



OPERATING INSTRUCTIONS FOR OVERFLOW VALVES

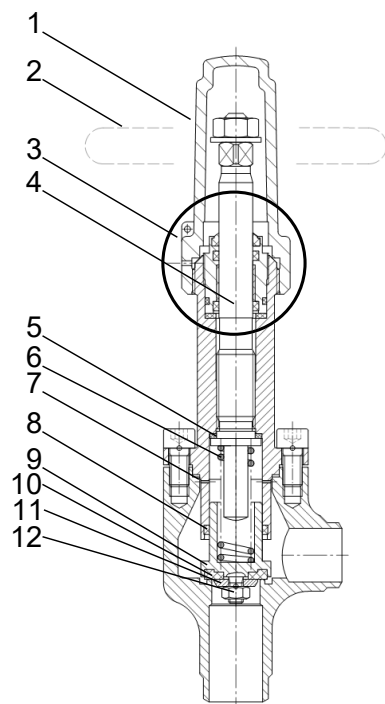
UVR (401, 402), UVRK (403, 404)

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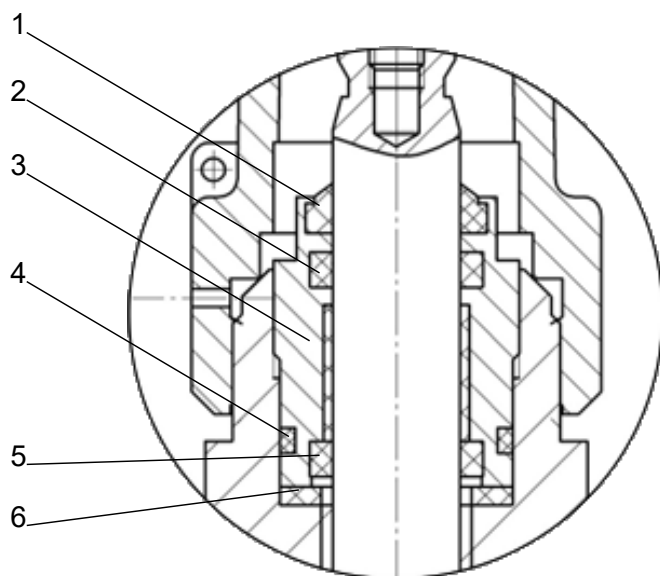
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1 Overview of types

Type 401, 402, 403, 404



1 Cap	2 Handwheel (optional)
3 Threaded bush, complete	4 Stem
5 Back seat (flat sealing ring R)	6 Compression spring
7 Bonnet gasket (flat sealing ring K)	8 Damping ring
9 Valve disc	10 Seat seal (flat sealing ring S)
11 Washer	12 Nut (UVR) / regulating cone (UVRK)



1 Wiper ring	2 O-ring A
3 Threaded bush	4 O-ring B
5 PTFE ring	6 Flat gasket SB

2 Technical characteristics

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

2.1 Pressure/temperature operating limits

When using screws of property class 8.8:

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

When using screws of property class A2-70:

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

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

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

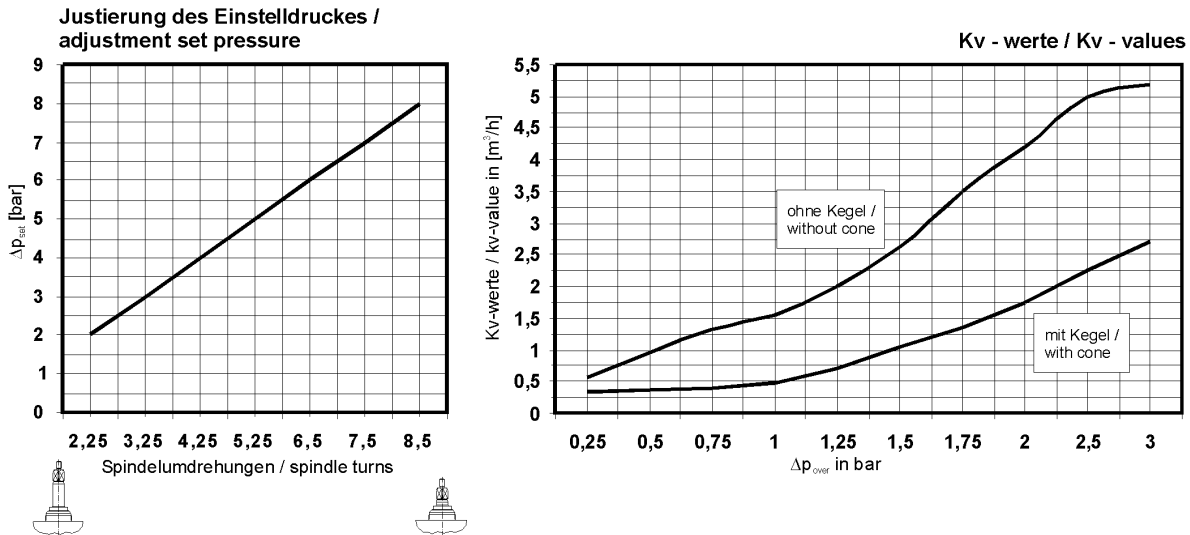
Permissible ambient temperature range: -50 to +50 °C

2.2 Operating media

The valves described here are suitable for operation with refrigerants in accordance with EN 378 Part 1, e.g. NH₃, R22, R134a, R290 (propane). R507 or mixtures with refrigeration machine oil as well as for neutral, gaseous and liquid media and glycol-based brines.

2.3 Flow coefficient

Kv value depending on the pressure differential



Pressure range of the spring: 2-8 bar, installation position: vertical and horizontal.
External leakage, seat <15g refrigerant per year.

3 Safety instructions

4 Application

AWP overflow valves are suitable for use as relief valves in refrigerant circuits of industrial refrigeration systems. Overflow valves are safety devices for protecting the refrigeration system or its components against impermissible pressure stress (see also DIN 8975 Part 7). They comply with the equipment regulations of the Technical Inspection Associations -TÜV-.

5 Functional description

Type UVR shut-off overflow valves are self-acting mechanical control devices with an adjustable differential pressure range of 2-8 bar. The valve can be closed by turning the stem. Turning the stem clockwise causes the valve disc to lower onto the valve seat, thereby closing the pipework. Turning the stem anti-clockwise causes the valve disc to lift from the valve seat, thereby opening the pipework. The valves are equipped with a back seat made of PTFE (flat gasket R) to allow replacement of the stem seal during operation.

A damping system in the valve disc prevents it from "fluttering", e.g. at low flow rates. The valves are back-pressure dependent. **NOTICE! : Response pressure = set pressure + external back pressure.**

A PTFE gasket (flat gasket S) ensures tightness at the seat.

6 Installation and commissioning

6.1 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 valves.**
3. Tighten the mounting screws and nuts in a crisscross pattern and evenly.
4. Provide sufficient space on the bonnet / hood side for the disassembly of the bonnet / hood.

6.2 Setting

AWP overflow valves are adjusted by turning the stem. Use a size 5 wrench or a handwheel for this purpose. Turning the stem clockwise increases the set pressure and vice versa. If back pressure is present, it must be subtracted from the response pressure and the valve must be set to the difference. The reduction of the set pressure is carried out by turning the stem anti-clockwise.

7 Maintenance

AWP overflow 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 Changing the stem seal

1. Unscrew the cap! Use a wrench with the size specified in the following table.

Nominal size	DN 20
Wrench size	24

2. Bring the stem to the uppermost position using the handwheel.
3. Unscrew the threaded bush anti-clockwise. **NOTICE! Watch out for any residual refrigerant escaping! Leave the threaded bush loose in the bonnet until pressure is completely equalised. Only unscrew it after this.**
4. Then unscrew it completely. To unscrew the threaded bush, use a wrench with the sizes specified in the following table:

Nominal size	DN 20
Wrench size	22

5. Remove O-rings A, B, PTFE ring and the wiper ring and replace them with new ones.
6. Remove the flat gasket SB from the installation space in the bonnet.
7. Clean the stem and insert a new flat gasket SB into the bonnet.
8. Grease the threaded bush with refrigeration grease (e.g. RENOLIT UNITEMP 2) and tighten hand-tight.
9. To check for leaks, bring the stem to the middle position and brush the bonnet area with a foaming agent.

7.2 Replace seat seal, back seat or valve insert complete

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.**

Nominal size	DN 20
	M8
	ISO 4762
Wrench size	6

2. Unscrew bonnet bolts and pull out the bonnet including internal parts by the handwheel.
3. Unscrew the handwheel from the stem and unscrew the stem from the bonnet.
4. Remove and replace flat gasket R.
5. Remove the valve disc and compression spring from the body.
6. Remove the nut and washer or cone from the valve disc to loosen flat gasket S.
7. Insert new flat gasket S.
8. Attach the washer or cone and screw on the nut.
9. Clean all individual valve parts before assembly. Grease the stem and bonnet.
10. Then insert a new flat sealing ring K.
11. Fit the bonnet and tighten evenly and in a crosswise pattern with the screws. See the following table for wrench size and tightening torque.

Nominal size	DN 20
Bonnet screw	M8x16
	ISO 4762 8.8
Tightening torque [Nm]	25

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

Seal kit	Repair kit	Handwheel	Cap	Compression spring
40100.11.5/00019	40100.11.5/00029	36302.10.5280001	16402.13.3180001	562053

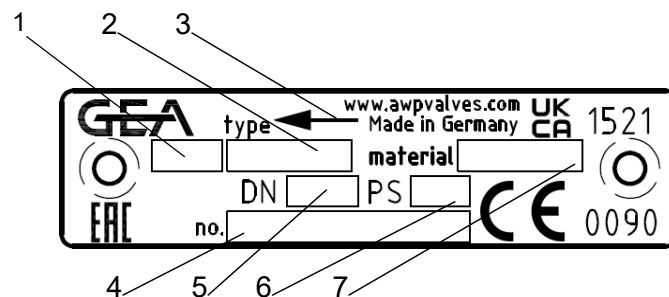
Type	Nominal size	Valve insert, complete
401, 402	DN 20	40102E11.5110001
403, 404	DN 20	40302E11.5110001

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

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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