Installation and Service Manual

Great Britain

EN

Wall-hung gas condensing boilers

Quinta Pro 30 - 45 - 65 - 90 - 115

remeha

INSTALLATION INSTRUCTIONS

Contents

1 Introduction

1.1 Symbols used

In these instructions, various danger levels are employed to draw the user's attention to particular information. In so doing, we wish to safeguard the user's safety, obviate hazards and guarantee correct operation of the appliance.

CAUTION:

Risk of a dangerous situation causing serious physical injury.

WARNING:

Risk of a dangerous situation causing slight physical injury.

CAUTION:

Risk of material damage.

NOTE:

Signals important information.

IMPORTANT:

Signals a referral to other instructions or other pages in the instructions.

1.2 Abbreviations

- **Central heating**: Central heating
- **PCU**: Primary Control Unit - PCB for managing burner operation
- **PWM**: Pulse Wide Modulation
- **SCU**: Secondary Control Unit - Electronic printed circuit board for extra connections

1.3 General

1.3.1. Manufacturer’s liability

Our products are manufactured in compliance with the requirements of the various applicable European Directives. They are therefore delivered with CE marking and all relevant documentation.

In the interest of customers, we are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

Our liability as the manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.
- Failure to abide by the instructions on installing the appliance.

1.3.2. Installer’s liability

The installer is responsible for the installation and initial start up of the appliance. The installer must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Carry out installation in compliance with the prevailing legislation and standards.
- Perform the initial start up and carry out any checks necessary.
- Explain the installation to the user.
- If a maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- Give all the instruction manuals to the user.

1.3.3. User’s liability

To guarantee optimum operation of the appliance, the user must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on qualified professionals to carry out installation and initial start up.
- Get your fitter to explain your installation to you.
- Have the required checks and services done.
- Keep the instruction manuals in good condition close to the appliance.

This appliance is not intended to be used by persons (including children) whose physical, sensory or mental capacity is impaired or persons with no experience or knowledge, unless they have the benefit, through the intermediary of a person responsible for their safety, of supervision or prior instructions regarding use of the appliance. Care should be taken to ensure that children do not play with the appliance.

1.4 Homologations

1.4.1. Certifications

CE identification no	**PIN 0063CL3333**
NOx classification	**5 (EN 297 pr A3, EN 656)**
Type of connection (Flue gas outlet)	B_{23}, B_{23P}, B_{33}, C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}. C_{93}

1.4.2. Equipment categories

Gas category	**Gas type**	**Connection pressure (mbar)**
II_{2H3P}	G20 (Gas H)	20
	G31 (Propane)	37/50

1.4.3. Additional Directives

Apart from the legal provisions and Directives, the additional Directives described in these instructions must also be observed.

For all provisions and Directives referred to in these instructions, it is agreed that all addenda or subsequent provisions will apply at the time of installation.

1.4.4. Factory test

Before leaving the factory, each boiler is set for optimum performance and tested to check the following items:

- Electrical safety
- Adjustment (CO_2)
- Water tightness
- Gas tightness
- Parameter settings

2 Safety instructions and recommendations

2.1 Safety instructions

WARNING:

If you smell gas:

1. Do not use a naked flame, do not smoke, do not operate electrical contacts or switches (doorbell, light, motor, lift, etc..).

2. Shut off the gas supply.

3. Open the windows.

4. Report any leaks immediately.

5. Trace possible leaks and seal them immediately.

6. If the gas leak is before the gas meter, contact the gas supplier.

WARNING:

If you smell flue gases:

1. Switch the appliance off.

2. Open the windows.

3. Report any leaks immediately.

4. Trace possible leaks and seal them immediately.

2.2 Recommendations

WARNING:

- ***Installation and maintenance of the boiler must be carried out by a qualified professional in compliance with prevailing local and national regulations.***
- ***When working on the boiler, always disconnect the boiler from the mains and close the main gas inlet valve.***
- ***After maintenance or repair work, check all installations to ensure that there are no leaks.***

CAUTION:

The boiler must be installed in a frost-free environment.

NOTE:

Keep this document close to the place where the boiler is installed.

Casing components

Only remove the casing for maintenance and repair operations. Put the casing back in place after maintenance and repair operations.

Instructions stickers

The instructions and warnings affixed to the appliance must never be removed or covered and must remain legible during the entire lifespan of the appliance. Immediately replace damaged or illegible instructions and warning stickers.

Modifications

Modifications may only be made to the boiler after the written permission of **Remeha** to do so.

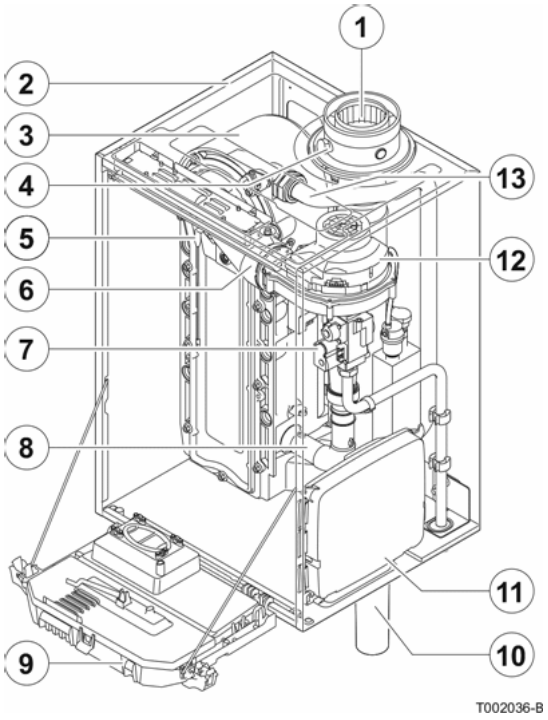
3 Technical description

3.1 General description

High-efficiency wall-hung condensing gas boilers

- High efficiency heating (Production of domestic hot water can be ensured by a separate hot water calorifier).
- Low pollutant emissions.
- Very suitable for cascade systems with several boilers.

3.2 Main parts



1	Smoke nozzle / Air intake
2	Casing/air box
3	Heat exchanger (Central heating)
4	Outlet for measuring combustion gases
5	Ignition/ionization electrode
6	Mixer pipe
7	Combined venturi and gas valve unit
8	Air intake silencer
9	Instrument box
10	Siphon
11	Box for the control PCBs
12	Fan
13	Water flow pipe

3.3 Operating principle

3.3.1. Shunt pump

The boiler is supplied without a pump. When choosing a pump, take account of the boiler resistance and system resistance.

IMPORTANT:

See chapter: "Technical specifications", page 12.

If possible, install the pump directly under the boiler on the return connection.

IMPORTANT:

See chapter: "Connection of the heating circuit", page 20.

CAUTION:

The pump may have a maximum input of 200 W. Use an auxiliary relay for a pump with a larger input.

3.3.2. System in cascade

The boiler is ideally suited for a cascade system. There are a number of standard solutions available. For example:

- Cascade sets (quick assembly) for the installation of 2 to 6 boilers next to each other or 3 to 6 boilers mounted back to back on a freestanding frame. When the boilers are mounted next to each other, they can be mounted either on the wall or on a free-standing frame.

- Low loss headers for a cascade system of 2 or 3 boilers (Quinta Pro 45 and/or Quinta Pro 65). The flow and return of each boiler can be directly connected to these.

NOTE:

Please contact us for further information.

3.3.3. Calorifier connection

A calorifier can be connected to the boiler. Our product range includes various calorifiers.

NOTE:

Please contact us for further information.

The calorifier can be connected to the boiler in two ways:

- Using a three-way valve.
- Using a calorifier pump.

3.3.4. Water flow rate

The boiler's modulating control system limits the maximum difference in temperature between the heating flow and return and the maximum speed at which the flow temperature increases. For this reason the boiler is, so to speak, insensitive to a flow which is too low.

In all cases, maintain a minimum water flow of 0.4 m^3/h.

3.4 Technical specifications

Boiler type	**Quinta Pro**		**30**	**45**	**65**	**90**	**115**
General							
EC identification no.	pin		0063CL3333				
Gas Council number			41-288-15	41-288-16	41-288-17		
Flow rate setting	Adjustable		Modulating, Start/Stop, 0 - 10 V				
(1) Front panel removed							
Nominal output (Pn) Heating System (80/60 °C)	minimum-maximum	kW	8.0 - 29.3	8.0 - 40.0	12.0 - 61.0	14.1 - 84.2	16.6 - 107.0
	Factory setting	kW	29.3	40.0	61.0	84.2	107.0
Nominal output (Pn) Heating System (50/30 °C)	minimum-maximum	kW	8.9 - 31.4	8.9 - 43.0	13.3 - 65.0	15.8 - 89.5	18.4 - 114.0
	Factory setting	kW	31.4	43.0	65.0	89.5	114.0
Nominal input (Qn) Heating System (Hi)	minimum-maximum	kW	8.2 - 30.0	8.2 - 41.2	12.2 - 62.0	14.6 - 86.0	17.2 - 110.2
	Factory setting	kW	30.0	41.2	62.0	86.0	112,0
Nominal input(Qn) Heating System (Hs)	Minimum-maximum	kW	9.1 - 33.3	9.1 - 45.7	13.6 - 68.8	16.2 - 95.5	19.1 - 122.4
	Factory setting	kW	33.3	45.7	68.8	95.5	122.4
Heating efficiency under full load (Hi) (80/60 °C)	-	%	97.5	97.2	98.3	97.9	96.6
Heating efficiency under full load (Hi) (50/30 °C)	-	%	102.9	102.9	104.6	104.1	102.5
Heating efficiency under partial load (Hi) (Return temperature 60°C)	-	%	97.5	97.5	98.3	96.6	96.5
Heating efficiency under partial load (EN 92/42)(Return temperature 30°C)	-	%	107.7	107.7	108.9	108.1	107.1
Data on the gases and combustion gases							
Gas categories		-	II_{2H3P}				
Gas inlet pressure at boiler connection - G20 (Gas H)	Minimum-maximum	mbar	17- 30				
Gas inlet pressure at boiler connection - G31 (Propane)	Minimum -maximum	mbar	37 - 50				
Gas resistance between boiler connection and measurement point on the gas valve unit		mbar	1	1	2	2.5	3
Gas consumption - G20 (Gas H)	Minimum - maximum	m^3/h	0.9 - 3.3	0.9 - 4.4	1.3 - 6.6	1.5 - 9.1	1.8 - 11.7
Gas consumption - G31 (Propane)	Minimum -maximum	m^3/h	0.3 - 1.3	0.3 - 1.7	0.5 - 2.5	0.6 - 3.5	0.6 - 4.7
NOx-Emission per year (BREEAM)		mg/kWh	37	37	32	29	35
Mass flue gas flow rate	Minimum -maximum	kg/h	14 - 50	14 - 69	21 - 104	28 - 138	36 - 178
Flue gas temperature	Minimum-maximum	°C	30- 65	30 - 67	30 - 68	30 - 68	30 - 72
Maximum counter pressure		Pa	70	150	100	160	220
Characteristics of the heating circuit							
Water content		l	5.5	5.5	6.5	7.5	7.5
Water operating pressure	minimum	bar	0,8				
Water operating pressure (Open vented)	minimum	bar	0.3	0.3	0.3	0.3	0.5
Water operating pressure (PMS)	maximum	bar	4.0				
Water temperature	maximum	°C	110				
Water temperature (Open vented)	maximum	°C	95				
Operating temperature	maximum	°C	90				
Operating temperature (Open vented)	maximum	°C	80				
Water resistance (ΔT = 20K)		mbar	70	90	130	140	250
(1) Front panel removed							
Electrical characteristics							
Power supply voltage		VAC/Hz	230/50				
Power consumption - Full load	maximum	W	39	68	88	125	199
Power consumption - Part load	maximum	W	18	18	23	20	45
Power consumption - Standby	maximum	W	5	5	6	4	7
Electrical protection index		IP	X4D				
Other characteristics							
Weight (empty)	Total	kg	53	53	60	67	68
	Mounting(1)	kg	49	49	56	65	65
Acoustic level at 1 metre		dB(A)	38	45	45	52	51
(1) Front panel removed							

4 Installation

4.1 Regulations governing installation

WARNING:

The engineer must be Gas Safe registered and have the correct ACS qualifications.

Installation of the appliance must be done by a qualified engineer in accordance with prevailing local and national regulations.

4.2 Package list

4.2.1. Standard delivery

The delivery includes:

- The boiler, fitted with a connection cable
- Connection cable for pump
- Mounting rail and mounting accessories for wall mounting
- Mounting template
- Installation and Service Manual

These installation and maintenance instructions deal only with the items included in a standard delivery. For installation and assembly of any accessories supplied with the boiler, see the relevant installation/assembly instructions.

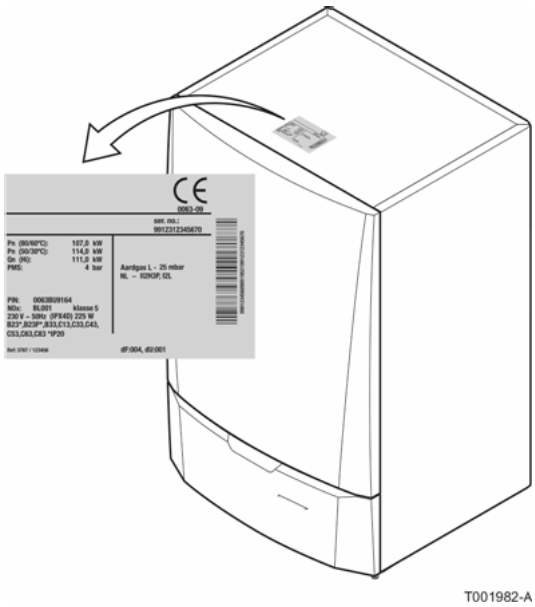
4.2.2. Accessories

Description
Remeha Celcia 10 on/off thermostat
Remeha qSense basic modulating control system
Remeha iSense extended modulating control system
Cascade controller
Outside temperature sensor
Flue kit
Combustion gas adapter 80/80 (Quinta Pro 30/45)
Combustion gas adapter 100/100 (Quinta Pro 65/90/115)
Calorifier tank
Kit for connection to the water heater
DHW sensor
Modulating pump
3 -speed pump
Flue gas thermostat
Cascade set (For fitting a **Quinta Pro** boiler in a **Quinta** cascade frame)
Cascade set
Duo and **Trio** low loss headers
Various control PCBs
Protective cover for the connections
Exchanger cleaning tool
Maintenance box
Recom communication kit

4.3 Choice of the location

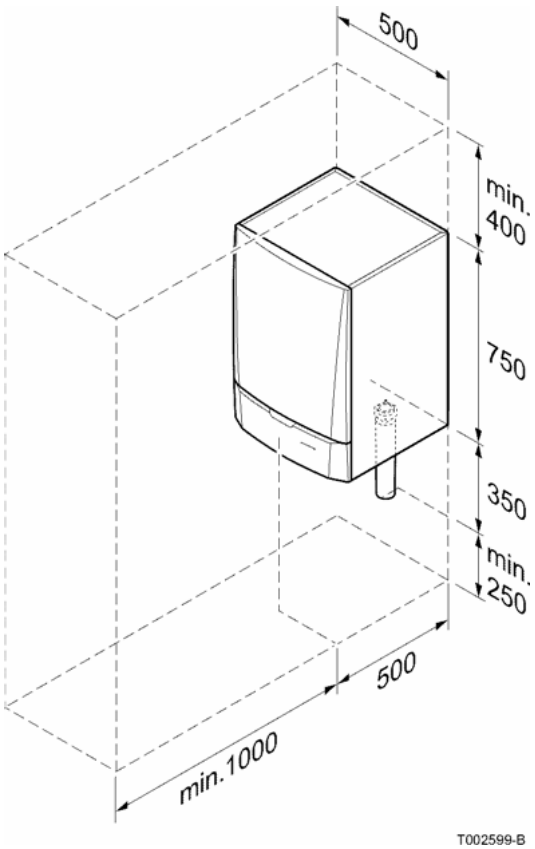
4.3.1. Data plate

The data plate located on top of the boiler provides important information on the appliance: serial number, model, gas category, etc.



4.3.2. Location of the boiler

- Before mounting the boiler, decide on the ideal position for mounting, bearing the Directives and the dimensions of the appliance in mind.
- When choosing the position for mounting the boiler, bear in mind the authorised position of the combustion gas discharge outlets and the air intake opening.
- To ensure adequate accessibility to the appliance and facilitate maintenance, leave enough space around the boiler.



WARNING:

- ***Fix the appliance to a solid wall capable of bearing the weight of the appliance when full of water and fully equipped.***
- ***It is forbidden to store inflammable products and materials in the boiler room or close to the boiler, even temporarily.***

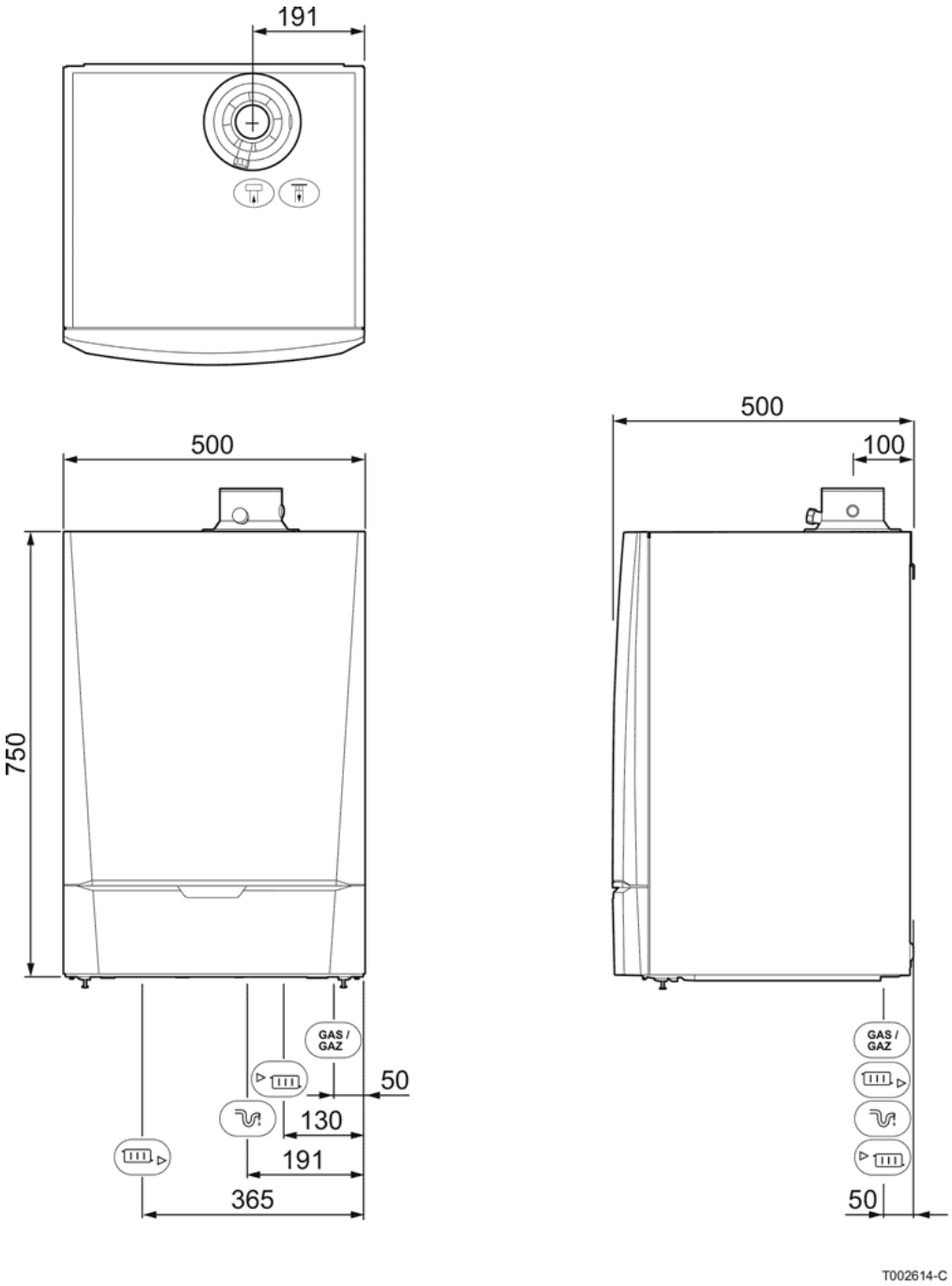
CAUTION:

- ***The boiler must be installed in a frost-free environment.***
- ***An earthed electrical connection must be available close to the boiler.***
- ***A connection to the mains drainage system for the discharge of condensate must be available close to the boiler.***

4.3.3. Ventilation

The installation must comply with BS 5540 (part 1 + 2), BS 6640 en IGUP/10.

4.3.4. Main dimensions



	Connection of the combustion gas exhaust pipe ; Ø 80 mm (≤ 45 kW) / Ø 100 mm (≥ 65 kW)
	Connection of the air intake pipe ; Ø 125 mm (≤ 45 kW) / Ø 150 mm (≥ 65 kW)
	Siphon connection bush
	Heating circuit return ; 1 ¼" Male thread
Gas / Gaz	Gas connection ; ¾" Male thread
	Heating circuit flow ; 1 ¼" Male thread

4.4 Positioning the boiler

The boiler is delivered with a mounting template.

A suspension clamp situated at the rear of the casing enables the boiler to be directly suspended on the mounting bracket.

1. Position the mounting template to the wall with adhesive tape.

CAUTION:

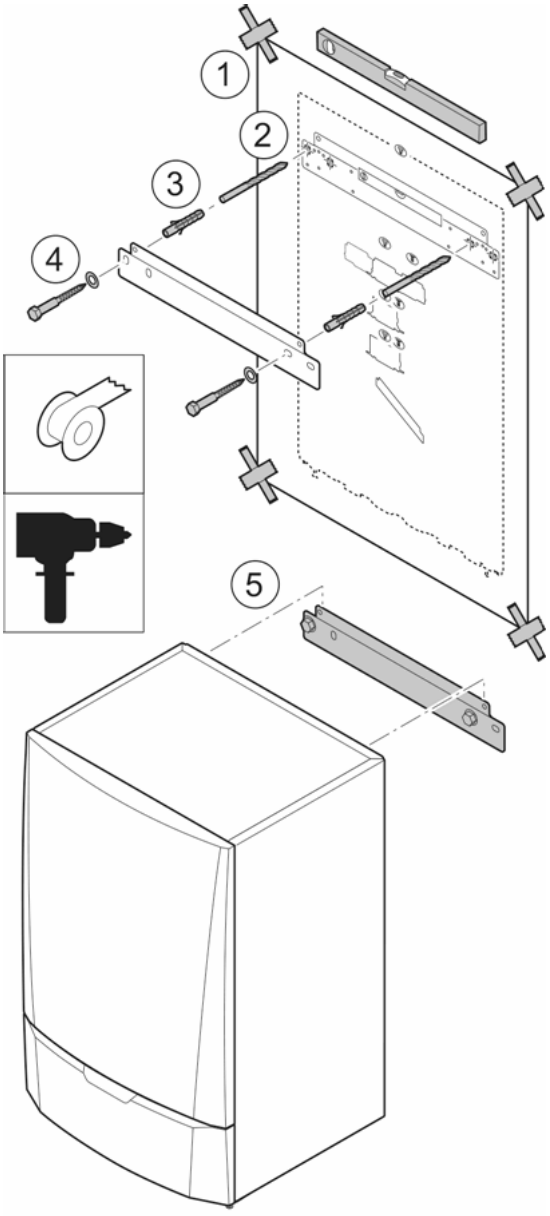
- ***Using a spirit level, check that the mounting axis is perfectly horizontal.***
- ***During mounting, cover up the connection points for the air supply and the combustion gas exhaust, to protect the boiler and its connections from dust. Only remove this protection at the time when these connections are made.***

2. Drill 2 holes with a Ø of 10 mm.

3. Insert the rawlplugs with a Ø of 10 mm.

4. Attach the mounting bracket to the wall with the provided bolts with a Ø of 10 mm.

5. Hang the boiler on the mounting bracket.



4.5 Hydraulic connections

4.5.1. Flushing the system

The installation must be cleaned and flushed according to BS 7593 (2006).

Installing the boiler in new installations (installations less than 6 months old)

- Clean the installation with a universal cleaner to eliminate debris from the appliance (copper, flaxen thread, flux).
- Thoroughly flush the installation until the water runs clear and shows no impurities.

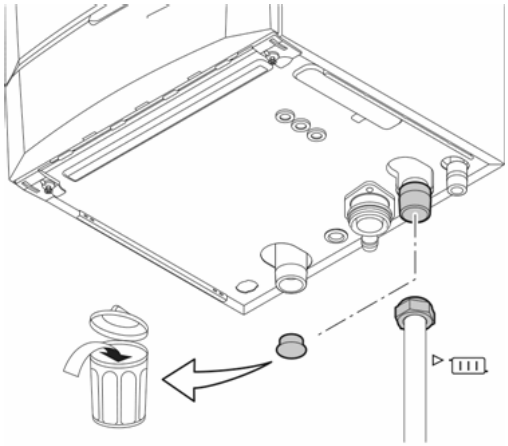
Installing the boiler in existing installations

- Remove sludge from the installation.
- Flush the installation.
- Clean the installation with a universal cleaner to eliminate debris from the appliance (copper, flaxen thread, flux).
- Thoroughly flush the installation until the water runs clear and shows no impurities.

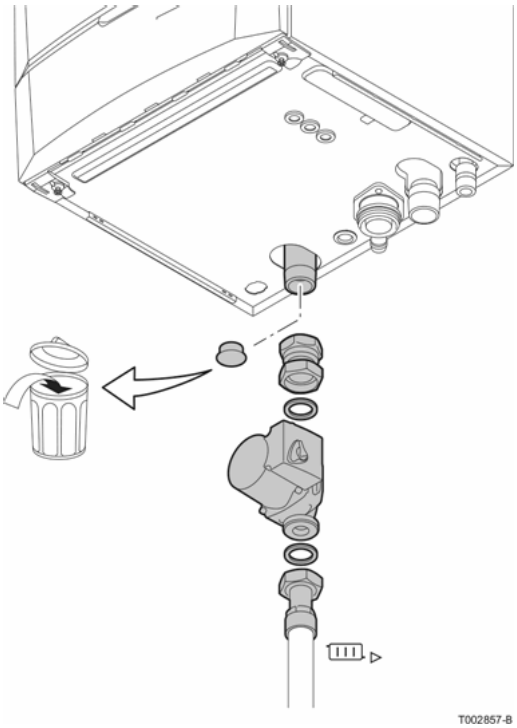
NOTE:

Suitable chemicals and their use should be discussed with specialist water treatment companies in respect to aluminium heat exchangers.

4.5.2. Connection of the heating circuit



1. Remove the anti-dust plug located on the heating outlet connection under the boiler.
2. Connect the heating water outlet pipe to the heating flow connection.
3. Install a filling and drainage valve on the installation for filling and draining the boiler.
4. Remove the anti-dust plug located on the heating return connection under the boiler.
5. Connect the heating water return pipe to the heating return connection.
6. Fit the pump in the return pipe (if possible).



IMPORTANT:

For the electrical connection of the pump, see chapter: "Connecting the pump", page 29

NOTE:

To facilitate maintenance work, we recommend mounting a shut off valve on the heating flow and return pipes.

CAUTION:

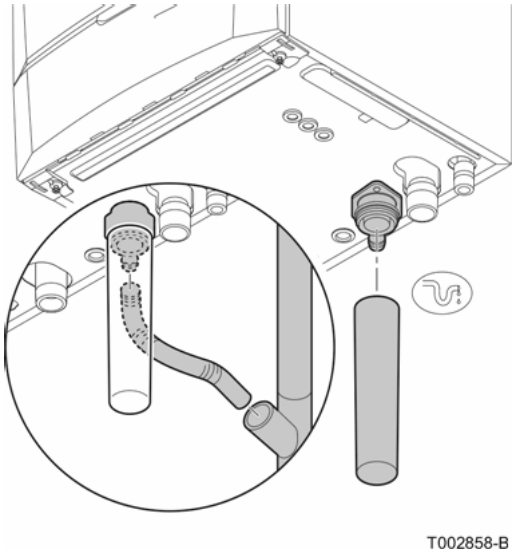
- ***The heating pipe must be mounted in accordance with prevailing provisions.***
- ***If installing shut off valves, position the filling/ drainage valve, the expansion vessel and the safety valve between the shut off valves and the boiler.***
- ***When installing open vented systems, the cold feed and expansion tank heights must comply with the requirements laid down in the Health and Safety Executive publication PM5. The Quinta Pro boilers require a minimum static head of 3 (Quinta Pro 30/45/65/90) or 5 (Quinta Pro 115) m.***

4.5.3. Connecting the expansion vessel

Install the expansion vessel on the heating return pipe .

4.5.4. Connecting the condensate discharge pipe

1. Fit the condensate drain hose and the syphon of the boiler : these are supplied separately.
2. Mount a standard drainage pipe, Ø 32 mm or more, leading to the mains drainage system.
3. Insert into this the hose of the condensate drain.
4. Mount a trap or a siphon in the discharge pipe.



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CAUTION:

Do not make a fixed connection owing to maintenance work on the siphon.

NOTE:

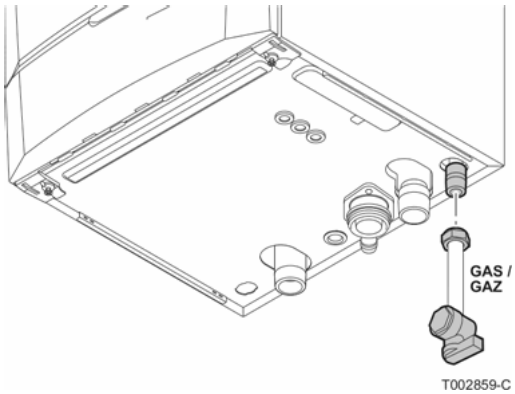
- ***Do not plug the condensate discharge pipe.***
- ***Set the discharge pipe at a gradient of at least 30 mm per metre, maximum horizontal length 5 metres.***
- ***Do not drain condensation water into a roof gutter at any time.***
- ***Connect the condensate discharge pipe in accordance with prevailing standards.***

4.6 Gas connection

WARNING:

- ***Close the main gas valve before starting work on the gas pipes.***
- ***Before mounting, check that the gas meter has sufficient capacity. To do this, you should keep in mind the consumption of all appliances.***
- ***If the gas meter has too low a capacity, inform the energy supply company.***

1. Remove the anti-dust plug located on the gas connection **GAS/ GAZ** under the boiler.
2. Connect the gas inlet pipe.
3. Mount a gas isolation valve on this pipe, directly under the boiler.
4. Connect the gas pipe to the gas shut off valve.



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CAUTION:

- ***Ensure that there is no dust in the gas pipe.***
- ***We recommend installing a gas filter on the gas pipe to prevent clogging of the gas valve unit.***
- ***Connect the gas pipe in accordance with prevailing standards and regulations.***

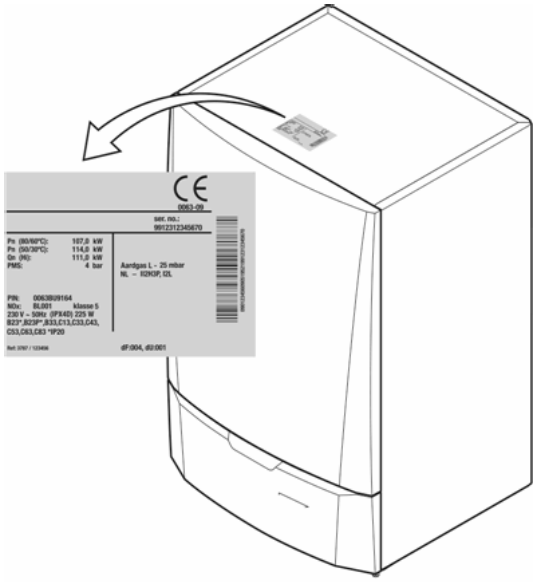
4.7 Connections for the air and exhaust pipes

NOTE:

The boiler is suitable for connection to the following types of combustible gases.

See chapter: "Certifications", page 8.

4.7.1 Classification



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The table specifies this classification in detail according to

Type	Execution	Description
B23 B23P(1)	Open	▸ Without fire-stop approval. ▸ Exhaust of combustion gases above the roof. ▸ Air in the installation room.
B33	Open	▸ Without fire-stop approval. ▸ Common exhaust of combustion gases above the roof. ▸ Common exhaust of combustion gases mixed in the air, air in the installation room (special construction).
C13	Closed	▸ Vent in the outside wall. ▸ The opening for the air-supply inlet is located in the same pressure zone as the vent (For example, a common passage through the outside wall).

(1) Including the pressure classification P1
(2) EN483: 0,5 mbar suction by pressure reduction
(3) An under pressure of 4 mbar is possible
(4) See table for minimum sizes of duct or sleeving

Type	Execution	Description
C33	Closed	▸ Exhaust of combustion gases above the roof. ▸ The opening for the air-supply inlet is located in the same pressure zone as the vent (For example, a concentric passage to the roof).
C43(2)	Closed/Cascade	▸ Common channelling for the air-supply and exhaust of combustion gases (CLV): – Concentric. – Eccentric ; Air supply from the shaft. ▸ This also relates to the overpressure cascades.
C53	Closed	▸ Closed equipment. ▸ Separate channelling for the air-supply. ▸ Separate channelling for the combustion gases. ▸ Terminating on different pressure surfaces.
C63	Closed	▸ The manufacturer delivers this type of equipment without a supply or exhaust system.
C83(3)	Closed	▸ The equipment can be connected on a so-called semi-CLV system (with common combustion gas exhaust).
C93(4)	Closed	▸ Channel for the air-supply and exhaust fumes in a duct or surrounded by a sleeve: – Concentric. – Eccentric ; Air supply from the shaft. – Exhaust of combustion gases above the roof. – The opening for the air-supply inlet is located in the same pressure zone as the vent.

(1) Including the pressure classification P1
(2) EN483: 0,5 mbar suction by pressure reduction
(3) An under pressure of 4 mbar is possible
(4) See table for minimum sizes of duct or sleeving

Type	Execution		Minimum size of the duct or jacket.			
C93		Diameter	Ø Channel (Without air-supply)	Ø Channel (With air-supply)	☐ Channel (Without air-supply)	☐ Channel (With air-supply)
	Rigid	60 mm	110 mm	120 mm	110 × 110 mm	110 × 110 mm
		80 mm	130 mm	140 mm	130 × 130 mm	130 × 130 mm
		100 mm	160 mm	170 mm	160 × 160 mm	160 × 160 mm
	Flexible	60 mm	110 mm	120 mm	110 × 110 mm	110 × 110 mm
		80 mm	130 mm	145 mm	130 × 130 mm	130 × 130 mm
		100 mm	160 mm	170 mm	160 × 160 mm	160 × 160 mm
	Concentric	60/100 mm	120 mm	120 mm	120 × 120 mm	120 × 120 mm
		80/125 mm	145 mm	145 mm	145 × 145 mm	145 × 145 mm
		100/150 mm	170 mm	170 mm	170 × 170 mm	170 × 170 mm

4.7.2. Outlets

For exhausting combustion gases of types C1, C3 and C5, it is appropriate to use a **M&G Skyline / Mugro 3000** or a **Coxstand E HR**. When exhausting combustion gases of type C6, the material of the exhaust must conform with Gastec QA and/or be provided with CE marking.

The exhaust vent for combustion gases must conform to EN 1856-1. The construction of the equipment for exhausting the combustion gases must be calculated conforming to EN 13384 (parts 1 & 2).

NOTE:

For open exhaust of combustion gases above the roof, the vent must always be provided with a suitable RVS wire grill.

4.7.3. Lengths of the air/flue gas pipes

NOTE:

▸ ***The boiler is also suitable for longer chimney lengths with diameters other than those indicated in the table. Please contact us for further information.***

▸ ***To define the maximum final length, you must remove the pipe length in accordance with the reduction table.***

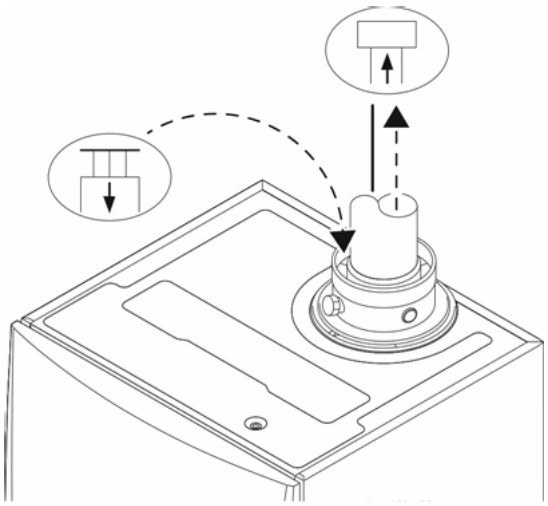
Open flue (B23, B23P, B33)

If using an open version, the air supply opening remains open; only the combustion gas opening is connected. The boiler then takes in the combustion air required directly from the premises in which it is installed.

CAUTION:

▸ ***The air supply opening must remain open.***

▸ ***The premises in which the appliance is installed must be fitted with the necessary air supply openings. They must not be reduced or closed.***

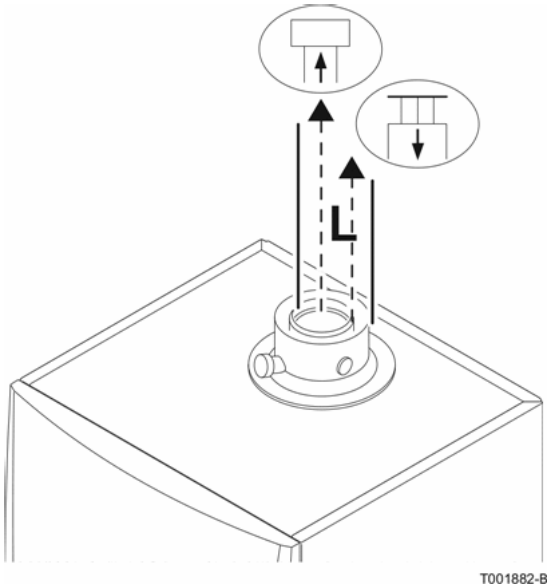


Chimney length for the open version					
Diameter	Maximum length (**L**)				
	Quinta Pro				
	30	45	65	90	115
80 mm	40 m	33 m	10 m	9 m	8 m
90 mm	40 m	40 m	18 m	16 m	12 m
100 mm	40 m	40 m	27 m	24 m	19 m
110 mm	40 m	40 m	40 m	40 m	37 m

Room sealed flue (C13, C33, C43, C63, C93)

If using a room sealed version, both the combustion gas exhaust opening and the air supply opening must be connected (concentrically). Refer to the table to determine the maximum pipe length of the flue gas pipes in room sealed operation.

Chimney length for room sealed operation					
Diameter	Maximum length (**L**)				
	Quinta Pro				
	30	45	65	90	115
80-125 mm	20 m	16 m	-	-	-
100-150 mm	20 m	20 m	13 m	13 m	7 m

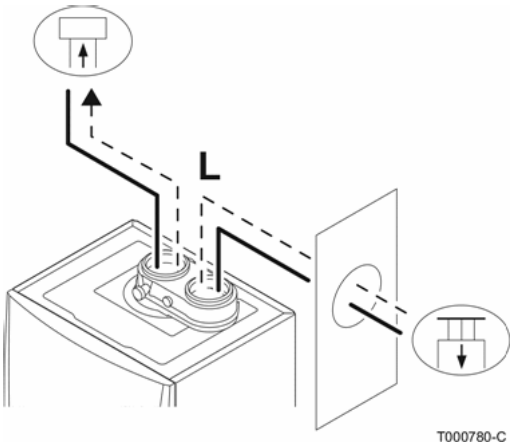


Connection in areas of different pressure (C53, C83)

Combustion air supply and combustion gas discharge are possible in various pressure zones, semi-CLV systems. With the exception of coastal areas. The maximum permissible difference in height between the combustion air supply and the combustion gas discharge is 36 m.

Chimney length in the various pressure zones					
Diameter	Maximum length (**L**)				
	Quinta Pro				
	30	45	65	90	115
80 mm	20 m	20 m	-	-	-
90 mm	36 m	36 m	2 m	-	-

Chimney length in the various pressure zones					
100 mm	36 m	36 m	8 m	4 m	-
110 mm	36 m	36 m	34 m	32 m	24 m
130 mm	36 m	36 m	36 m	36 m	36 m



■ Reduction table

Pipe reductions per element used		
Diameter	Elbow 45°	Elbow 90°
	Pipe reduction	Pipe reduction
80 -125 mm	1 m	2 m
100 -150 mm	1 m	2 m
80 mm	1.2 m	4.0 m
90 mm	1.3 m	4.5 m
100 mm	1.4 m	4.9 m
110 mm	1.5 m	5.4 m
130 mm	1.6 m	6.2 m

4.7.4. Additional Directives

▸ Connection of the combustion gas exhaust directly to the buildings brick chimneys or flues is forbidden for condensation reasons.

▸ If flues or chimneys are to be used, they must have an airtight construction with thick walls and be made from rigid aluminium or stainless steel. Flexible supply flue pipes made from plastic or stainless steel are also permissible. Aluminium is permissible only if there is no contact between the building supply section and the combustion gas exhaust pipe.

▸ Always clean the ducts thoroughly in cases where lining pipes are used and/or a connection of the air-supply.

▸ It must be possible to inspect the flue or chimney.

▸ In cases where condensate coming from the stainless steel or plastic sections of the flue gas pipe can be driven back towards the aluminium section, this condensate must be removed using a collecting device before the aluminium section is reached.

▸ For long, aluminium, combustion-gas exhaust pipes it is initially necessary to consider the relatively high quantity of corrosive products which are brought together with the condensate from the exhaust pipe. The siphon on the equipment requires regular cleaning or, preferably, an additional condensate collector can be installed above the equipment.

▸ The combusted gas discharge pipe must be sufficiently inclined towards the boiler (at least 50 mm per metre) and an adequate condensate collection tank and discharge system constructed (at least 1 m before the boiler opening). The elbows fitted must be at more than 90° to guarantee the provision of an adequate gradient and tightness on the lip rings.

NOTE:

Please contact us for further information.

4.7.5. Connection of the combustion gas exhaust pipe

S Insertion depth 25 mm

Mounting

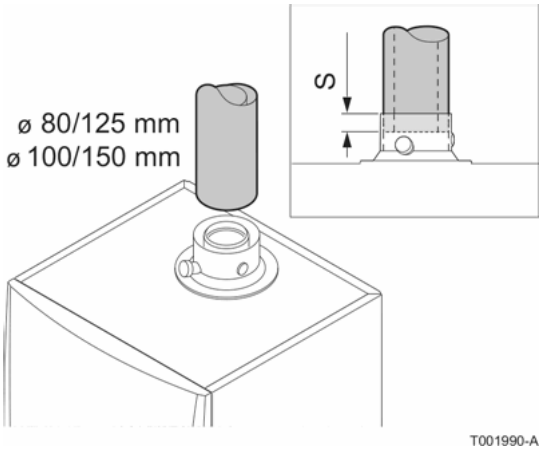
Fit together the combustion gas exhaust pipes, without welding.

NOTE:

▸ ***The pipes must allow no leakage of flue gases and be resistant to corrosion.***

▸ ***Connect the pipes together without stress between the sections.***

▸ ***The horizontal sections need to be constructed with a gradient of 50 mm per metre: Boiler orientation.***



4.8 Electrical connections

4.8.1. Control unit

The boiler is not line- and neutral sensitive. The boiler is fully prewired. All external connections can be made on the connection connector (low voltage). The main characteristics of the control unit are described in the table below.

Power supply voltage	230 VAC/50Hz
Rating of the main fuse F1 (230 VAC)	6.3 AT
Fuse rating F2 (230 VAC)	2 AT
Fan	230 VAC

CAUTION:

The following boiler components are at a voltage of 230V:

- ***Electrical connection of the heating pump (Central heating).***
- ***Electrical connection of the combined gas valve unit.***
- ***Electrical connection of the fan.***
- ***The majority of components in the control panel.***
- ***Ignition transformer.***
- ***Connection of the power supply cable.***

CAUTION:

- ***When the power supply cable has to be replaced, it must be ordered from Remeha.***
- ***The boiler plug must be accessible at all times.***

It is possible to connect various control, safety and regulation systems to the boiler. The standard control PCB can be extended with:

IMPORTANT:

For the optional PCBs, see chapter: "Optional electrical connections", page 35

4.8.2. Recommendations

WARNING:

- ***Only qualified professionnals may carry out electrical connections, always with the power off.***
- ***The boiler is entirely pre-wired. Do not modify the connections inside the control panel.***
- ***Earth the appliance before making any electrical connections.***

Make the electrical connections of the boiler according to:

- The instructions of the prevailing standards.
- The instructions on the electrical diagrams provided with the boiler.
- The recommendations in the instructions.

CAUTION:

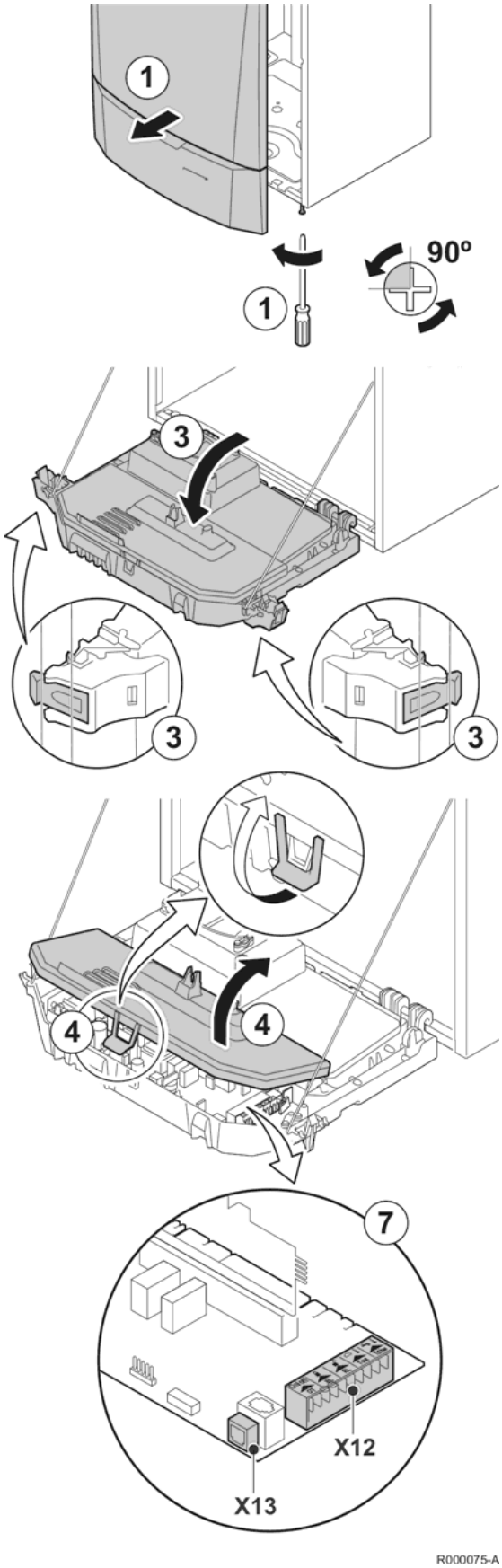
Separate the sensor cables from the 230 V cables.

4.8.3. Standard control PCB

Various thermostats and controllers can be connected to the standard control PCB (PCU) (**X12** connector block).

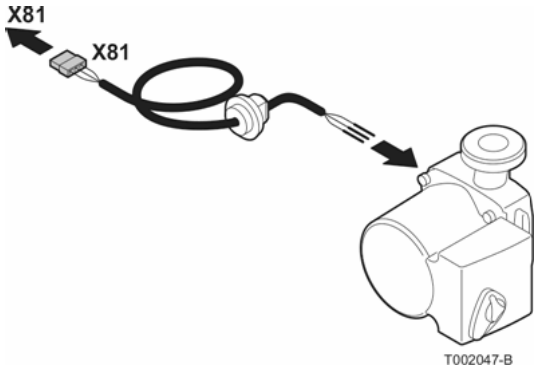
Access to the connector block:

1. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
2. Guide the cables from the controller or thermostat through the round grommet(s) on the right in the boiler bottom plate.
3. Tilt the control box forwards by opening the holding clips located at the sides.
4. Open the tooling box by opening the clip fastener on the front side.
5. Run the connection cable(s) through the grommet(s) in the control unit box.
6. Unscrew the necessary cable clamps (to access the connector block) and introduce the cables.
7. Connect the cables to the appropriate terminals on the connector block.
8. Firmly retighten the cable clamps and close the control box.

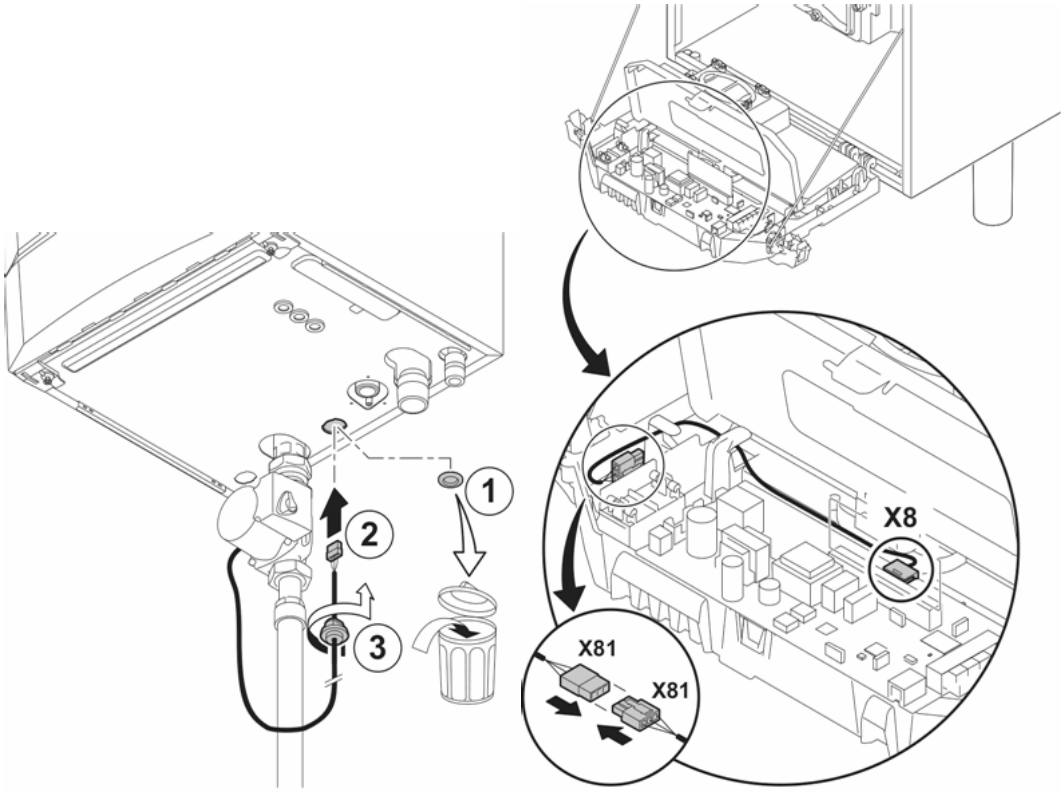


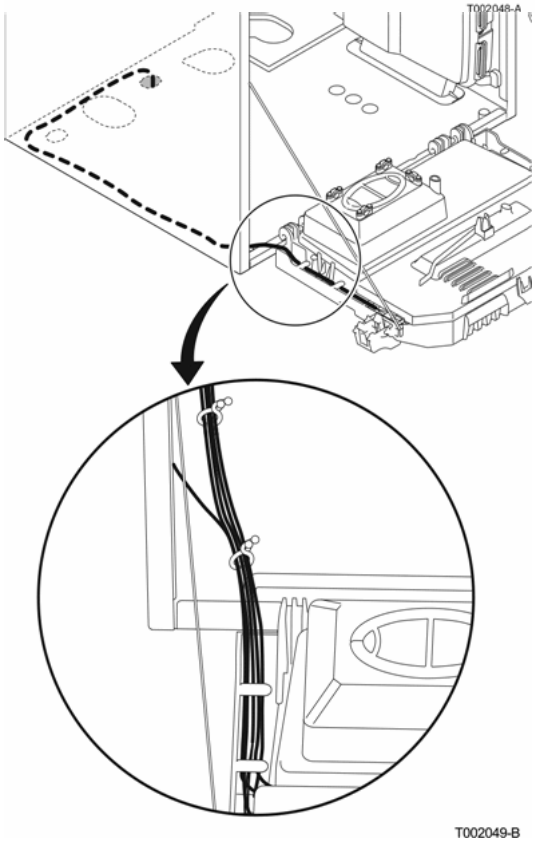
4.8.4. Connecting the pump

The pump must be connected to standard control PCB (PCU). To do this, proceed as follows:



1. Connect the cable, that is delivered with the boiler, to the pump.
2. Remove the grommet from the opening in the middle of the base of the boiler. Pass the pump connection cable through the base of the boiler and seal the opening again by tightening the bayonet fitting to the cable.
3. Connect the pump connection cable to the cable in the instrument box that is connected with connector **X8**.
4. Connect the pump connection cable to the cable bundle by opening and closing the cable bundle bands.





4.8.5. Connecting a third party control unit

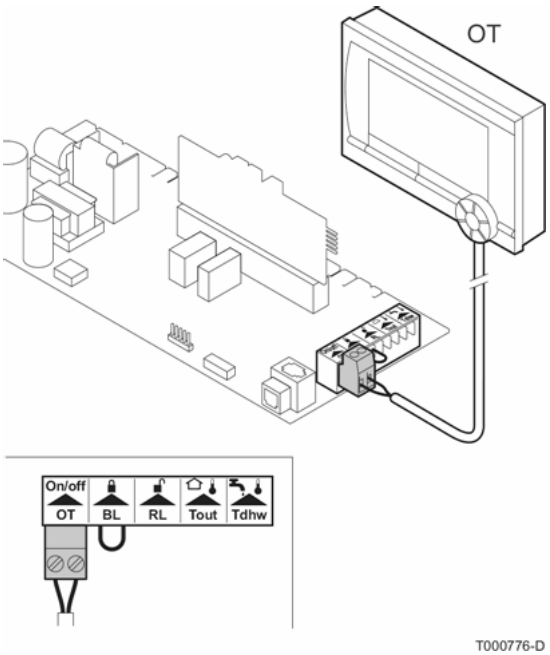
Connecting modulating controller

OT **OpenTherm** regulator

The boiler is fitted with a **OpenTherm** connection as standard.

As a result, modulating **OpenTherm** controllers can be connected without further modifications (Room, weather-dependent and cascade controllers). The boiler is also suitable for **OpenTherm Smart Power.**

- In the case of a room controller: Install the regulator in the reference room (generally the living room).
- Connect the two-wire cable to terminals **On/off-OT** of the connector.



T000776-D

NOTE:

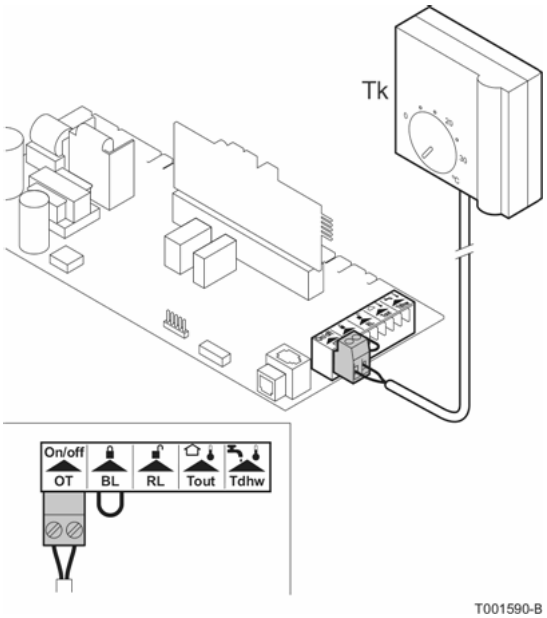
If the tap water temperature can be set on the OpenTherm controller, then the boiler supplies this temperature, with the set value on the boiler as the maximum.

Connect on/off thermostat

Tk ON/OFF room thermostat

The boiler is suitable for connection to a 2 wire on/off room thermostat.

- Install the regulator in the reference room (generally the living room).
- Connect the 2 wire 24 V room thermostat to the **On/off-OT** terminals of the connector.
- Connect the power stealing thermostat to the **On/off-OT** terminals of the connector.



T001590-B

NOTE:

If a room thermostat with an anticipation element is used, this must be converted using parameter PS.

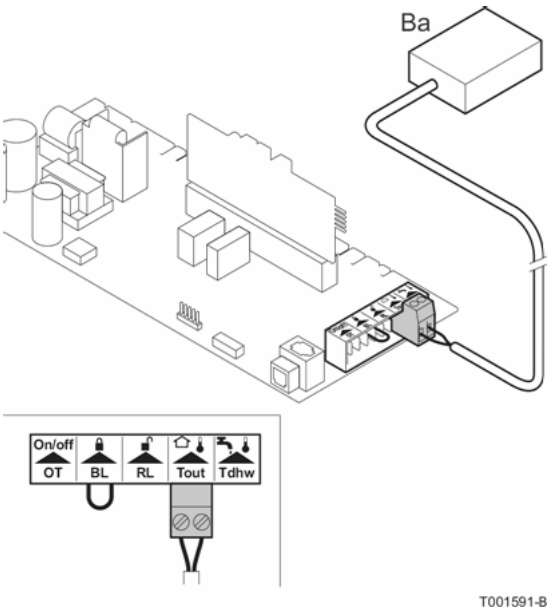
4.8.6. Connecting the outside temperature sensor

Ba Outside sensor

An outside sensor can be connected to the **Tout** terminals of the connector. Where there is an on/off thermostat controller, the boiler will control the temperature with the set point of the internal heating curve.

NOTE:

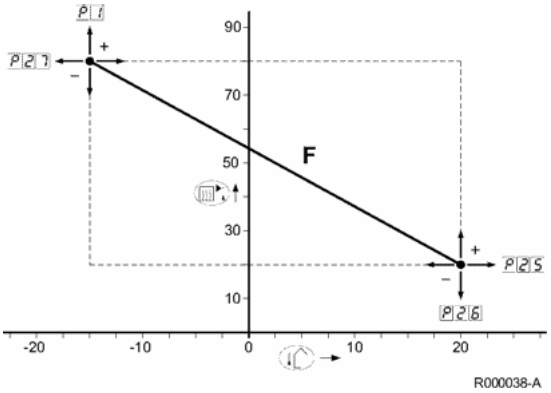
A OpenTherm controller can also use this outside sensor. The heating curve required must then be set on the controller.



T001591-B

Heating curve setting

If an outside temperature sensor is connected, it is possible to adapt the heating curve. The setting can be modified using parameters P1, P25, P26 and P27.



R000038-A

4.8.7. Connect frost protection

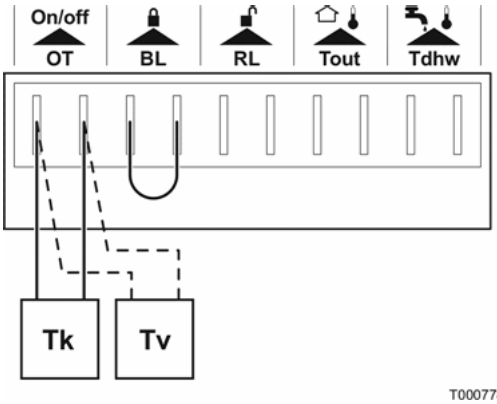
Frost protection in combination with on/off thermostat

If an on/off thermostat is used, it is advisable to protect any rooms where there is risk of frost by using a frost thermostat. The radiator valve in a room where there is a risk of frost must, however, be open.

- In rooms where there is a risk of frost, a frost thermostat (**Tv**) should preferably be installed.
- Connect the frost thermostat in parallel with an on/off room thermostat (**Tk**) to the **On/off-OT** terminals of the connector.

NOTE:

When using a OpenTherm thermostat, a frost thermostat cannot be connected in parallel to the On/off-OT terminals. Implement frost protection for the central heating system in combination with an external sensor.



T000778-C

Frost protection in combination with an outside sensor

The central heating system can also be protected against frost in combination with an outside sensor. The radiator valve in a room where there is a risk of frost must, however, be open. Connect the outside sensor to the **Tout** terminals of the connector.

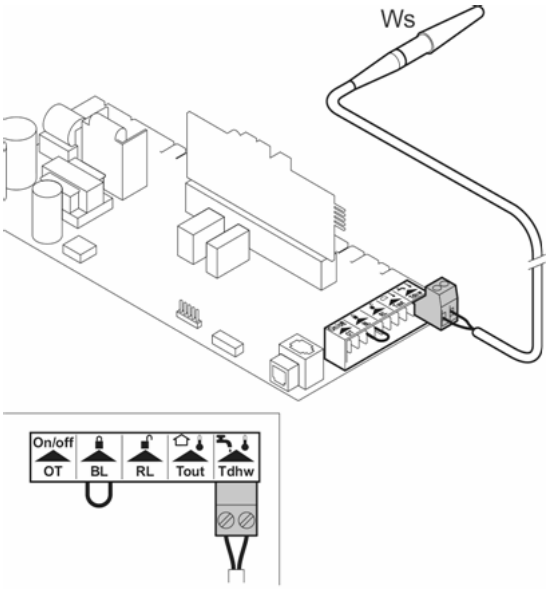
The frost protection functions as follows where an outside sensor is used:

- At an outside temperature lower than -10°C (can be set with parameter P30): the circulation pump switches on.
- At an outside temperature higher than -10°C (can be set with parameter P30): the circulation pump continues to run and then switches off.

4.8.8. Connecting the calorifier sensor/ thermostat

Ws DHW sensor

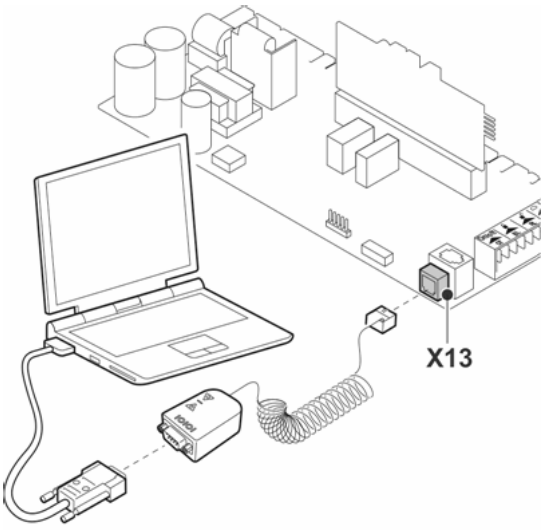
Connect the calorifier sensor or thermostat to the **Tdhw** terminals of the connector.



T000443-B

4.8.9. PC/Laptop connection

A PC or Laptop can be connected to the telephone connector using the optional **Recom** interface. Using the **Recom** PC/Laptop service software, you can enter, change and read out various boiler settings.



T000442-A

4.8.10. Shutdown input

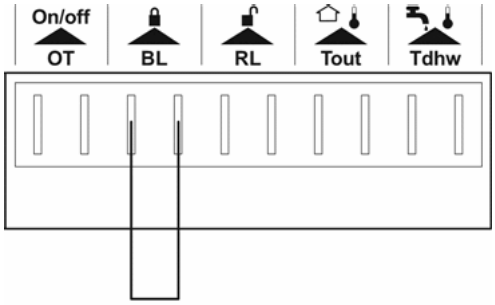
The boiler has a shutdown input. This input is on the **BL** terminals of the connector.

CAUTION:

Only suitable for potential-free contacts.

NOTE:

Remove the bridge before using the input



The behaviour of the input can be changed using parameter T001917-B.

P36

IMPORTANT:

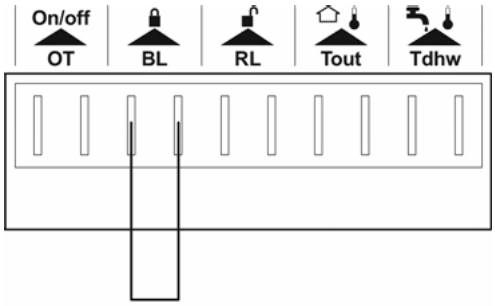
See chapter: "Parameter descriptions", page 56

4.8.11. Release input

The boiler has a release input. This input is on the **RL** terminals of the connector.

CAUTION:

Only suitable for potential-free contacts.



The behaviour of the input can be changed using parameter T001917-B.

IMPORTANT:

See chapter: "Parameter descriptions", page 56

P37

4.9 Optional electrical connections

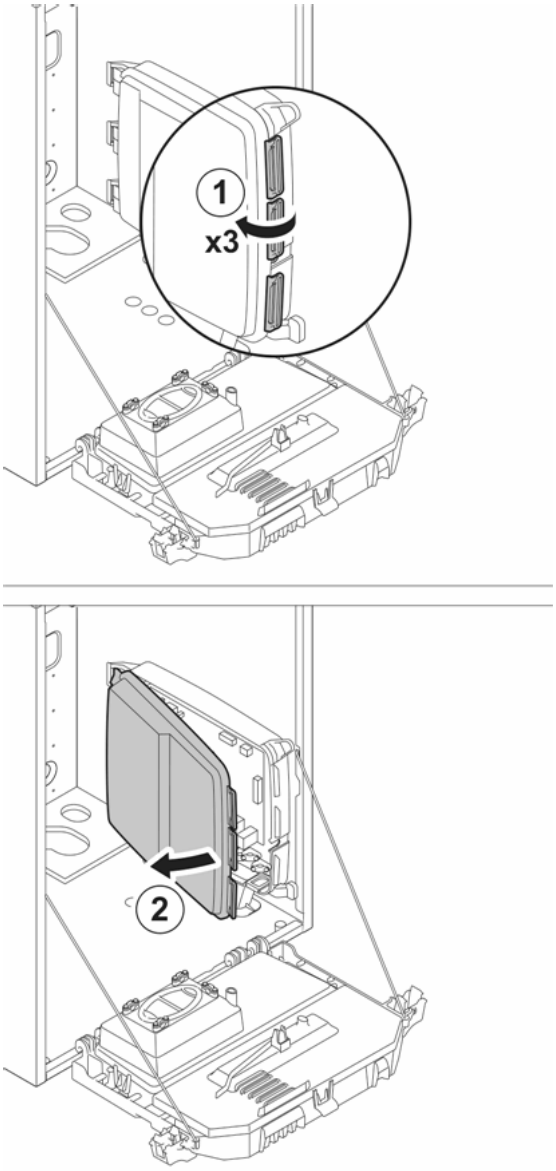
4.9.1. Box for the control PCBs

The control PCBs are positioned in the housing for PCBs. See the instructions provided with the control PCB.

1. Unclip the PCB cover.
2. Remove the cover.

NOTE:

Control PCBs IF-01, SCU-S02 and SCU-X01 are already installed in the housing for PCBs.



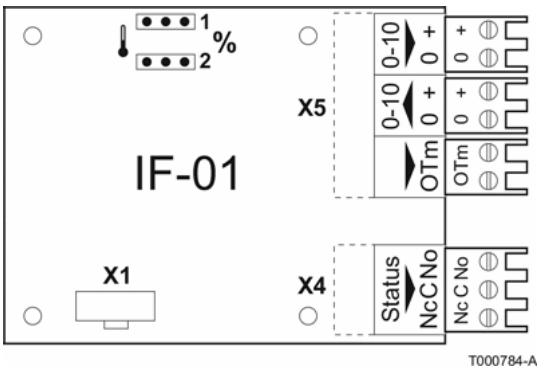
T002862-A

4.9.2. Connection options for the 0-10 V control PCB (IF-01)

The IF-01 control PCB can be built into the instrument box or the housing for the control PCBs. Refer to the instructions supplied with the product.

CAUTION:

Do not connect a frost thermostat or room thermostat to the boiler if using the 0-10 V control PCB.



T000784-A

Connection status (Nc)

If the boiler locks out, a relay is de-energised and the alarm can be transmitted via a potential-free contact (maximum 230 V, 1A) on terminals **Nc** and **C** of the connector.

Connection (OTm)

The interface communicates with the boiler control via **OpenTherm**. The **OTm** connection must be connected to the **OpenTherm** input **OT** of the boiler control.

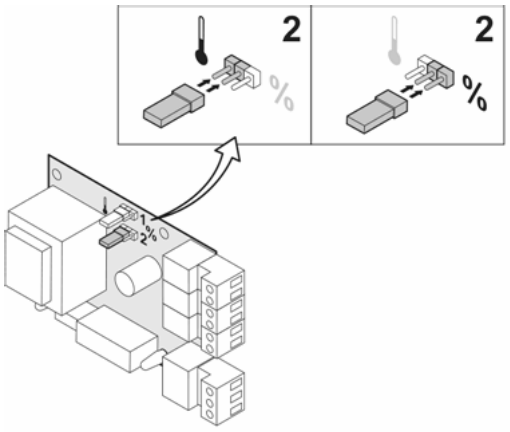
Analogue input (0-10 V)

This control can be based on temperature or heat output. The two controls are described briefly below. For analogue control, the 0-10 V signal must be connected to the interface.

Analogue temperature-based control

The 0-10 V signal controls the boiler flow temperature between 0°C and 100°C. This control modulates on the basis of flow temperature, whereby the heat output varies between the minimum and maximum values on the basis of the flow temperature set point calculated by the controller.

A jumper (**2**) on the interface is used to select either temperature control or heat output control (%).



T000785-A

Jumper 2	Input signal (V)	Temperature °C	Description
	0 -1,5	0 - 15	Boiler off
	1,5 - 1,8	15 - 18	Hysteresis
	1,8 - 10	18 - 100	Temperature required

Analogue heat output-based control (%)

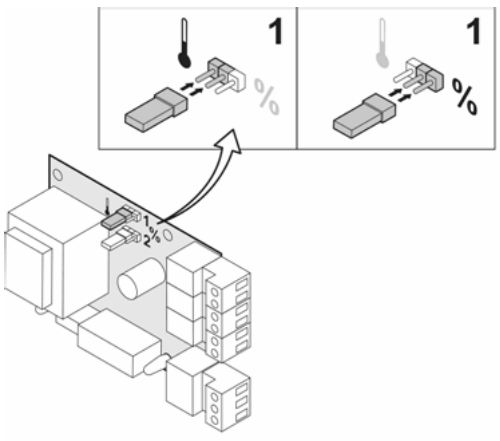
The 0-10V signal controls the boiler output between 0% and 100%. The minimum and maximum values are limited. The minimum output is linked to the boiler's modulation depth. The output varies between the minimum and maximum value on the basis of the value determined by the controller.

Jumper 2	Input signal (V)	Heat output (%)	Description
%	0 -2,0(1)	0 - 20	Boiler off
	2,0 - 2,2(1)	20- 22	Hysteresis
	2,0 - 10(1)	20- 100	Heat output requested
(1) Dependent on the minimum modulation depth (set speeds, standard 20%)			

Analogue output (0-10 V)

The temperature or heat output can be chosen for this feedback message. The two controls are described briefly below.

A jumper (**1**) on the interface is used to select either temperature control or heat output control (%).



T000800-A

Jumper 1	Output signal (V)	Temperature °C	Description
	0,5	-	Alarm
	1 - 10	10 - 100	Delivered temperature

Jumper 1	Output signal (V)	Heat output (%)	Description
%	0	0 - 15	Boiler off
	0,5	15 - 20	Alarm

Jumper 1	Output signal (V)	Heat output (%)	Description
	2,0 - 10(1)	20 - 100	Heat output supplied
(1) Dependent on the minimum modulation depth (set speeds, standard 20%)			

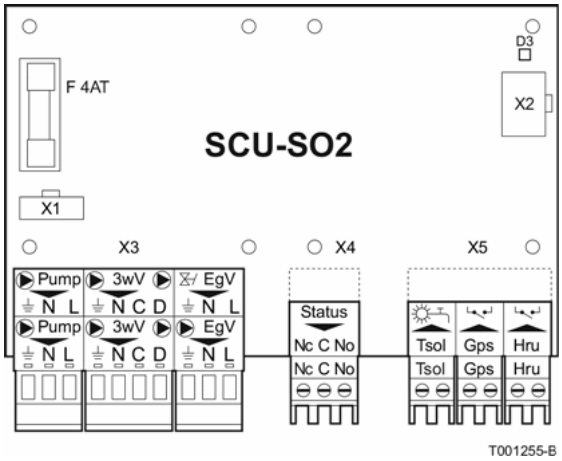
4.9.3. Connection possibilities for the PCB (SCU- S02)

If the boiler is fitted with the control PCB (SCU-S02), then this is automatically recognised by the automatic control unit of the boiler.

CAUTION:

On removing this PCB, the boiler will show fault code E:38. To prevent this fault, an auto-detect must be carried out after removing this PCB.

See chapter: "Carrying out an auto-detect", page 61.



The status indicator D3 at the top right of the control PCB indicate; the status:

- Continuous signal: PCB working normally
- Flashing signal: No connection
- No signal: No voltage or faulty PCB (Check the wiring)

Control of external central heating pump (Pump)

An external central heating pump can be connected to the **Pump** terminals of the connector. The maximum input power is 400 VA.

Control of external three-way valve (3wV)

The external three-way valve (230 VAC) can be used when connecting an indirectly heated calorifier. The neutral position of the three-way valve can be set using parameter P34.

The three-way valve is connected as follows:

- N = neutral
- C = central heating
- D = tank

Control of external sanitary hot water pump (3wV)

It is also possible to connect an external DHW pump to the terminals **3wV**. Connect the pump as follows:

- N = N pump
- D = L pump
- ⏚ = PE pump

CAUTION:

If the neutral position of the three-way valve is adjusted with parameter P34, the pump should be connected as follows:

- ***N = N pump***
- ***C = L pump***
- ***⏚ = PE pump***

Control of external gas valve (EgV)

If there is a heat demand, an alternating voltage of 230 VAC, 1 A (maximum) becomes available on the **EgV** terminals of the connector to control an external gas valve.

Operation signal and failure signal (Status)

The alarm or operation signal is selected using parameter P40.

- If the boiler is operating, the operation signal can be switched via a potential-free contact (maximum 230 VAC, 1 A) on the **No** and **C** terminals of the connector.
- If the boiler locks out, the alarm can be transmitted via a potential-free contact (maximum 230 VAC, 1 A) on the **Nc** and **C** terminals

Pressure switch minimum Gps

The minimum gas pressure switch shuts the boiler down if the inlet gas pressure becomes too low. Connect the minimum gas pressure switch to the **Gps** terminals of the connector. The presence of the gas pressure switch must be set using parameter P41.

Heat Recovery Unit (Hru)

Connect the wires from the heat recovery unit to the **Hru** terminals of the connector. The presence of the heat recovery unit must be set using parameter P42.

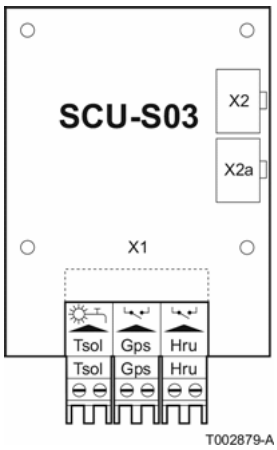
4.9.4. Connection possibilities for the PCB (SCU- S03)

If the boiler is fitted with the control PCB (SCU-S03), then this is automatically recognised by the automatic control unit of the boiler.

CAUTION:

On removing this PCB, the boiler will show fault code E:38. To prevent this fault, an auto-detect must be carried out after removing this PCB.

See chapter: "Carrying out an auto-detect", page 61.



Pressure switch minimum Gps

The minimum gas pressure switch shuts the boiler down if the inlet gas pressure becomes too low. Connect the minimum gas pressure switch to the **Gps** terminals of the connector. The presence of the gas pressure switch must be set using parameter P41.

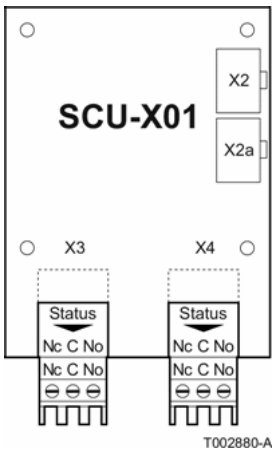
Heat Recovery Unit (Hru)

Connect the wires from the heat recovery unit to the **Hru** terminals of the connector. The presence of the heat recovery unit must be set using parameter P42.

4.9.5. Connection possibilities for the PCB (SCU-X01)

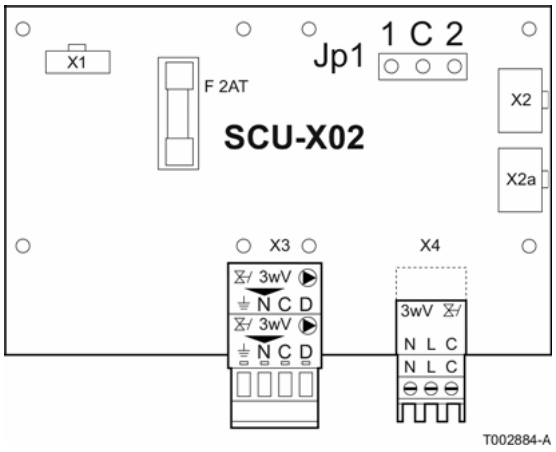
The control PCB SCU-X01 has two potential-free contacts, which can be set as required. Depending on the setting, a maximum of two messages about the status of the boiler can be transmitted. See table below:

No.	C-NO	C-NC
0	Alarm Standby	Alarm Active
1	Alarm inverted = fail safe Active	Alarm inverted = fail safe Standby
2	Burning Standby	Burning Active
3	Burning inverted Active	Burning inverted Standby
4	Burning low Standby	Burning low Active
5	Burning high Standby	Burning high Active
6	Service report Standby	Service report Active
7	CH-mode Standby	CH-mode Active
8	DHW-mode Standby	DHW-mode Active
9	CH-pump Standby	CH-pump Active



4.9.6. Connection possibilities for the PCB (SCU- X02)

The connection options for the control PCB (SCU-X02) are described in the paragraphs which follow.



Control of external three-way valve (3wV (230 VAC)

The external three-way valve (230 VAC) can be used when connecting an indirectly heated calorifier. The neutral position of the three-way valve can be set using parameter P34.

The three-way valve is connected to the **X3** terminals of the connector. The three-way valve is connected as follows:

- N = neutral
- C = central heating
- D = domestic hot water

Control of external three-way valve (3wV (24 VAC)

The external three-way valve (24 VAC) can be used when connecting an indirectly heated calorifier. The neutral position of the three-way valve can be set using parameter P34.

The three-way valve is connected to the **X4** terminals of the connector. The three-way valve is connected as follows:

- N = neutral
- L = live (24 AC)
- C = common (Central heating or DHW)

Position of the reversal valve (JP1)

The position of the three-way valve can be set using a jumper at **JP1**.

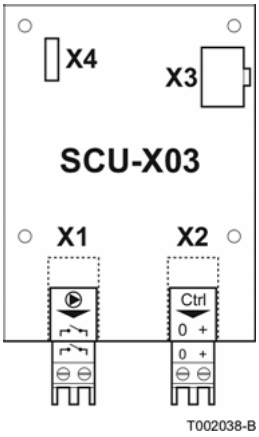
- Jumper 1: The settings for central heating and sanitary hot water are the default settings.
- Jumper 2: The settings for central heating and sanitary hot water are reversed.

4.9.7. Connection possibilities for the PCB (SCU- X03)

The control PCB SCU-X03 can control a modulating central heating pump. Depending on the make and type of pump, the pump can be controlled by a 0-10 V, 4-20 mA or PWM signal. The speed of the pump is modulated, based on the signal received from the boiler.

NOTE:

For correct connection of the pump, see the documentation supplied with the pump.



Connect on/off contact

Connect the on/off contact of the central heating pump to the connector **X1**.

CAUTION:

Do not use the on/off contact to interrupt the power supply to the pump.

Connect central heating pump

The control system of the central heating pump is connected to connector **X2**.

Select the type of signal that will be received from the boiler using the rotary knob **SW1** on the control PCB. See table below:

No.	Description
0	Pump modulation signal
1	Required heat output of boiler
2	Current heat output of boiler
3	-
4	-
5	-
6	-
7	-
8	-
9	-

CAUTION:

- ***If possible, use the pump modulation signal. This provides the most accurate pump control.***
- ***In positions 3 to 9 the control PCB receives no signal from the boiler and the boiler responds as in position 0.***
- ***If the automatic burner unit does not support pump modulation, the pump will behave as an on/off pump.***

Select the type of signal that controls the pump using the rotary knob **SW2** on the control PCB. See table below:

No.	Description
0	0-10 V (Wilo pump)
1	0-10 V (Grundfoss pump)
2	PWM
3	4-20 mA
4	-
5	-
6	-
7	-
8	-
9	-

CAUTION:

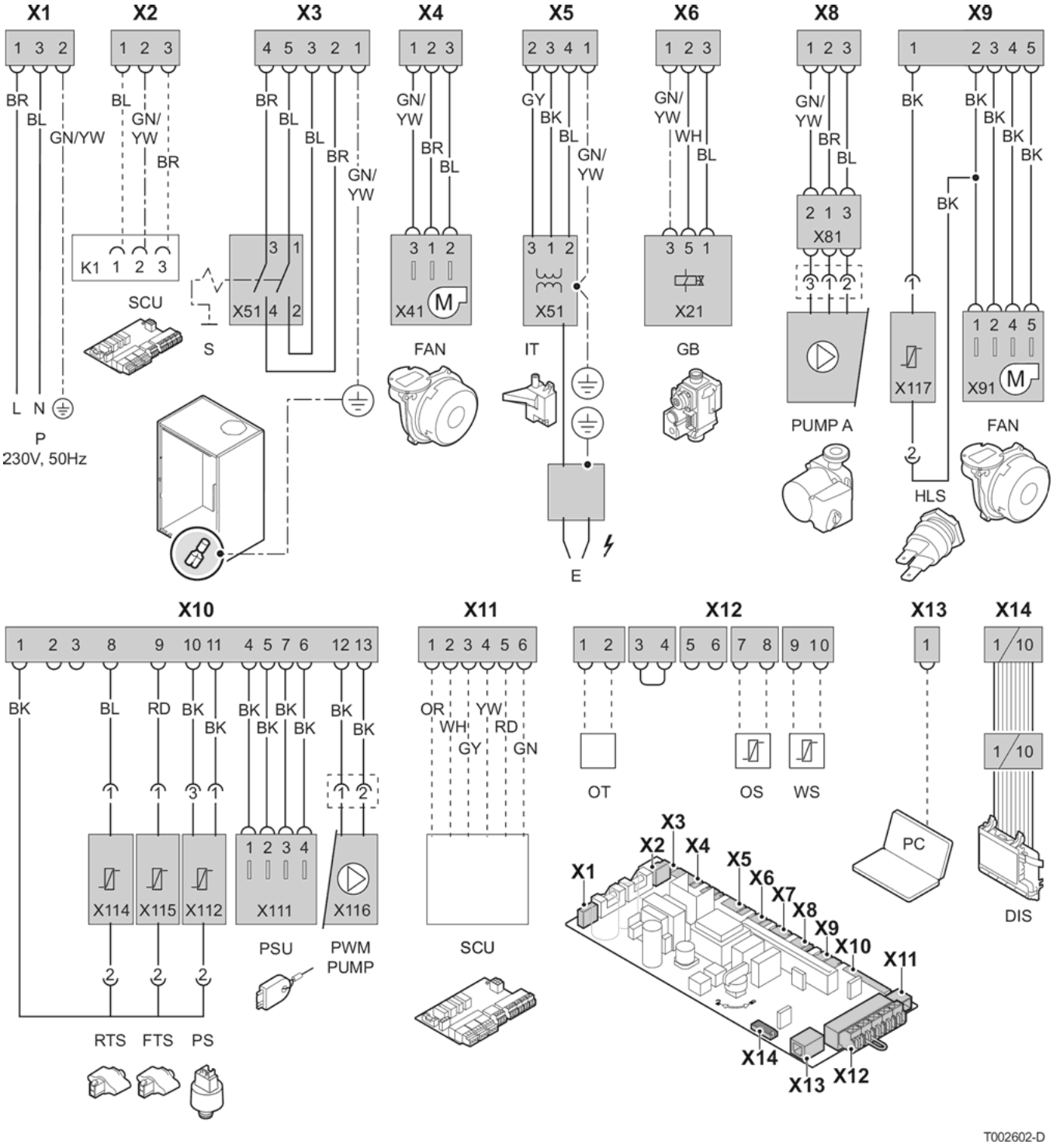
In positions 4 to 9 the control PCB sends no signal to the pump and the pump will not start up.

4.9.8. Connection possibilities for the PCB (c- Mix)

The c-Mix print PCB can control two central heating groups or one central heating group and one calorifier. These groups can be controlled entirely independently of one another. It is also possible to use the c-Mix control PCB in combination with one or more boilers in a cascade system.

The connection options for the control PCB (c-Mix) are described in the supplied manual.

4.10 Electrical diagram



P	Power supply	**GB**	Combined venturi and gas valve unit	**PSU**	Storage parameter
SCU	Extended control PCB	**PUMP A**	Shunt pump	**OT**	Thermostat
S	On/Off switch	**HLS**	Safety thermostat	**OS**	Outside sensor
FAN	Fan	**RTS**	Return sensor	**WS**	DHW sensor
IT	Ignition transformer	**FTS**	Flow sensor	**PC**	Connecting a computer
E	Ignition power relay	**PS**	Pressure sensor	**DIS**	Display

4.11 Filling the system

4.11.1. Water treatment

In most cases, the boiler and the central heating installation can be filled with normal tap water and no water treatment will be necessary.

WARNING:

Do not add chemical products to the central heating water without consulting Remeha. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the boiler and damage the heat exchanger.

NOTE:

- ***Rinse the central heating installation with at least 3x the volume of the central heating installation. Flush the DHW pipes with at least 20 the volume of the pipes.***

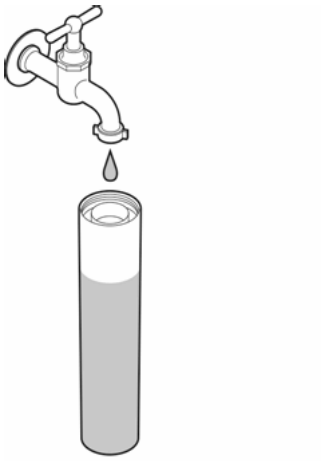
- ***For untreated water, the pH value of the water in the installation must be between 7 and 9 and for treated water between 7 and 8.5.***
- ***The maximum hardness of the water in the installation must be between 0.5 - 20.0 °dH (Depending on the total installed heat output).***
- ***For more information, refer to our publication water quality rules. The rules in the aforementioned document must be respected.***

4.11.2. Filling the siphon

1. Remove the siphon.
2. Fill the siphon with water. This must be completely filled.
3. Re-assemble the siphon.

CAUTION:

Fill the water siphon before starting the boiler to avoid combustion products escaping from the boiler.



T002037-B

4.11.3. Filling the system

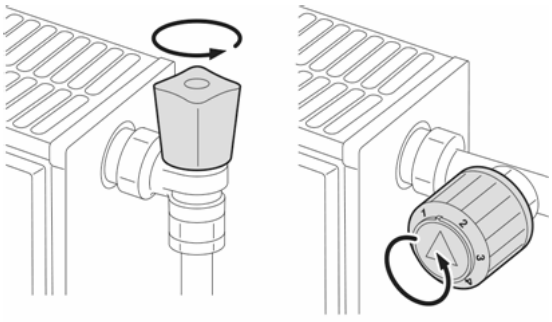
CAUTION:

Before filling, open the valves on every radiator in the installation.

NOTE:

In order to be able to read off the water pressure from the boiler display, the boiler must be switched on.

1. Fill the system with clean tap water (advised water pressure is between 1.5 and 2 bar).
2. Check the tightness of the water connections.



T000181-B

NOTE:

After switching on the power and if there is adequate water pressure, the boiler always runs through an automatic venting program lasting approximately 3 minutes (During filling, air can escape from the system via the automatic air vent). If the water pressure is lower than 0.8 bar, the symbol  ***will appear. If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1.5 and 2 bar).***

T001507-B

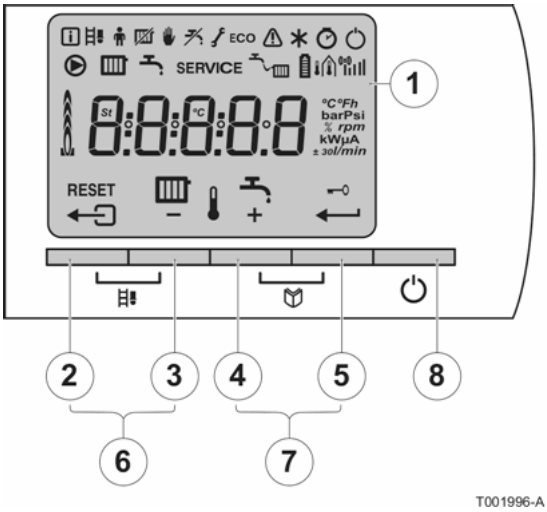
CAUTION:

- ***The filling must be carried out within 30 minutes, otherwise the venting program starts and that would be undesirable if the device is not filled. Switch off the boiler if the central heating system is not being topped up immediately.***
- ***When venting, prevent water from getting into the boiler casing and electrical parts of the boiler***

5 Commissioning

5.1 Control panel

5.1.1. Functions of the keys



T001996-A

1 Display

2 [Escape] or **RESET** key

3 Heating temperature key or **[-]**

4 DHW temperature key or **[+]**

5 [Enter] or cancel Key lock-out

6 [Chimney-sweeping] keys
(press the **2** and **3** keys simultaneously)

7 [Menu] keys
(press the **4** and **5** keys simultaneously)

8 On/off switch

5.1.2. Meaning of the symbols on the display

	Information menu: Reading the various current values.		On/Off switch: After 5 lock-outs, the boiler must be switched off/on again.
	Chimney-sweeping position: Forced full or part load for CO_2 measurement.		Shunt pump: The pump operates.
	User menu: Parameters at user level can be changed.		Central heating function: Access to central heating temperature parameter.
	Heating programme deactivated: The heating function is deactivated.		DHW function: Access to domestic hot water temperature parameter.
	Manual mode: Boiler is set to manual operation.	SERVICE	Yellow display with the symbols: + SERVICE + A (Maintenance message).
	DHW programme deactivated: The DHW mode is deactivated.		Water pressure: The water pressure is too low.
	Service menu: Parameters at installer level can be changed.		Battery symbol: Status of battery of wireless controller.
ECO	Energy-saving mode: Economic mode activated.		Signal strength symbol: Signal strength of the wireless controller.

	Defect: Boiler indicates a fault. This can be seen from the E code and red display.		Burner level: Boiler is running at full or low load.
	Frost protection: Boiler is running in frost protection mode.		Locking the keys: Key lock-out is activated.
	Hour counter menu: Readout of the operating hours, number of successful starts and hours on mains supply.		

5.2 Check points before commissioning

5.2.1. Preparing the boiler for commissioning

WARNING:

Do not put the boiler into operation if the supplied gas is not in accordance with the approved gas types.

Preparatory procedure for boiler commissioning:

- Check that the gas type supplied matches the data shown on the boiler's data plate.
- Check the gas circuit.
- Check the hydraulic circuit.
- Check the water pressure in the heating system.

- Check the electrical connections to the thermostat and the other external controls.
- Check the other connections.
- Test the boiler at full load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Test the boiler at part load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Finalizing work.

NOTE:

Complete the checklist.

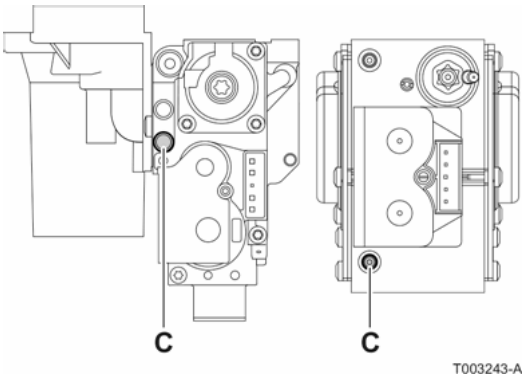
See chapter: "Checklist for commissioning", page 86.

5.2.2. Gas circuit

WARNING:

Ensure that the boiler is switched off.

1. Open the main gas supply.
2. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
3. Tilt the control box forwards by opening the holding clips located at the sides.
4. Check the gas supply pressure at the pressure outlet **C** on the gas valve unit.



WARNING:

- ***The gas pressure measured on measurement point C is the gas supply pressure at boiler connection reduced by the resistance of the internal gas pipe.***

See chapter: "Technical specifications", page 12

- ***To ascertain the gas types permitted, see chapter: "Equipment categories", page 8***

5. Check the tightness of the gas connections made after the gas valve unit in the boiler.
6. Check the tightness of the gas line, including the gas valves. The test pressure must not exceed 60 mbar.
7. Purge the gas supply pipe within the boiler by unscrewing the pressure outlet on the gas block. Tighten the measurement point when the pipe has been sufficiently purged.
8. Check the tightness of the gas connections in the boiler.

5.2.3. Hydraulic circuit

- Check the syphon — this must be completely filled with clean water.
- Check that there are no leaks on the hydraulic connections.

5.2.4. Electrical connections

- Check the electrical connections, particularly the earth.
- Check the electrical connections to the thermostat and the other external controls.

5.3 Commissioning the boiler

WARNING:

If adapting to another gas type i.e. propane, the gas valve must be adjusted before switching on the boiler.

See chapter: "Adapting to another gas type", page 50

1. Tilt the control box upwards again and fasten it using the clips located at the sides.
2. Open the main gas supply.

3. Open the gas valve on the boiler.

4. Switch on the electrical supply.

5. Turn on the boiler using the on/off switch.

6. Set the controls (thermostats, control system) so that they request heat.

7. The start-up cycle begins and cannot be interrupted. During the start-up cycle, the display shows the following information:

A short test where all segments of the display are visible.

F□:XX : Software version
P□:XX : Parameter version

The version numbers are displayed.

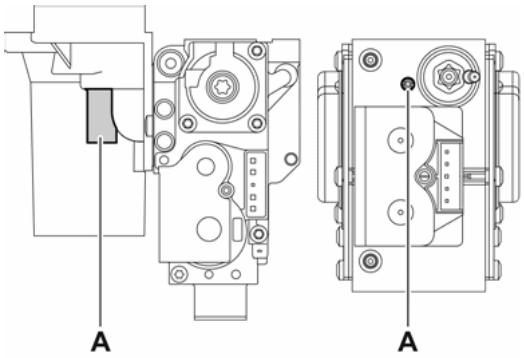
8. A vent cycle of a duration of around 3 minutes is carried out automatically.

NOTE:

If a DHW sensor is connected and the anti-legionella function is activated, the boiler starts to heat the water in the DHW tank as soon as the vent programme has been completed.

By pressing the ↵ key for a short time, the current operating status is shown on the display:

Heat demand	Heat demand stopped
1 : Fan ON	1 : Post-ventilation
2 : Boiler is igniting	5 : Burner stop
	6 : Post-circulation of the pump
3 : Heating System	0 : Standby



T003241-A

In addition to , in STAND-BY the display normally shows the water pressure and the symbols , and .

Error during the start-up procedure:

▸ No information is shown on the display:

- Check the mains supply voltage

- Check the main fuses

- Check the fuses on the control panel: (F1 = 6,3 AT, F2 = 2 AT)

- Check the connection of the mains lead to the connector **X1** in the instrument box

▸ A fault is indicated on the display by the fault symbol and a flashing fault code.

- The meaning of the error codes is given in the error table.

- Press for 3 seconds on key **RESET** to restart the boiler.

NOTE:

If the economy setting (eco setting) is on, then, after central heating operation, the boiler will not start to run for hot tap water production.

5.4 Gas settings

5.4.1. Adapting to another gas type

WARNING:

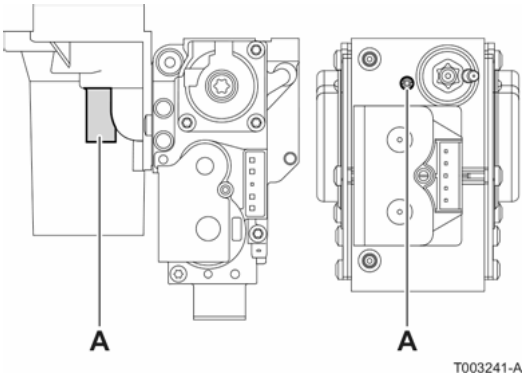
Only a qualified engineer may carry out the following operations.

The boiler is preset in the factory to operate on natural gas G20 (Gas H).

For operation on another group of gases, carry out the following operations. In case of functioning on propane:

1.

Quinta Pro	For conversion to propane
30	Rotate the adjusting screw **A** on the venturi 3½ turns in a clockwise direction
45	Rotate the adjusting screw **A** on the venturi 4¾ turns in a clockwise direction
65	Rotate the adjusting screw **A** on the venturi 6½ turns in a clockwise direction
90	Fit the gas restrictor in the gas block
115	First turn the setting screw **A** clockwise until it is closed, then: Rotate the adjusting screw **A** on the gas block 3,5 - 4 turns in an anticlockwise direction



2. Regulate the fan speed as indicated in the table (if required). The setting can be modified using parameters P17, P18, P19 and P20:

IMPORTANT:

See chapter: "Parameter descriptions", page 56

3. Set the air/gas ratio. For more detailed information:

IMPORTANT:

See chapter: "Setting the air/gas ratio (Full load)", page 51

IMPORTANT:

See chapter: "Setting the air/gas ratio (Part load)", page 52

5.4.2. Setting the air/gas ratio (Full load)

1. Unscrew the plug of the flue gas measurement point.

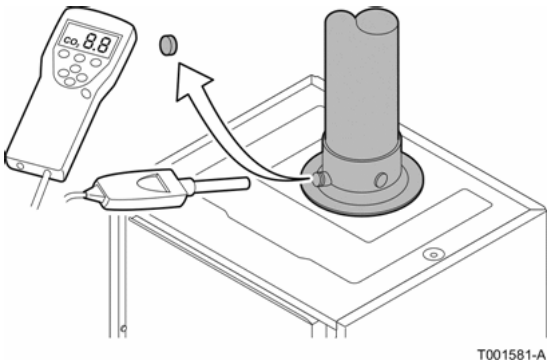
2. Connect the flue gas analyser.

WARNING:

Ensure that the opening around the sensor is completely sealed when taking measurements.

CAUTION:

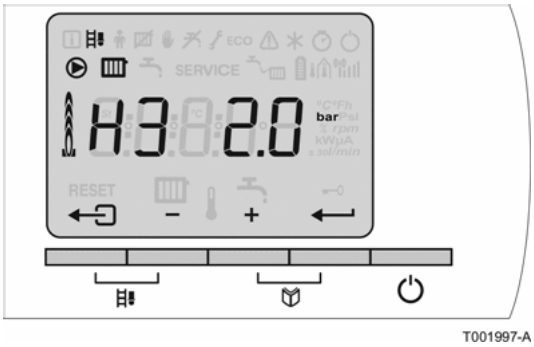
The flue gas analyser must meet the requirements of BS 7927 or BS-EN 503793 and be calibrated according to the manufacturer's requirements.



3. Set the boiler to full load. Press the two keys simultaneously. The display shows H3. The symbol appears.

4. Measure the percentage of O_2 or CO_2 in the flue gases.

5. Compare the values measured with the checking values given in the table (Front panel removed).



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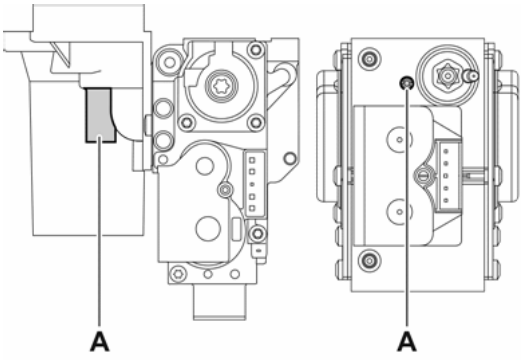
6. If necessary, adjust the gas/air ratio using the adjusting screw (**A**).



T003241-A

O_2/ CO_2 control and setting values at full load for G20 (Gas H)				
Boiler type	Setting value		Checking value	
	O_2 (%)	CO_2 (%)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 45	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 65	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 90	3.9 ± 0.2	9.5 ± 0.1	3.9 ± 0.5	9.5 ± 0.2
Quinta Pro 115	4.7 ± 0.2	9.1 ± 0.1	4.7 ± 0.5	9.1 ± 0.2

O_2/ CO_2 control and setting values at full load for G31 (Propane)				
Boiler type	Setting value		Checking value	
	O_2 (%)	CO_2 (%)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 45	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 65	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 90	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 115	4.9 ± 0.2	11.0 ± 0.1	4.9 ± 0.5	11.0 ± 0.2

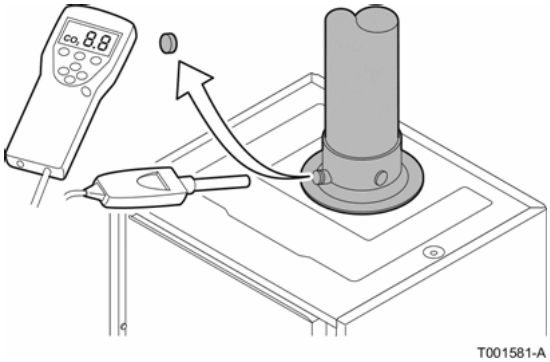
5.4.3. Setting the air/gas ratio (Part load)

1. Unscrew the plug of the flue gas measurement point.

2. Connect the flue gas analyser.

WARNING:

Ensure that the opening around the sensor is completely sealed when taking measurements.

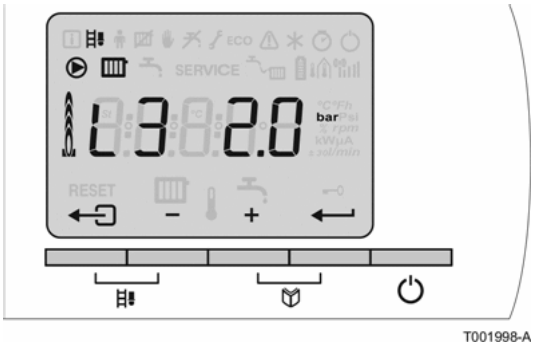


T001581-A

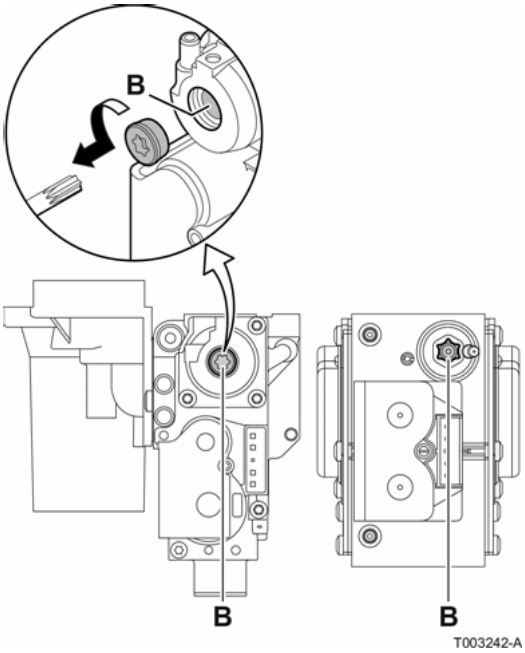
3. Set the boiler to part load. Press the **[-** key several times until L3 is displayed on the screen.

4. Measure the percentage of O_2 or CO_2 in the flue gases.

5. Compare the values measured with the checking values given in the table (Front panel removed).



6. If necessary, adjust the gas/air ratio using the adjusting screw **(B)**.

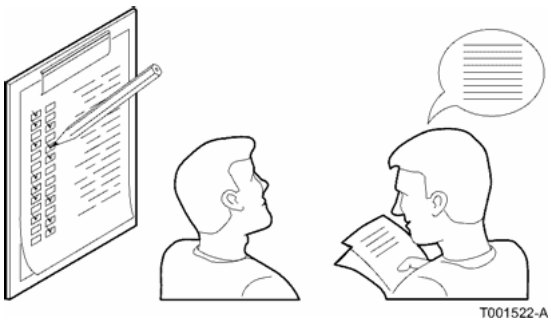


O_2/CO_2 control and setting values at part load for G20 (Gas H)				
Boiler type	Setting value		Checking value	
	O_2(%)	CO_2 (%)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 45	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 65	4.8 ± 0.2	9.0 ± 0.1	4.8 ± 0.5	9.0 ± 0.2
Quinta Pro 90	3.9 ± 0.2	9.5 ± 0.1	3.9 ± 0.5	9.5 ± 0.2
Quinta Pro 115	4.3 ± 0.2	9.3 ± 0.1	4.3 ± 0.5	9.3 ± 0.2

O_2/CO_2 control and setting values at part load for G31 (Propane)				
Boiler type	Setting value		Checking value	
	O_2 (%)	CO_2 (%)	O_2 (%)	CO_2 (%)
Quinta Pro 30	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 45	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 65	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 90	4.6 ± 0.2	10.7 ± 0.1	4.6 ± 0.5	10.7 ± 0.2
Quinta Pro 115	4.9 ± 0.2	11.0 ± 0.1	4.9 ± 0.5	11.0 ± 0.2

5.5 Finalizing work

1. Remove the measuring equipment.
2. Put the flue gas sampling plug back in place.
3. Refit the front panel. Tighten the two screws by a quarter turn.
4. Push key ↩ to return the boiler to normal operating mode.
5. Raise the temperature in the heating system to approximately 70°C.
6. Shut down the boiler.
7. After about 10 minutes, vent the air in the heating system.
8. Switch on the boiler.
9. Check the tightness of the flue gases evacuation and air inlet connections.
10. Checking the hydraulic pressure. If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1.5 and 2 bar).
11. Tick the gas category used on the data plate.
12. Explain the operation of the installation, the boiler and the regulator to the users.
13. Give all the instruction manuals to the user.


T001522-A

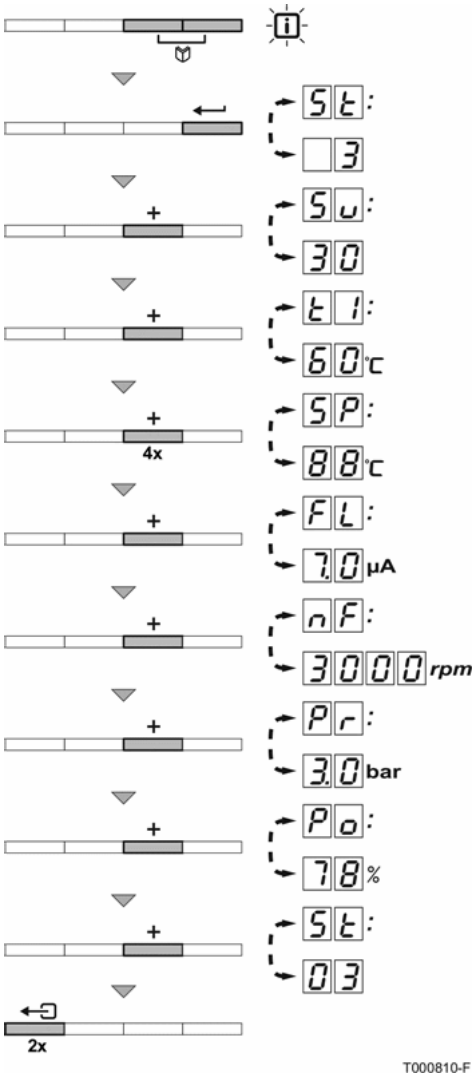
5.6 Reading out measured values

The automatic control unit continuously measures various boiler parameters. These parameters can be read off the boiler control panel.

5.6.1. Reading the various current values

The following current values can be read off the information menu ⓘ:

- St = State.
- Su = Sub-status.
- t1 = Supply temperature (°C).
- t2 = Return temperature (°C).
- t3 = Calorifier temperature (°C).
- t4 = Outside temperature (°C) (Only with an outside temperature sensor).
- tS = Solar boiler temperature (°C).
- SP = Internal set point (°C).
- FL = Ionization current (µA).
- nF = Fan speed in rpm.
- Pr = Water pressure (bar).
- Po = Supplied relative heat output (%).

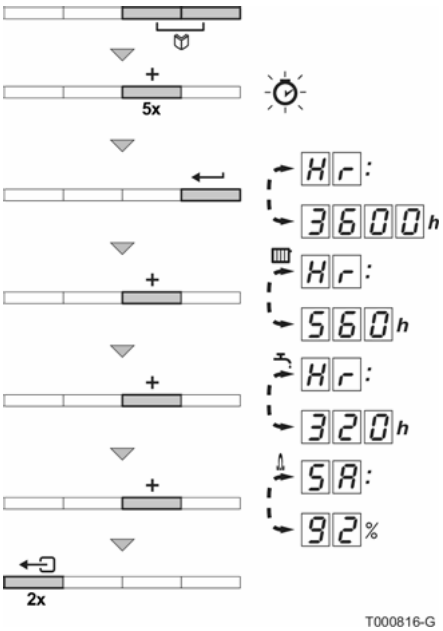


T000810-F

The current values can be read as follows:

1. Press the two keys simultaneously. The symbol flashes.
2. Confirm using key ⟵. St is displayed, alternating with the current status 3 (for example).
3. Press the **[+]** key. Su is displayed, alternating with the current sub-status 30 (for example).
4. Press the **[+]** key. t1 is displayed, alternating with the current flow temperature 60°C (for example).
5. Press the **[+]** key successively to scroll down the various parameters. t2, t3, t4, t5 .
6. Press the **[+]** key. SP is displayed, alternating with the internal set point 88°C (for example).
7. Press the **[+]** key. FL is displayed, alternating with the current ionization current 7.0 µA (for example).
8. Press the **[+]** key. nF is displayed, alternating with the current fan rotation speed 3000 rpm (for example).
9. Press the **[+]** key. Pr is displayed, alternating with the current water pressure 3.0 bar (for example). If no water pressure sensor is connected, **[-.-]** appears on the display.
10. Press the **[+]** key. Po is displayed, alternating with the current modulation percentage 78 % (for example).
11. Press the **[+]** key. The readout cycle starts again with St.
12. Press the key 2 times to return to the current operating mode.

5.6.2. Readout from the hour counter and percentage of successful starts



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Press the ⏎ key. Hr and the number of hours of boiler operation 3600 (for example) are displayed alternately.
3. Press the **[+]** key. The display shows . Hr is displayed, alternating with the number of operating hours in central heating operation 560 (for example).
4. Press the **[+]** key. The display shows . Hr is displayed, alternating with the number of operating hours used for heating tap water 320 (for example).
5. Press the **[+]** key. The display shows . SA is displayed, alternating with the percentage of successful starts 92 % (for example).
6. Press the key 2 times to return to the current operating mode.

5.6.3. Status and sub-status

The information menu gives the following status and sub-status numbers:

State St		Sub-status Su	
0	Rest	0	Rest
1	Boiler start (Heat demand)	1	Anti-hunting
		2	Control three-way valve
		3	Start pump
		4	Wait for the correct temperatures for burner start
2	Burner start	10	Open flue gas damper/external gas valve
		11	Increase fan speed
		13	Pre-ventilation
		14	Wait for release signal
		15	Burner on
		17	Pre-ignition
		18	Main ignition
		19	Flame detection
		20	Intermediate ventilation
3 / 4	Burning for central heating operation	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Increase protection level 1 (Modulate down)
		34	Increase protection level 2 (Part load)
		35	Increase protection level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner off
		41	Post ventilation
		42	Close flue gas damper/external gas valve
		43	Recirculation protection
		44	Stop fan
6	Boiler stop (End of heat demand)	60	Pump post circulation
		61	Pump off
		62	Control three-way valve
		63	Start anti-hunting
8	Stop	0	Wait for burner start
		1	Anti-hunting
9	Lock-out	XX	Shutdown code XX
17	Bleed	0	Rest
		2	Control three-way valve
		3	Start pump
		61	Pump off
		62	Control three-way valve

5.7 Changing the settings

The boiler control panel is set for the most common heating systems. With these settings, practically all heating systems operate correctly. The user or installer can optimise the parameters according to own preferences.

For operation in open vented systems, several parameter settings must be adjusted. Set the various parameters according to the values given in the table below.

5.7.1. Parameter descriptions

Parameter	Description	Adjustment range	Factory setting				
			Quinta Pro				
			30	45	65	90	115
P1	Supply temperature: T_{SET}	20 to 90 °C	80				
P1	Open vented: Supply temperature: T_{SET}	20 to 90 °C	75				
P2	Domestic hot water temperature: T_{SET}	40 to 65 °C	55				
P3	Heating / DHW mode	0 = Heating deactivated / DHW deactivated 1 = Heating activated / DHW activated 2 = Heating activated / DHW deactivated 3 = Heating deactivated / DHW activated	1				
P4	ECO mode	0 = Comfort 1 = Energy-saving mode 2 = Management using a programmable thermostat	2				
P5	Anticipation resistance	0 = No anticipation resistance for the ON/OFF thermostat 1 = Anticipation resistance for the ON/OFF thermostat	0				
P6	Display screen	0 = Simple 1 = Comprehensive 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes ; Key blocking is active	2				
P7	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	3				
P8	Brightness of display lighting	0 = Dimmed 1 = Bright	1				
P17	Maximum fan speed (Heating)	G20 (Natural gas)(1) (x100 rpm)	41	56	58	62	70
		G31 (Propane) (x100 rpm)	36	56	58	60	67
P18	Maximum fan speed (DHW)	G20 (Natural gas)(1) (x100 rpm)	41	56	58	62	70
		G31 (Propane) (x100 rpm)	36	56	58	60	67
P19	Minimum fan speed (Heating +DHW)	G20 (Natural gas)(1) (x100 rpm)	15	15	16	15	18
		G31 (Propane) (x100 rpm)	15	15	16	22	18

(1) Do not modify these factory settings unless absolutely necessary. E.g. to adapt the boiler to: G31 (Propane)

Parameter	Description	Adjustment range	Factory setting				
			Quinta Pro				
			30	45	65	90	115
P20	Minimum fan speed (offset)	G20 (Natural gas)(1) (x100 rpm)	50	50	0	50	0
		G31 (Propane)	50	50	0	50	0
P21	Start speed	Do not modify (x100 rpm)	25				
P21	Open vented: Start speed	Do not modify (x100 rpm)	25				
P22	Minimum water pressure	0 - 3 bar(x 0.1 bar)	8				
P23	Maximum flow temperature of system	0 to 90 °C	90				
P24	Anti-hunting differential for central heating operation	-15 to 15 °C	3				
P25	Heat curve set point (Maximum outside temperature)	0 to 30 °C (Only with an outside temperature sensor)	20				
P26	Heat curve set point (Supply temperature)	0 to 90 °C (Only with an outside temperature sensor)	20				
P27	Heat curve set point (Minimum outside temperature)	-30 to 0 °C (Only with an outside temperature sensor)	-15				
P28	Setting the pump speed (Minimum pump speed for central heating operation)	2 - 10 (x 10 %)	4				
P29	Setting the pump speed (Maximum pump speed for central heating operation)	2 - 10 (x 10 %)	10				
P30	Antifreeze temperature	from - 30 to 0°C	-10				
P31	Legionella protection	0 = Stop 1 = Start (After commissioning, the boiler will operate once a week at 65°C for DHW) 3 = Management using a programmable thermostat	1				
P32	Set point increase for calorifier	0 to 20 °C	20				
P33	DHW cut-in temperature DHW sensor	from 2 to 15°C	5				
P34	Control of three-way valve	0 = Normal 1 = Reverse	0				
P35	Boiler type	0 = Heating only 1 = Open vented	0				
P36	Shutdown input function	0 = Heating activated 1 = Shutdown without frost-protection 2 = Shutdown with frost protection 3 = Lock-out with frost protection (Pump only)	1				
P37	Release function	0 = Hot water on 1 = Release input	1				
P38	Release waiting time	0 to 255 seconds	0				
P39	Gas valve switching time	0 to 255 seconds	0				
P40	Fault relay function (Optional)	0 = Operation signal 1 = Alarm signal	1				
P41	GpS connected (Optional)	0 = Not connected 1 = Connected	0				
P42	HRU connected (Optional)	0 = Not connected 1 = Connected	0				

(1) Do not modify these factory settings unless absolutely necessary. E.g. to adapt the boiler to: G31 (Propane)

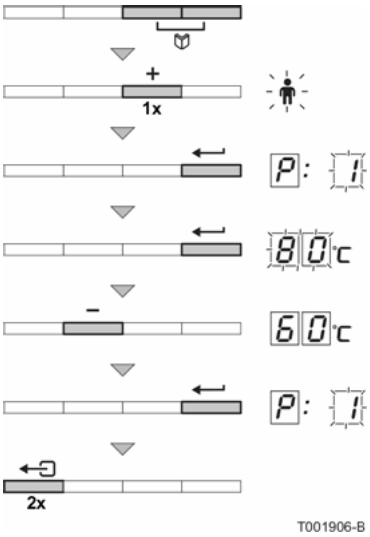
Parameter	Description	Adjustment range	Factory setting				
			Quinta Pro				
			30	45	65	90	115
P43	Mains detection phase	0 = Stop 1 = Start	0				
P44	Maintenance message	Do not modify	1				
P45	Service operating hours	Do not modify	175				
P46	Service burning hours	Do not modify	30				
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0				
dF and dU	Factory setting	To restore the factory settings or when replacing the main PCB, enter the values dF and dU from the type plate in parameters dF and dU	X				
			Y				
(1) Do not modify these factory settings unless absolutely necessary. E.g. to adapt the boiler to: G31 (Propane)							

5.7.2. Modification of the user-level parameters

Parameters P1 to P8 can be modified by the user in order to meet central heating and DHW comfort needs.

CAUTION:

Modification of the factory settings may be detrimental to the functioning of the appliance.



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the users menu using the key ↵. P: 1 is displayed with 1 flashing.
3. Press the ↵ key a second time. The value 80°C appears and flashes (for example).
4. Change the value by pressing the **[-]** or **[+]** key. In this example using key **[-]** to 60°C.
5. Confirm the value with the ↵ key. P: 1 is displayed with 1 flashing.
6. Press the key 2 times to return to the current operating mode.

NOTE:

The parameters P1 to P8 are changed in the same way as P1. After step 2, use the [+] key to move to the required parameter.

5.7.3. Modification of the installer-level parameters

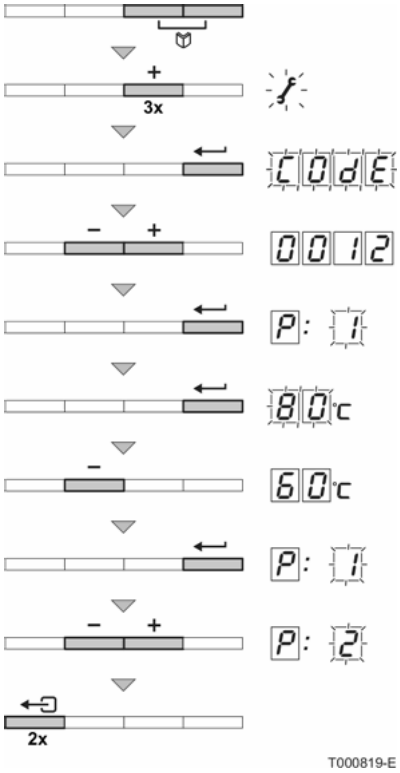
Parameters P17 to dF must only be modified by a qualified professional. To prevent unwanted settings, some parameter settings can only be changed after the special access code 0012 is entered.

CAUTION:

Modification of the factory settings may be detrimental to the functioning of the appliance.

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the fitter menu using the ↵ key. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P: 1 is displayed with 1 flashing.
5. Press the ↵ key a second time. The value 80°C appears and flashes (for example).

6. Change the value by pressing the **[-]** or **[+]** key. In this example using key **[-]** to 60°C.
7. Confirm the value with the ↵ key: P:1 is displayed with 1 flashing.
8. If necessary, set other parameters by selecting them using the **[-]** or **[+]** keys.
9. Press the ↵ key 2 times to return to the current operating mode.



NOTE:

The boiler also returns to operating status if no keys are pressed for 3 minutes.

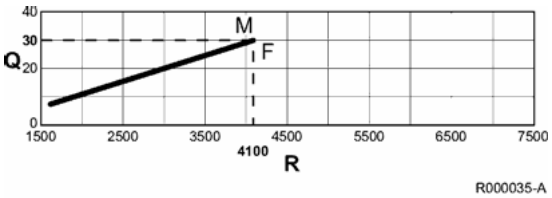
5.7.4. Setting the maximum heat input for central heating operation

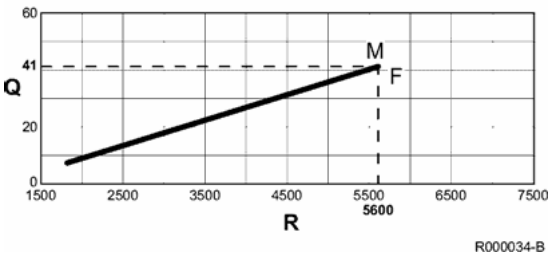
Quinta Pro 30

M	Maximum heat input
F	Factory setting
Q	Power input (kW)
R	Fan rotation speed (rpm)

Quinta Pro 45

M	Maximum heat input
F	Factory setting
Q	Power input (kW)
R	Fan rotation speed (rpm)

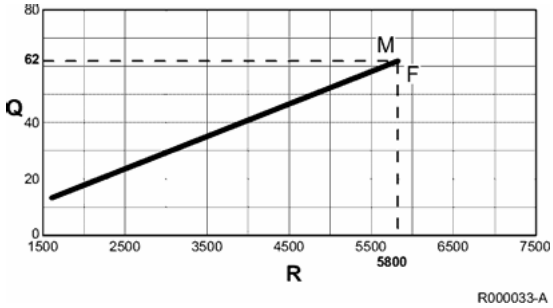




Quinta Pro 65

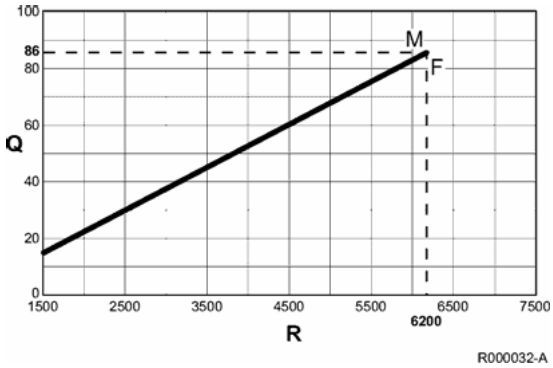
M	Maximum heat input
F	Factory setting

Q Power input (kW)
R Fan rotation speed (rpm)



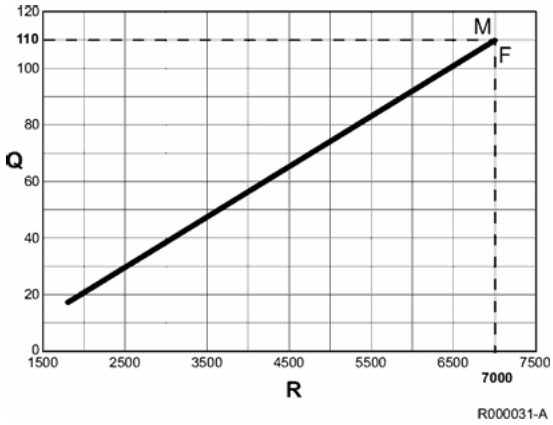
Quinta Pro 90

M Maximum heat input
F Factory setting
Q Power input (kW)
R Fan rotation speed (rpm)

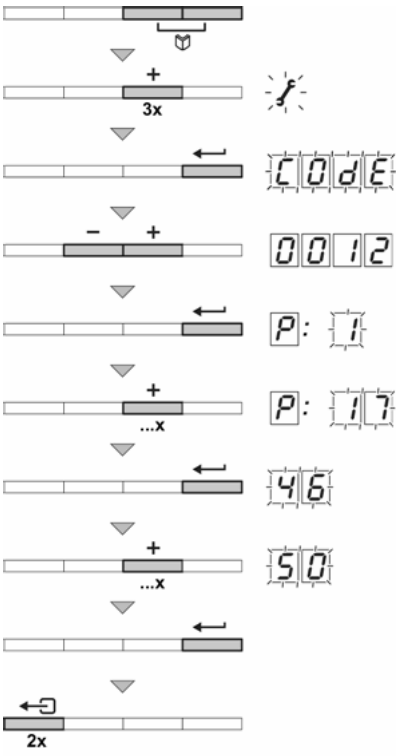


Quinta Pro 115

M Maximum heat input
F Factory setting
Q Power input (kW)
R Fan rotation speed (rpm)



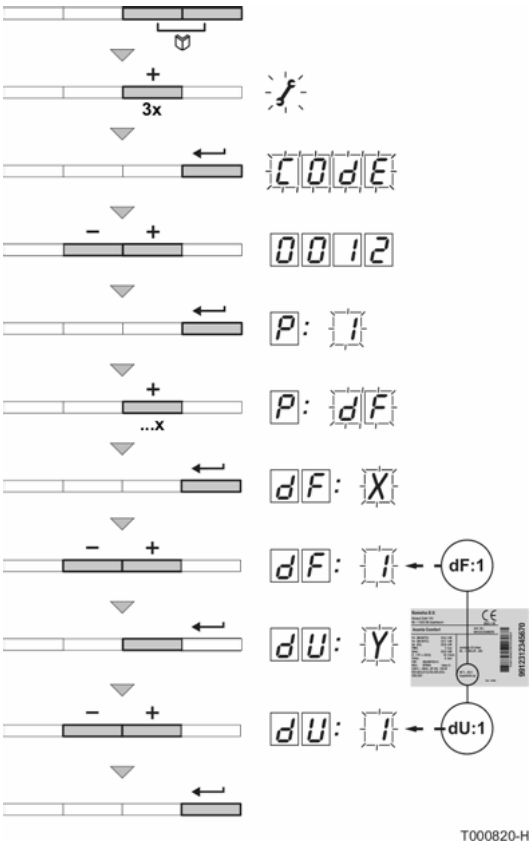
See the graphs for the relationship between heat input and speed for natural gas. The speed can be changed using parameter P17. To do this, proceed as follows:



T001628-A

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P: 1 is displayed with 1 flashing.
5. Press the **[+]** key to go to parameter P: 17.
6. Confirm using key ↵.
7. Press the **[+]** key to increase the speed from 46 to, for example, 50 (see the graphs for the associated heat output).
8. Confirm the value with the ↵ key.
9. Press the key 2 times to return to the current operating mode.

5.7.5. Return to the factory settings



T000820-H

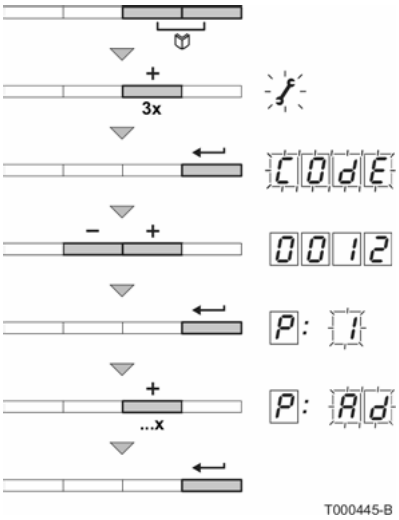
1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.

2. Select the installers menu using the key ↵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P:dF is displayed with dF flashing.
6. Press the ↵ key. dF:X is displayed with X flashing. This is the current value of X for dF. Check this against the value of X on the type plate.
7. Enter the value of X shown on the type plate using the **[-]** or **[+]** key.
8. Confirm the value with the ↵ key, dF:Y is displayed with Y flashing. This is the current value of Y for dU. Check this against the value of Y on the type plate.
9. Enter the value of Y shown on the type plate using the **[-]** or **[+]** key.
10. Confirm the value with the ↵ key. The factory settings are reset.
11. The display returns to the current operating mode.

5.7.6. Carrying out an auto-detect

After removing a control PCB, an auto-detect must be carried out. To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P:Ad is displayed with Ad flashing.
6. Confirm using key ↵. Auto-detect is carried out.
7. The display returns to the current operating mode.



5.7.7. Setting the manual mode

In some cases it may be necessary to switch the boiler to manual operation, For example, if the controller has not yet been connected. The boiler can be switched to automatic or manual operation under the symbol . To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.

2. Press the ↵ key:

or

The text Au with the current water pressure (only if an outside sensor is connected). The flow temperature is determined by the internal heating curve.

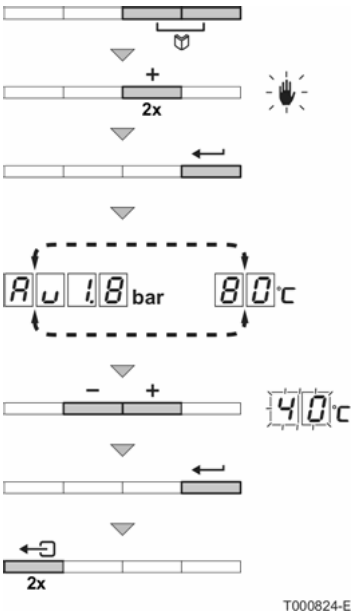
or

The value of the minimum flow temperature.

3. Press the **[-]** or **[+]** key to increase this value temporarily in manual operation.

4. Confirm the value with the ↵ key. The boiler is now set to manual operation.

5. Press the key 2 times to return to the current operating mode.



6 Switching off the boiler

6.1 Installation shutdown

If the central heating system is not used for a long period, we recommend switching the boiler off.

- Switch the On/Off switch to Off.
- Shut off the gas supply.
- Ensure that the boiler and system are protected against frost damage.

6.2 Frost protection

CAUTION:

Drain the boiler and central heating system if you are not going to use your home or the building for a long time and there is a chance of frost.

- Set the temperature control low, for example at 10°C.

To prevent radiators and the system from freezing in rooms where there is a risk of frost (e.g. a garage or storage room), a frost thermostat or outside sensor can be connected to the boiler.

IMPORTANT:

See chapter: "Connect frost protection", page 32.

CAUTION:

- ***The anitfreeze protection does not function if the boiler is switched off.***
- ***The integrated protection system only protects the boiler, not the installation.***

When the heating water temperature in the boiler falls by too much, the integrated protection system in the boiler starts up. This protection functions as follows:

- If the water temperature is lower than 7°C, the heating pump starts up.
- If the water temperature is lower than 4°C, the boiler starts up.
- If the water temperature is higher than 10°C, the boiler shuts down and the heating pump continues to run for a short time.

7 Checking and maintenance

7.1 Maintenance message

Boiler maintenance is kept to a minimum. Nevertheless, we recommend having the boiler inspected and serviced at regular intervals. To determine the best time for maintenance, the boiler is fitted with a function that automatically signals any maintenance to be carried out. The appearance if this service message on the boiler display is determined by the automatic control unit. Depending on the use of the boiler, the first maintenance message appears 3 years after installation of the boiler at the latest.

WARNING:

- ***Maintenance operations must be done by a qualified engineer.***
- ***An annual inspection is compulsory.***
- ***Only original spare parts must be used.***

7.2 Preventive maintenance with automated service message

When it is time to carry out maintenance on the boiler, the following instructions are shown on the display:

In a yellow display:

- The symbol
- The symbol **SERVICE**
- Maintenance message A, b or C

Thanks to the automatically transmitted maintenance message, it is possible to carry out preventive maintenance and therefore use the maintenance kits defined by **Remeha**, thus reducing breakdowns to a minimum. The maintenance message indicates which kit should be used. These maintenance kits (A, B or C) are available from your spare parts supplier. If no other faults are noted during the inspection initiated subsequent to the maintenance message, these maintenance kits include all of the parts needed for the maintenance concerned (such as the gaskets, for example).

NOTE:

- ***When a maintenance message is displayed, it must be acted upon within the 2 months following the appearance of the message.***
- ***If the iSense modulating controller is connected to the device, then this service message is also passed to the iSense. In this way, the end user is requested to contact the installation company. See also the manual for the iSense controller.***

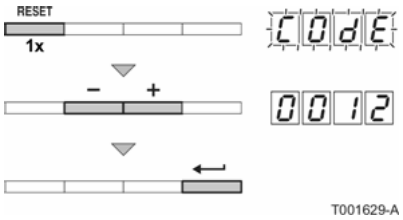
CAUTION:

Reset the maintenance message to zero after each inspection.

7.2.1. Resetting the automatic maintenance message

A service message on the boiler display must be reset by a qualified installer after the maintenance service has been carried out using the relevant service set. To do this, proceed as follows:

1. When the maintenance message is displayed, press key **RESET** 1 time. CodE appears on the display.
2. Use keys **[-]** or **[+]** to input the installer code 0012.
3. Confirm using key ⟵. The maintenance message is reset. The display returns to the current operating mode.

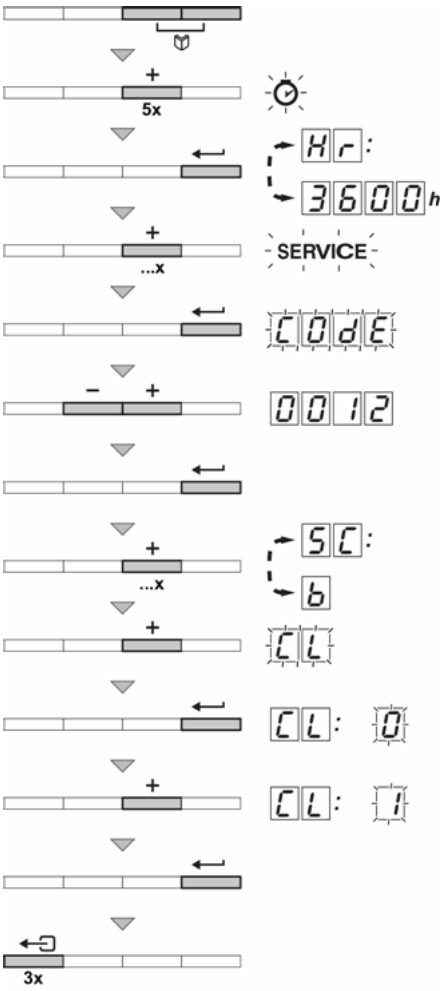


7.2.2.

Dealing with the next maintenance message and starting the new maintenance period

For an interim service it is advisable to read out in the boiler service menu what maintenance service should be carried out. Use the indicated **Remeha** service sets (A, B or C). This service message must be prevented by carrying out a reset. Start the next service interval. To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Press the ⟵ key. Hr and the number of hours of boiler operation 3600 (for example) are displayed alternately.
3. Press key **[+]** several times until **SERVICE** flashes on the menu bar.
4. Press the ⟵ key. CodE appears on the display.
5. Use keys **[-]** or **[+]** to input the installer code 0012.
6. Confirm using key ⟵.
7. Press key **[+]** several times until SC:b is displayed with b (for example) flashing To determine the best time to carry out maintenance, the boiler is fitted with a single automatic maintenance indicator.
8. Press the **[+]** key a second time. CL appears on the display.
9. Press the ⟵ key. CL:0 is displayed with 0 flashing.
10. Press key **[+]** to modify the value to 1.
11. Confirm using key ⟵. The new maintenance period begins.
12. Press the key 3 times to return to the current operating mode.



NOTE:

After a service complete the checklist.

See chapter: "Checklist for periodic inspection and maintenance", page 87.

7.3 Standard inspection and maintenance operations

CAUTION:

During inspection and maintenance operations, always replace all gaskets on the parts removed.

7.3.1. Checking the hydraulic pressure

The hydraulic pressure must reach a minimum of 0.8 bar. For open vented systems, the water pressure must be at least 0.3 bar (Q30/ Q45/Q65/Q90) or 0.5 bar (Q115) bar. If the water pressure is too low, the symbol will appear.

NOTE:

If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1.5 and 2 bar).

7.3.2. Checking the ionization current

Check the ionization current at full load and low load. The value is stable after 1 minute. If the value is less than 4 µA, clean or replace the ignition electrode.

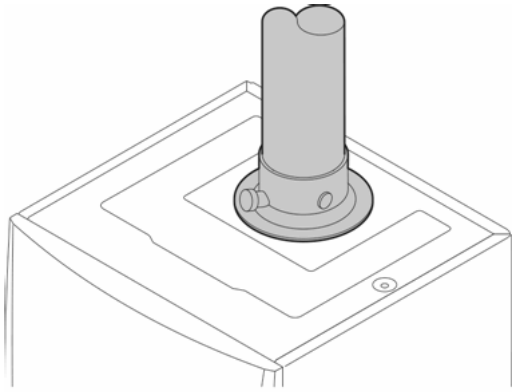
IMPORTANT:

See chapter: "Reading the various current values", page 53.

7.3.3.

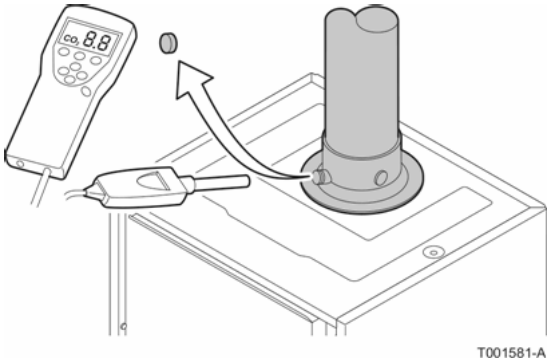
Checking the tightness of the flue gas evacuation and air inlet connections

Check the tightness of the flue gases evacuation and air inlet connections.



7.3.4. Checking combustion

The check on combustion is done by measuring the percentage of O_2/CO_2 in the flue gas discharge flue. To do this, proceed as follows:



1. Unscrew the plug of the flue gas measurement point.

2. Connect the flue gas analyser.

CAUTION:

Ensure that the opening around the sensor is completely sealed when taking measurements.

3. Set the boiler to full load. Press the two keys simultaneously. The symbol is visible on the menu bar and H 3 appears in the display. The boiler is now operating at full load.

4. Measure the percentage of CO_2 and compare this value with the checking values given.

IMPORTANT:

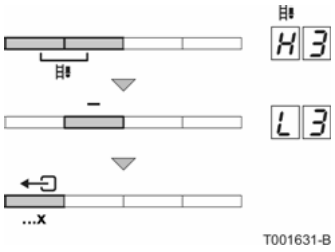
See chapter: "Setting the air/gas ratio (Full load)", page 51.

5. Set the boiler to part load. Press the **[-]** key several times until L 3 is displayed on the screen. The boiler is now operating on part load.

6. Measure the percentage of CO_2 and compare this value with the checking values given.

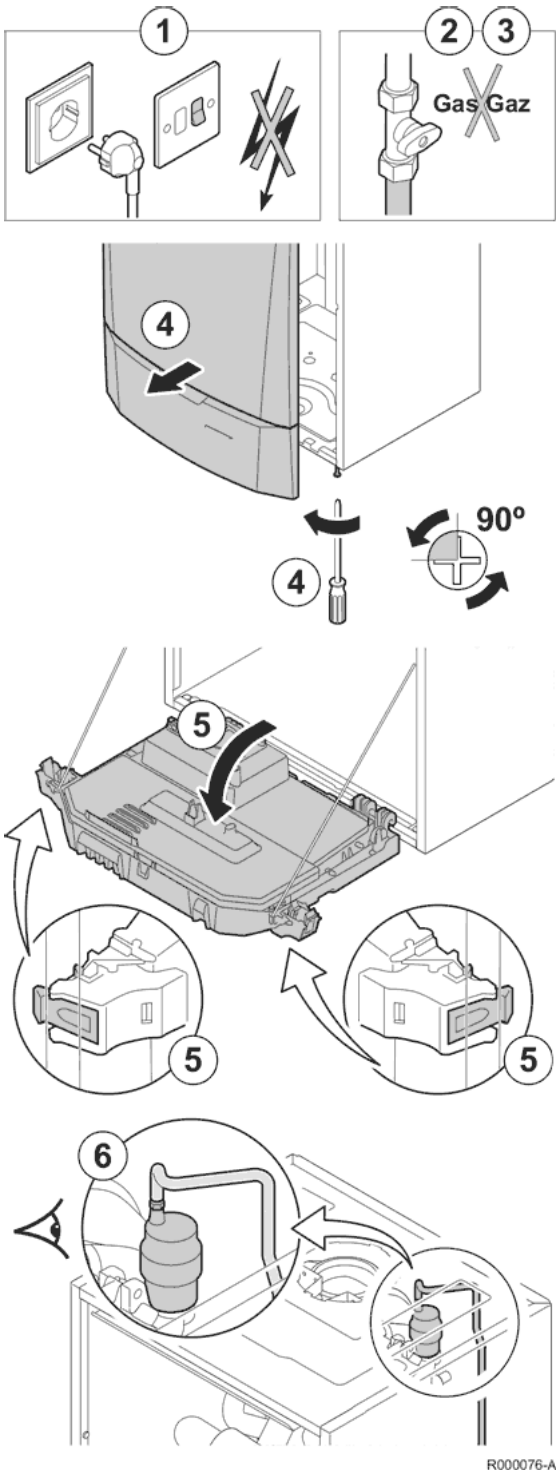
IMPORTANT:

See chapter: "Setting the air/gas ratio (Part load)", page 52.



7.3.5. Checking the automatic air vent

1. Switch off the boiler electrical power supply.
2. Close the gas valve on the boiler.
3. Close the main gas inlet valve.
4. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
5. Tilt the control box forwards by opening the holding clips located at the sides.
6. Check whether there is any water in the small hose on the automatic air vent.
7. If any leaks are detected, replace the air vent.



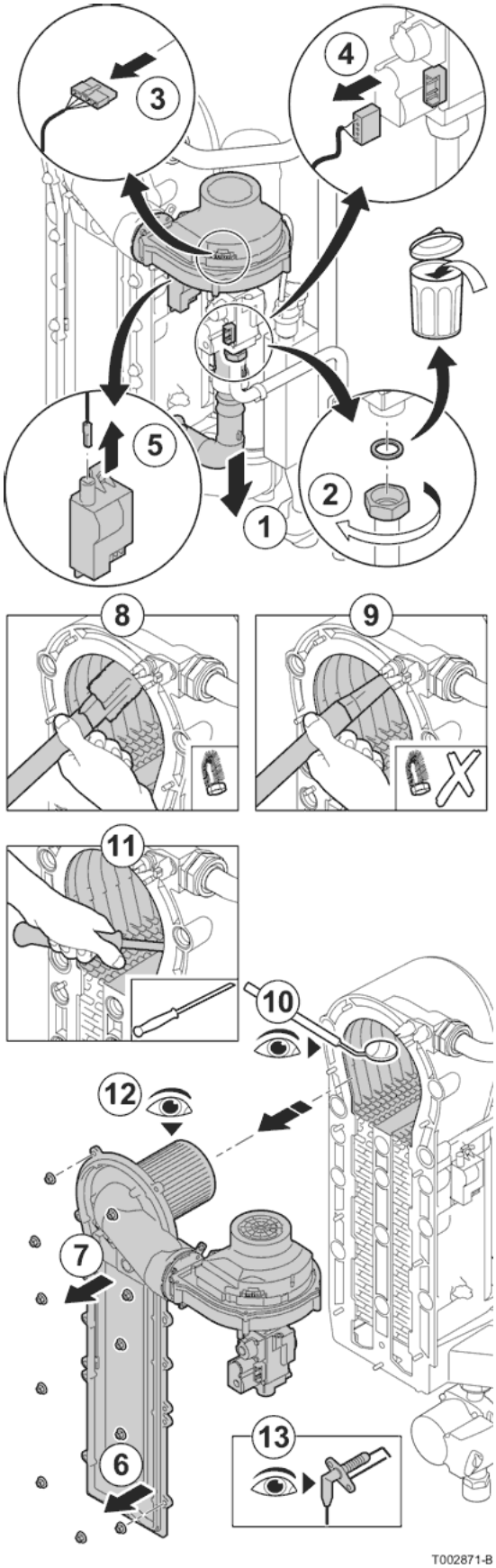
7.3.6. Checking the siphon

1. Remove the siphon and clean it.
2. Fill the siphon with water.
3. Put the siphon back in place.

7.3.7. Checking the burner and cleaning the heat exchanger

CAUTION:

During inspection and maintenance operations, always replace all gaskets on the parts removed.



1. Remove the air inlet flue on the venturi.
2. Loosen the union on the gas block.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas block.
5. Remove the ignition electrode plug from the ignition transformer.
6. Remove the front plate from the heat exchanger
7. Carefully lift the front plate including the burner and fan from the heat exchanger.

8. Use a vacuum cleaner fitted with a special endpiece (accessory) to clean the top part of the heat exchanger (combustion chamber).

9. Thoroughly clean with the vacuum cleaner again without the top cleaning brush on the endpiece.

10. Check (using a mirror, for example) whether any dust can still be seen. If so, hoover it up.

11. Clean the lowermost part of the heat exchanger with the special cleaning knife (accessory).

12. The burner does not require any maintenance, it is self -cleaning. If necessary, clean the cylindrical burner using compressed air. Check that there are no cracks and/or other tears on the surface of the dismantled burner. If this is not the case, replace the burner.

13. Checking the ignition electrode / ionization sensor.

14. To re-assemble, perform the above actions in reverse order.

CAUTION:

- ***Remember to reconnect the connector to the fan.***

- ***Check that the gasket is correctly positioned between the mixing elbow and the heat exchanger. (Completely flat in the appropriate groove means it is leak proof).***

15. Open the gas inlet valves and switch on the mains supply to the boiler.

7.4 Specific maintenance operations

If the standard inspection and maintenance operations have revealed the necessity to carry out additional maintenance work, proceed as follows, depending on the nature of the work:

7.4.1. Inspection of the ignition electrode

1. Remove the ignition electrode plug from the ignition transformer.

NOTE:

The ignition cable is fixed to the ignition electrode and therefore may not be removed.

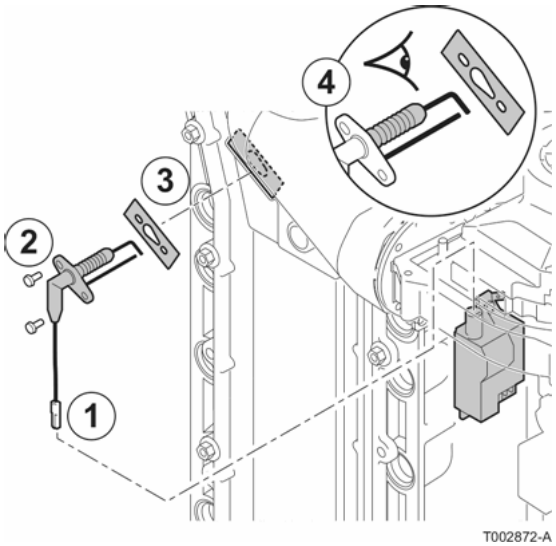
2. Unscrew the 2 screws. Remove the unit.

3. Wipe off all traces of deposits using an abrasive cloth.

4. Check the ignition electrode for wear. Replace if necessary.

5. Check the gasket.

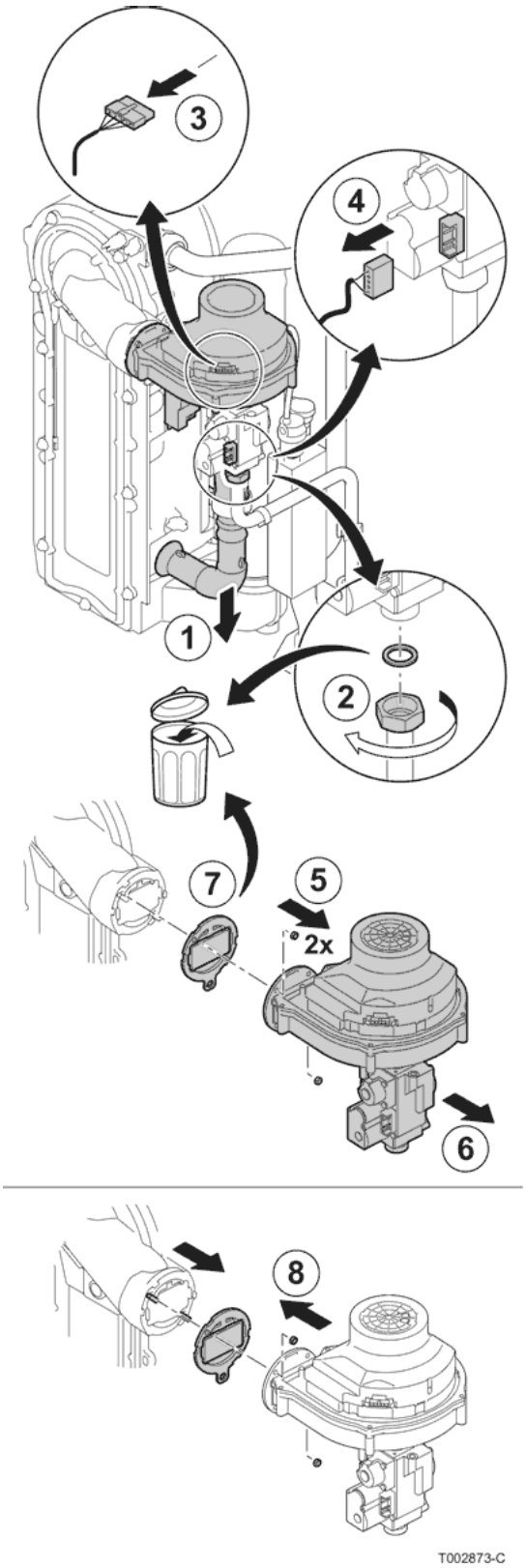
6. Refit all parts, replacing those that are damaged.



7.4.2. Replacing the non-return valve

Replace the nonreturn valve when faulty or when the maintenance kit contains one. To do this, proceed as follows:

1. Remove the air inlet flue on the venturi.
2. Loosen the union on the gas block.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas block.
5. Dismantle the fan.
6. Completely remove the fan/mixing elbow unit.
7. Replace the non-return valve located between the mixing elbow and the fan.
8. To re-assemble, perform the above actions in reverse order.



7.4.3. Assembling the boiler

1. Follow the procedure in reverse to re-assemble all of the components.

CAUTION:

During inspection and maintenance operations, always replace all gaskets on the parts removed.

2. Fill the siphon with water.

3. Put the siphon back in place.

4. Carefully open the main water valve, fill the installation, vent it and, if need be, top it up with water.

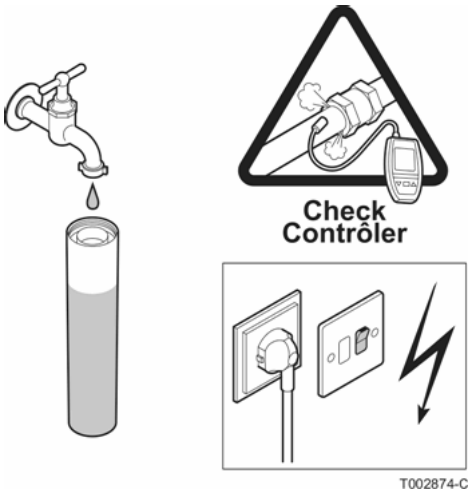
5. Check the seals on the gas and water connections.

6. Switch the boiler back on.

NOTE:

After a service complete the checklist.

See chapter: "Checklist for periodic inspection and maintenance", page 87.



8 Troubleshooting

8.1 Error codes

The boiler is fitted with an electronic regulation and control unit. The heart of the control system is a microprocessor, the **Comfort Master**©, which controls the boiler and also protects the boiler. If a fault is detected anywhere in the boiler, the boiler locks out and the display will show the fault code as follows:

In a red flashing display:

- The symbol ⚠
- The symbol **RESET**
- The fault code (for example E:01)

The meaning of the error codes is given in the error table. To do this, proceed as follows:

- Note the error code displayed.
- Press the **RESET** key for 2 seconds. If the error code continues to display, search for the cause in the error table and apply the solution.

NOTE:

If the display does not show RESET but rather ⏻, the boiler must be switched off and then switched on again after 10 seconds before the fault can be reset.

Error code	Description	Probable causes	Checking / solution
E:00	Storage unit PSU parameter not found	▸ Bad connection	▸ Check the wiring
E:01	The safety parameters are incorrect	▸ Bad connection ▸ PSU defective	▸ Check the wiring ▸ Replace PSU
E:02	Flow temperature sensor short circuited	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected	▸ Check the wiring ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Replace the sensor if necessary
E:03	Flow temperature sensor open circuit	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected	▸ Check the wiring ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Replace the sensor if necessary

Error code	Description	Probable causes	Checking / solution
E:04 E:05	Temperature of heat exchanger too low Exchanger temperature too high	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected ▸ No circulation	▸ Check the wiring ▸ Replace the sensor if necessary ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger
E:06	Return temperature sensor short circuited	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected	▸ Check the wiring ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly
E:07	Return temperature sensor open circuit	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected	▸ Check the wiring ▸ Check that the sensor has been correctly fitted ▸ Check that the sensors are operating correctly
E:08 E:09	Return temperature too low Return temperature too high	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected ▸ No circulation	▸ Check the wiring ▸ Replace the sensor if necessary ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger
E:10 E:11	Difference between the flow and return temperatures too great	▸ Sensor fault ▸ Sensor not or badly connected ▸ No circulation	▸ Replace the sensor if necessary ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger ▸ Check that the heating pump is operating correctly
E:12	Temperature of heat exchanger above normal range (high-limit thermostat STB)	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected ▸ No circulation	▸ Check the wiring ▸ Replace the sensor if necessary ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger

Error code	Description	Probable causes	Checking / solution
E:14	5 burner start-up failures	▸ No ignition	▸ Check cabling of ignition transformer ▸ Check the ionization/ignition electrode ▸ Check breakdown to earth ▸ Check the condition of the burner set ▸ Check the earthing ▸ Defective control SU PCB
		▸ Presence of the ignition arc but no flame formation	▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve uni ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check the wiring on the gas valve unit ▸ Defective control SU PCB
		▸ Presence of the flame but insufficient ionization (<3 µA)	▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the ionization/ignition electrode ▸ Check the earthing ▸ Check the wiring on the ionization/ignition electrode
E:16	False flame signal	▸ Ionization current present when there should not be a flame ▸ Ignition transformer defective ▸ Gas valve defective ▸ The burner remains very hot: CO_2 too high	▸ Check the ionization/ignition electrode ▸ Check the gas valve and replace if necessary ▸ Set the CO_2
E:17	Problem on the gas valve SU PCB	▸ Bad connection ▸ Defective SU PCB	▸ Check the wiring ▸ Inspect the SU PCB and replace it if need be
E:34	Fan fault	▸ Bad connection ▸ Fan defective	▸ Check the wiring ▸ Replace the fan if need be ▸ Check for adequate draw on the chimney connectior
E:35	Flow and return reversed	▸ Bad connection ▸ Sensor fault ▸ Sensor not or badly connected ▸ Water circulation direction reversed	▸ Replace the sensor if necessary ▸ Check the circulation (direction, pump, valves) ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted
E:36	5x Flame loss	▸ No ionization current	▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve uni ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
E:37	Communication error with the SU PCB	▸ Bad connection	▸ Check whether the SU PCB has been correctly fitted in the connector on PCU PCB

Error code	Description	Probable causes	Checking / solution
E:38	Communication error with the SCU PCB	▸ Bad connection ▸ Defective SCU PCB	▸ Check the wiring ▸ Replace SCU PCB
E:39	Shutdown input in locked-out mode	▸ Bad connection ▸ External cause ▸ Parameter incorrectly set	▸ Check the wiring ▸ Suppress the external cause ▸ Check the parameters
E:40	HRU/URC unit test error	▸ Bad connection ▸ External cause ▸ Parameter incorrectly set	▸ Check the wiring ▸ Suppress the external cause ▸ Check the parameters

8.2 Shutdowns and lock-outs

8.2.1. Blockage

If the blocking conditions still exist after several start up attempts, the boiler will switch into locking mode (fault). The boiler can only start operating again once the causes of the lock-out have been rectified and after pressing the ↵ key.

8.2.2. Lock-out

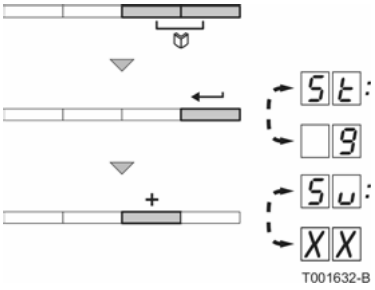
A (temporary)blocking mode is a boiler operating function caused by an unusual situation. In this case, the display gives a code of blocking (code St:9) The boiler control will try to re-start several times.

The boiler will start up again after the blocking conditions have been eliminated. The shutdown codes can be read out as follows:

1. Press the two ⌂ keys simultaneously.
2. Confirm by pressing key ↵. St is displayed, alternating with the shutdown code 9.
3. Press the **[+]** key. Su appears on the display.

NOTE:

The boiler starts up again automatically when the reason 1 for the blocking has been removed.



Shutdown code	Description	Probable causes	Checking / solution
SU:0	Parameter error	▸ Parameter error on the PSU PCB	▸ Reset dF and dU ▸ Restore parameters with Recom
SU:1	Maximum flow temperature exceeded	▸ Non-existent or insufficient circulation	▸ Check the circulation (direction, pump, valves) ▸ Reasons for the heat demand
SU:2	Maximum increase of the flow temperature has been exceeded	▸ Non-existent or insufficient circulation ▸ Sensor error	▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger
SU:7	Maximum difference between the flow and return temperature exceeded	▸ Non-existent or insufficient circulation ▸ Sensor error	▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check that the sensors are operating correctly ▸ Check that the sensor has been correctly fitted ▸ Check the cleanliness of the heat exchanger
SU:8	No release signal	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:9	Phase and neutral of mains supply mixed up	▸ Mains supply incorrectly wired ▸ Floating or 2 phase network	▸ Phase and neutral mixed up ▸ Set parameter P43 to 0
SU:10	Shutdown input is open	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:11	Shutdown input active or frost protection active	▸ External cause ▸ Parameter error ▸ Bad connection	▸ Suppress the external cause ▸ Check the parameters ▸ Check the wiring
SU:13	Communication error with the SCU PCB	▸ Bad connection with BUS ▸ SCU PCB not installed in the boiler	▸ Check the wiring ▸ Carry out automatic detection
SU:14	Water pressure too low	▸ Water pressure too low	▸ Check the water pressure ▸ Fill the boiler and the installation with water
SU:15	Gas pressure too low	▸ Non-existent or insufficient circulation ▸ Incorrect setting of the Gps gas pressure switch on the SCU PCB	▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check whether the Gps gas pressure control system has been correctly fitted ▸ Replace the Gps gas pressure control system if need be
SU:16 (1)	Configuration fault or SU PCB not recognised	▸ Wrong SU PCB for this boiler	▸ Replace the SU PCB
SU:17 (1)	Configuration fault or default parameter table incorrect	▸ Parameter error on the PCU PCB	▸ Replace the PCU PCB
SU:18 (1)	Configuration fault or PSU PCB not recognised	▸ Wrong PCU PCB for this boiler	▸ Replace the PCU PCB
SU:19 (1)	Configuration fault or parameters dF-dU unknown		▸ Reset dF and dU

(1) These lock-outs are not stored in the fault memory

Shutdown code	Description	Probable causes	Checking / solution
Su:20 (1)	Configuration procedure active	▸ Active for a short time after switching on the boiler	▸ No action required
Su:21	Communication error with the SU PCB	▸ Bad connection	▸ Check whether the PCU PCB has been correctly fitted in the connector on SU PCB
Su:22	No flame during operation	▸ No ionization current	▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
Su:25	Internal error on the SU PCB		▸ Replace the SU PCB
(1) These lock-outs are not stored in the fault memory			

8.3 Error memory

The boiler control is equipped with an error memory. The last 16 errors encountered are recorded in this memory.

In addition to the error codes, the following data are also saved:

- Number of times that the error occurred: (n□:XX).
- Boiler operating mode selected (St:XX).
- The flow temperature (t1:XX) and the return temperature (t2:XX) when the error occurred.

To view the error memory, you first have to enter access code 0012.

8.3.1. Error readout memorized

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the ↵ key. Er:XX appears on the display.
5. The fault list or shutdown list can be displayed by pressing the **[-]** or **[+]** key..
6. Confirm using key ↵. Er:XX is displayed with XX flashing = Last error which occurred, For example □2.
7. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
8. Press the ↵ key to display the details of the faults or shutdowns.
9. Press the **[-]** or **[+]** key to view the following information:

n:1 = Number of times that the error occurred.

Hr = The number of operating hours.

St= State.

Su = Sub-status

t1 = Supply temperature (°C).

t2 = Return temperature (°C).

t3 = Calorifier temperature (°C).

t4 = Outside temperature (°C) (Only with an outside temperature sensor).

t5 = Solar boiler temperature (°C).

SP = Internal set point (°C).

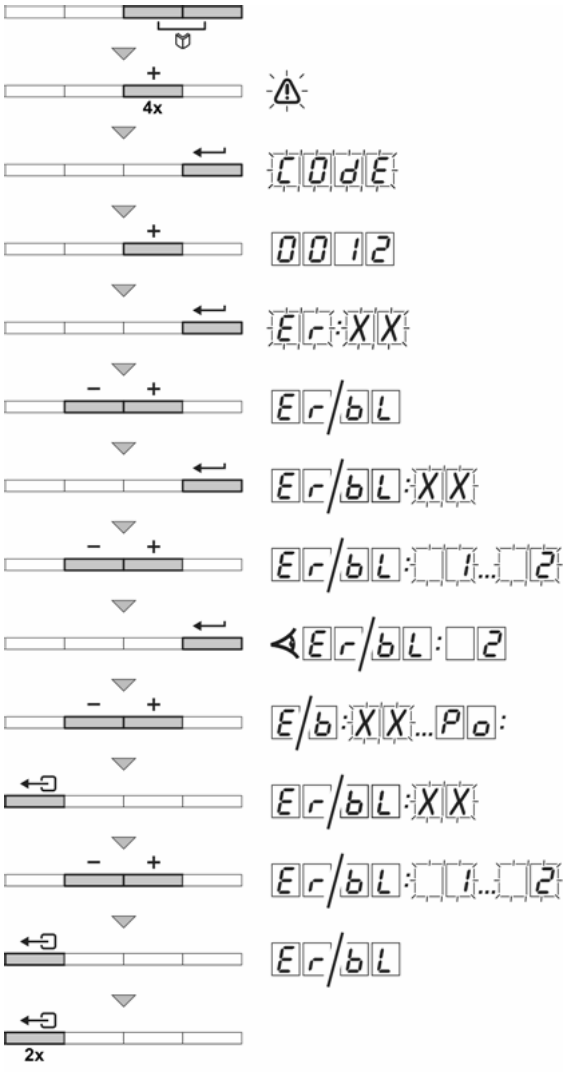
FL = Ionization current (µA).

nF = Fan speed in rpm.

Pr = Water pressure (bar).

Po = Supplied relative heat output (%).

10. Press the ↵ key to interrupt the display cycle. Er:XX is displayed with XX flashing = Last error which occurred.
11. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
12. Press the ↵ key to show the fault list or shutdown list.
13. Press ↵ times on the key 2 to exit the error memory.



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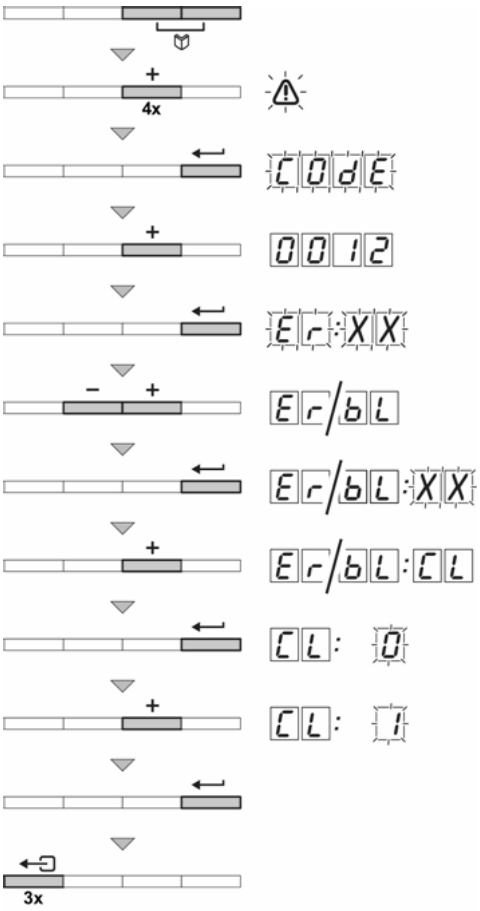
8.3.2. Deletion of the error display

1. Press the two keys simultaneously and then key **[+]** until the symbol ⚠ flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the ↵ key. Er:XX appears on the display.
5. The fault list or shutdown list can be displayed by pressing the **[-]** or **[+]** key..
6. Confirm using key ↵. Er:XX is displayed with XX flashing.
7. Press the **[+]** key several times until Er:CL is displayed on the screen.
8. Press the ↵ key. CL:0 is displayed with 0 flashing.
9. Press key **[+]** to modify the value to 1.
10. Press the ↵ key to delete the errors from the error memory.
11. Press ↵ times on the key 3 to exit the error memory.



9 Spare parts

9.1 General

When it is observed subsequent to inspection or maintenance work that a component in the boiler needs to be replaced, use only original spare parts or recommended spare parts and equipment.

Send the component to be replaced to your supplier’s Returned Goods Department if the component in queston is under warranty (see general terms and conditions of sale and delivery).

NOTE:

Always ensure that your return package is accompanied by the duly completed return form, see attached example. In this way, your supplier can fulfil his warranty obligations more easily and more effectively.

Customer						
Reference		Date				
Name						
Address						
Town/Postcode						
Telephone						
Contact person						
Order number						
Code no.	**Description**	**Serial number**(1)	**Type**	**Installation date**	**Reason for the exchange**	**Reference**
(1) This information can be found on the rating plate.						

9.2 Spare parts

10 Checklists

10.1 Checklist for commissioning

No.	Work to be undertaken for commissioning	Attachment / Measured values
1	Filling the central heating system with water and checking the water pressure	
2	Fill the siphon with water	
3	Vent the air in the heating system	
4	Checking the water-side connections for tightness	
5	Checking the type of gas supplied. Checking that the boiler is suitable for the gas supplied?	
6	Checking the gas supply pressure	
7	Checking the capacity of the gas meter	
8	Checking the tightness of the connections and the gas pipes	
9	Purge the gas supply pipe of the boiler	
10	Checking the electrical connections	
11	Checking the air supply connections and flue gas discharge connections	
12	Checking the functioning and operational status of the boiler	
13	Checking the air/gas ratio	
14	Remove the measuring device and close the measurement points	
15	Correctly fit the front housing of the boiler	
16	Attaching the Gas Type sticker	
17	Set the room thermostat or the regulator	
18	Instruct the user and hand over the necessary documents	
19	Fill in the guarantee card together with the user	
20	Confirmation of commissioning	
	Date	(dd-mm-yy)
	Company name, signature of engineer	

10.2 Checklist for periodic inspection and maintenance

Inspection and/or service activities		Confirmation and date				
1	Checking the hydraulic pressure (Recommendation: 1,5 to 2 bar)					
2	Checking the tightness of the flue gas evacuation and air inlet connections					
3	Checking the automatic air vent					
4	Checking the safety valve					
5	Checking the siphon					
6	Checking the ionization current					
7	Checking the burner and heat exchanger (central heating)					
8	Inspection of the ionization electrode/ignition electrode					
9	Assembling the boiler (Replace all removed gaskets)					
10	Filling and refitting the syphon					
11	Checking combustion (CO2) (Full load/Part load)					
12	Number of operating hours					
13	Number of successful starts (%)					
14	Service message deleted or service indicator reset					
15	Maintenance kit A, B or C used					
16	Boiler visually inspected					
17	Extra maintenance work that was undertaken					
18	Confirmation of inspection					
	Date	(dd-mm-yy)	(dd-mm-yy)	(dd-mm-yy)	(dd-mm-yy)	(dd-mm-yy)
	Company name, signature of engineer					