

Restrictor check valves type BC

for screwing into threaded boreholes

Pressure $p_{\max} = 700$ bar

Flow $Q_{\max} = 60$ lpm

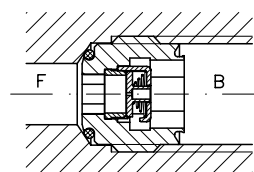
For check valve type RC without orifice, see D 6969 R

1. General information

These valves enable unrestricted flow in the direction $F \rightarrow B$ and throttle the flow in the opposite direction in the same way as a hole or slot diaphragm. The valve housings are designed in such a way that they can be screwed into standard threaded boreholes with offset tap drill holes, drilled with conventional 118° drill point angles, and in both directions of operation.

Some kind of throttle sections has to be provided, when these valves are used in consumer circuits where an accumulator effect together with rapidly switching directional valves are apparent, which would otherwise cause pressure flow surges (decompression) in direction $F \rightarrow B$. These throttle sections (e.g. small flow boreholes) are to be fitted and designed in such a way that, when the pressure drop occurs at the start of decompression, no flow rate takes place which is greater than permissible.

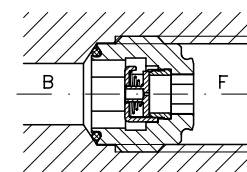
Valve throttles in screw-in direction



Unrestricted flow \rightarrow

Throttled flow \leftarrow

Valve throttles in counter-direct. to screw thread



Unrestricted flow \leftarrow

Throttled flow \rightarrow

2. Available versions, main data

Order **BC 2 - 0,8**

Cartridge

examples: **BC 1 - 0,6 G**

Housing design

Table 3: Design

Cartridge	Version with housing for pipe connection	
Without coding 	G	Pipe connection on both sides
	E	Coding E and F are only differing in the screw-in direction of the restrictor check valve.
	F	

Table 2: Throttles

Available for	Slot type orifice depths in 1/1000 (mm)					Hole orifice, hole diameter \varnothing (mm)											
	20	30	40	60	80	0,2	0,4	0,5	0,6	0,8	1,0	1,2	1,5	1,8	2,0		
BC 1... 1)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
BC 2...							•		•	•	•	•	•	•	•		
BC 3...							•		•	•	•	•	•	•	•		

Table 1: Basic type, size

	Standard, with thread DIN ISO 228/1 (BSPP)		with metric fine thread DIN 13 T6		Pressure p_{\max} (bar)	Flow Q_{\max} (lpm)
BC 1	G 1/4 A	BC 14	M 14x1.5		700	20
BC 2	G 3/8 A	BC 26 BC 28	M 16x1.5 M 18x1.5		700	35
BC 3	G 1/2 A	BC 30 BC 32	M 20x1.5 M 22x1.5		500	60

1) Version with increased opening pressure, see also sect. 3 "Opening pressure"

3. Further data

Nomination	Restrictor check valve with spring-loaded valve plate designed as hole or slot diaphragm
Installation position	Any
Opening pressure $F \rightarrow B$	Serie = 0.05 ... 0.07 bar Size 1 also available with opening pressure approx. 1.5 bar; Order coding: BC 1 - 60/1
Flow direction	$F \rightarrow B$ Unrestricted flow $B \rightarrow F$ Throttled flow
Surface	All versions with housing (G, E, and F) are zinc galvanized
Flow	20 ... 60 lpm, see table 1

Mass (weight) approx. g

		BC 1 (14)-...	BC 2 (26, 28)-..	BC 3 (30, 32)-...
Cartridge	6	15	25	
Housing design	G	75	105	170
	E and F	60	85	145

Pressure fluid

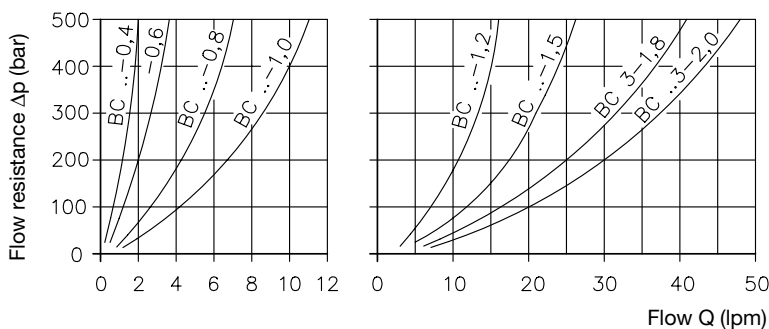
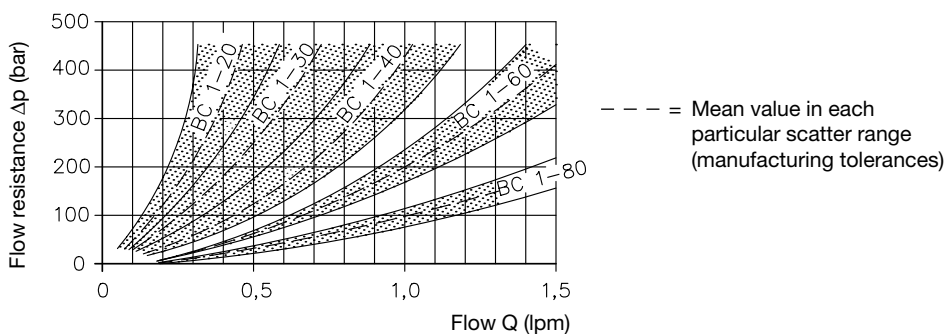
Hydraulic oil conforming DIN 51524 part 1 to 3: ISO VG 10 to 68 conforming DIN 51519.
Viscosity limits: min. approx. 4, max. approx. 1500 mm²/s;
opt. operation approx. 10... 500 mm²/s.
Also suitable are biologically degradable pressure fluids types HEPG (Polyalkylenglycol) and HEES (Synth. Ester) at service temperatures up to approx. +70°C.

Temperature

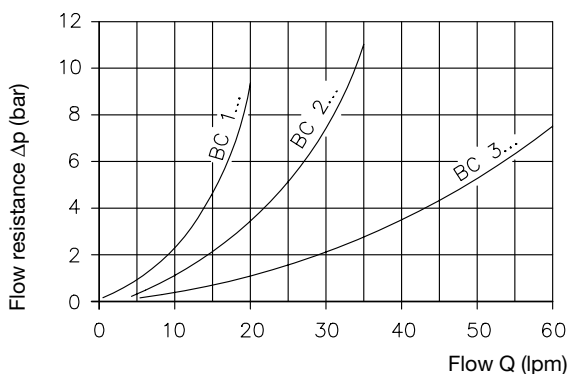
Ambient: approx. -40 ... +80°C
Fluid: -25 ... +80°C, Note the viscosity range !
Permissible temperature during start: -40°C (observe start-viscosity!), as long as the service temperature is at least 20K higher for the following operation.
Biologically degradable pressure fluids: Observe manufacturer's specifications. By consideration of the compatibility with seal material not over +70°C.

Δp -Q-curves

Throttled flow $B \rightarrow F$



Unrestricted flow $F \rightarrow B$

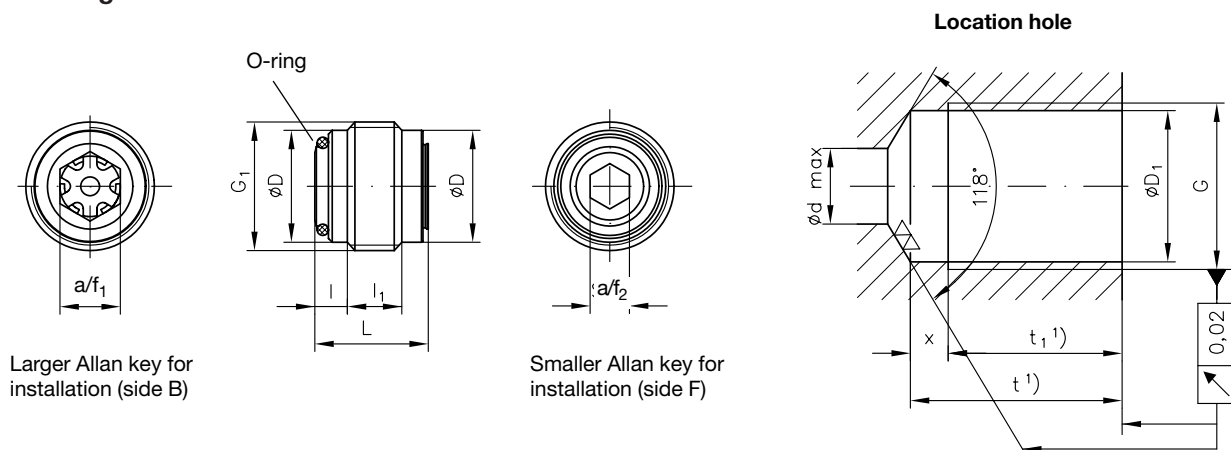


Viscosity during measurements approx. 60 mm²/s

At viscosity above appr. 500 mm²/s, the Δp values deviate more and more as they increase.

4. Unit dimensions

Cartridge



Caution: Do not apply box spanner with force, as this may cause damage to the internal valve components (BSPP)

Type	G	G ₁	L	l	l ₁	D	D ₁	d	t	t ₁	x	a/f ₁	a/f ₂	O-ring NBR 90 Sh	max. starting torque M _A (Nm)			
BC 1	*G 1/4	*G 1/4 A	13	3.5	6	11.6	11.8	8	25.5	22.5	3	8	4	9x1	9			
BC 14	M 14x1.5					12.2	12.5											
BC 2	*G 3/8	*G 3/8 A	15	4.3	7.2	14.8	15.25	9	27	24	3	9	5	10x1.5	15			
BC 26	M 16x1.5					14.2	14.5											
BC 28	M 18x1.5					16	16.5											
BC 3	*G 1/2	*G 1/2 A				18.5	19											
BC 30	M 20x1.5		18	5.5	7	18.2	18.5	12	32.5	28.5	3.5	12	8	14x1.5	40			
BC 32	M 22x1.5			5	8	20	20.5											

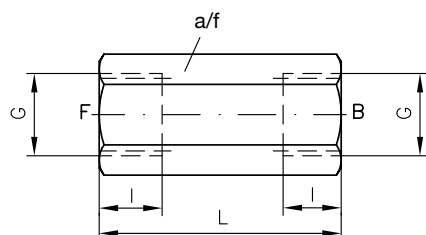
1) Dimensions t and t₁ are minimum values.

The screw thread runout x may be smaller but cannot be larger than the value given in the table (fitting requirement)!

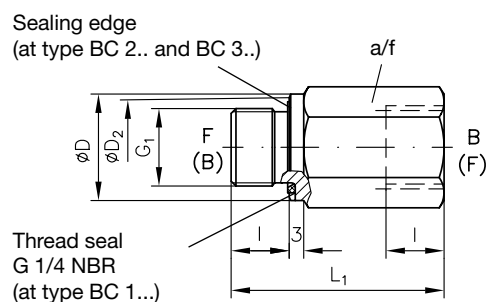
*G.. = (BSPP)

Housing design

Type BC ... G



Type BC ... E and F



Type	G	G ₁	ØD	D ₂	L	L ₁	l	a/f	max. torque (Nm)
BC 1	*G 1/4	*G 1/4 A	19	---	46	43	12	19	40
BC 14	M 14x1.5			16		42			
BC 2	*G 3/8	*G 3/8 A	22	20.5	50	44	12	22	80
BC 26	M 16x1.5		22	20				22	
BC 28	M 18x1.5		24	22				24	
BC 3	*G 1/2	*G 1/2 A	26	24	56	52	14	27	150
BC 30	M 20x1.5		25	24				27	
BC 32	M 22x1.5		27	26				30	

All dimension in mm and subject to change without notice!