

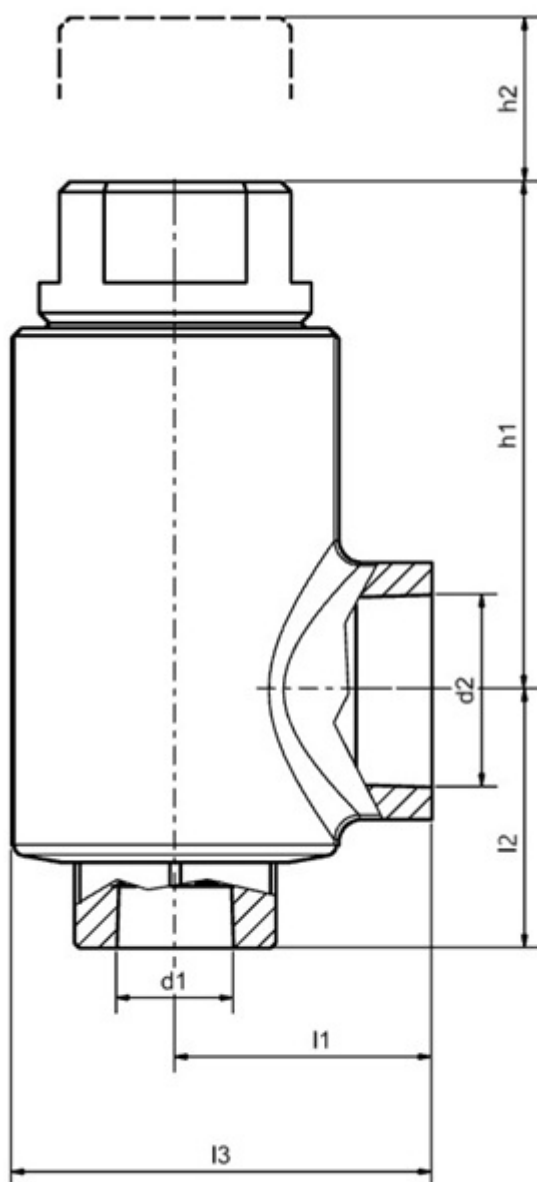
OPERATING INSTRUCTIONS FOR SAFETY VALVES

SVA (804, 814)

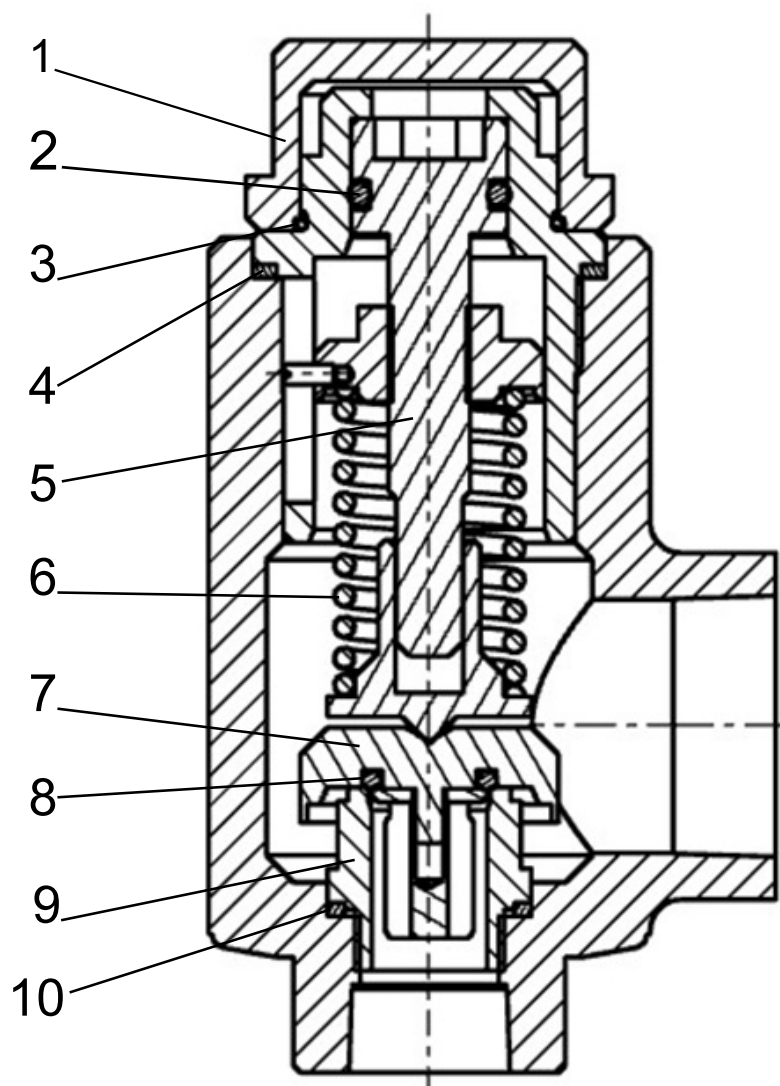
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1 Overview of types



Dimensions in mm								
DN	Type	Screwed ends		l1	l2	l3	h1	h2
		d1	d2					
20	804	3/4"NPT	1"NPT	51	51	83.5	101	30
20	814	3/4"NPT	1 1/4"NPT	51	51	83.5	101	30



1 Cap	2 Screw seal (O-ring A)
3 Cap seal (O-ring K)	4 Head gasket
5 Adjustment screw	6 Compression spring
7 Valve disc	8 Seat seal (PTFE ring)
9 Seat nozzle	10 Seat nozzle flat gasket

2 Technical characteristics

Materials (pressure-retaining parts)	Selection ASME B&PV Code Section II
Steel	SA-105
Stainless steel	Not yet available

2.1 Pressure/temperature operating limits

Pressure / temperature operating limits:

MAWP: max. allowable working pressure

MAWT: maximum allowable operating temperature corresponding to maximum allowable working pressures (PS)

PN: nominal pressure rating

Pressure/temperature limits in [bar, °C]					
PN	DN		SVA (type 804, 814)		
		MAWT [°C]	-29	+50	+180
40	20 (3/4")	MAWP [bar]	40	40	40

Permissible ambient temperature range -35 °C to +55 °C

Pressure/temperature limits in [psi, °F]					
PN	DN		SVA (type 804, 814)		
		MAWT [°F]	-20	300	300
580	20 (3/4")	MAWP [psi]	580	580	580

Permissible ambient temperature range -31 °F to +131 °F

2.2 Operating media

The valves described here are suitable for operation with gaseous refrigerants in accordance with EN 378 Part 1, e.g. NH₃, R22, R134a, R290 (propane), R507 or mixtures with refrigerating machine oil.

2.3 Performance values

	Air flow rate in kg/min			Air flow rate in lb/min		
Set pressure [psi]	250	300	350	250	300	350
804						
814						

	Air flow rate in SCFM			slope	
Set pressure [psi]	250	300	350	-	
804					
814					

For pressure ranges of the compression springs, see spare parts list.

Installation position: vertical and horizontal.

External leakage: <15g refrigerant per year, seat leakage: <5g refrigerant per year.

3 Safety instructions

3.1 General 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.

3.2 Conditions for safe use

NOTICE

- ▶ The safety devices must be permanently and conductively connected to the overall system; the overall system can be earthed individually or integrated into the building's equipotential bonding. The equipotential bonding must be checked by the operator at regular intervals.
- ▶ Outlets to safety devices should not be opposite other branches.
- ▶ Protect safety valves against harmful external influences (e.g. weather conditions) that may inhibit function.
- ▶ Permanently protect safety valves made of unalloyed body parts against corrosion.
- ▶ Avoid transmission of vibrations to the safety valve.
- ▶ Discharge lines must be dimensioned and routed, taking into account local operating conditions, so that static and dynamic reaction forces as well as thermal stresses can be safely absorbed. At safety devices where the escape of a flammable medium creates direct or indirect hazards for persons or ignition sources in the vicinity, suitable protective measures must be taken (e.g. discharging into a safe environment).
- ▶ The recommended explosion limitation measures or the recommendations for wearing personal protective equipment within the meaning of the product safety data sheets must be strictly observed and complied with when loosening screw connections or relaxing the pressure spring.
- ▶ Repair measures on the safety devices may only be carried out by the device manufacturer.
- ▶ Replacement of the safety device may only be carried out when the system and its lines are in a safe, depressurised state. For flammable gases such as propane, butane, methane, etc., low-sparking tools must be used for this purpose.
- ▶ When using ammonia as a refrigerant, special safety measures must be observed (see also safety data sheet).
- ▶ After installation of the safety valve, a leakage test must be carried out by a competent person. The response pressure must be checked at regular intervals using the setting certificate.

4 Application

AWP SVA safety valves are intended for use as relief valves in refrigerant circuits of industrial refrigeration and heat pump systems. They are safety devices designed to protect the refrigeration or heat pump system or its components against inadmissible pressure stress. They conform to the equipment regulations of ASME B&PV Code Section XIII – "Rules for Overpressure Protection"

5 Functional description

AWP-SVA safety valves begin to open as soon as the response pressure is reached. They open within a 10% pressure increase up to the design-limited stroke. If the pressure falls again, they begin to close as soon as the set response pressure is reached and close fully within a pressure reduction of 10% below the response pressure. Valves of types 814 and 804 operate depending on the back pressure (set response pressure = set pressure $[p_{set}]$ + external back pressure $[p_2]$). To ensure capacity, the back pressure $[abs]$ must not exceed max. 25% of the discharge pressure $[abs]$.

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 valves.**
3. Tighten the mounting screws and nuts in a crisscross pattern and evenly.
4. When blowing off into the atmosphere, keep the discharge pipes as short as possible. They must not have any sharp bends. The bend radius must be at least 3 x OD (outside pipe diameter).
5. When filling the oil or water seal, ensure that no oil or water enters the safety valves. **NOTICE! Shut-off devices before and after the safety valve are prohibited, with the exception of change-over valves (for exceptions, see DIN 8975, Part 7, Point 8).**
6. Provide sufficient space on the bonnet / hood side for the disassembly of the bonnet / hood (approx. 50 mm).

7 Maintenance

AWP safety 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. AWP recommends checking safety valves every 5 years. After each response (accident case), the set pressure $[p_{set}]$ and the tightness at the seat must be checked. **NOTICE! Maintenance on valves only when installed.**

7.1 Removing the valve insert

1. Remove seal and unscrew cap from bonnet.
2. Fully relieve spring tension. To do this, turn the adjusting screw (14 mm hexagon socket) clockwise until it stops.

WARNING

Danger from improper handling!

Risk of injury.

- ▶ Care must be taken to ensure that the bonnet is not unscrewed from the housing during step 1 (unscrewing the cap).
 - ▶ The compression spring **must** be fully relieved. The valve must not be dismantled with the compression spring pre-tensioned.
-
3. Loosen bonnet. Use a wrench with size 32 for this.

4. Unscrew bonnet and remove together with the parts installed in it (adjusting screw, O-ring A, upper spring plate).
5. Remove compression spring, lower spring plate and valve disc from housing.
NOTICE! When removing the valve disc, do not damage the sealing surface of the seat nozzle. When installed, carefully remove using a suitable tool (e.g. needle-nose pliers).

7.2 Replacing the PTFE ring

1. Unscrew valve disc guide from valve disc using a suitable tool (e.g. pliers)
2. Remove PTFE ring S from valve disc using a suitable tool
3. Clean O-ring groove and carefully press new PTFE ring in evenly using thumbs
4. Apply threadlocker (e.g. Loctite) to threaded hole of valve disc guide and screw onto valve disc up to the stop using a suitable tool (e.g. pliers). The disc presses into the seal ring as far as the metallic stop.

7.3 Replacing the O-ring A

1. Unscrew set screw (M3 x 8) in slotted hole of bonnet using a screwdriver.
2. Press adjusting screw out of bonnet and pull off O-ring A.
3. Thoroughly clean sealing surface, moisten with suitable lubricating oil (e.g. RENOLIN MR 520) and carefully fit new O-ring A.
4. Thoroughly clean inner sealing surface of bonnet, moisten with suitable lubricating oil (e.g. RENOLIN MR 520), position adjusting screw with new O-ring A in bonnet and press in until screw head slides into sealing area.
5. Using 14 mm hexagon key, turn adjusting screw until threaded hole of spring plate is visible in slotted hole of bonnet.
6. Screw set screw with threadlocker (e.g. Loctite) tightly into spring plate using screwdriver.

7.4 Installing the valve insert

1. Clean all individual parts before assembly
2. Carefully push valve disc into seat nozzle using a suitable tool (e.g. needle-nose pliers) without damaging sealing surface of seat nozzle with valve disc guide
3. Replace aluminium head gasket in housing.
4. Place lower spring plate and compression spring centrally on valve disc.
5. Push bonnet with completely backed-off adjusting screw into housing. Ensure adjusting screw is inserted into guide of lower spring plate.
6. Alternatively, guide complete insert assembly (bonnet, adjusting screw, compression spring, lower spring plate) into housing onto valve disc sticking together with low-temperature grease (e.g. RENOLIT UNITEMP 2)
7. Screw bonnet into housing and tighten (see tightening torques table)
8. Adjust set pressure at adjusting screw using a 14 mm hexagon key. Turning anti-clockwise increases the set response pressure.

NOTICE

- Note that after every compression spring replacement, the compression spring must settle before adjusting the set response pressure. A settling time of 48 hours must be ensured between assembly, during which the compression spring is pre-tensioned, and the adjustment of the response pressure.

- Pull O-ring K over thread of bonnet and screw cap hand-tight

Tightening torques			
	Seat nozzle	Bonnet	Cap
Wrench size	27	32	
Tightening torque	55 Nm	140 Nm	Hand-tight

7.5 Checking and correcting the set pressure

- Remove seal and unscrew cap from cover. Hold the adjustment screw with an open-ended spanner. See the table for the wrench sizes:
- Increase set pressure by turning adjusting screw (14 mm hexagon socket) anti-clockwise; decrease set pressure by turning clockwise.
- Check the response pressure by loading the valve from the valve inlet (DN1) with compressed air or a permissible operating medium at the level of the response pressure. The valve opens. Trigger the valve three times. (Set pressure tolerance [pset] = +/-3%)
- Then check the reseating pressure by lowering the pressure. When a pressure 10% below the response pressure is reached, the valve must be fully closed.

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

The seal kits listed below contain the head gasket, seat seal (PTFE ring), screw seal (O-ring A) and cap seal (O-ring K).

The repair kits contain the head gasket, pre-assembled bonnet with adjusting screw and seal (O-ring A), pre-assembled valve disc with PTFE ring, cap seal (O-ring K) and seat nozzle with flat gasket.

Type	Nominal size	Seal kit	Repair kit
804, 814	DN 20 (3/4")	81400.11.5/00019	81400.11.5/00029

Compression spring	Set pressure
562097	250psi

Compression spring	Set pressure
562098	300psi, 350psi

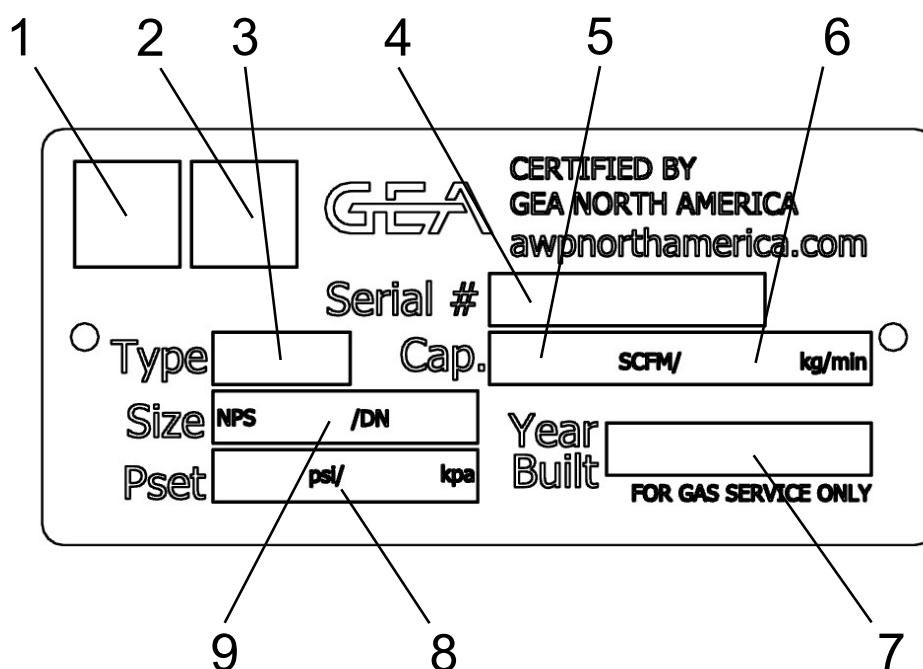
The spare part numbers mentioned apply to the standard version of the valves. For valves in a different design (other body and / or O-ring material), different item numbers may apply.

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

Nameplate

Marking of AWP safety valves is carried out in accordance with ASME B&PV Code Section XIII – “Rules for Over-pressure Protection”



1 ASME Stamp	2 NB Stamp
3 Type number	4 Serial number
5 Capacity (in SCFM)	6 Capacity (in kg/min)
7 Year of manufacture (YY-MM)	8 Set pressure (in psi and kPa)
9 Nominal size (NPS and DN)	

12 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.

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