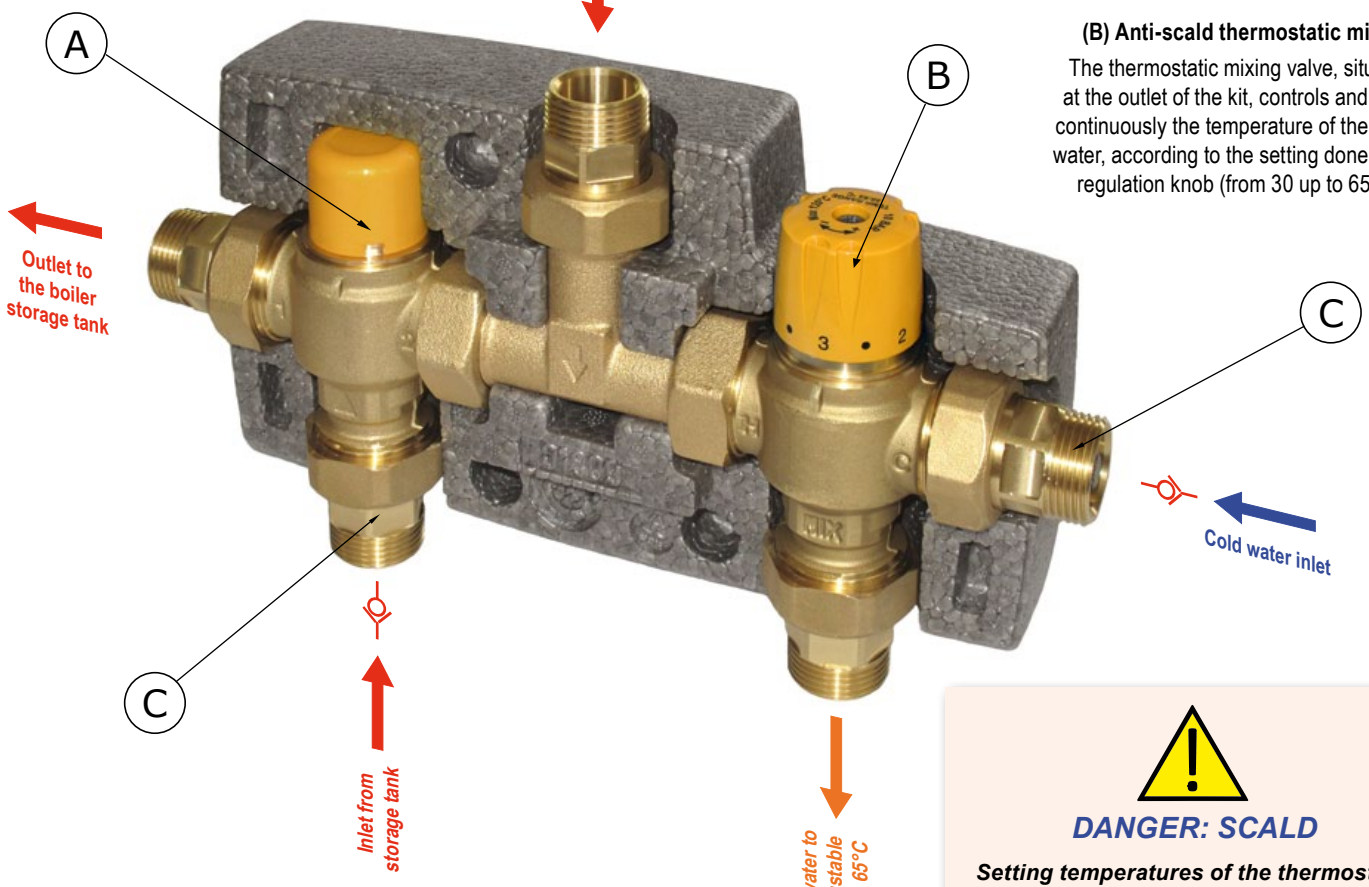
SOLAR KIT 1 - THERMOSTATIC SOLAR BOILER CONNECTION KIT

List and features of main components

(A) Thermostatic diverting valve

Its function is to divert hot water, coming from the solar storage tank, into the boiler storage tank, when the temperature of the solar storage tank is less than 48°C (presetting shop temperature). On the contrary if, as it happens during the summer, the temperature is over 48°C, hot water is directly sent to the thermostatic mixer. Thanks to this device the working time of the boiler is reduced to the minimum, avoiding intermittent startings.

SAFETY: *Please read carefully the mounting and working directions before operating the device, in order to prevent accidents and failures of the installation caused by improper use of the product. Keep this manual for further consultations.*



(B) Anti-scald thermostatic mixer

The thermostatic mixing valve, situated at the outlet of the kit, controls and limits continuously the temperature of the user's water, according to the setting done on the regulation knob (from 30 up to 65°C).

(C) Pipe union with check valve and filter

The check valve built into the pipe fitting, specially made for solar use, prevents unwelcome circulations and refluxes in case of pressure imbalances. Filters protect the inside works of the diverting valve and of the thermostatic mixing valve against impurities, assuring a long and precise working.

DANGER: SCALD

Setting temperatures of the thermostatic mixing valve higher than 55°C may cause scalds in a very short time, particulary to the childrens. Therefore we recommend to install a security anti-scald device in the crucial outlets.

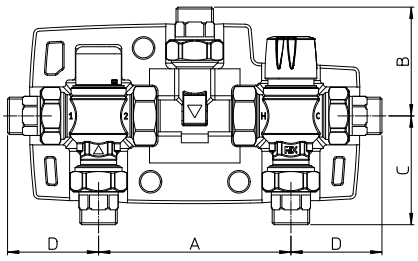
Technical features

Maximum static pressure:	***10 bar***
Dynamic minimum pressure:	***5 bar***
Maximum ratio between the pressures:	***2:1***
Maximum inlet temperature:	***constant 100 °C; short time: 120 °C for 20 s***
Temperature setting range / Precision:	***30 ÷ 65 °C / ± 2 °C***

Connections: 3/4" Male (swivel union)
Centre distance: 136 mm.
"T" central connection with adjustable angular position of connections; in some positions it'll be necessary to remove the insulation box.

Available models

✓ Small use up to 35 l/min (3 bar): ***Kvs 1,2***
✓ Medium use up to 49 l/min (3 bar): ***Kvs 1,7***



Dimensions		
	Kvs 1,2	***Kvs 1,7***
A	136	136
B	77	77
C	74	77
D	61	64

EPP insulation box
Measurements: 234 x 128 x 100 mm.

Once the installation finished place the protection cover (we suggest a minimum distance of 100 mm from the pipes axis to the wall to make easy the insertion) and check again the fittingness of the connections together with the indications written on the cover.

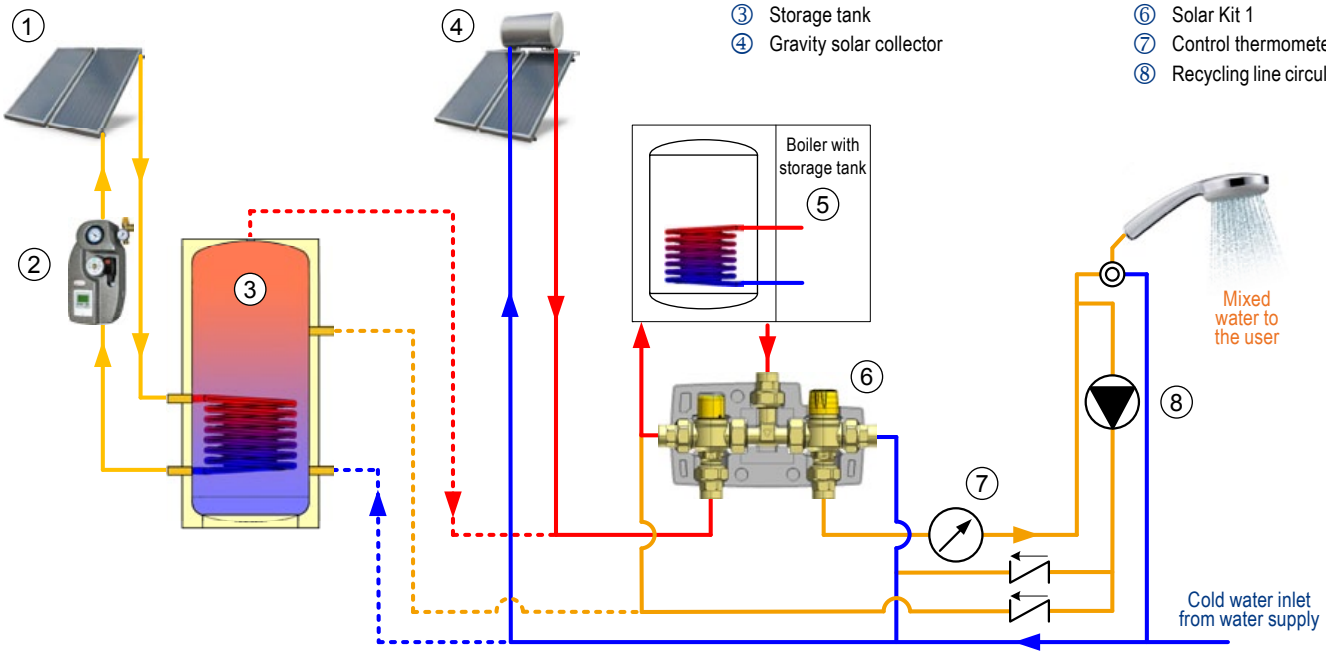


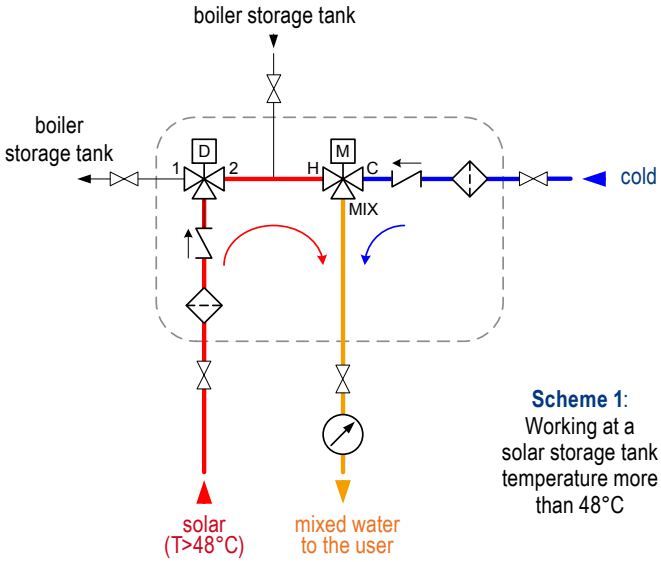
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SOLAR KIT 1 - THERMOSTATIC SOLAR BOILER CONNECTION KIT

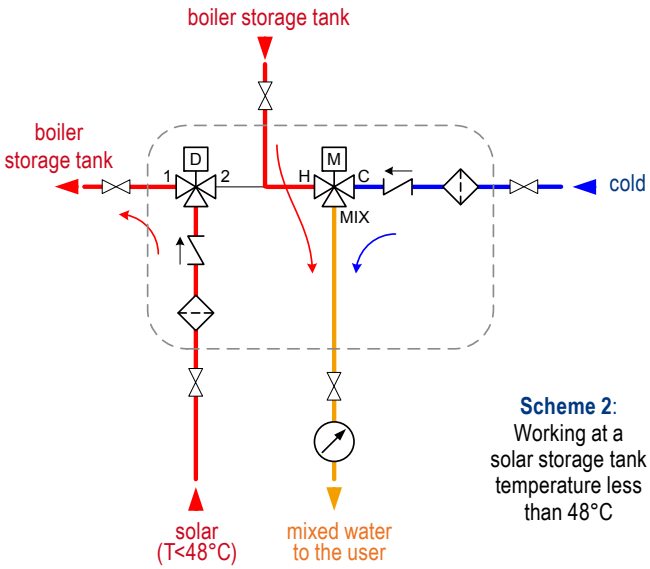
Connection hydraulic scheme

① Forced circulation solar collector
② Solar pumping station
③ Storage tank
④ Gravity solar collector
⑤ Wall or base boiler with built-in storage tank
⑥ Solar Kit 1
⑦ Control thermometer
⑧ Recycling line circulating pump





Scheme 1: Working at a solar storage tank temperature more than 48°C



Scheme 2: Working at a solar storage tank temperature less than 48°C

Preset automatic thermostatic diverting valve; outlet toward gate **1** when the temperature is less than 48°C; towards gate **2** when it is more than 48°C.

Anti-scald thermostatic mixing valve, adjustable from 30 up to 65°C; hot water inlet "**H**" from the union, cold water inlet "**C**" from water supply; mixed hot water outlet **MIX** towards the user.

Solar check valve built-in the 3/4" Male union

Filter built-in the 3/4" Male union

Control thermometer (not included into the kit)

Isolating valve; to isolate the kit in case of service (not included into the kit).



Temperature setting

The temperature setting is done by rotating the knob to put the requested temperature value on the reference notch.

Temperatures at the reference notches:

MIN	1	2	3	4	5	MAX
~25°C	30°C	40°C	49°C	57°C	65°C	~70°C

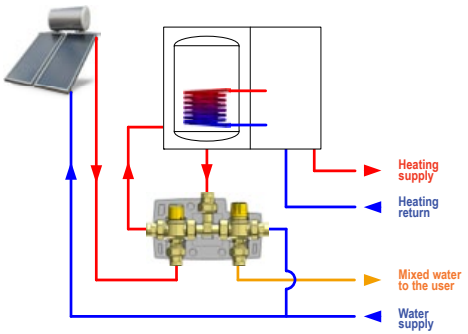
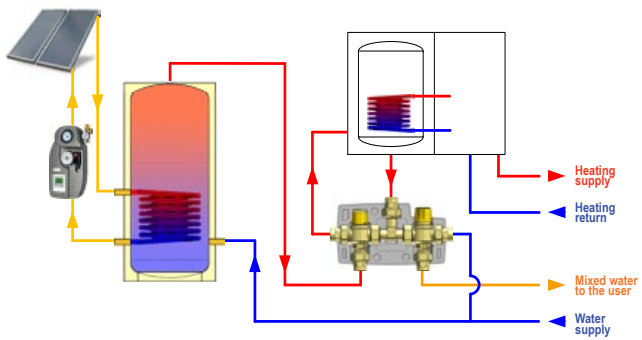
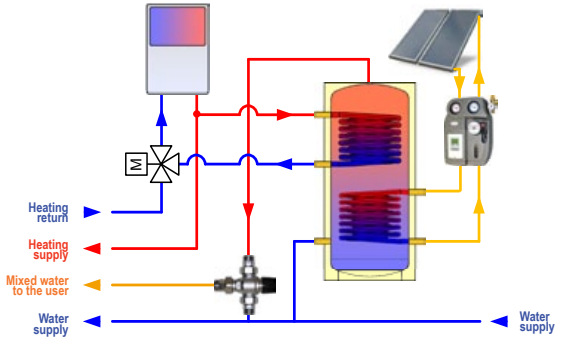
The above indicated values are related to the following operational conditions:
T_H = 65 °C T_C = 15 °C P = 3 bar

ANTI-SCALD SAFETY

The anti-scald function automatically cuts the hot water flow in case of failure of the cold water circuit. This security is operating at a temperature difference of 10 K between the hot water inlet temperature and the mixed outlet temperature.
Check this operation when the installation is running by closing the cold water isolating valve: the outlet flow of the mixed water must come down to zero very quickly.

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Most popular solar hydraulic schemes

CIRCUIT TYPE / COMPONENTS	*Natural circulation (gravity)*	*Forced circulation (glycol / closed circuit)*	
Basic scheme			
Boiler	Boiler with storage tank (for hot domestic water)	Boiler with storage tank (for hot domestic water)	Burner with only energy production (alternatively with hot domestic water with different hydraulic scheme)
Thermic tank	On the solar collector	Solar storage tank, single coil	Solar storage tank, double coil
HDW thermic control	Solar-boiler kit (Art. Solar Kit 1)	Solar-boiler kit (Art. Solar Kit 1)	Thermostatic mixer (Art. 799)
Solar pump unit	None	Art. S1 Solar 10 with ModvSol STDC, 1-way solar controller	Art. S2 Solar 30 with ModvSol TDC 3, 2-ways solar controller
Notes	The solar-boiler kit allows the use of the pre-heated water from the tank in Winter or mid-season periods as well. As a matter of fact, the water goes into the boiler at a definitively higher temperature of the one in the supply line. The energy necessary to increase its temperature up to the set value (ex. 60°C) is reduced to the minimum. It is also useful in case of further installations of a gravity circulation solar circuit to the existing system.	The solar-boiler kit allows to link the solar installation to the boiler with storage tank. Even in this case the use of the energy stored in the solar tank is optimized: the temperature of the water in it is increased by the boiler only when necessary, reducing to the minimum the gas consumption from the burner. It is also useful in case of further installations of a forced circulation solar circuit to the existing system.	The tank is always kept at temperature by the integration from the burner. For this reason it is possible to have a large quantity of hot water (depending on the capacity of the boiler) always ready to use. This is a definitively confortable, but relatively expensive system.