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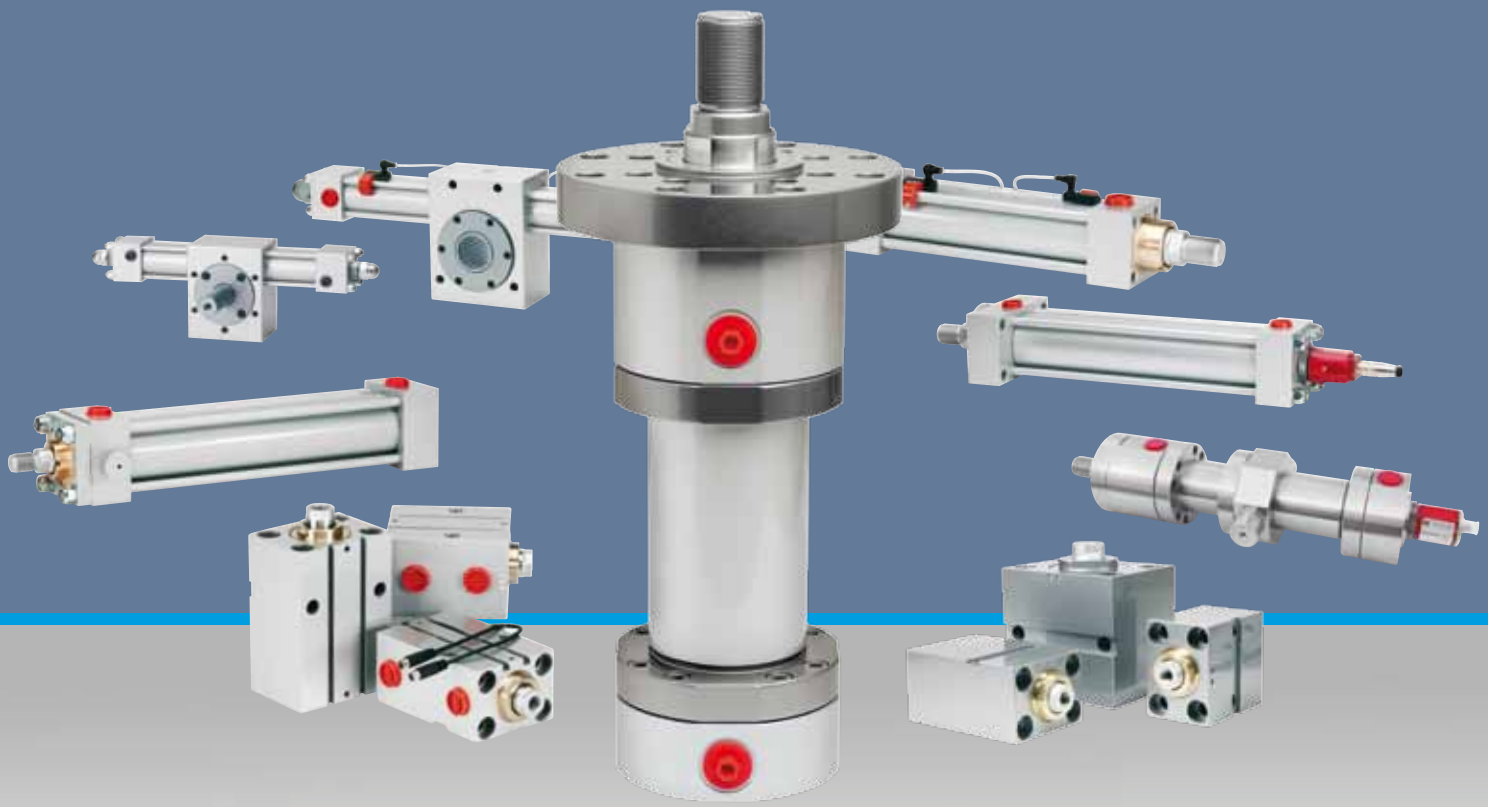
# DYNAMIC WAY



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**HYDRAULIKZYLINDER ISO 6020/2 MIT ZUGANKER** 4-15 **1**
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*COUNTER FLANGES ISO 6020/2 HYDRAULIC CYLINDERS*

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ISO 9001
BUREAU VERITAS
Certification

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***TIE-RODS ISO 6020/2 HYDRAULIC CYLINDERS***

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| | |
|---|---|
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| | |
|---|---|
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**ZUBEHÖR FÜR HYDRAULISCHE ISO ZYLINDER**
***ACCESSORIES FOR ISO HYDRAULIC CYLINDERS***

| | |
|---|---|
| **KENNGRÖSSEN** *TECHNICAL CHARACTERISTICS* | 40-41 |

Zugankerzylinder, nach ISO 6020/2 Norm, auch für den Einsatz mit magnetischen Sensoren.
Es sind alle nach ISO Standard definierten Befestigungen und verschiedene Dichtungsarten erhältlich.
Alle Zylinder werden nach ISO 10100 Norm geprüft.
Für einen Hub grösser als 2000 mm, empfehlen wir Zylinder der HD / HK Serie zu verwenden (Seite 16).

*Tie rods hydraulic cylinder, in compliance with the ISO 6020/2 standard, also available with magnetic sensors.*
*All standard ISO mountings are available, in different seals configurations.*
*All cylinders are tested in compliance with the ISO 10100 standard.*
*In case of stroke longer that 2000 mm, we recommend the use of the cylinders series HD / HK (see page 16).*

## CD/DK

**KENNGRÖSSEN / *SPECIFICATIONS***

| | | | | | |
|---|---|---|---|---|---|
| Standardzylinder<br>*Standard cylinders* | | ISO 6020/2 - DIN 24554 mit Zuganker / *tie rods* | | | |
| Kolbendurchmesser<br>*Bore* | mm | von 25 bis 100<br>*from 25 to 100* | **CD** | von 125 bis 200<br>*from 125 to 200* | **DK** |
| Arbeitsdruck<br>*Pressure* | bar | Betriebsdruck<br>*operating* | 160 | max 210 | |
| Max. Hub<br>*Max stroke* | mm | 4000 | | | |
| Hubtoleranz<br>*Stroke tolerance* | | 0 + 2 mm | Standard ISO 8131<br>*ISO 8131 Standard* | | |
| Medium<br>*Fluid* | | Mineralöl / *Hydraulic mineral oil*<br>Phosphorester / *Phosphoric esters*<br>HFC-Medium / *HFC-fluid* | | | |
| Viskosität<br>*Viscosity* | | 12... 90 mm²/S | | | |

## MD / *MAGNETIC*

**KENNGRÖSSEN / *SPECIFICATIONS***

| | | | |
|---|---|---|---|
| Standardzylinder<br>*Standard cylinders* | | ISO 6020/2 DIN 24554 mit Zuganker / *tie rods* | |
| Kolbendurchmesser<br>*Bore* | mm | von 25 bis 125<br>*from 25 to 125* | |
| Arbeitsdruck<br>*Pressure* | bar | max 160 | |
| Flüssigkeitstemperatur<br>*Fluid temperature* | °C | Kompatibel mit der Betriebstemperatur der magnetischen Sensoren.<br>*Compatibly with magnetic proximity switches operating temperature limits.* | |
| Max. Hub<br>*Max stroke* | mm | 4000 | |
| Hubtoleranz<br>*Stroke tolerance* | | 0 + 2 mm | Standard ISO 8131<br>*ISO 8131 Standard* |
| Medium<br>*Fluid* | | Mineralöl / *Hydraulic mineral oil*<br>Phosphorester / *Phosphoric esters*<br>HFC-Medium / *HFC-fluid* | |
| Viskosität<br>*Viscosity* | | 12... 90 mm²/S | |

| Dichtungscode<br>*Seal code* | Leistung<br>*Performance* | | | | | Flüssigkeit<br>*Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit<br>*High sealing* | Niedrige Reibung<br>*Low friction* | Maximale Geschwindigkeit<br>*Max speed* | Temperatur in °C<br>*Temp °C*<br>Min | Max | Hydrauliköl<br>*Hydraulic oil* | Phosphor-säureester<br>*Phosphoric esters* | HFC-Medium<br>*HFC-fluid* |
| **S** | √ | | 0,5 m/s | - 20 | + 80 | √ | | |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |


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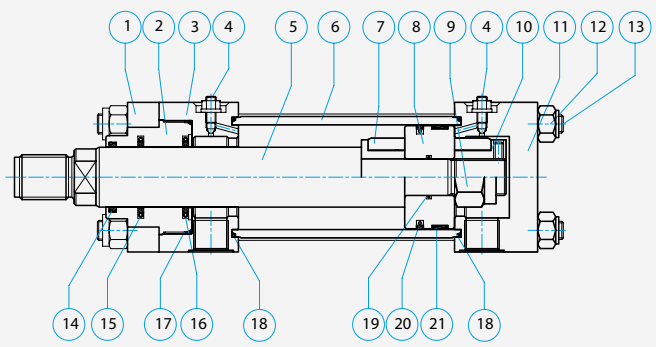
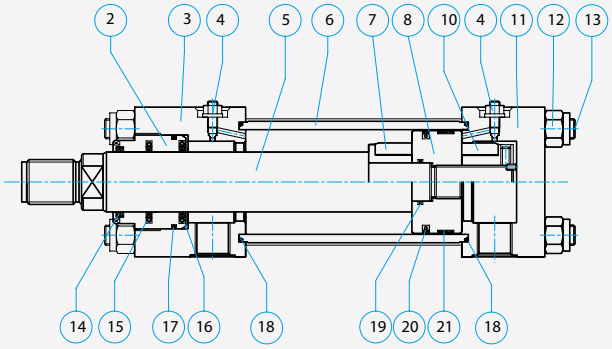
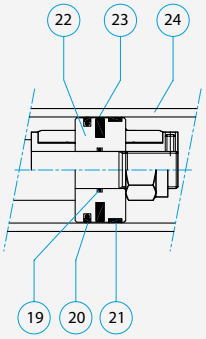
## CD ZYLINDER / *CYLINDER*




## DK ZYLINDER / *CYLINDER*




## MD MAGNETISCHE VERSION / *MAGNETIC VERSION*




| | Komponenten / *Component* | Werkstoff / *Material* | Kenngrössen / *Specifications* |
|---|---|---|---|
| 1 | Verschlussflansch / *Closing flange* | Stahl / *Steel* | Brüniert / *Burnished* |
| 2 | Führungsbuchse / *Guide bushing* | Bronze / *Bronze* | |
| 3 | Zylinderkopf vorne / *Front head* | Stahl / *Steel* | Brüniert / *Burnished* |
| 4 | Einstellbare Dämpfung + Entlüftung /*Cushioning adjusting + air bleed* | Stahl / *Steel* | |
| 5 | Kolbenstange / *Piston rod* | Verchromter Stahl / *Chromeplated steel* | Cr 25 µm ISO f7 - Ra 0.20 µm |
| 6 | Zylinderrohr / *Cylinder body* | Stahl / *Steel* | Gehont / *Honed* H8 - Ra 0.40 µm |
| 7 | Vordere Dämpfung/ *Front cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 8 | Kolben / *Piston* | Stahl / *Steel* | |
| 9 | Selbstsichernde Mutter / *Rod self-locking nut* | Stahl / *Steel* | |
| 10 | Hintere Dämpfung / *Rear cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 11 | Zylinderkopf hinten / *Rear head* | Stahl / *Steel* | Brüniert / *Burnished* |
| 12 | (Zuganker) Selbstsichernde Mutter / *Tie-rod self-locking nut* | Stahl / *Steel* | |
| 13 | Zuganker / *Tie-rod* | Legierter Stahl / *Alloy steel* | Gerolltes Gewinde / *Rolled threaded* |
| 22 | Magnetischer Kolben / *Magnetic piston* | Edelstahl / *Stainless steel* | |
| 23 | Magnet / *Magnet* | | |
| 24 | Zylinderrohr / *Cylinder body* | Edelstahl / *Stainless steel* | |

| | Komponenten / *Component* | Nute / *Groove* | Werkstoff / *Material* | | | |
|---|---|---|---|---|---|---|
| | | | S | L | H | G |
| 14 | Abstreifer / *Rod wiper* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 15 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 16 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 17 | Kopf-Buchsen-Abdichtung / *Head-bushing sealing* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 18 | OR Zylinderrohrdichtung / *OR tube seal* | | NBR | NBR | Viton® | NBR |
| 19 | OR Kolbendichtung / *OR piston seal* | | NBR | NBR | Viton® | NBR |
| 20 | Kolbendichtung / *Piston seal* | ISO 7425/1 | NBR + PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 21 | Kolbenführung / *Piston guide* | | Phenoplast *Resin* | Phenoplast *Resin* | Phenoplast *Resin* | Phenoplast *Resin* |

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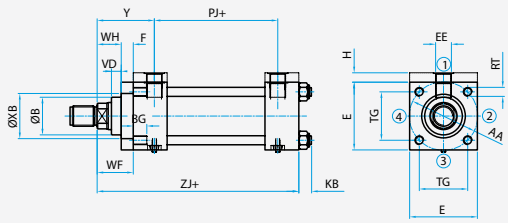
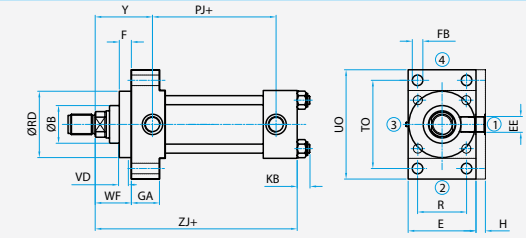
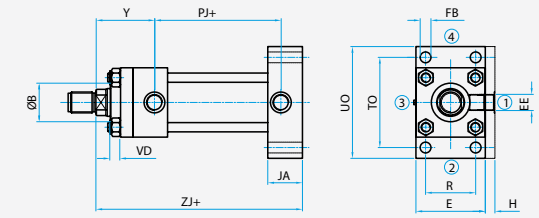
## LÖCHER MIT GEWINDE VORNE / *FRONT THREADED HOLES* — X — ISO MX5



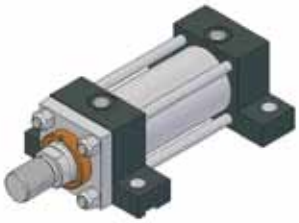

## FLANSCH VORNE / *FRONT FLANGE* — A — ISO ME5

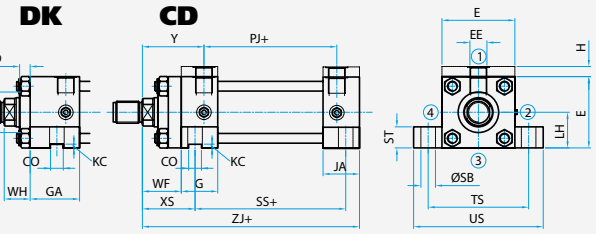



## FLANSCH HINTEN / *REAR FLANGE* — B — ISO ME6

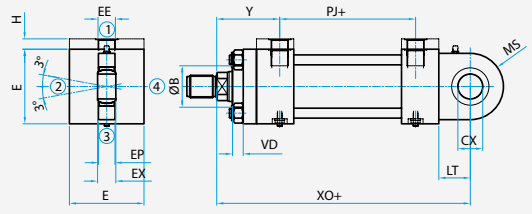



## FUSSBEFESTIGUNG / *FEET* — E — ISO MS2

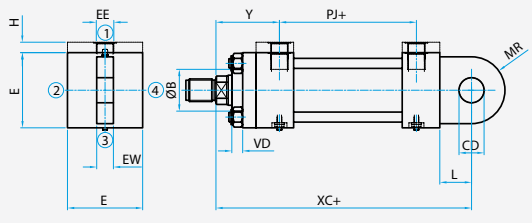




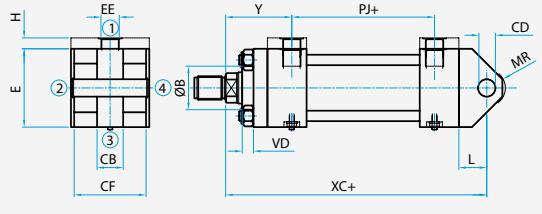

## GELENKLAGER / *BALL JOINTED EYE* — D — ISO MP5




## SCHARNIER (LASCHE) / *MALE CLEVIS* — C — ISO MP3




## GABELSCHARNIER / *FEMALE CLEVIS* — M — ISO MP1



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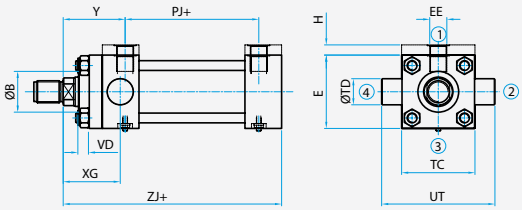
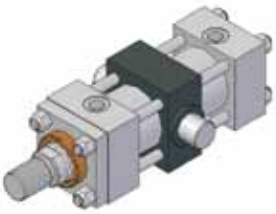
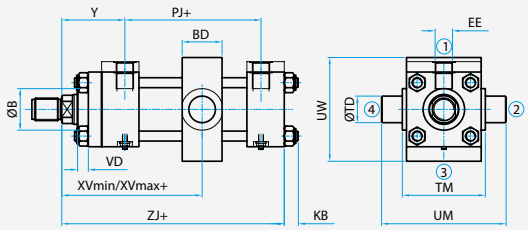
## SCHWENKZAPFEN VORNE / *FRONT TRUNNIONS* — G — ISO MT1

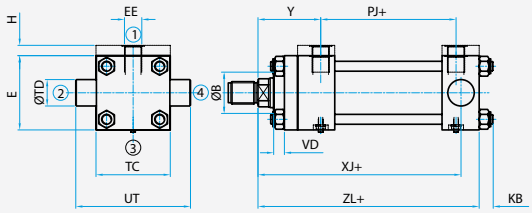



## SCHWENKZAPFEN IN DER MITTE / *INTERMEDIATE TRUNNIONS* — H — ISO MT4

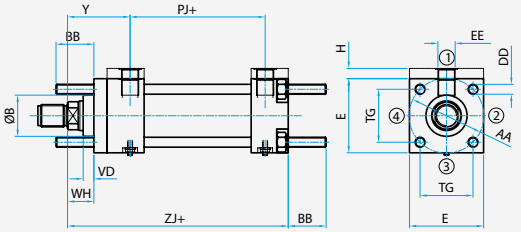




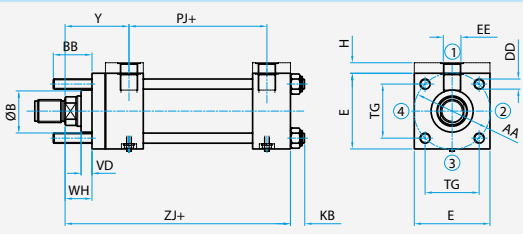

## SCHWENKZAPFEN HINTEN / *REAR TRUNNIONS* — L — ISO MT2



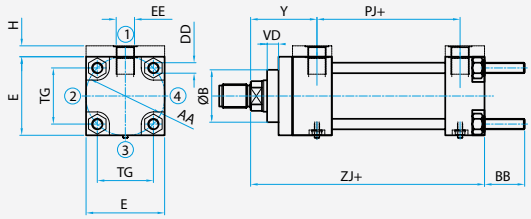

## ZUGANKERVERLÄNGERUNG VORNE UND HINTEN / *EXTENDED FRONT AND REAR TIE-RODS* — Q — ISO MX1



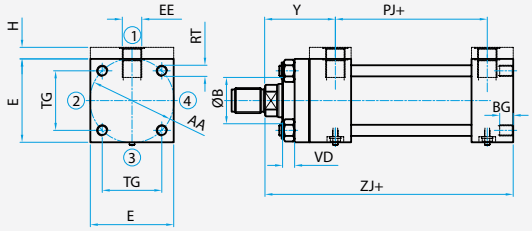

## ZUGANKERVERLÄNGERUNG VORNE / *EXTENDED FRONT TIE-RODS* — R — ISO MX3




## ZUGANKERVERLÄNGERUNG HINTEN / *EXTENDED REAR TIE-RODS* — S — ISO MX2




## LÖCHER MIT GEWINDE HINTEN / *REAR THREADED HOLES* — T — ISO MX6



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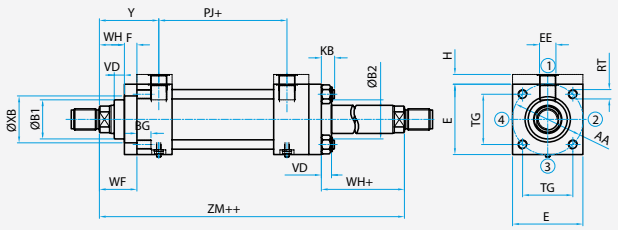
## LÖCHER MIT GEWINDE VORNE / *FRONT THREADED HOLES* — X

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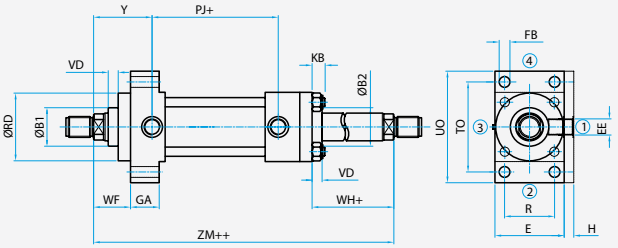
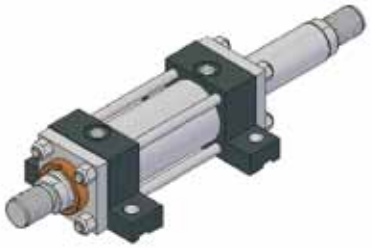
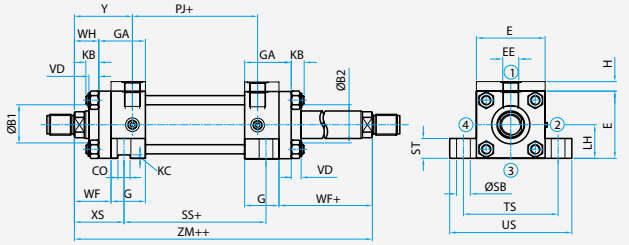
## FLANSCH VORNE / *FRONT FLANGE* — A

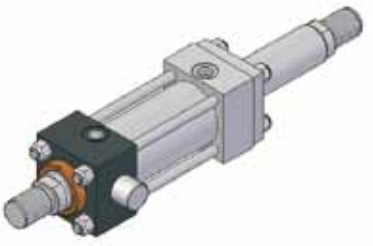


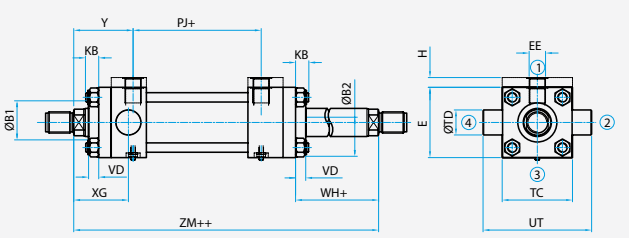

## FUSSBEFESTIGUNG / *FEET* — E



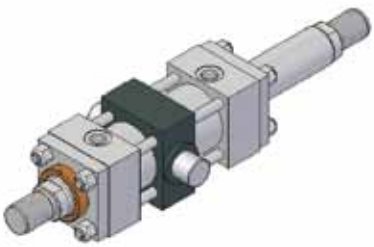


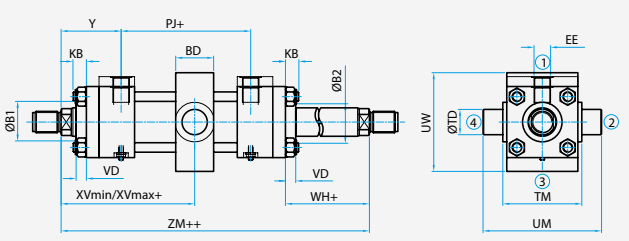

## SCHWENKZAPFEN VORNE / *FRONT TRUNNIONS* — G



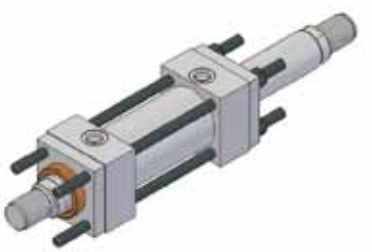


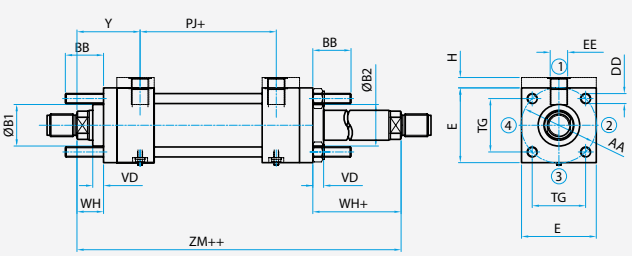

## SCHWENKZAPFEN IN DER MITTE / *INTERMEDIATE TRUNNIONS* — H






## ZUGANKERVERLÄNGERUNG VORNE UND HINTEN / *FRONT AND REAR EXT. TIE-RODS* — Q







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| Kolben Ø *Bore* | 25 | | 32 | | | 40 | | | 50 | | | 63 | | | 80 | | | 100 | | | 125 | | | 160 | | | 200 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 12 | 18 | 14 | 18 | 22 | 18 | 22 | 28 | 22 | 28 | 36 | 28 | 36 | 45 | 36 | 45 | 56 | 45 | 56 | 70 | 56 | 70 | 90 | 70 | 90 | 110 | 90 | 110 | 140 |
| B f9 | 24 | 30 | 26 | 30 | 34 | 30 | 34 | 42 | 34 | 42 | 50 | 42 | 50 | 60 | 50 | 60 | 72 | 60 | 72 | 88 | 72 | 88 | 108 | 88 | 108 | 133 | 108 | 133 | 163 |
| AA | 40 | | 47 | | | 59 | | | 74 | | | 91 | | | 117 | | | 137 | | | 178 | | | 219 | | | 269 | | |
| BB | 19 | | 24 | | | 35 | | | 46 | | | 46 | | | 59 | | | 59 | | | 81 | | | 92 | | | 115 | | |
| BD | 20 | | 25 | | | 29 | | | 38 | | | 48 | | | 58 | | | 68 | | | 88 | | | 108 | | | 125 | | |
| BG | 12 | | 15 | | | 16 | | | 18 | | | 18 | | | 24 | | | 24 | | | 30 | | | 35 | | | 40 | | |
| CB | 16(*) | | 16 | | | 20 | | | 30 | | | 30 | | | 40 | | | 50 | | | 64(*) | | | 80(*) | | | 80 | | |
| CD H9 | 10 | | 12 | | | 14 | | | 20 | | | 20 | | | 28 | | | 36 | | | 45 | | | 56 | | | 70 | | |
| CF | 40 | | 45 | | | 60 | | | 74 | | | 90 | | | 110 | | | 130 | | | 164 | | | 200 | | | 240 | | |
| CO H8 | — | | — | | | 12 | | | 12 | | | 16 | | | 16 | | | 16 | | | 20 | | | 30 | | | 40 | | |
| CX | 12 -0.008 | | 16 -0.008 | | | 20 -0.012 | | | 25 -0.012 | | | 30 -0.012 | | | 40 -0.012 | | | 50 -0.012 | | | 60 -0.015 | | | 80 -0.015 | | | 100 -0.020 | | |
| DD | M5x0.8 | | M6x1 | | | M8x1 | | | M12x1.25 | | | M12x1.25 | | | M16x1.5 | | | M16x1.5 | | | M22x1.5 | | | M27x2 | | | M30x2 | | |
| E | 40 | | 45 | | | 60 | | | 75 | | | 90 | | | 115 | | | 130 | | | 165 | | | 200 | | | 245 | | |
| EE | G 1/4" | | G 1/4" | | | G 3/8" | | | G 1/2" | | | G 1/2" | | | G 3/4" | | | G 3/4" | | | G 1" | | | G 1" | | | G 1 1/4" | | |
| EP | 9 | | 12 | | | 14 | | | 18 | | | 20 | | | 24 | | | 30 | | | 38 | | | 47 | | | 58 | | |
| EW h14 | 12 | | 16 | | | 20 | | | 30 | | | 30 | | | 40 | | | 50 | | | 60 | | | 70 | | | 80 | | |
| EX | 10 | | 14 | | | 16 | | | 20 | | | 22 | | | 28 | | | 35 | | | 44 | | | 55 | | | 70 | | |
| F | 10 | | 10 | | | 10 | | | 16 | | | 16 | | | 20 | | | 22 | | | 22 | | | 25 | | | 25 | | |
| FB H13 | 5.5 | | 6.6 | | | 11 | | | 14 | | | 14 | | | 18 | | | 18 | | | 22 | | | 26 | | | 33 | | |
| G | 32 | | 35.5 | | | 46 | | | 45 | | | 45 | | | 52 | | | 55 | | | 65 | | | 70 | | | 92 | | |
| GA | — | | — | | | — | | | — | | | — | | | — | | | — | | | 87 | | | 95 | | | 117 | | |
| GF | 25 | | 25 | | | 38 | | | 38 | | | 38 | | | 45 | | | 45 | | | 58 | | | 58 | | | 76 | | |
| H | 5 | | 5 | | | — | | | — | | | — | | | — | | | — | | | — | | | — | | | — | | |
| JA | 32 | | 35.5 | | | 46 | | | 45 | | | 45 | | | 52 | | | 55 | | | 65 | | | 70 | | | 92 | | |
| KB | 7 | | 10 | | | 13 | | | 17 | | | 17 | | | 23 | | | 23 | | | 30 | | | 35 | | | 37 | | |
| KC | — | | — | | | 4 | | | 4.5 | | | 4.5 | | | 5 | | | 6 | | | 6 | | | 8 | | | 8 | | |
| L | 13 | | 19 | | | 19 | | | 32 | | | 32 | | | 39 | | | 54 | | | 57 | | | 63 | | | 82 | | |
| LH h10 | 19 | | 22 | | | 31 | | | 37 | | | 44 | | | 57 | | | 63 | | | 82 | | | 101 | | | 122 | | |
| LT | 16 | | 20 | | | 25 | | | 31 | | | 38 | | | 48 | | | 58 | | | 72 | | | 92 | | | 116 | | |
| MR max | 12 | | 17 | | | 17 | | | 29 | | | 29 | | | 34 | | | 50 | | | 53 | | | 59 | | | 78 | | |
| MS max | 20 | | 22.5 | | | 29 | | | 33 | | | 40 | | | 50 | | | 62 | | | 80 | | | 100 | | | 120 | | |
| PJ | 49+ (*) | | 47+ (*) | | | 58+ (*) | | | 62+ (*) | | | 64+ (*) | | | 77+ (*) | | | 78+ (*) | | | 117+ | | | 130+ | | | 165+ | | |
| R | 27 | | 33 | | | 41 | | | 52 | | | 65 | | | 83 | | | 97 | | | 126 | | | 155 | | | 190 | | |
| RD f8 | 38 | | 42 | | | 62 | | | 74 | | | 88 (**) | | | 105 (**) | | | 125 (**) | | | 150 (**) | | | 170 (**) | | | 210 (**) | | |
| RT | M5 | | M6 | | | M8 | | | M12 | | | M12 | | | M16 | | | M16 | | | M22 | | | M27 | | | M30 | | |
| SB H13 | 6.6 | | 9 | | | 11 | | | 14 | | | 18 | | | 18 | | | 26 | | | 26 | | | 33 | | | 39 | | |
| SS | 73 | | 73 | | | 98 | | | 92 | | | 86 | | | 105 | | | 102 | | | 131 | | | 130 | | | 172 | | |
| ST | 8.5 | | 12.5 | | | 12.5 | | | 19 | | | 26 | | | 26 | | | 32 | | | 32 | | | 38 | | | 44 | | |
| TC | 38 | | 44 | | | 63 | | | 76 | | | 89 | | | 114 | | | 127 | | | 165 | | | 203 | | | 241 | | |
| TD f8 | 12 | | 16 | | | 20 | | | 25 | | | 32 | | | 40 | | | 50 | | | 63 | | | 80 | | | 100 | | |
| TG | 28.3 | | 33.2 | | | 41.7 | | | 52.3 | | | 64.3 | | | 82.7 | | | 96.9 | | | 125.9 | | | 154.9 | | | 190.2 | | |
| TM | 48 | | 55 | | | 76 | | | 89 | | | 100 | | | 127 | | | 140 | | | 178 | | | 215 | | | 279 | | |
| TO | 51 | | 58 | | | 87 | | | 105 | | | 117 | | | 149 | | | 162 | | | 208 | | | 253 | | | 300 | | |
| TS | 54 | | 63 | | | 83 | | | 102 | | | 124 | | | 149 | | | 172 | | | 210 | | | 260 | | | 311 | | |
| UM | 68 | | 79 | | | 108 | | | 129 | | | 150 | | | 191 | | | 220 | | | 278 | | | 341 | | | 439 | | |
| UO | 65 | | 70 | | | 110 | | | 130 | | | 145 | | | 180 | | | 200 | | | 250 | | | 300 | | | 360 | | |
| US | 72 | | 84 | | | 103 | | | 127 | | | 161 | | | 186 | | | 216 | | | 254 | | | 318 | | | 381 | | |
| UT | 58 | | 68 | | | 95 | | | 116 | | | 139 | | | 178 | | | 207 | | | 265 | | | 329 | | | 401 | | |
| UW | 45 | | 50 | | | 70 | | | 90 | | | 100 | | | 130 | | | 140 | | | 180 | | | 215 | | | 300 | | |
| VD | 6 | | 12 | | | 12 | | | 9 | | | 13 | | | 9 | | | 10 | | | 10 | | | 7 | | | 7 | | |
| WF | 25 | | 35 | | | 35 | | | 41 | | | 48 | | | 51 | | | 57 | | | 57 | | | 57 | | | 57 | | |
| WH | 15 | | 25 | | | 25 | | | 25 | | | 32 | | | 31 | | | 35 | | | 35 | | | 32 | | | 32 | | |
| XB f9 | 30 | | 34 | | | 42 | | | 50 | | | 60 | | | 72 | | | 88 | | | — | | | — | | | — | | |
| XC | 127+ | | 147+ | | | 172+ | | | 191+ | | | 200+ | | | 229+ | | | 257+ | | | 289+ | | | 308+ | | | 381+ | | |
| XG | 44 | | 54 | | | 57 | | | 64 | | | 70 | | | 76 | | | 71 | | | 75 | | | 75 | | | 85 | | |
| XJ | 95+ (*) | | 109+ (*) | | | 131+ (*) | | | 136+ (*) | | | 146+ (*) | | | 165+ (*) | | | 177+ (*) | | | 214+ (*) | | | 227+ (*) | | | 271+ (*) | | |
| XO | 130+ | | 148+ | | | 178+ | | | 190+ | | | 206+ | | | 238+ | | | 261+ | | | 304+ | | | 337+ | | | 415+ | | |
| XS | 33 | | 45 | | | 45 | | | 54 | | | 65 | | | 68 | | | 79 | | | 79 | | | 86 | | | 92 | | |
| XV min | 67 | | 83 | | | 96 | | | 106 | | | 118 | | | 133 | | | 147 | | | 166 | | | 182 | | | 213 | | |
| XV max | 72+ | | 80+ | | | 92+ | | | 94+ | | | 98+ | | | 108+ | | | 113+ | | | 123+ | | | 120+ | | | 142+ | | |
| Y | 45 (*) | | 58 (*) | | | 65 (*) | | | 69 (*) | | | 76 (*) | | | 82 (*) | | | 91 (*) | | | 86 | | | 86 | | | 98 | | |
| ZJ | 114+ | | 128+ | | | 153+ | | | 159+ | | | 168+ | | | 190+ | | | 203+ | | | 232+ | | | 245+ | | | 299+ | | |
| ZL | 114+ | | 128+ | | | 153+ | | | 159+ | | | 168+ | | | 190+ | | | 203+ | | | 254+ | | | 270+ | | | 324+ | | |
| ZM | 139++ | | 163++ | | | 188++ | | | 200++ | | | 216++ | | | 241++ | | | 260++ | | | 289++ | | | 302++ | | | 356++ | | |

(*) Nicht gemäss ISO 6020/2
*Does not comply with ISO 6020/2 standard*

(**) Einheitliches RD-Maß mit Bezug auf die größere Kolbenstange als in der Norm ISO 6020/2 vorgesehen
*RD dimension is unified, with reference to the higher diameter between the ones defined by ISO 6020/2 standard*

\+ = Den Hub addieren / *Add the stroke*
++ = Den doppelten Hub addieren / *Add the double of the stroke*

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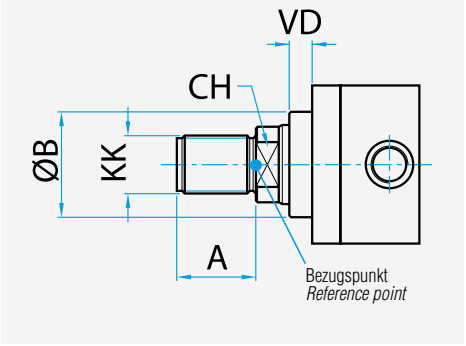
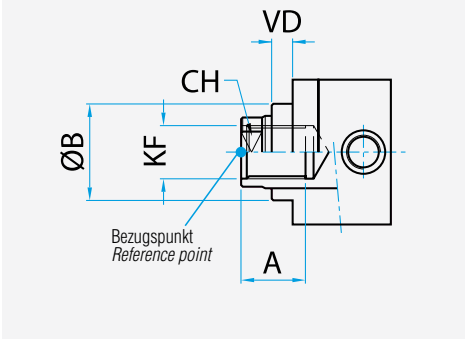
1

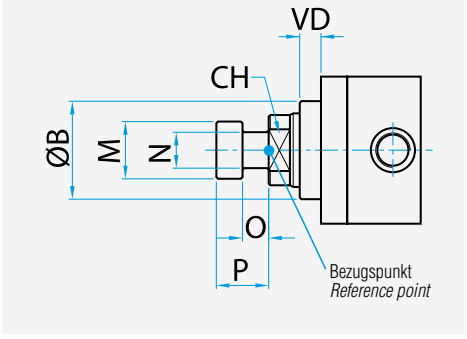
## STANDARD




## SF

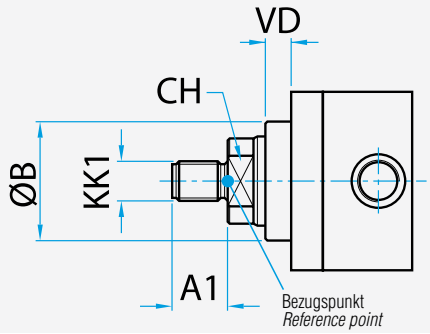



## ST




| Stangen Ø/*Rod* | 12 | 14 | 18 | 22 | 28 | 36 | 45 | 56 | 70 | 90 | 110 | 140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | 14 | 16 | 18 | 22 | 28 | 36 | 45 | 56 | 63 | 85 | 95 | 112 |
| **B f9** | 24 | 26 | 30 | 34 | 42 | 50 | 60 | 72 | 88 | 108 | 133 | 163 |
| **CH** | 10 | 12 | 15 | 19 | 22 | 30 | 36 | 46 | 60 | 75 | 95 | 120 |
| **KK** | M10x1.25 | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M80x3 | M100x3 |
| **KF** | M8x1 | M10x1.25 | M12x1.25 | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M80x3 | M100x3 |
| **M** | 11 | 13 | 16 | 18 | 22 | 28 | 35 | 45 | 56 | 70 | 106 | 136 |
| **N** | 6.5 | 8 | 10 | 11 | 14 | 18 | 22 | 28 | 35 | 45 | 65 | 70 |
| **O** | 5 | 6 | 7 | 8 | 10 | 13 | 16 | 20 | 25 | 35 | 35 | 45 |
| **P** | 10 | 12 | 14 | 16 | 20 | 25 | 32 | 40 | 50 | 70 | 70 | 90 |

## SL — DIN 24554




| Kolben Ø *Bore* | 25 | | 32 | | | 40 | | | 50 | | | 63 | | | 80 | | | 100 | | | 125 | | | 160 | | | 200 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 12 | 18 | 14 | 18 | 22 | 18 | 22 | 28 | 22 | 28 | 36 | 28 | 36 | 45 | 36 | 45 | 56 | 45 | 56 | 70 | 56 | 70 | 90 | 70 | 90 | 110 | 90 | 110 | 140 |
| **A1** | 14 | | 16 | | | 18 | | | 22 | | | 28 | | | 36 | | | 45 | | | 56 | | | 63 | | | 85 | | |
| **B f9** | 24 | 30 | 26 | 30 | 34 | 30 | 34 | 42 | 34 | 42 | 50 | 42 | 50 | 60 | 50 | 60 | 72 | 60 | 72 | 88 | 72 | 88 | 108 | 88 | 108 | 133 | 108 | 133 | 163 |
| **CH** | 10 | 15 | 12 | 15 | 19 | 15 | 19 | 22 | 19 | 22 | 30 | 22 | 30 | 36 | 30 | 36 | 46 | 36 | 46 | 60 | 46 | 60 | 75 | 60 | 75 | 95 | 75 | 95 | 120 |
| **KK1** | M10x1.25 | | M12x1.25 | | | M14x1.5 | | | M16x1.5 | | | M20x1.5 | | | M27x2 | | | M33x2 | | | M42x2 | | | M48x2 | | | M64x3 | | |
| **VD** | 6 | | 12 | | | 12 | | | 9 | | | 13 | | | 9 | | | 10 | | | 10 | | | 7 | | | 7 | | |


Updates auf / *updates on* **www.confortinet.com**
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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

| CD | | 50 / | 28 / | | A | | 500 | | S | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Nur für MD Zylinder** / ***Only for MD cylinders***

**Menge** / ***Quantity***

| **Typ** / ***Type*** | **Kolbendurchmesser** / ***Bore*** | |
|---|---|---|
| Standard | 25... 100 | **CD** |
| | 125... 200 | **DK** |
| Magnetischen *Magnetic* | 5... 125 | **MD** |

**Sensoren** / ***Switch*** — Typ / *Type*

| | |
|---|---|
| **SR** | REED 24-110 V. AC/DC |
| **SH** | PNP 24 V. DC |

**Spezialausführung** / ***Special version*** (1) **SX**

| | **Kolben Ø** *Bore* | **Stangen Ø** *Rod* |
|---|---|---|
| CD | **25** | **12** |
| | | **18** |
| | **32** | **14** |
| | | **18** |
| | | **22** |
| | **40** | **18** |
| | | **22** |
| | | **28** |
| | **50** | **22** |
| | | **28** |
| | | **36** |
| | **63** | **28** |
| | | **36** |
| | | **45** |
| | **80** | **36** |
| | | **45** |
| | | **56** |
| | **100** | **45** |
| | | **56** |
| | | **70** |
| DK | **125** | **56** |
| | | **70** |
| | | **90** |
| | **160** | **70** |
| | | **90** |
| | | **110** |
| | **200** | **90** |
| | | **110** |
| | | **140** |

**Optionen/Spezialausführungen** (siehe Seiten 12) / ***Special options/versions*** *(see page 12)*

**Entlüftung** / ***Air bleed***

| | |
|---|---|
| | Keine Entlüftung / *No air bleed* |
| **SV** | Nur vorne / *Front only* |
| **SZ** | Nur hinten / *Rear only* |
| **SK** | Vorne und hinten / *Front and rear* |

**Kolbenstangenenden** / ***Rod extremities*** (siehe Seiten 10 / *see page 10*)

| | |
|---|---|
| | Aussengewinde *Male thread* (standard) |
| **SF** | Innengewinde *Female thread* |
| **ST** | Zapfen *Floating joint* |
| **SL** | Aussengewinde DIN 24554 *Male thread DIN 24554* |

**Dichtungen** / ***Seals*** (siehe Seiten 4 / *see pages 4*)

| | |
|---|---|
| **S** | Standard (Mineralöl) *Standard (mineral oil)* |
| **L** | Leichtgängig / *Low friction* |
| **H** | Viton® (hohe Temperaturen, Phosphorester) *Viton® (high temperature, phosphoric esters)* |
| **G** | HFC-Medium / *HFC-fluid* |

**Ev. 2. Kolbenstange** / ***Possible 2nd rod***

| Siehe Seiten 6-8 / *See pages 6-8* | **ISO 6020/2** | **DIN24554** | **Befestigung** *Mounting* |
|---|---|---|---|
| Löcher mit Gewinde vorne *Front tapped holes* | MX5 | | **X** |
| Flansch vorne *Front flange* | ME5 | ME5 | **A** |
| Flansch hinten *Rear flange* | ME6 | ME6 | **B** |
| Fussbefestigung *Feet* | MS2 | MS2 | **E** |
| Gelenklager *Ball jointed eye* | MP5 | MP5 | **D** |
| Scharnier (Lasche) *Male clevis* | MP3 | | **C** |
| Gabelscharnier *Female clevis* | MP1 | | **M** |
| Schwenkzapfen vorne *Front trunnions* | MT1 | | **G** |
| Schwenkzapfen in der Mitte (2) *Intermediate trunnions* | MT4 | MT4 | **H** |
| Schwenkzapfen hinten *Rear trunnions* | MT2 | | **L** |
| Zugankerverlängerung vorne und hinten *Extended front and rear tie-rods* | MX1 | | **Q** |
| Zugankerverlängerung vorne *Extended front tie-rods* | MX3 | | **R** |
| Zugankerverlängerung hinten *Extended rear tie-rods* | MX2 | | **S** |
| Löcher mit Gewinde hinten *Rear threaded holes* | MX6 | | **T** |

**Distanzstück** / ***Spacer*** — Empfohlen für Hübe: *Recommended for stroke:*

| | |
|---|---|
| | von 0 bis 1000 / *from 0 to 1000* |
| **SJ 50** | von 1000 bis 1500 / *from 1000 to 1500* |
| **SJ 100** | von 1500 bis 2000 / *from 1500 to 2000* |
| **SJ 150** | von 2000 bis 3000 / *from 2000 to 3000* |
| **SJ 200** | über 3000 / *above 3000* |

**Hub** / ***Stroke***

In mm angeben / *Specify in mm*

**Einstellbare Dämpfung** / ***Adjustable cushioning*** (3)

| | |
|---|---|
| | Ohne Dämpfung / *Not cushioned* |
| **V** | Nur vorne / *Front only* |
| **Z** | Nur hinten / *Rear only* |
| **K** | Vorne und hinten / *Front and rear* |

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes den Spezialcode (siehe Seite 12) eintragen, gefolgt von der Zeichnungsnummer, sofern vorhanden.
*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 12) followed by the drawing's number, if any.*

(2) Für Befestigung H (MT4), am Ende des Codes die Beschriftung "XV", gefolgt vom XV Wert (siehe Seite 7-8) eintragen.
*For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see pages 7-8).*

(3) Für Kolbendurchmesser 25 ist die Dämpfung nicht einstellbar.
*For bore 25, the cushioning is not adjustable.*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***



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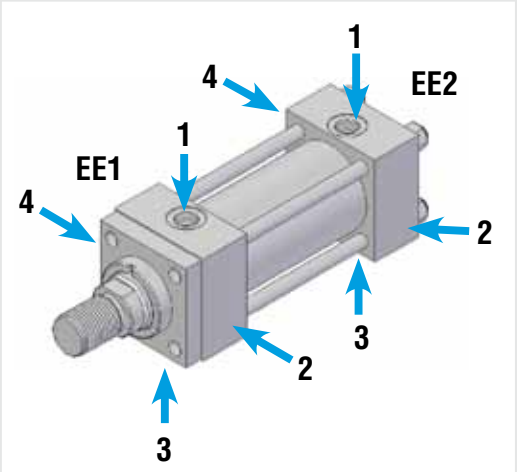
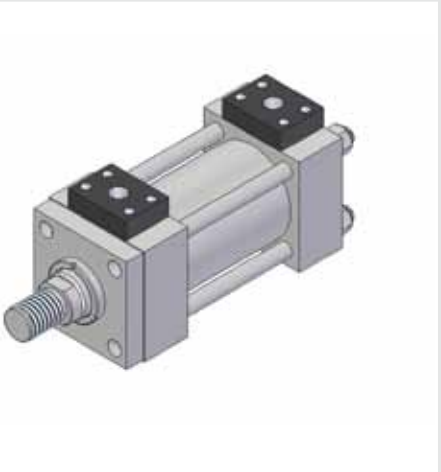
Für weitere Zylindereinstellungen oder Abweichungen vom Standardzylinder empfehlen wir unsere interaktive Zylinderzusammenstellung unter www.confortinet.com.
*To choose an option or a variation of the standard cylinder, please use our service available on www.confortinet.com*



## LAGE DER ANSCHLÜSSE / *PORT LOCATION*




## SAE 3000 ANSCHLÜSSE / *SAE 3000 CONNECTIONS*



Standardmässig sind die Ölanschlüsse auf Position 1 und die Dämpfung und Entlüftung kombiniert auf Position 3. Für Befestigung E sind die Dämpfung und Entlüftung kombiniert auf Position 2.

*The standard configuration has the oil ports in position 1 and the cushioning adjustment or air bleed in position 3, except for the mounting type E, where they are in position 2.*

| Kolbendurchmesser *Bore* | ISO 1179-1 (GAS) | | | | SAE 3000 | | | |
|---|---|---|---|---|---|---|---|---|
| | Standard | | Übergrösse / *Oversize* | | Standard | | Übergrösse / *Oversize* | |
| | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* |
| **25** | G 1/4” | G 1/4” | – | G 3/8” | – | – | – | – |
| **32** | G 1/4” | G 1/4” | – | G 3/8” | – | – | – | – |
| **40** | G 3/8” | G 3/8” | – | G 1/2” | – | – | – | – |
| **50** | G 1/2” | G 1/2” | – | G 3/4” | – | – | – | – |
| **63** | G 1/2” | G 1/2” | – | G 3/4” | – | – | – | – |
| **80** | G 3/4” | G 3/4” | – | G 1” | 3/4” | 3/4” | 1” | 1” |
| **100** | G 3/4” | G 3/4” | – | G 1” | 3/4” | 3/4” | 1” | 1” |
| **125** | G 1” | G 1” | G 1 1/4” | G 1 1/4” | 1” | 1” | 1 1/4” | 1 1/4” |
| **160** | G 1” | G 1” | G 1 1/4” | G 1 1/4” | 1” | 1” | 1 1/4” | 1 1/4” |
| **200** | G 1 1/4” | G 1 1/4” | G 1 1/2” | G 1 1/2” | 1 1/4” | 1 1/4” | 1 1/2” | 1 1/2” |

## STANGENENDE / *ROD END*

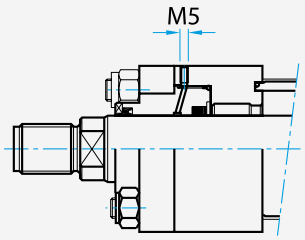
| | |
|---|---|
| **RRX** | Edelstahl-Kolbenstange / *Stainless steel chromeplated rod* |
| **RRB** | Vergütete-Kolbenstange / *Hardened and tempered chromeplated rod* |
| **RRK** | Nikrom-Kolbenstange / *Nikrom rod* |
| **RRH** | Gehärtete und verchromt Stange / *Hardened chromeplated rod* |

## BL

Für spezielle Anwedungen, wo eine hohe Dichtigkeit und niedrige Reibung benötigt werden, ist ein spezieller Kolben verfügbar. Bitte wenden Sie sich an unsere technische Abteilung für weitere Informationen.

*For special application, where high sealing and low friction is required (i.e., closed circuit application), a special piston is available.*
*Contact our technical department in order to verify the feasibility of this solution.*

## SD BUCHSENDRAINAGE / *BUSHING DRAIN*




Die Drainage der Buchse verhindert die Ablagerung von Flüssigkeit hinter dem Schaber. Ein Anschluss zwischen dem Schaber und der Dichtungslippe ermöglicht die Rückführung der Flüssigkeit in den Behälter.
Die Drainage befindet sich normalerweise gegenüber der Ölöffnung.

*The bushing drain avoids the accumulation of liquid behind the scraper.*
*A connection between the scraper and the lip seal allows to send the fluid back to the tank.*
*The drain is usually installed on the opposite side of the oil port.*



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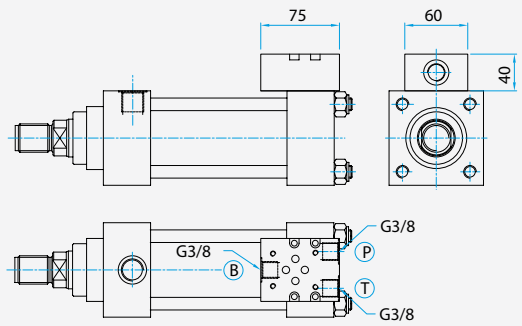
Die eingearbeiteten Platten werden verwendet um Vier-Port-Regelventile mit ISO 4410 Montagefläche zu montieren, so kann das Ventil direkt an dem Lesekopf des Zylinders angebracht werden. Dadurch wird die Ölmenge zwischen dem Ventil und dem Zylinder reduziert und eine bessere Regelgenauigkeit erreicht.
Die Platten sind mit verschiedenen Ölanschlussgrössen und Befestigungsmöglichkeiten erhältlich.

*The incorporated plates can be used to mount four port control valves with ISO 4410 mounting surface. So, the valve can be mounted directly on the rear head of the cylinder, reducing the volume of oil between the valve and the cylinder and obtaining a better control precision.*
*The incorporated plates are available with different oil port dimensions and configurations and different mounting options.*

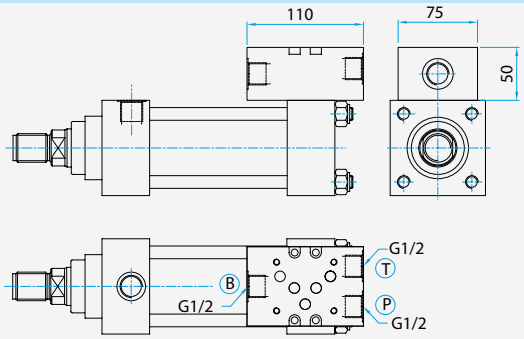
## EINGEARBEITETE PLATTEN MIT 4 SCHRAUBEN BEFESTIGT / *INCORPORATED PLATES: MOUNTED WITH FOUR SCREWS*

| | | Ölanschlussgrösse / *Oil port dimension* | |
|---|---|---|---|
| | | **ISO 4401-03 NG6** | **ISO 4401-05 NG10** |
| Verfügbar für Kolbendurchmesser von/inklusive/bis/zwischen *Available for bore included between* | | 40-125 | 50-200 |
| Verbindung *Link* | Anschluss A - Rückseite / *Port A – Rear side* | **BV3-A** | **BV5-A** |
| | Anschluss B - Rückseite / *Port B – Rear side* | **BV3-B** | **BV5-B** |

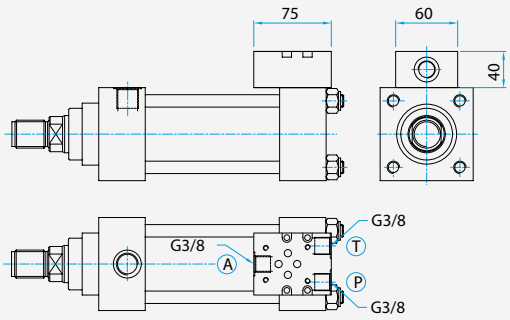
### BV3-A



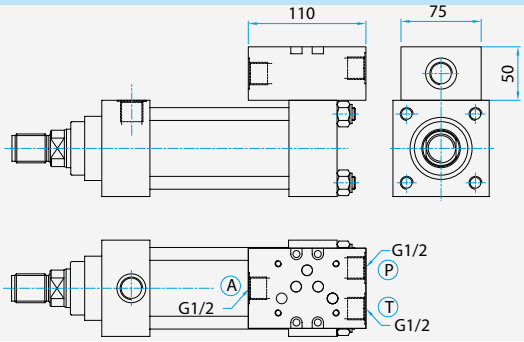

### BV5-A




### BV3-B



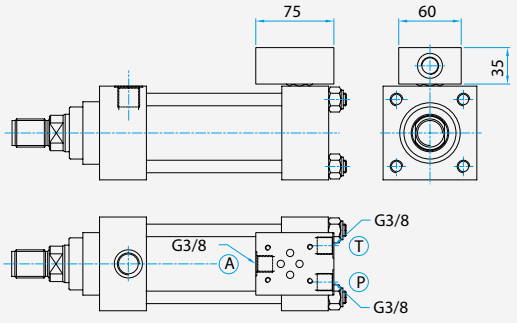

### BV5-B



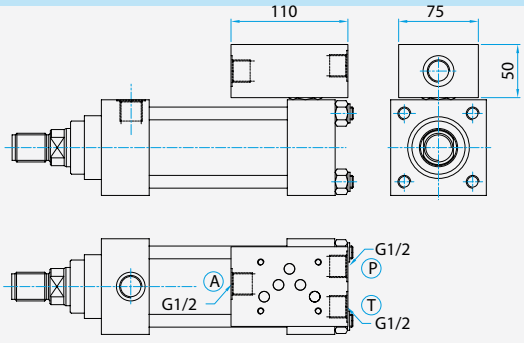

## PLATTEN BEFESTIGT MIT KONISCHEM ANSCHLUSS / *INCORPORATED PLATES: MOUNTED WITH CONIC THREADED NIPLE*

| | | Ölanschlussgrösse / *Oil port dimension* | |
|---|---|---|---|
| | | **ISO 4401-03 NG6** | **ISO 4401-05 NG10** |
| Verfügbar für Kolbendurchmesser von/inklusive/bis/zwischen *Available for bore included between* | | 25-200 | 25-200 |
| Verbindung *Link* | Anschluss B - Rückseite / *Port B – Rear side* | **BA3** | **BA5** |

### BA3




### BA5

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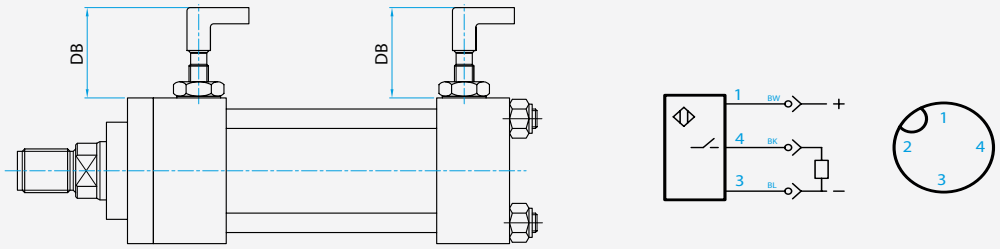
Näherungsschalter können die Kolbenposition erkennen, wenn der Kolben in der Nähe des Hubendes ist. Normalerweise sind die Schalter am Zylinderkopf auf Position 4 angebracht.
Die Näherungsschalter funktionieren nur in den Zylindern mit Kolbendurchmesser zwischen 40 bis 200 mm und nur mit Dämpfung.
Die Näherungsschalter erzeugen ein Magnetfeld und man kann dessen Veränderung durch die Nähe zur Dämpfungsbuchse messen.

*Proximity switches can be used to detect the piston position when it is close to stroke end. They are mounted on the cylinder head, usually in position 4.*
*The proximity switches works only in cylinders with bore between 40 and 200 mm with cushioning. In facts, the proximity switch generate a magnetic field and it is able to detect its modification due to the proximity of the cushioning bushing. The output signal is modulated by a "normally open" switch.*

## NÄHERUNGSSCHALTER / *PROXIMITY SWITCHES*






| Kolben Ø *Bore* (mm) | DB max (mm) |
|---|---|
| **40** | 85 |
| **50** | 80 |
| **63** | 80 |
| **80** | 70 |
| **100** | 60 |
| **125** | 65 |
| **160** | 55 |
| **200** | 50 |

## SPEZIFIKATIONEN / *SPECIFICATIONS*

| | |
|---|---|
| Arbeitstemperatur / *Working temperature* | -25°C … +80°C |
| Maximaldruck / *Maximum pressure* | 500 bar |
| Schutzart / *Protection grade* | IP68 |
| Verbindung / *Connection* | S4 |
| Hysterese / *Hysteresis* | <= 15% |
| Wiederholbarkeit / *Reapeatability* | <= 5% |
| Verkabelung / *Wiring* | 3 fili / *3 wires* |
| Umschaltfunktion / *Switching function* | normalerweise geöffnet / *Normally open* |
| Ausgangssignal / *Output signal* | PNP |
| Bemessungsbetriebsspannung / *Rated operational voltage* | 24 DCV |
| Bemessungsbetriebsstrom / *Rated operationale current* | 200 mA |
| Versorgungsspannung / *Supply voltage* | 10 … 30 DCV |

## BESTELLCODES / *ORDERING CODES*

| | |
|---|---|
| **SPV** | Vorderer Sensor / *Front sensor* |
| **SPZ** | Hinterer Sensor / *Rear sensor* |
| **SPK** | Vorder und hinter Sensor / *Front and rear sensor* |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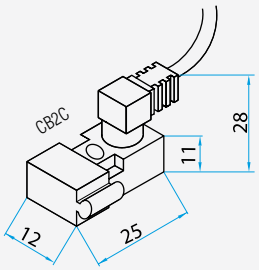
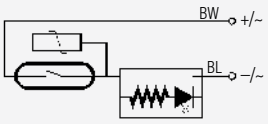
## SR

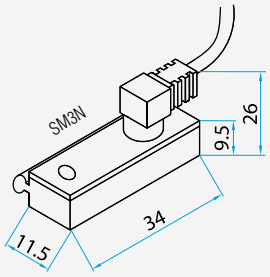


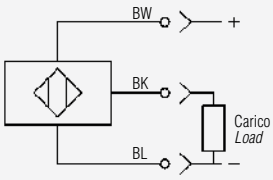




BW = braun / *brown*
BL = blau / *blue*

| KENNGRÖSSEN / *SPECIFICATIONS* | |
|---|---|
| Spannung / *Voltage* | 24-110 V AC/DC |
| Max. Strom / *Max current* (a 25 °C) | 0.3 A |
| Schaltkreis / *Electric circuit* | REED |
| Einschaltzeit / *Switching-on time* | 0.8 ms |
| Ausschaltzeit / *Switching-off time* | 0.1 ms |
| Elektrische Lebensdauer / *Electric lifespan* | $10^7$ Zyklen / *pulse* |
| Schutzklasse / *Protection class* | IP 67 EN60529 |
| Umgebungstemperatur / *Temperature range* | -20 +80 °C |
| Anzeigen / *Indicating* | LED |
| Kabel / *Cable* | 2 x 0.25 mm² |
| Kabellänge / *Cable length* | 5.0 m |

## SH

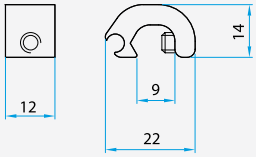
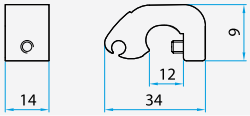
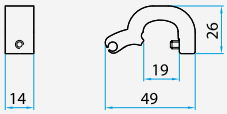
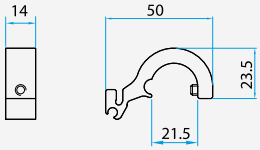


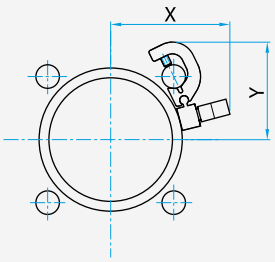




BW = braun / *brown*
BL = blau / *blue*
BK = schwarz / *black*

| KENNGRÖSSEN/ *SPECIFICATIONS* | |
|---|---|
| Spannung / *Voltage* | 24 V DC |
| Max. Strom / *Max current* (a 25 °C) | 0.25 A |
| Schaltkreis / *Electric circuit* | PNP |
| Einschaltzeit / *Switching-on time* | 0.8 ms |
| Ausschaltzeit / *Switching-off time* | 0.1 ms |
| Elektrische Lebensdauer / *Electric lifespan* | $10^7$ impulsi / *pulse* |
| Schutzklasse / *Protection class* | IP 67 EN60529 |
| Umgebungstemperatur / *Temperature range* | -20 +80 °C |
| Anzeigen / *Indicating* | LED |
| Kabel / *Cable* | 3x0.25 mm² |
| Kabellänge / *Cable length* | 5.0 m |

## HALTEKLAMMER FÜR NÄHERUNGSSCHALTER / *BRACKET FOR MAGNETIC PROXIMITY SWITCHES*

| Kolben-ø / *Bore* | X | Y | Halteklammer / *Bracket* | |
|---|---|---|---|---|
| **25** | 43 | 26 | **STA** |   |
| **32** | 45 | 28 | | |
| **40** | 50 | 32 | | |
| **50** | 56 | 44 | **STB** |   |
| **63** | 61 | 50 | | |
| **80** | 71 | 57 | **STC** |   |
| **100** | 78 | 64 | | |
| **125** | 95 | 80 | **STD** |   |




### BESTELLCODE FÜR SENSOREN UND HALTEKLAMMER / *SWITCH + BRACKET ORDERING CODE*

**SR** **STA**

| Typ *Type* | **Sensor *Switch*** |
|---|---|
| REED | **SR** |
| PNP | **SH** |

| **Halteklammer *Bracket*** | Für Zylinderdurchmesser / *For cylinder with bore* |
|---|---|
| **STA** | 25, 32, 40 |
| **STB** | 50, 63 |
| **STC** | 80, 100 |
| **STD** | 125 |



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Hydraulikzylinder mit Gegenflansch nach ISO 6020/2 Norm. Diese sind verwendbar für einen Druck bis zu 210 bar und eignen sich auch für große Hübe.
Die Zylinder stehen in verschiedenen Dichtungsarten zur Verfügung, je nach Anwendung und gewünschter Leistung.
Alle Zylinder werden nach der ISO 10100 Norm getestet.

Hydraulic cylinders with counterflanges, in compliance with the ISO 6020/2 standard.
They can be used with pressures up to 210 bar and they are suitable for long strokes.
The cylinders are available in several different sealing configurations, depending on application conditions and desired performances.
All the cylinders are tested in compliance with the ISO 10100 standard.

## HD/HK

| TECHNISCHE EIGENSCHAFTEN / *SPECIFICATIONS* | | | | | |
|---|---|---|---|---|---|
| Standardzylinder<br>*Standard cylinders* | | ISO 6020/2 - DIN 24554 mit Gegenflansch / *with counter flanges* | | | |
| Kolbendurchmesser<br>*Bore* | mm | von 50 bis 100<br>*from 50 to 100* | **HD** | von 125 bis 200<br>*from 125 to 200* | **HK** |
| Arbeitsdruck<br>*Pressure* | bar | Betriebsdruck<br>*operating* | 210 | | |
| Max. Hub<br>*Max stroke* | mm | 4000 | | | |
| Hubtoleranz<br>*Stroke tolerance* | | 0 + 2 mm | Standard ISO 8131<br>*ISO 8131 Standard* | | |
| Medium<br>*Fluid* | | Mineralöl / *Hydraulic mineral oil*<br>Phosphorester / *Phosphoric esters*<br>HFC-Medium / *HFC-fluid* | | | |
| Viskosität<br>*Viscosity* | | 12... 90 mm²/S | | | |

| Dichtungscode<br>*Seal code* | Leistung<br>*Performance* | | | | | Flüssigkeit<br>*Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit<br>*High sealing* | Niedrige Reibung<br>*Low friction* | Maximale Geschwindigkeit<br>*Max speed* | Temperatur in °C<br>*Temp °C*<br>Min | Max | Hydrauliköl<br>*Hydraulic oil* | Phosphor-säureester<br>*Phosphoric esters* | HFC-Medium<br>*HFC-fluid* |
| **S** | √ | | 0,5 m/s | - 20 | + 80 | √ | | |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |


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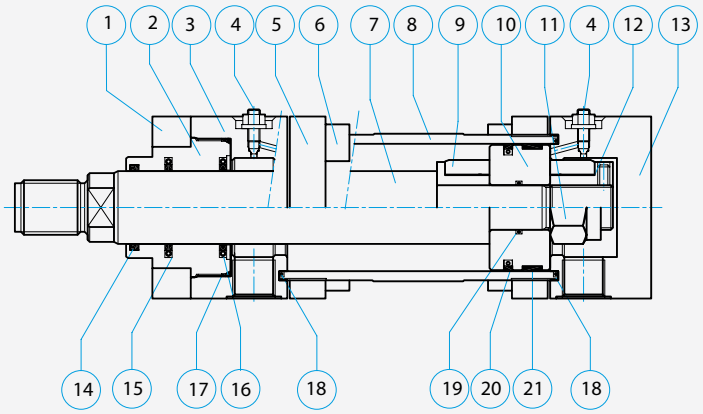
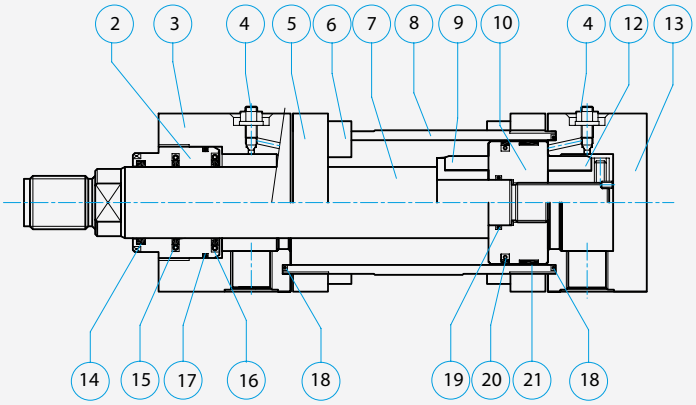
## HD ZYLINDER / *CYLINDER*




## HK ZYLINDER / *CYLINDER*




| | Komponenten / *Component* | Werkstoff / *Material* | Kenngrössen / *Specifications* |
|---|---|---|---|
| 1 | Verschlussflansch / *Closing flange* | Stahl / *Steel* | Brüniert / *Burnished* |
| 2 | Führungsbuchse / *Guide bushing* | Bronze / *Bronze* | |
| 3 | Zylinderkopf vorne / *Front head* | Stahl / *Steel* | Brüniert / *Burnished* |
| 4 | Einstellbare Dämpfung + Entlüftung /*Cushioning adjusting + air bleed* | Stahl / *Steel* | |
| 5 | Gegenflansch / *Counter flange* | Stahl / *Steel* | Brüniert / *Burnished* |
| 6 | Verschlussschraube / *Closing screw* | Stahl / *Steel* | Brüniert / *Burnished* |
| 7 | Kolbenstange / *Piston rod* | Verchromter Stahl / *Chromeplated steel* | Cr 25 µm ISO f7 - Ra 0.20 µm |
| 8 | Zylinderrohr / *Cylinder body* | Stahl / *Steel* | Gehont / *Honed* H8 - Ra 0.40 µm |
| 9 | Vordere Dämpfung / *Front cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 10 | Kolben / *Piston* | Stahl / *Steel* | |
| 11 | Selbstsichernde Mutter / *Rod self-locking nut* | Stahl / *Steel* | |
| 12 | Hintere Dämpfung / *Rear cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 13 | Zylinderkopf hinten / *Rear head* | Stahl / *Steel* | Brunito / *Burnished* |

| | Komponenten / *Component* | Nute / *Groove* | Werkstoff / *Material* | | | |
|---|---|---|---|---|---|---|
| | | | S | L | H | G |
| 14 | Abstreifer / *Rod wiper* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 15 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 16 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 17 | Kopf-Buchsen-Abdichtung / *Head-bushing sealing* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 18 | OR Zylinderrohrdichtung / *OR tube seal* | | NBR | NBR | Viton® | NBR |
| 19 | OR Kolbendichtung / *OR piston seal* | | NBR | NBR | Viton® | NBR |
| 20 | Kolbendichtung / *Piston seal* | ISO 7425/1 | NBR + PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 21 | Kolbenführung / *Piston guide* | | Phenoplast *Resin* | Phenoplast *Resin* | Phenoplast *Resin* | Phenoplast *Resin* |

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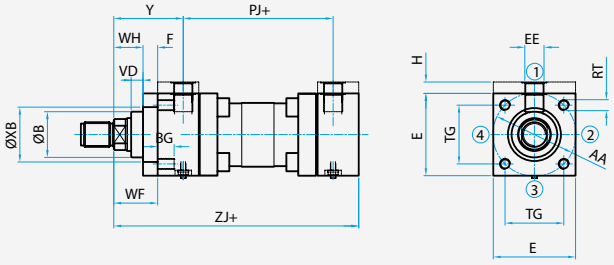
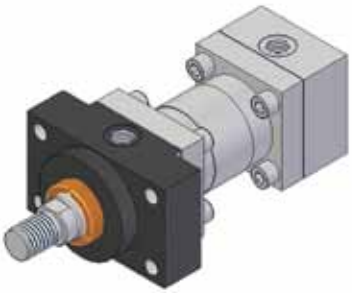
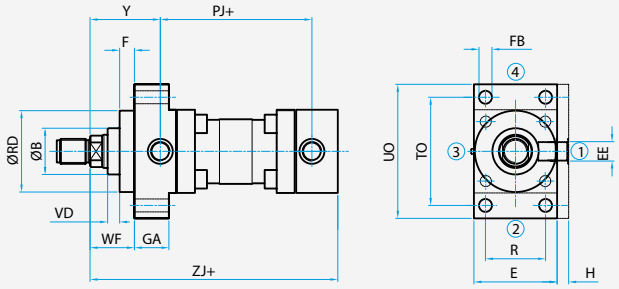
## LÖCHER MIT GEWINDE VORNE / *FRONT THREADED HOLES* — X — ISO MX5

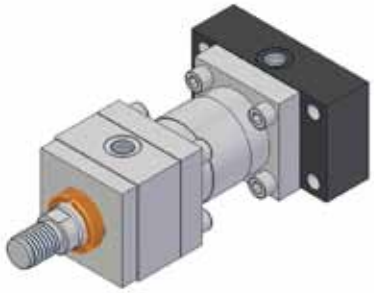


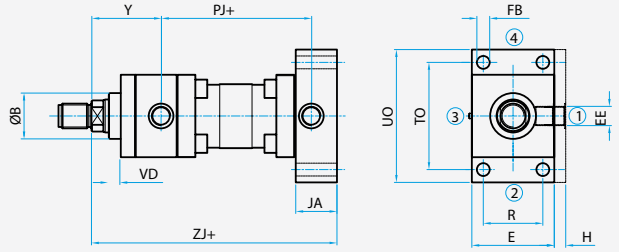

## FLANSCH VORNE / *FRONT FLANGE* — A — ISO ME5



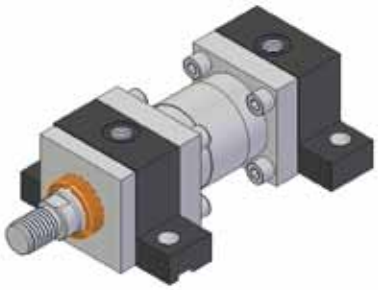


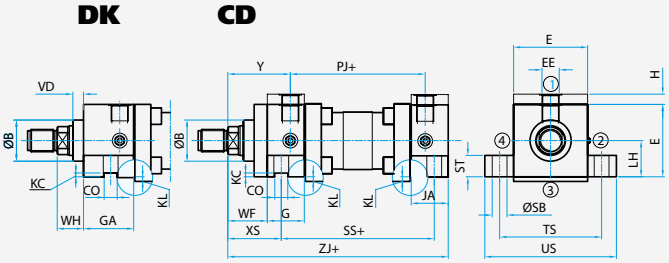

## FLANSCH HINTEN / *REAR FLANGE* — B — ISO ME6





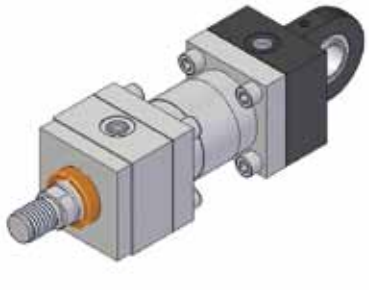

## FUSSBEFESTIGUNG / *FEET* — E — ISO MS2

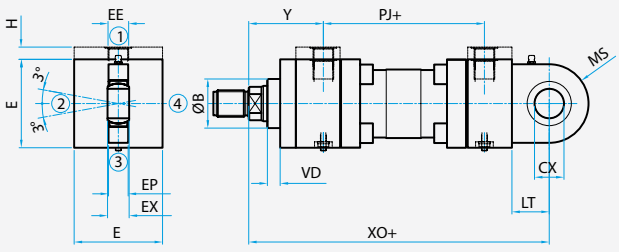





Der Gegenflansch steht über (Siehe KL Wert)
*The counterflange stick out from of the feet base (see KL dimension).*

## GELENKLAGER / *BALL JOINTED EYE* — D — ISO MP5







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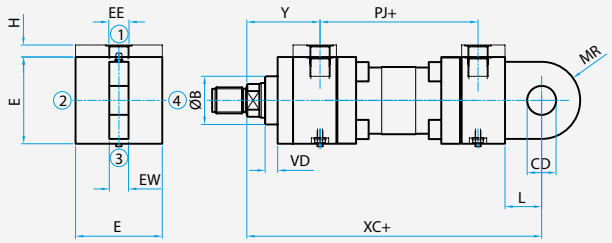
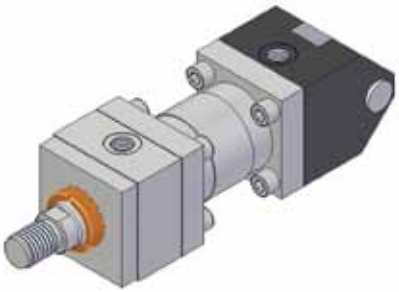
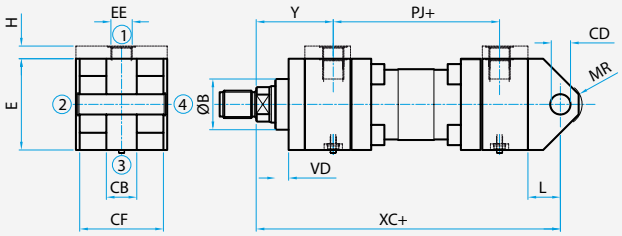
## SCHARNIER (LASCHE) / *MALE CLEVIS* — C — ISO MP3

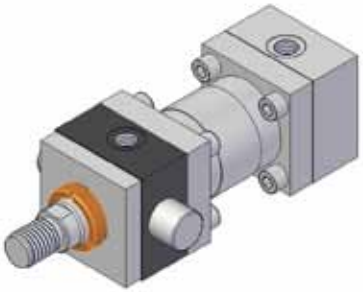


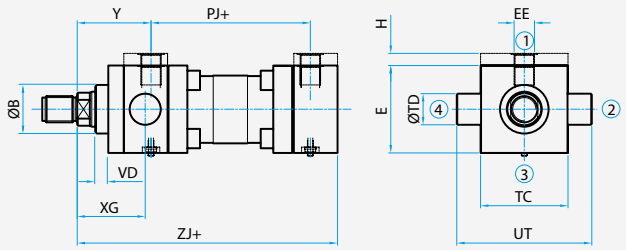

## GABELSCHARNIER / *FEMALE CLEVIS* — M — ISO MP1



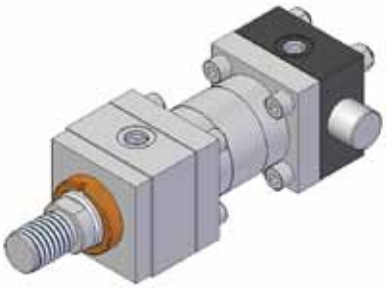


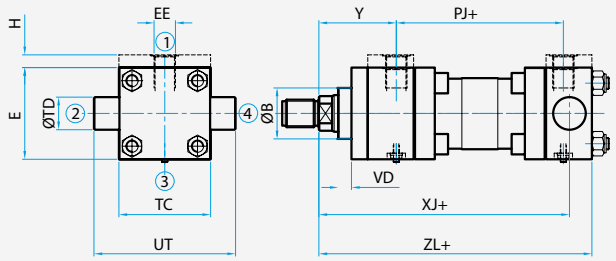

## SCHWENKZAPFEN VORNE / *FRONT TRUNNIONS* — G — ISO MT1



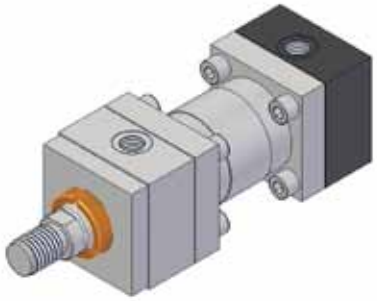


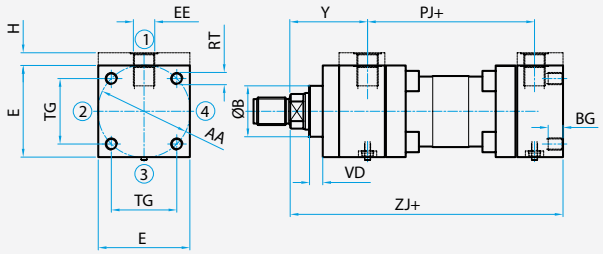

## SCHWENKZAPFEN HINTEN / *REAR TRUNNIONS* — L — ISO MT2





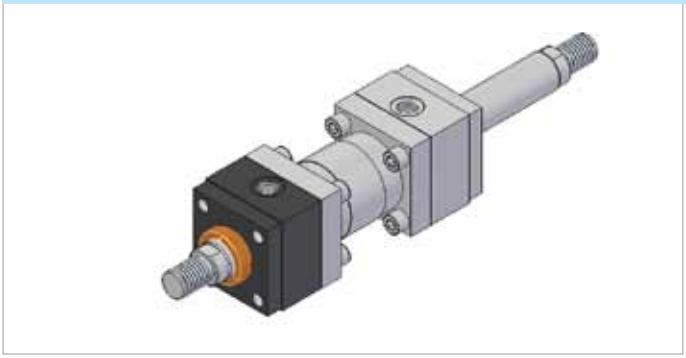

## LÖCHER MIT GEWINDE HINTEN / *REAR THREADED HOLES* — T — ISO MX6

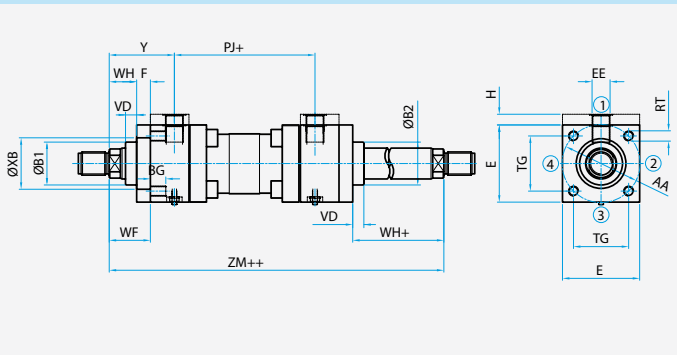




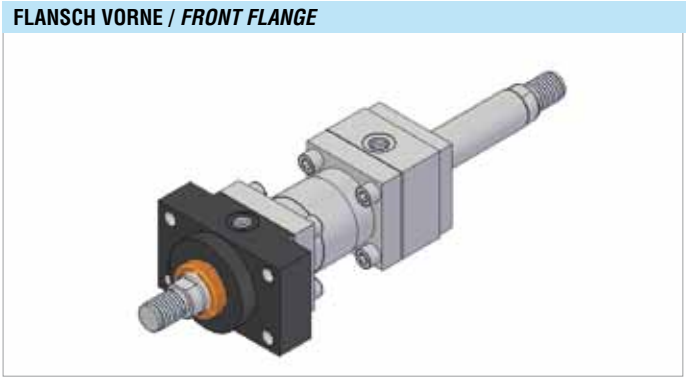

1

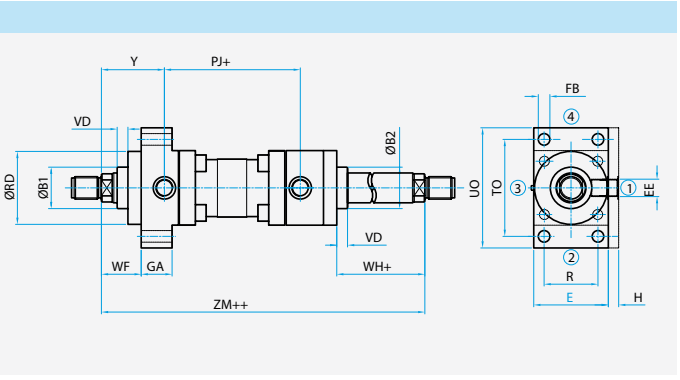
## LÖCHER MIT GEWINDE VORNE / *FRONT THREADED HOLES* — X



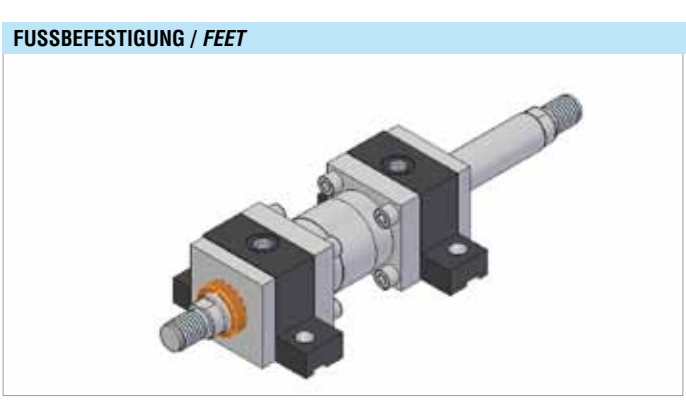


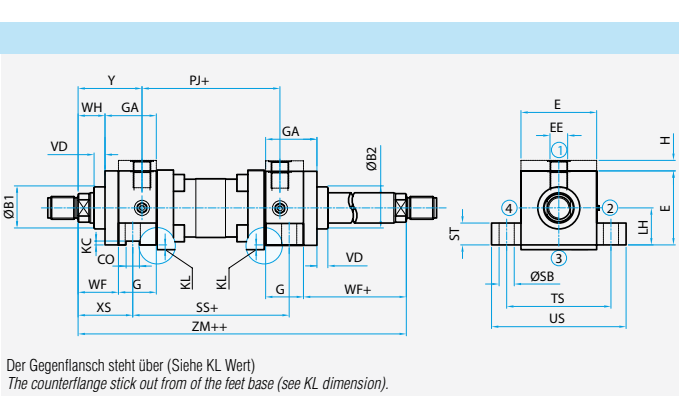

## FLANSCH VORNE / *FRONT FLANGE* — A





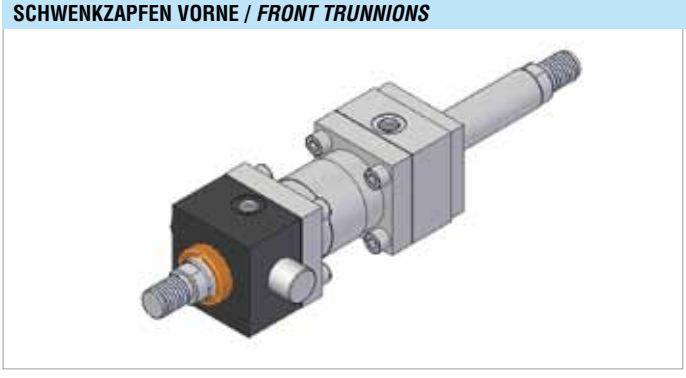

## FUSSBEFESTIGUNG / *FEET* — E

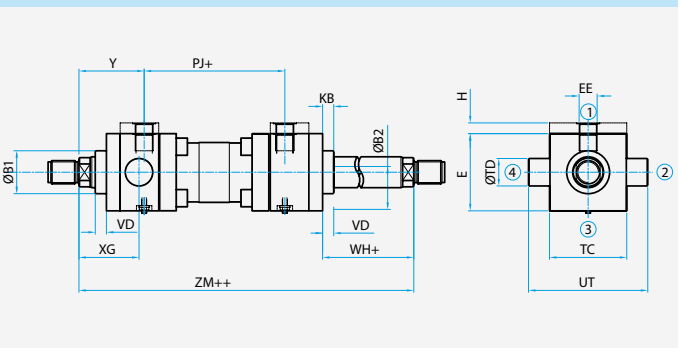





Der Gegenflansch steht über (Siehe KL Wert)
*The counterflange stick out from of the feet base (see KL dimension).*

## SCHWENKZAPFEN VORNE / *FRONT TRUNNIONS* — G







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| Kolben Ø *Bore* | 50 | | | 63 | | | 80 | | | 100 | | | 125 | | | 160 | | | 200 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 22 | 28 | 36 | 28 | 36 | 45 | 36 | 45 | 56 | 45 | 56 | 70 | 56 | 70 | 90 | 70 | 90 | 110 | 90 | 110 | 140 |
| B f9 | 34 | 42 | 50 | 42 | 50 | 60 | 50 | 60 | 72 | 60 | 72 | 88 | 72 | 88 | 108 | 88 | 108 | 133 | 108 | 133 | 163 |
| AA | | 74 | | | 91 | | | 117 | | | 137 | | | 178 | | | 219 | | | 269 | |
| BB | | 46 | | | 46 | | | 59 | | | 59 | | | 81 | | | 92 | | | 115 | |
| BD | | 38 | | | 48 | | | 58 | | | 68 | | | 88 | | | 108 | | | 125 | |
| BG | | 18 | | | 18 | | | 24 | | | 24 | | | 30 | | | 35 | | | 40 | |
| CB | | 30 | | | 30 | | | 40 | | | 50 | | | 64(*) | | | 80(*) | | | 80 | |
| CD H9 | | 20 | | | 20 | | | 28 | | | 36 | | | 45 | | | 56 | | | 70 | |
| CF | | 74 | | | 90 | | | 110 | | | 130 | | | 164 | | | 200 | | | 240 | |
| CO H8 | | 12 | | | 16 | | | 16 | | | 16 | | | 20 | | | 30 | | | 40 | |
| CX | | 25 -0.012 | | | 30 -0.012 | | | 40 -0.012 | | | 50 -0.012 | | | 60 -0.015 | | | 80 -0.015 | | | 100 -0.020 | |
| DD | | M12x1.25 | | | M12x1.25 | | | M16x1.5 | | | M16x1.5 | | | M22x1.5 | | | M27x2 | | | M30x2 | |
| E | | 75 | | | 90 | | | 115 | | | 130 | | | 165 | | | 200 | | | 245 | |
| EE | | G 1/2" | | | G 1/2" | | | G 3/4" | | | G 3/4" | | | G 1" | | | G 1" | | | G 1 1/4" | |
| EP | | 18 | | | 20 | | | 24 | | | 30 | | | 38 | | | 47 | | | 58 | |
| EW h14 | | 30 | | | 30 | | | 40 | | | 50 | | | 60 | | | 70 | | | 80 | |
| EX | | 20 | | | 22 | | | 28 | | | 35 | | | 44 | | | 55 | | | 70 | |
| F | | 16 | | | 16 | | | 20 | | | 22 | | | 22 | | | 25 | | | 25 | |
| FB H13 | | 14 | | | 14 | | | 18 | | | 18 | | | 22 | | | 26 | | | 33 | |
| G | | 45 | | | 45 | | | 52 | | | 55 | | | 65 | | | 70 | | | 92 | |
| GA | | — | | | — | | | — | | | — | | | 87 | | | 95 | | | 117 | |
| GF | | 38 | | | 38 | | | 45 | | | 45 | | | 58 | | | 58 | | | 76 | |
| H | | — | | | — | | | — | | | — | | | — | | | — | | | — | |
| JA | | 45 | | | 45 | | | 52 | | | 55 | | | 65 | | | 70 | | | 92 | |
| KB | | 17 | | | 17 | | | 23 | | | 23 | | | 30 | | | 35 | | | 37 | |
| KC | | 4.5 | | | 4.5 | | | 5 | | | 6 | | | 6 | | | 8 | | | 8 | |
| KL | | 1 | | | 2 | | | 2 | | | 6 | | | 3 | | | 1 | | | 5 | |
| L | | 32 | | | 32 | | | 39 | | | 54 | | | 57 | | | 63 | | | 82 | |
| LH h10 | | 37 | | | 44 | | | 57 | | | 63 | | | 82 | | | 101 | | | 122 | |
| LT | | 31 | | | 38 | | | 48 | | | 58 | | | 72 | | | 92 | | | 116 | |
| MR max | | 29 | | | 29 | | | 34 | | | 50 | | | 53 | | | 59 | | | 78 | |
| MS max | | 33 | | | 40 | | | 50 | | | 62 | | | 80 | | | 100 | | | 120 | |
| PJ | | 62+ (*) | | | 64+ (*) | | | 77+ (*) | | | 78+ (*) | | | 117+ | | | 130+ | | | 165+ | |
| R | | 52 | | | 65 | | | 83 | | | 97 | | | 126 | | | 155 | | | 190 | |
| RD f8 | | 74 | | | 88 (**) | | | 105 (**) | | | 125 (**) | | | 150 (**) | | | 170 (**) | | | 210 (**) | |
| RT | | M12 | | | M12 | | | M16 | | | M16 | | | M22 | | | M27 | | | M30 | |
| SB H13 | | 14 | | | 18 | | | 18 | | | 26 | | | 26 | | | 33 | | | 39 | |
| SS | | 92 | | | 86 | | | 105 | | | 102 | | | 131 | | | 130 | | | 172 | |
| ST | | 19 | | | 26 | | | 26 | | | 32 | | | 32 | | | 38 | | | 44 | |
| TC | | 76 | | | 89 | | | 114 | | | 127 | | | 165 | | | 203 | | | 241 | |
| TD f8 | | 25 | | | 32 | | | 40 | | | 50 | | | 63 | | | 80 | | | 100 | |
| TG | | 52.3 | | | 64.3 | | | 82.7 | | | 96.9 | | | 125.9 | | | 154.9 | | | 190.2 | |
| TM | | 89 | | | 100 | | | 127 | | | 140 | | | 178 | | | 215 | | | 279 | |
| TO | | 105 | | | 117 | | | 149 | | | 162 | | | 208 | | | 253 | | | 300 | |
| TS | | 102 | | | 124 | | | 149 | | | 172 | | | 210 | | | 260 | | | 311 | |
| UM | | 129 | | | 150 | | | 191 | | | 220 | | | 278 | | | 341 | | | 439 | |
| UO | | 130 | | | 145 | | | 180 | | | 200 | | | 250 | | | 300 | | | 360 | |
| US | | 127 | | | 161 | | | 186 | | | 216 | | | 254 | | | 318 | | | 381 | |
| UT | | 116 | | | 139 | | | 178 | | | 207 | | | 265 | | | 329 | | | 401 | |
| UW | | 90 | | | 100 | | | 130 | | | 140 | | | 180 | | | 215 | | | 300 | |
| VD | | 9 | | | 13 | | | 9 | | | 10 | | | 10 | | | 7 | | | 7 | |
| WF | | 41 | | | 48 | | | 51 | | | 57 | | | 57 | | | 57 | | | 57 | |
| WH | | 25 | | | 32 | | | 31 | | | 35 | | | 35 | | | 32 | | | 32 | |
| XB f9 | | 50 | | | 60 | | | 72 | | | 88 | | | — | | | — | | | — | |
| XC | | 191+ | | | 200+ | | | 229+ | | | 257+ | | | 289+ | | | 308+ | | | 381+ | |
| XG | | 64 | | | 70 | | | 76 | | | 71 | | | 75 | | | 75 | | | 85 | |
| XJ | | 136+ (*) | | | 146+ (*) | | | 165+ (*) | | | 177+ (*) | | | 214+ (*) | | | 227+ (*) | | | 271+ (*) | |
| XO | | 190+ | | | 206+ | | | 238+ | | | 261+ | | | 304+ | | | 337+ | | | 415+ | |
| XS | | 54 | | | 65 | | | 68 | | | 79 | | | 79 | | | 86 | | | 92 | |
| XV min | | 106 | | | 118 | | | 133 | | | 147 | | | 166 | | | 182 | | | 213 | |
| XV max | | 94+ | | | 98+ | | | 108+ | | | 113+ | | | 123+ | | | 120+ | | | 142+ | |
| Y | | 69 (*) | | | 76 (*) | | | 82 (*) | | | 91 (*) | | | 86 | | | 86 | | | 98 | |
| ZJ | | 159+ | | | 168+ | | | 190+ | | | 203+ | | | 232+ | | | 245+ | | | 299+ | |
| ZL | | 159+ | | | 168+ | | | 190+ | | | 203+ | | | 254+ | | | 270+ | | | 324+ | |
| ZM | | 200++ | | | 216++ | | | 241++ | | | 260++ | | | 289++ | | | 302++ | | | 356++ | |

(*) Nicht gemäss ISO 6020/2
*Does not comply with ISO 6020/2 standard*

(**) Einheitliches RD-Maß mit Bezug auf die größere Kolbenstange als in der Norm ISO 6020/2 vorgesehen
*RD dimension is unified, with reference to the higher diameter between the ones defined by ISO 6020/2 standard*

\+ = Den Hub addieren / *Add the stroke*
++ = Den doppelten Hub addieren / *Add the double of the stroke*

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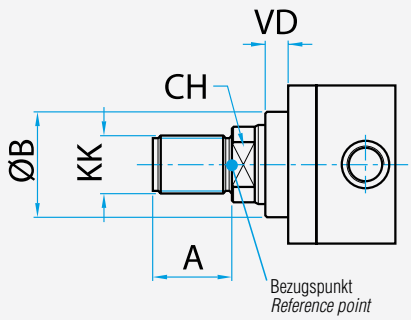
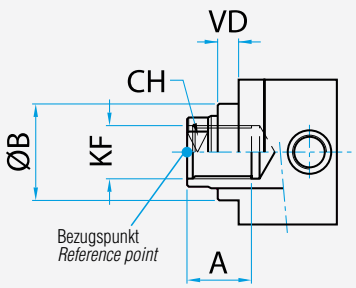
1

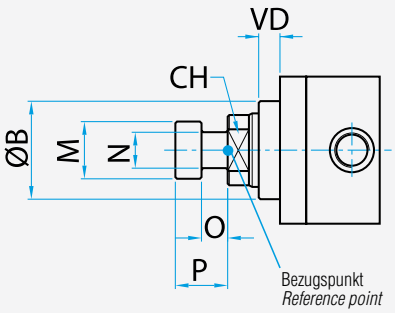
## STANDARD




## SF

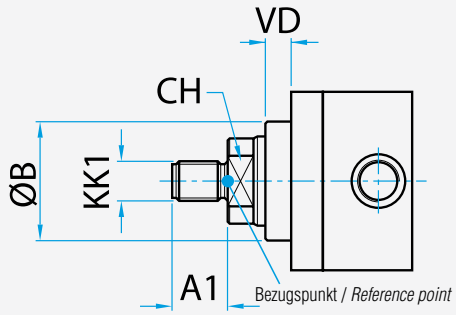



## ST




| Stangen Ø/*Rod* | 22 | 28 | 36 | 45 | 56 | 70 | 90 | 110 | 140 |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 22 | 28 | 36 | 45 | 56 | 63 | 85 | 95 | 112 |
| **B f9** | 34 | 42 | 50 | 60 | 72 | 88 | 108 | 133 | 163 |
| **CH** | 19 | 22 | 30 | 36 | 46 | 60 | 75 | 95 | 120 |
| **KK** | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M80x3 | M100x3 |
| **KF** | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M80x3 | M100x3 |
| **M** | 18 | 22 | 28 | 35 | 45 | 56 | 70 | 106 | 136 |
| **N** | 11 | 14 | 18 | 22 | 28 | 35 | 45 | 65 | 70 |
| **O** | 8 | 10 | 13 | 16 | 20 | 25 | 35 | 35 | 45 |
| **P** | 16 | 20 | 25 | 32 | 40 | 50 | 70 | 70 | 90 |

## SL — DIN 24554




| Kolbendurchmesser *Bore* | 50 | | | 63 | | | 80 | | | 100 | | | 125 | | | 160 | | | 200 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 22 | 28 | 36 | 28 | 36 | 45 | 36 | 45 | 56 | 45 | 56 | 70 | 56 | 70 | 90 | 70 | 90 | 110 | 90 | 110 | 140 |
| **A1** | | 22 | | | 28 | | | 36 | | | 45 | | | 56 | | | 63 | | | 85 | |
| **B f9** | 34 | 42 | 50 | 42 | 50 | 60 | 50 | 60 | 72 | 60 | 72 | 88 | 72 | 88 | 108 | 88 | 108 | 133 | 108 | 133 | 163 |
| **CH** | 19 | 22 | 30 | 22 | 30 | 36 | 30 | 36 | 46 | 36 | 46 | 60 | 46 | 60 | 75 | 60 | 75 | 95 | 75 | 95 | 120 |
| **KK1** | M16x1.5 | | | M20x1.5 | | | M27x2 | | | M33x2 | | | M42x2 | | | M48x2 | | | M64x3 | | |
| **VD** | 9 | | | 13 | | | 9 | | | 10 | | | 10 | | | 7 | | | 7 | | |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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

| HD | | 50 | / | 28 | / | | A | | 500 | | S | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Typ / *Type*** | **Kolbendurchmesser / *Bore***

| | | |
|---|---|---|
| Standard | 50... 100 | **HD** |
| | 125... 200 | **HK** |

**Spezialausführung / *Special version* (1)** **SX**

**Kolbendurchmesser / *Bore*** | **Stangen Ø/*Rod***

| | | |
|---|---|---|
| HD | **50** | **22** |
| | | **28** |
| | | **36** |
| | **63** | **28** |
| | | **36** |
| | | **45** |
| | **80** | **36** |
| | | **45** |
| | | **56** |
| | **100** | **45** |
| | | **56** |
| | | **70** |
| HK | **125** | **56** |
| | | **70** |
| | | **90** |
| | **160** | **70** |
| | | **90** |
| | | **110** |
| | **200** | **90** |
| | | **110** |
| | | **140** |

**Ev. 2. Kolbenstange / *Possible 2nd rod***

| Siehe Seiten 18-20 / *See pages 18-20* | ISO 6020/2 | DIN24554 | **Befestigung *Mounting*** |
|---|---|---|---|
| Löcher mit Gewinde vorne *Front tapped holes* | MX5 | | **X** |
| Flansch vorne *Front flange* | ME5 | ME5 | **A** |
| Flansch hinten *Rear flange* | ME6 | ME6 | **B** |
| Fussbefestigung *Feet* | MS2 | MS2 | **E** |
| Gelenklager *Ball jointed eye* | MP5 | MP5 | **D** |
| Scharnier (Lasche) *Male clevis* | MP3 | | **C** |
| Gabelscharnier *Female clevis* | MP1 | | **M** |
| Schwenkzapfen vorne *Front trunnions* | MT1 | | **G** |
| Schwenkzapfen hinten *Rear trunnions* | MT2 | | **L** |
| Löcher mit Gewinde hinten *Rear threaded holes* | MX6 | | **T** |

**Optionen/Spezialausführungen** (siehe Seiten 24) ***Special options/versions*** *(see page 24)*

**Entlüftung / *Air bleed***

| | |
|---|---|
| | Keine Entlüftung / *No air bleed* |
| **SV** | Nur vorne / *Front only* |
| **SZ** | Nur hinten / *Rear only* |
| **SK** | Vorne und hinten / *Front and rear* |

**Kolbenstangenenden / *Rod extremities*** (siehe Seiten 22 / *see page 22*)

| | | |
|---|---|---|
| | | Aussengewinde *Male thread* (standard) |
| | **SF** | Innengewinde *Female thread* |
| | **ST** | Zapfen *Floating joint* |
| | **SL** | Aussengewinde DIN 24554 *Male thread DIN 24554* |

**Dichtungen / *Seals*** (siehe Seiten 16 / *see pages 16*)

| | |
|---|---|
| **S** | Standard (Mineralöl) *Standard (mineral oil)* |
| **L** | Leichtgängig / *Low friction* |
| **H** | Viton® (hohe Temperaturen, Phosphorester) *Viton® (high temperature, phosphoric esters)* |
| **G** | HFC-Medium / *HFC-fluid* |

**Distanzstück *Spacer*** Empfohlen für Hübe: *Recommended for stroke:*

| | |
|---|---|
| | von 0 bis 1000 / *from 0 to 1000* |
| **SJ 50** | von 1000 bis 1500 / *from 1000 to 1500* |
| **SJ 100** | von 1500 bis 2000 / *from 1500 to 2000* |
| **SJ 150** | von 2000 bis 3000 / *from 2000 to 3000* |
| **SJ 200** | über 3000 / *above 3000* |

**Hub / *Stroke***

In mm angeben / *Specify in mm*

**Einstellbare Dämpfung / *Adjustable cushioning (2)***

| | |
|---|---|
| | Ohne Dämpfung / *Not cushioned* |
| **V** | Nur vorne / *Front only* |
| **Z** | Nur hinten / *Rear only* |
| **K** | Vorne und hinten / *Front and rear* |

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes den Spezialcode (siehe Seite 24) eintragen, gefolgt von der Zeichnungsnummer, sofern vorhanden.
*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 24) followed by the drawing's number, if any.*
(2) Für Kolbendurchmesser 25 ist die Dämpfung nicht einstellbar.
*For bore 25, the cushioning is not adjustable.*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***

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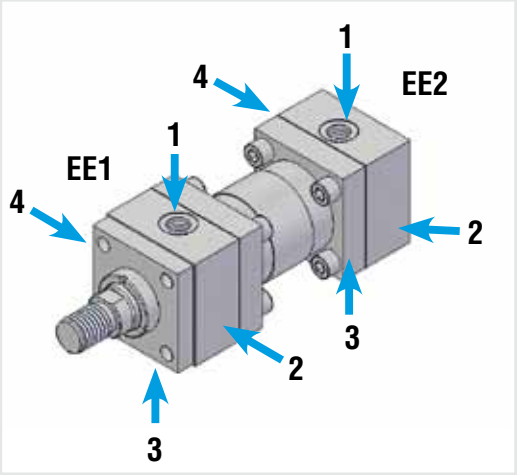
Für weitere Zylindereinstellungen oder Abweichungen vom Standardzylinder empfehlen wir unsere interaktive Zylinderzusammenstellung unter www.confortinet.com.
*To choose an option or a variation of the standard cylinder, please use our service available on www.confortinet.com*



## LAGE DER ANSCHLÜSSE / *PORT LOCATION*




| Kolben Ø *Bore* | ISO 1179-1 (GAS) | | | | SAE 3000 | | | |
|---|---|---|---|---|---|---|---|---|
| | Standard | | Übergrösse / *Oversize* | | Standard | | Übergrösse / *Oversize* | |
| | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* |
| **25** | G 1/4" | G 1/4" | – | G 3/8" | – | – | – | – |
| **32** | G 1/4" | G 1/4" | – | G 3/8" | – | – | – | – |
| **40** | G 3/8" | G 3/8" | – | G 1/2" | – | – | – | – |
| **50** | G 1/2" | G 1/2" | – | G 3/4" | – | – | – | – |
| **63** | G 1/2" | G 1/2" | – | G 3/4" | – | – | – | – |
| **80** | G 3/4" | G 3/4" | – | G 1" | 3/4" | 3/4" | 1" | 1" |
| **100** | G 3/4" | G 3/4" | – | G 1" | 3/4" | 3/4" | 1" | 1" |
| **125** | G 1" | G 1" | G 1 1/4" | G 1 1/4" | 1" | 1" | 1 1/4" | 1 1/4" |
| **160** | G 1" | G 1" | G 1 1/4" | G 1 1/4" | 1" | 1" | 1 1/4" | 1 1/4" |
| **200** | G 1 1/4" | G 1 1/4" | G 1 1/2" | G 1 1/2" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" |

Standardmässig sind die Ölanschlüsse auf Position 1 und die Dämpfung und Entlüftung kombiniert auf Position 3. Für Befestigung E sind die Dämpfung und Entlüftung kombiniert auf Position 2.

*The standard configuration has the oil ports in position 1 and the cushioning adjustment or air bleed in position 3, except for the mounting type E, where they are in position 2.*

## BL

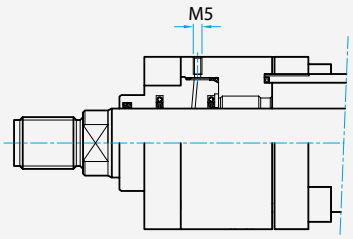
Für spezielle Anwendungen, wo eine hohe Dichtigkeit und niedrige Reibung benötigt werden, ist ein spezieller Kolben verfügbar.
Bitte wenden Sie sich an unsere technische Abteilung für weitere Informationen.

*For special application, where high sealing and low friction is required (i.e., closed circuit application), a special piston is available.*
*Contact our technical department in order to verify the feasibility of this solution.*

## STANGENENDE / *ROD END*

| | |
|---|---|
| **RRX** | Edelstahl-Kolbenstange / *Stainless steel chromeplated rod* |
| **RRB** | Vergütete-Kolbenstange / *Hardened and tempered chromeplated rod* |
| **RRK** | Nikrom-Kolbenstange / *Nikrom rod* |
| **RRH** | Gehärtete und verchromt Stange / *Hardened chromeplated rod* |

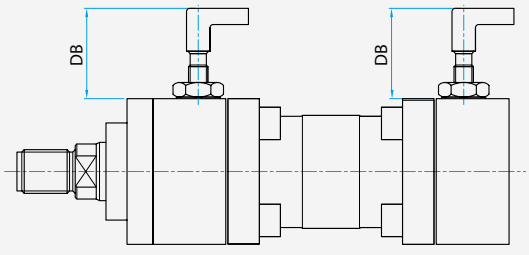
## SD BUCHSENDRAINAGE / *BUSHING DRAIN*

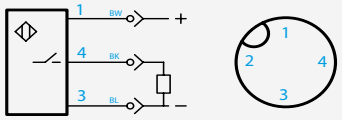



Die Buchsendrainage verhindert die Ablagerung von Flüssigkeit hinter dem Schaber. Ein Anschluss zwischen dem Schaber und der Dichtungslippe ermöglicht die Rückführung der Flüssigkeit in den Behälter.
Die Drainage befindet sich normalerweise gegenüber der Ölöffnung.

*The bushing drain avoids the accumulation of liquid behind the scraper.*
*A connection between the scraper and the lip seal allows to send the fluid back to the tank.*
*The drain is usually installed on the opposite side of the oil port.*

## NÄHERUNGSSCHALTER / *PROXIMITY SWITCHES*




| Durchmesser *Bore* (mm) | DB max (mm) |
|---|---|
| **40** | 85 |
| **50** | 80 |
| **63** | 80 |
| **80** | 70 |
| **100** | 60 |
| **125** | 65 |
| **160** | 55 |
| **200** | 50 |

| | |
|---|---|
| **SPV** | Vorderer Sensor / *Front sensor* |
| **SPZ** | Hinterer Sensor / *Rear sensor* |
| **SPK** | Vorder und hinter Sensor / *Front and rear sensor* |

Dokumentation zu den Näherungsschaltern auf Seite 14.
*For proximity switches features, see documentation at page 14.*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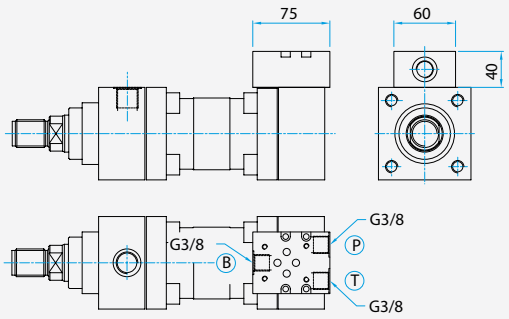
Die eingearbeiteten Platten werden verwendet um Vier-Port-Regelventile mit ISO 4410 Montagefläche zu montieren, so kann das Ventil direkt an dem Lesekopf des Zylinders angebracht werden. Dadurch wird die Ölmenge zwischen dem Ventil und dem Zylinder reduziert und eine bessere Regelgenauigkeit erreicht.
Die Platten sind mit verschiedenen Ölanschlussgrössen und Befestigungsmöglichkeiten erhältlich.

*The incorporated plates can be used to mount four port control valves with ISO 4410 mounting surface. So, the valve can be mounted directly on the rear head of the cylinder, reducing the volume of oil between the valve and the cylinder and obtaining a better control precision.*
*The incorporated plates are available with different oil port dimensions and configurations and different mounting options.*

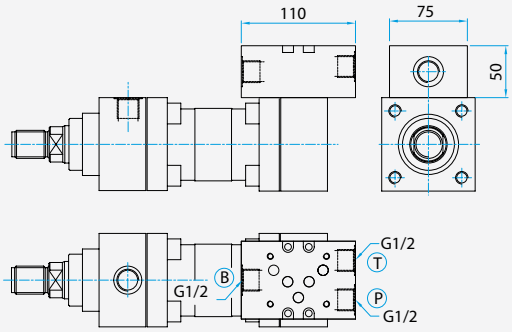
## EINGEARBEITETE PLATTEN MIT 4 SCHRAUBEN BEFESTIGT / *INCORPORATED PLATES: MOUNTED WITH FOUR SCREWS*

| | | Ölanschlussgrösse / *Oil port dimension* | |
|---|---|---|---|
| | | **ISO 4401-03 NG6** | **ISO 4401-05 NG10** |
| Verfügbar für Kolbendurchmesser *Available for bore* | | 40-125 | 50-200 |
| Verbindung *Link* | Anschluss A - Rückseite / *Port A – Rear side* | **BV3-A** | **BV5-A** |
| | Anschluss B - Rückseite / *Port B – Rear side* | **BV3-B** | **BV5-B** |

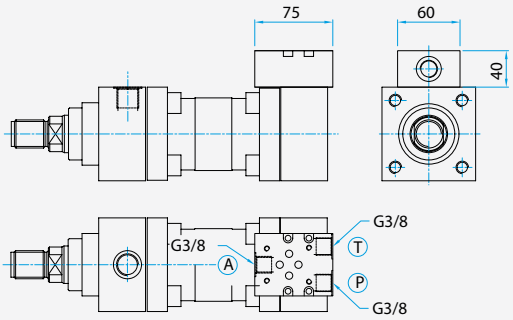
### BV3-A



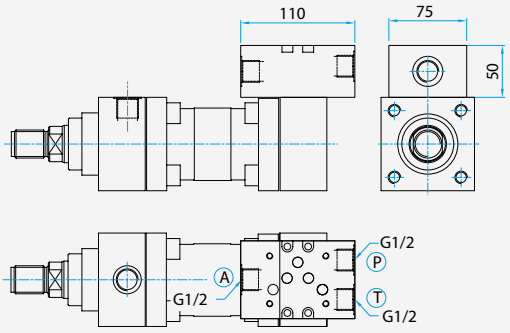

### BV5-A




### BV3-B



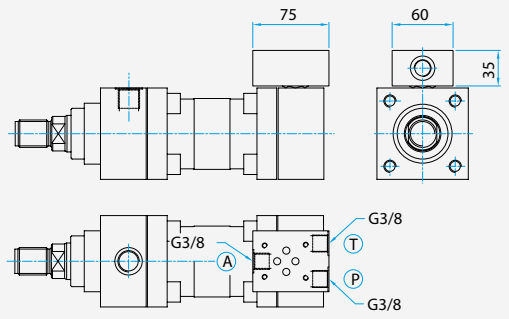

### BV5-B



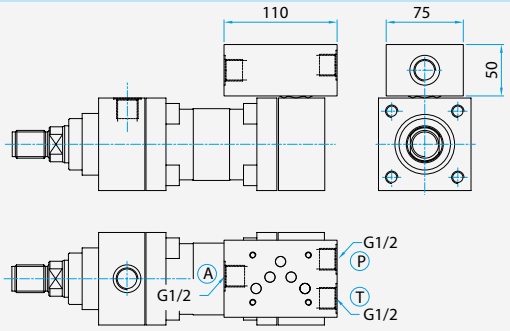

## PLATTEN BEFESTIGT MIT KONISCHEM ANSCHLUSS / *INCORPORATED PLATES: MOUNTED WITH CONIC THREADED NIPLE*

| | | Ölanschlussgrösse / *Oil port dimension* | |
|---|---|---|---|
| | | **ISO 4401-03 NG6** | **ISO 4401-05 NG10** |
| Verfügbar für Kolbendurchmesser *Available for bore* | | 25-200 | 25-200 |
| Verbindung *Link* | Anschluss B - Rückseite / *Port B – Rear side* | **BA3** | **BA5** |

### BA3




### BA5

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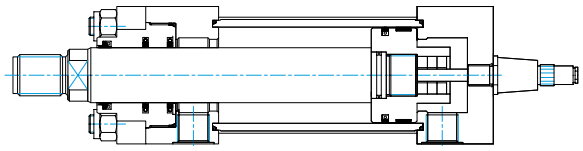
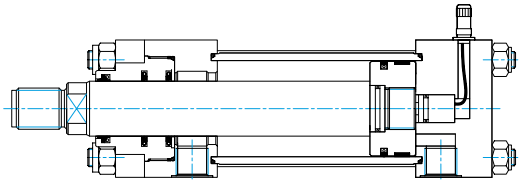
Version mit externem Signalwandler. Für Befestigungen X, A,E,G,H,L,R.
*Version with external transducer. For mountings X, A, E, G, H, L, R*



Version mit internem Signalwandler, für Befestigungen B,D,C,M,Q,S,T. Bitte wenden Sie sich an unsere technische Abteilung.
*Version with internal transducer. For mountings B, D, C, M, Q, S, T. Contact our technical department.*



Die Servozylinder der Serie TD und TK sind mit einem elektrischen Signalwandler ausgestattet, der die genaue Position der Kolbenstange erkennt. Die Wahl des Signalwandlers hängt von den gewünschten Leistung ab. Die Genauigkeit der Positionierung wird durch 2 Elemente bestimmt: Die Auflösung des Signalwandlers und die Zylindersteuerung.
Die Signalwandler sind in 3 Varianten lieferbar:

- **TEMPOSONIC** ermöglicht hohe Auflösungen und den Einsatz unterschiedlicher Steuerungen; es können alle Hublängen abgedeckt werden.
- **POTENZIOMETRISCH**: Das Ausgangssignal wird von einem Kursor erzeugt, der auf einer potenziometrischen Spur läuft. Die Spannung ist proportional zur Position des Kursors. Der maximal mögliche Hub beträgt 500 mm.
- **INDUKTIV**: Liefert ein Spannungssignal, dass von einem separaten Stromkreis gene riert wird. Der maximal mögliche Hub beträgt 1000 mm.

*The ISO 6020/2 servocylinders are available both with tie rods (TD and TK versions) and with counter flanges (TH and TX version).*
*The servocylinders include an electronic transducer, which allows to obtain the absolute position of the rod. The type of transducer to be used depends on the performance you need. The precision of positioning is determined by 2 elements: the resolution of the transducer and the drive system of the cylinder.*
*3 type of transducers are available:*

- **TEMPOSONIC**: *it allows high resolutions and different types of control; it supports all the stroke lengths necessary.*
- **POTENTIOMETRIC**: *the output signal is given from a cursor sliding on a piezoelectric. The maximum stroke allowed is 500 mm.*
- **INDUCTIVE**: *it emits a voltage or current signal generated by a separated electrical circuit. The maximum stroke allowed is 1000 mm.*

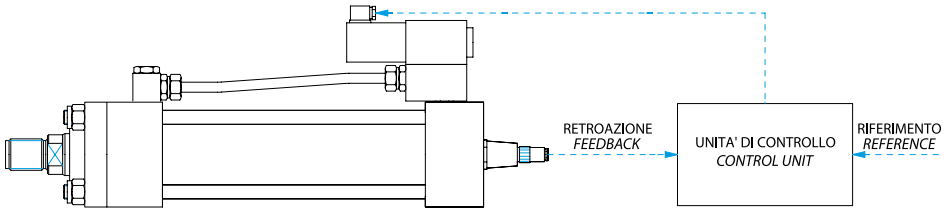
| | MV | MA | MS | PV | IV | IA |
|---|---|---|---|---|---|---|
| **Signalwandler / *Transducer type*** | Temposonic | Temposonic | Temposonic | Potentiometrisch / *Potentiometric* | Induktiv / *Inductive* | Induktiv / *Inductive* |
| **Versorgungsspannung *Supply voltage*** | 24V DC | 24V DC | 24V DC | Max 60V | 24V DC | 24V DC |
| **Ausgang / *Output*** | 0-10 V | 4-20 mA | SSI (Syncronic Serial Interface) | | 0-10 V | 4-20 mA |
| **Auflösung / *Resolution*** | Unendlich / *Endless* | Unendlich / *Endless* | | Unendlich / *Endless* | Unendlich / *Endless* | Unendlich / *Endless* |
| **Linearität / *Linearity*** | < ±0.02% F.S. (min ± 50 µm) | < ±0.02% F.S. (min ± 50 µm) | < ±0.01% F.S. (min ± 50 µm) | ±0.1% F.S. | ±0.2% F.S. | ±0.2% F.S. |
| **Wiederholgenauigkeit *Repeatability*** | < ±0.001% F.S. (min ± 2.5 µm) | < ±0.001% F.S. (min ± 2.5 µm) | < ±0.001% F.S. (min ± 2.5 µm) | | | |
| **Hysterese / *Hysteresis*** | < 4 µm | < 4 µm | < 4 µm | | | |
| **Aufnahme / *Absorption*** | 100 mA | 100 mA | 100 mA | | | |
| **Max. Geschwindigkeit / *Max speed*** | 2 m/s | 2 m/s | 2 m/s | 1 m/s | 2 m/s | 2 m/s |
| **Temperatur / *Temperature*** | -20 +70 °C | -20 +70 °C | -20 +70 °C | -20 +70 °C | -20 +70 °C | -20 +70 °C |
| **Max. Hub / *Max stroke*** | 2500 | 2500 | 2500 | 500 | 1000 | 1000 |

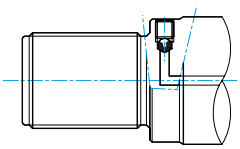
F.S. = Vollausschlag / *full scale*

Die Servozylinder der TD und TK Serie können mit ISO-Schnittstellen ausgestattet werden, die eine direkte Montage dieser Komponenten auf dem Zylinder ermöglichen:
- Elektroventile (ein/aus)
- Proportionale Elektroventile
- Servoventile

Zusammen mit einer STEUEREINHEIT ermöglicht diese Konfiguration eine optimale hydraulische Stabilität, wodurch Reaktionszeiten, Taktung und Positionsgenauigkeit deutlich verbessert werden.

*The servocylinders can be equipped with ISO interface plates, which allow to mount directly on the cylinder the following elements:*
*- Solenoid valves ON/OFF*
*- Proportional solenoid valves*
*- Servovalves*
*This configuration, together with a CONTROL UNIT, ensures an optimal hydraulic rigidity, which drastically increments the answer time, the repeteability and the precision of the positioning.*



**Entlüftung**

Für die ordnungsgemäße Funktion der Servozylinder der TD Serie ist unbedingt darauf zu achten, die Zylinder vor der Inbetriebnahme zu entlüften. Zu diesem Zweck befinden sich nicht nur Entlüftungsöffnungen an den Zylinderköpfen, sondern auch eine Entlüftungsschraube am Ende der Kolbenstange, die den Austritt der Luft aus der Signalwandlerkammer ermöglicht. Dank der besonderen Einbauposition der Entlüftungsöffnung ist das Entlüften bei laufendem Betrieb möglich ohne die Kolbenstange ausbauen zu müssen.

***Air bleed***

*To allow the servocylinders to work correctly, you need to completely exhaust the air within the cylinder when setting them up. Therefore, these cylinders not only include air bleed on the heads, but they also have an air bleed on the head of the rod for exhausting the air within the chamber of the transducer. The particular position of this air bleed allows working even when the cylinder is operative, without having to remove the rod from its housing.*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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

| TD | MA | | 80 | / | 56 | / | | A | 500 | | L | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Typ / *Type*** — **Kolbendurchmesser / *Bore***

| | | |
|---|---|---|
| **Zuganker** *Tie rods* | 40... 100 | **TD** |
| | 125... 200 | **TK** |
| **Gegenflansch** *Counterflanges* | 50... 100 | **TH** |
| | 125... 200 | **TX** |

**Signalwandler / *Transducer***

| | |
|---|---|
| Temposonic | **MV** |
| | **MA** |
| | **MS** |
| Potentiometrisch / *Potentiometric* | **PV** |
| Induktiv / *Inductive* | **IV** |
| | **IA** |

**Spezialausführung / *Special version* (1)** — **SX**

| Kolbendurchmesser / *Bore* | | | Stangen Ø/*Rod* |
|---|---|---|---|
| TD | TH | **40** | **28** |
| | | **50** | **28** |
| | | | **36** |
| | | **63** | **28** |
| | | | **36** |
| | | | **45** |
| | | **80** | **36** |
| | | | **45** |
| | | | **56** |
| | | **100** | **45** |
| | | | **56** |
| | | | **70** |
| TK | TX | **125** | **56** |
| | | | **70** |
| | | | **90** |
| | | **160** | **70** |
| | | | **90** |
| | | | **110** |
| | | **200** | **90** |
| | | | **110** |
| | | | **140** |

**Ev. 2. Kolbenstange / *Possible 2nd rod***

**Optionen/Spezialausführungen** (siehe Seiten 12)) ***Special options/versions*** *(see page 12)*

**Entlüftung / *Air bleed***

| | |
|---|---|
| | Keine Entlüftung / *No air bleed* |
| **SV** | Nur vorne / *Front only* |
| **SZ** | Nur hinten / *Rear only* |
| **SK** | Vorne und hinten / *Front and rear* |

**Kolbenstangenenden / *Rod extremities*** (siehe Seiten 10 / *see page 10*)

| | |
|---|---|
| | Aussengewinde *Male thread* (standard) |
| **SF** | Innengewinde *Female thread* |
| **ST** | Zapfen *Floating joint* |
| **SL** | Aussengewinde DIN 24554 *Male thread DIN 24554* |

**Dichtungen / *Seals*** (siehe Seiten 4 / *see pages 4*)

| | |
|---|---|
| **L** | Leichtgängig / *Low friction* |
| **H** | Viton® (hohe Temperaturen, Phosphorester) *Viton® (high temperature, phosphoric esters)* |
| **G** | HFC-Medium / *HFC-fluid* |

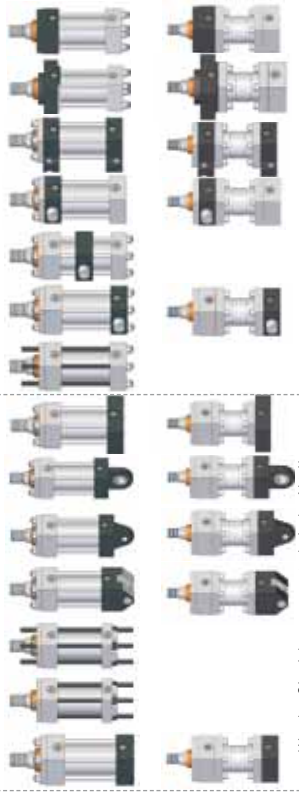
| **Distanzstück** ***Spacer*** | Empfohlen für Hübe: *Recommended for stroke:* |
|---|---|
| | von 0 bis 1000 / *from 0 to 1000* |
| **SJ 50** | von 1000 bis 1500 / *from 1000 to 1500* |
| **SJ 100** | von 1500 bis 2000 / *from 1500 to 2000* |
| **SJ 150** | von 2000 bis 3000 / *from 2000 to 3000* |
| **SJ 200** | über 3000 / *above 3000* |

Wenden Sie sich an unsere technische Abteilung
*Contact our technical department*

**Hub / *Stroke***

In mm angeben / *Specify in mm*

| TD TK | TH TX | Siehe Seiten 6-8 / *See pages 6-8* | ISO 6020/2 | DIN24554 | **Befestigung** ***Mounting*** |
|---|---|---|---|---|---|
| √ | √ | Löcher mit Gewinde vorne *Front tapped holes* | MX5 | | **X** |
| √ | √ | Flansch vorne *Front flange* | ME5 | ME5 | **A** |
| √ | √ | Fussbefestigung *Feet* | MS2 | MS2 | **E** |
| √ | √ | Schwenkzapfen vorne *Front trunnions* | MT1 | | **G** |
| √ | | Schwenkzapfen in der Mitte *Intermediate trunnions* (2) | MT4 | MT4 | **H** |
| √ | √ | Schwenkzapfen hinten *Rear trunnions* | MT2 | | **L** |
| √ | | Zugankerverlängerung vorne *Extended front tie-rods* | MX3 | | **R** |
| √ | √ | Flansch hinten *Rear flange* | ME6 | ME6 | **B** |
| √ | √ | Gelenklager *Ball jointed eye* | MP5 | MP5 | **D** |
| √ | √ | Scharnier (Lasche) *Male clevis* | MP3 | | **C** |
| √ | √ | Gabelscharnier *Female clevis* | MP1 | | **M** |
| √ | | Zugankerverlängerung vorne und hinten *Extended front and rear tie-rods* | MX1 | | **Q** |
| √ | | Zugankerverlängerung hinten *Extended rear tie-rods* | MX2 | | **S** |
| √ | √ | Löcher mit Gewinde hinten *Rear tapped holes* | MX6 | | **T** |



Wenden Sie sich an unsere technische Abteilung
*Contact our technical department*

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes den Spezialcode (siehe Seite 12) eintragen, gefolgt von der Zeichnungsnummer, sofern vorhanden.
*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 12) followed by the drawing's number, if any.*

(2) Für Befestigung H (MT4), am Ende des Codes die Beschriftung "XV", gefolgt vom XV Wert (siehe Seite 7-8) eintragen.
*For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see pages 7-8).*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***



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2

2-1 **HYDRAULIKZYLINDER ISO 6022**
*ISO 6022 HYDRAULIC CYLINDERS*

**KENNGRÖSSEN** 30-31
*TECHNICAL CHARACTERISTICS*

**BEFESTIGUNG** 32-34
*MOUNTING*

**ABMESSUNGEN** 35
*DIMENSION*

**OPTIONEN UND SPEZIALAUSFÜHRUNGEN** 36
*OPTIONS AND SPECIAL EXECUTIONS*

**BESTELLCODE** 37
*ORDERING CODE*

2-2 **SERVOZYLINDER ISO 6022**
*ISO 6022 SERVOCYLINDERS*

**KENNGRÖSSEN** 38
*TECHNICAL CHARACTERISTICS*

**BESTELLCODE** 39
*ORDERING CODE*

**ZUBEHÖR FÜR HYDRAULISCHE ISO ZYLINDER**
*ACCESSORIES FOR ISO HYDRAULIC CYLINDERS*

**KENNGRÖSSEN** 40-41
*TECHNICAL CHARACTERISTICS*

Hydraulikzylinder für schwere Anwendungen, nach ISO 6022 Norm.
Die Zylinder sind mit verschiedenen Dichtungen verfügbar,-je nach Einsatzbedingungen und der gewünschten Leistung.
Die Verwendung von Bronzeführungen für die Stange und den Kolben gewährleistet eine hohe Leistungsfähigkeit und lange Lebensdauer.
Alle Zylinder werden nach ISO 10100 Norm geprüft.

*Hydraulic cylinders for heavy duty applications, in compliance with the ISO 6022 standard.*
*The cylinders are available in several different sealing configurations, depending on usage conditions and desired performances.*
*The use of bronze guides for the rod and the piston guarantees high performances and a long life.*
*All the cylinders are tested in compliance with the ISO 10100 standard.*

## DP

| TECHNISCHE EIGENSCHAFTEN / *SPECIFICATIONS* | | | |
|---|---|---|---|
| Standardzylinder<br>*Standard cylinders* | | ISO 6022 - DIN 24333 | |
| Kolbendurchmesser<br>*Bore* | mm | von 50 bis 320<br>*from 50 to 320* | |
| Arbeitsdruck<br>*Pressure* | bar | Betriebsdruck<br>*operating* 250 | max 320 |
| Max. Hub<br>*Max stroke* | mm | 6000 | |
| Hubtoleranz<br>*Stroke tolerance* | | 0 + 2 mm | Standard ISO 8131<br>*ISO 8131 Standard* |
| Medium<br>*Fluid* | | Mineralöl / *Hydraulic mineral oil*<br>Phosphorester / *Phosphoric esters*<br>HFC-Medium / *HFC-fluid* | |
| Viskosität<br>*Viscosity* | | 12... 90 mm²/S | |

| Dichtungscode<br>*Seal code* | Leistung<br>*Performance* | | | | | Flüssigkeit<br>*Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit<br>*High sealing* | Niedrige Reibung<br>*Low friction* | Maximale Geschwindigkeit<br>*Max speed* | Temperatur in °C<br>*Temp °C*<br>Min | Max | Hydrauliköl<br>*Hydraulic oil* | Phosphor-säureester<br>*Phosphoric esters* | HFC-Medium<br>*HFC-fluid* |
| **S** | √ | | 0,5 m/s | - 20 | + 80 | √ | | |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |


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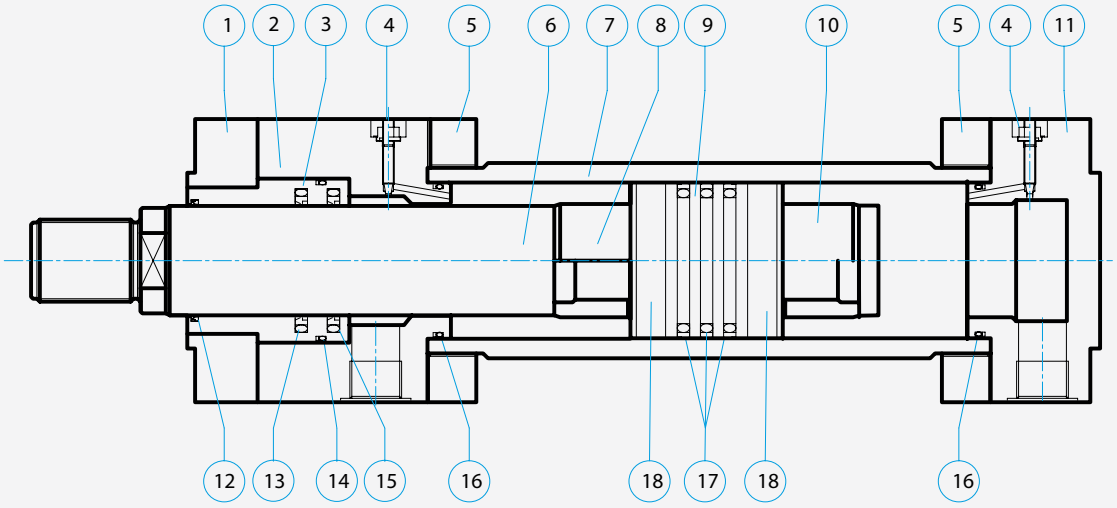
## DP ZYLINDER / *CYLINDER*






| | Komponenten / *Component* | Werkstoff / *Material* | Kenngrössen / *Specifications* |
|---|---|---|---|
| 1 | Verschlussflansch / *Closing flange* | Stahl / *Steel* | |
| 2 | Zylinderkopf vorne / *Front head* | Stahl / *Steel* | |
| 3 | Führungsbuchse / *Guide bushing* | Bronze / *Bronze* | |
| 4 | Einstellbare Dämpfung + Entlüftung /*Cushioning adjusting + air bleed* | Stahl / *Steel* | |
| 5 | Gegenflansch / *Counter flange* | Stahl / *Steel* | |
| 6 | Kolbenstange / *Piston rod* | Gehärteter und Verchromter Stahl / *Hardened and tempered chromeplated steel* | Cr 25 µm ISO f7 - Ra 0.20 µm |
| 7 | Zylinderrohr / *Cylinder body* | Stahl / *Steel* | Gehont / *Honed* H8 - Ra 0.40 µm |
| 8 | Vordere Dämpfung/ *Front cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 9 | Kolben / *Piston* | Stahl / *Steel* | |
| 10 | Hintere Dämpfung / *Rear cushioning* | Gehärteter Stahl / *Hardened steel* | |
| 11 | Zylinderkopf hinten / *Rear head* | Stahl / *Steel* | |

| | Komponenten / *Component* | Nute / *Groove* | Werkstoff / *Material* | | | |
|---|---|---|---|---|---|---|
| | | | S | L | H | G |
| 12 | Abstreifer / *Rod wiper* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 13 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 14 | Kopf-Buchsen-Abdichtung / *Head-bushing sealing* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 15 | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 16 | OR Zylinderrohrdichtung / *OR tube seal* | | NBR | NBR | Viton® | NBR |
| 17 | Kolbendichtung / *Piston seals* | ISO 7425/1 | NBR + PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| 18 | Kolbenführung / *Piston guide* | | Bronze / *Bronze* | Bronze / *Bronze* | Bronze / *Bronze* | Bronze / *Bronze* |

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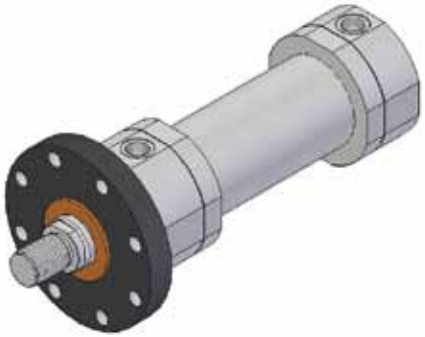
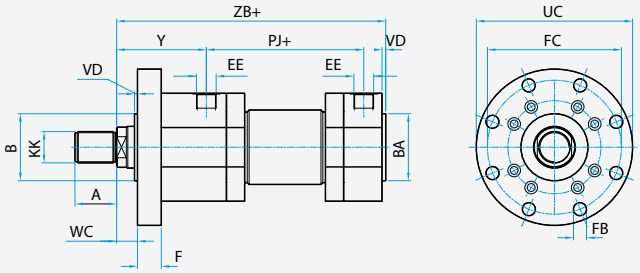
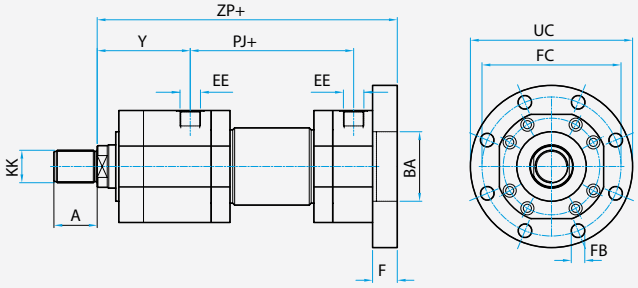
## FLANSCH VORNE / *FRONT FLANGE* — A — ISO MF3

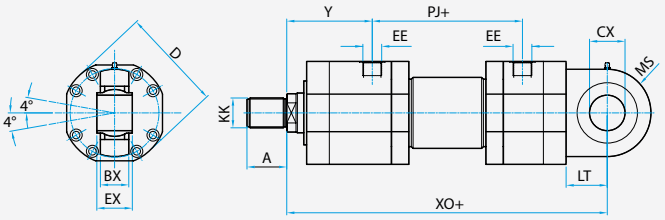




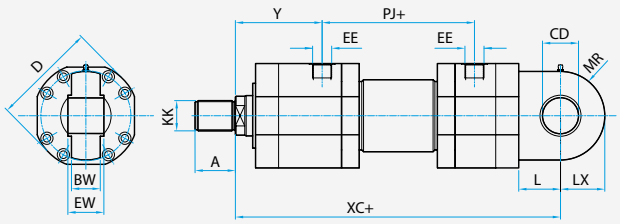

## FLANSCH HINTEN / *REAR FLANGE* — B — ISO MF4




## GELENKLAGER / *BALL JOINTED EYE* — D — ISO MP5




## SCHARNIER (LASCHE) / *MALE CLEVIS* — C — ISO MP3





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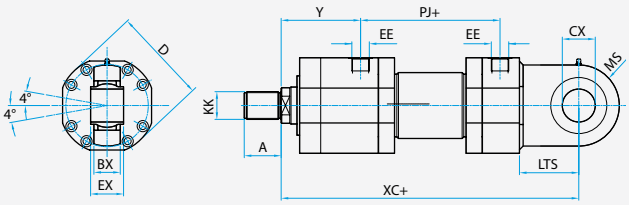
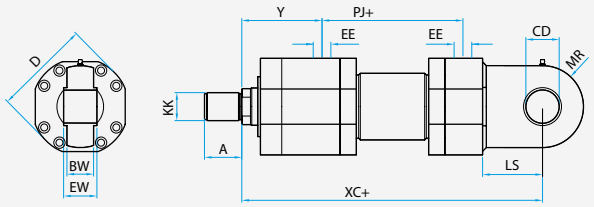
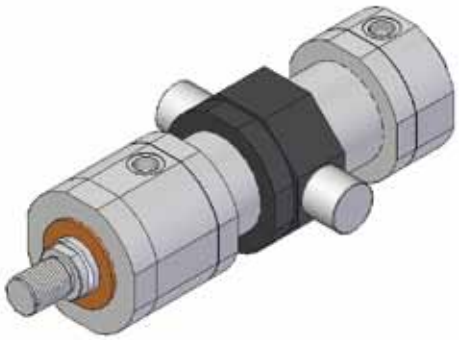
## ERWEITERTES GELENKLAGER / EXTENDED *BALL JOINTED EYE* — S — ISO MP5

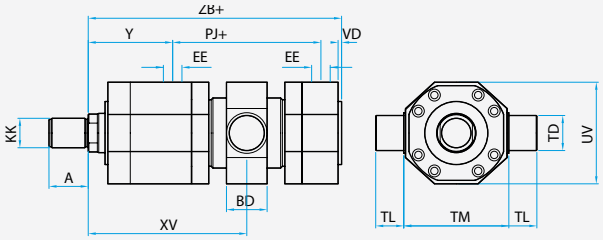



## SCHARNIER (LASCHE) ERWEITERT / *MALE CLEVIS EXTENDEND* — R — ISO MP3

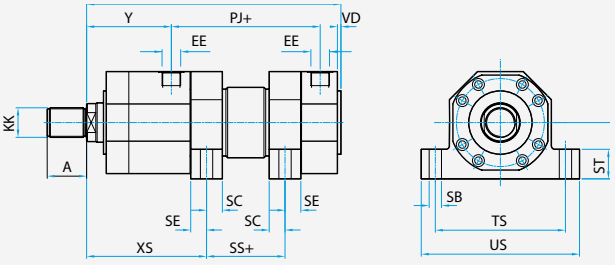



## SCHWENKZAPFEN IN DER MITTE / *INTERMEDIATE TRUNNIONS* — H — ISO MT4






## FUSS / *FEET* — E — ISO MS2



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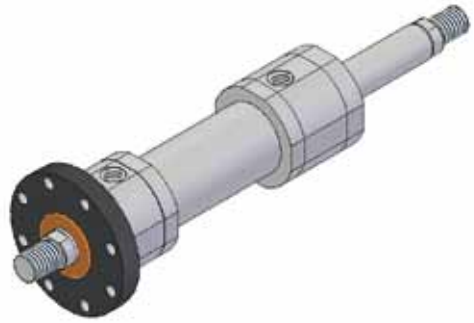
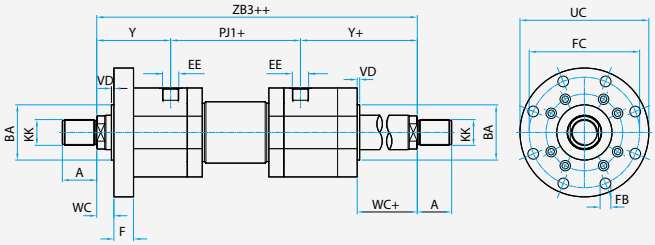
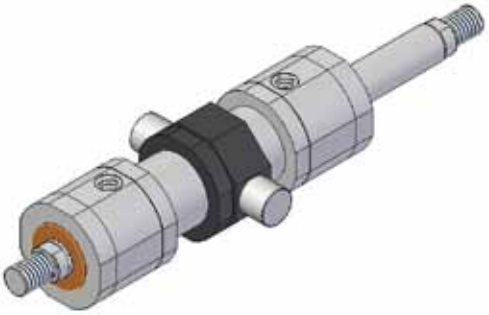
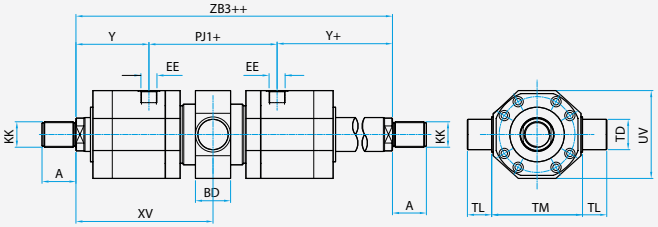
## FLANSCH VORNE / *FRONT FLANGE* — A



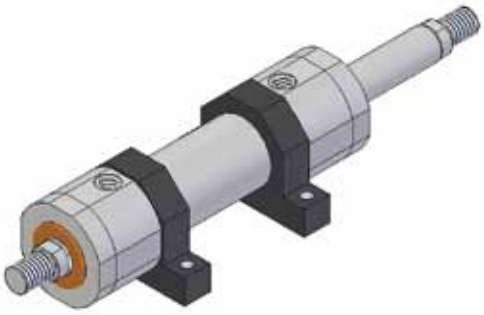


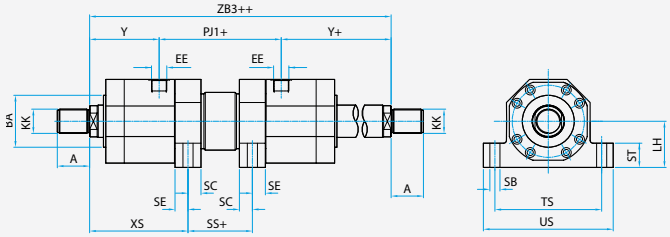

## SCHWENKZAPFEN IN DER MITTE / *INTERMEDIATE TRUNNIONS* — H






## FUSS / *FEET* — E








Disegni e modelli 3D CAD / *drawings and 3D CAD models on* **www.confortinet.com**

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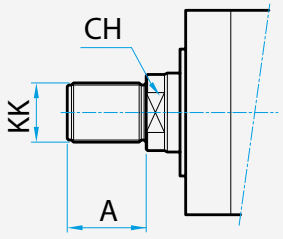
| Kolben Ø *Bore* | 50 | 63 | 80 | 100 | 125 | 140* | 160 | 200 | 250 | 320 |
|---|---|---|---|---|---|---|---|---|---|---|
| B f8 | 63 | 75 | 90 | 110 | 132 | 145 | 160 | 200 | 250 | 320 |
| BA f8 | 63 | 75 | 90 | 110 | 132 | 145 | 160 | 200 | 250 | 320 |
| BD | 38 | 48 | 58 | 73 | 88 | 98 | 108 | 133 | 180 | 220 |
| BW | 27 | 35 | 40 | 52 | 60 | 65 | 84 | 102 | 130 | 162 |
| BX | 27 | 35 | 40 | 52 | 60 | 65 | 84 | 102 | 130 | 162 |
| CD H9 | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| CX H7 | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| D max | 105 | 124 | 148 | 175 | 208 | 255 | 270 | 330 | 412 | 510 |
| EW | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| EX | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| EE | G 1/2" | G 3/4" | G 3/4" | G 1" | G 1" | G 1 1/4" | G 1 1/4" | G 1 1/4" | G 1 1/2" | G 1 1/2" |
| F | 25 | 28 | 32 | 36 | 40 | 40 | 45 | 56 | 63 | 80 |
| FB | 8 x Ø 13.5 | 8 x Ø 13.5 | 8 x Ø 17.5 | 8 x Ø 22 | 8 x Ø 22 | 8 x Ø 26 | 8 x Ø 26 | 8 x Ø 33 | 8 x Ø 39 | 8 x Ø 45 |
| FC | 132 | 150 | 180 | 212 | 250 | 300 | 315 | 385 | 475 | 600 |
| L | 40 | 50 | 63 | 71 | 90 | 115 | 112 | 160 | 200 | 250 |
| LS | 65 | 78 | 95 | 107 | 130 | 155 | 157 | 216 | 263 | 330 |
| LT | 40 | 50 | 63 | 71 | 90 | 115 | 112 | 160 | 200 | 250 |
| LTS | 65 | 78 | 95 | 107 | 130 | 155 | 157 | 216 | 263 | 330 |
| LH h10 | 60 | 68 | 80 | 95 | 115 | 135 | 145 | 170 | 215 | 260 |
| MR | 38 | 50 | 61.5 | 71 | 90 | 113 | 112 | 145 | 178 | 230 |
| MS | 38 | 50 | 61.5 | 71 | 90 | 113 | 112 | 145 | 178 | 230 |
| PJ | 120+ | 136+ | 156+ | 172+ | 205+ | 208+ | 235+ | 278+ | 325+ | 350+ |
| PJ1 | 120+ | 136+ | 156+ | 172+ | 214+ | 208+ | 240+ | 280+ | 320+ | 350+ |
| SB | 11 | 13.5 | 17.5 | 22 | 26 | 30 | 33 | 40 | 52 | 62 |
| SC | 15.5 | 17.5 | 22.5 | 27.5 | 30 | 35.5 | 37.5 | 45 | 50 | 60 |
| SE | 15.5 | 17.5 | 22.5 | 27.5 | 30 | 35.5 | 37.5 | 45 | 50 | 60 |
| ST | 32 | 37 | 42 | 52 | 62 | 77 | 77 | 87 | 112 | 152 |
| SS | 55+ | 55+ | 55+ | 55+ | 60+ | 61+ | 79+ | 90+ | 120+ | 120+ |
| TD f8 | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| TL | 25 | 32 | 40 | 50 | 63 | 70 | 80 | 100 | 125 | 160 |
| TM | 112 | 125 | 150 | 180 | 224 | 265 | 280 | 335 | 425 | 530 |
| TS | 135 | 155 | 185 | 220 | 270 | 325 | 340 | 405 | 520 | 620 |
| UC | 155 | 175 | 210 | 250 | 290 | 340 | 360 | 440 | 540 | 675 |
| US | 160 | 185 | 225 | 265 | 325 | 390 | 405 | 480 | 620 | 740 |
| UV | 108 | 124 | 148 | 175 | 218 | 260 | 280 | 330 | 412 | 510 |
| VD | 4 | 4 | 5 | 5 | 6 | 5 | 7 | 10 | 12 | 14 |
| WC | 22 | 25 | 28 | 32 | 36 | 36 | 40 | 45 | 50 | 56 |
| XC | 305+ | 348+ | 395+ | 442+ | 520+ | 580+ | 617+ | 756+ | 903+ | 1080+ |
| XO | 305+ | 348+ | 395+ | 442+ | 520+ | 580+ | 617+ | 756+ | 903+ | 1080+ |
| XS | 130 | 147.5 | 170.5 | 192.5 | 230 | 254.5 | 265.5 | 315 | 360 | 425 |
| XV min | 187 | 212 | 245 | 280 | 340 | 380 | 400 | 450 | 540 | 625 |
| XV max | 132+ | 137+ | 155+ | 160+ | 180+ | 200+ | 220+ | 260+ | 300+ | 325+ |
| Y | 98 | 107 | 120 | 134 | 153 | 181 | 185 | 221 | 260 | 310 |
| ZB | 244+ | 274+ | 305+ | 340+ | 396+ | 430+ | 467+ | 550+ | 652+ | 764+ |
| ZB3 | 316++ | 350++ | 396++ | 440++ | 520++ | 570++ | 610++ | 720++ | 840++ | 970++ |
| ZP | 265+ | 298+ | 332+ | 371+ | 430+ | 465+ | 505+ | 596+ | 703+ | 830+ |

| Stangen Ø *Rod* (mm) | 32 | 36 | 40 | 45 | 50 | 56 | 63 | 70 | 80 | 90 | 90 | 100 | 100 | 110 | 125 | 140 | 160 | 180 | 200 | 220 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 36 | 36 | 45 | 45 | 56 | 56 | 63 | 63 | 85 | 85 | 90 | 90 | 95 | 95 | 112 | 112 | 125 | 125 | 160 | 160 |
| CH | 28 | 30 | 34 | 36 | 43 | 46 | 52 | 60 | 65 | 75 | 75 | 85 | 85 | 95 | 110 | 120 | 140 | 160 | 180 | 200 |
| KK | M27x2 | M27x2 | M33x2 | M33x2 | M42x2 | M42x2 | M48x2 | M48x2 | M64x3 | M64x3 | M72x3 | M72x3 | M80x3 | M80x3 | M100x3 | M100x3 | M125x4 | M125x4 | M160x4 | M160x4 |
| KF | – | M27x2 | – | M33x2 | – | M42x2 | – | M48x2 | – | M64x3 | – | M72x3 | – | M80x3 | – | M100x3 | – | M125x4 | – | M160x4 |

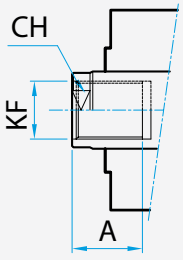
+ = Den Hub addieren / *add the stroke* ++ = Den doppelten Hub addieren / *add the double of the stroke* * = Kolbendurchmesser nicht definiert im ISO 6022 standard / *bore not specified in ISO 6022 standard*

## KOLBENSTANGENENDE / *ROD END*

### STANDARD




### SF WEIBLICH / *FEMALE*



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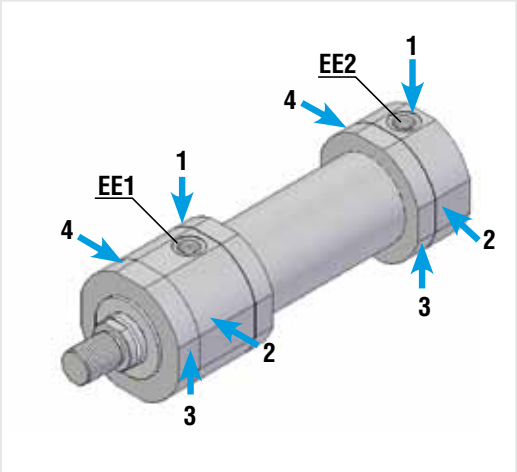
Für weitere Zylindereinstellungen oder Abweichungen vom Standardzylinder empfehlen wir unsere interaktive Zylinderzusammenstellung unter www.confortinet.com.
*To choose an option or a variation of the standard cylinder, please use our service available on www.confortinet.com*

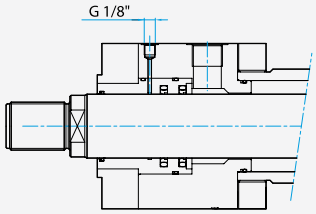
## LAGE DER ANSCHLÜSSE / *PORT LOCATION*




| Kolben Ø *Bore* | ISO 1179-1 (GAS) | | | | SAE 3000-6000 | | | |
|---|---|---|---|---|---|---|---|---|
| | Standard | | Übergrösse / *Oversize* | | Standard | | Übergrösse / *Oversize* | |
| | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* | Vorne *Front* | Hinten *Rear* |
| **50** | G 1/2" | G 1/2" | G 3/4" | G 3/4" | – | – | – | – |
| **63** | G 3/4" | G 3/4" | G 1" | G 1" | 1/2" | 1/2" | – | – |
| **80** | G 3/4" | G 3/4" | G 1" | G 1" | 1/2" | 1/2" | – | – |
| **100** | G 1" | G 1" | G 1 1/4" | G 1 1/4" | 3/4" | 3/4" | 1" | 1" |
| **125** | G 1" | G 1" | G 1 1/4" | G 1 1/4" | 3/4" | 3/4" | 1" | 1" |
| **140** | G 1 1/4" | G 1 1/4" | G 1 1/2" | G 1 1/2" | 1" | 1" | 1 1/4" | 1 1/4" |
| **160** | G 1 1/4" | G 1 1/4" | G 1 1/2" | G 1 1/2" | 1" | 1" | 1 1/4" | 1 1/4" |
| **200** | G 1 1/4" | G 1 1/4" | G 1 1/2" | G 1 1/2" | 1" | 1" | 1 1/4" | 1 1/4" |
| **250** | G 1 1/2" | G 1 1/2" | G 2" | G 2" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" |
| **320** | G 1 1/2" | G 1 1/2" | – | – | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" |

2

## SD BUCHSENDRAINAGE / *BUSHING DRAIN*



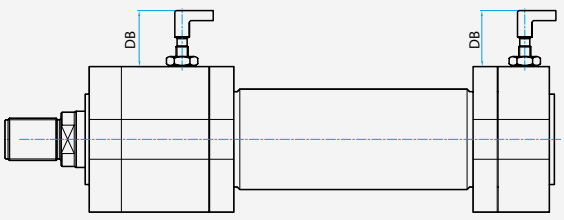

Die Buchsendrainage verhindert die Ablagerung von Flüssigkeit hinter dem Abstreifer.
Ein Anschluss zwischen dem Abstreifer und der Dichtungslippe ermöglicht die Rückführung der Flüssigkeit in den Behälter. Die Drainage befindet sich normalerweise gegenüber dem Ölanschluss

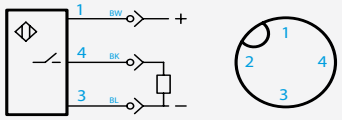
*The bushing drain avoids the accumulation of liquid behind the scraper.*
*A connection between the scraper and the lip seal allows to send the fluid back to the tank.*
*The drain is usually installed on the same side of the oil head.*

## STANGENENDE / *ROD END*

| | |
|---|---|
| **RRX** | Edelstahl-Kolbenstange / *Stainless steel chromeplated rod* |
| **RRB** | Vergütete-Kolbenstange / *Hardened chromeplated rod* |
| **RRH** | Nikrom-Kolbenstange / *Nikrom rod* |

## NÄHERUNGSSCHALTER / *PROXIMITY SWITCHES*




| Kolben Ø *Bore* (mm) | DB max (mm) |
|---|---|
| **50** | 80 |
| **63** | 80 |
| **80** | 70 |
| **100** | 60 |
| **125** | 65 |
| **160** | 55 |
| **200** | 50 |
| **250** | 0 |
| **320** | 0 |

| | |
|---|---|
| **SPV** | Vorderer Sensor / *Front sensor* |
| **SPZ** | Hinterer Sensor / *Rear sensor* |
| **SPK** | Vorder und hinter Sensor / *Front and rear sensor* |

Dokumentation zu den Näherungsschaltern auf Seite 14.
*For proximity switches features, see documentation at page 14.*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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

**DP** | | **125** / **90** / | **A** | | **500** | | **S** | | |

**Typ** / ***Type***: DP

**Spezialausführung** / ***Special version*** (1): SX

**Optionen/Spezialausführungen** (siehe Seiten 36) / ***Special options/versions*** *(see page 36)*

**Kolbenstangenenden** / ***Rod extremities*** (siehe Seiten 35 / *see page 35*)

| | |
|---|---|
| | Aussengewinde / *Male thread* (standard) |
| SF | Innengewinde / *Female thread* |

**Dichtungen** / ***Seals*** (siehe Seiten 30 / *see pages 30*)

| | |
|---|---|
| S | Standard (Mineralöl) / *Standard (mineral oil)* |
| L | Leichtgängig / *Low friction* |
| H | Viton® (hohe Temperaturen, Phosphorester) / *Viton® (high temperature, phosphoric esters)* |
| G | HFC-Medium / *HFC-fluid* |

**Distanzstück** / ***Spacer***: Wenden Sie sich an unsere technische Abteilung / *Contact our technical department*

**Hub** / ***Stroke***: In mm angeben / *Specify in mm*

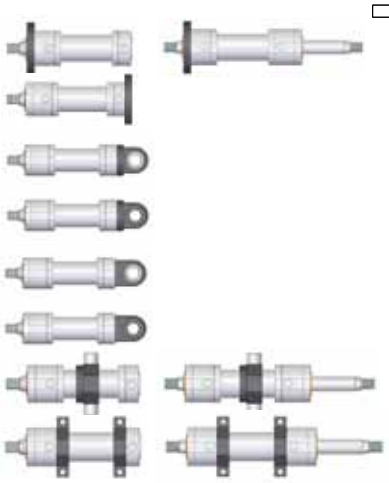
**Einstellbare Dämpfung** / ***Adjustable cushioning***

| | |
|---|---|
| | Ohne Dämpfung / *Not cushioned* |
| V | Nur vorne / *Front only* |
| Z | Nur hinten / *Rear only* |
| K | Vorne und hinten / *Front and rear* |

| Kolben Ø / *Bore* | Stangen Ø/*Rod* |
|---|---|
| 50 | 32 |
| | 36 |
| 63 | 40 |
| | 45 |
| 80 | 50 |
| | 56 |
| 100 | 63 |
| | 70 |
| 125 | 80 |
| | 90 |
| 140 (2) | 90 |
| | 100 |
| 160 | 100 |
| | 110 |
| 200 | 125 |
| | 140 |
| 250 | 160 |
| | 180 |
| 320 | 200 |
| | 220 |

**Ev. 2. Kolbenstange** / ***Possible 2nd rod***

| | ISO 6022 | Befestigung / *Mounting* |
|---|---|---|
| Flansch vorne / *Front flange* | MF3 | A |
| Flansch hinten / *Rear flange* | MF4 | B |
| Gelenklager / *Ball jointed eye* | MP5 | D |
| Scharnier (Lasche) / *Male clevis* | MP3 | C |
| Erweitertes Gelenklager / *Extended ball jointed eye* | MP5 | S |
| Erweitertes Schanier (Lasche) / *Male clevis extendend* | MP3 | R |
| Schwenkzapfen in der Mitte (3) / *Intermediate trunnions* | MT4 | H |
| Fussbefestigung / *Feet* | MS2 | E |



(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes den Spezialcode (siehe Seite 36) eintragen, gefolgt von der Zeichnungsnummer, sofern vorhanden.
*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 36) followed by the drawing's number, if any.*

(2) Nicht im ISO 6022 Standard definiert.
*Not included in ISO 6022 standard.*

(3) Für Befestigung H (MT4), am Ende des Codes die Beschriftung "XV", gefolgt vom XV Wert (siehe Seite 33-34) eintragen.
*For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see page 33-34).*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***



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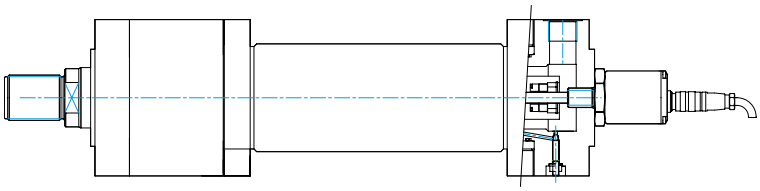




Die Servozylinder der Serie TD und TK sind mit einem elektrischen Signalwandler ausgestattet, der die genaue Position der Kolbenstange erkennt. Die Wahl des Signalwandlers hängt von den gewünschten Leistung ab. Die Genauigkeit der Positionierung wird durch 2 Elemente bestimmt: Die Auflösung des Signalwandlers und die Zylindersteuerung. Die Signalwandler sind in 3 Varianten lieferbar: **TEMPOSONIC** ermöglicht hohe Auflösungen und den Einsatz unterschiedlicher Steuerungen; es können alle Hublängen abgedeckt werden. **POTENZIOMETRISCH**: Das Ausgangssignal wird von einem Kursor erzeugt, der auf einer potenziometrischen Spur läuft. Die Spannung ist proportional zur Position des Kursors. Der maximal mögliche Hub beträgt 500 mm. **INDUKTIV**: Liefert ein Spannungssignal, das von einem separaten Stromkreis generiert wird. Der maximal mögliche Hub beträgt 1000 mm.

*TP servocylinders include an electronic transducer, which allows to obtain the absolute position of the rod. The type of transducer to be used depends on the performance you need. The precision of positioning is determined by 2 elements: the resolution of the transducer and the drive system of the cylinder.*
*The standard transudec is the type* **TEMPOSONIC**, *that allows high resolutions and different types of control; it supports all the stroke lengths necessary.*
*For Potentiometric and Induttivo type of transducer contact our technical department.*

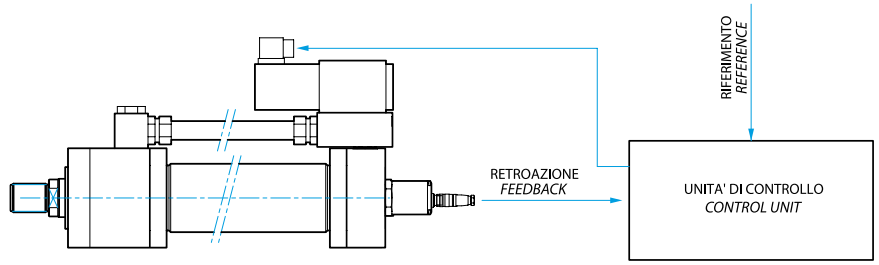
| | MV | MA | MS |
|---|---|---|---|
| **Signalwandler / *Transducer type*** | Temposonic | Temposonic | Temposonic |
| **Versorgungsspannung / *Supply voltage*** | 24V DC | 24V DC | 24V DC |
| **Ausgang / *Output*** | 0-10 V | 4-20 mA | SSI (Syncronic Serial Interface) |
| **Auflösung / *Resolution*** | Endlos / *Endless* | Endlos / *Endless* | |
| **Linearität / *Linearity*** | < ±0.02% F.S. (min ± 50 µm) | < ±0.02% F.S. (min ± 50 µm) | < ±0.01% F.S. (min ± 50 µm) |
| **Wiederholung / *Repeatability*** | < ±0.001% F.S. (min ± 2.5 µm) | < ±0.001% F.S. (min ± 2.5 µm) | < ±0.001% F.S. (min ± 2.5 µm) |
| **Hysterese / *Hysteresis*** | < 4 µm | < 4 µm | < 4 µm |
| **Aufnahme / *Absorption*** | 100 mA | 100 mA | 100 mA |
| **Max. Geschwindigkeit / *Max speed*** | 2 m/s | 2 m/s | 2 m/s |
| **Temperatur / *Temperature*** | -20 +70 °C | -20 +70 °C | -20 +70 °C |
| **Max. Hub / *Max stroke*** | 2500 | 2500 | 2500 |

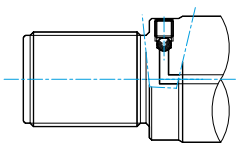
Die Servozylinder der TD und TK Serie können mit ISO-Schnittstellen ausgestattet werden, die eine direkte Montage dieser Komponenten auf dem Zylinder ermöglichen:
- Elektroventile (ein/aus)
- Proportionale Elektroventile
- Servoventile

Zusammen mit einer STEUEREINHEIT ermöglicht diese Konfiguration eine optimale hydraulische Stabilität, wodurch Reaktionszeiten, Taktung und Positionsgenauigkeit deutlich verbessert werden.

*TP servocylinders can be equipped with ISO interface plates, which allow to mount directly on the cylinder the following elements:*
*- Solenoid valves ON/OFF*
*- Proportional solenoid valves*
*- Servovalves*

*This configuration, together with a CONTROL UNIT, ensures an optimal hydraulic rigidity, which drastically increments the answer time, the repeteability and the precision of the positioning.*



**Entlüftung**

Für die ordnungsgemäße Funktion der Servozylinder der TD Serie ist unbedingt darauf zu achten, die Zylinder vor der Inbetriebnahme zu entlüften. Zu diesem Zweck befinden sich nicht nur Entlüftungsöffnungen an den Zylinderköpfen, sondern auch eine Entlüftungsschraube am Ende der Kolbenstange, die den Austritt der Luft aus der Signalwandlerkammer ermöglicht. Dank der besonderen Einbauposition der Entlüftungsöffnung ist das Entlüften bei laufendem Betrieb möglich ohne die Kolbenstange ausbauen zu müssen.

***Air bleed***

*To allow the TD servocylinders to work correctly, you need to completely exhaust the air within the cylinder when setting them up. Therefore, these cylinders not only include air bleed on the heads, but they also have an air bleed on the head of the rod for exhausting the air within the chamber of the transducer. The particular position of this air bleed allows working even when the cylinder is operative, without having to remove the rod from its housing.*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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

| TP | | MA | 125 / | 90 / | | A | | 500 | | L | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Typ** / ***Type***: TP

**Spezialausführung** / ***Special version*** (1): SX

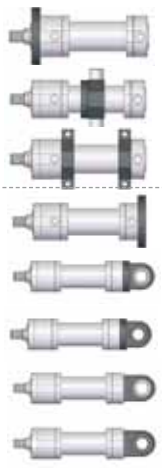
**Wegmesssystem** / ***Transducer***

| | |
|---|---|
| Temposonic | MV |
| | MA |
| | MS |

| Kolben Ø / *Bore* | Stangen Ø/*Rod* |
|---|---|
| 50 | 32 |
| | 36 |
| 63 | 40 |
| | 45 |
| 80 | 50 |
| | 56 |
| 100 | 63 |
| | 70 |
| 125 | 80 |
| | 90 |
| 140 (2) | 90 |
| | 100 |
| 160 | 100 |
| | 110 |
| 200 | 125 |
| | 140 |
| 250 | 160 |
| | 180 |
| 320 | 200 |
| | 220 |

**Ev. 2. Kolbenstange** / ***Possible 2nd rod***

| | ISO 6022 | Befestigung / *Mounting* |
|---|---|---|
| Flansch vorne / *Front flange* | MF3 | A |
| Schwenkzapfen in der Mitte (3) / *Intermediate trunnions* | MT4 | H |
| Fussbefestigung / *Feet* | MS2 | E |
| Flansch hinten / *Rear flange* | MF4 | B |
| Gelenklager / *Ball jointed eye* | MP5 | D |
| Scharnier (Lasche) / *Male clevis* | MP3 | C |
| Erweitertes Gelenklager / *Extended ball jointed eye* | MP5 | S |
| Erweitertes Schanier (Lasche) / *Male clevis extendend* | MP3 | R |



Wenden Sie sich an unsere technische Abteilung / *Contact our technical department*

**Optionen/Spezialausführungen** (siehe Seiten 36) / ***Special options/versions*** *(see page 36)*

**Kolbenstangenenden** / ***Rod extremities*** (siehe Seiten 35 / *see page 35*)

| | |
|---|---|
| | Aussengewinde / *Male thread* (standard) |
| SF | Innengewinde / *Female thread* |

**Dichtungen** / ***Seals*** (siehe Seiten 30 / *see pages 30*)

| | |
|---|---|
| L | Leichtgängig / *Low friction* |
| H | Viton® (hohe Temperaturen, Phosphorester) / *Viton® (high temperature, phosphoric esters)* |
| G | HFC-Medium / *HFC-fluid* |

**Distanzstück** / ***Spacer***: Wenden Sie sich an unsere technische Abteilung / *Contact our technical department*

**Hub** / ***Stroke***

In mm angeben / *Specify in mm*

**Einstellbare Dämpfung** / ***Adjustable cushioning***

| | |
|---|---|
| | Ohne Dämpfung / *Not cushioned* |
| V | Nur vorne / *Front only* |
| Z | Nur hinten / *Rear only* |
| K | Vorne und hinten / *Front and rear* |

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes den Spezialcode (siehe Seite 36) eintragen, gefolgt von der Zeichnungsnummer, sofern vorhanden.
*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 36) followed by the drawing's number, if any.*

(2) Nicht im ISO 6022 Standard definiert.
*Not included in ISO 6022 standard.*

(3) Für Befestigung H (MT4), am Ende des Codes die Beschriftung "XV", gefolgt vom XV Wert (siehe Seite 33-34) eintragen.
*For H mounting (MT4), indicate at the end of the code the letters "XV" followed by the XV quote value (see page 33-34).*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***



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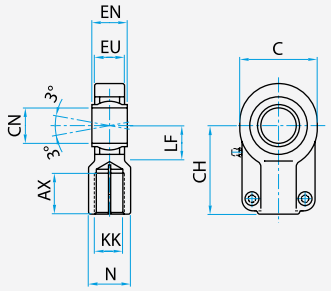
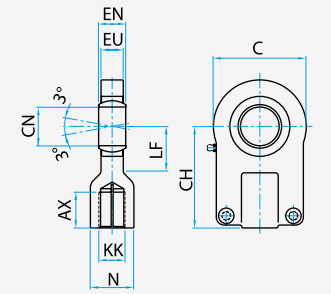
## CS KOLBENSTANGENENDE MIT GELENKLAGER / *ROD END EYE WITH SPHERICAL BEARING* — ISO 6982



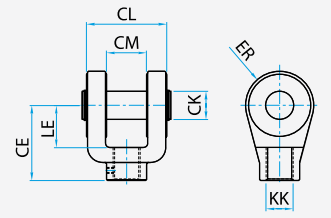

| Code / *Code* | CS 12125 | CS 1415 | CS 1615 | CS 2015 | CS 272 | CS 332 | CS 422 | CS 482 | CS 643 | CS 723 | CS 803 | CS 1003 | CS 1254 | CS 1604 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AX | 17 | 19 | 23 | 29 | 37 | 46 | 57 | 64 | 86 | 91 | 96 | 113 | 126 | 161 |
| C | 32 | 40 | 47 | 58 | 70 | 89 | 108 | 132 | 168 | 185 | 212 | 264 | 326 | 418 |
| CH | 38 | 44 | 52 | 65 | 80 | 97 | 120 | 140 | 180 | 195 | 210 | 260 | 310 | 390 |
| CN | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| EN | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 90 | 100 | 125 | 160 | 200 |
| EU | 10.5 | 13 | 17 | 21 | 27 | 32 | 40 | 52 | 66 | 72 | 85 | 103 | 130 | 167 |
| KK | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M72x3 | M80x3 | M100x3 | M125x4 | M160x4 |
| LF | 14 | 18 | 22 | 27 | 32 | 41 | 50 | 62 | 78 | 85 | 98 | 120 | 150 | 195 |
| N | 16 | 21 | 25 | 30 | 38 | 47 | 58 | 70 | 90 | 100 | 110 | 135 | 165 | 215 |
| (Kg) | 0.11 | 0.20 | 0.36 | 0.62 | 1.16 | 2.16 | 3.84 | 7.24 | 13.20 | 17,50 | 28.0 | 46.40 | 81 | 174 |

## TS KOLBENSTANGENENDE MIT GELENKLAGER / *ROD END EYE WITH SPHERICAL BEARING* — DIN 24555




| Code / *Code* | TS 10125 | TS 12125 | TS 1415 | TS 1615 | TS 2015 | TS 272 | TS 332 | TS 422 | TS 482 | TS 643 |
|---|---|---|---|---|---|---|---|---|---|---|
| AX | 15 | 17 | 19 | 23 | 29 | 37 | 46 | 57 | 64 | 86 |
| C | 32 | 42 | 50 | 62 | 76 | 96 | 116 | 150 | 195 | 235 |
| CH | 42 | 48 | 58 | 68 | 85 | 105 | 130 | 150 | 185 | 240 |
| CN | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 |
| EN | 10 | 14 | 16 | 20 | 22 | 28 | 35 | 44 | 55 | 70 |
| EU | 8 | 11 | 13 | 17 | 19 | 23 | 30 | 38 | 47 | 57 |
| KK | M10x1.25 | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 |
| LF | 18 | 22 | 28 | 34 | 38 | 48 | 62 | 74 | 98 | 122 |
| N | 17 | 21 | 25 | 30 | 36 | 45 | 55 | 68 | 78 | 100 |
| (Kg) | 0.13 | 0.23 | 0.39 | 0.70 | 1.22 | 2.14 | 3.96 | 7.26 | 14.60 | 25.40 |

## CF GABELKOPF MIT ZAPFEN / *ROD END CLEVIS WITH PIN* — ISO 8133




| Code / *Code* | CF 10125 | CF 12125 | CF 1415 | CF 1615 | CF 2015 | CF 272 | CF 332 | CF 422 | CF 482 | CF 643 | CF 803 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CE | 32 | 36 | 38 | 54 | 60 | 75 | 99 | 113 | 126 | 168 | 168 |
| CK | 10 | 12 | 14 | 20 | 20 | 28 | 36 | 45 | 56 | 70 | 70 |
| CL | 24 | 32 | 40 | 60 | 60 | 80 | 100 | 120 | 140 | 160 | 160 |
| CM | 12 | 16 | 20 | 30 | 30 | 40 | 50 | 60 | 70 | 80 | 80 |
| ER | 12 | 17 | 17 | 29 | 29 | 34 | 50 | 53 | 59 | 78 | 78 |
| KK | M10x1.25 | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2 | M33x2 | M42x2 | M48x2 | M64x3 | M80x3 |
| LE | 13 | 19 | 19 | 32 | 32 | 39 | 54 | 57 | 63 | 83 | 83 |
| (Kg) | 0.10 | 0.18 | 0.25 | 0.88 | 0.92 | 1.90 | 4.92 | 6.52 | 10.04 | 19.50 | 19.50 |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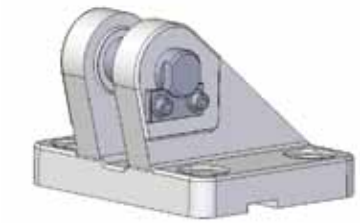
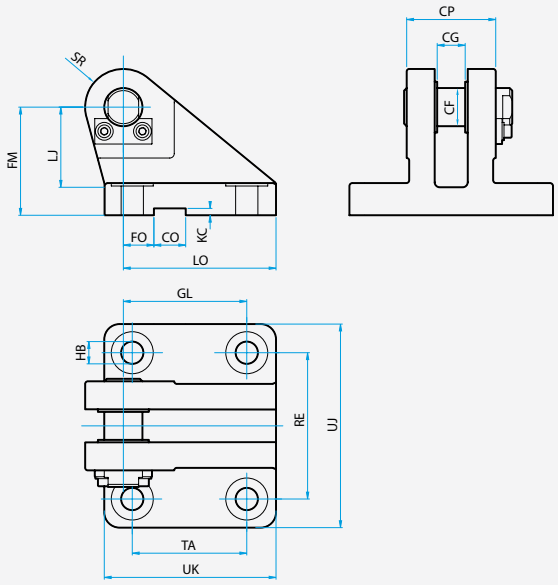
## LD SCHWENKLAGERBOCK / *FEMALE CLEVIS BRACKET IN ANGLE* — ISO 8133 / DIN 24556





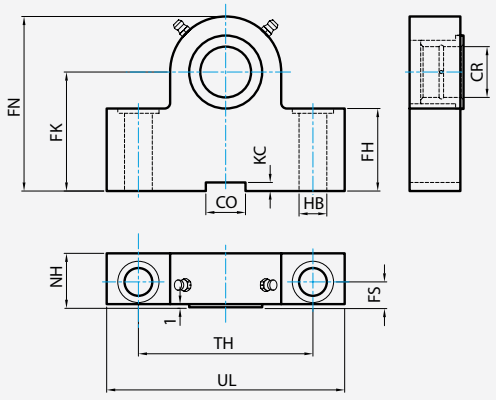

Für Zylinder mit D Befestigung / *For cylinders with mounting D*

| Code / *Code* | CF H6 | CG | CO N9 | CP H14 | FM js11 | FO js14 | GL js13 | HB | KC | LJ | LO | RE js13 | SR | TA js13 | UJ | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LD25** | 12 | 10 | 10 | 30 | 40 | 16 | 46 | 9 | 3.3 | 29 | 56 | 55 | 12 | 40 | 75 | 60 |
| **LD32** | 16 | 14 | 16 | 40 | 50 | 18 | 61 | 11 | 4.3 | 38 | 74 | 70 | 16 | 55 | 95 | 80 |
| **LD40** | 20 | 16 | 16 | 50 | 55 | 20 | 64 | 13.5 | 4.3 | 40 | 80 | 85 | 20 | 58 | 120 | 90 |
| **LD50** | 25 | 20 | 25 | 60 | 65 | 22 | 78 | 15.5 | 5.4 | 49 | 98 | 100 | 25 | 70 | 140 | 110 |
| **LD63** | 30 | 22 | 25 | 70 | 85 | 24 | 97 | 17.5 | 5.4 | 63 | 120 | 115 | 30 | 90 | 160 | 135 |
| **LD80** | 40 | 28 | 36 | 80 | 100 | 24 | 123 | 22 | 8.4 | 73 | 148 | 135 | 40 | 120 | 190 | 170 |
| **LD100** | 50 | 35 | 36 | 100 | 125 | 35 | 155 | 30 | 8.4 | 92 | 190 | 170 | 50 | 145 | 240 | 215 |
| **LD125** | 60 | 44 | 50 | 120 | 150 | 35 | 187 | 39 | 11.4 | 110 | 225 | 200 | 60 | 185 | 270 | 260 |
| **LD160** | 80 | 55 | 50 | 160 | 190 | 35 | 255 | 45 | 11.4 | 142 | 295 | 240 | 80 | 260 | 320 | 340 |
| **LD200** | 100 | 70 | 63 | 200 | 210 | 35 | 285 | 48 | 12.4 | 152 | 335 | 300 | 100 | 300 | 400 | 400 |

3

## LK SCHWENKZAPFEN-LAGERBOCK / *TRUNNION BRACKET* — ISO 8132

Paarweise geliefert / *supplied in pairs*




Für Zylinder mit G, H, L Befestigung / *For cylinders with mounting G, H, L*

| Code / *Code* | CO N9 | CR H7 | FH | FK js12 | FN | FS js14 | HB | KC | NH | TH js14 | UL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LK25** | 10 | 12 | 25 | 34 | 49 | 8 | 9 | 3.3 | 17 | 40 | 63 |
| **LK32** | 16 | 16 | 30 | 40 | 59 | 10 | 11 | 4.3 | 21 | 50 | 80 |
| **LK40** | 16 | 20 | 38 | 45 | 69 | 10 | 11 | 4.3 | 21 | 60 | 90 |
| **LK50** | 25 | 25 | 45 | 55 | 80 | 12 | 13.5 | 5.4 | 26 | 80 | 110 |
| **LK63** | 25 | 32 | 52 | 65 | 100 | 15 | 17.5 | 5.4 | 33 | 110 | 150 |
| **LK80** | 36 | 40 | 60 | 76 | 120 | 16 | 22 | 8.4 | 41 | 125 | 170 |
| **LK100** | 36 | 50 | 75 | 95 | 140 | 20 | 26 | 8.4 | 51 | 160 | 210 |
| **LK125** | 50 | 63 | 85 | 112 | 177 | 25 | 33 | 11.4 | 61 | 200 | 265 |
| **LK160** | 50 | 80 | 112 | 140 | 220 | 31 | 39 | 11.4 | 81 | 250 | 325 |

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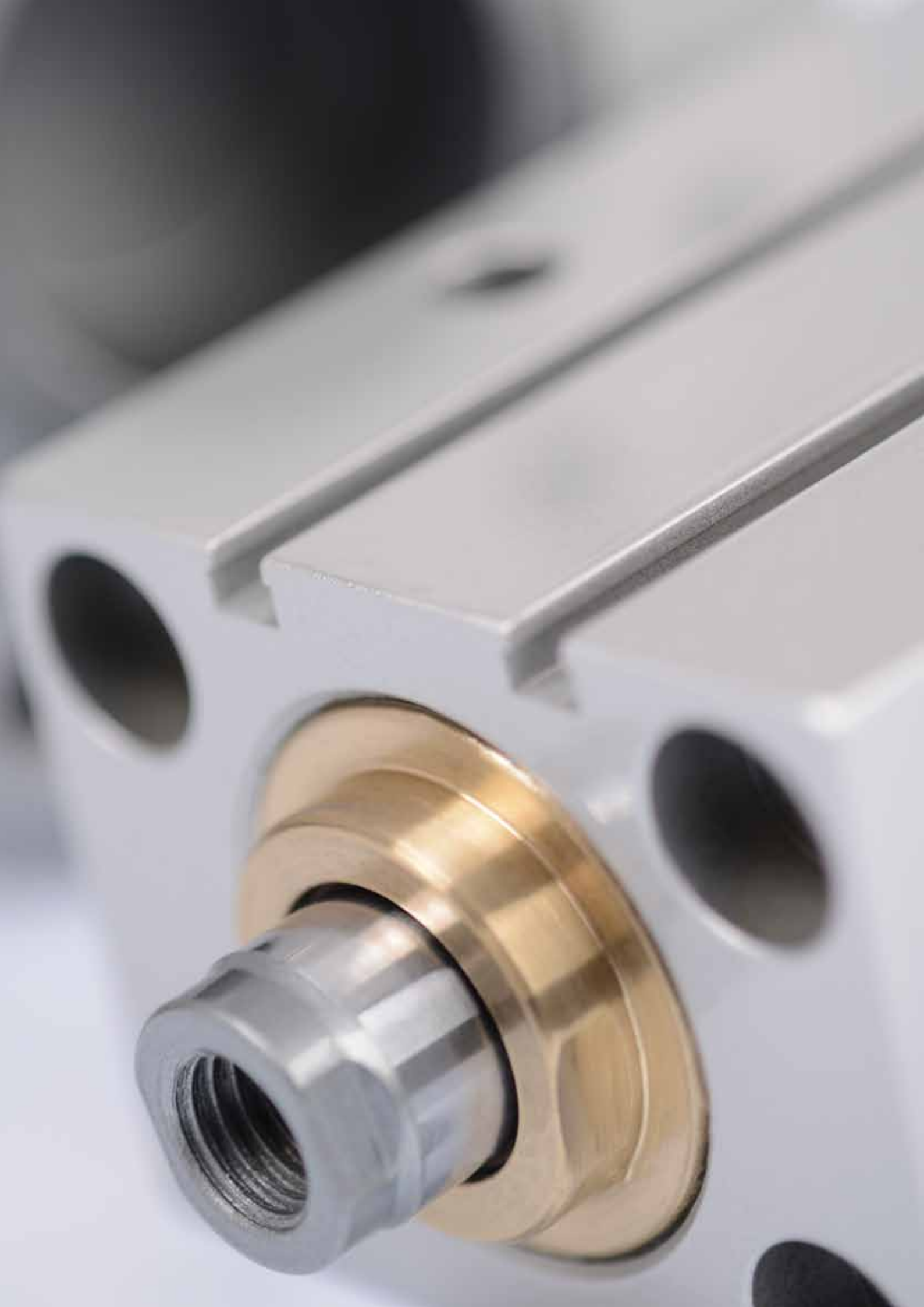


**KOMPAKTE HYDRAULIKZYLINDER FÜR LEICHTE ANFORDERUNGEN***LIGHT COMPACT HYDRAULIC CYLINDERS*

**KENNGRÖSSEN** *TECHNICAL CHARACTERISTICS* 44

**BEFESTIGUNGEN UND ABMESSUNGEN** *MOUNTING AND DIMENSION* 45

**OPTIONEN UND ZUBEHÖR** *OPTIONS AND ACCESSORIES* 46

**BESTELLCODE** *ORDERING CODE* 47

**MAGNETSCHALTER** *MAGNETIC SWITCHES* 47

**KOMPAKTE HYDRAULIKZYLINDER FÜR SCHWERLASTANFORDERUNGEN** *HEAVY DUTY COMPACT HYDRAULIC CYLINDERS*

**KENNGRÖSSEN** *TECHNICAL CHARACTERISTICS* 48

**BEFESTIGUNGEN UND ABMESSUNGEN** *MOUNTING AND DIMENSION* 49

**OPTIONEN UND ZUBEHÖR** *OPTIONS AND ACCESSORIES* 50

**BESTELLCODE** *ORDERING CODE* 51

Doppelt wirkende Hydraulikzylinder aus widerstandsfähigem Aluminium mit Antiverschleißbeschichtung. Geeignet für leichte, industrielle Automationsanwendungen, wenn leichte, kompakte und modulare Konstruktionsweisen erforderlich sind.

*Double acting hydraulic cylinders, realized in high resistance aluminum with wear-resistant coating. Suitable for industrial automation applications, not in heavy duty conditions, when a light, compact and highly modular construction is required. Designed also for use with integrated magnetic sensors to control the piston position.*

**TECHNISCHE EIGENSCHAFTEN / *SPECIFICATIONS***

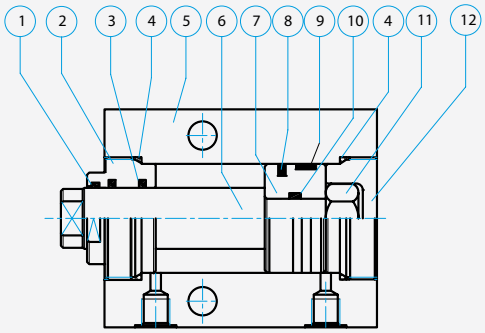
| | | | |
|---|---|---|---|
| Kolbendurchmesser<br>*Bore* | mm | von 25 bis 63<br>*from 25 to 63* | von 80 bis 100<br>*from 80 to 100* |
| Maximaldruck<br>*Max pressure* | bar | 160 | 100 |
| Hub<br>*Stroke* | mm | 20, 50, 80, 100 | |

Falls die Kolbengeschwindigkeit höher als 0.1 m/s ist empfehlen wir den Hub extern zu begrenzen um zu verhindern, dass der Kolben gegen den Zylinderboden stösst.

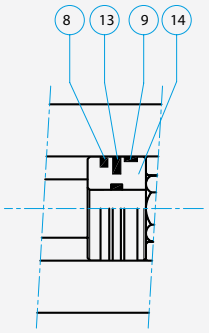
*For piston speed higher than 0.1 m/s, we recommend to limit the stroke externally, avoiding that the piston hits the guide bushing or the rear cap.*

| Dichtungscode<br>*Seal code* | Leistung<br>*Performance* | | | | | Flüssigkeit<br>*Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit<br>*High sealing* | Niedrige Reibung<br>*Low friction* | Maximale Geschwindigkeit<br>*Max speed* | Temperatur in °C<br>*Temp °C*<br>Min | Max | Hydrauliköl<br>*Hydraulic oil* | Phosphor-säureester<br>*Phosphoric esters* | HFC-Medium<br>*HFC-fluid* |
| **S** | √ | | 0,5 m/s | - 20 | + 80 | √ | | |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |

**STANDARDZYLINDER**
***STANDARD CYLINDER***

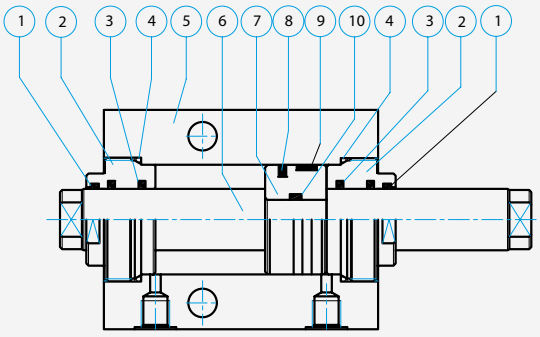



**MAGNETISCHE VERSION**
***MAGNETIC VERSION***




Maximaltemperatur ist 80°C
*maximum temperature 80°C*

**ZYLINDER MIT ZWEIFACHER KOLBENSTANGE**
***DOUBLE ROD CYLINDER***




| | Komponenten / *Component* | Werkstoff / *Material* |
|---|---|---|
| **2** | Führungsbuchse / *Guide bushing* | Bronze / *Bronze* |
| **5** | Zylinderrohr / *Cylinder body* | Leichte Speziallegierung / *Special light alloy* |
| **6** | Kolbenstange / *Rod* | Verchromter Stahl / *Chromeplated steel* |
| **7** | Kolben / *Piston* | Stahl / *Steel* |
| **11** | Kolbenstangenmutter / *Rod nut* | Stahl / *Steel* |
| **12** | Zylinderboden / *Rear cap* | Stahl / *Steel* |
| **13** | Magnet / *Magnet* | |
| **14** | Magnetischer Kolben (MP) / *Magnetic piston (MP)* | Edelstahl / *Stainless steel* |

| | Komponenten / *Component* | Nute / *Groove* | Werkstoff / *Material* | | | |
|---|---|---|---|---|---|---|
| | | | S | L | H | G |
| **1** | Kolbenstangenabstreifer / *Rod wiper* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **3** | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **4** | Zylinderrohrdichtung / *Body seal* | | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **8** | Kolbendichtung / *Piston seal* | ISO 7425/1 | NBR + PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **9** | Kolbenführung / *Piston guide* | | Phenoplast / *Resin* | Phenoplast / *Resin* | Phenoplast / *Resin* | Phenoplast / *Resin* |
| **10** | OR Kolbendichtung / *OR piston seals* | | NBR | NBR | Viton® | NBR |



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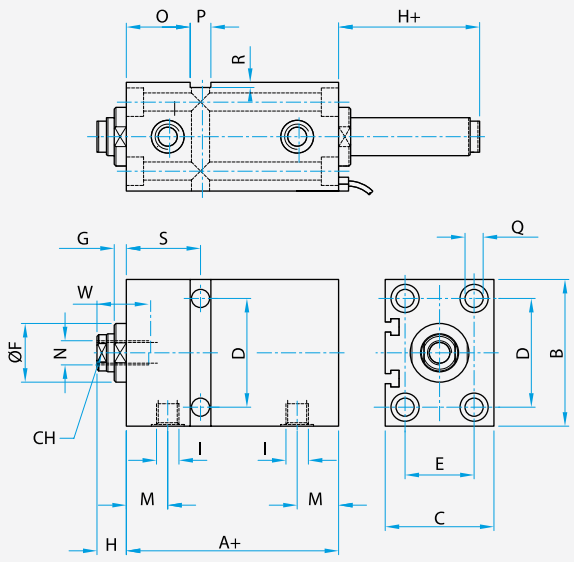
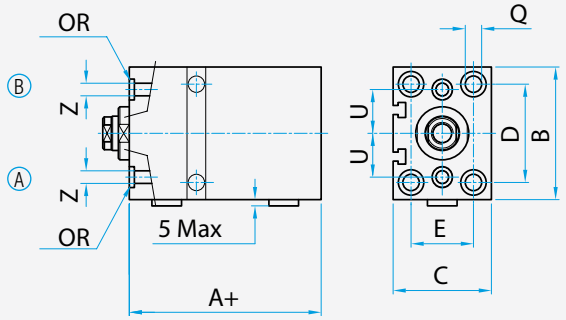
## X ÖLANSCHLÜSSE MIT GEWINDE / *THREADED OIL CONNECTIONS*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 18 | 22 | 22 | 28 | 28 | 36 | 45 |
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| CH | 15 | 19 | 19 | 22 | 22 | 30 | 36 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| F f8 | 32 | 34 | 34 | 42 | 50 | 60 | 72 |
| G | 6.5 | 8 | 7 | 8 | 7 | 7 | 8 |
| H | 14 | 15 | 17 | 20 | 20 | 20 | 25 |
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| O | 32 | 34 | 37 | 37.5 | 47.5 | 50 | 60 |
| $P^{+0.1}_{+0.2}$ | 10 | 12 | 12 | 15 | 15 | 20 | 20 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| R | 2 | 3 | 3 | 5 | 5 | 5 | 5 |
| S | 37 | 40 | 43 | 45 | 55 | 60 | 70 |
| W | 23 | 23 | 30 | 30 | 30 | 40 | 50 |

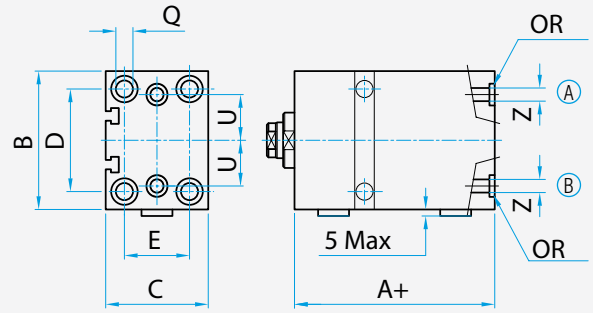
## A ÖLVERSORGUNG DURCH VORDERWAND / *FRONT SIDE OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| U | 25.5 | 30 | 32.5 | 40 | 47.5 | 59 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |

Ⓐ ziehen / *pull* Ⓑ drücken / *push*

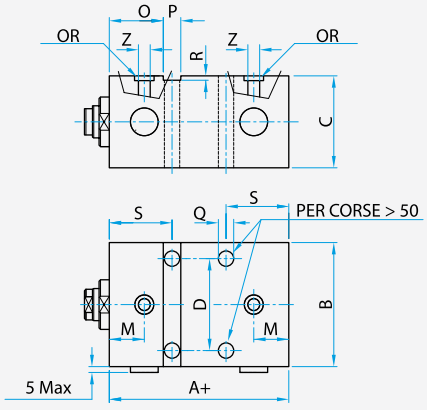
## B ÖLVERSORGUNG DURCH RÜCKWAND / *REAR SIDE OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| U | 25.5 | 30 | 32.5 | 40 | 47.5 | 59 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |

Ⓐ ziehen / *pull* Ⓑ drücken / *push*

## E ÖLVERSORGUNG DURCH SEITENWAND / *LATERAL OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |
| O | 32 | 34 | 37 | 37.5 | 47.5 | 50 | 60 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| $P^{+0.1}_{+0.2}$ | 10 | 12 | 12 | 15 | 15 | 20 | 20 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| R | 2 | 3 | 3 | 5 | 5 | 5 | 5 |
| S | 37 | 40 | 43 | 45 | 55 | 60 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |

\+ = Den Hub addieren / *add the stroke*

4

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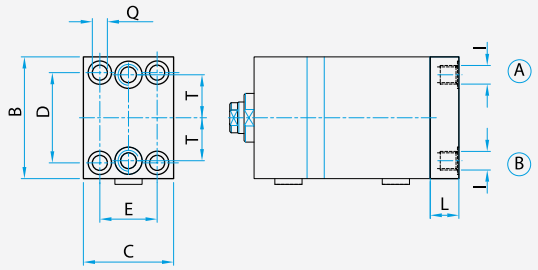
# SPEZIALVERSIONEN / *SPECIAL OPTIONS AND VERSIONS*

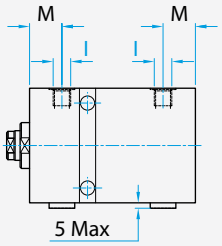
## BU ANCHLUSS FÜR PLATTEN - VERSION "B"
*PLATE CONNECTIONS - VERSION "B"*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| L | 20 | 20 | 20 | 24 | 30 | 30 | 30 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| T | 16 | 20 | 30 | 37 | 40 | 50 | 65 |

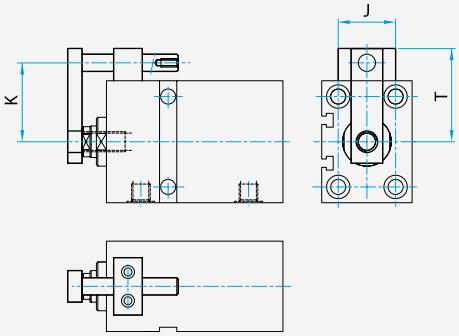
(A) ziehen / *pull* (B) drücken / *push*

## AS ZUSÄTZLICHE ANSCHLÜSSE / *ADDITIONAL CONNECTIONS*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |

## AR ANTIROTATIONSSYSTEM / *ANTIROTATION SYSTEM*

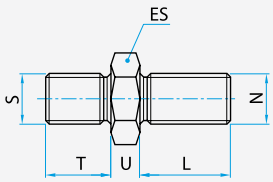



| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| K | 45 | 50 | 55 | 62.5 | 70 | 82.5 | 97.5 |
| J | 40 | 40 | 40 | 40 | 40 | 40 | 50 |
| T | 55 | 60 | 65 | 72.5 | 80 | 92.5 | 107.5 |

4

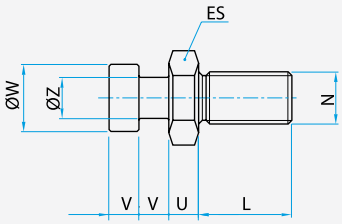
# STANGEN-ZUBEHÖR / *ROD ACCESSORIES*

## EM AUSSENGEWINDE / *MALE ROD END*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Typ *Type* | EM10 | EM12 | EM14 | EM20 | EM20 | EM27 | EM33 |
| ES | 17 | 19 | 22 | 30 | 30 | 36 | 46 |
| L | 20 | 20 | 25 | 30 | 30 | 40 | 50 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| S | M10x1.25 | M12x1.25 | M14x1.5 | M20x1.5 | M20x1.5 | M27x2 | M33x2 |
| T | 14 | 16 | 18 | 28 | 28 | 36 | 45 |
| U | 6 | 7 | 8 | 9 | 9 | 12 | 14 |

## ET ZAPFEN / *FLOATING JOINT*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Typ *Type* | ET10 | ET12 | ET14 | ET20 | ET20 | ET27 | ET33 |
| ES | 17 | 19 | 22 | 30 | 30 | 36 | 46 |
| L | 20 | 20 | 25 | 30 | 30 | 40 | 50 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| U | 6 | 7 | 8 | 9 | 9 | 12 | 14 |
| V | 7 | 8 | 8 | 10 | 10 | 12.5 | 16 |
| W | 16 | 18 | 18 | 22 | 22 | 28 | 35 |
| Z | 10 | 11 | 11 | 14 | 14 | 18 | 22 |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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

| MP | | 32 / 22 / | | X | 20 | | S | | SP | 2 |
|---|---|---|---|---|---|---|---|---|---|---|

**Nur für MD Zylinder**
***Only for MD cylinders***

**Typ / *Type***

| | |
|---|---|
| Standard | RP |
| Magnetisch / *Magnetic* | MP |

**Spezialausführung / *Special version* (1)** SX

| Kolben Ø / *Bore* | Stangen Ø/*Rod* |
|---|---|
| 25 | 18 |
| 32 | 22 |
| 40 | 22 |
| 50 | 28 |
| 63 | 28 |
| 80 | 36 |
| 100 | 45 |

**Ev. 2. Kolbenstange / *Possible 2nd rod***

| Anschlüsse *Connections* | Ölanschlusslage *Oil feeder* | |
|---|---|---|
| Mit Gewinde / *Threaded* | Standard | X |
| Wand / *Wall* | Vorderseite / *Front* | A |
| | Rückseite / *Rear* | B |
| | Seitenwand / *Laterale* | E |

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes die Nummer eintragen gefolgt von der Zeichnungsnummer, sofern vorhanden.

*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code followed by the drawing's number, if any.*

**Menge / *Quantity***

**Optionen/Spezialausführungen**
***Special options/versions***

**Dichtungen / *Seals*** (siehe Seiten 44 / *see pages 44*)

| | |
|---|---|
| S | Standard |
| L | Leichtgängig / *Low friction* |
| H | Viton® / *Viton®* |
| G | HFC-Medium / *HFC-fluid* |

**Distanzstück** (empfohlen für Hubwege)
***Spacer*** *(for intermediate strokes)*

| | |
|---|---|
| SJ ... | Distanzstücklänge<br>*Spacer length in mm*<br>*(standard stroke - real stroke)* |

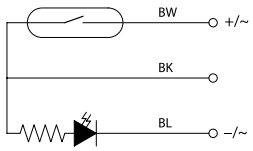
**Standardhub / *Standard stroke***

| | |
|---|---|
| 20 | 20 mm |
| 50 | 50 mm |
| 80 | 80 mm |
| 100 | 100 mm |

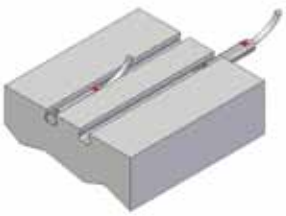
**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***

# SCHALTER / *SWITCHES*

## SP




BW = Braun / *brown*
BL = Blau / *blue*
BK = Schwarz / *black*



| KENNGRÖSSEN / *SPECIFICATIONS* | |
|---|---|
| Spannung / *Voltage* | 24 V AC/DC |
| Max Strom / *Max current* (25 °C) | 0.25 A |
| Schaltkreis / *Electric circuit* | REED |
| Einschaltzeit / *Switch-on time* | 0.8 ms |
| Ausschaltzeit / *Switch-off time* | 0.1 ms |
| Elektrische Lebensdauer / *Electric lifespan* | $10^7$ impulsi / *pulse* |
| Schutzklasse / *Protection class* | IP 67 EN60529 |
| Umgebungstemperatur / *Temperature range* | -20 +80 °C |
| Anzeigen / *Indicating* | LED |
| Kabel / *Cable* | 3 x 0.25 mm² |
| Länge / *Length* | 5 m |

**KORREKTER GEBRAUCH DER MAGNETISCHEN SENSOREN**
Die Spannungs- und Stromwerte dürfen die in der Tabelle genannten Werte nicht übersteigen.
Stromspitzen können durch kapazitive Lasten verursacht werden (z. B. Kabel mit einer Länge über 3 Meter).
Spannungsspitzen können durch Induktion verursacht werden (z. B. Elektroventile, Relais, Schaltschütze usw.)
**Magnetische Distorsionen können durch Eisenmassen (z. B. Zylinderlagerung in Gussteilen) oder starke Magnetfelder (z. B. Elektromotoren, Spulen) verursacht werden.**

***CORRECT USE OF MAGNETIC SENSORS***
*Voltage and current values must never exceed values specified in the table.*
*Current surges may be caused by capacitive loads (e.g. cables of lengths over 3 metres).*
*Voltage surges may be caused by inductance (e.g. solenoid valves, relays, contactors, etc.).*
***Magnetic distortion may be caused by ferrous masses (e.g. cylinder seat inside moulds) or the presence of strong magnetic fields (e.g. electric motors, coils, inverter etc.).***
*For strokes lower than 20 mm, contact our technical department*
*High vibration can generate false contacts.*



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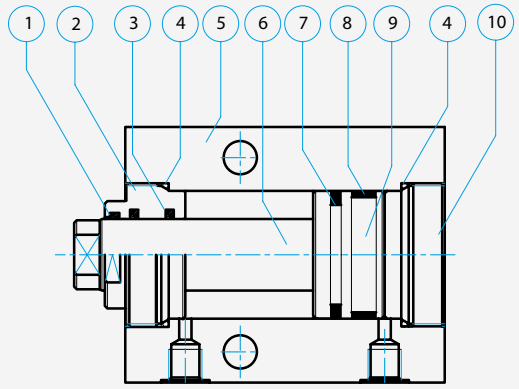
Doppelt wirkende Hydraulikzylinder aus Stahl für Schwerlastanforderungen. Geeignet für industrielle Automationsanwendungen, wenn robuste, kompakte und hochmodulare Konstruktionsweisen erforderlich sind.
*Double acting hydraulic cylinders, realized in steel for heavy duty uses. Suitable for industrial automation applications, when a strong, compact and highly modular construction is required. Available also with anti-rotation device and mechanic stroke limiters to control the final rod positions.*

**TECHNISCHE EIGENSCHAFTEN / *SPECIFICATIONS***

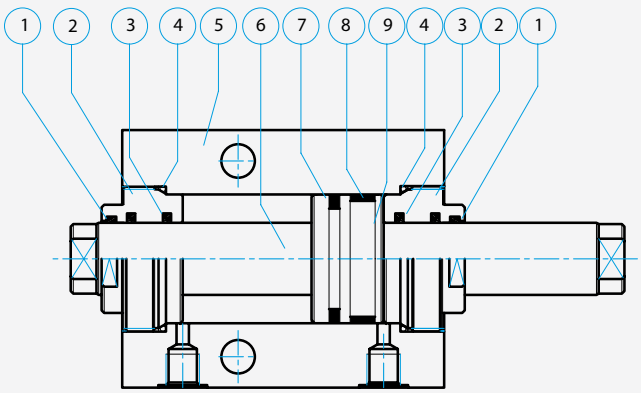
| | | |
|---|---|---|
| Kolbendurchmesser<br>*Bore* | mm | von 25 bis 100<br>*from 25 to 100* |
| Arbeitsdruck<br>*Operating pressure* | bar | 250 max 320 |
| Hub<br>*Stroke* | mm | 20, 50, 80, 100 |

| Dichtungscode<br>*Seal code* | Leistung<br>*Performance* | | | | | Flüssigkeit<br>*Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit<br>*High sealing* | Niedrige Reibung<br>*Low friction* | Maximale Geschwindigkeit<br>*Max speed* | Maximale Geschwindigkeit<br>*Max speed*<br>Min | Max | Hydrauliköl<br>*Hydraulic oil* | Phosphorsäureester<br>*Phosphoric esters* | HFC-Medium<br>*HFC-fluid* |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |

**STANDARDZYLINDER / *STANDARD CYLINDER***




**ZYLINDER MIT ZWEIFACHER KOLBENSTANGE / *DOUBLE ROD CYLINDER***




| | Komponenten / *Component* | Werkstoff / *Material* |
|---|---|---|
| **2** | Führungsbuchse / *Guide bushing* | Bronze / *Bronze* |
| **5** | Zylinderrohr / *Cylinder body* | Stahl / *Steel* |
| **6** | Kolbenstange / *Rod* | Verchromter Stahl / *Chromeplated steel* |
| **9** | Kolben / *Piston* | Stahl / *Steel* |
| **10** | Zylinderboden / *Rear cap* | Stahl / *Steel* |

| | Komponenten / *Component* | Nute / *Groove* | Werkstoff / *Material* | | |
|---|---|---|---|---|---|
| | | | L | H | G |
| **1** | Kolbenstangenabstreifer / *Rod wiper* | | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **3** | Kolbenstangendichtung / *Rod seal* | ISO 7425/2 | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **4** | Zylinderrohrdichtung / *Body seal* | | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **7** | Kolbendichtung / *Piston seal* | ISO 7425/1 | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| **8** | Kolbenführung / *Piston guide* | | Resina / *Resin* | Resina / *Resin* | Resina / *Resin* |



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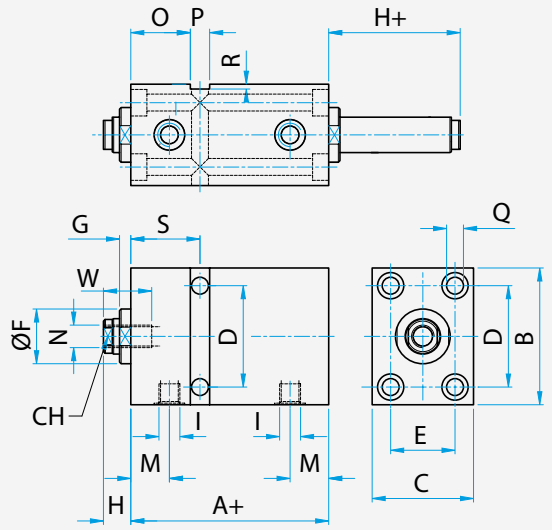
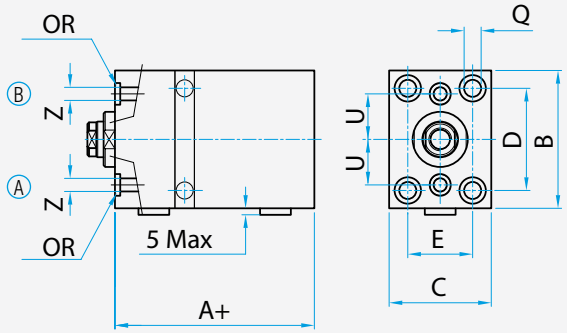
## X ÖLANSCHLÜSSE MIT GEWINDE / *THREADED OIL CONNECTIONS*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Stangen Ø *Rod* | 18 | 22 | 22 | 28 | 28 | 36 | 45 |
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| CH | 15 | 19 | 19 | 22 | 22 | 30 | 36 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| F f8 | 32 | 34 | 34 | 42 | 50 | 60 | 72 |
| G | 6.5 | 8 | 7 | 8 | 7 | 7 | 8 |
| H | 14 | 15 | 17 | 20 | 20 | 20 | 25 |
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| O | 32 | 34 | 37 | 37.5 | 47.5 | 50 | 60 |
| $P^{+0.1}_{+0.2}$ | 10 | 12 | 12 | 15 | 15 | 20 | 20 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| R | 2 | 3 | 3 | 5 | 5 | 5 | 5 |
| S | 37 | 40 | 43 | 45 | 55 | 60 | 70 |
| W | 23 | 23 | 30 | 30 | 30 | 40 | 50 |

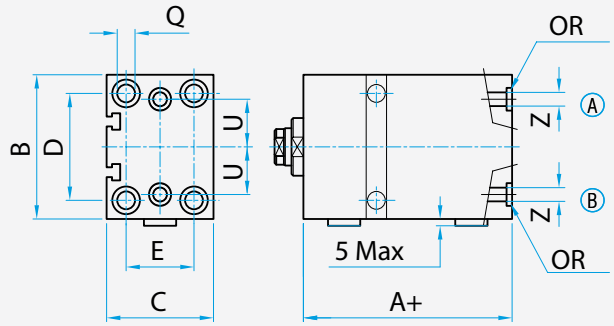
## A ÖLVERSORGUNG DURCH VORDERWAND / *FRONT SIDE OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| U | 25.5 | 30 | 32.5 | 40 | 47.5 | 59 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |

Ⓐ ziehen / *pull* Ⓑ drücken / *push*

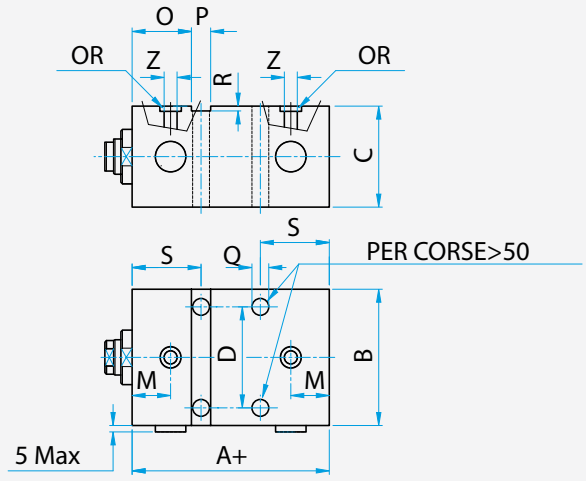
## B ÖLVERSORGUNG DURCH RÜCKWAND/ *REAR SIDE OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| U | 25.5 | 30 | 32.5 | 40 | 47.5 | 59 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |

Ⓐ ziehen / *pull* Ⓑ drücken / *push*

## E ÖLVERSORGUNG DURCH SEITENWAND / *LATERAL OIL SUPPLY*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| A | 57+ | 60+ | 73+ | 75+ | 85+ | 100+ | 110+ |
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |
| O | 32 | 34 | 37 | 37.5 | 47.5 | 50 | 60 |
| OR | OR106(610) | OR106(610) | OR106(610) | OR108(611) | OR108(611) | OR108(611) | OR108(611) |
| $P^{+0.1}_{+0.2}$ | 10 | 12 | 12 | 15 | 15 | 20 | 20 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| R | 2 | 3 | 3 | 5 | 5 | 5 | 5 |
| S | 37 | 40 | 43 | 45 | 55 | 60 | 70 |
| Z | 4 | 4 | 5 | 7 | 7 | 7 | 7 |



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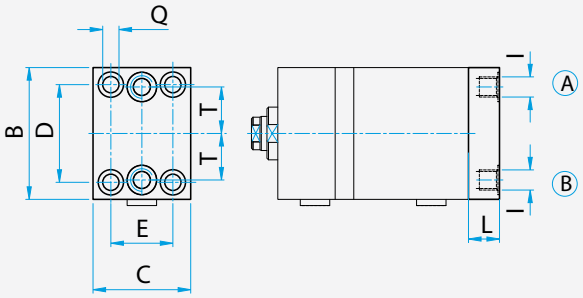
# OPZIONI - ESECUZIONI SPECIALI / *SPECIAL OPTIONS - VERSIONS*

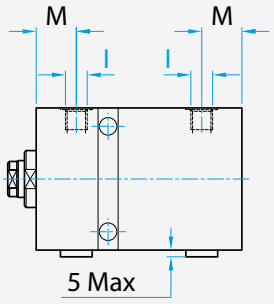
## BU ANCHLUSS FÜR PLATTEN - VERSION "B"
*PLATE CONNECTIONS - VERSION "B"*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| B | 65 | 75 | 85 | 100 | 115 | 140 | 170 |
| C | 45 | 55 | 63 | 75 | 90 | 110 | 140 |
| D | 50 | 55 | 63 | 76 | 90 | 110 | 135 |
| E | 30 | 35 | 40 | 45 | 55 | 75 | 95 |
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| L | 20 | 20 | 20 | 24 | 30 | 30 | 30 |
| Q | 8.5 | 10.5 | 10.5 | 13 | 13 | 17 | 17 |
| T | 16 | 20 | 30 | 37 | 40 | 50 | 65 |

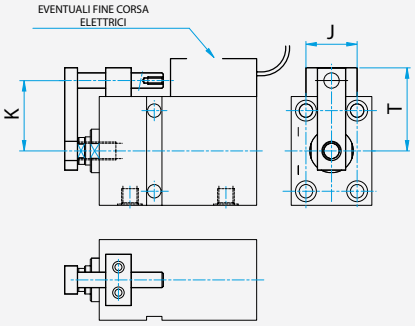
(A) ziehen / *pull* (B) drücken / *push*

## AS ZUSÄTZLICHE ANSCHLÜSSE / *ADDITIONAL CONNECTIONS*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| I | G 1/4" | G 1/4" | G 1/4" | G 1/4" | G 3/8" | G 1/2" | G 1/2" |
| M | 17 | 18 | 23.5 | 23.5 | 26 | 30 | 35 |

## AR ANTIROTATIONSSYTEME UND HUBBEGRENZER
*ANTIROTATION SYSTEM AND STROKE LIMITERS*

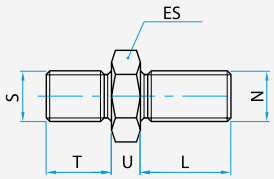



| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| K | 45 | 50 | 55 | 62.5 | 70 | 82.5 | 97.5 |
| J | 40 | 40 | 40 | 40 | 40 | 40 | 50 |
| T | 55 | 60 | 65 | 72.5 | 80 | 92.5 | 107.5 |

4

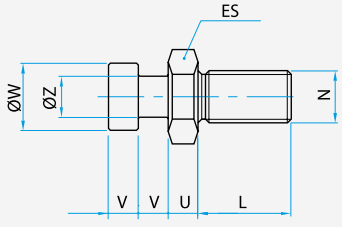
# STANGEN-ZUBEHÖR / *ROD ACCESSORIES*

## EM AUSSENGEWINDE / *MALE ROD END*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Typ *Type* | EM10 | EM12 | EM14 | EM20 | EM20 | EM27 | EM33 |
| ES | 17 | 19 | 22 | 30 | 30 | 36 | 46 |
| L | 20 | 20 | 25 | 30 | 30 | 40 | 50 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| S | M10x1.25 | M12x1.25 | M14x1.5 | M20x1.5 | M20x1.5 | M27x2 | M33x2 |
| T | 14 | 16 | 18 | 28 | 28 | 36 | 45 |
| U | 6 | 7 | 8 | 9 | 9 | 12 | 14 |

## ET ZAPFEN / *FLOATING JOINT*




| Kolben Ø *Bore* | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Typ *Type* | ET10 | ET12 | ET14 | ET20 | ET20 | ET27 | ET33 |
| ES | 17 | 19 | 22 | 30 | 30 | 36 | 46 |
| L | 20 | 20 | 25 | 30 | 30 | 40 | 50 |
| N | M10 | M12 | M14 | M20 | M20 | M27 | M33 |
| U | 6 | 7 | 8 | 9 | 9 | 12 | 14 |
| V | 7 | 8 | 8 | 10 | 10 | 12.5 | 16 |
| W | 16 | 18 | 18 | 22 | 22 | 28 | 35 |
| Z | 10 | 11 | 11 | 14 | 14 | 18 | 22 |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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

**RQ** | | **32** / **22** / | **X** | **20** | | **L** |

**Spezialausführung / *Special version* (1)** **SX**

| Kolben Ø / *Bore* | Stangen Ø/*Rod* |
|---|---|
| 25 | 18 |
| 32 | 22 |
| 40 | 22 |
| 50 | 28 |
| 63 | 28 |
| 80 | 36 |
| 100 | 45 |

**Ev. 2. Kolbenstange / *Possible 2nd rod***

| Anschlüsse *Connections* | Ölanschlusslage *Oil feeder* | |
|---|---|---|
| Mit Gewinde / *Threaded* | Standard | X |
| Wand / *Wall* | Vorderseite / *Front* | A |
| | Rückseite / Rear | B |
| | Seitenwand / *Laterale* | E |

**Optionen/Spezialausführungen**
***Special options/versions***

**Dichtungen / *Seals*** (siehe Seiten 48 / *see pages 48*)

| | |
|---|---|
| L | Leichtgängig / *Low friction* |
| H | Viton® / *Viton®* |
| G | HFC-Medium / *HFC-fluid* |

**Distanzstück** (empfohlen für Hubwege)
***Spacer*** *(for intermediate strokes)*

| | |
|---|---|
| SJ … | Distanzstücklänge<br>*Spacer length in mm*<br>*(standard stroke - real stroke)* |

**Standardhub / *Standard stroke***

| | |
|---|---|
| 20 | 20 mm |
| 50 | 50 mm |
| 80 | 80 mm |
| 100 | 100 mm |

(1) Bei Optionen oder Spezialausführungen des Zylinders, **SX** angeben. Danach im entsprechenden Feld am Ende des Codes die Nummer eintragen gefolgt von der Zeichnungsnummer, sofern vorhanden.

*Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code followed by the drawing's number, if any.*

**Interaktive Zylinderzusammenstellung auf www.confortinet.com**
***Interactive coding wizard on www.confortinet.com***



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**DREHANTRIEBE**
***ROTARY ACTUATORS***
5

**KENNGRÖSSEN**
***TECHNICAL CHARACTERISTICS*** 54-56

**BESTELLCODE**
***ORDERING CODE*** 57

Der Drehantrieb wird durch ein Zahnrad bewegt, welches wiederum durch eine Zahnstange angetrieben wird. Die Zahnstange wird dabei von einem Hydraulikzylinder betätigt. Diese Lösung vereinfacht den Bewegungsablauf und reduziert somit die Wartungsarbeiten auf ein Minimum.
Die Drehantriebe haben eine verstellbare Dämpfung und das damit erzeugte Drehmoment ist gleich dem maximalen Drehmoment des Zylinders.
Eine Feineinstellung ermöglicht die Kalibrierung des Drehantriebes im Bereich von +/-5 °.
Die Drehantriebe sind auch als Ausführung mit Näherungsschaltern, basierend auf Magnetkolben, erhältlich.

*Rotary actuators generate a torque through a cogwheel and a rack moved by a hydraulic cylinder.*
*This solution simplifies the kinematic and the maintenance required during its life cycle.*
*Rotary actuators have an adjustable cushioning, which can generate a cushioning torque comparable to the maximum torque of the cylinder.*
*The stroke end adjuster allows phasing the system with a regulation range of +/-5°.*
*They are also available in a version with magnetic piston for applications with magnetic proximity switches along the stroke of the piston.*

## HR

## MR

Weitere Eigenschaften wie bei CD und MD Zylinder
*Other features such as CD and MD cylinders*
(1) Spezifischer Hub für jeden Drehwinkel.
Zum Beispiel HR 40/70-180° Hub (0.61x180)=110.
*Specific stroke for every rotation angle.*
*For example HR 40/70-180° stroke (0.61x180)=110.*

**TECHNISCHE EIGENSCHAFTEN/ *SPECIFICATIONS***

| | | | HR 32/32 | HR 40/70 | HR 63/96 |
|---|---|---|---|---|---|
| Kolbendurchmesser<br>*Bore* | | | 32 | 40 | 63 |
| Spezifischer Hub<br>*Specific stroke* | | (1) | 0.28 | 0.61 | 0.83 |
| Spezifisches Drehmoment<br>*Specific torque* | | Nm/bar | 1,2 | 4 | 12 |
| Arbeitsdruck<br>*Operating pressure* | | bar | 50 | 100 | 100 |
| Maximaldruck<br>*Peak pressure* | | bar | 80 | 140 | 140 |
| Max. Drehgeschwindigkeit<br>*Max. speed rotation* | | rad/sec | 30 | 14 | 10 |
| Gewicht<br>*Weight* | (180°) | Kg | 4.80 | 12.5 | 43 |

| Dichtungscode *Seal code* | Leistung *Performance* | | | | | Flüssigkeit *Fluid* | | |
|---|---|---|---|---|---|---|---|---|
| | Hohe Festigkeit *High sealing* | Niedrige Reibung *Low friction* | Maximale Geschwindigkeit *Max speed* | Temperatur in °C *Temp °C* Min | Max | Hydrauliköl *Hydraulic oil* | Phosphor-säureester *Phosphoric esters* | HFC-Medium *HFC-fluid* |
| **S** | √ | | 0,5 m/s | - 20 | + 80 | √ | | |
| **L** | | √ | 1 m/s | - 20 | + 80 | √ | | |
| **H** | | √ | 1 m/s | - 20 | + 150 | √ | √ | |
| **G** | | √ | 0,5 m/s | - 20 | + 80 | | | √ |


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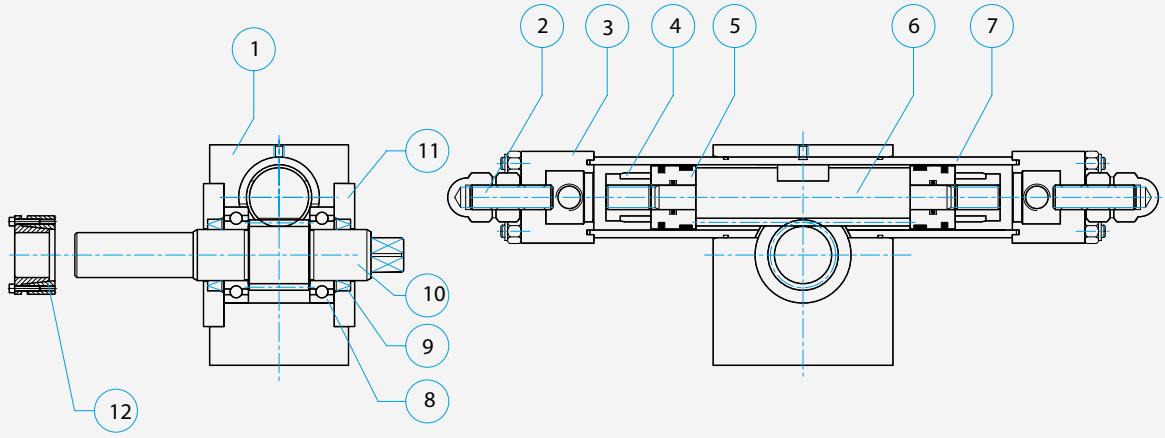
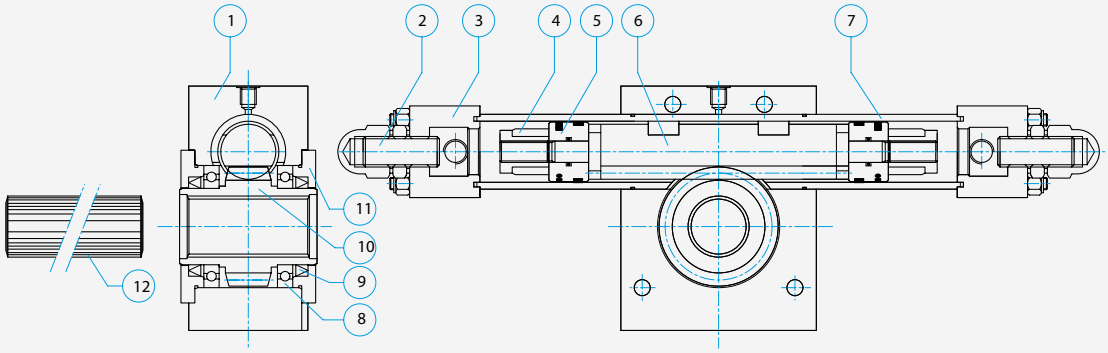
## HR 32/32




| | Komponenten / *Component* | Werkstoff / *Material* |
|---|---|---|
| **1** | Zylinderrohr / *Body* | Aluminium / *Aluminum* |
| **2** | Hubbegrenzung +/-5° / *Stroke adjuster +/-5°* | Stahl / *Steel* |
| **3** | Kopf / *Head* | Stahl / *Steel* |
| **4** | Dämpfung / *Cushioning* | Gehärteter Stahl / *Hardened steel* |
| **5** | Kolben / *Piston* | Stahl / *Steel* |
| **6** | Rack / *Rack* | Edelstahl / *Alloy steel* |
| **7** | Zylinderrohr / *Tube* | Stahl / *Steel* |
| **8** | Kugellager / *Ball bearing* | |
| **9** | Rotierende Wellendichtung / *Rotating shaft seal* | NBR |
| **10** | Zahnrad / *Cogwheel* | Edelstahl / *Alloy steel* |
| **11** | Verschlussflansch / *Closing flange* | Stahl / *Steel* |
| **12*** | Nutwelle / *Shaft clamp* | |

***** Lieferung auf Anfrage/ Supplied on request

## HR 40/70 HR 63/96




| | Komponenten / *Component* | Werkstoff / *Material* |
|---|---|---|
| **1** | Zylinderrohr / *Body* | Alluminio / *Aluminum* |
| **2** | Hubbegrenzung +/-5° / *Stroke adjuster +/-5°* | Stahl / *Steel* |
| **3** | Kopf / *Head* | Stahl / *Steel* |
| **4** | Dämpfung / *Cushioning* | Gehärteter Stahl / *Hardened steel* |
| **5** | Kolben / *Piston* | Stahl / *Steel* |
| **6** | Rack / *Rack* | Edelstahl / *Alloy steel* |
| **7** | Zylinderrohr / *Tube* | Stahl / *Steel* |
| **8** | Kugellager / *Ball bearing* | |
| **9** | Rotierende Wellendichtung / *Rotating shaft seal* | NBR |
| **10** | Zahnrad / *Cogwheel* | Edelstahl / *Alloy steel* |
| **11** | Verschlussflansch / *Closing flange* | Stahl / *Steel* |
| **12*** | Nutwelle / Grooved shaft | |

***** Lieferung auf Anfrage/ Supplied on request



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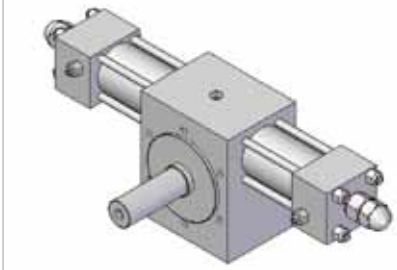
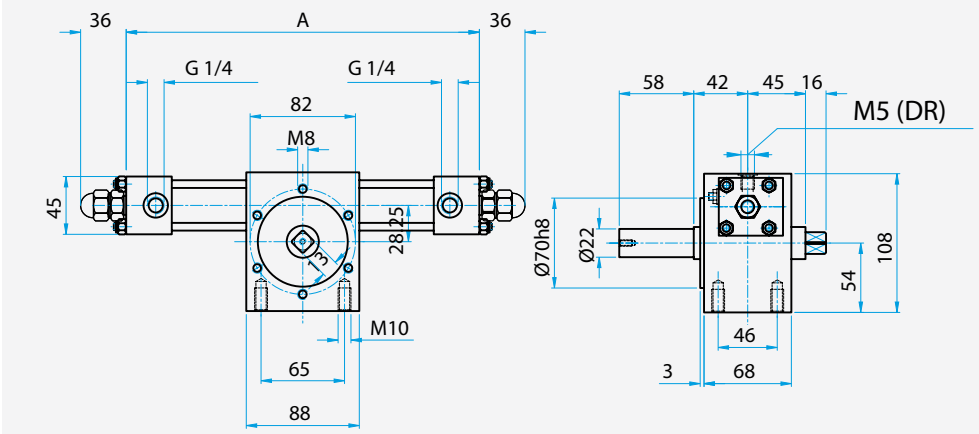
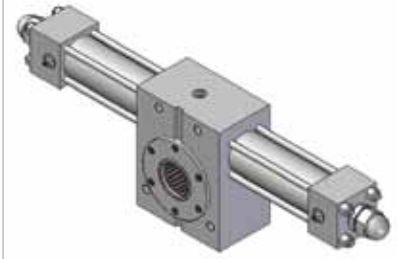
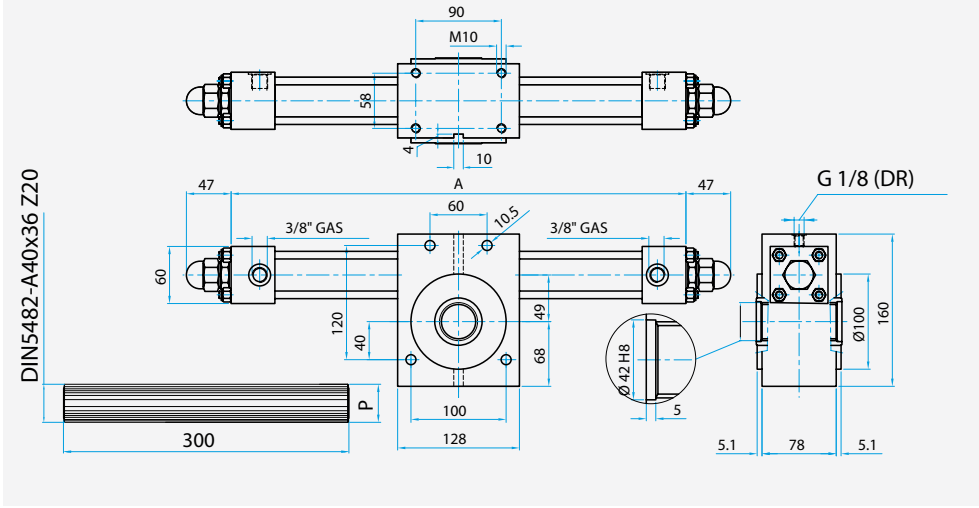
## HR 32/32



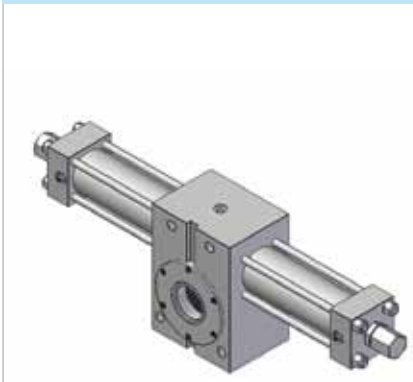


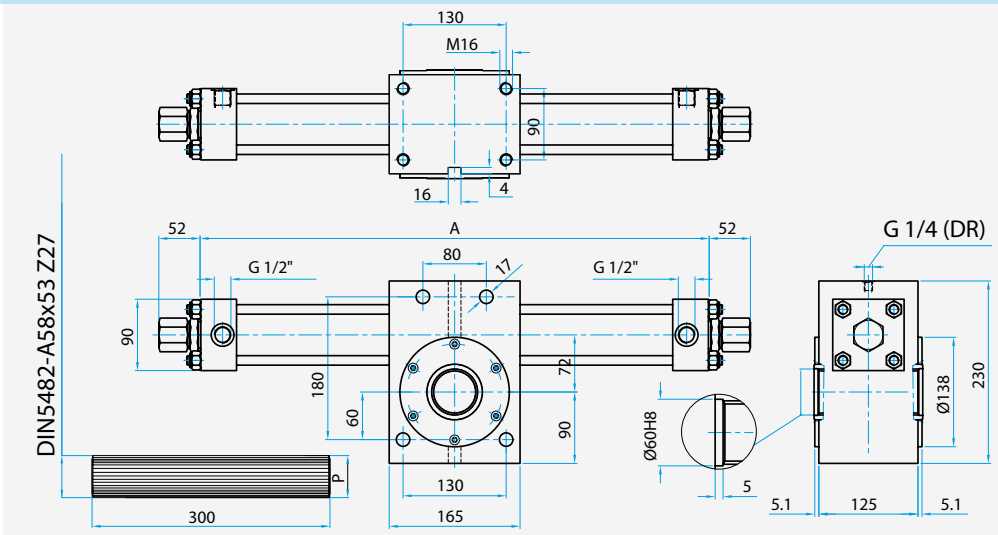

## HR 40/70






## HR 63/96






| A | Drehwinkel / *Rotation angle* | | |
|---|---|---|---|
| Typ / *Type* | 90 | 180 | 270 |
| HR 32/32 | 222 | 272 | 322 |
| HR 40/70 | 368 | 478 | 587 |
| HR 63/96 | 462 | 610 | 760 |

Der Überlauf muss mit dem Tank verbunden sein.
*It's compulsory to link the drain (DR) to the tank.*



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## BESTELLCODE / *ORDERING CODE*

Die Felder mit Beispielwerten sind verbindlich einzutragen.
*The fields containing sample values are compulsory.*

**HR** **40** / **70** - **180** **KR** **S** [ ] [ ]

**Nur für MR Version**
***Only for MR version***

**Typ / *Type***

| | |
|---|---|
| Standard | **HR** |
| Magnetisch / Magnetic | **MR** |

**Menge / *Quantity***

**Schalter / *Switch***

| | Typ / *Type* |
|---|---|
| **SR** | REED 24-110 V. AC/DC |
| **SH** | PNP 24 V. DC |

| **Kolben Ø** ***Bore*** | | **Ritzeldurchmesser** ***Pinion Bore*** |
|---|---|---|
| **32** | / | **32** |
| **40** | / | **70** |
| **63** | / | **96** |

**Dichtungen / *Seals*** (siehe Seiten 54 / *see pages 54)*

| | |
|---|---|
| **S** | Standard |
| **L** | Leichtgängig / *Low friction* |
| **H** | Viton® / *Viton®* |
| **G** | HFC-Medium / *HFC-fluid* |

**Drehwinkel / *Rotation angle***

| | |
|---|---|
| Standard | **90** |
| | **180** |
| | **270** |

Andere Winkel auf Anfrage - Wenden Sie sich an unsere technische Abteilung.
*Other angle on demand - Contact our technical department*

| | |
|---|---|
| **KR** | Dämpfung +Hubbegrenzung<br>*Cushioning + Stroke adjuster* |

## BESTELLCODE FÜR NUTWELLE
## *CODE FOR GROOVED SHAFT*

| | |
|---|---|
| **Z 20** | Bestellcode für Nutwelle HR 40<br>*Grooved shaft for HR 40* |
| **Z 27** | Bestellcode für Nutwelle HR 63<br>*Grooved shaft for HR 63* |

Länge = 300 mm
*Lenght = 300 mm*



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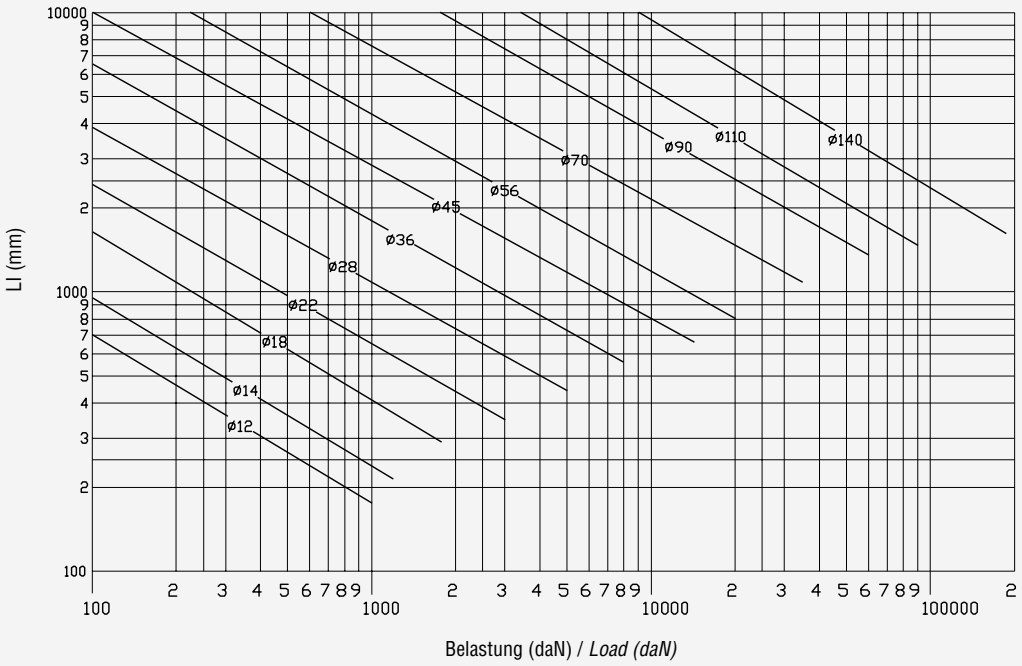
## KNICKÜBERPRÜFUNG / *BUCKLING VERIFICATION*

Die Knickprüfung muss unter Rücksichtnahme von Hub und der Befestigungsart erfolgen.
Um die ideale Länge LI zu ermitteln muss der Hub CO mit dem Hubfaktor FC, in Abhängigkeit mit der Befestigung, multipliziert werden: LI=FC*CO.
Das Diagramm zeigt die Beziehung zwischen idealer Länge, Stangendurchmesser und maximaler Belastung.

*When the cylinder is pushing, the rod must be not subject to buckling instability.*
*The buckling verification must be done considering the stroke and the mounting of the cylinder.*
*It must be calculated the ideal length LI through the multiplication of the stroke CO with the stroke factor FC,*
*depending from the mounting and determined as shown in table. LI = FC x CO*
*The diagram show the relationship between ideal length, rod diameter and maximum load.*

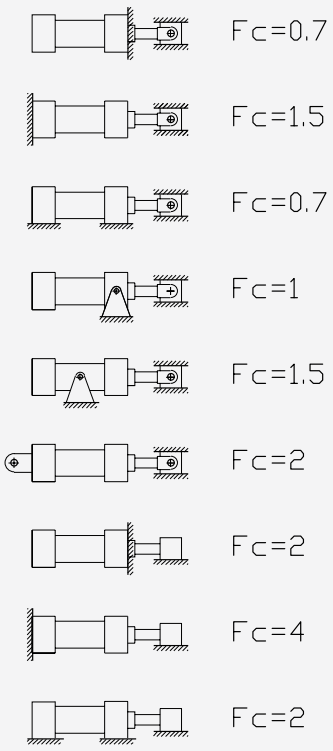
## DIAGRAM ZUR KOLBENSTANGENWAHL / *ROD SELECTION CHART*




LI = FC x CO

LI = Ideallänge (mm) / *ideal lenght* (mm)
FC = Hubfaktor / *stroke factor*
CO = Hub / *stroke* (mm)

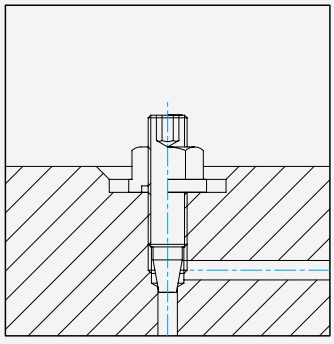
## HUBFAKTOR "FC" / *STROKE "FC" FACTOR*




## DÄMPFUNGSEINSTELLUNG / *CUSHIONING ADJUSTMENT*

Zylinder mit Dämpfung haben eine Schraube zur Dämpfungseinstellung.
Dieses Schraube hat eine Seal-Lock ® Dichtmutter, die sorgfältig nach der Dämpfungseinstellung gesperrt werden muss.
Die Dämpfungverstelleinrichtung kann auch als Entlüftung verwendet werden.

*Cylinders with cushioning have a device with screw for cushioning adjustment.*
*This device has a Seal-Lock® sealing nut, that must be carefully locked after cushioning adjustment.*
*The cushioning adjustment device can be used as air bleeder, too.*

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## ABMESSUNGEN UND KRAFT / *DIMENSION AND FORCE*

| | | | | | | | CD - DK - MD | | HD - HK | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Kraft bei 160 bar *Force at 160 bar* | | Kraft bei 210 bar *Force at 210 bar* | |
| Kolben Ø *Bore* | Stangen Ø *Rod* | S1 | S2 | S3 | SF | LF | druck *push* | zug *pull* | druck *push* | zug *pull* |
| mm | mm | cm² | cm² | cm² | cm² | mm | daN | daN | daN | daN |
| 25 | 12 | 4,9 | 1,1 | 3,8 | 1,8 | 12 | 785 | 604 | 1031 | 793 |
| | 18 | | 2,5 | 2,4 | | | | 378 | | 496 |
| 32 | 14 | 8,0 | 1,5 | 6,5 | 3,5 | 14 | 1287 | 1040 | 1689 | 1366 |
| | 18 | | 2,5 | 5,5 | | | | 880 | | 1155 |
| | 22 | | 3,8 | 4,2 | | | | 679 | | 891 |
| 40 | 18 | 12,6 | 2,5 | 10,0 | 5,5 | 23 | 2011 | 1603 | 2639 | 2105 |
| | 22 | | 3,8 | 8,8 | | | | 1402 | | 1841 |
| | 28 | | 6,2 | 6,4 | | | | 1025 | | 1346 |
| 50 | 22 | 19,6 | 3,8 | 15,8 | 8,3 | 21 | 3142 | 2533 | 4123 | 3325 |
| | 28 | | 6,2 | 13,5 | | | | 2156 | | 2830 |
| | 36 | | 10,2 | 9,5 | | | | 1513 | | 1986 |
| 63 | 28 | 31,2 | 6,2 | 25,0 | 13,8 | 21 | 4988 | 4002 | 6546 | 5253 |
| | 36 | | 10,2 | 21,0 | | | | 3359 | | 4409 |
| | 45 | | 15,9 | 15,3 | | | | 2443 | | 3206 |
| 80 | 36 | 50,3 | 10,2 | 40,1 | 23,8 | 28 | 8042 | 6414 | 10556 | 8418 |
| | 45 | | 15,9 | 34,4 | | | | 5498 | | 7216 |
| | 56 | | 24,6 | 25,6 | | | | 4102 | | 5383 |
| 100 | 45 | 78,5 | 15,9 | 62,6 | 38 | 28 | 12566 | 10022 | 16493 | 13153 |
| | 56 | | 24,6 | 53,9 | | | | 8626 | | 11321 |
| | 70 | | 38,5 | 40,1 | | | | 6409 | | 8412 |
| 125 | 56 | 123 | 25 | 98 | 56 | 26 | 19635 | 15694 | 25771 | 20599 |
| | 70 | | 38 | 84 | | | | 13477 | | 17689 |
| | 90 | | 64 | 59 | | | | 9456 | | 12411 |
| 160 | 70 | 201 | 38 | 163 | 99 | 30 | 32170 | 26012 | 42223 | 34141 |
| | 90 | | 64 | 137 | | | | 21991 | | 29863 |
| | 110 | | 95 | 106 | | | | 16965 | | 22266 |
| 200 | 90 | 314 | 64 | 251 | 151 | 44 | 50265 | 40087 | 65973 | 52614 |
| | 110 | | 95 | 219 | | | | 35060 | | 46016 |
| | 140 | | 154 | 160 | | | | 25635 | | 33646 |

S1: Kolbenfläche / *pushing section*
S2: Kolbenstangenfläche / *rod section*
S3: Ringfläche / *pulling section*
SF: Dämpfungsfläche / *cushioning section*
LF: Dämpfungslänge / *cushioning lenght*

Nehmen Sie 250 bar für die Dämpfungseigenschaften an
*To verify the cushioning capability, consider a maximum pressure of 250 bar*

## MINIMUMHUB / *MINIMUM STROKE*

| Kolben Ø *Bore* | | | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Minimumhub *Minimum stroke* | mm | Befestigung H (ISO MT4) *Mounting H (ISO MT4)* | 10 | 10 | 15 | 20 | 30 | 35 | 45 | 60 | 70 | 80 |
| | | MD Zylinder *MD cylinders* | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

## ANZUGSMOMENT FÜR ZUGANKER / *TIE RODS TIGHTENING TORQUE*

| Kolben Ø *Bore* | | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anzugsmoment für Zuganker *Tie rods tightening torque* | (Nm) | 5 | 9 | 20 | 70 | 70 | 160 | 160 | 460 | 820 | 1150 |

Auf **www.confortinet.com** finden Sie folgende Informationen:
- 2D Zeichnungen und 3D CAD Modelle
- Massenberechnungen

*On **www.confortinet.com** you can find:*
- *2D CAD drawings and 3D CAD models*
- *mass calculation*



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## KNICKÜBERPRÜFUNG/ *BUCKLING VERIFICATION*

Die Knickprüfung muss unter Rücksichtnahme von Hub und der Befestigungsart erfolgen.
Um die ideale Länge LI zu ermitteln muss der Hub CO mit dem Hubfaktor FC, in Abhängigkeit mit der Befestigung, multipliziert werden: LI=FC*CO.
Das Diagramm zeigt die Beziehung zwischen idealer Länge, Stangendurchmesser und maximaler Belastung.

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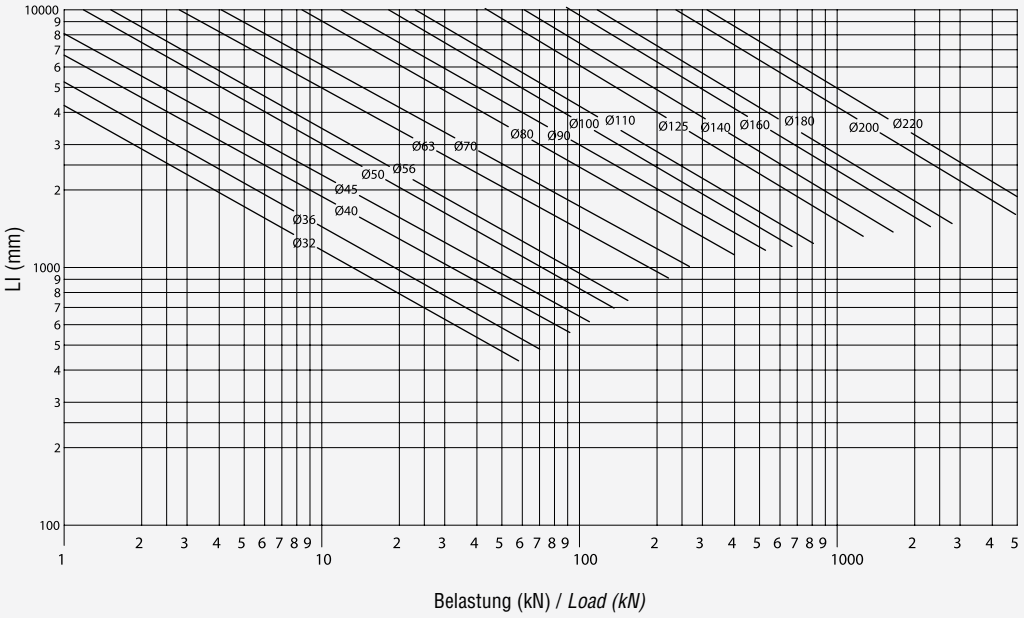
The buckling verification must be done considering the stroke and the mounting of the cylinder.
It must be calculated the ideal length LI through the multiplication of the stroke CO with the stroke factor FC,
depending from the mounting and determined as shown in table. LI = FC x CO
The diagram show the relationship between ideal length, rod diameter and maximum load.

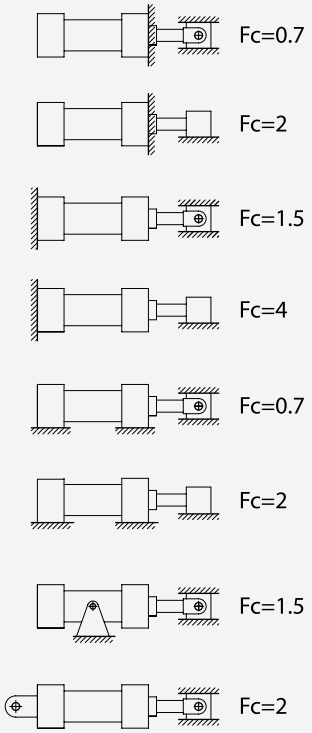
## DIAGRAM ZUR KOLBENSTANGENWAHL / *ROD SELECTION CHART*




LI = FC x CO

LI = Ideallänge (mm) / *ideal lenght* (mm)
FC = Hubfaktor / *stroke factor*
CO = Hub / *stroke* (mm)

## HUBFAKTOR "FC" *STROKE "FC" FACTOR*

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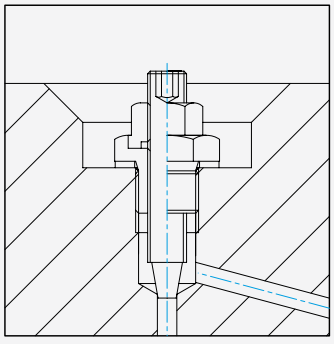


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## ABMESSUNGEN UND KRAFT / *DIMENSION AND FORCE*

| | | | | | | | DP | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Kraft bei 250 bar *Force at 250 bar* | |
| **Kolben Ø** *Bore* | **Stangen Ø** *Rod* | **S1** | **S2** | **S3** | **SF** | **LF** | **druck** *push* | **zug** *pull* |
| **mm** | **mm** | **cm²** | **cm²** | **cm²** | **cm²** | **mm** | **kN** | **kN** |
| 50 | 32 | 19,6 | 8,0 | 11,6 | 8,2 | 32 | 49 | 29 |
| | 36 | | 10,2 | 9,5 | | | | 24 |
| 63 | 40 | 31,2 | 12,6 | 18,6 | 13,8 | 32 | 78 | 47 |
| | 45 | | 15,5 | 15,3 | | | | 38 |
| 80 | 50 | 50,3 | 19,6 | 30,6 | 23,8 | 40 | 126 | 77 |
| | 56 | | 24,6 | 25,6 | | | | 64 |
| 100 | 63 | 78,5 | 31,2 | 47,4 | 37,8 | 40 | 196 | 118 |
| | 70 | | 38,5 | 40,1 | | | | 100 |
| 125 | 80 | 123 | 50 | 72 | 56 | 40 | 307 | 181 |
| | 90 | | 64 | 59 | | | | 148 |
| 140 | 90 | 154 | 64 | 90 | 67 | 46 | 385 | 226 |
| | 100 | | 79 | 75 | | | | 188 |
| 160 | 100 | 210 | 79 | 123 | 99 | 46 | 503 | 306 |
| | 110 | | 95 | 106 | | | | 265 |
| 200 | 125 | 314 | 123 | 191 | 151 | 65 | 785 | 478 |
| | 140 | | 154 | 160 | | | | 401 |
| 250 | 160 | 491 | 201 | 290 | 222 | 60 | 1227 | 725 |
| | 180 | | 254 | 236 | | | | 591 |
| 320 | 200 | 804 | 314 | 490 | 388 | 60 | 2011 | 1225 |
| | 220 | | 380 | 424 | | | | 1060 |

S1: Kolbenfläche / *pushing section*
S2: Kolbenstangenfläche / *rod section*
S3: Ringfläche / *pulling section*
SF: Dämpfungsfläche / *cushioning section*
LF: Dämpfungslänge / *cushioning lenght*

Nehmen Sie 350 bar für die Dämpfungseigenschaften an
*To verify the cushioning capability, consider a maximum pressure of 350 bar*



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