

# Pilot Operated Cartridge Check Valve, Size 8

$Q_{max} = 80 \text{ l/min (21 gpm)}$ ,  $p_{max} = 600 \text{ bar (8700 psi)}$

pilot operated, two-stage, spring-closed cartridge-type poppet valve

Series ERV 8...



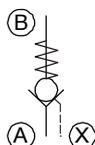
- Compact design for cavity type according to Bucher standard – M34x1.5
- Load pressure closing cone poppet valve
- Two-stage principle (decompression / main opening)
- Virtually leak-free in no-flow direction
- Hardened and ground seat and poppet
- Browned

## 1 Description

These pilot-operated check valves are size 8, two stage, high performance screw-in cartridges with an M34x1.5 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 M34x1.5	
Tightening torque	300 Nm ± 10 %	(220 ft-lbs ± 10 %)
Size	size 8	
Weight	0.46 kg	(101.41 lbs)
Mounting attitude	unrestricted	
Ambient temperature range	-25 °C ... +80 °C	(-13 °F ... +176 F)
Surface corrosion protection	browned	

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	600 bar (8700 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 (B → A))
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	-25 °C ... +80 °C (-13 °F ... +176 °F)
Viscosity range	10...650 mm <sup>2</sup> /s (cSt), recommended 15...250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

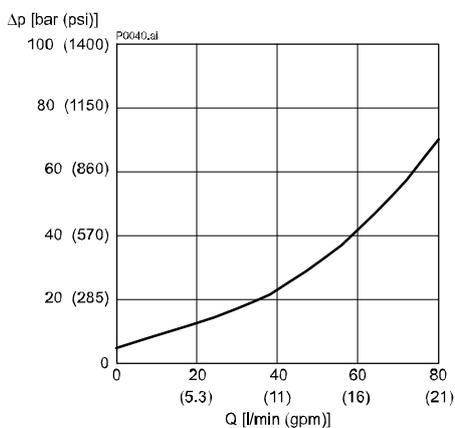
\*) E.g. with load pressure of 300 bar the decompression poppet opens when the control pressure  $X = 300 : 2.5 = 120$  bar and the cylinder retracts "slowly". (The control pressure theoretically required for main opening =  $300 \times 2.1 = 630$  bar)

## 4 Performance graphs

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

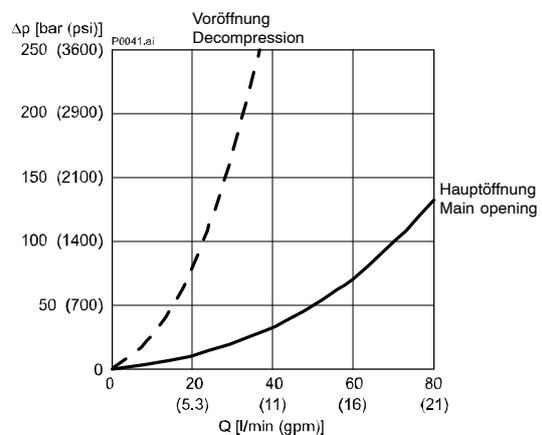
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic

A → B

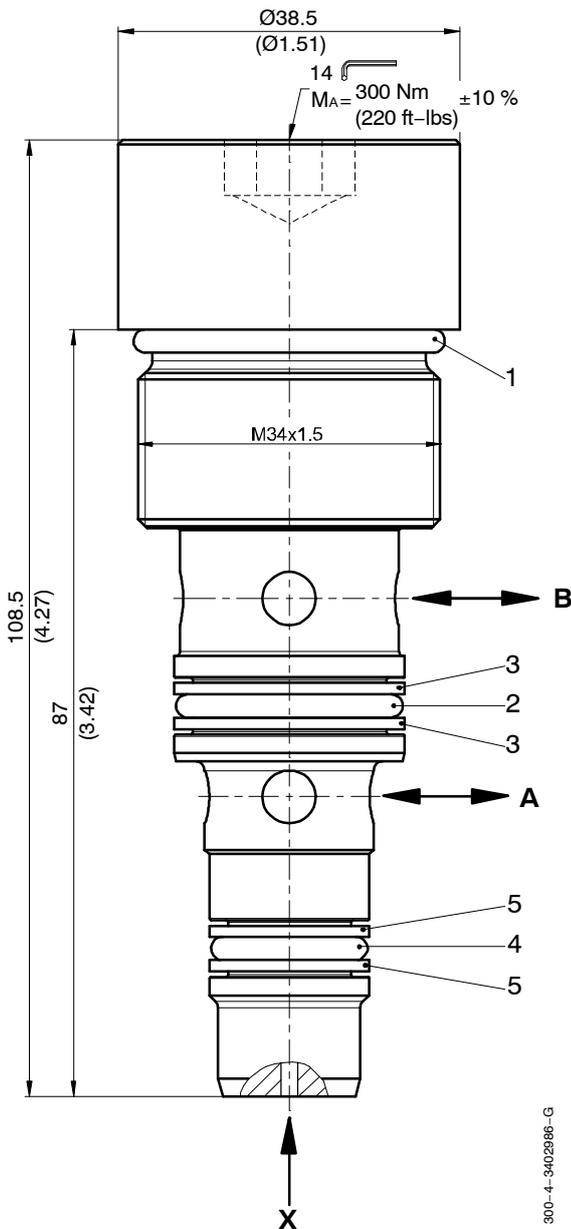


$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic

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 $\varnothing 29.82 \times 2.62$
2	1	O-Ring $\varnothing 20.29 \times 2.62$
3	2	Backup ring $\varnothing 26.00 / 19.80 \times 1.40$
4	1	
5	2	Backup ring $\varnothing 18.00 / 13.80 \times 1.40$



### IMPORTANT!

Item No. 30003002530 = seal kit NBR (Nitril)

Item No. 3000308502 = seal kit FKM (Viton)

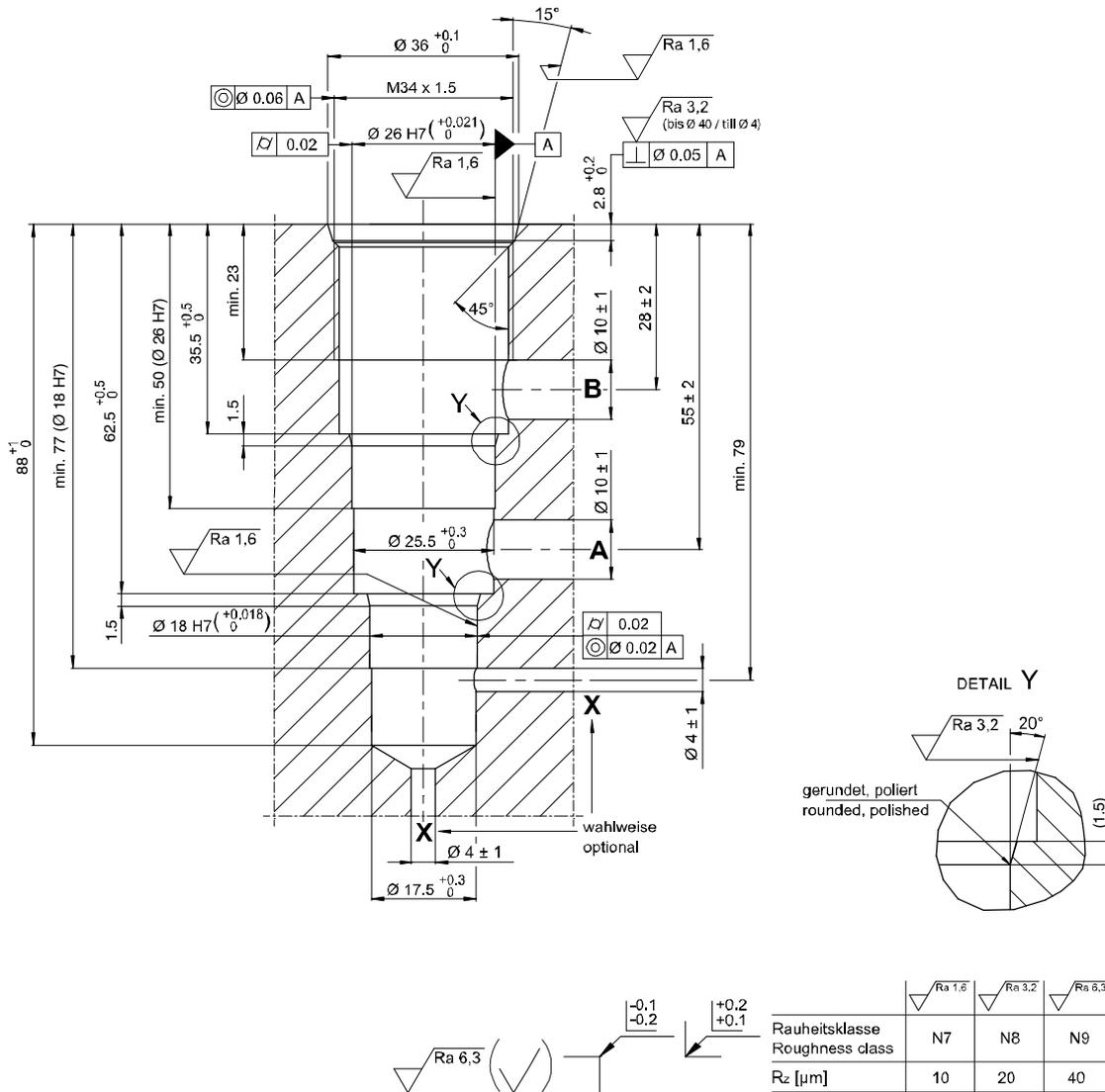
Item No. 3000308501 = seal kit MIL (low temp.)

## 7 Ordering code

ERV 8 - C - 600 - N

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

## 8 Cartridge cavity



### ATTENTION!

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.

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