

Restrictor check valves type BE

for screw in into simple tapped holes

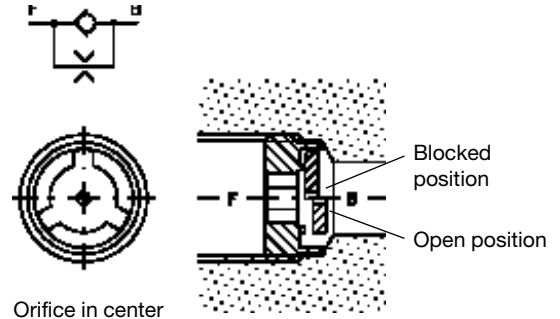
Operating pressure $p_{max} = 500$ bar
Flow $Q_{max} = 120$ lpm

For check valves type RE without orifice, see D 7555 R

1. General information

Restrictor check valves type BE stand out due to their very simple and space-saving design. They consist only of the valve seat and a small disc (no spring, i. e. there is no trouble caused by cracked of springs). The small disc and valve seat are hardened and ground. These valves are to be screwed into simply shaped, tapped holes. The sealing of the inlet to outlet is of metallic type and takes place at the contact area between the facial cutting edge and the stepped shoulder of the core diameter at the location thread. Any standard steel drill (point angle 118°) automatically forms this stepped shoulder when the core diameter is drilled.

Restrictor check valves type BE enable a free flow in direction F→B and restrict the flow in opposite direction B→F similar to the basics of a orifice.



2. Available versions, main data

Order example:

BE 2 - 0,8

	Basic type and design							Orifice Ø (mm)	
	BE 0	BE 1	BE 2	BE 3	BE 30	BE 32	BE 4		
Coding, available combination	•							- 20 ¹⁾ - 40 ¹⁾	
	•	•	•	•	•	•	•	- 0,4 - 0,6 - 0,8 - 1,0	
1) Slot type throttle depth in 1/1000 mm		•	•	•	•	•	•	- 1,2 - 1,5	
			•	•	•	•	•	- 1,8 - 2,0	
				•	•	•	•	- 2,5	
							•	- 3,0	
Perm. flow $Q_{F→B}$ approx. (lpm) (with $\Delta p \sim 7$ bar)	12	25	40	70	60	80	120	X	
Permissible pressure p_{max} (bar)	500			450			400		
Mounting thread	DIN ISO 228/1 (BSPP)	G 1/8A	G 1/4A	G 3/8A	G 1/2A	---	---		G 3/4A
	with metric fine thread DIN 13 T6	---	---	---	---	M 20x1.5	M 22x1.5		---
Mass (weight) approx. (g)	2	4	6	10	10	10	18		

Installation position

Any

A small pressure surge is required to ensure closing of the valve, if the valve is mounted in a position, where the disc doesn't automatically lie on the seat, due to its weight.

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 type HEPG (Polyalkylenglykol) and HEES (synth. Ester) at operation temperatures up to approx. +70°C. Non flammable fluids type HFC and HFD are suited as well.

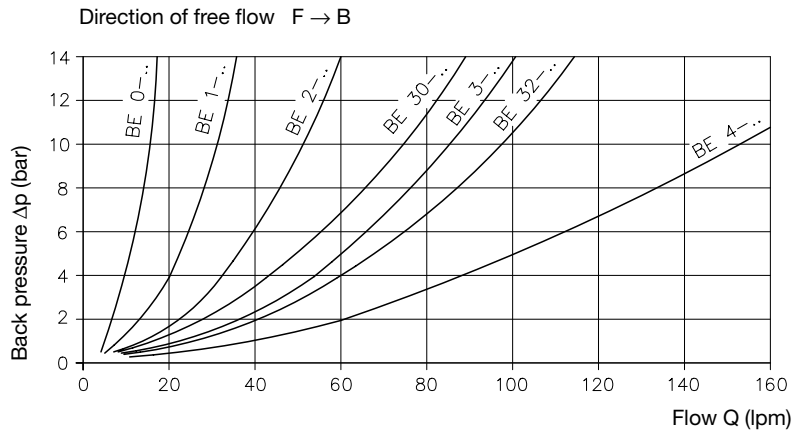
Temperature

Ambient: approx. -40 ... +80 °C

Fluid: -25 ... +80 °C Permissible temperature during start: -40°C (observe start-viscosity!), as long as the service temperature is at least 20 K higher for the following operation. Biological degradable pressure fluids: Observe manufacturer's specifications.

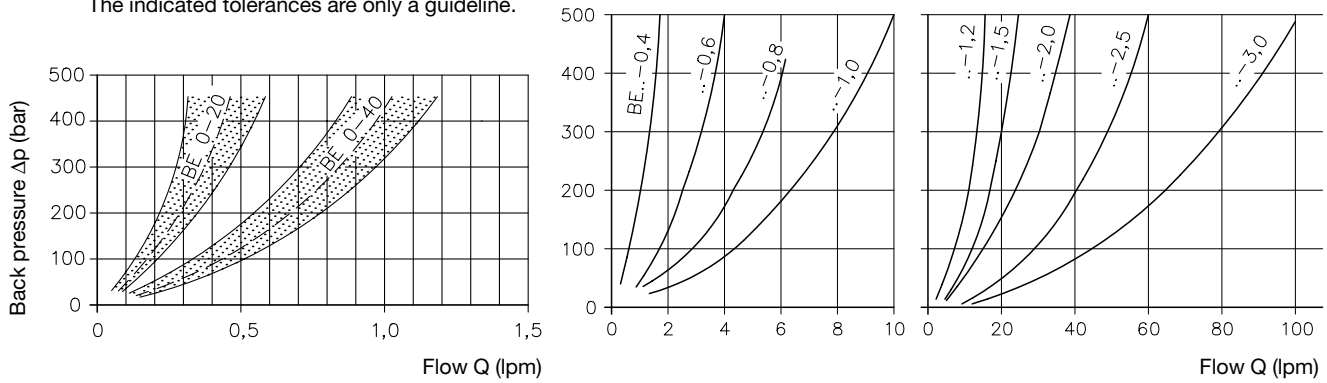
Δp -Q-curves

Oil viscosity during tests
approx. 50 mm²/s



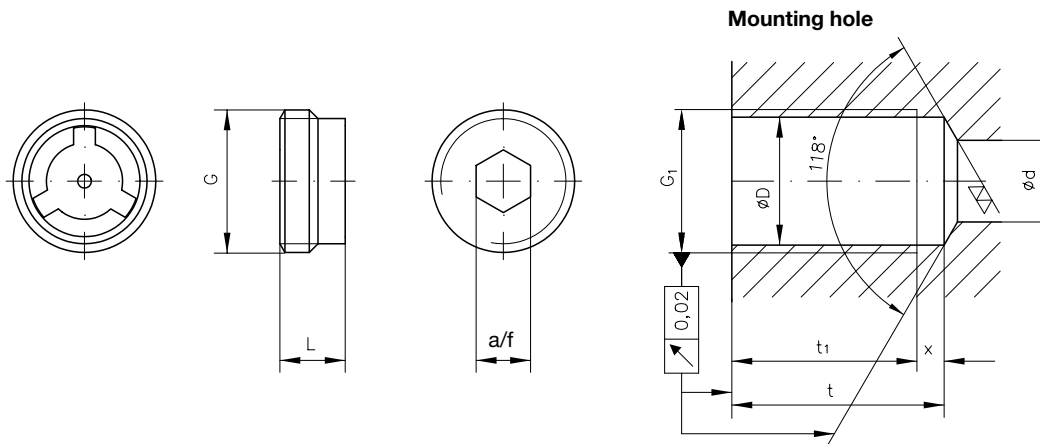
Direction of restricted flow B → F

The indicated tolerances are only a guideline.



3. Unit dimensions

All dimensions in mm and subject to change without notice!



Type	Ports conforming		L	t	t ₁ ¹⁾	x ²⁾	D	d	a/f	Torque ± 20% (Nm)
	G ³⁾	G ₁ ³⁾								
BE 0	G 1/8 A	G 1/8	5	15	13	2	8.7	5.5	4	10
BE 1	G 1/4 A	G 1/4	6	19.5	17	2.5	11.8	7.5	5	15
BE 2	G 3/8 A	G 3/8	7	21	18	3	15.3	11	8	20
BE 3	G 1/2 A	G 1/2	7.5	23	20	3	19	14	10	35
BE 30	M 20x1.5	M 20x1.5	7.5	23	20	3	18.5	14	10	35
BE 32	M 22x1.5	M 22x1.5	7.5	23	20	3	20.5	15	10	35
BE 4	G 3/4 A	G 3/4	9	26.5	23	3.5	24.5	18	12	40

1) thread completely cut

2) The figures for thread run out x have to be observed accurately. It may be shorter but it mustn't be more, because this is fundamental for proper function and tightness of the sealing edge.

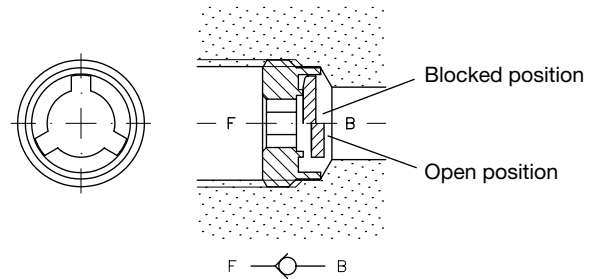
3) G = BSPP

Check valves type RE

for screw in into simple tapped holes

For restrictor check valves type BE see pamphlet D 7555 B

Pressure $p_{max} = 500$ bar
Flow $Q_{max} = 120$ lpm



1. General information

Check valves type RE stand out due to their very simple and space-saving design. They consist only of the valve seat and a small disc (no spring, i. e. there is no trouble caused by rupture of the spring). The small disc and valve seat are hardened and ground. These valves are to be screwed into shaped tapped holes. The sealing of the inlet to outlet is of metallic type and takes place at the contact area between the facial cutting edge and the stepped shoulder of the core diameter at the location thread. Any standard steel drill (point angle 118°) automatically forms this stepped shoulder when the core diameter is drilled. Check valves type RE enable a free flow in direction $F \rightarrow B$ and block the flow in opposite direction $B \rightarrow F$.

2. Available versions, main data

Coding		RE 0	RE 1	RE 2	RE 3	RE 30	RE 32	RE 4
Flow $Q_{F \rightarrow B}$ approx. (lpm) (at $\Delta p \sim 7$ bar)		12	25	40	70	60	80	120
		For higher flow see Δp -Q-curves						
Permissible pressure p_{max} (bar)		500			450			400
Mounting thread	DIN ISO 228/1 (BSPP)	G 1/8 A	G 1/4 A	G 3/8 A	G 1/2 A	---	---	G 3/4 A
	with metric fine thread DIN 13 T6	---	---	---	---	M 20x1.5	M 22x1.5	---
Mass (weight) approx. (g)		2	4	6	10	10	10	18

Mounting position

Any

A small pressure surge is required to ensure closing of the valve, if the valve is mounted in a position where the disc doesn't automatically lie on the seat, due to its weight.

Pressure fluid

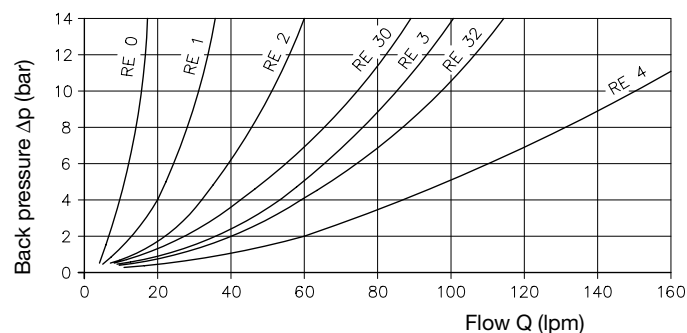
Hydraulic oil conforming DIN 51524 part 1 to 3: ISO VG 10 to 68 conforming DIN 51519.
Viscosity limits: min. approx. 4, max. approx. 1500 mm²/s;
opt. operation approx. 10... 500 mm²/s.
Also suitable are biologically degradable pressure fluids types HEPG (Polyalkylenglycol) and HEES (Synth. Ester) at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

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.

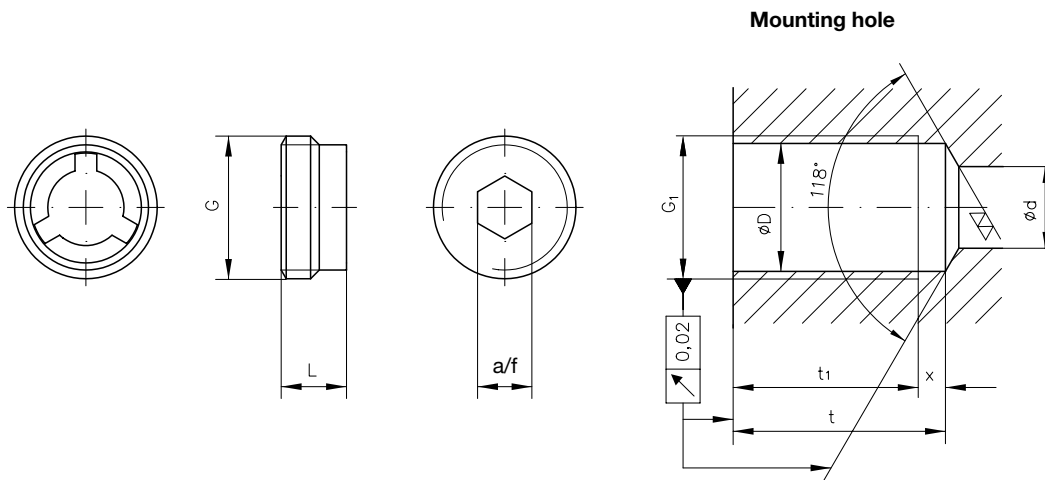
Δp -Q-curves

Direction of free flow $F \rightarrow B$



Viscosity during measurements approx. 50 mm²/s

3. Unit dimensions



Type	Ports conforming		L	t	t ₁ ¹⁾	x ²⁾	D	d	a/f	Torque ± 20% (Nm)
	G ³⁾	G ₁ ³⁾								
RE 0	G 1/8 A	G 1/8	5	15	13	2	8.7	5.5	4	10
RE 1	G 1/4 A	G 1/4	6	19.5	17	2.5	11.8	7.5	5	15
RE 2	G 3/8 A	G 3/8	7	21	18	3	15.3	11	8	20
RE 3	G 1/2 A	G 1/2	7.5	23	20	3	19	14	10	35
RE 30	M 20x1.5	M 20x1.5	7.5	23	20	3	18.5	14	10	35
RE 32	M 22x1.5	M 22x1.5	7.5	23	20	3	20.5	15	10	35
RE 4	G 3/4 A	G 3/4	9	26.5	23	3.5	24.5	18	12	40

1) thread completely cut

2) The figures for thread run out x have to be observed accurately. It may be shorter but it mustn't be more, because this is fundamental for proper function and tightness of the sealing edge.

3) G = BSPP

All dimensions in mm and subject to change without notice!