
I N S T A L L A T I O N M A N U A L

N X R 3

70 / 290 kW

HIGH-EFFICIENCY, PRESSURIZED,
CAST IRON, OIL OR GAS BOILERS

- 1 . Standards - Regulations
- 2 . General
- 3 . Assembly and installation
- 4 . Installing the options
- 5 . Commissioning
- 6 . Maintenance


CHAPPEE

1. STANDARD-REGULATIONS

BAXI does not accept any liability for damage caused by work that does not comply with these instructions and/or which has not been carried out by a qualified installer.

This boiler design complies with the following European directives:

Directive	Mains voltage	73 / 23 / CEE
Directive	Electromagnetic compatibility	89 / 336 / CEE
Directive	Efficiency	92 / 42 / CEE

This boiler complies with the following standards:

- EN 303.1 • Boilers with forced air burner: Terminology, general specifications, tests and marking
- EN 303.2 • Boilers with forced air burner: Special specifications for boilers with sprayed oil burner
- EN 304 • Test regulations for boilers with sprayed oil burner
- DIN 4791 • Boiler and burner connections

The boiler can be fitted with a choice of fuel oil or gas burner in accordance with the builder's recommendations, the burner complying with the following standards:

- EN 267 • One piece sprayed oil burner
- EN 676 • Automatic blown air burner for gas fuels
- EN 226 • Burner to heat generator connection sizes

The heating system installation must comply with current regulations.

In particular:

- DTU 65 • Central heating systems in buildings
- DTU 65.4 • Gas and liquid hydrocarbon boilers
- DTU 65.11 • Safety systems for central heating systems in buildings

Installers' Association agreement of 2 July 1969.

BAXI S.A. attests that all boilers referred to in this manual comply the same requirements as corresponding examined types, for which the right to use CE marking has been granted according to "Gas appliance" and "Boiler efficiency" European directives.

2. GENERAL

2.1 Description

Boilers of this type are composed of a cast-iron exchanger, consisting in sections assembled by means of nipples. Their heat transfer surfaces have been specially designed to reach high efficiency. The exchanger is insulated by a glass wool layer lined by lacquered steel casing panel, itself insulated to reduce heat losses to a minimum.

These pressurized boilers must be fitted with jet-oil or blown-gas burners, provided operating characteristics are compatible with the combustion chamber size and pressure conditions.

They heat premises, and, for Domestic Hot Water (D.H.W.) production, can be coupled with a D.H.W. tank located next to it.

2.2 Standard supplies

- Fire chamber cast-iron sections not assembled,
- Accessories: smoke box, optimizing baffles, flue ways hinged door, opening chamber door with burner plate, welding flanges for tubes Ø 76,
- Insulated casing and cleaning brush,
- Depending on the order, this boiler is fitted with a control panel (according to version).

2.3 Supplied on request

- Heating body delivered assembled,
- Two extra power economizers,
- Starter sleeve with finger button for remote control sensor and 3/4" Ø tapped opening with plug (not assembled),
- Return sleeve with finger button for remote control sensor and 3/4" Ø drainage valve (not assembled),
- Adjustable feet for levelling body,
- Control panel options,
- OIL or GAS burner, depending on matching prescriptions,
- Domestic Hot Water calorifer (250-350-500-800)

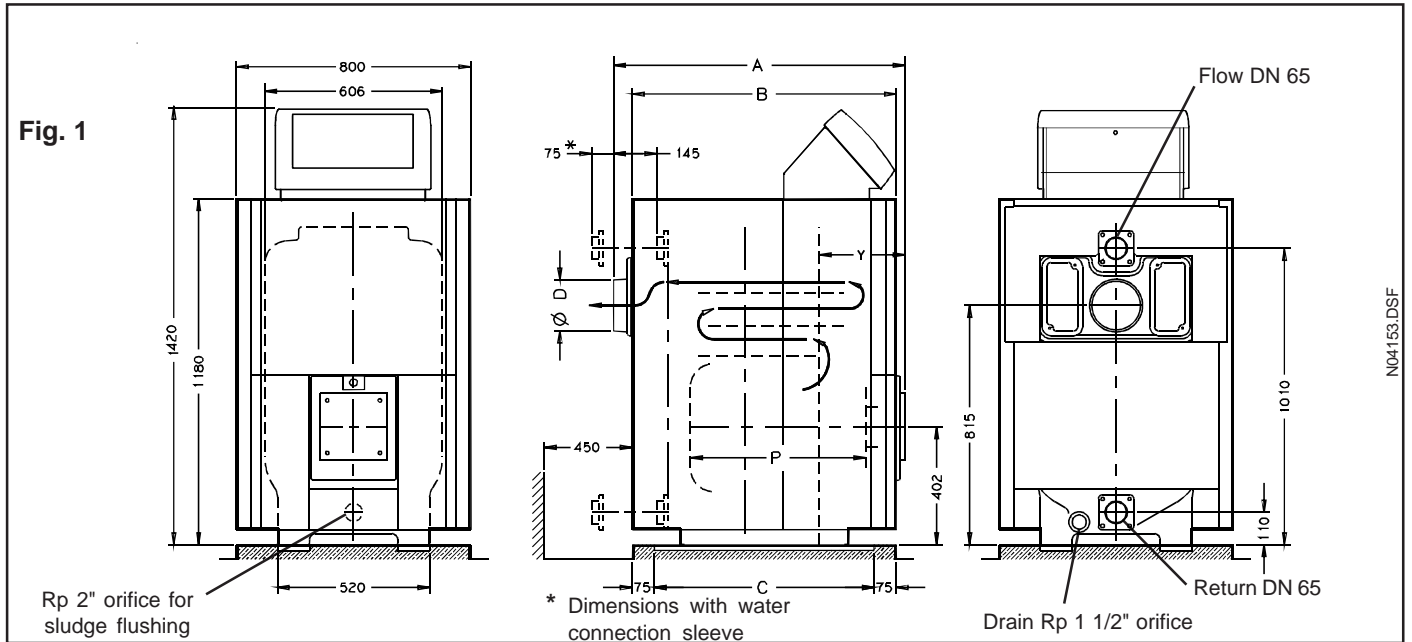
2.4 Shipping, Packaging

Packaging is as follows :

Package	Boiler assembled	Boiler not assembled
Heating exchanger not assembled		X
Heating exchanger assembled	X	
Optimizing baffles	X	X
Heating exchanger accessories	X	X
Control panel wired	X	X
Casing	X	X
Extra accessories		X
Tie-rods		X

		34	35	36	37	38	39
exchanger not assembled	Nb of parcels	7	7	7	7	7	7
exchanger assembled	Total weight kg	612	730	849	963	1082	1198
exchanger not assembled	Nb of parcels	5	5	5	5	5	5
exchanger assembled	Total weight kg	612	730	848	950	1068	1184

2.5 Technical data



Réf. chaudière	: N°	34	35	36	37	38	39	
Output	: kW	70 - 90	90-130	130-170	170-210	210-250	250-290	
Number sections		4	5	6	7	8	9	
Dimensions : Cote A	: mm	995	1165	1335	1505	1675	1845	
Cote B	: mm	900	1070	1240	1410	1580	1750	
Cote C	: mm	750	920	1090	1260	1430	1600	
Cote Y	: mm	292	292	292	292	292	292	
Combust. chamber depth P	: mm	595	765	935	1105	1275	1445	
Smoke hood Ø D	: mm	180	180	180	180	200	200	
Chamber volume	: l	110	140	170	200	230	260	
Flue path volume incl-chamber	: l	190	230	270	320	350	390	
Water system volume	: l	112	136	160	184	208	232	
Working pressure	: bar	6	6	6	6	6	6	
Waterside pressure loss at ($\Delta t = 15 K$)	: mbar	5	9	15	21	31	50	
Thermostat range ajustement	: °C	30 - 90	30-90	30-90	30-90	30-90	30-90	
Limit stat max setting. (temperature)	: °C	110	110	110	110	110	110	
Standing losses (NFD 30 002)	: %	0,14	0,13	0,11	0,09	0,08	0,07	
Heating maintenance needs	: %	0,74	0,52	0,40	0,33	0,28	0,25	
Flame output (P nom)	: kW	75 - 98	97-142	140-185	184-229	228-273	271-317	
2 Savers(3)	Chamber pressure	: mbar	0,1 - 0,2	0,2-0,5	0,5-0,8	0,7-1,2	1,3-1,8	1,5-2,3
	Massic-flow oil flues	: Kg/h	108 - 140	139-202	201-265	263-328	325-391	388-454
	Massic-flow gas flues	: Kg/h	124 - 161	160-234	232-306	303-378	375-451	448-524
	Flue gas temperature	: °C	155 - 174	158-177	161-180	164-182	167-185	170-188
	Combustion efficiency (2)	: %	93,0 - 93,9	92,8 - 93,7	92,7 - 93,6	92,6 - 93,4	92,5 - 93,3	92,4 - 93,2
4 Savers (3)	Flame output (P nom)	: kW	74 - 97	96 - 140	139 - 183	182 - 227	226 - 271	270 - 315
	Chamber pressure	: mbar	0,1 - 0,3	0,2 - 0,5	0,5 - 1,0	0,8 - 1,3	1,5 - 2,0	1,7 - 2,5
	Massic-flow oil flues	: Kg/h	106 - 138	137 - 200	199 - 262	261 - 325	323 - 388	385 - 451
	Massic-flow gas flues	: Kg/h	123 - 160	158 - 231	229 - 303	301 - 375	372 - 447	445 - 520
	Flue gas temperature	: °C	141 - 160	144 - 163	147 - 166	150 - 168	153 - 171	156 - 174
Combustion efficiency (2)	: %	93,6 - 94,5	93,5 - 94,4	93,4 - 94,2	93,2 - 94,1	93,1 - 93,9	93,0 - 93,8	

- (1) The maintenance coefficient is for an average boiler temperature of 70 °C .
 (2) Values given for rated output, 20 °C room temperature, boiler temperature 80 °C, return 60 °C.
 (3) CO₂ (indicative) - 13 % (oil) - 10 % (gas)

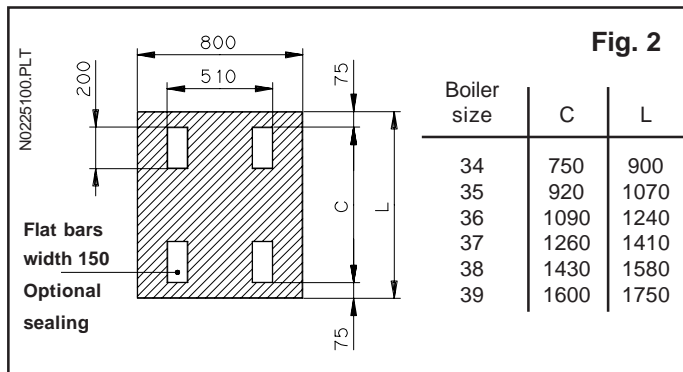
3. ASSEMBLY AND INSTALLATION

Caution : assembly and installation must be carried out by a qualified engineer.

3.1 Boiler room layout

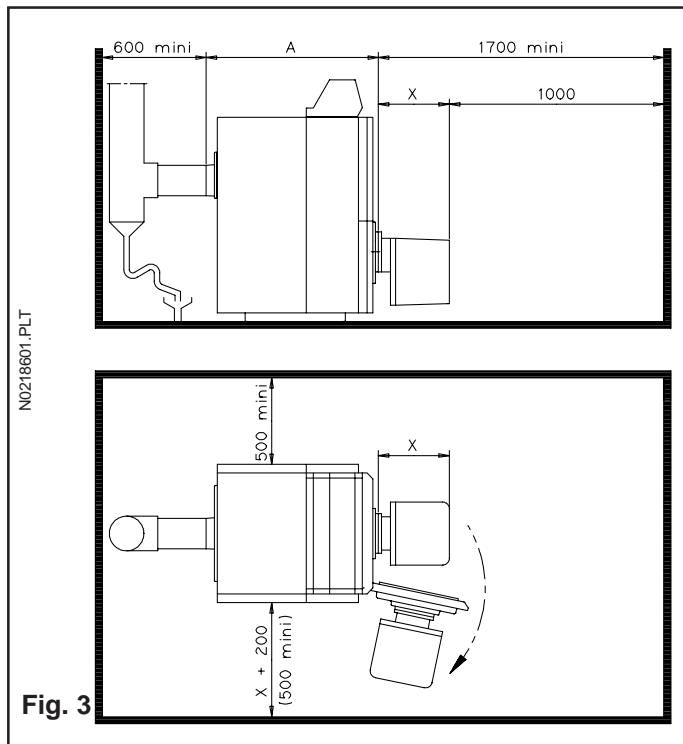
Plinth (see fig. 2)

No special plinth is required for this type of boiler. A simple dry base suffices. For information, we provide the dimensions of this dry base (figure 2). For certain special installations, a sound-proof plinth may be necessary. We recommend a metal plinth resting on reachable antivibration pads.



Clearance (see fig.3)

The dimensions shown are minimal values which allow proper access for assembly and maintenance operations. No need to leave clearance above for cleaning purposes.



Ventilation

Comply with statutory regulations for low and high ventilation

Connections to water supply

Connection to the heating system needs to be done according to statutory regulations and trade practice.

Fuel supply

For oil and gas, comply with statutory rules and recommendations, in particular with respect to safety rules.

Power supply

comply with regulatory prescriptions, in particular with respect to earthing and its connection to the boiler (main switch...)

Flue stack

A 0 daPa depression should be observed at exit of smoke box. Comply with statutory regulations and trade practice. Please note that the efficiency of these boilers results in relatively low flue gas temperatures. Special care must be given to flue stack which must be airtight, heat-insulated and protected against degradation. One of the actions to take is to line the duct. Tubing grade must be compatible with the selected fuel.

It is advised :

- to keep the same cross-section as that of the boiler smoke hood outlet,
- to avoid short radius,
- to keep the number of bends to a minimum
- where possible, to slope connecting parts upwards, towards chimney
- to provide a purging vessel as close to the boiler as possible.

Water flow rate

The system must be designed to ensure a water flow rate, in each boiler, comprised between 1/3 and 3 times the QN nominal flow rate.

$$QN = \frac{PN \text{ kW} \times 0,86}{15K}$$

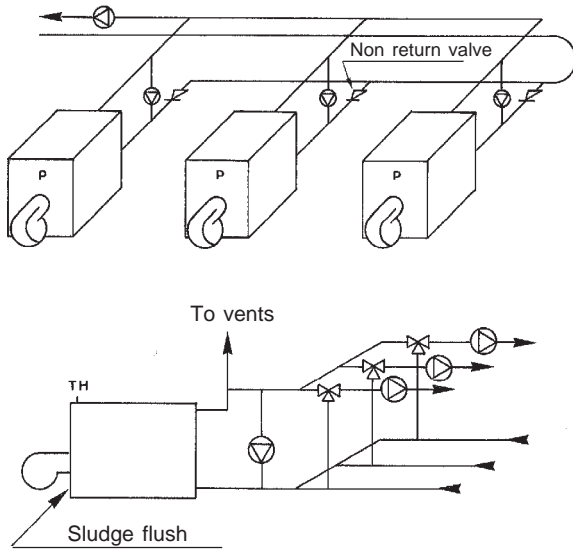
Water flow rate allowed in each boiler must be comprised between :

$$\frac{PN \text{ kW} \times 0,86}{45K} \text{ and } \frac{PN \text{ kW} \times 0,86}{5K}$$

Choice of burner

The burner should be chosen according to the boiler power and furnace.

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Minimum flow rate must be provided at all times, whatever the rate of operation, either :

- by means of the main flow pump, provided that the system has no mixing valve between each boiler and the pump, and that the pump operates continuously,
- by means of a recycling pump or a loading pump operating permanently.

In the case of a recycling pump or a loading pump per boiler, and to avoid parasitic flows in the other boilers, position non return valves upstream from the return connection.

The burner must be controlled by the recycling or loading pump. It can only be put in operation if the pump operates. Secondly, a flow control device, combined with the TH thermostat, can be mounted on the return of the boiler, downstream from the recycling or loading pump.

Fig. 4

DIAGRAM OF THE ELEMENTS

S : tightening markings
E : spacing pads

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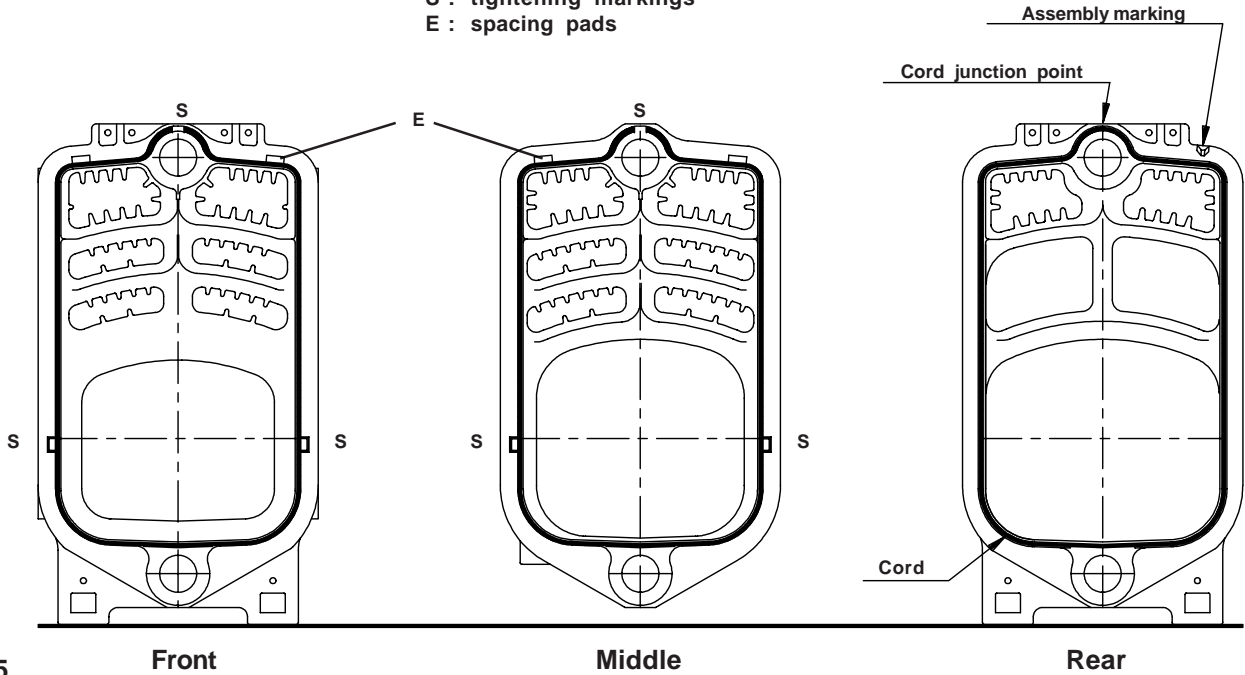


Fig. 5

Boiler ref.	Number of sections			Distributors
	Front	Middle	Rear	
34	1	2	1	None
35	1	3	1	None
36	1	4	1	Short
37	1	5	1	Short
38	1	6	1	Long
39	1	7	1	Long

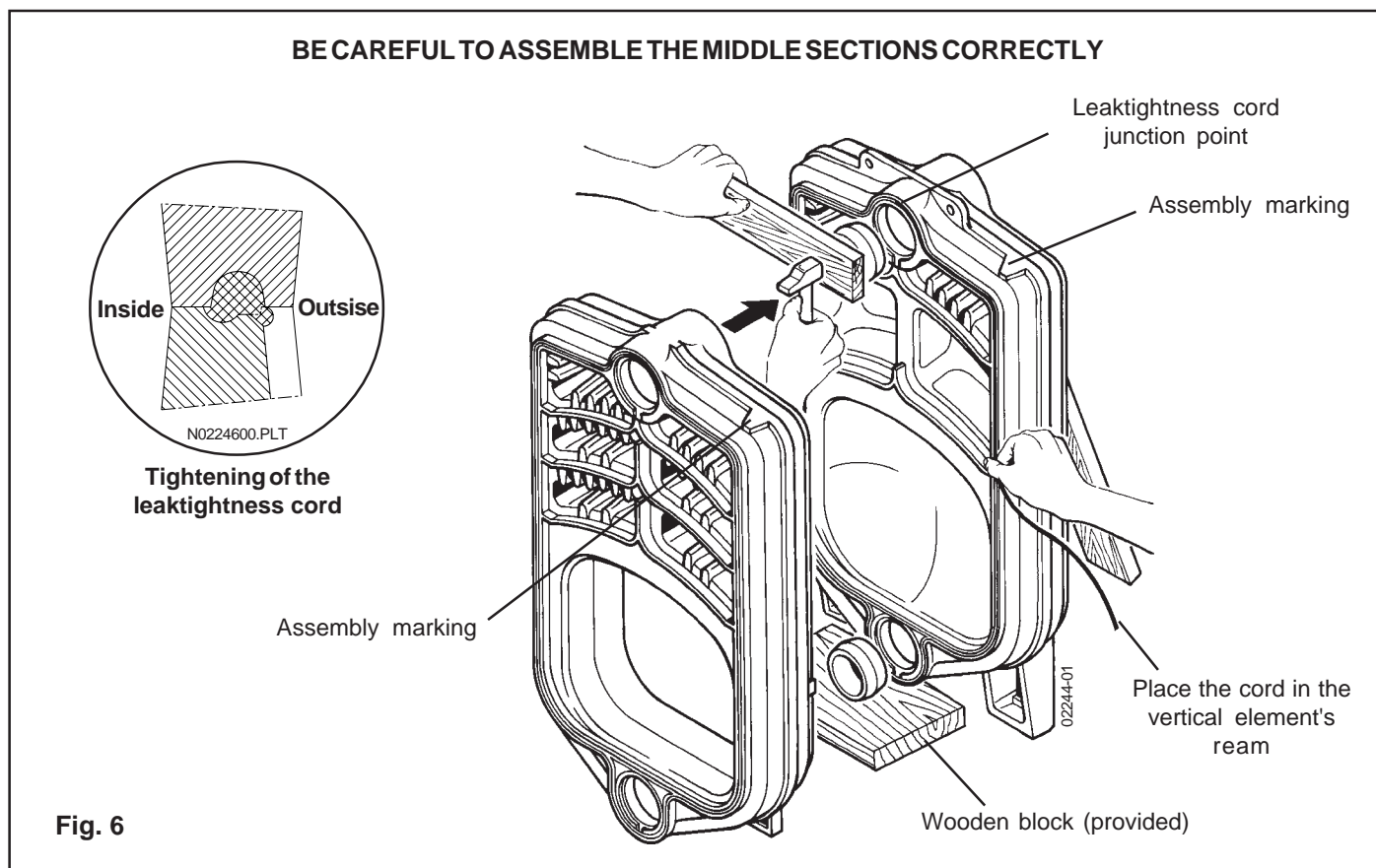
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3.2 Assembling the sections

The sections are assembled using nipples. For a good tightness of the assemblies, it is compulsory to use a special product which ensures a perfect seal (this coating is always provided with the boiler).

Proceed in the following way:

- 1) Open the "Extra accessories" box,
- 2) Clean the nipples with a solvent,
- 3) Put the rear section in vertical position and secure it against tilting by propping it up,
- 4) Position the wooden block provided in the "extra accessories" box, 40 mm thick, in front of the rear section's legs,
- 5) On the vertical section, clean the groove awaiting the cord with a metal brush, then position the cord without stretching it, with the junction point at the top (see figure 6) on the axis of the nipples line. Cut the cord carefully.
- 6) Clean carefully with solvent the receiving surfaces. If need be, use extra fine emery paper in case of rust stains or small barbs.
- 7) NEVER USE OLD NIPPLES.
Coat nipples and reams with the product provided, using a clean brush.
- 8) Place the nipples in the vertical section's orifices and drive them in **slightly** using a piece of wood on which to hit with a hammer or a mallet so as to maintain the nipples in the reams. Do not drive them in too much, so that the final tightening shall be obtained by bringing the sections together.
Take care that the nipples be perfectly vertical, as a deviation during tightening can break the section,
- 9) After having cleaned the middle section and applied the coating, bring it on the block to place it facing the vertical rear section and respecting the orientation of the **assembly marking** which must be always oriented towards front (see figure 6).
Drive it onto the two nipples using a mallet or a piece of hard wood, hitting alternately, at top and bottom, facing the nipples to ensure temporary assembly of the two sections,
- 10) Ensure that they are perfectly vertical, and tighten it as explained in the following chapter.



3.3 Tightening the sections

To tighten the sections, a set of assembly bars is necessary. It comprises:

For 4- to 7- section boiler:

- 2 assembly bars, length = 1.60 m (A),
- 2 fixed plates with stop-ring (B),
- 2 mobile plates with ball nut (C),
- 1 ratchet wrench.

This set is not part of normal supplies.

For 8- and 9- section boilers:

- Same as above,
- 2 bar extensions, length = 950 mm.

Or PARCEL N° 1 + PARCEL N° 2

- 1) Withdraw the plates' alignment screws,
- 2) Place an (A) installation bar in each row of nipples,
- 3) Mount, on each bar, at the rear, a plate with (B) stop-ring,
- 4) Mount at the front the (C) plates with tightening nut, after having lubricated the thread,
- 5) Align the plates,
- 6) tighten the screw alternately by 1/2 a turn each, taking care to avoid fan assembly. Proceed with tightening until the sections touch, and check it by looking in the firebox and the upper "flue-ways".

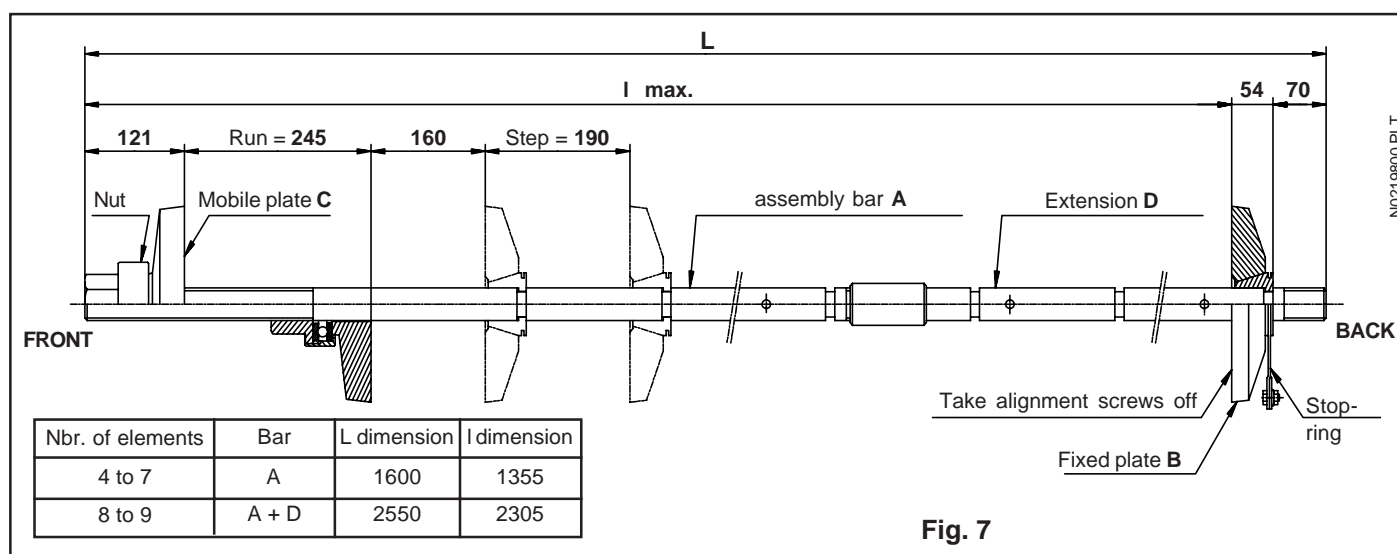


Fig. 7

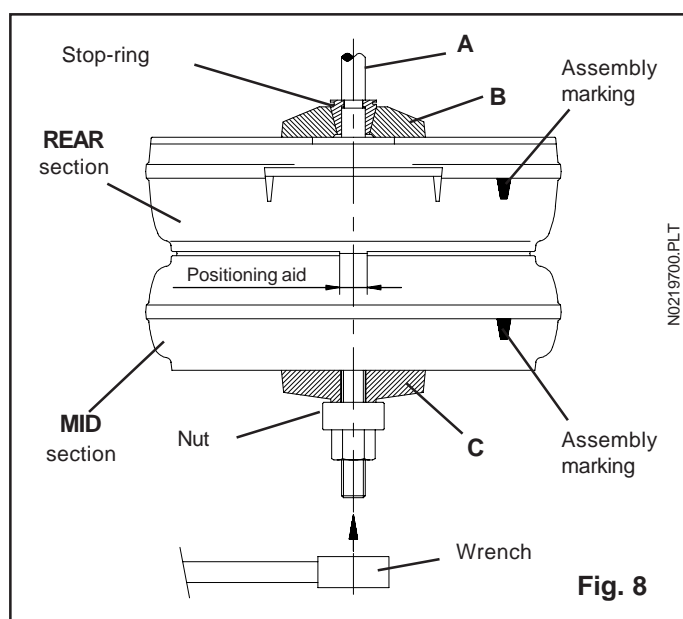


Fig. 8

- 7) Assemble the other sections (1 by 1) in the same way, while moving the wooden blocks alternately as you go towards the front,
- 8) Do not loosen the assembly bars and position the 4 assembly linkages. Tighten them properly, leaving an equal length at each end to secure the casing's cross members, and if necessary the adjustable legs,
- 9) Loosen and take the installation bars off,
- 10) proceed with the boiler assembly.

NOTE: If it were necessary to dismantle one of the boiler's sections, and to avoid damaging the leaktightness gorges, it is imperative, when dismantling the sections, to place the chisel at the level of the spacing pads (E) provided in the upper part (see figure 5).

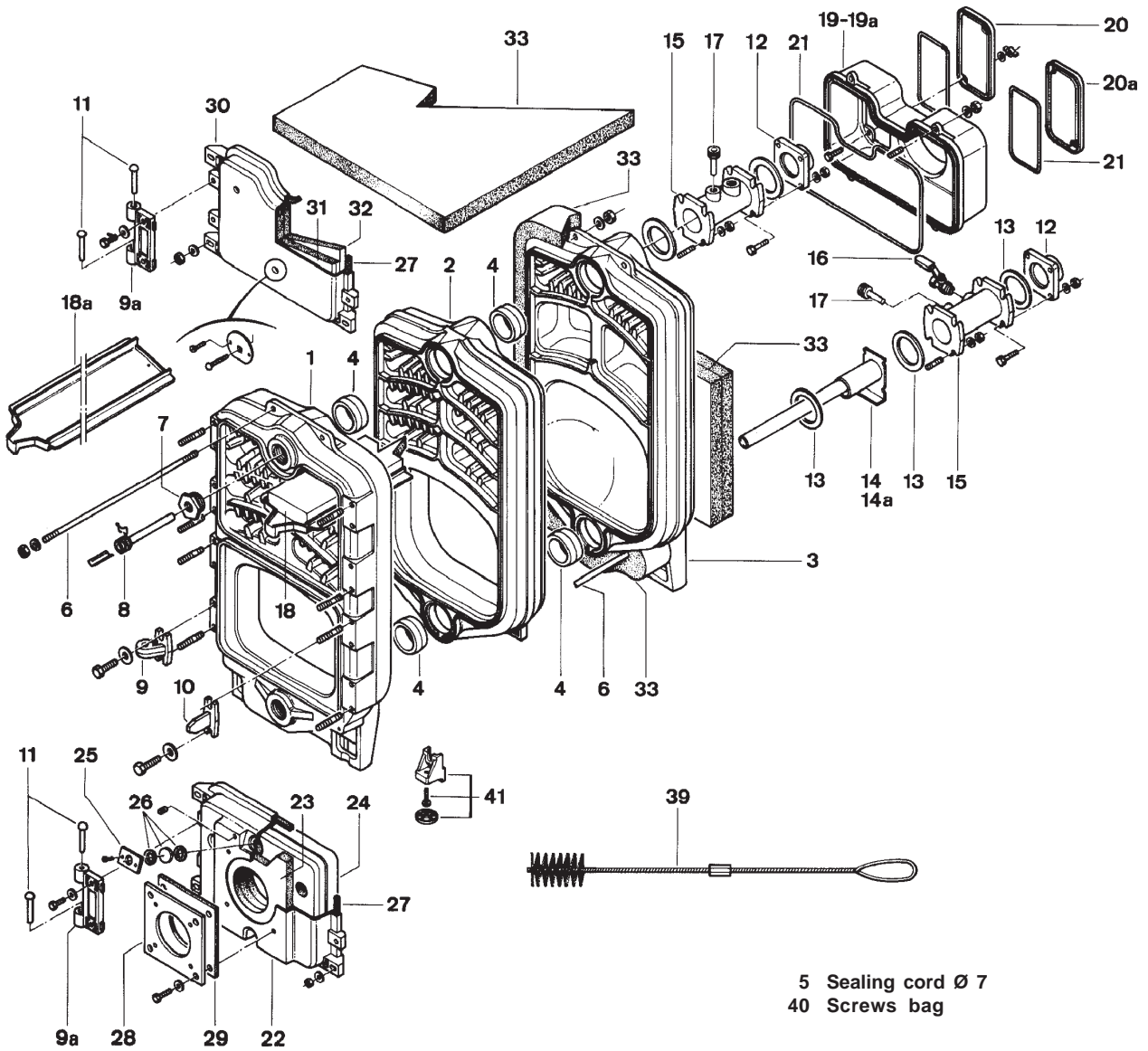


Fig. 9

- | | | |
|--------------------------------|---------------------------------|----------------------------|
| 1 Front section | 14 Disriburor, Length 180 | 24 External insulation |
| 2 Middle section | 14a Distributor, Length 530 | 25 Sight flange |
| 3 Rear section | 15 Flow and return manifold | 26 Sight glass and seal |
| 4 Nipple Ø 89 | 16 Drain valve | 27 Door seal Ø 16 |
| 5 Sealing cord Ø 7 | 17 Sensor pocket, Length 100 mm | 28 Burner plate |
| 6 Tie-rod | 18 Upper baffle | 29 Burner plate gasket |
| 7 Reducer | 18a Lowe baffle | 30 Cleaning access. door |
| 8 Sensor pocket, Length 200 mm | 19 Smoke box Ø 180 | 31 Internal insulation |
| 9 Door hinge | 19a Smoke box Ø 200 | 32 External insulation |
| 9a Door hinge | 20 Flue-way hatch (L) | 33 Insulation body blanket |
| 10 door guide | 20a Flue-way hatch (R) | 39 Cleaning brush |
| 11 Door pin | 21 Leaktightness braid Ø 8 | 40 Screws bag |
| 12 Welding flange | 22 Chamber door | 41 Complete adjustable leg |
| 13 flange gasket | 23 Internal insulation | |

3.4 Operational assembly diagram

Operation	Method
Open the "chamber accessories" parcel	
Distributor (14 - 14a)	<ul style="list-style-type: none"> Assemble the 8 studs 12 x 65 around the rear section's start and return orifices. If necessary, insert the distributor (see figure 22) in the return orifice by interpolating the seal (13).
Installing the boiler	<ul style="list-style-type: none"> Place the boiler in its final position and level it, which would be made easier by the "Adjustable legs" option (chapter 3 . 1)
Sensor pocket (8)	<ul style="list-style-type: none"> Screw the pocket and the reducer (7) in a leaktight manner in the front section's upper orifice.
Sludge flushing	<ul style="list-style-type: none"> A threaded orifice Ø 2" is provided at the bottom of the front section, for mounting a valve enabling rinsing and flushing of the installation's sludge (we recommend mounting coil, a 90° bend and the valve). A pre-cut space allows for passing the tubing in the casing's lower panel.
Drain valve (16)	<ul style="list-style-type: none"> Mount a drain valve tightly (not provided) on the installation or in the lower part of the rear section using a reducer (not provided). A drain valve Ø 3/4" is delivered with the "Connection sleeves" option (see chapter 4 . 2).
Welding- flange (12)	<ul style="list-style-type: none"> Connect the flanges on the installation's tubing, than fasten them on the boiler, interpolating the seal (13), with 4 HM 12 nuts and 4 washers for each.
Filling and hydraulic test	<ul style="list-style-type: none"> After having checked the connections, proceed slowly with filling the installation, ensuring all the air is vented, then proceed to the hydraulic test ((1.3 x P. operation) to check all leaktight areas.
Smoke box (19 - 19a)	<ul style="list-style-type: none"> Screw the shortest threaded part of the 4 studs M 8 x 40 in the rear section in the upper part. Check that the leaktightness braid (21) is in place. Engage the smoke box on the studs and fasten it (4 HM nuts and 4 washers) by tightening the nuts moderately and simultaneously.
Stack	<ul style="list-style-type: none"> Connect the boiler to the stack in the most direct possible manner and without reduction of the size of the smoke duct. Ensure that the latter is leaktight.
Optimizing baffles (18 and 18a)	<ul style="list-style-type: none"> Insert the assembled baffles (18) in the upper "flue-ways" and, if need be, the simple baffles (18a) in the lower "flue-ways" (see chapter 4 . 3).
Door hinges (9) Door guide (10)	<ul style="list-style-type: none"> Screw the small threaded part of the 8 studs M 8 x 40 in the front section following the indications of figure 10. Define the opening side for the doors. Mount the hinges (1 screw HM 10 x 30 + 1 nut HM 10 + 2 washers L 10 for each guide). The door guide is located opposite the hinges, in the upper part.
Door hinge (9a) Chamber (22) and Cleaning door (30)	<ul style="list-style-type: none"> Depending on the chosen opening side, secure the hinge (9a) on each door using 2 screws HM 12 x 35 + 2 washers M 12. <p>Caution: For reasons of practicality, it is recommended to mount the firebox door first.</p> <ul style="list-style-type: none"> Mount the doors on the hinges using the axes (11). Engage the doors on the studs and fasten them (4 nuts HM 10 and 4 washers L 10 for each door), tightening the nuts lightly and simultaneously.
Burner plate (28)	<ul style="list-style-type: none"> Depending on the size of its fixation, the burner is mounted directly on the door, or via a perforated plate (see figure 11). Mount the burner plate (4 screws HM 12 x 35 + 2 washers M 12) on the chamber door, interpolating the leaktightness seal (29). - A plain plate may be provided on request.

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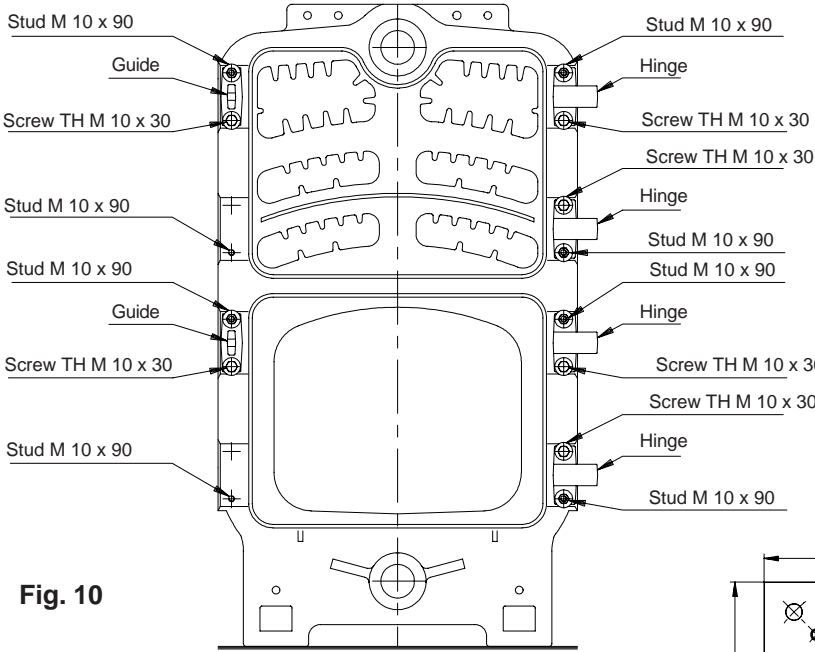
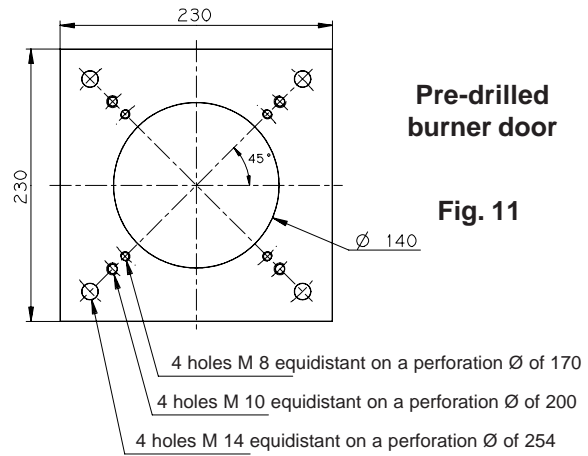


Fig. 10

Front

Door hinge and door guide assembly



Pre-drilled burner door

Fig. 11

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Insulation positioning

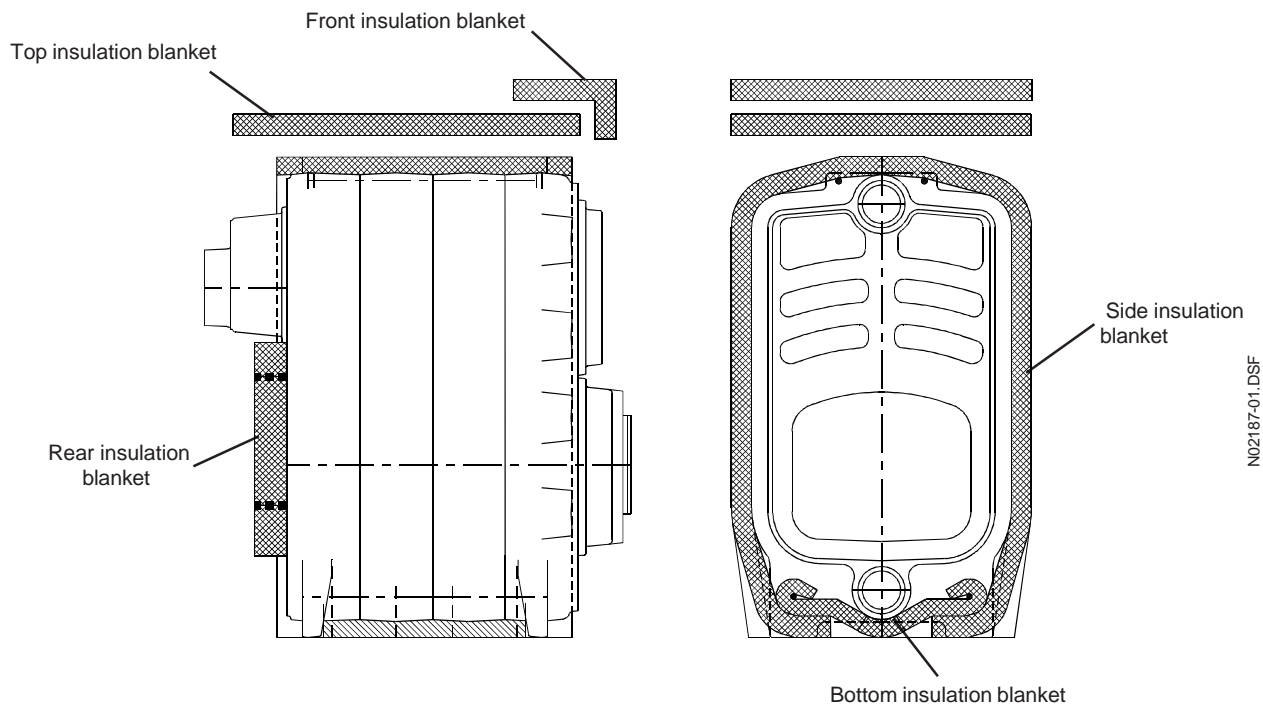
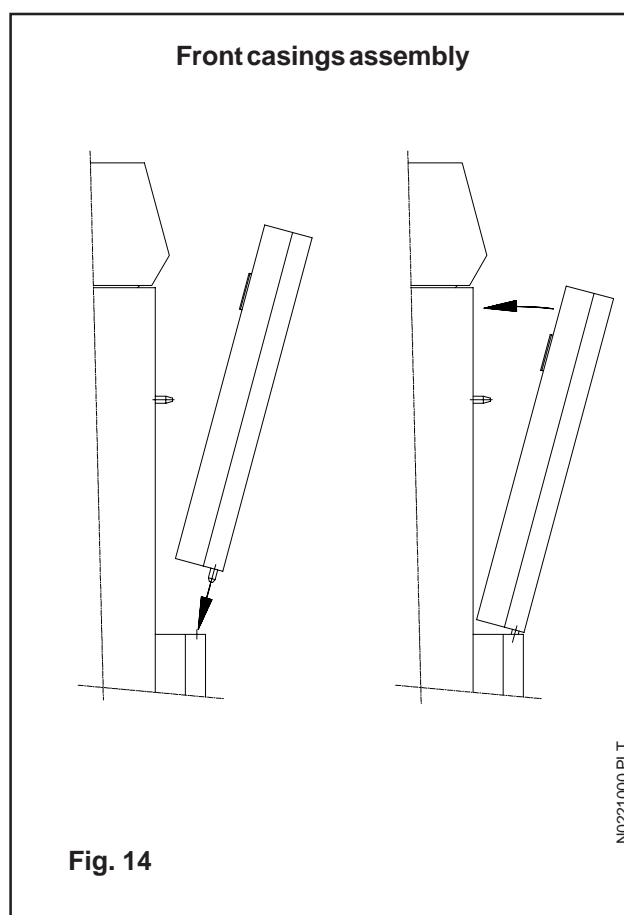
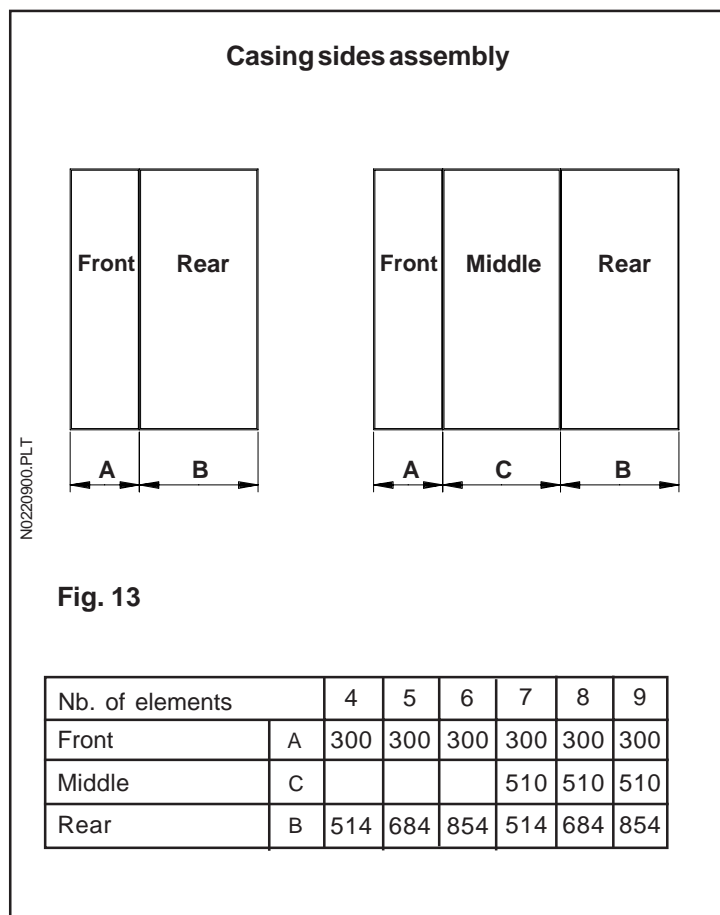


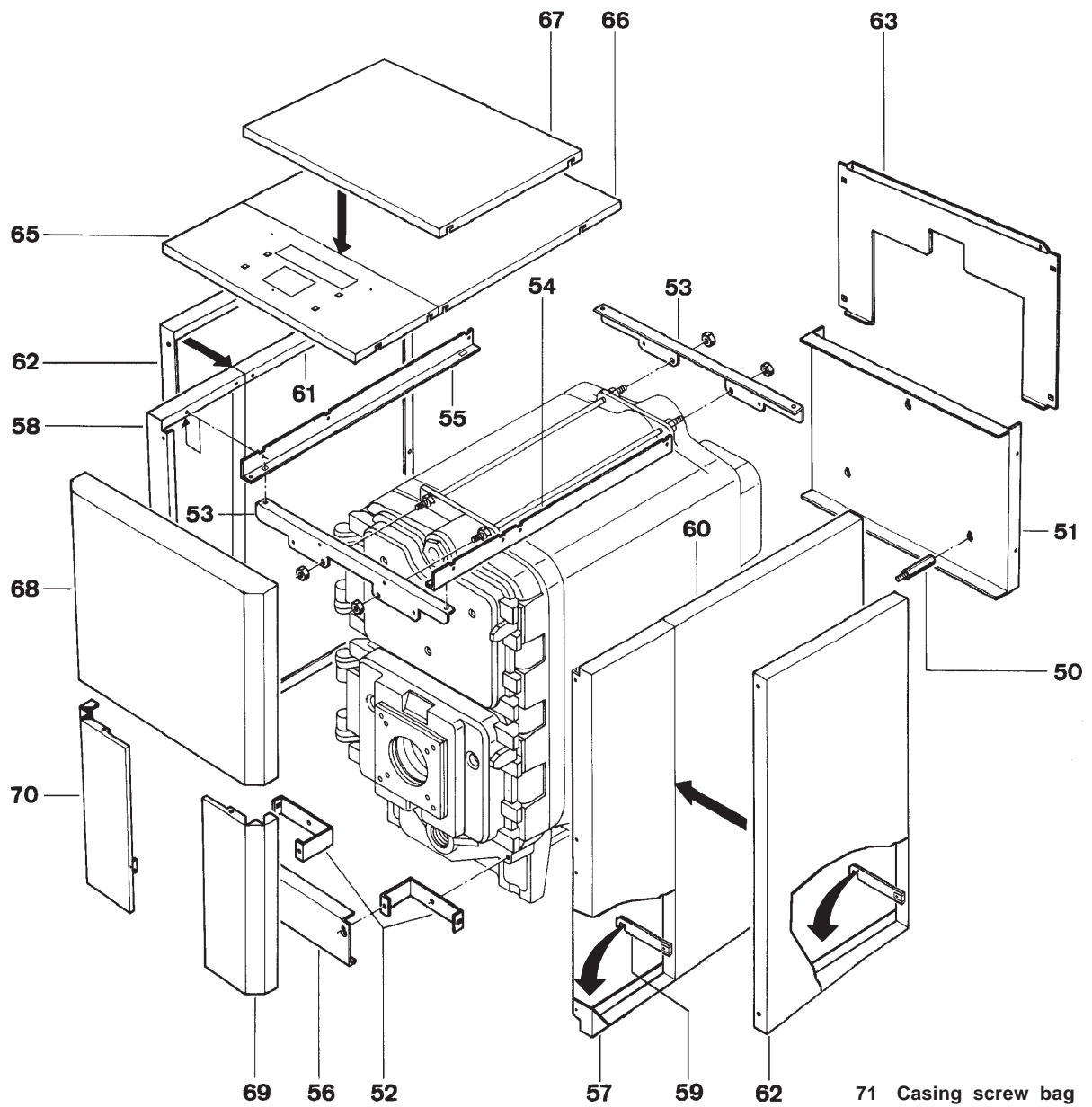
Fig. 12

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3.4 Operational assembly diagram (continued)

Operation	Method
Open the "casing" parcel	
Rear spacer (50) (see figure 15)	<ul style="list-style-type: none"> Screw the hexagonal spacers on the rear section's 3 spacer pads, and place on each spacer a TH M 5 x 10 screw.
Body insulation blanket (33) (see figure 12)	<ul style="list-style-type: none"> Place the lower heat-insulator (cross-shaped, 50 mm thick on black veil) under the heat chamber taking care to jam the ends between the assembly linkages and the chamber. Casing the whole of the chamber by the side insulation (50 mm thick) and tuck its ends under the chamber (see figure 12). On the rear section, insert insulation (100 mm thick) on the spacers. NOTE : for exchangers with 8 or 9 sections, the side insulation is supplied in 2 parts to be positioned side-by-side, the large part towards the front.
Lower rear (51)	<ul style="list-style-type: none"> Engage the lower rear on the three spacers and secure it by tightening the 3 screws.
Lower foot (52)	<ul style="list-style-type: none"> Mount both lower feet on the front section (2 screws HM 8 x 16).
Cross-member (53)	<ul style="list-style-type: none"> Mount the cross sections on the assembly linkages, fasten them using the counter-nuts HM 12. The front cross-member is provided with a protection clip (110 mm long) with a plastic collar and a NUT nut.
Right side-rail (54) Left side rail (55)	<ul style="list-style-type: none"> Laterally secure the side rails on the cross-members using bolts HM 8 x 16 (square hole to the front).





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Fig. 15

- | | | | |
|----|-----------------|----|-------------------|
| 50 | Rear spacer | 61 | Rear left side |
| 51 | Lower rear | 62 | Middle side |
| 52 | Lower foot | 63 | Upper rear |
| 53 | Cross-member | 65 | Front top |
| 54 | Right side-rail | 66 | Rear top |
| 55 | Left side-rail | 67 | Middle top |
| 56 | Lower mask | 68 | Upper front |
| 57 | Right side | 69 | Lower right front |
| 58 | Left side | 70 | Lower left front |
| 59 | Side restraint | 71 | Casing screw bag |
| 60 | Rear right side | | |

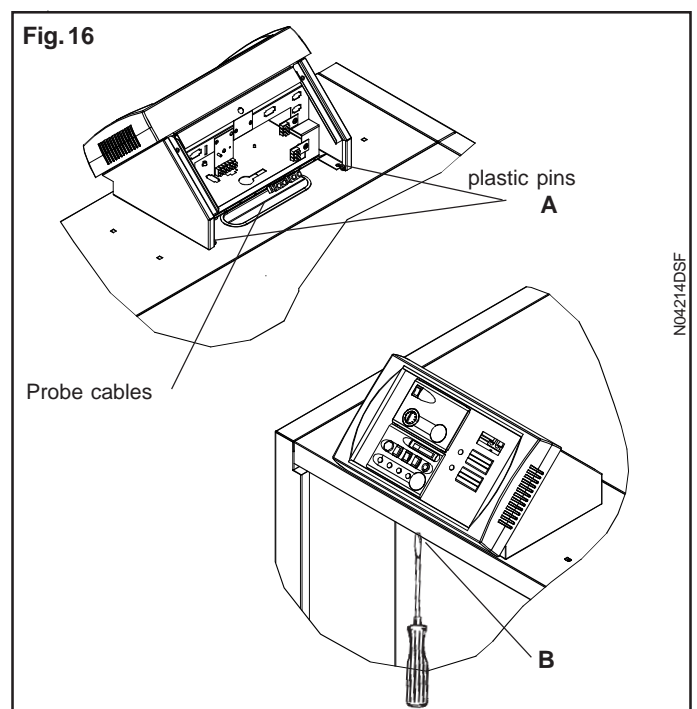
Operation	Method
Lower mask (56)	<ul style="list-style-type: none"> Place the lower mask on both lower feet at the front of the boiler (this part is pre-cut to allow passing of sludge tubing, or can also be taken out)).
Front sides (57 - 58)	<ul style="list-style-type: none"> Hook the front sides onto the side-rails and fasten them using the axis screws ($\varnothing 8$) in the upper part and at the bottom using a TH M 5 screw on the lower foot.
Side restraint (59)	<ul style="list-style-type: none"> Extract the restraint from the side panel by tilting it, insert it in the side heat-insulator's slit, and hook it on the assembly linkage; Tighten the axis screw.
Middle sides (62)	<ul style="list-style-type: none"> (only for boilers with 7, 8 or 9 sections) Put the middle side on the side-rails. Slide it so that the axis of the restraint enters the orifice provided. Extract the side restraint in the same way as for the front side.
Rear sides (60 - 61)	<ul style="list-style-type: none"> Put the rear side on the side-rails, and slide so that the side's return fold casings the lower rear (51) "s fold and the axis of the restraint enters the orifice provided. Secure the rear sides on the lower rear using 4 HM 5 x 10 screws.
Upper rear (63)	<ul style="list-style-type: none"> Pin the upper rear on the sides and click it in downwards in the keyhole slots provided for this purpose.
Upper heat-insulator (33)	<ul style="list-style-type: none"> Place the upper heat-insulator on the side-rails (slit at the front).
Front top (65)	<ul style="list-style-type: none"> Place the front top on the side axes and push it forwards to bumper.
Middle top (67)	<ul style="list-style-type: none"> (only for boilers with 7, 8 or 9 sections) Place it on its axes and push it forwards until it joins up with the front top.
Rear top (66)	<ul style="list-style-type: none"> Place it on its axes and push forwards until it joins up with the front or middle side in the case of a boiler 7, 8 or 9 sections. Secure it on the upper rear (2 HM x 10 screws).
Control panel	<ul style="list-style-type: none"> Assemble the control board as indicated on this page.
Lower left and right façades (69 - 70)	<ul style="list-style-type: none"> Click the façades in laterally and downwards on the buttons fastened on the sides' folds. Locking is done by the central feet.
Upper façade (68) (see figure 14)	<ul style="list-style-type: none"> Engage both axes in the lower façades' holes. Press the façade on the sides.

CONTROL PANEL ASSEMBLY

- fit the control panel on the front top while routing the probe cables through the opening included to this effect

- engage the pins under the panel into the slots, and pull the control panel towards you.

- Lock it using the 2 plastic pins **(A)** and the M5 screw **(B)** on the top front



ELECTRIC CONNECTION

The facility must comply with currently enforced national and local regulations. Notably, the electric connection of the boiler requires a sectioning device on each pole with a minimum 3 mm distance between each contact.

For the complete electric connection of the various types of control panels, refer to the manual specific to the panel.

The power supply connection terminal strip is accessible after removing the cover at the back of the panel. It is located in the lower right corner seen from the back.

Connect the phase to the strip's L terminal.

The line must be able to withstand an intensity of 6.3A under 230V 50 Hz + Ground (check whether the power of the pump(s) is compatible).

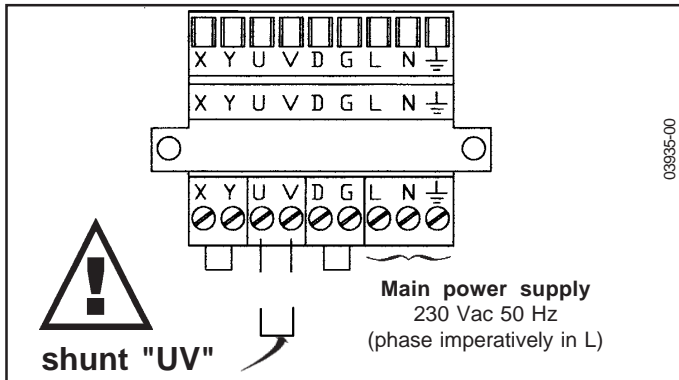
Apply the electric connection as per the electric diagram in the instructions. Plan a grounding wire exceeding by 50 mm in length to the neutral and phase wires for tearing safety.

The burner switch located on the control panel does not dispense from installing the regulatory wall switch.

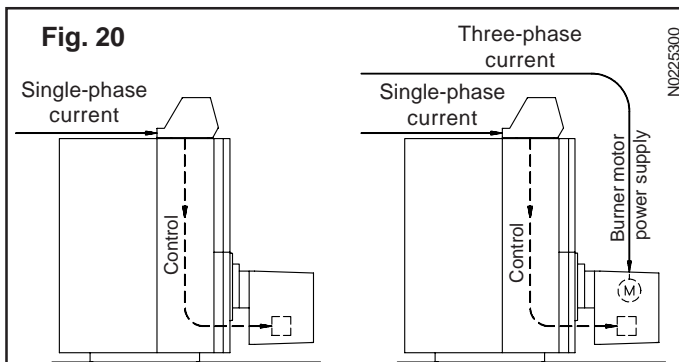
The ground socket planned on the connecting terminal strip must be connected as per currently enforced provisions.

In the case of insufficient ionising current due to non compliant neutral or ground, we recommend adding a circuit isolation transformer with a power at least equal to 600 VA.

Control panel supply connection terminal strip



BOILER AND BURNER POWER SUPPLY



CAUTION: In the case the burner motor is supplied with three-phase power, control panel single phase supply must imperatively be taken from one of the phases supplying the burner motor.

VERY IMPORTANT: Never connect the burner control box directly to one of the phases.

CABLES FITTING

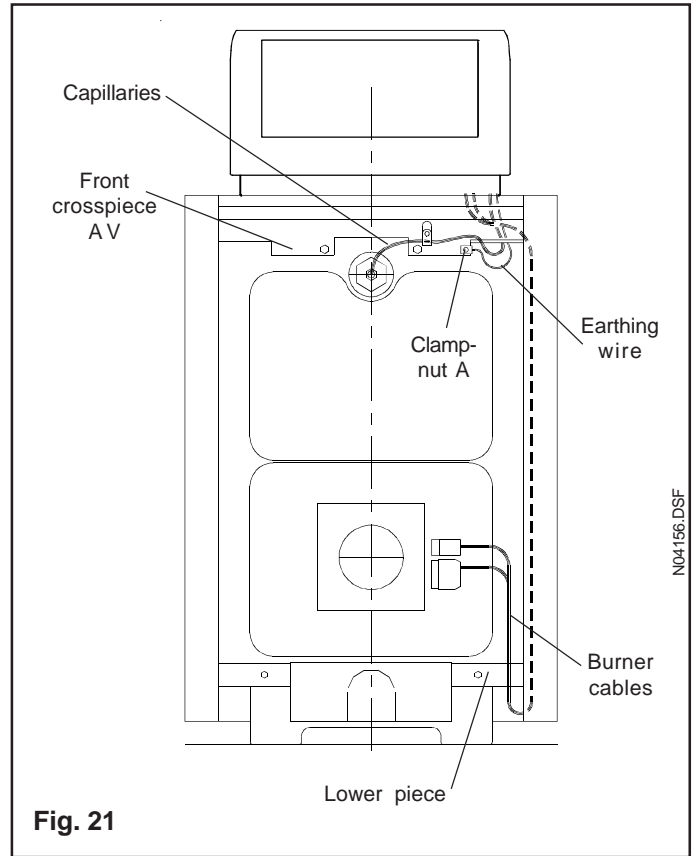
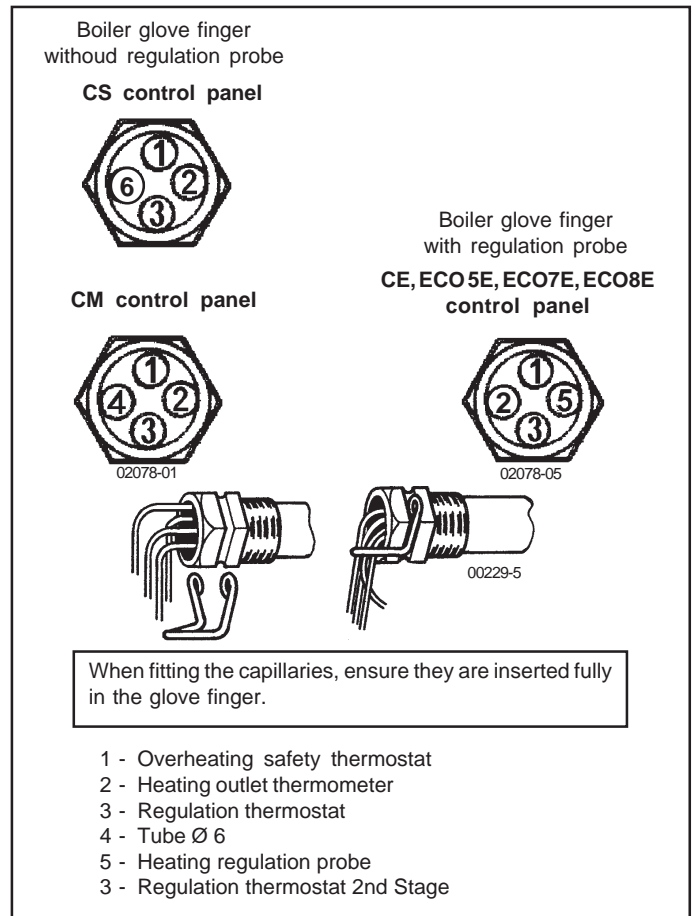


Fig. 21

Fitting the thermostat bulbs, thermometer (and regulation probe in option) in the glove finger as shown in the diagram.



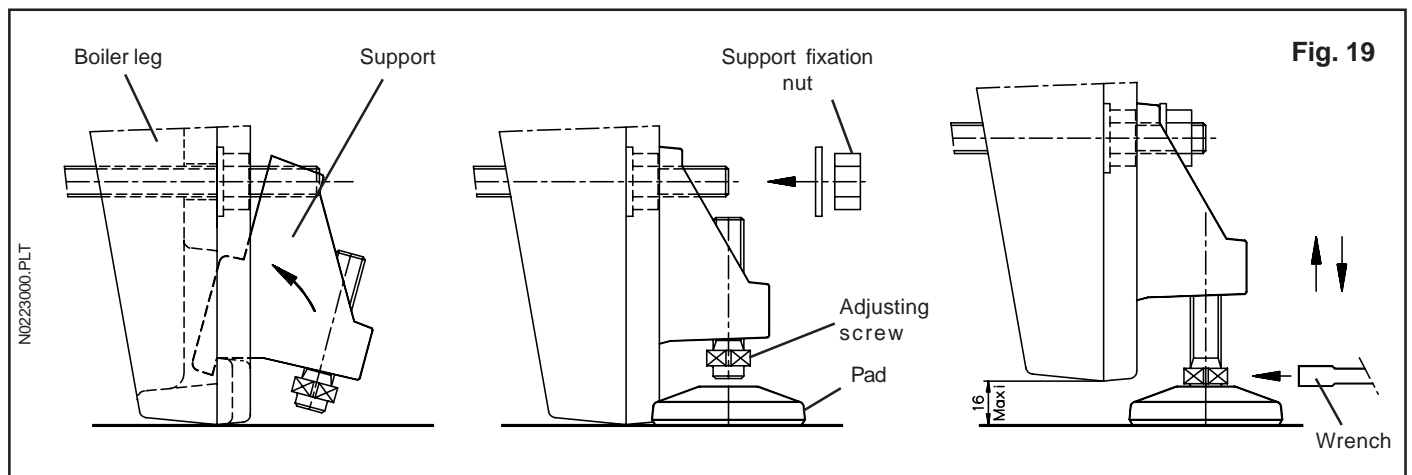
4. INSTALLING THE OPTIONS

4.1 Adjustable legs

For levelling the assembled heating chamber, located in the boiler room.

Assembly of the 4 heating chamber legs:

- Screw the adjusting screws up to the maximum in the supports,
- Engage the support in the space provided on each heating chamber leg, as shown in figure 19. Fasten the supports on the end of each assembly linkage (nut + washer),
- Slide the pads under the adjusting screws,
- Level using the screw with a 17 flat wrench (adjusting travel = 16 mm maximum).



4.2 Heating system flow and return connection manifolds with drain valve and Sensor pocket for remote control

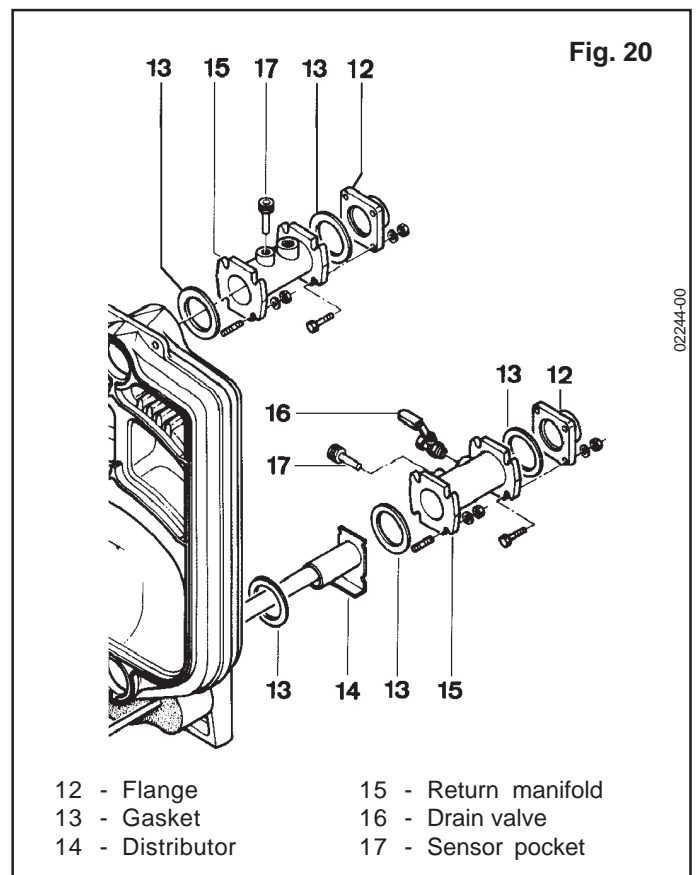
The manifolds move the main heating system connection outside the casing. They are provided with threaded orifices for fitting the following accessories:

- On \varnothing 1/2" start and return: pockets (17) for remote control sensor,
- On \varnothing 3/4" flow: drain or safety accessories (not provided),
- On \varnothing 3/4" return: drain valve (16);

Mount the manifolds (see figure 20) on the boiler's flow and return orifices, positioning the threaded orifice \varnothing 1/2" towards the exchanger, placed on top for flow and on the side for return. **NOTE:** For boilers fitted with a water distributor (14) on the return, the distributor must penetrate as far as possible in the exchanger return orifice.

Its fixation flange will be placed, between two joints (13), between the return manifold and the rear section.

Heating system's connecting flanges (12) should be welded to the water system's pipes before fitting on the boiler.



4.3 Lower savers

The two optional extra optimizing baffles should be placed in the two lower "flue-ways" as shown in figure 21:

Engage each baffle in the "flue-way".

Performance as shown in the characteristics table correspond to the boiler operating with the upper and lower baffles as shown in the position diagram opposite.

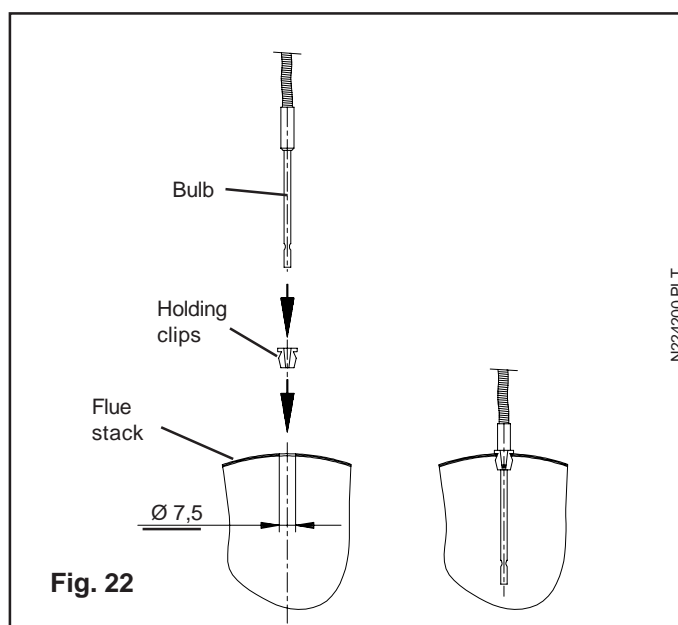
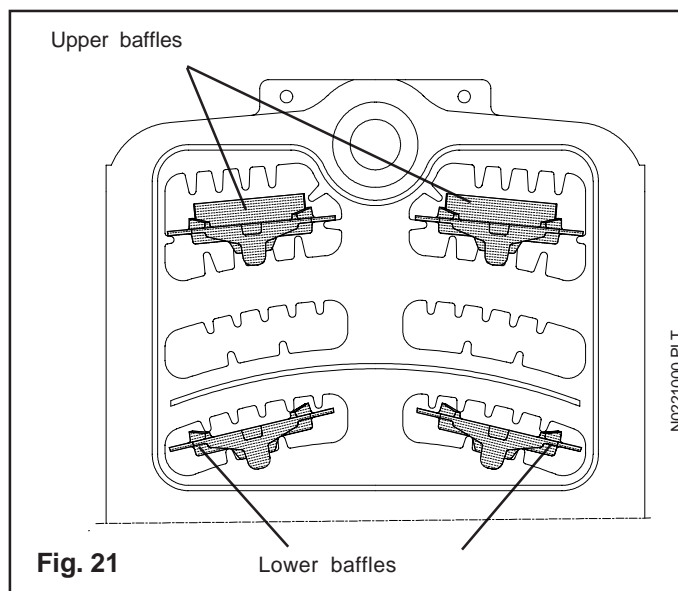
4.4 Control panel options

Before any operation inside the control panel, disconnect power supply using main switch located on heating system general control board.

Flue gas thermometer :

Its housing is to be positioned on the control panel front and the bulb on the flue stack.

- Take off the top, open panel front
- Take off the factory-mounted blank plate and engage the capillary and the thermometer housing into the front aperture
- Guide the capillary through control panel rear and casing front top, parallel to the other installed capillaries. Direct the capillary towards the back of the boiler, on exchanger insulating blanket, in order to be able to bring its bulb up into the connection pipe between flue hood and stack
- Drill, preferably vertically, the fluegas duct to ± 7.5 and drive the bulb holding clip (see fig. 22)
- Engage the bulb into the clip. Close the control panel and fit top again.



Burner cables :

The 1st stage burner cable with a 7-contact connector and the 2nd stage burner with a 4-contact connector are to be connected on the terminal block inside "B" control panel, markings being properly aligned. guide the wires as explained in the \tilde{n} of page 15.

5. COMMISSIONING

5 - 1 Filling

- Water quality for the heating system

Avoid using hard water, which may scale the boiler. If TH or total hardness is above the French 25°, the boiler should be filled with softened water.

- Filling the boiler and heating system

While filling, which must be done slowly, ensure that the stop valves are open and that the mixing valve can be 1/2 open.

The automatic drain cock plug, normally fitted on the boiler outlet, must remain untightened in order to achieve continuous draining during filling-up. Drain all high points of heating system and close the various draining screws one after the other as soon as water reaches their level. After filling the boiler for the first time, flush completely (using the sludge flushing valve) in order to get rid of foreign bodies that may come into the components or the pipes during assembly.

- Water topping up

Subsequent boiler topping-up should be practically non-existent and in all cases controlled and registered by a water flow meter. Frequent topping-up is the a symptom of a leakage which should be repaired as soon as possible.

5 - 2 Preliminary checks

When commissioning the boiler for the first time in the season, or after a prolonged shutdown period :

- ensure that filling was done properly and check overall tightness. If necessary, put more water and drain all high points until water flows slightly.
- check the connection of the flue stack and the proper working condition of the draught regulator if any
- check that the high and low vents are not obstructed
- ensure that the doors and the flue access plates are closed and tight
If necessary, act upon the tightening points.
- ensure that the burner is properly locked
- check if it is properly supplied in fuel, that supply and return valves are open
- for operation with gaseous fuel types, check that the safety conditions are fulfilled.

Note : After starting up a system for the first time, it is recommended to clean the pump filter in the case of oil firing, or the line filter in the case of gas firing.

After a few hours of operation, check the tightness of the doors. If necessary, tighten their fastening nuts.

6. MAINTENANCE

Boiler

Check water pressure on pressure gauge and, if necessary, restore normal pressure. Only perform this operation when the system is cold. If frequent topping-up is necessary, there is a leak in this case, notify the installer. Never draw water from the heating system. In order to avoid slow but steady sooting, harmful to proper boiler operation, it is recommended to clean it regularly twice a year at least.

This is always done with the boiler stopped and the power supply cut out.

Proceed as follows :

- put ON burner switch located on the control panel as well as the main boiler room switch
- remove casing front panels
- open the cleaning door and the chamber door and take the flue-way hatches away.
- take the optimizing baffles down and brush them.
- clean the walls of each flueway with the brush provided with the boiler as well as the combustion chamber walls.
- remove soot and combustion deposits, if possible using a vacuum cleaner
- Clean the inside of the smoke hood
- the lagging material of the doors may be brushed with a soft brush. Do not use a metal brush. Be careful not to damage the seal.
- once the cleaning is over, put the hatches back up on the smokebox, put the optimizing baffles back in their respective "flue-ways", close the chamber and cleaning doors, ensuring that they are tight.
- set casing front panels back up.

Sludge

This sludge, due to corrosion in the system, travels inside the pipework and makes up deposits in the boilers. We recommend to rinse the boiler efficiently and thoroughly and check the flushed water quality.

Burner

The burner should be submitted to regular maintenance. See special instructions, provided with the burner. If necessary, contact the retailer or manufacturer of the burner.

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