# RM/8000/M, ISO cylinder
# Magnetic piston, double acting

- Ø 10 ... 25 mm
- Magnetic piston as standard
- Conforming to ISO 6432
- Corrosion resistant
- With buffer or adjustable cushioning
- Nose mounting nut and piston rod supplied locknut as standard

## Technical features

**Medium:**
Compressed air, filtered, lubricated or non-lubricated

**Standard:**
ISO 6432

**Operation:**
Double acting with magnetic piston and buffer or adjustable cushioning

**Operating pressure:**
1 ... 10 bar (14 ... 145 psi)

**Cylinder diameters:**
10, 12, 16, 20, 25 mm (buffer)
16, 20, 25 mm (adjustable cushioning)

**Strokes:**
See page below

**Non-standard strokes:**
up to 1000 mm max. on request

**Operating temperature:**
-5 ... +80°C max. (+23 ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2 °C (+35 °F).

**Materials:**
Barrel: stainless steel (austenitic)
End covers: clear anodised aluminium alloy
Piston rod: stainless steel (austenitic)
Buffer: PUR
Wiper: PUR
Seals: NBR

## Technical data

| Cylinder Ø (mm) | 10 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|
| Port size | M5 | M5 | M5 | G1/8 | G1/8 |
| Piston rod Ø (mm) | 4 | 6 | 6 | 8 | 10 |
| Piston rod thread | M4 | M6 | M6 | M8 | M10x1,25 |
| Cushion length mm | – | – | 16 | 19 | 19 |
| Initial cushion volume (cm3) *1) | – | – | 2,4 | 4,4 | 7,2 |
| Theoretical thrusts at 6 bar outstroke (N) | 47,1 | 67,8 | 120 | 188 | 294 |
| Theoretical thrusts at 6 bar instroke (N) | 39,6 | 51 | 104 | 158 | 247 |
| Air consumption at 6 bar outstroke (l/cm) | 0,006 | 0,008 | 0,014 | 0,022 | 0,035 |
| Air consumption at 6 bar instroke (l/cm) | 0,005 | 0,006 | 0,013 | 0,019 | 0,028 |

*1) For cylinders with adjustable cushioning only

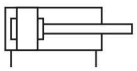
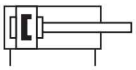
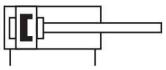
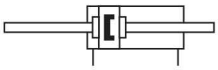
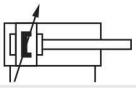
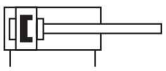
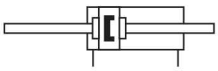
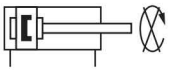
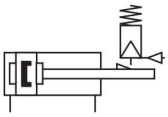
## Standard strokes with buffer cushioning

| Cylinder Ø (mm) | Stroke length (mm) 10 | 25 | 40 | 50 | 80 | 100 | 125 | 160 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | • | • | • | • | • | • | – | – | – | – |
| 12 | • | • | • | • | • | • | • | • | • | |
| 16 | • | • | • | • | • | • | • | • | • | – |
| 20 | • | • | • | • | • | • | • | • | • | • |
| 25 | • | • | • | • | • | • | • | • | • | • |

## with adjustable cushioning

| Cylinder Ø (mm) | Stroke length (mm) 10 | 25 | 40 | 50 | 80 | 100 | 125 | 160 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | – | • | – | • | • | • | • | • | • | |
| 20 | – | • | – | • | • | • | • | • | • | • |
| 25 | – | • | – | • | • | • | • | • | • | • |

## Cylinder variants

| Symbol | Model Non-magnetic piston | Symbol | Model magnetic piston | Description | Dimensions Page |
|---|---|---|---|---|---|
|  | TRM/8000 *1) |  | RM/8000/M | Standard cylinder with integral eye mounting | 4 |
| | | | RM/8000/MC | Cylinder with central rear port | 5 |
| | | | RM/8000/MF | Cylinder with flat rear cover | 5 |
| | RM/8000/IU TRM/8000/IU *1) |  | RM/8000/MU | Cylinder with extended piston rod piston rod extension 75 mm: *RM/8***/*U/stroke/75 | 4 |
| | |  | RM/8000/JM | Cylinder with double ended piston rod (Ø 16 to 25 mm) | 4 |
| | |  | RM/8017/M | Cylinder Ø 16 mm with adjustable cushioning | 4 |
| | | | RM/8021/M | Cylinder Ø 20 mm with adjustable cushioning | 4 |
| | | | RM/8026/M | Cylinder Ø 25 mm with adjustable cushioning | 4 |
| | |  | RM/8017/MU | Cylinder Ø 16 mm with adjustable cushioning and extended piston rod | 4 |
| | | | RM/8021/MU | Cylinder Ø 20 mm with adjustable cushioning and extended piston rod | 4 |
| | | | RM/8026/MU | Cylinder Ø 25 mm with adjustable cushioning and extended piston rod | 4 |
| | |  | RM/8017/JM | Cylinder Ø 16 mm with double ended piston rod and adjustable cushioning | 4 |
| | | | RM/8021/JM | Cylinder Ø 20 mm with double ended piston rod and adjustable cushioning | 4 |
| | | | RM/8026/JM | Cylinder Ø 25 mm with double ended piston rod and adjustable cushioning | 4 |
| | |  | RM/8000/N2 | Cylinder with non-rotating piston rod (Ø 12 to 25 mm) | 4 |
| | |  | RM/8000/L4 | Cylinder Ø 12 to 25 mm with locking unit (PASSIVE). achieved by spring force on removal of the signal to the unit. Operating pressure for locking unit: 4 ... 10 bar | 5 |

*1 Cylinder (Ø 16 ... 25 mm) with heat resistant seals 150 °C max.

## Option selector

★RM/80★★/★★/★★★

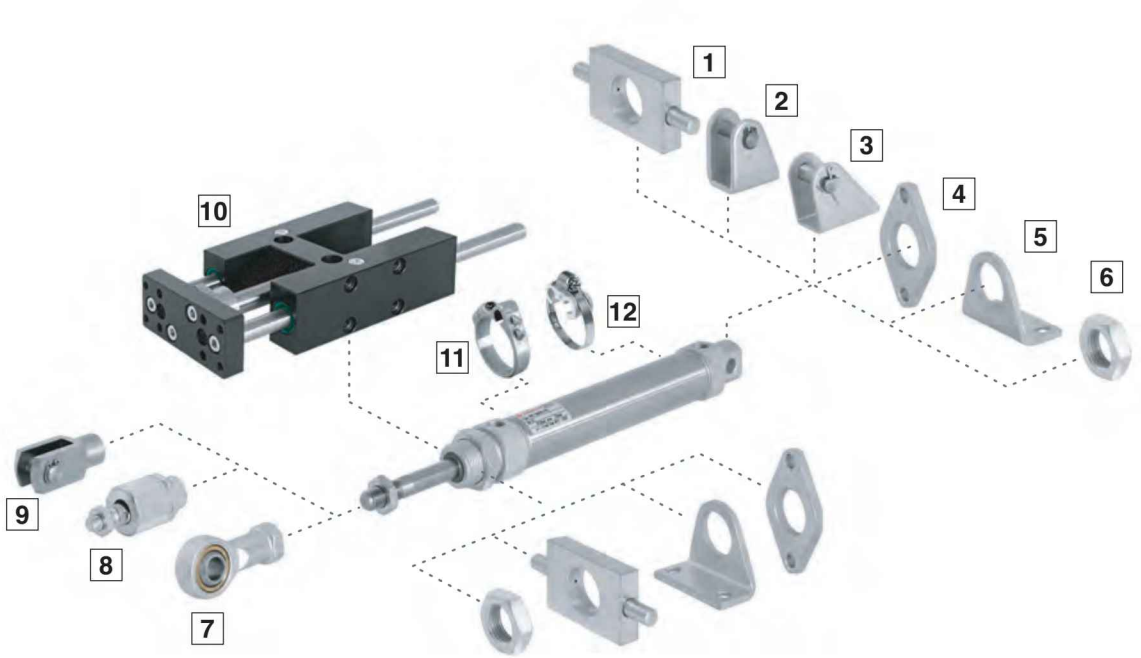
| Non-standard variants | Substitute |
|---|---|
| High temperature version 150 °C max. | T |
| **Cylinder Ø (mm) with buffer** | **Substitute** |
| 10 | 10 |
| 12 | 12 |
| 16 | 16 |
| 20 | 20 |
| 25 | 25 |
| **Cylinder Ø (mm) with adjustable cushioning** | **Substitute** |
| 16 | 17 |
| 20 | 21 |
| 25 | 26 |

Note: If option is not required, disregard option position within part number eg. RM/8025/M/50. For combinations of cylinder variants consult our Technical Service. Please note that heat resistant seals are not available for all variants. This options selector explains only the cylinder variants.
Additional variants/options are not possible.

| Stroke (mm) | |
|---|---|
| max. 1000 | |
| **Variants (non-magnetic piston)** | **Substitute** |
| Extended piston rod | IU |
| RM/8***/IU*/***/*** | Extension (mm) |
| **Variants (magnetic piston)** | **Substitute** |
| Standard with integral eye mounting | M |
| Central rear port | MC |
| Flat rear cover | MF |
| Non-rotating piston rod | N2 |
| Double ended piston rod | JM |
| Locking unit | L4 |
| Extended piston rod | MU |
| RM/8***/MU/***/*** | Extension (mm) |

Note: Please fill in only the numbers of digits required,e.g. RM/8025/M/50

## Mountings




| Cyl. | AK | B, G | C | F | FH |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| | 8 | 4 | 5 | 9 | 1 |
| Ø | Page 6 | Page 6 | Page 6 | Page 6 | Page 6 |
| 10 | QM/8010/38 | M/P19407 | M/P19369 | QM/8010/25 | – |
| 12 | QM/8012/38 | M/P19408 | M/P19389 | QM/8012/25 | QM/8012/34 |
| 16 | QM/8012/38 | M/P19408 | M/P19389 | QM/8012/25 | QM/8012/34 |
| 20 | QM/8020/38 | M/P19409 | M/P19406 | QM/8020/25 | QM/8020/34 |
| 25 | QM/8025/38 | M/P19409 | M/P19406 | QM/8025/25 | QM/8020/34 |

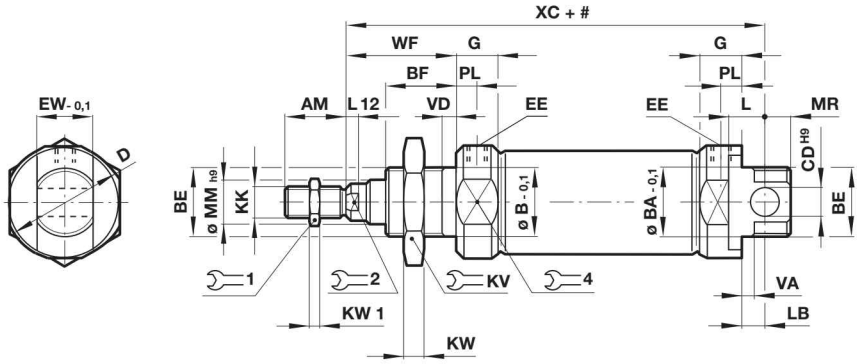
| Cyl. | L | L2 | N | UF | Guide block with roler bearing |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| | 3 | 2 | 6 | 7 | 10 |
| Ø | Page 6 | Page 7 | Page 7 | Page 7 | Page 8 |
| 10 | QM/947 | QM/8010/44 | M/P1501/90 | QM/8010/32 | – |
| 12 | QM/8012/24 | QM/8012/44 | M/P13834 | QM/8012/32 | QM/8012/61/* |
| 16 | QM/8012/24 | QM/8012/44 | M/P13834 | QM/8012/32 | QM/8012/61/* |
| 20 | QM/8020/24 | QM/8020/44 | M/P13615 | QM/8020/32 | QM/8020/61/* |
| 25 | QM/8020/24 | QM/8020/44 | M/P13615 | QM/8025/32 | QM/8025/61/* |

| Cyl. | Switch mounting brackets >15 mm stroke | <15 mm stroke | Magnetically operated switches |
|---|---|---|---|
| |  |  |  |
| | 11 | 12 | |
| Ø | 10 Page | Page 10 | Page 10 ... 13 |
| 10 | QM/33/010/22 | QM/33/010/23 | |
| 12 | QM/33/012/22 | QM/33/016/23 | |
| 16 | QM/33/016/22 | QM/33/016/23 | |
| 20 | QM/33/020/22 | QM/33/020/23 | |
| 25 | QM/33/025/22 | QM/33/025/23 | |

* Please insert standard stroke length: Ø 12 mm: 50, 100, 160, 200 and 250 mm; Ø 16 ... 25 mm: 50, 100, 160, 200, 250, 320, 400 and 500 mm.
For special strokes, use next larger standard stroke.

## Basic dimensions
## RM/8000/M

Dimensions in mm
Projection/First angle




# Stroke

| Ø | AM | Ø B/BA -0,1 | BE | BF | Ø CD H9 | Ø D | EE | EW -0,1 | G | KK | KV | KW | KW1 | L | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 12 | 12 | M12x1,25 | 12 | 4 | 16,5 | M5 | 7,9 | 9 | M4 | 19 | 6 | 2 | 6 | RM/8010/M/* |
| 12 | 16 | 16 | M16x1,5 | 17 | 6 | 21 | M5 | 11,9 | 9,5 | M6 | 22 | 5 | 3 | 9 | RM/8012/M/* |
| 16 | 16 | 16 | M16x1,5 | 17 | 6 | 21 | M5 | 11,9 | 9,5 | M6 | 22 | 5 | 3 | 9 | RM/8016/M/* |
| 20 | 20 | 22 | M22x1,5 | 20 | 8 | 30 | G1/8 | 15,9 | 15 | M8 | 27 | 8 | 4 | 12 | RM/8020/M/* |
| 25 | 22 | 22 | M22x1,5 | 22 | 8 | 30 | G1/8 | 15,9 | 15 | M10x1,25 | 27 | 8 | 5 | 12 | RM/8025/M/* |

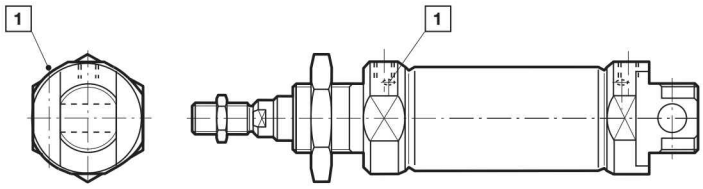
| Ø | L12 | LB | Ø MM h9 | MR | PL | KV 1 | 2 | 4 | WF | VA/VD | XC | at 0 mm | per 25 mm | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | – | 2 | 4 | 8 | 5,5 | 7 | – | 14 | 16 | 1,5 | 64 | 0,034 kg | 0,007 kg | RM/8010/M/* |
| 12 | 3 | 3 | 6 | 8 | 5,5 | 10 | 5 | 19 | 22 | 2 | 75 | 0,058 kg | 0,011 kg | RM/8012/M/* |
| 16 | 3 | 4 | 6 | 7 | 5,5 | 10 | 5 | 19 | 22 | 2 | 82 | 0,070 kg | 0,012 kg | RM/8016/M/* |
| 20 | 3 | 3 | 8 | 11 | 8 | 13 | 7 | 27 | 24 | 2 | 95 | 0,145 kg | 0,018 kg | RM/8020/M/* |
| 25 | 4 | 7 | 10 | 9 | 8 | 17 | 9 | 27 | 28 | 2 | 104 | 0,200 kg | 0,028 kg | RM/8025/M/* |

* Please insert standard stroke length.

## Alternative variants
## RM/8017/M, RM/8021/M, RM/8026/M –
## Cylinder with adjustable cushioning

| Ø | at 0 mm | per 25 mm | Model |
|---|---|---|---|
| 16 | 0,070 kg | 0,012 kg | RM/8017/M/* |
| 20 | 0,145 kg | 0,018 kg | RM/8021/M/* |
| 25 | 0,195 kg | 0,028 kg | RM/8026/M/* |

* Please insert standard stroke length.

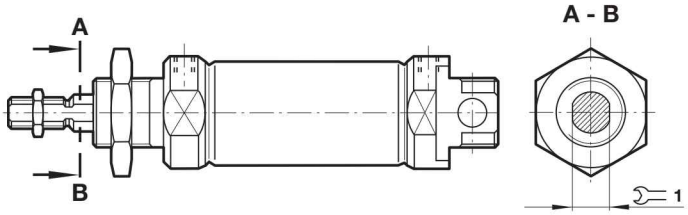



1 Cushion screw

## RM/8000/N2 –
## Cylinder with non-rotating piston rod

| Ø | 1 | Torque max. | at 0 mm | per 25 mm | Model |
|---|---|---|---|---|---|
| 12 | 5 | 0,04 Nm | 0,058 kg | 0,011 kg | RM/8012/N2/* |
| 16 | 5 | 0,04 Nm | 0,070 kg | 0,012 kg | RM/8016/N2/* |
| 20 | 6 | 0,15 Nm | 0,145 kg | 0,018 kg | RM/8020/N2/* |
| 25 | 8 | 0,25 Nm | 0,200 kg | 0,028 kg | RM/8025/N2/* |

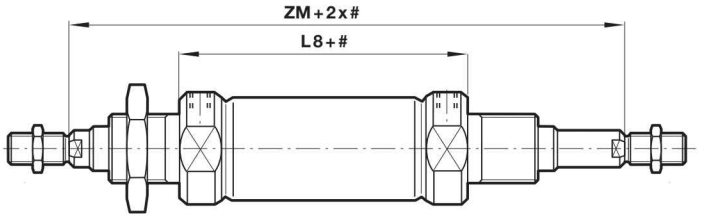
* Please insert standard stroke length.




## RM/8000/JM –
## Cylinder with double ended piston rod

| Ø | L8 | ZM | at 0 mm | per 25 mm | Model |
|---|---|---|---|---|---|
| 16 | 56 | 100 | 0,080 kg | 0,017 kg | RM/8016/JM/* |
| 20 | 68 | 116 | 0,165kg | 0,028 kg | RM/8020/JM/* |
| 25 | 69 | 125 | 0,250 kg | 0,043 kg | RM/8025/JM/* |

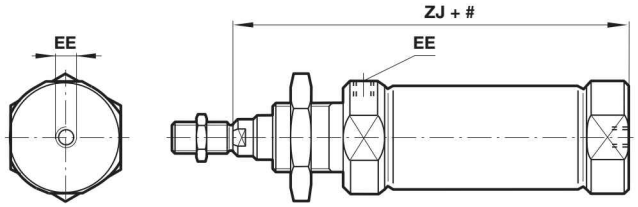
* Please insert standard stroke length.



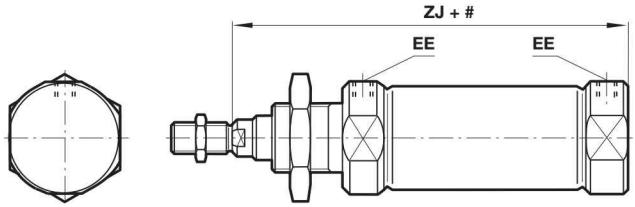

# Stroke

## Alternative variants
## RM/8000/MC –
## Cylinder with central rear port

Dimensions in mm
Projection/First angle




## RM/8000/MF –
## Cylinder with flat rear cover

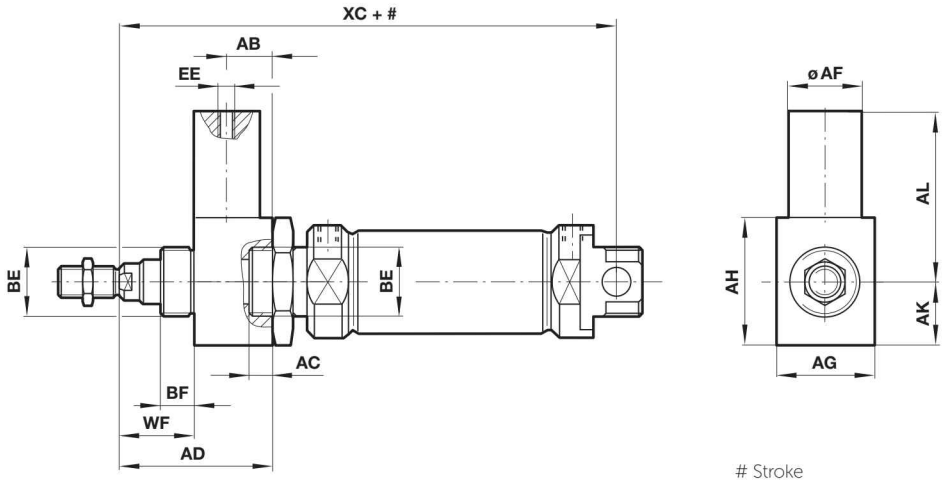



# Stroke

| Ø | EE | ZJ | at 0 mm | per 25 mm | Model |
|---|---|---|---|---|---|
| 10 | M5 | 62 | 0,031 kg | 0,007 kg | RM/8010/M/* |
| 12 | M5 | 72 | 0,052 kg | 0,011 kg | RM/8012/M/* |
| 16 | M5 | 78 | 0,064 kg | 0,012 kg | RM/8016/M/* |
| 20 | G1/8 | 92 | 0,130 kg | 0,018 kg | RM/8020/M/* |
| 25 | G1/8 | 97 | 0,185 kg | 0,028 kg | RM/8025/M/* |

* Please insert standard stroke length.

## RM/8000/L4 – Cylinder with locking unit



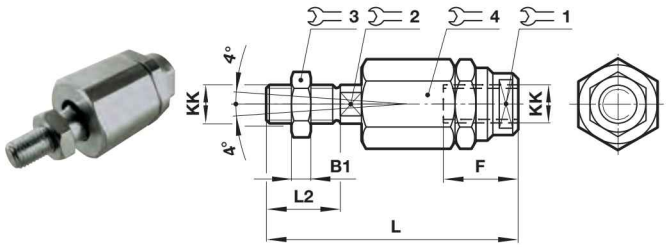

# Stroke

| Ø | AB | AC | AD | Ø AF | AG | AH | AL | AK | Model |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 21 | 13 | 48,5 | 20 | 20 | 20 | 43,5 | 10 | RM/8012/L4/* |
| 16 | 21 | 13 | 48,5 | 20 | 20 | 20 | 43,5 | 10 | RM/8016/L4/* |
| 20 | 24 | 14 | 66 | 22 | 27 | 33 | 45,5 | 16,5 | RM/8020/L4/* |
| 25 | 24 | 14 | 65 | 22 | 27 | 33 | 45,5 | 16,5 | RM/8025/L4/* |
| Ø | BE | BF | EE | WF | XC | Locking forces | at 0 mm | per 25 mm | Model |
| 12 | M16 x 1,5 | 12 | M5 | 18,5 | 109 | 200 N | 0,130 kg | 0,011 kg | RM/8012/L4/* |
| 16 | M16 x 1,5 | 12 | M5 | 18,5 | 116 | 200 N | 0,140 kg | 0,012 kg | RM/8016/L4/* |
| 20 | M22 x 1,5 | 23 | M5 | 31 | 145 | 350 N | 0,300 kg | 0,018 kg | RM/8020/L4/* |
| 25 | M22 x 1,5 | 23 | M5 | 30 | 151,5 | 400 N | 0,360 kg | 0,028 kg | RM/8025/L4/* |

* Please insert standard stroke length.

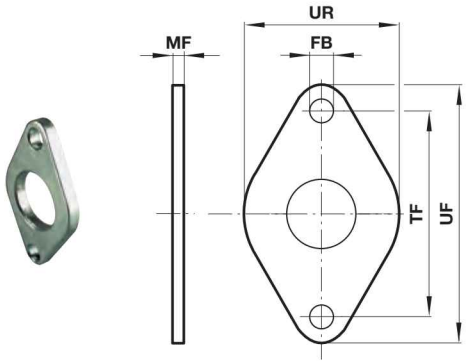
## Mountings
## Piston rod swivel AK
## Conforms to DIN ISO 8139

Dimensions in mm
Projection/First angle



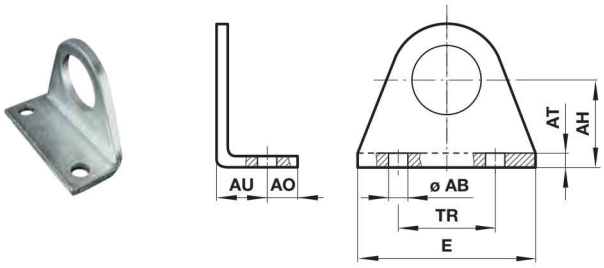

| Ø | KK | B1 | F | L | L2 | 1 | 2 | 3 | 4 | kg | Model (AK) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | M 4 | 2 | 12,5 | 33 | 8 | 11 | 3,2 | 7 | 11 | 0,01 | QM/8010/38 |
| 12/16 | M 6 | 3 | 14 | 39 | 12 | 7 | 5 | 10 | 13 | 0,02 | QM/8012/38 |
| 20 | M 8 | 4 | 18 | 55 | 16 | 10 | 7 | 13 | 17 | 0,05 | QM/8020/38 |
| 25 | M 10 x 1,25 | 5 | 26 | 73 | 20 | 19 | 12 | 17 | 30 | 0,2 | QM/8025/38 |

## Front or rear flange G and B



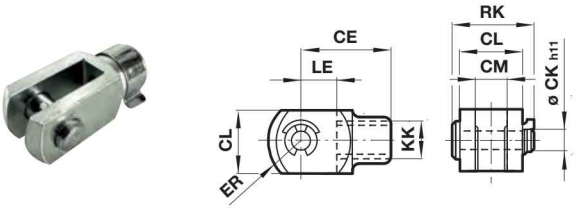

| Ø | Ø FB | MF | TF | UF | UR | kg | Model (B, G) |
|---|---|---|---|---|---|---|---|
| 10 | 4,5 | 3 | 30 | 40 | 22 | 0,02 | M/P19407 |
| 12/16 | 5,5 | 4 | 40 | 51 | 28 | 0,03 | M/P19408 |
| 20/25 | 6,6 | 5 | 50 | 63 | 38 | 0,05 | M/P19409 |

## Foot C
## Conforms to DIN ISO 6432



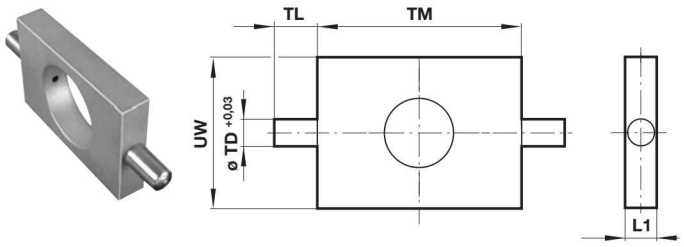

| Ø | Ø AB | AH | AO | AT | AU | E | TR | kg | Model (C) |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 4,5 | 16 | 6 | 2 | 10 | 35 | 25 | 0,02 | M/P19369 |
| 12/16 | 5,5 | 20 | 6 | 3 | 13 | 43 | 32 | 0,03 | M/P19389 |
| 20/25 | 6,6 | 25 | 7,5 | 4 | 16 | 53 | 40 | 0,06 | M/P19406 |

## Piston rod clevis F
## Conforms to DIN ISO 8140



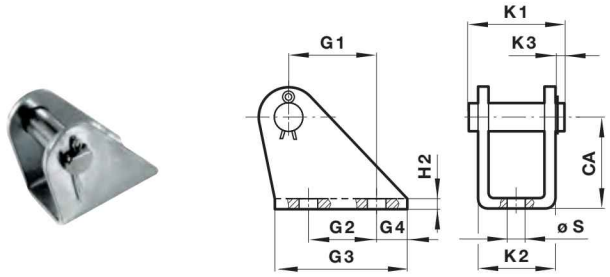

| Ø | KK | CE | Ø CK h11 | CL | CM | ER | LE | RK | kg | Model (F) |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | M4 | 16 | 4 | 8 | 4 | 6,5 | 8 | 11,5 | 0,01 | QM/8010/25 |
| 12/16 | M6 | 24 | 6 | 12 | 6 | 9,5 | 12 | 17,5 | 0,02 | QM/8012/25 |
| 20 | M8 | 32 | 8 | 16 | 8 | 13 | 16 | 22 | 0,06 | QM/8020/25 |
| 25 | M10 x1,25 | 40 | 10 | 20 | 10 | 16 | 20 | 28 | 0,10 | QM/8025/25 |

## Front or rear detachable trunnion FH



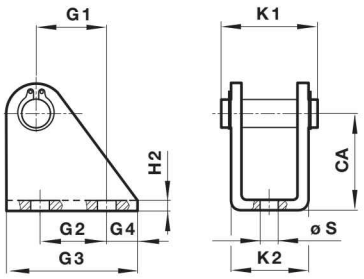

| Ø | L1 | Ø TD +0,03 | TL | TM | UW | kg | Model (FH) |
|---|---|---|---|---|---|---|---|
| 12/16 | 8 | 6 | 10 | 38 | 25 | 0,05 | QM/8012/34 |
| 20/25 | 8 | 6 | 10 | 46 | 30 | 0,07 | QM/8020/34 |

## Rear hinge L




| Ø | CA | G1 | G2 | G3 | G4 | H2 | K1 | K2 | K3 | Ø S | kg | Model (L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 12 | 6,5 | – | 15 | 6 | 1 | 13,5 | 10,5 | 2 | 4,8 | 0,01 | QM/947 |
| 12/16 | 20 | 18,5 | 15 | 30 | 8 | 1,5 | 20 | 15 | 3 | 5,5 | 0,02 | QM/8012/24 |
| 20/25 | 25 | 20 | 15 | 35 | 10 | 2 | 25 | 20,5 | 3 | 6,6 | 0,04 | QM/8020/24 |

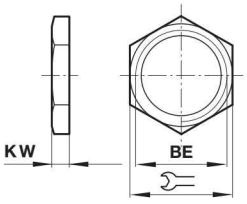
## Rear hinge L2




| Ø | CA | G1 | G2 | G3 | G4 | H2 | K1 | K2 | Ø S | kg | Model (L2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 24 | 11 | 12,5 | 20 | 4 | 2,5 | 17,5 | 13 | 4,5 | 0,018 | QM/8010/44 |
| 12/16 | 27 | 13 | 15 | 25 | 5 | 3 | 23 | 18 | 5,5 | 0,035 | QM/8012/44 |
| 20/25 | 30 | 16 | 20 | 32 | 6 | 4 | 29,5 | 24 | 6,6 | 0,077 | QM/8020/44 |

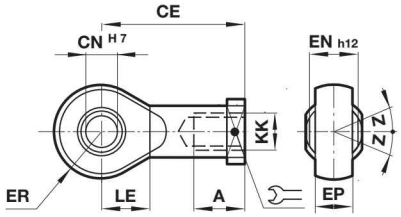
## Nose nut N

Dimensions in mm
Projection/First angle



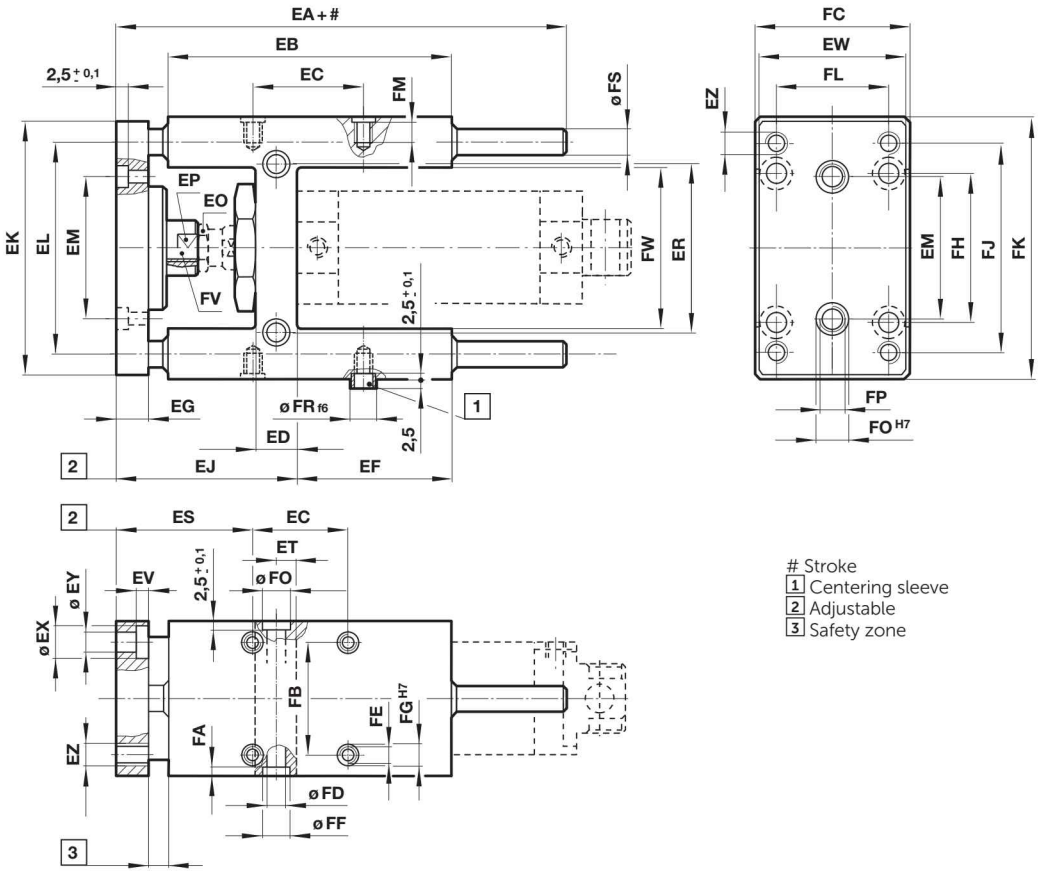

| Ø | BE | | KW | kg | Model (N) |
|---|---|---|---|---|---|
| 10 | M12x1,25 | 19 | 6 | 0,01 | M/P1501/90 |
| 12/16 | M16x1,5 | 22 | 5 | 0,01 | M/P13834 |
| 20/25 | M22x1,5 | 27 | 8 | 0,02 | M/P13615 |

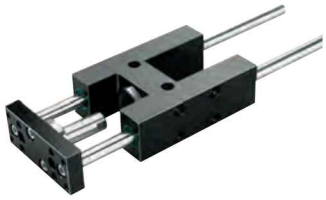
## Universal piston rod eye UF
## Conforms to DIN ISO 8139




| Ø | KK | AX | CE | Ø CN H7 | EN -0,1 | ER | LE | Z | kg | Model (UF) |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | M4 | 14 | 27 | 5 | 8 | 8 | 10 | 5° | 0,02 | QM/8010/32 |
| 12/16 | M6 | 14 | 30 | 6 | 9 | 9 | 11 | 5° | 0,02 | QM/8012/32 |
| 20 | M8 | 16 | 36 | 8 | 12 | 11 | 13 | 5° | 0,05 | QM/8020/32 |
| 25 | M10 x 1,25 | 25 | 42 | 10 | 14 | 14 | 15 | 5° | 0,08 | QM/8025/32 |

## QM/8000/61 – Guide block



Dimensions in mm
Projection/First angle

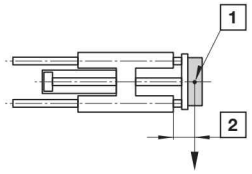
# Stroke
1 Centering sleeve
2 Adjustable
3 Safety zone

| Ø | EA | EB | EC | ED | EF | EG | EJ | EK | EL | EM | EO | EP | ER | ES | ET | EV | EW | Ø EX | Ø EY | EZ | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/16 | 132 | 75 | 32,5 | 16,5 | 37 | 10 | 76 | 63 | 46 | 24 | 10 | 8 | 24 | 65 | 6,5 | 4,6 | 27 | 8 | 4,5 | M4 | QM/8012/61 |
| 20 | 160 | 108 | 32,5 | 19 | 58 | 12 | 90 | 76 | 58 | 38 | 13 | 13 | 38 | 75 | 8,5 | 5,7 | 32 | 10 | 5,5 | M5 | QM/8020/61 |
| 25 | 160 | 108 | 32,5 | 19 | 58 | 12 | 90 | 76 | 58 | 38 | 17 | 13 | 38 | 75 | 8,5 | 5,7 | 32 | 10 | 5,5 | M5 | QM/8025/61 |

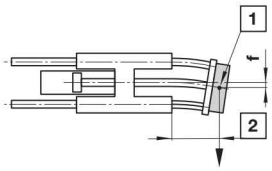
| Ø | FA | FB | FC | Ø FD | FE | FF | Ø FG H7 | FH | FJ | FK | FL | FM | Ø FO H7 | FP | Ø FR f6 | ØFS | FV | FW | kg at 0 mm | kg per 100 mm | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/16 | 6 | 22 | 30 | 5,5 | M 4 | 9 | 6 | 32 | 54 | 65 | 15 | 10 | 9 | M5 | 6 | 8 | M 6 | 27 | 0,40 | 0,04 | QM/8012/61 |
| 20 | 7 | 23 | 34 | 6,6 | M 6 | 11 | 9 | 40 | 68 | 79 | 20 | 14 | 9 | M 6 | 9 | 10 | M 8 | 37 | 0,65 | 0,06 | QM/8020/61 |
| 25 | 7 | 23 | 34 | 6,6 | M 6 | 11 | 9 | 40 | 68 | 79 | 20 | 14 | 9 | M 6 | 9 | 10 | M 10 x 1,25 | 37 | 0,65 | 0,06 | QM/8025/61 |

Note: supplied complete with cylinder mounting screws and two centering sleeves

## Maximum load for QM/8000/61




Dimensions in mm
Projection/First angle



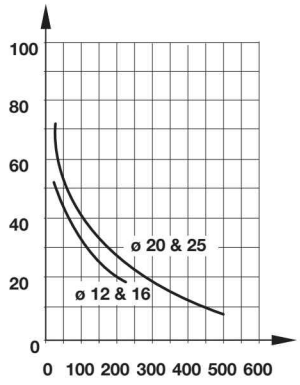

1 Centre of gravity load capacity
2 Outstroke

Maximum load capacity is dependent on the outstroke of a horizontally installed guide unit. In the case of short stroke operation, the load capacity figures taken from the diagram must be multiplied by the correction factor (diagram 2). In the curves of load capacity (diagram 1), the short stroke corrections have already been taken into account for an outstroke > 60 mm.

The total deflection of guide rods will be determined by the addition of that due to own weight (diagram 3) and that due to load capacity (diagram 4).

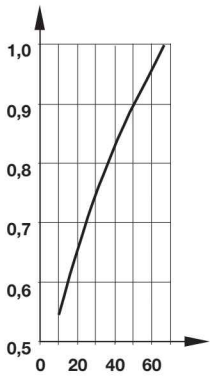
### Maximum load capacity depending on outroke (diagram 1)

Load capacity




### (diagram 2)

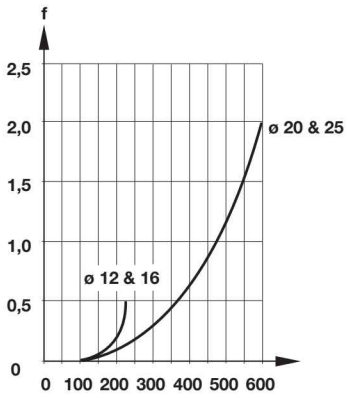
Correction factor




Stroke (mm)

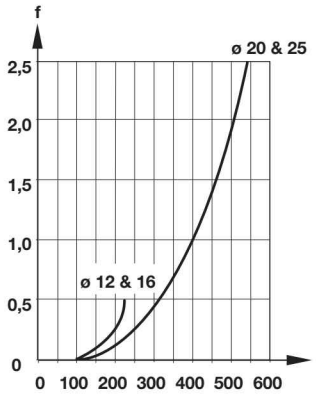
### Deflection caused by own weight (diagram 3)

Deflection (mm)




### Deflection caused by a load of 10 N (diagram 4)

Deflection (mm)



- Magnetically operated reed switch - Round style
- Suitable for all cylinder ranges with magnetic piston
- LED indicator on LSU models
- Alternative variants allows a wide range of application

## Technical features

**Operation:**
M/50/LSU Normally open with LED (yellow)

**Switching voltage (Ub):**
10 ... 240 V a.c./170 V d.c.

**Switching voltage output:**
Ub - 2,7 V

**Switching current (see graph overleaf):**
0,18 A max.

**Switching power:**
10 W/10 VA max.

**Contact resistance:**
150 mΩ

**Response time:**
1,8 ms

**Operating temperature:**
-25 ... +80 °C (-13 ... +176 °F)

**High temperature version:**
+150 °C max.(+302 °F)

**Protection rating (EN 60529):**
IP66

**Shock resistance:**
50 g (during 11 ms)

**Vibration resistance:**
35 g (at 2000 Hz)

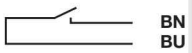
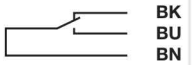
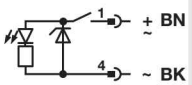
**Cable type:**
2 x 0,25: PVC, PUR or silikone
3 x 0,25 PVC

**Cable length:**
2, 5 or 10 m

**Electromagnetic compatibility according to:**
EN 60947-5-2

**Materials:**
Body: plastic
Cable: see table below

## Technical data - Reed switches - additional information see data sheet en 4.3.005

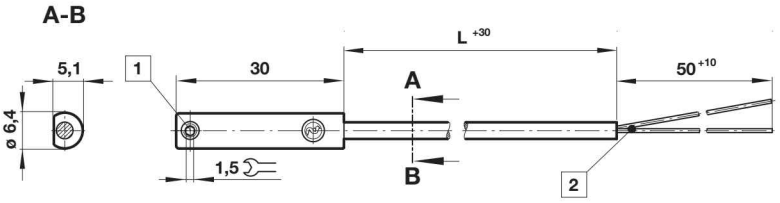
| Symbol | Voltage (V a.c.) | Voltage (V d.c.) | Current maximum (mA) | Function | Operating temperature (°C) | LED | Protection class | Plug | Cable length (m) | Cable type | Weight (g) | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  ± BN ~ BU | 10 ... 240 | 10 ... 170 | 180 | Normally open | -25 ... +80 | • | IP 66 | – | 2, 5 or 10 | PVC 2 x 0,25 | 37 | M/50/LSU/*V |
| | 10 ... 240 | 10 ... 170 | 180 | Normally open | -25 ... +80 | • | IP 66 | – | 5 | PUR 2 x 0,25 | 37 | M/50/LSU/5U |
|  BN BU | 10 ... 240 | 10 ... 170 | 180 | Normally open | -25 ... +150 | – | IP 66 | – | 2 | Silicon 2 x 0,25 | 37 | TM/50/RAU/2S |
|  BK BU BN | 10 ... 240 | 10 ... 170 | 180 | Changeover | -25 ... +80 | – | IP 66 | – | 5 | PVC 3 x 0,25 | 37 | M/50/RAC/5V |
|  ± BN ~ BK | 10 ... 60 | 10 ... 60 | 180 | Normally open | -25 ... +80 | • | IP 66 | M8 x 1 | 0,3 | PVC 3 x 0,25 | 16 | M/50/LSU/CP *1) |
| | 10 ... 60 | 10 ... 60 | 180 | Normally open | -25 ... +80 | • | IP 66 | M12 x 1 | 0,3 | PVC 3 x 0,25 | 16 | M/50/LSU/CC *1) |

* Insert cable length; *1) Plug-in connector see page 12

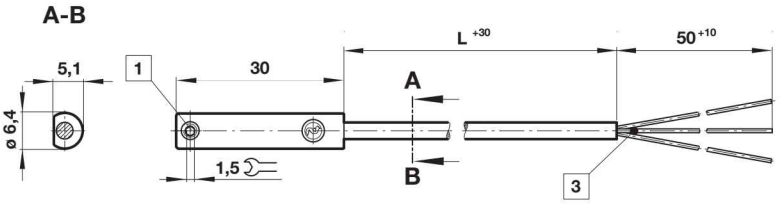
## Dimensions

M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m

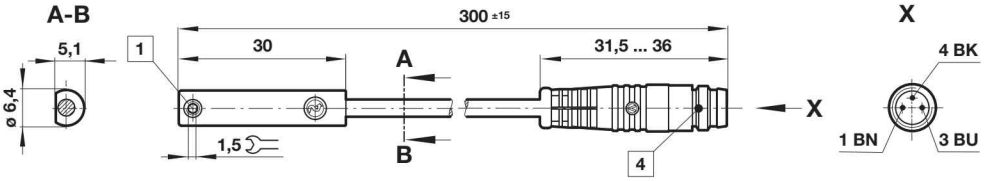
Dimensions in mm
Projection/First angle




M/50/RAC/5V
Cable length L = 5 m




M/50/LSU/CP
M/50/LSU/CC




1 Fixing screw
2 + BN = brown; - BU = blue (output)
3 - BK = black; + BN = brown; - ≠BU = blue
4 Version CP: Plug M8 x 1, color code: BK = +; BN = -; BU = output
Version CC: Plug M12 x 1, color code: BK = +; BN = -; BU = output

- Magnetically operated switch, solid state - round style
- IO-Link version available
- Suitable for all cylinder ranges with magnetic piston
- Switches can be mounted flush in all profile cylinders
- Reliable switching with a very fast reponse time
- Particularly suited for use in high levels of vibration
- LED indicator as standard
- UL listed

## Technical features

**Operation:**
PNP / NPN (see table)
Output with LED (yellow)
Normally open (standard)

**Switching voltage (Ub):**
10 ... 30 V d.c.
("supply class 2" acc. to cULus)

**Voltage drop at output:**
< 2,5 V

**Residual current:**
< 0,5 mA

**Switching current (see graph):**
100 mA max. (standard)
300 mA max. (M/50/EHP)

**Switching power:**
3,0 W max. (standard)
9,0 W max. (M/50/EHP)

**Response time:**
< 0,1 ms (standard)
< 5 ms (M/50/IOP)

**Operating frequency:**
1 kHz (standard)
200 Hz (M/50/IOP)

**Responsiveness:**
2,8 mT

**Hysteresis:**
0,5 ... 1,5 mT
0,2 mT (M/50/IOP)

**Repeatability:**
< 0,1 mT

**Protection rating (EN 60529):**
IP67 (standard)
IP68 (M/50/EAP/5U, M/50/EHP/5U)

**Operating temperature:**
-40 ... +80 °C (-40 ... 176 °F) (permanently fixed cable)
-25 ... +80 °C (-13 ...176 °F) (moving cable)

**Cable type:**
PVC 3 x 0,14 mm² (standard)
PUR 3 x 0,14 mm² (M/50/E*P/*U and all variants with connector)

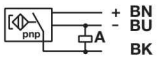
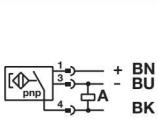
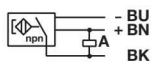
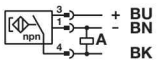
**Cable length:**
2, 5 and 10 m

**Electromagnetic compatibility according to:**
EN 60947-5-2

**Materials:**
Housing: plastic
Thread insert: brass
Set screw: stainless steel
Cable: see table below

**Mounting type:**
Flush mountable

## Technical data - Solid state - additional information see data sheet en 4.3.007

| Symbol | Voltage (V DC) | Current maximum (mA) | Function | IO-Link *1) | Operating temperature (°C) | LED | Protection class | Connector | Cable length (m) | Cable type | Weight (g) | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | --- | 2 | PVC 3 x 0,14 | 23 | M/50/EAP/2V |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/EAP/5V |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | --- | 10 | PVC 3 x 0,14 | 102 | M/50/EAP/10V |
| | 10 ... 30 | 100 | PNP / NPN | • | -40 ... +80 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/IOP/5V |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP68 | --- | 5 | PUR 3 x 0,14 | 56 | M/50/EAP/5U |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | --- | 10 | PUR 3 x 0,14 | 102 | M/50/EAP/10U |
| | 10 ... 30 | 300 | PNP | | -40 ... +80 | • | IP67 | --- | 2 | PVC 3 x 0,14 | 23 | M/50/EHP/2V |
| | 10 ... 30 | 300 | PNP | | -40 ... +80 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/EHP/5V |
| | 10 ... 30 | 300 | PNP | | -40 ... +80 | • | IP67 | --- | 10 | PVC 3 x 0,14 | 102 | M/50/EHP/10V |
| | 10 ... 30 | 300 | PNP | | -40 ... +80 | • | IP68 | --- | 5 | PUR 3 x 0,14 | 56 | M/50/EHP/5U |
|  | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | M8 x 1 | 0,3 | PUR 3 x 0,14 | 7 | M/50/EAP/CP |
| | 10 ... 30 | 100 | PNP / NPN | • | -40 ... +80 | • | IP67 | M8 x 1 | 0,3 | PUR 3 x 0,14 | 7 | M/50/IOP/CP |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | M12 x 1 | 0,3 | PUR 3 x 0,14 | 16 | M/50/EAP/CC |
| | 10 ... 30 | 100 | PNP | | -40 ... +80 | • | IP67 | M12 x 1 | 2 | PUR 3 x 0,14 | 35 | M/50/EAP/CC/2 |
| | 10 ... 30 | 100 | PNP / NPN | • | -40 ... +80 | • | IP67 | M12 x 1 | 0,3 | PUR 3 x 0,14 | 16 | M/50/IOP/CC |
| | 10 ... 30 | 300 | PNP | | -40 ... +80 | • | IP67 | M8 x 1 | 0,3 | PUR 3 x 0,14 | 7 | M/50/EHP/CP |
|  | 10 ... 30 | 100 | NPN | | -40 ... +80 | • | IP67 | --- | 2 | PVC 3 x 0,14 | 23 | M/50/EAN/2V |
| | 10 ... 30 | 100 | NPN | | -40 ... +80 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/EAN/5V |
| | 10 ... 30 | 100 | NPN | | -40 ... +80 | • | IP67 | --- | 10 | PVC 3 x 0,14 | 102 | M/50/EAN/10V |
|  | 10 ... 30 | 100 | NPN | | -40 ... +80 | • | IP67 | M8 x 1 | 0,3 | PUR 3 x 0,14 | 7 | M/50/EAN/CP |

Color code: see next page *1) IO-Link functionality: see next page

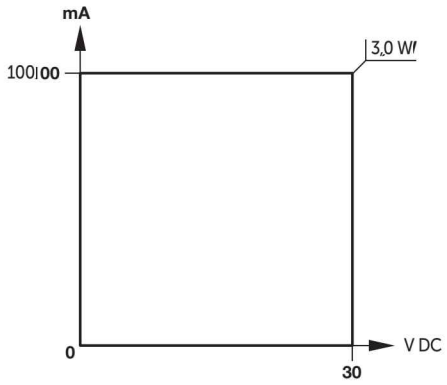
## IO-Link Switch conforming to IEC 61131-9

| Properties and Functionality | M/50/EAP, M/50/EAN M/50/EHP | M/50/IOP | |
|---|---|---|---|
| Operating Mode | Standard | Standard | |
| Power LED | | • | • |
| LED sensor signal | • | • | • |
| Normally open (delivery status) | • | • | • |
| Normally closed | | O | • |
| Delay mode | | O | • |
| Installation aid | | • | • |
| Temperature measurement | | | • |
| Detection counter | | | • |
| Teach functionality | | | • |
| Responsiveness adjustment | | | • |

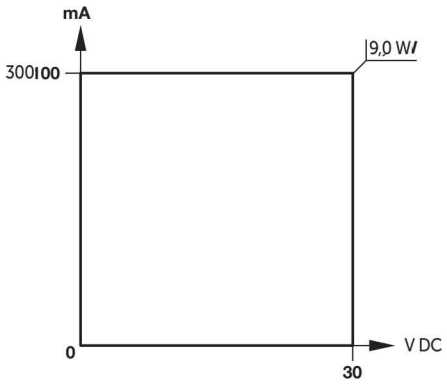
Note: IODD for the M/50/IOP switches available on the Norgren homepage.
https://www.norgren.com/uk/en/technical-support/software
• = included
O = optional (manufacture pre-setting required)

## Switching current and switching voltage

M/50/EAP, M/50/EAN, M/50/IOP



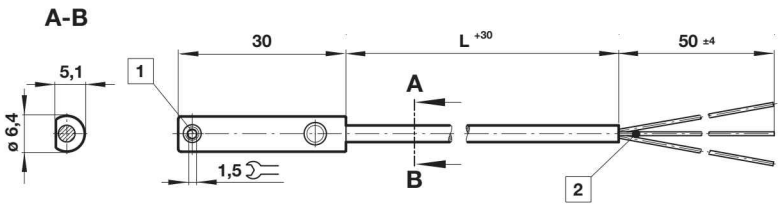

M/50/EHP



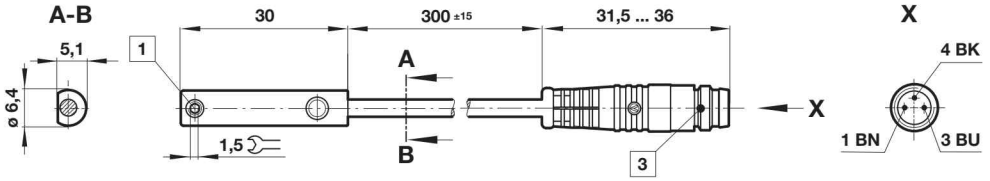

## Dimensions

Dimensions in mm
Projection/First angle

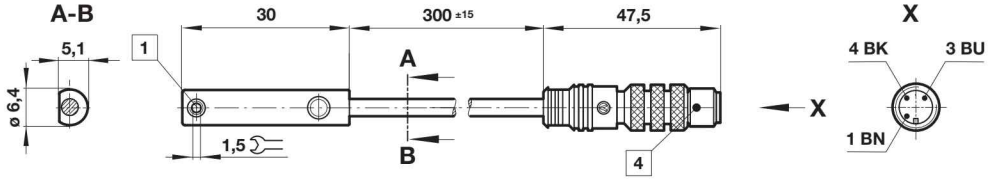
M/50/EAP/*V,
M/50/EAP/*U,
M/50/IOP/5V,
M/50/EHP/*V,
M/50/EHP/5U,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m




M/50/EAP/CP,
M/50/EAN/CP,
M/50/IOP/CP,
M/50/EHP/CP




M/50/EAP/CC,
M/50/IOP/CC,
M/50/EHP/CC




1 Fixing screw
2 Color code: BK = black (output); BN = brown (+); BU = blue (-)
3 Connector M8 x 1; 1 BN = +; 3 BU = -; 4 BK = output
4 Connector M12 x 1; 1 BN = +; 3 BU = -; 4 BK = output

## Accessories

Plug-in connector cable with nut

| Outer cover | Cable length (m) | Weight (kg) | Connector | Model |
|---|---|---|---|---|
| PVC 3 x 0,25 | 5 | 0,18 | M8 x 1 straight connector | M/P73001/5 |
| PUR 3 x 0,25 | 5 | 0,18 | M8 x 1 straight connector | M/P73002/5 |
| PVC 3 x 0,25 | 5 | 0,18 | M8 x 1 angled connector 90 ° | M/P34615/5 |
| PUR 3 x 0,25 | 5 | 0,18 | M8 x 1 angled connector 90 ° | M/P34596/5 |
| PUR 3 x 0,34 | 5 | 0,21 | M12 x 1 straight connector | M/P34594/5 |

## Switch mounting brackets - Brackets > 15 mm stroke

1 Magnetically operated switch
2 Switch mounting bracket

| Ø | B | R max. | kg | Model |
|---|---|---|---|---|
| 10 | 8 | 16 | 0,01 | QM/33/010/22 |
| 12 | 8 | 18 | 0,01 | QM/33/012/22 |
| 16 | 10 | 20 | 0,01 | QM/33/016/22 |
| 20 | 10 | 22 | 0,01 | QM/33/020/22 |
| 25 | 10 | 24 | 0,01 | QM/33/025/22 |

## Switch mounting brackets - Brackets < 15 mm stroke

1 Magnetically operated switch
2 Switch mounting bracket

| Ø | S | T | kg | Model |
|---|---|---|---|---|
| 10 | 27,5 | 19,5 | 0,01 | QM/33/010/23 |
| 12 | 28,5 | 21,5 | 0,01 | QM/33/016/23 |
| 16 | 29,5 | 23,5 | 0,01 | QM/33/016/23 |
| 20 | 29,5 | 26 | 0,01 | QM/33/020/23 |
| 25 | 31,5 | 28,5 | 0,01 | QM/33/025/23 |

## Warning

**These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under »Technical features/ data«.**
Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications,
consult Norgren.
Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.