



**OR broag - remeha**

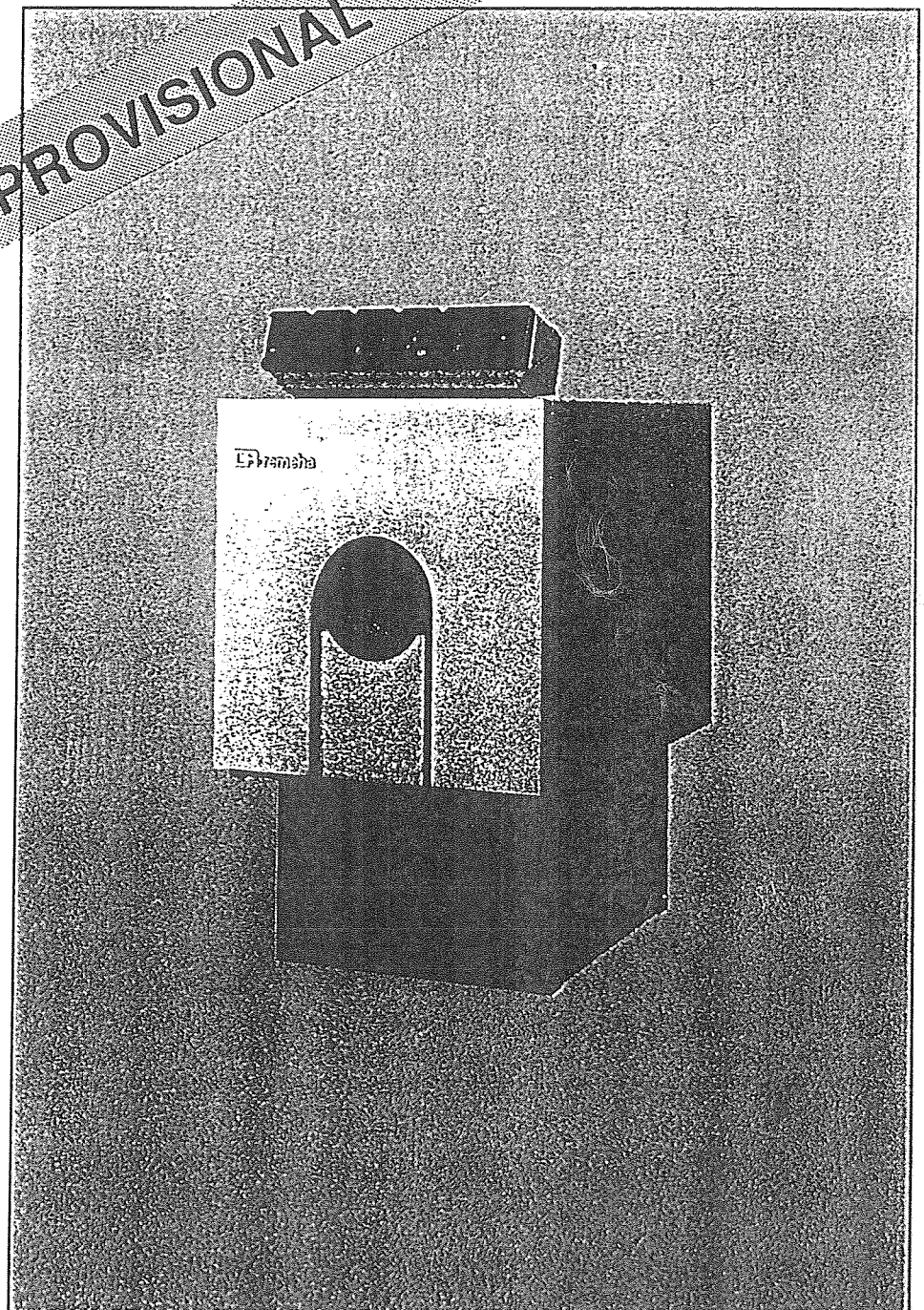
*Advanced boiler technology*

## OG 9

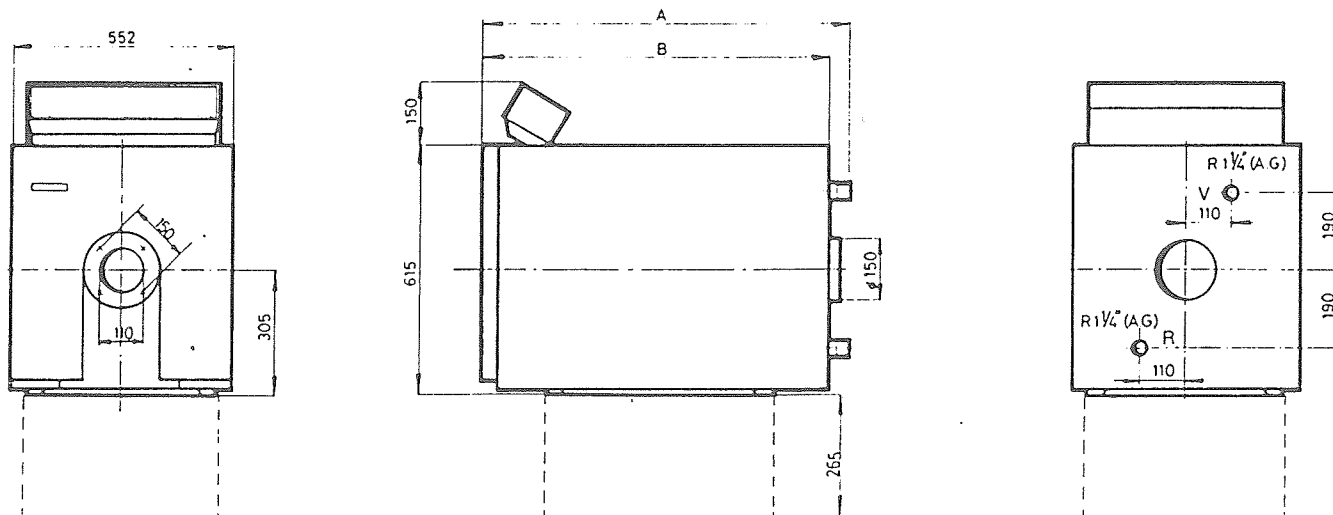
### Technical specifications, instructions for assembly and installation

Boiler for oil and gas  
12-73 kW

PROVISIONAL



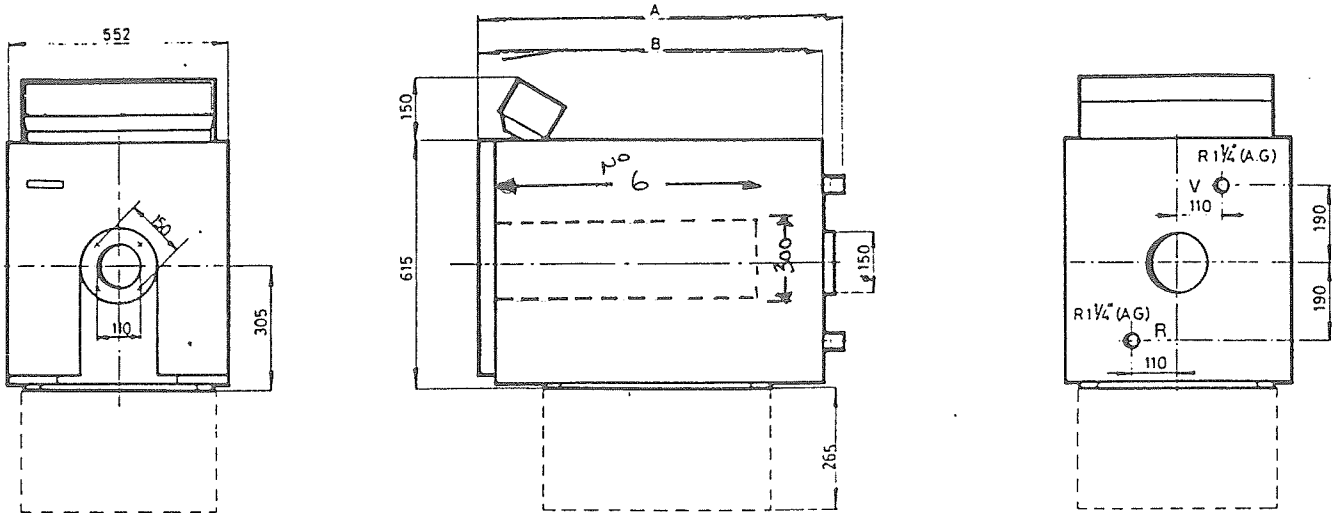
## 1.2 Technical data and dimensions



Number of sections	kW	A mm	B mm
2	12-17	590	540
3	19-29	750	700
4	30-43	910	860
5	44-58	1070	1020
6	59-73	1230	1180

1. Boiler Type	–	OG 9/2	OG 9/3	OG 9/4	OG 9/5	OG 9/6
2. Number of elements	–	2	3	4	5	6
3. Symbol of approval	–					
4. Nominal heat input range	kW	13,1-18,7	20,7-32,0	31,6-47,0	47,8-63,4	64,0-79,3
5. Nominal heat output range	kW	12-17	19-29	30-43	44-58	59-73
6. Depth of combustion-chamber	mm	270	340	450	500	550
7. Boiler water content	L	5	7,5	10	12,5	15
8. Weight, net	kg	105	135	165	195	225
9. Resistance on water-side (at $\Delta T = 20$ K)	mbar	1,4	2,7	5,0	8,0	11,5
10. Pressure drop	mbar	0,05	0,13	0,4	0,6	0,68
11. Air flue	mbar	0,05	0,05	0,05	0,05	0,05
12. Flue-gas temperature	°C	180	180	175	175	170
13. Flue-gas mass current (with oil firing and $CO_2 = 13\%$ )	kg/h	33	54	79	106	133
14. Gas content of boiler	m <sup>3</sup>	0,02	0,027	0,034	0,041	0,048
15. Max. working pressure	bar	4	4	4	4	4
16. Max. inlet temperature	°C	75(90)	75(90)	75(90)	75(90)	75(90)
17. Min. return temperature	°C	35	35	35	35	35

## 1.2 Technical data and dimensions



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**TABLE OF CONTENTS**

<b>1. Boiler</b> .....	2	1.6.4 Cleaning and maintenance .....	0
1.1 Description .....	2	<b>1.7 Electric installation instructions</b> .....	00
1.2 Technical data and dimensions .....	0	1.7.1 Boiler control panel .....	00
1.3 Heating the water .....	0	1.7.2 Boiler setting .....	00
1.4 Space requirement .....	0	1.7.3 Alternative control facilities .....	00
1.5 Planning instructions .....	0	1.7.4 Electric circuit diagrams .....	00
1.5.1 General .....	0	<b>2. Boiler with hot storage water tank</b> .....	00
1.5.2 Rules and regulations .....	0	2.1 Description .....	00
1.5.3 Minimum water requirement		2.2 Technical data and dimensions .....	00
1.5.4 Infinitely variable low temperature		2.3 Performance data .....	00
operation .....	0	2.3.1 Performance data boiler	
1.5.5 Hydraulic circuits - Examples - ....	0	- storage combination - .....	00
1.6 Installation instructions .....	0	2.4 Schedule of parts supplied .....	00
1.6.1 General .....	0	2.5 Accessories .....	00
1.6.2 Boiler base .....	0	2.6 Dispatch .....	00
1.6.3 Burner setting .....	0		

**1. BOILER**

**1.1 Boiler description**

- Special cast-iron boiler for fuel oil and gas pressure jet burners and infinitely variable operation of the boiler temperature to 35°C.
  - High-temperature resistant steel-plate boiler lining?
  - Burner door with interior heat insulation.
  - Burner plate drilled according to DIN 4789 for burner pipe diameter up to 105 mm.
  - Maintenance cover at front under panelling, rear exhaust gas box.
  - Built-on boiler control panel with all the necessary display, control and adjustment facilities.
  - 7-pin burner plug.
  - Boiler temperature control device, with TÜV button (TÜV = Technical Control Board), and safety temperature limiter, electric mains switch with optical indicator, screw plug fuse, switch for circulation pump, switch for charge pump.
  - Working hour meter (at surcharge) and fault indicator for burner.
  - Are-wired connections for mains connections, circulation pump, charge pump and mixer.
  - 12-pin connector for the sensor.
  - Space for rematic WK 1P/... WKAV/... weather-controlled inlet temperature adjustment.
- Steel-plate boiler base.

### 1.3 Heating the water

On offer are storage water heaters in horizontal position, which are to be set up on a base.

Available in 3 sizes: 140/180/250 l.

The connection to the boiler is made by means of a construction kit consisting of flexible connection pipes and a temperature operated charge pump.

Priority loading. Design data see page 00. Vertically arranged storage water heaters by customer is possible. We recommend the 150 – 1000 l water heaters of the Remeha HSV production series.

Connections to be made by the customer.

The automatic control operation is handled by the rematic WK 1P/BW control unit.

### 1.4 Space requirement

In front, behind and alongside the boiler, there should be sufficient room to allow for operation, cleaning and maintenance. Together with the attached burner, the burner door must be able to make a 90° swing to the left and the right. See diagram.

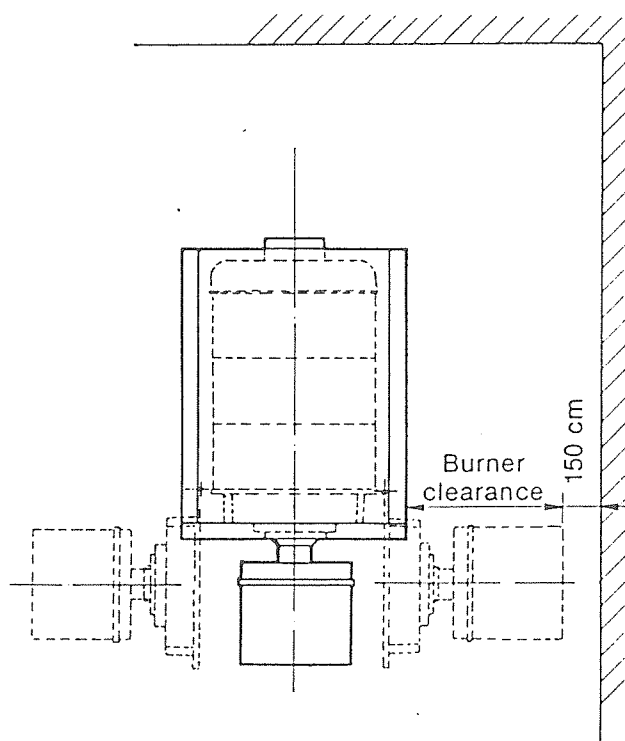


fig. 1

### 1.5 Planning instructions

#### 1.5.1 General

When planning and setting up boilers in connection with oil and gas blowers burners, the pertinent building-law related regulations, which may well differ depending upon the relevant areas, are to be considered. Both oil burners according to DIN 4787 and also gas pressure jet burners according to DIN 4788 Part 2, may be used.

Single-stage start-up.

In order to avoid boiler damage and breakdowns, the following points should be borne in mind during the planning and construction stages: The burners to be used shall operate on a single-stage basis. Continuous ventilation of the boiler, the pipes' system as well as the connected waterheater are to be guaranteed under all circumstances.

Boiler scale deposit is to be prevented. When converting old installations, care should be taken that no sludge or residues can enter into the boiler. To this end, we refer to filtering facilities suitable for maintenance. Special attention should be paid to adequate airing and ventilation of the boiler room.

In particular, we would like to point out the fact that the air supply must not contain any chemical additives, such as solvents, cleaning products, sprays, etc. These would then take part in the combustion process, and would thus cause corrosion to both boiler and exhaust system.

### 1.5.2 Minimum water requirement

The boiler elements are made of high-quality heat-proof cast iron and are cast according to the special rem-cast procedure. This ensures they are corrosion proof at temperatures of up to 35°C. While the burner is running, the boiler must circulate a minimum quantity of water. The minimum flow of the boiler can be worked out as follows:

$$\frac{\text{Nominal output (kW)}}{81} = \text{m}^3/\text{h}$$

The minimum circulation must be guaranteed by means of a pump.

**1.5.3 Infinitely variable low temperature operation**  
Boilers of the OG-9 series can be operated together with the infinitely variable rematic WK 1U/M control unit depending on the outside temperatures. The minimum return temperature of the heating water must not drop below 35°C.

This kind of operation will guarantee many years of use, without risk of corrosion.

If required, overall switching off of the system can be obtained by means of the control unit.

The return temperature can be limited by incorporation of a thermal three-way valve. (wiring scheme example 8 Page 00).

In the case of converted heavy-duty systems with large water content we recommend the installation of a boiler pump to control the return temperature. This pump must be designed for an outlet of 70% of the normal water quantity at  $\Delta t = 20 \text{ K}$ . (wiring scheme example 5 Page 00).

In the case of converted heavy-duty systems with large water content as well as for heating systems for floor heating, we recommend the introduction of a mixer facility. (wiring scheme example 7 Page 00).

If additional heating circuits are present, these should be operated through mixers, depending upon the weather.



### 1.5.4 Hydraulic circuits – examples

The easiest way in which to safeguard the minimum return temperature of the boiler is by way of introducing a thermal three-way valve (e.g. a Danfoss Model, type UMV15 to VMV25). The admissible return temperature, for example 35°C, is set by the thermostat. When falling below this temperature, the valve will shut off the heating circuit and only the boiler circuit will be heated. Refer to the following hydraulic wiring scheme 8.

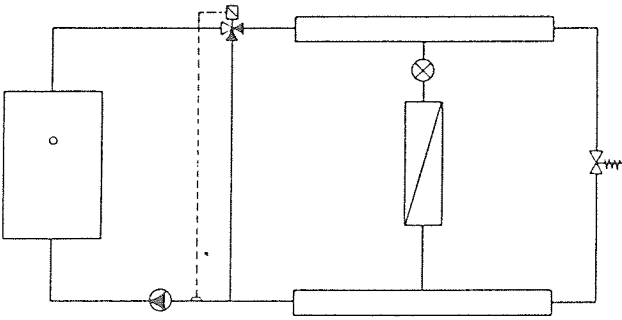


diagram 1

The following sketches represent general wiring diagrams. A reproduction of the safety fittings has not been considered.

Minimum water requirement via by-pass.

1 heating circuit, radiators with thermostatic valves. Infinitely variable pre-set boiler depending on outside temperature.  
Alternative control facility: WK 1P.

No return temperature limiter.

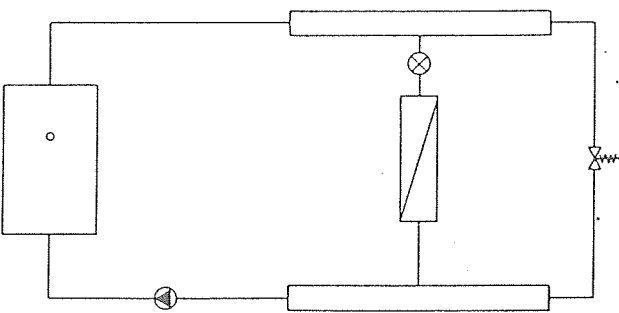


diagram 2

Minimum water requirement via by-pass.

1 heating circuit, radiators with thermostatic valves. Infinitely variable preset boiler depending on outside temperature.

Priority warm water heating with HSL storage water heater.

Alternative control facility: WK 1P/PW.

No return water temperature limiter.

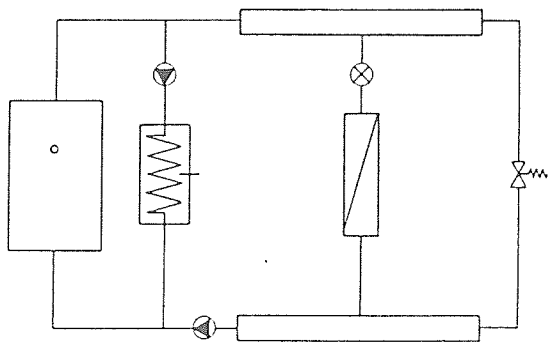


diagram 3

One or several heating circuits with converted old systems featuring a large water content.

The individual train of pipes are to be operated through a separate control unit.

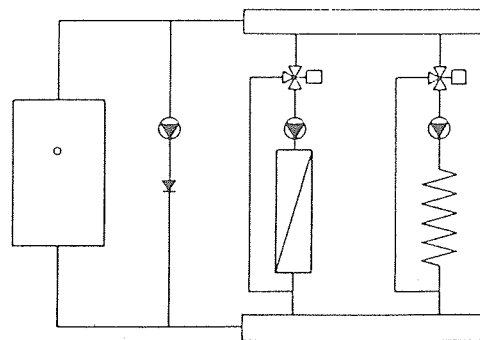


diagram 4





Minimum water requirement via by-pass.

2 heating circuits, radiators with thermostatic valves.

Floor heating via mixed valve.

Infinitely variable pre-set boiler depending on outside temperature.

The mixer features two functions.

It blocks the floor heating circuit when temperature drops below the minimum.

When the minimum temperature has been reached, the mixer intervenes after which the temperature will adjust to its assigned heating curve.

Alternative control facility: WK 1 U/M.

Wiring scheme with return temperature safety device.

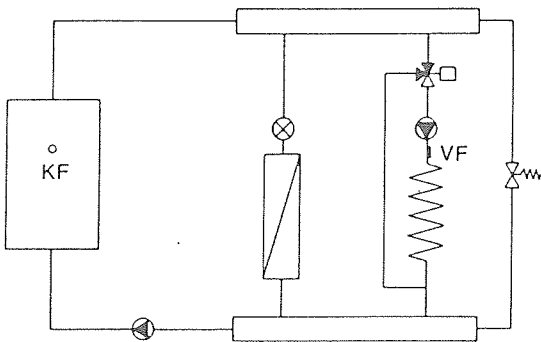


diagram 5

Minimum water requirement via by-pass.

Two heating circuits, as per diagram 6, however, with priority water heating.

Alternative control facility: WK 1 U/M/BW.

Wiring scheme with return temperature safety device.

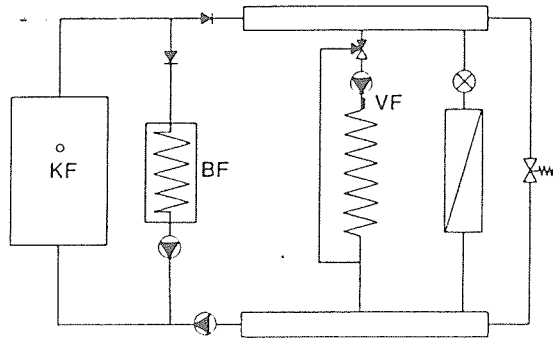


diagram 6



## 1.6 Installation Instructions

### 1.6.1 General

Boilers of the OG-9 series are supplied as a fully assembled unit. The boilers are securely screwed to the transport pallet.

After removing the transportation packing, the boiler can immediately be taken to its place of installation. It is recommended that the cover be removed. This is very simple to do.

1. Pull and lift out front panel.
2. Lift and remove rear panel.
3. Remove top panel.
4. Lift out side panels from clamps.

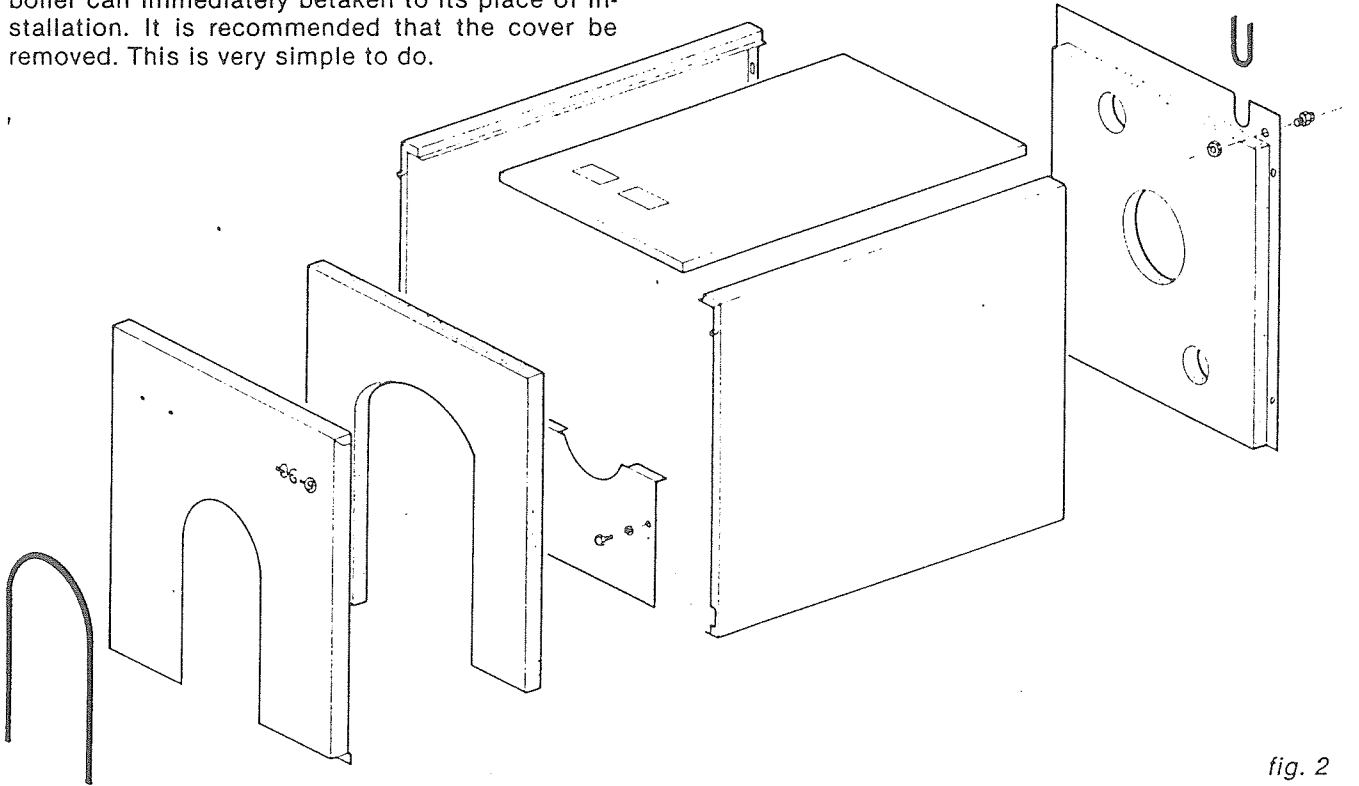


fig. 2

### 1.6.2 Boiler base

If the boiler is to be set up on a base, this must be assembled as follows:

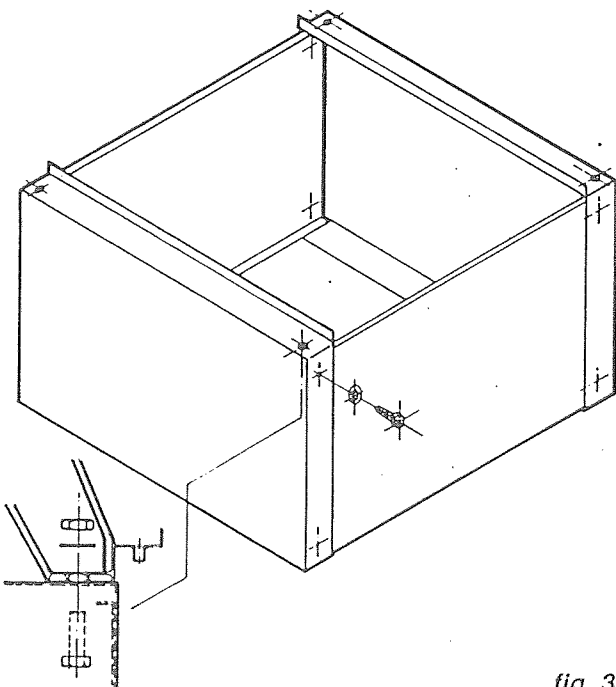


fig. 3

Place boiler unit on base. Care should be taken that the rear boiler legs are placed right on the edge of the boiler base.

Now fit the boiler cover panels back on in reverse order.

When setting up the boiler on a horizontal HSL storage water heater, care should be taken that the boiler legs are placed on the marked supporting base.

Both boiler and storage water heater are to be screwed together by means of M 10 threaded bolts.

### 1.6.3 Burner setting

The instructions of the individual burner manufacturers must be adhered to.

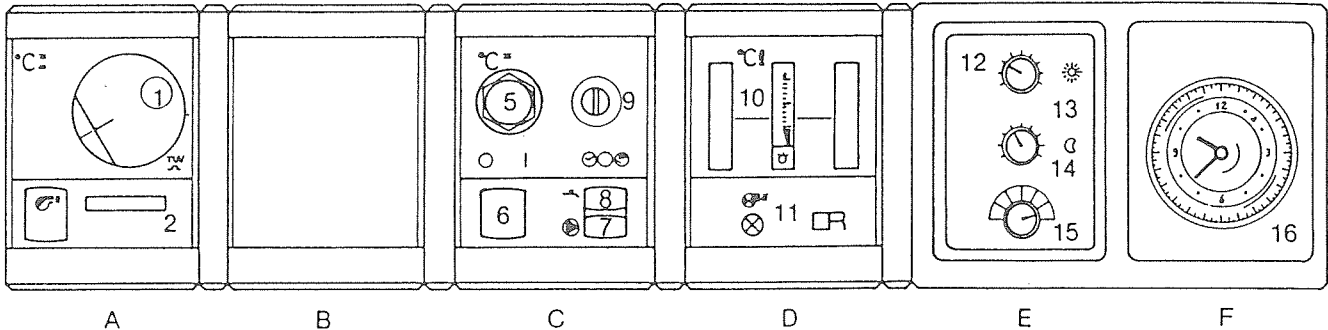
### 1.6.4 Cleaning and maintenance

In order to guarantee proper functioning of the boiler, the latter needs to be cleaned once a year. To this end, the burner chamber must be pulled out and the boiler unit thoroughly cleaned with a brush. The waste should be removed with a vacuum cleaner. Servicing of the burner should be carried out in accordance with manufacturer's instructions.

In this respect, we recommend a service contract.



## 1.7 Electric installation instructions



### 1.7.1 Boiler control panel

The boiler control panel KSF 101.21 is constructed in a modular design.

The modules accommodate all the necessary display, control and adjustment facilities. It is attached to the top cover of the boiler by means of 2 screws.

The electric wiring connections, incl. socket connections, should be led through the large opening in the top cover panel and moved via the top insulating mat of the boiler to the rear where they should be fastened.

The socket connections are indicated. The sensors are clamped to a 12-pin sensor panel in the electric junction box at the back of the boiler.

The capillary sensors of the display and control units in the boiler control panel are introduced through the sleeve at the front of the boiler.

### Specifications KSF 101.12 boiler control panel.

The boiler control panel is constructed in a modular design. The various modules contain:

#### Module A:

1. Boiler thermostat Grade 1, L + G model, type 53.4271 with TÜV test button, setting range 35-96°C. DIN-TR 63.685.
2. Features option to build in a working hour meter.

#### Module B: free

#### Module C:

5. Safety temperature limiter, L + G model, type 67.4471 – 110°C: DIN-STB 75.687.
6. ON-OFF mains switch with optical display.
7. Switch for the heating circulation pump. Manual/OFF/Automatic.
8. Switch for charge pump Manual/OFF/Automatic.
9. Safety device 6.3 A MT.

#### Module D:

10. Analog boiler temperature indicator.
11. Burner warning light.

#### Modules E + F:

12. Building-in option for rematic WK 1P/... or WK 1U/... electronic control unit.

The connections are socket-ready and pre-wired.

All parts have been tested both individually and through the control panel with the VDE specifications.

### 1.7.2 Boiler setting

The boiler control panel has been prepared to accommodate the rematic WK 1P/... or WK 1U/... electronic control unit. To carry this out, remove the plastic panel on the front screen. The electric connection between adjuster WK 1P/... or WK 1U/... control unit and the boiler control panel takes place by means of a plug via two coded cable trees. When applying a different control unit, the cable trees must be adapted by the customer. All electric connections are fed to the back of the boiler by means of connecting cable.

The sensor connecting device between control panel and the rear of the boiler is supplied as an accessory. (With control unit). The sensor connection should be supplied by the customer and introduced into the control panel.

### 1.7.3 Alternative control facilities

Depending upon both customer-related requirements and the hydraulic circuit, the following alternative control facilities are available:

#### rematic WK 1P

Weather-controlled boiler circuit control featuring the possibility of setting a boiler minimum temperature.

Accessories: 1 external sensor                      ZAF 200  
                  1 boiler sensor                        ZTF 222

Follow instructions according to Fig. 3 or 5.

#### rematic WK 1P/BW

Weather-controlled boiler circuit control featuring the possibility of setting a boiler minimum temperature and priority process water circuit.

Accessories: 1 external sensor                      ZAF 200  
                  1 boiler sensor                        ZTF 222  
                  1 process water sensor                ZTF 222

Follow instructions according to Fig. 4.

#### rematic WK 1U/M

Weather-controlled boiler circuit control featuring the possibility of setting a boiler minimum temperature and return temperature safety device.

3-pin exit for mixed control.

Second adjustable heating curve for mixed circuit.

Accessories: 1 external sensor                      ZAF 200  
                  1 boiler sensor                        ZTF 222  
                  1 inlet sensor                            ZVF 210

Follow instructions according to Fig. 6.

#### rematic WK 1U/M/BW

Weather-controlled boiler circuit control featuring the possibility of setting a boiler minimum temperature and return temperature safety device.

3-pin exit for mixed control.

Second adjustable heating curve for mixed circuit.

Priority process water circuit.

Accessories: 1 external sensor                      ZAF 200  
                  1 boiler sensor                        ZTF 222  
                  1 inlet sensor                            ZVF 210  
                  1 process water sensor                ZTF 222

Follow instructions according to Fig. 7.

### What to do before starting-up the boiler

Before starting the boiler up the installation should be filled up with water. Inspect the installation. Check whether or not the air supply to and from the boilerroom is sufficient. Check whether there is fuel-oil (or gas). After oil delivery, wait a day so dirt and other kinds of pollution can sink to the bottom of the tank. In this way the chance of any faults caused by the fuel-pollution will be drastically diminished.

### Burners

We recommend the use of fully-automatic oil- or gasburners. Before starting-up the burner, we urge you to read the burner-manufacturers' instructions thoroughly. Recommended nozzle angle: 45°/60°.

### Fuels

Fuel oil: 35 sec. a 100°F  
Fuel gas: natural gas

### How to start-up the boiler

The first start-up of your central heating installation should be executed by an acknowledged installer. The user should be instructed in how to operate the central heating installation.

Open the oil- or gascock and switch on the installation.  
*Warning:*

Because the water in the installation (boiler, pipe-work and radiators) loses some gaseous particles over the first couple of hours, the installation should be filled up after a while, so watch the water pressure in your installation! After about three weeks time you should once again inspect the water pressure of the installation and fill-up if necessary.

### Flue-gas temperatures

The temperature of the flue-gases should be adjusted in such a manner that the chimney can't be damaged. Maximum flue-gas temperature: 160°C.

### Maintenance

We recommend a maintenance-contract with an acknowledged installer.

### Burner-faults

Faults occurring to the burner will be indicated on the burner as well as on the boiler control panel by means of a fault-lamp.

Push the reset-button on the burner.

When the burner does not start-up again: notify your installer.

### Cleaning

The boiler should be cleaned thoroughly at least once a year, preferably just after the heating-season.

How to clean your boiler:

1. Switch-off the heating-installation.
2. Allow the installation to cool-down for a while.
3. Remove the reversal-chamber from the furnace.
4. Clean the boilersections thoroughly (especially in the corners) with the furnished brush and take the dirt away by using a common vacuum-cleaner.

### Frostdanger

The boiler should be placed in a frost-free place. Should any frost-danger occur, than drain the boiler as well as the rest of the installation.

### The control-panel

#### Module A

1. Boilerwater temperature control, adjustable from 35°C to 95°C.  
By means of this control, the boilerwater will be kept on a constant temperature. In combination with the weather compensator *rematic* WK 12 PR/BW (optional), this control only works as a boilerwater temperature limiter.
2. Hour-counter (optional).

*Module B*  
empty.

#### Module C

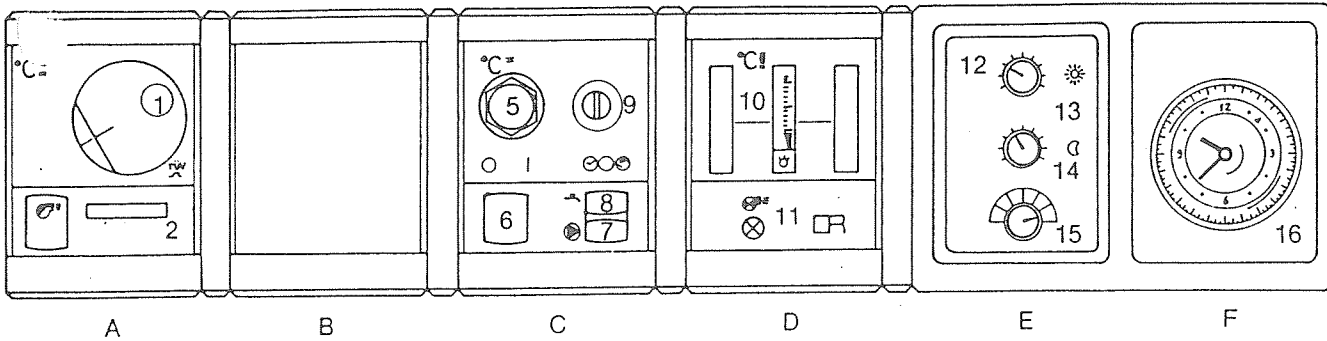
5. High-limit thermostat.  
This thermostat switches-off the boiler when the water temperature rises too high (more than 95°C).
6. Electric ON/OFF switch.  
In indication O the complete installation is switched-off (the hot water storage as well, if part of this installation). When a weather compensator *rematic* WK 12 PR/BR (optional) as applied, only the electric timer-clock keeps running. In indication I the installation is ready for use.
7. Switch for the circulation-pump.  
Manual-Off-Automatic.
8. Switch for the hot water storage tank pump.  
Manual-Off-Automatic.  
When switched to 'Automatic' the pumps are controlled by the weather compensator *rematic* WK 12 PR/BW (optional).  
When switched to 'Manual' the pumps are running continually.
9. Fuse.  
Only to be replaced by the installer.

#### Module D

10. Boilerwater thermometer.
11. Fault-indication lamp for burner.  
If this lamp lights up a burner fault has occurred. This fault can be rectified by following the burner-manufacturers' instructions.

#### Modules E + F

12. Weather-compensator *rematic* WK 12 PR/BW (optional).  
This regulation controls the boilerwater temperature depending on the outside temperature and gives an automatic boiler operation.
13. Button to choose a 'hot' or a 'cold' day-programme.
14. Button to choose a 'hot' or a 'cold' night-programme.
15. Programme-switch.
16. Timer-clock.



Item	Heating	Heating & hot water	Hot water	Frost protection	Manual operation in case of faults
1. Boiler water temperature control	80°C	80°C	80°C	80°C	80°C
2. Reset high-limit thermostat	ONLY TO BE EXECUTED BY AN ACKNOWLEDGED INSTALLER				
3. Main-switch 'ON-OFF'	1	1	1	1	1
4. Circulation-pump switch			0		
5. Hot water storage-tank pump switch	0				
6. Adjustment day-programme*	5	5	5	5	5
7. Adjustment night-programma*	5	5	5	5	5
8. Programme-switch				0	

\* Any corrections can be carried-out according to the ser-instructions 'rematic WK 12 PR/BW'

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Art. nr.: 36.996/2500/08/90/Ho.  
Modifications reserved



# OG 10

## Technical information

Boiler for oil and  
natural gas

Output: 19 - 69 kW



## CONTENTS

<b>1. Description of the unit</b>	2	<b>8. Instrument panels</b>	7
1.1 General	2	8.1 Equipment contents	7
1.2 Burners	2	8.2 Simple instrument panel On/Off	7
<b>2. Construction</b>	<b>3</b>	8.2.1 Lay out of the simple instrument panel	7
2.1 General	3	8.2.2 Wiring diagram of the simple instrument panel	7
2.2 Sections	3	8.3 Complete instrument panel On/Off	8
2.3 Casing	3	8.3.1 Lay out of the complete instrument panel	8
<b>3. Technical data and dimensions</b>	3	8.3.2 Wiring diagram of the complete instrument panel	9
<b>4. Efficiency information</b>	4	<b>9. Commissioning</b>	10
4.1 Boiler-efficiency	4	9.1 Boiler with gas burner	10
4.2 Combustion-efficiency	4	9.1.1 Commissioning procedure	10
<b>5. Application data</b>	4	9.1.2 Switching off the boiler	10
5.1 L.P.H.W.-version	4	9.2 Boiler with oil burner	10
5.1.1 Water temperature	4	9.2.1 Commissioning procedure	10
5.1.2 Water pressure	4	9.2.2 Switching off the boiler	10
5.1.3 Flow rate	4	<b>10. Fault finding</b>	11
5.1.4 Water treatment	4	10.1 High limit thermostat lockout	11
5.2 Flue gas discharge	4	<b>11. Maintenance recommendations</b>	11
5.3 Noise-production	4	11.1 General	11
<b>6. Installation requirements</b>	4	11.2 Maintenance instructions	11
6.1 Clearances	4		
<b>7. Installation instructions</b>	5		
7.1 General	5		
7.2 Boiler base	6		
7.3 Water connections	6		
7.4 Burner setting	6		

## PREFACE

These technical instructions contain useful and important information for the correct operation and maintenance of the remeha central heating boiler, model OG 10. Furthermore, important instructions are given to prevent accidents and serious damage before commissioning and during operation of the boiler, to ensure safe and trouble-free boiler operation. Read these instructions carefully before putting the boiler into operation, familiarize yourself with its operation and control and strictly observe the instructions given.

If you have any questions, or if you need more information about specific subjects relating to this boiler, please do not hesitate to contact us. The data published in these technical instructions is based on the latest information and is subject to revisions. We reserve the right to modify the design and/or configuration of our products at any moment without being obliged to adjust earlier supplies accordingly.

## 1. DESCRIPTION OF THE UNIT

### 1.1 General

High efficiency pressurized boiler, suitable for natural gas and light oil, by means of a pressure jet burner. The OG 10 is delivered assembled.

### 1.2 Burners

In principle all pressure jet burners are suitable, subject to prior adjustment to the boiler capacity and boiler construction. The individual boiler satisfies inspection requirement for central heating boilers.



## 2. CONSTRUCTION

### 2.1 General

The boiler block consists of cast iron sections which are assembled with tapered nipples. The boiler is designed on the basis of the three pass principle. The boiler block is insulated with a 80 mm thick layer of glass wool.

### 2.2 Sections

The sections are made of pearlitic cast iron.

### 2.3 Casing

Steel casing, finished with a high-quality insulation. The front door is suitable for left or right opening as required.

## 3. TECHNICAL DATA AND DIMENSIONS

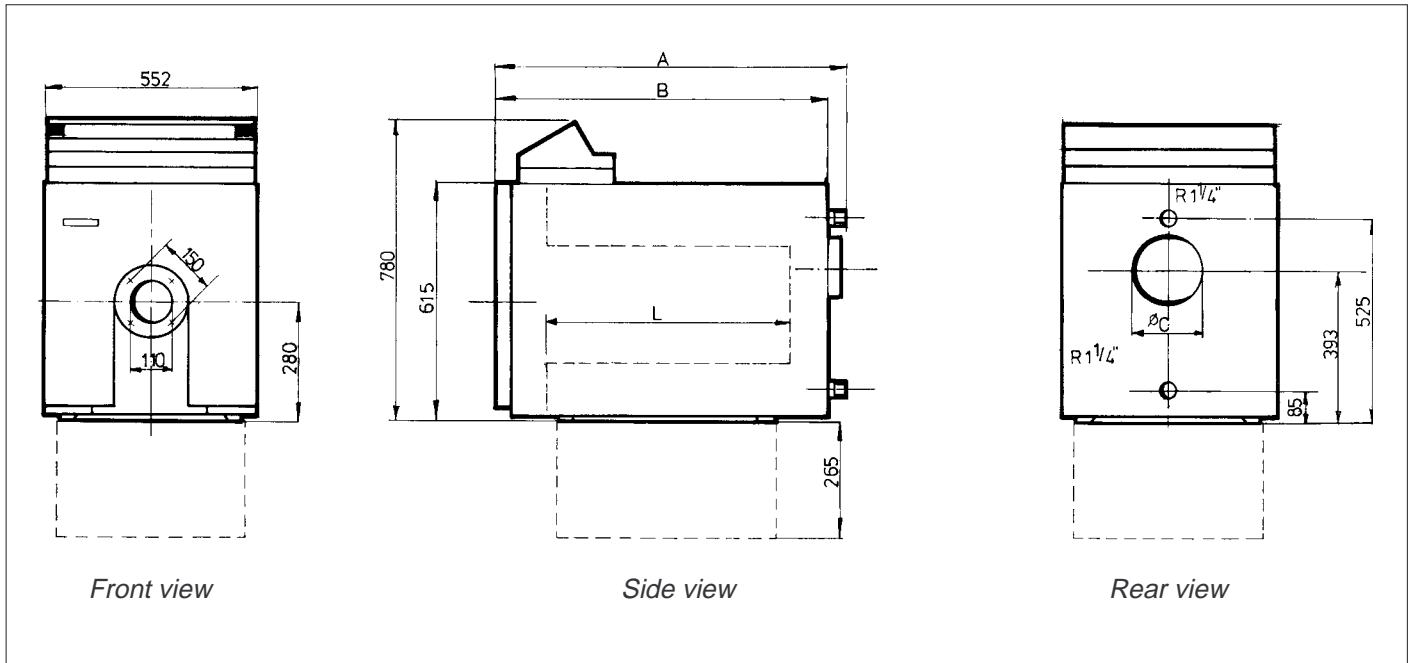


Fig. 01 Dimensions

Boiler model	Number of sections	Boiler output kW	Boiler input G.C.V. kW	Dimensions			Depth of the combustion chamber
				A mm	B mm	øC mm	L mm
OG 10/3	3	19-29	23.0-35.5	750	700	130	430
OG 10/4	4	30-43	35.1-52.2	910	860	150	590
OG 10/5	5	44-58	53.1-70,4	1070	1020	150	750
OG 10/6	6	59-69	71.1-83.3	1230	1180	150	910

Boiler model	Waterresistance		Combustion chamber resistance <sup>1)</sup> mbar	Combustion chamber volume m <sup>3</sup>	Fluegas temperature °C	Water content Ltr	Weight (dry) approx. kg
	at ΔT=20 K	at ΔT=10 K					
	mbar	mbar					
OG 10/3	2.7	10.8	0.13	0.027	170	10	133
OG 10/4	5.0	20.0	0.40	0.034	165	13.5	167
OG 10/5	8.0	32.0	0.60	0.041	170	17	202
OG 10/6	11.5	46.0	0.68	0.048	170	20.5	238

<sup>1)</sup> Determined with 20% excess air.

## 4. EFFICIENCY INFORMATION

### 4.1 Boiler-efficiency

Upto 82.4% at GCV (91.6% at NCV) at full load.  
Average water temperature 70°C (80/60°C).

### 4.2 Combustion-efficiency

Upto 82.8% at GCV (chimney loss 17.2%) at full load.

## 5. APPLICATION DATA

### 5.1 L.P.H.W.- version

#### 5.1.1 Water temperature

Maximum water temperature is 110°C.  
The minimum return water temperature for both gas fired and oil fired boilers is 35°C, at a flow rate corresponding to a  $\Delta t$  of 20°C at nominal heat output.

#### 5.1.2 Water pressure

The boiler is suitable for open and sealed systems up to a maximum pressure of 4 bar and a minimum pressure of 0.8 bar.

#### 5.1.3 Flow rate

The minimum flow rate through the boiler is obtained from the following formula:

$$\frac{\text{nominal heat output (kW)}}{81} = \text{m}^3/\text{h}$$

This minimum flow must be maintained for 5 minutes after the burner stops firing to avoid high temperature shut - down due to residual heat gain.

Due to the design & manufacture of the boiler no specific minimum water flow requirement exists other than for over-temperature protection.

#### 5.1.4 Water treatment

Under normal conditions water treatment is not required (see our leaflet on water quality recommendations).

### 5.2 Flue gas discharge

For the discharge of the flue gases, chimney draught is not required.

Tests have shown that very good combustion results are obtained with zero draught at the boiler outlet.

### 5.3 Noise-production

The noise level taken at a distance of 1 m around the boiler is approximatively 60 to 70 dBA (depending on type of burner). The noise level at the chimney outlet will, depending on load, type of burner and chimney situation, vary from 60 to 70 dBA, taken at a distance of 1 m from the outlet. If these noise levels give rise to problems in the immediate vicinity, then noise-reducing or absorbing measures should be taken.

## 6. INSTALLATION REQUIREMENTS

### 6.1 Clearances

We recommend to keep the following minimum free space as shown in fig 02.

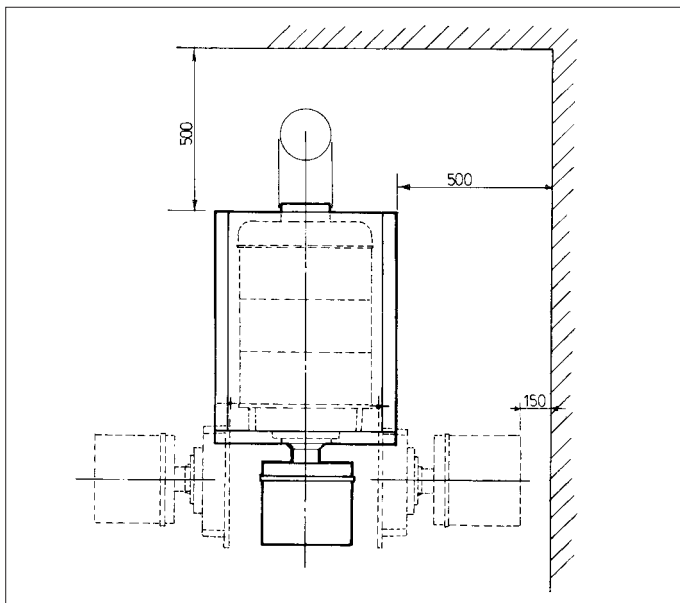


Fig. 02 Clearances

## 7. INSTALLATION INSTRUCTIONS

### 7.1 General

The OG10 series are supplied as a fully assembled unit. The boilers are securely screwed to the transport pallet. After removing the packing, the boiler can immediately be taken to its place of installation. It is recommended that the casing be removed.

This is very simple to do:

1. Pull and lift out front panel.
2. Lift and remove rear panel.
3. Remove top panel.
4. Lift out side panels from clamps.

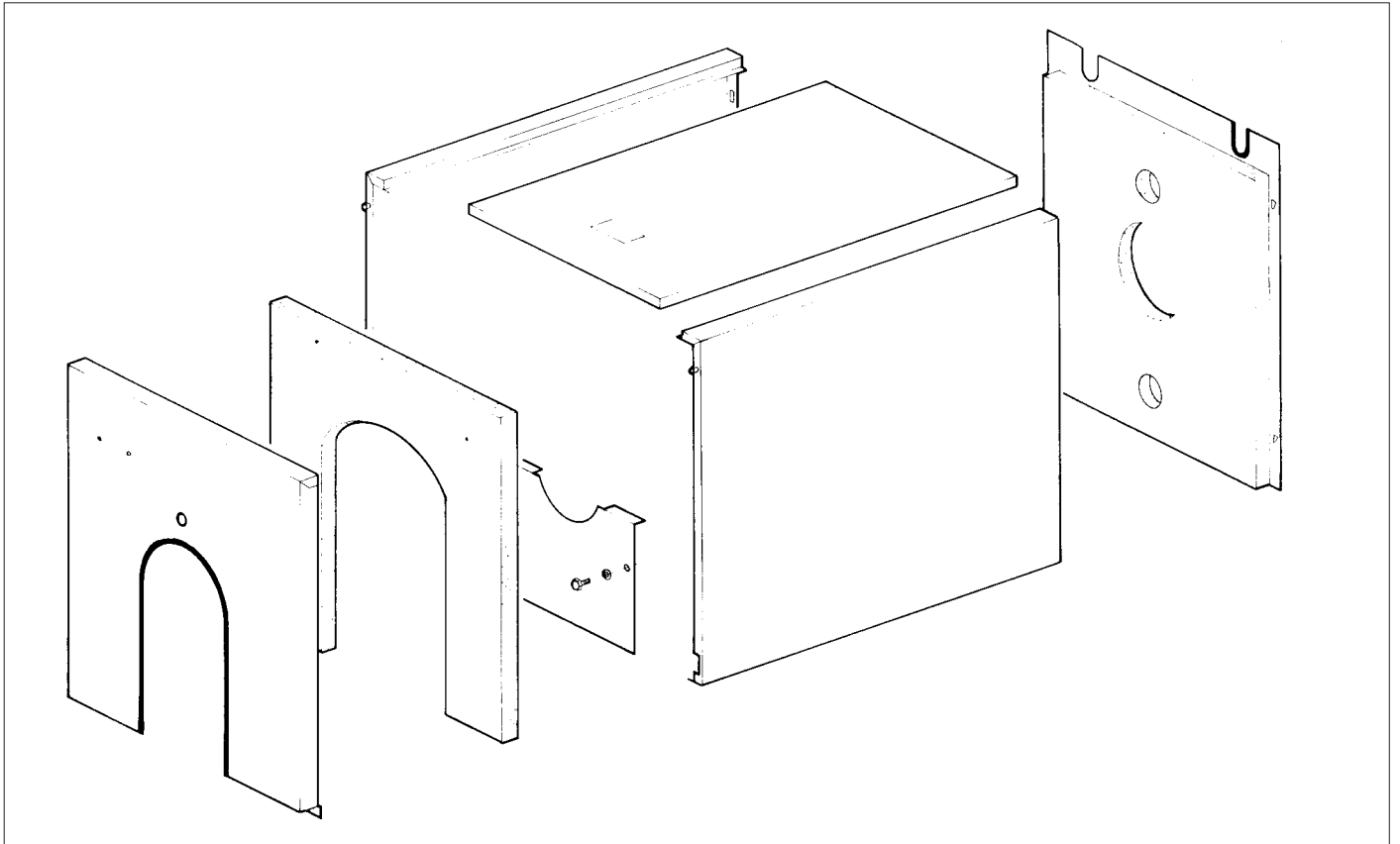


Fig. 03 Casing

## 7.2 Boiler base

If the boiler is to be set up on a base (optional), this must be assembled as indicated in fig. 04.

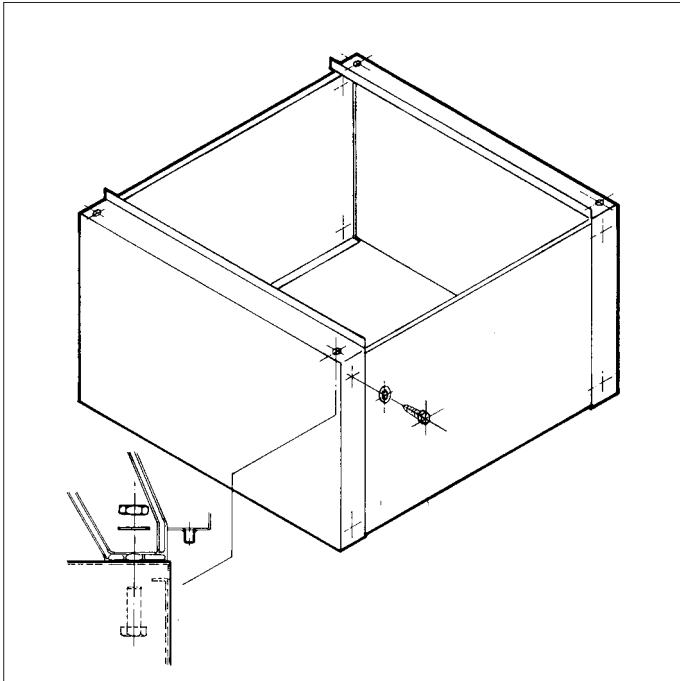


Fig. 04 Base (optional)

Place boiler unit on base. Care should be taken that the rear boiler legs are placed right on the edge of the boiler base. Replace boiler carefully in reverse order. If the boiler is to be placed on a horizontal HW storage tank, care should be taken that the boiler legs are placed on the marked supporting base. Both boiler and HW storage tank are screwed together with M 10 threaded bolts.

## 7.3 Water connections

The water connections are at the rear of the boiler. The flow and return connections consist of threaded male connections: 1 1/4". The front section is provided with a 1" threaded hole in which a drain cock can be fitted.

## 7.4 Burner setting

The OG 10 operates on the 3-pass principle with a U-shaped flame in the combustion chamber. The oil burner to be used should be suitable and should have a flame head of adequate length. For this reason the 2-, 3-, and 4-section models feature a recirculation tube so as to minimize the CO emissions. The minimum burner head insertion length should be approx. 140 mm. The 5- and 6-section models have to be equipped with a burner having a burner-head length of approx. 200 mm. The appropriate setting can be determined by measuring the CO<sub>2</sub>, CO and smoke number.

Smoke spot number Bacharach	CO ppm.	CO <sub>2</sub> %
0 < 1	75	11 - 14

### Burner setting

For Low NOx burners and burners which cannot be supplied with the required minimum burner head insertion length you should determine by measurement whether in case of 3- and 4- section models that the recirculation tube can be removed. Please refer to our burner matching list. Be sure to commission the burner in accordance with the instructions of the burner manufacturer.

**Important: After mounting and setting the burner, seal the cap between the burner tube and the fire proof insulation material in the burner door with fire proof sealing material.**

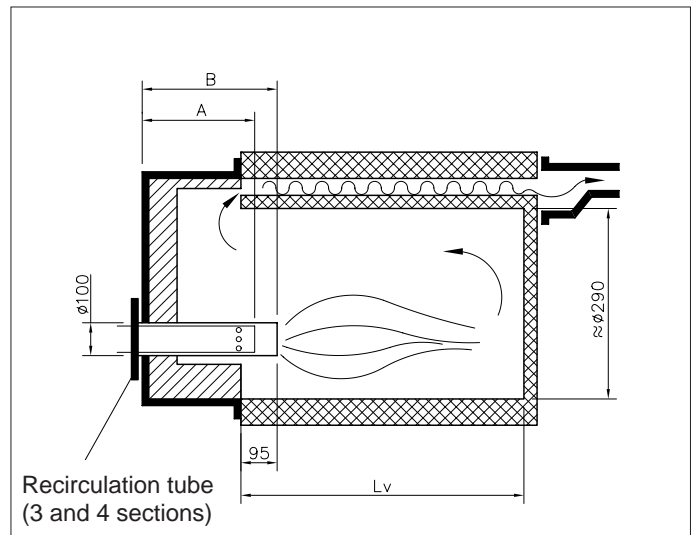


Fig 05 Dimensions of the combustion chamber

Number of sections	Length of the combustion chamber Lv (mm)	Min. length burner blast tube (mm)	
		A	B
3	430	140	
4	590	140	
5	750		200
6	910		200

## 8. INSTRUMENT PANELS

### 8.1 Equipment contents

These is a choice of two instrument panels:

- Simple instrument panel On/Off
- Complete instrument panel On/Off

The panels contain all the necessary control and measuring instruments required to control the boiler.

All connections are pre-wired and fitted with plugs. The connections to the simple instrument panel have to be made on a terminal strip.

The capillaries and sensor wires, which come from the control panel, are placed in the instrument pockets that are fitted at the front of the boiler.

### 8.2 Simple instrument panel On/Off

#### 8.2.1 Lay out of the simple instrument panel

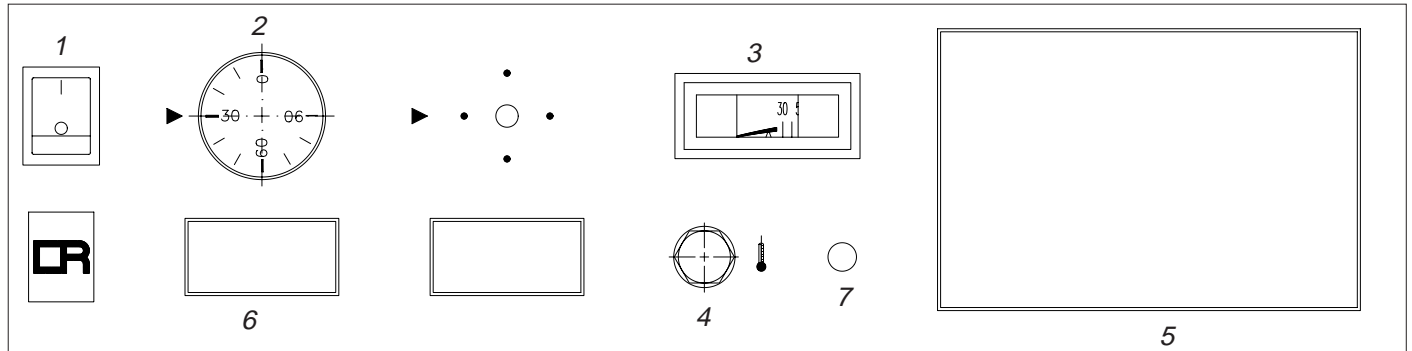


Fig. 06 Layout of the simple instrument panel

1. Operating switch (On/Off).
2. Control thermostat  
Setting between 0°C - 90°C.
3. Analogue thermometer water temperature.
4. High limit thermostat 110°C (locking).
5. Option for weather compensator.
6. Option for hour run meter.
7. Option for central warning light.

#### 8.2.2 Wiring diagram of the simple instrument panel

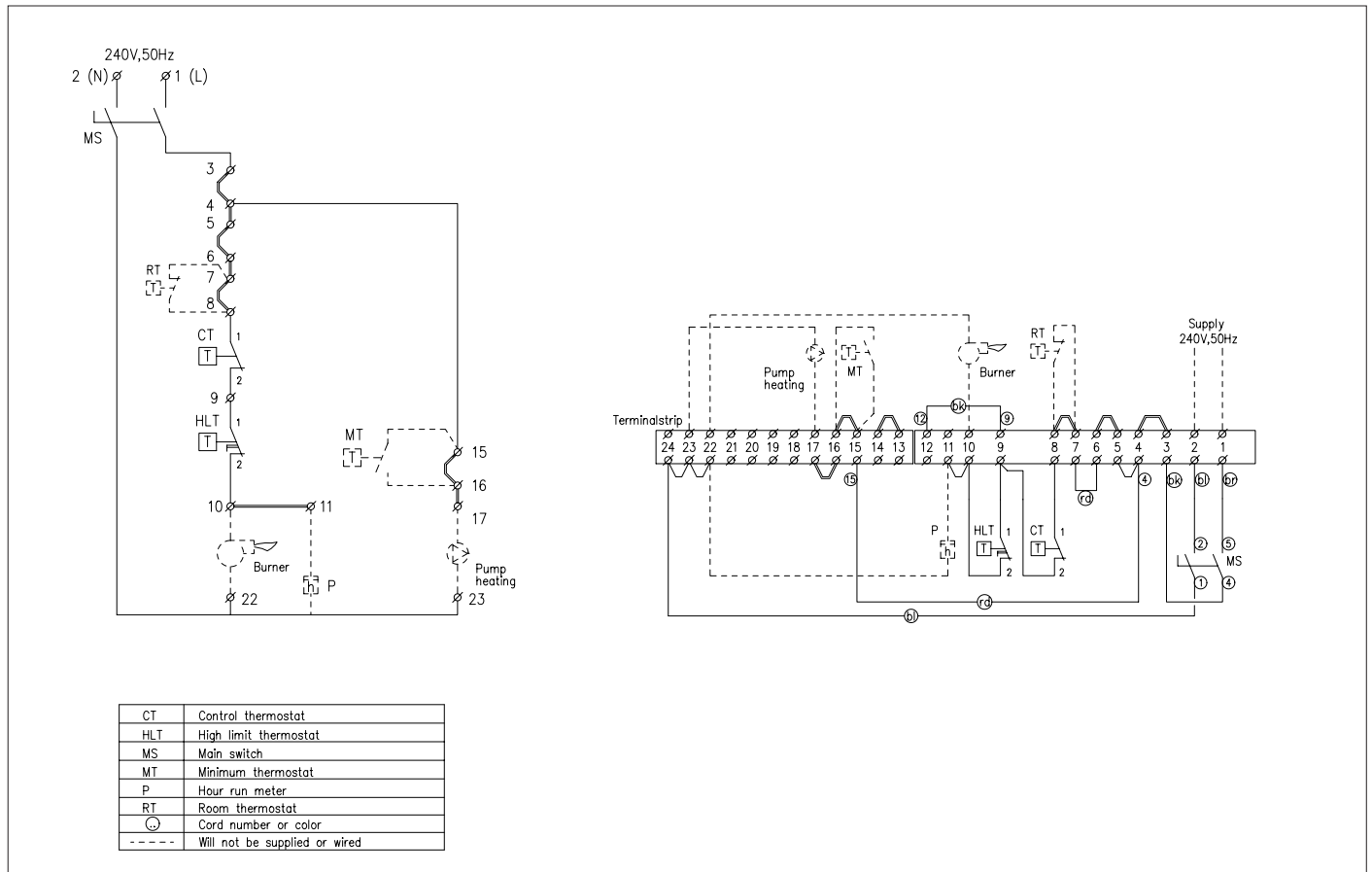


Fig. 07 Wiring diagram of the simple instrument panel

## 8.3 Complete instrument panel On/Off

### 8.3.1 Lay out of the complete instrument panel

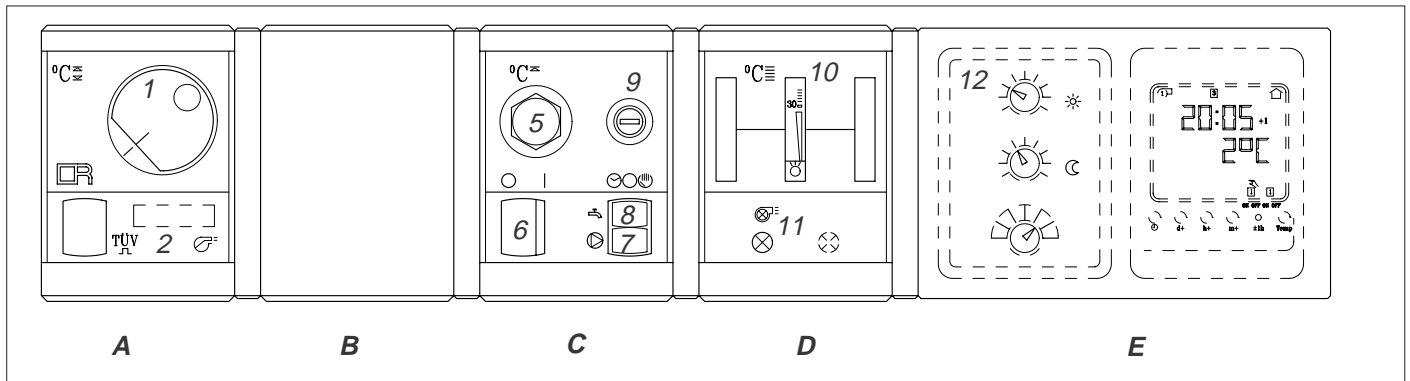


Fig. 08 Layout of the complete instrument panel

The complete instrument panel consists of moduls.  
The modules contain:

#### Module A

1. Control thermostat  
Setting between 35°C - 95°C.
2. Option for hour run meter.

#### Module B

free

#### Module C

5. High limit thermostat 110°C (locking).
6. Operating switch (On/Off) with optical display.

7. Switch for circulating pump  
Manual/Off/Automatic.

8. Switch for domestic hot water storage pump  
Manual/Off/Automatic.

9. Fuse 6.3 A MT.

#### Module D

10. Analogue thermometer water temperature.
11. Central warning light.

#### Module E

12. Option for **rematic** weather compensator

### 8.3.2 Wiring diagram of the complete instrument panel

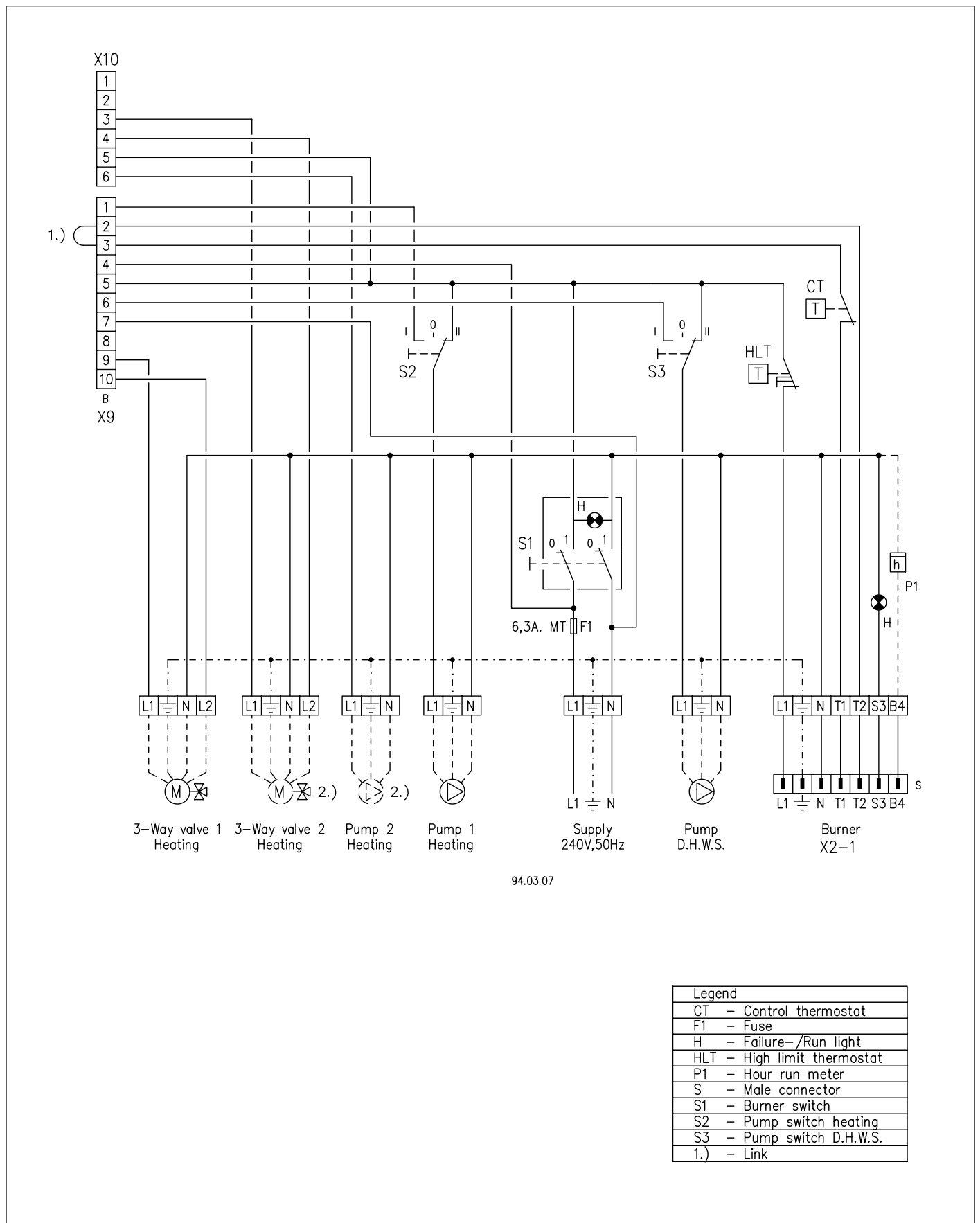


Fig. 09 Wiring diagram of the complete instrument panel

## 9. COMMISSIONING

### 9.1 Boiler with gas burner

#### 9.1.1 Commissioning procedure

If the boiler is to be put into operation again following a period of non-use, then the following procedure must be carried out:

- a. Open the main gas cock.
- b. Switch the weather-compensator (if fitted) over to manual operation.
- c. Turn the thermostats to their highest setting.
- d. Switch on the circulation pump.
- e. Switch on the main switch.
- f. Switch on the operation switch in the instrument panel.
- g. Consult burner manufacturer commissioning details.

#### Warning

If the instrument panel is fitted with a weather compensator, set the programm switch to 'manual' position. In the event that either a circulation and / or a Domestic Hot Water pump are connected to the boiler control, set both pump switches in the 'manual' position. (These two switches are only fitted in the complete instrument panel next to the operating switch. The following will now take place: the gas burner fan will start running so that during the purging time the combustion chamber will be ventilated with air damper fully open. Then the air damper will go into start position. Ignition flame lights up and is checked. Then the control box gives the all clear signal for the burner to switch over to full load.

#### 9.1.2 Switching off the boiler

It is sufficient to switch off the operating switch on the instrument panel. It is recommended that in the event of work being carried out on the burner, the main gas cock is shut.

### 9.2 Boiler with oil burner

#### 9.2.1 Commissioning procedure

If the boiler is to be put into operation again following a period of non-use, then the following procedure must be carried out:

- a. Open the main oil cock.
- b. Switch the weather-compensator (if fitted) over to manual operation.
- c. Turn the thermostat to their highest setting.
- d. Switch on the circulation pump.
- e. Switch on the main switch.
- f. Switch on the operation switch in the control panel.
- g. Consult burner manufacturer commissioning details.

#### Warning

If the instrument panel is fitted with a weather compensator, set the programm switch to 'manual' position. In the event that either a circulation and / or a Domestic Hot Water storage pump are connected to the boiler control, set both pump switches in the 'manual' position. (These two switches are only fitted in the complete control panel next to the operating switch). The following will now take place: the oil burner fan will start running so that during the purging time the combustion chamber will be ventilated with air damper fully open. Then the air damper will go into start position. Ignition flame lights up and is checked. Then the control box gives the all clear signal for the burner to switch over to full load.

#### 9.2.2 Switching off the boiler

It is sufficient to switch off the operating switch on the instrument panel. It is recommended that in the event of work being carried out on the burner, the main oil valve is shut.



## 10. FAULT FINDING

### 10.1 High Limit thermostat lockout

- Check the water circulation (circulation pump). Reset the High Limit thermostat (Reset button is on the instrument panel under the cover cap of the High Limit thermostat).
- If the circulation pump is connected via the instrument panel, check if the pump switch is in 'manual' position. (Never put this switch in 'clock' position, if a weather compensator is not fitted).
- Advise the installer in the event of continued lock outs.

## 11. MAINTENANCE RECOMMENDATIONS

### 11.1 General

Depending on the operational conditions, the block and the burner must be checked and cleaned one or more times a year.

### 11.2 Maintenance instructions

- > Cleaning of the boiler
  - Switch off the boiler.
  - Open the front door, if necessary after dismantling the burner.
  - Remove the retarders.
  - Clean the combustion chamber and flue passes using a suitable brush.
  - Clean the removed retarders.
- Vacuum clean the boiler and the combustion chamber.
- Renew the front door seals after cleaning the boiler.
- Re-assemble the removed parts and close the front door.
- Re-assembled the burner (if dismantled).
- > Check the boiler combustion side for leakage.
- > Check the equipment for correct operation and if necessary re-adjust the gas control and safety equipment.
- > Check combustion by means of flue gas gas analysis.
- > Check the water connections.



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