

Safety relief valve for solar systems

253 series

CALEFFI
SOLAR



General

The safety relief valves manufactured by Caleffi are produced in compliance with the essential safety requirements of the Directive 97/23/EC of the European Parliament and the Council of the European Union for the Harmonization of Member States with regard to pressurized equipment.

Function

These safety relief valves are used to control pressure in the primary circuits of solar heating systems.

When the calibrated pressure is reached, the valve opens to release the fluid into the atmosphere and prevents the pressure in the system from reaching levels that might damage the solar collectors and equipment.

These particular series of products have been specially made and certified to work at high temperature with a glycol medium.



TÜV Rheinland is an approved U.S. Nationally Recognized Testing Laboratory (NRTL) Certification Body for Pressure Equipment

Product range

253 series Safety relief valve for solar systems

size 1/2" F x 3/4" F

Technical specifications

Materials: - body: brass chrome plated
 - control spindle: brass
 - relief seal: high resistance elastomer
 - spring: stainless steel
 - control knob: PA6G30

Medium: water, glycol solutions
 Max. percentage of glycol: 50%

Normal pressure: 150 psi (10 bar)
 Working temperature range: -20 to 360°F (-30 to 180°C)

PED section: IV
 Approval: according to TÜV SV 07 2009
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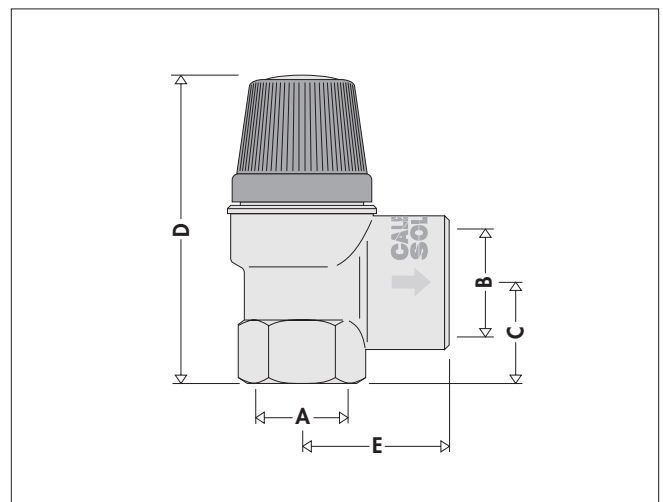
Connections: 1/2" F x 3/4" F

Performance

Opening overpressure: 10%
 Closing differential: 20%
 Discharge capacity: 171,000 BTU (50 kW)

| Code | 253043 | 253044 | 253046 | 253048 | 253040 |
|------------------|--------|--------|--------|---------|----------|
| Preset psi (bar) | 45 (3) | 60 (4) | 90 (6) | 120 (8) | 150 (10) |

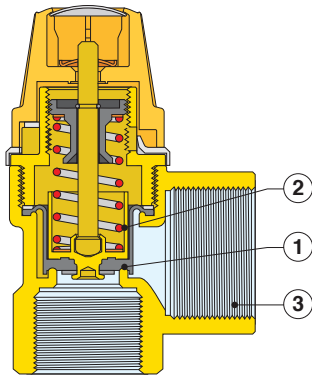
Dimensions



| Code | A | B | C | D | E | Weight (lb) |
|--------|------|------|----|--------|--------|-------------|
| 25304_ | 1/2" | 3/4" | 1" | 2 3/4" | 1 3/8" | 0.3 |

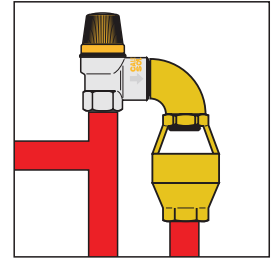
Operating principle

The valve disk (1), pressed by a preset spring (2), raises off the seat when reaching the preset pressure and fully opens the outlet vent. The preset pressure is chosen according to the maximum permissible pressure in the solar heating system. The diameter of the outlet connection (3) is greater than the inlet in order to help discharge the required volume. As the pressure decrease, the opposite action, occurs with the valve subsequently closing within the preset tolerances.



Discharge pipe

This valve should only be used and properly installed so that spillage of glycol could not cause damage. To avoid damage due to valve operation, a discharge pipe must be installed. It should terminate approximately 12" (305mm) above an appropriate container or through an air gap, as shown in the diagram, piped into a suitable container or other suitable place of disposal. Under no circumstances should the vent opening or drain line be plugged.



Construction details

Temperature and glycol

In solar systems, heating fluid of the primary circuit contains glycol as an additive and operates at high temperatures. Because of these particular operating conditions, the valve disk seal of the safety valve is made of high resistance elastomer. The knob is made of plastic material especially resistant to increases in temperature and to UV rays, in the case of outdoor installations.

Chrome plating

The valve body is chrome plated to protect it from dirt and moisture, in the case of outdoor installations of solar heating systems.

Certification

253 series safety relief valves are certified for specific use in solar heating systems by the certifying body TÜV, in accordance with standard SV 100 Ed. 10.01 par. 7.7. TÜV Rheinland is an approved U.S. Nationally Recognized Testing Laboratory (NRTL)

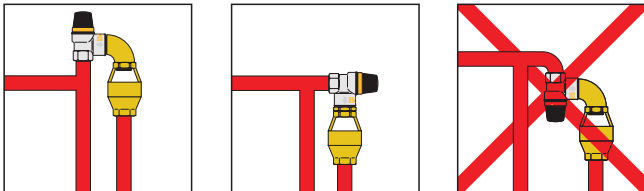
Installation

The safety relief valves for solar systems must be installed near the point in the circuit where the system is filled - before the expansion tank.

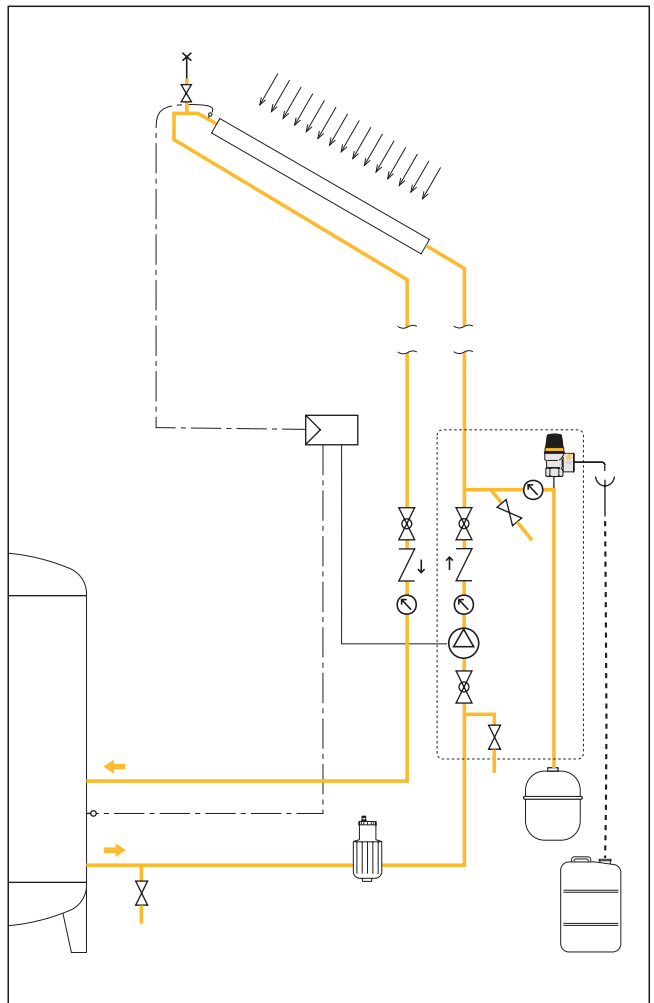
Make sure there are no shut-off devices between the valve and the rest of the system.

The safety relief valves can be fitted vertically or horizontally but not upside down. This prevents deposits of impurities from affecting correct functioning.

The safety relief valves must be installed in line with the flow direction indicated by the arrow on the valve body.



Application diagram



SPECIFICATION SUMMARIES

253 series

Safety relief valve for solar heating systems. CE mark as per Directive 97/23/EC. TÜV certified for solar systems. 1/2" F x 3/4" F threaded connections. Brass body. Chrome plated. Diaphragm and disk seal in high resistance elastomer. Spring of stainless steel Control knob of PA6G30. Temperature range: -20 to 360°F (-30 to 180°C). Nominal pressure: 150 psi (10 bar). Calibration setting: 45, 60, 90, 120, 150 psi (3, 4, 6, 8, 10 bar). Medium: water and glycol solutions. Maximum percentage of glycol: 50%.