

Combined temperature and pressure relief valves for solar thermal systems

309 series

**CALEFFI
SOLAR**

01147/24 EN

replaces 01147/07 EN



General

The combined temperature and pressure (TP) relief valves for solar thermal systems are made by Caleffi S.p.A. in compliance with the essential safety requirements set out by Directive 2014/68/EU of the European Parliament and the Council of the European Union for harmonisation of member States with regard to pressurised equipment.

Function

The TP safety relief valve controls and limits the temperature and pressure of the hot water contained in a domestic hot water solar storage unit and prevents it from being able to reach temperatures over 100 °C, with the formation of water vapour.

On reaching the setting values, the valve discharges enough water into the atmosphere to ensure the temperature and pressure values fall back within the operating limits of the system.

It is also certified as being compliant with the performance requirements set out in European standard EN 1490 (setting values 7 - 10 bar).



Product range

309 series Combined temperature and pressure relief valves for solar thermal systems _____ Sizes 1/2" x Ø 15 mm, 3/4" x Ø 22 mm

Technical specifications

Materials:

Body:	Dezincification resistant alloy CR
	EN 12165 CW602N, chrome plated
Stem:	brass EN 12164 CW614N
Obturator and diaphragm:	EPDM
Spring:	steel EN 10270-1 SH
Control knob:	PA6GF

Performance:

Nominal pressure:	PN 10
Discharge rating:	- 1/2" Ø 15: 10 kW
	- 3/4" Ø 22: 25 kW
Medium:	water
PED category:	IV
Settings:	- temperature: 90 °C
	- pressure: 6 - 7 - 10 bar

Connections: 1/2" M x Ø 15 mm with olive fitting for copper pipe
3/4" M x Ø 22 mm with olive fitting for copper pipe

Code ending (. .)

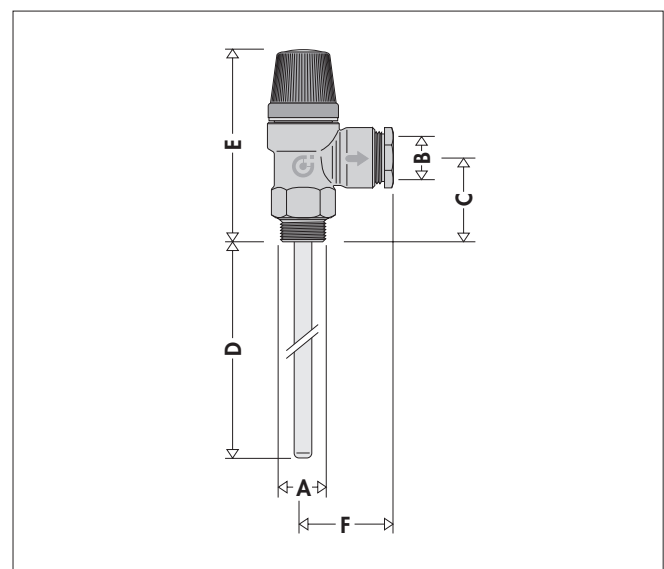
Code **3094..**

61 → 6 bar	71 → 7 bar	01 → 10 bar
-------------------	-------------------	--------------------

Code **3095..**

61 → 6 bar	71 → 7 bar	01 → 10 bar
-------------------	-------------------	--------------------

Dimensions



Code	A	B	C	D	E	F	Mass (kg)
3094 . .	1/2"	Ø 15	40	102	88	39	0,25
3095 . .	3/4"	Ø 22	43	99	91	39	0,31

Operating principle

The valve opens the outlet on reaching the settings for:

- **temperature:** the thermostatic element contained in the temperature probe (1) immersed in the hot water storage tank expands when the temperature increases. This expansion causes a thrust pin to move and act on the obturator (2), opening the valve. The valve is set to open at temperatures over 90 °C.
- **pressure:** the obturator, opposed by a set spring, rises on reaching the setting pressure and fully opens the outlet. The setting pressure is chosen according to the maximum permissible pressure in the system.

As the temperature and pressure decrease the opposite action takes place, with the valve subsequently reclosing within the set tolerance values.

Certification

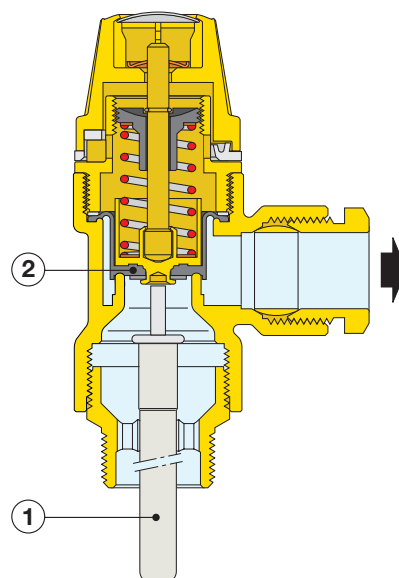
CE Mark

309 series TP safety relief valves for solar thermal systems meet the requirements of Directive 2014/68/EU for pressurised equipment (also referred to as P.E.D.). They are therefore classified as category IV and are CE marked.

Product certified in accordance with the EN 1490 European standard.

European Standard EN 1490: 2000, titled "Building valves - Combined temperature and pressure relief valves - Tests and requirements", describes the construction and performance specifications the TP safety relief valves must possess.

Caleffi 309 series TP safety relief valves for solar thermal systems are certified by the Buildcert (UK) Certifying Authority as compliant with the requirements of European Standard EN 1490 (for setting values of 7 - 10 bar).



Construction details

Knob

The knob is made using plastic material that is particularly resistant to temperature increases and UV rays, in case of outdoor installation.

Chrome plating

The valve body is chrome plated to protect it from aggressive atmospheric agents, in the case of outdoor installation of solar thermal systems.

Installation

Before installing a TP safety relief valve, it must be correctly sized by qualified technical personnel in accordance with the current legislation governing the specific applications. Any use other than the intended use is prohibited. TP safety relief valves must be installed by qualified technical personnel in accordance with current legislation. The TP safety relief valve must be installed in correspondence with the flow direction indicated by the arrow on the valve body.

Mounting

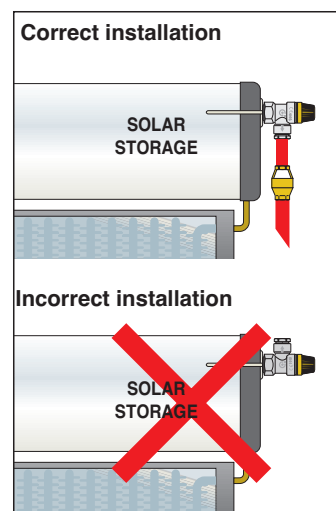
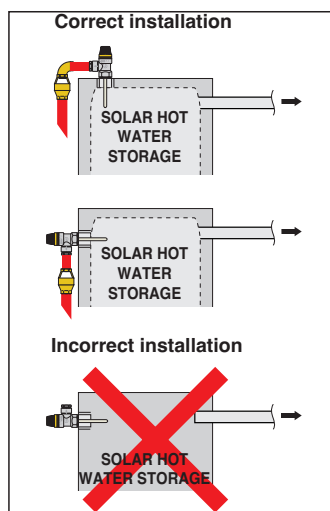
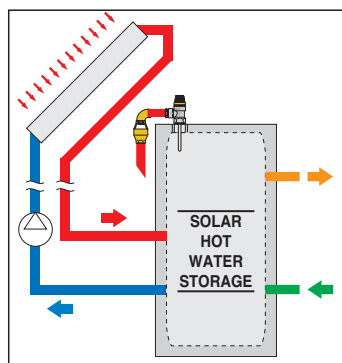
Hydraulic and domestic water system

TP safety relief valves must be installed at the top of the solar hot water storage tank, making sure the temperature probe is properly immersed in the tank.

Make sure that there are no shut-off devices between the valve and the storage tank.

TP safety relief valves can be fitted vertically or horizontally, but not upside down.

This prevents deposits of impurities from affecting proper operation.



SPECIFICATION SUMMARY

309 series

Combined temperature and pressure relief valves for solar thermal systems. Bearing CE mark as per Directive 2014/68/EU. Dezincification resistant alloy body, chrome plated. Brass stem. EPDM obturator and diaphragm. Steel spring. Glass-filled nylon control knob. Threaded connections 1/2" M x Ø 22 mm at inlet and Ø 15 mm (and 3/4" M x Ø 22 mm) with olive fitting for copper pipe at outlet. Setting temperature 90 °C. Setting pressure 6 bar (available pressure values: 6 - 7 - 10 bar). Valves with setting value 7 - 10 bar certified to EN standard 1490. Discharge rating: 1/2" x Ø 15 mm, 10 kW; 3/4" x Ø 22 mm, 25 kW. Medium: water. PED category IV. Nominal pressure PN 10.

We reserve the right to make changes and improvements to our products and the related technical data in this publication, at any time and without prior notice. The website www.caleffi.com always has the most up-to-date version of the document, which should be used for technical verifications.