

Safety for Hydraulics

Leak-free check valve, pilot operated, series ERV

Cartridge type, two-stage



1 General description

- spring-closed, pilot-operated, cartridge-type poppet valve
- it holds the load in neutral position without leakage

- prevents a load from falling if a burst occurs in feed pipe A
- hardened seat and poppet
- prevents creep of hydraulically clamped actuators
- working circuits can be shut-off and their pressure maintained

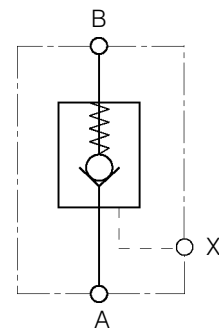
2 Advantages

- pilot-operated check valve and pipe-rupture valve function integrated in one unit
- soft opening thanks to optimized decompression (pre-opening) function
- suitable bodies with threaded ports or a combination of threaded/manifold ports are available - please consult Bucher Hydraulics
- minimal space requirement thanks to compact design

3 Application

- for stabiliser cylinders on mobile vehicles and similar applications up to 600 bar
- when used on the rod side, a cylinder ratio of max. 2:1 is permissible

4 Symbol



5 Main characteristics (for applications outside these parameters, contact Bucher Hydraulics)

5.1 General

Type	spring-closed poppet valve with hydraulic piloting
Mounting method	screw-in cartridge
Ports	A, B = \varnothing 10 mm X = \varnothing 4 mm
Mounting position	any
Flow direction	A \rightarrow B free flow B \rightarrow A blocked flow is enabled by pressure at port X
Weight	0.32 kg
Opening ratio	load pressure : pilot pressure
Decompression	1 : 2.5
Main opening	2.1 : 1

5.2 Hydraulic characteristics

Size	8
Rated flow rate	60 l/min
Working pressure max.	450 bar (standard), 600 bar
Hydraulic fluid	Mineral oil to DIN 51524 and DIN 51525 (HL/HLP). Other fluids – consult Bucher Hydraulics
Operating temperature range	-20°C...+80°C, for other temperatures, consult Bucher Hydraulics
Temperature rating – seal materials	
Nitrile (standard)	-20°C...+80°C
Nitrile (low temperature)	-50°C...+80°C
Viton	-20°C...+200°C
Viscosity range	10 – 380 mm ² /s (cSt) recommended
min. viscosity	2.8 mm ² /s (cSt)
max. viscosity	1500 mm ² /s (cSt)
Filtration/cleanliness class	NAS 1638 class 9, β 10 ≥ 75 ISO 4406 class 18/15

6 Safety information

- this valve must only be used for the purpose for which it has been designed
- before removing or disassembling the valve, all hydraulic pressure must be vented from the system – double check!
- the valve must not be opened without the express permission of the manufacturer

7 Installation information

- observe all port designations (see section 10)
- protect seals against becoming damaged
- observe the tightening torques (see section 10)
- bleed the hydraulic system before putting it into operation

8 Functional description, sectional view

8.1 The existing opening ratios

(load pressure B to control pressure X)

- decompression = 1 : 2.5
(small cross section B → A)
- main opening = 2.1 : 1
(max. cross section B → A)

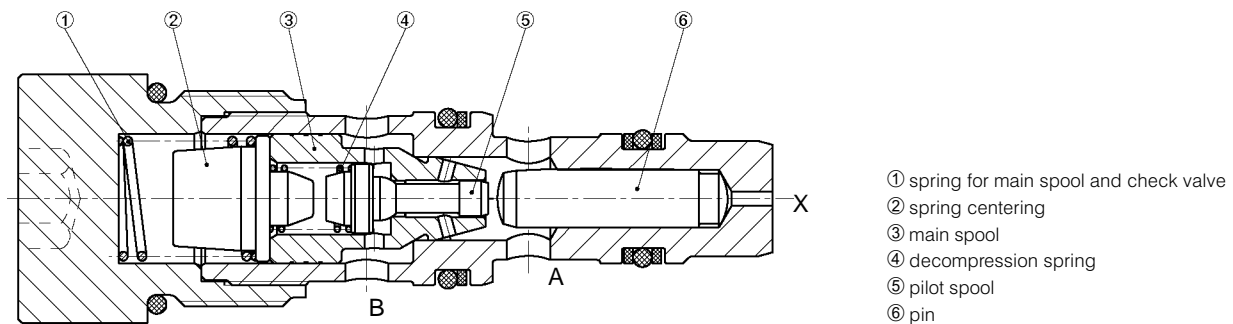
mean that loaded stabiliser cylinders are retracted at 2 different speeds.

8.2 Under load

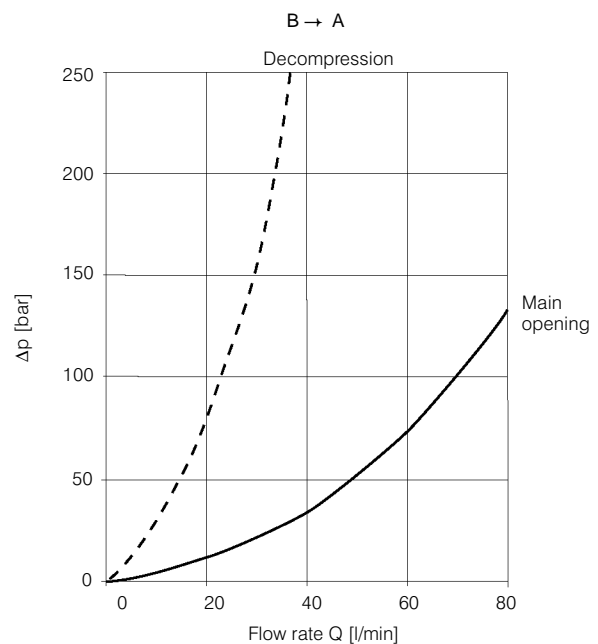
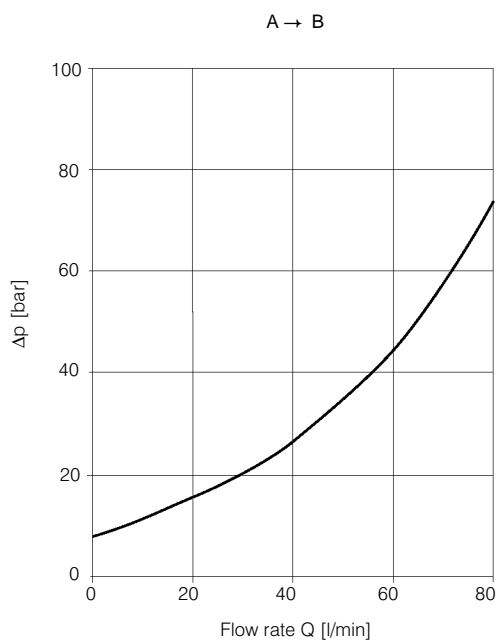
E.g. with a load pressure of 300 bar, the decompression poppet opens when the control pressure $X = 300 : 2.5 = 120$ bar, and the cylinder retracts "slowly" (the control pressure X theoretically required for main opening = $300 \times 2.1 = 630$ bar).

8.3 After raising

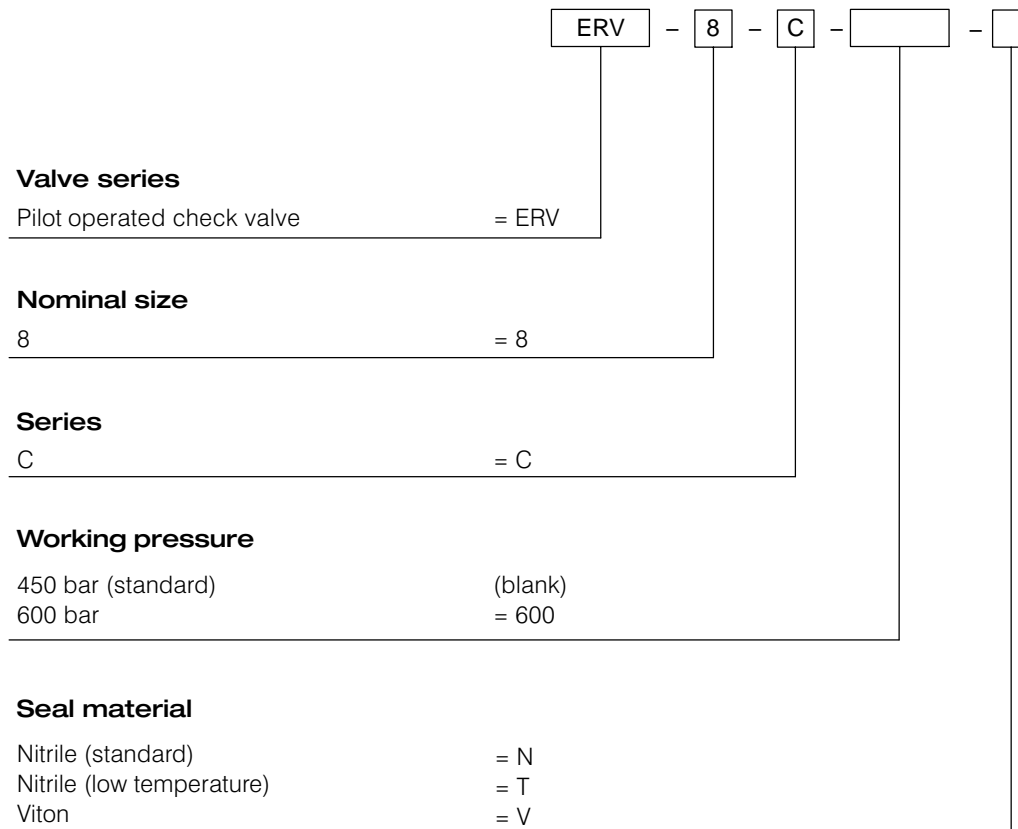
the stabiliser cylinder from the ground, the load pressure B is reduced to, e.g. 30 bar, and the main opening (max. cross section) opens at a control pressure X of $30 \times 2.1 = 63$ bar. The cylinder retracts "quickly".



9 Characteristic curves (measured at 33 mm²/s (cSt))



11 Model code key



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