

INSTALLER'S INSTRUCTIONS

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IMPORTANT

It is advisable to check the following before turning on the boiler for the first time:

- Check that there are no liquids or flammable materials in the immediate vicinity of the boiler.
- Check that all electrical connections are secure and that the earth wire is connected to a proper grounding system.
- Open the gas cock and check the seal on all connections, including the burner connection.
- Check that the boiler is set up to run on the type of gas available.
- Check that the discharge channel of the combustion waste is free.
- Check that gate valves are open, if there are any.
- Check that the heating system has been filled with water and that air has been bled out of it.
- Make sure that the circulator is not blocked.
- Purge the system, bleeding off the air present in the gas pipe by operating the pressure relief valve on the gas valve inlet.

FONDERIE SIME Co. Ltd based in Garbo Str. 27, Legnano (VR) in Italy certifies that their high-temperature water boilers are CE labelled according to the Gas directives 30/396/ CEE and are equipped with a safety thermostat, with a maximum calibration of 110 °C.; furthermore they are **excluded** from the field defined by the Directive PED 97/23/CEE because these products meet the requirements provided in the article 1 comma 3.6 of the same Directive.

1 DESCRIPTION OF THE BOILER



1.1 INTRODUCTION

'EKO OF' is a premix boiler with natural gas draught in cast iron for heating with a burner at low Nox levels. This boiler has been designed and built according to

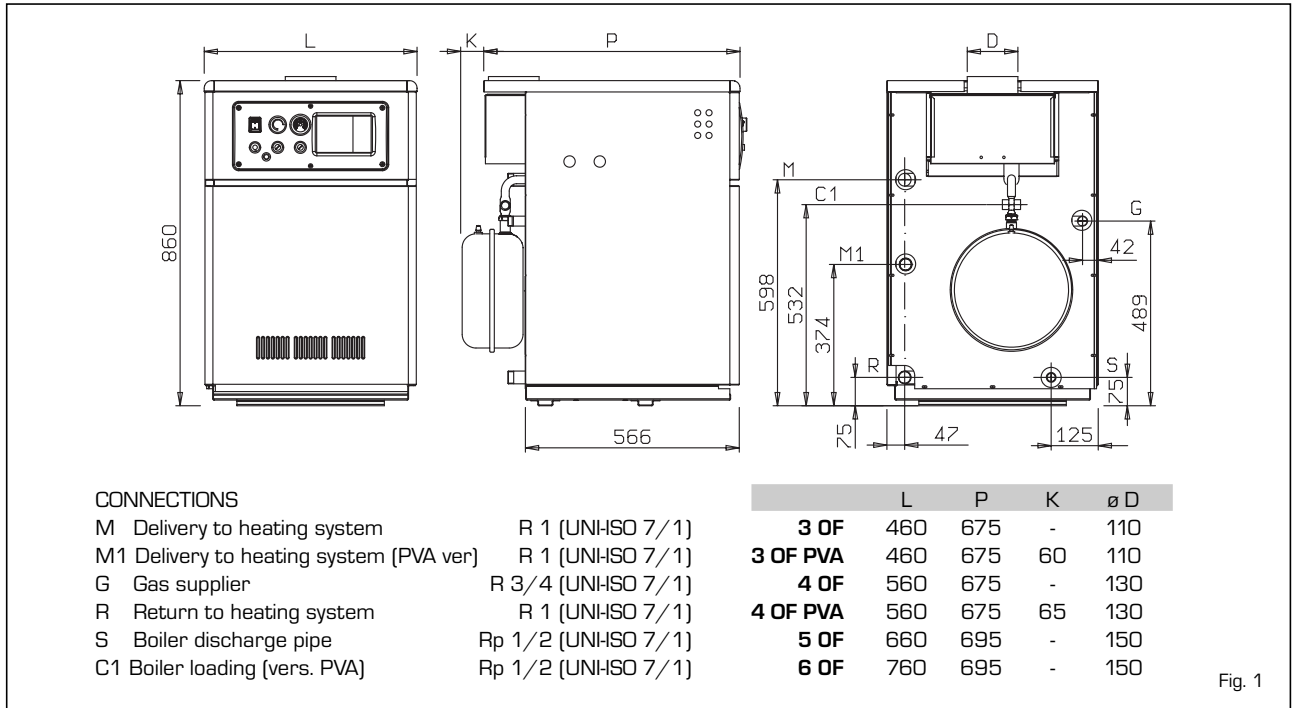
the European directives 90/396/ CEE, 89/336/CEE, 92/42/CEE, 73/23/CEE and also the European standards EN-656.

The 'EKO OF' boilers have been designed to work also at low temperatures.

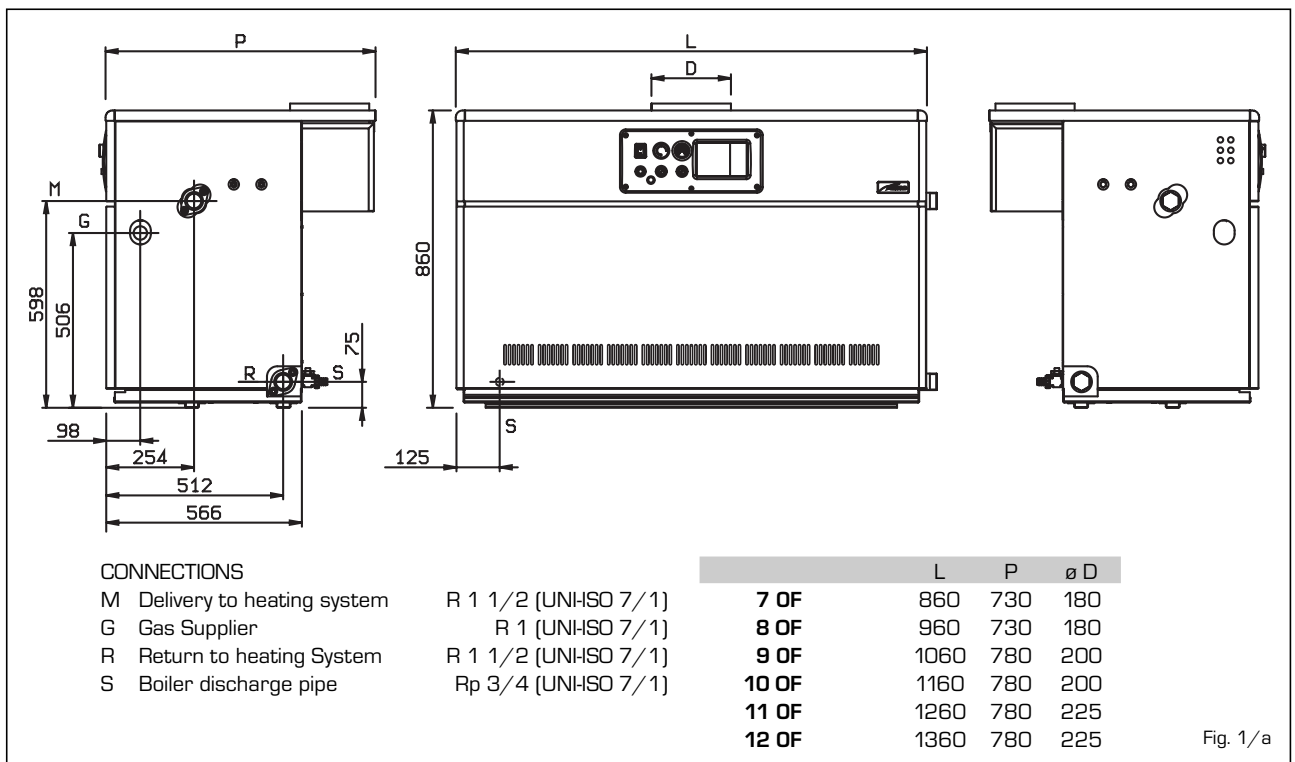
These boilers can be supplied with both natural (G20) and propane (G31) gas. Follow the instructions of this manual in order to make a successful installation and to obtain the perfect operation of this apparatus.

1.2 DIMENSIONS

1.2.1 'EKO 3/6 OF - 3/4 OF PVA' version

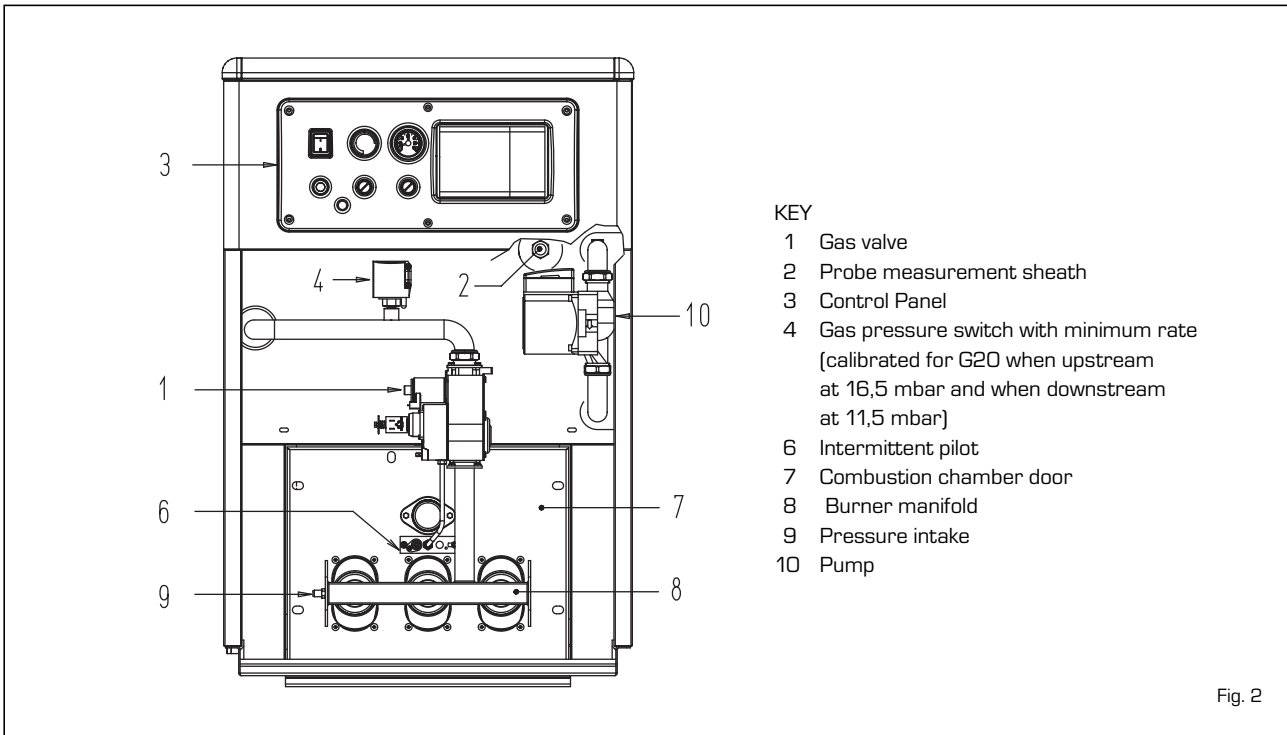


1.2.2 'EKO 7/12 OF' version

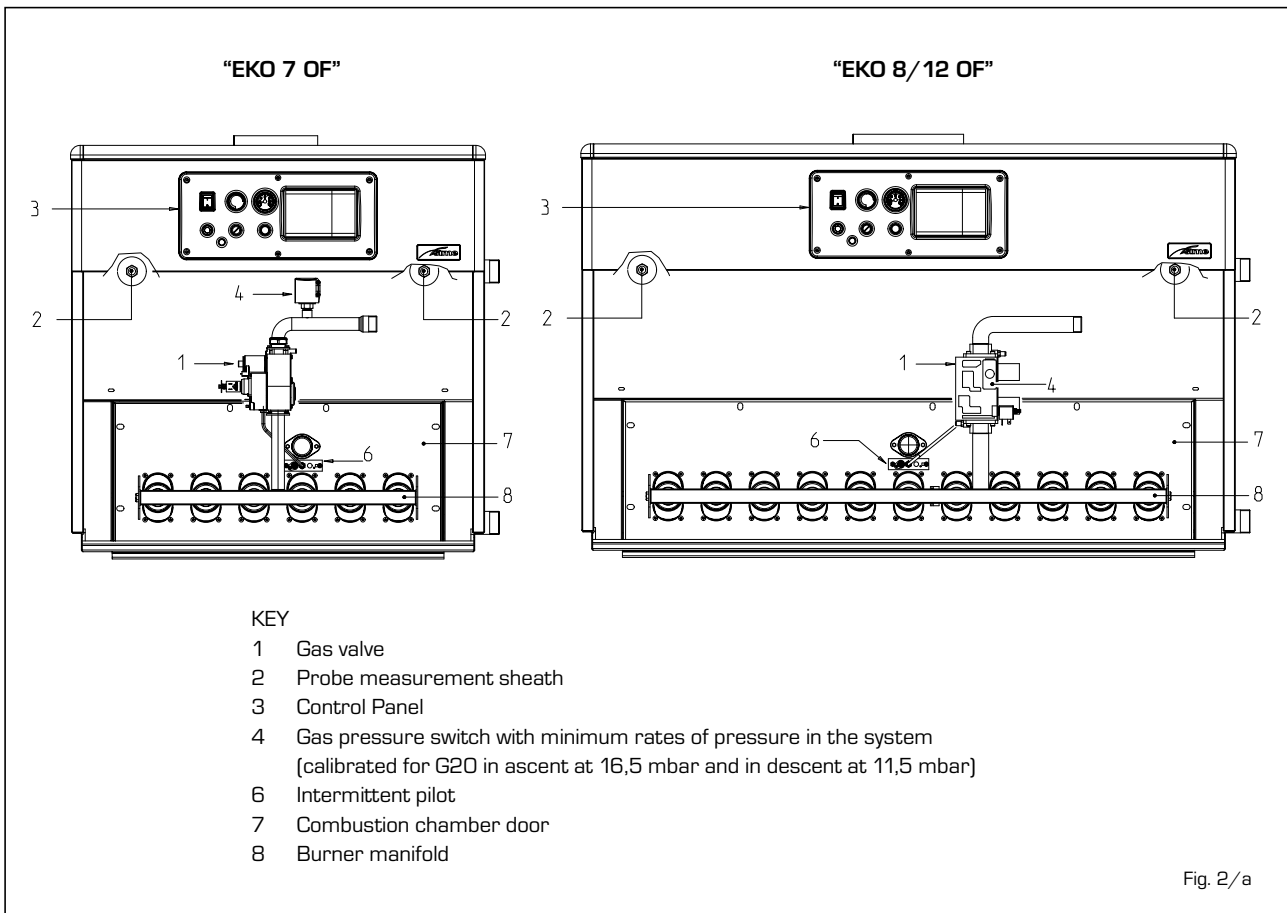


1.3 BASIC COMPONENTS

1.3.1 'EKO 3/6 OF - 3/4 OF PVA'



1.3.2 'EKO 7/12 OF'



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1.4 TECHNICAL DATA

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		3 OF	3 OF PVA	4 OF	4 OF PVA	5 OF	6 OF
Thermal Power							
Nominal	kW	21,2	21,2	31,6	31,6	42,3	53,1
Minimum (G20)	kW	14,9	14,9	22,4	22,4	29,8	37,4
Minimum (G31)	kW	18,0	18,0	27,0	27,0	36,0	45,2
Thermal Capacity							
Nominal	kW	23,3	23,3	34,8	34,8	46,5	58,3
Minimum (G20)	kW	16,3	16,3	24,5	24,5	32,6	40,8
Minimum (G31)	kW	19,8	19,8	29,7	29,7	39,6	49,5
Efficiency Margin							
Efficiency Margin	%	90,9	90,9	90,9	90,9	90,9	91,4
Efficiency at 30%	%	92,8	92,8	92,8	92,8	92,8	92,9
Efficiency Marking (CEE 92/42)		★★	★★	★★	★★	★★	★★
CO at 0% of O ₂	ppm	7	7	7	7	7	7
NO _x at 0% of O ₂	ppm	21	21	21	21	21	20
NO _x rate		5	5	5	5	5	5
Smoke temperature	°C	120	120	120	120	120	140
Maximum smoke capacity	gr/s	14,8	14,8	23,2	23,2	31,5	33,7
Electric power absorbed	W	16	100	16	100	16	16
Supply tension	Volt-Hz	230-50	230-50	230-50	230-50	230-50	230-50
Electric protection grade	IP	X0D	X0D	X0D	X0D	X0D	X0D
CE Certification	n°	1312BP4117	1312BP4117	1312BP4117	1312BP4117	1312BP4117	1312BP4117
Category		II2H3P	II2H3P	II2H3P	II2H3P	II2H3P	II2H3P
Type		B11BS	B11BS	B11BS	B11BS	B11BS	B11BS
Maximum operating pressure	bar	4	4	4	4	4	4
Maximum operating temperature	°C	85	85	85	85	85	85
Water contained in Boiler	l	14	18	17	22	20	23
Boiler's cast iron elements	n°	3	3	4	4	5	6
Temperature regulation	°C	40/85	40/85	40/85	40/85	40/85	40/85
Expansion tank							
Capacity/pressure preloading	l/bar	-	10/1	-	12/1	-	-
Principle Gas Nozzles							
Quantity of Nozzles	n°	2	2	3	3	4	5
Diameter of G20 nozzles	ø	2,75	2,75	2,75	2,75	2,75	2,75
Diameter of G31 nozzles	ø	1,70	1,70	1,70	1,70	1,70	1,70
Small nozzle of gas pilot							
Diameter of G20 nozzle	ø	0,45	0,45	0,45	0,45	0,45	0,45
Diameter of G31 nozzle	ø	0,25	0,25	0,25	0,25	0,25	0,25
Consumo gas G20	m ³ /h	2,47	2,47	3,68	3,68	4,92	6,17
Consumo gas G31	kg/h	1,81	1,81	2,70	2,70	3,61	4,53
Burner Gas Pressure							
Minimum/Maximum G20	mbar	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8
Minimum/Maximum G31	mbar	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5
Gas Supply Pressure							
G20	mbar	20	20	20	20	20	20
G31	mbar	37	37	37	37	37	37
Weight							
	kg	124	126	156	158	188	220

		7 OF	8 OF	9 OF	10 OF	11 OF	12 OF
Thermal Power							
Nominal	kW	63,9	74,2	84,7	95,2	105,8	117,0
Minimum (G20)	kW	44,9	52,3	60,5	68,0	73,5	83,0
Minimum (G31)	kW	54,3	63,2	72,6	81,6	90,7	100,0
Thermal capacity							
Nominal	kW	70,1	81,5	93,0	104,6	116,2	128,0
Minimum(G20)	kW	49,0	57,1	65,2	73,3	81,4	89,6
Minimum (G31)	kW	59,4	69,3	79,1	89,0	98,9	108,8
Efficiency margin							
	%	91,1	91,1	91,1	91,1	91,1	91,7
Efficiency at 30%							
	%	92,9	92,9	93,5	93,5	93,5	93,3
Efficiency marking (CEE 92/42)							
		★★	★★	★★	★★	★★	★★
CO at 0% of O₂							
	ppm	7	7	6	8	8	8
NO_x at 0% of O₂							
	ppm	27	27	27	27	27	26
NO_x rate							
		5	5	5	5	5	5
Smoke temperature							
	°C	120	140	130	145	130	140
Maximum smoke capacity							
	gr/s	46,1	48,4	59,3	60,4	75,2	76,0
Electric power absorbed							
	W	16	32	32	32	32	32
Supply tension							
	Volt-Hz	230-50	230-50	230-50	230-50	230-50	230-50
Electric protection grade							
	IP	X0D	X0D	X0D	X0D	X0D	X0D
CE certification							
	n°	1312BP4118	1312BP4118	1312BP4118	1312BP4118	1312BP4118	1312BP4118
Category							
		II2H3P	II2H3P	II2H3P	II2H3P	II2H3P	II2H3P
Type							
		B11	B11	B11	B11	B11	B11
Maximum operating pressure							
	bar	4	4	4	4	4	4
Maximum operating temperature							
	°C	85	85	85	85	85	85
Water contained boiler							
	l	26	29	32	35	38	41
Boiler's cast iron elements							
	n°	7	8	9	10	11	12
Temperature regulation							
	°C	40/85	40/85	40/85	40/85	40/85	40/85

Principle Gas Nozzles

Quantity of Nozzles	n°	6	7	8	9	10	11
Diameter of G20 nozzles	∅	2,75	2,75	2,75	2,75	2,75	2,75
Diameter of G31 nozzles	∅	1,70	1,70	1,70	1,70	1,70	1,70

Small nozzle of gas pilot

Diameter of small G20 nozzle	∅	0,45	0,45	0,45	0,45	0,45	0,45
Diameter of small G31 nozzle	∅	0,25	0,25	0,25	0,25	0,25	0,25

Gas consumption G20	m ³ /h	7,42	8,62	9,84	11,07	12,30	13,54
Gas consumption G31	kg/h	5,45	6,33	7,22	8,13	9,03	9,94

Burner Gas pressure

Minimum/Maximum G20	mbar	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8	7,0/13,8
Minimum/Maximum G31	mbar	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5	26,9/35,5

Gas supply pressure

G20	mbar	20	20	20	20	20	20
G31	mbar	37	37	37	37	37	37

Weight	kg	253	285	318	351	383	416
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2 INSTALLATION

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Installation must be secure and has to be exclusively undertaken by a qualified specialist who will comply with all the instructions contained in this manual. Moreover installation must be in compliance with all the current regulations.

2.1 BOILER ROOM AND VENTILATION

The 'EKO 3/4 OF - 3/4 OF PVA' boilers, as they do not exceed the limit of 35 kW, can be installed in domestic settings a mere replacement or other appropriate technical premises.

The rooms in which the gas apparatus is installed must be ventilated accordingly. There has to be a sufficient flow of air equal to the quantity of the gas consumed by the apparatus during a regular combustion.

It is necessary to operate openings in the external walls, in order for sufficient air circulation. These openings must meet the following requirements:

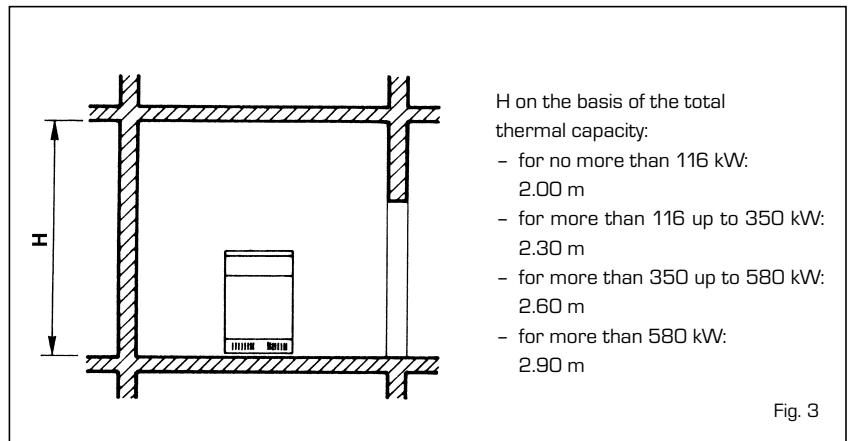
- Leave an open division of at least 6 cm² but never more than 100 cm² for each kW of the installed thermal capacity.
- Such openings have to be as close as possible to ground level, without obstruction and protected with a grating which does not reduce the effectiveness of the air circulation.

On the contrary the 'EKO 5/12 OF' boilers which have a superior rate of 35 kW have to be installed in a technical room with dimensions and requisites which comply with the current standards.

The height of the boiler room must also comply with the one indicated in fig. 3. Furthermore with reference to air circulation within the room, it is necessary to install air vents on the external walls; the surface of which must never be less than 3000 cm², and 5000 cm² for gas with a density greater than 0,8.

2.2 CONNECTING THE SYSTEM

Before connecting the system you are recommended to circulate the water through the piping in order to eliminate any foreign bodies that might be detrimental to the operating efficiency of the appliance. It is always recommended to install proper gate valves of interception within the system flow and return pipes. In order to achieve a good water distribution inside the cast iron body of the 'EKO 7/12 OF' boiler, the system flow and



return pipes should be connected to the same side of the boiler.

CAUTION: '7/12' boilers are supplied with the attachments on the right-hand side, which can also be transferred to the left-hand side. It is important in this case, that the water distributor located on the return header and the thermostat bulbs located in the sheath are moved to the same side.

The thermal jump between the system flow and return pipes should not exceed 20°C. For this reason it is advisable to install a mixer valve.

CAUTION: The system circulation pump or pumps must go into action at the time of boiler ignition. For this reason, you are recommended to use an automatic system of precedence.

The gas connection must be made using seamless steel pipe (Mannesmann type), which is galvanized and has threaded joints provided with gaskets, excluding three-piece connections, except for initial and end connections.

Where the piping has to pass through walls, a suitable insulating sleeve must be provided.

When sizing gas piping, from the meter to the boiler, take into account both the volume flow rates (consumption) in m³/h and the relative density of the gas in question.

The sections of the piping which make up the system must be as such to guarantee a sufficient supply of gas to cover the maximum demand, which limits pressure loss between the gas meter and any apparatus being used to not greater than:

- 1.0 mbar for family II gases (natural gas);
- 2.0 mbar for family III gases (butane or propane).

An adhesive data plate is stuck inside

the front panel; this contains all the technical data identifying the boiler and the type of gas for which the boiler is arranged.

2.2.1 Gas pipe filter

The gas valve is supplied ex factory with an inlet filter, which, however, is not adequate to entrap all the impurities in the gas or in gas main pipes. To prevent malfunctioning of the valve or, perhaps in certain cases, even to cut out the safety device with which the valve is equipped, install an adequate filter on the gas pipe.

2.3 CHARACTERISTICS OF FEEDWATER

Water supplied in the central heating should be treated in compliance with the Norm UNI-CTI 8065. It should be added that, because of their low thermal conductivity, even small incrustation of only a few millimetres thick can cause a notable overheating of the boiler's walls and consequently have serious drawbacks.

It is absolutely essential that the water used for the central heating system should be treated in the following cases:

- Very extensive systems (with high contents of feedwater).
- Frequent addition of makeup water into the system.
- If it is necessary to empty the system either partially or totally.

2.4 FILLING THE HEATING SYSTEM

Fill the heating system slowly to permit air bubbles to come out through the special outlets located in the heating system. The pressure at which the heating system is filled with cold water and the pre-inflation pressure of the expansion

tank must correspond to, and in no case be less than, the height of the static column of the heating system (for example, in the case of a static column of 5 metres, tank pre-filling pressure and filling pressure must at least correspond to a minimum of 0.5 bar).

2.5 FLUE

Combustion waste of natural draught boilers: The flue for evacuation into the environment must meet the following requirements:

- be sealed against products of combustion, waterproof and heat insulated;
- made of materials which can resist normal mechanical stress, heat and the action of products of combustion and condensation produced by them over time;
- vertically oriented and free of choking throughout its length;
- adequately insulated to prevent condensation or the cooling of flue gases, especially if located outside the building or in unheated premises;
- separated from combustible or highly flammable materials by an air space or appropriate insulation;
- provided with a chamber at least 500 mm high for collection of solid materials and condensation underneath the entrance of the first channel. This chamber must be accessible through an opening with a metal door which does not let air in;
- circular, square or rectangular internal section; if square or rectangular, corners must be rounded off with a radius of no less than 20 mm; hydraulically equivalent sections are also permitted;
- fitted with a chimney at the top, the outlet of which must be outside the so-called reflux area to prevent formation of counter-pressure preventing the products of combustion from being freely released into the environment.

It is thus, necessary to comply with the minimum heights shown in fig. 4 ;

- without mechanical intake devices at the top of the flue;
- if the flue passes through or is adjacent to inhabited rooms, there must be no over-pressure.

2.5.1 Flue size

The correct sizing of the flue is an essential condition for efficient boiler operation. The main factors to be taken into consi-

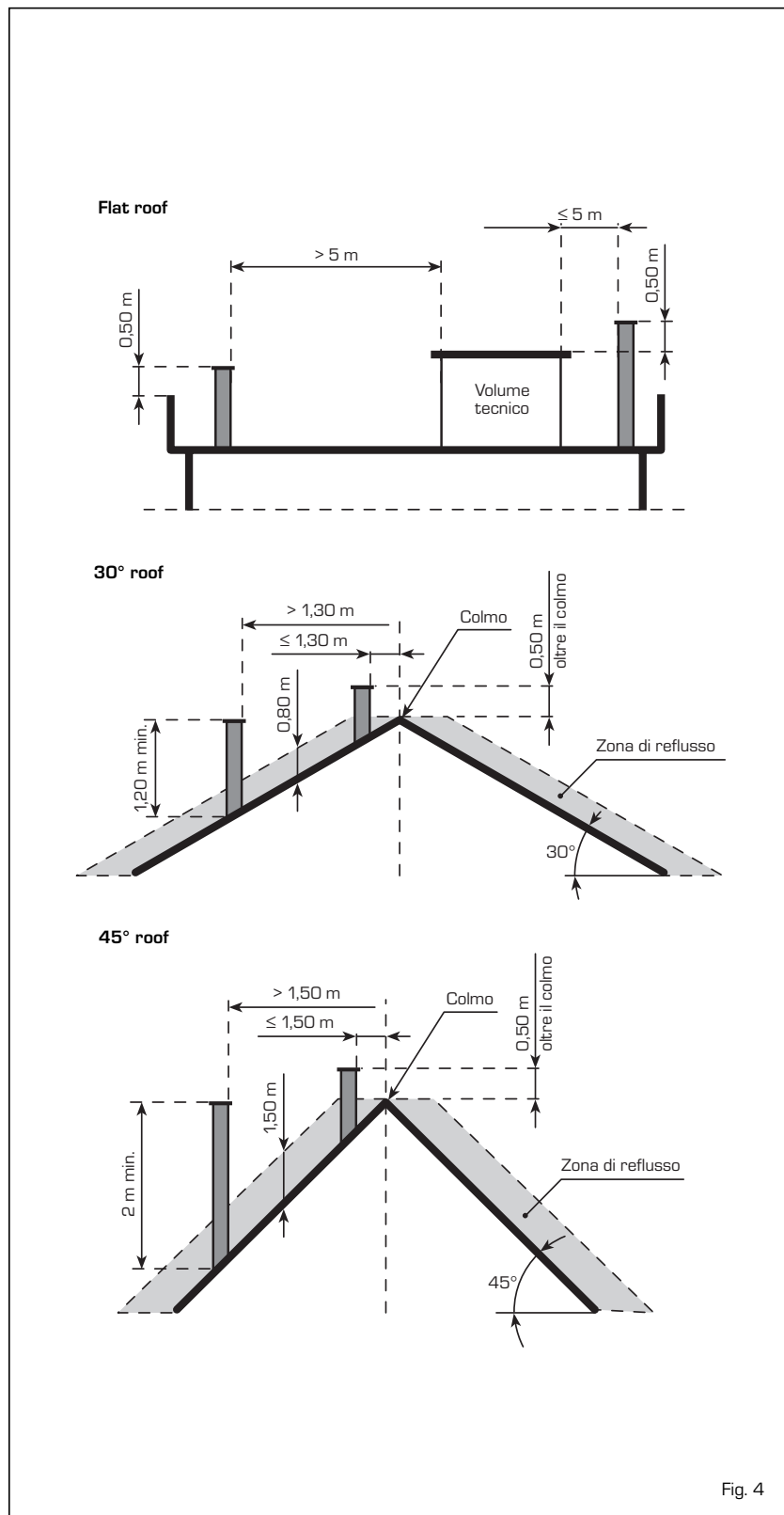


Fig. 4

deration for calculating the section are the heat input of the boiler, the type of fuel, the percentage of CO₂, the mass flow of smoke at a nominal load, the temperature of the smoke, the roughness of the internal wall, and the effect of gravity on the draught pressure, which must take into account the external tem-

perature and the altitude.

2.6 CONNECTING THE BOILER

The boiler is provided with an electric wire which, in the case of replacement, has to be ordered from SIME.

The boiler must be connected to a single phase 230V- 50Hz power supply through a main switch protected by a fuse with at least 3 mm between contacts (fig. 13). The installation of a room thermostat is recommended in order to obtain a better regulation of the temperature and facility within the premises, has to be of II class, and conform with the EN 60730.1 norm (clean electrical connection).

NOTE: SIME shall not accept any liability

for damage or injury resulting from failure to ground the boiler.

2.6.1 CONNECTION OF THE CONTROL UNIT

The electrical circuit includes a series of connectors for installation of an optional control unit, RVA 43.222 cod. 8096303, marked with different colours: black, orange and brown (fig. 5). Connectors

are polarised so that the order cannot be inverted.

To install the control unit, connect these connectors and remove jumpers 13 - 14 and 15 - 17 (marked with bold letters in the electric system of the figure 6) from the terminal board.

The control unit also permits the use of room temperature control units and probes; the polarised, coloured connectors of these are located in a bag inside the control panel.

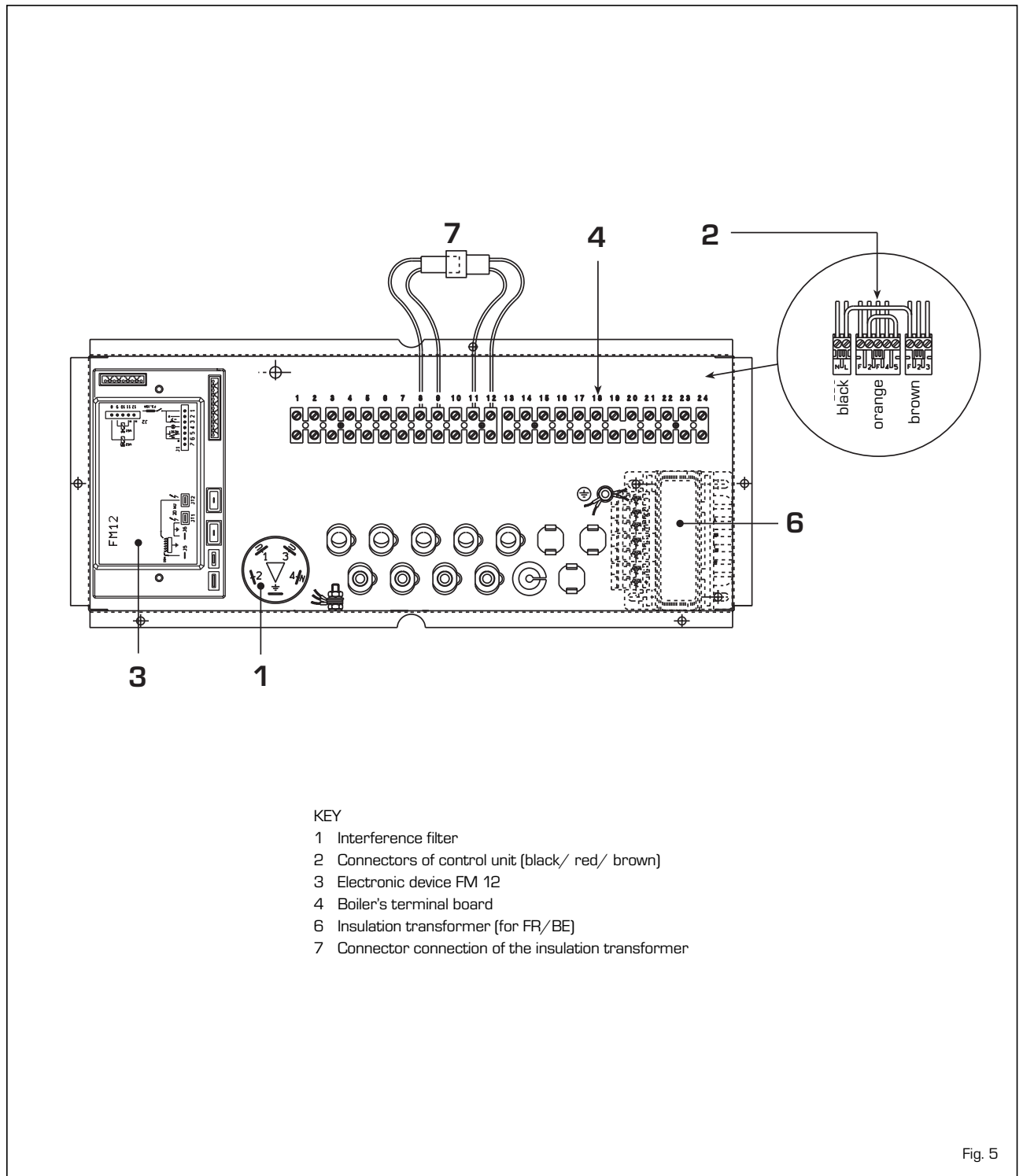


Fig. 5

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2.7 CONTROL UNIT RVA 43.222 (fig.7)

All boiler functions can be controlled by the optional control unit code 8096303, supplied with an outdoor temperature probe (SE) and boiler immersion probe (SC) (fig. 14). Use of the control unit requires the connection of an additional series of low voltage connectors for the connection of probes and the room temperature control unit (the connectors are supplied in a bag in the control panel). The probe bulb of the external boiler, if there is any, (SS), optional cod. 6277110, must be inserted in the hot water sheath and the boiler probe (SC) in the boiler sheath. To assemble the outdoor temperature probe (SE), follow the instructions provided on the packaging. Refer to the wiring diagram in fig. 6 for electrical connections.

ATTENTION: For the correct operation of the control unit set the boiler's regulating thermostat to the maximum setting.

2.7.1 Features and functions

The 'RVA 43.222' has been built as a sin-

gle or double phase regulator of one single boiler or as a cascade regulator for the control of a maximum of 16 boilers.

Economical operation

- Heat production may be turned on or off in the presence of integration with accumulation.
- Boiler temperature is controlled on the basis of climate, permitting environmental compensation.
- There is direct heating circuit management (with pump) for each controller.
- Automatic adaptation to a climatic curve on the basis of the building's thermal inertia and the presence of "free heat" sources (with environmental compensation).
- On/off optimisation (accelerated heating and early off feature).
- Daily economy function calculated on the basis of the dynamic characteristics of the building.
- Automatic summer/winter switch.

Protective functions

- Minimum and maximum delivery temperature settings.
- Differentiated anti-freeze protection

for boiler, hot water tank and heating system.

- Boiler overheating protection.
- Pump seizing up protection.
- Burner protection with minimum operating temperature.

Operative functions

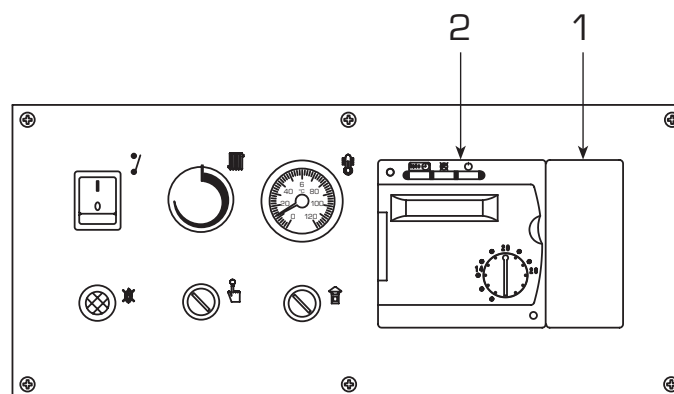
- Simplified start-up.
- All calibration operations are performed on control unit.
- Standard weekly programming.
- All calibration operations and operating settings can be read on leds and display.
- Relay and probe tests.

Hot water production

- Daily scheduling.
- Minimum hot water delivery temperature may be set for a reduced time period.
- Control of hot water tank filling pump.
- Selectable priority of hot water circuit.

Other technical features

- Easy connection with digital environmental unit (GAA 70).



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- 1 Plastic hole cover
- 2 Control unit (optional)

Fig. 7

3 FEATURES

3.1 CONTROL BOX

The boiler is equipped with FM 12 electronic control and protection. Ignition and flame detection are controlled by two electrodes which guarantee maximum safety with intervention times, within 1 second for accidental switching off or gas failure.

3.1.1 Operating cycle

Before igniting the boiler, use a voltmeter to make sure that the electrical connection to the terminal block has been installed properly, with respect to the position of the live and neutral points, as shown in the diagram.

Then press the switch on the terminal block so that the boiler begins to operate upon request either for heating or for drawing hot water: a discharge current is sent to the ignition electrode through the FM 12 programmer, and the gas valve opens at the same time.

Burner ignition normally takes place within 2 or 3 seconds from the moment that electric discharge on the ignition electrode has begun.

When the pilot burner is turned on the FM12 device opens the second electric valve and proceeds to the ignition of the principal burner. However, it is possible for ignition failures to occur, with consequent activation of the signal indicating that the equipment has "locked out". Failures may be due to one of the following causes:

- Gas failure

The control box runs through the cycle normally sending electric power to the ignition electrode. The electrode continues spark discharge for a maximum of 60 sec.

If the pilot burner does not ignite, the control box "locks out".

This may occur upon first ignition or after long periods of boiler lay-off when there is air in the pipes.

It may be caused by the failure of the gas valve to open owing to a break in the electric coil.

- Ignition electrode fails to spark

In the boiler, only the opening of gas to the burner appears to occur. After 60 sec. the control box "locks out".

This may be due to there being a break in the wire of the electrode or the wire not being properly fastened to the terminal of the control box; or

alternatively, the transformer has burnt out.

- No detection of flame

The continuous spark discharge of the electrode is noted to continue starting from ignition even though the pilot burner is lit. After 60 seconds have elapsed, the sparks cease, the burner goes out, and the warning lamp indicating equipment "lock-out" lights up.

This occurs when the positions of live and neutral have not been respected on the terminal block. There is a break in the wire of the sensing electrode or the electrode itself is earthed: the electrode is worn out and needs replacing. The control box is faulty.

When there is a sudden voltage failure, the burner shuts down immediately; when the power supply returns, the boiler will start up again automatically.

3.2 REGULATING THERMOSTAT

"EKO OF" boilers are equipped with a regulating thermostat with a double contact having differentiated settings (6 fig. 2). This makes it possible to obtain a reduction of heat output before the burner goes out completely, by means of the coil assembly installed on the gas valve regulator.

This step-modulation system affords the following advantages:

- higher overall boiler efficiency;
- containment within acceptable values of the increase in temperature that takes place in the cast-iron body (heat

inertia) when the burner goes out.

3.3 SMOKE SAFETY DEVICE 'EKO 3/6 OF - 3/4 OF PVA'

This is a safety device against possible smoke emission into the environment due to inefficiency or partial obstruction of the flue.

The safety device goes into action by blocking operation of the gas valve when the return of the smoke into the environment is continuous and in possibly dangerous quantities.

The device's intervention consists in the 'locking out' of the control box because the burner fails to be ignited; in this case, press the release button and the boiler will start up again automatically.

Should the boiler continue to "lock out", it will be necessary to make a careful check of the flue pipe, making all the necessary modifications and amendments so that it can work properly.

3.4 RESIDUAL PREVALENCE IN THE '3/4 OF PVA' SYSTEM

In the diagram fig. 8, you can see the representation of the residual prevalence in function of the capacity, within the heating plant.

3.5 LOSS OF LOAD BOILER CIRCUIT '3/12 OF'

The load losses are shown in the diagram of fig. 8/a.

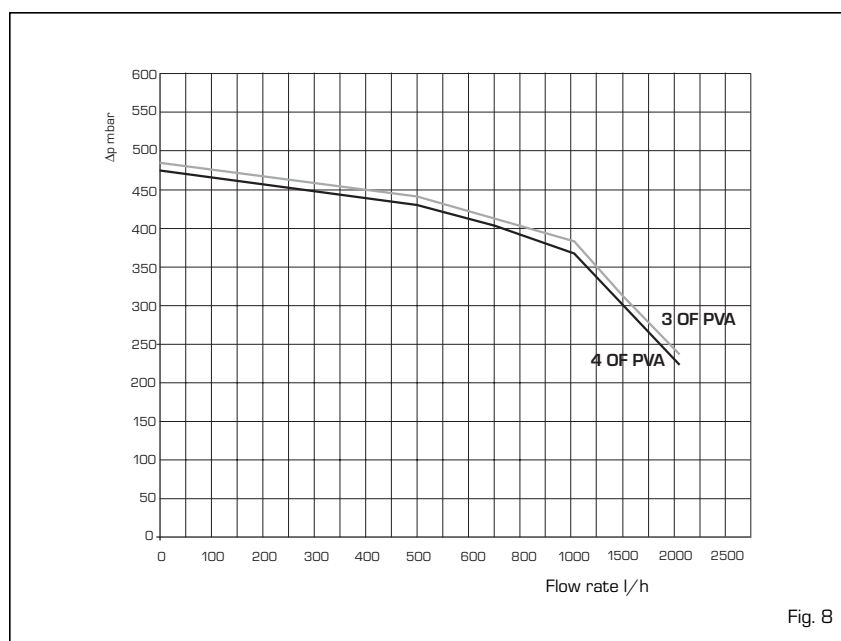


Fig. 8



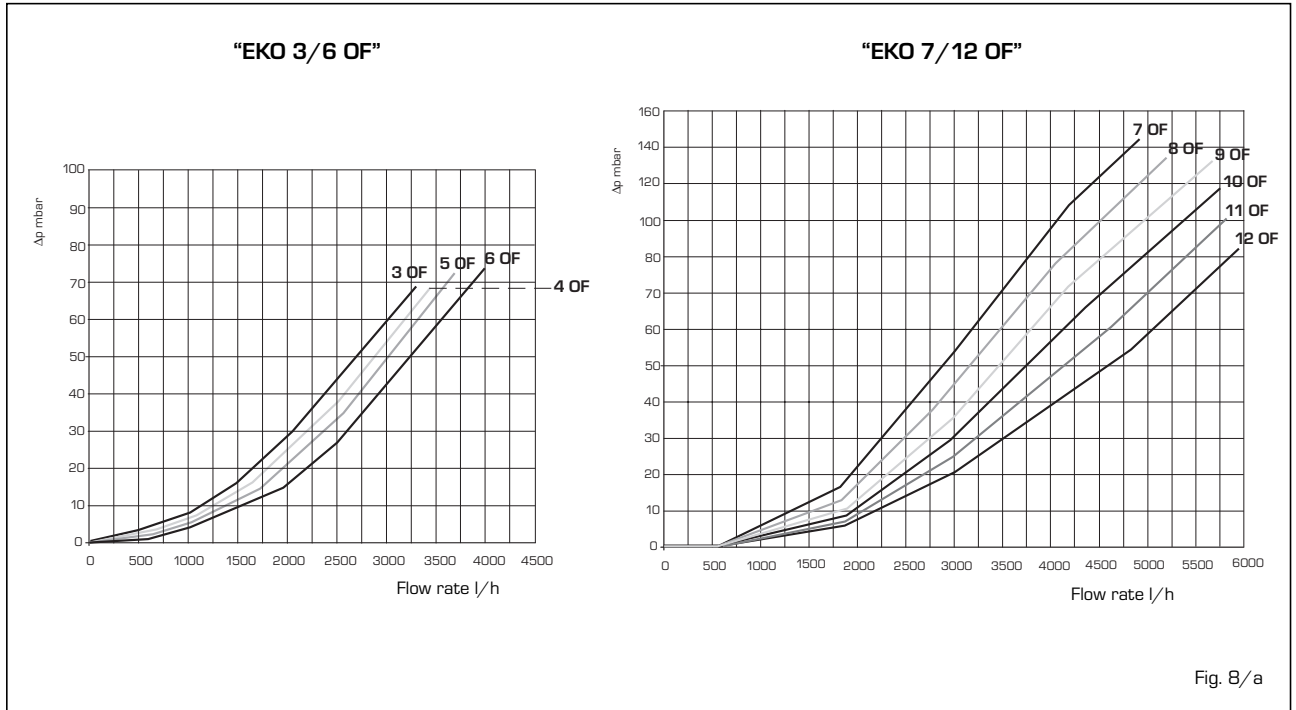


Fig. 8/a

4 INSTRUCTIONS FOR USE AND MAINTENANCE

4.1 GAS VALVE (fig.9)

The 'EKO OF' boilers have HONEYWELL VR 4601 and VRB 25PA gas valve with a coil assembly which permits, through a double-contact regulating thermostat, a reduction in output corresponding to approx. 75% (G20) and 85% (G31) of nominal output before the burner goes out completely.

The operating pressures is calibrated by SIME in the factory.

Consequently these operating pressures should not be altered.

Only when you switch to another type of gas is it permitted to alter the operating pressures (Table 1).

This operation should be carried out exclusively by authorized technical staff, or the guarantee will be nullified. When the working pressures have been adjusted, reseal the regulators.

When the gas pressures are to be reset, this must be done following a set order: first the maximum pressure and then the minimum.

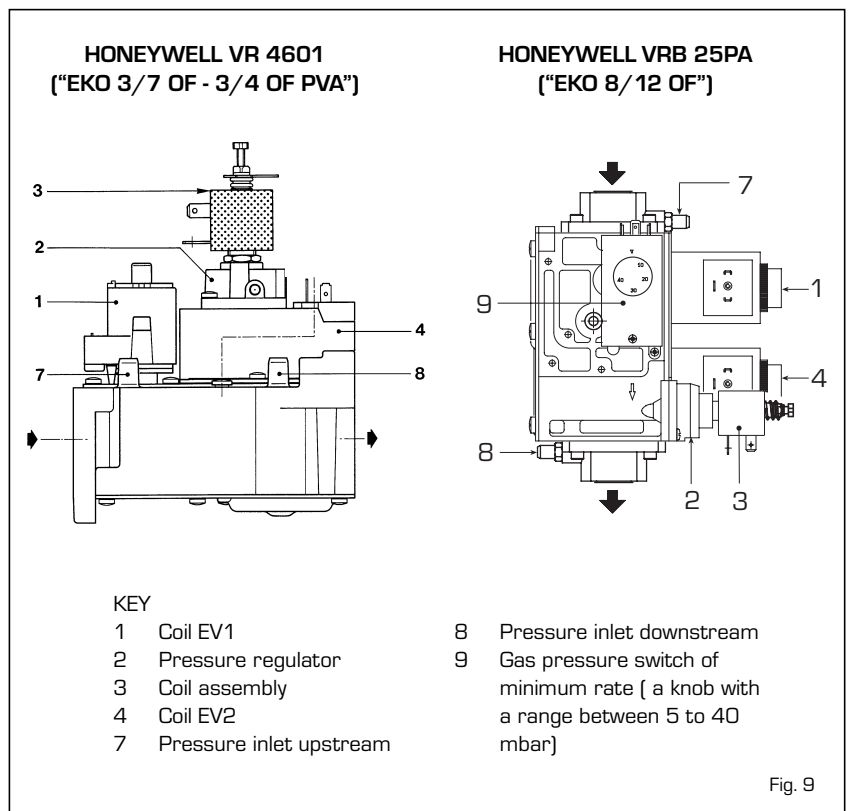


Fig. 9

4.1.1 Adjusting maximum pressure

Proceed as follows to set the maximum pressure (fig. 10):

- Connect the column test pressure to the socket which, in the case of the '3/6 OF-3/4 OF PVA' models, is located on the burner manifold. For the '7/12 OF' model connect the column test pressure to the pressure inlet downstream of the gas valve instead (8, fig.9).
- Remove the coil and tighten the screw all the way (4)
- Set the thermostat knob to the maximum value.
- Turn on the power supply to the boiler.
- Slacken lock nut (1) and turn union (3): turn the union (3) anti-clockwise to reduce pressure, or clockwise to increase it.
- Tighten lock nut (1).
- Turn on the main switch repeatedly, checking that pressure corresponds to the values specified in Table 1.

4.1.2 Adjusting reduced pressure

Proceed as follows to set the reduced pressure (fig. 10):

- With the coil that needs to be connected, the thermostat regulator must be set to the maximum rate and the boiler turned on, turn the screw (4) searching for the pressure rate indicated on Table1:
In order to reduce pressure, turn the screw anti-clockwise; in order to increase it, turn the screw clockwise.
- Relocate and remove the coil in order to check whether the maximum and minimum pressures correspond to the imposed rates.

4.2 TRANSFORMATION TO ANOTHER TYPE OF GAS

A kit is supplied containing everything required for transformation to propane gas (G31). For the transformation from one gas to another, you have to:

- Turn off the gas cock - Replace the main nozzles with those included in the kit, interposing the washer of aluminium o 10 (for this operation use an open-ended spanner of 12).
- Remove the main feeder connection and replace the nozzle supplied in the kit.
- In the models which have the gas valve 'VR 4601' replace the pressure switch of minimum rate calibrated when upstream, at 16,5 mbar and

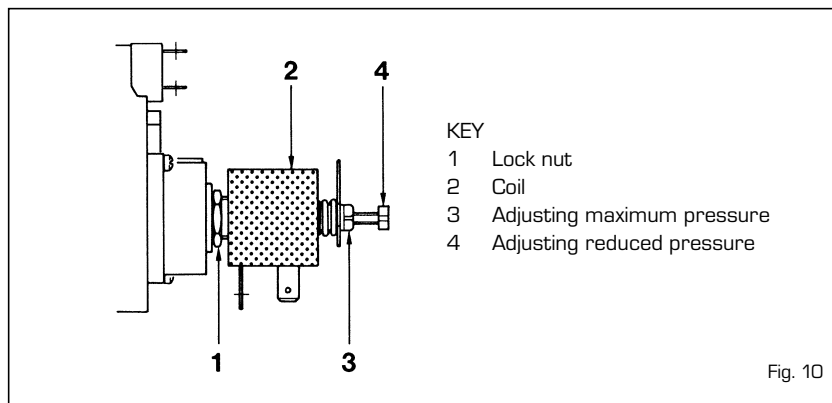


Fig. 10

TABLE 1

		EKO 3/12 OF	EKO 3/4 OF PVA
Methane - G20			
Burner's maximum pressure	mbar	13,8	13,8
Burner's reduced pressure	mbar	7,0	7,0
Propane - G31			
Burner's maximum pressure	mbar	35,5	35,5
Burner's reduced pressure	mbar	26,9	26,9

when downstream at 11,5 mbar (4 fig. 2-2/a) with the pressure inlet, cod. 6043115 for G31, calibrated when upstream at 27 mbar and when downstream at 22 mbar. In the models with a gas valve 'VRB 25PA' instead, turn the knob of the minimum rate pressure (9 fig.9) changing the rate from 11,5 mbar for G20 to 22 mbar for G31.

- In order to regulate the power heat follow the instructions of 4.1
Once the operating pressures have been changed, seal the regulators.
- Apply the plate provided in the kit for identification of the gas for which the boiler is set up to the skirt.

NOTE: All gas connections must be tested for seal using soapy water or products intended for the purpose after assembly. Do not use open flame. The operation must be undertaken exclusively by authorized personnel.

4.3 CLEANING AND MAINTENANCE

At the end of each heating season preventive maintenance and checking of efficient operation of equipment and safety devices must be carried out exclusively by authorized technical personnel.

4.4 FAULT FINDING

The main burner burns badly: very high, yellow flames

- Check whether the pressure of the

burner's gas is regular

- Check whether the burners are clean

Radiators get hot even during summer period

- Check whether there are impurities in the area of the reserve valve
- The reserve valve is faulty, so provide for replacement.

The boiler's safety valve intervenes frequently

- Check whether the pressure at which the heating system is filled with cold water is too high, comply with the advisable rates.
- Control whether the safety valve has been loosened, if so, replace it
- Check the pre-inflation pressure of the expansion tank
- Replace the expansion tank

The boiler works but the temperature does not rise

- Check whether the quantity of gas consumed is inferior to the scheduled one.
- Control whether the boiler is clean
- Check whether the boiler is proportionate to the heating plant.

USER'S INSTRUCTIONS

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WARNINGS

- In case of fault and/or incorrect equipment operation, deactivate the boiler, without making any repairs or taking any direct action. Contact Authorised Technical Personnel.
- The installation of the boiler and any servicing or maintenance job must be carried out by qualified personnel. Under no circumstances, should the devices sealed by the manufacturer be tampered with.
- It is absolutely prohibited to block the intake grilles and the aeration opening of the room where the equipment is installed.

IGNITION AND FUNCTIONING

BOILER IGNITION

Open the gas valve and press the main switch to switch on the boiler which is ignited automatically (fig. 14).

TURN OFF THE BOILER (fig. 14)

To turn the boiler off completely, turn off the power using the main switch (fig. 14).

If the the generator hasn't been used for some time, disconnect the voltage, turn off the gas supply cock and if following this there are periods of low temperatures, clear out the boiler and the hydraulic system in order to avoid pipe breaking due to frozen water.

REGULATING TEMPERATURE (fig.15)

Heating temperature can be regulated with the thermostat knob which covers a rate from 40 to 85 oC .

The temperature that has been fixed can be controlled on the thermometer.

SAFETY THERMOSTAT (fig. 16)

The safety thermostat is of the manually resetting type and turns on,

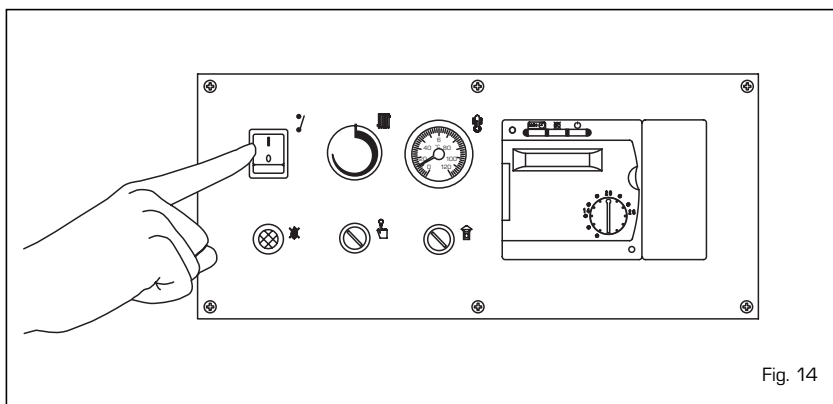


Fig. 14

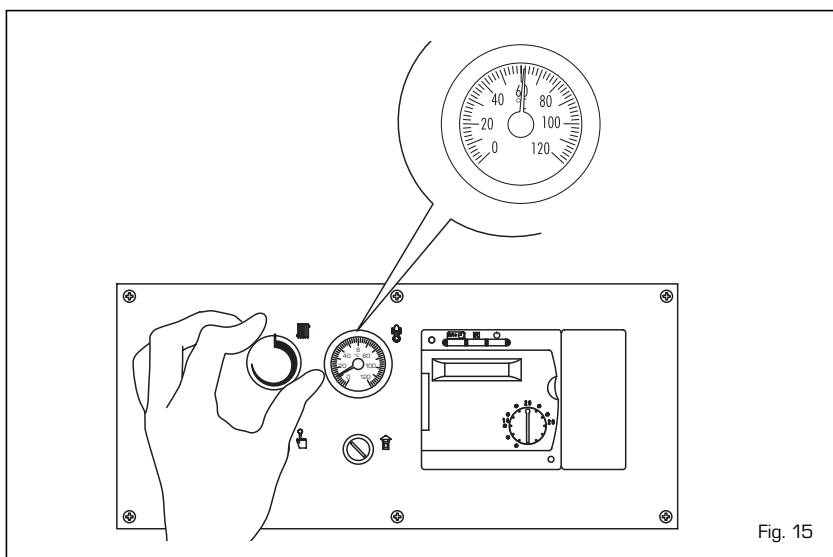


Fig. 15

causing the main burner to turn off immediately, when the temperature of 85°C is exceeded in the boiler.

To restore boiler operation, unscrew the black cap and reset the button underneath (fig. 16).

Should the appliance again "lock out", please contact the authorized technical personnel.

SMOKE SAFETY DEVICE
'EKO 3/6 OF - 3/4 OF PVA' (fig. 17)

This is a safety device against possible smoke emission into the environment due to inefficiency or partial obstruction of the flue.

The safety device goes into action by blocking operation of the gas valve when the return of the smoke into the environment is continuous and in possibly dangerous quantities.

The device's intervention consists in the 'locking out' of the control box because the burner fails to be ignited; in this case, press the release button and the boiler will start up again automatically.

Should the boiler continue to "lock out", it

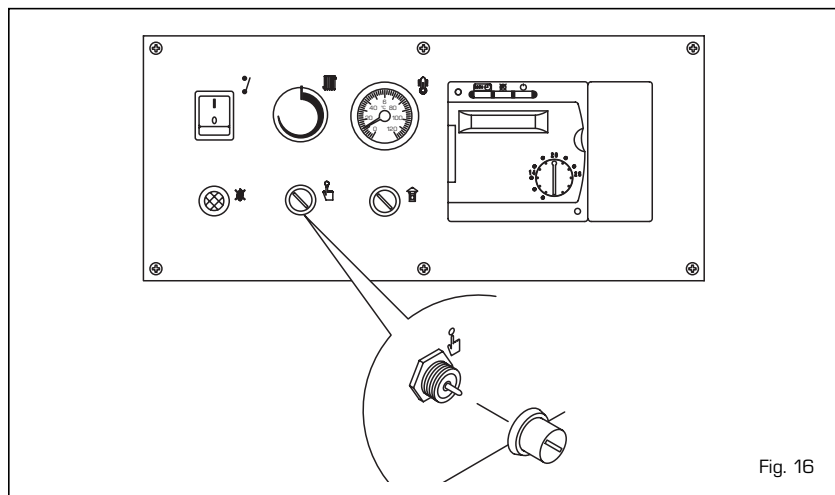


Fig. 16

will be necessary to make a careful check of the flue pipe, making all the necessary modifications and amendments so that it can work properly.

LOCK OUT RESET OF THE CONTROL BOX (fig. 18)

If the burner fails to ignite, the red led

on the reset button will turn on. Press the button to restart the boiler automatically (fig. 18).

Should the boiler "lock out" again, you must call the authorized technical personnel.

GAS CONVERSION

If it is necessary to convert the appliance to a different gas from the one for which the boiler has been equipped, call the authorized technical staff.

CLEANING AND MAINTENANCE

At the end of each heating season, it is essential to have the boiler thoroughly checked and cleaned.

Cleaning and maintenance must be carried out exclusively by SIME's authorized technical staff.

The boiler is equipped with a supply electric cable. Should this require replacement, contact exclusively SIME.

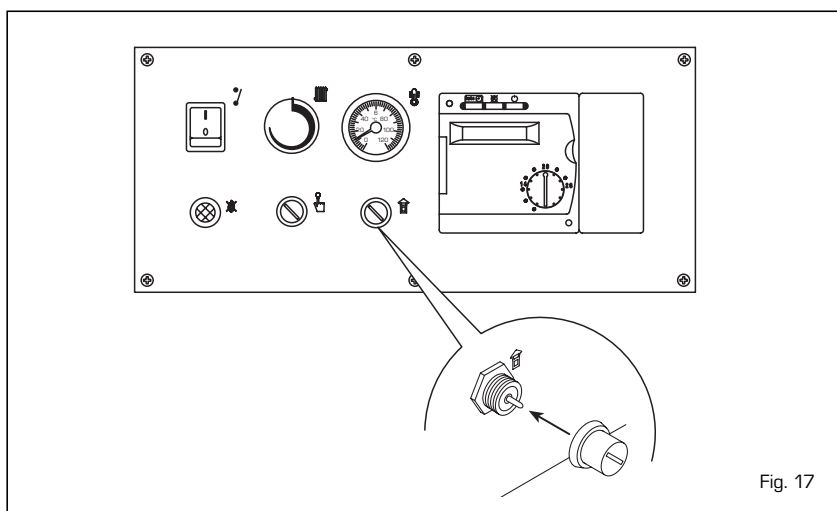


Fig. 17

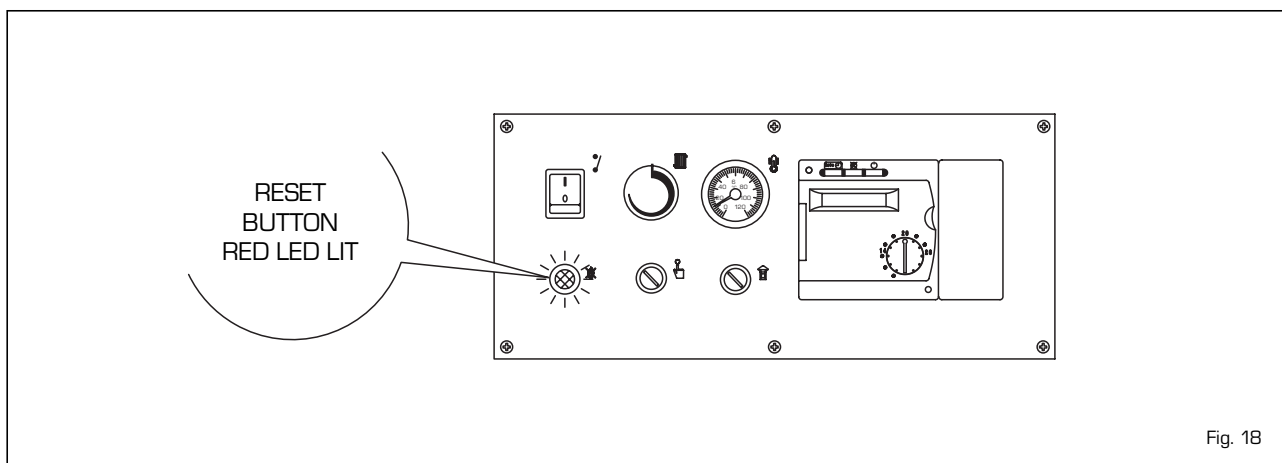


Fig. 18

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CONTROL SYSTEM

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In order to get the highest potential out of the "RVA 43.222" regulator follow the instructions given below:

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TO TURN ON THE HEATING





- Turn on the main switch.
- Set the correct hour of the day and the day of the week.
- Place in automatic mode with the button .

ON

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TO SET THE HOUR


Select the line	Display	Set the regulation with the buttons
	1	 hour of the day
	2	 day of the week



HOW TO USE THE AUTOMATIC MODE

In the automatic mode the temperature of the room is regulated on the basis of the periods of heating chosen.

Auto


- Push the button .

NOTE: Select the heating periods according to one's daily requirements; in this way it is possible to significantly save on energy.

TO ACTIVATE CONTINUOUS HEATING

The continuous heating mode keeps the temperature of the room at the set level via the regulating knob.



- Push the "Continuous Operation" button .
- Regulate the room temperature with the regulating knob.

TO SET THE STANDBY MODE

(when the user is away for a long period of time)

The standby mode keeps the temperature of the room at the level of antifreeze protection.






- Push the "Standby mode" button .



MEANING OF THE SYMBOLS

On the display a few of the symbols indicate the current operating state. The appearance of a line under one of these symbols signals that the corresponding operating state is "active".



 Heating at the nominal temperature (regulating knob)

 Heating at reduced temperature (line .

 Heating at antifrost protection temperature (line .

NOTE: For further information on the symbols and the operating state refer to the detailed description of the heating plant.

TO VARY THE HOT WATER PRODUCTION

The production of hot water can be activated or deactivated by the push of a button.





- Push the button "Hot water" .

IF THE HOT WATER IS TOO HOT OR TOO COLD

Select the line	Display	Set the desired temperature
	13	 °C



IF THE ROOMS ARE TOO HOT OR TOO COLD

- Check that current operating state on the display.
- In the case of **nominal temperature** . Increase or reduce the temperature of the room with the regulating knob.
- In the case of **reduced temperature** .



Select the line	Display	Change the temperature with the buttons
	14	 °C



















NOTE: After each regulation wait at least two hours for the new temperature to expand through the room.

TO CHANGE THE HEATING PERIODS

Select the line	Display	Pre-select the weekly block or the single day
	5	 1-7 = week 1 = Lu/7 = Do



With reference to the day chosen set the changes as following:

Period requested	Push button	Display	Set hour	For °C
Period 1	Start 	6		
	End 	7		
Period 2	Start 	8		
	End 	9		
Period 3	Start 	10		
	End 	11		

NOTE: The heating periods automatically repeat on a weekly basis.

To this end select the automatic mode.


It is possible to reset the standard programme on line 23 by pushing the buttons + and - at the same time.

IF THE HEATING DOES NOT WORK PROPERLY

- Refer to the detailed documentation on the heating system, following the fault finding instructions.



TO MEASURE GAS COMBUSTION

- Push the "chimneysweep" button . The heating will work according to the level requested.



HOW TO SAVE ENERGY WITHOUT FOREGOING ON COMFORT

- A temperature of around 21°C is advised in the rooms that are used. Every degree above this will increase heating costs by 6-7%.
- Aerate the rooms only for a brief period, opening the windows completely.
- In the rooms that are not used place the regulating valve in the antifreeze position.
- Leave the space in front of the radiators free from obstructions (remove furniture, curtains...).
- Close windows and blinds to reduce dispersion of heat.

