

Orifice type EB

Product documentation



Operating pressure p_{\max} :

700 bar

Flow rate Q_{\max} :

120 lpm



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Contents

1	Overview Orifice type EB.....	4
2	Available versions, main data.....	5
3	Parameters.....	6
4	Dimensions.....	8
5	Assembly, operation and maintenance recommendations.....	10
5.1	Intended use.....	10
5.2	Assembly information.....	10
5.2.1	Installation information.....	10
5.2.2	Creating the mounting hole.....	10
5.3	Operating instructions.....	11

1**Overview Orifice type EB**

Restrictors are a type of flow valve. They are used as a local flow resistance that suddenly reduces the line cross-section. The reduction in the cross-section is very short. As a result, the flow rate is only dependent on the pressure difference and not on the viscosity.

The orifice insert type EB is primarily used in valves for manifold mounting. As such an additional intermediate plate is not necessary.

The orifice insert is available in 5 sizes and with various hole diameters.

Features and benefits:

- Max. 700 bar
- Simple design and installation

Intended applications:

- General hydraulics
- Winch controls
- Hydraulic pilot systems



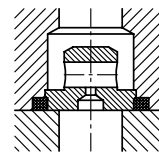
Orifice type EB

2 Available versions, main data

Circuit symbol:



Section view:



Order coding example:

EB 2 - 1.7

Restrictors Table 2 Orifices

Basic type and size Table 1 Basic type and size

Table 1 Basic type and size

Type	Flow rate Q_p (lpm)	Pressure p_{max} (bar)
EB 0	6	500
EB 1	10	700
EB 2	40	700
EB 3	100	500
EB 4	120	500

Table 2 Orifices

Type	Perforated restrictor \varnothing (mm)											
	0.4	0.6	0.8	1.0	1.2	1.7	2.1	2.5	3.0	3.5	4.0	4.2
EB 0...		●	●	●	●							
EB 1...	●	●	●	●								
EB 2...					●	●	●					
EB 3...								●		●		●
EB 4...									●		●	

3

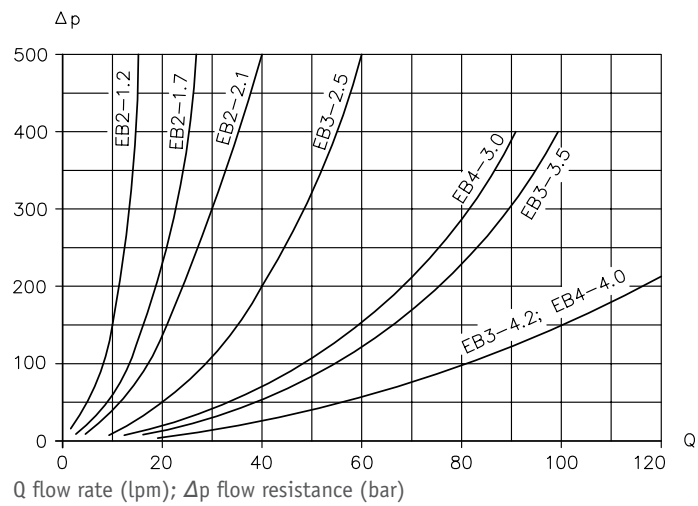
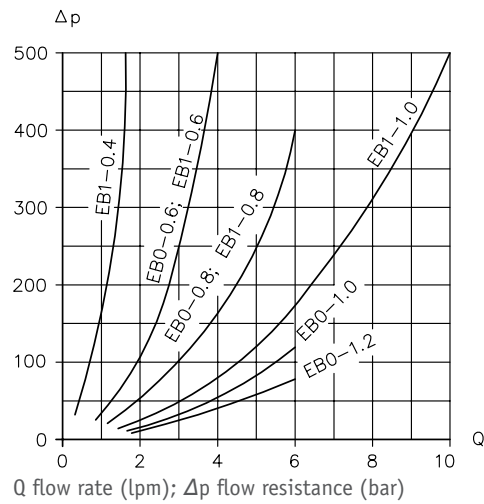
Parameters

General

Designation	Orifice
Design	Perforated restrictor
Model	Plug-in valve
Material	Steel
Installation position	As desired
Hydraulic fluid	Hydraulic oil: according to part 1 to 3; ISO VG 10 to 68 according to DIN ISO 3448 Viscosity limits: min. approx. 4, max. approx. 1500 mm ² /s opt. operation approx. 10... 500 mm ² /s. Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.
Cleanliness level	ISO 4406 <hr/> 21/18/15...19/17/13
Temperatures	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.

Characteristics

Oil viscosity approx. 60 mm²/s



Weight

Type

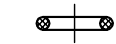
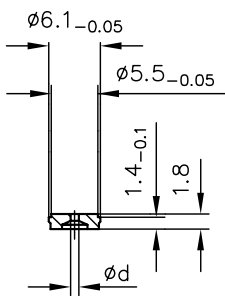
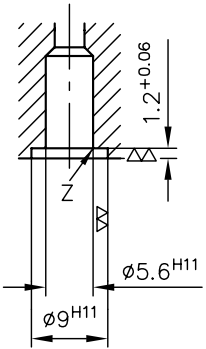
EB 0	= 2 g
EB 1	= 4 g
EB 2	= 6 g
EB 3	= 10 g
EB 4	= 18 g

4 Dimensions

All dimensions in mm, subject to change.

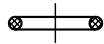
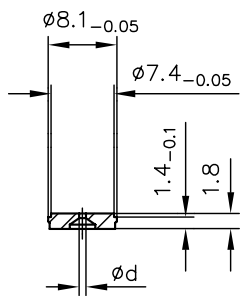
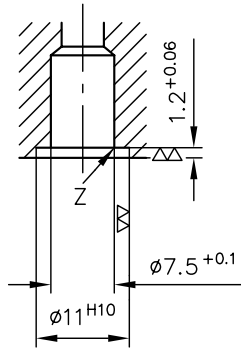
Unit dimensions, mounting holes

EB 0-...



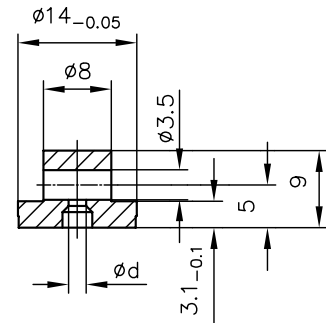
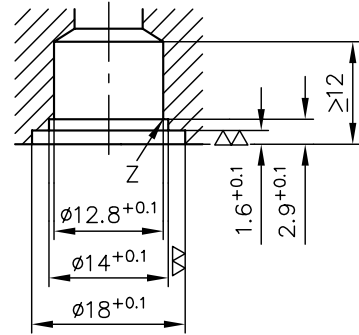
O-ring 6x1.5 NBR 90 Sh

EB 1-...



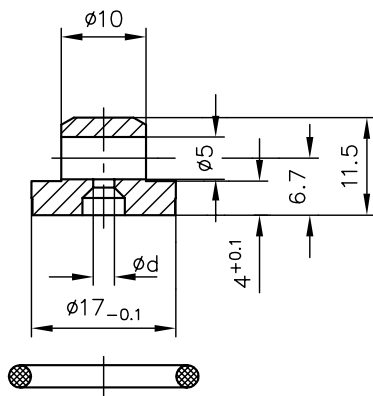
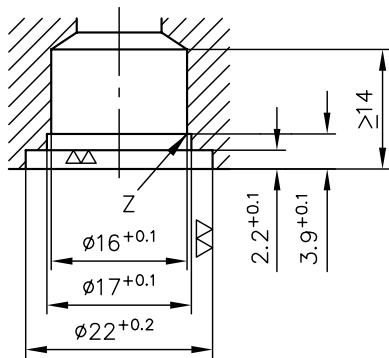
O-ring 8x1.5 NBR 90 Sh

EB 2-...



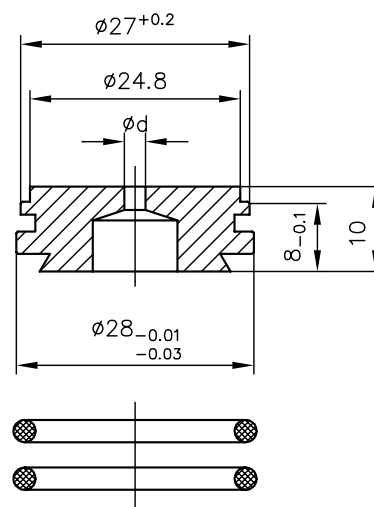
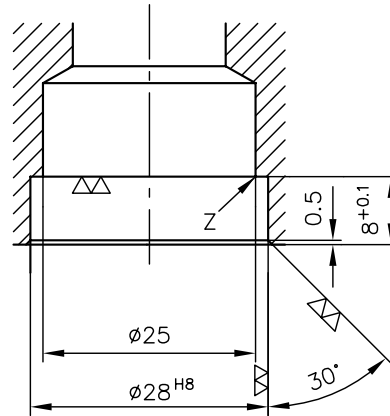
O-ring 14x2 NBR 90 Sh

EB 3-...



O-ring 17.12x2.62 NBR 90 Sh

EB 4-...



O-ring 23.47x2.62 NBR 90 Sh

i NOTE

O-rings must be ordered separately.

5 Assembly, operation and maintenance recommendations

5.1 Intended use

This valve is exclusively intended for hydraulic applications (fluid engineering).

The user must observe the safety measures and warnings in this documentation.

Essential requirements for the product to function correctly and safely:

- All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- The product must only be assembled and put into operation by qualified personnel.
- The product must only be operated within the specified technical parameters. The technical parameters are described in detail in this documentation.
- All components must be suitable for the operating conditions in the event of application in an assembly.
- The operating and maintenance manual of the components, assemblies and the specific complete system must also always be observed.

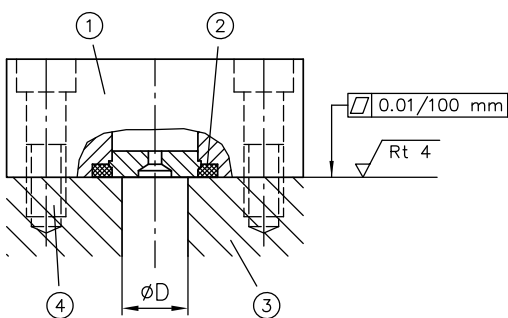
If the product can no longer be operated safely:

1. Remove the product from operation and mark it accordingly.
- ✓ It is then not permitted to continue using or operating the product.

5.2 Assembly information

5.2.1 Installation information

The orifice insert is precisely fixed in the holder by means of a deliberate slight plastic deformation on the marked contact edge when the fastening screws are tightened. This assembly requirement calls for the material of the holder to be fluid. All common hydraulic valve mounting materials may be used, with the exception of hardened or self-hardening materials.



- 1 Holder
- 2 Slight plastic deformation on the contact edge
- 3 Base plate
- 4 Tighten fastening screws equally until the joint between the holder and base plate is completely closed.

Type	Connection bore $\varnothing D$
EB 0	3.5
EB 1	4.5
EB 2	10
EB 3	14
EB 4	20

5.2.2 Creating the mounting hole

See description in [Chapter 4, "Dimensions"](#).

5.3 Operating instructions

Note product configuration and pressure / flow rate

The statements and technical parameters in this documentation must be strictly observed.
The instructions for the complete technical system must also always be followed.

i NOTE

- Read the documentation carefully before usage.
- The documentation must be accessible to the operating and maintenance staff at all times.
- Keep documentation up to date after every addition or update.

⚠ CAUTION

Risk of injury due to unexpected movement processes in the machine due to incorrect flow setting!

Risk of minor injury

- Be prepared for unexpected, fast movements. On changing the flow settings, consumers will move more slowly or more quickly.
- Always monitor the pressure gauge when setting or changing the flow.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the hydraulic component. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Metal chips
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

i NOTE

New hydraulic fluid from the manufacturer does not necessarily have the required level of purity.
The hydraulic fluid must be filtered during filling.

In order to maintain faultless operation, ensure that the cleanliness level of the hydraulic fluid is correct.
(See Cleanliness level in [Chapter 3, "Parameters"](#))

Additionally applicable document: [D 5488/1](#) Oil recommendations

Further information

Additional versions

- Check valve type ER and EK: D 7325
- Throttle valve and throttle check valve type Q, QR and QV: D 7730
- Throttle valve and throttle check valve type FG: D 7275
- Throttle valve and throttle check valve type ED, RD and RDF: D 7540
- Throttle valve and throttle check valve type CQ, CQR and CQV: D 7713
- Restrictor check valve type BC: D 6969 B
- Restrictor check valve type BE: D 7555 B
- Throttle valve and shut-off valve type AV: D 4583
- Shut-off valve type AVT and AVM: D 7690