OPERATING INSTRUCTIONS FOR GAS-POWERED VALVE

GPV (275, 276)

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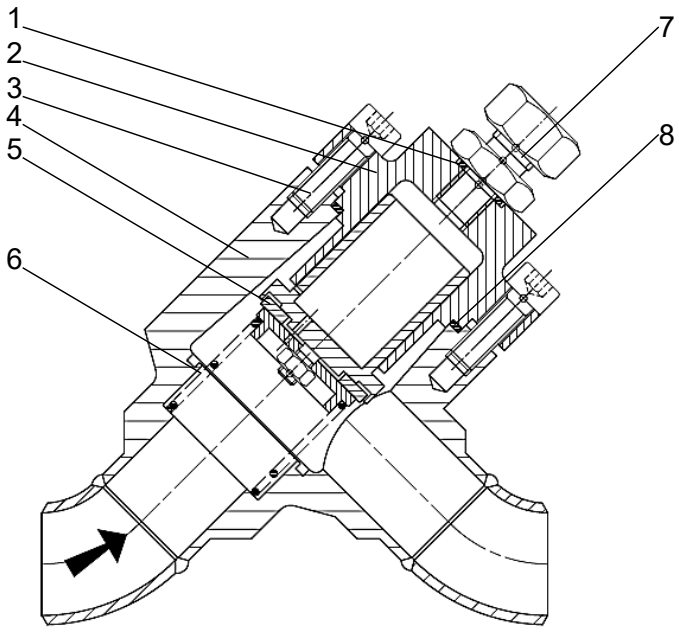
1 Overview of types

Type 275, 276, 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

2 Technical characteristics

Body material	Selection acc. to AD-2000 Series W
Steel	P235GH, S235JR, 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
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
1) Load case I (low-temperature steel, stainless steel)
2) Load case II (acc. to AD2000-W10) (Steel)
Permissible ambient temperature range (°C) -50 to +50

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

Any installation position; the direction of flow must be observed.
External leakage, seat <5g refrigerant per year at Δp=10 bar above valve disc

3 Safety instructions

4 Application

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

5 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. If a temperature close to the evaporation temperature occurs, a high oil content is assumed, as otherwise the evaporating refrigerant reduces 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

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. **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. Tighten the mounting screws and nuts in a crisscross pattern and evenly.

	Nominal size	DN25	DN32
Dismantling dimension [mm]	Type 275	35	35
	Type 276	45	45

7 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.

7.1 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.**

Nominal size	DN 25	DN 32
Bonnet screw	M8	M8
	ISO 4762	
Wrench size	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.

Nominal size	DN 25	DN 32
Bonnet screw	M8x25	
	ISO 4762	
Wrench size	6	6
Tightening torque for 8.8 screws [Nm]	25	25
Tightening torque for A2-70 screws [Nm]	16	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

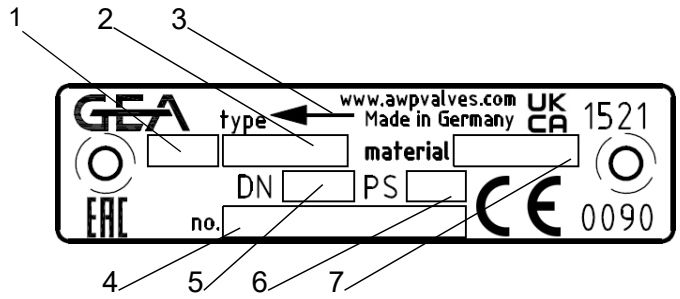
	Valve insert (steel), complete	Bonnet flat gasket	
Nominal size	PS25 (A2-70)	Order number	Dimensions
DN 25	27500B(C)12.5110001	16301.13.4146003	⦰ 43 x ⦰ 49 x 1.5
DN 32	27500B(C)13.5110001		
	PS40 (A2-70)	Order number	Dimensions

	Valve insert (steel), complete	Bonnet flat gasket	
DN 25	27500E(F)12.5110001	16301.13.4146003	⦰ 43 x ⦰ 49 x 1.5
DN 32	27500E(F)13.5110001		
	PS63 (A2-70)	Order number	Dimensions
DN 25	27500K(L)12.5110001	16301.13.4146003	⦰ 43 x ⦰ 49 x 1.5
DN 32	27500K(L)13.5110001		

– A valve insert contains all internal parts including seals, i.e. flat gasket, valve disc, bonnet with screws and nameplate (with new serial number!), pre-assembled.
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

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



1 Type designation	2 Type no.
3 Flow direction	4 Serial number
5 Nominal size (DN)	6 Pressure rating (PS)
7 Material number	

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

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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Latest revision: 17.06.2026