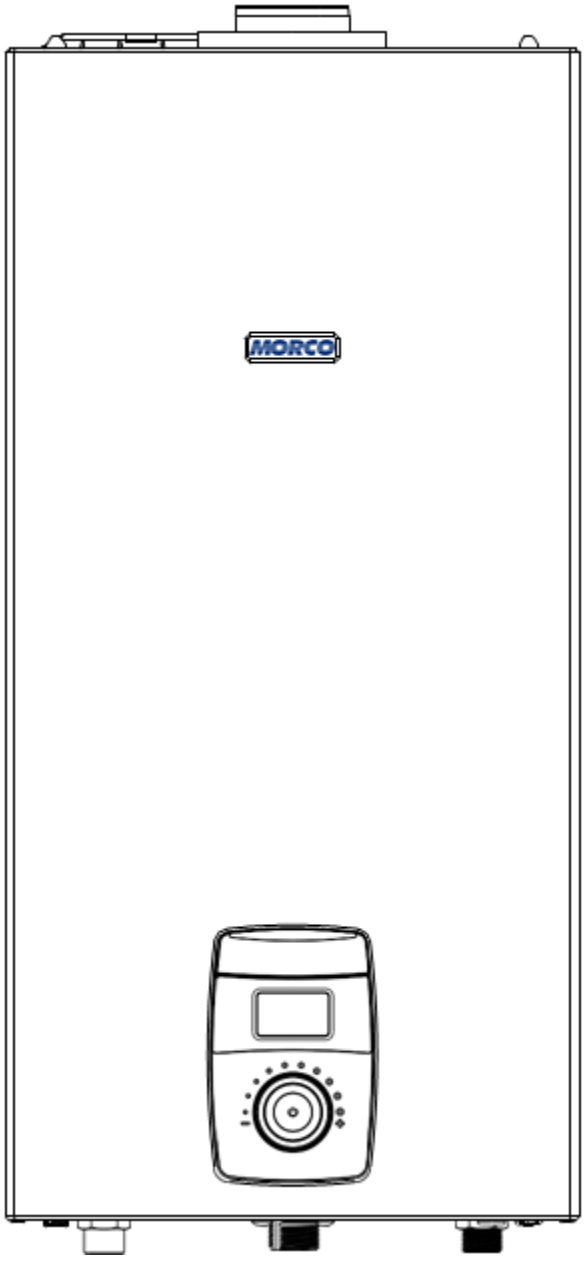
MORCO



EUP 11 RS

Instantaneous gas water heater

Workshop Manual

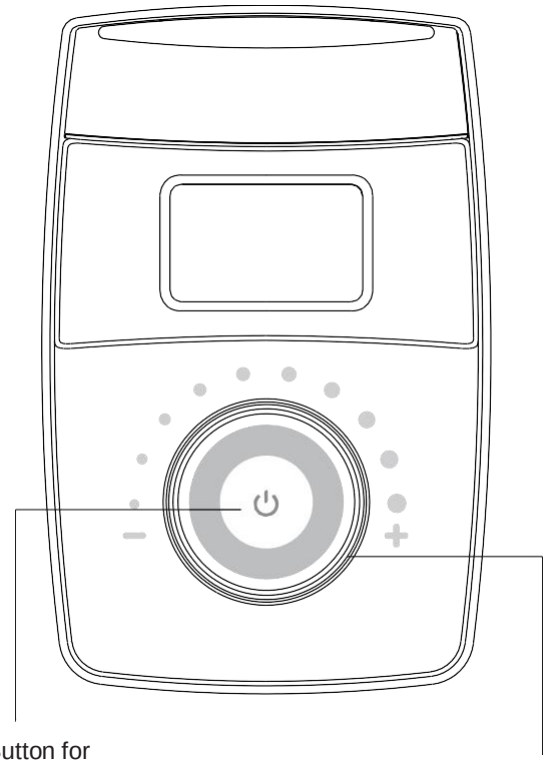
When the product has reached the end of its serviceable life, it shall be disposed of in an environmentally friendly way and disposed of according to the regulations in force.

Separate collection and recycling of the product avoid negative impact for environment and health, and allows recovery of materials, in order to obtain energy and resources saving.

WARNING

This booklet contains information relevant to the user as well as the installer.

QUICK-START GUIDE



Button for power on/power off/reset

Control knob water temperature

POWER ON

Switch the mains electricity supply on to the appliance.

WATER TEMPERATURE ADJUSTMENT

Turn the control knob to the right to increase the temperature and to the left to decrease it.

POWER OFF

Press and hold theon/off button ⏻. As soon as the symbols begin to flash, release the button.
The appliance will be in the OFF state, the display shows – –.

RESET – to reset fault codes

Press and hold the reset button⏻. As soon as the display shows the wording r S release the button.
If the fault persists, please contact a Gas Safe Engineer or other qualified person.

Table of contents

CERTIFICATION

This appliance is manufactured in accordance with the rules of good practice in compliance with current legislation.

The CE mark on the product means that it conforms to the following European Directives:

- **Regulation Gas Appliance (UE) 2016/426**
- **Low voltage directive 2014/35/UE**
- **Electromagnetic compatibility directive 2014/30/UE**
- **European Standard: gas-fired instantaneous water heaters for the production of domestic hot water EN 26:2015**
- **Ecodesign directive for energy-related products 2009/125/EC**
- **Regulation (EU) 2017/1369 setting a framework for energy labelling**
- **Delegated regulation (EU) no 812/2013**
- **Delegated regulation (EU) no 814/2013**

This appliance is certified to be placed in the following countries in relation to gas type and pressures:

- Cat. I3P (G31 - **PROPANE** @ 37 mbar): Belgium (BE), Spain (ES), France (FR), Great Britain (GB), Italy (IT), Holland (NL)
- Cat. I3B (G30 - **BUTANE** @ 30 mbar): Belgium (BE), Spain (ES), France (FR), Great Britain (GB)
- Cat. I3R (G30/G31 – **BUTANE/PROPANE** @ 28-30/37 mbar) Spain (ES), France (FR), Great Britain (GB), Italy (IT)

ErP Ready

The appliance complies with the Regulation (EU) 2017/1369 setting a framework for energy labelling.

The energy label carries the information regarding the product's energy efficiency characteristics.

In this way the end consumer can identify and compare similar products and can make informed choices regarding high efficiency appliances.

PRODUCT DATASHEET			
Morco			**EUP 11 RS**
❷	Declared load profile		
❹	Indoor sound power level	dB(A)	
❻	Water heating energy efficiency class		
	Water heating energy efficiency class	%	
❼	Annual energy consumption	GJ	
	Annual energy consumption	kWh	
	Nitrogen oxide emissions	mg/kWh	

In parts of the manual the following symbols are used:

⚠ **WARNING** = for actions that require caution and adequate preparation

⛔ **PROHIBITED** = for actions that MUST NOT be performed

GENERAL WARNINGS AND SAFETY

The User, Installation and Maintenance Manual is an integral part of the product and must therefore be carefully stored and always accompany the appliance; in case of loss or damage, download another copy from www.morcoproducts.co.uk

⚠ The appliance must be used as intended by the manufacturer. Contractual and non-contractual liability is excluded for damage to persons, animals or property, due to installation, adjustment and maintenance errors or improper use.

⚠ Failure to comply with the recommendations of this manual and failure to adhere to the instructions included therein by installers and by the user will invalidate any future warranty claim.

⚠ Installation of the appliance and subsequent maintenance must be performed by a Gas Safe Engineer or other qualified personnel in compliance with the legislation in force.

⚠ The safety devices must not be adjusted and in the event of failure must be replaced with original manufacturer parts.

⚠ If the water heater is to be left unattended for any period, shut off the gas supply. Where the risk of freezing is anticipated, refer to the winterisation section on page 22.

⚠ In case of failure and/or malfunction of the appliance, switch it off and do not attempt any kind of repair. Contact a Gas Safe Engineer or other qualified personnel.

⚠ Maintenance is recommended on an annual basis. Use a Gas Safe Engineer to carry this out.

⚠ At the end of its life span the product must not be disposed of as solid urban waste but must be removed to a recycling centre.

⚠ The casing can reach high temperatures in the burner area, with the risk of burns in the event of contact.

Use of the appliance requires strict adherence to certain fundamental safety rules:

⛔ Do not use the appliance for purposes other than those for which it was intended.

⛔ Any attempt to carry out a repair in case of failure and/or malfunction of the appliance should be by a Gas Safe Engineer..

⛔ Do not leave containers of flammable substances in the room where the appliance is installed.

⛔ Where the smell of gas is perceived, refrain from using any electrical switches, telephones or any other object that could cause sparks. Ventilate the room by opening doors and windows and turn off the gas supply.

⛔ The use of this appliance by children or inexperienced persons is not recommended.

⛔ Do not clean the appliance and/or its parts with flammable substances (e.g. petrol, alcohols, oil, etc.).

⛔ Do not place objects on the appliance.

DESCRIPTION OF THE APPLIANCE

The Morco EUP11RS is a room sealed, fan flued instantaneous gas water heater. This means its operation is independent of the room it is installed in as the air for combustion is obtained from outside the home and the flue gases are expelled outside the home. It is therefore suitable for use in Leisure Accommodation Vehicles (LAVs) such as boats and caravan holiday homes. We do not recommend the use of this appliance in motorhomes. Ignition of the flame is electronic and will take place automatically when a hot tap is opened. The appliance does not store hot water.

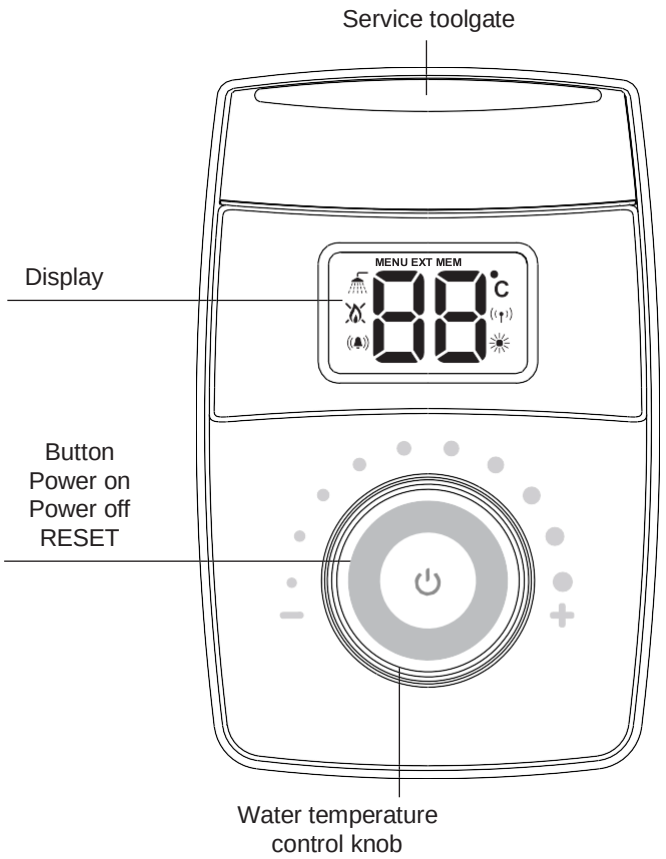
The display on the appliance may exhibit “AL” if it does not work correctly. The appliance has the ability to self-diagnose certain faults. Please refer to the fault code table on page 20 before contacting a Gas Safe Engineer. Some of the faults are a temporary and some are permanent.

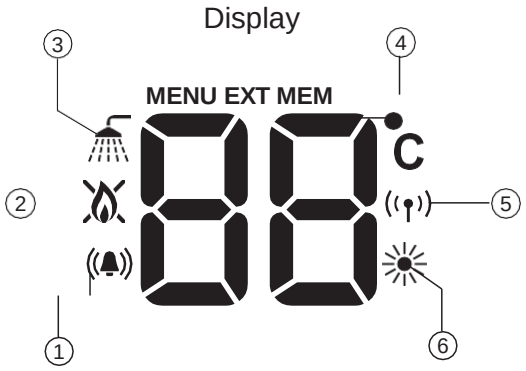
The packaging of the water heater includes:

- Wall mounting bracket with screws and plugs
- 2 flue restrictor rings - 1 x 43mm and 1 x 45mm

Control panel

Fig. 1- Control panel and display





1. Presence of fault
2. Presence of flame (flame symbol)
   Flame fault (symbol crossed out)
3. Hot water request in progress
4. Set point temperature
   Faults / Alarms
5. Not used
6. Not used

USE OF THE APPLIANCE

Appliance start-up

Following the necessary checks, proceed with the following operations:

Electrically power the water heater.

Open the gas isolation valve underneath the water heater.

Ensure that there is a water supply to the heater.

Press the power button ⏻.

The display shows:

1. Start-up Parameters
2. Symbols test (display all on)
3. The pre-set water temperature

When you open a hot tap or shower, the display shows the current water temperature, the symbol (in case hot water request in progress) and the symbol (in case of burner ON) (Fig. 3).

Fig. 2 - Display appliance off (OFF)

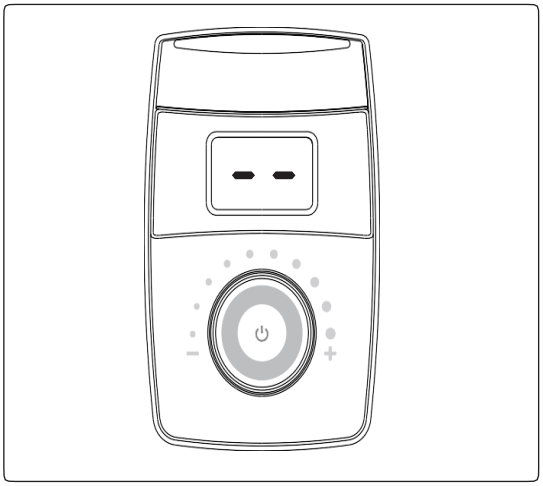
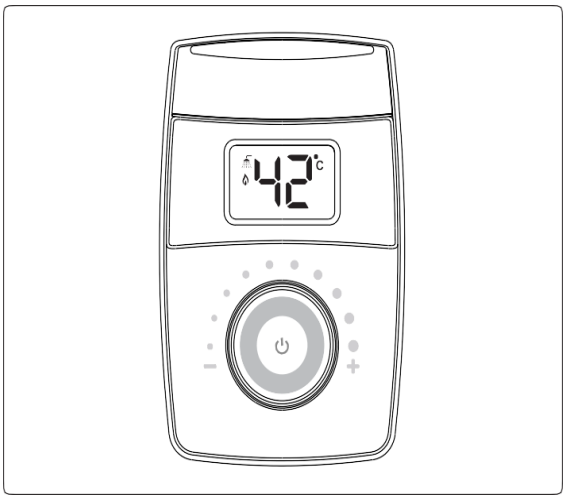


Fig 3 – Display of Appliance during operation



Water temperature adjustment

The target water temperature can be set between 37 and 60°C. Depending upon the incoming cold water temperature and flow restrictors fitted to hot water outlets, this temperature may not always be achieved.

Turn the ignition knob clockwise to increase the temperature and counter-clockwise to decrease it. The symbol flashes and the display shows the new target temperature set for 5 seconds.

Switching the appliance off

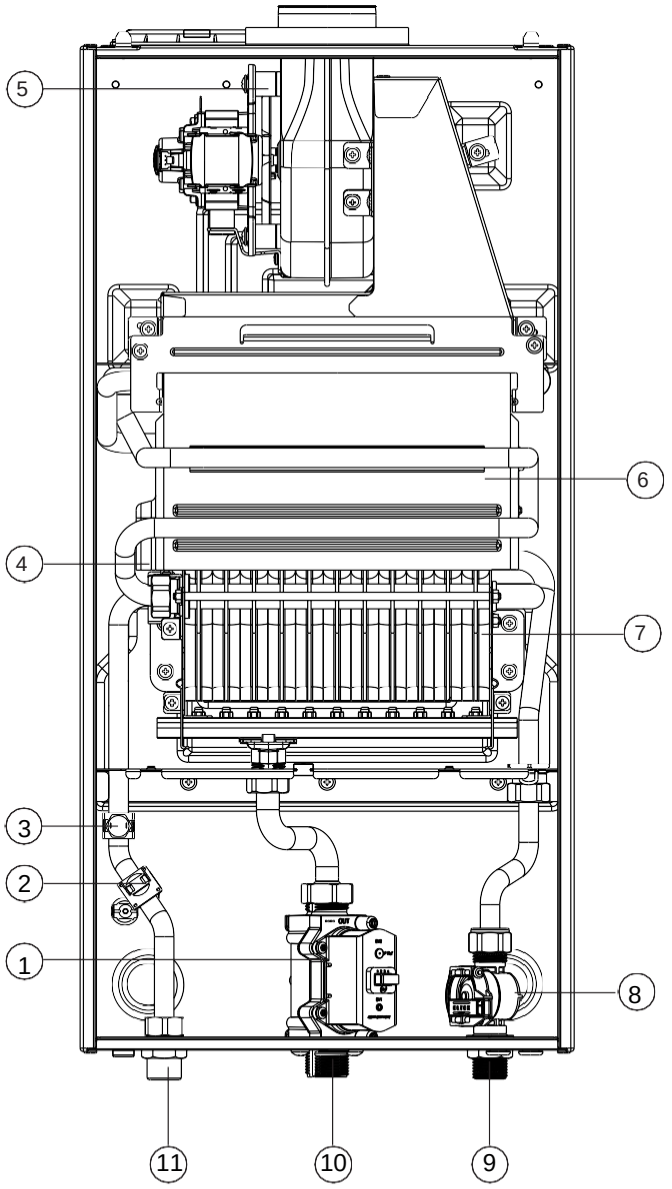
Hold down for about 5 seconds the water heater power off button ⏻.
As soon as the symbols – – start flashing, release the button
The appliance will be in the OFF state and the display shows the symbols – – . (Fig. 2)

⚠ If the water heater is to be left unattended for any period, drain down the water heater (see Winterisation section), remove the mains plug from the socket, or isolate the fuse spur and shut off the gas supply.

COMPONENTS AND DIAGRAMS

Water heater components

Fig. 4 - Water heater components

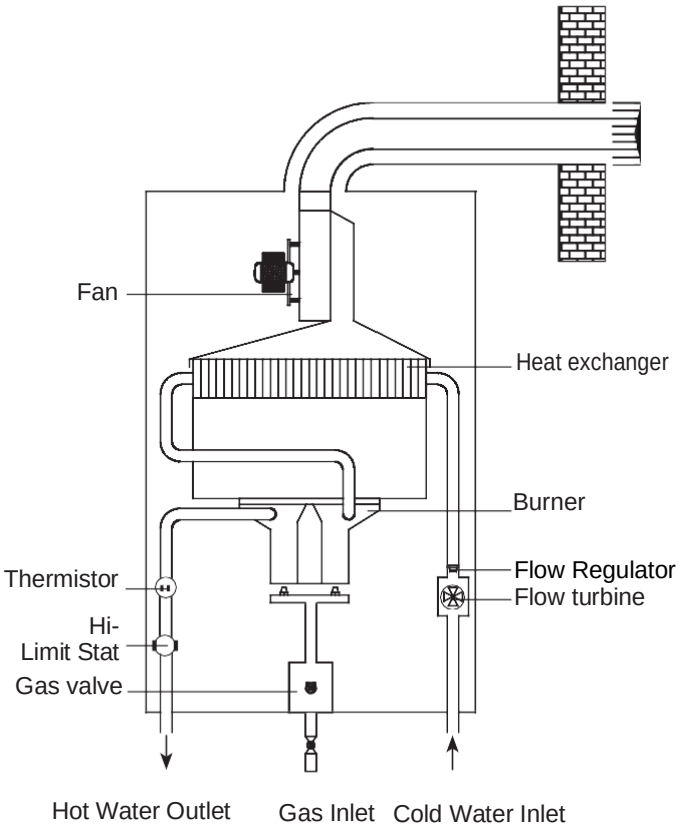


Legend

1. Gas valve
2. Hi-Limit Stat
3. Thermistor
4. Ignition/detection electrode
5. Fan
6. Heat exchanger
7. Burner
8. Flow turbine
9. Cold Water Inlet
10. Gas Inlet
11. Hot Water Outlet

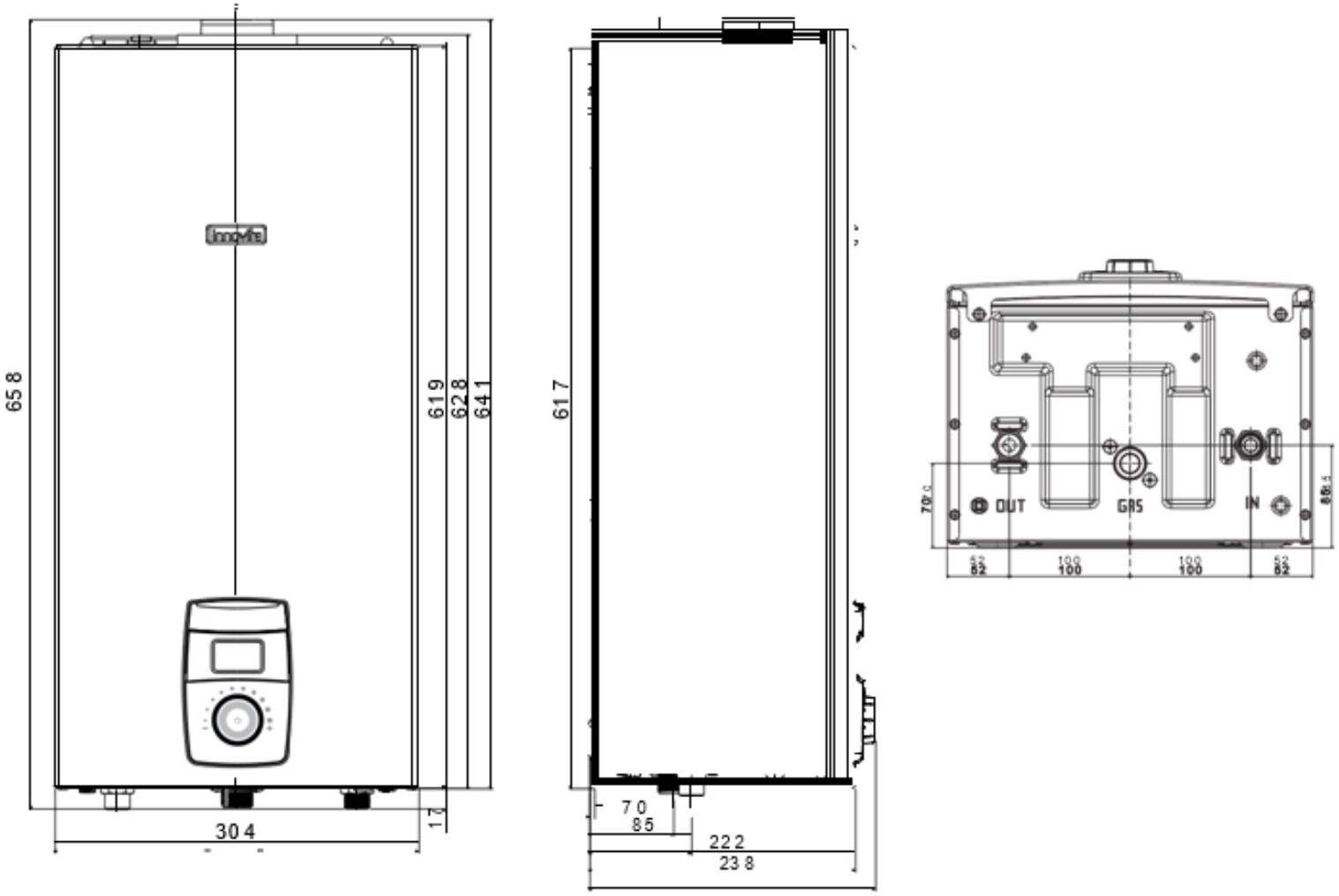
Hydraulic circuit

Fig. 5 - Hydraulic circuit



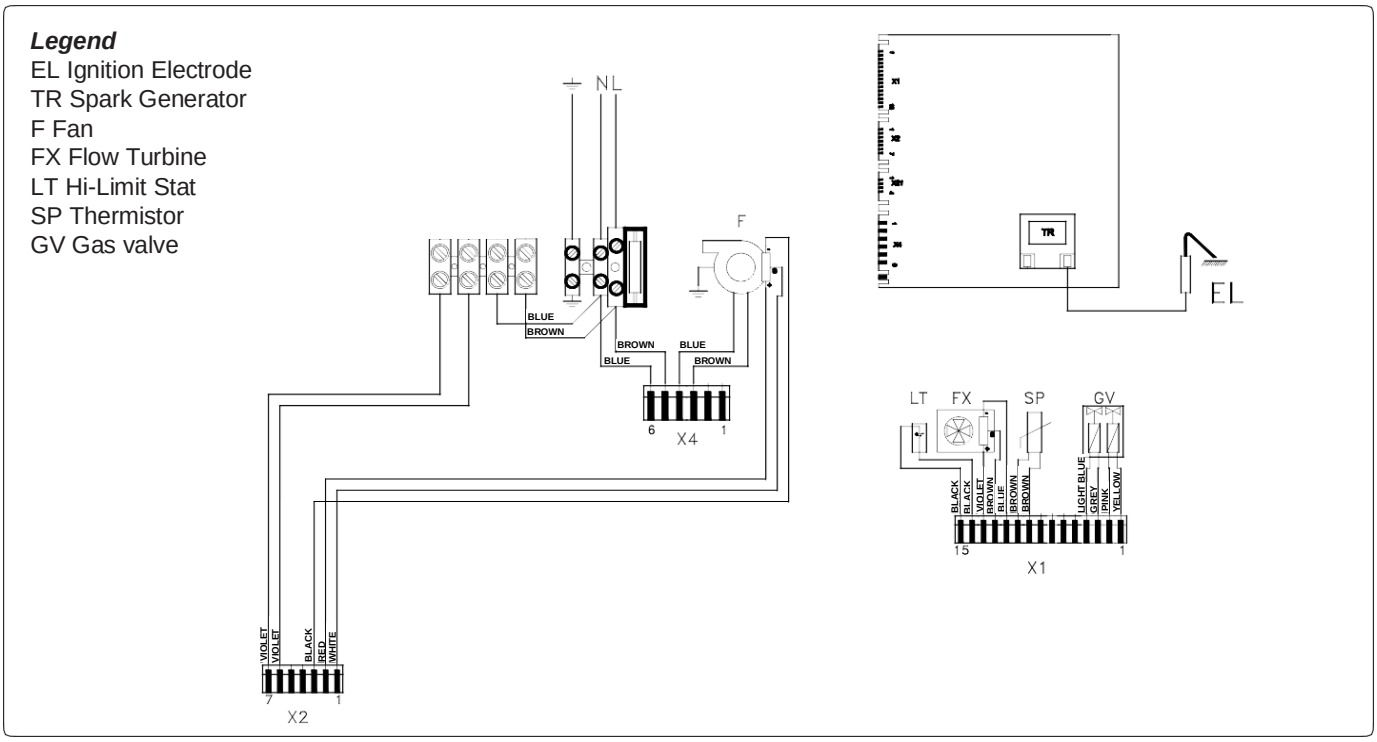
External dimensions and distances between gas and water connections

Fig. 6 - Installation sizes - Measurements in mm



Wiring diagram

Fig. 7 - Wiring diagram



Installation

General Considerations

For the installation engineer
Gas Safety Installation and Use Regulations

It is the law that all gas appliances must be installed by a registered person in accordance with the above regulations.

Failure to install appliances correctly may lead to prosecution. It is in your own interest, and that of safety, to ensure that the law is complied with.

In addition to the above regulations, this appliance must be installed in accordance with the current IEE wiring regulations and current ETCI rules for electrical installations.

It should also be in accordance with the relevant recommendations in the current editions of all relevant National Standards. Your particular attention is drawn to the following relevant standards:
BS 5482 Part 2 Installations in Caravans and Non-Permanent Dwellings
PD 5482 Part 3 Installations in Boats
BSEN 1949 Installation of LPG System for Habitational Purposes in Leisure

Accommodation Vehicles
BSEN 721 Leisure Accommodation Vehicles-Ventilation Requirements
BS EN ISO 10239 2008 Small Craft, LPG Systems

IMPORTANT: Manufacturer’s instructions must NOT be taken in any way as over-riding statutory regulations.

Wall mounting

Precautions

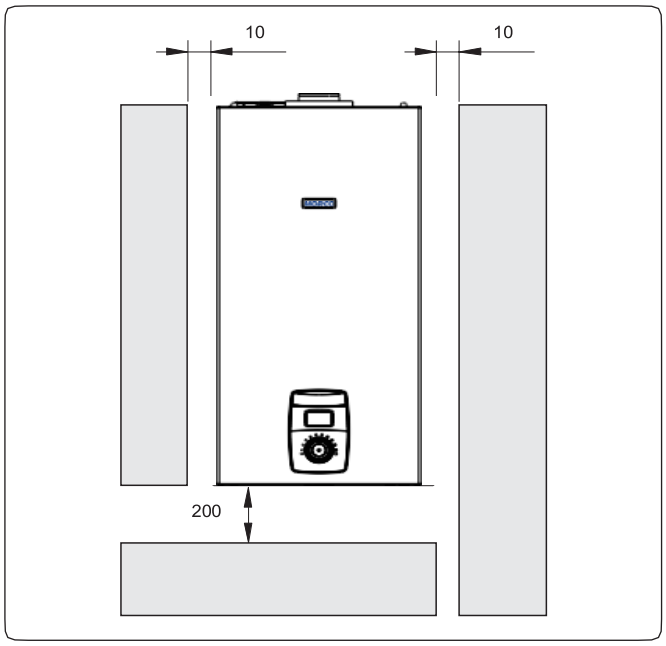
The appliance must be installed on a suitable wall that allows for the installation of a horizontal or vertical flue.

- To allow maintenance operations, leave the minimum distances shown (Fig. 8) around the appliance.

Location

- If the appliance is positioned in areas exposed to the risk of frost, the water heater must be disconnected and drained of water – see winterisation

Fig. 8 - Minimum required distances



⚠ Connection of the water heater to the water, gas and flue gas exhaust systems and the room where the heater is to be installed must comply with the rules and regulations in force, see above

⚠ Following installation of the water heater, check the tightness of all the gas and water connections

⚠ Installation of this appliance should be carried out by a Gas Safe Engineer in the UK or other qualified personnel

⚠ Verify if the available gas type and pressure corresponds to that indicated on the appliance data plate

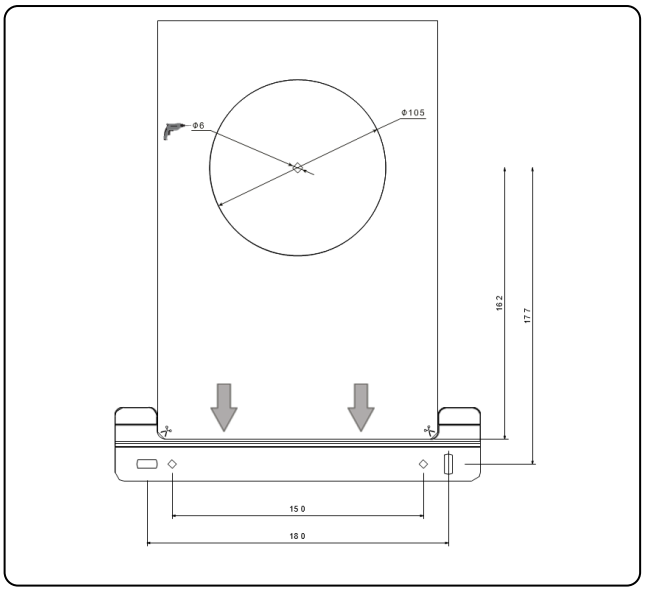
⚠ Install an isolation valve on the gas supply, upstream of the appliance, in a visible and accessible position and as close as possible to the appliance

⚠ Check the water hardness (200 ppm maximum allowable total hardness). If it exceeds 200 ppm a scale reducing device must be fitted.
If is very hard fit a device upstream from the appliance for softening water. Hard water will slowly reduce the operational efficiency and reliability of the water heater.

Support bracket

Having established the position of the appliance fix the wall mounting bracket in the appropriate position.
The most common installation is shown below in Figure 9.

Fig. 9 - Support bracket and horizontal flue rear exit location

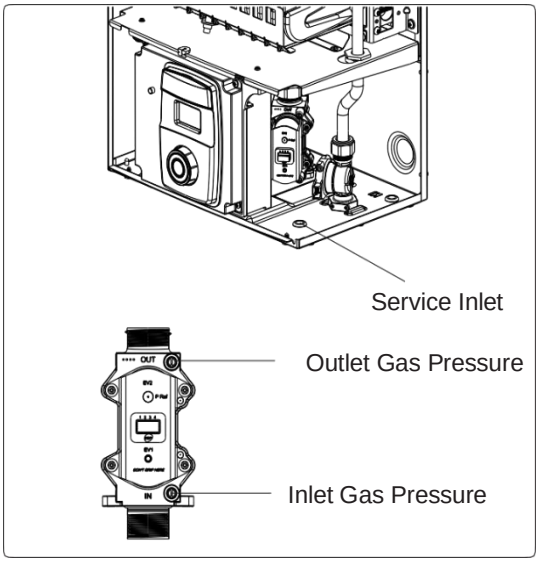


Gas connection

The diameter of the gas pipes should be suitably sized to accommodate for all of the gas appliances in the home.
A gas isolation valve should be fitted to the gas inlet of the appliance or an inline isolation valve fitted close to the appliance on the supply pipe.
For initial start-up of the appliance, the following checks must be carried out by a Gas Safe Engineer.

1. Check the gas inlet pressure is 37mbar (or relevant pressure for the country that the appliance is being commissioned in) with all other gas appliances in the Holiday Home working at maximum.
2. Turn on the water supply to the water heater and check for leaks.
3. Turn the tap on full and check the flow and temperature according to the Technical Data on page 14. You may have to do this by disconnecting the hot water feed to the plumbing pipework as there may flow regulators fitted to certain taps.
4. Check burner pressure as in Technical Data on Page 14.
5. Adjust control knob water temperature and check temperature of water changes at the tap.
6. Check with a calibrated Flue Gas Analyser that your ratio is < 0.020 CO/CO2 Ratio.

Do not use the gas pipes as electrical appliance earthing devices.



Electrical connection

⚠ **Electrical current with 230V voltage**
Before any work on the electrical equipment, always disconnect the 230V voltage.

Power the appliance via a double pole switch.
N.B. no responsibility is accepted for damage to persons, animals or property caused by failure to earth the appliance and the creation of an electrical installation that does not comply with current standards.
For the main power supply of the appliance from the mains, the use of adapters, multiple sockets and/or extension cords is not permitted.
The use of any component that uses electricity involves the observance of a number of fundamental rules such as:

- Do not touch the appliance with wet parts of the body and/or bare feet
- Do not pull the electrical cables
- Do not leave the appliance exposed to atmospheric agents (rain, sun, etc.)
- Do not allow the appliance to be used by children or inexperienced persons.

Where the appliance will not be used for a certain period of time, it is advisable to disconnect the power supply to all the system components that use electricity.

Water connection

⚠ **Water temperatures >50°C may cause severe burns.**
Verify the water temperature before using.

Connect the water heater to the water mains and fit a water shut-off valve prior to the appliance.
Looking at the front of the appliance, the cold water inlet is on the right and the hot water outlet is on the left.
The minimum distance between the water heater hot outlet and the first tap or mixer must exceed of 0.5m.

FLUE TERMINAL POSITION

The heater must be installed so that the terminal is exposed to the external air. It is important that the position of the terminal allows free passage of air across it at all times. It is essential to ensure that the products of combustion discharging from the terminal cannot re-enter the building or vehicle, through ventilators, windows, or other sources of natural air infiltration, such as other flues etc, with the exception of doors, but not the opening windows thereof.
The minimum acceptable dimensions from the terminal to obstructions and ventilation openings is as follows:
Directly below an opening fixed vent or window etc 300mm
Adjacent to an opening fixed vent or window etc 300mm
Below gutters 75mm
From a vertical drain pipe 75mm
From an internal or external corner 300mm
Where the terminal is fitted in a position to which children, the elderly, or disabled people have access (less than 1.5m above steps, decking or ground), a suitable terminal guard should be fitted. In certain weather conditions the terminal may emit a plume of steam.

Flue - Exhaust Gas and Air Inlet

The appliance can be used with a horizontal or vertical flue system. The respective part codes are RSF503 and RSF545. The Flues feature concentric tubes, the inner 60mm Ø tube is for the flue exhaust gas and the outer 100mm Ø tube is for the air inlet.

Current flue standards should be adhered to and the flues fitted must be supplied by Morco Products as these are CE certified for use with the appliance.

TYPE C: Horizontal coaxial exhausts
In this configuration, air intake and combustion product exhaust is outside the home through concentric pipes.
Coaxial exhausts can be faced in the direction most appropriate to room needs, meeting the methods and lengths indicated in the following table.
The reference quotas for where to trace wall hole for the support bracket are provided in figure 10.

TYPE C: Vertical coaxial exhausts
Use the vertical exhaust manifold and, if necessary, the relevant extensions, observing the maximum admitted lengths as indicated in the table.

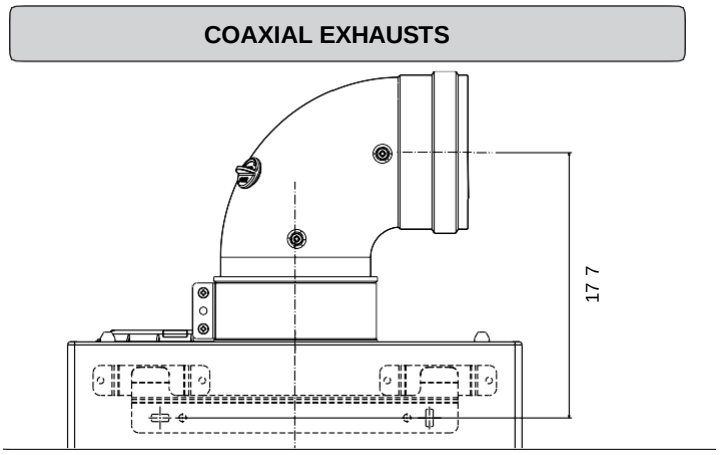


Fig. 10 - Type C exhaust dimensions

Fig.11 - Top view with distances

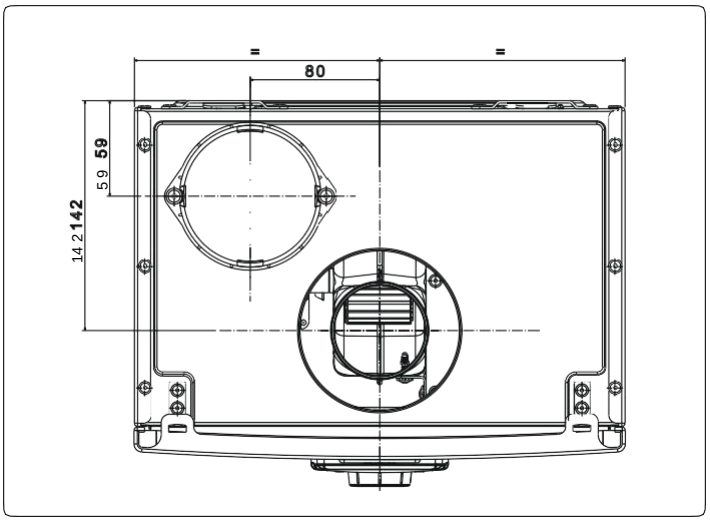
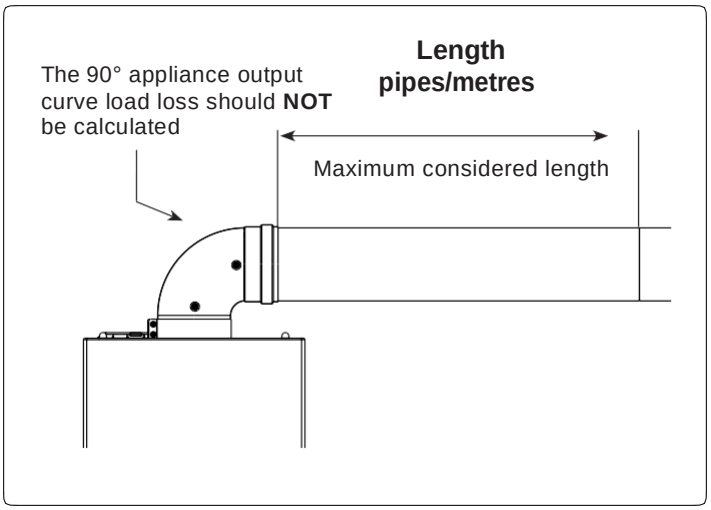


Fig. 12 - Maximum pipe length (see following table)



Reference table for maximum workable length based on the selected exhaust type

Flue Type	Length of Flue (m)	Flue Restrictor (mm)	Reduction in allowable length for each additional elbow	
	This excludes the 90° elbow connected to the appliance		45°	90°
Horizontal Co-axial Flue	up to 1m	Ø43mm	1m	1.4m
	1 - 2.7m	Ø45mm	1m	1.4m
	2.7 – 5.5m	None Installed	1m	1.4m
Vertical Co-axial Flue	up to 2m	Ø43mm	1m	1.4m
	2 - 3.7m	Ø45mm	1m	1.4m
	3.7 - 6.7m	None Installed	1m	1.4m

Warnings before ignition

Please remember that appliance installation, first ignition, maintenance and repairs must be performed by qualified personnel. In the UK this is a Gas Safe Engineer.

Before turning on the appliance, proceed with suitable checks:

- Ensure the gas system seal is good (according to current regulations)
- Ensure gas type and pressure match those stated on the data plate
- Ensure the installation meets current local regulations
- Ensure the flue meets current regulations
- Check connections with the electrical mains, Live and Neutral, polarity and grounding connections
- Check the mains pressure as indicated in the next paragraph.

TECHNICAL DATA

		EUP 11 RS		
		kW - kcal/h		
Nominal heat input (Qn)		21,5 - 18.490		
Nominal output power (Pn)		19,3 - 16.604		
Minimum heat input (Qm)		9,5 - 8.170		
Minimum output power (Pm)		8,6 - 7.353		
GAS TYPE		**NATURAL GAS**	**PROPANE**	**BUTANE**
		G20	**G31**	**G30**
P.C.I. (15° C 1013 mbar)	MJ/m^3	34,02	88,00	116,09
WI (15° C 1013 mbar)	MJ/m^3	45,67	70,69	80,58
Nominal supply pressure	mbar	20	37	28-30
Consumption (15° C 1013 mbar)		2,28 m^3/h	1,67 kg/h	1,70 kg/h
Maximum burner pressure	mbar	11,7	36,4	28,3
Minimum burner pressure	mbar	2,6	8,0	6,1
Number of Injectors Ø Main Burner Injector Size	Nr/mm	18x0,86 +4x0,83	18x0,50 +4x0,48	
NOx emissions (according to EN26:2015 on H_S)	mg/kWh	35,4	45,1	60,3
Ø Gas connection	“	3/4" bsp		
Category		II2H3P		-
		-	I3R	

FUMES EXHAUSTION		**EUP 11 RS**		
		G20	**G31**	**G30**
Flue gas mass flow rate (min-max)	kg/h	39,308-60,035	34,005-53,020	42,465-63,644
Flue temperature (max-min)	°C	160 - 101	159 - 96	165 - 101
Air capacity	Nm^3/h	46,315	40,741	49,112
Ø flue gas release tube	mm	100/60		

FAN PERFORMANCE		**EUP 11 RS**
Residual head of boiler without pipes	Pa	71

ELECTRICAL CIRCUIT		**EUP 11 RS**
Power supply voltage	V - Hz	230 - 50
Electric power	W	41
Degree of Protection		IPX5D

INSTALLATION SITE TEMPERATURE		**EUP 11 RS**
Minimum working temperature	°C	3

WATER		**EUP 11 RS**
Domestic water flow limiter	l/min	8
35°C temperature rise above ambient	l/min	8
Minimum ignition flow	l/min	2
Selectable water temperature	°C	37-60
Minimum pressure	bar	0,13
Maximum pressure	bar	10
Ø water connections		1/2” bsp

DIMENSIONS AND WEIGHTS		**EUP 11 RS**
Height	mm	617
Width	mm	304
Depth	mm	222 (238 with aesthetic)
Weight	Kg	14

Note: cold water temperature of reference 15°C.

SERVICING THE APPLIANCE AND MAINTENANCE

“SERVICE MENU” ACTIVATION

It is possible to access the within which the appliance operation parameters can be modified.

- With water heater powered on, hold down the reset ⏻ (fig.
- 13) button for about 10 seconds, the display symbols start to flash. First the – – symbol is displayed and then the 00 symbol
- Release the reset button
- Enter the code 06 by turning the knob and confirm by pressing the reset button.

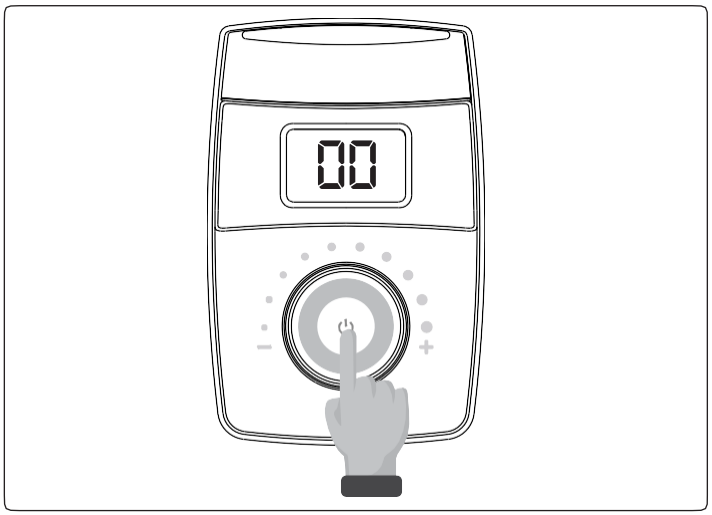
If the code is incorrect or the time set for the operation should expire, the appliance automatically returns to the standby or operating state.

Having entered the “SERVICE MENU” it is possible to select the relevant submenu by turning the knob:

- tS Parameters menu
- tA Calibration menu
- AL Alarm history menu
- In Info menu

Hold down the reset ⏻ button to confirm the selection.

Fig. 13 - “Service Menu” Activation



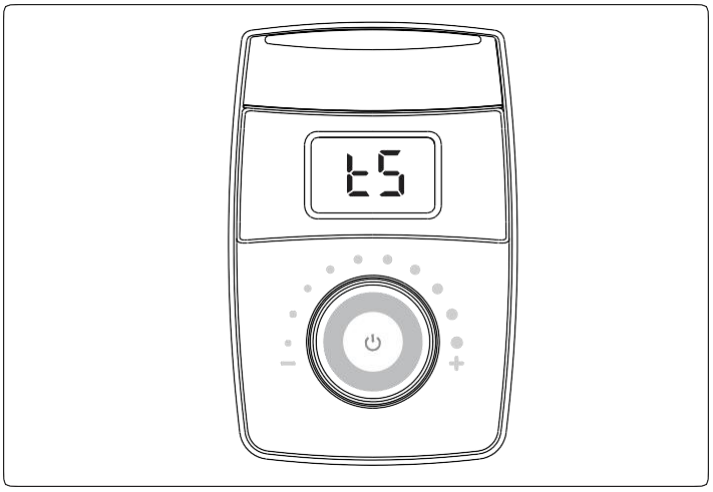
⚠ To exit the “SERVICE MENU” press the reset button until the word “MENU” flashes, release the button: the display shows last submenu selected. Press reset button until the word “MENU” flashes, release the button: the display shows the set point temperature.

Parameters menu t5

- The index of the first parameter will appear followed by the value set upon menu activation
- Turning the knob the subsequent parameters will be displayed
- Once the parameter to be changed has been identified press the reset button. The editable value will appear flashing and by turning the knob it will be possible to make the change
- To store the value press the reset button.

⚠ Exit from the menu automatically stops after 5 minutes of inactivity or by pressing and holding the reset button

Fig. 14 - "Parameter Menu" Activation



Below is a list of editable parameters:

NO. PARAMETER	DESCRIPTION	RANGE	DEFAULT VALUE
02	Gas type 0 = methane 1 = LPG	0 - 1	depending on the model
08	DHW off mode; 0 = fixed 1 = associated with the DHW setpoint	0 - 1	0
09	Ignition power	0 ... 40	40
13	LPG gas type 1 = propane 2 = butane	1 - 2	1
17	Complete or partial calibration	0 ... 100	0
18	Domestic hot water modulation with flow meter 0 = modulation without flow meter 1 = modulation with flow meter	0 - 1	1
26	Water heater flow rate 0 = 11i 1 = not applicable 2 = not applicable 3 = not applicable	0 - 3	0
28	0 = standard water heater 1 = solar water heater	0 - 1	0

⚠ **Any other additional parameters with respect to the table above should not be changed for any reason**

Calibration menu tA

⚠ Pressure adjustments must be carried out by a qualified technician

⚠ Pressure adjustments must be carried out by a qualified technician

⚠ The calibration operation ends automatically after 15 minutes of inactivity or by pressing and holding the reset button or in the case of overheating (67°C)

Before calibration check the mains pressure, referring to the previous paragraph.

To calibrate the gas valve (standard procedure **MANU**: it is pos-

sible to deviate from the value set by approximately +/-1.5 mbar) carry out the following operations:

- Place the electric switch of the system to off
- Remove the casing by unscrewing the fastening screws located at the bottom of the water heater and detached the casing from the top
- Remove the cover that closes the service inlet (located on the shelf - Fig 11) and insert through the hole the silicon pressure gauge tube
- Loosen by approximately two turns the screw of the pressure tap downstream of the gas valve and connect the pressure gauge to it
- Carefully close the casing and place the electric switch of the system to on
- Access the Calibration Menu tA
- Open the hot water tap and wait until ignition of the burner.

Upon activation of the menu will appear first the word **Ma** and then the word **to** to compose **Manu** and P01 will appear, indicating that the water heater is operating at maximum capacity.

- Turn the knob until visualize on the pressure gauge the maximum burner pressure (see data table)
- To store the value press the reset button
- Press the reset button to select the next lowest setting value P00
- Turn the knob until visualize on the pressure gauge the minimum burner pressure (see data table)
- To store the value press the reset button
- Press the reset button until MENU' flashing, release the button: the display shows tA
- Press again the reset button until the display shows MENU' flashing, release the button: the display shows the set point temperature
- Close the hot water tap.

⚠ The calibration operation ends automatically after 15 minutes of inactivity or in the case of overheating (67°C)

Alarm history menu AL

This feature allows displaying of the last 10 errors that have occurred on the appliance.

Upon activation of the menu, the figures 0 1 (index of the last stored error), the error code and the word AL (e.g.: 0 1 => 06 => AL) will appear alternately.

Turning the knob it is possible to scroll through the errors index. Display ranges from the most recent to the earliest.

If the user pauses, the display shows the letters AL to indicate access within the errors history menu.

Press the reset button until MENU' flashing, release the button: the display shows AL.

Press again the reset button until the display shows MENU' flashing, release the button: the display shows the set point temperature.

Info menu In

This feature allows displaying:

- Last version of software review
- Hot water temperature in direct
- Hot water quantity in direct (l/min).

This menu is active during all the production of instant hot water.

Exiting the menu takes place automatically after 15 minutes of inactivity or by pressing the reset button.

Fig. 15 - "Calibration Menu" Activation

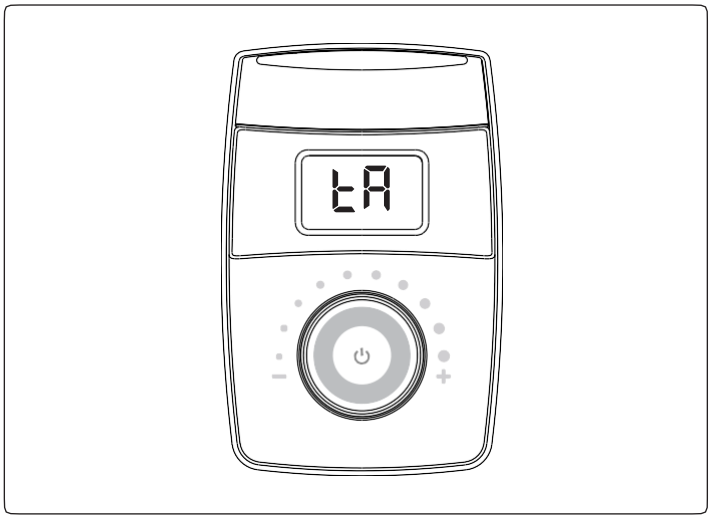


Fig. 16 - "Alarm History Menu" Activation

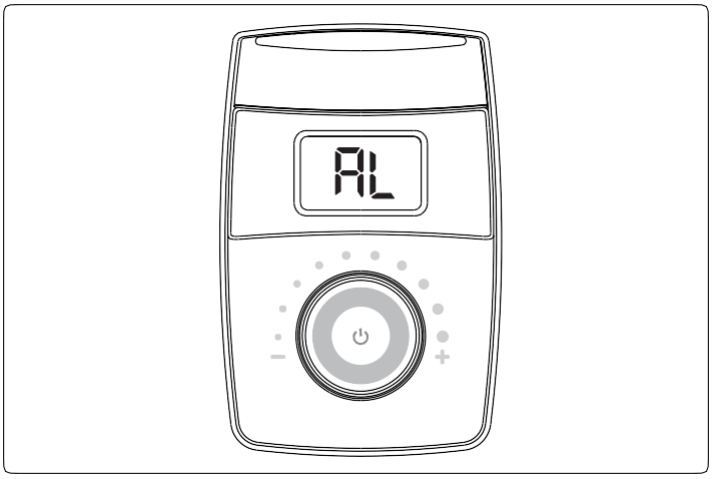
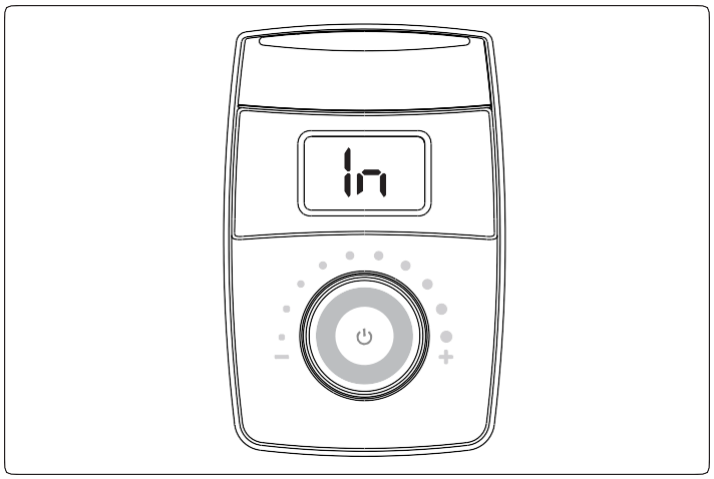


Fig. 17 - "Info Menu" Activation



Maintenance

⚠ **Please have the appliance checked by qualified personnel in accordance with current regulations to guarantee correct, continuous and reliable water heater operations.**

⚠ Insufficient or inadequate maintenance can compromise the safety of the appliance.

⚠ Before carrying out any cleaning or maintenance, switch off the appliance using the omni-polar switch on the power supply line and close the gas and water valves to the appliance.

External cleaning

In particular check the main components and the tightness of the gas circuit.
To clean the exterior panels use a cloth dampened with soapy water.
Do not use solvents, powders or abrasive sponges.
Do not clean the appliance and/or its parts with flammable substances (example: petrol, alcohol, oil, etc.).

Dismantling the casing (Fig. 26)

Remove the casing by unscrewing the fastening screws located on the bottom of the water heater and detaching the casing at the top.

Accessibility to the electronic board (Fig. 27)

Remove the casing by referring to the specific paragraph.
Remove the panel by unscrewing the screws that secure it to the seat of the electronic board. Disconnect the connectors.

Removing the gas valve (Fig. 28)

Remove the casing by referring to the specific paragraph.
Unscrew the screws that secure the panel to the bottom shelf.
Remove the panel without disconnecting the wiring and attach it to the bracket as shown in the figure.
Disconnect the gas valve by unscrewing the retaining screws and the nut connecting to the gas pipe.

Removing the fan (Fig. 29)

Remove the casing by referring to the specific paragraph.
Unscrew the fixing screws of the fan.
Lower the fan freeing it from the hooks and slide it to the left.

Removing the burner (Fig. 30a-30b-30c-30d)

Remove the casing by referring to the specific paragraph.
Remove the clip (detail A fig. 30a).
Disconnect and remove the gas pipe (detail B fig. 30a).
Turn the screws showed in fig. 30b and lower the plate.
Referring to fig. 30c: unscrew the nut, remove the clip and the outlet hot water pipe.
Unscrew the fixing screws (fig. 30d) and remove the burner.

Fig. 18 - Dismantling the casing

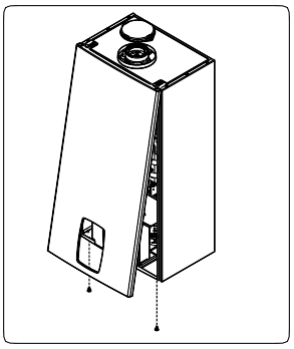


Fig. 19 - Accessibility to the electronic board

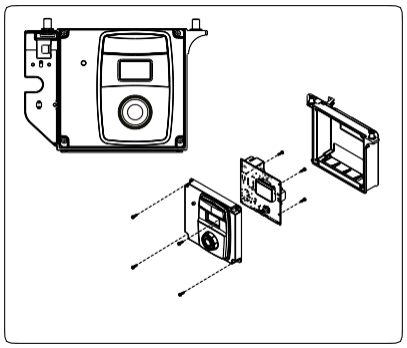


Fig. 20 - Dismantling the gas valve

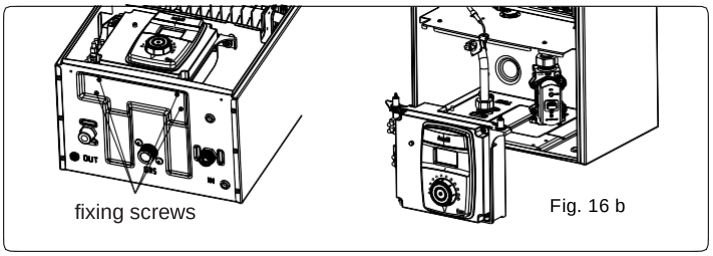


Fig. 21 - Dismantling the fan

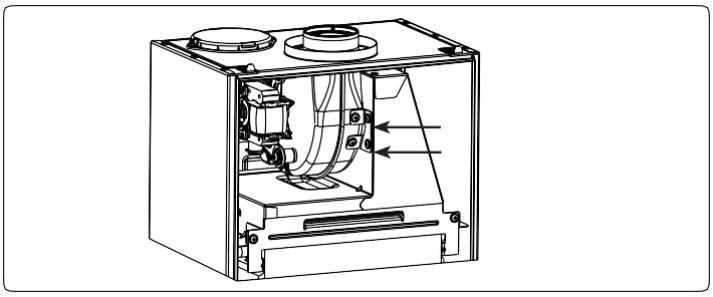


Fig. 22a - Dismantling the burner

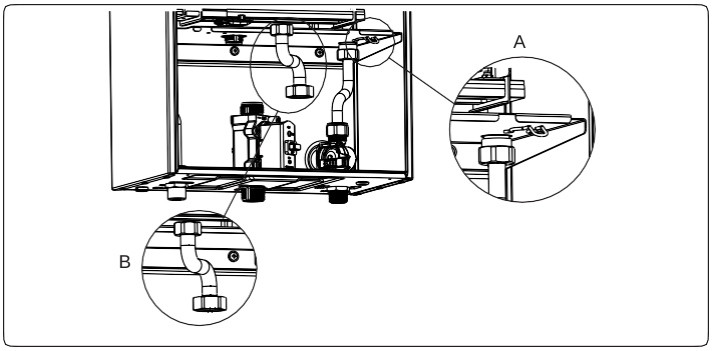


Fig. 22b - Dismantling the burner

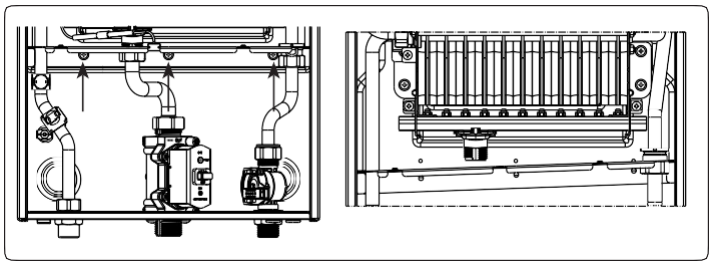


Fig. 22c - Dismantling the burner

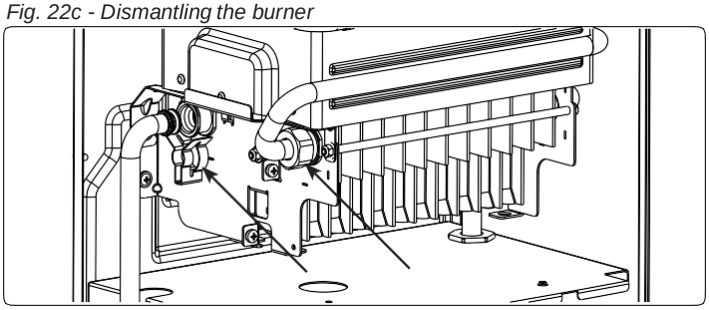
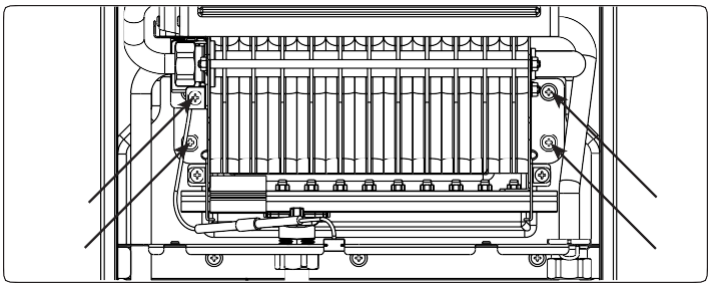


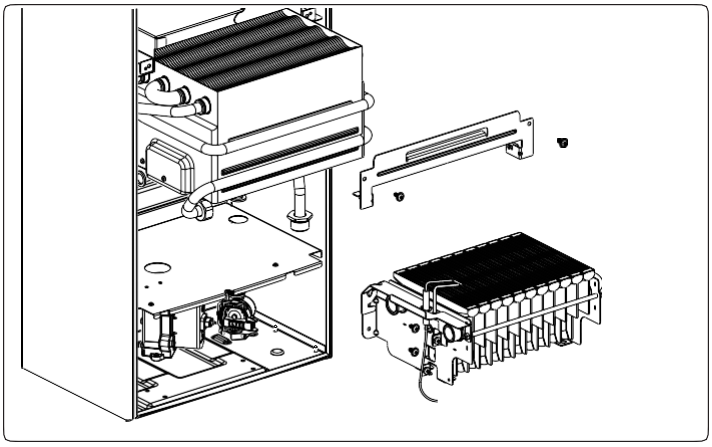
Fig. 22d - Dismantling the burner



Dismantling the heat exchanger (Fig. 31)

Remove the casing and the burner by referring to the specific paragraphs.
Remove the input cold water pipe.
Unscrew the fixing screws.
Remove the heat exchanger.

Fig. 23 - Dismantling the heat exchanger



Gas valve solenoid resistance.

Check the resistance between pins 1 & 3 and 2 & 4.

Pins 1 & 3 = 23 ohms +/- 10%. Pins 2 & 4 = 61 ohms +/- 10%.

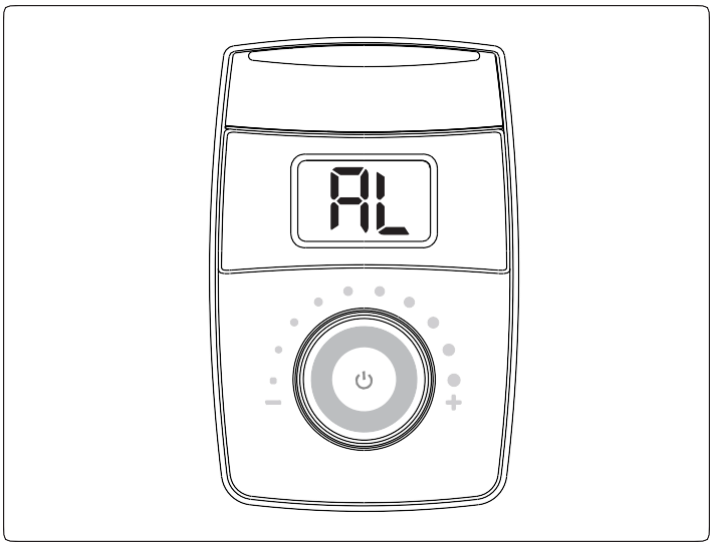
FAULT CODES

Should the appliance shut down the display shows the letters AL followed by a fault code which should be consulted in relation to the shutdown.

Two types of shutdown are possible:

1. Temporary shutdown (non-permanent). The fault code flashes, shutdown is automatically removed upon resolution of the problem that caused it. If the fault persists, shut- down switches from temporary to permanent
2. Permanent shutdown (lock), the fault code is steady. In this case the appliance does not start again automatically and must only be released by the user or by a Gas Safe Engineer or other qualified personnel.
3.

Fig. 24 - Display appliance shutdown



Below are listed the types of alarms, their typical display views and the solutions to reset the appliance:

Display	Alarm type	Solutions
 Permanent shutdown	Ignition Fault	Check Inlet gas pressure. Check if and correct flue restrictor ring has been fitted. Check spark. Check if correct injectors fitted. Check burner bar cover fitted. Check the installation earth. Press and hold the reset button ⏻. As soon as the letters rS appear on the display, release the button.
 Permanent shutdown	Overheat fault > 88°c	Press and hold the reset button ⏻. As soon as the letters rS appear on the display, release the button. Check Hi Limit Stat Wiring Replace the Hi Limit Stat
	Thermistor Fault	Check wiring connection on thermistor. Check X1 plug on PCB is connected correctly Replace thermistor

 Temporary shutdown	False flame	Check Ionisation cable. Check or Replace Electrodes. Check the Earthing PCB
 Permanent shutdown	Gas Valve Fault	Check gas valve cable if disconnected or damaged. The appliance automatically restarts. Check gas valve resistance values are correct, (1 & 3 = 23 ohms and 2 & 4 = 61 ohms +/- 10%). PCB
 Permanent shutdown	Alarm in case of 5 consecutive resets	To reset the appliance, disconnect and reconnect the electrical supply to the appliance. Press and hold the reset button ⏻. As soon as the letters rS appear on the display, release the button.
 Temporary shutdown	Low Voltage Alarm < 180Vac	Wait until automatic reset of the water heater. Check the electrical supply.
 Temporary shutdown	Incorrect mains frequency detection alarm	Wait until automatic reset of the water heater. Check the electrical supply.
 Permanent shutdown	Flame loss for more than 3 consecutive times	Check the minimum burner pressure is set correctly. Check for flame lift
 Temporary shutdown	Button alarm	This is displayed when you keep the button pressed for more than 30 seconds, once the button is released the fault disappears. Check if the cupboard door is pressing on the button.
 Permanent shutdown	Gas parameters have been changed on the PCB	Re-calibrate the appliance for the gas being used
 Permanent shutdown	Alarm as domestic water Delta T not reached upon power on	Faulty thermistor, check resistance readings. Check thermistor wiring. Thermistor not clipped to hot outlet pipe or poor contact with pipe.
 Permanent shutdown	PCB Fault	Replace PCB
 Permanent shutdown	Combustion problem within 10 seconds of start up	Check for low gas pressure. Check flue seals. Press and hold the reset button ⏻. As soon as the letters rS appear on the display, release the button. The appliance automatically restarts
 Permanent shutdown	Shutdown due to persistent poor combustion	Check gas pressure. Check flue seals. Check fan.
 Temporary shutdown	Alarm due to poor combustion. Also fault 84	Check gas pressure. Check flue seals. Check fan.

 Permanent shutdown	Fan hall effect speed sensor	Faulty Fan Faulty PCB
 Display	High temperatures	Faulty thermistor. Thermistor not clipped onto hot outlet pipe. Faulty Hi-Limit stat
 Permanent shutdown	Software fault alarm, PCB start-up	Replace PCB

WINTERISATION

Winterisation of Holiday Homes That Have a Water Heater

Fresh water freezes at 0°C and expands by 9% with a significant force that will destroy:

- Pipe work
- Water heater components
- Taps, and shower valves

DRAIN DOWN

If you leave fresh water in your caravan system over the winter you will run the risk of damage. This can only be avoided by removing the fresh water from the system – we call this a “drain down”. You may wish to drain down the fresh water system yourself using the procedure in the next section but we STRONGLY RECOMMEND that you have this carried out by an experienced engineer as many caravan systems can only be completely drained by blowing the water out and this requires specialist equipment. View the £50-£60 charge for a drain down as a mini insurance policy and always ask the engineer if he has equipment to blow the water out. The two most common parts to be damaged by frost are the shower valve and the water control assembly in a water heater and the costs to replace these are around £100 each.

Drain Down Procedure – without specialist equipment

- Turn off the fresh water supply stop cock outside the Holiday home
- Disconnect the fresh water feed outside the home if possible as this protects from flooding due to stop cock failure
- Open all hot and cold taps and shower valves and place the shower head in the tray
- Use the Holiday Home Owner’s Handbook to locate all the fresh water drain cocks under the van – some of these may not be obvious
- Open these drain cocks

This procedure does not guarantee that all the fresh water will leave the system. Most modern homes have double check valves in the TMV2 shower mixers and these trap fresh water and stop the flow of water around the system once the drain cocks and taps are open. It may appear that all the water has left the system, but beware! This pitfall can be avoided by removing the shower mixer valve/valves from the system after the cold water supply has been switched off and the drain cocks opened. Many manufacturers provide access panels and these may make the removal of shower mixers easier. Removal of some shower mixers requires the use of special tools.
In addition, pipe work layouts can cause air locks leaving water inside vulnerable components such as the water heater or shower mixer.

Re-commissioning the home is a reverse of the above procedure.

This drain down procedure may work but the only way to be sure is to blow the water out using compressed air at 3 bar maximum pressure.

WARRANTY

The water heater is guaranteed against manufacturing defects for one year from first commissioning date. However, the guarantee is subject to proof of commissioning in accordance with the gas safety (Installation and Use) act of 1998. The guarantee does not cover defects caused by lack of maintenance.

Morco Products Ltd. warranty will cover parts and labour if the appliance has been fitted as part of the original equipment in a caravan holiday home or leisure accommodation vehicle.

Appliances distributed as non-original equipment either directly from Morco Products Ltd. or other merchants are subject to a return to base policy for repair and return.

As an alternative to returning the appliance for repair we will supply spare parts and advice for defective appliances on the provision that we can talk to the competent registered gas engineer involved in the fitting or repair of the defective appliance

No remuneration will be offered for the removal and refitting of the appliance or for any work / travelling involved in the fitting of spare parts supplied by ourselves.

Exclusions from warranty
- Damage caused by frost
- Scaling up of the heat exchanger
- Blocked pilot injectors
- Insect or debris in the burner or heat exchanger
- Blocked gas or water filters
- Incorrect operation caused by damaged mixer taps or shower TMV2

Please note that proof of commissioning for the purposes of this warranty is a copy of the commissioning certificate as filled out by the Gas Safe Engineer or other qualified personnel.

Supplied by Innovita Italy

Distributed in U.K. by:
MORCO PRODUCTS LTD
Morco House
Riverview Road
Beverley
East Yorkshire
HU17 0LD
ENGLAND

Telephone Number: 01482 325456
Fax Number: 01482 212869
Web Address: www.morcoproducts.co.uk