



CLEAN PROFILE



KL

ISO 1552 Cylinders

Ø 32 ÷ 125 mm



KL

ISO 15552 Cylinders

Ø 32 ÷ 125 mm

CLEAN PROFILE

Easier to clean

QUICK INSTALLATION

Sensors and connections on one side

UNIVER TECHNOLOGY

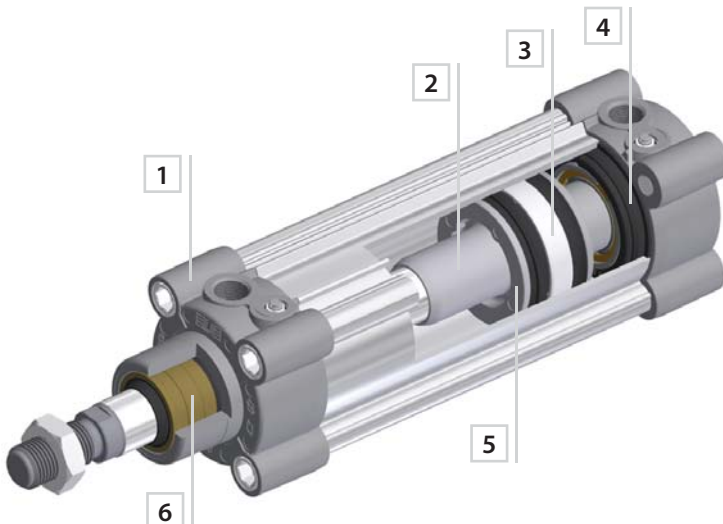
Strong and reliable

ISO 15552 STANDARD

Interchangeability



Constructive characteristics



1. Die-cast end caps in aluminium alloy
2. Die-cast piston in aluminium alloy
3. Guide slide in acetalic resin with integrated magnetic ring
4. Wear-resistant cushion seals in nitrilic rubber compound
5. Lip piston seals in nitrile rubber compound
6. **UNIVER Original** self-aligning and self-lubricating guide bush for piston rod



The absence of "sharp" edges ensures **maximum safety** during installation

Accurate design of end caps in line with tube profile

Versions available upon request



Metallic rod scraper



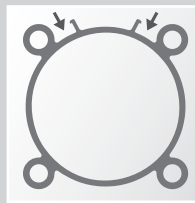
Low friction



High temperature seals



Low temperature seals



Tube profile with integrated sensor grooves
UNIVER Original since 2005



Recessed sensor DF series



Magnetic piston standard supplied



Fixing screws integrated in the end cap profile



Sensor grooves available in different positions



Possibility to mount DH sensors with brackets



Intermediate hinge with locking system guaranteed by UNIVER AUTOMOTIVE expertise



Standard fixing elements **UNIVER Original**



Assembly kit



KL $\varnothing 32 \div 125$ mm

- New design of the profile for easier cleaning
- Grooves for recessed sensors and connections on one side for easy installation
- Traditional UNIVER technology to ensure strength and reliability
- Dimensions complying with international standards for a full interchangeability



TECHNICAL CHARACTERISTICS

| | |
|---------------------|---|
| Ambient temperature | -20 ÷ 80 °C |
| Fluid | filtered air with or without lubrication |
| Working pressure | 1,5 ÷ 10 bar |
| Bores | $\varnothing 32 - 40 - 50 - 63 - 80 - 100 - 125$ mm |
| Cushionings | pneumatic and adjustable on both sides |

CONSTRUCTIVE CHARACTERISTICS

| | |
|--------------------|--|
| End caps | die-cast in aluminium alloy |
| Barrel | profiled and anodized aluminium |
| Piston | die-cast in aluminium alloy |
| Guide slide | acetalic resin |
| Piston Rod | chromium-plated steel standard, stainless steel upon request |
| Piston Seal | lip seal in nitrilic resin |
| Guide bush for rod | UNIVER Original self-lubricating and self-aligning |
| Cushion seals | nitrilic rubber |
| Magnet | standard supplied |

CODIFICATION KEY

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|--|---|
| K | L | 2 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 5 | 0 | | M |
| 1 | 2 | 3 | 4 | | 5 | | | 6 | 7 | | | | |

| 1 Series | 2 Type | 3 Version |
|---|---|---|
| KL = Pneumatic cylinders ISO 15552 $\varnothing 32 \div 125$ mm Standard Magnetic | 1 = Stainless steel rod 2 = Chromium-plated steel rod | 00 = D.A. Standard 01 = D.A. Through rod 40 = D.A. Reinforced bushing 60 = S.A. Retracted rod Max stroke 50 mm 70 = S.A. Extended rod Max stroke 50 mm 90 = D.A. High temperature seals +120 °C |

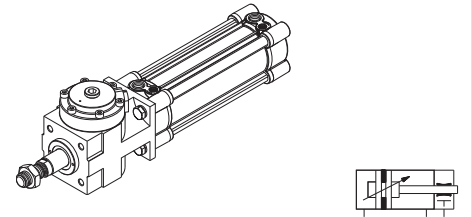
| 4 Bore | 5 Stroke (mm) |
|---|---|
| 032 = $\varnothing 32$ 080 = $\varnothing 80$ 040 = $\varnothing 40$ 100 = $\varnothing 100$ 050 = $\varnothing 50$ 125 = $\varnothing 125$ 063 = $\varnothing 63$ | 0025 - 0050 - 0075 - 0080 - 0100 - 0125 - 0150 - 0160 0175 - 0200 - 0250 - 0300 - 0320 - 0350 - 0400 - 0450 0500 - 0600 - 0700 - 0800 - 0900 - 1000 |

| 6 Option | 7 Magnetic |
|--|---|
| F = Preset for locking unit - reduced protrusion G = Preset for locking unit - ISO protrusion K = Metallic rod scraper | M = Magnetic version (standard supplied) |

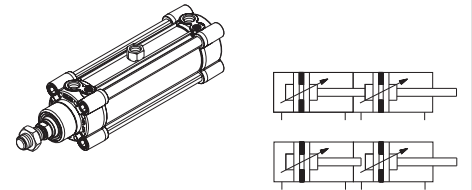
D.A. = Double-acting S.A. = Single-acting

Further available versions

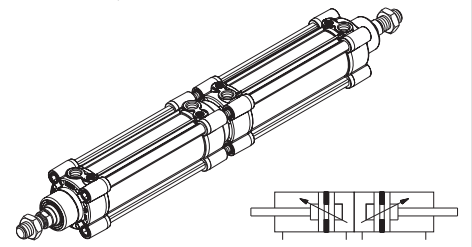
Cylinder with L1-N locking unit



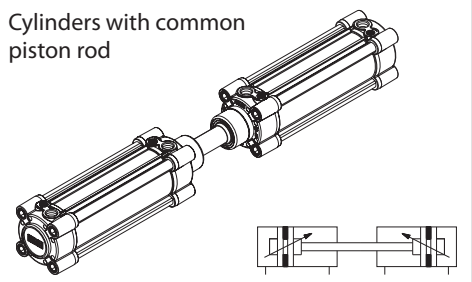
Tandem cylinder
Two-position tandem cylinder



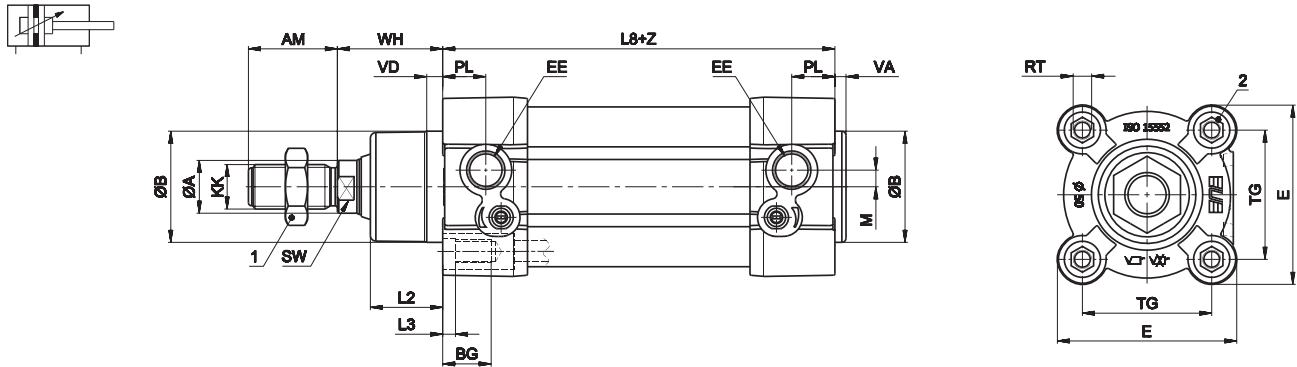
Opposed cylinders



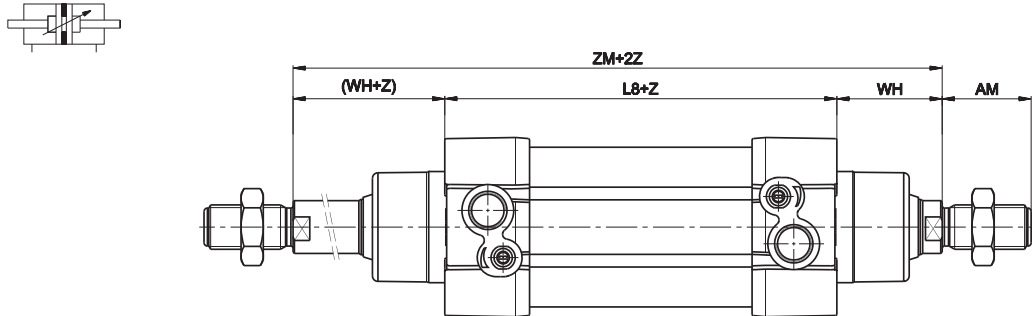
Cylinders with common piston rod



Standard version



Through rod version



Z= stroke

Overall Dimensions

| Ø | ØA | AM | ØB | BG | E+0,5 | KK | L2 | L3 | L8 | | PL | RT | SW | TG | | VA | VD | WH | EE | M | 1 | 2 | ZM | |
|-----|----|----|----|----|-------|----------|----|----|------|------|------|-----|----|------|------|-----|-----|----|------|-----|----|----|------|-----------|
| | | | | | | | | | nom. | tol. | | | | nom. | tol. | | | | | | | | nom. | tol. |
| 32 | 12 | 22 | 30 | 16 | 46,5 | M10x1,25 | 16 | 5 | 94 | ±0,4 | 14 | M6 | 10 | 32,5 | ±0,5 | 3,5 | 5 | 26 | G1/8 | 4,4 | 17 | 6 | 146 | +3,0 -1,5 |
| 40 | 16 | 24 | 35 | 16 | 52 | M12x1,25 | 20 | 5 | 105 | ±0,7 | 16 | M6 | 13 | 38 | ±0,5 | 4 | 5,5 | 30 | G1/4 | 5 | 19 | 6 | 165 | +3,0 -1,5 |
| 50 | 20 | 32 | 40 | 17 | 64,5 | M16x1,5 | 26 | 6 | 106 | ±0,7 | 15,5 | M8 | 17 | 46,5 | ±0,6 | 4 | 6 | 37 | G1/4 | 6 | 24 | 8 | 180 | +3,0 -1,5 |
| 63 | 20 | 32 | 45 | 18 | 76,5 | M16x1,5 | 26 | 6 | 121 | ±0,8 | 17,5 | M8 | 17 | 56,5 | ±0,7 | 4 | 6 | 37 | G3/8 | 8 | 24 | 8 | 195 | +3,0 -1,5 |
| 80 | 25 | 40 | 45 | 20 | 95 | M20x1,5 | 32 | 7 | 128 | ±0,8 | 20 | M10 | 22 | 72 | ±0,7 | 4 | 8 | 46 | G3/8 | 7,5 | 30 | 10 | 220 | +3,0 -1,5 |
| 100 | 25 | 40 | 55 | 20 | 114 | M20x1,5 | 35 | 7 | 138 | ±1 | 20,5 | M10 | 22 | 89 | ±0,7 | 4 | 8 | 51 | G1/2 | 9 | 30 | 10 | 240 | +3,5 -2,0 |
| 125 | 32 | 54 | 60 | 24 | 140 | M27x2 | 45 | 8 | 160 | ±1 | 20,5 | M12 | 27 | 110 | ±1,1 | 5,5 | 10 | 65 | G1/2 | 11 | 41 | 12 | 290 | +3,5 -2,0 |

Mass

| Ø | Cylinder - stroke 0 | Increase per mm stroke | Moving element - stroke 0 | Moving element | Thrust (N) | Traction (N) |
|-----|---------------------|------------------------|---------------------------|----------------|------------|--------------|
| | Kg | gr | Kg | increase gr/mm | 6 bar | 6 bar |
| 32 | 0,48 | 2,05 | 0,13 | 0,9 | 482 | 414 |
| 40 | 0,71 | 3,06 | 0,25 | 1,6 | 754 | 633 |
| 50 | 1,18 | 4,28 | 0,44 | 2,5 | 1178 | 990 |
| 63 | 1,74 | 4,91 | 0,55 | 2,5 | 1869 | 1680 |
| 80 | 2,74 | 7,20 | 0,97 | 3,8 | 3014 | 2722 |
| 100 | 3,92 | 8,00 | 1,19 | 3,8 | 4710 | 4416 |
| 125 | 6,83 | 12,40 | 2,20 | 6,2 | 7359 | 6882 |

Through rod cylinder mass

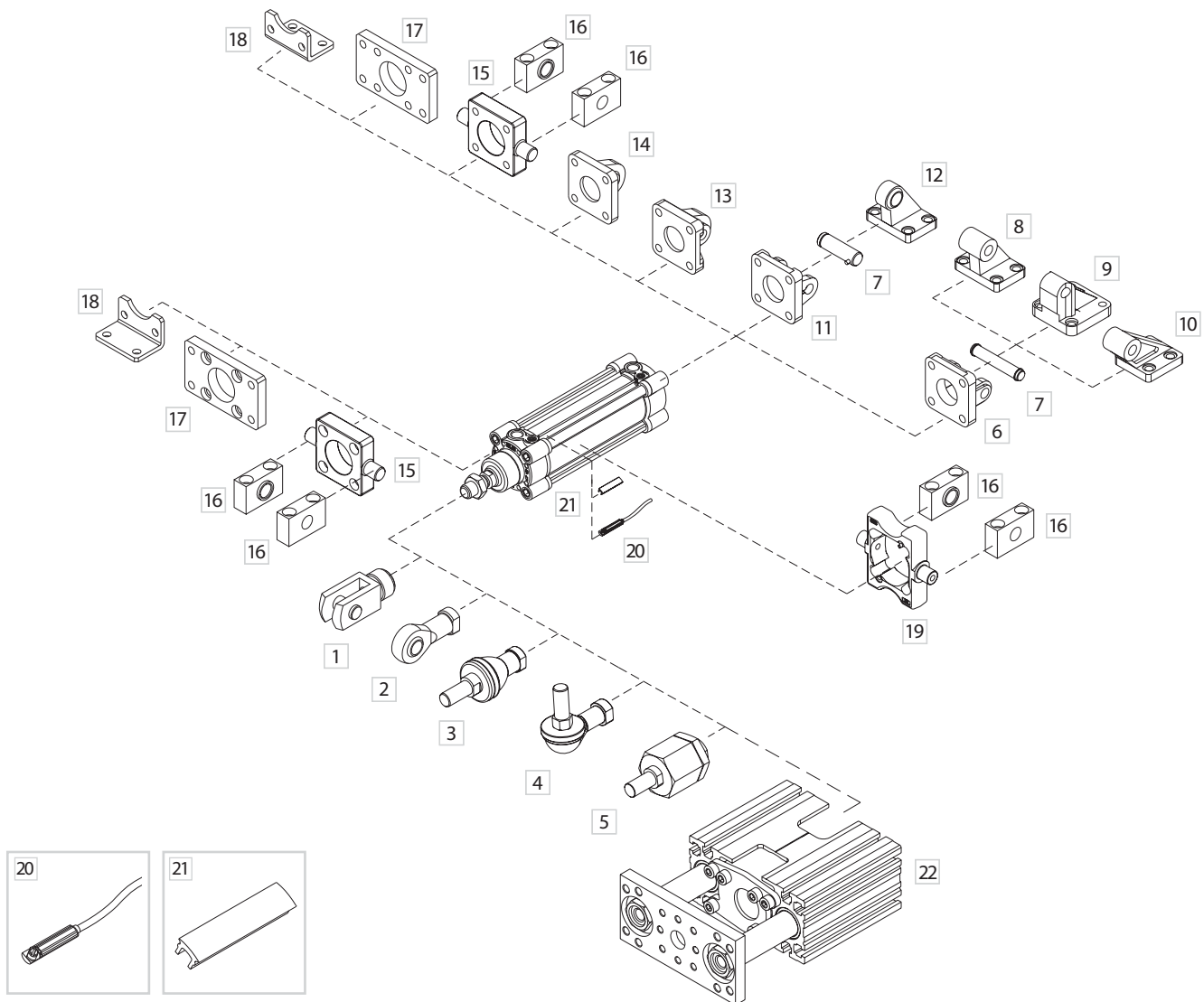
| Ø | Cylinder - stroke 0 | Increase per mm stroke | Moving element - stroke 0 | Moving element |
|-----|---------------------|------------------------|---------------------------|----------------|
| | Kg | gr | Kg | increase gr/mm |
| 32 | 0,55 | 2,92 | 0,19 | 1,8 |
| 40 | 0,85 | 4,62 | 0,36 | 3,2 |
| 50 | 1,44 | 6,72 | 0,64 | 4,9 |
| 63 | 2,01 | 7,36 | 0,74 | 4,9 |
| 80 | 3,19 | 11,0 | 1,35 | 7,6 |
| 100 | 4,46 | 11,8 | 1,57 | 7,6 |
| 125 | 7,81 | 18,53 | 3,05 | 12,4 |

Nominal stroke tolerance

| Ø | Strokes up to 500 | Strokes from 501 to 1000 | Length | Kinetic energy absorption |
|-----|-------------------|--------------------------|--------|---------------------------|
| | mm | mm | mm | Nm |
| 32 | +2 -0 | +3,2 -0 | 18 | 1,8 |
| 40 | +2 -0 | +3,2 -0 | 24 | 2,5 |
| 50 | +2 -0 | +3,2 -0 | 24 | 4,5 |
| 63 | +2,5 -0 | +4 -0 | 30 | 8 |
| 80 | +2,5 -0 | +4 -0 | 30 | 12 |
| 100 | +2,5 -0 | +4 -0 | 35 | 21 |
| 125 | +4 -0 | +5 -0 | 35 | 36 |

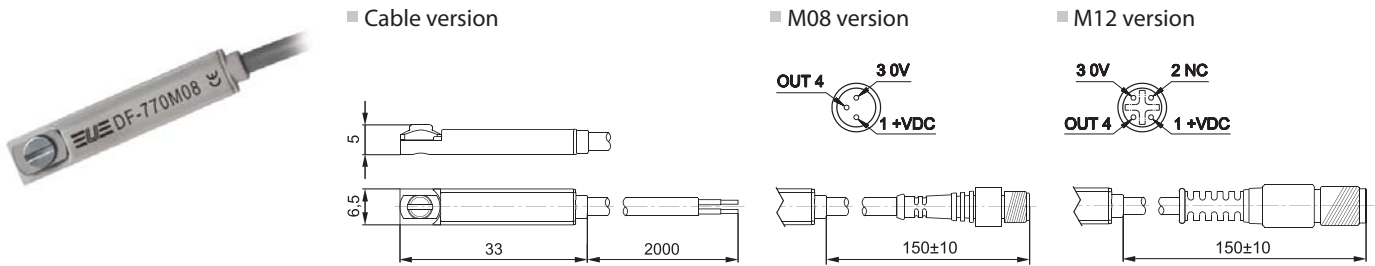
Cushion

Fixing elements and accessories



| DESCRIPTION | NOTE | PART NO. |
|---|--------------------------------|---------------|
| 1 Female fork with clips | Zinc-plated steel | KF-15 ___ |
| 2 Articulated self-lubricating fork | Zinc-plated steel | KF-17 ___ |
| 3 Fork with axially mounted articulated pin | Zinc-plated steel | KF-22 ___ |
| 4 Fork with angle-mounted articulated pin | Zinc-plated steel | KF-23 ___ |
| 5 Floating joint | Aluminium (steel upon request) | KF-24 ___ |
| 6 Female hinge | Aluminium | KF-10 ___ A |
| 7 Pin | Aluminium (steel upon request) | KF-18 ___ |
| 8 90° counter-hinge (CETOP) | Aluminium | KF-19 ___ CTA |
| 9 90° counter-hinge | Aluminium | KF-19 ___ |
| 10 90° counter-hinge (CNOMO) | Aluminium | KF-19 ___ CN |
| 11 Narrow female hinge with pin | Aluminium (steel upon request) | KF-10 ___ AS |
| 12 Articulated counter-hinge | Steel | KF-19 ___ SC |
| 13 Articulated male rear hinge | Aluminium (steel upon request) | KF-11 ___ S |
| 14 Male rear hinge | Zinc-plated steel | KF-11 ___ |
| 15 Front/rear hinge with floating pin | Zinc-plated steel | KF-14 ___ AP |
| 16 Support for hinges | Zinc-plated steel | KF-41 ___ |
| 17 Front flange (MF1) - rear flange (MF2) | Zinc-plated steel | KF-12 ___ |
| 18 Angle bracket (MS1) | Zinc-plated steel | KF-13 ___ |
| 19 Intermediate hinge | Zinc-plated steel | KLF-14 ___ |
| 20 Magnetic sensor DF series | - | DF- ___ |
| 21 Strip for covering DF sensor wires | Nitrilic rubber | DHF-0020100 |
| 22 Slide unit | - | J12 |

Magnetic sensor DF series

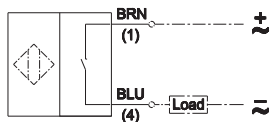


| CHARACTERISTICS | TYPE | ELECTROMECHANICAL | | | ELECTRONIC |
|-----------------------------------|---------|----------------------|--------------------------|--------------------------|--------------------------|
| | | DF-220 2 wires NO | DF-330 3 wires PNP NO | DF-440 3 wires PNP NC | DF-770 3 wires PNP NO |
| Working voltage | V AC/DC | 5÷30 V AC/DC | 5÷30 V AC/DC | 5÷30 V AC/DC | 5÷30 V DC |
| Max switching current | mA | 100 | 100 | 100 | 100 |
| Max switching power | W/VA | 3 | 3 | 3 | 3 |
| Max voltage drop | V AC/DC | <3,5V | 0,1V | 0,1V | 0,7V |
| Minimum magnetic field | gauss | 60 | 60 | 60 | 30 |
| Opening response time | ms | < 0,5 | < 0,5 | < 0,5 | 0,08 |
| Closing response time | ms | < 1 | < 1 | < 1 | 0,03 |
| Electric life with resistive load | cycles | >10 ⁷ | >10 ⁷ | >10 ⁷ | >10 ⁹ |
| State indicator | LED | red | red | red | red |
| Cable number and section | mmq | 2 x 0,14 | 3 x 0,14 | 3 x 0,14 | 3 x 0,14 |
| Electric circuit | - | A | C | D | C |
| Protection degree | EN60529 | IP67 | | | |
| Working temperature | °C | -20 ÷ +80 °C | | | |

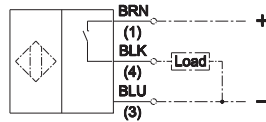
For version with connector M8 and M12 add M08 or M12 at the end of the part no.
Example: DF-770M08 or DF-770M12

Electric circuits

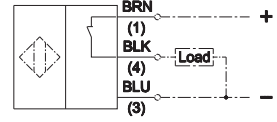
A AC/DC 2 wires NO



C DC 3 wires PNP NO



D DC 3 wires PNP NC



BRN = brown BLK = black BLU = blue

Assembly scheme

- 1**

Put the sensor in the proper groove and make sure that the fastening plate has the slot for screwdriver along the sensor axis
- 2**

Turn the sensor inside its groove and make sure that the fastening plate is on the open part of the groove
- 3**

Check the correct position of the sensor in the groove. Turn it to the wished position for detection
- 4**

Keep the sensor in its position and screw the fastening plate to fix the sensor in the groove
Max torque: 0,5 ÷ 1 Nm

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