

# 4737SUN / 4738SUN / 4739SUN

## THERMOSTATIC MIXER

### FOR SOLAR SYSTEMS



#### DESCRIPTION

This thermostatic mixer for solar systems **allows instantaneous mixing of the incoming fluids, to guarantee the stability of the value set for the outlet fluid temperature**, not only when the flow rate required by the different utilities varies, but also when the pressure and temperature conditions of the primary fluids change.

The mixing function is carried out by the wax thermostatic element, which undergoes a change in volume when it comes into contact with the water, to determine the correct supply of incoming hot and cold water and, consequently, adjustment of the outgoing water temperature to the set value.

**Field of application:** Finds application in regulating and controlling the distribution temperature of the sanitary system coming from the solar storage heater / heat generator.

**This series of mixers is characterized by its resistance to high temperatures in continuous operation.**


To ensure the best performance, the mixer must be guaranteed a minimum flow rate (for further details see the "TECHNICAL SPECIFICATIONS" section of this technical data sheet).


**Anti-scald function:** If the flow of cold water should be interrupted, the passage of water stops completely within 5 seconds and before 200 ml of water can pass through, in compliance with UNI EN 1111.


#### ADVANTAGES / STRENGTHS

- Low thermal inertia thermostatic sensor: reacts quickly to variable input conditions, so offers very short response times.
- Equipped with anti-scald function: to comply with the UNI EN 1111 Standard
- Guarantees energy savings, greater comfort in the use of domestic hot water
- Complete with integrated filter
- Adjustable temperature range
- Replaceable cartridge
- Can be installed in all positions
- Application in solar systems: resistant to high temperatures in continuous operation.


PRODUCT RANGE

Art.	Description	Code	Body size *	Connection fittings
	Thermostatic mixer - <u>Female threaded fittings.</u>	470 0456	1/2"	G 1/2" F (ISO 228)
		470 0457	3/4"	G 3/4" F (ISO 228)

Art.	Description	Code	Body size *	Connection fittings
	Thermostatic mixer - <u>Male threaded fittings.</u>	470 0458	3/4"	G 3/4" M (ISO 228)
		470 0188	1"	G 1" M (ISO 228)

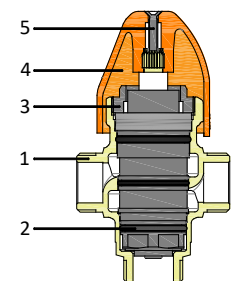
Art.	Description	Code	Body size *	Connection fittings
	Thermostatic mixer - <u>Male threaded fittings with unions.</u>	470 0459	3/4"	G 1/2" M (ISO 228)
		470 0476	3/4"	G 3/4" M (ISO 228)
	Thermostatic mixer - <u>Male threaded fittings with unions equipped with integrated check valves.</u>	470 0460	3/4"	G 1/2" M (ISO 228)
		470 0477	3/4"	G 3/4" M (ISO 228)

\* Reference measurement for identifying the declared performance data (Kv - flow rate at 3 bar) and choice of replacement cartridge.

Art.	Description	Code	Connection fittings	Integrated check valves
	Tang kit (3 pcs.) for thermostatic mixer art. 4738.	470 0454	G 3/4" F x G 1/2" M (ISO 228)	-
		470 0455	G 3/4" F x G 1/2" M (ISO 228)	YES
		470 0475	G 3/4" F x G 3/4" M (ISO 228)	-
		470 0474	G 3/4" F x G 3/4" M (ISO 228)	YES
		470 0190	G 1" F x G 3/4" M (ISO 228)	-
		470 0191	G 1" F x G 3/4" M (ISO 228)	YES
		470 0192	G 1" F x $\varnothing$ 22 copper pipe (ISO 228)	-

CONSTRUCTION SPECIFICATIONS

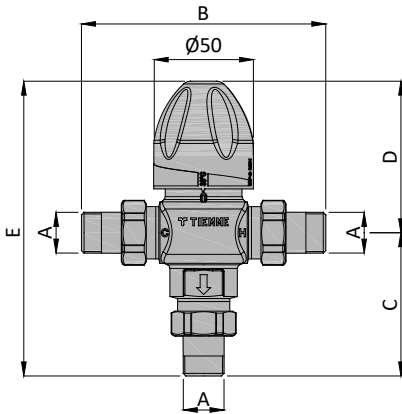
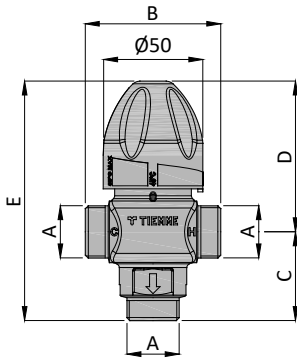
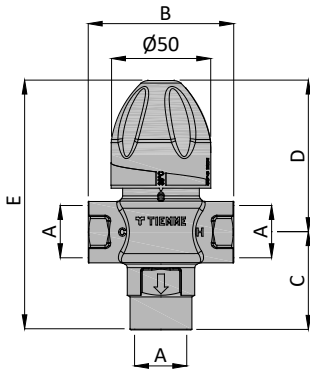
- (1) Body: CW617N chrome-plated brass
- (2) O-ring seals: EPDM
- (3) Ring nut: PA
- (4) Adjustment handwheel: PA
- (5) Handwheel fixing screw: AISI 304 stainless steel
- Threads: ISO 228



TECHNICAL SPECIFICATIONS

- Maximum static pressure: 10 bar
- Maximum dynamic pressure: 5 bar
- Maximum displacement between inlet pressures: 2:1 (maximum value  $\Delta P$  2 bar)
- Maximum inlet temperature: + 100 °C
- Minimum input/output  $\Delta T$ : 10 °C
- Temperature adjustment range: + 30 ÷ +55 °C
- Accuracy:  $\pm$  2 °C
- Minimum flow rate for correct operation: 6 l/min.
- Fluid compatibility: Drinking water
- Compliancy: UNI EN 1111

**DIMENSIONAL SPECIFICATIONS**



Thermostatic mixer - Female threaded fittings						
Art.	Code	A	B	C	D	E
4737SUN	470 0456	G 1/2" F	73	49	76	125
	470 0457	G 3/4" F	73	49	76	125

Dimensions in mm.

Thermostatic mixer - Male threaded fittings						
Art.	Code	A	B	C	D	E
4738SUN	470 0458	G 3/4" M	68	44	76	120
	470 0188	G 1" M	66	43	77	120

Dimensions in mm.

Thermostatic mixer - Male threaded fittings + tang kit						
Art.	Code	A	B	C	D	E
4738SUN + 4738KIT	470 0458 + 470 0454	G 1/2" M	122.5	72	76	148
	470 0458 + 470 0455	G 1/2" M	122.5	72	76	148
	470 0458 + 470 0475	G 3/4" M	138.5	80	76	156
	470 0458 + 470 0474	G 3/4" M	138.5	80	76	156
	470 0188 + 470 0190	G 3/4" M	126.5	73	77	150
	470 0188 + 470 0191	G 3/4" M	126.5	73	77	150
	470 0188 + 470 0192	Ø 22 mm	114	67	77	144

Thermostatic mixer - Male threaded fittings with unions						
Art.	Code	A	B	C	D	E
4739SUN	470 0459	G 1/2" M	122.5	72	76	148
	470 0460	G 1/2" M	122.5	72	76	148
	470 0476	G 3/4" M	138.5	80	76	156
	470 0477	G 3/4" M	138.5	80	76	156

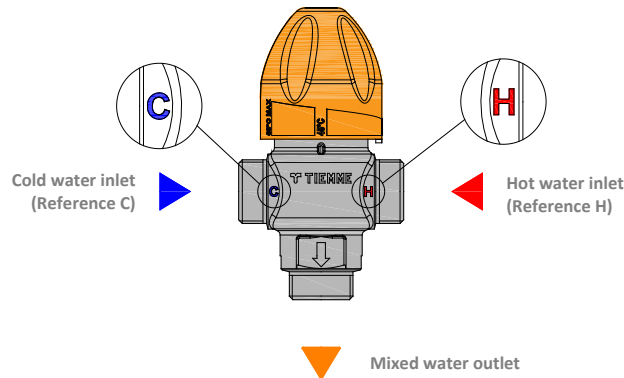
Dimensions in mm.

**HYDRAULIC SPECIFICATIONS**

Mixer body size	Kv (m <sup>3</sup> /h)	Flow rate at 3 bar	Minimum flow rate for correct operation
1/2"	1.3	30 l/min.	6 l/min.
3/4"	1.3	30 l/min.	6 l/min.
1"	2.8	72 l/min.	6 l/min.

## INSTALLATION

- Check that the boiler is turned off and the water inside the system is at room temperature. Before carrying out any inspection, cleaning or maintenance operation, turn off the generator, close the shut-off valves and wait for the fluid to cool down.
- Remove any possible dirt due to the construction of the system.
- In the case of very hard or aggressive water, we recommend carrying out water treatment before the inlet of the thermostatic mixer.
- The thermostatic mixer can be installed in all positions, without distinction.
- Provide ball shut-off valves upstream and downstream of the thermostatic mixer.
- Avoid differences between the supply pressures of the hot and cold primary fluids. Devices with significant pressure drops (e.g. filters) must not be placed on one of the supply branches of the thermostatic mixer, but on the mains network portion.
- Provide suitable filters upstream of the system.
- Comply with the correct installation direction of the mixer connections, as indicated below:



**ADJUSTING THE MIXER:** To adjust the outlet temperature of the mixer, simply turn the knob with the graduated scale (the setting temperature is printed directly on the adjustment handwheel).

**Reference conditions:** Hot water inlet temperature: 65°C. Cold water inlet temperature: 15°C. Hot and cold water inlet pressure: 3 bar.

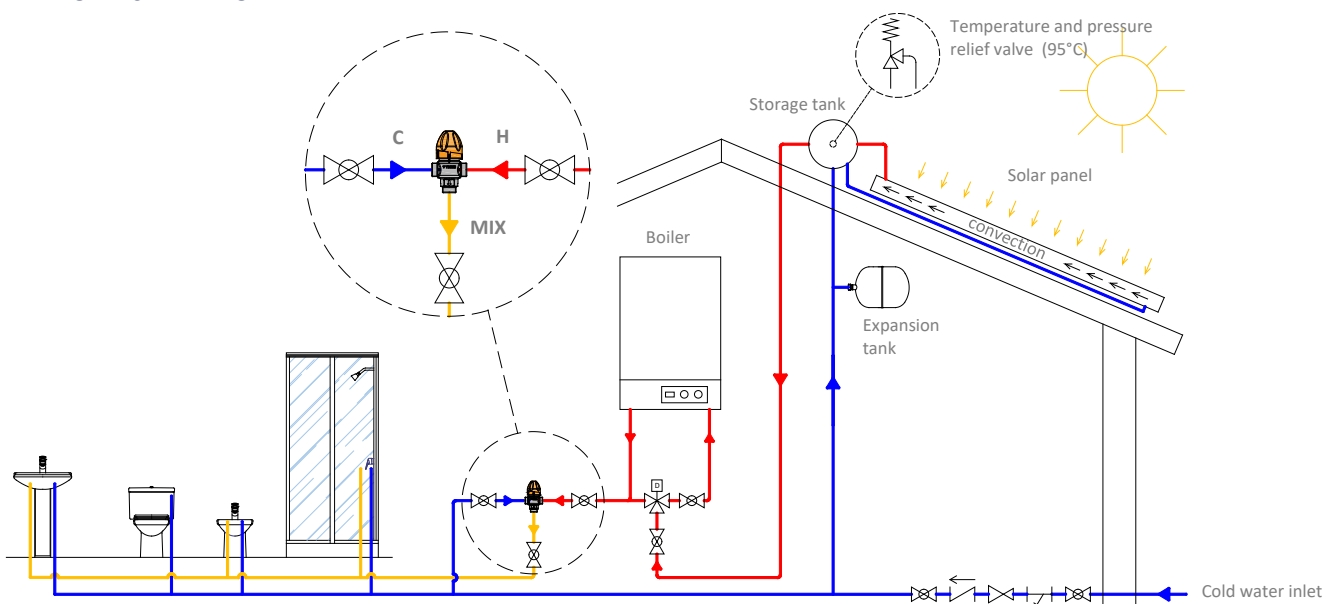
For safety reasons, we recommend adjusting the temperature of the mixed water sent to the utilities to values no greater than 45 / 50 °C

**WATER TEMPERATURES ABOVE 50 °C CAN CAUSE SERIOUS BURNS.**

**DURING INSTALLATION AND MAINTENANCE OF THE THERMOSTATIC MIXER, ADOPT THE NECESSARY PRECAUTIONS TO ENSURE THAT SUCH TEMPERATURES DO NOT POSE A THREAT TO PEOPLE.**

*TIEMME RACCORDERIE S.p.A. will not be held responsible for any failures and/or accidents resulting from failure to comply with these instructions and/or from improper use of the system. The information given does not exempt the user from scrupulously following the regulations and good technical standards that are currently in force.*

## EXAMPLE OF INSTALLATION



**MAINTENANCE**

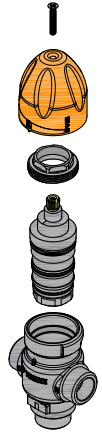
Under normal operating conditions the thermostatic mixer requires no maintenance.

We recommend periodically (at least annually) checking the correct operation of the system, in particular:

- Check that the check valves positioned at the inlet of the thermostatic mixer are working correctly, without leaks due to the presence of impurities.
- Inspect and clean the filters installed upstream of the system.
- The thermostatic mixer cartridge can be dismantled and cleaned/replaced.

Unscrew the adjustment handwheel and the ring nut, pull the cartridge outwards to remove and clean under running water, or if necessary, insert a new cartridge in its seat (spare part art. **4738CAR**).

For detailed instructions on replacing the cartridge, refer to the instructions supplied with the product.



**SPARE PARTS**



**Art. 4738CAR**

Replacement cartridge for thermostatic mixer.

**Cod. 320 0042** (for mixer with 1/2" and 3/4" body measurements).

**Cod. 320 0057** (for mixers with 1" body measurement).

**INFORMATION FROM TIEMME**

**RISK OF BURNS - WATER TEMPERATURE:**

To adjust the temperature of the mixed fluid, remember that the safety condition to avoid scalding depends on several factors (water temperature, exposure time to that temperature, age of the individual, part of the body exposed).

Temperatures higher than 50 °C can quickly cause scalding. For example, at 55 °C partial burns occur in about 30 seconds, while at 60 °C scalding occurs in about 5 seconds. These times are reduced in the case of children and older people.

To avoid scalding, the maximum temperature of the water leaving the taps is shown in the table below:

Utility	Maximum Temperature
Basin	40 °C
Shower	40 °C
Bathtub	44 °C
Bidet	38 °C

**ANTI-SCALD FUNCTION:**

To guarantee maximum protection from the risk of burns, the Tiemme thermostatic mixer is equipped with an anti-scald function, i.e. if the flow of cold water is interrupted, the passage of water is cut-off completely within 5 seconds and before 200 ml of water can pass through, in compliance with UNI EN 1111.

## ITEM SPECIFICATIONS

### Art. 4737SUN

Adjustable thermostatic mixer for solar systems, Female threaded fittings, made of: chrome plated CW617N brass body, EPDM O-ring seals, PA ring nut, PA adjustment handwheel, AISI 304 stainless steel handwheel fixing screw, temperature sensitive element in wax, ISO 228 threads. Maximum static pressure 10 bar, maximum dynamic pressure 5 bar, maximum displacement between inlet pressures 2:1 (maximum value  $\Delta P$  2 bar), maximum inlet temperature +100 °C, minimum inlet/outlet  $\Delta T$  10 °C, temperature adjustment range +30 ÷ +55 °C, accuracy  $\pm 2$  °C, minimum flow rate for correct operation 6 l/min., fluid compatibility - drinking water. Equipped with anti-scald function: to comply with the UNI EN 1111 standard. Available sizes G 1/2" F ÷ G 3/4" F.

### Art. 4738SUN

Adjustable thermostatic mixer for solar systems, Male threaded fittings, made of: chrome plated CW617N brass body, EPDM O-ring seals, PA ring nut, PA adjustment handwheel, AISI 304 stainless steel handwheel fixing screw, temperature sensitive element in wax, ISO 228 threads. Maximum static pressure 10 bar, maximum dynamic pressure 5 bar, maximum displacement between inlet pressures 2:1 (maximum value  $\Delta P$  2 bar), maximum inlet temperature +100 °C, minimum inlet/outlet  $\Delta T$  10 °C, temperature adjustment range +30 ÷ +55 °C, accuracy  $\pm 2$  °C, minimum flow rate for correct operation 6 l/min., fluid compatibility - drinking water. Equipped with anti-scald function: to comply with the UNI EN 1111 standard. Available sizes G 3/4" M ÷ G 1" M.

### Art. 4739SUN

Adjustable thermostatic mixer for solar systems, Male threaded fittings with unions (available in a version with unions equipped with integrated check valves), made of: chromed CW617N brass body, EPDM O-ring seals, PA ring nut, adjustment handwheel in PA, AISI 304 stainless steel handwheel fixing screw, temperature sensitive wax element, ISO 228 threads. Maximum static pressure 10 bar, maximum dynamic pressure 5 bar, maximum displacement between inlet pressures 2:1 (maximum value  $\Delta P$  2 bar), maximum inlet temperature +100 °C, minimum inlet/outlet  $\Delta T$  10 °C, temperature adjustment range +30 ÷ +55 °C, accuracy  $\pm 2$  °C, minimum flow rate for correct operation 6 l/min., fluid compatibility - drinking water. Equipped with anti-scald function: to comply with the UNI EN 1111 standard. Available sizes G 1/2" M ÷ G 3/4" M.

## CERTIFICATIONS

