OPERATING INSTRUCTIONS FOR GAS-POWERED VALVE

GPV (275, 276)

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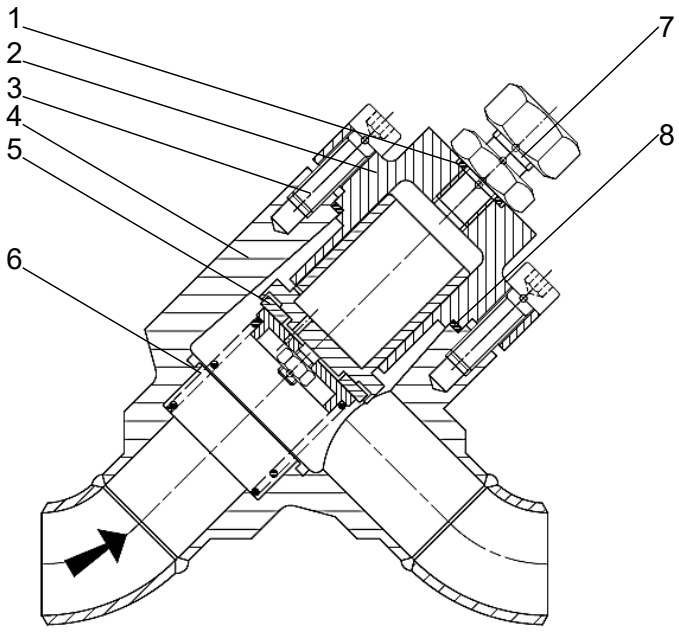
1 Overview of types

Type 27500, 27600, DN 25 -DN 32



1	O-ring	2	Bonnet
3	Bonnet screw	4	Body
5	Flat gasket S	6	Compression spring
7	Gas connection	8	Flat gasket K

Insert consisting of:

- Bonnet
- Valve disc, complete
- Compression spring
- Straight screw-in fitting
- 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]	-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
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

Any installation position, the direction of flow must be observed.
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 Application

AWP pressure-controlled valves are installed in the oil return line between the lowest point of the flooded evaporator and the compressor.

8 Functional description

AWP pressure-controlled valves are functionally open so that the oil/refrigerant mixture flows into the oil collection vessel. This vessel contains a heater which is always wetted with oil and evaporates the refrigerant. The temperature is monitored via sensors. Temperatures close to the evaporation temperature reflect a high oil content, otherwise the evaporating refrigerant lowers the temperature. When the oil collection vessel is full, hot gas is applied to the upper side of the GPV valve disc via a solenoid valve and it is closed. At the same time, the gas flows through the overflow hole in the valve disc. The high pressure of the hot gas presses on the collected oil to lead it back to the compressor crankcase. After oil return, the solenoid valve is closed and the GPV

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. **NOTICE! When using modern welding processes (e.g. TIG, CO2 arc welding), do not dismantle weld-in filters. Provide sufficient space on the bonnet side for changing the filter elements.**
3. Befestigungsschrauben und -muttern über Kreuz und gleichmäßig anziehen.

	DN	25	32
	27500	35	35
Dismantling dimension [mm]	27600	45	45

10 Maintenance

AWP pressure-controlled 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.

10.1 Replacing the insert

1. Loosen bonnet bolts ISO 4762.**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	25	32
M	8	8
	ISO 4762	
SW	6	6

2. Unscrew the bonnet bolts. Pull out the bonnet including internal parts and replace with a new insert.
3. Clean all individual valve parts before assembly.
4. Grease the valve disc and bonnet.
5. Then insert a flat sealing ring K.
6. Fit the bonnet and tighten evenly and in a crosswise pattern with the screws.

DN	25	32
M	8x25	
	ISO 4762	
SW	6	6
Tightening torque [Nm] (8.8)		
	25	25
Tightening torque [Nm] (A2-70)		
	16	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 Spare parts

A spare parts order must contain the following information:

- Quantity, screw material
- Designation acc. to image for type
- Order number
- Nominal size of the valve
- Year of manufacture of the valve
- Opening pressure
- Refrigerant

PS25 (A2-70)	DN	Order number	Dimensions
27500B(C)12.5110001	25	163 01.13.4 146 00	3 ⦸ 43 x ⦸ 49 x 1.5
27500B(C)13.5110001	32		
PS40 (A2-70)	DN	Order number	Dimensions
27500E(F)12.5110001	25	163 01.13.4 146 00	3 ⦸ 43 x ⦸ 49 x 1.5
27500E(F)13.5110001	32		
PS63 (A2-70)	DN	Order number	Dimensions
27500K(L)12.5110001	25	163 01.13.4 146 00	3 ⦸ 43 x ⦸ 49 x 1.5
27500K(L)13.5110001	32		

14 Marking

The marking of the 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

15 Hinweis auf Restgefahren entsprechend Druckgeräterichtlinie 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.

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

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