AROS Hydraulik GmbH

# Product catalogue – ZDV7

# Series double-acting hydraulic cylinders

## Nominal pressure = 250 bar

***Standards:***
***DIN 24 333, ISO 6022,***
***CETOP RP 73H***

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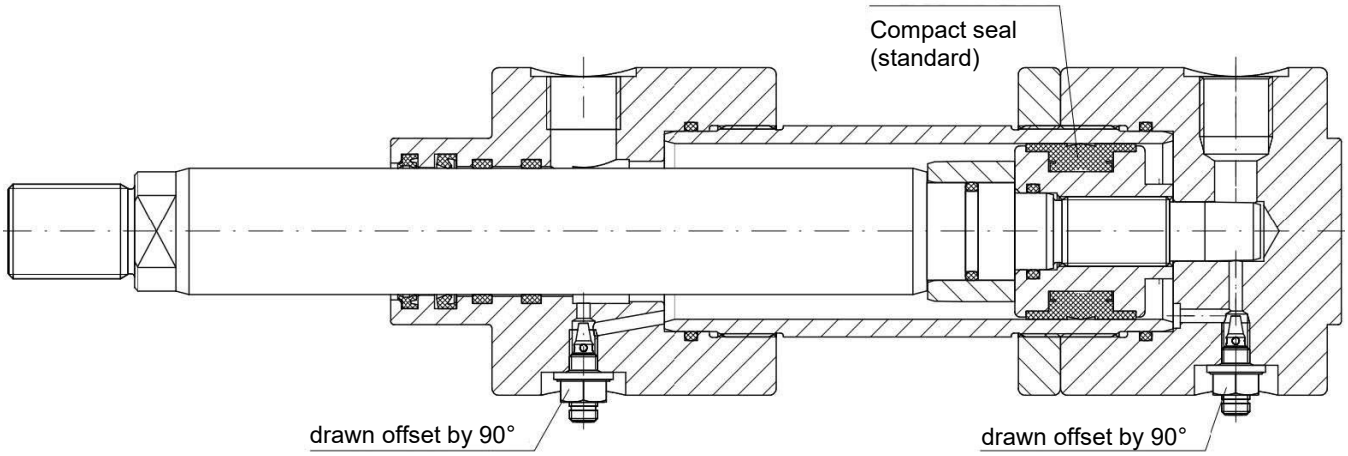
# 1 General technical data

Robust and universally usable bolted assemblies. This series of cylinders includes the necessary dimensions to ensure international interchangeability of hydraulic cylinders for a nominal pressure of 250 bar. Starting with a basic cylinder, all designs can be created by attaching the mounting components. Tried-and-tested seals ensure optimal sealing. The end cushioning behaves progressively as it transitions into the cushioning phase and can be finely adjusted. In addition to the standardised dimensions, a compact cylinder design with smaller installation dimensions is available.




| | |
|---|---|
| Nominal pressure: | 250 bar |
| Piston rod: | ground and hard chrome-plated;<br>can be hardened in special cases |
| End cushioning: | without, on the rod side and the base side, on both sides |
| Operating temperature: | -20°C to +80°C (other temperatures available on request) |
| Operating fluid: | mineral-based hydraulic oil<br>(other operating fluids possible on request) |
| Piston speed: | 0 - 0.5 m/s (higher speeds available on request) |
| Compact seal: | achieves retaining function |
| Glydring: | smooth-running, stick-slip-free, excellent static sealing performance |
| Piston area ratio / Annular area: | φ = 1.6 and 2 |
| Tolerance: | For stroke tolerance, see 1.6<br>Angular tolerances of the mounting holes according to EN ISO 13920-BE |

## 1.1 Boundary and use conditions

- The mechanical alignment of the movement axis and, consequently, the mounting points of the AROS cylinder and piston rod must be ensured. Lateral forces on the piston rod and piston guides must be avoided. Where applicable, the self-weight of the AROS cylinder or piston rod must be taken into account.
- The buckling length/buckling load of the piston rod or the AROS cylinder must be noted. The maximum buckling load is calculated on request.
- Note the maximum allowable stroke speeds with regard to the suitability of the seals and their compatibility with the operating fluid used.
- The maximum allowable speeds when moving to the end positions, taking external loads into account, must be observed. If the end positions are approached at a speed > 0.1 m/s (guide value), a cylinder with end cushioning should be provided.

**Overpressurisation**

Danger

The maximum allowable operating pressure must be observed in all operating states of the AROS cylinder. Potential pressure intensification resulting from the ratio of the annular area to the piston area and any potential restriction points must be avoided.

- Harmful environmental factors, such as aggressive ultrafine particles, vapours, high temperatures, etc., as well as dirt and damage to the hydraulic fluid, must be avoided.

**If you are unsure about media (fluid) compatibility or if the boundary and use conditions are exceeded, please contact us.**

## 1.2 Service life

The AROS ZDV7 series cylinders are robust, bolted cylinders. Reliability is highly dependent on the application. Thanks to the bolted assembly, the service life is significantly longer than that of a welded version. Please contact our engineering department regarding the operating limits for > 1,000,000 cycles.

## 1.3 Acceptance

Every cylinder is tested in accordance with the AROS standard and ISO 10100:2001.

## 1.4 Safety instructions

For the assembly, commissioning and maintenance of AROS cylinders, refer to the “General Operating and Assembly Instructions for Hydraulic Cylinders”!
Servicing and repair work must be carried out by AROS Hydraulik GmbH or by personnel specially trained for this purpose. No warranty is provided for damage resulting from assembly, maintenance or repair work not carried out by AROS Hydraulik GmbH.

## 1.5 Checklists

Cylinders whose characteristics and operating data differ from the values stated in the data sheet can only be supplied on request as customised cylinders. For quotations, any deviations from the characteristics and operating data set out in the AROS cylinder specifications must be described.

## 1.6 Stroke tolerances

| Nominal stroke | Tolerance |
|---|---|
| ≤ 1,250 | +2<br>0 |
| > 1,250 ≤ 3,150 | +5<br>0 |
| > 3,150 ≤ 8,000 | +8<br>0 |

Dimensions in millimetres

## 2 Type code

**ZDV7 C – N – DB – 80 – 56 – 600 – G3/4 – G-V + GA3-50**

**Double-acting hydraulic cylinder**
Series 7

**Design:**
X – Basic version
G – Spherical rod eye on the cylinder base
C – Flange on the rod side
D – Flange on the base side

**Standard or compact series**
N – Installation dimension according to DIN 24333
K – Installation dimension of the compact series; dimensions marked with *

**Cushioning**
DH – Base-side cushioning
DV – Rod-side cushioning
DB – Cushioning on both sides
--- – without cushioning

**Piston Ø in mm (D)**

**Piston rod Ø in mm (d)**

**Cylinder stroke in mm**
Further details regarding allowable stroke lengths (buckling lengths) can be found in publication 0-Z-01

**Connections**
G – Whitworth pipe thread

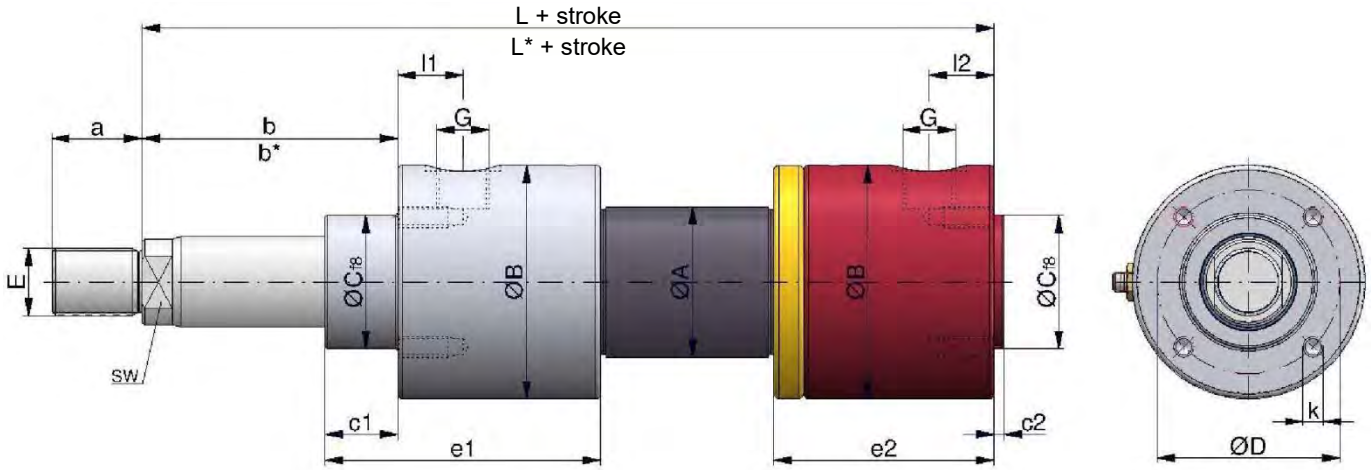
**Seal type**
--- – Compact seal (standard)
G – Glyd ring
V – Seal material: VITON (with Glyd Ring piston seal)

**Mounting** (omitted if not required)

# 3 Designs

## 3.1 Design X (A)

**Basic version without mounting**

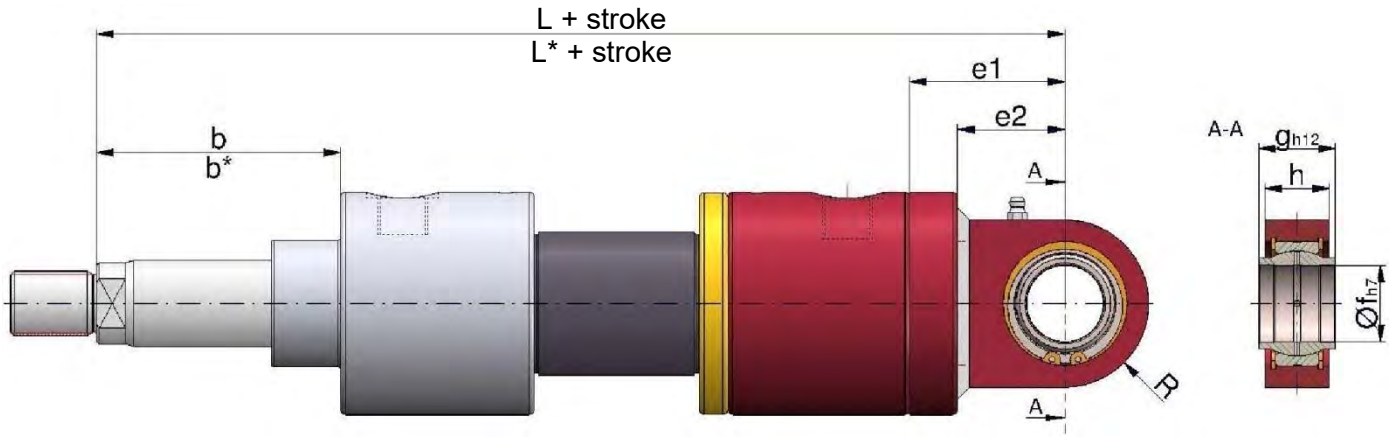



| Type ZDV7X | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Piston** | 40 | | 50 | | 63 | | 80 | | 100 | | 125 | |
| **Rod** | 25 | 28 | 32 | 36 | 40 | 45 | 50 | 56 | 63 | 70 | 80 | 90 |
| G | G ½ | | G ½ | | G ¾ | | G ¾ | | G 1 | | G 1 | |
| Min. stroke | 50 | | | | | | | | | | | |
| A | 50 | | 60 | | 75 | | 95 | | 120 | | 150 | |
| B | 82 | | 93 | | 108 | | 128 | | 158 | | 197 | |
| C | 43 | | 53 | | 65 | | 82 | | 98 | | 120 | |
| E | M20 x 1.5 | | M27 x 2 | | M33 x 2 | | M42 x 2 | | M48 x 2 | | M64 x 3 | |
| L | -- | | 240 | | 270 | | 300 | | 335 | | 390 | |
| L * | 157 | | 185 | | 205 | | 223 | | 247 | | 269 | |
| AF | 20 | 22 | 27 | 27 | 32 | 36 | 40 | 46 | 50 | 60 | 70 | 80 |
| a | 28 | | 36 | | 45 | | 56 | | 63 | | 85 | |
| b | -- | | 102 | | 118 | | 137 | | 156 | | 197 | |
| b * | 36 | | 47 | | 53 | | 60 | | 68 | | 76 | |
| c1 | 21 | | 29 | | 32 | | 36 | | 41 | | 45 | |
| c2 | 3 | | 4 | | 4 | | 4 | | 5 | | 5 | |
| e1 | 92 | | 110 | | 120 | | 135 | | 145 | | 156 | |
| e2 | 76 | | 88 | | 94 | | 103 | | 111 | | 116 | |
| l1 | 23 | | 26 | | 31 | | 36 | | 37 | | 37 | |
| l2 | 22 | | 26 | | 27 | | 27 | | 30 | | 30 | |
| D | 62 | | 73 | | 87 | | 105 | | 128 | | 158 | |
| k | M 8 | | M 8 | | M 10 | | M 12 | | M 16 | | M 20 | |
| Cush. length | 25 | | 25 | | 28 | | 30 | | 35 | | 40 | |

Pistons up to Ø 40mm available in compact design only (non-standardised)

* Installation dimensions of the compact series

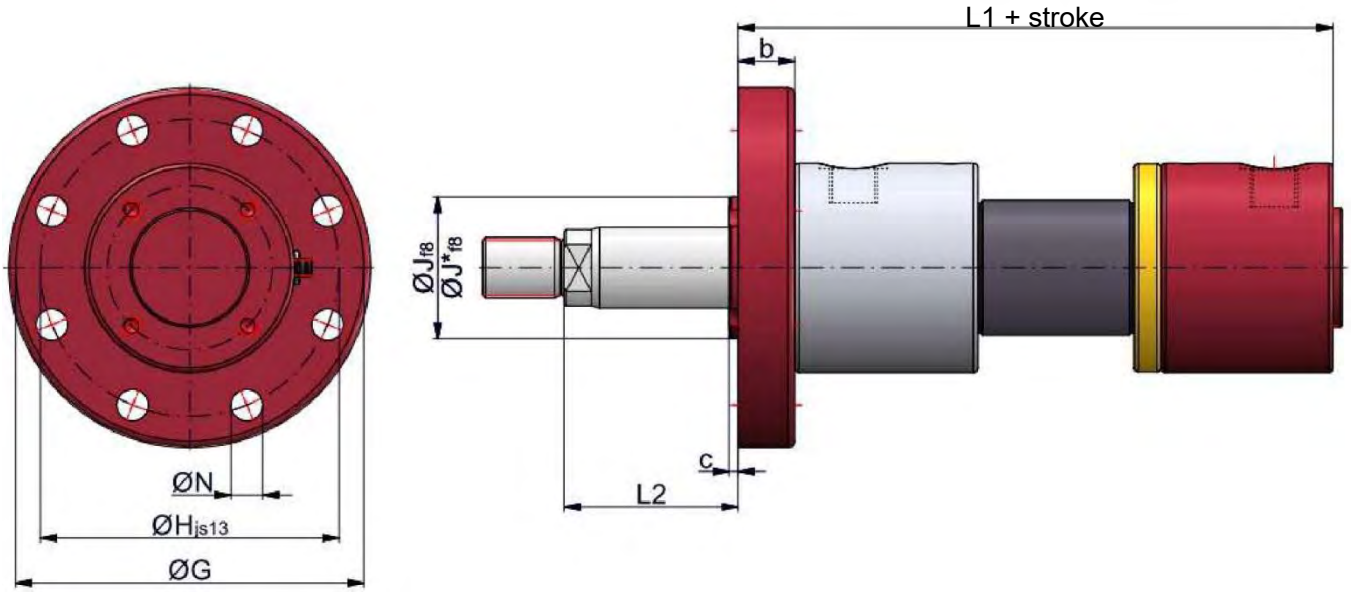
## 3.2 Design G (DB)




| Type ZDV7G | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Piston** | 40 | | 50 | | 63 | | 80 | | 100 | | 125 | |
| **Rod** | 25 | 28 | 32 | 36 | 40 | 45 | 50 | 56 | 63 | 70 | 80 | 90 |
| L1 | --- | | 305 | | 348 | | 395 | | 442 | | 520 | |
| L*1 | 213 | | 250 | | 283 | | 318 | | 354 | | 399 | |
| b | --- | | 102 | | 118 | | 137 | | 156 | | 197 | |
| b* | 36 | | 47 | | 53 | | 60 | | 68 | | 76 | |
| e1 | 56 | | 65 | | 78 | | 95 | | 107 | | 130 | |
| e2 | 38 | | 45 | | 58 | | 70 | | 77 | | 90 | |
| R | 30 | | 35 | | 50 | | 62 | | 71 | | 90 | |
| f | 25 | | 32 | | 40 | | 50 | | 63 | | 80 | |
| g | 25 | | 32 | | 40 | | 50 | | 63 | | 80 | |
| h | 23 | | 27 | | 35 | | 40 | | 55 | | 60 | |

* Installation dimensions of the compact series

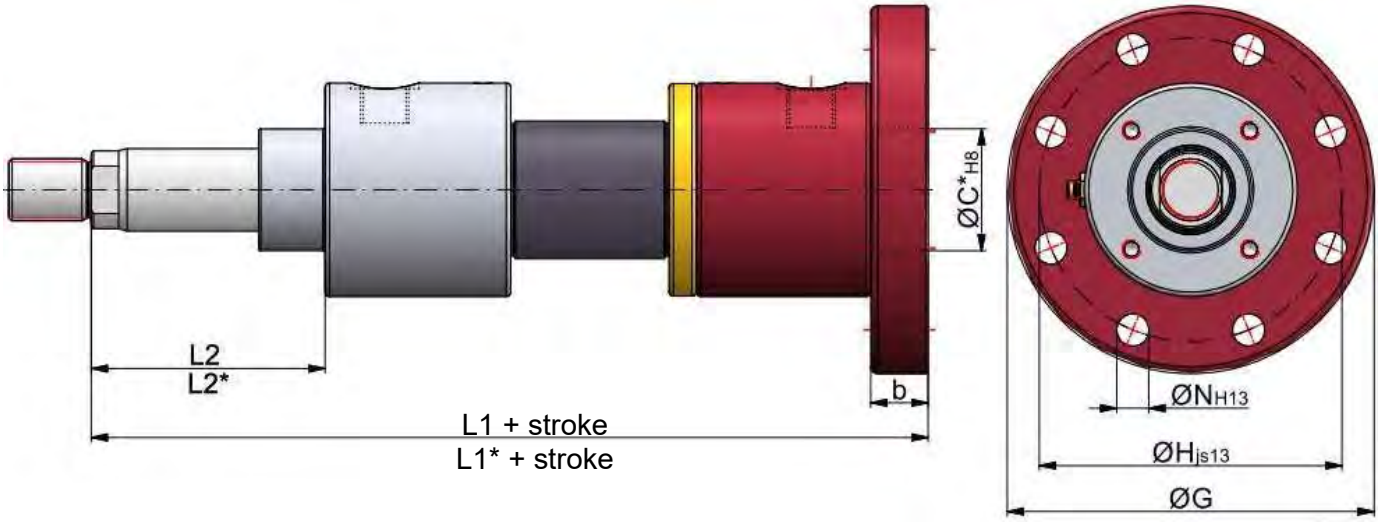
### 3.3 Design C (CA)




| Type ZDV7C | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Piston** | 40 | | 50 | | 63 | | 80 | | 100 | | 125 | |
| **Rod** | 25 | 28 | 32 | 36 | 40 | 45 | 50 | 56 | 63 | 70 | 80 | 90 |
| L1 | 139 | | 163 | | 180 | | 195 | | 215 | | 233 | |
| L2 | 18 | | 22 | | 25 | | 28 | | 32 | | 36 | |
| G | 145 | | 160 | | 180 | | 210 | | 250 | | 290 | |
| H | 120 | | 132 | | 150 | | 180 | | 212 | | 250 | |
| J | --- | | 63 | | 75 | | 90 | | 110 | | 132 | |
| J* | 43 | | 53 | | 65 | | 82 | | 98 | | 120 | |
| N | 11 | | 14 | | 14 | | 18 | | 22 | | 22 | |
| b | 18 | | 25 | | 28 | | 32 | | 36 | | 40 | |
| c | 3 | | 4 | | 4 | | 4 | | 5 | | 5 | |

* Installation dimensions of the compact series

### 3.4 Design D (CB)




| Type ZDV7D | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Piston** | 40 | | 50 | | 63 | | 80 | | 100 | | 125 | |
| **Rod** | 25 | 28 | 32 | 36 | 40 | 45 | 50 | 56 | 63 | 70 | 80 | 90 |
| L1 | --- | | 265 | | 298 | | 332 | | 371 | | 430 | |
| L*1 | 175 | | 210 | | 233 | | 255 | | 283 | | 309 | |
| L2 | --- | | 102 | | 118 | | 137 | | 156 | | 197 | |
| L2* | 36 | | 47 | | 53 | | 60 | | 68 | | 76 | |
| G | 145 | | 160 | | 180 | | 210 | | 250 | | 290 | |
| H | 120 | | 132 | | 150 | | 180 | | 212 | | 250 | |
| C* | 43 | | 53 | | 65 | | 82 | | 98 | | 120 | |
| N | 11 | | 14 | | 14 | | 18 | | 22 | | 22 | |
| b | 18 | | 25 | | 28 | | 32 | | 36 | | 40 | |

* Installation dimensions of the compact series

## 4 Mounting eye

| Type | Cyl. Ø D | Dimensions (mm) | | | | | | | | | | | | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Øf | E | L | a | d | B | e1 | e2 | b1 | b2 | h | g | k | (kg) |
| GA 3-25 | 40 | 25 | M 20x1.5 | 65 | 29 | 58 | 30 | 27 | 94 | 54 | 17 | 21 | 25 | M6 | 0.66 |
| GA 3-32 | 50 | 32 | M 27x2 | 80 | 37 | 70 | 38 | 32 | 115 | 66 | 22 | 27 | 32 | M8 | 1.2 |
| GA 3-40 | 63 | 40 | M 33x2 | 97 | 46 | 89 | 47 | 41 | 142 | 80 | 26 | 32 | 40 | M8 | 2.1 |
| GA 3-50 | 80 | 50 | M 42x2 | 120 | 57 | 108 | 58 | 50 | 174 | 96 | 32 | 40 | 50 | M10 | 4.4 |
| GA 3-63 | 100 | 63 | M 48x2 | 140 | 64 | 132 | 70 | 62 | 211 | 114 | 38 | 52 | 63 | M12 | 7.6 |
| GA 3-80 | 125 | 80 | M 64x3 | 180 | 86 | 168 | 90 | 78 | 270 | 148 | 48 | 66 | 80 | M 16 | 14.5 |

**GA3-...**
(according to DIN 24338 – ISO 6982)