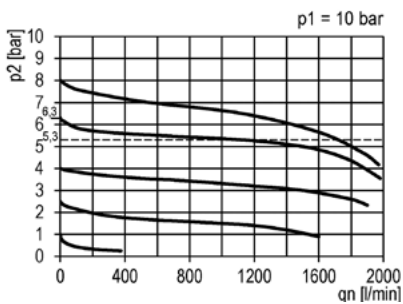
## Two piece air service unit FROX

### Technical data

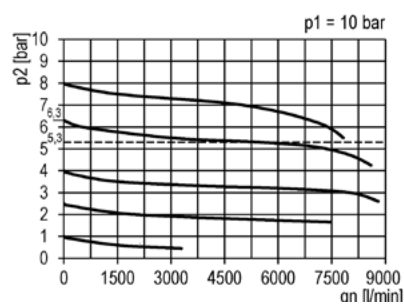
| Model-no.:                                | FROX-14-... | FROX-37-... | FROX-12-... | FROX-34-... |
|---|-------------|-------------|-------------|-------------|
| Connection                                | G1/4        | G3/8        | G1/2        | G3/4        |
| Size                                      | X1          | X1          | X2          | X2          |
| Flow (NI/min)                             | 1200        | 1200        | 5250        | 5250        |
| Lubricator operating limit (NI/min)       | 75          | 75          | 170         | 170         |
| Bowl volume (cm <sup>3</sup> )            | 25          | 25          | 50          | 50          |
| Bowl volume lubricator (cm <sup>3</sup> ) | 50          | 50          | 125         | 125         |
| Weight (kg)                               | 0.69        | 0.67        | 1.68        | 1.60        |

### Flow characteristic

FROX-14, FROX-37



FROX-12, FROX-34



### Accessories

Mounting brackets WK



Mounting brackets WX



Coupling kits KPX



Mounting nut RM

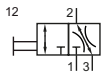


Details: see page 12-39

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | max. 16 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases        |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |

3/2 directional control valve, operated by a knob.  
 Locking: padlock possible.  
 Silencer is mounted in exhaust.



## Order code

|                   |                           |
|-------------------|---------------------------|
| Series            | KX-**-00-0-0001<br>↳<br>↳ |
| Connection / Size |                           |
| 14 G1/4 / X1      |                           |
| 37 G3/8 / X1      |                           |
| 12 G1/2 / X2      |                           |
| 34 G3/4 / X2      |                           |

## Technical data

| Model-no.:                  | KX-14-... | KX-37-... | KX-12-... | KX-34-... |
|-----------------------------|-----------|-----------|-----------|-----------|
| <b>Connection</b>           | G1/4      | G3/8      | G1/2      | G3/4      |
| <b>Size</b>                 | X1        | X1        | X2        | X2        |
| <b>Flow (1-2 in NI/min)</b> | 2800      | 2800      | 11000     | 11000     |
| <b>Weight (kg)</b>          | 0.35      | 0.34      | 0.79      | 0.77      |

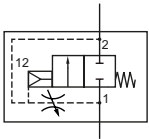
## Soft start valve DAX

### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | 2.5 ... 16 bar  |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                            |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: plastic, stainless steel and brass |



Poppet valve, operated by secondary pressure.  
The filling time is adjustable.



### Order code

|                   |           |                         |
|-------------------|-----------|-------------------------|
|                   |           | <b>DAX-**-00-0-0001</b> |
| Series            |           | ←                       |
| Connection / Size |           | ←                       |
| 14                | G1/4 / X1 |                         |
| 12                | G1/2 / X2 |                         |

### Technical data

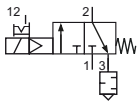
| Model-no.:           | DAX-14-... | DAX-12-... |
|----------------------|------------|------------|
| <b>Connection</b>    | G1/4       | G1/2       |
| <b>Size</b>          | X1         | X2         |
| <b>Flow (Nl/min)</b> | 1000       | 4000       |
| <b>Weight (kg)</b>   | 0.33       | 0.72       |

# 3/2-way inline valve VMX

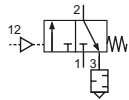
## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | electrically operated: 2 ... 10 bar<br>pneumatically operated: max. 16 bar                      |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                                      |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |
| <b>Protection</b>        | IP 65 according to EN 60529   |

3/2-way poppet valve, electrically or pneumatically operated.  
Silencer is mounted in exhaust.  
Plug socket is included.



electrically operated  
3/2-way, single solenoid, mechanical  
spring return, NC



pneumatically operated  
3/2-way, single pilot, mechanical  
spring return, NC



## Order code

| Series            |           | VMX-**-00-0-000* |         | Versions               |  |
|-------------------|-----------|------------------|---------|------------------------|--|
| Connection / Size |           | Digit 4          | Version |                        |  |
| 14                | G1/4 / X1 |                  | A       | 24 V DC, 3 W           |  |
| 12                | G1/2 / X2 |                  | D       | 115 V AC, 7.9 VA       |  |
|                   |           |                  | E       | 230 V AC, 7.9 VA       |  |
|                   |           |                  | F       | pneumatically operated |  |

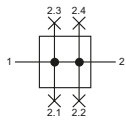
## Technical data

| Model-no.:                      | VMX-14-... | VMX-12-... |
|---------------------------------|------------|------------|
| <b>Connection</b>               | G1/4       | G1/2       |
| <b>Size</b>                     | X1         | X2         |
| <b>Flow (1-2 in NI/min)</b>     | 900        | 4000       |
| <b>Weight(Version A-E) (kg)</b> | 0.46       | 1.04       |
| <b>Weight(Version F) (kg)</b>   | 0.38       | 0.97       |

# Distributor block TX

## Technical details

|                   |   |
|-------------------|---|
| Temperature range | 0°C ... +60°C   |
| Input range       | 2.5 ... 16 bar  |
| Mounting          | arbitrary   |
| Medium            | compressed air according to ISO 8573-1:2010, neutral gases        |
| Materials         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |



Distributor block, 4 outlets

## Order code

| Series            |           | Versions |                                |
|-------------------|-----------|----------|--------------------------------|
| Connection / Size |           | Digit 4  | Width                          |
| 14                | G1/4 / X1 | 1        | standard                       |
| 37                | G3/8 / X1 | 3        | small (only for G1/4 and G1/2) |
| 12                | G1/2 / X2 |          |                                |
| 34                | G3/4 / X2 |          |                                |

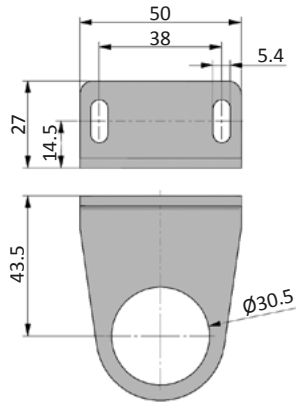
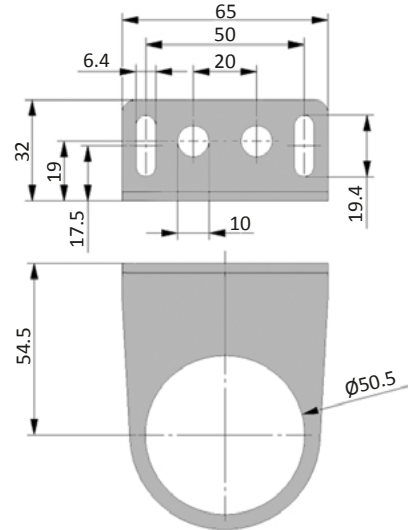
**TX-\*\*\*-00-0-000\***

## Technical data

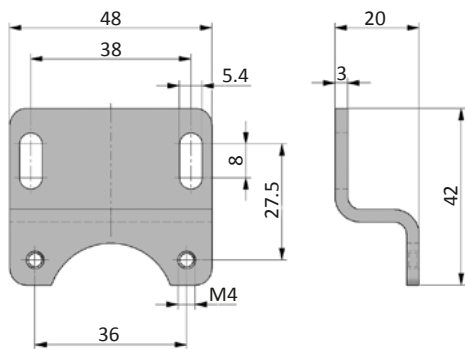
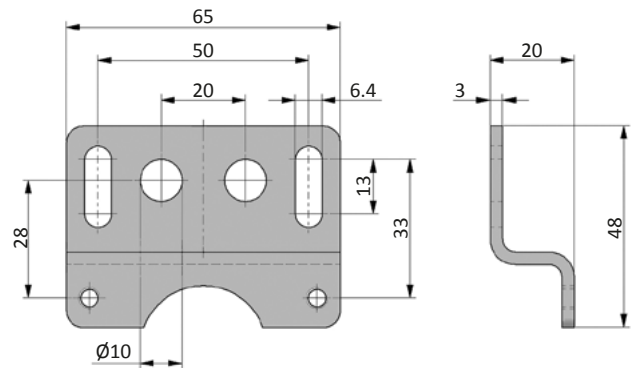
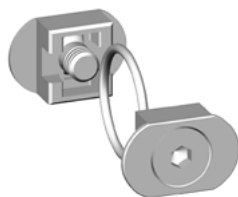
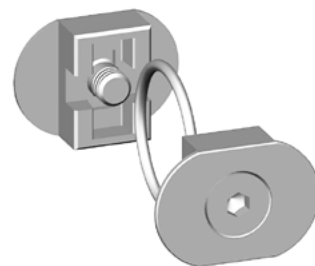
| Model-no.:              | TX-14-00-0-0001 | TX-14-00-0-0003 | TX-37-00-0-0001 | TX-12-00-0-0001 | TX-12-00-0-0003 | TX-34-00-0-0001 |
|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Connection              | G1/4            | G1/4            | G3/8            | G1/2            | G1/2            | G3/4            |
| Size                    | X1              | X1              | X1              | X2              | X2              | X2              |
| Connection 2.1 (bottom) | G1/4            | G1/4            | G1/4            | G1/2            | G3/8            | G1/2            |
| Connection 2.2 (top)    | G1/4            | G1/4            | G1/4            | G1/2            | G1/8            | G1/2            |
| Connection 2.3 (front)  | G1/4            | G1/4            | G1/4            | G1/4            | G1/4            | G1/4            |
| Connection 2.4 (rear)   | G1/4            | G1/4            | G1/4            | G1/4            | G1/4            | G1/4            |
| Flow (1-2 in NI/min)    | 2500            | 3300            | 2500            | 11000           | 11000           | 11000           |
| Flow (1-2.1 in NI/min)  | 2000            | 2300            | 2000            | 8750            | 3450            | 8750            |
| Flow (1-2.2 in NI/min)  | 2000            | 1100            | 2000            | 8750            | 1400            | 8750            |
| Flow (1-2.3 in NI/min)  | 900             | 2300            | 900             | 1300            | 3100            | 1300            |
| Flow (1-2.4 in NI/min)  | 900             | 2300            | 900             | 1300            | 3100            | 1300            |
| Weight (kg)             | 0.32            | 0.19            | 0.28            | 0.66            | 0.36            | 0.66            |

**Mounting brackets WK**

Mounting brackets made of zinc coated steel. Assembling with mounting nut (not included).

**WK-30**

**WK-50**

**Mounting brackets WX**

Mounting brackets made of zinc coated steel.

**WX-11**

**WX-33**

**Coupling kits KPX**
**KPX-11**

**KPX-33**


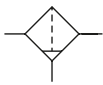
# Filter FK

## Technical details

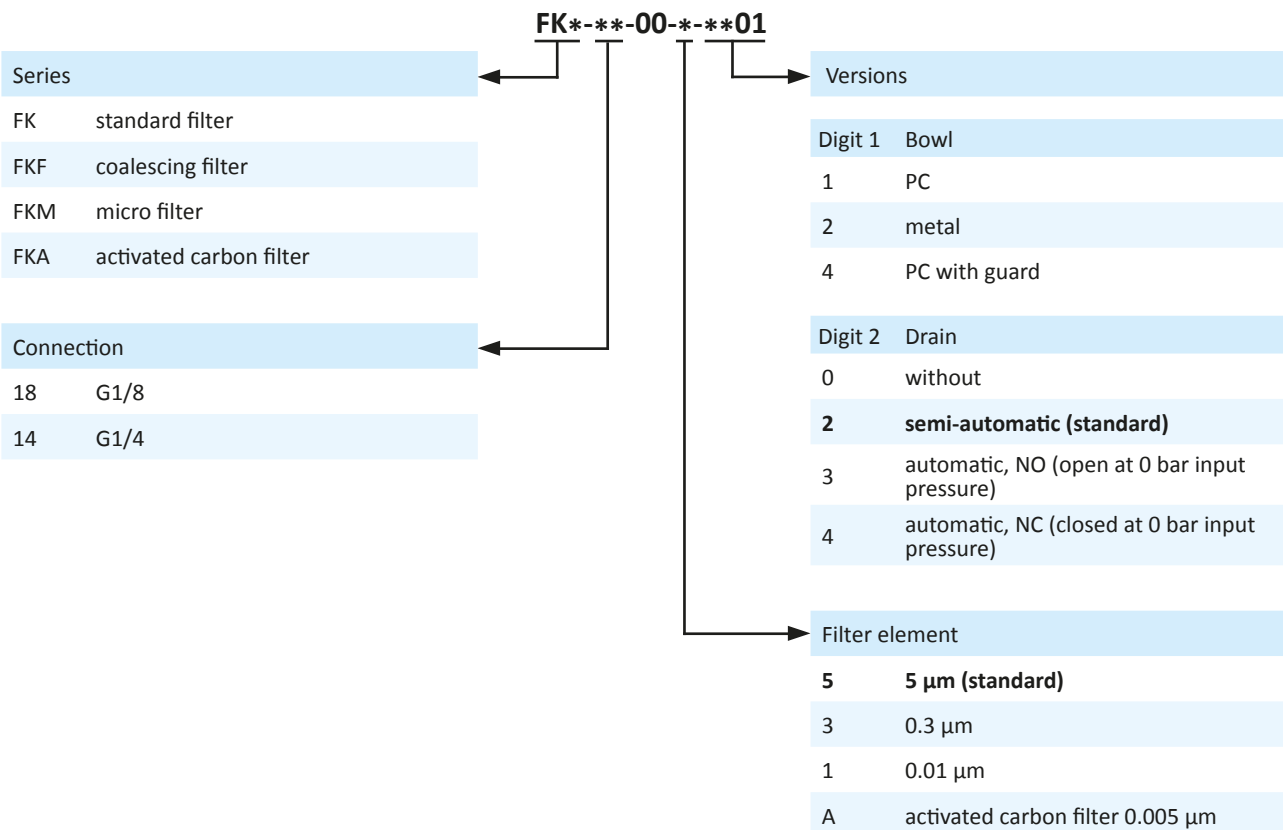
|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | 1.5 ... 16 bar  |
| <b>Mounting</b>          | vertically, drain at bottom                                   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases    |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: POM |



Sintered filter according to the centrifugal force principle.



## Order code





**Technical data**

| Model-no.:                     | FK-18 | FK-14 | FKF-18 | FKF-14 |
|--------------------------------|-------|-------|--------|--------|
| Connection                     | G1/8  | G1/4  | G1/8   | G1/4   |
| Flow (NI/min)                  | 1000* | 1000* | 350**  | 600**  |
| Bowl volume (cm <sup>3</sup> ) | 16    | 16    | 16     | 16     |
| Weight (kg)                    | 0.25  | 0.24  | 0.26   | 0.25   |

\* Measured at p1 = 6 bar and Δp = 1 bar \*\* Measured at p1 = 6 bar and Δp = 0.2 bar

| Model-no.:                     | FKM-18 | FKM-14 | FKA-18 | FKA-14 |
|--------------------------------|--------|--------|--------|--------|
| Connection                     | G1/8   | G1/4   | G1/8   | G1/4   |
| Flow (NI/min)                  | 230*   | 450*   | 310**  | 380**  |
| Bowl volume (cm <sup>3</sup> ) | 16     | 16     | -      | -      |
| Weight (kg)                    | 0.26   | 0.25   | 0.26   | 0.27   |

\* Measured at p1 = 6 bar and Δp = 0.1 bar \*\* Measured at p1 = 6 bar and Δp = 0.2 bar

**Accessories**
**Coupling kits KPK**

**Mounting brackets WK**

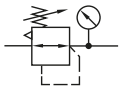

Details: see page 12-53

## Pressure regulator RK

### Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | max. 16 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                                      |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |

Pressure regulator with diaphragm and relieving feature.  
Locking: rotary lock possible.



### Order code

| Series   |  | Versions |   |
|--|--|----------|---|
| <p style="text-align: center;"><b>RK-***-**-0-00**</b></p> |  | Digit 3  | Gauge, flow direction                                 |
| <p>←</p>   |  | 0        | without gauge, flow from left to right                |
| <p>←</p>   |  | 1        | without gauge, flow from right to left                |
| <p>←</p>   |  | 2        | <b>with gauge, flow from left to right (standard)</b> |
| <p>←</p>   |  | 3        | with gauge, flow from right to left                   |
| <p>←</p>   |  | Digit 4  |   |
| <p>←</p>   |  | 1        | standard  |
| <p>←</p>   |  | 2        | key lockable  |

18 G1/8

0 without gauge, flow from left to right

14 G1/4

1 without gauge, flow from right to left

**2 with gauge, flow from left to right (standard)**

03 0.1 ... 3 bar

3 with gauge, flow from right to left

06 0.2 ... 6 bar

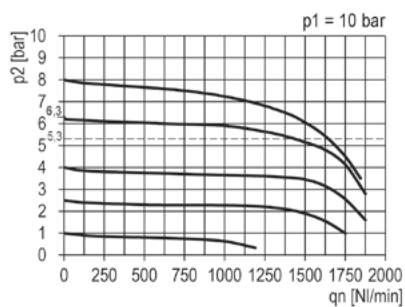
**10 0.5 ... 10 bar (standard)**

1 standard

2 key lockable

**Technical data**

| Model-no.:    | RK-18-... | RK-14-... |
|---------------|-----------|-----------|
| Connection    | G1/8      | G1/4      |
| Flow (NI/min) | 1450      | 1450      |
| Weight (kg)   | 0.26      | 0.25      |

**Flow characteristic**
**RK-18, RK-14**

**Accessories**
**Mounting brackets WK**

**Mounting brackets WK**

**Coupling kits KPK**

**Mounting nut RM**

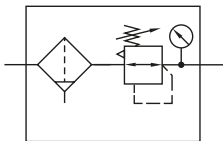

Details: see page 12-53

# Filter regulator FRK

## Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +60°C  |
| <b>Input range</b>       | 1.5 ... 16 bar   |
| <b>Mounting</b>          | vertically, drain at bottom  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.  
Locking: rotary lock possible.

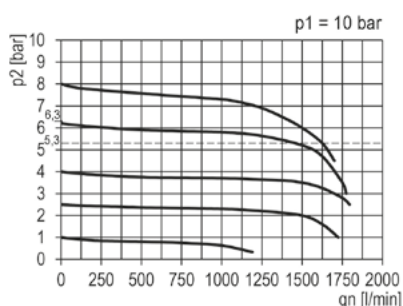


## Order code

| FRK-***-**-5-****                   |   |
|-------------------------------------|---|
| <b>Series</b>                       | <b>Versions</b>   |
| <b>Connection</b>                   | <b>Digit 1 Bowl</b>                                     |
| 18 G1/8                             | 1 PC  |
| 14 G1/4                             | 2 metal   |
|                                     | 4 PC with guard   |
| <b>Output range</b>                 | <b>Digit 2 Drain</b>                                    |
| 03 0.1 ... 3 bar                    | 2 <b>semi-automatic (standard)</b>                      |
| 06 0.2 ... 6 bar                    | 3 automatic, NO (open at 0 bar input pressure)          |
| <b>10 0.5 ... 10 bar (standard)</b> | 4 automatic, NC (closed at 0 bar input pressure)        |
| <b>Filter element</b>               | <b>Digit 3 Gauge, flow direction</b>                    |
| 5 5 µm                              | 0 without gauge, flow from left to right                |
|                                     | 1 without gauge, flow from right to left                |
|                                     | 2 <b>with gauge, flow from left to right (standard)</b> |
|                                     | 3 with gauge, flow from right to left                   |
|                                     | <b>Digit 4</b>  |
|                                     | 1 standard  |
|                                     | 2 key lockable  |

**Technical data**

| Model-no.:                     | FRK-18-... | FRK-14-... |
|--------------------------------|------------|------------|
| Connection                     | G1/8       | G1/4       |
| Flow (NI/min)                  | 1450       | 1450       |
| Bowl volume (cm <sup>3</sup> ) | 16         | 16         |
| Weight (kg)                    | 0.30       | 0.29       |

**Flow characteristic**
**FRK-18, FRK-14**

**Accessories**
**Mounting brackets WK**

**Mounting brackets WK**

**Coupling kits KPK**

**Mounting nut RM**


Details: see page 12-53

## Lubricator OK

### Technical details

|                   |   |
|-------------------|---|
| Temperature range | 0°C ... +60°C   |
| Input range       | max. 16 bar   |
| Mounting          | vertically  |
| Medium            | compressed air according to ISO 8573-1:2010, neutral gases        |
| Materials         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |

Proportional lubricator.



### Order code

|                        |                 |
|------------------------|-----------------|
| <b>OK-**-00-0-*001</b> |                 |
| Series                 | Versions        |
| Connection / Size      | Digit 1 Bowl    |
| 18 G1/8                | 1 PC            |
| 14 G1/4                | 2 metal         |
|                        | 4 PC with guard |

### Technical data

| Model-no.:                                | OK-18-... | OK-14-... |
|---|-----------|-----------|
| Connection                                | G1/8      | G1/4      |
| Flow (NI/min)                             | 1000      | 1000      |
| Lubricator operating limit (NI/min)       | 28        | 28        |
| Bowl volume lubricator (cm <sup>3</sup> ) | 35        | 35        |
| Weight (kg)                               | 0.26      | 0.25      |

# Two piece air service unit FROK

## Technical details

|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | 0°C ... +60°C  |
| <b>Input range</b>       | 1.5 ... 16 bar   |
| <b>Mounting</b>          | vertically, drain at bottom  |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases   |
| <b>Materials</b>         | Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass |

Combination of filter, regulator and lubricator.  
Locking: rotary lock possible.



## Order code

| FROK-**-**-5-****   |   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
|---|---|---------------|---|---------------|---|---------------------------|---|---------|--|---|--|---|--|---|--|
| Series  | Versions  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| <table border="1"> <tr> <td>18</td> <td>G1/8</td> </tr> <tr> <td>14</td> <td>G1/4</td> </tr> </table>   | 18  | G1/8          | 14  | G1/4          | <table border="1"> <tr> <td>Digit 1</td> <td>Bowl</td> </tr> <tr> <td>1</td> <td>PC</td> </tr> <tr> <td>2</td> <td>metal</td> </tr> <tr> <td>4</td> <td>PC with guard</td> </tr> </table> | Digit 1                   | Bowl  | 1       | PC                                     | 2 | metal  | 4 | PC with guard                                |   |  |
| 18  | G1/8  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 14  | G1/4  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| Digit 1   | Bowl  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 1   | PC  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 2   | metal   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 4   | PC with guard   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| <table border="1"> <tr> <td>03</td> <td>0.1 ... 3 bar</td> </tr> <tr> <td>06</td> <td>0.2 ... 6 bar</td> </tr> <tr> <td>10</td> <td>0.5 ... 10 bar (standard)</td> </tr> </table> | 03  | 0.1 ... 3 bar | 06  | 0.2 ... 6 bar | 10  | 0.5 ... 10 bar (standard) | <table border="1"> <tr> <td>Digit 2</td> <td>Drain</td> </tr> <tr> <td>2</td> <td>semi-automatic (standard)</td> </tr> <tr> <td>3</td> <td>automatic, NO (open at 0 bar input pressure)</td> </tr> <tr> <td>4</td> <td>automatic, NC (closed at 0 bar input pressure)</td> </tr> </table> | Digit 2 | Drain                                  | 2 | semi-automatic (standard)                      | 3 | automatic, NO (open at 0 bar input pressure) | 4 | automatic, NC (closed at 0 bar input pressure) |
| 03  | 0.1 ... 3 bar   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 06  | 0.2 ... 6 bar   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 10  | 0.5 ... 10 bar (standard)   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| Digit 2   | Drain   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 2   | semi-automatic (standard)   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 3   | automatic, NO (open at 0 bar input pressure)  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 4   | automatic, NC (closed at 0 bar input pressure)  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| <table border="1"> <tr> <td>5</td> <td>5 µm</td> </tr> </table>   | 5   | 5 µm          | <table border="1"> <tr> <td>Digit 3</td> <td>Gauge, flow direction</td> </tr> <tr> <td>0</td> <td>without gauge, flow from left to right</td> </tr> <tr> <td>1</td> <td>without gauge, flow from right to left</td> </tr> <tr> <td>2</td> <td>with gauge, flow from left to right (standard)</td> </tr> <tr> <td>3</td> <td>with gauge, flow from right to left</td> </tr> </table> | Digit 3       | Gauge, flow direction   | 0                         | without gauge, flow from left to right  | 1       | without gauge, flow from right to left | 2 | with gauge, flow from left to right (standard) | 3 | with gauge, flow from right to left          |   |  |
| 5   | 5 µm  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| Digit 3   | Gauge, flow direction   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 0   | without gauge, flow from left to right  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 1   | without gauge, flow from right to left  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 2   | with gauge, flow from left to right (standard)  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 3   | with gauge, flow from right to left   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
|   | <table border="1"> <tr> <td>Digit 4</td> <td></td> </tr> <tr> <td>1</td> <td>standard</td> </tr> <tr> <td>2</td> <td>key lockable</td> </tr> </table> | Digit 4       |   | 1             | standard  | 2                         | key lockable  |         |  |   |  |   |  |   |  |
| Digit 4   |   |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 1   | standard  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |
| 2   | key lockable  |               |   |               |   |                           |   |         |  |   |  |   |  |   |  |

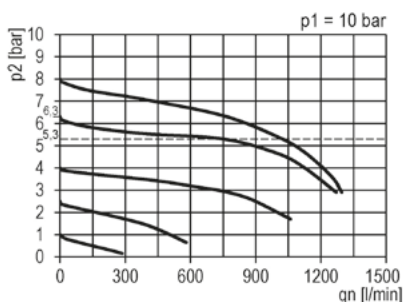
## Two piece air service unit FROK

### Technical data

| Model-no.:                                | FROK-18-... | FROK-14-... |
|---|-------------|-------------|
| Connection                                | G1/8        | G1/4        |
| Flow (NI/min)                             | 750         | 750         |
| Lubricator operating limit (NI/min)       | 28          | 28          |
| Bowl volume (cm <sup>3</sup> )            | 16          | 16          |
| Bowl volume lubricator (cm <sup>3</sup> ) | 35          | 35          |
| Weight (kg)                               | 0.55        | 0.53        |

### Flow characteristic

#### FROK-18, FROK-14



### Accessories

#### Mounting brackets WK



#### Mounting brackets WK



#### Coupling kits KPK



#### Mounting nut RM



Details: see page 12-53

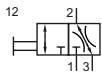


## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | max. 16 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases        |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |



3/2 directional control valve, operated by a knob.  
Locking: padlock possible.



## Order code

|            |                           |
|------------|---------------------------|
| Series     | KK-**-00-0-0001<br>↳<br>↳ |
| Connection |                           |
| 18 G1/8    |                           |
| 14 G1/4    |                           |

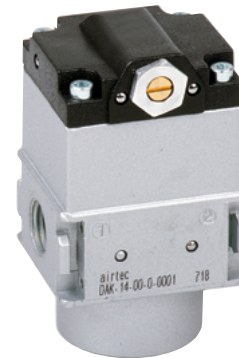
## Technical data

| Model-no.:                  | KK-18-... | KK-14-... |
|-----------------------------|-----------|-----------|
| <b>Connection</b>           | G1/8      | G1/4      |
| <b>Flow (1-2 in NI/min)</b> | 1800      | 1800      |
| <b>Weight (kg)</b>          | 0.21      | 0.20      |

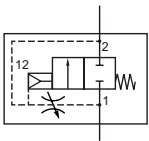
## Soft start valve DAK

### Technical details

|                   |   |
|-------------------|---|
| Temperature range | 0°C ... +60°C   |
| Input range       | 2.5 ... 16 bar  |
| Mounting          | arbitrary   |
| Medium            | compressed air according to ISO 8573-1:2010, neutral gases                            |
| Materials         | Body: zinc diecasting, seals: NBR,<br>inner parts: plastic, stainless steel and brass |



Poppet valve, operated by secondary pressure.  
The filling time is adjustable.



### Order code

|            |                         |      |
|------------|-------------------------|------|
|            | <b>DAK-**-00-0-0001</b> |      |
| Series     | ←                       |      |
| Connection | ←                       |      |
| 14         |                         | G1/4 |

### Technical data

|               |            |
|---------------|------------|
| Model-no.:    | DAK-14-... |
| Connection    | G1/4       |
| Flow (Nl/min) | 2250       |
| Weight (kg)   | 0.42       |

### Accessories

#### Coupling kits KPK



#### Mounting brackets WK



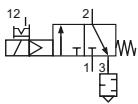
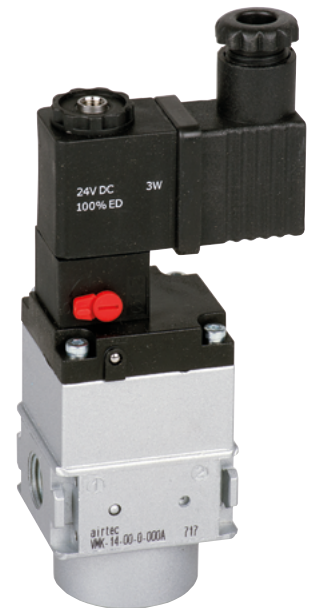
Details: see page 12-53

# 3/2-way inline valve VMK

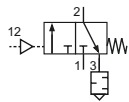
## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | electrically operated: 2 ... 10 bar<br>pneumatically operated: max. 16 bar                      |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                                      |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |
| <b>Protection</b>        | IP 65 according to EN 60529   |

3/2-way poppet valve, electrically or pneumatically operated.  
Silencer is mounted in exhaust.  
Plug socket is included.



electrically operated  
3/2-way, single solenoid, mechanical  
spring return, NC



pneumatically operated  
3/2-way, single pilot, mechanical  
spring return, NC

## Order code

| Series     |         | VMK-**-00-0-000* |         | Versions |                        |
|------------|---------|------------------|---------|----------|------------------------|
| Connection | 14 G1/4 | Digit 4          | Version | A        | 24 V DC, 3 W           |
|            |         |                  |         | D        | 115 V AC, 7.9 VA       |
|            |         |                  |         | E        | 230 V AC, 7.9 VA       |
|            |         |                  |         | F        | pneumatically operated |

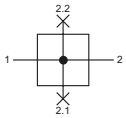
## Technical data

|                                 |            |
|---------------------------------|------------|
| <b>Model-no.:</b>               | VMK-14-... |
| <b>Connection</b>               | G1/4       |
| <b>Flow (1-2 in NI/min)</b>     | 1600       |
| <b>Weight(Version A-E) (kg)</b> | 0.46       |
| <b>Weight(Version F) (kg)</b>   | 0.54       |

## Distributor block TK

### Technical details

|                   |   |
|-------------------|---|
| Temperature range | 0°C ... +60°C   |
| Input range       | 2.5 ... 16 bar  |
| Mounting          | arbitrary   |
| Medium            | compressed air according to ISO 8573-1:2010, neutral gases        |
| Materials         | Body: zinc diecasting, seals: NBR, inner parts: plastic and brass |



Distributor block, 2 outlets

### Order code

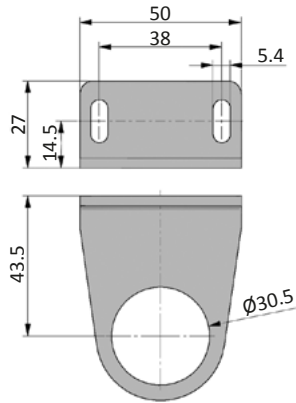
|            |                 |
|------------|-----------------|
| Series     | TK-**-00-0-0001 |
| Connection |                 |
| 14 G1/4    |                 |

### Technical data

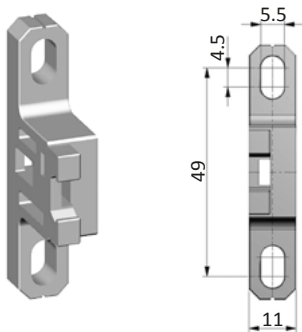
|                         |                 |
|-------------------------|-----------------|
| Model-no.:              | TK-14-00-0-0001 |
| Connection              | G1/4            |
| Connection 2.1 (bottom) | G1/8            |
| Connection 2.2 (top)    | G1/8            |
| Flow (1-2 in NI/min)    | 2700            |
| Flow (1-2.1 in NI/min)  | 1300            |
| Flow (1-2.2 in NI/min)  | 1300            |
| Weight (kg)             | 0.13            |

**Mounting bracket WK**

Mounting bracket made of zinc coated steel. Assembling with mounting nut (not included).

**WK-30**

**Mounting bracket WK-00**

Mounting bracket (set of two pieces) made of PA 66. Mounting only sidewise possible.

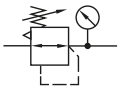
**WK-00**

**Coupling kit KPK**
**KPK-00**


# Pressure regulator RD

## Technical details

|                          |   |
|--------------------------|---|
| <b>Temperature range</b> | 0°C ... +60°C   |
| <b>Input range</b>       | max. 25 bar   |
| <b>Mounting</b>          | arbitrary   |
| <b>Medium</b>            | compressed air according to ISO 8573-1:2010, neutral gases                                      |
| <b>Materials</b>         | Body: zinc diecasting, seals: NBR,<br>inner parts: zinc coated steel, stainless steel and brass |

Pressure regulator with diaphragm and relieving feature.  
Locking: rotary lock possible..



## Order code

| RD-***-**-0-00*1 |         | Series | Connection | Output range | Versions |
|------------------|---------|--------|------------|--------------|----------|
| Digit 1          | Digit 2 | 18     | G1/8       | 03           | Digit 3  |
| Digit 3          | Digit 4 | 14     | G1/4       | 07           | 0        |
| Digit 5          | Digit 6 |        |            | 10           | 2        |
| Digit 7          | Digit 8 |        |            |              | 3        |

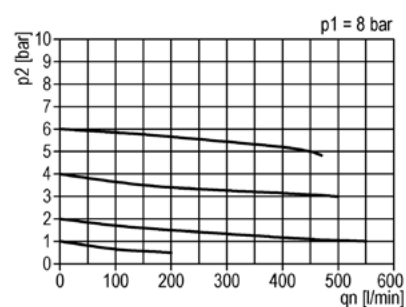
Digit 3 Gauge, flow direction  
 0 without gauge  
 2 **with gauge, flow from left to right (standard)**  
 3 with gauge, flow from right to left

## Technical data

| Model-no.:           | RD-18-... | RD-14-... |
|----------------------|-----------|-----------|
| <b>Connection</b>    | G1/8      | G1/4      |
| <b>Flow (Nl/min)</b> | 340       | 340       |
| <b>Weight (kg)</b>   | 0.14      | 0.14      |

## Flow characteristic

### RD-18, RD-14





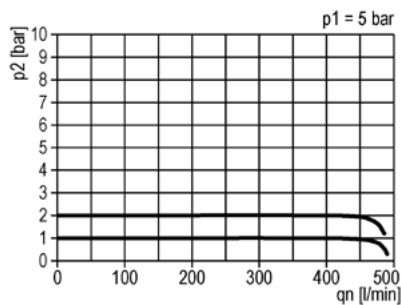
# Precision pressure regulator RP

## Technical data

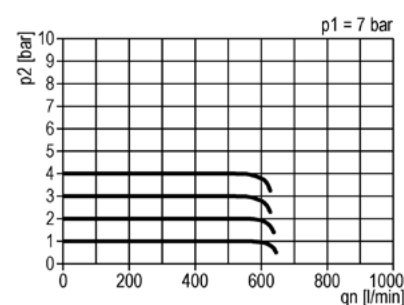
| Model-no.:               | RP-14-...      | RP-12-...    |
|--------------------------|----------------|--------------|
| Connection               | G1/4           | G1/2         |
| Gauge connection         | G1/8           | G1/4         |
| Flow (NI/min)            | see diagram    | see diagram  |
| Internal air consumption | max. 4.1 l/min | max. 6 l/min |
| Weight (kg)              | 0.67           | 1.40         |

## Flow characteristic

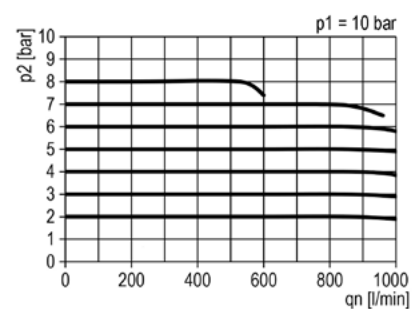
RP-14-B-...



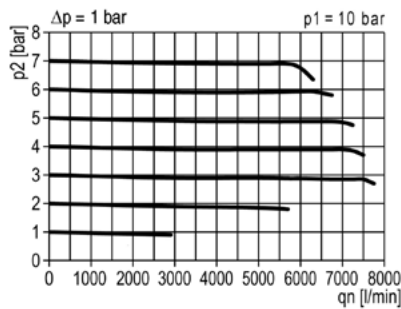
RP-14-C-...



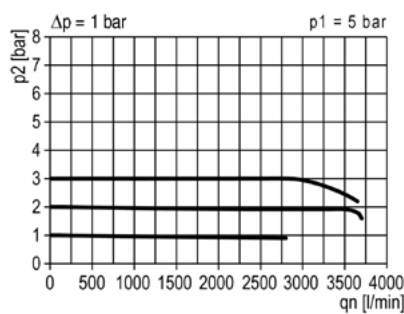
RP-14-D-...



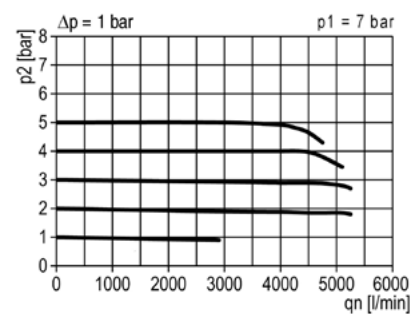
RP-12-D-...



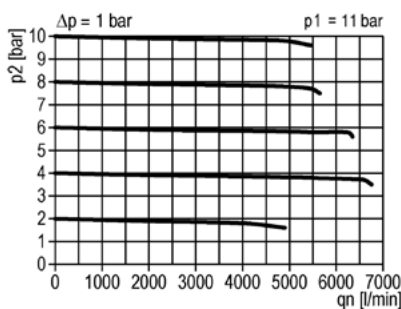
RP-12-E-...



RP-12-F-...

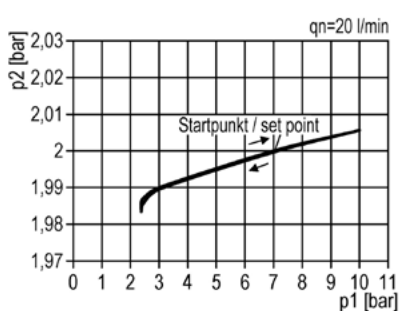


RP-12-G-...

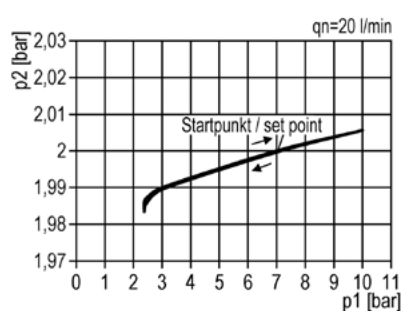


## Hysteresis

RP-14-...



RP-12-...





## Technical details

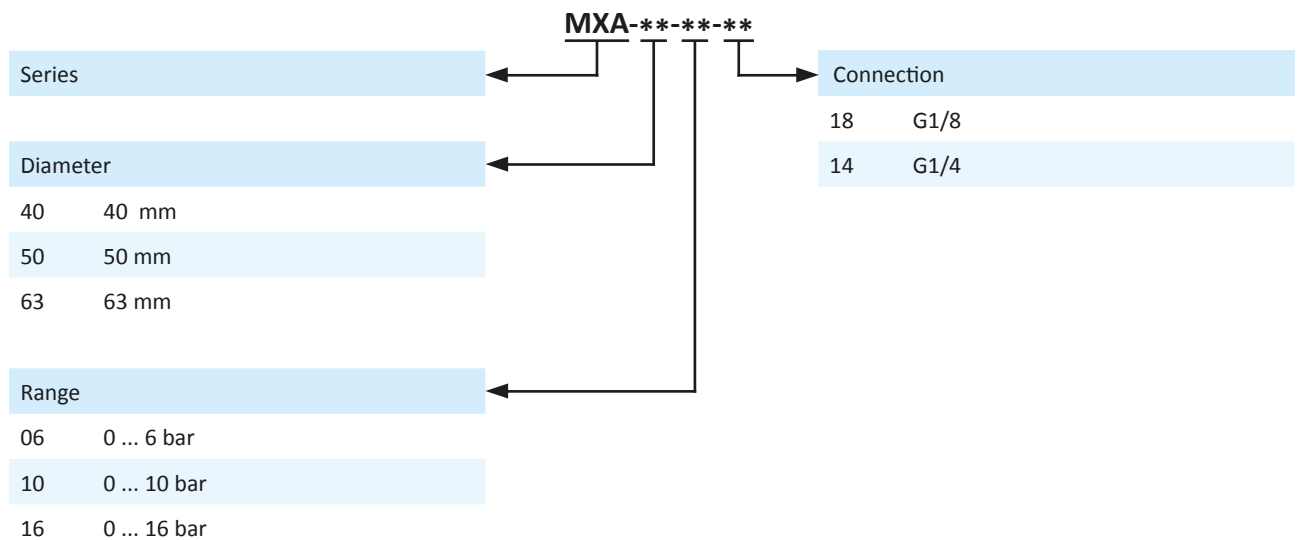
|                          |  |
|--------------------------|--|
| <b>Temperature range</b> | -20°C ... +60°C  |
| <b>Accuracy class</b>    | 2.5 according to EN 837-1  |
| <b>Application</b>       | Constant load: 3/4 x scale value<br>Alternating load: 2/3 x scale value  |
| <b>Materials</b>         | Body: ABS, black<br>Window: plastic, clear, clipped-on<br>Dial: plastic, white with stop pin<br>Scale black (bar) and blue (psi) |
| <b>Temperature drift</b> | ± 0.4% / 10 K if deviation from normal temperature (+ 20°C)  |



Bourdon tube pressure gauge (EN 837-1), pressure connection rear.



## Order code



## Technical data

| Model-no.:                 | MXA-50-06-14 |  | MXA-50-10-14 |  | MXA-50-16-14   |  |
|----------------------------|--------------|--|--------------|--|----------------|--|
| <b>Connection</b>          | G1/4         |  | G1/4         |  | G1/4           |  |
| <b>Standard for series</b> | -            |  | -            |  | X1. X2. Y1. Y2 |  |
| <b>Range</b>               | 0 ... 6 bar  |  | 0 ... 10 bar |  | 0 ... 16 bar   |  |
| <b>Weight (kg)</b>         | 0.071        |  | 0.071        |  | 0.071          |  |

| Model-no.:                 | MXA-40-06-18 | MXA-40-10-18 | MXA-40-16-18 | MXA-63-06-14 | MXA-63-10-14 | MXA-63-16-14 |
|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Connection</b>          | G1/8         | G1/8         | G1/8         | G1/4         | G1/4         | G1/4         |
| <b>Standard for series</b> | -            | -            | K. RD        | -            | -            | Y3           |
| <b>Range</b>               | 0 ... 6 bar  | 0 ... 10 bar | 0 ... 16 bar | 0 ... 6 bar  | 0 ... 10 bar | 0 ... 16 bar |
| <b>Weight (kg)</b>         | 0.071        | 0.071        | 0.071        | 0.080        | 0.080        | 0.080        |



|                               |                   |
|-------------------------------|-------------------|
| <b>ATEX</b>                   | <b>Page 13-02</b> |
| General information           | Page 13-02        |
| Mechanically operated valves  | Page 13-06        |
| Pneumatically operated valves | Page 13-06        |
| Electrically operated valves  | Page 13-07        |
| Function valves               | Page 13-10        |
| Cylinders                     | Page 13-11        |
| Accessories                   | Page 13-13        |



|                               |                   |
|-------------------------------|-------------------|
| <b>Technical informations</b> | <b>Page 13-14</b> |
|-------------------------------|-------------------|



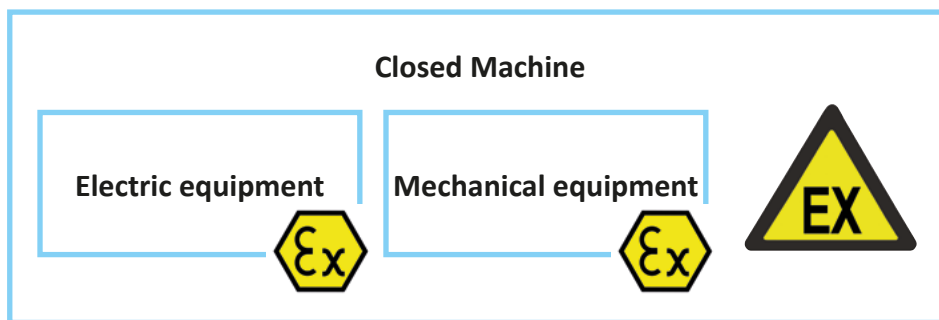
## General information

### The directive 2014/34/EU

ATEX derives its name from ATMosphere EXposable and stands for the Directive 2014/34/EU of the European Parliament. The Directive concerns electrical and non-electrical equipment and protection systems for use in potential explosive atmospheres. Since 1st of July 2003, devices and protection systems for use in potentially explosive areas must satisfy the new Directive 94/9/EC. This directive has been replaced by 2014/34/EU since 20th of April 2016.

### ATEX classifies explosive atmospheres and associates equipment

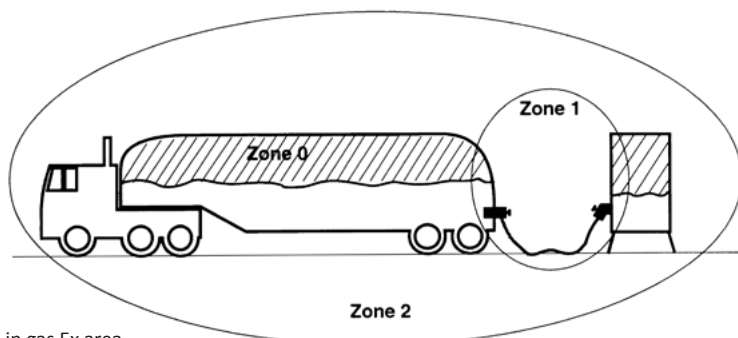
|                   |   |  |   |  |
|-------------------|---|--|---|--|
| <b>Problem:</b>   | Plant evaluation acc. to ATEX directive 99/92/EC                  |  | Equipment evaluation according to ATEX directive 2014/34/EU       |  |
| <b>Guarantor:</b> | Equipment manufacturer  |  | AIRTEC Pneumatic GmbH   |  |
| <b>Outcome:</b>   | <b>Zone classification</b>  |  | <b>Equipment group</b>  |  |
|                   | - Temperature class<br>- Explosion group<br>- Ambient temperature |  | - Temperature class<br>- Explosion group<br>- Ambient temperature |  |



### Zone and category

Zone classification reflects the likelihood of the occurrence of an explosive atmosphere. Furthermore, differentiation is made as to whether the hazard is due to gases, vapour and mists or due to dust.

The category indicates in which zone the equipment is suitable.



Example of zone classification in gas Ex area

Equipments are divided in 2 groups. Group I is subdivided in category M1 and M2 and specifies the use of which equipment can be used in underground mining works.

All further equipment is classified into Group II.

Group II is divided in Category 1, 2 and 3.

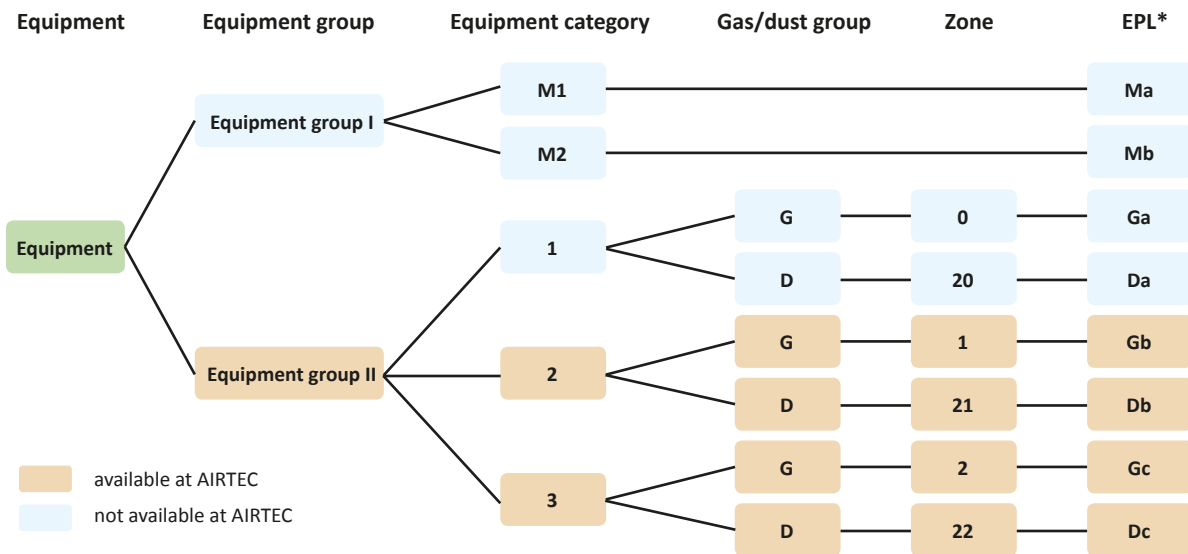
Category 1: Equipment in this category is characterised by a very high degree of safety and is specified in Zone 0 and 20.

Category 2: Equipment in this category is characterised by a high degree of safety and is specified in Zone 1 and 21

Category 3: Equipment in this category affords the necessary degree of safety in normal operation and is specified in Zone 2 and 22



## Overview Zones und Categories



\* EPL = Equipment protection level

### Equipment category 1

Devices in Equipment category 1 guarantee a very high level of safety. They are designed for areas, in which an explosive gas atmosphere is present continuously, frequently or for long periods. Devices in this category can also be used in Equipment category 2 and 3.

#### Category 1G

Devices for use in **Zone 0**

Inflammable gases, vapors or mists

An area in which an explosive gas atmosphere is present continuously, frequently or for long periods.  
Equipment protection level Ga, very high level of safety.

#### Category 1D

Devices for use in **Zone 20**

Inflammable dusts

An area in which an explosive dust atmosphere, in the form of a cloud of dust in air, is present continuously, frequently or for long periods.  
Equipment protection level Da, very high level of safety.

### Equipment category 2

Devices in Equipment category 2 guarantee a high level of safety. They are designed for areas, in which an explosive gas atmosphere is likely to occur periodically or occasionally in normal operation. Devices in this category can also be used Equipment category 3.

#### Category 2G

Devices for use in **Zone 1**

Inflammable gases, vapors or mists

An area in which an explosive gas atmosphere is likely to occur periodically or occasionally in normal operation  
Equipment protection level Gb, high level of safety.

#### Category 2D

Devices for use in **Zone 21**

Inflammable dusts

An area in which an explosive dust atmosphere, in the form of a cloud of dust in air, is likely to occur in normal operation occasionally.  
Equipment protection level Db, high level of safety.

### Equipment category 3

Devices in Equipment category 3 guarantee a normal level of safety. They are designed for areas, in which an explosive gas atmosphere is not likely to occur in normal operation but, if it does occur, it will exist for a short period only.

#### Category 3G

Devices for use in **Zone 2**

Inflammable gases, vapors or mists

An area in which an explosive gas atmosphere is not likely to occur in normal operation but, if it does occur, it will exist for a short period only.  
Equipment protection level Gc, normal level of safety.

#### Category 3D

Devices for use in **Zone 22**

Inflammable dusts

An area in which an explosive dust atmosphere, in the form of a cloud of combustible dust in air, is not likely to occur in normal operation but, if it does occur, will persist for a short period only.  
Equipment protection level Dc, normal level of safety.



## General information

### Equipment protection level

#### EPL Ga or Da

Equipment with a very high protection level for use in hazardous areas. In normal operation this equipment represents no risk of ignition in the event of predictable or rare faults/malfunctions.

#### EPL Gb or Db

Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions.

#### EPL Gc or Dc

Equipment with an advanced protection level for use in hazardous areas. There is no risk of ignition during normal operation. The equipment has additional protective measures that ensure no risk of ignition in the event of typically predictable equipment faults.

### Temperature class

It must be ensured that the ignition temperature of an inflammable material is not reached during operation. For this purpose, the maximum surface temperature of a device must be less than the minimum ignition temperature. For this reason, the maximum surface temperature of equipment for use with inflammable gases, vapors or mists is specified in temperature classes. For dusty environments, the maximum surface temperature is specified in °C.

| Temperature class | Maximum permissible surface temperature of the device |
|-------------------|---|
| T1                | 450°C   |
| T2                | 300°C   |
| T3                | 200°C   |
| T4                | 135°C   |
| T5                | 100°C   |
| T6                | 85°C  |



## Device marking


**II 2G Ex h IIC T5 Gb**  
**II 2D Ex h IIIC T100°C Db**

## 1. row

## marking according to RL 2014/34/EU

- II** Equipment group: II Equipment for hazardous areas - apart from mining  
**2G** Equipment category: 2 for Zone 1 and G for gases

## marking according to DIN EN ISO 80079-36

- Ex** abbreviation for explosion protection  
**h** Symbol for ignition protection class: h is representative for 6 different ignition protection classes h can be e.g. constructional safety c, flameproof enclosure d, pressurised enclosure p etc.  
**IIC** Explosion group II = gases  
 The device group II is sub-divided into explosion group A, B and C. The subdivision is indicating the gap width of a technical device. C indicates the highest and A the lowest requirement class.  
 The selection of the explosion is depending of the media and the correspondent explosion group requirement.  
**T5** Temperature class: T5 assignment of gases and vapors accordance to the ignition temperature > 100°C  
**Gb** Equipment protection level (EPL) G = gases b = Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions.  
 suitable for zone 1

## 2. row

## marking according to RL 2014/34/EU

- II** Equipment group: II Equipment for hazardous areas - apart from mining  
**2D** Equipment category: 2 for Zone 1 and D for dust Zone 21

## marking according to DIN EN ISO 80079-36

- Ex** abbreviation for explosion protection  
**h** Symbol for ignition protection class: h is representative for 6 different ignition protection classes h can be e.g. constructional safety c, flameproof enclosure d, pressurised enclosure p etc.  
**IIIC** Explosion group III = Inflammable dusts, fluff  
 C is indicating the type of dust for which the equipment is suitable. Additionally it's divided in A: flammable suspended materials, B: flammable suspended materials and non-conductive dusts and C: flammable suspended materials and conductive dusts.  
**T100°C** maximum permissible surface temperature  
**Db** Equipment protection level (EPL) D = dust b = Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions.  
 suitable for zone 21



## Valves

Mechanically and pneumatically operated

### Mechanically operated valves

#### Device marking

Mechanically operated valves are marked as follows:

 II 2GD c T6 T85°C \*  
-10°C Tamb +60°C

\* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Mechanically operated valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

#### Available valves

| Series | Versions           |
|--------|--------------------|
| HF-12  | 310, 510, 530, 533 |
| HF-14  | 310, 510, 530, 533 |
| HF-18  | 310, 510, 530, 533 |
| HR-12  | 320, 520, 530, 533 |

| Series | Versions           |
|--------|--------------------|
| HR-14  | 320, 520, 530, 533 |
| HR-18  | 320, 520, 530, 533 |
| T-28   | 311                |
| T-30   | 310, 510           |

### Pneumatically operated valves

#### Device marking

Pneumatically operated valves are marked as follows:

 II 2GD c T5 T100°C \*  
-10°C Tamb +50°C

\* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Pneumatically operated valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

#### Available Valves

| Series | Versions                          |
|--------|-----------------------------------|
| L-25   | 311, 320, 511, 520                |
| L-28   | 311, 320, 511, 520                |
| P-05   | 311, 320, 511, 520, 530, 533, 534 |
| P-07   | 311, 320, 511, 520, 530, 533, 534 |
| P-12   | 311, 320, 511, 520, 530, 533, 534 |
| PI-01  | 511, 520                          |
| PI-02  | 511, 520, 530, 533, 534           |
| PI-03  | 511, 520, 530, 533, 534           |

| Series | Versions           |
|--------|--------------------|
| PKX-09 | 511, 520           |
| PKX-10 | 511, 520, 530      |
| PN-05  | 311, 511, 520, 530 |
| PNX-55 | 311, 511, 520      |



The operating instructions for the valve must be taken into account before putting into operation. These are included with each valve and are available at [www.airtec.de](http://www.airtec.de).



**Device marking**

Electrically operated valves are marked as follows:



\* Marking according to DIN EN 13463-1/-5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/-37.



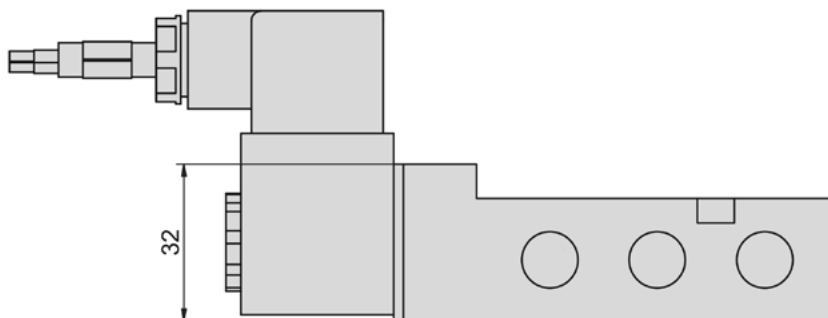
Electrically operated valves conform to equipment category 2 can be used in Zone 1 respectively in Zone 21. For the use in hazardous areas the category group of the used coil has to be taken into account. The specification of the whole equipment corresponds always to the lowest category of the single components.

**Available valves**

| Series | Versions                               |
|--------|--|
| KM-09  | 510, 511, 520, 530, 533, 534           |
| KM-10  | 510, 511, 520, 530, 533, 534           |
| KMX-09 | 511, 520                               |
| KMX-10 | 511, 520, 530                          |
| KN-05  | 310, 311, 510, 511, 520, 530, 533, 534 |
| KN-55  | 311, 511                               |
| KNX-55 | 311, 511, 520                          |
| M-04   | 310, 510, 511, 520, 530, 533           |
| M-05   | 310, 311, 510, 511, 520, 530, 533, 534 |
| M-07   | 310, 311, 510, 511, 520, 530, 533, 534 |
| M-22   | 310, 311, 510, 511, 520, 530, 533      |

| Series | Versions                     |
|--------|------------------------------|
| ME-05  | 311, 320, 511, 520           |
| ME-07  | 311, 320, 511, 520           |
| MO-05  | 311                          |
| MO-07  | 311                          |
| MO-22  | 310, 311                     |
| MI-01  | 511, 520, 530, 533           |
| MI-02  | 511, 520, 530, 533           |
| MI-03  | 511, 520, 530, 533           |
| MN-06  | 310, 311, 510, 511, 520, 530 |
| MS-18  | 310                          |

The use of special electrical equipment and operators requires in certain cases a design change of the valve. All changes are shown on the following pages. For the NAMUR valve as well the body dimension is different to standard. Please see below.

**KN-05, MN-06 Divergent dimensions**


The operating instructions for the valve and the electrical equipment must be taken into account before putting into operation. These are included with each valve and are available at [www.airtec.de](http://www.airtec.de).

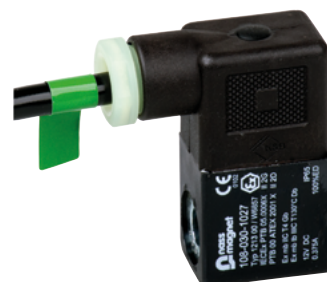


## Valves Electrically operated

### Solenoid coils

#### 23-SP-036

|                                  |  |
|----------------------------------|--|
| <b>Ignition protection class</b> | Encapsulated with casting compound<br>mb (gases)<br>mb tb (dust) |
| <b>Classification</b>            | II 2G Ex mb IIC T4<br>II 2D Ex mb tb IIIC T130°C IP65            |
| <b>Overall width</b>             | 22 mm  |
| <b>Temperature range*</b>        | -20°C...+50°C (battery fitted -20°C...+40°C)                     |
| <b>Temperature range medium</b>  | -10°C...+50°C (battery fitted -10°C...+40°C)                     |



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

| Model-no.:               | 23-SP-036-011-03 | 23-SP-036-012-03 |
|--------------------------|------------------|------------------|
| <b>Voltage</b>           | 12 V DC          | 24 V DC          |
| <b>Power consumption</b> | 4.5 W            | 5 W              |
| <b>Rated current</b>     | 375 mA           | 207 mA           |
| <b>Connecting cable</b>  | 3 m              | 3 m              |

#### 23-SP-037

|                                  |  |
|----------------------------------|--|
| <b>Ignition protection class</b> | Encapsulated with casting compound<br>mb (gases)<br>mb tb (dust) |
| <b>Classification</b>            | II 2G Ex mb IIC T5<br>II 2D Ex mb tb IIIC T95°C IP65             |
| <b>Overall width</b>             | 30 mm  |
| <b>Temperature range*</b>        | -20°C...+50°C (battery fitted -20°C...+40°C)                     |
| <b>Temperature range medium</b>  | -10°C...+50°C (battery fitted -10°C...+40°C)                     |

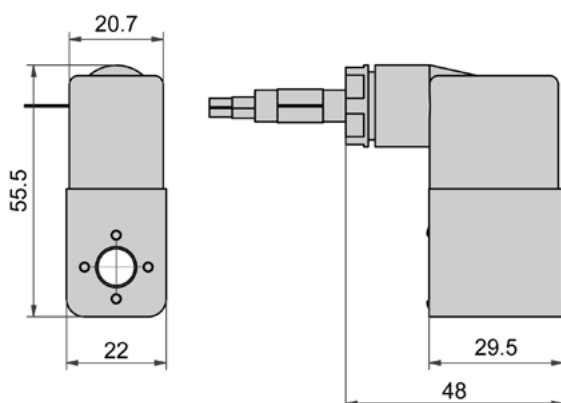


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

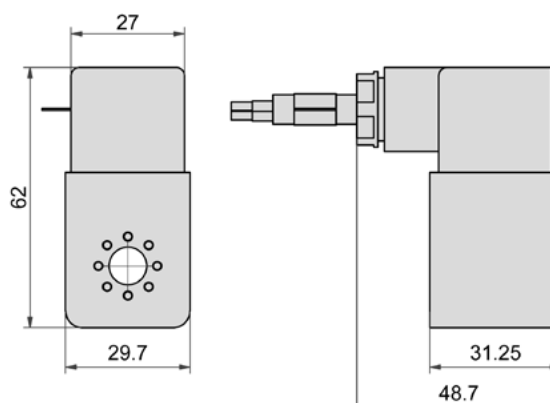
| Model-no.:                   | 23-SP-037-012-xx              | 23-SP-037-025-xx              | 23-SP-037-027-xx              |
|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <b>Voltage</b>               | 24 V DC                       | 110...120 V AC                | 230 V AC                      |
| <b>Power consumption</b>     | 3.3 W                         | 3 VA                          | 3.1 VA                        |
| <b>Rated current</b>         | 136 mA                        | 27 mA                         | 14 mA                         |
| <b>Connecting cable (xx)</b> | 03 = 3 m, 05 = 5 m, 10 = 10 m | 03 = 3 m, 05 = 5 m, 10 = 10 m | 03 = 3 m, 05 = 5 m, 10 = 10 m |

### Dimensions

#### 23-SP-036



#### 23-SP-037



**Solenoid coils**
**23-SP-038**

|                                  |   |
|----------------------------------|---|
| <b>Ignition protection class</b> | Intrinsically safe<br>ia (gases)<br>t (dust)  |
| <b>Classification</b>            | II 2G Ex ia IIC T6 Ga ( $\leq 28$ V DC)<br>II 2G Ex ia IIB T6 Ga ( $\leq 32$ V DC)<br>II 2D Ex t IIIC T80°C Db IP65 |
| <b>Overall width</b>             | 30 mm   |
| <b>Temperature range*</b>        | -40°C...+50°C   |
| <b>Temperature range medium</b>  | -10°C...+50°C (battery fitted -10°C...+40°C)  |



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

|                      |                                     |
|----------------------|-------------------------------------|
| <b>Model-no.:</b>    | 23-SP-038-01-912                    |
| <b>Voltage</b>       | $U \leq 28$ V DC / $U \leq 32$ V DC |
| <b>Rated current</b> | $I \leq 115$ mA / $I \leq 195$ mA   |
| <b>Rated current</b> | 375 mA                              |
| <b>Connection</b>    | plug (part of delivery)             |

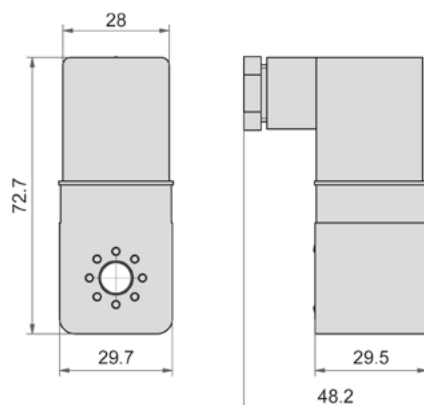
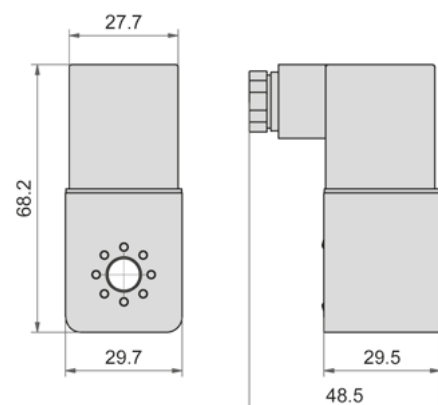
**23-SP-040**

|                                  |   |
|----------------------------------|---|
| <b>Ignition protection class</b> | Non-sparking device<br>na (gases)<br>tc (dust)          |
| <b>Classification</b>            | II 3G Ex nA IIC T6 Gc<br>II 3D Ex tc IIIC T95°C Dc IP65 |
| <b>Overall width</b>             | 30 mm   |
| <b>Temperature range*</b>        | -20°C...+50°C   |
| <b>Temperature range medium</b>  | -10°C...+50°C (battery fitted not allowed)              |



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

|                          |                         |                         |
|--------------------------|-------------------------|-------------------------|
| <b>Model-no.:</b>        | 23-SP-040-B12           | 23-SP-040-B27           |
| <b>Voltage</b>           | 24 V DC                 | 230 V AC                |
| <b>Power consumption</b> | 2.7 W                   | 4 VA                    |
| <b>Rated current</b>     | 112 mA                  | 15...18 mA              |
| <b>Connection</b>        | plug (part of delivery) | plug (part of delivery) |

**Dimensions**
**23-SP-038**

**23-SP-040**




## Valves

### Function valves

#### Function valves

#### Device marking

Mechanically operated valves according ATEX are marked with following suffix:

**-ATEX**

#### Classification

 **II 2GD c T6 T85°C \***  
**-10°C Tamb +50°C**

\* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Function valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

#### Available valves

| Series | Versions            |
|--------|---------------------|
| SE     | SE-18, SE-14, SE-12 |



## Piston rod cylinders

### Device marking

Piston rod cylinders according ATEX are marked with following suffix:

**-ATEX**  
**-EX**  
**-X**

### Classification

**II 2GD c T5 T100°C \***  
**-20°C Tamb +80°C**

\* Marking according to DIN EN 13463-1/-5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/-37.

The equipment is according category 2 and can be used in zone 1 and zone 21.

### Available cylinders

| Series | Versions                      |
|--------|-------------------------------|
| XL     | XL, XLH                       |
|        | XLC (-40°C Tamb +80°C)        |
| XG     | XG, XGH (only up to Ø 200 mm) |
| HM     | HM, HMP, HMDE, HMPDE          |
| CM     | CM, CMP, CMDE, CMPDE          |

### Classification

**II 2GD c T4 T120°C \***  
**-20°C Tamb +80°C**

\* Marking according to DIN EN 13463-1/-5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/-37.

The equipment is according category 2 and can be used in zone 1 and zone 21.

### Available cylinders

| Series | Versions  |
|--------|---|
| XM     | XM, XM4, XMH, XM4H  |
| NYD    | Ø 20 and 25 with 5 ... 60 mm stroke, Ø 32 up to 100 with 5 ... 80 mm stroke |
| NYE    | 5, 10, 15, 20 and 25 mm stroke  |
| NYDK   | NYDK2, NYDK3, NYDK4   |
| NYM    | MYM2AG, NYM2IG, NYM3AG, NYM3IG  |
| NYR2   | NYR2  |



The operating instructions for the cylinder must be taken into account before putting into operation. These are included with each cylinder and are available at [www.airtec.de](http://www.airtec.de).




## Cylinders

### Rodless cylinders series ZX

#### Device marking

ZX-cylinder are marked as follows:

 II 2GD c T6 T85°C -10°C ≤ Tamb ≤ 60°C

The equipment is according category 2 and can be used in zone 1 and zone 21.

#### Available rodless cylinders

ZX ZX-Ø-S, ZX-Ø-K, ZX-Ø-SG, ZX-Ø-KG, ZX-Ø-SR, ZX-Ø-KR,



The operating instructions for the cylinder must be taken into account before putting into operation. These are included with each cylinder and are available at [www.airtec.de](http://www.airtec.de).

### Accessories for valves

The valves are intended to be used with the following accessories:

| Accessories       | series  |
|-------------------|---|
| Manifolds         | R-181/n, R-281/n, R-141/n                     |
| Manifolds         | RF-09/n, RF-10/n                              |
| Blind plates      | RF-181-V, RF-281-V, R-141-V, RF-09-V, RF-10-V |
| Mounting brackets | R-181-W, R-281-W, R-141-W                     |

### Accessories for piston rod cylinders

The cylinders are intended to be used with the following accessories:

| Accessories             | series  |
|-------------------------|---|
| Flexible coupling       | FK-Ø  |
| Rod eye                 | FO-Ø, RO-Ø, PO-Ø ( $v_{max}$ 1 m/s)   |
| Rod clevis              | FD-Ø, RD-Ø, PD-Ø  |
| Piston rod nut          | FE-Ø, RL-Ø, PL-Ø  |
| Mounting accessories XL | XLB-Ø-01, XLB-Ø-02, XLB-Ø-03, XLB-Ø-04, XLB-Ø-05, XLB-Ø-06, XLB-Ø-07, XLB-Ø-08, XLB-Ø-09, XLB-Ø-10, XLB-Ø-11, XLB-Ø-12, XLB-Ø-13, XLB-Ø-14, |
| Mounting accessories XG | VLB-Ø-01, VLB-Ø-02, VLB-Ø-03, VLB-Ø-04, VLB-Ø-05, VLB-Ø-06, VLB-Ø-08, VLB-Ø-09, VLB-Ø-12  |
| Mounting accessories HM | RA-Ø, RC-Ø, RG-Ø, RH-Ø, RB-Ø, RM-Ø  |
| Mounting accessories CM | PA-Ø, PC-Ø, PB-Ø, PM-Ø  |

### Accessories for rodless cylinders

The cylinders are intended to be used with the following accessories:

| Accessories             | series                                 |
|-------------------------|--|
| Mounting accessories ZX | ZXB-Ø-01, ZXB-Ø-02, ZXB-Ø-10, ZXB-Ø-20 |

### Proximity switches

| Model-No. | Classification / Identification marking        |
|-----------|--|
| ZS-7300   | II 3G Ex nA T4<br>II 3D Ex tD A22 IP67 T 125°C |
| ZS-7302   | II 3D Ex tc IIIC T125°C Dc X                   |



The operating instructions for the equipment must be taken into account before putting into operation. These are available at [www.airtec.de](http://www.airtec.de).

**Air consumption cylinder (NI for a single stroke of 100 mm, based upon extension)**

| Piston-Ø | Pressure in bar |       |       |       |       |       |       |
|----------|-----------------|-------|-------|-------|-------|-------|-------|
|          | 2               | 3     | 4     | 5     | 6     | 7     | 8     |
| 8        | 0.02            | 0.02  | 0.03  | 0.03  | 0.04  | 0.04  | 0.05  |
| 10       | 0.02            | 0.03  | 0.04  | 0.05  | 0.05  | 0.06  | 0.07  |
| 12       | 0.03            | 0.05  | 0.06  | 0.07  | 0.08  | 0.09  | 0.10  |
| 16       | 0.06            | 0.08  | 0.10  | 0.12  | 0.14  | 0.16  | 0.18  |
| 20       | 0.09            | 0.13  | 0.16  | 0.19  | 0.22  | 0.25  | 0.28  |
| 25       | 0.15            | 0.20  | 0.25  | 0.29  | 0.34  | 0.39  | 0.44  |
| 32       | 0.24            | 0.32  | 0.40  | 0.48  | 0.56  | 0.64  | 0.72  |
| 40       | 0.38            | 0.50  | 0.63  | 0.75  | 0.88  | 1.01  | 1.13  |
| 50       | 0.59            | 0.79  | 0.98  | 1.18  | 1.37  | 1.57  | 1.77  |
| 63       | 0.94            | 1.25  | 1.56  | 1.87  | 2.18  | 2.49  | 2.81  |
| 80       | 1.51            | 2.01  | 2.51  | 3.02  | 3.52  | 4.02  | 4.52  |
| 100      | 2.36            | 3.14  | 3.93  | 4.71  | 5.50  | 6.28  | 7.07  |
| 125      | 3.72            | 4.96  | 6.21  | 7.42  | 8.64  | 9.91  | 11.14 |
| 160      | 6.09            | 8.12  | 10.16 | 12.16 | 14.16 | 16.23 | 18.25 |
| 200      | 9.52            | 12.68 | 15.88 | 19.00 | 22.12 | 25.36 | 28.52 |
| 250      | 14.88           | 19.81 | 24.81 | 29.69 | 34.56 | 39.63 | 44.56 |

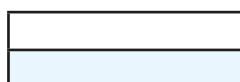
**Required flow rate (NI/min at p = 6 bar)**

| Piston-Ø | speed (m/s) |      |       |       |       |
|----------|-------------|------|-------|-------|-------|
|          | 0.25        | 0.5  | 1     | 1.5   | 2     |
| 8        | 5           | 11   | 21    | 32    | 42    |
| 10       | 8           | 16   | 33    | 49    | 66    |
| 12       | 12          | 24   | 47    | 71    | 95    |
| 16       | 21          | 42   | 84    | 127   | 169   |
| 20       | 33          | 66   | 132   | 198   | 264   |
| 25       | 52          | 103  | 206   | 309   | 412   |
| 32       | 84          | 169  | 338   | 506   | 675   |
| 40       | 132         | 264  | 528   | 791   | 1055  |
| 50       | 206         | 412  | 824   | 1236  | 1649  |
| 63       | 327         | 654  | 1309  | 1963  | 2617  |
| 80       | 528         | 1055 | 2110  | 3165  | 4220  |
| 100      | 824         | 1649 | 3297  | 4946  | 6594  |
| 125      | 1288        | 2576 | 5152  | 7727  | 10303 |
| 160      | 2110        | 4220 | 8440  | 12660 | 16881 |
| 200      | 3297        | 6594 | 13188 | 19782 | 26376 |



## Force chart cylinders (N)

| Piston-Ø | Series                | Piston rod<br>Ø (mm) | Pressure in bar |       |       |       |       |       |       |
|----------|-----------------------|----------------------|-----------------|-------|-------|-------|-------|-------|-------|
|          |                       |                      | 2               | 3     | 4     | 5     | 6     | 7     | 8     |
| 8        |                       |                      | 9               | 14    | 18    | 23    | 27    | 32    | 36    |
|          | HM                    | 4                    | 7               | 10    | 14    | 17    | 20    | 24    | 27    |
| 10       |                       |                      | 14              | 21    | 28    | 35    | 42    | 49    | 57    |
|          | HM                    | 4                    | 12              | 18    | 24    | 30    | 36    | 42    | 47    |
| 12       |                       |                      | 20              | 31    | 41    | 51    | 61    | 71    | 81    |
|          | HM                    | 6                    | 15              | 23    | 31    | 38    | 46    | 53    | 61    |
| 16       |                       |                      | 36              | 54    | 72    | 90    | 109   | 127   | 145   |
|          | HM, CM                | 6                    | 31              | 47    | 62    | 78    | 93    | 109   | 124   |
|          | NXD                   | 8                    | 27              | 41    | 54    | 68    | 81    | 95    | 109   |
| 20       |                       |                      | 57              | 85    | 113   | 141   | 170   | 198   | 226   |
|          | HM, CM                | 8                    | 47              | 71    | 95    | 119   | 142   | 166   | 190   |
|          | NYD, NXD, LX          | 10                   | 42              | 64    | 85    | 106   | 127   | 148   | 170   |
| 25       |                       |                      | 88              | 132   | 177   | 221   | 265   | 309   | 353   |
|          | HM, CM, NYD, NXD      | 10                   | 74              | 111   | 148   | 185   | 223   | 260   | 297   |
|          | LX                    | 12                   | 68              | 102   | 136   | 170   | 204   | 238   | 272   |
| 32       |                       |                      | 145             | 217   | 289   | 362   | 434   | 506   | 579   |
|          | XL, XM, NYD, NXD, HMU | 12                   | 124             | 187   | 249   | 311   | 373   | 435   | 497   |
|          | LX                    | 16                   | 109             | 163   | 217   | 271   | 326   | 380   | 434   |
| 40       |                       |                      | 226             | 339   | 452   | 565   | 678   | 791   | 904   |
|          | NYD, NXD              | 12                   | 206             | 309   | 411   | 514   | 617   | 720   | 823   |
|          | XL, XM, LX, HMU       | 16                   | 190             | 285   | 380   | 475   | 570   | 665   | 760   |
| 50       |                       |                      | 353             | 530   | 707   | 883   | 1060  | 1236  | 1413  |
|          | NYD, NXD              | 16                   | 317             | 476   | 634   | 793   | 951   | 1110  | 1268  |
|          | XL, XM, LX            | 20                   | 297             | 445   | 593   | 742   | 890   | 1039  | 1187  |
| 63       |                       |                      | 561             | 841   | 1122  | 1402  | 1682  | 1963  | 2243  |
|          | NYD, NXD              | 16                   | 525             | 787   | 1049  | 1312  | 1574  | 1836  | 2099  |
|          | XL, XM, LX            | 20                   | 504             | 756   | 1009  | 1261  | 1513  | 1765  | 2017  |
| 80       |                       |                      | 904             | 1356  | 1809  | 2261  | 2713  | 3165  | 3617  |
|          | NYD, NXD              | 20                   | 848             | 1272  | 1696  | 2120  | 2543  | 2967  | 3391  |
|          | XL, XM                | 25                   | 816             | 1224  | 1632  | 2040  | 2448  | 2856  | 3264  |
| 100      |                       |                      | 1413            | 2120  | 2826  | 3533  | 4239  | 4946  | 5652  |
|          | XL, XM, NYD, NXD      | 25                   | 1325            | 1987  | 2649  | 3312  | 3974  | 4636  | 5299  |
| 125      |                       |                      | 2208            | 3312  | 4416  | 5520  | 6623  | 7727  | 8831  |
|          | XL, XM, NYD           | 32                   | 2063            | 3095  | 4126  | 5158  | 6189  | 7221  | 8252  |
| 160      |                       |                      | 3617            | 5426  | 7235  | 9043  | 10852 | 12660 | 14469 |
|          | XG                    | 40                   | 3391            | 5087  | 6782  | 8478  | 10174 | 11869 | 13565 |
| 200      |                       |                      | 5652            | 8478  | 11304 | 14130 | 16956 | 19782 | 22608 |
|          | XG                    | 40                   | 5426            | 8139  | 10852 | 13565 | 16278 | 18991 | 21704 |
| 250      |                       |                      | 8831            | 13247 | 17663 | 22078 | 26494 | 30909 | 35325 |
|          | XG                    | 50                   | 8478            | 12717 | 16956 | 21195 | 25434 | 29673 | 33912 |
| 320      |                       |                      | 14469           | 21704 | 28938 | 36173 | 43407 | 50642 | 57876 |
|          | XG                    | 63                   | 13908           | 20862 | 27817 | 34771 | 41725 | 48679 | 55633 |

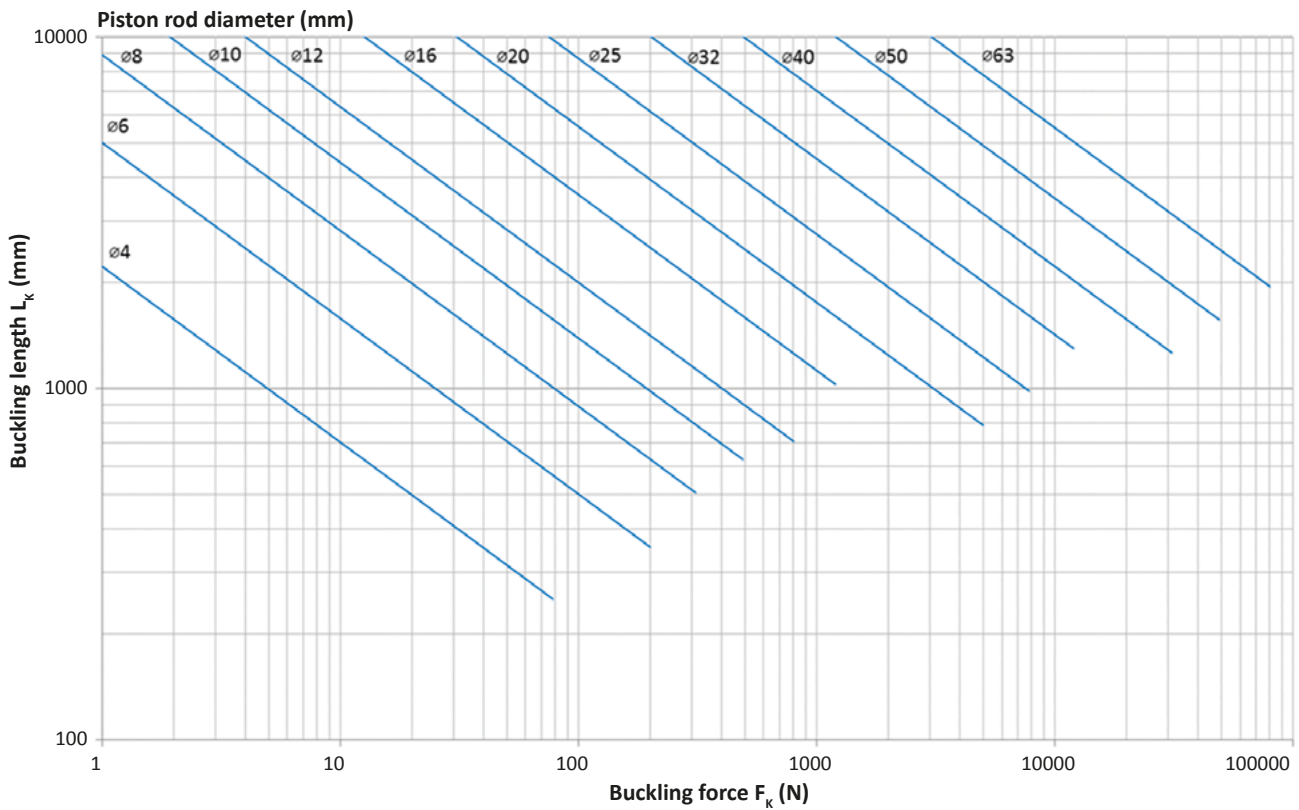


extension force\*

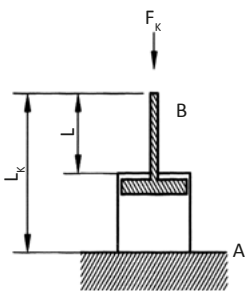
retraction force\*

\* A correction factor of 0.9 for the internal friction is already calculated.

### Critical load diagram for the piston rod

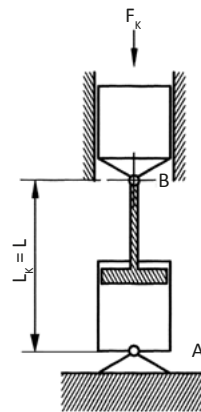


#### First elastic case of buckling



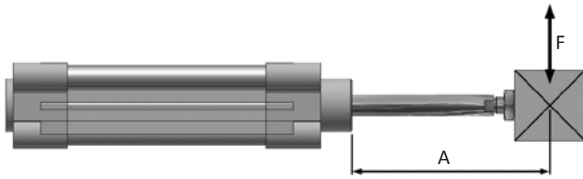
A: fixed restraint  
 B: open end  
 $L_k \approx 4 * \text{cylinder stroke length}$

#### Second elastic case of buckling

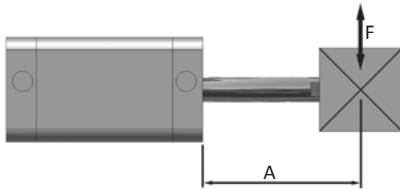


A: joint  
 B: joint  
 $L_k \approx 2 * \text{cylinder stroke length}$

Knowing the actual buckling case, either 1 or 2, and knowing the requested stroke length you can calculate the buckling length  $L_k$ . If you know the buckling force  $F_k$  (compressive force) you determine in the diagram above the intersection of both data. Choose the next graph line above to get the necessary rod diameter.

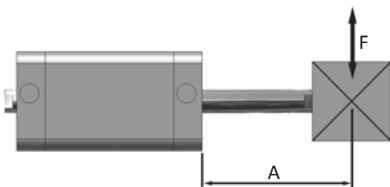
**Permissible side load F (N), series XL and XM**


| Piston-Ø | Distance A (mm) |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          | 25              | 40  | 50  | 80  | 100 | 125 | 160 | 200 | 250 | 320 | 400 | 500 |
| 32       | 75              | 55  | 50  | 40  | 34  | 28  | 23  | 20  | 16  | 12  | 9   | 7   |
| 40       | 175             | 150 | 130 | 105 | 91  | 78  | 62  | 55  | 45  | 35  | 28  | 21  |
| 50 + 63  | 220             | 180 | 170 | 130 | 120 | 105 | 90  | 80  | 65  | 52  | 43  | 33  |
| 80 + 100 | 500             | 450 | 400 | 350 | 310 | 270 | 230 | 205 | 180 | 150 | 125 | 100 |
| 125      | 810             | 710 | 680 | 590 | 520 | 470 | 420 | 390 | 330 | 270 | 230 | 200 |

**Permissible side load F (N), series NYD\* and NXD, version 200 and 210**


| Piston-Ø | Distance A (mm) |    |    |    |    |    |    |    |     |     |
|----------|-----------------|----|----|----|----|----|----|----|-----|-----|
|          | 25              | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 125 |
| 12 + 16  | 8               | 7  | 6  | 6  | 5  | 5  | 4  | 3  | 2   | -   |
| 20 + 25  | 12              | 11 | 9  | 7  | 6  | 5  | 4  | 3  | 3   | -   |
| 32 + 40  | 23              | 20 | 16 | 12 | 10 | 8  | 7  | 7  | 6   | 4   |
| 50 + 63  | 38              | 34 | 28 | 22 | 18 | 15 | 13 | 12 | 11  | 3   |
| 80       | 49              | 43 | 35 | 28 | 24 | 20 | 18 | 17 | 16  | 12  |
| 100      | 93              | 82 | 67 | 55 | 46 | 40 | 37 | 34 | 31  | 23  |

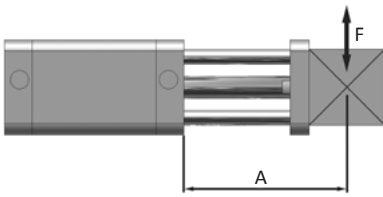
\* series NYD from Ø 20 mm

**Permissible side load F (N), series NYD\* and NXD, version 600 and 610**


| Piston-Ø | Distance A (mm) |     |     |     |     |     |     |     |     |     |
|----------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          | 25              | 30  | 40  | 50  | 60  | 70  | 80  | 90  | 100 | 125 |
| 12 + 16  | 22              | 20  | 18  | 15  | 13  | 11  | 10  | 10  | 9   | 6   |
| 20 + 25  | 32              | 30  | 26  | 21  | 19  | 16  | 14  | 13  | 12  | 9   |
| 32 + 40  | 47              | 43  | 38  | 32  | 28  | 26  | 22  | 20  | 18  | 13  |
| 50 + 63  | 83              | 78  | 68  | 59  | 51  | 46  | 41  | 38  | 36  | 27  |
| 80       | 112             | 108 | 93  | 83  | 74  | 67  | 60  | 57  | 54  | 40  |
| 100      | 194             | 181 | 160 | 144 | 130 | 118 | 108 | 101 | 96  | 72  |

\* series NYD from Ø 20 mm

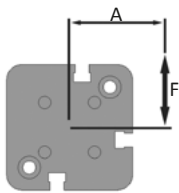
**Permissible side load F (N), series NYD\* and NXD, version 220**



| Piston- $\varnothing$ | Distance A (mm) |     |     |     |     |     |     |    |     |     |
|-----------------------|-----------------|-----|-----|-----|-----|-----|-----|----|-----|-----|
|                       | 25              | 30  | 40  | 50  | 60  | 70  | 80  | 90 | 100 | 125 |
| 16 + 20               | 38              | 33  | 27  | 23  | 20  | 18  | 16  | 14 | 12  | 9   |
| 25                    | 59              | 53  | 43  | 37  | 31  | 27  | 24  | 23 | 22  | 15  |
| 32                    | 76              | 68  | 58  | 49  | 43  | 38  | 35  | 34 | 32  | 24  |
| 40                    | 112             | 101 | 84  | 72  | 62  | 56  | 50  | 47 | 46  | 34  |
| 50 + 63               | 145             | 130 | 108 | 92  | 83  | 74  | 66  | 61 | 56  | 42  |
| 80 + 100              | 200             | 180 | 155 | 135 | 120 | 110 | 100 | 90 | 80  | 60  |

\* series NYD from  $\varnothing$  20 mm

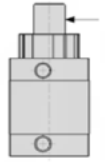
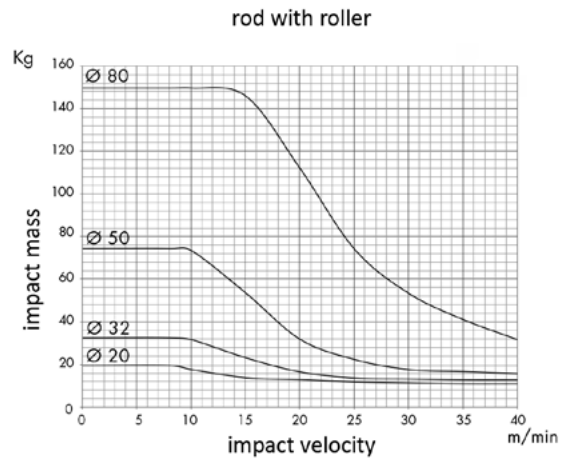
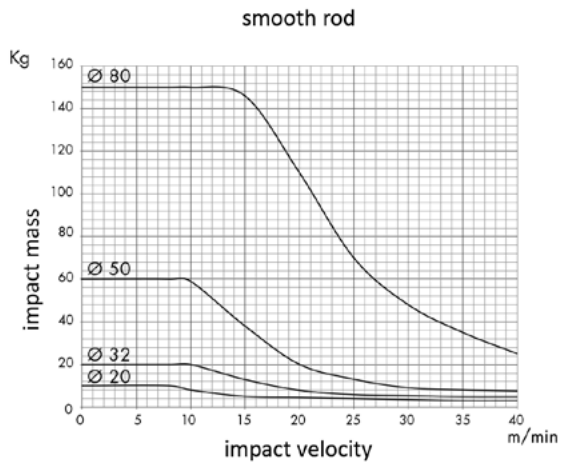
**Permissible torque F x A (Nm), series NYD\* and NXD, version 220**



| Piston- $\varnothing$ | Distance A (mm) |      |      |      |      |      |      |      |      |      |      |     |
|-----------------------|-----------------|------|------|------|------|------|------|------|------|------|------|-----|
|                       | 10              | 15   | 20   | 25   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100 |
| 16                    | 0.75            | 0.7  | 0.6  | 0.5  | 0.45 | 0.4  | 0.35 | 0.3  | 0.25 | 0.2  | 0.15 | 0.1 |
| 20                    | 1.0             | 0.85 | 0.8  | 0.7  | 0.6  | 0.4  | 0.35 | 0.35 | 0.3  | 0.25 | 0.2  | 0.2 |
| 25                    | 2.0             | 1.75 | 1.6  | 1.3  | 1.2  | 0.9  | 0.75 | 0.6  | 0.5  | 0.45 | 0.45 | 0.4 |
| 32                    | 2.7             | 2.5  | 2.2  | 2.0  | 1.8  | 1.6  | 1.3  | 1.1  | 1.0  | 0.9  | 0.9  | 0.8 |
| 40                    | 5.0             | 4.0  | 3.5  | 3.3  | 3.0  | 2.5  | 2.2  | 2.0  | 1.8  | 1.5  | 1.4  | 1.3 |
| 50                    | 8.8             | 7.6  | 6.7  | 6.0  | 5.4  | 4.6  | 4.0  | 3.5  | 3.0  | 2.8  | 2.6  | 2.4 |
| 63                    | 10.7            | 9.4  | 8.3  | 7.4  | 6.7  | 5.5  | 4.8  | 4.2  | 3.8  | 3.5  | 3.2  | 2.9 |
| 80                    | 17.5            | 15.3 | 13.7 | 12.4 | 11.3 | 9.6  | 8.5  | 7.6  | 7.0  | 6.3  | 5.8  | 5.3 |
| 100                   | 20.0            | 19.0 | 17.0 | 15.5 | 14.0 | 12.0 | 10.5 | 9.5  | 8.5  | 7.7  | 7.0  | 6.5 |

\* series NYD from  $\varnothing$  20 mm

## Applicable load, series NYSE





| Model-no.:      | Description  | Page       |
|-----------------|--|------------|
| <b>Symbole</b>  |  |            |
| 18-T-23-011-xx  | Actuator Ø 22.5 mm, push button  | 2-11       |
| 18-T-23-012-xx  | Actuator Ø 22.5 mm, mushroom   | 2-11       |
| 18-T-23-013     | Actuator Ø 22.5 mm, 2 position switch  | 2-11       |
| 18-T-23-014     | Actuator Ø 22.5 mm, key-return   | 2-12       |
| 18-T-23-015     | Actuator Ø 22.5 mm, stop, key-return   | 2-12       |
| 18-T-23-016     | Actuator Ø 22.5 mm, toggle   | 2-12       |
| 18-T-30-011-xx  | Actuator Ø 30 mm, push button  | 2-13       |
| 18-T-30-012-xx  | Actuator Ø 30 mm, mushroom   | 2-13       |
| 18-T-30-013     | Actuator Ø 30 mm, 2 position switch  | 2-13       |
| 18-T-30-014     | Actuator Ø 30 mm, key-return   | 2-14       |
| 18-T-30-016     | Actuator Ø 30 mm, toggle   | 2-14       |
| 18-T-30-018     | Actuator Ø 30 mm, mushroom red, detent   | 2-14       |
| 23-M-09-19      | Pilot valve, plug connection shape C according to DIN EN 175301-803.   | 4-45       |
| 23-M-09-19-N    | Pilot valve, M12 connection  | 4-46       |
| 23-SP-011       | Solenoid coil, Form B industrial norm  | 4-43       |
| 23-SP-011-1     | Solenoid coil, Form B industrial norm, enhanced humidity resistance  | 4-43       |
| 23-SP-011-5     | Solenoid coil, M12 connection  | 4-43       |
| 23-SP-011-G     | Solenoid coil, Form B according to DIN EN 175301-803   | 4-42       |
| 23-SP-012       | Solenoid coil, Form B industrial norm  | 4-43       |
| 23-SP-012-5     | Solenoid coil, M12 connection  | 4-43       |
| 23-SP-016       | Solenoid coil, Form A according to DIN EN 175301-803, enhanced humidity resistance                                     | 4-42       |
| 23-SP-036       | Solenoid coil, ATEX 2GD, encapsulated with casting compound  | 13-08      |
| 23-SP-037       | Solenoid coil, ATEX 2GD, encapsulated with casting compound  | 13-08      |
| 23-SP-038       | Solenoid coil, ATEX 2GD, intrinsically safe  | 13-09      |
| 23-SP-040       | Solenoid coil, ATEX 3GD, non-sparking device.  | 13-09      |
| 23-SP-060-1     | Solenoid coil, Form B industrial norm  | 6-15       |
| 28-ST-01        | Plug socket, Form B industrial norm  | 4-38, 6-14 |
| 28-ST-01-G      | Plug socket, Form B according to DIN EN 175301-803   | 4-38       |
| 28-ST-02-1      | Plug socket, Form C according to DIN EN 175301-803   | 4-39       |
| 28-ST-02-1-05   | Plug socket, M8 connection, status indicator, protective circuit   | 4-39       |
| 28-ST-02-2-05   | Plug socket, M8 connection, status indicator, protective circuit   | 4-39       |
| 28-ST-02-2-07   | Plug socket, M12 connection, status indicator, protective circuit  | 4-39       |
| 28-ST-04        | Plug socket, Form B industrial norm, status indicator  | 4-38, 6-14 |
| 28-ST-06        | Plug socket, Form B industrial norm, status indicator, protective circuit  | 4-38, 6-14 |
| 28-ST-06-K3     | Anschlussteckdose, Form B Industrienorm, Statusanzeige, Schutzbeschaltung, 3m Kabel                                    | 4-38, 6-14 |
| 28-ST-09        | Plug socket, Form C industrial norm, status indicator  | 4-39       |
| 28-ST-09-1      | Plug socket, Form C according to DIN EN 175301-803, status indicator.  | 4-39       |
| 28-ST-10        | Plug socket, Form C industrial norm, status indicator, protective circuit  | 4-39       |
| 28-ST-10-1      | Plug socket, Form C according to DIN EN 175301-803, status indicator, protective circuit                               | 4-39       |
| 28-ST-10-1-K3   | Anschlussteckdose, Form C, Statusanzeige, Schutzbeschaltung, 3m Kabel  | 4-39       |
| 28-ST-10-K3     | Anschlussteckdose, Form C Industrienorm, Statusanzeige, Schutzbeschaltung, 3m Kabel                                    | 4-39       |
| 28-ST-10-M1-26  | 26-pin multi plug cable for RE-10.   | 7-13       |
| 28-ST-11        | Plug socket, Form A according to DIN EN 175301-803, status indicator, protective circuit                               | 4-38       |
| 28-ST-46-M1     | 25- or 44-pin multi plug cable for RE-46   | 7-19       |
| 28-ST-68-M      | 25-pin multi plug cable for RE-19.   | 7-07       |
| 28-ST-RE-10x    | 19-pin multi plug cable, straight for RE-04  | 7-04       |
| 28-ST-RE-11x    | 19-pin multi plug cable, elbow for RE-04   | 7-04       |
| 28-ST-RE-46     | Connector kit for bus connection RE-10   | 7-13       |
|                 | Connector kit for bus connection RE-46   | 7-19       |
| 84-4FF-511-14-H | 5/2-way, pedal, mechanical spring return   | 2-21       |
| 84-4FR-520-14-H | 5/2-way, two positions, pedal, detent  | 2-21       |
| 84-4HF-14-510   | 5/2-way, hand lever, mechanical spring return, G1/4  | 2-19       |
| 84-4HF-14-530   | 5/3-way, center position closed, hand lever, spring return, G1/4.  | 2-19       |
| 84-4HF-14-533   | 5/3-way, center position exhausted, hand lever, spring return, G1/4  | 2-19       |
| 84-4HF-18-510   | 5/2-way, hand lever, mechanical spring return, G1/8  | 2-19       |
| 84-4HR-12-520   | 5/2-way, two positions, hand lever, detent, G1/2   | 2-19       |
| 84-4HR-12-530   | 5/3-way, center position closed, hand lever, detent, G1/2.   | 2-19       |
| 84-4HR-14-520   | 5/2-way, two positions, hand lever, detent, G1/4   | 2-19       |
| 84-4HR-14-530   | 5/3-way, center position closed, hand lever, detent, G1/4.   | 2-19       |
| 84-4HR-14-533   | 5/3-way, center position exhausted, hand lever, detent, G1/4   | 2-19       |
| 84-4HR-18-520   | 5/2-way, two positions, hand lever, detent, G1/8   | 2-19       |
| 1112            | Piston rod cylinder, series 1112, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> | 9-02       |
| <b>A</b>        |  |            |
| AN-18           | AND valve, G1/8  | 8-08       |
| AN-25           | AND valve, M5  | 8-08       |
| <b>B</b>        |  |            |
| BM-01-310/2-HN  | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, NC, G1/8                                 | 4-22       |
| BM-01-310-HN    | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/8.                                    | 4-22       |
| BM-01-312/2-HN  | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, NO, G1/8                                 | 4-22       |
| BM-01-312-HN    | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/8                                     | 4-22       |
| BM-01-314/2-HN  | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO, G1/8                     | 4-22       |
| BM-01-510-HN    | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/8   | 4-25       |

| Model-no.:       | Description  | Page  |
|------------------|--|-------|
| BM-01-511-HN     | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .  | 4-25  |
| BM-01-520-HN     | Electrically operated valve, 5/2-way, double solenoid, G1/8 . . . . .  | 4-25  |
| BM-01-530-HN     | Electrically operated valve, 5/3-way, center position closed, G1/8 . . . . .   | 4-25  |
| BM-01-533-HN     | Electrically operated valve, 5/3-way, center position exhausted, G1/8 . . . . .  | 4-25  |
| BM-01-534-HN     | Electrically operated valve, 5/3-way, center position pressurized, G1/8 . . . . .  | 4-25  |
| BM-02-310/2-HN   | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, NC, G1/4 . . . . .   | 4-22  |
| BM-02-310-HN     | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/4 . . . . .   | 4-22  |
| BM-02-312/2-HN   | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, NO, G1/4 . . . . .   | 4-22  |
| BM-02-312-HN     | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/4 . . . . .   | 4-22  |
| BM-02-314/2-HN   | Electrically operated valve, 2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO, G1/4 . . . . .                                 | 4-22  |
| BM-02-510-HN     | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/4 . . . . .   | 4-25  |
| BM-02-511-HN     | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/4 . . . . .  | 4-25  |
| BM-02-520-HN     | Electrically operated valve, 5/2-way, double solenoid, G1/4 . . . . .  | 4-25  |
| BM-02-530-HN     | Electrically operated valve, 5/3-way, center position closed, G1/4 . . . . .   | 4-25  |
| BM-02-533-HN     | Electrically operated valve, 5/3-way, center position exhausted, G1/4 . . . . .  | 4-25  |
| BM-02-534-HN     | Electrically operated valve, 5/3-way, center position pressurized, G1/4 . . . . .  | 4-25  |
| BME-01-511-HN    | Electrically operated valve, 5/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/8 . . . . .                     | 4-25  |
| BME-01-520-HN    | Electrically operated valve, 5/2-way, double solenoid, external pilot pressure, G1/8 . . . . .   | 4-25  |
| BME-01-530-HN    | Electrically operated valve, 5/3-way, center position closed, external pilot pressure, G1/8 . . . . .  | 4-25  |
| BME-01-533-HN    | Electrically operated valve, 5/3-way, center position exhausted, external pilot pressure, G1/8 . . . . .                                     | 4-25  |
| BME-01-534-HN    | Electrically operated valve, 5/3-way, center position pressurized, external pilot pressure, G1/8 . . . . .                                   | 4-25  |
| BME-02-511-HN    | Electrically operated valve, 5/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/4 . . . . .                     | 4-25  |
| BME-02-520-HN    | Electrically operated valve, 5/2-way, double solenoid, external pilot pressure, G1/4 . . . . .   | 4-25  |
| BME-02-530-HN    | Electrically operated valve, 5/3-way, center position closed, external pilot pressure, G1/4 . . . . .  | 4-25  |
| BME-02-533-HN    | Electrically operated valve, 5/3-way, center position exhausted, external pilot pressure, G1/4 . . . . .                                     | 4-25  |
| BME-02-534-HN    | Electrically operated valve, 5/3-way, center position pressurized, external pilot pressure, G1/4 . . . . .                                   | 4-25  |
| BP-01-310        | Pneumatically operated valve, 3/2-way, single pilot, air spring return, NC, G1/8 . . . . .   | 3-12  |
| BP-01-312        | Pneumatically operated valve, 3/2-way, single pilot, air spring return, NO, G1/8 . . . . .   | 3-12  |
| BP-01-510        | Pneumatically operated valve, 5/2-way, single pilot, air spring return, G1/8 . . . . .   | 3-12  |
| BP-01-511        | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/8 . . . . .  | 3-12  |
| BP-01-520        | Pneumatically operated valve, 5/2-way, double pilot, G1/8 . . . . .  | 3-12  |
| BP-01-530        | Pneumatically operated valve, 5/3-way, center position closed, G1/8 . . . . .  | 3-12  |
| BP-01-533        | Pneumatically operated valve, 5/3-way, center position exhausted, G1/8 . . . . .   | 3-12  |
| BP-01-534        | Pneumatically operated valve, 5/3-way, center position pressurized, G1/8 . . . . .   | 3-12  |
| BP-02-310        | Pneumatically operated valve, 3/2-way, single pilot, air spring return, NC, G1/4 . . . . .   | 3-12  |
| BP-02-312        | Pneumatically operated valve, 3/2-way, single pilot, air spring return, NO, G1/4 . . . . .   | 3-12  |
| BP-02-510        | Pneumatically operated valve, 5/2-way, single pilot, air spring return, G1/4 . . . . .   | 3-12  |
| BP-02-511        | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/4 . . . . .  | 3-12  |
| BP-02-520        | Pneumatically operated valve, 5/2-way, double pilot, G1/4 . . . . .  | 3-12  |
| BP-02-530        | Pneumatically operated valve, 5/3-way, center position closed, G1/4 . . . . .  | 3-12  |
| BP-02-533        | Pneumatically operated valve, 5/3-way, center position exhausted, G1/4 . . . . .   | 3-12  |
| BP-02-534        | Pneumatically operated valve, 5/3-way, center position pressurized, G1/4 . . . . .   | 3-12  |
| BR-xx            | Brake for series ZR . . . . .  | 10-23 |
| <b>C</b>         |  |       |
| CDH              | Mini cylinder, series CDH, Ø16 - Ø25 mm, stainless steel, high temperature version . . . . .   | 9-47  |
| CDHP             | Mini cylinder, series CDHP, Ø20 - Ø25 mm, stainless steel, high temperature version . . . . .  | 9-47  |
| CM               | Mini cylinder, series CM, Ø16 - Ø25 mm, stainless steel . . . . .  | 9-47  |
| CMDE             | Mini cylinder, series CMDE, Ø16 - Ø25 mm, stainless steel . . . . .  | 9-47  |
| CM (Ø 32 - Ø 63) | Piston rod cylinder, series CM (Ø 32 - Ø 63), for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> . . . . . | 9-02  |
| CMP              | Mini cylinder, series CMP, Ø20 - Ø25 mm, stainless steel . . . . .   | 9-47  |
| CMPDE            | Mini cylinder, series CMPDE, Ø20 - Ø25 mm, stainless steel . . . . .   | 9-47  |
| CXM-xxx-01       | Foot mount, series XM . . . . .  | 9-24  |
| CXM-xxx-02       | Flange mount, series XM . . . . .  | 9-24  |
| CXM-xxx-03       | Clevis mount, series XM . . . . .  | 9-25  |
| CXM-xxx-05       | Swivel mount, series XM . . . . .  | 9-25  |
| CXM-xxx-06       | Swivel mount 90°, series XM . . . . .  | 9-26  |
| CXM-xxx-08       | Clevis pin, series XM . . . . .  | 9-26  |
| CXM-xxx-38       | Clevis mount with clevis pin, series XM . . . . .  | 9-25  |
| <b>D</b>         |  |       |
| DAK              | Soft start valve, series K. . . . .  | 12-50 |
| DAX              | Soft start valve, series X. . . . .  | 12-36 |
| DAY              | Soft start valve, series Y. . . . .  | 12-18 |
| DR-10            | Flow control valve, G1/2 . . . . .   | 8-10  |
| DR-14            | Flow control valve, G1/4 . . . . .   | 8-10  |
| DR-18            | Flow control valve, G1/8 . . . . .   | 8-10  |
| DR-25            | Flow control valve, M5 . . . . .   | 8-10  |
| <b>E</b>         |  |       |
| E-18-310         | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, G1/8 . . . . .  | 2-05  |
| E-18-510         | Mechanically operated valve, 5/2-way, mechanical spring return, stem operated, G1/8 . . . . .  | 2-05  |
| E-25-310         | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, M5 . . . . .  | 2-03  |
| E-28-310         | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, G1/8 . . . . .  | 2-04  |



| Model-no.: | Description  | Page                         |
|------------|--|------------------------------|
| E-30-311   | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, M5  | 2-07                         |
| EL-18-310  | Mechanically operated valve, 3/2-way, mechanical spring return, roller operated with free return, G1/8                           | 2-05                         |
| EL-18-510  | Mechanically operated valve, 5/2-way, mechanical spring return, roller operated with free return, G1/8                           | 2-05                         |
| EL-25-310  | Mechanically operated valve, 3/2-way, mechanical spring return, roller operated with free return, M5                             | 2-03                         |
| ER-18-310  | Mechanically operated valve, 3/2-way, mechanical spring return, roller operated, G1/8  | 2-05                         |
| ER-18-510  | Mechanically operated valve, 5/2-way, mechanical spring return, roller operated, G1/8  | 2-05                         |
| ER-25-310  | Mechanically operated valve, 3/2-way, mechanical spring return, roller operated, M5  | 2-03                         |
| ER-28-310  | Mechanically operated valve, 3/2-way, mechanical spring return, roller operated, G1/8  | 2-04                         |
| <b>F</b>   |  |                              |
| FD-xx      | Gabelkopf, Baureihe NY.<br>Rod clevis, series HMU<br>Rod clevis, series NX   | 9-72<br>9-53<br>9-84         |
| FD-xxx     | Rod clevis, series XG<br>Rod clevis, series XL   | 9-34<br>9-11                 |
| FK         | Filter, series K   | 12-40                        |
| FKA        | Activated carbon filter, series K  | 12-40                        |
| FKF        | Coalescing filter, series K  | 12-40                        |
| FKM        | Micro filter, series K   | 12-40                        |
| FK-xx      | Ausgleichskupplung, Baureihe NY<br>Flexible coupling, series HM<br>Flexible coupling, series HMU<br>Flexible coupling, series NX | 9-73<br>9-42<br>9-54<br>9-85 |
| FK-xxx     | Flexible coupling, series XG<br>Flexible coupling, series XL   | 9-35<br>9-12                 |
| FO-xx      | Gelenkkupplung, Baureihe NY<br>Rod eye, series HMU<br>Rod eye, series NX   | 9-73<br>9-54<br>9-85         |
| FO-xxx     | Rod eye, series XG<br>Rod eye, series XL   | 9-35<br>9-12                 |
| FRK        | Filter regulator, series K   | 12-44                        |
| FROK       | Two piece air service unit, series K   | 12-47                        |
| FROX       | Two piece air service unit, series X   | 12-33                        |
| FROY       | Two piece air service unit, series Y   | 12-15                        |
| FRX        | Filter regulator, series X   | 12-30                        |
| FRY        | Filter regulator, series Y   | 12-11                        |
| FX         | Filter, series X   | 12-26                        |
| FXA        | Activated carbon filter, series X  | 12-26                        |
| FXF        | Coalescing filter, series X  | 12-26                        |
| FXM        | Micro filter, series X   | 12-26                        |
| FY         | Filter, series Y   | 12-05                        |
| FYA        | Activated carbon filter, series Y  | 12-05                        |
| FYF        | Coalescing filter, series Y  | 12-05                        |
| FYM        | Micro filter, series Y   | 12-05                        |
| <b>H</b>   |  |                              |
| HA         | Cartridge cylinder, series HA, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a>              | 9-02                         |
| HB         | Cartridge cylinder, series HB, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a>              | 9-02                         |
| HDH        | Mini cylinder, series HDH, Ø10 - Ø25 mm, high temperature version  | 9-36                         |
| HDPH       | Mini cylinder, series HDPH, Ø16 - Ø25 mm, high temperature version   | 9-36                         |
| HE         | Mini cylinder, series HE, Ø8 - Ø25 mm, single acting   | 9-39                         |
| HES        | Mini cylinder, series HES, Ø16 - Ø25 mm, single acting   | 9-39                         |
| HEZ        | Mini cylinder, series HEZ, Ø16 - Ø25 mm, single acting   | 9-39                         |
| HF-12-310  | 3/2-way, hand lever, mechanical spring return, G1/2  | 2-17                         |
| HF-12-510  | 5/2-way, hand lever, mechanical spring return, G1/2  | 2-17                         |
| HF-12-530  | 5/3-way, center position exhausted, hand lever, spring return, G1/2  | 2-17                         |
| HF-12-533  | 5/3-way, center position exhausted, hand lever, spring return, G1/2  | 2-17                         |
| HF-14-310  | 3/2-way, hand lever, mechanical spring return, G1/4  | 2-17                         |
| HF-14-510  | 5/2-way, hand lever, mechanical spring return, G1/4  | 2-17                         |
| HF-14-530  | 5/3-way, center position exhausted, hand lever, spring return, G1/4  | 2-17                         |
| HF-14-533  | 5/3-way, center position exhausted, hand lever, spring return, G1/4  | 2-17                         |
| HF-18-310  | 3/2-way, hand lever, mechanical spring return, G1/8  | 2-17                         |
| HF-18-510  | 5/2-way, hand lever, mechanical spring return, G1/8  | 2-17                         |
| HF-18-530  | 5/3-way, center position exhausted, hand lever, spring return, G1/8  | 2-17                         |
| HF-18-533  | 5/3-way, center position exhausted, hand lever, spring return, G1/8  | 2-17                         |
| HF-100     | Column ejector   | 11-05                        |
| HF-133     | Classic ejector  | 11-03                        |
| HF-200     | Column ejector   | 11-05                        |
| HF-300     | Column ejector   | 11-05                        |
| HF-333     | Classic ejector  | 11-03                        |
| HF-450     | Column ejector   | 11-05                        |
| HF-533     | Classic ejector  | 11-03                        |
| HF-600     | Column ejector   | 11-05                        |
| HF-1150    | Column ejector   | 11-05                        |
| HF-1500    | Column ejector   | 11-05                        |
| HM         | Mini cylinder, series HM, Ø8 - Ø25 mm.   | 9-36                         |

| Model-no.:       | Description  | Page  |
|------------------|--|-------|
| HMDE             | Mini cylinder, series HMDE, Ø16 - Ø25 mm . . . . .   | 9-36  |
| HM (Ø 32 - Ø 63) | Piston rod cylinder, series HM (Ø 32 - Ø 63), for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> | 9-02  |
| HMP              | Mini cylinder, series HMP, Ø16 - Ø25 mm . . . . .  | 9-36  |
| HMPDE            | Mini cylinder, series HMP, Ø16 - Ø25 mm . . . . .  | 9-36  |
| HMS              | Mini cylinder, series HMS, Ø16 - Ø25 mm . . . . .  | 9-36  |
| HMU              | Mini cylinder, series HMU, Ø32 - Ø40 mm . . . . .  | 9-51  |
| HMUDE            | Mini cylinder, series HMUDE, Ø32 - Ø40 mm . . . . .  | 9-51  |
| HMUP             | Mini cylinder, series HMUP, Ø32 - Ø40 mm . . . . .   | 9-51  |
| HMUPDE           | Mini cylinder, series HMUPDE, Ø32 - Ø40 mm . . . . .   | 9-51  |
| HMZ              | Mini cylinder, series HMZ, Ø16 - Ø25 mm . . . . .  | 9-36  |
| HR-12-320        | 3/2-way, two positions, hand lever, detent, G1/2 . . . . .   | 2-17  |
| HR-12-520        | 5/2-way, two positions, hand lever, detent, G1/2 . . . . .   | 2-17  |
| HR-12-530        | 5/3-way, center position closed, hand lever, detent, G1/2 . . . . .  | 2-18  |
| HR-12-533        | 5/3-way, center position exhausted, hand lever, detent, G1/2 . . . . .   | 2-18  |
| HR-14-320        | 3/2-way, two positions, hand lever, detent, G1/4 . . . . .   | 2-17  |
| HR-14-520        | 5/2-way, two positions, hand lever, detent, G1/4 . . . . .   | 2-17  |
| HR-14-530        | 5/3-way, center position closed, hand lever, detent, G1/4 . . . . .  | 2-18  |
| HR-14-533        | 5/3-way, center position exhausted, hand lever, detent, G1/4 . . . . .   | 2-18  |
| HR-18-320        | 3/2-way, two positions, hand lever, detent, G1/8 . . . . .   | 2-17  |
| HR-18-520        | 5/2-way, two positions, hand lever, detent, G1/8 . . . . .   | 2-17  |
| HR-18-530        | 5/3-way, center position closed, hand lever, detent, G1/8 . . . . .  | 2-18  |
| HR-18-533        | 5/3-way, center position exhausted, hand lever, detent, G1/8 . . . . .   | 2-18  |
| HTM-080/100-1    | Mounting bracket for proximity sensors, series XG Ø160 - Ø200 mm . . . . .   | 9-91  |
| HV-33            | Classic ejector . . . . .  | 11-02 |
| HV-63            | Classic ejector . . . . .  | 11-02 |
| HV-80            | Column ejector . . . . .   | 11-04 |
| HV-93            | Classic ejector . . . . .  | 11-02 |
| HV-133           | Classic ejector . . . . .  | 11-02 |
| HV-150           | Column ejector . . . . .   | 11-04 |
| HV-300           | Column ejector . . . . .   | 11-04 |
| HV-333           | Classic ejector . . . . .  | 11-02 |
| HV-533           | Classic ejector . . . . .  | 11-02 |
| HV-600           | Column ejector . . . . .   | 11-04 |
| <b>I</b>         |  |       |
| ICK-09-511-HN    | Electrically operated valve, low temperature version, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .           | 6-02  |
| ICK-09-520-HN    | Electrically operated valve, low temperature version, 5/2-way, double solenoid, G1/8 . . . . .                                     | 6-02  |
| ICK-09-530-HN    | Electrically operated valve, low temperature version, 5/3-way, center position closed, G1/8 . . . . .                              | 6-02  |
| ICK-10-511-HN    | Electrically operated valve, low temperature version, 5/2-way, single solenoid, mechanical spring return, G1/4 . . . . .           | 6-02  |
| ICK-10-520-HN    | Electrically operated valve, low temperature version, 5/2-way, double solenoid, G1/4 . . . . .                                     | 6-02  |
| ICK-10-530-HN    | Electrically operated valve, low temperature version, 5/3-way, center position closed, G1/4 . . . . .                              | 6-02  |
| ICKN-55-310-HN   | Electrically operated valve, NAMUR, low temperature version, 3/2-way, single solenoid, air spring return, NC . . . . .             | 6-08  |
| ICKN-55-311-HN   | Electrically operated valve, NAMUR, low temperature version, 3/2-way, single solenoid, mechanical spring return, NC . . . . .      | 6-08  |
| ICKN-55-510-HN   | Electrically operated valve, NAMUR, low temperature version, 5/2-way, single solenoid, air spring return . . . . .                 | 6-08  |
| ICKN-55-511-HN   | Electrically operated valve, NAMUR, low temperature version, 5/2-way, single solenoid, mechanical spring return . . . . .          | 6-08  |
| ICKN-55-520-HN   | Electrically operated valve, NAMUR, low temperature version, 5/2-way, double solenoid . . . . .                                    | 6-08  |
| ICKN-55-530-HN   | Electrically operated valve, NAMUR, low temperature version, 5/3-way, center position closed . . . . .                             | 6-08  |
| ICKN-55-533-HN   | Electrically operated valve, NAMUR, low temperature version, 5/3-way, center position exhausted . . . . .                          | 6-08  |
| <b>K</b>         |  |       |
| KA-30            | Cable with bushing for proximity sensors, straight, 3 m . . . . .  | 9-91  |
| KA-50            | Cable with bushing for proximity sensors, straight, 5 m . . . . .  | 9-91  |
| KA-51            | Cable with bushing for proximity sensors, elbow 90°, 5 m . . . . .   | 9-91  |
| KA-100           | Cable with bushing for proximity sensors, straight, 10 m . . . . .   | 9-91  |
| KA-101           | Cable with bushing for proximity sensors, elbow 90°, 10 m . . . . .  | 9-91  |
| KF-09-510-HN     | Electrically operated valve, for valve terminal RE-19, 5/2-way, single solenoid, air spring return, G1/8 . . . . .                 | 7-08  |
| KF-09-511-HN     | Electrically operated valve, for valve terminal RE-19, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .          | 7-08  |
| KF-10-510-HN     | Electrically operated valve, for valve terminal RE-19, 5/2-way, single solenoid, air spring return, G1/4 . . . . .                 | 7-08  |
| KF-10-511-HN     | Electrically operated valve, for valve terminal RE-19, 5/2-way, single solenoid, mechanical spring return, G1/4 . . . . .          | 7-08  |
| KF-10-520-HN     | Electrically operated valve, for valve terminal RE-19, 5/2-way, double solenoid, G1/4 . . . . .                                    | 7-08  |
| KF-10-530-HN     | Electrically operated valve, for valve terminal RE-19, 5/3-way, center position closed, G1/4 . . . . .                             | 7-08  |
| KF-10-533-HN     | Electrically operated valve, for valve terminal RE-19, 5/3-way, center position exhausted, G1/4 . . . . .                          | 7-08  |
| KF-10-534-HN     | Electrically operated valve, for valve terminal RE-19, 5/3-way, center position pressurized, G1/4 . . . . .                        | 7-08  |
| KF-46-210/2-HN   | Electrically operated valve, for valve terminal RE-46, 2 x 2/2-way, single solenoid, air spring return, NC . . . . .               | 7-18  |
| KF-46-310/2-HN   | Electrically operated valve, for valve terminal RE-46, 2 x 3/2-way, single solenoid, air spring return, NC . . . . .               | 7-18  |
| KF-46-312/2-HN   | Electrically operated valve, for valve terminal RE-46, 2 x 3/2-way, single solenoid, air spring return, NO . . . . .               | 7-18  |
| KF-46-314/2-HN   | Electrically operated valve, for valve terminal RE-46, 2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO . . . . .   | 7-18  |
| KF-46-510-HN     | Electrically operated valve, for valve terminal RE-46, 5/2-way, single solenoid, air spring return . . . . .                       | 7-18  |
| KF-46-511-HN     | Electrically operated valve, for valve terminal RE-46, 5/2-way, single solenoid, air spring return . . . . .                       | 7-18  |
| KF-46-520-HN     | Electrically operated valve, for valve terminal RE-46, 5/2-way, double solenoid . . . . .  | 7-18  |
| KF-46-530-HN     | Electrically operated valve, for valve terminal RE-46, 5/3-way, center position closed . . . . .                                   | 7-18  |
| KF-46-533-HN     | Electrically operated valve, for valve terminal RE-46, 5/3-way, center position exhausted . . . . .                                | 7-18  |
| KF-46-534-HN     | Electrically operated valve, for valve terminal RE-46, 5/3-way, center position pressurized . . . . .                              | 7-18  |
| KK               | Ball valve, series K . . . . .   | 12-49 |
| KM-09-510-HN     | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/8 . . . . .   | 4-18  |

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|----------------|---|-------|
| KM-09-511-HN   | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .                                 | 4-18  |
| KM-09-520-HN   | Electrically operated valve, 5/2-way, double solenoid, G1/8 . . . . .   | 4-18  |
| KM-09-530-HN   | Electrically operated valve, 5/3-way, center position closed, G1/8 . . . . .  | 4-18  |
| KM-09-533-HN   | Electrically operated valve, 5/3-way, center position exhausted, G1/8 . . . . .   | 4-18  |
| KM-09-534-HN   | Electrically operated valve, 5/3-way, center position pressurized, G1/8 . . . . .   | 4-18  |
| KM-10-510-HN   | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/4 . . . . .  | 4-18  |
| KM-10-511-HN   | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/4 . . . . .                                 | 4-18  |
| KM-10-520-HN   | Electrically operated valve, 5/2-way, double solenoid, G1/4 . . . . .   | 4-18  |
| KM-10-530-HN   | Electrically operated valve, 5/3-way, center position closed, G1/4 . . . . .  | 4-18  |
| KM-10-533-HN   | Electrically operated valve, 5/3-way, center position exhausted, G1/4 . . . . .   | 4-18  |
| KM-10-534-HN   | Electrically operated valve, 5/3-way, center position pressurized, G1/4 . . . . .   | 4-18  |
| KMX-09-511-HN  | Electrically operated valve, stainless steel, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .                | 6-04  |
| KMX-09-520-HN  | Electrically operated valve, stainless steel, 5/2-way, double solenoid, G1/8 . . . . .  | 6-04  |
| KMX-10-511-HN  | Electrically operated valve, stainless steel, 5/2-way, single solenoid, mechanical spring return, G1/4 . . . . .                | 6-04  |
| KMX-10-520-HN  | Electrically operated valve, stainless steel, 5/2-way, double solenoid, G1/4 . . . . .  | 6-04  |
| KMX-10-530-HN  | Electrically operated valve, stainless steel, 5/3-way, center position closed, G1/4 . . . . .                                   | 6-04  |
| KN-05-310-HN   | Electrically operated valve, NAMUR, 3/2-way, single solenoid, air spring return, NC . . . . .                                   | 5-10  |
| KN-05-311-HN   | Electrically operated valve, NAMUR, 3/2-way, single solenoid, mechanical spring return, NC . . . . .                            | 5-10  |
| KN-05-510-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, air spring return . . . . .                                       | 5-10  |
| KN-05-511-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, mechanical spring return . . . . .                                | 5-10  |
| KN-05-520-HN   | Electrically operated valve, NAMUR, 5/2-way, double solenoid . . . . .  | 5-10  |
| KN-05-530-HN   | Electrically operated valve, NAMUR, 5/3-way, center position closed . . . . .   | 5-10  |
| KN-05-533-HN   | Electrically operated valve, NAMUR, 5/3-way, center position exhausted . . . . .  | 5-10  |
| KN-55-310-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 3/2-way, single solenoid, air spring return, NC . . . . .     | 5-10  |
| KN-55-311-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 3/2-way, single solenoid, mec. spring return, NC . . . . .    | 5-10  |
| KN-55-510-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 5/2-way, single solenoid, air spring return . . . . .         | 5-10  |
| KN-55-511-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 5/2-way, single solenoid, mec. spring return . . . . .        | 5-10  |
| KN-55-520-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 5/2-way, double solenoid . . . . .                            | 5-10  |
| KN-55-530-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 5/3-way, center position closed . . . . .                     | 5-10  |
| KN-55-533-HN   | Electrically operated valve, NAMUR, enhanced humidity resistance, 5/3-way, center position exhausted . . . . .                  | 5-10  |
| KN-063-DRH     | Flow control valve, 3/2-way, NAMUR . . . . .  | 5-16  |
| KN-063-DRS     | Flow control valve, 3/2-way, NAMUR . . . . .  | 5-16  |
| KN-065-DRH     | Flow control valve, 5/2-way, NAMUR . . . . .  | 5-16  |
| KN-065-DRS     | Flow control valve, 5/2-way, NAMUR . . . . .  | 5-16  |
| KNX-55-311-HN  | Electrically operated valve, stainless steel, NAMUR, 3/2-way, single solenoid, mechanical spring return, NC . . . . .           | 6-10  |
| KNX-55-511-HN  | Electrically operated valve, stainless steel, NAMUR, 5/2-way, single solenoid, mechanical spring return . . . . .               | 6-10  |
| KNX-55-520-HN  | Electrically operated valve, stainless steel, NAMUR, 5/2-way, double solenoid . . . . .   | 6-10  |
| KPK            | Coupling kit, series K. . . . .   | 12-53 |
| KPX            | Coupling kit, series X. . . . .   | 12-39 |
| KPY-xx-K       | Coupling kit, series Y. . . . .   | 12-25 |
| KPY-xx-W       | Coupling kit for wall mounting, series Y. . . . .   | 12-25 |
| KX             | Ball valve, series X . . . . .  | 12-35 |
| KY             | Ball valve, series Y . . . . .  | 12-17 |
| <b>L</b>       |   |       |
| L-25-311       | Pneumatically operated valve, 3/2-way, single pilot, mechanical spring return, M5. . . . .                                      | 3-02  |
| L-25-320       | Pneumatically operated valve, 3/2-way, double pilot, M5 . . . . .   | 3-02  |
| L-25-511       | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, M5. . . . .                                      | 3-02  |
| L-25-520       | Pneumatically operated valve, 5/2-way, double pilot, M5 . . . . .   | 3-02  |
| L-28-311       | Pneumatically operated valve, 3/2-way, single pilot, mechanical spring return, M5. . . . .                                      | 3-04  |
| L-28-320       | Pneumatically operated valve, 3/2-way, double pilot, G1/8 . . . . .   | 3-04  |
| L-28-511       | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/8 . . . . .                                   | 3-04  |
| L-28-520       | Pneumatically operated valve, 5/2-way, double pilot, G1/8 . . . . .   | 3-04  |
| LE             | Linear guide for mini cylinder series HM, Ø12 - Ø25 mm . . . . .  | 9-44  |
|                | Linear guide for piston rod cylinders series XL, Ø32 - Ø100 mm . . . . .  | 9-13  |
| LF-10-310/2-HN | Electrically operated valve, for valve terminal RE-10, 2 x 3/2-way, single solenoid, air spring return, NC . . . . .            | 7-12  |
| LF-10-312/2-HN | Electrically operated valve, for valve terminal RE-10, 2 x 3/2-way, single solenoid, air spring return, NO . . . . .            | 7-12  |
| LF-10-314/2-HN | Electrically operated valve, for valve terminal RE-10, 2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO. . . . . | 7-12  |
| LF-10-510-HN   | Electrically operated valve, for valve terminal RE-10, 5/2-way, single solenoid, air spring return . . . . .                    | 7-12  |
| LF-10-511-HN   | Electrically operated valve, for valve terminal RE-10, 5/2-way, single solenoid, mechanical spring return . . . . .             | 7-12  |
| LF-10-520-HN   | Electrically operated valve, for valve terminal RE-10, 5/2-way, double solenoid . . . . .                                       | 7-12  |
| LF-10-530-HN   | Electrically operated valve, for valve terminal RE-10, 5/3-way, center position closed . . . . .                                | 7-12  |
| LF-10-533-HN   | Electrically operated valve, for valve terminal RE-10, 5/3-way, center position exhausted . . . . .                             | 7-12  |
| LF-10-534-HN   | Electrically operated valve, for valve terminal RE-10, 5/3-way, center position pressurized . . . . .                           | 7-12  |
| LX             | Guide unit, Ø20 - Ø63 mm. . . . .   | 9-86  |
| <b>M</b>       |   |       |
| M-04-310-HN    | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/8. . . . .                                     | 4-03  |
| M-04-320-HN    | Electrically operated valve, 3/2-way, double solenoid, G1/8 . . . . .   | 4-03  |
| M-04-510-HN    | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/8 . . . . .  | 4-03  |
| M-04-511-HN    | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/8 . . . . .                                 | 4-03  |
| M-04-520-HN    | Electrically operated valve, 5/2-way, double solenoid, G1/8 . . . . .   | 4-03  |
| M-04-530-HN    | Electrically operated valve, 5/3-way, center position closed, G1/8 . . . . .  | 4-03  |
| M-04-533-HN    | Electrically operated valve, 5/3-way, center position exhausted, G1/8 . . . . .   | 4-03  |
| M-05-310-HN    | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/8. . . . .                                     | 4-07  |

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| M-05-311-HN  | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NC, G1/8.  | 4-07  |
| M-05-320-HN  | Electrically operated valve, 3/2-way, double solenoid, G1/8   | 4-07  |
| M-05-510-HN  | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/8  | 4-07  |
| M-05-511-HN  | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/8   | 4-07  |
| M-05-520-HN  | Electrically operated valve, 5/2-way, double solenoid, G1/8   | 4-07  |
| M-05-530-HN  | Electrically operated valve, 5/3-way, center position closed, G1/8  | 4-07  |
| M-05-533-HN  | Electrically operated valve, 5/3-way, center position exhausted, G1/8   | 4-07  |
| M-05-534-HN  | Electrically operated valve, 5/3-way, center position pressurized, G1/8   | 4-07  |
| M-07-310-HN  | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/4.   | 4-11  |
| M-07-311-HN  | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NC, G1/4.  | 4-11  |
| M-07-320-HN  | Electrically operated valve, 3/2-way, double solenoid, G1/4   | 4-11  |
| M-07-510-HN  | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/4  | 4-11  |
| M-07-511-HN  | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/4   | 4-11  |
| M-07-520-HN  | Electrically operated valve, 5/2-way, double solenoid, G1/4   | 4-11  |
| M-07-530-HN  | Electrically operated valve, 5/3-way, center position closed, G1/4  | 4-11  |
| M-07-532-HN  | Electrically operated valve, 5/3-way, center position safety, G1/4  | 4-11  |
| M-07-533-HN  | Electrically operated valve, 5/3-way, center position exhausted, G1/4   | 4-11  |
| M-07-534-HN  | Electrically operated valve, 5/3-way, center position pressurized, G1/4   | 4-11  |
| M-22-310-HN  | Electrically operated valve, 3/2-way, single solenoid, air spring return, NC, G1/2.   | 4-15  |
| M-22-311-HN  | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NC, G1/2.  | 4-15  |
| M-22-320-HN  | Electrically operated valve, 3/2-way, double solenoid, G1/2   | 4-15  |
| M-22-510-HN  | Electrically operated valve, 5/2-way, single solenoid, air spring return, G1/2  | 4-15  |
| M-22-511-HN  | Electrically operated valve, 5/2-way, single solenoid, mechanical spring return, G1/2   | 4-15  |
| M-22-520-HN  | Electrically operated valve, 5/2-way, double solenoid, G1/2   | 4-15  |
| M-22-530-HN  | Electrically operated valve, 5/3-way, center position closed, G1/2  | 4-15  |
| M-22-533-HN  | Electrically operated valve, 5/3-way, center position exhausted, G1/2   | 4-15  |
| MC-07        | Electrically operated valve series MC-07, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> .      | 4-02  |
| MC-20-510-HN | Electrically operated valve, sub-base mounting, 5/2-way, single solenoid, air spring return   | 4-36  |
| MC-20-520-HN | Electrically operated valve, sub-base mounting, 5/2-way, double solenoid  | 4-36  |
| MC-20-530-HN | Electrically operated valve, sub-base mounting, 5/3-way, center position closed   | 4-36  |
| MC-20-533-HN | Electrically operated valve, sub-base mounting, 5/3-way, center position exhausted  | 4-36  |
| MD-20-510-HN | Electrically operated valve, sub-base mounting, 5/2-way, single solenoid, air spring return, with exhaust throttles.                  | 4-36  |
| MD-20-520-HN | Electrically operated valve, sub-base mounting, 5/2-way, double solenoid, with exhaust throttles                                      | 4-36  |
| ME-05-311-HN | Electrically operated valve, 3/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/8                        | 4-07  |
| ME-05-320-HN | Electrically operated valve, 3/2-way, double solenoid, external pilot pressure, G1/8  | 4-07  |
| ME-05-511-HN | Electrically operated valve, 5/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/8                        | 4-07  |
| ME-05-520-HN | Electrically operated valve, 5/2-way, double solenoid, external pilot pressure, G1/8  | 4-07  |
| ME-07-311-HN | Electrically operated valve, 3/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/4                        | 4-11  |
| ME-07-320-HN | Electrically operated valve, 3/2-way, double solenoid, external pilot pressure, G1/4  | 4-11  |
| ME-07-511-HN | Electrically operated valve, 5/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/4                        | 4-11  |
| ME-07-520-HN | Electrically operated valve, 5/2-way, double solenoid, external pilot pressure, G1/4  | 4-11  |
| ME-22-311-HN | Electrically operated valve, 3/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/2                        | 4-15  |
| ME-22-320-HN | Electrically operated valve, 3/2-way, double solenoid, external pilot pressure, G1/2  | 4-15  |
| ME-22-511-HN | Electrically operated valve, 5/2-way, single solenoid, external pilot pressure, mechanical spring return, G1/2                        | 4-15  |
| ME-22-520-HN | Electrically operated valve, 5/2-way, double solenoid, external pilot pressure, G1/2  | 4-15  |
| MF-04        | Electrically operated valve series MF-04, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> .      | 4-02  |
| MF-04-510-HN | Electrically operated valve, for valve terminal RE-04, 5/2-way, single solenoid, air spring return                                    | 7-04  |
| MF-05        | Electrically operated valve series MF-05/ MF-25, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> | 4-02  |
| MF-07        | Electrically operated valve series MF-07, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> .      | 4-02  |
| MF-24-520-HN | Electrically operated valve, for valve terminal RE-04, 5/2-way, double solenoid   | 7-04  |
| MF-24-530-HN | Electrically operated valve, for valve terminal RE-04, 5/3-way, center position closed  | 7-04  |
| MF-24-533-HN | Electrically operated valve, for valve terminal RE-04, 5/3-way, center position exhausted.  | 7-04  |
| MF-25        | Magnetventile Baureihe MF-05/ MF-25, Ausführliche Informationen auf <a href="http://www.airtec.de">www.airtec.de</a>                  | 4-02  |
| MI-01-511-HN | Electrically operated valve, ISO 5599/1, size 1, 5/2-way, single solenoid, mechanical spring return                                   | 5-06  |
| MI-01-520-HN | Electrically operated valve, ISO 5599/1, size 1, 5/2-way, double solenoid   | 5-06  |
| MI-01-530-HN | Electrically operated valve, ISO 5599/1, size 1, 5/3-way, center position closed  | 5-06  |
| MI-01-533-HN | Electrically operated valve, ISO 5599/1, size 1, 5/3-way, center position exhausted.  | 5-06  |
| MI-02-511-HN | Electrically operated valve, ISO 5599/1, size 2, 5/2-way, single solenoid, mechanical spring return                                   | 5-06  |
| MI-02-520-HN | Electrically operated valve, ISO 5599/1, size 2, 5/2-way, double solenoid   | 5-06  |
| MI-02-530-HN | Electrically operated valve, ISO 5599/1, size 2, 5/3-way, center position closed  | 5-06  |
| MI-02-533-HN | Electrically operated valve, ISO 5599/1, size 2, 5/3-way, center position exhausted.  | 5-06  |
| MI-03-511-HN | Electrically operated valve, ISO 5599/1, size 3, 5/2-way, single solenoid, mechanical spring return                                   | 5-06  |
| MI-03-520-HN | Electrically operated valve, ISO 5599/1, size 3, 5/2-way, double solenoid   | 5-06  |
| MI-03-530-HN | Electrically operated valve, ISO 5599/1, size 3, 5/3-way, center position closed  | 5-06  |
| MI-03-533-HN | Electrically operated valve, ISO 5599/1, size 3, 5/3-way, center position exhausted.  | 5-06  |
| MI-4/20      | Multi-inlet ejector   | 11-06 |
| MI-4/40      | Multi-inlet ejector   | 11-06 |
| MI-6/30      | Multi-inlet ejector   | 11-06 |
| MI-6/55      | Multi-inlet ejector   | 11-06 |
| MI-8/40      | Multi-inlet ejector   | 11-06 |
| MIF-4/25     | Multi-inlet ejector   | 11-07 |
| MIF-4/60     | Multi-inlet ejector   | 11-07 |
| MIF-4/80     | Multi-inlet ejector   | 11-07 |
| MIF-6/40     | Multi-inlet ejector   | 11-07 |
| MIF-6/55     | Multi-inlet ejector   | 11-07 |
| MIF-8/30     | Multi-inlet ejector   | 11-07 |

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| MIF-8/40       | Multi-inlet ejector  | 11-07 |
| MN-06-310-HN   | Electrically operated valve, NAMUR, 3/2-way, single solenoid, air spring return, NC                                | 5-12  |
| MN-06-311-HN   | Electrically operated valve, NAMUR, 3/2-way, single solenoid, mechanical spring return, NC                         | 5-12  |
| MN-06-510-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, air spring return                                    | 5-12  |
| MN-06-511-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, mechanical spring return                             | 5-12  |
| MN-06-520-HN   | Electrically operated valve, NAMUR, 5/2-way, double solenoid   | 5-12  |
| MN-06-530-HN   | Electrically operated valve, NAMUR, 5/3-way, center position closed  | 5-12  |
| MN-22-510-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, air spring return                                    | 5-14  |
| MN-22-511-HN   | Electrically operated valve, NAMUR, 5/2-way, single solenoid, mechanical spring return                             | 5-14  |
| MO-04-310-HN   | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/8                                 | 4-03  |
| MO-05-310-HN   | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/8                                 | 4-07  |
| MO-05-311-HN   | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NO, G1/8                          | 4-07  |
| MO-07-310-HN   | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/4                                 | 4-11  |
| MO-07-311-HN   | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NO, G1/4                          | 4-11  |
| MO-22-310-HN   | Electrically operated valve, 3/2-way, single solenoid, air spring return, NO, G1/2                                 | 4-15  |
| MO-22-311-HN   | Electrically operated valve, 3/2-way, single solenoid, mechanical spring return, NO, G1/2                          | 4-15  |
| MS-18-310-HN   | Electrically operated poppet valve, 3/2-way, single solenoid, mechanical spring return, NC, G1/8                   | 4-32  |
| MS-18-310/n-HN | Electrically operated poppet valve, 3/2-way, single solenoid, mechanical spring return, NC, G1/8                   | 4-32  |
| MS-20-310-HN   | Electrically operated poppet valve, 3/2-way, single solenoid, mechanical spring return, NC, M5                     | 4-34  |
| MS-20-310/n-HN | Electrically operated poppet valve, 3/2-way, single solenoid, mechanical spring return, NC, M5                     | 4-34  |
| MSO-18-310-HN  | Electrically operated poppet valve, 3/2-way, single solenoid, mechanical spring return, NO, G1/8                   | 4-32  |
| MXA            | Pressure gauge   | 12-57 |
| <b>N</b>       |  |       |
| ND             | Compact cylinder, series ND, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a>  | 9-02  |
| NDM            | Compact cylinder, series NDM, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> | 9-02  |
| NT-250         | Mounting bracket for proximity sensors, series HM, HE, CM, XG, XM  | 9-91  |
| NT-500         | Mounting bracket for proximity sensors, series HMU   | 9-91  |
| NXB-xxx-01     | Foot mount, series NX  | 9-81  |
| NXB-xxx-02     | Flange mount, series NX  | 9-81  |
| NXB-xxx-03     | Clevis mount, series NX  | 9-82  |
| NXB-xxx-04     | Lasche, Baureihe NY  | 9-69  |
|                | Swivel mount, series NX  | 9-83  |
| NXB-xxx-38     | Clevis mount with clevis pin, series NX  | 9-82  |
| NXD            | Compact cylinder, series NXD, Ø12 - Ø100 mm  | 9-74  |
| NXDH           | Compact cylinder, series NXDH, Ø12 - Ø100 mm, high temperature version   | 9-74  |
| NXE            | Compact cylinder, series NXE, Ø12 - Ø100 mm, single acting   | 9-78  |
| NY             | Non-return valve, series Y   | 12-20 |
| NYD            | Compact cylinder, series NYD, Ø20 - Ø100 mm  | 9-55  |
| NYDH           | Compact cylinder, series NYDH, Ø20 - Ø100 mm, high temperature version   | 9-55  |
| NYDK           | Compact cylinder, series NYDK, Ø20 - Ø100 mm, high force cylinder  | 9-59  |
| NYE            | Compact cylinder, series NYE, Ø20 - Ø100 mm, single acting   | 9-61  |
| NYM            | Compact cylinder, series NYM, Ø20 - Ø100 mm, multiple positioning cylinder   | 9-59  |
| NYR            | Compact cylinder, series NYR, Ø20 - Ø100 mm, multiple positioning cylinder   | 9-59  |
| NYSE           | Stopper cylinder, series NYSE, Ø20 - Ø80 mm, single acting   | 9-64  |
| NYSER          | Stopper cylinder, series NYSE, Ø20 - Ø80 mm, single acting, with roller  | 9-64  |
| <b>O</b>       |  |       |
| OK             | Lubricator, series K   | 12-46 |
| OR-14-01       | OR valve, series OR, G1/4  | 8-07  |
| OR-18          | OR valve, series OR, G1/8  | 8-07  |
| OR-25          | OR valve, series OR, M5  | 8-07  |
| OX             | Lubricator, series X   | 12-32 |
| OY             | Lubricator, series Y   | 12-13 |
| <b>P</b>       |  |       |
| P-05-311       | Pneumatically operated valve, 3/2-way, single pilot, mechanical spring return, G1/8                                | 3-06  |
| P-05-320       | Pneumatically operated valve, 3/2-way, double pilot, G1/8  | 3-06  |
| P-05-322       | Pneumatically operated valve, 3/2-way, double pilot, one side dominant, G1/8                                       | 3-06  |
| P-05-511       | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/8                                | 3-06  |
| P-05-520       | Pneumatically operated valve, 5/2-way, double pilot, G1/8  | 3-06  |
| P-05-522       | Pneumatically operated valve, 5/2-way, double pilot, one side dominant, G1/8                                       | 3-06  |
| P-05-530       | Pneumatically operated valve, 5/3-way, center position closed, G1/8  | 3-06  |
| P-05-533       | Pneumatically operated valve, 5/3-way, center position exhausted, G1/8   | 3-06  |
| P-05-534       | Pneumatically operated valve, 5/3-way, center position pressurized, G1/8   | 3-06  |
| P-07-311       | Pneumatically operated valve, 3/2-way, single pilot, mechanical spring return, G1/4                                | 3-08  |
| P-07-320       | Pneumatically operated valve, 3/2-way, double pilot, G1/4  | 3-08  |
| P-07-322       | Pneumatically operated valve, 3/2-way, double pilot, one side dominant, G1/4                                       | 3-08  |
| P-07-511       | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/4                                | 3-08  |
| P-07-520       | Pneumatically operated valve, 5/2-way, double pilot, G1/4  | 3-08  |
| P-07-522       | Pneumatically operated valve, 5/2-way, double pilot, one side dominant, G1/4                                       | 3-08  |
| P-07-530       | Pneumatically operated valve, 5/3-way, center position closed, G1/4  | 3-08  |
| P-07-533       | Pneumatically operated valve, 5/3-way, center position exhausted, G1/4   | 3-08  |
| P-07-534       |  |       |

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|               | Pneumatically operated valve, 5/3-way, center position pressurized, G1/4                              | 3-08  |
| P-12-311      | Pneumatically operated valve, 3/2-way, single pilot, mechanical spring return, G1/2                   | 3-10  |
| P-12-320      | Pneumatically operated valve, 3/2-way, double pilot, G1/2   | 3-10  |
| P-12-322      | Pneumatically operated valve, 3/2-way, double pilot, one side dominant, G1/2.                         | 3-10  |
| P-12-511      | Pneumatically operated valve, 5/2-way, single pilot, mechanical spring return, G1/2                   | 3-10  |
| P-12-520      | Pneumatically operated valve, 5/2-way, double pilot, G1/2   | 3-10  |
| P-12-522      | Pneumatically operated valve, 5/2-way, double pilot, one side dominant, G1/2.                         | 3-10  |
| P-12-530      | Pneumatically operated valve, 5/3-way, center position closed, G1/2                                   | 3-10  |
| P-12-533      | Pneumatically operated valve, 5/3-way, center position exhausted, G1/2.                               | 3-10  |
| P-12-534      | Pneumatically operated valve, 5/3-way, center position pressurized, G1/2                              | 3-10  |
| PA-xx         | Foot mount, series CM   | 9-49  |
| PB-xx         | Flange mount, series CM   | 9-49  |
| PC-xx         | Clevis mount, series CM   | 9-49  |
| PD-xx         | Rod clevis, series CM   | 9-50  |
|               | Rod clevis, series XM   | 9-27  |
| PE-14-01-40   | Pressure switch, G1/4   | 8-12  |
| PE-18-01-40   | Pressure switch, G1/8   | 8-12  |
| PI-01-511     | Pneumatically operated valve, ISO 5599/1, size 1, 5/2-way, single pilot, mechanical spring return     | 5-02  |
| PI-01-520     | Pneumatically operated valve, ISO 5599/1, size 1, 5/2-way, double pilot                               | 5-02  |
| PI-01-530     | Pneumatically operated valve, ISO 5599/1, size 1, 5/3-way, center position closed                     | 5-02  |
| PI-01-533     | Pneumatically operated valve, ISO 5599/1, size 1, 5/3-way, center position exhausted                  | 5-02  |
| PI-02-511     | Pneumatically operated valve, ISO 5599/1, size 2, 5/2-way, single pilot, mechanical spring return     | 5-02  |
| PI-02-520     | Pneumatically operated valve, ISO 5599/1, size 2, 5/2-way, double pilot                               | 5-02  |
| PI-02-530     | Pneumatically operated valve, ISO 5599/1, size 2, 5/3-way, center position closed                     | 5-02  |
| PI-02-533     | Pneumatically operated valve, ISO 5599/1, size 2, 5/3-way, center position exhausted                  | 5-02  |
| PI-03-511     | Pneumatically operated valve, ISO 5599/1, size 3, 5/2-way, single pilot, mechanical spring return     | 5-02  |
| PI-03-520     | Pneumatically operated valve, ISO 5599/1, size 3, 5/2-way, double pilot                               | 5-02  |
| PI-03-530     | Pneumatically operated valve, ISO 5599/1, size 3, 5/3-way, center position closed                     | 5-02  |
| PI-03-533     | Pneumatically operated valve, ISO 5599/1, size 3, 5/3-way, center position exhausted                  | 5-02  |
| PKX-09-511    | Pneumatically operated valve, stainless steel, 5/2-way, single pilot, mechanical spring return, G1/8  | 6-06  |
| PKX-09-520    | Pneumatically operated valve, stainless steel, 5/2-way, double pilot, G1/8                            | 6-06  |
| PKX-10-511    | Pneumatically operated valve, stainless steel, 5/2-way, single pilot, mechanical spring return, G1/4  | 6-06  |
| PKX-10-520    | Pneumatically operated valve, stainless steel, 5/2-way, double pilot, G1/4                            | 6-06  |
| PKX-10-530    | Pneumatically operated valve, stainless steel, 5/3-way, center position closed, G1/4                  | 6-06  |
| PN-05-311     | Pneumatically operated valve, NAMUR, 3/2-way, single pilot, mechanical spring return                  | 5-04  |
| PN-05-511     | Pneumatically operated valve, NAMUR, 5/2-way, single pilot, mechanical spring return                  | 5-04  |
| PN-05-520     | Pneumatically operated valve, NAMUR, 5/2-way, double pilot  | 5-04  |
| PN-05-530     | Pneumatically operated valve, NAMUR, 5/3-way, center position closed                                  | 5-04  |
| PNX-55-311    | Pneumatically operated valve, stainless steel, NAMUR, 3/2-way, single pilot, mechanical spring return | 6-12  |
| PNX-55-511    | Pneumatically operated valve, stainless steel, NAMUR, 5/2-way, single pilot, mechanical spring return | 6-12  |
| PNX-55-520    | Pneumatically operated valve, stainless steel, NAMUR, 5/2-way, double pilot                           | 6-12  |
| PO-xx         | Rod clevis, series CM   | 9-50  |
|               | Rod clevis, series XM   | 9-27  |
| <b>R</b>      |   |       |
| R-141/x       | Manifold for series M-07, P-07  | 4-14  |
| R-181/x       | Manifold for series M-05, P-05  | 4-10  |
| R-281/x       | Manifold for series M-04  | 4-06  |
| RA-xx         | Foot mount, series HM   | 9-41  |
|               | Foot mount, series HMU  | 9-53  |
| RB-xx         | Flange mount, series HM   | 9-41  |
| RC-xx         | Clevis mount, series HM   | 9-41  |
|               | Clevis mount, series NY   | 9-68  |
| RC-xx-1       | Clevis mount, series HMU  | 9-53  |
| RD            | Pressure regulator  | 12-54 |
| RD-xx         | Gabelkopf, Baureihe NY  | 9-72  |
|               | Rod clevis, series HM   | 9-42  |
|               | Rod clevis, series HMU  | 9-53  |
|               | Rod clevis, series NX   | 9-84  |
|               | Rod clevis, series XL   | 9-11  |
| RE-04-DT      | Pressure dividing plug, RE-04   | 7-04  |
| RE-04-V-EP    | Blind plate, RE-04.   | 7-04  |
| RE-04/xx-M    | Valve terminal, multi-pin   | 7-02  |
| RE-10-B-01    | Mounting bracket, RE-10   | 7-13  |
| RE-10-DT-01   | Pressure dividing plug, RE-10   | 7-13  |
| RE-10-MS-01   | Kit for DIN-rail mounting, RE-10  | 7-13  |
| RE-10-P-01    | Device for additional air supply, RE-10   | 7-13  |
| RE-10-V-EP    | Blind plate, RE-10.   | 7-13  |
| RE-10/xx-B1   | Valve terminal, Profibus-DP   | 7-09  |
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| RE-19-DT      | Pressure dividing plug, RE-19   | 7-07  |
|               | Pressure dividing plug, RE-46   | 7-19  |
| RE-19/xx-AS3  | Valve terminal, AS-Interface  | 7-05  |
| RE-19/xx-B1-1 | Valve terminal, Profibus-DP   | 7-05  |
| RE-19/xx-M-1  | Valve terminal, multi-pin   | 7-05  |
| RE-46-B-01    |   |       |

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|               | Mounting bracket, RE-46 . . . . .  | 7-19  |
| RE-46-RSV     | Check valve, RE-46 . . . . .   | 7-19  |
| RE-46/xx-AS3  | Valve terminal, AS-Interface . . . . .   | 7-14  |
| RE-46/xx-B1-1 | Valve terminal, Profibus-DP . . . . .  | 7-14  |
| RE-46/xx-B6-1 | Valve terminal, CANopen . . . . .  | 7-14  |
| RE-46/xx-B7-1 | Valve terminal, Profinet-RT . . . . .  | 7-14  |
| RE-46/xx-B8-1 | Valve terminal, EtherCAT . . . . .   | 7-14  |
| RE-46/xx-M-1  | Valve terminal, Multi-pin . . . . .  | 7-14  |
| REF-10        | Valve terminal series REF-10, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> . . . . . | 7-20  |
| REF-14        | Valve terminal series REF-14, for further information please see: <a href="http://www.airtec.de">www.airtec.de</a> . . . . . | 7-20  |
| RE-x6-V-EP    | Blind plate, RE-46. . . . .  | 7-19  |
| RF-01-xx/n    | Manifold, series BM-01. . . . .  | 4-29  |
| RF-02-xx/n    | Manifold, series BM-02. . . . .  | 4-29  |
| RF-09/n       | Manifold, series KM-09. . . . .  | 4-21  |
| RF-10/n       | Manifold, series KM-10. . . . .  | 4-21  |
| RH-xx         | Trunnion mount, series HM . . . . .  | 9-42  |
| RK            | Pressure regulator, series K . . . . .   | 12-42 |
| RO-xx         | Gelenkkupplung, Baureihe NY . . . . .  | 9-73  |
|               | Rod eye, series HM . . . . .   | 9-43  |
|               | Rod eye, series HMU . . . . .  | 9-54  |
|               | Rod eye, series NX . . . . .   | 9-85  |
|               | Rod eye, series XL . . . . .   | 9-12  |
| RP            | Precision pressure regulator . . . . .   | 12-55 |
| RX            | Pressure regulator, series X . . . . .   | 12-28 |
| RY            | Pressure regulator, series Y. . . . .  | 12-07 |
| RYK           | Pressure regulator, with continuous pressure supply, series Y . . . . .  | 12-07 |
| RYP           | Precision pressure regulator, series Y . . . . .   | 12-09 |
| <b>S</b>      |  |       |
| SE-12         | Quick exhaust valve, G1/2 . . . . .  | 8-09  |
| SE-14         | Quick exhaust valve, G1/4 . . . . .  | 8-09  |
| SE-18         | Quick exhaust valve, G1/8 . . . . .  | 8-09  |
| ST-18-310     | Mechanically operated valve, 3/2-way, mechanical spring return, actuator push button, G1/8. . . . .                          | 2-15  |
| SU-25-310     | Signal interrupter, 3/2-way, M5 . . . . .  | 8-05  |
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| SZ-14-510     | Two-signal controls, 5/2-way, G1/4 . . . . .   | 8-03  |
| SZ-18-310     | Two-signal controls, 3/2-way, G1/8 . . . . .   | 8-03  |
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| <b>T</b>      |  |       |
| T-25-311      | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, for actuator mount, M5 . . . . .              | 2-08  |
| T-28-311      | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, for actuator mount, G1/8 . . . . .            | 2-09  |
| T-28-511      | Mechanically operated valve, 5/2-way, mechanical spring return, stem operated, for actuator mount, G1/8 . . . . .            | 2-09  |
| T-30-310      | Mechanically operated valve, 3/2-way, mechanical spring return, stem operated, for actuator mount, M5 . . . . .              | 2-10  |
|               | Stößelventil für Taster, 3/2-Wege, M5 . . . . .  | 2-10  |
| T-30-510      | Mechanically operated valve, 5/2-way, mechanical spring return, stem operated, for actuator mount, M5 . . . . .              | 2-10  |
| TK            | Distributor block, series K . . . . .  | 12-52 |
| TK-28-311     | Mechanically operated valve, 3/2-way, mechanical spring return, actuator push button, G1/8 . . . . .                         | 2-16  |
| TK-28-320     | Mechanically operated valve, 3/2-way, two positions, actuator pull/push button, G1/8 . . . . .                               | 2-16  |
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| VLB-xxx-02    | Flange mount, series XG . . . . .  | 9-31  |
| VLB-xxx-04    | Clevis mount, series XG . . . . .  | 9-32  |
| VLB-xxx-05    | Swivel mount, series XG . . . . .  | 9-32  |
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| VLB-xxx-08    | Clevis pin, series XG . . . . .  | 9-33  |
| VLB-xxx-09    | Bearing block, series XG . . . . .   | 9-33  |
| VLB-xxx-12    | Swivel mount with spherical bearing, series XG . . . . .   | 9-34  |
| VLB-xxx-48    | Clevis mount with clevis pin, series XG . . . . .  | 9-32  |
| VMK           | 3/2-way inline valve, series K . . . . .   | 12-51 |
| VMX           | 3/2-way inline valve, series X . . . . .   | 12-37 |
| VMY           | 3/2-way inline valve, series Y . . . . .   | 12-19 |
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| <b>W</b>      |  |       |
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| WX            | Mounting brackets, series X . . . . .  | 12-39 |
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| <b>X</b>           |   |       |
| XG                 | Piston rod cylinder, series XG, Ø160 mm - Ø320 mm . . . . .   | 9-28  |
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| XLB-xxx-02         | Flange mount, series NY . . . . .   | 9-67  |
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|                    | Swivel mount with spherical bearing, series XL . . . . .  | 9-10  |
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|                    | Clevis mount with bushing and clevis pin, series XL . . . . .   | 9-07  |
| XLC                | Piston rod cylinder, series XL, Ø32 mm - Ø125 mm, low temperature version . . . . .   | 9-03  |
| XLCD               | Piston rod cylinder, series XL, Ø32 mm - Ø125 mm, low temperature version, with metal scraper . . . . .                         | 9-03  |
| XLD                | Piston rod cylinder, series XL, Ø32 mm - Ø125 mm, with metal scraper . . . . .  | 9-03  |
| XLH                | Piston rod cylinder, series XL, Ø32 mm - Ø125 mm, high temperature version . . . . .  | 9-03  |
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| <b>Z</b>           |   |       |
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| ZK-xx1             | Center mount, series ZR . . . . .   | 10-22 |
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| ZS-5700            | Proximity sensors with cable, 5 m, 3-pole Reed sensor . . . . .   | 9-90  |
| ZS-5701            | Proximity sensors with plug, M8 connection, 3-pole Reed sensor . . . . .  | 9-90  |
| ZS-6700            | Proximity sensors with cable, 3 m, 3-pole inductive . . . . .   | 9-90  |
| ZS-6701            | Proximity sensors with plug, M8 connection, 3-pole inductive . . . . .  | 9-90  |
| ZS-7300            | Proximity sensors with cable, 6 m, 3-pole inductive, ATEX 3GD . . . . .   | 9-90  |
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| ZX-xx-K            | Rodless cylinder, short cylinder . . . . .  | 10-04 |
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