Meridian
CONDENSING

5.24 and 5.32 N3V

CONDENSING GAS – FIRED WALL MOUNTED STAINLESS STEEL BOILER Heating only or with external tank and Solar System

INSTRUCTIONS FOR INSTALLATION

OPERATING AND MAINTENANCE

AUSTRALIAN VERSION

For Sales and Service contact;

AGENT

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WARNING

Before filling the heating system , new or existing, is necessary to check that it will be clean and there will be not impurity and/or residual and then let in a suitable inhibitor

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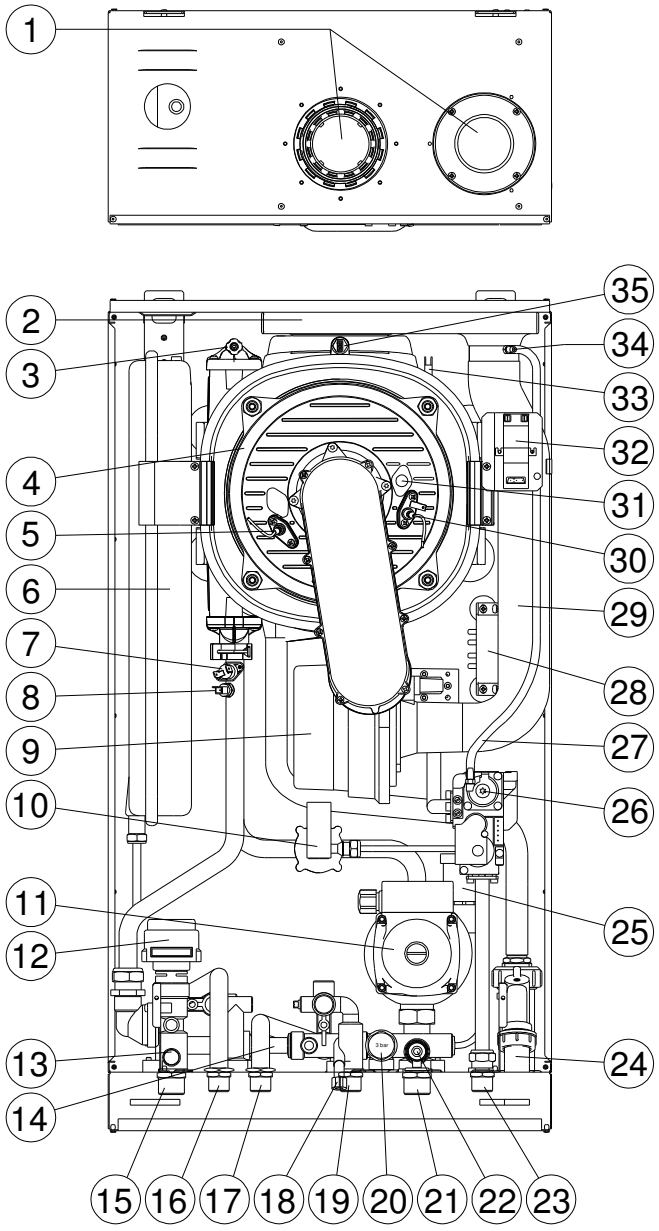
BOILER DIAGRAM AND LEGEND MERIDIAN 5.24 e 5.32 N3V



	1)Flue /air outlet ducts
	2)Air combustion duct
	3)Manual vent tap
	4) Burner
	5)Ionisation electrode
	6)Expansion vessel
	7)Safety thermostat
	8)Flow temperature sensor
	9)Fan
	10)Differential pressure switch
	11)Circulator
	12)Three way valve
	13)attack water gauge bulbous
	14)by pass heating circuit
	15)CH flow
	16)Flow tank
	17)Tank return
	18)water fill
	19)cool water inlet
	20)safety valve
	21)heating back
	22)drainage tap
	23)gas inlet
	24)trap condense drainage
	25)automatic air vent
	26/gas valve
	27)signal compensation silicone pipe
	28)supply transformer 24V
	29)wrinkled air inlet duct
	30)Ignition electrode
	31)Led burner
	32)Ignitor
	33)safety flue thermofuse
	34)plug for compensation pipe
	35)flue temperature sensor
36)function mode selector	39)Display
37)Sanitary temperature regulation	40)Manometer
38)heating temperature regulation	41)temperature boiler tank

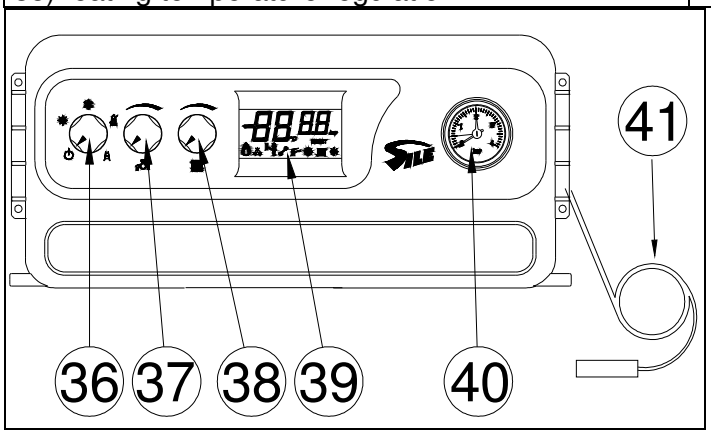
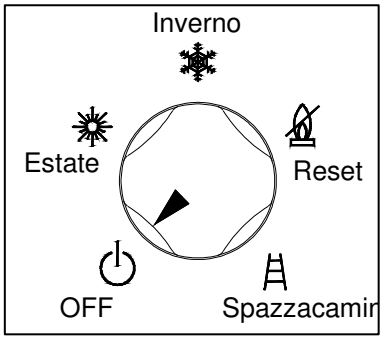
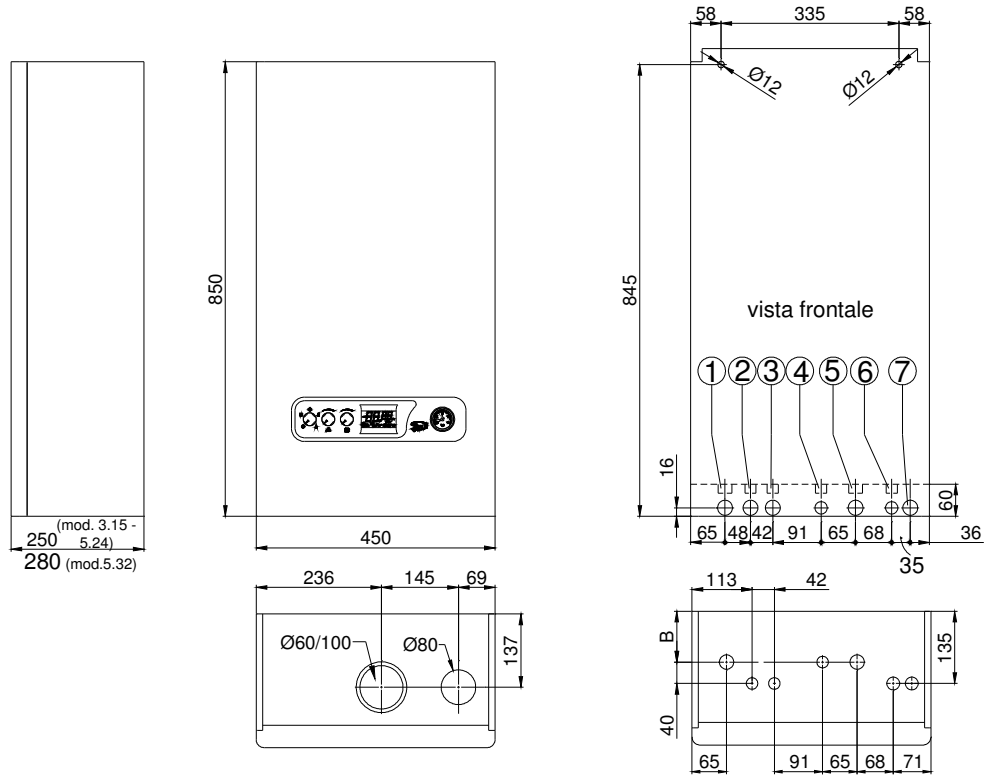


Fig.1

Particular selector functions 36) with meaning symbol



CHARACTERISTICS, DIMENSIONS AND TEMPLATES



1)CH flow ¾\“ 2)Flow tank 3/4 3)Flow tank 3/4 “ 4)Cool inlet
5)CH return 3/4“ 6)Gas inlet 1/2“ 7)Condense drain

MERIDIAN N3V	HEAT INPUT		HEAT OUTPUT 80℃ FLOW 60℃ RETURN	HEAT OUTPUT 50℃ FLOW 30℃ RETURN	MIN HEAT INPUT		MIN HEAT OUTPUT	
					Nat Gas	Propane Gas	Nat Gas	Propane Gas
	kW	MJ/hr						
5.24	26.6	96	23.4	27	5.5	-	5.0	-
5.32	33.3	120	29.4	33	6.7	9.0	6.0	7.9

Tab 1

	INLET GAS PRESSURE		FLUE TEMPERATURE	FLUE GAS VOLUME MAX	WATER VOLUME	EXPANSION VESSEL	WEIGHT DRY
	Natural	Propane	℃	kg/hr	l	l	kg
5.24	1.1	-	77	50.3	3.5	10	42
5.32	1.1	2.75	77	37.7	3.5	10	42

Tab 2

	Boiler Water Volume	Inlet Gas Pressure kPa	
	L	NATURAL	PROPANE
5.24	3.5	1.1	-
5.32	3.5	1.1	2.75

1 USER INSTRUCTIONS

1.1 General warnings.

This instruction Booklet constitutes an integral and essential part of the product. Make sure that it is always left near the appliance. Please, read carefully the advice and warnings contained in this section as they provide important indications on the boiler use.

IMPORTANT: This boiler has been design to produce water for heating and sanitary purposes at a temperature below boiling point at atmospheric pressure, in accordance with its technical features of performance and its power. It is strictly forbidden to use the equipment for other purposes.

The manufacturer cannot be held responsible for any damage caused by improper or unreasonable uses.

This gas equipment **shall be used following some fundamental requirements, such as:**

- do not touch the hot parts of the boiler, flue ducts, etc., which are overheated during operation. Any contact with these parts may cause serious burns;
- do not spray water or any inflammable liquids;
- do not leave any object on the boiler;
- do not leave any container with inflammable liquids where the boiler is installed;
- do not carry out cleaning in the boiler room when it is in use (alcohol, gasoline, etc.);
- in case of gas smell do not turn on switches or any device which may generate sparks; open all doors and windows so as to let air circulate; close the gas valve, above all the main valve of the meter; call our Technical After-Sales Service Department.

Warning. The use of any component which is electrically supplied requires the close observance of certain fundamental rules, such as:

- do not pull the wiring or leads;
- do not leave the apparatus exposed to atmospheric agents;
- do not touch the apparatus with parts of the body which are wet or damp and/or in bare feet;
- do not allow any children to use the boiler nor any person who is not qualified with the necessary technical ability and knowledge in the heating system sector.

Warning: Servicing shall be carried out only by authorised personnel.
The appliance is unsuitable for use as a pool heater.

Identification of functions enabled
This boiler can heat rooms and if required can heat a remote tank. If the hot sanitary water is not produced by remote tank, selector 37 of fig. 1 is not available. When in doubt contact Automatic Heating After-Sales Service Department.

1.2 First start-up.

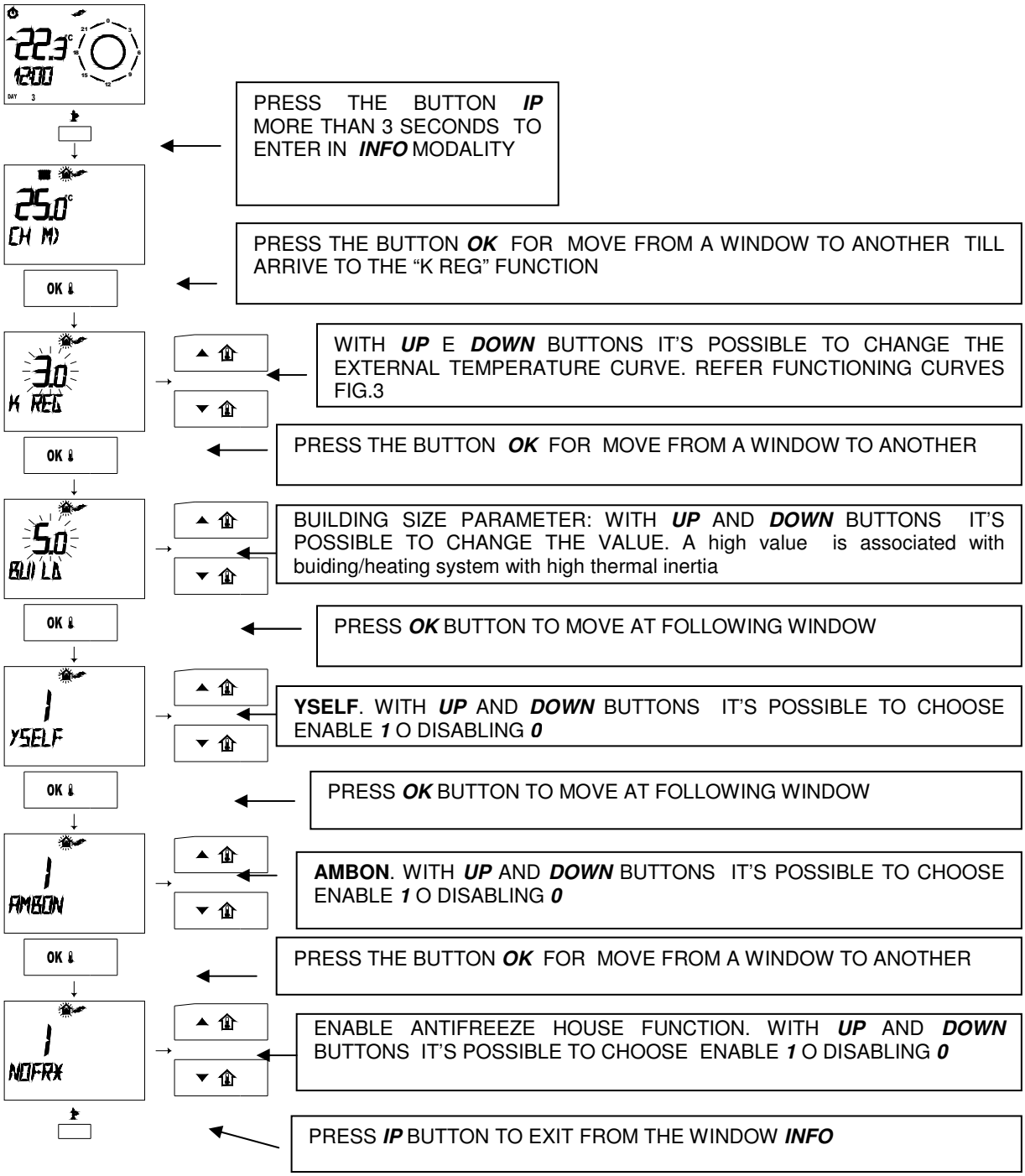
Before the first start-up, please check that the system is properly filled with water and that it has pressure 1 ÷ 1.3 bar, then proceed as follows:

- open the gas valve;
- turn the selector (36) on the only DHW function or on the DHW/CH function;
- **Our remote control operation (Optional RC).** When the selector is in winter position and the RC is connected, the temperature potentiometers on the boiler control board are excluded, and it will appear "EC" (External Control) written on the display. All the regulations can be carried out by the RC.
- **Operation without remote control**. With the selector on the DHW position the CH regulating potentiometer (38) is excluded and the temperature of the DHW is regulated by the DHW potentiometer (37):with the selector on the DHW/CH position the CH regulating potentiometer is enabled to regulate the temperature in the radiators (38), and it also keeps the DHW potentiometer functioning. Turning it clockwise makes the temperature increase, while turning anticlockwise it decreases.

From this moment the boiler is ready to operate automatically. A led (fig.4 pos.44) on the control panel shows that the burner is on. When the CH or DHW water potentiometers are turned, the display indicates the temperature chosen and at the same time LED's (50) on the display blink according to which potentiometer is operating.

External sensor (optional)
The external temperature sensor adjusts the temperature of the boiler according to the external temperature. Adjustment involves the possibility of choosing from curves that go from 0.5 to 6 with 0.1 steps. With advice from the installer or heat engineer who designed the system, the curve that behaves as closely as possible to the behaviour required in the apartment should be selected.
The curve is adjusted:

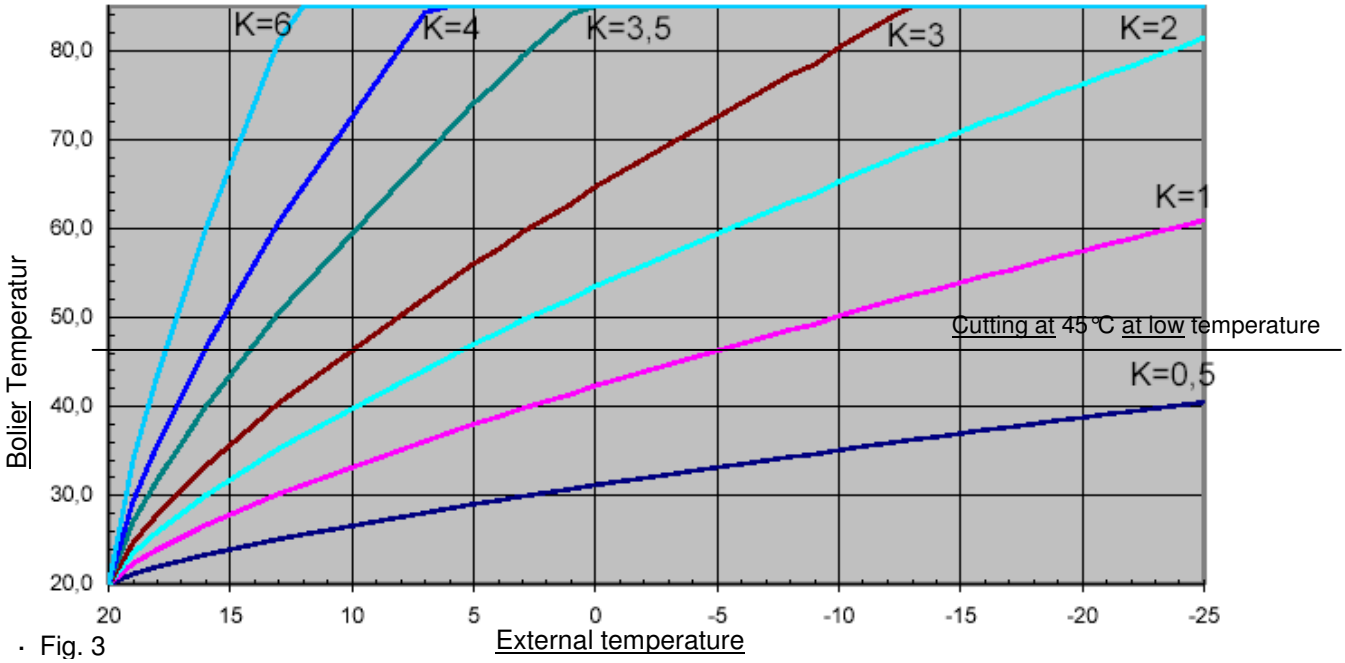
a) on the trimmer (41) if you have not purchased the remote control (optional) which adjusts the curve by ± 5°C and can therefore be used to easily optimise thermal comfort. The basic operating adjustment of the curve is effected by the installer/support service
b) Using the remote control if present see the following steps:



When using an external sensor, the flow temperature is automatically calculated according to the external temperature and the K coefficient that has been set. If you are also set the function YSELF the curve will be controlled and in case modified by algorithm inside of remote control in order to ensure optimal comfort and maximum energy savings.

If you put in action the YSELF function also the AMBON function must be activated.

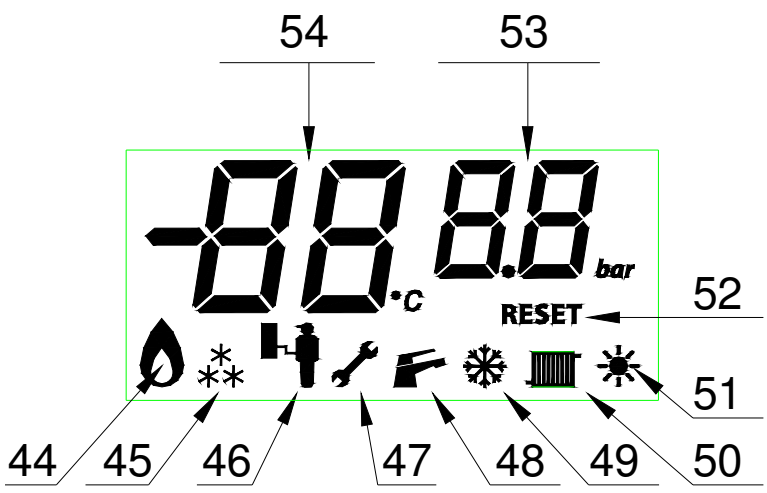
The AMBON function is integrated in the remote control.



· Fig. 3

N.B.: in systems with zones with different temperatures, the factor available with the low temperature room thermostat closed goes from 0.5 to 6 but the supply temperature is limited to 45°C whereas with a high temperature room thermostat request, it goes from 2.5 to 6 with a maximum temperature of 85°C.

1.3 Signals and diagnostics



The boiler display is a complete system with simple, intuitive information. An explanation follows:
Key:
44) Burner start-up
45) Activation of anti-freeze function
46) Activation of service function (for support service only)
47) Request for intervention/ resetting
48) Sanitary hot water request (if tank present)
49) Selector switch on “Winter”
50) Heating request
51) Selector on “Summer”
52) “Reset” request
53) Used only for “Service”
54) Temperature reading/Fault code

During normal operating, the digits in 54) indicate the flow temperature value.

During normal operating and in STAND-BY, the flow temperature is also displayed in large digits. The small digits are used by the installer or the maintenance technician for the menus.

If there is a fault, the fault code is displayed in flashing mode in large digits with the spanner symbol.

Table 4

code	fault	Type of block
F1	No start-up or no flame detected	Manual resetting is required
F2	Safety thermostat intervenes	Manual resetting is required
F5	Faulty supply sensor	It automatically resets if fault disappears
F7	Fault on flue gas sensor resistance	Fixed with automatic reset – signaling for 24 hours
F8	Faulty external probe	It automatically resets if fault disappears
F 10	Lack of water circulation on primary	It automatically resets if fault disappears
F11	Hydraulic pressure <0,5 bar into heat exchanger	It automatically resets if
F12	Faulty tank probe	It automatically resets if fault disappears
F 16	Faulty fan	It automatically resets if fault disappears
F26	Micro pressure water pasted	It automatically reset if fault disappears
F 30	Faulty solar collector probe	Maintenance technician is required
F 35	Faulty external tank	Solar system operates but the maintenance technician is required

The boiler codes, 1 and 2, can be reset by the user by selecting selector 39) in Fig. 1 in the reset position 

If the block persists, contact the Sile Service Centre.
A block with 10 code can be caused by a lack of water in the system, or from the circulating pump blocked or faulty. In The first case check that the system load pressure on the boiler pressure gauge is approximately 1÷1.3 bar; in the second contact the Sile Service Centre
For all remaining block codes that do not reset even after switching off the boiler and then switching it on again, contact the Sile Service Centre.

1.4 Boiler shutdown.

To shut down the boiler turn the selector to the position off  and turn the gas valve off. If the boiler is not used for long periods of time, always close the main gas supply tap and turn off the main power supply switch. In this mode antifreeze system remains active. For a complete turn off the power supply to disconnect from the outside boiler.

1.5 Operating of the solar system

(to be activated only if the Solar System 2 sensor kit has been installed)
The solar function can be activated in the summer and winter to integrate the sanitary hot water. It is activated using parameter 4 whose configuration mode is described in paragraph 3.2
If you only wish the solar mode to be activated, normally in the summer, you can select one of these configurations. Remember that parameter P4 must always be activated by selecting value 1 :

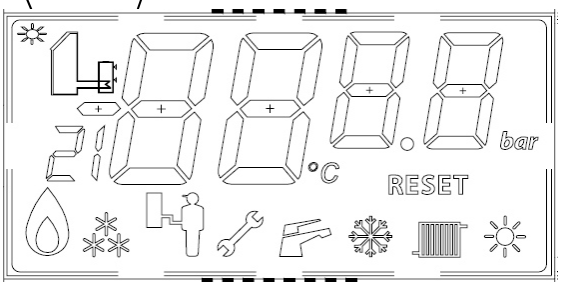
1. status selector (39 Fig. 5) = SUMMER or with status selector = OFF;
2. heating set point selector on minimum;

The board only works in solar mode.
In the solar only mode, any external burner start-up request (sanitary request) is deactivated whereas the anti-legionella and anti-freeze functions remain active.
In the “solar only” mode, the solar panel icon and collector temperature are shown on the display

N.B.: do not activate the solar system if the optional 2 sensor kit has not been installed because this may cause the system to malfunction and you may have to call the service centre to resume boiler operating

1 2

Fig. 10



Display in solar mode:

- When the solar function is activated, an icon lights up indicating the solar system
- For 10 s after activation of the solar pump, the temperature of the collector sensor is displayed in large digits and the temperature of the tank solar sensor (sanitary sensor) in small digits.

The solar system operates when the flat collector temperature is higher than the solar tank temperature as set in parameter 5 which defines the temperature differential between the collector and the boiler. When exceeded, the solar system circulator comes on. This parameter is adjusted as explained in paragraph 3.2.
If the differential is very low, between 5 and 10°C, the circulator will come on frequently to disperse the small amount of heat that has accumulated in the panels. With a differential of between 10 and 15°C, the circulator is activated less frequently because more time is needed to recreate the difference in temperature between the two devices. Even higher differentials should be avoided in the winter when solar radiation is limited and large differences in temperature are difficult to obtain. We recommend a differential of approximately 10-15°C which is a good compromise for the entire year. If this way, the setting made by your authorised installer will not need adjusting.

1.5. CH pressure regulation

Periodically check that the pressure of the heating system is about 1÷1.3 bar; if pressure is below 1 bar, when the boiler is cool, it is to be restored by cock placed in the boiler lower part.
After the operation close the block
If pressure reaches 3.0 bar, it may activate the safety valve (fig. 1 pos. 20). In this case, call our After-Sales Service. Please, do the same if pressure decreases frequently.

1.6 Periodical check-ups.

At the end of every heating period the boiler and its components, the external air duct (if present), the flue pipes and the condense drainage system are to be inspected by our authorised service centre in order to guarantee both the apparatus efficiency and the proper systems operations.

Careful maintenance is always a good safety and money saving measure**.**

1.7 Antifreeze feature.

The boiler is equipped with a standard antifreeze feature which activates the pump and the burner when the boiler temperature falls below 8°C and 6°C. It can be equipped with an optional DHW circuit antifreeze device. The antifreeze feature is guaranteed if the boiler is perfectly working, if it is not locked and it is electrically operated with the selector on the DHW or DHW/CH position. Before a long absence, please check that the system is completely emptied.

1.8 Definitive dismantling.

In the event of the boiler definitive dismantling, it is to be performed by qualified personnel. Make sure that also the electrical, hydraulic and fuel supplies are disconnected

1.9 Problems, causes and solutions.

The burner ignites but immediately locks out (code 1)	The burner does not ignite	The pump is noisy	The DHW is not very hot	The heating is not sufficient	Error code 10 on the display	Error code 1/2/5/6/7/8/12/16 on the display	⇐ **PROBLEMS** **CAUSES** **SOLUTIONS** ⇓ ⇓	
•							Air in the gas circuit	1
•							Gas supply suspension or large reduction in the circuit	2
	•						The boiler is blocked	3
	•			•			The selector is not set correctly	4
	•			•			The CH potentiometer is set on a too low temperature	5
	•			•			The room thermostat is off	6
	•			•			The room thermostat is set on a too low temperature	7
	•	•		•	•		Not enough water in the system	8
		•		•			Air in the system	9
			•				The DHW selector is set on a too low temperature	10
			•				The cold water temperature is too low	11
			•				Too large water drawings	11
				•			Continuous hot water drawings	12
•				•	•	•	Other problems	14

Table 4

SOLUTIONS

1) Wait for about 10 sec., then repeat ignition operations.
2) Turn off the gas tap and wait until gas supply returns before igniting.
3) Wait for 10 sec., then reset the system and turn selector 39) fig.1to correct position
4) Turn the selector (39 fig.1) to the correct position.
5) Set the CH regulation potentiometer (41 fig. 1) to 75°C.
6) Set the room thermostat to a higher temperature.
7) See point 6.
8) Add water using the heat system loading tap; remove air from the system(23 fig.1). De-aerate the system. Do not exceed 1 bar pressure indicated on the water gauge (43 fig.1). If pressure should decrease again, request service from our authorised service centre or from professionally qualified personnel to remove air from the system or to eliminate leakage.
9) See point 8.
10) Turn the DHW selector clockwise to a higher temperature.
11) The water drawing is too high, decrease it.
12) Wait for the DHW output to stop. Consider either solutions
13) Consult our authorised service centre or professionally qualified personnel

2 INSTALLER INSTRUCTIONS

2.1 Boiler installation

2.1.1 General rules

The boiler installation is intended to be fixed and it must be carried out by professionally qualified staff, according to the actual national and local law, following all the instructions and rules contained in this manual. The boiler shall be installed in a room free of corrosive steam.

After unpacking the boiler, ensure the integrity of the content: in doubt, do not use the apparatus and refer to the supplier. Packaging components (carton, foam, plastic bags, etc.) are potential hazards and should not be left within the reach of children.

In case of installation inside or between pieces of furniture, let sufficient space to carry out standard maintenance; we would suggest to leave a 3 cm interspace between the boiler case and the wall of the piece of furniture.

The boiler has been designed to produce hot water at a temperature below boiling point at atmospheric pressure. It must be connected to a CH system which is compatible with its power and technical features. It is strictly forbidden to use the equipment for other purposes.

Any other use is improper and therefore dangerous. The manufacturer cannot be held responsible for damages caused by improper or unreasonable use.

In the event of irregularities, defects or malfunctioning, deactivate the boiler and contact the Sile Service Centre. They will provide original spare parts and will settle the boiler. Only professionally qualified personnel are allowed to overhaul and repair the boiler. If the above mentioned rules are not respected, we will decline any responsibility and will not grant the validity of the warranty.

Before installing the boiler:

- Check and washes all system pipes carefully in order to remove any impurities and residual substances which could cause malfunction of heater exchanger primary and secondary;
- Carry out the application of sludge blanket filter in the heating circuit;
- Introduce suitable inhibitor for the preservation of possible residual suspended matters

Check the boiler fuel gas supply: compare the writing on the packaging and the technical characteristics plate.

In case the appliance fails to operate correctly after all checks have been carried out, refer to the authorised service provider in your area.

2.1.2. Installation room

The boiler can be installed in any type of room, provided that:

- the requirements of Gas Code AS5601 are observed.
- it is protected against freeze
- that the flue ducts can be installed adequately.

Clearances shall provide provision for service access and protection from combustible surfaces. Minimum clearances from combustible surfaces shall be 50mm at sides, 300mm from top and 300mm from bottom.

ENSURE THAT THE AIR ENTRY IS NOT OBSTRUCTED BY ADJACENT CABINETS OR OTHER STRUCTURES.

2.2 Installation

If our accessories are used to install the boiler, read the instructions enclosed carefully. After choosing the suitable position to install the boiler, fit the installation template (see fig. 2). It must be oriented perpendicularly by means of a spirit or a plumb line. The template shows the two holes which serve to fasten the boiler to the wall. They are to be drilled with a ∅ 12 mm drill bit. Insert the supplied dowels and ensure that the hooks are fit. Mark also the position of the hydraulic and gas connections holes on the wall. The supplied dowel can ensure a firm hold only if inserted properly. In the event that walls do not provide the apparatus with a steady support, take the adequate countermeasures.

2.3 Hydraulic connections

The hydraulic connections must be performed in a rational manner by following the indications of the boiler template (fig. 2). Optional is provided the kit 10 SILE including all the compression fittings can be used, supplied on request. The boiler safety valve drain must conduct to a secure draining tube. In absence of this tube, the possible intervention of the safety valve may cause flooding. We cannot be held responsible for any damage caused by neglecting to apply this technical precaution.

The boiler can work only in two following modes:

a) only heating mode

b) heating and sanitary through remote tank

That change are the following aspects:

a) **heating mode**: two connections 2) and 3) (fig.1) must be plugged with two plugs packed inside the instructions bag. So you can close two connections to possible remote tank and the boiler working only with heating circuit. Now must inhibit the sanitary probe (41 fig. 1) functioning. This carries out on PCB working. See table relatives Dip-Switches positions on PCB in the chapter 2.6 of this manual. Dip-Switch 6 must be moved to ON; so the temperature probe is defused and there not will be malfunctioning for the not wanted sanitary activation.

b) **Heating and sanitary mode** combined doesn't occur to do anything because the boiler is prepared in this mode so by the manufactory. We remember that the sanitary probe 41) fig. 1 must be put on the pocket tank to activate the heating tank. Don't use the eventual thermostat tank.

2.4 Condensate drainage system.

The condensate produced inside the boiler must be drained. Therefore the boiler is provided with a condensate trap. The condensate trap fitting is to be connected to a ∅ 32 mm PVC condensate drainage system. It is recommendable to install a further water trap on the condensate drainage system before the condensate reaches the sewer. Only plastic tubes of the standard civil condensate drainage systems are suitable to drain the condensate towards the sewer of the house.

2.5 Gas connections.

This appliance shall be installed only by authorised persons and in accordance with the manufacturer's installation instructions, local gas fitting regulations, municipal building codes, electrical wiring regulations, local water supply regulations, AS 5601-2004 - Gas Installations and any other statutory regulations.

The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the boiler.

The location must take account of the flueing method to be used and the position of the flue terminal, with regard to the requirements of AS5601.

Refer to AS5601 for gas pipe size details.

The 5.32 N-N3V boiler has been designed to operate on Natural Gas and Propane Gas.

The 5.24 N-N3V boiler has been designed to operate on Natural Gas.

Before performing the gas connection, all the ducts of the fuel system are to be cleaned inside in order to remove possible residual substances which could cause malfunctioning. The apparatus duct sections must ensure a sufficient gas supply to cover the maximum request. For the same reason check the pressures of the gas which will be used.

2.6 Electrical connections control board functioning and regulation

The electrical safety of the equipment is reached only when correctly connected to an efficient grounding system performed according to the electrical rules in force. The fundamental security requirement must be checked.

Warning: we cannot be held responsible for damages to people, things or animals caused by neglecting grounding system and the above mentioned rules.

All the boiler connections are absolutely not fit as grounding. This has to be verified before performing the boiler electrical connection.

The use of any component run by electrical power involves the strict observance of certain fundamental rules, such as:

- Do not touch the boiler with parts of the body which are wet and/or damp and/or bare;
- Do not pull the wiring;
- Do not leave the boiler exposed to the rain, the sun, etc., unless explicitly requested;
- Children and not professionally qualified persons are not allowed to use the apparatus.

Professionally qualified personnel shall verify that the electric supply system is adequate to the apparatus maximum power (140 W please see the rating plate), and that the wiring section is suitable to the power absorption of the machine. The use of electric adapters, extension cords or sockets are not recommended, but it is convenient to provide the system with a double-pole switch having at least 3 mm spaced electric. Before connecting the boiler, make sure that the power grid and main switch are off.

The boilers are equipped with feeding cable without electric plug; it must be connected to 230V-50Hz following the polarity L-N and the ground connection.

If a Remote Control is used, set a double-pole wiring line according to the actual rules concerning electric plants.

Important: when the power switch is on, the L-N connecting terminals are fed even if the boiler is off.

Colors wiring key

B: blue
G : yellow
M : brown
N : black
W : white
V : green

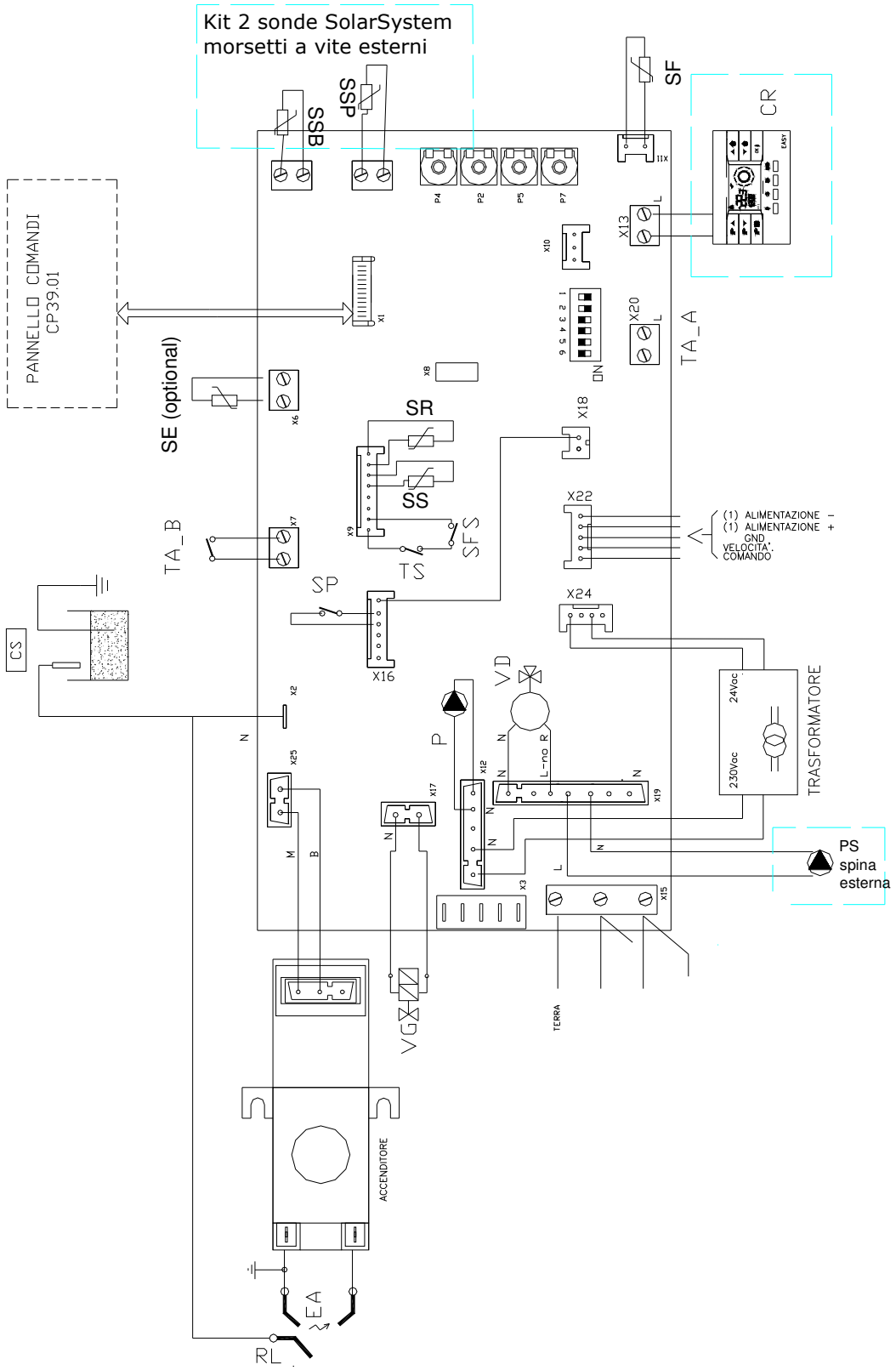


Fig. 4

Key

CR - Remot contro (optional)
PS-Solar circuit circulator (opz)
SF – flue probe
SP –micro flow transducer pump
SSP-solar probe panel PT type 1000

TS- Safety thermostat
VD- Three way valve switch

EA – ignition electrode
RL – detection electrode
SFS thermal fuse safety flue
SS – NTC sanitary probe
TA_B - low temperature zone room thermostat
TT- supply transformer
VG – gas valve

P - circulator
SE – external sensor (optional)
SR – heating NTC probe
SSB – solar tank probe (opz.)
TA_A TA_A - high temperature zone room thermostat
V- fan

Adjustment trimmer PBC

P4: maximum fan speed
P5:fan speed during ignition
P2:minimum fan speed
P7: thermo setpoint or k factor setting with external probe present

- **DIP switches: the board (see Fig. 4) has 6 DIP switches which can be moved to create the different operating options listed below:**

Dip-switch	OFF	ON	RECOMMENDED SETTINGS
1	High temperature adjustment using trimmer	Low temperature adjustment using trimmer	ON
2	Do not use (for R version only)	Boiler must be permanently ON	OFF
3	External sensor not activated (not present)	External sensor activated	OFF
4	Normal use of remote control	Remote control as display	OFF
5	free	free	OFF
6	Heating boiler end remote tank	Heating only (sanitary hot water deactivated) also DIP 2 ON	ON

N.B. This boiler has two modes functioning, only heating and heating/sanitary with remote tank. See chapter 2.3 the different boiler configuration for optimal functioning in the two versions.

2.7 Thermoregulation devices and accessories.

The boiler can be connected to a temperature control system and an external temperature sensor which must be installed as specified in the instructions.

On/Off room thermostat: make the connection to the TA_A and/or TA_B terminals on the PCB (Fig. 4) and check that the wire ends leading from the system are not energised (clean contact). More information on operating of the high/low temperature system is found in chapter 2.8

External sensor: it can be connected directly to the boiler electrical installation (SE terminals, Fig. 4) and automatically adjusts the installation maximum flow temperature as the external temperature changes. When it is connected, the position of DIP switch no. 3 must also be changed. It must be moved from OFF to ON.

With the selector off-summer-winter in Reset and moving the sanitary knob the characteristic K value (graph in Fig. 5) of the curve appears on the display at “03”. See Chap. 3 for methods of adjustment.

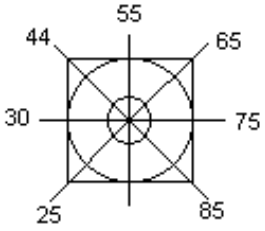
The external sensor is always on when connected, independently of the presence and type of programmable thermostat used, or can operate in combination with the Sile Remote Control code 907520053.

The correlation between the flow temperature TM to the system and external temperature TE is determined by the position of the trimmer P7 on the PCB (see Fig.4) according to the curves shown below. For the sake of convenience, you can also use the heating

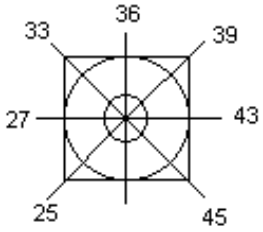
potentiometer. In this way, you can adjust the flow temperature ±5°C by keeping the curve slope adjusted on trimmer P7 as described in Chap. 1.

Turning knob clockwise completely till maximum, there will be a temperature rainsing 25°C. This could will be useful in the mid seasons when the external temperature is high and the flow temperature too low to heat the house.

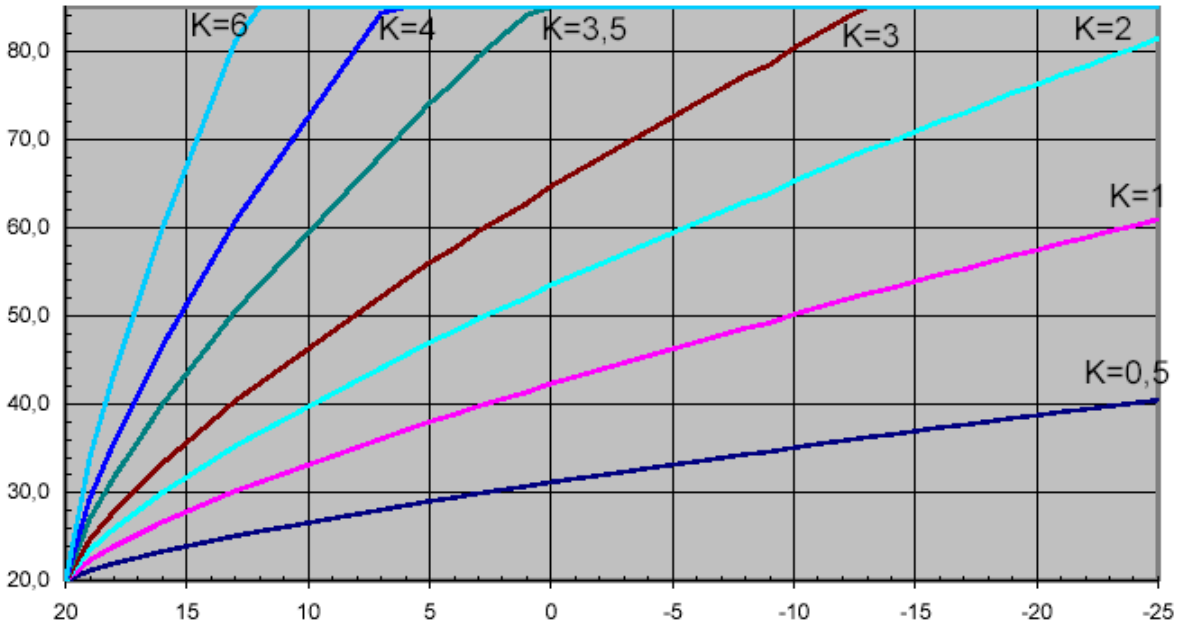
Here are the approximate temperatures set on trimmer P7 if it is used to adjust high or low temperature.



High Temp



Low Temp



Sile Remote Control (optional). The following operations should be performed when the device has been de-energised. It must be connected to the screw terminals of the serial interface board on connector X13 of the PCB. The double-pole wire connection (preferably shielded) is not polarised.

Make sure that the connection wires from the boiler to the RC are not energised (to avoid damaging the boiler electronic board) and that **there is no jumpering between contacts TA_A and TA_B** (Fig. 5) for room thermostats.

The temperature range for the remote control system goes from 25 to 85°C. If the system operates at low temperatures, the required temperature/curve can be set in the remote control and the system will operate correctly.

Operating with the remote control: the boiler only operates using the parameters set on the RC if the boiler main switch is set to winter. If the Summer function is selected, the RC has

no control on the boiler functions which depend on the control panel commands. If the boiler has to operate at low temperatures and has remote control, simply select the required temperature directly on the remote control unit.

When operating with the remote control without other thermostats (single zone system) jumpering must not be used on the room thermostat wires.

2.8 Automatic high/low temperature circuit

The boiler has an automatic function which has been developed to optimise performance in systems that have circuits with different temperatures.

In circuits with two different temperatures, normally one for the radiator zone and one for the radiant heating panels, the boiler operates at the higher temperature if there is a simultaneous request from both circuits and at the temperature for the radiant heating panels (lower temperature) if the request comes from the lower temperature circuit only. Operating is controlled by two room thermostats, one for the high temperature zone (25÷85°C) and one for the low temperature zone (25÷45°C) which must be connected to the two dedicated wires that come out of the control panel and are specifically labelled. The situation is summarised in the table below.

High TA state	Low TA state	Boiler operating temperature °C	Boiler pump
OFF	OFF	OFF	OFF
ON	OFF	25÷85°C	ON
OFF	ON	25÷45°C	ON
ON	ON	25÷85°C	ON

However, this automatic function does not mean that the boiler can directly supply a low temperature zone and a high temperature zone without the help of a mixer circuit.

N.B.: a mixing system like the SILE TBA/TBA-M must be installed on mixed circuits and a safety device must also be installed on the low temperature circuit, i.e. a safety thermostat set at 50°C on the delivery pipe downstream of the mixed circuit.

On systems with only one operating temperature, the room thermostat that is not required must be left open.
E.g.:

a) if a radiator system has to be supplied, the room thermostat must be connected to the wire which receives input from the high temperature zone and the one for the low temperature zone must be left open (factory setting).
b) if a low temperature circuit has to be supplied, the room thermostat must be connected to the wire which receives input from the low temperature zone and the one for the high temperature zone must be left open.

An example of a hydraulic diagram for mixed temperature systems is given below. **A mixing system as SILE TBA/TBA-M, must be used.** The boiler will operate at the best temperature for optimising thermal comfort and energy performance.

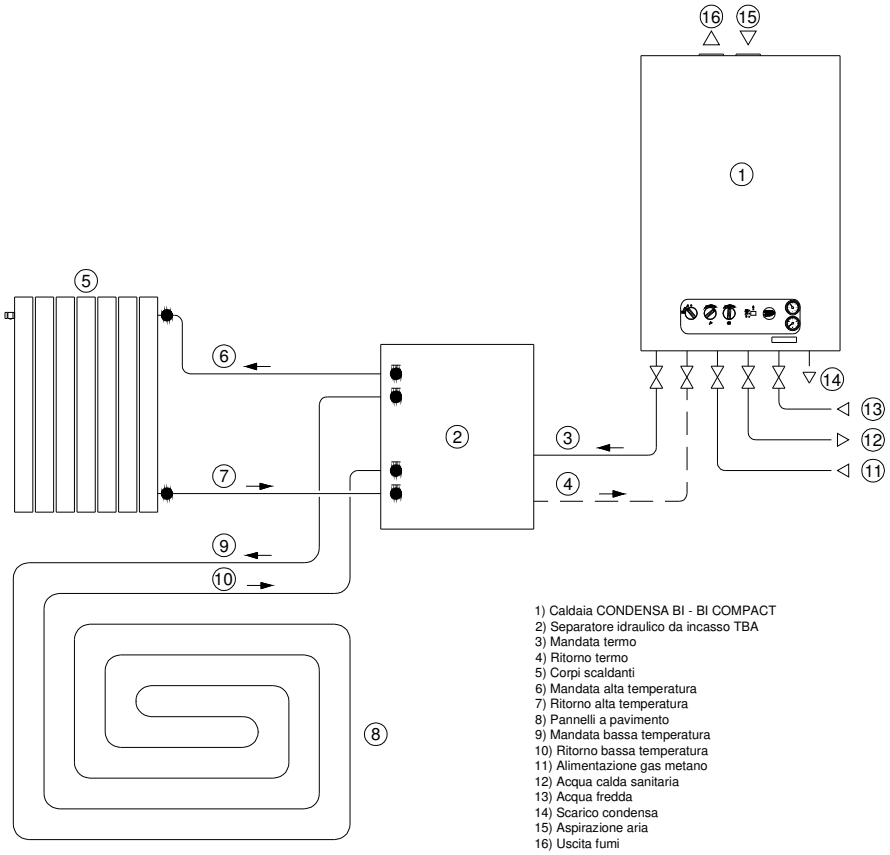


Fig. 6

The remote control with mixed systems as described above must be correctly configured in the electronic board. This is done by setting DIP switch no. 4 to ON (see. Fig. 4 Page 12) to control the sanitary hot water temperature and reset the boiler (no more than five attempts after which the boiler must be reset) but losing the programmable thermostat function that will be implemented by the zone thermostats.

The boiler feed temperature in the heating function is given by the boiler control panel.

In this case, use of the external sensor connected to the boiler PCB is also possible as shown in Figure 4.

2.9 Filling the CH circuit (for remote tank)

Open the cold water shutoff cock located in the system; open the hot water try cock on the system leave it open for the filling circuit and sanitary exchanger.

2.10 Filling heating circuit

To fill the boiler move three way valve in manual position. Turn on slowly the loading tap (fig. 1 pos.18) to carry the pressure system, indicated in water gauge, on about 1 bar value and turn off. Check that the vent located on circulator have cap loose, and then operate the circulator to remove the air in the circuit how follows: turn repeatedly the “function selector” (fig. 1 pos. 36) from the off position to the winter position until the total purge air. Complete the purging of the boiler and system, check the charge pressure.

2.11 Filling the condensate drainage system.

Take off the plug on the condensate drainage system and fill it with water amounting to 1 glass so that flue gases do not come out.

Attention. Do not operate the boiler if the condense drainage system is empty. It may cause intoxication from burnt gas.

2.12 System start-up.

Before starting up the boiler, check that the relevant actual rules have been performed. Make sure that:

- all fuel pipe connections are tight and completely sealed; first check the with the isolation valve closed, then with the isolation valve open (while keeping the gas valve closed). No gas presence is supposed to be indicated by the gas meter in 10 minutes;
- the boiler is supplied with preset gas;
- the gas flow rate is as specified in this manual (see par. 3.7);
- the main switch is working correctly;
- the air/flue ducts (if present) are not obstructed. Do not start up the boiler if the controls do not satisfy the requirements.

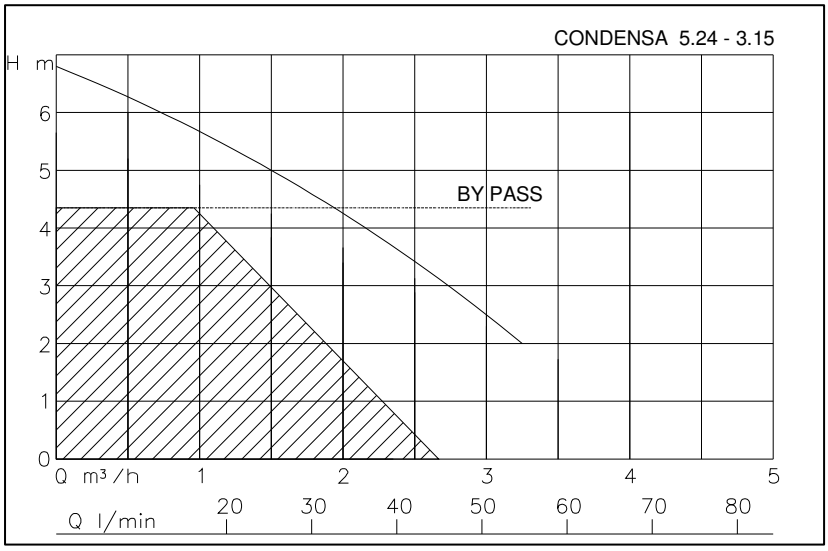
2.13 The pump.

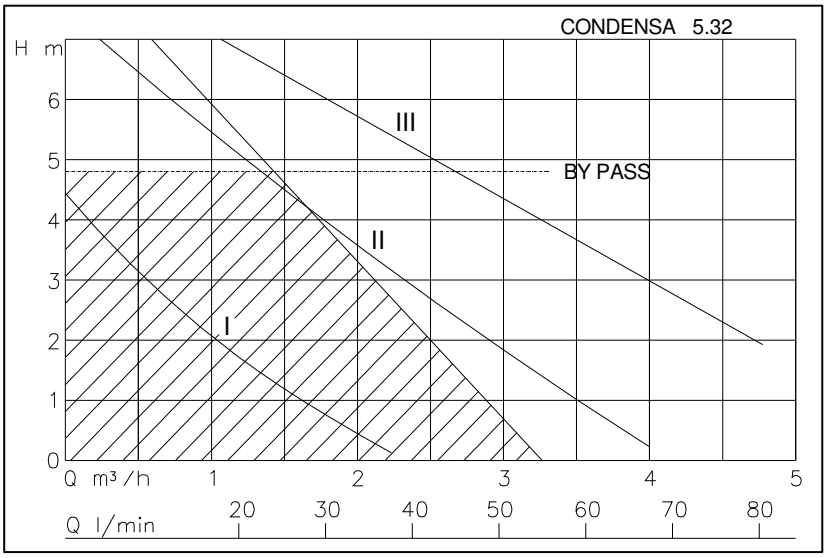
Our boilers are provided with pump.

After long periods of disuse residue can cause the block pump. To reset proceed as follows: unscrew the knob, rotate with a screwdriver until open and then tighten. Be careful not to damage the pump.

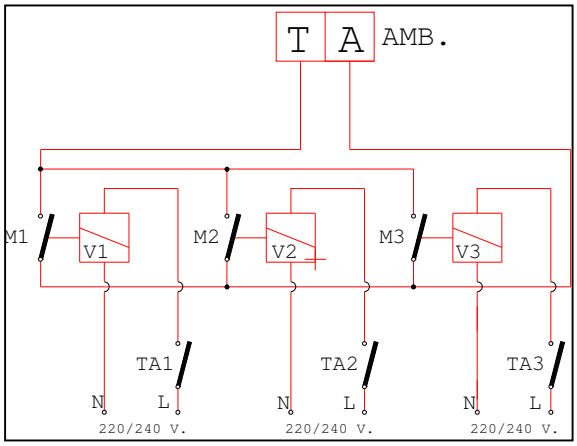
Never operate the pump without water

Graphic of the available head (dotted area) and the curves of the pump flow/head characteristics (dotted)





2.14 Zone system



In the hypothesis of a system supplied by several zone valves, they are supposed to be connected correctly to avoid the boiler pump functioning when all valves are closed.
The following diagram shows how to connect them.
Before connecting, check that the ends of the two wires from the room thermostat are not alive.
Diagram available also with a remote control (optional) after configuring the boiler control board as instructions (page. 15)

WARNING: The T-A terminals lead to a low tension boiler circuit. Connect only after careful cleaning.

LEGEND

M1M2M3	Valve switch
V1V2V3	Zone valve
Ta1Ta2Ta3	Room thermostats of the zones

2.15 Boiler safety valve.

The boiler safety valve is calibrated at 3 bar as maximum pressure.
The valve drain must be conveyed to the drainage system.

2.16 Boiler draining.

Turn the power supply off. Intercept the cold water supply. Carefully perform the drainage (19 fig. 1).

To refill, please see the relevant paragraph.

2.17 Safety valve Hot Water Storage tank (where used)

The safety valve with is calibrated at 8 bar pressure.
During the heating of the contents a dribble from unloading under certain conditions is predictable and normal.

During installation direct the unloading valve to drainage duct.

If dribble continue also with hot tank and boiler stop check the supply pressure :if this exceeds 5 bar apply a pressure reducer and check the safety valve to have an efficient drainage.

If they repeat several openings safety valve you should check the correct

2.18 Boiler draining.

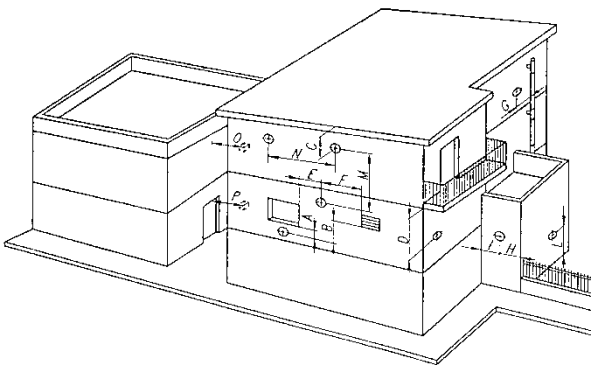
Turn the power supply off. Intercept the cold water supply. Carefully perform the drainage.
To refill, please see the relevant paragraph

USE ONLY FLUE COMPONENTS RECCOMENDED BY AUTOMATIC HEATING

2.19 Draught terminal positioning, wall outlet

The draught terminal must be positioned and installed according to the regulations in AS5601 Gas Safety Code. It is summarised below:

Fig. 9



Terminal position	Distance	Apparatus between 16 to 35 kw mm min.
Under a window	A	1000
Under a ventilation opening	B	1000
Under eaves	C	300
Under a balcony **	D	300
Next a window	E	300
Next to a ventilation opening	F	1000
With vertical or horizontal pipes or flues ***	G	500
In a building corner	H	300
In a building recess	I	300
On the ground or ground floor	L	2500
Between to vertical terminals	M	1500
Between to vertical terminals	N	1000
On a front standing surface which has no opening or terminals within a 3 m range of the flue	O	2000
The same, but with opening or terminals within a 3 m range of the flue	P	3.000

The draught terminals are supposed to:
Be situated on the external perimeter walls on the building:
Be positioned so that the distances indicated in the table are respected for the atmosphere outflow section:

** Terminals under accessible balconies are to be situated in a position which allows the entire smoke path (from the point of terminal output to their outlet) on the exterior perimeter of the balcony not to be inferior to 2000 mm (including the height of protective walls).

*** In positioning the terminals, distances must be no less than 500 mm when they are near to materials sensible towards the action of combustible products (i.e.: plastic eaves and gutters, wooden overhangs, etc.) unless suitable protective measures are taken.

The boiler is homologated with chimney configuration type: B23P . C13 . C33 . C43 . C53 . C83

2.20 Configuration type B23 open chamber and forced draft.

The device can be installed inside buildings B23 mode; in this case we recommend to comply with technical rules and regulation in force national and local.

- - the boiler open chamber type B must not installed in rooms where take place business, crafts or industry activities where use products that generate vapours or volatile substances (for example acid vapour, glues, paints, solvents, fuels, etc.), as well as powders (for example powder derived from the manufacture of lumber, sludge, cement, etc.) that damage the apparatus components and compromise the functioning.

With this configuration:

- the air aspiration is directly from the room where the apparatus has been installed and so this room must be permanent aerated according to the rules in force.
- The flue drain must be connected its own individual chimney or canalized directly into atmosphere outside.

Must be observed the technical rules in force.

2.21 Wall mounted coaxial air/flue ducts - type C13

<u>Please see also the specific catalogue "Air/flue Kits" </u>- KIT AC for further information.

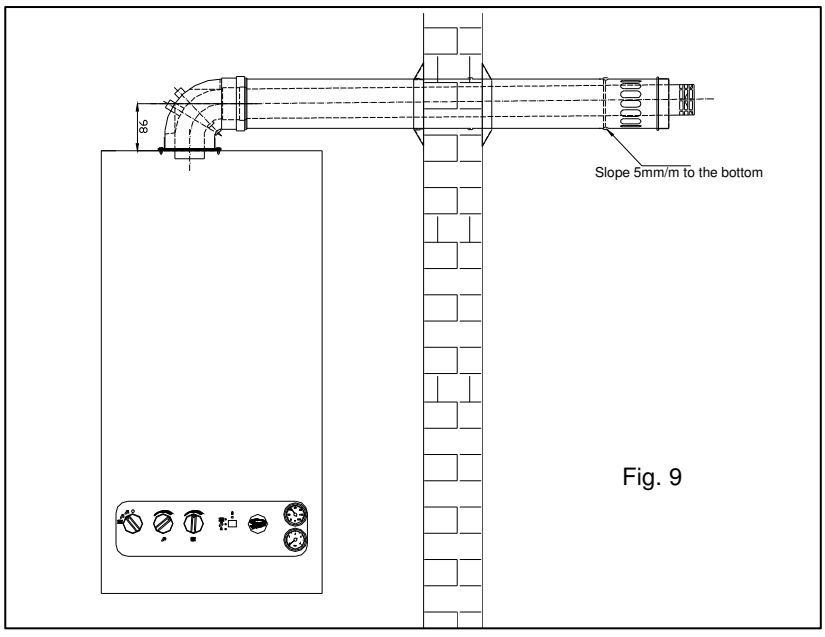


Fig. 9

The coaxial duct is made of an inner plastic flue duct ø 60 and of an outer white enamelled aluminium air inlet duct ø 100 mm. It requires just one hole in the wall. The terminal can be oriented towards every direction and it can reach a total length of 5 m. The maximum allowed length must be reduced of 1 m. for every bend which is added. The basic kit AC includes a straight 1 m. duct. Every optional extension is 1 m or 0.5 m long. Ducts of an intermediate length can be obtained by

cutting an extension of 1 m at the required dimension.

The air/flue duct must be installed on a perfectly horizontal position since it already has a minimum standard slant which prevents the condensate from dropping and freezing on the ground.

The duct will be fixed following the relevant figures.

1. Cut the hole in the wall for the air/flue duct. Its minimum diameter should be sufficient to allow the insertion of a plastic duct (as long as the wall and with ø130 mm) which will be sealed with mortal. Cut the duct at the required length.
2. Before inserting the duct into the hole, insert the rubber sealing ring of the terminal part (9 fig. 10) into the swage.
3. Insert the internal rubber sealing ring into the duct (9 fig. 10)
4. Push the duct outward until the rubber sealing ring comes out. Pull the duct inward and align the ring on the wall.

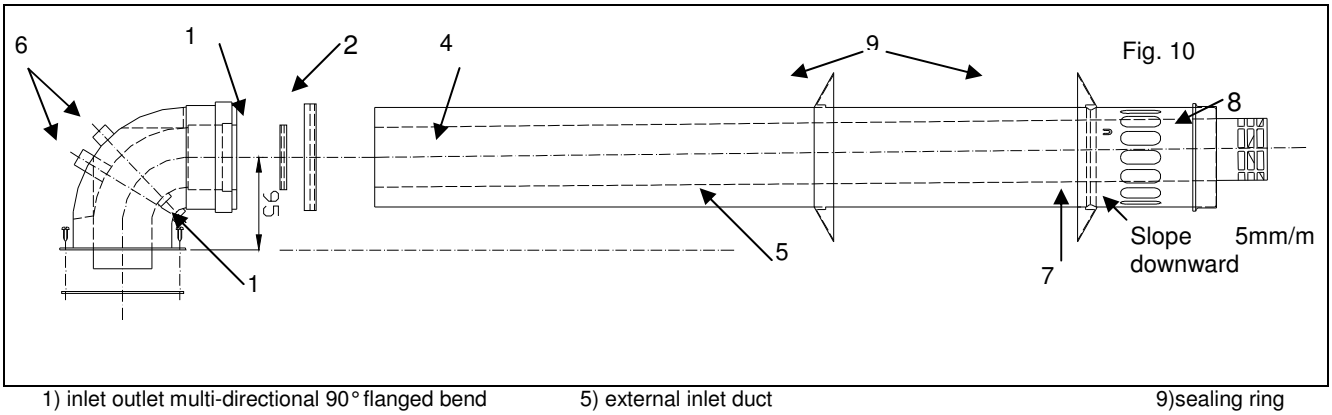


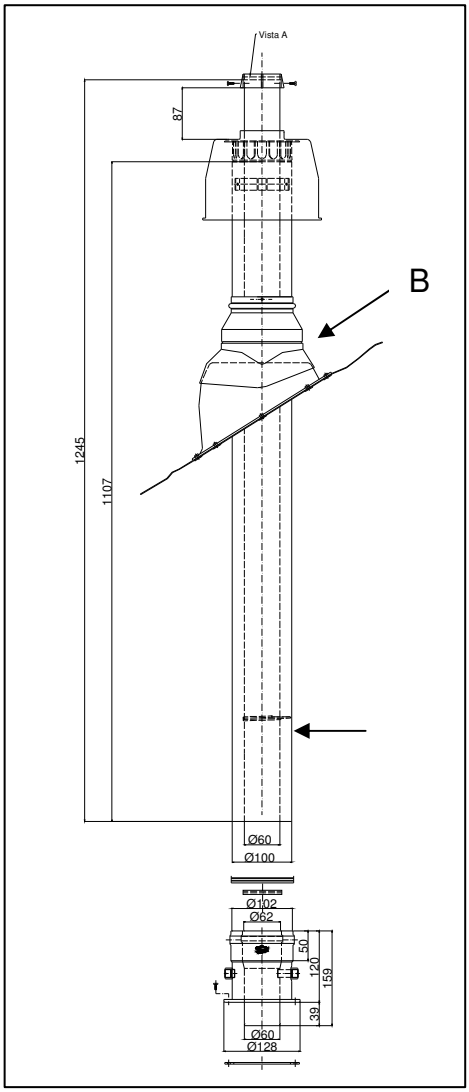
Fig. 10

1) inlet outlet multi-directional 90° flanged bend
2)inlet duct rubber gasket
3) outlet duct rubber gasket
4) plastic inner outlet Ø60 duct
5) external inlet duct
6)taps for air/flue drawing and concentring ducts
7)air inlet grill
8)flue outlet grill
9)sealing ring

5. Insert the gaskets (2) and (3) of fig. 10 into the bend. Push the flue ducts and the external air inlet duct into the bend. The firm hold of every extension or bend which is added must be warrantied by applying the necessary gaskets. Every vertical or horizontal item must be fixed on the wall or ceiling by means of a suitable support. In the event that a vertical extension is to be used, the terminal part of the duct should have a horizontal outlet with a slant as previously explained.

2.22 ROOF OUTLET AIR/FLUE DUCT TYPE C33

To fit a Vertical Roof Cowl to Co-axial flue pipe, ensure the length of flue meets to Gas Regulations and carefully fit the Cowl to both inner and outer pipes to allow combustion air to enter the outer space of the flue and that the combustion air pipe is located in the inner sleeve of the cowl.



A) Concentric air/flue ducts for roof outlet with PP outlet inner, ø 60/100 mm
B) Lead flashing roofing tile
C) Vertical flanged concentric compression fitting ø 60/100 mm with taps for air/flue drawing and PP inner duct, silicone lip gaskets and neoprene gasket.

The vertical terminal can be connected to a coaxial air/flue duct (ø60/100 mm) having also an horizontal part. The maximum total length of the duct should be 4 m + 2 bends or 5 m without bends.

After positioning the boiler on the wall, cut a ø120 mm hole in the ceiling corresponding to the boiler upper inlet connection.

Before installing the air/flue kit definitively on the roof, the Ø100 and Ø60 ducts can be cut at the required dimension respecting the minimum distance as the figure shows.

Insert the ø100 mm duct into the ceiling hole which is supposed to be fixed with mortage. Adjust the lead flashing to the roofing tiles or bent tiles. Fix the vertical flanged compression fitting (C) to the boiler by means of the screws using suitable silicone gaskets.

Insert the ø60 inner duct into the flanged compression fitting after fixing the inner ø60 mm silicone gasket. Then place the outer ø100 duct in the same way.

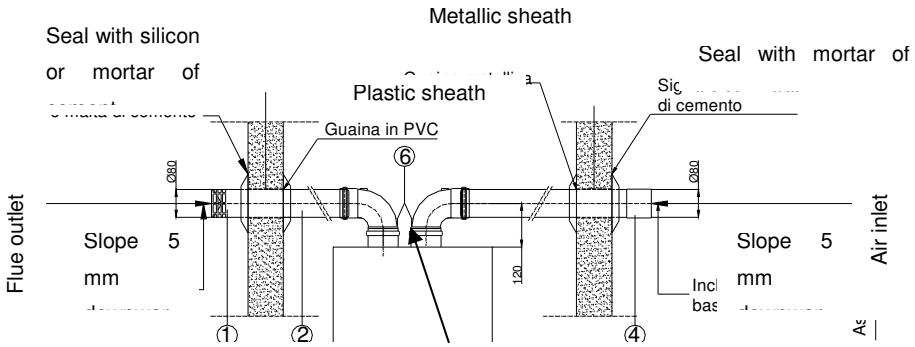
In the event that concentric ducts and/or bends are necessary to connect the terminal duct (A) to the flanged compression (C), the firm hold must be guaranteed by applying suitable silicone rubber gaskets inside the spigot and socket joints. Use original accessories only.

Every horizontal or vertical item is to be fixed to a suitable support wall or ceiling.

Never obstruct the boiler air/flue ducts, even provisionally. Professionally qualified personnel are supposed to check the draught efficiency and the combustion product hold.

2.23 Separate air inlet/flue outlet system.

Type C43 **Please see also the specific catalogue "Air/flue Kits" - KIT AC for further information.**



Attention. The outlet flange adaptor shown must not be used.

1) Flue outlet terminal with grill.
2) Ø80 M.F. pipe (it can be shortened if necessary or extended up to 20 m with 1 m or 0,5 m).
3) Multi-directional 90° bends Ø80 M.F.
4Air inlet terminal with grill.
6) Taps for flue/air analysis.

Specific outlet needs may be resolved by placing two separate pipes ø 80 mm, one for air inlet and one for flue outlet up to a total length of the two pipes of m. 40.

This allows an increased installation flexibility, beside a differential orientation in any direction. When having to cross rooms which are usually heated, the air duct may cause condense accumulation, therefore a suitable insulation can be applied on demand.

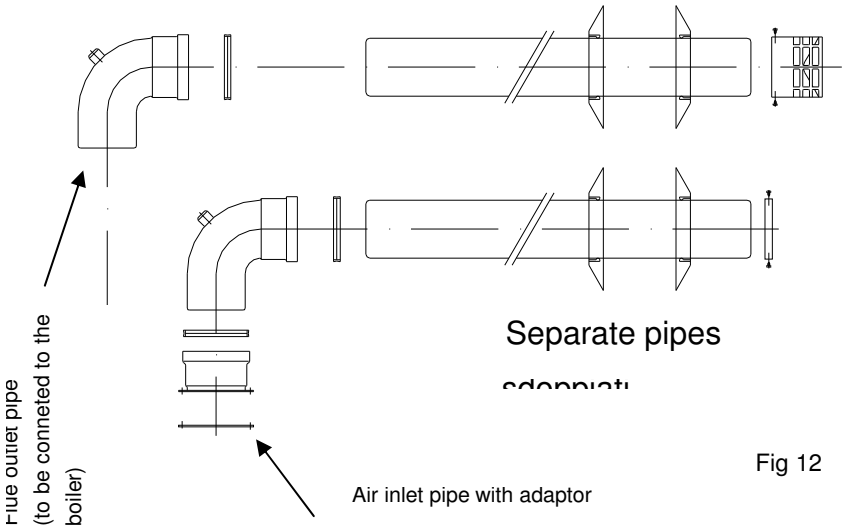


Fig 12

When having to cross walls or barriers which could deteriorate due to the heat, the flue terminal must be installed with a suitable isolating sleeve.
The air inlet and flue outlet ducts will be installed with a slight downward slant to avoid rainwater from entering the boiler.
Perform assembly according to the indications in the diagram and make sure that each catch is equipped with a gasket. The length of the air inlet and of the flue ducts can be different.
They can be shortened or lengthened by means of 0.5 m.

or 1 m. extensions as necessary for a total of 18 linear meters. Pay particular attention to the catches as they must guarantee the complete sealing of air and flues.

Each piece, either horizontal or vertical, must be suitably fixed to a wall or ceiling with proper supports or brackets.

The path and the length of the ducts should consider that the total approved loss of capacity is 11 mm c.a. = a ~ 110 Pa.

- For each meter of either air inlet or flue outlet ø 80 mm tubing, the average loss of charge is 0.25 mm c.a. = ~ 2.5 Pa.
- For each ø 80 mm 90° bend as previously mentioned, the average loss of capacity is 0,5 mm c.a. = ~ 5 Pa

Examples:

12 m duct ø 80	x 0.25	=	3.0	
2 bends ø 80 mm 90°	x 0.5	=	1.0	
			4.0	mm total loss of capacity
12 m duct ø 80	x 0.25	=	3.0	
3 bends ø 80	x 0.5	=	1.5	
			4.5	mm total loss of capacity

2.24 Chimney flue outet or tubing outlet duct type C53 – C83

- The roof flue outlet systems can be made as follow:
- chimney flue outlet operating by means of positive pressure in comparison to the boiler installation room, external and not adjacent to the building,
- tubing outlet duct operating by positive pressure in comparison with the installation room which is located in an internal position or in a close part of the building.

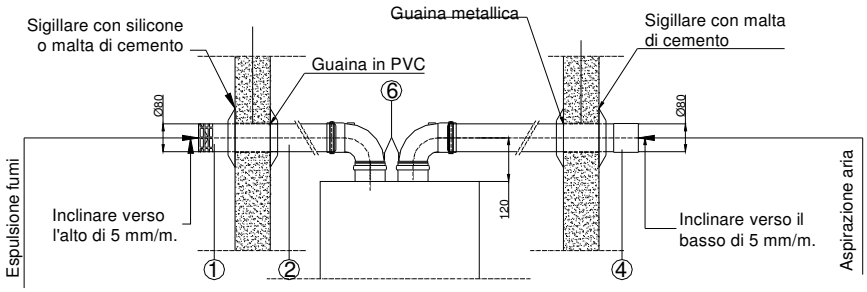
These **flue outlet systems** are to be suitable for wet locations:

- they must be provided with a condensate drainage system which prevents the flues from entering the room or the sewer. Stagnation must be avoided in the flue outlet systems except for the water head in the water trap.
- frosting must be avoided: along the whole length of the chimney and of the tubing outlet duct the temperature must not decrease under 0°C; given a design external temperature, the flue outlet systems are supposed to be resistant to the corrosive action of condensate in every operation condition.

The flue outlet systems must be made of material resistant to the flue maximum\ temperature.

The boiler and the chimney or the boiler and the tubing outlet duct (called flue duct) will be fitted by using only the accessories we provide. They are to be installed following the instructions of the previous paragraph. The flue duct is supposed:

- to have a section which is not smaller than that of the boiler flue duct connection throughout its length
- to be located at sight, easily detachable
- to be installed so as to allow its standard thermal expansions
- to have its terminal perpendicular to the chimney without projecting inside the chimney itself to have no interception devices.



1) Flue outlet terminal with grill.
2) Ø80 M.F. pipe (it can be shortened if necessary or extended up to 20 m with 1 m or 0,5 m).
3) Multi-directional 90° bends Ø80 M.F.
4Air inlet terminal with grill.
6) Taps for flue/air analysis.

The chimney under pressure:

- it is supposed to have circular, square or rectangular section. In these two last cases they have to be rounded to at least 20 mm radius
- has to have no auxiliary mechanical inlet members
- can have changes of direction which do not involve counterslopes; if the angle between the chimneys and the vertical is wider than 30°, an inspection near the greatest change has to be done in order to allow it in both cases. If this inspection is not satisfying, a further inspection near the slightest change is to be done
- can be provided with smokebox, which is obligatory in the event that the outlet is vertical and that its section has no chimney cap; the smokebox has to have at least height 0.5 mt below the flue duct and it must be provided with opening and cleanout in order to remove any possible impurities; it has to be done in such a way as to gather and drain condensate
- can be provided with inspection door, above all if there is no smokebox
- can be provided with chimney cap having a section which has to be no less than twice the chimney section. The chimney cap must prevent the rain, snow or impurities from entering. Its form is supposed to outlet flues correctly and to avoid the external outlet and/or freezing of condensate near their outlet section.

The outlet and the possible freezing of the condensate of the outlet section must be warrantied also by the chimney which has no cap.
The tubing duct is a flue outlet system which is partially or totally installed in internal or closed parts of a building. Beside having all the general requirements of the outlet systems, it has:

- to be inspectionable and allow the standard cleaning and maintenance operations
- to allow its standard thermal expansions without changing its technical characteristics
- to avoid condensate stagnating along the duct. It has to warranty a ventilation door towards the outside between the internal perimeter surface of the inner part and the external perimeter surface of the flue duct. This interspace is supposed to have a net free section at least equivalent to that of the flue duct; its base and its top are to be open; in the event that the base opening is not immediately directed towards the outside, a linking duct between the opening and the outside can be made; the base

opening has to have a net section not smaller than the ventilation door and it is to be protected by means of grilles or similar devices
- in order to warranty a suitable ventilation section, with a ∅ 80 mm flue duct, it is necessary and sufficient a building internal or closed part having an 100 x 100 mm internal side or a ∅ 113 mm circular side
- in the event that the section between the flue outlet duct and the building internal or closed part is necessary for feeding the system components with carburant air, it has to be open on the top, serviceable, and to be suitably dimensioned; its free section is supposed to correspond at least to 150% of the flue duct; the section of the ventilation door is not supposed to be reduced of more than 10% by the joints and spacers used for fixing or truing the duct inside the closed part.

Multiple outlet systems are allowed provided that the following conditions are respected (beside the requirements concerning the single tubing duct above mentioned):
- a minimum distance of 2 cm is to be respected between the flue duct external wall and the closed part internal wall
- a minimum distance of 2 cm is to be respected between the external wall of the flue outlet duct and that of any other duct
- on the top of the multiple system every single outlet system has to have a plate or other identification devices.
- Every chimney manufacturer is able to provide the most suitable flue taking into consideration the place, power, capacity, allowed loss of capacity and number of boilers to install. Require the relative certificate and calculation according to regulations in force

2.25 Solar system functioning

The solar system integrated in the boiler control board use these hardware resources to control:

1. Relay solar pump for circulator control;
2. Collector probe (PT1000, is not the same probe usually used in the tanks. The difference is that it is enveloped in the black sheath);
3. Lower tank probe (NTC 10K);
4. Medium tank probe or tank solar probe (NTC 10K).

Solar system functioning can be activated in summer and also in winter as sanitary integration. The activation is performed by 4 parameter ; its configuration mode is described in chapter 3.2

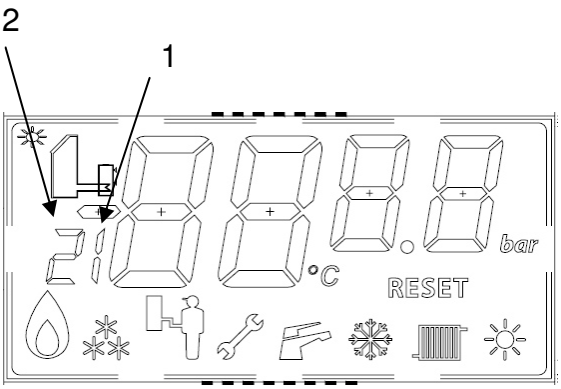
To wish that only solar mode be activated, usually in summer, it's possible to choose one of these configurations, to bear in mind that 4 parameter must be always activated and value 1 must be selected:

3. selector =SUMMER or selector = OFF;
4. heating selector at minimum;

The control board functions only in solar system.

In the solar mode only is deactivated any request of ignition external burner (sanitary request) while antifreeze and anti-legionella stay active.

In the mode "only solar" into display are visualized the solar panel icon and the collector temperature.



Display in solar mode:

- When solar function starts a solar system icon light up .
- For 10 seconds after the solar pump activation, are visualized the temperature collector probe in big digits and the temperature solar tank probe (sanitary probe) in little digits.

The solar system works when flat-plate solar collector temperature is higher than the temperature in solar tank in the gauge set in 5 parameter , that defines the temperature difference keeping between collector and tank. Adjust this parameter how explained in the chapter 3.2.

If you keep a temperature difference much low, between 5 and 10°C, the circulator starts up frequently to drain a little heat quantity accumulated in the panels . With a temperature difference between 10 and 15°C the circulator starts up less frequently because need more time to create the difference between two devices. During the winter avoid doing more big temperature difference, when the solar irradiation is limited and sensible temperature differences could be get to with difficulty. We recommend keeping a temperature difference between 10-15°C about that is a good arrangement for all year.

Some information :

1) If the temperature in the collector probe exceed 100°C icon“1” lights up to identify a hundreds in figures, while if the temperature exceed 200°C icon “2” lights up (see display representation page before).
2) Management of the solar pump: - The minimum collector temperature for the pump functioning is 20°C. Under this temperature the solar pump doesn’t start .
3) If the tank solar probe detects a temperature higher to the value set in P6 (see chapter. 3.2 for the regulation mode)(safety temperature tank) the solar pump is stopped (the heat request panel is stopped).The pump is reactivated when the temperature of the tank solar probe (sanitary probe) drops below the temperature set in P6 – 3°C.
4) For 10 seconds after the solar pump activation, are visualized the temperature collector probe in big digits and the temperature solar tank probe (sanitary probe) in little digits.

In case of defective probes solar collector and solar tank appears to display an error message board.

ATTENTION: Always remember to drain properly the boiler discharges, which are the safety valves and solar sanitary side. Provide a pipe that could bring together a range of 15l/min, to prevent the discharged water overflows and floods the room where the apparatus is installed. Use fit components to resist 90°C temperature.

3 SERVICING INSTRUCTIONS

3.1 First start-up tests.

Before starting up the boiler, check that:
- the fuel delivery line complies with current standards;
- the boiler is supplied with natural gas;
- it is connected to a 230V-50Hz network, has L-N polarity and earth connection;
- the boiler start-up occurs regularly;
- the regular amount of CO_2 in the flues is at the maximum and minimum flow rate;
- the maximum and minimum gas flow rates follow the standards;
- the main switch is working correctly;
- air/flue ducts terminals are not obstructed;
- the regulation components are working properly;
- the hot water production is regular and all hydraulic connections are completely sealed;

Do not start up the boiler if the controls do not satisfy the requirements.

3.2 Settings (stand-alone settings)

The wiring diagram and the layout of the electronic card are representing in fig 4.

The electric section is included into ABS control panel while the electrical connection is included into the plastic box placed on the boiler lower side opening directly. On back bottom there is a supply transformer.

Setpoint. The sanitary and thermo setpoints are adjusted using taps 40 and 41 on the control panel respectively as shown in Fig. 1 and their value is shown on the display for 5 seconds before returning to the normal display.

Boiler parameters. The taps are used to set the following parameters:

1) maximum heating power “01” – set to 100%,
2) frequent anti cycles “02” – set to 10%
3) thermo post-circulation “03” – set to 30%.
4) Enabling solar control unit (0=OFF, 1= enabled ON) [to enable only if you use the kit 2 Solar System probes optional]
   This parameter enables the operation of solar integrated control unit. When it is in position 1 the solar system is switched on and regulated by the control unit also with the boiler selector in OFF. When set to a 0 the solar system is switch off .
5) Differential ignition solar circulator Adjustment range 5 : 25
   This parameter adjusts the ignition of the solar circuit pump(if the parameter 4 is set to 1). The pump starts when there is the difference in degrees between the temperature of the solar collector and the temperature of hot sanitary water.
   For example: If you have chosen a temperature differential of 10°C and and tank + 40°C, the pump will start when the solar collector will reach 50°C. If the solar collector temperature is less than 20 °C never will start the solar system circulator.
6) Safety temperature tank (75-95) Adjustment range 75 : 95

This is a safety parameter which blocks the solar circulator functioning when the tank boiler is greater than the parameter. For example if we set this parameter to 85°C, when the tank exceeds 85°C the circulator functioning will block and thus the amount of heat to the tank.

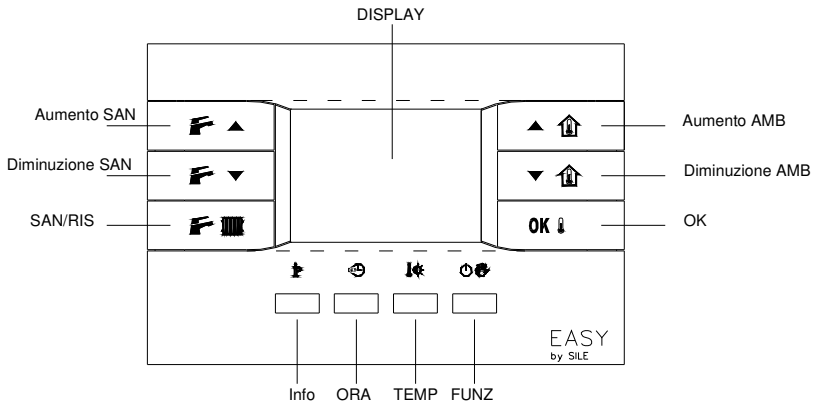
To make these adjustments is necessary respect the following procedure:

a) to turn :
   i. the sanitary knob at half way,
   ii. the thermo knob at minimum,
   iii. the selector from Off position to reset.

b) On the left display is possible to see a little digits relatives selected parameter through the sanitary knob, while with bigger digits the relative value:

c) To modify the parameter expected: it works on the thermo knob and after set up the value expected is necessary to memorize turning the selector from Reset position to the chimney sweep position. And so after the memorize the display digits goes by blinking to fixed. The passage by a parameter to another, without effecting the memorize procedure, doesn't change the existent regulations.

d) From exit from this function is sufficient to put the selector in Summer/Estate position, Winter position or Off or wait 30 seconds from the last operation.



If use Remote control

Push key INFO (to left bottom) for 5 seconds, to enter in programming mode.

Then push together the keys "ORA" and "FUNZ" for one second and enter at menù boiler.

From here with sanitary arrow keys selection the parameter to modify while with right keys you can modified the parameter value. The parameter modified is memorized in 5 seconds and flashing. After the regulations press key "INFO" (to left bottom) and Remote control take again normal display

The adjustment board contains some DIP switches which have already been mentioned on page13, they are:

DIP switch 1: when set to OFF, the temperature of the high temperature system is adjusted using trimmer P7 whereas the low temperature is adjusted using the knob on the front of the control panel, when set to ON, the temperature of the low temperature system is adjusted using trimmer P7 whereas the front knob adjusts the high temperature range.

DIP switch 2: in this boiler version, it must be set to OFF (factory setting) except when a temperature control sensor on a tank is connected

DIP switch 3: Configuration for connecting an **external sensor**, to be set to ON if an external sensor is connected.

DIP switch 4: **remote control** setting. When set to OFF, the remote control operates as a single-zone system by controlling switching on and off according

to the time and temperature reached. It is set to ON for multi-zone systems controlled by thermostats/programmable thermostats. In this case, the remote control checks the sanitary water temperature and displays the operating status.

DIP switch 5: this must be set to OFF. If accidentally set to ON, it causes error F27

DIP switch 6: this must be set to OFF if you want to operate the boiler with the remote sanitary tank. If you want to use the boiler without the tank, it should be set to ON and DIP switch 2 to OFF

The following trimmers, which can be accessed by dismantling the control panel, are also present and do the following:

P4 : maximum fan speed. When controlling and adjusting the boiler, the maximum fan speed is adjusted here. The rpm will be shown on the central multifunction display.

P2 : minimum fan speed: use this trimmer, located on the PCB (see Fig. 6) to adjust the minimum fan speed in a range of 1000-2300 rpm. For each boiler, **the number of minimum rpm which must be strictly observed** is specified in Tables 7 and 8 in Chapter 3.7.

P5 : fan speed during ignition. This must be set to approximately three-quarters of the range

P7 : thermo setpoint or K factor setting with external sensor present. This boiler has a two temperature (high/low) control system with separate settings Therefore, a flow temperature at 40°C and one at 60°C is possible to meet a request from the low temperature or high temperature system. The temperature in the main zone is adjusted on the front heating potentiometer whereas the temperature in the other zone is adjusted on potentiometer P7.

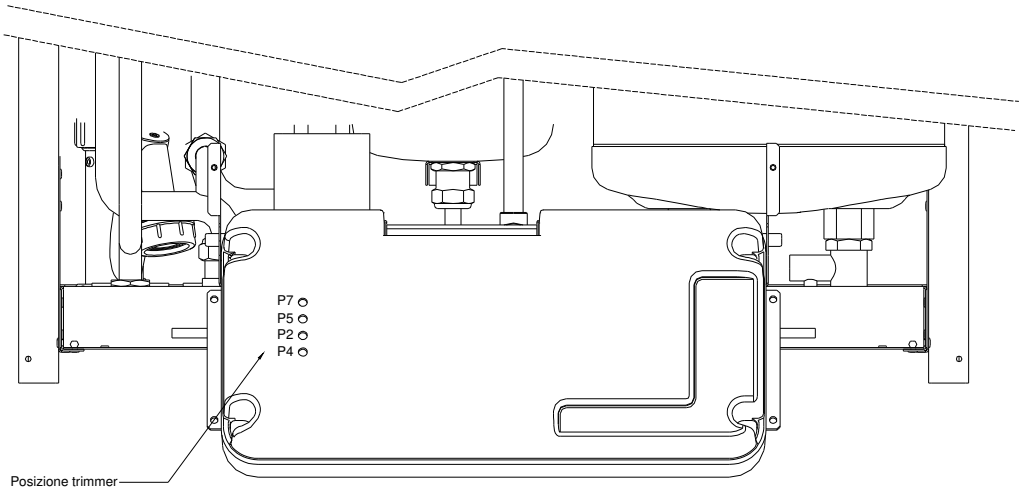


Fig 16

3.2.1 Fan rotation speed

The fan rotation speed can be checked on the front boiler display.

Fan rotation speed table.

	NATURAL GAS			PROPANE GAS		
Models	**Min rpm**	**Max rpm**	**Ignition rpm**	**Min rpm**	**Max rpm**	**Ignition rpm**
5.24	1250	4700	3700	N/A	N/A	N/A
5.32	1500	5500	3500	1900	5500	3500

See paragraph 3.3.1 for methods of adjustment.

Gas Pressure Regulation

Models 5.24 & 5.32

Natural Gas	CO_2 at Max Input	CO_2 at Min Input
Model 5.24	9.3%	9.0%
Model 5.32	9.7%	9.3%
Propane Gas	**CO_2 at Max Input**	**CO_2 at Min Input**
Model 5.32	10.7%	9.7%

3.2.2 Display menu.

When the selector is set to Reset, three types of information on the boiler can be displayed: they can be selected using the sanitary knob. The number that flashes on the far right of the display shows the information to be displayed whereas the other two numbers on the right indicate the value. They are:

Index	description
1	Sanitary hot water temperature (two figures)
2	Number of fan rpm (three figures)
3	Factor K for adjusting external curve set with trimmer P7 (two figures). Factor K displayed is relative of low temperature with boiler in standby, while to see displayed parameter K relative at high temperature functioning the boiler must work with contact TA closed on high temperature.
4	Solar collector probe temperature
5	Solar tank probe temperature, measured on the bottom of boiler

3.3 Gas pressure regulation.

Maximum and minimum gas pressure regulations are performed by the manufacturer. In the event that an adjustment of the regulations is to be performed, please follow the indication below.

Natural Gas	CO_2 at Max Input	CO_2 at Min Input
Model 5.24	9.3%	9.0%
Model 5.32	9.7%	9.3%
Propane Gas	**CO_2 at Max Input**	**CO_2 at Min Input**
Model 5.32	10.7%	9.7%

Table 6

3.3.1 Measurement and adjustment of percentage of CO2. *per MERIDIAN 5.24 e 5.32* (valve system + mixer Honeywell)

To set the CO_2 value, do the following:

- ♦ Remove the front cover of the boiler;

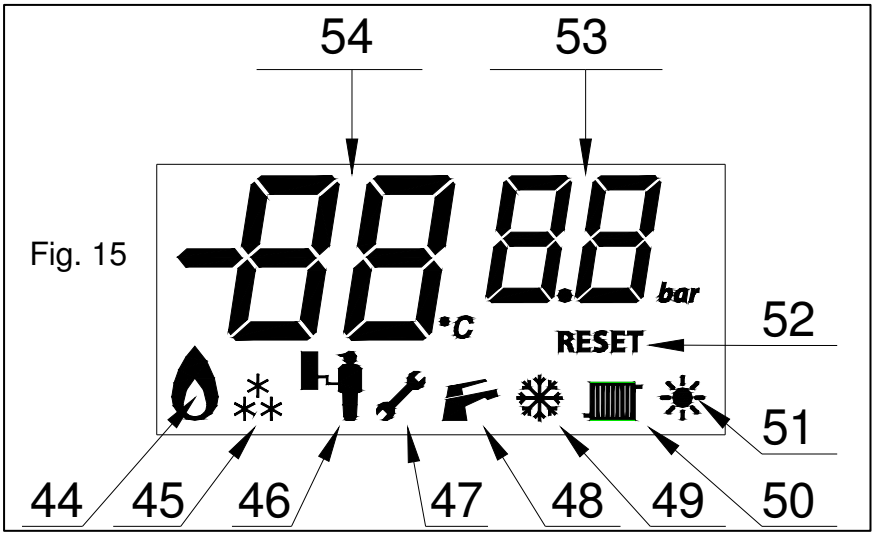


Fig. 15

♦ Turn the boiler control panel and unscrew the two side screws that hold it in place.

♦ Move the boiler selector to "Chimney sweep", a function which appears on the display with a "spanner" symbol and then set the heating potentiometer to maximum.

♦ With the boiler burner on, reset the function selector.

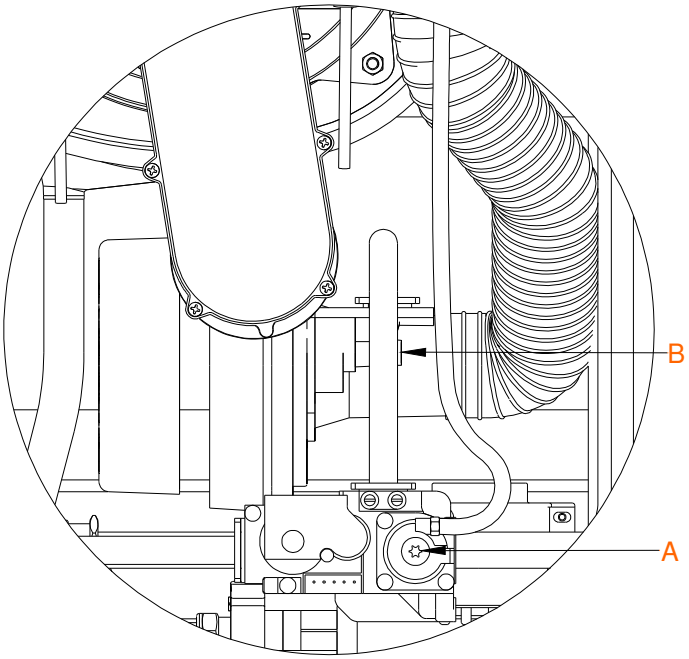
- ♦ Display the fan rpm by quickly turning the sanitary knob. Behind the control panel, use a small slotted screwdriver to adjust the number of fan rpm on trimmer P4 as indicated in Table 5 on page 28. Information appears on the front of the display where the two large digits on the left 54) indicate the hundreds and thousands and the two small digits on the right 53) indicate the units and tenths. (see Figure 17).
- ♦ Place the combustion control sensor in the flue gas sampling connection and measure the percentage of CO_2;
- ♦ If necessary, adjust the value (see Table 6) by turning the Venturi screw (B) as shown in Fig. 16 using a 4mm Allen spanner.
- ♦ Turn anti-clockwise to increase the percentage of CO2;
- ♦ Turn clockwise to decrease the percentage of CO2;

⇒ adjust by turning the screw only 1/8 turn and waiting for at least 1 minute after every turn for the value to stabilise;

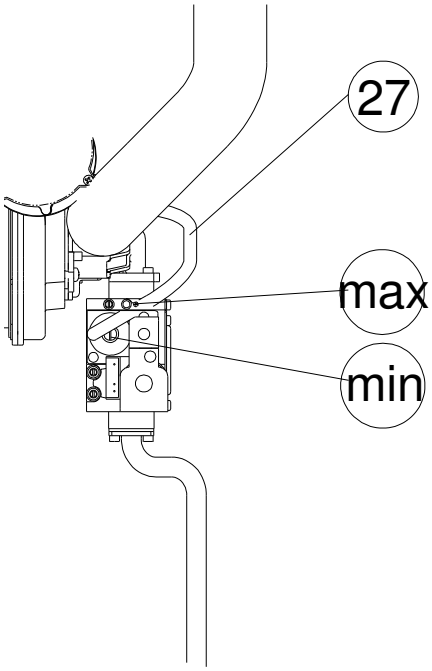
⇒ Proceed as follows to check the setting at minimum capacity:

- ⇒ switch the heating potentiometer to minimum; the boiler is now operating at minimum power
- ⇒ Adjust the fan rpm to the minimum power using trimmer P2 on the boiler PCB. The rpm are displayed on the front display as shown above when adjusting the fan speed at maximum power.
- ⇒ if necessary turn the off-set screw (A) of the gas valve clockwise to increase the percentage of CO2, or anti-clockwise to decrease it;

- ♦ Check the percentage of CO_2 by operating the boiler at maximum capacity (heating potentiometer turned to maximum) and then at minimum again (heating potentiometer turned to minimum)
- ♦ Repeat the adjustment procedure, if necessary;
- ♦ Seal the gas flow rate adjustment devices;
- ♦ Put the back of the control panel and the front cover back into position; turn the selector to OFF to deactivate the "Chimney sweep" mode and then switch on the boiler again



3.3.2 Measurement and adjustment of percentage of CO2 for MERIDIAN 3.15 (valve system + mixer SIT)



The adjustment of the gas valve and consequently of the CO2 have to execute regulating before maximum flow and then minimum flow

To set the CO_2 value, do the following:

- Remove the front cover of the boiler;
- Turn the boiler control panel and unscrew the two side screws that hold it in place.
- Move the boiler selector to "Chimney sweep", a function which appears on the display with a "spanner" symbol and then set the heating potentiometer to maximum.
- With the boiler burner on, reset the function selector.
- Display the fan rpm by quickly turning the sanitary knob. Behind the control panel, use a small slotted screwdriver to adjust the number of fan rpm on trimmer P4 as indicated in Table 5 on page 28. Information appears on the front of the display where the two large digits on the left 54) indicate the hundreds and thousands and the two small digits on the right 53) indicate the units and tenths. (see Figure 17).
- Place the combustion control sensor Fig 15 gas sampling connection and measure the percentage of CO_2;
- If necessary, adjust the value (see Table 6) by turning the Venturi screw (B) as shown in Fig. 16 using a 4mm Allen key.
- Turn anti-clockwise to increase the percentage of CO2;
- Turn clockwise to decrease the percentage of CO2;

⇒ adjust by turning the screw only 1/8 turn and waiting for at least 1 minute after every turn for the value to stabilise;
⇒ Proceed as follows to check the setting at minimum capacity:
  ⇒ switch the heating potentiometer to minimum; the boiler is now operating at minimum power
  ⇒ Adjust the fan rpm to the minimum power using trimmer P2 on the boiler PCB. The rpm are displayed on the front display as shown above when adjusting the fan speed at maximum power.
  ⇒ if necessary turn the off-set screw (A) of the gas valve clockwise to increase the percentage of CO2, or anti-clockwise to decrease it;
- Check the percentage of CO_2 by operating the boiler at maximum capacity (heating potentiometer turned to maximum) and then at minimum again (heating potentiometer turned to minimum)
- Repeat the adjustment procedure, if necessary;
- Seal the gas flow rate adjustment devices;
  - Put the back of the control panel and the front cover back into position; turn the selector to OFF to deactivate the “Chimney sweep” mode and then switch on the boiler again

3.5 Boiler diagnostic

The boiler display informs the After-Sales Service personnel in case of malfunctioning or lockout. The table of the lockout codes and the correspondent meanings is shown at the paragraph 1.3 of the "Instructions for use".

3.6 Maintenance function

The chimney sweep function is active when puts functioning selector on the relative position (the last in clockwise, see fig. 1), and contemporaneously is active the relative indication on the display.

This function makes the boiler operate at the maximum heating power for 15 minutes. This resets all controls; only the safety thermostat and the limit thermostat are still working: the regulation board is set on low or high temperature. Keeping the boiler in stand-by, turn the selector on the DHW position and press the reset switch for 10 seconds; this will activate the function which is displayed by the simultaneous blinking of both the DHW and CH LEDS; the technician is so enabled to check the combustion parameters. Once the check-ups are finished, turn the boiler off and then on in order to deactivate the maintenance function.

Warning: before activating the maintenance function, make sure that the radiator valves or zone valves are open.

3.7 Adjustment of nominal heating power.

If the heating power needs to be adjusted, do the following.

To make these adjustments, you must follow this procedure:

a) move:
  i. the sanitary knob to half way,
  ii. the thermo knob to minimum

iii. the selector from the Off position to the Reset position.

b) A number for the parameter selected with the sanitary knob is shown on the left of the display in small digits whereas the value is displayed in large digits: maximum heating power is adjusted with parameter 1.

c) to modify the desired parameter: turn the thermo knob. The displayed value is a percentage of the maximum power of the generator. Therefore, an adjustment of 80 means that the heating operates at a maximum of 80% of the nominal power. Once the value has been set, it is stored by moving the selector from the Reset to the chimney sweep position. When it has been stored, the display digits stop flashing. Going from one parameter to another without storing does not modify the existing settings.

d) To quit this function, simply move the selector to the Summer, Winter or Off position or wait 30 seconds after the last operation.

The MERIDIAN boilers are balanced to function at 18 kW for heating for MERIDIAN 5.24 and 25 kW for MERIDIAN 5.32

3.9 Selection of flow temperature in heating mode. (not possible on cascade systems)

It's possible to choose between two temperature flow range on heating phase, making use two cable available at the electric panel exit where connect a room thermostat for high temperature zone and one for low temperature zone. All information is available at chapter 2.8

3.10 Pump anti-seize function

When the selector is in the sanitary position, the boiler has a function which starts the pump at least once every 24 hours for a duration of 3 minutes in order to reduce the risk that the circulator gets blocked because of prolonged inactivity.
When the selector is in the Heating position, the pump anti-block function is activated every 3 hours.

3.11 Heating anti-freeze function.

When the selector is in the sanitary or heating position, the boiler pump is activated when the boiler temperature drops below 8°C until the temperature rises to above 10°C. If the water temperature continues to drop to below 6°C, the pump and burner are activated until the temperature reaches 25°C; during this period, the boiler operates at minimum power. Any operating request in Sanitary, Heating or Chimney sweep mode forcibly stops the function in progress in order to perform the request.

3.12 Maintenance.

Once a year perform the following tests and controls:

- Check and clean the main burner
- Check the correct adjustment of the gas input in DHW and CH functions
- Check the pump
- Test sensor operations
- Check the correct function of the ionisation on the burner control unit
- Check the safety valve on the CH circuit

- Check the soundness of the gas circuit
- Check that there is no presence of water leakage from the boiler internal connections
- Check that the condensing trap is free from obstructions, that there is a sufficient quantity of water inside and that the evacuation of the condense is correct.

It Is better to avoid frequently draining of the system unless for specific alterations or repairs.

In the areas subjected to freezing, the system should be drained when in disuse. This operation can only be avoided with the addition of antifreeze solution.

Attention. If the boiler works with the condense trap empty the combustion smokes enter in the room and a dangerous situation shall arise. To avoid this situation do the following :

- Check that the condensing trap contains water at least at the level that makes impossible for the flues to exit.
- If it is not so fill the trap with water at the maximum level
- See that the safety and checking devices are not tampered or short-circuited
- Check the integrity of the boiler wiring.
- Check that the gaskets of the coaxial flue outlet system or of the separate flue outlet system are sealed.

3.11 Maintenance of the burner and heat exchanger

The condensing boilers require a very low level of maintenance. It is sufficient to clean every year burner and heat exchanger. These operations carry out following the indications and pictures:

1) Remove two screws that keep blocked the front cover of the boiler
2) Pull on the front cover of the boiler
   - **To remove the heat exchanger plate:**
     a) Unlock panel board e turn on it to lower part
     b) Screw out the three screws that block the heating exchanger plate (fig. 1-2). To avoid to knock down the gaskets block with a hand the heat exchanger when you are screwing out the last (fig. 2)
     c) Draw out gently the heat exchanger from their seats (fig. 3)
     d) Pass the heat exchanger through wiring and pump (fig. 4-5).

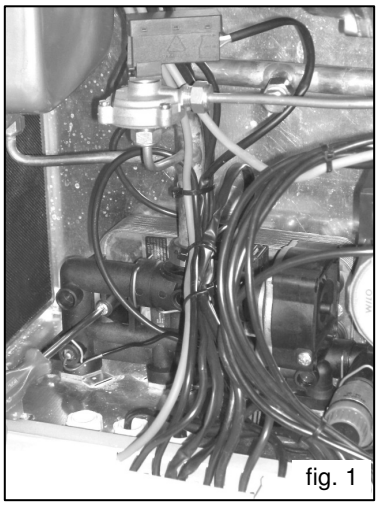


fig. 1

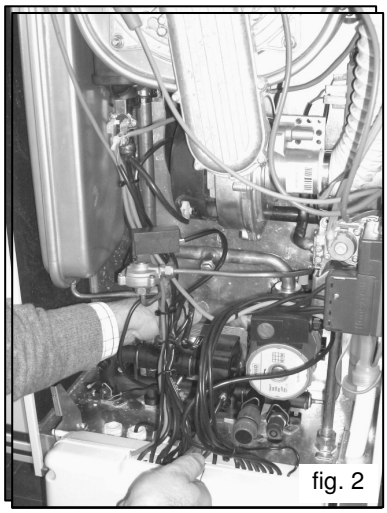


fig. 2

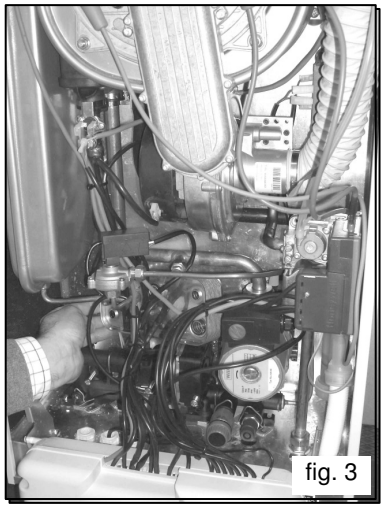


fig. 3

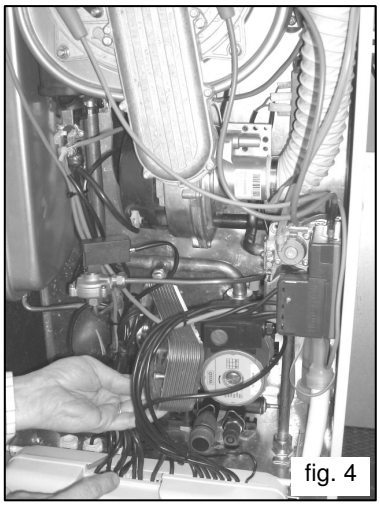


fig. 4

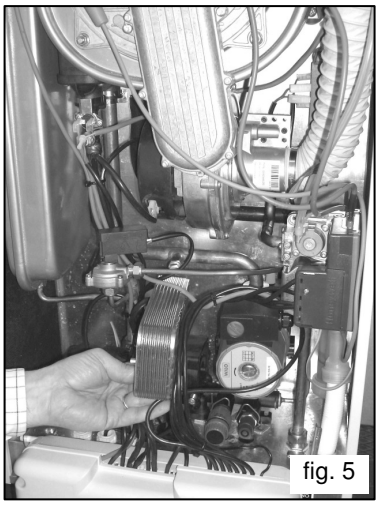


fig. 5

- **To remove the heat exchanger and the burner :**
  a) Screw out the four screws from the heat exchanger sides
  b) take off the flue thermofuse connection
  c) remove the spring clips pipe clamp
  d) loose and screw out the pump brass nuts and heating flow
  e) draw out the pipes from heat exchanger and then broaden the two clamps sides that block the heat exchanger; unlock pulling down to set free it from air/flue outlet.

To service ignition system:
To remove ignition electrode remove the 2 screws hold the electrode in place. Ignition spark gap to be 3-4mm. When replacing ensure sealing gasket is not damaged and sealing correctly. If any doubt replace the gasket.
To replace boiler temperature detector:
To remove and replace control temperature sensor (29), disconnect cable plug, unscrew sensor from mounting pocket. To refit follow the reverse procedure.
To replace over temperature thermostat:
To remove and replace the over temperature thermostat, ensure power is isolated and locate the thermostat device mounted within the electrical power enclosure. Open the enclosure, remove the mechanism and follow the capillary to the sensor fitted to the side of the heat collector on the boiler. Slide out the sensor to remove.
To replace the Combustion Air Fan:
With the cover removed and the control panel hinged open, carefully remove the air intake duct from the fan by removing the clip and sliding off from fan intake. Disconnect the wiring removing the plugs. Remove the screws holding the fan assembly in place and remove.
To refit the fan, follow the reverse procedure ensuring that the fan seals and gaskets are in good condition. If necessary, replace the gasket. Refit the air intake pipe and return the unit to operating order.
To replace the burner management control:
Ensure Power is Isolated. Open the control panel and remove all connections from the controller. Replace the controller checking the conformity of model. Pre-set the position of the dip switches to the same settings as on the existing controller, and refit all control wiring and close cover.
Re-establish power supply. It is necessary to thoroughly recommission the appliance following the steps set out in section 3 of the manual, making sure to check fan speed settings and combustion performance.
Check the operating temperature set point and safety functions.

3.14 Problems, causes and solutions.

The burner ignites and then blocks (code 1 on the display)	The burner doesn't ignite	The boiler doesn't reach temperature	Heating is not sufficient	The boiler does not produce DHW	DHW is not enough	DHW is not hot enough	Error code 5 or 6 on display	Error code 10 on display	Error code 2 on display		
											1
										Detection electrode not connected or badly positioned, flawed ceramics	2
										Detection cable is interrupted	3
										The burner control unit is defective	4
										The printed control board is probably defective	5
										Gas does not reach the burner	6
										The burner is dirty	7
										The gas is not compatible with the boiler (only natural gas G20)	8
										The pump is blocked	9
										The CH safety water pressure switch is interrupted or gives a wrong signal	10
										The gas valve is defective	11
										The room thermostat is defective	12
										The safety thermostat or the safety water pressure switch or limit thermostat is on	13
											14
										The C.H. sensor is interrupted (5)	15
										The heat exchanger is dirty	16
										The holes on the burner are obstructed	17
										The boiler is underdimensioned	18
										The D.H.W. sensor is interrupted	19
										The heat exchanger is obstructed with calcium	20
										The filter of the cocks are dirty	21
										The burner gas input is not sufficient	22
										The boiler output is lower than the requirements	23

Problems

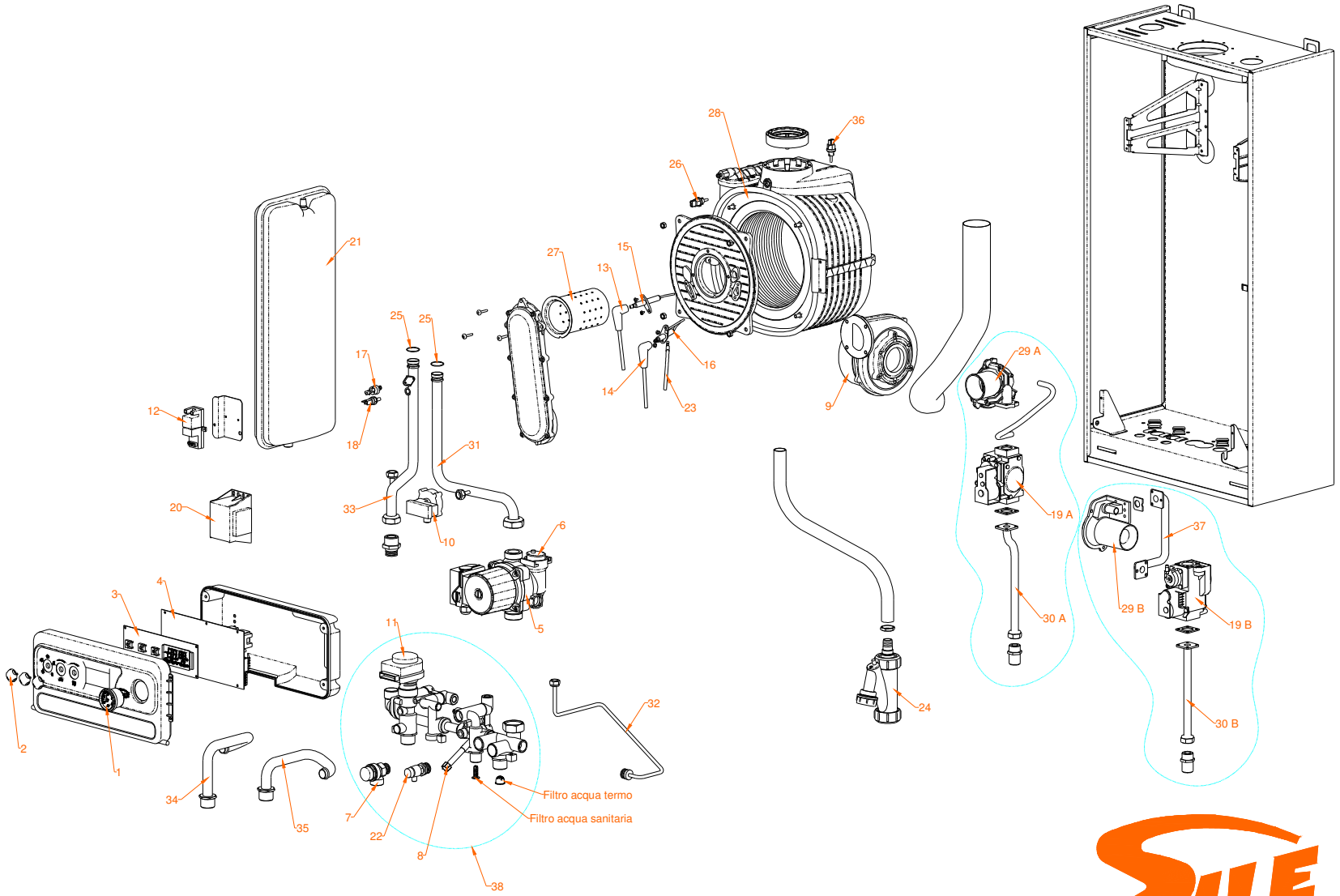
Cause

Solutions

Table 9

SOLUTIONS

2) Check and replace defective parts	13) check the efficiency of the safety thermostat. If it works the boiler is overheating: check water level, expansion tank efficiency and thermal probe
3) Replace the wire	
4) Replace	
5)Check with selector ON the correct visualization on the display. If it is off, replace the small drive printed board	
	15)check the properly connection and replace if necessary
6) check and/or drain air in the ducts	16) perform the cleaning as descriptive on par. 3.16
7) clean the burner	
8) check	17) see point 16
9) reset the appliance	18) Check the installation project with an engineer
10) Check the exact connection and replace if necessary	19) Check the electric connections
	20) clean or replace
11) Replace the gas valve	21)clean
12) Check it's on and replace if necessary	22) check the network and burner pressure
	23) Perform combustion test



Condensa 3.15 - 5.24 - 5.32 N3V

Legenda Esploso

N°	Code	Component description	Mod	N°	Code	Component description	Mod
1	907610203	Water gauge Ø37 scale 0-4 bar with quick coupling		23	907100115	Mass cable	
2		Integrated selector in control board		24	907261181	Trap condense drainage	
3	907520516	Board B&P display amber color		25	909320541	Heat exchanger Quickly attack O-Ring	
4	907520515	Regulation board B&P DIM03-SI01		26	907520161	Probe NTC 10K D.4X30.6 AISI316	
5	907430150	Wilo circulator RSL15/6 HE KU-CLF12	3,15 - 5,24	27		Burner	
	907430135	Wilo circulator RSL15/7-3 KU-CRF3	5,32	28	907155029	Isothermic exchanger 2+1	3,15
6		Automatic air vent valve			907155030	Isothermic exchanger 3+1	5,24
7	907100005	Safety valve 3 bar			907155032	Isothermic exchanger 4+1	5,32
8	907140010	Loading tap		29 A	907100078	Venturi AGM	3,15
9	907170511	Electrical fan NRG 118	3,15	29 B	907100159	Venturi 34 kW	5,24 - 5,32
	907170508	Electrical fan RG 128	5,24 - 5,32	30 A	907261636	Copper pipe gas attack - gas valve DIS. 11012	3,15
10	907510565	Differential pressure gauge		30 B	907261615	Copper pipe gas attack – gas valve DIS. 10563	5,24 - 5,32
11		Three way valve		31	907261617	Copper pipe thermo return - exchanger DIS. 10565/A	
12	907540023	External E 106 ignition B&P		32	907261618	Copperpipe Hidr. Group - Pressure gauge diff. DIS. 10566/A	
13		Detector and ionisation cable		33	907261267	Copper pipe flow heat DIS. 10762	
14	907100114	Ignition cable		34	907261268	Copper pipe flow tank DIS. 10763/A	
15	907100108	Detector electrode		35	907261269	Copper pipe tank return DIS. 10764	
16	907100109	Ignition electrode		36	907520160	Heat Exchanger thermofuse 167°C with steam long	
17	907500053	Safety thermostat Mod.36T AP.100° CH.60°		37	907261616	Copper pipe gas valve - Venturi DIS. 10564	5,24
18	907520012	probe ST06T Cod.18200306			907261630	Copper pipe gas valve - Venturi DIS. 10660	5,32
19a	907100080	Gas valve Sigma RP 1/2 105 mm	3,15	38	907154499	Hydraulic group MF 11 N3V	
19b	907100150	Gas valve VK4115V	5,24 - 5,32				
20	907540000	Supply transformer					
21	907154003	Expansion vessel 7 l	3,15 - 5,24				
	907154010	Expansion vessel 10 l	5,32				
22	907140011	Drainage tap					

3.15 Warranty

This warranty is valid provided that all the appropriate rules and standard procedures for the installation and use have been strictly observed.
We decline responsibility for failures of the apparatus or damage to persons or things caused by:

- transport
- installation in which the current regulations and practices of good workmanship have not been respected
- misuse of the apparatus, improper use conditions, tampering by non-authorised staff, or inadequate maintenance; hence by:
- scale and/or accumulation of debris in the apparatus
- absence of water in the boiler
- absence of fuel
- absence of electrical power
- inadequate high tension or electric system
- absence of grounding in the electric system
- absence of adequate draining
- exceeding the maximum working pressure or operation at low pressure
- faults in the electric or hydraulic system
- frost or fortuitous causes
- wear due to normal use
- faulty operation due to tampering of the safety or control units
- corrosion caused by:
  oxygenation
  stray currents
- any other phenomena (e.g.: chlorides 300 p-p-m.).

The company cannot be help responsible for faults which might appear in this installation manual and reserves the right to introduce any necessary variation without altering the manual essential characteristics