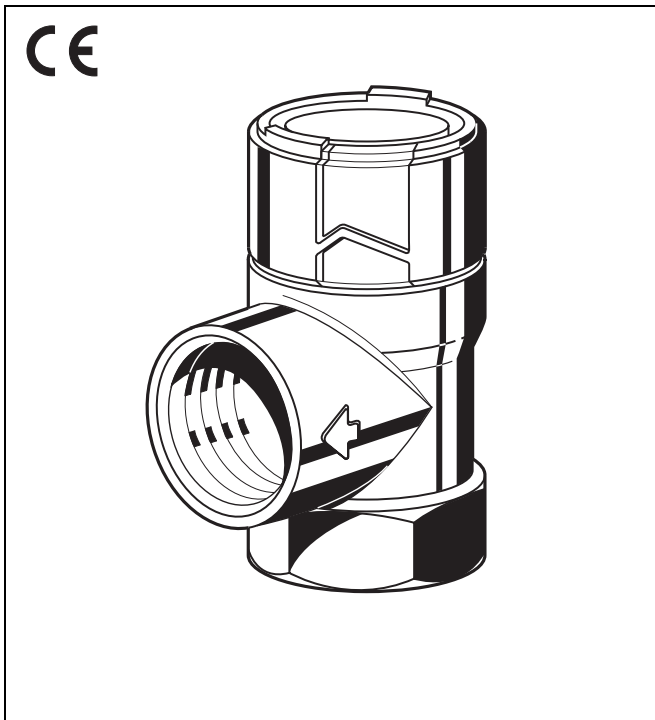


## SM180

### Diaphragm safety valve for solar systems

#### Product specification sheet



#### Construction

The safety valve comprises:

- Angled housing
- Adjustment spring
- Diaphragm
- Security cap with part label

#### Materials

- Brass housing
- Spring steel adjustment spring
- High grade synthetic material security cap
- Hot water resistant elastomer diaphragm

#### Application

The membrane safety valves of this type are used as last safeguard for solar systems when the stipulated control and safety devices fail. They must therefore be capable to discharge the entire boiler output as steam in case of emergency.

In accordance with statutory requirements, the diaphragm safety valve is preset to the required fixed set pressure by the manufacturer and is sealed with an embossed security cap marked with the test badge and pressure rating to prevent unauthorised tampering with the setting. Subsequent alteration of the setting is not permitted and is impossible without destroying the security cap. The preset pressure is embossed on the security cap.

#### Special Features

- Certified to Pressure Equipment Directive 97/23/EC, Reference No. CE 0036
- Standardised discharge connection
- With lifting device
- Protected against subsequent changing of the default settings

#### Range of Application

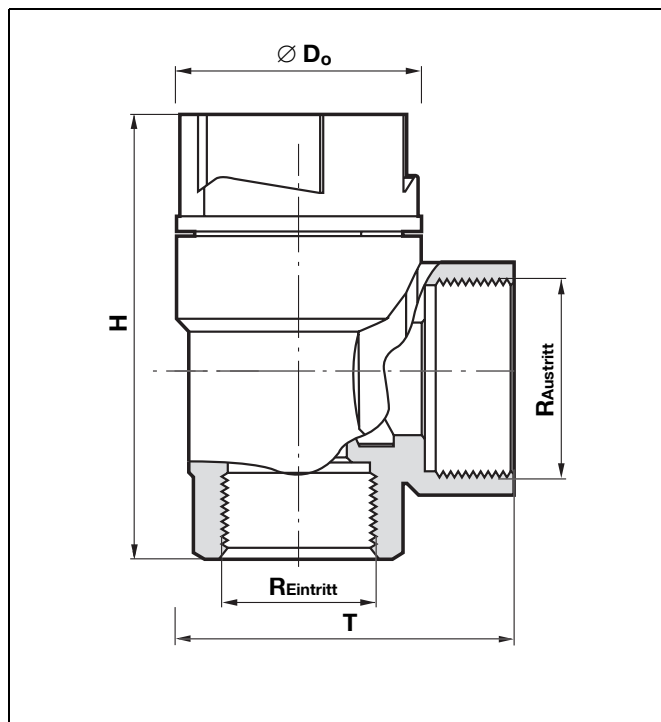
To protect closed solar systems.

Medium Water or glycol-water mixture, according to VDI 2035

Liquids of the fluid group 1 and 2 (pressure device guideline, item 9) which do not affect the materials used.

#### Technical Data

Installation position	Horizontal with safety cap pointing up
Opening pressure	Factory preset to 2.5, 3.0, 4.0, 6.0, 8.0 or 10.0 bar Subsequent alteration of the setting is not permitted and is impossible without destroying the security cap
Operating temperature	-20 °C...+160 °C
Connection size	Internal thread on inlet 1/2", 3/4", Internal thread on outlet 1/2", 3/4", 1"
Valve size is defined by the size of the inlet connection	



### Method of Operation

Diaphragm safety valves of this type are directacting safety valves in which the disc is pushed up by the pressure from the system against a spring which is holding the valve closed. If the opening force exceeds the force exerted by the spring, then the valve disc is lifted off the valve seat and the valve discharges the medium. In accordance with the requirements of the standard, the full discharge capacity of the valve will be achieved when the system pressure climbs to no more than 10% above the set pressure of the valve. Full shutoff must be achieved if the system pressure falls to below 80% of the nominal set pressure of the valve. For valves rated up to 3.0 bar, the closing pressure can be taken as 0.6 bar minimum.

### Options

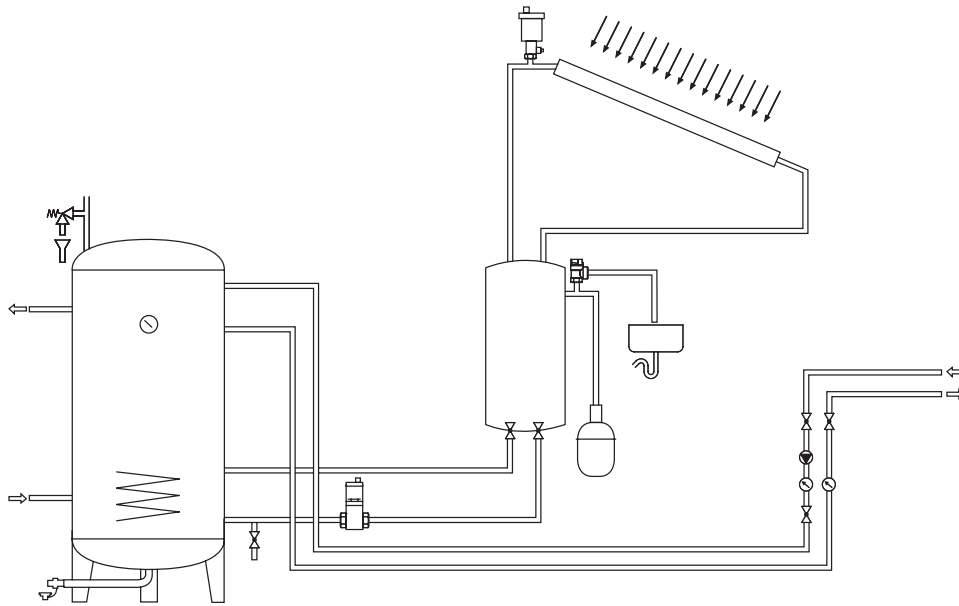
OS.-No.	Set pressure	Connection size Inlet	Connection size Outlet
SM180- 1/2ZA2.5	2.5 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2ZA3.0	3.0 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2ZA4.0	4.0 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2ZA6.0	6.0 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2ZA8.0	8.0 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2ZA10.0	10.0 bar	Rp1/2" IG	Rp1/2" IG
SM180- 1/2A2.5	2.5 bar	Rp1/2" IG	Rp3/4" IG
SM180- 1/2A3.0	3.0 bar	Rp1/2" IG	Rp3/4" IG
SM180- 1/2A4.0	4.0 bar	Rp1/2" IG	Rp3/4" IG
SM180- 1/2A6.0	6.0 bar	Rp1/2" IG	Rp3/4" IG
SM180- 1/2A8.0	8.0 bar	Rp1/2" IG	Rp3/4" IG
SM180- 1/2A10.0	10.0 bar	Rp1/2" IG	Rp3/4" IG
SM180- 3/4ZA2.5	2.5 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4ZA3.0	3.0 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4ZA4.0	4.0 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4ZA6.0	6.0 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4ZA8.0	8.0 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4ZA10.0	10.0 bar	Rp3/4" IG	Rp3/4" IG
SM180- 3/4A2.5	2.5 bar	Rp3/4" IG	Rp1" IG
SM180- 3/4A3.0	3.0 bar	Rp3/4" IG	Rp1" IG
SM180- 3/4A4.0	4.0 bar	Rp3/4" IG	Rp1" IG
SM180- 3/4A6.0	6.0 bar	Rp3/4" IG	Rp1" IG
SM180- 3/4A8.0	8.0 bar	Rp3/4" IG	Rp1" IG
SM180- 3/4A10.0	10.0 bar	Rp3/4" IG	Rp1" IG

Connection size Inlet	R	1/2" IG	3/4" IG	1/2" IG	3/4" IG
Connection size Outlet	R	1/2" IG	3/4" IG	3/4" IG	1" IG
Dimensions	(mm)				
H		60	62	60	62
Ø D_o		33	33	33	36
T		32	46	46	46
Weight	g	135	145	140	150
Maximum permissible heat input (kW)		50	100	50	100
TÜV Approval Nos.		-	-	TÜV · SV · ..* - 2017 · 13 · SOL · p	

..\* valid Approval No.

Only the products with an outlet diameter larger than the inlet diameter are TÜV-certified.

### Installation Example



### Installation Guidelines

- Mount the safety valve at the highest point of the heat generator or in its immediate vicinity on the flow line
- The installation must be carried out so that:
  - no shut-off fittings, restrictions or strainers are located between safety valve and heat generator
  - good access is provided for service and maintenance
  - that the safety valve is positioned above the heat generator
  - that between the safety valve and heat exchanger a max. 1 m long straight connection line with the size of the inlet diameter is installed
- The safety valve must be mounted so that in its installed condition no external forces act on it
- The discharge line must be performed to the size of the safety valve outlet diameter and may not have more than 2 elbows and or be longer than 2m
- The discharge line must be installed with an incline

### Typical Applications

Membrane safety valves, according to their specification, are installed in the return connection of solar systems.

The following is a typical application:

- closed solar systems

### Maintenance

We recommend conducting the measures listed below regularly and to enter into a maintenance agreement between operating company and installation company.

	Operation	Interval	Carried out by
Inspection	Function check by verifying the response: While the system is operating, briefly open the safety valve by turning the cap. After closing the cap the valve must close again the backed up water drain completely.	Every six months	User or specialist
Maintenance	If a malfunction is detected, a repair can be attempted by opening and closing the cap several times. A replacement is necessary if this action is not successful.	Annually	Specialist

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