

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

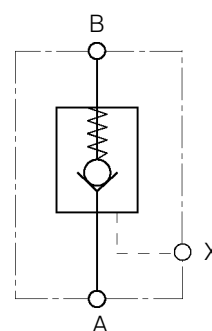
2 Advantages

- 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)

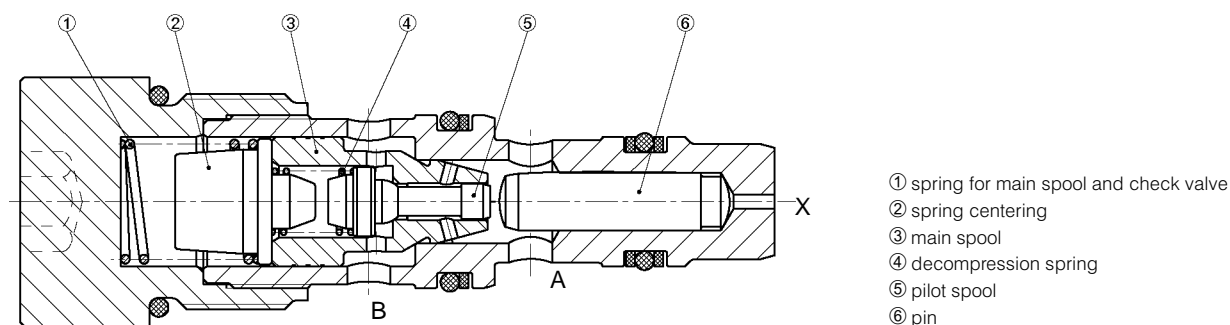
mean that loaded stabiliser cylinders are retracted at 2 different speeds.

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).

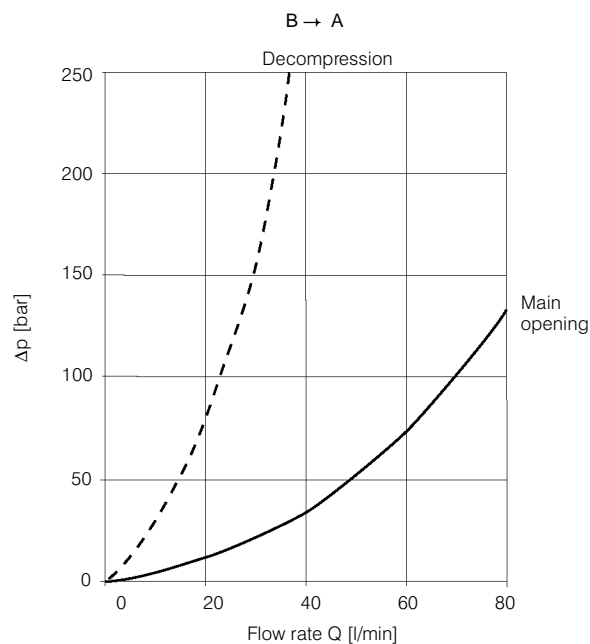
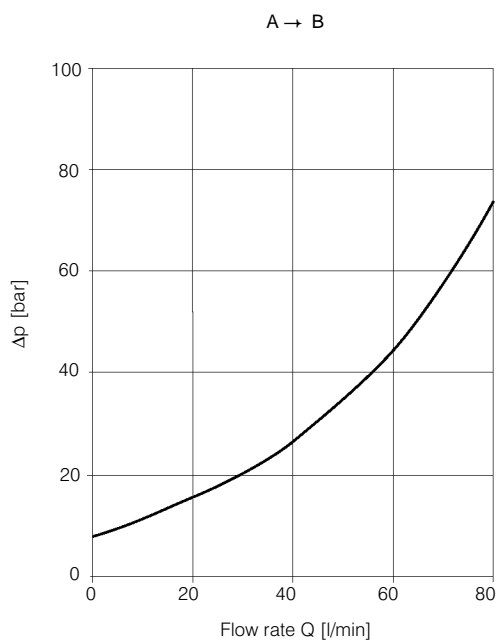
8.3 After raising

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".



- ① spring for main spool and check valve
- ② spring centering
- ③ main spool
- ④ decompression spring
- ⑤ pilot spool
- ⑥ pin

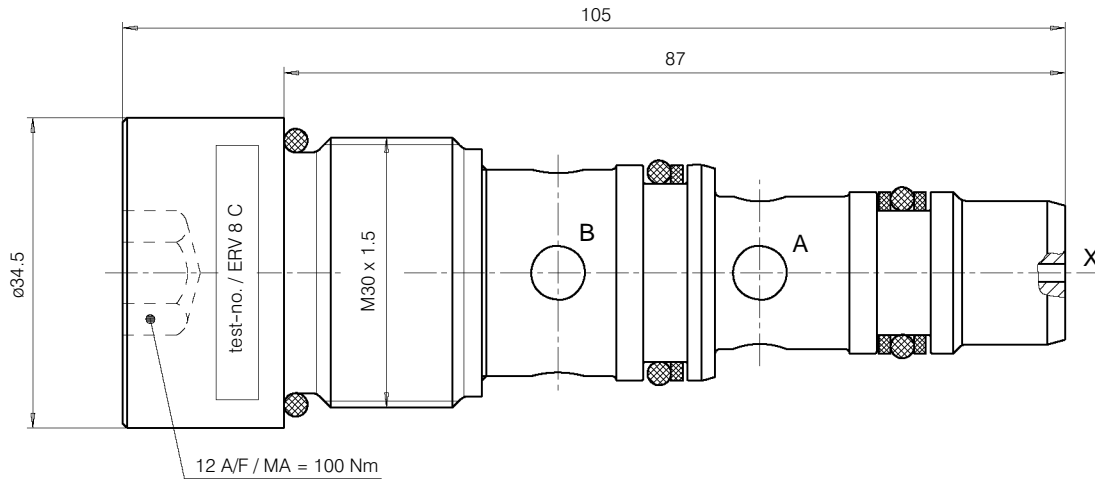
9 Characteristic curves (measured at 33 mm²/s (cSt))



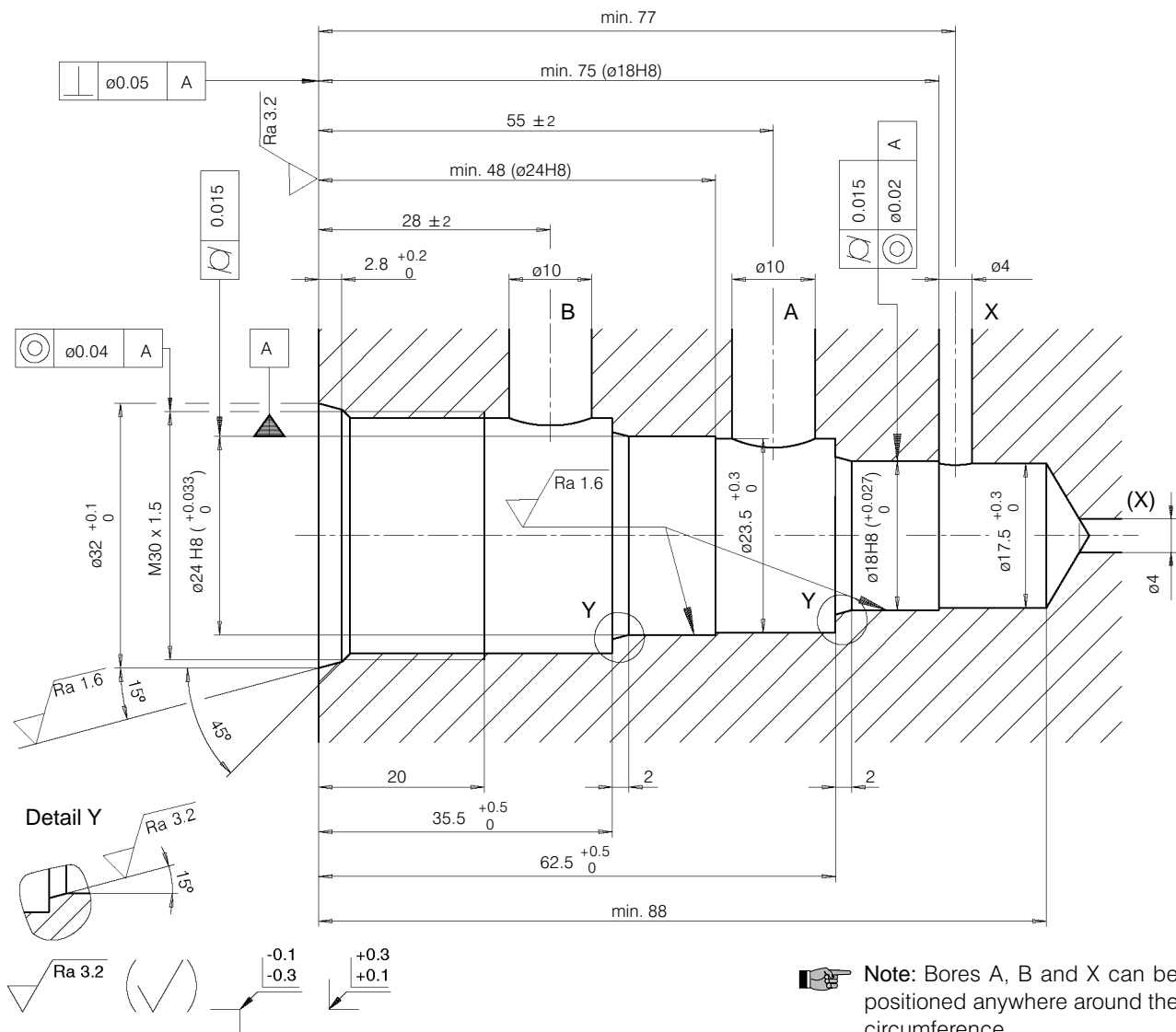
10 Dimensions, mounting cavity

10.1 ERV 8C (standard 450 bar)

10.1.1 Cartridge

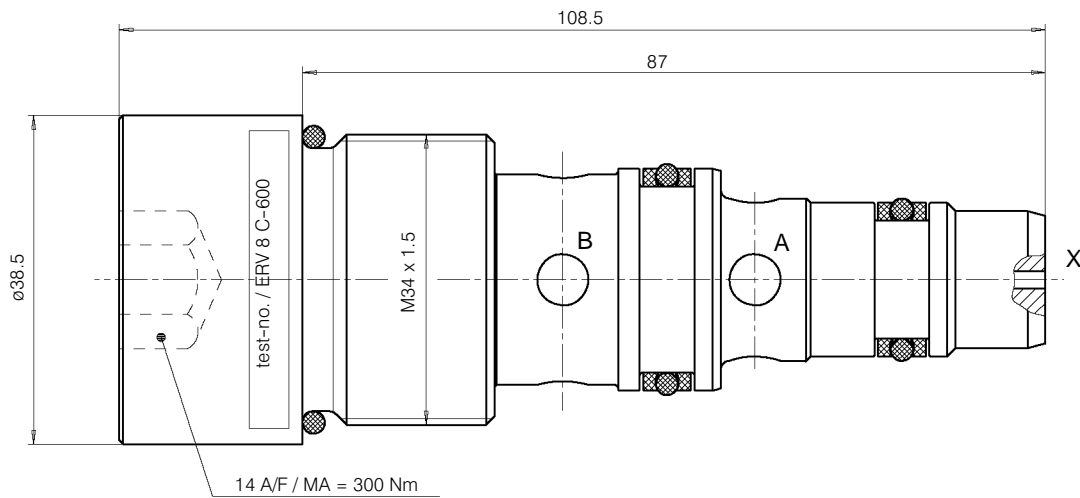


10.1.2 Mounting cavity

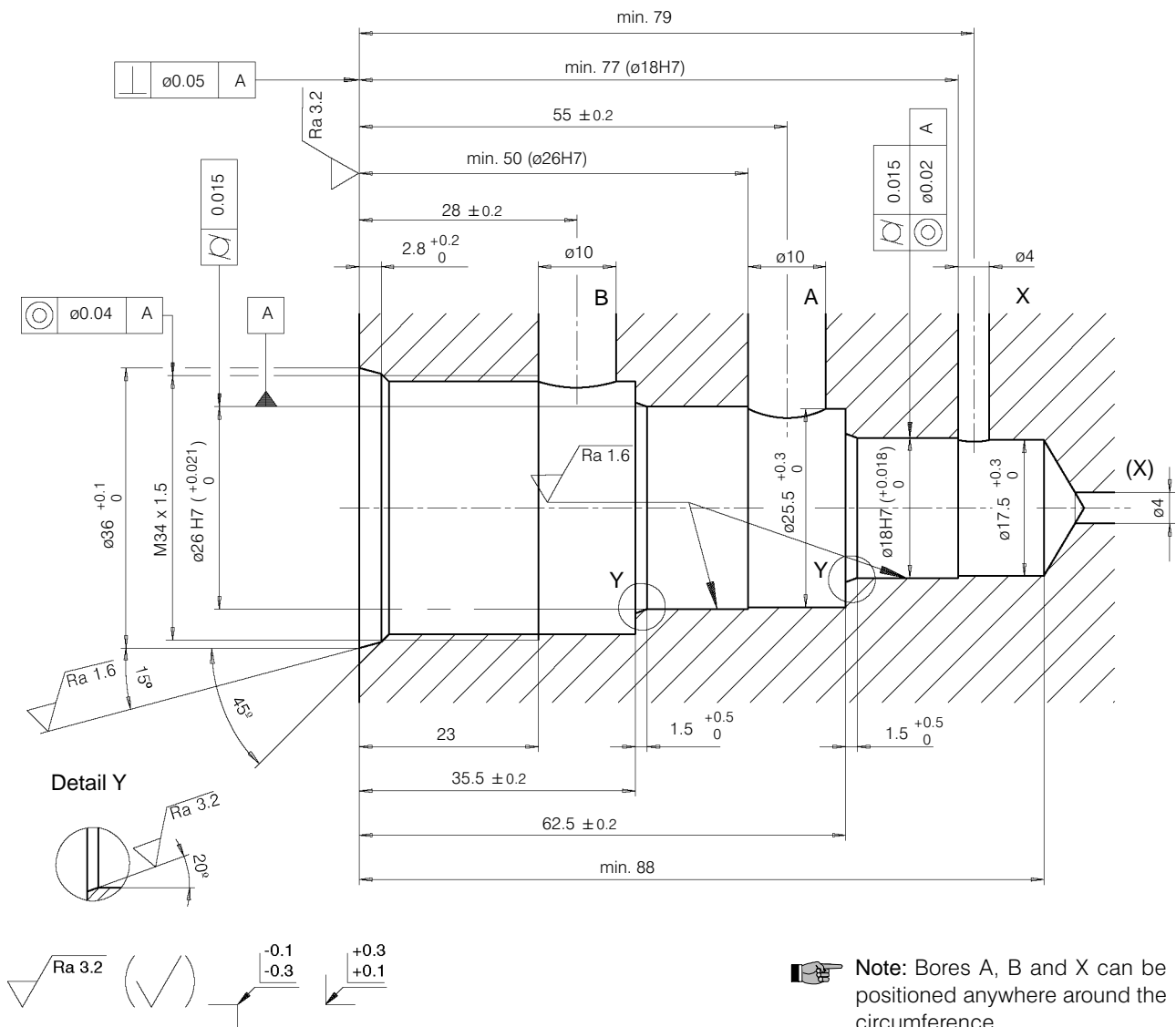


10.2 ERV 8 C-600 (600 bar)

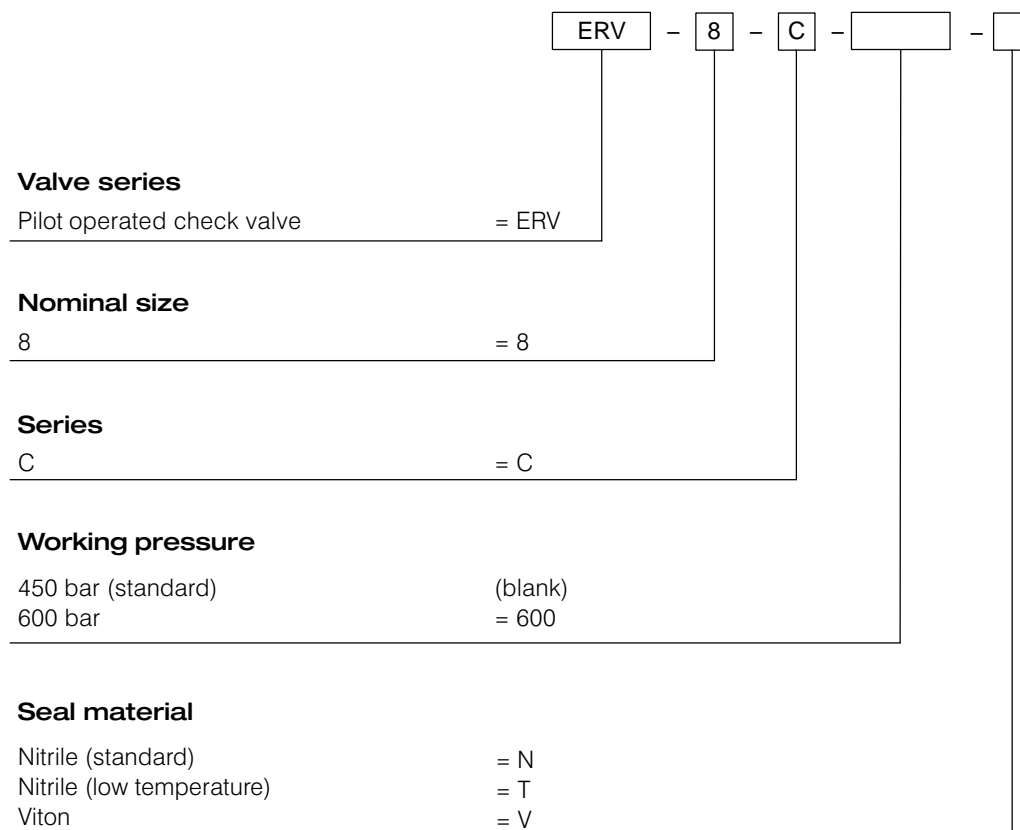
10.2.1 Cartridge



10.2.2 Mounting cavity



11 Model code key



info.ch@bucherhydraulics.com
 Bucher Hydraulics AG, CH-6345 Neuheim
 All rights reserved

www.bucherhydraulics.com

Data is provided for the purpose of product description only, and must not be construed as warranted characteristics in the legal sense. The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

We reserve the right of modification without notice.