

Insert check valves

Type ER and EK 01

Operating pressure p_{max} = 700 bar
 Flow Q_{max} = 120 lpm

1. General information

For installation in inlet bores of hydraulic valves or other bodies intended for manifold mounting. These ball seated valves feature hardened and ground seats and show zero leakage.

These valves are intended for all common control processes in hydraulic circuits with more or less regularly succeeding cycle steps of the individual directional control valves.

These check valves must not be used when permanently subsequent load alternations do occur.

2. Available versions, parameters

Schematic cross-sectional views, coding

	ER 01 ⁴⁾	ER 11 ^{1) 4)} ER 12 ²⁾ ER 13 ³⁾	ER 21 ⁴⁾	ER 31 ⁴⁾	ER 41	EK 01
Operating pressure p_{max} (bar)	700	700	700	500	400	500
Flow Q_{max} (lpm)	6	12	30	65	120	10
Open-up pressure (bar)			approx. 0.4 ... 0.5		approx. 0.6	
Mass (weight) approx. (g)	0.5	1	5	9	40	1
For use with valves e.g.	acc. to D 7300, type VB acc. to D 7302	See foot-note 1), 2), 3)		acc. to D 7300, type VB acc. to D 7302		type WN 1, WH 1 acc. to D 7470 A/1 type BWN 1, BW 1 acc. to D 7470 B/1

Installation position

Any

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

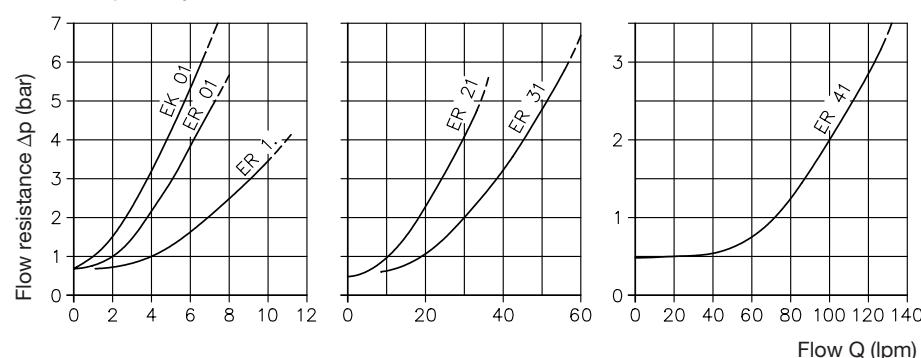
Ambient: approx. -40 ... +80°C

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



Viscosity during measurements approx. 50 mm²/s

1) acc. to D 7300, type VB acc. to D 7302

2) Type BVP 1 Z acc. to D 7765; type VZP acc. to D 7785 A; type BVZP acc. to D 7785 B

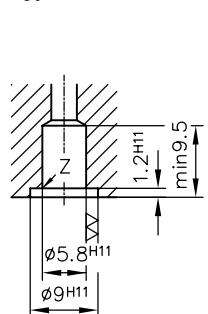
3) Type NSWP acc. to D 7451 N; type NBVP acc. to D 7765 N

4) These valves are also available in stainless. Order coding: e.g. ER 01N

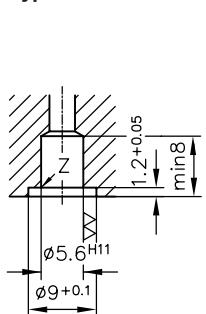
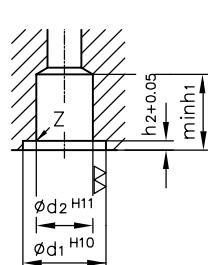
3. Unit dimensions, mounting holes

All dimensions are in mm, subject to change without notice !

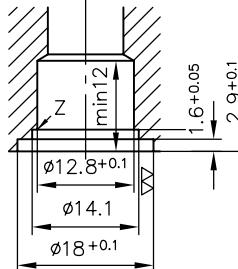
Type EK 01



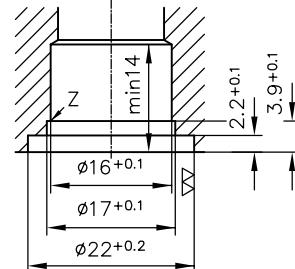
Type ER 01

Type ER 11
ER 12
ER 13

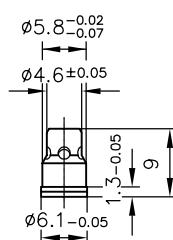
Type ER 21



Type ER 31

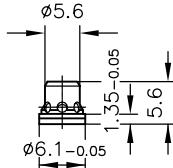


Connection hole Ø3.5

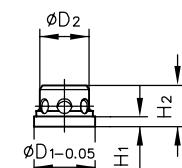


O-ring 6x1.5 NBR 90 Sh

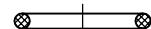
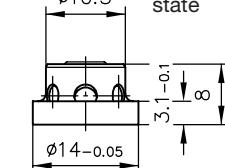
Connection hole Ø3.5



O-ring 6x1.5 NBR 90 Sh

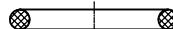
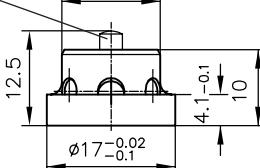
Connection hole Ø4.5 (ER 11)
Ø6 (ER 12)
Ø7 (ER 13)ER 11: O-ring 8x1.5
ER 12: O-ring 8.73x1.78
ER 13: O-ring 9.25x1.78
NBR 90 Sh

Connection hole Ø10



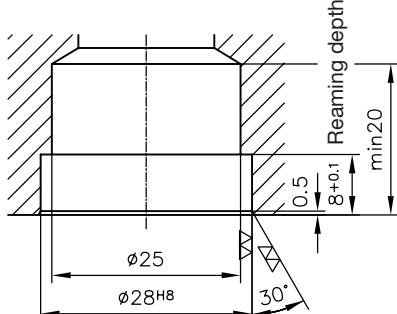
O-ring 14x2 NBR 90 Sh

Connection hole Ø14



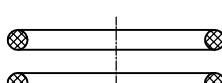
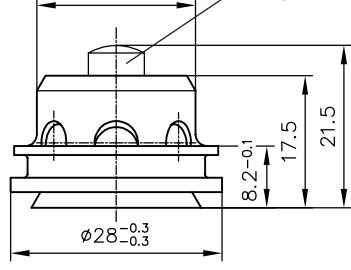
O-ring 17.12x2.62 NBR 90 Sh

Type ER 41



Connection hole Ø20

Valve guiding pin in fully opened state



O-ring 23.47x2.62 NBR 90 Sh

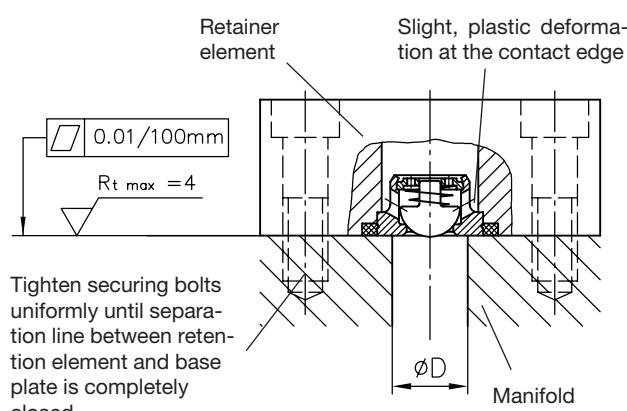
	D ₁	D ₂	H ₁	H ₂	d ₁	d ₂	h ₁	h ₂
ER 11	8.6	6.5	1.3-0.05	5.6	11	7.5	8	1.2
ER 12	8.5	6.5	1.5-0.05	5.6	12	8	6.5	1.4
ER 13	9.2	6.5	1.36±0.02	6.0	12.5	7.8	6.5	1.3

Z = Sharp-edged but de-burred, all other holes chamfered 0.2 mm

Attention: O-rings must be ordered separately!

Installation notes for type EK 01, ER 01 to ER 31:

The exact fixation of the check valve insert in the mounting body takes place while tightening the screws, which leads to a slight, plastic deformation at the highlighted contact edge. This assembly procedure requires manifold material that can flow, a capability of most common material (not hardened, not naturally hard) used in hydraulics.



Type	EK 01	ER 01	ER 11	ER 12	ER 13	ER 21	ER 31	ER 41
Connection hole ØD	3.5	3.5	4.5	6	7	10	14	20