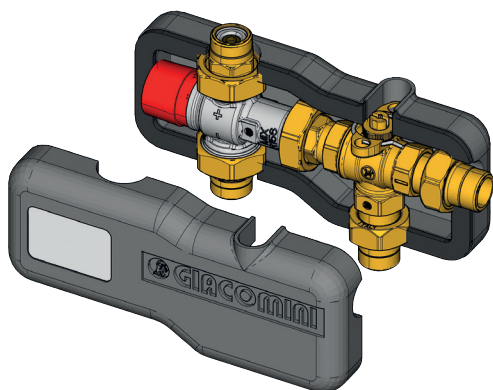
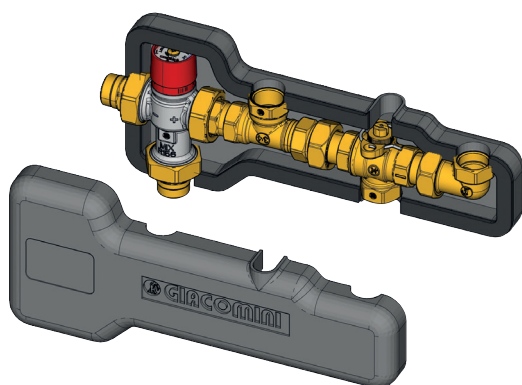


**GS550 GROUPS TO CONTROL SANITARY HOT WATER
PRODUCTION IN SOLAR THERMAL SYSTEMS**

GS550Y001

GS550Y002
Description

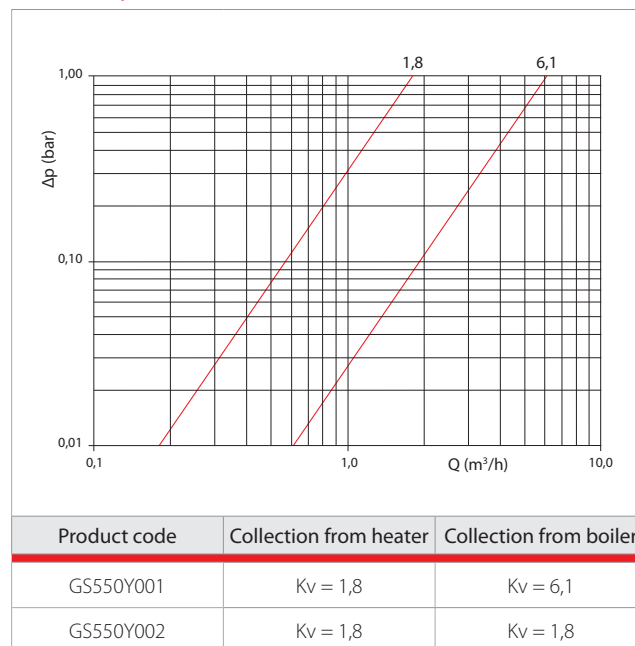
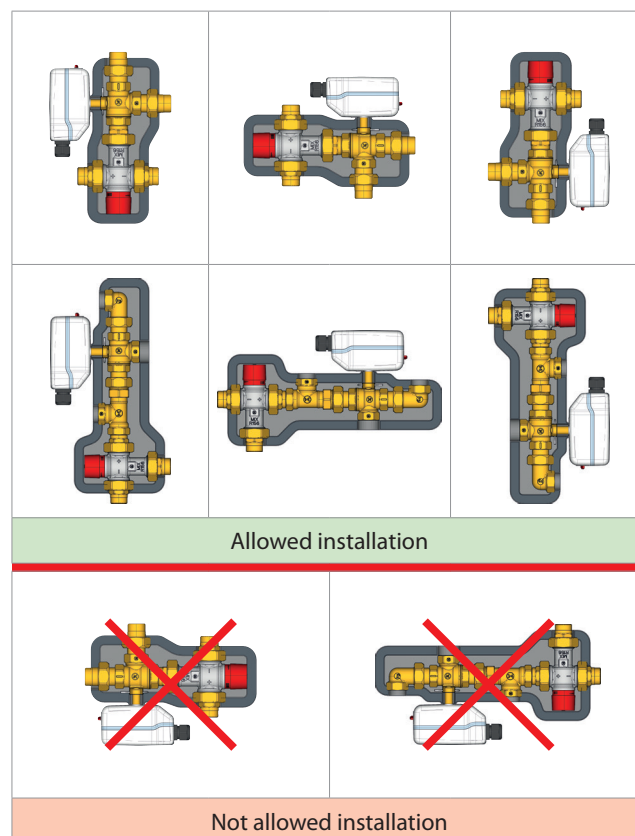
GS550 groups permit to control the production of sanitary hot water in the solar thermal systems, by switching the sampling between the solar heater and the boiler depending on the temperature conditions detected at the heater. They also allow a rapid connection among solar heater, boiler and distribution circuit of the sanitary hot water to the final users. The components of the groups are preassembled in a compact set, that has a standard insulation made of crosslinked expanded polyethylene (PE), composed of two semi-shells that also protect the groups. Two versions are available respectively for the connection of not modulating boiler, or modulating one in the production of sanitary hot water (SHW). The thermostatic mixer integrated into the group guarantees the transfer of sanitary water to the final users at the correct temperature (antiscald function), to be set through the graduated handwheel.

Product codes and versions

Product codes	Version
GS550Y001	Per caldaia non modulante
GS550Y002	Per caldaia modulante

Technical data

- 3/4" connections
- Max. working temperature: 90°C
- Max. working pressure: 10 bar

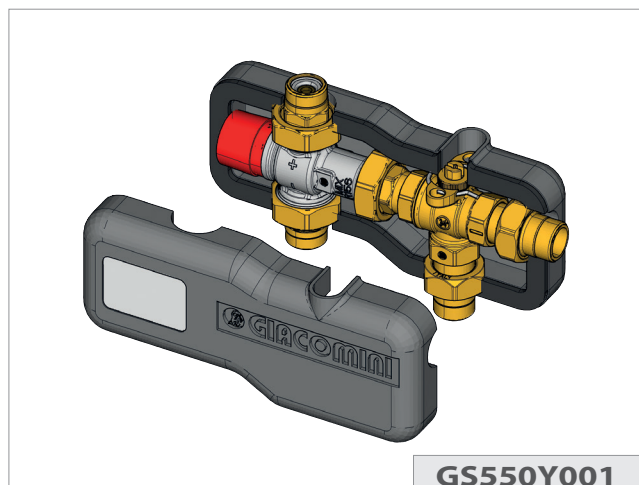
Losses of pressure

Installation

Danger!

The presence of hot heating fluid in the pipe lines determines the danger of burns. The electrical connections shall be effected by qualified personnel.


Caution!

For the correct operation of the GS550 group, respect scrupulously the connection scheme reported on the front side of the insulation.

GROUP TO BE USED WITH NOT MODULATING BOILER



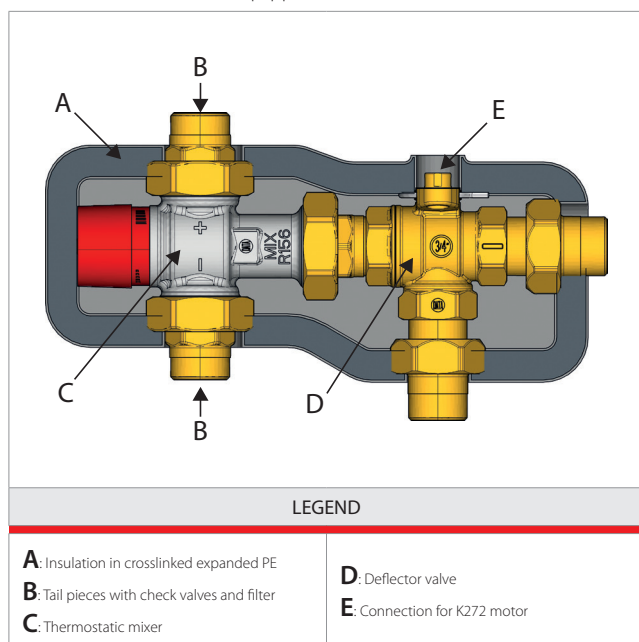
GS550Y001

The connection group GS550Y001 is realized for the quick connection of:

- A solar heater
- A not modulating boiler
- A circuit of sanitary hot water distribution to the final users

Composition

GS550Y001 group (fig. 1) includes a thermostatic mixer for solar systems with possibility of temperature setting ($38 \pm 60^\circ\text{C}$), check valves, filters and a deflector valve that can be equipped with motor.



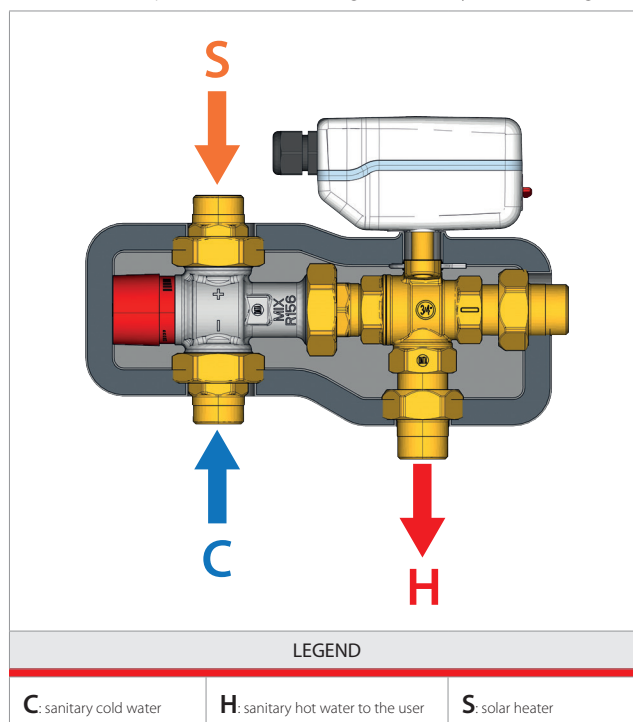
LEGEND

- | | |
|--|-------------------------------------|
| A: Insulation in crosslinked expanded PE | D: Deflector valve |
| B: Tail pieces with check valves and filter | E: Connection for K272 motor |
| C: Thermostatic mixer | |

Figure 1 – Composition of GS550Y001 group

Flow schemes

When the temperature detected by the heater sensor is higher than the threshold set on the regulator ($T_{\text{HEATER}} > T_{\text{SET}}$), the regulator drives the deflector valve so as to close the way connected to the boiler, and collects heated water from the heater upon thermostatic mixing with sanitary cold water (fig.2).

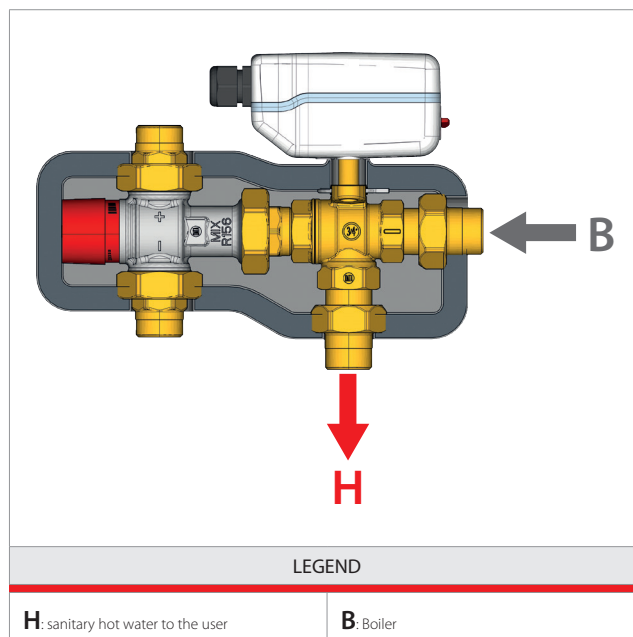


LEGEND

- | | | |
|-------------------------------|--|------------------------|
| C: sanitary cold water | H: sanitary hot water to the user | S: solar heater |
|-------------------------------|--|------------------------|

Figure 2 – Flows in case of temperature to the boiler higher than the temperature set on the regulator (collection from heater).

When the temperature detected by the heater sensor is lower than the set threshold ($T_{\text{HEATER}} < T_{\text{SET}}$), the regulator drives the deflector valve so as to close the way connected to the thermostatic mixer, and collects the water heated by the boiler (fig.3).

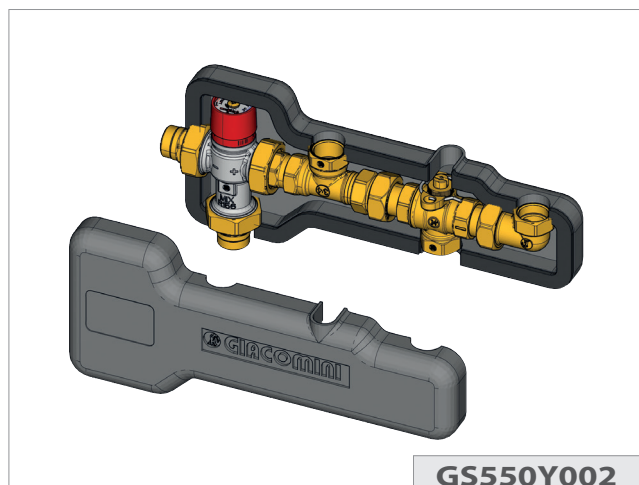


LEGEND

- | | |
|--|------------------|
| H: sanitary hot water to the user | B: Boiler |
|--|------------------|

Figure 3 – Flows in case of temperature to the boiler lower than the temperature set on the regulator (collection from heater).

THERMAL INTEGRATION GROUP WITH MODULATING BOILER



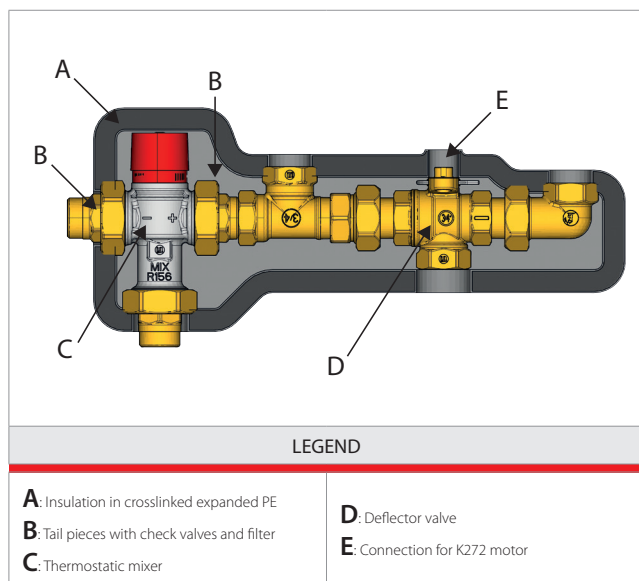
GS550Y002

The connection group GS550Y002 is realized for the quick connection of:

- A solar heater
- A modulating boiler in the production of SHW
- A distribution circuit of sanitary hot water to the final users

Composition

GS550Y002 group includes a thermostatic mixer for solar systems with possibility of temperature setting (38÷60°C), check valves, filters, a deflector valve that can be motorized and the flow and return connections to the boiler.



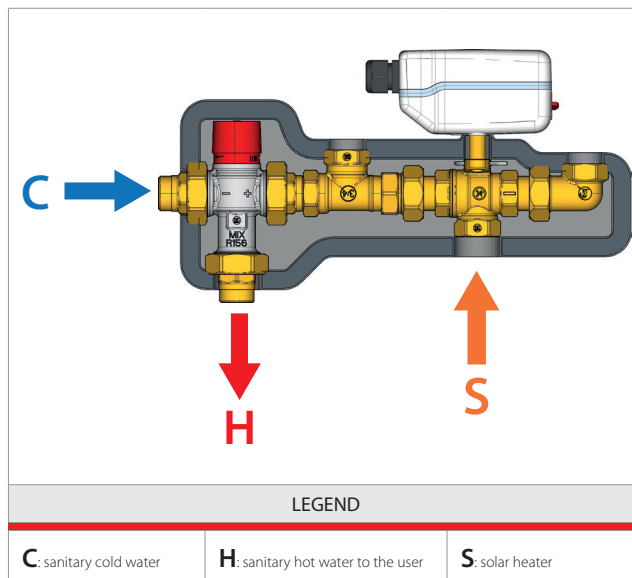
LEGEND

- | | |
|--|-------------------------------------|
| A: Insulation in crosslinked expanded PE | D: Deflector valve |
| B: Tail pieces with check valves and filter | E: Connection for K272 motor |
| C: Thermostatic mixer | |

Figure 4 – Composition of the GS550Y002 group.

Flow schemes

When the temperature detected by the heater sensor is higher than the threshold set on the regulator ($T_{\text{HEATER}} > T_{\text{SET}}$), the regulator drives the deflector valve so as to close the way connected to the boiler, and it takes heated water from the heater, by sending it directly to the sanitary circuit after a possible mixing with sanitary cold water (fig.5).

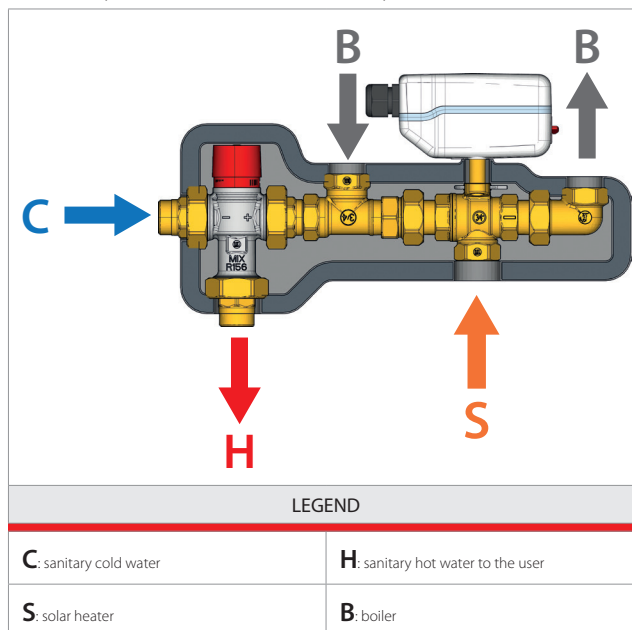


LEGEND

- | | | |
|-------------------------------|--|------------------------|
| C: sanitary cold water | H: sanitary hot water to the user | S: solar heater |
|-------------------------------|--|------------------------|

Figure 5 – Flows in case of temperature to the heater higher than the temperature set on the thermostatic mixer (collection from heater).

When the temperature detected by the heater sensor is lower than the set threshold ($T_{\text{HEATER}} < T_{\text{SET}}$), the regulator drives the deflector valve so as to close the way on the mixer side and transfer to the boiler the preheated water from the heater. The boiler (modulating type) integrates the preheating and it transfers the water to the thermostatic mixer (fig. 6) that, after possible mixing with sanitary cold water, send it to the sanitary circuit.



LEGEND

- | | |
|-------------------------------|--|
| C: sanitary cold water | H: sanitary hot water to the user |
| S: solar heater | B: boiler |

Figure 6 – flows in case of temperature to the heater lower than the temperature set on the thermostatic mixer (integration by means of modulating boiler).

Identification of the position and the flow direction

The stem of the deflector valve on the upper part has an engraving and a chamfering, and two arrows are on the knurled nut.

From the engraving and chamfering position, it is possible to determine in which direction the deflector valve forwards the heating fluid coming from the solar heater.

Collection from heater	Collection from boiler
Groove longitudinally placed and chamfering towards the arrow 1: the water coming from the solar heater is deviated towards the thermostatic mixer (see below)	Groove transversally placed and chamfering towards the arrow 2: the water coming from the solar heater is deviated towards the boiler (see below)
 GS550Y001	 GS550Y001
 GS550Y002	 GS550Y002

Accessories to be ordered separately

For the operation of the GS550 connection groups, please order separately the K272 motor that activates the deflector valve, and the KTD regulator for the control of the valve-motor group depending on the conditions detected at the heater.

K272 motor

The use of the K272 motor, equipped with handle for manual manoeuvre, allows to display immediately the operation condition of the group (collection from heater or from boiler).

	K272Y001 Motor that activates the deflector valve of GS550 group. It allows a 90° rotation in approx. 40 seconds. Supply 230 V - 50 Hz.
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KTD3 regulator

The regulator has a graphic back-lit display, four pushbuttons, a procedure of assisted programming, and on line accessible help texts. The resident programs in the regulator permit to set different system configurations; in order to control GS550 group, choose program n° 18.

	KTD3Y003 Electronic regulator for the control of the motor-deflector valve group of the GS550. Three Pt1000 temperature sensors are included. Supply 230 V - 50 Hz.

**GS550 GROUPS TO CONTROL SANITARY HOT WATER
PRODUCTION IN SOLAR THERMAL SYSTEMS**

Electrical connections

The figure reports the electrical connections between the KTD3 regulator and the K272 motor that are a part of GS550 group.

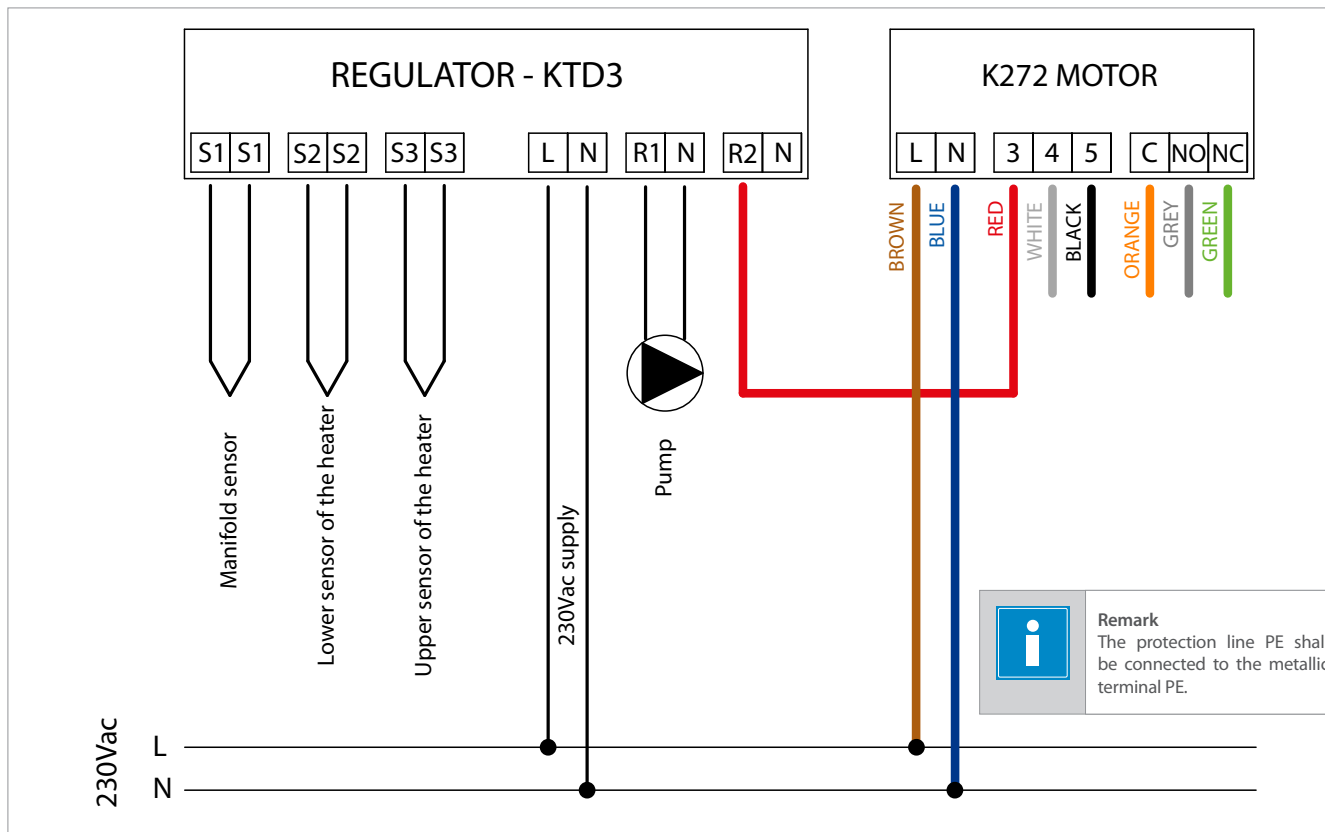


Figure 7

Operation

Parameter setting

For the correct operation of the GS550 group, it is recommended to set the temperature T_{SET} on the regulator at a value of at least 5°C higher than the set value of the thermostatic mixer, with the temperature sensor (S3) being introduced into the upper sensor holder of the solar heater (see application examples on fig. 9-10). That sensor has to be connected to S3 terminal of the regulator.

If GS550Y001 group is not able to guarantee the value set on the thermostatic mixer, a limitation of the sanitary cold water circuit can be necessary at the inlet of the mixer through a valve.

The temperature during the operation shows a temperature drop (T_{SHW}) at the outlet of the GS550 after the switching of the collection from solar heater to boiler. In order to reduce this temperature change, it is recommended - to reduce as much as possible the length of the connection pipe to the boiler; - increase the T_{SET} value set on the regulator.

The group GS550Y002 (thermal integration with modulating boiler) allows reducing the temperature change during the switching of the collection.

Thermostatic mixer regulation

The thermostatic mixer integrated into the GS550 groups offers five calibration positions, to set the flow temperature (T_{SHW}) to the distribution circuit of the sanitary hot water towards the final users. The set range goes from 38 to 60°C; a reference temperature (tab.1) corresponds to each value of the numbering on the handwheel. The regulation of the mixer is effected by lifting the handle, and rotating it up to the attainment of the chosen numbering, and subsequently by repositioning it into the grooved seats at the body tops.

Position	1	2	3	4	5
T_{SHW} [°C]	38,0	43,5	49,0	54,5	60,0

Tab. 1

Thermostatic mixer technical data

- Max. working temperature: 100°C
- Max. working pressure: 16 bar
- Regulation range: 38÷60 °C
- Regulation scale subdivision: 1 °C
- Regulation precision: ±1 °C
- Complying with A.S.S.E. 1017 standard

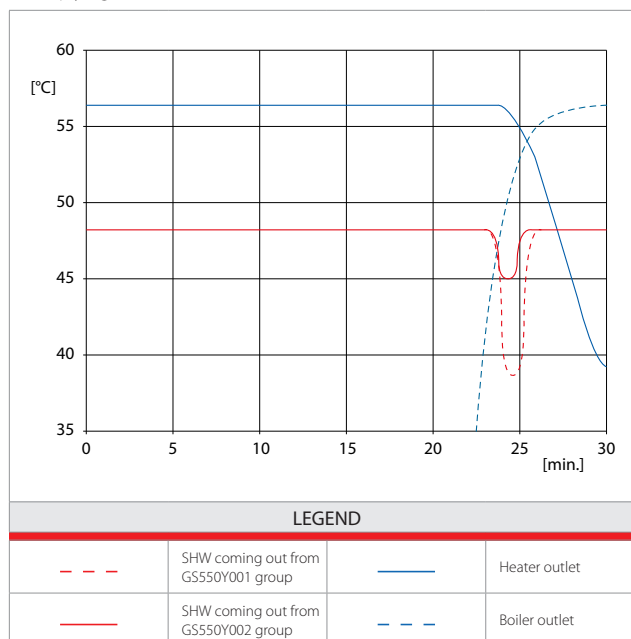


Figure 8 – qualitative trend of the temperatures for:

300 l heater;
SHW production of 10 l/min
Overall length of the pipes between GS550 groups and the boiler: 2,5 m

Application examples

GS550Y001 GROUP – NOT MODULATING BOILER

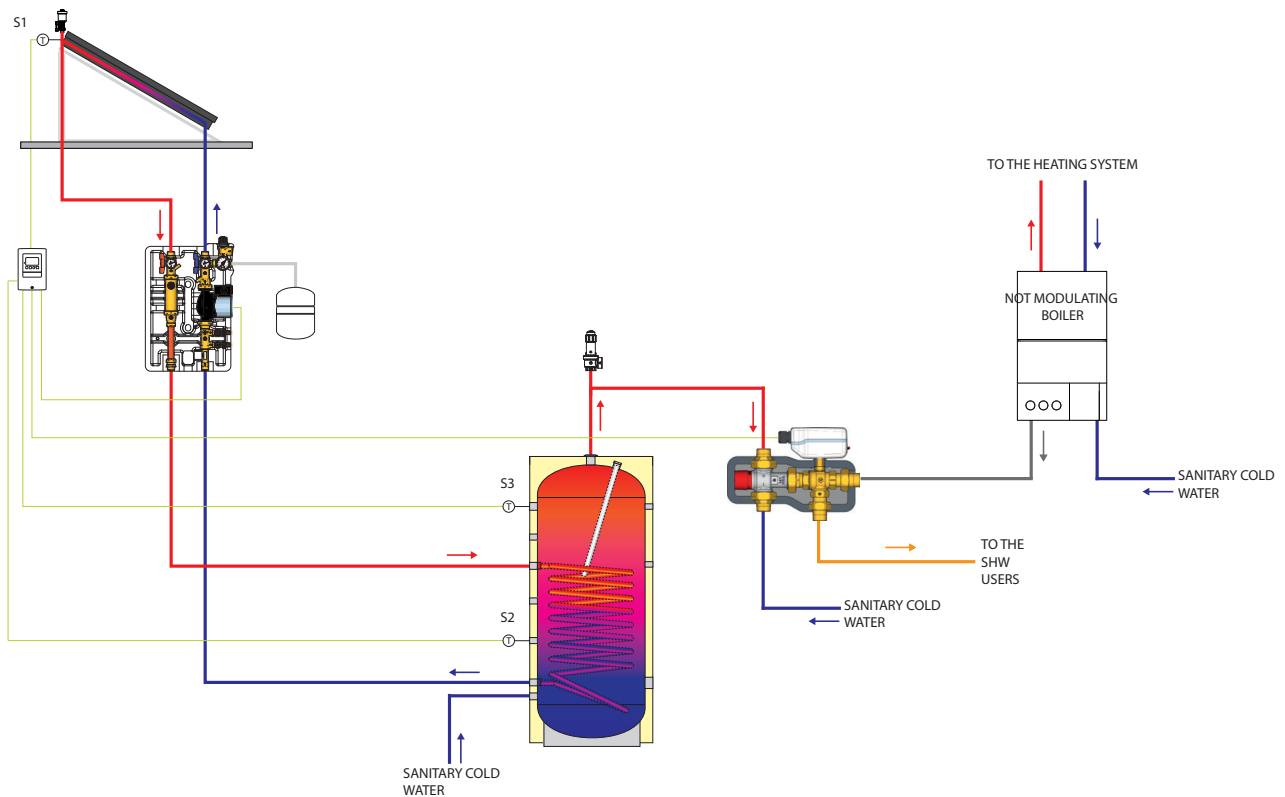


Figure 9

GS550Y002 GROUP – MODULATING BOILER

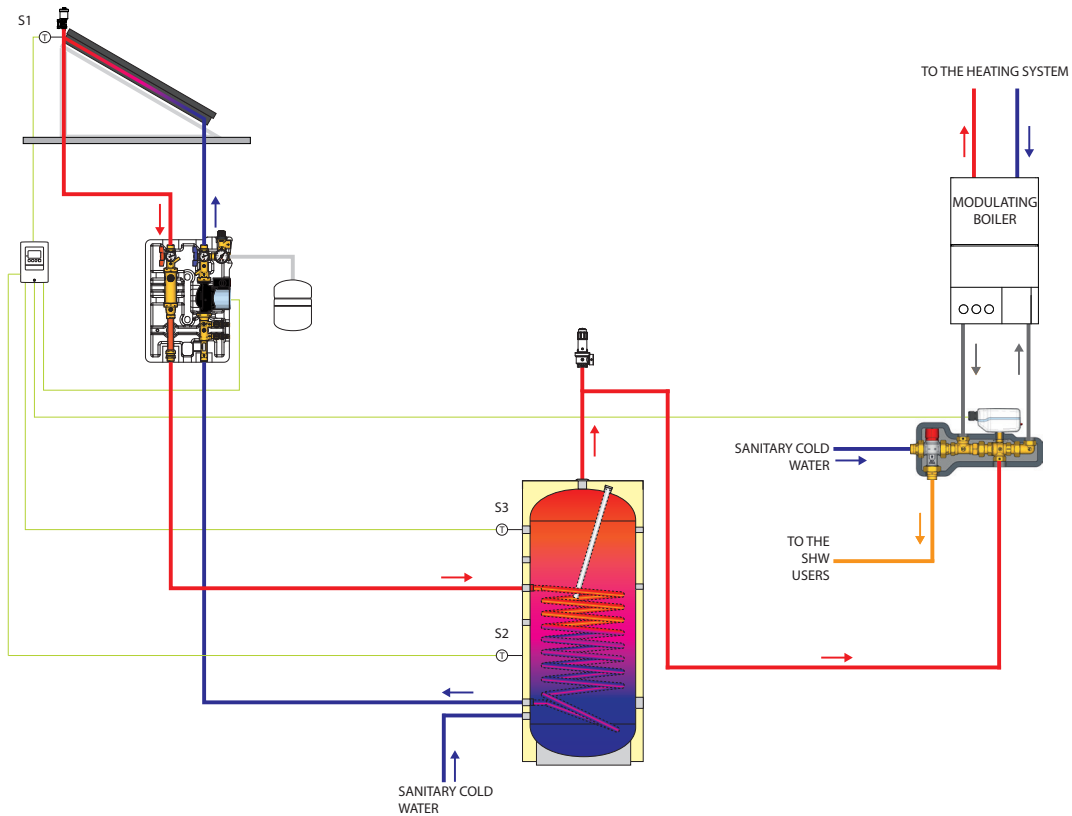


Figure 10

Dimensions

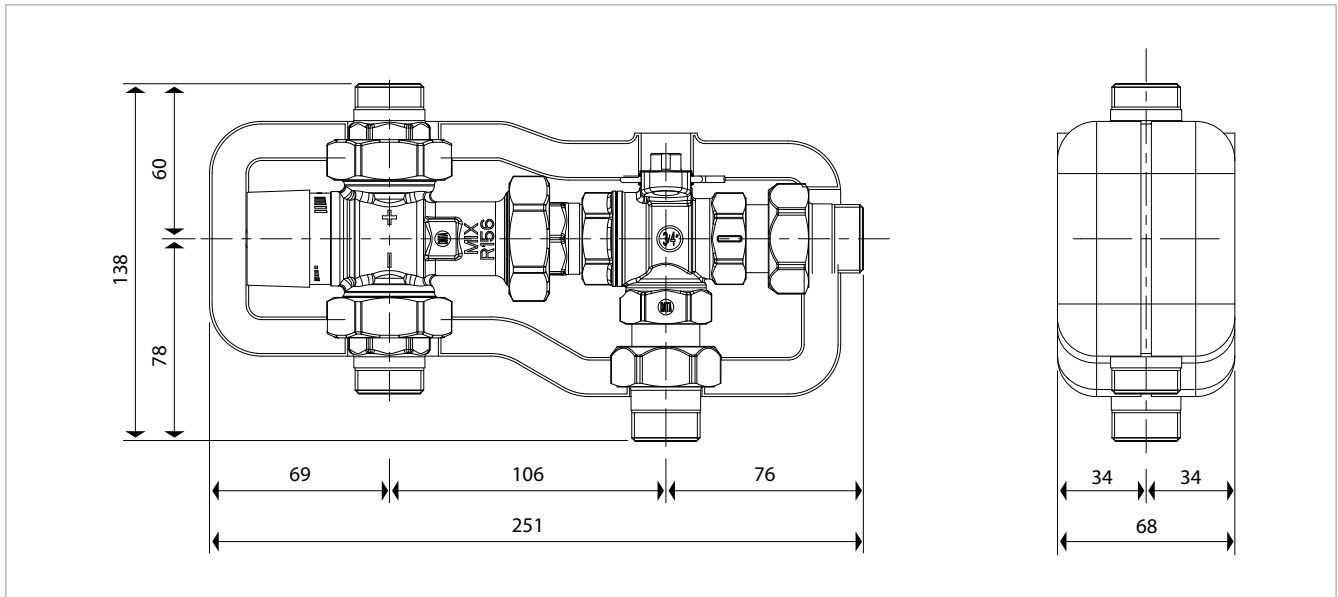


Figure 11 – GS550Y001 dimensions, in mm

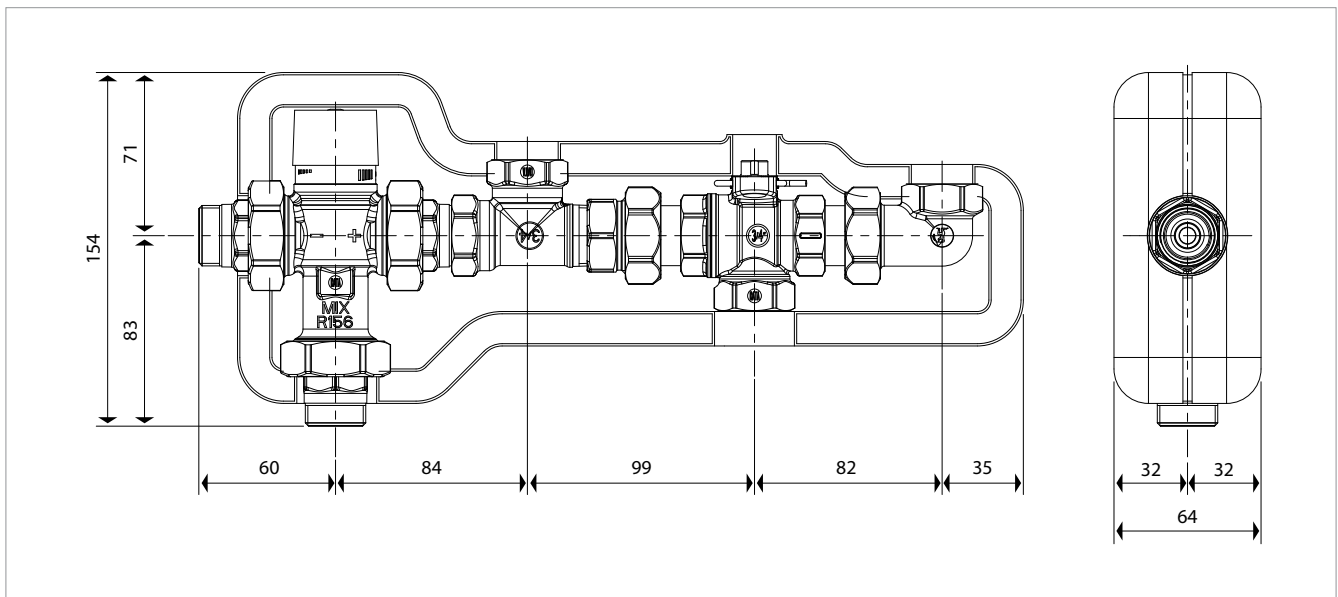


Figure 12 – GS550Y002 dimensions, in mm

Additional information

For additional information please check the Giacomini website at the following address: www.giacomini.com

☎ +39 0322 923372

☎ +39 0322 923255

✉ consulenza.prodotti@giacomini.com

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Giacomini S.p.A. Via per Alzo, 39 I-28017 San Maurizio d'Opaglio (NO) Italy