Instantaneous gas-fired water heater for domestic use

MINI BF ERP

USER, INSTALLATION AND SERVICING INSTRUCTIONS

EN

It is compulsory to read the instructions.

Visit our website:
www.sime.it

Fonderie SIME S.p.A.

6328403 - 04/2026 - R17

TRANSLATION OF THE ORIGINAL ITALIAN INSTRUCTIONS

WARNINGS

- After having removed the packaging make sure that the product supplied is integral and complete in all its parts. If this is not the case, please contact the Dealer who sold the appliance.
- The appliance must be used as intended by **Sime** who is not responsible for any damage caused to persons, animals or things, improper installation, adjustment, maintenance and improper use of the appliance.
- In the event of water leaks, disconnect the appliance from the mains power supply, close the water mains and promptly inform professionally qualified personnel.
- Regularly check that the operating pressure of the hydraulic system, when cold, **equals 0,2 bar** (the minimum water flow rate is 2,5 l/min), so that the system can be used in residential areas with a low water pressure. If this is not the case, contact professionally qualified personnel.
- If the appliance is not used for a long period of time, at least one of the following operations must be carried out:
  - *set the main system switch to "OFF";*
  - *close the gas and water valves for the water heating system.*
  - *drain the system if there is the risk of freezing.*
- In order to ensure optimal appliance operations **Sime** recommends that maintenance and checks are carried out **ONCE A YEAR**.
- The system's power connection is of the "Y" type, so the power cable may only be replaced by the manufacturer or the service department.
- The concentration of CO in combustion by-products must always comply with the installation regulations of the country where the appliance is installed.

WARNINGS

- **It is recommended that all operators** read this manual carefully in order to use the appliance in a safe and rational manner.
- **This manual** is an integral part of the appliance. It must therefore be kept for future reference and must always accompany the appliance in the event the appliance is transferred or sold to another Owner or User or is installed on another system.
- **Installation and maintenance** of this appliance must be carried out by a qualified company or by a professionally qualified technician in accordance with the instructions contained in the manual. Once the work is complete, the company or technician will issue a declaration of conformity with national and local technical standards and legislation in force in the country where the appliance will be used.
- **Any repairs on the appliance** must be carried out solely by professionally qualified personnel, using original spare parts only. Failure to comply with these instructions can jeopardise the appliance's safety and void the warranty with immediate effect.
- **Fonderie SIME S.p.A.** reserves the right to make improvements to its products at any time without prior notice, without compromising their essential characteristics. The graphic illustrations and/or images in this document may show optional accessories that vary according to the country in which the appliance is used.
- **The installer must explain to the User** the appliance's operation and the safety instructions. Moreover, the installer must hand the use and maintenance instructions to the User after completing the installation.

PROHIBITION

- Do not allow children under the age of 8 to use the appliance. The appliance can be used by children no younger than 8 years old, by people with physical or cognitive disabilities, and by people lacking experience or the necessary knowledge, provided that they are supervised or have been instructed on how to use the appliance safely and that they understand the risks associated with it.
- Do not allow children to play with the appliance.
- Do not allow unsupervised children to perform user maintenance and cleaning.
- Do not use electrical devices or appliances such as switches, electrical appliances etc if you can smell fuel. If this should happen:
  - *open the doors and windows to air the room;*
  - *close the gas isolation device;*
  - *promptly call for professional assistance.*
- Do not touch the appliance with bare feet or with any wet part of the body.
- Do not carry out any technical intervention or cleaning operation before having disconnected the appliance from the mains power by setting the main switch to "OFF", and closing the gas supply.
- Do not modify the safety or adjustment devices without authorization and instructions from the manufacturer.

PROHIBITION

- Do not modify or plug the condensate outlet (if present).
- Do not pull, detach or twist the electrical cables coming out of the appliance even if the appliance is disconnected from the mains power supply.
- To expose the appliance to atmospheric agents: it is not designed for operating outdoors and is not equipped with automatic anti-freeze systems. If it risks freezing up, the water heater must be emptied of all the water contained in it.
- Do not block or reduce the size of the ventilation openings of the room where the appliance is installed, if present.
- Do not remove the mains power and gas supply from the appliance if the external temperature could fall below ZERO (risk of freezing).
- Do not leave containers with flammable substances in the room where the appliance is installed.
- To drink the water in the water heater. The water contained in the water heater is not drinkable.
- Do not dispose of the packaging material irresponsibly as it could be dangerous. Packaging must be disposed of as specified by the legislation in force in the country where the appliance will be used.
- Do not modify or intervene on sealed components.

LIST OF ABBREVIATIONS USED IN THE MANUAL

Below is a list of abbreviations that can be used in the diagrams in the manual.

ABBREVIATION	DESCRIPTION
*	Optional
0/10V	0/10 V input
ACS	Domestic hot water
AIN	Inertial storage
AL	Power supply
ALIM	Power supply
APDC	Heat pump power supply
AR	Remote alarm
ARM	Cabinet
ASF	Flame signal amplifier
AUX	Auxiliary output
BK	Black
BL	Blue
BO	Tank
BR	Brown
BRU	Burner
C	Domestic hot water recirculation attachment
CAA	Boiler air inlet duct
CALDAIA	Boiler
CI	System filling
CMI	Microprocessors controller
CN	Connector
COID	Hydraulic manifold / hydraulic disconnector
COMP	Compressor
COND	Capacitor
COS	Solar collector
CPDC	Heat pump controller
CR	Remote control / command
CRI	Heater consent
CSFU	Smoke outlet duct
CSFUC	Coaxial flue gas exhaust duct
CSFUS	Separate flue gas exhaust duct
CTP	Programmer timer-controlled thermostat
DA	Active dehumidifier
DAL	Alarm device
DF	Dirt separator
DP	Polyphosphate dosing unit
DPS	Overvoltage protection device
E	Domestic hot water inlet
E/I	Summer / Winter switch
EA	Electrode on
EAR	Ignition / detection electrode
EL	Electrical connections
EMC	Boiler emergency activation at boiler TA2
ER	Flame detection electrode
EV	Solenoid valve
EVAT	High-temperature solenoid valve
EVC	Fuel solenoid valve
EVCA	Automatic charging solenoid valve
EVD	Diverter solenoid valve
EVG	Gas solenoid valve

ABBREVIATION	DESCRIPTION
EVMS	DHW mix solenoid valve
EVZ	Zone solenoid valve
EXP	Expansion card
FA	Noise filter
FAST	Combined boiler (instantaneous DHW + technical water)
FE	Ferrite ring
FL	Flow switch
FLM	Flow meter
FR	Line filter
FU	Fuse
FV	Photovoltaic
FY	Y Filter
G	Gas supply
GI	Expansion joint
GN	Green
GR	Grey
GS	Solar unit
GSM	Phone dialler
HiT2	Cascade manager
HP	HP high pressure switch
HYBW	Hybrid Wall
I	Inductance
ID	Digital input configurable
IDFV	Photovoltaic digital input
IG	Main switch
IMP	System
INAIL	INAIL safety unit
JP	Jumper
KA	Relè
KAP	Circulator relay
KARA	DHW heating element relay
KARI	System heating element relay
KAV	Fan relay
KIT HYBRID	Hybrid kit
L	Line / Live
LBL	Light Blue
LGR	Refrigerant gas line
LP	HP low pressure switch
LR	Refrigerant fluid line
M	System delivery
MA	Pressure gauge
MB	Hot water tank delivery
MCA	Boiler delivery
MCB	Magneto-thermal switch
MEQ	Terminals external to panel
MIQ	Terminal block inside the panel
MMI	Control interface
MO	Generic motor
MODBUS	Connections for MOD-BUS input
MPDC	Delivery from heat pump
MR	Terminal block
MSOL	Solar delivery

ABBREVIATION	DESCRIPTION
MV	Fan motor
MVG	Gas valve modulator
N	Neutral
NC	Condensate neutraliser
OP	Mechanical timer
OR	Orange
OT	OpenTherm communication protocol
OV	Thermostatic diverter mixer valve
P	Circulator
PAC	Water pressure switch
PAR	Air pressure switch
PB	Calorifier circulator
PCP	Main control panel
PDC	Heat pump
PE	Earth Protection
PFU	Smoke pressure switch
PGM	Gas low pressure switch (methane / LPG)
PI	System circulator pump
PIAT	High-temperature circulator
PIBT	Low-temperature system circulator pump
PK	Pink
PM	System modulating circulator
Pmax	High pressure switch
Pmin	Low pressure switch
PR	Re-starter circulating pump
PRC	Recirculation circulator
PRIACS	Domestic hot water instantaneous preparer
PS	Domestic hot water circulator
PSAUX	Auxiliary DHW storage tank circulating pump
PSOL	Solar system circulator
PSRO	Burner remote unlock button
PUFFER	Puffer
PUFW	Puffer Wall
QE	Electrical panel
QE MEM	MEM electrical panel
R	System return
RB	Hot water tank return
RC	Recirculation
RCA	Boiler return
RCO	Fuel return
RD	Red
RDT	Radiator
RE	Electrical resistance
REACS	DHW heating element
REAG	Anti-freeze heating element
REimp	System heating element
RGPDC	Heat pump regulator
RGSOL	Solar controller
RISCO	Fuel heater
RPDC	Return to heat pump

ABBREVIATION	DESCRIPTION
RPSOL	Solar circulator return
RRF	Radio-frequency receiver
RSOL	Solar return
S	Generic temperature sensor
SA	Voltage indicator light
SAE	External air intake probe
SAUX	Auxiliary sensor
SB	Calorifier drainage outlet
SBB	Burner lock-out indicator light
SBL	Calorifier sensor (DHW)
SBLA	Storage Tank High Sensor ACS
SBLAUX	Auxiliary hot water storage tank sensor
SBLB	Storage Tank Low Sensor ACS
SBS	Solar hot water tank sensor
SBT	Low temperature sensor
SC	Condensate outlet
SCC	Boiler board
SCI	Hydronic board
SCM	Control board
SCMM	Master control board
SCV	Fan control probe
SDE	Junction box
SE	Outdoor air temperature probe
SEP	Pressure sensor
SF	Flame sensor
SFU	Smoke flue gas probe
SGR	Refrigerant gas sensor
SI	System drainage outlet
SIA	Air inlet probe
SID	Hydraulic separator
SL	Level sensor
SLB	Battery liquid sensor
SM	Delivery sensor
SMC	Boiler delivery sensor
SMCA	Cascade delivery probe
SMG	Generators delivery probe
SMI	System delivery sensor
SP	Plate heat exchanger
SPAC	Water pressure switch activation indicator light
SPS	Domestic hot water preheating sensor
SPU	Puffer probe (technical water - no DHW)
SR	Return sensor (SR)
SRC	Boiler return sensor
SRE	Relay board
SRE2	2-relay board
SRI	System return probe
SRRF	Radiofrequency sensor

ABBREVIATION	DESCRIPTION
SS	Domestic hot water sensor
SSC	Compressor discharge sensor
SSIC	Boiler inlet DHW probe
SSOL	Solar manifold probe
SSP	Plate heat exchanger liquid temperature probe
SSR	Solid state relay
STC	Condenser temperature sensor
SUA	Water outlet sensor
SVB	Tank relief valve
SVI	System relief valve drainage outlet
SVS	Safety valve outlet
T	Thermometer
TA	Room thermostat
TA230	Room thermostat 230 V
TAC	Heating room thermostat
TACS	Domestic water thermostat
TAF	Cooling room thermostat
TAZ	Zone room thermostat
TBL	Hot water tank thermostat
TC	Boiler thermostat
TFU	Smoke thermostat
TFUS	Thermal fuse
TL	Temperature-limit thermostat
TMIN	Minimum-temperature thermostat
TPAC	Water pressure transducer
TR	Heating thermostat
TRA	Ignition transformer
TS	Safety thermostat
U	Domestic hot water output
UE	External unit
UG	Nozzle
UI	Internal unit
UR	Humidistat
V	Fan
V3W	3-way valves
V4W	4-way valve
V5W	5-way valve
VBP	By-pass valve
VC	Automatic filling valve
VCC	Fan coil unit (heating only)
VCF	Fan coil unit (heating/ cooling)
VD	Diverter valve

ABBREVIATION	DESCRIPTION
VD I/E	Summer / Winter diverter valve
VDAUX	DHW storage tank diverter valve
VDCF	Hot/cold diverter valve
VEE	Electronic expansion valve
VEM	Mechanical expansion valve
VES	Expansion vessel
VESOL	Solar expansion vessel
VF	Fan coil unit (cooling only)
VGP	Pilot gas valve
VI	Violet
VIC	Fuel shut-off valve
VMIX	System mixer valve (no DHW)
VMIXS	DHW mixer valve
VP	Pressostatic valve
VR	Check valve
VS	Relief valve
VSA	Automatic bleed valve
VT	Thermal flywheel
VZ	Zone valve
W1	Remote Control Connector (CR)
W2	Connector for Room Thermostat (TA2) - External Probe (SE)
W3	Power supply connector
W4	Boiler connector (gas side) – Main control panel
W5	HP-main control panel connector
WH	White
WIFI	WiFi antenna board
Y	Yellow
YG	Yellow/Green
ZBT	Low-temperature zone (heating only)
ZBTC	Low-temperature zone (heating only)
ZBTF	Low-temperature zone (cooling only)

Dear Customer,
Thank you for purchasing a gas-fired water heater **Sime MINI BF ErP**, a new-generation device endowed with technical and performance features that allow you to satisfy your instant domestic hot water requirements with the utmost safety and limited running costs.
We suggest getting **Sime MINI BF ErP** started within 30 days from the date of installation by professionally qualified personnel, so that you can benefit from both the legal warranty and the conventional **Sime** warranty included at the end of this manual.

RANGE

Model	Code
MINI 12 BF ErP (Methane)	8112630
MINI 12 BF ErP (Lpg)	8112631
MINI 16 BF ErP (Methane)	8112632
MINI 16 BF ErP (Lpg)	8112633

CAUTION
Any optional accessories can be ordered separately. The relevant codes and technical specifications can be found in the current price list.

MANUAL STRUCTURE

This manual is organized as follows.

COMPLIANCE

- Gas Appliances EU Regulation 2016/426
- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU
- Ecodesign Directive 2009/125/EC
- Regulations (EU) Nos. 812/2013 - 814/2013
- Energy labelling Regulation (EU) No. 2017/1369

CE 0063/24

Please refer to the technical data plate for the serial number and year of manufacture.

SYMBOLS

WARNING
To indicate actions which, if not carried out correctly, can result in injury of a general nature or may damage or cause the appliance to malfunction; these actions therefore require particular caution and adequate preparation.

ELECTRICAL HAZARD
To indicate actions which, if not carried out correctly, could lead to injury of an electrical nature; these actions therefore require particular caution and adequate preparation.

PROHIBITION
To indicate actions which MUST NOT BE carried out.

CAUTION
To indicate particularly important and useful information.

USER INSTRUCTIONS

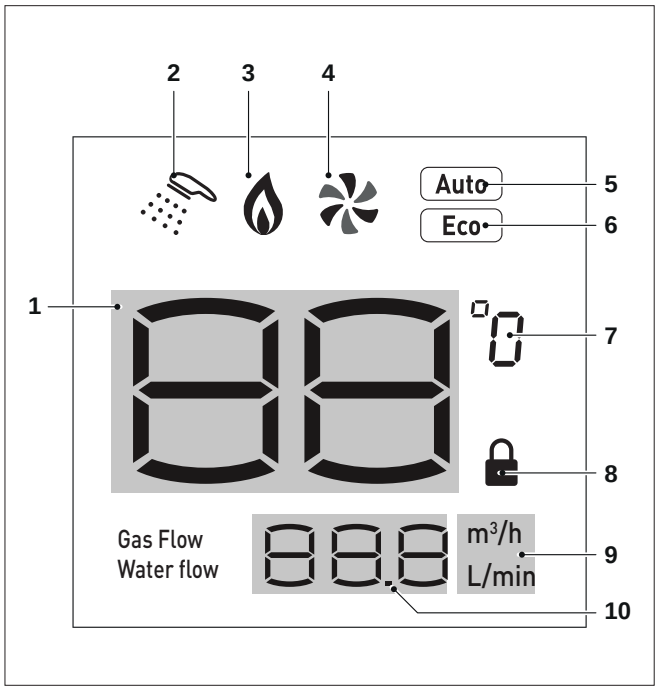
TABLE OF CONTENTS

1 OPERATING WITH THE WATER HEATER

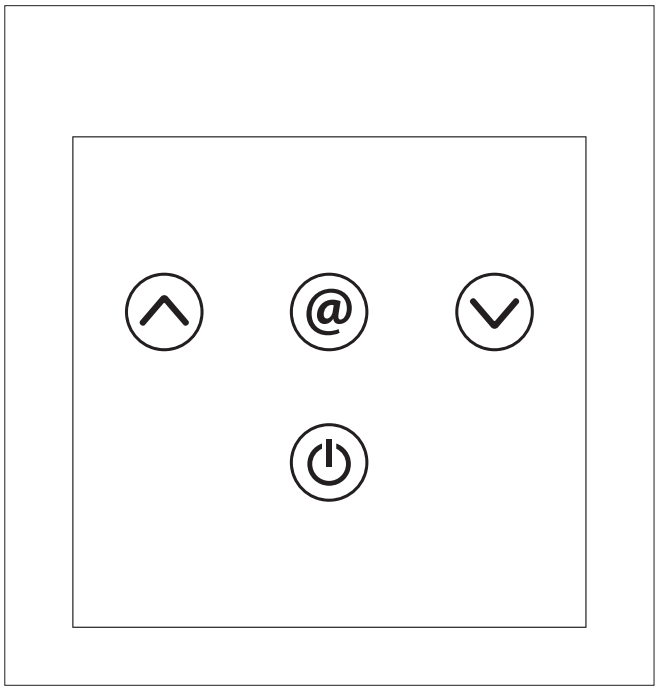
1.1 Presentation

Sime MINI BF ErP is a domestic gas instantaneous water heater with low pollutant emissions and a nominal heat input (Hi) of 21 and 27 kW. Sealed chamber version with forced flue. Interface with multifunction LED display. AUTO, ECO and NORMAL operating modes (system default). Digital control to automatically maintain a constant outlet water temperature. Protection system with self-check function, flame failure protection, overheating protection, protection against accidental power interruption and excessive temperatures. Designed for connection to solar thermal systems.

Display



FUNCTION KEYS



1 **"Main digital display area".** During normal operation of the water heater, it shows the set temperature. In case of malfunction, the error code is displayed.
2 **"Domestic water delivery".** This symbol appears when an incoming water flow is detected.
3 **"Flame".** This symbol appears when the water heater is running.
4 **"Fan".** This symbol appears when the fan is running.
5 **"Auto".** This symbol appears when the water heater is working in automatic mode.
6 **"ECO".** This symbol appears when the water heater is working in energy saving mode.
7 **"Water temperature".** When temperature adjustment mode is enabled, the warning light flashes. When the adjustment is disabled, the warning light is steady on.
8 **"Child lock safety function".** The symbol appears when the child lock safety function is enabled. When the set temperature is equal to or higher than 48 °C, press the key ^. The icon flashes to indicate the child lock safety function.
9 **"Water flow and gas flow unit of measurement".**
10 **"Data display area".** The following data are listed:
- real-time water flow indicator;
- real-time gas consumption indicator;
- reading of the cumulative water supply;
- reading of the cumulative gas supply.

On/Off key

Press the key to start or stop the water heater. If there is no hot water request, the water heater is in **"Standby"** mode.

Up key

During normal operation, pressing this key increases the temperature or the water flow.In "parameter setting/display", the user can modify the parameter setting or value (increasing) by pressing this button.

Down key

During normal operation, pressing this key decreases the temperature or the water flow.In "parameter setting/display" mode, pressing this key allows the user to modify the parameter setting or value (decreasing it).

Function key

Pressing this key allows the user to select the appliance's operating mode or the question function.

1.2 Preliminary checks

WARNING

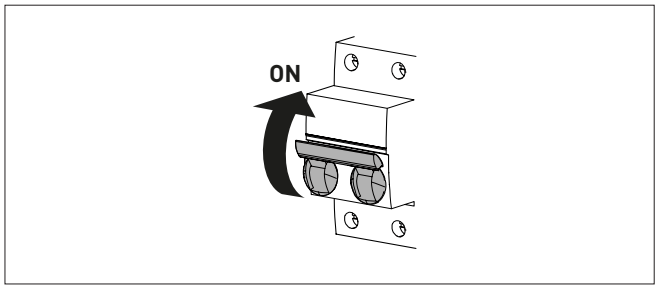
- Should it be necessary to access the areas in the bottom part of the appliance, make sure that the system components and pipes are not hot (risk of burning).
- Before replenishing the heating system, put on protective gloves.

The initial start-up of **Sime MINI BF ErP** water heater must be carried out by professionally qualified personnel, after which the water heater can function automatically. It may be necessary for the User to restart the appliance automatically, without contacting the technician; for example, after a holiday.

Preliminary operations upon start-up:
- make sure that the gas used matches the one indicated on the appliance's label;
- check that the fuel and water circuit shut-off valves are open.

1.3 Ignition

After completing the preliminary checks, to start up the water heater:
- insert the plug into the power outlet
- set the main system switch to "ON"
- the appliance will emit a sound to indicate that it is correctly powered electrically



- press the ⏻ (On/Off) key on the control panel: the screen will display the factory setting of the hot water temperature.

CAUTION

If the appliance does not work, make sure that gas and/or cold water valves are open. Make sure that the appliance is powered electrically and switched on. When closing the gas valve, the appliance automatically switches off and the flame symbol is no longer displayed.

1.4 Water temperature adjustment

To increase or decrease the water temperature, press the ∧ or ∨ keys; the minimum temperature that can be set is 35 °C, the maximum temperature is 65 °C.

WARNING

Water at temperature above 50 °C causes severe burns. Always check water temperature before use.

Whenever the keys are pressed, the temperature increases or decreases depending on the range within which the appliance is operating:
- **35÷48 °C**, the temperature varies by **1 °C**
- **48÷50 °C**, the temperature varies by **2 °C**
- **50÷65 °C**, the temperature varies by **5 °C**

Whenever the button is pressed, the buzzer sounds.

CAUTION

The temperature shown on the screen is the setting temperature, while the water output temperature can vary depending on the length of the piping and the seasonal conditions. It is therefore always necessary to refer to the actual water temperature.

1.5 Operation

Opening the hot water valve

The display shows the symbol . After a few seconds the fan starts up, the ignition device activates and the symbol is displayed. Hot water starts coming out. The display shows the temperature set for the outgoing water.

Regulating the temperature during hot water delivery

During use, it is possible to adjust the flow rate and temperature of the outgoing hot water by pressing the ∧ or ∨ keys. After opening the hot water valve and waiting for the water heater to start, set the temperature as follows:
- in the **35÷48 °C** interval, press the ∧ or ∨ keys, as described above
- above **48 °C**, it is only possible to press the ∨ key (**child lock safety function,** to prevent burns). To set a temperature above 48°C, close the hot water valve and then press the ∧ key until the desired temperature is reached.

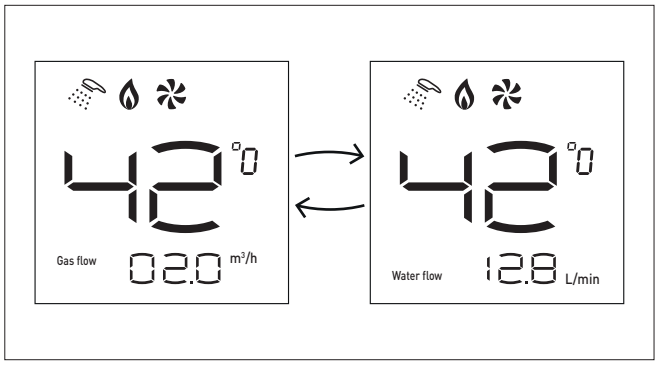
CAUTION

If the hot water valve is opened but the water heater is off (Off mode), only cold water will come out. To make hot water come out, press the ⏻ (On/Off) key.

Real-time display of production/consumption

When the water heater is in function, the display alternately shows the current hot water production and the gas consumption in real time. The data varies in relation to the actual operating conditions, enabling the user to verify the water heater's operating modes.

Example: if the real-time data displayed is "Water flow 12.0 l/min", the current hot water production of the water heater is 12 litres per minute. If the real-time data displayed is "Gas flow 2.0 m^3/h", the current gas consumption is 2.0 m^3 per hour.



Closing the hot water valve
Closing the hot water valve causes the water heater to switch off but the fan will continue to cool the combustion chamber for a few seconds. When the hot water valve is re-opened, the appliance will display the latest temperature set.

1.6 Operation

In "**Stand-by**" mode (namely when there is no hot water request), press the @ key and select the **"Auto"**, **"Eco"** and **"Normal"** mode depending on the situation; the operating modes will follow one other cyclically, the default system mode is **"Normal"**.

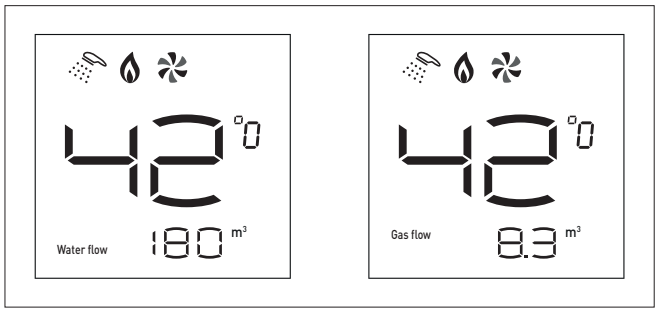
- **"Normal"** (default) mode. Depending on the user's needs and the outgoing water temperature settings, the system adjusts the water heater's maximum power to reach the previously set temperature in the shortest possible time. The "Auto" and "Eco" symbols do not light up.
- **"Automatic"** mode (Auto lights up on the display). Depending on the incoming water temperature, the system automatically adjusts the water heater's power to reach the temperature setting for the hot water output, which enables the user to obtain the most comfortable hot water supply at any time.
- **"Eco"** mode (Eco lights up on the display). In the energy saving mode, the micro-computer automatically regulates the amount of gas supplied, compared to other more economical modes, depending on the gas consumed to heat water, it not only helps to save gas but also guarantees a constant water supply for satisfying the users' needs. In saving mode, the user is free to select the water temperature, and can press the ∧ or ∨ keys to adjust the temperature, but without quitting the energy saving mode. To quit this mode, the user must return to **"Standby" mode** and press the @ function key again to quit this operating mode.

1.7 Interrogations and display of operating data

In **"Standby"** mode and during the water heater's normal operation, it is possible to know the cumulative water and gas consumption. To choose the desired interrogation function, press the @ function key, as indicated below:
- **one press** to view the cumulative quantity of water used
- **two presses** to view the cumulative quantity of gas used
- **three presses** to exit the interrogation mode.

After 20 seconds without any operation being made, the system automatically exits the interrogation function.

Example: if the interrogation result is "Water flow 180 m³", the total cumulative quantity of hot water produced is 180 m³. If the data displayed is "Gas flow 8.3 m³", the cumulative gas consumption of the water heater is 8.3 m³.

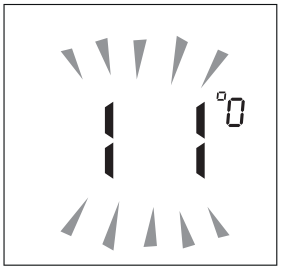


CAUTION
- When the quantity displayed reaches 999 m³, the recorded water quantity is automatically reset.
- The cumulative gas consumption and the cumulative water quantity are automatically reset after a power outage.

WARNING
The result of the interrogation is purely indicative and cannot be used to take readings.

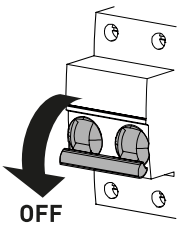
1.8 Fault e malfunction codes

If a malfunction/fault is detected during water heater operation, the display will show the malfunction code flashing.



It is possible to proceed as follows:
- close the hot water tap and re-open it
- press the ⏻ (On/Off) key until the appliance switches off and then switch it back on
- close the gas valve and disconnect the power supply, refill the appliance and switch it back on after a few minutes.

If this operation is not successful, **ONLY ONE MORE ATTEMPT** can be made, therefore:
- close the gas isolation valve
- contact the Qualified Technical Personnel.

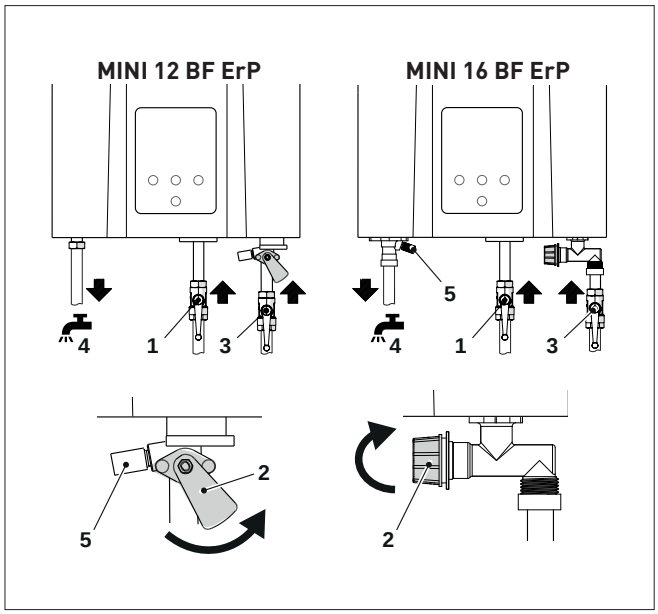


CAUTION
For the complete list of malfunction codes, refer to section "**Malfunctions and possible solutions**".

CAUTION
Should you see an alarm not described here, contact a qualified technical professional.

2 SAFETY PRECAUTIONS

CAUTION
To prevent possible accidents and damages to the appliance, the User must rigorously observe the following safety precautions!



2.1 Anti-freeze prevention

If the appliance is installed in a place where the piping could potentially freeze and the ambient temperature is near or below 0°C, we recommend draining the appliance to prevent ice from building up.
Proceed as follows:
- shift the plant's main switch to "OFF"
- close the gas supply valve (1) present on the line
- close the cold water supply (2)
- close the water circuit shut-off valves (3)
- open the valve on the hot water outlet (4)
- unscrew and remove the drainage valve (5)
- mount the drainage valve back on after the residual water has been completely drained.

To fill the appliance once again, open the shut-off valves of the water circuit, open the cold water supply and open the hot water valves until water comes out.

2.2 Preventing fires due to gas leaks

WARNING
If there is a gas leak, open the windows and door of the room. In this situation:
- strictly avoid starting flames
- do not press the switch of any electrical device
- do not insert or pull out any power plug

Any flame or spark could cause an explosion.

If the appliance is not used for a long period, it must be switched off as described in chapter "**Shutdown**".

To prevent any fire caused by gas leaks, perform the following checks as described in paragraph "**Periodic checks**":
- check that the gas connectors are not subject to leakages;
- check the gas pipe and, if necessary, replace it to prevent potential gas leaks.

2.3 Fire prevention

- Do not leave the water heater unsupervised while it is running.
- Do not leave containers with flammable substances in the room where the appliance is installed.
- Do not place towels or clothing above the water heater.
- If the power supply or mains water is interrupted, close the gas valve (1) and the water valves of the water circuit (3).
- If a gas cylinder is used, it must not be tilted or turned over as the gas can easily flow into the water heater and trigger a fire.

WARNING
Prevent any alterations to the watertight components sealed by the Manufacturer: a fire or explosion can cause damage to objects, personal injury or death.

2.4 Preventing carbon monoxide poisoning

To prevent possible carbon monoxide poisoning, have the following checks carried out by professionally qualified personnel, as described in paragraph "**Periodic checks**":
- inspection and cleaning of the combustion air discharge and inlet pipes;
- removal of dust and carbon encrustations present on the heat exchanger.

2.5 How to damage abnormal situations

In the event of abnormal combustion (e.g. flame return, switching off or black smoke, etc.), unusual smells, noise or other abnormal conditions, keep calm and close the gas valve. Subsequently, contact professionally qualified personnel or the gas supply company for the necessary repairs or adjustments.

2.6 Preventing burns

- Be careful not to get burned by excessively hot water when opening the valve.
- To prevent burns during use, and immediately afterwards, do not touch any part of the water heater, in particular the flame inspection window or the front panel, with the exception of the knob and control panel.

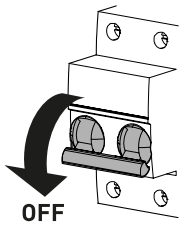
3 SHUTDOWN

3.1 Temporary shutdown

To shut down the water heater temporarily:
- press the ⏻ (On/Off) key
- the display switches off.

ELECTRICAL HAZARD
The water heater remains powered.

If the user is away temporarily, for a weekend, short trip etc and if the outside temperature is above ZERO:
- press the ⏻ (On/Off) key to set the water heater to **Standby** mode;
- shift the plant's main switch to "OFF";
- close the gas valve;
- check that the burner flame is off.



CAUTION
If the outdoor temperature can fall below ZERO, since the appliance does NOT have an "antifreeze function":
- complete the entire shutdown procedure described above
- fully drain the water present in the water heater circuit, refer to item "**Refilling or emptying**".

3.2 Shutting down for long periods

If the water heater is to be left unused for a long period, the following operations need to be carried out:
- press the ⏻ (On/Off) key to set the water heater to **Standby** mode
- shift the plant's main switch to "OFF"
- close the gas valve
- check that the burner flame is off
- close the domestic water system shut-off valves
- drain the domestic system if there is the risk of freezing, refer to item "**Refilling or emptying**".

CAUTION
Contact the Qualified Technical Personnel if the procedure described above cannot be easily carried out.

4 MAINTENANCE

4.1 Adjustments

For the appliance to operate correctly and efficiently it is recommended that the User calls upon the services of a Professionally Qualified Technician to carry out **ANNUAL** maintenance.

CAUTION
Maintenance interventions must ONLY be carried out by professionally qualified personnel who will follow the indications provided in the INSTALLATION AND MAINTENANCE MANUAL.

4.2 External cleaning

WARNING
- Should it be necessary to access the areas in the bottom part of the appliance, make sure that the system components and pipes are not hot (risk of burning).
- Before performing any maintenance, put on protective gloves.

4.2.1 Cleaning the cladding

When cleaning the cladding, use a cloth dampened with soap and water or alcohol for stubborn marks.

PROHIBITION
Do not use abrasive products.

5 DISPOSAL

5.1 Disposal of the equipment (European Directive 2012/19/EU)

The product and electrical and electronic equipment coming from households may not be disposed of as normal mixed urban waste at the end of their service life but must be disposed of, pursuant to Directives 2012/19/EU and Italian Legislative Decree 49/2014, in appropriate withdrawal and collection facilities. For more information on authorised collection centres, please contact your local municipality or your retailer. Each country may also define specific rules for the treatment of electrical and electronic waste. Before disposing of the device, refer to the regulations in force in your country.

DESCRIPTION OF THE APPLIANCE

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6 DESCRIPTION OF THE APPLIANCE

6.1 Characteristics

Sime MINI BF ErP is a high-efficiency, low-emission instantaneous water heater with a nominal thermal output (Hi) of 24 and 30 kW, designed by **Sime** for the production of instant sanitary hot water; working with Methane and LPG. Version with forced exhaust sealed chamber. Interface with multifunction LED display.

Other distinctive features of **Sime MINI BF ErP** water heaters include:

- **Installation flexibility.** Particularly compact dimensions, especially depth-wise, which make them suited to any available space.
- **Maximum comfort.** Automatic electronic ignition and flame modulation based on the water flow to obtain a correct and constant temperature, even with pressure variations in the network. The LCD indicates the water temperature that can be selected, between 35°C and 65°C, and the possible malfunctions.
- **Maximum safety.** The **Sime MINI BF ErP** water heater is equipped with various safety protections, including:
  - protection for the auto-check system;
  - auto-switching off protection;
  - overheating protection, protection against accidental power outage and excessive temperature.
- **Configuration for combination with solar thermal collector.** The **Sime MINI BF ErP** water heater can receive preheated water from a solar system with a temperature between 35°C and 65°C. Depending on the selected setpoint and the water inlet temperature, the power is modulated to achieve maximum comfort, avoiding unnecessary ignitions.

6.2 Supply

Sime MINI BF ErP appliances are delivered in a single package protected by cardboard packaging.

The plastic bag found inside the packaging contains the following:

- instruction manual
- energy efficiency label
- Bag containing:
  - screws and wall plugs
  - gas fitting with seal
  - "Resetting operation after a blackout" sheet.

6.3 Symbols on the appliance

The appliance may display the following symbols:

SYMBOL	DESCRIPTION
	Indicates the presence of particularly dangerous zones in the appliance.
	Indicates the presence of live electrical parts in the appliance.
	Indicates that information concerning the appliance is available, for example the instruction manual.
	Indicates that personnel assigned to perform maintenance on the appliance must operate in accordance with the instruction manual.
	Indicates that the instruction manual must be read.
	Indicates that the appliance must be connected to an earthing system.

6.4 Check and safety devices

Sime MINI BF ErP water heaters are equipped with the following safety devices:

- protection for the auto-check system
- protection against auto power-off
- protection against overheating
- protection against accidental power outages
- protection against excessive temperatures.

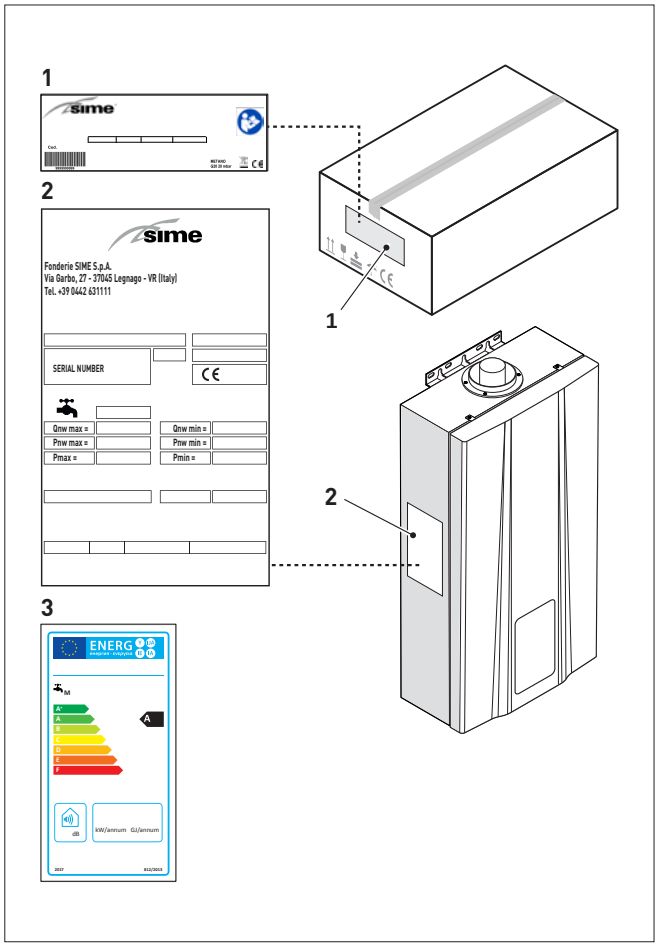
6.5 Identification

Sime MINI BF ErP water heaters can be identified through:

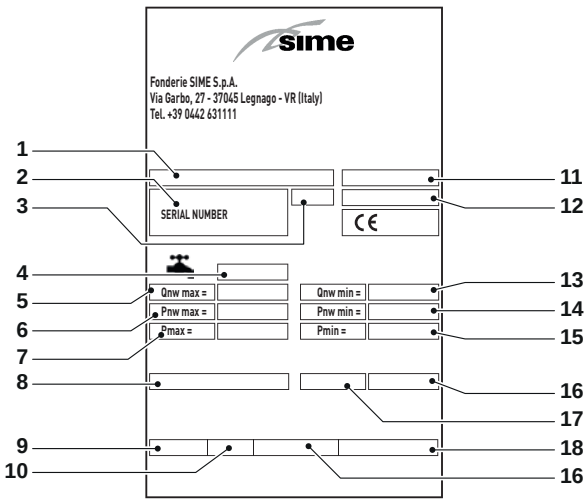
1 **Packaging label:** it is located on the outside of the packaging and includes the code, serial number of the water heater and the barcode.

2 **Technical Data Plate:** it is located on the side of the appliance and includes the technical data, appliance performance data and any other information required by the legislation in force the country where the appliance is used.

3 **Energy Efficiency Label:** it is contained in the document bag and indicates to the User the energy saving and lower environmental pollution levels that the appliance reaches.



6.6 Technical Data Plate

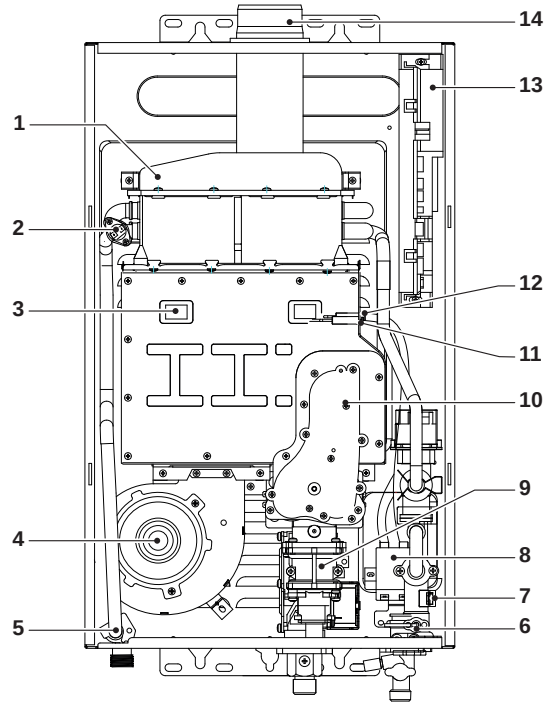


1 *First name*
2 *Serial number*
3 *Year of manufacture*
4 *DHW content*
5 *Max DHW heat input*
6 *Max DHW useful power*
7 *Maximum DHW operating pressure*
8 *Power supply-maximum absorbed power*
9 *Country of intended installation*
10 *Appliance category*
11 *Code*
12 *PIN no.*
13 *Min DHW heat input*
14 *Min DHW useful power*
15 *Minimum DHW operating pressure*
16 *Type of gas and supply pressures*
17 *Electrical protection degree*
18 *Appliance classification*

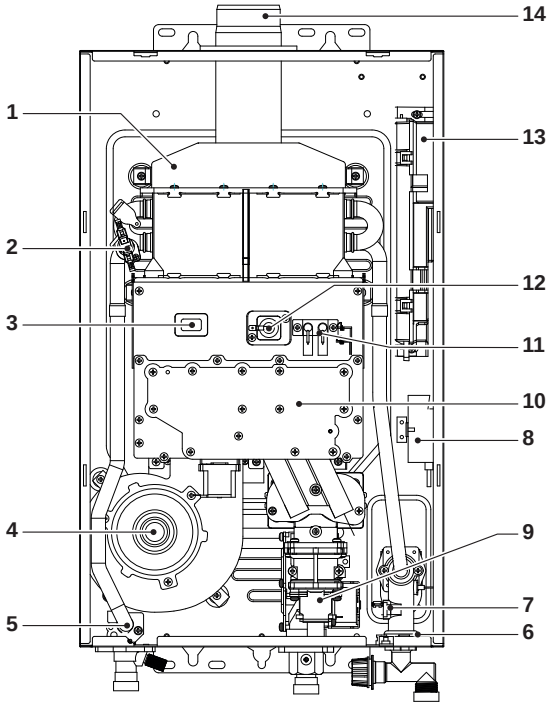
CAUTION
Tampering with, removing or failing to display the identification plate or carrying out any other operation which does not allow safe identification of the product or which may hinder installation and maintenance operations.

6.7 Functional elements of the appliance

MINI 12 BF ErP



MINI 16 BF ErP

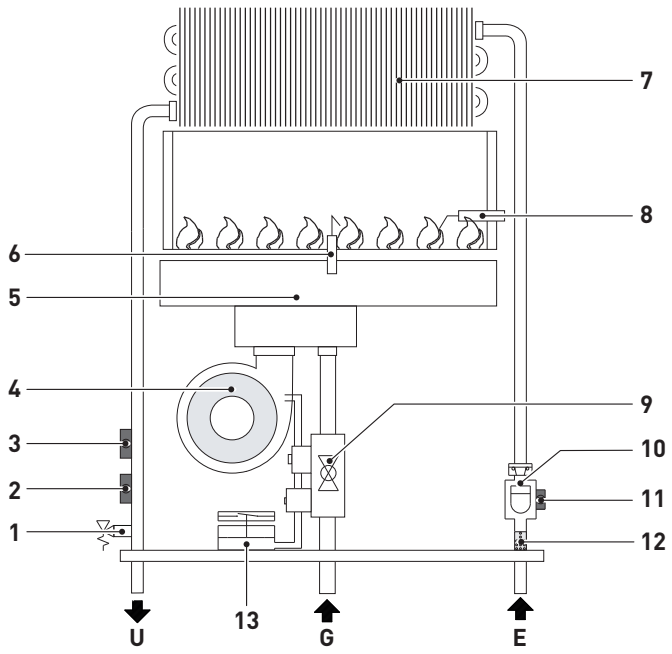


1 *Exchanger*
2 *NTC sensor*
3 *Flame viewing window*
4 *Fan*
5 *Hot water outlet sensor*
6 *Cold water inlet sensor*
7 *Water flow sensor*
8 *Igniter*
9 *Gas valve*
10 *Burner*
11 *Ignition / Detection electrode*
12 *Flame detector*
13 *Main P.C.B.*
14 *Smoke outlet*

6.8 Technical features

DESCRIPTION			MINI BF ErP	
CERTIFICATIONS			**12**	**16**
Country of intended installation		I2H	IT – ES – HR – GR – GB – CZ – PT	
		I3B	ES	
		I3P	IT – ES – HR – GR – GB – CZ – PT	
		I2E	PL	
Fuel			2H – G20 – 20 mbar 3B – G30 – 29 mbar 3P – G31 – 37 mbar 2E – G20 – 20 mbar	
PIN number			0063CR7772	
Category			II2H3P – II2H3B/P - II2E3P	
Appliance classification		G20(2H)	B33 – C13 – C33 – C53 – C83	
		G30	B33 – C13 – C33	
		G31	B33 – C13 – C33 – C53	
		G20(2E)	B33 – C13 – C33 – C53	
DHW PERFORMANCES				
Rated heat input (Hi)	kW		24	30
Rated heat input (Qnw max)	kW	G20(2H)	21	27,4
		G30	21,4	27,8
		G31	21,1	27,8
		G20(2E)	21	27,4
Minimum heat input (Qnw min)	kW	G20(2H)	8	9,5
		G30	8	9,5
		G31	8	8,5
		G20(2E)	8	9,5
Minimum heat output	kW	G20(2H)	7,4	8,7
		G30	7,4	8,9
		G31	7,4	7,9
		G20(2E)	7,4	8,7
Continuous DHW flow rate (ΔT 25°C)	kg/min		12	16
Max / Min DHW pressure (Pmw)	bar		10 / 0,2	10 / 0,2
ELECTRICAL DATA				
Power supply voltage	Vac		230	
Frequency	Hz		50	
Absorbed electrical power (Qn)	W	G20(2H)	33	44
		G30	38	44
		G31	33	44
		G20(2E)	33	44
Protection rating	IP		IPX4	
Power-up method			Automatic power-up with impulse controlled directly by the opening of the water	
PIPE COUPLINGS				
Gas inlet			1/2" G	1/2" G
Cold water inlet			1/2" G	1/2" G
Hot water outlet			1/2" G	1/2" G
Combustion gas outlet	mm		Ø60 / Ø100	Ø60 / Ø100

6.9 Main water circuit



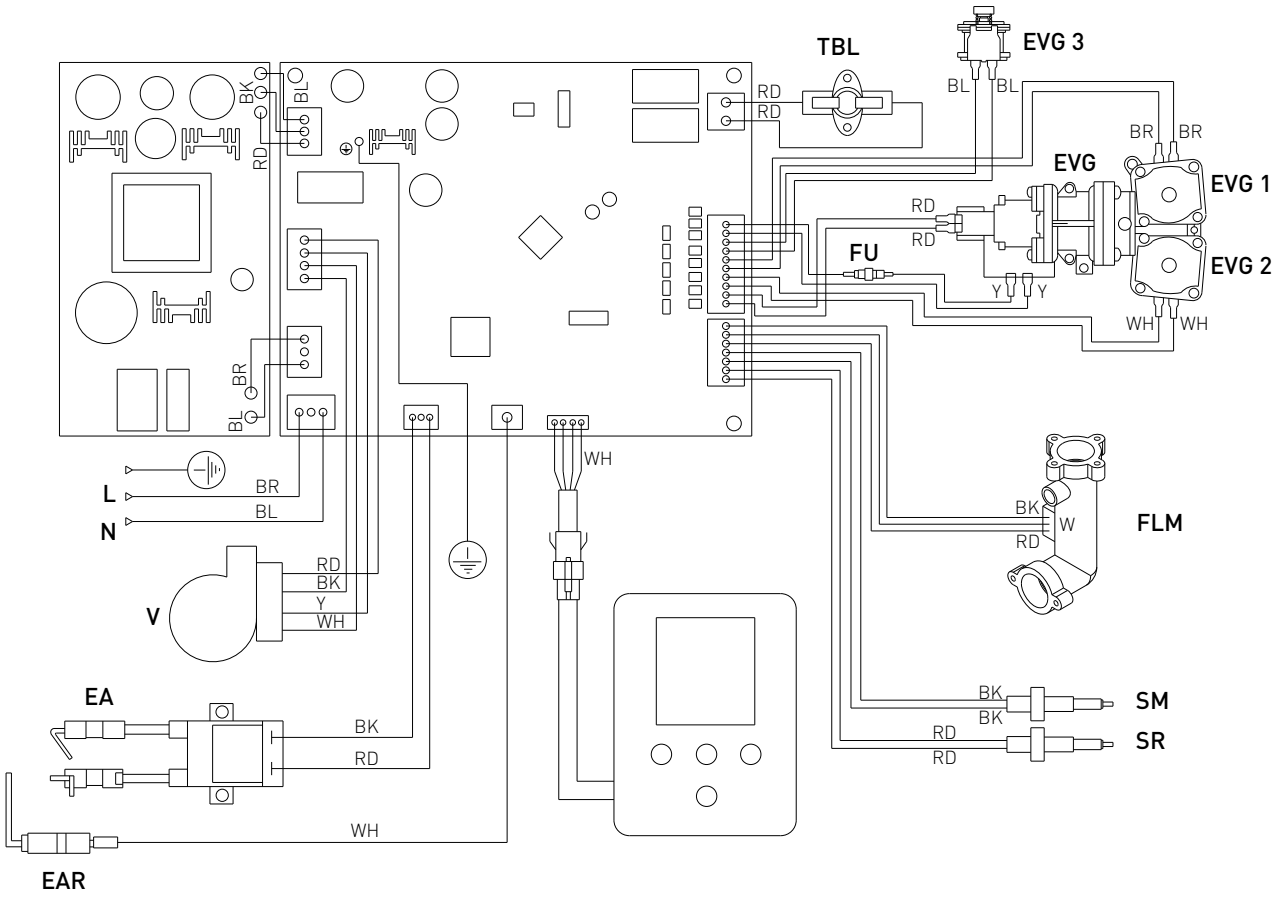
KEY:

1 *Relief valve*
2 *Domestic hot water outlet sensor*
3 *Overtemperature thermostat*
4 *Fan*
5 *Burner*
6 *Detection electrode*
7 *Primary heat exchanger*
8 *Ignition electrodes*
9 *Gas valve*
10 *Flow sensor*
11 *Cold water inlet sensor*
12 *Cold water inlet filter*
13 *Smoke pressure switch*

U *Domestic hot water output*
E *Domestic hot water inlet*
G *Gas supply*

6.10 Wiring diagram

NOTE: *see the legend at the beginning of the manual in the specific paragraph "**LIST OF ABBREVIATIONS USED IN THE MANUAL**".*



CAUTION
Users must:

- To mount an omnipolar residual-current circuit breaker conforming to EN standards **that allows for completely disconnecting the system in overvoltage category III conditions (that is, with a gap of at least 3 mm between the open contacts)**.
- Keep the power cables always separate from the signal cables. To avoid interference problems, always use shielded signal cables.
- Respect the connections L (Line) - N (Neutral).
- Connect the earth wire to an effective earthing system.

CAUTION
Users must:

- The system's power connection is of the "Y" type, so the power cable may only be replaced by the manufacturer or the service department.

CAUTION
The manufacturer is not responsible for any damage caused by failure to earth the appliance or failure to observe the information provided in the wiring diagrams.

PROHIBITION
Do not use water pipes for earthing the appliance.

INSTALLATION AND SERVICING INSTRUCTIONS

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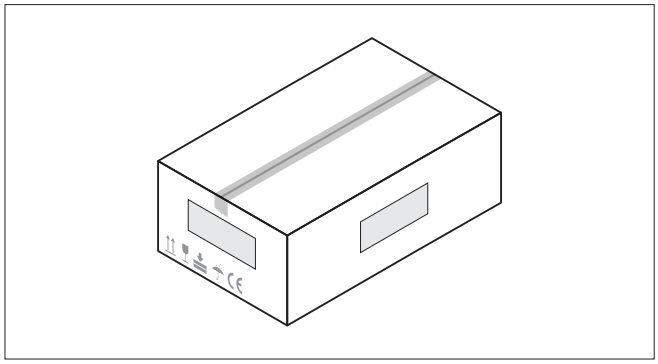
7 INSTALLATION

WARNING
The appliance must only be installed by qualified professionals **who MUST wear** suitable protective safety equipment.

7.1 Receiving the product

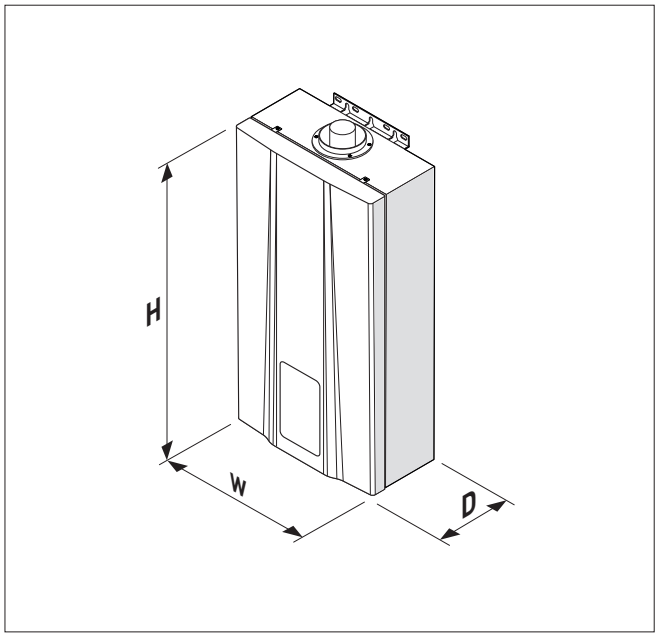
MINI BF ErP appliances are delivered in a single unit protected by cardboard packaging.



The plastic bag found inside the packaging contains the following:
- installation, user and maintenance manual
- gas fitting with seal
- energy efficiency label
- screws and wall plugs
- "Resetting operation after a blackout" sheet.

PROHIBITION
Do not leave packaging material around or near children since it could be dangerous. Dispose of it as prescribed by legislation in force.

7.2 Dimensions and weight

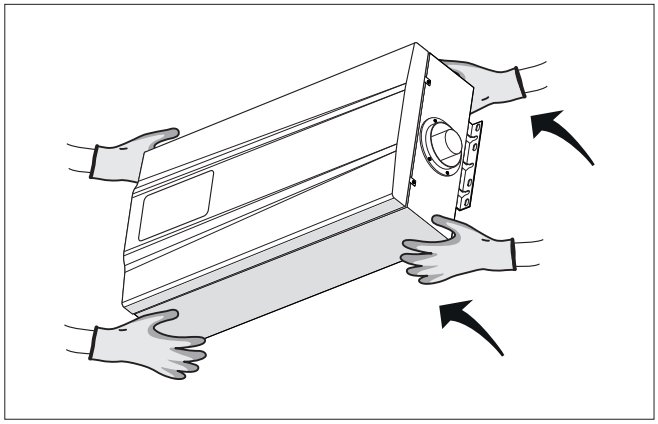


Description	MINI BF ErP	
	12	16
W (mm)	345	
D (mm)	150	170
H (mm)	570	
Weight (kg)	14	16

Dimensional data are purely indicative. Refer to the actual product.

7.3 Handling

Once the packaging has been removed, the appliance is moved manually by tilting and lifting it, gripping the "solid" parts such as the base and structure as indicated in the figure.



WARNING
Use suitable tools and accident protection when removing the packaging and when handling the appliance. Observe the maximum weight that can be lifted per person.

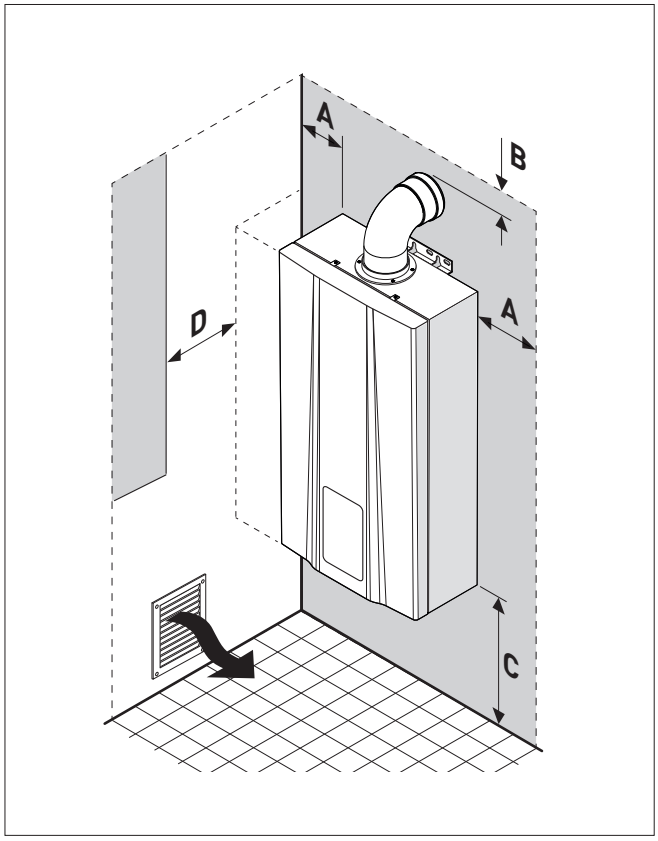
7.4 Installation room

The room where the appliance is to be installed must comply with the Technical Regulations and Legislation in force. It must be equipped with suitably sized ventilation openings for a "TYPE B" installation.

PROHIBITION
- Install the appliance outdoors since it is not equipped with anti-freeze system.
- Install the appliance in bedrooms, basements, bathrooms or in any poorly ventilated place.
- Install the water heater in places where special chemicals are used, such as laundry rooms, laboratories, etc. This could cause rust to form and reduce the water heater's life or prevent its normal operation.

7.5 Safety distances

To define the correct positioning of the appliance:
- keep the gas-fired water heater far from combustible substances
- the horizontal distances between the water heater and any electrical systems must be greater than 400 mm
- do not position the appliance above a cooker or other cooking system, so as to prevent fat from the kitchen vapours from depositing on it, which would cause it to function poorly
- the appliance must never be closed in a cabinet or niche, but must be at a certain minimum distance from side walls, so as to facilitate maintenance operations.



Description	Minimum safety distances (from flammable materials)
A - Side (mm)	50 (150)
B - Upper (mm)	50 (150)
C - Lower (mm)	300 (-)
D - Front (mm)	450

CAUTION
Remember to consider the space needed in order to access the safety/adjustment devices and to carry out maintenance interventions.

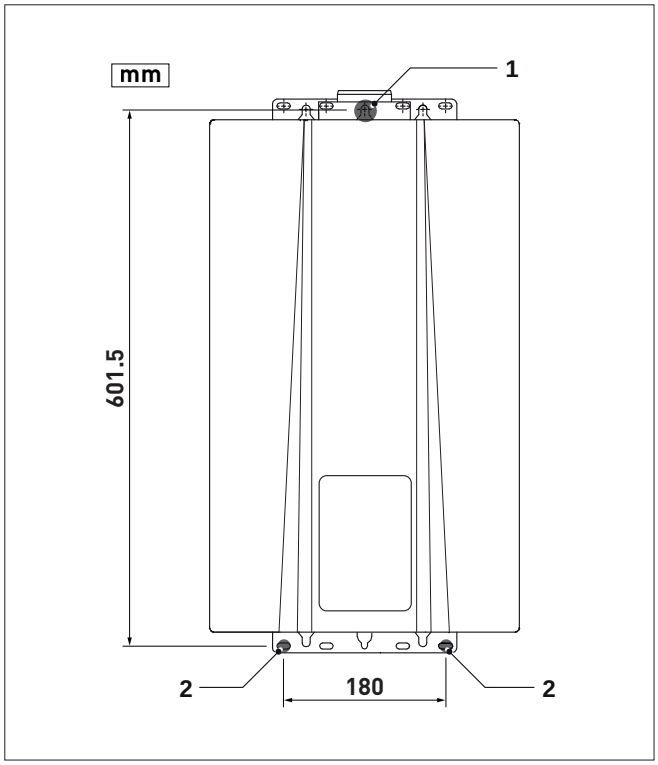
WARNING
Heat-sensitive walls (for example wooden walls) must be protected with adequate insulation.

7.6 Installing the water heater

CAUTION
It is important that the device is perfectly vertical and horizontal. Use a spirit level or other suitable tool to check that it is perfectly vertical and horizontal. Where necessary, insert suitable spacers to install the unit in the correct working position.

CAUTION
- Make sure that the appliance is protected against direct sunlight, the weather and damp and wet conditions.
- Before assembling the appliance, the installer **MUST** make sure that the wall supports the weight.
- Remember to consider the space needed in order to access the safety/adjustment devices and to carry out maintenance interventions.

- Drill no.3 holes as shown in the figure and insert the expansion plugs supplied. In the upper hole (1) use the larger plug, in the lower holes (2) use the two smaller plugs.
- Mount the water heater first on the upper plug, after checking that it is perfectly vertical, then tighten the screws on the lower expansion plugs.



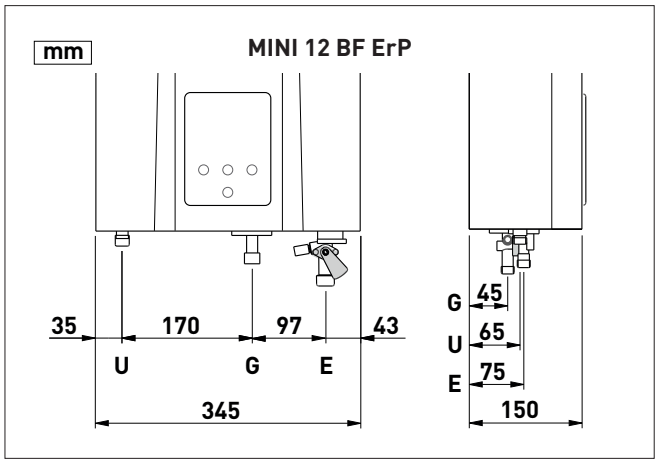
7.7 Plumbing connections

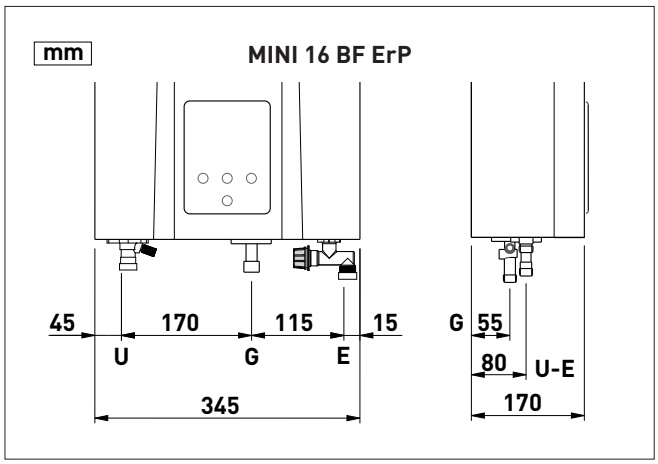
Connect the appliance to the water mains and insert a water shut-off valve upstream of the appliance (available on request).

Cold water inlet:
- the water distribution pipes can be made of different materials to copper, but we recommend using copper pipes for at least 0.92 m before and after the water heater
- use a water inlet pipe having a diameter not inferior to 1/2" to ensure the full flow rate
- there must be enough water pressure to activate the water heater when the hot water tap is opened on the highest floor
- 1/2" copper or brass fittings work optimally if they are connected to connectors. With this type of joint do not use waterproofing paints for pipes or sealing tapes for threading
- make sure that the pipe does not contain dust particles or dirt.

Hot water outlet:
- use a hose or pipe for connection to water jet without tap. If the jet is connected to a tap or switch, the outlet pipe must be made of materials capable of withstanding pressure and heat.

The plumbing connections have the following characteristics and dimensions.





Description	MINI BF ErP
E - Domestic hot water inlet	Ø 1/2"
U - Domestic hot water output	Ø 1/2"
G - Gas supply	Ø 1/2"

WARNING
- **Do not activate the device without the filter.**
- The overpressure device outlet must be connected to a discharge siphon that can be inspected visually to prevent it from causing harm to people and animals and damage to objects, for which the manufacturer shall not be held liable.

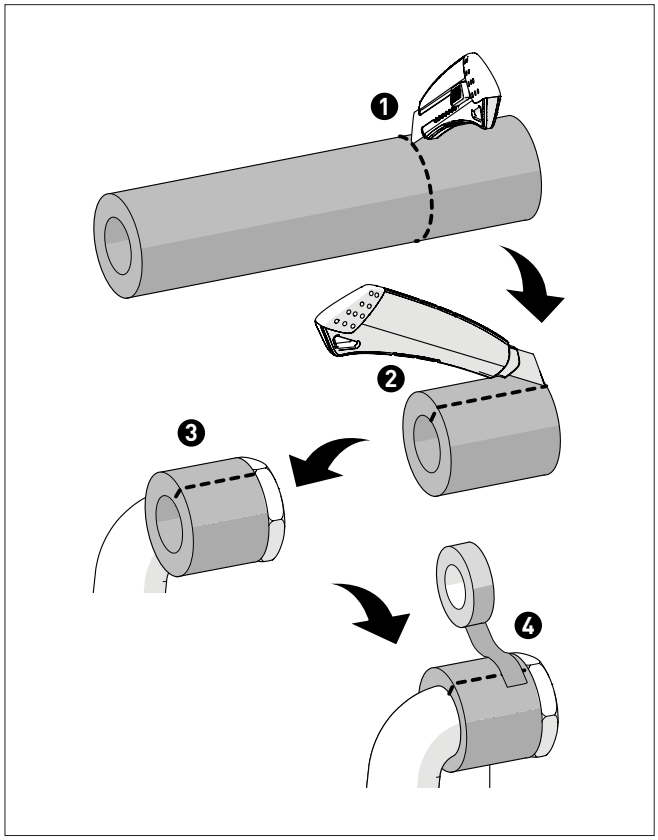
WARNING
The discharge outlet of each safety valve installed must be connected to an appropriate collection and evacuation system. The manufacturer shall not be held liable for any flooding or damages to electrical equipment caused by the safety valve's intervention.

CAUTION
- **The maximum pressure of the appliance is 10 bar**; should this not be the case, fit a pressure reducer.
- Make sure that the water supply pressure is not lower than 0,2 bar.
- If the cold and hot water connections are inverted, the water heater will **NOT** work.

PROHIBITION
To use the water system's pipes as earthing outlets for the electrical or telephone system. They are absolutely unsuitable for this type of use. Serious damage to pipes and the appliance could occur within a short time.

7.8 Thermal insulation of pipes

CAUTION
Once the installation operations have been completed, the exposed parts of pipes and fittings must be isolated using a suitably sized thermal insulation pipe.



7.9 Gas supply

CAUTION
The appliance must be connected to the gas supply in compliance with the installation standards in force in the country where the appliance is used.

CAUTION
If changing the type of gas to be used, carry out the entire procedure described in paragraph "**Gas conversion**".

Before connecting the boiler to the gas mains, the user must ensure that:
- the type of gas and the fuel flow rate comply with those for which the appliance was designed
- the fuel supply pressure falls within the values specified on the data plate
- the pipes are clean
- the gas supply pipe is of equal or greater size than that of the appliance fitting and with a pressure drop lower than or equal to that provided for between the gas supply and the appliance.

WARNING
- Once installation has been completed, check that the joints are air tight as indicated in the installation Standards.
- If gas leaks are detected, close the gas supply. After checking the gas leak, tighten the appropriate fittings.

PROHIBITION
- Introduce into the appliance substances other than air, carbon dioxide or nitrogen.
- Check for gas leaks using matches or flames.

CAUTION
It is recommended that the gas line has a suitable filter.

CAUTION
- All pipes must be new and must not have been used before for purposes other than the supply of gas.
- The pipes must be in good condition and must not have any obstructions inside them.
- Any burred ends must be bored to the exact diameter of the pipe.
- All fittings must be made of malleable iron, yellow brass or approved plastic.

7.10 Electrical connections

Connect the cable provided to the line by observing the L-N polarity and the earth connection. The line must be equipped with an omnipolar switch with Class III overvoltage category, in compliance with the installation regulations.
If this cable needs to be replaced, an original spare must be requested from **Sime**.

CAUTION
It is compulsory:

- that before any intervention on the appliance, the mains power supply is disconnected by setting the plant's main switch to "OFF"
- to use an omnipolar cut-off switch, disconnect switch, in compliance with EN standards (contact opening of at least 3 mm)
- to connect the earth wire to an effective earthing system
- keep the power cables always separate from the signal cables. To avoid interference problems, always use shielded signal cables
- if the power cable is to be replaced, that ONLY a special cable is used with a factory produced re-wired connector, ordered as a spare part and connected by a professionally qualified person
- if the mains fuses need to be replaced, use 2A fast-blow fuses.

CAUTION
The manufacturer is not responsible for any damage caused by failure to earth the appliance or failure to observe the information provided in the wiring diagrams.

WARNING
The power outlet must be installed beside and **in no case under the appliance**.

PROHIBITION

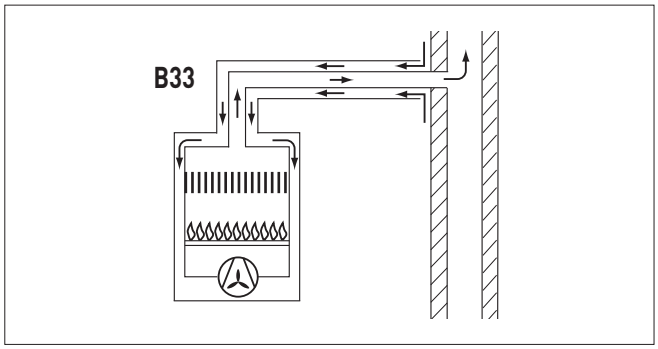
- Arrange cables and electrical systems on the upper part of the water heater
- Install the power outlet in a point that can be reached by water splashes
- Install the power outlet and the power cord near heat sources
- Do not use water pipes for earthing the appliance.

7.11 Smoke outlet and combustion air inlet

Sime MINI BF ErP water heaters must be equipped with appropriate flue gas outlet and combustion air inlet ducts. These ducts are considered an integral part of the water heater and are provided by **Sime** in the accessory kit, to be ordered separately from the appliance according to the types permitted and the system requirements.

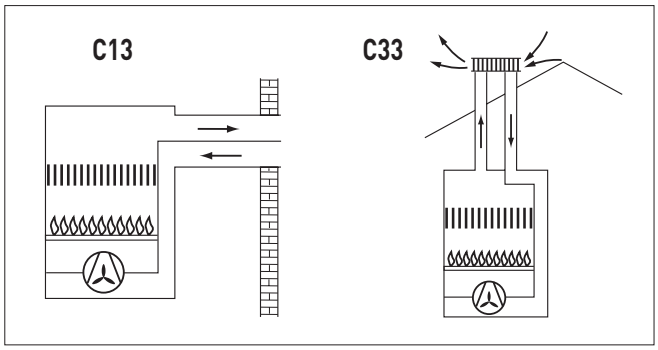
Permitted outlets

B33
Combustion air inlet into the atmosphere and flue gas outlet into single flue pipe.



C13
Concentric wall flue gas outlet. The pipes can start independently from the appliance, but the outlets must be concentric or sufficiently close to each other (no more than 50 cm) to be subject to similar wind conditions.

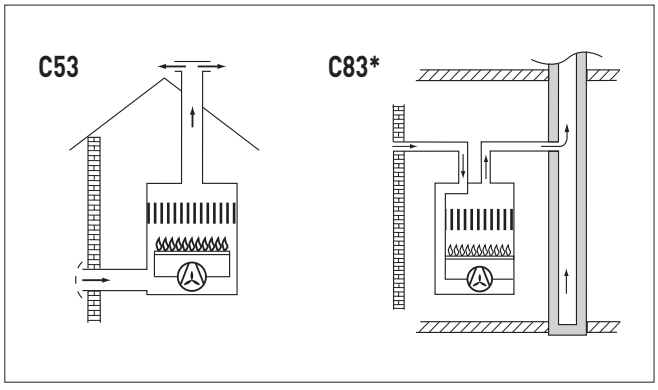
C33
Concentric roof flue gas outlet. The pipes can start independently from the appliance, but the outlets must be concentric or sufficiently close to each other (no more than 50 cm) to be subject to similar wind conditions.



C53
Separate wall or roof outlets and inlets, and in any case in areas with different pressures.
NOTE: *outlet and inlet must never be positioned on opposing walls.*

C83*
Single or shared flue outlet and wall inlet. Type C8 water heaters are suitable for being connected to a natural-draught pipe, with a maximum negative pressure of 2 mbar. The temperature of overheated combustion by-products is 65,2 °C.

(*) Only for G20 gas (methane)



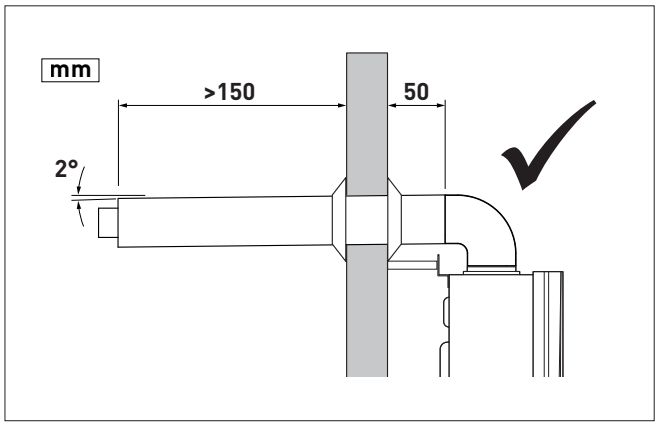
WARNINGS

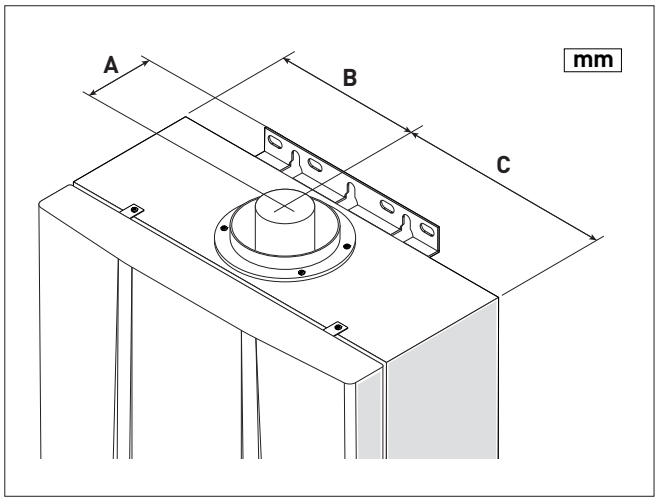
- The smoke flue and the connection to the flue pipe must be in compliance with the national and local standards and legislation in force in the country where the appliance will be used.
- The use of rigid ducts which are resistant to temperature, condensate, mechanical stress and are air-tight is compulsory.
- Outlet ducts which are not isolated are a risk of danger.
- The flue ducts can be made of aluminum or stainless steel.

Requirements for correct installation

When installing a combustion gas discharge pipe, the following requirements listed below must be fulfilled:

- use the discharge pipe supplied for the installation. If the discharge pipe is too short, the correct discharge pipe can be chosen among the available accessories supplied by the Manufacturer
- position the fixed outlet in the hole in the wall then insert the elbow in the water heater's combustion gas outlet so that it does not encounter any obstacles
- the shorter the horizontal distance of the combustion gas discharge pipe the better the result
- the final section of the discharge pipe must be inclined downwards by 2° so that condensate water can flow out and rainwater cannot enter
- the distance between the discharge pipe and any combustible materials must be greater than 150 mm
- wrap the pipe with thermal insulation material thicker than 20 mm if the pipe crosses a layer of combustible material or a wall
- do not insert cement between the combustion gas discharge pipe and the wall, to avoid hindering maintenance operations
- fasten the discharge pipe firmly. For the connection it is possible to use a self-adhesive film to prevent exhaust fumes from returning into the room.





Description	MINI BF ErP	
	12	16
A (mm)	71	79
B (mm)	172	160
C (mm)	172	185

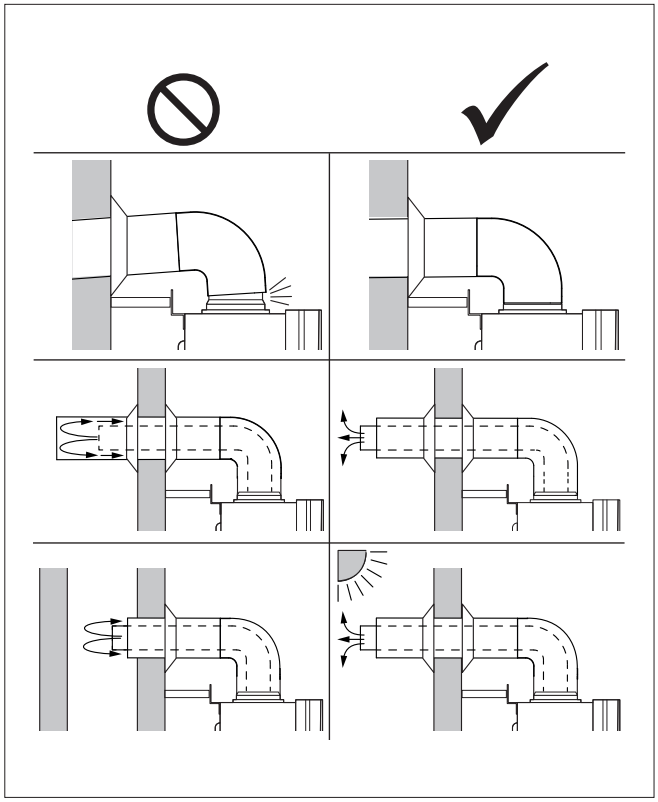
Precautions for correct installation

CAUTION

The discharge pipe must be installed correctly, or the combustion gases will flow back into the room creating a dangerous situation.

PROHIBITION

Use shared flue gas outlets or outlets in common with other combustion appliances.



After connecting the pipe, it is necessary to check and ensure that it is properly airtight.

7.11.1 Exhaust pipes Ø 60 mm and suction pipes in room (B33)

CAUTION
In this configuration the combustion air is drawn from the room where the appliance is installed, which must be an adequate technical room equipped with a ventilation system.

For the installation follow the instructions supplied with the kit.

Characteristics of the discharge pipe

FLUE GAS OUTLET DUCTS	Length of the fume discharge pipe (mm)		Diameter of the fume discharge pipe (Ø mm)		Maximum number of usable bends	
	Min.	Max.	12 l	16 l	90°	45°
B33	0.6	6	60	60	3	4

Exhaust pipe (Ø 60 mm) accessories

Description	Code
	Diameter Ø 60 (mm)
Adapter for forced discharge (type B)	8112750
90° curve M-F (6 pieces)	8112751
Extension W. 1000 mm (6 pieces)	8112753
Extension W. 500 mm (6 pieces)	8112752
Smoke outlet end part ø 60 L. 200	8112754

Load loss - Equivalent lengths

Description	Leq (linear metres)
	Ø 60 mm
90° curve	1
45° curve	0.5

The length of the combustion gas discharge pipe must be maximum 6 linear m. Pressure drops are calculated by considering that 1 x 90° elbow is equivalent to 1 m of straight pipe, while 1 x 45° elbow is equivalent to 0.5 m of straight pipe; use maximum 3 x 90° elbows for each discharge pipe.

7.11.2 Coaxial ducts Ø 60/100mm (C13-C33)

CAUTION
In this configuration, the air is drawn from the outside.

The water heater is supplied configured for being connected to coaxial discharge/intake ducts that can be aimed in the direction most suited to the room's requirements.

For the installation follow the instructions supplied with the kit.

Characteristics of the discharge pipe

FLUE GAS OUTLET DUCTS	Length of the fume discharge pipe (mm)		Diameter of the fume discharge pipe (Ø mm)		Maximum number of usable bends	
	Min.	Max.	12 l	16 l	90°	45°
C13	0.6	6	60/100	60/100	3	4
C33	0.6	6	60/100	60/100	3	4

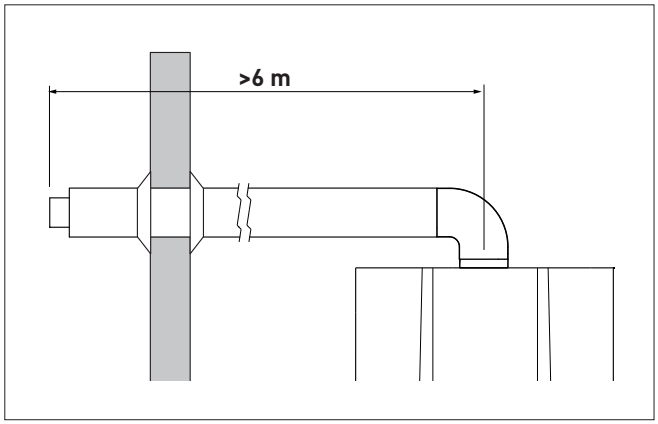
Accessories for coaxial pipes

Description	Code
	Ø 60/100 mm
Vertical fitting ø 60/100	8086912
Coaxial inlet/discharge kit pipe ø 60/100	8099301
90° elbow ø 60/100	8112756
Extension ø 60/100 L. 500	8112702
Extension ø 60/100 L. 1000	8112703
Aluminium roof outlet terminal ø 60/100 L. 1284 non-reducible	8091200
Barrel tile with joint combinable with the roof outlet terminal	8091300

Load loss - Equivalent lengths

Description	Leq (linear metres)
	Ø 60/100 mm
90° curve	1
45° curve	0.5

The length of the combustion gas discharge pipe must be maximum 6 linear m. Pressure drops are calculated by considering that 1 x 90° elbow is equivalent to 1 m of straight pipe, while 1 x 45° elbow is equivalent to 0.5 m of straight pipe; use maximum 3 x 90° elbows for each discharge pipe.

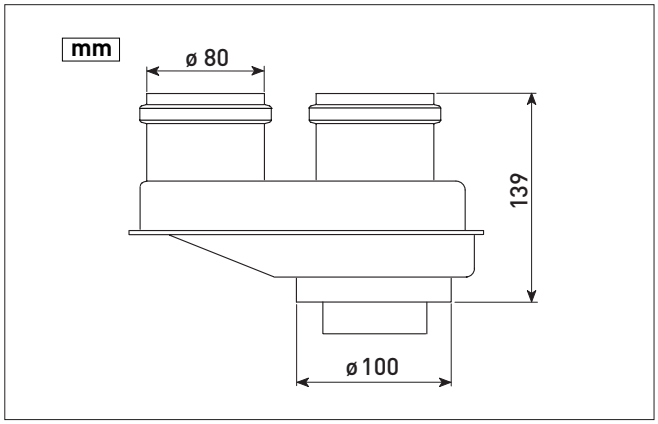


7.11.3 Separate pipes Ø 80 mm (C53-C83)

Outlets with separate pipes require the use of an "air-fumes splitter" (to be ordered separately) to which the other accessories (as listed in the table) must be connected to complete the smoke outlet-combustion air inlet unit.

For the installation follow the instructions supplied with the kit.

Split pipe system



Characteristics of the discharge pipe

FLUE GAS OUTLET DUCTS	Length of the fume discharge pipe (mm)		Diameter of the fume discharge pipe (Ø mm)		Maximum number of usable bends	
	Min.	Max.	12 l	16 l	90°	45°
C53	0.6	6	80/80	80/80	3	4
C83*	0.6	6	80/80	80/80	3	4

(*) Only for G20 gas (methane)

Accessories for separate pipes

Description	Code
	Diameter Ø 80 (mm)
Intake/discharge splitter ø 80	8093052
Aluminium extension ø 80 L.1000 (6 pcs.)	8077309
Aluminium extension ø 80 L.500 (6 pcs.)	8077308
Kit with ring nuts for indoors and outdoors for ø 80 pipe	8091500
90° MF aluminium elbow ø 80 (6 pcs.)	8077410
45° MF aluminium elbow ø 80 (6 pcs.)	8077411
Stainless steel intake terminal ø 80	8089500
Stainless steel discharge terminal ø 80	8089501
Aluminium roof outlet terminal L.1390 non-reducible (*)	8091201
Barrel tile with joint combinable with the roof outlet terminal	8091300
Condensate recovery ø 80 L.135 (**)	8092800
Condensate recovery tee ø 80 (***)	8093300

(*) The losses of the roof outlet terminal at inlet include the manifold code 8091400.
(**) To be used on the flue gas outlet duct as close as possible to the appliance.
(***) To be used on the flue gas outlet duct.

Load loss - Equivalent lengths

Description	Leq (linear metres)
	Ø 80 mm
90° curve	1
45° curve	0.5

The length of the combustion gas discharge pipe must be maximum 6 linear m. Pressure drops are calculated by considering that 1 x 90° elbow is equivalent to 1 m of straight pipe, while 1 x 45° elbow is equivalent to 0.5 m of straight pipe; use maximum 3 x 90° elbows for each discharge pipe.

NOTE: *for correct appliance operation, when using a 90° intake curve, a minimum duct distance of 0,50 m must be maintained.*

7.12 Characteristics of the water

The water used in the system must fulfil the manufacturer's requirements with regard to the pH value, conductivity, hardness, alkalinity, concentration of chlorides, as inadequate values shall void the warranty; the values of the system's fluid must fall within those listed below:
- the content of soluble salts will not exceed 500 mg/l
- conductivity must not exceed 650 µS/cm
- the fluid pH, at a temperature of 20°, must be between minimum 6 and maximum 8.

The total water hardness must not exceed 30 °F.
We suggest treating the water when the fluid hardness exceeds the defined limits for total hardness, salinity, high conductivity (polyphosphates, softener, etc.).

7.13 Refilling or emptying

Before carrying out any interventions described:
- shift the plant's main switch to "OFF"
- close the gas supply valve present on the line.

7.13.1 REFILL operations

- open the shut-off devices of the water supply system (mounted during installation)
- open one or more hot and cold water valves to fill and bleed the domestic hot water circuit
- once bleeding has been completed, close the hot water valves.

7.13.2 EMPTYING operations

- close the shut-off valve of the water supply system (mounted during installation)
- open two or more hot and cold water valves to bleed the domestic hot water circuit
- unscrew and remove the drainage valve
- mount the drainage valve back on after the residual water has been completely drained.

At the end of the operations:
- open the gas supply valve present on the line
- shift the plant's main switch to "ON".

8 COMMISSIONING

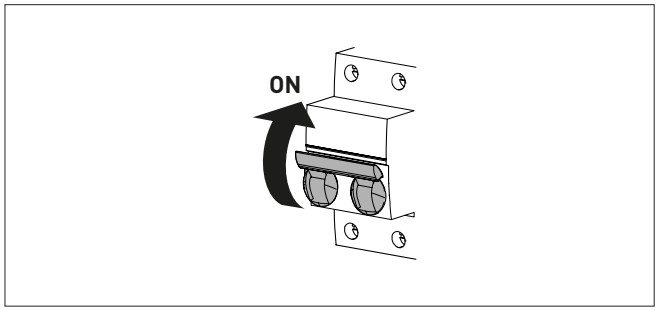
8.1 Preliminary operations

WARNING
The commissioning operations of the appliance must be carried out exclusively by Professionally Qualified Personnel with the **OBLIGATION to wear** adequate accident prevention protections.

Before commissioning the appliance, check that:
- the type of gas is correct for the appliance
- the gas and water circuit shut-off valves are open
- the electrical connection has been made correctly
- the combustion by-product exhaust pipe is suitable and free from any obstructions
- any necessary vents inside the room are open.

8.2 Before commissioning

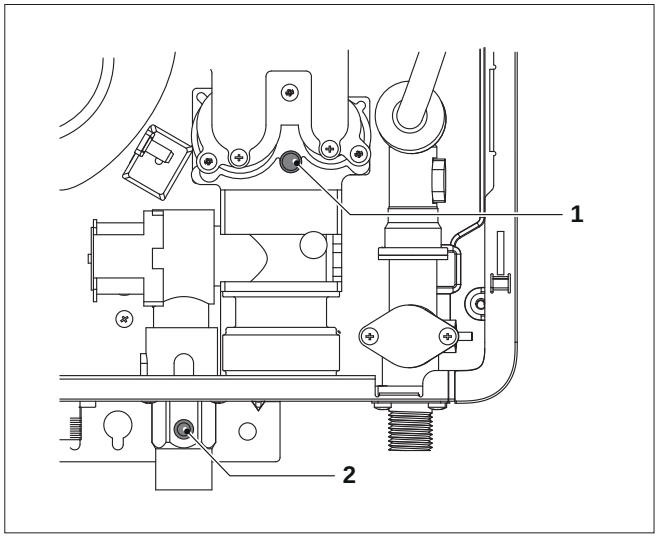
After completing the preliminary operations, to start up the water heater:
- insert the plug into the power outlet
- shift the plant's main switch to "ON"



- close the gas valve
- press the ⏻ (On/Off) button on the control panel to switch the appliance on
- the screen will display the factory-set hot water temperature, to adjust the temperature, see paragraph "**Water temperature adjustment**" in section INSTRUCTIONS FOR USE
- open the domestic hot water valve
- the appliance will signal the blocked status due to failed ignition
- open the gas valve and verify the tightness of the fittings, including those of the appliance, by verifying that the meter does not signal any passage of gas
- eliminate any gas leaks
- start the appliance by opening the domestic hot water valve.

8.3 Checking the gas adjustment

CAUTION
To proceed with the subsequent operations, it is necessary to:
- remove the casing, see chapter "**Removing the casing**"
- power the appliance electrically



8.3.1 Checking the supply pressure

- close the gas valve
- loosen the measuring screw (2) and insert the pressure gauge connecting pipe into the pressure plug
- open the gas valve
- start the appliance by opening the domestic hot water valve
- the supply pressure must match the pressure specified for the type of gas for which the appliance is intended, refer to item "**Gas summary table**"

WARNING
If the supply pressure does not match the value indicated in the gas summary table, do not start the appliance.

- switch the appliance off by closing the domestic hot water valve
- close the gas valve
- disconnect the pressure gauge and tighten the screw (2)
- open the gas valve and check the tightness of the measuring screw.

8.3.2 Checking the maximum and minimum burner pressure

- close the gas valve
- loosen the screw (1) and insert the pressure gauge connecting pipe into the pressure plug
- open the gas valve
- press the ⏻ (On/Off) key. The display lights up
- open the hot water valve, the appliance activates. Press ∧ and ∨ keys at the same time for 5 seconds, the display shows **"26"**
- press the ⏻ (On/Off) key, the appliance will be forced to the maximum power. The display shows a number from **"00"** to **"99"**
- verify on the pressure gauge the maximum pressure and modify it, if necessary, by pressing the ∧ and ∨ keys, as indicated in the gas summary table
- press the ⏻ (On/Off) key to force the appliance to the minimum power. The display shows a number from **"00"** to **"99"**
- verify on the pressure gauge the minimum pressure and modify it, if necessary, by pressing the ∧ and ∨ keys, as indicated in the gas summary table
- press the ⏻ (On/Off) key to store any changes made
- close the hot water tap. Press the ⏻ (On/Off) key to switch the appliance off.

8.3.3 Checking the slow ignition pressure

- close the gas valve
- loosen the screw (1) and insert the pressure gauge connecting pipe into the pressure plug
- open the gas valve
- disconnect and re-connect the power supply
- simultaneously press the ∧ and ∨ keys for 3 seconds: the display will show "**L6**" and the appliance will be forced to the ignition power. Open a hot water tap
- verify on the pressure gauge the pressure and modify it, if necessary, by pressing the ∧ and ∨ keys, as indicated in the gas summary table
- press the ⏻ (On/Off) key to store the change
- close the hot water tap. Press the ⏻ (On/Off) key to switch the appliance off.

8.4 Gas summary table

The table shows the pressure at the burner for different types of gases and volumes.

		MINI 12 BF ErP			MINI 16 BF ErP		
		G20	**G30**	**G31**	**G20**	**G30**	**G31**
Wobbe index information (15 °C; 1013 mbar)	MJ/m^3	45.67	80.58	70.69	45.67	80.58	70.69
Gas inlet pressure	mbar	20	28-30	37	20	28-30	37
Gas burner MAX pressure	mbar	14.3	14.5	18.9	9.5	10.8	12.5
Gas burner MIN pressure	mbar	3	3	3	2.5	2.5	2.5
Slow ignition pressure	mbar	7.3	7.4	10.4	4.8	4.7	6.5
Parameter L - Capacity q - Type of gas F - Type of appliance	no.	 11 12 0	 11 22 0	 11 19 0	 16 12 2	 16 22 2	 16 19 2
Burner nozzles	no.	6x2			15x2		
Ø of burner nozzles (above - below)	mm	0,86 - 1,52	0,74 - 1,04		0,74 - 1,28	0,62 - 0,88	

9 MAINTENANCE AND CLEANING

9.1 Warnings and preliminary operations

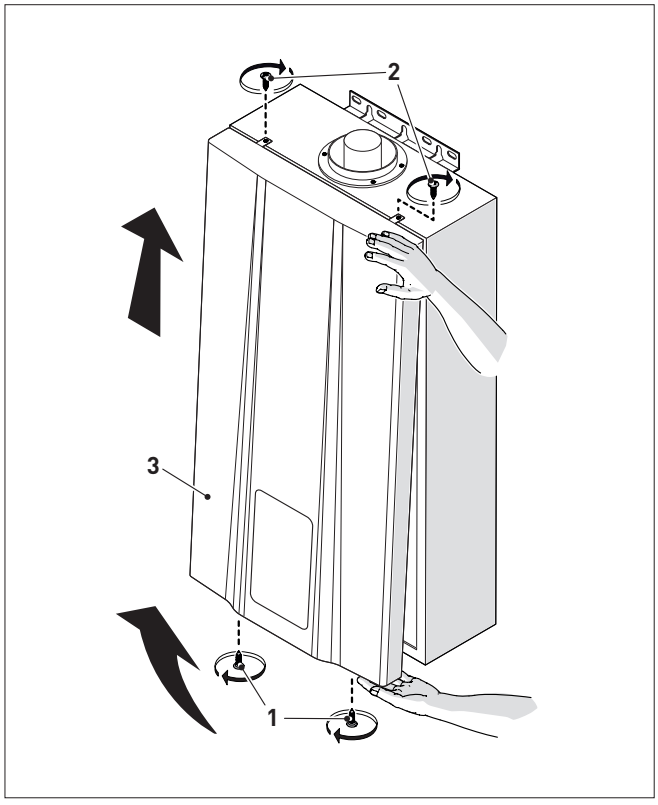
CAUTION
- The maintenance interventions described must ONLY be carried out the professionally qualified personnel **who MUST wear** suitable protective safety equipment.
- Make sure that the system components and pipes are not hot (risk of burning).

WARNING
Before carrying out any interventions described:
- set the main system switch to "OFF"
- close the gas valve
- make sure that no hot parts inside the appliance are touched.

9.2 Cleaning the inside of the appliance

9.2.1 Removing the casing

To dismantle the shell, proceed as follows:
- loosen the two lower screws (1)
- loosen the upper screws (2)
- pull the casing (3) forward and release it from the top by lifting it
- disconnect the display and the control unit, see chapter "**Electrical connections**".

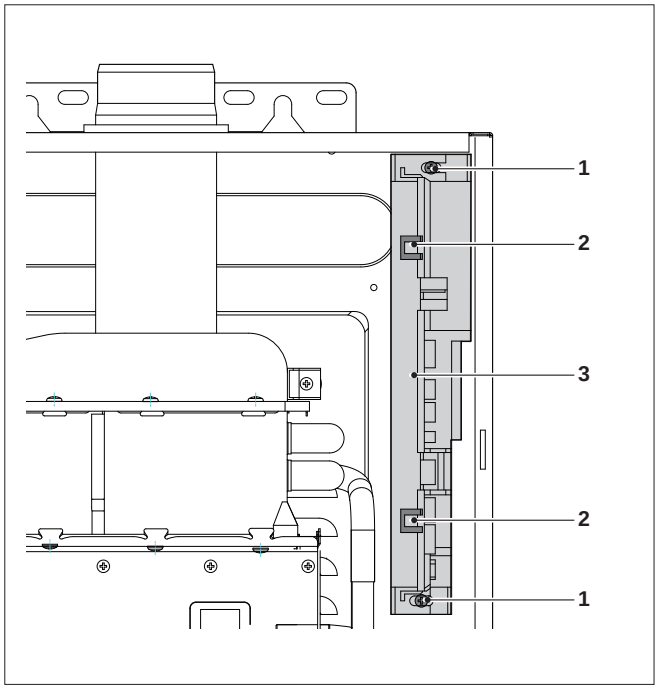


Once the maintenance and cleaning operations have been completed, refit the front panel (3) of the appliance by hooking it at the top, pushing it forward and fastening it by tightening the screws (1) and (2) previously removed.

9.2.2 Accessing the expansion board

CAUTION
Before working on the appliance, disconnect the power supply through the omnipolar switch fitted on the power supply line.

To access the expansion board:
- remove the casing, see chapter "**Removing the casing**"
- unscrew the screws (1)
- extract the board holder
- detach the board fan connector
- release the blocks (2)
- remove the cover (3) and access the board.



9.2.3 Cleaning the heat exchanger

To clean the heat exchanger, proceed as follows:
- remove the casing, see chapter "**Removing the casing**"
- use compressed air or an equivalent means to clean the zone between the fins and the heat exchanger, taking care not to remove any other part of the heat exchanger
- mount the shell and tighten the relative screws.

9.3 Replacing the power cable

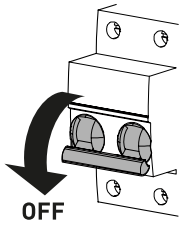
If the power cable needs to be replaced, the operation MUST be carried out by professionally qualified personnel.

If this cable needs to be replaced, an original spare must be requested from **Sime**.

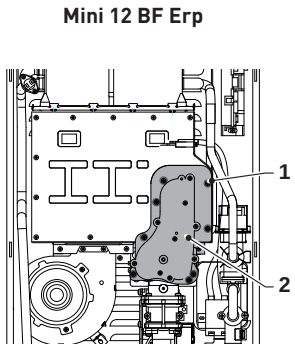
9.4 Gas conversion

CAUTION
The maintenance interventions described must ONLY be carried out the professionally qualified personnel.

WARNING
Before carrying out any interventions described:
- set the main system switch to "OFF"
- close the gas valve
- make sure that no hot parts inside the appliance are touched.



To convert the type of gas, proceed as follows:
- remove the casing, see chapter "**Removing the casing**"
- loosen the screws supporting the gas manifold (1)
- remove the gas manifold (2)
- replace it with the corresponding gas manifold



CAUTION
To proceed with the subsequent operations, it is necessary to:
- power the appliance electrically
- check that the appliance is off
- disconnect the display and the control unit, see chapter "**Electrical connections**".

9.4.1 Selecting the water flow rate

To adjust the water flow rate:
- connect the display and the control unit
- within 10 seconds, with the appliance powered electrically but switched off, simultaneously press the ∧ and ∨ keys for 2 seconds
- the appliance will emit a single sound and the display will show the letter "**L**": this means that the appliance has entered the volume selection mode
- press the ⏻ (On/Off) key to enable the regulation function and then the ∧ and ∨ keys to adjust the volume
- press the ⏻ (On/Off) key to confirm the changes and access the next selection interface.

The table shows the volume parameter settings.

Symbol displayed	Parameter	Capacity
L	12	12 litres
	16	16 litres

9.4.2 Selecting the type of gas

After adjusting the water capacity and pressing the ⏻ (On/Off) key to confirm the changes, the user can access the interface for selecting the type of gas:
- the display will show the letter "**q**": this means that the appliance has entered the gas type selection mode
- press the ⏻ (On/Off) key to enable the regulation function and then the ∧ and ∨ keys to adjust the type of gas
- press the ⏻ (On/Off) key to confirm the changes and access the next selection interface.

The type of gas set at the factory (G20) is shown the first time the ∧ or ∨ key is pressed.
The table shows the gas parameter settings.

Symbol displayed	Parameter	Gas category
q	12	G20
	22	G30
	19	G31

9.4.3 Selecting the model

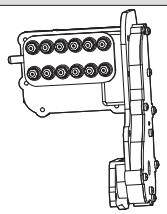
After selecting the type of gas and pressing the ⏻ (On/Off) key to confirm the changes, the user can access the interface for selecting the model:
- the display will show the letter "**F**": this means that the appliance has entered the model selection mode
- The model is factory pre-set and does NOT require any selection, simply press the ⏻ (On/Off) key to skip this operation.

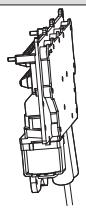
The table shows the model selection parameter settings.

Symbol displayed	Parameter	Appliance type
F	07	**12**
		16

- perform the entire procedure described in "**Checking the gas adjustment**"
- verify the appliance's airtightness to ensure that there are no gas leaks
- mount the shell and tighten the relative screws.

Accessories table

MINI 12 BF ErP			
Code	**Image**	**Type of gas**	**Technical specifications**
6329172		G20	Hole Ø 0.86 Hole Ø 1.52
6329173		G30 G31	Hole Ø 0.74 Hole Ø 1.04

MINI 16 BF ErP			
Code	**Image**	**Type of gas**	**Technical specifications**
6329488		G20	Hole Ø 0.74 Hole Ø 1.28
6329498		G30 G31	Hole Ø 0.62 Hole Ø 0.88

CAUTION
- Check that the sealing ring on the gas control system is properly secured.
- Once the conversion kits have been replaced, attach the corresponding labels back onto the appliance.

9.5 Periodic checks

CAUTION
We recommend performing the following checks on the appliance, **at least once a year**.

- **Check the tightness of the hydraulic connections** and, if necessary, replace the seals to restore the tightness.
- **Check the tightness of the gas connections** and, if necessary, replace the seals to restore the tightness.
- **Visual check of the overall condition of the appliance**.
- **Visual check of the combustion** and, if necessary, disassembly and cleaning of the burner.
- If necessary, **Disassembly and cleaning of the combustion chamber** after Visual check of the overall condition of the appliance.
- If necessary, **Disassembly and cleaning of the burner and injector** after Visual check of the combustion.
- **Cleaning of the primary heat exchanger**.
- **Check the operation of the heating safety systems**: limit temperature safety device.
- **Check the operation of the gas part safety systems**: safety device for lack of gas or flame (ionisation).
- **Check the efficiency of domestic water production** (check the flow rate and temperature).
- **Cleaning of the cold water inlet filter**.

WARNING
The appliance must NOT be started up without the cold water inlet filter.

- **General check of the appliance operation**.
- **Removal of oxide residues from the detection electrode** using sandpaper.

10 MALFUNCTIONS AND POSSIBLE SOLUTIONS

10.1 Troubleshooting guide

Fault	Cause	Solution
The flame dies out during operation	Gas valve half open	Open the gas valve completely
	Inadequate (low) gas supply pressure	Contact a technician to check the pressure of the system's gas regulator
	Inlet water pressure too low	Contact a technician to have the water pressure checked
	Insufficient air supply	Improve the air renewal and let fresher air in
	Excessively high external wind pressure	Turn off the water heater
	Heat exchanger clogged	Contact the Technical Assistance Centre
	Malfunctioning of the water control device (flow meter)	
The appliance fails to start after the hot water supply valve is opened	Gas valve closed	Open the gas valve fully or replace the gas valve
	Presence of air in the gas manifold	Continue opening the cold water supply valve
	Water system shut-off valve closed	Open the water supply shut-off valve
	Ice build-up	Use the appliance after the ice has melted
	Inlet water pressure too low	Contact a technician to have the water pressure checked
	Excessively high external wind pressure	Turn off the water heater
	Malfunctioning of the water control device (flow meter)	Contact the Technical Assistance Centre
Explosion after power-up	Inadequate (high) gas supply pressure	Contact a technician to check the pressure of the system's gas regulator
	Excessively high external wind pressure	Turn off the water heater
Yellow flame with smoke	Nozzles clogged	Contact the Technical Assistance Centre
	Heat exchanger clogged	
Abnormal flame with strange odour	Insufficient air supply	Improve the air renewal and let fresher air in
	Nozzles clogged	Contact the Technical Assistance Centre
	Heat exchanger clogged	
Start-up with abnormal sounds	Inadequate (high) gas supply pressure	Contact a technician to check the pressure of the system's gas regulator
	Nozzles clogged	Contact the Technical Assistance Centre
Water not yet hot, when a higher temperature is set	Gas valve half open	Open the gas valve completely
	Inadequate (low) gas supply pressure	Contact a technician to check the pressure of the system's gas regulator
	Incorrect regulation of the water temperature	Turn the water flow adjuster knob appropriately
	Malfunctioning of the water control device (flow meter)	Contact the Technical Assistance Centre
Water too hot, when a lower temperature is set	Incorrect regulation of the water temperature	Turn the water flow adjuster knob appropriately
	Malfunctioning of the water control device (flow meter)	Contact the Technical Assistance Centre
The flame dies out when the knob is turned towards the low temperature position	Inlet water pressure too low	Contact a technician to have the water pressure checked
The flame does not die out when the hot water supply valve is closed	Malfunctioning of the water control device (flow meter)	Contact the Technical Assistance Centre

10.2 Malfunction codes and possible solutions

No.	Description	Solution
01	The water inlet temperature sensor is broken	Check and replace it if necessary
10	The device detects a flame signal through the preliminary check	Check the detection electrode Check the domestic hot water outlet sensor
11	No ignition occurs	Gas valve closed Open the valve and follow the ignition procedure Check the ignition electrode Check the detection electrode Press the ON/OFF key to RESET
12	Normal combustion terminates accidentally	Press the ON/OFF key to RESET
13	Thermostat fault protection	Check and replace it if necessary
30	Block due to clogging in smoke outlet	Verify the smoke outlet/air intake pipes Press the ON/OFF key to RESET
32	Fan seizure protection	
40	The fan or its control circuit is faulty	Check and replace it if necessary
50	Protection against excessive temperature (output > 80°C)	A temperature above 80°C was detected Check the water pressure Press the ON/OFF key to RESET
51	Protection against excessive temperature (input > 65°C)	A temperature above 65°C was detected Check the water pressure Press the ON/OFF key to RESET
60	Output water temperature sensor fault protection	Check the domestic hot water outlet sensor and replace it if necessary
70	Incorrect setting of the values for the water quantity, type of gas and model	Repeat the calibration procedure

ANNEXES

PRODUCT DATA SHEET MINI BF ERP (EU 812/2013)

Sime MINI BF ErP	12	16
Stated domestic hot water profile	M	XL
Domestic hot water energy efficiency (%)	78,0	80,5
Energy efficiency class of DHW function	A	A
Annual fuel consumption AFC (GJ)	6	19
Annual electricity consumption AEC (KWh)	10	14
Thermostat temperature setting	55	55
Sound power dB(A)	61	63

Specific precautions to be adopted during the appliance's assembly, installation or maintenance are contained in the water heater's instruction manual

Conforms to Annex 4 (point II) of Delegated Regulation (EU) No. 811/2013 which integrates Regulation (EU) No. 2017/1369

ERP DATA (EU 814/2013)

Sime MINI BF ErP	12	16
Stated domestic hot water profile	M	XL
Daily gas consumption (corrected) (KWh)	7,836	24,845
Daily electricity consumption (corrected) (KWh)	0,044	0,064
NOx (mg/kWh)	47	47
Sound power dB(A)	61	63

Specific precautions to be adopted during the appliance's assembly, installation or maintenance are contained in the water heater's instruction manual

Conforms to Annex 4 (point II) of Delegated Regulation (EU) No. 811/2013 which integrates Regulation (EU) No. 2017/1369

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