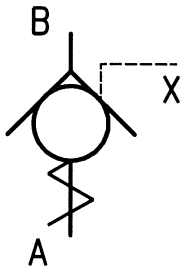
Pilot-Operated Check Valves
Plate-type, Screw-in Design
Series ERVH ... 80 l/min, 350 bar (500 bar)



1 General

1.1 Product description

Series ERVH units are screw-in, pilot-operated check valves with mounting threads ranging from G 1/4" to G 1". For other thread forms, contact Bucher Hydraulics.

The valves prevent flow against the screw-in direction (A → B). In the opposite direction, the opening pressure is 1 bar.

The valves can be made to open to allow flow in the no-flow direction by applying a pilot pressure to port X.

The units are plate-type valves. The seat and valve plate are hardened and diamond-lapped.

An external O-ring and a backup ring seal the leakage path between the valve and cavity wall.

1.2 Advantages

- Virtually leak-free
- High pressure rating
- Compact construction

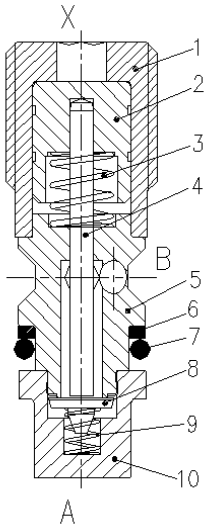
2 Main characteristics

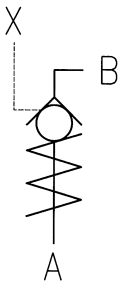
Designation	hydraulic pilot-operated check valve
Design	plate design
Mounting method	screw-in cartridge
Size	sizes 1 ... 5. See Table in section 5, Dimensions
Dimensions	See Table in section 5, Dimensions
Mounting attitude	unrestricted
No-flow direction	A → B (see symbol)
Operating pressure range	... 350 bar (for higher pressures, contact Bucher Hydraulics)
Flow rate, Q max.	... 80 l/min
Opening area ratio	i (see Table)
Fluid	HL and HLP hydraulic oils to DIN 51524
Temperature range	-30°C... +80°C
Viscosity range	10... 500 mm²/s (cSt)
Min. fluid cleanliness	18/14 to ISO 4406 / CETOP RP70H, 8…9 to NAS 1638

For applications outside these parameters, please contact Bucher Hydraulics.

Classification: **4.30.30.40.40**
Reference: 170-P-052000-E-05 / 08.15

3 Schematic section



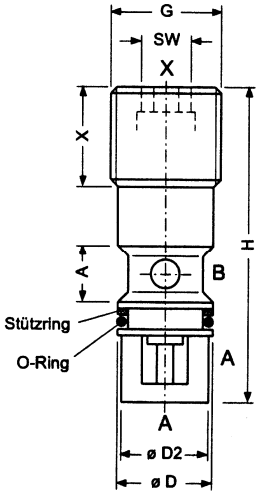


4 Components

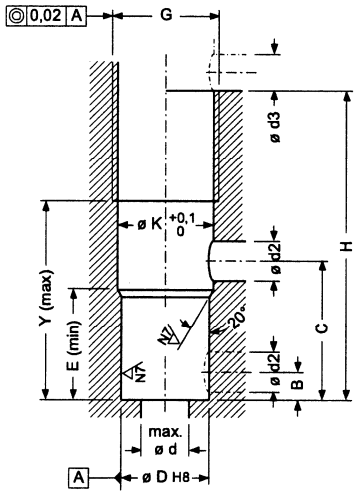
Item	Qty.	Description
1	1	screw-in bush
2	1	pilot piston
3	1	piston spring
4	1	push pin
5	1	valve seat
6	1	backup ring
7	1	O-ring
8	1	valve plate
9	1	valve spring
10	1	valve housing

5 Dimensions

5.1 Valve



5.2 Cavity type ERG-01

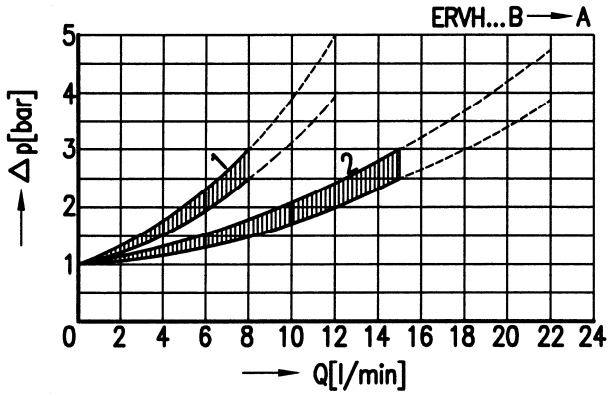


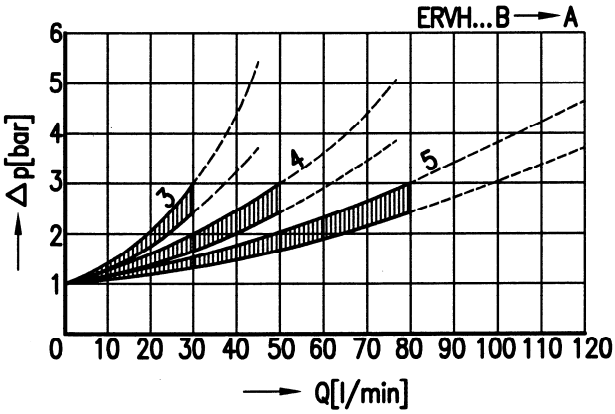
	Q Nom (l/min)	G	ØD	$ØD_2$	ØK	Ød	$Ød_2$	$Ød_3$	H	A	B	C	E	X	Y	l*)	SW (A/F)	Tightening torque (Nm)
ERVH-1	8	G1/4“	11.0	10.5	11.75	8	5	3	38	5	4	17.5	15.05	12.0	25	3.7	4	10
ERVH-2	15	G3/8“	14.0	13.5	15.25	11	6	3	43	7	4	20.5	16.75	12.5	29	3.0	6	20
ERVH-3	30	G1/2“	18.0	17.5	19.00	15	9	3	51	10	5	24.5	18.40	14.0	36	3.0	8	40
ERVH-4	50	G3/4“	23.5	23.0	24.50	20	11	4	59	12	6	27.5	19.90	17.0	41	3.0	10	80
ERVH-5	80	G1“	29.5	29.0	30.50	26	14	4	70	16	7	32.5	23.40	19.0	50	3.0	14	160

	1 pc. O-ring	1 pc. Stützring (backup ring) PTFE
ERVH-1	7.65x1.78	8.1x11.0
ERVH-2	10.82x1.78	11.1x14.0
ERVH-3	14.00x1.78	15.1x18.0
ERVH-4	20.35x1.78	20.6x23.5
ERVH-5	26.70x1.78	26.6x29.5

6 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)





7 Ordering details

Model code key

Ex. E R V H - ___ - ___ - ___

Hydraulic pilot-operated check valve, screw-in type
Plate design

Thread

Whitworth pipe thread	G
Metrical thread	M
UNF thread	U

Nominal size

1
2
3
4
5

O-rings

Nitrile	(blank)
Viton	V

Contact Bucher Hydraulics for further advice on:
- special materials
- customised designs

8 Pilot pressure

$$\text{Minimum pilot pressure} = \frac{\text{Load pressure in A} - \text{back pressure in B}}{\text{opening area ratio i}} + 3 + \text{back pressure in B}$$

9 Design and installation notes

The installation dimensions and tolerances must be maintained. The thread and the close-fitting cylindrical surface must be concentric.

We offer form tools for hire or sale.

Referring to the free-flow direction, nozzles and orifices must not be situated directly before the check valve (see Data Sheet 170-P-059000-E).

When fitting the valve, take particular care to ensure that:

- the valve is firmly seated on the bottom of the cavity, but that
- valve components are not deformed by the use of excessive force

Use the specified tightening torque when fitting the valve.

10 Application notes

The maximum operating pressure must not be exceeded and any pressure peaks must be taken into consideration.

The specified nominal flow rate must not be exceeded.

In applications such as accumulator circuits, where sudden pressure can be applied to the valve in the free-flow direction, ensure that the specified flow ratings are not exceeded.

Buyers bear the sole responsibility for ensuring that the selected products are suitable for their applications. Buyers normally establish this by undertaking qualification programs on test stands, or by evaluating the performance of prototype machines or systems.

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