

# Pilot Operated Cartridge Check Valve, Size 8

$Q_{max} = 80 \text{ l/min (21 gpm)}$ ,  $p_{max} = 450 \text{ bar (6400 psi)}$

pilot operated, two-stage, spring-closed cartridge-type poppet valve  
Series ERV 8...



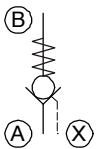
- Compact design for cavity type according to Bucher standard – M30x1.5
- Load pressure closing cone poppet valve
- Two-stage principle (decompression / main opening)
- Virtually leak-free in no-flow direction
- Hardened and ground seat and poppet
- With rust water sealing for recessed installation
- All exposed parts with zinc-nickel plating

## 1 Description

These pilot-operated check valves are size 8, two stage, high performance screw-in cartridges with an M30x1.5 mounting thread. The conical-seat design ensures that the cartridges are leak-tight from B → A. The check function can be overridden by applying a suitable pilot pressure at port X.

In the A → B direction, flow can pass freely through the valve (opening pressure = 2.5 bar). These screw-in cartridges are predominantly used in certain mobile and industrial applications to maintain the position of loaded actuators (e.g. outrigger cylinders) after the pump pressure has been disconnected.

## 2 Symbol



## 3 Technical data

General characteristics	Description, value, unit
Designation	pilot operated cartridge check valve
Design	hydraulically pilot operated, two-stage, spring-closed poppet valve
Mounting method	Screw-in cartridge – M30x1.5
Tightening torque	100 Nm ± 10 % (75 ft-lbs ± 10 %)
Size	Size 8
Weight	0.34 kg (0.75 lbs)
Mounting attitude	unrestricted
Ambient temperature range	-25 °C ... +80 °C (-13 °F ... +176 °F)
Surface corrosion protection	All exposed parts with zinc-nickel plating cartridge housing browned

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	450 bar (6400 psi)
Maximum flow rate	80 l/min (21 gpm)
Flow direction	A → B check-valve function B → A Shut-off direction, leak-free
Opening pressure	2.5 bar (A → B) (36 psi (A → B))
Geometric opening ratio *	Decompression: 1 : 2.5 Main opening: 2.1 : 1
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-20 °C ... +70 °C (-4 °F ... +158 °F)
Viscosity range	2.8 ... 380 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

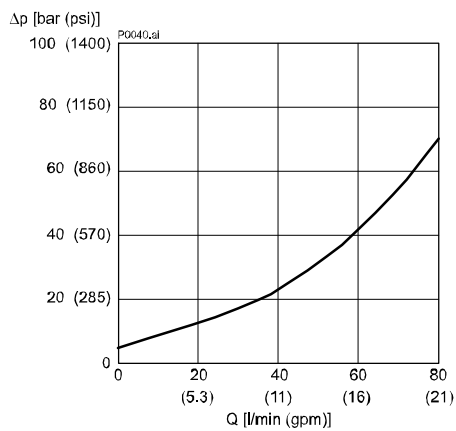
\*) E.g. with load pressure of 300 bar the decompression poppet opens when the control pressure  $X = 300 : 2.5 = 120$  bar and the cylinder retracts "slowly". (The control pressure theoretically required for main opening =  $300 \times 2.1 = 630$  bar)

## 4 Performance graphs

measured with oil viscosity 33 mm<sup>2</sup>/s (cSt)

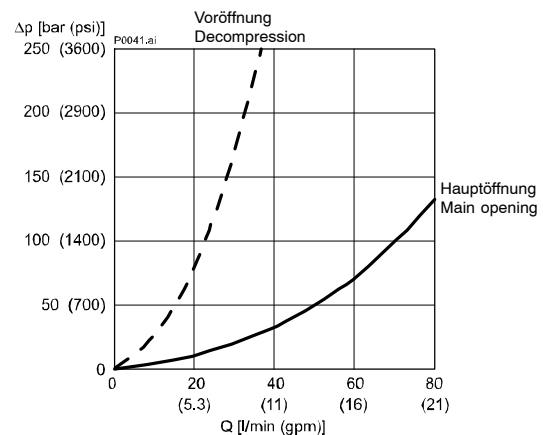
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic

A → B

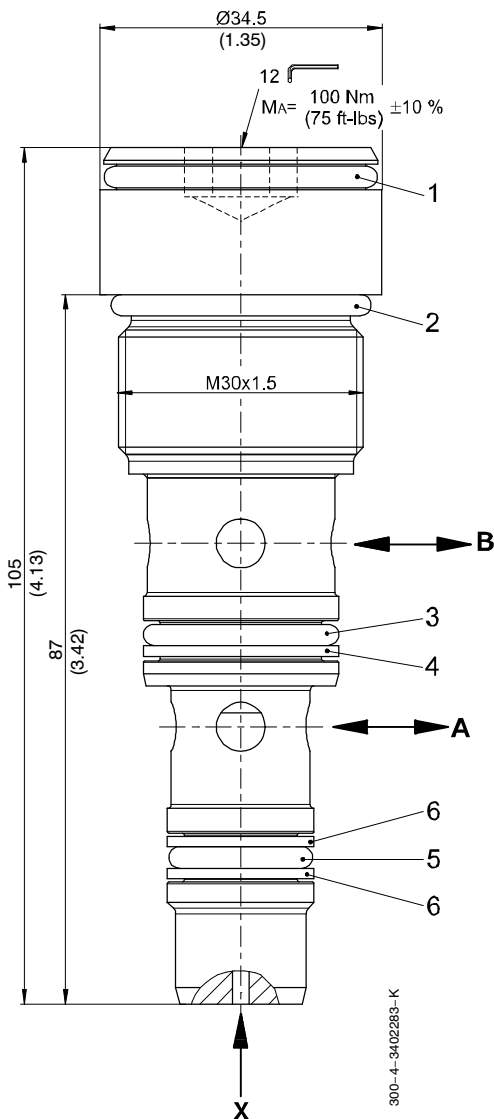


$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic

B → A



## 5 Dimensions & sectional view



Example for the dimensional units:

0.79 = 0.79 mm [millimeter]

(.031) = 0.031" [inch]

## 6 Installation information



### IMPORTANT!

When fitting the cartridges, use the specified tightening torque. No adjustments are necessary, since the cartridges are set in the factory.



### 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.

Item	Qty.	Description
1	1	O-Ring $\varnothing 28.24 \times 2.62$
2	1	O-Ring $\varnothing 26.64 \times 2.62$
3	1	O-Ring $\varnothing 18.72 \times 2.62$
4	1	Backup ring $\varnothing 24.00 / 19.80 \times 1.30$
5	1	O-Ring $\varnothing 12.37 \times 2.62$
6	2	Backup ring $\varnothing 18.00 / 13.80 \times 1.30$



### IMPORTANT!

Item No. 30003008540 = seal kit NBR (Nitril)

Item No. 3000303856 = seal kit FKM (Viton)

Item No. 30003018810 = seal kit MIL (low temp.)

## 7 Ordering code

ERV 8 - C - N

- ERV = pilot operated cartridge check valve
- 8 = size 8
- C = series
- N = NBR (Nitrile) seals (standard)
- V = FKM (Viton) seals
- T = MIL (low temperature) seals  
(special seals - please contact BUCHER)

