OPERATING INSTRUCTIONS FOR CHECK VALVES

RV (983, 984)

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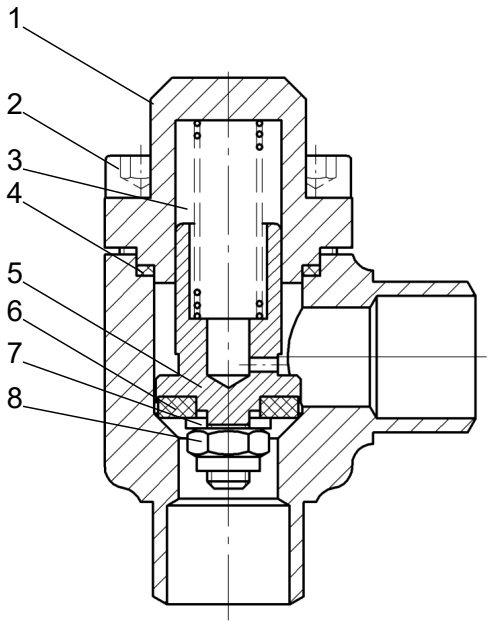
1 Overview of types

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, S355J2
Low-temperature steel	P215NL, P255QL, P355NL1, G20Mn5QT
NIRO	X5CrNi18-10 or equivalent

3 Pressure/temperature operating limits

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

PN	TB (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	TB (MWT) [°C]	-60[2)]	-60[1)]	-10	+50	+150
25	PS (MWP) [bar]	18.7	25	25	25	25
40		30	40	40	40	40

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

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

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

4 Operating Mediums

Suitable for operation with refrigerants acc. to EN 378 Part 1, e.g. NH^3, R22, R134a or mixtures with refrigeration oil, as well as for neutral gaseous and liquid media and glycol-based cooling brine.

5 Flow coefficient

K_v-Wert des Ventils bei Nennhub (100 % Öffnungsgrad) in m^3/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

6 Safety instructions

NOTICE

Gefahr durch unsachgemäße Handhabung!

Sachschaden möglich.

- ▶ Ventile mit Transport- oder Lagerschäden nicht einbauen.
- ▶ Ventile müssen frei von Achskräften, Biege- und Torsionsmomenten sein und dürfen nicht als Fixpunkte von Rohrleitungen dienen.
- ▶ Bei Autogenschweißung oder Hartlötung darf die Flamme das Ventil nicht berühren.
- ▶ Verunreinigungen vom Innenraum der Ventile fernhalten.
- ▶ Ventile nur bei druckloser, abgesaugter und ausreichend belüfteter Rohrleitung demontieren.

7 Anwendung

AWP-Rückschlagventile sind geeignet für den Einsatz in Kältemittelkreisläufen von Industrie-Kälteanlagen. Sie werden sowohl auf der Druck- als auch auf der Saugseite des Verdichters eingesetzt bzw. in Rohrleitungen, in denen nur eine Strömungsrichtung zugelassen ist.

8 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.

9 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 and 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 nameplate).
2. Vor dem Schweißen die Spindel mittels eines Handrades in Mittelstellung bringen (Ventil halb geöffnet).
   NOTICE! Bei Anwendung moderner Schweißverfahren (z. B. WIG, CO2-Lichtbogenschweißen) Ventile zum Einschweißen nicht demontieren.

XXX

Zur Demontage des Ventileinsatzes ist genügend Platz auf der Seite, auf der sich der Ventildeckel befindet, freizuhalten – siehe folgende Tabelle.

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

10 Wartung

AWP-Rückschlagventile arbeiten wartungsfrei. Treten Mängel im Funktionsverhalten auf, ist eine Reparatur möglich. Während der Garantiezeit dürfen Reparaturen nur durch den Hersteller (AWP) bzw. mit dessen Einverständnis durch geschultes Instandhaltungspersonal des Betreibers der Anlage vorgenommen werden.

10.1 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:

Nominal size	DN 6-15	DN 20
Bonnet screws	M6x18	M8x20
	ISO 4762	
Wrench size	5	6
Tightening torque for 8.8 screws		
Torque [Nm]	10	25

Nominal size	DN 6-15	DN 20
Tightening torque for A2-70 screws		
Torque [Nm]	6	16

11 Transport, storage and disposal

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

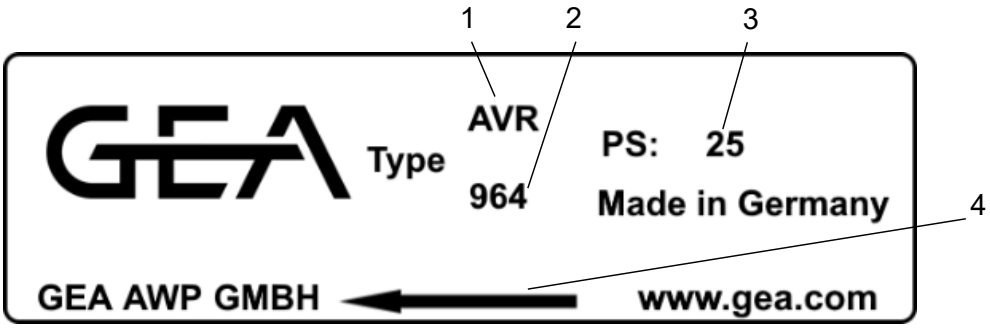
- Storage must take place in dry rooms.
- Ensure that the connection ports are sealed intact.
- Contamination of any kind must be kept away from the interior.
- The external surfaces are provided with a corrosion protection coating for dry storage at room temperature, which is effective for at least 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.

12 Garantie

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**.

13 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.

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