

# Check valve

## Pilot operated dual check

$Q_{\max} = 26 \text{ gpm}$ ,  $p_{\max} = 5000 \text{ psi}$

hydraulic operation, pilot operated, poppet type

Type series: DERV 10-...



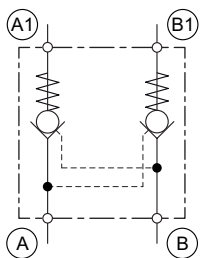
- Screw-in cartridge valve
- All external parts with zinc-nickel coating according to DIN EN ISO 19598
- Two-stage principle (decompression / main opening)
- Load pressure closing cone poppet valve
- Seat tight shut-off
- Compact construction
- Hardened, polished seat section and cone
- Prevents creep of hydraulically clamped actuators

### Description

The double pilot-operated check valves, series DERV 10-..., are size 10, two stage and high performance screw-in valves with an M40×1,5 mounting thread. They are designed on the poppet/seat principle and the A1 to A and B1 to B flow paths are therefore virtually leak-free. The check function can be overridden by applying a suitable pressure on the other side. In the A to A1 and B to B1 directions, flow can pass freely th-

rough the screw-in valves (opening pressure = 40 psi). All external parts of the screw-in valves are zinc-nickel plated and are thus suitable for use in the harshest operating environments. These screw-in valves are predominantly used in certain mobile and industrial applications to prevent creep movements of the hydraulically clamped actuators (e.g. cylinders) and to maintain the precise position.

### Symbol



## Technical Data

| General Characteristics     | Description, value, unit  |
|-----------------------------|---|
| Function group              | Check valve   |
| Function                    | Pilot operated dual check   |
| Design                      | Screw-in cartridge valve  |
| Controls                    | hydraulic operation   |
| Characteristic              | pilot operated, poppet type   |
| Construction size           | size 10   |
| Thread size                 | M40×1,5   |
| Mounting attitude           | unrestricted  |
| Weight                      | 2.02 lb   |
| Tightening torque steel     | 185 ft-lb   |
| Tightening torque tolerance | ± 10 %  |
| Minimum ambient temperature | - 13 °F   |
| Maximum ambient temperature | + 212 °F  |
| Surface protection          | All external parts with zinc-nickel coating according to DIN EN ISO 19598 |
| Available seal types        | several seal types available, see ordering code                           |
| Seal kit order number       | NBR: 30003013120 / others on request                                      |

| Hydraulic Characteristics   | Description, value, unit   |
|---|--|
| Maximum operating pressure  | 5000 psi   |
| Restriction of the operating pressure                                       | max. static pressure: 7100 psi   |
| Maximum flow rate   | 26 gpm   |
| Flow direction  | see symbol   |
| Hydraulic fluid   | HL and HLP mineral oil according to DIN 51 524; other fluids on request! |
| Minimum fluid temperature   | - 4 °F   |
| Maximum fluid temperature   | + 176 °F   |
| Viscosity range   | 2.8 ... 1500 mm <sup>2</sup> /s (cSt)                                    |
| Recommended viscosity range   | 10 ... 380 mm <sup>2</sup> /s (cSt)                                      |
| Minimum fluid cleanliness<br>(cleanliness class according to ISO 4406:1999) | class 20/18/15   |
| Effective hydraulic pilot ratio (p.o. check valve)                          | 1:18   |
| Opening pressure  | 40 psi   |
| Definition of cracking pressure for check valve                             | (load pressure ÷ 18) + 40 psi  |

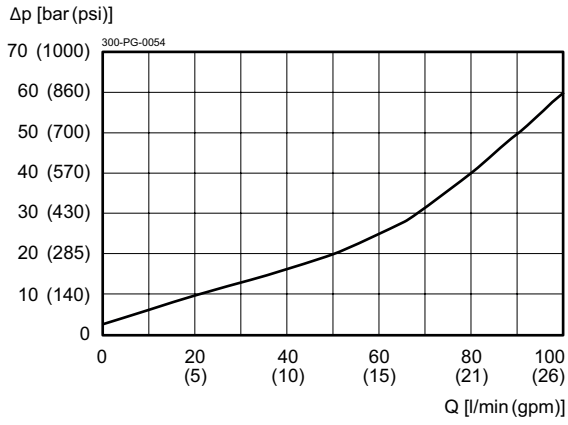

**NOTE!**

For other values please contact Bucher Hydraulics.

Performance graphs

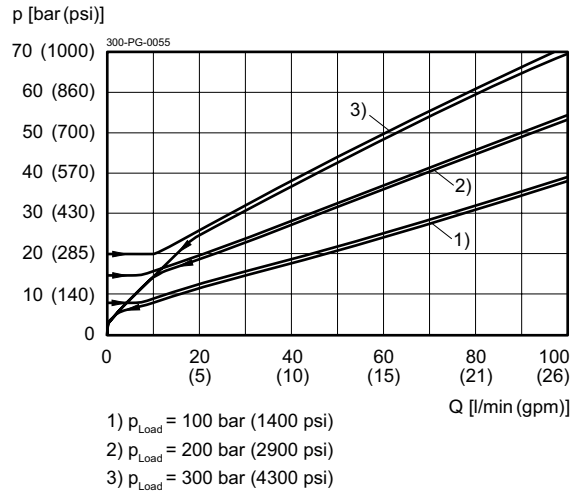
measured with oil viscosity 33.0 mm<sup>2</sup>/s (cSt)

$\Delta p = f(Q)$  Pressure drop-flow rate characteristic



A to A1 and B to B1

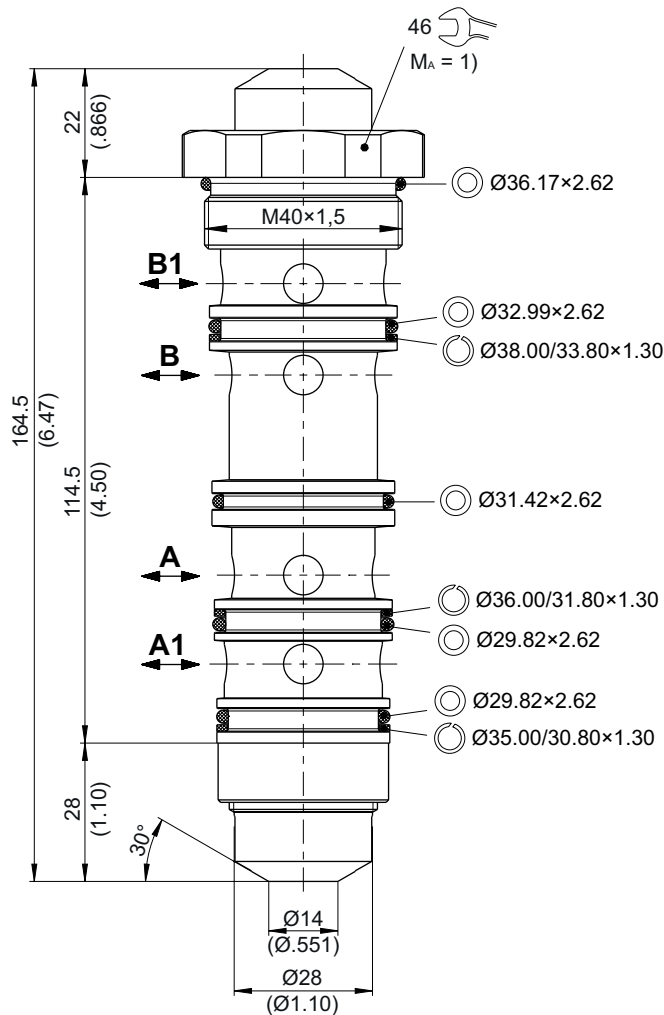
$p = f(Q)$  Pressure-flow rate



A1 to A and B1 to B

Dimensions and sectional view

**Beispiel für die Masseinheit:**  
**Example for the dimensional units:**  
 0.79 = 0.79 mm millimeter  
 (.031) = 0.031" inch



Installation information



**NOTE!**

1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value can be found in the chapter "Technical data".



**NOTE!**

The seals are not available individually. The seal kit order number can be found in the chapter "Technical data".

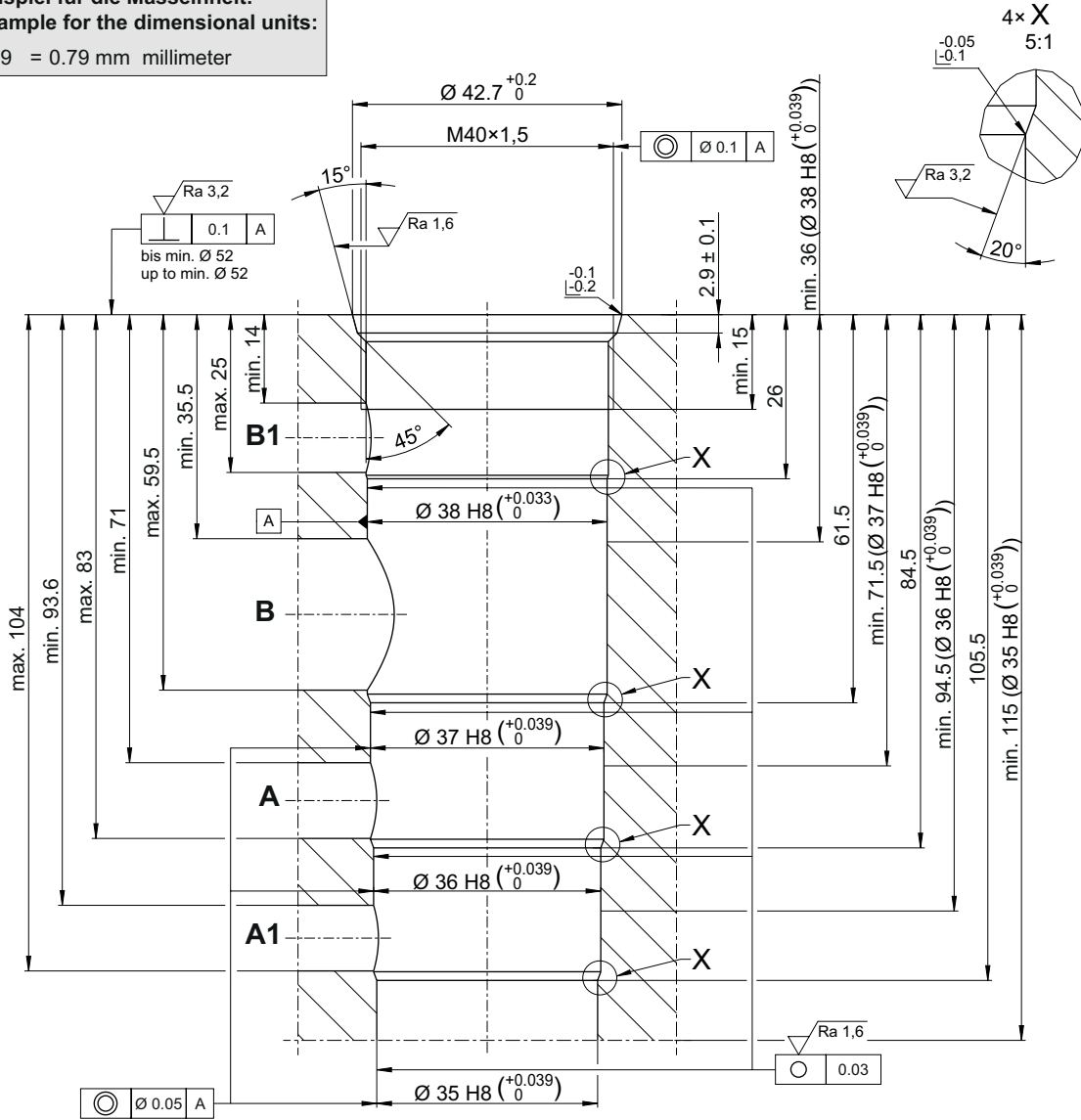


**ATTENTION!**

Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

Cavity

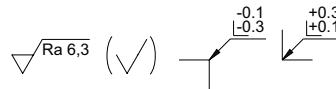
**Beispiel für die Masseinheit:**  
**Example for the dimensional units:**  
0.79 = 0.79 mm millimeter



**HINWEIS!**  
**NOTE!**

Empfohlene Anschlussbohrungen:  
Recommended connection bores: A, A1, B, B1: Ø 10

Toleranzen nach:  
Tolerances according to: DIN ISO 2768-mK



**NOTE!**

You must maintain the specified positional and diametral tolerances. To ensure trouble-free operation of the screw-in cartridges, we strongly recommend that pilot drilling, boring, reaming and cavity thread-cutting are always performed in one setup.

Ordering code

Ex. DERV - 10 - N

DERV = double pilot operated cartridge check valve

10 = size 10

N = NBR (nitril-butadien-rubber / BUNA) seals (*standard*)

V = FKM (fluorocarbon rubber / VITON) seals

T = MIL (low temperature) seals  
(*special seals - please consult BUCHER*)