

## series PRA



**AVENTICS™**

**AVENTICS Series PRA Profile  
cylinders (ISO 15552)**

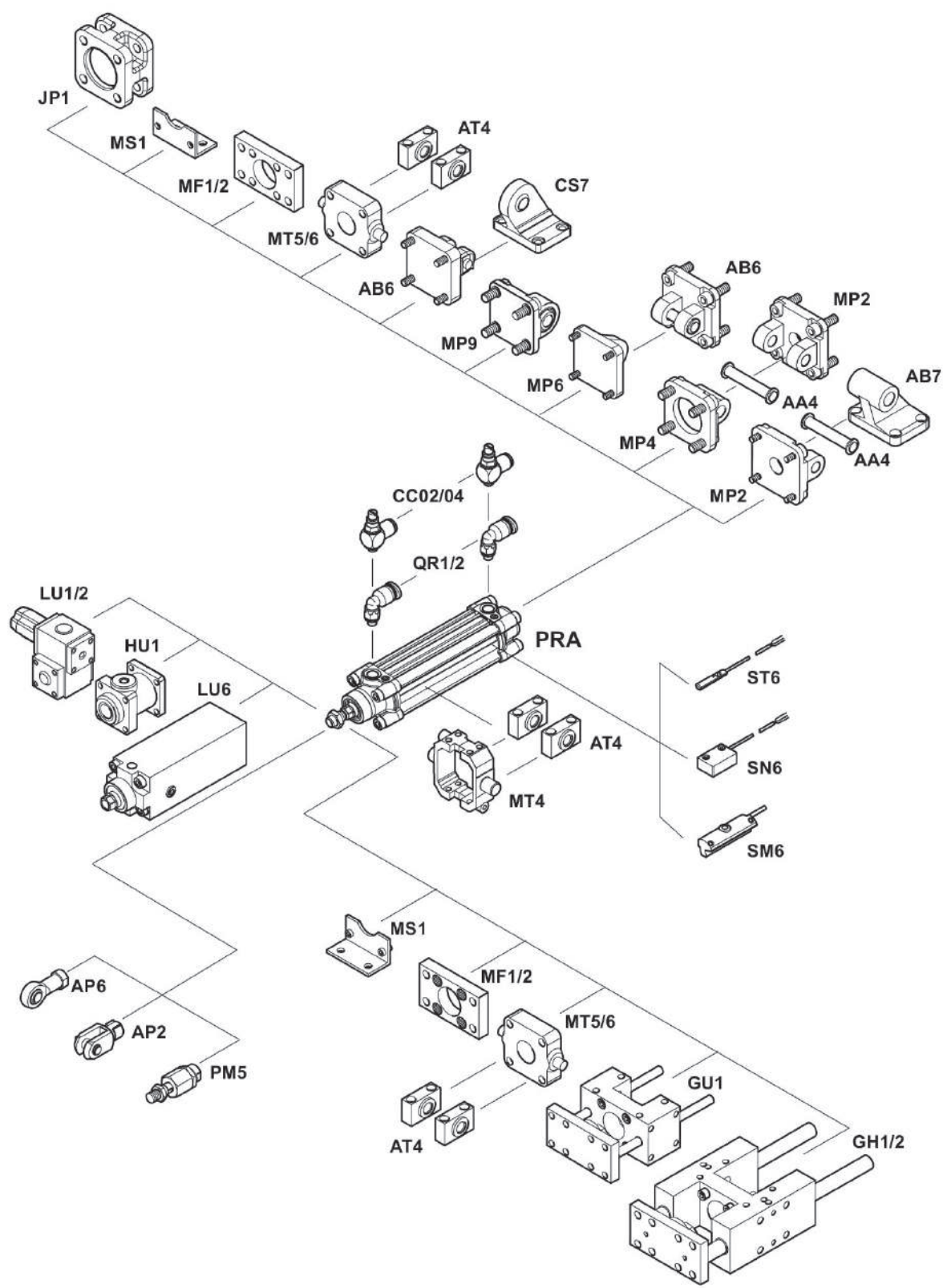


## **series PRA**

The AVENTICS Series PRA (ISO 15552) cylinders have a compact design profile with integrated sensor slots. The Series PRA (ISO 15552) cylinders can be used for all industries. This includes general automation technology, machine and systems construction, as well as specific industry applications.

- 6 mm T-slots and 4 mm C-slots allow for a large number of sensors to be mounted easily, quickly and compactly
- Available in piston diameters from 32 mm to 125 mm
- Modular sealing system allows for adaptability
- Advanced pneumatic end position cushioning
- Additional elastic damping elements
- Wide range of variants and accessories available in the configurator





## Product overview

### Metric

|                                                                                                                         |    |
|-------------------------------------------------------------------------------------------------------------------------|----|
| Profile cylinder ISO 15552, PRA series.....                                                                             | 8  |
| Double-acting - single - elastic cushioning - Piston with magnet - External thread                                      |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 12 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread                         |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 16 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston without magnet - External thread - Heat resistant     |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 20 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread - Heat resistant        |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 24 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread - -40 °C cold-resistant |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 28 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread - corrosion-resistant   |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 32 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread - Bellows               |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 36 |
| Double-acting - through - Pneumatic adjustable cushioning - Piston with magnet - External thread                        |    |
| Profile cylinder ISO 15552, PRA series.....                                                                             | 40 |
| Double-acting - non-rotating - Pneumatic adjustable cushioning - Piston with magnet - External thread                   |    |

### Inch

|                                                                                                  |    |
|--------------------------------------------------------------------------------------------------|----|
| Profile cylinder ISO 15552, Series PRA - inch.....                                               | 43 |
| Double-acting - single - Pneumatic adjustable cushioning - Piston with magnet - External thread  |    |
| Profile cylinder ISO 15552, Series PRA - inch.....                                               | 47 |
| Double-acting - through - Pneumatic adjustable cushioning - Piston with magnet - External thread |    |

### Accessories overview Cylinder mountings

|                                                                                        |    |
|----------------------------------------------------------------------------------------|----|
| Bearing block AB7-HD, Series CM1.....                                                  | 51 |
| Suitable for robust mechanical engineering applications with fixed bearing - ISO 15552 |    |
| Bearing block CS7, Series CM1.....                                                     | 53 |
| With ball joint and foot - VDMA 24562 part 2                                           |    |
| Clevis mounting AB6, Series CM1.....                                                   | 55 |
| ISO 15552                                                                              |    |
| Clevis mounting MP2-HD, Series CM1.....                                                | 57 |
| Suitable for robust mechanical engineering applications - ISO 15552                    |    |
| Rear eye MP4-HD, suitable for robust mechanical engineering applications.....          | 59 |
| for clevis mounting MP2 and AB3                                                        |    |
| Rear eye MP6, with ball joint and foot, aluminum.....                                  | 61 |
| With ball joint and foot                                                               |    |
| Rear eye MP9, with rubber bushing.....                                                 | 63 |
| With rubber bushing                                                                    |    |

## Product overview

|                                                                                             | Page |
|---------------------------------------------------------------------------------------------|------|
| Rear eye MP9, with rubber bushing.....                                                      | 65   |
| With rubber bushing                                                                         |      |
| Trunnion mounting MT4, Series CM1.....                                                      | 67   |
| Bearing, Series CM1.....                                                                    | 69   |
| for trunnion mounting                                                                       |      |
| Bearing AT4, Series CM1.....                                                                | 71   |
| for trunnion mounting MT4, MT5, MT6 - ISO 15552                                             |      |
| Trunnion mounting MT5, MT6, Series CM1.....                                                 | 73   |
| for mounting to the cylinder cover or base                                                  |      |
| Flange mounting MF1, MF2, Series CM1.....                                                   | 76   |
| ISO 15552                                                                                   |      |
| Intermediate flange JP1, Series CM1.....                                                    | 79   |
| for multi-position cylinders                                                                |      |
| Foot mounting MS1, Series CM1.....                                                          | 80   |
| Bolts AA4, Series CM1.....                                                                  | 82   |
| Bolts AA4, Series CM1.....                                                                  | 84   |
| <b>Accessories overview Piston rod mountings</b>                                            |      |
| Flexible spherical coupling, Series PM5.....                                                | 85   |
| to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, SSI, MNI, KPZ, KHZ, 167, CVI, RPC, RDC, ITS |      |
| Flexible plate coupling, Series PM7.....                                                    | 87   |
| to mount on cylinder PRA, TRB, CCL-IS/-IC, CCI, SSI, KPZ, 167, CVI, RPC, ITS with plate     |      |
| Rod clevis with lock washer, Series AP2, Galvanized Steel.....                              | 89   |
| to mount on cylinder PRA, TRB, CCI, MNI, ICM, KPZ, KHZ, 167, CVI, RPC, RDC, ITS             |      |
| Rod clevis with circlip, Series AP2.....                                                    | 91   |
| to mount on cylinder PRA, TRB, CCI, MNI, ICM, KPZ, KHZ, 167, CVI, RPC, RDC, ITS             |      |
| Rod clevis, Series PM6.....                                                                 | 92   |
| for ball eye rod end AP6                                                                    |      |
| Ball eye rod end AP6, galvanized Steel.....                                                 | 94   |
| to mount on cylinder PRA, TRB, CCI, SSI, MNI, RPC, KPZ, 167, CVI, RDC, 102, ITS with flange |      |
| Piston rod nut MR9.....                                                                     | 97   |
| <b>Accessories overview Guide units</b>                                                     |      |
| Guide unit GU1, Series CG1.....                                                             | 100  |
| Guide unit GH1, Series CG1.....                                                             | 105  |
| Guide unit GH2, Series CG1.....                                                             | 111  |
| Compensating coupling GU3 form B, series CG1.....                                           | 117  |
| Compensating coupling GU3 form C, series CG1.....                                           | 119  |
| <b>Accessories overview Holding unit</b>                                                    |      |
| Holding unit, Series HU1.....                                                               | 120  |
| Ø 32 ... 100 mm Release pressure min./max. 4 ... 8 bar                                      |      |
| Locking unit, Series LU1.....                                                               | 122  |
| Ø 32 ... 100 mm Release pressure min./max. 2 ... 8 bar                                      |      |
| Locking unit, Series LU1.....                                                               | 124  |
| Ø 32 ... 100 mm Release pressure min./max. 4,5 ... 8 bar                                    |      |
| Locking unit, Series LU1.....                                                               | 127  |
| Ø 32 ... 100 mm Release pressure min./max. 5,5 ... 8 bar                                    |      |
| Mounting flange, Series LU1.....                                                            | 130  |
| for cylinders with locking units                                                            |      |

## Product overview

|                                                                                                                                                                                                     | Page |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Locking unit, Series LU6.....                                                                                                                                                                       | 132  |
| <b>Modular scraper system</b>                                                                                                                                                                       |      |
| Modular scraper system.....                                                                                                                                                                         | 135  |
| Ø 32 ... 40 mm - ISO 15552                                                                                                                                                                          |      |
| Modular scraper system.....                                                                                                                                                                         | 137  |
| Ø 50 ... 125 mm - ISO 15552                                                                                                                                                                         |      |
| <b>Sensors and sensor mountings, accessories</b>                                                                                                                                                    |      |
| Sensor, Series IN1.....                                                                                                                                                                             | 140  |
| DIN EN 60947-5-2 - Plug                                                                                                                                                                             |      |
| Sensors, Series SM6, with cable, without wire end ferrule, tin-plated.....                                                                                                                          | 141  |
| TRB ITS 167 MNI ICM TRR                                                                                                                                                                             |      |
| Sensors, Series SM6, with cable, plug M8x1.....                                                                                                                                                     | 143  |
| TRB ITS 167 MNI ICM TRR - Plug                                                                                                                                                                      |      |
| Sensors, Series SM6-AL.....                                                                                                                                                                         | 145  |
| PRA ITS RTC CVI - Plug                                                                                                                                                                              |      |
| Sensor, Series SN3.....                                                                                                                                                                             | 149  |
| to mount on cylinder PRA, CCI, KPZ, KHZ, GPC, CVI welding-proof - PRA PRE CCI KPZ KHZ<br>FLT GPC CVI - Plug                                                                                         |      |
| Sensors, Series ST4, open cable ends, Certificate UL (Underwriters Laboratories).....                                                                                                               | 152  |
| MNI CSL-RD ICM - open cable ends                                                                                                                                                                    |      |
| Sensors, Series ST4, plug M8, with knurled screw, Certificate UL (Underwriters Laboratories).....                                                                                                   | 154  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4, plug M8, with knurled screw.....                                                                                                                                               | 156  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4, plug M12, with knurled screw.....                                                                                                                                              | 158  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4, plug M8.....                                                                                                                                                                   | 160  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4, open cable ends, With stretched impulse.....                                                                                                                                   | 162  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4-2P, with cable, plug M12x1, IO-Link.....                                                                                                                                        | 163  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST4-2P, with cable, without wire end ferrule, tin-plated.....                                                                                                                       | 164  |
| MNI CSL-RD ICM - without wire end ferrule, tin-plated                                                                                                                                               |      |
| Sensors, Series ST4-2P, with cable, plug M8x1.....                                                                                                                                                  | 165  |
| MNI CSL-RD ICM - Plug                                                                                                                                                                               |      |
| Sensors, Series ST6, open cable ends, 2-pin, Reed.....                                                                                                                                              | 166  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS,<br>TRR - TRB ITS 167 C12P CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - without wire end<br>ferrule, tin-plated |      |
| Sensors, Series ST6, open cable ends, 3-pin, NPN.....                                                                                                                                               | 167  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS,<br>TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - without wire end ferrule, tin-<br>plated         |      |
| Sensors, Series ST6, open cable ends, 3-pin, PNP.....                                                                                                                                               | 168  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS,<br>TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - without wire end ferrule, tin-<br>plated         |      |

## Product overview

|                                                                                                                                                                                      | Page |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Sensors, Series ST6, open cable ends, 3-pin, Reed.....                                                                                                                               | 170  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - without wire end ferrule, tin-plated |      |
| Sensors, Series ST6, plug M8.....                                                                                                                                                    | 172  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - Plug                                 |      |
| Sensors, Series ST6, plug M12x1.....                                                                                                                                                 | 174  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - Plug                                 |      |
| Sensors, Series ST6, plug M12x1, with knurled screw, ATEX.....                                                                                                                       | 176  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - Plug - ATEX                          |      |
| Sensors, Series ST6, plug M8x1, with knurled screw.....                                                                                                                              | 178  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - Plug                                 |      |
| Sensors, Series ST6, plug M8x1, ATEX.....                                                                                                                                            | 181  |
| to mount on cylinder TRB, ITS, 167, C12P, CCL-IS/-IC, MNI, CSL-RD, KHZ, ICM, RPC, ICS, TRR - TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - Plug - ATEX                          |      |
| Sensors, Series ST6, open cable ends, 3-pin, PNP, ATEX.....                                                                                                                          | 183  |
| TRB ITS CCL-IS MNI CSL-RD RPC ICS-D2 ICM KHZ TRR - open cable ends - ATEX                                                                                                            |      |
| Sensors, Series ST6, open cable ends, 3-pin, M12, cold-resistant.....                                                                                                                | 184  |
| TRB ITS - open cable ends                                                                                                                                                            |      |
| Sensors, Series ST6, open cable ends, 2-pin, Heat resistant.....                                                                                                                     | 186  |
| TRB ITS MNI CSL-RD RPC - open cable ends                                                                                                                                             |      |
| Sensor mounting, Series CB1.....                                                                                                                                                     | 187  |
| ST6 SM6                                                                                                                                                                              |      |
| Sensor mounting, Series CB1.....                                                                                                                                                     | 188  |
| SN1 SN2                                                                                                                                                                              |      |
| Sensor mounting, Series CB1.....                                                                                                                                                     | 189  |
| to mount on cylinder PRA, KPZ, GPC, CCI, KHZ - SN3                                                                                                                                   |      |
| Round plug connector, Series CON-RD.....                                                                                                                                             | 190  |
| Socket - M8x1 - 3-pin - straight - Soldering                                                                                                                                         |      |
| Round plug connector, Series CON-RD.....                                                                                                                                             | 191  |
| Socket - M8x1 - 3-pin - angled - Soldering                                                                                                                                           |      |
| Round plug connector, Series CON-RD.....                                                                                                                                             | 192  |
| Socket - M8x1 - 3-pin - straight - open cable ends - 3-pin                                                                                                                           |      |
| Round plug connector, Series CON-RD.....                                                                                                                                             | 194  |
| Socket - M8x1 - 3-pin - angled - open cable ends - 3-pin                                                                                                                             |      |
| Round plug connector, Series CON-RD, 5-pin, angled, unshielded.....                                                                                                                  | 196  |
| Socket - M12x1 - 5-pin - angled - without wire end ferrule, tin-plated - 4-pin                                                                                                       |      |
| <b>Accessories overview Silencer</b>                                                                                                                                                 |      |
| Silencers, series SI1, Sintered bronze.....                                                                                                                                          | 198  |
| Silencers, series SI1, Sintered bronze.....                                                                                                                                          | 201  |

Profile cylinder ISO 15552, PRA series

Standards: ISO 15552  
Functional principle: Double-acting  
Piston: Piston with magnet  
Cushioning: elastic cushioning  
Piston rod: External thread  
Piston rod: single  
Compressed air connection: Internal thread  
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C  
Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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 |

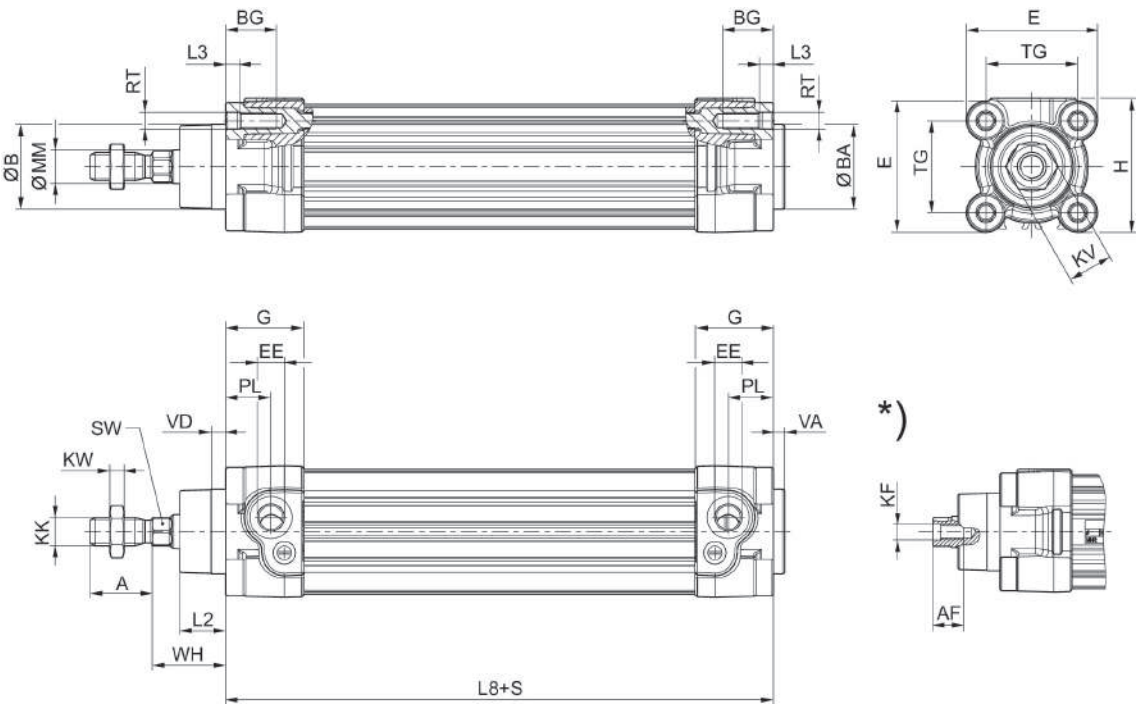
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480148022 |
| 50                | R480141034 |
| 80                | R480143254 |
| 100               | R480170767 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 500               | R480170772 |

| 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  |
| Impact energy           | 0.4 J    | 0.65 J   | 1 J      | 1.6 J    | 2.5 J    | 3.9 J   |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

| Piston Ø                | 125 mm  |
|-------------------------|---------|
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Impact energy           | 6 J     |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



S = stroke  
\*) For cylinders with optional piston rod with internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

## Profile cylinder **ISO 15552**, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Certificates: ATEX optional

Piston: Piston with magnet

Cushioning: **Pneumatic adjustable cushioning**

Piston rod: External thread

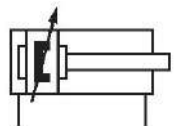
Piston rod: single

Compressed air connection: Internal thread

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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 |

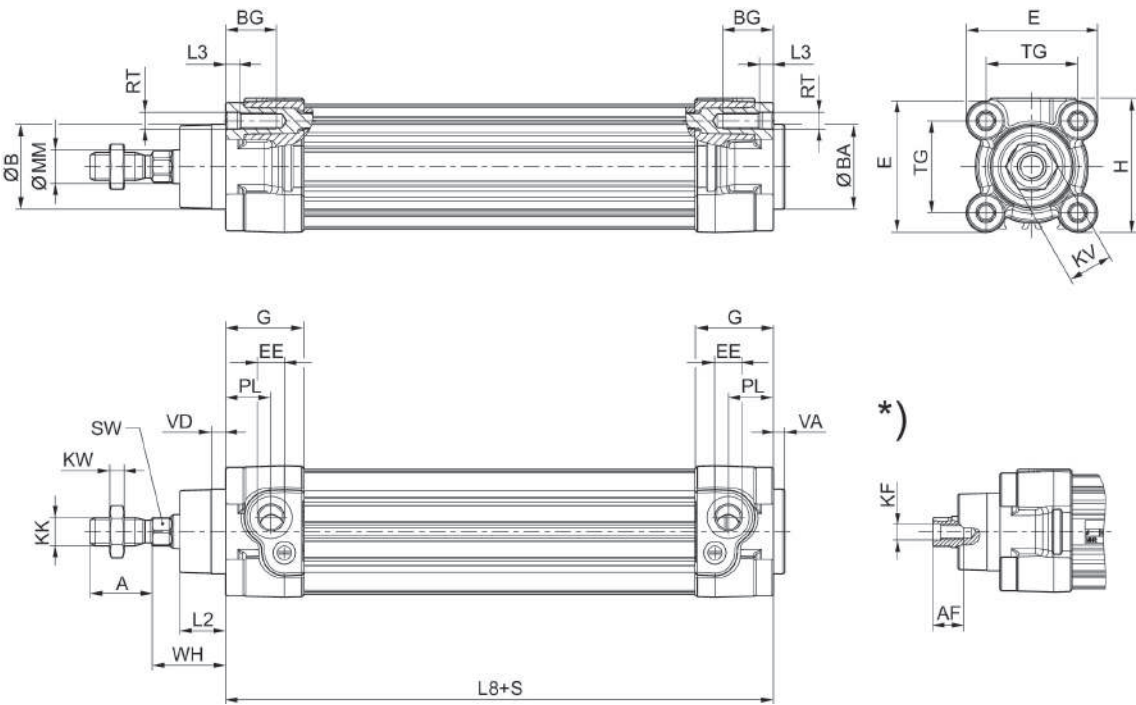
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480140491 |
| 50                | R480140455 |
| 80                | R480141371 |
| 100               | R480079499 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 400               | R480141373 |
| 500               | R480141666 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



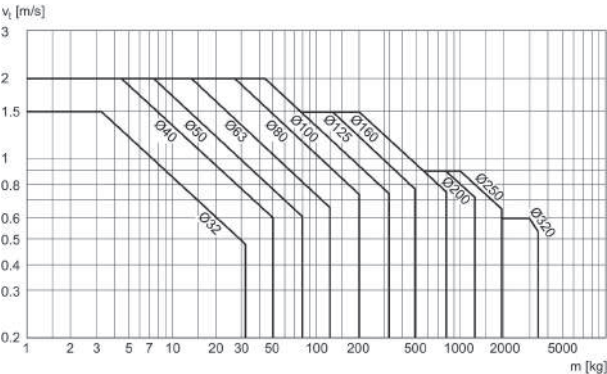
S = stroke  
\*) For cylinders with optional piston rod with internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

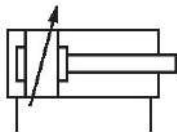
Cushioning diagram



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

Profile cylinder ISO 15552, PRA series

Standards: ISO 15552  
Functional principle: Double-acting  
Piston: Piston without magnet  
Cushioning: Pneumatic adjustable cushioning  
Piston rod: External thread  
Piston rod: single  
Compressed air connection: Internal thread  
: Heat resistant  
Ambient temperature min./max.: -10 °C ... 150 °C  
Medium temperature min./max.: -10 °C ... 150 °C  
Working pressure min./max.: 2 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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 |

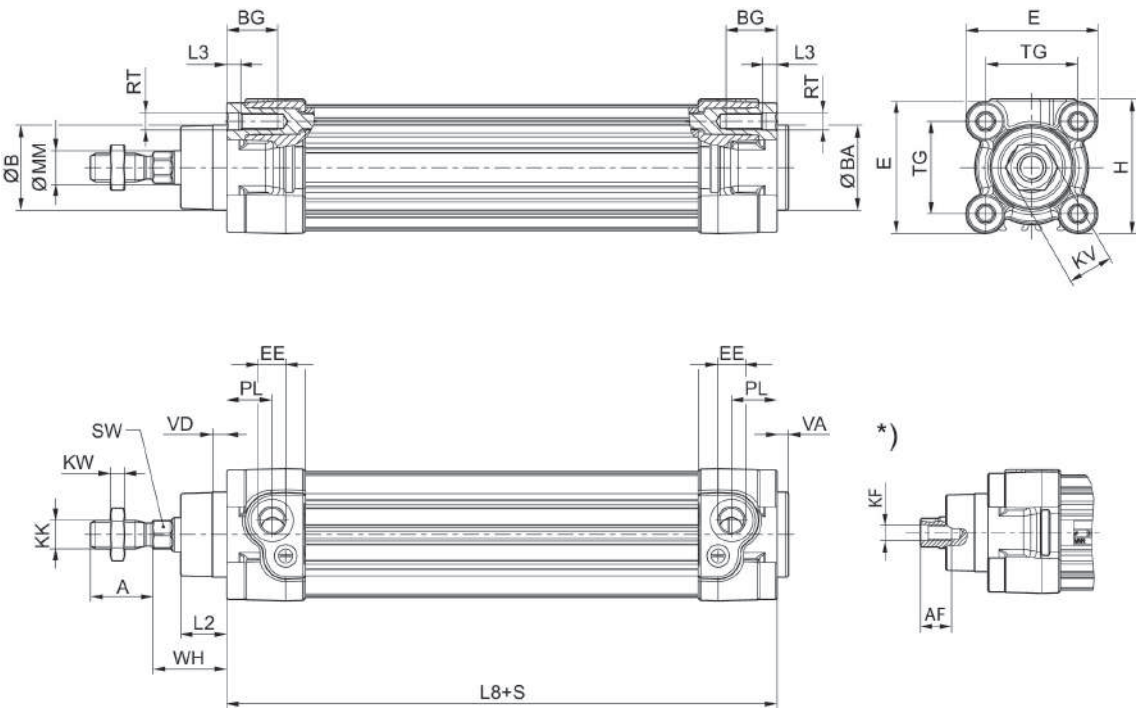
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480170695 |
| 50                | R480157264 |
| 80                | R480163258 |
| 100               | R480153677 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 400               | R480170776 |
| 500               | R480149365 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



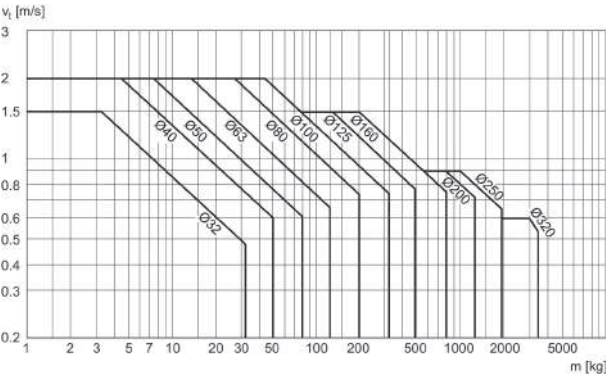
S = stroke  
\* Internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

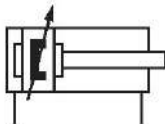
Cushioning diagram



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

Profile cylinder ISO 15552, PRA series

Standards: ISO 15552  
Functional principle: Double-acting  
Piston: Piston with magnet  
Cushioning: Pneumatic adjustable cushioning  
Piston rod: External thread  
Piston rod: single  
Compressed air connection: Internal thread  
: Heat resistant  
Ambient temperature min./max.: -10 °C ... 120 °C  
Medium temperature min./max.: -10 °C ... 120 °C  
Working pressure min./max.: 2 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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 |

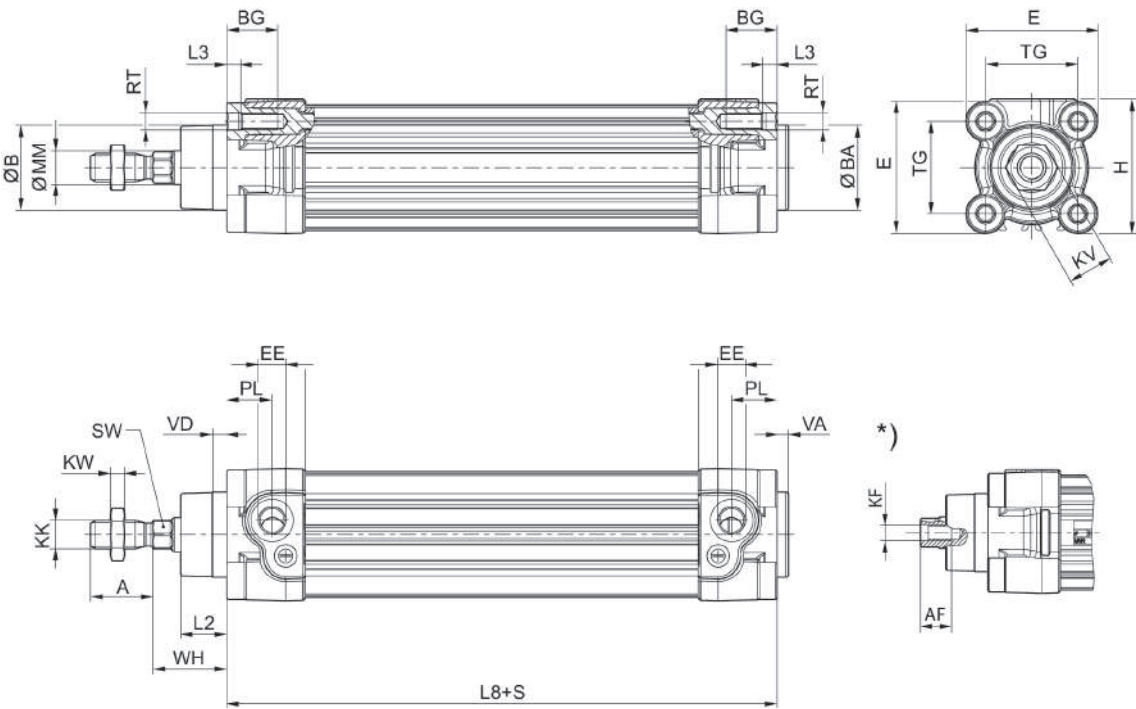
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480605337 |
| 50                | R480605338 |
| 80                | R480605339 |
| 100               | R480605340 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 400               | R480605345 |
| 500               | R480605346 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



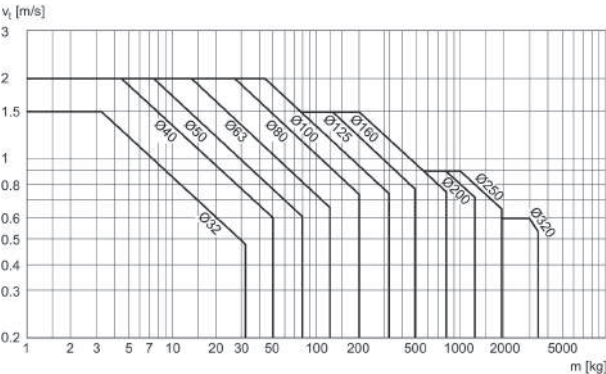
S = stroke  
\* Internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

Cushioning diagram



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

## Profile cylinder ISO 15552, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

Piston rod: single

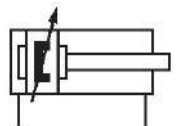
Compressed air connection: Internal thread

**-40 °C cold-resistant**

Ambient temperature min./max.: -40 °C ... 70 °C

Medium temperature min./max.: -40 °C ... 70 °C

Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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 |

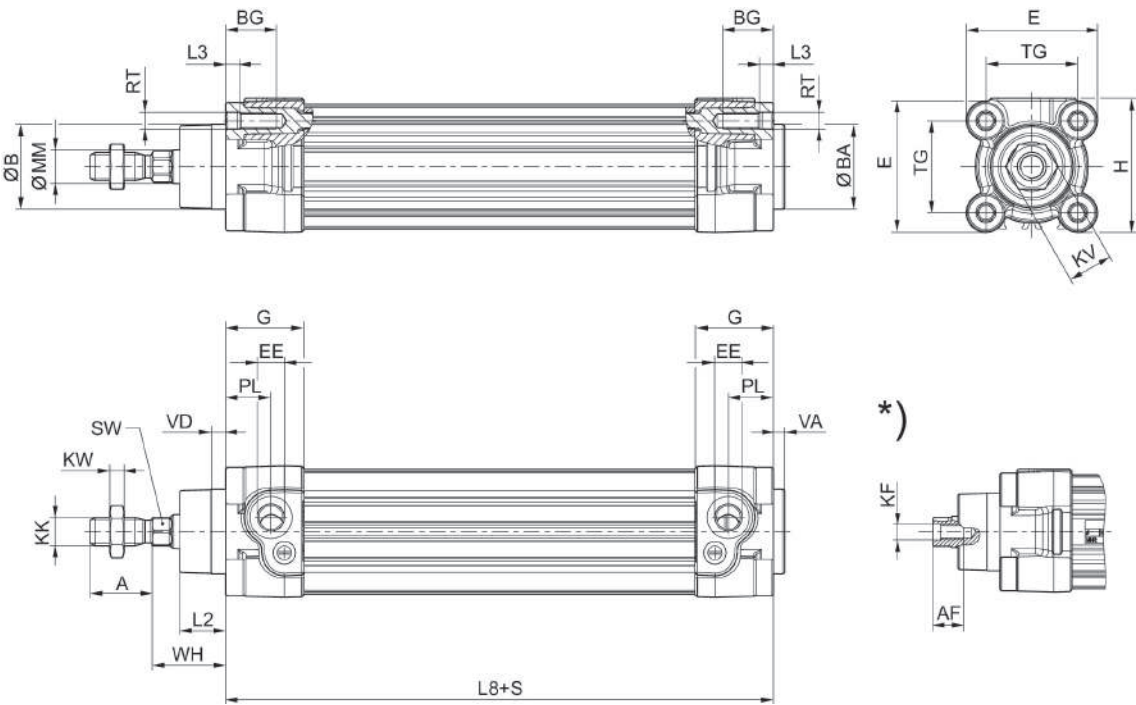
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480691887 |
| 50                | R480691888 |
| 80                | R480691889 |
| 100               | R480691890 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 400               | R480691896 |
| 500               | R480691897 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 11.5 mm  | 15 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



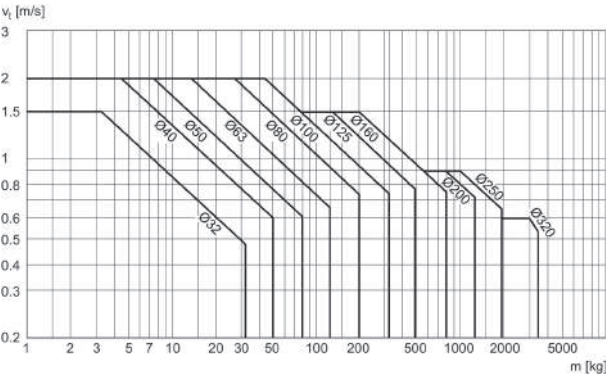
S = stroke  
\*) For cylinders with optional piston rod with internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

Cushioning diagram



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

## Profile cylinder ISO 15552, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

Piston rod: single

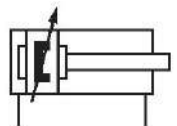
Compressed air connection: Internal thread

: **corrosion-resistant**

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 1/8      | G 1/2      |
| 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 |

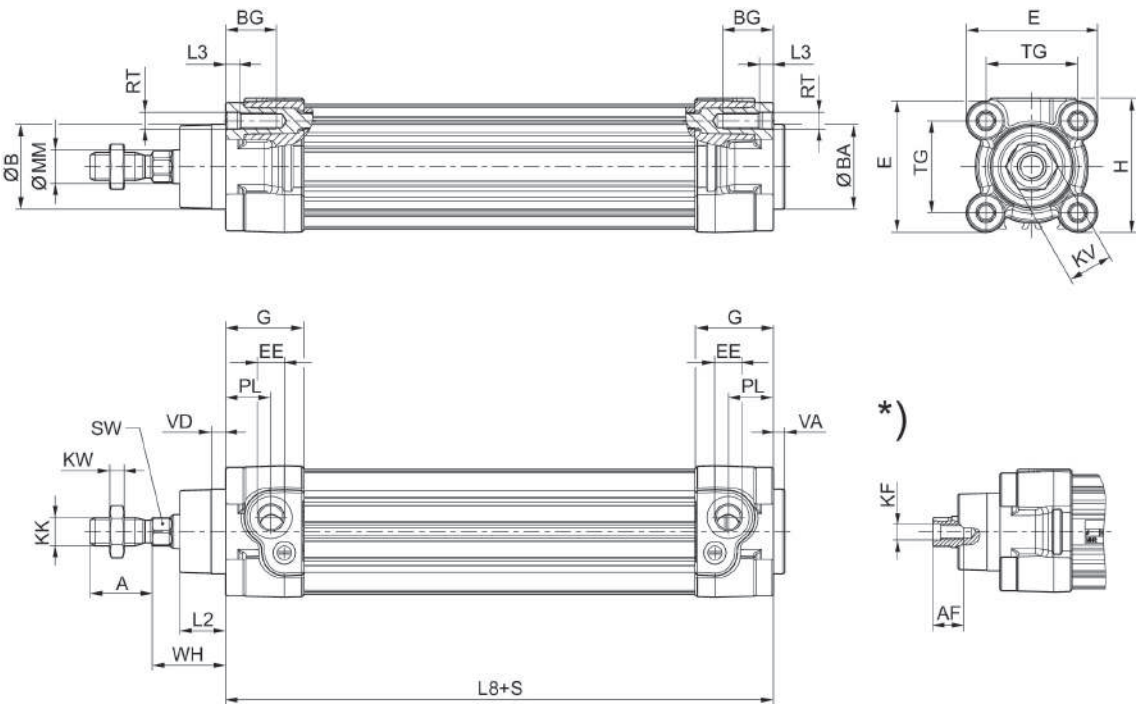
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480692041 |
| 50                | R480692042 |
| 80                | R480692043 |
| 100               | R480692044 |
| 125               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 400               | R480692050 |
| 500               | R480692051 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



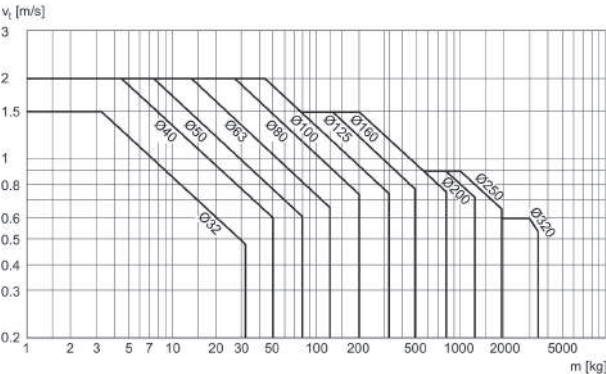
S = stroke  
\*) For cylinders with optional piston rod with internal thread

| Piston Ø | A -2 | AF+1 | ØB d11 | ØBA d11 | BG min. | E    | EE    | G     | H    |
|----------|------|------|--------|---------|---------|------|-------|-------|------|
| 32       | 22   | 12   | 30     | 30      | 16      | 46.5 | G 1/8 | 27.75 | 47.5 |
| 40       | 24   | 13.5 | 35     | 35      | 16      | 53   | G 1/4 | 33.25 | 53   |
| 50       | 32   | 17   | 40     | 40      | 16      | 65   | G 1/4 | 31    | 65   |
| 63       | 32   | 17   | 45     | 45      | 16      | 75   | G 3/8 | 38.25 | 75   |
| 80       | 40   | 21   | 45     | 45      | 17      | 95   | G 3/8 | 38.25 | 95   |
| 100      | 40   | 21   | 55     | 55      | 17      | 115  | G 1/2 | 42.25 | 115  |
| 125      | 54   | 28   | 60     | 60      | 20      | 140  | G 1/2 | 53.85 | 140  |

| Piston Ø | KF  | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      |
|----------|-----|----------|----|------|--------|------|-------|---------|---------|
| 32       | M6  | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  |
| 40       | M8  | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 |
| 50       | M10 | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 |
| 63       | M10 | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 |
| 80       | M12 | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 |
| 100      | M12 | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   |
| 125      | M16 | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   |

| Piston Ø | RT  | SW | TG       | VA -1 | VD | WH     |
|----------|-----|----|----------|-------|----|--------|
| 32       | M6  | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | M6  | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | M8  | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | M8  | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | M10 | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | M10 | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | M12 | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

Cushioning diagram



v<sub>t</sub> = Piston velocity [m/s] m = Cushionable mass [kg]

## Profile cylinder ISO 15552, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

Piston rod: single

Compressed air connection: Internal thread

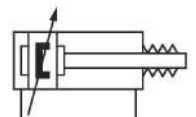
Piston rod protection: Bellows

: **Bellows**

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

Working pressure min./max.: 1.5 bar ... 10 bar



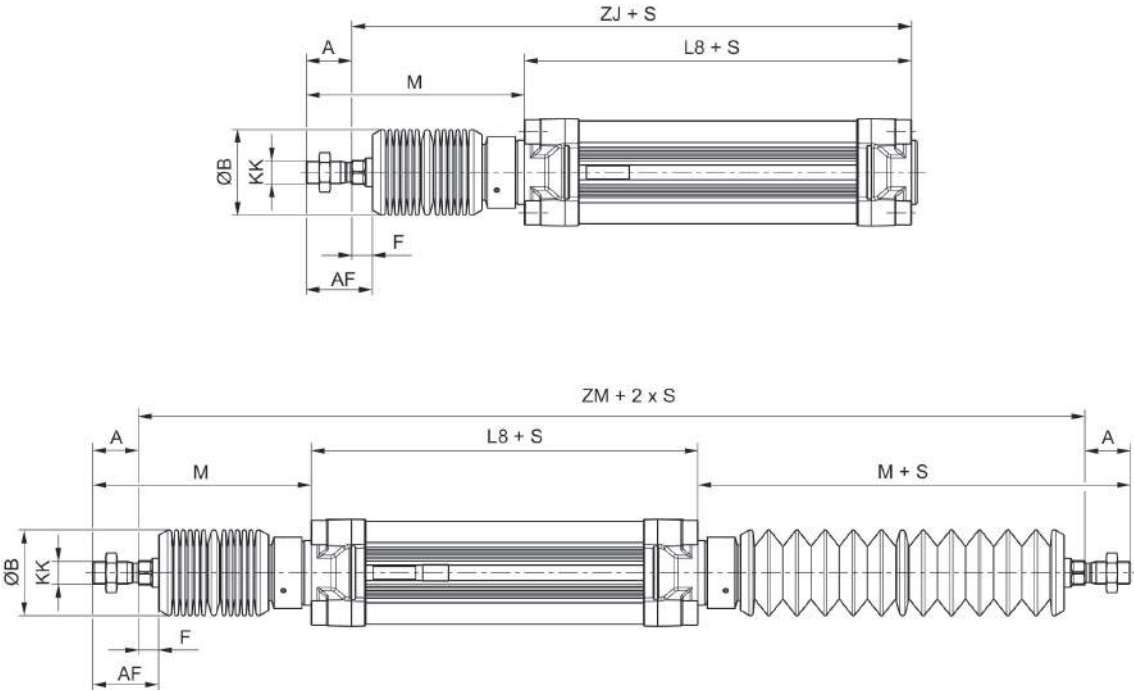
| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R481602120 |
| 50                | R481602121 |
| 80                | R481602122 |
| 100               | R481602123 |
| 125               | R481602124 |
| 160               | R481602125 |
| 200               | R481602126 |
| 250               | R481602127 |
| 320               | R481602128 |
| 400               | R481602129 |

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 500               | R481602130 |

| 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  |
| Cushioning energy       | 4.8 J   | 9 J   | 15 J    | 27 J    | 54 J    | 88 J    |
| Cushioning length       | 16.5 mm | 19 mm | 17 mm   | 16.5 mm | 19.5 mm | 19.5 mm |
| Max. speed              | 1 m/s   | 1 m/s | 0.7 m/s | 0.7 m/s | 0.7 m/s | 0.7 m/s |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Max. speed              | 0.6 m/s |



S = stroke

Stroke-dependent dimensions

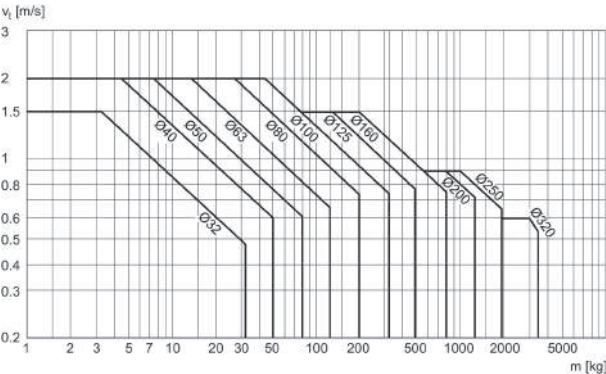
| Piston Ø | S=0-75 M | S=0-75 ZJ | S=0-75 ZM | S=76-150 M | S=76-150 ZJ | S=76-150 ZM | S=151-250 M | S=151-250 ZJ | S=151-250 ZM |
|----------|----------|-----------|-----------|------------|-------------|-------------|-------------|--------------|--------------|
| 32       | 81       | 153       | 212       | 107        | 179         | 264         | 127         | 199          | 304          |
| 40       | 138      | 219       | 333       | 138        | 219         | 333         | 138         | 219          | 333          |
| 50       | 153      | 227       | 348       | 153        | 227         | 348         | 153         | 227          | 348          |
| 63       | 153      | 242       | 363       | 153        | 242         | 363         | 153         | 242          | 363          |
| 80       | 170      | 258       | 388       | 170        | 258         | 388         | 170         | 258          | 388          |
| 100      | 160      | 258       | 378       | 160        | 258         | 378         | 160         | 258          | 378          |
| 125      | 188      | 294       | 418       | 188        | 294         | 428         | 188         | 294          | 428          |

| Piston Ø | S=251-5000 M | S=251-500 ZJ | S=251-500 ZM | S=501-750 M | S=501-750 ZJ | S=501-750 ZM | S=751-1000 M | S=751-1000 ZJ | S=751-1000 ZM |
|----------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|---------------|---------------|
| 32       | -            | -            | -            | -           | -            | -            | -            | -             | -             |
| 40       | 218          | 299          | 493          | -           | -            | -            | -            | -             | -             |
| 50       | 233          | 307          | 508          | 313         | 387          | 668          | -            | -             | -             |
| 63       | 233          | 322          | 523          | 313         | 402          | 683          | 394          | 483           | 845           |
| 80       | 250          | 338          | 548          | 330         | 418          | 708          | 411          | 499           | 870           |
| 100      | 220          | 318          | 498          | 280         | 378          | 618          | 340          | 438           | 738           |
| 125      | 248          | 354          | 548          | 308         | 414          | 668          | 368          | 474           | 788           |

S = stroke

|            | A  | Ø B | KK       | L8  | AF | F  |
|------------|----|-----|----------|-----|----|----|
| R481602057 | 22 | 42  | M10x1.25 | 94  | 34 | 12 |
| R481602065 | 24 | 42  | M12x1.25 | 105 | 39 | 15 |
| R481602076 | 32 | 64  | M16x1,5  | 106 | 47 | 15 |
| R481602087 | 32 | 64  | M16x1,5  | 121 | 47 | 15 |
| R481602098 | 40 | 64  | M20x1,5  | 128 | 57 | 17 |
| R481602109 | 40 | 64  | M20x1,5  | 138 | 57 | 17 |
| R481602120 | 54 | 94  | M27x2    | 160 | 71 | 17 |

Cushioning diagram



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

## Profile cylinder ISO 15552, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

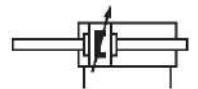
Piston rod: **through**

Compressed air connection: Internal thread

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|------------|------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    | M20x1,5    | M20x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      | G 3/8      | G 1/2      |
| 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          | 125 mm     |
|-------------------|------------|
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| Stroke 25         | R480148066 |
| 50                | R480148067 |
| 80                | R480148068 |
| 100               | R480142910 |
| 125               | R480148069 |
| 160               | R480148070 |
| 200               | R480148071 |
| 250               | R480148072 |
| 320               | R480148073 |
| 400               | R480148074 |

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | M27x2      |
| Ports             | G 1/2      |
| 500               | R480148075 |

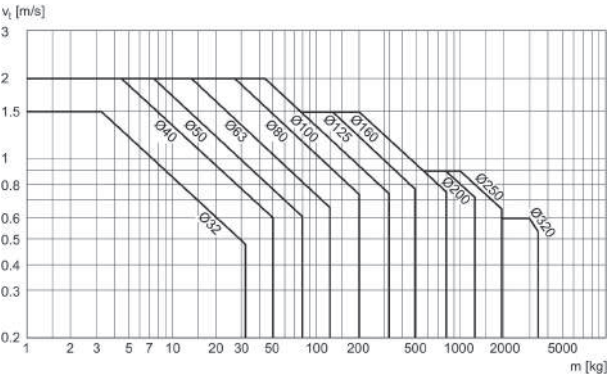
| Piston Ø                | 32 mm    | 40 mm    | 50 mm    | 63 mm    | 80 mm    | 100 mm   |
|-------------------------|----------|----------|----------|----------|----------|----------|
| Retracting piston force | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   |
| Extracting piston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

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7220 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.22 kg |
| Weight 0 mm stroke      | 8.92 kg |



| Piston Ø | VD | WH     | ZM         |
|----------|----|--------|------------|
| 32       | 5  | 26±1,4 | 146+3/-1,5 |
| 40       | 5  | 30±1,4 | 165+3/-1,5 |
| 50       | 5  | 37±1,4 | 180+3/-1,5 |
| 63       | 5  | 37±1,8 | 195+3/-1,5 |
| 80       | 5  | 46±1,8 | 220+3/-1,5 |
| 100      | 5  | 51±1,8 | 240+3,5/-2 |
| 125      | 7  | 65±2,2 | 290+3,5/-2 |

Cushioning diagram



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

## Profile cylinder ISO 15552, PRA series

Standards: ISO 15552

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

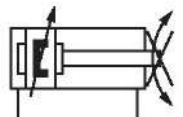
Piston rod: **non-rotating**

Compressed air connection: Internal thread

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

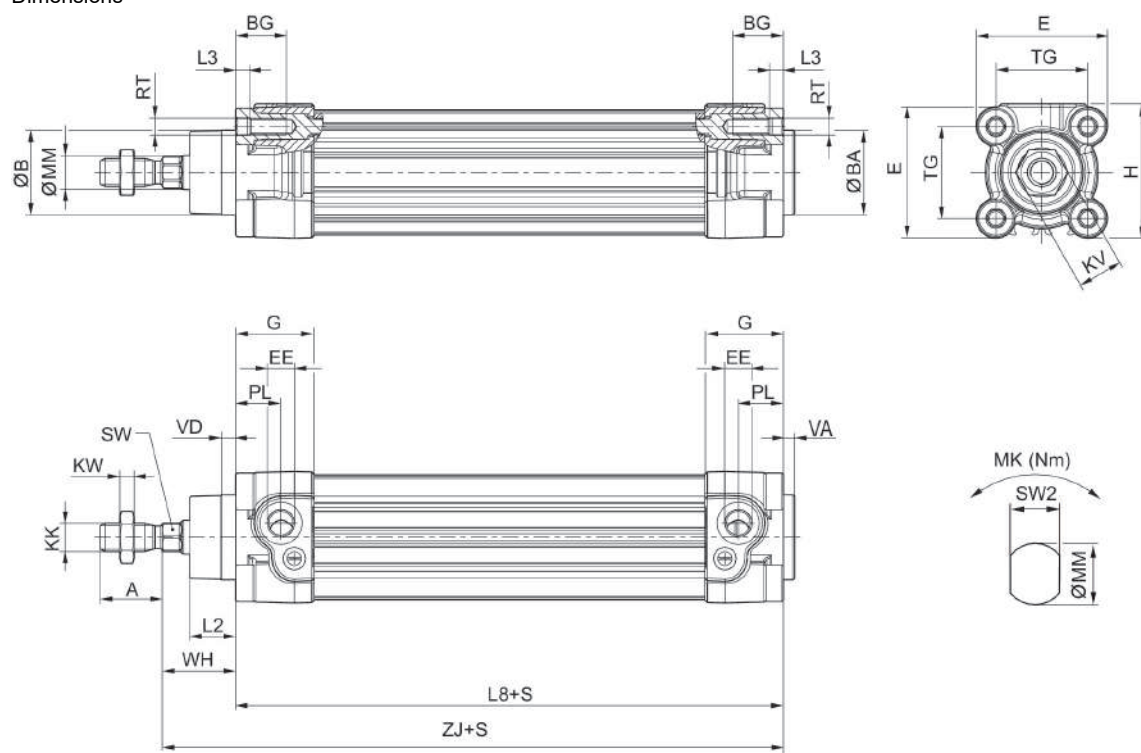
Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm      | 40 mm      | 50 mm      | 63 mm      |
|-------------------|------------|------------|------------|------------|
| Piston rod thread | M10x1,25   | M12x1,25   | M16x1,5    | M16x1,5    |
| Ports             | G 1/8      | G 1/4      | G 1/4      | G 3/8      |
| 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 |

| 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 energy                  | 4.8 J    | 9 J      | 15 J     | 27 J     |
| Cushioning length                  | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  |
| Max. torque for torsion protection | 0.75 Nm  | 1.5 Nm   | 2 Nm     | 2 Nm     |
| Rotation angle tolerance (±)       | 1.8 °    | 1.6 °    | 1.4 °    | 1.4 °    |
| Weight 10 mm stroke                | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg |
| Weight 0 mm stroke                 | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  |

Dimensions



S = stroke

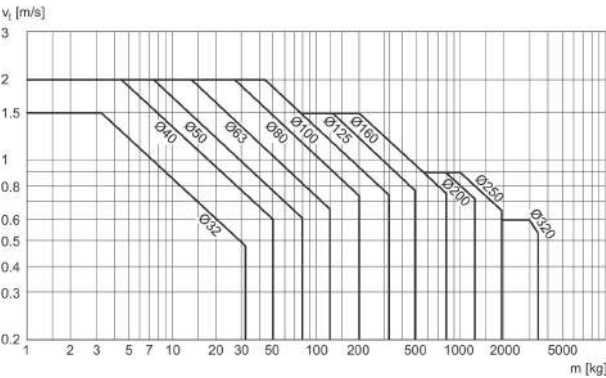
| Piston $\varnothing$ | A -2 | $\varnothing B$ d11 | $\varnothing BA$ d11 | BG min. | E    | EE    | G     | H    | KK       |
|----------------------|------|---------------------|----------------------|---------|------|-------|-------|------|----------|
| 32                   | 22   | 30                  | 30                   | 16      | 46.5 | G 1/8 | 27.75 | 47.5 | M10x1,25 |
| 40                   | 24   | 35                  | 35                   | 16      | 53   | G 1/4 | 33.25 | 53   | M12x1,25 |
| 50                   | 32   | 40                  | 40                   | 16      | 65   | G 1/4 | 31    | 65   | M16x1,5  |
| 63                   | 32   | 45                  | 45                   | 16      | 75   | G 3/8 | 38.25 | 75   | M16x1,5  |

| Piston $\varnothing$ | KV | KW | $\varnothing MM$ f8 | PL | L2    | L3 $\pm 0,5$ | L8            | RT | SW  |
|----------------------|----|----|---------------------|----|-------|--------------|---------------|----|-----|
| 32                   | 16 | 5  | 12                  | 16 | 16.25 | 4.5          | 94 $\pm 0,4$  | M6 | 10  |
| 40                   | 18 | 6  | 16                  | 20 | 18.25 | 4.5          | 105 $\pm 0,7$ | M6 | 13  |
| 50                   | 24 | 8  | 20                  | 19 | 25    | 4.5          | 106 $\pm 0,7$ | M8 | 16* |
| 63                   | 24 | 8  | 20                  | 24 | 25    | 4.5          | 121 $\pm 0,8$ | M8 | 16* |

| Piston $\varnothing$ | TG             | VA -1 | VD | WH           | ZJ  | MK   | SW2 |
|----------------------|----------------|-------|----|--------------|-----|------|-----|
| 32                   | 32,5 $\pm 0,5$ | 4     | 5  | 26 $\pm 1,4$ | 120 | 0,75 | 10  |
| 40                   | 38 $\pm 0,5$   | 4     | 5  | 30 $\pm 1,4$ | 135 | 1,5  | 13  |
| 50                   | 46,5 $\pm 0,6$ | 4     | 5  | 37 $\pm 1,4$ | 143 | 2    | 16  |
| 63                   | 56,5 $\pm 0,7$ | 4     | 5  | 37 $\pm 1,8$ | 158 | 2    | 16  |

\* not according to ISO 15552

Cushioning diagram



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

## Profile cylinder ISO 15552, Series PRA - inch

Functional principle: Double-acting

Piston: Piston with magnet

Cushioning: Pneumatic adjustable cushioning

Piston rod: External thread

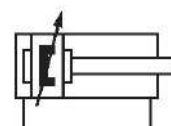
Piston rod: single

Compressed air connection: Internal thread

Ambient temperature min./max.: -20 °C ... 80 °C

Medium temperature min./max.: -20 °C ... 80 °C

Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm       | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|-------------|------------|------------|------------|------------|------------|
| Piston rod thread | 7/16-20 UNF | 1/2-20 UNF | 3/4-16 UNF | 3/4-16 UNF | 3/4-16 UNF | 3/4-16 UNF |
| Ports             | 1/8 NPT     | 1/4 NPT    | 1/4 NPT    | 3/8 NPT    | 3/8 NPT    | 1/2 NPT    |
| 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 |

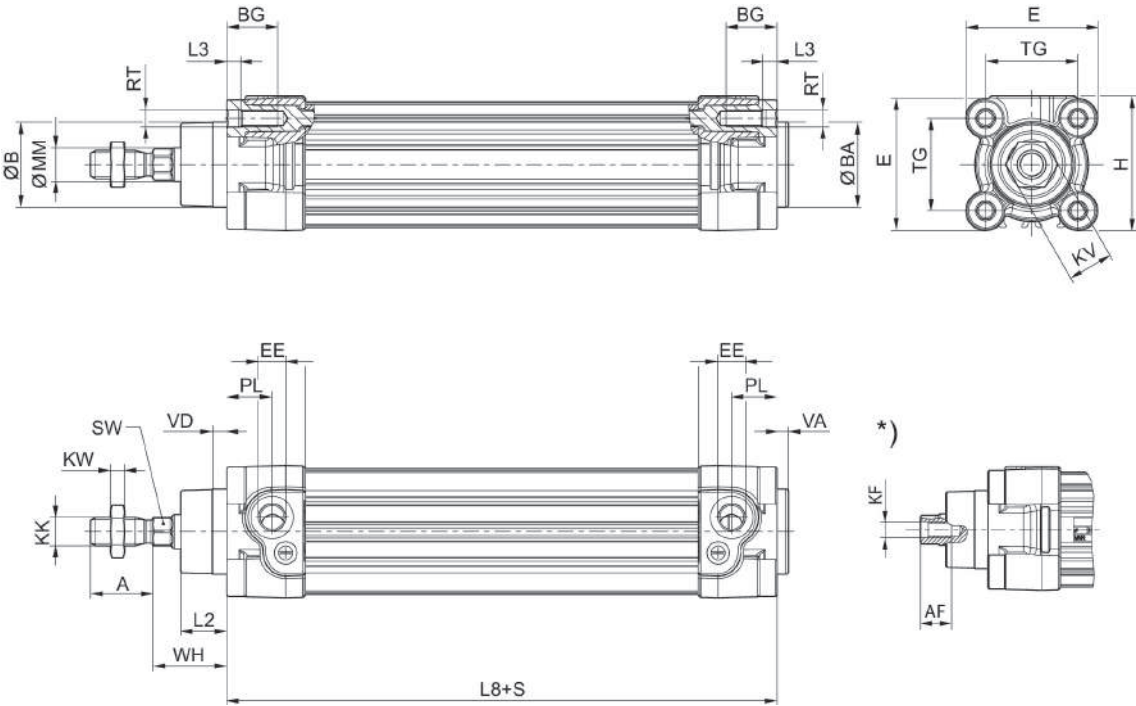
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | 1-14 UNF   |
| Ports             | 1/2 NPT    |
| Stroke 25.4       | R480176685 |
| 50.8              | R480176689 |
| 76.2              | R480176694 |
| 101.6             | R480176707 |
| 127               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | 1-14 UNF   |
| Ports             | 1/2 NPT    |
| 254               | R480176754 |
| 304.8             | R480176761 |

| 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  |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J    |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm |
| Weight 10 mm stroke     | 0.022 kg | 0.032 kg | 0.047 kg | 0.054 kg | 0.085 kg | 0.1 kg  |
| Weight 0 mm stroke      | 0.5 kg   | 0.65 kg  | 1.06 kg  | 1.42 kg  | 2.37 kg  | 3.51 kg |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7725 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.15 kg |
| Weight 0 mm stroke      | 6.72 kg |

Dimensions



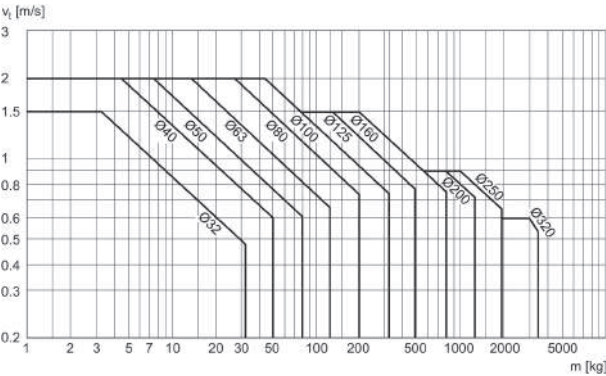
S = stroke  
\* Internal thread

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

| Piston Ø | KK       | KV | KW   | ØMM f8 | PL   | L2    | L3 ±0,5 | L8      | RT  |
|----------|----------|----|------|--------|------|-------|---------|---------|-----|
| 32       | M10x1,25 | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  |
| 40       | M12x1,25 | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  |
| 50       | M16x1,5  | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  |
| 63       | M16x1,5  | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  |
| 80       | M20x1,5  | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 |
| 100      | M20x1,5  | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   | M10 |
| 125      | M27x2    | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   | M12 |

| Piston Ø | SW | TG       | VA -1 | VD | WH     |
|----------|----|----------|-------|----|--------|
| 32       | 10 | 32,5±0,5 | 4     | 5  | 26±1,4 |
| 40       | 13 | 38±0,5   | 4     | 5  | 30±1,4 |
| 50       | 17 | 46,5±0,6 | 4     | 5  | 37±1,4 |
| 63       | 17 | 56,5±0,7 | 4     | 5  | 37±1,8 |
| 80       | 22 | 72±0,7   | 4     | 5  | 46±1,8 |
| 100      | 22 | 89±0,7   | 4     | 5  | 51±1,8 |
| 125      | 27 | 110±1,1  | 6     | 7  | 65±2,2 |

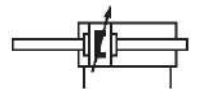
Cushioning diagram



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

## Profile cylinder ISO 15552, Series PRA - inch

Functional principle: Double-acting  
Piston: Piston with magnet  
Cushioning: Pneumatic adjustable cushioning  
Piston rod: External thread  
Piston rod: **through**  
Compressed air connection: Internal thread  
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C  
Working pressure min./max.: 1.5 bar ... 10 bar



| Piston Ø          | 32 mm       | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|-------------------|-------------|------------|------------|------------|------------|------------|
| Piston rod thread | 7/16-20 UNF | 1/2-20 UNF | 3/4-16 UNF | 3/4-16 UNF | 3/4-16 UNF | 3/4-16 UNF |
| Ports             | 1/8 NPT     | 1/4 NPT    | 1/4 NPT    | 3/8 NPT    | 3/8 NPT    | 1/2 NPT    |
| 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 |

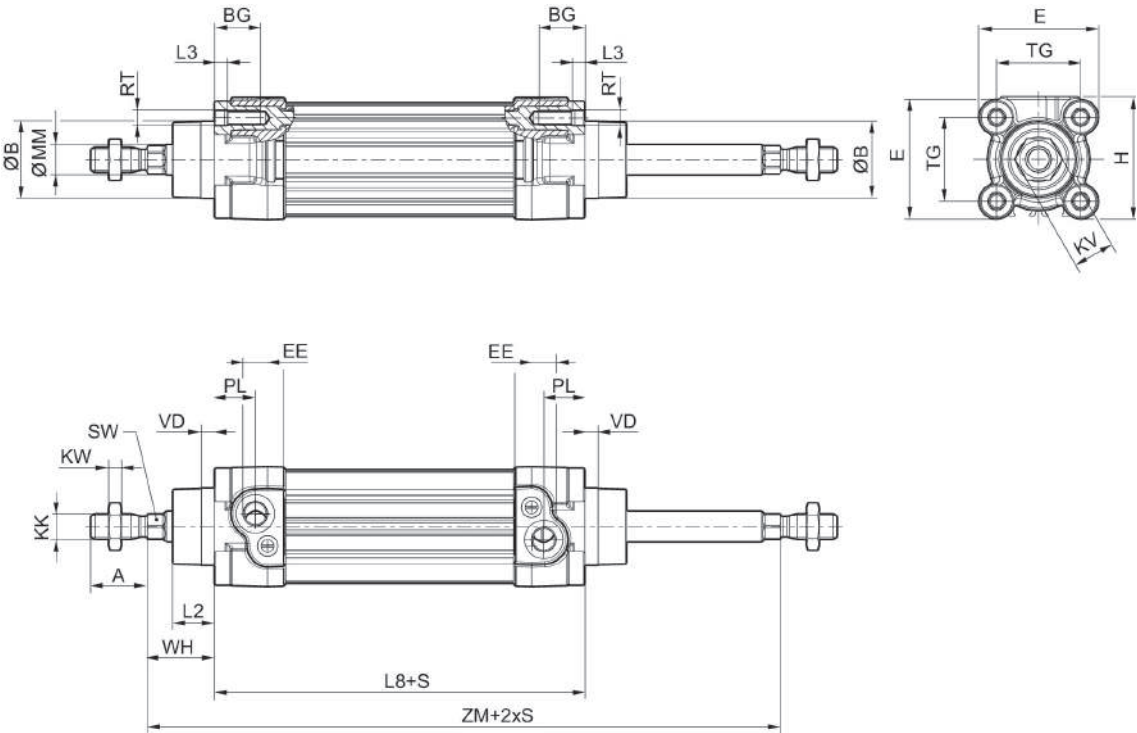
| Piston Ø          | 125 mm     |
|-------------------|------------|
| Piston rod thread | 1-14 UNF   |
| Ports             | 1/2 NPT    |
| Stroke 25.4       | R480176680 |
| 50.8              | R480176693 |
| 76.2              | R480176700 |
| 101.6             | R480176706 |
| 127               |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

|                   |            |
|-------------------|------------|
| Piston Ø          | 125 mm     |
| Piston rod thread | 1-14 UNF   |
| Ports             | 1/2 NPT    |
| 304.8             | R480176762 |

| 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 | 435 N    | 660 N    | 1035 N   | 1765 N   | 2855 N   | 4635 N   |
| Cushioning energy       | 4.8 J    | 9 J      | 15 J     | 27 J     | 54 J     | 88 J     |
| Cushioning length       | 16.5 mm  | 19 mm    | 17 mm    | 16.5 mm  | 19.5 mm  | 19.5 mm  |
| Weight 10 mm stroke     | 0.031 kg | 0.048 kg | 0.072 kg | 0.079 kg | 0.124 kg | 0.139 kg |
| Weight 0 mm stroke      | 0.58 kg  | 0.8 kg   | 1.34 kg  | 1.72 kg  | 2.92 kg  | 4.08 kg  |

|                         |         |
|-------------------------|---------|
| Piston Ø                | 125 mm  |
| Retracting piston force | 7220 N  |
| Extracting piston force | 7220 N  |
| Cushioning energy       | 140 J   |
| Cushioning length       | 22 mm   |
| Weight 10 mm stroke     | 0.22 kg |
| Weight 0 mm stroke      | 8.92 kg |

Dimensions



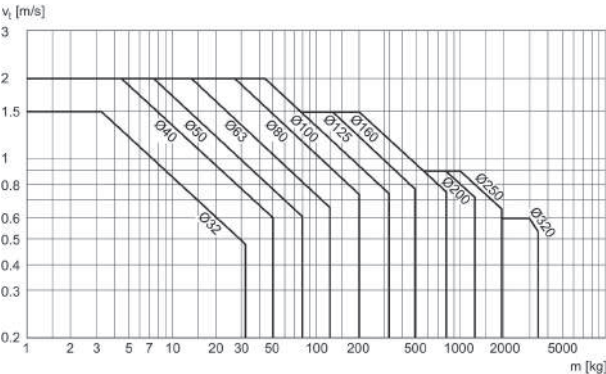
S = stroke

| Piston Ø | A -2 | ØB d11 | BG min. | E    | EE inch | EE    | H    | KK inch       | KK       |
|----------|------|--------|---------|------|---------|-------|------|---------------|----------|
| 32       | 22   | 30     | 16      | 46.5 | 1/8 NPT | G 1/8 | 47.5 | 7/16 - 20 UNF | M10x1,25 |
| 40       | 24   | 35     | 16      | 53   | 1/4 NPT | G 1/4 | 53   | 1/2 -20 UNF   | M12x1,25 |
| 50       | 32   | 40     | 16      | 65   | 1/4 NPT | G 1/4 | 65   | 3/4 - 16 UNF  | M16x1,5  |
| 63       | 32   | 45     | 16      | 75   | 3/8 NPT | G 3/8 | 75   | 3/4 - 16 UNF  | M16x1,5  |
| 80       | 40   | 45     | 17      | 95   | 3/8 NPT | G 3/8 | 95   | 3/4 - 16 UNF  | M20x1,5  |
| 100      | 40   | 55     | 17      | 115  | 1/2 NPT | G 1/2 | 115  | 3/4 - 16 UNF  | M20x1,5  |
| 125      | 54   | 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 |
|----------|----|------|--------|------|-------|---------|---------|-----|----|
| 32       | 16 | 5    | 12     | 16   | 16.25 | 4.5     | 94±0,4  | M6  | 10 |
| 40       | 18 | 6    | 16     | 20   | 18.25 | 4.5     | 105±0,7 | M6  | 13 |
| 50       | 24 | 8    | 20     | 19   | 25    | 4.5     | 106±0,7 | M8  | 17 |
| 63       | 24 | 8    | 20     | 24   | 25    | 4.5     | 121±0,8 | M8  | 17 |
| 80       | 30 | 10   | 25     | 23.5 | 33    | 0       | 128±0,8 | M10 | 22 |
| 100      | 30 | 10   | 25     | 25   | 36    | 0       | 138±1   | M10 | 22 |
| 125      | 41 | 13.5 | 32     | 33   | 45    | 0       | 160±1   | M12 | 27 |

| Piston Ø | TG       | VD | WH     | ZM         |
|----------|----------|----|--------|------------|
| 32       | 32,5±0,5 | 5  | 26±1,4 | 146+3/-1,5 |
| 40       | 38±0,5   | 5  | 30±1,4 | 165+3/-1,5 |
| 50       | 46,5±0,6 | 5  | 37±1,4 | 180+3/-1,5 |
| 63       | 56,5±0,7 | 5  | 37±1,8 | 195+3/-1,5 |
| 80       | 72±0,7   | 5  | 46±1,8 | 220+3/-1,5 |
| 100      | 89±0,7   | 5  | 51±1,8 | 240+3,5/-2 |
| 125      | 110±1,1  | 7  | 65±2,2 | 290+3,5/-2 |

Cushioning diagram



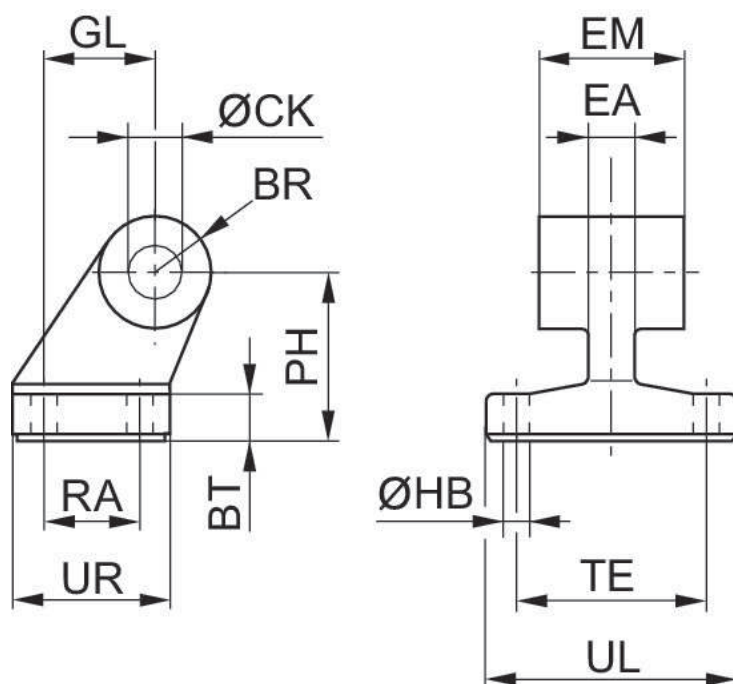
$v_t$  = Piston velocity [m/s]  $m$  = Cushionable mass [kg]

Bearing block AB7-HD, Series CM1



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material              | Part No.   |
|----------------------|-----------------------|------------------|-----------------------|------------|
| 32                   | 10                    | ISO 15552        | Nodular graphite iron | 1825805275 |
| 40                   | 12                    | ISO 15552        | Nodular graphite iron | 1825805276 |
| 50                   | 12                    | ISO 15552        | Nodular graphite iron | 1825805277 |
| 63                   | 16                    | ISO 15552        | Nodular graphite iron | 1825805278 |
| 80                   | 16                    | ISO 15552        | Nodular graphite iron | 1825805279 |
| 100                  | 20                    | ISO 15552        | Nodular graphite iron | 1825805280 |
| 125                  | 25                    | ISO 15552        | Nodular graphite iron | 1825805281 |

Dimensions



| Part No.   | Piston Ø | BR   | BT | Ø CK H9 | Ø HB H13 | EM            | GL JS14 | EA max. | PH JS15 |
|------------|----------|------|----|---------|----------|---------------|---------|---------|---------|
| 1825805275 | 32       | 10   | 8  | 10      | 6.6      | 26 -0,2/-0,6  | 21      | 10      | 32      |
| 1825805276 | 40       | 11   | 10 | 12      | 6.6      | 28 -0,2/-0,6  | 24      | 12      | 36      |
| 1825805277 | 50       | 13   | 12 | 12      | 9        | 32 -0,2/-0,6  | 33      | 16      | 45      |
| 1825805278 | 63       | 15   | 12 | 16      | 9        | 40 -0,2/-0,6  | 37      | 16      | 50      |
| 1825805279 | 80       | 15   | 14 | 16      | 11       | 50 -0,2/-0,6  | 47      | 20      | 63      |
| 1825805280 | 100      | 19   | 15 | 20      | 11       | 60 -0,2/-0,6  | 55      | 20      | 71      |
| 1825805281 | 125      | 22,5 | 20 | 25      | 14       | 70 -0,5/-1,5  | 70      | 30      | 90      |
| 1825805282 | 160      | 31.5 | 25 | 30      | 14       | 90 -0,5/-1,5  | 97      | 36      | 115     |
| 1825805283 | 200      | 31.5 | 30 | 30      | 18       | 90 -0,5/-1,5  | 105     | 40      | 135     |
| 1825805284 | 250      | 40   | 35 | 40      | 22       | 110 -0,5/-1,5 | 128     | 45      | 165     |
| 5239013422 | 320      | 45   | 40 | 45      | 26       | 120 -0,5/-1,5 | 150     | 55      | 200     |

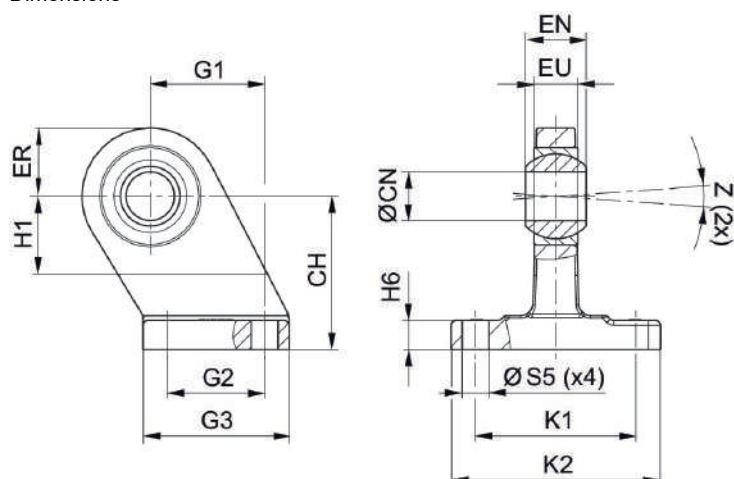
| Part No.   | RA JS14 | TE JS14 | UL max. | UR max. |
|------------|---------|---------|---------|---------|
| 1825805275 | 18      | 38      | 51      | 31      |
| 1825805276 | 22      | 41      | 54      | 35      |
| 1825805277 | 30      | 50      | 65      | 45      |
| 1825805278 | 35      | 52      | 67      | 50      |
| 1825805279 | 40      | 66      | 86      | 60      |
| 1825805280 | 50      | 76      | 96      | 70      |
| 1825805281 | 60      | 94      | 124     | 90      |
| 1825805282 | 88      | 118     | 156     | 126     |
| 1825805283 | 90      | 122     | 162     | 130     |
| 1825805284 | 110     | 150     | 200     | 160     |
| 5239013422 | 122     | 170     | 234     | 186     |

Bearing block CS7, Series CM1



| Piston di-<br>ameter<br>[mm] | Swivel<br>bearing Ø<br>[mm] | Standard-<br>ization | Material                 | Part No.   |
|------------------------------|-----------------------------|----------------------|--------------------------|------------|
| 32                           | 10                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001784 |
| 40                           | 12                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001785 |
| 50                           | 16                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001786 |
| 63                           | 16                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001787 |
| 80                           | 20                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001788 |
| 100                          | 20                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001789 |
| 125                          | 30                          | VDMA 24562<br>part 2 | Nodular<br>graphite iron | 1827001790 |

Dimensions



| Piston Ø | Part No.   | CH JS15 | ØCN H7 | EU max. | EN -1,0 | ER max. | G1 JS14 | G2 JS14 | G3 max. |
|----------|------------|---------|--------|---------|---------|---------|---------|---------|---------|
| 32       | 1827001784 | 32      | 10     | 10.5    | 14      | 16      | 21      | 18      | 31      |
| 40       | 1827001785 | 36      | 12     | 12      | 16      | 18      | 24      | 22      | 35      |
| 50       | 1827001786 | 45      | 16     | 15      | 21      | 21      | 33      | 30      | 45      |
| 63       | 1827001787 | 50      | 16     | 15      | 21      | 23      | 37      | 35      | 50      |
| 80       | 1827001788 | 63      | 20     | 18      | 25      | 28      | 47      | 40      | 60      |
| 100      | 1827001789 | 71      | 20     | 18      | 25      | 30      | 55      | 50      | 70      |
| 125      | 1827001790 | 90      | 30     | 25      | 37      | 40      | 70      | 60      | 90      |
| 160      | 1827001791 | 115     | 35     | 28      | 43      | 44      | 97      | 88      | 126     |
| 200      | 1827001792 | 135     | 35     | 28      | 43      | 47      | 105     | 90      | 130     |
| 250      | 1827001793 | 165     | 40     | 33      | 49      | 53      | 128     | 110     | 160     |
| 320      | 5239013442 | 200     | 50     | 45      | 60      | 63      | 150     | 122     | 186     |

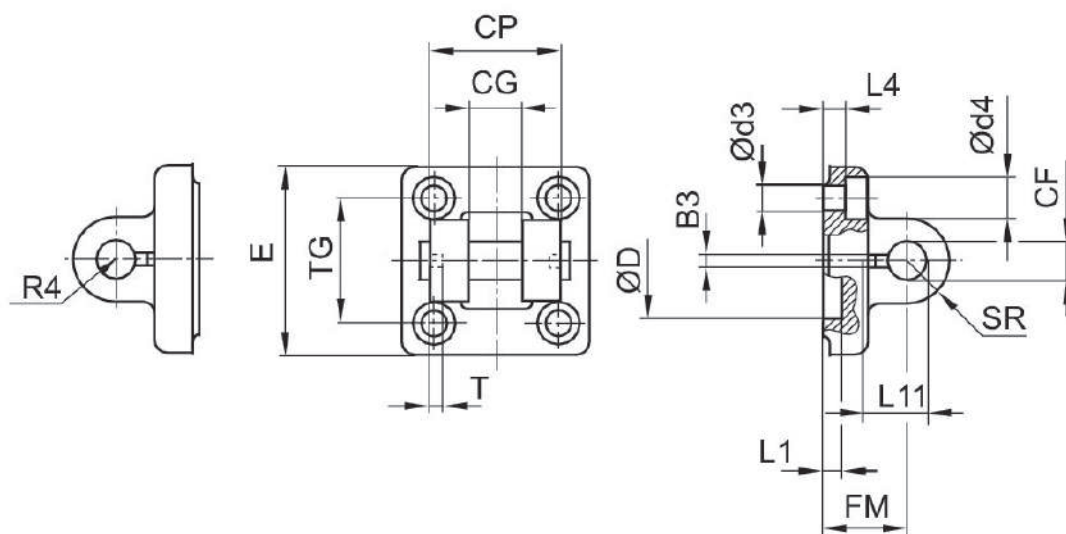
| Piston Ø | H1 min. | H6      | K1 JS14 | K2 max. | ØS5 H13 | Z min. |
|----------|---------|---------|---------|---------|---------|--------|
| 32       | 16      | 9 ±1    | 38      | 51      | 6.6     | 4°     |
| 40       | 20      | 9 ±1    | 41      | 54      | 6.6     | 4°     |
| 50       | 22      | 11 ±1   | 50      | 65      | 9       | 4°     |
| 63       | 27      | 11 ±1   | 52      | 67      | 9       | 4°     |
| 80       | 31      | 12 ±1,5 | 66      | 86      | 11      | 4°     |
| 100      | 38      | 13 ±1,5 | 76      | 96      | 11      | 4°     |
| 125      | 40      | 17 ±1,5 | 94      | 124     | 14      | 4°     |
| 160      | 45      | 22 ±1,5 | 118     | 156     | 14      | 4°     |
| 200      | 45      | 27 ±2   | 122     | 162     | 18      | 4°     |
| 250      | 50      | 31 ±2   | 150     | 200     | 22      | 4°     |
| 320      | 60      | 36 ±2   | 170     | 234     | 26      | 4°     |

Clevis mounting AB6, Series CM1



| Piston di-<br>ameter<br>[mm] | Swivel<br>bearing Ø<br>[mm] | Standard-<br>ization | Material | Part No.   |
|------------------------------|-----------------------------|----------------------|----------|------------|
| 32                           | 10                          | ISO 15552            | Aluminum | 1827001593 |
| 40                           | 12                          | ISO 15552            | Aluminum | 1827001594 |
| 50                           | 16                          | ISO 15552            | Aluminum | 1827001595 |
| 63                           | 16                          | ISO 15552            | Aluminum | 1827002024 |
| 80                           | 20                          | ISO 15552            | Aluminum | 1827001597 |
| 100                          | 20                          | ISO 15552            | Aluminum | 1827001598 |
| 125                          | 30                          | ISO 15552            | Aluminum | 1827001599 |

Dimensions



| Piston Ø | Part No.   | B3 ±0,2 | Ø CF F7 | CG D10 | CP d12 | Ø d3 | Ø d4 | Ø D | E   |
|----------|------------|---------|---------|--------|--------|------|------|-----|-----|
| 32       | 1827001593 | 3.3     | 10      | 14     | 34     | 6.6  | 11   | 30  | 46  |
| 40       | 1827001594 | 4.3     | 12      | 16     | 40     | 6.6  | 11   | 35  | 52  |
| 50       | 1827001595 | 4.3     | 16      | 21     | 45     | 9    | 15   | 40  | 64  |
| 63       | 1827002024 | 4.3     | 16      | 21     | 51     | 9    | 15   | 45  | 74  |
| 80       | 1827001597 | 4.3     | 20      | 25     | 65     | 11   | 18   | 45  | 94  |
| 100      | 1827001598 | 4.3     | 20      | 25     | 75     | 11   | 18   | 55  | 113 |
| 125      | 1827001599 | 6.3     | 30      | 37     | 97     | 14   | 20   | 60  | 138 |
| 160      | 1827001600 | 6.3     | 35      | 43     | 122    | 18   | 26   | 65  | 180 |
| 200      | 1827001601 | 6.3     | 35      | 43     | 122    | 18   | 26   | 75  | 220 |
| 250      | 1827001602 | 8.3     | 40      | 49     | 125    | 22   | 33   | 90  | 280 |
| 320      | 5239013432 | 8.3     | 50      | 60     | 150    | 26   | 36   | 110 | 340 |

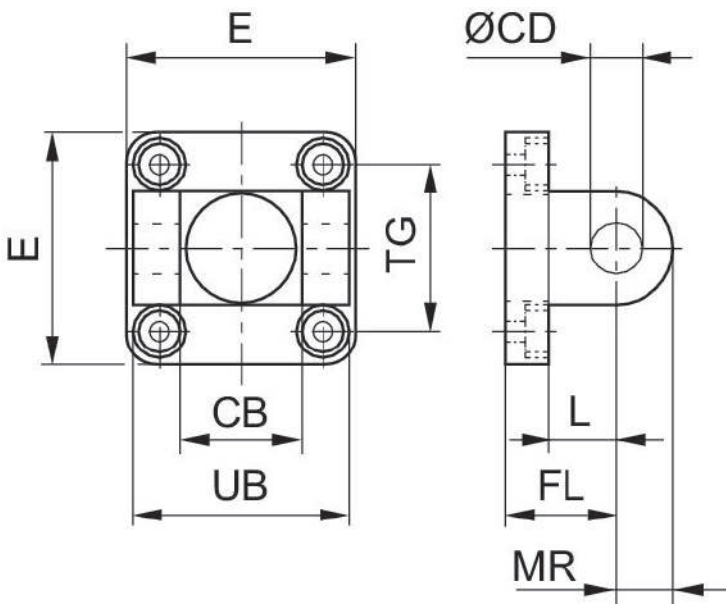
| Piston Ø | FM ±0,2 | L1 min. | L4 ±0,5 | L11 –0,5 | R4 | SR   | T ±0,2 | TG        |
|----------|---------|---------|---------|----------|----|------|--------|-----------|
| 32       | 22      | 4.5     | 5.5     | 16.5     | 17 | 10   | 3      | 32,5 ±0,2 |
| 40       | 25      | 4.5     | 5.5     | 18       | 20 | 12   | 4      | 38 ±0,2   |
| 50       | 27      | 4.5     | 6.5     | 23       | 22 | 15   | 4      | 46,5 ±0,2 |
| 63       | 32      | 4.5     | 6.5     | 23       | 25 | 15   | 4      | 56,5 ±0,2 |
| 80       | 36      | 4.5     | 10      | 27       | 30 | 20   | 4      | 72 ±0,2   |
| 100      | 41      | 4.5     | 10      | 27       | 32 | 20   | 4      | 89 ±0,2   |
| 125      | 50      | 7       | 10      | 40       | 42 | 26   | 6      | 110 ±0,3  |
| 160      | 55      | 10      | 10      | 45       | 46 | 32.5 | 6      | 140 ±0,3  |
| 200      | 60      | 10      | 11      | 45       | 49 | 32.5 | 6      | 175 ±0,3  |
| 250      | 70      | 12      | 11      | 53       | 55 | 40   | 8      | 220 ±0,3  |
| 320      | 80      | 11      | 15      | 69       | 65 | 50   | 8      | 270 ±0,3  |

Clevis mounting MP2-HD, Series CM1



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material | Part No.   |
|----------------------|-----------------------|------------------|----------|------------|
| 32                   | 10                    | ISO 15552        | Aluminum | 1827001289 |
| 40                   | 12                    | ISO 15552        | Aluminum | 1827001290 |
| 50                   | 12                    | ISO 15552        | Aluminum | 1827001291 |
| 63                   | 16                    | ISO 15552        | Aluminum | 1827001500 |
| 80                   | 16                    | ISO 15552        | Aluminum | 1827001293 |
| 100                  | 20                    | ISO 15552        | Aluminum | 1827001294 |
| 125                  | 25                    | ISO 15552        | Aluminum | 1827004862 |

Dimensions



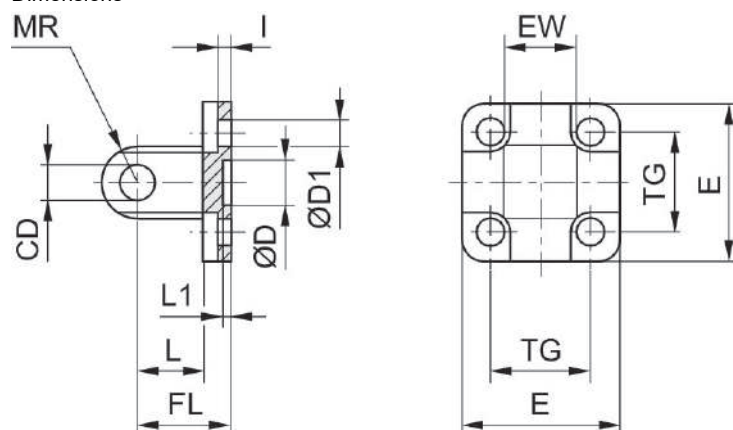
| Piston Ø | Part No.   | CB H14 | Ø CD H9 | E     | FL ±0.2 | L min. | MR max. | UB h13 | TG        |
|----------|------------|--------|---------|-------|---------|--------|---------|--------|-----------|
| 32       | 1827001289 | 26     | 10      | 47.5  | 22      | 12     | 10      | 45     | 32.5 ±0.2 |
| 40       | 1827001290 | 28     | 12      | 53.5  | 25      | 15     | 13      | 52     | 38 ±0.2   |
| 50       | 1827001291 | 32     | 12      | 64    | 27      | 15     | 13      | 60     | 46.5 ±0.2 |
| 63       | 1827001500 | 40     | 16      | 74    | 32      | 18     | 17      | 70     | 56.5 ±0.2 |
| 80       | 1827001293 | 50     | 16      | 94    | 36      | 20     | 17      | 90     | 72.0 ±0.2 |
| 100      | 1827001294 | 60     | 20      | 113.5 | 41      | 25     | 18      | 110    | 89.0 ±0.2 |
| 125      | 1827004862 | 70     | 25      | 138   | 50      | 30     | 26      | 130    | 110 ±0.3  |
| 160      | 1827004863 | 90     | 30      | 180   | 55      | 35     | 31      | 170    | 140 ±0.3  |
| 200      | 1827004864 | 90     | 30      | 220   | 60      | 35     | 31      | 170    | 175 ±0.3  |
| 250      | 1827004865 | 110    | 40      | 280   | 70      | 45     | 41      | 200    | 220 ±0.3  |
| 320      | 5239813402 | 120    | 45      | 350   | 80      | 50     | 45      | 220    | 270 ±0.3  |

Rear eye MP4-HD, suitable for robust mechanical engineering applications



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material          | Part No.   |
|----------------------|-----------------------|------------------|-------------------|------------|
| 32                   | 10                    | ISO 15552        | Aluminum (forged) | 1827001283 |
| 40                   | 12                    | ISO 15552        | Aluminum (forged) | 1827001284 |
| 50                   | 12                    | ISO 15552        | Aluminum (forged) | 1827001285 |
| 63                   | 16                    | ISO 15552        | Aluminum (forged) | 1827020086 |
| 80                   | 16                    | ISO 15552        | Aluminum (forged) | 1827001287 |
| 100                  | 20                    | ISO 15552        | Aluminum (forged) | 1827001288 |
| 125                  | 25                    | ISO 15552        | Aluminum (forged) | 1827004866 |

Dimensions



| Piston Ø | Part No.   | CD H9 | Ø D     | Ø D1 | E     | EW            | FL ±0,2 | I ±0,5 | L min. |
|----------|------------|-------|---------|------|-------|---------------|---------|--------|--------|
| 16       | 1825805368 | 6     | 10 H13  | 4.5  | 27    | 12 -0.2/-0.6  | 16      | 2.6    | 10     |
| 20       | 1827002300 | 8     | 12 H13  | 5.5  | 34    | 16 -0.2/-0.6  | 20      | 2.6    | 14     |
| 25       | 1827002301 | 8     | 12 H13  | 5.5  | 40    | 16 -0.2/-0.6  | 20      | 2.6    | 14     |
| 32       | 1827001283 | 10    | 30 H11  | 6.6  | 47.5  | 26 -0.2/-0.6  | 22      | 5.5    | 12     |
| 40       | 1827001284 | 12    | 35 H11  | 6.6  | 53.5  | 28 -0.2/-0.6  | 25      | 5.5    | 15     |
| 50       | 1827001285 | 12    | 40 H11  | 9    | 64    | 32 -0.2/-0.6  | 27      | 6.5    | 15     |
| 63       | 1827020086 | 16    | 45 H11  | 9    | 74    | 40 -0.2/-0.6  | 32      | 6.5    | 20     |
| 80       | 1827001287 | 16    | 45 H11  | 11   | 94    | 50 -0.2/-0.6  | 36      | 10     | 20     |
| 100      | 1827001288 | 20    | 55 H11  | 11   | 113.5 | 60 -0.2/-0.6  | 41      | 10     | 25     |
| 125      | 1827004866 | 25    | 60 H11  | 14   | 138   | 70 -0.5/-1.2  | 50      | 10     | 30     |
| 160      | 1827004867 | 30    | 65 H11  | 18   | 180   | 90 -0.5/-1.2  | 55      | 10     | 35     |
| 200      | 1827004868 | 30    | 75 H11  | 18   | 220   | 90 -0.5/-1.2  | 60      | 11     | 35     |
| 250      | 1827004869 | 40    | 90 H11  | 22   | 280   | 110 -0.5/-1.2 | 70      | 11     | 45     |
| 320      | 5239813412 | 45    | 110 H11 | 26   | 350   | 120 -0.5/-1.2 | 80      | 15     | 50     |

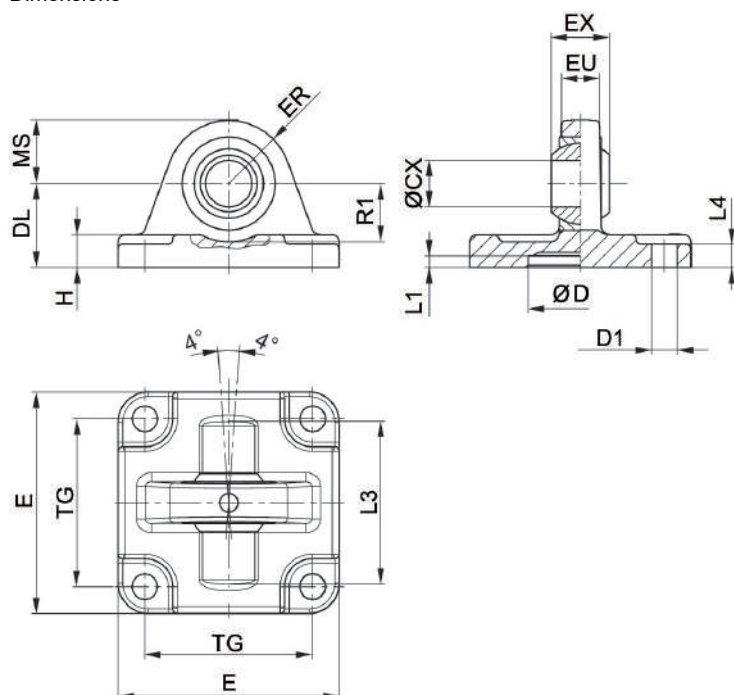
| Piston Ø | L1 min. | MR max. | TG        |
|----------|---------|---------|-----------|
| 16       | 3       | 6       | 18 ±0.2   |
| 20       | 3       | 8       | 22 ±0.4   |
| 25       | 3       | 8       | 26 ±0.4   |
| 32       | 4.5     | 10      | 32.5 ±0.2 |
| 40       | 4.5     | 12      | 38 ±0.2   |
| 50       | 4.5     | 12      | 46.5 ±0.2 |
| 63       | 4.5     | 16      | 56.5 ±0.2 |
| 80       | 4.5     | 16      | 72 ±0.2   |
| 100      | 4.5     | 20      | 89 ±0.2   |
| 125      | 7       | 26      | 110 ±0.3  |
| 160      | 7       | 31      | 140 ±0.3  |
| 200      | 7       | 31      | 175 ±0.3  |
| 250      | 11      | 41      | 220 ±0.3  |
| 320      | 11      | 45      | 270 ±0.3  |

Rear eye MP6, with ball joint and foot, aluminum



| Piston di-<br>ameter<br>[mm] | Swivel<br>bearing Ø<br>[mm] | Standard-<br>ization | Material             | Part No.   |
|------------------------------|-----------------------------|----------------------|----------------------|------------|
| 32                           | 10                          | ISO 15552            | Aluminum<br>(forged) | 1827001619 |
| 40                           | 12                          | ISO 15552            | Aluminum<br>(forged) | 1827001620 |
| 50                           | 16                          | ISO 15552            | Aluminum<br>(forged) | 1827001621 |
| 63                           | 16                          | ISO 15552            | Aluminum<br>(forged) | 1827020087 |
| 80                           | 20                          | ISO 15552            | Aluminum<br>(forged) | 1827001623 |
| 100                          | 20                          | ISO 15552            | Aluminum<br>(forged) | 1827001624 |
| 125                          | 30                          | ISO 15552            | Aluminum<br>(forged) | 1827001625 |

Dimensions



Scope of delivery: clevis incl. mounting screws

| Piston Ø | Part No.   | ØCX H7 | ØD H11 | ØD1 H13 | DL ±0,2 | E   | EX -0,1 | ER | EU   |
|----------|------------|--------|--------|---------|---------|-----|---------|----|------|
| 25       | 3663602000 | 10     | 18     | 5,5     | 20      | 40  | 9       | 14 | 8    |
| 32       | 3663603000 | 10     | 20     | 5,5     | 22      | 46  | 9       | 15 | 8    |
| 40       | 3663604000 | 12     | 30     | 6,6     | 28      | 55  | 12      | 17 | 9,5  |
| 52,5     | 3663605000 | 12     | 40     | 6,6     | 28      | 62  | 12      | 17 | 9,5  |
| 63       | 5220163442 | 10     | –      | 7,5     | 29      | 45  | 14      | 15 | 10,5 |
| 75       | 3663606000 | 16     | 55     | 9       | 36      | 80  | 16      | 25 | 12,5 |
| 80       | 5220363442 | 12     | –      | 10      | 26      | 65  | 16      | 18 | 12   |
| 80       | 3663608000 | 16     | 70     | 9       | 38      | 94  | 16      | 28 | 12,5 |
| 85, 95   | 5220463442 | 16     | –      | 10      | 30      | 75  | 21      | 22 | 15   |
| 100      | 3663610000 | 20     | 90     | 11      | 43      | 114 | 20      | 35 | 16   |
| 115      | 5220563442 | 16     | –      | 12      | 37,5    | 95  | 21      | 25 | 15   |

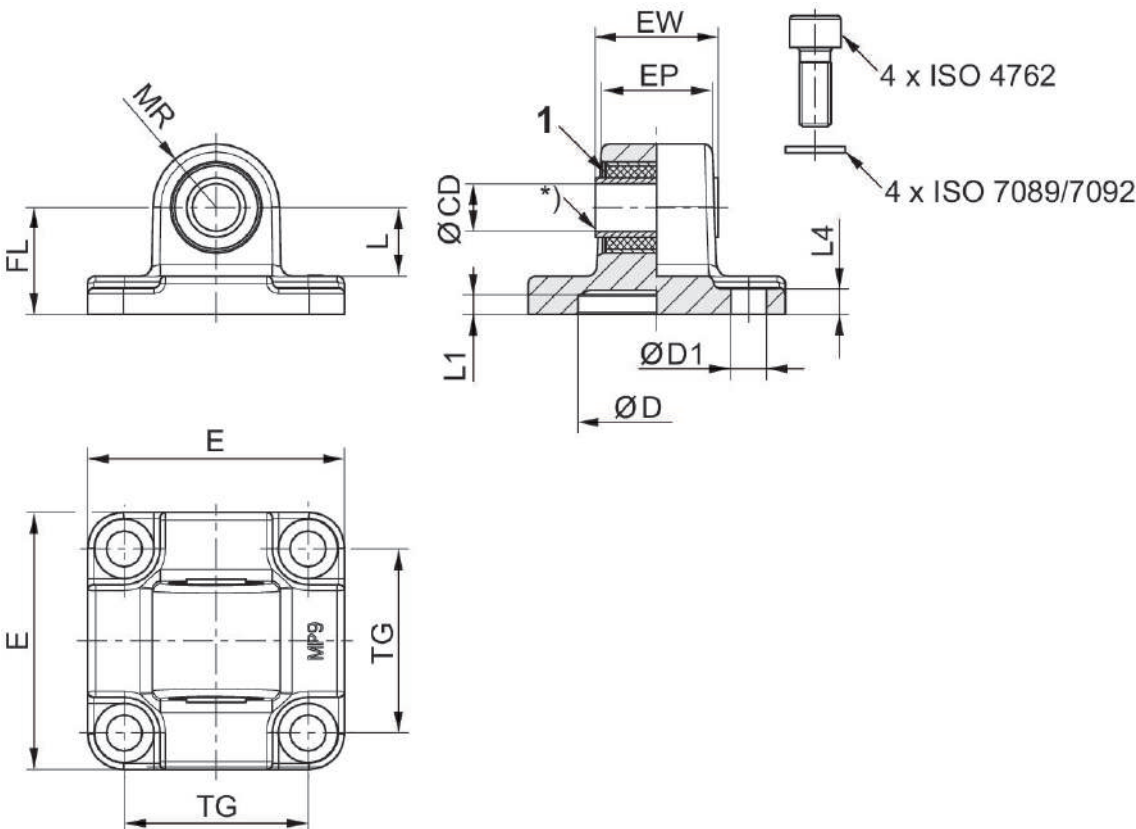
| Piston Ø | H  | L1 min. | L3  | L4 | MS -0,5 | R1 min. | TG |
|----------|----|---------|-----|----|---------|---------|----|
| 25       | 6  | 3       | –   | 3  | 14      | –       | 26 |
| 32       | 6  | 0,5     | 42  | 6  | 15      | 16      | 32 |
| 40       | 8  | 0,5     | 48  | 8  | 17      | 16      | 32 |
| 52,5     | 9  | 0,5     | 55  | 9  | 17      | 18      | 46 |
| 63       | 8  | –       | –   | –  | –       | –       | 33 |
| 75       | 11 | 0,5     | 70  | 11 | 25      | 21      | 59 |
| 80       | 10 | –       | –   | –  | –       | –       | 49 |
| 80       | 12 | 0,5     | 80  | 12 | 28      | 21      | 73 |
| 85, 95   | 10 | –       | –   | –  | –       | –       | 59 |
| 100      | 15 | 0,5     | 100 | 15 | 35      | 28      | 90 |
| 115      | 12 | –       | –   | –  | –       | –       | 75 |

Rear eye MP9, with rubber bushing



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material | Part No.   |
|----------------------|-----------------------|------------------|----------|------------|
| 32                   | 10                    | ISO 15552        | Aluminum | 3683203000 |
| 50                   | 12                    | ISO 15552        | Aluminum | 3683205000 |
| 80                   | 16                    | ISO 15552        | Aluminum | 3683208000 |
| 125                  | 25                    | ISO 15552        | Aluminum | R412015973 |

Dimensions



1) Rubber bushing

| Piston Ø | Part No.   | CD H11 | CD H9 | E    | EW   | EP   | TG   | TG1 ±0,2 | FL ±0,2 |
|----------|------------|--------|-------|------|------|------|------|----------|---------|
| 32       | 3683203000 | 10     | -     | 46   | 25.5 | 18,9 | 32.5 | –        | 22      |
| 50       | 3683205000 | -      | 12    | 65   | 31   | 28   | 46.5 | –        | 27      |
| 50       | 3663205000 |        | 12    | 63   | 31   |      | 46   |          | 28      |
| 80       | 3663208000 |        | 16    | 95   | 49.5 |      | 73   |          | 38      |
| 80       | 3683208000 | -      | 16    | 94.5 | 49.5 | 43   | 72   | –        | 36      |
| 125      | R412015973 | -      | 25    | 138  | 69.5 | 60   | 110  | –        | 50      |

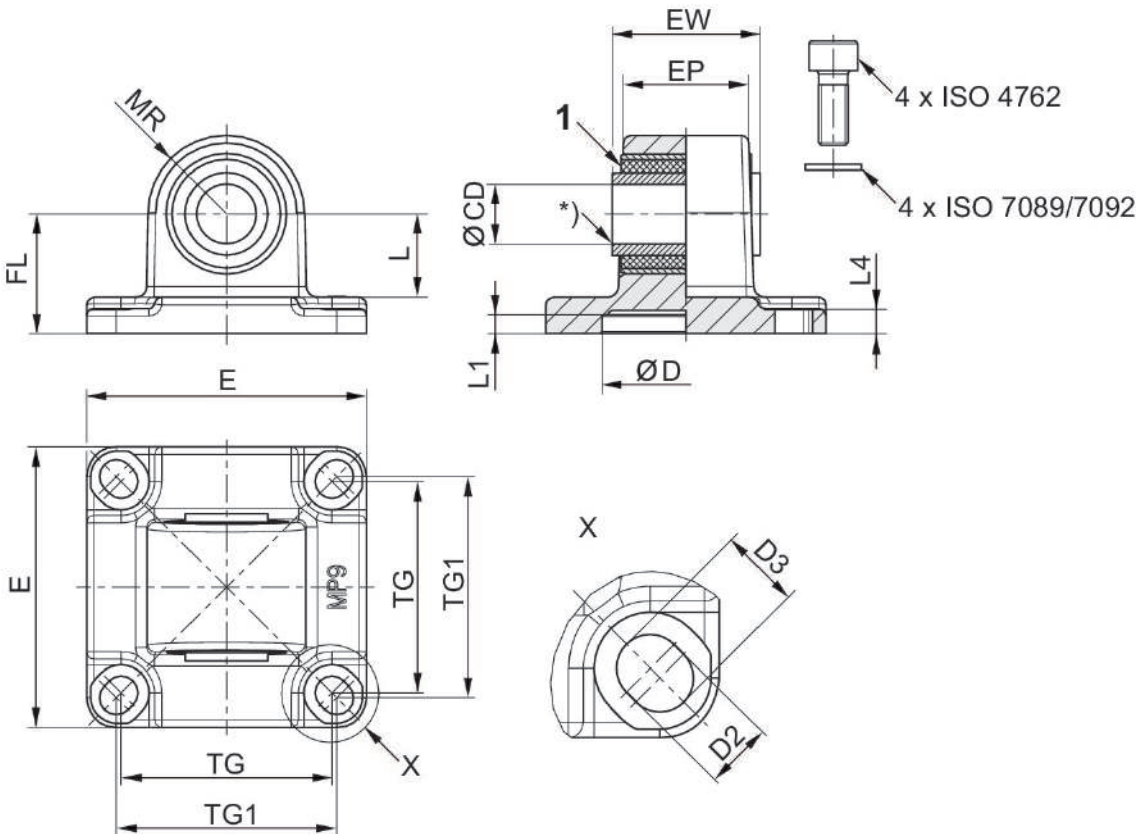
| Piston Ø | L 1) | MR   | L1  | L4  | D H11 | D1 H13 |
|----------|------|------|-----|-----|-------|--------|
| 32       | 13.8 | 12.5 | 5   | 5.5 | 30    | 6.6    |
| 50       | 17.3 | 16   | 5   | 6.5 | 40    | 9      |
| 50       | 15.5 | 18   |     |     |       |        |
| 80       | 20.5 | 24   |     |     |       |        |
| 80       | 21.8 | 22   | 5   | 10  | 45    | 11     |
| 125      | 33.8 | 34   | 7.5 | 10  | 60    | 13.5   |

Rear eye MP9, with rubber bushing



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material | Part No.   |
|----------------------|-----------------------|------------------|----------|------------|
| 40                   | 12                    | ISO 15552        | Aluminum | 3683204000 |
| 63                   | 16                    | ISO 15552        | Aluminum | 3683206000 |
| 100                  | 20                    | ISO 15552        | Aluminum | 3683210000 |

Dimensions



1) Rubber bushing

| Piston Ø | Part No.   | CD H11 | CD H9 | E   | EW   | EP   | TG   | TG1 ±0,2 | FL ±0,2 |
|----------|------------|--------|-------|-----|------|------|------|----------|---------|
| 25       | 3683202000 | 10     | -     | 40  | 17.5 | 14,5 | 26   | 27       | 20      |
| 40       | 3683204000 | -      | 12    | 53  | 27   | 23,5 | 38   | 40       | 25      |
| 63       | 3683206000 | -      | 16    | 75  | 39.5 | 33.5 | 56.5 | 59       | 32      |
| 100      | 3683210000 | -      | 20    | 114 | 59.5 | 54   | 89   | 90       | 41      |

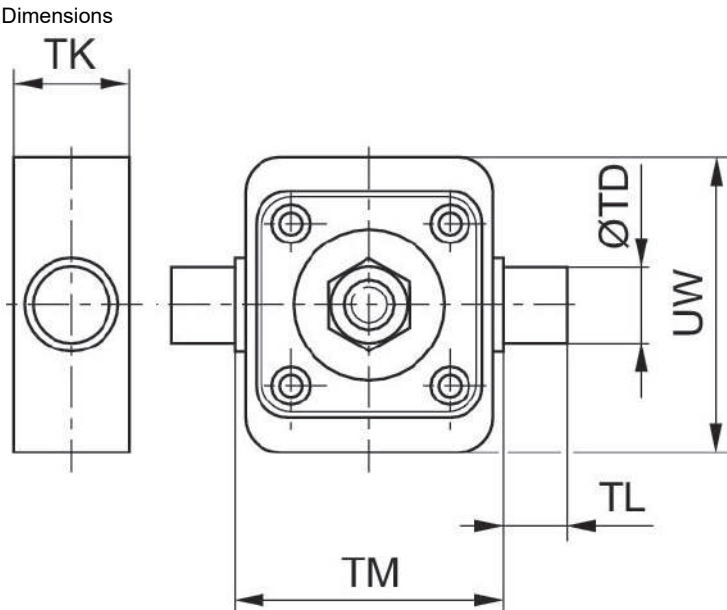
| Piston Ø | L 1) | MR   | L1 | L4  | D H11 | D2 -0,2 | D3 -0,2 |
|----------|------|------|----|-----|-------|---------|---------|
| 25       | 14.8 | 12,5 | 3  | 3   | 18    | 5,5     | 6,2     |
| 40       | 16.3 | 15   | 5  | 5.5 | 35    | 6.6     | 8       |
| 63       | 22.3 | 21   | 5  | 6.5 | 45    | -       | -       |
| 100      | 25.8 | 25   | 5  | 10  | 55    | 11      | 11.7    |

Trunnion mounting MT4, Series CM1

For series: PRA



| Piston di-<br>ameter<br>[mm] | Material | Part No.   |
|------------------------------|----------|------------|
| 32                           | Aluminum | 1827003991 |
| 40                           | Aluminum | 1827003992 |
| 50                           | Aluminum | 1827003993 |
| 63                           | Aluminum | 1827003994 |
| 80                           | Aluminum | 1827003995 |
| 100                          | Aluminum | 1827003996 |
| 125                          | Aluminum | 1827003997 |



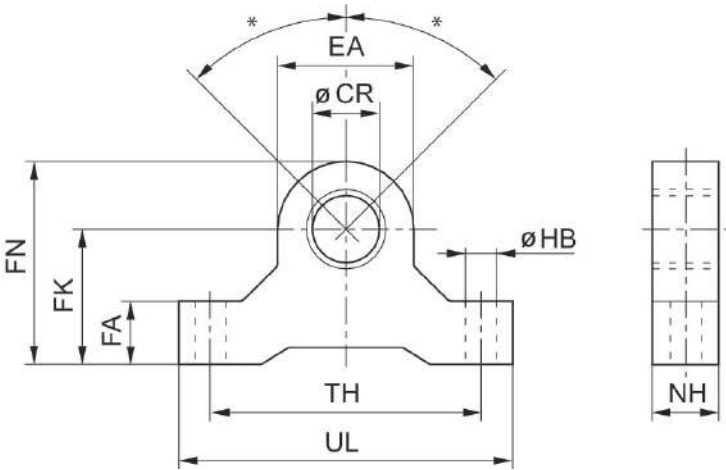
| Piston Ø | Part No.   | TD e9 | TK max. | TL h14 | TM h14 | UW  |
|----------|------------|-------|---------|--------|--------|-----|
| 32       | 1827003991 | 12    | 22      | 12     | 50     | 64  |
| 40       | 1827003992 | 16    | 27      | 16     | 63     | 72  |
| 50       | 1827003993 | 16    | 27      | 16     | 75     | 90  |
| 63       | 1827003994 | 20    | 35      | 20     | 90     | 102 |
| 80       | 1827003995 | 20    | 35      | 20     | 110    | 125 |
| 100      | 1827003996 | 25    | 46      | 25     | 132    | 147 |
| 125      | 1827003997 | 25    | 46      | 25     | 160    | 178 |

Bearing, Series CM1



| Piston di-<br>ameter<br>[mm] | Swivel<br>bearing Ø<br>[mm] | Material | Part No.   |
|------------------------------|-----------------------------|----------|------------|
| 32                           | 12                          | Aluminum | 3671203000 |
| 40, 50                       | 16                          | Aluminum | 3671204000 |
| 63, 80                       | 20                          | Aluminum | 3671206000 |
| 100, 125                     | 25                          | Aluminum | 3671210000 |

Dimensions



\* Max. pendulum movement for cylinders with rear eye MP6 with ball joint: ±45°

| Piston Ø | Part No.   | Ø CR H8 | EA | FA | FK ±0,1 | FN  | HB  | NH | TH  |
|----------|------------|---------|----|----|---------|-----|-----|----|-----|
| 25       | 3671202000 | 10      | 16 | 10 | 21      | 29  | 5.5 | 10 | 27  |
| 32       | 3671203000 | 12      | 19 | 11 | 22      | 32  | 6.6 | 11 | 44  |
| 40, 50   | 3671204000 | 16      | 28 | 16 | 35      | 49  | 9   | 16 | 65  |
| 63, 80   | 3671206000 | 20      | 38 | 19 | 40      | 59  | 9   | 19 | 80  |
| 100, 125 | 3671210000 | 25      | 46 | 22 | 48      | 71  | 11  | 22 | 96  |
| 100      | 3671212000 | 30      | 56 | 28 | 57      | 88  | 13  | 28 | 114 |
| 160, 200 | 3671216000 | 32      | 66 | 32 | 70      | 103 | 17  | 32 | 140 |
| 250, 320 | 3671220000 | 35      | 66 | 32 | 70      | 103 | 17  | 32 | 140 |

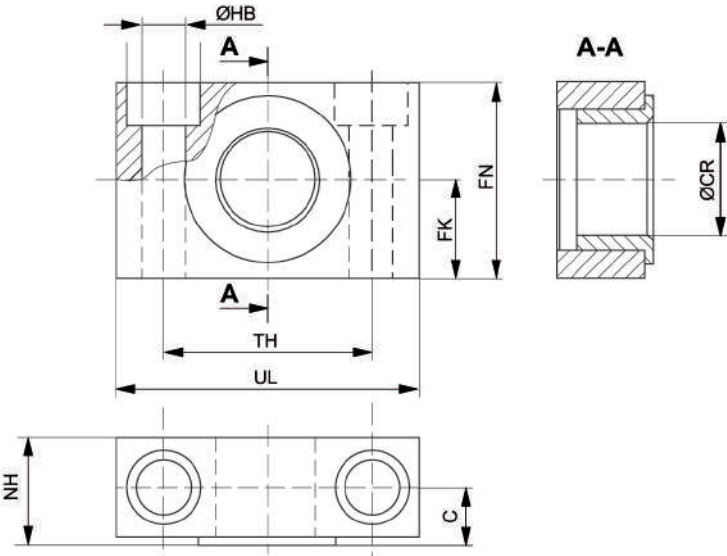
| Piston Ø | UL  |
|----------|-----|
| 25       | 37  |
| 32       | 55  |
| 40, 50   | 82  |
| 63, 80   | 99  |
| 100, 125 | 118 |
| 100      | 142 |
| 160, 200 | 172 |
| 250, 320 | 172 |

Bearing AT4, Series CM1



| Piston diameter [mm] | Swivel bearing Ø [mm] | Standard-ization | Material             | Part No.   |
|----------------------|-----------------------|------------------|----------------------|------------|
| 20, 25, 32           | 12                    | ISO 15552        | Steel, chrome-plated | 1827001603 |
| 40, 50               | 16                    | ISO 15552        | Steel, chrome-plated | 1827001604 |
| 63, 80               | 20                    | ISO 15552        | Steel, chrome-plated | 1827001605 |
| 100, 125             | 25                    | ISO 15552        | Steel, chrome-plated | 1827001606 |

Dimensions



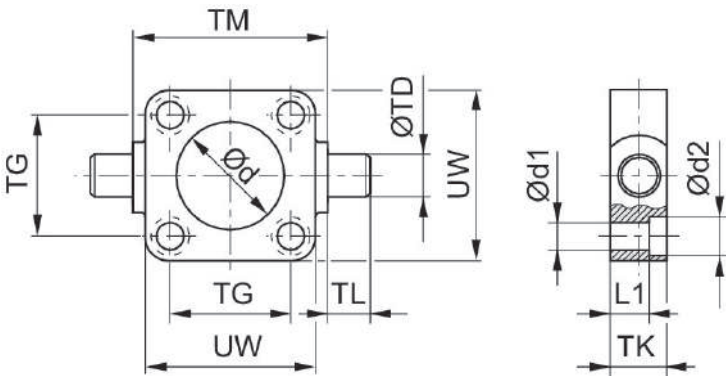
| Piston $\varnothing$ | Part No.   | UL  | NH   | TH           | C    | CR H9 | HB H13 | FN | FK           |
|----------------------|------------|-----|------|--------------|------|-------|--------|----|--------------|
| 20, 25, 32           | 1827001603 | 46  | 18   | 32 $\pm 0,2$ | 10.5 | 12    | 6.6    | 30 | 15 $\pm 0,1$ |
| 40, 50               | 1827001604 | 55  | 21   | 36 $\pm 0,2$ | 12   | 16    | 9      | 36 | 18 $\pm 0,1$ |
| 63, 80               | 1827001605 | 65  | 23   | 42 $\pm 0,2$ | 13   | 20    | 11     | 40 | 20 $\pm 0,1$ |
| 100, 125             | 1827001606 | 75  | 28.5 | 50 $\pm 0,2$ | 16   | 25    | 14     | 50 | 25 $\pm 0,1$ |
| 160, 200             | 1827001607 | 92  | 40   | 60 $\pm 0,3$ | 22.5 | 32    | 18     | 60 | 30 $\pm 0,2$ |
| 250                  | 1827001608 | 140 | 50   | 90 $\pm 0,3$ | 27.5 | 40    | 22     | 70 | 35 $\pm 0,2$ |
| 320                  | R412018903 | 150 | 60   | 100          | 32.5 | 50    | 26     | 80 | 40           |

Trunnion mounting MT5, MT6, Series CM1



| Piston di-<br>ameter<br>[mm] | Material                 | Part No.   |
|------------------------------|--------------------------|------------|
| 32                           | Nodular<br>graphite iron | 1827001609 |
| 40                           | Nodular<br>graphite iron | 1827001610 |
| 50                           | Nodular<br>graphite iron | 1827001611 |
| 63                           | Nodular<br>graphite iron | 1827002046 |
| 80                           | Nodular<br>graphite iron | 1827001613 |
| 100                          | Nodular<br>graphite iron | 1827001614 |
| 125                          | Nodular<br>graphite iron | 1827001615 |

Dimensions



| Piston Ø | Part No.   | Ø d H11 | Ø d1 | Ø d2 | L1   | TD e9 | TG ±0,2 | TK | TL h14 |
|----------|------------|---------|------|------|------|-------|---------|----|--------|
| 20       | 1825805360 | 18      | 5.5  | 10   | 8    | 12    | 22      | 14 | 12     |
| 25       | 1825805361 | 22      | 5.5  | 10   | 8    | 12    | 26      | 14 | 12     |
| 25       | R412026354 | 24      | 5.5  | 10   | 8    | 12    | 26      | 14 | 12     |
| 32       | 1825805362 | 32      | 6.6  | 10.5 | 7    | 12    | 32      | 14 | 12     |
| 32       | 1827001609 | 30      | 6.6  | 11   | 7.5  | 12    | 32.5    | 16 | 12     |
| 40       | 1825805363 | 46      | 6.6  | 11   | 12   | 16    | 42      | 19 | 16     |
| 40       | 1827001610 | 35      | 6.6  | 11   | 7.5  | 16    | 38      | 20 | 16     |
| 50       | 1825805364 | 53      | 9    | 14   | 10   | 16    | 50      | 19 | 16     |
| 50       | 1827001611 | 40      | 9    | 15   | 10   | 16    | 46.5    | 24 | 16     |
| 63       | 1825805365 | 69      | 9    | 15   | 15   | 20    | 62      | 24 | 20     |
| 63       | 1827002046 | 45      | 9    | 15   | 10   | 20    | 56.5    | 24 | 20     |
| 80       | 1825805366 | 87      | 11   | 18   | 13   | 20    | 82      | 24 | 20     |
| 80       | 1827001613 | 45      | 11   | 18   | 16   | 20    | 72      | 28 | 20     |
| 100      | 1825805367 | 55      | 11   | 18   | 18   | 25    | 103     | 29 | 25     |
| 100      | 1827001614 | 55      | 11   | 18   | 25.5 | 25    | 89      | 38 | 25     |
| 125      | 1827001615 | 60      | 14   | 20   | 34   | 25    | 110     | 46 | 25     |
| 160      | 1827001616 | 65      | 18   | 26   | 38   | 32    | 140     | 50 | 32     |
| 200      | 1827001617 | 75      | 18   | 26   | 40   | 32    | 175     | 60 | 32     |
| 250      | 1827001618 | 90      | 22   | 33   | 57   | 40    | 220     | 70 | 40     |

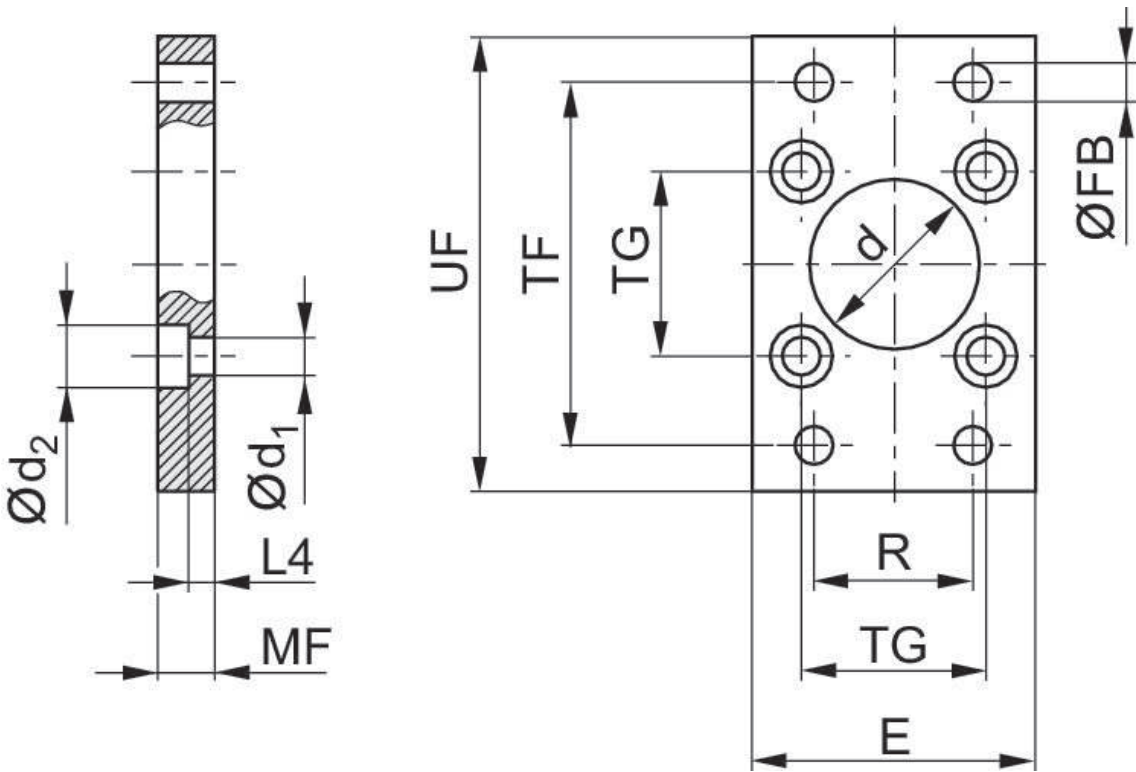
| Piston Ø | TM h14 | UW  |
|----------|--------|-----|
| 20       | 38     | 35  |
| 25       | 42     | 39  |
| 25       | 42     | 39  |
| 32       | 52     | 46  |
| 32       | 50     | 48  |
| 40       | 63     | 59  |
| 40       | 63     | 56  |
| 50       | 75     | 69  |
| 50       | 75     | 65  |
| 63       | 90     | 84  |
| 63       | 90     | 75  |
| 80       | 110    | 102 |
| 80       | 110    | 100 |
| 100      | 132    | 125 |
| 100      | 132    | 120 |
| 125      | 160    | 145 |
| 160      | 200    | 184 |
| 200      | 250    | 224 |
| 250      | 320    | 286 |

Flange mounting MF1, MF2, Series CM1



| Piston di-<br>ameter<br>[mm] | Standard-<br>ization | Material                     | Part No.   |
|------------------------------|----------------------|------------------------------|------------|
| 32                           | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001277 |
| 40                           | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001278 |
| 50                           | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001279 |
| 63                           | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001499 |
| 80                           | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001281 |
| 100                          | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001282 |
| 125                          | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827004861 |

Dimensions



| Piston $\varnothing$ | Part No.   | $\varnothing d$ H11 | $\varnothing d_1$ | $\varnothing d_2$ | E max. | $\varnothing FB$ | $L_4$ | MF | R   |
|----------------------|------------|---------------------|-------------------|-------------------|--------|------------------|-------|----|-----|
| 32                   | 1827001277 | 30                  | 6.6               | 11                | 50     | 7                | 4.5   | 10 | 32  |
| 40                   | 1827001278 | 35                  | 6.6               | 11                | 55     | 9                | 4.5   | 10 | 36  |
| 50                   | 1827001279 | 40                  | 9                 | 15                | 65     | 9                | 6     | 12 | 45  |
| 63                   | 1827001499 | 45                  | 9                 | 15                | 75     | 9                | 6     | 12 | 50  |
| 80                   | 1827001281 | 45                  | 11                | 18                | 100    | 12               | 9     | 16 | 63  |
| 100                  | 1827001282 | 55                  | 11                | 18                | 120    | 14               | 9     | 16 | 75  |
| 125                  | 1827004861 | 60                  | 14                | 20                | 140    | 16               | 10.5  | 20 | 90  |
| 160                  | 1827001460 | 65                  | 18                | 26                | 180    | 18               | 9.5   | 20 | 115 |
| 200                  | 1827001461 | 75                  | 18                | 26                | 220    | 22               | 12.5  | 25 | 135 |
| 250                  | 1827001462 | 90                  | 22                | 33                | 280    | 26               | 10.5  | 25 | 165 |
| 320                  | 5239016012 | 110                 | 26                | 40                | 350    | 33               | 15    | 30 | 200 |

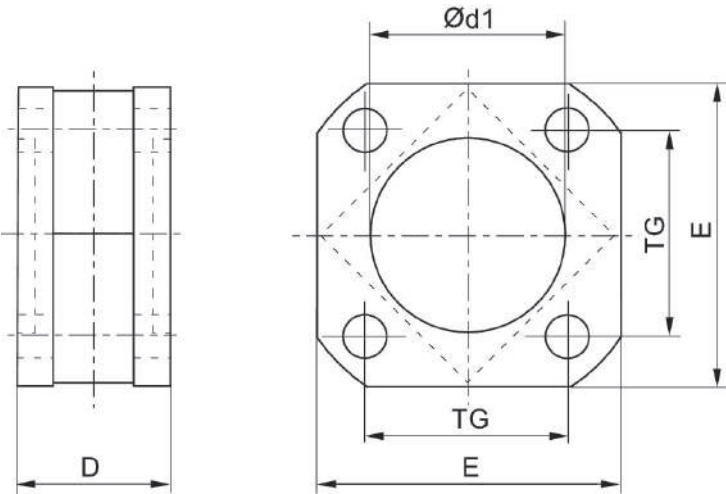
| Piston Ø | TF  | TG        | UF  |
|----------|-----|-----------|-----|
| 32       | 64  | 32,5 ±0,2 | 80  |
| 40       | 72  | 38 ±0,2   | 90  |
| 50       | 90  | 46,5 ±0,2 | 110 |
| 63       | 100 | 56,5 ±0,2 | 125 |
| 80       | 126 | 72 ±0,2   | 154 |
| 100      | 150 | 89 ±0,2   | 186 |
| 125      | 180 | 110 ±0,3  | 220 |
| 160      | 230 | 140 ±0,3  | 275 |
| 200      | 270 | 175 ±0,3  | 312 |
| 250      | 330 | 220 ±0,3  | 380 |
| 320      | 270 | 270 ±0,3  | 400 |

Intermediate flange JP1, Series CM1



| Suitable piston Ø [mm] | Material | Part No.   |
|------------------------|----------|------------|
| 32                     | Aluminum | 1827020247 |
| 40                     | Aluminum | 1827020248 |
| 50                     | Aluminum | 1827020249 |
| 63                     | Aluminum | 1827020250 |
| 80                     | Aluminum | 1827020251 |
| 100                    | Aluminum | 1827020252 |
| 125                    | Aluminum | 1827020253 |

Dimensions



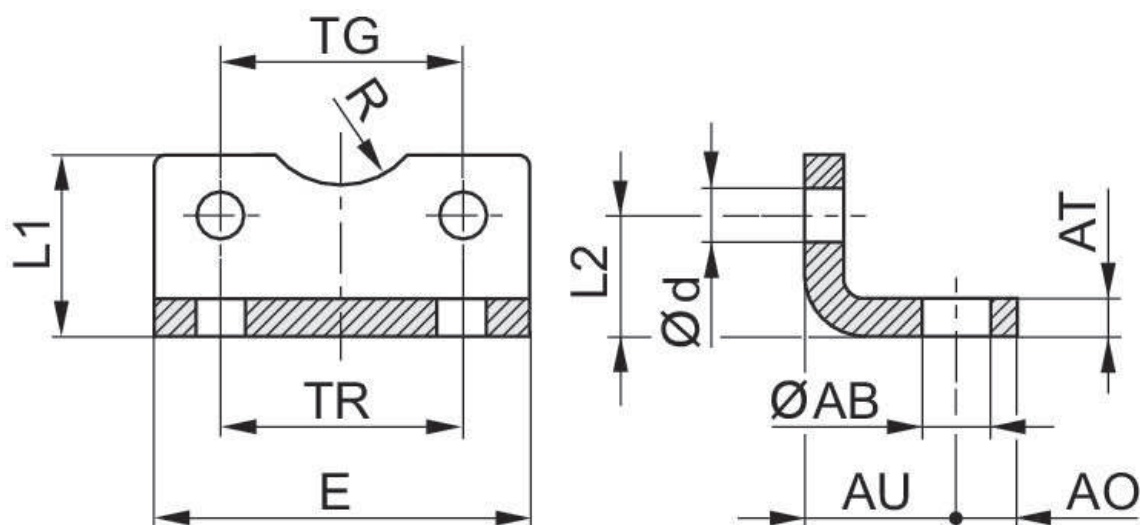
| Piston Ø | Part No.   | D  | Ø d1 N7 | E   | TG   |
|----------|------------|----|---------|-----|------|
| 32       | 1827020247 | 27 | 30      | 47  | 32.5 |
| 40       | 1827020248 | 27 | 35      | 53  | 38   |
| 50       | 1827020249 | 32 | 40      | 65  | 46.5 |
| 63       | 1827020250 | 28 |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

Foot mounting MS1, Series CM1



| Piston di-<br>ameter<br>[mm] | for series            | Standard-<br>ization | Material                     | Part No.   |
|------------------------------|-----------------------|----------------------|------------------------------|------------|
| 32                           | PRA/TRB,<br>CCI, CVI  | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001271 |
| 40                           | PRA/TRB,<br>CCI, CVI  | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001272 |
| 50                           | PRA/TRB,<br>CCI, CVI  | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001273 |
| 63                           | PRA/TRB,<br>CCI, CVI  | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001498 |
| 80                           | PRA/TRB,<br>CCI, CVI  | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001275 |
| 100                          | CCI, PRA/<br>TRB, CVI | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001276 |
| 125                          | PRA/TRB,<br>CVI       | ISO 15552            | Steel,<br>chrome-plat-<br>ed | 1827001310 |

Dimensions



| Piston Ø | Part No.   | ØAB H14 | AO | AT      | AU ±0,2 | Ød H13 | E   | L1  | L2    |
|----------|------------|---------|----|---------|---------|--------|-----|-----|-------|
| 20       | 1827002284 | 6.6     | 6  | 4 ±0,5  | 16      | 5.4    | 36  | 22  | 16    |
| 25       | 1827002285 | 6.6     | 6  | 4 ±0,5  | 16      | 5.4    | 40  | 23  | 17    |
| 32       | 1827002286 | 6.6     | 8  | 5 ±0,5  | 18      | 6.6    | 50  | 24  | 16    |
| 32       | 1827001271 | 7       | 8  | 4 ±0,3  | 24      | 6.6    | 48  | 25  | 15,75 |
| 40       | 1827001272 | 10      | 10 | 4 ±0,3  | 28      | 6.6    | 56  | 26  | 17    |
| 50       | 1827001273 | 10      | 11 | 5 ±0,3  | 32      | 9      | 68  | 32  | 21.75 |
| 63       | 1827001498 | 10      | 13 | 5 ±0,3  | 32      | 9      | 78  | 34  | 21.75 |
| 80       | 1827001275 | 12      | 16 | 6 ±0,5  | 41      | 11     | 98  | 47  | 27    |
| 100      | 1827001276 | 14.5    | 19 | 6 ±0,5  | 41      | 11     | 117 | 52  | 26.5  |
| 125      | 1827001310 | 16.5    | 20 | 8 ±1,0  | 45      | 13.5   | 144 | 69  | 35    |
| 160      | 1827001457 | 18.5    | 23 | 10 ±1,0 | 60      | 17.5   | 185 | 100 | 45    |
| 200      | 1827001458 | 24      | 26 | 12 ±1,0 | 70      | 17.5   | 220 | 120 | 47.5  |
| 250      | 1827001459 | 28      | 33 | 20 ±1,0 | 75      | 22     | 280 | 135 | 55    |

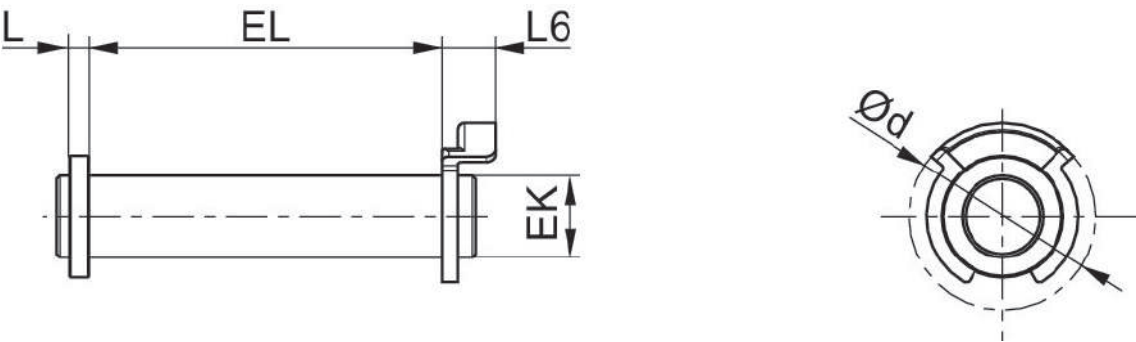
| Piston Ø | R H15 | TG        | TR JS14 |
|----------|-------|-----------|---------|
| 20       | 10    | 22 ±0,2   | 22      |
| 25       | 11    | 26 ±0,2   | 26      |
| 32       | 12    | 32 ±0,2   | 32      |
| 32       | 15    | 32,5 ±0,2 | 32      |
| 40       | 17.5  | 38 ±0,2   | 36      |
| 50       | 20    | 46.5 ±0,2 | 45      |
| 63       | 22.5  | 56.5 ±0,2 | 50      |
| 80       | 22.5  | 72 ±0,2   | 63      |
| 100      | 27.5  | 89 ±0,2   | 75      |
| 125      | 30    | 110 ±0,3  | 90      |
| 160      | 32.5  | 140 ±0,3  | 115     |
| 200      | 37.5  | 175 ±0,3  | 135     |
| 250      | 45    | 220 ±0,3  | 165     |

Bolts AA4, Series CM1



| Piston di-<br>ameter<br>[mm] | Material                     | Surface    | Part No.   |
|------------------------------|------------------------------|------------|------------|
| 32                           | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120020 |
| 40                           | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120021 |
| 50                           | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120022 |
| 63                           | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120023 |
| 80                           | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120024 |
| 100                          | Steel,<br>chrome-plat-<br>ed | galvanized | 1823120025 |

Dimensions



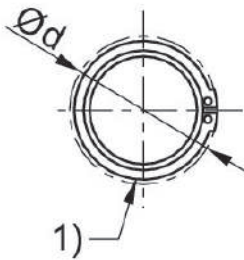
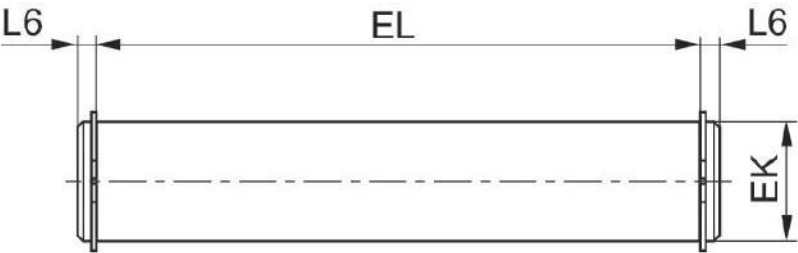
| Piston Ø | Part No.   | Ø d max. | EK e8 | EL         | L max. | L6 max. |
|----------|------------|----------|-------|------------|--------|---------|
| 32       | 1823120020 | 20       | 10    | 45.2 +0,3  | 3.5    | 9       |
| 40       | 1823120021 | 22       | 12    | 52.2 +0,3  | 4      | 9 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

Bolts AA4, Series CM1



| Piston di-<br>ameter<br>[mm] | Standard-<br>ization | Material                     | Surface    | Part No.   |
|------------------------------|----------------------|------------------------------|------------|------------|
| 125                          | ISO 15552            | Steel,<br>chrome-plat-<br>ed | galvanized | 5236000092 |

Dimensions



1) circlip DIN 471

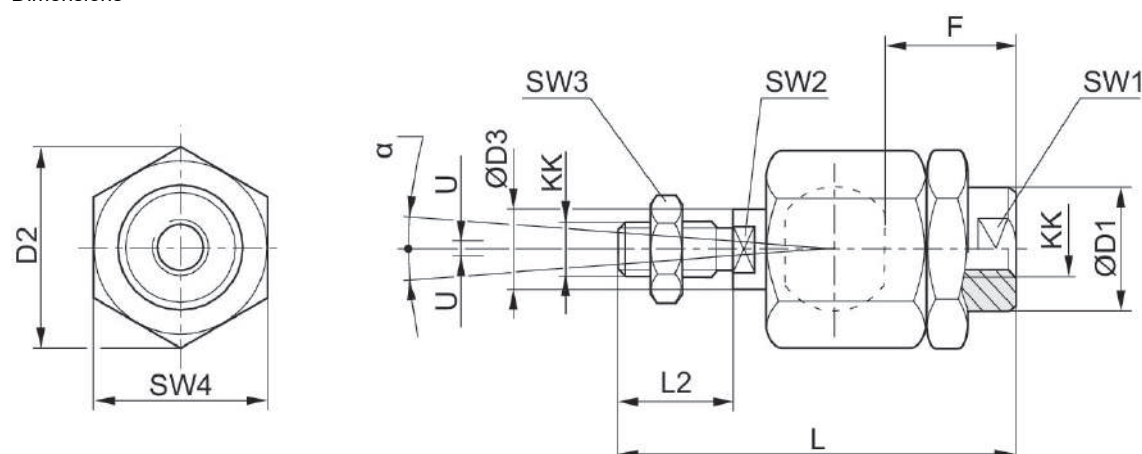
| Piston Ø | Part No.   | Ø d<br>max. | EK e8 | EL       | L6<br>max. |
|----------|------------|-------------|-------|----------|------------|
| 25, 30   | 3661302000 | 19          | 10    | 29.2     | 2.4        |
| 40, 50   | 3661303000 | 21          | 12    | 34.4     | 2.8        |
| 63, 80   | 3661304000 | 28          | 16    | 48.4     | 2.8        |
| 100      | 3661306000 | 40          | 20    | 58.4     | 3.3        |
| 125      | 5236000092 | 34.2        | 25    | 132 +0,5 | 3.75       |
| 160, 200 | 5237000092 | 40.5        | 30    | 172 +0,5 | 4.25       |
| 250      | 5239000092 | 52.6        | 40    | 202 +0,5 | 6.75       |
| 320      | 5239010092 | 59.1        | 45    | 222 +0,5 | 7.25       |

Flexible spherical coupling, Series PM5



| Suitable piston rod thread | for series                                        | Weight [kg] | Part No.   |
|----------------------------|---------------------------------------------------|-------------|------------|
| M10x1,25                   | PRA/TRB, CCL-IC/-IS, CCI, SSI, KPZ, 167, CVI, RPC | 0.21        | R412026142 |
| M12x1,25                   | PRA/TRB, CCL-IC/-IS, CCI, SSI, KPZ, 167, CVI, RPC | 0.21        | R412026143 |
| M16x1,5                    | PRA/TRB, CCL-IC/-IS, CCI, KPZ, 167, CVI, RPC, RDC | 0.65        | R412026144 |
| M20x1,5                    | PRA/TRB, CCL-IS, SSI, KPZ, 167, CVI               | 0.68        | R412026145 |
| M27x2                      | PRA/TRB, CCL-IS, CVI                              | 1.7         | 1826409006 |

Dimensions



\* Radial joint

| Part No.   | KK       | Ø D1 | D2   | Ø D3 | F  | L ±2 | L2   | SW1 | SW2 |
|------------|----------|------|------|------|----|------|------|-----|-----|
| 1826409008 | M4       | 12   | 13.5 | 4    | 13 | 33   | 8    | 12  | 3.2 |
| R412007860 | M5       | 8.5  | 14.8 | 6    | 12 | 38.5 | 13.5 | 7   | 5   |
| R412026140 | M6x1     | 8.5  | 14.5 | 6    | 11 | 36.5 | 11   | 7   | 5   |
| R412026141 | M8x1.25  | 12.5 | 19   | 8    | 21 | 58   | 21   | 11  | 7   |
| R412026142 | M10x1.25 | 22   | 32   | 14   | 23 | 74.5 | 23   | 19  | 12  |
| R412026143 | M12x1.25 | 22   | 32   | 14   | 24 | 75   | 24   | 19  | 12  |
| R412026144 | M16x1.5  | 32   | 45   | 22   | 30 | 103  | 30   | 30  | 20  |
| R412026145 | M20x1.5  | 32   | 45   | 22   | 40 | 119  | 40   | 30  | 20  |
| 1826409006 | M27x2    | 62   | 62   | 28   | 48 | 147  | 54   | 32  | 24  |
| 1826409007 | M36x2    | 80   | 80   | 38   | 86 | 241  | 72   | 50  | 32  |
| R412007729 | M42x2    | 64   | 98   | 42   | 96 | 271  | 82   | 60  | 36  |

| Part No.   | SW3 | SW4 | U   | $\alpha$ [°] | 1)       |
|------------|-----|-----|-----|--------------|----------|
| 1826409008 | 7   | 11  | 0,5 | 8            | 0.05-0.2 |
| R412007860 | 8   | 13  | 0,5 | 8            | 0.05-0.2 |
| R412026140 | 10  | 13  | 0,7 | 6            | 0.05-0.5 |
| R412026141 | 13  | 17  | 0,7 | 8            | 0.05-0.5 |
| R412026142 | 17  | 30  | 1   | 8            | 0.05-0.5 |
| R412026143 | 19  | 30  | 1   | 7            | 0.05-0.5 |
| R412026144 | 24  | 41  | 1   | 6            | 0.05-0.5 |
| R412026145 | 30  | 41  | 1   | 6            | 0.05-0.5 |
| 1826409006 | 41  | 55  | 1   | 8            | 0.05-0.2 |
| 1826409007 | 55  | 75  | 1   | 8            | 0.05-0.2 |
| R412007729 | 65  | 85  | 1   | 8            | 0.05-0.2 |

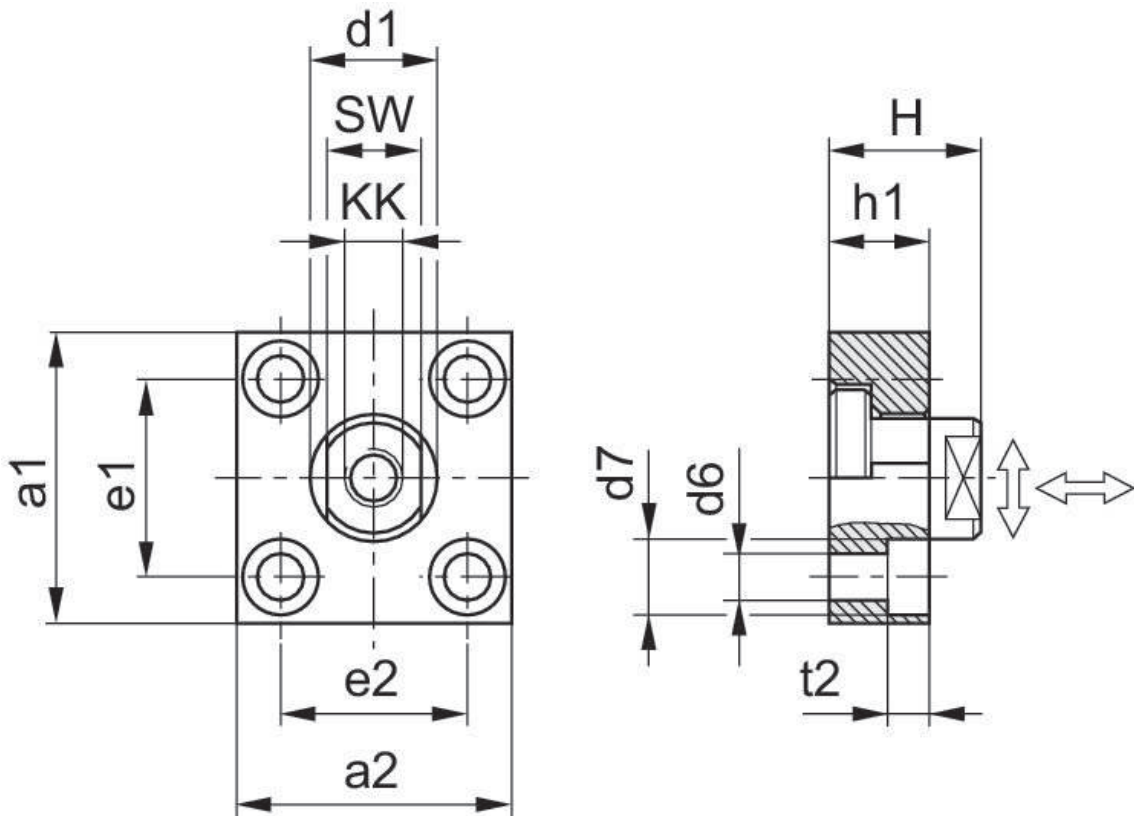
1) Axial play

Flexible plate coupling, Series PM7



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

Dimensions



| Part No.   | KK       | a1  | a2  | d1 h11 | d6 H13 | d7 H13 | e1 H13   | e2       | h1 |
|------------|----------|-----|-----|--------|--------|--------|----------|----------|----|
| 1827001629 | M10x1.25 | 60  | 37  | 20     | 6.6    | 11     | 36 ±0,15 | 23 ±0,15 | 15 |
| 1827001630 | M12x1.25 | 60  | 56  | 25     | 9      | 15     | 42 ±0,2  | 38 ±0,2  | 20 |
| 1827001631 | M16x1.5  | 80  | 80  | 30     | 11     | 18     | 58 ±0,2  | 58 ±0,2  | 20 |
| 1827001632 | M20x1.5  | 90  | 90  | 40     | 14     | 20     | 65 ±0,3  | 65 ±0,3  | 20 |
| 1827001633 | M27x2    | 90  | 90  | 40     | 14     | 20     | 65 ±0,3  | 65 ±0,3  | 20 |
| 1827001634 | M36x2    | 125 | 125 | 60     | 18     | 26     | 90 ±0,3  | 90 ±0,3  | 30 |

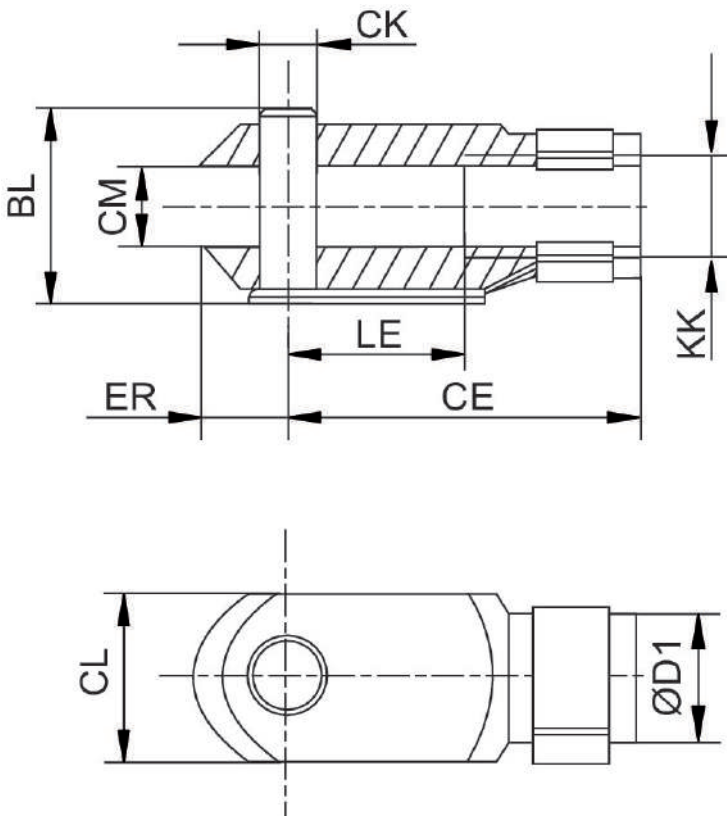
| Part No.   | t2 | H  | SW | Tightening torque for the coupling pin Ma ± 5% | Axial play min./max. | Radial play min./max. |
|------------|----|----|----|------------------------------------------------|----------------------|-----------------------|
| 1827001629 | 7  | 24 | 17 | 17 Nm                                          | 0,4 - 0,8 mm         | 1,9 - 2,3 mm          |
| 1827001630 | 9  | 30 | 19 | 29 Nm                                          | 0,4 - 0,8 mm         | 1,9 - 2,3 mm          |
| 1827001631 | 11 | 32 | 24 | 71 Nm                                          | 0,4 - 0,8 mm         | 1,9 - 2,3 mm          |
| 1827001632 | 13 | 35 | 36 | 138 Nm                                         | 0,4 - 0,8 mm         | 1,9 - 2,3 mm          |
| 1827001633 | 13 | 35 | 36 | 350 Nm                                         | 0,4 - 20,31 mm       | 1,9 - 2,3 mm          |
| 1827001634 | 17 | 55 | 50 | 1080 Nm                                        | 0,4 - 0,95 mm        | 2,8 - 3,4 mm          |

Rod clevis with lock washer, Series AP2, Galvanized Steel



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

Dimensions



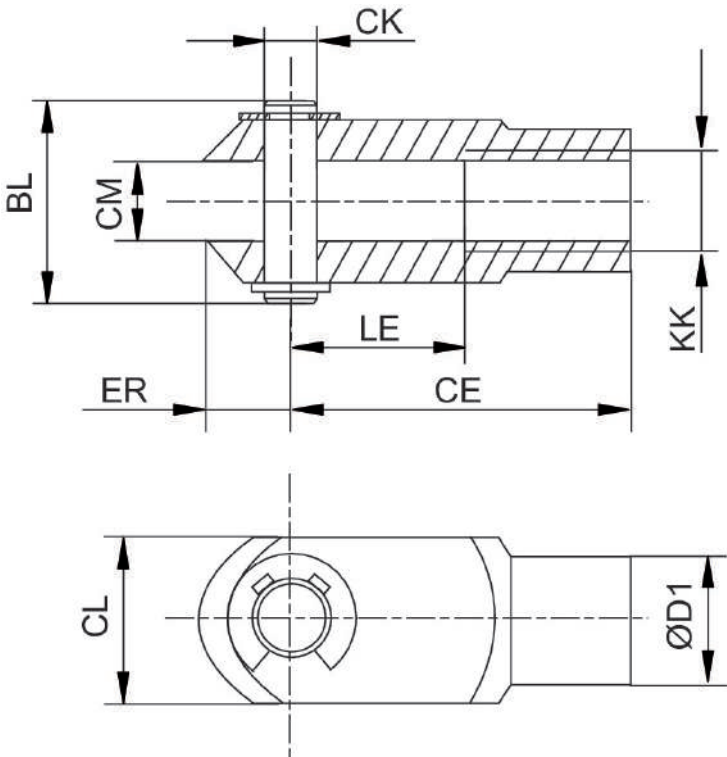
| Part No.   | BL   | CE | ØCK h11 | CL | CM | ØD1 | ER | KK       | LE |
|------------|------|----|---------|----|----|-----|----|----------|----|
| 1822122028 | 11   | 16 | 4       | 8  | 4  | 8   | 5  | M4       | 8  |
| 1822122008 | 13.5 | 20 | 5       | 10 | 5  | 9   | 6  | M5       | 10 |
| 1822122009 | 16   | 24 | 6       | 12 | 6  | 10  | 7  | M6       | 12 |
| 1822122010 | 21,5 | 32 | 8       | 16 | 8  | 14  | 10 | M8       | 16 |
| 8958000122 | 26   | 40 | 10      | 20 | 10 | 18  | 12 | M10      | 20 |
| 1822122024 | 26   | 40 | 10      | 20 | 10 | 18  | 12 | M10x1,25 | 20 |
| 8958000132 | 31   | 48 | 12      | 24 | 12 | 20  | 14 | M12      | 24 |
| 1822122025 | 31   | 48 | 12      | 24 | 12 | 20  | 14 | M12x1,25 | 24 |
| 1822122005 | 39   | 64 | 16      | 32 | 16 | 26  | 19 | M16x1,5  | 32 |
| 1822122004 | 50   | 80 | 20      | 40 | 20 | 34  | 20 | M20x1,5  | 40 |

Rod clevis with circlip, Series AP2



| Suitable piston rod thread | for series                 | Weight [kg] | Part No.   |
|----------------------------|----------------------------|-------------|------------|
| M27x2                      | PRA, TRB, CCL-IS, 167, CVI | 2           | 1827001493 |

Dimensions



| Part No.   | BL | CE  | ØCK   | CL | CM | ØD1 | ER | KK    | LE |
|------------|----|-----|-------|----|----|-----|----|-------|----|
| 1827001493 | 68 | 110 | 30 *  | 55 | 30 | 48  | 38 | M27x2 | 54 |
| 1827001471 | 80 | 144 | 35 *  | 70 | 35 | 60  | 44 | M36x2 | 72 |
| 1827001472 | 98 | 168 | 40 ** | 85 | 40 | 70  | 64 | M42x2 | 84 |

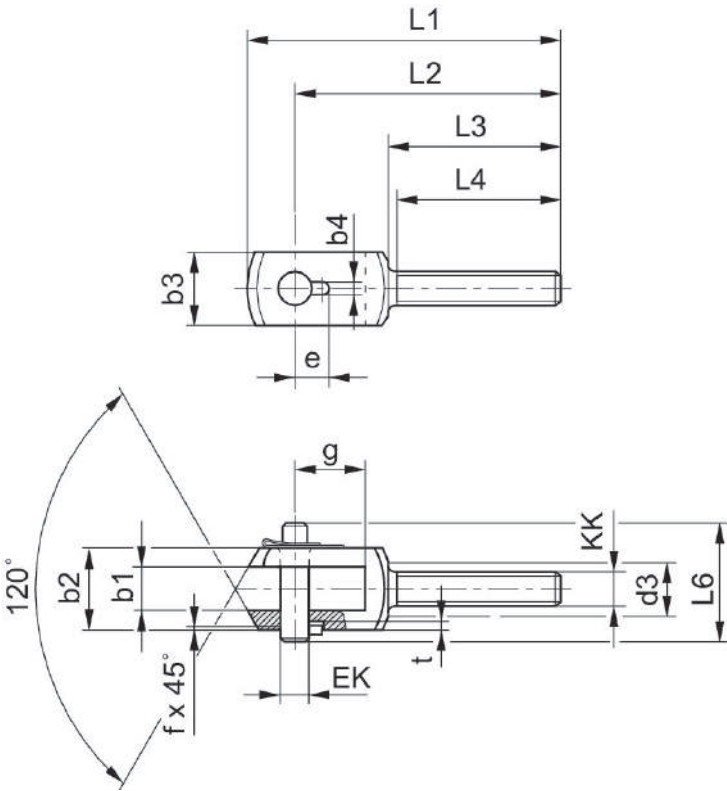
\* ØCK h11  
\*\* ØCK f8

Rod clevis, Series PM6



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

Dimensions



| Part No.   | b1 B12 | b2 d12 | b3 | b4 +0,2 | d3 | e +0,3 | EK | f   | g  |
|------------|--------|--------|----|---------|----|--------|----|-----|----|
| 1822122032 | 14     | 28     | 20 | 3.3     | 17 | 11.5   | 10 | 0.7 | 20 |
| 1822122033 | 16     | 30     | 25 | 4.3     | 19 | 12     | 12 | 1   | 26 |
| 1822122034 | 21     | 40     | 35 | 4.3     | 24 | 14     | 16 | 1   | 31 |
| 1822122035 | 25     | 50     | 40 | 4.3     | 30 | 16     | 20 | 1   | 43 |
| 1822122036 | 37     | 67     | 60 | 6.3     | 38 | 24     | 30 | 1.5 | 54 |

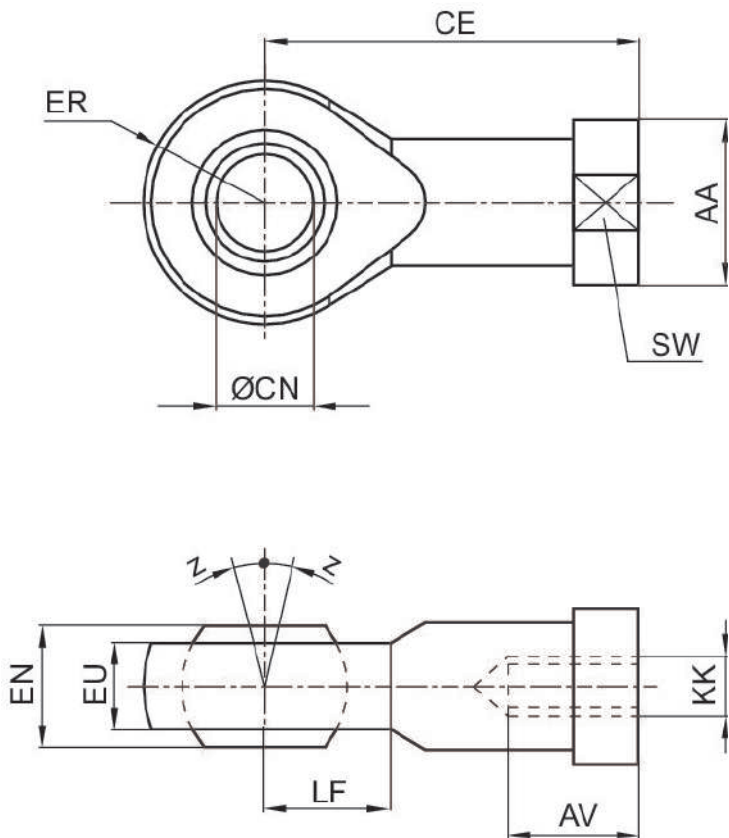
| Part No.   | L1  | L2  | L3 | L4 +1 | L6 | KK | t +0,2 |
|------------|-----|-----|----|-------|----|----|--------|
| 1822122032 | 90  | 78  | 53 | 50    | 35 | 14 | 3      |
| 1822122033 | 108 | 92  | 58 | 55    | 39 | 16 | 3      |
| 1822122034 | 129 | 108 | 65 | 62    | 50 | 21 | 3      |
| 1822122035 | 156 | 131 | 73 | 69    | 60 | 25 | 3      |
| 1822122036 | 200 | 168 | 98 | 92    | 77 | 30 | 5      |

Ball eye rod end AP6, galvanized Steel



| Suitable piston rod thread | for series                                       | Swivel bearing Ø [mm] | Weight [kg] | Part No.   |
|----------------------------|--------------------------------------------------|-----------------------|-------------|------------|
| M10x1,25                   | PRA, TRB, MNI, CCI, SSI, RPC, KPZ, 167, CVI, RDC | 10                    | 0.07        | 1822124003 |
| M12x1,25                   | PRA, TRB, CCI, SSI, RPC, KPZ, 167, CVI, 102      | 12                    | 0.12        | 1822124004 |
| M16x1,5                    | PRA, TRB, CCI, SSI, RPC, KPZ, 167, CVI, RDC, 102 | 16                    | 0.21        | 1822124005 |
| M20x1,5                    | PRA, TRB, KPZ, 167, CVI, 102                     | 20                    | 0.38        | 1822124006 |
| M27x2                      | PRA, TRB, 167, CVI                               | 30                    | 1.17        | 1822124013 |

Dimensions



| KK       | Part No.   | AA | AV min. | CE  | Ø CN H7 | EN -0,1 | ER   | EU max. | LF |
|----------|------------|----|---------|-----|---------|---------|------|---------|----|
| M4       | 1822124000 | 12 | 8       | 27  | 5       | 8       | 9    | 7.5     | 9  |
| M6       | 1822124001 | 13 | 9       | 30  | 6       | 9       | 10   | 7.5     | 10 |
| M8       | 1822124002 | 16 | 12      | 36  | 8       | 12      | 12   | 9.5     | 12 |
| M10      | 8958206402 | 19 | 20      | 43  | 10      | 14      | 14   | 10.5    | 13 |
| M12      | 8958208852 | 22 | 22      | 50  | 12      | 16      | 16   | 12      | 16 |
| M10x1,25 | 1822124003 | 19 | 15      | 43  | 10      | 14      | 14   | 11.5    | 14 |
| M12x1,25 | 1822124004 | 22 | 18      | 50  | 12      | 16      | 16   | 12.5    | 16 |
| M16x1,5  | 1822124005 | 27 | 24      | 64  | 16      | 21      | 21   | 15.5    | 21 |
| M20x1,5  | 1822124006 | 34 | 30      | 77  | 20      | 25      | 25   | 18.5    | 25 |
| M24x2    | 8958208002 | 42 | 36      | 94  | 25      | 31      | 30   | 23      | 30 |
| M27x2    | 1822124013 | 50 | 45      | 110 | 30      | 37      | 35   | 27      | 35 |
| M36x2    | 1822124008 | 60 | 56      | 125 | 35      | 43      | 40   | 32      | 40 |
| M42x2    | 1822124009 | 69 | 60      | 142 | 40      | 49      | 45.5 | 37      | 45 |
| M48x2    | 8958208842 | 75 | 65      | 160 | 50      | 60      | 58   | 45      | 60 |

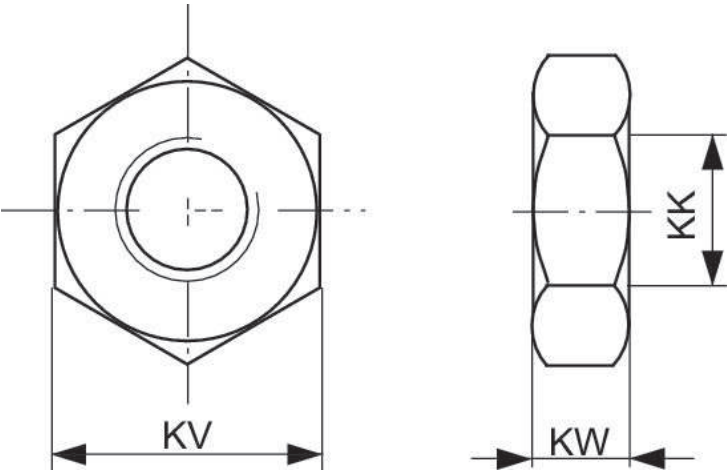
| KK       | SW | Z [°] max. |
|----------|----|------------|
| M4       | 9  | 4          |
| M6       | 11 | 4          |
| M8       | 14 | 4          |
| M10      | 17 | 6          |
| M12      | 19 | 13         |
| M10x1,25 | 17 | 4          |
| M12x1,25 | 19 | 4          |
| M16x1,5  | 22 | 4          |
| M20x1,5  | 30 | 4          |
| M24x2    | 36 | 15         |
| M27x2    | 41 | 4          |
| M36x2    | 50 | 4          |
| M42x2    | 55 | 4          |
| M48x2    | 65 | 6          |

Piston rod nut MR9



| Thread size | Material             | Part No.   |
|-------------|----------------------|------------|
| M10x1,25    | Steel, chrome-plated | 1823A00020 |
| M12x1,25    | Steel, chrome-plated | 8103190344 |
| M16x1,5     | Steel, chrome-plated | 1823300030 |
| M20x1,5     | Steel, chrome-plated | 1823300031 |
| M27x2       | Steel, chrome-plated | 1823A00029 |
| M36x2       | Steel, chrome-plated | 8103190414 |
| M42x2       | Steel, chrome-plated | 8103190424 |

Dimensions



| Part No.   | KK       | KV | KW   |
|------------|----------|----|------|
| 8103040114 | M4       |    |      |
| 1823300033 | M6       | 10 | 3.2  |
| 1823300034 | M8       | 13 | 4    |
| 8103040224 | M10      | 17 | 8    |
| 1823A00020 | M10x1,25 |    |      |
| 8103060064 | M12      | 19 | 10   |
| 1823A00021 | M12x1,25 | 19 | 6    |
| 8103190344 | M12x1,25 | 19 | 6    |
| 1823300030 | M16x1,5  | 24 | 8    |
| 1823300031 | M20x1,5  | 30 | 10   |
| 8103040344 | M20x1,5  | 30 | 10   |
| 8103190394 | M24x2    | 36 | 12   |
| 1823A00029 | M27x2    | 41 | 13.5 |
| 8103190414 | M36x2    | 50 | 16   |
| 8103190424 | M42x2    | 60 | 21   |
| 8103190434 | M48x2    | 65 | 25   |
| 3330310000 | M4       | 7  | 2.2  |
| 8103190644 | M6       | 10 | 3.2  |
| 3330316000 | M6       |    |      |
| 8103190164 | M8       | 13 | 4    |
| 3330320000 | M8       |    |      |
| 8103190464 | M10x1,25 | 17 | 5    |
| 3590302000 | M10x1,25 |    |      |
| 3590304000 | M12x1,25 | 19 | 6    |
| 3590305000 | M16x1,5  | 24 | 8    |
| 3590308000 | M20x1,5  | 30 | 10   |
| 2990600303 | M10x1,25 | 17 | 5    |
| 2990600304 | M12x1,25 | 19 | 6    |
| 2990600305 | M16x1,5  | 24 | 8    |
| 2990600308 | M20x1,5  | 30 | 10   |
| 2990600312 | M27x2    | 41 | 13.5 |
| 2990600316 | M36x2    | 50 | 16   |
| 2990600325 | M42x2    | 60 | 21   |

Guide unit GU1, Series CG1

Bearing type: Plain bearing  
Ambient temperature min./max.: -20 °C ... 80 °C

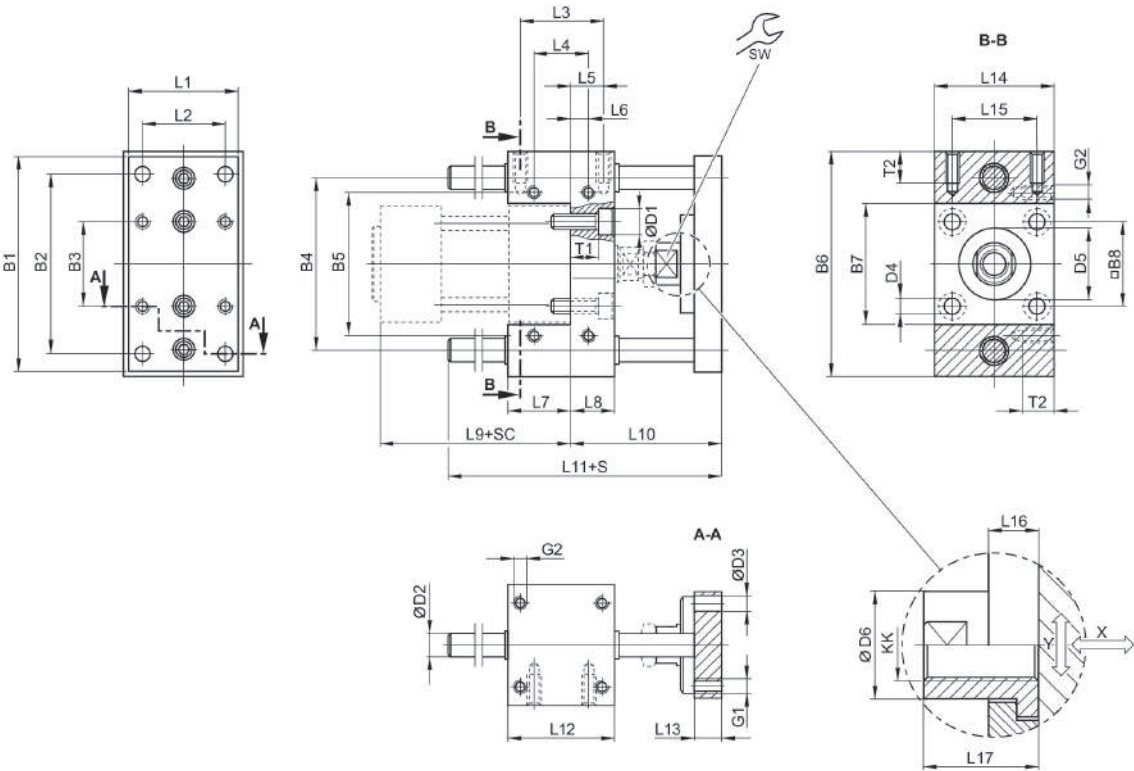


| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 32                           | 50             | 0.63                          | 0.0122                          | 0821401010 |
| 32                           | 100            | 0.63                          | 0.0122                          | 0821401011 |
| 32                           | 160            | 0.63                          | 0.0122                          | 0821401012 |
| 32                           | 200            | 0.63                          | 0.0122                          | 0821401013 |
| 32                           | 250            | 0.63                          | 0.0122                          | 0821401014 |
| 32                           | 320            | 0.63                          | 0.0122                          | 0821401015 |
| 32                           | 400            | 0.63                          | 0.0122                          | 0821401016 |
| 32                           | 500            | 0.63                          | 0.0122                          | 0821401017 |
| 32                           | 600            | 0.63                          | 0.0122                          | 0821401018 |
| 32                           | 800            | 0.63                          | 0.0122                          | 0821401019 |
| 32                           | 1000           | 0.63                          | 0.0122                          | 0821401500 |
| 32                           | 1200           | 0.63                          | 0.0122                          | 0821401501 |
| 40                           | 50             | 0.946                         | 0.0176                          | 0821401020 |
| 40                           | 100            | 0.946                         | 0.0176                          | 0821401021 |
| 40                           | 160            | 0.946                         | 0.0176                          | 0821401022 |
| 40                           | 200            | 0.946                         | 0.0176                          | 0821401023 |
| 40                           | 250            | 0.946                         | 0.0176                          | 0821401024 |
| 40                           | 320            | 0.946                         | 0.0176                          | 0821401025 |
| 40                           | 400            | 0.946                         | 0.0176                          | 0821401026 |
| 40                           | 500            | 0.946                         | 0.0176                          | 0821401027 |
| 40                           | 600            | 0.946                         | 0.0176                          | 0821401028 |
| 40                           | 800            | 0.946                         | 0.0176                          | 0821401029 |
| 40                           | 1000           | 0.946                         | 0.0176                          | 0821401502 |
| 40                           | 1200           | 0.946                         | 0.0176                          | 0821401503 |
| 50                           | 50             | 1.36                          | 0.0176                          | 0821401030 |
| 50                           | 100            | 1.36                          | 0.0176                          | 0821401031 |
| 50                           | 160            | 1.36                          | 0.0176                          | 0821401032 |
| 50                           | 200            | 1.36                          | 0.0176                          | 0821401033 |
| 50                           | 250            | 1.36                          | 0.0176                          | 0821401034 |
| 50                           | 320            | 1.36                          | 0.0176                          | 0821401035 |

| Piston diameter [mm] | Stroke [mm] | Weight 0 mm stroke [kg] | Weight +10 mm stroke [kg] | Part No.   |
|----------------------|-------------|-------------------------|---------------------------|------------|
| 50                   | 400         | 1.36                    | 0.0176                    | 0821401036 |
| 50                   | 500         | 1.36                    | 0.0176                    | 0821401037 |
| 50                   | 600         | 1.36                    | 0.0176                    | 0821401038 |
| 50                   | 800         | 1.36                    | 0.0176                    | 0821401039 |
| 50                   | 1000        | 1.36                    | 0.0176                    | 0821401504 |
| 50                   | 1200        | 1.36                    | 0.0176                    | 0821401505 |
| 63                   | 50          | 1.66                    | 0.0176                    | 0821401480 |
| 63                   | 100         | 1.66                    | 0.0176                    | 0821401481 |
| 63                   | 160         | 1.66                    | 0.0176                    | 0821401482 |
| 63                   | 200         | 1.66                    | 0.0176                    | 0821401483 |
| 63                   | 250         | 1.66                    | 0.0176                    | 0821401484 |
| 63                   | 320         | 1.66                    | 0.0176                    | 0821401485 |
| 63                   | 400         | 1.66                    | 0.0176                    | 0821401486 |
| 63                   | 500         | 1.66                    | 0.0176                    | 0821401487 |
| 63                   | 600         | 1.66                    | 0.0176                    | 0821401488 |
| 63                   | 800         | 1.66                    | 0.0176                    | 0821401489 |
| 63                   | 1000        | 1.66                    | 0.0176                    | 0821401490 |
| 63                   | 1200        | 1.66                    | 0.0176                    | 0821401491 |
| 80                   | 50          | 3.45                    | 0.0222                    | 0821401050 |
| 80                   | 100         | 3.45                    | 0.0222                    | 0821401051 |
| 80                   | 160         | 3.45                    | 0.0222                    | 0821401052 |
| 80                   | 200         | 3.45                    | 0.0222                    | 0821401053 |
| 80                   | 250         | 3.45                    | 0.0222                    | 0821401054 |
| 80                   | 320         | 3.45                    | 0.0222                    | 0821401055 |
| 80                   | 400         | 3.45                    | 0.0222                    | 0821401056 |
| 80                   | 500         | 3.45                    | 0.0222                    | 0821401057 |
| 80                   | 600         | 3.45                    | 0.0222                    | 0821401058 |
| 80                   | 800         | 3.45                    | 0.0222                    | 0821401059 |
| 80                   | 1000        | 3.45                    | 0.0222                    | 0821401508 |
| 80                   | 1200        | 3.45                    | 0.0222                    | 0821401509 |
| 100                  | 50          | 4.69                    | 0.0222                    | 0821401060 |
| 100                  | 100         | 4.69                    | 0.0222                    | 0821401061 |
| 100                  | 200         | 4.69                    | 0.0222                    | 0821401063 |
| 100                  | 160         | 4.69                    | 0.0222                    | 0821401062 |
| 100                  | 250         | 4.69                    | 0.0222                    | 0821401064 |
| 100                  | 320         | 4.69                    | 0.0222                    | 0821401065 |
| 100                  | 400         | 4.69                    | 0.0222                    | 0821401066 |
| 100                  | 500         | 4.69                    | 0.0222                    | 0821401067 |
| 100                  | 600         | 4.69                    | 0.0222                    | 0821401068 |
| 100                  | 800         | 4.69                    | 0.0222                    | 0821401069 |
| 100                  | 1000        | 4.69                    | 0.0222                    | 0821401510 |

| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 100                          | 1200           | 4.69                          | 0.0222                          | 0821401511 |

Dimensions



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

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8   | D1 |
|----------|-----|-----|------|-----|-----|-----|-----|------|----|
| 32       | 90  | 78  | 32.5 | 74  | 58  | 100 | 48  | 32.5 | 11 |
| 40       | 100 | 84  | 38   | 80  | 64  | 106 | 54  | 38   | 11 |
| 50       | 120 | 100 | 46.5 | 96  | 80  | 125 | 66  | 46.5 | 15 |
| 63       | 125 | 105 | 56.5 | 104 | 95  | 132 | 76  | 56.5 | 15 |
| 80       | 155 | 130 | 72   | 130 | 130 | 165 | 98  | 72   | 18 |
| 100      | 175 | 150 | 89   | 150 | 150 | 185 | 118 | 89   | 18 |

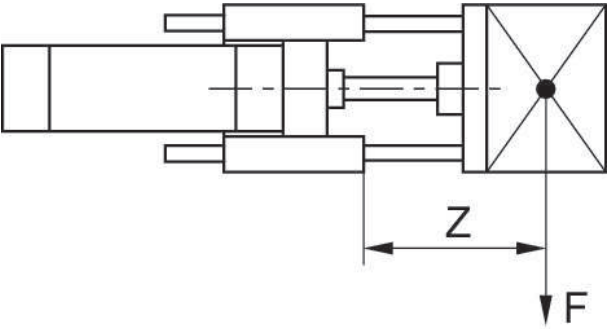
| Piston Ø | D2 | D3  | D4  | D5    | D6 | G1  | G2  | KK       | L1  |
|----------|----|-----|-----|-------|----|-----|-----|----------|-----|
| 32       | 10 | 6.6 | 6.6 | 30 M8 | 18 | M6  | M6  | M10x1,25 | 45  |
| 40       | 12 | 6.6 | 6.6 | 35 M8 | 18 | M6  | M6  | M12x1,25 | 50  |
| 50       | 12 | 9   | 9   | 40 M8 | 24 | M8  | M8  | M16x1,5  | 60  |
| 63       | 12 | 9   | 9   | 45 M8 | 24 | M8  | M8  | M16x1,5  | 70  |
| 80       | 16 | 11  | 11  | 45 M8 | 30 | M10 | M10 | M20x1,5  | 90  |
| 100      | 16 | 11  | 11  | 55 M8 | 30 | M10 | M10 | M20x1,5  | 110 |

| Piston Ø | L2   | L3   | L4   | L5    | L6    | L7 | L8 | L9  | L10 |
|----------|------|------|------|-------|-------|----|----|-----|-----|
| 32       | 32.5 | 32.5 | 32.5 | 9.25  | 9.25  | 31 | 17 | 94  | 69  |
| 40       | 38   | 38   | 38   | 11    | 11    | 37 | 21 | 105 | 74  |
| 50       | 46.5 | 46.5 | 46.5 | 18.75 | 18.75 | 34 | 25 | 106 | 89  |
| 63       | 56.5 | 56.5 | 56.5 | 15.25 | 15.25 | 51 | 25 | 121 | 89  |
| 80       | 72   | 72   | 50   | 25    | 14    | 56 | 34 | 128 | 106 |
| 100      | 89   | 89   | 70   | 28.5  | 19    | 71 | 39 | 138 | 111 |

| Piston Ø | L11 | L12 | L13 | L14 | L15  | L16 | L17 | SW | T1 |
|----------|-----|-----|-----|-----|------|-----|-----|----|----|
| 32       | 106 | 48  | 12  | 48  | 32.5 | 14  | 22  | 15 | 10 |
| 40       | 117 | 58  | 12  | 56  | 38   | 14  | 22  | 15 | 14 |
| 50       | 129 | 59  | 15  | 66  | 46.5 | 14  | 26  | 22 | 16 |
| 63       | 146 | 76  | 15  | 76  | 56.5 | 14  | 26  | 22 | 16 |
| 80       | 170 | 90  | 16  | 98  | 72   | 14  | 32  | 27 | 24 |
| 100      | 190 | 110 | 16  | 118 | 89   | 14  | 32  | 27 | 29 |

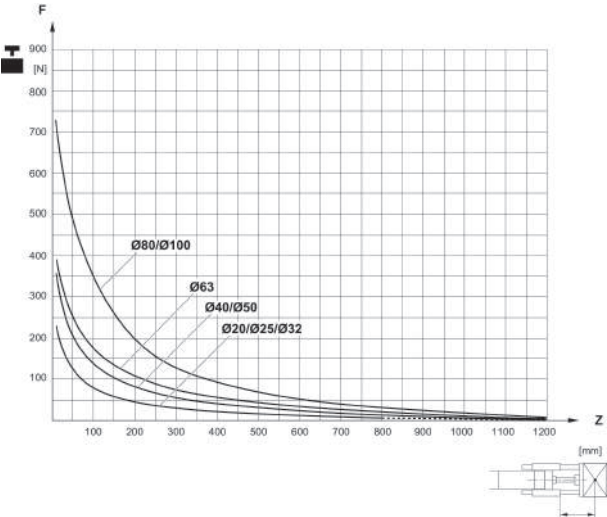
| Piston Ø | T2 |
|----------|----|
| 32       | 14 |
| 40       | 14 |
| 50       | 16 |
| 63       | 16 |
| 80       | 20 |
| 100      | 20 |

Useful load



F = Useful load, Z = Projection

Useful load



F = Useful load, Z = Projection

Guide unit GH1, Series CG1

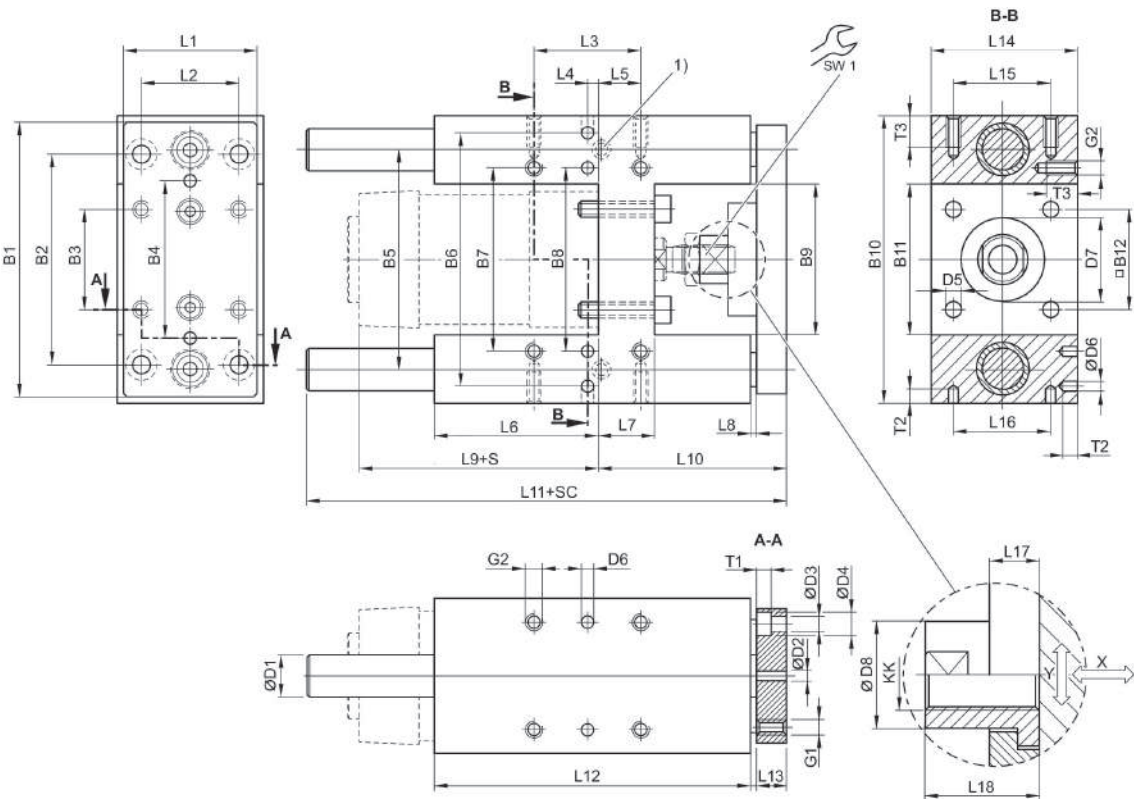
Bearing type: Plain bearing  
Ambient temperature min./max.: -20 °C ... 80 °C



| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 32                           | 50             | 1.3                           | 0.009                           | 0821401220 |
| 32                           | 100            | 1.3                           | 0.009                           | 0821401221 |
| 32                           | 160            | 1.3                           | 0.009                           | 0821401222 |
| 32                           | 200            | 1.3                           | 0.009                           | 0821401223 |
| 32                           | 250            | 1.3                           | 0.009                           | 0821401224 |
| 32                           | 320            | 1.3                           | 0.009                           | 0821401225 |
| 32                           | 400            | 1.3                           | 0.009                           | 0821401226 |
| 32                           | 500            | 1.3                           | 0.009                           | 0821401227 |
| 32                           | 600            | 1.3                           | 0.009                           | 0821401228 |
| 32                           | 800            | 1.3                           | 0.009                           | 0821401229 |
| 32                           | 1000           | 1.3                           | 0.009                           | 0821401470 |
| 32                           | 1200           | 1.3                           | 0.009                           | 0821401471 |
| 40                           | 50             | 2.3                           | 0.016                           | 0821401230 |
| 40                           | 100            | 2.3                           | 0.016                           | 0821401231 |
| 40                           | 160            | 2.3                           | 0.016                           | 0821401232 |
| 40                           | 200            | 2.3                           | 0.016                           | 0821401233 |
| 40                           | 250            | 2.3                           | 0.016                           | 0821401234 |
| 40                           | 320            | 2.3                           | 0.016                           | 0821401235 |
| 40                           | 400            | 2.3                           | 0.016                           | 0821401236 |
| 40                           | 500            | 2.3                           | 0.016                           | 0821401237 |
| 40                           | 600            | 2.3                           | 0.016                           | 0821401238 |
| 40                           | 800            | 2.3                           | 0.016                           | 0821401239 |
| 40                           | 1000           | 2.3                           | 0.016                           | 0821401472 |
| 40                           | 1200           | 2.3                           | 0.016                           | 0821401473 |
| 50                           | 50             | 3.7                           | 0.025                           | 0821401240 |
| 50                           | 100            | 3.7                           | 0.025                           | 0821401241 |
| 50                           | 160            | 3.7                           | 0.025                           | 0821401242 |
| 50                           | 200            | 3.7                           | 0.025                           | 0821401243 |
| 50                           | 250            | 3.7                           | 0.025                           | 0821401244 |
| 50                           | 320            | 3.7                           | 0.025                           | 0821401245 |

| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 50                           | 400            | 3.7                           | 0.025                           | 0821401246 |
| 50                           | 500            | 3.7                           | 0.025                           | 0821401247 |
| 50                           | 600            | 3.7                           | 0.025                           | 0821401249 |
| 50                           | 800            | 3.7                           | 0.025                           | 0821401474 |
| 50                           | 1000           | 3.7                           | 0.025                           | 0821401475 |
| 50                           | 1200           | 3.7                           | 0.025                           | 0821401476 |
| 63                           | 50             | 4.7                           | 0.025                           | 0821401280 |
| 63                           | 100            | 4.7                           | 0.025                           | 0821401281 |
| 63                           | 160            | 4.7                           | 0.025                           | 0821401285 |
| 63                           | 200            | 4.7                           | 0.025                           | 0821401282 |
| 63                           | 250            | 4.7                           | 0.025                           | 0821401286 |
| 63                           | 320            | 4.7                           | 0.025                           | 0821401283 |
| 63                           | 400            | 4.7                           | 0.025                           | 0821401287 |
| 63                           | 500            | 4.7                           | 0.025                           | 0821401284 |
| 63                           | 600            | 4.7                           | 0.025                           | 0821401288 |
| 63                           | 800            | 4.7                           | 0.025                           | 0821401289 |
| 63                           | 1000           | 4.7                           | 0.025                           | 0821401290 |
| 63                           | 1200           | 4.7                           | 0.025                           | 0821401291 |
| 80                           | 100            | 8.8                           | 0.039                           | 0821401260 |
| 80                           | 200            | 8.8                           | 0.039                           | 0821401261 |
| 80                           | 320            | 8.8                           | 0.039                           | 0821401262 |
| 80                           | 500            | 8.8                           | 0.039                           | 0821401263 |
| 80                           | 600            | 8.8                           | 0.039                           | 0821401264 |
| 80                           | 800            | 8.8                           | 0.039                           | 0821401265 |
| 80                           | 1000           | 8.8                           | 0.039                           | 0821401266 |
| 80                           | 1200           | 8.8                           | 0.039                           | 0821401267 |
| 100                          | 100            | 11.1                          | 0.039                           | 0821401270 |
| 100                          | 200            | 11.1                          | 0.039                           | 0821401271 |
| 100                          | 320            | 11.1                          | 0.039                           | 0821401272 |
| 100                          | 500            | 11.1                          | 0.039                           | 0821401273 |
| 100                          | 600            | 11.1                          | 0.039                           | 0821401274 |
| 100                          | 800            | 11.1                          | 0.039                           | 0821401275 |
| 100                          | 1000           | 11.1                          | 0.039                           | 0821401276 |
| 100                          | 1200           | 11.1                          | 0.039                           | 0821401277 |

Dimensions



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

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|
| 32       | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  |
| 40       | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  |
| 50       | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  |
| 63       | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  |
| 80       | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 |
| 100      | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 |

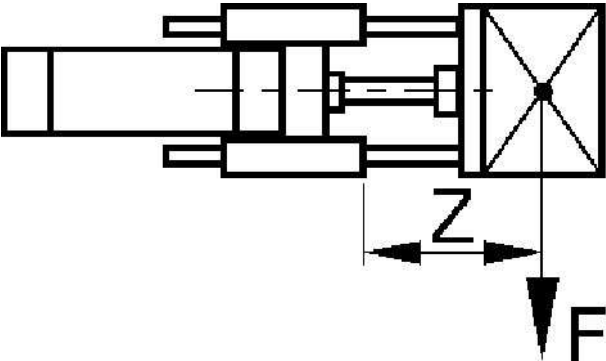
| Piston Ø | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32       | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40       | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50       | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63       | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80       | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100      | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

| Piston Ø | D7 M8 | D8   | G1  | G2  | KK       | L1  | L2   | L3   | L4  |
|----------|-------|------|-----|-----|----------|-----|------|------|-----|
| 32       | 30    | 14.5 | M6  | M6  | M10x1,25 | 45  | 32.5 | 32.5 | 12  |
| 40       | 35    | 18   | M6  | M6  | M12x1,25 | 54  | 38   | 38   | 8   |
| 50       | 40    | 24   | M8  | M8  | M16x1,5  | 63  | 46.5 | 46.5 | 4.5 |
| 63       | 45    | 24   | M8  | M8  | M16x1,5  | 80  | 56.5 | 56.5 | 13  |
| 80       | 45    | 30   | M10 | M10 | M20x1,5  | 100 | 72   | 72   | 15  |
| 100      | 55    | 30   | M10 | M10 | M20x1,5  | 120 | 89   | 89   | 20  |

| Piston Ø | L5    | L6  | L7 | L8 | L9  | L10 | L11   | L12 | L13 |
|----------|-------|-----|----|----|-----|-----|-------|-----|-----|
| 32       | 4.25  | 76  | 17 | 3  | 94  | 64  | 177.5 | 125 | 12  |
| 40       | 11    | 81  | 21 | 3  | 105 | 74  | 192.5 | 140 | 12  |
| 50       | 18.75 | 79  | 26 | 3  | 106 | 89  | 205   | 150 | 15  |
| 63       | 15.25 | 111 | 26 | 3  | 121 | 89  | 237   | 182 | 15  |
| 80       | 21    | 128 | 34 | 3  | 128 | 110 | 280   | 215 | 20  |
| 100      | 24.5  | 128 | 39 | 3  | 138 | 115 | 280   | 220 | 20  |

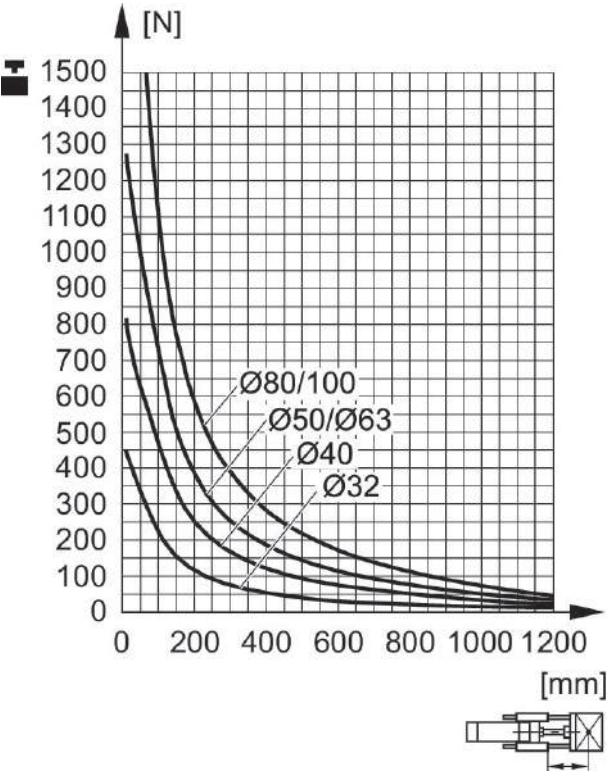
| Piston Ø | L14 | L15  | L16  | L17 | L18 | T1  | T2 | T3 | SW1 |
|----------|-----|------|------|-----|-----|-----|----|----|-----|
| 32       | 50  | 32.5 | 32.5 | 6   | 17  | 6.5 | 10 | 15 | 13  |
| 40       | 58  | 38   | 38   | 14  | 22  | 6.5 | 10 | 15 | 15  |
| 50       | 70  | 46.5 | 46.5 |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

Useful load



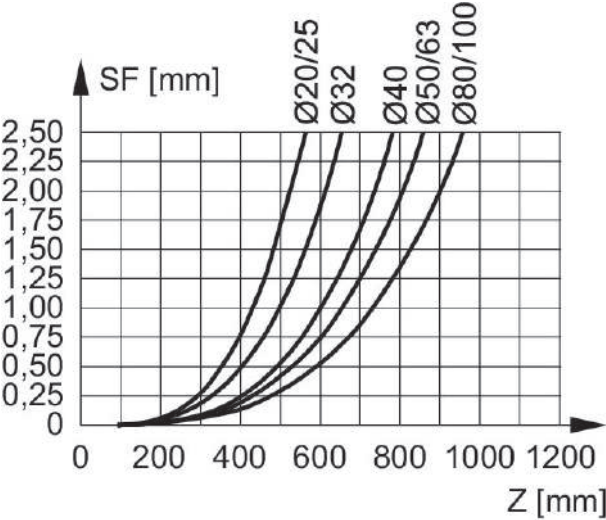
F = Useful load, Z = Projection

Useful load



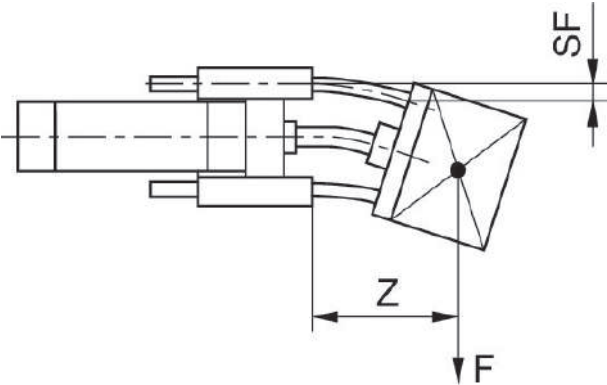
F = Useful load, Z = Projection

Bending due to own load



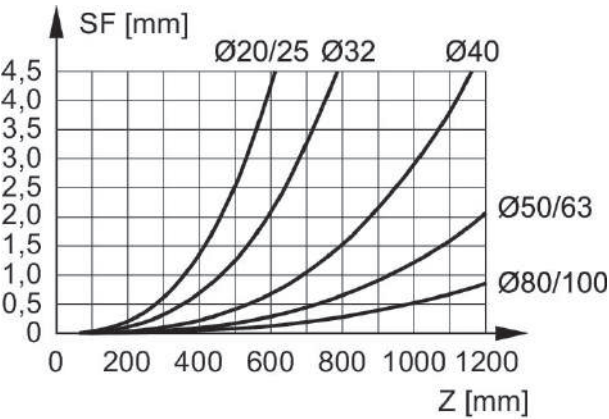
F = useful load (at the load center), SF = bending, Z = projection

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

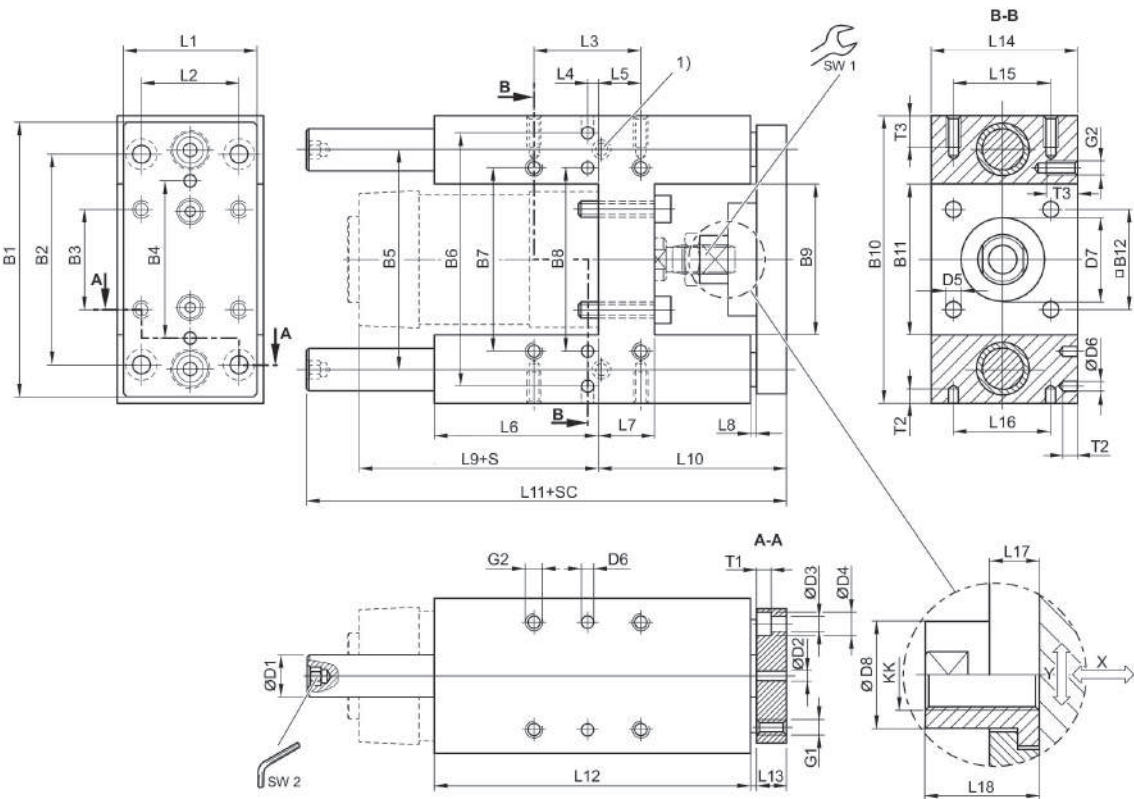
Bearing type: Linear ball bearing  
Ambient temperature min./max.: -20 °C ... 80 °C



| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 32                           | 50             | 1.3                           | 0.009                           | 0821401320 |
| 32                           | 100            | 1.3                           | 0.009                           | 0821401321 |
| 32                           | 200            | 1.3                           | 0.009                           | 0821401322 |
| 32                           | 320            | 1.3                           | 0.009                           | 0821401323 |
| 32                           | 500            | 1.3                           | 0.009                           | 0821401324 |
| 32                           | 600            | 1.3                           | 0.009                           | 0821401325 |
| 32                           | 800            | 1.3                           | 0.009                           | 0821401326 |
| 32                           | 1000           | 1.3                           | 0.009                           | 0821401327 |
| 32                           | 1200           | 1.3                           | 0.009                           | 0821401328 |
| 40                           | 50             | 2.3                           | 0.016                           | 0821401330 |
| 40                           | 100            | 2.3                           | 0.016                           | 0821401331 |
| 40                           | 200            | 2.3                           | 0.016                           | 0821401332 |
| 40                           | 320            | 2.3                           | 0.016                           | 0821401333 |
| 40                           | 500            | 2.3                           | 0.016                           | 0821401334 |
| 40                           | 600            | 2.3                           | 0.016                           | 0821401335 |
| 40                           | 800            | 2.3                           | 0.016                           | 0821401336 |
| 40                           | 1000           | 2.3                           | 0.016                           | 0821401337 |
| 40                           | 1200           | 2.3                           | 0.016                           | 0821401338 |
| 50                           | 50             | 3.7                           | 0.025                           | 0821401340 |
| 50                           | 100            | 3.7                           | 0.025                           | 0821401341 |
| 50                           | 200            | 3.7                           | 0.025                           | 0821401342 |
| 50                           | 320            | 3.7                           | 0.025                           | 0821401343 |
| 50                           | 500            | 3.7                           | 0.025                           | 0821401344 |
| 50                           | 600            | 3.7                           | 0.025                           | 0821401345 |
| 50                           | 800            | 3.7                           | 0.025                           | 0821401346 |
| 50                           | 1000           | 3.7                           | 0.025                           | 0821401347 |
| 50                           | 1200           | 3.7                           | 0.025                           | 0821401348 |
| 63                           | 50             | 4.7                           | 0.025                           | 0821401380 |
| 63                           | 100            | 4.7                           | 0.025                           | 0821401381 |
| 63                           | 200            | 4.7                           | 0.025                           | 0821401382 |

| Piston di-<br>ameter<br>[mm] | Stroke<br>[mm] | Weight 0<br>mm stroke<br>[kg] | Weight +10<br>mm stroke<br>[kg] | Part No.   |
|------------------------------|----------------|-------------------------------|---------------------------------|------------|
| 63                           | 320            | 4.7                           | 0.025                           | 0821401383 |
| 63                           | 500            | 4.7                           | 0.025                           | 0821401384 |
| 63                           | 600            | 4.7                           | 0.025                           | 0821401385 |
| 63                           | 800            | 4.7                           | 0.025                           | 0821401386 |
| 63                           | 1000           | 4.7                           | 0.025                           | 0821401387 |
| 63                           | 1200           | 4.7                           | 0.025                           | 0821401388 |
| 80                           | 100            | 8.8                           | 0.039                           | 0821401360 |
| 80                           | 200            | 8.8                           | 0.039                           | 0821401361 |
| 80                           | 320            | 8.8                           | 0.039                           | 0821401362 |
| 80                           | 500            | 8.8                           | 0.039                           | 0821401363 |
| 80                           | 600            | 8.8                           | 0.039                           | 0821401364 |
| 80                           | 800            | 8.8                           | 0.039                           | 0821401365 |
| 80                           | 1000           | 8.8                           | 0.039                           | 0821401366 |
| 80                           | 1200           | 8.8                           | 0.039                           | 0821401367 |
| 100                          | 100            | 11.1                          | 0.039                           | 0821401370 |
| 100                          | 200            | 11.1                          | 0.039                           | 0821401371 |
| 100                          | 320            | 11.1                          | 0.039                           | 0821401372 |
| 100                          | 500            | 11.1                          | 0.039                           | 0821401373 |
| 100                          | 600            | 11.1                          | 0.039                           | 0821401374 |
| 100                          | 800            | 11.1                          | 0.039                           | 0821401375 |
| 100                          | 1000           | 11.1                          | 0.039                           | 0821401376 |
| 100                          | 1200           | 11.1                          | 0.039                           | 0821401377 |

Dimensions



1) Lube nipple  
S = stroke  
SC = cylinder stroke  
X = max. play (axial)  
Y = min. play (radial)  
Hexagon in guide rod

| Piston Ø | B1  | B2  | B3   | B4  | B5  | B6  | B7  | B8  | B9    |
|----------|-----|-----|------|-----|-----|-----|-----|-----|-------|
| 32       | 90  | 78  | 32.5 | 50  | 74  | 81  | 61  | 61  | 50.2  |
| 40       | 110 | 84  | 38   | 54  | 87  | 99  | 69  | 69  | 58.2  |
| 50       | 130 | 100 | 46.5 | 72  | 104 | 119 | 85  | 85  | 70.2  |
| 63       | 145 | 105 | 56.5 | 82  | 119 | 132 | 100 | 100 | 85.2  |
| 80       | 180 | 130 | 72   | 106 | 148 | 166 | 130 | 130 | 105.4 |
| 100      | 200 | 150 | 89   | 131 | 172 | 190 | 150 | 150 | 130.4 |

| Piston Ø | B10 | B11   | B12  | D1 | D2 H7 | D3  | D4 | D5  | D6 H7 |
|----------|-----|-------|------|----|-------|-----|----|-----|-------|
| 32       | 97  | 50.2  | 32.5 | 12 | 6     | 6.6 | 11 | 6.6 | 6     |
| 40       | 115 | 58.2  | 38   | 16 | 6     | 6.6 | 11 | 6.6 | 6     |
| 50       | 137 | 70.2  | 46.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 63       | 152 | 85.2  | 56.5 | 20 | 6     | 9   | 15 | 9   | 6     |
| 80       | 189 | 105.4 | 72   | 25 | 6     | 11  | 18 | 11  | 6     |
| 100      | 213 | 130.4 | 89   | 25 | 6     | 11  | 18 | 11  | 6     |

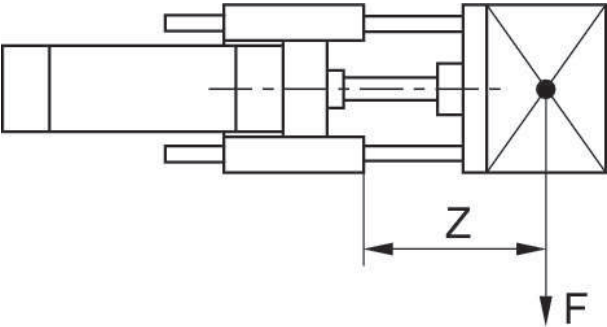
| Piston Ø | D7 M8 | D8   | G1  | G2  | KK       | L1  | L2   | L3   | L4  |
|----------|-------|------|-----|-----|----------|-----|------|------|-----|
| 32       | 30    | 14.5 | M6  | M6  | M10x1,25 | 45  | 32.5 | 32.5 | 12  |
| 40       | 35    | 18   | M6  | M6  | M12x1,25 | 54  | 38   | 38   | 8   |
| 50       | 40    | 24   | M8  | M8  | M16x1,5  | 63  | 46.5 | 46.5 | 4.5 |
| 63       | 45    | 24   | M8  | M8  | M16x1,5  | 80  | 56.5 | 56.5 | 13  |
| 80       | 45    | 30   | M10 | M10 | M20x1,5  | 100 | 72   | 72   | 15  |
| 100      | 55    | 30   | M10 | M10 | M20x1,5  | 120 | 89   | 89   | 20  |

| Piston Ø | L5    | L6  | L7 | L8 | L9  | L10 | L11   | L12 | L13 |
|----------|-------|-----|----|----|-----|-----|-------|-----|-----|
| 32       | 4.25  | 76  | 17 | 3  | 94  | 64  | 177.5 | 125 | 12  |
| 40       | 11    | 81  | 21 | 3  | 105 | 74  | 192.5 | 140 | 12  |
| 50       | 18.75 | 79  | 26 | 3  | 106 | 89  | 237   | 150 | 15  |
| 63       | 15.25 | 111 | 26 | 3  | 121 | 89  | 237   | 182 | 15  |
| 80       | 21    | 128 | 34 | 3  | 128 | 110 | 280   | 215 | 20  |
| 100      | 24.5  | 128 | 39 | 3  | 138 | 115 | 280   | 220 | 20  |

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

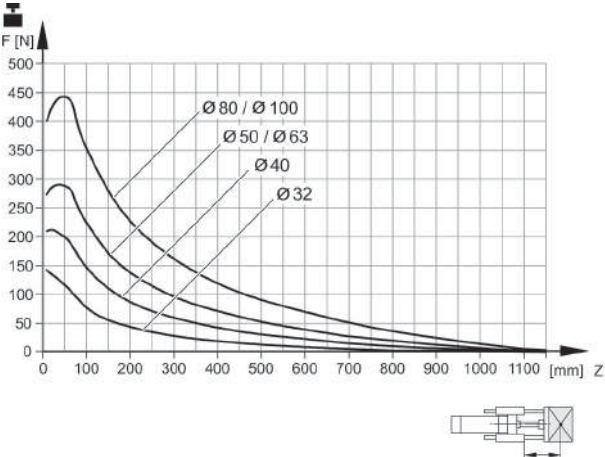
| Piston Ø | SW2 |
|----------|-----|
| 32       | 5   |
| 40       | 6   |
| 50       | 6   |
| 63       | 6   |
| 80       | 8   |
| 100      | 8   |

Useful load



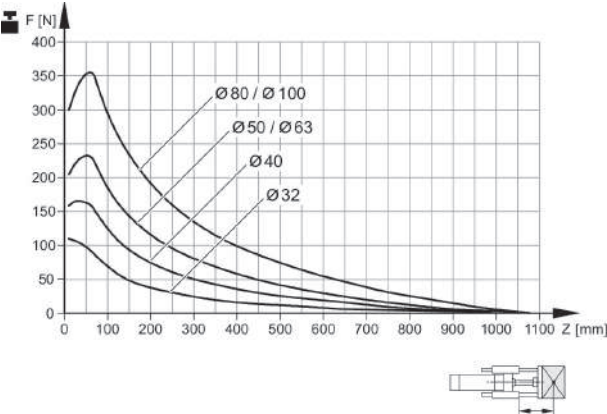
F = Useful load, Z = Projection

Useful load



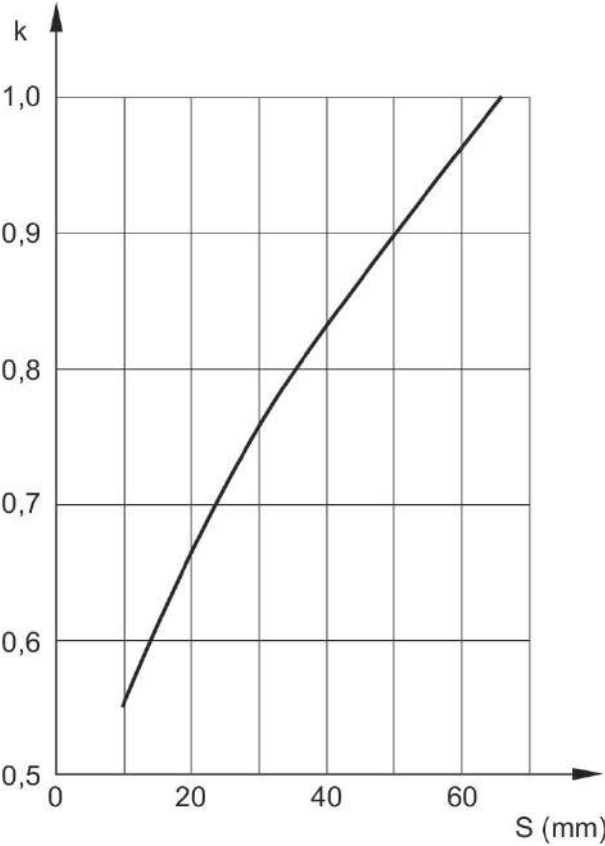
Service life 2x10<sup>6</sup> m  
F = Useful load, Z = Projection

Useful load



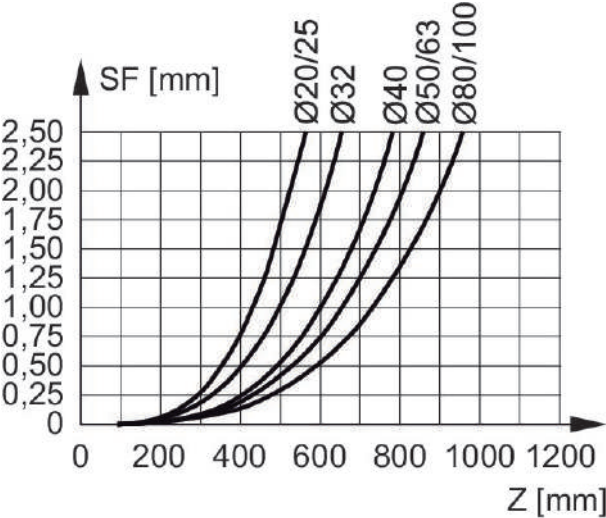
Service life 5x10<sup>6</sup> m  
F = Useful load, Z = Projection

Reduction of useful load for short-stroke



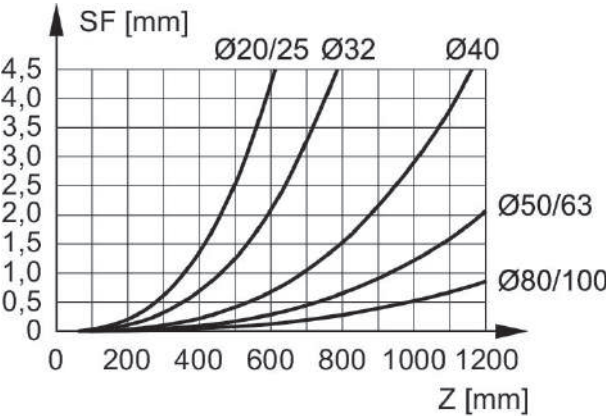
S = stroke  
k=correction factor: normal=1, shock loaded=2 With a short stroke, the useful load figures determined from the diagram must be multiplied by the correction factor k. These short-stroke adjustments are already included in the load diagram for a displacement of up to 60 mm.

Bending due to own load



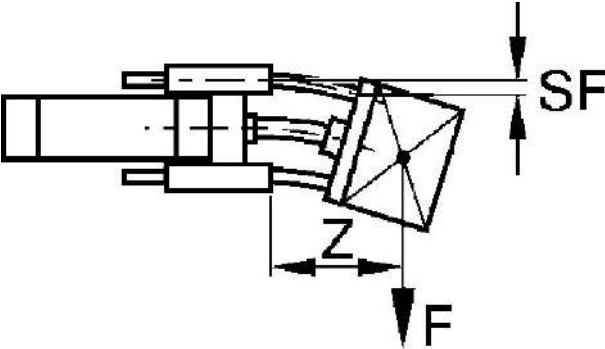
F = useful load (at the load center), SF = bending, Z = projection

Bending due to 10 N load



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

Bending due to 10 N load



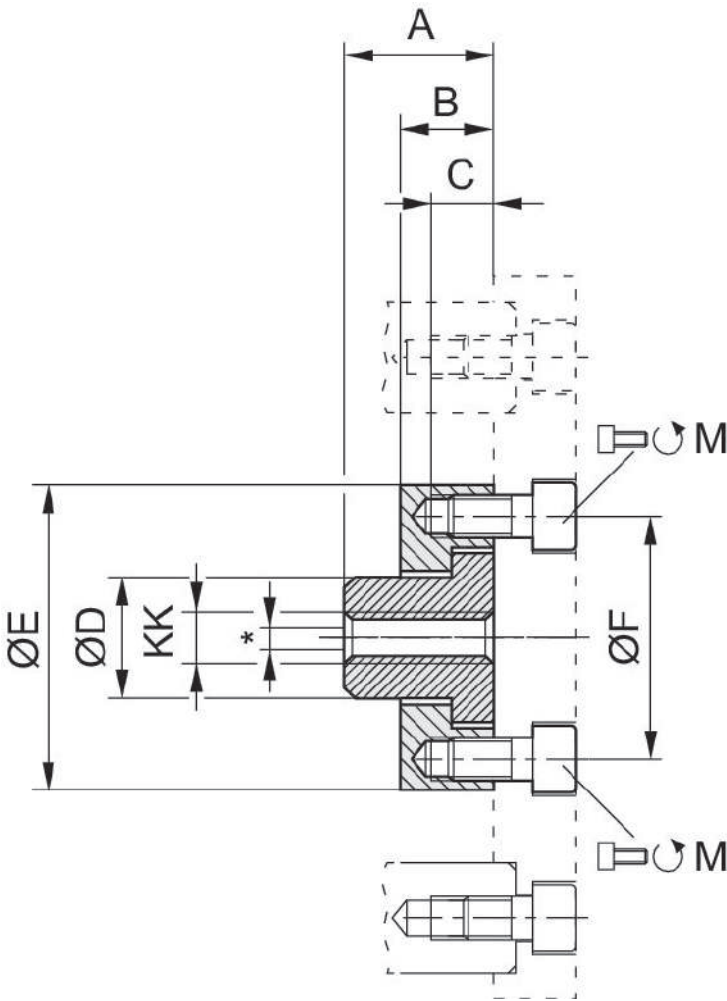
F = useful load (at the load center), SF = bending, Z = projection

Compensating coupling GU3 form B, series CG1



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

Dimensions



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

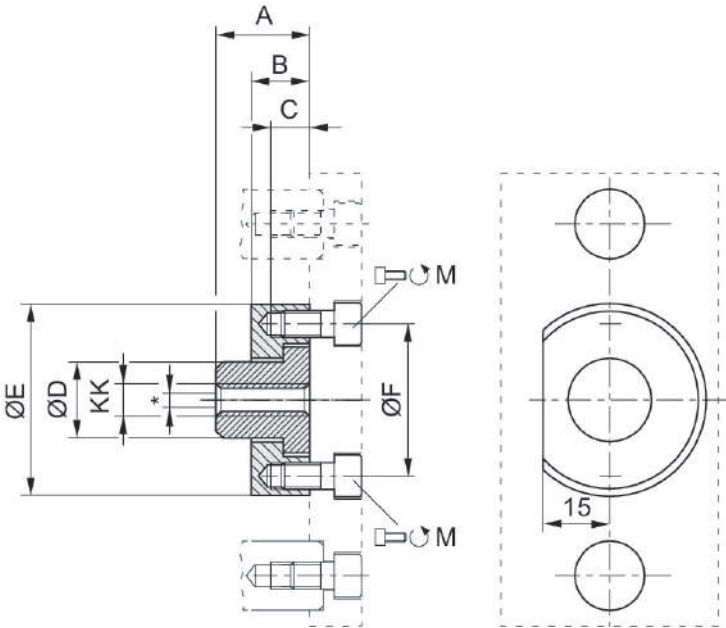
| Part No.   | KK       | Cylinders Ø | M        | A  | B  | C   | D    | ØE    | ØF |
|------------|----------|-------------|----------|----|----|-----|------|-------|----|
| R413000283 | M8       | 20          | 2x M5x12 | 22 | 6  | 6   | 14.5 | SW 30 | 26 |
| R413000284 | M10x1,25 | 25/32       | 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



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

Dimensions

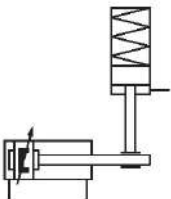


\* Radial joint from 1,0 ... 2,5 mm

| Part No.   | KK       | Cylinders 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**

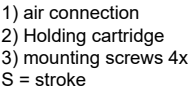
Ambient temperature min./max.: -10 °C ... 60 °C  
Medium temperature min./max.: -10 °C ... 60 °C



| Piston Ø                  | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|---------------------------|------------|------------|------------|------------|------------|------------|
| Compressed air connection | M5         | G 1/8      | G 1/8      | G 1/8      | G 1/8      | G 1/8      |
| -                         | 0821401165 | 0821401166 | 0821401167 | 0821401168 | 0821401169 | 0821401170 |

| Piston Ø              | 32 mm | 40 mm  | 50 mm  | 63 mm  | 80 mm  | 100 mm |
|-----------------------|-------|--------|--------|--------|--------|--------|
| Static holding force  | 650 N | 1100 N | 1600 N | 2500 N | 4000 N | 6300 N |
| suitable piston rod Ø | 12 mm | 16 mm  | 20 mm  | 20 mm  | 25 mm  | 25 mm  |
| Piston rod extension  | 42 mm | 45 mm  | 57 mm  | 57 mm  | 77 mm  | 77 mm  |

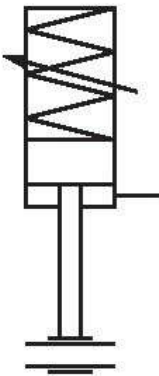
## Dimensions



| Piston Ø | L4 | L5 | L6   | L7  | L8   | L9   | G   | WH  | ZJ  |
|----------|----|----|------|-----|------|------|-----|-----|-----|
| 32       | 8  | 13 | 20.5 | 45  | 32.5 | 25.5 | M6  | 68  | 162 |
| 40       | 8  | 13 | 22.5 | 50  | 38   | 30   | M6  | 75  | 180 |
| 50       | 15 | 16 | 29.5 | 60  | 46.5 | 36   | M8  | 94  | 200 |
| 63       | 15 | 16 | 29.5 | 70  | 56.5 | 40   | M8  | 94  | 215 |
| 80       | 18 | 20 | 35   | 90  | 72   | 50   | M10 | 123 | 251 |
| 100      | 18 | 20 | —    | 105 | 89   | 58   | M10 | 128 | 266 |

Locking unit, Series LU1

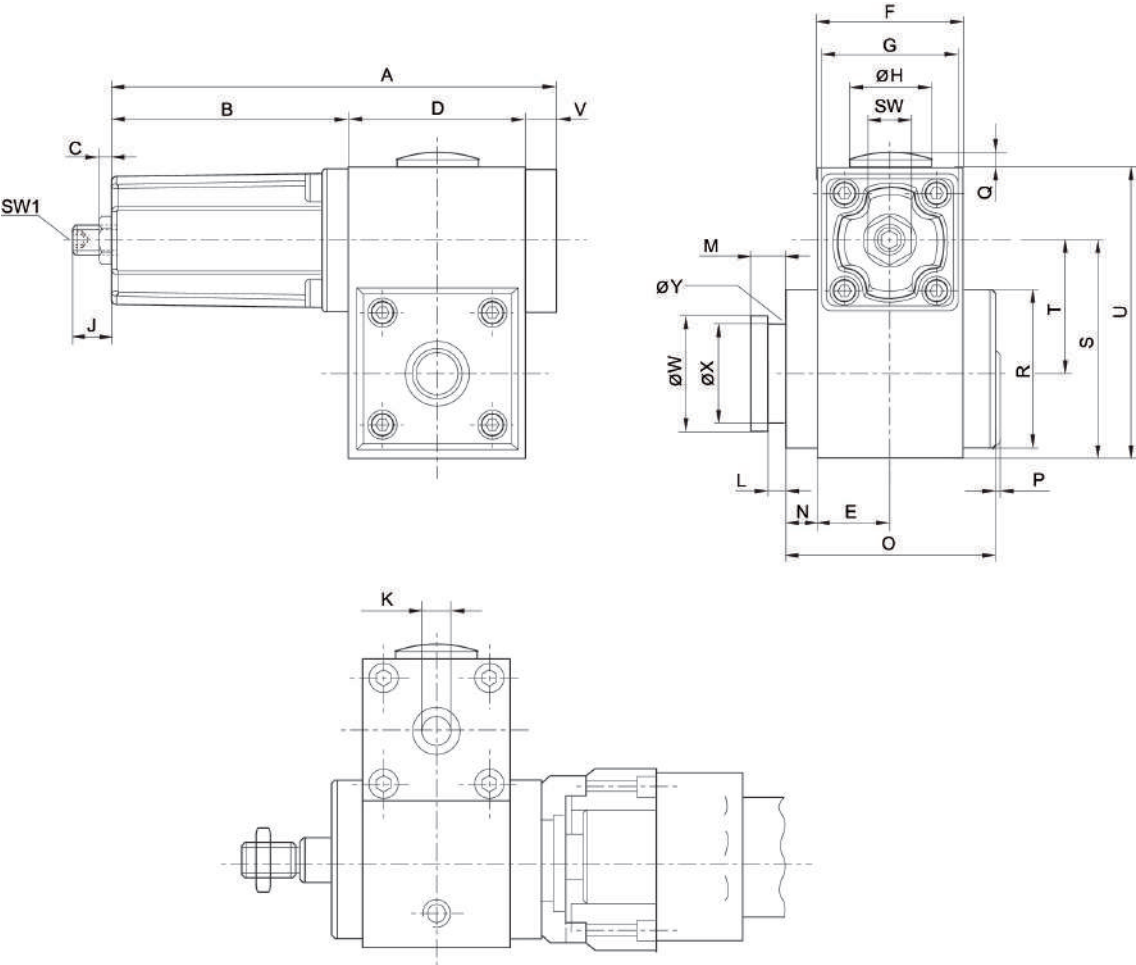
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C



| Piston Ø                  | 32 mm      | 40 mm      | 50 mm63 mm | 80 mm100 mm |
|---------------------------|------------|------------|------------|-------------|
| Compressed air connection | G 1/8      | G 1/8      | G 1/8      | G 1/8       |
| -                         | 0821401130 | 0821401131 | 0821401132 | 0821401133  |

| Piston Ø                     | 32 mm | 40 mm  | 50 mm63 mm | 80 mm100 mm |
|------------------------------|-------|--------|------------|-------------|
| Static hold- ing force       | 840 N | 1100 N | 2700 N     | 5800 N      |
| suitable piston rod diameter | 12 mm | 16 mm  | 20 mm      | 25 mm       |
| Piston rod extension         | 79 mm | 81 mm  | 100 mm     | 140 mm      |

Dimensions



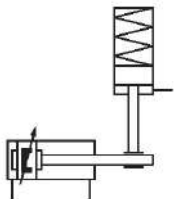
| Piston Ø | Part No.   | A   | B  | C    | D   | E  | F  | G  | ØH   |
|----------|------------|-----|----|------|-----|----|----|----|------|
| 32       | 0821401130 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   |
| 40       | 0821401131 | 135 | 69 | 10   | 56  | 23 | 46 | 45 | 30   |
| 50, 63   | 0821401132 | 169 | 90 | 10   | 69  | 30 | 60 | 55 | 30   |
| 80, 100  | 0821401133 | 208 | 98 | 16.7 | 100 | 40 | 80 | 65 | 37.5 |

| Piston Ø | J  | K     | L   | M  | N  | O   | P | Q   | R  |
|----------|----|-------|-----|----|----|-----|---|-----|----|
| 32       | 19 | G 1/8 | 4.1 | 8  | 9  | 65  | 3 | 2.5 | 50 |
| 40       | 18 | G 1/8 | 5.1 | 10 | 9  | 65  | 3 | 2.5 | 50 |
| 50, 63   | 17 | G 1/8 | 5.1 | 10 | 9  | 84  | 3 | 2.5 | 60 |
| 80, 100  | 15 | G 1/8 | 8.1 | 16 | 13 | 118 | 3 | 2   | 90 |

| Piston Ø | S   | SW | SW1 | T    | U   | V  | ØW   | ØX | ØY |
|----------|-----|----|-----|------|-----|----|------|----|----|
| 32       | 69  | 15 | 5   | 41.9 | 92  | 10 | 29.9 | 24 | 3  |
| 40       | 69  | 15 | 5   | 40.5 | 92  | 10 | 39.9 | 30 | 3  |
| 50, 63   | 80  | 15 | 5   | 48   | 111 | 10 | 39.9 | 30 | 3  |
| 80, 100  | 119 | 24 | 8   | 72   | 155 | 10 | 54.9 | 40 | 5  |

Locking unit, Series LU1

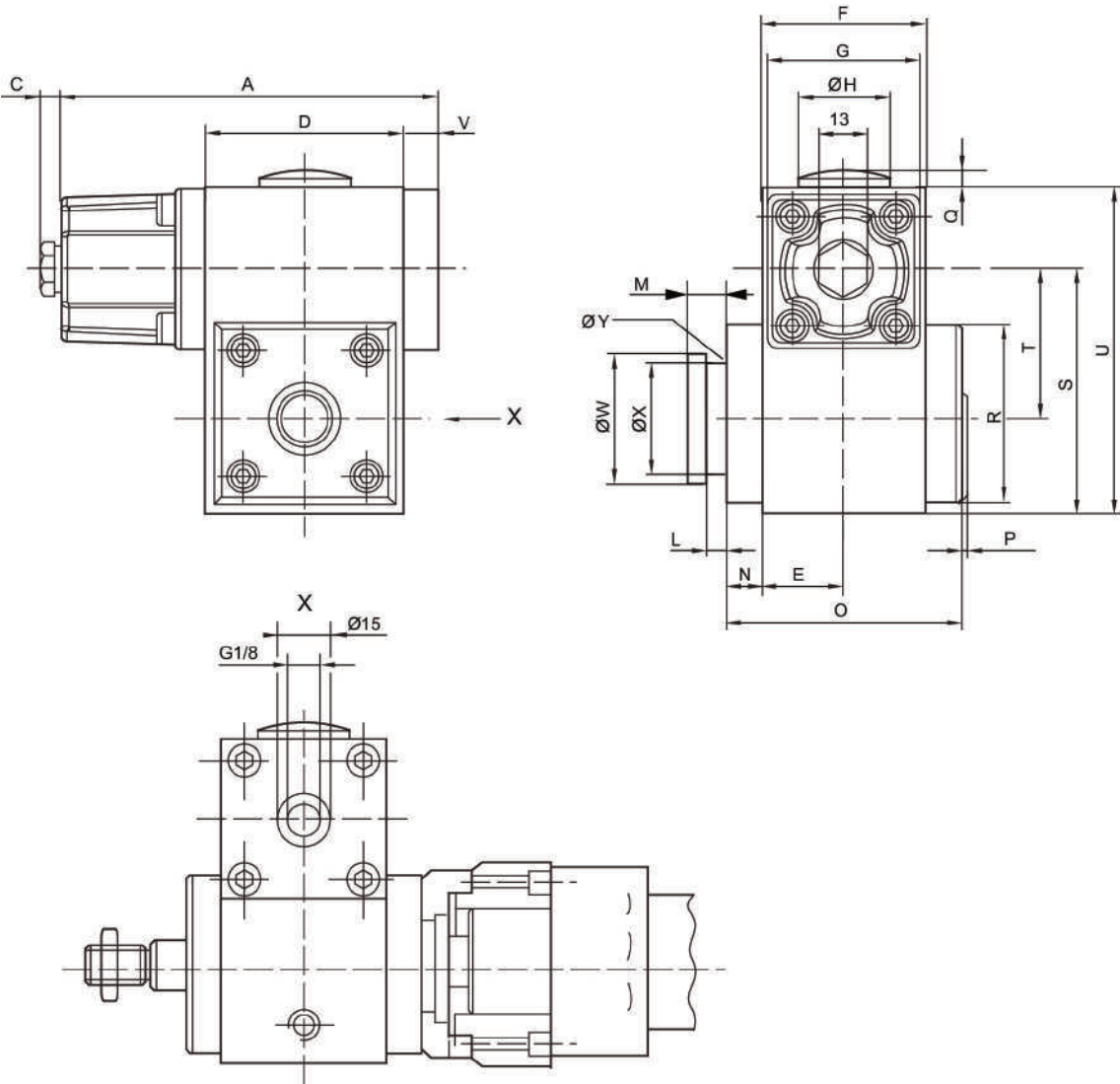
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C



|                           |            |            |            |             |
|---------------------------|------------|------------|------------|-------------|
| Piston Ø                  | 32 mm      | 40 mm      | 50 mm63 mm | 80 mm100 mm |
| Compressed air connection | G 1/8      | G 1/8      | G 1/8      | G 1/8       |
| -                         | R412003730 | R412003731 | R412003732 | R412003733  |

|                              |       |        |            |             |
|------------------------------|-------|--------|------------|-------------|
| Piston Ø                     | 32 mm | 40 mm  | 50 mm63 mm | 80 mm100 mm |
| Static hold- ing force       | 740 N | 1000 N | 2300 N     | 4000 N      |
| suitable piston rod diameter | 12 mm | 16 mm  | 20 mm      | 25 mm       |
| Piston rod extension         | 79 mm | 81 mm  | 100 mm     | 140 mm      |

Dimensions



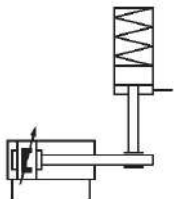
| Piston Ø | Part No.   | A     | C | D   | E  | F  | G  | Ø H  | L   |
|----------|------------|-------|---|-----|----|----|----|------|-----|
| 32       | R412003730 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 |
| 40       | R412003731 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 |
| 50, 63   | R412003732 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 |
| 80, 100  | R412003733 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 |

| Piston Ø | M  | N  | O    | P | Q   | R  | S    | T    | U    |
|----------|----|----|------|---|-----|----|------|------|------|
| 32       | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 |
| 40       | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 |
| 50, 63   | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  |
| 80, 100  | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  |

| Piston Ø | V  | Ø W  | Ø X | Ø Y |
|----------|----|------|-----|-----|
| 32       | 10 | 29.9 | 24  | 3   |
| 40       | 10 | 39.9 | 30  | 3   |
| 50, 63   | 10 | 39.9 | 30  | 3   |
| 80, 100  | 10 | 54.9 | 40  | 5   |

Locking unit, Series LU1

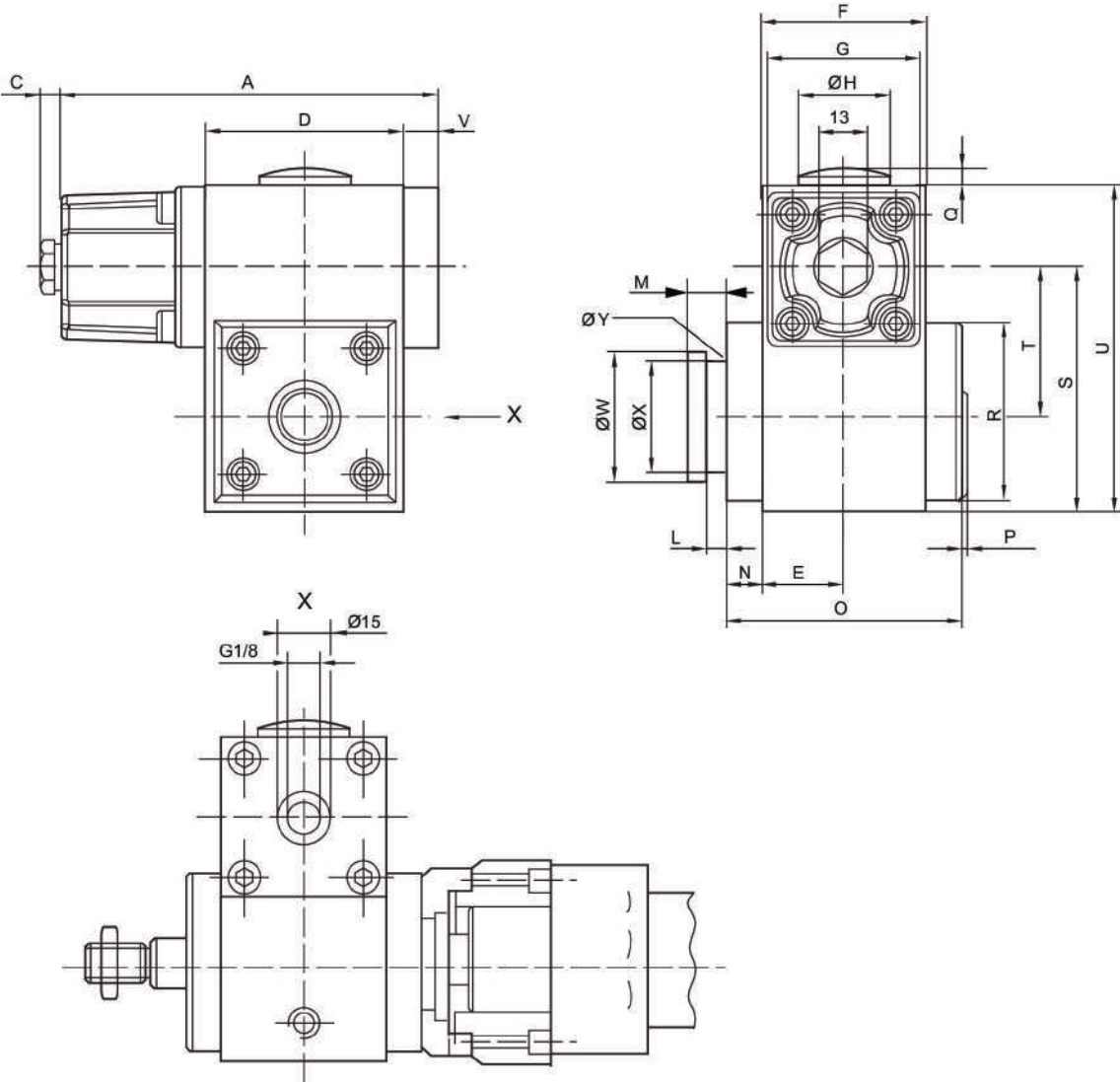
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C



|                           |            |            |            |             |
|---------------------------|------------|------------|------------|-------------|
| Piston Ø                  | 32 mm      | 40 mm      | 50 mm63 mm | 80 mm100 mm |
| Compressed air connection | G 1/8      | G 1/8      | G 1/8      | G 1/8       |
| -                         | 0821401134 | 0821401135 | 0821401136 | 0821401137  |

|                              |       |        |            |             |
|------------------------------|-------|--------|------------|-------------|
| Piston Ø                     | 32 mm | 40 mm  | 50 mm63 mm | 80 mm100 mm |
| Static hold- ing force       | 840 N | 1100 N | 2700 N     | 5800 N      |
| suitable piston rod diameter | 12 mm | 16 mm  | 20 mm      | 25 mm       |
| Piston rod extension         | 79 mm | 81 mm  | 100 mm     | 140 mm      |

Dimensions



| Piston Ø | Part No.   | A     | C | D   | E  | F  | G  | Ø H  | L   |
|----------|------------|-------|---|-----|----|----|----|------|-----|
| 32       | 0821401134 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 4.1 |
| 40       | 0821401135 | 106   | 6 | 56  | 23 | 46 | 45 | 30   | 5.1 |
| 50, 63   | 0821401136 | 139.5 | 6 | 69  | 30 | 60 | 55 | 30   | 5.1 |
| 80, 100  | 0821401137 | 176.5 | 6 | 100 | 40 | 80 | 65 | 37.5 | 8.1 |

| Piston Ø | M  | N  | O    | P | Q   | R  | S    | T    | U    |
|----------|----|----|------|---|-----|----|------|------|------|
| 32       | 8  | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 41.9 | 91.5 |
| 40       | 10 | 9  | 65   | 3 | 2.5 | 50 | 68.5 | 40.5 | 91.5 |
| 50, 63   | 10 | 9  | 83.5 | 3 | 2.5 | 60 | 79.5 | 48   | 110  |
| 80, 100  | 16 | 13 | 118  | 3 | 2   | 90 | 119  | 72   | 155  |

| Piston Ø | V  | Ø W  | Ø X | Ø Y |
|----------|----|------|-----|-----|
| 32       | 10 | 29.9 | 24  | 3   |
| 40       | 10 | 39.9 | 30  | 3   |
| 50, 63   | 10 | 39.9 | 30  | 3   |
| 80, 100  | 10 | 54.9 | 40  | 5   |

Mounting flange, Series LU1

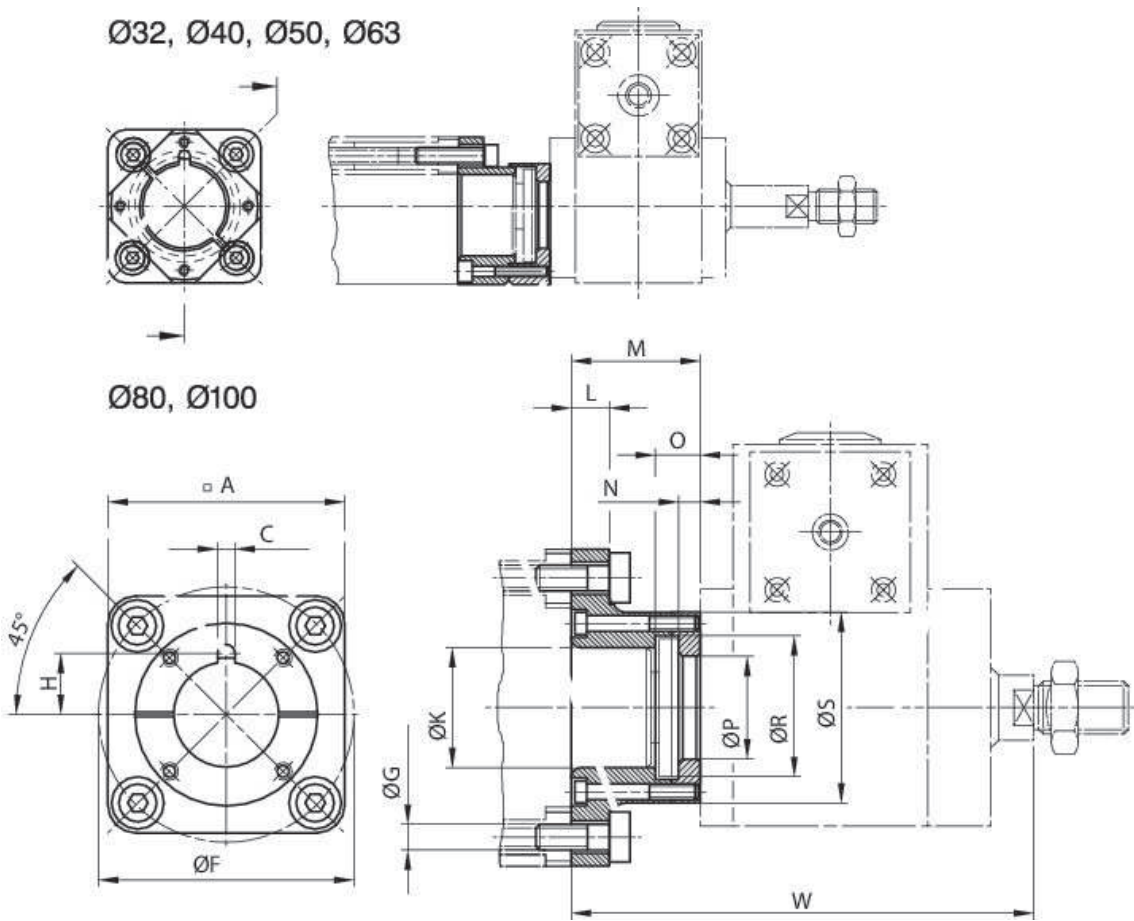
Ambient temperature min./max.: -20 °C ... 80 °C  
Medium temperature min./max.: -20 °C ... 80 °C



| Piston Ø | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
|----------|------------|------------|------------|------------|------------|------------|
| -        | 1827001504 | 1827001505 | 1827001506 | 1827001508 | 1827001433 | 1827001434 |

Keine Attribute mit Inhalt in Tabelle!

Dimensions



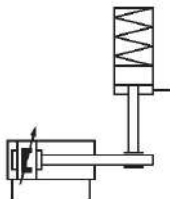
Screws included in scope of delivery  
The locking unit can be rotated by 4x90°.

| Piston Ø | Part No.   | A   | C +0,1 | Ø F ±0,2 | G H13 | H    | Ø K H10 | L   | M    |
|----------|------------|-----|--------|----------|-------|------|---------|-----|------|
| 32       | 1827001504 | 50  | 3.6    | 46       | 6.6   | 13.2 | 30      | 7   | 27.2 |
| 40       | 1827001505 | 57  | 3.6    | 54       | 6.6   | 18.2 | 35      | 9.5 | 33.3 |
| 50       | 1827001506 | 68  | 3.6    | 66       | 8.4   | 18.2 | 40      | 11  | 38.3 |
| 63       | 1827001508 | 75  | 3.6    | 80       | 8.4   | 18.2 | 45      | 11  | 38.3 |
| 80       | 1827001433 | 95  | 6      | 102      | 10.5  | 24.5 | 45      | 15  | 52   |
| 100      | 1827001434 | 115 | 6      | 126      | 10.5  | 24.6 | 55      | 15  | 57   |

| Piston Ø | N -0,1 | O  | Ø P +0,2 | Ø R +0,5 | Ø S  | W   |
|----------|--------|----|----------|----------|------|-----|
| 32       | 3.9    | 8  | 24.2     | 33       | 46.5 | 105 |
| 40       | 4.9    | 10 | 30.2     | 40       | 55.5 | 111 |
| 50       | 4.9    | 10 | 30.2     | 40       | 66   | 137 |
| 63       | 4.9    | 10 | 30.2     | 40       | 71   | 137 |
| 80       | 7.9    | 16 | 40.2     | 55       | 75   | 186 |
| 100      | 7.9    | 16 | 40.2     | 55       | 80   | 191 |

Locking unit, Series LU6

Ambient temperature min./max.: -25 °C ... 80 °C  
Medium temperature min./max.: -25 °C ... 80 °C



|                           |            |            |            |            |            |            |
|---------------------------|------------|------------|------------|------------|------------|------------|
| Piston Ø                  | 32 mm      | 40 mm      | 50 mm      | 63 mm      | 80 mm      | 100 mm     |
| Compressed air connection | G 1/8      | G 1/8      | G 1/8      | G 1/8      | G 1/8      | G 1/8      |
| -                         | 5230996402 | 5231996402 | 5232996402 | 5233996402 | 5234996402 | 5235996402 |

|                           |            |
|---------------------------|------------|
| Piston Ø                  | 125 mm     |
| Compressed air connection | G 1/4      |
| -                         | 5236996402 |

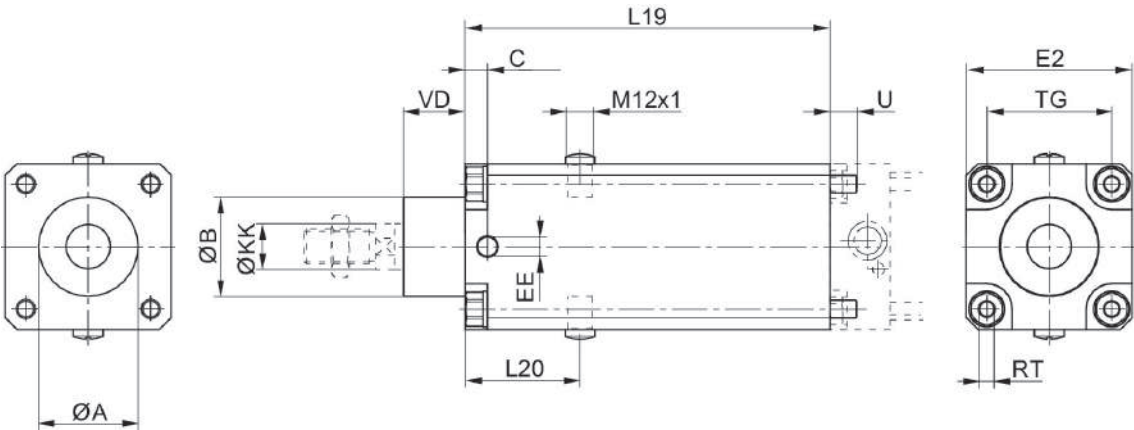
|                                                                                 |          |          |           |           |           |           |
|---------------------------------------------------------------------------------|----------|----------|-----------|-----------|-----------|-----------|
| Piston Ø                                                                        | 32 mm    | 40 mm    | 50 mm     | 63 mm     | 80 mm     | 100 mm    |
| Max. moving mass, external                                                      | 77 kg    | 122 kg   | 194 kg    | 306 kg    | 510 kg    | 815 kg    |
| Max. torsional moment of piston rod                                             | 0.5 Nm   | 1 Nm     | 2 Nm      | 2.5 Nm    | 5 Nm      | 9 Nm      |
| Max. holding/braking force FLU6                                                 | 760 N    | 1200 N   | 1900 kN   | 3000 N    | 5000 N    | 8000 N    |
| suitable piston rod diameter                                                    | 12 mm    | 16 mm    | 20 mm     | 20 mm     | 25 mm     | 25 mm     |
| Piston rod extension                                                            | 125 mm   | 125 mm   | 145 mm    | 165 mm    | 185 mm    | 220 mm    |
| Required flow rate Qn                                                           | 50 l/min | 70 l/min | 140 l/min | 240 l/min | 450 l/min | 700 l/min |
| Buckling protection of the piston rod 1), max. cylinder stroke for Euler case 1 | 750 mm   | 1100 mm  | 1350 mm   | 950 mm    | 1350 mm   | 950 mm    |
| Buckling protection of the piston rod 1), max.                                  | 400 mm   | 550 mm   | 700 mm    | 500 mm    | 700 mm    | 500 mm    |

| Piston Ø                                                | 32 mm  | 40 mm  | 50 mm  | 63 mm  | 80 mm  | 100 mm  |
|---------------------------------------------------------|--------|--------|--------|--------|--------|---------|
| cylinder stroke for Euler case 2                        |        |        |        |        |        |         |
| Max. piston speed                                       | 1 m/s  | 1 m/s  | 1 m/s  | 1 m/s  | 1 m/s  | 1 m/s   |
| Max. total braking energy $E_{total}$                   | 3.2 MJ | 6 MJ   | 10 MJ  | 18 MJ  | 36 MJ  | 58 MJ   |
| Max. braking energy per hour                            | 720 J  | 1350 J | 2250 J | 4050 J | 8100 J | 13200 J |
| Max. braking energy per braking cycle                   | 4.8 J  | 9 J    | 15 J   | 27 J   | 54 J   | 88 J    |
| Braking energy per braking cycle related to B10d, EB10d | 1.6 J  | 3 J    | 5 J    | 9 J    | 18 J   | 29 J    |
| Brake response time (4 bar)                             | 0.08 s | 0.08 s | 0.08 s | 0.08 s | 0.08 s | 0.09 s  |
| Brake response time (6.3 bar)                           | 0.1 s  | 0.1 s  | 0.1 s  | 0.1 s  | 0.1 s  | 0.11 s  |
| Brake response time (10 bar)                            | 0.12 s | 0.12 s | 0.12 s | 0.12 s | 0.12 s | 0.13 s  |

| Piston Ø                                                                        | 125 mm     |
|---------------------------------------------------------------------------------|------------|
| Max. moving mass, external                                                      | 1223 kg    |
| Max. torsional moment of piston rod                                             | 15 Nm      |
| Max. holding/braking force FLU6                                                 | 12000 N    |
| suitable piston rod diameter                                                    | 32 mm      |
| Piston rod extension                                                            | 220 mm     |
| Required flow rate $Q_n$                                                        | 1200 l/min |
| Buckling protection of the piston rod 1), max. cylinder stroke for Euler case 1 | 1500 mm    |
| Buckling protection of the piston rod 1), max. cylinder stroke for Euler case 2 | 800 mm     |
| Max. piston speed                                                               | 1 m/s      |
| Max. total braking energy $E_{total}$                                           | 93 MJ      |
| Max. braking energy per hour                                                    | 21000 J    |

| Piston Ø                                                | 125 mm |
|---------------------------------------------------------|--------|
| Max. braking energy per braking cycle                   | 140 J  |
| Braking energy per braking cycle related to B10d, EB10d | 47 J   |
| Brake response time (4 bar)                             | 0.09 s |
| Brake response time (6.3 bar)                           | 0.11 s |
| Brake response time (10 bar)                            | 0.13 s |

Dimensions



| Piston Ø | Part No.   | ØA   | ØB d11 | C  | EE   | E2  | L19 | L20  | ØKK e8-h9 |
|----------|------------|------|--------|----|------|-----|-----|------|-----------|
| 32       | 5230996402 | 30,5 | 30     | 9  | G1/8 | 48  | 125 | 44   | 12        |
| 40       | 5231996402 | 35,5 | 35     | 9  | G1/8 | 53  | 125 | 44   | 16        |
| 50       | 5232996402 | 40,5 | 40     | 9  | G1/8 | 63  | 145 | 49   | 20        |
| 63       | 5233996402 | 45,5 | 45     | 10 | G1/8 | 75  | 165 | 52   | 20        |
| 80       | 5234996402 | 45,5 | 45     | 11 | G1/8 | 98  | 185 | 61.5 | 25        |
| 100      | 5235996402 | 55,5 | 55     | 13 | G1/8 | 118 | 220 | 68   | 25        |
| 125      | 5236996402 | 60,5 | 60     | 13 | G1/4 | 142 | 220 | 75   | 32        |

| Piston Ø | TG   | RT  | U  | VD |
|----------|------|-----|----|----|
| 32       | 32,5 | M6  | 10 | 19 |
| 40       | 38   | M6  | 10 | 21 |
| 50       | 46,5 | M8  | 11 | 28 |
| 63       | 56,5 | M8  | 11 | 28 |
| 80       | 72   | M10 | 16 | 34 |
| 100      | 89   | M10 | 16 | 37 |
| 125      | 110  | M12 | 16 | 45 |

## Modular scraper system

For series: PRA, TRB, CCL-IS

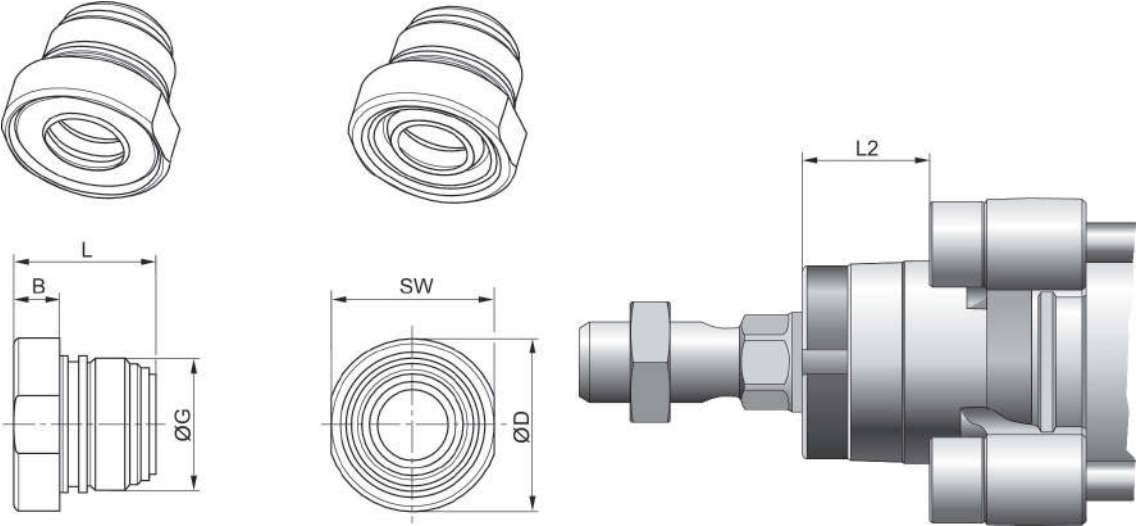
Working pressure min./max.: 1.5 bar ... 10 bar



| Piston diameter [mm] | Piston rod seal                | Scraper                | Application area                                                                                   | Min. ambient temperature [°C] | Max. ambient temperature [°C] | Part No.   |
|----------------------|--------------------------------|------------------------|----------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|------------|
| 32                   | Acrylonitrile butadiene rubber | Polyester elastomer    | Paper/printing industry, Textile industry                                                          | -20                           | 80                            | 0496400704 |
| 32                   | Acrylonitrile butadiene rubber | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                               | -20                           | 80                            | 0496401107 |
| 32                   | Fluorocautchouc                | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                               | -10                           | 150                           | 0496401700 |
| 40                   | Acrylonitrile butadiene rubber | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Woodworking industry | -20                           | 80                            | 0496400402 |
| 40                   | Fluorocautchouc                | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Woodworking industry | -10                           | 150                           | 0496401409 |
| 40                   | Acrylonitrile butadiene rubber | Polyester elastomer    | Paper/printing industry, Textile industry                                                          | -20                           | 80                            | 0496400801 |
| 40                   | Acrylonitrile butadiene rubber | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                               | -20                           | 80                            | 0496401204 |

| Piston di-<br>ameter<br>[mm] | Piston<br>rod seal    | Scraper                     | Applica-<br>tion area                                                                   | Min. ambient<br>temperature<br>[°C] | Max. am-<br>bient tem-<br>perature<br>[°C] | Part No.   |
|------------------------------|-----------------------|-----------------------------|-----------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------|------------|
| 40                           | Fluoro-<br>caoutchouc | Polytetrafluo-<br>rethylene | Textile in-<br>dustry, Food<br>industry,<br>Chemical in-<br>dustry, Sugar<br>production | -10                                 | 150                                        | 0496401808 |

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 |

## Modular scraper system

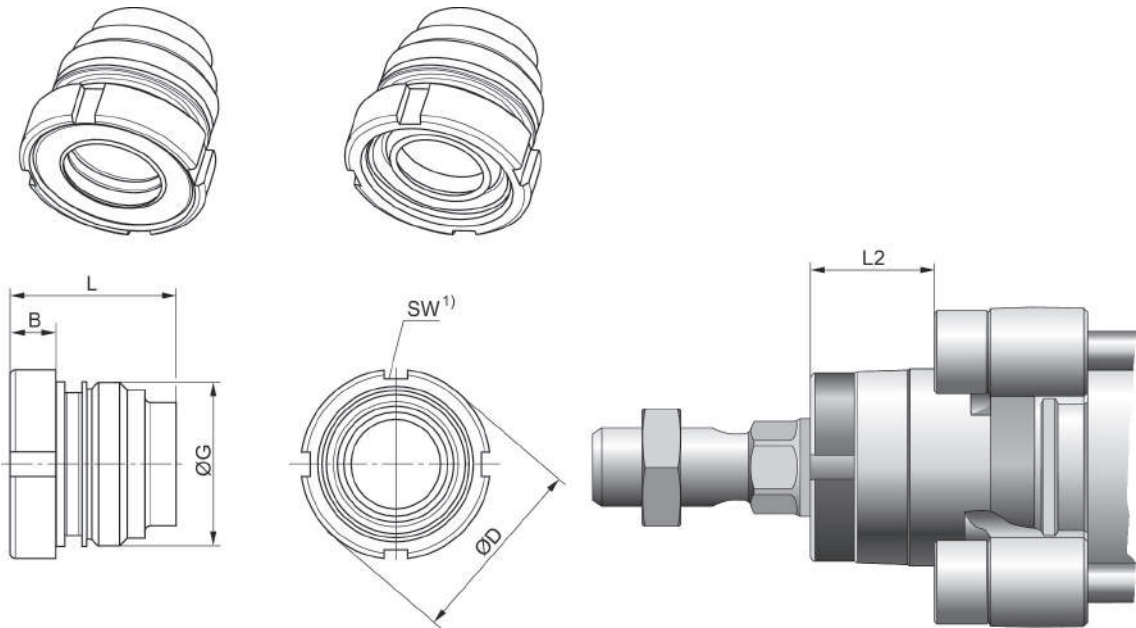
For series: PRA, TRB, CCL-IS  
Working pressure min./max.: 1.5 bar ... 10 bar



| Piston diameter [mm] | Piston rod seal                | Scraper                | Application area                                                                                    | Min. ambient temperature [°C] | Max. ambient temperature [°C] | Part No.   |
|----------------------|--------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|------------|
| 50, 63               | Acrylonitrile butadiene rubber | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Wood-working industry | -20                           | 80                            | 0496400518 |
| 50, 63               | Fluorocautchouc                | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Wood-working industry | -10                           | 150                           | 0496401506 |
| 50, 63               | Acrylonitrile butadiene rubber | Polyester elastomer    | Paper/printing industry, Textile industry                                                           | -20                           | 80                            | 0496400909 |
| 50, 63               | Acrylonitrile butadiene rubber | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -20                           | 80                            | 0496402103 |
| 50, 63               | Fluorocautchouc                | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -10                           | 150                           | 0496401905 |
| 80, 100              | Acrylonitrile butadiene rubber | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Wood-working industry | -20                           | 80                            | 0496400607 |
| 80, 100              | Fluorocautchouc                | Brass                  | Chemical industry, Sugar                                                                            | -10                           | 150                           | 0496401603 |

| Piston diameter [mm] | Piston rod seal                | Scraper                | Application area                                                                                    | Min. ambient temperature [°C] | Max. ambient temperature [°C] | Part No.   |
|----------------------|--------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|------------|
|                      |                                |                        | production, Steel construction, Automotive industry, Wood-working industry                          |                               |                               |            |
| 80, 100              | Acrylonitrile butadiene rubber | Polyester elastomer    | Paper/printing industry, Textile industry                                                           | -20                           | 80                            | 0496401018 |
| 80, 100              | Acrylonitrile butadiene rubber | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -20                           | 80                            | 0496402200 |
| 80, 100              | Fluorocautchouc                | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -10                           | 150                           | 0496402006 |
| 125                  | Acrylonitrile butadiene rubber | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Wood-working industry | -20                           | 80                            | 0496301404 |
| 125                  | Fluorocautchouc                | Brass                  | Chemical industry, Sugar production, Steel construction, Automotive industry, Wood-working industry | -10                           | 150                           | 0496303105 |
| 125                  | Acrylonitrile butadiene rubber | Polyester elastomer    | Paper/printing industry, Textile industry                                                           | -20                           | 80                            | 0496301307 |
| 125                  | Acrylonitrile butadiene rubber | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -20                           | 80                            | 0496301706 |
| 125                  | Fluorocautchouc                | Polytetrafluorethylene | Textile industry, Food industry, Chemical industry, Sugar production                                | -10                           | 150                           | 0496303202 |

Dimensions



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

| Piston Ø | B  | ØD   | G     | L    | L2 | SW    |
|----------|----|------|-------|------|----|-------|
| 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 |

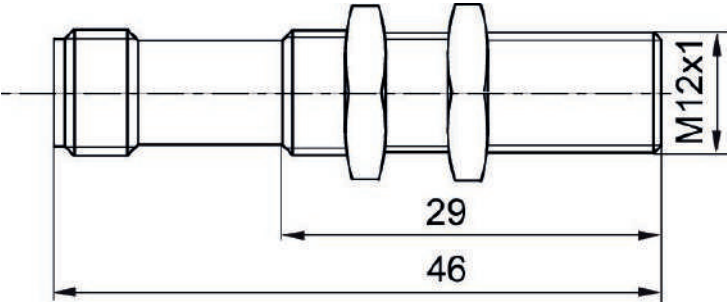
Sensor, Series IN1

For series: LU6  
Electrical connection 2, thread size: M12x1  
Certificates: cULus  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -20 °C ... 65 °C



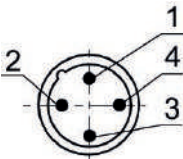
| Direct mounting for series | Switch descr. | Electrical connection size | Electrical connection number of poles | Electrical connection coding | Part No.   |
|----------------------------|---------------|----------------------------|---------------------------------------|------------------------------|------------|
| LU6                        | Inductive     | M12x1                      | 3-pin                                 | B-coded                      | R412010426 |

Dimensions



R412010426

Pin assignments  
M12x1



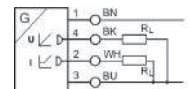
| Pin | Allocation                      |
|-----|---------------------------------|
| 1   | Pin 1: operational voltage + UB |
| 2   | not assigned                    |
| 3   | m = mass                        |
| 4   | switch output Out               |

## Sensors, Series SM6, with cable, without wire end ferrule, tin-plated

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI

Certificates: cULus

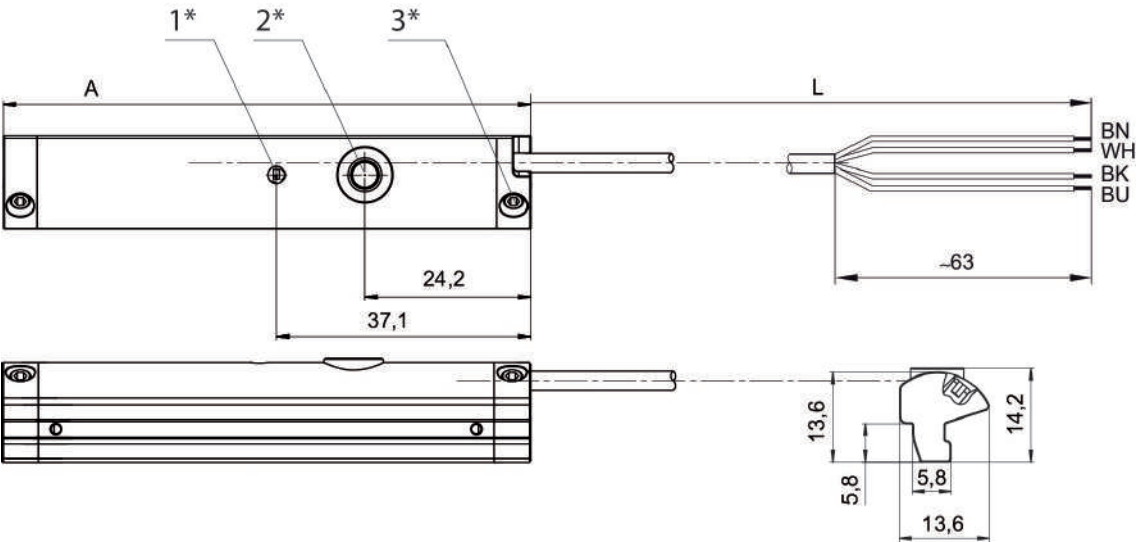
Ambient temperature min./max.: -20 °C ... 70 °C



| Direct mounting for series        | Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Version                                                                           | Part No.   |
|-----------------------------------|---------------|--------------------|---------------------------|----------------------------|-----------------------------------------------------------------------------------|------------|
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 32                        | 45                         | short circuit resistant, Protected against polarity reversal, Overload protection | R412010141 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 64                        | 77                         | short circuit resistant, Protected against polarity reversal, Overload protection | R412010143 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 96                        | 109                        | short circuit resistant, Protected against polarity reversal, Overload protection | R412010262 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 128                       | 141                        | short circuit resistant, Protected against polarity reversal, Overload protection | R412010264 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 160                       | 173                        | short circuit resistant, Protected against polarity reversal, Overload protection | R412010411 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 192                       | 205                        | short circuit resistant, Protected against polarity reversal, Overload protection | R412010413 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 224                       | 237                        | short circuit resistant, Protected against polarity reversal, Overload protection | R412010415 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 2                  | 256                       | 269                        | short circuit resistant, Protected against polarity reversal                      | R412010417 |

| Direct mounting for series | Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Version                  | Part No. |
|----------------------------|---------------|--------------------|---------------------------|----------------------------|--------------------------|----------|
|                            |               |                    |                           |                            | sal, Overload protection |          |

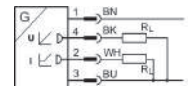
Dimensions



1\* = LED 2\* = teach button 3\* = threaded pin M3x11  
L = cable length  
(2) WH=white  
A = sensor length

## Sensors, Series SM6, with cable, plug M8x1

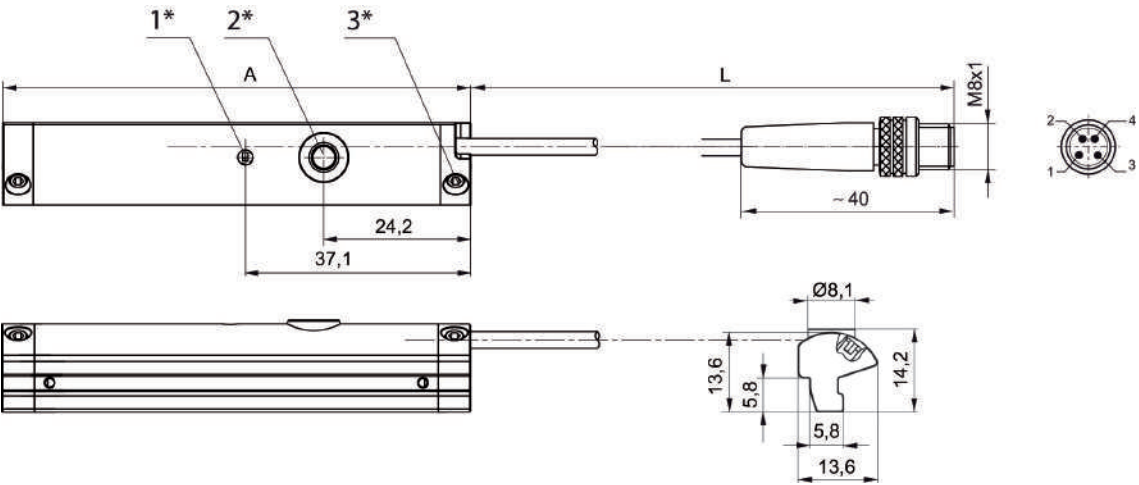
For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Electrical connection 2, thread size: M8x1  
Certificates: cULus  
Electrical connection 2, number of poles: 4-pin  
Ambient temperature min./max.: -20 °C ... 70 °C



| Direct mounting for series        | Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Version                                                                                       | Part No.   |
|-----------------------------------|---------------|--------------------|---------------------------|----------------------------|-----------------------------------------------------------------------------------------------|------------|
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 32                        | 45                         | short circuit resistant, Protected against polarity reversal, Overload protection             | R412010142 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 64                        | 77                         | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010144 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 96                        | 109                        | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010263 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 128                       | 141                        | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010265 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 160                       | 173                        | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010410 |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 192                       | 205                        | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010412 |
| PRA, PRE, CCI, KPZ,               | Analog        | 0.3                | 224                       | 237                        | Protected against po-                                                                         | R412010414 |

| Direct mounting for series        | Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Version                                                                                       | Part No.   |
|-----------------------------------|---------------|--------------------|---------------------------|----------------------------|-----------------------------------------------------------------------------------------------|------------|
| SSI, GPC, CVI                     |               |                    |                           |                            | olarity reversal, Protected against polarity reversal, Overload protection                    |            |
| PRA, PRE, CCI, KPZ, SSI, GPC, CVI | Analog        | 0.3                | 256                       | 269                        | Protected against polarity reversal, Protected against polarity reversal, Overload protection | R412010416 |

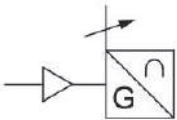
Dimensions



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

Electrical connection 2, thread size: M8x1  
Certificates: cULus  
Electrical connection 2, number of poles: 4-pin  
Ambient temperature min./max.: -20 °C ... 70 °C

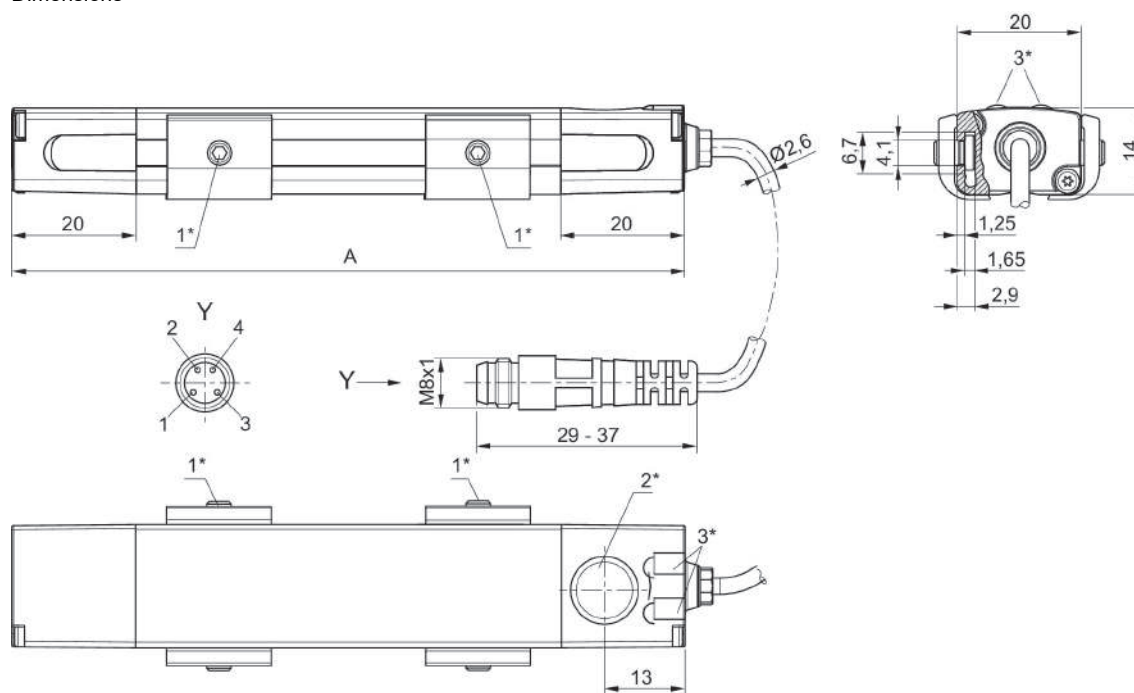


| Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Incl. number of sensor clamp pairs [piece] | Version                                                                           | Part No.   |
|---------------|--------------------|---------------------------|----------------------------|--------------------------------------------|-----------------------------------------------------------------------------------|------------|
| Analog        | 0.3                | 107                       | 109                        | 2                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010880 |
| Analog        | 0.3                | 143                       | 145                        | 2                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010881 |
| Analog        | 0.3                | 179                       | 181                        | 2                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010882 |
| Analog        | 0.3                | 215                       | 217                        | 2                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010883 |
| Analog        | 0.3                | 251                       | 253                        | 2                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010884 |
| Analog        | 0.3                | 287                       | 289                        | 3                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010885 |
| Analog        | 0.3                | 323                       | 325                        | 3                                          | short circuit resistant, Pro-                                                     | R412010886 |

| Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Incl. number of sensor clamp pairs [piece] | Version                                                                           | Part No.   |
|---------------|--------------------|---------------------------|----------------------------|--------------------------------------------|-----------------------------------------------------------------------------------|------------|
|               |                    |                           |                            |                                            | tected against polarity reversal, Overload protection                             |            |
| Analog        | 0.3                | 359                       | 361                        | 3                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010887 |
| Analog        | 0.3                | 395                       | 397                        | 3                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010888 |
| Analog        | 0.3                | 431                       | 433                        | 3                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010889 |
| Analog        | 0.3                | 467                       | 469                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010890 |
| Analog        | 0.3                | 503                       | 505                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010891 |
| Analog        | 0.3                | 539                       | 541                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010892 |
| Analog        | 0.3                | 575                       | 577                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010893 |
| Analog        | 0.3                | 611                       | 613                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010894 |
| Analog        | 0.3                | 647                       | 649                        | 4                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010895 |
| Analog        | 0.3                | 683                       | 685                        | 5                                          | short circuit resistant, Pro-                                                     | R412010896 |

| Switch descr. | Cable length L [m] | max. measuring range [mm] | Overall length Sensor [mm] | Incl. number of sensor clamp pairs [piece] | Version                                                                           | Part No.   |
|---------------|--------------------|---------------------------|----------------------------|--------------------------------------------|-----------------------------------------------------------------------------------|------------|
|               |                    |                           |                            |                                            | tected against polarity reversal, Overload protection                             |            |
| Analog        | 0.3                | 719                       | 721                        | 5                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010897 |
| Analog        | 0.3                | 755                       | 757                        | 5                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010898 |
| Analog        | 0.3                | 791                       | 793                        | 5                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010899 |
| Analog        | 0.3                | 827                       | 829                        | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010900 |
| Analog        | 0.3                | 863                       | 865                        | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010901 |
| Analog        | 0.3                | 899                       | 901                        | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010902 |
| Analog        | 0.3                | 935                       | 937                        | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010903 |
| Analog        | 0.3                | 971                       | 973                        | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010904 |
| Analog        | 0.3                | 1007                      | 1009                       | 6                                          | short circuit resistant, Protected against polarity reversal, Overload protection | R412010905 |

# Dimensions



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

A = sensor length

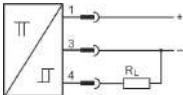
Pin assignment: 1 = (+), 2 = (OUT 1) 3 = (GND), 4 = (OUT 2/IO-Link), EN 60947-5-7

LED 1: yellow = measuring operation, red = error

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

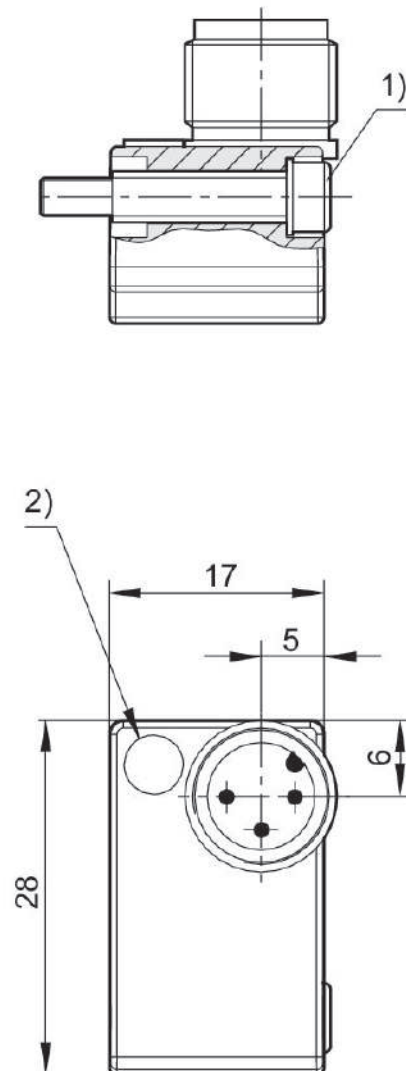
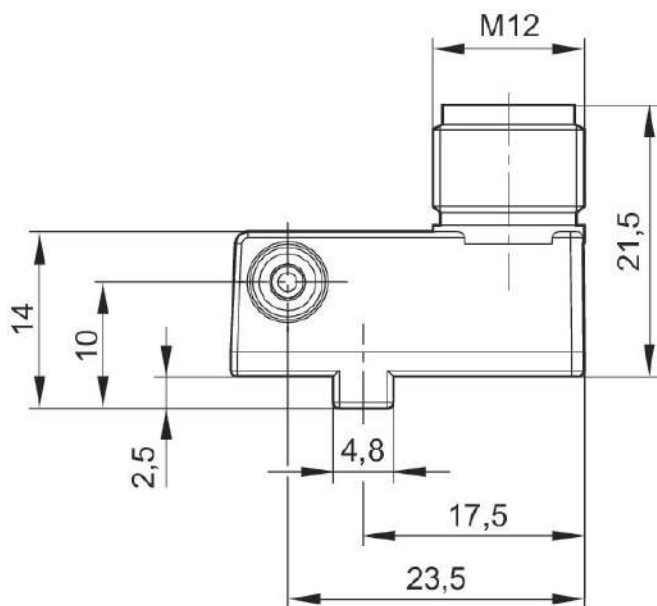
Sensor, Series SN3

Electrical connection 2, thread size: M12  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -25 °C ... 70 °C



| Switch descr. | Electrical connec- tion num- ber of poles | Min. oper- ating volt- age DC [V DC] | Max. oper- ating volt- age DC [V DC] | Version                                                          | Part No.   |
|---------------|-------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------------------------------|------------|
| PNP           | 3-pin                                     | 10                                   | 30                                   | short circuit resistant, Pro- tected against polarity rever- sal | 0830100438 |

Dimensions



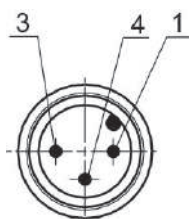
1) Clamping screw

2) LED

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

**0830100438**

Pin assignments



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

Sensors, Series ST4, open cable ends, Certificate UL (Underwriters Laboratories)

For series: PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI  
Certificates: UL (Underwriters Laboratories), cULus, RoHS  
Ambient temperature min./max.: -30 °C ... 80 °C

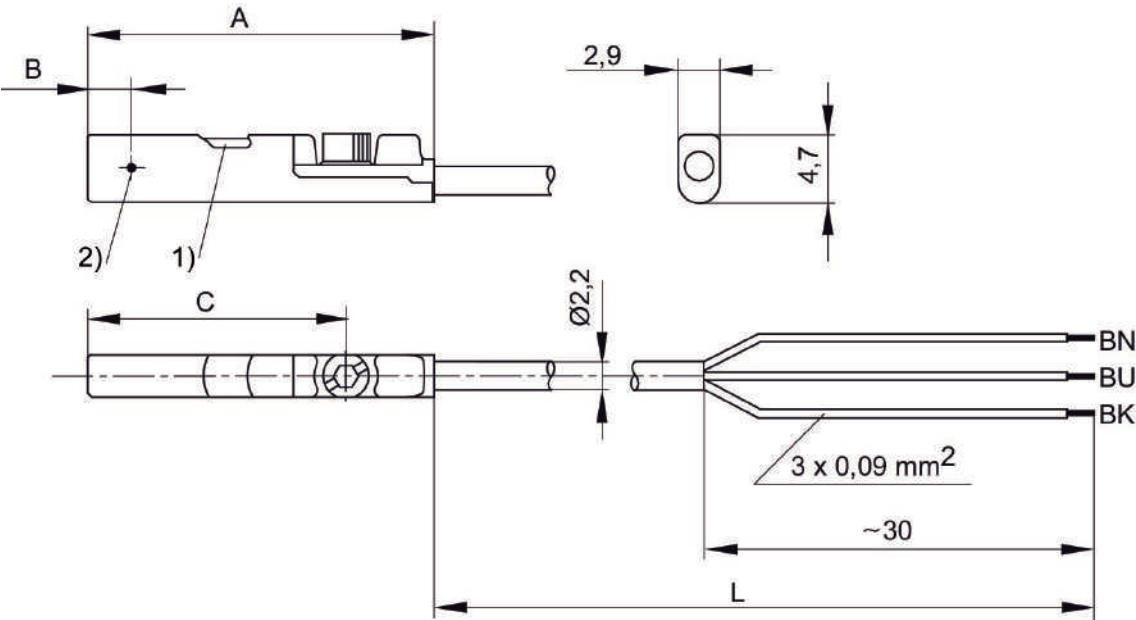


|  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|--|--------------------------------------------------|----------------|--------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | Reed           | 3                  | 0.13                          | 0.13                          | 5                                | 30                               | R412019488 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | Reed           | 5                  | 0.13                          | 0.13                          | 5                                | 30                               | R412019489 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 3                  | 0.1                           |                               | 10                               | 30                               | R412019680 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 5                  | 0.1                           |                               | 10                               | 30                               | R412019681 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | NPN            | 3                  | 0.1                           |                               | 10                               | 30                               | R412019684 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | NPN            | 5                  | 0.1                           |                               | 10                               | 30                               | R412019685 |

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

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

Dimensions



1) LED 2) Switching point  
L = cable length BN = brown, BK = black, BU = blue

| 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 |

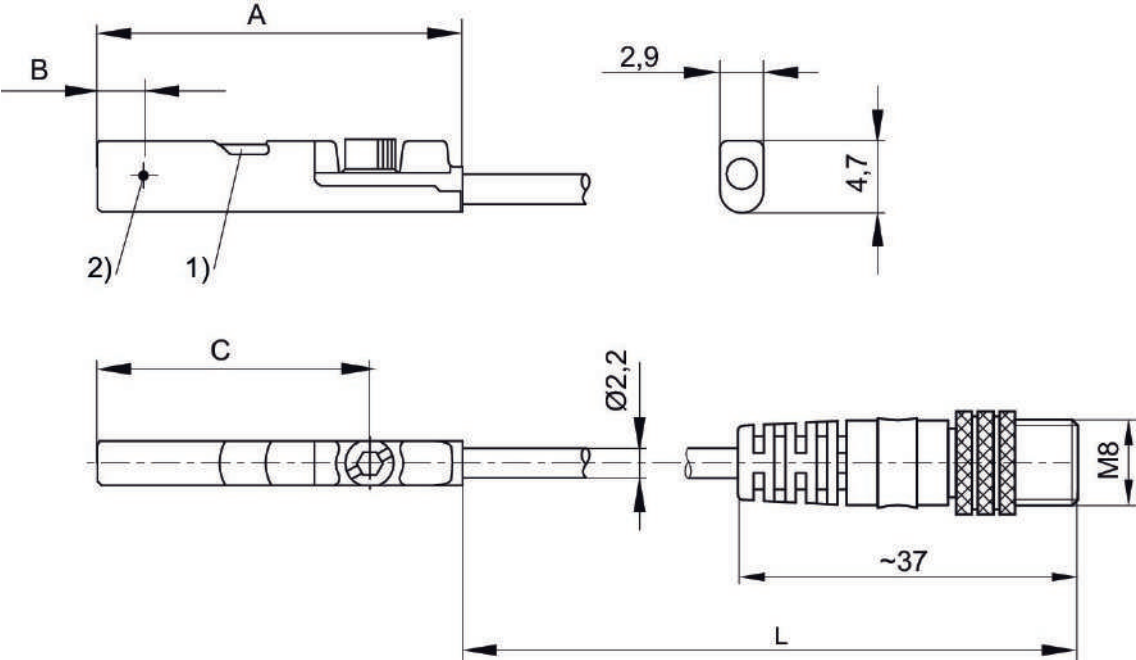
Sensors, Series ST4, plug M8, with knurled screw, Certificate UL (Underwriters Laboratories)

For series: PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M8  
Certificates: RoHS  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|--|--------------------------------------------------|----------------|--------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | NPN            | 0.3                | 0.1                           | 10                               | 30                               | R412024123 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 0.3                | 0.1                           | 10                               | 30                               | R412024125 |

Dimensions

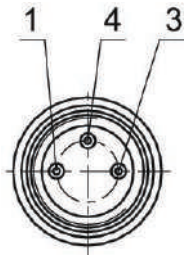


1) LED 2) Switching point  
L = cable length

| Part No.   | A    | B   | C    |
|------------|------|-----|------|
| R412024123 | 23.7 | 2.8 | 17.7 |
| R412024125 | 23.7 | 2.8 | 17.7 |

R412024123, R412024125

Pin assignment M8x1 (3-pin)



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

Sensors, Series ST4, plug M8, with knurled screw

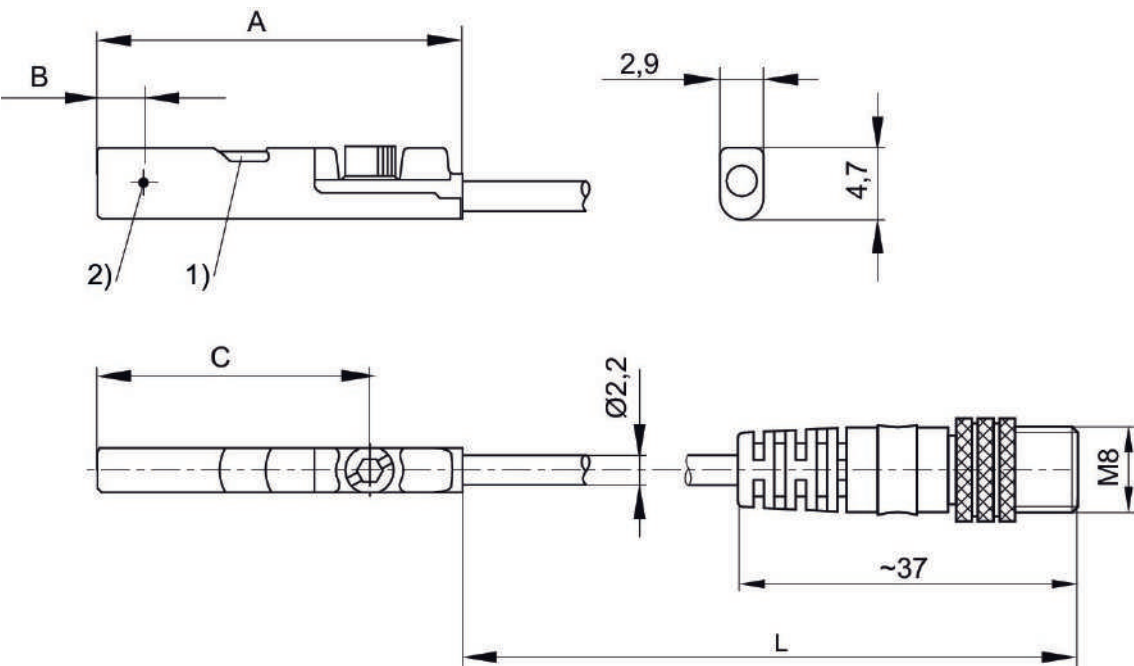
For series: PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M8  
Certificates: UL (Underwriters Laboratories), cULus, RoHS  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|--|--------------------------------------------------|----------------|--------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | Reed           | 0.3                | 0.13                          | 0.13                          | 5                                | 30                               | R412019490 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | Reed           | 0.5                | 0.13                          | 0.13                          | 5                                | 30                               | R412019686 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 0.3                | 0.1                           |                               | 10                               | 30                               | R412019493 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 0.5                | 0.1                           |                               | 10                               | 30                               | R412019687 |

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

Dimensions

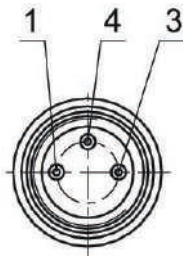


1) LED 2) Switching point  
L = cable length

| 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 |

R412019490, R412019686, R412019493, R412019687

Pin assignment M8x1 (3-pin)

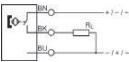
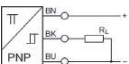


| Pin | Allocation |
|-----|------------|
| 1   | (+)        |
| 3   | (-)        |
| 4   | (OUT)      |

Sensors, Series ST4, plug M12, with knurled screw

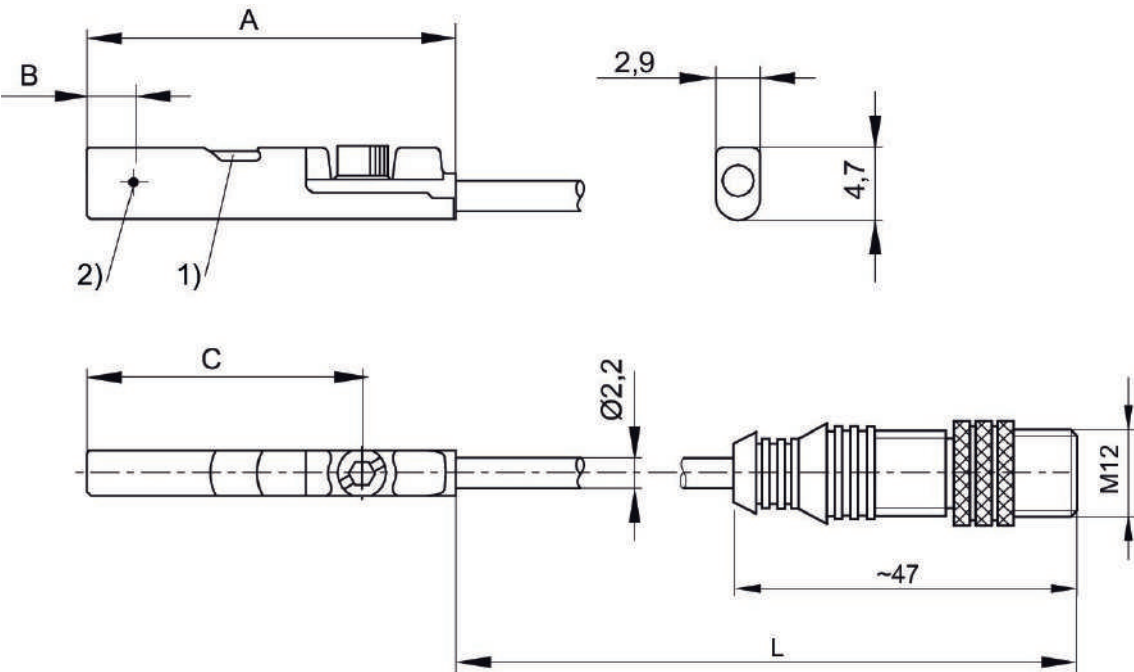
For series: PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M12  
Certificates: UL (Underwriters Laboratories), cULus, RoHS  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|                                                                                  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|----------------------------------------------------------------------------------|--------------------------------------------------|----------------|--------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | Reed           | 0.3                | 0.13                          | 0.13                          | 5                                | 30                               | R412019688 |
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 0.3                | 0.1                           |                               | 10                               | 30                               | R412019689 |

| Version                                                      | Part No.   |
|--------------------------------------------------------------|------------|
| Protected against polarity reversal                          | R412019688 |
| short circuit resistant, Protected against polarity reversal | R412019689 |

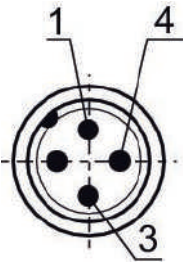
Dimensions



1) LED 2) Switching point  
L = cable length

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

R412019688, R412019689



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

Sensors, Series ST4, plug M8

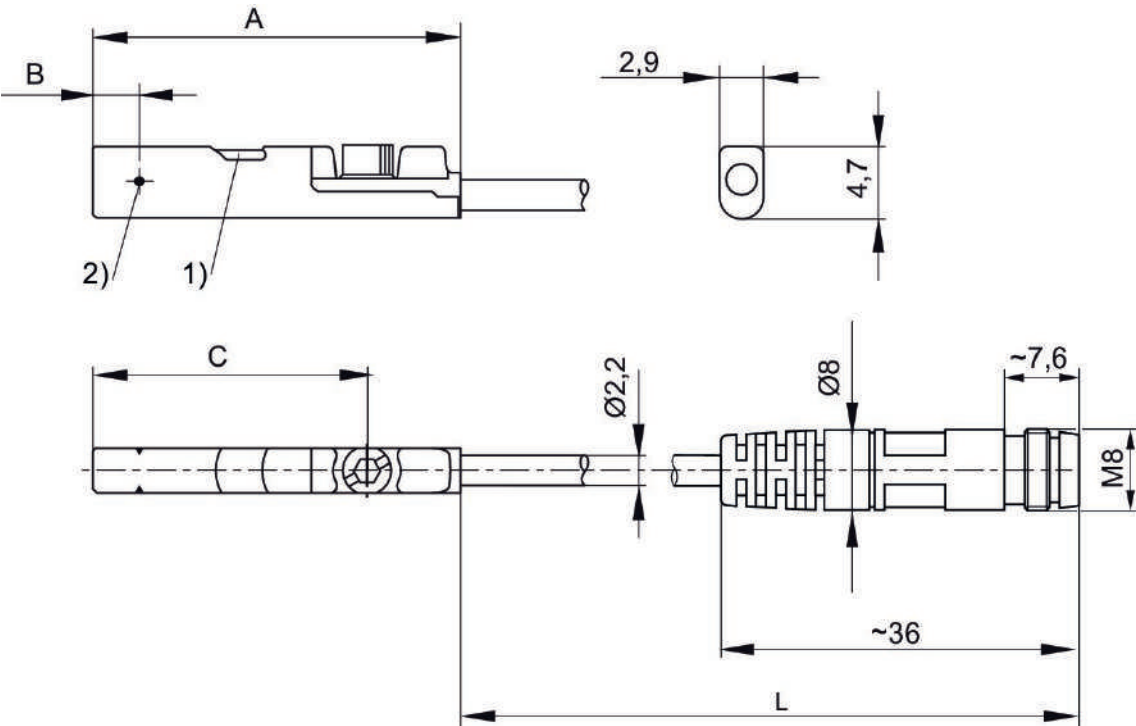
For series: PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M8  
Certificates: UL (Underwriters Laboratories), cULus, RoHS  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|--|--------------------------------------------------|----------------|--------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI | Reed           | 0.3                | 0.13                          | 0.13                          | 5                                | 30                               | R412019682 |
|  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI | electronic PNP | 0.3                | 0.1                           |                               | 10                               | 30                               | R412019683 |
|  | PRA, SSI, GSU, RTC, CKP, GSP, MSC, MSN, RCM, CVI | NPN            | 0.3                | 0.1                           |                               | 10                               | 30                               | R412019694 |

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

Dimensions

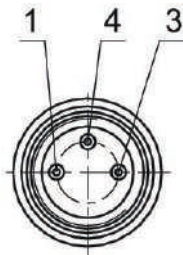


1) LED 2) Switching point  
L = cable length

| 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 |

R412019682, R412019683, R412019694

Pin assignment M8x1 (3-pin)



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

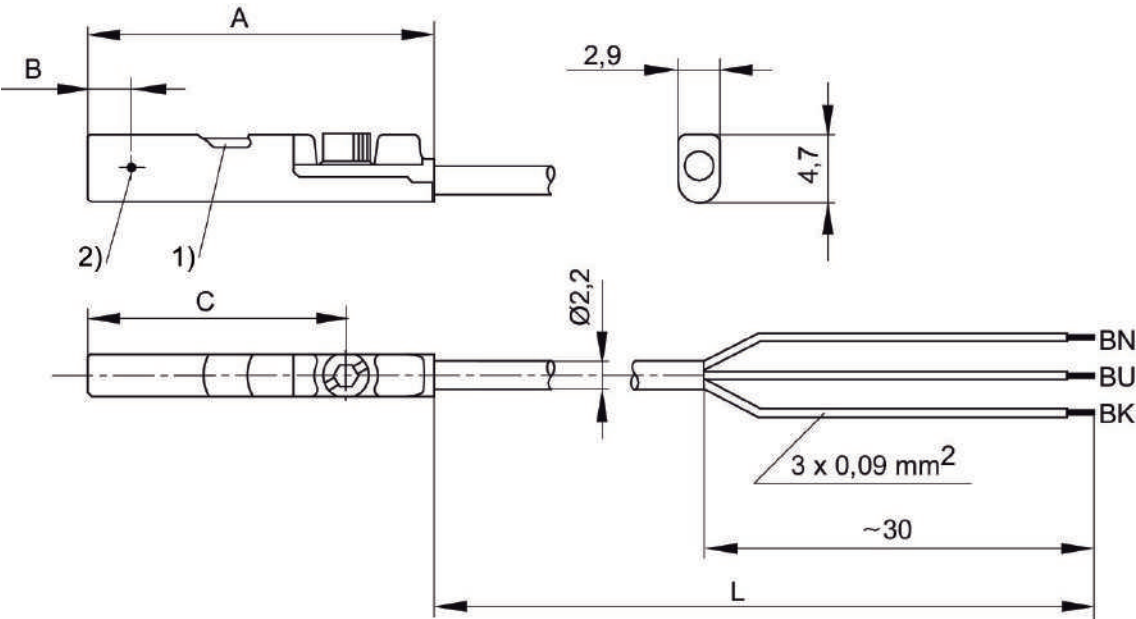
Sensors, Series ST4, open cable ends, With stretched impulse

For series: PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M8  
Certificates: RoHS  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|  | Direct mounting for series                       | Switch descr.  | Cable length L [m] | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Part No.   |
|--|--------------------------------------------------|----------------|--------------------|-------------------------------|----------------------------------|----------------------------------|------------|
|  | PRA, SSI, GSU, RTC, CKP, GPC, MSC, MSN, RCM, CVI | electronic PNP | 5                  | 0.1                           | 10                               | 30                               | R412024124 |

Dimensions

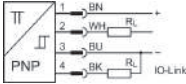


1) LED 2) Switching point  
L = cable length BN = brown, BK = black, BU = blue

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

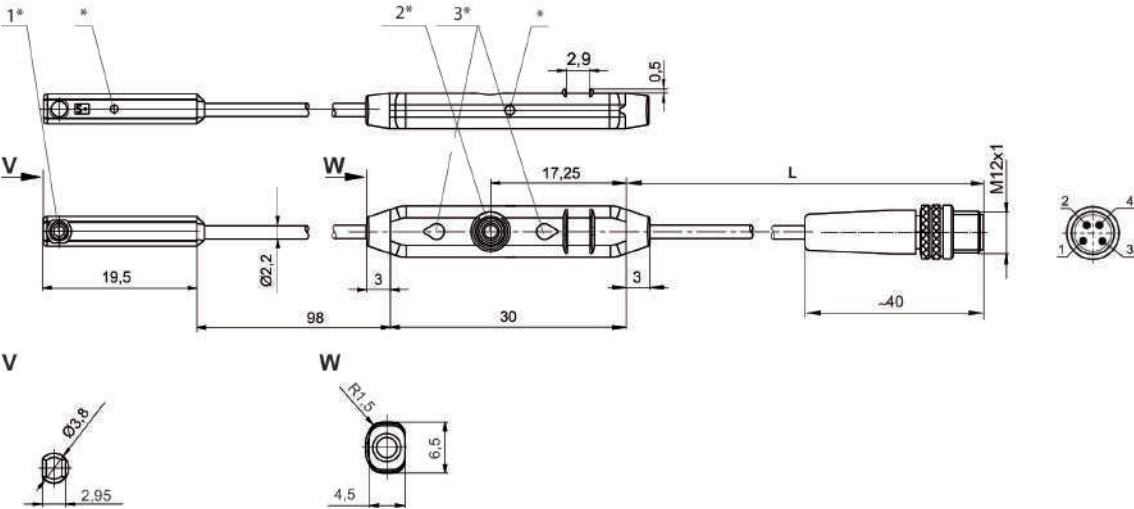
Sensors, Series ST4-2P, with cable, plug M12x1, IO-Link

For series: PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M12x1  
Certificates: RoHS  
Electrical connection 2, number of poles: 4-pin  
Ambient temperature min./max.: -20 °C ... 75 °C



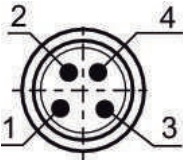
| Direct mounting for series             | Indirect mounting for series | Slot width  | Switch descr.  | Electrical connec-tion size | Electrical connec-tion num-ber of poles | Part No.   |
|----------------------------------------|------------------------------|-------------|----------------|-----------------------------|-----------------------------------------|------------|
| PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | MNI, CSL-RD, ICM             | 4 mm C-slot | electronic PNP | M12x1                       | 4-pin                                   | R412023459 |

Dimensions



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

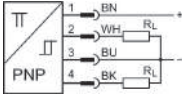
R412023459



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

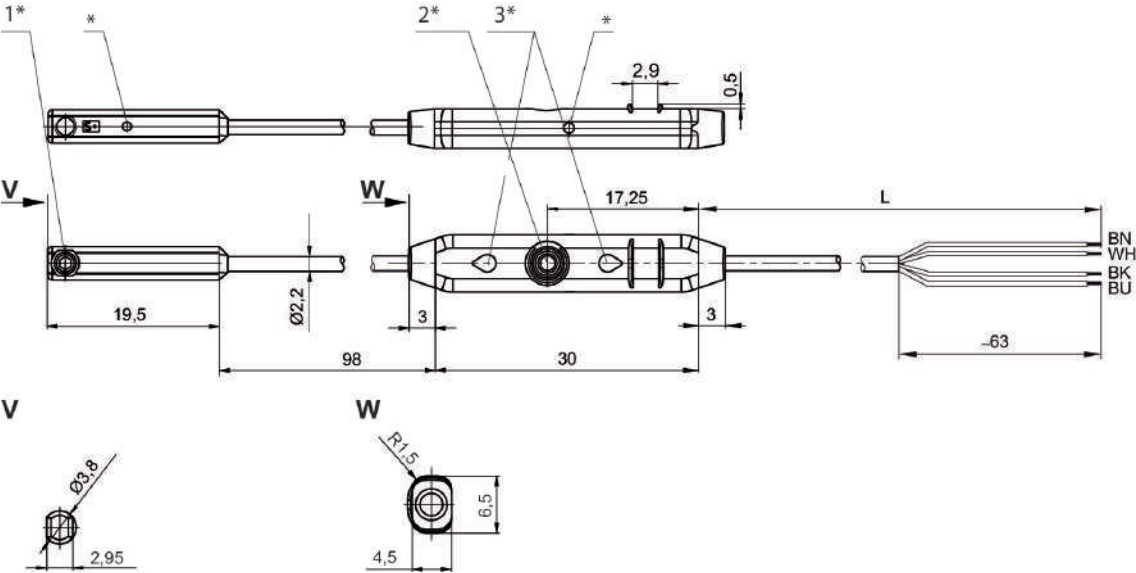
Sensors, Series ST4-2P, with cable, without wire end ferrule, tin-plated

For series: PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI  
Certificates: RoHS  
Ambient temperature min./max.: -20 °C ... 75 °C



| Direct mounting for series             | Indirect mounting for series | Slot width  | Switch descr.  | Electrical connection number of poles | Part No.   |
|----------------------------------------|------------------------------|-------------|----------------|---------------------------------------|------------|
| PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | MNI, CSL-RD, ICM             | 4 mm C-slot | electronic PNP | 4-pin                                 | R412010139 |

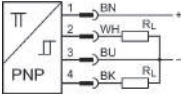
Dimensions



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

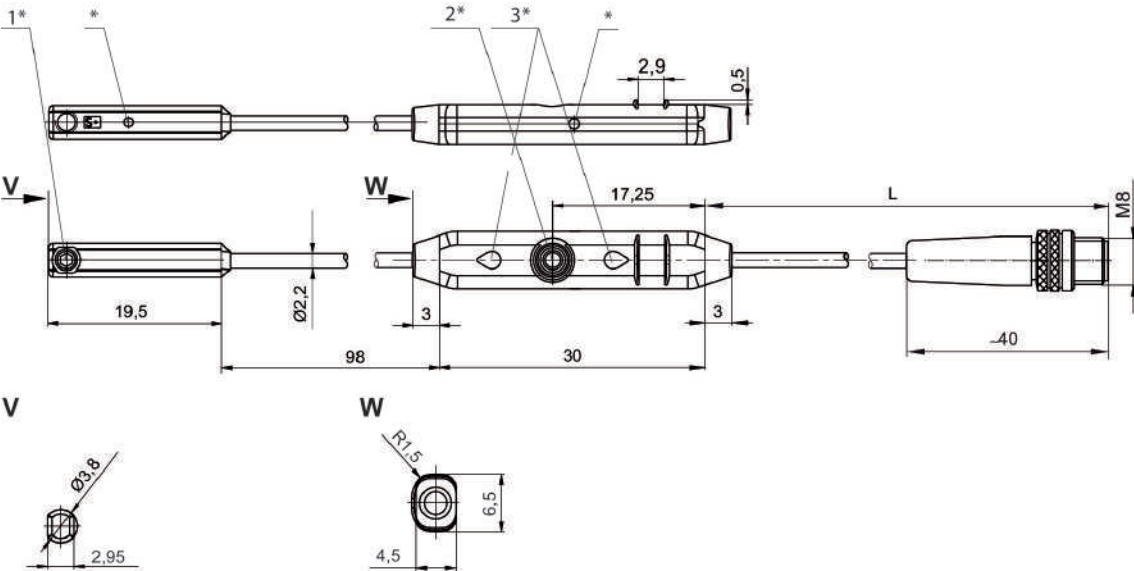
Sensors, Series ST4-2P, with cable, plug M8x1

For series: PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI  
Electrical connection 2, thread size: M8x1  
Certificates: RoHS  
Electrical connection 2, number of poles: 4-pin  
Ambient temperature min./max.: -20 °C ... 75 °C



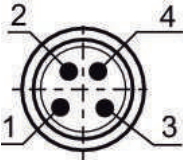
| Direct mounting for series             | Indirect mounting for series | Slot width  | Switch descr.  | Electrical connec-tion size | Electrical connec-tion number of poles | Part No.   |
|----------------------------------------|------------------------------|-------------|----------------|-----------------------------|----------------------------------------|------------|
| PRA, SSI, RTC, GPC, MSC, MSN, RCM, CVI | MNI, CSL-RD, ICM             | 4 mm C-slot | electronic PNP | M8x1                        | 4-pin                                  | R412010140 |

Dimensions



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

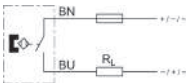
R412010140



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

Sensors, Series ST6, open cable ends, 2-pin, Reed

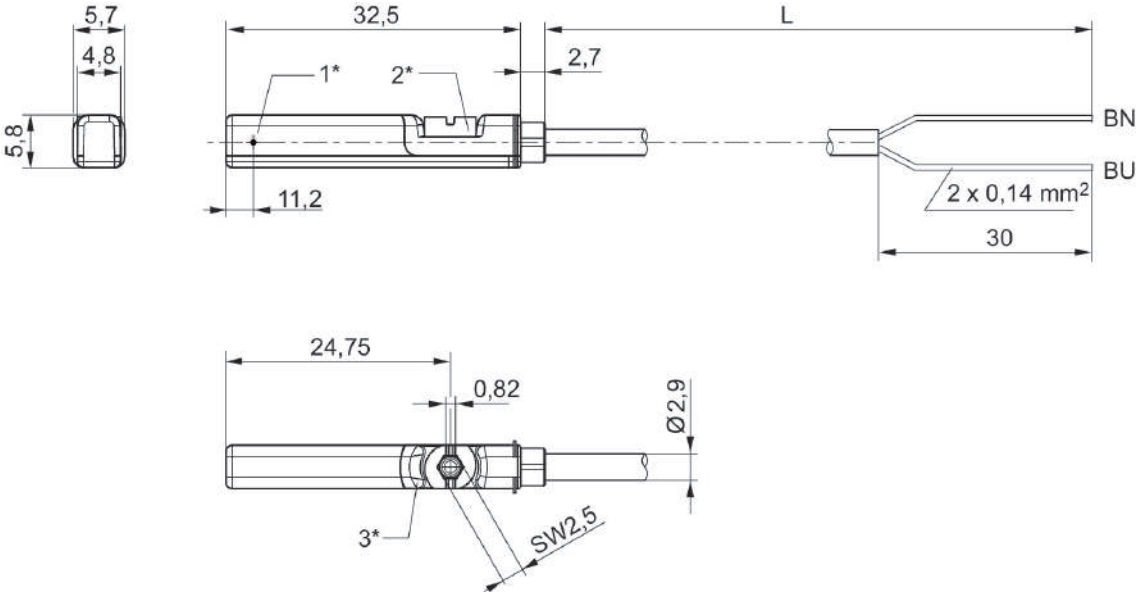
For series: PRA, CCI, KPZ, SSI, GPC, CVI  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -30 °C ... 80 °C



| Switch descr. | Cable sheath | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Part No.   |
|---------------|--------------|-----------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|----------------------------------|------------|
| Reed          | Polyurethane | 2-pin           | 0.13                          | 0.13                          | 10                               | 230                              | 10                               | R412022866 |
| Reed          | Polyurethane | 2-pin           | 0.13                          | 0.13                          | 10                               | 230                              | 10                               | R412027170 |

| Max. operational voltage AC [V AC] | Version                             | Cable length L [m] | Part No.   |
|------------------------------------|-------------------------------------|--------------------|------------|
| 230                                | Protected against polarity reversal | 3                  | R412022866 |
| 230                                | Protected against polarity reversal | 5                  | R412027170 |

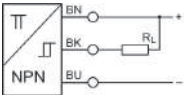
Dimensions



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

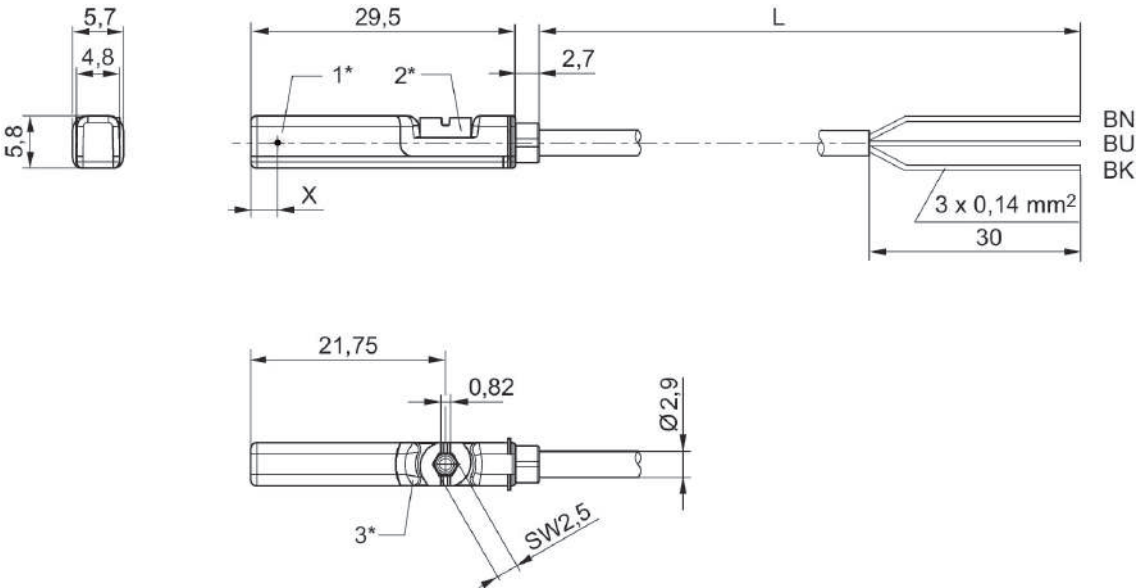
Sensors, Series ST6, open cable ends, 3-pin, NPN

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -30 °C ... 80 °C



| Switch descr. | Cable sheath | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                                                      | Cable length L [m] | Part No.   |
|---------------|--------------|-----------------|-------------------------------|----------------------------------|----------------------------------|--------------------------------------------------------------|--------------------|------------|
| NPN           | Polyurethane | 3-pin           | 0.13                          | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 3                  | R412022849 |
| NPN           | Polyurethane | 3-pin           | 0.13                          | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 5                  | R412022850 |

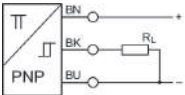
Dimensions



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

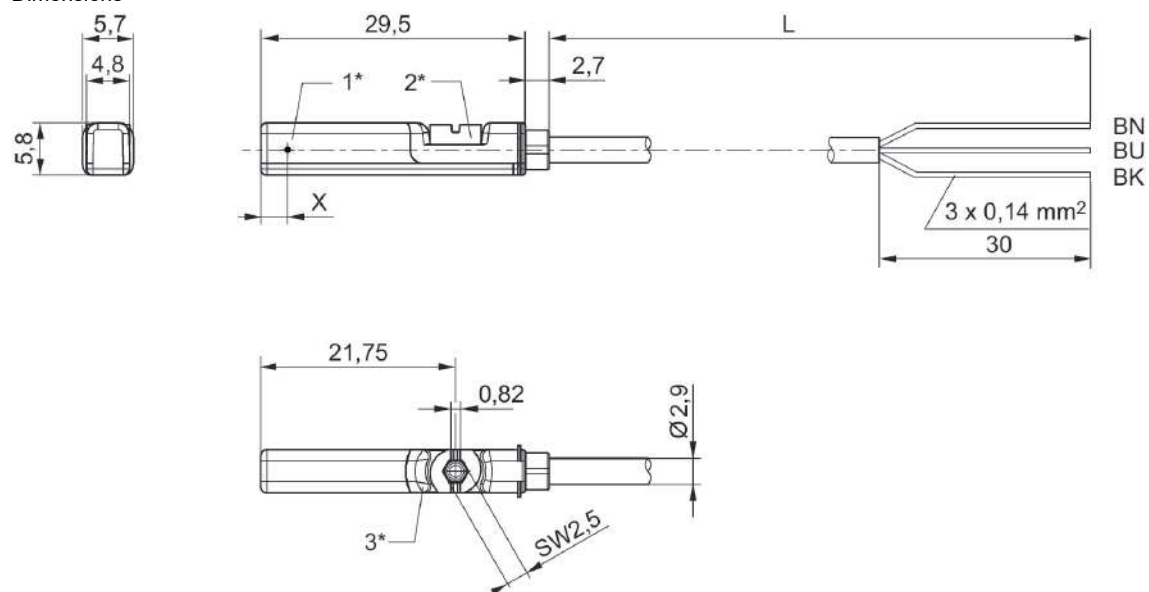
Sensors, Series ST6, open cable ends, 3-pin, PNP

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -30 °C ... 80 °C



| Switch descr.  | Cable sheath | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------|--------------|-----------------|-------------------------------|----------------------------------|----------------------------------|--------------------------------------------------------------|--------------------|------------|
| electronic PNP | Polyurethane | 3-pin           | 0.13                          | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 3                  | R412022853 |
| electronic PNP | Polyurethane | 3-pin           | 0.13                          | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 5                  | R412022855 |
| electronic PNP | Polyurethane | 3-pin           | 0.13                          | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 10                 | R412022857 |

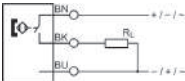
Dimensions



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

Sensors, Series ST6, open cable ends, 3-pin, Reed

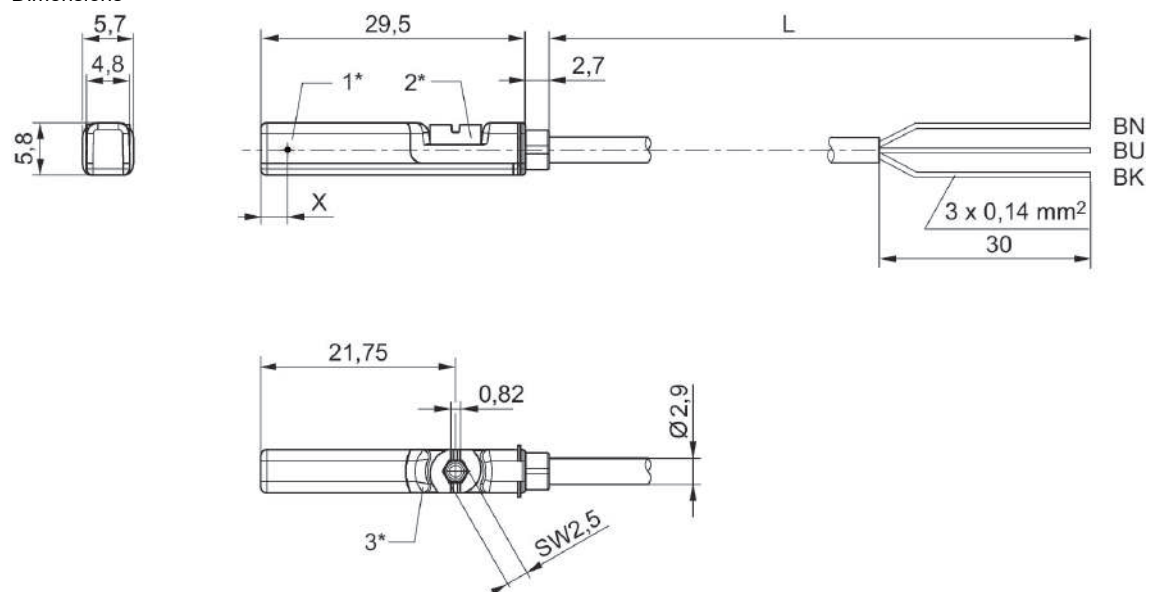
For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -30 °C ... 80 °C



| Switch descr. | Cable sheath | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Part No.   |
|---------------|--------------|-----------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|----------------------------------|------------|
| Reed          | Polyurethane | 3-pin           | 0.3                           | 0.5                           | 10                               | 30                               | 10                               | R412022869 |
| Reed          | Polyurethane | 3-pin           | 0.3                           | 0.5                           | 10                               | 30                               | 10                               | R412022870 |
| Reed          | Polyurethane | 3-pin           | 0.3                           | 0.5                           | 10                               | 30                               | 10                               | R412022871 |

| Max. operational voltage AC [V AC] | Version                             | Cable length L [m] | Part No.   |
|------------------------------------|-------------------------------------|--------------------|------------|
| 30                                 | Protected against polarity reversal | 3                  | R412022869 |
| 30                                 | Protected against polarity reversal | 5                  | R412022870 |
| 30                                 | Protected against polarity reversal | 10                 | R412022871 |

Dimensions



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

Sensors, Series ST6, plug M8

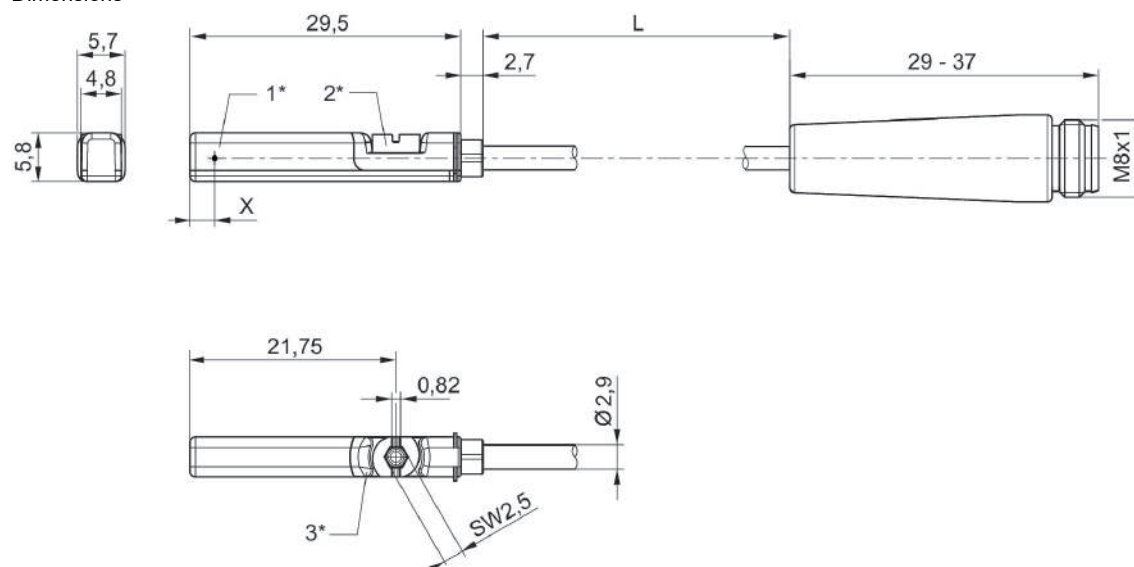
For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Electrical connection 2, thread size: M8  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C



|  | Switch descr.  | Cable sheath | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Part No.   |
|--|----------------|--------------|------------------------|-----------------|-------------------------------|-------------------------------|----------------------------------|------------|
|  | Reed           | Polyurethane | M8x1                   | 3-pin           | 0.13                          | 0.13                          | 10                               | R412022868 |
|  | Reed           | Polyurethane | M8x1                   | 2-pin           | 0.13                          | 0.13                          | 10                               | R412027172 |
|  | Reed           | Polyurethane | M8x1                   | 3-pin           | 0.3                           | 0.5                           | 10                               | R412022872 |
|  | electronic PNP | Polyurethane | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022858 |
|  | NPN            | Polyurethane | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022851 |

| Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Max. operational voltage AC [V AC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------------------------|----------------------------------|------------------------------------|--------------------------------------------------------------|--------------------|------------|
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412022868 |
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412027172 |
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412022872 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022858 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022851 |

Dimensions



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

Sensors, Series ST6, plug M12x1

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Electrical connection 2, thread size: M12  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C

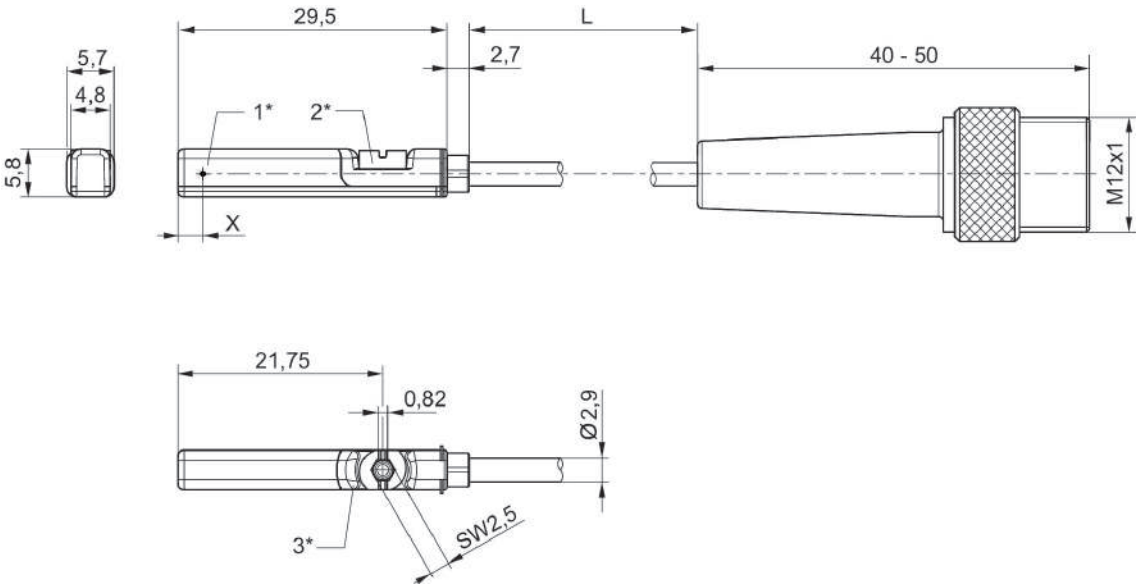


|  | Switch descr.  | Cable sheath | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Part No.   |
|--|----------------|--------------|------------------------|-----------------|-------------------------------|-------------------------------|----------------------------------|------------|
|  | Reed           | Polyurethane | M12x1                  | 2-pin           | 0.13                          | 0.13                          | 10                               | R412027171 |
|  | Reed           | Polyurethane | M12x1                  | 3-pin           | 0.3                           | 0.5                           | 10                               | R412022876 |
|  | electronic PNP | Polyurethane | M12x1                  | 3-pin           | 0.13                          |                               | 10                               | R412022879 |
|  | electronic PNP | Polyurethane | M12x1                  | 3-pin           | 0.13                          |                               | 10                               | R412022863 |
|  | electronic PNP | Polyurethane | M12x1                  | 3-pin           | 0.13                          |                               | 10                               | R412022877 |
|  | electronic PNP | Polyurethane | M12x1                  | 3-pin           | 0.13                          |                               | 10                               | R412022878 |

| Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Max. operational voltage AC [V AC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------------------------|----------------------------------|------------------------------------|--------------------------------------------------------------|--------------------|------------|
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412027171 |
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412022876 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.1                | R412022879 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022863 |
| 30                               |                                  |                                    | short circuit resistant, Protected against                   | 3                  | R412022877 |

| Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Max. operational voltage AC [V AC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------------------------|----------------------------------|------------------------------------|--------------------------------------------------------------|--------------------|------------|
|                                  |                                  |                                    | polarity reversal                                            |                    |            |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 5                  | R412022878 |

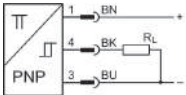
Dimensions



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

Sensors, Series ST6, plug M12x1, with knurled screw, ATEX

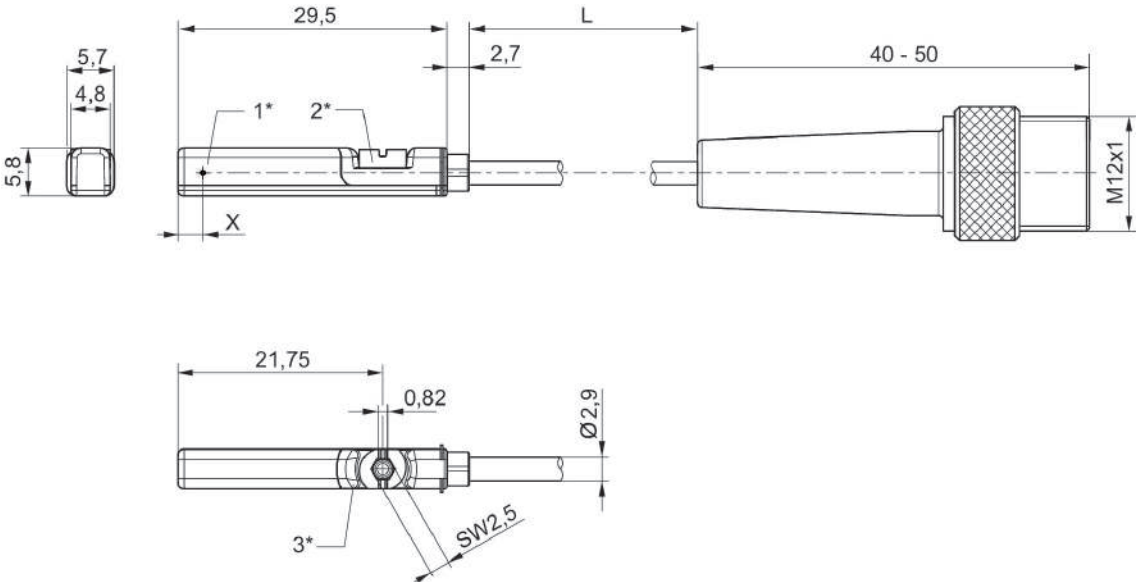
For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Electrical connection 2, thread size: M12  
Certificates: ATEX, CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -20 °C ... 50 °C



| Switch descr. | Cable sheath | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                                                      | Part No.   |
|---------------|--------------|------------------------|-----------------|-------------------------------|----------------------------------|----------------------------------|--------------------------------------------------------------|------------|
| PNP           | Polyurethane | M12x1                  | 3-pin           | 0.1                           | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | R412022864 |

| Cable length L [m] | Part No.   |
|--------------------|------------|
| 0.3                | R412022864 |

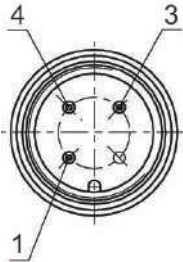
Dimensions



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

R412022864

Pin assignments

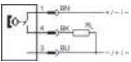
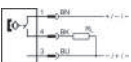
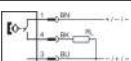
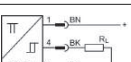
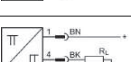
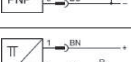
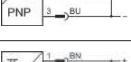


| Pin | Allocation |
|-----|------------|
| 1   | (+)        |
| 3   | (-)        |
| 4   | (OUT)      |

Sensors, Series ST6, plug M8x1, with knurled screw

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Certificates: CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -30 °C ... 80 °C

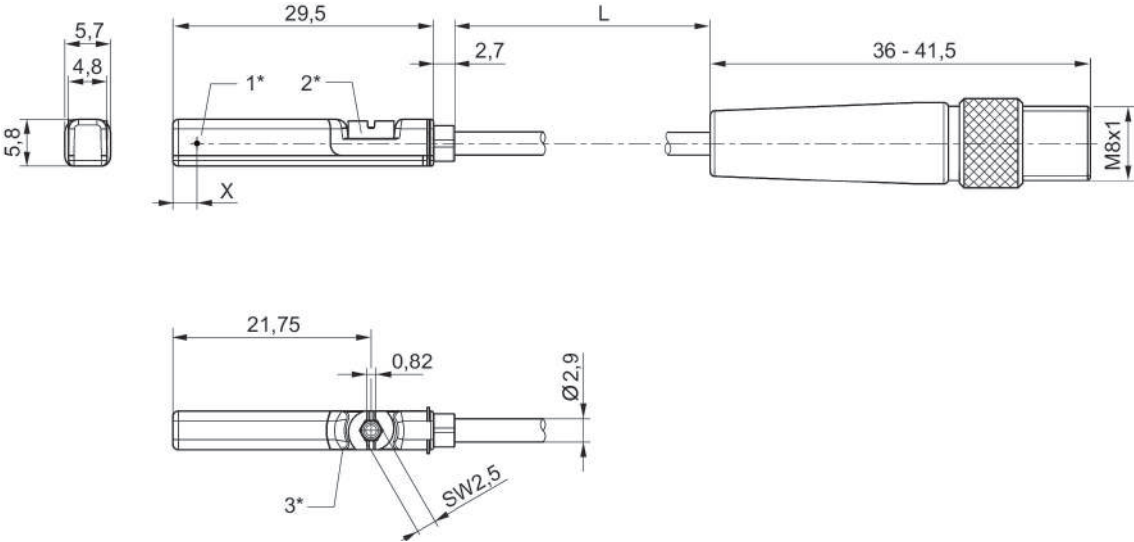


|                                                                                    | Switch descr.  | Cable sheath       | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Part No.   |
|------------------------------------------------------------------------------------|----------------|--------------------|------------------------|-----------------|-------------------------------|-------------------------------|----------------------------------|------------|
|    | Reed           | Polyurethane       | M8x1                   | 3-pin           | 0.3                           | 0.5                           | 10                               | R412022873 |
|    | Reed           | Polyvinyl chloride | M8x1                   | 3-pin           | 0.3                           | 0.5                           | 10                               | R412022875 |
|    | Reed           | Polyurethane       | M8x1                   | 3-pin           | 0.3                           | 0.5                           | 10                               | R412022874 |
|  | electronic PNP | Polyurethane       | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022859 |
|  | electronic PNP | Polyvinyl chloride | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022862 |
|  | electronic PNP | Polyurethane       | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022861 |
|  | NPN            | Polyurethane       | M8x1                   | 3-pin           | 0.13                          |                               | 10                               | R412022852 |

| Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Max. operational voltage AC [V AC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------------------------|----------------------------------|------------------------------------|--------------------------------------------------------------|--------------------|------------|
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412022873 |
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.3                | R412022875 |
| 30                               | 10                               | 30                                 | Protected against polarity reversal                          | 0.5                | R412022874 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022859 |

| Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Max. operational voltage AC [V AC] | Version                                                      | Cable length L [m] | Part No.   |
|----------------------------------|----------------------------------|------------------------------------|--------------------------------------------------------------|--------------------|------------|
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022862 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.5                | R412022861 |
| 30                               |                                  |                                    | short circuit resistant, Protected against polarity reversal | 0.3                | R412022852 |

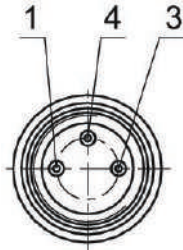
Dimensions



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

R412022873, R412022875, R412022874, R412022859, R412022862, R412022861, R412022852

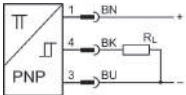
Pin assignment M8x1 (3-pin)



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

Sensors, Series ST6, plug M8x1, ATEX

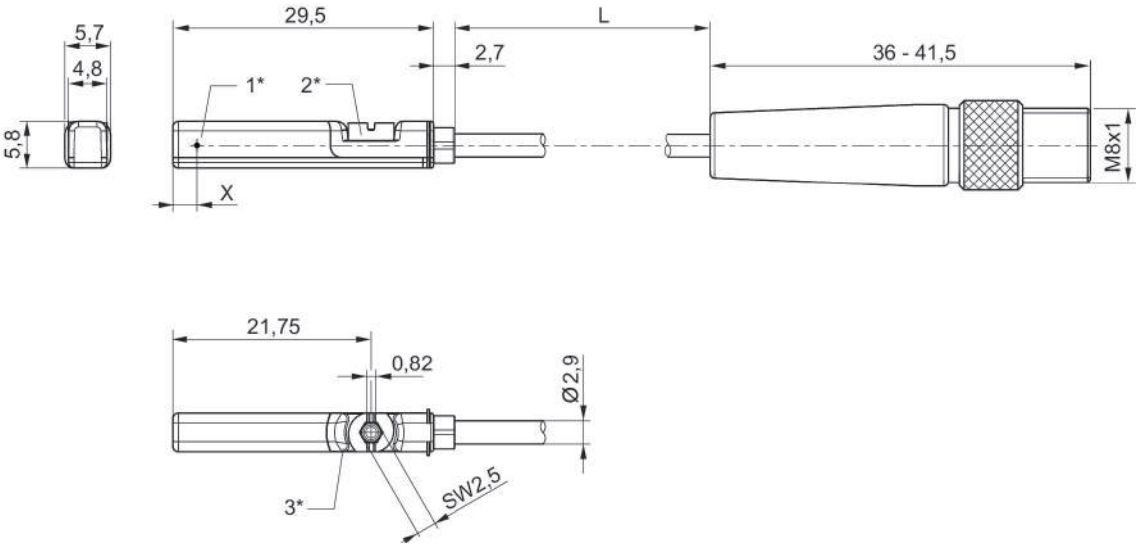
For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Electrical connection 2, thread size: M8  
Certificates: ATEX, CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Electrical connection 2, number of poles: 3-pin  
Ambient temperature min./max.: -20 °C ... 50 °C



| Switch descr. | Cable sheath | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                                                      | Part No.   |
|---------------|--------------|------------------------|-----------------|-------------------------------|----------------------------------|----------------------------------|--------------------------------------------------------------|------------|
| PNP           | Polyurethane | M8x1                   | 3-pin           | 0.1                           | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | R412022860 |

| Cable length L [m] | Part No.   |
|--------------------|------------|
| 0.3                | R412022860 |

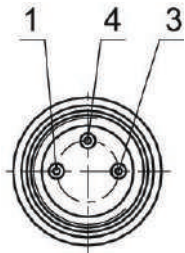
Dimensions



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

R412022860

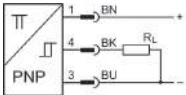
Pin assignment M8x1 (3-pin)



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

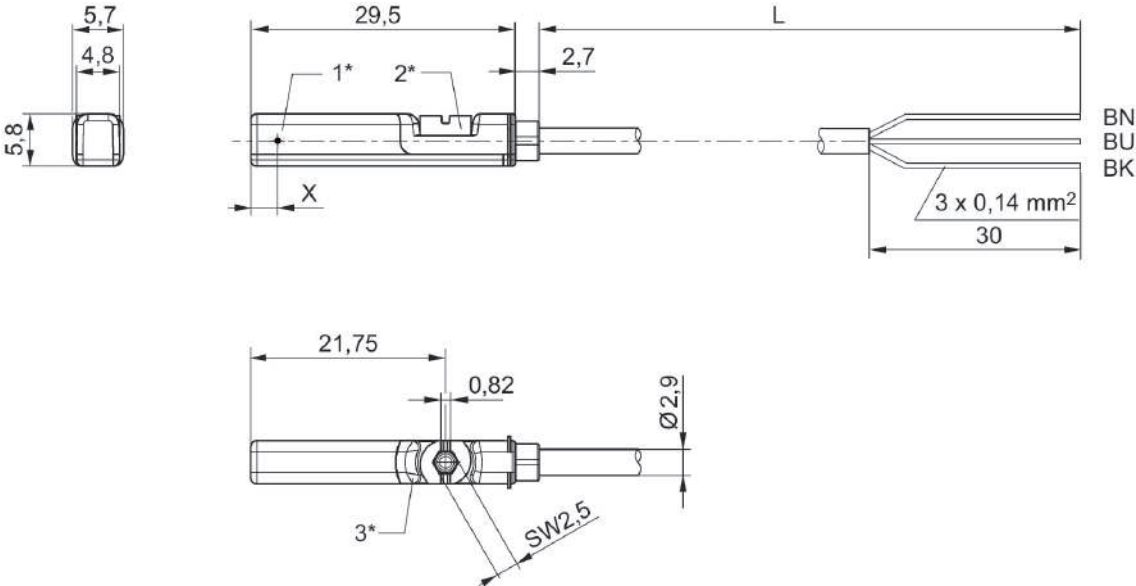
Sensors, Series ST6, open cable ends, 3-pin, PNP, ATEX

For series: PRA, PRE, CCI, KPZ, SSI, GPC, CVI  
Certificates: ATEX, CE declaration of conformity, cULus, RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -20 °C ... 50 °C



| Switch descr. | Cable sheath | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                                                      | Cable length L [m] | Part No.   |
|---------------|--------------|-----------------|-------------------------------|----------------------------------|----------------------------------|--------------------------------------------------------------|--------------------|------------|
| PNP           | Polyurethane | 3-pin           | 0.1                           | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 3                  | R412022854 |
| PNP           | Polyurethane | 3-pin           | 0.1                           | 10                               | 30                               | short circuit resistant, Protected against polarity reversal | 5                  | R412022856 |

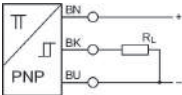
Dimensions



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

Sensors, Series ST6, open cable ends, 3-pin, M12, cold-resistant

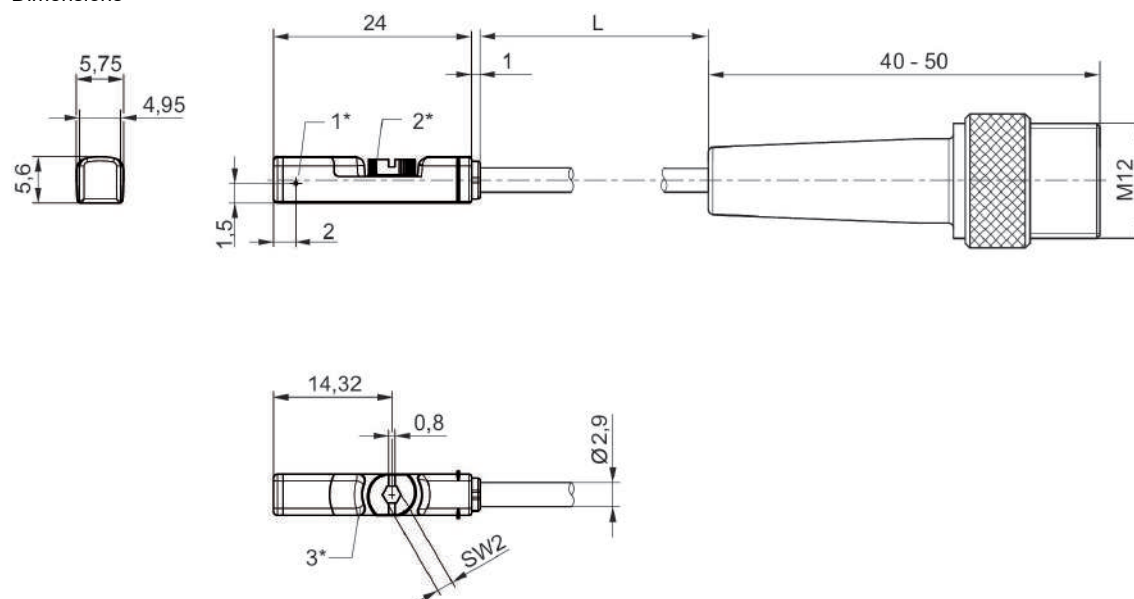
For series: PRA  
Temperature resistance: -40 °C cold-resistant  
Certificates: RoHS, UL (Underwriters Laboratories), cULus  
Ambient temperature min./max.: -40 °C ... 80 °C



| Switch descr. | Cable sheath | Electrical interface 2 | Number of poles | Max. DC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Version                 | Part No.   |
|---------------|--------------|------------------------|-----------------|-------------------------------|----------------------------------|----------------------------------|-------------------------|------------|
| PNP           | Polyurethane |                        | 3-pin           | 0.2                           | 10                               | 30                               | short circuit resistant | R412024011 |
| PNP           | Polyurethane | M8x1                   | 3-pin           | 0.2                           | 10                               | 30                               | short circuit resistant | R412024669 |
| PNP           | Polyurethane | M12x1                  | 3-pin           | 0.2                           | 10                               | 30                               | short circuit resistant | R412024670 |

| Cable length L [m] | Part No.   |
|--------------------|------------|
| 5                  | R412024011 |
| 0.3                | R412024669 |
| 0.3                | R412024670 |

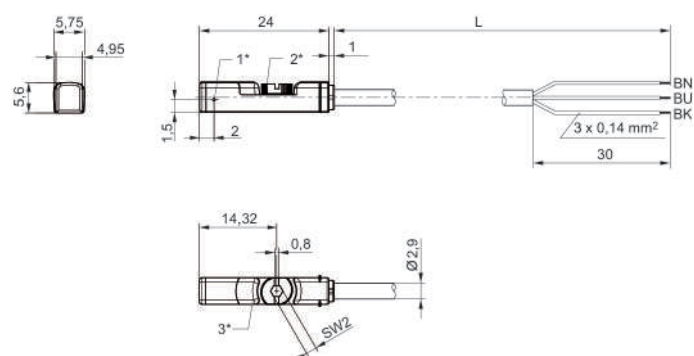
Dimensions



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

**R412024011**

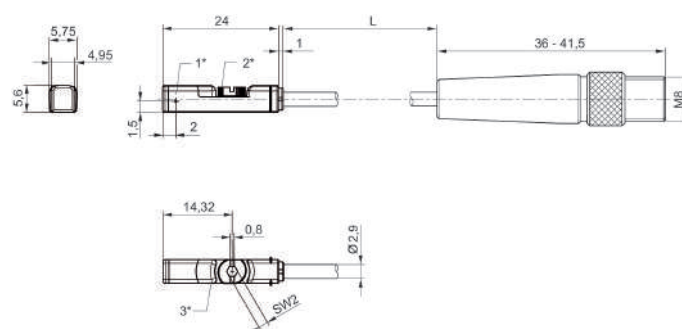
Dimensions



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

**R412024669**

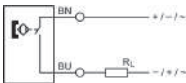
Dimensions



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

Sensors, Series ST6, open cable ends, 2-pin, Heat resistant

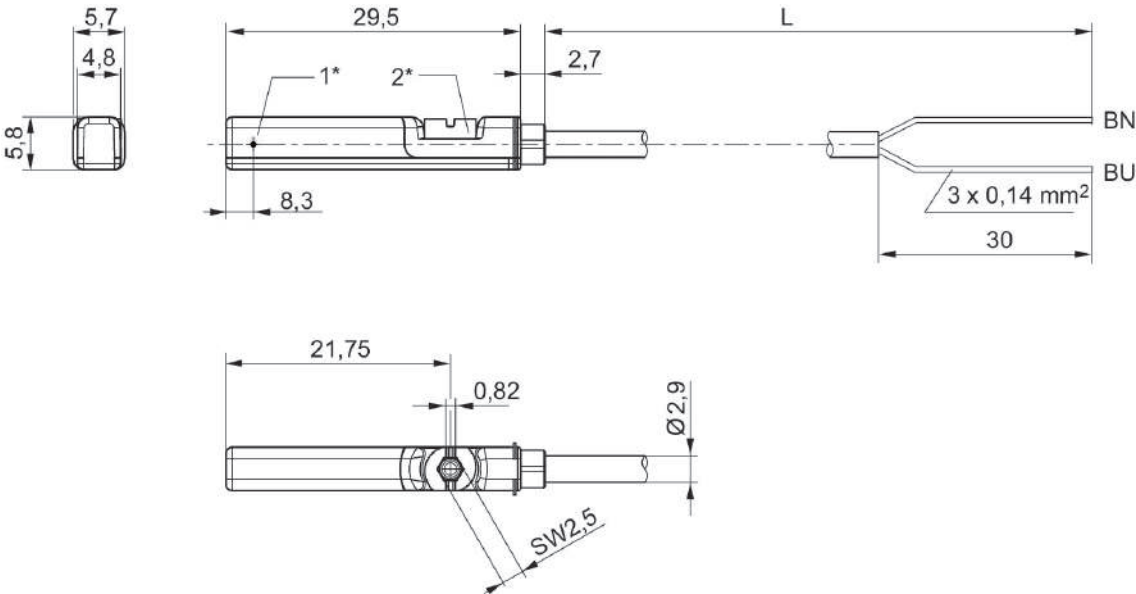
For series: PRA, PRE, CCI, KPZ  
Temperature resistance: Heat resistant  
Certificates: RoHS, UL (Underwriters Laboratories)  
Ambient temperature min./max.: -20 °C ... 120 °C



| Switch descr. | Cable sheath | Number of poles | Max. DC switching current [A] | Max. AC switching current [A] | Min. operating voltage DC [V DC] | Max. operating voltage DC [V DC] | Min. operating voltage AC [V AC] | Part No.   |
|---------------|--------------|-----------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|----------------------------------|------------|
| Reed          | Polyurethane | 2-pin           | 0.13                          | 0.13                          | 0                                | 30                               | 0                                | R412022865 |
| Reed          | Polyurethane | 2-pin           | 0.13                          | 0.13                          | 0                                | 30                               | 0                                | R412022867 |

| Max. operational voltage AC [V AC] | Version                             | Cable length L [m] | Part No.   |
|------------------------------------|-------------------------------------|--------------------|------------|
| 30                                 | Protected against polarity reversal | 3                  | R412022865 |
| 30                                 | Protected against polarity reversal | 10                 | R412022867 |

Dimensions



1\* = switching point 2\* = locking screw  
L = cable length BN=brown, BU=blue

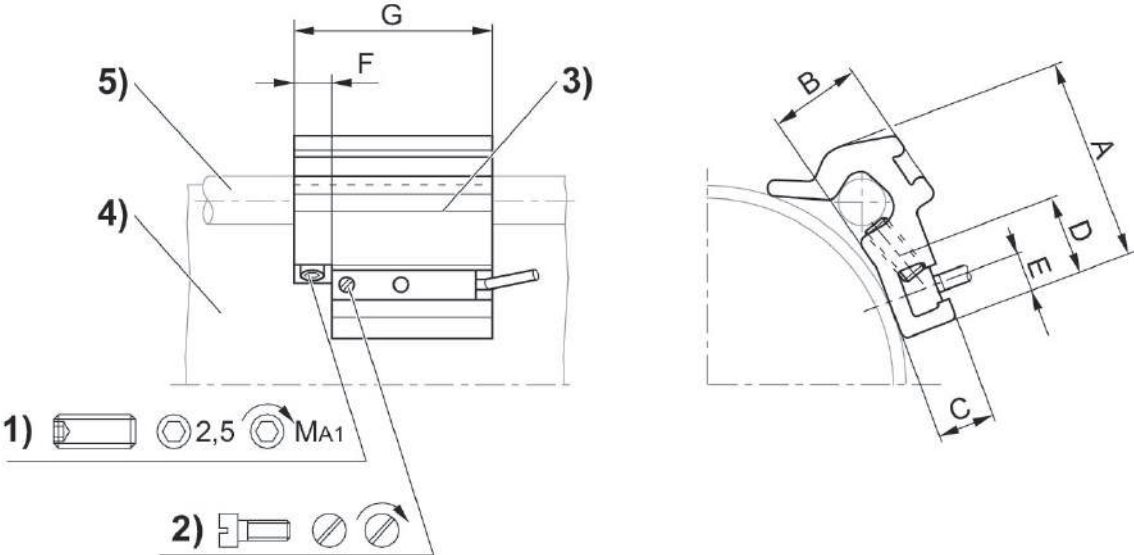
Sensor mounting, Series CB1

To mount on series: ST6, SM6  
To mount on series: TRB, C12P, 167, CVI, TRR, 523



| Min. cylinder Ø [mm] | Max. cylinder Ø [mm] | Material | Part No.   |
|----------------------|----------------------|----------|------------|
| 32                   | 40                   | Aluminum | 1827020282 |
| 50                   | 63                   | Aluminum | 1827020283 |
| 80                   | 100                  | Aluminum | 1827020284 |

Dimensions



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

| Part No.   | Cylinders Ø | A    | B    | C   | D  | E | F | G  | Clamping threaded pin |
|------------|-------------|------|------|-----|----|---|---|----|-----------------------|
| 1827020282 | 32 - 40 mm  | 26   | 10   | 7   | 14 | 5 | 8 | 40 | M5x8                  |
| 1827020283 | 50 - 63 mm  | 32.5 | 15.5 | 7   | 14 | 5 | 8 | 40 | M5x10                 |
| 1827020284 | 80 - 100 mm | 43   | 17   | 6.9 | 14 | 5 | 8 | 40 | M5x16                 |

| Part No.   | MA1 [Nm] |
|------------|----------|
| 1827020282 | 2 ±0,2   |
| 1827020283 | 2 ±0,2   |
| 1827020284 | 2 ±0,2   |

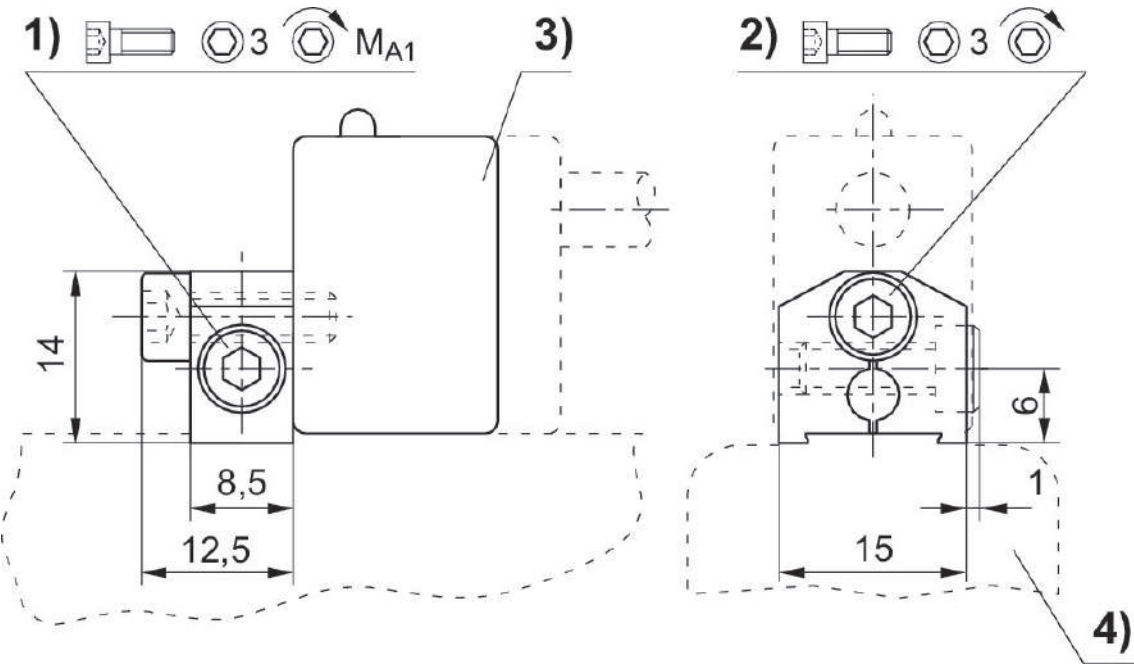
Sensor mounting, Series CB1

To mount on series: SN1, SN2  
To mount on series: PRA



| Material | Part No.   |
|----------|------------|
| Aluminum | 1827020084 |

Dimensions



| Part No.   | Clamping screw | MA1 [Nm] |
|------------|----------------|----------|
| 1827020084 | M4x12          | 2        |

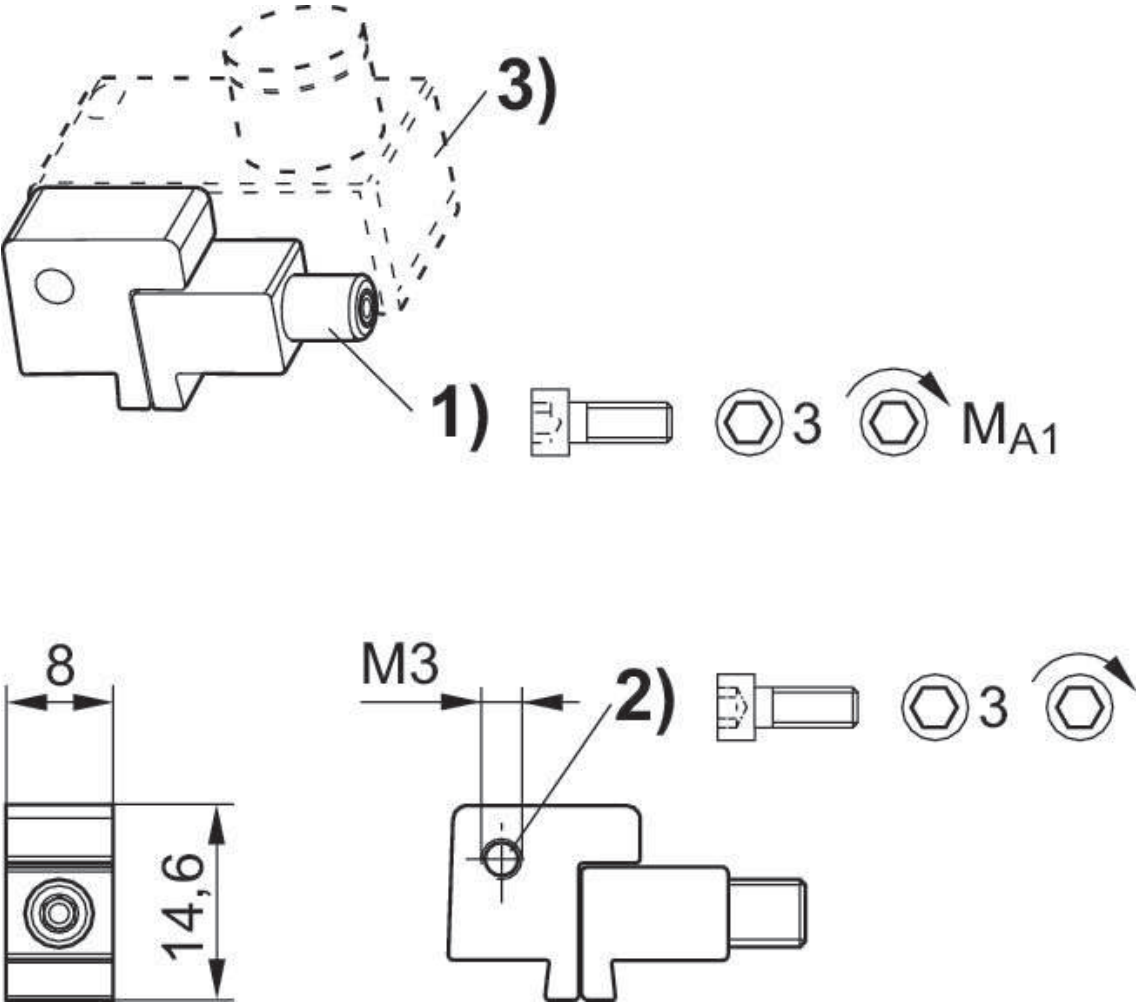
Sensor mounting, Series CB1

To mount on series: SN3  
To mount on series: PRA, KPZ, GPC, CCI, KHZ



| Material | Part No.   |
|----------|------------|
| Aluminum | 1827020386 |

Dimensions

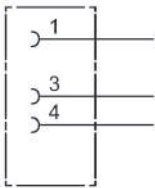


1) Clamping screw 2) Mounting screw for sensor 3) Sensor

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

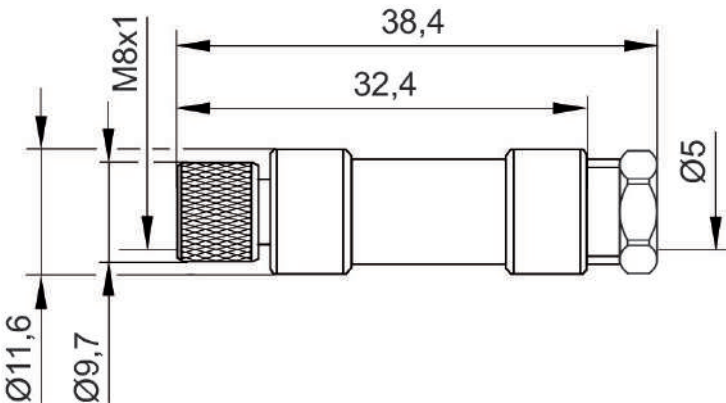
Round plug connector, Series CON-RD

Electrical connection 1: Socket ... M8x1 ... 3-pin ... straight  
Connection type: Soldering  
Ambient temperature min./max.: -25 °C ... 80 °C



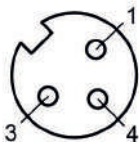
| Operational voltage | Coding  | Shielding  | Conne-<br>ction type | Max. current [A] | min. suit-<br>able cable Ø [mm] | max. suit-<br>able cable Ø [mm] | Part No.   |
|---------------------|---------|------------|----------------------|------------------|---------------------------------|---------------------------------|------------|
| 48 V AC/DC          | A-coded | unshielded | Soldering            | 4                | 3.5                             | 5                               | 1834484173 |

Dimensions



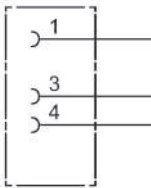
1834484173

Pin assignment, socket



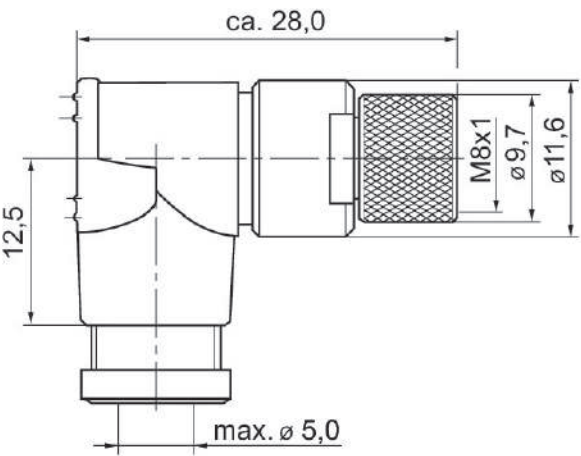
Round plug connector, Series CON-RD

Electrical connection 1: Socket ... M8x1 ... 3-pin ... angled  
Connection type: Soldering  
Ambient temperature min./max.: -25 °C ... 80 °C



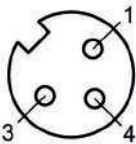
| Operational voltage | Coding  | Shielding  | Conne-<br>ction type | Max. current [A] | min. suit-<br>able cable Ø [mm] | max. suit-<br>able cable Ø [mm] | Part No.   |
|---------------------|---------|------------|----------------------|------------------|---------------------------------|---------------------------------|------------|
| 48 V AC/DC          | A-coded | unshielded | Soldering            | 4                | 3.5                             | 5                               | 1834484174 |

Dimensions in mm



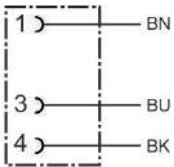
1834484174

Pin assignment, socket



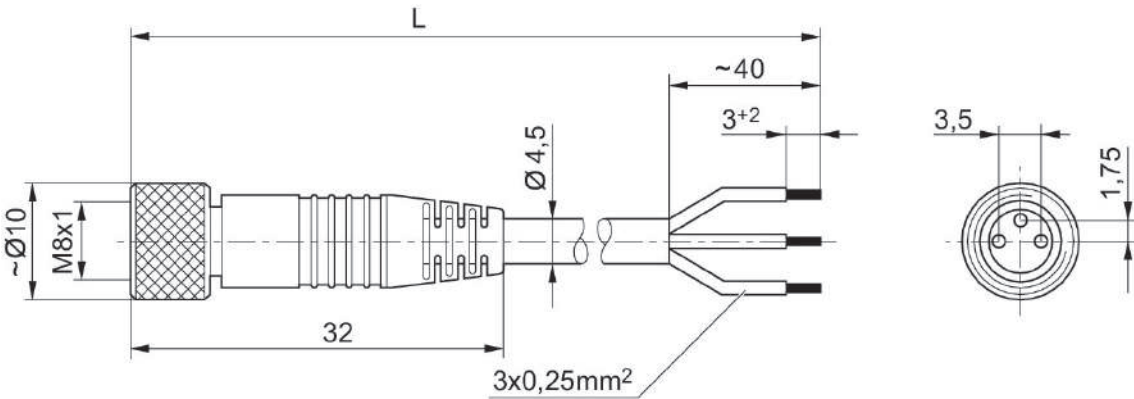
Round plug connector, Series CON-RD

Electrical connection 1: Socket ... M8x1 ... 3-pin ... straight  
Electrical connection 2: open cable ends ... 3-pin  
Certification: UL (Underwriters Laboratories)  
Ambient temperature min./max.: -25 °C ... 85 °C



| Operational voltage | Electrical connection 1, type | Electrical connection 1, thread size | Electrical connection 1, number of poles | Electrical connection 1, coding | Electrical connection 2, type | Electrical connection 2, number of poles | Cable length [m] | Part No.   |
|---------------------|-------------------------------|--------------------------------------|------------------------------------------|---------------------------------|-------------------------------|------------------------------------------|------------------|------------|
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 3                | 1834484166 |
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 5                | 1834484168 |
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 10               | 1834484247 |

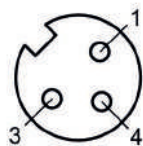
Dimensions



L = length

**1834484166, 1834484168, 1834484247**

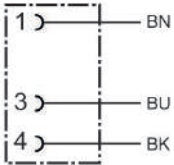
Pin assignment, socket



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

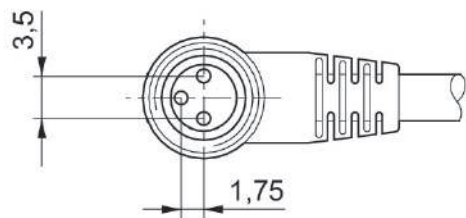
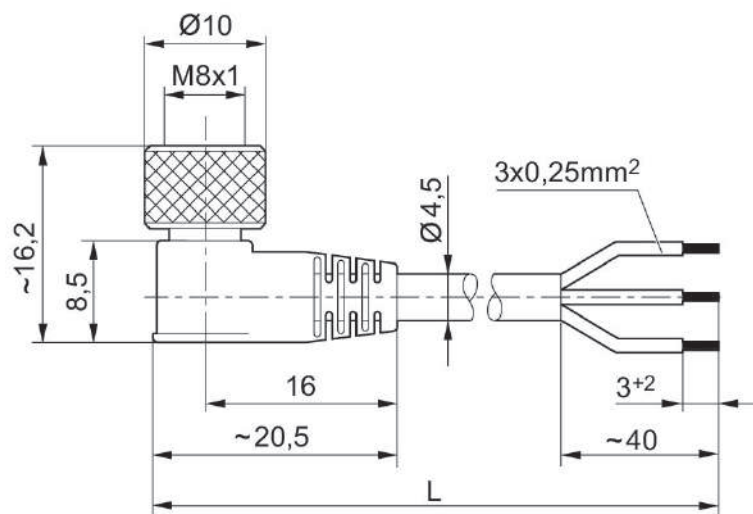
Round plug connector, Series CON-RD

Electrical connection 1: Socket ... M8x1 ... 3-pin ... angled  
Electrical connection 2: open cable ends ... 3-pin  
Ambient temperature min./max.: -40 °C ... 85 °C



| Operational voltage | Electrical connection 1, type | Electrical connection 1, thread size | Electrical connection 1, number of poles | Electrical connection 1, coding | Electrical connection 2, type | Electrical connection 2, number of poles | Cable length [m] | Part No.   |
|---------------------|-------------------------------|--------------------------------------|------------------------------------------|---------------------------------|-------------------------------|------------------------------------------|------------------|------------|
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 3                | 1834484167 |
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 5                | 1834484169 |
| 48 V AC/DC          | Socket                        | M8x1                                 | 3-pin                                    | A-coded                         | open cable ends               | 3-pin                                    | 10               | 1834484248 |

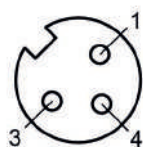
Dimensions



L = length

**1834484167, 1834484169, 1834484248**

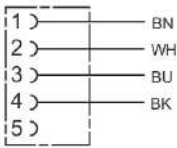
Pin assignment, socket



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

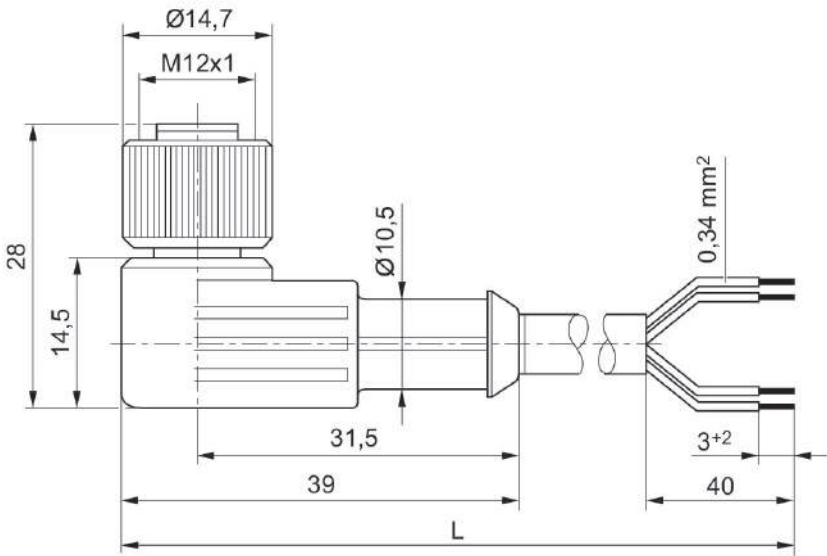
Round plug connector, Series CON-RD, 5-pin, angled, unshielded

Electrical connection 1: Socket ... M12x1 ... 5-pin ... angled  
Electrical connection 2: without wire end ferrule, tin-plated ... 4-pin  
Ambient temperature min./max.: -40 °C ... 85 °C



| Operational voltage | Electrical connection 1, type | Electrical connection 1, thread size | Electrical connection 1, number of poles | Electrical connection 1, coding | Electrical connection 2, type | Electrical connection 2, number of poles | Cable length [m] | Part No.   |
|---------------------|-------------------------------|--------------------------------------|------------------------------------------|---------------------------------|-------------------------------|------------------------------------------|------------------|------------|
| 48 V AC/DC          | Socket                        | M12x1                                | 5-pin                                    | A-coded                         | open cable ends               | 4-pin                                    | 3                | 1834484259 |
| 48 V AC/DC          | Socket                        | M12x1                                | 5-pin                                    | A-coded                         | open cable ends               | 4-pin                                    | 5                | 1834484260 |
| 48 V AC/DC          | Socket                        | M12x1                                | 5-pin                                    | A-coded                         | open cable ends               | 4-pin                                    | 10               | 1834484261 |

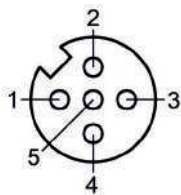
Dimensions



L = length

**1834484259, 1834484260, 1834484261**

Pin assignment, socket



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

Silencers, series SI1, Sintered bronze

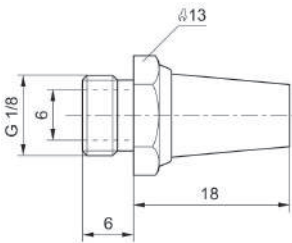
Compressed air connection type: External thread  
Silencer material: Sintered bronze  
Ambient temperature min./max.: -25 °C ... 80 °C  
Working pressure min./max.: 0 bar ... 10 bar



| G     | Sound pressure level [dB] | Nominal flow [l/min] | Delivery unit [piece] | Weight [kg] | Part No.   |
|-------|---------------------------|----------------------|-----------------------|-------------|------------|
| G 1/8 | 75                        | 1623                 | 10                    | 0.01        | 1827000000 |
| G 1/4 | 98                        | 5950                 | 10                    | 0.013       | R412004817 |
| G 1/4 | 79                        | 3390                 | 10                    | 0.02        | 1827000001 |
| G 3/8 | 84                        | 6554                 | 5                     | 0.05        | 1827000002 |
| G 1/2 | 90                        | 7223                 | 2                     | 0.08        | 1827000003 |
| G 3/4 | 92                        | 8394                 | 1                     | 0.13        | 1827000004 |

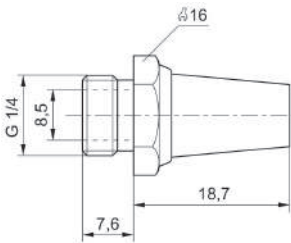
1827000000

Dimensions in mm



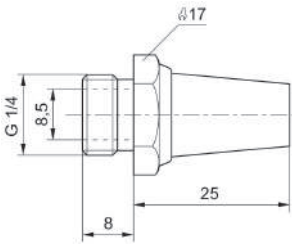
R412004817

Dimensions in mm



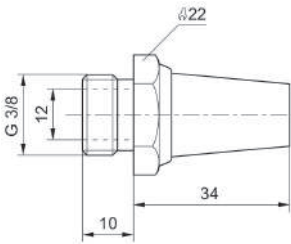
1827000001

Dimensions in mm



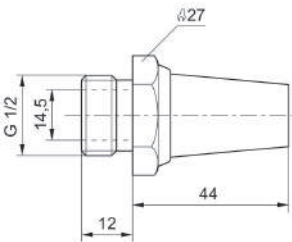
1827000002

Dimensions in mm



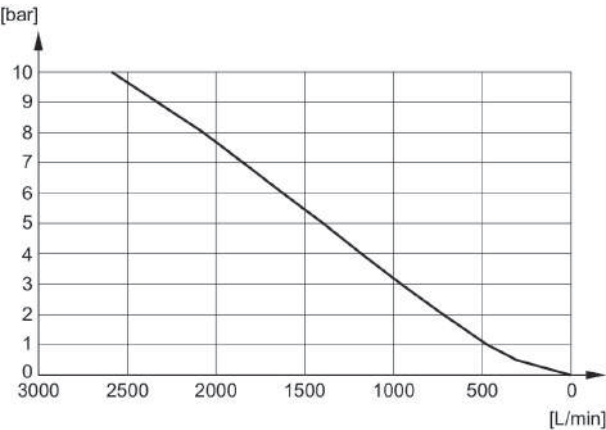
1827000003

Dimensions in mm



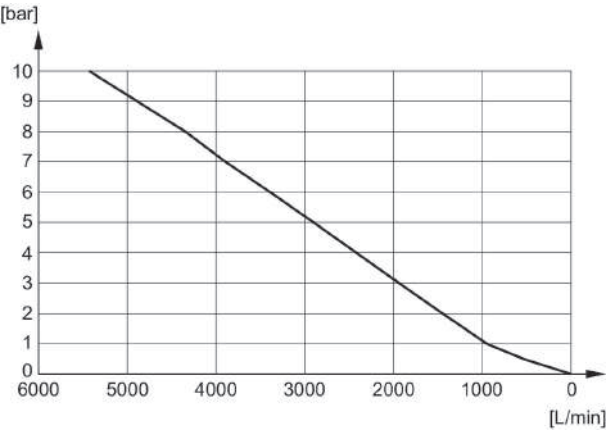
Flow diagram

1827000000



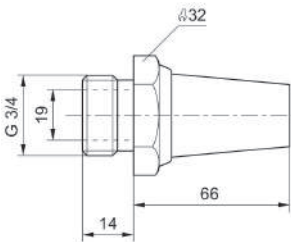
Flow diagram

1827000001



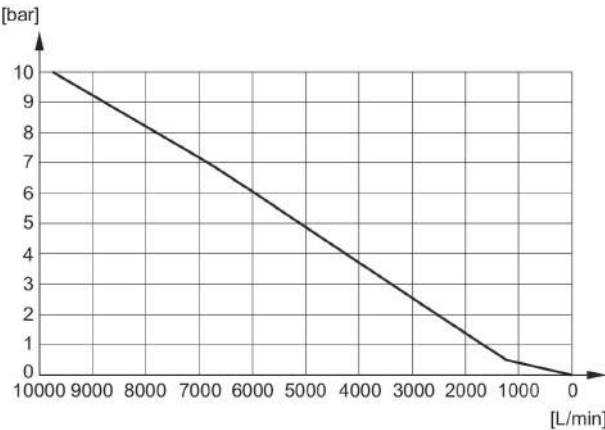
1827000004

Dimensions in mm



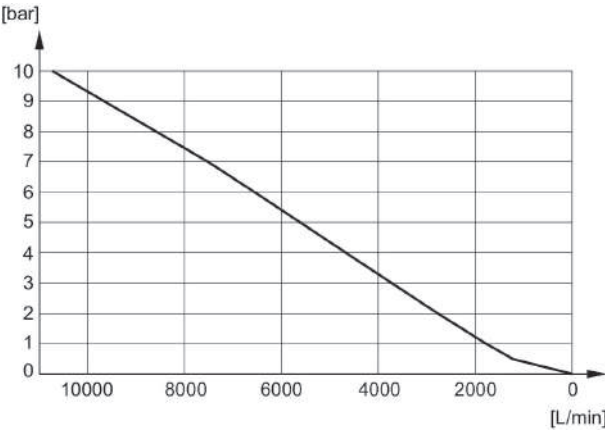
Flow diagram

R412004817



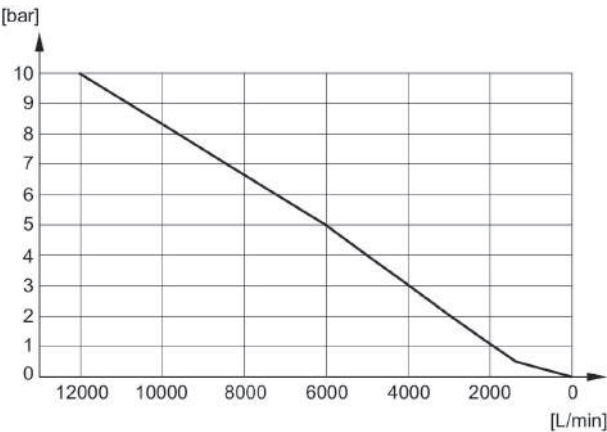
Flow diagram

1827000002



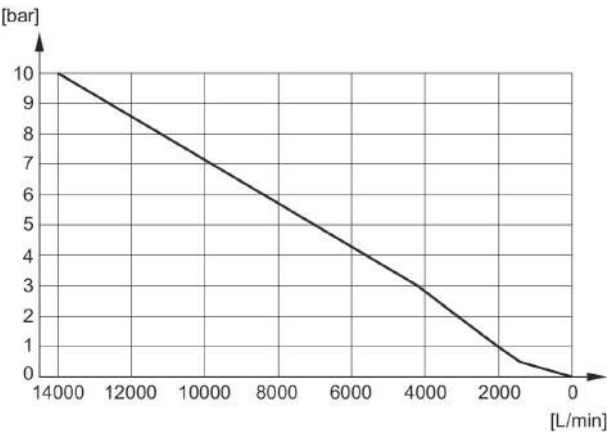
Flow diagram

1827000003



Flow diagram

1827000004



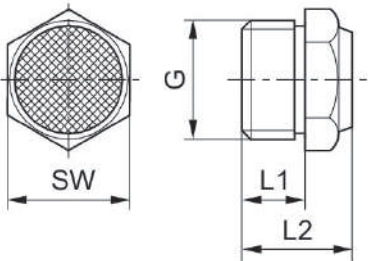
Silencers, series SI1, Sintered bronze

Compressed air connection type: External thread  
Silencer material: Sintered bronze  
Ambient temperature min./max.: -25 °C ... 80 °C  
Working pressure min./max.: 0 bar ... 10 bar



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

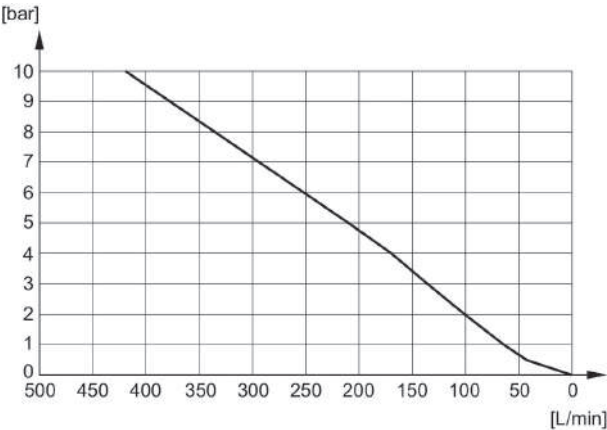
Dimensions



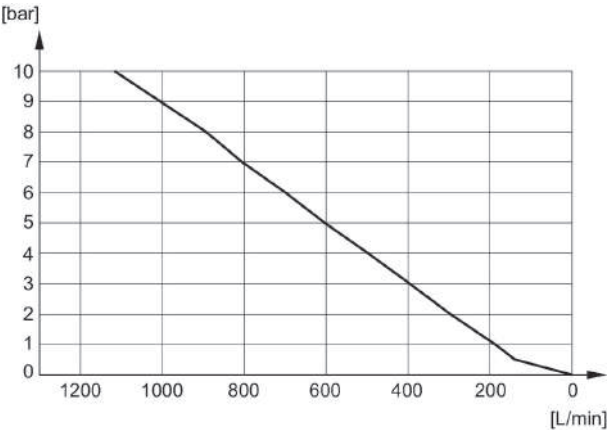
| Part No.   | Port G | L1 | L2   | SW |
|------------|--------|----|------|----|
| 1827000032 | M5     | 5  | 10.3 | 7  |
| 1827000031 | G 1/8  | 6  | 11.5 | 13 |
| 1827000033 | G 1/4  | 8  | 13.5 | 17 |
| 1827000034 | G 3/8  | 10 | 17.5 | 22 |
| 1827000035 | G 1/2  | 12 | 19.5 | 27 |
| 8145003400 | G 3/4  | 14 | 22.5 | 32 |
| 8145001000 | G 1    | 16 | 22.5 | 41 |

Sound pressure level measured at 6 bar at 1 m distance

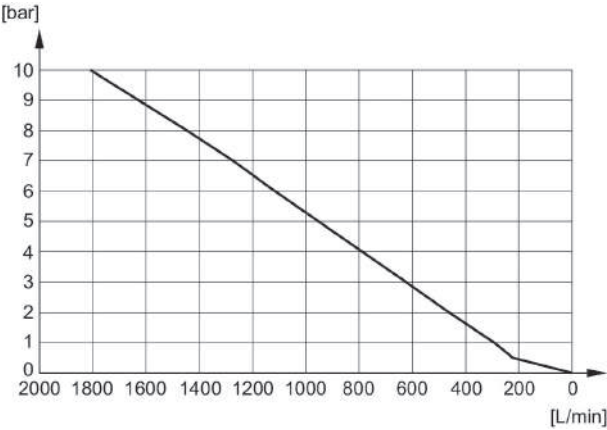
Flow diagram1827000032



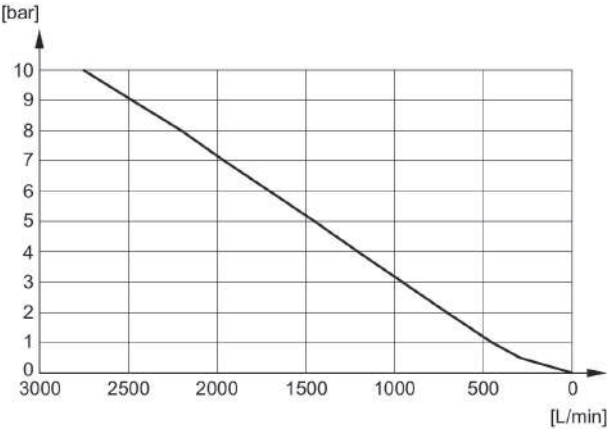
Flow diagram 1827000031



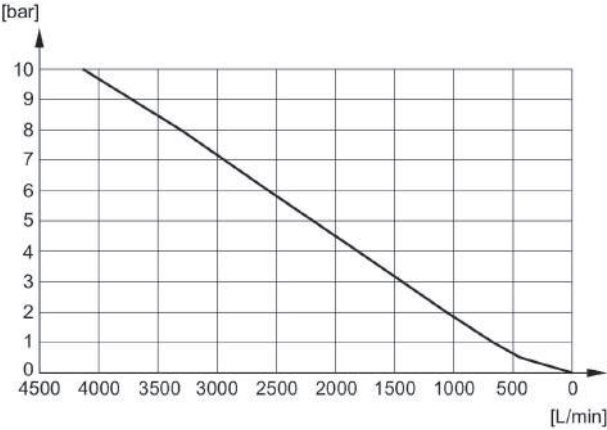
Flow diagram 1827000033



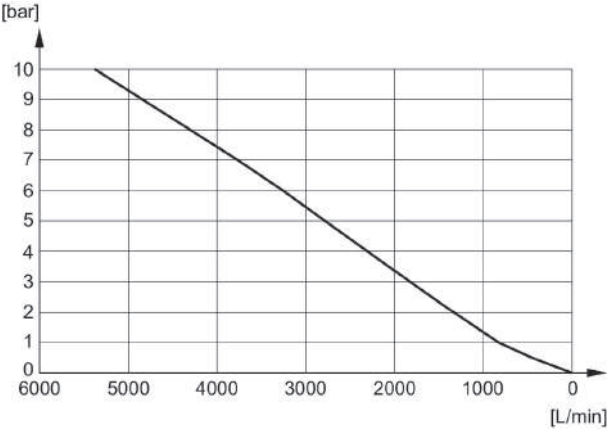
Flow diagram 1827000034



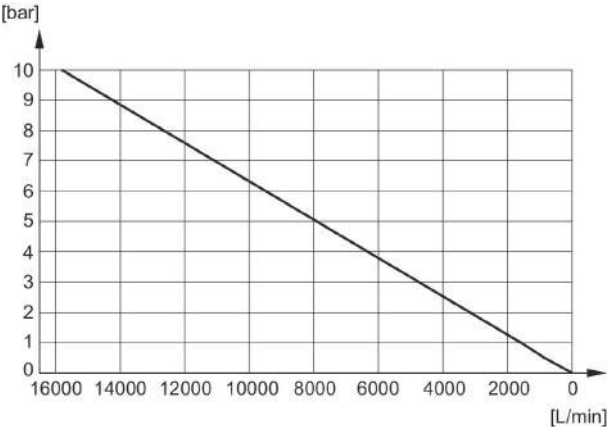
Flow diagram 1827000035



Flow diagram 8145003400



Flow diagram 8145001000



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