

## ISO 15552, series PRA



AVENTICS™ ISO 15552, series PRA

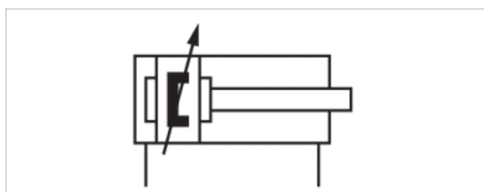


# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- ATEX optional



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Certificates                           | ATEX optional             |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |



## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | 0822120001                          | 0822121001                          | 0822122001                         | 0822123001                         | 0822124001                         | 0822125001                          |
| 50   | 0822120002                          | 0822121002                          | 0822122002                         | 0822123002                         | 0822124002                         | 0822125002                          |
| 80   | 0822120003                          | 0822121003                          | 0822122003                         | 0822123003                         | 0822124003                         | 0822125003                          |
| 100  | 0822120004                          | 0822121004                          | 0822122004                         | 0822123004                         | 0822124004                         | 0822125004                          |
| 125  | 0822120005                          | 0822121005                          | 0822122005                         | 0822123005                         | 0822124005                         | 0822125005                          |
| 160  | 0822120006                          | 0822121006                          | 0822122006                         | 0822123006                         | 0822124006                         | 0822125006                          |
| 200  | 0822120007                          | 0822121007                          | 0822122007                         | 0822123007                         | 0822124007                         | 0822125007                          |
| 250  | 0822120008                          | 0822121008                          | 0822122008                         | 0822123008                         | 0822124008                         | 0822125008                          |
| 320  | 0822120009                          | 0822121009                          | 0822122009                         | 0822123009                         | 0822124009                         | 0822125009                          |
| 400  | 0822120010                          | 0822121010                          | 0822122010                         | 0822123010                         | 0822124010                         | 0822125010                          |
| 500  | 0822120011                          | 0822121011                          | 0822122011                         | 0822123011                         | 0822124011                         | 0822125011                          |

|  |                                   |
|--|-----------------------------------|
| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
| Stroke 25  | R480140491                        |
| 50   | R480140455                        |
| 80   | R480141371                        |
| 100  | R480079499                        |
| 125  | R480140083                        |
| 160  | R480079809                        |
| 200  | R480140833                        |
| 250  | R480141106                        |
| 320  | R480140759                        |
| 400  | R480141373                        |
| 500  | R480141666                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm  | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N  | 7220 N  |
| Extracting piston force | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N  | 7725 N  |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    | 140 J   |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg | 6.72 kg |
| Weight +10 mm stroke    | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  | 0.15 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

ATEX-certified cylinders with identification II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135°C Db\_X can be generated in the Internet configurator.

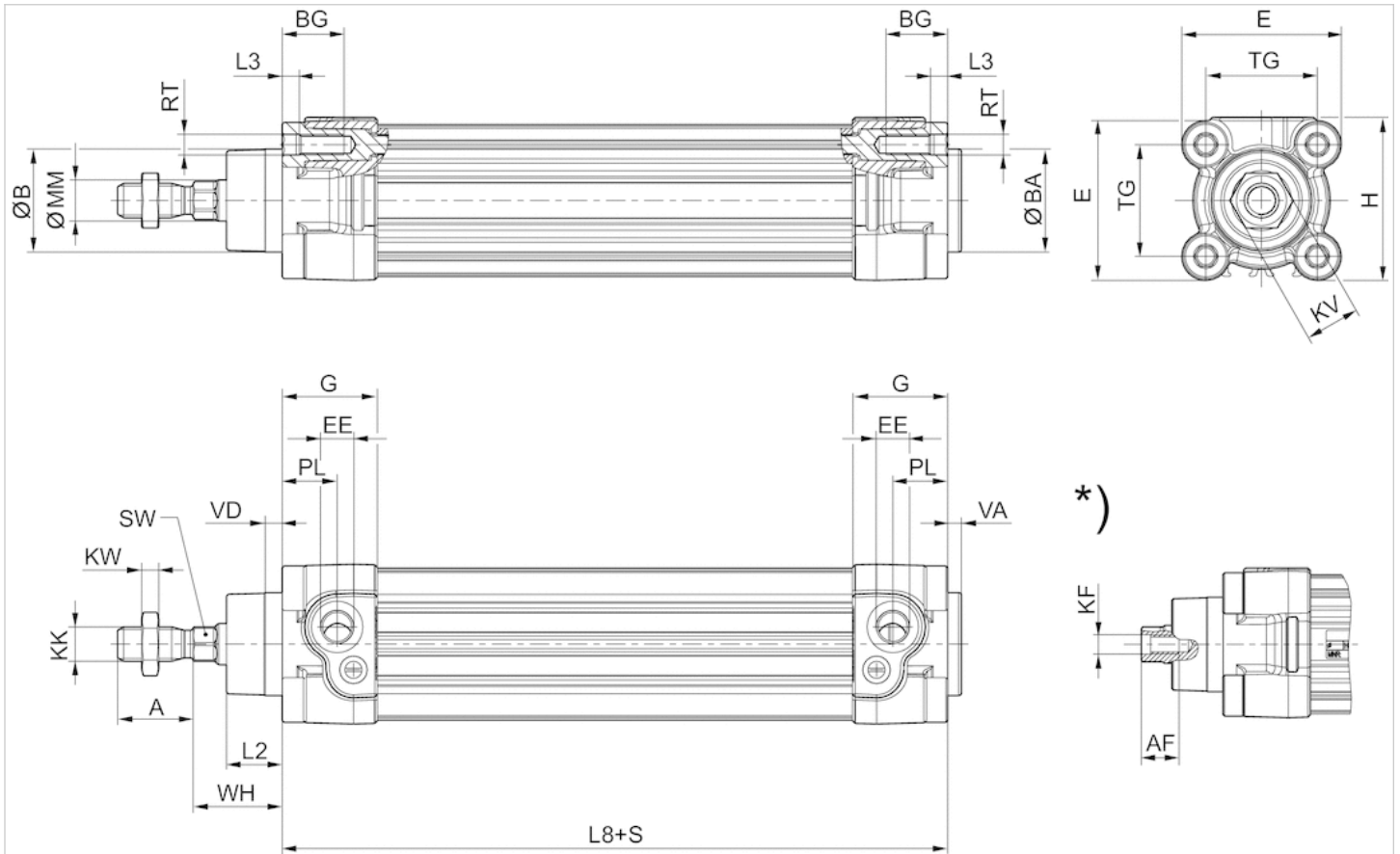
The operating temperature range for ATEX-certified cylinders is -20 °C ... 50 °C.

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |

## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

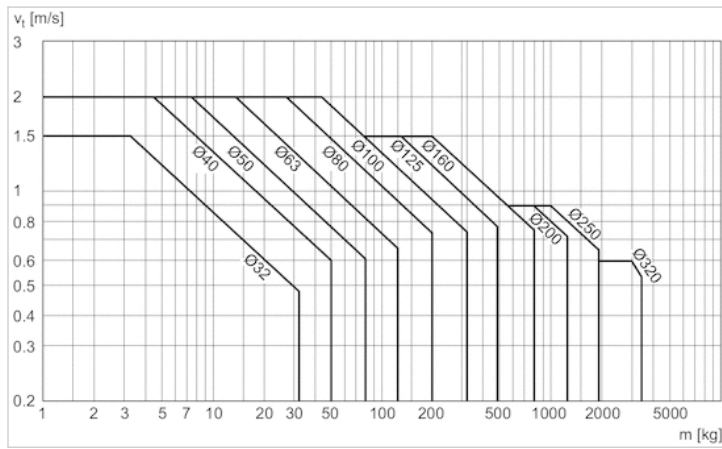
## Dimensions

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------|------|------|--------|---------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm    | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm    | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm    | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm    | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm    | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm   | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm   | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

| Piston Ø | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

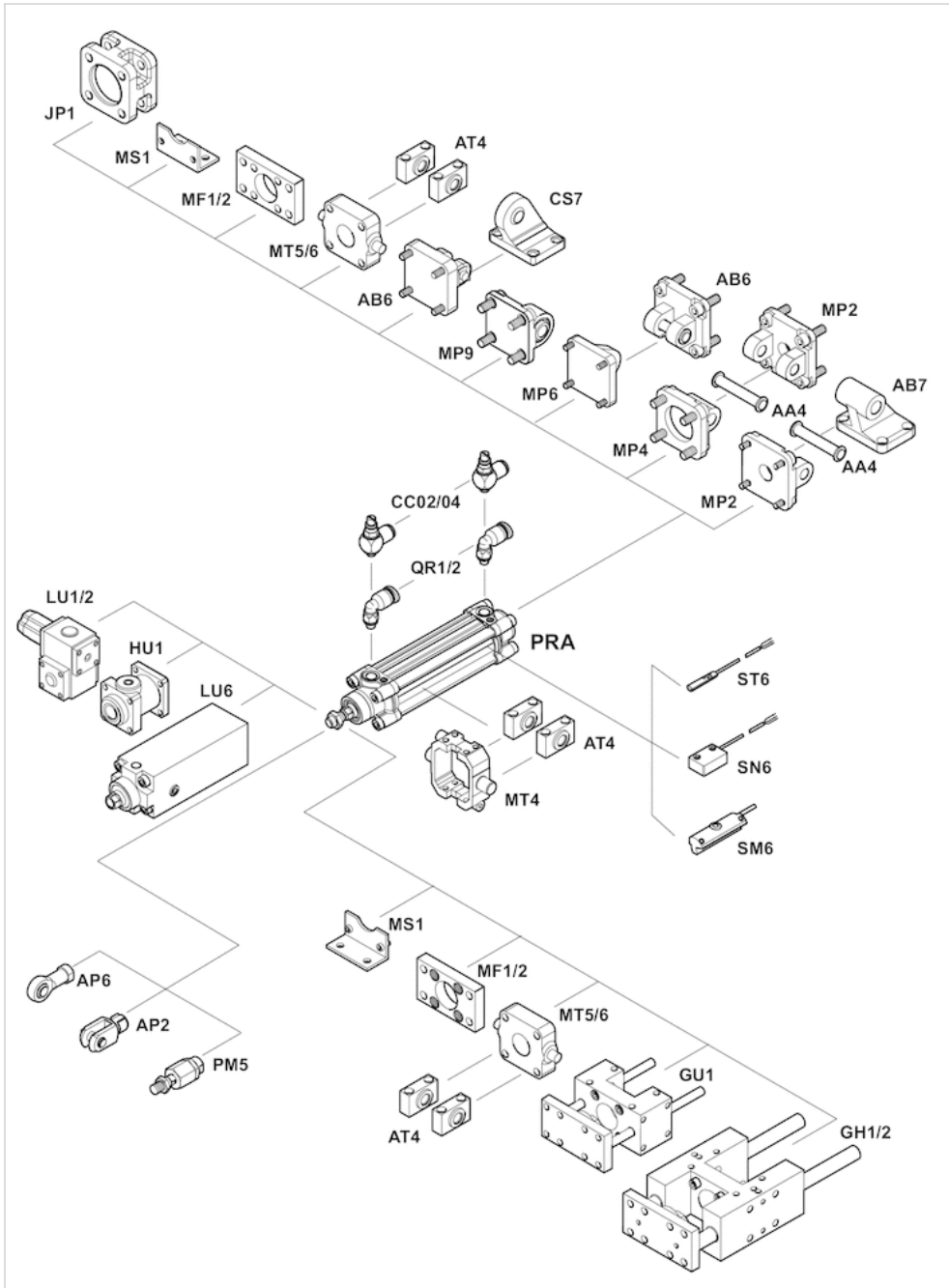
# Diagrams

## Cushioning diagram



$v$  = Piston velocity [m/s]  
 $m$  = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning elastic
- Piston rod External thread



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R480041555                          | R480041559                          | R480041563                         | R480041567                         | R480041573                         | R480041577                          |
| 50   | R480041556                          | R480041560                          | R480041564                         | R480041568                         | R480041574                         | R480041578                          |
| 80   | R480041557                          | R480041561                          | R480041565                         | R480041569                         | R480041575                         | R480041579                          |
| 100  | R480041558                          | R480041562                          | R480041566                         | R480041570                         | R480041576                         | R480041580                          |
| 125  | R480151537                          | R480051376                          | R480045537                         | R480054955                         | R480152097                         | R480150480                          |
| 160  | R480143129                          | R480044478                          | R480156862                         | R480152784                         | R480044479                         | R480051377                          |
| 200  | R480041250                          | R480151194                          | R480045822                         | R480148986                         | R480068280                         | R480163053                          |
| 250  | R480162928                          | R480068778                          | R480152659                         | R480069183                         | R480163037                         | R480163054                          |
| 320  | R480162929                          | R480160211                          | R480042163                         | R480148534                         | R480148937                         | R480155887                          |
| 400  | R480069508                          | R480162989                          | R480153304                         | R480148988                         | R480157647                         | R480163055                          |
| 500  | R480048725                          | R480044634                          | R480070399                         | R480154536                         | R480158439                         | R480152777                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480148022                        |
| 50   | R480141034                        |
| 80   | R480143254                        |
| 100  | R480170767                        |
| 125  | R480170768                        |
| 160  | R480144243                        |
| 200  | R480167296                        |
| 250  | R480170769                        |
| 320  | R480170770                        |
| 400  | R480170771                        |
| 500  | R480170772                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm  | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N  | 7220 N  |
| Extracting piston force | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N  | 7725 N  |
| Impact energy           | 0.4 J    | 0.65 J   | 1 J      | 1.6 J    | 2.5 J    | 3.9 J   | 6 J     |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg | 6.72 kg |
| Weight +10 mm stroke    | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  | 0.15 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

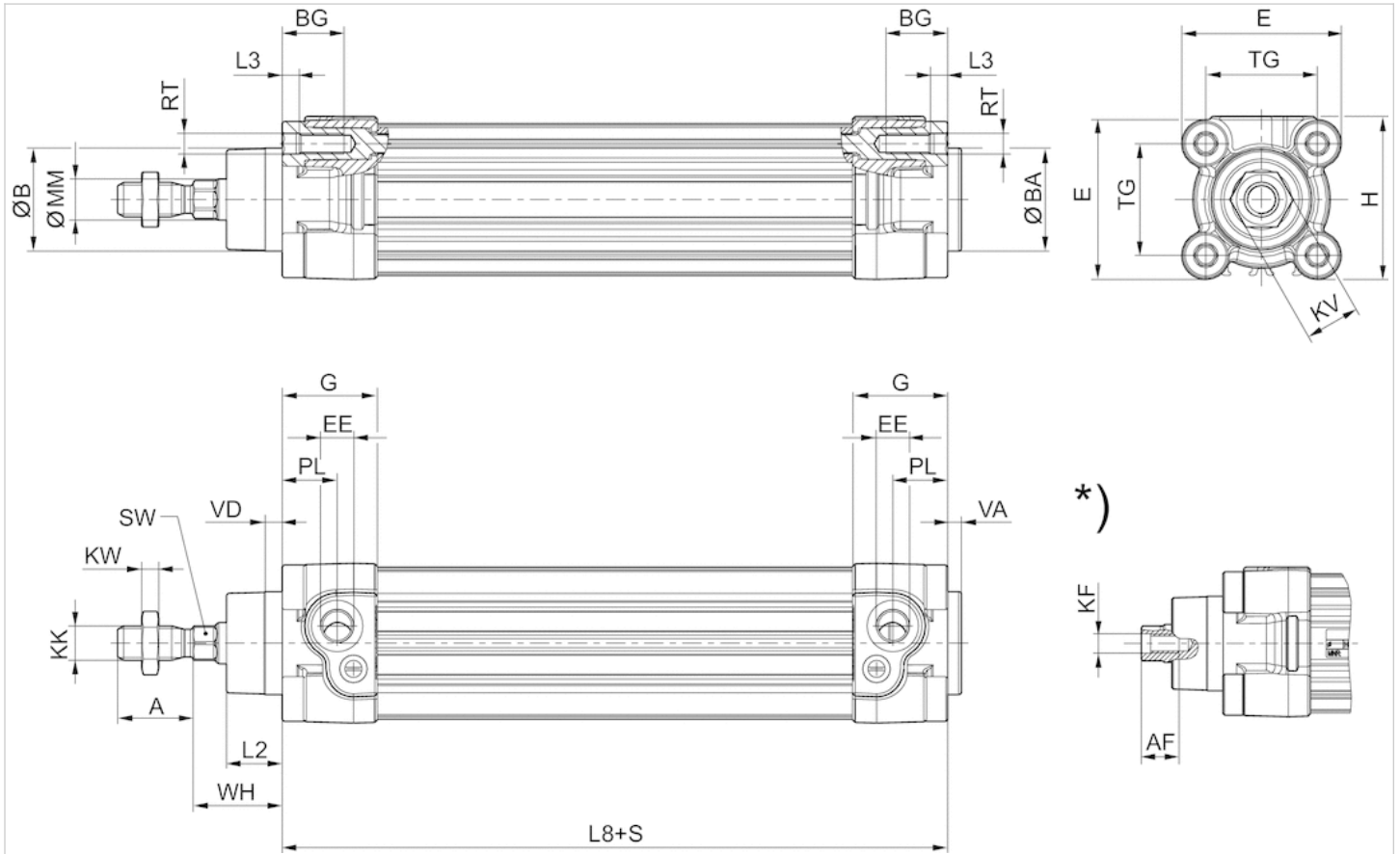
## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |



## Dimensions

### Dimensions



S = stroke

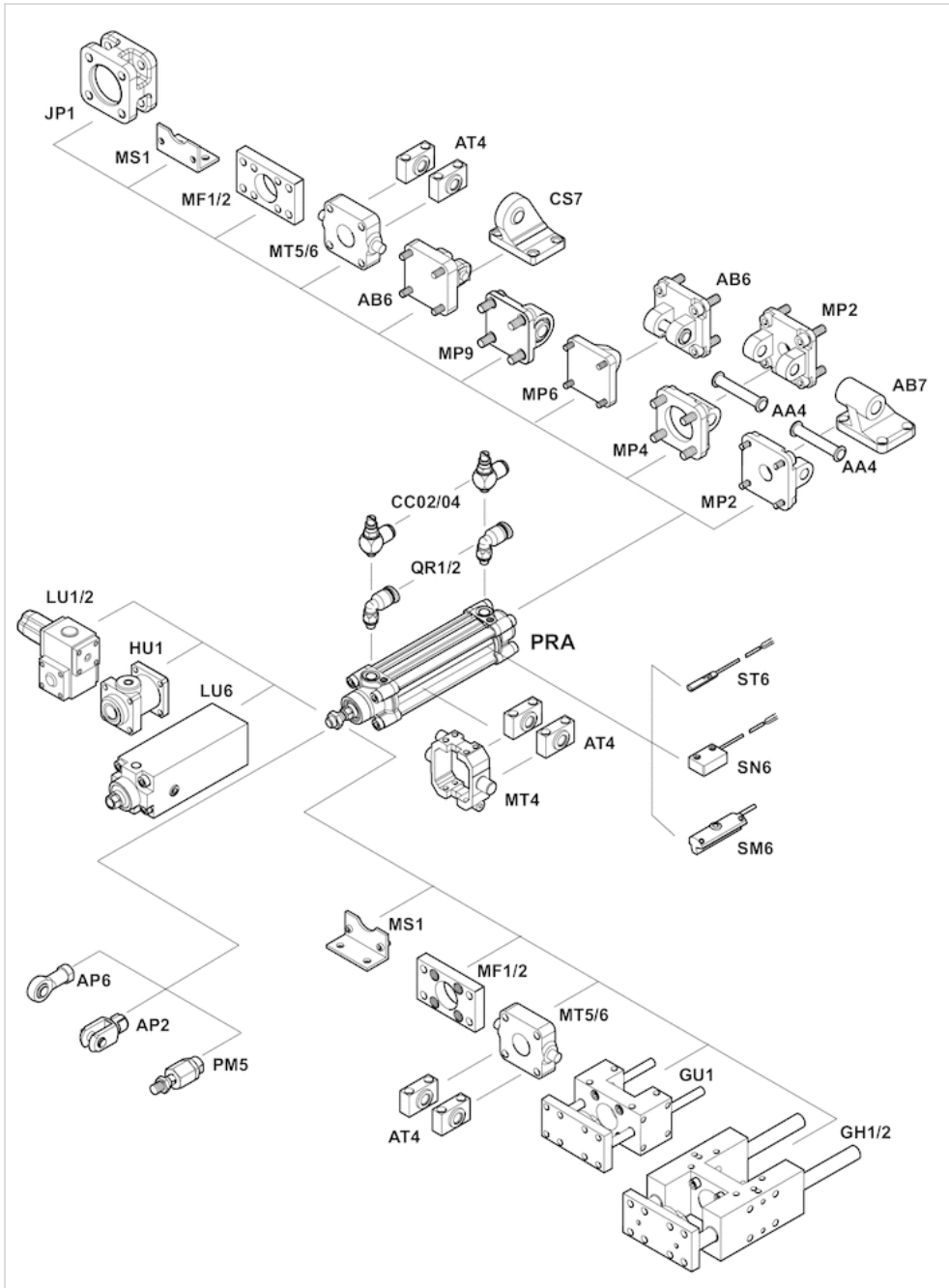
\*) For cylinders with optional piston rod with internal thread

## Dimensions

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------|------|------|--------|---------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm    | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm    | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm    | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm    | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm    | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm   | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm   | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

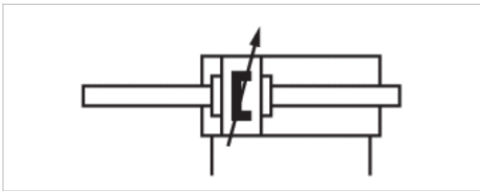
| Piston Ø | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- Piston rod through
- ATEX optional



| Standards                              | ISO 15552                 |
|--|---------------------------|
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R480041413                          | R480041432                          | R480041443                         | R480041453                         | R480041484                         | R480148059                          |
| 50   | R480041419                          | R480041433                          | R480041444                         | R480041454                         | R480041485                         | R480069994                          |
| 80   | R480041420                          | R480041434                          | R480041445                         | R480041455                         | R480041487                         | R480148061                          |
| 100  | R480041421                          | R480041435                          | R480041446                         | R480041456                         | R480041488                         | R480059815                          |
| 125  | R480041422                          | R480041436                          | R480041074                         | R480041457                         | R480041490                         | R480146278                          |
| 160  | R480041423                          | R480041437                          | R480041447                         | R480041458                         | R480041491                         | R480148062                          |
| 200  | R480041425                          | R480041438                          | R480041448                         | R480041459                         | R480041492                         | R480148063                          |
| 250  | R480041426                          | R480041439                          | R480041449                         | R480041460                         | R480041493                         | R480077546                          |
| 320  | R480041427                          | R480041440                          | R480041450                         | R480041461                         | R480041494                         | R480148064                          |
| 400  | R480041428                          | R480041441                          | R480041451                         | R480041481                         | -                                  | R480148065                          |
| 500  | R480041429                          | R480041442                          | R480041452                         | R480041482                         | R480041497                         | R480148060                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480148066                        |
| 50   | R480148067                        |
| 80   | R480148068                        |
| 100  | R480142910                        |
| 125  | R480148069                        |
| 160  | R480148070                        |
| 200  | R480148071                        |
| 250  | R480148072                        |
| 320  | R480148073                        |
| 400  | R480148074                        |
| 500  | R480148075                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|----------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   | 7220 N  |
| Extracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   | 7220 N  |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm  | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J     | 140 J   |
| Weight 0 mm stroke      | 0.58 kg  | 0.8 kg   | 1.34 kg  | 1.72 kg  | 2.92 kg  | 4.08 kg  | 8.92 kg |
| Weight +10 mm stroke    | 0.031 kg | 0.048 kg | 0.072 kg | 0.079 kg | 0.124 kg | 0.139 kg | 0.22 kg |
| Stroke max.             | 1500 mm  | 1500 mm  | 1500 mm  | 1500 mm  | 1500 mm  | 1500 mm  | 1500 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

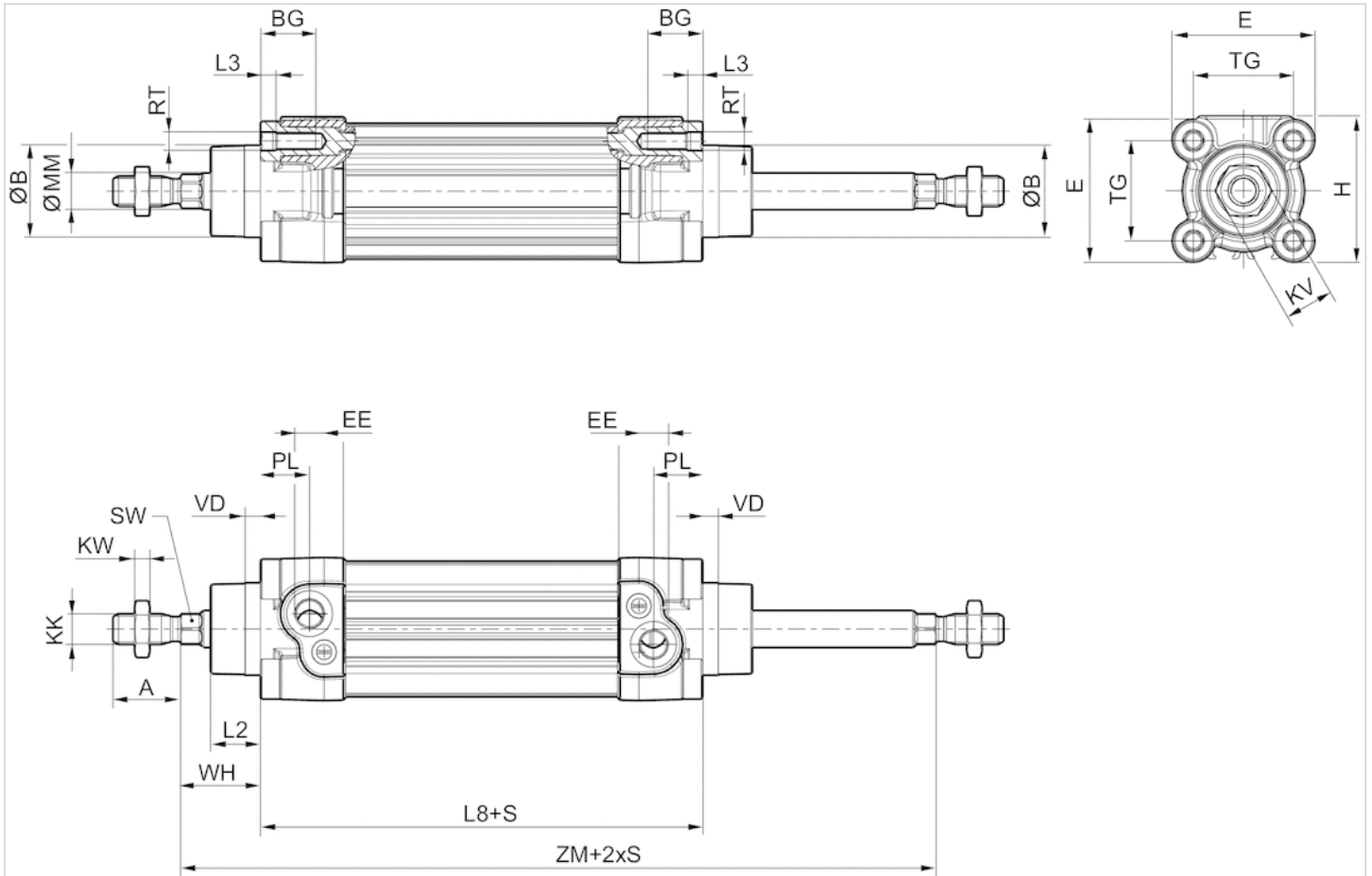
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |

## Dimensions

### Dimensions



S = stroke

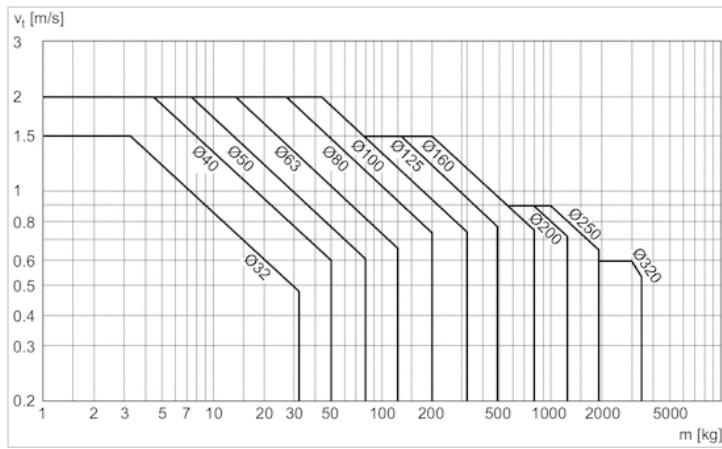
## Dimensions

| Piston $\varnothing$ | A -2 | $\varnothing B$ d11 | BG min. | E    | EE    | G     | H    | KK       | KV | KW   | $\varnothing MM$ f8 | PL   | L2    |
|----------------------|------|---------------------|---------|------|-------|-------|------|----------|----|------|---------------------|------|-------|
| 32 mm                | 22   | 30                  | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M10x1,25 | 16 | 5    | 12                  | 16   | 16.25 |
| 40 mm                | 24   | 35                  | 16      | 53   | G 1/4 | 33.25 | 53   | M12x1,25 | 18 | 6    | 16                  | 20   | 18.25 |
| 50 mm                | 32   | 40                  | 16      | 65   | G 1/4 | 31    | 65   | M16x1,5  | 24 | 8    | 20                  | 19   | 25    |
| 63 mm                | 32   | 45                  | 16      | 75   | G 3/8 | 38.25 | 75   | M16x1,5  | 24 | 8    | 20                  | 24   | 25    |
| 80 mm                | 40   | 45                  | 17      | 95   | G 3/8 | 38.25 | 95   | M20x1,5  | 30 | 10   | 25                  | 23.5 | 33    |
| 100 mm               | 40   | 55                  | 17      | 115  | G 1/2 | 42.25 | 115  | M20x1,5  | 30 | 10   | 25                  | 25   | 36    |
| 125 mm               | 54   | 60                  | 20      | 140  | G 1/2 | 53.85 | 140  | M27x2    | 41 | 13.5 | 32                  | 33   | 45    |

| Piston $\varnothing$ | L3 $\pm 0,5$ | L8            | RT  | SW | TG             | VD | WH           | ZM               |
|----------------------|--------------|---------------|-----|----|----------------|----|--------------|------------------|
| 32 mm                | 4.5          | 94 $\pm 0,4$  | M6  | 10 | 32,5 $\pm 0,5$ | 5  | 26 $\pm 1,4$ | 146 $\pm 3/-1,5$ |
| 40 mm                | 4.5          | 105 $\pm 0,7$ | M6  | 13 | 38 $\pm 0,5$   | 5  | 30 $\pm 1,4$ | 165 $\pm 3/-1,5$ |
| 50 mm                | 4.5          | 106 $\pm 0,7$ | M8  | 17 | 46,5 $\pm 0,6$ | 5  | 37 $\pm 1,4$ | 180 $\pm 3/-1,5$ |
| 63 mm                | 4.5          | 121 $\pm 0,8$ | M8  | 17 | 56,5 $\pm 0,7$ | 5  | 37 $\pm 1,8$ | 195 $\pm 3/-1,5$ |
| 80 mm                | 0            | 128 $\pm 0,8$ | M10 | 22 | 72 $\pm 0,7$   | 5  | 46 $\pm 1,8$ | 220 $\pm 3/-1,5$ |
| 100 mm               | 0            | 138 $\pm 1$   | M10 | 22 | 89 $\pm 0,7$   | 5  | 51 $\pm 1,8$ | 240 $\pm 3,5/-2$ |
| 125 mm               | 0            | 160 $\pm 1$   | M12 | 27 | 110 $\pm 1,1$  | 7  | 65 $\pm 2,2$ | 290 $\pm 3,5/-2$ |

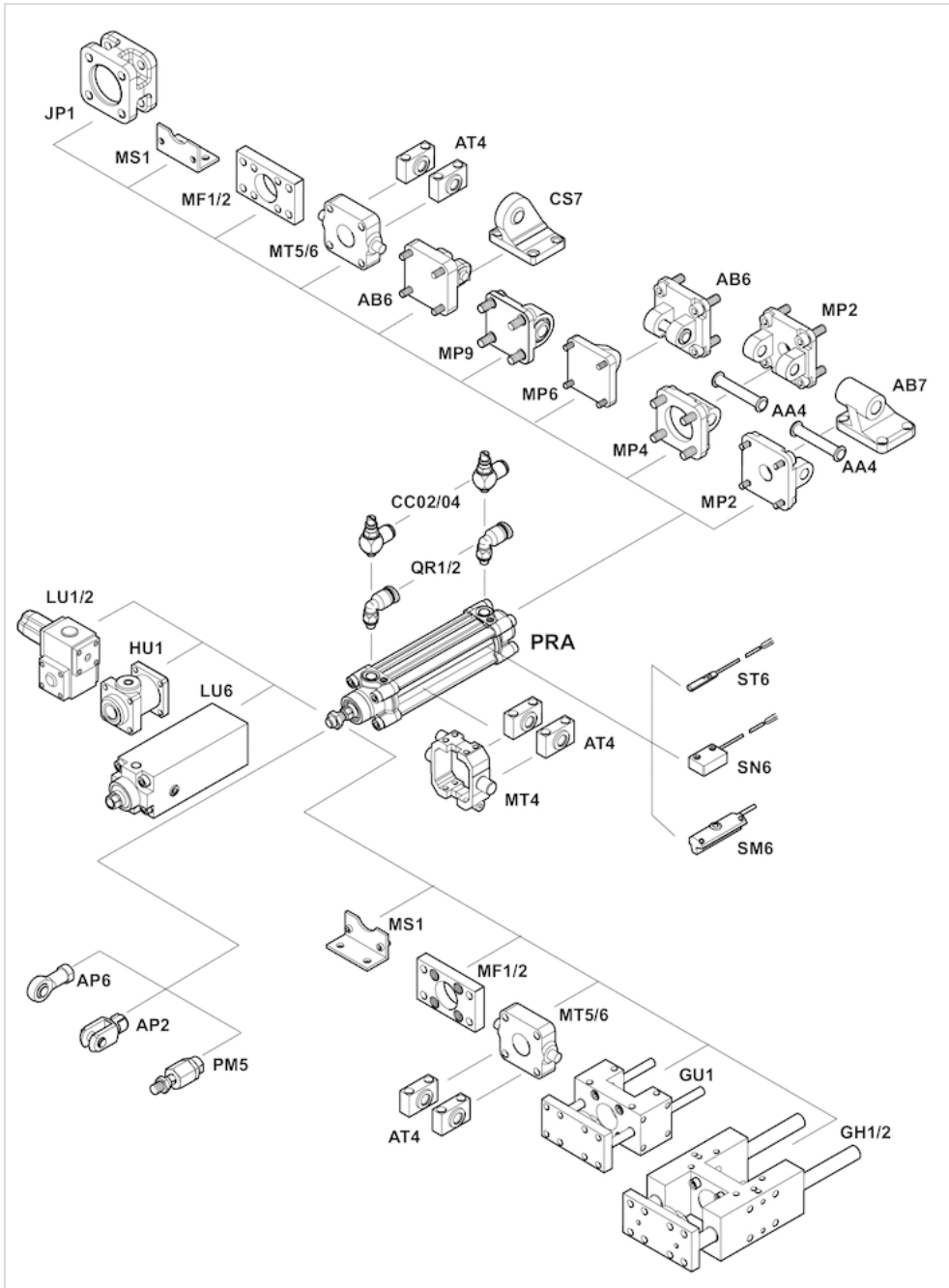
# Diagrams

## Cushioning diagram



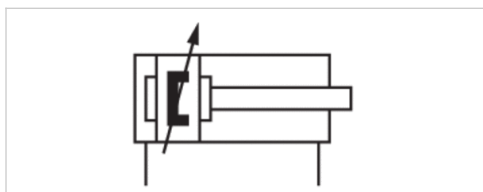
v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- Heat resistant



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 2 ... 10 bar              |
| Ambient temperature min./max.          | -10 ... 120 °C            |
| Medium temperature min./max.           | -10 ... 120 °C            |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R412014229                          | R412014243                          | R412014257                         | R412014278                         | R412014304                         | R412014327                          |
| 50   | R412014230                          | R412014168                          | R412014258                         | R412014225                         | R412014305                         | R412014328                          |
| 80   | R412014231                          | R412014170                          | R412014162                         | R412014279                         | R412014306                         | R412014329                          |
| 100  | R412014232                          | R412014244                          | R412014259                         | R412014280                         | R412014307                         | R412014330                          |
| 125  | R412014182                          | R412014216                          | R412014260                         | R412014281                         | R412014308                         | R412014331                          |
| 160  | R412014233                          | R412014245                          | R412014261                         | R412014282                         | R412014309                         | R412014332                          |
| 200  | R412014234                          | R412014246                          | R412014262                         | R412014283                         | R412014210                         | R412014333                          |
| 250  | R412014235                          | R412014247                          | R412014263                         | R412014214                         | R412014219                         | R412013911                          |
| 320  | R412014236                          | R412014248                          | R412014183                         | R412014284                         | R412014310                         | R412014334                          |
| 400  | R412014237                          | R412013926                          | R412014264                         | R412014285                         | R412014206                         | R412014335                          |
| 500  | R412014238                          | R412014249                          | R412014265                         | R412014286                         | R412014311                         | R412014336                          |



| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480605337                        |
| 50   | R480605338                        |
| 80   | R480605339                        |
| 100  | R480605340                        |
| 125  | R480605341                        |
| 160  | R480605342                        |
| 200  | R480605343                        |
| 250  | R480605146                        |
| 320  | R480605344                        |
| 400  | R480605345                        |
| 500  | R480605346                        |

## Technical data

| Piston Ø                | 32 mm           | 40 mm           | 50 mm           |
|-------------------------|-----------------|-----------------|-----------------|
| Retracting piston force | 435 N           | 660 N           | 1035 N          |
| Extracting piston force | 505 N           | 790 N           | 1235 N          |
| Cushioning length       | 11.5 mm         | 15 mm           | 17 mm           |
| Cushioning energy       | 4.8 J           | 9 J             | 15 J            |
| Weight 0 mm stroke      | 0.5 kg          | 0.65 kg         | 1.06 kg         |
| Weight +10 mm stroke    | 0.022 kg        | 0.032 kg        | 0.047 kg        |
| Sealing material        | Fluorocautchouc | Fluorocautchouc | Fluorocautchouc |
| Stroke max.             | 1600 mm         | 1900 mm         | 2100 mm         |

| Piston Ø                | 63 mm           | 80 mm           | 100 mm          | 125 mm       |
|-------------------------|-----------------|-----------------|-----------------|--------------|
| Retracting piston force | 1765 N          | 2855 N          | 4635 N          | 7220 N       |
| Extracting piston force | 1960 N          | 3165 N          | 4945 N          | 7725 N       |
| Cushioning length       | 16.5 mm         | 19.5 mm         | 19.5 mm         | 22 mm        |
| Cushioning energy       | 27 J            | 54 J            | 88 J            | 140 J        |
| Weight 0 mm stroke      | 1.42 kg         | 2.37 kg         | 3.51 kg         | 6.72 kg      |
| Weight +10 mm stroke    | 0.054 kg        | 0.085 kg        | 0.1 kg          | 0.15 kg      |
| Sealing material        | Fluorocautchouc | Fluorocautchouc | Fluorocautchouc | Polyurethane |
| Stroke max.             | 2500 mm         | 2800 mm         | 2800 mm         | 2750 mm      |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

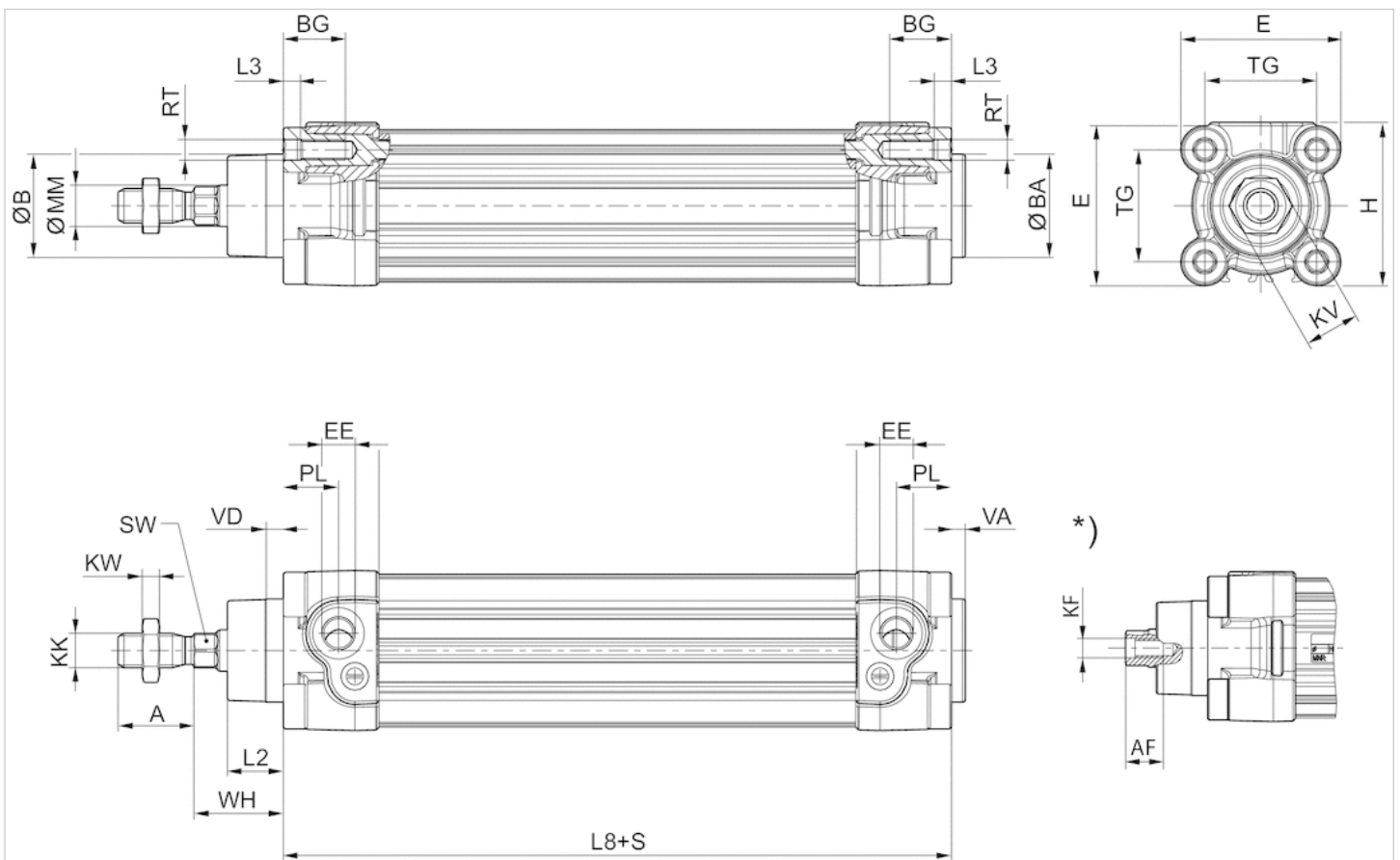
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                               |
|--------------------|-------------------------------|
| Cylinder tube      | Aluminum, anodized            |
| Piston rod         | Stainless steel               |
| Front cover        | Die-cast aluminum             |
| End cover          | Die-cast aluminum             |
| Seal               | Fluorocaoutchouc Polyurethane |
| Nut for piston rod | Steel, galvanized             |
| Scraper            | Fluorocaoutchouc              |

## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

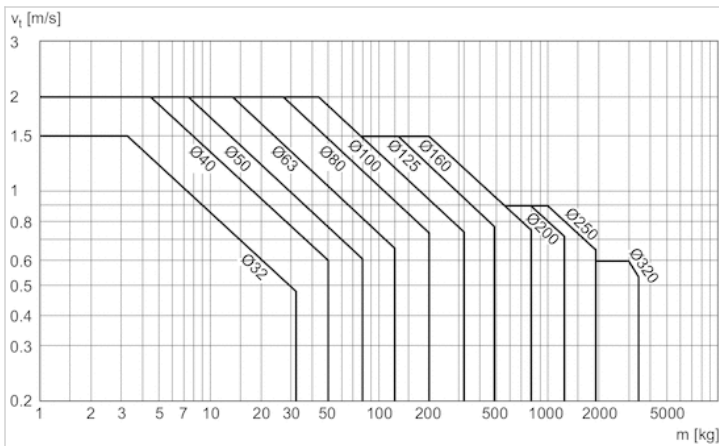
## Dimensions

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------|------|------|--------|---------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm    | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm    | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm    | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm    | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm    | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm   | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm   | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

| Piston Ø | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

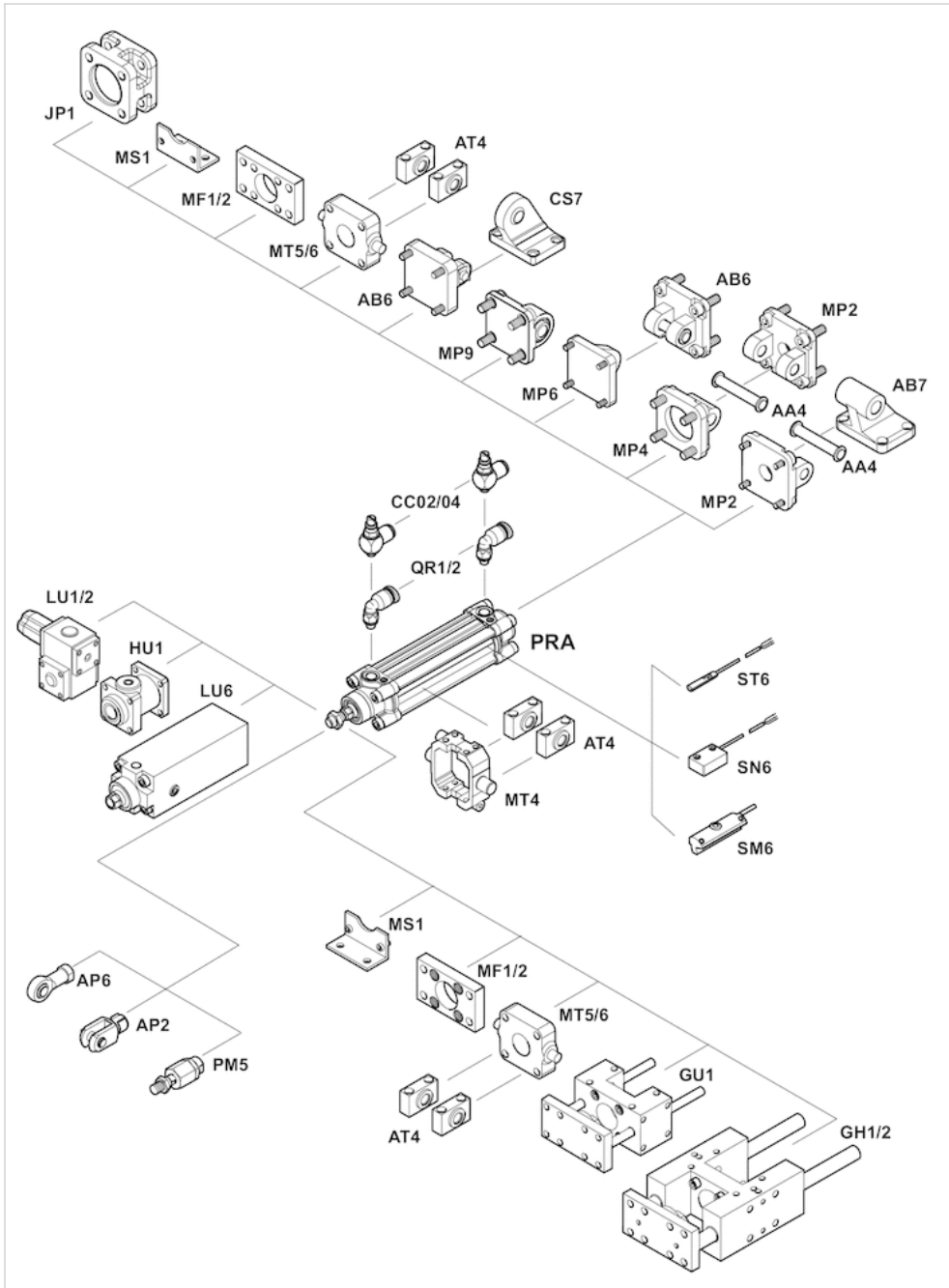
## Diagrams

### Cushioning diagram



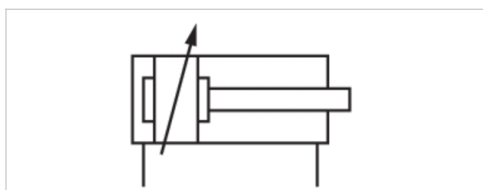
v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- Cushioning pneumatically adjustable
- Piston rod External thread
- Heat resistant



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 2 ... 10 bar              |
| Ambient temperature min./max.          | -10 ... 150 °C            |
| Medium temperature min./max.           | -10 ... 150 °C            |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R480144202                          | R480041108                          | R480147979                         | R480147990                         | R480144198                         | R480148011                          |
| 50   | R480147959                          | R480147968                          | R480147980                         | R480147991                         | R480148001                         | R480148012                          |
| 80   | R480040989                          | R480147969                          | R480147981                         | R480147992                         | R480148002                         | R480148013                          |
| 100  | R480147960                          | R480147970                          | R480147982                         | R480147993                         | R480147611                         | R480148014                          |
| 125  | R480147961                          | R480147971                          | R480147983                         | R480147994                         | R480148003                         | R480148015                          |
| 160  | R480147962                          | R480147972                          | R480147984                         | R480147995                         | R480148004                         | R480148016                          |
| 200  | R480147963                          | R480147973                          | R480147985                         | R480144714                         | R480147052                         | R480148017                          |
| 250  | R480147964                          | R480147974                          | R480147986                         | R480147996                         | R480148005                         | R480148018                          |
| 320  | R480147965                          | R480147975                          | R480147987                         | R480147997                         | R480146313                         | R480148019                          |
| 400  | R480147966                          | R480147976                          | R480147988                         | R480147998                         | R480042946                         | R480148020                          |
| 500  | R480147967                          | R480147977                          | R480147989                         | R480147999                         | R480148009                         | R480147194                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480170695                        |
| 50   | R480157264                        |
| 80   | R480163258                        |
| 100  | R480153677                        |
| 125  | R480155595                        |
| 160  | R480170774                        |
| 200  | R480165969                        |
| 250  | R480158304                        |
| 320  | R480170775                        |
| 400  | R480170776                        |
| 500  | R480149365                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm  | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N  | 7220 N  |
| Extracting piston force | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N  | 7725 N  |
| Cushioning length       | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    | 140 J   |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg | 6.72 kg |
| Weight +10 mm stroke    | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  | 0.15 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

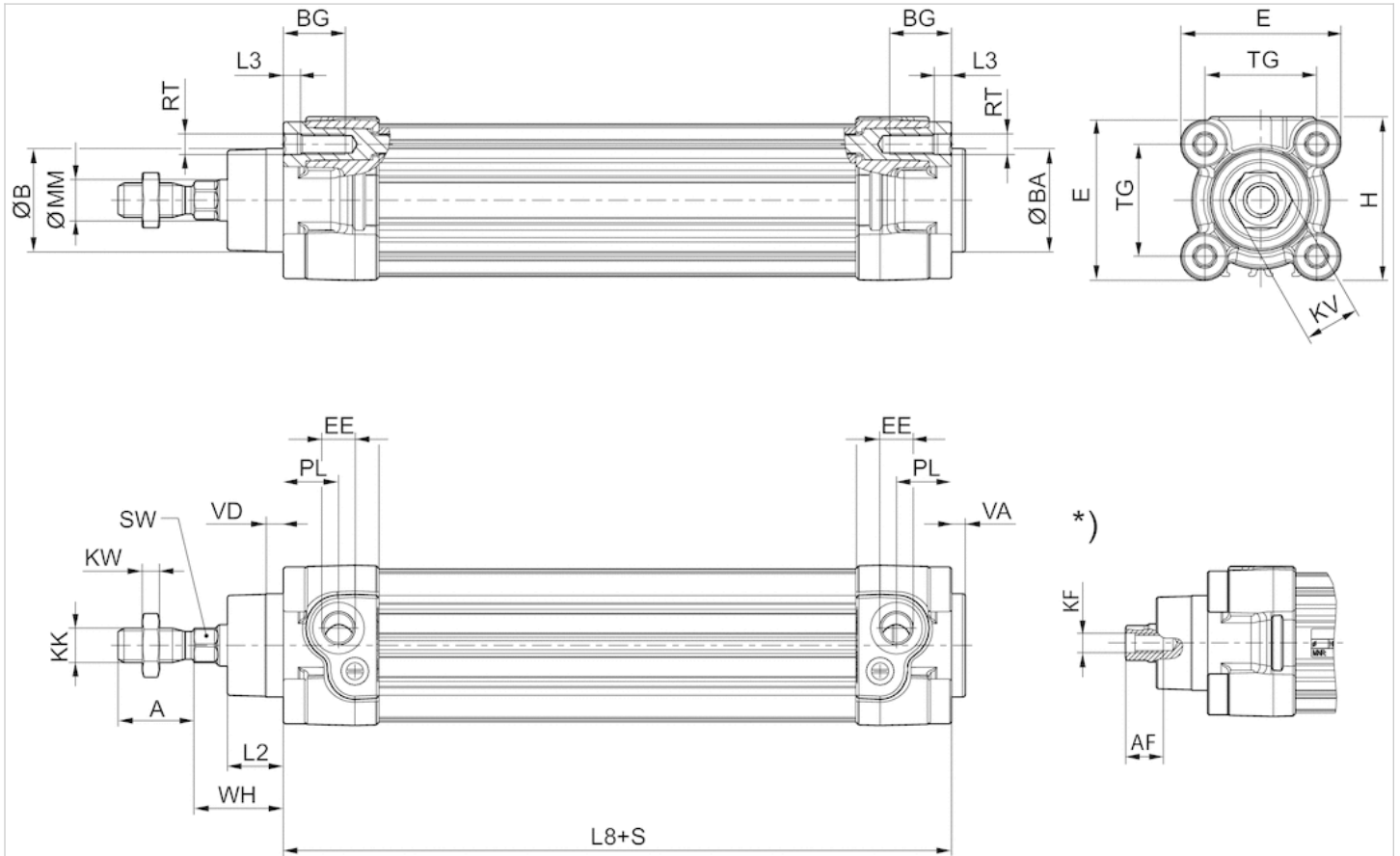
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Fluorocaoutchouc   |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Fluorocaoutchouc   |

## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

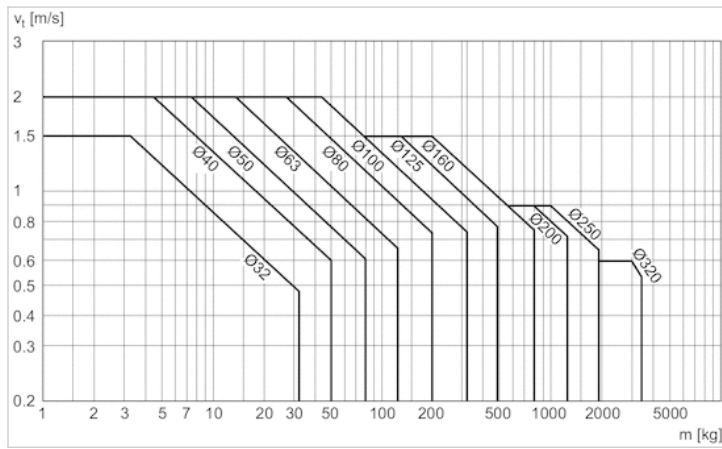
## Dimensions

| Piston $\varnothing$ | A -2 | AF+1 | $\varnothing B$ d11 | $\varnothing BA$ d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------------------|------|------|---------------------|----------------------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm                | 22   | 12   | 30                  | 30                   | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm                | 24   | 13.5 | 35                  | 35                   | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm                | 32   | 17   | 40                  | 40                   | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm                | 32   | 17   | 45                  | 45                   | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm                | 40   | 21   | 45                  | 45                   | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm               | 40   | 21   | 55                  | 55                   | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm               | 54   | 28   | 60                  | 60                   | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

| Piston $\varnothing$ | $\varnothing MM$ f8 | PL   | L2    | L3 $\pm 0,5$ | L8            | RT  | SW | TG             | VA -1 | VD | WH           |
|----------------------|---------------------|------|-------|--------------|---------------|-----|----|----------------|-------|----|--------------|
| 32 mm                | 12                  | 16   | 16.25 | 4.5          | 94 $\pm 0,4$  | M6  | 10 | 32,5 $\pm 0,5$ | 4     | 5  | 26 $\pm 1,4$ |
| 40 mm                | 16                  | 20   | 18.25 | 4.5          | 105 $\pm 0,7$ | M6  | 13 | 38 $\pm 0,5$   | 4     | 5  | 30 $\pm 1,4$ |
| 50 mm                | 20                  | 19   | 25    | 4.5          | 106 $\pm 0,7$ | M8  | 17 | 46,5 $\pm 0,6$ | 4     | 5  | 37 $\pm 1,4$ |
| 63 mm                | 20                  | 24   | 25    | 4.5          | 121 $\pm 0,8$ | M8  | 17 | 56,5 $\pm 0,7$ | 4     | 5  | 37 $\pm 1,8$ |
| 80 mm                | 25                  | 23.5 | 33    | 0            | 128 $\pm 0,8$ | M10 | 22 | 72 $\pm 0,7$   | 4     | 5  | 46 $\pm 1,8$ |
| 100 mm               | 25                  | 25   | 36    | 0            | 138 $\pm 1$   | M10 | 22 | 89 $\pm 0,7$   | 4     | 5  | 51 $\pm 1,8$ |
| 125 mm               | 32                  | 33   | 45    | 0            | 160 $\pm 1$   | M12 | 27 | 110 $\pm 1,1$  | 6     | 7  | 65 $\pm 2,2$ |

# Diagrams

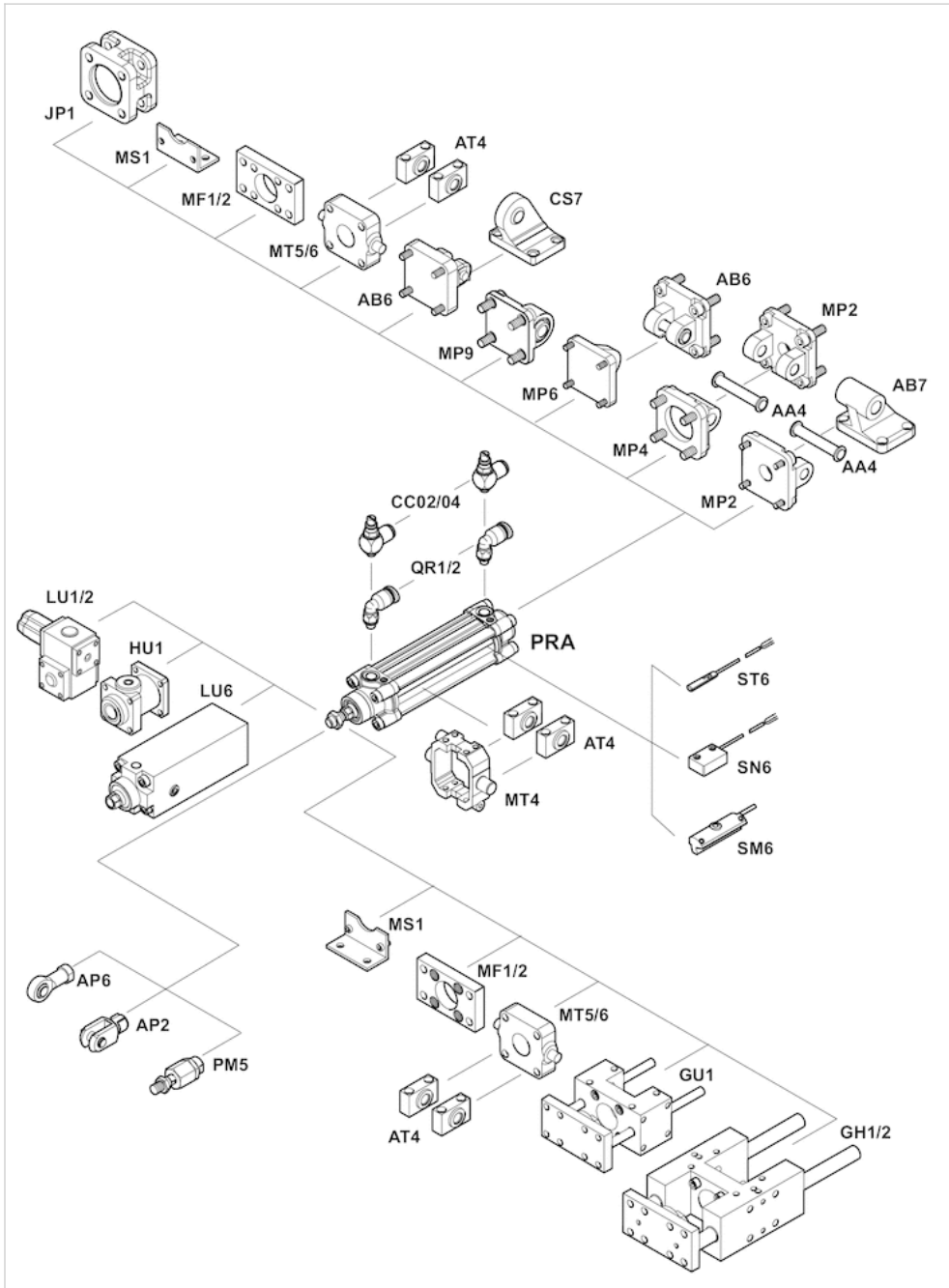
## Cushioning diagram



v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

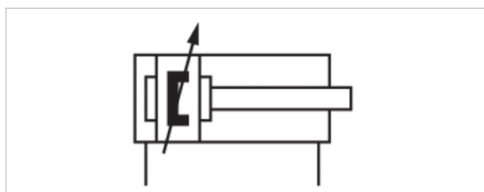


# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- -40 °C cold-resistant



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -40 ... 70 °C             |
| Medium temperature min./max.           | -40 ... 70 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 3/8<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R480691821                          | R480691832                          | R480691843                         | R480691854                         | R480691865                         | R480691876                          |
| 50   | R480691822                          | R480691833                          | R480691844                         | R480691855                         | R480691866                         | R480691877                          |
| 80   | R480691823                          | R480691834                          | R480691845                         | R480691856                         | R480691867                         | R480691878                          |
| 100  | R480691824                          | R480691835                          | R480691846                         | R480691857                         | R480691868                         | R480691879                          |
| 125  | R480691825                          | R480691836                          | R480691847                         | R480691858                         | R480691869                         | R480691880                          |
| 160  | R480691826                          | R480691837                          | R480691848                         | R480691859                         | R480691870                         | R480691881                          |
| 200  | R480691827                          | R480691838                          | R480691849                         | R480691860                         | R480691871                         | R480691882                          |
| 250  | R480691828                          | R480691839                          | R480691850                         | R480691861                         | R480691872                         | R480691883                          |
| 320  | R480691829                          | R480691840                          | R480691851                         | R480691862                         | R480691873                         | R480691884                          |
| 400  | R480691830                          | R480691841                          | R480691852                         | R480691863                         | R480691874                         | R480691885                          |
| 500  | R480691831                          | R480691842                          | R480691853                         | R480691864                         | R480691875                         | R480691886                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480691887                        |
| 50   | R480691888                        |
| 80   | R480691889                        |
| 100  | R480691890                        |
| 125  | R480691891                        |
| 160  | R480691892                        |
| 200  | R480691893                        |
| 250  | R480691894                        |
| 320  | R480691895                        |
| 400  | R480691896                        |
| 500  | R480691897                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm  | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N  | 7220 N  |
| Extracting piston force | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N  | 7725 N  |
| Cushioning length       | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    | 140 J   |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg | 6.72 kg |
| Weight +10 mm stroke    | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  | 0.15 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

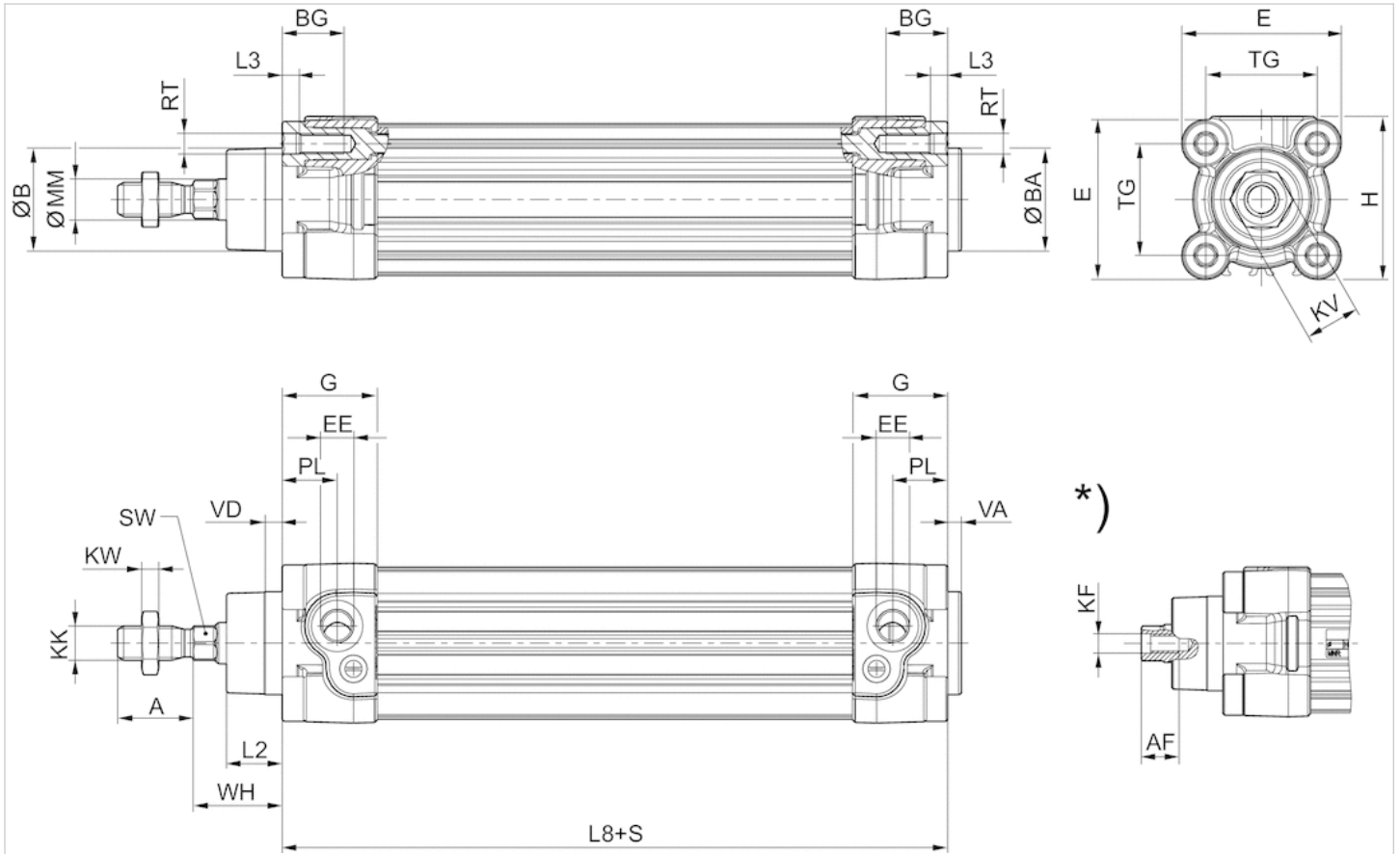
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Brass              |

## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

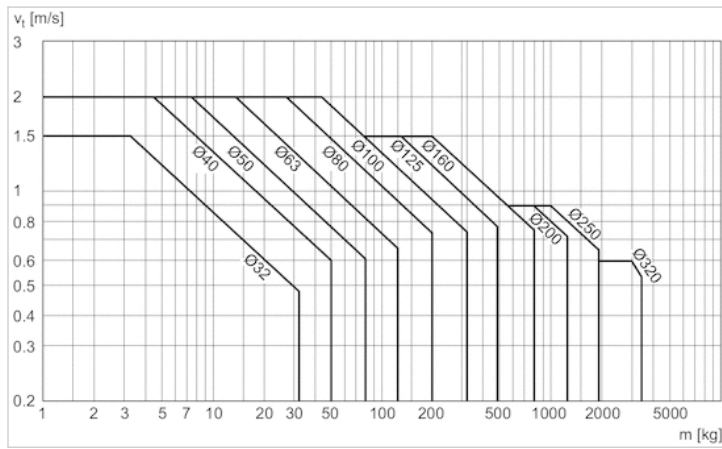
## Dimensions

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------|------|------|--------|---------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm    | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm    | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm    | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm    | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm    | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm   | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm   | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

| Piston Ø | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

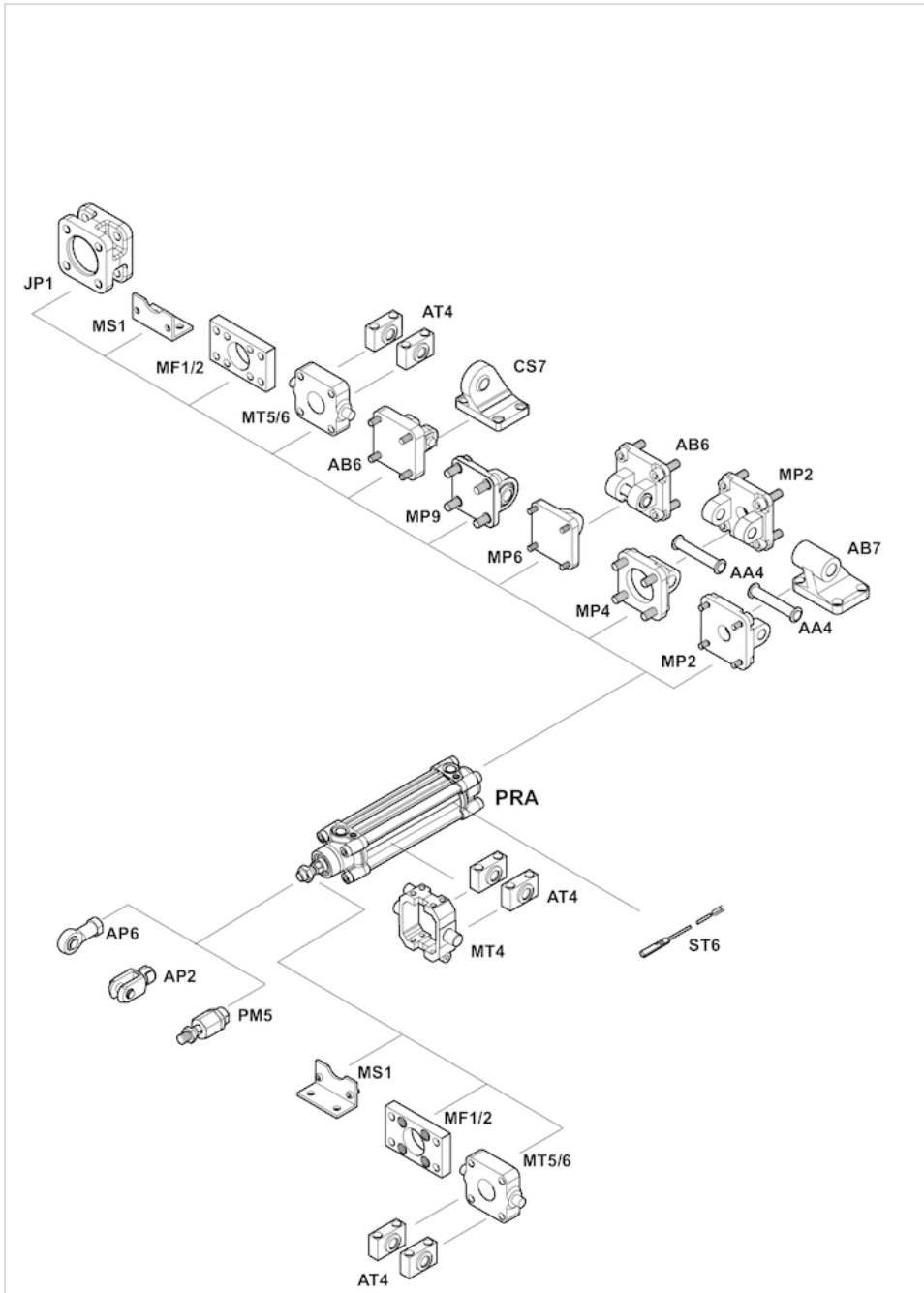
# Diagrams

## Cushioning diagram



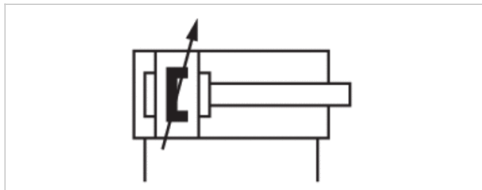
v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- Low friction



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1 ... 10 bar              |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

The extracting breakaway pressure is determined with the piston in center position.

## Technical data

| Piston Ø                      | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|-------------------------------|----------|----------|----------|----------|----------|----------|
| Retracting piston force       | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   |
| Extracting piston force       | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N   |
| Extracting breakaway pressure | 0.09 bar | 0.07 bar | 0.05 bar | 0.05 bar | 0.04 bar | 0.04 bar |
| Cushioning length             | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm  |
| Cushioning energy             | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J     |
| Weight 0 mm stroke            | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg  |
| Weight +10 mm stroke          | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg   |
| Stroke max.                   | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm  |

| Piston Ø                      | 125 mm   |
|-------------------------------|----------|
| Retracting piston force       | 7220 N   |
| Extracting piston force       | 7725 N   |
| Extracting breakaway pressure | 0.06 bar |
| Cushioning length             | 22 mm    |
| Cushioning energy             | 140 J    |
| Weight 0 mm stroke            | 6.72 kg  |
| Weight +10 mm stroke          | 0.15 kg  |
| Stroke max.                   | 2750 mm  |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

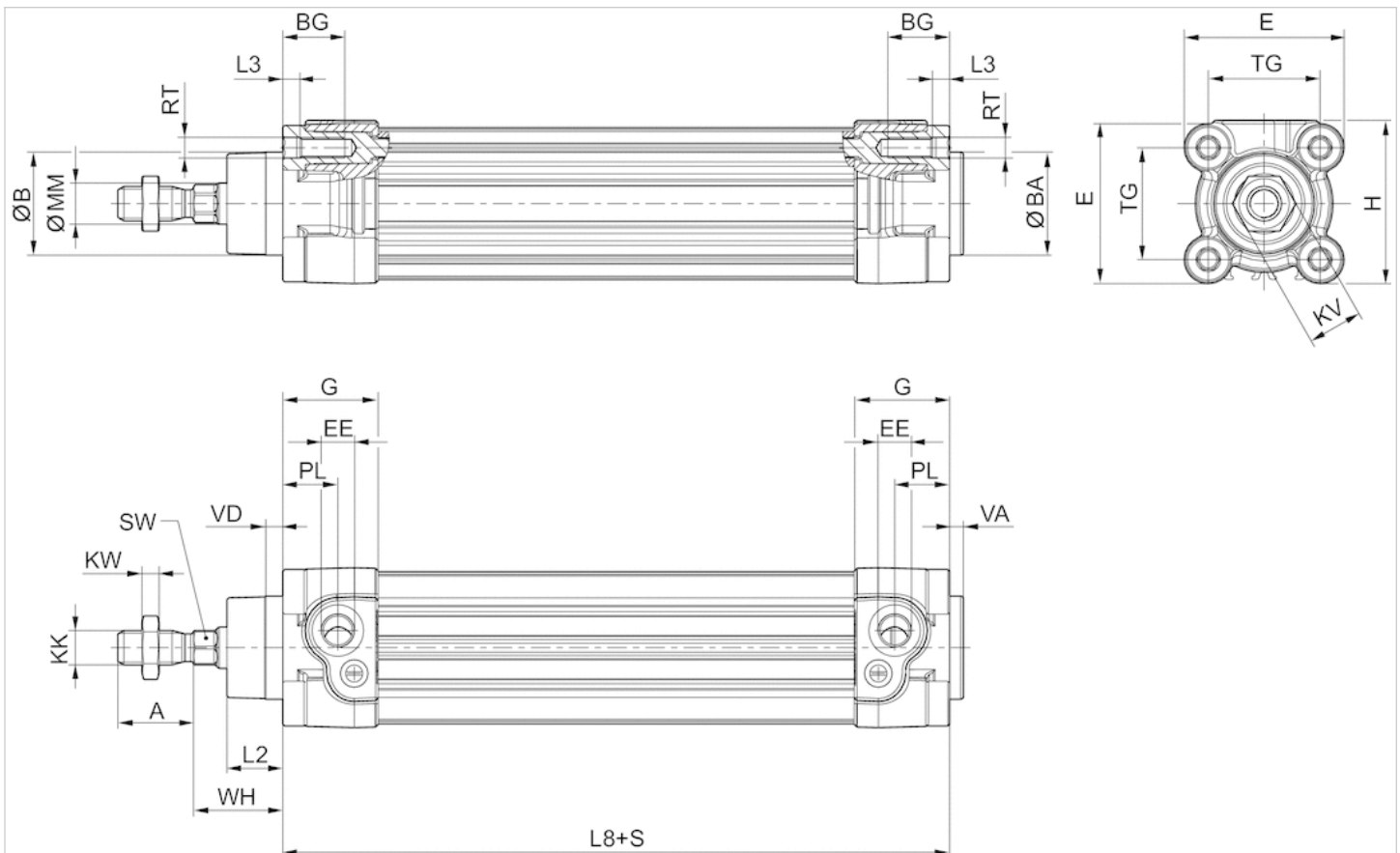
## Technical information

### Material

|                    |                          |
|--------------------|--------------------------|
| Cylinder tube      | Aluminum, anodized       |
| Piston rod         | Stainless steel          |
| Front cover        | Die-cast aluminum        |
| End cover          | Die-cast aluminum        |
| Seal               | Nitrile butadiene rubber |
| Nut for piston rod | Steel, galvanized        |
| Scraper            | Nitrile butadiene rubber |

## Dimensions

### Dimensions



S = stroke



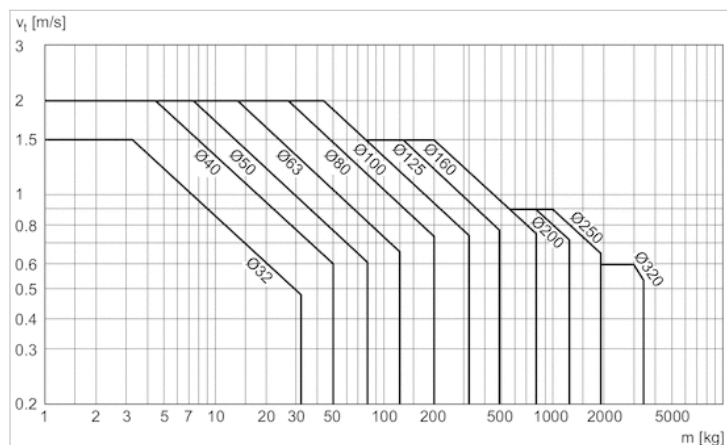
## Dimensions

| Ø   | A -2 | ØB<br>d11 | ØBA<br>d11 | BG min. | E    | EE    | G     | H    | KK       | KV | KW   |
|-----|------|-----------|------------|---------|------|-------|-------|------|----------|----|------|
| 32  | 22   | 30        | 30         | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M10x1,25 | 16 | 5    |
| 40  | 24   | 35        | 35         | 16      | 53   | G 1/4 | 33.25 | 53   | M12x1,25 | 18 | 6    |
| 50  | 32   | 40        | 40         | 16      | 65   | G 1/4 | 31    | 65   | M16x1,5  | 24 | 8    |
| 63  | 32   | 45        | 45         | 16      | 75   | G 3/8 | 38.25 | 75   | M16x1,5  | 24 | 8    |
| 80  | 40   | 45        | 45         | 17      | 95   | G 3/8 | 38.25 | 95   | M20x1,5  | 30 | 10   |
| 100 | 40   | 55        | 55         | 17      | 115  | G 1/2 | 42.25 | 115  | M20x1,5  | 30 | 10   |
| 125 | 54   | 60        | 60         | 20      | 140  | G 1/2 | 53.85 | 140  | M27x2    | 41 | 13.5 |

| ØMM<br>f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|-----------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 12        | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 16        | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 20        | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 20        | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 25        | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 25        | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 32        | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

## Diagrams

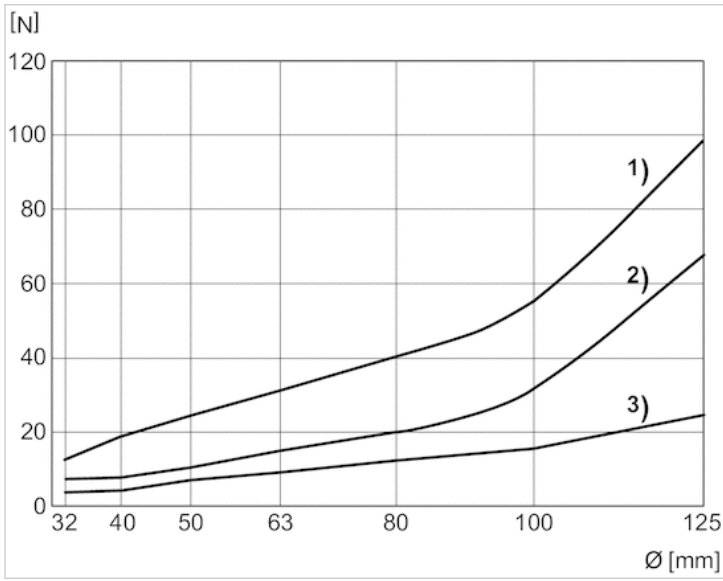
### Cushioning diagram



$v_p$  = Piston velocity [m/s]

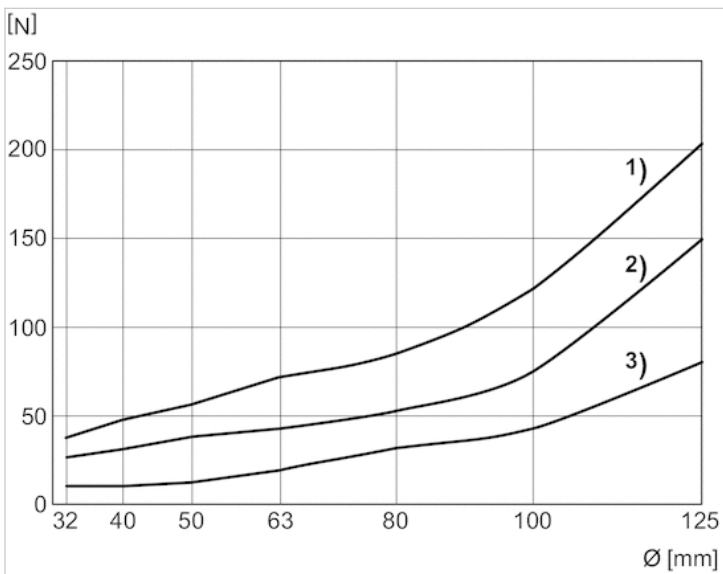
$m$  = Cushionable mass [kg]

Stick-slip effect in unpressurized state



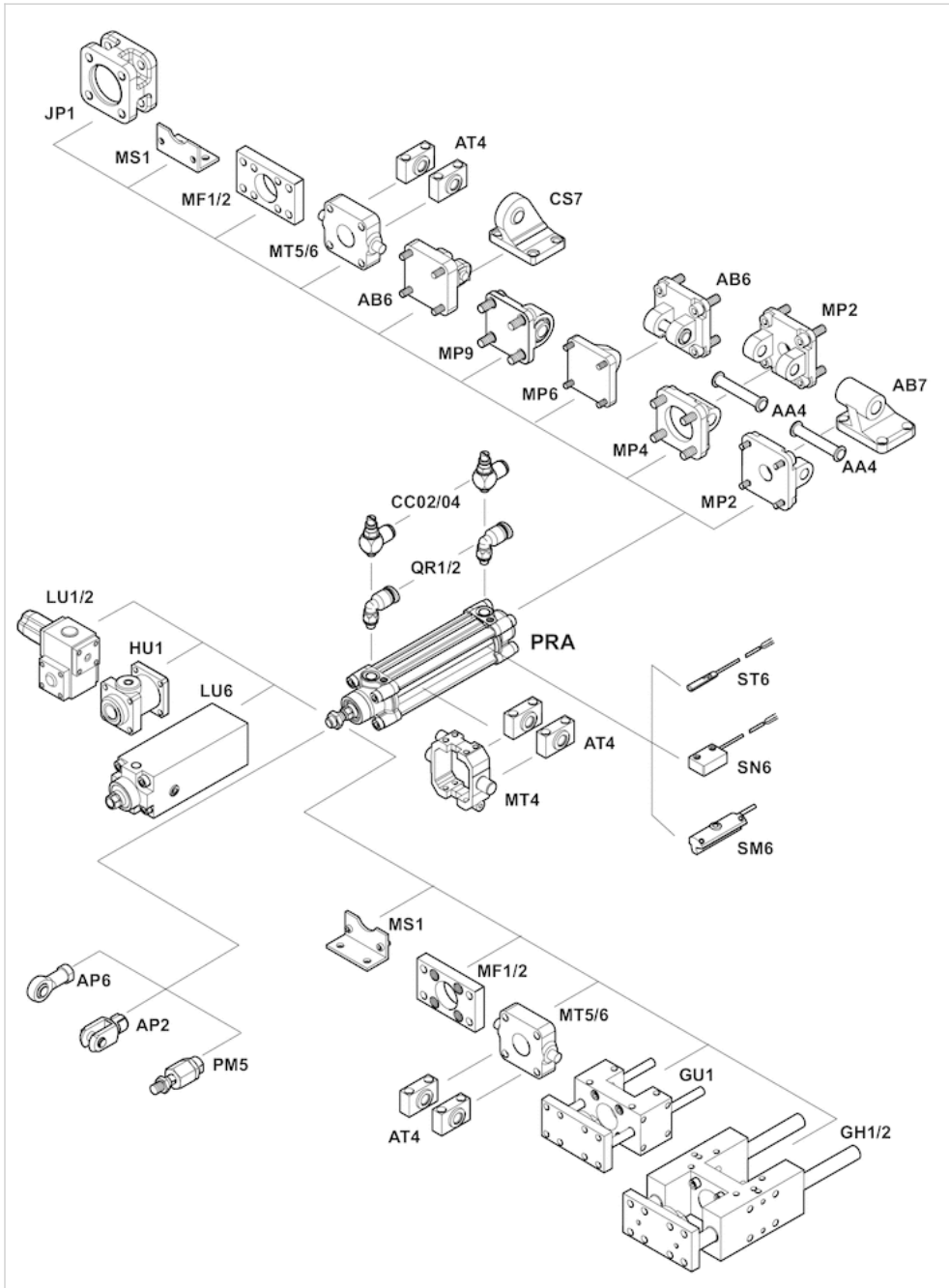
- 1) Standard PRA
- 2) Low-friction PRA (with magnet)
- 3) Low-friction TRB (without magnet)

Stick-slip effect, internal cylinder pressure on both sides 6.3 bar



- 1) Standard PRA
- 2) Low-friction PRA (with magnet)
- 3) Low-friction TRB (without magnet)

# Accessories overview



# Profile cylinder ISO 15552, Series PRA-MS

- Modular sealing system



Standards

ISO 15552

For additional technical data please see the relevant data sheets for the standard version.

## Technical information

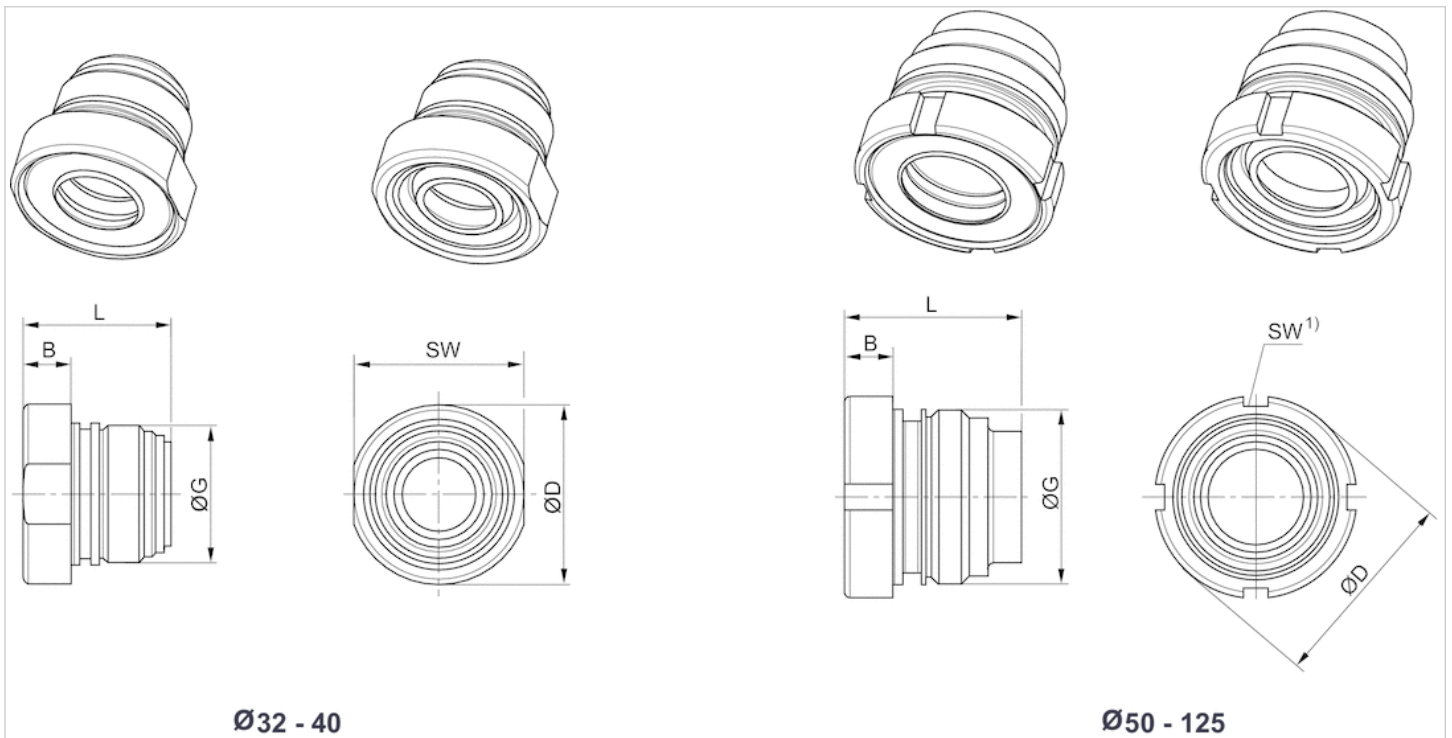
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Dimensions

Dimensions in mm

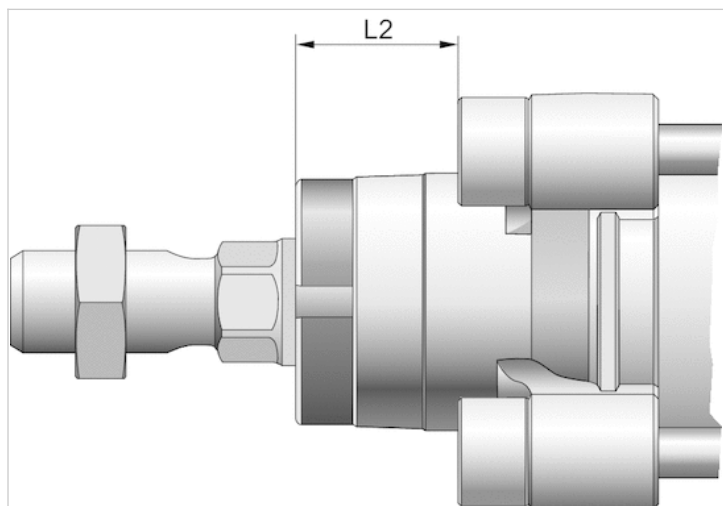


1) Can be mounted with hook wrench in accordance with DIN 1810 A

## Dimensions

|                                |                                |                     |
|--------------------------------|--------------------------------|---------------------|
| Piston Ø                       | 32                             |                     |
| Seal                           | Acrylonitrile butadiene rubber |                     |
| Scraper                        | Polyester elastomer            |                     |
| Ambient temperature min./max.  | -20 °C ... + 80 °C             |                     |
| Acrylonitrile butadiene rubber | Fluorocaoutchouc               |                     |
| Polytetrafluorethylene         | Polytetrafluorethylene         |                     |
| -20 °C ... + 80 °C             | -10 °C ... + 120 °C            |                     |
| 40-125                         | Acrylonitrile butadiene rubber |                     |
| Acrylonitrile butadiene rubber | Acrylonitrile butadiene rubber |                     |
| Polyester elastomer            | Polytetrafluorethylene         |                     |
| -20 °C ... + 80 °C             | -20 °C ... + 80 °C             |                     |
| Fluorocaoutchouc               | Acrylonitrile butadiene rubber | Fluorocaoutchouc    |
| Polytetrafluorethylene         | Brass                          | Brass               |
| -10 °C ... + 120 °C            | -20 °C ... + 80 °C             | -10 °C ... + 120 °C |

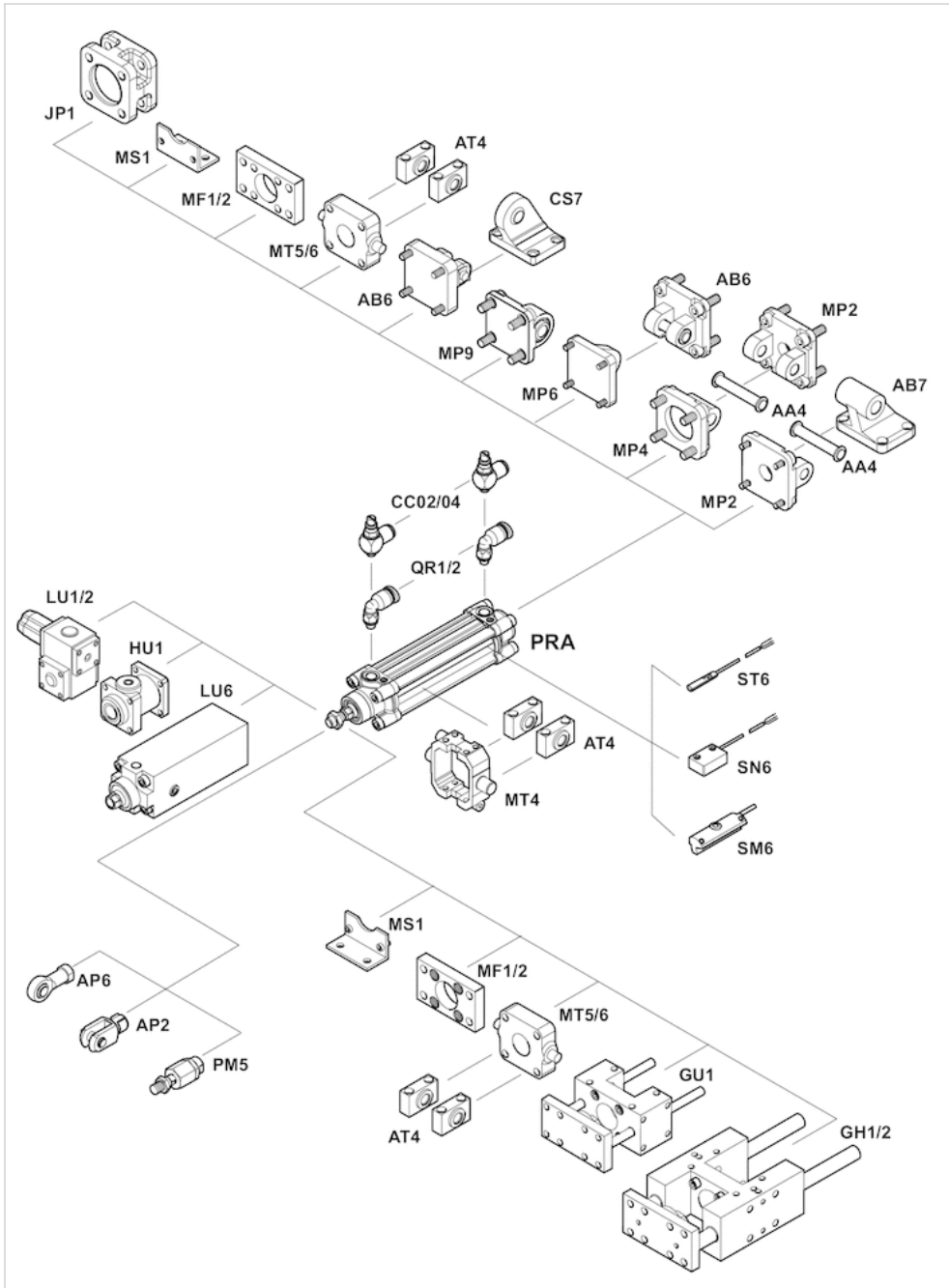
## Dimensions



## Dimensions

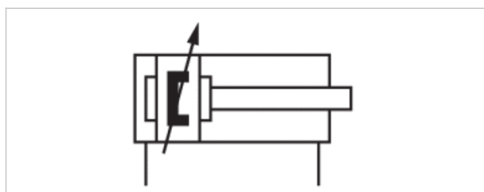
| Ø       | B   | ØD   | G       | L    | L2    | SW    |
|---------|-----|------|---------|------|-------|-------|
| 32      | 6.7 | 24.5 | M22x1   | 23   | 16.25 | 23    |
| 40      | 9.2 | 34   | M26x1,5 | 28.1 | 18.25 | 32    |
| 50, 63  | 9   | 38.5 | M33x2   | 33.5 | 25    | 40-42 |
| 80, 100 | 10  | 44   | M40x2   | 44   | 33    | 45-50 |
| 125     | 12  | 57   | M50x2   | 56   | 45    | 58-62 |

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- corrosion-resistant
- Piston rod External thread



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 1/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R480691975                          | R480691986                          | R480691997                         | R480692008                         | R480692019                         | R480692030                          |
| 50   | R480691976                          | R480691987                          | R480691998                         | R480692009                         | R480692020                         | R480692031                          |
| 80   | R480691977                          | R480691988                          | R480691999                         | R480692010                         | R480692021                         | R480692032                          |
| 100  | R480691978                          | R480691989                          | R480692000                         | R480692011                         | R480692022                         | R480692033                          |
| 125  | R480691979                          | R480691990                          | R480692001                         | R480692012                         | R480692023                         | R480692034                          |
| 160  | R480691980                          | R480691991                          | R480692002                         | R480692013                         | R480692024                         | R480692035                          |
| 200  | R480691981                          | R480691992                          | R480692003                         | R480692014                         | R480692025                         | R480692036                          |
| 250  | R480691982                          | R480691993                          | R480692004                         | R480692015                         | R480692026                         | R480692037                          |
| 320  | R480691983                          | R480691994                          | R480692005                         | R480692016                         | R480692027                         | R480692038                          |
| 400  | R480691984                          | R480691995                          | R480692006                         | R480692017                         | R480692028                         | R480692039                          |
| 500  | R480691985                          | R480691996                          | R480692007                         | R480692018                         | R480692029                         | R480692040                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R480692041                        |
| 50   | R480692042                        |
| 80   | R480692043                        |
| 100  | R480692044                        |
| 125  | R480692045                        |
| 160  | R480692046                        |
| 200  | R480692047                        |
| 250  | R480692048                        |
| 320  | R480692049                        |
| 400  | R480692050                        |
| 500  | R480692051                        |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm  | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N  | 7220 N  |
| Extracting piston force | 505 N    | 790 N    | 1235 N   | 1960 N   | 3165 N   | 4945 N  | 7725 N  |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    | 140 J   |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg | 6.72 kg |
| Weight +10 mm stroke    | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  | 0.15 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

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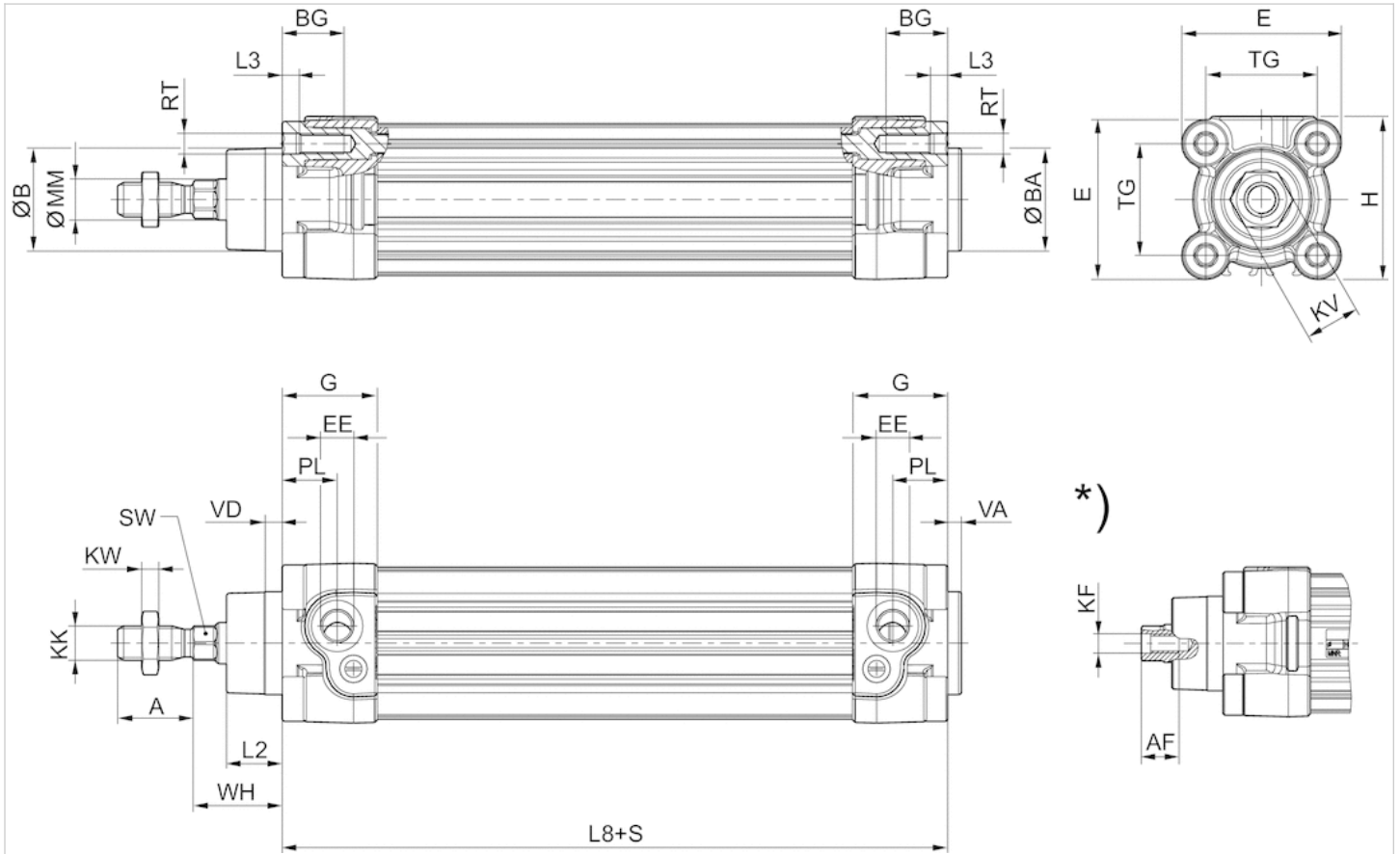
## Technical information

| Material           |                             |
|--------------------|-----------------------------|
| Cylinder tube      | Aluminum, anodized          |
| Piston rod         | Stainless steel             |
| Front cover        | Die-cast aluminum, anodized |
| End cover          | Die-cast aluminum, anodized |
| Seal               | Polyurethane                |
| Nut for piston rod | Stainless steel             |
| Scraper            | Polyurethane                |



## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

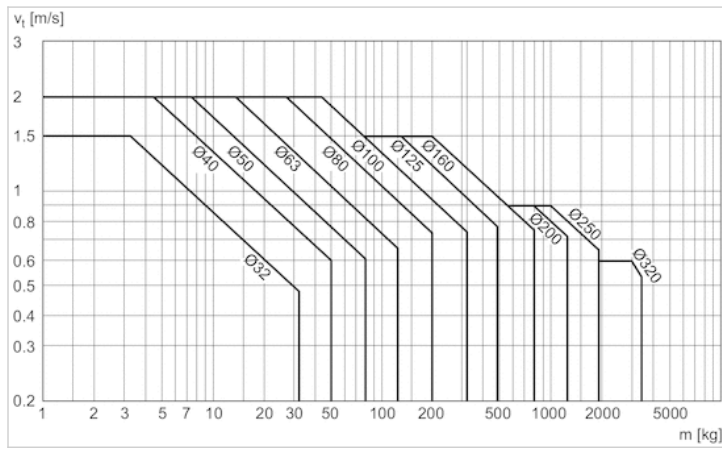
## Dimensions

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KF  | KK       | KV | KW   |
|----------|------|------|--------|---------|---------|------|-------|-------|------|-----|----------|----|------|
| 32 mm    | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M6  | M10x1,25 | 16 | 5    |
| 40 mm    | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M8  | M12x1,25 | 18 | 6    |
| 50 mm    | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M10 | M16x1,5  | 24 | 8    |
| 63 mm    | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M10 | M16x1,5  | 24 | 8    |
| 80 mm    | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   | M12 | M20x1,5  | 30 | 10   |
| 100 mm   | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  | M12 | M20x1,5  | 30 | 10   |
| 125 mm   | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  | M16 | M27x2    | 41 | 13.5 |

| Piston Ø | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

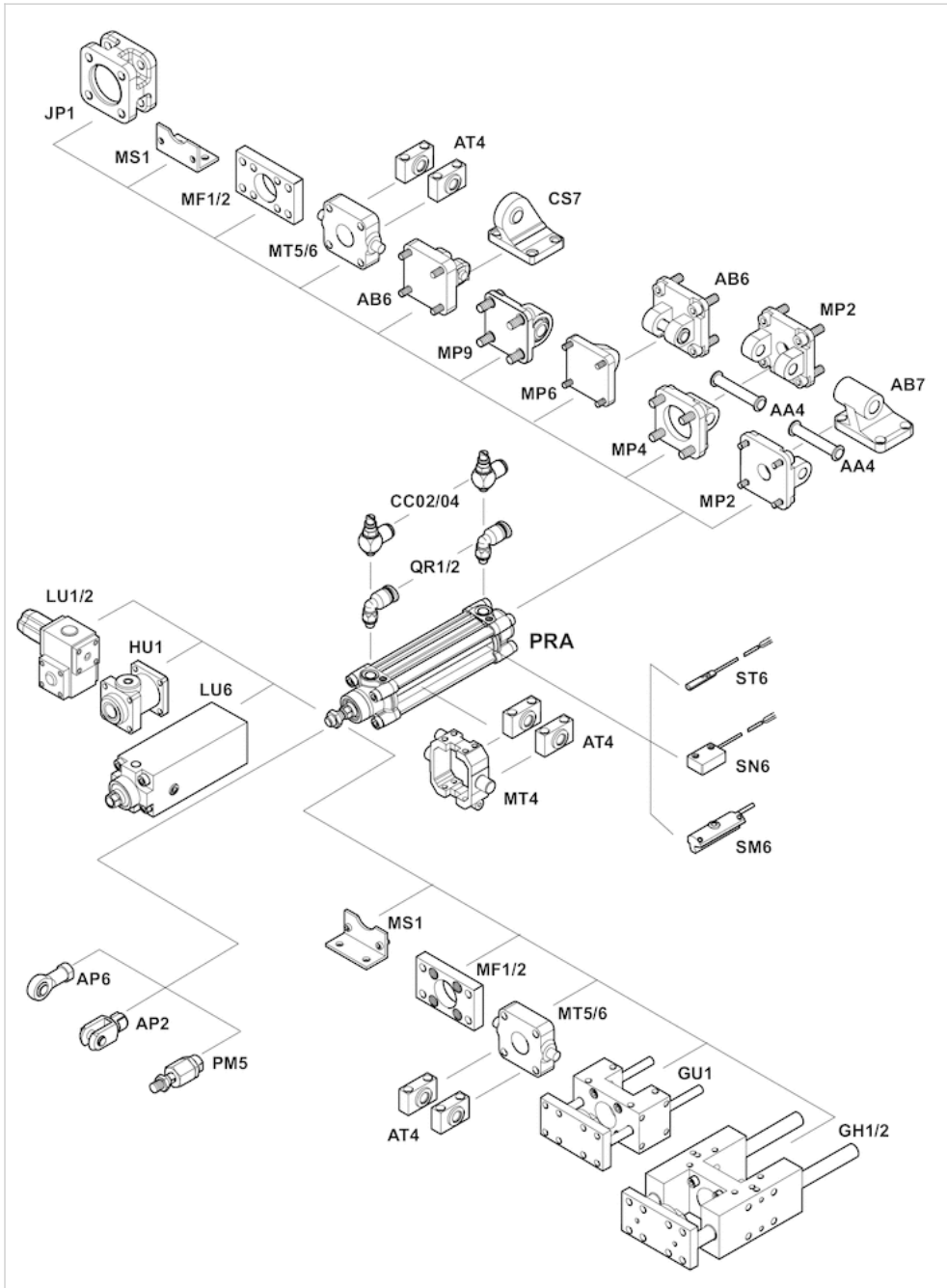
# Diagrams

## Cushioning diagram



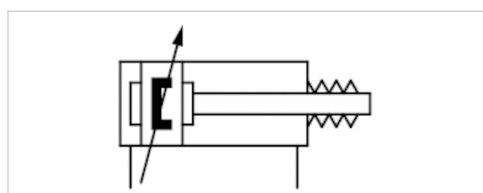
v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, PRA series

- Ø 32-125 mm
- Ports G 1/8 G 1/4 G 3/8 G 1/2
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- Piston rod protection Bellows



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm | 80 mm<br>M20x1,5<br>G 3/8<br>25 mm | 100 mm<br>M20x1,5<br>G 1/2<br>25 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Stroke 25  | R481602057                          | R481602065                          | R481602076                         | R481602087                         | R481602098                         | R481602109                          |
| 50   | R481602058                          | R481602066                          | R481602077                         | R481602088                         | R481602099                         | R481602110                          |
| 80   | R481602059                          | R481602067                          | R481602078                         | R481602089                         | R481602100                         | R481602111                          |
| 100  | R481602060                          | R481602068                          | R481602079                         | R481602090                         | R481602101                         | R481602112                          |
| 125  | R481602061                          | R481602069                          | R481602080                         | R481602091                         | R481602102                         | R481602113                          |
| 160  | R481602062                          | R481602070                          | R481602081                         | R481602092                         | R481602103                         | R481602114                          |
| 200  | R481602063                          | R481602071                          | R481602082                         | R481602093                         | R481602104                         | R481602115                          |
| 250  | R481602064                          | R481602072                          | R481602083                         | R481602094                         | R481602105                         | R481602116                          |
| 320  | -                                   | R481602073                          | R481602084                         | R481602095                         | R481602106                         | R481602117                          |
| 400  | -                                   | R481602074                          | R481602085                         | R481602096                         | R481602107                         | R481602118                          |
| 500  | -                                   | R481602075                          | R481602086                         | R481602097                         | R481602108                         | R481602119                          |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>M27x2<br>G 1/2<br>32 mm |
|--|-----------------------------------|
| Stroke 25  | R481602120                        |
| 50   | R481602121                        |
| 80   | R481602122                        |
| 100  | R481602123                        |
| 125  | R481602124                        |
| 160  | R481602125                        |
| 200  | R481602126                        |
| 250  | R481602127                        |
| 320  | R481602128                        |
| 400  | R481602129                        |
| 500  | R481602130                        |

## Technical data

| Piston Ø                | 32 mm   | 40 mm  | 50 mm   | 63 mm   | 80 mm   | 100 mm  | 125 mm  |
|-------------------------|---------|--------|---------|---------|---------|---------|---------|
| Retracting piston force | 435 N   | 660 N  | 1035 N  | 1765 N  | 2855 N  | 4635 N  | 7220 N  |
| Extracting piston force | 505 N   | 790 N  | 1235 N  | 1960 N  | 3165 N  | 4945 N  | 7725 N  |
| Cushioning length       | 16.5 mm | 19 mm  | 17 mm   | 16.5 mm | 19.5 mm | 19.5 mm | 22 mm   |
| Cushioning energy       | 4.8 J   | 9 J    | 15 J    | 27 J    | 54 J    | 88 J    | 140 J   |
| Speed max.              | 1 m/s   | 1 m/s  | 0.7 m/s | 0.7 m/s | 0.7 m/s | 0.7 m/s | 0.6 m/s |
| Stroke max.             | 250 mm  | 500 mm | 750 mm  | 1000 mm | 1000 mm | 1000 mm | 1000 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

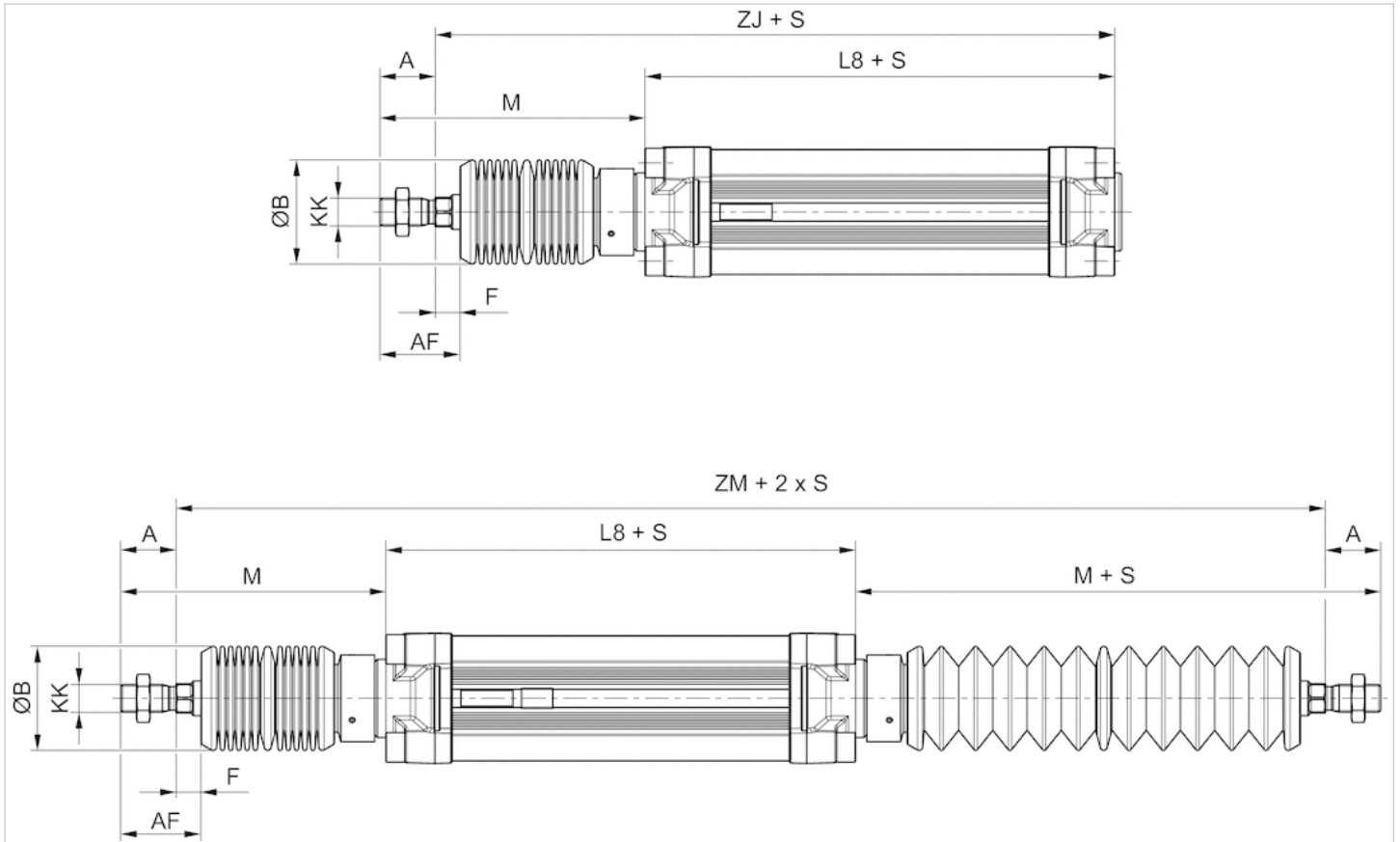
The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                             |
|--------------------|-----------------------------|
| Cylinder tube      | Aluminum, anodized          |
| Piston rod         | Stainless steel             |
| Front cover        | Die-cast aluminum           |
| End cover          | Die-cast aluminum           |
| Seal               | Polyurethane                |
| Nut for piston rod | Steel, galvanized           |
| Scraper            | Polyurethane                |
| Bellow             | Carboxylated nitrile rubber |

## Dimensions



S = stroke

## Dimensions

| Piston Ø | A  | Ø B | KK       | L8  | AF | F  |
|----------|----|-----|----------|-----|----|----|
| 32 mm    | 22 | 42  | M10x1.25 | 94  | 34 | 12 |
| 40 mm    | 24 | 42  | M12x1.25 | 105 | 39 | 15 |
| 50 mm    | 32 | 64  | M16x1,5  | 106 | 47 | 15 |
| 63 mm    | 32 | 64  | M16x1,5  | 121 | 47 | 15 |
| 80 mm    | 40 | 64  | M20x1,5  | 128 | 57 | 17 |
| 100 mm   | 40 | 64  | M20x1,5  | 138 | 57 | 17 |
| 125 mm   | 54 | 94  | M27x2    | 160 | 71 | 17 |

## Stroke-dependent dimensions

| Piston Ø | S=0-75<br>M | S=0-75<br>ZJ | S=0-75<br>ZM | S=76-150<br>M | S=76-150<br>ZJ |
|----------|-------------|--------------|--------------|---------------|----------------|
| 32 mm    | 81          | 153          | 212          | 107           | 179            |
| 40 mm    | 138         | 219          | 333          | 138           | 219            |
| 50 mm    | 153         | 227          | 348          | 153           | 227            |
| 63 mm    | 153         | 242          | 363          | 153           | 242            |
| 80 mm    | 170         | 258          | 388          | 170           | 258            |
| 100 mm   | 160         | 258          | 378          | 160           | 258            |
| 125 mm   | 188         | 294          | 418          | 188           | 294            |

| Piston Ø | S=76-150<br>ZM | S=151-250<br>M | S=151-250<br>ZJ | S=151-250<br>ZM |
|----------|----------------|----------------|-----------------|-----------------|
| 32 mm    | 264            | 127            | 199             | 304             |
| 40 mm    | 333            | 138            | 219             | 333             |
| 50 mm    | 348            | 153            | 227             | 348             |
| 63 mm    | 363            | 153            | 242             | 363             |
| 80 mm    | 388            | 170            | 258             | 388             |
| 100 mm   | 378            | 160            | 258             | 378             |
| 125 mm   | 428            | 188            | 294             | 428             |

| Piston Ø | S=251-5000<br>M | S=251-500<br>ZJ | S=251-500<br>ZM | S=501-750<br>M |
|----------|-----------------|-----------------|-----------------|----------------|
| 32 mm    | -               | -               | -               | -              |
| 40 mm    | 218             | 299             | 493             | -              |
| 50 mm    | 233             | 307             | 508             | 313            |
| 63 mm    | 233             | 322             | 523             | 313            |
| 80 mm    | 250             | 338             | 548             | 330            |
| 100 mm   | 220             | 318             | 498             | 280            |
| 125 mm   | 248             | 354             | 548             | 308            |

| Piston Ø | S=501-750<br>ZJ | S=501-750<br>ZM | S=751-1000<br>M | S=751-1000<br>ZJ |
|----------|-----------------|-----------------|-----------------|------------------|
| 32 mm    | -               | -               | -               | -                |
| 40 mm    | -               | -               | -               | -                |
| 50 mm    | 387             | 668             | -               | -                |
| 63 mm    | 402             | 683             | 394             | 483              |
| 80 mm    | 418             | 708             | 411             | 499              |
| 100 mm   | 378             | 618             | 340             | 438              |
| 125 mm   | 414             | 668             | 368             | 474              |

| Piston Ø | S=751-1000<br>ZM |
|----------|------------------|
| 32 mm    | -                |
| 40 mm    | -                |
| 50 mm    | -                |
| 63 mm    | 845              |
| 80 mm    | 870              |
| 100 mm   | 738              |
| 125 mm   | 788              |

S = stroke

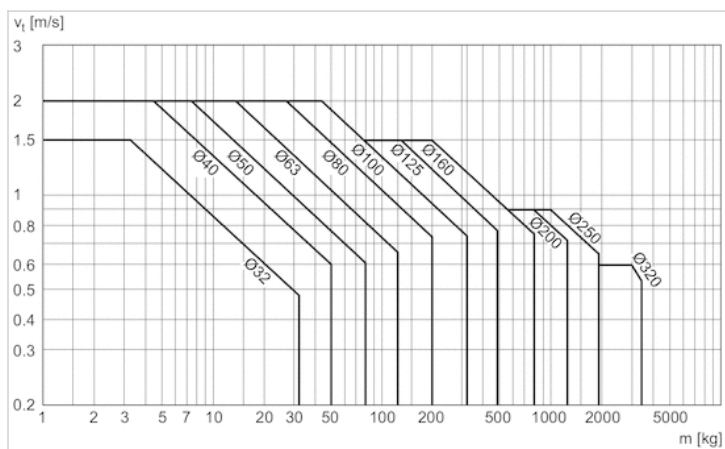
## Weight [kg]

| Piston Ø | Stroke   | Weight 0 mm stroke | Weight +10 mm stroke |
|----------|----------|--------------------|----------------------|
| 32       | 0-75     | 0,603              | 0.022                |
| 32       | 76-150   | 0,665              | 0.022                |
| 32       | 151-250  | 0,721              | 0.022                |
| 40       | 0-125    | 0,894              | 0.032                |
| 40       | 126-250  | 0,933              | 0.032                |
| 40       | 251-350  | 1,011              | 0.032                |
| 40       | 351-500  | 1,173              | 0.032                |
| 50       | 0-130    | 1,443              | 0.047                |
| 50       | 131-250  | 1,545              | 0.047                |
| 50       | 251-500  | 1,648              | 0.047                |
| 50       | 501-630  | 1,944              | 0.047                |
| 50       | 631-750  | 2,24               | 0.047                |
| 50       | 751-1000 | 2,538              | 0.047                |
| 63       | 0-130    | 1,808              | 0.054                |
| 63       | 131-250  | 1,911              | 0.054                |
| 63       | 251-500  | 2,013              | 0.054                |
| 63       | 501-630  | 2,309              | 0.054                |
| 63       | 631-750  | 2,605              | 0.054                |
| 63       | 751-1000 | 2,904              | 0.054                |
| 80       | 0-130    | 2,892              | 0.085                |
| 80       | 131-250  | 2,994              | 0.085                |
| 80       | 251-500  | 3,095              | 0.085                |
| 80       | 501-630  | 3,499              | 0.085                |
| 80       | 631-750  | 3,902              | 0.085                |
| 80       | 751-1000 | 4,31               | 0.085                |
| 100      | 0-125    | 3,988              | 0.1                  |
| 100      | 126-250  | 4,09               | 0.1                  |
| 100      | 251-500  | 4,191              | 0.1                  |
| 100      | 501-600  | 4,519              | 0.1                  |
| 100      | 601-750  | 4,847              | 0.1                  |
| 100      | 751-1000 | 5,175              | 0.1                  |
| 125      | 0-125    | 7,484              | 0.15                 |
| 125      | 126-250  | 7,65               | 0.15                 |
| 125      | 251-500  | 7,816              | 0.15                 |
| 125      | 501-600  | 8,354              | 0.15                 |
| 125      | 601-750  | 8,892              | 0.15                 |
| 125      | 751-1000 | 9,429              | 0.15                 |



# Diagrams

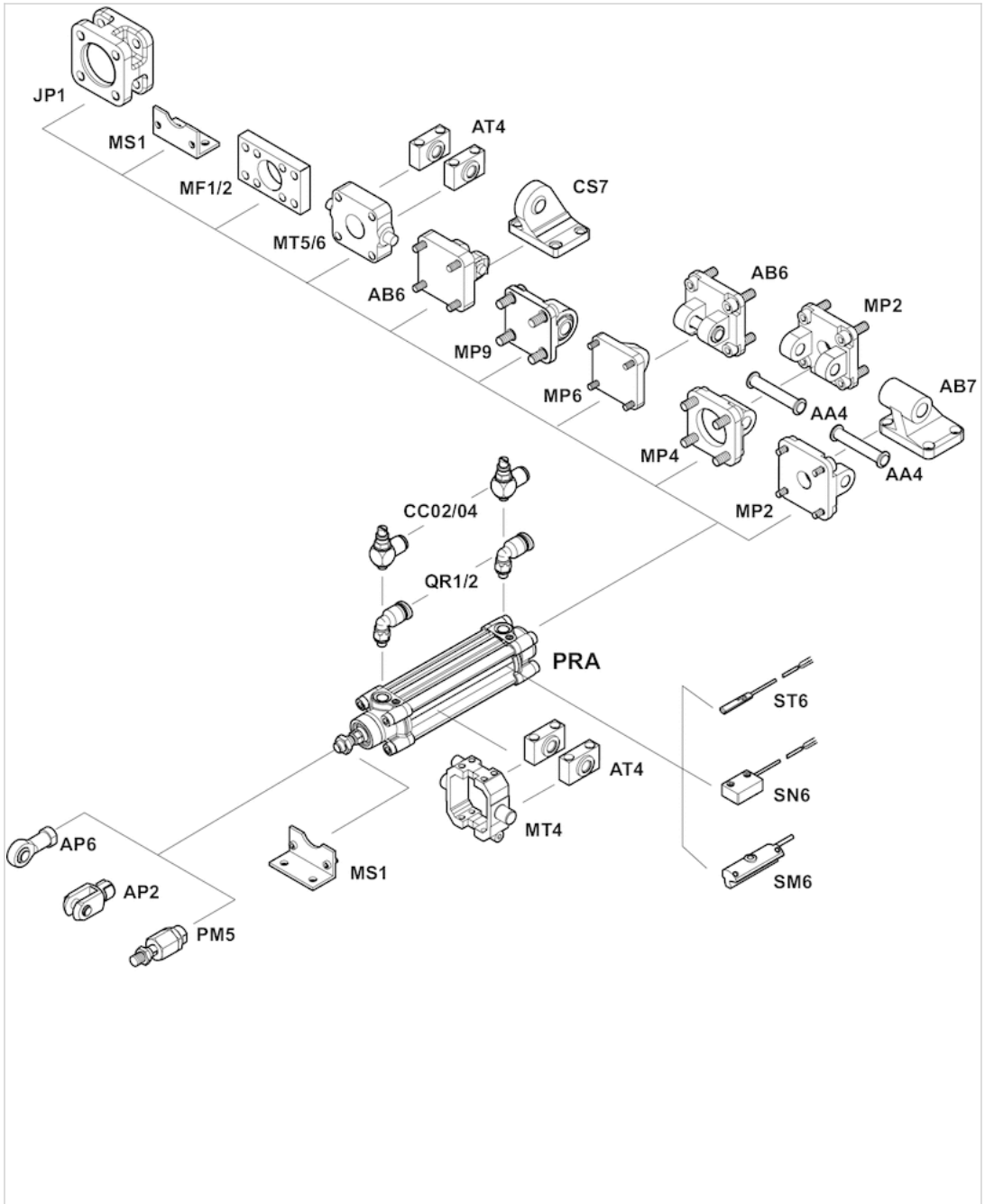
## Cushioning diagram



v = Piston velocity [m/s]

m = Cushionable mass [kg]

# Accessories overview

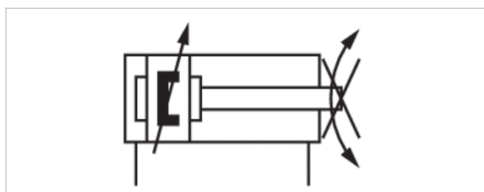


# Profile cylinder ISO 15552, PRA series

- Ø 32-63 mm
- Ports G 1/8 G 1/4 G 3/8
- double-acting
- with magnetic piston
- Cushioning pneumatically adjustable
- Piston rod External thread
- Piston rod non-rotating



|  |                           |
|--|---------------------------|
| Standards                              | ISO 15552                 |
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 1.5 ... 10 bar            |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |



## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>M10x1,25<br>G 1/8<br>12 mm | 40 mm<br>M12x1,25<br>G 1/4<br>16 mm | 50 mm<br>M16x1,5<br>G 1/4<br>20 mm | 63 mm<br>M16x1,5<br>G 3/8<br>20 mm |
|--|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| Stroke 25  | R481601969                          | R481601980                          | R481601991                         | R481602002                         |
| 50   | R481601970                          | R481601981                          | R481601992                         | R481602003                         |
| 80   | R481601971                          | R481601982                          | R481601993                         | R481602004                         |
| 100  | R481601972                          | R481601983                          | R481601994                         | R481602005                         |
| 125  | R481601973                          | R481601984                          | R481601995                         | R481602006                         |
| 160  | R481601974                          | R481601985                          | R481601996                         | R481602007                         |
| 200  | R481601975                          | R481601986                          | R481601997                         | R481602008                         |
| 250  | R481601976                          | R481601987                          | R481601998                         | R481602009                         |
| 320  | R481601977                          | R481601988                          | R481601999                         | R481602010                         |
| 400  | R481601978                          | R481601989                          | R481602000                         | R481602011                         |
| 500  | R481601979                          | R481601990                          | R481602001                         | R481602012                         |

## Technical data

| Piston Ø                            | 32 mm    | 40 mm    | 50 mm    | 63 mm    |
|-------------------------------------|----------|----------|----------|----------|
| Retracting piston force             | 435 N    | 660 N    | 1035 N   | 1765 N   |
| Extracting piston force             | 505 N    | 790 N    | 1235 N   | 1960 N   |
| Cushioning length                   | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  |
| Cushioning energy                   | 4.8 J    | 9 J      | 15 J     | 27 J     |
| Torque for torsion protection, max. | 0.75 Nm  | 1.5 Nm   | 2 Nm     | 2 Nm     |
| Rotation angle tolerance (±)        | 1.8 °    | 1.6 °    | 1.4 °    | 1.4 °    |
| Weight 0 mm stroke                  | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  |
| Weight +10 mm stroke                | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg |
| Stroke max.                         | 1500 mm  | 1500 mm  | 1500 mm  | 1500 mm  |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

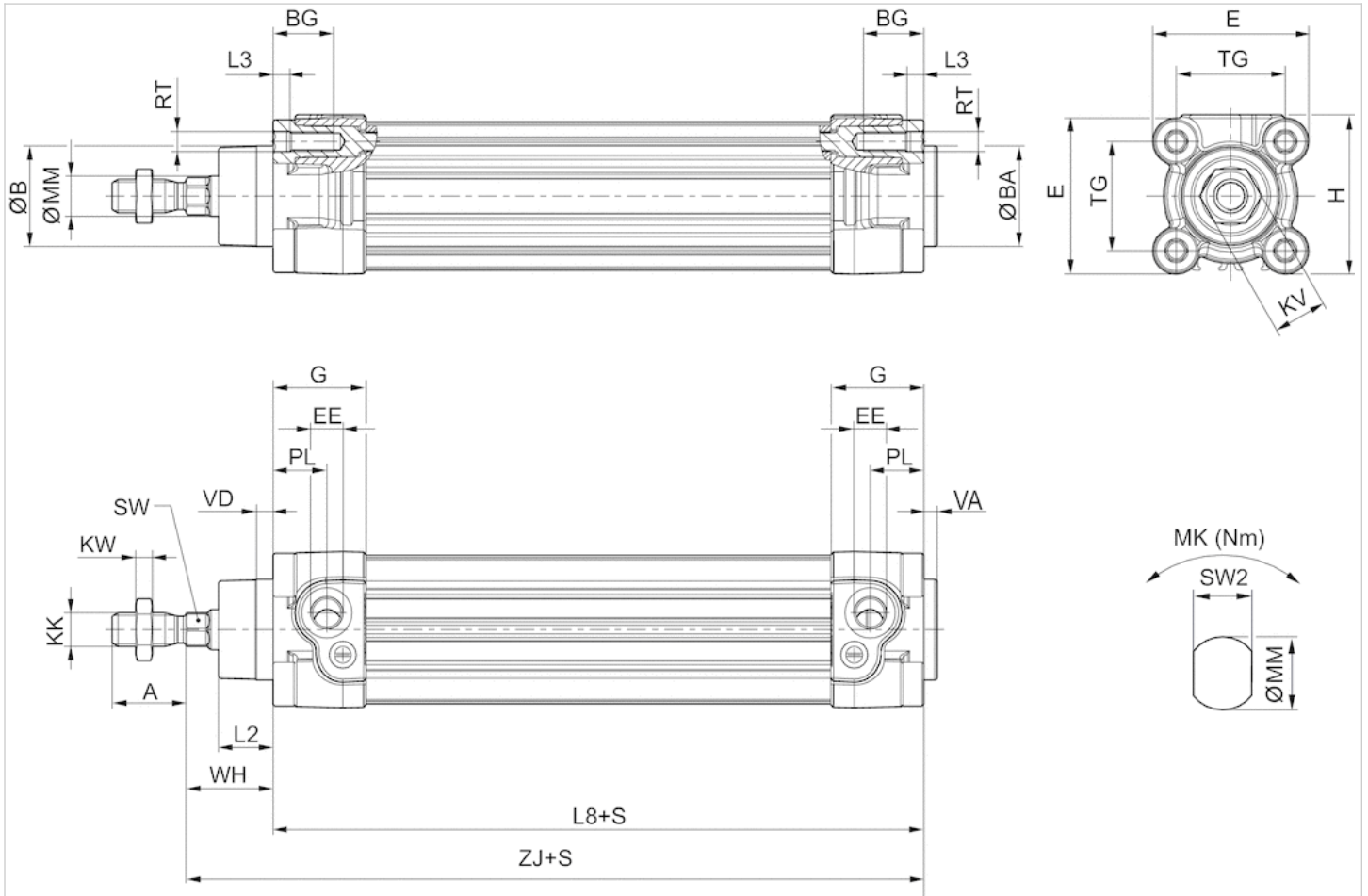
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |

## Dimensions

### Dimensions



S = stroke

## Dimensions

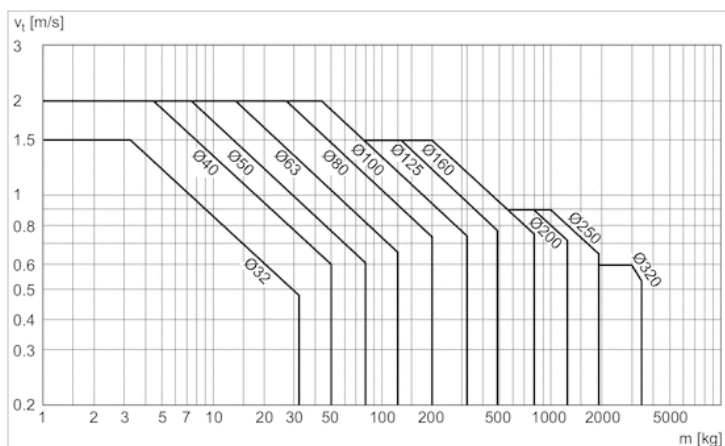
| Piston Ø | A -2 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    | KK       | KV | KW | ØMM f8 | PL |
|----------|------|--------|---------|---------|------|-------|-------|------|----------|----|----|--------|----|
| 32 mm    | 22   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M10x1,25 | 16 | 5  | 12     | 16 |
| 40 mm    | 24   | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   | M12x1,25 | 18 | 6  | 16     | 20 |
| 50 mm    | 32   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   | M16x1,5  | 24 | 8  | 20     | 19 |
| 63 mm    | 32   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   | M16x1,5  | 24 | 8  | 20     | 24 |

| Piston Ø | L2    | L3 ±0,5 | L8      | RT | SW  | TG       | VA -1 | VD | WH     | ZJ  | MK   | SW2 |
|----------|-------|---------|---------|----|-----|----------|-------|----|--------|-----|------|-----|
| 32 mm    | 16.25 | 4.5     | 94±0,4  | M6 | 10  | 32,5±0,5 | 4     | 5  | 26±1,4 | 120 | 0,75 | 10  |
| 40 mm    | 18.25 | 4.5     | 105±0,7 | M6 | 13  | 38±0,5   | 4     | 5  | 30±1,4 | 135 | 1,5  | 13  |
| 50 mm    | 25    | 4.5     | 106±0,7 | M8 | 16* | 46,5±0,6 | 4     | 5  | 37±1,4 | 143 | 2    | 16  |
| 63 mm    | 25    | 4.5     | 121±0,8 | M8 | 16* | 56,5±0,7 | 4     | 5  | 37±1,8 | 158 | 2    | 16  |

\* not according to ISO 15552

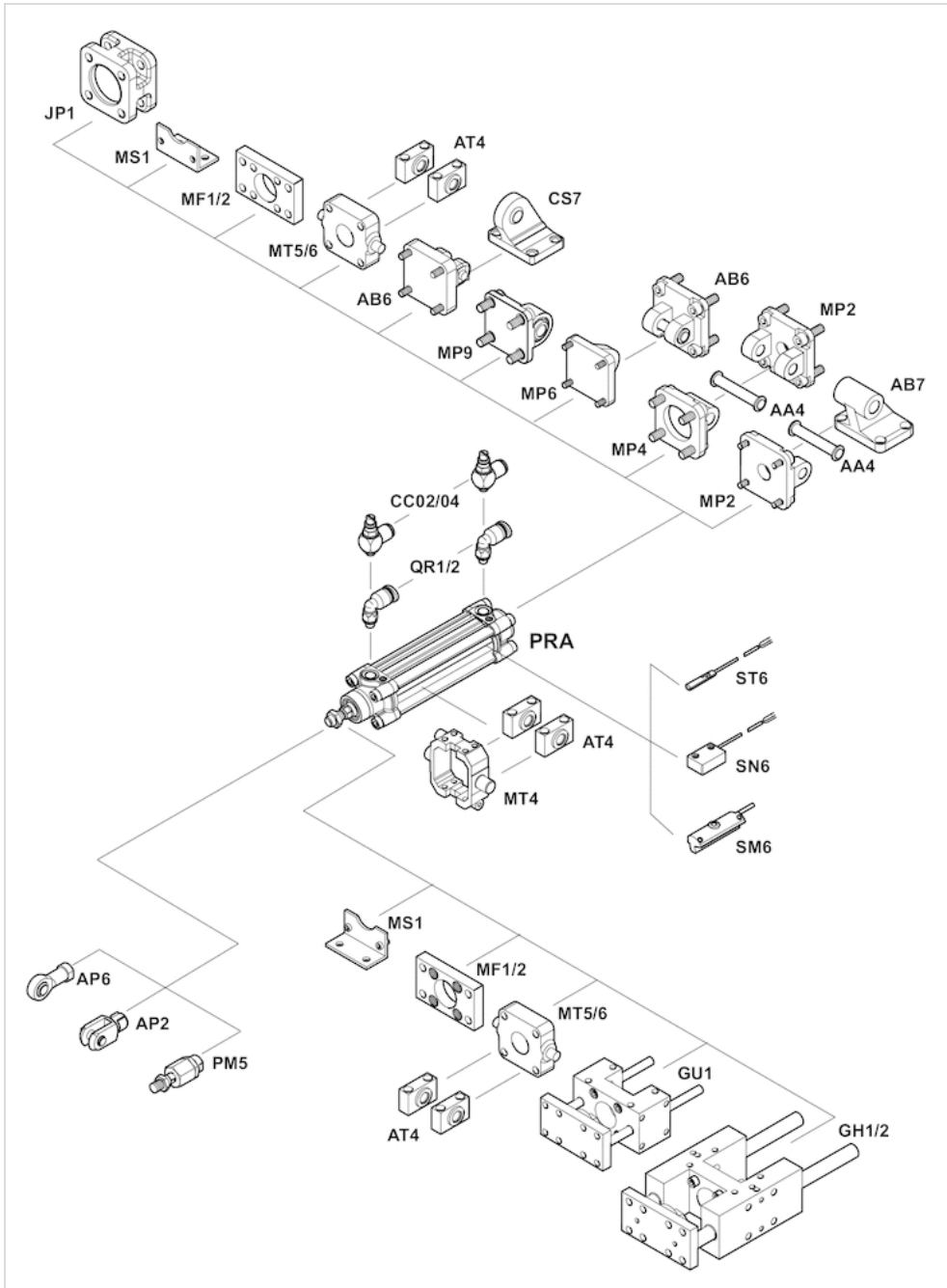
# Diagrams

## Cushioning diagram



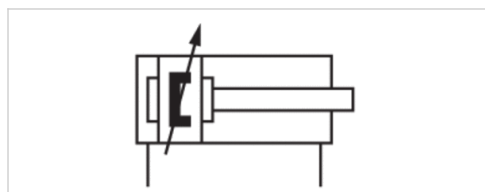
v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview



# Profile cylinder ISO 15552, Series PRA - inch

- Ø 32-125 mm
- Ports 1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT
- double-acting
- with magnetic piston
- Cushioning pneumatically, pneumatically adjustable
- Piston rod External thread



|  |                           |
|--|---------------------------|
| Compressed air connection              | Internal thread           |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |

## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>7/16-20 UNF<br>1/8 NPT<br>12 mm | 40 mm<br>1/2-20 UNF<br>1/4 NPT<br>16 mm | 50 mm<br>3/4-16 UNF<br>1/4 NPT<br>20 mm | 63 mm<br>3/4-16 UNF<br>3/8 NPT<br>20 mm | 80 mm<br>3/4-16 UNF<br>3/8 NPT<br>25 mm | 100 mm<br>3/4-16 UNF<br>1/2 NPT<br>25 mm |
|--|--|---|---|---|---|--|
| Stroke 25.4  | R480176154                               | R480176238                              | R480176328                              | R480176417                              | R480176506                              | R480176593                               |
| 50.8   | R480176162                               | R480176251                              | R480176334                              | R480176427                              | R480176510                              | R480176601                               |
| 76.2   | R480176169                               | R480176257                              | R480176345                              | R480176437                              | R480176523                              | R480176609                               |
| 101.6  | R480176174                               | R480176263                              | R480176354                              | R480176441                              | R480176526                              | R480176614                               |
| 127  | R480176187                               | R480176275                              | R480176363                              | R480176452                              | R480176534                              | R480176626                               |
| 152.4  | R480176190                               | R480176280                              | R480176370                              | R480176459                              | R480176546                              | R480176633                               |
| 177.8  | R480176201                               | R480176293                              | R480176377                              | R480176464                              | R480176554                              | R480176641                               |
| 203.2  | R480176209                               | R480176298                              | R480176383                              | R480176472                              | R480176561                              | R480176646                               |
| 228.6  | R480176218                               | R480176304                              | R480176395                              | R480176480                              | R480176567                              | R480176660                               |
| 254  | R480176228                               | R480176316                              | R480176400                              | R480176490                              | R480176581                              | R480176665                               |
| 304.8  | R480176232                               | R480176321                              | R480176412                              | R480176500                              | R480176585                              | R480176676                               |



| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>1-14 UNF<br>1/2 NPT<br>32 mm |
|--|--|
| Stroke 25.4  | R480176685                             |
| 50.8   | R480176689                             |
| 76.2   | R480176694                             |
| 101.6  | R480176707                             |
| 127  | R480176712                             |
| 152.4  | R480176721                             |
| 177.8  | R480176729                             |
| 203.2  | R480176736                             |
| 228.6  | R480176746                             |
| 254  | R480176754                             |
| 304.8  | R480176761                             |

## Technical data

| Piston Ø                   | 32 mm        | 40 mm        | 50 mm        | 63 mm        |
|----------------------------|--------------|--------------|--------------|--------------|
| Retracting piston force    | 435 N        | 660 N        | 1035 N       | 1765 N       |
| Extracting piston force    | 505 N        | 790 N        | 1235 N       | 1960 N       |
| Cushioning length          | 16.5 mm      | 19 mm        | 17 mm        | 16.5 mm      |
| Cushioning energy          | 4.8 J        | 9 J          | 15 J         | 27 J         |
| Weight 0 mm stroke         | 0.5 kg       | 0.65 kg      | 1.06 kg      | 1.42 kg      |
| Weight +10 mm stroke       | 0.022 kg     | 0.032 kg     | 0.047 kg     | 0.054 kg     |
| Working pressure min./max. | 2 ... 10 bar | 2 ... 10 bar | 2 ... 10 bar | 2 ... 10 bar |
| Stroke max.                | 1600 mm      | 1900 mm      | 2100 mm      | 2500 mm      |

| Piston Ø                   | 80 mm        | 100 mm       | 125 mm       |
|----------------------------|--------------|--------------|--------------|
| Retracting piston force    | 2855 N       | 4635 N       | 7220 N       |
| Extracting piston force    | 3165 N       | 4945 N       | 7725 N       |
| Cushioning length          | 19.5 mm      | 19.5 mm      | 22 mm        |
| Cushioning energy          | 54 J         | 88 J         | 140 J        |
| Weight 0 mm stroke         | 2.37 kg      | 3.51 kg      | 6.72 kg      |
| Weight +10 mm stroke       | 0.085 kg     | 0.1 kg       | 0.15 kg      |
| Working pressure min./max. | 2 ... 10 bar | 2 ... 10 bar | 2 ... 10 bar |
| Stroke max.                | 2800 mm      | 2800 mm      | 2750 mm      |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

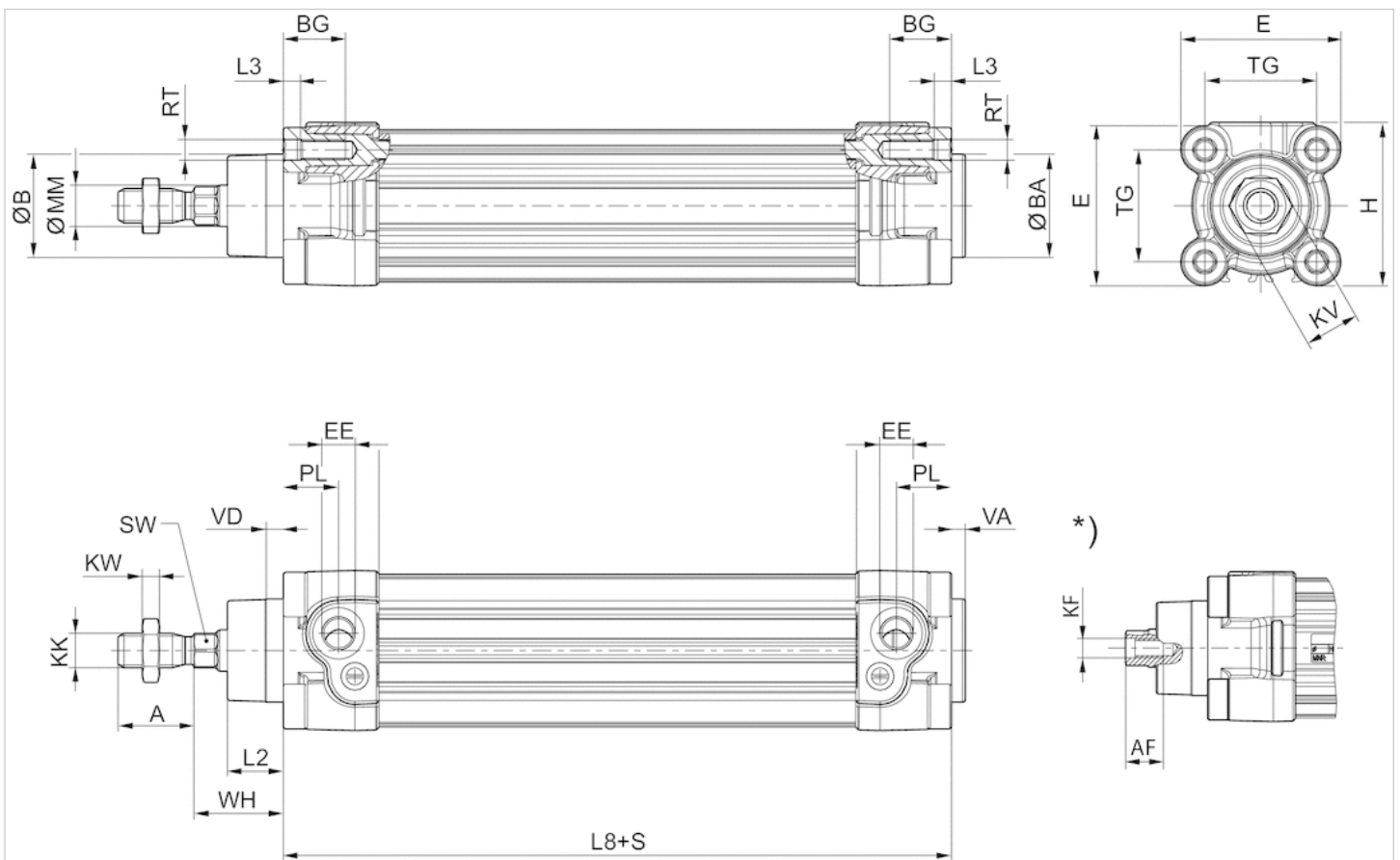
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |

## Dimensions

### Dimensions



S = stroke

\*) For cylinders with optional piston rod with internal thread

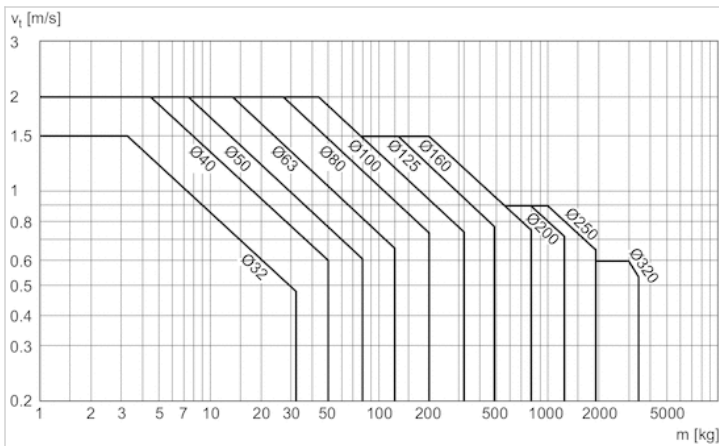
## Dimensions

| Piston Ø | A -2 | ØB d11 | ØBA d11 | BG min. | E    | EE inch | EE    | H    | KK inch       | KK       |
|----------|------|--------|---------|---------|------|---------|-------|------|---------------|----------|
| 32 mm    | 22   | 30     | 30      | 16      | 46.5 | 1/8 NPT | G 1/8 | 47.5 | 7/16 - 20 UNF | M10x1,25 |
| 40 mm    | 24   | 35     | 35      | 16      | 53   | 1/4 NPT | G 1/4 | 53   | 1/2 - 20 UNF  | M12x1,25 |
| 50 mm    | 32   | 40     | 40      | 16      | 65   | 1/4 NPT | G 1/4 | 65   | 3/4 - 16 UNF  | M16x1,5  |
| 63 mm    | 32   | 45     | 45      | 16      | 75   | 3/8 NPT | G 3/8 | 75   | 3/4 - 16 UNF  | M16x1,5  |
| 80 mm    | 40   | 45     | 45      | 17      | 95   | 3/8 NPT | G 3/8 | 95   | 3/4 - 16 UNF  | M20x1,5  |
| 100 mm   | 40   | 55     | 55      | 17      | 115  | 1/2 NPT | G 1/2 | 115  | 3/4 - 16 UNF  | M20x1,5  |
| 125 mm   | 54   | 60     | 60      | 20      | 140  | 1/2 NPT | G 1/2 | 140  | 1 - 14 UNF    | M27x2    |

| Piston Ø | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|----|------|--------|------|-------|---------|---------|-----|----|----------|-------|----|--------|
| 32 mm    | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40 mm    | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50 mm    | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63 mm    | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80 mm    | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100 mm   | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125 mm   | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

## Diagrams

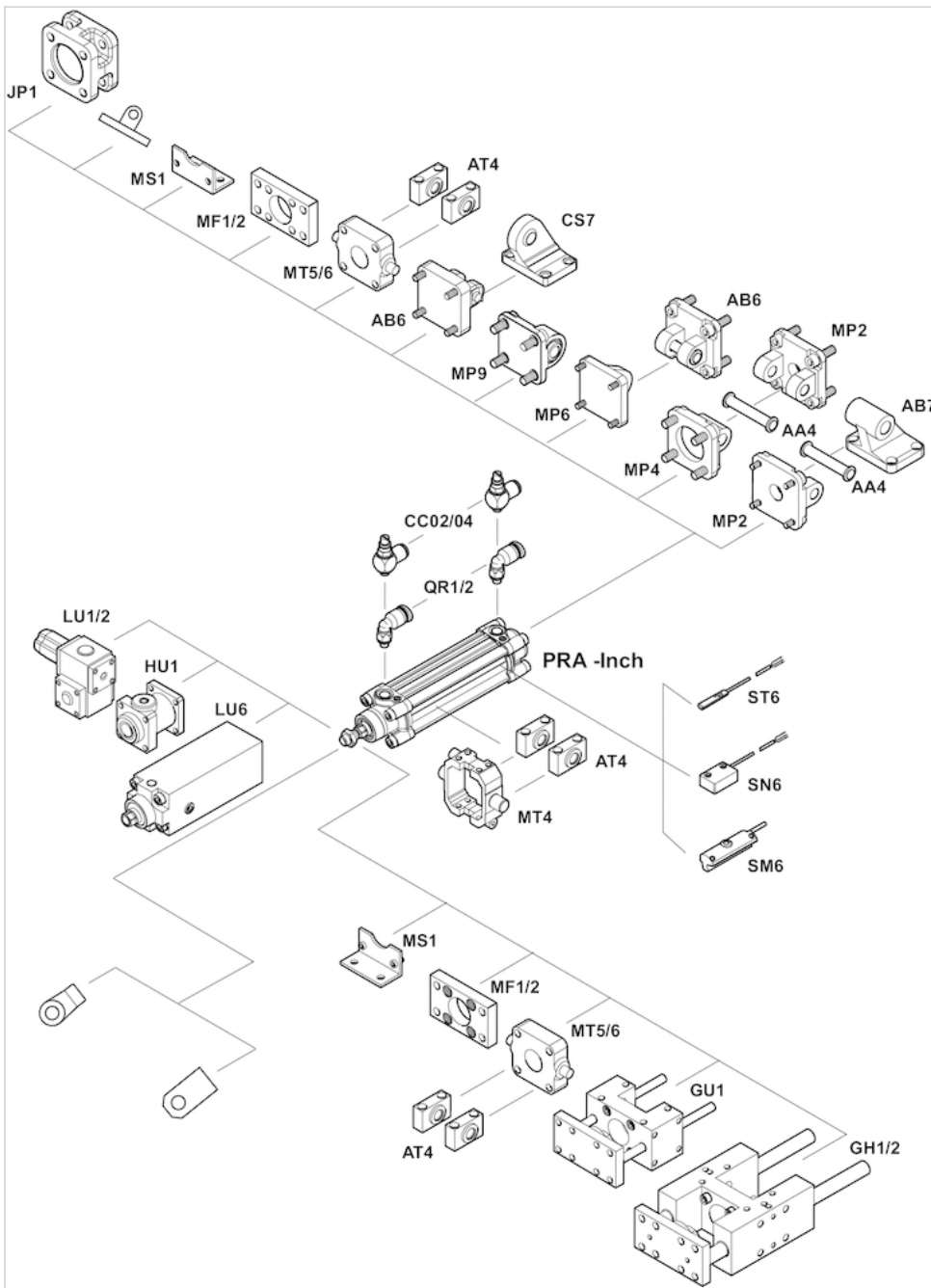
### Cushioning diagram



v = Piston velocity [m/s]  
 m = Cushionable mass [kg]

# Accessories overview

## Overview drawing

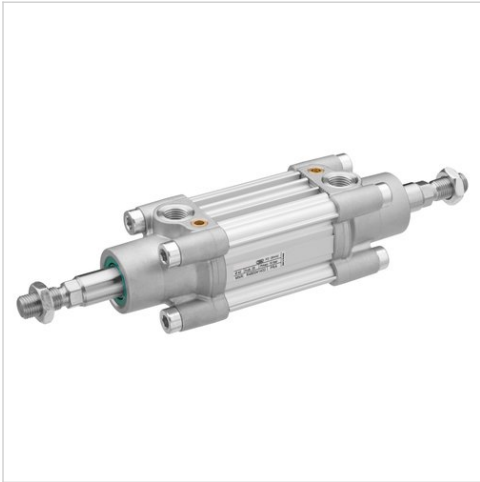


**NOTE:**

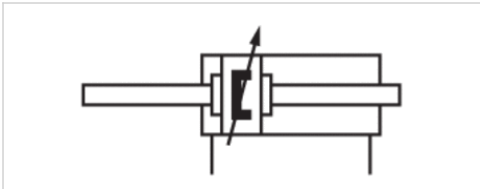
This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

# Profile cylinder ISO 15552, Series PRA - inch

- Ø 32-125 mm
- Ports 1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT
- double-acting
- with magnetic piston
- Cushioning pneumatically, pneumatically adjustable
- Piston rod External thread
- Piston rod through
- ATEX optional



|  |                           |
|--|---------------------------|
| Compressed air connection              | Internal thread           |
| Working pressure min./max.             | 2 ... 10 bar              |
| Ambient temperature min./max.          | -20 ... 80 °C             |
| Medium temperature min./max.           | -20 ... 80 °C             |
| Medium                                 | Compressed air            |
| Max. particle size                     | 50 µm                     |
| Oil content of compressed air          | 0 ... 5 mg/m <sup>3</sup> |
| Pressure for determining piston forces | 6.3 bar                   |



## Technical data

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 32 mm<br>7/16-20 UNF<br>1/8 NPT<br>12 mm | 40 mm<br>1/2-20 UNF<br>1/4 NPT<br>16 mm | 50 mm<br>3/4-16 UNF<br>1/4 NPT<br>20 mm | 63 mm<br>3/4-16 UNF<br>3/8 NPT<br>20 mm | 80 mm<br>3/4-16 UNF<br>3/8 NPT<br>25 mm | 100 mm<br>3/4-16 UNF<br>1/2 NPT<br>25 mm |
|--|--|---|---|---|---|--|
| Stroke 25.4  | R480176152                               | R480176240                              | R480176332                              | R480176414                              | R480176507                              | R480176597                               |
| 50.8   | R480176160                               | R480176248                              | R480176341                              | R480176423                              | R480176517                              | R480176604                               |
| 76.2   | R480176173                               | R480176255                              | R480176348                              | R480176435                              | R480176519                              | R480176612                               |
| 101.6  | R480176175                               | R480176267                              | R480176356                              | R480176440                              | R480176533                              | R480176615                               |
| 127  | R480176182                               | R480176276                              | R480176359                              | R480176448                              | R480176535                              | R480176625                               |
| 152.4  | R480176191                               | R480176283                              | R480176366                              | R480176454                              | R480176542                              | R480176630                               |
| 177.8  | R480176204                               | R480176289                              | R480176378                              | R480176463                              | R480176555                              | R480176645                               |
| 203.2  | R480176212                               | R480176300                              | R480176389                              | R480176477                              | R480176559                              | R480176651                               |
| 228.6  | R480176214                               | R480176308                              | R480176391                              | R480176481                              | R480176573                              | R480176659                               |
| 254  | R480176226                               | R480176313                              | R480176404                              | R480176489                              | R480176577                              | R480176667                               |
| 304.8  | R480176236                               | R480176319                              | R480176408                              | R480176496                              | R480176582                              | R480176674                               |

| Piston Ø<br>Piston rod thread<br>Ports<br>Piston rod Ø | 125 mm<br>1-14 UNF<br>1/2 NPT<br>32 mm |
|--|--|
| Stroke 25.4  | R480176680                             |
| 50.8   | R480176693                             |
| 76.2   | R480176700                             |
| 101.6  | R480176706                             |
| 127  | R480176715                             |
| 152.4  | R480176724                             |
| 177.8  | R480176726                             |
| 203.2  | R480176740                             |
| 228.6  | R480176749                             |
| 254  | R480176750                             |
| 304.8  | R480176762                             |

## Technical data

| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   | 125 mm  |
|-------------------------|----------|----------|----------|----------|----------|----------|---------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   | 7220 N  |
| Extracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   | 7220 N  |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm  | 22 mm   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J     | 140 J   |
| Weight 0 mm stroke      | 0.58 kg  | 0.8 kg   | 1.34 kg  | 1.72 kg  | 2.92 kg  | 4.08 kg  | 8.92 kg |
| Weight +10 mm stroke    | 0.031 kg | 0.048 kg | 0.072 kg | 0.079 kg | 0.124 kg | 0.139 kg | 0.22 kg |
| Stroke max.             | 1600 mm  | 1900 mm  | 2100 mm  | 2500 mm  | 2800 mm  | 2800 mm  | 2750 mm |

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

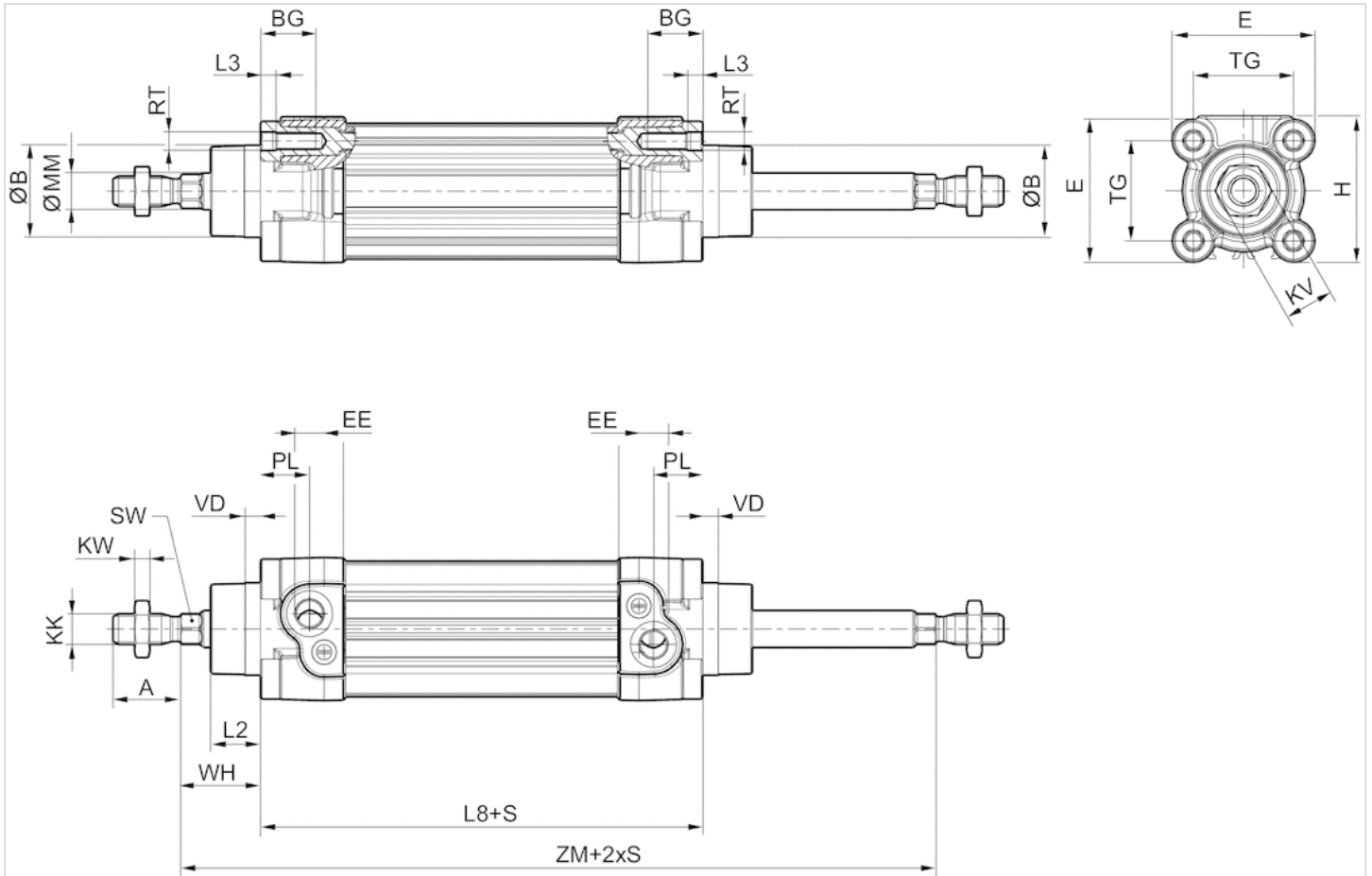
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

## Technical information

| Material           |                    |
|--------------------|--------------------|
| Cylinder tube      | Aluminum, anodized |
| Piston rod         | Stainless steel    |
| Front cover        | Die-cast aluminum  |
| End cover          | Die-cast aluminum  |
| Seal               | Polyurethane       |
| Nut for piston rod | Steel, galvanized  |
| Scraper            | Polyurethane       |

## Dimensions

### Dimensions



S = stroke

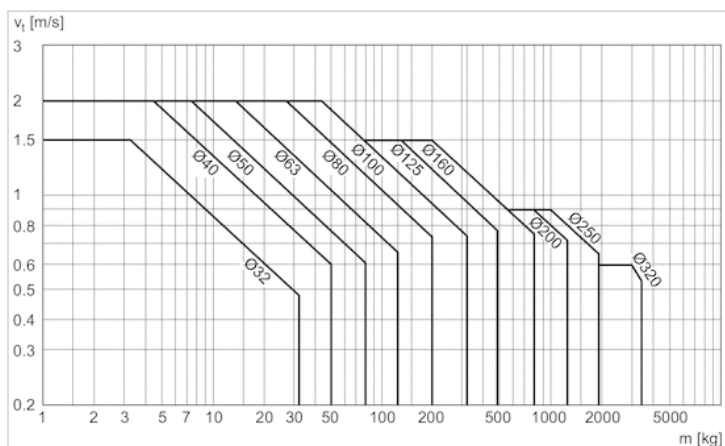
## Dimensions

| Piston $\varnothing$ | A -2 | $\varnothing B$ d11 | BG min. | E    | EE inch | EE    | H    | KK inch       | KK       | KV | KW   |
|----------------------|------|---------------------|---------|------|---------|-------|------|---------------|----------|----|------|
| 32 mm                | 22   | 30                  | 16      | 46.5 | 1/8 NPT | G 1/8 | 47.5 | 7/16 - 20 UNF | M10x1,25 | 16 | 5    |
| 40 mm                | 24   | 35                  | 16      | 53   | 1/4 NPT | G 1/4 | 53   | 1/2 -20 UNF   | M12x1,25 | 18 | 6    |
| 50 mm                | 32   | 40                  | 16      | 65   | 1/4 NPT | G 1/4 | 65   | 3/4 - 16 UNF  | M16x1,5  | 24 | 8    |
| 63 mm                | 32   | 45                  | 16      | 75   | 3/8 NPT | G 3/8 | 75   | 3/4 - 16 UNF  | M16x1,5  | 24 | 8    |
| 80 mm                | 40   | 45                  | 17      | 95   | 3/8 NPT | G 3/8 | 95   | 3/4 - 16 UNF  | M20x1,5  | 30 | 10   |
| 100 mm               | 40   | 55                  | 17      | 115  | 1/2 NPT | G 1/2 | 115  | 3/4 - 16 UNF  | M20x1,5  | 30 | 10   |
| 125 mm               | 54   | 60                  | 20      | 140  | 1/2 NPT | G 1/2 | 140  | 1 - 14 UNF    | M27x2    | 41 | 13.5 |

| Piston $\varnothing$ | $\varnothing MM$ f8 | PL   | L2    | L3 $\pm 0,5$ | L8            | RT  | SW | TG             | VD | WH           | ZM         |
|----------------------|---------------------|------|-------|--------------|---------------|-----|----|----------------|----|--------------|------------|
| 32 mm                | 12                  | 16   | 16.25 | 4.5          | 94 $\pm 0,4$  | M6  | 10 | 32,5 $\pm 0,5$ | 5  | 26 $\pm 1,4$ | 146+3/-1,5 |
| 40 mm                | 16                  | 20   | 18.25 | 4.5          | 105 $\pm 0,7$ | M6  | 13 | 38 $\pm 0,5$   | 5  | 30 $\pm 1,4$ | 165+3/-1,5 |
| 50 mm                | 20                  | 19   | 25    | 4.5          | 106 $\pm 0,7$ | M8  | 17 | 46,5 $\pm 0,6$ | 5  | 37 $\pm 1,4$ | 180+3/-1,5 |
| 63 mm                | 20                  | 24   | 25    | 4.5          | 121 $\pm 0,8$ | M8  | 17 | 56,5 $\pm 0,7$ | 5  | 37 $\pm 1,8$ | 195+3/-1,5 |
| 80 mm                | 25                  | 23.5 | 33    | 0            | 128 $\pm 0,8$ | M10 | 22 | 72 $\pm 0,7$   | 5  | 46 $\pm 1,8$ | 220+3/-1,5 |
| 100 mm               | 25                  | 25   | 36    | 0            | 138 $\pm 1$   | M10 | 22 | 89 $\pm 0,7$   | 5  | 51 $\pm 1,8$ | 240+3,5/-2 |
| 125 mm               | 32                  | 33   | 45    | 0            | 160 $\pm 1$   | M12 | 27 | 110 $\pm 1,1$  | 7  | 65 $\pm 2,2$ | 290+3,5/-2 |

# Diagrams

## Cushioning diagram

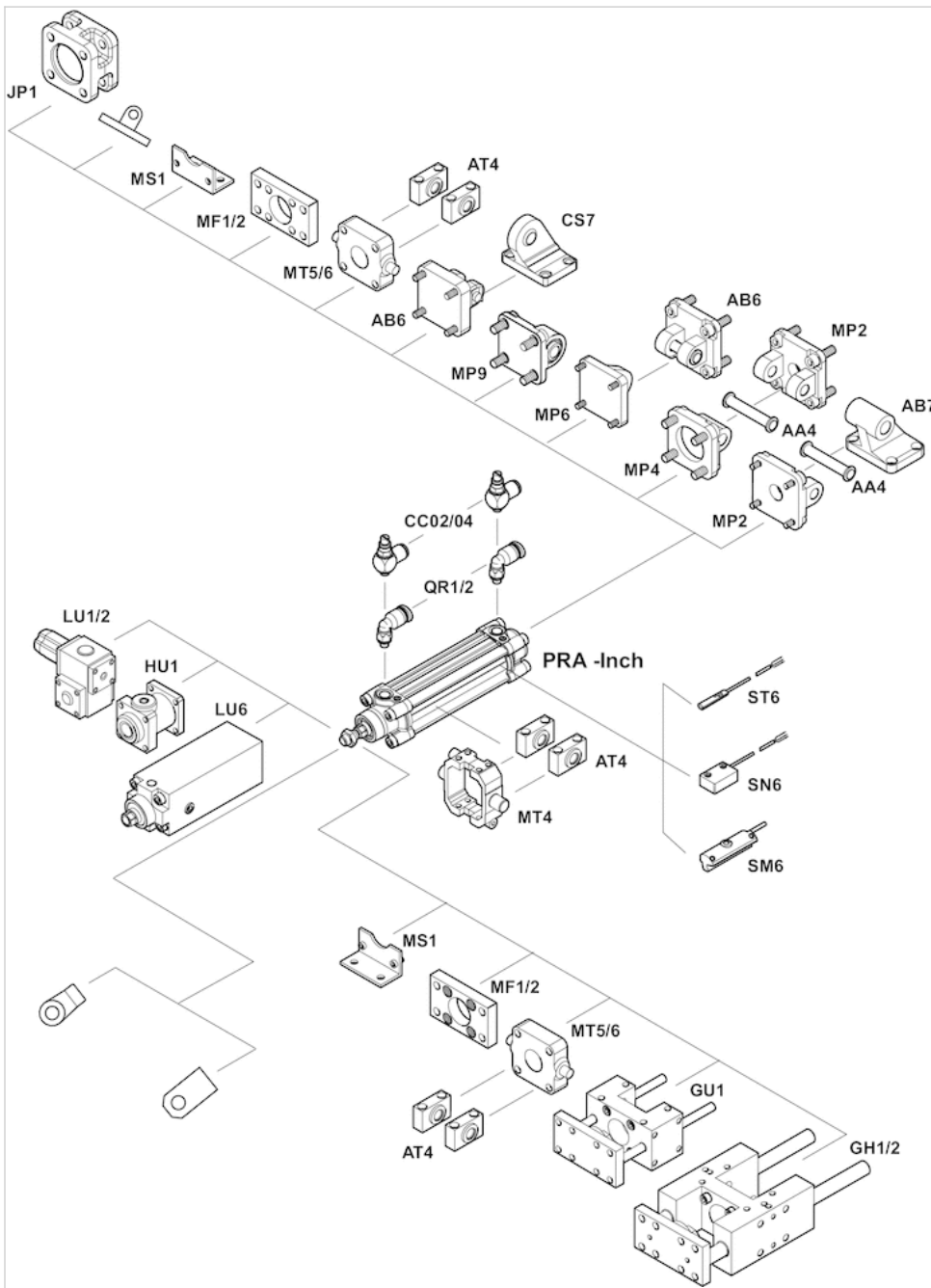


v = Piston velocity [m/s]  
 m = Cushionable mass [kg]



# Accessories overview

## Overview drawing



**NOTE:**

This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

# Bearing block AB7-HD, Series CM1

- Suitable for robust mechanical engineering applications, with fixed bearing
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

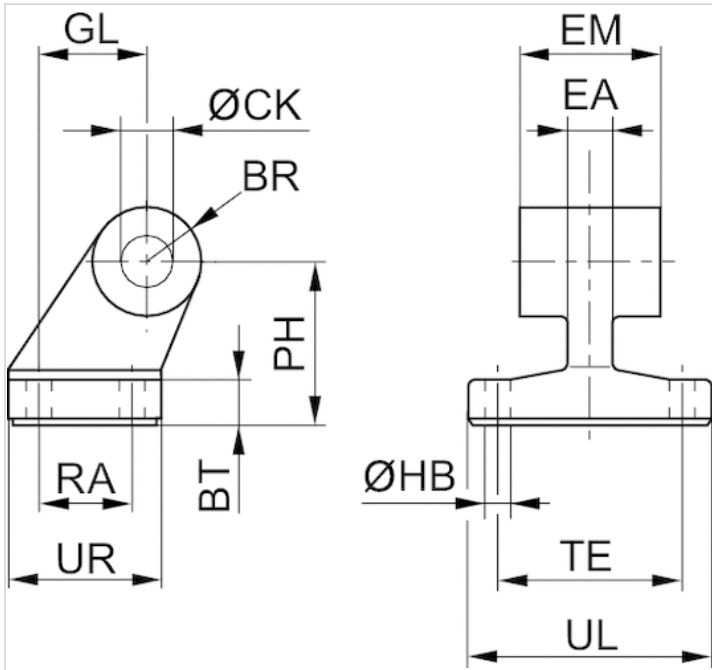
## Technical data

| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1825805275 | 32 mm                | 10 mm                        |
| 1825805276 | 40 mm                | 12 mm                        |
| 1825805277 | 50 mm                | 12 mm                        |
| 1825805278 | 63 mm                | 16 mm                        |
| 1825805279 | 80 mm                | 16 mm                        |
| 1825805280 | 100 mm               | 20 mm                        |
| 1825805281 | 125 mm               | 25 mm                        |

## Technical information

| Material |                                     |
|----------|-------------------------------------|
| Material | Nodular graphite iron<br>galvanized |
| Screws   | galvanized steel                    |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | BR   | BT | Ø CK H9 | Ø HB H13 | EM           | GL JS14 | EA max. | PH JS15 |
|------------|----------|------|----|---------|----------|--------------|---------|---------|---------|
| 1825805275 | 32 mm    | 10   | 8  | 10      | 6.6      | 26 -0,2/-0,6 | 21      | 10      | 32      |
| 1825805276 | 40 mm    | 11   | 10 | 12      | 6.6      | 28 -0,2/-0,6 | 24      | 12      | 36      |
| 1825805277 | 50 mm    | 13   | 12 | 12      | 9        | 32 -0,2/-0,6 | 33      | 16      | 45      |
| 1825805278 | 63 mm    | 15   | 12 | 16      | 9        | 40 -0,2/-0,6 | 37      | 16      | 50      |
| 1825805279 | 80 mm    | 15   | 14 | 16      | 11       | 50 -0,2/-0,6 | 47      | 20      | 63      |
| 1825805280 | 100 mm   | 19   | 15 | 20      | 11       | 60 -0,2/-0,6 | 55      | 20      | 71      |
| 1825805281 | 125 mm   | 22,5 | 20 | 25      | 14       | 70 -0,5/-1,5 | 70      | 30      | 90      |

| RA JS14 | TE JS14 | UL max. | UR max. |
|---------|---------|---------|---------|
| 18      | 38      | 51      | 31      |
| 22      | 41      | 54      | 35      |
| 30      | 50      | 65      | 45      |
| 35      | 52      | 67      | 50      |
| 40      | 66      | 86      | 60      |
| 50      | 76      | 96      | 70      |
| 60      | 94      | 124     | 90      |

# Bearing block CS7, Series CM1

- With ball joint and foot
- Cylinder mounting in accordance with VDMA 24562 part 2
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

VDMA 24562 part 2

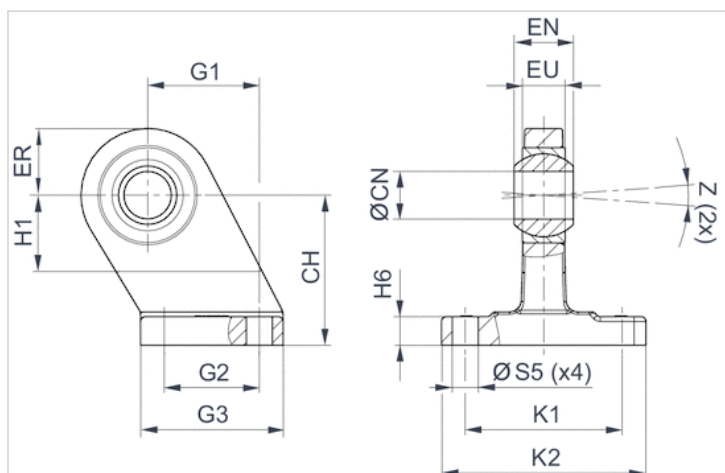
## Technical data

| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001784 | 32 mm    | 10 mm            |
| 1827001785 | 40 mm    | 12 mm            |
| 1827001786 | 50 mm    | 16 mm            |
| 1827001787 | 63 mm    | 16 mm            |
| 1827001788 | 80 mm    | 20 mm            |
| 1827001789 | 100 mm   | 20 mm            |
| 1827001790 | 125 mm   | 30 mm            |

## Technical information

| Material |                                     |
|----------|-------------------------------------|
| Material | Nodular graphite iron<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | CH JS15 | ØCN H7 | EU max. | EN -1,0 | ER max. | G1 JS14 | G2 JS14 | G3 max. |
|------------|----------|---------|--------|---------|---------|---------|---------|---------|---------|
| 1827001784 | 32 mm    | 32      | 10     | 10.5    | 14      | 16      | 21      | 18      | 31      |
| 1827001785 | 40 mm    | 36      | 12     | 12      | 16      | 18      | 24      | 22      | 35      |
| 1827001786 | 50 mm    | 45      | 16     | 15      | 21      | 21      | 33      | 30      | 45      |
| 1827001787 | 63 mm    | 50      | 16     | 15      | 21      | 23      | 37      | 35      | 50      |
| 1827001788 | 80 mm    | 63      | 20     | 18      | 25      | 28      | 47      | 40      | 60      |
| 1827001789 | 100 mm   | 71      | 20     | 18      | 25      | 30      | 55      | 50      | 70      |
| 1827001790 | 125 mm   | 90      | 30     | 25      | 37      | 40      | 70      | 60      | 90      |

| H1 min. | H6      | K1 JS14 | K2 max. | ØS5 H13 | Z min. |
|---------|---------|---------|---------|---------|--------|
| 16      | 9 ±1    | 38      | 51      | 6.6     | 4°     |
| 20      | 9 ±1    | 41      | 54      | 6.6     | 4°     |
| 22      | 11 ±1   | 50      | 65      | 9       | 4°     |
| 27      | 11 ±1   | 52      | 67      | 9       | 4°     |
| 31      | 12 ±1,5 | 66      | 86      | 11      | 4°     |
| 38      | 13 ±1,5 | 76      | 96      | 11      | 4°     |
| 40      | 17 ±1,5 | 94      | 124     | 14      | 4°     |

# Clevis mounting AB6, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

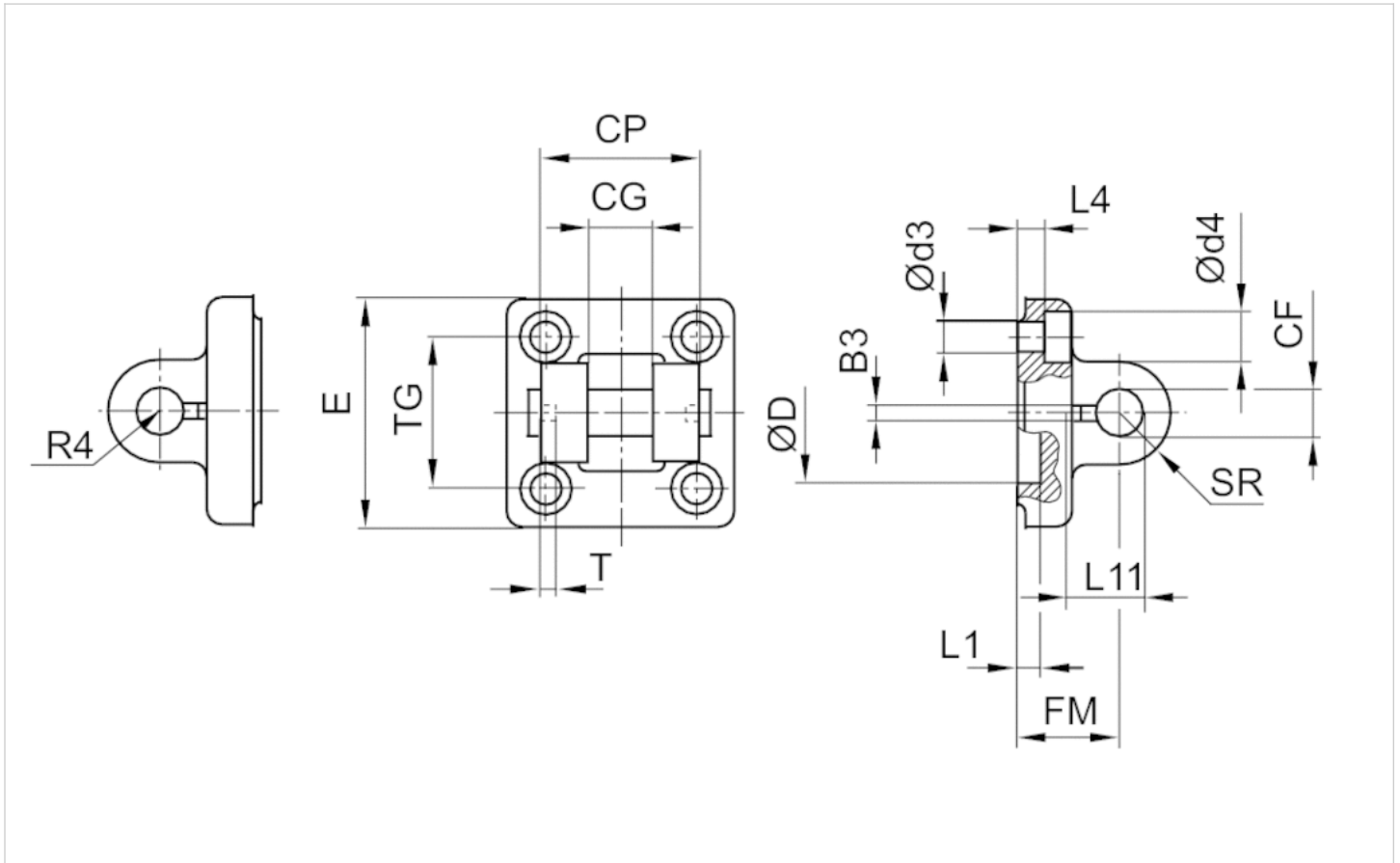
| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001593 | 32 mm    | 10 mm            |
| 1827001594 | 40 mm    | 12 mm            |
| 1827001595 | 50 mm    | 16 mm            |
| 1827002024 | 63 mm    | 16 mm            |
| 1827001597 | 80 mm    | 20 mm            |
| 1827001598 | 100 mm   | 20 mm            |
| 1827001599 | 125 mm   | 30 mm            |

Scope of delivery: clevis mounting incl. pivot pins and mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | B3 ±0,2 | Ø CF F7 | CG D10 | CP d12 | Ø d3 | Ø d4 | Ø D | E   | FM ±0,2 |
|------------|----------|---------|---------|--------|--------|------|------|-----|-----|---------|
| 1827001593 | 32 mm    | 3.3     | 10      | 14     | 34     | 6.6  | 11   | 30  | 49  | 22      |
| 1827001594 | 40 mm    | 4.3     | 12      | 16     | 40     | 6.6  | 11   | 35  | 55  | 25      |
| 1827001595 | 50 mm    | 4.3     | 16      | 21     | 45     | 9    | 15   | 40  | 67  | 27      |
| 1827002024 | 63 mm    | 4.3     | 16      | 21     | 51     | 9    | 15   | 45  | 77  | 32      |
| 1827001597 | 80 mm    | 4.3     | 20      | 25     | 65     | 11   | 18   | 45  | 97  | 36      |
| 1827001598 | 100 mm   | 4.3     | 20      | 25     | 75     | 11   | 18   | 55  | 117 | 41      |
| 1827001599 | 125 mm   | 6.3     | 30      | 37     | 97     | 14   | 20   | 60  | 140 | 50      |

| L1 min. | L4 ±0,5 | L11 -0,5 | R4 | SR | T ±0,2 | TG        |
|---------|---------|----------|----|----|--------|-----------|
| 4.5     | 5.5     | 16.5     | 17 | 11 | 3      | 32,5 ±0,2 |
| 4.5     | 5.5     | 18       | 20 | 12 | 4      | 38 ±0,2   |
| 4.5     | 6.5     | 23       | 22 | 15 | 4      | 46,5 ±0,2 |
| 4.5     | 6.5     | 23       | 25 | 15 | 4      | 56,5 ±0,2 |
| 4.5     | 10      | 27       | 30 | 20 | 4      | 72 ±0,2   |
| 4.5     | 10      | 27       | 32 | 20 | 4      | 89 ±0,2   |
| 7       | 10      | 40       | 42 | 26 | 6      | 110 ±0,3  |

# Clevis mounting MP2-HD, Series CM1

- Suitable for robust mechanical engineering applications
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1827001289 | 32 mm                | 10 mm                        |
| 1827001290 | 40 mm                | 12 mm                        |
| 1827001291 | 50 mm                | 12 mm                        |
| 1827001500 | 63 mm                | 16 mm                        |
| 1827001293 | 80 mm                | 16 mm                        |
| 1827001294 | 100 mm               | 20 mm                        |
| 1827004862 | 125 mm               | 25 mm                        |

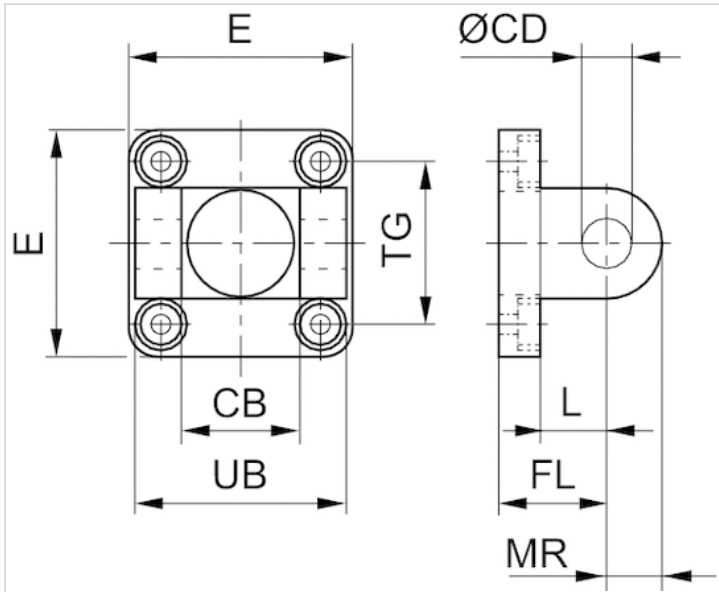
Scope of delivery: clevis mounting incl. mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | CB H14 | Ø CD H9 | E     | FL ±0.2 | L min. | MR max. | UB h13 | TG        |
|------------|----------|--------|---------|-------|---------|--------|---------|--------|-----------|
| 1827001289 | 32 mm    | 26     | 10      | 47.5  | 22      | 12     | 10      | 45     | 32.5 ±0.2 |
| 1827001290 | 40 mm    | 28     | 12      | 53.5  | 25      | 15     | 13      | 52     | 38 ±0.2   |
| 1827001291 | 50 mm    | 32     | 12      | 64    | 27      | 15     | 13      | 60     | 46.5 ±0.2 |
| 1827001500 | 63 mm    | 40     | 16      | 74    | 32      | 18     | 17      | 70     | 56.5 ±0.2 |
| 1827001293 | 80 mm    | 50     | 16      | 94    | 36      | 20     | 17      | 90     | 72.0 ±0.2 |
| 1827001294 | 100 mm   | 60     | 20      | 113.5 | 41      | 25     | 18      | 110    | 89.0 ±0.2 |
| 1827004862 | 125 mm   | 70     | 25      | 138   | 50      | 30     | 26      | 130    | 110 ±0.3  |

# Rear eye MP4-HD, Series CM1

- Suitable for robust mechanical engineering applications, for clevis mounting MP2 and AB3
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

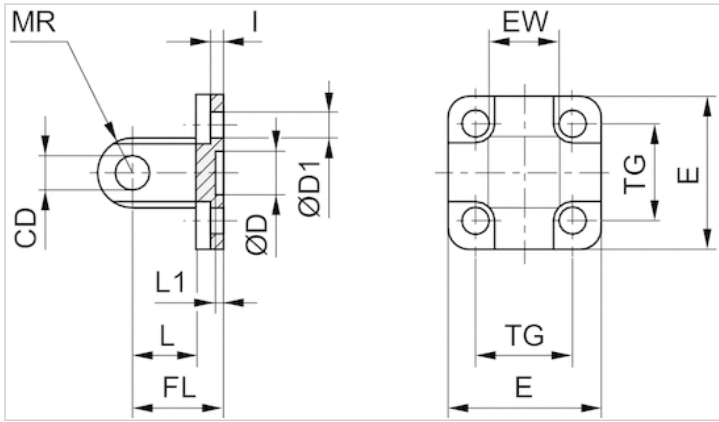
| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1827001283 | 32 mm                | 10 mm                        |
| 1827001284 | 40 mm                | 12 mm                        |
| 1827001285 | 50 mm                | 12 mm                        |
| 1827020086 | 63 mm                | 16 mm                        |
| 1827001287 | 80 mm                | 16 mm                        |
| 1827001288 | 100 mm               | 20 mm                        |
| 1827004866 | 125 mm               | 25 mm                        |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | CD H9 | Ø D    | Ø D1 | E   | EW           | FL ±0,2 | I ±0,5 | L min. | L1 min. |
|------------|----------|-------|--------|------|-----|--------------|---------|--------|--------|---------|
| 1827001283 | 32 mm    | 10    | 30 H11 | 6.6  | 48  | 26 -0,2/-0,6 | 22      | 5.5    | 12     | 4.5     |
| 1827001284 | 40 mm    | 12    | 35 H11 | 6.6  | 53  | 28 -0,2/-0,6 | 25      | 5.5    | 15     | 4.5     |
| 1827001285 | 50 mm    | 12    | 40 H11 | 9    | 63  | 32 -0,2/-0,6 | 27      | 6.5    | 15     | 4.5     |
| 1827020086 | 63 mm    | 16    | 45 H11 | 9    | 73  | 40 -0,2/-0,6 | 32      | 6.5    | 20     | 4.5     |
| 1827001287 | 80 mm    | 16    | 45 H11 | 11   | 98  | 50 -0,2/-0,6 | 36      | 10     | 20     | 4.5     |
| 1827001288 | 100 mm   | 20    | 55 H11 | 11   | 115 | 60 -0,2/-0,6 | 41      | 10     | 25     | 4.5     |
| 1827004866 | 125 mm   | 25    | 60 H11 | 14   | 140 | 70 -0,5/-1,2 | 50      | 10     | 30     | 7       |

| MR max. | TG        |
|---------|-----------|
| 10      | 32,5 ±0,2 |
| 12      | 38 ±0,2   |
| 12      | 46,5 ±0,2 |
| 16      | 56,5 ±0,2 |
| 16      | 72 ±0,2   |
| 20      | 89 ±0,2   |
| 26      | 110 ±0,3  |

# Rear eye MP6, Series CM1

- With ball joint and foot
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

Weight

See table below

## Technical data

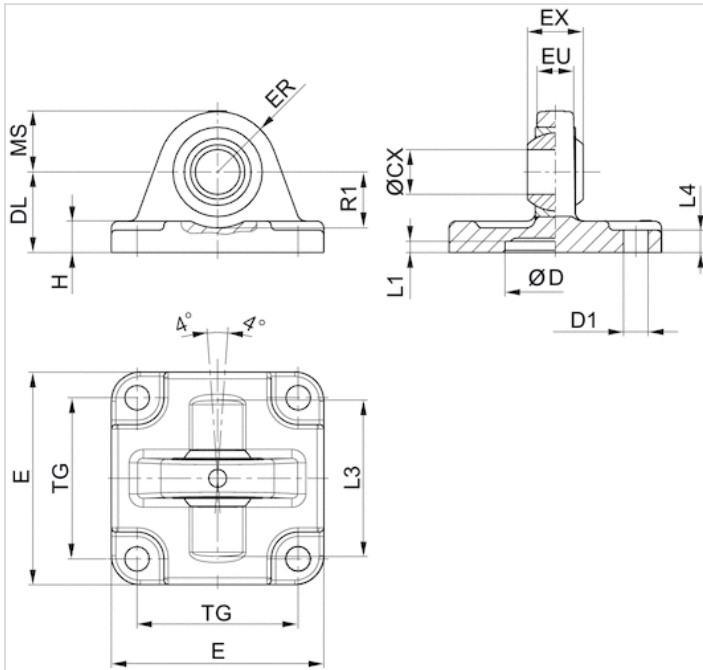
| Part No.   | Piston Ø | Swivel bearing Ø | Bearing material, inner ring | Bearing material, outer ring | Weight |
|------------|----------|------------------|------------------------------|------------------------------|--------|
| 1827001619 | 32 mm    | 10 mm            | Stainless steel              | Brass with PTFE coating      | 0.1 kg |
| 1827001620 | 40 mm    | 12 mm            | Stainless steel              | Brass with PTFE coating      | 0.1 kg |
| 1827001621 | 50 mm    | 16 mm            | Stainless steel              | Brass with PTFE coating      | 0.2 kg |
| 1827020087 | 63 mm    | 16 mm            | Stainless steel              | Brass with PTFE coating      | 0.3 kg |
| 1827001623 | 80 mm    | 20 mm            | Stainless steel              | Brass with PTFE coating      | 0.6 kg |
| 1827001624 | 100 mm   | 20 mm            | Stainless steel              | Brass with PTFE coating      | 0.8 kg |
| 1827001625 | 125 mm   | 30 mm            | Stainless steel              | Brass with PTFE coating      | 1.4 kg |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                   |
|----------|-------------------|
| Material | Aluminum (forged) |
| Screws   | galvanized steel  |
| Bearing  | Stainless steel   |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | ØCX H7 | ØD H11 | ØD1 H13 | DL ±0,2 | E   | EX -0,1 | ER | EU   | H    | L1 min. |
|------------|----------|--------|--------|---------|---------|-----|---------|----|------|------|---------|
| 1827001619 | 32 mm    | 10     | 30     | 6.6     | 22      | 47  | 14      | 15 | 10.5 | 9    | 4.5     |
| 1827001620 | 40 mm    | 12     | 35     | 6.6     | 25      | 53  | 16      | 18 | 12   | 9    | 4.5     |
| 1827001621 | 50 mm    | 16     | 40     | 9       | 27      | 65  | 21      | 20 | 15   | 10.5 | 4.5     |
| 1827020087 | 63 mm    | 16     | 45     | 9       | 32      | 75  | 21      | 23 | 15   | 10.5 | 4.5     |
| 1827001623 | 80 mm    | 20     | 45     | 11      | 36      | 95  | 25      | 27 | 18   | 14   | 4.5     |
| 1827001624 | 100 mm   | 20     | 55     | 11      | 41      | 115 | 25      | 30 | 18   | 15   | 4.5     |
| 1827001625 | 125 mm   | 30     | 60     | 14      | 50      | 140 | 37      | 40 | 25   | 16   | 7       |

| L3  | L4  | MS -0,5 | R1 min. | TG        |
|-----|-----|---------|---------|-----------|
| 36  | 5.5 | 15      | 12      | 32,5 ±0,2 |
| 42  | 5.5 | 18      | 15      | 38 ±0,2   |
| 48  | 6.5 | 21      | 19      | 46,5 ±0,2 |
| 55  | 6.5 | 23      | 21      | 56,5 ±0,2 |
| 70  | 10  | 27      | 24      | 72 ±0,2   |
| 80  | 10  | 30      | 25      | 89 ±0,2   |
| 100 | 10  | 40      | 33      | 110 ±0,3  |

# Rear eye MP9, Series CM1

- With rubber bushing
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards  
Weight

ISO 15552  
See table below

## Technical data

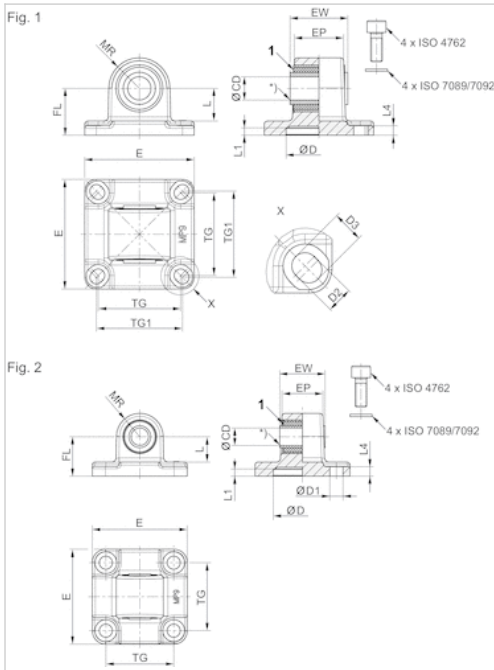
| Part No.   | Piston Ø | Swivel bearing Ø | Bearing material  | Weight   | Fig.   |
|------------|----------|------------------|-------------------|----------|--------|
| 3683203000 | 32 mm    | 10 mm            | Bronze            | 0.092 kg | Fig. 2 |
| 3683204000 | 40 mm    | 12 mm            | Bronze            | 0.143 kg | Fig. 1 |
| 3683205000 | 50 mm    | 12 mm            | Bronze            | 0.217 kg | Fig. 2 |
| 3683206000 | 63 mm    | 16 mm            | Bronze            | 0.411 kg | Fig. 1 |
| 3683208000 | 80 mm    | 16 mm            | Bronze            | 0.64 kg  | Fig. 2 |
| 3683210000 | 100 mm   | 20 mm            | Bronze            | 0.956 kg | Fig. 1 |
| R412015973 | 125 mm   | 25 mm            | steel, galvanized | 1.37 kg  | Fig. 2 |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                          |
|----------|--------------------------|
| Material | Aluminum (forged)        |
| Bearing  | Bronze steel, galvanized |

## Dimensions



1) Rubber bushing

## Dimensions

| Part No.   | Piston Ø | CD H11 | CD H9 | E    | EW   | EP   | TG   | TG1 ±0,2 | FL ±0,2 | L 1) | MR   | L1  | L4  |
|------------|----------|--------|-------|------|------|------|------|----------|---------|------|------|-----|-----|
| 3683203000 | 32 mm    | 10     | -     | 46   | 25.5 | 18,9 | 32.5 | -        | 22      | 13.8 | 12.5 | 5   | 5.5 |
| 3683204000 | 40 mm    | -      | 12    | 53   | 27   | 23,5 | 38   | 40       | 25      | 16.3 | 15   | 5   | 5.5 |
| 3683205000 | 50 mm    | -      | 12    | 65   | 31   | 28   | 46.5 | -        | 27      | 17.3 | 16   | 5   | 6.5 |
| 3683206000 | 63 mm    | -      | 16    | 75   | 39.5 | 33.5 | 56.5 | 59       | 32      | 22.3 | 21   | 5   | 6.5 |
| 3683208000 | 80 mm    | -      | 16    | 94.5 | 49.5 | 43   | 72   | -        | 36      | 21.8 | 22   | 5   | 10  |
| 3683210000 | 100 mm   | -      | 20    | 114  | 59.5 | 54   | 89   | 90       | 41      | 25.8 | 25   | 5   | 10  |
| R412015973 | 125 mm   | -      | 25    | 138  | 69.5 | 60   | 110  | -        | 50      | 33.8 | 34   | 7.5 | 10  |

| D H11 | D1 H13 | D2 -0,2 | D3 -0,2 | Fig.   |
|-------|--------|---------|---------|--------|
| 30    | 6.6    | -       | -       | Fig. 2 |
| 35    | -      | 6.6     | 8       | Fig. 1 |
| 40    | 9      | -       | -       | Fig. 2 |
| 45    | 6.6    | -       | -       | Fig. 1 |
| 45    | 11     | -       | -       | Fig. 2 |
| 55    | -      | 11      | 11.7    | Fig. 1 |
| 60    | 13.5   | -       | -       | Fig. 2 |

# Trunnion mounting MT4, Series CM1

- Suitable piston Ø 32 40 50 63 80 100 125 mm

- for series PRA



## Technical data

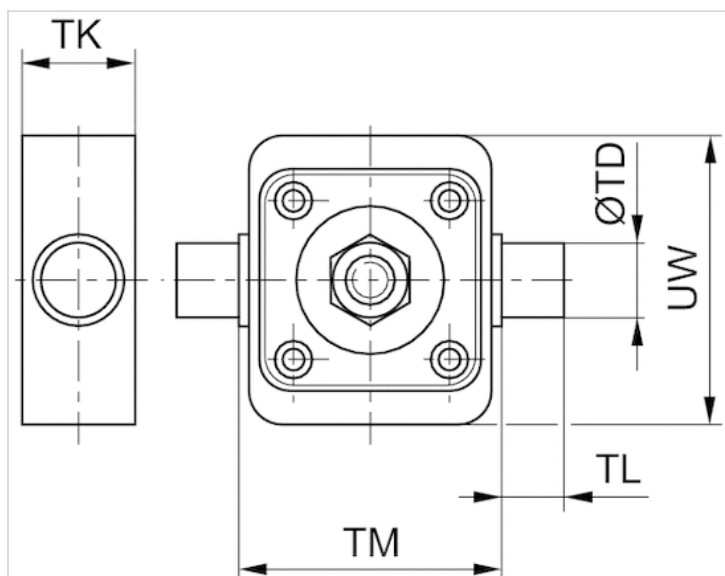
| Part No.   | Piston Ø |
|------------|----------|
| 1827003991 | 32 mm    |
| 1827003992 | 40 mm    |
| 1827003993 | 50 mm    |
| 1827003994 | 63 mm    |
| 1827003995 | 80 mm    |
| 1827003996 | 100 mm   |
| 1827003997 | 125 mm   |

## Technical information

| Material |                   |
|----------|-------------------|
| Material | Aluminum (forged) |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | TD e9 | TK 1) | TL h14 | TM h14 | UW  |
|------------|----------|-------|-------|--------|--------|-----|
| 1827003991 | 32 mm    | 12    | 22    | 12     | 50     | 70  |
| 1827003992 | 40 mm    | 16    | 28    | 16     | 63     | 78  |
| 1827003993 | 50 mm    | 16    | 28    | 16     | 75     | 96  |
| 1827003994 | 63 mm    | 20    | 35    | 20     | 90     | 108 |
| 1827003995 | 80 mm    | 20    | 35    | 20     | 110    | 130 |
| 1827003996 | 100 mm   | 25    | 46    | 25     | 132    | 150 |
| 1827003997 | 125 mm   | 25    | 46    | 25     | 160    | 171 |

1) Max.

# Trunnion mounting MT5, MT6, Series CM1

- for mounting to the cylinder cover or base
- Suitable piston Ø 32 40 50 63 80 100 125 mm
- for series CCI, CVI, CCL-IC/-IS, PRA/TRB CVI, CCL-IS, PRA, TRB



Weight

See table below

The delivered product may vary from that in the illustration.

## Technical data

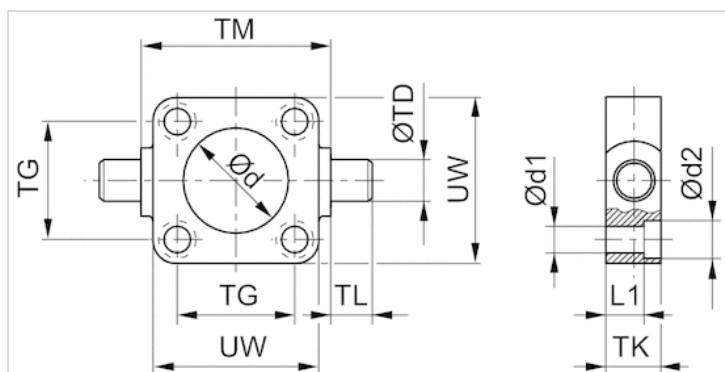
| Part No.   | Piston Ø | Weight  |
|------------|----------|---------|
| 1827001609 | 32 mm    | 0.29 kg |
| 1827001610 | 40 mm    | 0.5 kg  |
| 1827001611 | 50 mm    | 0.7 kg  |
| 1827002046 | 63 mm    | 1.1 kg  |
| 1827001613 | 80 mm    | 1.5 kg  |
| 1827001614 | 100 mm   | 2.7 kg  |
| 1827001615 | 125 mm   | 3.8 kg  |

Scope of delivery: trunnion mounting incl. mounting screws

## Technical information

| Material |                       |
|----------|-----------------------|
| Material | Nodular graphite iron |
|          | galvanized            |
| Screws   | Steel                 |
|          | galvanized            |

## Dimensions



## Dimensions

| Part No.   | Piston $\varnothing$ | $\varnothing d$ H11 | $\varnothing d1$ | $\varnothing d2$ | L1   | TD e9 | TG $\pm 0,2$ | TK | TL h14 | TM h14 | UW  |
|------------|----------------------|---------------------|------------------|------------------|------|-------|--------------|----|--------|--------|-----|
| 1827001609 | 32 mm                | 30                  | 6.6              | 11               | 7.5  | 12    | 32.5         | 16 | 12     | 50     | 48  |
| 1827001610 | 40 mm                | 35                  | 6.6              | 11               | 7.5  | 16    | 38           | 20 | 16     | 63     | 56  |
| 1827001611 | 50 mm                | 40                  | 9                | 15               | 10   | 16    | 46.5         | 24 | 16     | 75     | 65  |
| 1827002046 | 63 mm                | 45                  | 9                | 15               | 10   | 20    | 56.5         | 24 | 20     | 90     | 75  |
| 1827001613 | 80 mm                | 45                  | 11               | 18               | 16   | 20    | 72           | 28 | 20     | 110    | 100 |
| 1827001614 | 100 mm               | 55                  | 11               | 18               | 25.5 | 25    | 89           | 38 | 25     | 132    | 120 |
| 1827001615 | 125 mm               | 60                  | 14               | 20               | 34   | 25    | 110          | 46 | 25     | 160    | 145 |

# Bearing, Series CM1

- for trunnion mounting

- Suitable piston  $\varnothing$  32 40, 50 63, 80 mm



## Technical data

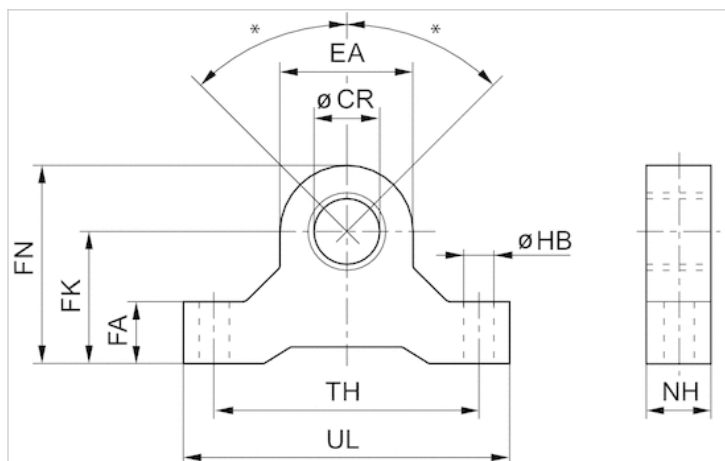
| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ | Scope of delivery |
|------------|----------------------|------------------------------|-------------------|
| 3671203000 | 32 mm                | 12 mm                        | 2 piece           |
| 3671204000 | 40, 50 mm            | 16 mm                        | 2 piece           |
| 3671206000 | 63, 80 mm            | 20 mm                        | 2 piece           |

## Technical information

Material

|          |          |
|----------|----------|
| Material | Aluminum |
|----------|----------|

## Dimensions



\* Max. pendulum movement for cylinders with rear eye MP6 with ball joint:  $\pm 45^\circ$

## Dimensions

| Part No.   | Ø CR H8 | EA | FA | FK ±0,1 | FN | HB  | NH | TH | UL |
|------------|---------|----|----|---------|----|-----|----|----|----|
| 3671203000 | 12      | 19 | 11 | 22      | 32 | 6.6 | 11 | 44 | 55 |
| 3671204000 | 16      | 28 | 16 | 35      | 49 | 9   | 16 | 65 | 82 |
| 3671206000 | 20      | 38 | 19 | 40      | 59 | 9   | 19 | 80 | 99 |

# Bearing AT4, Series CM1

- for trunnion mounting MT4, MT5, MT6
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 20, 25, 32 40, 50 63, 80 100, 125 mm
- for series CCI, CCL-IC, ICL, KPZ, PRA/TRB CCI, CCL-IC, KPZ, PRA/TRB



Standards

ISO 15552

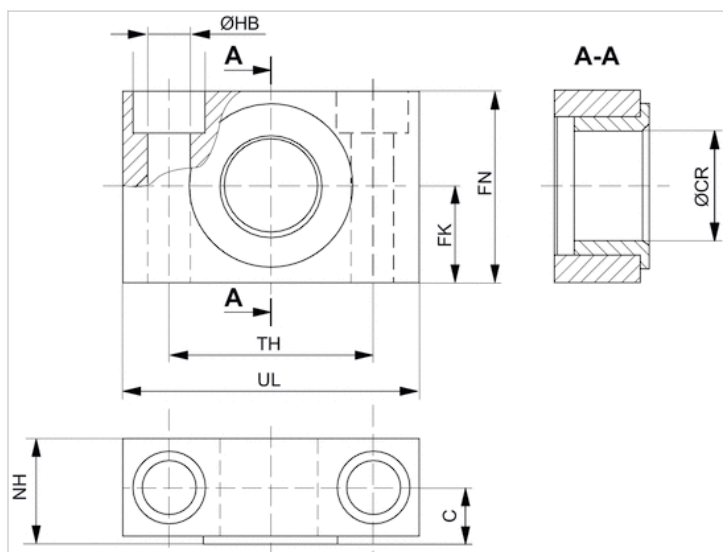
## Technical data

| Part No.   | Piston Ø      | Swivel bearing Ø | Scope of delivery |
|------------|---------------|------------------|-------------------|
| 1827001603 | 20, 25, 32 mm | 12 mm            | 2 piece           |
| 1827001604 | 40, 50 mm     | 16 mm            | 2 piece           |
| 1827001605 | 63, 80 mm     | 20 mm            | 2 piece           |
| 1827001606 | 100, 125 mm   | 25 mm            | 2 piece           |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Material      | Steel           |
|               | galvanized      |
| Guide bushing | Sintered bronze |

## Dimensions



## Dimensions

| Part No.   | Piston Ø      | UL | NH   | TH      | C    | CR H9 | HB H13 | FN | FK      | Plain bearing   |
|------------|---------------|----|------|---------|------|-------|--------|----|---------|-----------------|
| 1827001603 | 20, 25, 32 mm | 46 | 18   | 32 ±0,2 | 10.5 | 12    | 6.6    | 30 | 15 ±0,1 | Sintered bronze |
| 1827001604 | 40, 50 mm     | 55 | 21   | 36 ±0,2 | 12   | 16    | 9      | 36 | 18 ±0,1 | Sintered bronze |
| 1827001605 | 63, 80 mm     | 65 | 23   | 42 ±0,2 | 13   | 20    | 11     | 40 | 20 ±0,1 | Sintered bronze |
| 1827001606 | 100, 125 mm   | 75 | 28.5 | 50 ±0,2 | 16   | 25    | 14     | 50 | 25 ±0,1 | Sintered bronze |

# Flange mounting MF1, MF2, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001277 | 32 mm    | 30 mm            |
| 1827001278 | 40 mm    | 35 mm            |
| 1827001279 | 50 mm    | 40 mm            |
| 1827001499 | 63 mm    | 45 mm            |
| 1827001281 | 80 mm    | 45 mm            |
| 1827001282 | 100 mm   | 55 mm            |
| 1827004861 | 125 mm   | 60 mm            |

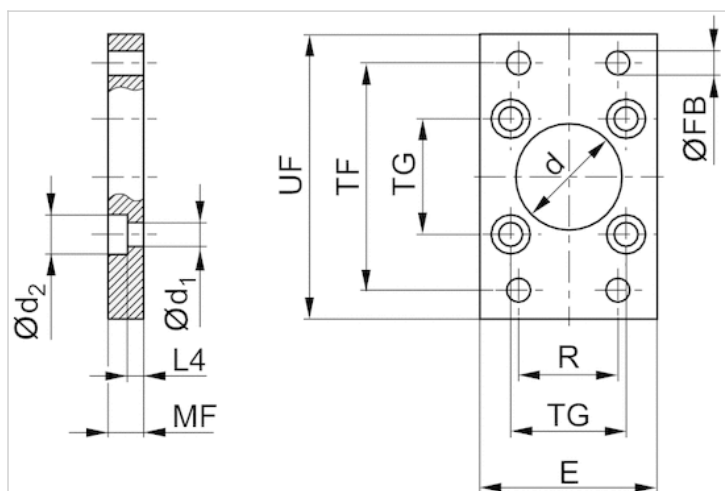
Scope of delivery: flange mounting incl. mounting screws

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |
| Screws   | Steel      |
|          | galvanized |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | Ød H11 | Ød1 | Ød2 | E max. | ØFB | L4   | MF | R  | TF  | TG        | UF  |
|------------|----------|--------|-----|-----|--------|-----|------|----|----|-----|-----------|-----|
| 1827001277 | 32 mm    | 30     | 6.6 | 11  | 50     | 7   | 4.5  | 10 | 32 | 64  | 32,5 ±0,2 | 80  |
| 1827001278 | 40 mm    | 35     | 6.6 | 11  | 55     | 9   | 4.5  | 10 | 36 | 72  | 38 ±0,2   | 90  |
| 1827001279 | 50 mm    | 40     | 9   | 15  | 65     | 9   | 6    | 12 | 45 | 90  | 46,5 ±0,2 | 110 |
| 1827001499 | 63 mm    | 45     | 9   | 15  | 75     | 9   | 6    | 12 | 50 | 100 | 56,5 ±0,2 | 125 |
| 1827001281 | 80 mm    | 45     | 11  | 18  | 100    | 12  | 9    | 16 | 63 | 126 | 72 ±0,2   | 154 |
| 1827001282 | 100 mm   | 55     | 11  | 18  | 120    | 14  | 9    | 16 | 75 | 150 | 89 ±0,2   | 186 |
| 1827004861 | 125 mm   | 60     | 14  | 20  | 140    | 16  | 10.5 | 20 | 90 | 180 | 110 ±0,3  | 220 |

# Intermediate flange JP1, Series CM1

- for multi-position cylinders

- Suitable piston Ø 32 40 50 63 80 100 125 mm



## Technical data

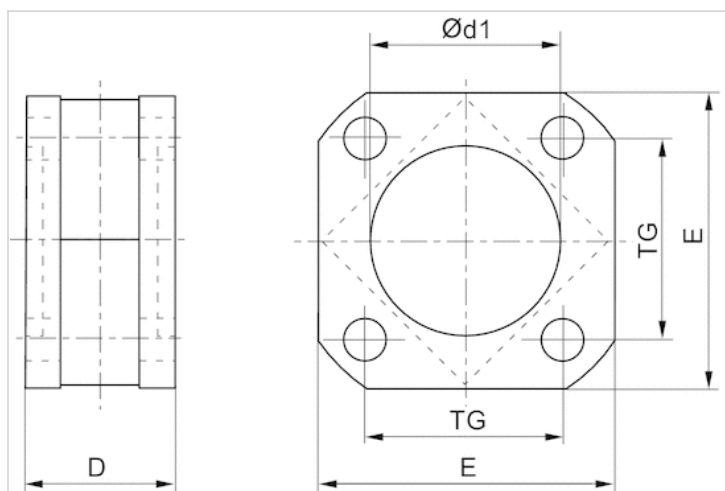
| Part No.   | Piston Ø |
|------------|----------|
| 1827020247 | 32 mm    |
| 1827020248 | 40 mm    |
| 1827020249 | 50 mm    |
| 1827020250 | 63 mm    |
| 1827020251 | 80 mm    |
| 1827020252 | 100 mm   |
| 1827020253 | 125 mm   |

Scope of delivery incl. mounting screws

## Technical information

| Material |          |
|----------|----------|
| Material | Aluminum |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | D  | Ø d1 N7 | E   | TG   |
|------------|----------|----|---------|-----|------|
| 1827020247 | 32 mm    | 27 | 30      | 47  | 32.5 |
| 1827020248 | 40 mm    | 27 | 35      | 53  | 38   |
| 1827020249 | 50 mm    | 32 | 40      | 65  | 46.5 |
| 1827020250 | 63 mm    | 28 | 45      | 75  | 56.5 |
| 1827020251 | 80 mm    | 38 | 45      | 95  | 72   |
| 1827020252 | 100 mm   | 38 | 55      | 115 | 89   |
| 1827020253 | 125 mm   | 44 | 60      | 140 | 110  |

# Foot mounting MS1, Series CM1

- to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, KPZ, 167, CVI, ITS
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

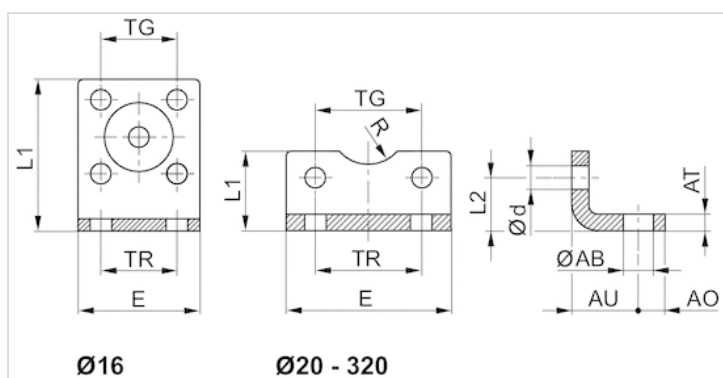
| Part No.   | Piston Ø | For series                 |
|------------|----------|----------------------------|
| 1827001271 | 32 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001272 | 40 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001273 | 50 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001498 | 63 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001275 | 80 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001276 | 100 mm   | CCI CCL-IC/-IS PRA/TRB CVI |
| 1827001310 | 125 mm   | PRA/TRB CCL-IS CVI         |

Scope of delivery: 2 foot mountings incl. mounting screws

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |
| Screws   | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | ØAB  | AO | AT     | AU ±0,2 | Ød   | E   | L1 | L2   | R    | TG        | TR |
|------------|----------|------|----|--------|---------|------|-----|----|------|------|-----------|----|
| 1827001271 | 32 mm    | 7    | 8  | 4 ±0,3 | 24      | 6.6  | 48  | 25 | 15.5 | 15   | 32,5 ±0,2 | 32 |
| 1827001272 | 40 mm    | 10   | 10 | 4 ±0,3 | 28      | 6.6  | 56  | 26 | 17   | 17.5 | 38 ±0,2   | 36 |
| 1827001273 | 50 mm    | 10   | 11 | 5 ±0,3 | 32      | 9    | 68  | 32 | 21.5 | 20   | 46,5 ±0,2 | 45 |
| 1827001498 | 63 mm    | 10   | 13 | 5 ±0,3 | 32      | 9    | 78  | 34 | 21.5 | 22.5 | 56,5 ±0,2 | 50 |
| 1827001275 | 80 mm    | 12   | 16 | 6 ±0,5 | 41      | 11   | 98  | 47 | 27   | 22.5 | 72 ±0,2   | 63 |
| 1827001276 | 100 mm   | 14.5 | 19 | 6 ±0,5 | 41      | 11   | 117 | 52 | 26.5 | 27.5 | 89 ±0,2   | 75 |
| 1827001310 | 125 mm   | 16.5 | 20 | 8 ±1,0 | 45      | 13.5 | 144 | 69 | 35   | 30   | 110 ±0,3  | 90 |

# Bolts AA4, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

Weight

See table below

See table below

## Technical data

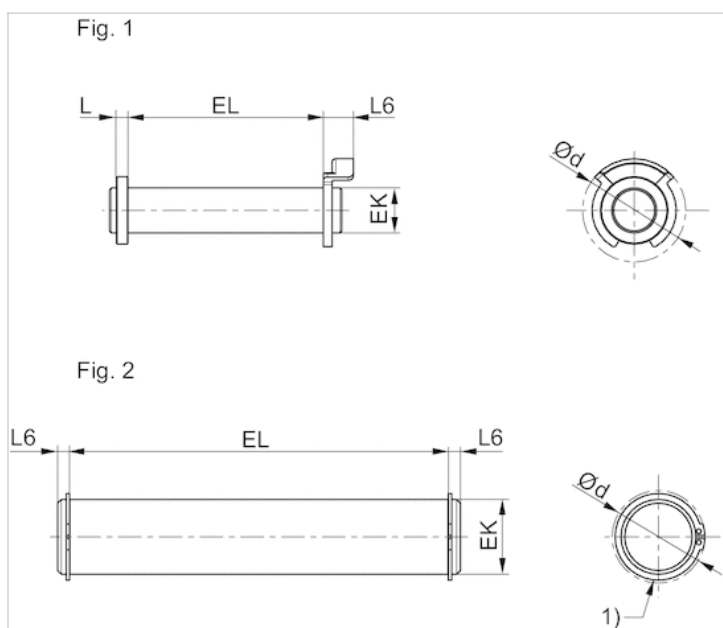
| Part No.   | Piston Ø | Standardization | Weight  | Fig.   |
|------------|----------|-----------------|---------|--------|
| 1823120020 | 32 mm    | -               | 0.03 kg | Fig. 1 |
| 1823120021 | 40 mm    | -               | 0.05 kg | Fig. 1 |
| 1823120022 | 50 mm    | -               | 0.06 kg | Fig. 1 |
| 1823120023 | 63 mm    | -               | 0.12 kg | Fig. 1 |
| 1823120024 | 80 mm    | -               | 0.15 kg | Fig. 1 |
| 1823120025 | 100 mm   | -               | 0.29 kg | Fig. 1 |
| 5236000092 | 125 mm   | ISO 15552       | 0.53 kg | Fig. 2 |

Scope of delivery: pivot pins incl. circlips

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |

## Dimensions



1) circlip DIN 471

## Dimensions

| Part No.   | Piston Ø | Fig.   | Ø d max. | EK e8 | EL         | L max. | L6 max. |
|------------|----------|--------|----------|-------|------------|--------|---------|
| 1823120020 | 32 mm    | Fig. 1 | 20       | 10    | 45.2 +0,3  | 3.5    | 9       |
| 1823120021 | 40 mm    | Fig. 1 | 22       | 12    | 52.2 +0,3  | 4      | 9       |
| 1823120022 | 50 mm    | Fig. 1 | 22       | 12    | 60.2 +0,3  | 4      | 9       |
| 1823120023 | 63 mm    | Fig. 1 | 28       | 16    | 70.2 +0,3  | 4.5    | 11      |
| 1823120024 | 80 mm    | Fig. 1 | 28       | 16    | 90.2 +0,3  | 4.5    | 11      |
| 1823120025 | 100 mm   | Fig. 1 | 38       | 20    | 110.2 +0,3 | 5      | 11      |
| 5236000092 | 125 mm   | Fig. 2 | 34.2     | 25    | 132 +0,5   | -      | 3.75    |

# Piston rod nut MR9



Weight

See table below

## Technical data

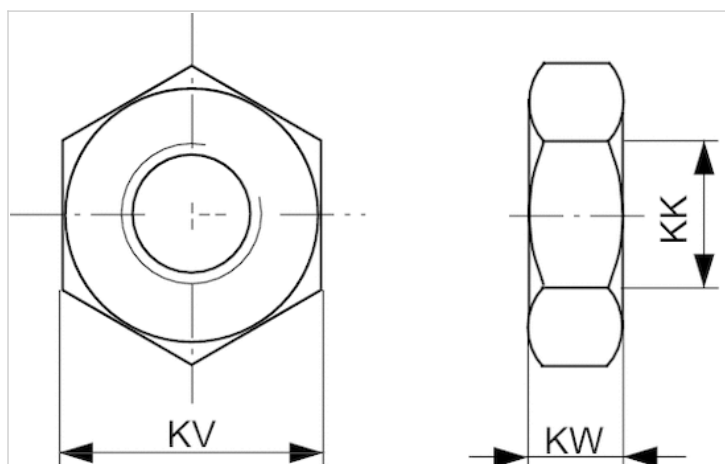
| Part No.   | Suitable piston rod thread | Weight   |
|------------|----------------------------|----------|
| 1823A00020 | M10x1,25                   | 0.01 kg  |
| 8103190344 | M12x1,25                   | 0.012 kg |
| 1823300030 | M16x1,5                    | 0.017 kg |
| 1823300031 | M20x1,5                    | 0.03 kg  |
| 1823A00029 | M27x2                      | 0.108 kg |
| 8103190414 | M36x2                      | 0.175 kg |
| 8103190424 | M42x2                      | 0.37 kg  |

## Technical information

| Material |            |
|----------|------------|
|          | Steel      |
|          | galvanized |



## Dimensions



## Dimensions

| Part No.   | KK       | KV | KW   |
|------------|----------|----|------|
| 8103190344 | M12x1,25 | 19 | 6    |
| 1823300030 | M16x1,5  | 24 | 8    |
| 1823300031 | M20x1,5  | 30 | 10   |
| 1823A00029 | M27x2    | 41 | 13.5 |
| 8103190414 | M36x2    | 50 | 16   |
| 8103190424 | M42x2    | 60 | 21   |

# Rod clevis AP2, Series CM2

- to mount on cylinder PRA, TRB, CCI, MNI, ICM, KPZ, KHZ, 167, CVI, RPC, RDC, ITS



Weight

See table below

## Technical data

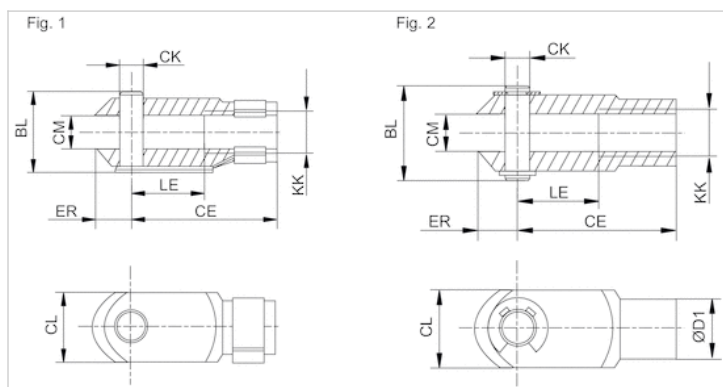
| Part No.   | Suitable piston rod thread | for                                     | Weight  |
|------------|----------------------------|---|---------|
| 1822122024 | M10x1,25                   | PRA TRB CCI MNI ICM KPZ 167 CVI RPC RDC | 0.1 kg  |
| 1822122025 | M12x1,25                   | PRA TRB CCI KPZ 167 CVI RPC 102         | 0.16 kg |
| 1822122005 | M16x1,5                    | PRA TRB CCI KPZ 167 CVI RPC RDC 102     | 0.4 kg  |
| 1822122004 | M20x1,5                    | PRA TRB KPZ 167 CVI 102                 | 0.7 kg  |
| 1827001493 | M27x2                      | PRA TRB CCL-IS 167 CVI                  | 2 kg    |

| Part No.   | Fig.   |
|------------|--------|
| 1822122024 | Fig. 1 |
| 1822122025 | Fig. 1 |
| 1822122005 | Fig. 1 |
| 1822122004 | Fig. 1 |
| 1827001493 | Fig. 2 |

## Technical information

| Material |            |
|----------|------------|
|          | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | KK       | BL | CE  | ØCK e11 | CL | CM | ØD1 | ER | LE | Fig.   |
|------------|----------|----|-----|---------|----|----|-----|----|----|--------|
| 1822122024 | M10x1,25 | 26 | 40  | 10      | 20 | 10 | 18  | 12 | 20 | Fig. 1 |
| 1822122025 | M12x1,25 | 31 | 48  | 12      | 24 | 12 | 20  | 14 | 24 | Fig. 1 |
| 1822122005 | M16x1,5  | 39 | 64  | 16      | 32 | 16 | 26  | 19 | 32 | Fig. 1 |
| 1822122004 | M20x1,5  | 50 | 80  | 20      | 40 | 20 | 34  | 20 | 40 | Fig. 1 |
| 1827001493 | M27x2    | 68 | 110 | 30      | 55 | 30 | 48  | 38 | 54 | Fig. 2 |

# Rod clevis PM6, Series CM2

- for ball eye rod end AP6



## Technical data

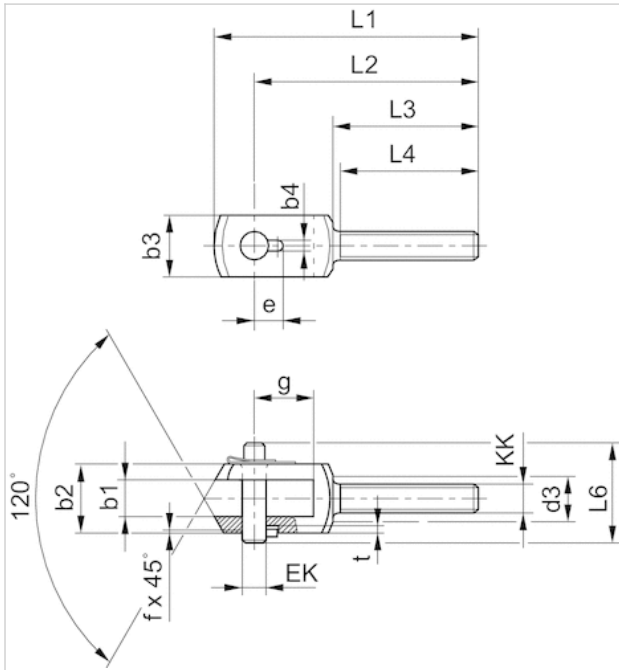
| Part No.   | for | Swivel bearing Ø |
|------------|-----|------------------|
| 1822122032 | AP6 | 14 mm            |
| 1822122033 | AP6 | 16 mm            |
| 1822122034 | AP6 | 21 mm            |
| 1822122035 | AP6 | 25 mm            |
| 1822122036 | AP6 | 30 mm            |

Scope of delivery incl. bolt

## Technical information

| Material |            |
|----------|------------|
|          | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | b1 B12 | b2 d12 | b3 | b4 +0,2 | d3 | e +0,3 | EK | f   | g  | L1  | L2  | L3 | L4 +1 | L6 | t +0,2 |
|------------|--------|--------|----|---------|----|--------|----|-----|----|-----|-----|----|-------|----|--------|
| 1822122032 | 14     | 28     | 20 | 3.3     | 17 | 11.5   | 10 | 0.7 | 20 | 90  | 78  | 53 | 50    | 35 | 3      |
| 1822122033 | 16     | 30     | 25 | 4.3     | 19 | 12     | 12 | 1   | 26 | 108 | 92  | 58 | 55    | 39 | 3      |
| 1822122034 | 21     | 40     | 35 | 4.3     | 24 | 14     | 16 | 1   | 31 | 129 | 108 | 65 | 62    | 50 | 3      |
| 1822122035 | 25     | 50     | 40 | 4.3     | 30 | 16     | 20 | 1   | 43 | 156 | 131 | 73 | 69    | 60 | 3      |
| 1822122036 | 37     | 67     | 60 | 6.3     | 38 | 24     | 30 | 1.5 | 54 | 200 | 168 | 98 | 92    | 77 | 5      |

# Ball eye rod end AP6, series CM2

- with flange, to mount on cylinder PRA, TRB, CCI, SSI, MNI, RPC, KPZ, 167, CVI, RDC, 102, ITS



Weight

See table below

## Technical data

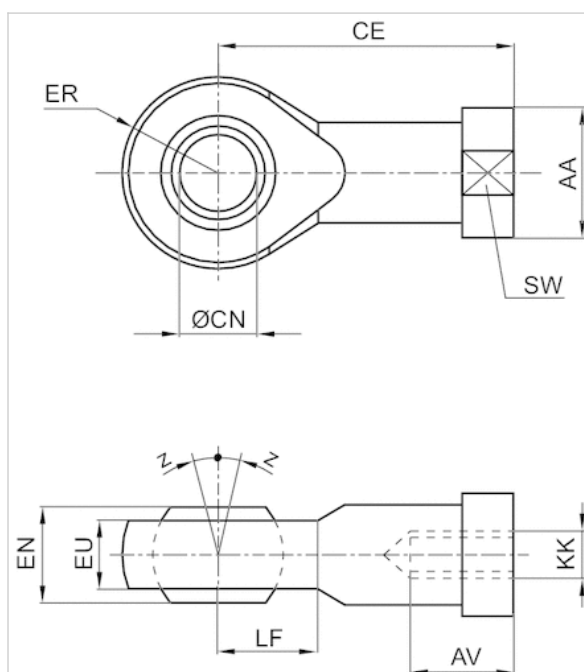
| Part No.   | Suitable piston rod thread | for                                     | Swivel bearing Ø |
|------------|----------------------------|---|------------------|
| 1822124003 | M10x1,25                   | PRA TRB MNI CCI SSI RPC KPZ 167 CVI RDC | 254 mm           |
| 1822124004 | M12x1,25                   | PRA TRB CCI SSI RPC KPZ 167 CVI 102     | 304.8 mm         |
| 1822124005 | M16x1,5                    | PRA TRB CCI SSI RPC KPZ 167 CVI RDC 102 | 406.4 mm         |
| 1822124006 | M20x1,5                    | PRA TRB KPZ 167 CVI 102                 | 508 mm           |
| 1822124013 | M27x2                      | PRA TRB 167 CVI                         | 762 mm           |

| Part No.   | Weight  |
|------------|---------|
| 1822124003 | 0.07 kg |
| 1822124004 | 0.12 kg |
| 1822124005 | 0.21 kg |
| 1822124006 | 0.38 kg |
| 1822124013 | 1.17 kg |

## Technical information

| Material |            |
|----------|------------|
|          | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | KK       | AA | AV min. | CE  | $\varnothing CN H7$ | EN $-0,1$ | ER | EU max. | LF | SW | Z [°] max. |
|------------|----------|----|---------|-----|---------------------|-----------|----|---------|----|----|------------|
| 1822124003 | M10x1,25 | 19 | 15      | 43  | 10                  | 14        | 14 | 11.5    | 14 | 17 | 4          |
| 1822124004 | M12x1,25 | 22 | 18      | 50  | 12                  | 16        | 16 | 12.5    | 16 | 19 | 4          |
| 1822124005 | M16x1,5  | 27 | 24      | 64  | 16                  | 21        | 21 | 15.5    | 21 | 22 | 4          |
| 1822124006 | M20x1,5  | 34 | 30      | 77  | 20                  | 25        | 25 | 18.5    | 25 | 30 | 4          |
| 1822124013 | M27x2    | 50 | 45      | 110 | 30                  | 37        | 35 | 27      | 35 | 41 | 4          |

# Compensating coupling PM5, series CM2

- to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, SSI, MNI, KPZ, KHZ, 167, CVI, RPC, RDC, ITS, spherical



Weight

See table below

## Technical data

| Part No.   | Suitable piston rod thread | for   |
|------------|----------------------------|---|
| R412026142 | M10x1,25                   | PRA TRB CCL-IS CCL-IC CCI SSI KPZ 167 CVI RPC |
| R412026143 | M12x1,25                   | PRA TRB CCI CCL-IS CCL-IC SSI KPZ 167 CVI RPC |
| R412026144 | M16x1,5                    | PRA TRB CCI CCL-IS CCL-IC KPZ 167 CVI RPC RDC |
| R412026145 | M20x1,5                    | PRA TRB CCL-IS SSI KPZ 167 CVI                |
| 1826409006 | M27x2                      | PRA TRB CCL-IS CVI                            |

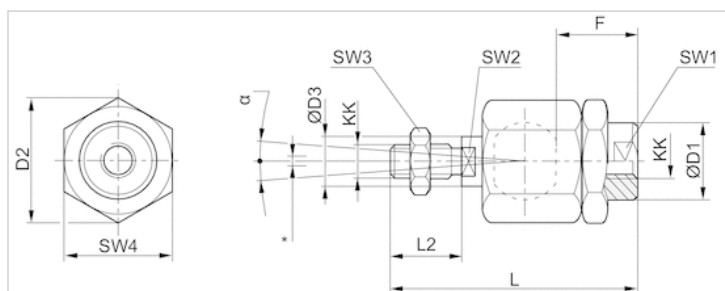
| Part No.   | Weight  |
|------------|---------|
| R412026142 | 0.21 kg |
| R412026143 | 0.21 kg |
| R412026144 | 0.65 kg |
| R412026145 | 0.68 kg |
| 1826409006 | 1.7 kg  |

## Technical information

| Material   |
|------------|
| Steel      |
| galvanized |



## Dimensions



\* Radial joint

## Dimensions

| Part No.   | KK       | $\varnothing D1$ | $D2$ | $\varnothing D3$ | F  | $L \pm 2$ | $L2$ | SW1 | SW2 | SW3 | SW4 | $\alpha$ [°] | 1)       | 2)  |
|------------|----------|------------------|------|------------------|----|-----------|------|-----|-----|-----|-----|--------------|----------|-----|
| R412026142 | M10x1,25 | 22               | 32   | 14               | 23 | 74.5      | 23   | 19  | 12  | 17  | 30  | 8            | 0.05-0.5 | 0-2 |
| R412026143 | M12x1,25 | 22               | 32   | 14               | 24 | 75        | 24   | 19  | 12  | 19  | 30  | 7            | 0.05-0.5 | 0-2 |
| R412026144 | M16x1,5  | 32               | 45   | 22               | 30 | 103       | 30   | 30  | 20  | 24  | 41  | 6            | 0.05-0.5 | 0-2 |
| R412026145 | M20x1,5  | 32               | 45   | 22               | 40 | 119       | 40   | 30  | 20  | 30  | 41  | 6            | 0.05-0.5 | 0-2 |
| 1826409006 | M27x2    | 62               | 62   | 28               | 48 | 147       | 54   | 32  | 24  | 41  | 55  | 8            | 0.05-0.2 | 0-2 |

1) Axial play

2) Radial play

# Compensating coupling PM7, series CM2

- to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, SSI, KPZ, 167, CVI, RPC, ITS, with plate



Weight

See table below

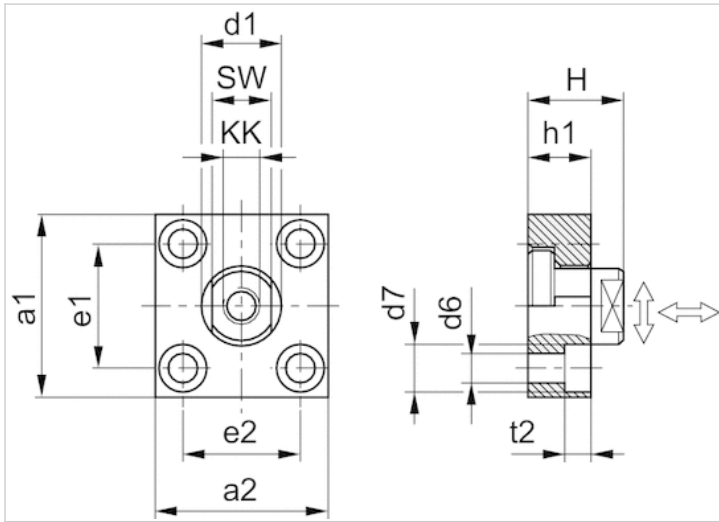
## Technical data

| Part No.   | Suitable piston rod thread | for                                       | Weight  |
|------------|----------------------------|---|---------|
| 1827001629 | M10x1,25                   | PRA TRB CCL-IS CCL-IC CCI SSI KPZ RPC 167 | 0.3 kg  |
| 1827001630 | M12x1,25                   | PRA TRB CCL-IS CCL-IC CCI SSI KPZ RPC 167 | 0.4 kg  |
| 1827001631 | M16x1,5                    | PRA TRB CCL-IS CCL-IC CCI SSI KPZ RPC 167 | 0.9 kg  |
| 1827001632 | M20x1,5                    | PRA TRB CCL-IS SSI KPZ CVI 167            | 1.15 kg |
| 1827001633 | M27x2                      | PRA TRB CCL-IS CVI                        | 1.1 kg  |
| 1827001634 | M36x2                      | ITS                                       | 3.4 kg  |

## Technical information

| Material |            |
|----------|------------|
|          | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | a1  | a2  | d1 h11 | d6 H13 | d7 H13 | e1 H13   | e2       | h1 | t2 | H  | SW |
|------------|-----|-----|--------|--------|--------|----------|----------|----|----|----|----|
| 1827001629 | 60  | 37  | 20     | 6.6    | 11     | 36 ±0,15 | 23 ±0,15 | 15 | 7  | 24 | 17 |
| 1827001630 | 60  | 56  | 25     | 9      | 15     | 42 ±0,2  | 38 ±0,2  | 20 | 9  | 30 | 19 |
| 1827001631 | 80  | 80  | 30     | 11     | 18     | 58 ±0,2  | 58 ±0,2  | 20 | 11 | 32 | 24 |
| 1827001632 | 90  | 90  | 40     | 14     | 20     | 65 ±0,3  | 65 ±0,3  | 20 | 13 | 35 | 36 |
| 1827001633 | 90  | 90  | 40     | 14     | 20     | 65 ±0,3  | 65 ±0,3  | 20 | 13 | 35 | 36 |
| 1827001634 | 125 | 125 | 60     | 18     | 26     | 90 ±0,3  | 90 ±0,3  | 30 | 17 | 55 | 50 |

| Tightening torque for the coupling pin $M_a \pm 5\%$ | Axial play min./max. | Radial play min./max. |
|--|----------------------|-----------------------|
| 17 Nm  | 0.4 0.8 mm           | 1.9 2.3 mm            |
| 29 Nm  | 0.4 0.8 mm           | 1.9 2.3 mm            |
| 71 Nm  | 0.4 0.8 mm           | 1.9 2.3 mm            |
| 138 Nm   | 0.4 0.8 mm           | 1.9 2.3 mm            |
| 350 Nm   | 0.4 20.31 mm         | 1.9 2.3 mm            |
| 1080 Nm  | 0.4 0.95 mm          | 2.8 3.4 mm            |

# Guide unit GU1, Series CG1

- Ø 32-100 mm
- Plain bearing
- For standard cylinders ISO 15552



Bearing type

Plain bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401010 | 0821401020 | 0821401030 | 0821401480 | 0821401050 | 0821401060 |
| 100               | 0821401011 | 0821401021 | 0821401031 | 0821401481 | 0821401051 | 0821401061 |
| 160               | 0821401012 | 0821401022 | 0821401032 | 0821401482 | 0821401052 | 0821401062 |
| 200               | 0821401013 | 0821401023 | 0821401033 | 0821401483 | 0821401053 | 0821401063 |
| 250               | 0821401014 | 0821401024 | 0821401034 | 0821401484 | 0821401054 | 0821401064 |
| 320               | 0821401015 | 0821401025 | 0821401035 | 0821401485 | 0821401055 | 0821401065 |
| 400               | 0821401016 | 0821401026 | 0821401036 | 0821401486 | 0821401056 | 0821401066 |
| 500               | 0821401017 | 0821401027 | 0821401037 | 0821401487 | 0821401057 | 0821401067 |
| 600               | 0821401018 | 0821401028 | 0821401038 | 0821401488 | 0821401058 | 0821401068 |
| 800               | 0821401019 | 0821401029 | 0821401039 | 0821401489 | 0821401059 | 0821401069 |
| 1000              | 0821401500 | 0821401502 | 0821401504 | 0821401490 | 0821401508 | 0821401510 |
| 1200              | 0821401501 | 0821401503 | 0821401505 | 0821401491 | 0821401509 | 0821401511 |

For use with hybrid inch cylinders with metric piston rod thread

## Technical data

| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 0.63 kg  | 0.946 kg | 1.36 kg  | 1.66 kg  | 3.45 kg  | 4.69 kg  |
| +10 mm stroke      | 0.012 kg | 0.018 kg | 0.018 kg | 0.018 kg | 0.022 kg | 0.022 kg |

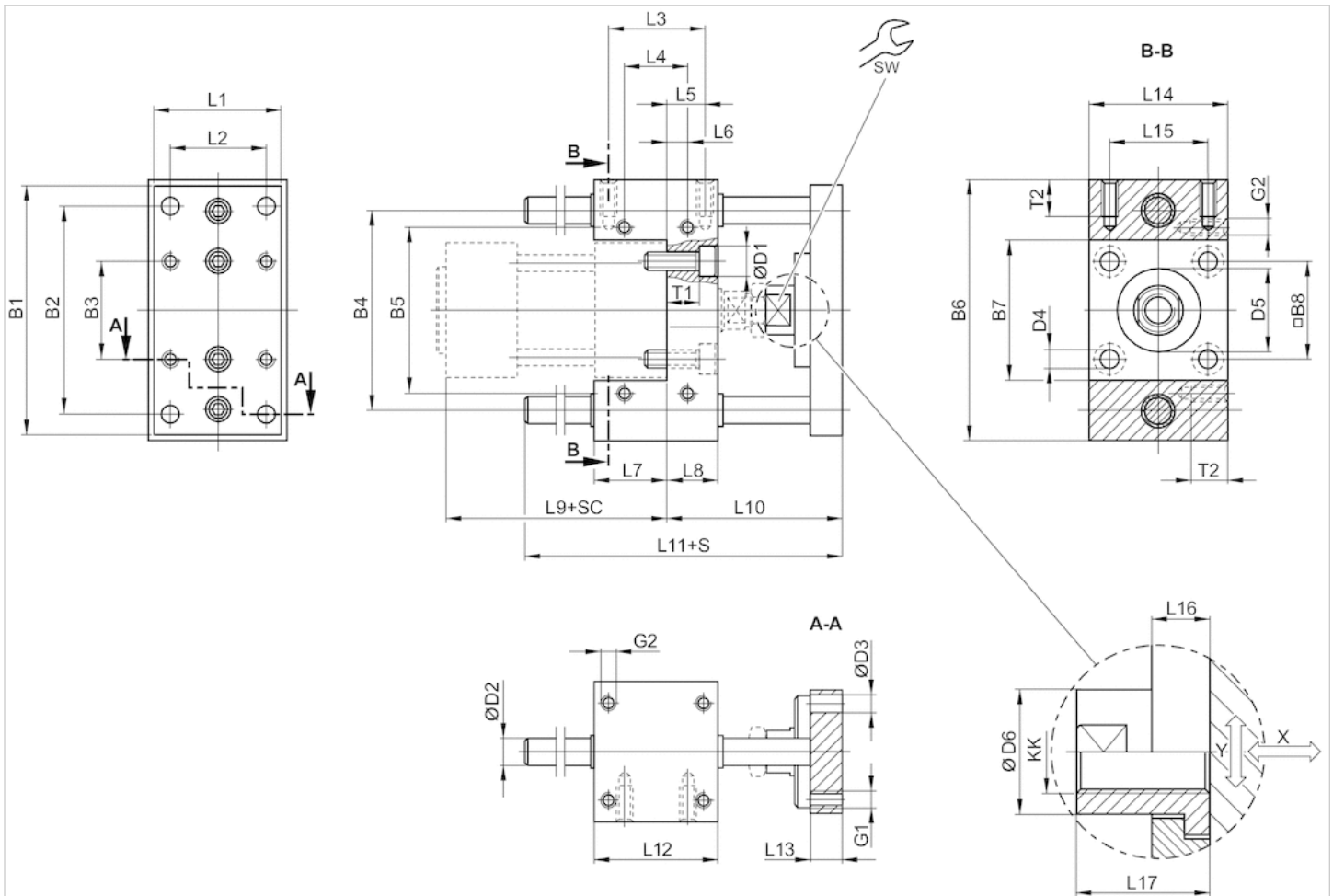
## Technical information

| Material         |                              |
|------------------|------------------------------|
| Bearing housings | Aluminum, colorless anodized |
| Bearing type     | Sintered bronze              |
| Carrying plate   | Aluminum, colorless anodized |

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Material                            |                                     |
| Flexible coupling in carrying plate | Stainless steel                     |
| Guide rods                          | Hardened heat-treated steel, ground |

## Dimensions

Ø 32 ... 100 mm



- S = stroke
- SC = cylinder stroke
- X = max. play (axial)
- Y = min. play (radial)

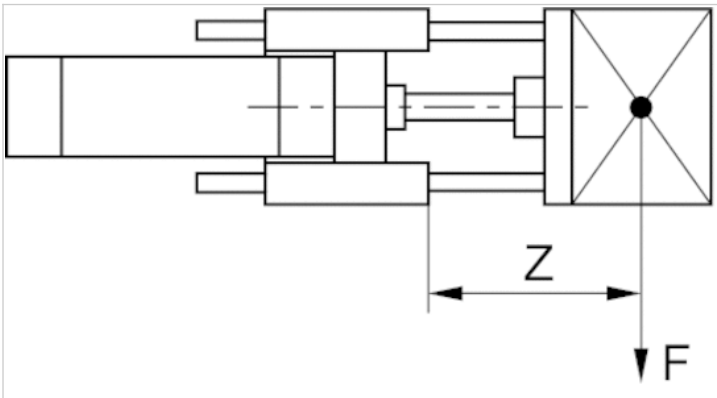
## Dimensions

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8   | D1 | D2 | D3  | D4  | D5    | D6 | G1  | G2  | KK       | L1  |
|----------|-----|-----|------|-----|-----|-----|-----|------|----|----|-----|-----|-------|----|-----|-----|----------|-----|
| 32 mm    | 90  | 78  | 32.5 | 74  | 58  | 100 | 48  | 32.5 | 11 | 10 | 6.6 | 6.6 | 30 M8 | 18 | M6  | M6  | M10x1,25 | 45  |
| 40 mm    | 100 | 84  | 38   | 80  | 64  | 106 | 54  | 38   | 11 | 12 | 6.6 | 6.6 | 35 M8 | 18 | M6  | M6  | M12x1,25 | 50  |
| 50 mm    | 120 | 100 | 46.5 | 96  | 80  | 125 | 66  | 46.5 | 15 | 12 | 9   | 9   | 40 M8 | 24 | M8  | M8  | M16x1,5  | 60  |
| 63 mm    | 125 | 105 | 56.5 | 104 | 95  | 132 | 76  | 56.5 | 15 | 12 | 9   | 9   | 45 M8 | 24 | M8  | M8  | M16x1,5  | 70  |
| 80 mm    | 155 | 130 | 72   | 130 | 130 | 165 | 98  | 72   | 18 | 16 | 11  | 11  | 45 M8 | 30 | M10 | M10 | M20x1,5  | 90  |
| 100 mm   | 175 | 150 | 89   | 150 | 150 | 185 | 118 | 89   | 18 | 16 | 11  | 11  | 55 M8 | 30 | M10 | M10 | M20x1,5  | 110 |

| Piston Ø | L2   | L3   | L4   | L5    | L6    | L7 | L8 | L9  | L10 | L11 | L12 | L13 | L14 | L15  | L16 | L17 | SW | T1 | T2 |
|----------|------|------|------|-------|-------|----|----|-----|-----|-----|-----|-----|-----|------|-----|-----|----|----|----|
| 32 mm    | 32.5 | 32.5 | 32.5 | 9.25  | 9.25  | 31 | 17 | 94  | 69  | 106 | 48  | 12  | 48  | 32.5 | 14  | 22  | 15 | 10 | 14 |
| 40 mm    | 38   | 38   | 38   | 11    | 11    | 37 | 21 | 105 | 74  | 117 | 58  | 12  | 56  | 38   | 14  | 22  | 15 | 14 | 14 |
| 50 mm    | 46.5 | 46.5 | 46.5 | 18.75 | 18.75 | 34 | 25 | 106 | 89  | 129 | 59  | 15  | 66  | 46.5 | 14  | 26  | 22 | 16 | 16 |
| 63 mm    | 56.5 | 56.5 | 56.5 | 15.25 | 15.25 | 51 | 25 | 121 | 89  | 146 | 76  | 15  | 76  | 56.5 | 14  | 26  | 22 | 16 | 16 |
| 80 mm    | 72   | 72   | 50   | 25    | 14    | 56 | 34 | 128 | 106 | 170 | 90  | 16  | 98  | 72   | 14  | 32  | 27 | 24 | 20 |
| 100 mm   | 89   | 89   | 70   | 28.5  | 19    | 71 | 39 | 138 | 111 | 190 | 110 | 16  | 118 | 89   | 14  | 32  | 27 | 29 | 20 |

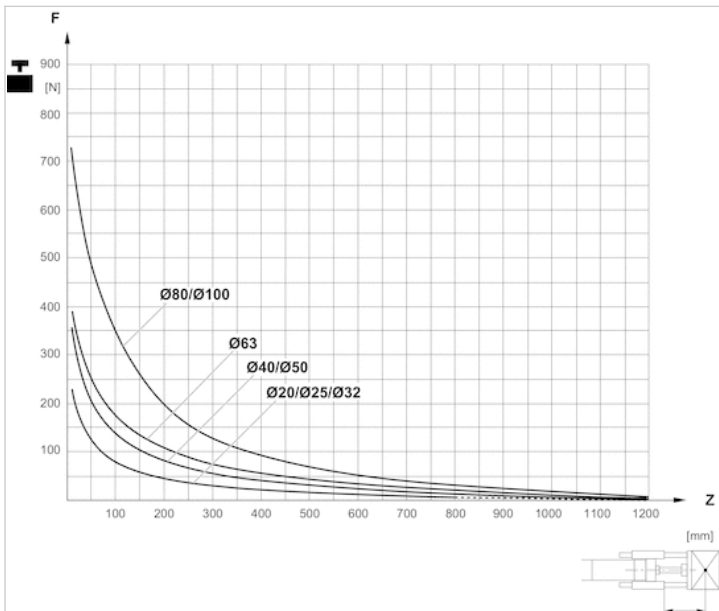
## Diagrams

### Useful load



F = Useful load, Z = Projection

### Useful load



F = Useful load, Z = Projection

# Guide unit GH1, Series CG1

- Ø 32-100 mm
- Plain bearing
- For standard cylinders ISO 15552



Bearing type

Plain bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401220 | 0821401230 | 0821401240 | 0821401280 | -          | -          |
| 100               | 0821401221 | 0821401231 | 0821401241 | 0821401281 | 0821401260 | 0821401270 |
| 160               | 0821401222 | 0821401232 | 0821401242 | 0821401285 | -          | -          |
| 200               | 0821401223 | 0821401233 | 0821401243 | 0821401282 | 0821401261 | 0821401271 |
| 250               | 0821401224 | 0821401234 | 0821401244 | 0821401286 | -          | -          |
| 320               | 0821401225 | 0821401235 | 0821401245 | 0821401283 | 0821401262 | 0821401272 |
| 400               | 0821401226 | 0821401236 | 0821401246 | 0821401287 | -          | -          |
| 500               | 0821401227 | 0821401237 | 0821401247 | 0821401284 | 0821401263 | 0821401273 |
| 600               | 0821401228 | 0821401238 | 0821401249 | 0821401288 | 0821401264 | 0821401274 |
| 800               | 0821401229 | 0821401239 | 0821401474 | 0821401289 | 0821401265 | 0821401275 |
| 1000              | 0821401470 | 0821401472 | 0821401475 | 0821401290 | 0821401266 | 0821401276 |
| 1200              | 0821401471 | 0821401473 | 0821401476 | 0821401291 | 0821401267 | 0821401277 |

Inch dimensions rounded to the nearest whole number., For use with hybrid inch cylinders with metric piston rod thread

## Technical data

| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 1.3 kg   | 2.3 kg   | 3.7 kg   | 4.7 kg   | 8.8 kg   | 11.1 kg  |
| +10 mm stroke      | 0.009 kg | 0.016 kg | 0.025 kg | 0.025 kg | 0.039 kg | 0.039 kg |

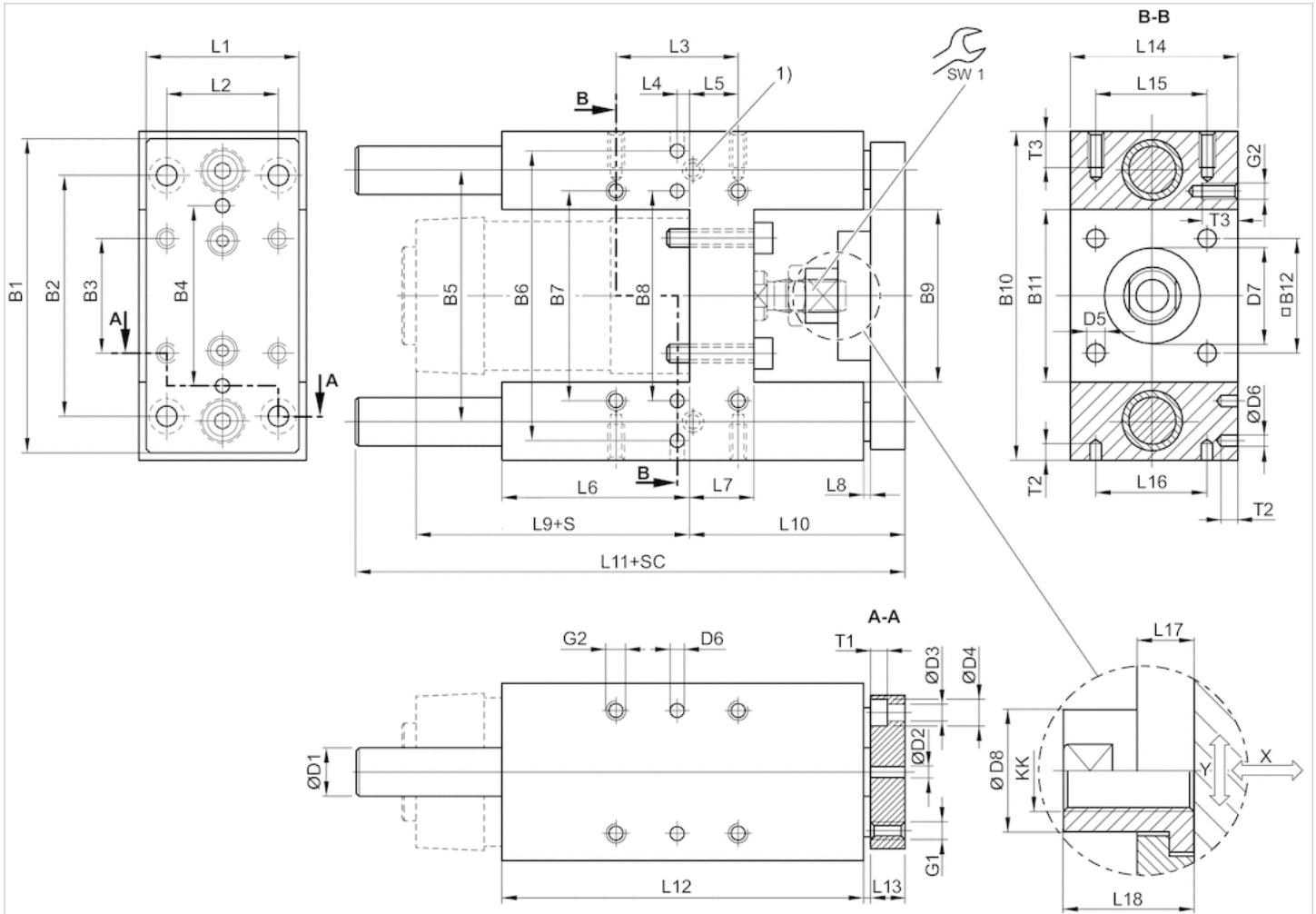
## Technical information

| Material         |                              |
|------------------|------------------------------|
| Bearing housings | Aluminum, colorless anodized |
| Bearing type     | Sintered bronze              |
| Carrying plate   | Aluminum, colorless anodized |

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Material                            |                                     |
| Flexible coupling in carrying plate | Stainless steel                     |
| Guide rods                          | Hardened heat-treated steel, ground |

## Dimensions

Ø 32 ... 100 mm



- 1) Lube nipple
- S = stroke
- SC = cylinder stroke
- X = max. play (axial)
- Y = min. play (radial)



## Dimensions

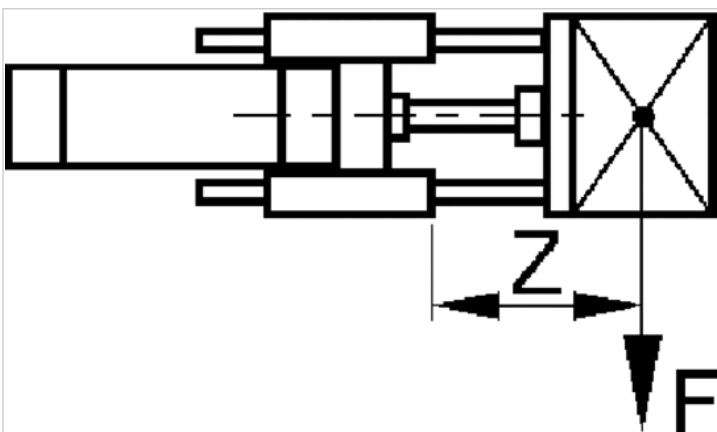
| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32 mm    | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40 mm    | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50 mm    | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63 mm    | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80 mm    | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100 mm   | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

| Piston Ø | D7 M8 | D8   | G1  | G2  | KK       | L1  | L2   | L3   | L4  | L5    | L6  | L7 | L8 | L9  | L10 | L11   | L12 |
|----------|-------|------|-----|-----|----------|-----|------|------|-----|-------|-----|----|----|-----|-----|-------|-----|
| 32 mm    | 30    | 14.5 | M6  | M6  | M10x1,25 | 45  | 32.5 | 32.5 | 12  | 4.25  | 76  | 17 | 3  | 94  | 64  | 177.5 | 125 |
| 40 mm    | 35    | 18   | M6  | M6  | M12x1,25 | 54  | 38   | 38   | 8   | 11    | 81  | 21 | 3  | 105 | 74  | 192.5 | 140 |
| 50 mm    | 40    | 24   | M8  | M8  | M16x1,5  | 63  | 46.5 | 46.5 | 4.5 | 18.75 | 79  | 26 | 3  | 106 | 89  | 205   | 150 |
| 63 mm    | 45    | 24   | M8  | M8  | M16x1,5  | 80  | 56.5 | 56.5 | 13  | 15.25 | 111 | 26 | 3  | 121 | 89  | 237   | 182 |
| 80 mm    | 45    | 30   | M10 | M10 | M20x1,5  | 100 | 72   | 72   | 15  | 21    | 128 | 34 | 3  | 128 | 110 | 280   | 215 |
| 100 mm   | 55    | 30   | M10 | M10 | M20x1,5  | 120 | 89   | 89   | 20  | 24.5  | 128 | 39 | 3  | 138 | 115 | 280   | 220 |

| Piston Ø | L13 | L14 | L15  | L16  | L17 | L18 | T1  | T2 | T3 | SW1 |
|----------|-----|-----|------|------|-----|-----|-----|----|----|-----|
| 32 mm    | 12  | 50  | 32.5 | 32.5 | 6   | 17  | 6.5 | 10 | 15 | 13  |
| 40 mm    | 12  | 58  | 38   | 38   | 14  | 22  | 6.5 | 10 | 15 | 15  |
| 50 mm    | 15  | 70  | 46.5 | 46.5 | 14  | 26  | 9   | 10 | 16 | 22  |
| 63 mm    | 15  | 85  | 56.5 | 56.5 | 14  | 26  | 9   | 10 | 16 | 22  |
| 80 mm    | 20  | 105 | 72   | 72   | 14  | 32  | 11  | 10 | 20 | 27  |
| 100 mm   | 20  | 130 | 89   | 89   | 14  | 32  | 11  | 10 | 20 | 27  |

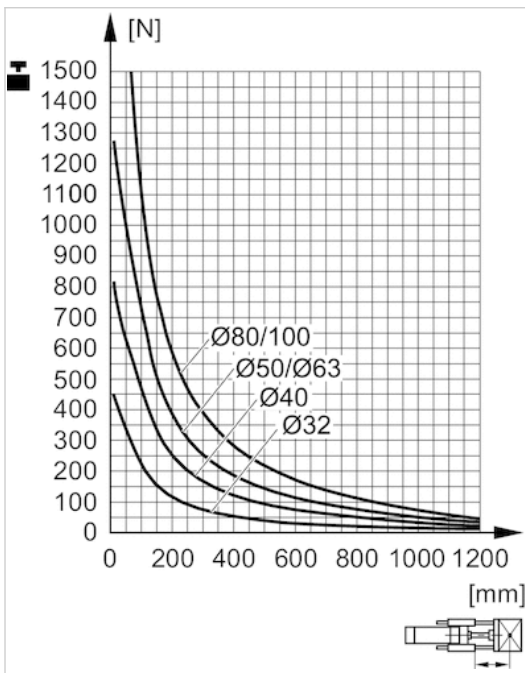
## Diagrams

### Useful load



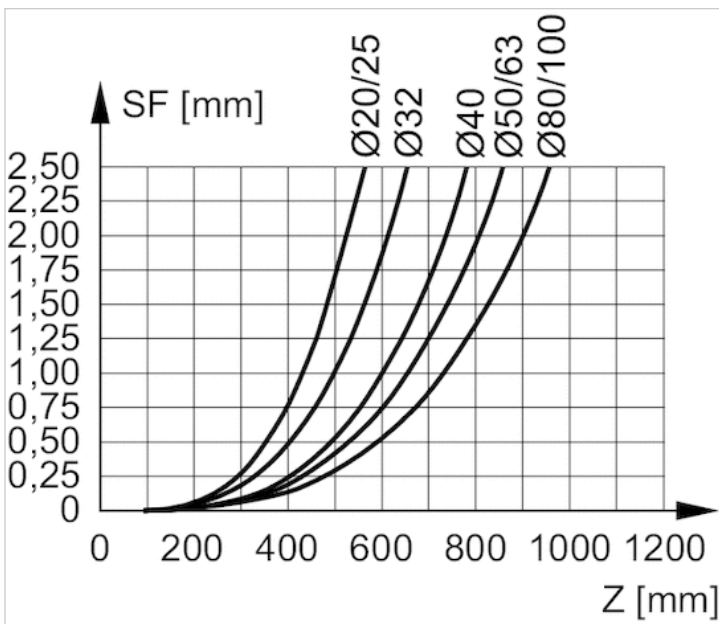
F = Useful load, Z = Projection

Useful load



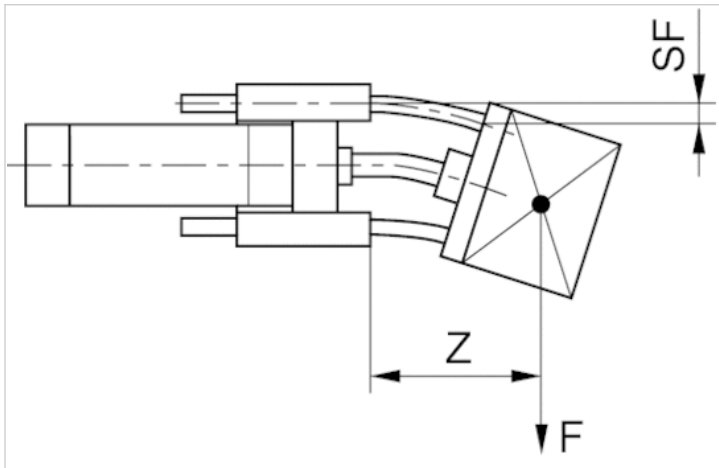
F = Useful load, Z = Projection

Bending due to own load



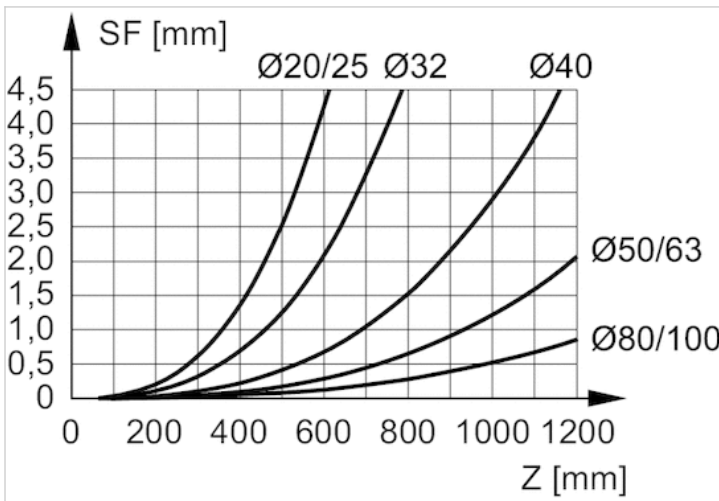
F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



$F$  = useful load (at the load center),  $SF$  = bending,  $Z$  = projection

Bending due to 10 N load



$F$  = useful load (at the load center),  $SF$  = bending,  $Z$  = projection

# Guide unit GH2, Series CG1

- Ø 32-100 mm
- Linear ball bearing
- For standard cylinders ISO 15552



Bearing type

Linear ball bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401320 | 0821401330 | 0821401340 | 0821401380 | -          | -          |
| 100               | 0821401321 | 0821401331 | 0821401341 | 0821401381 | 0821401360 | 0821401370 |
| 200               | 0821401322 | 0821401332 | 0821401342 | 0821401382 | 0821401361 | 0821401371 |
| 320               | 0821401323 | 0821401333 | 0821401343 | 0821401383 | 0821401362 | 0821401372 |
| 500               | 0821401324 | 0821401334 | 0821401344 | 0821401384 | 0821401363 | 0821401373 |
| 600               | 0821401325 | 0821401335 | 0821401345 | 0821401385 | 0821401364 | 0821401374 |
| 800               | 0821401326 | 0821401336 | 0821401346 | 0821401386 | 0821401365 | 0821401375 |
| 1000              | 0821401327 | 0821401337 | 0821401347 | 0821401387 | 0821401366 | 0821401376 |
| 1200              | 0821401328 | 0821401338 | 0821401348 | 0821401388 | 0821401367 | 0821401377 |

For use with hybrid inch cylinders with metric piston rod thread

## Technical data

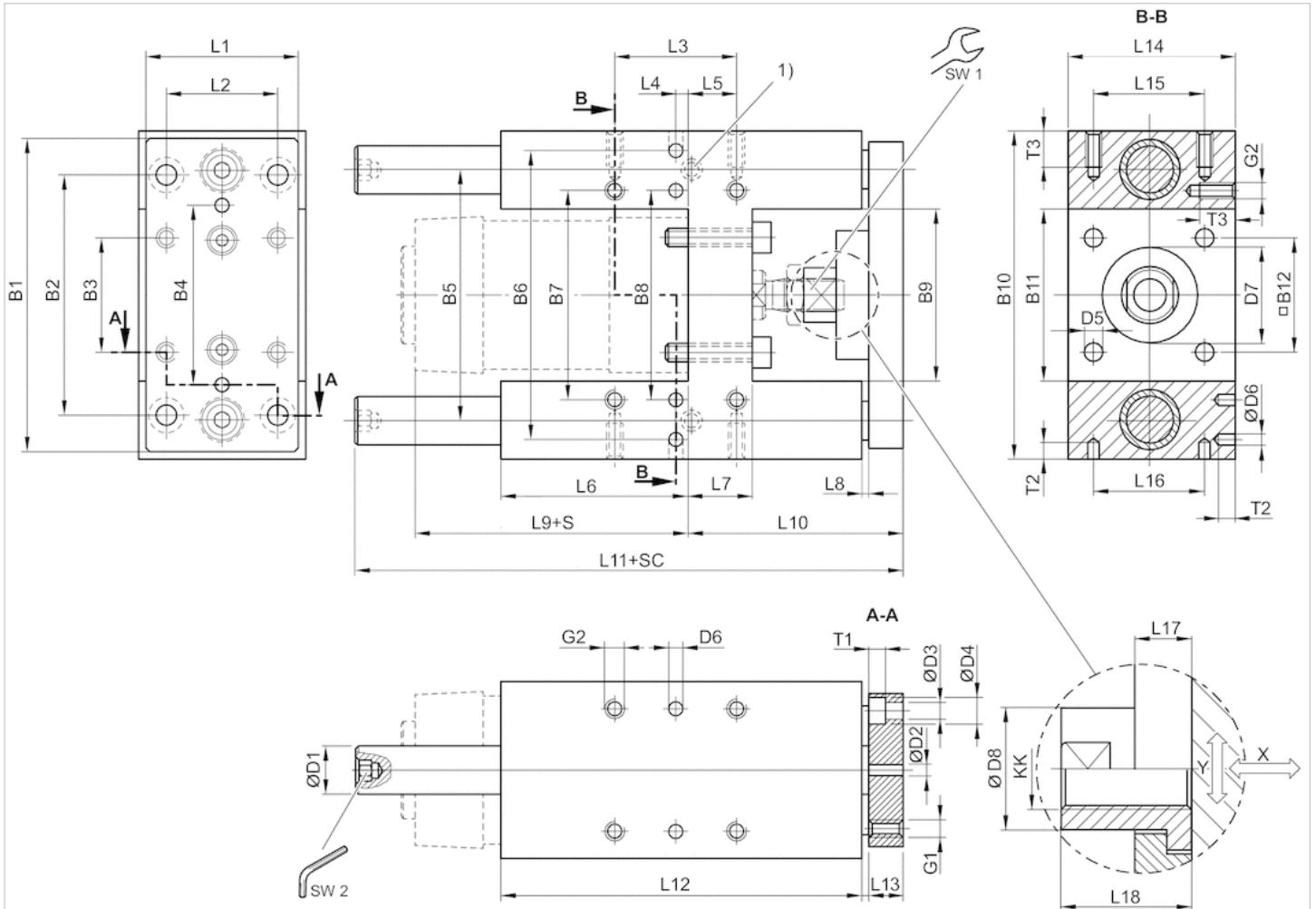
| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 1.3 kg   | 2.3 kg   | 3.7 kg   | 4.7 kg   | 8.8 kg   | 11.1 kg  |
| +10 mm stroke      | 0.009 kg | 0.016 kg | 0.025 kg | 0.025 kg | 0.039 kg | 0.039 kg |

## Technical information

| Material                            |                              |
|-------------------------------------|------------------------------|
| Bearing housings                    | Aluminum, colorless anodized |
| Bearing type                        | Steel                        |
| Carrying plate                      | Aluminum, colorless anodized |
| Flexible coupling in carrying plate | Stainless steel              |
| Guide rods                          | Hardened heat-treated steel  |

## Dimensions

Ø 32 ... 100 mm



1) Lube nipple

S = stroke

SC = cylinder stroke

X = max. play (axial)

Y = min. play (radial)

Hexagon in guide rod

## Dimensions

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32 mm    | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40 mm    | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50 mm    | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63 mm    | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80 mm    | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100 mm   | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

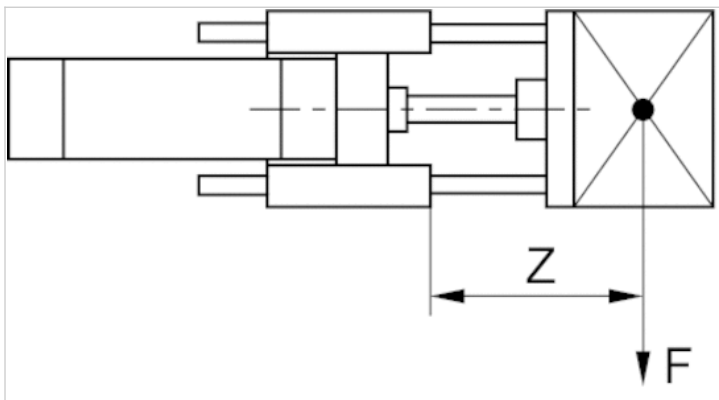
| Piston Ø | D7 M8 | D8   | G1 | G2 | KK       | L1 | L2   | L3   | L4 | L5   | L6 | L7 | L8 | L9  | L10 | L11   | L12 |
|----------|-------|------|----|----|----------|----|------|------|----|------|----|----|----|-----|-----|-------|-----|
| 32 mm    | 30    | 14.5 | M6 | M6 | M10x1,25 | 45 | 32.5 | 32.5 | 12 | 4.25 | 76 | 17 | 3  | 94  | 64  | 177.5 | 125 |
| 40 mm    | 35    | 18   | M6 | M6 | M12x1,25 | 54 | 38   | 38   | 8  | 11   | 81 | 21 | 3  | 105 | 74  | 192.5 | 140 |

| Piston Ø | D7 M8 | D8 | G1  | G2  | KK      | L1  | L2   | L3   | L4  | L5    | L6  | L7 | L8 | L9  | L10 | L11 | L12 |
|----------|-------|----|-----|-----|---------|-----|------|------|-----|-------|-----|----|----|-----|-----|-----|-----|
| 50 mm    | 40    | 24 | M8  | M8  | M16x1,5 | 63  | 46.5 | 46.5 | 4.5 | 18.75 | 79  | 26 | 3  | 106 | 89  | 237 | 150 |
| 63 mm    | 45    | 24 | M8  | M8  | M16x1,5 | 80  | 56.5 | 56.5 | 13  | 15.25 | 111 | 26 | 3  | 121 | 89  | 237 | 182 |
| 80 mm    | 45    | 30 | M10 | M10 | M20x1,5 | 100 | 72   | 72   | 15  | 21    | 128 | 34 | 3  | 128 | 110 | 280 | 215 |
| 100 mm   | 55    | 30 | M10 | M10 | M20x1,5 | 120 | 89   | 89   | 20  | 24.5  | 128 | 39 | 3  | 138 | 115 | 280 | 220 |

| Piston Ø | L13 | L14 | L15  | L16  | L17 | L18 | T1  | T2 | T3 | SW1 | SW2 |
|----------|-----|-----|------|------|-----|-----|-----|----|----|-----|-----|
| 32 mm    | 12  | 50  | 32.5 | 32.5 | 6   | 17  | 6.5 | 10 | 15 | 13  | 5   |
| 40 mm    | 12  | 58  | 38   | 38   | 14  | 22  | 6.5 | 10 | 15 | 15  | 6   |
| 50 mm    | 15  | 70  | 46.5 | 46.5 | 14  | 26  | 9   | 10 | 16 | 22  | 6   |
| 63 mm    | 15  | 85  | 56.5 | 56.5 | 14  | 26  | 9   | 10 | 16 | 22  | 6   |
| 80 mm    | 20  | 105 | 72   | 72   | 14  | 32  | 11  | 10 | 20 | 27  | 8   |
| 100 mm   | 20  | 130 | 89   | 89   | 14  | 32  | 11  | 10 | 20 | 27  | 8   |

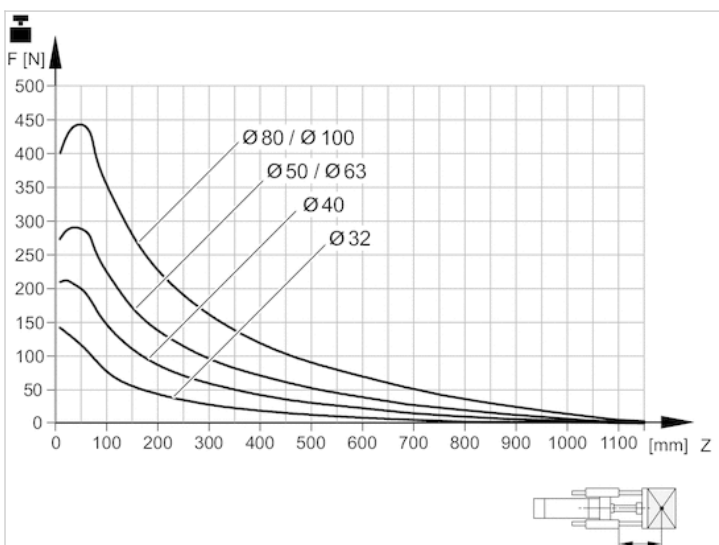
## Diagrams

### Useful load



F = Useful load, Z = Projection

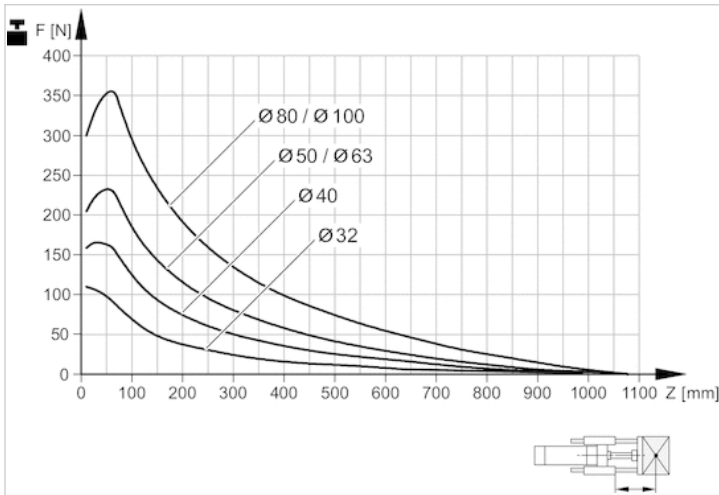
### Useful load



Service life  $2 \times 10^6$  m

F = Useful load, Z = Projection

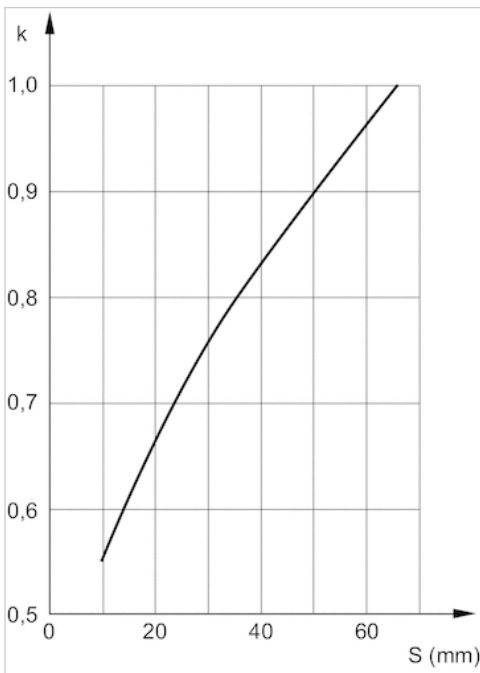
## Useful load



Service life  $5 \times 10^6$  m

F = Useful load, Z = Projection

## Reduction of useful load for short-stroke

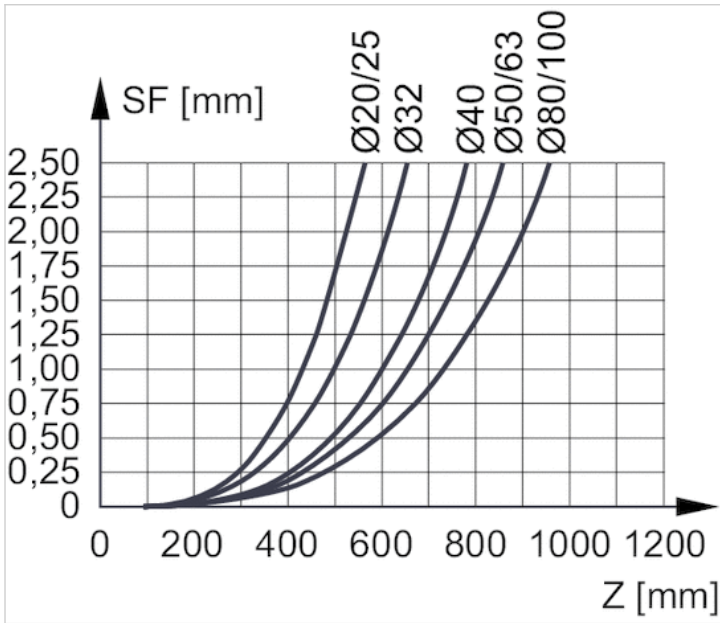


S = stroke

k=correction factor: normal=1, shock loaded=2

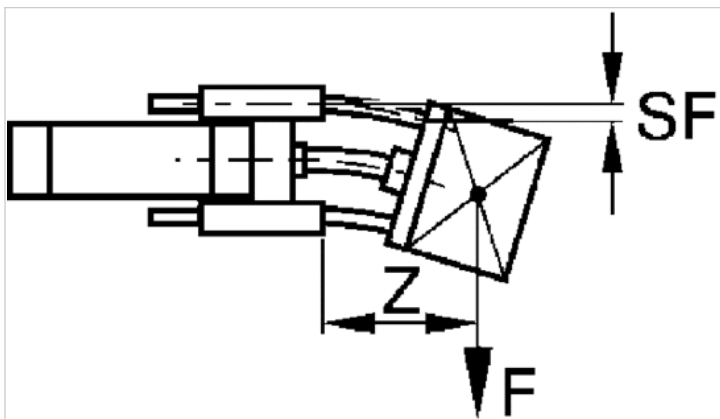
With a short stroke, the useful load figures determined from the diagram must be multiplied by the correction factor k. These short-stroke adjustments are already included in the load diagram for a displacement of up to 60 mm.

Bending due to own load



F = useful load (at the load center), SF = bending, Z = projection

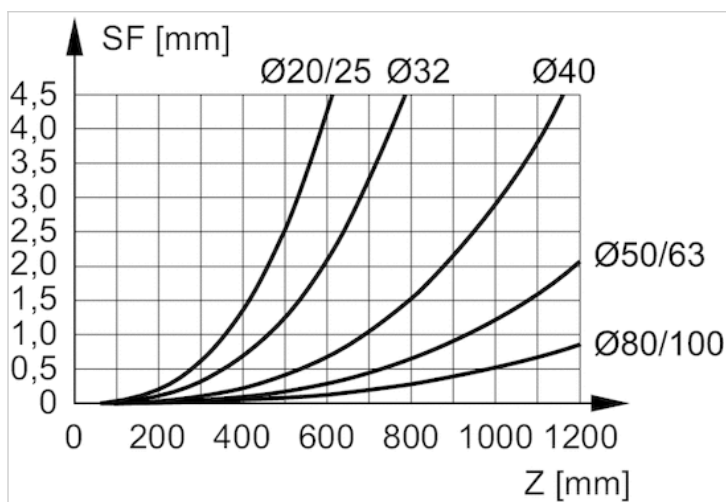
Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection



Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection

# Compensating coupling GU3 form B, series CG1



## Technical data

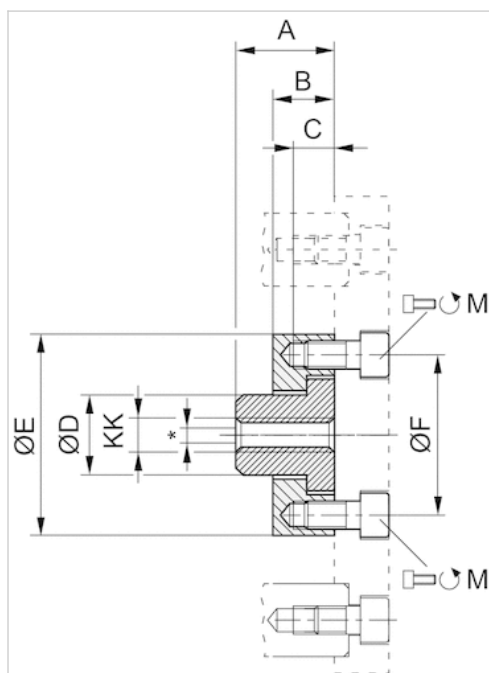
| Part No.   | Suitable piston rod thread |
|------------|----------------------------|
| R413000283 | M8                         |
| R413000284 | M10x1,25                   |
| R413000285 | M20x1,5                    |

Scope of delivery: flexible coupling incl. mounting screws

## Technical information

| Material |                 |
|----------|-----------------|
|          | Stainless steel |
|          | Steel           |

## Dimensions



\* Radial joint from 1,5 ... 1,8 mm

## Dimensions

| Part No.   | KK       | Ø      | M        | A  | B  | C   | D    | ØE    | ØF |
|------------|----------|--------|----------|----|----|-----|------|-------|----|
| R413000283 | M8       | 20     | 2x M5x12 | 22 | 6  | 6   | 14.5 | SW 30 | 26 |
| R413000284 | M10x1,25 | 25/32  | 2x M5x12 | 17 | 6  | 6   | 14.5 | SW 30 | 26 |
| R413000285 | M20x1,5  | 80/100 | 4x M6x20 | 32 | 14 | 9.5 | 30   | 60    | 51 |

# Compensating coupling GU3 form C, series CG1



## Technical data

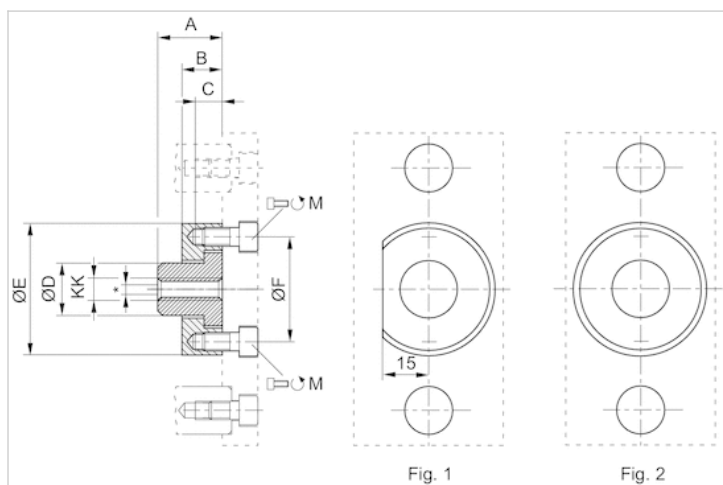
| Part No.   | Suitable piston rod thread |
|------------|----------------------------|
| R413000276 | M6                         |
| R413000280 | M12x1,25                   |
| R413000281 | M16x1,5                    |

Scope of delivery: flexible coupling incl. mounting screws

## Technical information

| Material |                 |
|----------|-----------------|
|          | Stainless steel |
|          | Steel           |

## Dimensions



\* Radial joint from 1,0 ... 2,5 mm

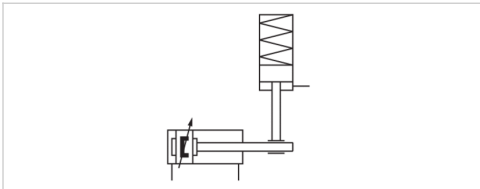
## Dimensions

| Part No.   | KK       | Ø     | M        | A  | B  | C | D  | ØE | ØF |
|------------|----------|-------|----------|----|----|---|----|----|----|
| R413000276 | M6       | 12/16 | 2x M4x10 | 18 | 7  | 7 | 10 | 22 | 15 |
| R413000280 | M12x1,25 | 40    | 2x M6x12 | 22 | 14 | 8 | 18 | 45 | 36 |
| R413000281 | M16x1,5  | 50/63 | 4x M6x14 | 26 | 14 | 8 | 24 | 54 | 45 |

# Holding unit, Series HU1

- Ø 32-100 mm

- hold: spring force, release: compressed air



|                               |                           |
|-------------------------------|---------------------------|
| Function                      | Hold with clamping jaws   |
| Release pressure              | 4 ... 8 bar               |
| Ambient temperature min./max. | -10 ... 60 °C             |
| Medium temperature min./max.  | -10 ... 60 °C             |
| Medium                        | Compressed air            |
| Max. particle size            | 5 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup> |
| Weight                        | See table below           |

## Technical data

| Part No.   | Piston Ø | suitable piston rod Ø | Piston rod extension | Compressed air connection | Static holding force | Weight  |
|------------|----------|-----------------------|----------------------|---------------------------|----------------------|---------|
| 0821401165 | 32 mm    | 12 mm                 | 42 mm                | M5                        | 650 N                | 0.2 kg  |
| 0821401166 | 40 mm    | 16 mm                 | 45 mm                | G 1/8                     | 1100 N               | 0.27 kg |
| 0821401167 | 50 mm    | 20 mm                 | 57 mm                | G 1/8                     | 1600 N               | 0.57 kg |
| 0821401168 | 63 mm    | 20 mm                 | 57 mm                | G 1/8                     | 2500 N               | 0.8 kg  |
| 0821401169 | 80 mm    | 25 mm                 | 77 mm                | G 1/8                     | 4000 N               | 1.85 kg |
| 0821401170 | 100 mm   | 25 mm                 | 77 mm                | G 1/8                     | 6300 N               | 2.9 kg  |

Holding force at 0 bar

## Technical information

Warning: The holding unit may not be used for the following applications:

- 1) for dynamic holding
- 2) in or as safety equipment

Holding unit may only be unlocked when turned off.

Make sure that the load direction does not change during a holding interval. A change in the direction of force, as well as external forces such as impacts, strong vibrations, or torsional forces, will briefly release the piston rod and may destroy the HU1 holding unit. When clamped, there must be no residual pressure on the holding unit ( 0 bar ).

Note:

The minimum control pressure is  $\geq$  the working pressure of the cylinder!

## Technical information

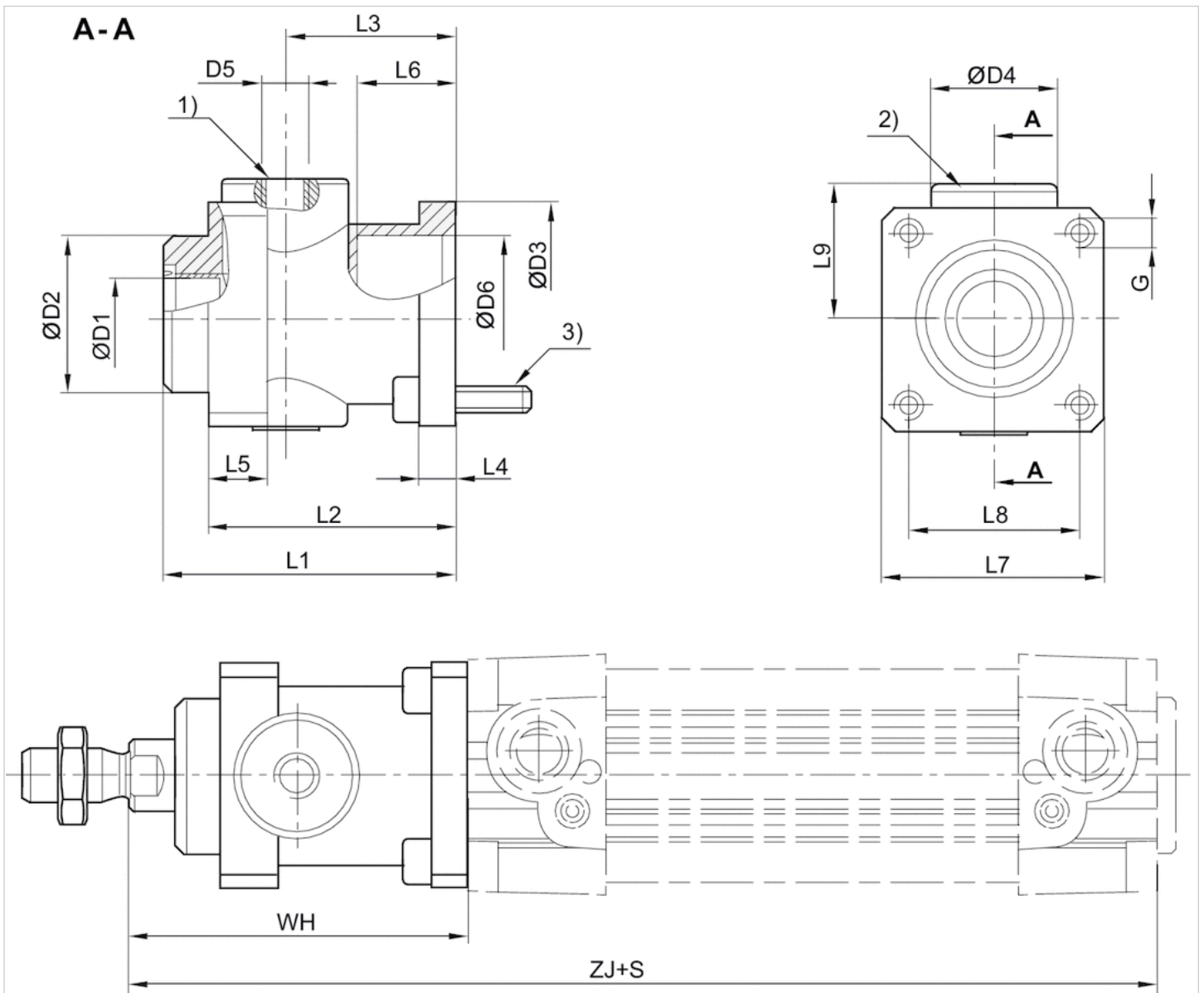
Material

Housing

Aluminum, black anodized

## Dimensions

### Dimensions



- 1) air connection
  - 2) Holding cartridge
  - 3) mounting screws 4x
- S = stroke

## Dimensions

| Part No.   | Piston Ø | Ø D1 | Ø D2 | Ø D3 | Ø D4 | D5    | L1  | L2  | L3   | L4 | L5 | L6   | L7  | L8   | L9   | G   |
|------------|----------|------|------|------|------|-------|-----|-----|------|----|----|------|-----|------|------|-----|
| 0821401165 | 32 mm    | 12   | 30   | 35   | 25   | M5    | 58  | 48  | 34   | 8  | 13 | 20.5 | 45  | 32.5 | 25.5 | M6  |
| 0821401166 | 40 mm    | 16   | 35   | 40   | 28   | G 1/8 | 65  | 55  | 38   | 8  | 13 | 22.5 | 50  | 38   | 30   | M6  |
| 0821401167 | 50 mm    | 20   | 40   | 50   | 35   | G 1/8 | 82  | 70  | 48   | 15 | 16 | 29.5 | 60  | 46.5 | 36   | M8  |
| 0821401168 | 63 mm    | 20   | 45   | 60   | 38   | G 1/8 | 82  | 70  | 49.5 | 15 | 16 | 29.5 | 70  | 56.5 | 40   | M8  |
| 0821401169 | 80 mm    | 25   | 45   | 80   | 48   | G 1/8 | 110 | 90  | 61   | 18 | 20 | 35   | 90  | 72   | 50   | M10 |
| 0821401170 | 100 mm   | 25   | 55   | 100  | 58   | G 1/8 | 115 | 100 | 69   | 18 | 20 | -    | 105 | 89   | 58   | M10 |

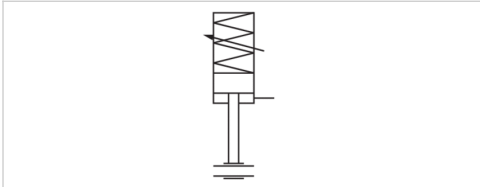
| WH  | ZJ  |
|-----|-----|
| 68  | 162 |
| 75  | 180 |
| 94  | 200 |
| 94  | 215 |
| 123 | 251 |
| 128 | 266 |



# Locking unit, Series LU1

- Ø 32-100 mm

- Hold: adjustable spring force, Release: compressed air



Function

Release pressure

Ambient temperature min./max.

Medium temperature min./max.

Medium

Max. particle size

Oil content of compressed air

Weight

Clamp with eccentric tappet

2 ... 8 bar

-20 ... 80 °C

-20 ... 80 °C

Compressed air

5 µm

0 ... 5 mg/m<sup>3</sup>

See table below

## Technical data

| Part No.   | Piston Ø  | suitable piston rod Ø | Piston rod extension | Compressed air connection | Static holding force |
|------------|-----------|-----------------------|----------------------|---------------------------|----------------------|
| 0821401130 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 840 N                |
| 0821401131 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 1100 N               |
| 0821401132 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 2700 N               |
| 0821401133 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 5800 N               |

| Part No.   | Weight  |
|------------|---------|
| 0821401130 | 1.75 kg |
| 0821401131 | 1.75 kg |
| 0821401132 | 3 kg    |
| 0821401133 | 8.8 kg  |

Holding force at 0 bar, Mounting elements LU3, LU4, LU5 are required for assembly and must be ordered separately as accessories.

## Technical information

### Warning:

The Locking unit may not be used for the following applications:

- for dynamic holding
- in or as safety equipment

Locking unit may only be unlocked when turned off.

### Note:

The minimum release pressure is  $\geq$  the working pressure of the cylinder!

The holding force is dependent on the set spring force

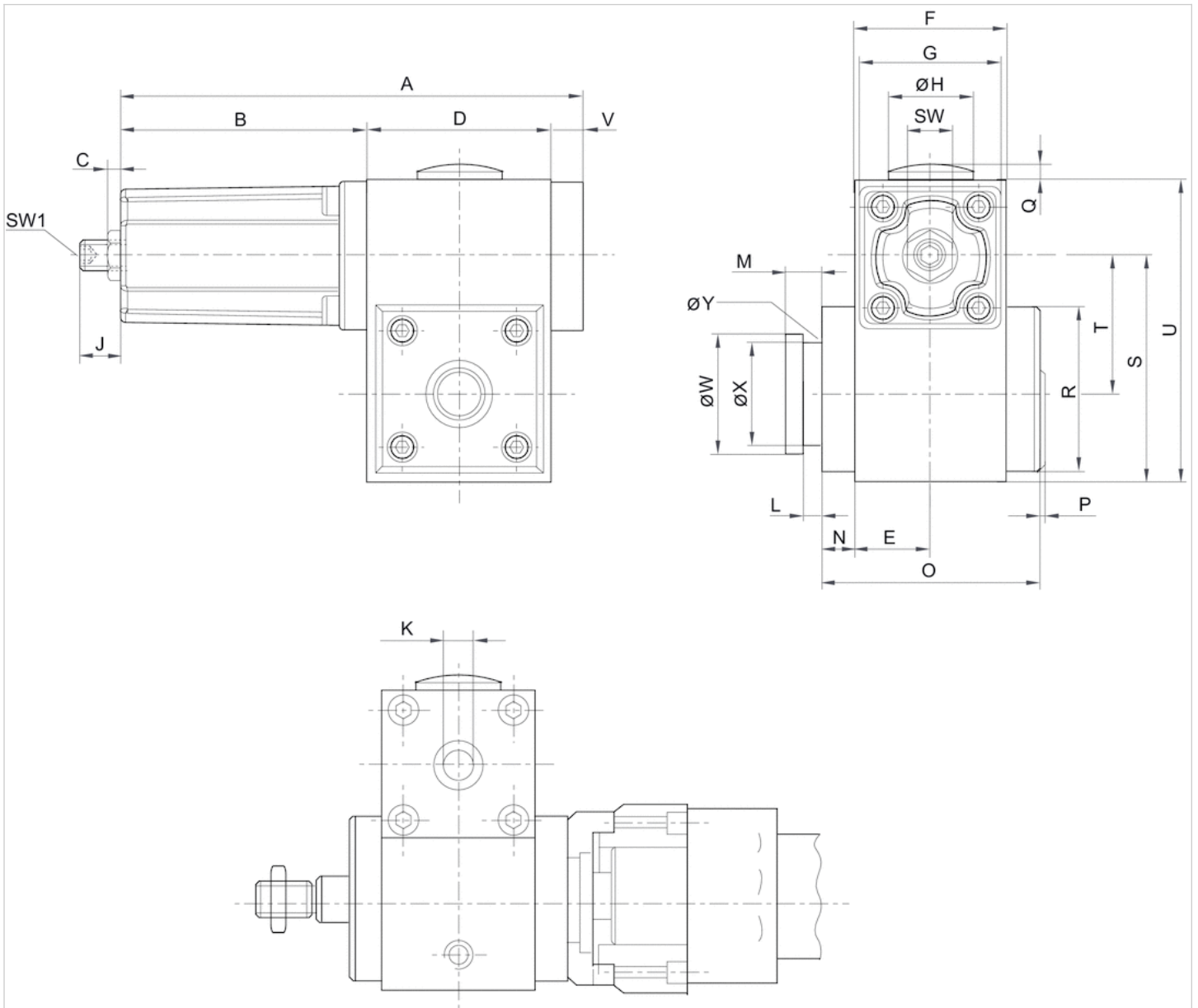
## Technical information

### Material

|         |                    |
|---------|--------------------|
| Housing | Aluminum, anodized |
| Cap     | Die-cast aluminum  |

## Dimensions

### Dimensions



## Dimensions

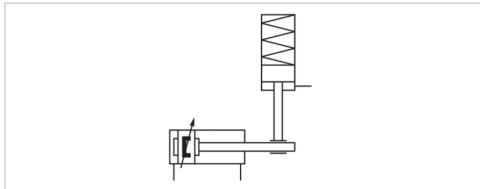
| Part No.   | A   | B  | C    | D   | E  | F  | G  | ØH   | J  | K     | L   | M  | N  | O   | P | Q   | R  | S   | SW | SW1 | T    | U   |
|------------|-----|----|------|-----|----|----|----|------|----|-------|-----|----|----|-----|---|-----|----|-----|----|-----|------|-----|
| 0821401130 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   | 19 | G 1/8 | 4.1 | 8  | 9  | 65  | 3 | 2.5 | 50 | 69  | 15 | 5   | 41.9 | 92  |
| 0821401131 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   | 18 | G 1/8 | 5.1 | 10 | 9  | 65  | 3 | 2.5 | 50 | 69  | 15 | 5   | 40.5 | 92  |
| 0821401132 | 169 | 90 | 10   | 69  | 30 | 60 | 55 | 30   | 17 | G 1/8 | 5.1 | 10 | 9  | 84  | 3 | 2.5 | 60 | 80  | 15 | 5   | 48   | 111 |
| 0821401133 | 208 | 98 | 16.7 | 100 | 40 | 80 | 65 | 37.5 | 15 | G 1/8 | 8.1 | 16 | 13 | 118 | 3 | 2   | 90 | 119 | 24 | 8   | 72   | 155 |

| V  | ØW   | ØX | ØY |
|----|------|----|----|
| 10 | 29.9 | 24 | 3  |
| 10 | 39.9 | 30 | 3  |
| 10 | 39.9 | 30 | 3  |
| 10 | 54.9 | 40 | 5  |

# Locking unit, Series LU1

- Ø 32-100 mm

- hold: spring force, release: compressed air



Function

Release pressure

Ambient temperature min./max.

Medium temperature min./max.

Medium

Max. particle size

Oil content of compressed air

Weight

Clamp with eccentric tappet

See table below

-20 ... 80 °C

-20 ... 80 °C

Compressed air

5 µm

0 ... 5 mg/m<sup>3</sup>

See table below

## Technical data

| Part No.   | Piston Ø  | suitable piston rod Ø | Piston rod extension | Compressed air connection | Release pressure |
|------------|-----------|-----------------------|----------------------|---------------------------|------------------|
| R412003730 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 4.5 ... 8 bar    |
| 0821401134 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 5.5 ... 8 bar    |
| R412003731 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 4.5 ... 8 bar    |
| 0821401135 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 5.5 ... 8 bar    |
| R412003732 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 4.5 ... 8 bar    |
| 0821401136 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 5.5 ... 8 bar    |
| R412003733 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 4.5 ... 8 bar    |
| 0821401137 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 5.5 ... 8 bar    |

| Part No.   | Static holding force | Weight  |
|------------|----------------------|---------|
| R412003730 | 740 N                | 1.52 kg |
| 0821401134 | 840 N                | 1.52 kg |
| R412003731 | 1000 N               | 1.5 kg  |
| 0821401135 | 1100 N               | 1.5 kg  |
| R412003732 | 2300 N               | 2.56 kg |
| 0821401136 | 2700 N               | 2.56 kg |
| R412003733 | 4000 N               | 7.7 kg  |
| 0821401137 | 5800 N               | 7.7 kg  |

Holding force at 0 bar, Mounting elements LU3, LU4, LU5 are required for assembly and must be ordered separately as accessories.

## Technical information

**Warning:**

The Locking unit may not be used for the following applications:

- for dynamic holding
- in or as safety equipment

Locking unit may only be unlocked when turned off.

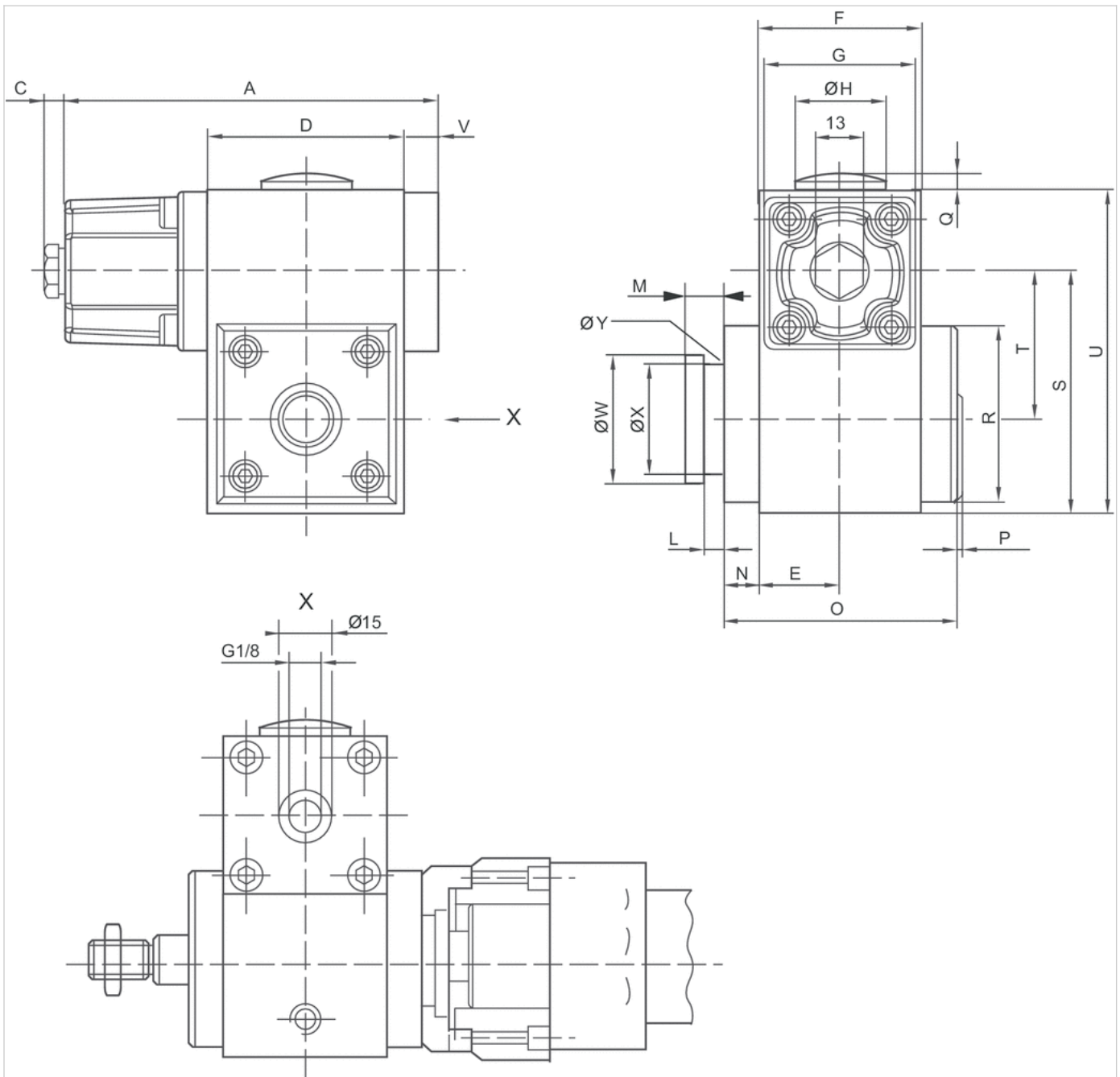
## Technical information

**Material**

|         |                    |
|---------|--------------------|
| Housing | Aluminum, anodized |
| Cap     | Die-cast aluminum  |

## Dimensions

### Dimensions



## Dimensions

| Part No.   | A     | C | D   | E  | F  | G  | ØH   | L   | M  | N  | O    | P | Q   | R  | S    | T    | U    | V  | ØW   | ØX | ØY |
|------------|-------|---|-----|----|----|----|------|-----|----|----|------|---|-----|----|------|------|------|----|------|----|----|
| R412003730 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 | 10 | 29.9 | 24 | 3  |
| 0821401134 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 | 10 | 29.9 | 24 | 3  |
| R412003731 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 | 10 | 39.9 | 30 | 3  |
| 0821401135 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 | 10 | 39.9 | 30 | 3  |
| R412003732 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  | 10 | 39.9 | 30 | 3  |
| 0821401136 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  | 10 | 39.9 | 30 | 3  |
| R412003733 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  | 10 | 54.9 | 40 | 5  |
| 0821401137 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  | 10 | 54.9 | 40 | 5  |



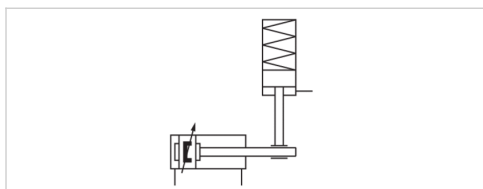
# Locking unit, Series LU6

- Ø 32-125 mm

- Holding and braking: non-adjustable spring, Release: compressed air



|                               |                                |
|-------------------------------|--------------------------------|
| Version                       | Clamping jaw lock              |
| Function                      | Static holding Dynamic braking |
| Release pressure              | 4 ... 10 bar                   |
| Ambient temperature min./max. | -25 ... 80 °C                  |
| Medium temperature min./max.  | -25 ... 80 °C                  |
| Medium                        | Compressed air                 |
| Max. particle size            | 5 µm                           |
| Oil content of compressed air | 0 mg/m <sup>3</sup>            |
| Weight                        | See table below                |



## Technical data

| Part No.   | Piston Ø | suitable piston rod Ø | Piston rod extension | Compressed air connection | Required flow rate |
|------------|----------|-----------------------|----------------------|---------------------------|--------------------|
|            |          |                       |                      |                           | Qn                 |
| 5230996402 | 32 mm    | 12 mm                 | 125 mm               | G 1/8                     | 50 l/min           |
| 5231996402 | 40 mm    | 16 mm                 | 125 mm               | G 1/8                     | 70 l/min           |
| 5232996402 | 50 mm    | 20 mm                 | 145 mm               | G 1/8                     | 140 l/min          |
| 5233996402 | 63 mm    | 20 mm                 | 165 mm               | G 1/8                     | 240 l/min          |
| 5234996402 | 80 mm    | 25 mm                 | 185 mm               | G 1/8                     | 450 l/min          |
| 5235996402 | 100 mm   | 25 mm                 | 220 mm               | G 1/8                     | 700 l/min          |
| 5236996402 | 125 mm   | 32 mm                 | 220 mm               | G 1/4                     | 1200 l/min         |

| Part No.   | Max. torsional moment of piston rod | B10d value static | B10d value dynamic |
|------------|-------------------------------------|-------------------|--------------------|
| 5230996402 | 0.5 Nm                              | 5.000.000         | 2.000.000          |
| 5231996402 | 1 Nm                                | 5.000.000         | 2.000.000          |
| 5232996402 | 2 Nm                                | 5.000.000         | 2.000.000          |
| 5233996402 | 2.5 Nm                              | 5.000.000         | 2.000.000          |
| 5234996402 | 5 Nm                                | 5.000.000         | 2.000.000          |
| 5235996402 | 9 Nm                                | 5.000.000         | 2.000.000          |
| 5236996402 | 15 Nm                               | 5.000.000         | 2.000.000          |

| Part No.   | Buckling protection of the piston rod 1) |                                       | Weight |    |
|------------|--|---------------------------------------|--------|----|
|            | Max. cylinder stroke for Euler case 1    | Max. cylinder stroke for Euler case 2 |        |    |
| 5230996402 | 750 mm                                   | 400 mm                                | 0.8 kg | 1) |
| 5231996402 | 1100 mm                                  | 550 mm                                | 1 kg   | 1) |
| 5232996402 | 1350 mm                                  | 700 mm                                | 1.8 kg | 1) |
| 5233996402 | 950 mm                                   | 500 mm                                | 2.8 kg | 1) |



| Part No.   | Buckling protection of the piston rod 1) |                                       | Weight  |    |
|------------|--|---------------------------------------|---------|----|
|            | Max. cylinder stroke for Euler case 1    | Max. cylinder stroke for Euler case 2 |         |    |
| 5234996402 | 1350 mm                                  | 700 mm                                | 5.5 kg  | 1) |
| 5235996402 | 950 mm                                   | 500 mm                                | 9.5 kg  | 1) |
| 5236996402 | 1500 mm                                  | 800 mm                                | 13.8 kg | 2) |

1) Only applies in dynamic cases, and only retracting DGUV certified

2) Only applies in dynamic cases, and only retracting

## Technical data

| Piston Ø   | 32 mm  | 40 mm  | 50 mm  |
|--|--------|--------|--------|
| Max. holding/braking force FLU6                        | 760 N  | 1200 N | 1900 N |
| Max. moving mass, external mmax                        | 77 kg  | 122 kg | 194 kg |
| Max. piston speed vmax                                 | 1 m/s  | 1 m/s  | 1 m/s  |
| Max. total braking energy (MJ) Etotal                  | 3.2 MJ | 6 MJ   | 10 MJ  |
| Max. braking energy per hour PLU6                      | 720 J  | 1350 J | 2250 J |
| Max. braking energy per braking cycle ELU6             | 4.8 J  | 9 J    | 15 J   |
| Braking energy per braking cycle related to B10d EB10d | 1.6 J  | 3 J    | 5 J    |
| Brake response time (4 bar) tbrake                     | 0.08 s | 0.08 s | 0.08 s |
| Brake response time (6.3 bar) tbrake                   | 0.1 s  | 0.1 s  | 0.1 s  |
| Brake response time (10 bar) tbrake                    | 0.12 s | 0.12 s | 0.12 s |

| Piston Ø   | 63 mm  | 80 mm  | 100 mm  |
|--|--------|--------|---------|
| Max. holding/braking force FLU6                        | 3000 N | 5000 N | 8000 N  |
| Max. moving mass, external mmax                        | 306 kg | 510 kg | 815 kg  |
| Max. piston speed vmax                                 | 1 m/s  | 1 m/s  | 1 m/s   |
| Max. total braking energy (MJ) Etotal                  | 18 MJ  | 36 MJ  | 58 MJ   |
| Max. braking energy per hour PLU6                      | 4050 J | 8100 J | 13200 J |
| Max. braking energy per braking cycle ELU6             | 27 J   | 54 J   | 88 J    |
| Braking energy per braking cycle related to B10d EB10d | 9 J    | 18 J   | 29 J    |
| Brake response time (4 bar) tbrake                     | 0.08 s | 0.08 s | 0.09 s  |
| Brake response time (6.3 bar) tbrake                   | 0.1 s  | 0.1 s  | 0.11 s  |
| Brake response time (10 bar) tbrake                    | 0.12 s | 0.12 s | 0.13 s  |

| Piston Ø   | 125 mm  |
|--|---------|
| Max. holding/braking force FLU6                        | 12000 N |
| Max. moving mass, external mmax                        | 1223 kg |
| Max. piston speed vmax                                 | 1 m/s   |
| Max. total braking energy (MJ) Etotal                  | 93 MJ   |
| Max. braking energy per hour PLU6                      | 21000 J |
| Max. braking energy per braking cycle ELU6             | 140 J   |
| Braking energy per braking cycle related to B10d EB10d | 47 J    |
| Brake response time (4 bar) tbrake                     | 0.09 s  |
| Brake response time (6.3 bar) tbrake                   | 0.11 s  |
| Brake response time (10 bar) tbrake                    | 0.13 s  |

The values for the max. braking energy per braking cycle are equivalent to the cushioning energy for cylinder series PRA and TRB.

## Technical information

The maximum ambient and medium temperature is + 70 °C for the dynamic braking function.

Note:

Before pressurizing the locking unit, make sure that there is a balance of forces at the piston on the drive cylinder. Please see the operating instructions for further safety-relevant information. The locking unit can be used in controls with a max. performance level e in accordance with DIN EN ISO 13849-1 ("basic and well-tried safety principles"). For applications in category 2 to 4 controls, additional control measures according to DIN EN ISO 13849-1 are required.

The locking unit can be used as an individual component or pre-mounted on a cylinder..

Scope of delivery: LU6, each with 4 flange nuts, washers, and tie rods

For technical reasons, formulas and sample calculations have been moved to the MediaCentre (link to operating instructions).

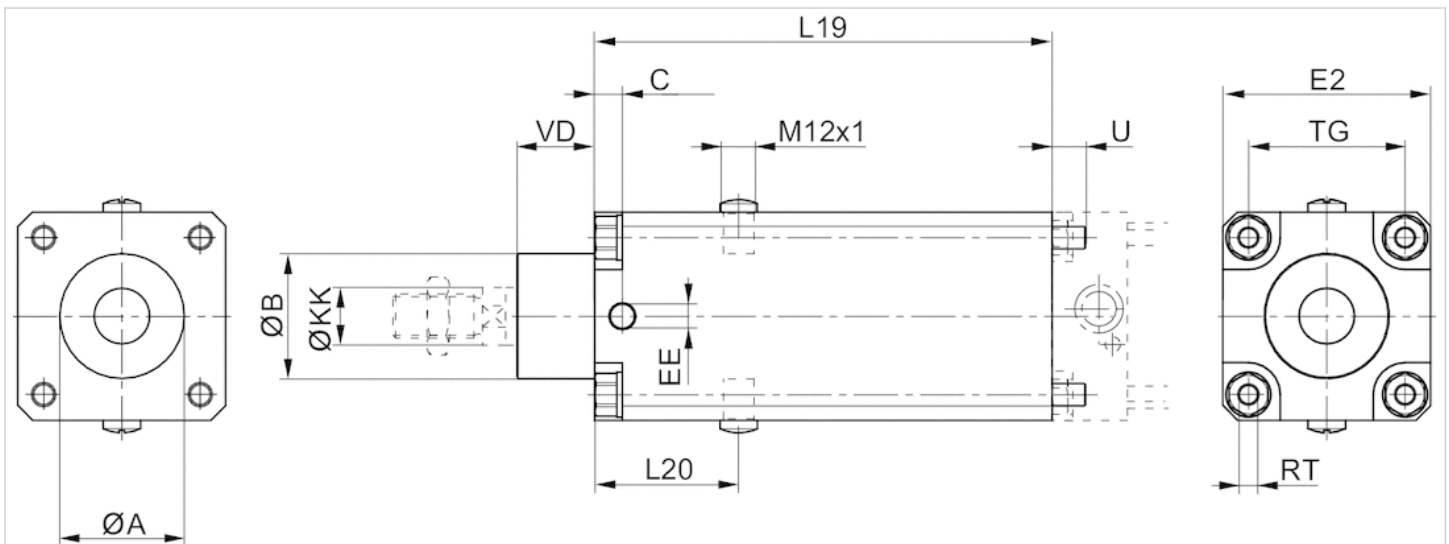
## Technical information

### Material

|         |                          |
|---------|--------------------------|
| Housing | Aluminum, anodized       |
| Seal    | Nitrile butadiene rubber |
| Scraper | Nitrile butadiene rubber |

## Dimensions

### Dimensions

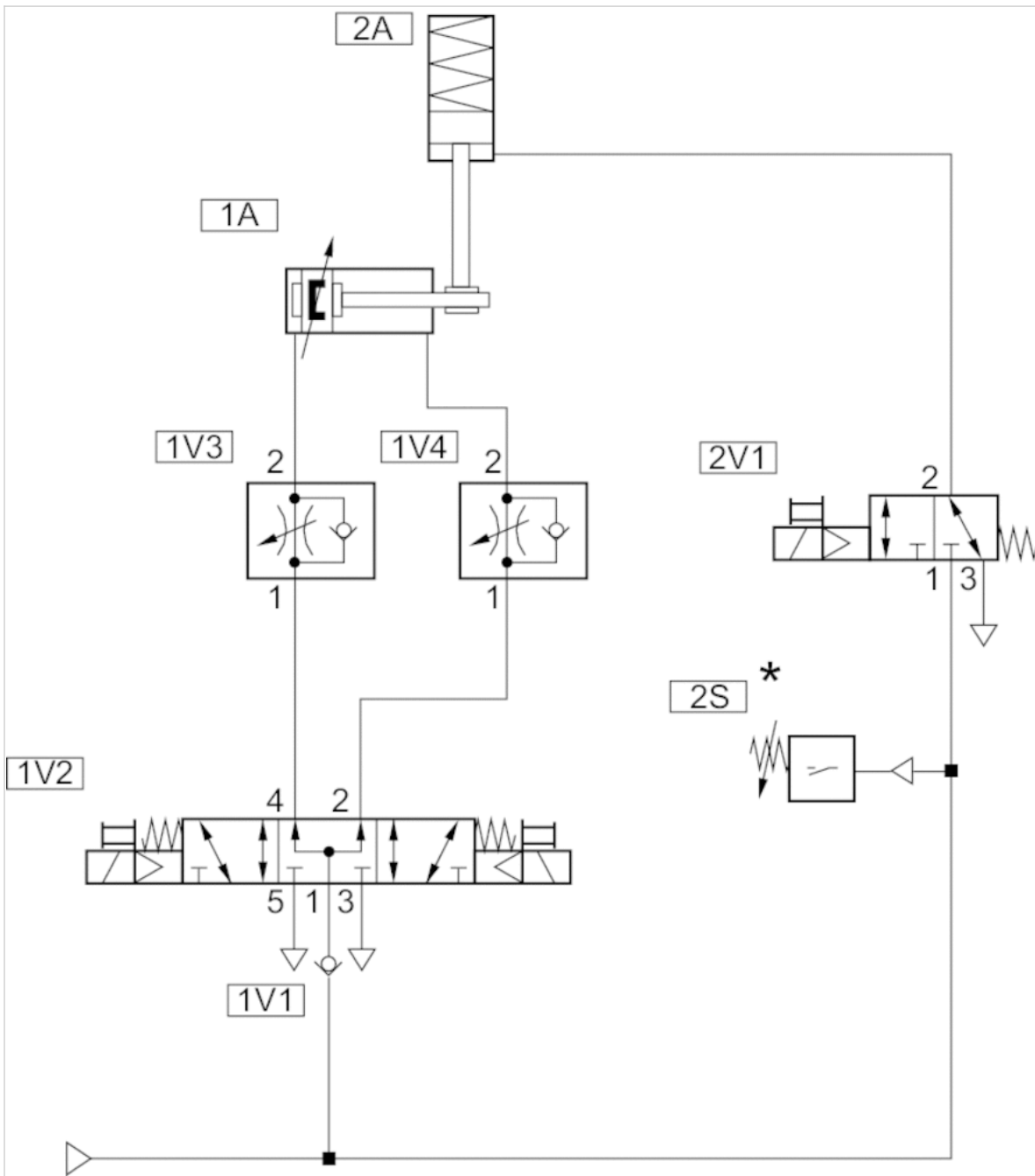


### Dimensions

| Piston $\varnothing$ | $\varnothing A$ | $\varnothing B$ d11 | C  | EE   | E2  | L19 | L20  | $\varnothing KK$ e8-h9 | TG   | RT  | U  | VD |
|----------------------|-----------------|---------------------|----|------|-----|-----|------|------------------------|------|-----|----|----|
| 32 mm                | 30,5            | 30                  | 9  | G1/8 | 48  | 125 | 44   | 12                     | 32,5 | M6  | 10 | 19 |
| 40 mm                | 35,5            | 35                  | 9  | G1/8 | 53  | 125 | 44   | 16                     | 38   | M6  | 10 | 21 |
| 50 mm                | 40,5            | 40                  | 9  | G1/8 | 63  | 145 | 49   | 20                     | 46,5 | M8  | 11 | 28 |
| 63 mm                | 45,5            | 45                  | 10 | G1/8 | 75  | 165 | 52   | 20                     | 56,5 | M8  | 11 | 28 |
| 80 mm                | 45,5            | 45                  | 11 | G1/8 | 98  | 185 | 61.5 | 25                     | 72   | M10 | 16 | 34 |
| 100 mm               | 55,5            | 55                  | 13 | G1/8 | 118 | 220 | 68   | 25                     | 89   | M10 | 16 | 37 |
| 125 mm               | 60,5            | 60                  | 13 | G1/4 | 142 | 220 | 75   | 32                     | 110  | M12 | 16 | 45 |

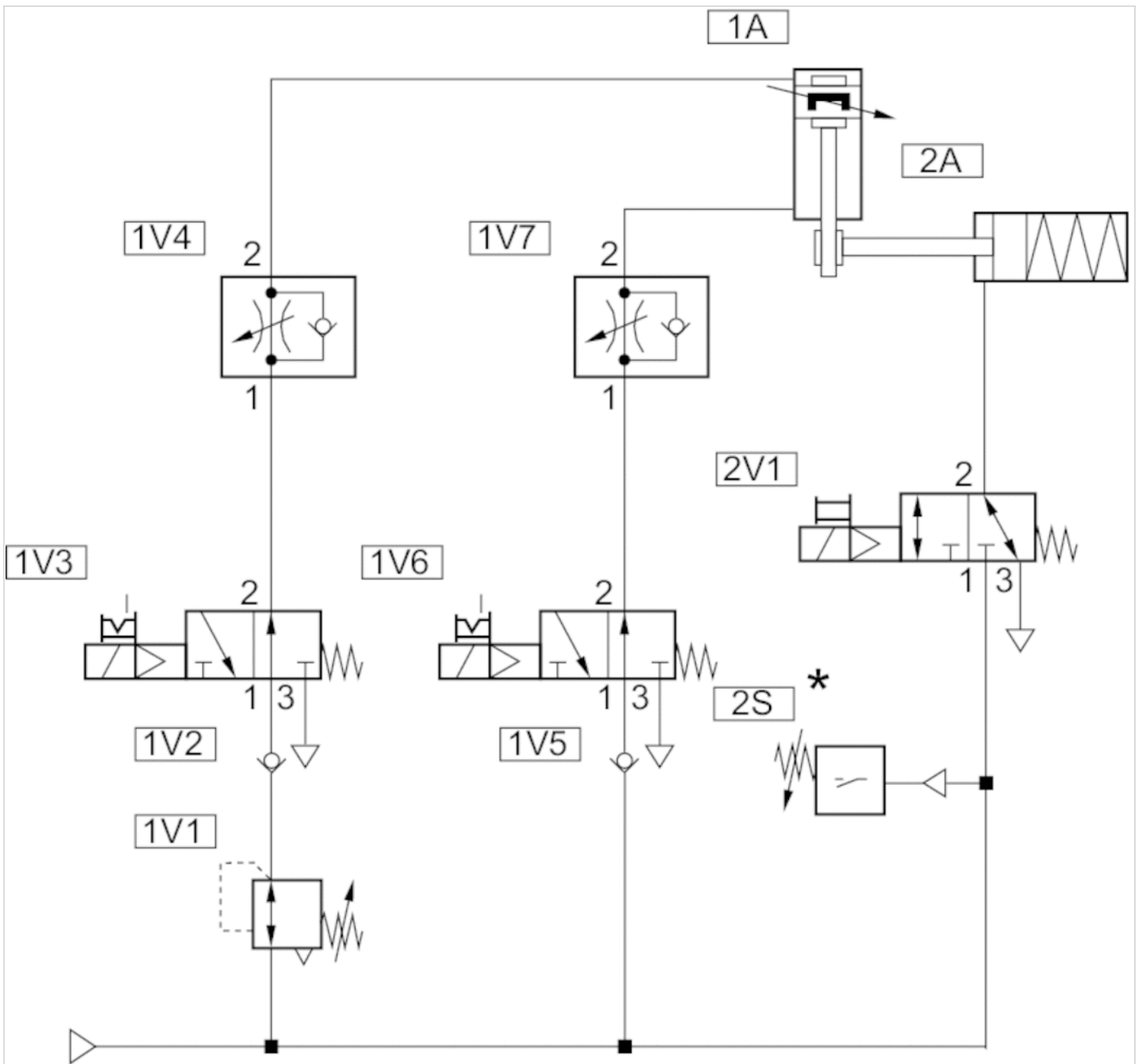
# Circuit diagram

Circuit example for non-safety relevant functions; horizontal installation position



\* From 4 bar : release of 2V1

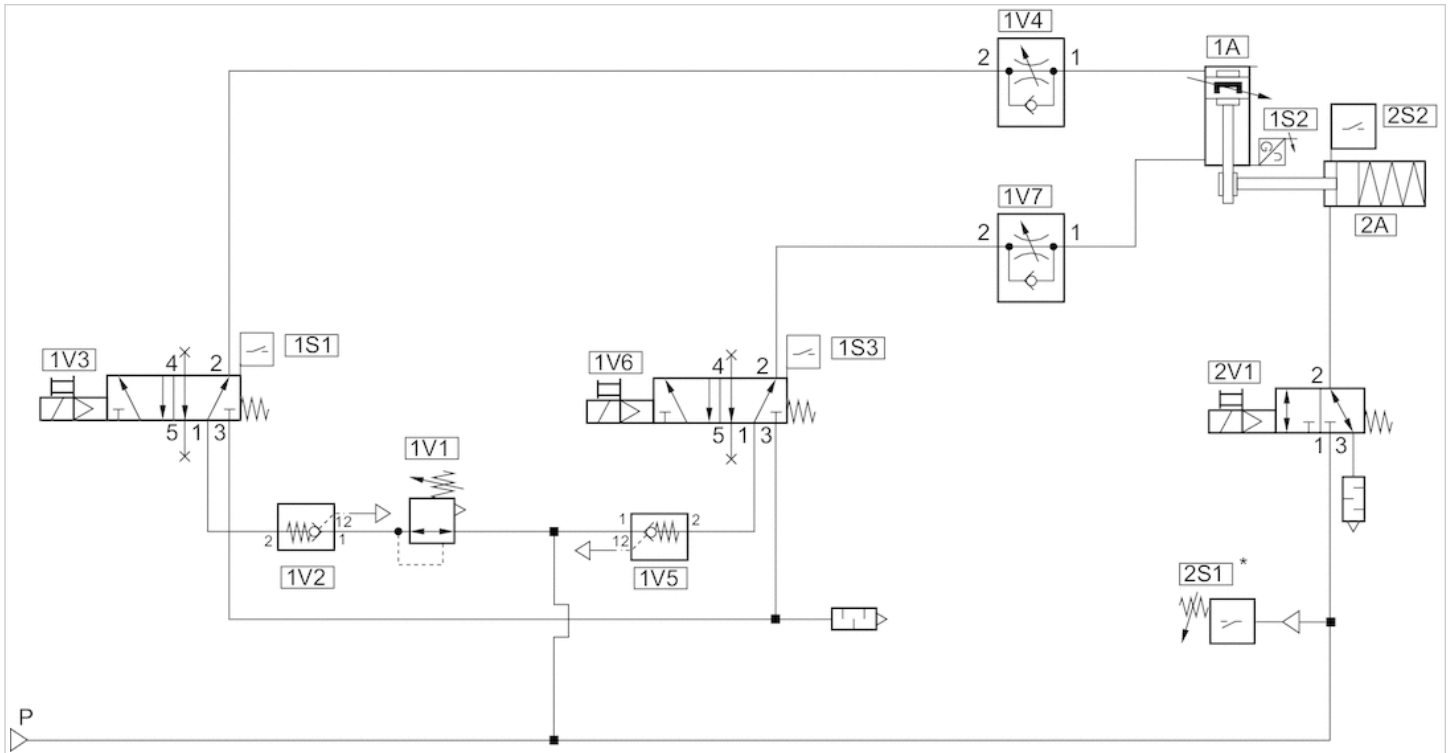
Circuit example for non-safety relevant functions; Vertical mounting orientation



\* From 4 bar : release of 2V1



Circuit example for safety-related stop functions; Vertical mounting orientation



Channel 1: Safe stopping and closing

Channel 2: Safe brake control

\* From 4 bar : release of 2V1

# Foot mounting, Series LU4

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

## Technical data

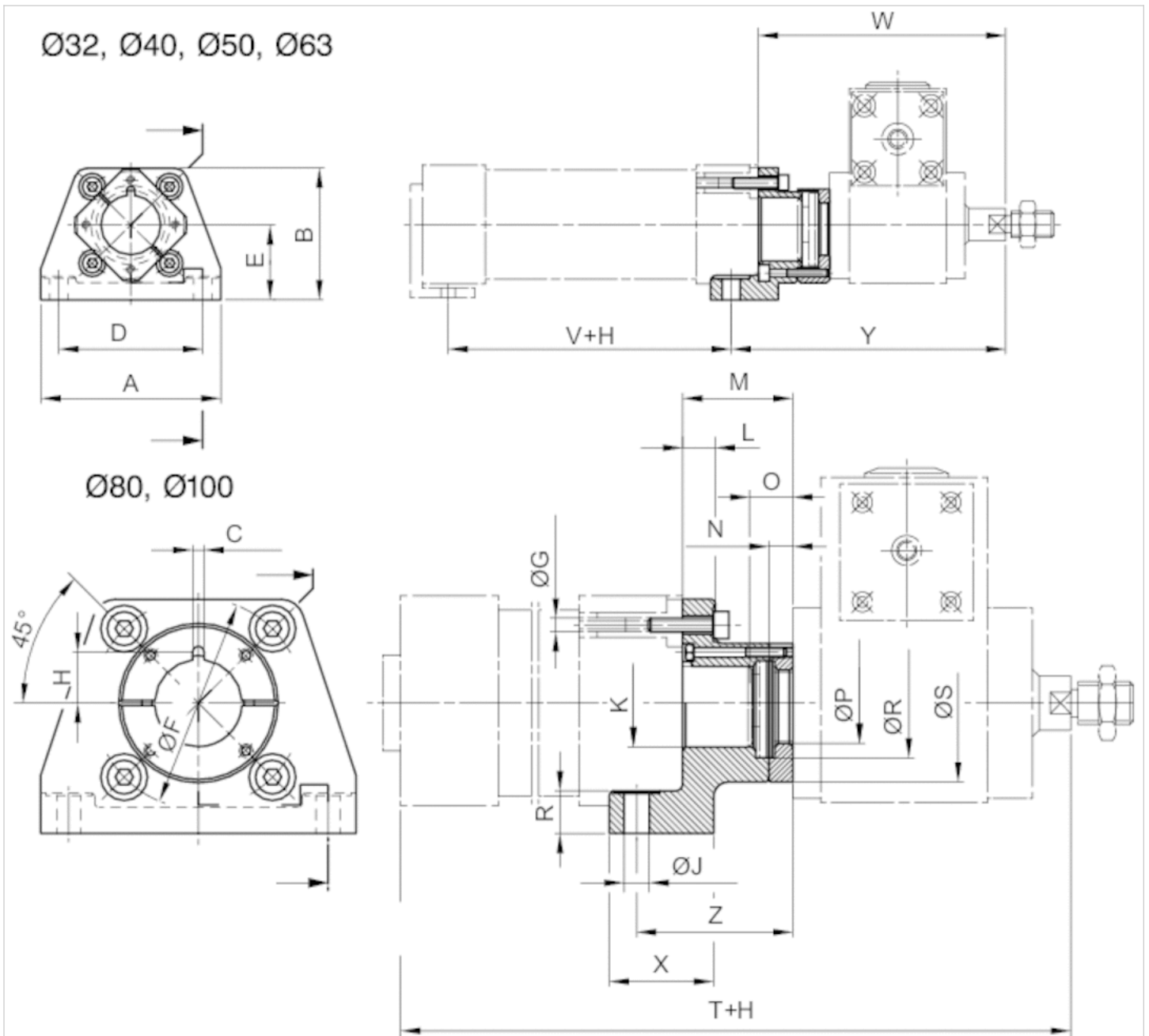
| Part No.   | Piston Ø |
|------------|----------|
| 1827001520 | 32 mm    |
| 1827001521 | 40 mm    |
| 1827001522 | 50 mm    |
| 1827001526 | 63 mm    |
| 1827001524 | 80 mm    |
| 1827002152 | 100 mm   |

## Technical information

| Material |                                   |
|----------|-----------------------------------|
| Housing  | Nodular graphite iron, galvanized |

## Dimensions

### Dimensions



H = stroke

The locking unit can be rotated by 4x90°.

## Dimensions

| Part No.   | A   | B   | C ±0,1 | D ±0,1 | E  | Ø F | Ø G H13 | I    | J H8 | K H10 | L   | M  | N   | O  | Ø P  | R    |
|------------|-----|-----|--------|--------|----|-----|---------|------|------|-------|-----|----|-----|----|------|------|
| 1827001520 | 79  | 57  | 3.6    | 65     | 32 | 46  | 6.6     | 13.2 | 6.6  | 30    | 7   | 27 | 3.9 | -  | 24.2 | 9    |
| 1827001521 | 90  | 64  | 3.6    | 75     | 36 | 54  | 6.6     | 18.2 | 6.6  | 35    | 9.5 | 33 | 4.9 | 13 | 30.2 | 11   |
| 1827001522 | 110 | 80  | 3.6    | 90     | 45 | 66  | 8.4     | 18.2 | 9    | 40    | 11  | 38 | 4.9 | -  | 30.2 | 15   |
| 1827001526 | 120 | 90  | 3.6    | 100    | 50 | 80  | 8.4     | 18.2 | 9    | 45    | 11  | 38 | 4.9 | -  | 30.2 | 15   |
| 1827001524 | 153 | 113 | 6      | 128    | 63 | 102 | 10.5    | 24.5 | 11   | 45    | 15  | 52 | 7.9 | 18 | 40.2 | 19.5 |
| 1827002152 | 176 | 133 | 6      | 148    | 71 | 126 | 10.5    | 24.6 | 11   | 55    | 15  | 57 | 7.9 | -  | 40.2 | 19.5 |



| Ø R | Ø S  | T   | V  | W   | X  | Y   | Z  |
|-----|------|-----|----|-----|----|-----|----|
| 30  | 46.5 | 199 | 68 | 105 | 32 | 118 | 40 |
| 40  | 55.5 | 216 | 79 | 111 | 32 | 124 | 46 |
| 40  | 66   | 243 | 74 | 137 | 41 | 153 | 54 |
| 40  | 71   | 258 | 89 | 137 | 41 | 153 | 54 |
| 55  | 75   | 314 | 84 | 186 | 50 | 208 | 74 |
| 55  | 80   | 329 | 94 | 191 | 50 | 213 | 79 |

# Flange mounting, Series LU5

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

## Technical data

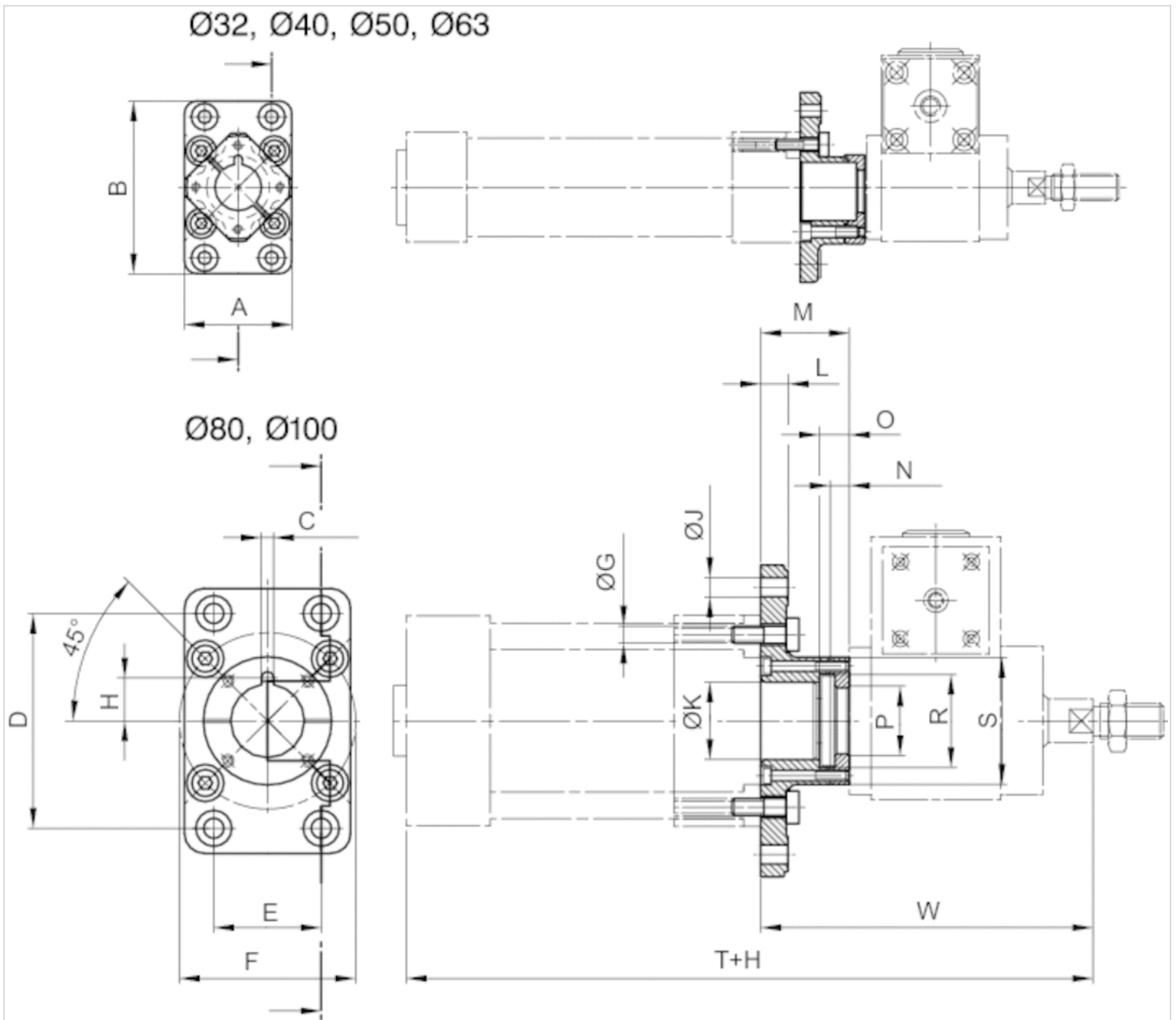
| Part No.   | Piston Ø |
|------------|----------|
| 1827001512 | 32 mm    |
| 1827001513 | 40 mm    |
| 1827001514 | 50 mm    |
| 1827001503 | 63 mm    |
| 1827001516 | 80 mm    |
| 1827001517 | 100 mm   |

## Technical information

| Material |                                   |
|----------|-----------------------------------|
| Housing  | Nodular graphite iron, galvanized |

## Dimensions

### Dimensions



## Dimensions

| Part No.   | A   | B   | C ±0,1 | D ±0,1 | E ±0,1 | Ø F ±0,2 | Ø G H13 | H    | Ø J H13 | Ø K H10 | L  | M    |
|------------|-----|-----|--------|--------|--------|----------|---------|------|---------|---------|----|------|
| 1827001512 | 50  | 79  | 3.6    | 64     | 32     | 46       | 6.6     | 13.2 | 7       | 30      | 8  | 27   |
| 1827001513 | 56  | 91  | 3.6    | 72     | 36     | 54       | 6.6     | 18.2 | 9       | 35      | 10 | 33.3 |
| 1827001514 | 70  | 111 | 3.6    | 90     | 45     | 66       | 8.4     | 18.2 | 9       | 40      | 12 | 38.3 |
| 1827001503 | 80  | 120 | 3.6    | 100    | 50     | 80       | 8.4     | 18.2 | 9       | 45      | 12 | 38.3 |
| 1827001516 | 100 | 153 | 6      | 126    | 63     | 102      | 10.5    | 24.5 | 12      | 45      | 16 | 52   |
| 1827001517 | 120 | 178 | 6      | 150    | 75     | 126      | 10.5    | 24.6 | 14      | 55      | 16 | 57   |

| N ±0,1 | O  | Ø P +0,2 | Ø R +0,5 | Ø S  | W   |
|--------|----|----------|----------|------|-----|
| 3.9    | 8  | 24.2     | 33       | 50   | 105 |
| 4.9    | 10 | 30.2     | 40       | 55.5 | 111 |

| N ±0,1 | O  | Ø P +0,2 | Ø R +0,5 | Ø S | W   |
|--------|----|----------|----------|-----|-----|
| 4.9    | 10 | 30.2     | 40       | 66  | 137 |
| 4.9    | 10 | 30.2     | 40       | 71  | 137 |
| 7.9    | 16 | 40.2     | 55       | 75  | 186 |
| 7.9    | 16 | 40.2     | 55       | 80  | 191 |

# Mounting flange, Series LU3

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

Weight

See table below

## Technical data

| Part No.   | Piston Ø | Weight   |
|------------|----------|----------|
| 1827001504 | 32 mm    | 0.235 kg |
| 1827001505 | 40 mm    | 0.36 kg  |
| 1827001506 | 50 mm    | 0.635 kg |
| 1827001508 | 63 mm    | 0.84 kg  |
| 1827001433 | 80 mm    | 1.62 kg  |
| 1827001434 | 100 mm   | 2.27 kg  |

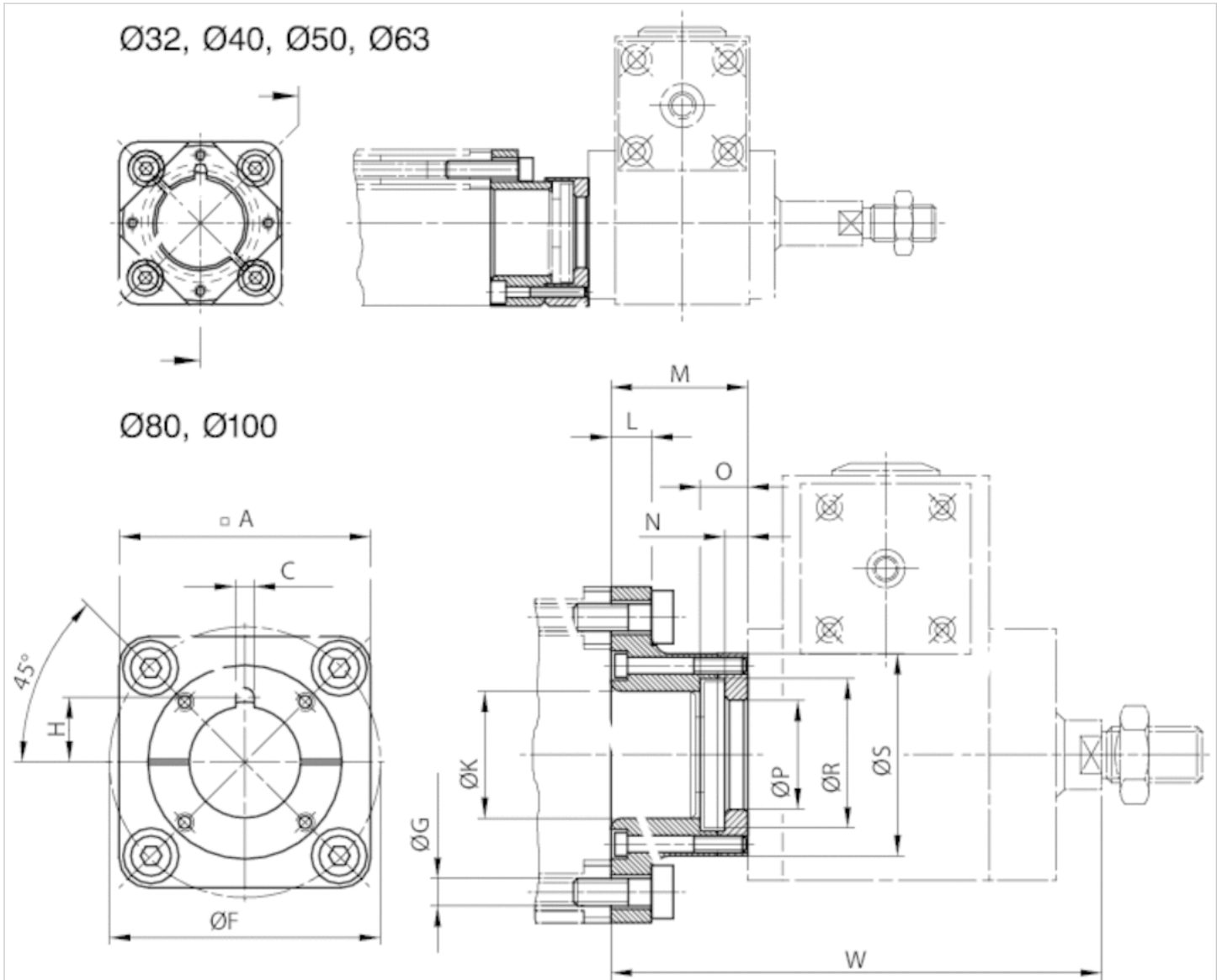
## Technical information

### Material

|         |                                   |
|---------|-----------------------------------|
| Housing | Nodular graphite iron, galvanized |
|---------|-----------------------------------|

## Dimensions

### Dimensions



Screws included in scope of delivery  
 The locking unit can be rotated by 4x90°.

## Dimensions

| Part No.   | A   | C +0,1 | Ø F ±0,2 | G H13 | H    | Ø K H10 | L   | M    | N -0,1 | O  | Ø P +0,2 | Ø R +0,5 |
|------------|-----|--------|----------|-------|------|---------|-----|------|--------|----|----------|----------|
| 1827001504 | 50  | 3.6    | 46       | 6.6   | 13.2 | 30      | 7   | 27.2 | 3.9    | 8  | 24.2     | 33       |
| 1827001505 | 57  | 3.6    | 54       | 6.6   | 18.2 | 35      | 9.5 | 33.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001506 | 68  | 3.6    | 66       | 8.4   | 18.2 | 40      | 11  | 38.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001508 | 75  | 3.6    | 80       | 8.4   | 18.2 | 45      | 11  | 38.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001433 | 95  | 6      | 102      | 10.5  | 24.5 | 45      | 15  | 52   | 7.9    | 16 | 40.2     | 55       |
| 1827001434 | 115 | 6      | 126      | 10.5  | 24.6 | 55      | 15  | 57   | 7.9    | 16 | 40.2     | 55       |

| Ø S  | W   |
|------|-----|
| 46.5 | 105 |
| 55.5 | 111 |

| $\varnothing S$ | W   |
|-----------------|-----|
| 66              | 137 |
| 71              | 137 |
| 75              | 186 |
| 80              | 191 |

# Modular sealing system

- Ø 32 mm ... 125 mm
- For series PRA, TRB, CCL-IS
- Piston Ø 32 40 50, 63 80, 100 125 mm



|                               |                           |
|-------------------------------|---------------------------|
| Working pressure min./max.    | 1.5 ... 10 bar            |
| Ambient temperature min./max. | See table below           |
| Medium                        | Compressed air            |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup> |

## Technical data

| Part No.   | Piston Ø   | Piston rod seal                | Scraper                |
|------------|------------|--------------------------------|------------------------|
| 0496400704 | 32 mm      | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496401107 | 32 mm      | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401700 | 32 mm      | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400402 | 40 mm      | Acrylonitrile butadiene rubber | Brass                  |
| 0496401409 | 40 mm      | Fluorocaoutchouc               | Brass                  |
| 0496400801 | 40 mm      | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496401204 | 40 mm      | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401808 | 40 mm      | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400518 | 50, 63 mm  | Acrylonitrile butadiene rubber | Brass                  |
| 0496401506 | 50, 63 mm  | Fluorocaoutchouc               | Brass                  |
| 0496400909 | 50, 63 mm  | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496402103 | 50, 63 mm  | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401905 | 50, 63 mm  | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400607 | 80, 100 mm | Acrylonitrile butadiene rubber | Brass                  |
| 0496401603 | 80, 100 mm | Fluorocaoutchouc               | Brass                  |
| 0496401018 | 80, 100 mm | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496402200 | 80, 100 mm | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496402006 | 80, 100 mm | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496301404 | 125 mm     | Acrylonitrile butadiene rubber | Brass                  |
| 0496303105 | 125 mm     | Fluorocaoutchouc               | Brass                  |
| 0496301307 | 125 mm     | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496301706 | 125 mm     | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496303202 | 125 mm     | Fluorocaoutchouc               | Polytetrafluorethylene |

| Part No.   | Ambient temperature min./max. | Application area |
|------------|-------------------------------|------------------|
| 0496400704 | -20 ... 80 °C                 | 1)               |
| 0496401107 | -20 ... 80 °C                 | 2)               |



| Part No.   | Ambient temperature min./max. | Application area |
|------------|-------------------------------|------------------|
| 0496401700 | -10 ... 150 °C                | 2)               |
| 0496400402 | -20 ... 80 °C                 | 3)               |
| 0496401409 | -10 ... 150 °C                | 3)               |
| 0496400801 | -20 ... 80 °C                 | 1)               |
| 0496401204 | -20 ... 80 °C                 | 2)               |
| 0496401808 | -10 ... 150 °C                | 2)               |
| 0496400518 | -20 ... 80 °C                 | 3)               |
| 0496401506 | -10 ... 150 °C                | 3)               |
| 0496400909 | -20 ... 80 °C                 | 1)               |
| 0496402103 | -20 ... 80 °C                 | 2)               |
| 0496401905 | -10 ... 150 °C                | 2)               |
| 0496400607 | -20 ... 80 °C                 | 3)               |
| 0496401603 | -10 ... 150 °C                | 3)               |
| 0496401018 | -20 ... 80 °C                 | 1)               |
| 0496402200 | -20 ... 80 °C                 | 2)               |
| 0496402006 | -10 ... 150 °C                | 2)               |
| 0496301404 | -20 ... 80 °C                 | 3)               |
| 0496303105 | -10 ... 150 °C                | 3)               |
| 0496301307 | -20 ... 80 °C                 | 1)               |
| 0496301706 | -20 ... 80 °C                 | 2)               |
| 0496303202 | -10 ... 150 °C                | 2)               |

1)Application area Paper/printing industry Textile industry

2)Application area Textile industry Food industry Chemical industry Sugar production

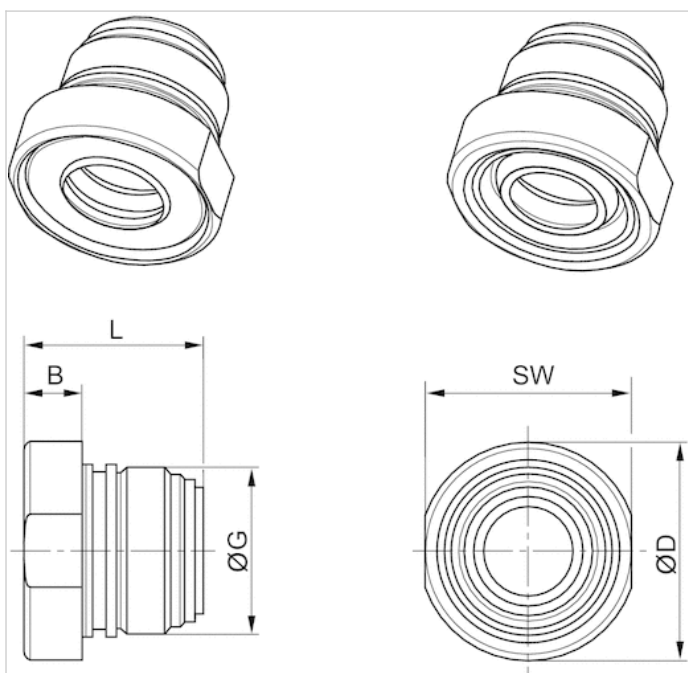
3)Application area Chemical industry Sugar production Steel construction Automotive industry Woodworking industry

## Technical information

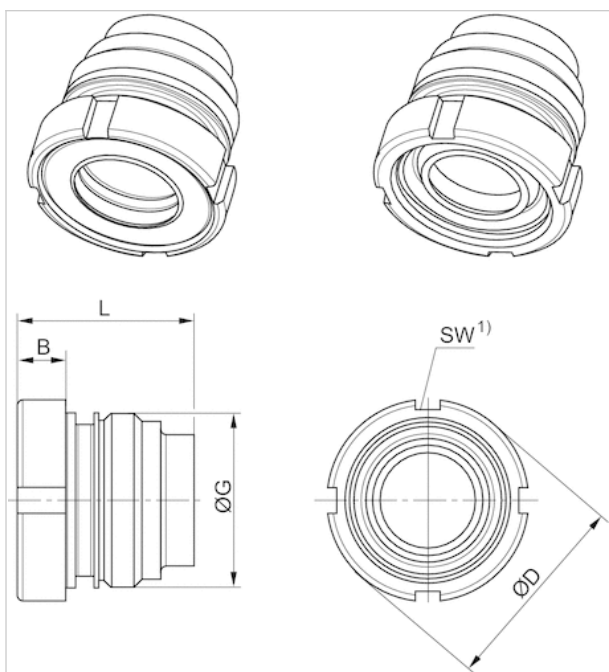
| Material        |  |
|-----------------|--|
| Housing         | Aluminum, anodized                               |
| Scraper         | Polyester elastomer Polytetrafluorethylene Brass |
| Piston rod seal | Acrylonitrile butadiene rubber Fluorocaoutchouc  |

## Dimensions

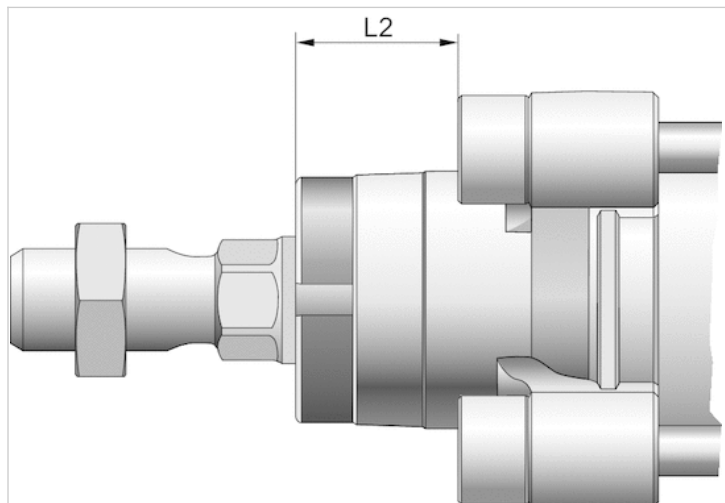
For cylinder diameters: 32-40 mm, Dimensions in mm



For cylinder diameters: 50 ... 125 mm, Dimensions in mm



1) Can be mounted with hook wrench in accordance with DIN 1810 A

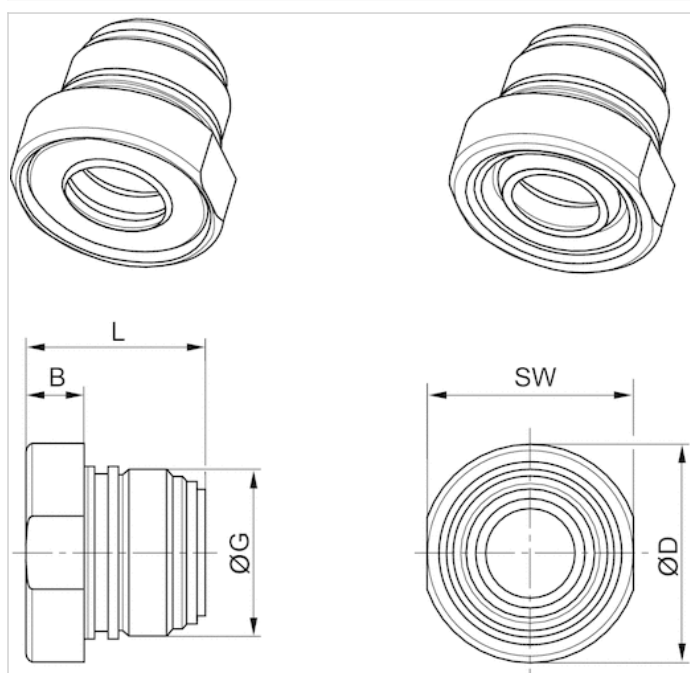


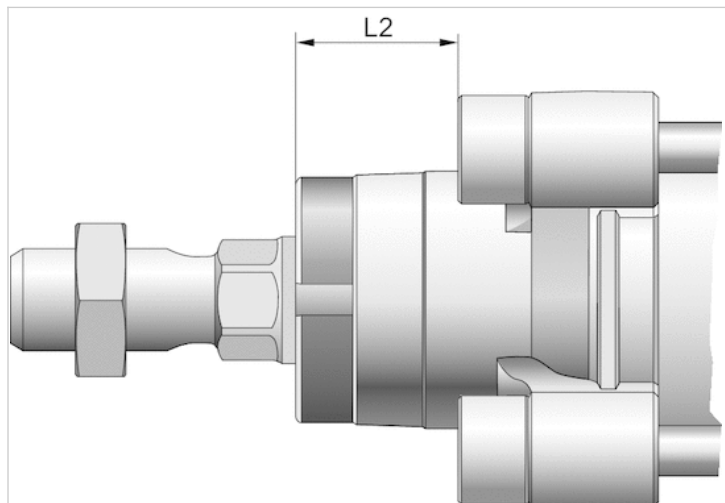
### Dimensions

| Piston Ø | B   | ØD   | G       | L    | L2    | SW    |
|----------|-----|------|---------|------|-------|-------|
| 32       | 6.7 | 24.5 | M22x1   | 23   | 16.25 | 23    |
| 40       | 9.2 | 34   | M26x1,5 | 28.1 | 18.25 | 32    |
| 50, 63   | 9   | 38.5 | M33x2   | 33.5 | 25    | 40-42 |
| 80, 100  | 10  | 44   | M40x2   | 44   | 33    | 45-50 |
| 125      | 12  | 57   | M50x2   | 56   | 45    | 58-62 |

### Dimensions

For cylinder diameters: 32-40 mm, Dimensions in mm



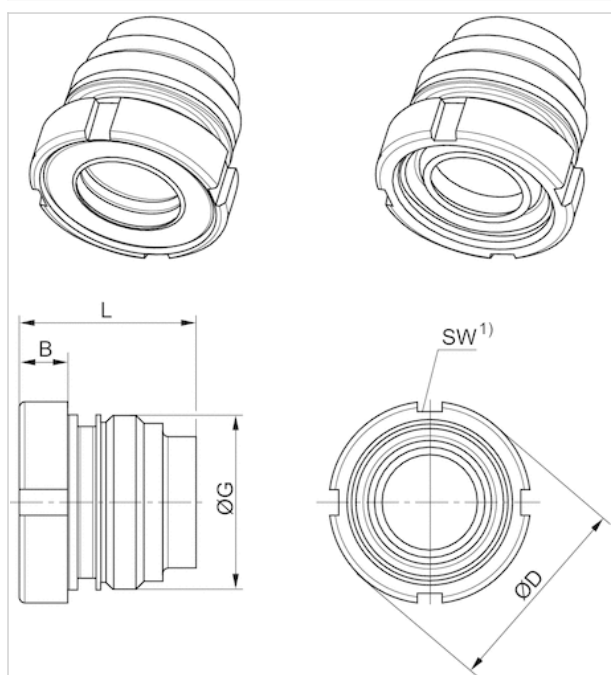


## Dimensions

| Piston Ø | B   | ØD   | G       | L    | L2    | SW    |
|----------|-----|------|---------|------|-------|-------|
| 32       | 6.7 | 24.5 | M22x1   | 23   | 16.25 | 23    |
| 40       | 9.2 | 34   | M26x1,5 | 28.1 | 18.25 | 32    |
| 50, 63   | 9   | 38.5 | M33x2   | 33.5 | 25    | 40-42 |
| 80, 100  | 10  | 44   | M40x2   | 44   | 33    | 45-50 |
| 125      | 12  | 57   | M50x2   | 56   | 45    | 58-62 |

## Dimensions

For cylinder diameters: 50 ... 125 mm, Dimensions in mm



1) Can be mounted with hook wrench in accordance with DIN 1810 A

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- open cable ends, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 3 5 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019488 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019489 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019680 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019681 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019684 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019685 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019488 | Reed            | 3 m            | 5 ... 30 V DC                  |
| R412019489 | Reed            | 5 m            | 5 ... 30 V DC                  |
| R412019680 | electronic PNP  | 3 m            | 10 ... 30 V DC                 |
| R412019681 | electronic PNP  | 5 m            | 10 ... 30 V DC                 |
| R412019684 | electronic NPN  | 3 m            | 10 ... 30 V DC                 |
| R412019685 | electronic NPN  | 5 m            | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019488 | ≤ 0,5 V                            | 0.13 A                     |
| R412019489 | ≤ 0,5 V                            | 0.13 A                     |
| R412019680 | ≤ 2,5 V                            | 0.1 A                      |
| R412019681 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019684 | ≤ 2,5 V                            | 0.1 A                      |
| R412019685 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019488 | 0.13 A                     | 3 W / 3 VA         |
| R412019489 | 0.13 A                     | 3 W / 3 VA         |
| R412019680 | -                          | -                  |
| R412019681 | -                          | -                  |
| R412019684 | -                          | -                  |
| R412019685 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019488 | Protected against polarity reversal                         |
| R412019489 | Protected against polarity reversal                         |
| R412019680 | short circuit resistant Protected against polarity reversal |
| R412019681 | short circuit resistant Protected against polarity reversal |
| R412019684 | short circuit resistant Protected against polarity reversal |
| R412019685 | short circuit resistant Protected against polarity reversal |

## Technical information

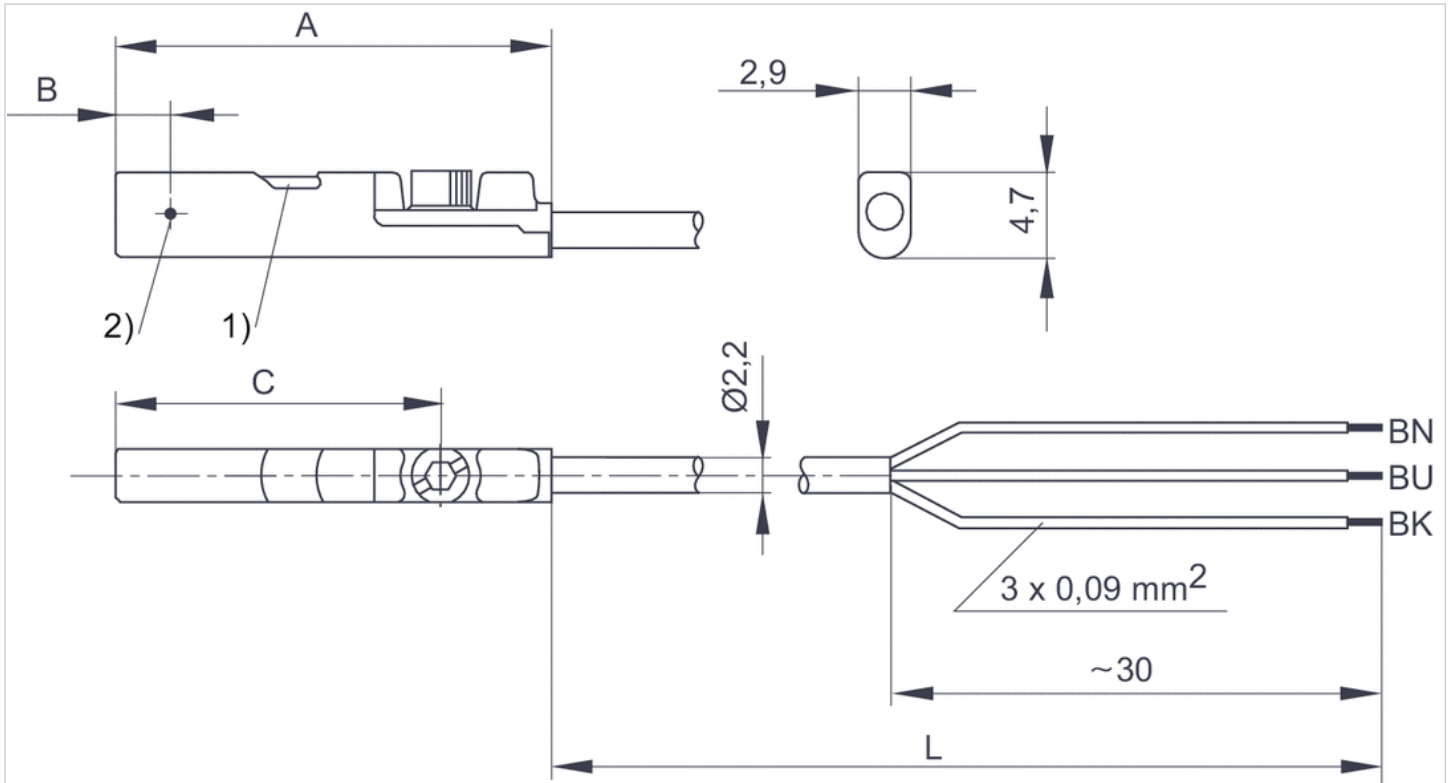
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



1) LED 2) Switching point

L = cable length

BN = brown, BK = black, BU = blue

## Dimensions

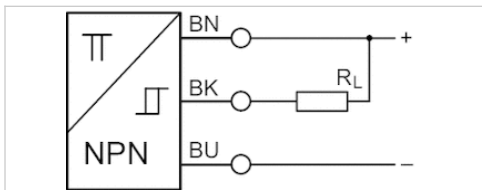
| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019488 | 26.3 | 6.3 | 20.3 |
| R412019489 | 26.3 | 6.3 | 20.3 |
| R412019680 | 23.7 | 2.8 | 17.7 |
| R412019681 | 23.7 | 2.8 | 17.7 |
| R412019684 | 23.7 | 2.8 | 17.7 |
| R412019685 | 23.7 | 2.8 | 17.7 |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- open cable ends
- With stretched impulse
- With stretched impulse
- electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |   |
|--------------------------------|---|
| Certificates                   | RoHS                                    |
| Ambient temperature min./max.  | -30 ... 80 °C                           |
| Protection class               | IP65, IP67                              |
| Switching point precision      | ±0,1 mT                                 |
| Min./max. DC operating voltage | 10 ... 30 V DC                          |
| Switching logic                | NO (make contact)                       |
| Pulse stretching               | 20 ms                                   |
| Display                        | LED                                     |
| LED status display             | Yellow                                  |
| Vibration resistance           | 10 - 55 Hz, 1 mm                        |
| Shock resistance               | 30 g / 11 ms                            |
| Cable length L                 | 5 m                                     |
| Mounting screw                 | Combination: slotted and hexagon socket |



## Technical data

| Part No.   | for  | Type of contact |
|------------|--|-----------------|
| R412024124 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP  |

| Part No.   | Cable length L | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------|------------------------------------|----------------------------|
| R412024124 | 5 m            | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Switch signal          |
|------------|------------------------|
| R412024124 | With stretched impulse |

## Technical information

The max. switching capacity must not be exceeded.



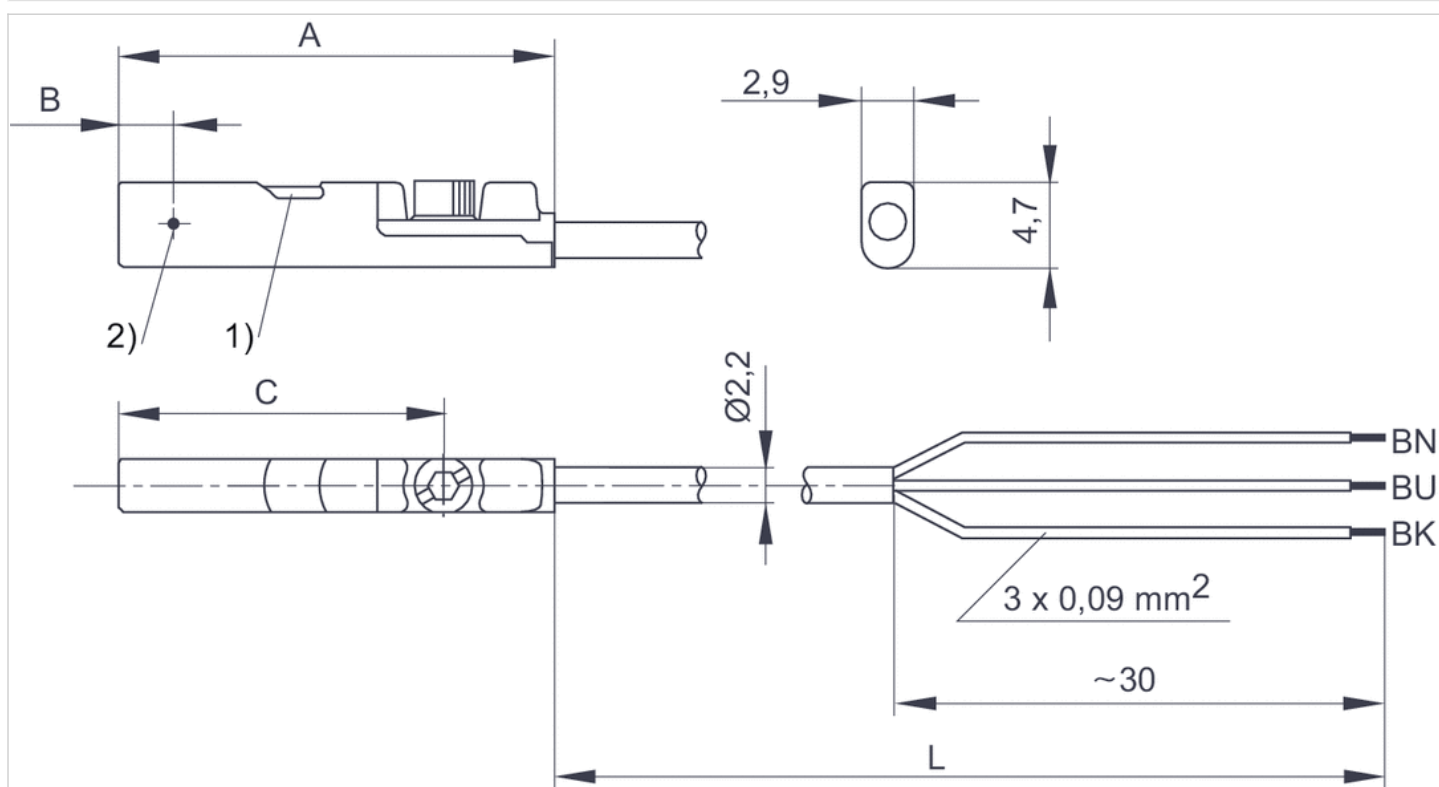
## Technical information

### Material

|              |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



1) LED 2) Switching point

L = cable length

BN = brown, BK = black, BU = blue

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412024124 | 23.7 | 2.8 | 17.7 |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019682 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |
| R412019683 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |
| R412019694 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length<br>L | Min./max. DC operating voltage |
|------------|-----------------|-------------------|--------------------------------|
| R412019682 | Reed            | 0.3 m             | 5 ... 30 V DC                  |
| R412019683 | electronic PNP  | 0.3 m             | 10 ... 30 V DC                 |
| R412019694 | electronic NPN  | 0.3 m             | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019682 | ≤ 0,5 V                            | 0.13 A                     |
| R412019683 | ≤ 2,5 V                            | 0.1 A                      |
| R412019694 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019682 | 0.13 A                     | 3 W / 3 VA         |
| R412019683 | -                          | -                  |
| R412019694 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019682 | Protected against polarity reversal                         |
| R412019683 | short circuit resistant Protected against polarity reversal |
| R412019694 | short circuit resistant Protected against polarity reversal |

## Technical information

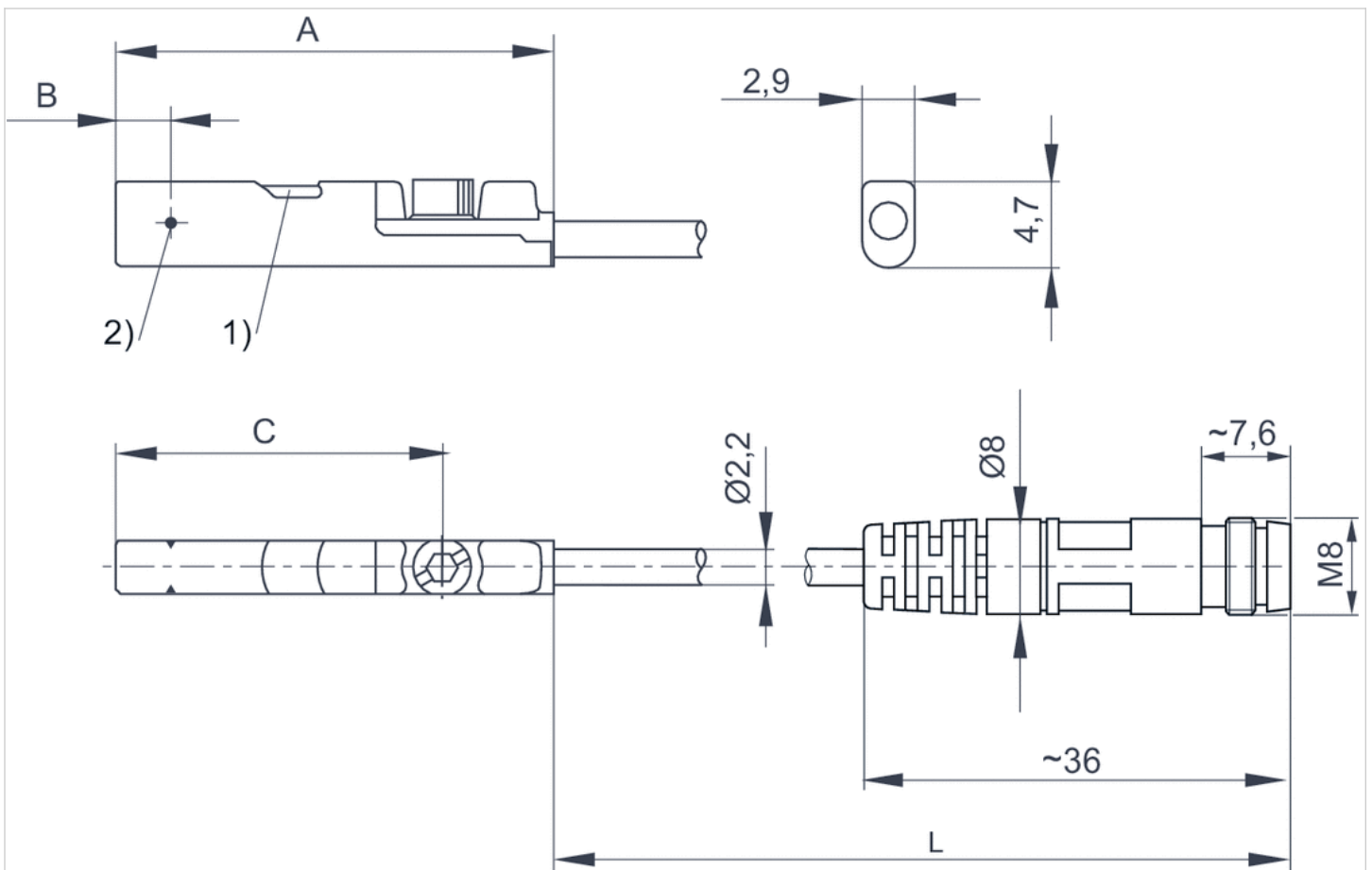
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



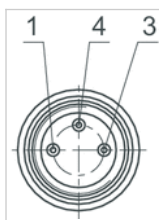
1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019682 | 26.3 | 6.3 | 20.3 |
| R412019683 | 23.7 | 2.8 | 17.7 |
| R412019694 | 23.7 | 2.8 | 17.7 |

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 0.5 m                                    |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019490 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019686 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019493 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019687 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019490 | Reed            | 0.3 m          | 5 ... 30 V DC                  |
| R412019686 | Reed            | 0.5 m          | 5 ... 30 V DC                  |
| R412019493 | electronic PNP  | 0.3 m          | 10 ... 30 V DC                 |
| R412019687 | electronic PNP  | 0.5 m          | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019490 | ≤ 0,5 V                            | 0.13 A                     |
| R412019686 | ≤ 0,5 V                            | 0.13 A                     |
| R412019493 | ≤ 2,5 V                            | 0.1 A                      |
| R412019687 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019490 | 0.13 A                     | 3 W / 3 VA         |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019686 | 0.13 A                     | 3 W / 3 VA         |
| R412019493 | -                          | -                  |
| R412019687 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019490 | Protected against polarity reversal                         |
| R412019686 | Protected against polarity reversal                         |
| R412019493 | short circuit resistant Protected against polarity reversal |
| R412019687 | short circuit resistant Protected against polarity reversal |

## Technical information

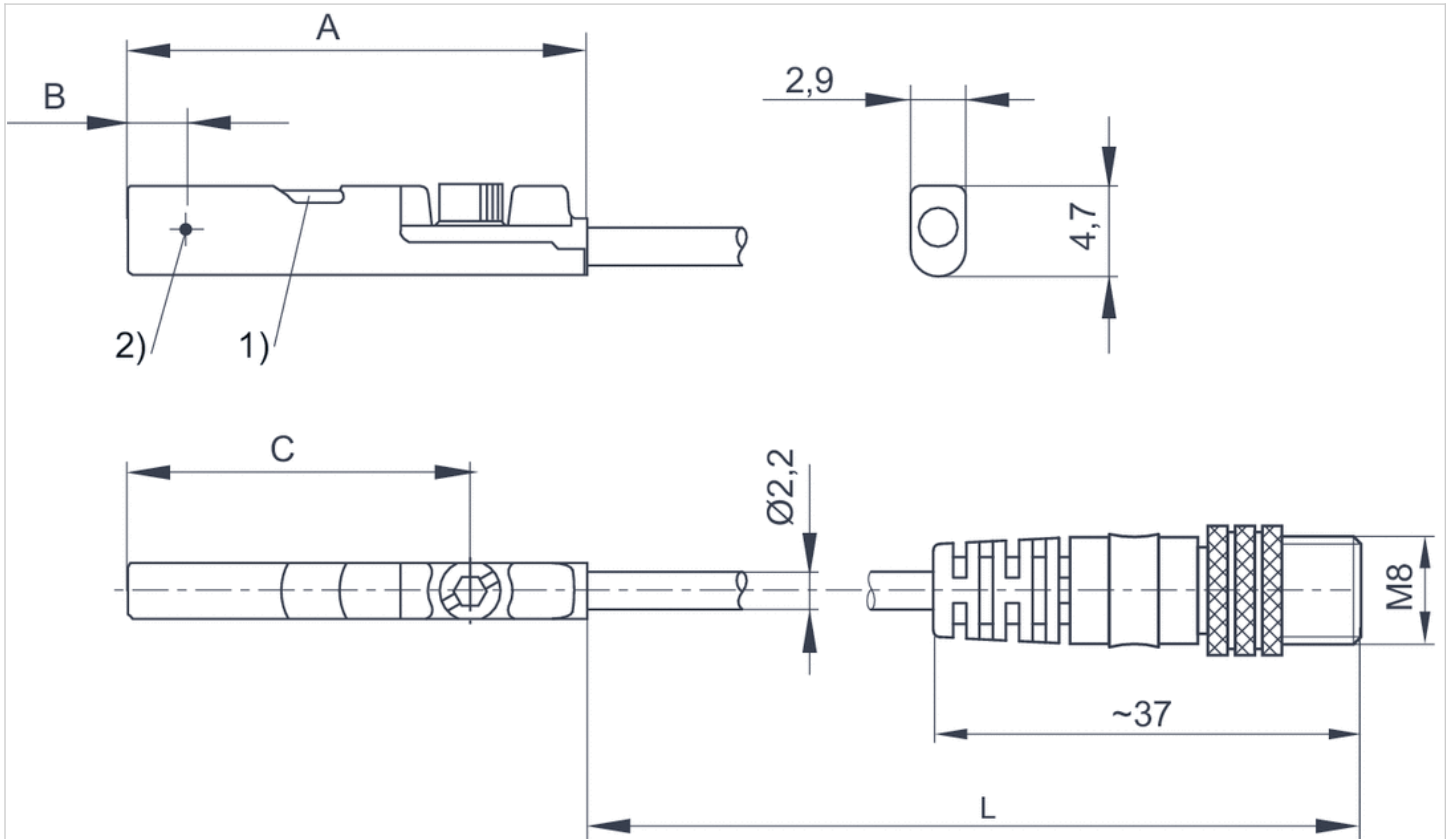
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



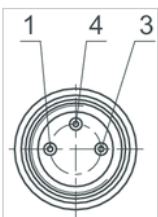
1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019490 | 26.3 | 6.3 | 20.3 |
| R412019686 | 26.3 | 6.3 | 20.3 |
| R412019493 | 23.7 | 2.8 | 17.7 |
| R412019687 | 23.7 | 2.8 | 17.7 |

## Pin assignments

### Pin assignments



|            |     |     |       |
|------------|-----|-----|-------|
| Pin        | 1   | 3   | 4     |
| Allocation | (+) | (-) | (OUT) |

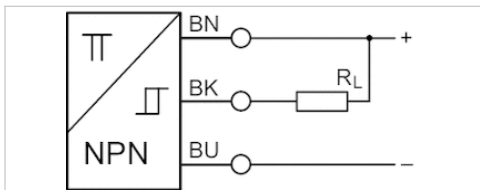


# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin Plug, M8, 3-pin, with knurled screw
- With stretched impulse
- With stretched impulse
- electronic NPN electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |   |
|--------------------------------|---|
| Certificates                   | RoHS                                    |
| Ambient temperature min./max.  | -30 ... 80 °C                           |
| Protection class               | IP65, IP67                              |
| Switching point precision      | ±0,1 mT                                 |
| Min./max. DC operating voltage | 10 ... 30 V DC                          |
| Switching logic                | NO (make contact)                       |
| Pulse stretching               | 20 ms                                   |
| Display                        | LED                                     |
| LED status display             | Yellow                                  |
| Vibration resistance           | 10 - 55 Hz, 1 mm                        |
| Shock resistance               | 30 g / 11 ms                            |
| Cable length L                 | 0.3 m                                   |
| Mounting screw                 | Combination: slotted and hexagon socket |



## Technical data

| Part No.   | for  | Type of contact |
|------------|--|-----------------|
| R412024123 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic NPN  |
| R412024125 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP  |

| Part No.   | Cable length L | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------|------------------------------------|----------------------------|
| R412024123 | 0.3 m          | ≤ 2,5 V                            | 0.1 A                      |
| R412024125 | 0.3 m          | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Switch signal          |    |
|------------|------------------------|----|
| R412024123 | With stretched impulse | 1) |
| R412024125 | With stretched impulse | 2) |

1) Plug M8, 3-pin

2) Plug M8, 3-pin with knurled screw

## Technical information

The max. switching capacity must not be exceeded.

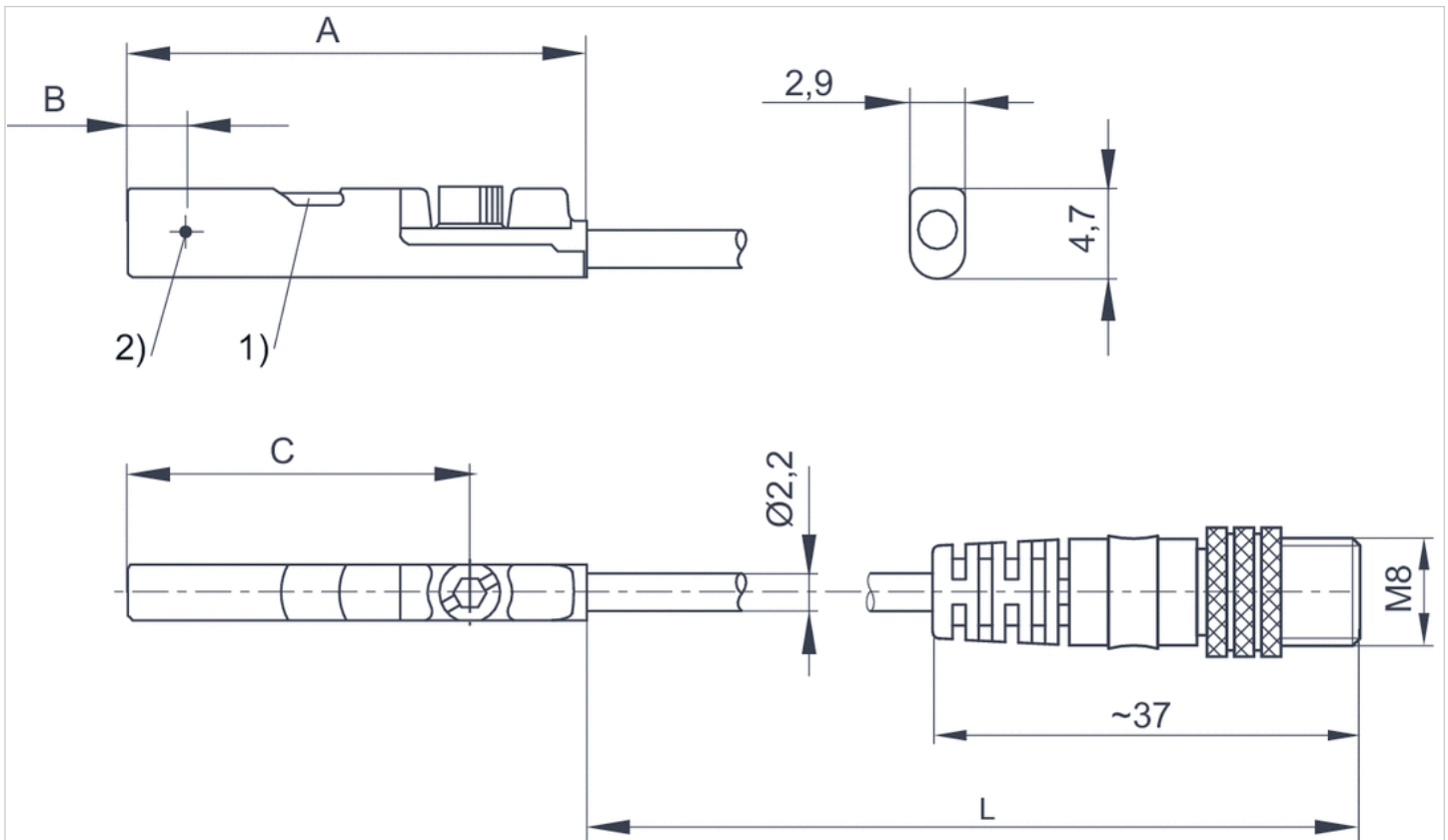
## Technical information

### Material

|              |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

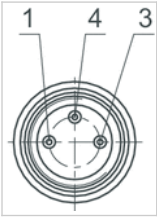
### Dimensions



1) LED 2) Switching point  
L = cable length

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |


# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M12, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019688 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019689 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019688 | Reed            | 0.3 m          | 5 ... 30 V DC                  |
| R412019689 | electronic PNP  | 0.3 m          | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019688 | ≤ 0,5 V                            | 0.13 A                     |
| R412019689 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019688 | 0.13 A                     | 3 W / 3 VA         |
| R412019689 | -                          | -                  |

| Part No.   | Version                             |
|------------|-------------------------------------|
| R412019688 | Protected against polarity reversal |

| Part No.   | Version   |
|------------|---|
| R412019689 | short circuit resistant Protected against polarity reversal |

## Technical information

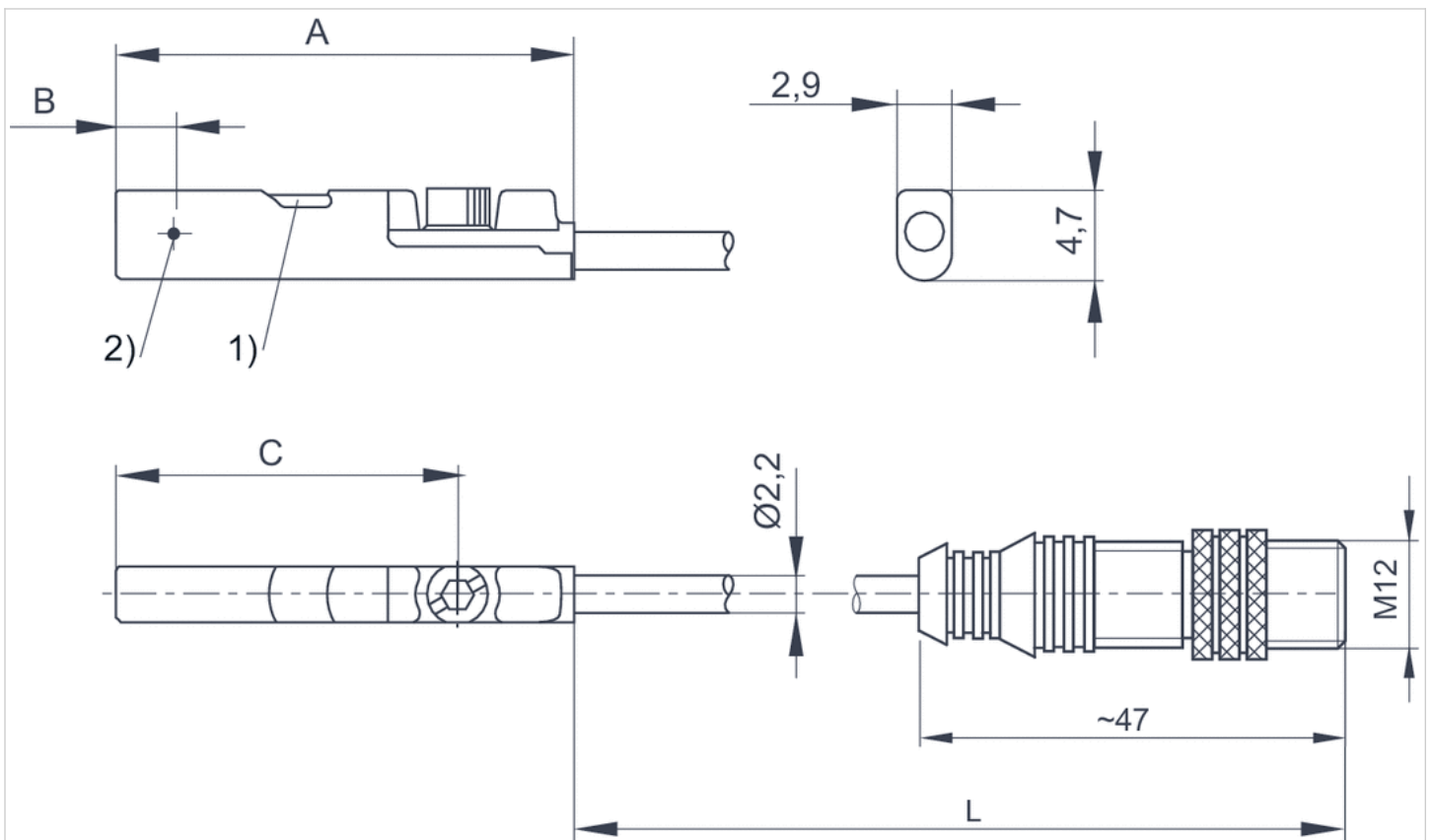
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions

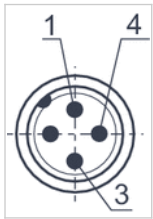


1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019688 | 26.3 | 6.3 | 20.3 |
| R412019689 | 23.7 | 2.8 | 17.7 |

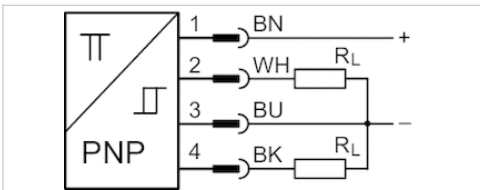
## Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |

# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- without wire end ferrule, tin-plated, 4-pin
- electronic PNP
- 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP65, IP67          |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| Display                                   | LED                 |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 2 m                 |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412010139 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 2 m            |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------------|------------------------------------|----------------------------|
| R412010139 | 50 mm                | ≤ 2,2 V                            | 0.15 A                     |

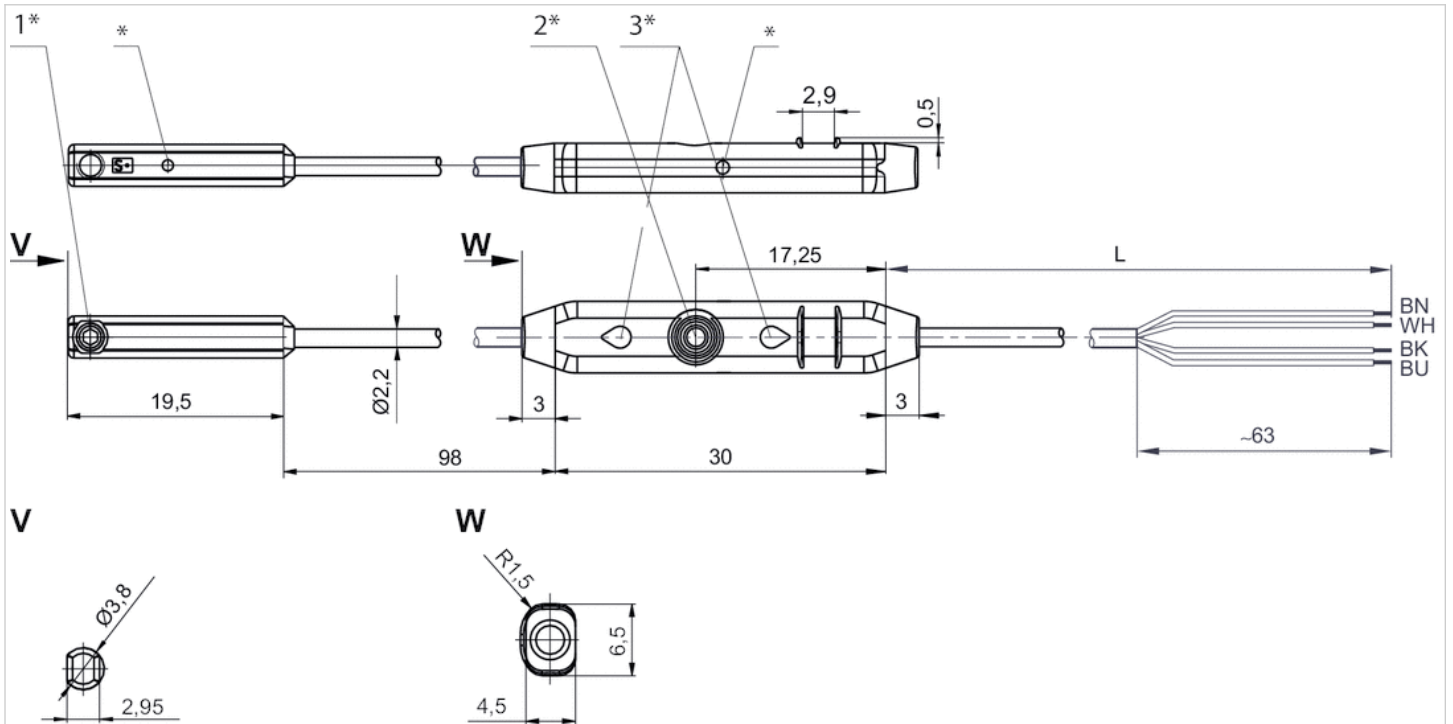
| Part No.   | Function       | Version   |
|------------|----------------|---|
| R412010139 | electronic PNP | short circuit resistant Protected against polarity reversal |

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

# Dimensions

## Dimensions



1\* = mounting screw 2\* = teach button 3\* = LED

L = cable length

(1) BN=brown

(2) WH=white

(3) BU=blue

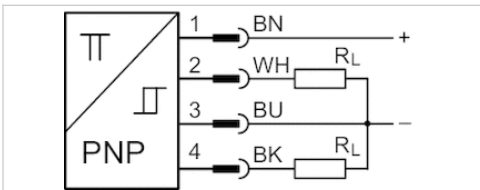
(4) BK=black

\* Switching point



# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- Plug, M8x1, 4-pin, with knurled screw
- electronic PNP
- 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP65, IP67          |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| Display                                   | LED                 |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 0.3 m               |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412010140 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> | Function       |
|------------|----------------------|------------------------------------|----------------|
| R412010140 | 50 mm                | ≤ 2,2 V                            | electronic PNP |

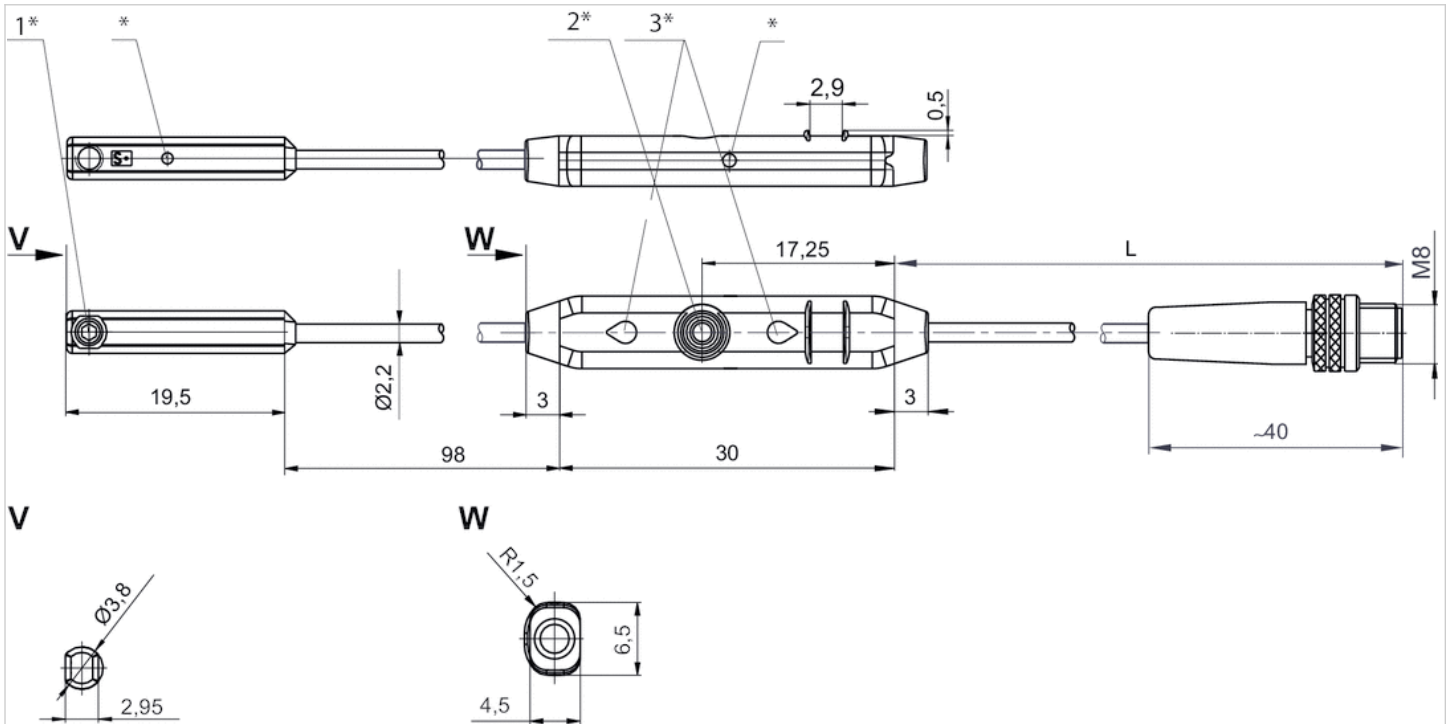
| Part No.   | Version   |
|------------|---|
| R412010140 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

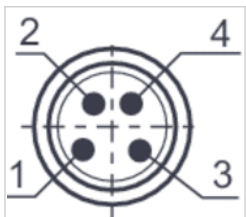
## Dimensions

### Dimensions



1\* = mounting screw 2\* = teach button 3\* = LED  
 L = cable length  
 \* Switching point

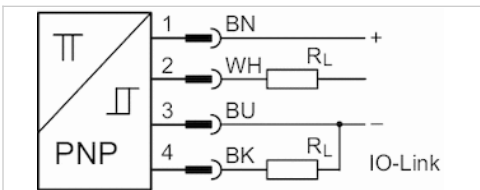
## Pin assignments



| Pin        | 1   | 2     | 3   | 4     |
|------------|-----|-------|-----|-------|
| Allocation | (+) | (OUT) | (-) | (OUT) |

# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- Plug, M12x1, 4-pin, with knurled screw
- IO-Link, 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP67                |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 0.3 m               |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412023459 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> |
|------------|----------------------|------------------------------------|
| R412023459 | 50 mm                | ≤ 2,2 V                            |

| Part No.   | Version  |
|------------|--|
| R412023459 | Wire break protection Short circuit resistance Reverse polarity protection Switch-on pulse suppression |

## Technical information

The IO-Link device description (IODD) for the ST4-2P proximity sensor is available for download in the Media Centre.

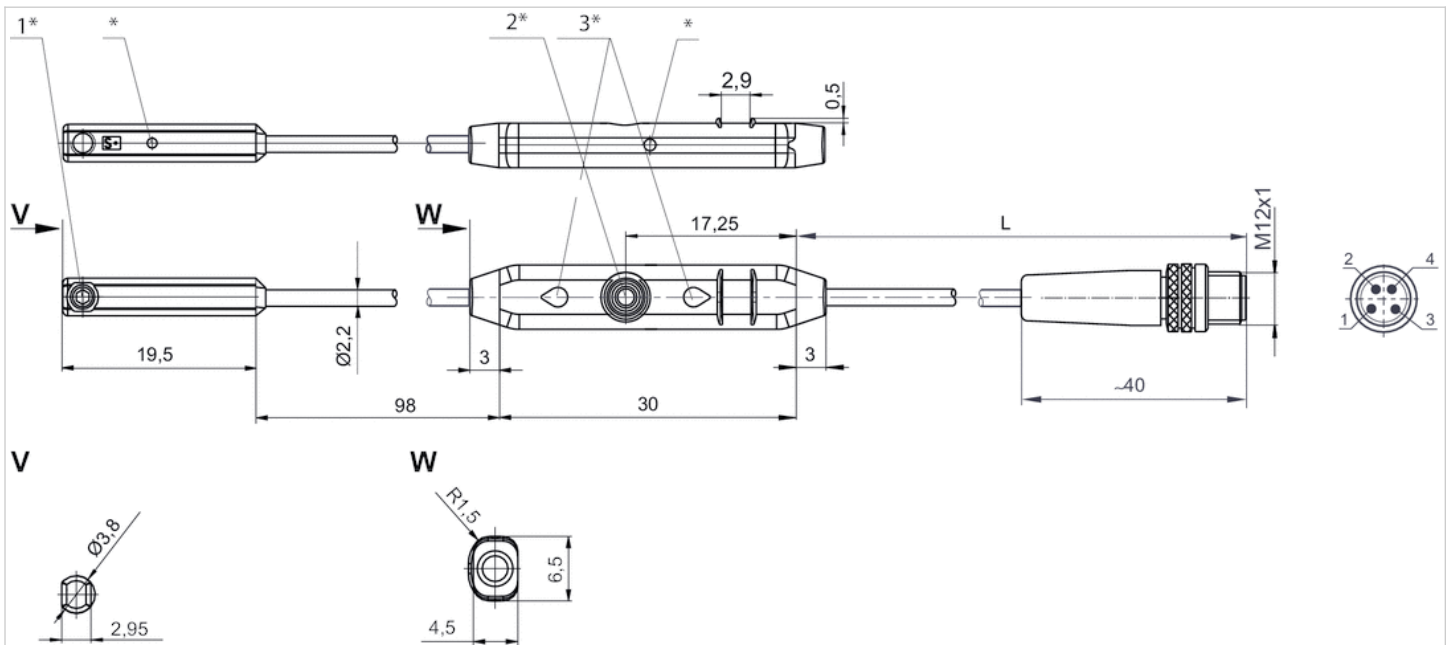
## Technical information

### Material

|              |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

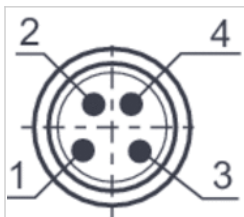
## Dimensions

### Dimensions



- 1\* = mounting screw 2\* = teach button 3\* = LED
- L = cable length
- PIN assignment: 1 = (+), 2 = (OUT), 3 = (-), 4 = (OUT) IO-Link
- \* Switching point

## Pin assignments



| Pin        | 1   | 2     | 3   | 4             |
|------------|-----|-------|-----|---------------|
| Allocation | (+) | (OUT) | (-) | IO-Link (OUT) |











## Sensor, Series ST6

- 6 mm T-slot
- with cable
- open cable ends, 2-pin open cable ends, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |                   |
|----------------------------------|-------------------|
| Ambient temperature min./max.    | -30 ... 80 °C     |
| Protection class                 | IP65, IP67, IP69K |
| Switching point precision        | ±0,1 mT           |
| Nominal current, actuated state  | 30 mA             |
| Quiescent current (without load) | 8 mA              |
| Min./max. DC operating voltage   | See table below   |
| Min./max. AC operating voltage   | See table below   |
| Hysteresis                       | ≥ 0,2 mT          |
| Switching logic                  | NO (make contact) |
| LED status display               | Yellow            |
| Vibration resistance             | 10 - 55 Hz, 1 mm  |
| Shock resistance                 | 30 g / 11 ms      |
| Cable length L                   | 3 5 10 m          |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022866 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412027170 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022869 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022870 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022871 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022853 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022855 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022857 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022849 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |
| R412022850 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable length<br>L | Min./max. DC operating voltage | Min./max. AC operating voltage |
|------------|-------------------|--------------------------------|--------------------------------|
| R412022866 | 3 m               | 10 ... 230 V DC                | 10 ... 230 V AC                |
| R412027170 | 5 m               | 10 ... 230 V DC                | 10 ... 230 V AC                |
| R412022869 | 3 m               | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022870 | 5 m               | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022871 | 10 m              | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022853 | 3 m               | 10 ... 30 V DC                 | -                              |
| R412022855 | 5 m               | 10 ... 30 V DC                 | -                              |
| R412022857 | 10 m              | 10 ... 30 V DC                 | -                              |
| R412022849 | 3 m               | 10 ... 30 V DC                 | -                              |
| R412022850 | 5 m               | 10 ... 30 V DC                 | -                              |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022866 | ≤ 3,5 V                            | 0.13 A                     |
| R412027170 | ≤ 3,5 V                            | 0.13 A                     |
| R412022869 | I*Rs                               | 0.3 A                      |
| R412022870 | ≤ 0,1 V                            | 0.3 A                      |
| R412022871 | I*Rs                               | 0.3 A                      |
| R412022853 | ≤ 2,5 V                            | 0.13 A                     |
| R412022855 | ≤ 2,5 V                            | 0.13 A                     |
| R412022857 | ≤ 2,5 V                            | 0.13 A                     |
| R412022849 | ≤ 2,5 V                            | 0.13 A                     |
| R412022850 | ≤ 2,5 V                            | 0.13 A                     |

| Part No.   | AC switching current, max. | Switching capacity     |
|------------|----------------------------|------------------------|
| R412022866 | 0.13 A                     | Reed, 2-pin: max. 10 W |
| R412027170 | 0.13 A                     | Reed, 2-pin: max. 10 W |
| R412022869 | 0.5 A                      | Reed, 3-pin: max. 6 W  |
| R412022870 | 0.5 A                      | Reed, 3-pin: max. 6 W  |
| R412022871 | 0.5 A                      | Reed, 3-pin: max. 6 W  |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412022853 | -                          | -                  |
| R412022855 | -                          | -                  |
| R412022857 | -                          | -                  |
| R412022849 | -                          | -                  |
| R412022850 | -                          | -                  |

| Part No.   | Max. switching frequency | Operating current, not switched |
|------------|--------------------------|---------------------------------|
| R412022866 | 400 Hz                   | -                               |
| R412027170 | 400 Hz                   | -                               |
| R412022869 | 400 Hz                   | -                               |
| R412022870 | 400 Hz                   | -                               |
| R412022871 | 400 Hz                   | -                               |
| R412022853 | 1000 Hz                  | 8 mA                            |
| R412022855 | 1000 Hz                  | 8 mA                            |
| R412022857 | 1000 Hz                  | 8 mA                            |
| R412022849 | 1000 Hz                  | 8 mA                            |
| R412022850 | 1000 Hz                  | 8 mA                            |

| Part No.   | Operating current, switched |
|------------|-----------------------------|
| R412022866 | -                           |
| R412027170 | -                           |
| R412022869 | -                           |
| R412022870 | -                           |
| R412022871 | -                           |
| R412022853 | 30 mA                       |
| R412022855 | 30 mA                       |
| R412022857 | 30 mA                       |
| R412022849 | 30 mA                       |
| R412022850 | 30 mA                       |

| Part No.   | Version   | Fig.   |    |
|------------|---|--------|----|
| R412022866 | Protected against polarity reversal                         | Fig. 1 | 1) |
| R412027170 | Protected against polarity reversal                         | Fig. 1 | 1) |
| R412022869 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022870 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022871 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022853 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022855 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022857 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022849 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022850 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |

1) open cable ends 2-pin The product of operating voltage and continuous current must not exceed the maximum switching capacity.

2) open cable ends 3-pin The product of operating voltage and continuous current must not exceed the maximum switching capacity.

3) open cable ends 3-pin

## Technical information

No cULus certification for 230 V variant.

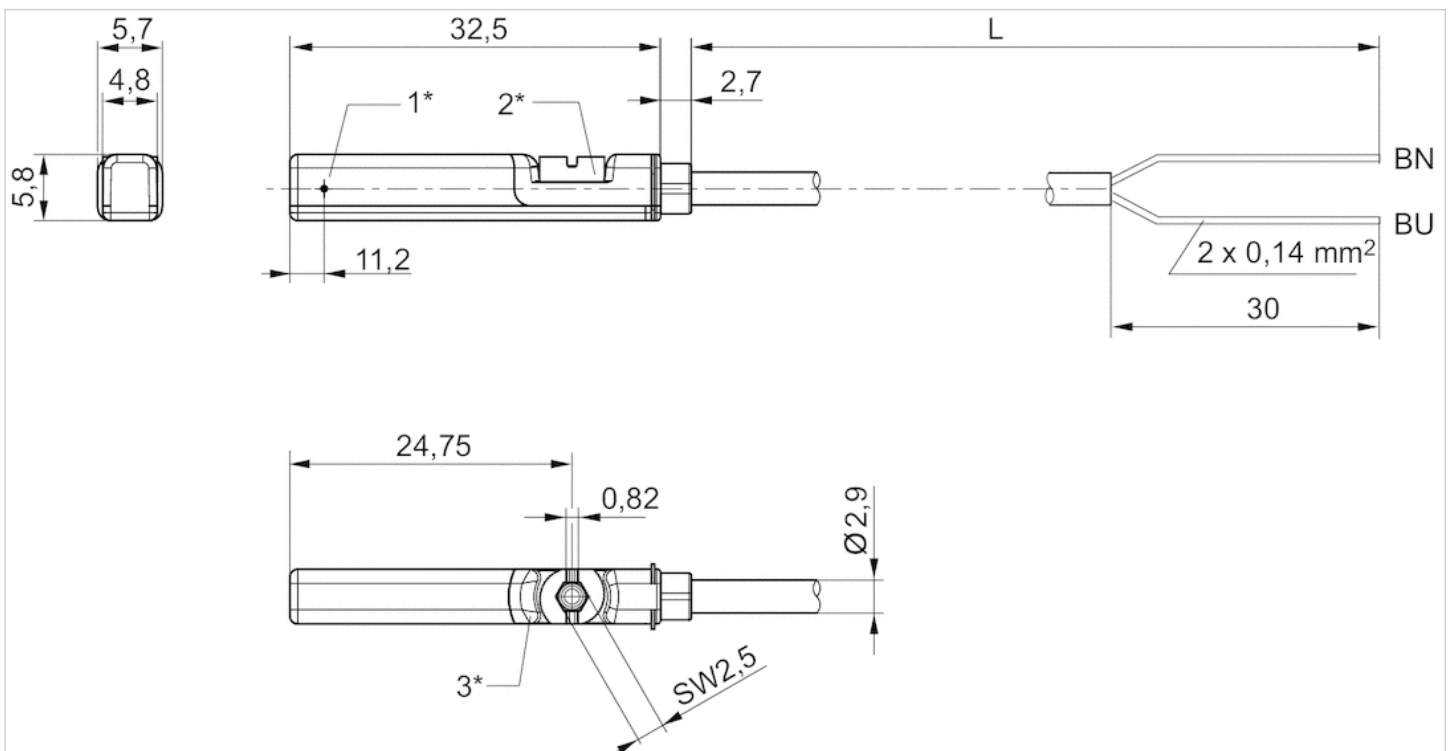
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

Fig. 1



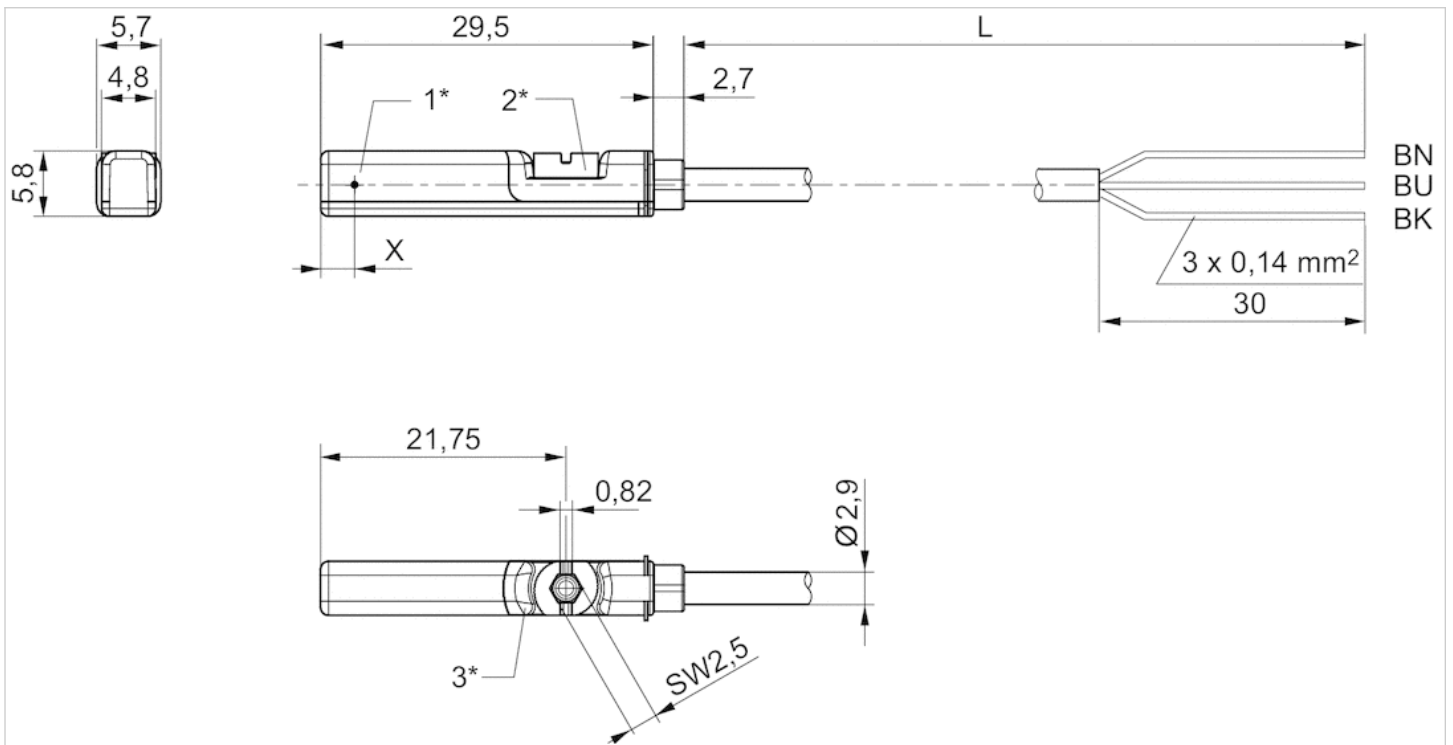
1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

BN=brown, BU=blue



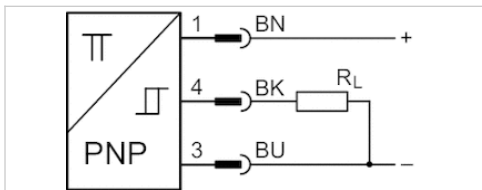
Fig. 2



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 BN = brown, BK = black, BU = blue  
 X = electronic: 11.6 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- open cable ends, 3-pin
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



**Certificates**

- ATEX class G
- ATEX class D
- Ambient temperature min./max.
- Protection class
- Switching point precision
- Quiescent current (without load)
- Min./max. DC operating voltage
- Switching logic
- LED status display
- Vibration resistance
- Shock resistance
- Cable length L

- ATEX CE declaration of conformity cULus
- RoHS
- II 3G Ex nA IIC T4 Gc X
- II 3D Ex tc IIIC T135°C Dc X
- 20 ... 50 °C
- IP67
- ±0,1 mT
- 10 mA
- 10 ... 30 V DC
- NO (make contact)
- Yellow
- 10 - 55 Hz, 1 mm
- 30 g / 11 ms
- 3 5 m

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022854 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 3 m            |
| R412022856 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 5 m            |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022854 | ≤ 2,5 V                            | 0.1 A                      |
| R412022856 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022854 | 1000 Hz                  |
| R412022856 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022854 | short circuit resistant Protected against polarity reversal |

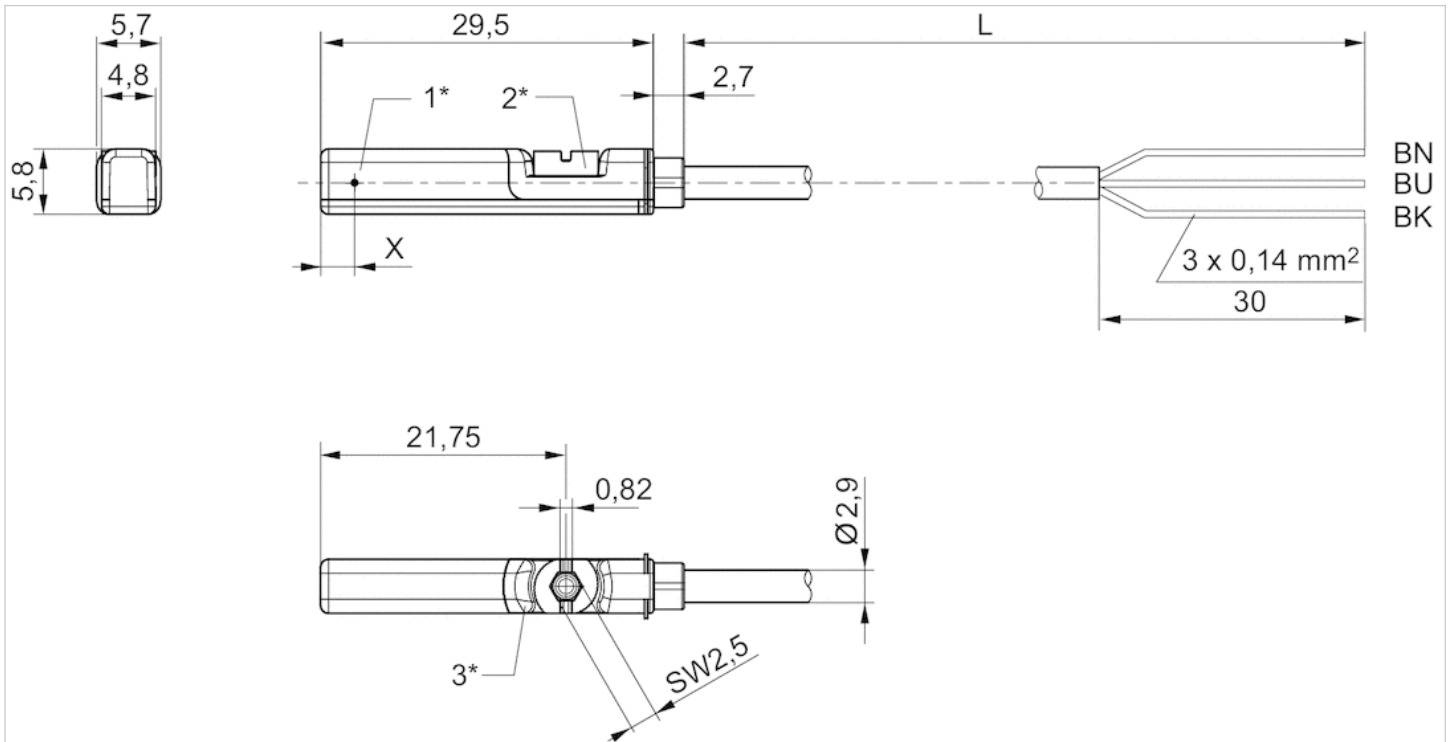
| Part No.   | Version   |
|------------|---|
| R412022856 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

Fig. 2



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 BN = brown, BK = black, BU = blue  
 X = electronic: 11.6 mm








# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | IP65, IP67                              |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| Switching capacity               | Reed, 3-pin: max. 6 W                   |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 0.5 m                               |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022873 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022875 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022874 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022859 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022862 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022861 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022852 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable sheath       | Cable length L | Min./max. AC operating voltage |
|------------|--------------------|----------------|--------------------------------|
| R412022873 | Polyurethane       | 0.3 m          | 10 ... 30 V AC                 |
| R412022875 | Polyvinyl chloride | 0.3 m          | 10 ... 30 V AC                 |
| R412022874 | Polyurethane       | 0.5 m          | 10 ... 30 V AC                 |
| R412022859 | Polyurethane       | 0.3 m          | -                              |
| R412022862 | Polyvinyl chloride | 0.3 m          | -                              |
| R412022861 | Polyurethane       | 0.5 m          | -                              |
| R412022852 | Polyurethane       | 0.3 m          | -                              |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022873 | I*Rs                               | 0.3 A                      |
| R412022875 | I*Rs                               | 0.3 A                      |
| R412022874 | I*Rs                               | 0.3 A                      |
| R412022859 | ≤ 2,5 V                            | 0.13 A                     |
| R412022862 | ≤ 2,5 V                            | 0.13 A                     |
| R412022861 | ≤ 2,5 V                            | 0.13 A                     |
| R412022852 | ≤ 2,5 V                            | 0.13 A                     |

| Part No.   | AC switching current, max. | Max. switching frequency |
|------------|----------------------------|--------------------------|
| R412022873 | 0.5 A                      | 400 Hz                   |
| R412022875 | 0.5 A                      | 400 Hz                   |
| R412022874 | 0.5 A                      | 400 Hz                   |
| R412022859 | -                          | 1000 Hz                  |
| R412022862 | -                          | 1000 Hz                  |
| R412022861 | -                          | 1000 Hz                  |
| R412022852 | -                          | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched |
|------------|---------------------------------|-----------------------------|
| R412022873 | -                               | -                           |
| R412022875 | -                               | -                           |
| R412022874 | -                               | -                           |
| R412022859 | 8 mA                            | 30 mA                       |
| R412022862 | 8 mA                            | 30 mA                       |
| R412022861 | 8 mA                            | 30 mA                       |
| R412022852 | 8 mA                            | 30 mA                       |

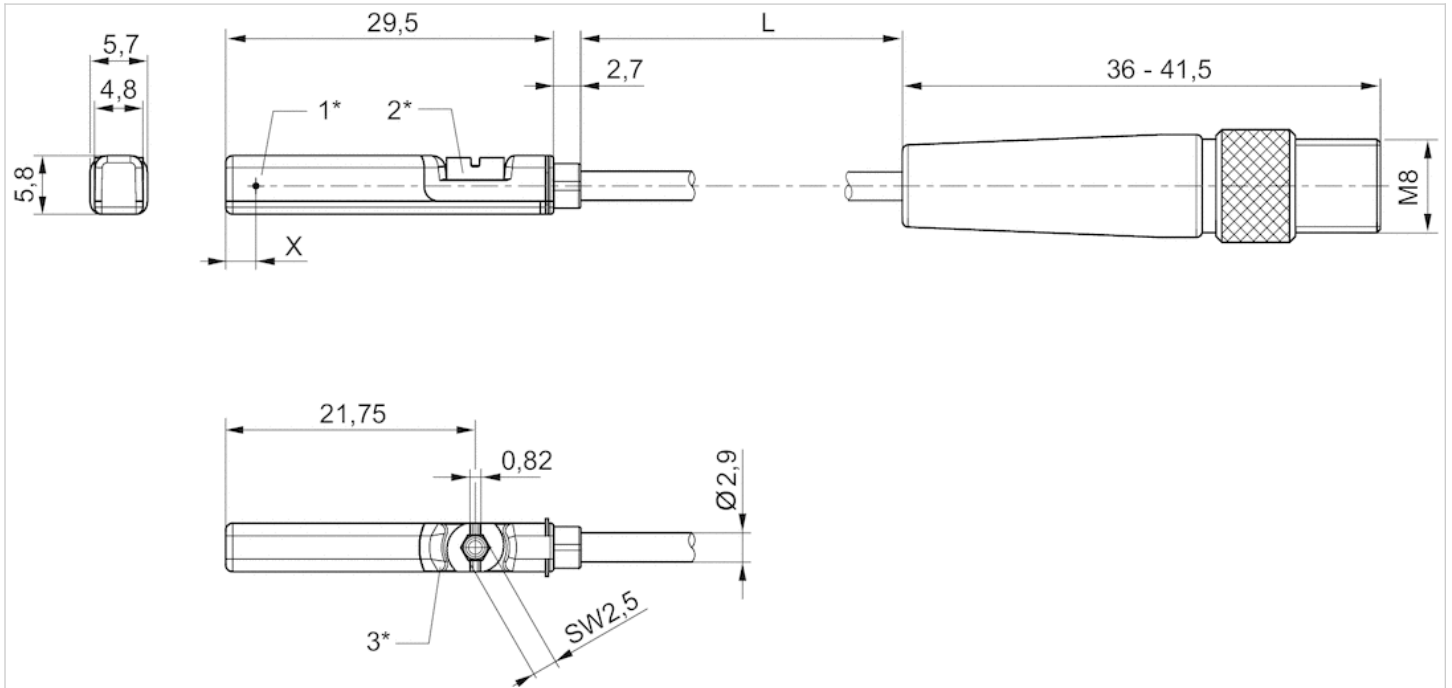
| Part No.   | Version   |
|------------|---|
| R412022873 | Protected against polarity reversal                         |
| R412022875 | Protected against polarity reversal                         |
| R412022874 | Protected against polarity reversal                         |
| R412022859 | short circuit resistant Protected against polarity reversal |
| R412022862 | short circuit resistant Protected against polarity reversal |
| R412022861 | short circuit resistant Protected against polarity reversal |
| R412022852 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material      |                                 |
|---------------|---------------------------------|
| Housing       | Polyamide                       |
| Cable sheath  | Polyurethane Polyvinyl chloride |
| Locking screw | Stainless steel                 |

## Dimensions

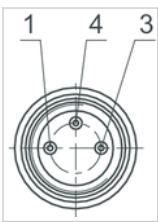
### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 X = electronic: 11,6 mm, Reed: 8,3 mm

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |






# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin Plug, M8, 2-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | IP65, IP67                              |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 m                                   |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022868 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412027172 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022872 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022858 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022851 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable length L | Min./max. AC operating voltage | Voltage drop U at I <sub>max</sub> |
|------------|----------------|--------------------------------|------------------------------------|
| R412022868 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412027172 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412022872 | 0.3 m          | 10 ... 30 V AC                 | ≤ 0,1 V                            |
| R412022858 | 0.3 m          | -                              | ≤ 2,5 V                            |
| R412022851 | 0.3 m          | -                              | ≤ 2,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022868 | 0.13 A                     | 0.13 A                     |
| R412027172 | 0.13 A                     | 0.13 A                     |
| R412022872 | 0.3 A                      | 0.5 A                      |
| R412022858 | 0.13 A                     | -                          |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022851 | 0.13 A                     | -                          |

| Part No.   | Switching capacity     | Max. switching frequency |
|------------|------------------------|--------------------------|
| R412022868 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412027172 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412022872 | Reed, 3-pin: max. 6 W  | 400 Hz                   |
| R412022858 | -                      | 1000 Hz                  |
| R412022851 | -                      | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched |
|------------|---------------------------------|-----------------------------|
| R412022868 | -                               | -                           |
| R412027172 | -                               | -                           |
| R412022872 | -                               | -                           |
| R412022858 | 8 mA                            | 30 mA                       |
| R412022851 | 8 mA                            | 30 mA                       |

| Part No.   | Version   |    |
|------------|---|----|
| R412022868 | Protected against polarity reversal                         | 1) |
| R412027172 | Protected against polarity reversal                         | 1) |
| R412022872 | Protected against polarity reversal                         | 1) |
| R412022858 | short circuit resistant Protected against polarity reversal | -  |
| R412022851 | short circuit resistant Protected against polarity reversal | -  |

1) The product of operating voltage and continuous current must not exceed the maximum switching capacity.

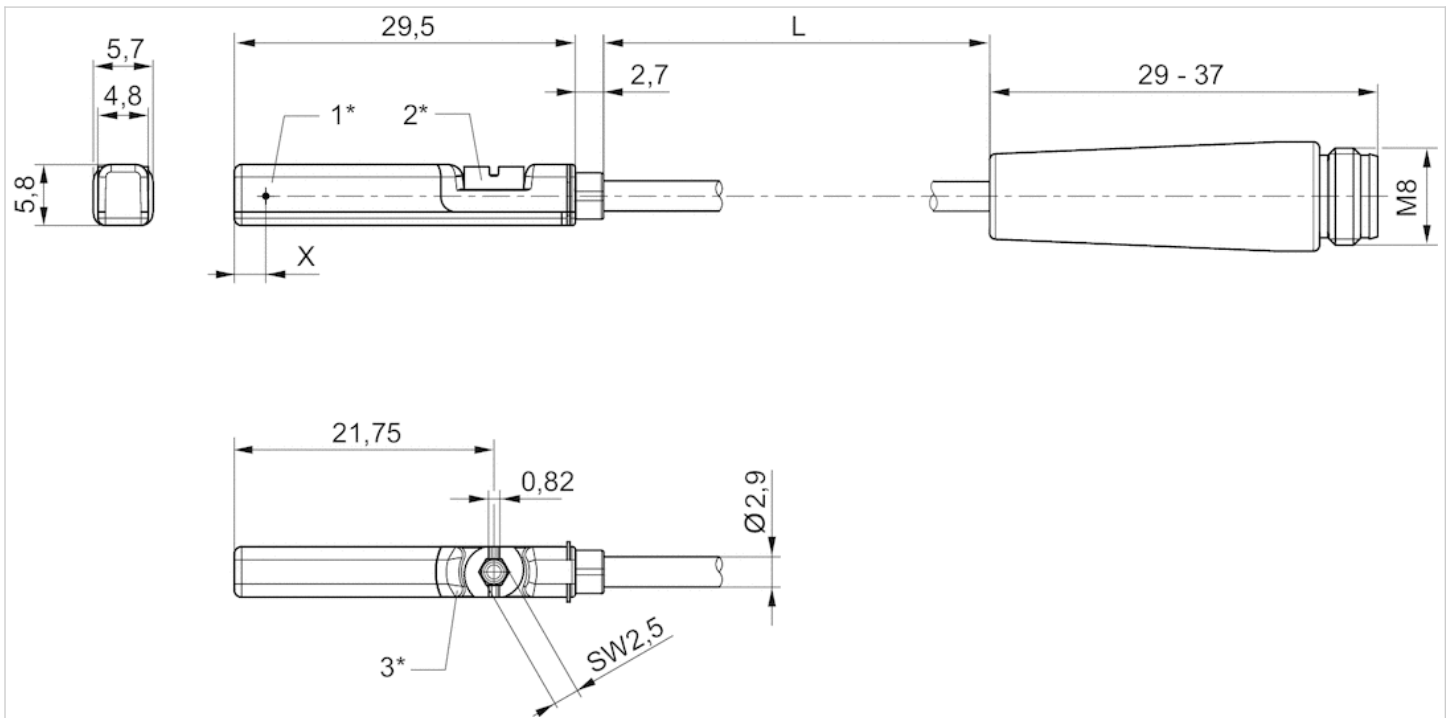
## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |



## Dimensions

### Dimensions



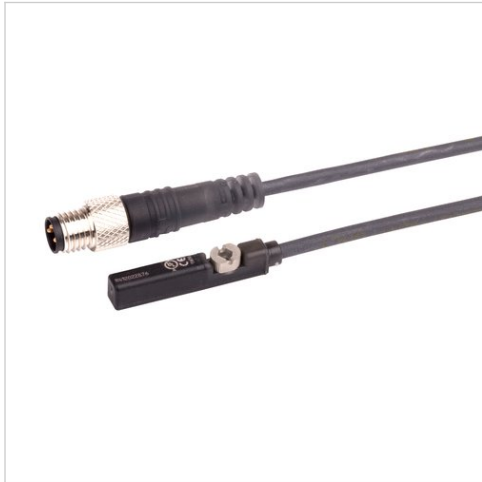
1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

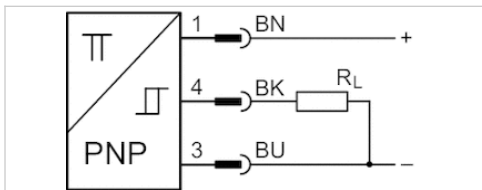
X = electronic: 11,6 mm, Reed: 8,3 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | ATEX CE declaration of conformity cULus<br>RoHS |
| ATEX class G                     | II 3G Ex nA IIC T4 Gc X                         |
| ATEX class D                     | II 3D Ex tc IIIC T135°C Dc X                    |
| Ambient temperature min./max.    | -20 ... 50 °C                                   |
| Protection class                 | IP65, IP67                                      |
| Switching point precision        | ±0,1 mT   |
| Quiescent current (without load) | 10 mA   |
| Min./max. DC operating voltage   | 10 ... 30 V DC                                  |
| Switching logic                  | NO (make contact)                               |
| LED status display               | Yellow Yellow                                   |
| Vibration resistance             | 10 - 55 Hz, 1 mm                                |
| Shock resistance                 | 30 g / 11 ms                                    |
| Cable length L                   | 0.3 m   |



## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022860 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022860 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022860 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022860 | short circuit resistant Protected against polarity reversal |

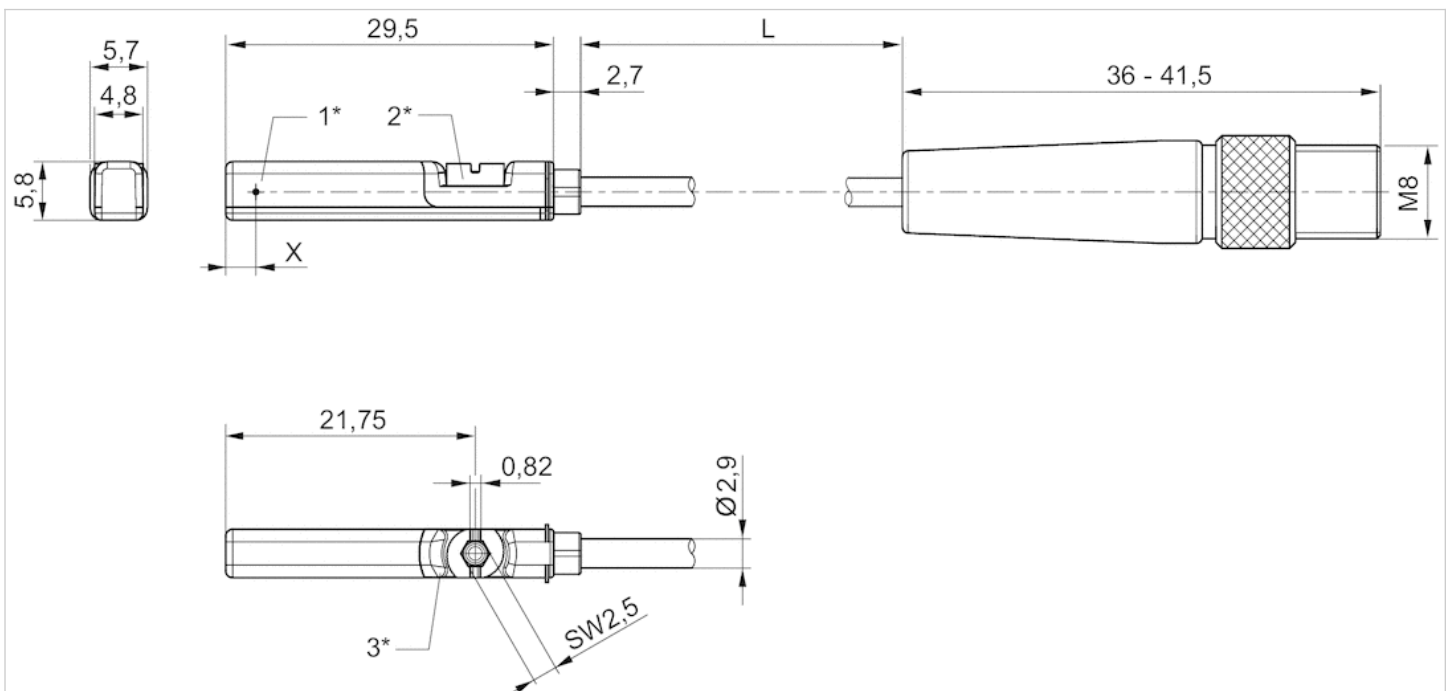
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

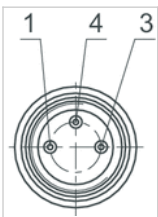
### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 X = electronic: 11,6 mm, Reed: 8,3 mm

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |







# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M12, 2-pin, with knurled screw Plug, M12, 4-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | See table below                         |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 0.1 3 5 m                           |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412027171 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022876 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022879 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022863 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022877 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022878 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |

| Part No.   | Cable length L | Min./max. AC operating voltage | Voltage drop U at I <sub>max</sub> |
|------------|----------------|--------------------------------|------------------------------------|
| R412027171 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412022876 | 0.3 m          | 10 ... 30 V AC                 | ≤ 0,1 V                            |
| R412022879 | 0.1 m          | -                              | ≤ 2,5 V                            |
| R412022863 | 0.3 m          | -                              | ≤ 2,5 V                            |
| R412022877 | 3 m            | -                              | ≤ 2,5 V                            |
| R412022878 | 5 m            | -                              | ≤ 2,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412027171 | 0.13 A                     | 0.13 A                     |
| R412022876 | 0.3 A                      | 0.5 A                      |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022879 | 0.13 A                     | -                          |
| R412022863 | 0.13 A                     | -                          |
| R412022877 | 0.13 A                     | -                          |
| R412022878 | 0.13 A                     | -                          |

| Part No.   | Switching capacity     | Max. switching frequency |
|------------|------------------------|--------------------------|
| R412027171 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412022876 | Reed, 3-pin: max. 6 W  | 400 Hz                   |
| R412022879 | -                      | 1000 Hz                  |
| R412022863 | -                      | 1000 Hz                  |
| R412022877 | -                      | 1000 Hz                  |
| R412022878 | -                      | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched | Protection class  |
|------------|---------------------------------|-----------------------------|-------------------|
| R412027171 | -                               | -                           | IP65, IP67        |
| R412022876 | -                               | -                           | IP65, IP67        |
| R412022879 | 8 mA                            | 30 mA                       | IP65, IP67        |
| R412022863 | 8 mA                            | 30 mA                       | IP65, IP67, IP69K |
| R412022877 | 8 mA                            | 30 mA                       | IP65, IP67        |
| R412022878 | 8 mA                            | 30 mA                       | IP65, IP67        |

| Part No.   | Version   |    |
|------------|---|----|
| R412027171 | Protected against polarity reversal                         | 1) |
| R412022876 | Protected against polarity reversal                         | 1) |
| R412022879 | short circuit resistant Protected against polarity reversal | -  |
| R412022863 | short circuit resistant Protected against polarity reversal | -  |
| R412022877 | short circuit resistant Protected against polarity reversal | -  |
| R412022878 | short circuit resistant Protected against polarity reversal | -  |

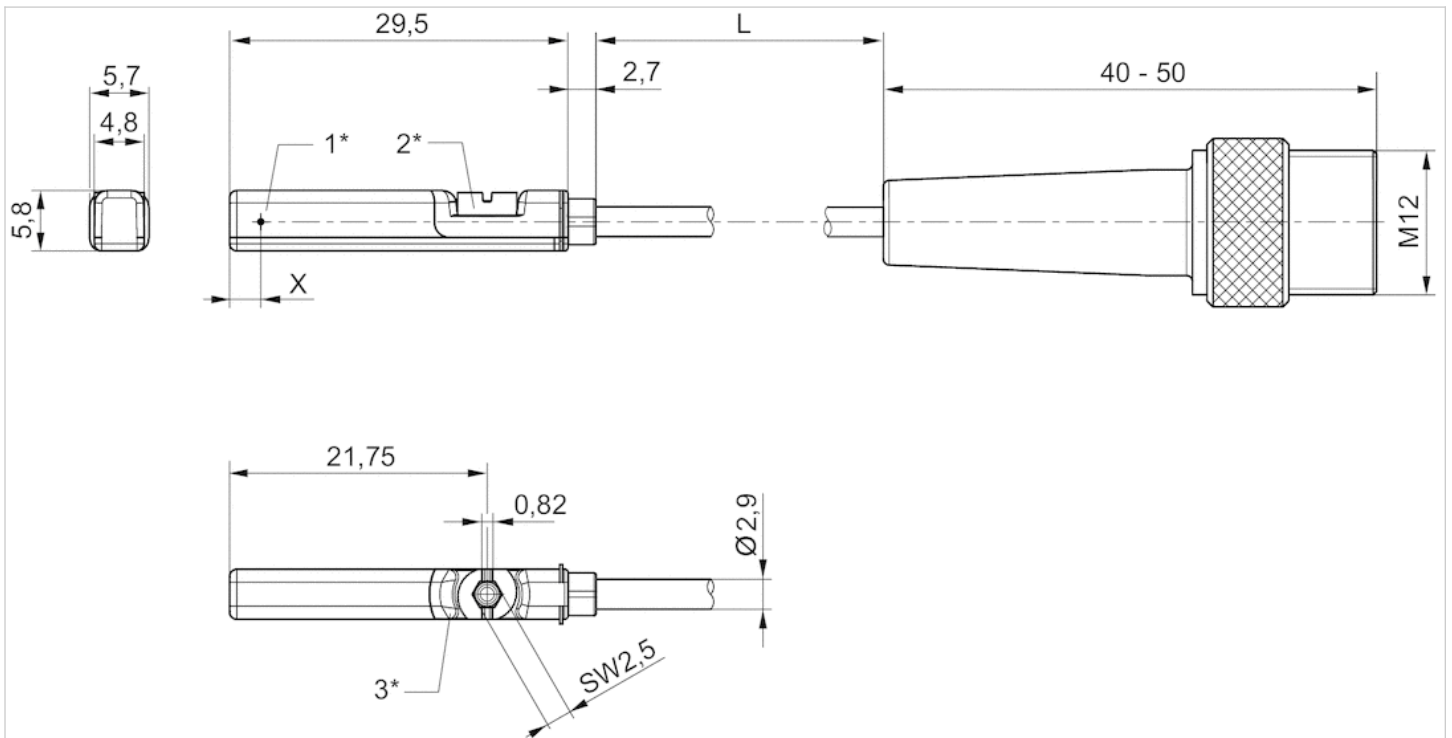
1) The product of operating voltage and continuous current must not exceed the maximum switching capacity.

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



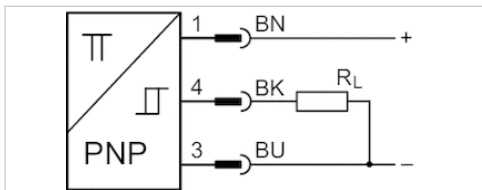
1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 X = PNP: 11,6 mm, reed: 8,3 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M12, 3-pin, with knurled screw
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | ATEX CE declaration of conformity cULus<br>RoHS |
| ATEX class G                     | II 3G Ex nA IIC T4 Gc X                         |
| ATEX class D                     | II 3D Ex tc IIIC T135°C Dc X                    |
| Ambient temperature min./max.    | -20 ... 50 °C                                   |
| Protection class                 | IP67  |
| Switching point precision        | ±0,1 mT   |
| Quiescent current (without load) | 10 mA   |
| Min./max. DC operating voltage   | 10 ... 30 V DC                                  |
| Switching logic                  | NO (make contact)                               |
| LED status display               | Yellow Yellow                                   |
| Vibration resistance             | 10 - 55 Hz, 1 mm                                |
| Shock resistance                 | 30 g / 11 ms                                    |
| Cable length L                   | 0.3 m   |



## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022864 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022864 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022864 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022864 | short circuit resistant Protected against polarity reversal |

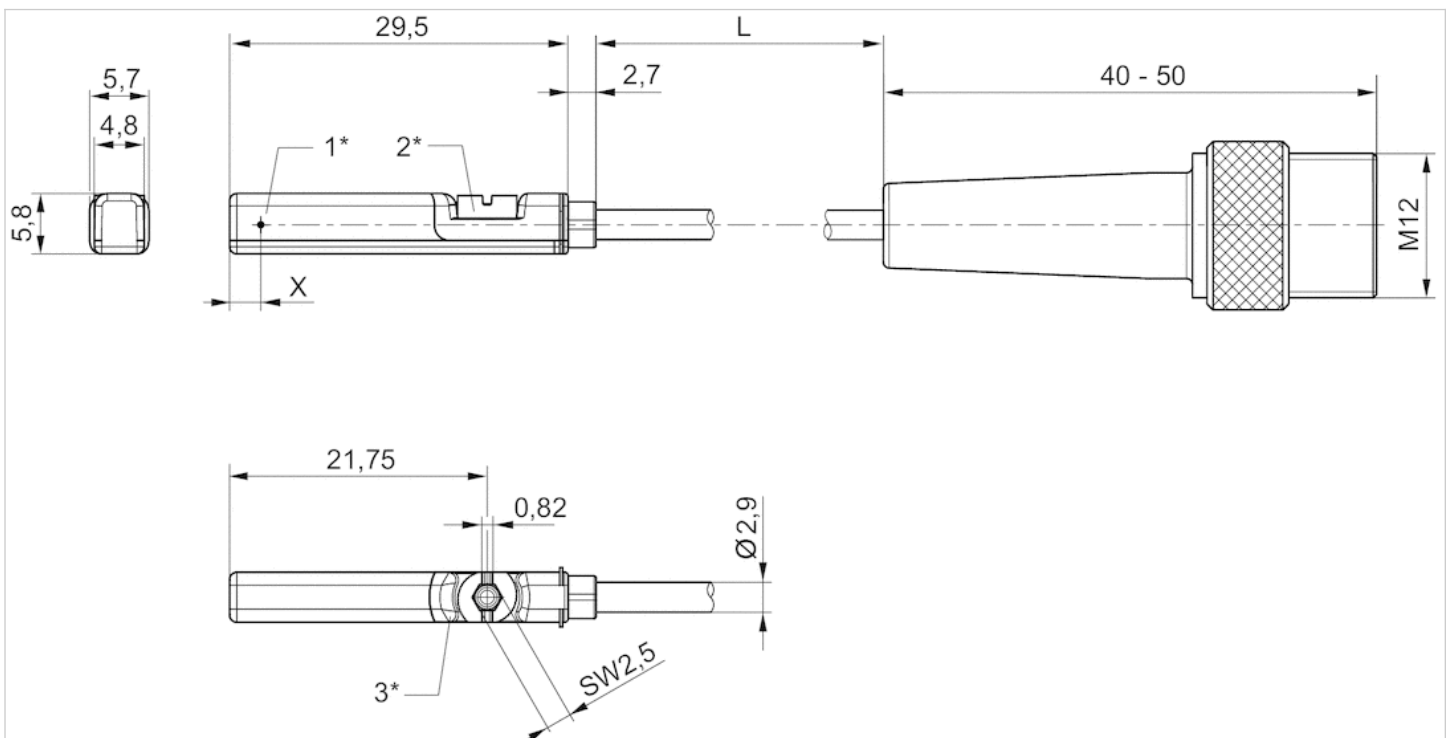
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

X = PNP: 11,6 mm, reed: 8,3 mm

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |

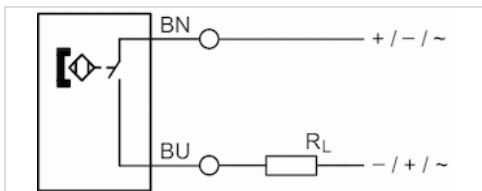


# Sensor, Series ST6-HT

- 6 mm T-slot
- with cable
- open cable ends, 2-pin
- Heat resistant
- UL certification
- Reed
- Direct mounting for series PRA, PRE, CCI, KPZ
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC



| Certificates                   | CE declaration of conformity RoHS |
|--------------------------------|-----------------------------------|
| Ambient temperature min./max.  | -20 ... 120 °C                    |
| Protection class               | IP65, IP67                        |
| Switching point precision      | ±0,1 mT                           |
| Min./max. DC operating voltage | 0 ... 30 V DC                     |
| Min./max. AC operating voltage | 0 ... 30 V AC                     |
| Switching logic                | NO (make contact)                 |
| Switching capacity             | Reed, 2-pin: max. 10 W            |
| Vibration resistance           | 10 - 55 Hz, 1 mm                  |
| Shock resistance               | 30 g / 11 ms                      |
| Cable length L                 | 3 10 m                            |



## Technical data

| Part No.   | for                | Type of contact | Cable length L | Voltage drop U at I <sub>max</sub> |
|------------|--------------------|-----------------|----------------|------------------------------------|
| R412022865 | PRA, PRE, CCI, KPZ | Reed            | 3 m            | ≤ 3,5 V                            |
| R412022867 | PRA, PRE, CCI, KPZ | Reed            | 10 m           | ≤ 3,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022865 | 0.13 A                     | 0.13 A                     |
| R412022867 | 0.13 A                     | 0.13 A                     |

| Part No.   | Max. switching frequency | Version                             |
|------------|--------------------------|-------------------------------------|
| R412022865 | 400 Hz                   | Protected against polarity reversal |
| R412022867 | 400 Hz                   | Protected against polarity reversal |

| Part No.   | Temperature resistance |
|------------|------------------------|
| R412022865 | Heat resistant         |

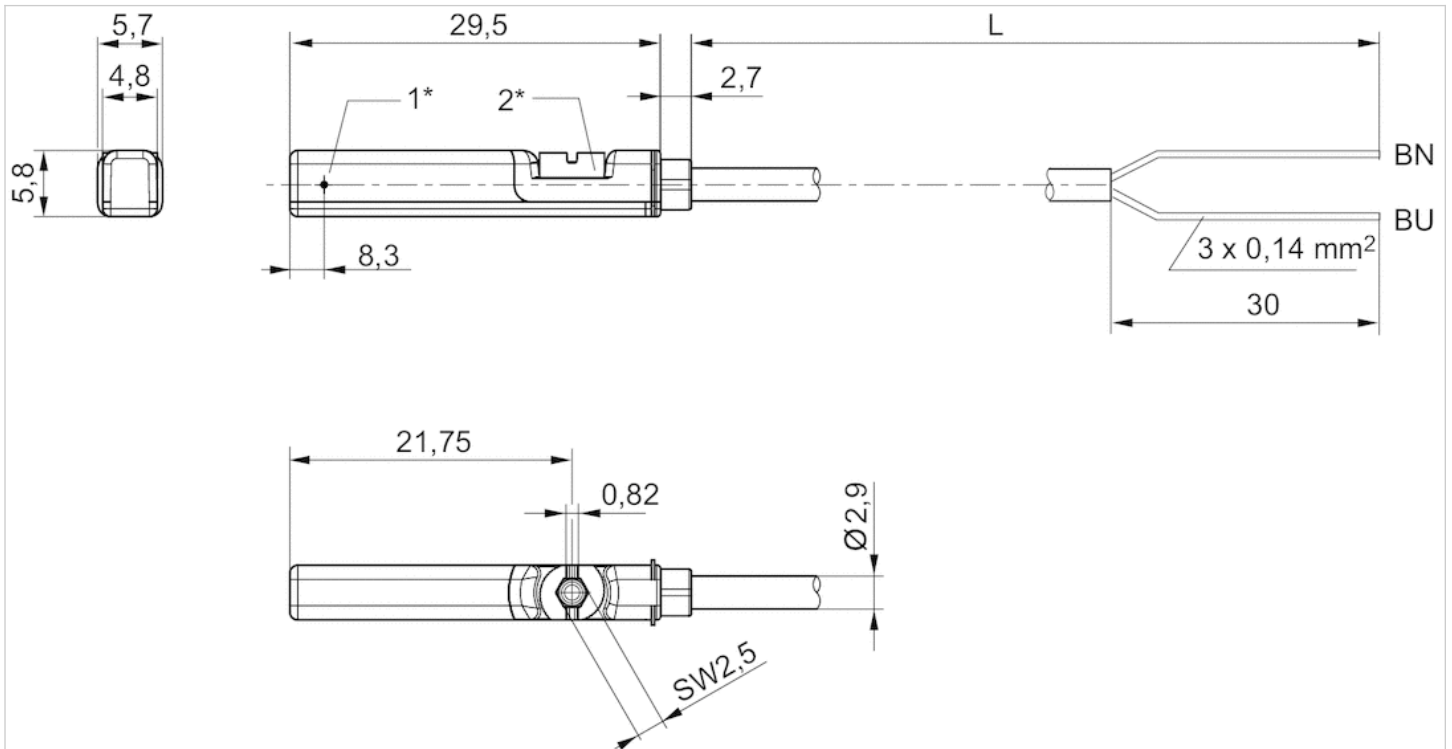
| Part No.   | Temperature resistance |
|------------|------------------------|
| R412022867 | Heat resistant         |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw

L = cable length

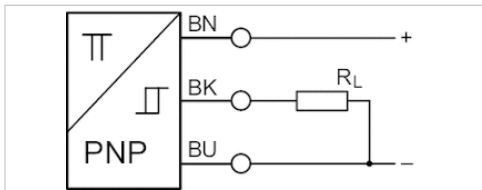
BN=brown, BU=blue

# Sensor, Series ST6-LT

- 6 mm T-slot
- with cable
- open cable ends, 3-pin Plug, M8x1, 3-pin, with knurled screw Plug, M12x1, 3-pin, with knurled screw
- -40 °C cold-resistant
- UL certification
- electronic PNP
- Direct mounting for series PRA
- Indirect mounting for series TRB, ITS



| Certificates                     | CE declaration of conformity cULus RoHS |
|----------------------------------|---|
| Ambient temperature min./max.    | -40 ... 80 °C                           |
| Protection class                 | IP65, IP67, IP68                        |
| Switching point precision        | ±0,1 mT                                 |
| Quiescent current (without load) | 10 mA                                   |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 5 0.3 m                                 |



## Technical data

| Part No.   | for | Type of contact | Cable length L | Voltage drop U at I <sub>max</sub> |
|------------|-----|-----------------|----------------|------------------------------------|
| R412024011 | PRA | electronic PNP  | 5 m            | ≤ 2,5 V                            |
| R412024669 | PRA | electronic PNP  | 0.3 m          | ≤ 2,5 V                            |
| R412024670 | PRA | electronic PNP  | 0.3 m          | ≤ 2,5 V                            |

| Part No.   | DC switching current, max. | Max. switching frequency | Material Housing |
|------------|----------------------------|--------------------------|------------------|
| R412024011 | 0.2 A                      | 1000 Hz                  | Polyurethane     |
| R412024669 | 0.2 A                      | 1000 Hz                  | Polyamide        |
| R412024670 | 0.2 A                      | 1000 Hz                  | Polyamide        |

| Part No.   | Version                 | Temperature resistance | Fig.   |    |
|------------|-------------------------|------------------------|--------|----|
| R412024011 | short circuit resistant | -40 °C cold-resistant  | Fig. 1 | 1) |
| R412024669 | short circuit resistant | -40 °C cold-resistant  | Fig. 2 | 2) |
| R412024670 | short circuit resistant | -40 °C cold-resistant  | Fig. 3 | 3) |

- 1) open cable ends 3-pin
- 2) Plug M8x1 3-pin with knurled screw
- 3) plug M12 3-pin with knurled screw

## Technical information

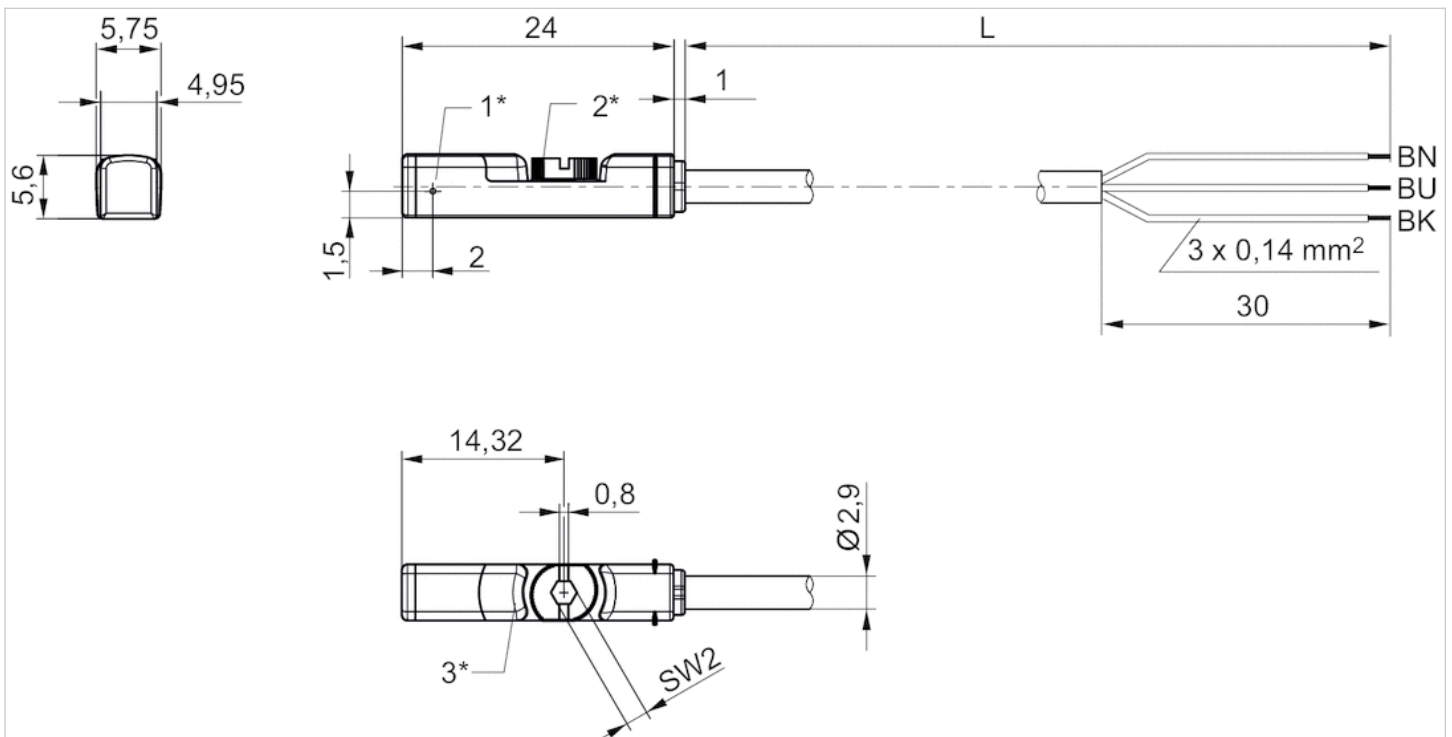
Cables must be firmly installed at temperatures of -40 °C ... -20 °C.

## Technical information

| Material      |                        |
|---------------|------------------------|
| Housing       | Polyurethane Polyamide |
| Cable sheath  | Polyurethane           |
| Locking screw | Stainless steel        |

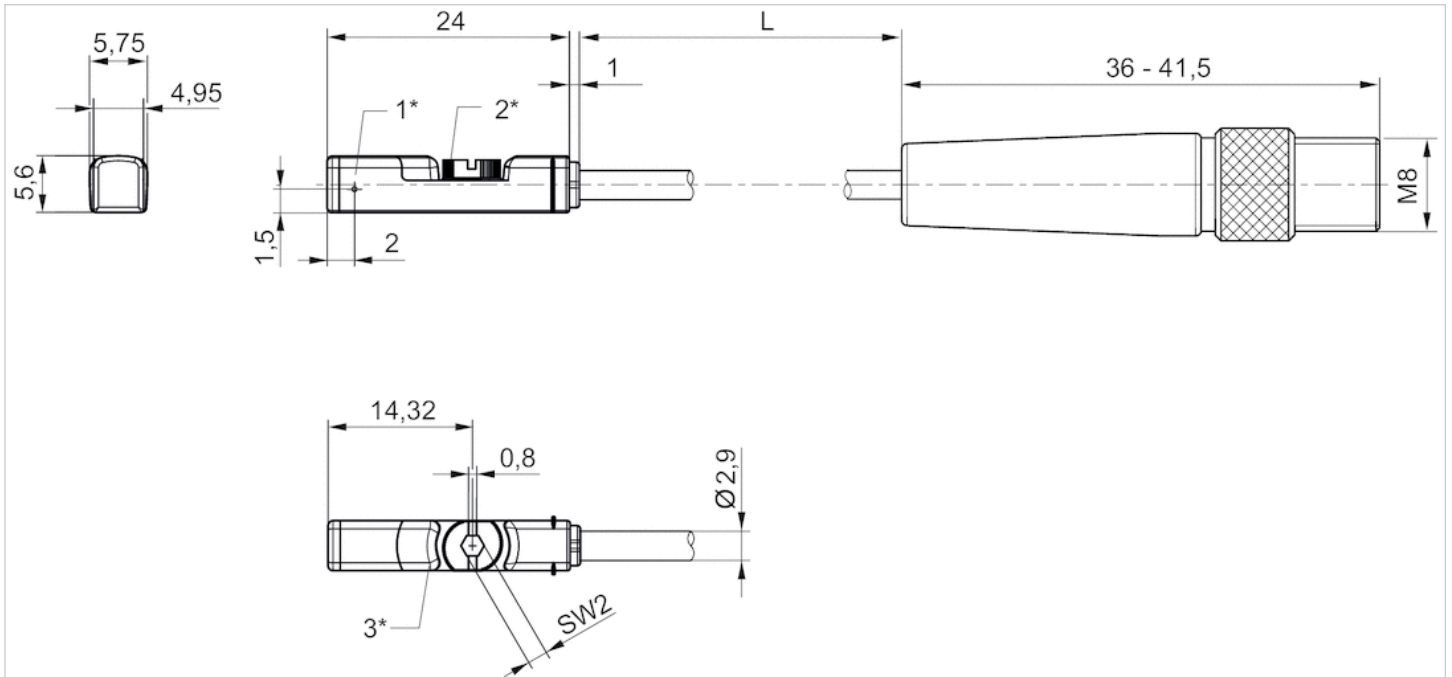
## Dimensions

Fig. 1



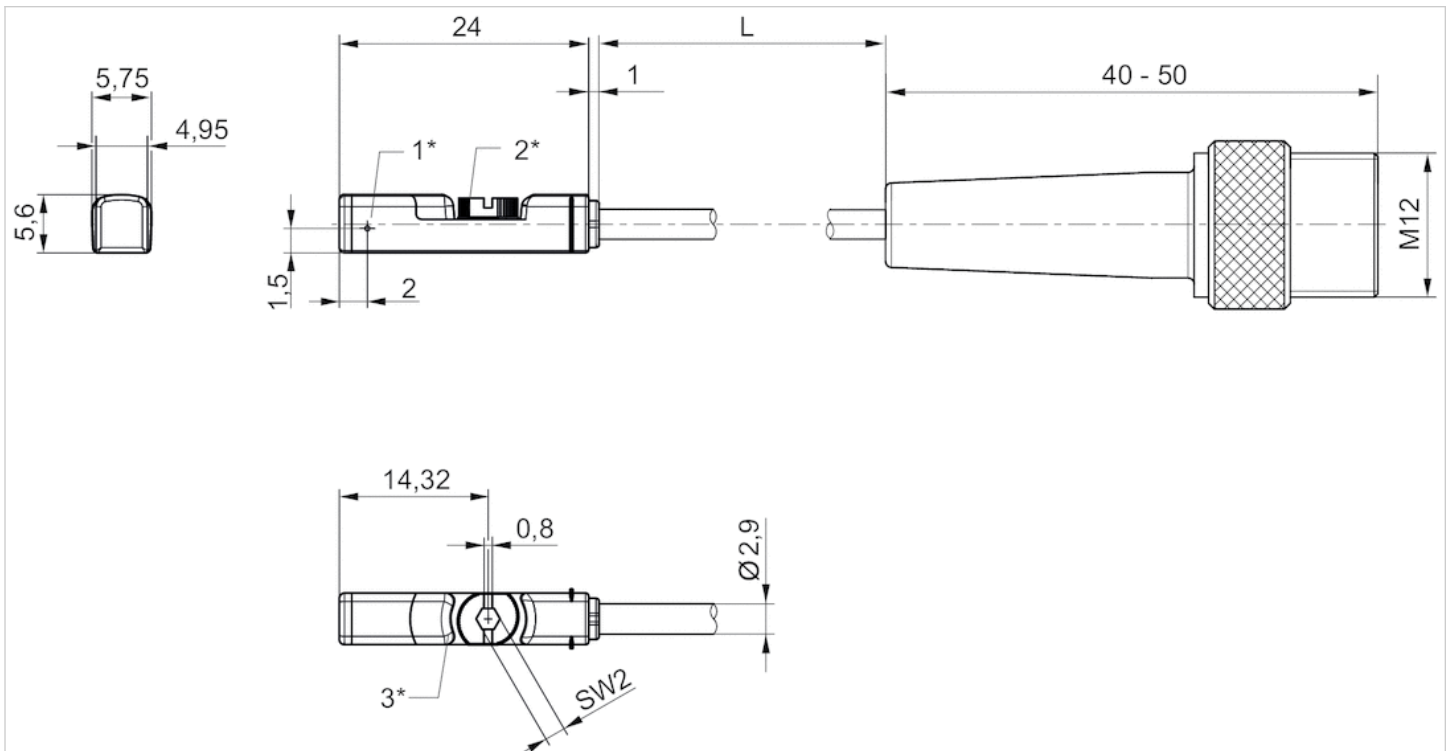
1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 BN = brown, BK = black, BU = blue

Fig. 2



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length

Fig. 3



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length

# Sensor, Series IN1

- for locking unit, series LU6



|                               |                     |
|-------------------------------|---------------------|
| Standardization               | DIN EN 60947-5-2    |
| Certificates                  | cULus               |
| Ambient temperature min./max. | -20 ... 65 °C       |
| Protection class              | IP67                |
| Hysteresis                    | 5 - 15%, adjustable |
| Temperature drift             | ± 10 %              |
| Residual ripple               | ≤ 10 %              |
| Reproducibility               | ≤ 2 %               |
| Switching logic               | NO (make contact)   |
| LED status display            | Yellow              |

## Technical data

| Part No.   | Operational voltage | Switching distance max. | Power consumption | Continuous current |
|------------|---------------------|-------------------------|-------------------|--------------------|
| R412010426 | 10 ... 30 V DC      | 2 mm                    | 10 mA             | 0.2 A              |

| Part No.   | Short circuit resistance                                    |
|------------|---|
| R412010426 | short circuit resistant Protected against polarity reversal |

## Technical information

Flush installation

Switching states:

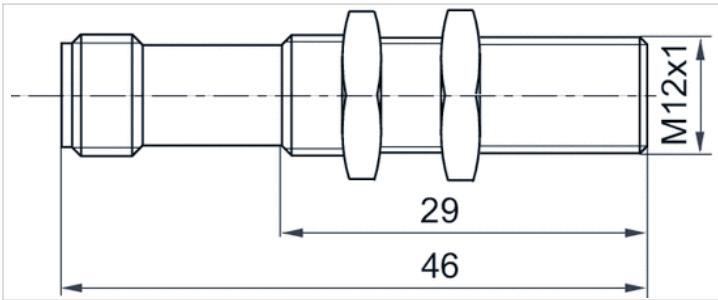
1. Pressure applied to locking unit, clamping pliers are open, sensor does not emit a signal (normally open)
2. No pressure applied to locking unit, clamping pliers are closed, sensor emits a signal (feedback that LU6 is clamping)

## Technical information

| Material |       |
|----------|-------|
| Housing  | Brass |

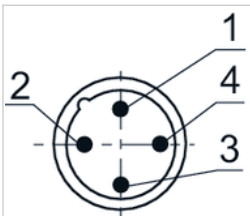
## Dimensions

### Dimensions



## Pin assignments

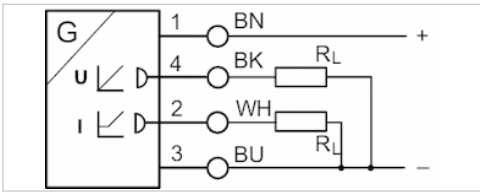
### Pin assignments, M12x1



| Pin        | 1                               | 2            | 3        |
|------------|---------------------------------|--------------|----------|
| Allocation | Pin 1: operational voltage + UB | not assigned | m = mass |
|            | 4                               |              |          |
|            | switch output Out               |              |          |

# Sensors, Series SM6

- 6 mm groove
- with cable
- without wire end ferrule, tin-plated, 4-pin
- with distance measuring sensor, measurement range 32 ... 256 mm
- Analog
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, 167, MNI, ICM, TRR



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP67                   |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 25 mA                  |
| Maximum load (analog current output)      | 500 Ω                  |
| Residual ripple                           | ≤ 10 %                 |
| sampling interval                         | 1 ms                   |
| Resolution max. measuring range           | 0,05 mm                |
| Repetitive precision max. measuring range | 0.1 mm                 |
| Linearity deviation                       | 0,3 mm                 |
| Sampling speed                            | 3 m/s                  |
| Display                                   | LED                    |
| LED status display                        | Yellow                 |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 2 m                    |

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412010141 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010143 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010262 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010264 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010411 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010413 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010415 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010417 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |

| Part No.   | max. measuring range | Overall length Sensor A |
|------------|----------------------|-------------------------|
| R412010141 | 32 mm                | 45 mm                   |
| R412010143 | 64 mm                | 77 mm                   |
| R412010262 | 96 mm                | 109 mm                  |
| R412010264 | 128 mm               | 141 mm                  |
| R412010411 | 160 mm               | 173 mm                  |
| R412010413 | 192 mm               | 205 mm                  |



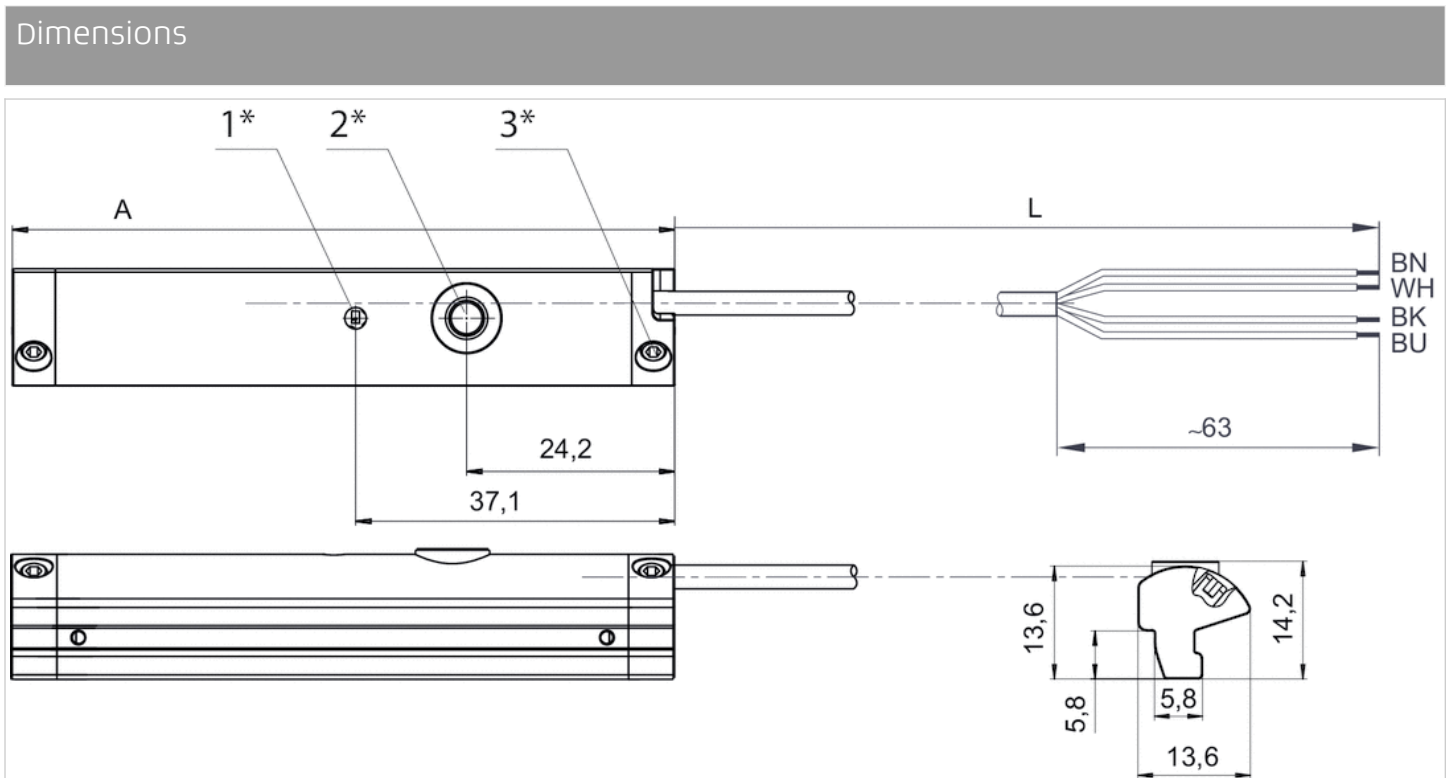
| Part No.   | max. measuring range | Overall length<br>Sensor<br>A |
|------------|----------------------|-------------------------------|
| R412010415 | 224 mm               | 237 mm                        |
| R412010417 | 256 mm               | 269 mm                        |

| Part No.   | Version   |
|------------|---|
| R412010141 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010143 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010262 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010264 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010411 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010413 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010415 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010417 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

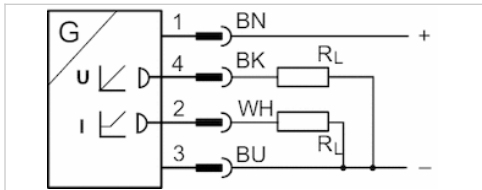


- 1\* = LED 2\* = teach button 3\* = threaded pin M3x11
- L = cable length
- (1) BN=brown
- (2) WH=white
- (3) BU=blue

(4) BK=black  
A = sensor length

# Sensors, Series SM6

- 6 mm groove
- with cable
- Plug, M8x1, 4-pin, with knurled screw
- with distance measuring sensor, measurement range 32 ... 256 mm
- Analog
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, 167, MNI, ICM, TRR



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP67                   |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 25 mA                  |
| Min./max. DC operating voltage            | 15 ... 30 V DC         |
| sampling interval                         | 1 ms                   |
| Resolution max. measuring range           | 0,05 mm                |
| Repetitive precision max. measuring range | 0.1 mm                 |
| Linearity deviation                       | 0,3 mm                 |
| Sampling speed                            | 3 m/s                  |
| Display                                   | LED                    |
| LED status display                        | Yellow                 |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 0.3 m                  |

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412010142 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010144 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010263 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010265 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010410 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010412 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010414 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010416 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |

| Part No.   | max. measuring range | Overall length Sensor A |
|------------|----------------------|-------------------------|
| R412010142 | 32 mm                | 45 mm                   |
| R412010144 | 64 mm                | 77 mm                   |
| R412010263 | 96 mm                | 109 mm                  |
| R412010265 | 128 mm               | 141 mm                  |
| R412010410 | 160 mm               | 173 mm                  |
| R412010412 | 192 mm               | 205 mm                  |

| Part No.   | max. measuring range | Overall length<br>Sensor<br>A |
|------------|----------------------|-------------------------------|
| R412010414 | 224 mm               | 237 mm                        |
| R412010416 | 256 mm               | 269 mm                        |

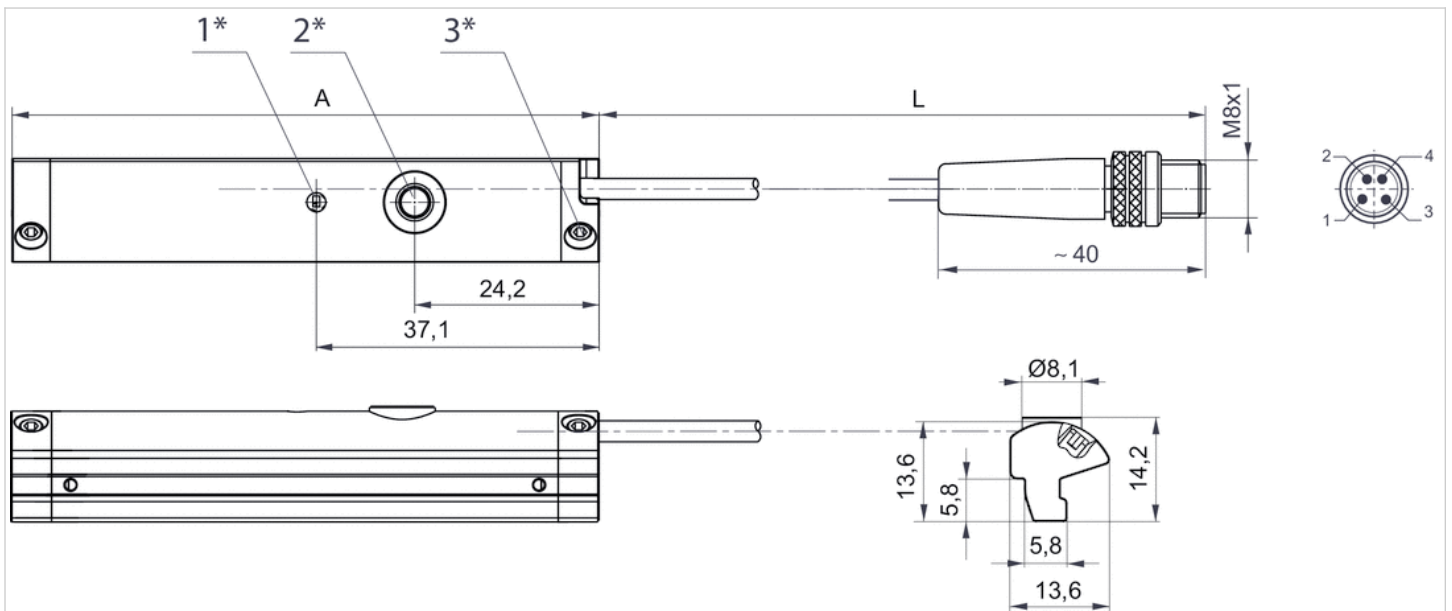
| Part No.   | Version   |
|------------|---|
| R412010142 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010144 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010263 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010265 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010410 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010412 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010414 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010416 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

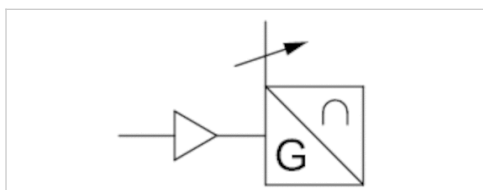
### Dimensions



1\* = LED 2\* = teach button 3\* = threaded pin M3x11  
 L = cable length  
 Pin assignment: 1 = (+), 2 = (OUT 1) 3 = (GND), 4 = (OUT 2), EN 60947-5-7  
 A = sensor length

## Sensors, Series SM6-AL

- with cable
- Plug, M8x1, 4-pin
- with distance measuring sensor, measurement range 107 - 1007 mm
- IO-Link
- Analog
- Indirect mounting for series PRA, ITS, RTC, CVI



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP65, IP67             |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 35 mA                  |
| Current signal                            | 4 ... 20 mA            |
| Maximum load (analog current output)      | 500 Ω                  |
| Residual ripple                           | ≤ 10 %                 |
| sampling interval                         | 1,15 ms                |
| Resolution max. measuring range           | typ. 0,03 % FSR        |
| Repetitive precision max. measuring range | typ. 0,06 % FSR        |
| Linearity deviation                       | 0,5 mm                 |
| Sampling speed Partial stroke             | 1,5 m/s                |
| Sampling speed Full stroke                | 3 m/s                  |
| Display                                   | 2 LED                  |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 0.3 m                  |

### Technical data

| Part No.   | Type of contact | Cable length L | max. measuring range | Overall length Sensor A |
|------------|-----------------|----------------|----------------------|-------------------------|
| R412010880 | Analog          | 0.3 m          | 107 mm               | 109 mm                  |
| R412010881 | Analog          | 0.3 m          | 143 mm               | 145 mm                  |
| R412010882 | Analog          | 0.3 m          | 179 mm               | 181 mm                  |
| R412010883 | Analog          | 0.3 m          | 215 mm               | 217 mm                  |
| R412010884 | Analog          | 0.3 m          | 251 mm               | 253 mm                  |
| R412010885 | Analog          | 0.3 m          | 287 mm               | 289 mm                  |
| R412010886 | Analog          | 0.3 m          | 323 mm               | 325 mm                  |
| R412010887 | Analog          | 0.3 m          | 359 mm               | 361 mm                  |
| R412010888 | Analog          | 0.3 m          | 395 mm               | 397 mm                  |
| R412010889 | Analog          | 0.3 m          | 431 mm               | 433 mm                  |
| R412010890 | Analog          | 0.3 m          | 467 mm               | 469 mm                  |
| R412010891 | Analog          | 0.3 m          | 503 mm               | 505 mm                  |
| R412010892 | Analog          | 0.3 m          | 539 mm               | 541 mm                  |
| R412010893 | Analog          | 0.3 m          | 575 mm               | 577 mm                  |
| R412010894 | Analog          | 0.3 m          | 611 mm               | 613 mm                  |
| R412010895 | Analog          | 0.3 m          | 647 mm               | 649 mm                  |
| R412010896 | Analog          | 0.3 m          | 683 mm               | 685 mm                  |

| Part No.   | Type of contact | Cable length<br>L | max. measuring range | Overall length<br>Sensor<br>A |
|------------|-----------------|-------------------|----------------------|-------------------------------|
| R412010897 | Analog          | 0.3 m             | 719 mm               | 721 mm                        |
| R412010898 | Analog          | 0.3 m             | 755 mm               | 757 mm                        |
| R412010899 | Analog          | 0.3 m             | 791 mm               | 793 mm                        |
| R412010900 | Analog          | 0.3 m             | 827 mm               | 829 mm                        |
| R412010901 | Analog          | 0.3 m             | 863 mm               | 865 mm                        |
| R412010902 | Analog          | 0.3 m             | 899 mm               | 901 mm                        |
| R412010903 | Analog          | 0.3 m             | 935 mm               | 937 mm                        |
| R412010904 | Analog          | 0.3 m             | 971 mm               | 973 mm                        |
| R412010905 | Analog          | 0.3 m             | 1007 mm              | 1009 mm                       |

| Part No.   | Incl. number of sensor clamp pairs | Current signal |
|------------|------------------------------------|----------------|
| R412010880 | 2 piece                            | 4 ... 20 mA    |
| R412010881 | 2 piece                            | 4 ... 20 mA    |
| R412010882 | 2 piece                            | 4 ... 20 mA    |
| R412010883 | 2 piece                            | 4 ... 20 mA    |
| R412010884 | 2 piece                            | 4 ... 20 mA    |
| R412010885 | 3 piece                            | 4 ... 20 mA    |
| R412010886 | 3 piece                            | 4 ... 20 mA    |
| R412010887 | 3 piece                            | 4 ... 20 mA    |
| R412010888 | 3 piece                            | 4 ... 20 mA    |
| R412010889 | 3 piece                            | 4 ... 20 mA    |
| R412010890 | 4 piece                            | 4 ... 20 mA    |
| R412010891 | 4 piece                            | 4 ... 20 mA    |
| R412010892 | 4 piece                            | 4 ... 20 mA    |
| R412010893 | 4 piece                            | 4 ... 20 mA    |
| R412010894 | 4 piece                            | 4 ... 20 mA    |
| R412010895 | 4 piece                            | 4 ... 20 mA    |
| R412010896 | 5 piece                            | 4 ... 20 mA    |
| R412010897 | 5 piece                            | 4 ... 20 mA    |
| R412010898 | 5 piece                            | 4 ... 20 mA    |
| R412010899 | 5 piece                            | 4 ... 20 mA    |
| R412010900 | 6 piece                            | 4 ... 20 mA    |
| R412010901 | 6 piece                            | 4 ... 20 mA    |
| R412010902 | 6 piece                            | 4 ... 20 mA    |
| R412010903 | 6 piece                            | 4 ... 20 mA    |
| R412010904 | 6 piece                            | 4 ... 20 mA    |
| R412010905 | 6 piece                            | 4 ... 20 mA    |

| Part No.   | Version   |
|------------|---|
| R412010880 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010881 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010882 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010883 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010884 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010885 | short circuit resistant Protected against polarity reversal Overload protection |

| Part No.   | Version   |
|------------|---|
| R412010886 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010887 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010888 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010889 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010890 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010891 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010892 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010893 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010894 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010895 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010896 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010897 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010898 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010899 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010900 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010901 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010902 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010903 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010904 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010905 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

Holders for cylinder series PRA are included in the scope of delivery. For cylinder series ITS, please order the appropriate holders separately.

FSR: Full Scale Range, max. measurement range

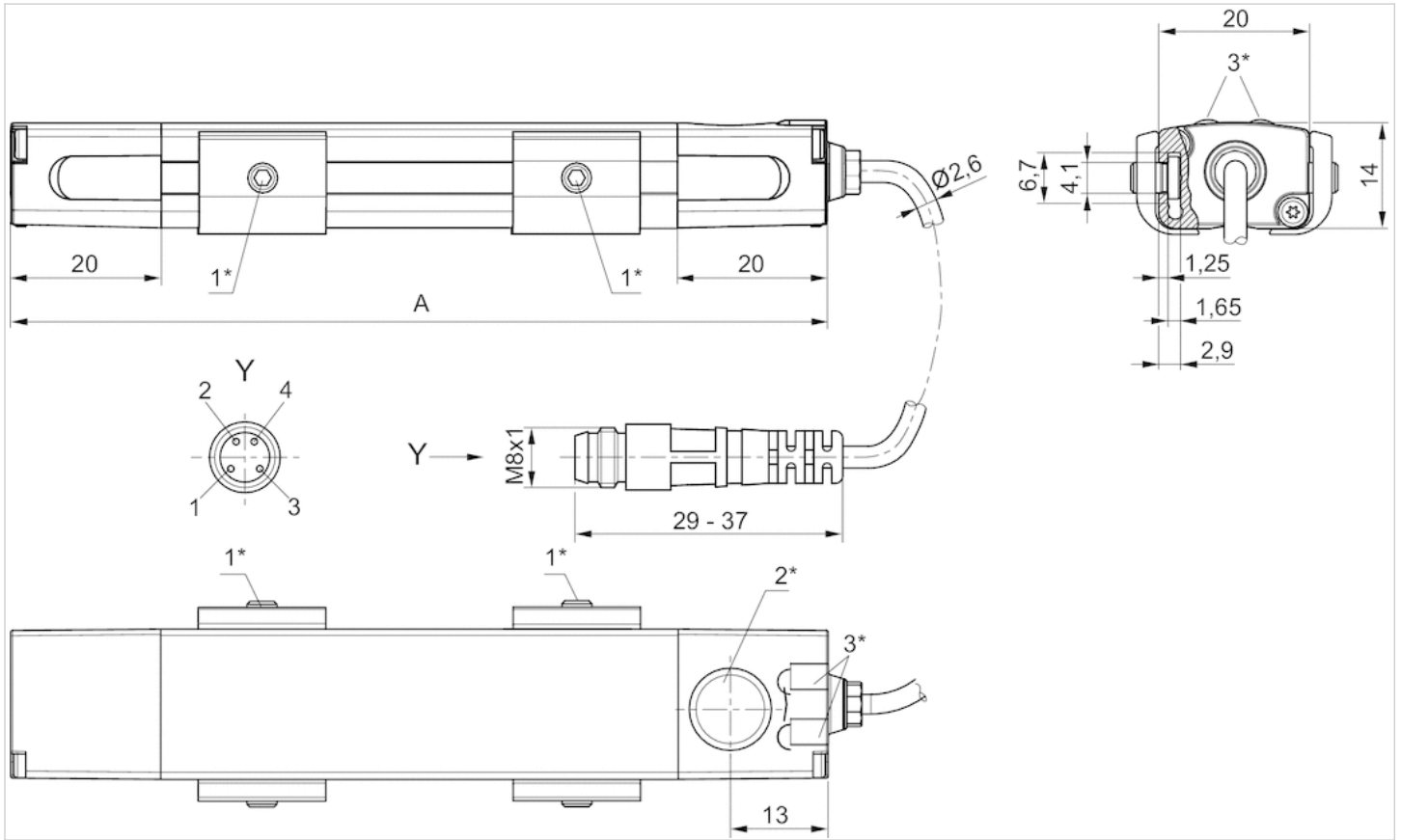
The IO-Link device description (IODD) for the SM6-AL distance measuring sensor is available for download in the Media Centre.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Aluminum     |
| Cable sheath | Polyurethane |
| End caps     | Polyamide    |

## Dimensions

### Dimensions



1\* = threaded pin M3x11 2\* = teach area 3\* = LED

A = sensor length

Pin assignment: 1 = (+), 2 = (OUT 1) 3 = (GND), 4 = (OUT 2/IO-Link), EN 60947-5-7

LED 1: yellow = measuring operation, red = error

LED 2: green = voltage signal, blue = current signal

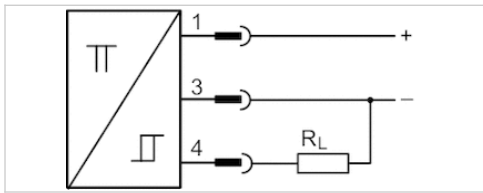


# Sensor, Series SN3

- welding-proof
- Plug, M12, 3-pin
- welding-proof
- electronic PNP
- Indirect mounting for series PRA, PRE, CCI, KPZ, KHZ, FLT, GPC, CVI



|                                  |               |
|----------------------------------|---------------|
| Ambient temperature min./max.    | -25 ... 70 °C |
| Protection class                 | IP67, IP65    |
| Switching point precision        | ±0,1 mT       |
| Nominal current, actuated state  | ≤ 10 mA       |
| Quiescent current (without load) | ≤ 5 mA        |
| Min./max. DC operating voltage   | 10 V DC       |
| LED status display               | Yellow        |
| Vibration resistance             | 55 Hz, 1 mm   |
| Shock resistance                 | 30 g / 11 ms  |



## Technical data

| Part No.   | Type of contact | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|-----------------|------------------------------------|----------------------------|
| 0830100438 | electronic PNP  | ≤ 1,8 V                            | 0.2 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| 0830100438 | 20 Hz                    |

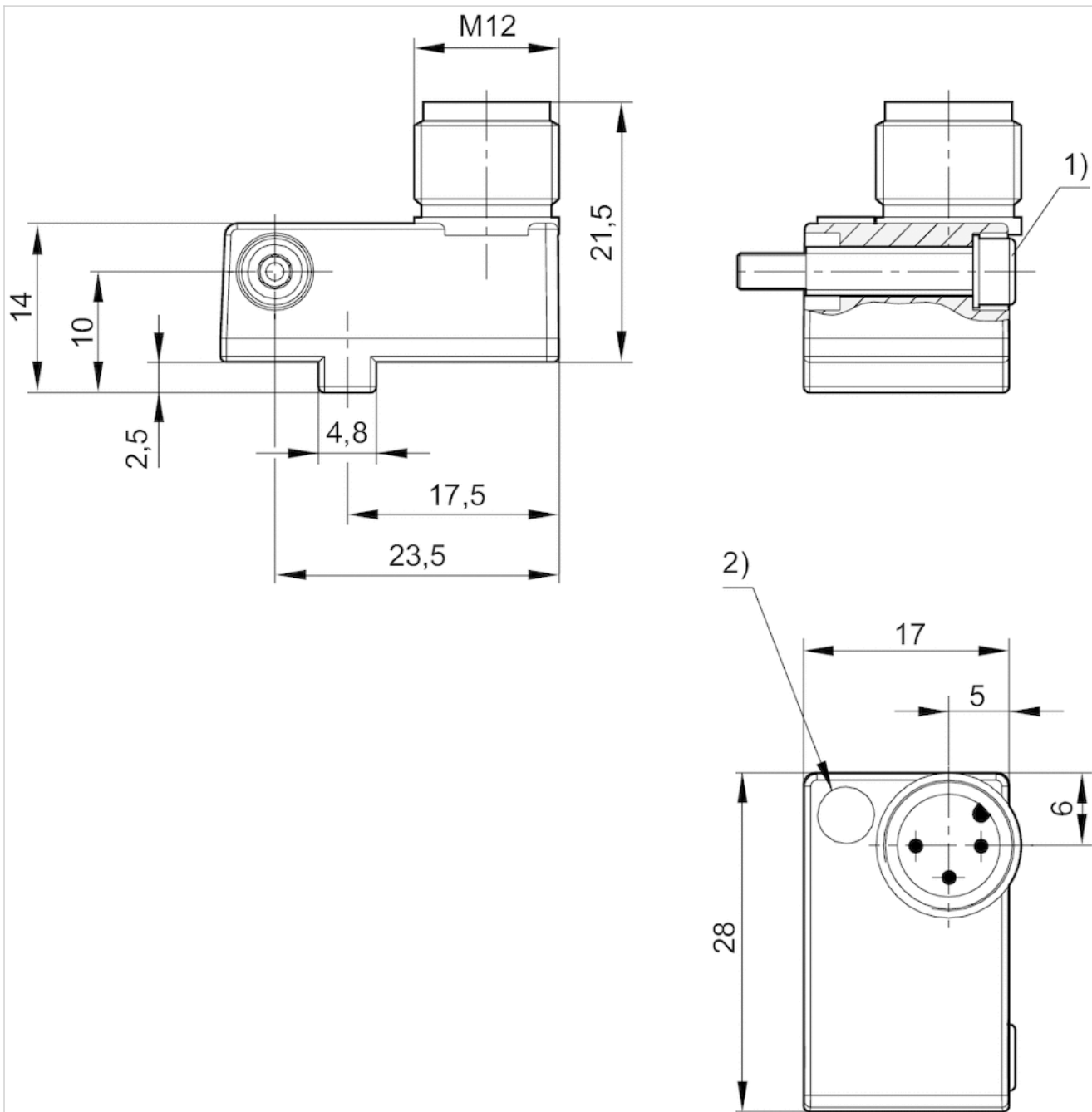
| Part No.   | Version   | welding-proof |
|------------|---|---------------|
| 0830100438 | short circuit resistant Protected against polarity reversal | welding-proof |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

## Dimensions

### Dimensions



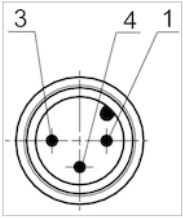
1) Clamping screw

2) LED

Pin assignments: 1 = (+), 3 = (-), 4 = (OUT), EN 60947-5-2:1998

## Pin assignments

### Pin assignments



| Pin               | 1   | 3   | 4     |
|-------------------|-----|-----|-------|
| Allocation        | (+) | (-) | (OUT) |
| EN 60947-5-2:1998 |     |     |       |

# Series CAT

- Measuring instrument for adjusting the pneumatic cushioning
- for MNI, CSL-RD, CCL-IS, ICS, RPC, PRA/TRB, ITS



|                               |                              |
|-------------------------------|------------------------------|
| Certificates                  | CE declaration of conformity |
| Ambient temperature min./max. | 0 ... 40 °C                  |
| Measurement range Min.        | 0.2 m/s                      |
| Measurement range Max.        | 2 m/s                        |
| LED status display            | Green Yellow Red             |
| Protection class              | IP50                         |
| Weight                        | 0.12 kg                      |

## Technical data

| Part No.   | for series                                  |
|------------|---|
| R412026160 | MNI, CSL-RD, CCL-IS, ICS, RPC, PRA/TRB, ITS |

Scope of delivery: 1 measuring instrument, 2 fastening strips, 1 power pack 3.7 V, 1 USB charging cable, Operating instructions, QR code notice, 1 case with foam inlay

## Technical information

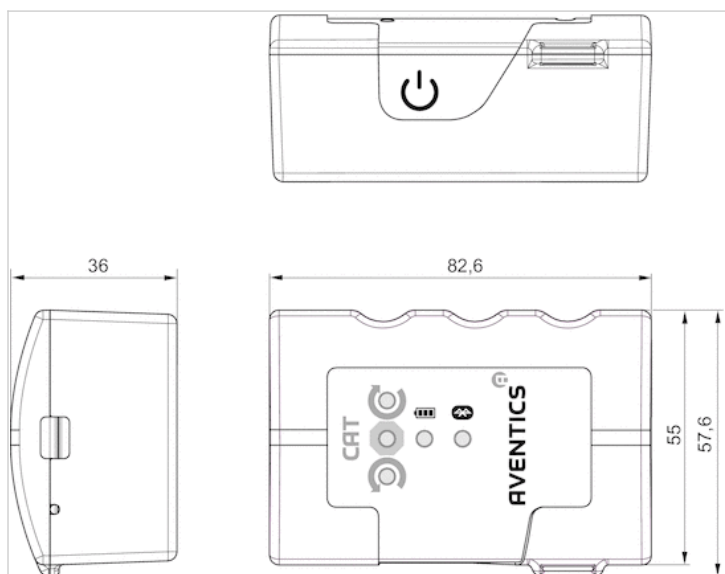
The CAT measuring instrument uses Bluetooth radio technology for wireless connection with the "Aventics" app, which is available free of charge in the Android/Play Store and/or the IOS/App Store.

## Technical information

| Material |         |
|----------|---------|
| Housing  | Luran S |

## Dimensions

### Dimensions



# Sensor mounting, Series CB1

- for series SN3

- to mount on cylinder PRA, KPZ, GPC, CCI, KHZ



Weight

0.007 kg

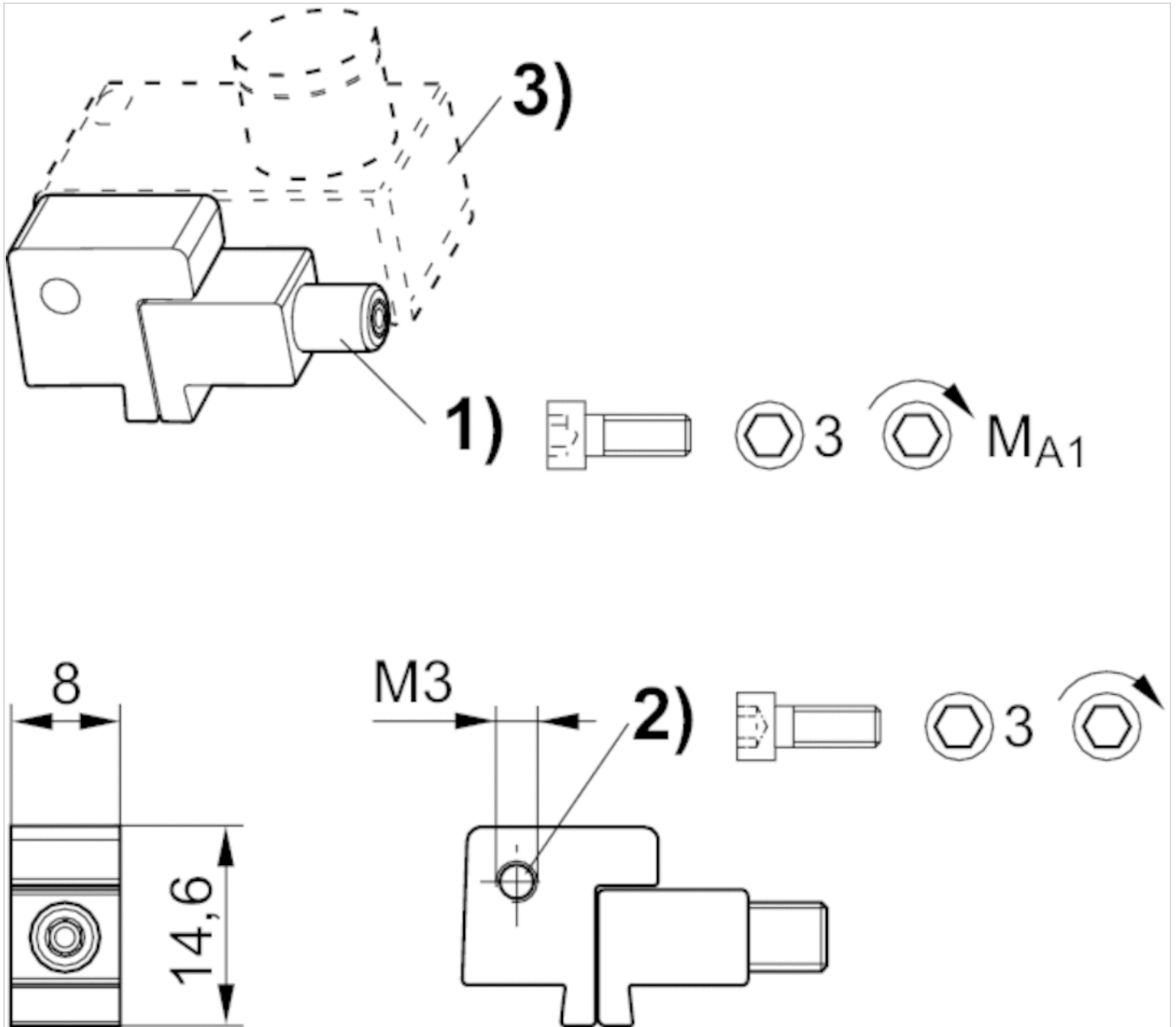
## Technical data

| Part No.   | for series |
|------------|------------|
| 1827020386 | SN3        |

## Technical information

| Material |
|----------|
| Aluminum |

## Dimensions



1) Clamping screw 2) Mounting screw for sensor 3) Sensor

## Dimensions

| Part No.   | 1)    | MA1 [Nm] |
|------------|-------|----------|
| 1827020386 | M3x25 | 1,8 +0,4 |

# Sensor mounting, Series CB1

- for series ST6, SM6

- to mount on cylinder TRB, C12P, 167, CVI, TRR, 523



Weight

See table below

## Technical data

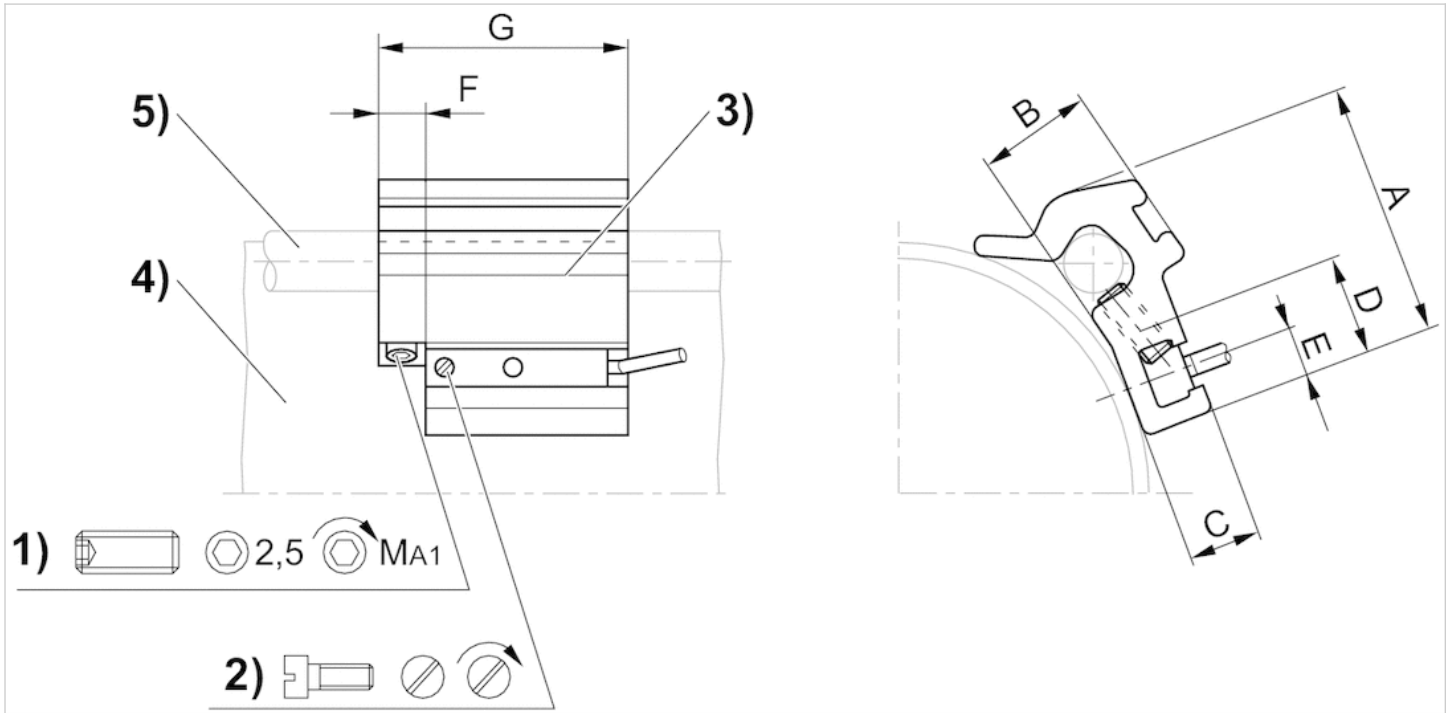
| Part No.   | Cylinders Ø | Cylinders Ø | for series | Weight   |
|------------|-------------|-------------|------------|----------|
|            | min.        | max.        |            |          |
| 1827020282 | 32 mm       | 40 mm       | ST6, SM6   | 0.016 kg |
| 1827020283 | 50 mm       | 63 mm       | ST6, SM6   | 0.029 kg |
| 1827020284 | 80 mm       | 100 mm      | ST6, SM6   | 0.042 kg |

## Technical information

| Material |          |
|----------|----------|
|          | Aluminum |



## Dimensions



1) Clamping threaded pin 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile 5) Tie rod

## Dimensions

| Part No.   | A    | B    | C   | D  | E | F | G  | 1)    | MA1 [Nm] |
|------------|------|------|-----|----|---|---|----|-------|----------|
| 1827020282 | 26   | 10   | 7   | 14 | 5 | 8 | 40 | M5x8  | 2 ±0,2   |
| 1827020283 | 32.5 | 15.5 | 7   | 14 | 5 | 8 | 40 | M5x10 | 2 ±0,2   |
| 1827020284 | 43   | 17   | 6.9 | 14 | 5 | 8 | 40 | M5x16 | 2 ±0,2   |

# Sensor mounting, Series CB1

- for series SN1, SN2
- to mount on cylinder PRA



Weight

0.006 kg

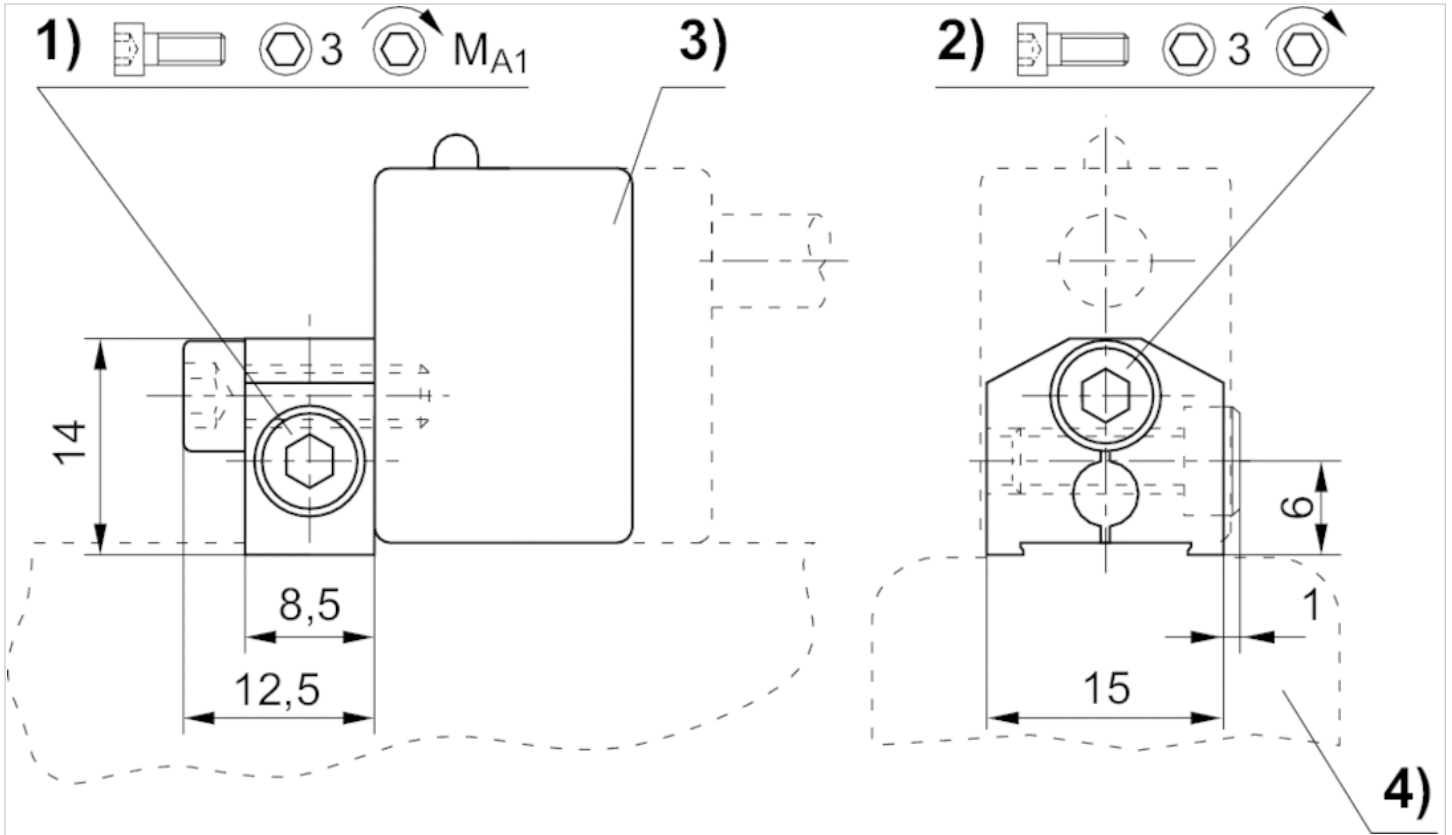
## Technical data

| Part No.   | for series |
|------------|------------|
| 1827020084 | SN1, SN2   |

## Technical information

| Material |
|----------|
| Aluminum |

## Dimensions



1) Clamping screw 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile

## Dimensions

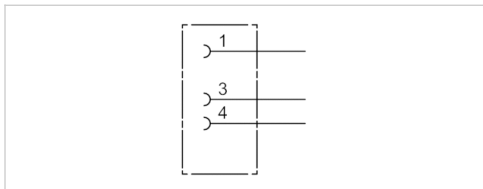
| Part No.   | 1)    | MA1 [Nm] |
|------------|-------|----------|
| 1827020084 | M4x12 | 2        |

# Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Soldering     |
| Ambient temperature min./max. | -25 ... 80 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.009 kg      |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 1834484173 | 4 A          | 3.5 / 5 mm                |

## Technical information

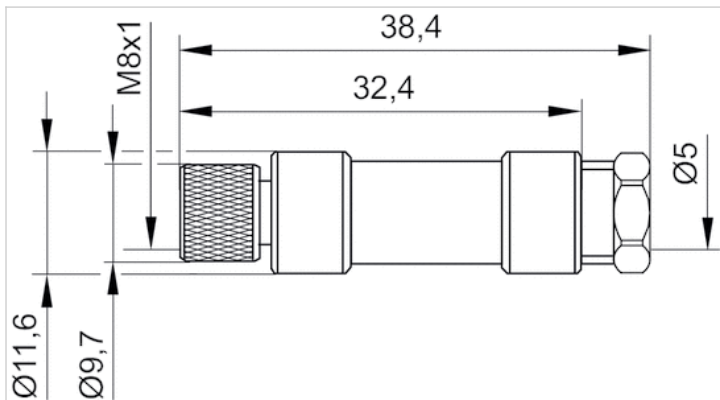
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

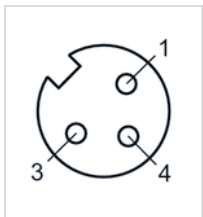
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket

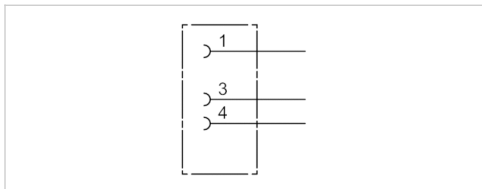


# Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, angled, 90°
- UL (Underwriters Laboratories)
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Soldering     |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.01 kg       |



## Technical data

| Part No.   | Max. current | Contact assignment | suitable cable-Ø min./max |
|------------|--------------|--------------------|---------------------------|
| 1834484174 | 4 A          | 3                  | 3.5 / 5 mm                |

## Technical information

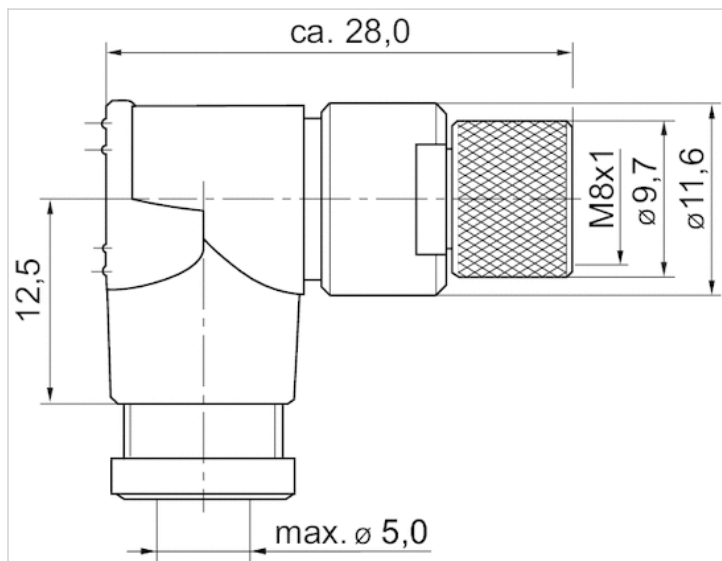
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

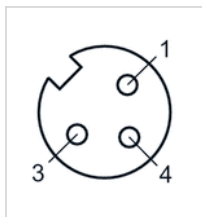
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket

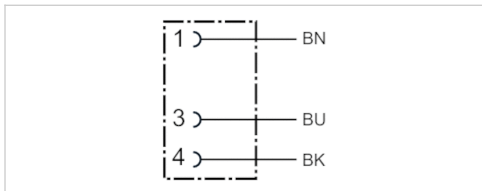


# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- open cable ends
- with cable
- UL (Underwriters Laboratories)
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -25 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP67                 |
| Wire cross-section            | 0.24 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Certification                  | Weight   |
|------------|--------------|-----------------|---------|--------------|--------------------------------|----------|
| 1834484166 | 4 A          | 3               | 4.5 mm  | 3 m          | UL (Underwriters Laboratories) | 0.087 kg |
| 1834484168 | 4 A          | 3               | 4.5 mm  | 5 m          | UL (Underwriters Laboratories) | 0.141 kg |
| 1834484247 | 4 A          | 3               | 4.5 mm  | 10 m         | UL (Underwriters Laboratories) | 0.277 kg |

## Technical information

The specified protection class is only valid in assembled and tested state.

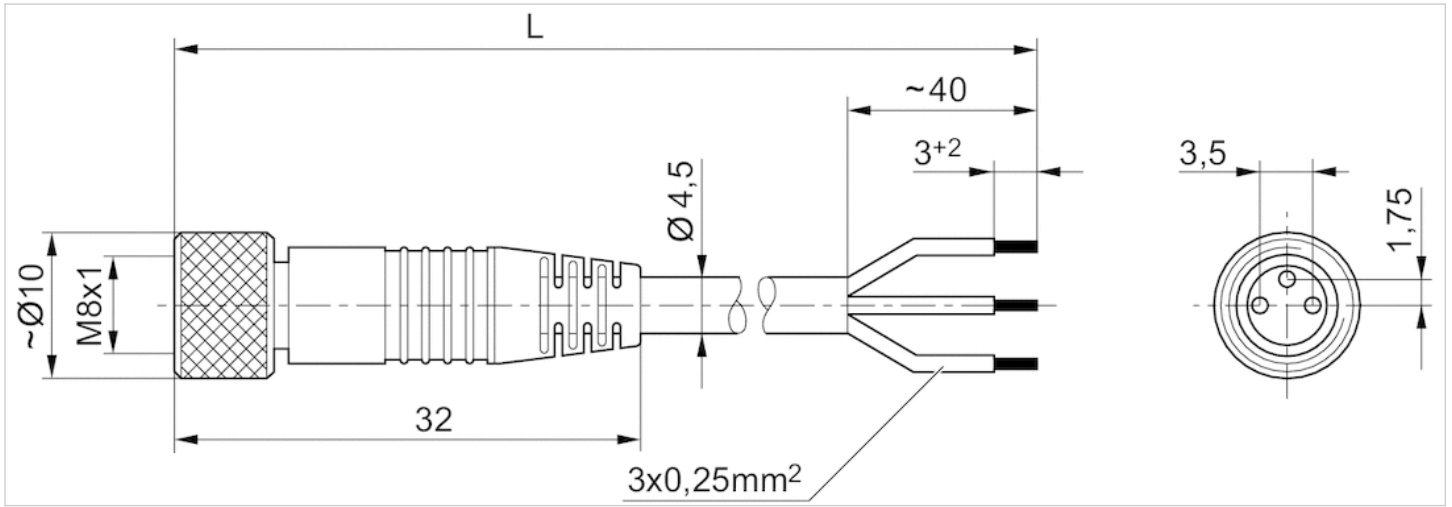
## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |



## Dimensions

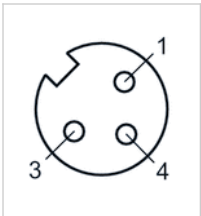
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



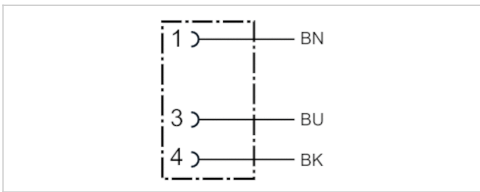
- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded angled 90°
- open cable ends
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -40 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP67                 |
| Wire cross-section            | 0.24 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 1834484167 | 4 A          | 3               | 4.5 mm  | 3 m          | 0.087 kg |
| 1834484169 | 4 A          | 3               | 4.5 mm  | 5 m          | 0.139 kg |
| 1834484248 | 4 A          | 3               | 4.5 mm  | 10 m         | 0.279 kg |

## Technical information

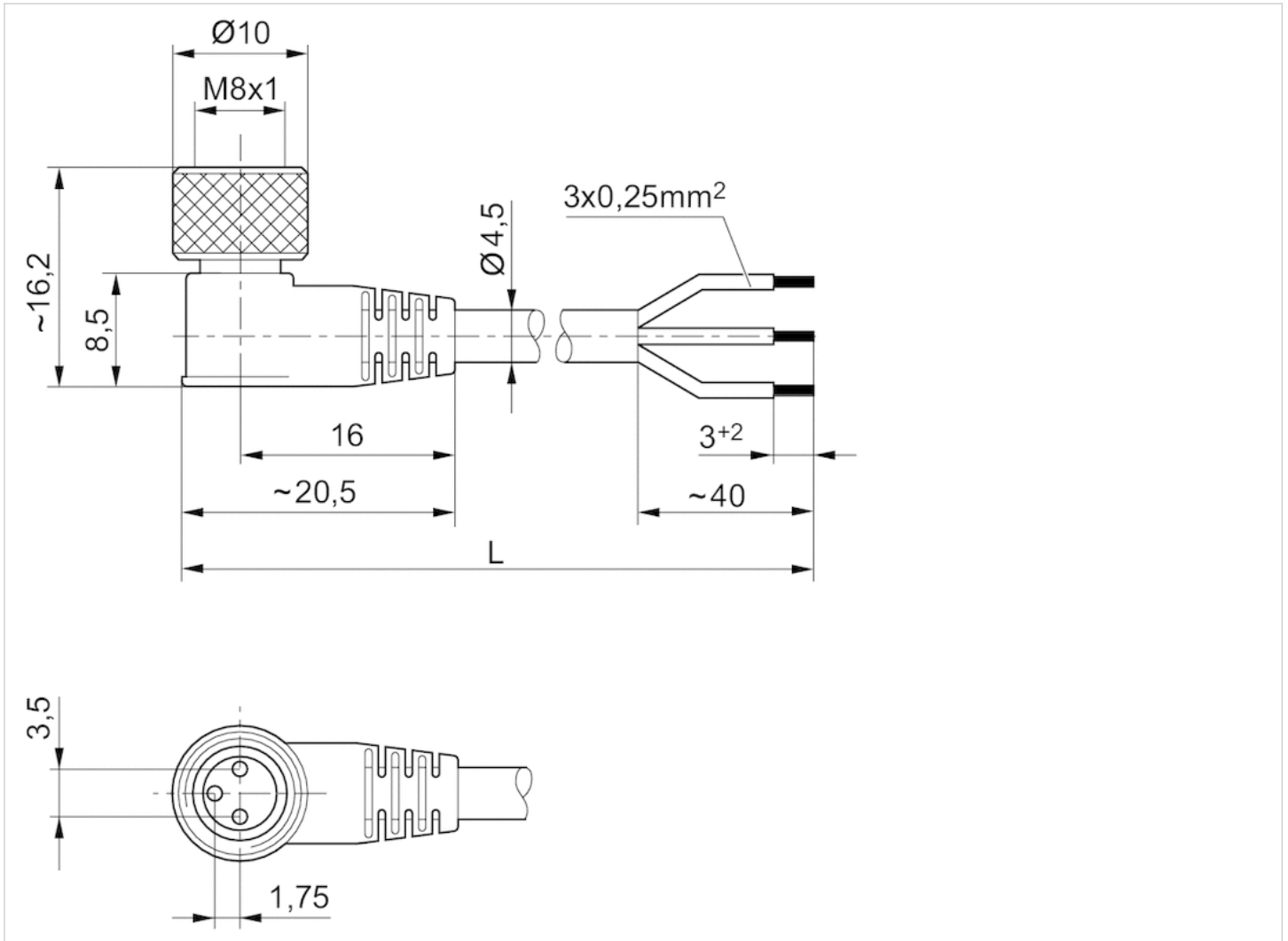
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

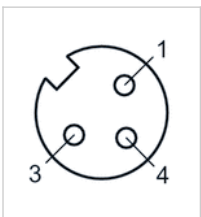
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



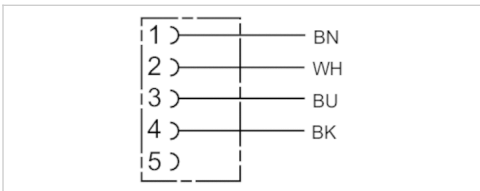
- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded angled 90°
- open cable ends
- for DeviceNet
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -40 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP65                 |
| Wire cross-section            | 0.34 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 1834484259 | 4 A          | 4               | 5.2 mm  | 3 m          | 0.126 kg |
| 1834484260 | 4 A          | 4               | 5.2 mm  | 5 m          | 0.195 kg |
| 1834484261 | 4 A          | 4               | 5.2 mm  | 10 m         | 0.38 kg  |

## Technical information

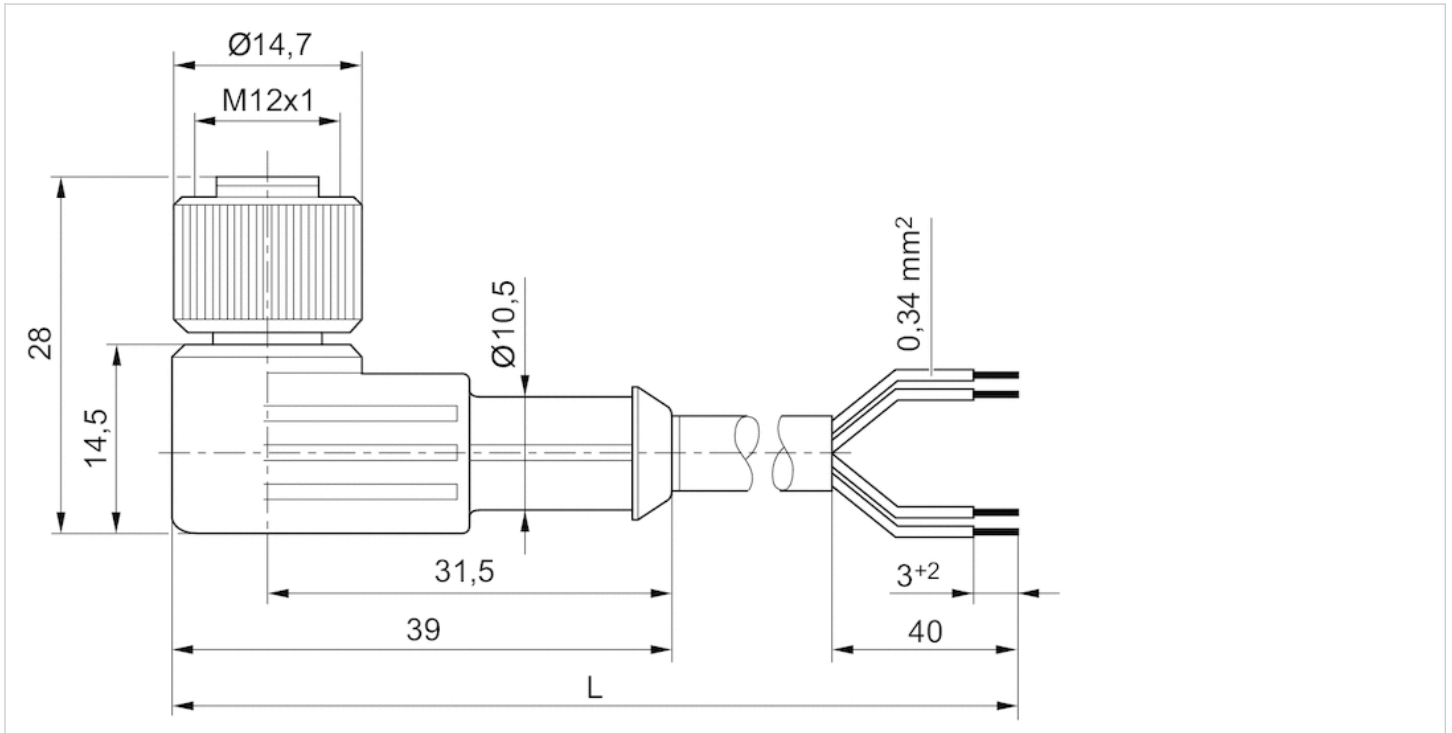
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Cable sheath | Polyurethane |

## Dimensions

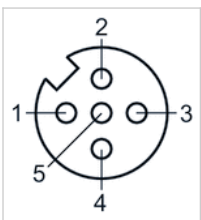
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



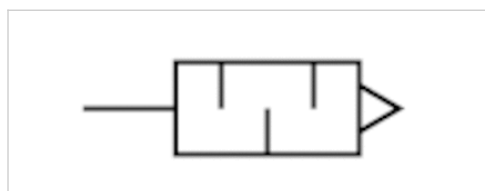
- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) not assigned

# Silencers, series SI1

- G 1/8
- Sintered bronze



|                               |   |
|-------------------------------|---|
| Working pressure min./max.    | 0 ... 10 bar  |
| Ambient temperature min./max. | -25 ... 80 °C   |
| Medium                        | Compressed air  |
| Sound pressure level          | 75 dB   |
| Weight                        | 0.01 kg   |
| Comment                       | Flow characteristic curves can be found under "Diagrams". |



## Technical data

| Part No.   | Compressed air connection | Flow       | Delivery unit |
|------------|---------------------------|------------|---------------|
|            |                           | Qn         |               |
| 1827000000 | G 1/8                     | 1623 l/min | 10 piece      |

Weight per piece

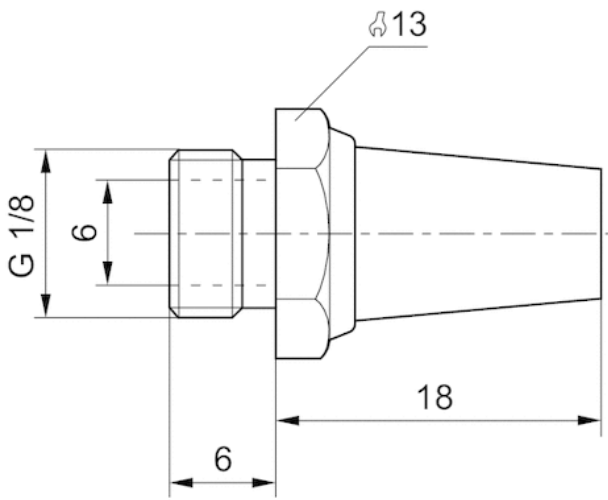
Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

## Technical information

| Material |                 |
|----------|-----------------|
| Silencer | Sintered bronze |
| Thread   | Brass           |

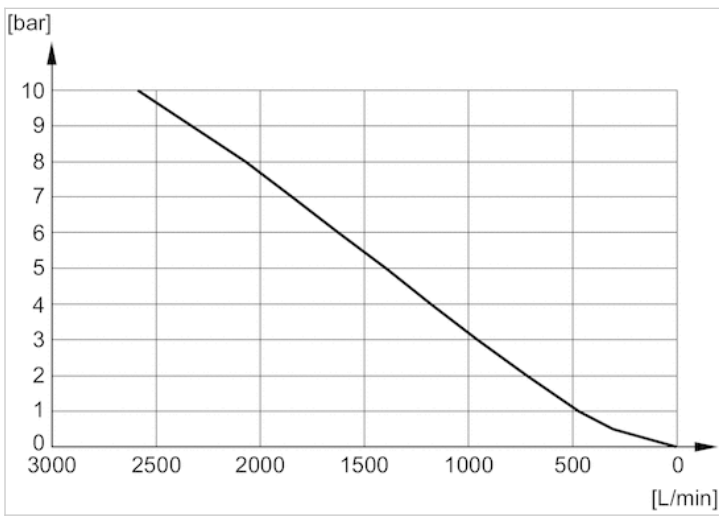
## Dimensions

### Dimensions in mm



## Diagrams

### Flow diagram, 1827000000

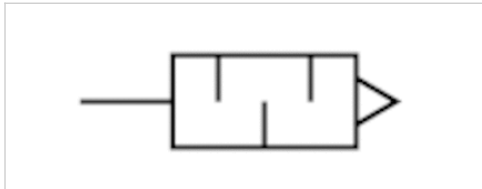


# Silencers, series SI1

- G 1/4
- Sintered bronze



|                               |   |
|-------------------------------|---|
| Working pressure min./max.    | 0 ... 10 bar  |
| Ambient temperature min./max. | -25 ... 80 °C   |
| Medium                        | Compressed air  |
| Sound pressure level          | See table below   |
| Weight                        | See table below   |
| Comment                       | Flow characteristic curves can be found under "Diagrams". |



## Technical data

| Part No.   | Compressed air connection | Sound pressure level | Flow       | Delivery unit | Weight   |
|------------|---------------------------|----------------------|------------|---------------|----------|
|            |                           |                      | Qn         |               |          |
| R412004817 | G 1/4                     | -                    | 5950 l/min | 10 piece      | 0.013 kg |
| 1827000001 | G 1/4                     | 79 dB                | 3390 l/min | 10 piece      | 0.02 kg  |

Weight per piece

Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

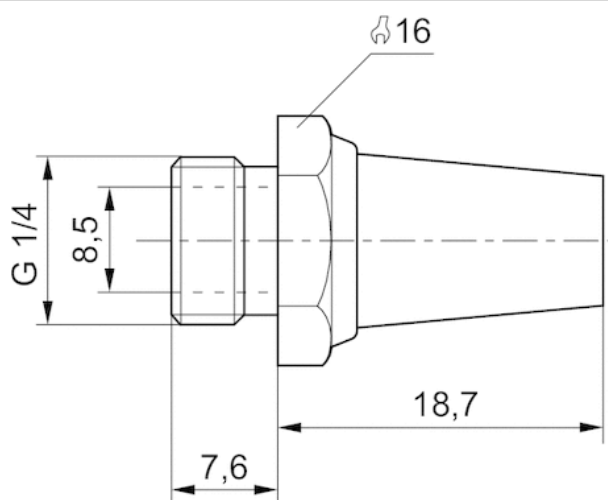
## Technical information

| Material |                 |
|----------|-----------------|
| Silencer | Sintered bronze |
| Thread   | Brass           |

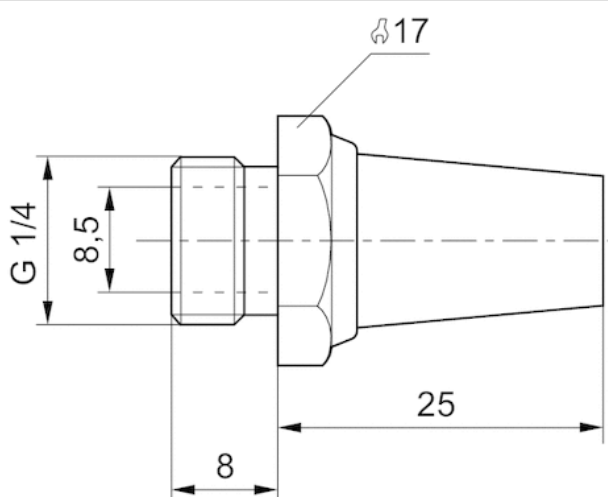


## Dimensions

## Dimensions in mm



## Dimensions in mm

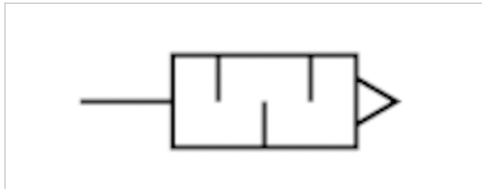


# Silencers, series SI1

- G 3/8
- Sintered bronze



|                               |   |
|-------------------------------|---|
| Working pressure min./max.    | 0 ... 10 bar  |
| Ambient temperature min./max. | -25 ... 80 °C   |
| Medium                        | Compressed air  |
| Sound pressure level          | 84 dB   |
| Weight                        | 0.05 kg   |
| Comment                       | Flow characteristic curves can be found under "Diagrams". |



## Technical data

| Part No.   | Compressed air connection | Flow       | Delivery unit |
|------------|---------------------------|------------|---------------|
|            |                           | Qn         |               |
| 1827000002 | G 3/8                     | 6554 l/min | 5 piece       |

Weight per piece

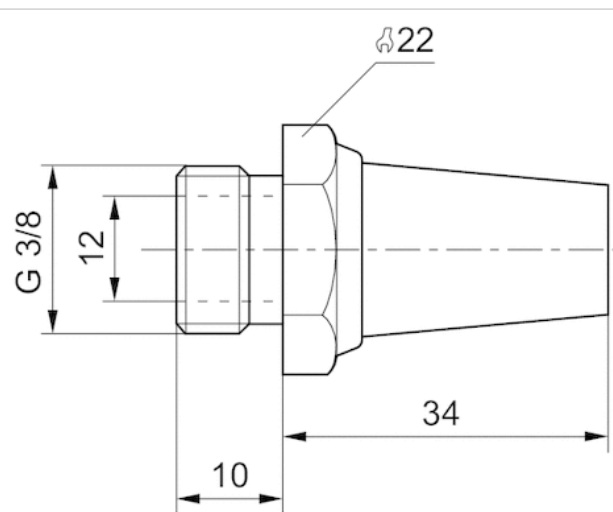
Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

## Technical information

| Material |                 |
|----------|-----------------|
| Silencer | Sintered bronze |
| Thread   | Brass           |

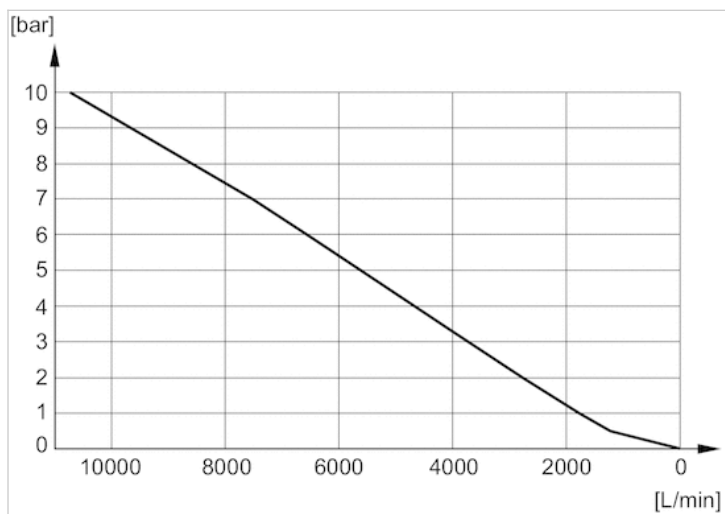
## Dimensions

### Dimensions in mm



## Diagrams

### Flow diagram, 1827000002

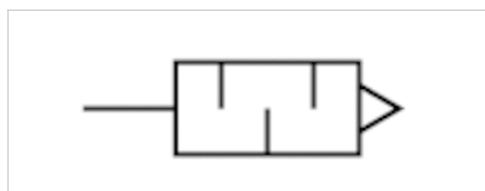


# Silencers, series SI1

- G 1/2
- Sintered bronze



|                               |   |
|-------------------------------|---|
| Working pressure min./max.    | 0 ... 10 bar  |
| Ambient temperature min./max. | -25 ... 80 °C   |
| Medium                        | Compressed air  |
| Sound pressure level          | 90 dB   |
| Weight                        | 0.08 kg   |
| Comment                       | Flow characteristic curves can be found under "Diagrams". |



## Technical data

| Part No.   | Compressed air connection | Flow       | Delivery unit |
|------------|---------------------------|------------|---------------|
|            |                           | Qn         |               |
| 1827000003 | G 1/2                     | 7223 l/min | 2 piece       |

Weight per piece

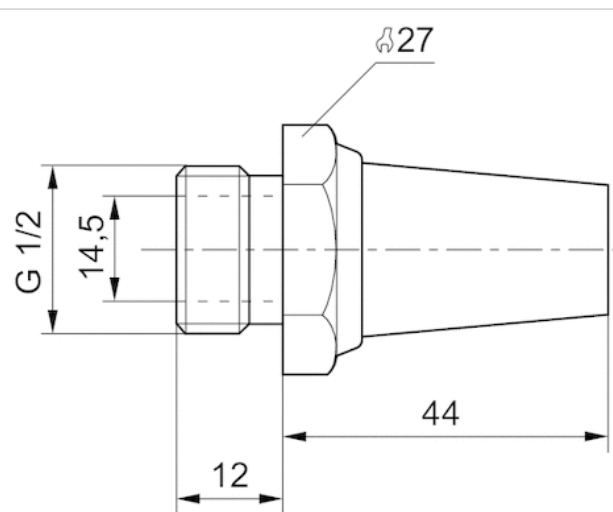
Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

## Technical information

| Material |                 |
|----------|-----------------|
| Silencer | Sintered bronze |
| Thread   | Brass           |

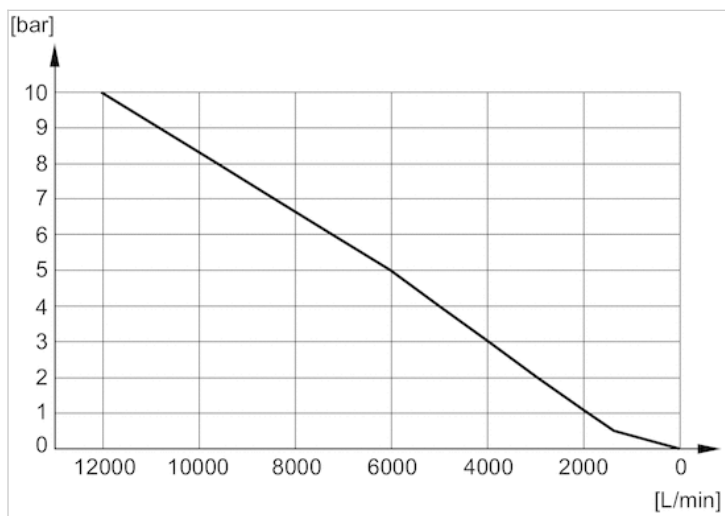
## Dimensions

### Dimensions in mm



## Diagrams

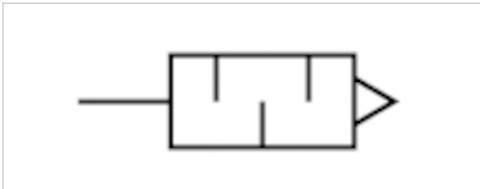
### Flow diagram, 1827000003



# Silencers, series SI1

- G 1/8 G 1/4 G 3/8 G 1/2

- Sintered bronze



Working pressure min./max.

0 ... 10 bar

Ambient temperature min./max.

-25 ... 80 °C

Medium

Compressed air

Sound pressure level

See table below

Weight

See table below

Comment

Flow characteristic curves can be found under "Diagrams".

## Technical data

| Part No.   | Compressed air connection | Sound pressure level | Flow       | Delivery unit | Weight   |
|------------|---------------------------|----------------------|------------|---------------|----------|
|            |                           |                      | Qn         |               |          |
| 1827000031 | G 1/8                     | 85 dB                | 700 l/min  | 10 piece      | 0.001 kg |
| 1827000033 | G 1/4                     | 88 dB                | 1116 l/min | 10 piece      | 0.01 kg  |
| 1827000034 | G 3/8                     | 90 dB                | 1706 l/min | 5 piece       | 0.016 kg |
| 1827000035 | G 1/2                     | 85 dB                | 2568 l/min | 2 piece       | 0.035 kg |

Weight per piece

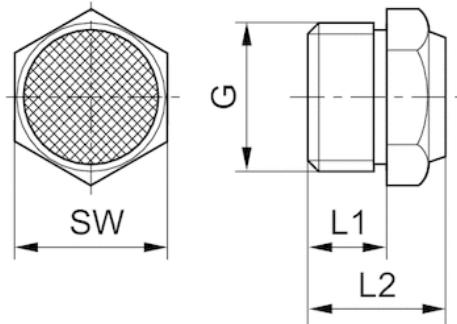
Nominal flow Qn at p1 = 6 bar (absolute) freely discharged. Sound pressure level measured at 6 bar against atmosphere at 1 m distance.

## Technical information

| Material |                 |
|----------|-----------------|
| Silencer | Sintered bronze |
| Thread   | Brass           |

## Dimensions

### Dimensions



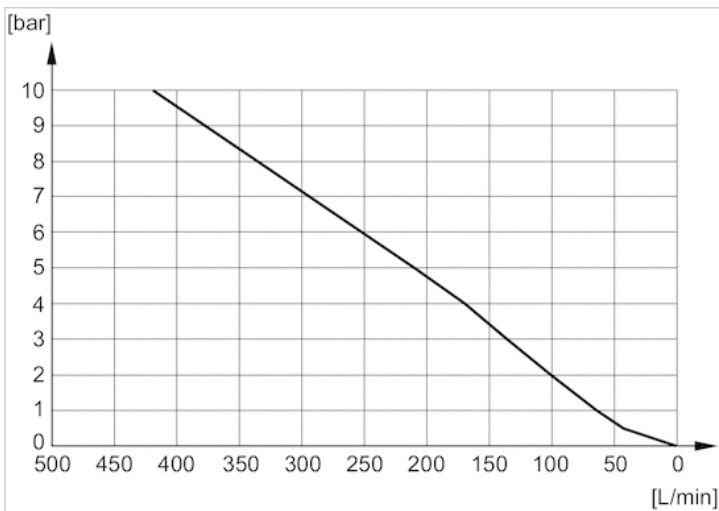
## Dimensions

| Part No.   | Port G | L1 | L2   | SW |
|------------|--------|----|------|----|
| 1827000031 | G 1/8  | 6  | 11.5 | 13 |
| 1827000033 | G 1/4  | 8  | 13.5 | 17 |
| 1827000034 | G 3/8  | 10 | 17.5 | 22 |
| 1827000035 | G 1/2  | 12 | 19.5 | 27 |

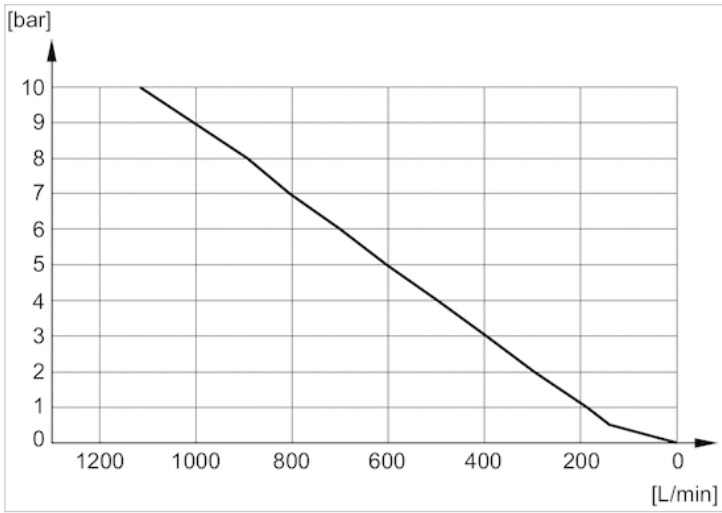
Sound pressure level measured at 6 bar at 1 m distance

## Diagrams

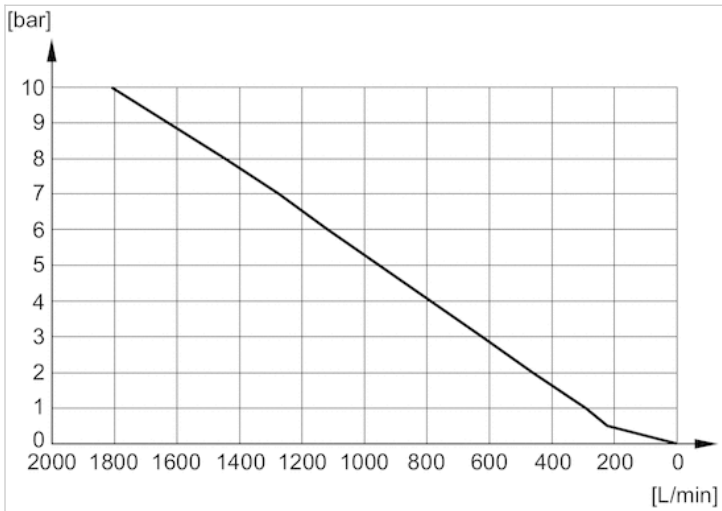
### Flow diagram, 1827000032



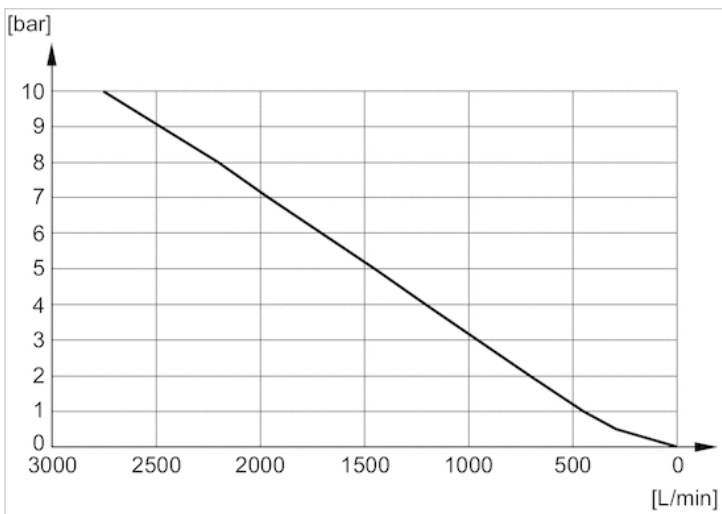
Flow diagram, 1827000031



Flow diagram, 1827000033

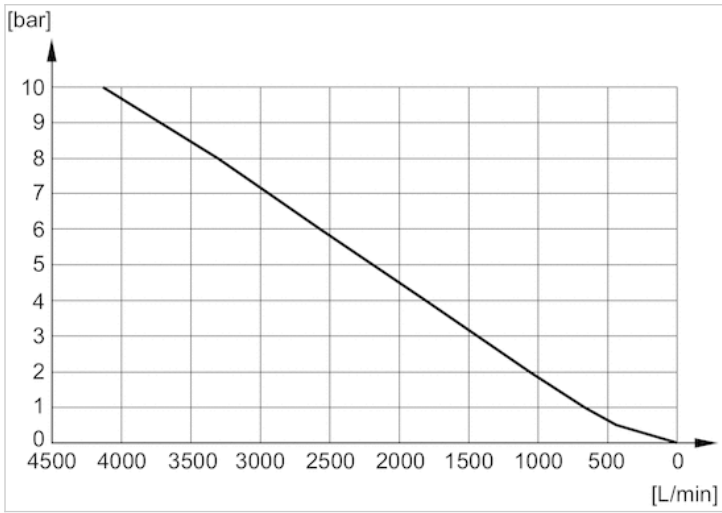


Flow diagram, 1827000034

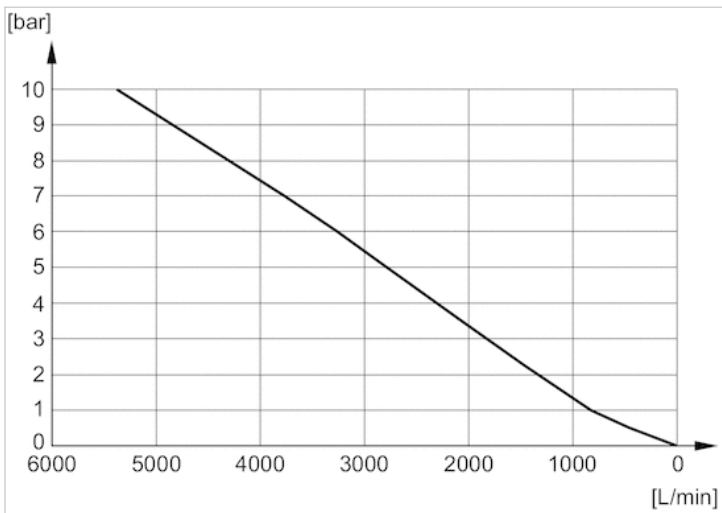




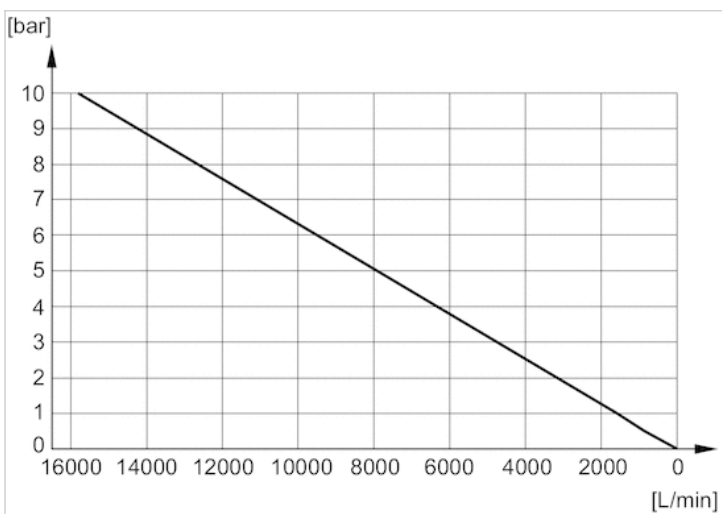
Flow diagram, 1827000035



Flow diagram, 8145003400



Flow diagram, 8145001000



# Bearing block AB7-HD, Series CM1

- Suitable for robust mechanical engineering applications, with fixed bearing
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

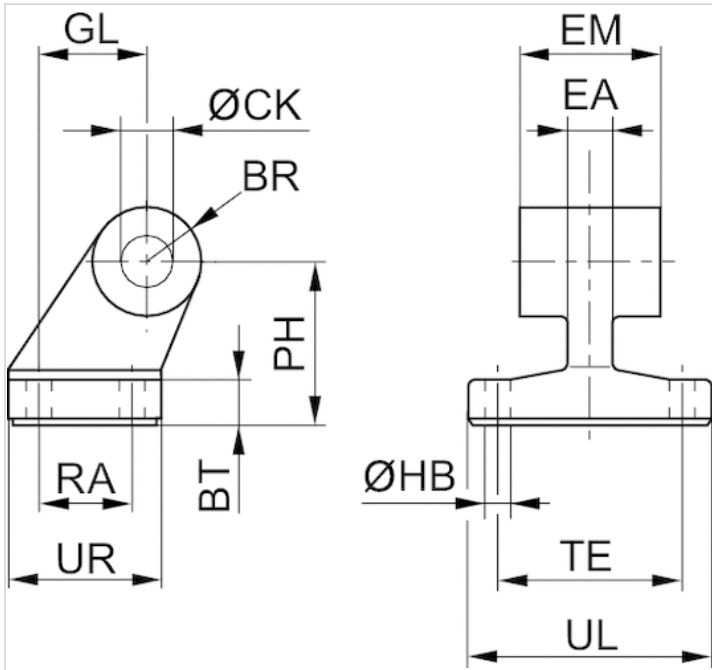
## Technical data

| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1825805275 | 32 mm                | 10 mm                        |
| 1825805276 | 40 mm                | 12 mm                        |
| 1825805277 | 50 mm                | 12 mm                        |
| 1825805278 | 63 mm                | 16 mm                        |
| 1825805279 | 80 mm                | 16 mm                        |
| 1825805280 | 100 mm               | 20 mm                        |
| 1825805281 | 125 mm               | 25 mm                        |

## Technical information

| Material |                                     |
|----------|-------------------------------------|
| Material | Nodular graphite iron<br>galvanized |
| Screws   | galvanized steel                    |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | BR   | BT | Ø CK H9 | Ø HB H13 | EM           | GL JS14 | EA max. | PH JS15 |
|------------|----------|------|----|---------|----------|--------------|---------|---------|---------|
| 1825805275 | 32 mm    | 10   | 8  | 10      | 6.6      | 26 -0,2/-0,6 | 21      | 10      | 32      |
| 1825805276 | 40 mm    | 11   | 10 | 12      | 6.6      | 28 -0,2/-0,6 | 24      | 12      | 36      |
| 1825805277 | 50 mm    | 13   | 12 | 12      | 9        | 32 -0,2/-0,6 | 33      | 16      | 45      |
| 1825805278 | 63 mm    | 15   | 12 | 16      | 9        | 40 -0,2/-0,6 | 37      | 16      | 50      |
| 1825805279 | 80 mm    | 15   | 14 | 16      | 11       | 50 -0,2/-0,6 | 47      | 20      | 63      |
| 1825805280 | 100 mm   | 19   | 15 | 20      | 11       | 60 -0,2/-0,6 | 55      | 20      | 71      |
| 1825805281 | 125 mm   | 22,5 | 20 | 25      | 14       | 70 -0,5/-1,5 | 70      | 30      | 90      |

| RA JS14 | TE JS14 | UL max. | UR max. |
|---------|---------|---------|---------|
| 18      | 38      | 51      | 31      |
| 22      | 41      | 54      | 35      |
| 30      | 50      | 65      | 45      |
| 35      | 52      | 67      | 50      |
| 40      | 66      | 86      | 60      |
| 50      | 76      | 96      | 70      |
| 60      | 94      | 124     | 90      |

# Bearing block CS7, Series CM1

- With ball joint and foot
- Cylinder mounting in accordance with VDMA 24562 part 2
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

VDMA 24562 part 2

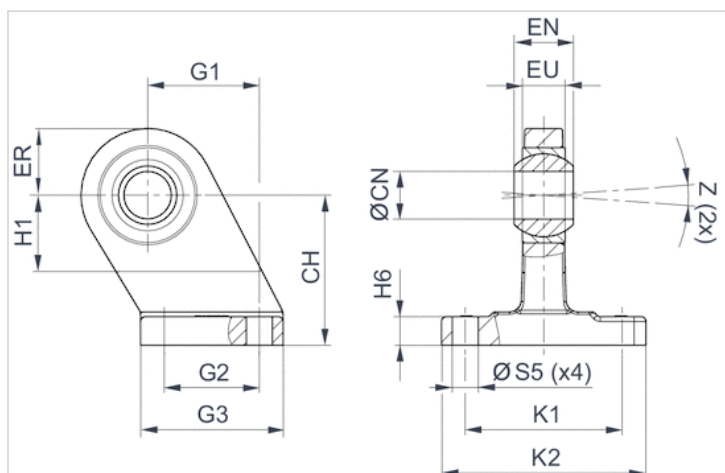
## Technical data

| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001784 | 32 mm    | 10 mm            |
| 1827001785 | 40 mm    | 12 mm            |
| 1827001786 | 50 mm    | 16 mm            |
| 1827001787 | 63 mm    | 16 mm            |
| 1827001788 | 80 mm    | 20 mm            |
| 1827001789 | 100 mm   | 20 mm            |
| 1827001790 | 125 mm   | 30 mm            |

## Technical information

| Material |                                     |
|----------|-------------------------------------|
| Material | Nodular graphite iron<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | CH JS15 | ØCN H7 | EU max. | EN -1,0 | ER max. | G1 JS14 | G2 JS14 | G3 max. |
|------------|----------|---------|--------|---------|---------|---------|---------|---------|---------|
| 1827001784 | 32 mm    | 32      | 10     | 10.5    | 14      | 16      | 21      | 18      | 31      |
| 1827001785 | 40 mm    | 36      | 12     | 12      | 16      | 18      | 24      | 22      | 35      |
| 1827001786 | 50 mm    | 45      | 16     | 15      | 21      | 21      | 33      | 30      | 45      |
| 1827001787 | 63 mm    | 50      | 16     | 15      | 21      | 23      | 37      | 35      | 50      |
| 1827001788 | 80 mm    | 63      | 20     | 18      | 25      | 28      | 47      | 40      | 60      |
| 1827001789 | 100 mm   | 71      | 20     | 18      | 25      | 30      | 55      | 50      | 70      |
| 1827001790 | 125 mm   | 90      | 30     | 25      | 37      | 40      | 70      | 60      | 90      |

| H1 min. | H6      | K1 JS14 | K2 max. | ØS5 H13 | Z min. |
|---------|---------|---------|---------|---------|--------|
| 16      | 9 ±1    | 38      | 51      | 6.6     | 4°     |
| 20      | 9 ±1    | 41      | 54      | 6.6     | 4°     |
| 22      | 11 ±1   | 50      | 65      | 9       | 4°     |
| 27      | 11 ±1   | 52      | 67      | 9       | 4°     |
| 31      | 12 ±1,5 | 66      | 86      | 11      | 4°     |
| 38      | 13 ±1,5 | 76      | 96      | 11      | 4°     |
| 40      | 17 ±1,5 | 94      | 124     | 14      | 4°     |

# Clevis mounting AB6, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

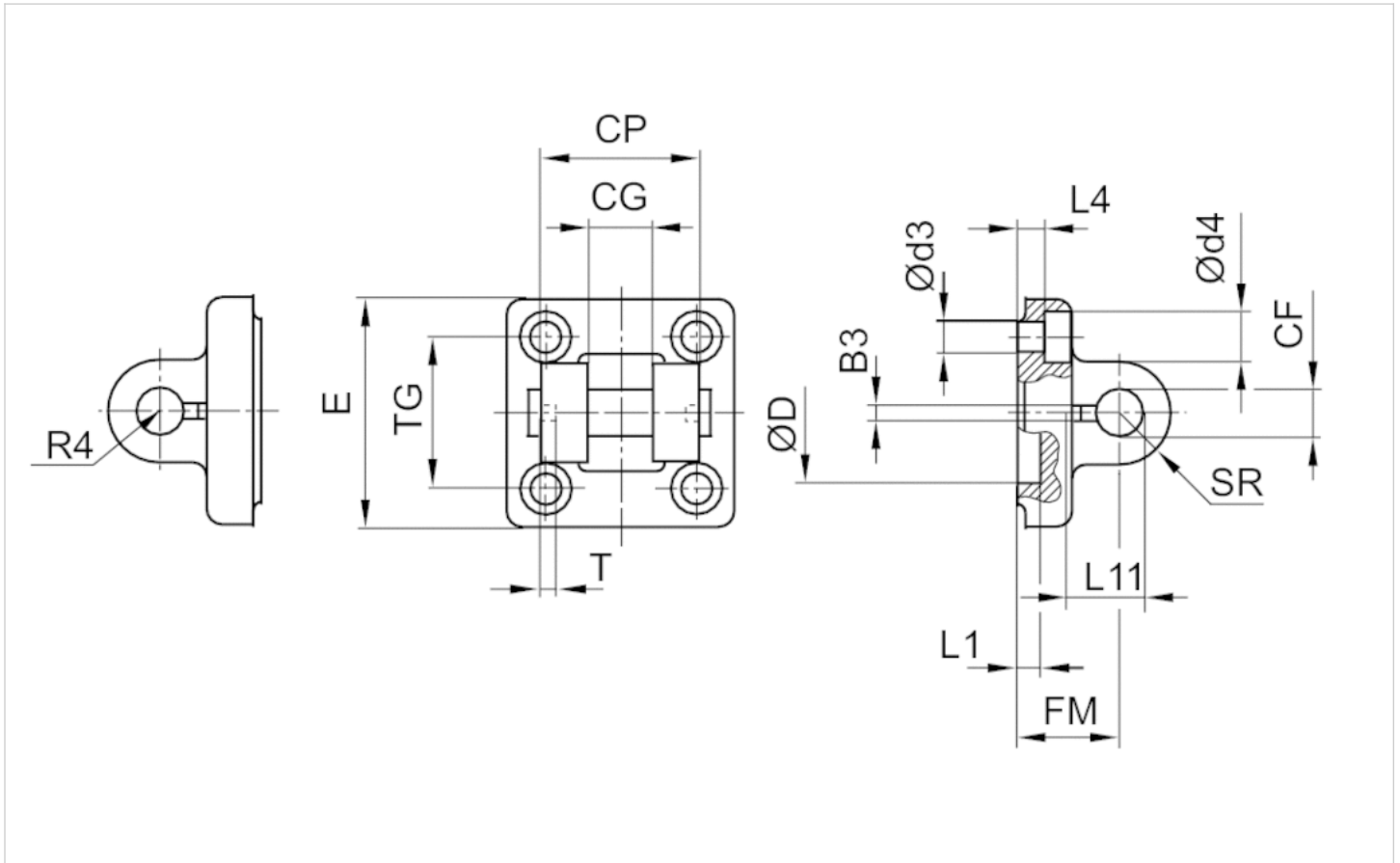
| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001593 | 32 mm    | 10 mm            |
| 1827001594 | 40 mm    | 12 mm            |
| 1827001595 | 50 mm    | 16 mm            |
| 1827002024 | 63 mm    | 16 mm            |
| 1827001597 | 80 mm    | 20 mm            |
| 1827001598 | 100 mm   | 20 mm            |
| 1827001599 | 125 mm   | 30 mm            |

Scope of delivery: clevis mounting incl. pivot pins and mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | B3 ±0,2 | Ø CF F7 | CG D10 | CP d12 | Ø d3 | Ø d4 | Ø D | E   | FM ±0,2 |
|------------|----------|---------|---------|--------|--------|------|------|-----|-----|---------|
| 1827001593 | 32 mm    | 3.3     | 10      | 14     | 34     | 6.6  | 11   | 30  | 49  | 22      |
| 1827001594 | 40 mm    | 4.3     | 12      | 16     | 40     | 6.6  | 11   | 35  | 55  | 25      |
| 1827001595 | 50 mm    | 4.3     | 16      | 21     | 45     | 9    | 15   | 40  | 67  | 27      |
| 1827002024 | 63 mm    | 4.3     | 16      | 21     | 51     | 9    | 15   | 45  | 77  | 32      |
| 1827001597 | 80 mm    | 4.3     | 20      | 25     | 65     | 11   | 18   | 45  | 97  | 36      |
| 1827001598 | 100 mm   | 4.3     | 20      | 25     | 75     | 11   | 18   | 55  | 117 | 41      |
| 1827001599 | 125 mm   | 6.3     | 30      | 37     | 97     | 14   | 20   | 60  | 140 | 50      |

| L1 min. | L4 ±0,5 | L11 -0,5 | R4 | SR | T ±0,2 | TG        |
|---------|---------|----------|----|----|--------|-----------|
| 4.5     | 5.5     | 16.5     | 17 | 11 | 3      | 32,5 ±0,2 |
| 4.5     | 5.5     | 18       | 20 | 12 | 4      | 38 ±0,2   |
| 4.5     | 6.5     | 23       | 22 | 15 | 4      | 46,5 ±0,2 |
| 4.5     | 6.5     | 23       | 25 | 15 | 4      | 56,5 ±0,2 |
| 4.5     | 10      | 27       | 30 | 20 | 4      | 72 ±0,2   |
| 4.5     | 10      | 27       | 32 | 20 | 4      | 89 ±0,2   |
| 7       | 10      | 40       | 42 | 26 | 6      | 110 ±0,3  |

# Clevis mounting MP2-HD, Series CM1

- Suitable for robust mechanical engineering applications
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1827001289 | 32 mm                | 10 mm                        |
| 1827001290 | 40 mm                | 12 mm                        |
| 1827001291 | 50 mm                | 12 mm                        |
| 1827001500 | 63 mm                | 16 mm                        |
| 1827001293 | 80 mm                | 16 mm                        |
| 1827001294 | 100 mm               | 20 mm                        |
| 1827004862 | 125 mm               | 25 mm                        |

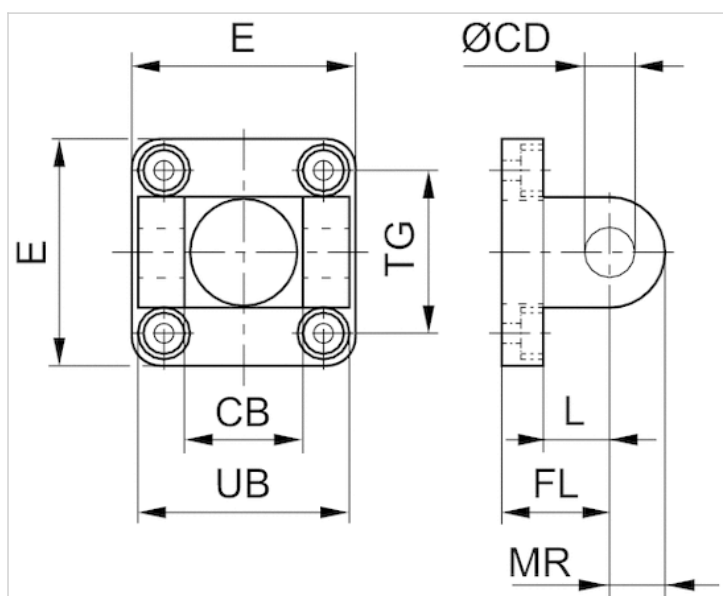
Scope of delivery: clevis mounting incl. mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | CB H14 | Ø CD H9 | E     | FL ±0.2 | L min. | MR max. | UB h13 | TG        |
|------------|----------|--------|---------|-------|---------|--------|---------|--------|-----------|
| 1827001289 | 32 mm    | 26     | 10      | 47.5  | 22      | 12     | 10      | 45     | 32.5 ±0.2 |
| 1827001290 | 40 mm    | 28     | 12      | 53.5  | 25      | 15     | 13      | 52     | 38 ±0.2   |
| 1827001291 | 50 mm    | 32     | 12      | 64    | 27      | 15     | 13      | 60     | 46.5 ±0.2 |
| 1827001500 | 63 mm    | 40     | 16      | 74    | 32      | 18     | 17      | 70     | 56.5 ±0.2 |
| 1827001293 | 80 mm    | 50     | 16      | 94    | 36      | 20     | 17      | 90     | 72.0 ±0.2 |
| 1827001294 | 100 mm   | 60     | 20      | 113.5 | 41      | 25     | 18      | 110    | 89.0 ±0.2 |
| 1827004862 | 125 mm   | 70     | 25      | 138   | 50      | 30     | 26      | 130    | 110 ±0.3  |

# Rear eye MP4-HD, Series CM1

- Suitable for robust mechanical engineering applications, for clevis mounting MP2 and AB3
- Cylinder mounting in accordance with ISO 15552
- Suitable piston  $\varnothing$  32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

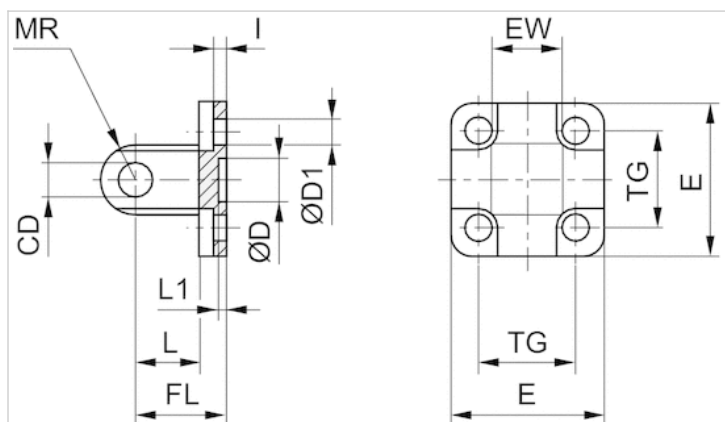
| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ |
|------------|----------------------|------------------------------|
| 1827001283 | 32 mm                | 10 mm                        |
| 1827001284 | 40 mm                | 12 mm                        |
| 1827001285 | 50 mm                | 12 mm                        |
| 1827020086 | 63 mm                | 16 mm                        |
| 1827001287 | 80 mm                | 16 mm                        |
| 1827001288 | 100 mm               | 20 mm                        |
| 1827004866 | 125 mm               | 25 mm                        |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                     |
|----------|---------------------|
| Material | Aluminum (forged)   |
| Screws   | Steel<br>galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | CD H9 | Ø D    | Ø D1 | E   | EW           | FL ±0,2 | I ±0,5 | L min. | L1 min. |
|------------|----------|-------|--------|------|-----|--------------|---------|--------|--------|---------|
| 1827001283 | 32 mm    | 10    | 30 H11 | 6.6  | 48  | 26 -0,2/-0,6 | 22      | 5.5    | 12     | 4.5     |
| 1827001284 | 40 mm    | 12    | 35 H11 | 6.6  | 53  | 28 -0,2/-0,6 | 25      | 5.5    | 15     | 4.5     |
| 1827001285 | 50 mm    | 12    | 40 H11 | 9    | 63  | 32 -0,2/-0,6 | 27      | 6.5    | 15     | 4.5     |
| 1827020086 | 63 mm    | 16    | 45 H11 | 9    | 73  | 40 -0,2/-0,6 | 32      | 6.5    | 20     | 4.5     |
| 1827001287 | 80 mm    | 16    | 45 H11 | 11   | 98  | 50 -0,2/-0,6 | 36      | 10     | 20     | 4.5     |
| 1827001288 | 100 mm   | 20    | 55 H11 | 11   | 115 | 60 -0,2/-0,6 | 41      | 10     | 25     | 4.5     |
| 1827004866 | 125 mm   | 25    | 60 H11 | 14   | 140 | 70 -0,5/-1,2 | 50      | 10     | 30     | 7       |

| MR max. | TG        |
|---------|-----------|
| 10      | 32,5 ±0,2 |
| 12      | 38 ±0,2   |
| 12      | 46,5 ±0,2 |
| 16      | 56,5 ±0,2 |
| 16      | 72 ±0,2   |
| 20      | 89 ±0,2   |
| 26      | 110 ±0,3  |

# Rear eye MP6, Series CM1

- With ball joint and foot
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

Weight

See table below

## Technical data

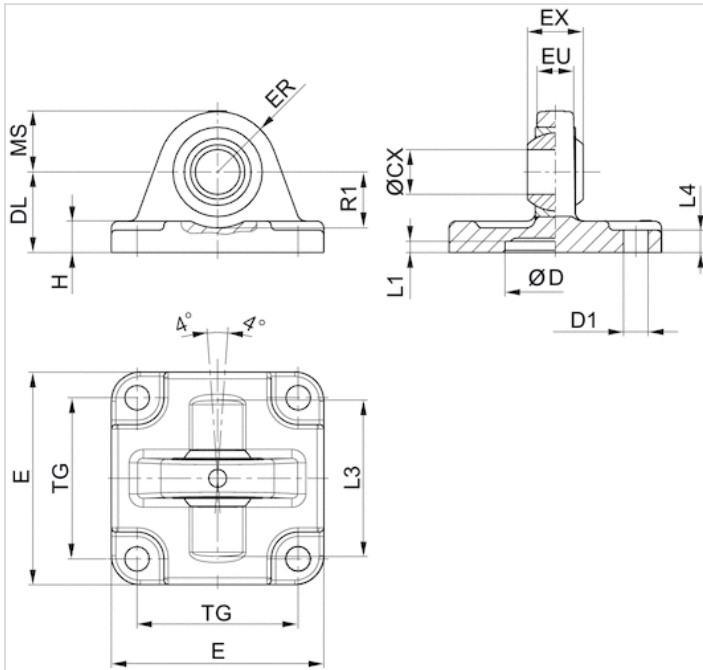
| Part No.   | Piston Ø | Swivel bearing Ø | Bearing material, inner ring | Bearing material, outer ring | Weight |
|------------|----------|------------------|------------------------------|------------------------------|--------|
| 1827001619 | 32 mm    | 10 mm            | Stainless steel              | Brass with PTFE coating      | 0.1 kg |
| 1827001620 | 40 mm    | 12 mm            | Stainless steel              | Brass with PTFE coating      | 0.1 kg |
| 1827001621 | 50 mm    | 16 mm            | Stainless steel              | Brass with PTFE coating      | 0.2 kg |
| 1827020087 | 63 mm    | 16 mm            | Stainless steel              | Brass with PTFE coating      | 0.3 kg |
| 1827001623 | 80 mm    | 20 mm            | Stainless steel              | Brass with PTFE coating      | 0.6 kg |
| 1827001624 | 100 mm   | 20 mm            | Stainless steel              | Brass with PTFE coating      | 0.8 kg |
| 1827001625 | 125 mm   | 30 mm            | Stainless steel              | Brass with PTFE coating      | 1.4 kg |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                   |
|----------|-------------------|
| Material | Aluminum (forged) |
| Screws   | galvanized steel  |
| Bearing  | Stainless steel   |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | ØCX H7 | ØD H11 | ØD1 H13 | DL ±0,2 | E   | EX -0,1 | ER | EU   | H    | L1 min. |
|------------|----------|--------|--------|---------|---------|-----|---------|----|------|------|---------|
| 1827001619 | 32 mm    | 10     | 30     | 6.6     | 22      | 47  | 14      | 15 | 10.5 | 9    | 4.5     |
| 1827001620 | 40 mm    | 12     | 35     | 6.6     | 25      | 53  | 16      | 18 | 12   | 9    | 4.5     |
| 1827001621 | 50 mm    | 16     | 40     | 9       | 27      | 65  | 21      | 20 | 15   | 10.5 | 4.5     |
| 1827020087 | 63 mm    | 16     | 45     | 9       | 32      | 75  | 21      | 23 | 15   | 10.5 | 4.5     |
| 1827001623 | 80 mm    | 20     | 45     | 11      | 36      | 95  | 25      | 27 | 18   | 14   | 4.5     |
| 1827001624 | 100 mm   | 20     | 55     | 11      | 41      | 115 | 25      | 30 | 18   | 15   | 4.5     |
| 1827001625 | 125 mm   | 30     | 60     | 14      | 50      | 140 | 37      | 40 | 25   | 16   | 7       |

| L3  | L4  | MS -0,5 | R1 min. | TG        |
|-----|-----|---------|---------|-----------|
| 36  | 5.5 | 15      | 12      | 32,5 ±0,2 |
| 42  | 5.5 | 18      | 15      | 38 ±0,2   |
| 48  | 6.5 | 21      | 19      | 46,5 ±0,2 |
| 55  | 6.5 | 23      | 21      | 56,5 ±0,2 |
| 70  | 10  | 27      | 24      | 72 ±0,2   |
| 80  | 10  | 30      | 25      | 89 ±0,2   |
| 100 | 10  | 40      | 33      | 110 ±0,3  |

# Rear eye MP9, Series CM1

- With rubber bushing
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 mm



Standards  
Weight

ISO 15552  
See table below

## Technical data

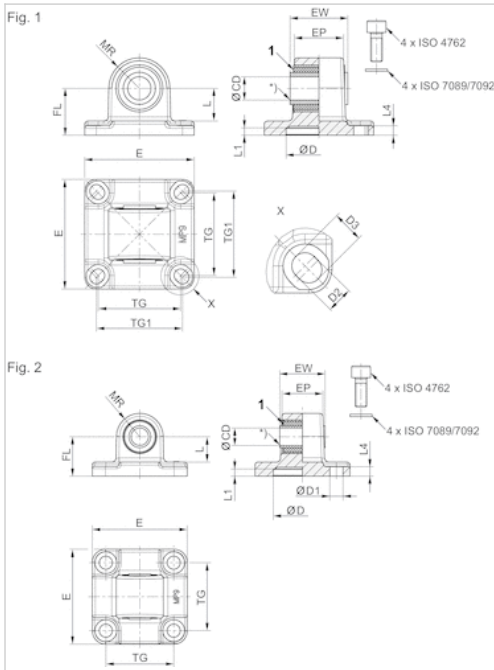
| Part No.   | Piston Ø | Swivel bearing Ø | Weight   | Fig.   |
|------------|----------|------------------|----------|--------|
| 3683203000 | 32 mm    | 10 mm            | 0.092 kg | Fig. 2 |
| 3683204000 | 40 mm    | 12 mm            | 0.143 kg | Fig. 1 |
| 3683205000 | 50 mm    | 12 mm            | 0.217 kg | Fig. 2 |
| 3683206000 | 63 mm    | 16 mm            | 0.411 kg | Fig. 1 |
| 3683208000 | 80 mm    | 16 mm            | 0.64 kg  | Fig. 2 |
| 3683210000 | 100 mm   | 20 mm            | 0.956 kg | Fig. 1 |

Scope of delivery: clevis incl. mounting screws

## Technical information

| Material |                   |
|----------|-------------------|
| Material | Aluminum (forged) |
| Bearing  | Bronze            |

# Dimensions



1) Rubber bushing

# Dimensions

| Part No.   | Piston Ø | CD H11 | CD H9 | E    | EW   | EP   | TG   | TG1 ±0,2 | FL ±0,2 | L 1) | MR   | L1 | L4  |
|------------|----------|--------|-------|------|------|------|------|----------|---------|------|------|----|-----|
| 3683203000 | 32 mm    | 10     | -     | 46   | 25.5 | 18,9 | 32.5 | -        | 22      | 13.8 | 12.5 | 5  | 5.5 |
| 3683204000 | 40 mm    | -      | 12    | 53   | 27   | 23,5 | 38   | 40       | 25      | 16.3 | 15   | 5  | 5.5 |
| 3683205000 | 50 mm    | -      | 12    | 65   | 31   | 28   | 46.5 | -        | 27      | 17.3 | 16   | 5  | 6.5 |
| 3683206000 | 63 mm    | -      | 16    | 75   | 39.5 | 33.5 | 56.5 | 59       | 32      | 22.3 | 21   | 5  | 6.5 |
| 3683208000 | 80 mm    | -      | 16    | 94.5 | 49.5 | 43   | 72   | -        | 36      | 21.8 | 22   | 5  | 10  |
| 3683210000 | 100 mm   | -      | 20    | 114  | 59.5 | 54   | 89   | 90       | 41      | 25.8 | 25   | 5  | 10  |

| D H11 | D1 H13 | D2 -0,2 | D3 -0,2 | Fig.   |
|-------|--------|---------|---------|--------|
| 30    | 6.6    | -       | -       | Fig. 2 |
| 35    | -      | 6.6     | 8       | Fig. 1 |
| 40    | 9      | -       | -       | Fig. 2 |
| 45    | 6.6    | -       | -       | Fig. 1 |
| 45    | 11     | -       | -       | Fig. 2 |
| 55    | -      | 11      | 11.7    | Fig. 1 |

# Trunnion mounting MT4, Series CM1

- Suitable piston Ø 32 40 50 63 80 100 125 mm

- for series PRA



## Technical data

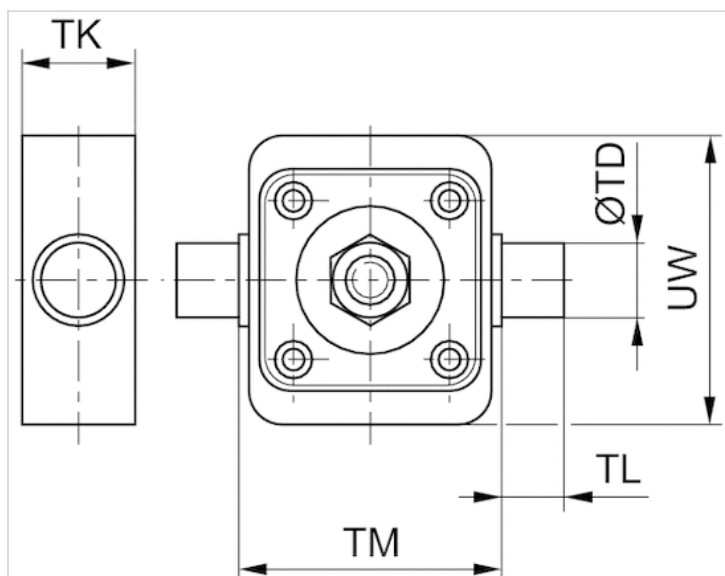
| Part No.   | Piston Ø |
|------------|----------|
| 1827003991 | 32 mm    |
| 1827003992 | 40 mm    |
| 1827003993 | 50 mm    |
| 1827003994 | 63 mm    |
| 1827003995 | 80 mm    |
| 1827003996 | 100 mm   |
| 1827003997 | 125 mm   |

## Technical information

| Material |                   |
|----------|-------------------|
| Material | Aluminum (forged) |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | TD e9 | TK 1) | TL h14 | TM h14 | UW  |
|------------|----------|-------|-------|--------|--------|-----|
| 1827003991 | 32 mm    | 12    | 22    | 12     | 50     | 70  |
| 1827003992 | 40 mm    | 16    | 28    | 16     | 63     | 78  |
| 1827003993 | 50 mm    | 16    | 28    | 16     | 75     | 96  |
| 1827003994 | 63 mm    | 20    | 35    | 20     | 90     | 108 |
| 1827003995 | 80 mm    | 20    | 35    | 20     | 110    | 130 |
| 1827003996 | 100 mm   | 25    | 46    | 25     | 132    | 150 |
| 1827003997 | 125 mm   | 25    | 46    | 25     | 160    | 171 |

1) Max.

# Trunnion mounting MT5, MT6, Series CM1

- for mounting to the cylinder cover or base
- Suitable piston Ø 32 40 50 63 80 100 125 mm
- for series CCI, CVI, CCL-IC/-IS, PRA/TRB CVI, CCL-IS, PRA, TRB



Weight

See table below

The delivered product may vary from that in the illustration.

## Technical data

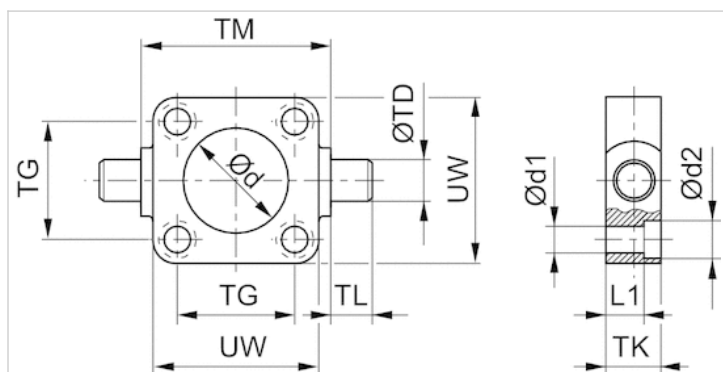
| Part No.   | Piston Ø | Weight  |
|------------|----------|---------|
| 1827001609 | 32 mm    | 0.29 kg |
| 1827001610 | 40 mm    | 0.5 kg  |
| 1827001611 | 50 mm    | 0.7 kg  |
| 1827002046 | 63 mm    | 1.1 kg  |
| 1827001613 | 80 mm    | 1.5 kg  |
| 1827001614 | 100 mm   | 2.7 kg  |
| 1827001615 | 125 mm   | 3.8 kg  |

Scope of delivery: trunnion mounting incl. mounting screws

## Technical information

| Material |                       |
|----------|-----------------------|
| Material | Nodular graphite iron |
|          | galvanized            |
| Screws   | Steel                 |
|          | galvanized            |

## Dimensions



## Dimensions

| Part No.   | Piston $\varnothing$ | $\varnothing d$ H11 | $\varnothing d1$ | $\varnothing d2$ | L1   | TD e9 | TG $\pm 0,2$ | TK | TL h14 | TM h14 | UW  |
|------------|----------------------|---------------------|------------------|------------------|------|-------|--------------|----|--------|--------|-----|
| 1827001609 | 32 mm                | 30                  | 6.6              | 11               | 7.5  | 12    | 32.5         | 16 | 12     | 50     | 48  |
| 1827001610 | 40 mm                | 35                  | 6.6              | 11               | 7.5  | 16    | 38           | 20 | 16     | 63     | 56  |
| 1827001611 | 50 mm                | 40                  | 9                | 15               | 10   | 16    | 46.5         | 24 | 16     | 75     | 65  |
| 1827002046 | 63 mm                | 45                  | 9                | 15               | 10   | 20    | 56.5         | 24 | 20     | 90     | 75  |
| 1827001613 | 80 mm                | 45                  | 11               | 18               | 16   | 20    | 72           | 28 | 20     | 110    | 100 |
| 1827001614 | 100 mm               | 55                  | 11               | 18               | 25.5 | 25    | 89           | 38 | 25     | 132    | 120 |
| 1827001615 | 125 mm               | 60                  | 14               | 20               | 34   | 25    | 110          | 46 | 25     | 160    | 145 |

# Bearing, Series CM1

- for trunnion mounting

- Suitable piston  $\varnothing$  32 40, 50 63, 80 100, 125 mm



## Technical data

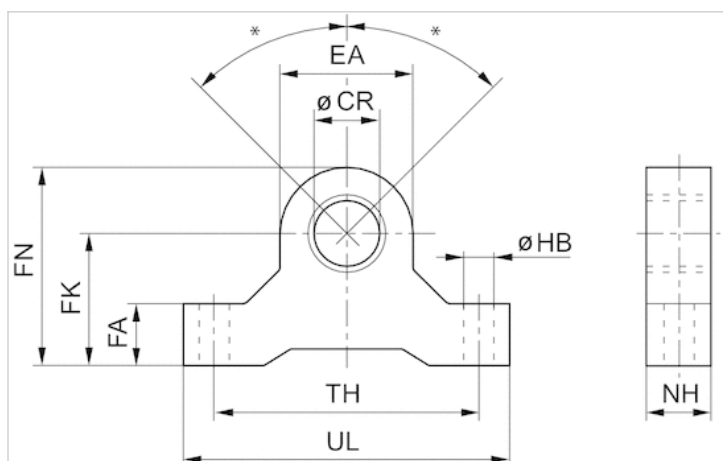
| Part No.   | Piston $\varnothing$ | Swivel bearing $\varnothing$ | Scope of delivery |
|------------|----------------------|------------------------------|-------------------|
| 3671203000 | 32 mm                | 12 mm                        | 2 piece           |
| 3671204000 | 40, 50 mm            | 16 mm                        | 2 piece           |
| 3671206000 | 63, 80 mm            | 20 mm                        | 2 piece           |
| 3671210000 | 100, 125 mm          | 25 mm                        | 2 piece           |

## Technical information

### Material

|          |          |
|----------|----------|
| Material | Aluminum |
|----------|----------|

## Dimensions



\* Max. pendulum movement for cylinders with rear eye MP6 with ball joint:  $\pm 45^\circ$

## Dimensions

| Part No.   | Ø CR H8 | EA | FA | FK ±0,1 | FN | HB  | NH | TH | UL  |
|------------|---------|----|----|---------|----|-----|----|----|-----|
| 3671203000 | 12      | 19 | 11 | 22      | 32 | 6.6 | 11 | 44 | 55  |
| 3671204000 | 16      | 28 | 16 | 35      | 49 | 9   | 16 | 65 | 82  |
| 3671206000 | 20      | 38 | 19 | 40      | 59 | 9   | 19 | 80 | 99  |
| 3671210000 | 25      | 46 | 22 | 48      | 71 | 11  | 22 | 96 | 118 |

# Bearing AT4, Series CM1

- for trunnion mounting MT4, MT5, MT6
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 20, 25, 32 40, 50 63, 80 100, 125 mm
- for series CCI, CCL-IC, ICL, KPZ, PRA/TRB CCI, CCL-IC, KPZ, PRA/TRB



Standards

ISO 15552

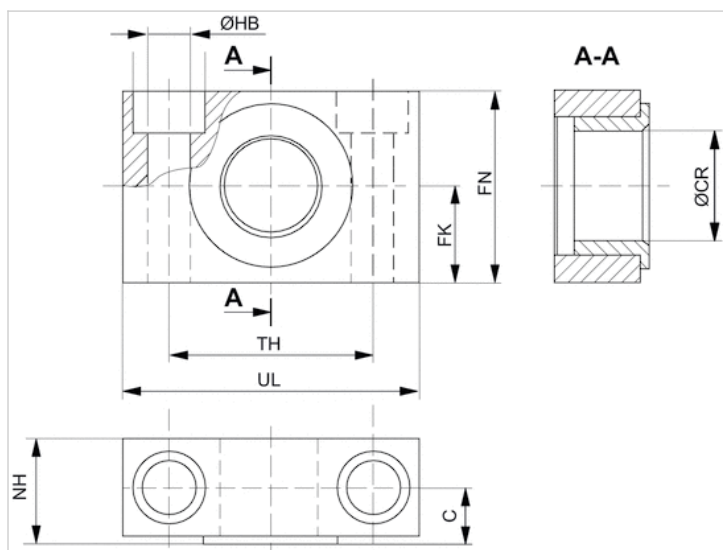
## Technical data

| Part No.   | Piston Ø      | Swivel bearing Ø | Scope of delivery |
|------------|---------------|------------------|-------------------|
| 1827001603 | 20, 25, 32 mm | 12 mm            | 2 piece           |
| 1827001604 | 40, 50 mm     | 16 mm            | 2 piece           |
| 1827001605 | 63, 80 mm     | 20 mm            | 2 piece           |
| 1827001606 | 100, 125 mm   | 25 mm            | 2 piece           |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Material      | Steel           |
|               | galvanized      |
| Guide bushing | Sintered bronze |

## Dimensions



## Dimensions

| Part No.   | Piston Ø      | UL | NH   | TH      | C    | CR H9 | HB H13 | FN | FK      | Plain bearing   |
|------------|---------------|----|------|---------|------|-------|--------|----|---------|-----------------|
| 1827001603 | 20, 25, 32 mm | 46 | 18   | 32 ±0,2 | 10.5 | 12    | 6.6    | 30 | 15 ±0,1 | Sintered bronze |
| 1827001604 | 40, 50 mm     | 55 | 21   | 36 ±0,2 | 12   | 16    | 9      | 36 | 18 ±0,1 | Sintered bronze |
| 1827001605 | 63, 80 mm     | 65 | 23   | 42 ±0,2 | 13   | 20    | 11     | 40 | 20 ±0,1 | Sintered bronze |
| 1827001606 | 100, 125 mm   | 75 | 28.5 | 50 ±0,2 | 16   | 25    | 14     | 50 | 25 ±0,1 | Sintered bronze |

# Flange mounting MF1, MF2, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

| Part No.   | Piston Ø | Swivel bearing Ø |
|------------|----------|------------------|
| 1827001277 | 32 mm    | 30 mm            |
| 1827001278 | 40 mm    | 35 mm            |
| 1827001279 | 50 mm    | 40 mm            |
| 1827001499 | 63 mm    | 45 mm            |
| 1827001281 | 80 mm    | 45 mm            |
| 1827001282 | 100 mm   | 55 mm            |
| 1827004861 | 125 mm   | 60 mm            |

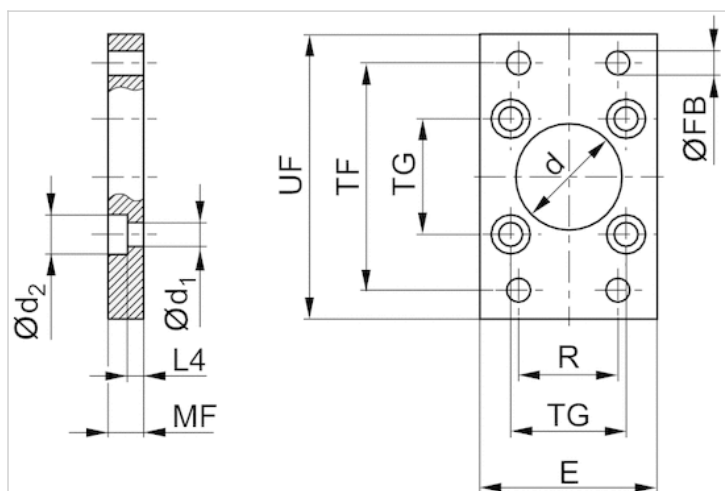
Scope of delivery: flange mounting incl. mounting screws

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |
| Screws   | Steel      |
|          | galvanized |



## Dimensions



## Dimensions

| Part No.   | Piston Ø | Ød H11 | Ød1 | Ød2 | E max. | ØFB | L4   | MF | R  | TF  | TG        | UF  |
|------------|----------|--------|-----|-----|--------|-----|------|----|----|-----|-----------|-----|
| 1827001277 | 32 mm    | 30     | 6.6 | 11  | 50     | 7   | 4.5  | 10 | 32 | 64  | 32,5 ±0,2 | 80  |
| 1827001278 | 40 mm    | 35     | 6.6 | 11  | 55     | 9   | 4.5  | 10 | 36 | 72  | 38 ±0,2   | 90  |
| 1827001279 | 50 mm    | 40     | 9   | 15  | 65     | 9   | 6    | 12 | 45 | 90  | 46,5 ±0,2 | 110 |
| 1827001499 | 63 mm    | 45     | 9   | 15  | 75     | 9   | 6    | 12 | 50 | 100 | 56,5 ±0,2 | 125 |
| 1827001281 | 80 mm    | 45     | 11  | 18  | 100    | 12  | 9    | 16 | 63 | 126 | 72 ±0,2   | 154 |
| 1827001282 | 100 mm   | 55     | 11  | 18  | 120    | 14  | 9    | 16 | 75 | 150 | 89 ±0,2   | 186 |
| 1827004861 | 125 mm   | 60     | 14  | 20  | 140    | 16  | 10.5 | 20 | 90 | 180 | 110 ±0,3  | 220 |

# Intermediate flange JP1, Series CM1

- for multi-position cylinders

- Suitable piston Ø 32 40 50 63 80 100 125 mm



## Technical data

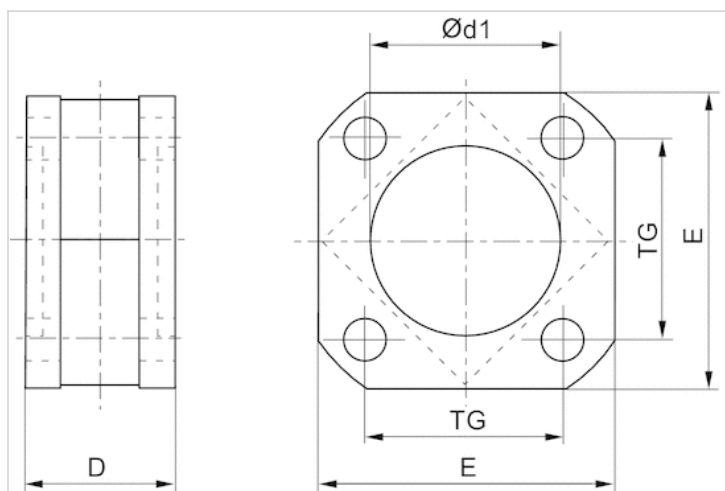
| Part No.   | Piston Ø |
|------------|----------|
| 1827020247 | 32 mm    |
| 1827020248 | 40 mm    |
| 1827020249 | 50 mm    |
| 1827020250 | 63 mm    |
| 1827020251 | 80 mm    |
| 1827020252 | 100 mm   |
| 1827020253 | 125 mm   |

Scope of delivery incl. mounting screws

## Technical information

| Material |          |
|----------|----------|
| Material | Aluminum |

## Dimensions



## Dimensions

| Part No.   | Piston $\text{Ø}$ | D  | $\text{Ø} d1$ N7 | E   | TG   |
|------------|-------------------|----|------------------|-----|------|
| 1827020247 | 32 mm             | 27 | 30               | 47  | 32.5 |
| 1827020248 | 40 mm             | 27 | 35               | 53  | 38   |
| 1827020249 | 50 mm             | 32 | 40               | 65  | 46.5 |
| 1827020250 | 63 mm             | 28 | 45               | 75  | 56.5 |
| 1827020251 | 80 mm             | 38 | 45               | 95  | 72   |
| 1827020252 | 100 mm            | 38 | 55               | 115 | 89   |
| 1827020253 | 125 mm            | 44 | 60               | 140 | 110  |

# Foot mounting MS1, Series CM1

- to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, KPZ, 167, CVI, ITS
- Cylinder mounting in accordance with ISO 15552
- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

ISO 15552

## Technical data

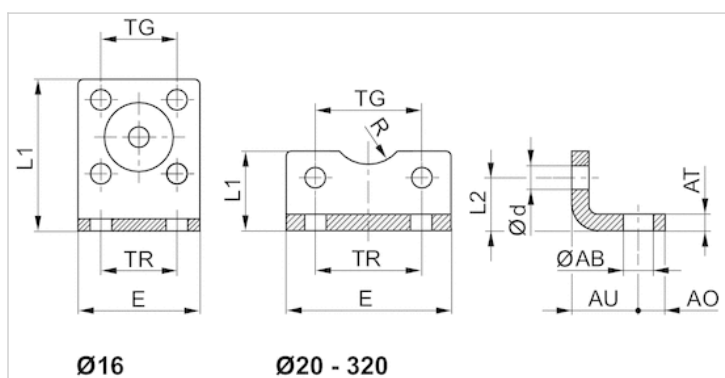
| Part No.   | Piston Ø | For series                 |
|------------|----------|----------------------------|
| 1827001271 | 32 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001272 | 40 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001273 | 50 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001498 | 63 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001275 | 80 mm    | PRA/TRB CCL-IC/-IS CCI CVI |
| 1827001276 | 100 mm   | CCI CCL-IC/-IS PRA/TRB CVI |
| 1827001310 | 125 mm   | PRA/TRB CCL-IS CVI         |

Scope of delivery: 2 foot mountings incl. mounting screws

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |
| Screws   | Steel      |
|          | galvanized |

## Dimensions



## Dimensions

| Part No.   | Piston Ø | ØAB  | AO | AT     | AU ±0,2 | Ød   | E   | L1 | L2   | R    | TG        | TR |
|------------|----------|------|----|--------|---------|------|-----|----|------|------|-----------|----|
| 1827001271 | 32 mm    | 7    | 8  | 4 ±0,3 | 24      | 6.6  | 48  | 25 | 15.5 | 15   | 32,5 ±0,2 | 32 |
| 1827001272 | 40 mm    | 10   | 10 | 4 ±0,3 | 28      | 6.6  | 56  | 26 | 17   | 17.5 | 38 ±0,2   | 36 |
| 1827001273 | 50 mm    | 10   | 11 | 5 ±0,3 | 32      | 9    | 68  | 32 | 21.5 | 20   | 46,5 ±0,2 | 45 |
| 1827001498 | 63 mm    | 10   | 13 | 5 ±0,3 | 32      | 9    | 78  | 34 | 21.5 | 22.5 | 56,5 ±0,2 | 50 |
| 1827001275 | 80 mm    | 12   | 16 | 6 ±0,5 | 41      | 11   | 98  | 47 | 27   | 22.5 | 72 ±0,2   | 63 |
| 1827001276 | 100 mm   | 14.5 | 19 | 6 ±0,5 | 41      | 11   | 117 | 52 | 26.5 | 27.5 | 89 ±0,2   | 75 |
| 1827001310 | 125 mm   | 16.5 | 20 | 8 ±1,0 | 45      | 13.5 | 144 | 69 | 35   | 30   | 110 ±0,3  | 90 |

# Bolts AA4, Series CM1

- Cylinder mounting in accordance with ISO 15552

- Suitable piston Ø 32 40 50 63 80 100 125 mm



Standards

Weight

See table below

See table below

## Technical data

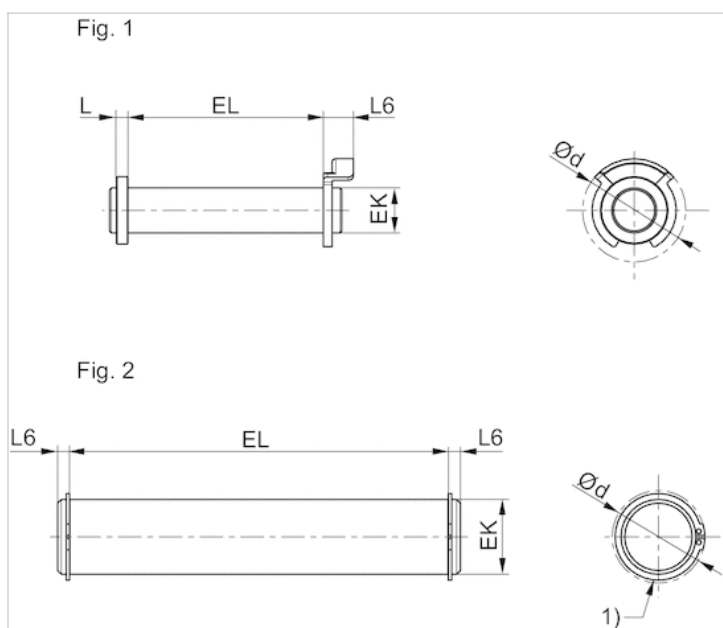
| Part No.   | Piston Ø | Standardization | Weight  | Fig.   |
|------------|----------|-----------------|---------|--------|
| 1823120020 | 32 mm    | -               | 0.03 kg | Fig. 1 |
| 1823120021 | 40 mm    | -               | 0.05 kg | Fig. 1 |
| 1823120022 | 50 mm    | -               | 0.06 kg | Fig. 1 |
| 1823120023 | 63 mm    | -               | 0.12 kg | Fig. 1 |
| 1823120024 | 80 mm    | -               | 0.15 kg | Fig. 1 |
| 1823120025 | 100 mm   | -               | 0.29 kg | Fig. 1 |
| 5236000092 | 125 mm   | ISO 15552       | 0.53 kg | Fig. 2 |

Scope of delivery: pivot pins incl. circlips

## Technical information

| Material |            |
|----------|------------|
| Material | Steel      |
|          | galvanized |

## Dimensions



1) circlip DIN 471

## Dimensions

| Part No.   | Piston Ø | Fig.   | Ø d max. | EK e8 | EL         | L max. | L6 max. |
|------------|----------|--------|----------|-------|------------|--------|---------|
| 1823120020 | 32 mm    | Fig. 1 | 20       | 10    | 45.2 +0,3  | 3.5    | 9       |
| 1823120021 | 40 mm    | Fig. 1 | 22       | 12    | 52.2 +0,3  | 4      | 9       |
| 1823120022 | 50 mm    | Fig. 1 | 22       | 12    | 60.2 +0,3  | 4      | 9       |
| 1823120023 | 63 mm    | Fig. 1 | 28       | 16    | 70.2 +0,3  | 4.5    | 11      |
| 1823120024 | 80 mm    | Fig. 1 | 28       | 16    | 90.2 +0,3  | 4.5    | 11      |
| 1823120025 | 100 mm   | Fig. 1 | 38       | 20    | 110.2 +0,3 | 5      | 11      |
| 5236000092 | 125 mm   | Fig. 2 | 34.2     | 25    | 132 +0,5   | -      | 3.75    |

# Guide unit GU1, Series CG1

- Ø 32-100 mm
- Plain bearing
- For standard cylinders ISO 15552



Bearing type

Plain bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401010 | 0821401020 | 0821401030 | 0821401480 | 0821401050 | 0821401060 |
| 100               | 0821401011 | 0821401021 | 0821401031 | 0821401481 | 0821401051 | 0821401061 |
| 160               | 0821401012 | 0821401022 | 0821401032 | 0821401482 | 0821401052 | 0821401062 |
| 200               | 0821401013 | 0821401023 | 0821401033 | 0821401483 | 0821401053 | 0821401063 |
| 250               | 0821401014 | 0821401024 | 0821401034 | 0821401484 | 0821401054 | 0821401064 |
| 320               | 0821401015 | 0821401025 | 0821401035 | 0821401485 | 0821401055 | 0821401065 |
| 400               | 0821401016 | 0821401026 | 0821401036 | 0821401486 | 0821401056 | 0821401066 |
| 500               | 0821401017 | 0821401027 | 0821401037 | 0821401487 | 0821401057 | 0821401067 |
| 600               | 0821401018 | 0821401028 | 0821401038 | 0821401488 | 0821401058 | 0821401068 |
| 800               | 0821401019 | 0821401029 | 0821401039 | 0821401489 | 0821401059 | 0821401069 |
| 1000              | 0821401500 | 0821401502 | 0821401504 | 0821401490 | 0821401508 | 0821401510 |
| 1200              | 0821401501 | 0821401503 | 0821401505 | 0821401491 | 0821401509 | 0821401511 |

For use with hybrid inch cylinders with metric piston rod thread

## Technical data

| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 0.63 kg  | 0.946 kg | 1.36 kg  | 1.66 kg  | 3.45 kg  | 4.69 kg  |
| +10 mm stroke      | 0.012 kg | 0.018 kg | 0.018 kg | 0.018 kg | 0.022 kg | 0.022 kg |

## Technical information

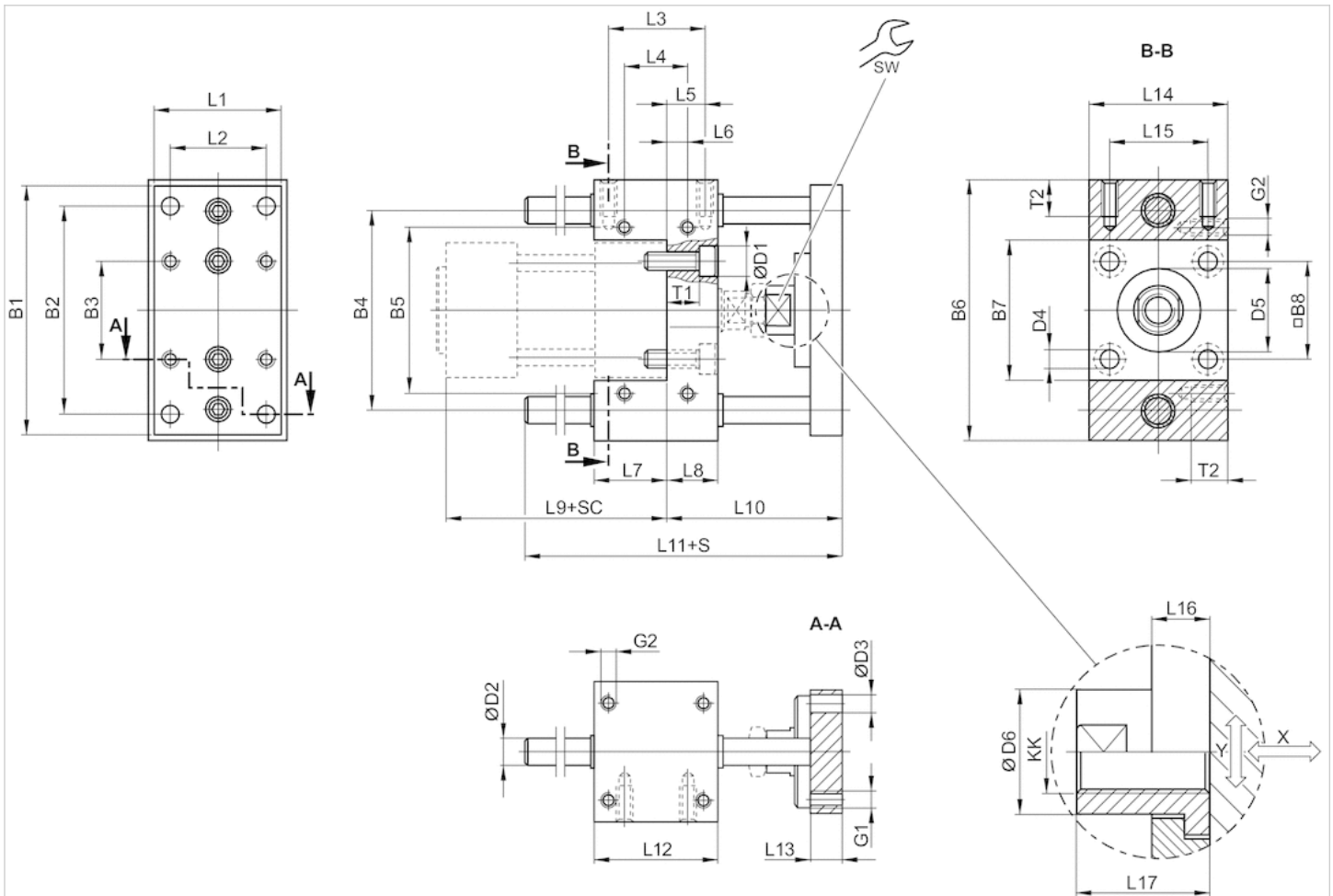
| Material         |                              |
|------------------|------------------------------|
| Bearing housings | Aluminum, colorless anodized |
| Bearing type     | Sintered bronze              |
| Carrying plate   | Aluminum, colorless anodized |



|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Material                            |                                     |
| Flexible coupling in carrying plate | Stainless steel                     |
| Guide rods                          | Hardened heat-treated steel, ground |

## Dimensions

Ø 32 ... 100 mm



- S = stroke
- SC = cylinder stroke
- X = max. play (axial)
- Y = min. play (radial)

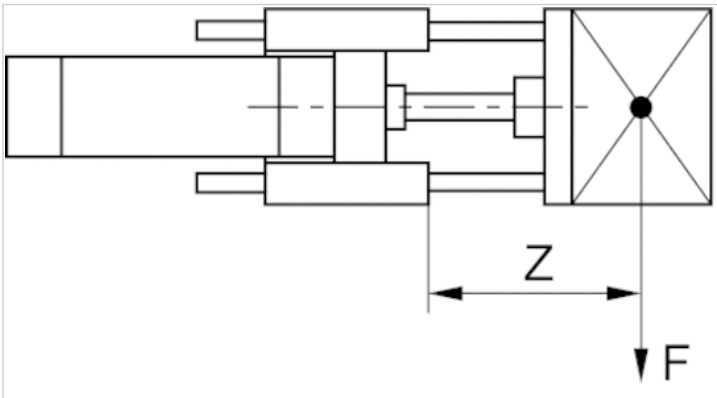
## Dimensions

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8   | D1 | D2 | D3  | D4  | D5    | D6 | G1  | G2  | KK       | L1  |
|----------|-----|-----|------|-----|-----|-----|-----|------|----|----|-----|-----|-------|----|-----|-----|----------|-----|
| 32 mm    | 90  | 78  | 32.5 | 74  | 58  | 100 | 48  | 32.5 | 11 | 10 | 6.6 | 6.6 | 30 M8 | 18 | M6  | M6  | M10x1,25 | 45  |
| 40 mm    | 100 | 84  | 38   | 80  | 64  | 106 | 54  | 38   | 11 | 12 | 6.6 | 6.6 | 35 M8 | 18 | M6  | M6  | M12x1,25 | 50  |
| 50 mm    | 120 | 100 | 46.5 | 96  | 80  | 125 | 66  | 46.5 | 15 | 12 | 9   | 9   | 40 M8 | 24 | M8  | M8  | M16x1,5  | 60  |
| 63 mm    | 125 | 105 | 56.5 | 104 | 95  | 132 | 76  | 56.5 | 15 | 12 | 9   | 9   | 45 M8 | 24 | M8  | M8  | M16x1,5  | 70  |
| 80 mm    | 155 | 130 | 72   | 130 | 130 | 165 | 98  | 72   | 18 | 16 | 11  | 11  | 45 M8 | 30 | M10 | M10 | M20x1,5  | 90  |
| 100 mm   | 175 | 150 | 89   | 150 | 150 | 185 | 118 | 89   | 18 | 16 | 11  | 11  | 55 M8 | 30 | M10 | M10 | M20x1,5  | 110 |

| Piston Ø | L2   | L3   | L4   | L5    | L6    | L7 | L8 | L9  | L10 | L11 | L12 | L13 | L14 | L15  | L16 | L17 | SW | T1 | T2 |
|----------|------|------|------|-------|-------|----|----|-----|-----|-----|-----|-----|-----|------|-----|-----|----|----|----|
| 32 mm    | 32.5 | 32.5 | 32.5 | 9.25  | 9.25  | 31 | 17 | 94  | 69  | 106 | 48  | 12  | 48  | 32.5 | 14  | 22  | 15 | 10 | 14 |
| 40 mm    | 38   | 38   | 38   | 11    | 11    | 37 | 21 | 105 | 74  | 117 | 58  | 12  | 56  | 38   | 14  | 22  | 15 | 14 | 14 |
| 50 mm    | 46.5 | 46.5 | 46.5 | 18.75 | 18.75 | 34 | 25 | 106 | 89  | 129 | 59  | 15  | 66  | 46.5 | 14  | 26  | 22 | 16 | 16 |
| 63 mm    | 56.5 | 56.5 | 56.5 | 15.25 | 15.25 | 51 | 25 | 121 | 89  | 146 | 76  | 15  | 76  | 56.5 | 14  | 26  | 22 | 16 | 16 |
| 80 mm    | 72   | 72   | 50   | 25    | 14    | 56 | 34 | 128 | 106 | 170 | 90  | 16  | 98  | 72   | 14  | 32  | 27 | 24 | 20 |
| 100 mm   | 89   | 89   | 70   | 28.5  | 19    | 71 | 39 | 138 | 111 | 190 | 110 | 16  | 118 | 89   | 14  | 32  | 27 | 29 | 20 |

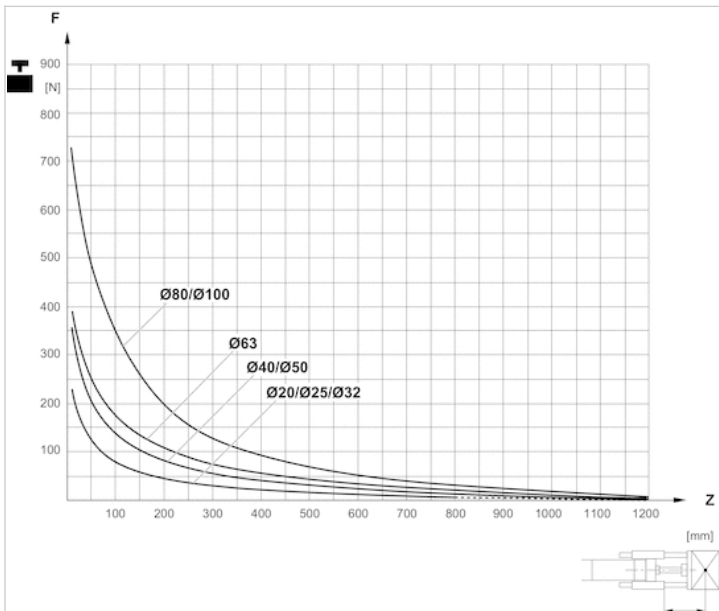
## Diagrams

### Useful load



F = Useful load, Z = Projection

### Useful load



F = Useful load, Z = Projection

# Guide unit GH1, Series CG1

- Ø 32-100 mm
- Plain bearing
- For standard cylinders ISO 15552



Bearing type

Plain bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401220 | 0821401230 | 0821401240 | 0821401280 | -          | -          |
| 100               | 0821401221 | 0821401231 | 0821401241 | 0821401281 | 0821401260 | 0821401270 |
| 160               | 0821401222 | 0821401232 | 0821401242 | 0821401285 | -          | -          |
| 200               | 0821401223 | 0821401233 | 0821401243 | 0821401282 | 0821401261 | 0821401271 |
| 250               | 0821401224 | 0821401234 | 0821401244 | 0821401286 | -          | -          |
| 320               | 0821401225 | 0821401235 | 0821401245 | 0821401283 | 0821401262 | 0821401272 |
| 400               | 0821401226 | 0821401236 | 0821401246 | 0821401287 | -          | -          |
| 500               | 0821401227 | 0821401237 | 0821401247 | 0821401284 | 0821401263 | 0821401273 |
| 600               | 0821401228 | 0821401238 | 0821401249 | 0821401288 | 0821401264 | 0821401274 |
| 800               | 0821401229 | 0821401239 | 0821401474 | 0821401289 | 0821401265 | 0821401275 |
| 1000              | 0821401470 | 0821401472 | 0821401475 | 0821401290 | 0821401266 | 0821401276 |
| 1200              | 0821401471 | 0821401473 | 0821401476 | 0821401291 | 0821401267 | 0821401277 |

Inch dimensions rounded to the nearest whole number., For use with hybrid inch cylinders with metric piston rod thread

## Technical data

| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 1.3 kg   | 2.3 kg   | 3.7 kg   | 4.7 kg   | 8.8 kg   | 11.1 kg  |
| +10 mm stroke      | 0.009 kg | 0.016 kg | 0.025 kg | 0.025 kg | 0.039 kg | 0.039 kg |

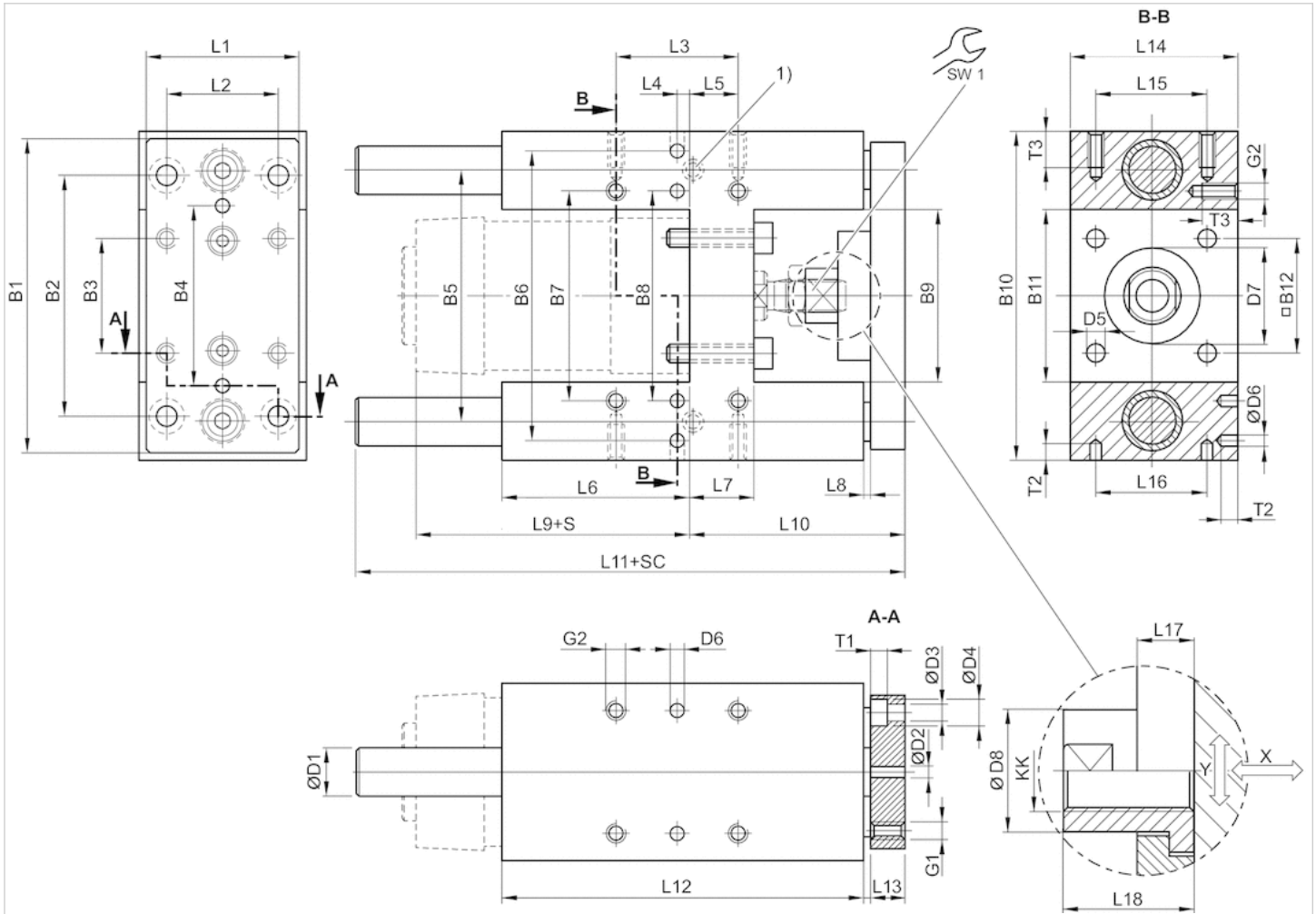
## Technical information

| Material         |                              |
|------------------|------------------------------|
| Bearing housings | Aluminum, colorless anodized |
| Bearing type     | Sintered bronze              |
| Carrying plate   | Aluminum, colorless anodized |

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Material                            |                                     |
| Flexible coupling in carrying plate | Stainless steel                     |
| Guide rods                          | Hardened heat-treated steel, ground |

## Dimensions

Ø 32 ... 100 mm



- 1) Lube nipple
- S = stroke
- SC = cylinder stroke
- X = max. play (axial)
- Y = min. play (radial)

## Dimensions

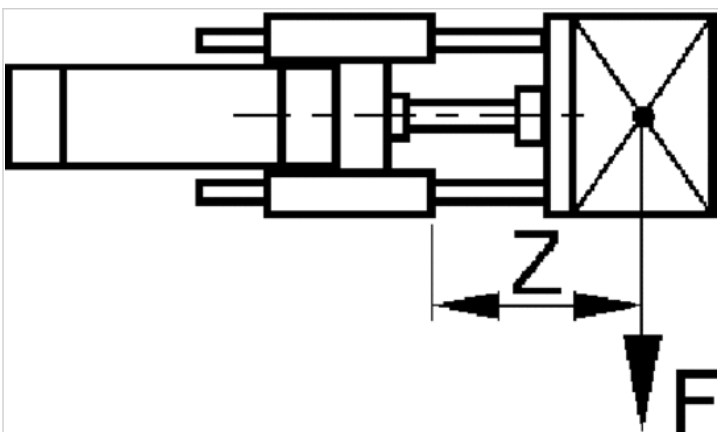
| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32 mm    | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40 mm    | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50 mm    | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63 mm    | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80 mm    | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100 mm   | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

| Piston Ø | D7 M8 | D8   | G1  | G2  | KK       | L1  | L2   | L3   | L4  | L5    | L6  | L7 | L8 | L9  | L10 | L11   | L12 |
|----------|-------|------|-----|-----|----------|-----|------|------|-----|-------|-----|----|----|-----|-----|-------|-----|
| 32 mm    | 30    | 14.5 | M6  | M6  | M10x1,25 | 45  | 32.5 | 32.5 | 12  | 4.25  | 76  | 17 | 3  | 94  | 64  | 177.5 | 125 |
| 40 mm    | 35    | 18   | M6  | M6  | M12x1,25 | 54  | 38   | 38   | 8   | 11    | 81  | 21 | 3  | 105 | 74  | 192.5 | 140 |
| 50 mm    | 40    | 24   | M8  | M8  | M16x1,5  | 63  | 46.5 | 46.5 | 4.5 | 18.75 | 79  | 26 | 3  | 106 | 89  | 205   | 150 |
| 63 mm    | 45    | 24   | M8  | M8  | M16x1,5  | 80  | 56.5 | 56.5 | 13  | 15.25 | 111 | 26 | 3  | 121 | 89  | 237   | 182 |
| 80 mm    | 45    | 30   | M10 | M10 | M20x1,5  | 100 | 72   | 72   | 15  | 21    | 128 | 34 | 3  | 128 | 110 | 280   | 215 |
| 100 mm   | 55    | 30   | M10 | M10 | M20x1,5  | 120 | 89   | 89   | 20  | 24.5  | 128 | 39 | 3  | 138 | 115 | 280   | 220 |

| Piston Ø | L13 | L14 | L15  | L16  | L17 | L18 | T1  | T2 | T3 | SW1 |
|----------|-----|-----|------|------|-----|-----|-----|----|----|-----|
| 32 mm    | 12  | 50  | 32.5 | 32.5 | 6   | 17  | 6.5 | 10 | 15 | 13  |
| 40 mm    | 12  | 58  | 38   | 38   | 14  | 22  | 6.5 | 10 | 15 | 15  |
| 50 mm    | 15  | 70  | 46.5 | 46.5 | 14  | 26  | 9   | 10 | 16 | 22  |
| 63 mm    | 15  | 85  | 56.5 | 56.5 | 14  | 26  | 9   | 10 | 16 | 22  |
| 80 mm    | 20  | 105 | 72   | 72   | 14  | 32  | 11  | 10 | 20 | 27  |
| 100 mm   | 20  | 130 | 89   | 89   | 14  | 32  | 11  | 10 | 20 | 27  |

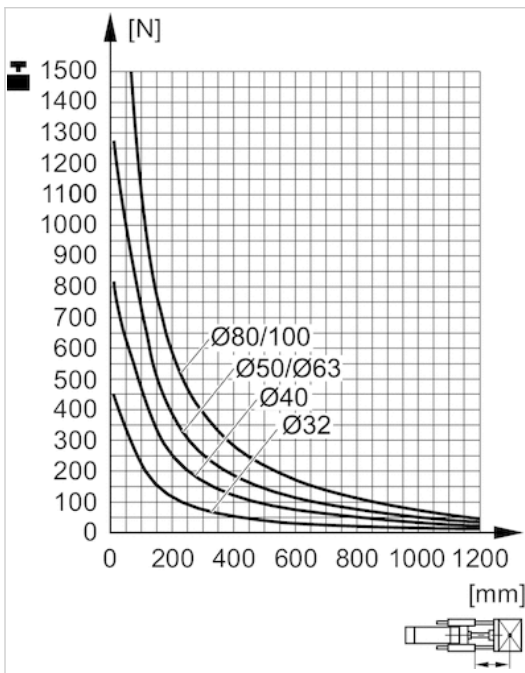
## Diagrams

### Useful load



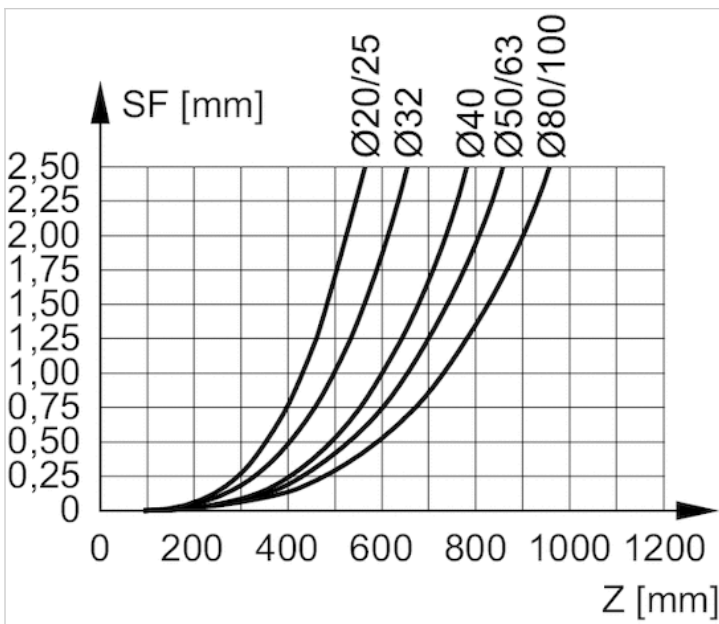
F = Useful load, Z = Projection

Useful load



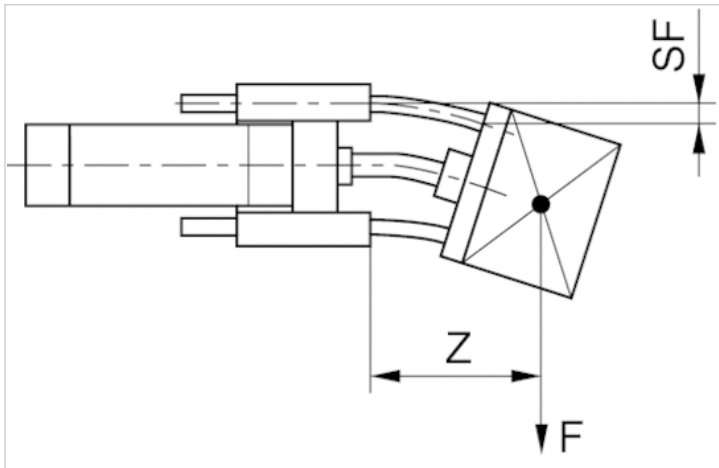
F = Useful load, Z = Projection

Bending due to own load



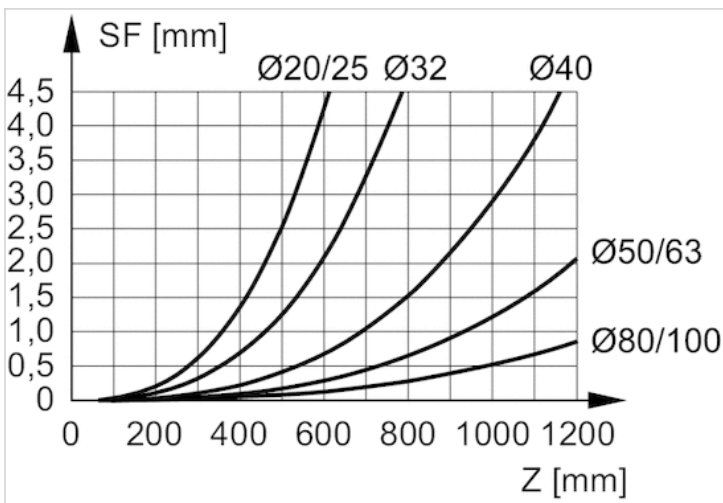
F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection

# Guide unit GH2, Series CG1

- Ø 32-100 mm
- Linear ball bearing
- For standard cylinders ISO 15552



Bearing type

Linear ball bearing

Ambient temperature min./max.

-20 ... 80 °C

## Technical data

| Suitable piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Stroke 50         | 0821401320 | 0821401330 | 0821401340 | 0821401380 | -          | -          |
| 100               | 0821401321 | 0821401331 | 0821401341 | 0821401381 | 0821401360 | 0821401370 |
| 200               | 0821401322 | 0821401332 | 0821401342 | 0821401382 | 0821401361 | 0821401371 |
| 320               | 0821401323 | 0821401333 | 0821401343 | 0821401383 | 0821401362 | 0821401372 |
| 500               | 0821401324 | 0821401334 | 0821401344 | 0821401384 | 0821401363 | 0821401373 |
| 600               | 0821401325 | 0821401335 | 0821401345 | 0821401385 | 0821401364 | 0821401374 |
| 800               | 0821401326 | 0821401336 | 0821401346 | 0821401386 | 0821401365 | 0821401375 |
| 1000              | 0821401327 | 0821401337 | 0821401347 | 0821401387 | 0821401366 | 0821401376 |
| 1200              | 0821401328 | 0821401338 | 0821401348 | 0821401388 | 0821401367 | 0821401377 |

For use with hybrid inch cylinders with metric piston rod thread

## Technical data

| Suitable piston Ø  | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|--------------------|----------|----------|----------|----------|----------|----------|
| Weight 0 mm stroke | 1.3 kg   | 2.3 kg   | 3.7 kg   | 4.7 kg   | 8.8 kg   | 11.1 kg  |
| +10 mm stroke      | 0.009 kg | 0.016 kg | 0.025 kg | 0.025 kg | 0.039 kg | 0.039 kg |

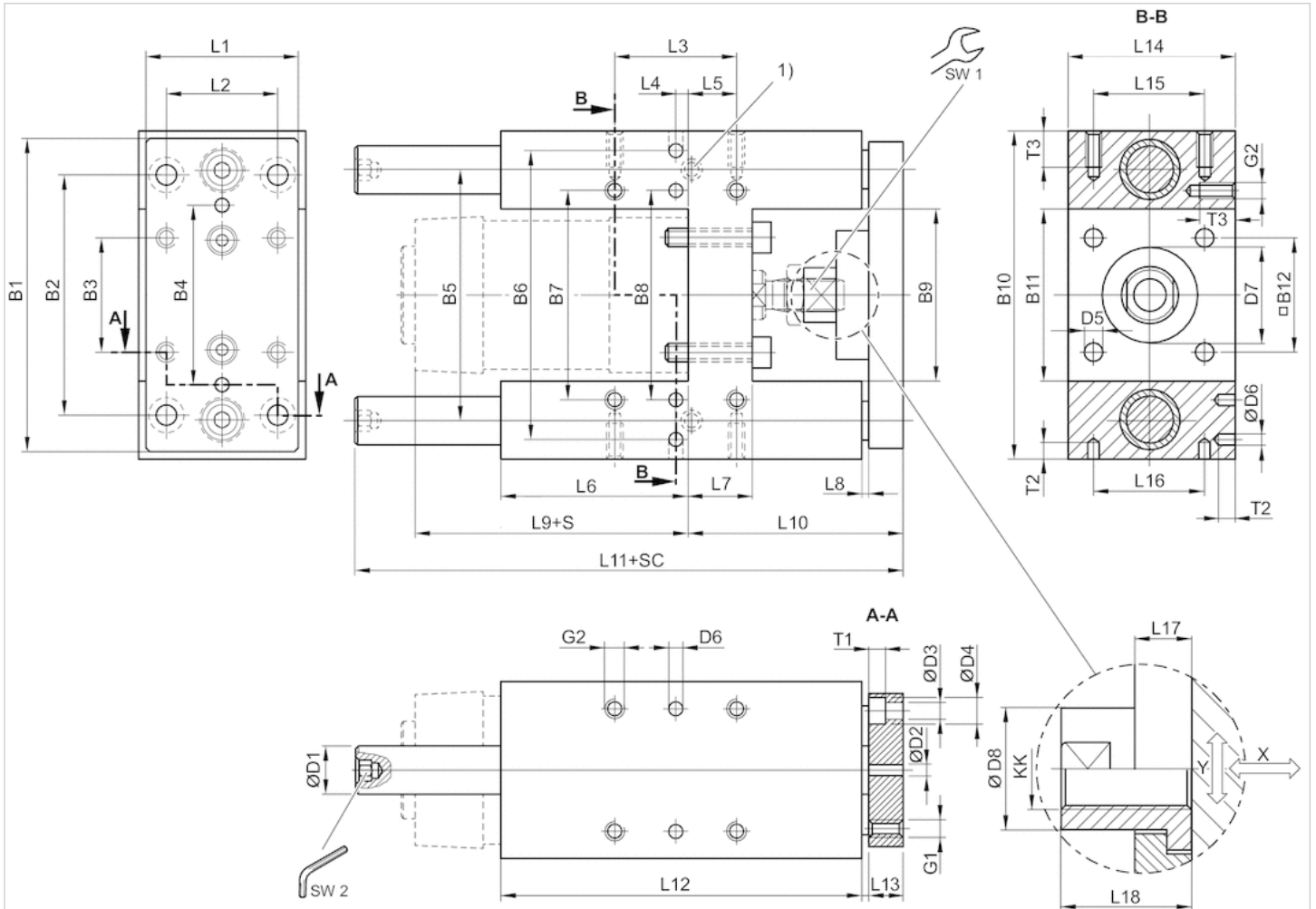
## Technical information

| Material                            |                              |
|-------------------------------------|------------------------------|
| Bearing housings                    | Aluminum, colorless anodized |
| Bearing type                        | Steel                        |
| Carrying plate                      | Aluminum, colorless anodized |
| Flexible coupling in carrying plate | Stainless steel              |
| Guide rods                          | Hardened heat-treated steel  |



## Dimensions

Ø 32 ... 100 mm



1) Lube nipple

S = stroke

SC = cylinder stroke

X = max. play (axial)

Y = min. play (radial)

Hexagon in guide rod

## Dimensions

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32 mm    | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40 mm    | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50 mm    | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63 mm    | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80 mm    | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100 mm   | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

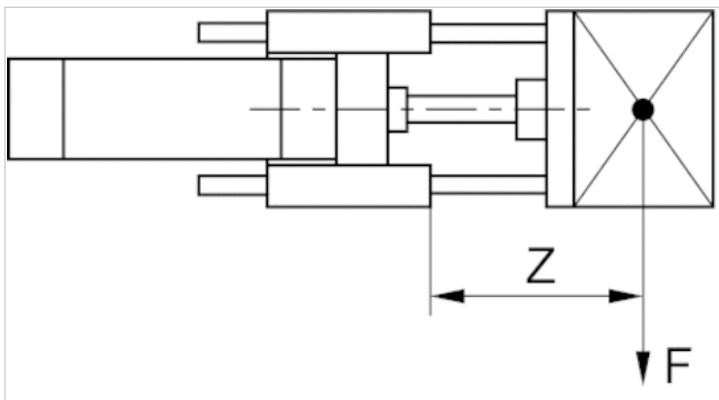
| Piston Ø | D7 M8 | D8   | G1 | G2 | KK       | L1 | L2   | L3   | L4 | L5   | L6 | L7 | L8 | L9  | L10 | L11   | L12 |
|----------|-------|------|----|----|----------|----|------|------|----|------|----|----|----|-----|-----|-------|-----|
| 32 mm    | 30    | 14.5 | M6 | M6 | M10x1,25 | 45 | 32.5 | 32.5 | 12 | 4.25 | 76 | 17 | 3  | 94  | 64  | 177.5 | 125 |
| 40 mm    | 35    | 18   | M6 | M6 | M12x1,25 | 54 | 38   | 38   | 8  | 11   | 81 | 21 | 3  | 105 | 74  | 192.5 | 140 |

| Piston Ø | D7 M8 | D8 | G1  | G2  | KK      | L1  | L2   | L3   | L4  | L5    | L6  | L7 | L8 | L9  | L10 | L11 | L12 |
|----------|-------|----|-----|-----|---------|-----|------|------|-----|-------|-----|----|----|-----|-----|-----|-----|
| 50 mm    | 40    | 24 | M8  | M8  | M16x1,5 | 63  | 46.5 | 46.5 | 4.5 | 18.75 | 79  | 26 | 3  | 106 | 89  | 237 | 150 |
| 63 mm    | 45    | 24 | M8  | M8  | M16x1,5 | 80  | 56.5 | 56.5 | 13  | 15.25 | 111 | 26 | 3  | 121 | 89  | 237 | 182 |
| 80 mm    | 45    | 30 | M10 | M10 | M20x1,5 | 100 | 72   | 72   | 15  | 21    | 128 | 34 | 3  | 128 | 110 | 280 | 215 |
| 100 mm   | 55    | 30 | M10 | M10 | M20x1,5 | 120 | 89   | 89   | 20  | 24.5  | 128 | 39 | 3  | 138 | 115 | 280 | 220 |

| Piston Ø | L13 | L14 | L15  | L16  | L17 | L18 | T1  | T2 | T3 | SW1 | SW2 |
|----------|-----|-----|------|------|-----|-----|-----|----|----|-----|-----|
| 32 mm    | 12  | 50  | 32.5 | 32.5 | 6   | 17  | 6.5 | 10 | 15 | 13  | 5   |
| 40 mm    | 12  | 58  | 38   | 38   | 14  | 22  | 6.5 | 10 | 15 | 15  | 6   |
| 50 mm    | 15  | 70  | 46.5 | 46.5 | 14  | 26  | 9   | 10 | 16 | 22  | 6   |
| 63 mm    | 15  | 85  | 56.5 | 56.5 | 14  | 26  | 9   | 10 | 16 | 22  | 6   |
| 80 mm    | 20  | 105 | 72   | 72   | 14  | 32  | 11  | 10 | 20 | 27  | 8   |
| 100 mm   | 20  | 130 | 89   | 89   | 14  | 32  | 11  | 10 | 20 | 27  | 8   |

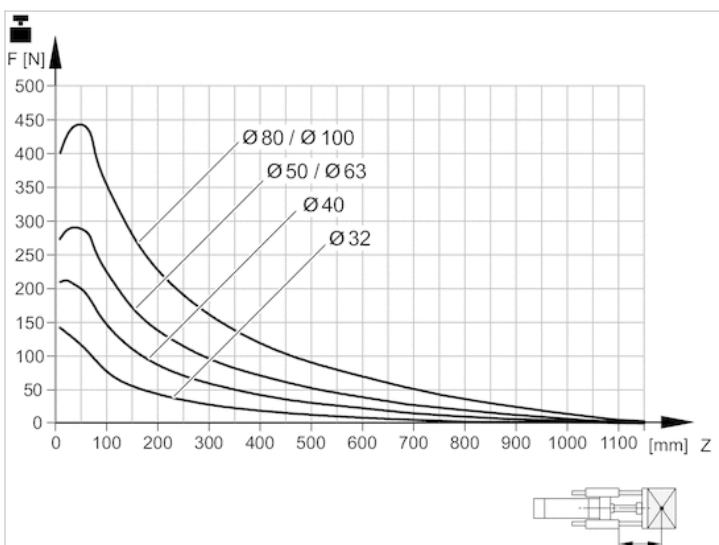
## Diagrams

### Useful load



F = Useful load, Z = Projection

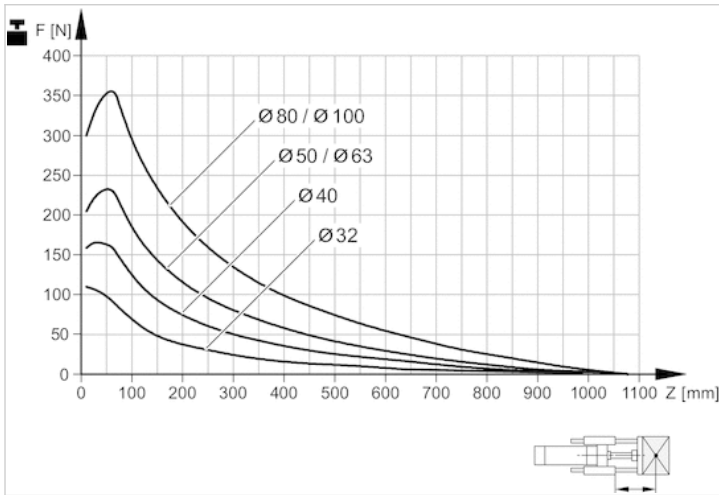
### Useful load



Service life  $2 \times 10^6$  m

F = Useful load, Z = Projection

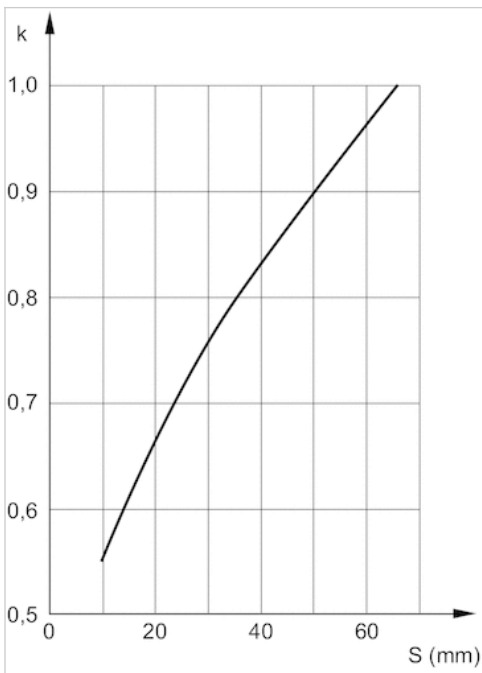
## Useful load



Service life  $5 \times 10^6$  m

F = Useful load, Z = Projection

## Reduction of useful load for short-stroke

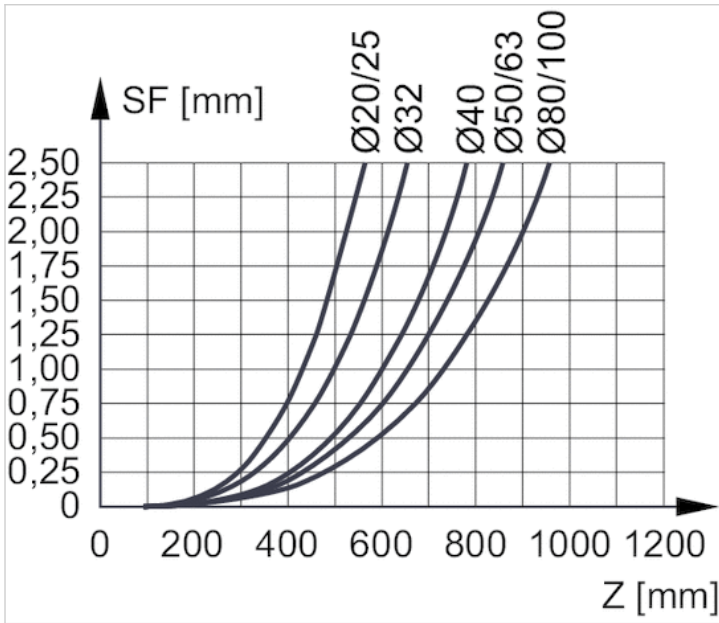


S = stroke

k=correction factor: normal=1, shock loaded=2

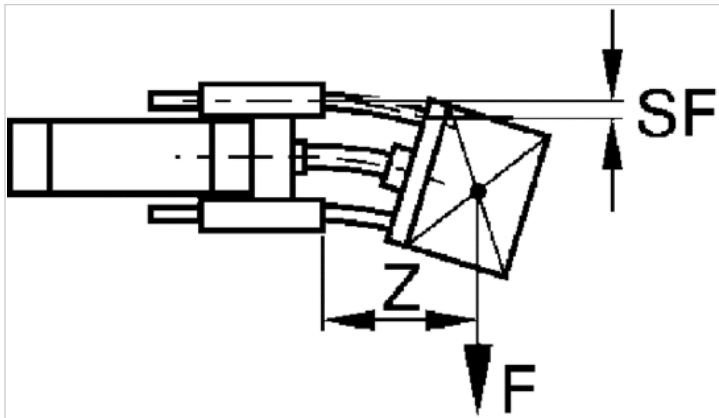
With a short stroke, the useful load figures determined from the diagram must be multiplied by the correction factor k. These short-stroke adjustments are already included in the load diagram for a displacement of up to 60 mm.

Bending due to own load



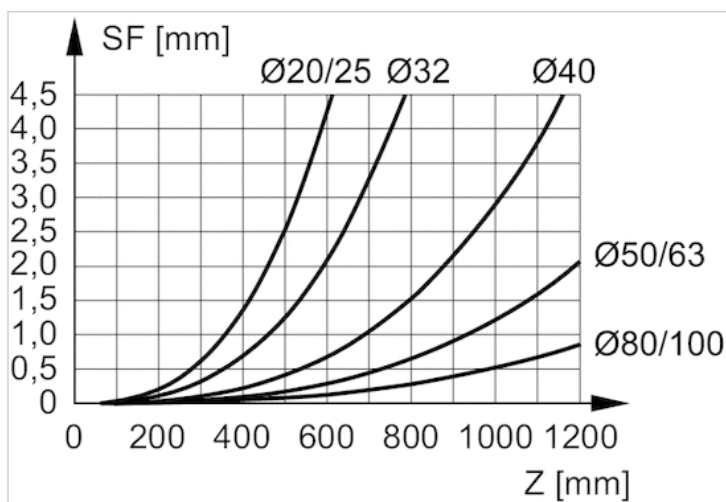
F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



F = useful load (at the load center), SF = bending, Z = projection

# Compensating coupling GU3 form B, series CG1



## Technical data

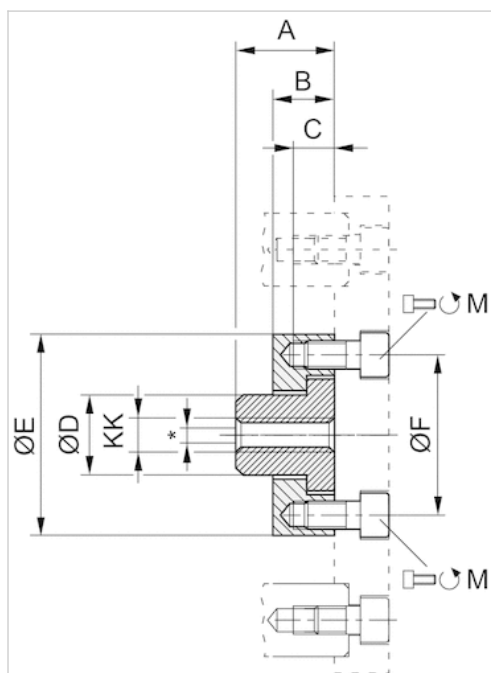
| Part No.   | Suitable piston rod thread |
|------------|----------------------------|
| R413000283 | M8                         |
| R413000284 | M10x1,25                   |
| R413000285 | M20x1,5                    |

Scope of delivery: flexible coupling incl. mounting screws

## Technical information

| Material |                 |
|----------|-----------------|
|          | Stainless steel |
|          | Steel           |

## Dimensions



\* Radial joint from 1,5 ... 1,8 mm

## Dimensions

| Part No.   | KK       | Ø      | M        | A  | B  | C   | D    | ØE    | ØF |
|------------|----------|--------|----------|----|----|-----|------|-------|----|
| R413000283 | M8       | 20     | 2x M5x12 | 22 | 6  | 6   | 14.5 | SW 30 | 26 |
| R413000284 | M10x1,25 | 25/32  | 2x M5x12 | 17 | 6  | 6   | 14.5 | SW 30 | 26 |
| R413000285 | M20x1,5  | 80/100 | 4x M6x20 | 32 | 14 | 9.5 | 30   | 60    | 51 |

# Compensating coupling GU3 form C, series CG1



## Technical data

| Part No.   | Suitable piston rod thread |
|------------|----------------------------|
| R413000276 | M6                         |
| R413000280 | M12x1,25                   |
| R413000281 | M16x1,5                    |

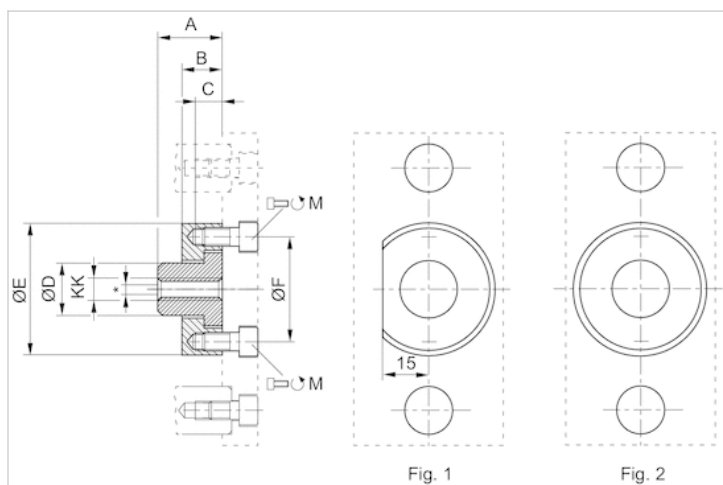
Scope of delivery: flexible coupling incl. mounting screws

## Technical information

| Material |                 |
|----------|-----------------|
|          | Stainless steel |
|          | Steel           |



## Dimensions



\* Radial joint from 1,0 ... 2,5 mm

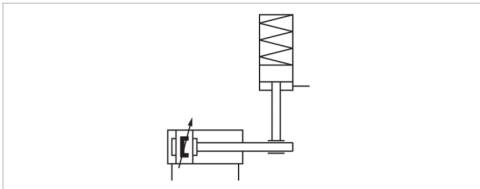
## Dimensions

| Part No.   | KK       | Ø     | M        | A  | B  | C | D  | ØE | ØF |
|------------|----------|-------|----------|----|----|---|----|----|----|
| R413000276 | M6       | 12/16 | 2x M4x10 | 18 | 7  | 7 | 10 | 22 | 15 |
| R413000280 | M12x1,25 | 40    | 2x M6x12 | 22 | 14 | 8 | 18 | 45 | 36 |
| R413000281 | M16x1,5  | 50/63 | 4x M6x14 | 26 | 14 | 8 | 24 | 54 | 45 |

# Holding unit, Series HU1

- Ø 32-100 mm

- hold: spring force, release: compressed air



|                               |                           |
|-------------------------------|---------------------------|
| Function                      | Hold with clamping jaws   |
| Release pressure              | 4 ... 8 bar               |
| Ambient temperature min./max. | -10 ... 60 °C             |
| Medium temperature min./max.  | -10 ... 60 °C             |
| Medium                        | Compressed air            |
| Max. particle size            | 5 µm                      |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup> |
| Weight                        | See table below           |

## Technical data

| Part No.   | Piston Ø | suitable piston rod Ø | Piston rod extension | Compressed air connection | Static holding force | Weight  |
|------------|----------|-----------------------|----------------------|---------------------------|----------------------|---------|
| 0821401165 | 32 mm    | 12 mm                 | 42 mm                | M5                        | 650 N                | 0.2 kg  |
| 0821401166 | 40 mm    | 16 mm                 | 45 mm                | G 1/8                     | 1100 N               | 0.27 kg |
| 0821401167 | 50 mm    | 20 mm                 | 57 mm                | G 1/8                     | 1600 N               | 0.57 kg |
| 0821401168 | 63 mm    | 20 mm                 | 57 mm                | G 1/8                     | 2500 N               | 0.8 kg  |
| 0821401169 | 80 mm    | 25 mm                 | 77 mm                | G 1/8                     | 4000 N               | 1.85 kg |
| 0821401170 | 100 mm   | 25 mm                 | 77 mm                | G 1/8                     | 6300 N               | 2.9 kg  |

Holding force at 0 bar

## Technical information

Warning: The holding unit may not be used for the following applications:

- 1) for dynamic holding
- 2) in or as safety equipment

Holding unit may only be unlocked when turned off.

Make sure that the load direction does not change during a holding interval. A change in the direction of force, as well as external forces such as impacts, strong vibrations, or torsional forces, will briefly release the piston rod and may destroy the HU1 holding unit. When clamped, there must be no residual pressure on the holding unit ( 0 bar ).

Note:

The minimum control pressure is  $\geq$  the working pressure of the cylinder!



## Dimensions

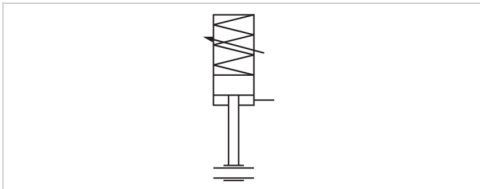
| Part No.   | Piston Ø | Ø D1 | Ø D2 | Ø D3 | Ø D4 | D5    | L1  | L2  | L3   | L4 | L5 | L6   | L7  | L8   | L9   | G   |
|------------|----------|------|------|------|------|-------|-----|-----|------|----|----|------|-----|------|------|-----|
| 0821401165 | 32 mm    | 12   | 30   | 35   | 25   | M5    | 58  | 48  | 34   | 8  | 13 | 20.5 | 45  | 32.5 | 25.5 | M6  |
| 0821401166 | 40 mm    | 16   | 35   | 40   | 28   | G 1/8 | 65  | 55  | 38   | 8  | 13 | 22.5 | 50  | 38   | 30   | M6  |
| 0821401167 | 50 mm    | 20   | 40   | 50   | 35   | G 1/8 | 82  | 70  | 48   | 15 | 16 | 29.5 | 60  | 46.5 | 36   | M8  |
| 0821401168 | 63 mm    | 20   | 45   | 60   | 38   | G 1/8 | 82  | 70  | 49.5 | 15 | 16 | 29.5 | 70  | 56.5 | 40   | M8  |
| 0821401169 | 80 mm    | 25   | 45   | 80   | 48   | G 1/8 | 110 | 90  | 61   | 18 | 20 | 35   | 90  | 72   | 50   | M10 |
| 0821401170 | 100 mm   | 25   | 55   | 100  | 58   | G 1/8 | 115 | 100 | 69   | 18 | 20 | -    | 105 | 89   | 58   | M10 |

| WH  | ZJ  |
|-----|-----|
| 68  | 162 |
| 75  | 180 |
| 94  | 200 |
| 94  | 215 |
| 123 | 251 |
| 128 | 266 |

# Locking unit, Series LU1

- Ø 32-100 mm

- Hold: adjustable spring force, Release: compressed air



|                               |                             |
|-------------------------------|-----------------------------|
| Function                      | Clamp with eccentric tappet |
| Release pressure              | 2 ... 8 bar                 |
| Ambient temperature min./max. | -20 ... 80 °C               |
| Medium temperature min./max.  | -20 ... 80 °C               |
| Medium                        | Compressed air              |
| Max. particle size            | 5 µm                        |
| Oil content of compressed air | 0 ... 5 mg/m <sup>3</sup>   |
| Weight                        | See table below             |

## Technical data

| Part No.   | Piston Ø  | suitable piston rod Ø | Piston rod extension | Compressed air connection | Static holding force |
|------------|-----------|-----------------------|----------------------|---------------------------|----------------------|
| 0821401130 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 840 N                |
| 0821401131 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 1100 N               |
| 0821401132 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 2700 N               |
| 0821401133 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 5800 N               |

| Part No.   | Weight  |
|------------|---------|
| 0821401130 | 1.75 kg |
| 0821401131 | 1.75 kg |
| 0821401132 | 3 kg    |
| 0821401133 | 8.8 kg  |

Holding force at 0 bar, Mounting elements LU3, LU4, LU5 are required for assembly and must be ordered separately as accessories.

## Technical information

### Warning:

The Locking unit may not be used for the following applications:

- for dynamic holding
- in or as safety equipment

Locking unit may only be unlocked when turned off.

### Note:

The minimum release pressure is  $\geq$  the working pressure of the cylinder!

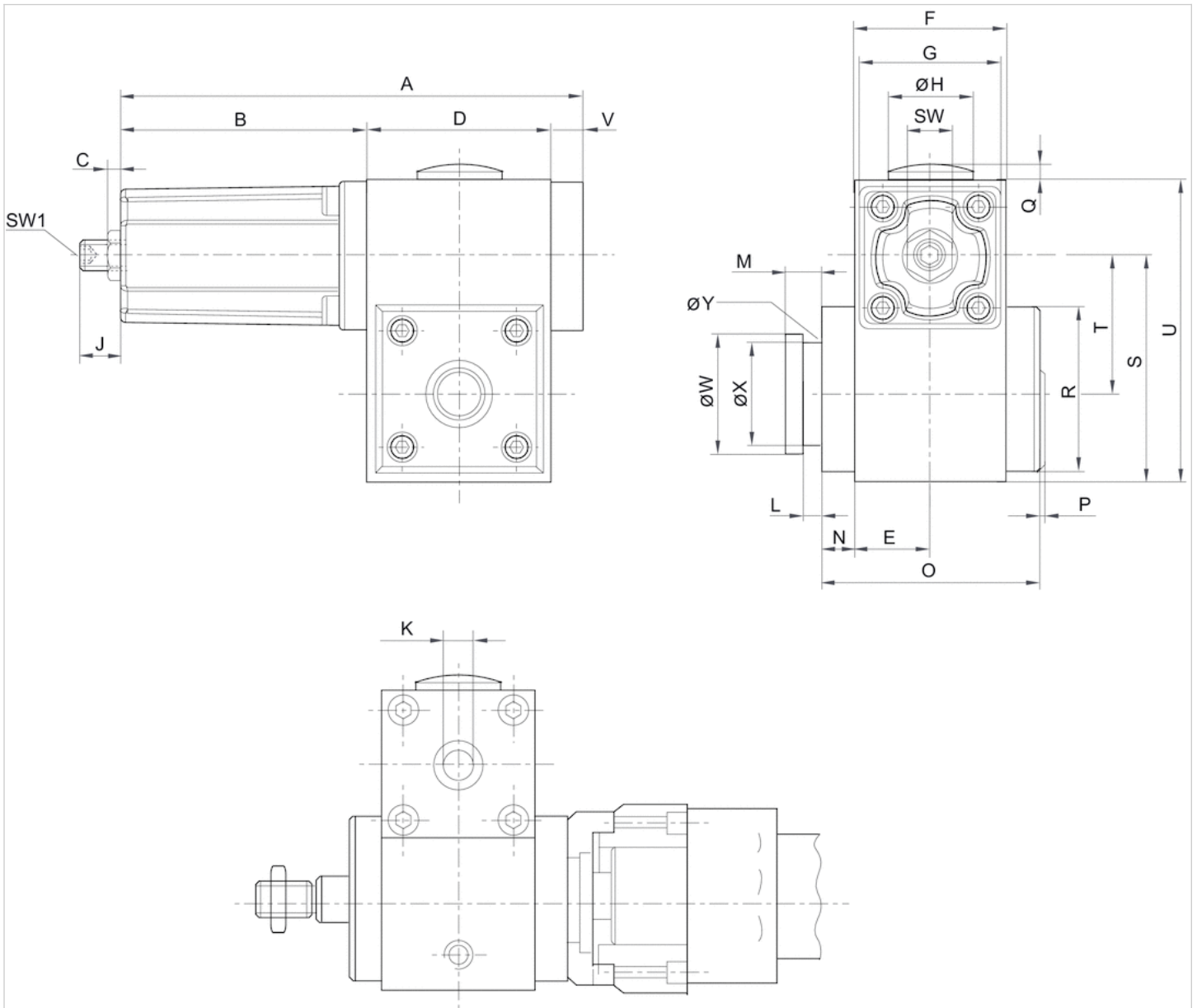
The holding force is dependent on the set spring force

## Technical information

|          |                    |
|----------|--------------------|
| Material |                    |
| Housing  | Aluminum, anodized |
| Cap      | Die-cast aluminum  |

## Dimensions

### Dimensions



## Dimensions

| Part No.   | A   | B  | C    | D   | E  | F  | G  | ØH   | J  | K     | L   | M  | N  | O   | P | Q   | R  | S   | SW | SW1 | T    | U   |
|------------|-----|----|------|-----|----|----|----|------|----|-------|-----|----|----|-----|---|-----|----|-----|----|-----|------|-----|
| 0821401130 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   | 19 | G 1/8 | 4.1 | 8  | 9  | 65  | 3 | 2.5 | 50 | 69  | 15 | 5   | 41.9 | 92  |
| 0821401131 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   | 18 | G 1/8 | 5.1 | 10 | 9  | 65  | 3 | 2.5 | 50 | 69  | 15 | 5   | 40.5 | 92  |
| 0821401132 | 169 | 90 | 10   | 69  | 30 | 60 | 55 | 30   | 17 | G 1/8 | 5.1 | 10 | 9  | 84  | 3 | 2.5 | 60 | 80  | 15 | 5   | 48   | 111 |
| 0821401133 | 208 | 98 | 16.7 | 100 | 40 | 80 | 65 | 37.5 | 15 | G 1/8 | 8.1 | 16 | 13 | 118 | 3 | 2   | 90 | 119 | 24 | 8   | 72   | 155 |

| V  | ØW   | ØX | ØY |
|----|------|----|----|
| 10 | 29.9 | 24 | 3  |
| 10 | 39.9 | 30 | 3  |
| 10 | 39.9 | 30 | 3  |
| 10 | 54.9 | 40 | 5  |

# Locking unit, Series LU1

- Ø 32-100 mm

- hold: spring force, release: compressed air



Function

Release pressure

Ambient temperature min./max.

Medium temperature min./max.

Medium

Max. particle size

Oil content of compressed air

Weight

Clamp with eccentric tappet

See table below

-20 ... 80 °C

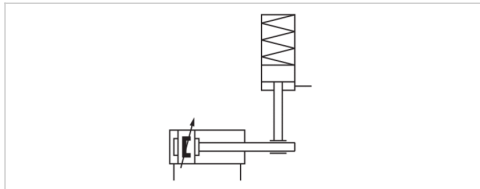
-20 ... 80 °C

Compressed air

5 µm

0 ... 5 mg/m<sup>3</sup>

See table below



## Technical data

| Part No.   | Piston Ø  | suitable piston rod Ø | Piston rod extension | Compressed air connection | Release pressure |
|------------|-----------|-----------------------|----------------------|---------------------------|------------------|
| R412003730 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 4.5 ... 8 bar    |
| 0821401134 | 32 mm     | 12 mm                 | 79 mm                | G 1/8                     | 5.5 ... 8 bar    |
| R412003731 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 4.5 ... 8 bar    |
| 0821401135 | 40 mm     | 16 mm                 | 81 mm                | G 1/8                     | 5.5 ... 8 bar    |
| R412003732 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 4.5 ... 8 bar    |
| 0821401136 | 50 63 mm  | 20 mm                 | 100 mm               | G 1/8                     | 5.5 ... 8 bar    |
| R412003733 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 4.5 ... 8 bar    |
| 0821401137 | 80 100 mm | 25 mm                 | 140 mm               | G 1/8                     | 5.5 ... 8 bar    |

| Part No.   | Static holding force | Weight  |
|------------|----------------------|---------|
| R412003730 | 740 N                | 1.52 kg |
| 0821401134 | 840 N                | 1.52 kg |
| R412003731 | 1000 N               | 1.5 kg  |
| 0821401135 | 1100 N               | 1.5 kg  |
| R412003732 | 2300 N               | 2.56 kg |
| 0821401136 | 2700 N               | 2.56 kg |
| R412003733 | 4000 N               | 7.7 kg  |
| 0821401137 | 5800 N               | 7.7 kg  |

Holding force at 0 bar, Mounting elements LU3, LU4, LU5 are required for assembly and must be ordered separately as accessories.



## Technical information

**Warning:**

The Locking unit may not be used for the following applications:

- for dynamic holding
- in or as safety equipment

Locking unit may only be unlocked when turned off.

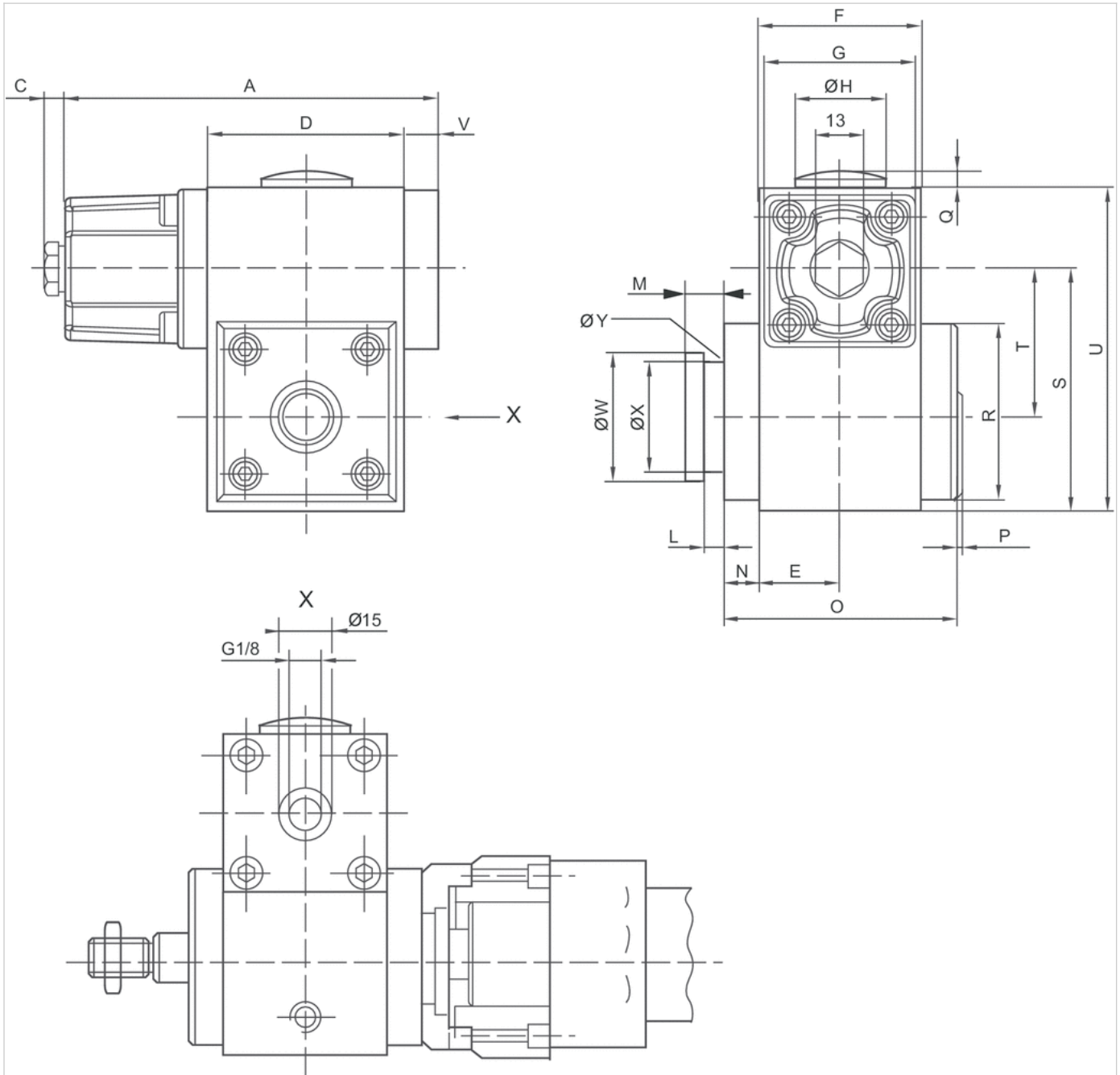
## Technical information

**Material**

|         |                    |
|---------|--------------------|
| Housing | Aluminum, anodized |
| Cap     | Die-cast aluminum  |

## Dimensions

### Dimensions



## Dimensions

| Part No.   | A     | C | D   | E  | F  | G  | ØH   | L   | M  | N  | O    | P | Q   | R  | S    | T    | U    | V  | ØW   | ØX | ØY |
|------------|-------|---|-----|----|----|----|------|-----|----|----|------|---|-----|----|------|------|------|----|------|----|----|
| R412003730 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 | 10 | 29.9 | 24 | 3  |
| 0821401134 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 | 10 | 29.9 | 24 | 3  |
| R412003731 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 | 10 | 39.9 | 30 | 3  |
| 0821401135 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 | 10 | 39.9 | 30 | 3  |
| R412003732 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  | 10 | 39.9 | 30 | 3  |
| 0821401136 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  | 10 | 39.9 | 30 | 3  |
| R412003733 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  | 10 | 54.9 | 40 | 5  |
| 0821401137 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  | 10 | 54.9 | 40 | 5  |



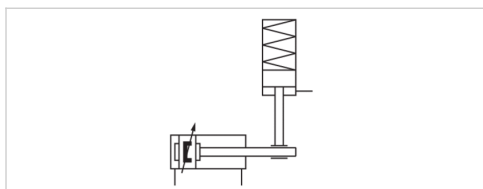
# Locking unit, Series LU6

- Ø 32-125 mm

- Holding and braking: non-adjustable spring, Release: compressed air



|                               |                                |
|-------------------------------|--------------------------------|
| Version                       | Clamping jaw lock              |
| Function                      | Static holding Dynamic braking |
| Release pressure              | 4 ... 10 bar                   |
| Ambient temperature min./max. | -25 ... 80 °C                  |
| Medium temperature min./max.  | -25 ... 80 °C                  |
| Medium                        | Compressed air                 |
| Max. particle size            | 5 µm                           |
| Oil content of compressed air | 0 mg/m <sup>3</sup>            |
| Weight                        | See table below                |



## Technical data

| Part No.   | Piston Ø | suitable piston rod Ø | Piston rod extension | Compressed air connection | Required flow rate |
|------------|----------|-----------------------|----------------------|---------------------------|--------------------|
|            |          |                       |                      |                           | Qn                 |
| 5230996402 | 32 mm    | 12 mm                 | 125 mm               | G 1/8                     | 50 l/min           |
| 5231996402 | 40 mm    | 16 mm                 | 125 mm               | G 1/8                     | 70 l/min           |
| 5232996402 | 50 mm    | 20 mm                 | 145 mm               | G 1/8                     | 140 l/min          |
| 5233996402 | 63 mm    | 20 mm                 | 165 mm               | G 1/8                     | 240 l/min          |
| 5234996402 | 80 mm    | 25 mm                 | 185 mm               | G 1/8                     | 450 l/min          |
| 5235996402 | 100 mm   | 25 mm                 | 220 mm               | G 1/8                     | 700 l/min          |
| 5236996402 | 125 mm   | 32 mm                 | 220 mm               | G 1/4                     | 1200 l/min         |

| Part No.   | Max. torsional moment of piston rod | B10d value static | B10d value dynamic |
|------------|-------------------------------------|-------------------|--------------------|
| 5230996402 | 0.5 Nm                              | 5.000.000         | 2.000.000          |
| 5231996402 | 1 Nm                                | 5.000.000         | 2.000.000          |
| 5232996402 | 2 Nm                                | 5.000.000         | 2.000.000          |
| 5233996402 | 2.5 Nm                              | 5.000.000         | 2.000.000          |
| 5234996402 | 5 Nm                                | 5.000.000         | 2.000.000          |
| 5235996402 | 9 Nm                                | 5.000.000         | 2.000.000          |
| 5236996402 | 15 Nm                               | 5.000.000         | 2.000.000          |

| Part No.   | Buckling protection of the piston rod 1) |                                       | Weight |    |
|------------|--|---------------------------------------|--------|----|
|            | Max. cylinder stroke for Euler case 1    | Max. cylinder stroke for Euler case 2 |        |    |
| 5230996402 | 750 mm                                   | 400 mm                                | 0.8 kg | 1) |
| 5231996402 | 1100 mm                                  | 550 mm                                | 1 kg   | 1) |
| 5232996402 | 1350 mm                                  | 700 mm                                | 1.8 kg | 1) |
| 5233996402 | 950 mm                                   | 500 mm                                | 2.8 kg | 1) |

| Part No.   | Buckling protection of the piston rod 1) |                                       | Weight  |    |
|------------|--|---------------------------------------|---------|----|
|            | Max. cylinder stroke for Euler case 1    | Max. cylinder stroke for Euler case 2 |         |    |
| 5234996402 | 1350 mm                                  | 700 mm                                | 5.5 kg  | 1) |
| 5235996402 | 950 mm                                   | 500 mm                                | 9.5 kg  | 1) |
| 5236996402 | 1500 mm                                  | 800 mm                                | 13.8 kg | 2) |

1) Only applies in dynamic cases, and only retracting DGUV certified

2) Only applies in dynamic cases, and only retracting

## Technical data

| Piston Ø   | 32 mm  | 40 mm  | 50 mm  |
|--|--------|--------|--------|
| Max. holding/braking force FLU6                        | 760 N  | 1200 N | 1900 N |
| Max. moving mass, external mmax                        | 77 kg  | 122 kg | 194 kg |
| Max. piston speed vmax                                 | 1 m/s  | 1 m/s  | 1 m/s  |
| Max. total braking energy (MJ) Etotal                  | 3.2 MJ | 6 MJ   | 10 MJ  |
| Max. braking energy per hour PLU6                      | 720 J  | 1350 J | 2250 J |
| Max. braking energy per braking cycle ELU6             | 4.8 J  | 9 J    | 15 J   |
| Braking energy per braking cycle related to B10d EB10d | 1.6 J  | 3 J    | 5 J    |
| Brake response time (4 bar) tbrake                     | 0.08 s | 0.08 s | 0.08 s |
| Brake response time (6.3 bar) tbrake                   | 0.1 s  | 0.1 s  | 0.1 s  |
| Brake response time (10 bar) tbrake                    | 0.12 s | 0.12 s | 0.12 s |

| Piston Ø   | 63 mm  | 80 mm  | 100 mm  |
|--|--------|--------|---------|
| Max. holding/braking force FLU6                        | 3000 N | 5000 N | 8000 N  |
| Max. moving mass, external mmax                        | 306 kg | 510 kg | 815 kg  |
| Max. piston speed vmax                                 | 1 m/s  | 1 m/s  | 1 m/s   |
| Max. total braking energy (MJ) Etotal                  | 18 MJ  | 36 MJ  | 58 MJ   |
| Max. braking energy per hour PLU6                      | 4050 J | 8100 J | 13200 J |
| Max. braking energy per braking cycle ELU6             | 27 J   | 54 J   | 88 J    |
| Braking energy per braking cycle related to B10d EB10d | 9 J    | 18 J   | 29 J    |
| Brake response time (4 bar) tbrake                     | 0.08 s | 0.08 s | 0.09 s  |
| Brake response time (6.3 bar) tbrake                   | 0.1 s  | 0.1 s  | 0.11 s  |
| Brake response time (10 bar) tbrake                    | 0.12 s | 0.12 s | 0.13 s  |

| Piston Ø   | 125 mm  |
|--|---------|
| Max. holding/braking force FLU6                        | 12000 N |
| Max. moving mass, external mmax                        | 1223 kg |
| Max. piston speed vmax                                 | 1 m/s   |
| Max. total braking energy (MJ) Etotal                  | 93 MJ   |
| Max. braking energy per hour PLU6                      | 21000 J |
| Max. braking energy per braking cycle ELU6             | 140 J   |
| Braking energy per braking cycle related to B10d EB10d | 47 J    |
| Brake response time (4 bar) tbrake                     | 0.09 s  |
| Brake response time (6.3 bar) tbrake                   | 0.11 s  |
| Brake response time (10 bar) tbrake                    | 0.13 s  |

The values for the max. braking energy per braking cycle are equivalent to the cushioning energy for cylinder series PRA and TRB.

## Technical information

The maximum ambient and medium temperature is + 70 °C for the dynamic braking function.

Note:

Before pressurizing the locking unit, make sure that there is a balance of forces at the piston on the drive cylinder. Please see the operating instructions for further safety-relevant information. The locking unit can be used in controls with a max. performance level e in accordance with DIN EN ISO 13849-1 ("basic and well-tried safety principles"). For applications in category 2 to 4 controls, additional control measures according to DIN EN ISO 13849-1 are required.

The locking unit can be used as an individual component or pre-mounted on a cylinder..

Scope of delivery: LU6, each with 4 flange nuts, washers, and tie rods

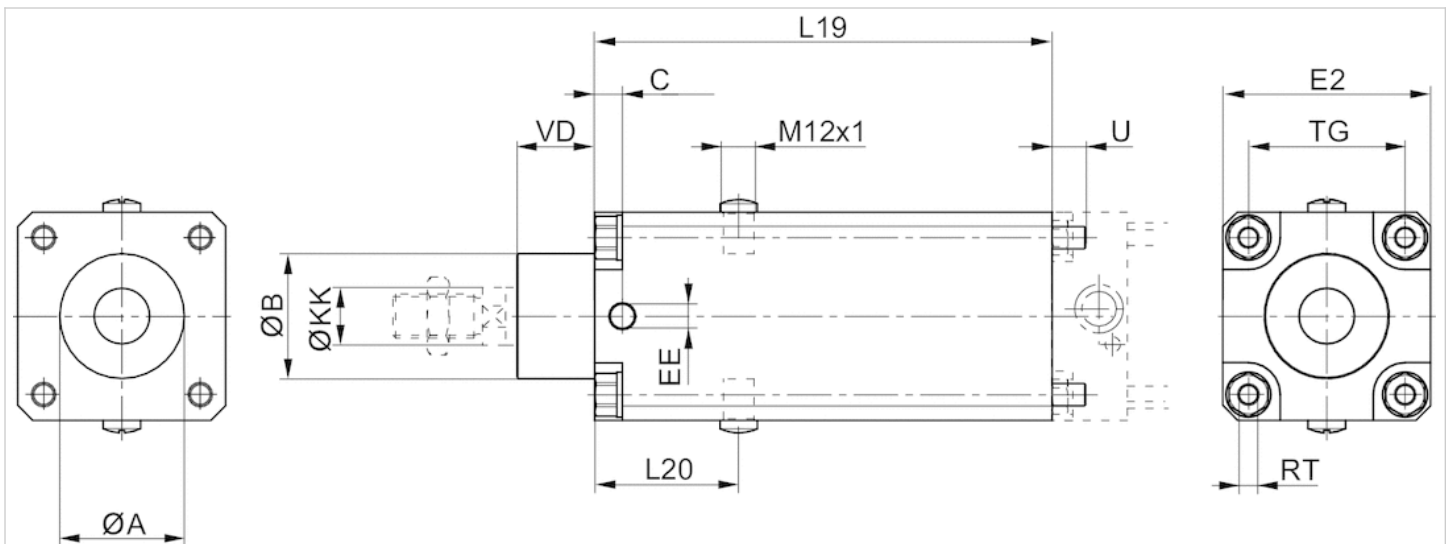
For technical reasons, formulas and sample calculations have been moved to the MediaCentre (link to operating instructions).

## Technical information

| Material |                          |
|----------|--------------------------|
| Housing  | Aluminum, anodized       |
| Seal     | Nitrile butadiene rubber |
| Scraper  | Nitrile butadiene rubber |

## Dimensions

### Dimensions

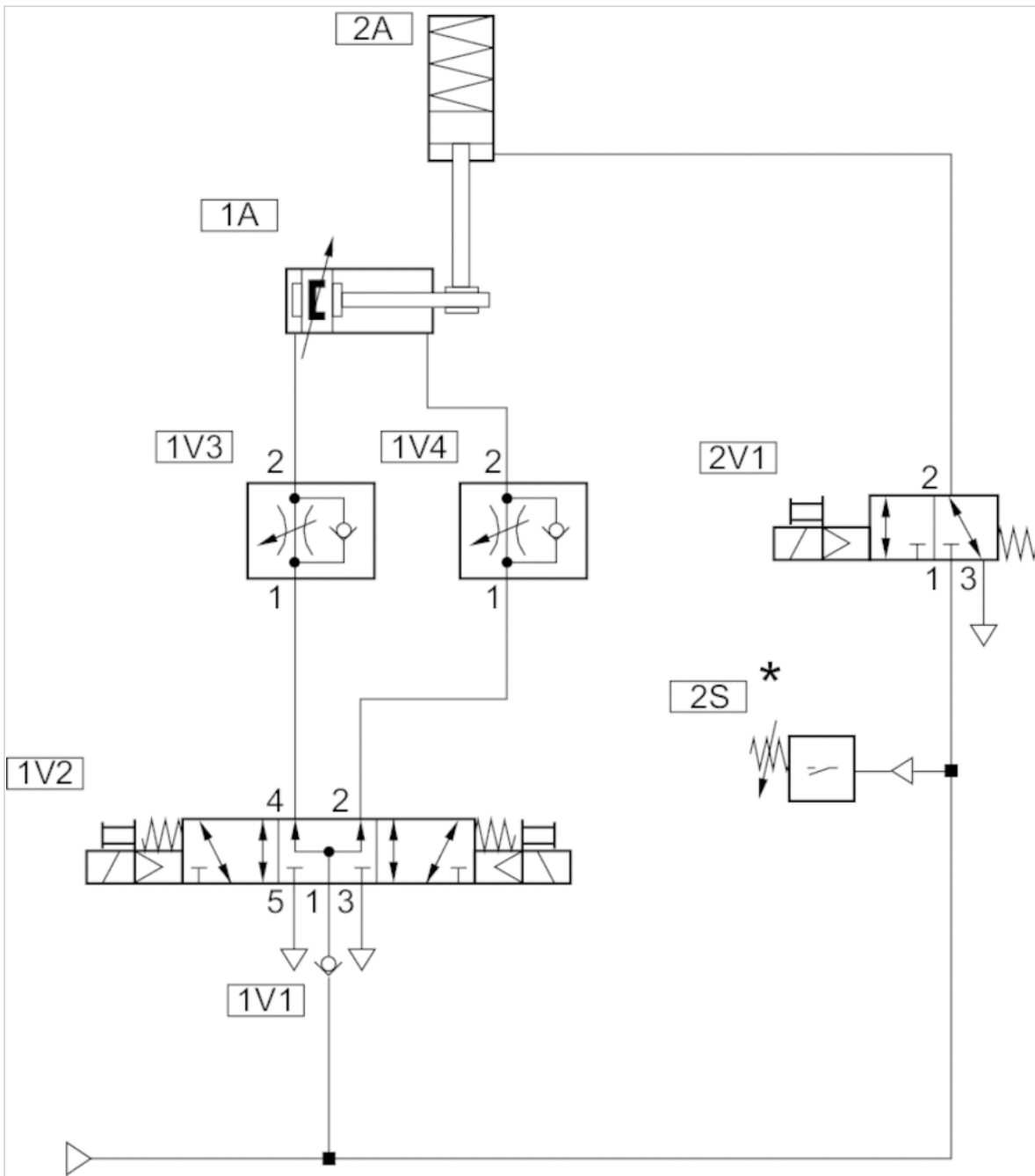


### Dimensions

| Piston $\varnothing$ | $\varnothing A$ | $\varnothing B$ d11 | C  | EE   | E2  | L19 | L20  | $\varnothing KK$ e8-h9 | TG   | RT  | U  | VD |
|----------------------|-----------------|---------------------|----|------|-----|-----|------|------------------------|------|-----|----|----|
| 32 mm                | 30,5            | 30                  | 9  | G1/8 | 48  | 125 | 44   | 12                     | 32,5 | M6  | 10 | 19 |
| 40 mm                | 35,5            | 35                  | 9  | G1/8 | 53  | 125 | 44   | 16                     | 38   | M6  | 10 | 21 |
| 50 mm                | 40,5            | 40                  | 9  | G1/8 | 63  | 145 | 49   | 20                     | 46,5 | M8  | 11 | 28 |
| 63 mm                | 45,5            | 45                  | 10 | G1/8 | 75  | 165 | 52   | 20                     | 56,5 | M8  | 11 | 28 |
| 80 mm                | 45,5            | 45                  | 11 | G1/8 | 98  | 185 | 61.5 | 25                     | 72   | M10 | 16 | 34 |
| 100 mm               | 55,5            | 55                  | 13 | G1/8 | 118 | 220 | 68   | 25                     | 89   | M10 | 16 | 37 |
| 125 mm               | 60,5            | 60                  | 13 | G1/4 | 142 | 220 | 75   | 32                     | 110  | M12 | 16 | 45 |

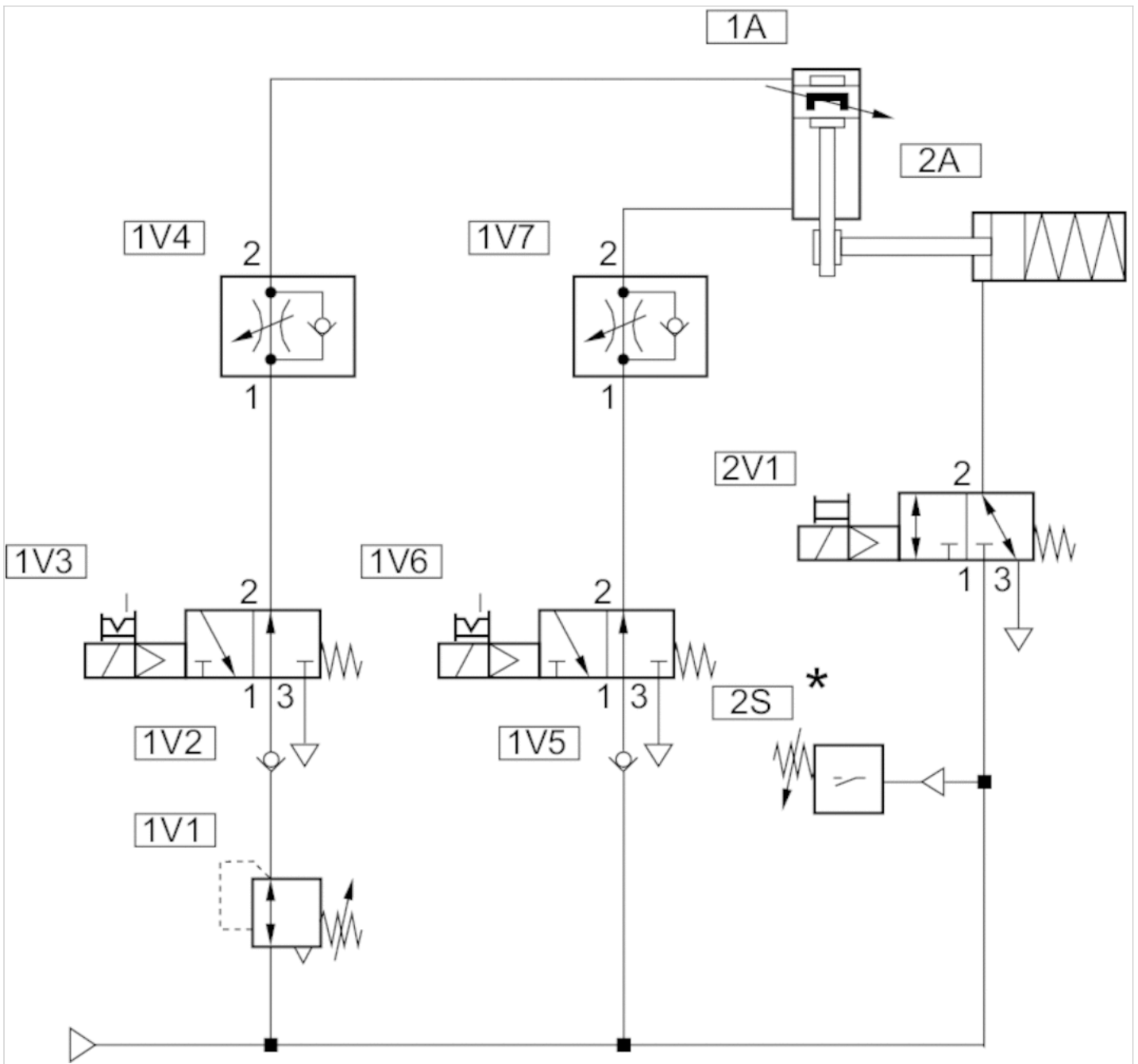
# Circuit diagram

Circuit example for non-safety relevant functions; horizontal installation position



\* From 4 bar : release of 2V1

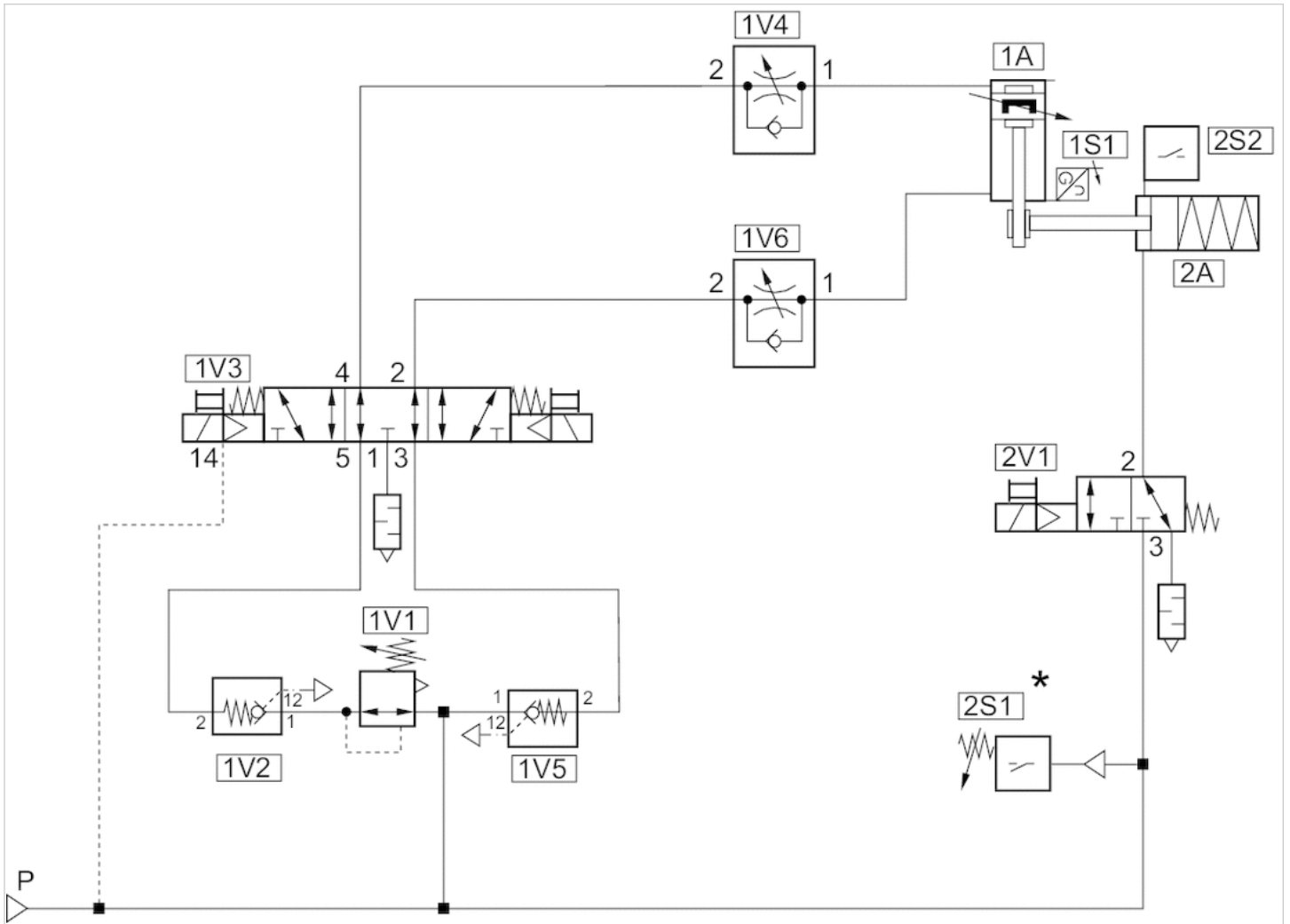
Circuit example for non-safety relevant functions; Vertical mounting orientation



\* From 4 bar : release of 2V1



Circuit example for safety-related stop functions; horizontal installation position

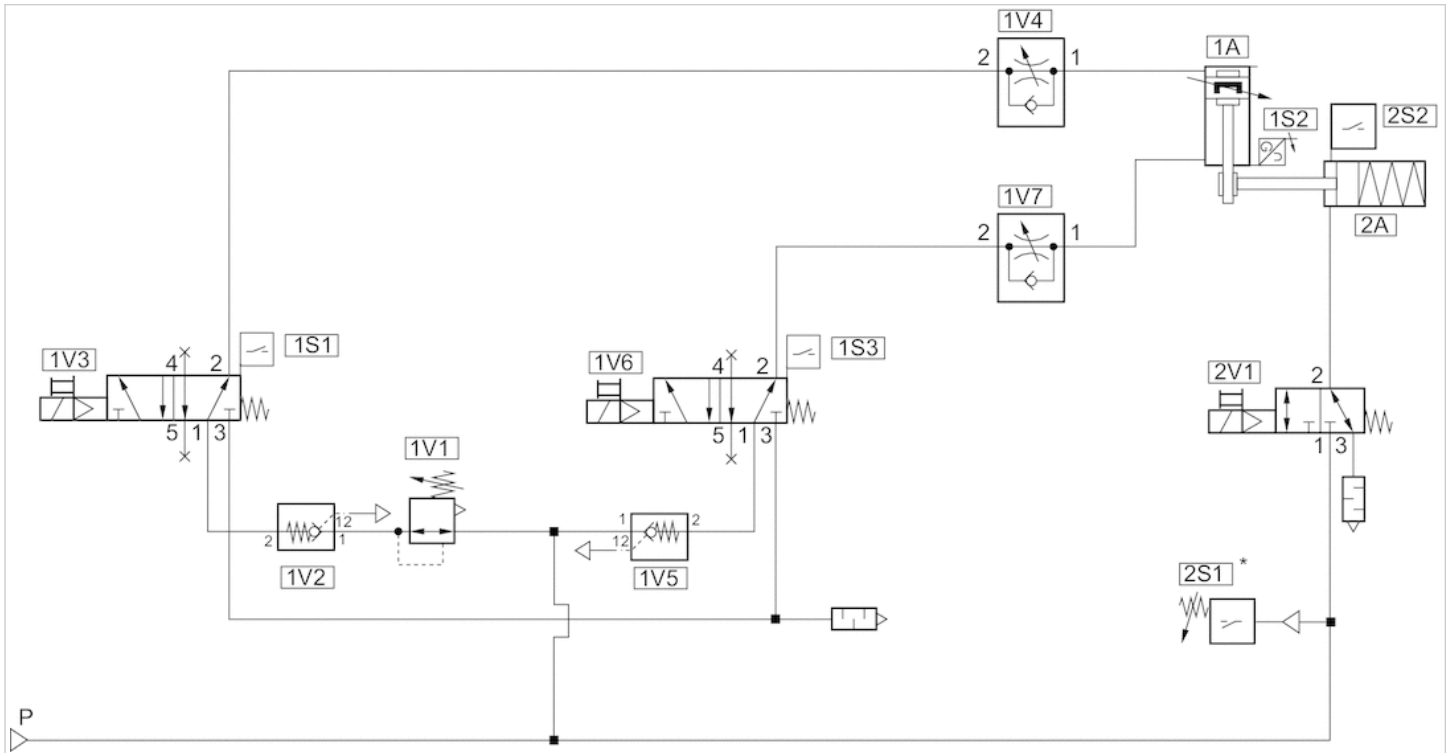


Channel 1: Safe stopping and closing

Channel 2: Safe brake control

\* From 4 bar : release of 2V1

Circuit example for safety-related stop functions; Vertical mounting orientation



Channel 1: Safe stopping and closing

Channel 2: Safe brake control

\* From 4 bar : release of 2V1

# Foot mounting, Series LU4

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

## Technical data

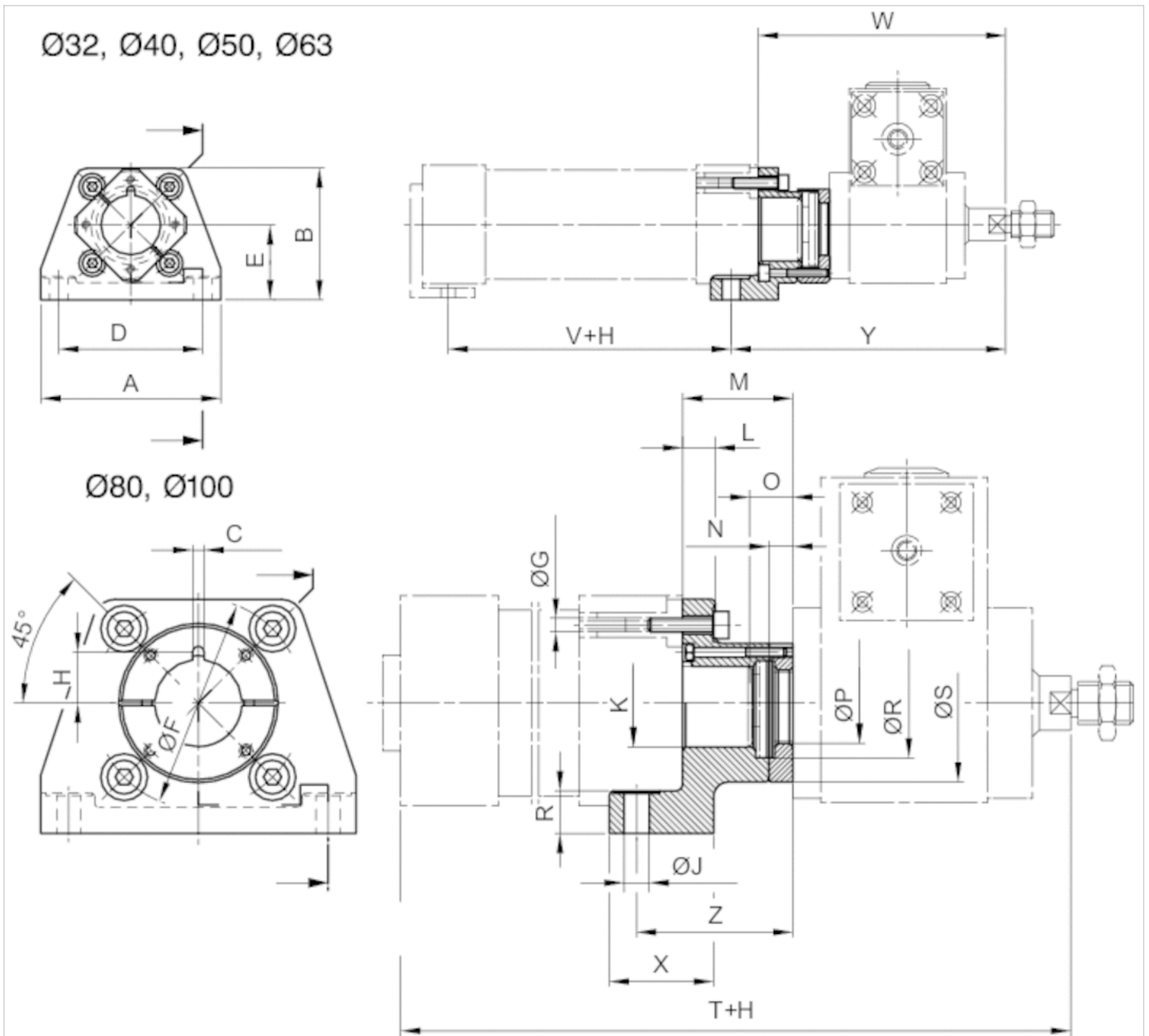
| Part No.   | Piston Ø |
|------------|----------|
| 1827001520 | 32 mm    |
| 1827001521 | 40 mm    |
| 1827001522 | 50 mm    |
| 1827001526 | 63 mm    |
| 1827001524 | 80 mm    |
| 1827002152 | 100 mm   |

## Technical information

| Material |                                   |
|----------|-----------------------------------|
| Housing  | Nodular graphite iron, galvanized |

## Dimensions

### Dimensions



H = stroke

The locking unit can be rotated by 4x90°.

## Dimensions

| Part No.   | A   | B   | C ±0,1 | D ±0,1 | E  | Ø F | Ø G H13 | I    | J H8 | K H10 | L   | M  | N   | O  | Ø P  | R    |
|------------|-----|-----|--------|--------|----|-----|---------|------|------|-------|-----|----|-----|----|------|------|
| 1827001520 | 79  | 57  | 3.6    | 65     | 32 | 46  | 6.6     | 13.2 | 6.6  | 30    | 7   | 27 | 3.9 | -  | 24.2 | 9    |
| 1827001521 | 90  | 64  | 3.6    | 75     | 36 | 54  | 6.6     | 18.2 | 6.6  | 35    | 9.5 | 33 | 4.9 | 13 | 30.2 | 11   |
| 1827001522 | 110 | 80  | 3.6    | 90     | 45 | 66  | 8.4     | 18.2 | 9    | 40    | 11  | 38 | 4.9 | -  | 30.2 | 15   |
| 1827001526 | 120 | 90  | 3.6    | 100    | 50 | 80  | 8.4     | 18.2 | 9    | 45    | 11  | 38 | 4.9 | -  | 30.2 | 15   |
| 1827001524 | 153 | 113 | 6      | 128    | 63 | 102 | 10.5    | 24.5 | 11   | 45    | 15  | 52 | 7.9 | 18 | 40.2 | 19.5 |
| 1827002152 | 176 | 133 | 6      | 148    | 71 | 126 | 10.5    | 24.6 | 11   | 55    | 15  | 57 | 7.9 | -  | 40.2 | 19.5 |

| Ø R | Ø S  | T   | V  | W   | X  | Y   | Z  |
|-----|------|-----|----|-----|----|-----|----|
| 30  | 46.5 | 199 | 68 | 105 | 32 | 118 | 40 |
| 40  | 55.5 | 216 | 79 | 111 | 32 | 124 | 46 |
| 40  | 66   | 243 | 74 | 137 | 41 | 153 | 54 |
| 40  | 71   | 258 | 89 | 137 | 41 | 153 | 54 |
| 55  | 75   | 314 | 84 | 186 | 50 | 208 | 74 |
| 55  | 80   | 329 | 94 | 191 | 50 | 213 | 79 |

# Flange mounting, Series LU5

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

## Technical data

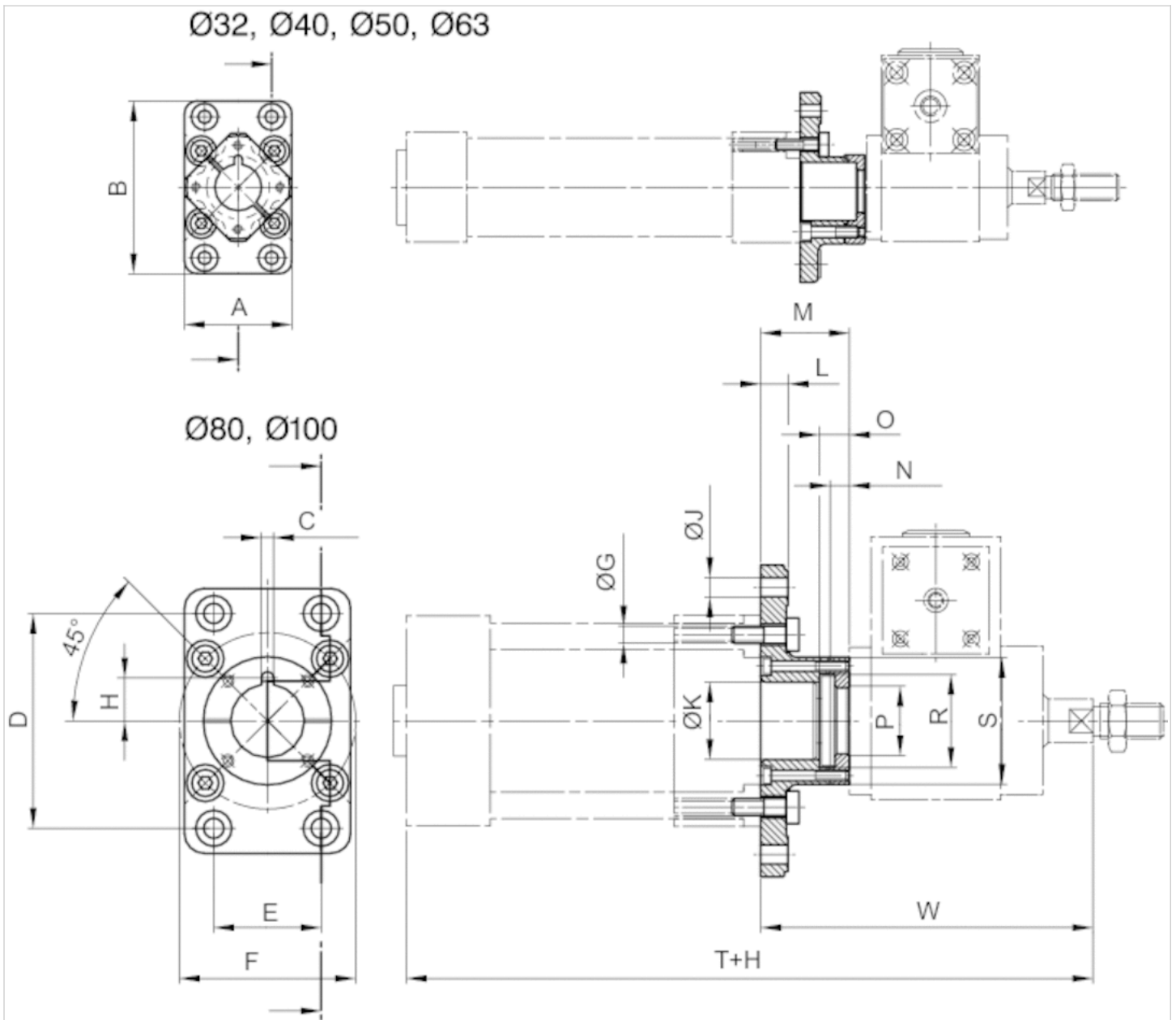
| Part No.   | Piston Ø |
|------------|----------|
| 1827001512 | 32 mm    |
| 1827001513 | 40 mm    |
| 1827001514 | 50 mm    |
| 1827001503 | 63 mm    |
| 1827001516 | 80 mm    |
| 1827001517 | 100 mm   |

## Technical information

| Material |                                   |
|----------|-----------------------------------|
| Housing  | Nodular graphite iron, galvanized |

## Dimensions

### Dimensions



## Dimensions

| Part No.   | A   | B   | C ±0,1 | D ±0,1 | E ±0,1 | Ø F ±0,2 | Ø G H13 | H    | Ø J H13 | Ø K H10 | L  | M    |
|------------|-----|-----|--------|--------|--------|----------|---------|------|---------|---------|----|------|
| 1827001512 | 50  | 79  | 3.6    | 64     | 32     | 46       | 6.6     | 13.2 | 7       | 30      | 8  | 27   |
| 1827001513 | 56  | 91  | 3.6    | 72     | 36     | 54       | 6.6     | 18.2 | 9       | 35      | 10 | 33.3 |
| 1827001514 | 70  | 111 | 3.6    | 90     | 45     | 66       | 8.4     | 18.2 | 9       | 40      | 12 | 38.3 |
| 1827001503 | 80  | 120 | 3.6    | 100    | 50     | 80       | 8.4     | 18.2 | 9       | 45      | 12 | 38.3 |
| 1827001516 | 100 | 153 | 6      | 126    | 63     | 102      | 10.5    | 24.5 | 12      | 45      | 16 | 52   |
| 1827001517 | 120 | 178 | 6      | 150    | 75     | 126      | 10.5    | 24.6 | 14      | 55      | 16 | 57   |

| N ±0,1 | O  | Ø P +0,2 | Ø R +0,5 | Ø S  | W   |
|--------|----|----------|----------|------|-----|
| 3.9    | 8  | 24.2     | 33       | 50   | 105 |
| 4.9    | 10 | 30.2     | 40       | 55.5 | 111 |

| N ±0,1 | O  | Ø P +0,2 | Ø R +0,5 | Ø S | W   |
|--------|----|----------|----------|-----|-----|
| 4.9    | 10 | 30.2     | 40       | 66  | 137 |
| 4.9    | 10 | 30.2     | 40       | 71  | 137 |
| 7.9    | 16 | 40.2     | 55       | 75  | 186 |
| 7.9    | 16 | 40.2     | 55       | 80  | 191 |



# Mounting flange, Series LU3

- for cylinders with locking units

- Ø 32-100 mm



Ambient temperature min./max.

-20 ... 80 °C

Medium temperature min./max.

-20 ... 80 °C

Weight

See table below

## Technical data

| Part No.   | Piston Ø | Weight   |
|------------|----------|----------|
| 1827001504 | 32 mm    | 0.235 kg |
| 1827001505 | 40 mm    | 0.36 kg  |
| 1827001506 | 50 mm    | 0.635 kg |
| 1827001508 | 63 mm    | 0.84 kg  |
| 1827001433 | 80 mm    | 1.62 kg  |
| 1827001434 | 100 mm   | 2.27 kg  |

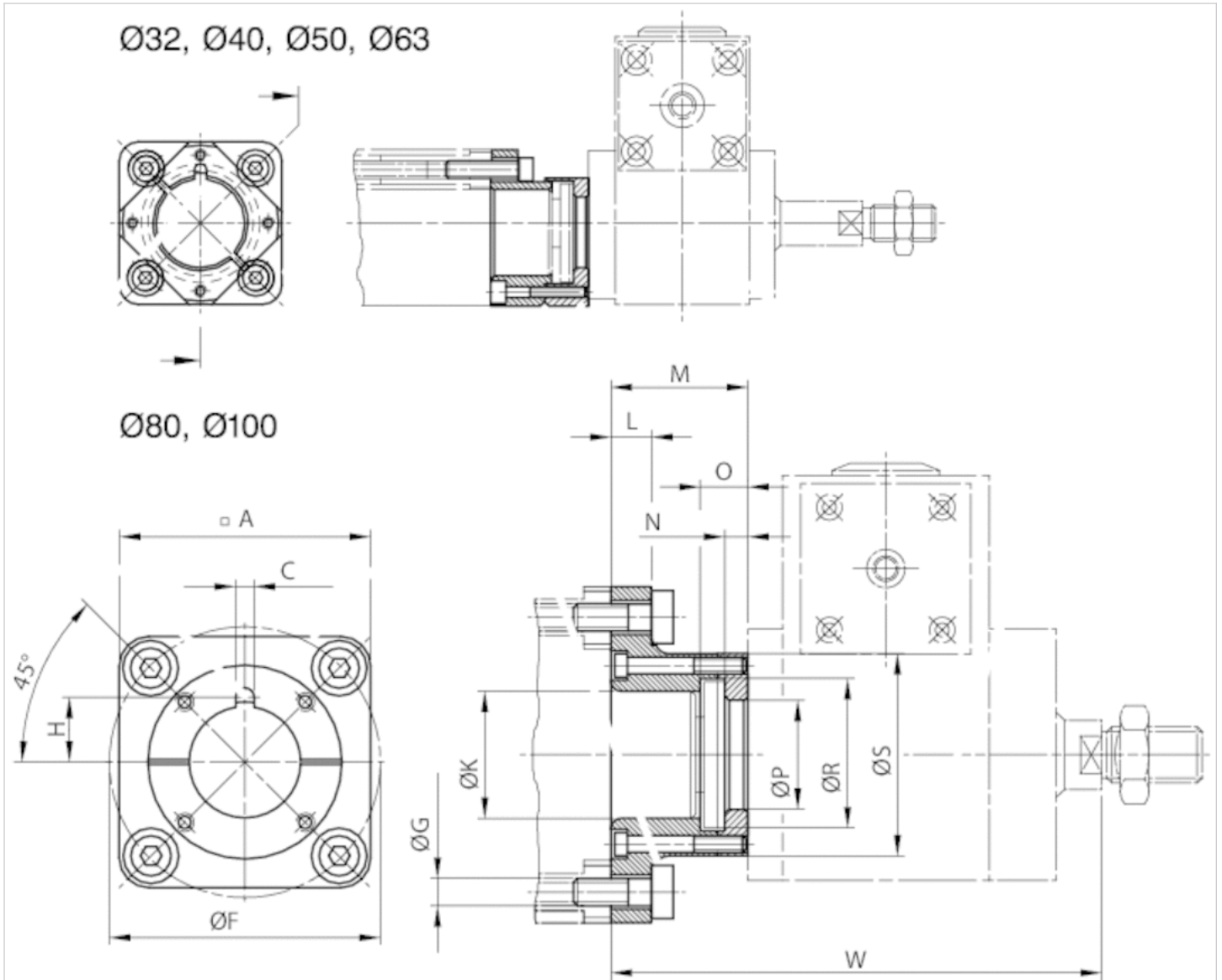
## Technical information

### Material

|         |                                   |
|---------|-----------------------------------|
| Housing | Nodular graphite iron, galvanized |
|---------|-----------------------------------|

## Dimensions

### Dimensions



Screws included in scope of delivery  
 The locking unit can be rotated by 4x90°.

## Dimensions

| Part No.   | A   | C +0,1 | Ø F ±0,2 | G H13 | H    | Ø K H10 | L   | M    | N -0,1 | O  | Ø P +0,2 | Ø R +0,5 |
|------------|-----|--------|----------|-------|------|---------|-----|------|--------|----|----------|----------|
| 1827001504 | 50  | 3.6    | 46       | 6.6   | 13.2 | 30      | 7   | 27.2 | 3.9    | 8  | 24.2     | 33       |
| 1827001505 | 57  | 3.6    | 54       | 6.6   | 18.2 | 35      | 9.5 | 33.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001506 | 68  | 3.6    | 66       | 8.4   | 18.2 | 40      | 11  | 38.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001508 | 75  | 3.6    | 80       | 8.4   | 18.2 | 45      | 11  | 38.3 | 4.9    | 10 | 30.2     | 40       |
| 1827001433 | 95  | 6      | 102      | 10.5  | 24.5 | 45      | 15  | 52   | 7.9    | 16 | 40.2     | 55       |
| 1827001434 | 115 | 6      | 126      | 10.5  | 24.6 | 55      | 15  | 57   | 7.9    | 16 | 40.2     | 55       |

| Ø S  | W   |
|------|-----|
| 46.5 | 105 |
| 55.5 | 111 |

| $\varnothing$ S | W   |
|-----------------|-----|
| 66              | 137 |
| 71              | 137 |
| 75              | 186 |
| 80              | 191 |

# Modular sealing system

- Ø 32 mm ... 125 mm
- For series PRA, TRB, CCL-IS
- Piston Ø 32 40 50, 63 80, 100 125 mm



Working pressure min./max.  
Ambient temperature min./max.  
Medium  
Oil content of compressed air

1.5 ... 10 bar  
See table below  
Compressed air  
0 ... 5 mg/m<sup>3</sup>

## Technical data

| Part No.   | Piston Ø   | Piston rod seal                | Scraper                |
|------------|------------|--------------------------------|------------------------|
| 0496400704 | 32 mm      | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496401107 | 32 mm      | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401700 | 32 mm      | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400402 | 40 mm      | Acrylonitrile butadiene rubber | Brass                  |
| 0496401409 | 40 mm      | Fluorocaoutchouc               | Brass                  |
| 0496400801 | 40 mm      | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496401204 | 40 mm      | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401808 | 40 mm      | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400518 | 50, 63 mm  | Acrylonitrile butadiene rubber | Brass                  |
| 0496401506 | 50, 63 mm  | Fluorocaoutchouc               | Brass                  |
| 0496400909 | 50, 63 mm  | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496402103 | 50, 63 mm  | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496401905 | 50, 63 mm  | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496400607 | 80, 100 mm | Acrylonitrile butadiene rubber | Brass                  |
| 0496401603 | 80, 100 mm | Fluorocaoutchouc               | Brass                  |
| 0496401018 | 80, 100 mm | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496402200 | 80, 100 mm | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496402006 | 80, 100 mm | Fluorocaoutchouc               | Polytetrafluorethylene |
| 0496301404 | 125 mm     | Acrylonitrile butadiene rubber | Brass                  |
| 0496303105 | 125 mm     | Fluorocaoutchouc               | Brass                  |
| 0496301307 | 125 mm     | Acrylonitrile butadiene rubber | Polyester elastomer    |
| 0496301706 | 125 mm     | Acrylonitrile butadiene rubber | Polytetrafluorethylene |
| 0496303202 | 125 mm     | Fluorocaoutchouc               | Polytetrafluorethylene |

| Part No.   | Ambient temperature min./max. | Application area |
|------------|-------------------------------|------------------|
| 0496400704 | -20 ... 80 °C                 | 1)               |
| 0496401107 | -20 ... 80 °C                 | 2)               |

| Part No.   | Ambient temperature min./max. | Application area |
|------------|-------------------------------|------------------|
| 0496401700 | -10 ... 150 °C                | 2)               |
| 0496400402 | -20 ... 80 °C                 | 3)               |
| 0496401409 | -10 ... 150 °C                | 3)               |
| 0496400801 | -20 ... 80 °C                 | 1)               |
| 0496401204 | -20 ... 80 °C                 | 2)               |
| 0496401808 | -10 ... 150 °C                | 2)               |
| 0496400518 | -20 ... 80 °C                 | 3)               |
| 0496401506 | -10 ... 150 °C                | 3)               |
| 0496400909 | -20 ... 80 °C                 | 1)               |
| 0496402103 | -20 ... 80 °C                 | 2)               |
| 0496401905 | -10 ... 150 °C                | 2)               |
| 0496400607 | -20 ... 80 °C                 | 3)               |
| 0496401603 | -10 ... 150 °C                | 3)               |
| 0496401018 | -20 ... 80 °C                 | 1)               |
| 0496402200 | -20 ... 80 °C                 | 2)               |
| 0496402006 | -10 ... 150 °C                | 2)               |
| 0496301404 | -20 ... 80 °C                 | 3)               |
| 0496303105 | -10 ... 150 °C                | 3)               |
| 0496301307 | -20 ... 80 °C                 | 1)               |
| 0496301706 | -20 ... 80 °C                 | 2)               |
| 0496303202 | -10 ... 150 °C                | 2)               |

1)Application area Paper/printing industry Textile industry

2)Application area Textile industry Food industry Chemical industry Sugar production

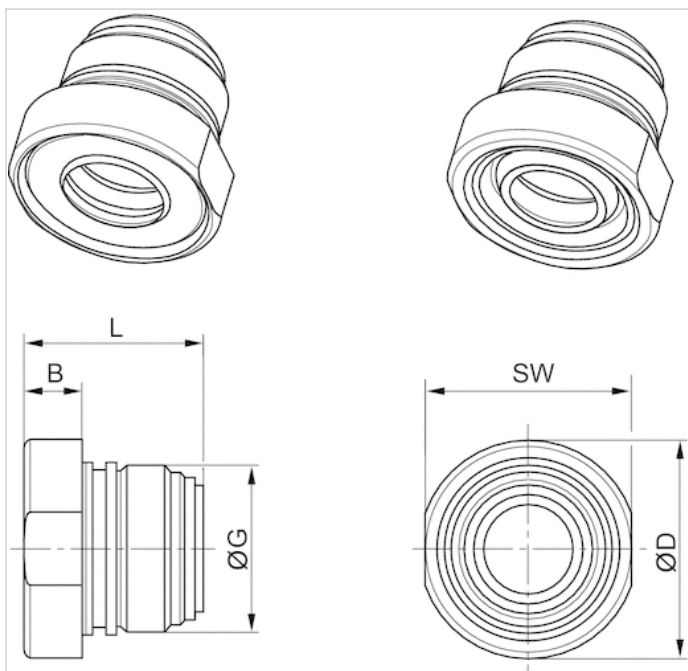
3)Application area Chemical industry Sugar production Steel construction Automotive industry Woodworking industry

## Technical information

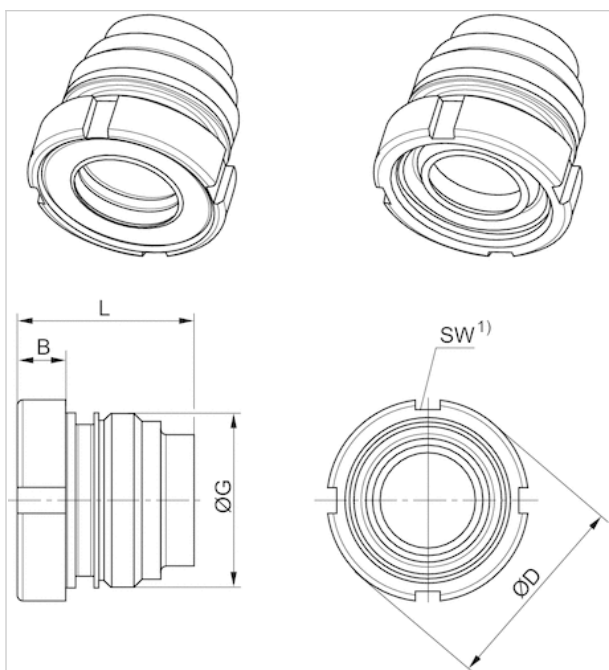
| Material        |  |
|-----------------|--|
| Housing         | Aluminum, anodized                               |
| Scraper         | Polyester elastomer Polytetrafluorethylene Brass |
| Piston rod seal | Acrylonitrile butadiene rubber Fluorocaoutchouc  |

## Dimensions

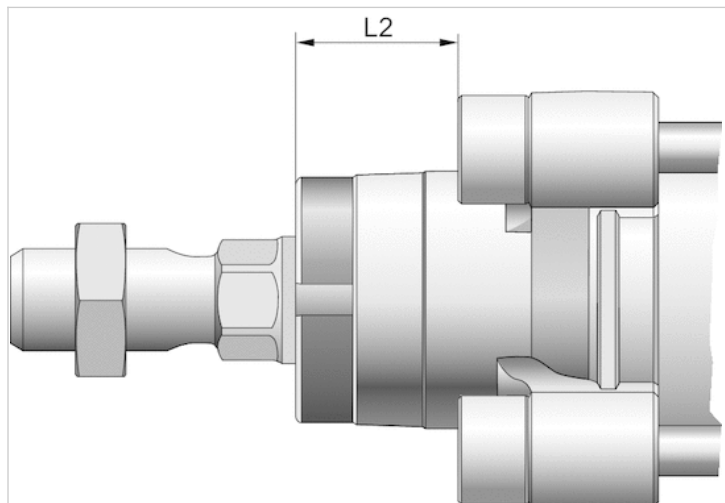
For cylinder diameters: 32-40 mm, Dimensions in mm



For cylinder diameters: 50 ... 125 mm, Dimensions in mm



1) Can be mounted with hook wrench in accordance with DIN 1810 A

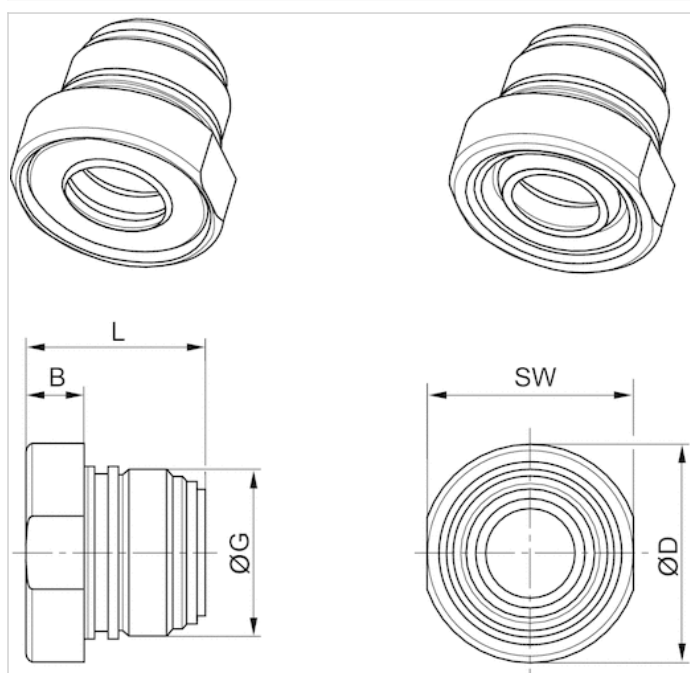


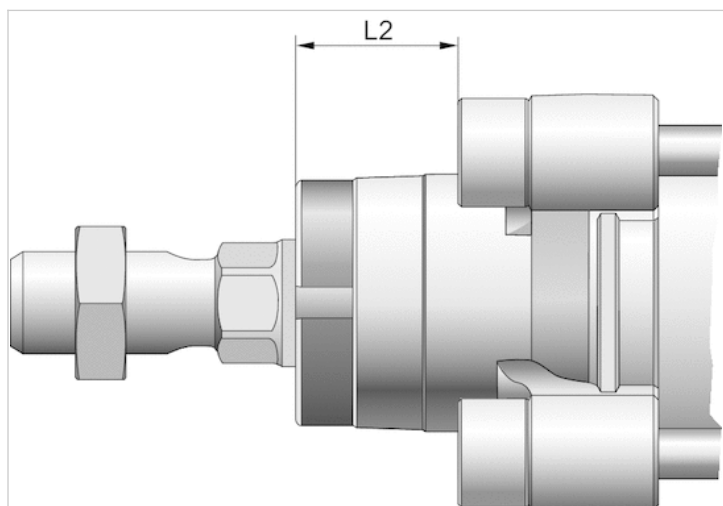
### Dimensions

| Piston Ø | B   | ØD   | G       | L    | L2    | SW    |
|----------|-----|------|---------|------|-------|-------|
| 32       | 6.7 | 24.5 | M22x1   | 23   | 16.25 | 23    |
| 40       | 9.2 | 34   | M26x1,5 | 28.1 | 18.25 | 32    |
| 50, 63   | 9   | 38.5 | M33x2   | 33.5 | 25    | 40-42 |
| 80, 100  | 10  | 44   | M40x2   | 44   | 33    | 45-50 |
| 125      | 12  | 57   | M50x2   | 56   | 45    | 58-62 |

### Dimensions

For cylinder diameters: 32-40 mm, Dimensions in mm



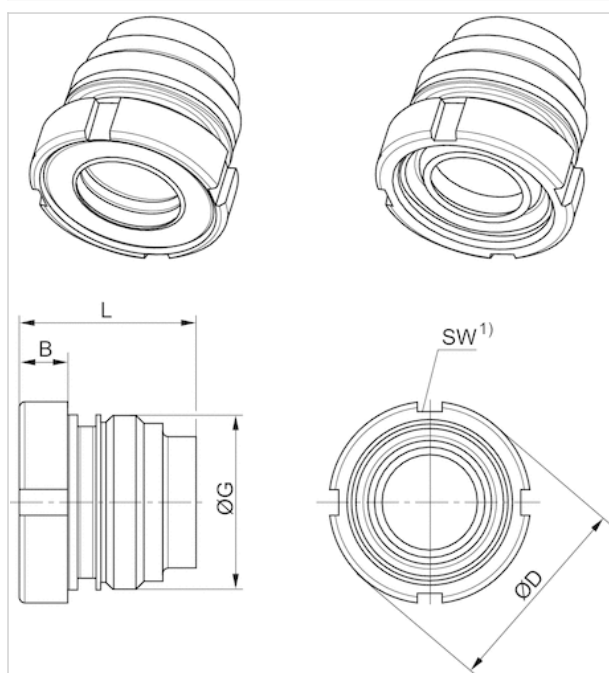


## Dimensions

| Piston Ø | B   | ØD   | G       | L    | L2    | SW    |
|----------|-----|------|---------|------|-------|-------|
| 32       | 6.7 | 24.5 | M22x1   | 23   | 16.25 | 23    |
| 40       | 9.2 | 34   | M26x1,5 | 28.1 | 18.25 | 32    |
| 50, 63   | 9   | 38.5 | M33x2   | 33.5 | 25    | 40-42 |
| 80, 100  | 10  | 44   | M40x2   | 44   | 33    | 45-50 |
| 125      | 12  | 57   | M50x2   | 56   | 45    | 58-62 |

## Dimensions

For cylinder diameters: 50 ... 125 mm, Dimensions in mm



1) Can be mounted with hook wrench in accordance with DIN 1810 A



# Sensor, Series ST4

- 4 mm T-slot
- with cable
- open cable ends, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 3 5 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019488 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019489 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019680 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019681 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019684 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019685 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019488 | Reed            | 3 m            | 5 ... 30 V DC                  |
| R412019489 | Reed            | 5 m            | 5 ... 30 V DC                  |
| R412019680 | electronic PNP  | 3 m            | 10 ... 30 V DC                 |
| R412019681 | electronic PNP  | 5 m            | 10 ... 30 V DC                 |
| R412019684 | electronic NPN  | 3 m            | 10 ... 30 V DC                 |
| R412019685 | electronic NPN  | 5 m            | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019488 | ≤ 0,5 V                            | 0.13 A                     |
| R412019489 | ≤ 0,5 V                            | 0.13 A                     |
| R412019680 | ≤ 2,5 V                            | 0.1 A                      |
| R412019681 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019684 | ≤ 2,5 V                            | 0.1 A                      |
| R412019685 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019488 | 0.13 A                     | 3 W / 3 VA         |
| R412019489 | 0.13 A                     | 3 W / 3 VA         |
| R412019680 | -                          | -                  |
| R412019681 | -                          | -                  |
| R412019684 | -                          | -                  |
| R412019685 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019488 | Protected against polarity reversal                         |
| R412019489 | Protected against polarity reversal                         |
| R412019680 | short circuit resistant Protected against polarity reversal |
| R412019681 | short circuit resistant Protected against polarity reversal |
| R412019684 | short circuit resistant Protected against polarity reversal |
| R412019685 | short circuit resistant Protected against polarity reversal |

## Technical information

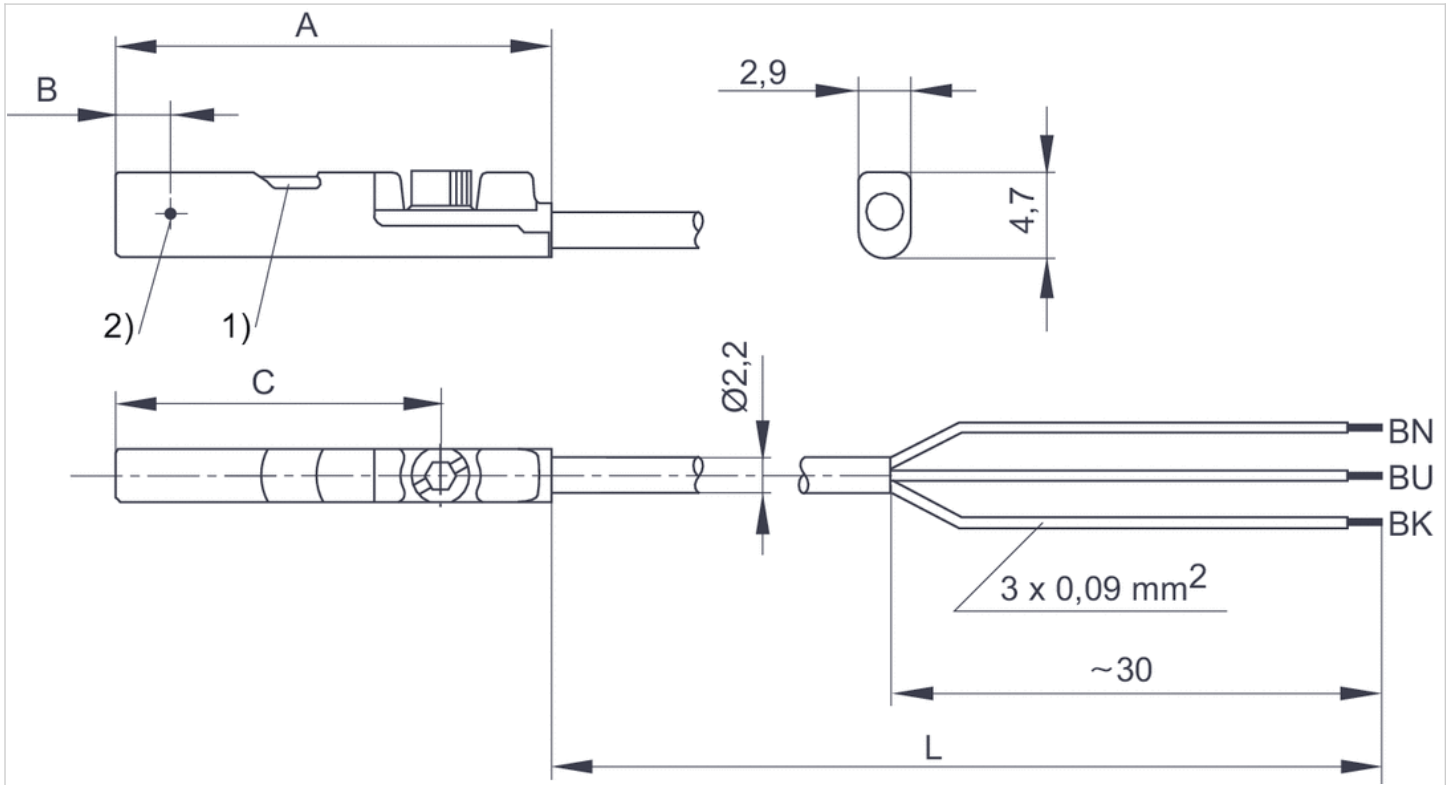
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



1) LED 2) Switching point

L = cable length

BN = brown, BK = black, BU = blue

## Dimensions

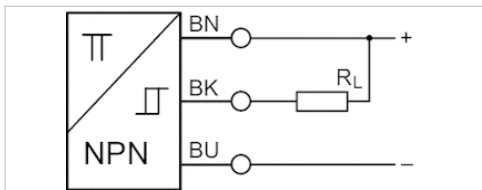
| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019488 | 26.3 | 6.3 | 20.3 |
| R412019489 | 26.3 | 6.3 | 20.3 |
| R412019680 | 23.7 | 2.8 | 17.7 |
| R412019681 | 23.7 | 2.8 | 17.7 |
| R412019684 | 23.7 | 2.8 | 17.7 |
| R412019685 | 23.7 | 2.8 | 17.7 |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- open cable ends
- With stretched impulse
- With stretched impulse
- electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |   |
|--------------------------------|---|
| Certificates                   | RoHS                                    |
| Ambient temperature min./max.  | -30 ... 80 °C                           |
| Protection class               | IP65, IP67                              |
| Switching point precision      | ±0,1 mT                                 |
| Min./max. DC operating voltage | 10 ... 30 V DC                          |
| Switching logic                | NO (make contact)                       |
| Pulse stretching               | 20 ms                                   |
| Display                        | LED                                     |
| LED status display             | Yellow                                  |
| Vibration resistance           | 10 - 55 Hz, 1 mm                        |
| Shock resistance               | 30 g / 11 ms                            |
| Cable length L                 | 5 m                                     |
| Mounting screw                 | Combination: slotted and hexagon socket |



## Technical data

| Part No.   | for  | Type of contact |
|------------|--|-----------------|
| R412024124 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP  |

| Part No.   | Cable length L | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------|------------------------------------|----------------------------|
| R412024124 | 5 m            | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Switch signal          |
|------------|------------------------|
| R412024124 | With stretched impulse |

## Technical information

The max. switching capacity must not be exceeded.

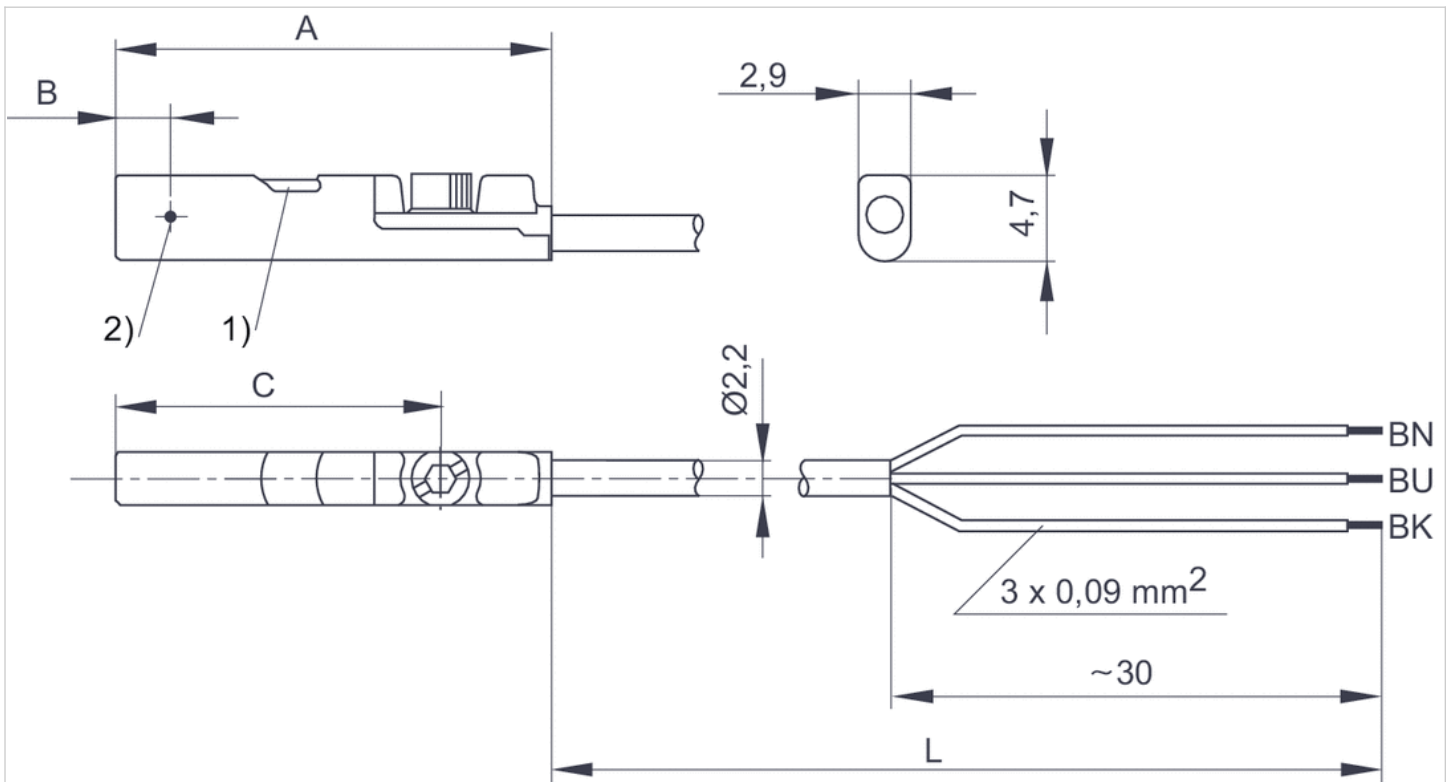
## Technical information

### Material

|              |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



1) LED 2) Switching point

L = cable length

BN = brown, BK = black, BU = blue

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412024124 | 23.7 | 2.8 | 17.7 |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019682 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |
| R412019683 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |
| R412019694 |  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019682 | Reed            | 0.3 m          | 5 ... 30 V DC                  |
| R412019683 | electronic PNP  | 0.3 m          | 10 ... 30 V DC                 |
| R412019694 | electronic NPN  | 0.3 m          | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019682 | ≤ 0,5 V                            | 0.13 A                     |
| R412019683 | ≤ 2,5 V                            | 0.1 A                      |
| R412019694 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019682 | 0.13 A                     | 3 W / 3 VA         |
| R412019683 | -                          | -                  |
| R412019694 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019682 | Protected against polarity reversal                         |
| R412019683 | short circuit resistant Protected against polarity reversal |
| R412019694 | short circuit resistant Protected against polarity reversal |

## Technical information

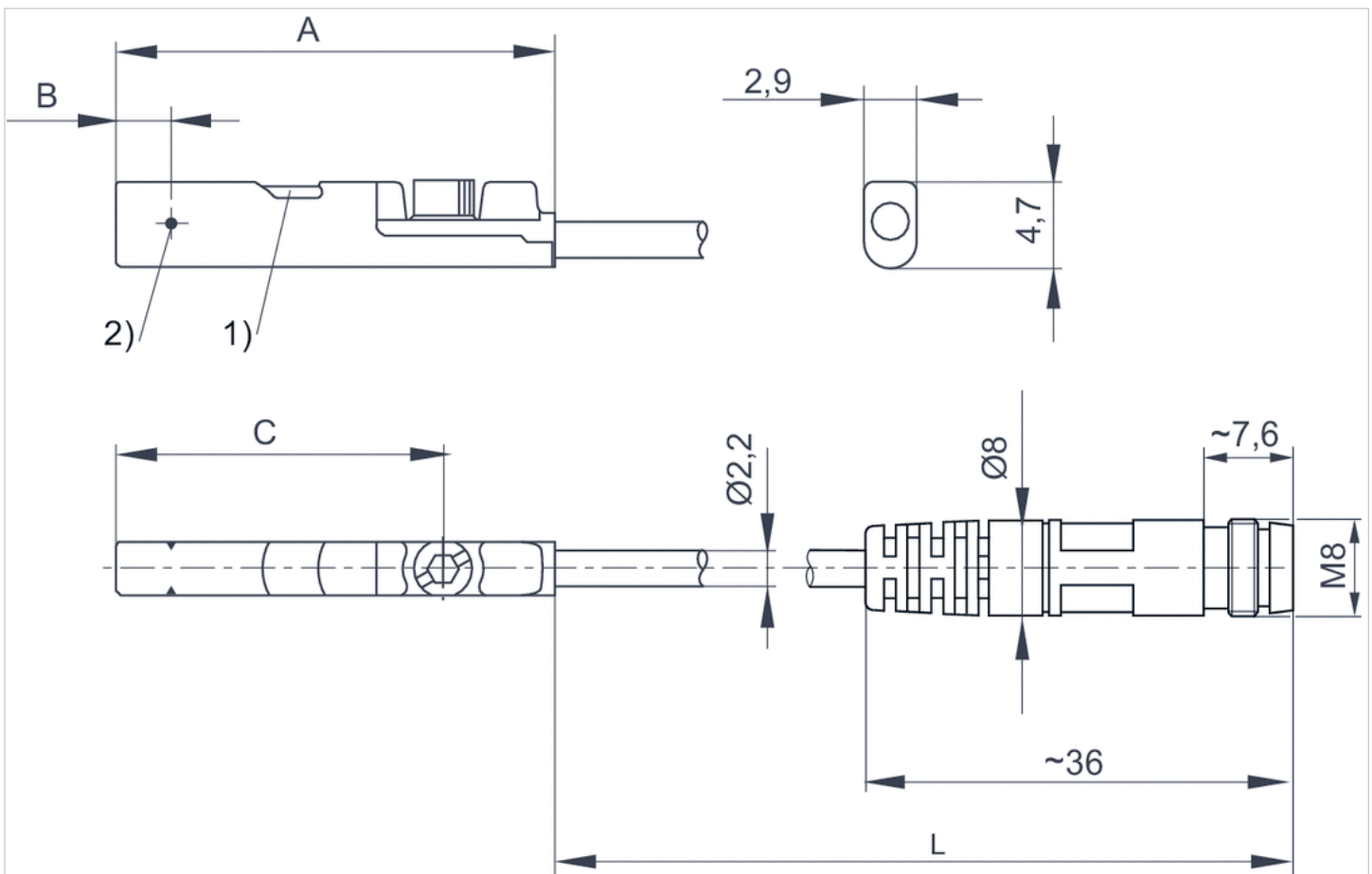
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



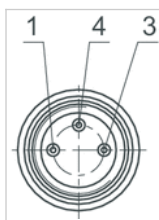
1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019682 | 26.3 | 6.3 | 20.3 |
| R412019683 | 23.7 | 2.8 | 17.7 |
| R412019694 | 23.7 | 2.8 | 17.7 |

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |



# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 0.5 m                                    |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019490 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019686 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019493 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019687 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019490 | Reed            | 0.3 m          | 5 ... 30 V DC                  |
| R412019686 | Reed            | 0.5 m          | 5 ... 30 V DC                  |
| R412019493 | electronic PNP  | 0.3 m          | 10 ... 30 V DC                 |
| R412019687 | electronic PNP  | 0.5 m          | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019490 | ≤ 0,5 V                            | 0.13 A                     |
| R412019686 | ≤ 0,5 V                            | 0.13 A                     |
| R412019493 | ≤ 2,5 V                            | 0.1 A                      |
| R412019687 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019490 | 0.13 A                     | 3 W / 3 VA         |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019686 | 0.13 A                     | 3 W / 3 VA         |
| R412019493 | -                          | -                  |
| R412019687 | -                          | -                  |

| Part No.   | Version   |
|------------|---|
| R412019490 | Protected against polarity reversal                         |
| R412019686 | Protected against polarity reversal                         |
| R412019493 | short circuit resistant Protected against polarity reversal |
| R412019687 | short circuit resistant Protected against polarity reversal |

## Technical information

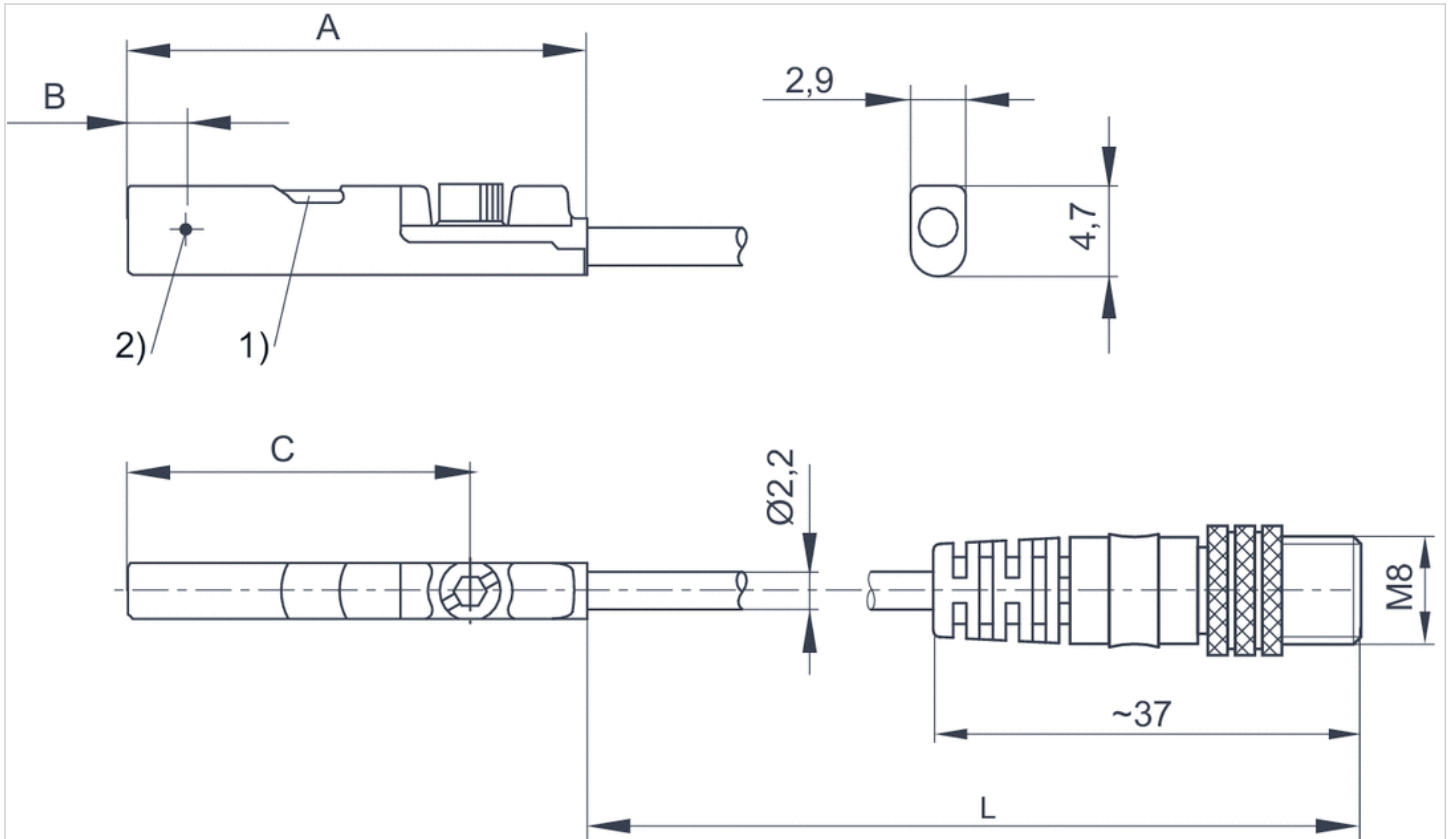
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions



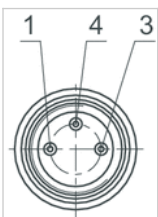
1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019490 | 26.3 | 6.3 | 20.3 |
| R412019686 | 26.3 | 6.3 | 20.3 |
| R412019493 | 23.7 | 2.8 | 17.7 |
| R412019687 | 23.7 | 2.8 | 17.7 |

## Pin assignments

### Pin assignments



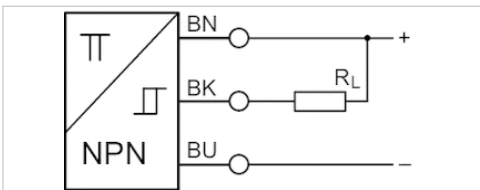
|            |     |     |       |
|------------|-----|-----|-------|
| Pin        | 1   | 3   | 4     |
| Allocation | (+) | (-) | (OUT) |

# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M8, 3-pin Plug, M8, 3-pin, with knurled screw
- With stretched impulse
- With stretched impulse
- electronic NPN electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |   |
|--------------------------------|---|
| Certificates                   | RoHS                                    |
| Ambient temperature min./max.  | -30 ... 80 °C                           |
| Protection class               | IP65, IP67                              |
| Switching point precision      | ±0,1 mT                                 |
| Min./max. DC operating voltage | 10 ... 30 V DC                          |
| Switching logic                | NO (make contact)                       |
| Pulse stretching               | 20 ms                                   |
| Display                        | LED                                     |
| LED status display             | Yellow                                  |
| Vibration resistance           | 10 - 55 Hz, 1 mm                        |
| Shock resistance               | 30 g / 11 ms                            |
| Cable length L                 | 0.3 m                                   |
| Mounting screw                 | Combination: slotted and hexagon socket |



## Technical data

| Part No.   | for  | Type of contact |
|------------|--|-----------------|
| R412024123 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic NPN  |
| R412024125 | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP  |

| Part No.   | Cable length L | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------|------------------------------------|----------------------------|
| R412024123 | 0.3 m          | ≤ 2,5 V                            | 0.1 A                      |
| R412024125 | 0.3 m          | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Switch signal          |    |
|------------|------------------------|----|
| R412024123 | With stretched impulse | 1) |
| R412024125 | With stretched impulse | 2) |

1) Plug M8, 3-pin

2) Plug M8, 3-pin with knurled screw

## Technical information

The max. switching capacity must not be exceeded.

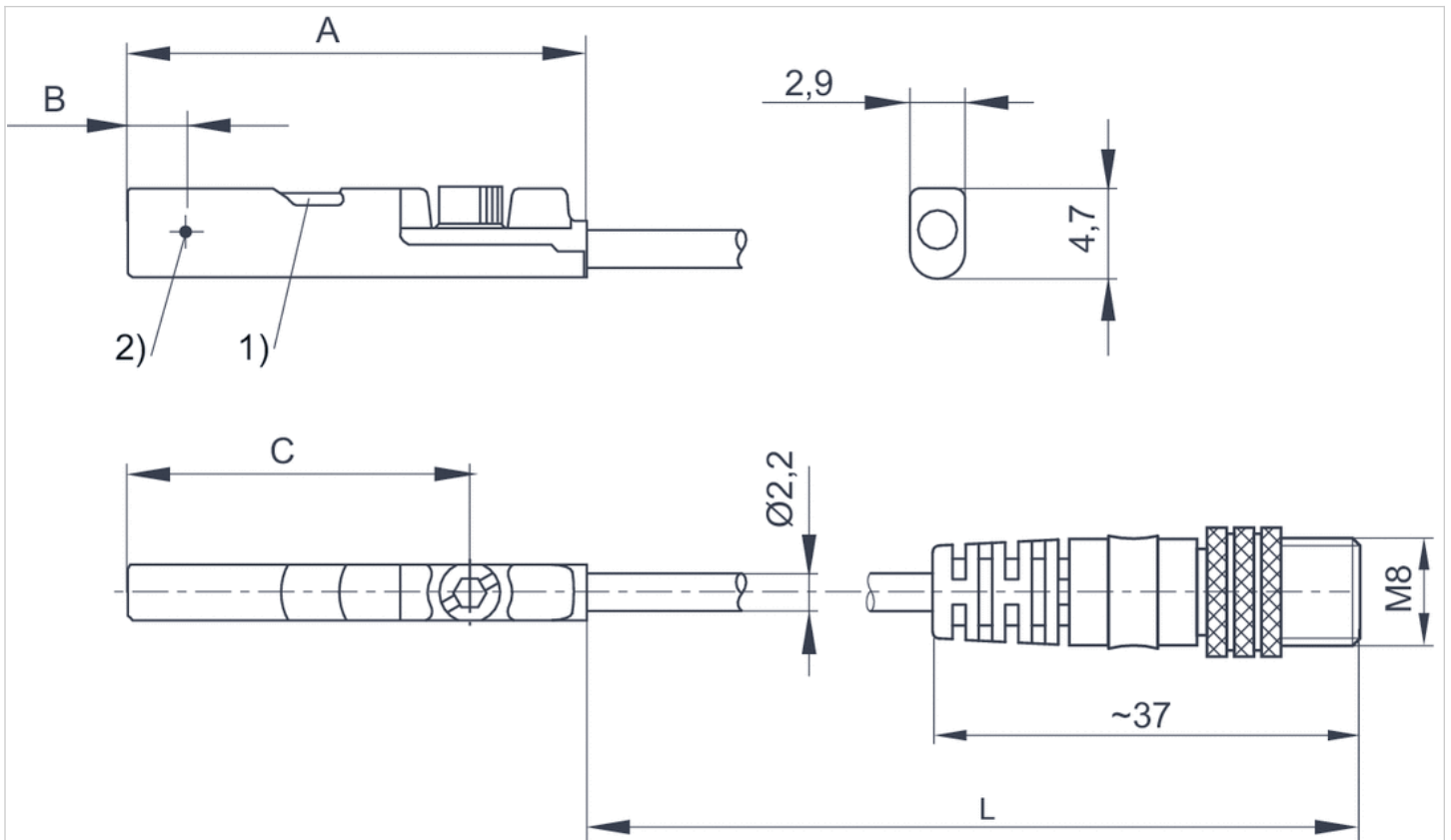
## Technical information

### Material

|              |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

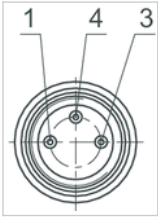
### Dimensions



1) LED 2) Switching point  
L = cable length

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |



# Sensor, Series ST4

- 4 mm T-slot
- with cable
- Plug, M12, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|                                |  |
|--------------------------------|--|
| Certificates                   | UL (Underwriters Laboratories) cULus<br>RoHS |
| Ambient temperature min./max.  | -30 ... 80 °C                                |
| Protection class               | IP65, IP67                                   |
| Switching point precision      | ±0,1 mT                                      |
| Min./max. DC operating voltage | See table below                              |
| Switching logic                | NO (make contact)                            |
| Display                        | LED  |
| LED status display             | Yellow                                       |
| Vibration resistance           | 10 - 55 Hz, 1 mm                             |
| Shock resistance               | 30 g / 11 ms                                 |
| Cable length L                 | 0.3 m  |
| Mounting screw                 | Combination: slotted and hexagon socket      |

## Technical data

| Part No.   |   | for  |
|------------|---|--|
| R412019688 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |
| R412019689 |  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI |

| Part No.   | Type of contact | Cable length L | Min./max. DC operating voltage |
|------------|-----------------|----------------|--------------------------------|
| R412019688 | Reed            | 0.3 m          | 5 ... 30 V DC                  |
| R412019689 | electronic PNP  | 0.3 m          | 10 ... 30 V DC                 |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412019688 | ≤ 0,5 V                            | 0.13 A                     |
| R412019689 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412019688 | 0.13 A                     | 3 W / 3 VA         |
| R412019689 | -                          | -                  |

| Part No.   | Version                             |
|------------|-------------------------------------|
| R412019688 | Protected against polarity reversal |



| Part No.   | Version   |
|------------|---|
| R412019689 | short circuit resistant Protected against polarity reversal |

## Technical information

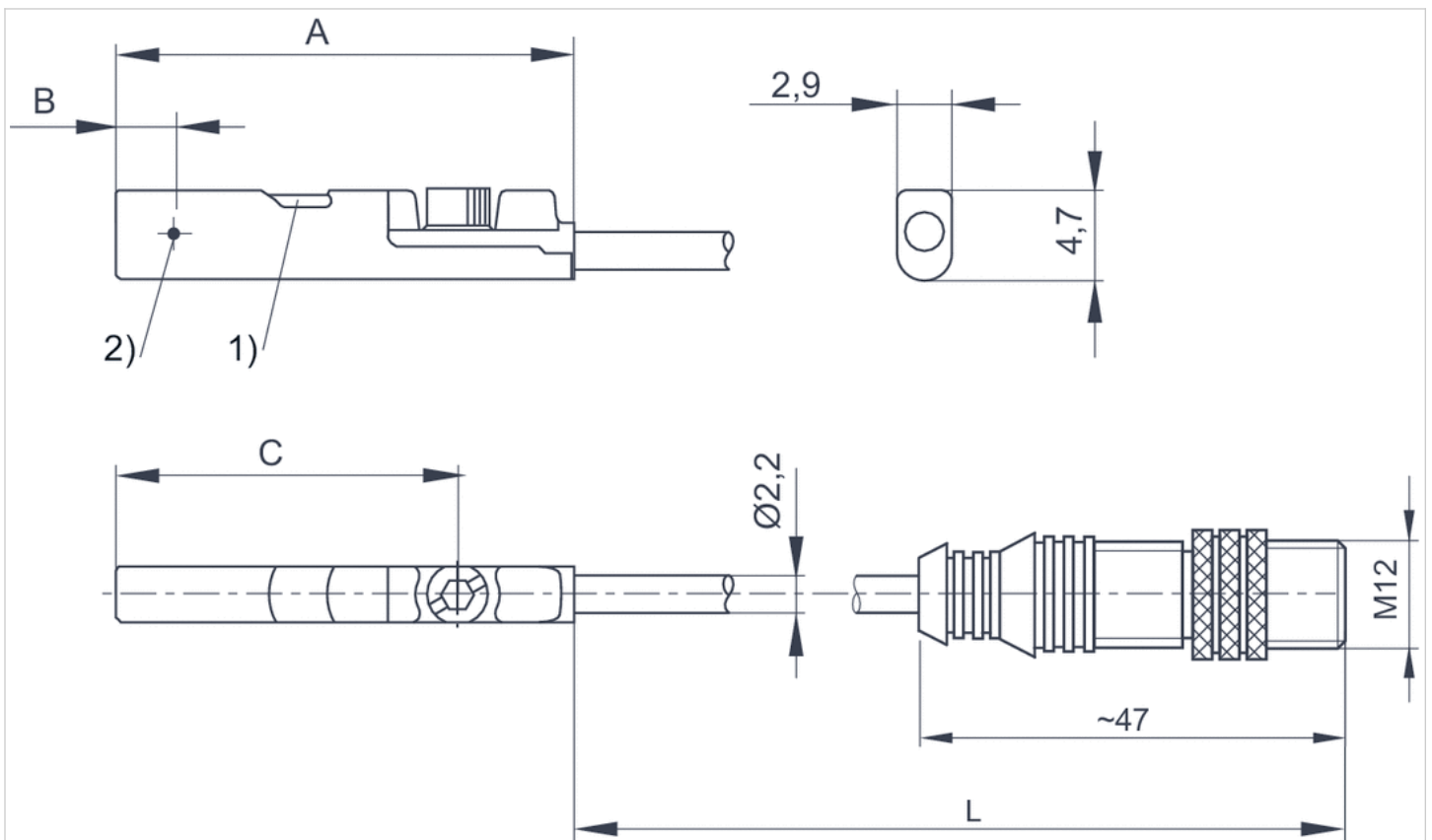
The max. switching capacity must not be exceeded.

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

### Dimensions

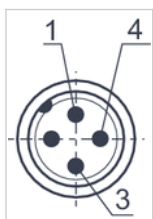


1) LED 2) Switching point  
L = cable length

## Dimensions

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412019688 | 26.3 | 6.3 | 20.3 |
| R412019689 | 23.7 | 2.8 | 17.7 |

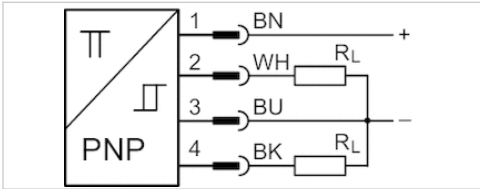
## Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |

# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- without wire end ferrule, tin-plated, 4-pin
- electronic PNP
- 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP65, IP67          |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| Display                                   | LED                 |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 2 m                 |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412010139 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 2 m            |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|----------------------|------------------------------------|----------------------------|
| R412010139 | 50 mm                | ≤ 2,2 V                            | 0.15 A                     |

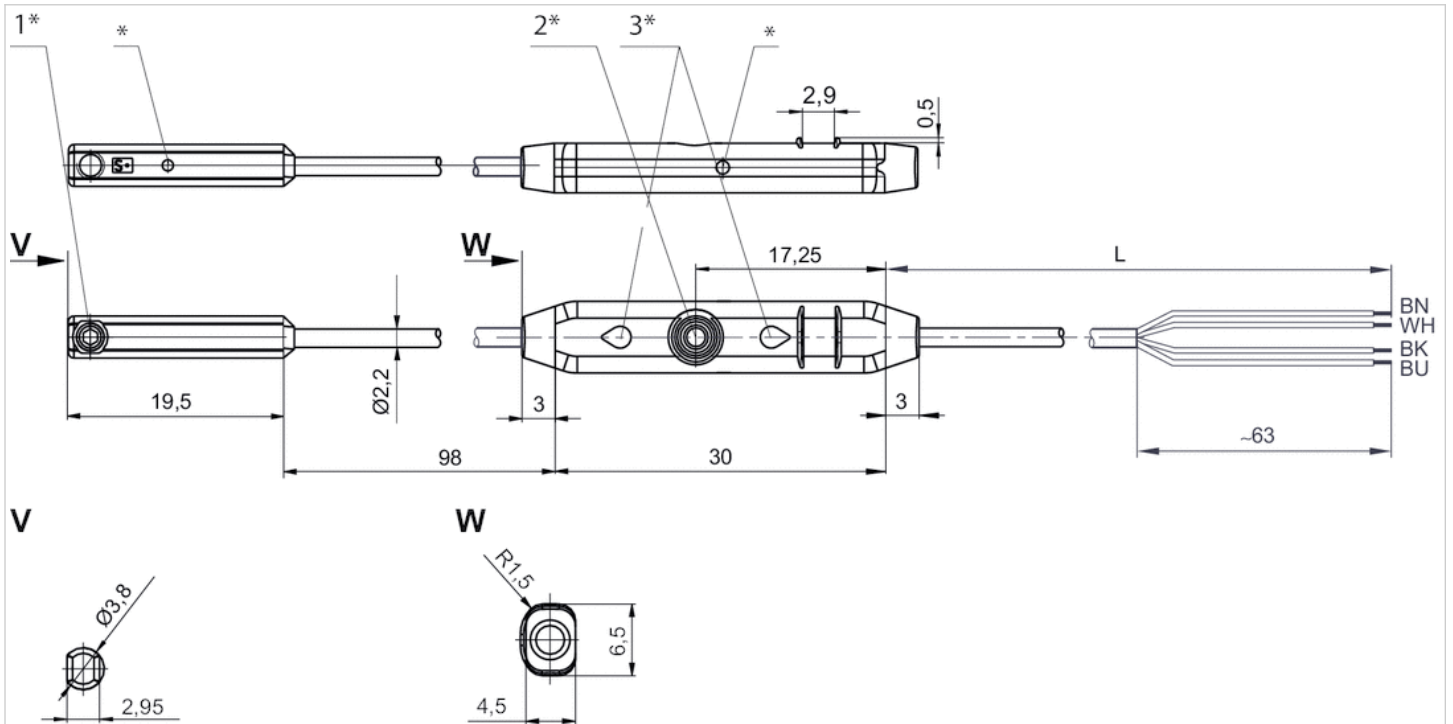
| Part No.   | Function       | Version   |
|------------|----------------|---|
| R412010139 | electronic PNP | short circuit resistant Protected against polarity reversal |

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

# Dimensions

## Dimensions



1\* = mounting screw 2\* = teach button 3\* = LED

L = cable length

(1) BN=brown

(2) WH=white

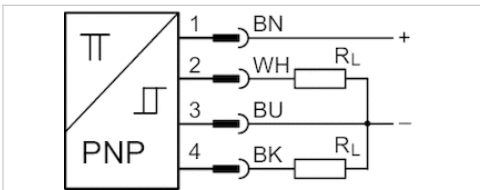
(3) BU=blue

(4) BK=black

\* Switching point

# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- Plug, M8x1, 4-pin, with knurled screw
- electronic PNP
- 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP65, IP67          |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| Display                                   | LED                 |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 0.3 m               |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412010140 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> | Function       |
|------------|----------------------|------------------------------------|----------------|
| R412010140 | 50 mm                | ≤ 2,2 V                            | electronic PNP |

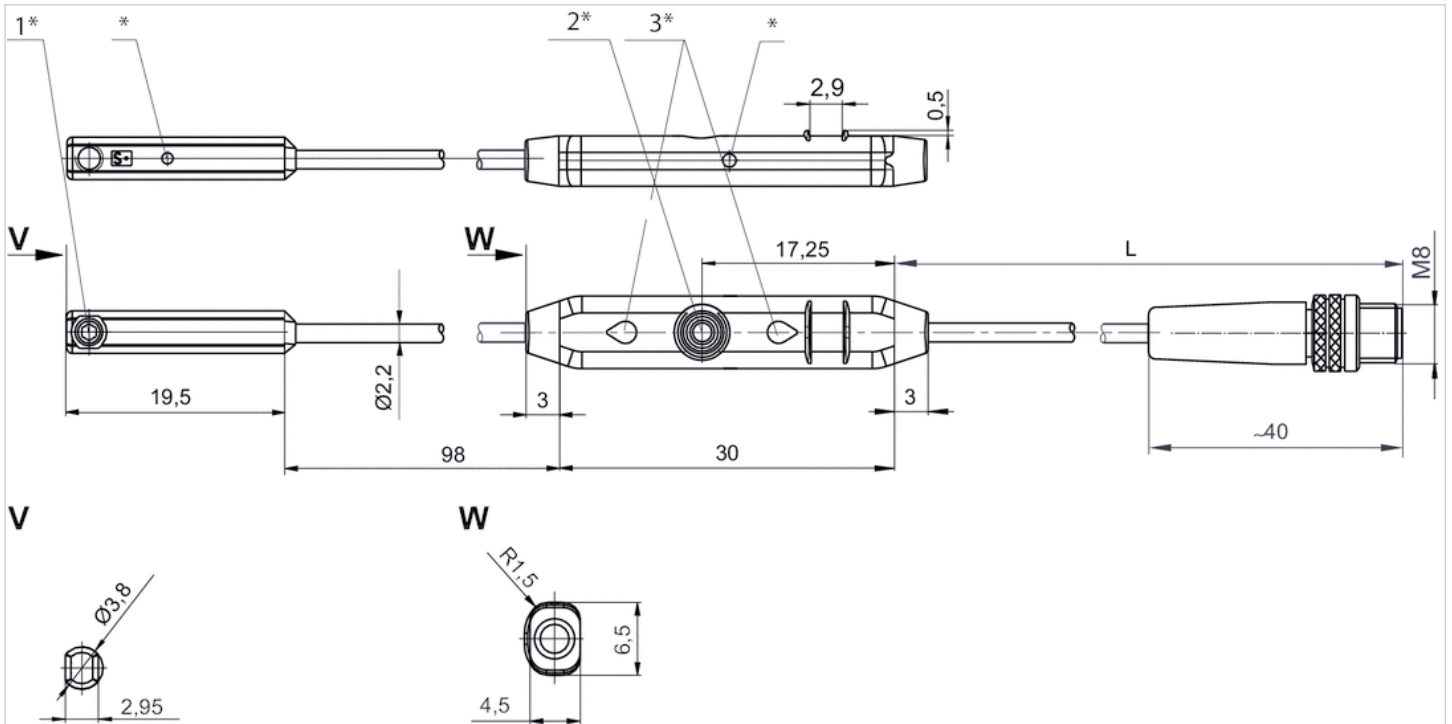
| Part No.   | Version   |
|------------|---|
| R412010140 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

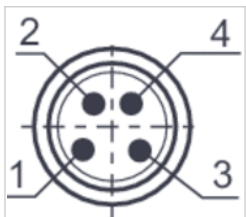
## Dimensions

### Dimensions



1\* = mounting screw 2\* = teach button 3\* = LED  
 L = cable length  
 \* Switching point

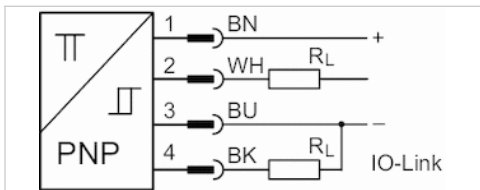
## Pin assignments



| Pin        | 1   | 2     | 3   | 4     |
|------------|-----|-------|-----|-------|
| Allocation | (+) | (OUT) | (-) | (OUT) |

# Sensors, Series ST4-2P

- 4 mm T-slot
- number of switching points 2
- with cable
- Plug, M12x1, 4-pin, with knurled screw
- IO-Link, 2 switching points
- electronic PNP
- Direct mounting for series PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI
- Indirect mounting for series MNI, CSL-RD, ICM



|   |                     |
|---|---------------------|
| Certificates                              | RoHS                |
| Ambient temperature min./max.             | -20 ... 75 °C       |
| Protection class                          | IP67                |
| number of switching points                | 2                   |
| Power consumption                         | 15 mA               |
| Min./max. DC operating voltage            | 12 ... 30 V DC      |
| Repetitive precision max. measuring range | 0,1 mT              |
| Hysteresis                                | 1 mT                |
| Switching logic                           | NO (make contact)   |
| LED status display                        | Yellow              |
| Display                                   | 2 LED               |
| Vibration resistance                      | 10 - 55 Hz, 1 mm    |
| Shock resistance                          | 30 g / 11 ms        |
| Cable length L                            | 0.3 m               |
| Mounting screw                            | with hexagon socket |

## Technical data

| Part No.   | for                                    | Type of contact | Cable length L |
|------------|--|-----------------|----------------|
| R412023459 | PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Detection range max. | Voltage drop U at I <sub>max</sub> |
|------------|----------------------|------------------------------------|
| R412023459 | 50 mm                | ≤ 2,2 V                            |

| Part No.   | Version  |
|------------|--|
| R412023459 | Wire break protection Short circuit resistance Reverse polarity protection Switch-on pulse suppression |

## Technical information

The IO-Link device description (IODD) for the ST4-2P proximity sensor is available for download in the Media Centre.

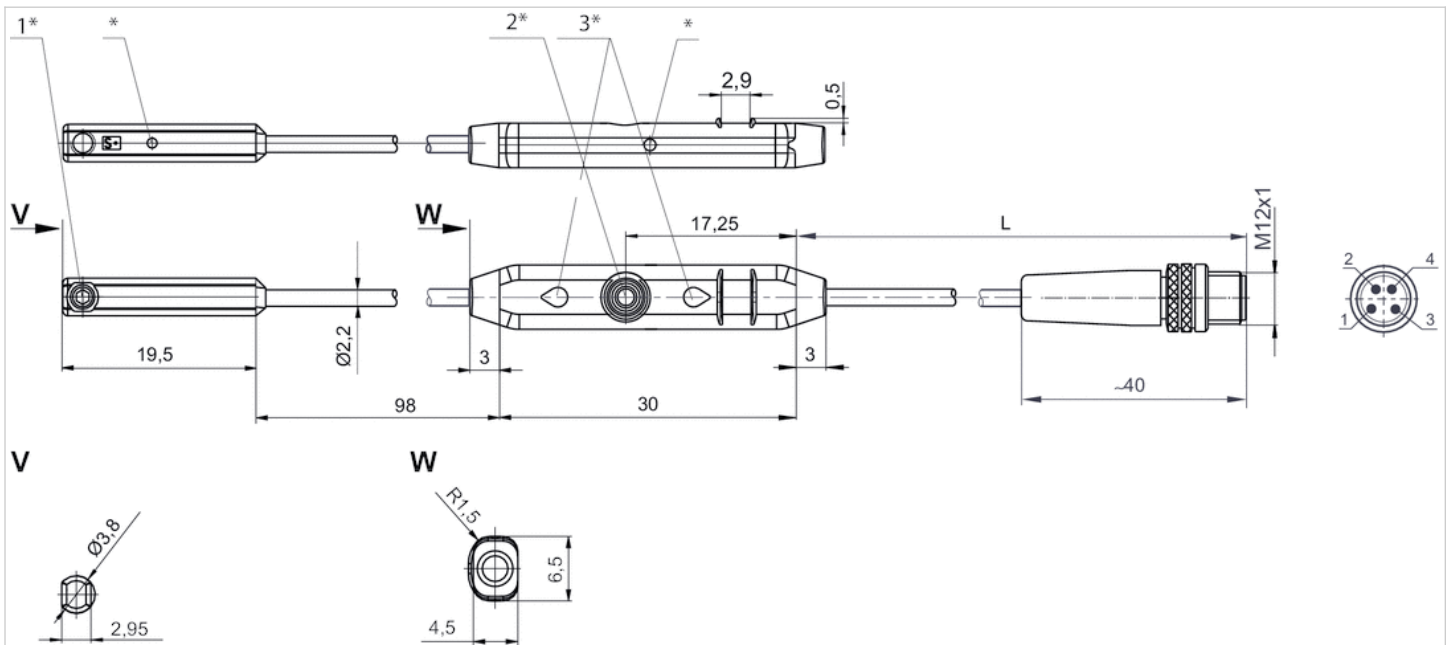
## Technical information

### Material

|              |              |
|--------------|--------------|
| Housing      | Polyamide    |
| Cable sheath | Polyurethane |

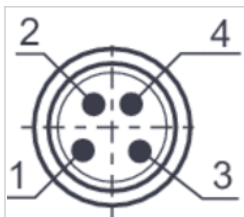
## Dimensions

### Dimensions



1\* = mounting screw 2\* = teach button 3\* = LED  
 L = cable length  
 PIN assignment: 1 = (+), 2 = (OUT), 3 = (-), 4 = (OUT) IO-Link  
 \* Switching point

## Pin assignments



| Pin        | 1   | 2     | 3   | 4             |
|------------|-----|-------|-----|---------------|
| Allocation | (+) | (OUT) | (-) | IO-Link (OUT) |













## Sensor, Series ST6

- 6 mm T-slot
- with cable
- open cable ends, 2-pin open cable ends, 3-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |                   |
|----------------------------------|-------------------|
| Ambient temperature min./max.    | -30 ... 80 °C     |
| Protection class                 | IP65, IP67, IP69K |
| Switching point precision        | ±0,1 mT           |
| Nominal current, actuated state  | 30 mA             |
| Quiescent current (without load) | 8 mA              |
| Min./max. DC operating voltage   | See table below   |
| Min./max. AC operating voltage   | See table below   |
| Hysteresis                       | ≥ 0,2 mT          |
| Switching logic                  | NO (make contact) |
| LED status display               | Yellow            |
| Vibration resistance             | 10 - 55 Hz, 1 mm  |
| Shock resistance                 | 30 g / 11 ms      |
| Cable length L                   | 3 5 10 m          |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022866 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412027170 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022869 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022870 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022871 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022853 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022855 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022857 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022849 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |
| R412022850 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable length<br>L | Min./max. DC operating voltage | Min./max. AC operating voltage |
|------------|-------------------|--------------------------------|--------------------------------|
| R412022866 | 3 m               | 10 ... 230 V DC                | 10 ... 230 V AC                |
| R412027170 | 5 m               | 10 ... 230 V DC                | 10 ... 230 V AC                |
| R412022869 | 3 m               | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022870 | 5 m               | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022871 | 10 m              | 10 ... 30 V DC                 | 10 ... 30 V AC                 |
| R412022853 | 3 m               | 10 ... 30 V DC                 | -                              |
| R412022855 | 5 m               | 10 ... 30 V DC                 | -                              |
| R412022857 | 10 m              | 10 ... 30 V DC                 | -                              |
| R412022849 | 3 m               | 10 ... 30 V DC                 | -                              |
| R412022850 | 5 m               | 10 ... 30 V DC                 | -                              |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022866 | ≤ 3,5 V                            | 0.13 A                     |
| R412027170 | ≤ 3,5 V                            | 0.13 A                     |
| R412022869 | I*Rs                               | 0.3 A                      |
| R412022870 | ≤ 0,1 V                            | 0.3 A                      |
| R412022871 | I*Rs                               | 0.3 A                      |
| R412022853 | ≤ 2,5 V                            | 0.13 A                     |
| R412022855 | ≤ 2,5 V                            | 0.13 A                     |
| R412022857 | ≤ 2,5 V                            | 0.13 A                     |
| R412022849 | ≤ 2,5 V                            | 0.13 A                     |
| R412022850 | ≤ 2,5 V                            | 0.13 A                     |

| Part No.   | AC switching current, max. | Switching capacity     |
|------------|----------------------------|------------------------|
| R412022866 | 0.13 A                     | Reed, 2-pin: max. 10 W |
| R412027170 | 0.13 A                     | Reed, 2-pin: max. 10 W |
| R412022869 | 0.5 A                      | Reed, 3-pin: max. 6 W  |
| R412022870 | 0.5 A                      | Reed, 3-pin: max. 6 W  |
| R412022871 | 0.5 A                      | Reed, 3-pin: max. 6 W  |

| Part No.   | AC switching current, max. | Switching capacity |
|------------|----------------------------|--------------------|
| R412022853 | -                          | -                  |
| R412022855 | -                          | -                  |
| R412022857 | -                          | -                  |
| R412022849 | -                          | -                  |
| R412022850 | -                          | -                  |

| Part No.   | Max. switching frequency | Operating current, not switched |
|------------|--------------------------|---------------------------------|
| R412022866 | 400 Hz                   | -                               |
| R412027170 | 400 Hz                   | -                               |
| R412022869 | 400 Hz                   | -                               |
| R412022870 | 400 Hz                   | -                               |
| R412022871 | 400 Hz                   | -                               |
| R412022853 | 1000 Hz                  | 8 mA                            |
| R412022855 | 1000 Hz                  | 8 mA                            |
| R412022857 | 1000 Hz                  | 8 mA                            |
| R412022849 | 1000 Hz                  | 8 mA                            |
| R412022850 | 1000 Hz                  | 8 mA                            |

| Part No.   | Operating current, switched |
|------------|-----------------------------|
| R412022866 | -                           |
| R412027170 | -                           |
| R412022869 | -                           |
| R412022870 | -                           |
| R412022871 | -                           |
| R412022853 | 30 mA                       |
| R412022855 | 30 mA                       |
| R412022857 | 30 mA                       |
| R412022849 | 30 mA                       |
| R412022850 | 30 mA                       |

| Part No.   | Version   | Fig.   |    |
|------------|---|--------|----|
| R412022866 | Protected against polarity reversal                         | Fig. 1 | 1) |
| R412027170 | Protected against polarity reversal                         | Fig. 1 | 1) |
| R412022869 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022870 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022871 | Protected against polarity reversal                         | Fig. 2 | 2) |
| R412022853 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022855 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022857 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022849 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |
| R412022850 | short circuit resistant Protected against polarity reversal | Fig. 2 | 3) |

1) open cable ends 2-pin The product of operating voltage and continuous current must not exceed the maximum switching capacity.

2) open cable ends 3-pin The product of operating voltage and continuous current must not exceed the maximum switching capacity.

3) open cable ends 3-pin

## Technical information

No cULus certification for 230 V variant.

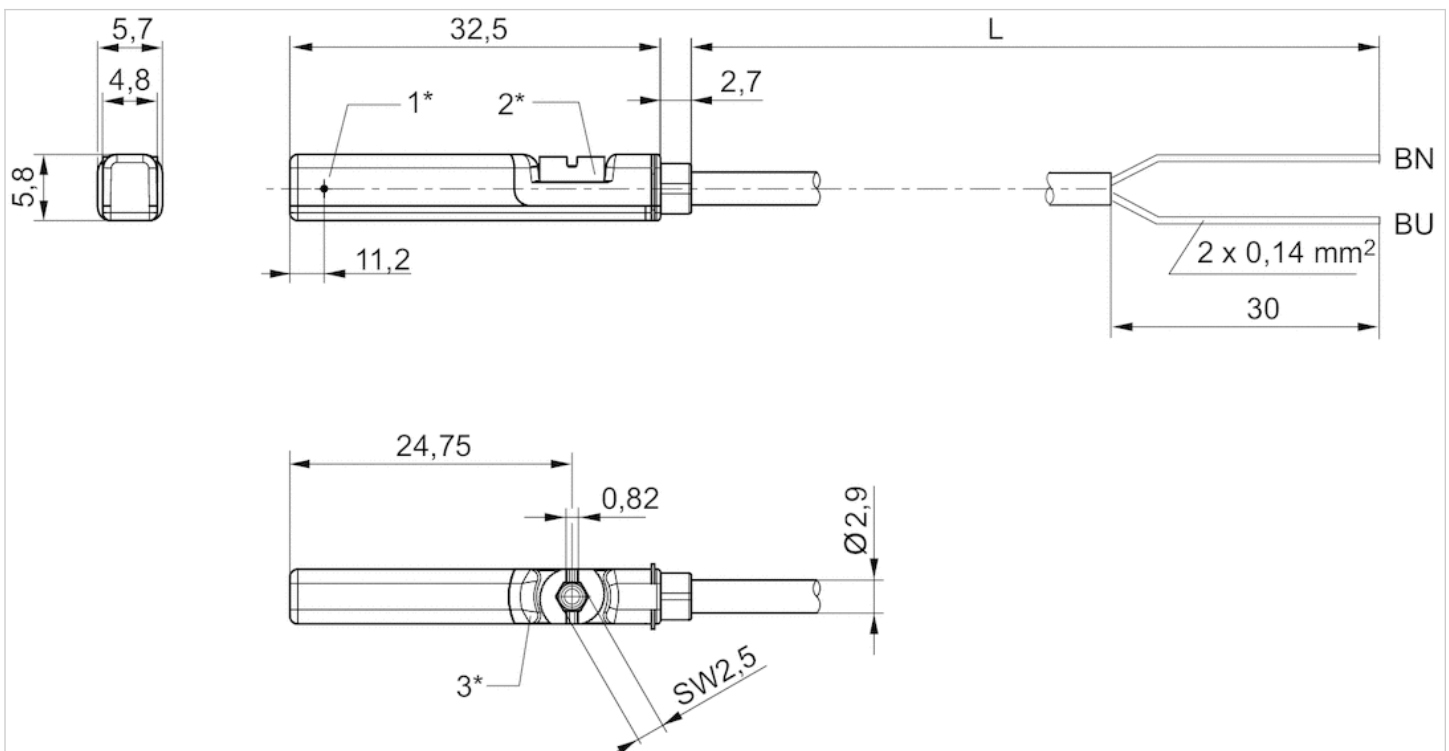
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

Fig. 1

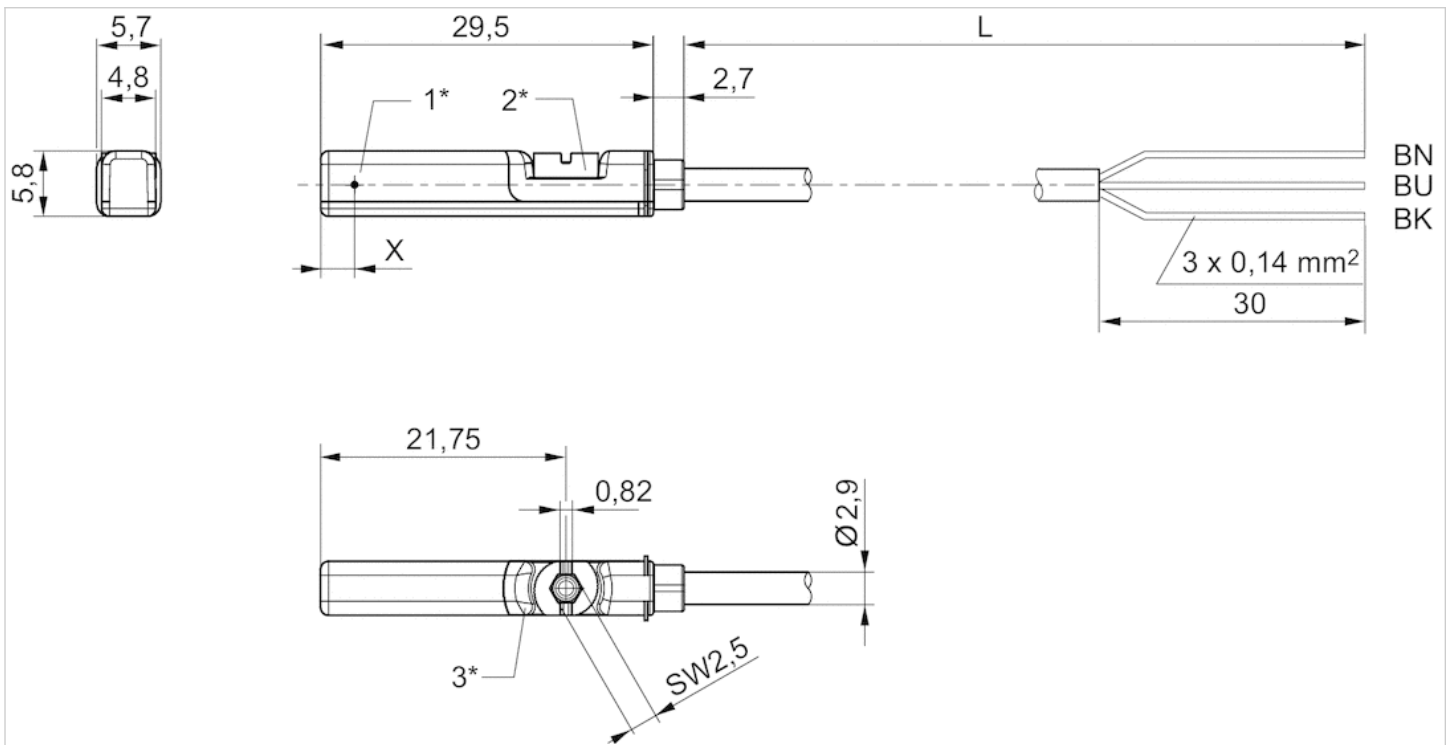


1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

BN=brown, BU=blue

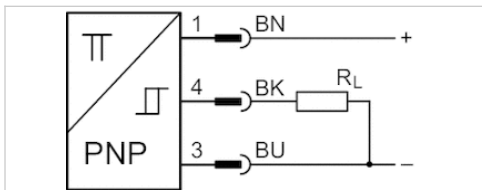
Fig. 2



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 BN = brown, BK = black, BU = blue  
 X = electronic: 11.6 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- open cable ends, 3-pin
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



### Certificates

- ATEX class G
- ATEX class D
- Ambient temperature min./max.
- Protection class
- Switching point precision
- Quiescent current (without load)
- Min./max. DC operating voltage
- Switching logic
- LED status display
- Vibration resistance
- Shock resistance
- Cable length L

- ATEX CE declaration of conformity cULus
- RoHS
- II 3G Ex nA IIC T4 Gc X
- II 3D Ex tc IIIC T135°C Dc X
- 20 ... 50 °C
- IP67
- ±0,1 mT
- 10 mA
- 10 ... 30 V DC
- NO (make contact)
- Yellow
- 10 - 55 Hz, 1 mm
- 30 g / 11 ms
- 3 5 m

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022854 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 3 m            |
| R412022856 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 5 m            |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022854 | ≤ 2,5 V                            | 0.1 A                      |
| R412022856 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022854 | 1000 Hz                  |
| R412022856 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022854 | short circuit resistant Protected against polarity reversal |

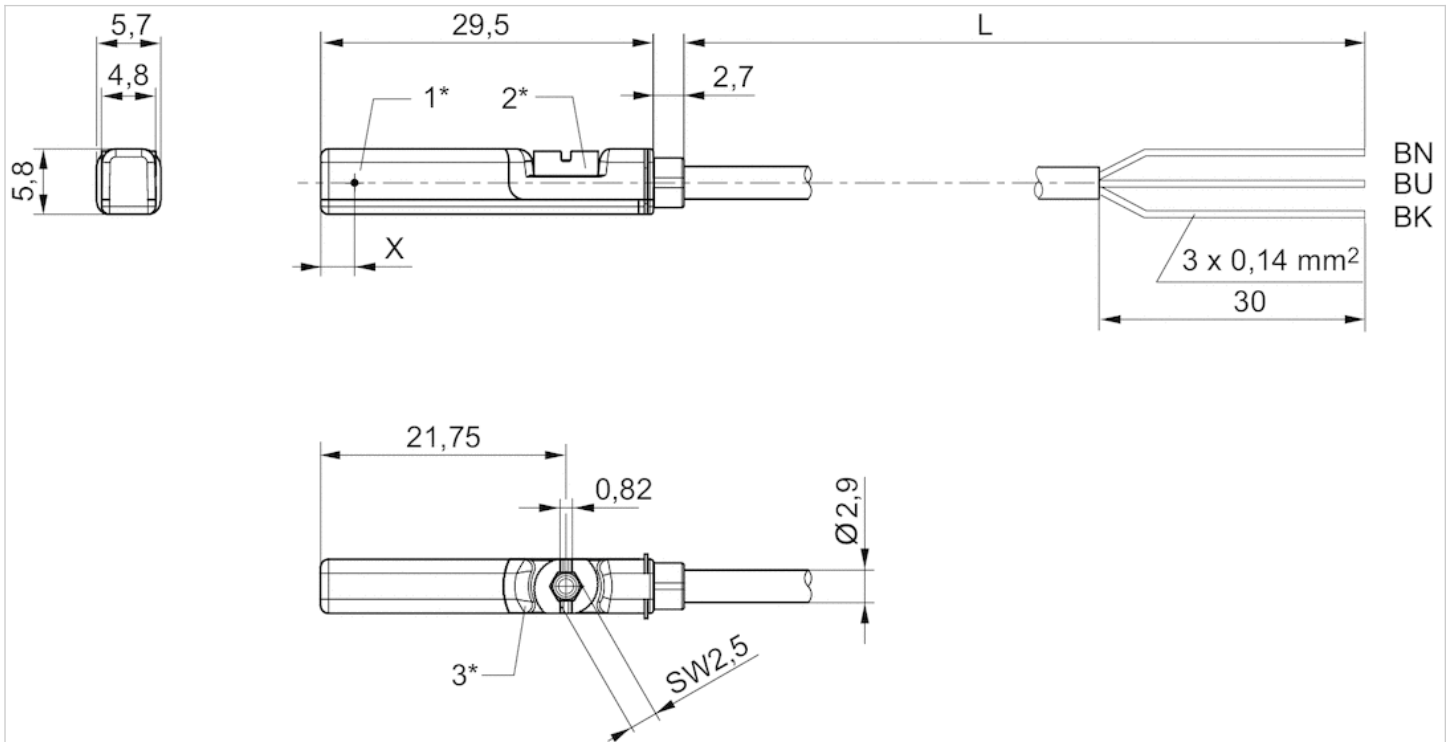
| Part No.   | Version   |
|------------|---|
| R412022856 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

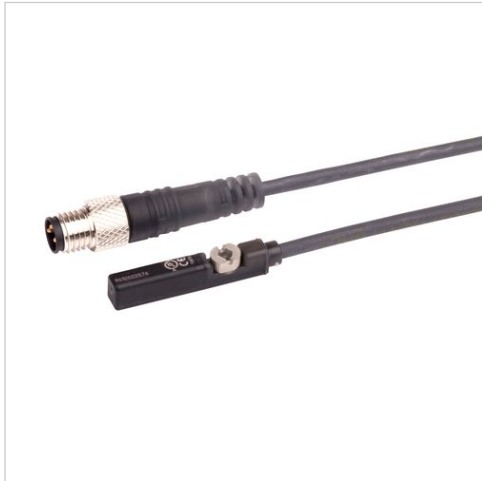
Fig. 2



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 BN = brown, BK = black, BU = blue  
 X = electronic: 11.6 mm








# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | IP65, IP67                              |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| Switching capacity               | Reed, 3-pin: max. 6 W                   |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 0.5 m                               |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022873 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022875 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022874 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022859 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022862 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022861 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022852 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable sheath       | Cable length L | Min./max. AC operating voltage |
|------------|--------------------|----------------|--------------------------------|
| R412022873 | Polyurethane       | 0.3 m          | 10 ... 30 V AC                 |
| R412022875 | Polyvinyl chloride | 0.3 m          | 10 ... 30 V AC                 |
| R412022874 | Polyurethane       | 0.5 m          | 10 ... 30 V AC                 |
| R412022859 | Polyurethane       | 0.3 m          | -                              |
| R412022862 | Polyvinyl chloride | 0.3 m          | -                              |
| R412022861 | Polyurethane       | 0.5 m          | -                              |
| R412022852 | Polyurethane       | 0.3 m          | -                              |



| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022873 | I*Rs                               | 0.3 A                      |
| R412022875 | I*Rs                               | 0.3 A                      |
| R412022874 | I*Rs                               | 0.3 A                      |
| R412022859 | ≤ 2,5 V                            | 0.13 A                     |
| R412022862 | ≤ 2,5 V                            | 0.13 A                     |
| R412022861 | ≤ 2,5 V                            | 0.13 A                     |
| R412022852 | ≤ 2,5 V                            | 0.13 A                     |

| Part No.   | AC switching current, max. | Max. switching frequency |
|------------|----------------------------|--------------------------|
| R412022873 | 0.5 A                      | 400 Hz                   |
| R412022875 | 0.5 A                      | 400 Hz                   |
| R412022874 | 0.5 A                      | 400 Hz                   |
| R412022859 | -                          | 1000 Hz                  |
| R412022862 | -                          | 1000 Hz                  |
| R412022861 | -                          | 1000 Hz                  |
| R412022852 | -                          | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched |
|------------|---------------------------------|-----------------------------|
| R412022873 | -                               | -                           |
| R412022875 | -                               | -                           |
| R412022874 | -                               | -                           |
| R412022859 | 8 mA                            | 30 mA                       |
| R412022862 | 8 mA                            | 30 mA                       |
| R412022861 | 8 mA                            | 30 mA                       |
| R412022852 | 8 mA                            | 30 mA                       |

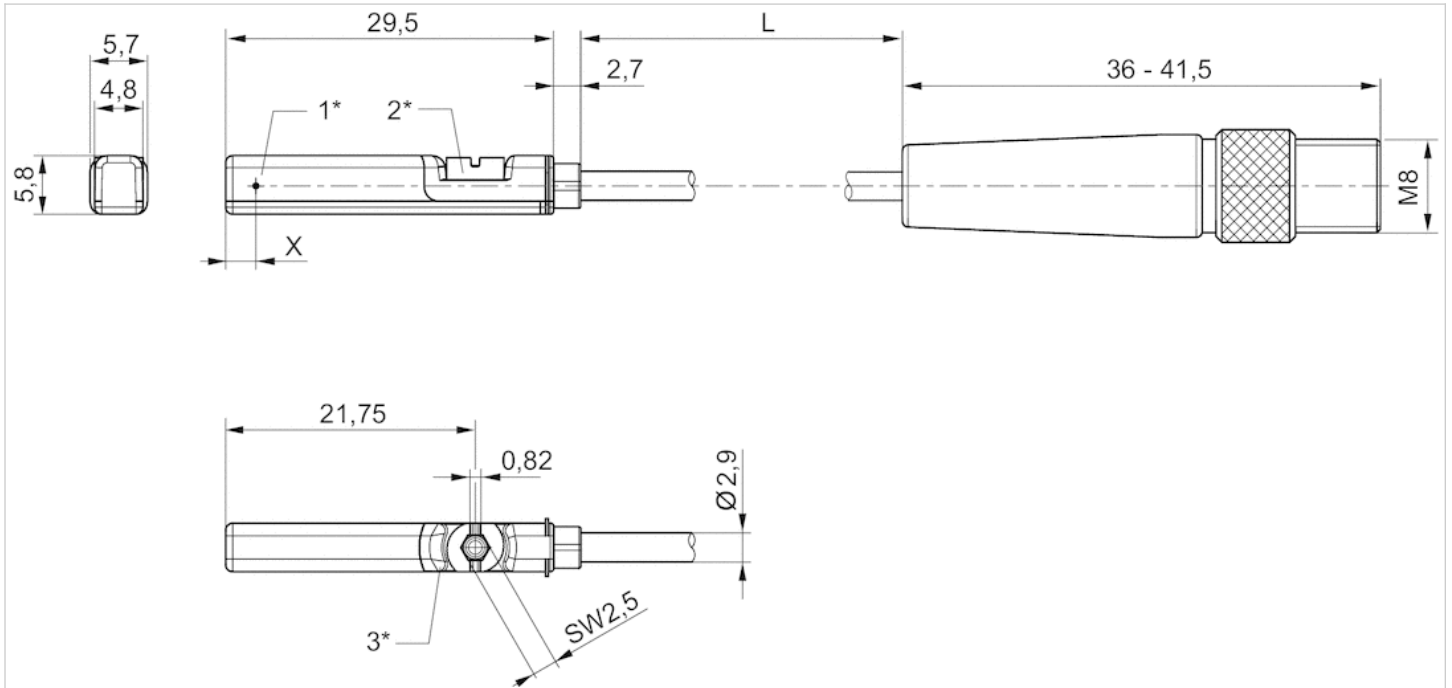
| Part No.   | Version   |
|------------|---|
| R412022873 | Protected against polarity reversal                         |
| R412022875 | Protected against polarity reversal                         |
| R412022874 | Protected against polarity reversal                         |
| R412022859 | short circuit resistant Protected against polarity reversal |
| R412022862 | short circuit resistant Protected against polarity reversal |
| R412022861 | short circuit resistant Protected against polarity reversal |
| R412022852 | short circuit resistant Protected against polarity reversal |

## Technical information

| Material      |                                 |
|---------------|---------------------------------|
| Housing       | Polyamide                       |
| Cable sheath  | Polyurethane Polyvinyl chloride |
| Locking screw | Stainless steel                 |

## Dimensions

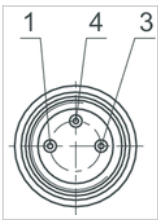
### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 X = electronic: 11,6 mm, Reed: 8,3 mm

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |






# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin Plug, M8, 2-pin
- UL certification
- Reed electronic PNP electronic NPN
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | IP65, IP67                              |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 m                                   |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412022868 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412027172 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022872 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022858 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022851 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic NPN  |

| Part No.   | Cable length L | Min./max. AC operating voltage | Voltage drop U at I <sub>max</sub> |
|------------|----------------|--------------------------------|------------------------------------|
| R412022868 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412027172 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412022872 | 0.3 m          | 10 ... 30 V AC                 | ≤ 0,1 V                            |
| R412022858 | 0.3 m          | -                              | ≤ 2,5 V                            |
| R412022851 | 0.3 m          | -                              | ≤ 2,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022868 | 0.13 A                     | 0.13 A                     |
| R412027172 | 0.13 A                     | 0.13 A                     |
| R412022872 | 0.3 A                      | 0.5 A                      |
| R412022858 | 0.13 A                     | -                          |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022851 | 0.13 A                     | -                          |

| Part No.   | Switching capacity     | Max. switching frequency |
|------------|------------------------|--------------------------|
| R412022868 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412027172 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412022872 | Reed, 3-pin: max. 6 W  | 400 Hz                   |
| R412022858 | -                      | 1000 Hz                  |
| R412022851 | -                      | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched |
|------------|---------------------------------|-----------------------------|
| R412022868 | -                               | -                           |
| R412027172 | -                               | -                           |
| R412022872 | -                               | -                           |
| R412022858 | 8 mA                            | 30 mA                       |
| R412022851 | 8 mA                            | 30 mA                       |

| Part No.   | Version   |    |
|------------|---|----|
| R412022868 | Protected against polarity reversal                         | 1) |
| R412027172 | Protected against polarity reversal                         | 1) |
| R412022872 | Protected against polarity reversal                         | 1) |
| R412022858 | short circuit resistant Protected against polarity reversal | -  |
| R412022851 | short circuit resistant Protected against polarity reversal | -  |

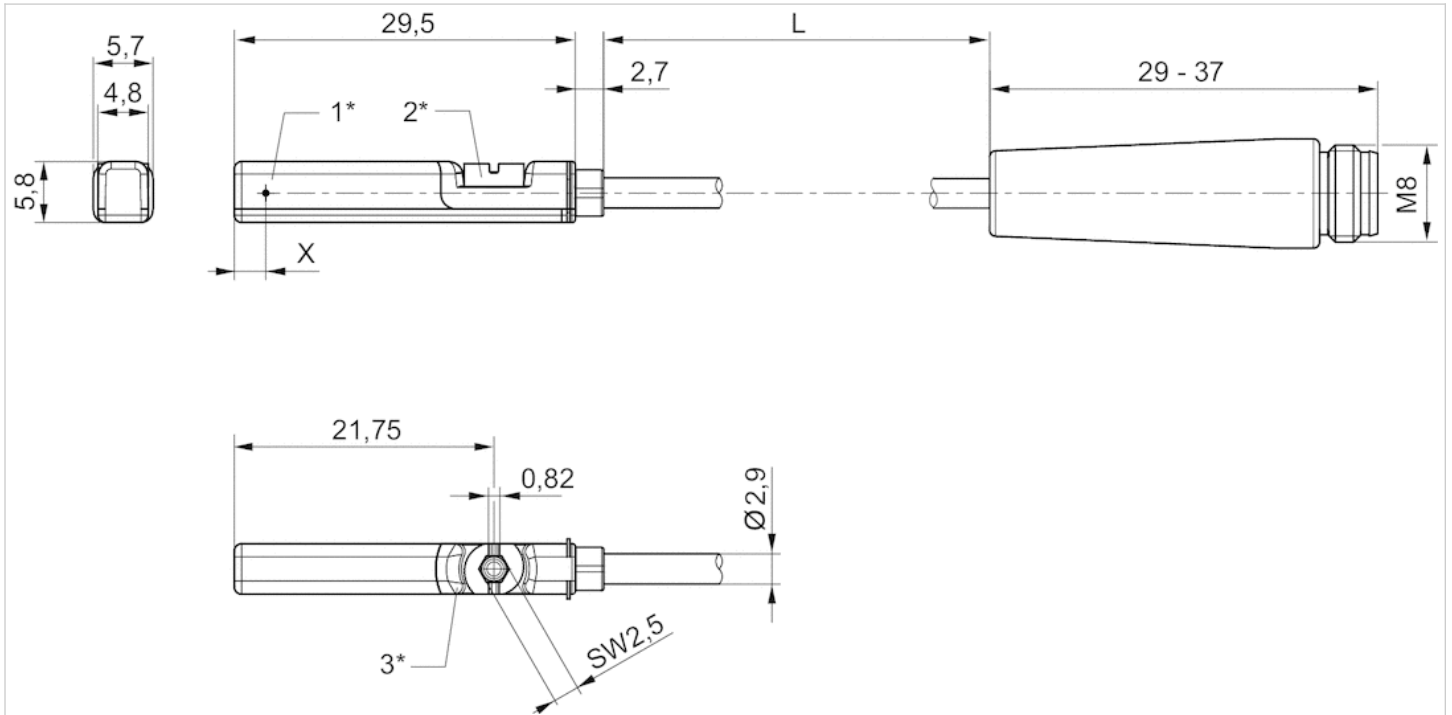
1) The product of operating voltage and continuous current must not exceed the maximum switching capacity.

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

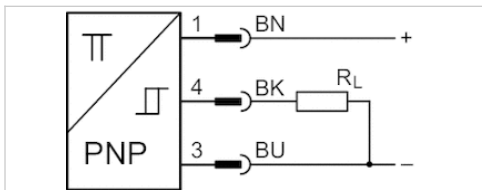
X = electronic: 11,6 mm, Reed: 8,3 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M8, 3-pin, with knurled screw
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | ATEX CE declaration of conformity cULus<br>RoHS |
| ATEX class G                     | II 3G Ex nA IIC T4 Gc X                         |
| ATEX class D                     | II 3D Ex tc IIIC T135°C Dc X                    |
| Ambient temperature min./max.    | -20 ... 50 °C                                   |
| Protection class                 | IP65, IP67                                      |
| Switching point precision        | ±0,1 mT   |
| Quiescent current (without load) | 10 mA   |
| Min./max. DC operating voltage   | 10 ... 30 V DC                                  |
| Switching logic                  | NO (make contact)                               |
| LED status display               | Yellow Yellow                                   |
| Vibration resistance             | 10 - 55 Hz, 1 mm                                |
| Shock resistance                 | 30 g / 11 ms                                    |
| Cable length L                   | 0.3 m   |



## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022860 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022860 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022860 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022860 | short circuit resistant Protected against polarity reversal |

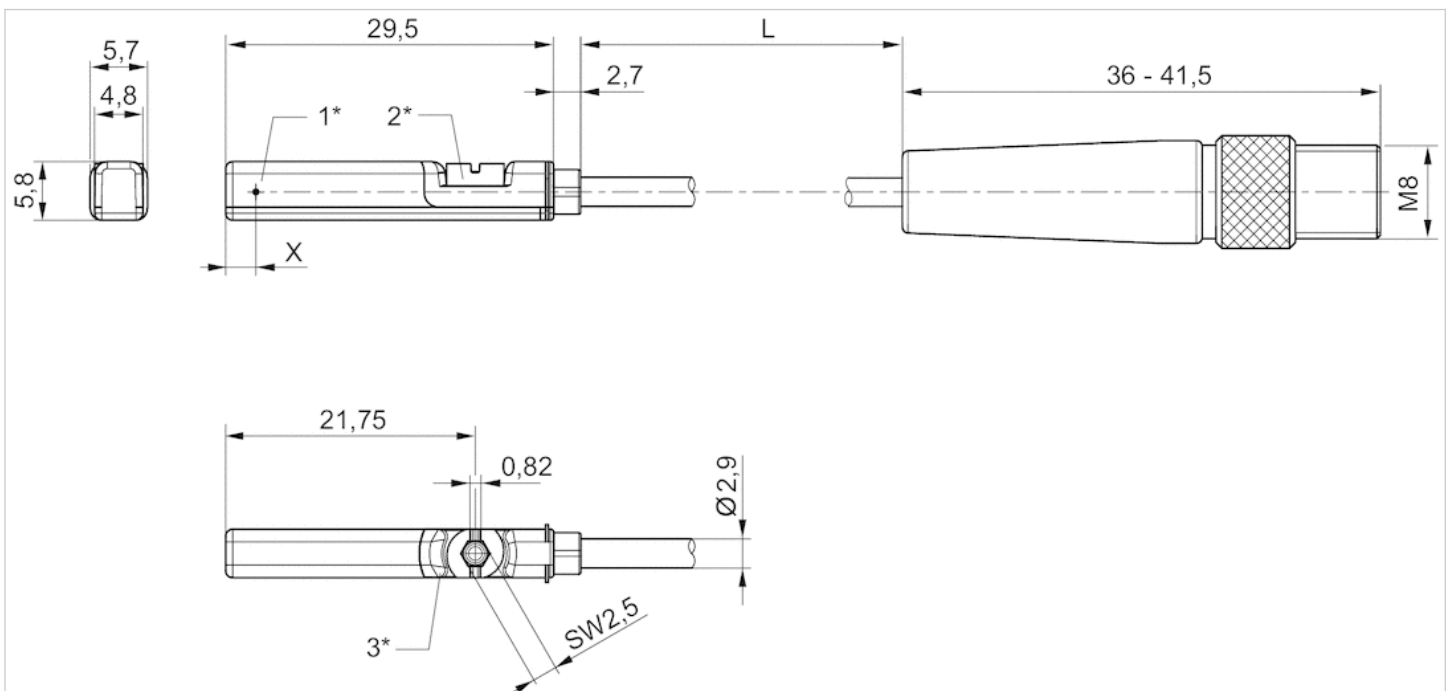
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

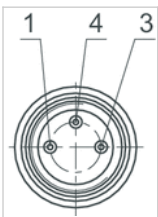
### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent  
 L = cable length  
 X = electronic: 11,6 mm, Reed: 8,3 mm

## Pin assignments

### Pin assignments



| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |







# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M12, 2-pin, with knurled screw Plug, M12, 4-pin, with knurled screw
- UL certification
- Reed electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | CE declaration of conformity cULus RoHS |
| Ambient temperature min./max.    | -30 ... 80 °C                           |
| Protection class                 | See table below                         |
| Switching point precision        | ±0,1 mT                                 |
| Nominal current, actuated state  | 30 mA                                   |
| Quiescent current (without load) | 8 mA                                    |
| Min./max. DC operating voltage   | 10 ... 30 V DC                          |
| Min./max. AC operating voltage   | See table below                         |
| Hysteresis                       | ≥ 0,2 mT                                |
| Switching logic                  | NO (make contact)                       |
| LED status display               | Yellow                                  |
| Vibration resistance             | 10 - 55 Hz, 1 mm                        |
| Shock resistance                 | 30 g / 11 ms                            |
| Cable length L                   | 0.3 0.1 3 5 m                           |

## Technical data

| Part No.   |   | for                               | Type of contact |
|------------|---|-----------------------------------|-----------------|
| R412027171 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022876 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Reed            |
| R412022879 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022863 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022877 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |
| R412022878 |  | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  |

| Part No.   | Cable length L | Min./max. AC operating voltage | Voltage drop U at I <sub>max</sub> |
|------------|----------------|--------------------------------|------------------------------------|
| R412027171 | 0.3 m          | 10 ... 30 V AC                 | ≤ 3,5 V                            |
| R412022876 | 0.3 m          | 10 ... 30 V AC                 | ≤ 0,1 V                            |
| R412022879 | 0.1 m          | -                              | ≤ 2,5 V                            |
| R412022863 | 0.3 m          | -                              | ≤ 2,5 V                            |
| R412022877 | 3 m            | -                              | ≤ 2,5 V                            |
| R412022878 | 5 m            | -                              | ≤ 2,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412027171 | 0.13 A                     | 0.13 A                     |
| R412022876 | 0.3 A                      | 0.5 A                      |



| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022879 | 0.13 A                     | -                          |
| R412022863 | 0.13 A                     | -                          |
| R412022877 | 0.13 A                     | -                          |
| R412022878 | 0.13 A                     | -                          |

| Part No.   | Switching capacity     | Max. switching frequency |
|------------|------------------------|--------------------------|
| R412027171 | Reed, 2-pin: max. 10 W | 400 Hz                   |
| R412022876 | Reed, 3-pin: max. 6 W  | 400 Hz                   |
| R412022879 | -                      | 1000 Hz                  |
| R412022863 | -                      | 1000 Hz                  |
| R412022877 | -                      | 1000 Hz                  |
| R412022878 | -                      | 1000 Hz                  |

| Part No.   | Operating current, not switched | Operating current, switched | Protection class  |
|------------|---------------------------------|-----------------------------|-------------------|
| R412027171 | -                               | -                           | IP65, IP67        |
| R412022876 | -                               | -                           | IP65, IP67        |
| R412022879 | 8 mA                            | 30 mA                       | IP65, IP67        |
| R412022863 | 8 mA                            | 30 mA                       | IP65, IP67, IP69K |
| R412022877 | 8 mA                            | 30 mA                       | IP65, IP67        |
| R412022878 | 8 mA                            | 30 mA                       | IP65, IP67        |

| Part No.   | Version   |    |
|------------|---|----|
| R412027171 | Protected against polarity reversal                         | 1) |
| R412022876 | Protected against polarity reversal                         | 1) |
| R412022879 | short circuit resistant Protected against polarity reversal | -  |
| R412022863 | short circuit resistant Protected against polarity reversal | -  |
| R412022877 | short circuit resistant Protected against polarity reversal | -  |
| R412022878 | short circuit resistant Protected against polarity reversal | -  |

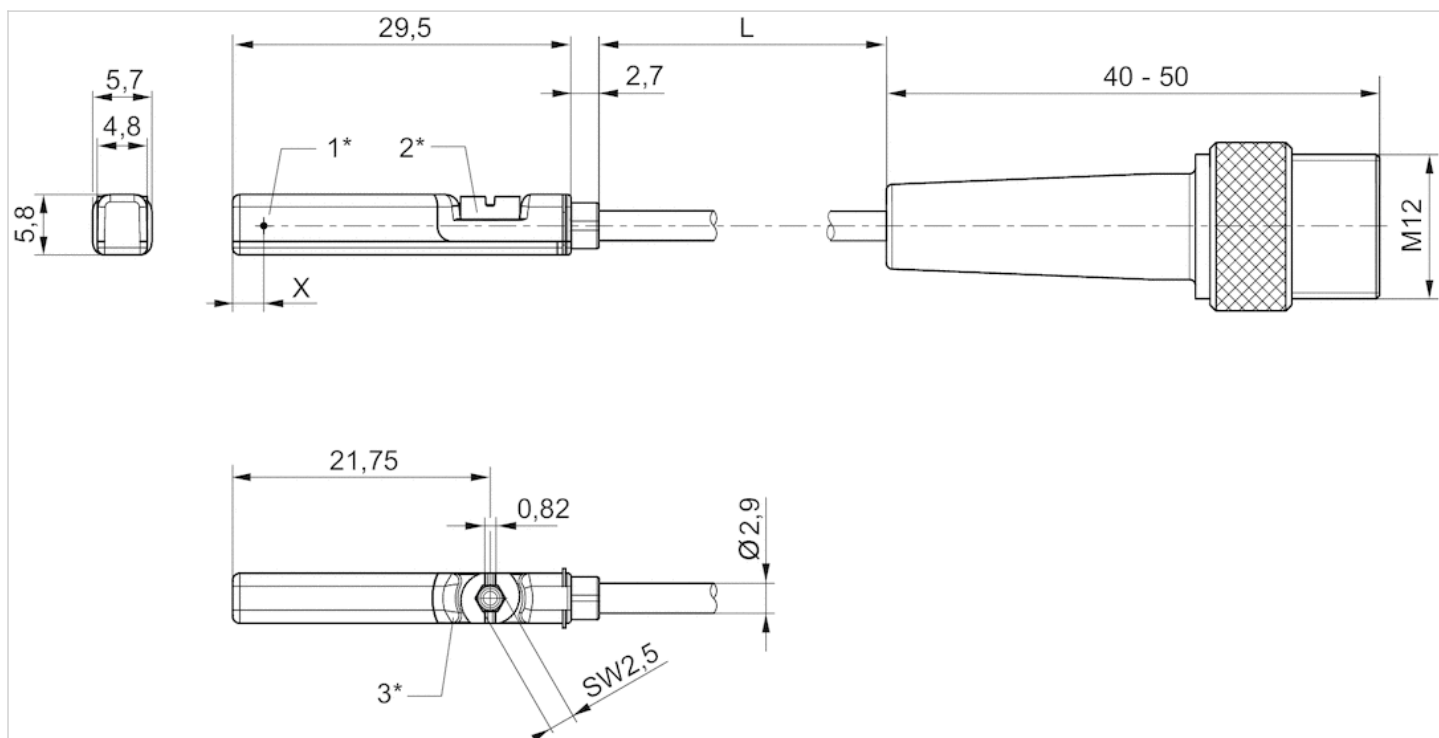
1) The product of operating voltage and continuous current must not exceed the maximum switching capacity.

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

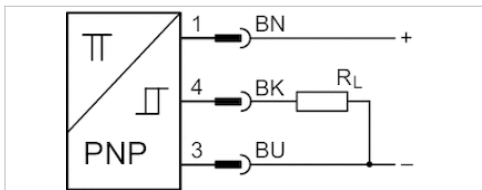
X = PNP: 11,6 mm, reed: 8,3 mm

# Sensor, Series ST6

- 6 mm T-slot
- with cable
- Plug, M12, 3-pin, with knurled screw
- ATEX
- UL certification, ATEX
- electronic PNP
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC, ICS-D2, ICM, KHZ, TRR



|                                  |   |
|----------------------------------|---|
| Certificates                     | ATEX CE declaration of conformity cULus<br>RoHS |
| ATEX class G                     | II 3G Ex nA IIC T4 Gc X                         |
| ATEX class D                     | II 3D Ex tc IIIC T135°C Dc X                    |
| Ambient temperature min./max.    | -20 ... 50 °C                                   |
| Protection class                 | IP67  |
| Switching point precision        | ±0,1 mT   |
| Quiescent current (without load) | 10 mA   |
| Min./max. DC operating voltage   | 10 ... 30 V DC                                  |
| Switching logic                  | NO (make contact)                               |
| LED status display               | Yellow Yellow                                   |
| Vibration resistance             | 10 - 55 Hz, 1 mm                                |
| Shock resistance                 | 30 g / 11 ms                                    |
| Cable length L                   | 0.3 m   |



## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412022864 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | electronic PNP  | 0.3 m          |

| Part No.   | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|------------------------------------|----------------------------|
| R412022864 | ≤ 2,5 V                            | 0.1 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| R412022864 | 1000 Hz                  |

| Part No.   | Version   |
|------------|---|
| R412022864 | short circuit resistant Protected against polarity reversal |

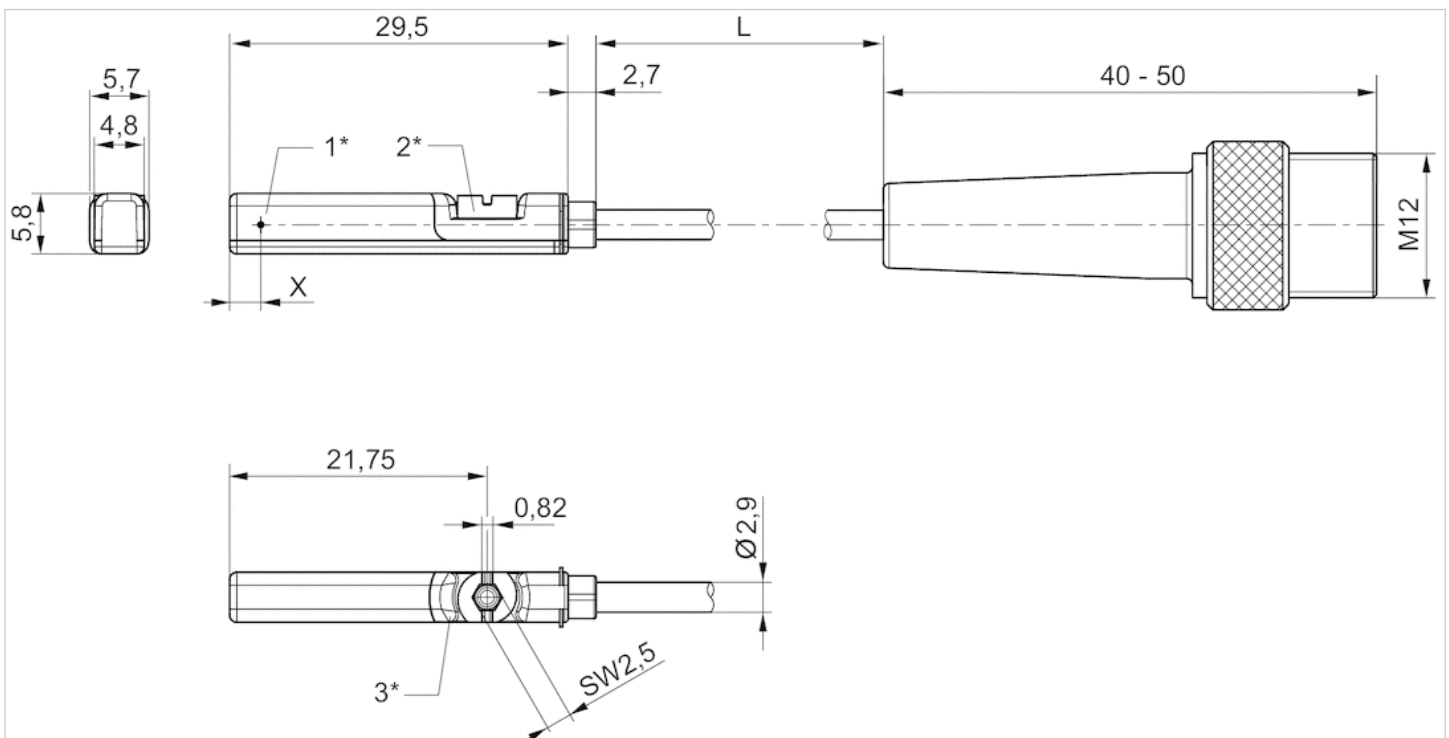
## Technical information

### Material

|               |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw 3\* = LED window, transparent

L = cable length

X = PNP: 11,6 mm, reed: 8,3 mm

## Pin assignments

### Pin assignments



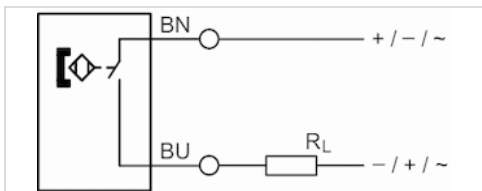
| Pin        | 1   | 3   | 4     |
|------------|-----|-----|-------|
| Allocation | (+) | (-) | (OUT) |

# Sensor, Series ST6-HT

- 6 mm T-slot
- with cable
- open cable ends, 2-pin
- Heat resistant
- UL certification
- Reed
- Direct mounting for series PRA, PRE, CCI, KPZ
- Indirect mounting for series TRB, ITS, CCL-IS, MNI, CSL-RD, RPC



| Certificates                   | CE declaration of conformity RoHS |
|--------------------------------|-----------------------------------|
| Ambient temperature min./max.  | -20 ... 120 °C                    |
| Protection class               | IP65, IP67                        |
| Switching point precision      | ±0,1 mT                           |
| Min./max. DC operating voltage | 0 ... 30 V DC                     |
| Min./max. AC operating voltage | 0 ... 30 V AC                     |
| Switching logic                | NO (make contact)                 |
| Switching capacity             | Reed, 2-pin: max. 10 W            |
| Vibration resistance           | 10 - 55 Hz, 1 mm                  |
| Shock resistance               | 30 g / 11 ms                      |
| Cable length L                 | 3 10 m                            |



## Technical data

| Part No.   | for                | Type of contact | Cable length L | Voltage drop U at I <sub>max</sub> |
|------------|--------------------|-----------------|----------------|------------------------------------|
| R412022865 | PRA, PRE, CCI, KPZ | Reed            | 3 m            | ≤ 3,5 V                            |
| R412022867 | PRA, PRE, CCI, KPZ | Reed            | 10 m           | ≤ 3,5 V                            |

| Part No.   | DC switching current, max. | AC switching current, max. |
|------------|----------------------------|----------------------------|
| R412022865 | 0.13 A                     | 0.13 A                     |
| R412022867 | 0.13 A                     | 0.13 A                     |

| Part No.   | Max. switching frequency | Version                             |
|------------|--------------------------|-------------------------------------|
| R412022865 | 400 Hz                   | Protected against polarity reversal |
| R412022867 | 400 Hz                   | Protected against polarity reversal |

| Part No.   | Temperature resistance |
|------------|------------------------|
| R412022865 | Heat resistant         |

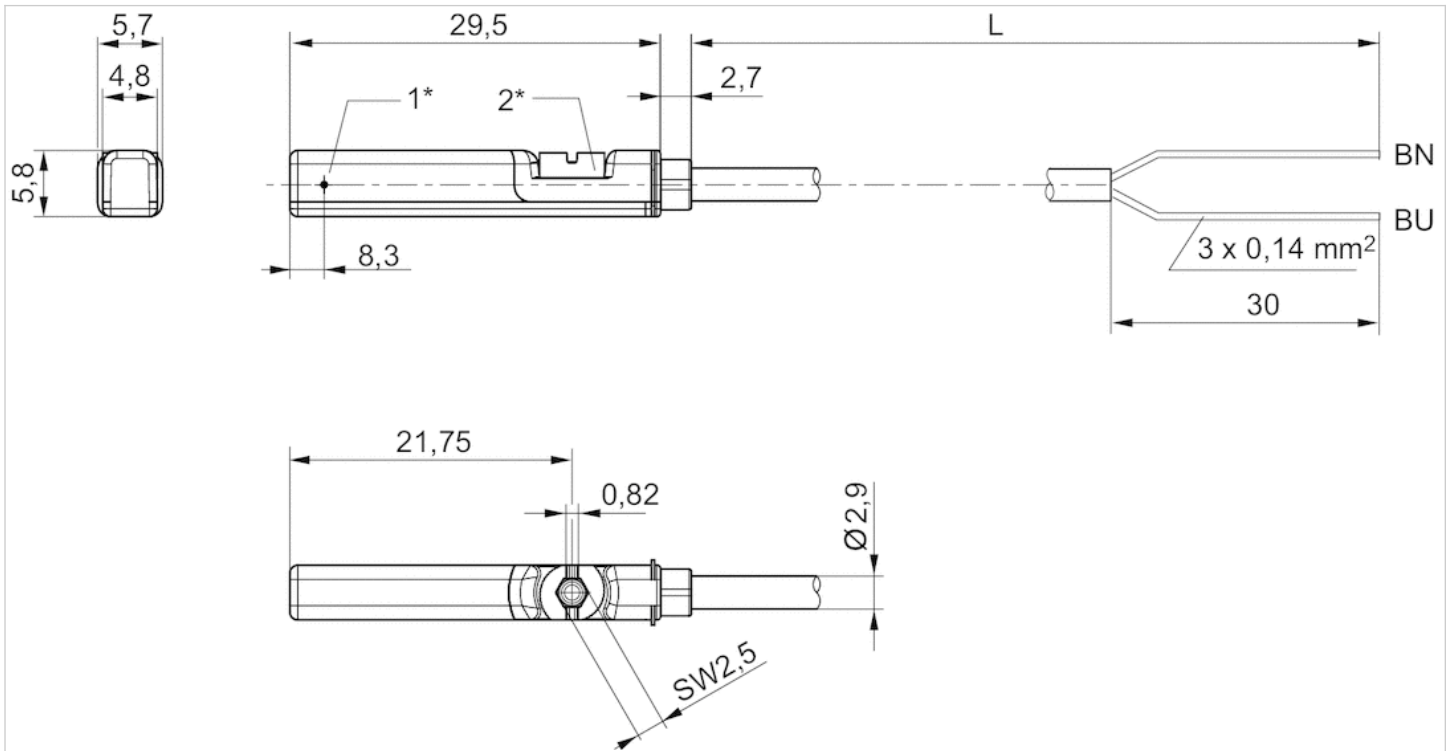
| Part No.   | Temperature resistance |
|------------|------------------------|
| R412022867 | Heat resistant         |

## Technical information

| Material      |                 |
|---------------|-----------------|
| Housing       | Polyamide       |
| Cable sheath  | Polyurethane    |
| Locking screw | Stainless steel |

## Dimensions

### Dimensions



1\* = switching point 2\* = locking screw

L = cable length

BN=brown, BU=blue

# Sensor, Series IN1

- for locking unit, series LU6



|                               |                     |
|-------------------------------|---------------------|
| Standardization               | DIN EN 60947-5-2    |
| Certificates                  | cULus               |
| Ambient temperature min./max. | -20 ... 65 °C       |
| Protection class              | IP67                |
| Hysteresis                    | 5 - 15%, adjustable |
| Temperature drift             | ± 10 %              |
| Residual ripple               | ≤ 10 %              |
| Reproducibility               | ≤ 2 %               |
| Switching logic               | NO (make contact)   |
| LED status display            | Yellow              |

## Technical data

| Part No.   | Operational voltage | Switching distance max. | Power consumption | Continuous current |
|------------|---------------------|-------------------------|-------------------|--------------------|
| R412010426 | 10 ... 30 V DC      | 2 mm                    | 10 mA             | 0.2 A              |

| Part No.   | Short circuit resistance                                    |
|------------|---|
| R412010426 | short circuit resistant Protected against polarity reversal |

## Technical information

Flush installation

Switching states:

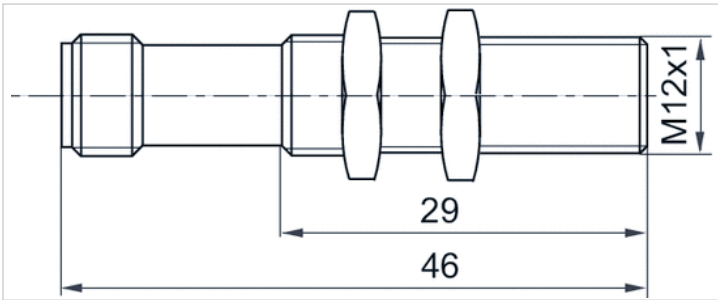
1. Pressure applied to locking unit, clamping pliers are open, sensor does not emit a signal (normally open)
2. No pressure applied to locking unit, clamping pliers are closed, sensor emits a signal (feedback that LU6 is clamping)

## Technical information

| Material |       |
|----------|-------|
| Housing  | Brass |

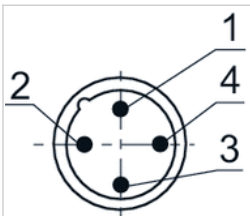
## Dimensions

### Dimensions



## Pin assignments

### Pin assignments, M12x1

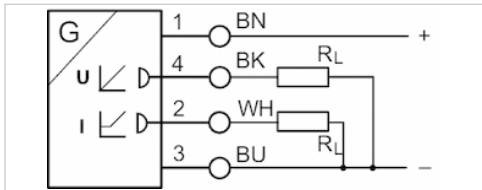


| Pin        | 1                               | 2            | 3        |
|------------|---------------------------------|--------------|----------|
| Allocation | Pin 1: operational voltage + UB | not assigned | m = mass |
|            | 4                               |              |          |
|            | switch output Out               |              |          |



# Sensors, Series SM6

- 6 mm groove
- with cable
- without wire end ferrule, tin-plated, 4-pin
- with distance measuring sensor, measurement range 32 ... 256 mm
- Analog
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, 167, MNI, ICM, TRR



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP67                   |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 25 mA                  |
| Maximum load (analog current output)      | 500 Ω                  |
| Residual ripple                           | ≤ 10 %                 |
| sampling interval                         | 1 ms                   |
| Resolution max. measuring range           | 0,05 mm                |
| Repetitive precision max. measuring range | 0.1 mm                 |
| Linearity deviation                       | 0,3 mm                 |
| Sampling speed                            | 3 m/s                  |
| Display                                   | LED                    |
| LED status display                        | Yellow                 |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 2 m                    |

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412010141 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010143 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010262 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010264 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010411 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010413 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010415 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |
| R412010417 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 2 m            |

| Part No.   | max. measuring range | Overall length Sensor A |
|------------|----------------------|-------------------------|
| R412010141 | 32 mm                | 45 mm                   |
| R412010143 | 64 mm                | 77 mm                   |
| R412010262 | 96 mm                | 109 mm                  |
| R412010264 | 128 mm               | 141 mm                  |
| R412010411 | 160 mm               | 173 mm                  |
| R412010413 | 192 mm               | 205 mm                  |

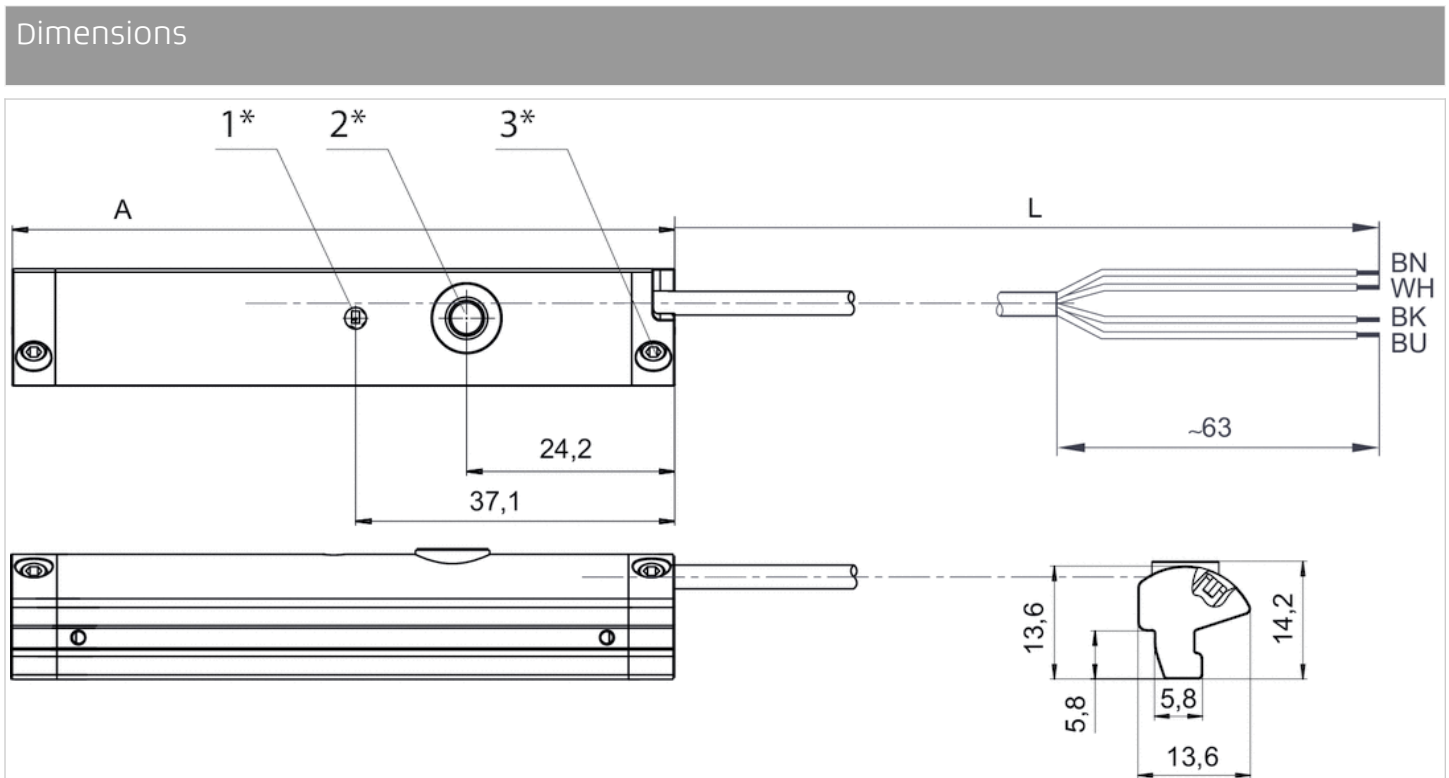
| Part No.   | max. measuring range | Overall length<br>Sensor<br>A |
|------------|----------------------|-------------------------------|
| R412010415 | 224 mm               | 237 mm                        |
| R412010417 | 256 mm               | 269 mm                        |

| Part No.   | Version   |
|------------|---|
| R412010141 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010143 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010262 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010264 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010411 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010413 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010415 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010417 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

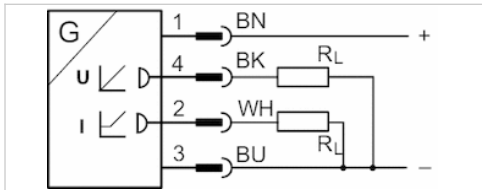


- 1\* = LED 2\* = teach button 3\* = threaded pin M3x11
- L = cable length
- (1) BN=brown
- (2) WH=white
- (3) BU=blue

(4) BK=black  
A = sensor length

# Sensors, Series SM6

- 6 mm groove
- with cable
- Plug, M8x1, 4-pin, with knurled screw
- with distance measuring sensor, measurement range 32 ... 256 mm
- Analog
- Direct mounting for series PRA, PRE, CCI, KPZ, SSI, GPC, CVI
- Indirect mounting for series TRB, ITS, 167, MNI, ICM, TRR



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP67                   |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 25 mA                  |
| Min./max. DC operating voltage            | 15 ... 30 V DC         |
| sampling interval                         | 1 ms                   |
| Resolution max. measuring range           | 0,05 mm                |
| Repetitive precision max. measuring range | 0.1 mm                 |
| Linearity deviation                       | 0,3 mm                 |
| Sampling speed                            | 3 m/s                  |
| Display                                   | LED                    |
| LED status display                        | Yellow                 |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 0.3 m                  |

## Technical data

| Part No.   | for                               | Type of contact | Cable length L |
|------------|-----------------------------------|-----------------|----------------|
| R412010142 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010144 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010263 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010265 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010410 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010412 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010414 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |
| R412010416 | PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog          | 0.3 m          |

| Part No.   | max. measuring range | Overall length Sensor A |
|------------|----------------------|-------------------------|
| R412010142 | 32 mm                | 45 mm                   |
| R412010144 | 64 mm                | 77 mm                   |
| R412010263 | 96 mm                | 109 mm                  |
| R412010265 | 128 mm               | 141 mm                  |
| R412010410 | 160 mm               | 173 mm                  |
| R412010412 | 192 mm               | 205 mm                  |

| Part No.   | max. measuring range | Overall length<br>Sensor<br>A |
|------------|----------------------|-------------------------------|
| R412010414 | 224 mm               | 237 mm                        |
| R412010416 | 256 mm               | 269 mm                        |

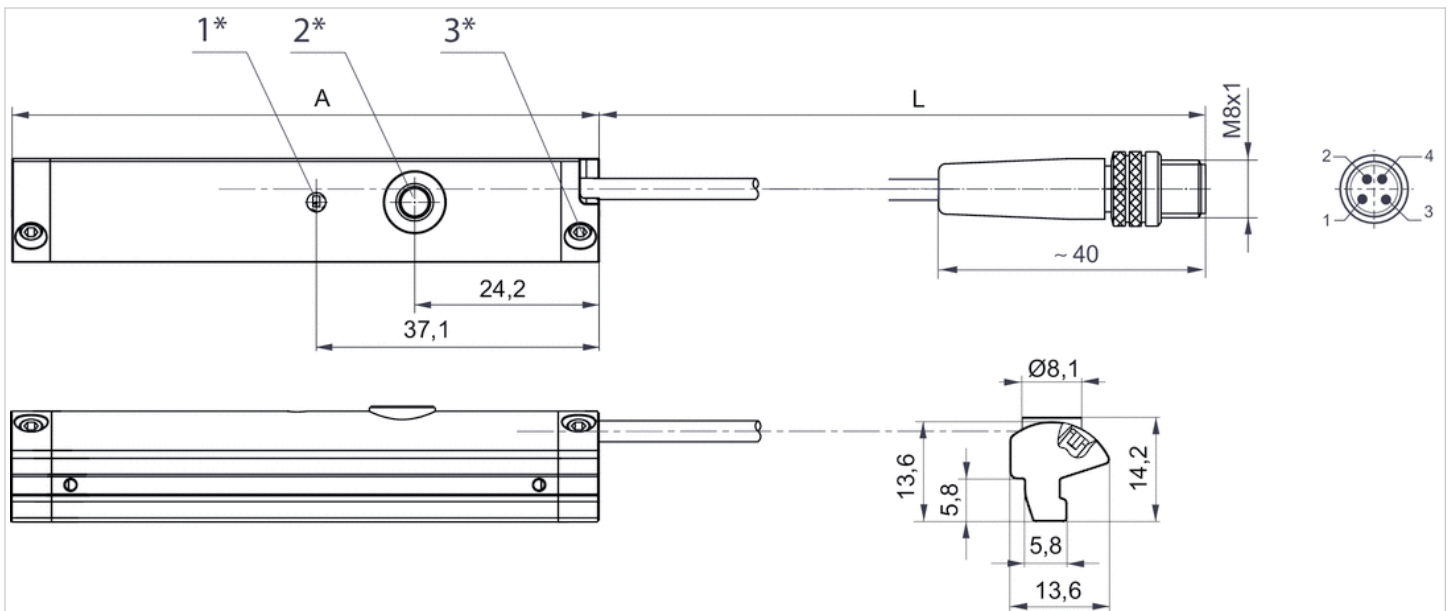
| Part No.   | Version   |
|------------|---|
| R412010142 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010144 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010263 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010265 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010410 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010412 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010414 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010416 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

| Material     |                                  |
|--------------|----------------------------------|
| Housing      | Polyamide fiber-glass reinforced |
| Cable sheath | Polyurethane                     |

## Dimensions

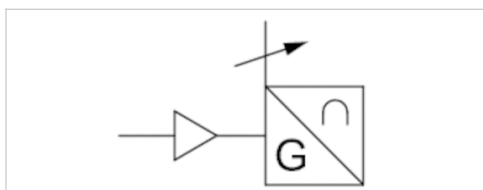
### Dimensions



1\* = LED 2\* = teach button 3\* = threaded pin M3x11  
 L = cable length  
 Pin assignment: 1 = (+), 2 = (OUT 1) 3 = (GND), 4 = (OUT 2), EN 60947-5-7  
 A = sensor length

## Sensors, Series SM6-AL

- with cable
- Plug, M8x1, 4-pin
- with distance measuring sensor, measurement range 107 - 1007 mm
- IO-Link
- Analog
- Indirect mounting for series PRA, ITS, RTC, CVI



|   |                        |
|---|------------------------|
| Certificates                              | cULus                  |
| Ambient temperature min./max.             | -20 ... 70 °C          |
| Protection class                          | IP65, IP67             |
| Output signal                             | 0 - 10 V DC, 4 - 20 mA |
| Quiescent current (without load)          | 35 mA                  |
| Current signal                            | 4 ... 20 mA            |
| Maximum load (analog current output)      | 500 Ω                  |
| Residual ripple                           | ≤ 10 %                 |
| sampling interval                         | 1,15 ms                |
| Resolution max. measuring range           | typ. 0,03 % FSR        |
| Repetitive precision max. measuring range | typ. 0,06 % FSR        |
| Linearity deviation                       | 0,5 mm                 |
| Sampling speed Partial stroke             | 1,5 m/s                |
| Sampling speed Full stroke                | 3 m/s                  |
| Display                                   | 2 LED                  |
| Vibration resistance                      | 10 - 55 Hz, 1 mm       |
| Shock resistance                          | 30 g / 11 ms           |
| Cable length L                            | 0.3 m                  |

### Technical data

| Part No.   | Type of contact | Cable length L | max. measuring range | Overall length Sensor A |
|------------|-----------------|----------------|----------------------|-------------------------|
| R412010880 | Analog          | 0.3 m          | 107 mm               | 109 mm                  |
| R412010881 | Analog          | 0.3 m          | 143 mm               | 145 mm                  |
| R412010882 | Analog          | 0.3 m          | 179 mm               | 181 mm                  |
| R412010883 | Analog          | 0.3 m          | 215 mm               | 217 mm                  |
| R412010884 | Analog          | 0.3 m          | 251 mm               | 253 mm                  |
| R412010885 | Analog          | 0.3 m          | 287 mm               | 289 mm                  |
| R412010886 | Analog          | 0.3 m          | 323 mm               | 325 mm                  |
| R412010887 | Analog          | 0.3 m          | 359 mm               | 361 mm                  |
| R412010888 | Analog          | 0.3 m          | 395 mm               | 397 mm                  |
| R412010889 | Analog          | 0.3 m          | 431 mm               | 433 mm                  |
| R412010890 | Analog          | 0.3 m          | 467 mm               | 469 mm                  |
| R412010891 | Analog          | 0.3 m          | 503 mm               | 505 mm                  |
| R412010892 | Analog          | 0.3 m          | 539 mm               | 541 mm                  |
| R412010893 | Analog          | 0.3 m          | 575 mm               | 577 mm                  |
| R412010894 | Analog          | 0.3 m          | 611 mm               | 613 mm                  |
| R412010895 | Analog          | 0.3 m          | 647 mm               | 649 mm                  |
| R412010896 | Analog          | 0.3 m          | 683 mm               | 685 mm                  |

| Part No.   | Type of contact | Cable length<br>L | max. measuring range | Overall length<br>Sensor<br>A |
|------------|-----------------|-------------------|----------------------|-------------------------------|
| R412010897 | Analog          | 0.3 m             | 719 mm               | 721 mm                        |
| R412010898 | Analog          | 0.3 m             | 755 mm               | 757 mm                        |
| R412010899 | Analog          | 0.3 m             | 791 mm               | 793 mm                        |
| R412010900 | Analog          | 0.3 m             | 827 mm               | 829 mm                        |
| R412010901 | Analog          | 0.3 m             | 863 mm               | 865 mm                        |
| R412010902 | Analog          | 0.3 m             | 899 mm               | 901 mm                        |
| R412010903 | Analog          | 0.3 m             | 935 mm               | 937 mm                        |
| R412010904 | Analog          | 0.3 m             | 971 mm               | 973 mm                        |
| R412010905 | Analog          | 0.3 m             | 1007 mm              | 1009 mm                       |

| Part No.   | Incl. number of sensor clamp pairs | Current signal |
|------------|------------------------------------|----------------|
| R412010880 | 2 piece                            | 4 ... 20 mA    |
| R412010881 | 2 piece                            | 4 ... 20 mA    |
| R412010882 | 2 piece                            | 4 ... 20 mA    |
| R412010883 | 2 piece                            | 4 ... 20 mA    |
| R412010884 | 2 piece                            | 4 ... 20 mA    |
| R412010885 | 3 piece                            | 4 ... 20 mA    |
| R412010886 | 3 piece                            | 4 ... 20 mA    |
| R412010887 | 3 piece                            | 4 ... 20 mA    |
| R412010888 | 3 piece                            | 4 ... 20 mA    |
| R412010889 | 3 piece                            | 4 ... 20 mA    |
| R412010890 | 4 piece                            | 4 ... 20 mA    |
| R412010891 | 4 piece                            | 4 ... 20 mA    |
| R412010892 | 4 piece                            | 4 ... 20 mA    |
| R412010893 | 4 piece                            | 4 ... 20 mA    |
| R412010894 | 4 piece                            | 4 ... 20 mA    |
| R412010895 | 4 piece                            | 4 ... 20 mA    |
| R412010896 | 5 piece                            | 4 ... 20 mA    |
| R412010897 | 5 piece                            | 4 ... 20 mA    |
| R412010898 | 5 piece                            | 4 ... 20 mA    |
| R412010899 | 5 piece                            | 4 ... 20 mA    |
| R412010900 | 6 piece                            | 4 ... 20 mA    |
| R412010901 | 6 piece                            | 4 ... 20 mA    |
| R412010902 | 6 piece                            | 4 ... 20 mA    |
| R412010903 | 6 piece                            | 4 ... 20 mA    |
| R412010904 | 6 piece                            | 4 ... 20 mA    |
| R412010905 | 6 piece                            | 4 ... 20 mA    |

| Part No.   | Version   |
|------------|---|
| R412010880 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010881 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010882 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010883 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010884 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010885 | short circuit resistant Protected against polarity reversal Overload protection |

| Part No.   | Version   |
|------------|---|
| R412010886 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010887 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010888 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010889 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010890 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010891 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010892 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010893 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010894 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010895 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010896 | short circuit resistant Protected against polarity reversal Overload protection |
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| R412010899 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010900 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010901 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010902 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010903 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010904 | short circuit resistant Protected against polarity reversal Overload protection |
| R412010905 | short circuit resistant Protected against polarity reversal Overload protection |

## Technical information

Holders for cylinder series PRA are included in the scope of delivery. For cylinder series ITS, please order the appropriate holders separately.

FSR: Full Scale Range, max. measurement range

The IO-Link device description (IODD) for the SM6-AL distance measuring sensor is available for download in the Media Centre.

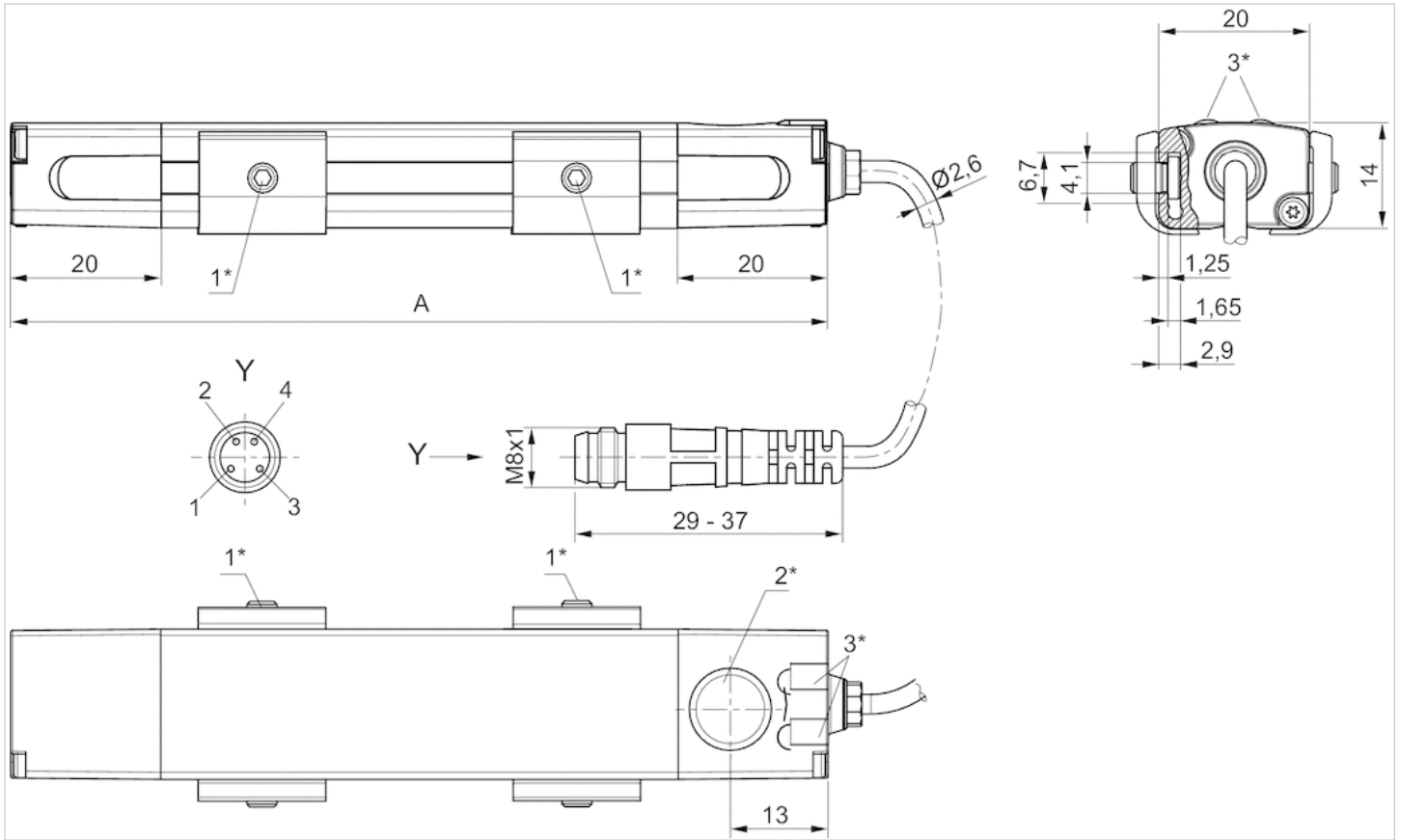
## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Aluminum     |
| Cable sheath | Polyurethane |
| End caps     | Polyamide    |



# Dimensions

## Dimensions



1\* = threaded pin M3x11 2\* = teach area 3\* = LED

A = sensor length

Pin assignment: 1 = (+), 2 = (OUT 1) 3 = (GND), 4 = (OUT 2/IO-Link), EN 60947-5-7

LED 1: yellow = measuring operation, red = error

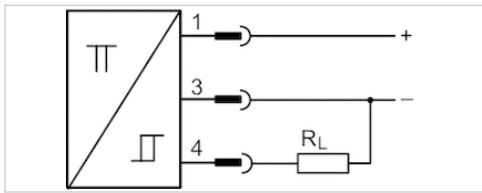
LED 2: green = voltage signal, blue = current signal

# Sensor, Series SN3

- welding-proof
- Plug, M12, 3-pin
- welding-proof
- electronic PNP
- Indirect mounting for series PRA, PRE, CCI, KPZ, KHZ, FLT, GPC, CVI



|                                  |               |
|----------------------------------|---------------|
| Ambient temperature min./max.    | -25 ... 70 °C |
| Protection class                 | IP67, IP65    |
| Switching point precision        | ±0,1 mT       |
| Nominal current, actuated state  | ≤ 10 mA       |
| Quiescent current (without load) | ≤ 5 mA        |
| Min./max. DC operating voltage   | 10 V DC       |
| LED status display               | Yellow        |
| Vibration resistance             | 55 Hz, 1 mm   |
| Shock resistance                 | 30 g / 11 ms  |



## Technical data

| Part No.   | Type of contact | Voltage drop U at I <sub>max</sub> | DC switching current, max. |
|------------|-----------------|------------------------------------|----------------------------|
| 0830100438 | electronic PNP  | ≤ 1,8 V                            | 0.2 A                      |

| Part No.   | Max. switching frequency |
|------------|--------------------------|
| 0830100438 | 20 Hz                    |

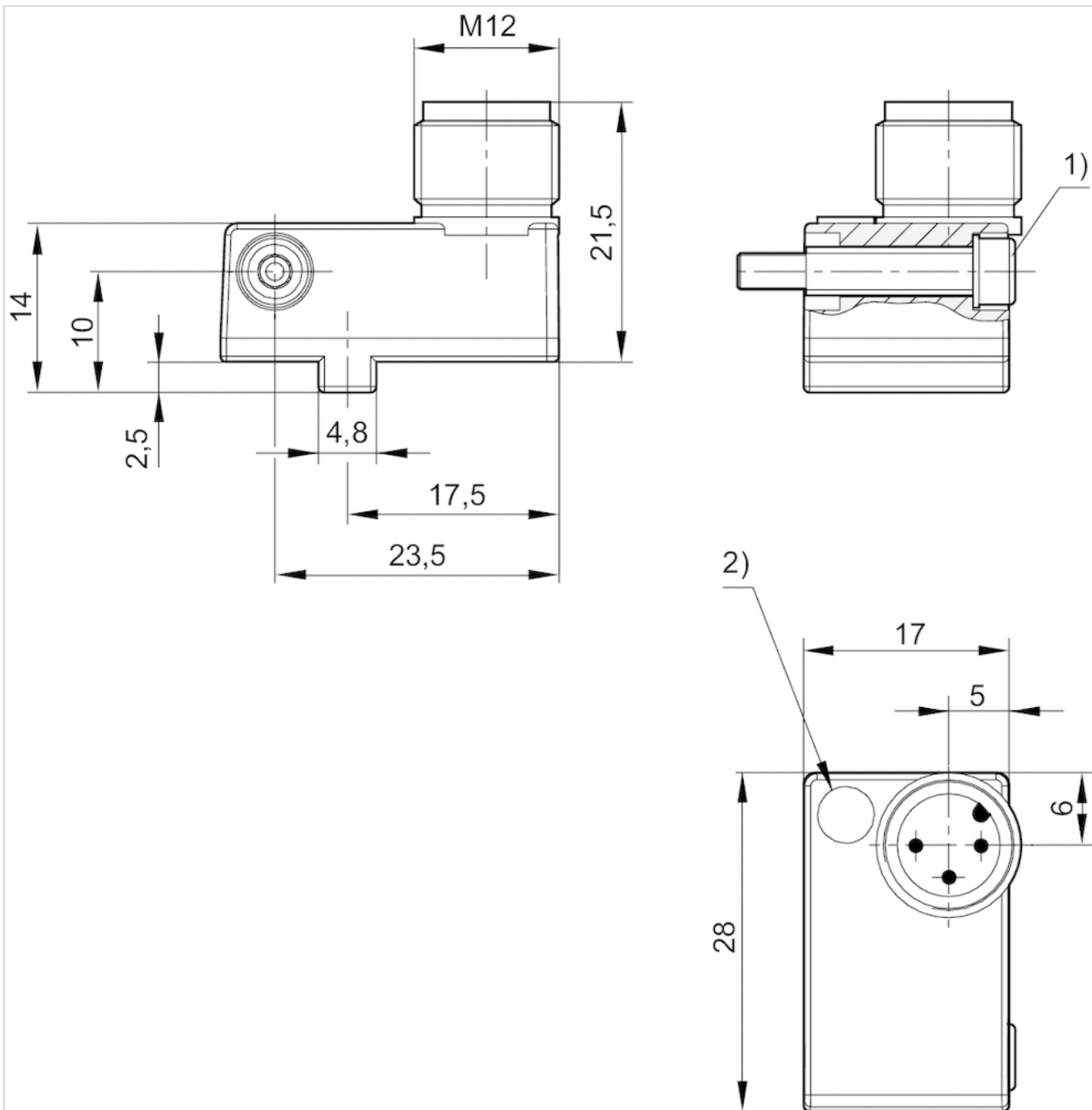
| Part No.   | Version   | welding-proof |
|------------|---|---------------|
| 0830100438 | short circuit resistant Protected against polarity reversal | welding-proof |

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

## Dimensions

### Dimensions



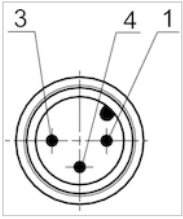
1) Clamping screw

2) LED

Pin assignments: 1 = (+), 3 = (-), 4 = (OUT), EN 60947-5-2:1998

## Pin assignments

### Pin assignments



| Pin               | 1   | 3   | 4     |
|-------------------|-----|-----|-------|
| Allocation        | (+) | (-) | (OUT) |
| EN 60947-5-2:1998 |     |     |       |

# Series CAT

- Measuring instrument for adjusting the pneumatic cushioning
- for MNI, CSL-RD, CCL-IS, ICS, RPC, PRA/TRB, ITS



|                               |                              |
|-------------------------------|------------------------------|
| Certificates                  | CE declaration of conformity |
| Ambient temperature min./max. | 0 ... 40 °C                  |
| Measurement range Min.        | 0.2 m/s                      |
| Measurement range Max.        | 2 m/s                        |
| LED status display            | Green Yellow Red             |
| Protection class              | IP50                         |
| Weight                        | 0.12 kg                      |

## Technical data

| Part No.   | for series                                  |
|------------|---|
| R412026160 | MNI, CSL-RD, CCL-IS, ICS, RPC, PRA/TRB, ITS |

Scope of delivery: 1 measuring instrument, 2 fastening strips, 1 power pack 3.7 V, 1 USB charging cable, Operating instructions, QR code notice, 1 case with foam inlay

## Technical information

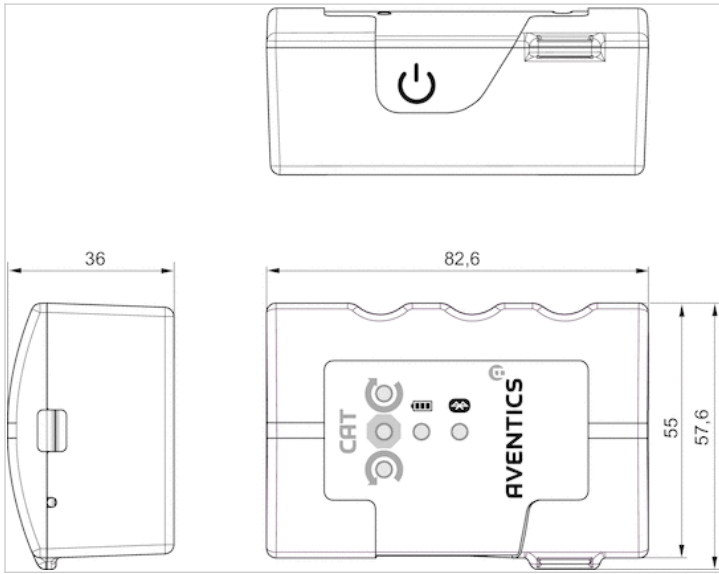
The CAT measuring instrument uses Bluetooth radio technology for wireless connection with the "Aventics" app, which is available free of charge in the Android/Play Store and/or the IOS/App Store.

## Technical information

| Material |         |
|----------|---------|
| Housing  | Luran S |

## Dimensions

### Dimensions



# Sensor mounting, Series CB1

- for series SN3

- to mount on cylinder PRA, KPZ, GPC, CCI, KHZ



Weight

0.007 kg

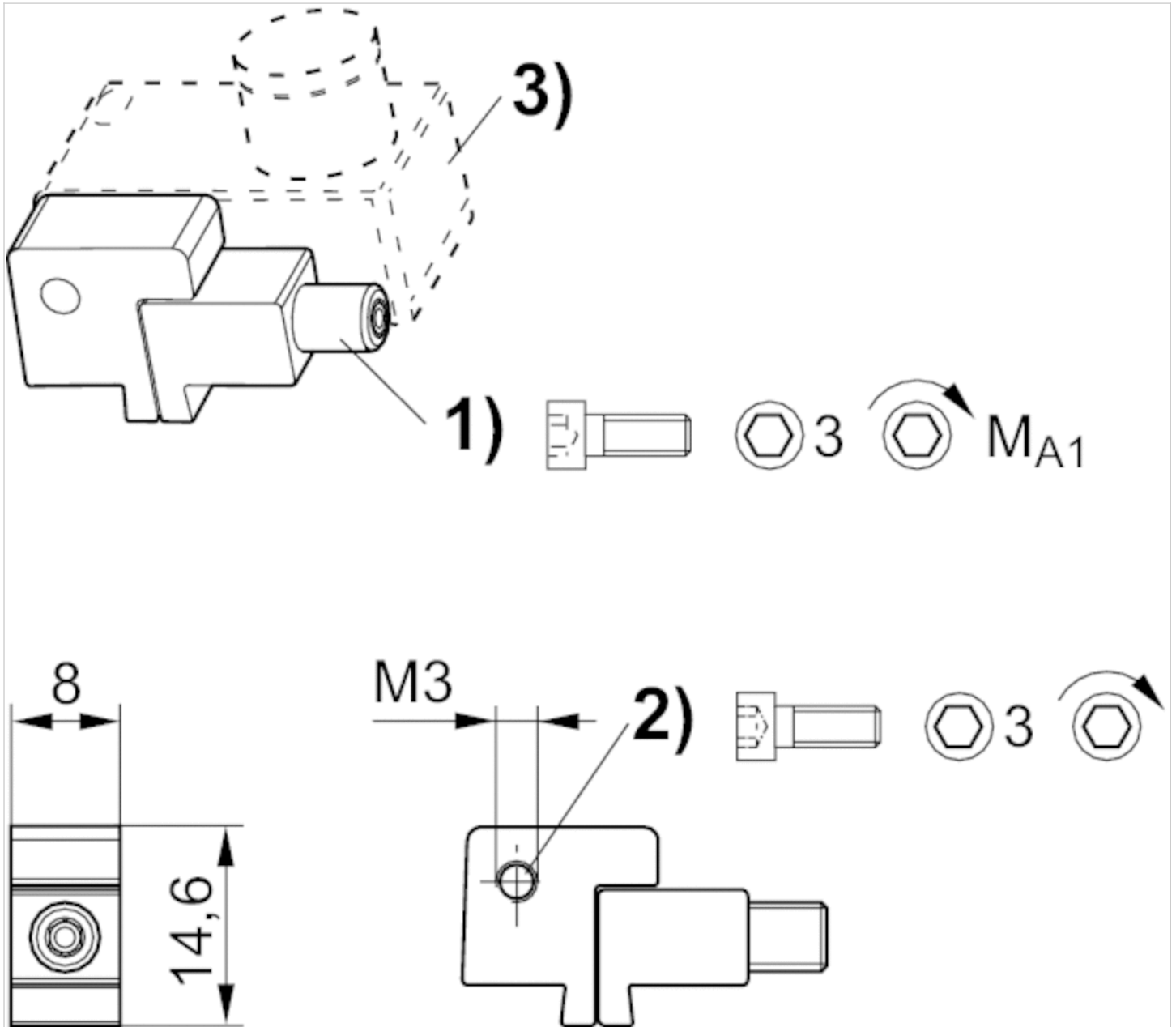
## Technical data

| Part No.   | for series |
|------------|------------|
| 1827020386 | SN3        |

## Technical information

| Material |
|----------|
| Aluminum |

## Dimensions



1) Clamping screw 2) Mounting screw for sensor 3) Sensor

## Dimensions

| Part No.   | 1)    | MA1 [Nm] |
|------------|-------|----------|
| 1827020386 | M3x25 | 1,8 +0,4 |



# Sensor mounting, Series CB1

- for series ST6, SM6

- to mount on cylinder TRB, C12P, 167, CVI, TRR, 523



Weight

See table below

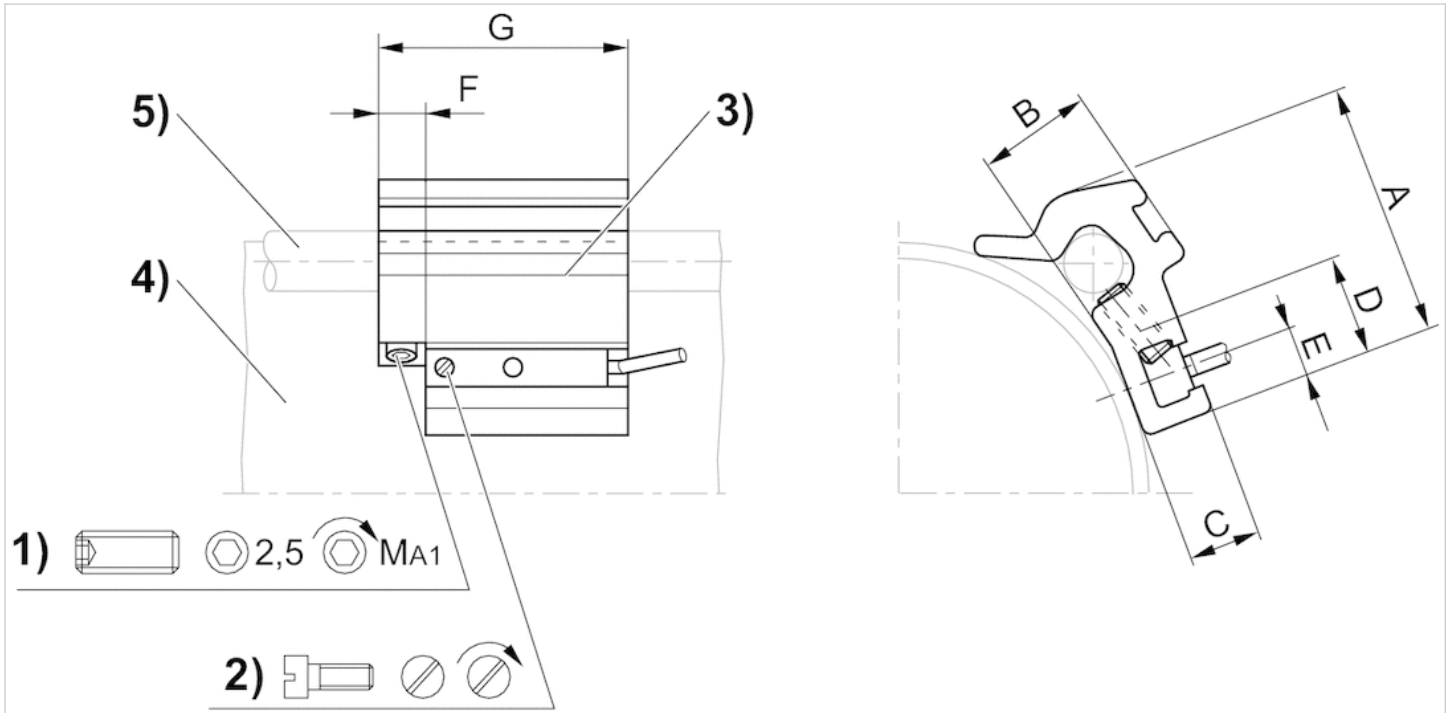
## Technical data

| Part No.   | Cylinders Ø |        | for series | Weight   |
|------------|-------------|--------|------------|----------|
|            | min.        | max.   |            |          |
| 1827020282 | 32 mm       | 40 mm  | ST6, SM6   | 0.016 kg |
| 1827020283 | 50 mm       | 63 mm  | ST6, SM6   | 0.029 kg |
| 1827020284 | 80 mm       | 100 mm | ST6, SM6   | 0.042 kg |

## Technical information

| Material |          |
|----------|----------|
|          | Aluminum |

## Dimensions



1) Clamping threaded pin 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile 5) Tie rod

## Dimensions

| Part No.   | A    | B    | C   | D  | E | F | G  | 1)    | MA1 [Nm] |
|------------|------|------|-----|----|---|---|----|-------|----------|
| 1827020282 | 26   | 10   | 7   | 14 | 5 | 8 | 40 | M5x8  | 2 ±0,2   |
| 1827020283 | 32.5 | 15.5 | 7   | 14 | 5 | 8 | 40 | M5x10 | 2 ±0,2   |
| 1827020284 | 43   | 17   | 6.9 | 14 | 5 | 8 | 40 | M5x16 | 2 ±0,2   |

# Sensor mounting, Series CB1

- for series SN1, SN2
- to mount on cylinder PRA



Weight

0.006 kg

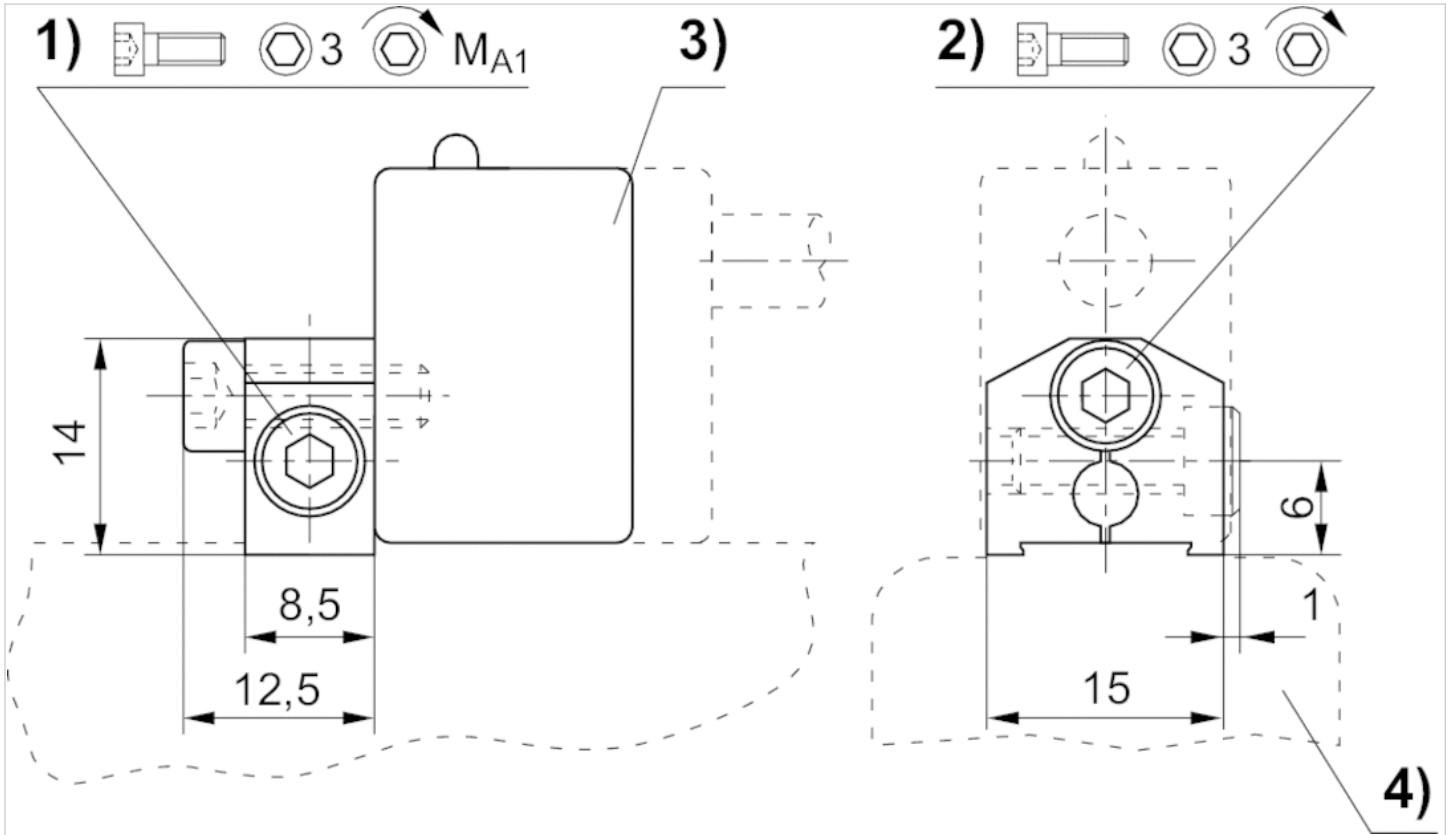
## Technical data

| Part No.   | for series |
|------------|------------|
| 1827020084 | SN1, SN2   |

## Technical information

| Material |
|----------|
| Aluminum |

## Dimensions



1) Clamping screw 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile

## Dimensions

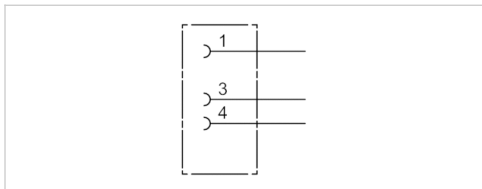
| Part No.   | 1)    | MA1 [Nm] |
|------------|-------|----------|
| 1827020084 | M4x12 | 2        |

# Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, straight, 180°
- UL (Underwriters Laboratories)
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Soldering     |
| Ambient temperature min./max. | -25 ... 80 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.009 kg      |



## Technical data

| Part No.   | Max. current | suitable cable-Ø min./max |
|------------|--------------|---------------------------|
| 1834484173 | 4 A          | 3.5 / 5 mm                |

## Technical information

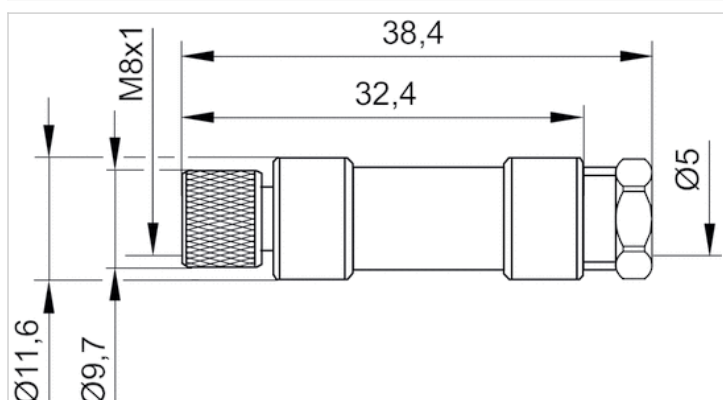
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

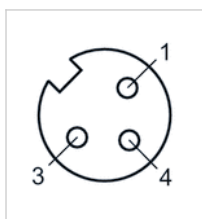
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket

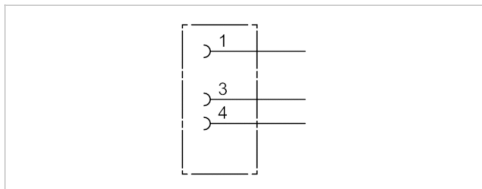


# Round plug connector, Series CON-RD

- Socket, M8x1, 3-pin, A-coded, angled, 90°
- UL (Underwriters Laboratories)
- unshielded



|                               |               |
|-------------------------------|---------------|
| Connection type               | Soldering     |
| Ambient temperature min./max. | -40 ... 85 °C |
| Operational voltage           | 48 V AC/DC    |
| Protection class              | IP67          |
| Weight                        | 0.01 kg       |



## Technical data

| Part No.   | Max. current | Contact assignment | suitable cable-Ø min./max |
|------------|--------------|--------------------|---------------------------|
| 1834484174 | 4 A          | 3                  | 3.5 / 5 mm                |

## Technical information

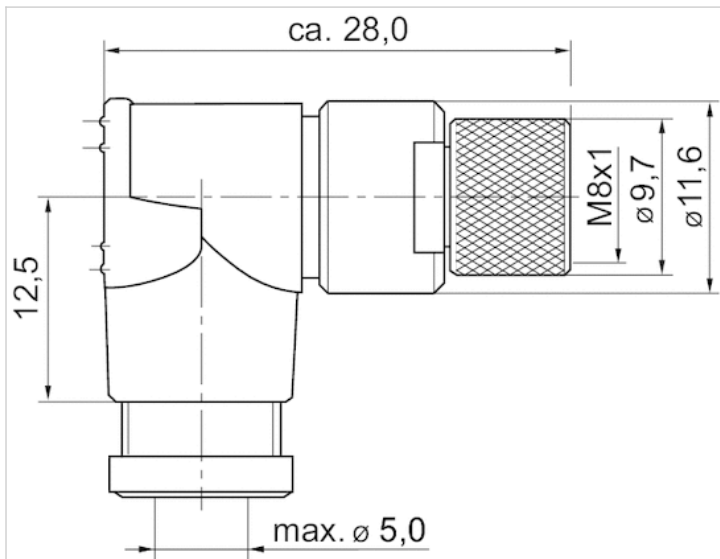
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material |           |
|----------|-----------|
| Housing  | Polyamide |

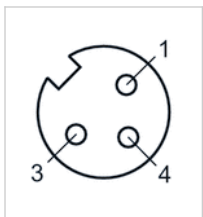
## Dimensions

### Dimensions



## Pin assignments

### Pin assignment, socket



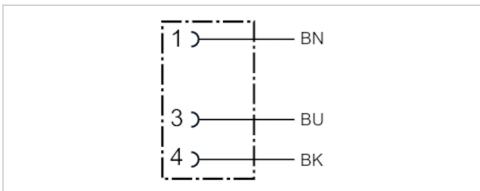


# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded straight 180°
- open cable ends
- with cable
- UL (Underwriters Laboratories)
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -25 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP67                 |
| Wire cross-section            | 0.24 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Certification                  | Weight   |
|------------|--------------|-----------------|---------|--------------|--------------------------------|----------|
| 1834484166 | 4 A          | 3               | 4.5 mm  | 3 m          | UL (Underwriters Laboratories) | 0.087 kg |
| 1834484168 | 4 A          | 3               | 4.5 mm  | 5 m          | UL (Underwriters Laboratories) | 0.141 kg |
| 1834484247 | 4 A          | 3               | 4.5 mm  | 10 m         | UL (Underwriters Laboratories) | 0.277 kg |

## Technical information

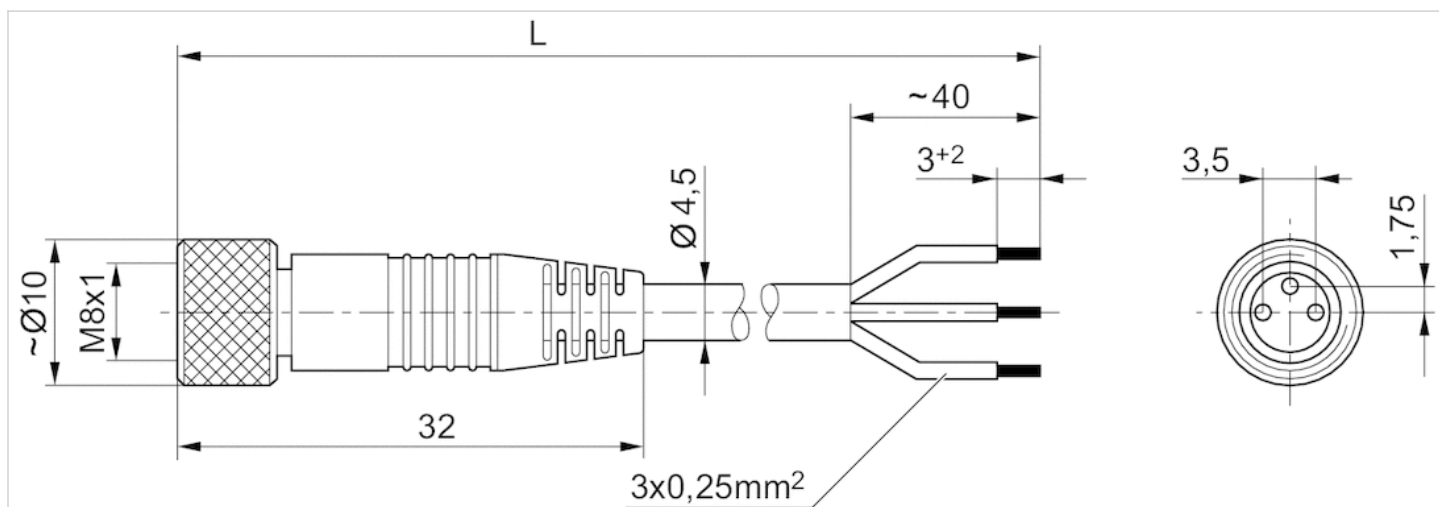
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

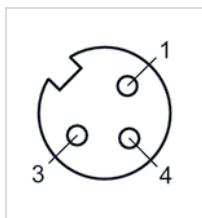
### Dimensions



$L$  = length

## Pin assignments

### Pin assignment, socket



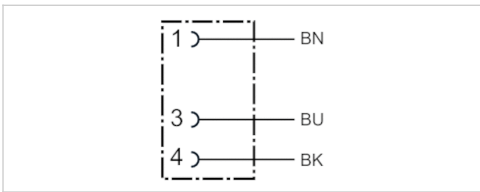
- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M8x1 3-pin A-coded angled 90°
- open cable ends
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -40 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP67                 |
| Wire cross-section            | 0.24 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 1834484167 | 4 A          | 3               | 4.5 mm  | 3 m          | 0.087 kg |
| 1834484169 | 4 A          | 3               | 4.5 mm  | 5 m          | 0.139 kg |
| 1834484248 | 4 A          | 3               | 4.5 mm  | 10 m         | 0.279 kg |

## Technical information

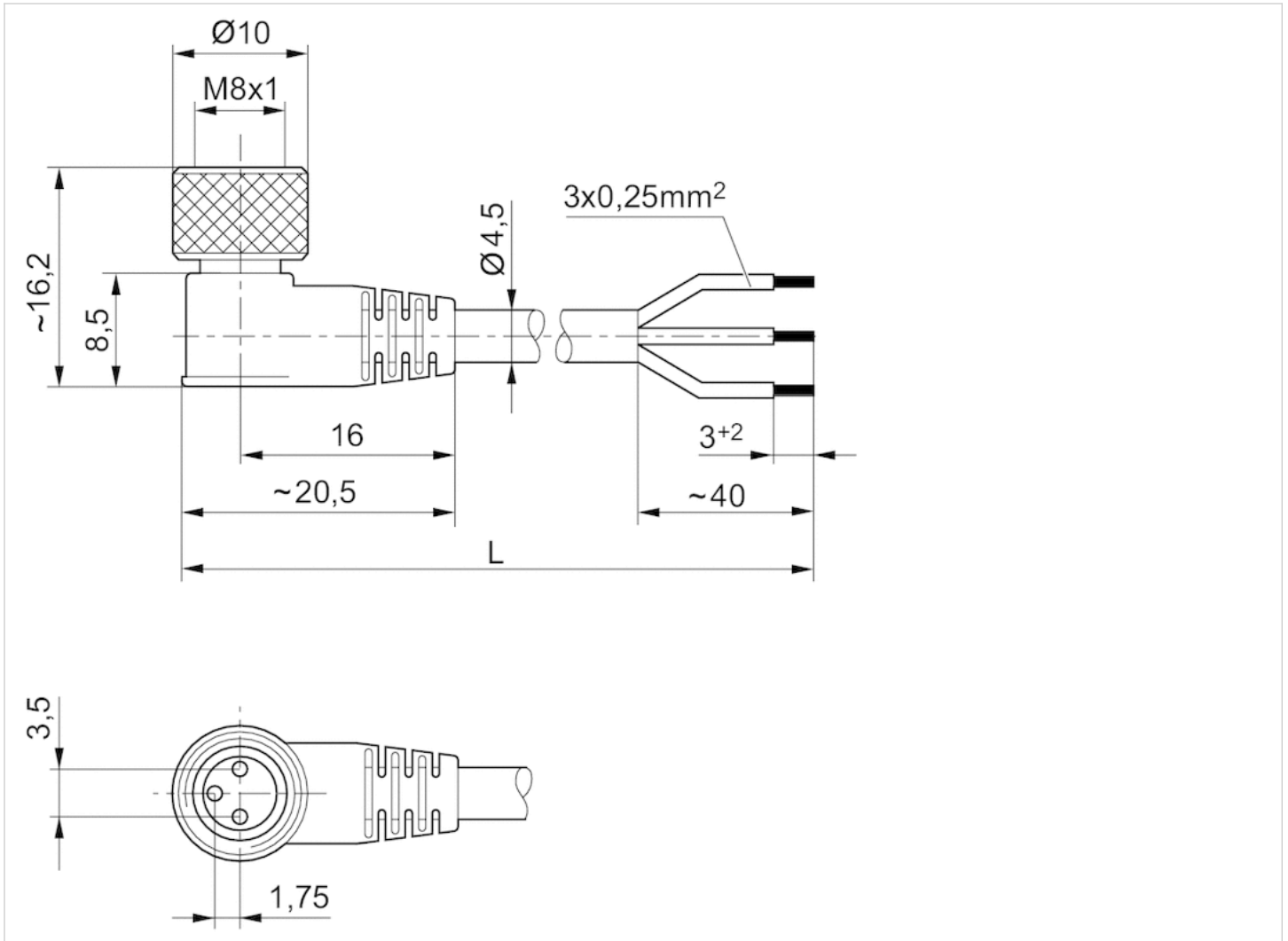
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Housing      | Polyurethane |
| Cable sheath | Polyurethane |

## Dimensions

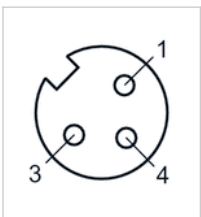
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



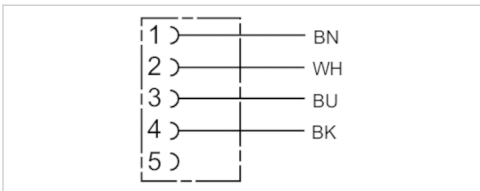
- (1) BN=brown
- (3) BU=blue
- (4) BK=black

# Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded angled 90°
- open cable ends
- for DeviceNet
- with cable
- unshielded



|                               |                      |
|-------------------------------|----------------------|
| Ambient temperature min./max. | -40 ... 85 °C        |
| Operational voltage           | 48 V AC/DC           |
| Protection class              | IP65                 |
| Wire cross-section            | 0.34 mm <sup>2</sup> |
| Weight                        | See table below      |



## Technical data

| Part No.   | Max. current | Number of wires | Cable-Ø | Cable length | Weight   |
|------------|--------------|-----------------|---------|--------------|----------|
| 1834484259 | 4 A          | 4               | 5.2 mm  | 3 m          | 0.126 kg |
| 1834484260 | 4 A          | 4               | 5.2 mm  | 5 m          | 0.195 kg |
| 1834484261 | 4 A          | 4               | 5.2 mm  | 10 m         | 0.38 kg  |

## Technical information

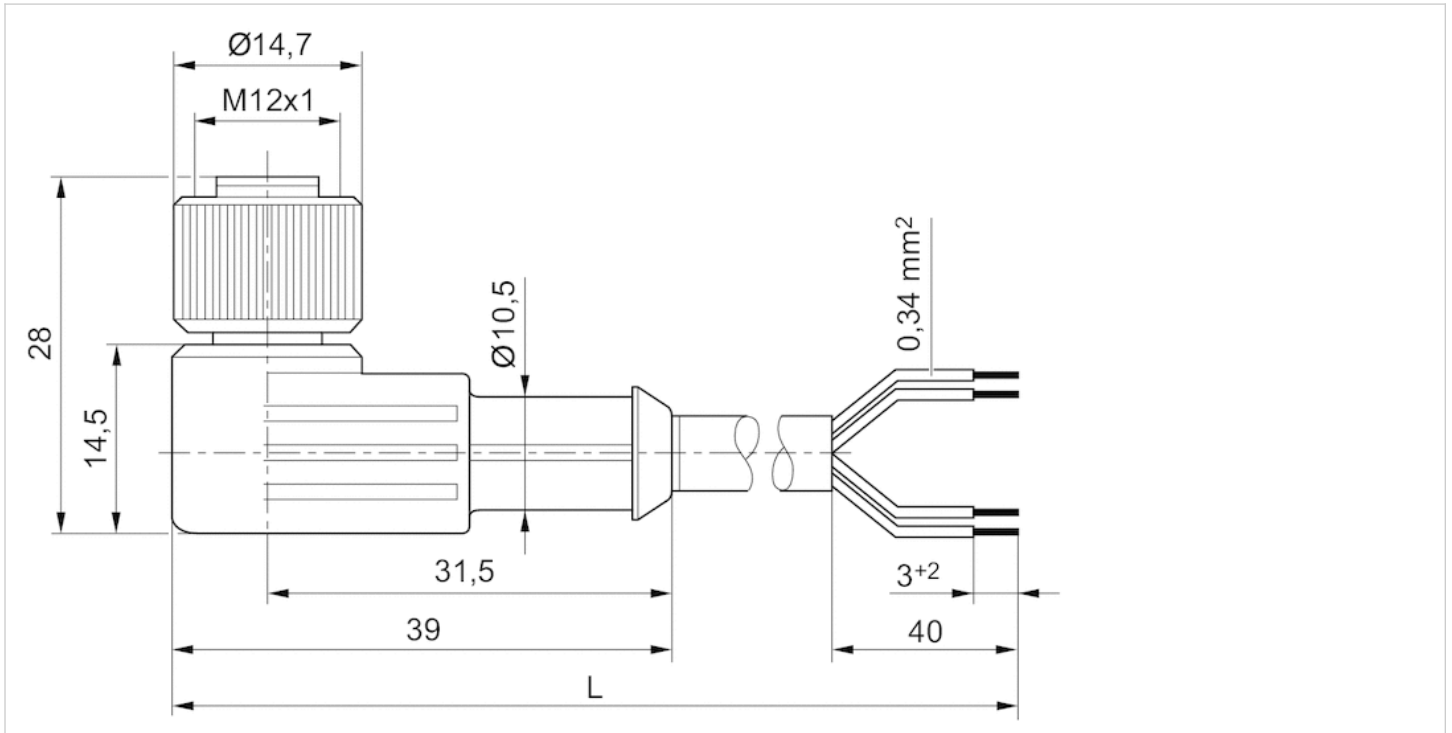
The specified protection class is only valid in assembled and tested state.

## Technical information

| Material     |              |
|--------------|--------------|
| Cable sheath | Polyurethane |

## Dimensions

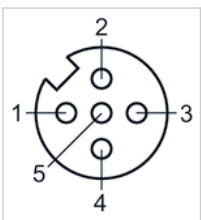
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) not assigned

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2019-03



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