

Series PRA and TRB ISO 15552 Pneumatic Cylinders from Rexroth

The next generation of ISO pneumatic cylinders



Series PRA and TRB Pneumatic ISO 15552 Cylinders

The next generation of ISO cylinders from Rexroth

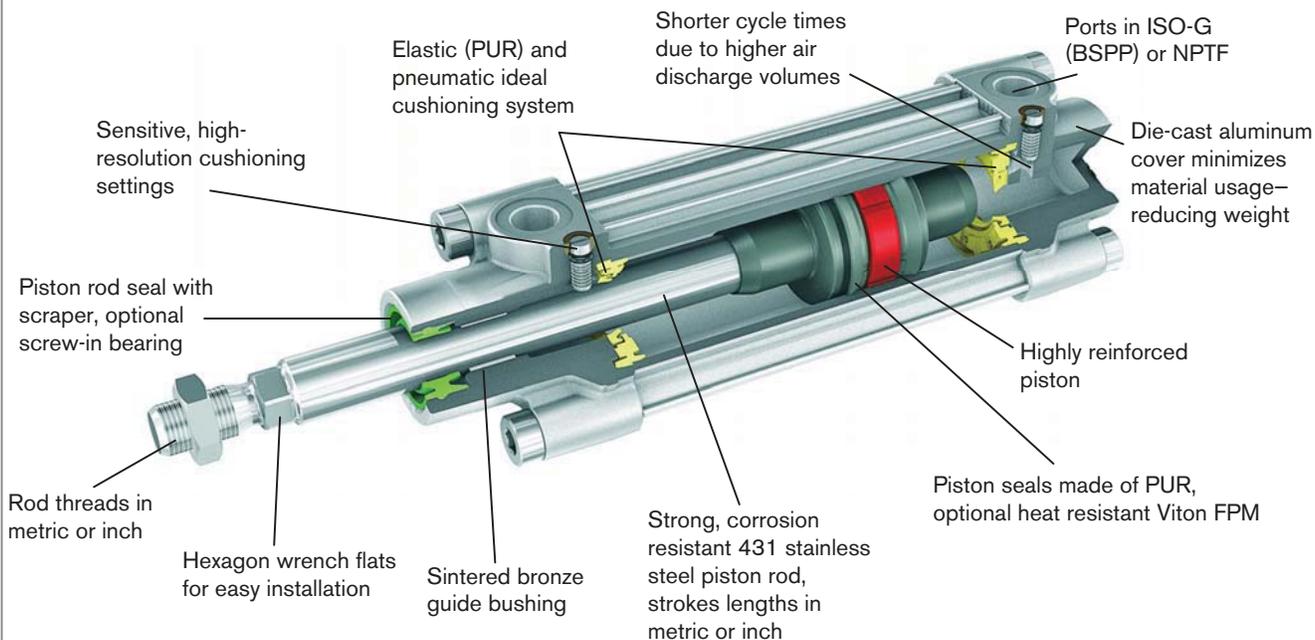
The Series PRA and TRB cylinder series represent consistent further development of our proven ISO cylinder designs. They offer the classic solution for numerous tasks and applications in nearly all industries—available worldwide to a uniform standard. The latest series are considerably lighter, more efficient and have superior cushioning design—taking full advantage of the Rexroth Ideal Cushioning technology.



What is Rexroth “Ideal Cushioning”?

Ideal cushioning is a combination of precise adjustable pneumatic cushions and elastic bumpers that work together to eliminate end-of-stroke bounce and minimize residual energy. This reduces vibration and noise while reducing cycle times. What’s this mean for you? Rexroth cylinders that are ideal cushioning capable, when properly adjusted, will last longer and run faster than other comparable cylinders. Our Velocity Time Meter measures piston speed to allow perfect adjustment of the cushions. Ideal cushioning allows machinery to last longer plus run faster and with less noise. Many times a Rexroth Ideal Cushioning-capable cylinder of a smaller bore size can be used to do the same work as a larger cylinder.

Features (example PRA)



Specifications for both PRA (Profile Advanced) and TRB (Tie Rod Basic):

Stroke range: 1–110" or 1–2800mm

Working pressure: 22 to 145psi (1.5 to 10 bar)

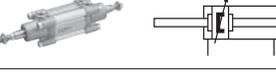
Bore sizes: 32–125mm

Temperature range: -4°F to +175°F (-20°C to +80°C)

heat resistant version to +300°F (+150°C)

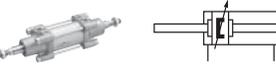
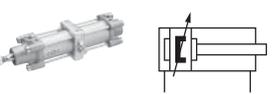
Piston rod cylinders → Standard cylinders

★ **ISO 15552, Series PRA**

| | | |
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|  | Profile cylinder, ISO 15552, Series PRA ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning ▶ single rod, male thread (Inch and Metric) | 6 |
|  | Profile cylinder, ISO 15552, Series PRA ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning ▶ double rod, male thread (Inch and Metric) | 8 |
|  | Profile cylinder, ISO 15552, Series PRA ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2 ▶ double-acting ▶ heat resistant ▶ adjustable cushioning ▶ single rod, male thread (Metric Only) | 10 |

Piston rod cylinders → Standard cylinders

★ **ISO 15552, Series TRB**

| | | |
|---|--|----|
|  | ISO 15552, Series TRB ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning ▶ single rod, male thread (Inch and Metric) | 11 |
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Accessories**Screw-in bearing (PRA and TRB) and seal kits**

| | | |
|---|---|----|
|  | Screw-in bearing (PRA and TRB) ▶ seal kits | 18 |
|---|---|----|

Cylinder mountings

| | | |
|---|--|----|
|  | Bearing block AB7 with fixed bearing (PRA and TRB) ▶ Cylinder mounting in accordance with ISO 15552 | 19 |
|  | Clevis mounting AB6 (PRA and TRB) ▶ Cylinder mounting in accordance with ISO 15552 | 20 |
|  | Bearing block with ball joint and foot, angled (PRA and TRB) ▶ Cylinder mounting in accordance with VDMA 24562 part 2 | 21 |
|  | Clevis mounting MP2 (PRA and TRB) ▶ Cylinder mounting in accordance with ISO 15552 | 21 |
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|  | Rear eye MP9 with rubber bushing (PRA and TRB) ▶ Cylinder mounting in accordance with ISO 15552 | 23 |
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Note: Cylinders marked "adjustable cushioning" do not have mechanical bumpers like the ones marked "ideal cushioning".

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

| | | |
|-----------------------------|--|----|
| | MT4 center trunnion mounting (PRA only) ▶ Cylinder mounting in accordance with ISO 15552 | 24 |
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| | Guide unit, GH1 (PRA and TRB) ▶ Ø 32 - 100 mm ▶ Plain bearing ▶ for standard cylinder ISO 15552 | 40 |
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Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

| | | |
|---|--|----|
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|  | Sensor, Series ST6 (PRA and TRB) ▶ 6 mm groove ▶ with cable ▶ Plug, M8, 3-pin | 52 |
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Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA & TRB

▶ Ø 32 - 125 mm ▶ Common Specifications

| | |
|--|---|
| Standards | ISO 15552 |
| Compressed air connection | internal thread, NPTF or ISO 1179-1 / ISO 16030 |
| Working pressure min./max. | 22 psi – 145psi (1.5 to 10 bar) |
| Ambient temperature min./max. | -4°F to + 175°F (-20°C to + 80°C) |
| High Temp version (1) | 14°F to +300°F (-10°C to +150°C) |
| Medium | Compressed air |
| Minimum filtration | 50 µm |
| Medium temperature min./max. | -4°F to + 175°F (-20°C to + 80°C) |
| Oil content of compressed air | 0 mg/m ³ - 5 mg/m ³ |
| Pressure for determining piston forces | 6.3 bar (91.3 psi) |
| Materials: | |
| Cylinder tube (2) | Aluminum, anodized |
| Piston rod | 431 Stainless steel |
| Front cover | Die-cast aluminum |
| End cover | Die-cast aluminum |
| Piston Seals (3) | Polyurethane |
| Piston rod nut | Steel, galvanized |
| Scraper (3) | Polyurethane |



Profile cylinder, ISO 15552, Series PRA



ISO 15552, Series TRB

| Piston Ø | Bore | 32mm / 1-1/4" | 40mm / 1-1/2" | 50mm / 2" | 63mm / 2-1/2" |
|--|-------------|---------------|---------------|--------------|---------------|
| Extending piston force (4) | N (lb-f) | 505 (372.7) | 790 (583) | 1235 (911.4) | 1960 (1446.5) |
| Retracting piston force (5) | N (lb-f) | 435 (321) | 660 (487.1) | 1035 (763.8) | 1765 (1302.6) |
| Max piston speed (extend) | m/s (in/s) | 3 (118.1) | 3 (118.1) | 2.5 (98.4) | 2.5 (98.4) |
| Cushion length | mm (in) | 11.5 (0.5) | 15 (0.6) | 17 (0.7) | 16.5 (0.6) |
| Max Cushioning energy | J (ft-lb) | 4.8 (3.54) | 9 (6.64) | 15 (11.06) | 27 (19.91) |
| Min. pressure PUR seals (typical break-away) | [bar] (psi) | 0.13 (1.89) | 0.12 (1.74) | 0.08 (1.16) | 0.07 (1.02) |
| Min. pressure FPM seals (typical break-away) | [bar] (psi) | 0.08 (1.16) | 0.06 (0.87) | 0.04 (0.58) | 0.04 (0.58) |
| Min. pressure low friction seals (6) (1) | [bar] (psi) | 0.05 (0.73) | 0.04 (0.58) | 0.03 (0.44) | 0.03 (0.44) |
| Stroke max. | mm (in) | 1600 (63) | 1900 (74.8) | 2100 (82.7) | 2500 (98.4) |
| Weight (PRA Single rod) (0mm stroke) | kg (lb) | 0.5 (1.1) | 0.65 (1.43) | 1.06 (2.34) | 1.42 (3.13) |
| Weight (PRA Single rod) +10 mm (1/2") stroke | kg (lb) | 0.022 (0.06) | 0.032 (0.09) | 0.047 (0.13) | 0.054 (0.15) |
| Weight (TRB Single rod) (0mm stroke) | kg (lb) | 0.46 (1.01) | 0.67 (1.48) | 1.14 (2.51) | 1.4 (3.09) |
| Weight (TRB Single rod) +10 mm (1/2") stroke | kg (lb) | 0.024 (0.07) | 0.03 (0.08) | 0.036 (0.1) | 0.052 (0.15) |
| Weight (PRA Double rod) (0mm stroke) | kg (lb) | 0.58 (1.28) | 0.8 (1.76) | 1.34 (2.95) | 1.72 (3.79) |
| Weight (PRA Double rod) +10 mm (1/2") stroke | kg (lb) | 0.031 (0.09) | 0.048 (0.13) | 0.072 (0.2) | 0.079 (0.22) |
| Weight (TRB Double rod) (0mm stroke) | kg (lb) | 0.52 (1.15) | 0.48 (1.06) | 1.42 (3.13) | 1.7 (3.75) |
| Weight (TRB Double rod) +10 mm (1/2") stroke | kg (lb) | 0.033 (0.09) | 0.046 (0.13) | 0.061 (0.17) | 0.077 (0.22) |
| | Note | (7) | (7) | (8) | (8) |

Notes

- (1) Not compatible with magnetic piston
- (2) TRB low friction version tube material is steel
- (3) Other materials available as options
- (4) Single rod only
- (5) Both extend and retract, double rod version
- (6) TRB Only
- (7) TRB Tie-rod material: Stainless steel
- (8) TRB Tie-rod material: Steel, galvanized

Metric versions include rod nut, inch versions do not.

Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA & TRB

► Ø 32 - 125 mm ► Common Specifications

| Piston Ø | Bore | 80mm / 3" | | 100 / 4" | | 125mm / 5" | |
|--|-------------|-----------|----------|----------|----------|------------|----------|
| Extending piston force (3) | N (lb-f) | 3165 | (2335.8) | 4945 | (3649.4) | 7725 | (5701.1) |
| Retracting piston force (4) | N (lb-f) | 2855 | (2107) | 4635 | (3420.6) | 7220 | (5328.4) |
| Max piston speed (extend) | m/s (in/s) | 1.8 | (70.8) | 1.8 | (70.8) | 1.2 | (47.2) |
| Cushion length | mm (in) | 19.5 | (0.8) | 19.5 | 70.9 | 22 | 47.2 |
| Max Cushioning energy | J (ft-lb) | 54 | (39.83) | 88 | (64.9) | 140 | (103.25) |
| Min. pressure PUR seals | [bar] (psi) | 0.05 | (0.73) | 0.03 | (0.44) | 0.03 | (0.44) |
| Min. pressure FPM seals | [bar] (psi) | 0.03 | (0.44) | 0.03 | (0.44) | 0.02 | (0.29) |
| Min. pressure low friction seals (5) (6) | [bar] (psi) | 0.02 | (0.29) | 0.02 | (0.29) | 0.01 | (0.15) |
| Stroke max. | mm (in) | 2800 | (110.2) | 2800 | (110.2) | 2750 | (108.3) |
| Weight (PRA Single rod) (0mm stroke) | kg (lb) | 2.37 | (5.23) | 3.51 | (7.74) | 6.72 | (14.82) |
| Weight (PRA Single rod) +10 mm (1/2") stroke | kg (lb) | 0.085 | (0.24) | 0.1 | (0.28) | 0.15 | (0.42) |
| Weight (TRB Single rod) (0mm stroke) | kg (lb) | 2.12 | (4.67) | 3.16 | (6.97) | 6.92 | (15.26) |
| Weight (TRB Single rod) +10 mm (1/2") stroke | kg (lb) | 0.06 | (0.17) | 0.065 | (0.18) | 0.21 | (0.59) |
| Weight (PRA Double rod) (0mm stroke) | kg (lb) | 2.92 | (6.44) | 4.08 | (9) | 8.92 | (19.67) |
| Weight (PRA Double rod) +10 mm (1/2") stroke | kg (lb) | 0.124 | (0.35) | 0.139 | (0.39) | 0.22 | (0.62) |
| Weight (TRB Double rod) (0mm stroke) | kg (lb) | 2.67 | (5.89) | 3.7 | (8.16) | 9 | (19.85) |
| Weight (TRB Double rod) +10 mm (1/2") stroke | kg (lb) | 0.099 | (0.28) | 0.104 | (0.29) | 0.26 | (0.73) |
| | Note | (8) | | (8) | | (8) | |

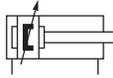
Notes

- (1) Not compatible with magnetic piston
- (2) TRB low friction version tube material is steel
- (3) Other materials available as options
- (4) Single rod only
- (5) Both extend and retract, double rod version
- (6) TRB Only
- (7) TRB Tie-rod material: Stainless steel
- (8) TRB Tie-rod material: Steel, galvanized

Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
▶ single rod, male thread (Inch and Metric)



Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- ATEX-certified cylinders can be generated in the configurator.
- ATEX ID II 2G2D c T4 T135°C -20°C ≤Ta ≤60°C
- For ATEX-certified cylinders, the temperature range specified in the header does not apply. See the ATEX ID.

| Inch Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|--------------|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|
| | | 7/16 - 20 UNF 1/8 NPTF 12 | 1/2 - 20 UNF 1/4 NPTF 16 | 3/4 - 16 UNF 1/4 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 25 | 3/4 - 16 UNF 1/2 NPTF 25 | 1 - 14 UNF 1/2 NPTF 32 |
| | * Stroke 0010 | R480176154 | R480176238 | R480176328 | R480176417 | R480176506 | R480176593 | R480176685 |
| | 0020 | R480176162 | R480176251 | R480176334 | R480176427 | R480176510 | R480176601 | R480176689 |
| | 0030 | R480176169 | R480176257 | R480176345 | R480176437 | R480176523 | R480176609 | R480176694 |
| | 0040 | R480176174 | R480176263 | R480176354 | R480176441 | R480176526 | R480176614 | R480176707 |
| | 0050 | R480176187 | R480176275 | R480176363 | R480176452 | R480176534 | R480176626 | R480176712 |
| | 0060 | R480176190 | R480176280 | R480176370 | R480176459 | R480176546 | R480176633 | R480176721 |
| | 0070 | R480176201 | R480176293 | R480176377 | R480176464 | R480176554 | R480176641 | R480176729 |
| | 0080 | R480176209 | R480176298 | R480176383 | R480176472 | R480176561 | R480176646 | R480176736 |
| | 0090 | R480176218 | R480176304 | R480176395 | R480176480 | R480176567 | R480176660 | R480176746 |
| | 0100 | R480176228 | R480176316 | R480176400 | R480176490 | R480176581 | R480176665 | R480176754 |
| | 0120 | R480176232 | R480176321 | R480176412 | R480176500 | R480176585 | R480176676 | R480176761 |

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|----------------|--|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| | | M10x1,25 G 1/8 12 | M12x1,25 G 1/4 16 | M16x1,5 G 1/4 20 | M16x1,5 G 3/8 20 | M20x1,5 G 3/8 25 | M20x1,5 G 1/2 25 | M27x2 G 1/2 32 |
| | ** Stroke 25 | 0822120001 | 0822121001 | 0822122001 | 0822123001 | 0822124001 | 0822125001 | R480140491 |
| | 50 | 0822120002 | 0822121002 | 0822122002 | 0822123002 | 0822124002 | 0822125002 | R480140455 |
| | 80 | 0822120003 | 0822121003 | 0822122003 | 0822123003 | 0822124003 | 0822125003 | R480141371 |
| | 100 | 0822120004 | 0822121004 | 0822122004 | 0822123004 | 0822124004 | 0822125004 | R480079499 |
| | 125 | 0822120005 | 0822121005 | 0822122005 | 0822123005 | 0822124005 | 0822125005 | R480140083 |
| | 160 | 0822120006 | 0822121006 | 0822122006 | 0822123006 | 0822124006 | 0822125006 | R480079809 |
| | 200 | 0822120007 | 0822121007 | 0822122007 | 0822123007 | 0822124007 | 0822125007 | R480140833 |
| | 250 | 0822120008 | 0822121008 | 0822122008 | 0822123008 | 0822124008 | 0822125008 | R480141106 |
| | 320 | 0822120009 | 0822121009 | 0822122009 | 0822123009 | 0822124009 | 0822125009 | R480140759 |
| | 400 | 0822120010 | 0822121010 | 0822122010 | 0822123010 | 0822124010 | 0822125010 | R480141373 |
| | 500 | 0822120011 | 0822121011 | 0822122011 | 0822123011 | 0822124011 | 0822125011 | R480141666 |

* First 3 digits of inch stroke are whole inches, 4th digit 1/8" increments

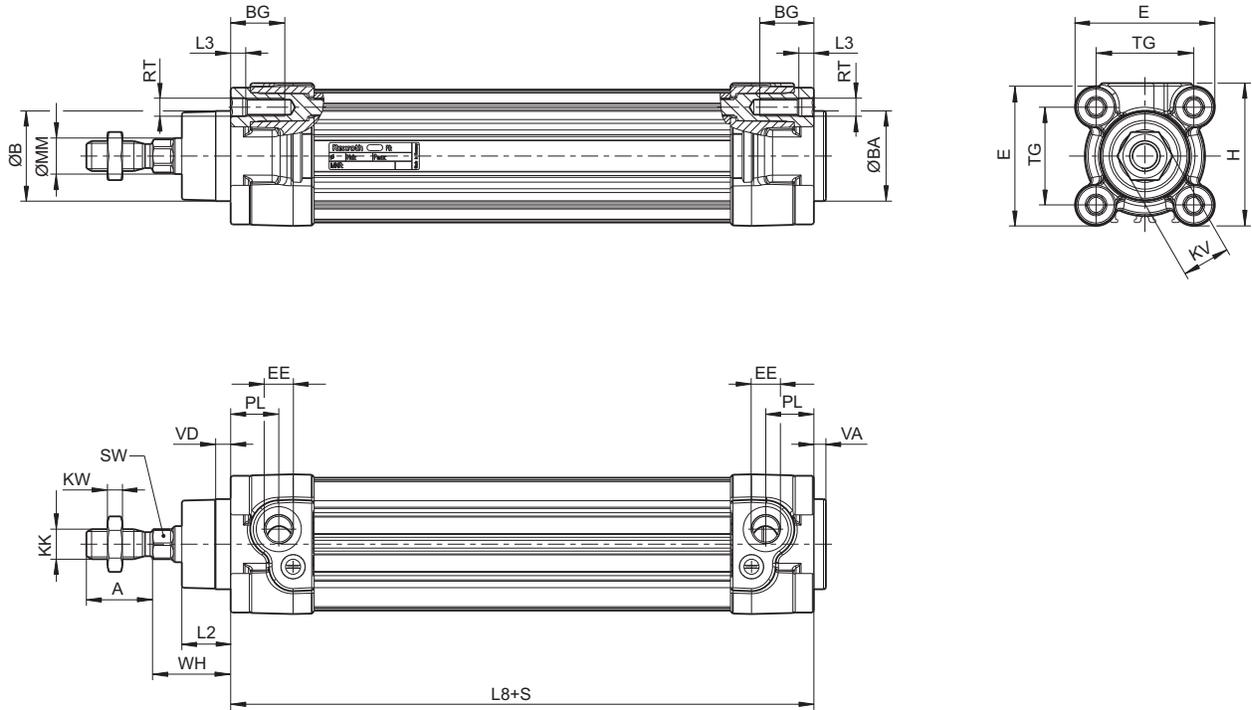
** Metric stroke in mm

Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ single rod, male thread ▶ ATEX optional

Dimensions



S = stroke

00134208

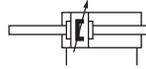
| Piston Ø | A -2 | ØB d11 | ØBA d11 | BG min. | E | EE inch | EE | H | KK inch | KK | KV |
|----------|------|--------|---------|---------|------|---------|-------|------|---------------|----------|----|
| 32 | 22 | 30 | 30 | 16 | 46.5 | 1/8 NPT | G1/8 | 47.5 | 7/16 - 20 UNF | M10x1,25 | 16 |
| 40 | 24 | 35 | 35 | 16 | 53 | 1/4 NPT | G1/4 | 53 | 1/2 - 20 UNF | M12x1,25 | 18 |
| 50 | 32 | 40 | 40 | 16 | 65 | 1/4 NPT | G1/4 | 65 | 3/4 - 16 UNF | M16x1,5 | 24 |
| 63 | 32 | 45 | 45 | 16 | 75 | 3/8 NPT | G 3/8 | 75 | 3/4 - 16 UNF | M16x1,5 | 24 |
| 80 | 40 | 45 | 45 | 17 | 95 | 3/8 NPT | G 3/8 | 95 | 3/4 - 16 UNF | M20x1,5 | 30 |
| 100 | 40 | 55 | 55 | 17 | 115 | 1/2 NPT | G 1/2 | 115 | 3/4 - 16 UNF | M20x1,5 | 30 |
| 125 | 54 | 60 | 60 | 20 | 140 | 1/2 NPT | G 1/2 | 140 | 1 - 14 UNF | M27x2 | 41 |

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

Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA

▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
▶ double rod, male thread (Inch and Metric)



| Inch Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|--------------|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|
| | | 7/16 - 20 UNF 1/8 NPTF 12 | 1/2 - 20 UNF 1/4 NPTF 16 | 3/4 - 16 UNF 1/4 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 25 | 3/4 - 16 UNF 1/2 NPTF 25 | 1 - 14 UNF 1/2 NPTF 32 |
| | * Stroke 0010 | R480176152 | R480176240 | R480176332 | R480176414 | R480176507 | R480176597 | R480176680 |
| | 0020 | R480176160 | R480176248 | R480176341 | R480176423 | R480176517 | R480176604 | R480176693 |
| | 0030 | R480176173 | R480176255 | R480176348 | R480176435 | R480176519 | R480176612 | R480176700 |
| | 0040 | R480176175 | R480176267 | R480176356 | R480176440 | R480176533 | R480176615 | R480176706 |
| | 0050 | R480176182 | R480176276 | R480176359 | R480176448 | R480176535 | R480176625 | R480176715 |
| | 0060 | R480176191 | R480176283 | R480176366 | R480176454 | R480176542 | R480176630 | R480176724 |
| | 0070 | R480176204 | R480176289 | R480176378 | R480176463 | R480176555 | R480176645 | R480176726 |
| | 0080 | R480176212 | R480176300 | R480176389 | R480176477 | R480176559 | R480176651 | R480176740 |
| | 0090 | R480176214 | R480176308 | R480176391 | R480176481 | R480176573 | R480176659 | R480176749 |
| | 0100 | R480176226 | R480176313 | R480176404 | R480176489 | R480176577 | R480176667 | R480176750 |
| | 0120 | R480176236 | R480176319 | R480176408 | R480176496 | R480176582 | R480176674 | R480176762 |

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|----------------|--|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| | | M10x1,25 G 1/8 12 | M12x1,25 G 1/4 16 | M16x1,5 G 1/4 20 | M16x1,5 G 3/8 20 | M20x1,5 G 3/8 25 | M20x1,5 G 1/2 25 | M27x2 G 1/2 32 |
| | ** Stroke 25 | R480041413 | R480041432 | R480041443 | R480041453 | R480041484 | R480148059 | R480148066 |
| | 50 | R480041419 | R480041433 | R480041444 | R480041454 | R480041485 | R480069994 | R480148067 |
| | 80 | R480041420 | R480041434 | R480041445 | R480041455 | R480041487 | R480148061 | R480148068 |
| | 100 | R480041421 | R480041435 | R480041446 | R480041456 | R480041488 | R480059815 | R480142910 |
| | 125 | R480041422 | R480041436 | R480041074 | R480041457 | R480041490 | R480146278 | R480148069 |
| | 160 | R480041423 | R480041437 | R480041447 | R480041458 | R480041491 | R480148062 | R480148070 |
| | 200 | R480041425 | R480041438 | R480041448 | R480041459 | R480041492 | R480148063 | R480148071 |
| | 250 | R480041426 | R480041439 | R480041449 | R480041460 | R480041493 | R480077546 | R480148072 |
| | 320 | R480041427 | R480041440 | R480041450 | R480041461 | R480041494 | R480148064 | R480148073 |
| | 400 | R480041428 | R480041441 | R480041451 | R480041481 | R480041496 | R480148065 | R480148074 |
| | 500 | R480041429 | R480041442 | R480041452 | R480041482 | R480041497 | R480148060 | R480148075 |

* First 3 digits of inch stroke are whole inches, 4th digit 1/8" increments

** Metric stroke in mm

Configurable product



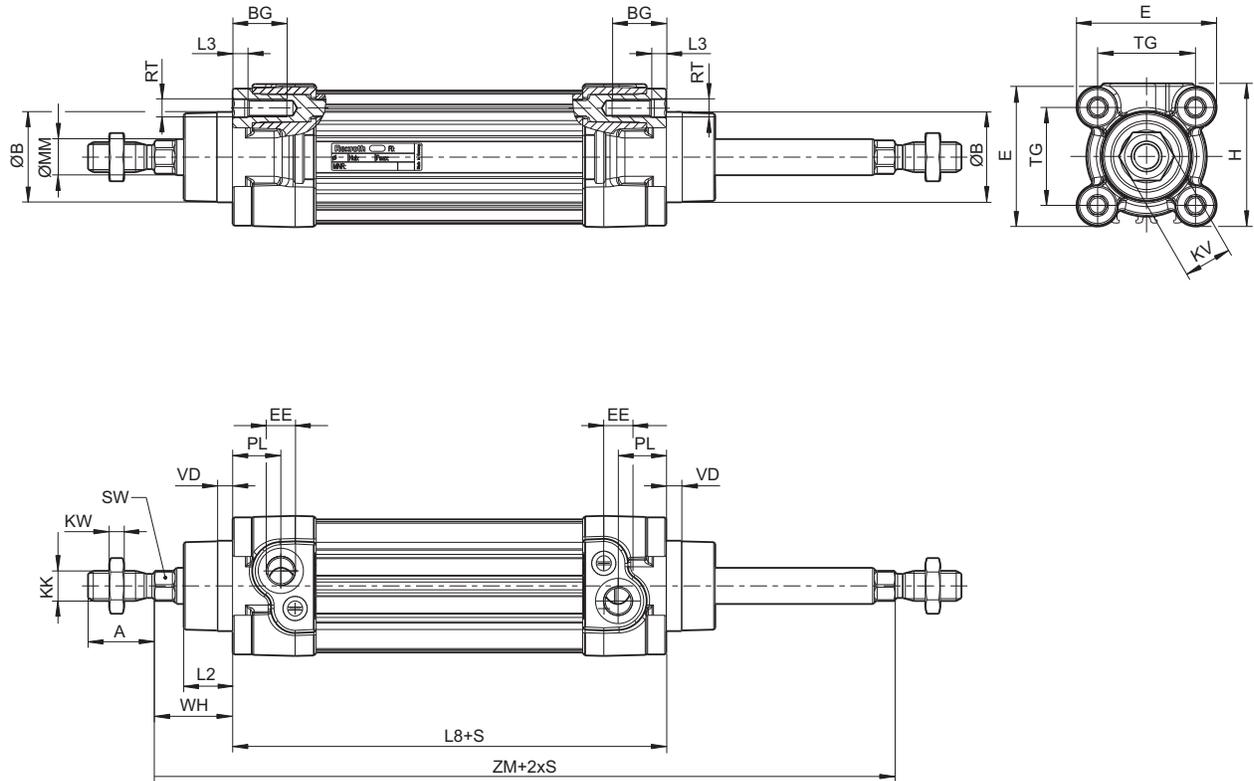
This product is configurable. Please use our configurator at www.boschrexroth.com/pneumatics or contact the nearest Bosch Rexroth sales office.

Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA

► Ø 32 - 125 mm ► Ports: G 1/8 - G 1/2 ► double-acting ► magnetic piston ► ideal cushioning ► double rod, male thread

Dimensions



00134209

S = stroke

| Piston Ø | A -2 | ØB d11 | BG min. | E | EE inch | EE | H | KK inch | KK | KV | KW | ØMM f8 |
|----------|------|--------|---------|------|---------|-------|------|---------------|----------|----|------|--------|
| 32 | 22 | 30 | 16 | 46.5 | 1/8 NPT | G 1/8 | 47.5 | 7/16 - 20 UNF | M10x1,25 | 16 | 5 | 12 |
| 40 | 24 | 35 | 16 | 53 | 1/4 NPT | G 1/4 | 53 | 1/2 -20 UNF | M12x1,25 | 18 | 6 | 16 |
| 50 | 32 | 40 | 16 | 65 | 1/4 NPT | G 1/4 | 65 | 3/4 - 16 UNF | M16x1,5 | 24 | 8 | 20 |
| 63 | 32 | 45 | 16 | 75 | 3/8 NPT | G 3/8 | 75 | 3/4 - 16 UNF | M16x1,5 | 24 | 8 | 20 |
| 80 | 40 | 45 | 17 | 95 | 3/8 NPT | G 3/8 | 95 | 3/4 - 16 UNF | M20x1,5 | 30 | 10 | 25 |
| 100 | 40 | 55 | 17 | 115 | 1/2 NPT | G 1/2 | 115 | 3/4 - 16 UNF | M20x1,5 | 30 | 10 | 25 |
| 125 | 54 | 60 | 20 | 140 | 1/2 NPT | G 1/2 | 140 | 1 - 14 UNF | M27x2 | 41 | 13.5 | 32 |

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

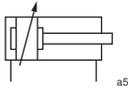
Piston rod cylinders → Standard cylinders

★ Profile cylinder, ISO 15552, Series PRA

► Ø 32 - 125 mm ► Ports: G 1/8 - G 1/2 ► double-acting ► high temperature - up to 300° F (150° C) ► adjustable cushioning ► single rod, male thread (Metric Only)



00134193



Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|----------------|--|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| | | M10x1,25 G 1/8 12 | M12x1,25 G 1/4 16 | M16x1,5 G 1/4 20 | M16x1,5 G 3/8 20 | M20x1,5 G 3/8 25 | M20x1,5 G 1/2 25 | M27x2 G 1/2 32 |
| | ** Stroke 25 | R480144202 | R480041108 | R480147979 | R480147990 | R480144198 | R480148011 | R480170695 |
| | 50 | R480147959 | R480147968 | R480147980 | R480147991 | R480148001 | R480148012 | R480157264 |
| | 80 | R480040989 | R480147969 | R480147981 | R480147992 | R480148002 | R480148013 | R480163258 |
| | 100 | R480147960 | R480147970 | R480147982 | R480147993 | R480147611 | R480148014 | R480153677 |
| | 125 | R480147961 | R480147971 | R480147983 | R480147994 | R480148003 | R480148015 | R480155595 |
| | 160 | R480147962 | R480147972 | R480147984 | R480147995 | R480148004 | R480148016 | R480170774 |
| | 200 | R480147963 | R480147973 | R480147985 | R480144714 | R480147052 | R480148017 | R480165969 |
| | 250 | R480147964 | R480147974 | R480147986 | R480147996 | R480148005 | R480148018 | R480158304 |
| | 320 | R480147965 | R480147975 | R480147987 | R480147997 | R480146313 | R480148019 | R480170775 |
| | 400 | R480147966 | R480147976 | R480147988 | R480147998 | R480042946 | R480148020 | R480170776 |
| 500 | R480147967 | R480147977 | R480147989 | R480147999 | R480148009 | R480147194 | R480149365 | |

** Metric stroke in mm

Note - See page 8 for dimensions.

Configurable product

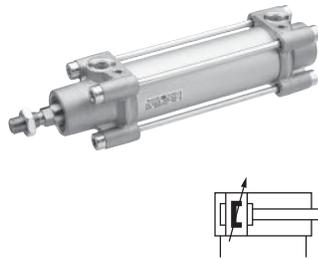


This product is configurable. Please use our configurator at www.boschrexroth.com/pneumatics or contact the nearest Bosch Rexroth sales office.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ single rod, male thread ▶ ATEX optional (Inch and Metric)



| Inch Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|--------------|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|
| | | 7/16 - 20 UNF 1/8 NPTF 12 | 1/2 - 20 UNF 1/4 NPTF 16 | 3/4 - 16 UNF 1/4 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 25 | 3/4 - 16 UNF 1/2 NPTF 25 | 1 - 14 UNF 1/2 NPTF 32 |
| | * Stroke 0010 | R480176766 | R480176858 | R480176946 | R480177032 | R480177121 | R480177211 | R480177299 |
| | 0020 | R480176776 | R480176865 | R480176953 | R480177040 | R480177128 | R480177219 | R480177307 |
| | 0030 | R480176789 | R480176875 | R480176960 | R480177047 | R480177139 | R480177225 | R480177316 |
| | 0040 | R480176795 | R480176882 | R480176969 | R480177054 | R480177143 | R480177237 | R480177323 |
| | 0050 | R480176802 | R480176891 | R480176979 | R480177067 | R480177155 | R480177238 | R480177328 |
| | 0060 | R480176813 | R480176900 | R480176982 | R480177077 | R480177164 | R480177247 | R480177334 |
| | 0070 | R480176817 | R480176907 | R480176997 | R480177078 | R480177166 | R480177258 | R480177346 |
| | 0080 | R480176823 | R480176913 | R480176998 | R480177090 | R480177176 | R480177266 | R480177357 |
| | 0090 | R480176834 | R480176923 | R480177007 | R480177099 | R480177182 | R480177272 | R480177360 |
| | 0100 | R480176844 | R480176932 | R480177017 | R480177102 | R480177195 | R480177278 | R480177367 |
| | 0120 | R480176852 | R480176941 | R480177023 | R480177114 | R480177205 | R480177290 | R480177377 |

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|----------------|--|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| | | M10x1,25 G 1/8 12 | M12x1,25 G 1/4 16 | M16x1,5 G 1/4 20 | M16x1,5 G 3/8 20 | M20x1,5 G 3/8 25 | M20x1,5 G 1/2 25 | M27x2 G 1/2 32 |
| | ** Stroke 25 | 0822340001 | 0822341001 | 0822342001 | 0822343001 | 0822344001 | 0822345001 | 0822306201 |
| | 50 | 0822340002 | 0822341002 | 0822342002 | 0822343002 | 0822344002 | 0822345002 | 0822306202 |
| | 80 | 0822340003 | 0822341003 | 0822342003 | 0822343003 | 0822344003 | 0822345003 | 0822306203 |
| | 100 | 0822340004 | 0822341004 | 0822342004 | 0822343004 | 0822344004 | 0822345004 | 0822306204 |
| | 125 | 0822340005 | 0822341005 | 0822342005 | 0822343005 | 0822344005 | 0822345005 | 0822306205 |
| | 160 | 0822340006 | 0822341006 | 0822342006 | 0822343006 | 0822344006 | 0822345006 | 0822306206 |
| | 200 | 0822340007 | 0822341007 | 0822342007 | 0822343007 | 0822344007 | 0822345007 | 0822306207 |
| | 250 | 0822340008 | 0822341008 | 0822342008 | 0822343008 | 0822344008 | 0822345008 | 0822306208 |
| | 320 | 0822340009 | 0822341009 | 0822342009 | 0822343009 | 0822344009 | 0822345009 | 0822306209 |
| | 400 | 0822340010 | 0822341010 | 0822342010 | 0822343010 | 0822344010 | 0822345010 | 0822306210 |
| | 500 | 0822340011 | 0822341011 | 0822342011 | 0822343011 | 0822344011 | 0822345011 | 0822306211 |

* First 3 digits of inch stroke are whole inches, 4th digit 1/8" increments

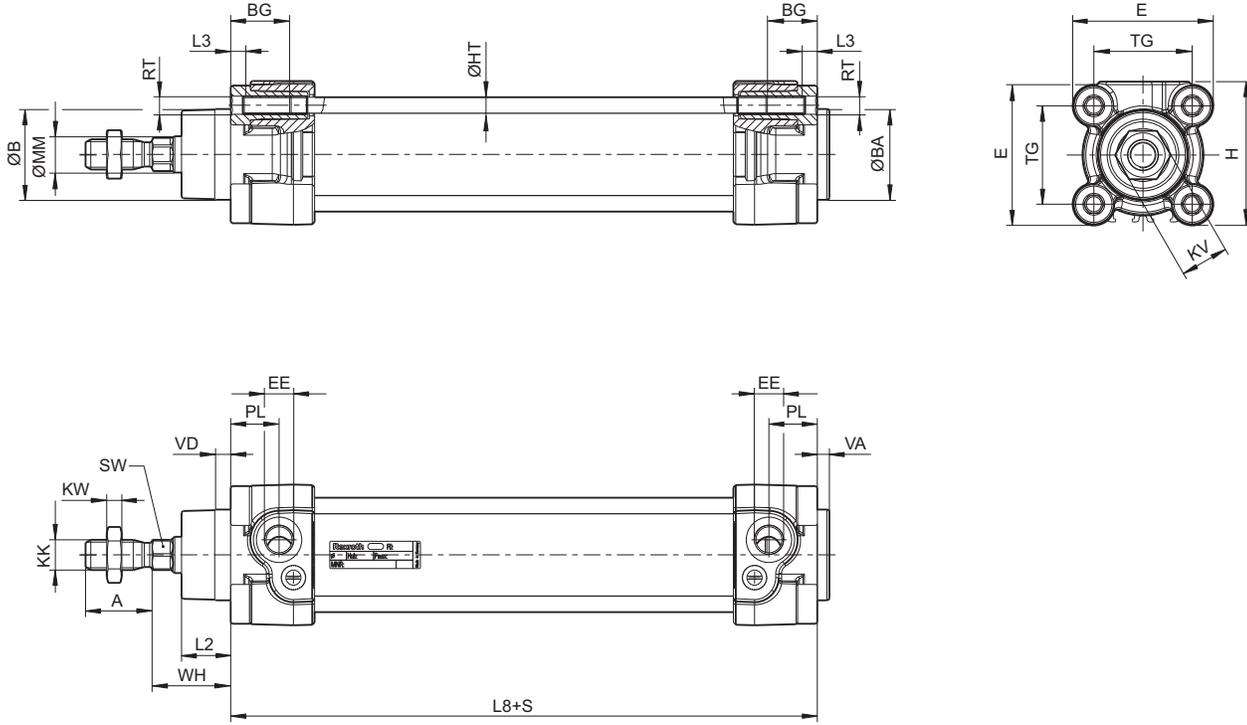
** Metric stroke in mm

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ single rod, male thread ▶ ATEX optional

Dimensions



00134211

S = stroke

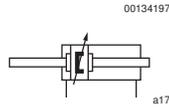
| Ø | A -2 | ØB d11 | ØBA d11 | BG min. | E | EE inch | EE | H | ØHT | KK inch | KK | KV |
|-----|------|--------|---------|---------|------|---------|------|------|-----|---------------|----------|----|
| 32 | 22 | 30 | 30 | 16 | 46.5 | 1/8 NPT | G1/8 | 47.5 | 6 | 7/16 - 20 UNF | M10x1,25 | 16 |
| 40 | 24 | 35 | 35 | 16 | 53 | 1/4 NPT | G1/4 | 53 | 6 | 1/2 - 20 UNF | M12x1,25 | 18 |
| 50 | 32 | 40 | 40 | 16 | 65 | 1/4 NPT | G1/4 | 65 | 8 | 3/4 - 16 UNF | M16x1,5 | 24 |
| 63 | 32 | 45 | 45 | 16 | 75 | 3/8 NPT | G3/8 | 75 | 8 | 3/4 - 16 UNF | M16x1,5 | 24 |
| 80 | 40 | 45 | 45 | 17 | 95 | 3/8 NPT | G3/8 | 95 | 10 | 3/4 - 16 UNF | M20x1,5 | 30 |
| 100 | 40 | 55 | 55 | 17 | 115 | 1/2 NPT | G1/2 | 115 | 10 | 3/4 - 16 UNF | M20x1,5 | 30 |
| 125 | 54 | 60 | 60 | 20 | 140 | 1/2 NPT | G1/2 | 140 | 12 | 1 - 14 UNF | M27x2 | 41 |

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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ double rod, male thread (Inch and Metric)



| Inch Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|--------------|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|
| | | 7/16 - 20 UNF 1/8 NPTF 12 | 1/2 - 20 UNF 1/4 NPTF 16 | 3/4 - 16 UNF 1/4 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 20 | 3/4 - 16 UNF 3/8 NPTF 25 | 3/4 - 16 UNF 1/2 NPTF 25 | 1 - 14 UNF 1/2 NPTF 32 |
| | * Stroke 0010 | R480176773 | R480176861 | R480176949 | R480177037 | R480177118 | R480177210 | R480177297 |
| | 0020 | R480176779 | R480176863 | R480176951 | R480177044 | R480177133 | R480177214 | R480177304 |
| | 0030 | R480176785 | R480176872 | R480176961 | R480177052 | R480177135 | R480177222 | R480177311 |
| | 0040 | R480176792 | R480176878 | R480176967 | R480177058 | R480177149 | R480177233 | R480177321 |
| | 0050 | R480176804 | R480176893 | R480176976 | R480177063 | R480177157 | R480177241 | R480177332 |
| | 0060 | R480176809 | R480176896 | R480176988 | R480177071 | R480177160 | R480177246 | R480177337 |
| | 0070 | R480176814 | R480176903 | R480176996 | R480177084 | R480177167 | R480177259 | R480177348 |
| | 0080 | R480176827 | R480176916 | R480177001 | R480177088 | R480177180 | R480177268 | R480177356 |
| | 0090 | R480176837 | R480176921 | R480177012 | R480177095 | R480177187 | R480177276 | R480177364 |
| | 0100 | R480176839 | R480176931 | R480177014 | R480177108 | R480177190 | R480177284 | R480177366 |
| | 0120 | R480176851 | R480176939 | R480177028 | R480177111 | R480177204 | R480177293 | R480177381 |

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|----------------|--|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| | | M10x1,25 G 1/8 12 | M12x1,25 G 1/4 16 | M16x1,5 G 1/4 20 | M16x1,5 G 3/8 20 | M20x1,5 G 3/8 25 | M20x1,5 G 1/2 25 | M27x2 G 1/2 32 |
| | ** Stroke 25 | 0822340501 | 0822341501 | 0822342501 | 0822343501 | 0822344501 | 0822345501 | R480166022 |
| | 50 | 0822340502 | 0822341502 | 0822342502 | 0822343502 | 0822344502 | 0822345502 | 7472410919 |
| | 80 | 0822340503 | 0822341503 | 0822342503 | 0822343503 | 0822344503 | 0822345503 | 7472024294 |
| | 100 | 0822340504 | 0822341504 | 0822342504 | 0822343504 | 0822344504 | 0822345504 | 7472412262 |
| | 125 | 0822340505 | 0822341505 | 0822342505 | 0822343505 | 0822344505 | 0822345505 | 7472412263 |
| | 160 | 0822340506 | 0822341506 | 0822342506 | 0822343506 | 0822344506 | 0822345506 | 7472412264 |
| | 200 | 0822340507 | 0822341507 | 0822342507 | 0822343507 | 0822344507 | 0822345507 | 7472412265 |
| | 250 | 0822340508 | 0822341508 | 0822342508 | 0822343508 | 0822344508 | 0822345508 | 7472412266 |
| | 320 | 0822340509 | 0822341509 | 0822342509 | 0822343509 | 0822344509 | 0822345509 | 7472412267 |
| | 400 | 0822340510 | 0822341510 | 0822342510 | 0822343510 | 0822344510 | 0822345510 | 7472412268 |
| | 500 | 0822340511 | 0822341511 | 0822342511 | 0822343511 | 0822344511 | 0822345511 | 7472412269 |

* First 3 digits of inch stroke are whole inches, 4th digit 1/8" increments

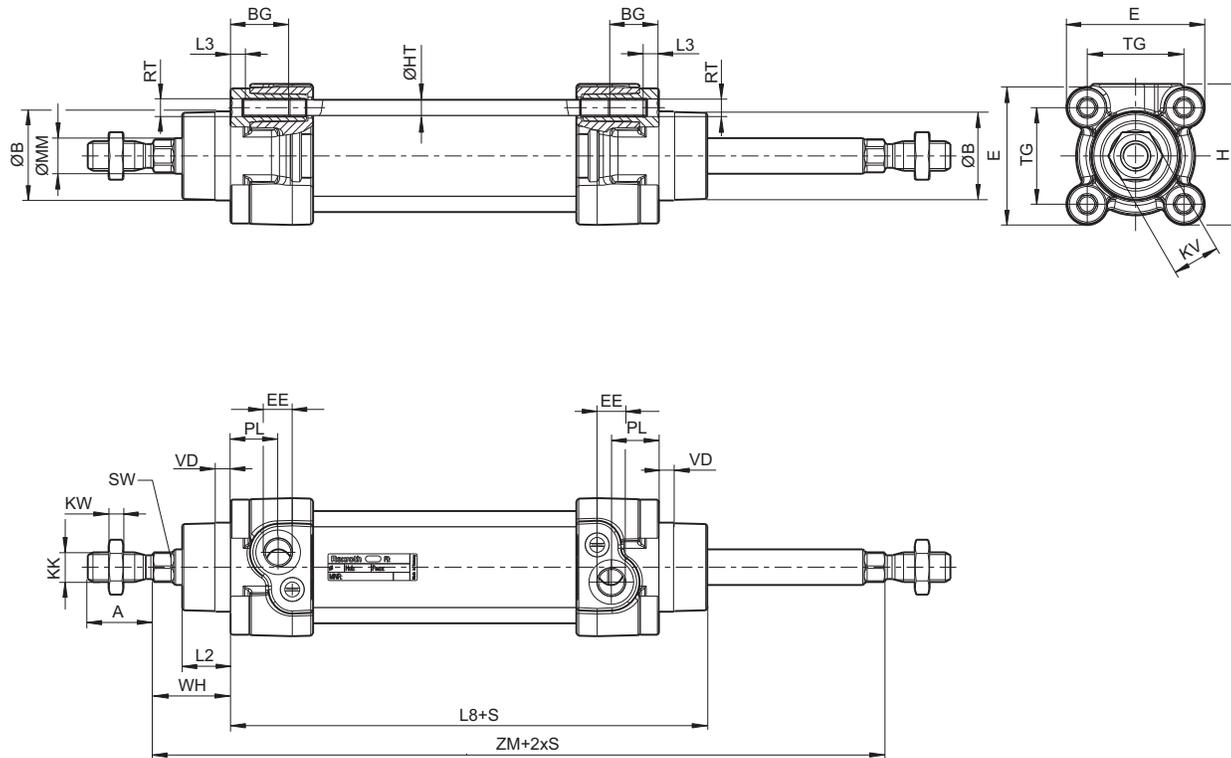
** Metric stroke in mm

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ double rod, male thread

Dimensions



00134212

S = stroke

| Ø | A -2 | ØB d11 | BG min. | E | EE inch | EE | H | ØHT | KK inch | KK | KV | KW |
|-----|------|--------|---------|------|---------|------|------|-----|---------------|----------|----|------|
| 32 | 22 | 30 | 16 | 46.5 | 1/8 NPT | G1/8 | 47.5 | 6 | 7/16 - 20 UNF | M10x1,25 | 16 | 5 |
| 40 | 24 | 35 | 16 | 53 | 1/4 NPT | G1/4 | 53 | 6 | 1/2 - 20 UNF | M12x1,25 | 18 | 6 |
| 50 | 32 | 40 | 16 | 65 | 1/4 NPT | G1/4 | 65 | 8 | 3/4 - 16 UNF | M16x1,5 | 24 | 8 |
| 63 | 32 | 45 | 16 | 75 | 3/8 NPT | G3/8 | 75 | 8 | 3/4 - 16 UNF | M16x1,5 | 24 | 8 |
| 80 | 40 | 45 | 17 | 95 | 3/8 NPT | G3/8 | 95 | 10 | 3/4 - 16 UNF | M20x1,5 | 30 | 10 |
| 100 | 40 | 55 | 17 | 115 | 1/2 NPT | G1/2 | 115 | 10 | 3/4 - 16 UNF | M20x1,5 | 30 | 10 |
| 125 | 54 | 60 | 20 | 140 | 1/2 NPT | G1/2 | 140 | 12 | 1 - 14 UNF | M27x2 | 41 | 13.5 |

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

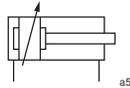
Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2 ▶ double-acting ▶ high temperature to 300° F (150° C) ▶ adjustable cushioning ▶ single rod: male thread (Metric Only)



00134195



| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 M10x1,25 G 1/8 12 | 40 M12x1,25 G 1/4 16 | 50 M16x1,5 G 1/4 20 | 63 M16x1,5 G 3/8 20 | 80 M20x1,5 G 3/8 25 | 100 M20x1,5 G 1/2 25 | 125 M27x2 G 1/2 32 |
|----------------|--|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|
| | ** Stroke 25 | 0822240400 | 0822241400 | 0822242400 | 0822243400 | 0822244400 | 0822245400 | 0822206401 |
| | 50 | 0822240401 | 0822241401 | 0822242401 | 0822243401 | 0822244401 | 0822245401 | 0822206402 |
| | 80 | 0822240402 | 0822241402 | 0822242402 | 0822243402 | 0822244402 | 0822245402 | 0822206403 |
| | 100 | 0822240403 | 0822241403 | 0822242403 | 0822243403 | 0822244403 | 0822245403 | 0822206404 |
| | 125 | 0822240404 | 0822241404 | 0822242404 | 0822243404 | 0822244404 | 0822245404 | 0822206405 |
| | 160 | 0822240405 | 0822241405 | 0822242405 | 0822243405 | 0822244405 | 0822245405 | 0822206406 |
| | 200 | 0822240406 | 0822241406 | 0822242406 | 0822243406 | 0822244406 | 0822245406 | 0822206407 |
| | 250 | 0822240407 | 0822241407 | 0822242407 | 0822243407 | 0822244407 | 0822245407 | 0822206408 |
| | 320 | 0822240408 | 0822241408 | 0822242408 | 0822243408 | 0822244408 | 0822245408 | 0822206409 |
| | 400 | 0822240409 | 0822241409 | 0822242409 | 0822243409 | 0822244409 | 0822245409 | 0822206410 |
| 500 | 0822240410 | 0822241410 | 0822242410 | 0822243410 | 0822244410 | 0822245410 | 0822206411 | |

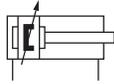
** Metric stroke in mm

Note - See page 13 for dimensions.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

- ▶ Ø 32 - 125 mm ▶ Ports: G 1/8 - G 1/2, 1/8 NPTF - 1/2 NPTF ▶ double-acting ▶ magnetic piston ▶ ideal cushioning
- ▶ mid-stroke fixed trunnion mount ▶ single rod, male thread (Metric Only)



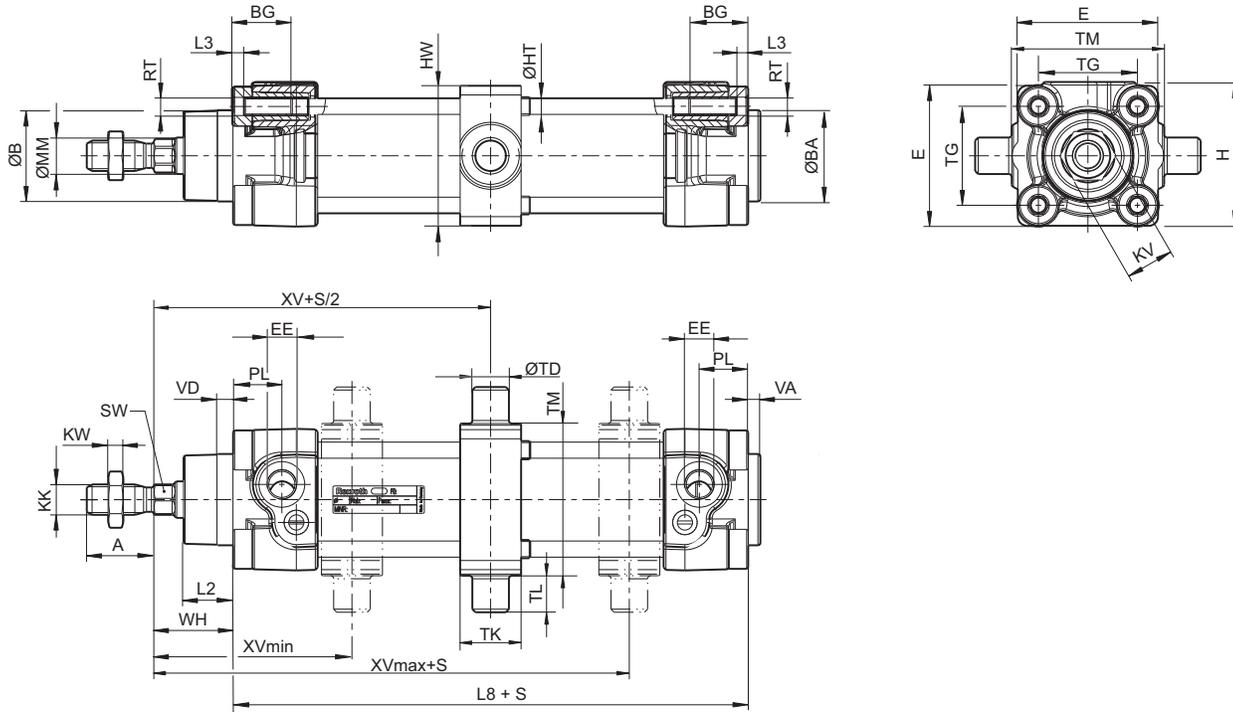
00134196

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 M10x1,25 G 1/8 12 | 40 M12x1,25 G 1/4 16 | 50 M16x1,5 G 1/4 20 | 63 M16x1,5 G 3/8 20 | 80 M20x1,5 G 3/8 25 | 100 M20x1,5 G 1/2 25 | 125 M27x2 G 1/2 32 |
|----------------|--|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|
| | ** Stroke 80 | 0822340902 | 0822341902 | 0822342902 | 0822343902 | 0822344902 | 0822345902 | 7472412312 |
| | 100 | 0822340903 | 0822341903 | 0822342903 | 0822343903 | 0822344903 | 0822345903 | 7472412319 |
| | 125 | 0822340904 | 0822341904 | 0822342904 | 0822343904 | 0822344904 | 0822345904 | R480166294 |
| | 160 | 0822340905 | 0822341905 | 0822342905 | 0822343905 | 0822344905 | 0822345905 | 7472412341 |
| | 200 | 0822340906 | 0822341906 | 0822342906 | 0822343906 | 0822344906 | 0822345906 | 7472412342 |
| | 250 | 0822340907 | 0822341907 | 0822342907 | 0822343907 | 0822344907 | 0822345907 | 7472412343 |
| | 320 | 0822340908 | 0822341908 | 0822342908 | 0822343908 | 0822344908 | 0822345908 | 7472412344 |
| | 400 | 0822340909 | 0822341909 | 0822342909 | 0822343909 | 0822344909 | 0822345909 | 7472412345 |
| | 500 | 0822340910 | 0822341910 | 0822342910 | 0822343910 | 0822344910 | 0822345910 | R480166072 |

** Metric stroke in mm

Note: Trunnion is delivered in mid-stroke position, field adjustable.

Dimensions



S = stroke

00134213

| | |
|----------------------|---|
| Configurable product | |
| | <p>This product is configurable. Please use our configurator at www.boschrexroth.com/pneumatics or contact the nearest Bosch Rexroth sales office.</p> |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

► Ø 32 - 125 mm ► Ports: G 1/8 - G 1/2 ► double-acting ► magnetic piston ► ideal cushioning ► mid-stroke fixed trunnion mount ► single rod, male thread

| Ø | A -2 | ØB d11 | ØBA d11 | BG min. | E | EE | H | ØHT | HW | KK |
|-----|------|--------|---------|---------|------|------|------|-----|-----|----------|
| 32 | 22 | 30 | 30 | 16 | 46.5 | G1/8 | 47.5 | 6 | 56 | M10x1,25 |
| 40 | 24 | 35 | 35 | 16 | 53 | G1/4 | 53 | 6 | 59 | M12x1,25 |
| 50 | 32 | 40 | 40 | 16 | 65 | G1/4 | 65 | 8 | 69 | M16x1,5 |
| 63 | 32 | 45 | 45 | 16 | 75 | G3/8 | 75 | 8 | 84 | M16x1,5 |
| 80 | 40 | 45 | 45 | 17 | 95 | G3/8 | 95 | 10 | 102 | M20x1,5 |
| 100 | 40 | 55 | 55 | 17 | 115 | G1/2 | 115 | 10 | 125 | M20x1,5 |
| 125 | 54 | 60 | 60 | 20 | 140 | G1/2 | 140 | 12 | 160 | M27x2 |

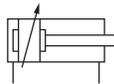
| Ø | KV | KW | ØMM f8 | PL | L2 | L3 ±0,5 | L8 | RT | SW | TG |
|-----|----|------|--------|------|-------|---------|---------|-----|----|----------|
| 32 | 16 | 5 | 12 | 16 | 16.25 | 4.5 | 94±0,4 | M6 | 10 | 32,5±0,5 |
| 40 | 18 | 6 | 16 | 20 | 18.25 | 4.5 | 105±0,7 | M6 | 13 | 38±0,5 |
| 50 | 24 |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

| Ø | VA -1 | VD | WH | HW | ØTD e9 | TK | TL h14 | TM h14 | XVmin | Xvmax | XV |
|-----|-------|----|--------|-----|--------|----|--------|--------|-------|-------|------|
| 32 | 4 | 5 | 26±1,4 | 46 | 12 | 20 | 12 | 50 | 65 | 81 | 73 |
| 40 | 4 | 5 | 30±1,4 | 59 | 16 | 20 | 16 | 63 | 74.5 | 90.5 | 82.5 |
| 50 | 4 | 5 | 37±1,4 | 69 | 16 | 25 | 16 | 75 | 82 | 98 | 90 |
| 63 | 4 | 5 | 37±1,8 | 84 | 20 | 30 | 20 | 90 | 91.5 | 103.5 | 97.5 |
| 80 | 4 | 5 | 46±1,8 | 102 | 20 | 35 | 20 | 110 | 103 | 117 | 110 |
| 100 | 4 | 5 | 51±1,8 | 125 | 25 | 46 | 25 | 132 | 118 | 122 | 120 |
| 125 | 6 | 7 | 65±2,2 | 160 | 25 | 50 | 25 | 160 | 143 | 147 | 145 |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

► Ø 32 - 125 mm ► Ports: G 1/8 - G 1/2 ► double-acting ► adjustable cushioning ► low friction cylinder (Metric Only)



00105160

| Metric Version | Piston Ø (mm) Rod thread Ports Rod Ø (mm) | 32 M10x1,25 G 1/8 12 | 40 M12x1,25 G 1/4 16 | 50 M16x1,5 G 1/4 20 | 63 M16x1,5 G 3/8 20 | 80 M20x1,5 G 3/8 25 | 100 M20x1,5 G 1/2 25 | 125 M27x2 G 1/2 32 |
|----------------|--|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-----------------------------|
| | ** Stroke 25 | R480600269 | R480600280 | R480600291 | R480600302 | R480600313 | R480600324 | R480600335 |
| | 50 | R480600270 | R480600281 | R480600292 | R480600303 | R480600314 | R480600325 | R480600336 |
| | 80 | R480600271 | R480600282 | R480600293 | R480600304 | R480600315 | R480600326 | R480600337 |
| | 100 | R480600272 | R480600283 | R480600294 | R480600305 | R480600316 | R480600327 | R480600338 |
| | 125 | R480600273 | R480600284 | R480600295 | R480600306 | R480600317 | R480600328 | R480600339 |
| | 160 | R480600274 | R480600285 | R480600296 | R480600307 | R480600318 | R480600329 | R480600340 |
| | 200 | R480600275 | R480600286 | R480600297 | R480600308 | R480600319 | R480600330 | R480600341 |
| | 250 | R480600276 | R480600287 | R480600298 | R480600309 | R480600320 | R480600331 | R480600342 |
| | 400 | R480600278 | R480600289 | R480600300 | R480600311 | R480600322 | R480600333 | R480600344 |
| 500 | R480600268 | R480600290 | R480600301 | R480600312 | R480600323 | R480600334 | R480600345 | |

** Metric stroke in mm

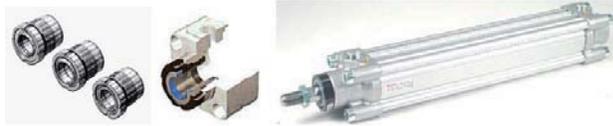
Note - See page 13 for dimensions.

Piston rod cylinders → Standard cylinders

★ Standard Cylinder Series PRA and TRB

Optional screw-in bearings, 32-125 mm (1.25" - 5") diameter / Repair Seal Kits

★ Screw-in bearing



| Replacement screw-in rod bearings - Standard (PRA and TRB) | |
|--|--|
| Material | |
| Piston rod bushing | Steel, bearing layer composite PVDF + PTFE |
| Wiper | Metal |
| | or Polyesterelastomer (PEE) |
| | or Carbon-filled PTFE |
| Seals (standard) | Nitrile rubber |
| (high temp) | or Viton |
| Casing | Anodized aluminum |
| Ambient temperature range | 5 °F to 158 °F (-15 °C to +70 °C) |
| High temp versions | Up to 300 °F (150 °C) |
| | |

In very difficult environments high demands are made on a wiper. Depending on the environment different types of wipers are suitable. To full maximum flexibility and maintenance friendliness we offer for these applications different adapters.

Note that the cylinder is still to ISO standards dimensions.

| 1552 Screw In Bearings Replacement Parts | | | | | | | |
|--|-------------|-------------|------------|-------------|------------|------------|------------|
| Bore size mm (inch) | 32 (1 1/4") | 40 (1 1/2") | 50 (2") | 63 (2 1/2") | 80 (3") | 100 (4") | 125 (5") |
| Metal | n/a | 0496400402 | 0496400518 | 0496400518 | 0496400607 | 0496400607 | 0496301404 |
| PEE | 0496400704 | 0496400801 | 0496400909 | 0496400909 | 0496401018 | 0496401018 | 0496301307 |
| PTFE | 0496401107 | 0496401204 | 0496402103 | 0496402103 | 0496402200 | 0496402200 | 0496301706 |
| Metal (high temp) | n/a | 0496401409 | 0496401506 | 0496401506 | 0496401603 | 0496401603 | 0496303105 |
| PTFE (high temp) | 0496401700 | 0496401808 | 0496401905 | 0496401905 | 0496402006 | 0496402006 | 0496303202 |

Repair kits for new and old style TRB and PRA Cylinders. Includes cushion seal, piston seal, rod seal and scraper, bearing, bumper and grease.

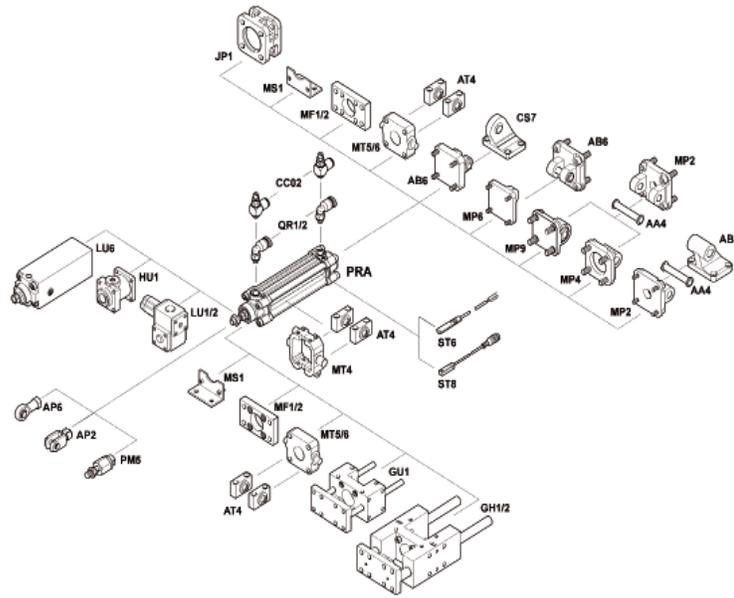
| Bore size mm (inch) | Standard Part Number | Low Friction Part Number | High Temp Part Number | Screw-in Bearing Part Number | | | |
|------------------------|-------------------------|-----------------------------|--------------------------|---------------------------------|--|--|--|
| 32 | 1827009557 | R412012554 | 1827009619 | R412012555 | | | |
| 40 | 1827009564 | R412012558 | 1827009620 | R412012559 | | | |
| 50 | 1827009569 | R412012562 | 1827009621 | R412012563 | | | |
| 63 | 1827009576 | R412012566 | 1827009622 | R412012567 | | | |
| 80 | 1827009899 | R412012570 | 1827009948 | R412012571 | | | |
| 100 | 1827009907 | R412012574 | 1827009949 | R412012575 | | | |
| 125 | R412012576 | R412012578 | R412012577 | R412012579 | | | |

There are differences in the materials of the non-wearing parts of the cylinder versions that preclude converting cylinder versions by just changing seals.

The seals are dimensionally interchangeable between versions.

Piston rod cylinders → Standard cylinders

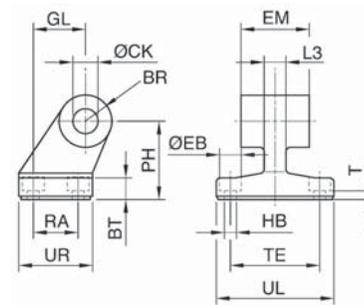
★ ISO 15552, Series PRA & TRB
Accessories



★ Bearing block AB7 with fixed bearing
► Cylinder mounting in accordance with ISO 15552



00105160



00105184

| Part No. | Piston Ø | BR | BT | Ø CK H9 | Ø EB H13 | EM | GL JS14 | Ø HB H13 | L3 1) | PH JS15 | RA JS14 |
|------------|----------|------|----|------------|-------------|--------------|------------|-------------|-------|------------|------------|
| 1825805275 | 32 | 10 | 8 | 10 | 11 | 26 -0,2/-0,6 | 21 | 6.6 | 10 | 32 | 18 |
| 1825805276 | 40 | 11 | 10 | 12 | 11 | 28 -0,2/-0,6 | 24 | 6.6 | 12 | 36 | 22 |
| 1825805277 | 50 | 13 | 12 | 12 | 15 | 32 -0,2/-0,6 | 33 | 9 | 16 | 45 | 30 |
| 1825805278 | 63 | 15 | 12 | 16 | 15 | 40 -0,2/-0,6 | 37 | 9 | 16 | 50 | 35 |
| 1825805279 | 80 | 15 | 14 | 16 | 18 | 50 -0,2/-0,6 | 47 | 11 | 20 | 63 | 40 |
| 1825805280 | 100 | 19 | 15 | 20 | 18 | 60 -0,2/-0,6 | 55 | 11 | 20 | 71 | 50 |
| 1825805281 | 125 | 22,5 | 20 | 25 | 20 | 70 -0,5/-1,5 | 70 | 14 | 30 | 90 | 60 |

| Part No. | T | TE JS14 | UL 1) | UR 1) | Material | Surface | | | | | |
|------------|---------|------------|-------|-------|--------------------------|------------|--|--|--|--|--|
| 1825805275 | 8 -1,0 | 38 | 51 | 31 | Nodular graphite iron | galvanized | | | | | |
| 1825805276 | 10 -1 | 41 | 54 | 35 | Nodular graphite iron | galvanized | | | | | |
| 1825805277 | 12 -1,5 | 50 | 65 | 45 | Nodular graphite iron | galvanized | | | | | |
| 1825805278 | 12 -1,5 | 52 | 67 | 50 | Nodular graphite iron | galvanized | | | | | |
| 1825805279 | 14 -1,5 | 66 | 86 | 60 | Nodular graphite iron | galvanized | | | | | |
| 1825805280 | 15 -1,5 | 76 | 96 | 70 | Nodular graphite iron | galvanized | | | | | |
| 1825805281 | 20 -2,5 | 94 | 124 | 90 | Nodular graphite iron | galvanized | | | | | |

1) max.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

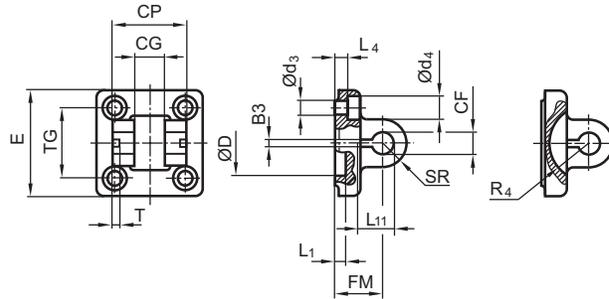
Accessories

★ Clevis mounting AB6

► Cylinder mounting in accordance with ISO 15552



00105816



00105819

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

| Part No. | Piston Ø | B3 ±0,2 | Ø CF F7 | CG D10 | CP d12 | Ø d3 | Ø d4 | Ø D | E | FM ±0,2 | L1 1) | L4 ±0,5 |
|------------|----------|---------|------------|--------|--------|------|------|-----|-----|------------|-------|---------|
| 1827001593 | 32 | 3.3 | 10 | 14 | 34 | 6.6 | 11 | 30 | 49 | 22 | 4.5 | 5.5 |
| 1827001594 | 40 | 4.3 | 12 | 16 | 40 | 6.6 | 11 | 35 | 55 | 25 | 4.5 | 5.5 |
| 1827001595 | 50 | 4.3 | 16 | 21 | 45 | 9 | 15 | 40 | 67 | 27 | 4.5 | 6.5 |
| 1827002024 | 63 | 4.3 | 16 | 21 | 51 | 9 | 15 | 45 | 77 | 32 | 4.5 | 6.5 |
| 1827001597 | 80 | 4.3 | 20 | 25 | 65 | 11 | 18 | 45 | 97 | 36 | 4.5 | 10 |
| 1827001598 | 100 | 4.3 | 20 | 25 | 75 | 11 | 18 | 55 | 117 | 41 | 4.5 | 10 |
| 1827001599 | 125 | 6.3 | 30 | 37 | 97 | 14 | 20 | 60 | 140 | 50 | 7 | 10 |

| Part No. | L11 -0,5 | R4 | SR | T ±0,2 | TG | Material | | | | | | |
|------------|-------------|----|----|--------|-----------|---------------------|--|--|--|--|--|--|
| 1827001593 | 16.5 | 17 | 11 | 3 | 32,5 ±0,2 | Aluminum, forged | | | | | | |
| 1827001594 | 18 | 20 | 12 | 4 | 38 ±0,2 | Aluminum, forged | | | | | | |
| 1827001595 | 23 | 22 | 15 | 4 | 46,5 ±0,2 | Aluminum, forged | | | | | | |
| 1827002024 | 23 | 25 | 15 | 4 | 56,5 ±0,2 | Aluminum, forged | | | | | | |
| 1827001597 | 27 | 30 | 20 | 4 | 72 ±0,2 | Aluminum, forged | | | | | | |
| 1827001598 | 27 | 32 | 20 | 4 | 89 ±0,2 | Aluminum, forged | | | | | | |
| 1827001599 | 40 | 42 | 26 | 6 | 110 ±0,3 | Aluminum, forged | | | | | | |

1) Min.

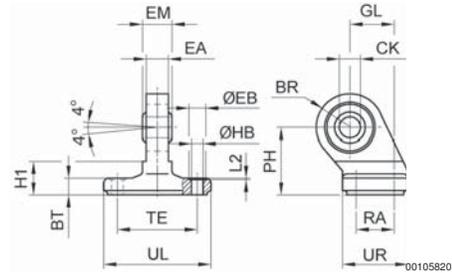
Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

★ Bearing block with ball joint and foot, angled
► Cylinder mounting in accordance with VDMA 24562 part 2



00105817



00105820

| Part No. | Piston Ø | BR 1) | BT | CK H7 | EA 1) | Ø EB 2) | EM -0,1 | GL JS14 | H1 1) | Ø HB H13 | L2 1) | PH JS15 |
|------------|----------|-------|----|-------|-------|---------|---------|---------|-------|----------|-------|---------|
| 1827001784 | 32 | 16 | 9 | 10 | 10.5 | 11 | 14 | 21 | 16 | 6.6 | 1.6 | 32 |
| 1827001785 | 40 | 18 | 9 | 12 | 12 | 11 | 16 | 24 | 16 | 6.6 | 1.6 | 36 |
| 1827001786 | 50 | 21 | 11 | 16 | 15 | 15 | 21 | 33 | 23 | 9 | 1.6 | 45 |
| 1827001787 | 63 | 23 | 11 | 16 | 15 | 15 | 21 | 37 | 23 | 9 | 1.6 | 50 |
| 1827001788 | 80 | 28 | 12 | 20 | 18 | 18 | 25 | 47 | 32 | 11 | 2.5 | 63 |
| 1827001789 | 100 | 30 | 13 | 20 | 18 | 18 | 25 | 55 | 33 | 11 | 2.5 | 71 |
| 1827001790 | 125 | 40 | 17 | 30 | 25 | 20 | 37 | 70 | 50 | 14 | 3.2 | 90 |

| Part No. | RA JS14 | TE JS14 | UL 1) | UR 1) | Material | Surface |
|------------|---------|---------|-------|-------|-----------------------|------------|
| 1827001784 | 18 | 38 | 51 | 31 | Nodular graphite iron | galvanized |
| 1827001785 | 22 | 41 | 54 | 35 | Nodular graphite iron | galvanized |
| 1827001786 | 30 | 50 | 65 | 45 | Nodular graphite iron | galvanized |
| 1827001787 | 35 | 52 | 67 | 50 | Nodular graphite iron | galvanized |
| 1827001788 | 40 | 66 | 86 | 60 | Nodular graphite iron | galvanized |
| 1827001789 | 50 | 76 | 96 | 70 | Nodular graphite iron | galvanized |
| 1827001790 | 60 | 94 | 124 | 90 | Nodular graphite iron | galvanized |

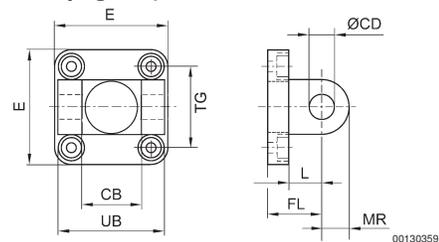
1) max.
2) Min.

★ Clevis mounting MP2

► Cylinder mounting in accordance with ISO 15552 (for pivot pin, see AA4, page 29)



P523_025



00130359

Scope of delivery: clevis mounting incl. mounting screws

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

| Part No. | Piston Ø | CB H14 | Ø CD H9 | E | FL | L 1) | MR 2) | UB h13 | TG | Material |
|------------|----------|--------|---------|--------|---------|------|-------|--------|-----------|-----------------------|
| 1827001289 | 32 | 26 | 10 | 49 ±1 | 22 ±0,2 | 12 | 10 | 45 | 32,5 ±0,2 | Aluminum, forged |
| 1827001290 | 40 | 28 | 12 | 53 ±1 | 25 ±0,2 | 15 | 13 | 52 | 38 ±0,2 | Aluminum, forged |
| 1827001291 | 50 | 32 | 12 | 63 ±1 | 27 ±0,2 | 15 | 13 | 60 | 46,5 ±0,2 | Aluminum, forged |
| 1827001500 | 63 | 40 | 16 | 73 ±1 | 32 ±0,2 | 18 | 17 | 70 | 56,5 ±0,2 | Aluminum, forged |
| 1827001293 | 80 | 50 | 16 | 98 ±1 | 36 ±0,2 | 20 | 17 | 90 | 72,0 ±0,2 | Aluminum, forged |
| 1827001294 | 100 | 60 | 20 | 115 ±1 | 41 ±0,2 | 25 | 18 | 110 | 89,0 ±0,2 | Aluminum, forged |
| 1827004862 | 125 | 70 | 25 | 140 | 50 ±0,2 | 30 | 26 | 130 | 110 ±0,3 | Nodular graphite iron |

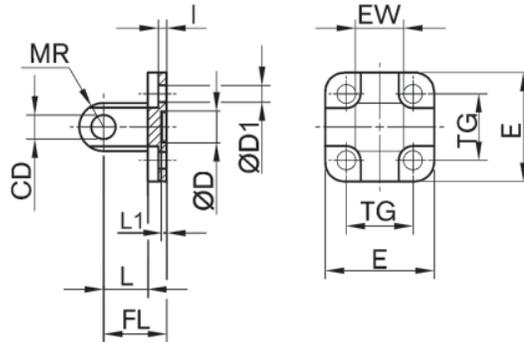
| Part No. | Surface | | | | | | | | | | |
|------------|------------|--|--|--|--|--|--|--|--|--|--|
| 1827001289 | - | | | | | | | | | | |
| 1827001290 | - | | | | | | | | | | |
| 1827001291 | - | | | | | | | | | | |
| 1827001500 | - | | | | | | | | | | |
| 1827001293 | - | | | | | | | | | | |
| 1827001294 | - | | | | | | | | | | |
| 1827004862 | galvanized | | | | | | | | | | |

1) Min.

2) max.

★ Rear eye MP4 for MP2 clevis mounting

► Cylinder mounting in accordance with ISO 15552



00126403_a

Scope of delivery: clevis incl. mounting screws

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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

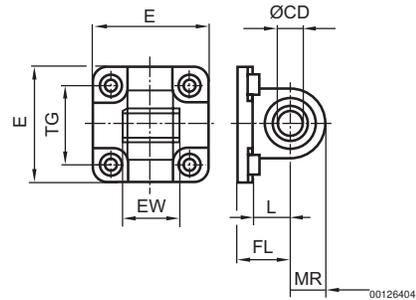
| Part No. | TG | Material | Surface | | | | | | | |
|------------|-----------|-----------------------|------------|--|--|--|--|--|--|--|
| 1827001283 | 32,5 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827001284 | 38 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827001285 | 46,5 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827020086 | 56,5 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827001287 | 72 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827001288 | 89 ±0,2 | Aluminum, forged | - | | | | | | | |
| 1827004866 | 110 ±0,3 | Nodular graphite iron | galvanized | | | | | | | |

1) Min.
2) max.

★ Rear eye MP9 with rubber bushing
► Cylinder mounting in accordance with ISO 15552



P523_026



Scope of delivery: clevis incl. mounting screws

| Part No. | Piston Ø | CD H9 | E | EW | FL | L | MR | TG ±0,2 | Material | Weight [kg] |
|------------|----------|-------|-----|------|----|------|------|---------|-------------------|-------------|
| 3683202000 | 25 | 10 | 40 | 17.5 | 20 | 14.5 | 12 | 27 | Die-cast aluminum | 0.1 |
| 3683203000 | 32 | 10 | 46 | 25.5 | 22 | 16.5 | 14 | 32.5 | Die-cast aluminum | 0.1 |
| 3683204000 | 40 | 12 | 55 | 27 | 25 | 17.5 | 19 | 38 | Die-cast aluminum | 0.1 |
| 3683205000 | 50 | 12 | 62 | 31 | 27 | 18.5 | 19.5 | 46.5 | Die-cast aluminum | 0.2 |
| 3683206000 | 63 | 16 | 80 | 39.5 | 32 | 21.5 | 26 | 56.5 | Die-cast aluminum | 0.3 |
| 3683208000 | 80 | 16 | 94 | 49.5 | 36 | 24.5 | 27 | 72 | Die-cast aluminum | 0.4 |
| 3683210000 | 100 | 20 | 114 | 59.5 | 41 | 26.5 | 29 | 89 | Die-cast aluminum | 0.7 |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

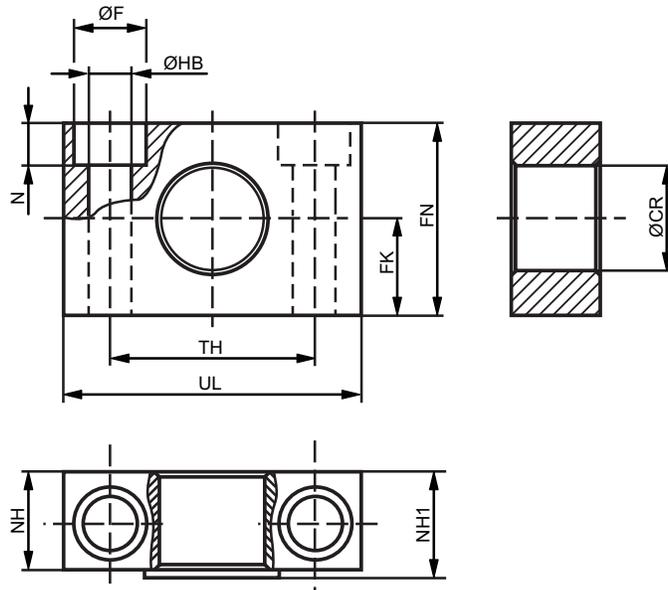
Accessories

★ Bearing AT4 for trunnion mounting MT4

► Cylinder mounting in accordance with ISO 15552



00105163



00105221

| Part No. | Piston Ø | Ø CR H7 | Ø F H13 | FK ±0,1 | FN | Ø HB H12 | N -0,4 | NH | NH1 | TH ±0,15 | UL f8 |
|------------|----------|------------|---------|---------|----|-------------|--------|----|------|----------|-------|
| 1827001603 | 32 | 12 | 11 | 15 ±0,1 | 30 | 6.6 | 6.8 | 15 | 18 | 32 ±0,2 | 46 |
| 1827001604 | 40, 50 | 16 | 15 | 18 ±0,1 | 36 | 9 | 9 | 18 | 21 | 36 ±0,2 | 55 |
| 1827001605 | 63, 80 | 20 | 18 | 20 ±0,1 | 40 | 11 | 11 | 20 | 23 | 42 ±0,2 | 65 |
| 1827001606 | 100, 125 | 25 | 20 | 25 ±0,1 | 50 | 14 | 13 | 25 | 28.5 | 50 ±0,2 | 75 |

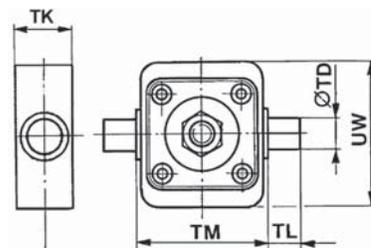
| Part No. | Material | Surface | | | | | | | | | |
|------------|----------|------------|--|--|--|--|--|--|--|--|--|
| 1827001603 | Steel | galvanized | | | | | | | | | |
| 1827001604 | Steel | galvanized | | | | | | | | | |
| 1827001605 | Steel | galvanized | | | | | | | | | |
| 1827001606 | Steel | galvanized | | | | | | | | | |

★ MT4 center trunnion mounting (PRA only)

► Cylinder mounting in accordance with ISO 15552



00122726



00126406

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

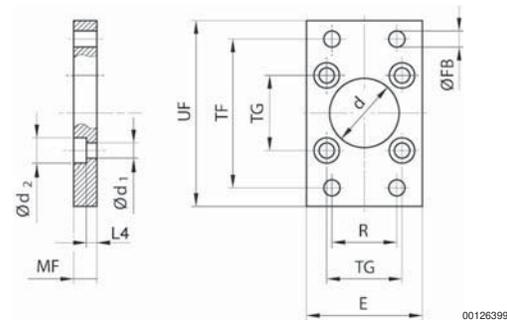
Accessories

| Part No. | Piston Ø | Ø TD e9 | TK 2) | TL h14 | TM | UW | Material | Surface | | |
|------------|----------|---------|-------|--------|-----|-----|-----------------------|------------|--|--|
| 1827003991 | 32 | 12 | 22 | 12 | 50 | 70 | Nodular graphite iron | galvanized | | |
| 1827003992 | 40 | 16 | 28 | 16 | 63 | 78 | Nodular graphite iron | galvanized | | |
| 1827003993 | 50 | 16 | 28 | 16 | 75 | 96 | Nodular graphite iron | galvanized | | |
| 1827003994 | 63 | 20 | 35 | 20 | 90 | 108 | Nodular graphite iron | galvanized | | |
| 1827003995 | 80 | 20 | 35 | 20 | 110 | 130 | Nodular graphite iron | galvanized | | |
| 1827003996 | 100 | 25 | 46 | 25 | 132 | 150 | Nodular graphite iron | galvanized | | |
| 1827003997 | 125 | 25 | 46 | 25 | 160 | 171 | Nodular graphite iron | galvanized | | |

2) max.

★ Flange mounting MF1, MF2

► Cylinder mounting in accordance with ISO 15552



Scope of delivery: flange mounting incl. mounting screws

| Part No. | Piston Ø | Ø d H11 | Ø d1 | Ø d2 | E 1) | Ø FB | L4 | MF | R | TF | TG |
|------------|----------|---------|------|------|------|------|------|----|----|-----|-----------|
| 1827001277 | 32 | 30 | 6.6 | 11 | 50 | 7 | 4.5 | 10 | 32 | 64 | 32,5 ±0,2 |
| 1827001278 | 40 | 35 | 6.6 | 11 | 55 | 9 | 4.5 | 10 | 36 | 72 | 38 ±0,2 |
| 1827001279 | 50 | 40 | 9 | 15 | 65 | 9 | 6 | 12 | 45 | 90 | 46,5 ±0,2 |
| 1827001499 | 63 | 45 | 9 | 15 | 75 | 9 | 6 | 12 | 50 | 100 | 56,5 ±0,2 |
| 1827001281 | 80 | 45 | 11 | 18 | 100 | 12 | 9 | 16 | 63 | 126 | 72 ±0,2 |
| 1827001282 | 100 | 55 | 11 | 18 | 120 | 14 | 9 | 16 | 75 | 150 | 89 ±0,2 |
| 1827004861 | 125 | 60 | 14 | 20 | 140 | 16 | 10.5 | 20 | 90 | 180 | 110 ±0,3 |

| Part No. | UF | Material | Surface | | | | | | | | |
|------------|-----|----------|------------|--|--|--|--|--|--|--|--|
| 1827001277 | 80 | Steel | galvanized | | | | | | | | |
| 1827001278 | 90 | Steel | galvanized | | | | | | | | |
| 1827001279 | 110 | Steel | galvanized | | | | | | | | |
| 1827001499 | 125 | Steel | galvanized | | | | | | | | |
| 1827001281 | 154 | Steel | galvanized | | | | | | | | |
| 1827001282 | 186 | Steel | galvanized | | | | | | | | |
| 1827004861 | 220 | Steel | galvanized | | | | | | | | |

1) max.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

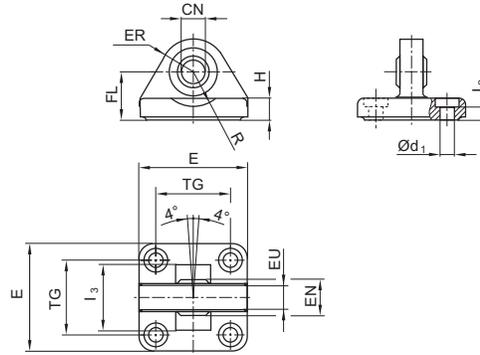
Accessories

★ Rear eye with ball joint, MP6

► Cylinder mounting in accordance with ISO 15552



00105818



00126391_d

Scope of delivery: clevis incl. mounting screws

| Part No. | Piston Ø | Ø CN H7 | Ø d1 H13 | E | EN -0,1 | ER | EU | FL ±0,2 | H | I2 | I3 min. | R min. |
|------------|----------|------------|-------------|-----|---------|----|------|---------|------|-----|------------|-----------|
| 1827001619 | 32 | 10 | 6.6 | 47 | 14 | 15 | 10.5 | 22 | 9 | 5.5 | 36 | 12 |
| 1827001620 | 40 | 12 | 6.6 | 53 | 16 | 18 | 12 | 25 | 9 | 5.5 | 42 | 15 |
| 1827001621 | 50 | 16 | 9 | 65 | 21 | 20 | 15 | 27 | 10.5 | 6.5 | 48 | 19 |
| 1827020087 | 63 | 16 | 9 | 75 | 21 | 23 | 15 | 32 | 10.5 | 6.5 | 55 | 21 |
| 1827001623 | 80 | 20 | 11 | 95 | 25 | 27 | 18 | 36 | 14 | 10 | 70 | 24 |
| 1827001624 | 100 | 20 | 11 | 115 | 25 | 30 | 18 | 41 | 15 | 10 | 80 | 25 |
| 1827001625 | 125 | 30 | 14 | 140 | 37 | 40 | 25 | 50 | 16 | 10 | 100 | 33 |

| Part No. | TG | Material | | | | | | | | | | |
|------------|-----------|------------------|--|--|--|--|--|--|--|--|--|--|
| 1827001619 | 32,5 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827001620 | 38 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827001621 | 46,5 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827020087 | 56,5 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827001623 | 72 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827001624 | 89 ±0,2 | Aluminum, forged | | | | | | | | | | |
| 1827001625 | 110 ±0,3 | Aluminum, forged | | | | | | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

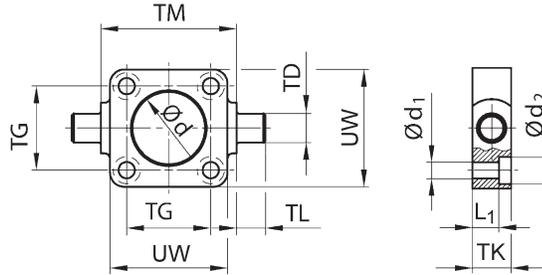
Accessories

★ Trunnion mounting MT5/MT6, front or rear

► Cylinder mounting in accordance with ISO 15552



00128925



00126407

The delivered product may vary from that in the illustration.
Scope of delivery: trunnion mounting incl. mounting screws

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

| Part No. | Material | Surface | | | | | | | | | | |
|------------|-----------------------|------------|--|--|--|--|--|--|--|--|--|--|
| 1827001609 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827001610 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827001611 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827002046 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827001613 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827001614 | Nodular graphite iron | galvanized | | | | | | | | | | |
| 1827001615 | Nodular graphite iron | galvanized | | | | | | | | | | |

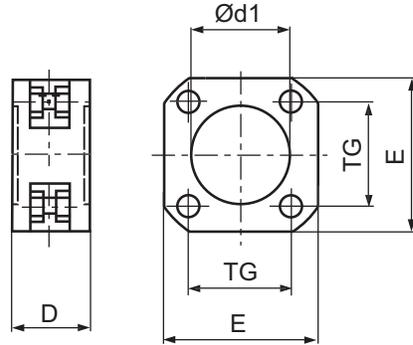
Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

★ Intermediate flange for multi-position cylinders



P523_049



D271_052

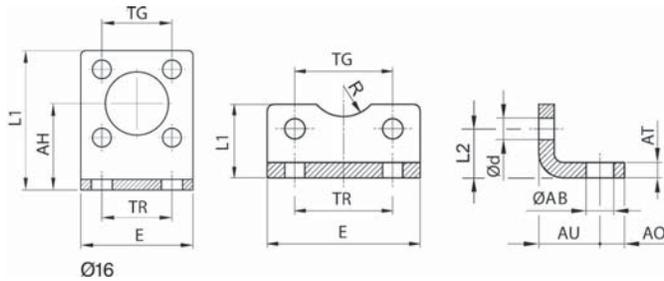
Scope of delivery: flange and mounting screws

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

★ Foot mounting MS1



00105908



Ø16

00126387

Scope of delivery: 2 foot mountings incl. mounting screws

| Part No. | Piston Ø | Ø AB | AO | AT | AU ±0,2 | Ø d | E | L1 | L2 | R | TG ±0,2 |
|------------|----------|------|----|---------|---------|-----|-----|----|--------|------|----------|
| 1827001271 | 32 | 7 | 11 | 5 ±0,5 | 24 | 6.6 | 48 | 30 | 15.7 | 15 | 32.5 |
| 1827001272 | 40 | 10 | 12 | 5 ±0,5 | 28 | 6.6 | 53 | 30 | 17 | 17.5 | 38 |
| 1827001273 | 50 | 10 | 13 | 5 ±0,5 | 32 | 10 | 63 | 30 | 21.7 | 20 | 46.5 |
| 1827001498 | 63 | 10 | 13 | 5 ±0,5 | 32 | 10 | 80 | 45 | 21.7 | 22.5 | 56.5 |
| 1827001275 | 80 | 12 | 19 | 6 ±0,75 | 41 | 11 | 98 | 60 | 27 | 22.5 | 72 |
| 1827001276 | 100 | 14.5 | 19 | 6 ±0,75 | 41 | 11 | 115 | 60 | 26.5 | 27.5 | 89 |
| 1827001310 | 125 | 16 | 15 | 8 ±0,75 | 45 | 14 | 140 | 60 | 35±0,3 | - | 110 ±0,3 |

| Part No. | TR | Material | Surface | | | | | | | | |
|------------|----|----------|------------|--|--|--|--|--|--|--|--|
| 1827001271 | 32 | Steel | galvanized | | | | | | | | |
| 1827001272 | 36 | Steel | galvanized | | | | | | | | |
| 1827001273 | 45 | Steel | galvanized | | | | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

| Part No. | TR | Material | Surface | | | | | | | | |
|------------|----|----------|------------|--|--|--|--|--|--|--|--|
| 1827001498 | 50 | Steel | galvanized | | | | | | | | |
| 1827001275 | 63 | Steel | galvanized | | | | | | | | |
| 1827001276 | 75 | Steel | galvanized | | | | | | | | |
| 1827001310 | 90 | Steel | galvanized | | | | | | | | |

★ AA4 pivot pin (for MP2)



| Part No. | Piston Ø | Ø EK e8 | EL | Ø d 1) | L6 1) | Material | Surface | ISO 15552 | Note |
|------------|----------|---------|----------|--------|-------|----------|------------|-----------|------|
| 1823120020 | 32 | 10 | 45,2 +2 | 23 | 9 | Steel | galvanized | - | 2) |
| 1823120021 | 40 | 12 | 52,2 +2 | 25 | 9 | Steel | galvanized | - | 2) |
| 1823120022 | 50 | 12 | 60,2 +2 | 25 | 9 | Steel | galvanized | - | 2) |
| 1823120023 | 63 | 16 | 70,2 +2 | 32 | 11 | Steel | galvanized | - | 2) |
| 1823120024 | 80 | 16 | 90,2 +2 | 32 | 11 | Steel | galvanized | - | 2) |
| 1823120025 | 100 | 20 | 110,2 +2 | 40 | 11 | Steel | galvanized | - | 2) |
| 5236000092 | 125 | 25 | 132 +0,5 | 34.2 | 3,5 | Steel | galvanized | ISO 15552 | 2) |

1) max.

2) Scope of delivery: pivot pins incl. circlips

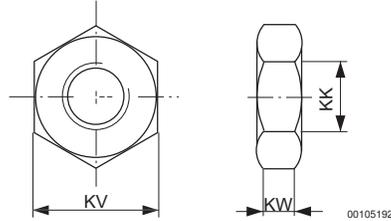
Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

★ Additional Piston rod nut MR9 (Metric)



00105168



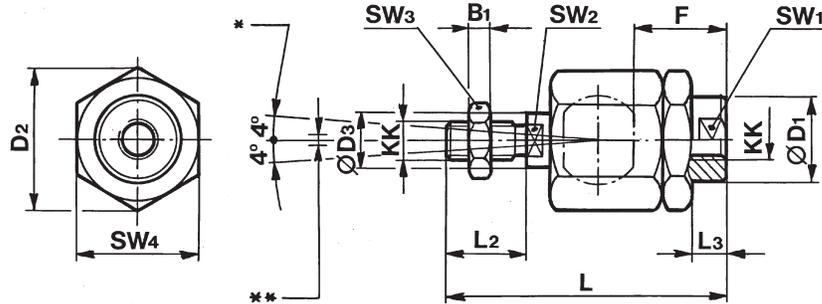
00105192

| Part No. | KK | KV | KW | Material | Surface | Weight [kg] | | | |
|------------|----------|----|------|----------|------------|-------------|--|--|--|
| 1823300020 | M10x1,25 | 17 | 6 | Steel | galvanized | 0.01 | | | |
| 1823300021 | M12x1,25 | 19 | 7 | Steel | galvanized | 0.012 | | | |
| 1823300030 | M16x1,5 | 24 | 8 | Steel | galvanized | 0.017 | | | |
| 1823300031 | M20x1,5 | 30 | 10 | Steel | galvanized | 0.03 | | | |
| 1823300029 | M27x2 | 41 | 13.5 | Steel | galvanized | 0.108 | | | |
| 1823300025 | M36x2 | 55 | 18 | Steel | galvanized | 0.175 | | | |
| 1823300026 | M42x2 | 65 | 21 | Steel | galvanized | 0.37 | | | |

★ Flexible spherical coupling PM5 (Metric)



00105169



D300_029

* angle equalization
** Radial joint from 0,5 - 2 mm

| Part No. | KK | B1 | Ø D1 | D2 | Ø D3 | F | L ±2 | L2 | L3 ±1 | SW1 | SW2 | SW3 |
|------------|----------|------|------|----|------|----|------|----|-------|-----|-----|-----|
| 1826409002 | M10x1,25 | 6 | 21.5 | 34 | 14 | 23 | 73 | 20 | 7.5 | 19 | 12 | 17 |
| 1826409003 | M12x1,25 | 7 | 21.5 | 34 | 14 | 28 | 77 | 24 | 13 | 19 | 12 | 19 |
| 1826409004 | M16x1,5 | 8 | 33.5 | 47 | 22 | 32 | 108 | 32 | 9 | 30 | 19 | 24 |
| 1826409005 | M20x1,5 | 10 | 33.5 | 47 | 22 | 42 | 122 | 40 | 19 | 30 | 19 | 30 |
| 1826409006 | M27x2 | 13.5 | 62 | 62 | 28 | 48 | 147 | 54 | 14 | 32 | 24 | 41 |

| Part No. | SW4 | Material | Surface | Weight [kg] | | | | | |
|------------|-----|----------|------------|-------------|--|--|--|--|--|
| 1826409002 | 30 | Steel | galvanized | 0.21 | | | | | |
| 1826409003 | 30 | Steel | galvanized | 0.21 | | | | | |
| 1826409004 | 41 | Steel | galvanized | 0.65 | | | | | |
| 1826409005 | 41 | Steel | galvanized | 0.68 | | | | | |
| 1826409006 | 55 | Steel | galvanized | 1.7 | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Rod clevis AP2 (Metric)



00105171

Fig.1

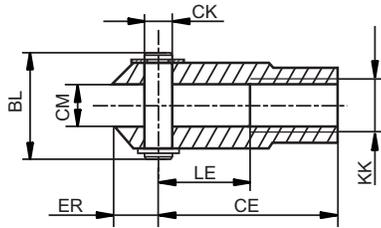
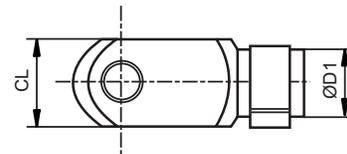
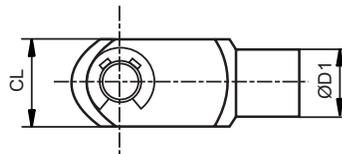
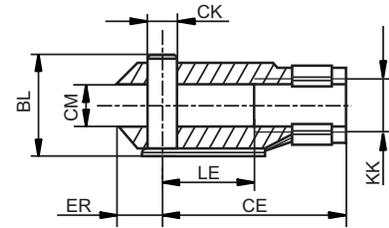


Fig. 2



00126410

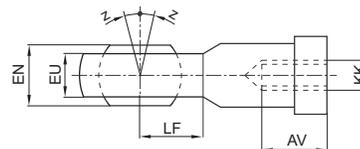
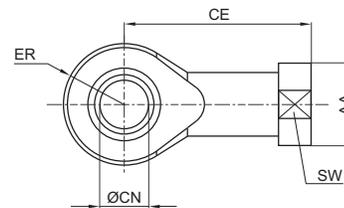
| Part No. | KK | Fig. | BL | CE | Ø CK H9 | CL | CM | Ø D1 | ER | LE |
|------------|----------|------|----|-----|---------|----|----|------|----|----|
| 1822122024 | M10x1,25 | 2 | 26 | 40 | 10 | 20 | 10 | 18 | 12 | 20 |
| 1822122025 | M12x1,25 | 2 | 31 | 48 | 12 | 24 | 12 | 20 | 14 | 24 |
| 1822122005 | M16x1,5 | 2 | 39 | 64 | 16 | 32 | 16 | 26 | 19 | 32 |
| 1822122004 | M20x1,5 | 2 | 50 | 80 | 20 | 40 | 20 | 34 | 20 | 40 |
| 1827001493 | M27x2 | 1 | 68 | 110 | 30 | 55 | 30 | 48 | 38 | 54 |

| Part No. | Material | Surface | Weight [kg] |
|------------|----------|------------|-------------|
| 1822122024 | Steel | galvanized | 0.1 |
| 1822122025 | Steel | galvanized | 0.154 |
| 1822122005 | Steel | galvanized | 0.352 |
| 1822122004 | Steel | galvanized | 0.7 |
| 1827001493 | Steel | galvanized | 2 |

★ Ball eye rod end AP6 (Metric)



00105172



00126602

| Part No. | KK | AA | AV min. | CE | Ø CN H7 | EN -0,1 | ER | EU max. | LF | SW | Z [°] max. | Material | Surface | Weight [kg] |
|------------|----------|----|---------|-----|---------|---------|----|---------|----|----|------------|----------|------------|-------------|
| 1822124003 | M10x1,25 | 19 | 15 | 43 | 10 | 14 | 14 | 11.5 | 14 | 17 | 4 | Steel | galvanized | 0.07 |
| 1822124004 | M12x1,25 | 22 | 18 | 50 | 12 | 16 | 16 | 12.5 | 16 | 19 | 4 | Steel | galvanized | 0.105 |
| 1822124005 | M16x1,5 | 27 | 24 | 64 | 16 | 21 | 21 | 15.5 | 21 | 22 | 4 | Steel | galvanized | 0.21 |
| 1822124006 | M20x1,5 | 34 | 30 | 77 | 20 | 25 | 25 | 18.5 | 25 | 30 | 4 | Steel | galvanized | 0.38 |
| 1822124013 | M27x2 | 50 | 45 | 110 | 30 | 37 | 35 | 27 | 35 | 41 | 4 | Steel | galvanized | 1.17 |

Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA & TRB
Accessories

★ Inch rod accessories

| Select by "KK" to match rod thread | | | | | |
|------------------------------------|-------------|-------|------------|------------|--|
| Bore | KK | CD | Rod eye | Rod clevis | |
| 32 | 7/16-20 UNF | 0.500 | R433012610 | R433012602 | |
| 40 | 1/2-20 UNF | 0.500 | R432006533 | R433012665 | |
| 50 | 3/4-16 UNF | 0.750 | R433012611 | R433012603 | |
| 63 | 3/4-16 UNF | 0.750 | R433012611 | R433012603 | |
| 80 | 3/4-16 UNF | 0.750 | R433012611 | R433012603 | |
| 100 | 3/4-16 UNF | 0.750 | R433012611 | R433012603 | |
| 125 | 1-14 UNF | 1.000 | R433012613 | R433012604 | |

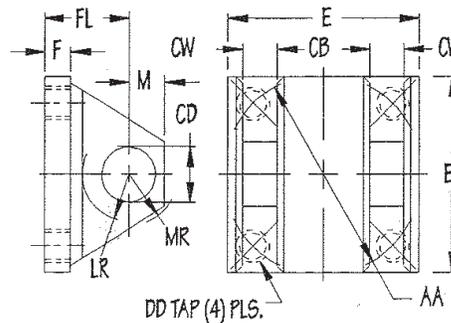
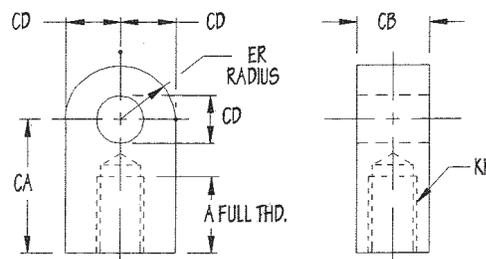
| Select by "CD" to match pivot pin | | | | | |
|-----------------------------------|-------------|-------|------------|----------------|-------------|
| Bore | KK | CD | Pivot pin | Clevis Bracket | Eye Bracket |
| 32 | 7/16-20 UNF | 0.500 | R433012620 | R433012631 | R433012638 |
| 40 | 1/2-20 UNF | 0.500 | R433012620 | R433012631 | R433012638 |
| 50 | 3/4-16 UNF | 0.750 | R433012622 | R433012632 | R433012639 |
| 63 | 3/4-16 UNF | 0.750 | R433012622 | R433012632 | R433012639 |
| 80 | 3/4-16 UNF | 0.750 | R433012622 | R433012632 | R433012639 |
| 100 | 3/4-16 UNF | 0.750 | R433012622 | R433012632 | R433012639 |
| 125 | 1-14 UNF | 1.000 | R433012624 | R433012633 | R433012641 |

Dimensions

| Rod Eye | A | CA | CB | CD | ER |
|------------|-------|-------|-------|-------|-------|
| R433012610 | 0.750 | 1.500 | 0.750 | 0.500 | 0.560 |
| R432006533 | 0.750 | 1.500 | 0.750 | 0.500 | 0.560 |
| R433012611 | 1.130 | 2.060 | 1.250 | 0.750 | 0.810 |
| R433012613 | 1.630 | 2.810 | 1.500 | 1.000 | 1.130 |

| Clevis Bracket | AA | CB | CD | CW | DD |
|----------------|-------|-------|-------|-------|--------|
| R433012631 | 2.300 | 0.750 | 0.500 | 0.500 | 3/8-24 |
| R433012632 | 2.900 | 1.250 | 0.750 | 0.630 | 1/2-20 |
| R433012633 | 3.600 | 1.250 | 0.750 | 0.630 | 1/2-20 |

| Clevis Bracket | E | F | FL | LR | M | MR |
|----------------|-------|-------|-------|-------|-------|-------|
| R433012631 | 2.500 | 0.380 | 1.130 | 0.630 | 0.500 | 0.560 |
| R433012632 | 3.000 | 0.630 | 1.880 | 0.880 | 0.750 | 0.880 |
| R433012633 | 3.500 | 0.630 | 1.880 | 0.880 | 0.750 | 1.000 |

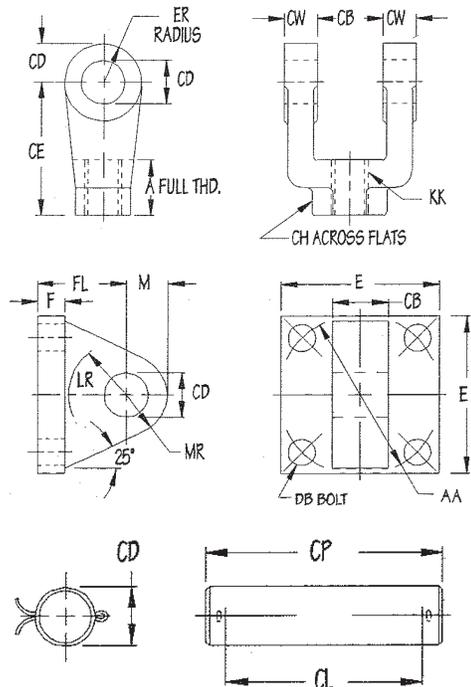


Dimensions

| Rod Clevis | A | CB | CD | CE | CH | CW | ER |
|------------|-------|-------|-------|-------|-------|-------|-------|
| R433012602 | 0.750 | 0.750 | 0.500 | 1.500 | 0.780 | 0.500 | 0.500 |
| R433012665 | 0.750 | 0.750 | 0.500 | 1.500 | 0.780 | 0.500 | 0.500 |
| R433012603 | 1.130 | 1.250 | 0.750 | 2.380 | 1.250 | 0.630 | 0.750 |
| R433012604 | 1.630 | 1.500 | 1.000 | 3.130 | 1.630 | 0.750 | 1.000 |

| Eye Bracket | AA | CB | CD | DB | E | F | FL | LR | M | MR |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| R433012638 | 2.300 | 0.750 | 0.500 | 0.380 | 2.500 | 0.380 | 1.130 | 0.690 | 0.500 | 0.560 |
| R433012639 | 2.900 | 1.250 | 0.750 | 0.500 | 3.000 | 0.630 | 1.880 | 1.000 | 0.750 | 0.880 |
| R433012641 | 4.600 | 1.500 | 1.000 | 0.630 | 4.500 | 0.750 | 2.250 | 1.380 | 1.000 | 1.250 |

| Pivot Pin | CD | CL | CP |
|------------|-------|-------|-------|
| R433012620 | 0.500 | 1.880 | 2.090 |
| R433012622 | 0.750 | 2.620 | 2.880 |
| R433012624 | 1.000 | 3.120 | 3.380 |



Note: The "inch" clevis bracket and eye bracket are for use with the inch rod eye and rod clevis, not for mounting directly to the cylinder. Metric versions include rod nut, inch versions do not.

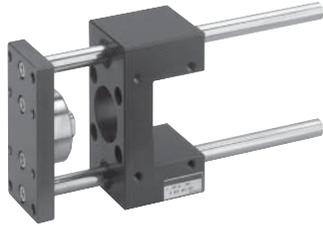
Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Guide unit, GU1

► Ø 32 - 100 mm ► Plain bearing ► for cylinder with metric rod threads



00105859

Ambient temperature min./max.

-20 °C / 80 °C

Materials:

Bearing housings

Aluminum, black anodized

Bearing type

Sintered bronze

Carrying plate

Aluminum, black anodized

Flexible coupling in carrying plate

Stainless steel

Guide rods

Stainless steel, smooth rolled

| Suitable piston Ø | | [mm] | 32 | 40 | 50 | 63 | 80 |
|-------------------|--------------|------|--------|--------|--------|--------|--------|
| Weight | 0 mm stroke | [kg] | 0.63 | 0.946 | 1.356 | 1.655 | 3.45 |
| | 10 mm stroke | [kg] | 0.0122 | 0.0176 | 0.0176 | 0.0176 | 0.0222 |

| Suitable piston Ø | | [mm] | 100 | | | | |
|-------------------|--------------|------|--------|--|--|--|--|
| Weight | 0 mm stroke | [kg] | 4.69 | | | | |
| | 10 mm stroke | [kg] | 0.0222 | | | | |

| | Suitable piston Ø mm (inch) | 32 | 40 | 50 | 63 | 80 | 100 |
|--|-----------------------------|------------|------------|------------|------------|------------|------------|
| | Stroke 50 (2") | 0821401010 | 0821401020 | 0821401030 | 0821401480 | 0821401050 | 0821401060 |
| | 100 (4") | 0821401011 | 0821401021 | 0821401031 | 0821401481 | 0821401051 | 0821401061 |
| | 160 (6") | 0821401012 | 0821401022 | 0821401032 | 0821401482 | 0821401052 | 0821401062 |
| | 200 (8") | 0821401013 | 0821401023 | 0821401033 | 0821401483 | 0821401053 | 0821401063 |
| | 250 (10") | 0821401014 | 0821401024 | 0821401034 | 0821401484 | 0821401054 | 0821401064 |
| | 320 (13") | 0821401015 | 0821401025 | 0821401035 | 0821401485 | 0821401055 | 0821401065 |
| | 400 (16") | 0821401016 | 0821401026 | 0821401036 | 0821401486 | 0821401056 | 0821401066 |
| | 500 (20") | 0821401017 | 0821401027 | 0821401037 | 0821401487 | 0821401057 | 0821401067 |
| | 600 (24") | 0821401018 | 0821401028 | 0821401038 | 0821401488 | 0821401058 | 0821401068 |
| | 800 (32") | 0821401019 | 0821401029 | 0821401039 | 0821401489 | 0821401059 | 0821401069 |
| | 1000 (39") | 0821401500 | 0821401502 | 0821401504 | 0821401490 | 0821401508 | 0821401510 |
| | 1200 (47") | 0821401501 | 0821401503 | 0821401505 | 0821401491 | 0821401509 | 0821401511 |

Note - Inch dimensions rounded to the nearest whole number.

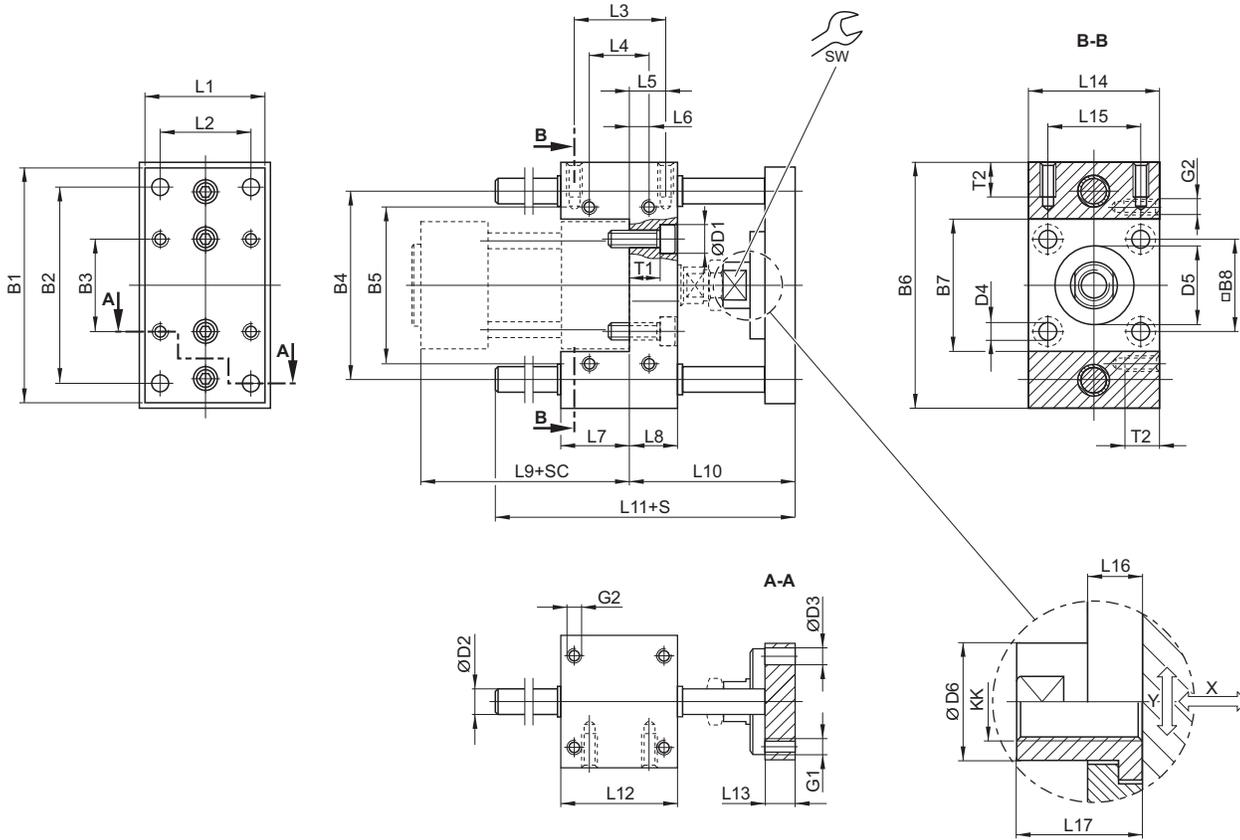
- See internet configurator for cylinders with NPT ports and metric rod threads.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

Ø 32 - 100 mm



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

| Ø | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | D1 | D2 | D3 | D4 | D5 | D6 |
|-----|-----|-----|------|-----|-----|-----|-----|------|----|----|-----|-----|-------|----|
| 32 | 90 | 78 | 32.5 | 74 | 58 | 100 | 48 | 32.5 | 11 | 10 | 6.6 | 6.6 | 30 M8 | 18 |
| 40 | 100 | 84 | 38 | 80 | 64 | 106 | 54 | 38 | 11 | 12 | 6.6 | 6.6 | 35 M8 | 18 |
| 50 | 120 | 100 | 46.5 | 96 | 80 | 125 | 66 | 46.5 | 15 | 12 | 9 | 9 | 40 M8 | 24 |
| 63 | 125 | 105 | 56.5 | 104 | 95 | 132 | 76 | 56.5 | 15 | 12 | 9 | 9 | 45 M8 | 24 |
| 80 | 155 | 130 | 72 | 130 | 130 | 165 | 98 | 72 | 18 | 16 | 11 | 11 | 45 M8 | 30 |
| 100 | 175 | 150 | 89 | 150 | 150 | 185 | 118 | 89 | 18 | 16 | 11 | 11 | 55 M8 | 30 |

| Ø | G1 | G2 | KK | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 |
|-----|-----|-----|----------|-----|------|------|------|-------|-------|----|----|-----|-----|
| 32 | M6 | M6 | M10x1,25 | 45 | 32.5 | 32.5 | 32.5 | 9.25 | 9.25 | 31 | 17 | 94 | 69 |
| 40 | M6 | M6 | M12x1,25 | 50 | 38 | 38 | 38 | 11 | 11 | 37 | 21 | 105 | 74 |
| 50 | M8 | M8 | M16x1,5 | 60 | 46.5 | 46.5 | 46.5 | 18.75 | 18.75 | 34 | 25 | 106 | 89 |
| 63 | M8 | M8 | M16x1,5 | 70 | 56.5 | 56.5 | 56.5 | 15.25 | 15.25 | 51 | 25 | 121 | 89 |
| 80 | M10 | M10 | M20x1,5 | 90 | 72 | 72 | 50 | 25 | 14 | 56 | 34 | 128 | 106 |
| 100 | M10 | M10 | M20x1,5 | 110 | 89 | 89 | 70 | 28.5 | 19 | 71 | 39 | 138 | 111 |

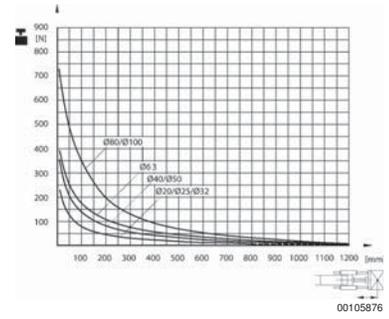
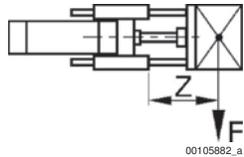
| Ø | L11 | L12 | L13 | L14 | L15 | L16 | L17 | SW | T1 | T2 | | | |
|----|-----|-----|-----|-----|------|-----|-----|----|----|----|--|--|--|
| 32 | 106 | 48 | 12 | 48 | 32.5 | 14 | 22 | 15 | 10 | 14 | | | |
| 40 | 117 | 58 | 12 | 56 | 38 | 14 | 22 | 15 | 14 | 14 | | | |
| 50 | 129 | 59 | 15 | 66 | 46.5 | 14 | 26 | 22 | 16 | 16 | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

| Ø | L11 | L12 | L13 | L14 | L15 | L16 | L17 | SW | T1 | T2 | | | | |
|-----|-----|-----|-----|-----|------|-----|-----|----|----|----|--|--|--|--|
| 63 | 146 | 76 | 15 | 76 | 56.5 | 14 | 26 | 22 | 16 | 16 | | | | |
| 80 | 170 | 90 | 16 | 98 | 72 | 14 | 32 | 27 | 24 | 20 | | | | |
| 100 | 190 | 110 | 16 | 118 | 89 | 14 | 32 | 27 | 29 | 20 | | | | |

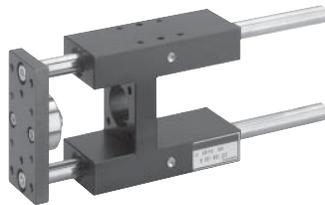
Useful load



F= useful load, Z = projection

★ Guide unit, GH2

► Ø 32 - 100 mm ► linear ball bearing ► for cylinder with metric rod threads



Ambient temperature min./max.

-20 °C / 80 °C

Materials:

Bearing type

Steel

Carrying plate

Aluminum, black anodized

Flexible coupling in carrying plate

Stainless steel

Guide rods

Stainless steel, ground

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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

| | Suitable piston Ø [mm] Min. play (radial) [mm] (inch) | 32 1.5 | 40 2 | 50 2 | 63 2 | 80 2 | 100 2 |
|--|---|------------|------------|------------|------------|------------|------------|
| | Stroke 50 (2") | 0821401320 | 0821401330 | 0821401340 | 0821401380 | - | - |
| | 100 (4") | 0821401321 | 0821401331 | 0821401341 | 0821401381 | 0821401360 | 0821401370 |
| | 200 (8") | 0821401322 | 0821401332 | 0821401342 | 0821401382 | 0821401361 | 0821401371 |
| | 320 (13") | 0821401323 | 0821401333 | 0821401343 | 0821401383 | 0821401362 | 0821401372 |
| | 500 (20") | 0821401324 | 0821401334 | 0821401344 | 0821401384 | 0821401363 | 0821401373 |
| | 600 (24") | 0821401325 | 0821401335 | 0821401345 | 0821401385 | 0821401364 | 0821401374 |
| | 800 (32") | 0821401326 | 0821401336 | 0821401346 | 0821401386 | 0821401365 | 0821401375 |
| | 1000 (39") | 0821401327 | 0821401337 | 0821401347 | 0821401387 | 0821401366 | 0821401376 |
| | 1200 (47") | 0821401328 | 0821401338 | 0821401348 | 0821401388 | 0821401367 | 0821401377 |

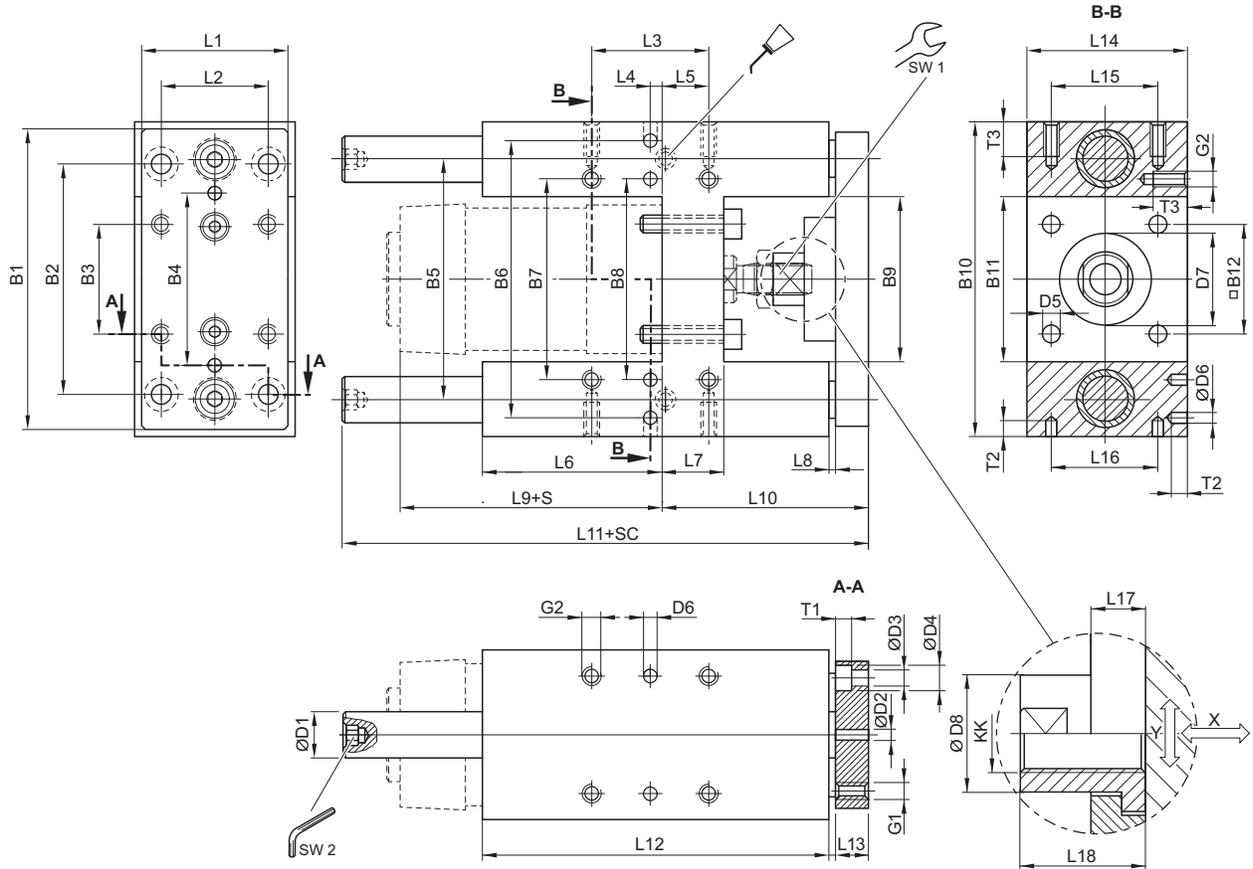
Note - Inch dimensions rounded to the nearest whole number.

- See internet configurator for cylinders with NPT ports and metric rod threads.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

Ø 32 - 100 mm



00127779

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

| Ø | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|-----|-----|-----|------|-----------|-----|-----------|-----|-----------|-------|-----|-------|
| 32 | 90 | 78 | 32.5 | 50 ±0,02 | 74 | 81 ±0,02 | 61 | 61 ±0,02 | 50.2 | 97 | 50.2 |
| 40 | 110 | 84 | 38 | 54 ±0,02 | 87 | 99 ±0,02 | 69 | 69 ±0,02 | 58.2 | 115 | 58.2 |
| 50 | 130 | 100 | 46.5 | 72 ±0,02 | 104 | 119 ±0,02 | 85 | 85 ±0,02 | 70.2 | 137 | 70.2 |
| 63 | 145 | 105 | 56.5 | 82 ±0,02 | 119 | 132 ±0,02 | 100 | 100 ±0,02 | 85.2 | 152 | 85.2 |
| 80 | 180 | 130 | 72 | 106 ±0,02 | 148 | 166 ±0,02 | 130 | 130 ±0,02 | 105.4 | 189 | 105.4 |
| 100 | 200 | 150 | 89 | 131 ±0,02 | 172 | 190 ±0,02 | 150 | 150 ±0,02 | 130.4 | 213 | 130.4 |

| Ø | B12 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | G1 | G2 | KK | L1 |
|-----|------|----|------|-----|----|-----|------|-------|------|-----|-----|----------|-----|
| 32 | 32.5 | 12 | 6 H7 | 6.6 | 11 | 6.6 | 6 H7 | 30 M8 | 14.5 | M6 | M6 | M10x1,25 | 45 |
| 40 | 38 | 16 | 6 H7 | 6.6 | 11 | 6.6 | 6 H7 | 35 M8 | 18 | M6 | M6 | M12x1,25 | 54 |
| 50 | 46.5 | 20 | 6 H7 | 9 | 15 | 9 | 6 H7 | 40 M8 | 24 | M8 | M8 | M16x1,5 | 63 |
| 63 | 56.5 | 20 | 6 H7 | 9 | 15 | 9 | 6 H7 | 45 M8 | 24 | M8 | M8 | M16x1,5 | 80 |
| 80 | 72 | 25 | 6 H7 | 11 | 18 | 11 | 6 H7 | 45 M8 | 30 | M10 | M10 | M20x1,5 | 100 |
| 100 | 89 | 25 | 6 H7 | 11 | 18 | 11 | 6 H7 | 55 M8 | 30 | M10 | M10 | M20x1,5 | 120 |

| Ø | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|----|------|------|----|------|----|----|----|----|-----|-------|-----|-----|-----|------|
| 32 | 32.5 | 32.5 | 12 | 4.25 | 76 | 17 | 3 | 94 | 64 | 177.5 | 125 | 12 | 50 | 32.5 |

Piston rod cylinders → Standard cylinders

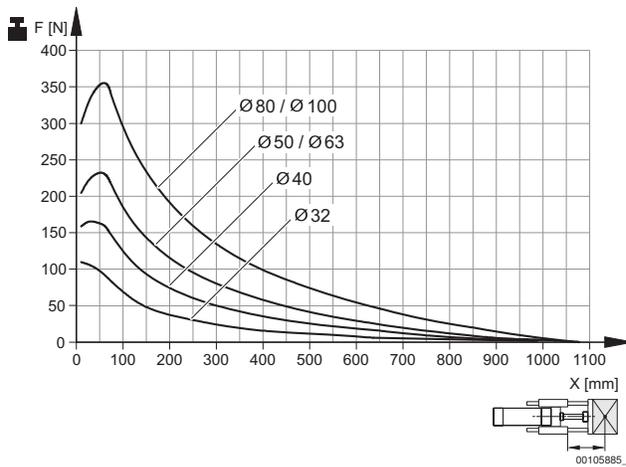
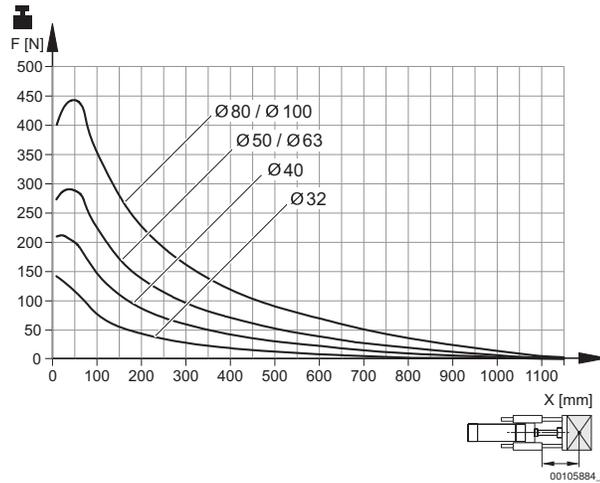
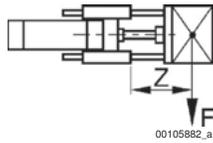
★ ISO 15552, Series PRA & TRB

Accessories

| Ø | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|-----|------|------|-----|-------|-----|----|----|-----|-----|-------|-----|-----|-----|------|
| 40 | 38 | 38 | 8 | 11 | 81 | 21 | 3 | 105 | 74 | 192.5 | 140 | 12 | 58 | 38 |
| 50 | 46.5 | 46.5 | 4.5 | 18.75 | 79 | 26 | 3 | 106 | 89 | 237 | 150 | 15 | 70 | 46.5 |
| 63 | 56.5 | 56.5 | 13 | 15.25 | 111 | 26 | 3 | 121 | 89 | 237 | 182 | 15 | 85 | 56.5 |
| 80 | 72 | 72 | 15 | 21 | 128 | 34 | 3 | 128 | 110 | 280 | 215 | 20 | 105 | 72 |
| 100 | 89 | 89 | 20 | 24.5 | 128 | 39 | 3 | 138 | 115 | 280 | 220 | 20 | 130 | 89 |

| Ø | L16 | L17 | L18 | T1 | T2 | T3 | SW1 | SW2 | | | | | | |
|-----|------------|-----|-----|-----|----|----|-----|-----|--|--|--|--|--|--|
| 32 | 32,5 ±0,02 | 6 | 17 | 6.5 | 10 | 15 | 13 | 5 | | | | | | |
| 40 | 38 ±0,02 | 14 | 22 | 6.5 | 10 | 15 | 15 | 6 | | | | | | |
| 50 | 46,5 ±0,02 | 14 | 26 | 9 | 10 | 16 | 22 | 6 | | | | | | |
| 63 | 56,5 ±0,02 | 14 | 26 | 9 | 10 | 16 | 22 | 6 | | | | | | |
| 80 | 72 ±0,02 | 14 | 32 | 11 | 10 | 20 | 27 | 8 | | | | | | |
| 100 | 89 ±0,02 | 14 | 32 | 11 | 10 | 20 | 27 | 8 | | | | | | |

Useful load

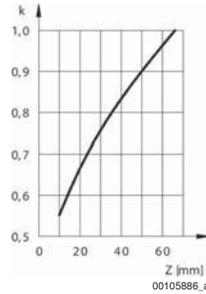


F= useful load, Z = projection

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

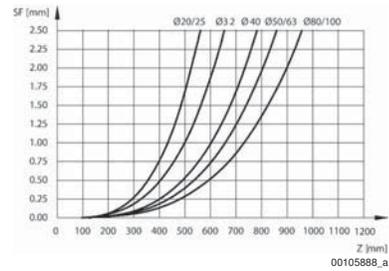
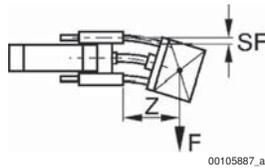
Reduction of useful load on short strokes



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

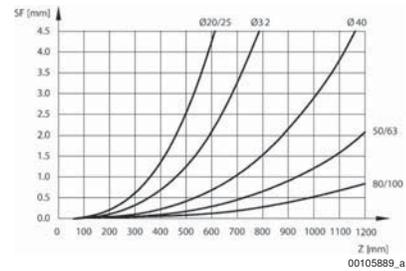
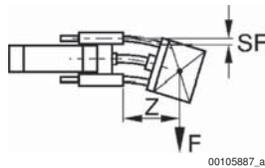
With a short stroke, the nominal load data determined from the diagram must be multiplied by the correction factor k. These short-stroke adjustments are already included in the load diagram for a displacement of up to 60 mm.

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

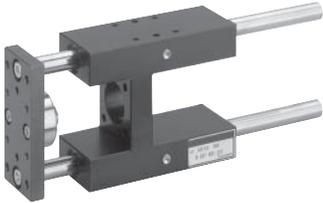
Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA & TRB

Accessories

★ Guide unit, GH1

▶ Ø 32 - 100 mm ▶ Plain bearing ▶ for cylinder with metric rod threads



00105863

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

Materials:

| | |
|-------------------------------------|--------------------------------|
| Bearing housings | Aluminum, black anodized |
| Bearing type | Sintered bronze |
| Carrying plate | Aluminum, black anodized |
| Flexible coupling in carrying plate | Stainless steel |
| Guide rods | Stainless steel, smooth rolled |

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

| Suitable piston Ø | | [mm] | 100 | | | | |
|-------------------|--------------|------|-------|--|--|--|--|
| Weight | 0 mm stroke | [kg] | 11.1 | | | | |
| | 10 mm stroke | [kg] | 0.039 | | | | |

| | Suitable piston Ø [mm] Min. play (radial) [mm] (inch) | 32 1.5 | 40 2 | 50 2 | 63 2 | 80 2 | 100 2 |
|--|---|------------|------------|------------|------------|------------|------------|
| | Stroke 50 (2") | 0821401220 | 0821401230 | 0821401240 | 0821401280 | - | - |
| | 100 (4") | 0821401221 | 0821401231 | 0821401241 | 0821401281 | 0821401260 | 0821401270 |
| | 160 (6") | 0821401222 | 0821401232 | 0821401242 | 0821401285 | - | - |
| | 200 (8") | 0821401223 | 0821401233 | 0821401243 | 0821401282 | 0821401261 | 0821401271 |
| | 250 (10") | 0821401224 | 0821401234 | 0821401244 | 0821401286 | - | - |
| | 320 (13") | 0821401225 | 0821401235 | 0821401245 | 0821401283 | 0821401262 | 0821401272 |
| | 400 (16") | 0821401226 | 0821401236 | 0821401246 | 0821401287 | - | - |
| | 500 (20") | 0821401227 | 0821401237 | 0821401247 | 0821401284 | 0821401263 | 0821401273 |
| | 600 (24") | 0821401228 | 0821401238 | 0821401249 | 0821401288 | 0821401264 | 0821401274 |
| | 800 (32") | 0821401229 | 0821401239 | 0821401474 | 0821401289 | 0821401265 | 0821401275 |
| | 1000 (39") | 0821401470 | 0821401472 | 0821401475 | 0821401290 | 0821401266 | 0821401276 |
| | 1200 (47") | 0821401471 | 0821401473 | 0821401476 | 0821401291 | 0821401267 | 0821401277 |

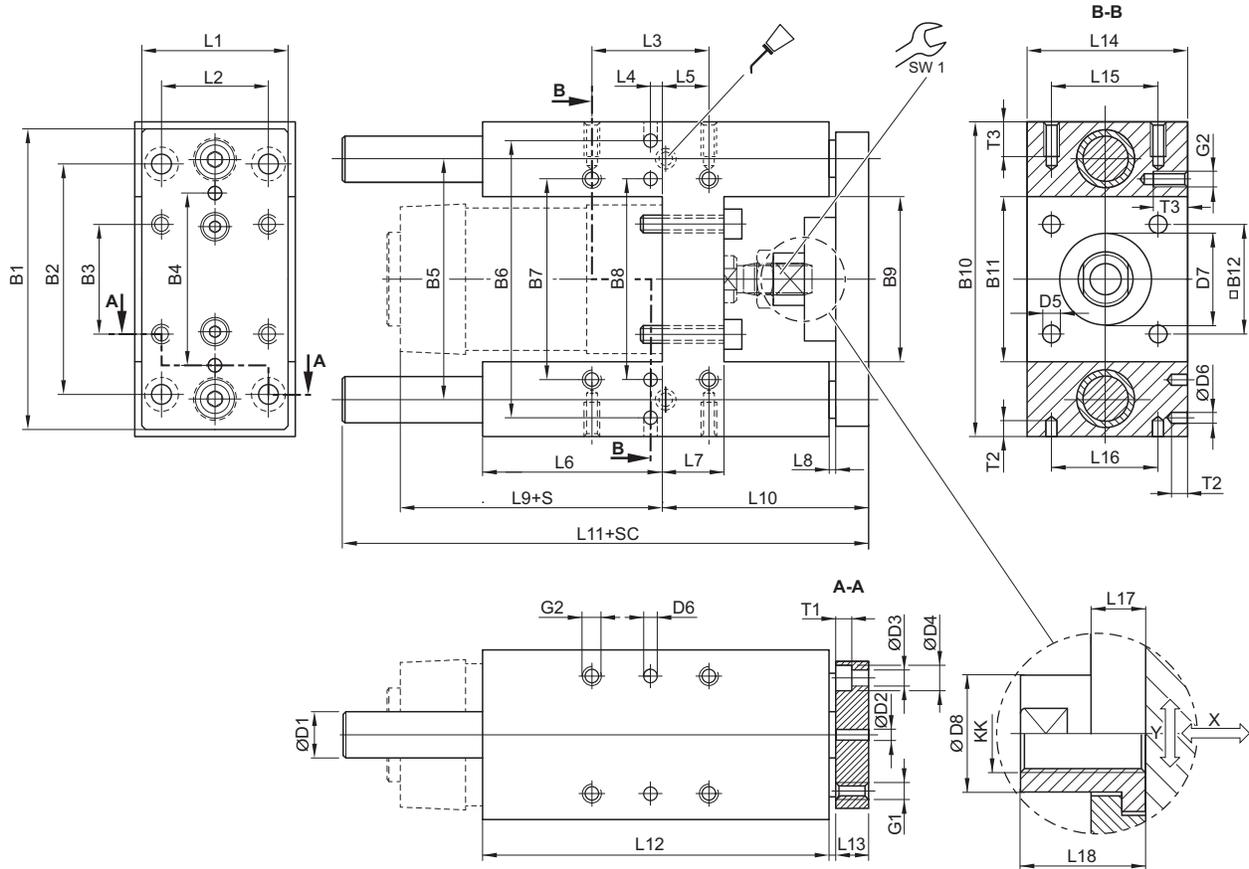
Note - Inch dimensions rounded to the nearest whole number.

- See internet configurator for cylinders with NPT ports and metric rod threads.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

Ø 32 - 100 mm



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

| Ø | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|-----|-----|-----|------|-----------|-----|-----------|-----|-----------|-------|-----|-------|
| 32 | 90 | 78 | 32.5 | 50 ±0,02 | 74 | 81 ±0,02 | 61 | 61 ±0,02 | 50.2 | 97 | 50.2 |
| 40 | 110 | 84 | 38 | 54 ±0,02 | 87 | 99 ±0,02 | 69 | 69 ±0,02 | 58.2 | 115 | 58.2 |
| 50 | 130 | 100 | 46.5 | 72 ±0,02 | 104 | 119 ±0,02 | 85 | 85 ±0,02 | 70.2 | 137 | 70.2 |
| 63 | 145 | 105 | 56.5 | 82 ±0,02 | 119 | 132 ±0,02 | 100 | 100 ±0,02 | 85.2 | 152 | 85.2 |
| 80 | 180 | 130 | 72 | 106 ±0,02 | 148 | 166 ±0,02 | 130 | 130 ±0,02 | 105.4 | 189 | 105.4 |
| 100 | 200 | 150 | 89 | 131 ±0,02 | 172 | 190 ±0,02 | 150 | 150 ±0,02 | 130.4 | 213 | 130.4 |

| Ø | B12 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | G1 | G2 | KK | L1 |
|-----|------|----|------|-----|----|-----|------|-------|------|-----|-----|----------|-----|
| 32 | 32.5 | 12 | 6 H7 | 6.6 | 11 | 6.6 | 6 H7 | 30 M8 | 14.5 | M6 | M6 | M10x1,25 | 45 |
| 40 | 38 | 16 | 6 H7 | 6.6 | 11 | 6.6 | 6 H7 | 35 M8 | 18 | M6 | M6 | M12x1,25 | 54 |
| 50 | 46.5 | 20 | 6 H7 | 9 | 15 | 9 | 6 H7 | 40 M8 | 24 | M8 | M8 | M16x1,5 | 63 |
| 63 | 56.5 | 20 | 6 H7 | 9 | 15 | 9 | 6 H7 | 45 M8 | 24 | M8 | M8 | M16x1,5 | 80 |
| 80 | 72 | 25 | 6 H7 | 11 | 18 | 11 | 6 H7 | 45 M8 | 30 | M10 | M10 | M20x1,5 | 100 |
| 100 | 89 | 25 | 6 H7 | 11 | 18 | 11 | 6 H7 | 55 M8 | 30 | M10 | M10 | M20x1,5 | 120 |

| Ø | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|----|------|------|----|------|----|----|----|-----|-----|-------|-----|-----|-----|------|
| 32 | 32.5 | 32.5 | 12 | 4.25 | 76 | 17 | 3 | 94 | 64 | 177.5 | 125 | 12 | 50 | 32.5 |
| 40 | 38 | 38 | 8 | 11 | 81 | 21 | 3 | 105 | 74 | 192.5 | 140 | 12 | 58 | 38 |

Piston rod cylinders → Standard cylinders

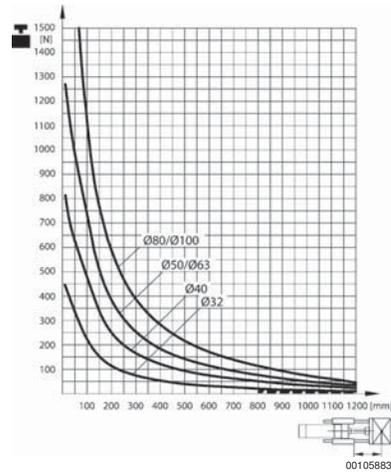
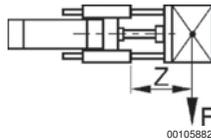
★ ISO 15552, Series PRA & TRB

Accessories

| Ø | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|-----|------|------|-----|-------|-----|----|----|-----|-----|-----|-----|-----|-----|------|
| 50 | 46.5 | 46.5 | 4.5 | 18.75 | 79 | 26 | 3 | 106 | 89 | 205 | 150 | 15 | 70 | 46.5 |
| 63 | 56.5 | 56.5 | 13 | 15.25 | 111 | 26 | 3 | 121 | 89 | 237 | 182 | 15 | 85 | 56.5 |
| 80 | 72 | 72 | 15 | 21 | 128 | 34 | 3 | 128 | 110 | 280 | 215 | 20 | 105 | 72 |
| 100 | 89 | 89 | 20 | 24.5 | 128 | 39 | 3 | 138 | 115 | 280 | 220 | 20 | 130 | 89 |

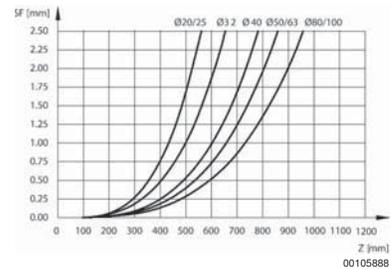
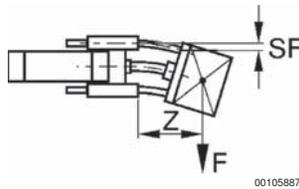
| Ø | L16 | L17 | L18 | T1 | T2 | T3 | SW1 | | | | | | | |
|-----|------------|-----|-----|-----|----|----|-----|--|--|--|--|--|--|--|
| 32 | 32,5 ±0,02 | 6 | 17 | 6.5 | 10 | 15 | 13 | | | | | | | |
| 40 | 38 ±0,02 | 14 | 22 | 6.5 | 10 | 15 | 15 | | | | | | | |
| 50 | 46,5 ±0,02 | 14 | 26 | 9 | 10 | 16 | 22 | | | | | | | |
| 63 | 56,5 ±0,02 | 14 | 26 | 9 | 10 | 16 | 22 | | | | | | | |
| 80 | 72 ±0,02 | 14 | 32 | 11 | 10 | 20 | 27 | | | | | | | |
| 100 | 89 ±0,02 | 14 | 32 | 11 | 10 | 20 | 27 | | | | | | | |

Useful load



F = useful load, Z = projection

Bending due to own load

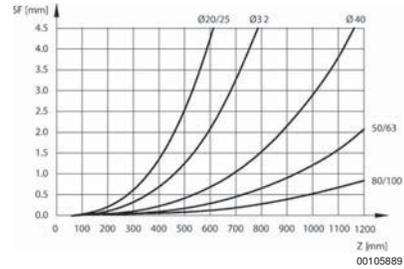
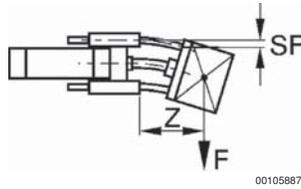


F = useful load (at the load center), SF = bending, Z = projection

Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA & TRB
Accessories

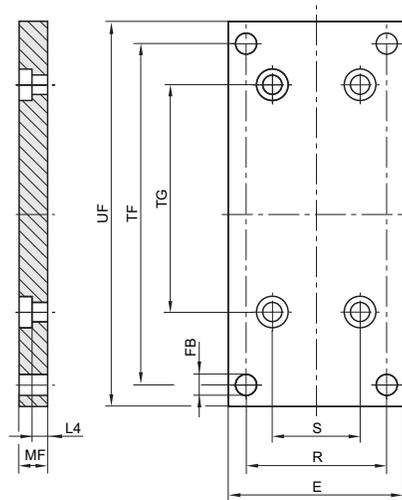
Bending due to 10 N load



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

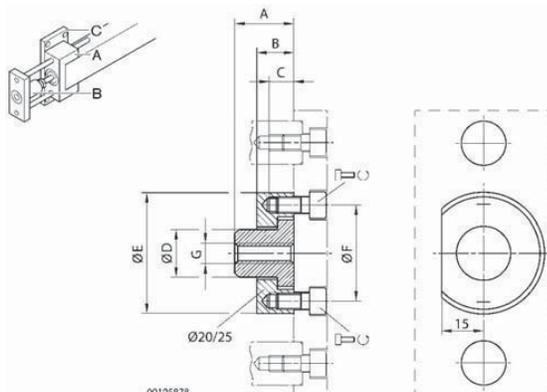
★ Flange mounting

► 'U' version, for guide units, Ø 80 - 100 mm



| Part No. | Ø | E | FB | L4 | MF | R | S | TF | TG | UF | Material |
|------------|-----|-----|----|----|----|----|----|-----|-----|-----|----------------------|
| 1827010494 | 80 | 100 | 12 | 9 | 16 | 80 | 50 | 195 | 130 | 220 | Steel, nickel-plated |
| 1827010495 | 100 | 120 | 14 | 9 | 16 | 95 | -- | 217 | 150 | 245 | Steel, nickel-plated |

| Part No. | Surface | | | | | | | | | | |
|------------|------------|--|--|--|--|--|--|--|--|--|--|
| 1827010494 | galvanized | | | | | | | | | | |
| 1827010495 | galvanized | | | | | | | | | | |



A = Guide unit
B = Rod coupling
C = Mounting flange

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

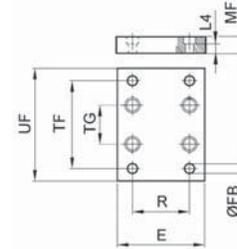
Accessories

★ Flange mounting

► for guide units, 'H' version, Ø 12 - 100 mm

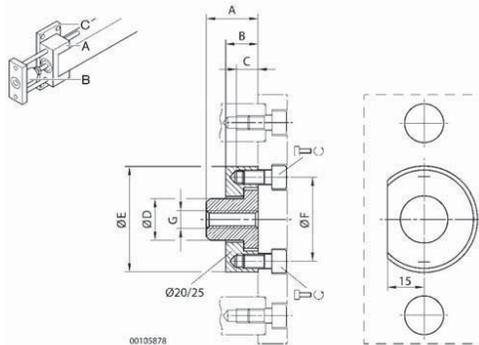


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| Part No. | Ø | E | Ø FB | L4 | MF | R | TF | TG | UF | Material | Surface |
|------------|-------|-----|------|-----|----|------|-----|-----|-----|-------------------|------------|
| 1821038163 | 12/16 | 50 | 5.5 | 4.5 | 10 | 32.5 | 50 | 23 | 64 | Steel, galvanized | galvanized |
| 1821038078 | 20/25 | 50 | 6.6 | 4.5 | 10 | 32.5 | 50 | 23 | 64 | Steel, galvanized | galvanized |
| 1821038079 | 32 | 50 | 6.6 | 4.5 | 10 | 32.5 | 116 | 61 | 130 | Steel, galvanized | galvanized |
| 1821038080 | 40 | 55 | 9 | 4.5 | 10 | 38 | 140 | 69 | 160 | Steel, galvanized | galvanized |
| 1821038081 | 50 | 70 | 9 | 6 | 12 | 46.5 | 160 | 85 | 180 | Steel, galvanized | galvanized |
| 1821038082 | 63 | 80 | 9 | 6 | 12 | 56.5 | 175 | 100 | 195 | Steel, galvanized | galvanized |
| 1821038083 | 80 | 100 | 12 | 9 | 16 | 72 | 218 | 130 | 242 | Steel, galvanized | galvanized |
| 1821038084 | 100 | 120 | 14 | 9 | 16 | 89 | 245 | 150 | 272 | Steel, galvanized | galvanized |



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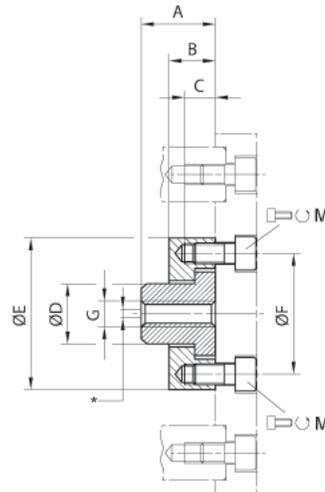
- A = Guide unit
- B = Rod coupling
- C = Mounting flange

★ Flexible coupling GU3

► for guide units ► version 'U' and 'H', Ø12-63



00105864



00132063

* Radial joint from 2 - 2,5 mm
Scope of delivery: flexible coupling incl. mounting screws

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

| Part No. | Ø | M | G | A | B | C | D | ØE | ØF |
|------------|-------|----------|----------|----|----|---|----|----|----|
| 1827020170 | 12/16 | 2x M4x10 | M6 | 18 | 7 | 7 | 10 | 22 | 15 |
| 1827020174 | 40 | 2x M6x12 | M12x1,25 | 22 | 14 | 8 | 18 | 45 | 36 |
| 1827020175 | 50/63 | 4x M6x14 | M16x1,5 | 26 | 14 | 8 | 24 | 54 | 45 |

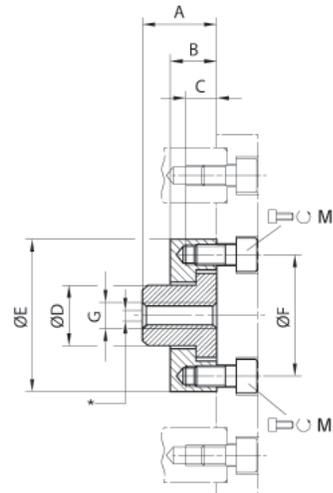
| Part No. | Material | | | | | | | | |
|------------|-----------------|--|--|--|--|--|--|--|--|
| 1827020170 | Stainless steel | | | | | | | | |
| 1827020174 | Stainless steel | | | | | | | | |
| 1827020175 | Stainless steel | | | | | | | | |

★ Flexible coupling GU3

► for guide units ► 'H' version, Ø20–100



00106407



00105878_a

* Radial joint from 1,5 - 1,8 mm
Scope of delivery: flexible coupling incl. mounting screws

| Part No. | Ø | M | G | A | B | C | D | ØE | ØF |
|------------|--------|----------|----------|----|----|------|------|----|----|
| 1827020177 | 20 | 2x M5x12 | M8 | 22 | 14 | 6 | 14.5 | 33 | 26 |
| 1827020178 | 25/32 | 2x M5x12 | M10x1,25 | 17 | 14 | 6 | 14.5 | 33 | 26 |
| 1827020179 | 80/100 | 4x M6x20 | M20x1,5 | 32 | 14 | 11.5 | 32 | 60 | 51 |

| Part No. | Material | | | | | | | | |
|------------|-----------------|--|--|--|--|--|--|--|--|
| 1827020177 | Stainless steel | | | | | | | | |
| 1827020178 | Stainless steel | | | | | | | | |
| 1827020179 | Stainless steel | | | | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Holding unit, HU1

► Ø32 - 100 mm ► hold: spring force, release: compressed air



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| | |
|-------------------------------|---|
| Function | Hold with clamping jaws |
| Working pressure min./max. | 4 bar / 8 bar |
| Control pressure min./max. | -- / 8 bar |
| Ambient temperature min./max. | -10 °C / +60 °C |
| Medium temperature min./max. | -10 °C / +60 °C |
| Particle size max. | 5 µm |
| Oil content of compressed air | 0 mg/m ³ - 5 mg/m ³ |
| Materials: | |
| Housing | Aluminum, black anodized |

Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth, see chapter „Technical information“.
- Warning:
The holding unit may NOT be used for the following applications:
- for dynamic holding
- in or as safety equipment
- Holding unit may only be unlocked when turned off
- NOTE:
The minimum control pressure is \geq working pressure!

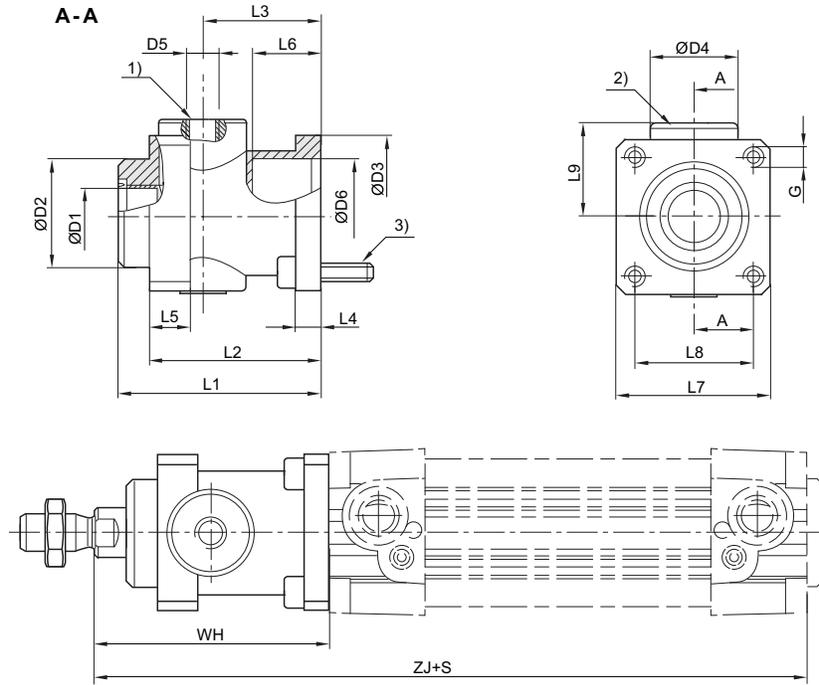
| | Piston Ø | suitable piston rod diameter h8 tolerance | piston rod extension | Compressed air connection | Holding force | Weight | Part No. |
|--|----------|--|----------------------|---------------------------|---------------|--------|------------|
| | | | | | [N] | | |
| | 32 | 12 | 42 | M5 | 650 | 0.2 | 0821401165 |
| | 40 | 16 | 45 | G 1/8 | 1100 | 0.27 | 0821401166 |
| | 50 | 20 | 57 | G 1/8 | 1600 | 0.57 | 0821401167 |
| | 63 | 20 | 57 | G 1/8 | 2500 | 0.8 | 0821401168 |
| | 80 | 25 | 77 | G 1/8 | 4000 | 1.85 | 0821401169 |
| | 100 | 25 | 77 | G 1/8 | 6300 | 2.9 | 0821401170 |

Caution: To use holding unit in combination with a linear guide, add the following rod extensions to the cylinder (in addition to configuring the cylinder to accept a rod holding unit): 32mm bore 6mm, 40mm bore 10mm, 50/63/80mm bores 13mm, and 100mm bore 23mm.

Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA & TRB
Accessories

Dimensions



00129789

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

| | A | Ø D1 | Ø D2 | Ø D3 | Ø D4 | D5 | L1 | L2 | L3 | L4 | L5 | L6 |
|------------|-------|------|------|------|------|-------|-----|-----|------|----|----|------|
| 0821401165 | 16,25 | 12 | 30 | 35 | 25 | M5 | 58 | 48 | 34 | 8 | 13 | 20.5 |
| 0821401166 | 19 | 16 | 35 | 40 | 28 | G 1/8 | 65 | 55 | 38 | 8 | 13 | 22.5 |
| 0821401167 | 23,25 | 20 | 40 | 50 | 35 | G 1/8 | 82 | 70 | 48 | 15 | 16 | 29.5 |
| 0821401168 | 28,25 | 20 | 45 | 60 | 38 | G 1/8 | 82 | 70 | 49.5 | 15 | 16 | 29.5 |
| 0821401169 | 36 | 25 | 45 | 80 | 48 | G 1/8 | 110 | 90 | 61 | 18 | 20 | 35 |
| 0821401170 | 44,5 | 25 | 55 | 100 | 58 | G 1/8 | 115 | 100 | 69 | 18 | 20 | - |

| | L7 | L8 | L9 | G | WH | ZJ | | | | | |
|------------|-----|------|------|-----|-----|-----|--|--|--|--|--|
| 0821401165 | 45 | 32.5 | 25.5 | M6 | 68 | 162 | | | | | |
| 0821401166 | 50 | 38 | 30 | M6 | 75 | 180 | | | | | |
| 0821401167 | 60 | 46.5 | 36 | M8 | 94 | 200 | | | | | |
| 0821401168 | 70 | 56.5 | 40 | M8 | 94 | 215 | | | | | |
| 0821401169 | 90 | 72 | 50 | M10 | 123 | 251 | | | | | |
| 0821401170 | 105 | 89 | 58 | M10 | 128 | 266 | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

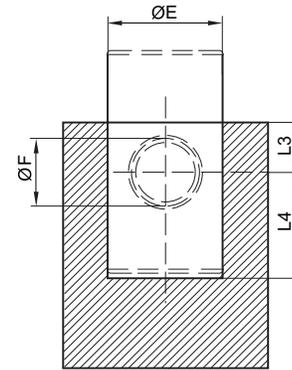
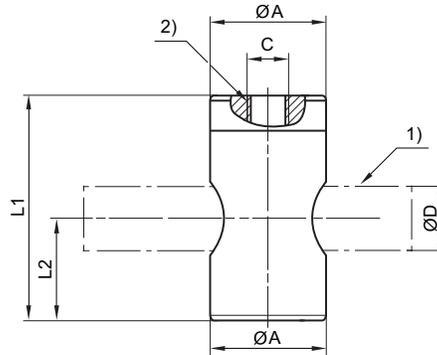
Accessories

★ Holding cartridge, HU2

► Ø20 - 100 mm ► hold: spring force, release: compressed air



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1) piston rod
2) air connection

Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Warning:
The holding cartridge may NOT be used for the following applications:
- for dynamic holding
- in or as safety equipment
- Holding cartridge may only be unlocked when air pressure is turned off
- NOTE:
The minimum control pressure is \geq working pressure!

| | Piston Ø | suitable piston rod diameter | Compressed air connection | Holding force | Weight | Part No. |
|--|----------|------------------------------|---------------------------|---------------|--------|------------|
| | | | | | | |
| | 32 | 12 | M5 | 650 | 0.09 | 0821401154 |
| | 20 | 8 | M5 | 300 | 0.07 | 0821401152 |
| | 40 | 16 | G 1/8 | 1100 | 0.11 | 0821401155 |
| | 25 | 10 | M5 | 400 | 0.07 | 0821401153 |
| | 50 | 20 | G 1/8 | 1600 | 0.21 | 0821401156 |
| | 63 | 20 | G 1/8 | 2500 | 0.29 | 0821401157 |
| | 80 | 25 | G 1/8 | 4000 | 0.55 | 0821401158 |
| | 100 | 25 | G 1/8 | 6300 | 1.1 | 0821401159 |

| | Ø D | Ø A | C | Ø E | Ø F | L1 | L2 | L3 1) | L4 | | | |
|------------|-----|-----|-------|-----|------|------|----|-------|----|--|--|--|
| 0821401152 | 8 | 20 | M5 | 20 | D +1 | 40 | 19 | 7 | 20 | | | |
| 0821401153 | 10 | 20 | M5 | 20 | D +1 | 40 | 19 | 8 | 20 | | | |
| 0821401154 | 12 | 25 | M5 | 25 | D +1 | 47.5 | 22 | 10 | 23 | | | |
| 0821401155 | 16 | 28 | G 1/8 | 28 | D +1 | 55 | 25 | 12 | 26 | | | |
| 0821401156 | 20 | 35 | G 1/8 | 35 | D +1 | 66 | 30 | 15 | 31 | | | |
| 0821401157 | 20 | 38 | G 1/8 | 38 | D +1 | 74 | 34 | 15 | 35 | | | |
| 0821401158 | 25 | 48 | G 1/8 | 48 | D +1 | 95 | 45 | 20 | 46 | | | |
| 0821140159 | 25 | 58 | G 1/8 | 58 | D +1 | 110 | 52 | 20 | 53 | | | |

1) Min.

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Locking Unit LU6

► Ø32 - 125 mm ► Hold: non-adjustable spring force, Release: compressed air (for new applications)



| | |
|-------------------------------|--------------------------|
| Version | Clamping jaw lock |
| Function | Hold with clamping jaws |
| Release pressure | 4 bar / 10 bar |
| Ambient temperature min./max. | -25 °C / +80 °C |
| Medium temperature min./max. | -25 °C / +80 °C |
| Medium | Compressed air |
| Max. particle size | 5 µm |
| Oil content of compressed air | 0 mg/m³ - 5 mg/m³ |
| Materials: | |
| Housing | Aluminum, anodized |
| Seal and Scraper | Nitrile butadiene rubber |

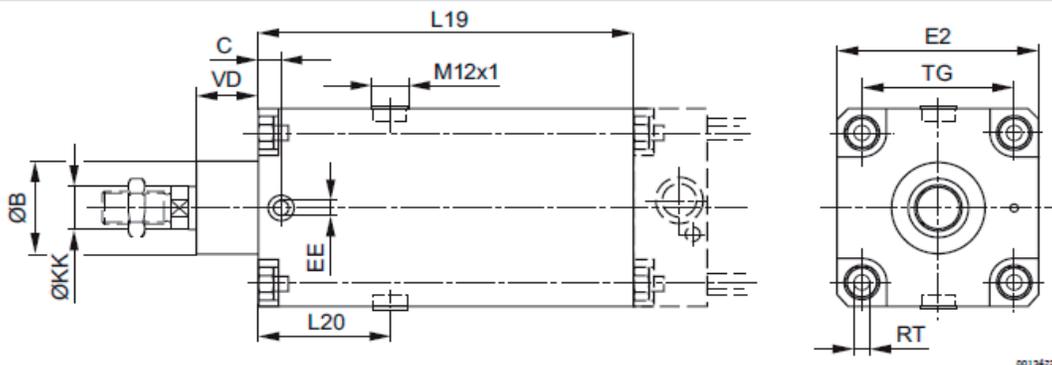
Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of air pressure must remain constant during the life cycle.
- Use only the approved oils from Bosch Rexroth
- Warning:
The brake may NOT be used for the following applications:
- for dynamic holding
- in or as safety equipment
- NOTE:
Before pressurizing the lock, make sure that there is a balance of forces at the piston on the drive cylinder. Please see the operating instructions for further information relevant for safety.

| | Piston Ø | suitable piston rod diameter | piston rod extension | Compressed air connection | Holding force | Weight | Part No. |
|--|----------|------------------------------|----------------------|---------------------------|---------------|--------|------------|
| | | | | | [N] | | |
| | 32 | 12 | 125 | G 1/8 | 760 | 0.8 | 5230996402 |
| | 40 | 16 | 125 | G 1/8 | 1200 | 1 | 5231996402 |
| | 50 | 20 | 145 | G 1/8 | 1900 | 1.8 | 5232996402 |
| | 63 | 20 | 165 | G 1/8 | 3000 | 2.8 | 5233996402 |
| | 80 | 25 | 185 | G 1/8 | 5000 | 5.5 | 5234996402 |
| | 100 | 25 | 220 | G 1/8 | 8000 | 9.5 | 5235996402 |
| | 125 | 32 | 220 | G 1/4 | 12000 | 13.8 | 5236996402 |

Holding force at 0 bar

Dimensions



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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Sensor, Series ST6

▶ 6 mm groove ▶ with cable ▶ without wire end ferrule, tin-plated (for new applications)



00112027_2

| | |
|---|------------------|
| Ambient temperature min./max. | -25 °C / +70 °C |
| Protection class according to EN 60529:2000 | IP 68 |
| Switching point precision [mm] | ±0,1 |
| Switching capacity | 3 W / 3 VA |
| LED status display | Yellow |
| Vibration resistance | 10 - 55 Hz, 1 mm |
| Shock resistance | 30 g / 11 ms |

Materials:

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

| | Type of contact | cable length L [m] | DC operating voltage Min./max. [V] | Operational voltage AC Min./max. [V] | DC switching current, max. [A] | AC switching current, max. [A] | Part No. |
|--|-----------------|-----------------------|--|--|-----------------------------------|-----------------------------------|--|
| | Reed | 3 | 10 / 110 | 10 / 110 | 0, 13 | 0,13 | R412007815 |
| | Reed | 3 5 10 | 10 / 30 | 10 / 30 | 0,13 | 0,13 | 0830100629 0830100630 R412004575 |
| | electronic PNP | 3 5 10 | 10 / 30 | - | 0.1 | 0,1 | 0830100631 0830100632 R412004576 |
| | electronic NPN | 3 5 | 10 / 30 | - | 0.1 | - | 0830100633 0830100634 |

| Part No. | Voltage drop U at I _{max} [V] | Protective resistor for reed [Ω] | Max. switching frequency [kHz] | Operating current, not switched [mA] | Operating current, switched [mA] | Note |
|--|---|-------------------------------------|-----------------------------------|---|-------------------------------------|------|
| 0830100629 0830100630 R412004575 | I*Rs | 15 | < 0,3 | - | < 10 | 1) |
| 0830100631 0830100632 R412004576 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | 2) |
| 0830100633 0830100634 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | 2) |

1) short circuit protected

2) short circuit resistant; short circuit protected

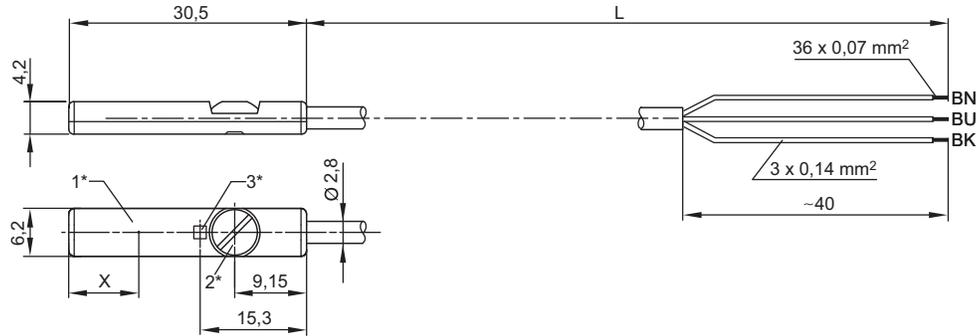
interfaces: without wire end ferrule, tin-plated

Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA & TRB

Accessories

Dimensions



00111942_b

1* = sensor element 2* = clamping screw 3* = LED
 L = cable length
 BN = brown, BK = black, BU = blue
 X = electronic: 6 mm, Reed: 10 mm

★ Sensor, Series ST6

► 6 mm groove ► with cable ► Plug, M8, 3-pin, with knurled screw (for new applications)



00112027_5

| | |
|---|------------------|
| Ambient temperature min./max. | -25°C / +70°C |
| Protection class according to EN 60529:2000 | IP 68 |
| Switching point precision [mm] | ±0,1 |
| Switching capacity | 3 W / 3 VA |
| LED status display | Yellow |
| Vibration resistance | 10 - 55 Hz, 1 mm |
| Shock resistance | 30 g / 11 ms |

Materials:
 Housing Polyamide

| | Type of contact | cable length L | DC operating voltage | Operational voltage AC | DC switching current, max. | AC switching current, max. | Part No. |
|--|-----------------|----------------|----------------------|------------------------|----------------------------|----------------------------|------------|
| | | [m] | Min./max. [V] | Min./max. [V] | [A] | [A] | |
| | Reed | 0.3 | 10 / 30 | 10 / 30 | 0,13 | 0,13 | 0830100434 |
| | | 0.5 | | | | | 0830100436 |
| | electronic PNP | 0.3 | 10 / 30 | - | 0.1 | 0,1 | 0830100435 |
| | | 0.3 | | | | | R412004762 |
| | | 0.5 | | | | | 0830100437 |
| | electronic NPN | 0.3 | 10 / 30 | - | 0.1 | - | 0830100431 |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

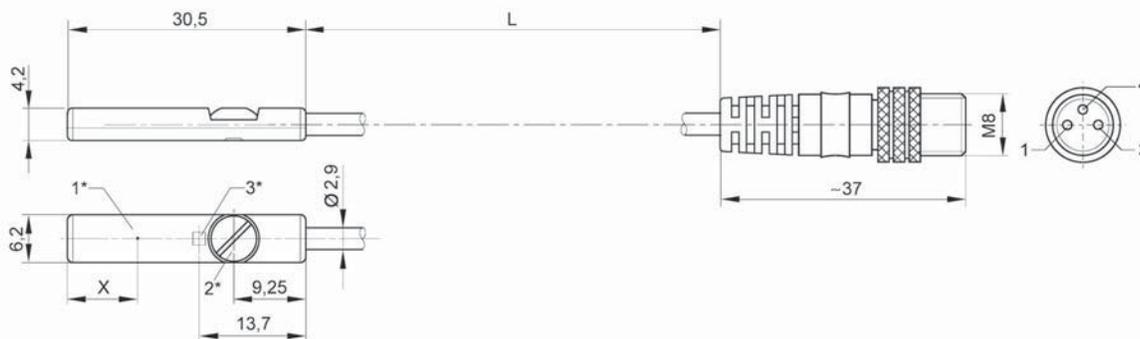
| Part No. | Voltage drop U at I _{max} | Protective resistor for reed | Max. switching frequency | Operating current, not switched | Operating current, switched | Material Cable | Note |
|--------------------------|---------------------------------------|------------------------------------|--------------------------------|---------------------------------------|-----------------------------------|---------------------------------------|------|
| | [V] | [Ω] | [kHz] | [mA] | [mA] | | |
| 0830100434 0830100436 | I [*] Rs | 15 | < 0,3 | - | < 10 | Polyurethane | 1) |
| 0830100435 R412004762 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | Polyurethane Polyvinyl chloride | 2) |
| 0830100437 0830100431 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | Polyurethane | 2) |

1) short circuit protected

2) short circuit resistant; short circuit protected

interfaces: Plug; M8; 3-pin; with knurled screw

Dimensions



00111942_d

1* = sensor element 2* = clamping screw 3* = LED

L = cable length

X = electronic: 6 mm, Reed: 10 mm

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

★ Sensor, Series ST6

▶ 6 mm groove ▶ with cable ▶ Plug, M8, 3-pin (for new applications)



00112027_3

Ambient temperature min./max.
Protection class according to EN
60529:2000

-25 °C / +70 °C
IP 68

Switching point precision [mm]

±0,1

Switching capacity

3 W / 3 VA

LED status display

Yellow

Vibration resistance

10 - 55 Hz, 1 mm

Shock resistance

30 g / 11 ms

Materials:

Housing

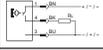
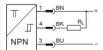
Polyamide

Cable

Polyurethane

Piston rod cylinders → Standard cylinders

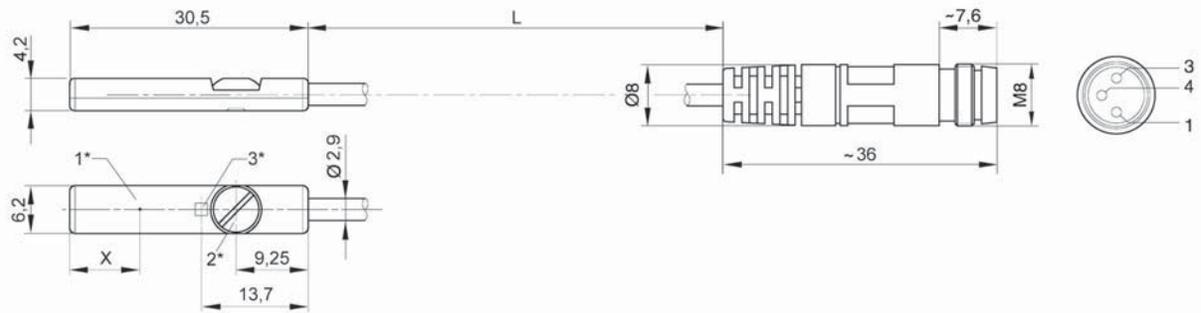
★ ISO 15552, Series PRA & TRB
Accessories

| Type of contact | cable length L | DC operating voltage Min./max. | Operational voltage AC Min./max. | DC switching current, max. | AC switching current, max. | Part No. |
|--|----------------|--------------------------------|----------------------------------|----------------------------|----------------------------|------------|
| | [m] | [V] | [V] | [A] | [A] | |
|  Reed | 0.3 | 10 / 30 | 10 / 30 | 0,13 | 0,13 | 0830100488 |
|  electronic PNP | 0.3 | 10 / 30 | - | 0.1 | 0,1 | 0830100489 |
|  electronic NPN | 0.3 | 10 / 30 | - | 0.1 | - | 0830100430 |

| Part No. | Voltage drop U at I _{max} | Protective resistor for reed | Max. switching frequency | Operating current, not switched | Operating current, switched | Note |
|------------|------------------------------------|------------------------------|--------------------------|---------------------------------|-----------------------------|------|
| | [V] | [Ω] | [kHz] | [mA] | [mA] | |
| 0830100488 | I*Rs | 15 | < 0,3 | - | < 10 | 1) |
| 0830100489 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | 2) |
| 0830100430 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | 2) |

1) short circuit protected
 2) short circuit resistant; short circuit protected
 interfaces: Plug; M8; 3-pin

Dimensions



00111942_a

1* = sensor element 2* = clamping screw 3* = LED
 L = cable length
 X = electronic: 6 mm, Reed: 10 mm
 Pin assignment: 1 = (+), 3 = (-), 4 = (OUT), EN 60947-5-2:1998

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Sensor, Series ST6

▶ 6 mm groove ▶ with cable ▶ Plug, M12, 3-pin, with knurled screw (for new applications)



00112027_4

| | |
|---|------------------|
| Ambient temperature min./max. | -25°C / +70°C |
| Protection class according to EN 60529:2000 | IP 68 |
| Switching point precision [mm] | ±0,1 |
| Switching capacity | 3 W / 3 VA |
| LED status display | Yellow |
| Vibration resistance | 10 - 55 Hz, 1 mm |
| Shock resistance | 30 g / 11 ms |
| Materials: | |
| Housing | Polyamide |
| Cable | Polyurethane |

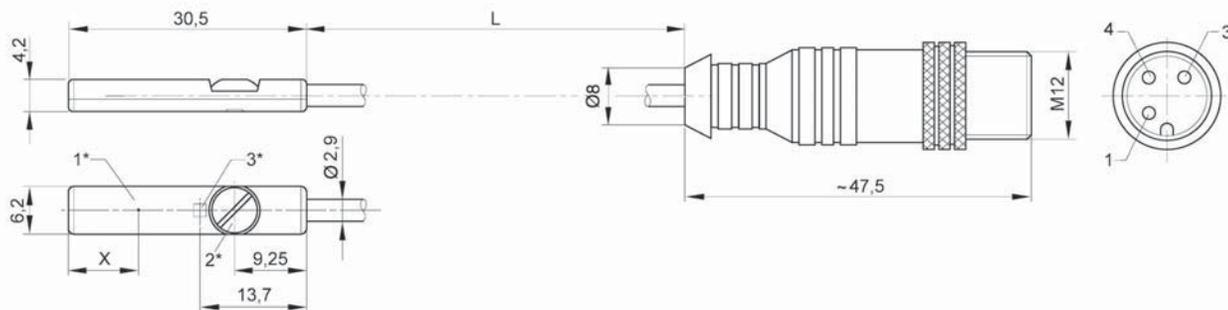
| | Type of contact | cable length L [m] | DC operating voltage | Operational voltage AC | DC switching current, max. | AC switching current, max. | Part No. |
|--|-----------------|-----------------------|----------------------|------------------------|----------------------------|----------------------------|------------|
| | | | Min./max. [V] | Min./max. [V] | [A] | [A] | |
| | Reed | 0.3 | 10 / 30 | 10 / 30 | 0,13 | 0,13 | 0830100432 |
| | electronic PNP | 0.3 | 10 / 30 | - | 0.1 | - | 0830100433 |

| Part No. | Voltage drop U at I _{max} [V] | Protective resistor for reed [Ω] | Max. switching frequency [kHz] | Operating current, not switched [mA] | Operating current, switched [mA] | Note |
|------------|---|-------------------------------------|-----------------------------------|---|-------------------------------------|------|
| 0830100432 | I*Rs | 15 | < 0,3 | - | < 10 | 1) |
| 0830100433 | ≤ 2,5 | - | < 1,0 | < 20 | < 30 | 2) |

1) short circuit protected

2) short circuit resistant; short circuit protected
interfaces: Plug; M12; 3-pin; with knurled screw

Dimensions



00111942_c

1* = sensor element 2* = clamping screw 3* = LED

L = cable length

X = PNP: 6 mm, Reed: 10 mm

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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

★ Sensor, Series SM6

► 6 mm groove ► with cable ► Plug, M8x1, 4-pin, with knurled screw ► distance measuring sensor

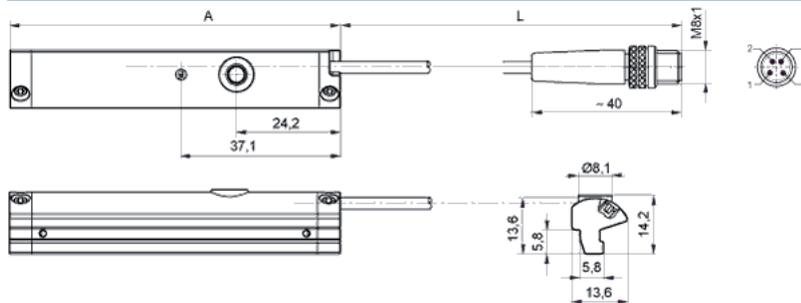


| | |
|---|-----------------------------------|
| Ambient temperature min./max. | -20°C / +70°C |
| Protection class according to EN 60529: | IP 67 |
| Output signal | 1x current and 1x voltage |
| Nominal current, actuated state mA | < 20 |
| Nominal current, idle state mA | < 20 |
| sampling interval | 0,5 ms |
| Resolution | 0,05 mm |
| Repetitive precision | 0.1 mm |
| Linearity | 0,3 mm |
| Max. stroke speed | 3 m/s |
| Display | LED |
| LED status display | Yellow |
| Vibration resistance | 10 - 55 Hz, 1 mm |
| Shock resistance | 30 g / 11 ms |
| Materials: | |
| Housing | Polyamide, fiber-glass reinforced |
| Cable | Polyurethane |

| | cable length L | Measurement range max. | Operational voltage AC Min./max. | Voltage signal | Current signal | Part No. |
|--|----------------|------------------------|----------------------------------|----------------|----------------|------------|
| | [m] | [mm] | [V] | [V] | [mA] | |
| | 0,3 | 32 | 15 / 30 | 0 - 10 V DC | 4 - 20 mA | R412010142 |
| | | 64 | | | | R412010144 |
| | | 96 | | | | R412010263 |
| | | 128 | | | | R412010265 |

interfaces: Plug, M8x1, 4-pin, with knurled screw
short circuit resistant, short circuit protected, overload protection

Dimensions



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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Sensor, Series ST8

▶ 8 mm groove ▶ with cable ▶ without wire end ferrule, tin-plated
(compatible with Series 523, not for new applications)



P322_194_2

| | |
|---|--------------------|
| Ambient temperature min./max. | -25 °C / +75 °C |
| Protection class according to EN 60529:2000 | IP 67 |
| Switching point precision [mm] | ±0,1 |
| Vibration resistance | 10 - 55 Hz, 1,5 mm |

Materials:

| | |
|---------|--------------------|
| Housing | Polyamide |
| Cable | Polyvinyl chloride |

| Type of contact | cable length L | DC operating voltage Min./max. | Operational voltage AC Min./max. | DC switching current, max. | AC switching current, max. | Part No. |
|-----------------|----------------|--------------------------------|----------------------------------|----------------------------|----------------------------|------------|
| | [m] | [V] | [V] | [A] | [A] | |
| Reed | 2.5 | 10 / 30 | -- / 240 | 0.1 | - | 2750132310 |
| | 10 | | 12 / 240 | | | 2750152310 |
| electronic PNP | 2.5 | 10 / 30 | - | 0,15 | - | 2750131110 |
| | 10 | | | | | 2750151110 |

| Part No. | Voltage drop U at Imax | Shock resistance max. | Note |
|------------|------------------------|-----------------------|------|
| | [V] | | |
| 2750132310 | ≤ 3,0 | 30 g / 11 ms | 2) |
| 2750152310 | I*Rs | | |
| 2750131110 | ≤ 2,0 | 30 g | 3) |
| 2750151110 | | | |

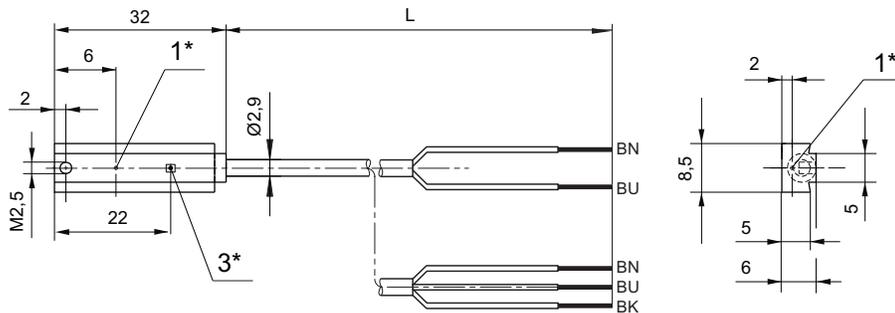
1) switching capacity: 3 W / 3 VA

2) short circuit protected

3) short circuit resistant; short circuit protected

interfaces: without wire end ferrule, tin-plated

Dimensions



00134180

1* = sensor element

3* = LED

L = cable length

BN = brown, BK = black, BU = blue

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB
Accessories

★ Sensor, Series ST8

► 8 mm groove ► with cable ► Plug, M8
(compatible with Series 523, not for new applications)



| | |
|---|--------------------|
| Ambient temperature min./max. | -25°C / +75°C |
| Protection class according to EN 60529:2000 | IP 67 |
| Switching point precision [mm] | ±0,1 |
| Vibration resistance | 10 - 55 Hz, 1,5 mm |
| Shock resistance | 30 g |

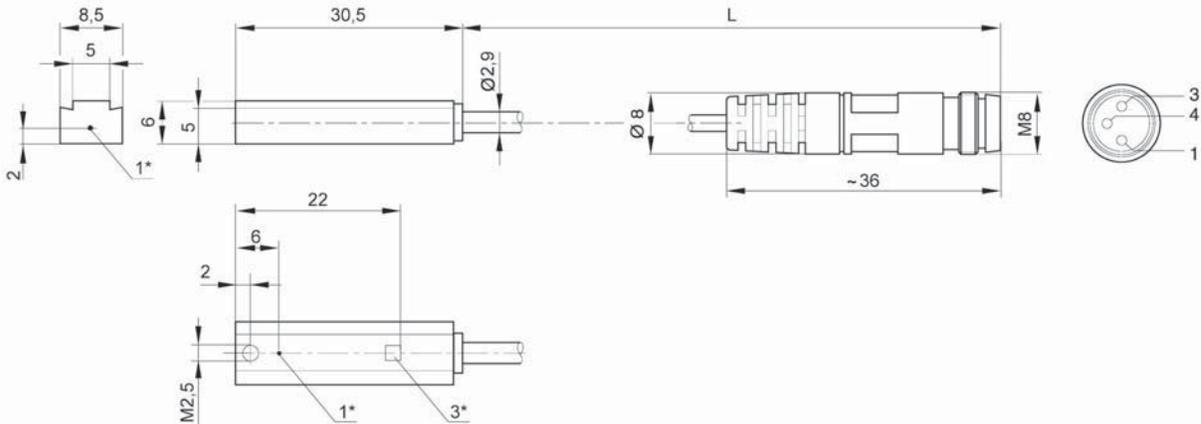
| | |
|------------|--------------|
| Materials: | |
| Housing | Polyamide |
| Cable | Polyurethane |

| | Type of contact | cable length L | DC operating voltage | Operational voltage AC | DC switching current, max. | AC switching current, max. | Part No. |
|--|-----------------|----------------|----------------------|------------------------|----------------------------|----------------------------|--|
| | | [m] | Min./max. [V] | Min./max. [V] | [A] | [A] | |
| | Reed | 0.3 | 10 / 30 | 3 / 30 | 0.1 | 0,15 | 2750111320 |
| | electronic PNP | 0.3 | 10 / 30 | - | 0,15 | - | 2750111120 2750123120 2750213120 |
| | electronic NPN | 0.3 | 10 / 30 | - | 0,15 | - | 2750111220 |

| Part No. | Voltage drop U at Imax | Note |
|------------|------------------------|--------|
| | [V] | |
| 2750111320 | I*Rs | 2); 3) |
| 2750111120 | | 4) |
| 2750123120 | ≤ 2,0 | 1); 4) |
| 2750213120 | | 4) |
| 2750111220 | ≤ 2,0 | 4) |

- 1) in accordance with EN 50082-2
 - 2) switching capacity: 3 W / 3 VA
 - 3) short circuit protected
 - 4) short circuit resistant; short circuit protected
- interfaces: Plug; M8

Dimensions



1* = sensor element
3* = LED
L = cable length
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT), EN 60947-5-2:1998

d322_178_b

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA & TRB

Accessories

★ Sensor, Series ST8

▶ 8 mm groove ▶ with cable ▶ Plug, M12, 3-pin, with knurled screw
(compatible with Series 523, not for new applications)



P322_194_12

| | |
|---|--------------------|
| Ambient temperature min./max. | -25 °C / +75 °C |
| Protection class according to EN 60529:2000 | IP 67 |
| Switching point precision [mm] | ±0,1 |
| Vibration resistance | 10 - 55 Hz, 1,5 mm |
| Shock resistance | 30 g |

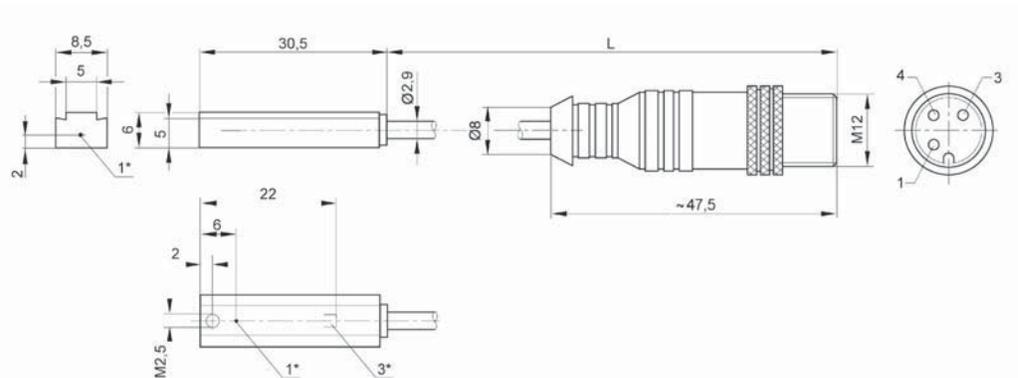
Materials:

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

| | Type of contact | cable length L | DC operating voltage Min./max. | DC switching current, max. | Voltage drop U at I _{max} | Part No. |
|--|-----------------|----------------|-----------------------------------|-------------------------------|---------------------------------------|------------|
| | | [m] | [V] | [A] | [V] | |
| | electronic PNP | 0.3 | 10 / 30 | 0,15 | ≤ 2,0 | 2750121120 |

interfaces: Plug; M12; 3-pin; with knurled screw
short circuit resistant; short circuit protected

Dimensions



d322_178_c

1* = sensor element

3* = LED

L = cable length

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

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA and TRB
Accessories

★ Connecting cable with plug
▶ without wire end ferrule, tin-plated



Protection class according to EN 60529 IP 65

Materials:
Cable sheath Polyvinyl chloride

| Technical Remarks | |
|---|--|
| ■ The specified protection class is valid only in assembled and tested state. | |

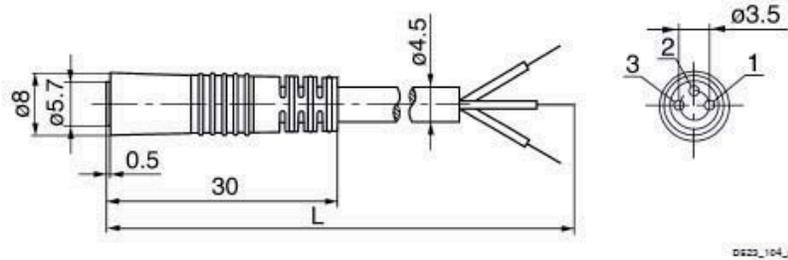
| | Electrical Interface | Number of plug options | Operating voltage | | Cable exit | Housing color | Number of wires | Cable length | Note | Part No. |
|--|------------------------------|------------------------|-------------------|--------|---------------|---------------|-----------------|--------------|--------|------------|
| | | | Min./max. | | | | | | | |
| | [Port 2] | [for port 1] | [V DC] | [V AC] | | | | [m] | | |
| | Plug, M8, 3-pin, with detent | 1 position | 75 | 60 | straight 180° | Black | 3 | 2.5 | Fig. 1 | 8946016112 |
| | Plug, M8, 3-pin | -- | | | straight 180° | | | 5 | Fig. 1 | 4408270000 |
| | Plug, M8, 3-pin, with detent | 1 position | | | straight 180° | | | 10 | Fig. 1 | 8946016122 |
| | Plug, M8, 3-pin, with detent | 1 position | | | straight 180° | | | 15 | Fig. 1 | 8946016132 |
| | Plug, M8, 3-pin, with detent | 1 position | | | angled 90° | | | 2.5 | Fig. 2 | 8946016212 |
| | Plug, M8, 3-pin | -- | | | angled 90° | | | 5 | Fig. 2 | 4408254000 |
| | Plug, M8, 3-pin, with detent | 1 position | | | angled 90° | | | 10 | Fig. 2 | 8946016222 |
| | Plug, M8, 3-pin, with detent | 1 position | | | angled 90° | | | 15 | Fig. 2 | 8946016232 |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA and TRB

Accessories

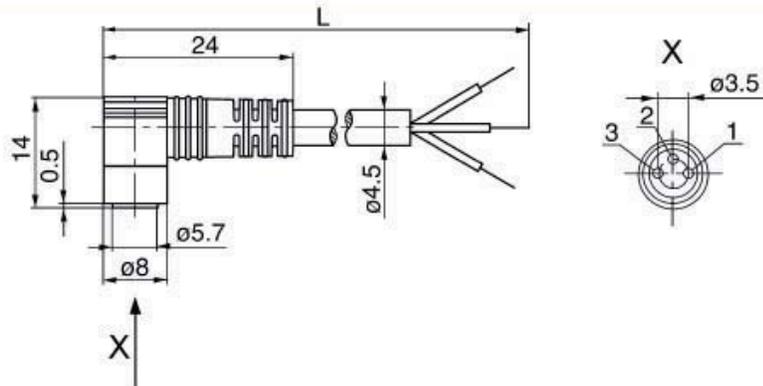
Fig. 1



0623_104_a

(1) BN=brown (2) BK=black (3) BU=blue
L = length

Fig. 2



0623_104_b

(1) BN=brown (2) BK=black (3) BU=blue
L = length

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA and TRB
Accessories

★ Connecting cable with plug, M8X1

▶ Socket, M8, 3-pin ▶ without wire end ferrule, tin-plated, 3-pin



Materials:
Cable sheath

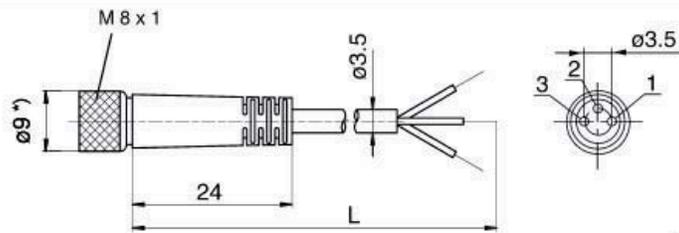
Polyvinyl chloride

Technical Remarks

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

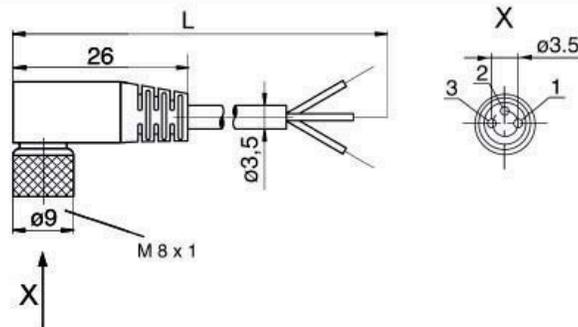
| | Operating voltage | | Cable exit | Protection class according to EN 60529 | Housing color | Number of wires | Cable length | Note | Part No. |
|--|-------------------|--------|---------------|--|---------------|-----------------|--------------|--------|------------|
| | [V DC] | [V AC] | | | | | | | |
| | 75 | 60 | straight 180° | IP 67 | Black | 3 | 2 | Fig. 1 | 8946201312 |
| | | | straight 180° | IP 67 | | | 5 | Fig. 1 | 8946201302 |
| | | | straight 180° | IP 67 | | | 10 | Fig. 1 | 8946201322 |
| | | | straight 180° | IP 67 | | | 15 | Fig. 1 | 8946201332 |
| | | | angled 90° | IP 67 | | | 2 | Fig. 2 | 8946201412 |
| | | | angled 90° | IP 67 | | | 5 | Fig. 2 | 8946201402 |
| | | | angled 90° | IP 67 | | | 10 | Fig. 2 | 8946201422 |
| | | | angled 90° | IP 65 | | | 15 | Fig. 2 | 8946201432 |

Fig. 1



(1) BN=brown (2) BK=black (3) BU=blue
L = length
*) With 15 m cable length Ø12

Fig. 2



(1) BN=brown (2) BK=black (3) BU=blue
L = length

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA and TRB
Accessories

★ Connecting cable, Series CN1

▶ Socket, M12, 5-pin ▶ without wire end ferrule, tin-plated, 5-pin *



Ambient temperature min./max. -40°C / +85°C
Protection class according to EN 60529 IP 65

Materials:
Cable sheath Polyurethane

* Also compatible with 3-pin M12 connector

Technical Remarks

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

| | Number of plug options | Operating voltage | | Max. current | Cable exit | Housing color | Number of wires | Part No. Black |
|--|------------------------|-------------------|--------|--------------|---|---------------|-----------------|--|
| | [for port 1] | [V DC] | [V AC] | [A] | | | | |
| 1) -----BN 2) -----WH 3) -----BU 4) -----BK 5) ----- | 1 position | 300 | 250 | 4 | straight 180° straight 180° straight 180° angled 90° angled 90° angled 90° | Black | 4 | 1834484256 1834484257 1834484258 1834484259 1834484260 1834484261 |

| Part No. | Cable length [m] | Cable color | Weight [kg] | Note |
|------------|------------------|-------------|-------------|--------|
| 1834484256 | 3 | Black | 0.131 | Fig. 1 |
| 1834484257 | 5 | | 0.201 | Fig. 1 |
| 1834484258 | 10 | | 0.398 | Fig. 1 |
| 1834484259 | 3 | | 0.13 | Fig. 2 |
| 1834484260 | 5 | | 0.202 | Fig. 2 |
| 1834484261 | 10 | | 0.387 | Fig. 2 |

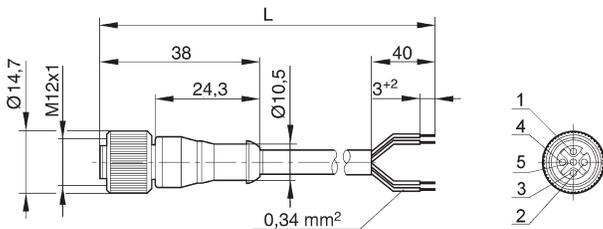


Figure 1

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

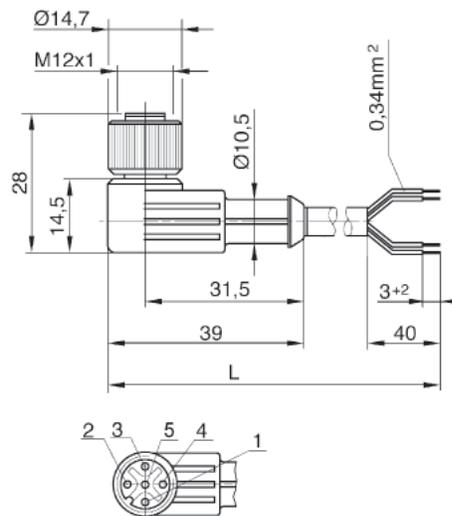


Figure 2

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

Piston rod cylinders → Standard cylinders

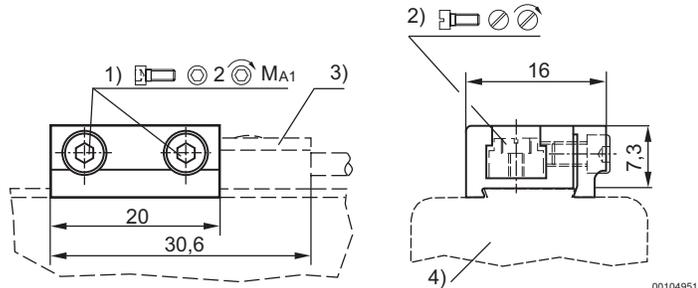
★ ISO 15552, Series PRA
Accessories

★ Sensor mounting

► for Sensor Series ST6 ► to mount on cylinder Series PRA



00105962



00104951

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

| Part No. | 1) | MA1 [Nm] | Material | Weight [kg] | | | | | |
|------------|--------|----------|----------|-------------|--|--|--|--|--|
| 1827020287 | M2,5x5 | 1 | Aluminum | 0.006 | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 1552, Series PRA

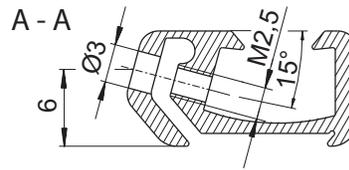
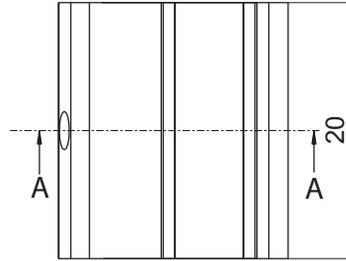
Accessories

★ Sensor mounting

► for Sensor Series ST8 ► to mount on cylinder series PRA



00133850



00133781

| Part No. | Cylinders Ø [mm] | Material | Weight [kg] | | | | | | | |
|------------|------------------|----------|-------------|--|--|--|--|--|--|--|
| R412008435 | 32 - 125 | Aluminum | 0.005 | | | | | | | |

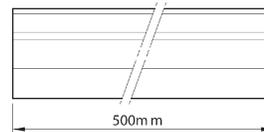
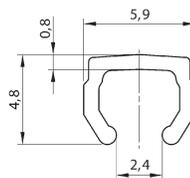
incl. mounting screw

★ Groove lock profile

► for use on cylinder series PRA



00105175



00111999

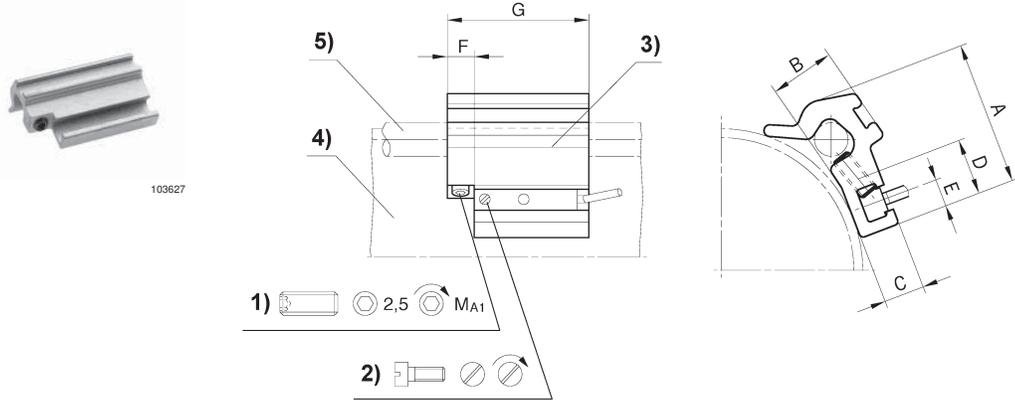
| Part No. | Ø | Material | | | | | | | | | |
|------------|--------|---------------------------------|--|--|--|--|--|--|--|--|--|
| 1821321009 | 16-100 | Acrylonitrile butadiene styrene | | | | | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB
Accessories

★ Sensor mounting

► for Sensor Series ST6 and SM6 ► to mount on cylinder series TRB



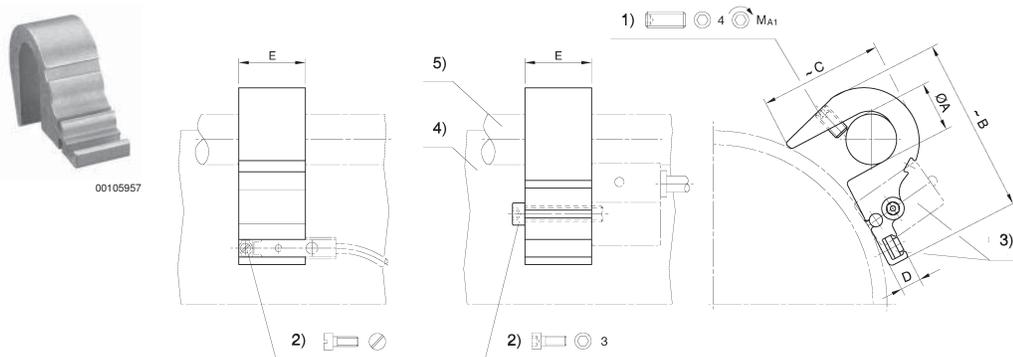
1) Clamping threaded pin 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile 5) Tie rod

| Part No. | Cylinders Ø [mm] | A | B | C | D | E | F | G | 1) | MA1 [Nm] |
|------------|------------------|------|------|-----|----|---|---|----|-------|----------|
| 1827020282 | 32 - 40 | 26 | 10 | 7 | 14 | 5 | 8 | 40 | M5x8 | 2 ±0,2 |
| 1827020283 | 50 - 63 | 32.5 | 15.5 | 7 | 14 | 5 | 8 | 40 | M5x10 | 2 ±0,2 |
| 1827020284 | 80 - 100 | 43 | 17 | 6.9 | 14 | 5 | 8 | 40 | M5x16 | 2 ±0,2 |

| Part No. | Material | Weight [kg] | | | | | | | | |
|------------|----------|-------------|--|--|--|--|--|--|--|--|
| 1827020282 | Aluminum | 0.016 | | | | | | | | |
| 1827020283 | Aluminum | 0.029 | | | | | | | | |
| 1827020284 | Aluminum | 0.042 | | | | | | | | |

★ Sensor mountings

► for Sensor Series ST6 and SM6 to mount on cylinder series TRB



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

| Part No. | Cylinders Ø [mm] | Ø A | B | C | D | E | 1) | MA1 [Nm] | Material |
|------------|------------------|-----|----|----|-----|----|-------|----------|----------|
| 1827020292 | 125 - 125 | 12 | 45 | 29 | 6.5 | 21 | M5x10 | 2 | Aluminum |

| Part No. | Weight [kg] | | | | | | | | | |
|------------|-------------|--|--|--|--|--|--|--|--|--|
| 1827020292 | 0.031 | | | | | | | | | |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB

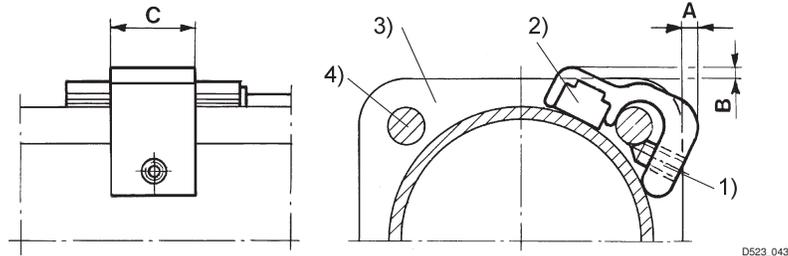
Accessories

★ Sensor mounting

▶ for Sensor ST8 ▶ to mount on cylinder, series TRB



P523_044



D523_043

1) Clamping threaded pin 2) Sensor 3) Cylinder profile 4) Tie rod

| Part No. | Cylinders Ø [mm] | A 1) 2) | B 1) 2) | C | Material | Weight [kg] | | | |
|------------|------------------|---------|---------|----|----------|-------------|--|--|--|
| 2752115000 | 32 - 63 | 2.5 | 1.5 | 14 | Aluminum | 0.01 | | | |
| 2752135000 | 80 - 125 | - | - | 14 | Aluminum | 0.012 | | | |

1) only for Ø 32 and 40

2) max.

Sensor technologies → Velocity - Timer - Meter

★ Velocity - Timer - Meter, Series VTM

▶ for measuring piston speed and stroke times



| | |
|-----------------------------------|---------------------------------|
| Measurement range (minimum) | 0.1 m/s |
| Measurement range (maximum) | 9.99 m/s |
| Resolution | 0.01 m/s |
| Precision [% of full scale value] | <±0,5 % |
| Magnetic field | 2 mT |
| Measurement range (minimum) | 0.001 seconds |
| Measurement range (maximum) | 59.9 seconds |
| Protection class | IP 40 |
| Ambient temperature min./max. | 32 °F / 122 °F (+0 °C / +50 °C) |

Materials:

Housing Polyamide

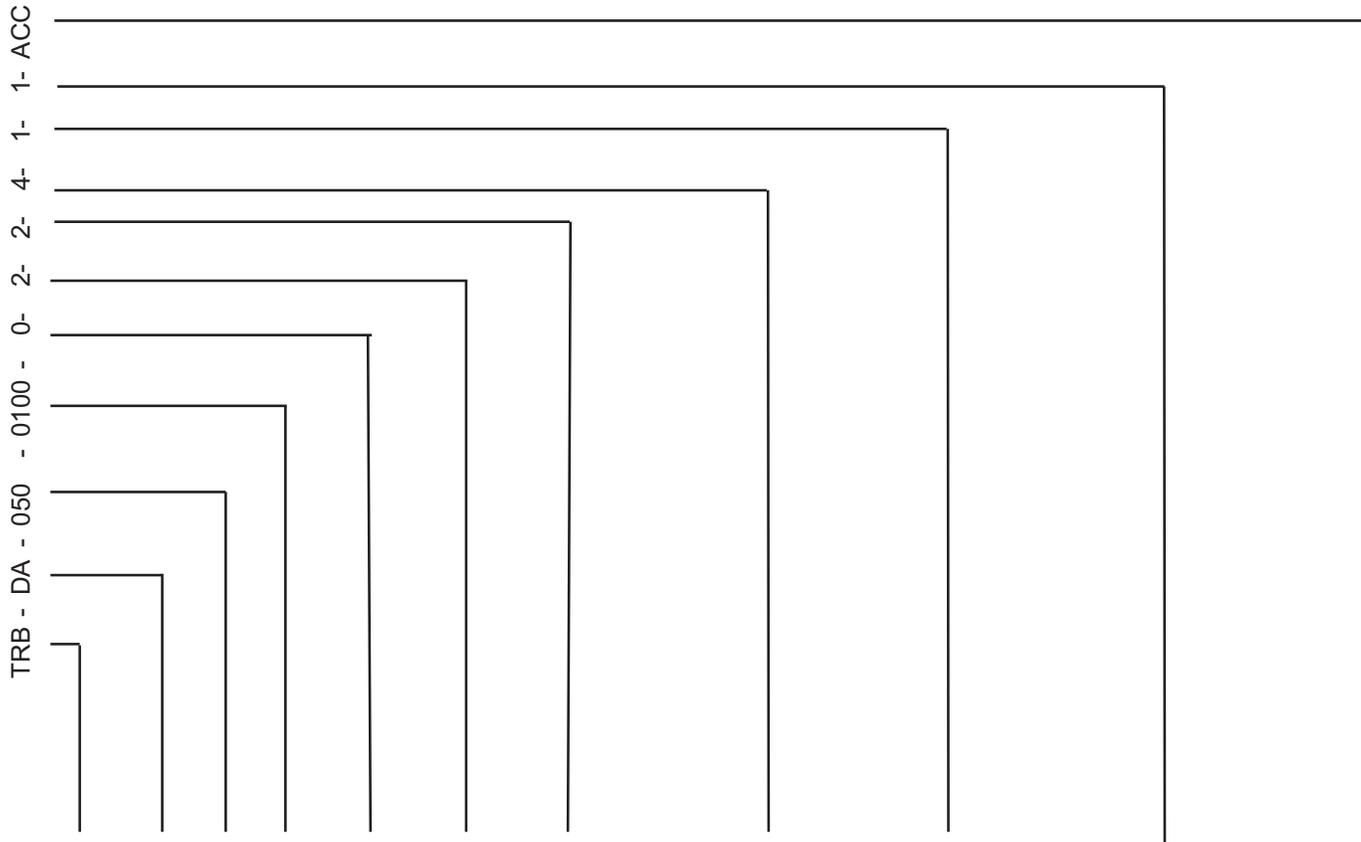
Technical Remarks

- With velocity sensor (supplied) place on the cylinder barrel, piston velocity is displayed in m/s.
- Fits all Bosch Rexroth cylinders with magnetic piston.
- Time interval measurement of cycle times is also possible with other accessories such as proximity switch (cylinder needs proximity switch, also order control box listed below).

| Type of contact | Part Number |
|--|-------------|
| Velocity - Timer - Meter, electronic PNP | R402002202 |
| Velocity - Timer - Meter, electronic NPN | R402002603 |
| Control box with pwer supply cable and adapter | R402002203 |
| Carrying case with inlay for VTM and accessories | R402002204 |

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series TRB
Cylinder Description



| | |
|---------------|--|
| Series | PR ofile Advanced version - PRA Ti e Rod Basic version - TRB |
| Function | Double Acting - DA |
| Bore Size | 032 - 125 |
| * Stroke | 0000 |
| Threads | Metric - 0 Inch - 1 |
| Cushions | Adjustable Cushions - 2 Bumpers - 1 |
| Piston | Magnet - 2 No Magnet - 1 |
| Piston rod | Single rod, male thread - 1 Single rod, female thread - 2 Double rod, male thread - 3 Single rod, male thread, extended for HU1 - 4 Single rod, male thread extended for LU6 - 5 Single rod, male thread, extended for HLU1 / LU2 - 6 |
| Seals | PUR (standard) - 1 Low friction - 2 High Temp (Viton) - 3 |
| Scraper | Standard fixed scraper PUR or Viton - 1 Metal fixed scraper - 2 Screw in bearing, PUR scraper - 3 Screw in bearing, PTFE scraper - 4 Screw in bearing, Metal scraper - 5 High temp screw in bearing PTFE scraper - 4 High Temp screw in bearing, Metal scraper - 5 |
| Cylinder type | Basic cylinder - BAS Cylinder with accessories - ACC |

* "0000" - millimeters for metric, inches and last digit in 1/8 inch increments for NPT (eg:0034 is 3.5")

Piston rod cylinders → Standard cylinders

★ ISO 15552, Series PRA and TRB

Other ISO Cylinder Series



CCI series- Compact Cylinder ISO

- Compact, easy to clean design to ISO 21287
- Inch and metric versions in all sizes (16 to 100mm dia). Common accessories with PRA in most cases (exceptions include Guide Units, Rod Locks and MT4 mounts).



ICL series-ISO Clean Line

- Corrosion protected and Sanitary design to ISO 15552.
- Inch and metric versions in all sizes (32 to 125mm dia). Common foot print and accessories with PRA in most cases (exceptions include Guide Units, Rod Locks and MT4 mounts).



ITS series

- Large bore (160-320mm dia) to ISO 15552 (metric only)

Other versions

- Tandem and Multi-position versions available. See KPZ series
- All stainless-steel cylinders. See ICS and TRS series
- Mini-ISO 6432 cylinders. See OCT and MNI series
- Low pressure Hydraulics and Air/Oil intensifier- See 167 series

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SC-200.75
January 2010

NOTICES TO PRODUCT USERS

1. WARNING: FLUID MEDIA

Bosch Rexroth pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, Bosch Rexroth must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of non-compatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids Bosch Rexroth's warranty and can result in product failure or other malfunction. See lubrication recommendations below.

AIR LINE LUBRICANTS! In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended. * (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. Bosch Rexroth recommends the use of only petroleum-based oils without synthetic additives, and with an aniline point between 180° and 210° F.

COMPRESSOR LUBRICANTS! All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants. It is recommended that users review the National Fluid Power Association "Recommended Guide Lines For Use Of Synthetic Lubricants In Pneumatic Fluid Power Systems" (NFPA T1-1978).

3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

INSTALLATION! Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when system is under pressure. Always exhaust or drain the pressure from system before performing any service work. Failure to do so can result in serious personal injury.

MOUNTING! Devices should be mounted and positioned in such manner that they cannot be accidentally operated.

4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of malfunction.

5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

MAINTENANCE AND REPAIR! Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All Bosch Rexroth products should provide minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require major repair as result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

*Many Bosch Rexroth pneumatic components can operate with or without air line lubrication; see individual sales catalogs for details.

--Refer to the appropriate service catalog for parts and service information.

LIMITATIONS OF WARRANTIES & REMEDIES

Bosch Rexroth warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment Bosch Rexroth will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by Bosch Rexroth or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, Bosch Rexroth nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of Bosch Rexroth Corporation.

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