



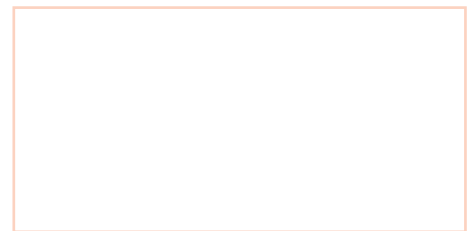
Condensing wall mounted boiler

# ADAX 20 T

INSTALLATION AND SERVICING INSTRUCTIONS



EN



## SAFETY WARNINGS AND REGULATIONS



### 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 **KOVARSON** 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.
- Periodically check that the operating pressure of the water heating system when cold is **1-1.2 bar**. If this is not the case, increase the pressure or 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.*
- In order to ensure optimal appliance operations **KOVARSON** recommends that maintenance and checks are carried out **ONCE A YEAR**.



### 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. The company or technician will, at the end of installation operations, issue a statement of compliance with national and local Technical Standards and Legislation in force

## RESTRICTIONS



### IT IS FORBIDDEN

- The appliance is not to be used by children or unassisted disabled persons.
- 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.
- Do not block the condensate drain (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.
- Do not expose the boiler to atmospheric agents. These boilers can also be installed in partially covered areas, as per EN 15502, with a maximum ambient temperature of 60°C and a minimum ambient temperature of - 5°C. It is recommended that the boiler is installed below weathered roofs, on the balcony or in a protected niche, to protect it from exposure to weathering agents (rain, hail and snow). The boiler is equipped as standard with an antifreeze function.
- Do not block or reduce the size of the ventilation openings of the room where the appliance is installed, if present.
- 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.
- Do not leave packaging material around since it could be dangerous. Therefore dispose of it as prescribed by legislation in force.

## RANGE

MODEL	CODE
ADAX CONDENS 20 T - (G20)	8114288

## CONFORMITY

ADAX 20 T boilers comply with:

- Directive 2009/142/EC - Gas Appliances
- Boiler Efficiency Directive 92/42/EEC
- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive 2004/108/EC
- Thermal Efficiency ★★ ★★
- Classified as "Condensing"
- Class NOx 5 (< 70 mg/kWh)



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

## EC DECLARATION OF CONFORMITY

In accordance with "Gas Appliances" Directive 2009/142/EC, "Electromagnetic Compatibility" Directive 2004/108/EC, "Boiler Efficiency" Directive 92/42/EC and "Low Voltage" Directive 2006/95/EC, the manufacturer KOVARSON s.r.o., via Garbo 27, 37045 Legnago (VR), **DECLARES THAT** the boiler models **ADAX 20 T** comply with the European Directives.

The Technical Manager  
(Franco Macchi)

## SYMBOLS



### DANGER

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.



### DANGER

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.



### IT IS FORBIDDEN

To indicate actions which **MUST NOT BE** carried out.



### CAUTION

To indicate particularly important and useful information.

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# 1 DESCRIPTION OF THE APPLIANCE

## 1.1 Characteristics

**ADAX 20 T** are last generation condensing wall mounted boilers which **KOVARSON** has produced for heating and domestic hot water production when combined with a storage tank. The main design choices made by **KOVARSON** for the **ADAX 20 T** boilers are:

- the total pre-mix microflame burner combined with a steel heat exchanger for heating
- the sealed combustion chamber which can be classified "Type C" or "Type B" in relation to the room where the boiler is installed, depending on the smoke outlet configuration adopted during installation
- the command and control microprocessor electronic board provides efficient management of both heating and hot water production. It can also be connected to a remote control with an Open Therm protocol or to room thermostat and/or external sensor. If connected to an external sensor, the boiler temperature varies on the basis of the external temperature according to a selected optimal climatic curve providing significant energy and economic savings.

Other special features of the **ADAX 20 T** boilers are:

- the anti-freeze function which activates automatically if the temperature of the water inside the boiler falls below the threshold of the value set at parameter "PAR 10" and , if there is an external sensor, if the external temperature falls below the threshold of the value set at parameter "PAR 11"
- the anti-blocking function of the pump and diverter valve. This activates automatically every 24 hours if no request for heat has been made
- the chimney sweep function lasts 15 minutes and makes the job of the qualified technician easier when measuring the parameters and combustion efficiency
- screen display of the operating and self-diagnostic parameters with error code display when the fault occurs. This makes repair interventions easier and allows appliance operation to be restored correctly.

## 1.2 Check and safety devices

The **ADAX 20 T** boilers are equipped with the following check and safety devices:

- thermal safety thermostat 100°C
- 3 bar relief valve
- heating water pressure transducer
- delivery sensor
- hot water tank sensor
- smoke probe.



### IT IS FORBIDDEN

to commission the appliance with safety devices which do not work or which have been tampered with.



### DANGER

Safety device may only be replaced by professional qualified personnel using **KOVARSON** original spare parts.

## 1.3 Identification

The **ADAX 20 T** boilers can be identified by means of:

- 1 Packaging label:** this is located on the outside of the packaging and provides a code, the serial number of the boiler and the bar code
- 2 Energy Efficiency Label:** this is positioned on the outside of the packaging to notify the User of the level of energy savings and reduced environmental pollution produced by the appliance
- 3 Data plate:** this is located inside the front panel of the boiler and provides the technical specification, appliance performance and any other information required by law.

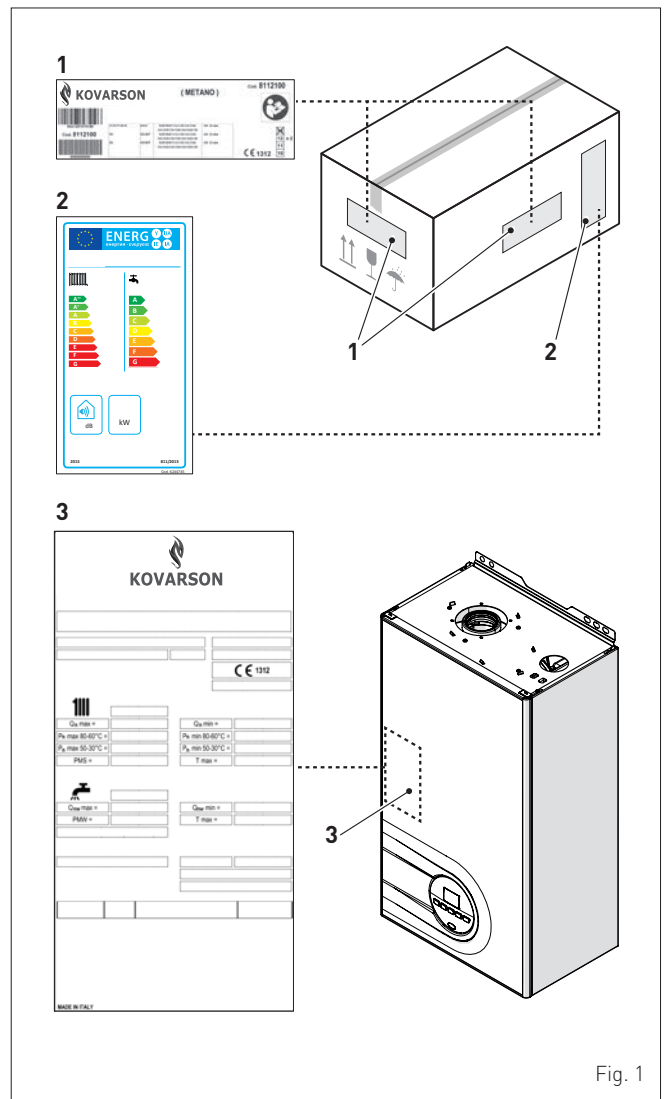


Fig. 1

KEY:

- 1 Packaging label
- 2 Energy Efficiency Label
- 3 Data plate

1.3.1 Data label

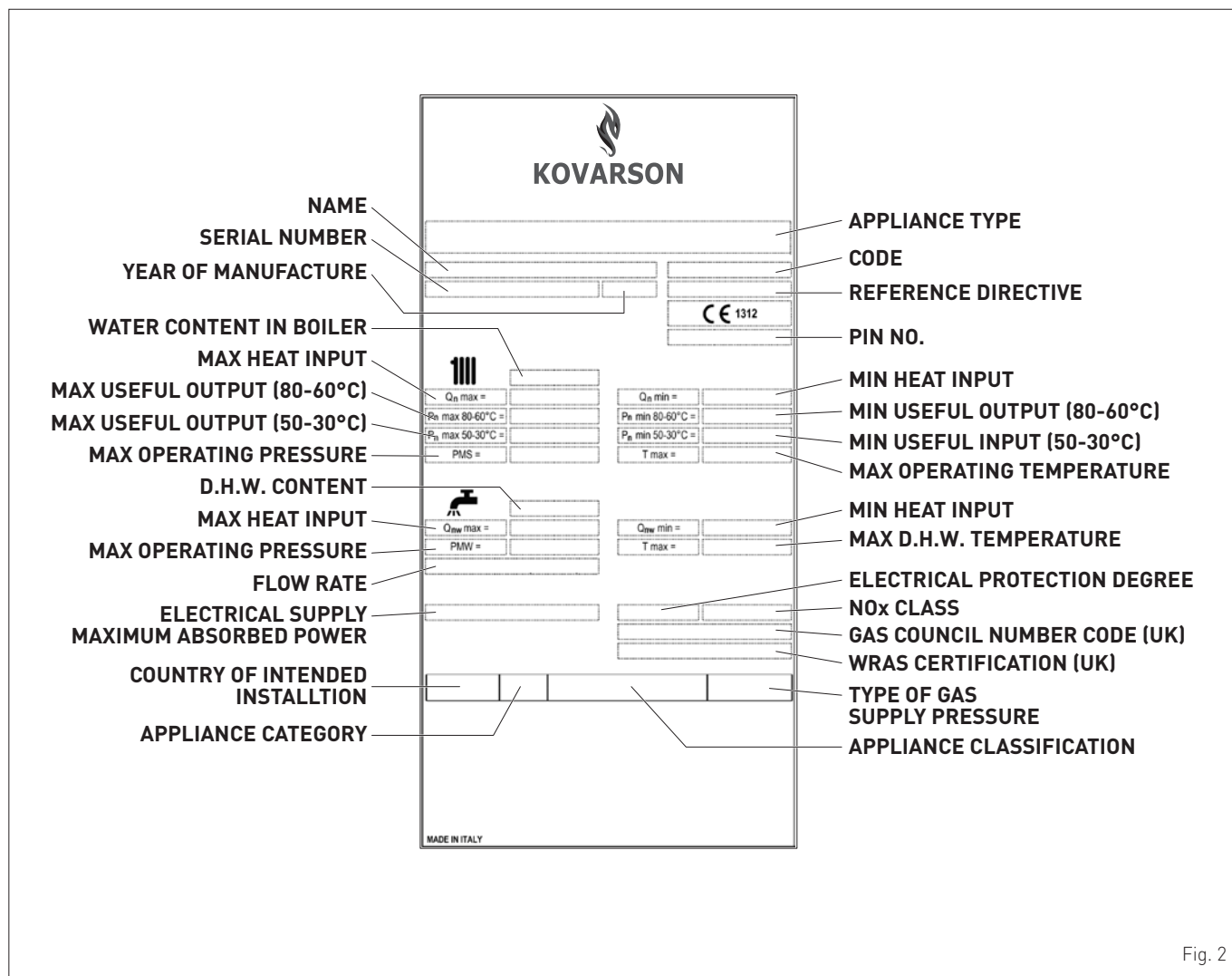


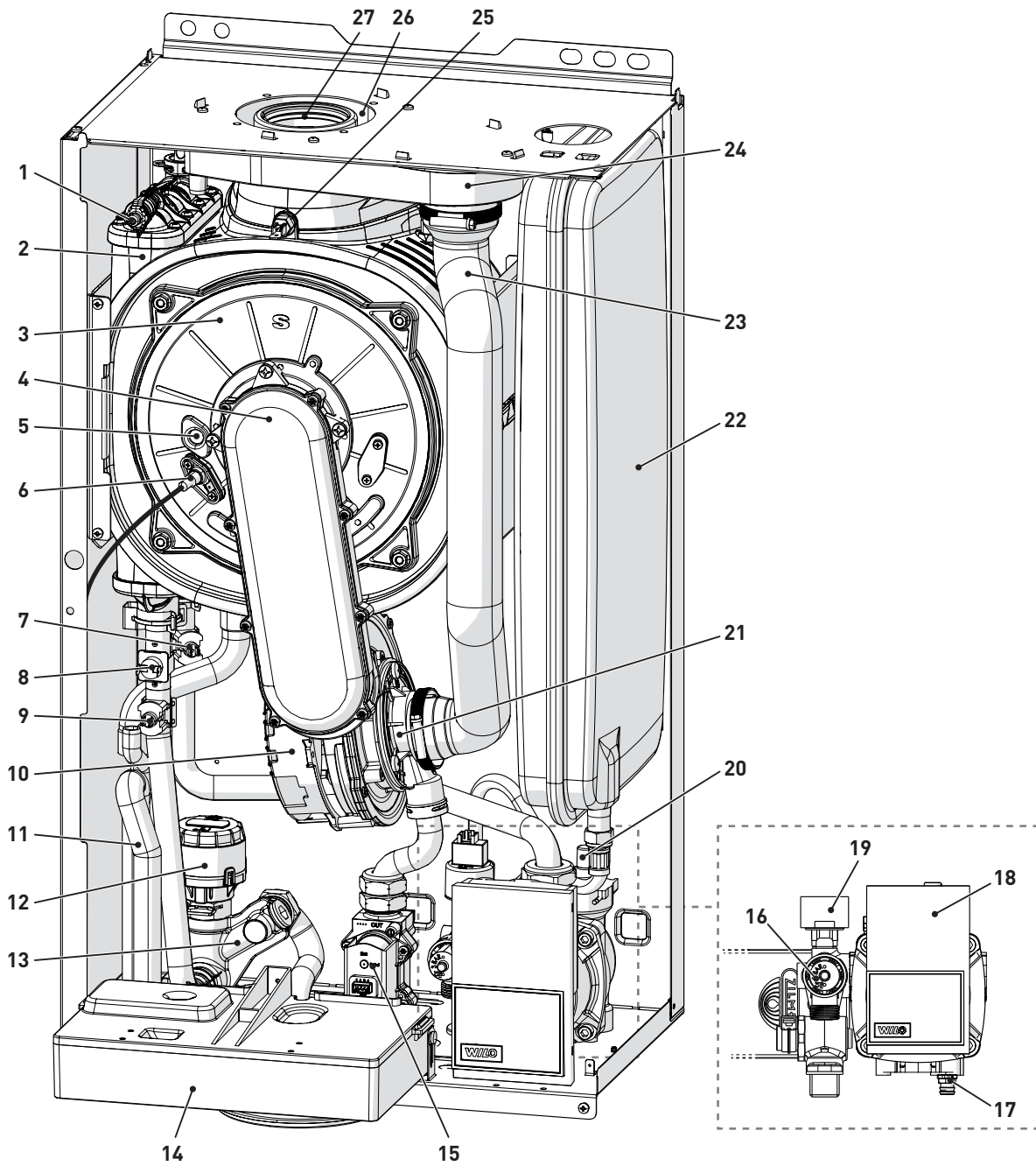
Fig. 2



**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.

**1.4 Structure**



- |                                |                              |
|--------------------------------|------------------------------|
| 1 Heat exchanger bleed point   | 16 System safety valve       |
| 2 Heat exchanger               | 17 Boiler drain              |
| 3 Combustion chamber door      | 18 System pump               |
| 4 Oversleeve                   | 19 Water pressure transducer |
| 5 Flame inspection window      | 20 Automatic vent valve      |
| 6 Ignition/detection electrode | 21 Air-gas mixer             |
| 7 Return probe                 | 22 Expansion vessel          |
| 8 Heat safety thermostat       | 23 Air inlet pipe            |
| 9 Flow probe                   | 24 Air-smoke chamber         |
| 10 Fan                         | 25 Exhaust flue probe        |
| 11 Condensate siphon           | 26 Air inlet                 |
| 12 Diverter valve              | 27 Smoke outlet              |
| 13 System filling unit         |                              |
| 14 Control panel               |                              |
| 15 Gas valve                   |                              |

Fig. 3

## 1.5 Technical features

DESCRIPTION		ADAX 20 T
<b>CERTIFICATIONS</b>		
Country of intended installation		IT – ES – PT – GR – SI
Fuel		G20 - G31
PIN number (CE)		1312CP5936
Category		II2H3P
Appliance classification		B23P - B33P - B53P - C13 - C33 - C43 - C53 - C63 - C83
NO <sub>x</sub> class		5 (< 70 mg/kWh)
<b>HEATING PERFORMANCE</b>		
<b>HEAT INPUT (*)</b>		
Nominal flow (Q <sub>n</sub> max)	kW	24,0
Minimum flow (Q <sub>nw</sub> min)	kW	3,0
<b>HEAT OUTPUT</b>		
Nominal (80-60°C) (P <sub>n</sub> max)	kW	23,6
Nominal (50-30°C) (P <sub>n</sub> max)	kW	25,7
Minimum G20 (80-60°C) (P <sub>n</sub> min)	kW	2,9
Minimum G20 (50-30°C) (P <sub>n</sub> min)	kW	3,2
Minimum G31 (80-60°C) (P <sub>n</sub> min)	kW	2,9
Minimum G31 (50-30°C) (P <sub>n</sub> min)	kW	3,2
<b>EFFICIENCY</b>		
Max useful efficiency (80-60°C)	%	98,3
Min useful efficiency (80-60°C)	%	96,6
Max useful efficiency (50-30°C)	%	107,1
Min useful efficiency (50-30°C)	%	106,6
Useful efficiency at 30% of load (40-30°C)	%	107,0
Thermal efficiency (IEC 92/42)		★★★★
Losses after shutdown at 50°C	W	84
<b>DOMESTIC HOT WATER PERFORMANCE</b>		
Nominal heat input (Q <sub>nw</sub> max)	kW	-
Minimum heat input (Q <sub>nw</sub> min)	kW	-
Specific D.H.W. flow rate Δt 30°C (EN 13203)	l/min	-
Continuous D.H.W. flow rate (Δt 25°C / Δt 35°C)	l/min	-
Minimum D.H.W. flow rate	l/min	-
Max (PMW) / Min Pressure	bar	-
	kpa	-
<b>ENERGY PERFORMANCE</b>		
<b>HEATING</b>		
Heating seasonal energy efficiency class		A
Heating seasonal energy efficiency	%	90
Sound power	db(A)	61
<b>DOMESTIC HOT WATER</b>		
Domestic hot water energy efficiency class		-
Domestic hot water energy efficiency	%	-
Stated domestic hot water profile load		-
<b>ELECTRICAL SPECIFICATIONS</b>		
Power supply voltage	V	230
Frequency	Hz	50
Absorbed electrical power (Q <sub>n</sub> max)	W	73
Absorbed electrical power at (Q <sub>n</sub> min)	W	52
Absorbed electrical power in stand-by	W	3,6
Electric degree of protection	IP	X5D
<b>COMBUSTION DATA</b>		
Smoke temperature at Max/Min flow (80-60°C)	°C	82 / 65
Smoke temperature at Max/Min flow (50-30°C)	°C	59 / 45
Maximum smoke flow Min/Max	g/s	11,1 / 1,38
CO <sub>2</sub> at Max/Min flow rate (G20)	%	9,0 / 9,0
CO <sub>2</sub> at Max/Min flow rate (G31)	%	10,0 / 10,0
NO <sub>x</sub> measured	mg/kWh	41
<b>NOZZLES - GAS</b>		
Number of nozzles	n°	1
Nozzle diameter (G20-G31)	mm	5,3
Gas consumption at Max/Min flow rate (G20)	m <sup>3</sup> /h	2,53 / 0,32
Gas consumption at Max/Min flow rate (G31)	Kg/h	1,86 / 0,23
Gas supply pressure (G20/G31)	mbar	20 / 37
	kpa	2 / 3,7

DESCRIPTION	ADAX 20 T	
<b>TEMPERATURE - PRESSURE</b>		
Max operating temperature (T max)	°C	85
Heating adjustment range	°C	20÷80
Domestic hot water adjustment range	°C	10÷60
Max operating pressure (PMS)	bar	3
	kpa	300
Water content in boiler	l	4,50

(\*) Heat input calculated using the lower heat output (Hi)

Lower Heat Output (Hi)

**G20 Hi.** 9.45 kW/m<sup>3</sup> (15°C, 1013 mbar) - **G31 Hi.** 12.87 kW/kg (15°C, 1013 mbar)

**NOTE:** if the appliance is to operate in combination with a storage tank, the Heat Input remains unchanged in relation to the HEATING PERFORMANCE.

## 1.6 Main water circuit

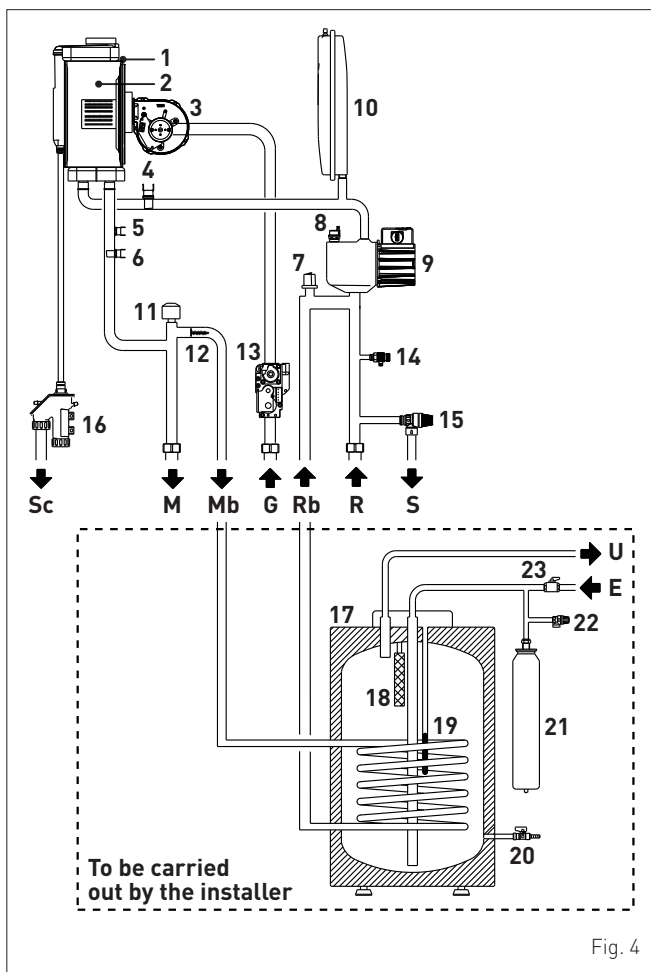


Fig. 4

KEY:

- M System delivery
- R System return
- Mb Hot water tank delivery
- Rb Hot water tank return
- S Safety valve outlet
- G Gas supply
- U Domestic hot water outlet
- E Domestic hot water inlet
- Sc Condensate outlet

- 1 Condensing heat exchanger
- 2 Combustion chamber
- 3 Fan
- 4 Return probe

- 5 Thermal safety thermostat
- 6 Flow probe
- 7 Pressure transducer
- 8 Automatic vent valve
- 9 Pump
- 10 CH expansion vessel
- 11 Diverter valve
- 12 Automatic by-pass
- 13 Gas valve
- 14 Boiler drain
- 15 System relief valve
- 16 Condensate drain siphon
- 17 Storage tank
- 18 Magnesium anode
- 19 Domestic hot water sensor
- 20 Storage cylinder drain cock
- 21 DHW circuit expansion vessel
- 22 Boiler safety valve
- 23 Domestic hot water inlet valve

## 1.7 Sensors

The sensors installed have the following characteristics:

- Dual sensor (thermal safety/output) NTC R25°C; 10kΩ B25°-85°C: 3435
- domestic hot water sensor NTC R25°C; 10kΩ B25°-85°C: 3435
- external sensor NTC R25°C; 10kΩ B25°-85°C: 3435

### Correspondence of Temperature Detected/Resistance

Examples of reading:

TR=75°C → R=1925Ω

TR=80°C → R=1669Ω.

TR	0°C	1°C	2°C	3°C	4°C	5°C	6°C	7°C	8°C	9°C	Resistance R (Ω)
0°C	27279	26135	25044	24004	23014	22069	21168	20309	19489	18706	
10°C	17959	17245	16563	15912	15289	14694	14126	13582	13062	12565	
20°C	12090	11634	11199	10781	10382	9999	9633	9281	8945	8622	
30°C	8313	8016	7731	7458	7196	6944	6702	6470	6247	6033	
40°C	5828	5630	5440	5258	5082	4913	4751	4595	4444	4300	
50°C	4161	4026	3897	3773	3653	3538	3426	3319	3216	3116	
60°C	3021	2928	2839	2753	2669	2589	2512	2437	2365	2296	
70°C	2229	2164	2101	2040	1982	1925	1870	1817	1766	1717	
80°C	1669	1622	1577	1534	1491	1451	1411	1373	1336	1300	
90°C	1266	1232	1199	1168	1137	1108	1079	1051	1024	998	
100°C	973										



### 1.8 Expansion tank

The expansion vessel installed on the boilers has the following characteristics:

Description	U/M	ADAX 20 T
Total capacity	l	9,0
Prefilling pressure	kPa	100
	bar	1,0
Useful capacity	l	5,0
Maximum system content (*)	l	124

(\*) *Conditions of:*  
 Average maximum temperature of the system 85°C  
 Start temperature at system filling 10°C.



**CAUTION**

- For systems with water content exceeding the maximum system content (as indicated in the table) an additional expansion vessel must be prearranged.
- The difference in height between the relief valve and the highest point of the system cannot exceed 6 metres. If the difference is greater than 6 metres, increase the prefilling pressure of the expansion vessel and the system when cold by 0.1 bar for each meter increase.

### 1.9 Circulation pump

The flow-head performance curve available for the heating system is shown in the graph below.

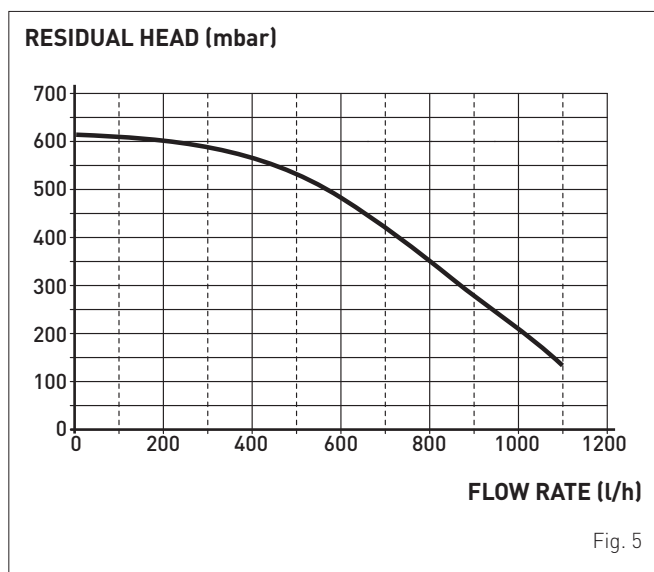


Fig. 5

The flow-head performance curve available for the remote hot water tank coil is shown in the graph below.

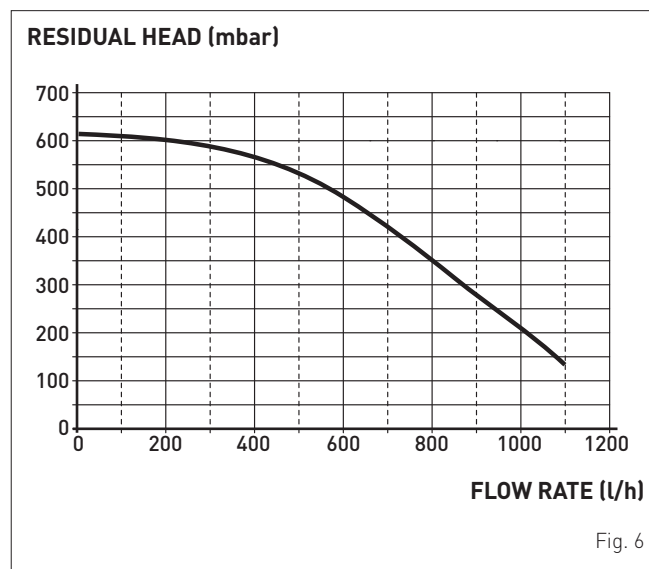


Fig. 6



**CAUTION**

The appliance is equipped with a by-pass which ensures water circulation in the boiler when the thermostatic valves or cocks are used in the system.

## 1.10 Control panel

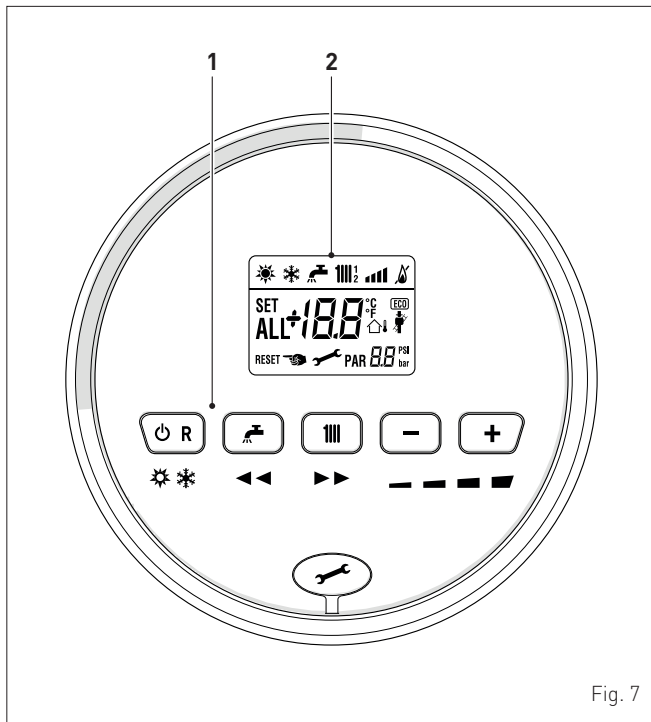


Fig. 7

### 1 FUNCTIONAL BUTTONS

**⏻ R** If pressed once or more than once for at least 1 second during normal operation, this button allows the user to change the boiler operating mode in a cyclical sequence (Stand-by – Summer – Winter). If the boiler is experiencing a fault which can be reset, it allows boiler operation to be unblocked.

**🚰** During normal operation, pressing the button displays the domestic hot water set point which can be between 10 and 60°C. In "parameter setting", the user can scroll through the parameter index (decreasing) by pressing this button.

**|||** During normal operation, pressing the button displays the heating set point which can be between 20 and 80°C. In "parameter setting", the user can scroll through the parameter index (increasing) by pressing this button.

**-** During normal operation, pressing this button allows the user to reduce the heating or DHW set point on the basis of the selection made previously. If there is a Remote Control (Open Therm), after having selected the heating button, the user can modify the incline of the climatic curve (decreasing it) by pressing the button (-). In "parameter setting/display", the user can modify the parameter setting or value (decreasing) by pressing this button.

**+** During normal operation, pressing this button allows the user to increase the heating or DHW set point on the basis of the selection made previously. If there is a Remote Control (Open Therm), after having selected the heating button, the user can modify the incline of the climatic curve (increasing it) by pressing the button (+). In "parameter setting/display", the user can modify the parameter setting or value (increasing) by pressing this button.

**🔧** Programming connector cover plug.

**NOTE:** pressing any one of these buttons for more than 30 seconds generates a fault on the display without preventing boiler operation. The warning disappears when normal conditions are restored.

### 2 DISPLAY

**☀️** "SUMMER". This symbol appears when the boiler is operating in "Summer" mode or if only the domestic hot water mode is enabled via the remote control. If the symbols ☀️ and ❄️ are flashing, this indicates that the chimney sweep function is active.

**❄️** "WINTER". This symbol appears when the boiler is operating in "Winter" mode or if both the domestic hot water and heating modes are enabled via the remote control. With the remote control, if no operating modes have been enabled both symbols ☀️ and ❄️ will be off.

**👉** "RESET REQUIRED". The message indicates that after having repaired the fault, normal boiler operation can be restored by pressing the button ⏻ R.

**🚰** "DOMESTIC HOT WATER". This symbol is present during a DHW request or during the "chimney sweep function". It flashes during the selection of the domestic hot water set point.

**|||** "HEATING". This symbol lights up during heating operation or during the "chimney sweep function". It flashes during the selection of the heating set point.

**🔥** "BLOCK" DUE TO NO FLAME.

**🔥** "FLAME PRESENCE".

**📶** "POWER LEVEL". This indicates the power level at which the boiler is operating.

**PAR** "PARAMETER". This indicates that the user may be in parameter setting/display, or "info" or "counter", or in "activated alarms" (history).

**ALL** "ALARM". This indicates that a fault has occurred. The number specifies the cause which generated the alarm.

**👤** "CHIMNEY SWEEP". This indicates that the "chimney sweep function" has been activated.

**🔧** "RESET EXTERNAL SENSOR". This indicates that the external sensor has been installed and that the boiler is working on a sliding temperature.

**📶** "HEATING SYSTEM PRESSURE". Display of heating system pressure.

### 1.11 Wiring diagram

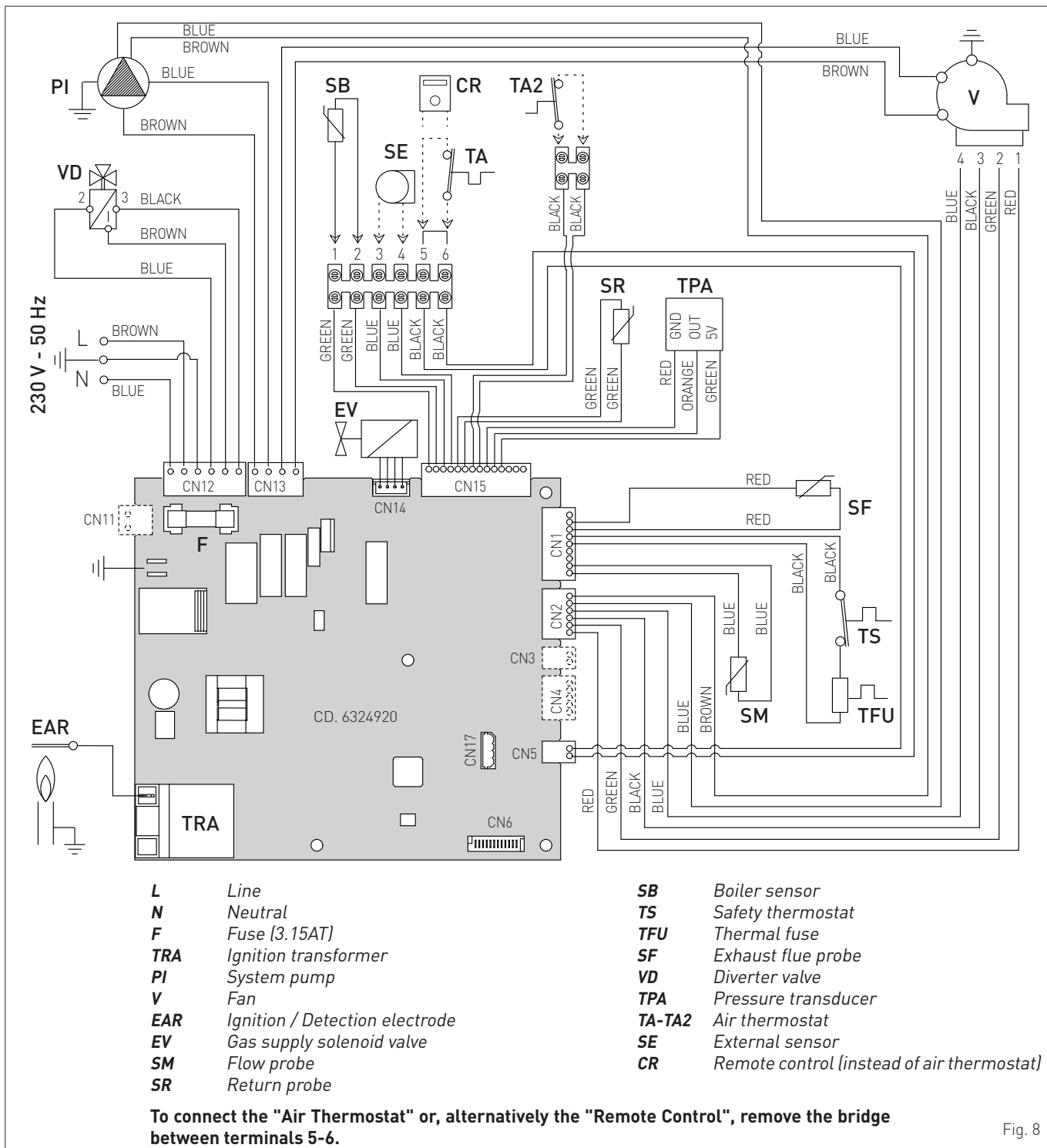


Fig. 8



**CAUTION**

Users must:

- Use an omnipolar cut-off switch, disconnect switch in compliance with EN Standards
- Respect the connections L (Live) - N (Neutral)
- Ensure that the special power cable is only replaced with a cable ordered as a spare part and connected by professionally qualified personnel
- Connect the earth wire to an effective earthing system. 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.



**IT IS FORBIDDEN**

To use water pipes for earthing the appliance.

## 2 INSTALLATION

### 2.1 Unpacking the product

ADAX 20 T appliances are delivered in a single unit protected by cardboard packaging.

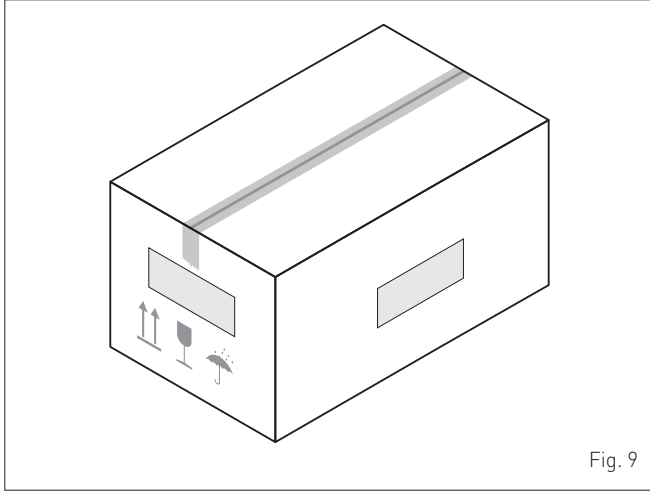


Fig. 9

The plastic bag found inside the packaging contains the following:

- Installation, use and maintenance manual
- Paper template for boiler installation
- Certificate of warranty
- Hydraulic test certificate
- System booklet
- Bag with expansion plugs



#### IT IS FORBIDDEN

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

### 2.2 Dimensions and weight

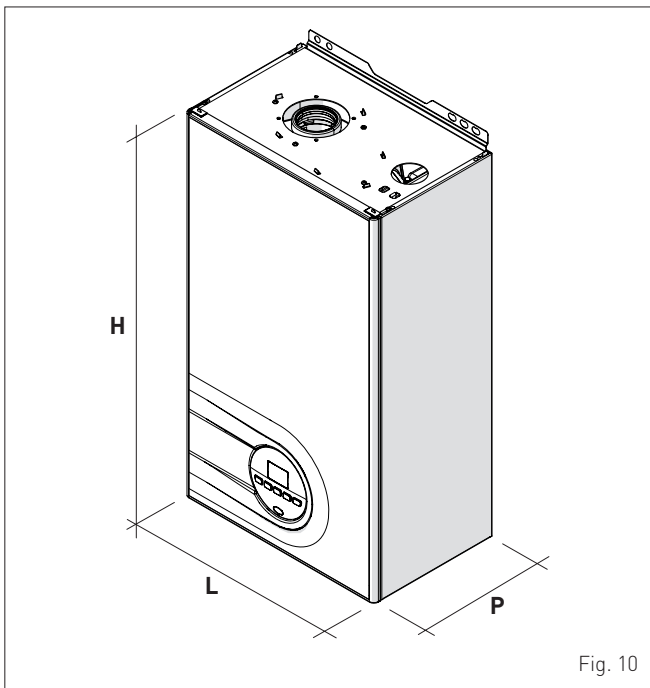


Fig. 10

Description	ADAX 20 T
L (mm)	400
D (mm)	250
H (mm)	700
Weight (kg)	27,5

### 2.3 Handling

Once the packaging has been removed, the appliance is to be handled manually, tilting it slightly, lifting it and applying pressure in the points indicated in the figure.

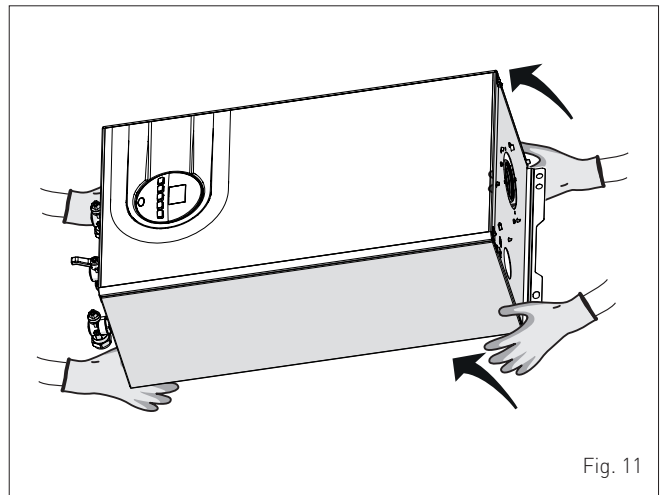


Fig. 11



#### IT IS FORBIDDEN

**DO NOT** hold onto the appliance cladding but use the "solid" parts such as the base and the rear structure.



#### DANGER

Use suitable tools and accident protection when removing the packaging and when handling the appliance.

### 2.4 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 when the installation is a "TYPE B" installation.

The minimum temperature of the installation room must NOT be lower than **-5 °C**.



#### CAUTION

Remember to consider the space needed in order to access the safety/adjustment devices and to carry out maintenance interventions (see Fig. 12).

**APPROXIMATE MINIMUM DISTANCES**

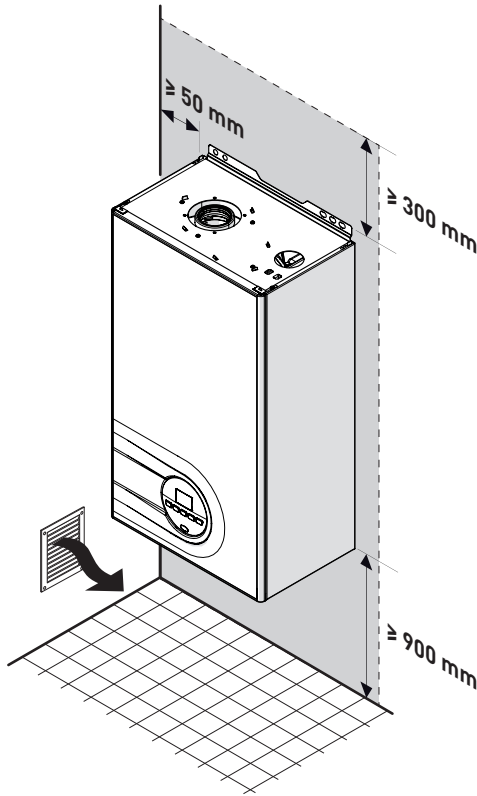


Fig. 12

**2.5 New installation or installation of a replacement appliance**

When **ADAX 20 T** boilers are installed on old systems or systems requiring updating, it is recommended the installer checks that:

- the connecting flue pipe is suitable for the combustion temperature of the appliance, calculated and manufactured in compliance with Standards, that it is as straight as possible, air tight, isolated, with no obstructions or restriction and that it has appropriate condensate collection and evacuation systems
- the electrical system has been manufactured in compliance with specific Standards and by professionally qualified personnel
- the fuel delivery line and the tank (LPG) comply fully with specific Standards
- the expansion vessel ensures total absorption of the fluid dilation in the system
- the pump flow-head performance is sufficient for the system characteristics
- the system is clean, free of any sludge, deposits, de aerated and air tight. For system cleaning, please refer to the relevant paragraph.



**CAUTION**

The manufacturer declines all liability for any damage caused by an incorrect implementation of the smoke outlet.

**2.6 Cleaning the system**

Before installing the appliance on a newly constructed system or replacing a heat generator on an existing system, it is important that the system is thoroughly cleaned to remove sludge, slag, dirt, residue etc.

Before removing an old heat generator from an existing system, it is recommended that the user:

- puts a descaling additive into the water system
- allows the system to work with the generator active for a few days
- drains the dirty water from the system and flushes the system with clean water once or more than once.

If the old generator has already been removed or is not available, replace it with a pump to circulate water in the system and then proceed as described above.

Once cleaning operations have been carried out and before installing the new appliance, it is recommended that a fluid is added to the water system to protect it from corrosion and deposits.



**CAUTION**

For further information on the type of additive and usage, please contact the appliance manufacturer.

**2.7 Water system treatment**

When filling and restoring the system it is good practice to use water with:

- aspect: clear if possible
- pH: 6÷8
- hardness: < 25°f.

If the water characteristics are different from those indicated, it is recommended that a safety filter is used on the water delivery pipe to retain impurities, and a chemical treatment system to protect against possible deposits and corrosion which could affect boiler operation.

If the systems are only low temperature systems, it is recommended that a product is used to prevent the development of bacteria.

In any case, please refer to and comply with Legislation and specific Technical Standards in force.

**2.8 Boiler installation**

**ADAX 20 T** boilers leave the factory with a paper template for installation onto a solid wall.

For installation:

- position the paper template (1) on the wall (2) where the boiler is to be mounted
- make the holes and insert the expansion plugs (3)
- hook the boiler onto the plugs.

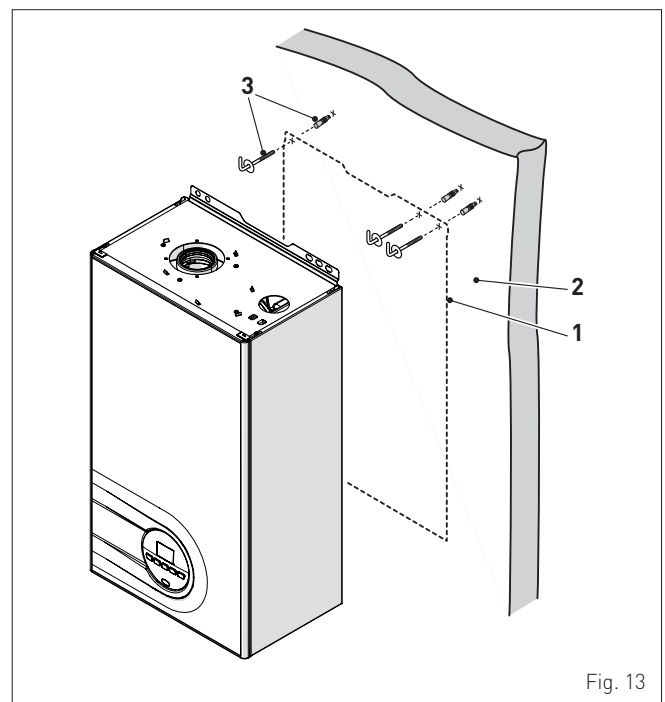


Fig. 13



**CAUTION**

- The height of the boiler is to be such that disassembly and maintenance interventions are facilitated.

**2.9 Hydraulic connections**

The plumbing connections have the following characteristics and dimensions.

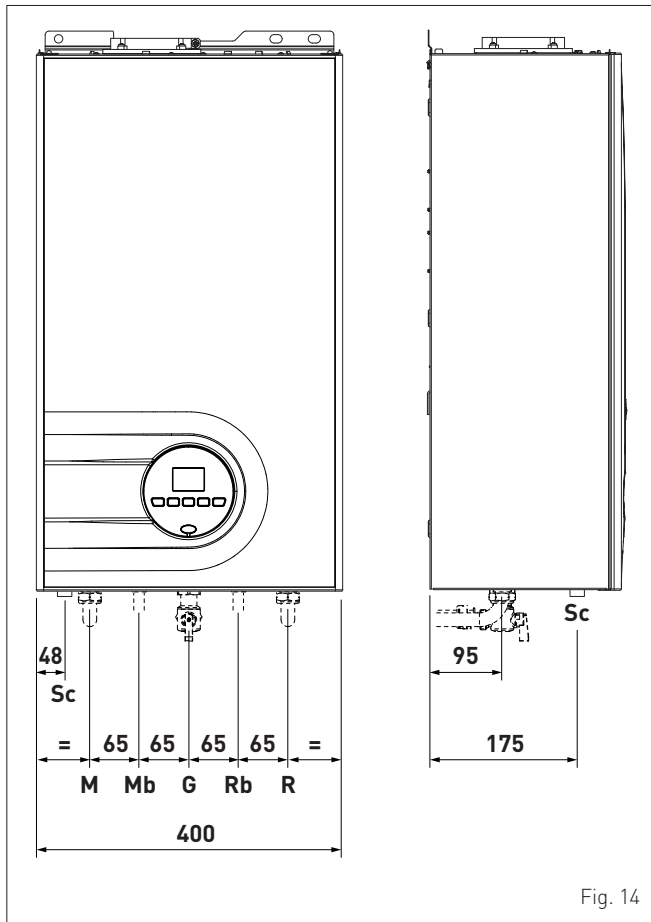


Fig. 14

Description	ADAX 20 T
M - System delivery	Ø 3/4" G
R - System return	Ø 3/4" G
Mb - Hot water tank delivery	Ø 3/4" G
Rb - Hot water tank return	Ø 3/4" G
G - Gas supply	Ø 3/4" G
Sc - Condensate outlet	Ø 20 mm

**2.9.1 Plumbing accessories (optional)**

To facilitate plumbing and gas connections to the systems, the accessories as shown in the table below are available and are to be ordered separately from the boiler.

DESCRIPTION	CODE
Installation plate	8075441
Cocks kit	8091820
Wall mount replacement kit for other makers	8093900
Fitting protection Kit	8094530
Polyphosphate dosing kit	8101700
Dosing recharge kit	8101710

**NOTE:** kit instructions are supplied with the accessory itself or are to be found on the packaging.

**2.10 Condensate outlet/collection**

- In order to collect the condensate, it is recommended that:
- the appliance condensate outlets and the smoke outlet are ducted
  - a neutralising device is prearranged
  - the outlet incline is >3%.



**CAUTION**

- The condensate outlet duct must be airtight, suitably sized to that of the siphon and must not be restricted at any point.
- The condensate outlet must be constructed in full compliance of the National or Local regulations in force.
- Before commissioning the appliance, fill the siphon with water.

**2.11 Gas supply**

ADAX 20 T boilers leave the factory prearranged for gas G20 and can also work with G31 without the need for any type of mechanical conversion. Simply select parameter "03" (see "Parameter setting and display") and set the type of gas to be used.

If changing the type of gas to be used, carry out the entire appliance "COMMISSIONING" phase.

Boiler connection to the gas mains must be carried out in full compliance with installation Standards in force.

Perform the following checks before making the connection:

- check that the boiler is compatible with the type of gas supply
- the pipes are clean
- the gas supply pipe is the same dimension as or greater than that of the boiler fitting (G3/4") and with a load loss less than or equal to that contemplated between the gas mains and the boiler.



**DANGER**

Once installation has been completed, check that the joints are air tight as indicated in the installation Standards.



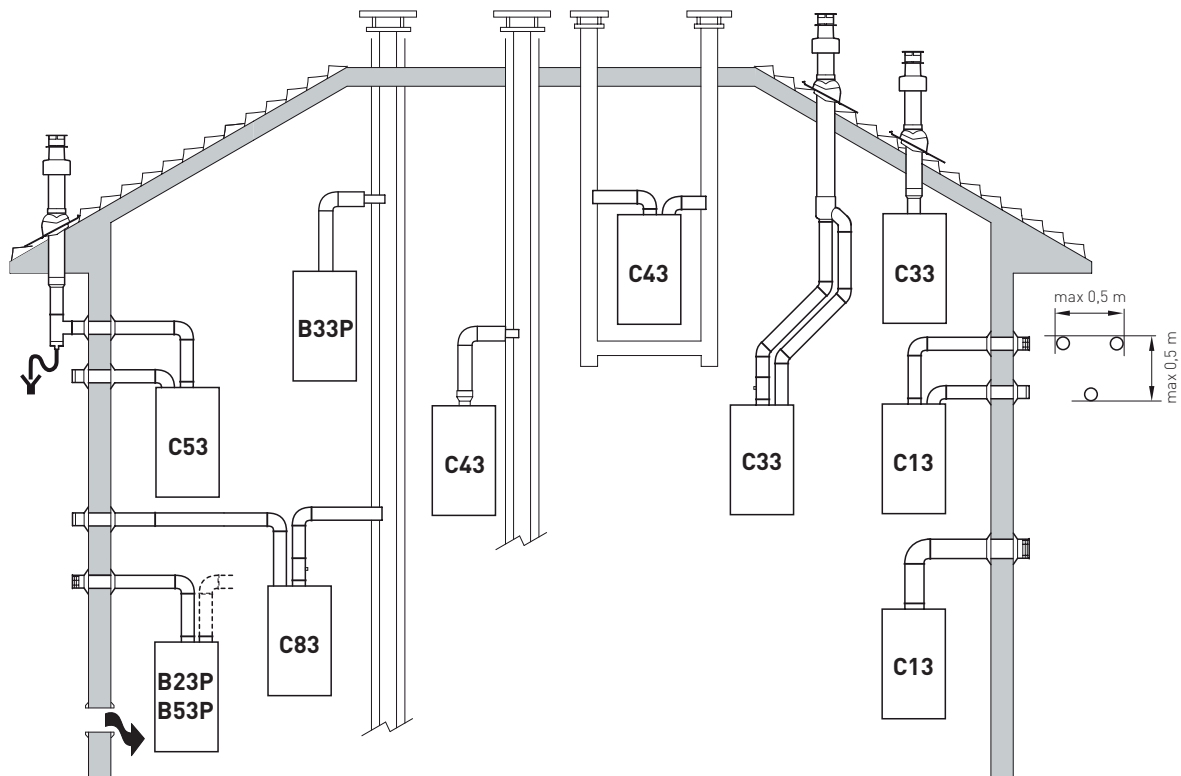
**CAUTION**

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

## 2.12 Smoke outlet and combustion air inlet

ADAX 20 T boilers must be equipped with appropriate smoke flue ducts and combustion air inlet ducts. These ducts are considered an integral part of the boiler and are provided by KOVARSON as an accessory kit, to be ordered separately from the appliance on the basis of the type permitted and the system requirements.

### Permitted outlets



#### B23P-B53P

Combustion air inlet into the atmosphere and smoke outlet to open air.

#### B33P

Combustion air inlet into the atmosphere and smoke outlet into single flue.

**NOTE:** opening for combustion air (6 cm<sup>2</sup> x kW).

#### C13

Concentric wall smoke outlet The pipes can start from the boiler but the outlets must be concentric or close together (no more than 50 cm) to be subject to similar wind conditions.

#### C33

Concentric roof smoke outlet The pipes can start from the boiler but the outlets must be concentric or close together (no more than 50 cm) to be subject to similar wind conditions.

#### C43

Outlet and inlet in shared or separate flue pipes but subjected to similar wind conditions.

#### C63

Same type as C42 but with outlet and inlet made from pipes which are sold and certified separately.

#### C53

Separate wall or roof inlet and outlet in different pressure areas.

**NOTE:** the inlet and outlet must never be positioned on opposing walls.

#### C83

Outlet in single or shared flue or with inlet on wall.

**P:** smoke outlet system designed to operate with positive pressure.

Fig. 15



### 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.
- 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.

### 2.12.1 Coaxial duct (Ø 60/100mm and Ø 80/125mm)

#### Coaxial accessories

Description	Code	
	Ø 60/100 mm	Ø 80/125 mm
Coaxial duct kit	8096250	8096253
Extension W. 1000 mm	8096150	8096171
Extension W. 500 mm	8096151	8096170
Vertical extension W. 140 mm with smoke analysis take-off point	8086950	-
Adapter for Ø 80/125 mm	-	8093150
Additional 90° curve	8095850	8095870
Additional 45° curve	8095950	8095970
Tile with joint	8091300	8091300
Roof outlet terminal W. 1284 mm	8091205	8091205

#### Load loss - Equivalent lengths

Model	Leq (linear metres)	
	Ø 60/100 mm	Ø 80/125 mm
90° curve	1,5	2
45° curve	1	1

#### Minimum-Maximum Lengths

Model	Duct Length Ø 60/100				Duct Length Ø 80/125			
	W Horizontal (m)		H Vertical (m)		W Horizontal (m)		H Vertical (m)	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
ADAX 20 T	-	6	1,3	8	-	12	1,2	15

### 2.12.2 Separate ducts (Ø 60mm and Ø 80mm)

Constructing outlets for separate ducts indicates the use of the "air-smoke split pipe system". This is to be ordered separately from the boiler and when connected to the other accessories, from those listed in the table below, completes the smoke-outlet/ combustion air inlet assembly.

#### Separate accessories

Description	Code	
	Diameter Ø 60 (mm)	Diameter Ø 80 (mm)
Air-smoke split pipe system (without take-off point)	8093060	-
Air-smoke split pipe system (with take-off point)	-	8093050
90° curve M-F (6 pieces)	8089921	8077450
90° curve M-F (with take-off point)	8089924	-
M-F 80/60 reduction	8089923	-
Extension W. 1000 mm (6 pieces)	8089920	8077351
Extension W. 500 mm (6 pieces)	-	8077350
Extension W. 135 mm (with take-off point)	-	8077304
Wall outlet terminal	8089541	8089501
Internal and external ring nut kit	8091510	8091500
Inlet terminal	8089540	8089500
45° curve M-F (6 pieces)	8089922	8077451
Collector	8091400	
Tile with joint	8091300	
Roof outlet terminal W. 1390 mm	8091204	
Inlet/outlet fitting Ø 80/125 mm	-	8091210

### Split pipe system

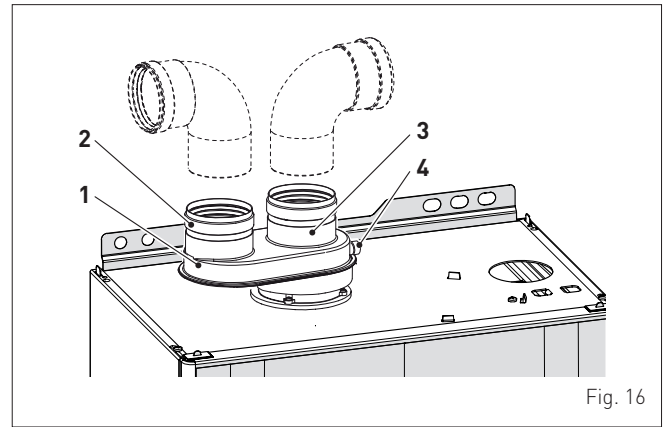


Fig. 16

#### KEY:

- 1 Split pipe system with take-off point
- 2 Air inlet
- 3 Smoke outlet
- 4 Flue gas analysis socket



#### CAUTION

- The maximum total length of the ducts, obtained by adding the lengths of the inlet and outlet pipes, is determined by the load losses of the individual accessories used and **must not exceed 15 mm H2O (for ducts Ø 80mm and Ø 60mm)**.
- The total extension must not in any case exceed **25 m (inlet) + 25 m (outlet), for ducts Ø 80 mm, and 6 m (inlet) + 6 m (outlet) for ducts Ø 60 mm**, even if the total load loss is less than the maximum which can be applied.

#### Load loss accessory Ø 60 mm

Description	Code	Load loss (mm H2O)	
		ADAX 20 T	
		Inlet	Drain
Air/smoke split pipe system	8093060	2,5	0,5
90° curve MF	8089921	0,4	0,9
45° curve MF	8089922	0,35	0,7
Horizontal extension W. 1000 mm	8089920	0,4	0,9
Vertical extension W. 1000 mm	8089920	0,4	0,6
Wall outlet terminal	8089541	-	1,2
Wall inlet terminal	8089540	0,5	-
Roof outlet terminal (*)	8091204	0,8	0,1

(\*) The losses of the roof outlet terminal at inlet include the manifold code 8091400.

**NOTE:** for the boiler to operate correctly it is necessary that a minimum distance of 0.50 m of the duct is respected with a 90° inlet curve.



### Load loss accessory Ø 80 mm

Description	Code	Load loss (mm H2O)	
		ADAX 20 T	
		Inlet	Drain
90° curve MF	8077450	0,20	0,25
45° curve MF	8077451	0,15	0,15
Horizontal extension W. 1000 mm	8077351	0,15	0,15
Vertical extension W. 1000 mm	8077351	0,15	0,15
Wall terminal	8089501	0,10	0,25
Roof outlet terminal (*)	8091204	0,80	0,10

(\*) The losses of the roof outlet terminal at inlet include the manifold code 8091400.

**NOTE:** for the boiler to operate correctly it is necessary that a minimum distance of 0.50 m of the duct is respected with a 90° inlet curve.

Example: calculation of the load loss of a **ADAX 20 T** boiler (ducts Ø 80 mm).

Accessories Ø 80 mm	Code	Quantity	Load loss (mm H2O)		
			Inlet	Drain	Total
Extension W. 1000 mm (horizontal)	8077351	7	7 x 0,15	-	1,05
Extension W. 1000 mm (horizontal)	8077351	7	-	7 x 0,15	1,05
90° curve	8077450	2	2 x 0,20	-	0,40
90° curve	8077450	2	-	2 x 0,25	0,50
Wall terminal	8089501	2	0,10	0,25	0,35
<b>TOTAL</b>					<b>3,35</b>

(installation permitted since the total of the load loss of the accessories used is less than **15 mm H2O**).

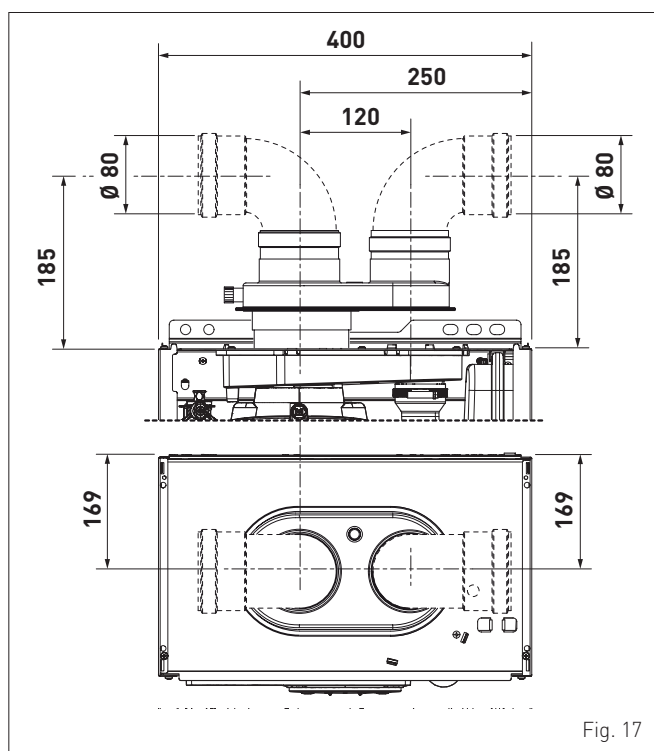


Fig. 17

### 2.13 Electrical connections

The boiler is equipped with a ready wired power cable which is to be connected to a 230V-50 Hz network.

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

Therefore only the connections of the original components as shown in the table are needed. These are to be ordered separately from the boiler.

DESCRIPTION	CODE
External sensor kit ( $\beta=3435$ , NTC 10KOhm at 25°C)	8094101
Power cable [dedicated]	6323875
Remote control HOME (open therm)	8092280
Remote control HOME PLUS (open therm)	8092281



#### CAUTION

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



#### DANGER

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.

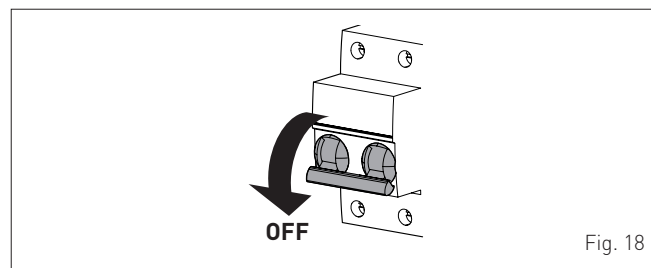


Fig. 18

To facilitate introduction of the connection wires of the optional components into the boiler:

- remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it

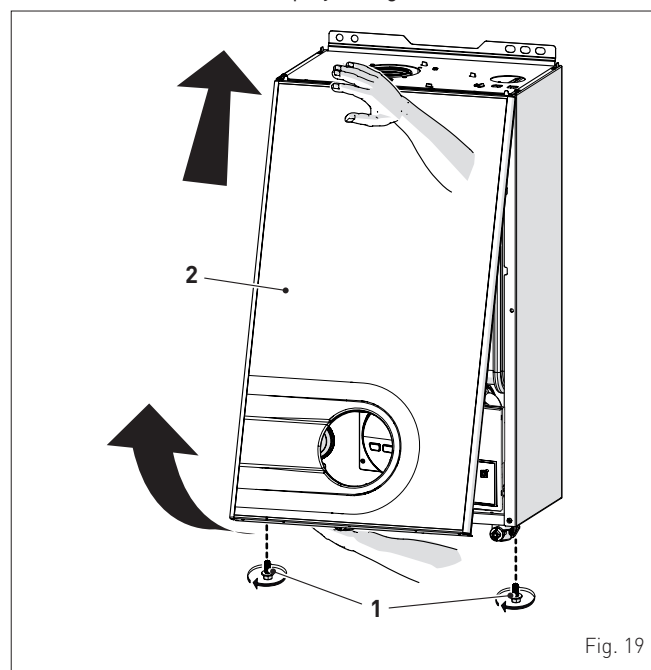


Fig. 19

- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal

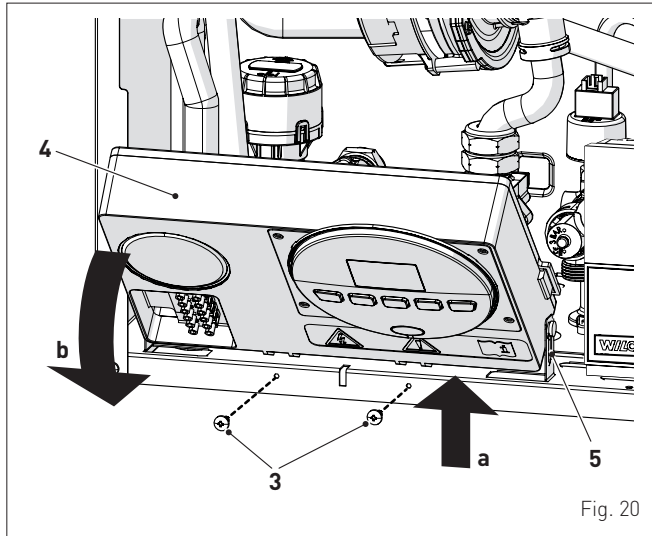


Fig. 20

- insert the connection wires into the cable gland (6) and the opening (7) on the control panel

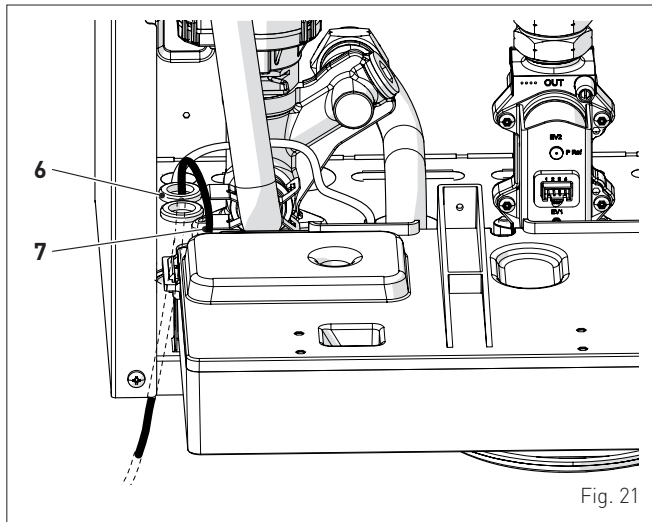


Fig. 21

- bring the control panel (4) to the original position and secure it with the screws (3) which were removed previously
- connect the component wires to the terminal board (8) following the indications provided on the data plate (9).

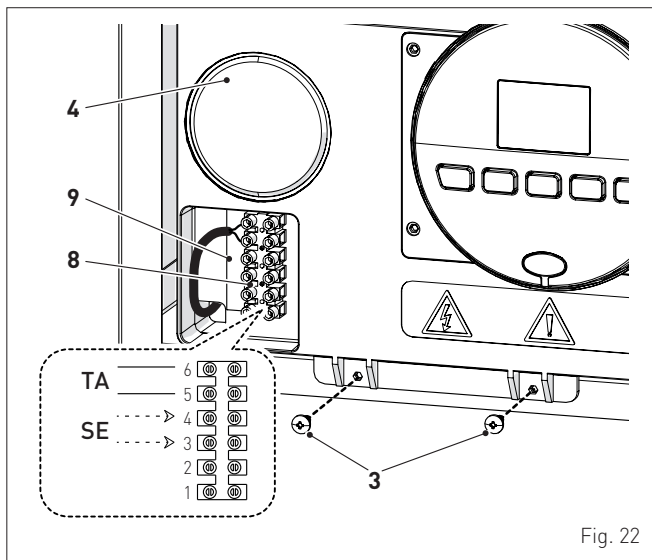


Fig. 22



**CAUTION**

The following is mandatory:

- to use an omnipolar cut-off switch, disconnect switch in compliance with EN Standards
- 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
- to connect the earth wire to an effective earthing system (\*)
- that before any intervention on the boiler, the mains power is disconnected by setting the main system switch to "OFF".

(\*) 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.



**IT IS FORBIDDEN**

To use water pipes for earthing the appliance.

**2.13.1 Outdoor sensor**

The boiler is prearranged for connection to an external air temperature sensor and can operate with a sliding temperature. This means that the delivery temperature sent to the boiler can vary on the basis of the external temperature depending on the climatic curve selected from those shown in the diagram (Fig. 23).

When fitting the sensor on the outside of the building, follow the instructions provided on the packaging of the product itself.

**Climatic curve**

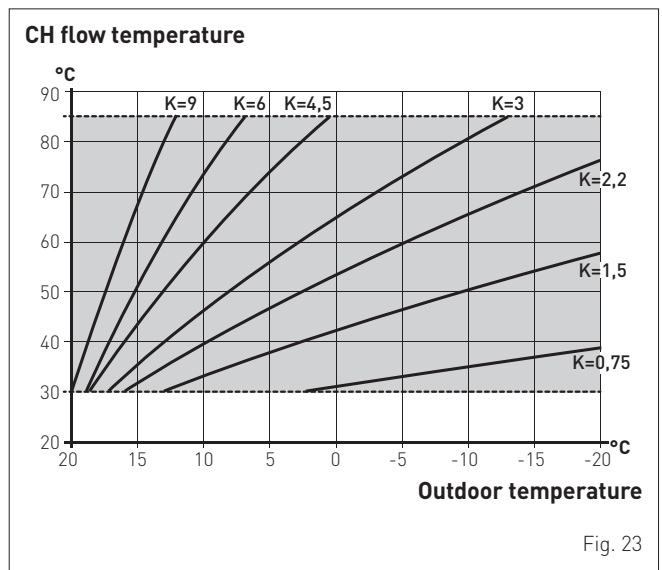



Fig. 23



**CAUTION**

If there is an external sensor, in order to select the optimal climatic curve for the system and therefore the delivery temperature based on the external temperature:

- press the button  for 1 second
- press buttons + or - until the required curve K has been selected (within the range K=0.0 - K=9.0).

### 2.13.2 Chrono-thermostat or Air Thermostat

The electrical connection of the chrono-thermostat or air thermostat has already been described. When fitting the component in the room where the readings are to be taken, follow the instructions provided on the packaging of the product itself.

### 2.13.3 EXAMPLE of use of the command/control device on some types of heating systems

**KEY**

- M System delivery
- R System return
- Mb Hot water tank delivery
- Rb Hot water tank return
- CR Remote control
- EXP Expansion card
- SE Outdoor sensor
- SB Boiler sensor
- TA-TA3 Air thermostat for the zone
- VZ1-VZ3 Zone valves
- RL1-RL3 Zone relays
- P1-P3 Zone pump
- SP Hydraulic separator

**ONE DIRECT ZONE system and REMOTE HOT WATER TANK, external sensor and air thermostat or, alternatively, remote control.**

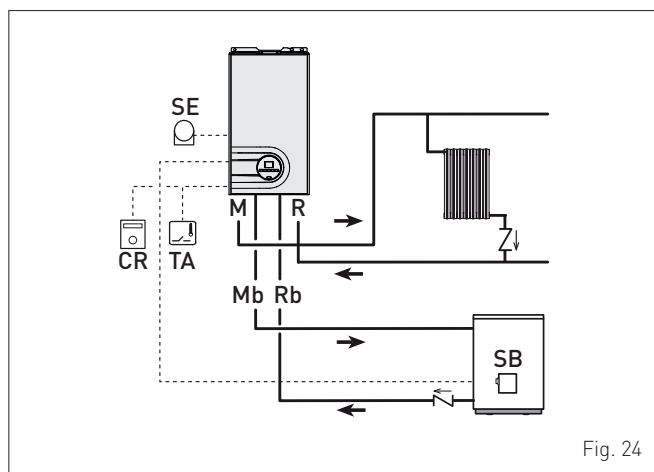


Fig. 24



**CAUTION**

The boiler is pre-arranged for connection to a remote hot water tank. To use the boiler for HEATING ONLY:

- disconnect the hot water tank sensor (SB)
- set "PAR 02 = HYDRAULIC CONFIGURATION" to 1. This operation must only be carried out by Professionally Qualified Personnel during the boiler commissioning phase.

### ONE DIRECT ZONE system, external sensor and air thermostat.

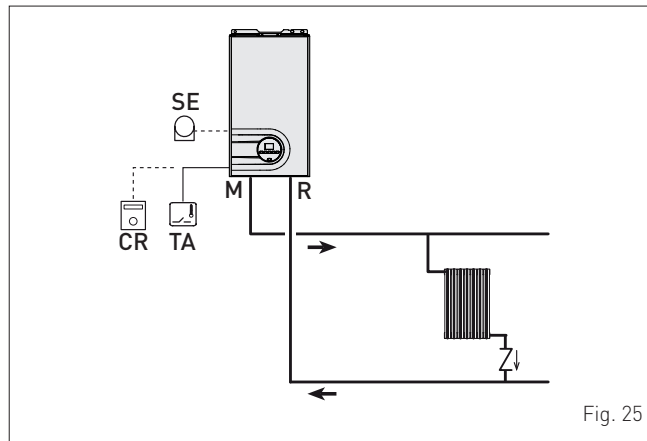


Fig. 25

### MULTI ZONE system - with pump, air thermostat and external sensor.

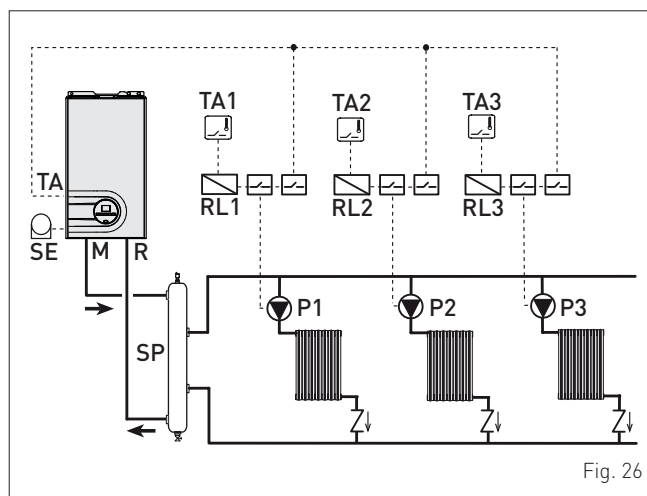


Fig. 26

### MULTI ZONE system - with zone valve, air thermostat and external sensor.

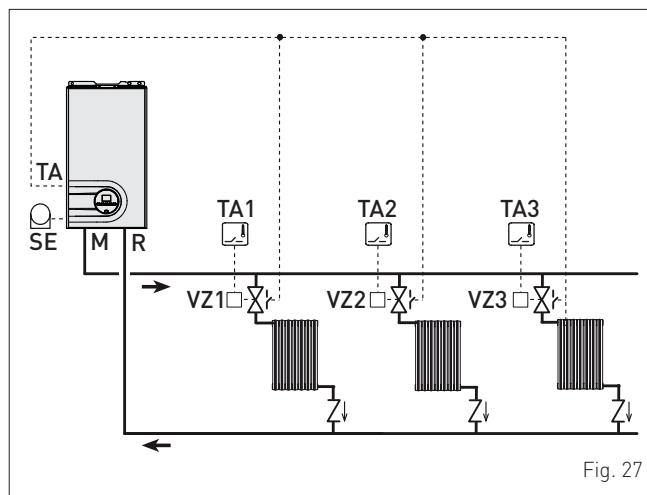



Fig. 27

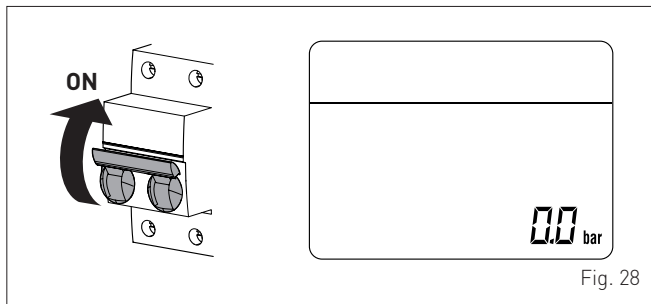


**CAUTION**

Set the parameter "tS 17 = DELAY SYSTEM PUMP ACTIVATION" to allow the opening of zone valve Vz.

## 2.14 Refilling or emptying

Before carrying out the operations described below, make sure that the main system switch is set to "ON" in order for the display to show the pressure level in the system during refilling. **Make sure that the operating mode is set to "Stand-by"**; if this is not the case, press the button  for at least 1 second until this mode has been selected.

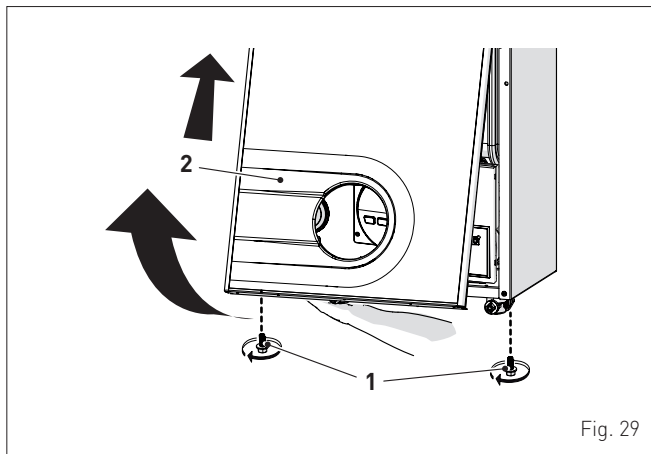


### 2.14.1 REFILL operations

The ADAX 20 T boilers are not equipped with a filling valve which must be prearranged on the system return.

#### Remove the front panel:

- remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it.

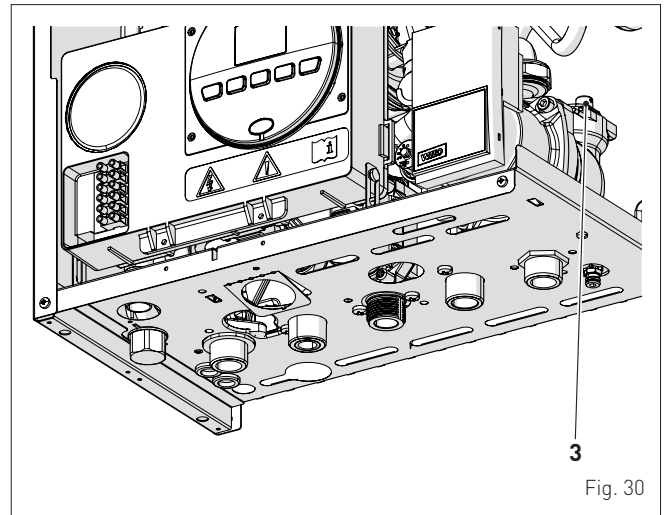


#### Domestic hot water circuit (storage tank):

- open the isolation valves of the domestic hot water circuit (if present)
- open one or more than one hot water valve to fill and bleed the domestic hot water circuit
- once bleeding has been completed, close the hot water valves.

#### Heating circuit:

- open the isolation and air bleeding valves in the highest points of the system
- loosen the automatic bleed valve (3)
- open the isolation valves of the heating circuit (if present)
- open the filling valve, which is to be prearranged on the system return, and fill until the pressure reaches 1-1.2 bar as shown on the display
- close the filling valve
- check that there is no air in the system by bleeding all the radiators and the circuit on the high points of the system



**NOTE:** to completely remove all air from the system, it is recommended that this operation is repeated a number of times.

- check the pressure on the display and if necessary top up until the correct pressure reading appears
- close the automatic bleed valve (3)
- fill the siphon disconnecting it from the pipe or using (by means of) the smoke take-off point.

Refit the front panel of the boiler hooking it on at the top, pushing it forwards and securing it with the screw (1) which was removed previously.

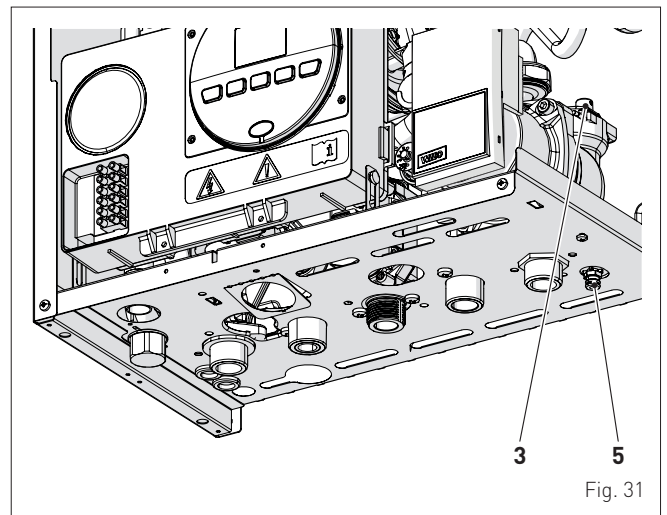
### 2.14.2 EMPTYING operations

#### Domestic hot water circuit (storage tank):

- close the domestic hot water circuit isolation valve (prearranged in installation)
- open the drain valve prearranged on the storage tank or the system.

#### Boiler:

- loosen the automatic bleed valve (3)
- close the heating circuit isolation valves (prearranged in installation)
- check that the filling valve which was prearranged during installation is closed
- connect a rubber hose to the boiler drain valve (5) and open it
- when it has fully emptied, close the drain valve (5)
- close the automatic bleed valve (3).



### 3 PUTTING INTO SERVICE

#### 3.1 Preliminary operations

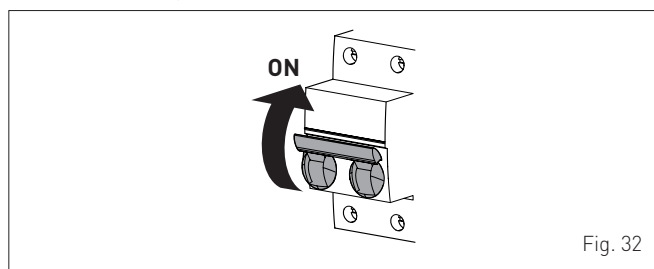
Before commissioning the appliance, check that:

- the type of gas is correct for the appliance
- the gas isolation valves for the heating system and the water system are open
- the pump impeller rotates freely
- the siphon has been filled.

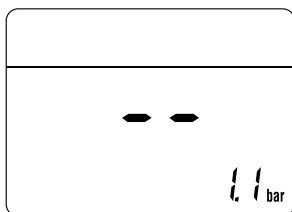
#### 3.2 Before commissioning


After having carried out the preliminary operations, perform the following to start the boiler:

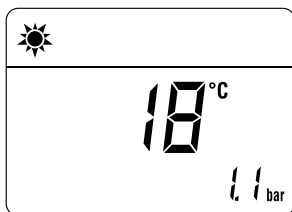
- set the main system switch to "ON"



- the type of gas for which the boiler has been calibrated, "nG" (methane) or "LG" (LPG,) will appear followed by the power. After this the correct representation of the symbols will be checked and finally "--" will appear on the display






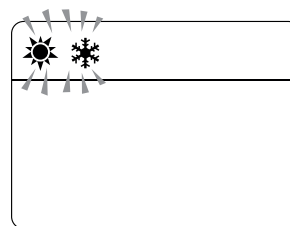
- check that the system pressure as shown on the pressure gauge when the system is cold, is between 1 and 1.2 bar
- press the button  once for at least 1 second to select "SUMMER mode". The value of the delivery sensor detected at that moment will appear on the display




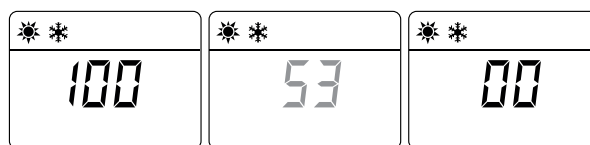
##### 3.2.1 Self-calibrating procedure


Carry out the "Automatic self-calibrating procedure" as follows:

- press button  and set the DOMESTIC HOT WATER SET to maximum using the button +
- press and hold down the buttons - and + at the same time for approximately 10 seconds until the flashing symbols  and  appear on the display




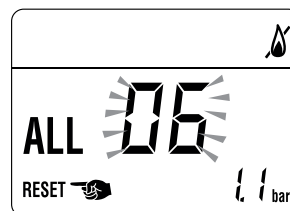
- as soon as the symbols begin to flash, release the buttons - and + and press the button , within 3 seconds
- the "Automatic self-calibrating procedure" starts
- open one or more than one hot water tap
- the values flash on the display: "100" (maximum value), followed by an "intermediate value" and finally "00" (minimum value)




The operator must wait for approximately 15 minutes for the "self-calibrating procedure" to end and the message "SUMMER mode"  to reappear on the display. Once the procedure has terminated:


- close the taps opened previously and check that the appliance shuts down.

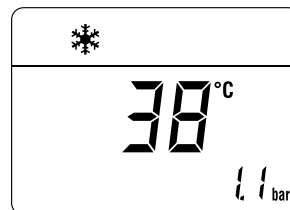
if there is a fault, the message "ALL" will appear on the display, the fault code (eg. "06" - no flame detected) and the message RESET .



#### CAUTION

To restore the start conditions press and hold the button  for more than 3 seconds. This operation can be performed up to a maximum of 6 times without the "self-calibrating procedure" being interrupted.

- press the button  once for at least 1 second to select "WINTER mode". The value of the heating water temperature detected at that moment will appear on the display

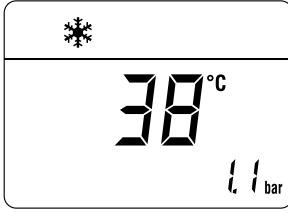




- adjust the air thermostat and check that the boiler starts and operates correctly
- carry out the procedure "Chimney sweep function", to check the mains gas pressure, detect the combustion parameters and to measure the combustion efficiency required by legislation in force.

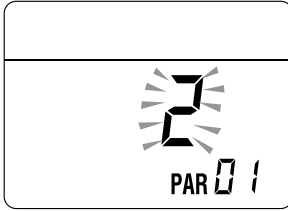
### 3.3 Parameter setting and display



To go into the parameter menu:


- from the selected mode (eg. WINTER)





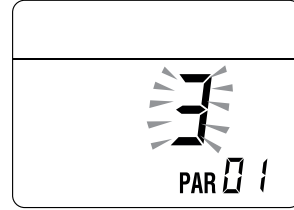
- press the buttons  and  (for approximately 5 seconds) at the same time until "PAR 01" (parameter number) and the value set (0÷4) appears on the display





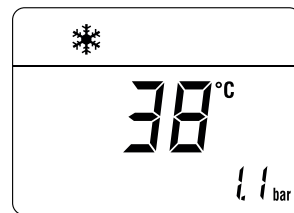
- press the button  to scroll up the list of parameters and then  to scroll down the list

**NOTE:** holding the buttons  or  increases the speed of the scrolling movement.

- once the required parameter has been reached, press the buttons  or  to modify the value within the permitted range. The modifications are stored automatically.



When all the parameter modifications have been made, exit the parameter menu by pressing and holding down the buttons  and  all at the same time for at least 5 seconds until the initial screen is displayed.

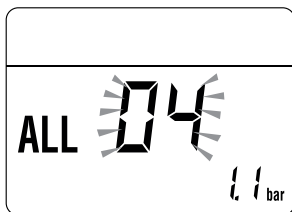


### 3.4 List of parameters

Type	Nr.	Description	Range	U/M	Step	Default
<b>CONFIGURATION</b>						
PAR	01	Index showing boiler power in kW 0 = 20T	-	-	-	0
PAR	02	Hydraulic configuration 0 = rapid 1 = storage tank with thermostat or heating only 2 = hot water tank with sensor 3 = two programmer 4=instant with solar power input 5 = open vent	0 .. 5	-	1	2
PAR	03	Gas Type Configuration 0 = G20; 1 = G31	0 .. 1	-	1	0
PAR	04	Combustion configuration 0 = sealed chamber with combustion control	-	-	-	0
PAR	08	External sensor value correction	-5 .. +5	°C	1	0
PAR	09	Ignition fan speed	80 .. 160	RPMx25	1	128
<b>DOMESTIC HOT WATER - HEATING</b>						
PAR	10	Boiler Antifreeze Threshold	0 .. +10	°C	1	3
PAR	11	External Sensor Antifreeze Threshold -- = Disabled	-9 .. +5	°C	1	-2
PAR	12	Heating Curve Incline	0 .. 80	-	1	20
PAR	13	Minimum Heating Temperature Adjustment	20 .. PAR 14	°C	1	20
PAR	14	Maximum Heating Temperature Adjustment	PAR 13 .. 80	°C	1	80
PAR	15	Maximum power heating	0 .. 100	%	1	100
PAR	16	Heating Post-Circulation Time	0 .. 99	seconds x 10	1	3
PAR	17	Heating Pump Activation Delay	0 .. 60	seconds x 10	1	0
PAR	18	Re-ignition Delay	0 .. 60	Min	1	3
PAR	19	Domestic Hot Water Modulation with Flow meter 0 = Disabled 1 = Enabled	0 .. 1	-	1	1
PAR	20	Maximum power domestic hot water	0 .. 100	%	1	100
PAR	21	Minimum power heating/domestic hot water (premixed)	0 .. 100	%	1	0
PAR	22	Domestic hot water preheating enabling 0 = OFF; 1 = ON	0 .. 1	-	1	0
PAR	23	External relay 1 function 0 = not used; 1 = remote alarm NO; 2 = remote alarm NC; 3 = zone valve; 4 = automatic filling; 5 = external request; 6 = recirculation pump; 7 = zone valve with OT; 8 = relaunch pump	0 .. 8	-	-	0

Type	Nr.	Description	Range	U/M	Step	Default
<b>CONFIGURATION</b>						
PAR	24	External relay 2 function 0 = not used; 1 = remote alarm NO; 2 = remote alarm NC; 3 = zone valve; 4 = automatic filling; 5 = external request; 6 = recirculation pump; 7 = zone valve with OT; 8 = relaunch pump	0 .. 8	-	-	0
PAR	25	Auxiliary TA function 0 = according to TA 1 = TA Antifreeze 2 = domestic hot water disabled	0 .. 2	-	1	0
PAR	26	Zone Valve / Pump Relaunch Delay	0 .. 99	Min	1	1
PAR	28	DHW activation delay with solar power	0 .. 30	Min	1	0
PAR	29	Anti-legionella Function (Only hot water tank) -- = Disabled	50 .. 80	-	1	--
PAR	30	Maximum domestic hot water temperature	35 .. 67	°C	1	60
PAR	35	Digital / analogue Pressure switch 0 = water pressure switch 1 = water pressure transducer 2 = water pressure transducer (only pressure displayed)	0 .. 2	-	1	1
PAR	40	Modulating Pump Speed	-- = No modulation AU = Automatic 30 .. 100	%	10	AU
PAR	41	ΔT Modulating pump delivery/Return	10 .. 40	%	1	20
PAR	47	System pump forcing (only in winter mode) 0 = Disabled 1 = Enabled	0 .. 1	-	1	0
<b>RESET</b>						
PAR	48	INST Parameter set to default	0 .. 1	-	-	0

In the event of a fault/malfunction the message "ALL" will appear on the display with the alarm number eg. "ALL 04" (Domestic Hot Water Sensor Fault).



Before repairing the fault:

- disconnect the appliance from the mains power by setting the main switch to "OFF"

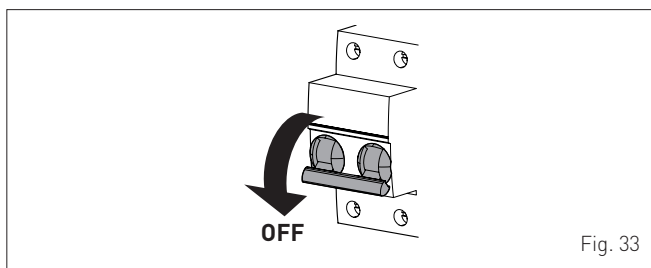


Fig. 33

- as a precautionary measure, close the gas isolation valve.

Repair the fault and start-up the boiler again.

**NOTE:** after having repaired the fault, when the alarm number appears on the display together with the message **RESET** (see figure), press the button **OR** for approximately 3 seconds to start the appliance up again.

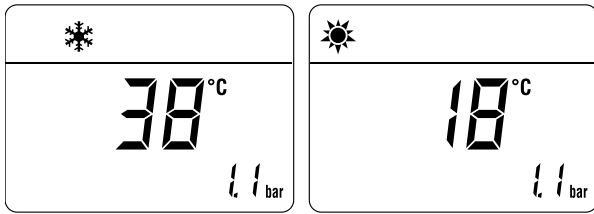
### 3.5 Fault / malfunction codes

Type	Nr.	Description
ALL	02	Low water pressure in system
ALL	03	High water pressure in system
ALL	04	Domestic hot water sensor fault
ALL	05	Delivery sensor fault
ALL	06	No flame detection
ALL	07	Safety thermostat intervention
ALL	08	Fault in the flame detection circuit
ALL	09	No water circulating in the system
ALL	10	Auxiliary sensor fault
ALL	11	Gas valve modulator disconnected
ALL	12	Incorrect configuration of the open /sealed chamber
ALL	13	Flue gas thermostat tripped
ALL	14	Smoke probe fault
ALL	15	Fan check cable disconnected
ALL	18	Condensate level fault
ALL	28	Maximum number of consecutive releases
ALL	37	Fault due to low network voltage
ALL	40	Incorrect network frequency detected
ALL	41	Flame loss more than 6 consecutive times
ALL	42	Button fault
ALL	43	Open Therm communication fault
ALL	62	Self-calibrating procedure is required
ALL	72	Incorrect positioning of the delivery sensor
ALL	81	Block due combustion during start-up
ALL	83	Irregular combustion (temporary error)
ALL	96	Block due to clogging in smoke outlet

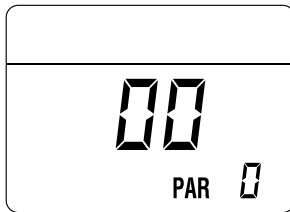
### 3.6 Display of operating data and counters

Once the boiler is operating a qualified technician can view the operating data and the counters as follows:

- from the operating screen in the mode enabled at that moment (WINTER ❄️ or SUMMER ☀️)

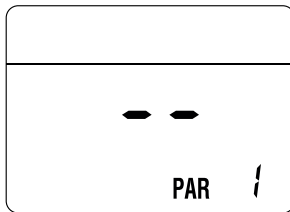


- go into "DISPLAY" by pressing the buttons and at the same time for more than 3 seconds until the following screen appears

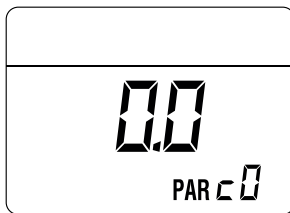


From this point, the technician has 2 options:

- scroll through the list of "information (PAR)" and "counters (PARc)" by pressing the button . Scrolling will be in sequence

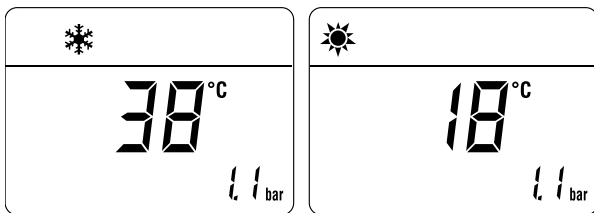


- display the "activated alarms" (no more than 10) by pressing the button



- Once in this section, proceed with button or .

When all the values have been displayed, exit the menu by pressing and holding down the button for approximately 5 seconds until the initial screen is displayed.



### TABLE OF INFORMATION DISPLAYED

Type	Nr.	Description	Range	U/M	Step
PAR	00	SW version			
PAR	01	External sensor	- 9 .. 99	°C	1
PAR	02	Delivery sensor temperature	- 9 .. 99	°C	1
PAR	03	Smoke probe	- 9 .. 99	°C	1
PAR	04	Domestic hot water sensor temperature	- 9 .. 99	°C	1
PAR	05	AUX auxiliary sensor	- 9 .. 99	°C	1
PAR	06	Actual heating SET temperature	Par. 13 ... Par. 14	°C	1
PAR	07	Power level	0 .. 99	%	1
PAR	08	Flow meter rate	0 .. 99	l/min	0.1
PAR	09	Water pressure transducer reading	0 .. 99	bar	0.1
PAR	10	Display of current fan revolutions	0 .. 99	RPM x 100	1

### TABLE OF COUNTER DISPLAYED

Type	Nr.	Description	Range	U/M	Step
PAR	c0	total no. of boiler operating hours	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
PAR	c1	total no. of burner operating hours	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
PAR	c2	total no. of burner ignitions	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
PAR	c3	total no. faults	0 .. 99	x 1	1
PAR	c4	total no. of times installer parameters "ALL" accessed	0 .. 99	x 1	1
PAR	c5	total no. of times OEM parameters accessed	0 .. 99	x 1	1
PAR	c6	time until next maintenance intervention	1 .. 199	months	1

### TABLE OF ACTIVATED ALARMS/FAULTS

Type	Nr.	Description
PAR	A0	Last activated alarm/fault
PAR	A1	Last but one activated alarm/fault
PAR	A2	Third from last activated alarm/fault
PAR	A3	Previous activated alarm/fault
PAR	A4	Previous activated alarm/fault
PAR	A5	Previous activated alarm/fault
PAR	A6	Previous activated alarm/fault
PAR	A7	Previous activated alarm/fault
PAR	A8	Previous activated alarm/fault
PAR	A9	Previous activated alarm/fault



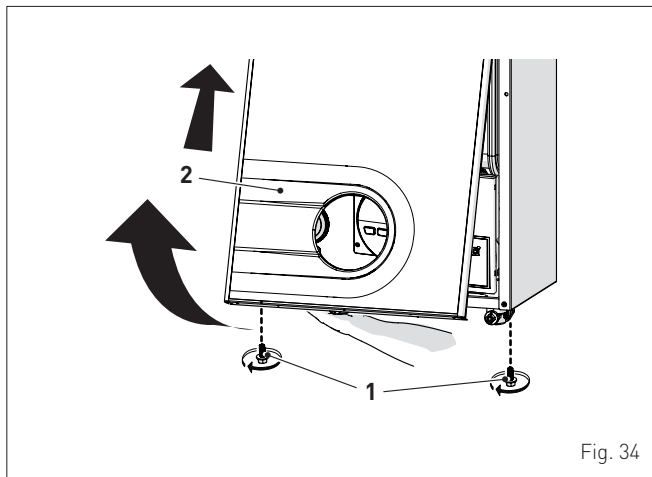
### 3.7 Checks

#### 3.7.1 Chimney sweep function

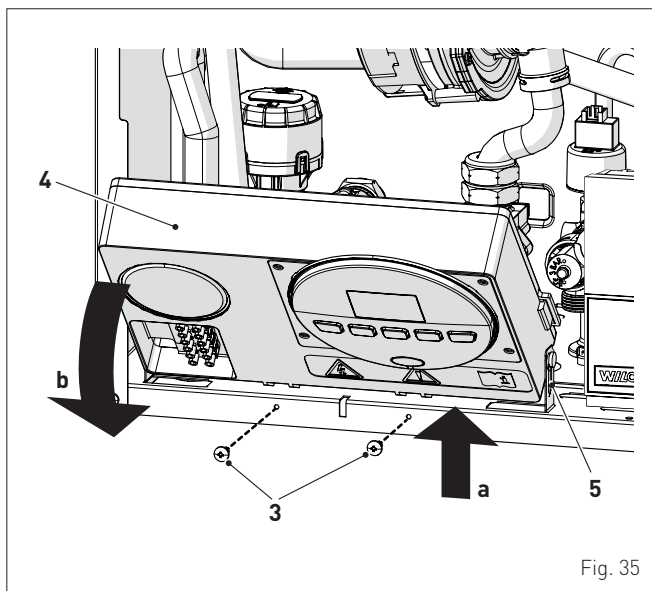
The chimney sweep function is used by the qualified maintenance technician to check the mains gas pressure, detect the combustion parameters and to measure the combustion efficiency required by legislation in force.

This function lasts 15 minutes and is activated by proceeding as follows:

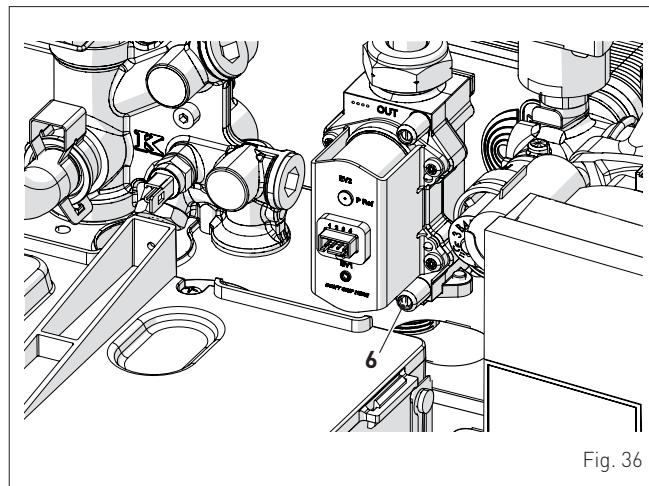
- if the panel (2) has not already been removed, remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it



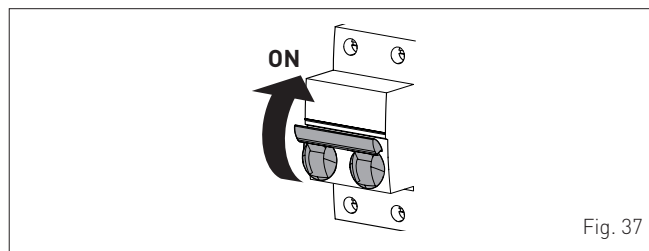
- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal









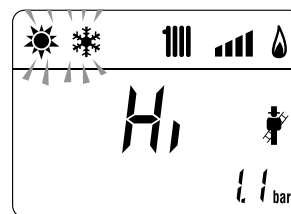
- close the gas valve
- loosen the screw of the "mains pressure" point (6) and connect a pressure gauge







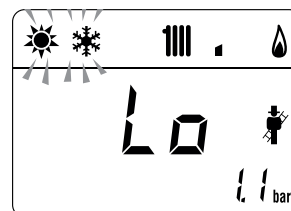
- open the gas valve
- power the boiler by setting the main switch to "ON"



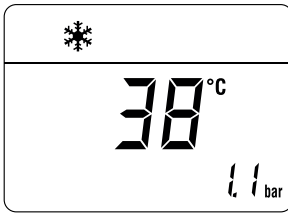
- press the button  for at least 1 second until "SUMMER" mode  has been selected
- press and hold down the buttons  and  at the same time for approximately 10 seconds until the message "Hi" appears on the display together with the flashing symbols  and 



- press the button  to make the boiler operate at maximum power "Hi" and check that the mains gas pressure value on the pressure gauge is correct. Take a reading of the combustion data and measure the combustion efficiency.
- press the button  to make the boiler operate at minimum power "Lo". The message "Lo" will appear on the display together with the flashing symbols  and 



- take the combustion data reading
- press the button **OR** to exit the "Chimney sweep Procedure".  
The boiler water delivery temperature will appear on the display



- disconnect the pressure gauge, carefully close the pressure point (6), put the control panel back to the original position and refit the front panel (2).

#### Gas supply pressure

Type of gas	G20	G31
Pressure (mbar)	20	37

### 3.8 Gas conversion

**ADAX 20 T** models can work with G20 or G31 without the need for any mechanical conversion. Simply select parameter "**PAR 03**" (see "**Parameter setting and display**") and set the type of gas to be used.

If changing the type of gas to be used, carry out the entire appliance "**COMMISSIONING**" phase.

## 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

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



#### DANGER

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.

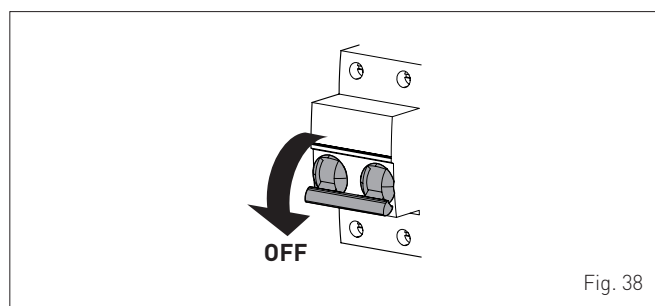


Fig. 38

### 4.2 External cleaning

#### 4.2.1 Cleaning the cladding

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



#### IT IS FORBIDDEN

to use abrasive products.

### 4.3 Cleaning the inside of the appliance

#### 4.3.1 Removing components

To access the internal parts of the boiler:

- remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it

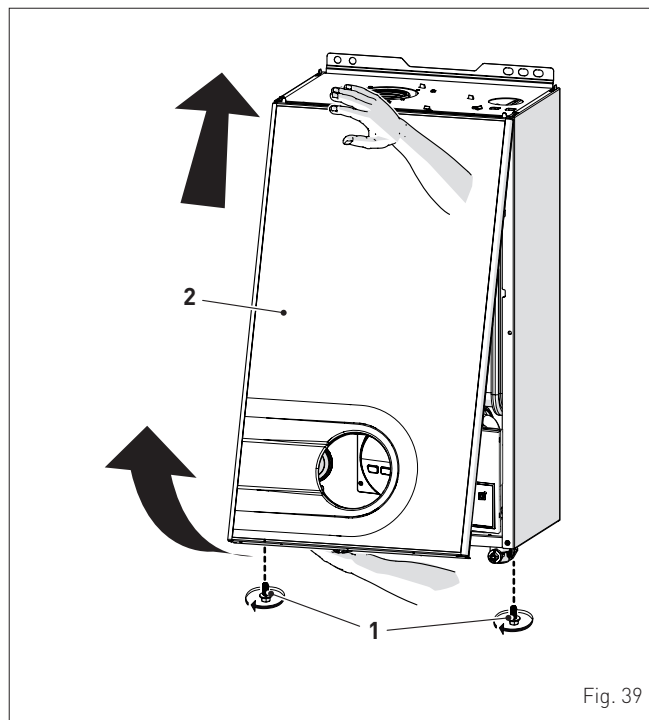


Fig. 39

- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal

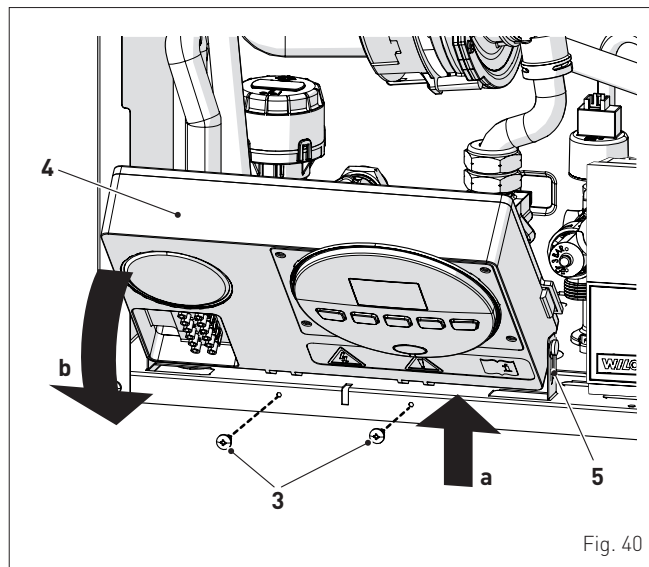


Fig. 40

- loosen the clips (6) and extract the air inlet pipe (7)
- unscrew the swivel joint (8)
- extract the connectors (9) from the fan and disconnect the electrode cable (10)

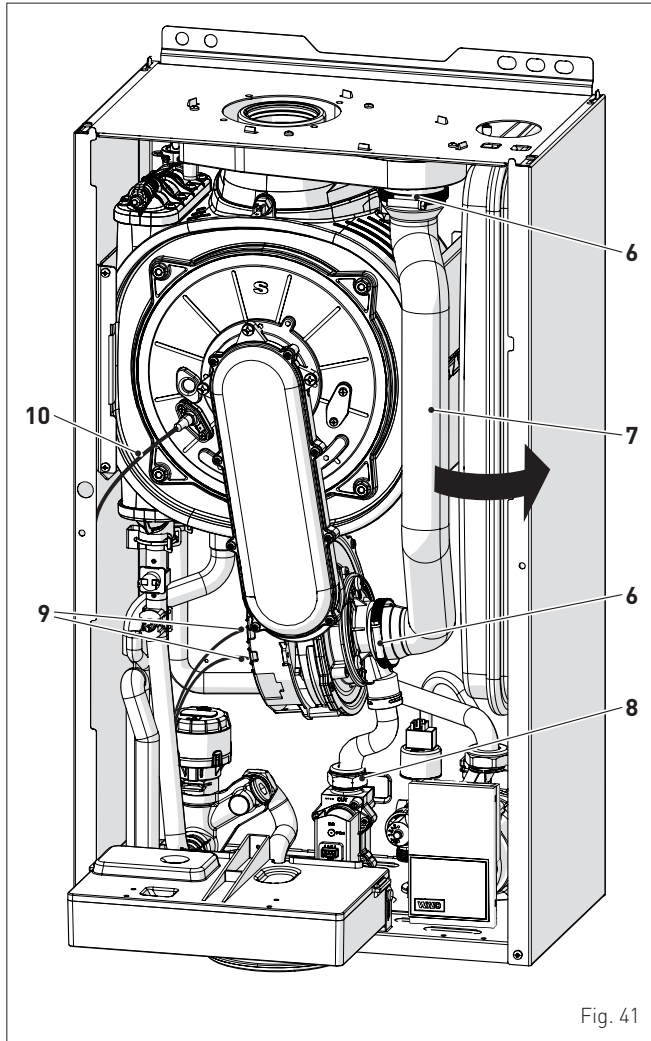


Fig. 41

- Unscrew the four nuts (11) securing the combustion chamber door (12)
- pull the fan-sleeve-door assembly (13) forwards and remove it.

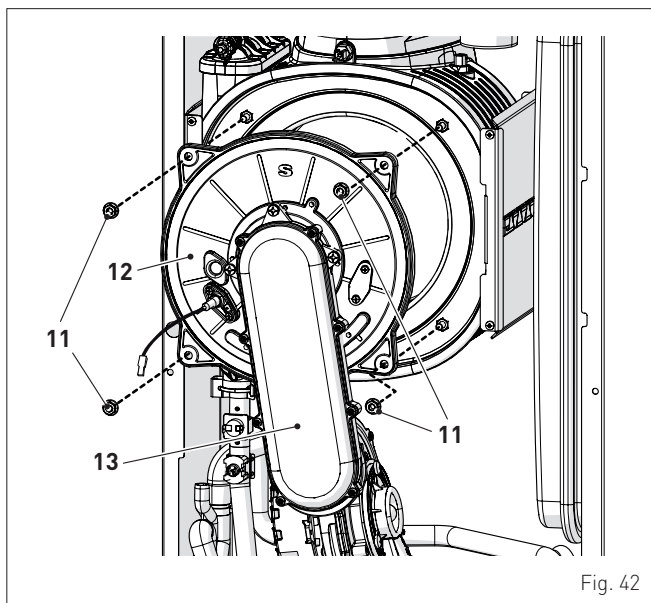


Fig. 42



### CAUTION

Work carefully when removing the assembly (13) to prevent any damage occurring to the internal insulation of the combustion chamber and the door seal.

#### 4.3.2 Cleaning the burner and the combustion chamber

The combustion chamber and the burner do not require any particular maintenance. Simply brush them with a soft brush.

#### 4.3.3 Checking the ignition/detection electrode

Check the state of the ignition/detection electrode and replace if necessary. Check the measurements as per the drawing whether the ignition/detection electrode is replaced or not.

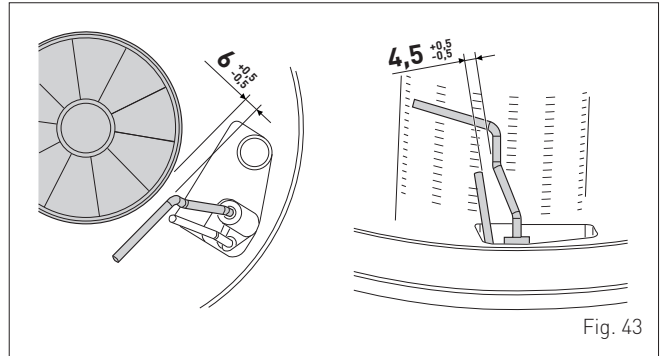


Fig. 43

#### 4.3.4 Final operations

After having cleaned the combustion chamber and the burner:

- remove any carbon residue
- check that the seal and the insulation of the door (12) to the combustion chamber are integral. Replace if necessary
- refit the assembly by carrying out the same operations for removal but in the reverse order and tighten the screws (11) of the door to the combustion chamber
- reconnect the connections to the fan and the electrode.

### 4.4 Checks

#### 4.4.1 Checking the smoke duct

It is recommended that the user checks that the combustion air inlet duct and smoke outlet duct are integral and airtight.

#### 4.4.2 Checking the expansion vessel pressure

It is recommended that the expansion vessel on the water side is drained and that the prefilling pressure is not less than **1 bar**. If this is not the case, pressurize it to the correct value (see section **Expansion tank**).

Once the checks described above have been completed:

- refill the boiler as described in section **"REFILL operations"**
- check that the siphon has been filled correctly
- activate the **"Chimney sweep function"** and carry out a smoke analysis and/or measure the combustion efficiency
- refit the front panel securing it with the two screws which were removed previously.

## 4.5 Unscheduled maintenance

If replacing the **electronic board**, the user **MUST** set the parameters as indicated in the table.

Type	Nr.	Description	Setting
PAR	01	Index showing boiler power in kW 0 = 20T	0
PAR	02	Hydraulic configuration 0 = rapid 1 = storage tank with thermostat or heating only 2 = hot water tank with sensor 3 = two programmer 4=instant with solar power input 5 = open vent	2
PAR	03	Gas Type Configuration 0 = G20; 1 = G31	0 or 1

To enter "**Parameter setting and display**" refer to the indications provided in the specific section.

Once the parameters in the table have been set, you must carry out the entire phase of "**Self-calibrating procedure**" described in the specific section.

If the **gas cock** and/or the **ignition/detection electrode**, and/or the **burner**, and/or the **fan** are replaced, the user must still carry out the entire phase of "**Self-calibrating procedure**" described in the specific section.

## 4.6 Troubleshooting

### LIST OF MALFUNCTION/FAULT ALARMS

Type	Nr.	Fault	Solution
ALL	02	Low water pressure in system	- Restore pressure - Check for any leaks in the system
ALL	03	High water pressure in system	- Empty the system via the drain valve on the hydraulic assembly and bring the pressure to approximately 1.2 bar
ALL	04	Domestic hot water sensor fault	- Check connections - Replace the sensor
ALL	05	Delivery sensor fault	- Check connections - Replace the sensor
ALL	06	No flame detection	- Check the integrity of the electrode and check that it is not grounded - Check gas availability and pressure - Check the integrity of the gas valve and the card
ALL	07	Sensor or safety thermostat intervenes	- Check the sensor or thermostat connections - Deaerate the system - Check the bleed valve - Replace the sensor or the thermostat - Check that the pump impeller is not blocked
ALL	08	Fault in the flame detection circuit	- Check the integrity of the electrode and check that it is not grounded - Check gas availability and pressure - Check the integrity of the gas valve and the card

Type	Nr.	Fault	Solution
ALL	09	No water circulating in the system	- Check the rotation of the system pump impeller - Check the electrical connections - Replace the pump
ALL	10	Auxiliary sensor fault	- Check PAR 02 "hydraulic configuration" - Check the electrical connection
ALL	11	Gas valve modulator disconnected	- Check the electrical connection
ALL	12	Incorrect configuration of the open /sealed chamber	- Set the parameter PAR 04 (Combustion configuration) to 0
ALL	13	Flue gas thermostat tripped	- Replace the smoke probe - Contact the Technical Assistance Centre
ALL	14	Smoke probe fault	- Replace the smoke probe - Check the electrical connection of the smoke probe, if the problem is not resolved, contact the Assistance Centre
ALL	15	Fan check cable disconnected	- Check the connection cable between the fan and the board
ALL	18	Condensate level fault	- Check for any clogging in the pipe which takes the condensate to the siphon - Check that the siphon is not clogged
ALL	28	Maximum number of consecutive resets reached	- Contact the Technical Assistance Centre
ALL	37	Fault due to low network voltage.	- Check with tester - Contact network provider (ENEL)
ALL	40	Incorrect network frequency detected	- Contact network provider (ENEL)
ALL	41	Flame loss more than 6 consecutive times	- Check the detection electrode - Check the gas supply (open valve) - Check mains gas pressure
ALL	42	Button fault	- Check that buttons are working
ALL	43	Open Therm communication fault	- Check the electrical connection of the remote control
ALL	62	Self-calibrating procedure is required	- Carry out the self-calibrating procedure (see the specific section)
ALL	72	Incorrect positioning of the delivery sensor	- Check that the delivery sensor is attached to the delivery pipe
ALL	81	Block due to combustion during start-up	- Check for blockage in chimney - Bleed the air from the gas circuit
ALL	83	Irregular combustion (temporary error)	- Check for blockage in chimney
ALL	96	Block due to clogging in smoke outlet	- Check for blockage in chimney
-	-	Frequent relief valve intervention	- Check circuit pressure - Check expansion vessel
-	-	Limited production of domestic hot water	- Check the diverter valve - Check that plate heat exchanger is clean - Check domestic hot water circuit valve

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