



OPERATING INSTRUCTIONS FOR CHECK VALVES

RV (983, 984)

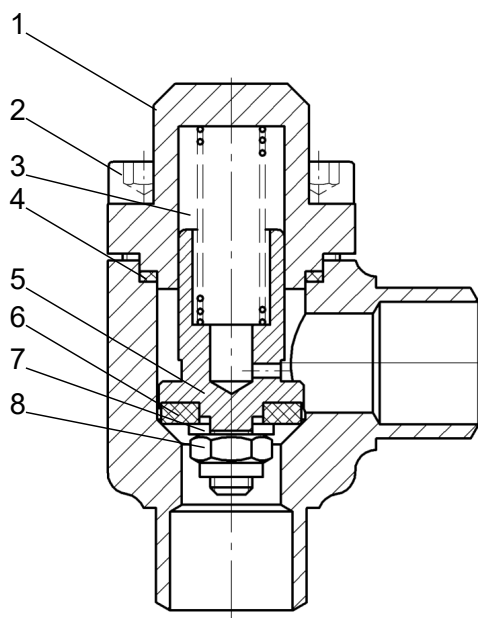
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1 Overview of types

983	Straight-way check valve
984	Angle check valve

DN 6 - DN 20



1 Bonnet	2 Bonnet screws
3 Compression spring	4 Bonnet gasket (flat gasket K)
5 Valve disc	6 Seat seal (flat gasket S)
7 Washer	8 Valve disc nut

2 Technical characteristics

Body material	(Selection acc. to DIN EN12284, AD-2000 Series W)
Steel	P235GH, S355J2
Low-temperature steel	P355NL1
Stainless steel	X5CrNi18-10 or equivalent

2.1 Pressure/temperature operating limits

When using screws of property class 8.8, the following values apply:

PN	TS (MWT) [°C]	-60 ²⁾	-40 ²⁾	-25 ²⁾	-10	+50	+150
25	PS (MWP) [bar]	6.25	12.5	18.7	25	25	25
40		10	20	30	40	40	40
63		15.75	31.5	47.2	63	63	63

When using screws of property class A2-70, the following values apply:

PN	TS (MWT) [°C]	-60 ²⁾	-60 ¹⁾	-10	+50	+150
25	PS (MWP) [bar]	18.7	25	25	25	25

PN	TS (MWT) [°C]	-60 ²⁾	-60 ¹⁾	-10	+50	+150
40		30	40	40	40	40
63		47.2	63	63	63	63

1) Load case I (low-temperature steel, stainless steel)

2) Load case II (acc. to AD2000-W10) (Steel)

Permissible ambient temperature range: -50 to +50 °C

2.2 Operating Mediums

Suitable for operation with refrigerants acc. to EN 378 Part 1, e.g. NH₃, R22, R134a or mixtures with refrigeration oil, as well as for neutral gaseous and liquid media and glycol-based cooling brine.

2.3 Flow coefficient

K_v-value of the valve at rated stroke (100% opening) in m³/h

Type	DN 6	DN 8	DN 10	DN 15	DN 20
983	2.47	2.47	2.47	5.64	8.53
984	2.41	2.41	2.41	5.75	9.22

Installation position: any. The direction of flow (see arrow on nameplate) must be observed.

External leakage and on the seat <5g refrigerant per year at Δ p=10 bar above valve disc

3 Safety instructions

NOTICE

Danger due to improper handling!

Property damage is possible.

- ▶ Do not install valves that have been damaged during transport or storage.
- ▶ Valves must be free from axial forces, bending moments, and torsional moments, and must not be used as fixed points in piping systems.
- ▶ When performing oxy-fuel welding or brazing, the flame must not come into contact with the valve.
- ▶ Keep contaminants away from the interior of the valves.
- ▶ Only remove valves when the piping is depressurized, drained, and adequately ventilated.

4 Application

AWP check valves are suitable for use in refrigerant circuits of industrial refrigeration systems. They are used on both the discharge and suction sides of the compressor or in pipework where only one flow direction is permitted. They are intended for installation between two flanges connected directly to the valve body. Available with or without integrated damping and linear ball bearing.

5 Functional description

AWP check valves open automatically via the pressure of the medium on the valve disc. They begin to open at a differential pressure of 0.01 to 0.05 bar and are fully open between 0.1 and 0.2 bar. As soon as the medium flow is interrupted or the flow direction is reversed, the valve closes automatically.

Due to the presence of a damping device, this type is particularly suitable for fluctuating capacity requirements. To ensure perfect functional behaviour, ensure that the actual minimum flow rate (e.g. at partial load) is never less than 20% of the maximum nominal valve capacity based on a pressure loss of 0.1 bar. The tightness of the seal depends decisively on the differential pressure across the valve disc.

6 Installation

1. Clean pipework and system components before installation.

NOTICE! The deviation from parallelism or perpendicularity of the welding ends or flange facings must not exceed 1°. Connecting flanges must be axially aligned. Components with transport or storage damage must not be installed. After removing the pipe plugs, the component can be welded in or installed. Observe the direction of flow (see arrow on the nameplate).

2. Before welding, use the handwheel to move the spindle to the center position (valve half-open). **NOTICE! When using modern welding methods (e.g., TIG, CO₂ arc welding), do not remove valves intended for welding.**

XXX

To remove the valve insert, ensure there is sufficient space on the side where the valve cover is located—see the table below.

Nominal size	DN 6-15	DN 20
Distance [mm]	25	30

7 Maintenance

AWP check valves operate maintenance-free. If any malfunctions occur, repair is possible. During the warranty period, repairs may only be carried out by the manufacturer (AWP) or, with their consent, by trained maintenance personnel employed by the system operator.

7.1 Replacing the seat seal/valve insert

1. Open the valve up to the stop and loosen the bonnet bolts. **NOTICE! Watch out for any residual refrigerant escaping! Leave the bonnet bolts loose in the bonnet until pressure is completely equalised. Only unscrew it after this.**
2. To unscrew, use a wrench or screwdriver with the sizes specified in the following table:

Nominal size	DN 6-15	DN 20
Bonnet screws	M6x18	M8x20
Wrench size	5	6

3. After pressure equalisation, unscrew all bonnet bolts and pull out the bonnet, including all internal parts attached to it, by the handwheel.
4. Remove pressure spring from valve disc.
5. Unscrew valve disc nut from the underside of the valve disc, remove washer and remove the seat seal (flat gasket S).
6. Insert new seat seal (flat gasket S) and secure with washer and valve disc nut.
7. Before assembly, clean all individual valve components and grease the valve discs and bonnets.
8. Then insert a new bonnet gasket (flat gasket K), place pressure spring on the underside of the bonnet, put bonnet in place and tighten bonnet screws evenly and crosswise. See the following table for screw size, wrench size and tightening torques:

Bonnet screws	M6x18	M8x20
	ISO 4762	
Wrench size	5	6
Tightening torque for 8.8 screws		
Torque [Nm]	10	25
Tightening torque for A2-70 screws		

Bonnet screws	M6x18	M8x20
Torque [Nm]	6	16

8 Transport, storage and disposal

AWP components are transported protected against impact and covered with foil.

- Storage must take place in dry rooms.
- Ensure that the connection ports are sealed intact.
- Contamination of any kind must be kept away from the interior.
- The external surfaces are provided with a corrosion protection coating for dry storage at room temperature, which is effective for at least 1 year.
- The corrosion protection coating CELEROL® Reaktionsgrund 918 is a good adhesion promoter for 1- and 2-component top coats.
- Dismantle for disposal.
- Collect lubricants during dismantling. The materials must be separated from one another and disposed of in accordance with local regulations.

9 Warranty

Unless agreed otherwise, the statutory warranty provisions apply. For further information, please also refer to our General Terms and Conditions, available on our website awpvalves.com.

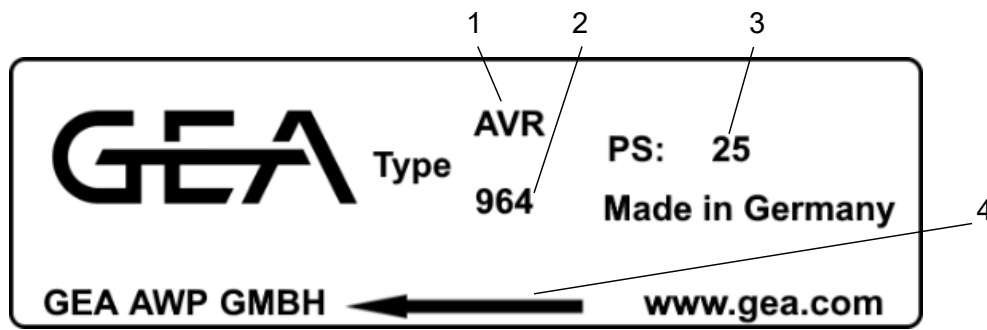
10 Spare parts

Nominal size	Seal kit	Valve insert (Steel, 8.8, CR), complete
DN 6-15	98300.10.5/00019	98300E10.5110001
DN 20	98300.11.5/00019	98300E11.5110001

In case of doubt, please contact our Sales Support either via our website awpvalves.com/contact or by email to info@awpvalves.com. The most reliable method to correctly identify the required spare part is to send a photo of the nameplate on which the serial number of the valve is clearly visible.

11 Marking

AWP check valves are marked in accordance with EN12284 by means of a sticker as well as by stamping on the valve body. The following information is included on the label:



1 Type designation (e.g. AVR)

2 Type number (e.g. 963)

3 Max. permissible operating pressure

4 Flow direction

Additionally, the following information is stamped on the valve body:

- Nominal diameter (DN) (from DN 20 upwards)
- Material number
- Identification and batch number of the forge
- Serial numbers are not indicated on valves up to and including DN 20 as standard.

12 Notice regarding residual risks in accordance with the Pressure Equipment Directive 2014/68/EU

Residual hazards that cannot be eliminated by the manufacturer include:

NOTICE

- ▶ Do not remove the cover during operation (without authorization).
- ▶ Do not install flange connections (inlet and outlet flanges, flanged valve covers) incorrectly.
- ▶ Contaminants in the operating fluid or improper handling of components can cause damage to the seat seal.
- ▶ Failure to observe the operating limits and manufacturer's instructions as specified in these operating instructions.

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