# KA/802000/M/EX
# Stainless Steel ISOLine™ 15552 cylinder, double acting

— ø 32 ... 200 mm
— High performance adaptive cushioning system "ACS"
— High corrosion and acid resistance
— These cylinder are applicable in zone 1 &2 (gas), 21 & 22 (dust), ATEX Cat. II 2G and II 2D.



## Technical features

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

**Standard:**
ISO 15552

**Operation:**
Double acting, adjustable cushioning

**Operating pressure:**
ø 32 ... 200 mm
Cylinder with Round barrel
1 ... 10 bar (14 ... 145 psi)

**Ports:**
G1/8 ... 3/4

**Cylinder diameters:**
32, 40, 50, 63, 80, 100, 125, 160, 200 mm

**Standard strokes:**
25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 mm

**Non-standard strokes:**
ø 32 ... 125 mm (5 ... 2800 mm)
ø 160 ... 200 mm (5 ... 2600 mm)

**ATEX marking:**
II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T120 °C Db

**Operating temperature:**
Standard version
ø 32 ... 200 mm
-10 ... +80 °C max. (+14 ... +176 °F)

**Ambient temperature:**
Standard version
ø 32 ... 200 mm
-10 ... +60 °C max.(+14 ... +140 °F)
Air supply must be dry enough to avoid ice formation at temperatures below +2 °C (+35 °F).

**Standard Materials:**
Barrel: X5 Cr Ni 18 10 (1.4301; AISI 304)
End covers: X5 Cr Ni 19 10 (1.4308; AISI 304)
Piston rod: X10 Cr Ni S 18 9 (1.4305; AISI 303)
Nuts and screws: X10 Cr Ni S 18 9 (1.4305; AISI 303)
Tie rods: X5 Cr Ni 18 10 (1.4301; AISI 304)
Piston rod seals: FPM
Piston seals: PUR ø 32 ... 125 mm, NBR ø 160 ... 200 mm
Cushion seals: NBR
O-rings: FPM

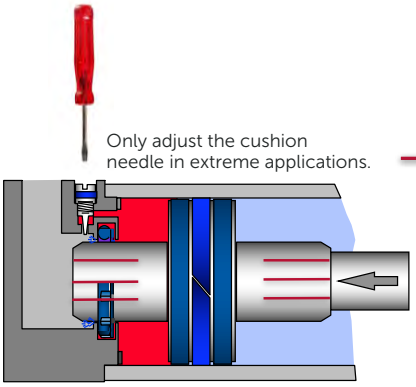
## Technical data

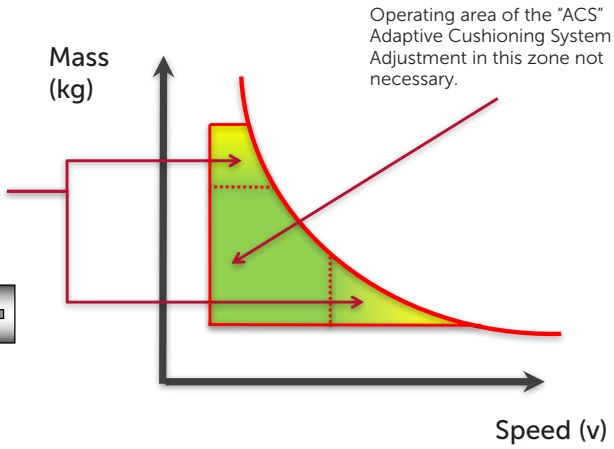
| Cylinder ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|---|---|---|---|---|---|---|---|---|---|
| Port size | G1/8 | G1/4 | G1/4 | G3/8 | G3/8 | G1/2 | G1/2 | G3/4 | G3/4 |
| Piston rod ø (mm) | 12 | 16 | 20 | 20 | 25 | 25 | 32 | 40 | 40 |
| Piston rod thread | M10 x 1,25 | M12 x 1,25 | M16 x 1,5 | M16 x 1,5 | M20 x 1,5 | M20 x 1,5 | M27 x 2 | M36 x 2 | M36 x 2 |
| Cushion length (mm) | 20 | 22 | 24 | 24 | 26 | 33 | 39 | 43 | 43 |
| Cushioning<br>Adaptive cushioning systems "ACS" | • | • | • | • | • | • | • | | |
| Cushioning (adjustable cushion) | | | | | | | | • | • |
| Initial cushion volume (cm3) | 12,8 | 20,2 | 36 | 64 | 111 | 235 | 427 | 784 | 1273 |
| Theoretical thrusts at 6 bar outstroke (N) | 482 | 754 | 1178 | 1870 | 3016 | 4710 | 7363 | 12064 | 18840 |
| Theoretical thrusts at 6 bar instroke (N) | 414 | 633 | 990 | 1680 | 2722 | 4416 | 6882 | 11310 | 18090 |
| Air consumption at 6 bar outstroke (l/cm) | 0,056 | 0,088 | 0,137 | 0,218 | 0,35 | 0,55 | 0,86 | 1,41 | 2,2 |
| Air consumption at 6 bar instroke (l/cm) | 0,048 | 0,074 | 0,114 | 0,195 | 0,32 | 0,51 | 0,79 | 1,32 | 2,1 |


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## The function

The new "ACS" Adaptive Cushioning System provides a high performance pneumatic damping function. The system will automatically cushion for a wide range of general applications as delivered. Manual adjustment is still possible for extreme applications.




## Design and sizing in pneumatics

### Golden rules

Design and sizing in pneumatics is often based upon experience coupled with an element of fear of under specifying crucial equipment. In an attempt to ensure enough power, engineers may select over sized cylinders and then select over sized valves to supply them with enough air. The same uncertainty can also lead to over sized specification of air line equipment, fittings and tubing.
The outcome is components larger than necessary that use too much compressed air and waste energy and money.
However when following some well proven golden rules and a few laws of pneumatics it is easy to achieve correctly sized pneumatic installations.

### Sizing rule

The theoretical force of the cylinder should be 25% extra for high speed, 50% extra for low speed and 100% extra for ultra low speed (positioning) applications.

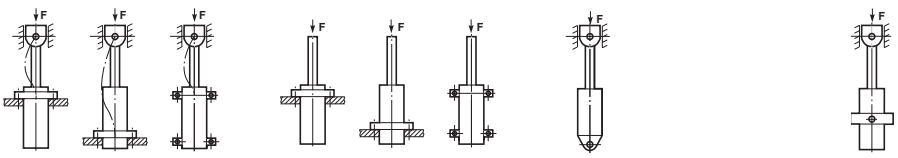
The correct sizing is based upon the required force and applied pressure. Go to page 1 for more information on cylinder sizing and air consumption.

### Basics to consider

The force required, the pressure available, the speed of movement and air consumption. ISO and VDMA standard or compact style also cushioning and sensors. Cylinders are greased on assembly and operate under normal conditions without additional lubrication. However using a lubricator will extend the life of these products.

### Load and buckling

For applications with high side loading, use pneumatic slide actuators or standard cylinders fitted with guide units.
Alternatively external guide bearings should be installed. When a long stroke length is specified, care must be taken to ensure the rod length is within the limits for prevention of buckling. The table shows the maximum stroke length for a variety of installation arrangements.




| Cylinder ø (mm) | Piston rod ø (mm) | Load case 1 Pressure (bar) | | | | Load case 2 Pressure (bar) | | | | Load case 3 Pressure (bar) | | | | Load case 4 Pressure (bar) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | 6 | 10 | 16 | 4 | 6 | 10 | 16 | 4 | 6 | 10 | 16 | 4 | 6 | 10 | 16 |
| 32 | 12 | 1100 | 860 | 650 | 500 | 500 | 390 | 290 | 210 | 650 | 520 | 380 | 290 | 760 | 600 | 450 | 340 |
| 40 | 16 | 1600 | 1200 | 950 | 730 | 730 | 580 | 430 | 320 | 940 | 750 | 560 | 430 | 1100 | 880 | 660 | 500 |
| 50 | 20 | 2000 | 1600 | 1200 | 930 | 930 | 740 | 550 | 420 | 1200 | 960 | 720 | 550 | 1400 | 1100 | 840 | 640 |
| 63 | 20 | 1500 | 1200 | 930 | 720 | 720 | 570 | 420 | 310 | 930 | 740 | 550 | 420 | 1100 | 860 | 650 | 490 |
| 80 | 25 | 1900 | 1500 | 1100 | 880 | 880 | 700 | 510 | 380 | 1100 | 910 | 680 | 510 | 1300 | 1100 | 800 | 600 |
| 100 | 25 | 1500 | 1200 | 880 | 670 | 670 | 520 | 380 | 270 | 880 | 690 | 510 | 370 | 1000 | 820 | 600 | 450 |
| 125 | 32 | 2000 | 1600 | 1200 | 910 | 910 | 710 | 520 | 380 | 1200 | 940 | 690 | 520 | 1400 | 1100 | 820 | 620 |
| 160 | 40 | 2400 | 1900 | 1500 | 1100 | 1100 | 880 | 640 | 480 | 1400 | 1200 | 860 | 640 | 1700 | 1400 | 1000 | 760 |
| 200 | 40 | 1900 | 1500 | 1100 | 860 | 860 | 670 | 480 | 350 | 1100 | 890 | 650 | 480 | 1300 | 1000 | 770 | 580 |


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## Explosion protection according ATEX directive 2014/34/EU
## EN ISO 80079 Non-electrical equipment for potentally explosive atmospheres

| | | | | |
|---|---|---|---|---|
| Range of application | | All range of application other than mines | | |
| Equipment group | | II | | |
| Potentially explosive atmosphere | | Mixture of air and gases, vapours, mists G (gas) | | |
| (compustible materials) | | Dust/air - mixture D (dust) | | |
| Proability risk for a potentially explosive atmosphere | | Continuous or long-term or frequent | Occasional | Rarely and briefly |
| Equipment categories | | 1 | 2 | 3 |
| Equipment safety | | very high | high | normal |
| Gas | Equipment-identification Ex... | Ex II 1G | Ex II 2G | Ex II 3G |
| | ATEX-zone | Zone 0 | Zone 1 | Zone 2 |
| Dust | Equipment-identification Ex... | Ex II 1D | Ex II 2D | Ex II 3D |
| | ATEX-zone | Zone 20 | Zone 21 | Zone 22 |

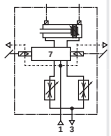
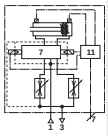
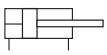
## Equipment identification for Norgren pneumatic cylinder: (Example for standard cylinder)

**II 2G Ex h IIC T4 Gb**
**II 2D Ex h IIIC T120 °C Db**

| | | |
|---|---|---|
| Equipment group: | II | All application other than mines |
| Equipment categorie: | 2 | High level of equipment safety |
| Usability for zones: | G and D | Gas and dust |
| Explosions groups | IIC and IIIC | Max. ignitability gas- and dust groups |
| Temperature class for gas: | T4 | Max. surface temperature 135 °C |
| Temperature data for dust: | 120 °C | Max. surface temperature |
| Equipment Protection Level (EPL) | Gb and Db | Gas and dust, save by normal operation and expected equipment fault |


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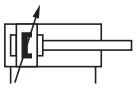
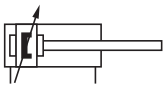
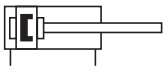
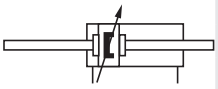
## Additional ISO 15552 Cylinder ranges (Cylinder ranges in the red frame are shown in this data sheet.)

| Symbols | | Profile barrel | Round Barel | Industrial Automation | Food & Beverage | Automotive | ATEX | Rail *1) | CE-marked | ø (mm) | Range | Description | Datasheet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| |  | • | | • | • | • | • | • | • | 32 ... 125 | PRA/802000<br>LPRA/802000 | Double Acting Cylinder | 1_5_220_PRA_802000_M_RA_8000_M<br>1_5_225_PRA_802000_M_EX<br>1_5_220_LPRA_802000_M_LRA_8000_M |
| |  | • | • | | • | | • | • | • | 32 ... 125 | RA/802000<br>LPRA/802000 | Double Acting Cylinder | 1_5_220_PRA_802000_M_RA_8000_M<br>1_5_225_PRA_802000_M_EX<br>1_5_220_LPRA_802000_M_LRA_8000_M |
|  |  | • | • | | • | | • | • | • | 160 ... 320 | RA/8000<br>LRA/8000 | Double Acting Cylinder | 1_5_220_PRA_802000_M_RA_8000_M<br>1_5_126_RA_8000_M_EX<br>1_5_220_LPRA_802000_M_LRA_8000_M |
| |  | • | • | • | • | | • | | • | 32 ... 200 | KA/802000 | Stainless steel Cylinder | 1_5_222_KA_802000_M<br>1_5_228_KA_802000_M_EX |
| |  | • | | • | • | | • | | • | 32 ... 100 | PRA/822000 | Smooth Line Cylinder | 1_5_230_PRA_822000_M<br>1_5_235_PRA_822000_M_EX |
| |  | • | | • | • | | • | | • | 32 ... 100 | PRA/842000 | Clean Line Cylinder | 1_5_240_PRA_842000_M<br>1_5_245_PRA_842000_M_EX |
|  |  | • | | • | | • | • | | • | 32 ... 100 | PRA/862000 | IVAC Industrial Cylinder | 1_5_250_PRA_862000_M<br>1_5_255_PRA_862000_M_EX |
|  |  | • | | • | • | • | • | | • | 32 ... 100 | PRA/882000 | IVAC Clean Line Cylinder | 1_5_260_PRA_882000_M<br>1_5_265_PRA_882000_M_EX |
| |  | • | | • | • | • | • | | • | 40 ... 125 | PSA/802000/F1 | Cylinder with position sensor | 1_9_067_PSA_802000_F1<br>1_9_068_PSA_802000_F1_EX |
|  |  | • | • | | • | | • | | • | 160 ... 320 | SA/8000/F1 | Cylinder with position sensor | 1_9_062_SA_8000_F1<br>1_9_062_SA_8000_F1_EX |
| |  | • | | • | • | • | | • | | 32 ... 100 | PRA/801000, PRA/803000 | Standard Single Acting Cylinder | 1_4_101_PRA_801000_803000<br>- |
|  |  | • | • | | • | | | • | | 32 ... 100 | RA/801000, RA/803000 | Standard Single Acting Cylinder | 1_4_101_PRA_801000_803000<br>- |

• Range available. For additional information please contact the technical service or http://www.norgren.com
*1) Rail Cylinder Shock and vibaration tested to EN 61373 Category 1; Class A + B


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## Cylinder variants

| Symbol<br>Please see the description below | Versions<br>H L | Piston Rod Material<br>K S C D | Standard Model with<br>Male Piston Rod Thread | <br>Female Piston Rod Thread | ø<br>(mm) | Description | Page |
|---|---|---|---|---|---|---|---|
|  | | X | KA/802000/M/EX | KA/802000/MX/EX | 32 ... 125 | Standard Cylinder | 8/9 |
| | | X | KA/802000/M/EX | - | 160 ... 200 | Standard Cylinder | 8 |
| | | X | KA/802000/W2/EX | KA/802000/W2X/EX | 32 ... 125 | Cylinder with Special Wiper - Seal (suitable for appl. with cement, plaster (stucco), arizona sand, hoar-frost or ice) | 8/9 |
| | | X | KA/802000/W2/EX | | 160 ... 200 | | |
|  | | X | KA/802000/MU/EX | KA/802000/MUX/EX | 32 ... 125 | Cylinder with Extended Piston Rod<br>ø 32 ... 125 mm<br>(Stroke + Extension = 2800 mm)<br>ø 160 ... 320 mm<br>(Stroke + Extension = 2600 mm) | 8/9 |
| | | X | KA/802000/MU/EX | - | 160 ... 200 | | |
| | | X | KA/802000/W6/EX | KA/802000/W6X/EX | 32 ... 125 | Cylinder with Special wiper seal suitable for appl. with cement, plaster (stucco), arizona sand, hoar-frost or ice | 8/9 |
| | | X | KA/802000/W6/EX | - | 160 ... 200 | | |
|  | | X | KA/802000/MW/EX | KA/802000/MWX/EX | 32 ... 125 | Cylinder without Cushioning | 8/9 |
| | | X | KA/802000/MW/EX | - | 160 ... 200 | | |
|  | | X | KA/802000/JM/EX | KA/802000/JMX/EX | 32 ... 125 | Cylinder with Double Ended Piston Rod | 9 |
| | | X | KA/802000/JM/EX | - | 160 ... 200 | | |
| | | X | KA/802000/W4/EX | KA/802000/W4X/EX | 32 ... 125 | Cylinder with Double Ended Piston Rod and Special wiper seal suitable for appl. with cement, plaster (stucco), arizona sand, hoar-frost or ice | 8/9 |
| | | X | KA/802000/W4/EX | - | 160 ... 200 | | |

Note: K, S = Stainless steel austenitic; X = Standard;

## Option selector

**KA/802★★★/★★★/EX/★★★★**

| Piston rod material | Substitute |
|---|---|
| Stainless steel austenitic | K |
| **Cylinder ø (mm)** | **Substitute** |
| 032, 040, 050, 063, 080, 100, 125, 160, 200 | |
| **Variants ø 32 ... 200 mm (magnetic piston)** | **Substitute** |
| Standard | M |
| Special wiper/seal | W2 |
| Without cushion | MW |
| Double ended piston rod | JM |
| Double ended piston rod, special wiper/seal | W4 |
| Extended piston rod | MU |
| **A/8*****/MU/EX/****/*** → | Extension (mm) |
| Extended piston rod, special wiper/seal | W6 |
| **A/8*****/W6/EX/****/*** → | Extension (mm) |

| Strokes (mm) | Substitute |
|---|---|
| 5 ... 2800 | |
| **Piston rod thread** | **Substitute** |
| Male | None |
| Female (ø32 ... 125 mm) | X |

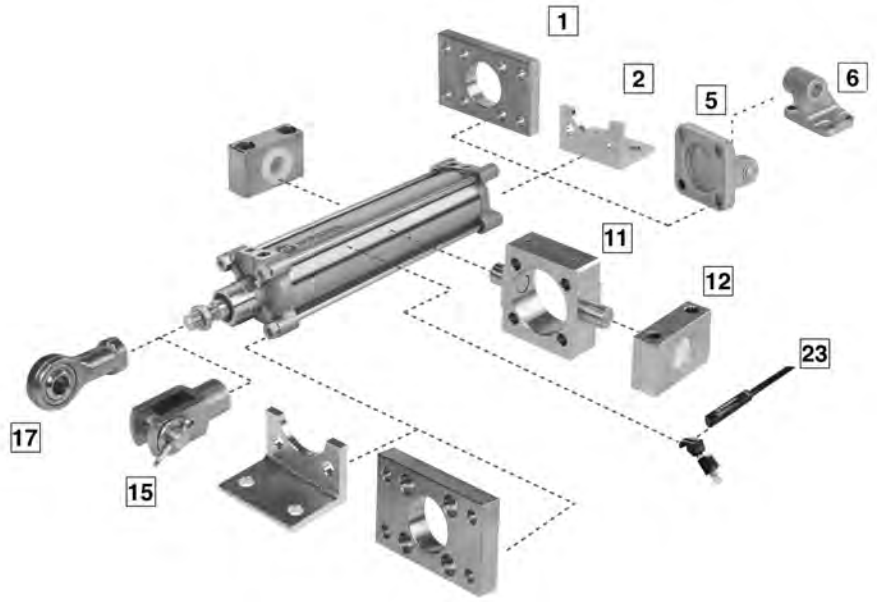
Note: If position is not required, disregard option position within part number e.g. KA/802100/M/EX/100.
For combinations of cylinder variants consult our technical service.
This option selector explains only the cylinder variants.

Additional variants/options are not possible.

Details see table above.


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## Cylinder with Round barrel ø 32 ... 200 mm




## Mountings

| Cyl. ø | B, G<br><br>1<br>Page 10 | C<br><br>2<br>Page 10 | D<br><br>5<br>Page 10 | F<br><br>15<br>Page 10 | S<br><br>12<br>Page 11 | SW<br><br>6<br>Page 11 | UF<br><br>17<br>Page 11 | UH<br><br>11<br>Page 11 |
|---|---|---|---|---|---|---|---|---|
| 32 | KQA/8032/22 | KQA/8032/21 | KQA/8032/23 | KQM/55433/25 | KQA/8032/41 | M/P72288 | KQM/8032/32 | KQA/8032/40 |
| 40 | KQA/8040/22 | KQA/8040/21 | KQA/8040/23 | KQM/55441/25 | KQA/8040/41 | M/P72289 | KQM/8040/32 | KQA/8040/40 |
| 50 | KQA/8050/22 | KQA/8050/21 | KQA/8050/23 | KQM/55451/25 | KQA/8040/41 | M/P72290 | KQM/8050/32 | KQA/8050/40 |
| 63 | KQA/8063/22 | KQA/8063/21 | KQA/8063/23 | KQM/55451/25 | KQA/8063/41 | M/P72291 | KQM/8050/32 | KQA/8063/40 |
| 80 | KQA/8080/22 | KQA/8080/21 | KQA/8080/23 | KQA/8080/25 | KQA/8063/41 | M/P72292 | KQM/8080/32 | KQA/8080/40 |
| 100 | KQA/8100/22 | KQA/8100/21 | KQA/8100/23 | KQA/8080/25 | KQA/8100/41 | M/P72293 | KQM/8080/32 | KQA/8100/40 |
| 125 | KQA/8125/22 | KQA/8125/21 | KQA/8125/23 | KQA/8125/25 | KQA/8100/41 | – | KQM/8125/32 | KQA/8125/40 |
| 160 | – | – | – | – | – | – | – | – |
| 200 | – | – | – | – | – | – | – | – |

| Position | Style | Stainless steel | Position | Style | Standard |
|---|---|---|---|---|---|
| 1 | B, G | X 5 Cr Ni 18 10 (1.4301; AISI 304). Screws: A2 | 12 | S | Swivel bearing: X 5 Cr Ni 18 10 (1.4301; AISI 304), bearing: PA |
| 2 | C | X 5 Cr Ni 18 10 (1.4301; AISI 304). Screws: A2 | 15 | F | Clevis mounting: X 10 Cr Ni S 18 9 (1.4305; AISI 303),<br>Bolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303),<br>Circlip: X 10 Cr Ni S 18 9 (1.4305; AISI 303) |
| 5 | D | X 5 Cr Ni 18 10 (1.4301; AISI 304). Screws: A2<br>Bolt: X 10 Cr Ni S 18 9 (1.4305; AISI 303) | 17 | UF | X 10 Cr Ni S 18 9 (1.4305; AISI 303), Inner ring X 105 Cr Co Mo 18-2 (1.4528),<br>Outer ring X 5 Cr Ni 18 10 (1.4301; AISI 304) |
| 6 | SW | X 6 Cr Ni 18 9 (1.4308; AISI 304) | | Bracket for switches | Body: PA/PP, screw and holding strap A2 |
| 11 | UH | Adjustable intermediate mounting: X 10 Cr Ni S 18 9 (1.4305; AISI 303),<br>Bolts: X 10 Cr Ni S 18 9 (1.4305; AISI 303), screws: A2 | | | |


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## Accessories Round barrel (ø 32 ... 200 mm)

| Model | ø | Port size | Pneufit S Straight adaptor, ISO G | Pneufit S Swivel elbow adaptor ISO G |
|---|---|---|---|---|
| | | |  |  |
| KA/802032/M/EX/* | 32 | G1/8 | S02250618 | S02470618L |
| KA/802040/M/EX/* | 40 | G1/4 | S02250628 | S02470628L |
| KA/802050/M/EX/* | 50 | G1/4 | S02250828 | S02470828L |
| KA/802063/M/EX/* | 63 | G3/8 | S02250838 | S02470838L |
| KA/802080/M/EX/* | 80 | G3/8 | S02251038 | S02470838L |
| KA/802100/M/EX/* | 100 | G1/2 | S02251248 | S02471248L |
| KA/802125/M/EX/* | 125 | G1/2 | S02251248 | S02471248L |
| KA/802160/M/EX/* | 160 | G3/4 | - | - |
| KA/802200/M/EX/* | 200 | G3/4 | - | - |

For alternative fitting types please contact the technical service.

## Magnetically operated switches

| ø | M/50/**  Page 12-15 | Switch mounting brackets for M/50  23 Page 15 |
|---|---|---|
| 32 | | QM/27/2/1 |
| 40 | | QM/27/2/1 |
| 50 | | QM/27/2/1 |
| 63 | | QM/27/2/1 |
| 80 | | QM/27/2/1 |
| 100 | | QM/27/2/1 |
| 125 | | QM/27/2/1 |
| 160 | | QM/27/2/1 |
| 200 | | QM/27/2/1 |

Spares kit for profile and round barrel
(wearing parts to be replaced are: piston seals, barrel seals, damping seals and piston rod seals as well as the wear ring)

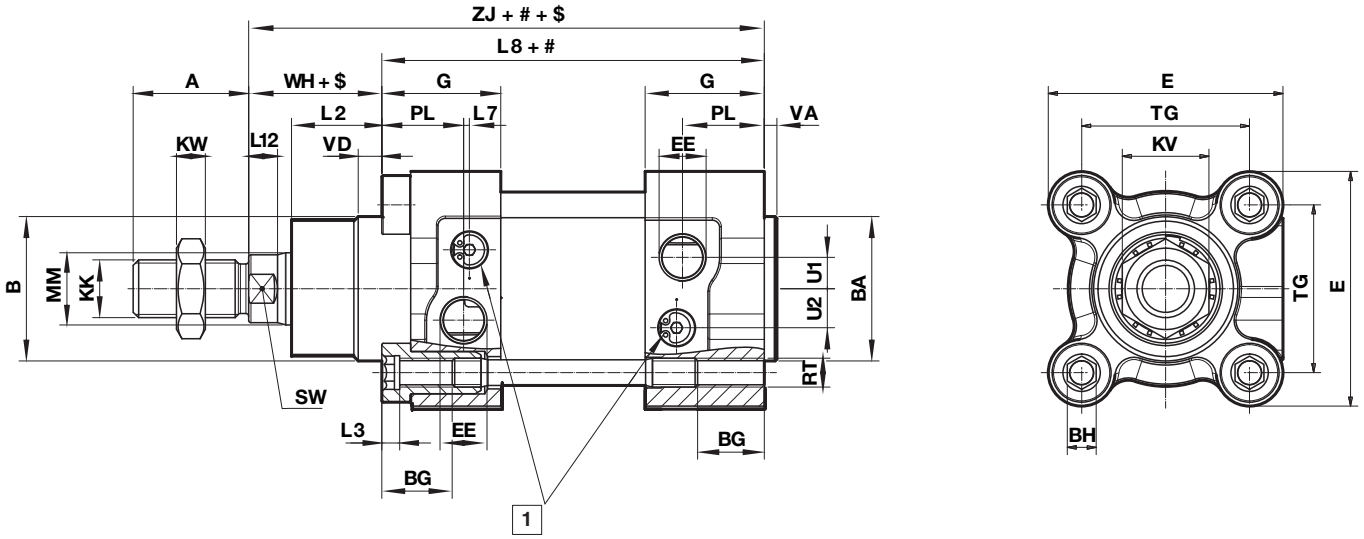


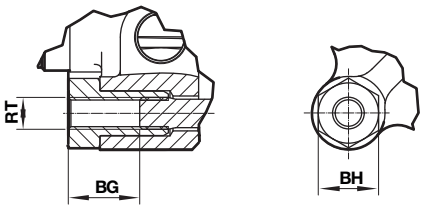
| Spares kit | | | | Option | | |
|---|---|---|---|---|---|---|
| Piston rod thread | Male thread | | M / MU / MW | JM | W2 / W6 | W4 |
| | Female thread | | MX / MUX /MWX | JMX | W2X / W6X | W4X |
| | Model | ø | Standard temperature (-10 °C ... +80 °C) | | | |
| Standard | KA/802*** | 032 | KQA/8032/00 | KQA/8032/J/00 | QA/8032/W1/00 | QA/8032/W3/00 |
| | | 040 | KQA/8040/00 | KQA/8040/J/00 | QA/8040/W1/00 | QA/8040/W3/00 |
| | | 050 | KQA/8050/00 | KQA/8050/J/00 | QA/8050/W1/00 | QA/8050/W3/00 |
| | | 063 | KQA/8063/00 | KQA/8063/J/00 | QA/8063/W1/00 | QA/8063/W3/00 |
| | | 080 | KQA/8080/00 | KQA/8080/J/00 | QA/8080/W1/00 | QA/8080/W3/00 |
| | | 100 | KQA/8100/00 | KQA/8100/J/00 | QA/8100/W1/00 | QA/8100/W3/00 |
| | | 125 | KQA/8125/00 | KQA/8125/J/00 | QA/8125/W1/00 | QA/8125/W3/00 |
| | | 160 | KQA/8160/00 | KQA/8160/J/00 | QA/8160/W1/00 | QA/8160/W3/00 |
| | | 200 | KQA/8200/00 | KQA/8200/J/00 | QA/8200/W1/00 | QA/8200/W3/00 |


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# Basic dimensions
# KA/802000/M/EX
# Standard Cylinder
# ø 32 - 200 mm

Dimensions in mm
Projection/First angle




# Stroke
$ Piston rod extension
1 Cushion screw
For additional information please contact the technical service or http://www.norgren.com

| ø | A -0,5 | ø B d11 | ø BA d11 | BG min | BH | □E | EE | G | KK | KV | KW | L2 | L3 | L7 | L8 | L12 | ø MM h9 | PL | TG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 22 | 30 | 30 | 16 | 6 | 47 | G1/8 | 29 | M10 x 1,25 | 17 | 5 | 19,5 | 4 | 6,6 | 94 | 5,5 | 12 | 15 | 32,5 |
| 40 | 24 | 35 | 35 | 16 | 6 | 53 | G1/4 | 34,5 | M12 x 1,25 | 19 | 6 | 22 | 4 | 5,6 | 105 | 6,5 | 16 | 21,5 | 38 |
| 50 | 32 | 40 | 40 | 16 | 8 | 65 | G1/4 | 33 | M16 x 1,5 | 24 | 8 | 25 | 5 | 1,6 | 106 | 8 | 20 | 22,7 | 46,5 |
| 63 | 32 | 45 | 45 | 16 | 8 | 75 | G3/8 | 36,5 | M16 x 1,5 | 24 | 8 | 25 | 5 | 3,6 | 121 | 8 | 20 | 24,2 | 56,5 |
| 80 | 40 | 45 | 45 | 17 | 19 | 95 | G3/8 | 42 | M20 x 1,5 | 30 | 10 | 33 | - | 1,8 | 128 | 10 | 25 | 29,7 | 72 |
| 100 | 40 | 55 | 55 | 17 | 19 | 113 | G1/2 | 42 | M20 x 1,5 | 30 | 10 | 35 | - | 3,8 | 138 | 10 | 25 | 27,7 | 89 |
| 125 | 54 | 60 | 60 | 20 | 24 | 140 | G1/2 | 54 | M27 x 2 | 41 | 13,5 | 44 | - | 1,8 | 160 | 13 | 32 | 39,7 | 110 |
| 160 | 72 | 65 | 65 | 28,5 | 32 | 180 | G3/4 | 55 | M36 x 2 | 55 | 18 | 58 | - | - | 180 | 16 | 40 | 31,5 | 140 |
| 200 | 72 | 75 | 75 | 28,5 | 32 | 220 | G3/4 | 52,5 | M36 x 2 | 55 | 18 | 67 | - | - | 180 | 16 | 40 | 26,5 | 175 |

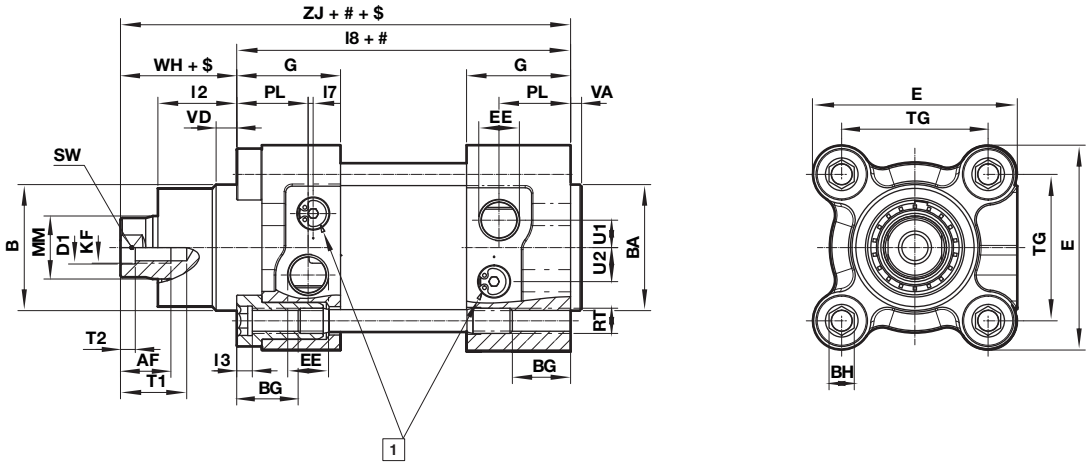
| ø | RT | SW | U1 | U2 | VA | VD | WH | ZJ | Model Round barrel | at 0 mm | per 25 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | M 6 | 10 | 4,6 | 6,3 | 3,5 | 6 | 26 | 120 | KA/802032/M/EX/* | 0,9 (kg) | 0,06 (kg) |
| 40 | M 6 | 13 | 5,8 | 9,2 | 3,5 | 6 | 30 | 135 | KA/802040/M/EX/* | 1,3 (kg) | 0,08 (kg) |
| 50 | M 8 | 17 | 8,7 | 10,8 | 3,5 | 6 | 37 | 143 | KA/802050/M/EX/* | 2,0 (kg) | 0,13 (kg) |
| 63 | M 8 | 17 | 10 | 12,8 | 3,5 | 6 | 37 | 158 | KA/802063/M/EX/* | 3,0 (kg) | 0,14 (kg) |
| 80 | M 10 | 22 | 12 | 14,5 | 3,5 | 6 | 46 | 174 | KA/802080/M/EX/* | 5,0 (kg) | 0,30 (kg) |
| 100 | M 10 | 22 | 9 | 14,5 | 3,5 | 6 | 51 | 189 | KA/802100/M/EX/* | 7,3 (kg) | 0,34 (kg) |
| 125 | M 12 | 27 | 12 | 17 | 5,5 | 8 | 65 | 225 | KA/802125/M/EX/* | 12,2 (kg) | 0,51 (kg) |
| 160 | M 16 | 36 | 15 | 17 | 6 | 10 | 80 | 260 | KA/802160/M/EX/* | 23,4 (kg) | 0,88 (kg) |
| 200 | M 16 | 36 | 19 | 14 | 6 | 10 | 95 | 275 | KA/802200/M/EX/* | 34,4 (kg) | 1,14 (kg) |

* Please insert stroke length.
Basic Dimension are also for cylinder variants or for different piston rod material
KA/802000/W2/EX - Cylinder with Special Wiper - Seal
KA/802000/MU/EX - Cylinder with Extended Piston Rod
KA/802000/W6/EX - Cylinder with Extended Piston Rod and Special Wiper - Seal
KA/802000/MW/EX - Cylinder without Cushioning


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## Cylinder variants
## KA/802000/MX/EX; /MUX/EX; /MWX/EX; /W2X/EX; /W6X/EX
## Cylinder with Female Piston Rod Thread

Dimensions in mm
Projection/First angle

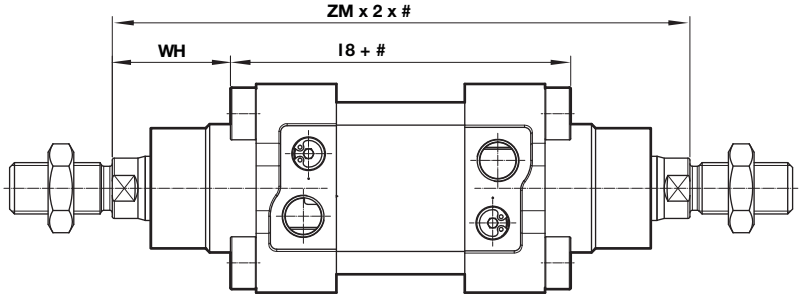



# Stroke

| ø | AF | ø D1 | KF | l12 | ø MM h9 | SW | T1 | T2 |
|---|---|---|---|---|---|---|---|---|
| 32 | 12 | 6,4 | M6 | 5,5 | 12 | 10 | 16 | 2,6 |
| 40 | 12 | 8,4 | M8 | 6,5 | 16 | 13 | 16 | 3,3 |
| 50 | 16 | 10,5 | M10 | 8 | 20 | 17 | 21 | 4,7 |
| 63 | 16 | 10,5 | M10 | 8 | 20 | 17 | 21 | 4,7 |
| 80 | 20 | 13 | M12 | 10 | 25 | 22 | 25 | 6,1 |
| 100 | 20 | 13 | M12 | 10 | 25 | 22 | 25 | 6,1 |
| 125 | 32 | 17 | M16 | 13 | 32 | 27 | 38 | 8 |

For missing dimensions please see page 8.

## KA/802000/JM/EX, KA/802000/W4/EX – Cylinder with Double Ended Piston Rod
## KA/802000/JMX/EX, KA/802000/W4X/EX – Cylinder with Double Ended Piston Rod and Female Piston Rod Thread




# Stroke

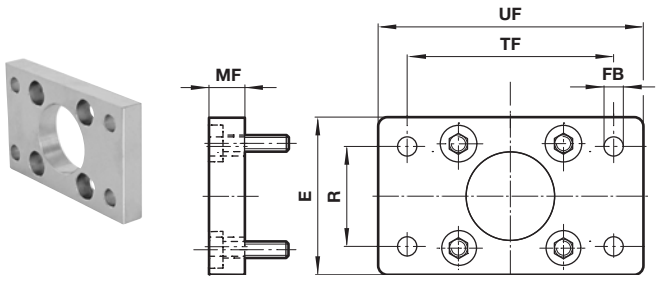
| ø | L8 | WH | ZM | Model Round barrel |
|---|---|---|---|---|
| 32 | 94 | 26 | 146 | KA/802032/JM/EX/* |
| 40 | 105 | 30 | 165 | KA/802040/JM/EX/* |
| 50 | 106 | 37 | 180 | KA/802050/JM/EX/* |
| 63 | 121 | 37 | 195 | KA/802063/JM/EX/* |
| 80 | 128 | 46 | 220 | KA/802080/JM/EX/* |
| 100 | 138 | 51 | 240 | KA/802100/JM/EX/* |
| 125 | 160 | 65 | 290 | KA/802125/JM/EX/* |
| 160 | 180 | 80 | 340 | KA/802160/JM/EX/* |
| 200 | 180 | 95 | 370 | KA/802200/JM/EX/* |

* Please insert stroke length; For missing dimensions please see page 8.


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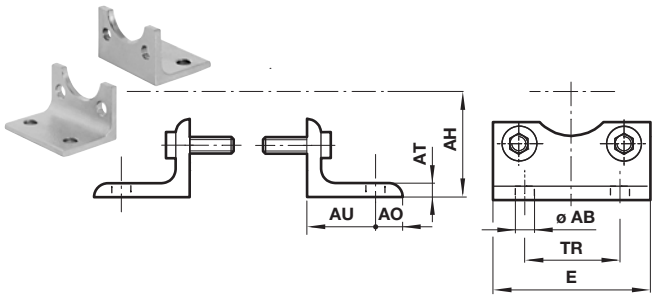
## Mountings
## Front flange B, G
## Conforms to ISO 15552, type MF1 and MF2

Dimensions in mm
Projection/First angle



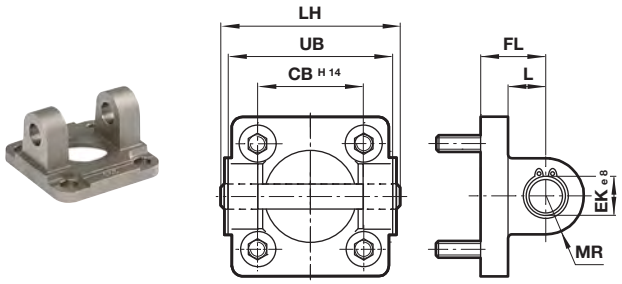

| ø | E | ø FB | MF | R | TF | UF | kg | Model (B, G) |
|---|---|---|---|---|---|---|---|---|
| 32 | 45 | 7 | 10 | 32 | 64 | 80 | 0,22 | KQA/8032/22 |
| 40 | 52 | 9 | 10 | 36 | 72 | 90 | 0,28 | KQA/8040/22 |
| 50 | 65 | 9 | 12 | 45 | 90 | 110 | 0,54 | KQA/8050/22 |
| 63 | 75 | 9 | 12 | 50 | 100 | 120 | 0,69 | KQA/8063/22 |
| 80 | 95 | 12 | 16 | 63 | 126 | 150 | 1,46 | KQA/8080/22 |
| 100 | 115 | 14 | 16 | 75 | 150 | 170 | 1,98 | KQA/8100/22 |
| 125 | 140 | 16 | 20 | 90 | 180 | 224 | 4,36 | KQA/8125/22 |

## Foot mounting C
## Conforms to ISO 15552, type MS1



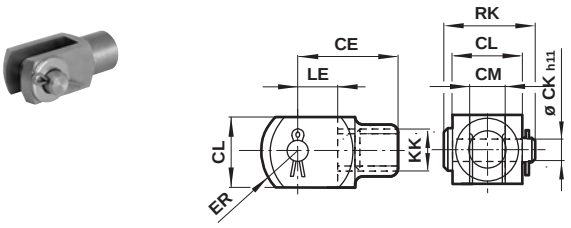

| ø | ø AB | AH | AO | AT | AU | E | TR | kg | Model (C) |
|---|---|---|---|---|---|---|---|---|---|
| 32 | 7 | 32 | 11 | 4 | 24 | 45 | 32 | 0,17 | KQA/8032/21 |
| 40 | 9 | 36 | 8 | 4 | 28 | 52 | 36 | 0,19 | KQA/8040/21 |
| 50 | 9 | 45 | 15 | 5 | 32 | 65 | 45 | 0,40 | KQA/8050/21 |
| 63 | 9 | 50 | 13 | 5 | 32 | 75 | 50 | 0,45 | KQA/8063/21 |
| 80 | 12 | 63 | 14 | 6 | 41 | 95 | 63 | 0,88 | KQA/8080/21 |
| 100 | 14 | 71 | 16 | 6 | 41 | 115 | 75 | 1,13 | KQA/8100/21 |
| 125 | 16,5 | 90 | 25 | 8 | 45 | 140 | 90 | 2,51 | KQA/8125/21 |

## Rear clevis D
## Conforms to ISO 15552, type MP2




| ø | CB H14 | ø EK e8 | FL | L | LH | MR | UB | kg | Model (D) |
|---|---|---|---|---|---|---|---|---|---|
| 32 | 26 | 10 | 22 | 12 | 52 | 10 | 45 | 0,20 | KQA/8032/23 |
| 40 | 28 | 12 | 25 | 15 | 60 | 12 | 52 | 0,32 | KQA/8040/23 |
| 50 | 32 | 12 | 27 | 17 | 68 | 12 | 60 | 0,46 | KQA/8050/23 |
| 63 | 40 | 16 | 32 | 20 | 79 | 16 | 70 | 0,76 | KQA/8063/23 |
| 80 | 50 | 16 | 36 | 22 | 99 | 16 | 90 | 1,32 | KQA/8080/23 |
| 100 | 60 | 20 | 41 | 25 | 119 | 20 | 110 | 2,27 | KQA/8100/23 |
| 125 | 70 | 25 | 50 | 30 | 140 | 25 | 130 | 4,06 | KQA/8125/23 |

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

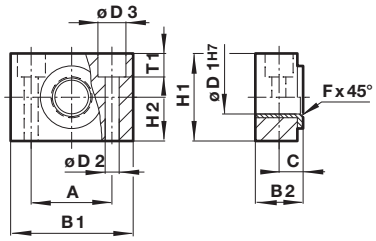



| ø | KK | CE | øCK h11 | CL | CM | ER | LE | RK | kg | Model (F) |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 | M10x1,25 | 40 | 10 | 20 | 10 | 16 | 20 | 28 | 0,10 | KQM/55433/25 |
| 40 | M12x1,25 | 48 | 12 | 24 | 12 | 19 | 24 | 32 | 0,16 | KQM/55441/25 |
| 50/63 | M16x1,5 | 64 | 16 | 32 | 16 | 25 | 32 | 41,5 | 0,37 | KQM/55451/25 |
| 80/100 | M20x1,5 | 80 | 20 | 40 | 20 | 32 | 40 | 50 | 0,71 | KQM/8080/25 |
| 125 | M27x2 | 110 | 30 | 55 | 30 | 45 | 54 | 73,5 | 1,84 | KQA/8125/25 |


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## Trunnion support S
## Conforms to ISO 15552, type AT4



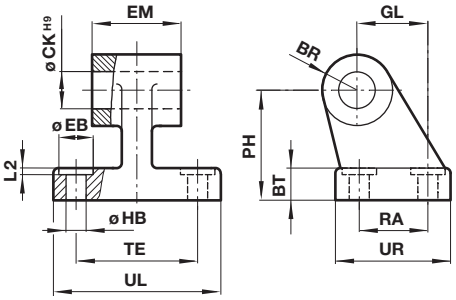



| ø | A | B 1 | B 2 | C | øD1 H7 | 2 | 3 | F x 45° | H 1 | H 2 | T1 | kg | Model (S) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 32 | 46 | 18 | 10,5 | 12 | 6,6 | 11 | 1 | 30 | 15 | 6,8 | 0,1 | KQA/8032/41 |
| 40/50 | 36 | 55 | 21 | 12 | 16 | 9 | 15 | 1,6 | 36 | 18 | 9 | 0,14 | KQA/8040/41 |
| 63/80 | 42 | 65 | 23 | 13 | 20 | 11 | 18 | 1,6 | 40 | 20 | 11 | 0,18 | KQA/8063/41 |
| 100/125 | 50 | 75 | 28,5 | 16 | 25 | 14 | 20 | 2 | 50 | 25 | 13 | 0,34 | KQA/8100/41 |

## Wide hinge SW
## Conforms to ISO 15552, type AB7

Dimensions in mm
Projection/First angle

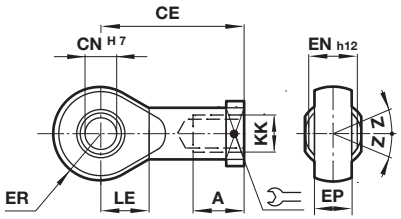





| ø | BR | BT | PH | ø CK H9 | ø EB | EM | GL | ø HB | L2 | RA | TE | UL | UR | kg | Model (SW) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 10 | 7 | 32 | 10 | 12 | 25,6 | 21 | 6,6 | 1,6 | 18 | 38 | 50 | 31 | 0,15 | M/P72288 |
| 40 | 11 | 9 | 36 | 12 | 12 | 27,6 | 24 | 6,6 | 1,6 | 22 | 41 | 53 | 35 | 0,21 | M/P72289 |
| 50 | 13 | 11 | 45 | 12 | 15 | 31,6 | 33 | 9 | 1,6 | 30 | 50 | 65 | 45 | 0,41 | M/P72290 |
| 63 | 15 | 11 | 50 | 16 | 15 | 39,6 | 37 | 9 | 1,6 | 35 | 52 | 67 | 50 | 0,53 | M/P72291 |
| 80 | 15 | 14 | 63 | 16 | 18 | 49,6 | 47 | 11 | 2,5 | 40 | 66 | 84 | 60 | 0,82 | M/P72292 |
| 100 | 18 | 15 | 71 | 20 | 18 | 59,6 | 55 | 11 | 2,5 | 50 | 76 | 94 | 70 | 1,22 | M/P72293 |
| 125 | 22 | 20 | 90 | 25 | 20 | 69 | 70 | 14 | 3,2 | 60 | 94 | 124 | 90 | 2,70 | M/P19499 |

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

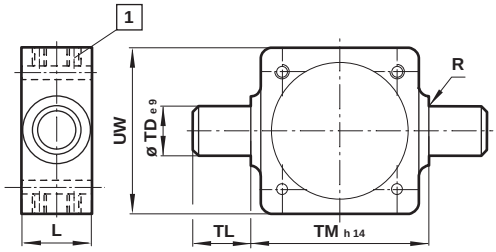





| ø | Thread KK | AX | CE | ø CN H7 | EN -0,1 | ER | LE | Z | kg | Model (UF) |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 | M10x1,25 | 20 | 43 | 10 | 14 | 14,5 | 14 | 13 ° | 0,07 | KQM/8032/32 |
| 40 | M12x1,25 | 22 | 50 | 12 | 16 | 16,5 | 16 | 13 ° | 0,11 | KQM/8040/32 |
| 50/63 | M16x1,5 | 28 | 64 | 16 | 21 | 21,5 | 21 | 15 ° | 0,21 | KQM/8050/32 |
| 80/100 | M20x1,5 | 33 | 77 | 20 | 25 | 25,5 | 25 | 15 ° | 0,38 | KQM/8080/32 |

## Adjustable trunnion mounting UH
## Conforms to ISO 15552, type MT4

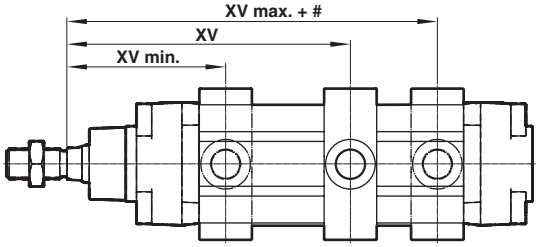





1 Locking screws
Torque max: ø 32 & 40 mm = 6 Nm; ø 50 & 63 mm = 10 Nm;
ø 80 & 100 mm = 15 Nm; ø 125 mm = 25 Nm

| ø | L | R | ø TD e9 | TL | TM h14 | UW | XV min. | XV max. | kg | Model (UH) |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 20 | 1 | 12 | 12 | 50 | 53 | 67,5 | 78,5 | 0,24 | KQA/8032/40 |
| 40 | 24 | 1,6 | 16 | 16 | 63 | 65 | 78,5 | 86,5 | 0,48 | KQA/8040/40 |
| 50 | 28 | 1,6 | 16 | 16 | 75 | 75 | 84 | 96 | 0,7 | KQA/8050/40 |
| 63 | 28 | 1,6 | 20 | 20 | 90 | 95 | 91,5 | 103,5 | 1,35 | KQA/8063/40 |
| 80 | 28 | 1,6 | 20 | 20 | 110 | 115 | 106 | 114 | 1,46 | KQA/8080/40 |
| 100 | 38 | 2 | 25 | 25 | 132 | 140 | 117 | 123 | 2,76 | KQA/8100/40 |
| 125 | 50 | 2 | 25 | 25 | 160 | 143 | 144 | 146 | 3,28 | KQA/8125/40 |

Style 'UH': It is most important that the locking screws which secure the mounting to the tie rod are tightened to the torque figures shown in the table below. For maximum energy input, consult our Technical Service.
Unless otherwise specified, units will be supplied with dimension 'XV' plus half the stroke length. 'XV' = Distance from the piston rod shoulder to the centre of the mounting.





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- ATEX - Magnetically operated switch, reed contact
- Suitable for all cylinder ranges with magnetic piston
- LED indicator
- CE verificated



## Technical features

**Operation:**
Normal 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 temperatur:**
-20 ... +50 °C (-4 ... +122 °F)

**Ex-Identification:**
II 3G Ex nC IIC T5 Gc X
II 3D Ex tc IIIC T120 °C Dc X

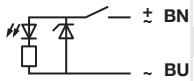
**Protection rating (EN 60529):**
IP67

**Cable type:**
PVC 2 x 0,25 mm2

**Cable length:**
5 m

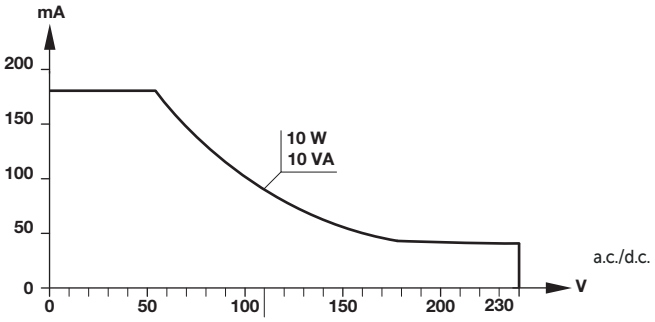
**Electromagnetic compatibility according to:**
EN 60947-5-2

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

| Symbol | Voltage (V a.c.) | Voltage (V d.c.) | Current maximum (mA) | Function | Operating temperature (°C) | LED | Protection class | Cable length (m) | Cable type | Weight (g) | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|
|   | 10 ... 240 | 10 ... 170 | 180 | Closer | -20 ... +50 | • | IP67 | 5 | PVC 2 x 0,25 | 40 | M/50/LXU/5V |

Color code: BN = brown, BU = blue

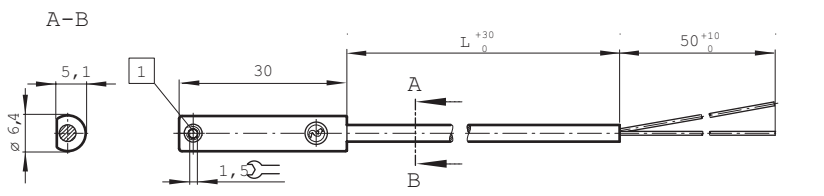
## Switching current and switching voltage




## Dimensions
## Cable length L = 5 m

Dimensions in mm
Projection/First angle






1 Fixing screw

ATTENTION:
The setting of magnetic switches on a cylinder barrel forms an ATEX assembly:
- Each part is separate classified according ATEX for use in potentially explosive atmospheres.
- The resulting range of approved applications for the module corresponds to that of the individual part assigned to the lowest category.
- The result concerns the device category, potentially explosive atmosphere G or D, max. surface temperature and explosion classification if applicable.


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- Magnetically operated switch, solid state - round style
- IO-Link version available
- Suitable for all cylinder ranges with magnetic piston
- Resistant, reliable switching with a very fast response time
- Particularly suited for use in high levels of vibration
- LED indicator
- UL listed



IO-Link

c UL us LISTED

UK CA CE Ex

## Technical features

**Operation:**
PNP (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):**
150 mA max. (standard)
100 mA max. (M/50/IXP)

**Switching power:**
4,5 W max. (standard)
3,0 W max. (M/50/IXP)

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

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

**Protection rating (EN 60529):**
IP67

**Ambient temperatur:**
-20 ... +50 °C (-4 ... 122 °F)

**Responsiveness:**
2,8 mT

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

**Repeatability:**
< 0,1 mT

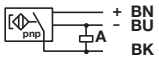
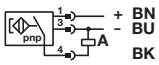
**Ex-Identification:**
II 3G Ex ec IIC T4 Gc X
II 3D Ex tc IIIC T110 °C Dc X

**Cable type:**
PVC 3 x 0,14 mm² (Standard)
PUR 3 x 0,14 mm² (all variants with connector)

**Cable length:** 5 m

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

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

| Symbol | Voltage (V d.c.) | Current maximum (mA) | Function | IO-Link *1) | Ambient temperature (°C) | LED | Protection class | Connector | Cable length (m) | Cable type | Weight (g) | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 10 ... 30 | 150 | PNP | | -20 ... +50 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/EXP/5V |
| | 10 ... 30 | 100 | PNP / NPN | • | -20 ... +50 | • | IP67 | --- | 5 | PVC 3 x 0,14 | 56 | M/50/IXP/5V |
|  | 10 ... 30 | 150 | PNP | | -20 ... +50 | • | IP67 | M8 x 1 | 0,3 | PUR 3 x 0,14 | 7 | M/50/EXP/CP |
| | 10 ... 30 | 150 | PNP | | -20 ... +50 | • | IP67 | M12 x 1 | 0,3 | PUR 3 x 0,14 | 16 | M/50/EXP/CC |

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/EXP | M/50/IXP | |
|---|---|---|---|
| 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 | | | • |

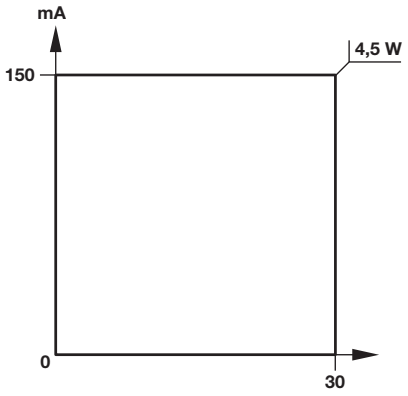
Note: IODD for the M/50/IXP switches available on the Norgren homepage.
https://www.norgren.com/uk/en/technical-support/software

• = included
O = optional (manufacture pre-setting required)

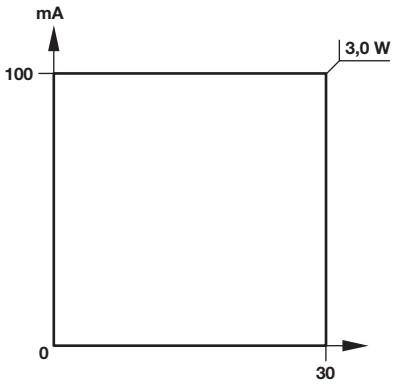

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Switching current and switching voltage

M/50/EXP




M/50/IXP

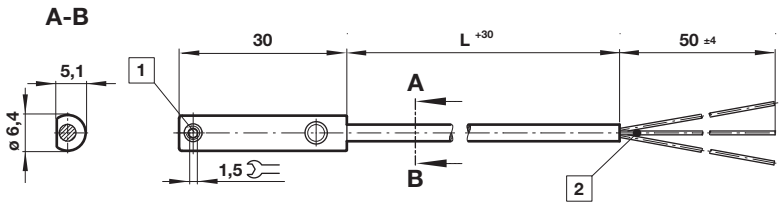



Dimensions

Dimensions in mm
Projection/First angle

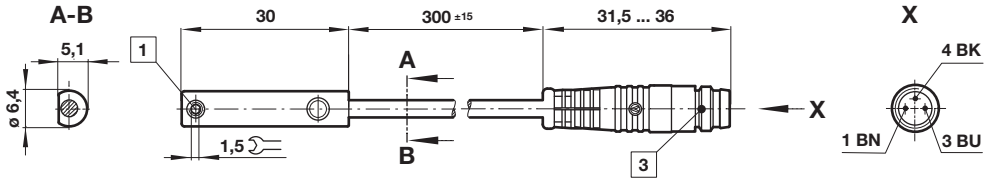
M/50/EXP/5V
M/50/IXP/5V
Cable length L = 2, 5 or 10 m





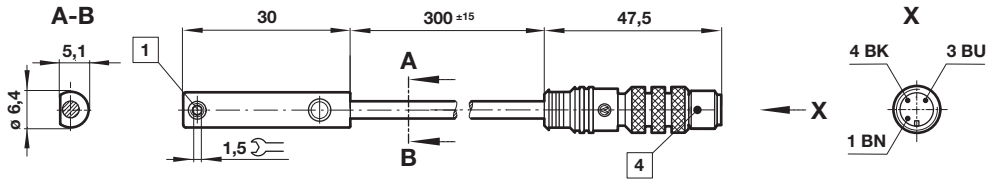

M/50/EXP/CP






M/50/EXP/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

ATTENTION:

The setting of magnetic switches on a cylinder barrel forms an ATEX assembly:

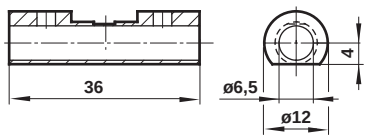
- Each part is separate classified according ATEX for use in potentially explosive atmospheres.
- The resulting range of approved applications for the module corresponds to that of the individual part assigned to the lowest category.
- The result concerns the device category, potentially explosive atmosphere G or D, max. surface temperature and explosion classification if applicable.



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## Protection of the magnetic switch

1. Install the switch in a way that ensures to protect the switch against mechanical damage, shock or impact from any direction.
2. For an open installation of a magnetic switch onto a cylinder barrel with external tie rods, an additional protection element for the magnetic switch and its cable has to be installed with the mounting element. For the protection element of the housing a separate order for M/P73668 is required.

| Cylinder with external tie rods | Mounting element for magnetic switch | Protection unit ATEX | |
|---|---|---|---|
|  |  |  |   |
| Cylinder ø (mm) | Model | Model | |
| 32 ... 200 | QM/27/2/1 | M/P735463 | |

## QM/27/2/1 – Switch mounting brackets for Round barrel

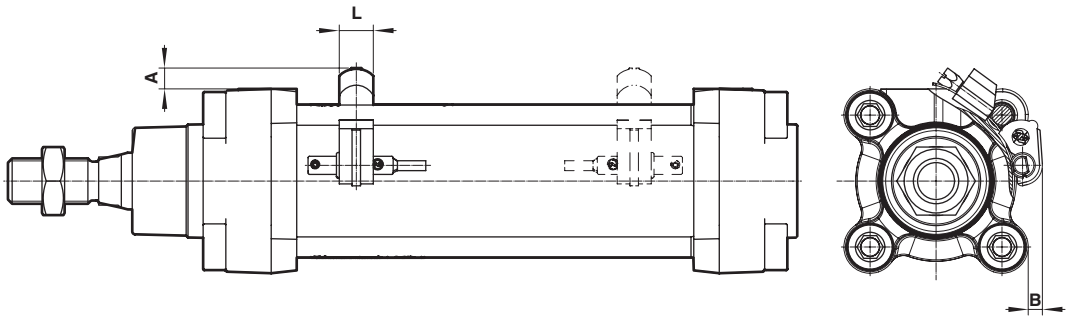
**Switch: M/50**



| ø | A | B | L | Weight (kg) | Model |
|---|---|---|---|---|---|
| 32 | 9 | 6 | 12 | 0,010 | QM/27/2/1 |
| 40 | 9 | 7 | 12 | 0,010 | QM/27/2/1 |
| 50 | 7 | 5 | 12 | 0,010 | QM/27/2/1 |

| ø | A | B | L | Weight (kg) | Model |
|---|---|---|---|---|---|
| 63 | 7 | 6 | 12 | 0,010 | QM/27/2/1 |
| 80 | 4 | 4 | 12 | 0,010 | QM/27/2/1 |
| 100 | 3 | 2 | 12 | 0,010 | QM/27/2/1 |

| ø | A | B | L | Weight (kg) | Model |
|---|---|---|---|---|---|
| 125 | -2 | -2 | 12 | 0,010 | QM/27/2/1 |
| 160 | -10 | -9 | 12 | 0,010 | QM/27/2/1 |
| 200 | -17 | -16 | 12 | 0,010 | QM/27/2/1 |




### 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 GmbH.

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.


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