Check valve type RC

Product documentation

Screw-in valve

Operating pressure p_{max}:	700 bar
Flow rate Q_{max}:	60 lpm

D 6969 R
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HAWE HYDRAULIK

Contents

1 Overview of check valves type RC

Check valves are a type of non-return valve. They block the oil flow in one direction and open in the opposite direction. In the closed state they have zero leakage.
The check valve type RC can be screwed in. The spring-loaded plate valve type RC can be screwed-in in any direction and is particularly suitable for fast switching sequences.

Figure 1: Screw-in cartridge

Features and benefits:

- Operating pressures up to 700 bar
- Easily machined mounting holes
- Sturdy

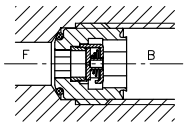
Intended applications:

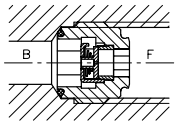
- General hydraulic systems
- Hydraulic pre-loading

2 Available versions, main data

Circuit symbol:

Section view:





Order coding example:

RC 1 **RC 2**	**-E**

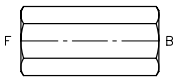
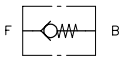
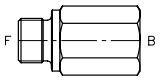
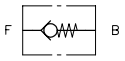
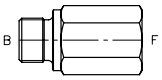
Version Table 2 Version

Basic type and size Table 1 Basic type and size

Table 1 Basic type and size

Basic type and size	Volumetric flow Q_P (lpm)	Pressure p_{max} (bar)	Thread	Opening pressure (bar)
RC 1 **RC 1/1**	20	700	G 1/4 (A) (BSPP) G 1/4 (A) (BSPP)	0.05 ... 0.07 1.5
RC 2 **RC 2/1**	35	700	G 3/8 (A) (BSPP) G 3/8 (A) (BSPP)	0.05 ... 0.07 1.5
RC 3	60	500	G 1/2 (A) (BSPP)	0.05 ... 0.07
RC 14	20	700	M 14x1.5	0.05 ... 0.07
RC 26	35	700	M 16x1.5	0.05 ... 0.07
RC 28	35	700	M 18x1.5	0.05 ... 0.07
RC 30	60	500	M 20x1.5	0.05 ... 0.07
RC 32	60	500	M 22x1.5	0.05 ... 0.07

Table 2 Versions

Model	Description	View	Circuit symbol
No designation	Screw-in cartridge		
G	Pipe connection on both sides		
E	Tapped journal on one side		
F			

Note
Thread in accordance with ISO 228/1 (-UNF) or JIS B 2351(0).

3 Parameters

3.1 General

Designation	Check valves
Design	Shim check valve
Model	Screw-in valve, housing version
Material	Steel; hardened, ground functional inner parts
Installation position	As desired; for housing version type RC .. G(E, F) specified
Flow direction	F → B free flow B → F locked
Hydraulic fluid	Hydraulic oil conforming DIN 51 524 part 1 to 3; ISO VG 10 to 68 conforming DIN 51 519 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 (Poly-alkylenglycol) and HEES (Synth. Ester) at service temperatures up to approx. +70°C.
cleanliness level	**ISO 4406** 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.

Characteristic curves

Viscosity during measurements approx. 62 mm²/s

Note
At viscosities above approx. 500 mm²/s the Δp values deviate increasingly upwards.

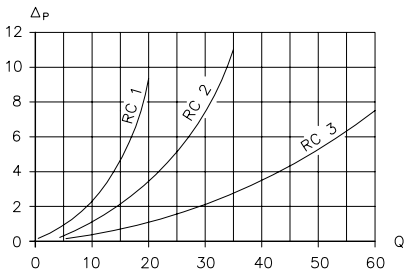


Figure 2: Q volumetric flow (lpm); Δp flow resistance (bar)

Weight

Screw-in cartridge	
Type RC 1, RC 1/1, RC 14	= approx. 6 g
Type RC 2, RC 2/1, RC 26, RC 28	= approx. 15 g
Type RC 3, RC 30, RC 32	= approx. 25 g
Housing version	
Type RC 1 .. - G	= approx. 75 g
Type RC 2 .. - G	= approx. 105 g
Type RC 3 .. - G	= approx. 170 g
Type RC 1 .. - E, RC 1 .. - F	= approx. 60 g
Type RC 2 .. - E, RC 2 .. - F	= approx. 85 g
Type RC 3 .. - E, RC 3 .. - F	= approx. 145 g

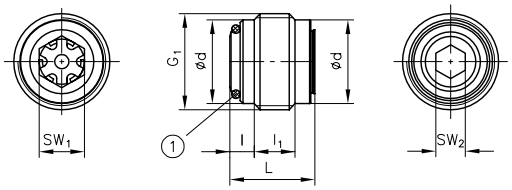
4 Dimensions

All dimensions in mm, subject to change.

Screw-in cartridge

Large width across flats for assembly (connection B)

Small width across flats for assembly (connection F)



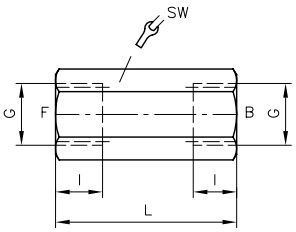
1 sealing ring

Note
Do not insert key with force during assembly to ensure the inner parts of the valve are not damaged.

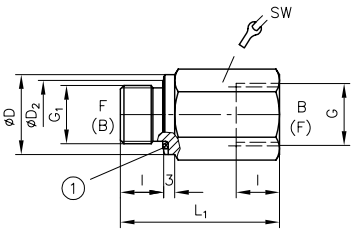
Type	G_1	L	l	l_1	∅d	SW_1	SW_2	Sealing ring NBR 90 Sh	Max. tightening torque M_A (Nm)
RC 1, RC 1/1	G 1/4 A (BSPP)	13	3.5	6	11.6	8	4	9x1	9
RC 14	M 14x1.5	13	3.5	6	12.2	8	4	9x1	9
RC 2, RC 2/1	G 3/8 A (BSPP)	15	4.3	7.2	14.8	9	5	10x1.5	15
RC 26	M 16x1.5	15	4.3	7.2	14.2	9	5	10x1.5	15
RC 28	M 18x1.5	15	4.3	7.2	16	9	5	10x1.5	15
RC 3	G 1/2 A (BSPP)	18	5	8	18.5	12	8	14x1.5	40
RC 30	M 20x1.5	18	5.5	7	18.2	12	8	14x1.5	40
RC 32	M 22x1.5	18	5	8	20	12	8	14x1.5	40

Housing version

Type RC ... G



Type RC ... E and F

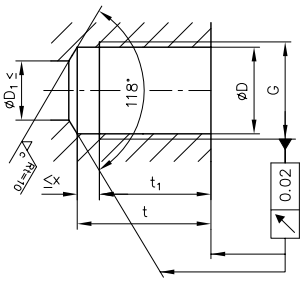


1 Thread seal

For RC 1... with fitting seal G 1/4 (BSPP) NBR, all others with cutting edge.

Type	G	G_1	∅D	∅D_2	L	L_1	l	SW	Tightening torque (Nm)
RC 1, RC 1/1	G 1/4 (BSPP)	G 1/4 A (BSPP)	19	--	46	43	12	19	40
RC 14	M 14x1.5	M 14x1.5	19	16	46	42	12	19	40
RC 2, RC 2/1	G 3/8 (BSPP)	G 3/8 A (BSPP)	22	20.5	50	44	12	22	80
RC 26	M 16x1.5	M 16x1.5	22	20	50	44	12	22	80
RC 28	M 18x1.5	M 18x1.5	24	22	50	44	12	24	80
RC 3	G 1/2 (BSPP)	G 1/2 A (BSPP)	26	24	56	52	14	27	150
RC 30	M 20x1.5	M 20x1.5	25	24	56	52	14	27	150
RC 32	M 22x1.5	M 22x1.5	27	26	56	52	14	30	150

4.1 Creating the mounting hole



Type	G	∅D	∅D_1	t	t_1	x
RC 1, RC 1/1	G 1/4 (BSPP)	11.8	8	25.5	22.5	3
RC 14	M 14x1.5	12.5	8	25.5	22.5	3
RC 2, RC 2/1	G 3/8 (BSPP)	15.25	9	27	24	3
RC 26	M 16x1.5	14.5	9	27	24	3
RC 28	M 18x1.5	16.5	9	27	24	3
RC 3	G 1/2 (BSPP)	19	12	32.5	28.5	3.5
RC 30	M 20x1.5	18.5	12	32.5	28.5	3.5
RC 32	M 22x1.5	20.5	12	32.5	28.5	3.5

5 Installation, operation and maintenance information

5.1 Designated use

This fluid-power product has been designed, manufactured and tested acc. to standards and regulations generally applicable in the European Union and left the plant in a safe and fault-free condition.

To maintain this condition and ensure safe operation, operators must observe the information and warnings in this documentation.

This fluid-power product must be installed and integrated in a hydraulic system by a qualified staff who is familiar with and observes the general engineering principles and relevant applicable regulations and standards.

In addition, application-specific features of the system or installation location must be taken into account if relevant.

This product may only be used within oil-hydraulic systems.

The product must be operated within the specified data. This documentation contains the technical parameters for various product versions.

Note
Non-compliance will void any warranty claims made against HAWE Hydraulik SE.

5.2 Assembly information

The hydraulic accumulator must be integrated in the system via state of the art connection components (screw fittings, hoses, pipes, etc.). The hydraulic system must be shut down as a precautionary measure prior to dismounting; this applies in particular to systems with hydraulic accumulators.

5.2.1 Creating the mounting hole

See description in Chapter 4, "Dimensions".

5.3 Operating instructions

Product, pressure and/or flow settings

All statements in this documentation must be observed for all product, pressure and/or flow settings on or in the hydraulic system.

Filtering and purity of the hydraulic fluid

Soiling in the fine range, e.g. abraded material and dust, or in the macro range, e.g. chips, rubber particles from hoses and seals, can cause significant malfunctions in a hydraulic system. It is also to be noted that new hydraulic fluid “from the drum” does not necessarily meet the highest purity requirements.

Pay attention to the purity of the hydraulic fluid in order to maintain faultless operation (also see cleanliness level in Chapter 3, "Parameters").

5.4 Maintenance information

This product is largely maintenance-free.

Conduct a visual inspection to check the hydraulic connections for damage at regular intervals, but at least once per year. If external leaks are found, shut down and remedy.

Check the device surfaces for dust deposits at regular intervals (but at least annually) and clean the device if required.

6 Other information

6.1 Planning information

If using with classes of consumers in which pressure and oil flow surges (decompression) may occur in direction F → B due to the storage effect combined with fast-switching directional valves, throttling points (e.g. in line with small inflow bores) must be implemented and designed in such a way that a volumetric flow no greater than that permitted is reached during the pressure difference at the start of decompression.

Further information

Additional versions

- Restrictor check valve type BC - Screw-in valve: D 6969 B
- Check valve type RK and RB: D 7445
- Check valve type RE: D 7555 R
- Check valve type CRK, CRB and CRH: D 7712

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