OPERATING INSTRUCTIONS FOR CONSTANT PRESSURE VALVES

RVD (427, 428)

GEA Engineering for a better world.

GEA.com

Table of contents

1 Overview of types **4**

2 Technical characteristics **4**

3 Pressure/temperature operating limits **4**

4 Operating Mediums **5**

5 Flow coefficient **5**

6 Safety instructions **5**

7 Functional description **5**

8 Installation **6**

9 Maintenance **7**

9.1 Replacing the insert 7

10 Transport, storage and disposal **7**

11 Garantie **8**

12 Spare parts **8**

13 Marking **8**

14 Note on residual hazards in accordance with Pressure Equipment Directive 2014/68/EU **8**

1 Overview of types

Type DN 40- DN150
427, 428

1	O-ring	2	Adjustment screw
3	Threaded connection	4	Bonnet screw
5	Compression spring	6	Flat gasket K
7	Space above the valve disc	8	Space below the valve disc
9	Insert, complete		

Item 9 consisting of:

- Bonnet
- Valve disc
- Compression spring
- Adjustment screw
- Bonnet screws
- Flat gasket K

2 Technical characteristics

Body material	Selection acc. to AD-2000 Series W
Steel	P235GH, S235JR, S355J2
Low-temperature steel	P215NL, P255QL, P355NL1
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]	-35[2)]	-25[2)]	-10	+50	+120
25	PS (MWP) [bar]	12.5	18.7	25	25	25
40		20	30	40	40	40
63		31.5	47.2	63	63	63

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

PN	TB (MWT) [°C]	-35[2)]	-35[1)]	-10	+50	+120
25	PS (MWP) [bar]	18.7	25	25	25	25
40		30	40	40	40	40
63		47.2	63	63	63	63
1) Load case I (low-temperature steel, NIRO) 2) Load case II (acc. to AD2000-W10) (Steel)						
Permissible ambient temperature range (°C) -50 to +50						

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

DN	40	50	65	80	100	125	150
427	37.1	53.5	80.0	159.0	231.0	360.0	530.0
428	39.0	57.0	86.0	164.0	242.0	373.0	541.0

Installation position: horizontal and vertical with flow from bottom to top. External leakage, seat <5g refrigerant per year, p = 10 bar across the valve disc.

6 Safety instructions

NOTICE

Danger from improper handling!

Risk of property damage.

- ▶ Do not install valves with transport or storage damage.
- ▶ Valves must be free of axial forces, bending moments, and torsional moments and must not serve as fixed points for pipework.
- ▶ In the event of oxy-fuel welding or brazing, the flame must not touch the valve.
- ▶ Keep the interior of the valves free of contamination.
- ▶ Opening or closing the valves with a valve wheel wrench or other lever-extending objects is not permissible.
- ▶ Only dismantle valves when the pipework is depressurised, evacuated, and sufficiently ventilated.

7 Functional description

Pressure-maintaining function

1	Compressor	2	RVD

Hold-back function and check function

1	Solenoid valve	2	Solenoid valve
3	Compressor	4	RVD

Start-up phase	1 - open 2- closed
Stop phase	1- closed 2- open

8 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. **NOTICE! When using modern welding processes (e.g. TIG, CO2 arc welding), do not dismantle weld-in valves.**
3. Befestigungsschrauben und -muttern über Kreuz und gleichmäßig anziehen.

DN	40	50	65	80	100	125	150
mm	55	55	65	95	105	180	200

9 Maintenance

AWP pressure-maintaining valves operate maintenance-free. If functional defects occur, repair is possible. During the warranty period, repairs may only be carried out by AWP or, with their consent, by the system operator's trained maintenance personnel.

9.1 Replacing the insert

1. 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.**

DN	40	50	65	80	100	125	150
M	8	8	8	10	12	16	16
ISO 4762				ISO 4017			
SW	6	6	6	16	18	24	24

2. Unscrew the bonnet screws and pull out the bonnet including internal parts and replace with a new insert.
3. Clean all individual valve parts before assembly. Grease the valve disc and bonnet.
4. Then insert flat sealing ring K and put on the bonnet.
5. Tighten screws evenly and crosswise.

DN	40	50	65	80	100	125	150
M	8x25			10x30	12x35	16x45	
SW	6	6	6	16	18	24	24
Tightening torque [Nm] 8.8	25	25	25	49	85	210	210
Tightening torque [Nm] A2-70	16	16	16	32	65	135	135

10 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.

11 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**.

12 Spare parts

PS 25	PS40	DN	Order number	Dimensions
427 xx E15.5110001	427 xx E15.5110001	40	163 01.15.4 146 00 3	⦰ 62 x ⦰ 68.8 x 1.5
427 xx E15.5110001	427 xx E15.5110001	50	163 01.15.4 146 00 3	⦰ 62 x ⦰ 68.8 x 1.5
427 xx B17.5110001	427 xx E17.5110001	65	163 01.17.4 146 00 3	⦰ 76 x ⦰ 84.8 x 1.5
427 xx E18.5110001	427 xx E18.5110001	80	163 01.18.4 146 00 3	⦰ 94 x ⦰ 105 x 1.5
427 xx E19.5110001	427 xx E19.5110001	100	163 01.19.4 146 00 3	⦰ 115 x ⦰ 129 x 1.5
427 xx E20.5110001	427 xx E20.5110001	125	163 01.20.4 146 00 3	⦰ 140 x ⦰ 159 x 1.5
427 xx E21.5110001	427 xx E21.5110001	150	163 01.21.4 146 00 3	⦰ 170 x ⦰ 188.5 x 2.0

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.

13 Marking

The marking of AWP pressure-maintaining valves is carried out in accordance with Pressure Equipment Directive 2014/68/EU.
Nameplate on body

PS [bar]	Max. permissible operating pressure
DN [mm]	Nominal size
DIN EN ISO 21922	Refrigerating valves, safety requirements, testing and marking

14 Note on residual hazards in accordance with Pressure Equipment Directive 2014/68/EU

Residual risks that cannot be avoided by the manufacturer exist due to:

NOTICE

- ▶ Do not loosen bonnets (without authorisation) during operation.
- ▶ Do not incorrectly assemble flange connections (inlet and outlet flanges, flanged bonnets).
- ▶ Contamination in the operating medium or improper handling of internal components can lead to damage to the seat seal.
- ▶ Non-compliance with the operating limits and manufacturer's regulations according to these operating instructions.

Engineering for a better world.

GEA.com

GEA AWP GmbH
Armaturenstr. 2
17291 Prenzlau
Germany
phone: +49 3984 8559-0
fax: +49 3984 8559-18
e-mail: info@awpvalves.com

Latest revision: 02.02.2026
©All rights reserved. Subject to modifications. Printed in Germany.