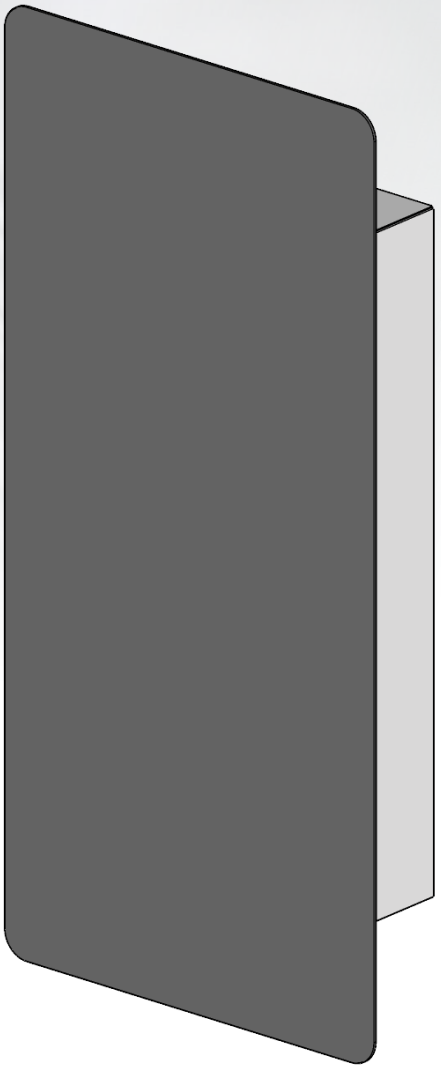
Gecko

DATA SHEET

INSTANT WASTEWATER HEAT RECOVERY SYSTEM



PRESENTATION

Gecko is a shower wastewater heat recovery system capable of producing hot water up to 42 ° C instantly.

80% of the heat supplied to the shower mixer comes from waste water recovery and 20% from ceramic electrical resistance.

Width x Height x Depth	**45 × 75 × 20 cm**
Weight	**28 kg**
Maximal temperature[1]	**42 °C**
Nominal recovered power[1]	**10,9 kW**
Minimum required pressure	**2,5 bar**
Warranty	**5 years**

[1] For a 8L/min at 12,8°C cold water inlet and 8L/min at 37°C for wastewater inlet.

Thermal data

In France, instantaneous heat recovery systems have their thermal performance measured according to the RECADO protocol.

The protocol consists in running typical showers (60 L at 37 ° C) and measuring the amount of energy recovered by the system. The efficiency of the system in steady state ("hot") is rated Eff_{nom} and the speed at which a system is reaching the steady state is rated C_{trans}.

For example, a system with an Eff_{nom} of 50% and a C_{trans} of 90% does recover 50% of the recoverable heat when it has reached the stabilized sate.
However, over a full shower (60L) it only recovers 50% x 90% = 45% of the recoverable energy because it was not as efficient at the start of the shower.

The thermal efficiency results were sent to us by CSTB following the RECADO week test carried out from November 02 to 09, 2020.

RECADO test banch, CSTB Nantes.

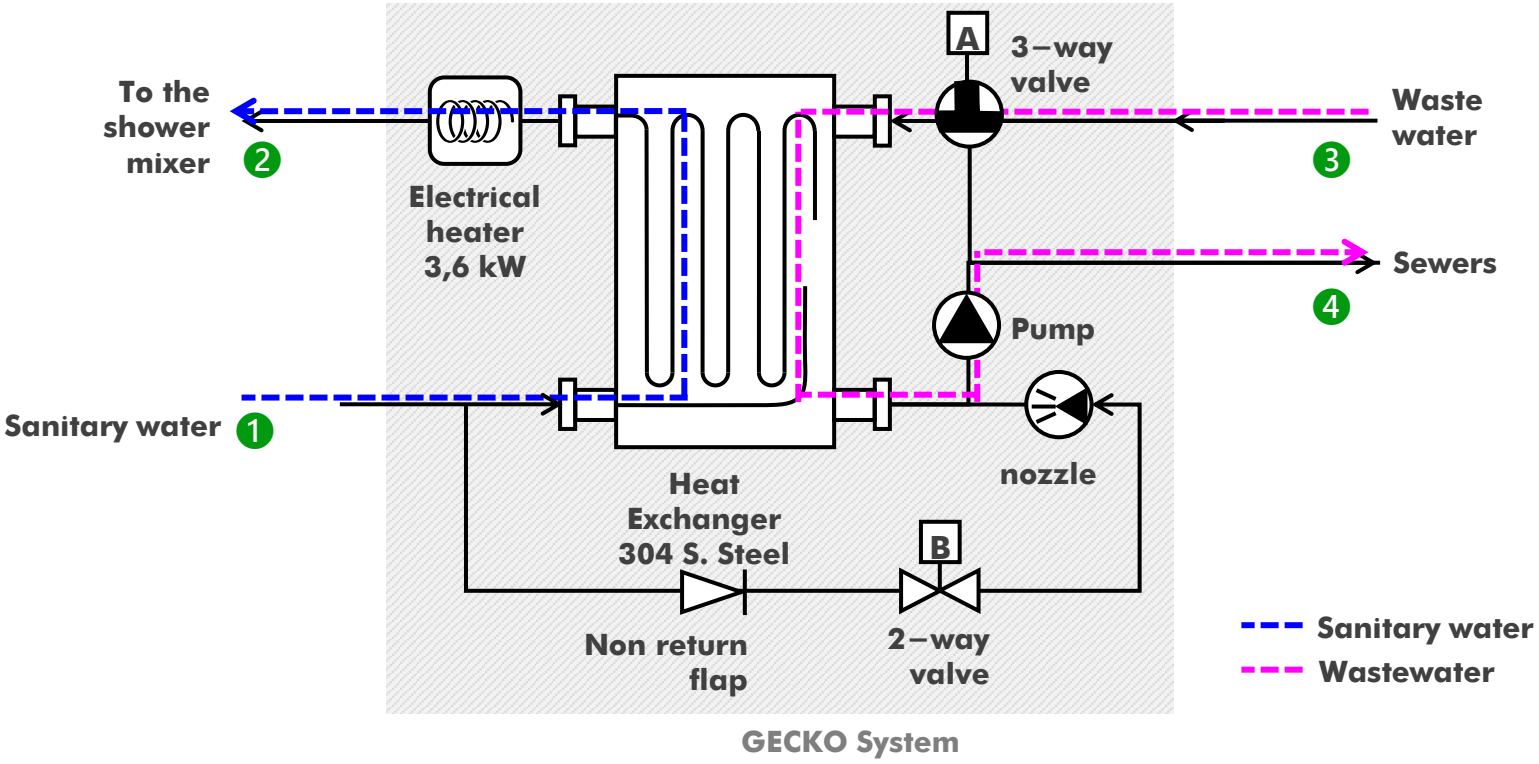
CSTB is testing the three possible assemblies (tank, shower mixer, mixed).

Gecko was tested according to this protocol in November 2020 by CSTB Nantes, with the following results:

Tank assembly : preheating water heater	**C_{trans} = 0,94**
	Eff_{nom} = 0,60
Shower mixer assembly : preheating shower mixer	**C_{trans} = 0,91**
	Eff_{nom} = 0,72
Mix assembly : preheating both water heater and shower mixer	**C_{trans} = 0,95**
	Eff_{nom} = 0,88

HYDRAULIC SPECIFICATIONS

Below is the hydraulic diagram of Gecko System in "heat recovery" mode :



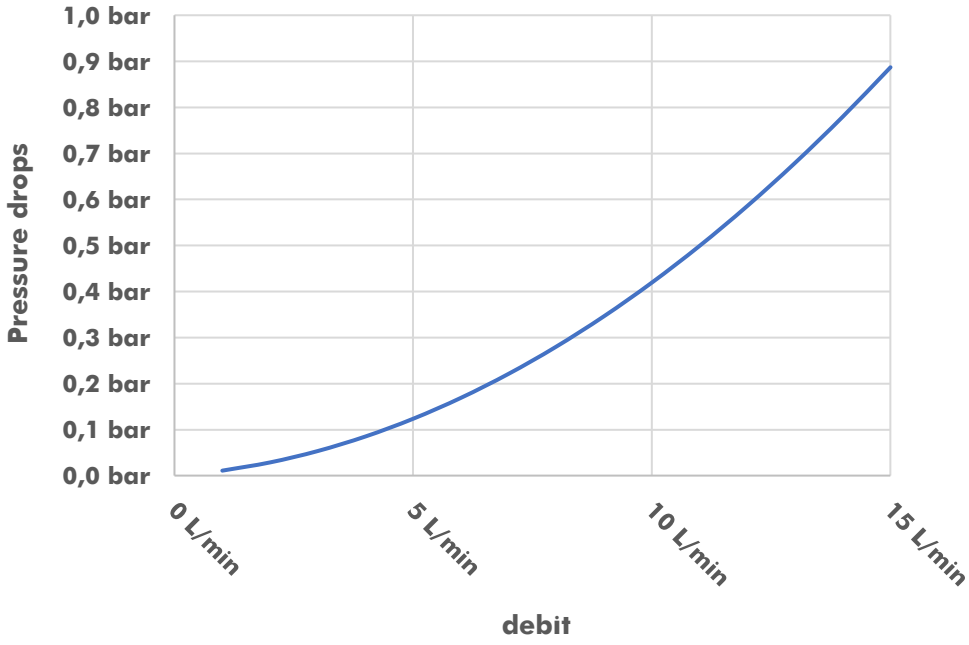
GECKO System

1 Sanitary water inlet
2 Preheat sanitary water outlet
3 Wastewater inlet
4 Wastewater outlet

Type of water treated: Gecko can treat wastewater from showers. Gecko must not receive wastewater from WCs (black water). Gecko can be used with alkaline chemical unblockers (soda, lye, NaOH). Its heat exchanger is made of single–walled 304L stainless steel. Do not put any acid or chlorine tablet in Gecko – this will damage the heat exchanger.

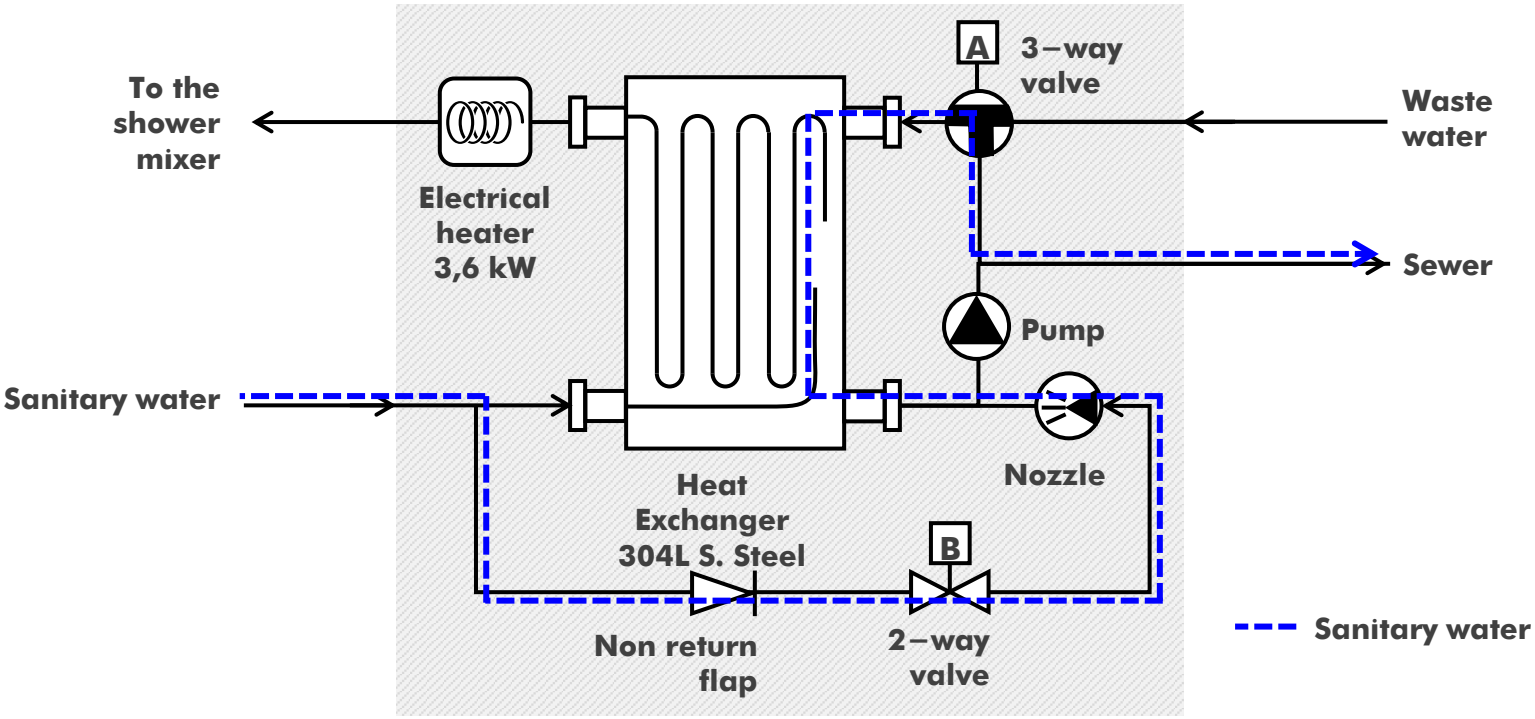
Pressure drop : Like any hydraulic equipment, Gecko generates pressure drop, which depends on the flow of cold water flowing through it. These pressure drops are shown in the graph on the left:

It is necessary to have at least 2.5 bar on the sanitary water network for the Gecko system to function properly.



OPERATION: AUTOMATIC CLEANING

Gecko maintains its heat exchange performance with automated weekly cleaning. Pressurized water from the network is injected into the wastewater circuit of the heat exchanger, against the flow of "heat recovery". The hydraulic diagram is as follows:



Gecko System

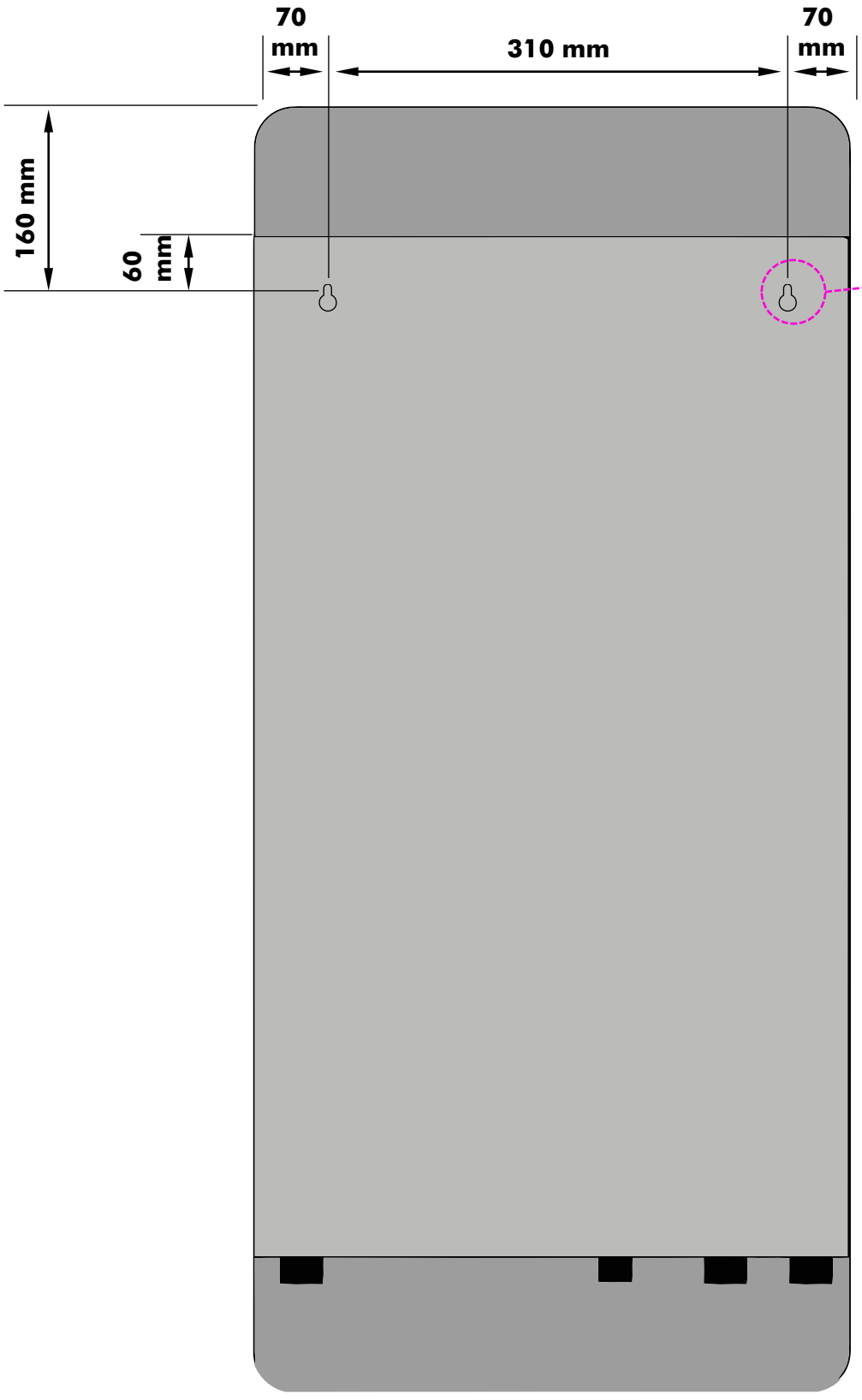
The "cleaning" mode of the Gecko system takes place every 7 days, on a date and at a time fixed in the factory, for 45 s.

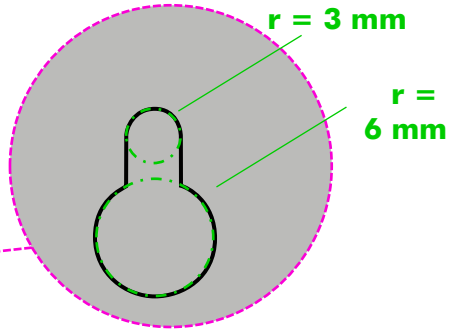
The water consumption associated with cleaning varies with the pressure available on the sanitary water network and is generally around 0.8 m3, or 0.2% of the total water consumption of the home.

This cleaning is self sustaining and does not require human intervention, however the Gecko system cannot supply hot water to the mixer or suck up waste water during the cleaning phases.

Users do not need to change their habits in the rest of the home. Only a drop in pressure can be perceived; this pressure drop only slightly affects the flow rates available at other draw–off point.

INSTALLATION: MECHANICAL FIXATION

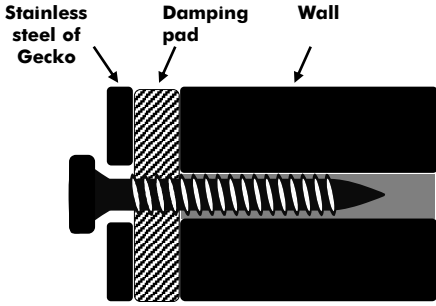




The back of the Gecko ® system comes with two notches allowing it to be attached to the wall.

The screw / plug / support assembly must be able to support twice the load of the Gecko ® system in operation: 60 kg.

To prevent the propagation of pump vibrations, it is recommended to place a damping pad (rubber, elastomer, etc.) between Gecko and the wall:



Gecko ® System, seen from behind

INSTALLATION: WASTEWATER CONNECTION

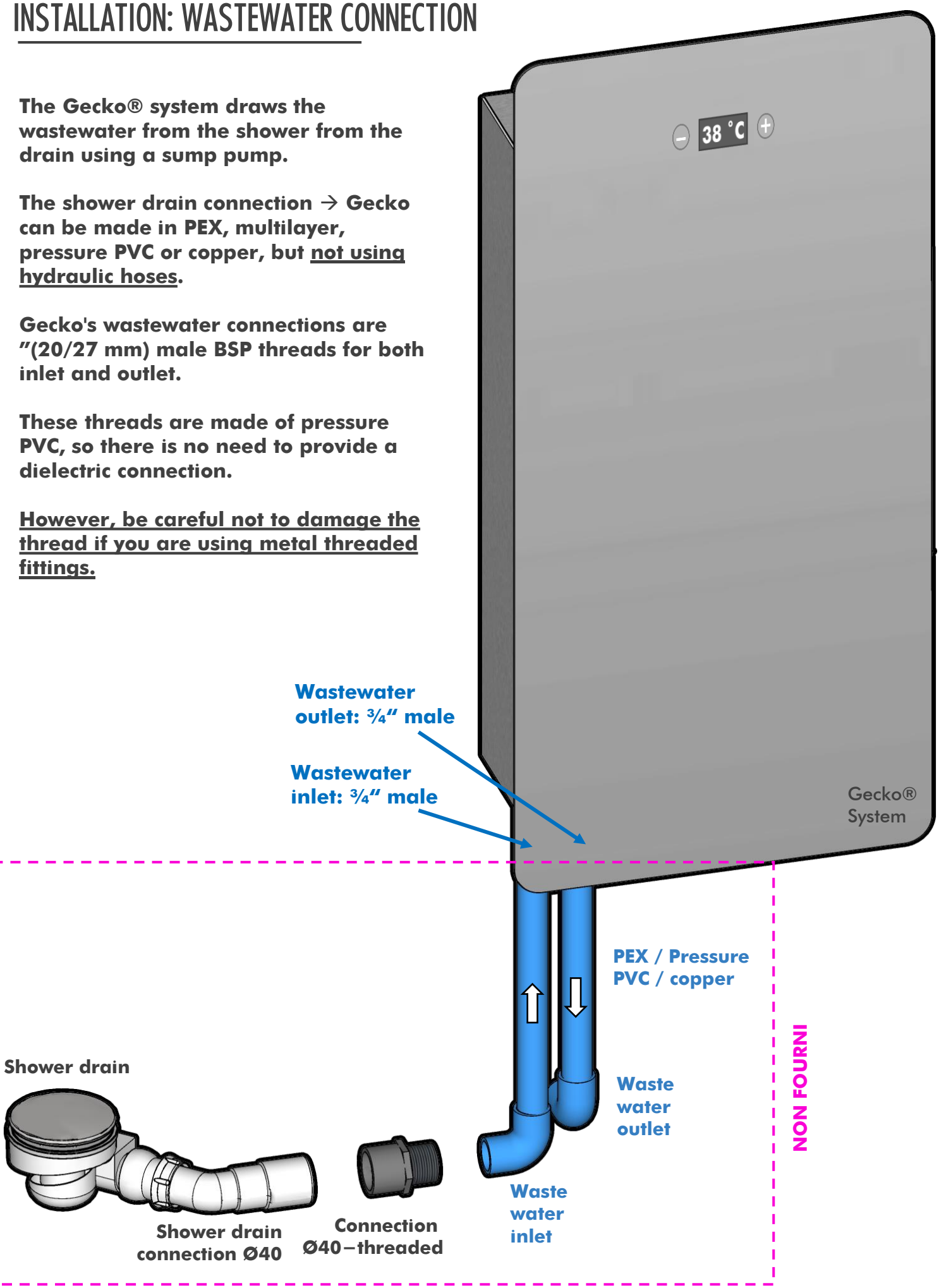
The Gecko® system draws the wastewater from the shower from the drain using a sump pump.

The shower drain connection → Gecko can be made in PEX, multilayer, pressure PVC or copper, but <u>not using hydraulic hoses</u>.

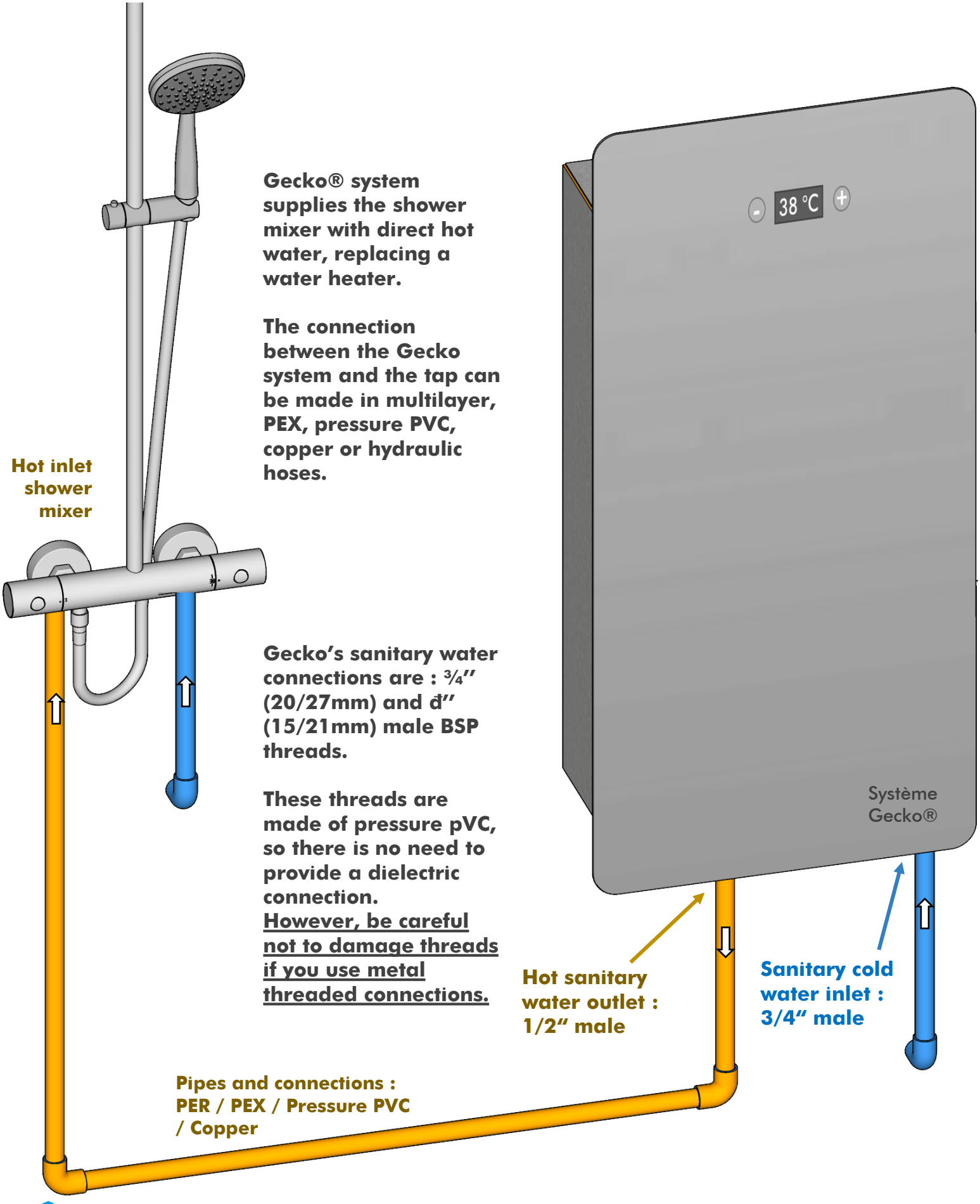
Gecko's wastewater connections are ”(20/27 mm) male BSP threads for both inlet and outlet.

These threads are made of pressure PVC, so there is no need to provide a dielectric connection.

<u>However, be careful not to damage the thread if you are using metal threaded fittings.</u>



INSTALLATION: SANITARY WATER CONNECTIONS



Gecko® system supplies the shower mixer with direct hot water, replacing a water heater.

The connection between the Gecko system and the tap can be made in multilayer, PEX, pressure PVC, copper or hydraulic hoses.

Hot inlet shower mixer

Gecko's sanitary water connections are : ¾" (20/27mm) and đ" (15/21mm) male BSP threads.

These threads are made of pressure pVC, so there is no need to provide a dielectric connection.
<u>However, be careful not to damage threads if you use metal threaded connections.</u>

Hot sanitary water outlet : 1/2" male

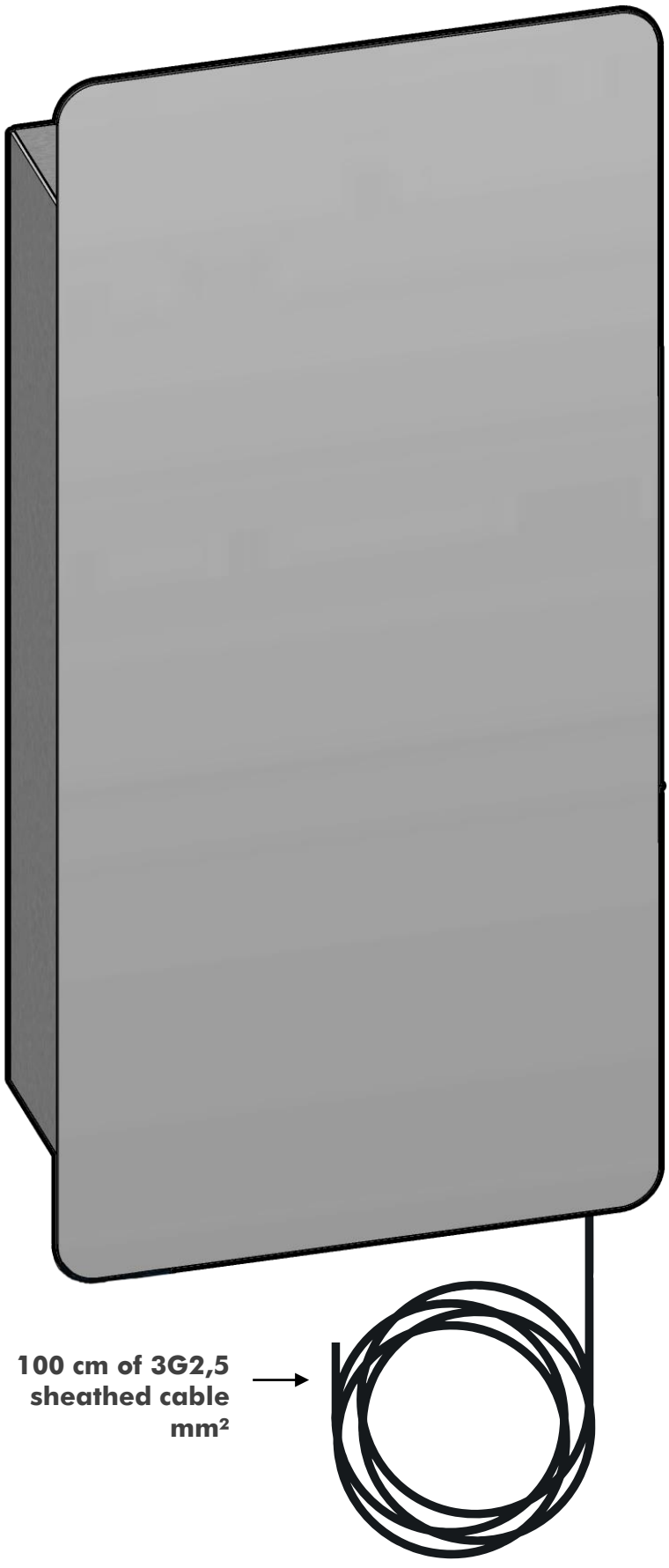
Sanitary cold water inlet : 3/4" male

Pipes and connections : PER / PEX / Pressure PVC / Copper

INSTALLATION : ELECTRICAL CONNECTION

The Gecko® system is supplied with 100 cm of 3G2.5 mm² sheathed cable to be connected to 220 V single–phase.

The home electrical panel must have a 16 A switch dedicated to the Gecko ® system.



INSTALLATION : COMMISSIONING

Below is the detail of the operations by using the two touch in order to to activate the Gecko ® system. The Gecko system must be fully connected, with water and switched on.

Main menu

and Long touch > 3sec

Emptying screen

Long touch

Long touch

Supervision menu

and Long touch > 3sec

Long touch

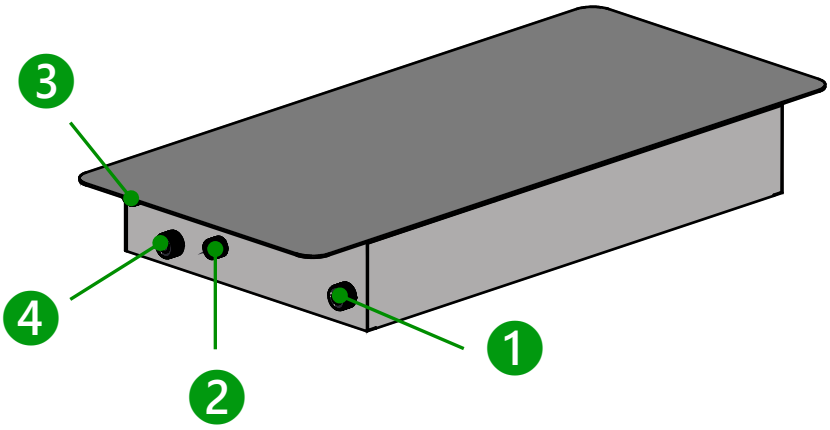
Long touch

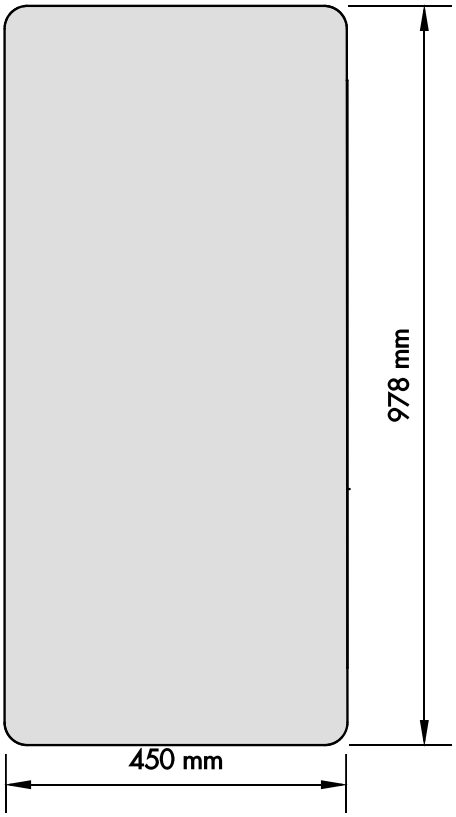
PWM menu

Pump calibration :

- **Activate the tap in the shower**
- **Set up the pump PWM to 50%**
- **Slowly increase (steps of 5%) the PWM value as the water level in the shower tray rises**

DIMENSIONS





1. **Sanitary cold water inlet : M 3/4" pressure PVC**
2. **Hot sanitary water outlet : M 1/2" pressure PVC**
3. **Wastewater inlet : M 3/4" pressure PVC**
4. **Wastewater outlet : M 3/4" pressure PVC**