Twineo

EN

Gas fired floor-standing condensing boiler

EGC 25

Installation and Service Manual

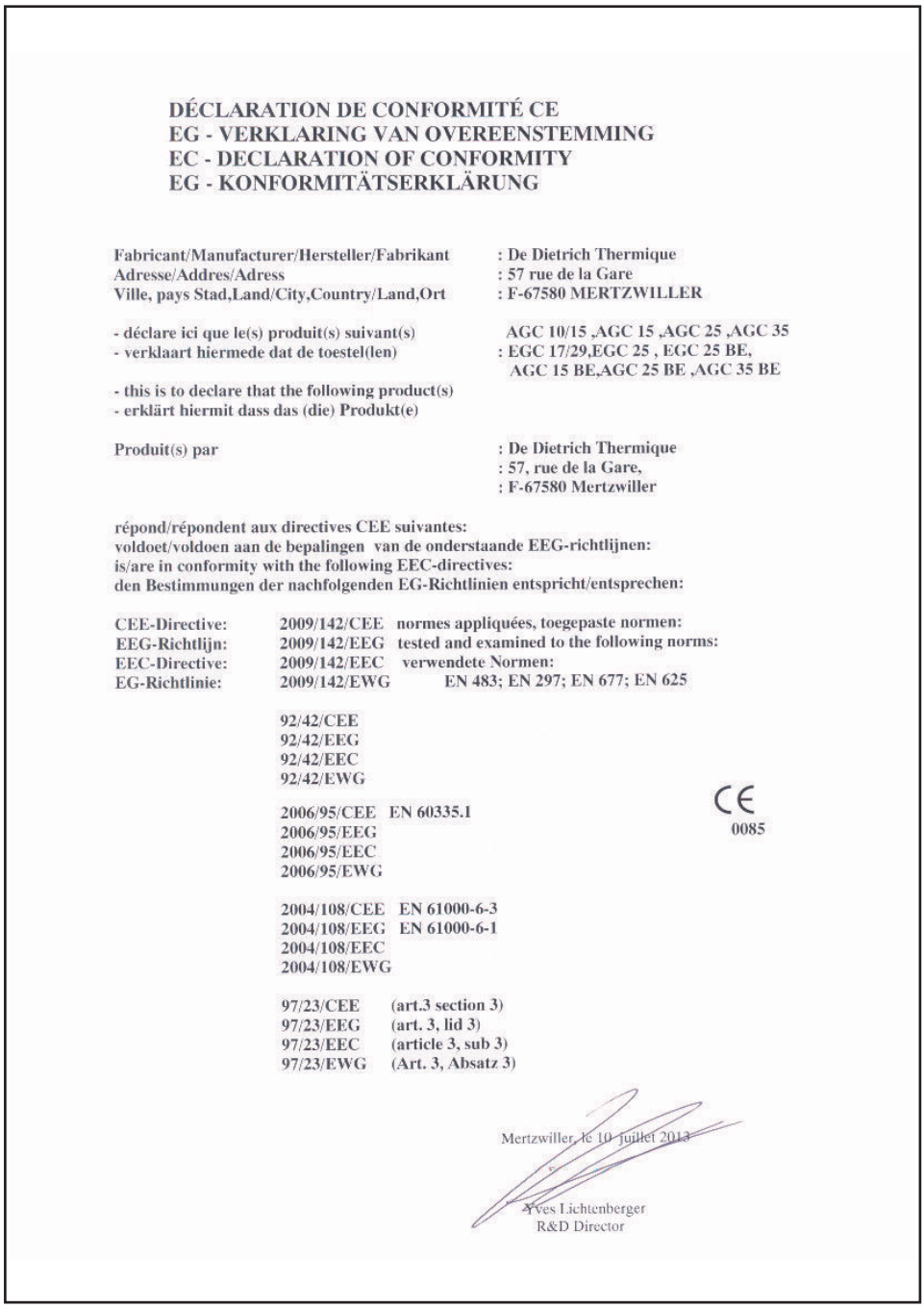
300026083-001-04

De Dietrich

Declaration of conformity

The device complies with the standard type described in the EG declaration of conformity. It was manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.



DÉCLARATION DE CONFORMITÉ CE
EG - VERKLARING VAN OVEREENSTEMMING
EC - DECLARATION OF CONFORMITY
EG - KONFORMITÄTSERKLÄRUNG

Fabricant/Manufacturer/Hersteller/Fabrikant	: De Dietrich Thermique
Adresse/Addres/Adress	: 57 rue de la Gare
Ville, pays Stad,Land/City,Country/Land,Ort	: F-67580 MERTZWILLER
- déclare ici que le(s) produit(s) suivant(s)	AGC 10/15 ,AGC 15 ,AGC 25 ,AGC 35
- verklaart hiermede dat de toestel(len)	: EGC 17/29,EGC 25 , EGC 25 BE, AGC 15 BE,AGC 25 BE ,AGC 35 BE
- this is to declare that the following product(s)	
- erklärt hiermit dass das (die) Produkt(e)	
Produit(s) par	: De Dietrich Thermique : 57, rue de la Gare, : F-67580 Mertzwiller

répond/répondent aux directives CEE suivantes:
voldoet/voldoen aan de bepalingen van de onderstaande EEG-richtlijnen:
is/are in conformity with the following EEC-directives:
den Bestimmungen der nachfolgenden EG-Richtlinien entspricht/entsprechen:

CEE-Directive:	2009/142/CEE	normes appliquées, toegepaste normen:
EEG-Richtlijn:	2009/142/EEG	tested and examined to the following norms:
EEC-Directive:	2009/142/EEC	verwendete Normen:
EG-Richtlinie:	2009/142/EWG	EN 483; EN 297; EN 677; EN 625
	92/42/CEE	
	92/42/EEG	
	92/42/EEC	
	92/42/EWG	
	2006/95/CEE	EN 60335.1
	2006/95/EEG	
	2006/95/EEC	
	2006/95/EWG	
	2004/108/CEE	EN 61000-6-3
	2004/108/EEG	EN 61000-6-1
	2004/108/EEC	
	2004/108/EWG	
	97/23/CEE	(art.3 section 3)
	97/23/EEG	(art. 3, lid 3)
	97/23/EEC	(article 3, sub 3)
	97/23/EWG	(Art. 3, Absatz 3)

CE
0085

Mertzwiller, le 10 juillet 2013

Yves Lichtenberger
R&D Director

C003655-C

Contents

1 Introduction

1.1 Symbols used

1.1.1. Symbols used in the manual

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.

DANGER

Risk of a dangerous situation causing serious physical injury.

WARNING

Risk of a dangerous situation causing slight physical injury.

CAUTION

Risk of material damage.

Signals important information.

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

1.1.2. Symbols used on the equipment

Protective earthing

~ Alternating current

Before installing and commissioning the device, read carefully the instruction manuals provided.

Dispose of the used products in an appropriate recovery and recycling structure.

D000241-C

This appliance must be connected to the protective earth.

M002628-A

Caution: danger, live parts.
Disconnect the mains power prior to any operations.

1.2 Abbreviations

- **3CE**: Collective conduit for sealed boiler
- **DHW**: Domestic hot water
- **Hi**: Lower heating value LHV (Nett)
- **Hs**: Higher heating value HHV (Gross)
- **PPS**: Polypropylene hardly inflammable
- **PCU**: Primary Control Unit - PCB for managing burner operation
- **PSU**: Parameter Storage Unit - Parameter storage for PCBs PCU and SU
- **SCU**: Secondary Control Unit - control panel PCB
- **SU**: Safety Unit - Safety PCB
- **HRU**: Heat Recovery Unit
- **3WV**: 3-way valve
- **HL**: High Load - DHW tank with plate exchanger
- **SL**: Standard Load - DHW tank with coil
- **SHL**: Solar High Load - Solar DHW tank with plate exchanger
- **SSL**: Solar Standard Load - Solar DHW tank with coil

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 inital 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.

1.4 Homologations

1.4.1. Certifications

CE identification no	**CE-0085CM0178**
NOx classification	**5 (EN 297 pr A3, EN 483)**
Type of connection	Chimney: B_{23}, B_{33}
	Flue gas outlet: $C_{13(x)}$, $C_{33(x)}$, $C_{43(x)}$, C_{53}, $C_{83(x)}$, $C_{93(x)}$

1.4.2. Gas categories

Gas category	Gas type	Connection pressure (mbar)
II_{2ESi3P}	Natural gas H (G20)	20
	Natural gas L (G25)	25
	Propane (G31)	37

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

For operation on another type of gas, see chapter: "Adapting to another gas type", page 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.

WARNING

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

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)
- Domestic hot water mode
- Water tightness
- Gas tightness
- Parameter settings

1.5 After Sales Service Internet Site

The QR code or flashcode is used to access the internet site containing the documentation and technical information regarding the product. The QR code also appears on the appliance's nameplate.

2 Safety instructions and recommendations

2.1 Safety instructions

DANGER

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. Trace possible leaks and seal them immediately.
5. If the gas leak is before the gas meter, contact the gas supplier.

DANGER

If you smell flue gases:

1. Switch the appliance off.
2. Open the windows.
3. 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.

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 **De Dietrich Thermique** to do so.

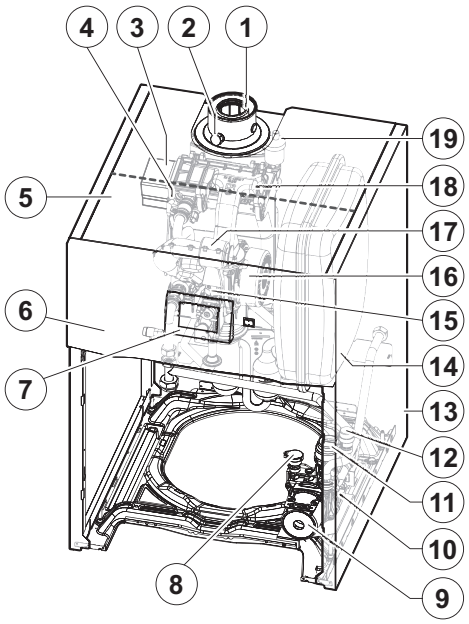
3 Technical description

3.1 General description

Gas fired floor-standing condensing boiler

- High efficiency heating.
- Low pollutant emissions.
- **IniControl** control panel.
- Flue gas evacuation via a forced flue, chimney, bi-flow, 3CE or 3CEP type connection.
- Optional domestic hot water production in combination with a DHW tank.

3.2 Main parts



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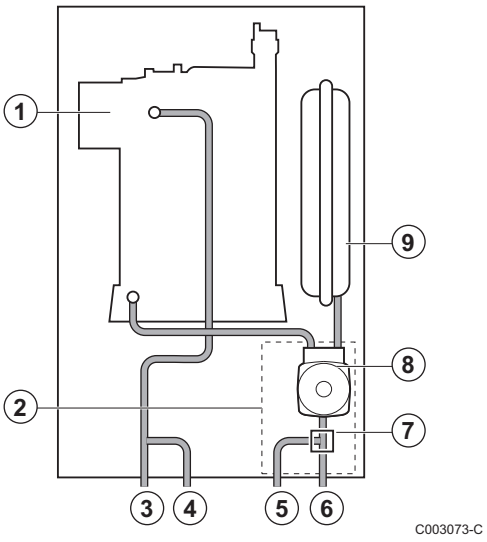
1	Flue gas discharge pipe
2	Flue gas measuring point
3	Heat exchanger
4	Ignition/ionization electrode
5	Box for the control PCBs
6	Control panel
7	Command module
8	Water pressure sensor
9	Circulation pump
10	Hydroblock
11	3-way valve
12	Safety valve
13	Casing
14	Expansion vessel
15	Combined venturi and gas valve unit
16	Fan
17	Air intake silencer
18	Mixer pipe
19	Automatic air vent

3.3 Operating principle

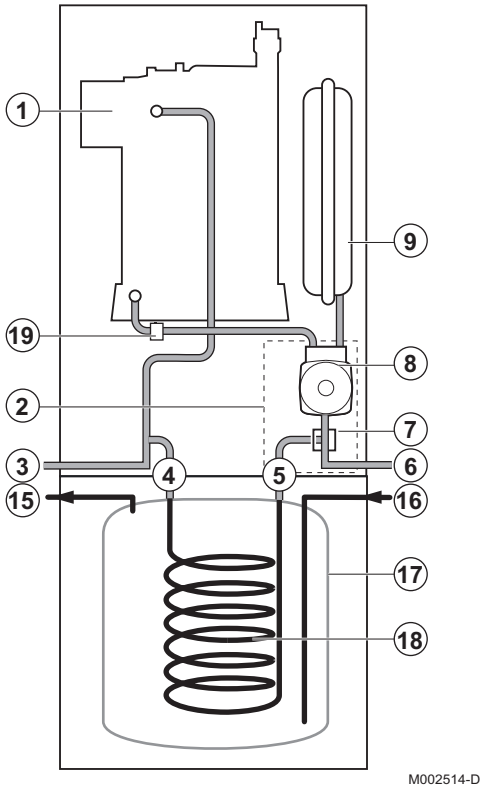
3.3.1. Skeleton Diagrams

■ Boiler self-standing



1	Heat exchanger
2	Hydroblock
3	Heating flow
4	Primary DHW tank flow
5	Primary DHW tank return
6	Heating return
7	3-way valve
8	Circulation pump
9	Expansion vessel

Boiler with 100SL / 160SL / 200SSL type domestic hot water tank

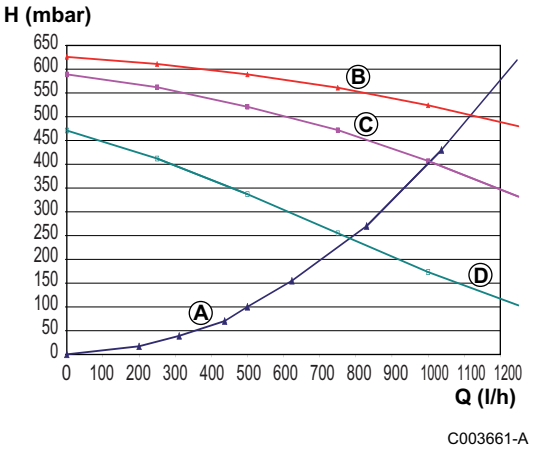


1	Heat exchanger
2	Hydroblock
3	Heating flow
4	Coil exchanger inlet
5	Coil exchanger outlet
6	Heating return
7	3-way valve
8	Circulation pump
9	Expansion vessel
15	Domestic hot water outlet
16	Domestic cold water inlet
17	Domestic hot water tank
18	Domestic water coil
19	Safety valve

3.3.2. Circulation pump

Boiler	Type boilerpump
EGC 25	Pump - Type 3

Specifications of the 3 type pump



H	Manometric height available for the heating circuit
Q	Water flow
A	Pressure drop
B	Manometric height - Speed 3
C	Manometric height - Speed 2
D	Manometric height - Speed 1

3.3.3. 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. In this way, the boiler does not require a minimum water flow rate.

3.4 Technical specifications

Boiler type			EGC 25
General			
Nominal output (Pn) Heating System (80/60 °C)	minimum-maximum	kW	5,0 - 24,1
Nominal output (Pn) Heating System (50/30 °C)	minimum-maximum	kW	5,6 - 25,5
Nominal output (Pn) Heating System (40/30 °C)	minimum-maximum	kW	5,6 - 25,9
Nominal input (Qn) Heating System (Hi)	minimum-maximum	kW	5,2 - 25,0
Nominal input (Qn) Heating System (Hs)	minimum-maximum	kW	5,8 - 27,8
Nominal input (Qnw) DHW System (Hi)	minimum-maximum	kW	5,2 - 29,3
Nominal input (Qnw) DHW System (Hs)	minimum-maximum	kW	5,8 - 32,6
Heating efficiency under full load (Hi) (80/60 °C)	-	%	96,3
Heating efficiency under full load (Hi) (50/30 °C)	-	%	102,0
Heating efficiency under partial load (Hi) (Return temperature 60°C)	-	%	96,1
Heating efficiency under partial load (EN 92/42) (Return temperature 30°C)	-	%	108,0
Data on the gases and combustion gases			
Gas consumption - Natural gas H (G20)	minimum-maximum	m^3/h	0,55 - 3,10
Gas consumption - Natural gas L (G25)	minimum-maximum	m^3/h	0,64 - 3,61
Gas consumption - Propane G31	minimum-maximum	m^3/h	0,21 - 1,20
NOx-Emission (Scrolls forward EN297A3)		mg/kWh	38
Mass flue gas flow rate	minimum-maximum	kg/h	8,9 - 49,3
Flue gas temperature	minimum-maximum	°C	30 - 80
Maximum counter pressure		Pa	120
Characteristics of the heating circuit			
Water content (ex expansion vessel)		l	1,9
Water operating pressure	minimum	kPa (bar (MPa))	80 (0,8)
Water operating pressure (PMS)	maximum	kPa (bar (MPa))	300 (3,0)
Water temperature	maximum	°C	110
Operating temperature	maximum	°C	90
Electrical characteristics			
Power supply voltage		VAC	230
Power consumption - Pump position high - Fastest	maximum	W	141
Power consumption - Pump position low - Slowest	maximum	W	78
Power consumption - Standby	maximum	W	4

Boiler type			EGC 25
Electrical protection index			IP21
Other characteristics			
Weight (empty)		kg	50

3.4.1. Sensor characteristics

Outside sensor												
Temperature in °C	-20	-16	-12	-8	-4	0	4	8	12	16	20	24
Resistance in Ω	2392	2088	1811	1562	1342	1149	984	842	720	616	528	454

Outlet sensor circuit B+C Domestic hot water sensor											
Temperature in °C	0	10	20	25	30	40	50	60	70	80	90
Resistance in Ω	32014	19691	12474	10000	8080	5372	3661	2535	1794	1290	941

Boiler sensor Return sensor															
Temperature in °C	-20	-10	0	10	20	25	30	40	50	60	70	80	90	100	110
Resistance in Ω	98932	58879	36129	22804	14773	12000	9804	6652	4607	3252	2337	1707	1266	952	726

4 Installation

4.1 Regulations governing installation

WARNING

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
- Installation and Service Manual
- User Guide

4.2.2. Accessories

Various options are available depending on the configuration of the installation.

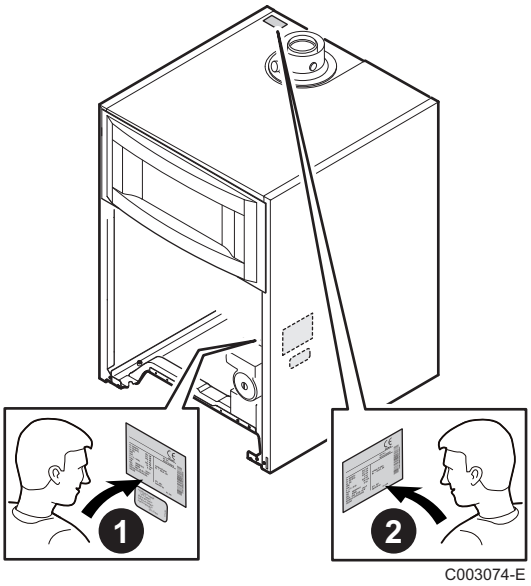
Boiler options	
Description	**package**
Condensates neutralisation station	DU13
Condensates neutralisation station without lift pump	BP52
Flue gas safety thermostat	JA38
adapter 80/125	HR38
Direct elbow	JA43
Propane conversion kit EGC 25	JA40
Central connection kit	JA11
Left connection kit	JA12
Right connection kit	JA13
Solo connecting kit	JA34

Control system options	
Description	**package**
Outside sensor	FM46
DHW sensor	AD212

Domestic hot water tank options	
Description	**package**
100SL domestic hot water calorifier	ER226
200SSL domestic hot water calorifier	ER221
Boiler and DHW calorifier connection kit SL / SSL	JA8
Connecting kit between boiler and other DHW tank	JA10

4.3 Choice of the location

4.3.1. Type plate



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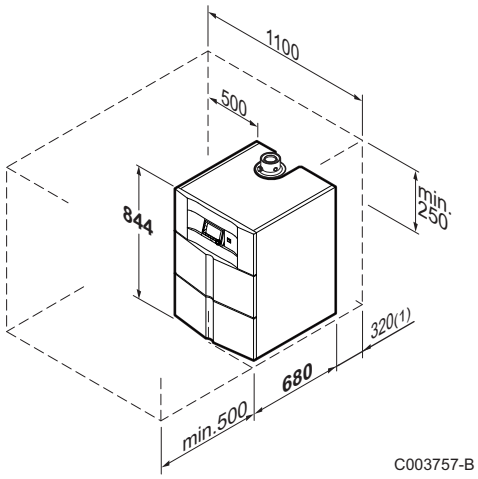
The data plates provide important information on the appliance: serial number, model, gas category, etc.

❶ This data plate is affixed to the inside side panel of the appliance in the factory.

❷ When installation has been completed, affix the data plate provided in the instructions bag to the casing of the appliance in a position where it can be seen.

4.3.2. Positioning of the appliance



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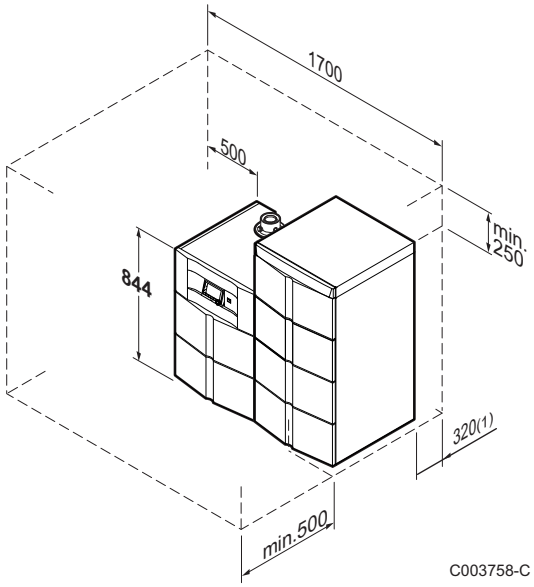

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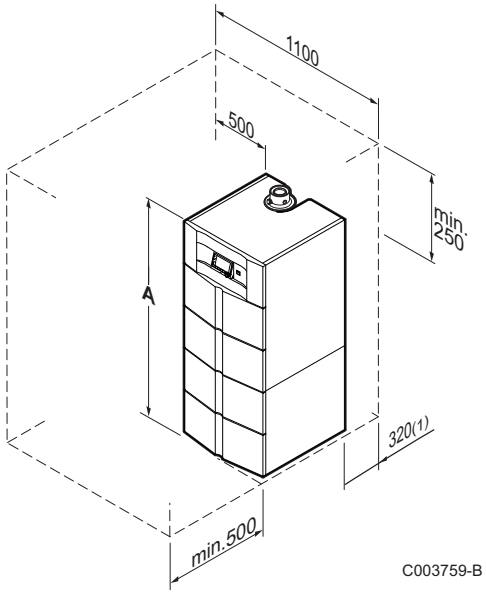

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(1) Minimum recommended distance

- 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

It is forbidden to store inflammable products and materials in the boiler room or close to the boiler, even temporarily.

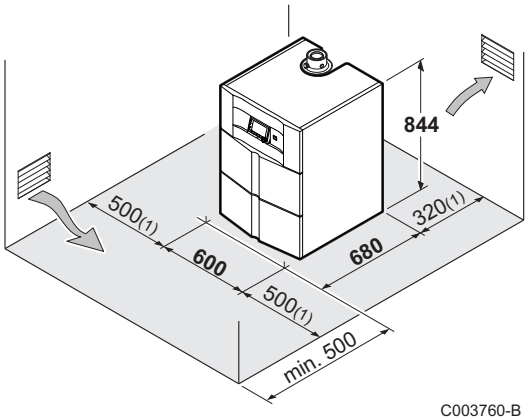
CAUTION

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

(1) Minimum recommended distance

DHW calorifier type	A
100 SL	1408
200 SSL	1968

4.3.3. Ventilation



(1) Minimum recommended distance

■ Connection to a chimney

Do not obstruct the air inlets in the room (even partially).

The compulsory cross section of aeration vents in the premises in which the boiler is installed must comply with the standards current in the country.

CAUTION

In order to avoid damage to the boiler, it is necessary to prevent the contamination of combustion air by chlorine and/or fluoride compounds, which are particularly corrosive. These compounds are present, for example, in aerosol sprays, paints, solvents, cleaning products, washing products, detergents, glues, snow clearing salts, etc. Therefore:

- Do not pull in air evacuated from premises using such products: hairdressing salons, dry cleaners, industrial premises (solvents), premises containing refrigeration systems (risk of refrigerant leakage), etc.
- Do not stock such products close to the boilers.

If the boiler and/or peripheral equipment are corroded by such chloride or fluoride compounds, the contractual guarantee cannot be applied.

■ Forced flue connection

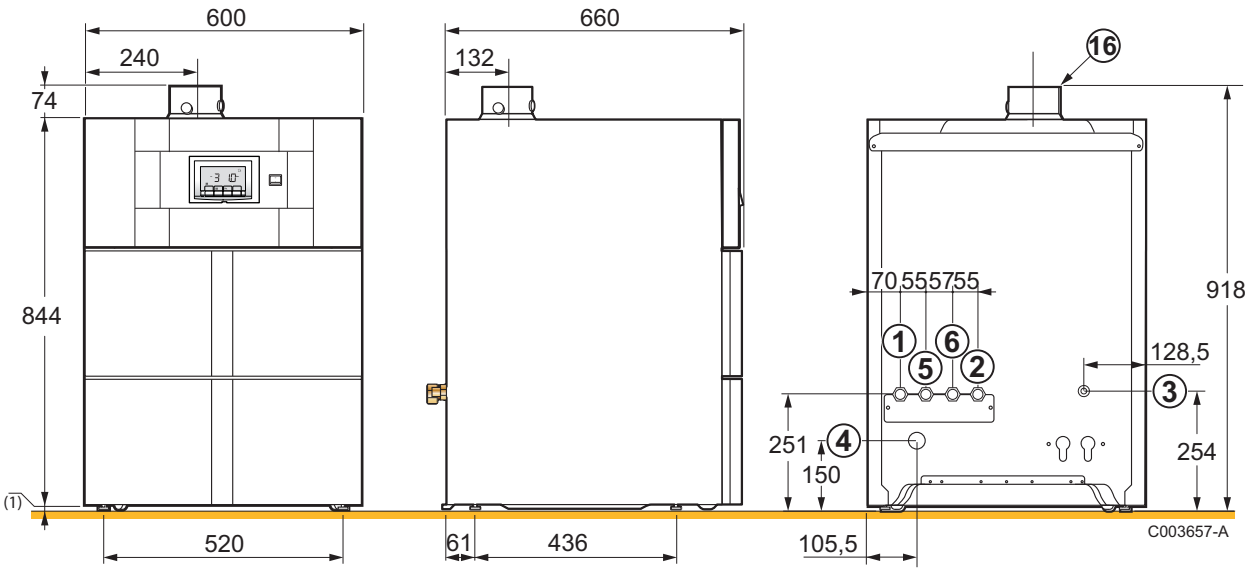
If combustion gas discharge and combustive air intake are done via a concentric conduit, ventilation is required in the boiler room if a mechanical fitting, in accordance with the description in the DTU 61.1 standard, is fitted to the gas supply.

4.3.4. Main dimensions

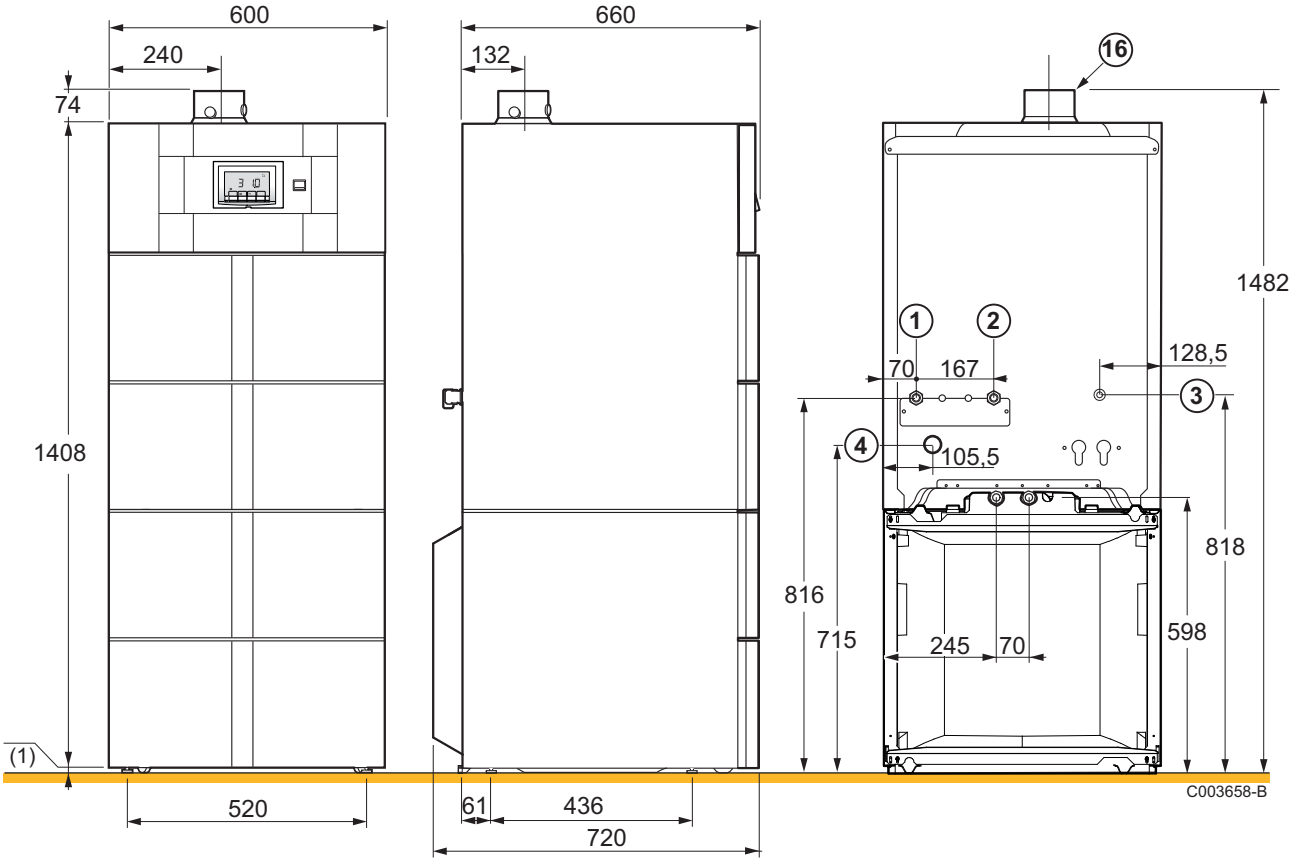
■ Key

①	Direct heating circuit return	G¾"
②	Direct heating circuit flow	G¾"
③	Gas supply	G1/2"
④	Condensates discharge - PVC pipe	Ø 24x19 mm
⑤	Primary return independent DHW tank - Package JA10 (option)	G¾"
⑥	Primary flow independent DHW tank - Package JA10 (option)	G¾"
⑦	Heating flow circuit with mixing valve - Package JA6 / JA7 (option)	G¾"
⑧	Heating return circuit with mixing valve - Package JA6 / JA7 (option)	G¾"
⑩	Domestic cold water inlet	G¾"
⑪	Domestic hot water outlet	G¾"
⑫	DHW circulation loop return - Pipe	G¾"
⑬	DHW drain valve (on the front of the DHW tank)	ext. Ø 14 mm
⑭	Primary solar coil inlet	ext. Ø 18 mm
⑮	Primary solar coil outlet	ext. Ø 18 mm
(1)	Adjustable feet	0 to 20 mm

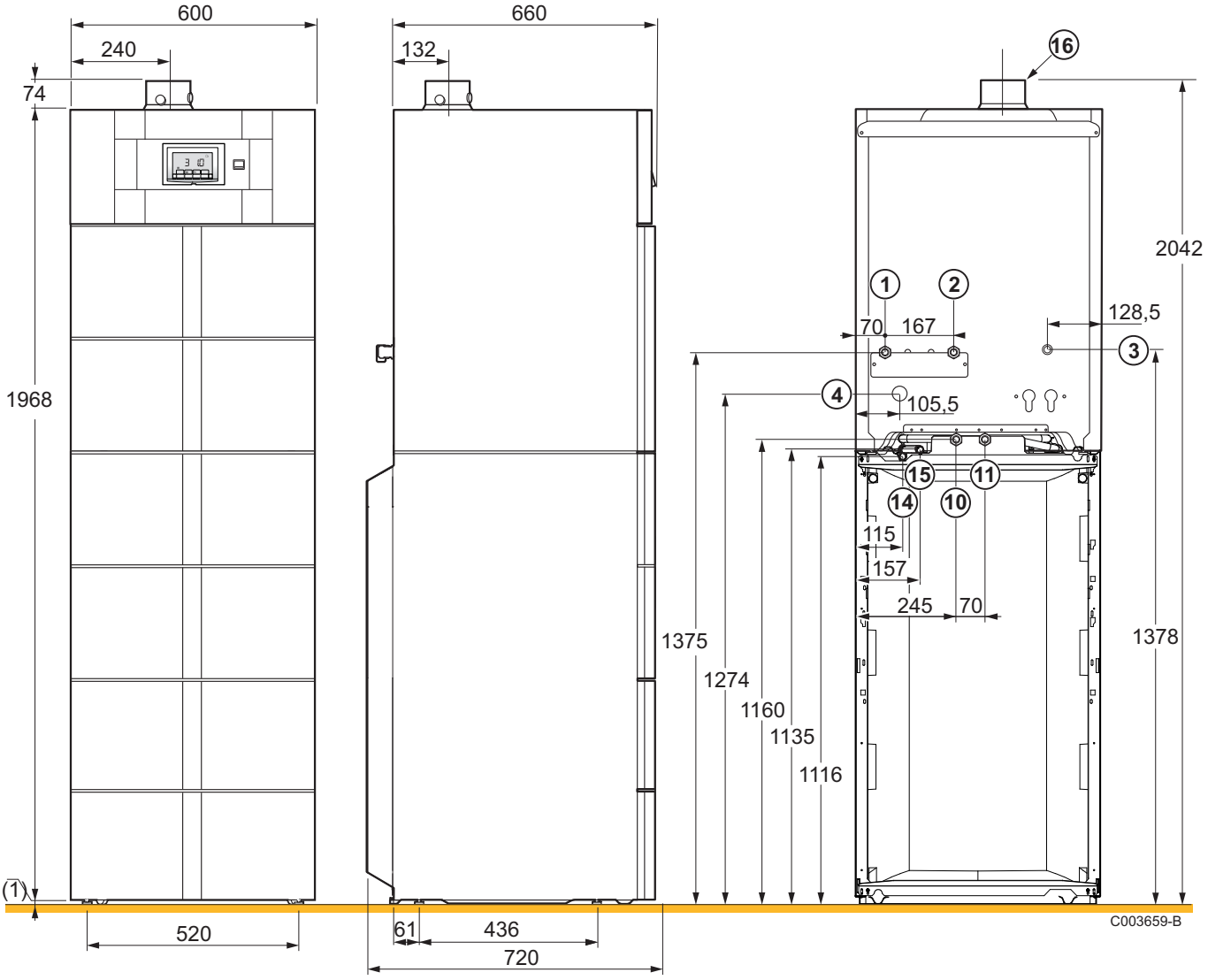
■ Boiler only

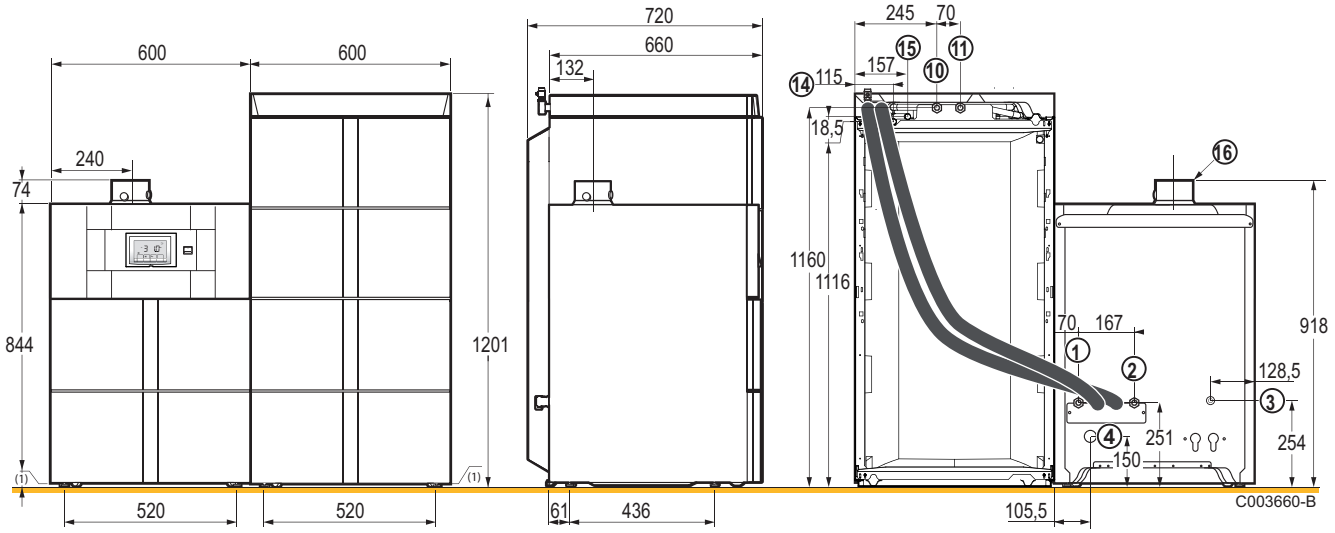


■ Boiler with 100SL type domestic hot water tank



■ Boiler with 200SSL type domestic hot water tank



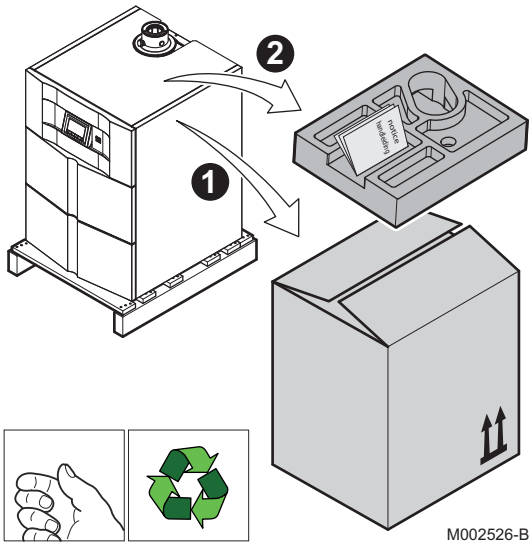


4.4 Positioning the appliance

CAUTION

- Have 2 people available.
- Handle the appliance with gloves.

4.4.1. Positioning the boiler on its own



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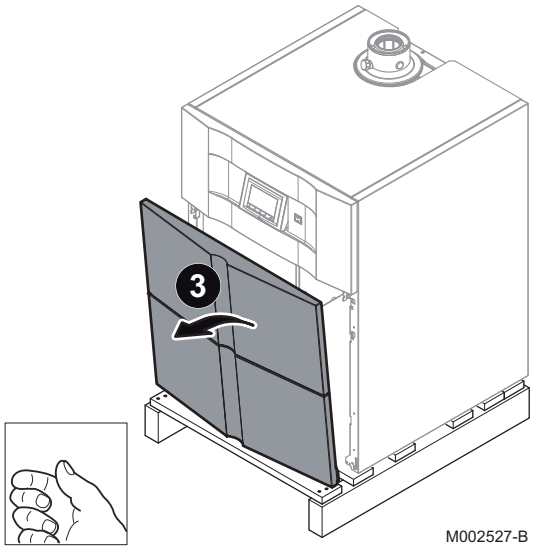
1. Remove the packaging from the boiler but leave the shipping pallet in place.
2. Remove the protective packaging.

The technical documentation is housed in the protective block.



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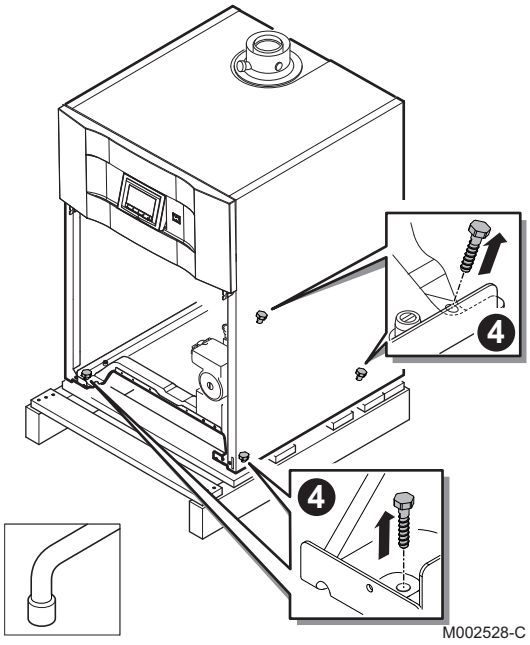
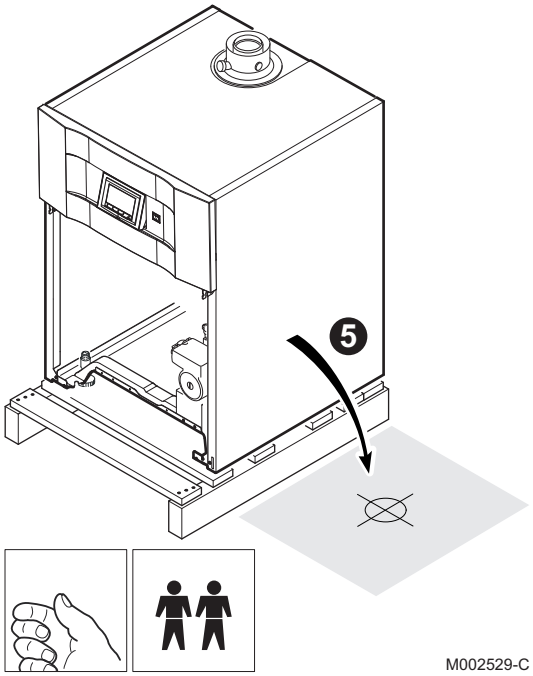
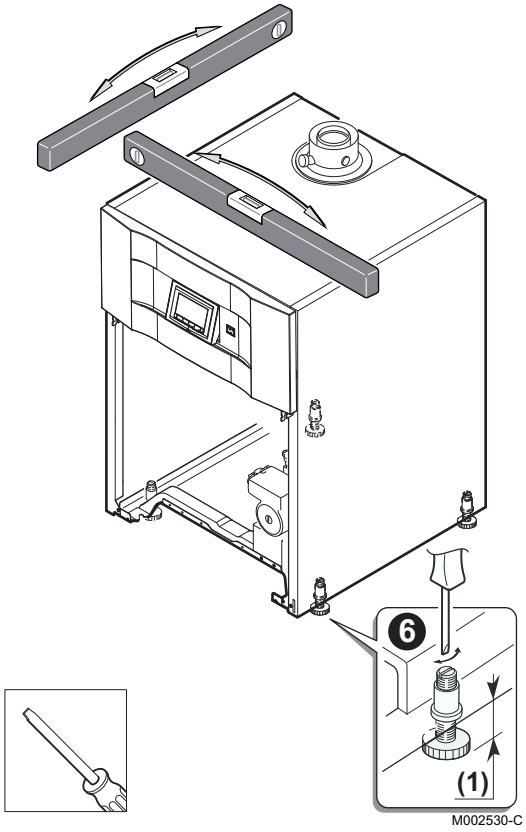
3. Remove the front panel by pulling firmly from both sides.



4. Remove the retaining screws.



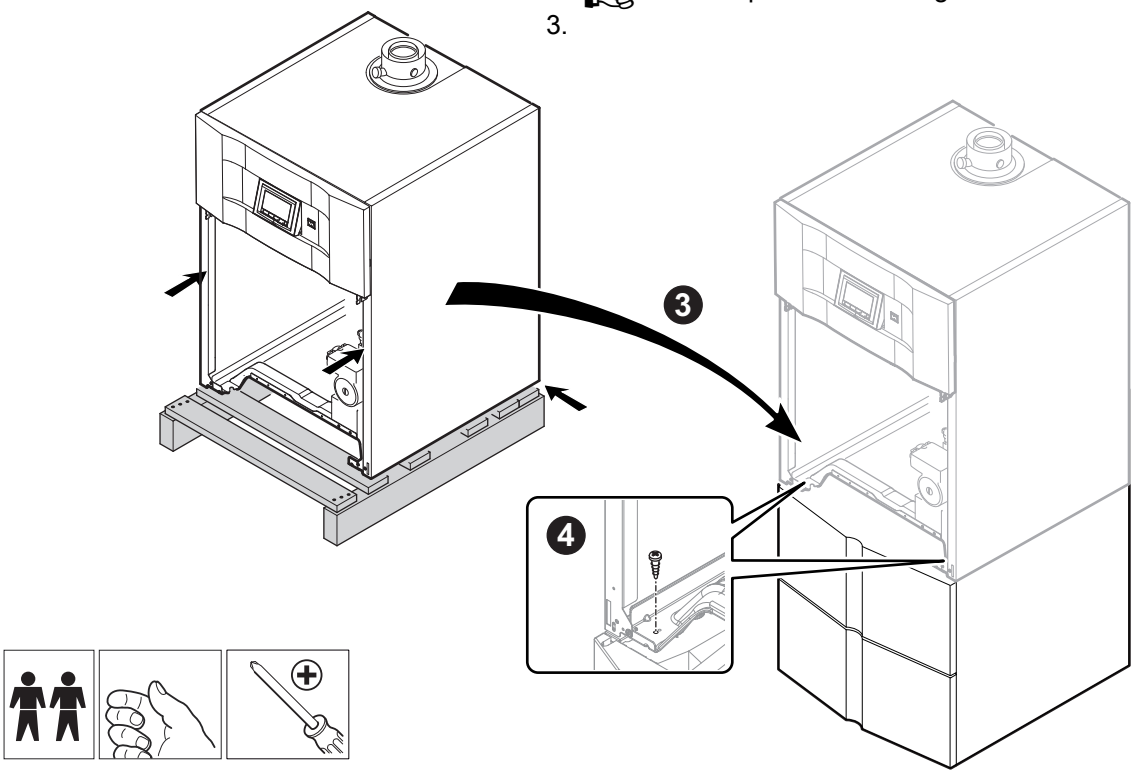
5. Lift the boiler and position it on the ground



6. Level the appliance using the adjustable feet.
   (1) Adjustment range: 0 to 20 mm
7. Refit the front panel.

4.4.2. Fitting the boiler to a DHW tank

1. Put the DHW tank in place.
   Refer to the DHW tank's installation, use and maintenance instructions.
2. Carry out steps 1 to 5 described above.
   See chapter "Positioning the boiler on its own", page 24
3.



Position the boiler on the DHW tank.

4. Put the 2 screws in place at the front to attach the boiler to the DHW tank.

4.4.3. Positioning the boiler to the left or right of a DHW tank

1. Put the DHW tank in place.
   Refer to the DHW tank's installation, use and maintenance instructions.
2. Position the boiler beside the DHW tank.
   See chapter "Positioning the boiler on its own", page 24

4.5 Hydraulic connections

4.5.1. Flushing the system

Installation must be carried out in accordance with the prevailing regulations, the codes of practice and the recommendations in these instructions.

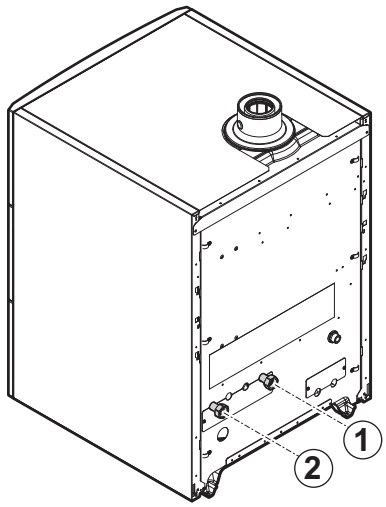
Fitting the appliance to new installations

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

Fitting the appliance to existing installations

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

4.5.2. Hydraulic connection of the heating circuit



M002524-A

1. Connect the heating water outlet pipe to the heating flow connection.
2. Connect the heating water return pipe to the heating return connection.
3. Install a filling and drainage valve on the installation for filling and draining the boiler.

- The boiler is equipped with a safety valve.

CAUTION

- The heating pipe must be mounted in accordance with prevailing provisions.

If using thermostatic valves, see chapter: "Connecting the expansion vessel", page 28

4.5.3. Connection of the water circuit for domestic use

If need be, refer to the DHW tank's installation, user and maintenance manual.

4.5.4. Connecting the expansion vessel

The boiler is fitted as standard with an 12-litre expansion vessel.

If the water volume is greater than 225 litres or the static height of the system exceeds 5 metres, an additional expansion vessel must be fitted. Refer to the table below to determine the expansion vessel required for the installation.

Conditions of validity of the table:

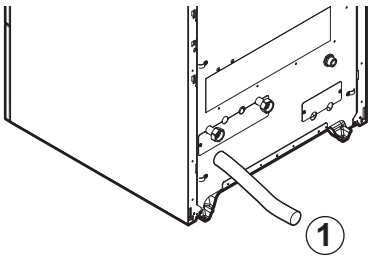
- 3-bar safety valve
- Average water temperature: 70 °C
  Flow temperature: 80 °C
  Return temperature: 60 °C
- The filling pressure in the system is lower than or equal to the initial pressure in the expansion vessel

Initial pressure of the expansion vessel	Volume of the expansion vessel depending on the volume of the installation (in litres)							
	100	125	150	175	200	250	300	> 300
0.5 bar	4,8	6,0	7,2	8,4	9,6	12,0	14,4	Volume of the installation x 0,048
1 bar	8,0	10,0	12,0(1)	14,0	16,0	20,0	24,0	Volume of the installation x 0,080
1.5 bar	13,3	16,6	20,0	23,3	26,6	33,3	39,9	Volume of the installationx 0,133

(1) Factory configuration

On an installation in which the flow can be fully disconnected from the return (e.g. by using thermostatic valves), a bypass should be fitted or an expansion vessel placed on the heating flow pipe.

4.5.5. Connecting the condensate discharge pipe



M002535-A

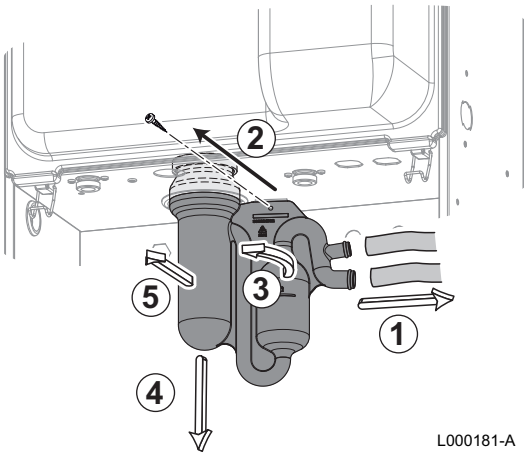
1. Mount a standard drainage pipe, Ø 32 mm or more, leading to the mains drainage system.
2. Mount the flow collector.
3. Into this, insert the condensate collector hose coming from the siphon .
4. Mount a trap or a siphon in the discharge pipe.

CAUTION

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

- 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.

4.5.6. Filling the siphon



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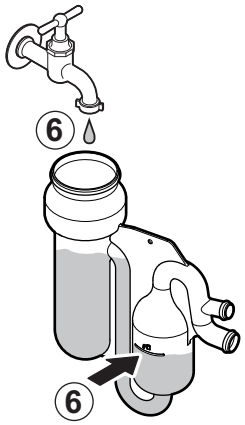


C003098-E

1. Remove the siphon.
2. Fill the siphon with clean water up to the mark.
3. Re-assemble the siphon.

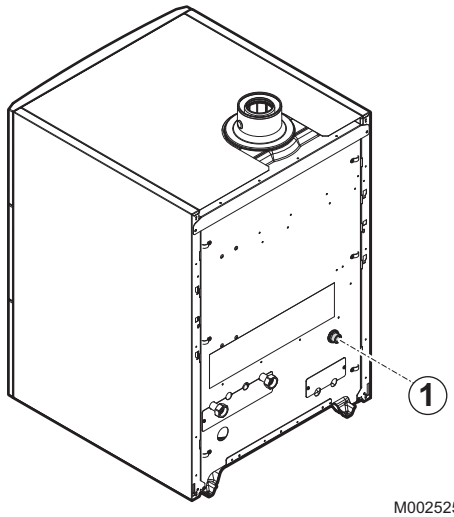
CAUTION

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

4.6 Gas connection

DANGER

Before making the gas connections, ensure that the boiler is immobilised in accordance with prevailing standards.



M002525-A

The diameters of the pipes must be defined in accordance with the standards in force in your country.

1. Connect the gas inlet pipe.
2. Fit a gas stop valve to this pipe in such a way that it is visible and easily accessible.
3. Connect the gas pipe to the gas shut off valve.

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 domestic appliances.
- If the gas meter has a too low capacity, inform the energy supply company.

CAUTION

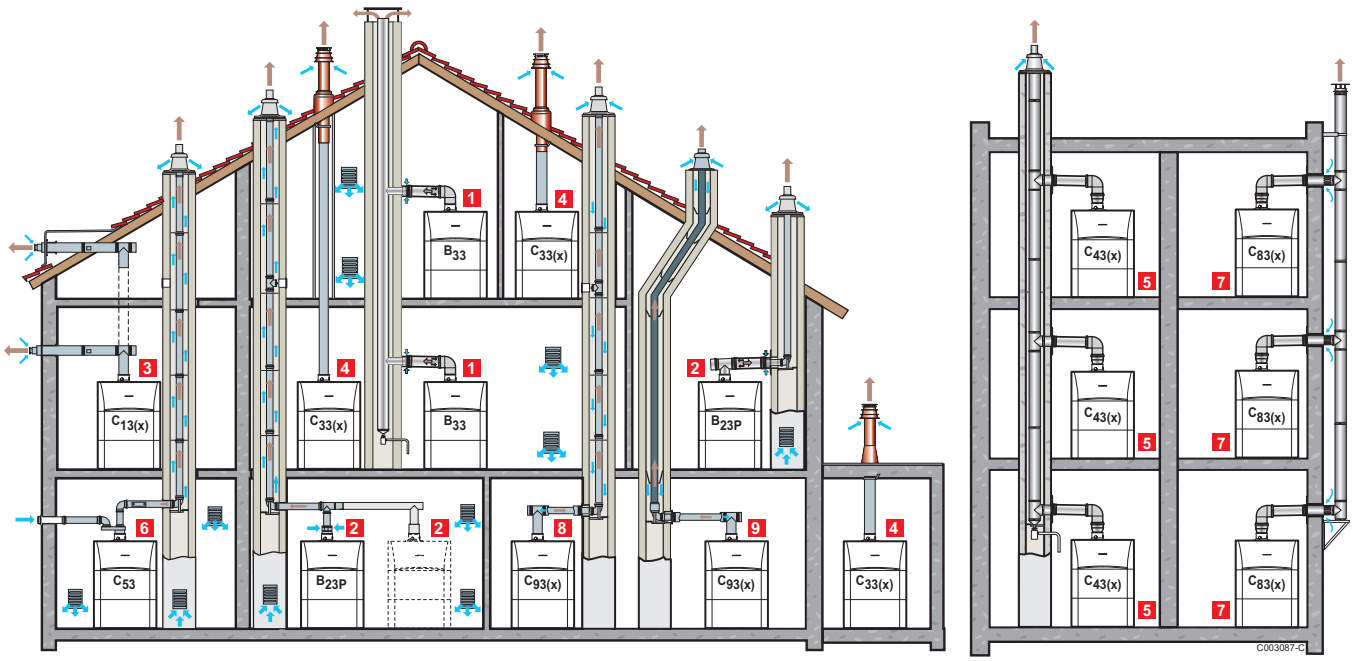
- Ensure that there is no dust in the gas pipe. Blow into the pipe or shake it before mounting.
- We recommend installing a gas filter on the gas pipe to prevent clogging of the gas valve unit.
- Connect the gas pipe in accordance with prevailing standards and regulations.

4.7 Flue gas system connections

DANGER

Ensure that the flue gas pipes are held firmly in place in order to prevent any dislocation.

4.7.1. Classification



1 **Configuration B_{33}**
Connection to a collective pipe via a concentric pipe (combustive air taken from the boiler room)
All of the pressurised parts of the appliance are surrounded by air.

2 **Configuration B_{23} - B_{23P}**
Connection to a chimney using a connection kit (combustive air taken from the boiler room)

3 **Configuration $C_{13(x)}$**
Air/flue gas connection by means of concentric pipes to a horizontal terminal (so-called forced flue)

4 **Configuration $C_{33(x)}$**
Air/flue gas connection by means of concentric pipes to a vertical terminal (roof outlet)

5 **Configuration $C_{43(x)}$**
Air/flue gas connection to a collective conduit for watertight boilers (3CE P system)

6 **Configuration C_{53}**
Air and flue gas connection separated by means of a bi-flow adapter and single pipes (combustive air taken from outside)

7 **Configuration $C_{83(x)}$**
Flue gas connection to a collective conduit for sealed boilers. The air supply is individual via a terminal coming from outside the building.

8 **Configuration $C_{93(x)}$**
Air/flue gas connection by concentric pipes in the boiler room and single pipes in the chimney (combustive air in counter current in the chimney)

9 **Configuration $C_{93(x)}$**

Air/flue gas connection by concentric pipes in the boiler room and single flex in the chimney (combustive air in counter current in the chimney)

WARNING

- Only factory components are authorised for connecting the boiler and the terminal.
- The clear section must comply with the standard.
- The chimney must be swept before the installation of the evacuation conduit.

4.7.2. Lengths of the air/flue gas pipes

For configurations B_{23} and C_{93}, the lengths given in the table are valid for horizontal conduits with a maximum length of 1 metre. For each additional metre of horizontal conduit, subtract 1.2 m from the vertical length Lmax

Type of air/flue gas connection			Diameter	Maximum length in metres
				EGC 25
$C_{13(X)}$	Concentric pipes connected to a horizontal terminal	Alu or PPS	60/100 mm	3.5
			80/125 mm	20.0
$C_{33(X)}$	Concentric pipes connected to a vertical terminal	Alu or PPS	60/100 mm	4.9
			80/125 mm	20.0
$C_{93(X)}$	Concentric pipes in the boiler room Single conduits in the chimney (combustive air in counter-current)	Alu or PPS	60/100 mm 60 mm (Rigid duct)	8.1
	Concentric pipes in the boiler room Flexible single conduit in the chimney	PPS	60/100 mm 80 mm (Flexible duct)	20.0
C_{53}	Bi-flow adapter and separate single air/flue gas ducts (combustive air taken from outside)	Alu	60/100 mm 2 x 80 mm	40.0
B_{23}	Chimney (rigid or flexible duct in chimney, combustive air taken from the premises)	PPS	80 mm (Rigid duct)	40.0
			80 mm (Flexible duct)	40.0
$C_{43(X)}$	Collective conduit for sealed boiler (3 CE or 3 CEP)	To determine the size of such a system, consult the supplier of the 3 CEP conduit.		

WARNING

Maximum length = lengths of the straight air/flue gas ducts + equivalent lengths of other components

For the list of flue gas system accessories and the equivalent lengths, refer to the current price list.

4.8 Electrical connections

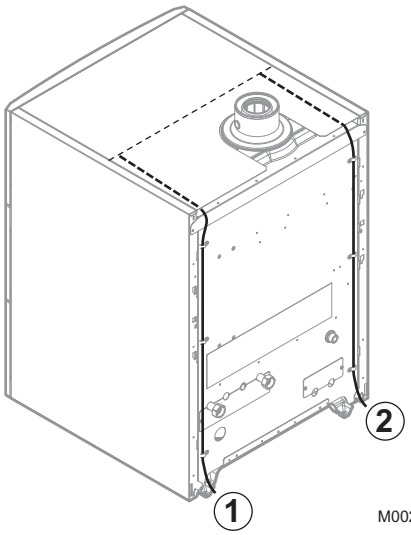
4.8.1. Control unit

The boiler is fully pre-wired. The electricity supply is made via connection cable to the mains (hard mounted). All other external connections can be made to the connection connectors (low voltage). The main characteristics of the control unit are described in the table below.

Power supply voltage	230 V AC / 50 Hz
Rating of the main fuse F1 (230 VAC)	6.3 AT
Fan-DC	27 VDC

CAUTION

Keep to the polarity shown on the terminals: phase (L), neutral (N) and earth ⏚.



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① Routing of the 230 V cables

② Routing of the sensor cables

CAUTION

The following components of the appliance are at a voltage of 230 V:

- Boiler pump
- Combined venturi and gas valve unit
- 3-way valve
- The majority of components in the control panel and the terminal box
- Power supply cable.

4.8.2. Recommendations

WARNING

- Only qualified professionals may carry out electrical connections, always with the power off.
- Disconnect the appliance from the mains before any work on it.
- The boiler is entirely pre-wired. Do not modify the connections inside the control panel.
- Earth the appliance before making any electrical connections.

WARNING

If the power cable is damaged, it must be replaced by the manufacturer, its after sales service or persons with similar qualifications in order to obviate any danger.

Make the electrical connections of the appliance according to:

- The instructions of the prevailing standards.
- The instructions on the circuit diagrams provided with the appliance.
- The recommendations in the instructions.

CAUTION

Separate the sensor cables from the 230 V cables.

- Outside the boiler: Use 2 pipes or cable guides at least 20 cm apart.

All connections are made with the terminal boxes designed for that purpose on the back of the boiler's command board. The connection cables are threaded into the boiler through the space provided between the top panel and the upper rear panel. These cables will be fixed on to the control panel with cable clips (supplied in a separate bag).

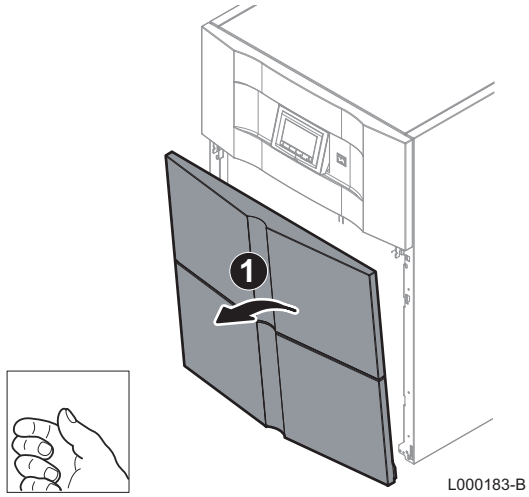
Power the appliance via a circuit which includes a remote omnipolar switch with a gap of more than 3 mm.

The available output per outlet is 450 W (2 A, with cos φ = 0.7) and the inrush current must be lower than 16 A. If the load exceeds either of these values, the control must be relayed using a contactor that must not be installed in the control panel under any circumstances.

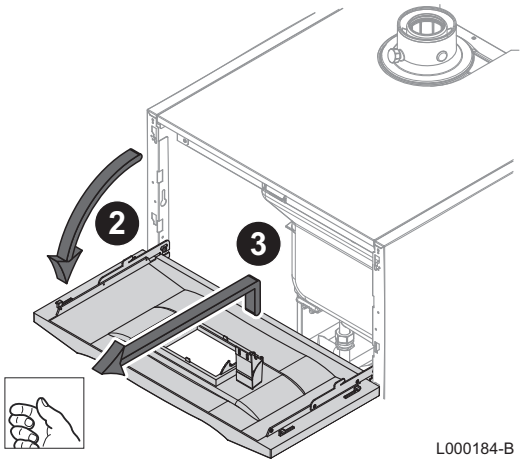
CAUTION

Failure to comply with these instructions could lead to interference and control unit malfunctioning or even damage to the electronic circuitry.

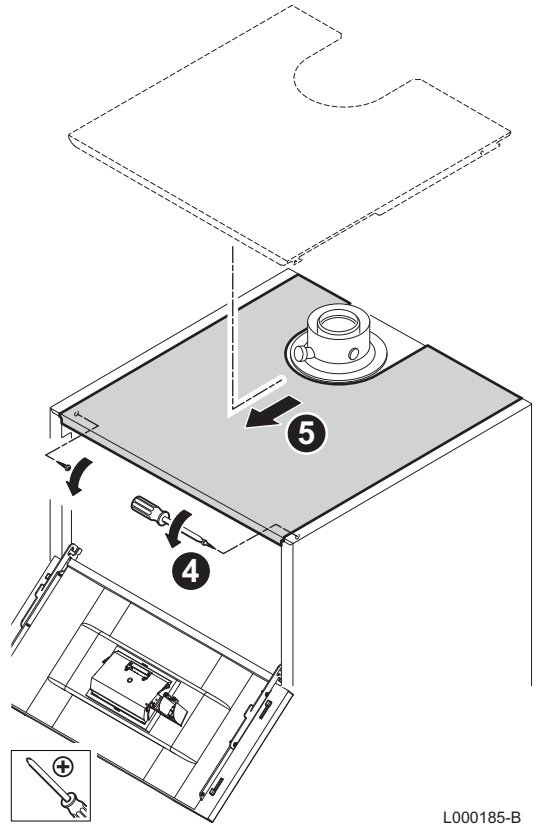
4.8.3. Access to the connection terminal



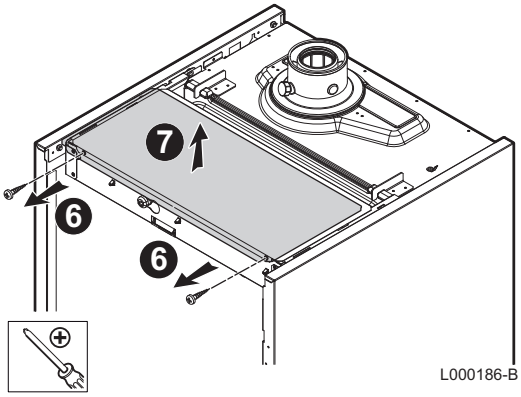
1. Remove the front panel by pulling firmly from both sides.



2. Lift the control system module support.
3. Pivot the control system module support.

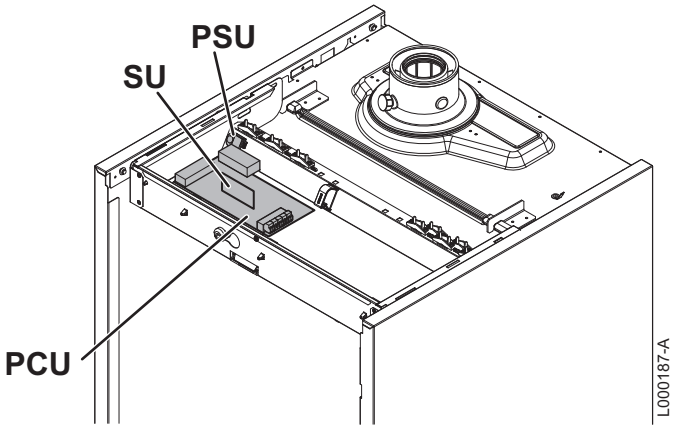


4. Remove the 2 retaining screws.
5. Remove the top panel.

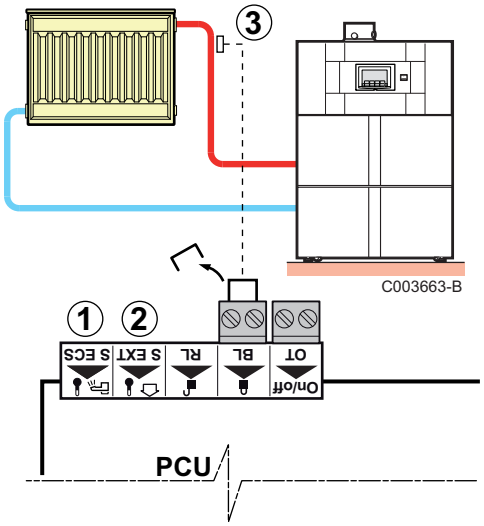


6. Remove the 2 retaining screws.
7. Disassemble the protective cover from the flat bars.

4.8.4. Position of the PCBs



4.8.5. Connecting a direct heating circuit



① Do not connect anything to the terminal block.

② Connect the outside temperature sensor (Option)

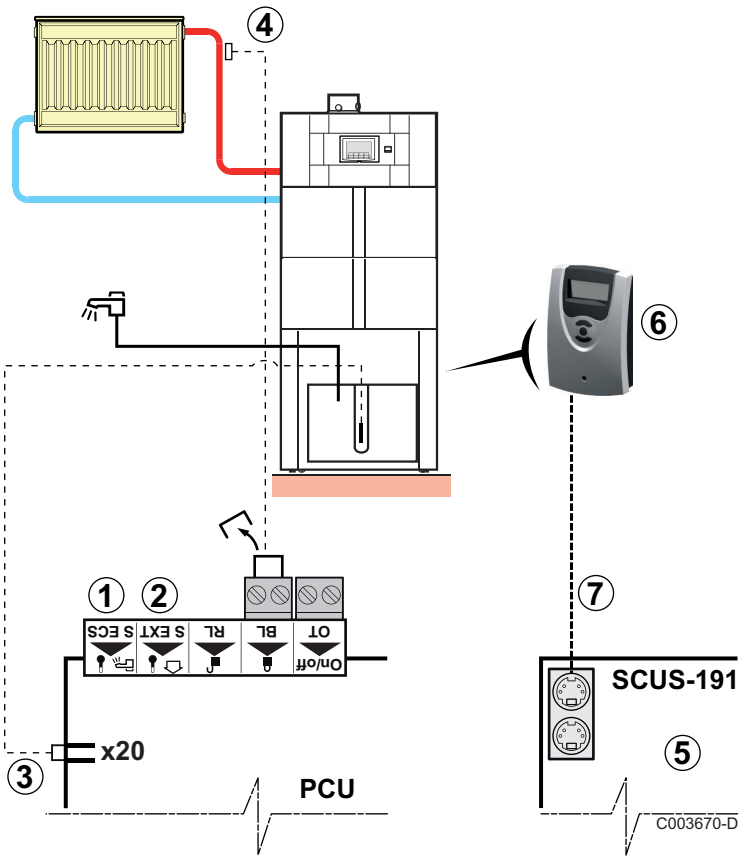
③ Connect a safety thermostat if the heating circuit is for underfloor heating.

- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

Settings to be made for this type of installation			
Parameters	**Description**	**Settings to be made**	**See chapter**
P36	Shutdown input function	**1**	"Parameter descriptions", page 58

4.8.6. Connecting a direct heating circuit and a domestic hot water tank

■ Connecting a direct heating circuit and a type SL / SSL DHW tank



① Do not connect anything to the terminal block.

② Connect the outside temperature sensor (Option).

③ Connect the DHW sensor to the X20 connector

④ Connect a safety thermostat if the heating circuit is for underfloor heating.

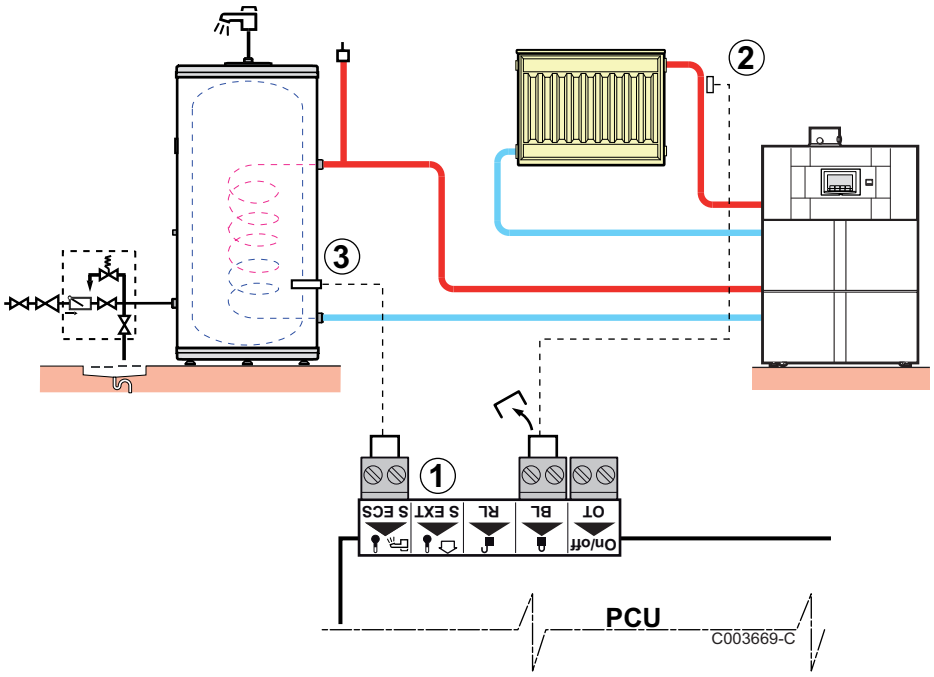
- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

⑤ Board SCUS-191 - Supplied with DHW tank 200 SSL (Type SSL) califoriers only

⑥ Solar regulator (Type SSL) califoriers only

⑦ MODBUS cable connecting the SCUS-191 to the solar control system (Type SSL) califoriers only

■ Connecting a direct heating circuit and an independent domestic hot water tank



① Connect the outside temperature sensor (Option).

② Connect a safety thermostat if the heating circuit is for underfloor heating.

- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

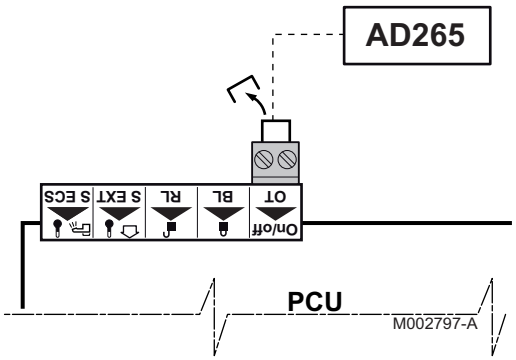
③ Connect the DHW sensor (Package AD212).

4.8.7. Connecting the options

It is possible to connect a modulating thermostat or a dry contact thermostat to the boiler control panel.

Connecting a modulating thermostat:

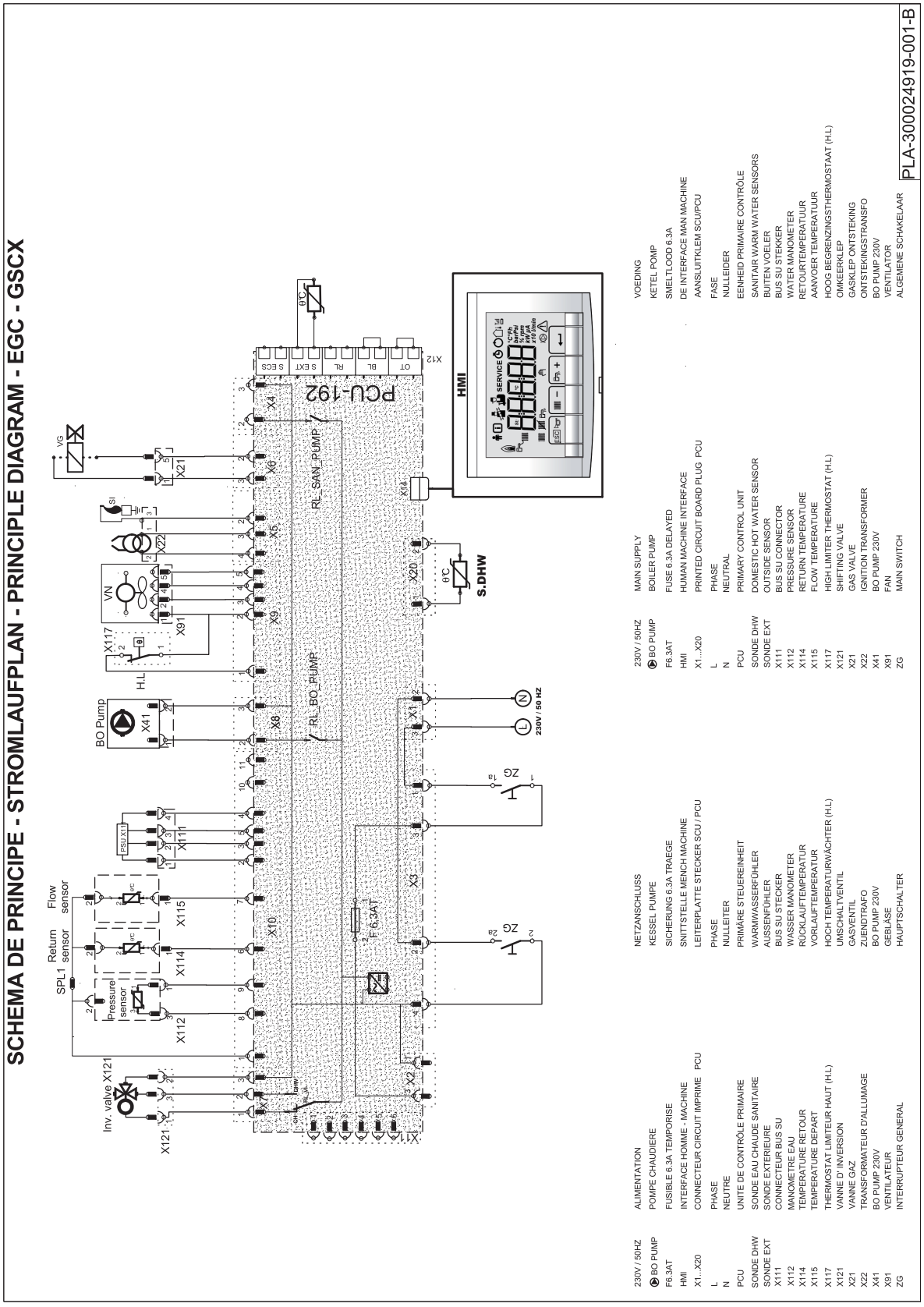
1. Remove the bridge from the OT terminal block.
2. Connect the AD265 or AD266 modulating thermostat to the OT or PCU inlet.



Connecting a dry contact thermostat:

1. Remove the bridge from the OT terminal block.
2. Connect the AD200 dry contact thermostat to the OT or PCU inlet.

4.9 Electrical diagram



230V / 50HZ	ALIMENTATION	NETZANSCHLUSS	230V / 50HZ	MAIN SUPPLY	VOEDING
BO PUMP	POMPE CHAUDIERE	KESSEL PUMPE	BO PUMP	BOILER PUMP	KETEL POMP
F6.3AT	FUSIBLE 6.3A TEMPORISE	SICHERUNG 6.3A TRAEGE	F6.3AT	FUSE 6.3A DELAYED	SMELTLOOD 6.3A
HMI	INTERFACE HOMME - MACHINE	SNITTSTELLE MENCH MACHINE	HMI	HUMAN MACHINE INTERFACE	DE INTERFACE MAN MACHINE
X1...X20	CONNECTEUR CIRCUIT IMPRIME PCU	LEITERPLATTE STECKER SCU / PCU	X1...X20	PRINTED CIRCUIT BOARD PLUG PCU	AANSLUITKLEM SCU/PCU
L	PHASE	PHASE	L	PHASE	FASE
N	NEUTRE	NULLEITER	N	NEUTRAL	NULLEIDER
PCU	UNITE DE CONTRÔLE PRIMAIRE	PRIMÄRE STEUEREINHEIT	PCU	PRIMARY CONTROL UNIT	EENHEID PRIMAIRE CONTRÔLE
SONDE DHW	SONDE EAU CHAUDE SANITAIRE	WARMWASSERFÜHLER	SONDE DHW	DOMESTIC HOT WATER SENSOR	SANITAIR WARM WATER SENSORS
SONDE EXT	SONDE EXTERIEURE	AUSSENFÜHLER	SONDE EXT	OUTSIDE SENSOR	BUITEN VOELER
X111	CONNECTEUR BUS SU	BUS SU STECKER	X111	BUS SU CONNECTOR	BUS SU STEKKER
X112	MANOMETRE EAU	WASSER MANOMETER	X112	PRESSURE SENSOR	WATER MANOMETER
X114	TEMPERATURE RETOUR	RÜCKLAUFTEMPERATUR	X114	RETURN TEMPERATURE	RETOURTEMPERATUUR
X115	TEMPERATURE DEPART	VORLAUFTEMPERATUR	X115	FLOW TEMPERATURE	AANVOER TEMPERATUUR
X117	THERMOSTAT LIMITEUR HAUT (H.L)	HOCH TEMPERATURWÄCHTER (H.L)	X117	HIGH LIMITER THERMOSTAT (H.L)	HOOG BEGRENZINGSTHERMOSTAAT (H.L)
X121	VANNE D' INVERSION	UMSCHALTVENTIL	X121	SHIFTING VALVE	OMKEERKLEP
X21	VANNE GAZ	GASVENTIL	X21	GAS VALVE	GASKLEP ONTSTEKING
X22	TRANSFORMATEUR D'ALLUMAGE	ZUENDTRAFO	X22	IGNITION TRANSFORMER	ONTSTEKINGSTRANSFO
X41	BO PUMP 230V	BO PUMP 230V	X41	BO PUMP 230V	BO PUMP 230V
X91	VENTILATEUR	GEBLÄSE	X91	FAN	VENTILATOR
ZG	INTERRUPTEUR GENERAL	HAUPTSCHALTER	ZG	MAIN SWITCH	ALGEMENE SCHAKELAAR

230V / 50Hz	Power supply	PCU	Primary control unit	X117	Limiter thermostat, top
⏵BO PUMP	Boiler pump	SONDE DHW	Domestic hot water sensor	X121	Reversal valve
F6.3AT	6.3A fuse	SONDE EXT	Outside sensor	X21	Gas valve
HMI	Control interface	X111	Connector PSU	X22	Ignition transformer
X1...X20	PCB connector PCU	X112	Water pressure gauge	X41	BO PUMP 230V
L	Live	X114	Return sensor	X91	Fan
N	Neutral	X115	Outlet sensor	ZG	General switch

4.10 Filling the system

4.10.1. Water treatment

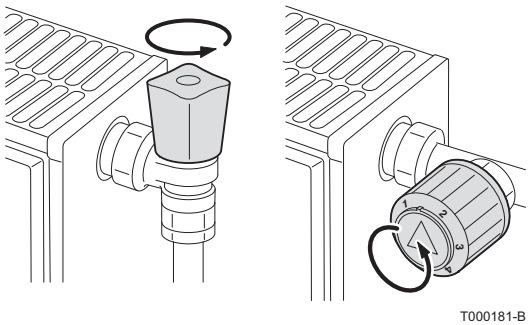
In most cases, the boiler and the central heating installation can be filled with normal tap water and no water treatment will be necessary.

WARNING

Do not add chemical products to the central heating water without first consulting a water treatment professional. 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.

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

4.10.2. Filling the system



CAUTION

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

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

1. Open the cold water inlet and heating outlet valves.
2. Open the filling/draw-off valve on the heating system.

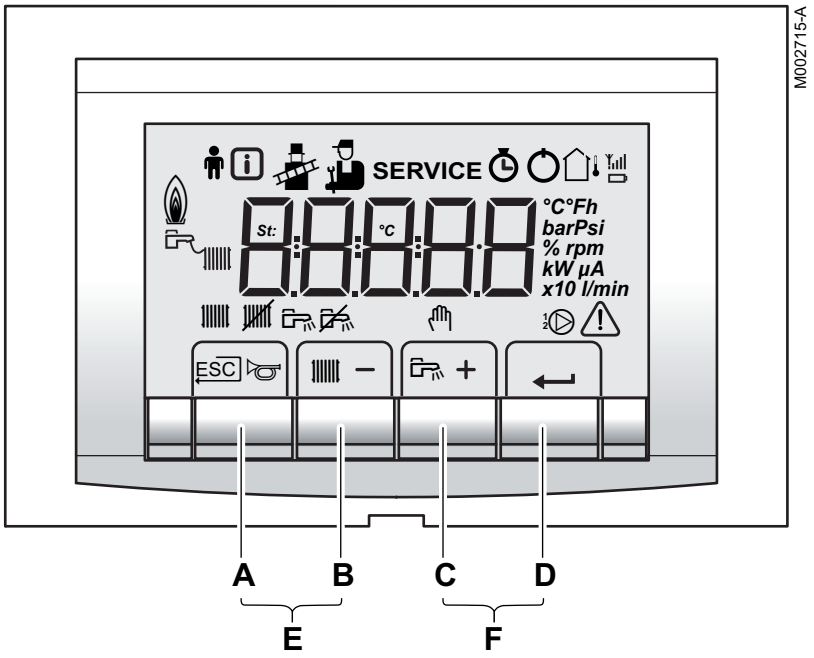

T001507-B

3. Close the filling valve when the pressure gauge shows a pressure of 2 bar.
4. Check the tightness of the water connections.

5 Commissioning

5.1 Control panel

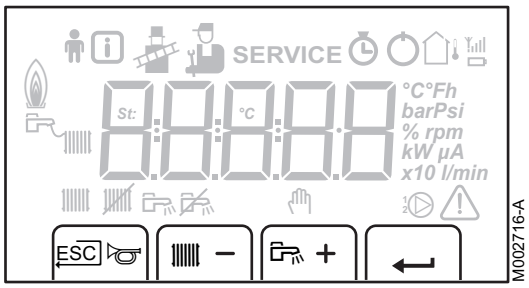
5.1.1. Description of the keys



A	Return button ⏎, Escape ESC or Manual reset
B	Heating temperature button ▮▮▮ or **[-]**
C	DHW temperature button or **[+]**
D	⏎ [Enter] Key
E	[Chimney-sweeping] keys Press keys **A** and **B** simultaneously
F	[Menu] keys Press keys **C** and **D** simultaneously

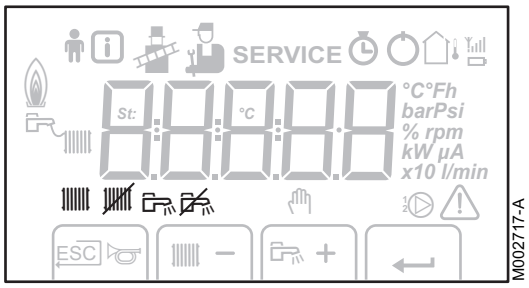
5.1.2. Description of the display

■ Key functions

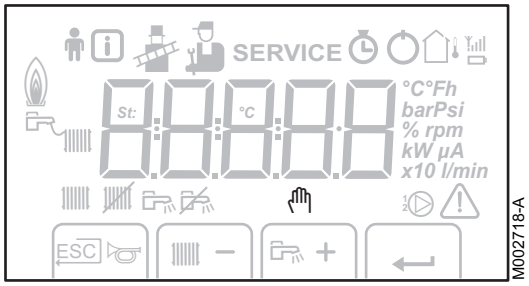


ESC	Back to the previous level without saving the modifications made
	Manual reset
	Central heating function: Access to the max. heating temperature parameter.
[-]	To reduce a value
	DHW function: Access to sanitary hot water temperature parameter.
[+]	To increase a value
↵	Access the selected menu or confirm a value modification

■ Operating modes

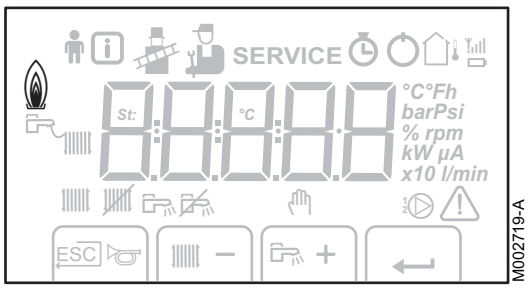


	State heating pump
	Heating programme deactivated: The heating function is deactivated
	State DHW pump
	DHW off



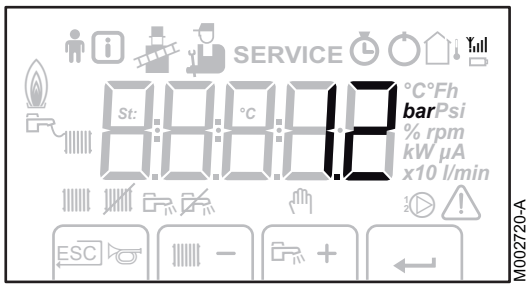
	Manual mode

■ Flame output level



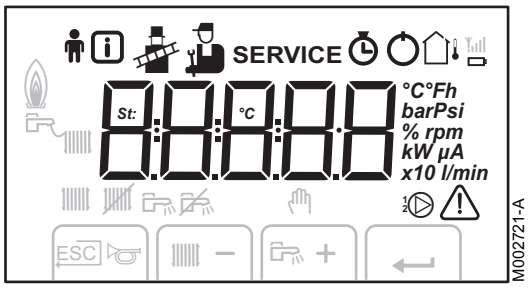
	Low output level 0 - 25 %
	Average output level 25 - 50 %
	High output level 50 - 75 %
	Output level 75 - 100 %

System pressure



bar Pressure indicator:
The symbol is displayed next to the installation's pressure value. If no water pressure sensor is connected, -.- appears on the display

Other information



User menu:
Parameters at user level can be changed

Information menu:
Reading the various current values

Chimney-sweeping position:
Forced full or part load for CO_2 measurement

Service menu:
Parameters at installer level can be changed

SERVICE Display with the symbols:
+ SERVICE + A (Maintenance message)

Hour counter menu:
Readout of the operating hours, number of successful starts and hours on mains supply

Blocking:
After 5 resets in under 1 hour, the appliance should be switched off and switched on again before resetting

Outside temperature sensor present

The symbol is displayed when the boiler pump is operating

Defect:
Boiler indicates a fault. This is indicated by an E. code and a flashing display

5.2 Check points before commissioning

5.2.1. Preparing the boiler for commissioning

WARNING

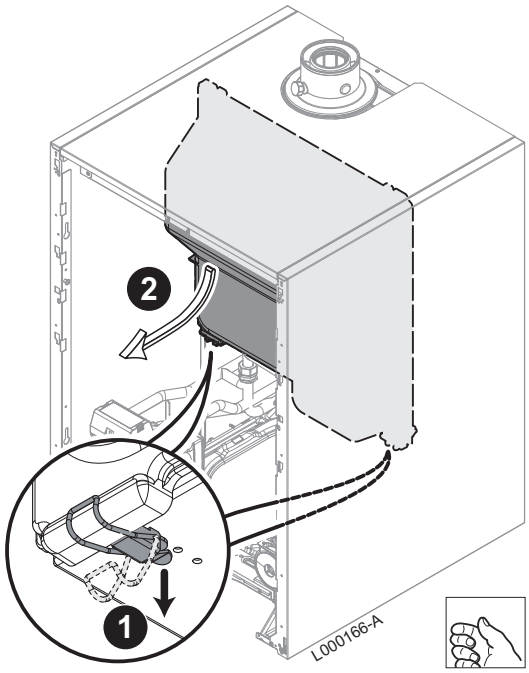
Do not put the boiler into operation if the supplied gas is not in accordance with the approved gas types.

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.

5.2.2. Gas circuit

Removing the cover from the sealed chamber



WARNING

Ensure that the boiler is switched off.

1. Open the 2 retaining clips located on the front.
2. Remove the cover from the sealed chamber.

WARNING

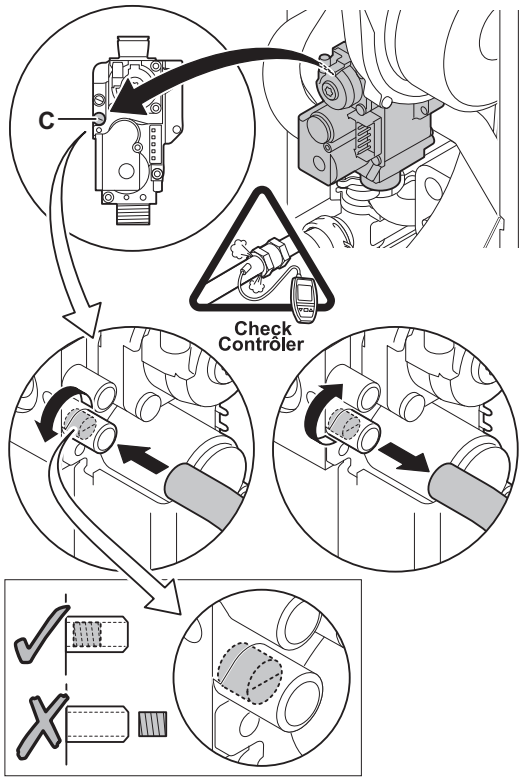
Check the condition of the tightness gasket when refitting the cover to the sealed chamber.

Checking the gas circuit

WARNING

Ensure that the boiler is switched off.

1. Remove the front panel.
2. Remove the cover from the sealed chamber. See chapter: "Removing the cover from the sealed chamber", page 47



T001518-B

3. Open the main gas supply.
4. Check the gas supply pressure at the pressure outlet **C** on the gas valve unit.

WARNING

To ascertain the gas types permitted, see chapter: "Gas 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 condensate discharge siphon; it must be filled with clean water up to the mark.
- Check that there are no leaks on the hydraulic connections.

5.2.4. Electrical connections

- Check the electrical connections.

5.3 Putting the appliance into operation

1. Open the main gas supply.
2. Turn on the boiler using the on/off switch.
3. Set the controls (thermostats, control system) so that they request heat.
4. 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 alternately.
5. A vent cycle of a duration of around 3 minutes is carried out automatically.

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
3: Heating System	6: Post-circulation of the pump
4: DHW System	0: Standby

In standby mode, the screen usually displays 0, plus 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 fuse on the control panel: (F1 = 6,3 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.

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

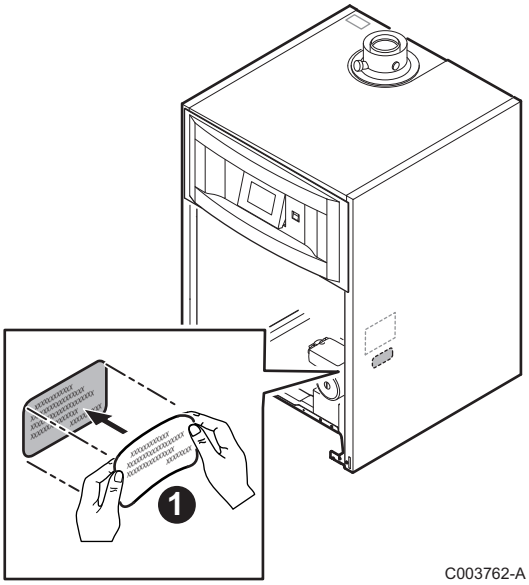
WARNING

Only a qualified engineer may carry out the following operations.

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

For operation on another group of gases, carry out the following operations:

- Set the air/gas ratio.
  "Setting the air/gas ratio (Full load)", page 50
  "Setting the air/gas ratio (Part load)", page 51
- Set the fan speed using the parameters P17, P18 and P19.
  See chapter: "Parameter descriptions", page 58
- Affix the label which indicates for which type of gas the boiler is fitted and set.



C003762-A

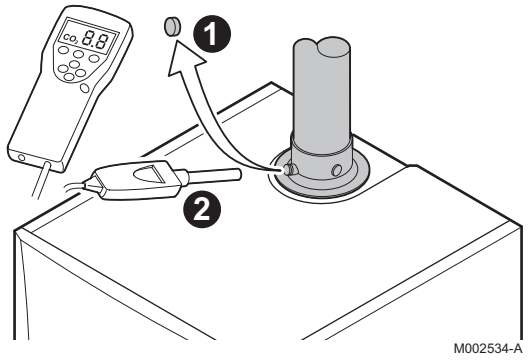
5.4.2. Setting the air/gas ratio (Full load)

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.

3. Remove the cover from the sealed chamber.
   see chapter: "Removing the cover from the sealed chamber", page 47

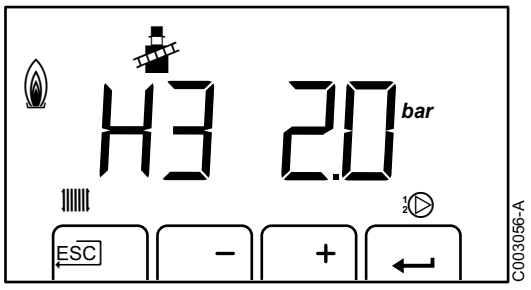


M002534-A

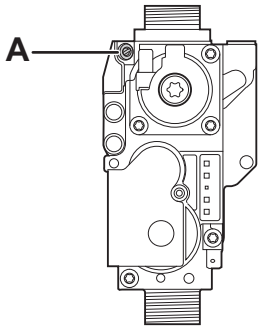
4. Set the boiler to full load. Press keys **A** and **B** simultaneously.

C003911-A

5. The display shows H3. The symbol appears.
6. Measure the percentage of O_2 or CO_2 in the flue gases.



C003056-A



7. If this rate does not match the required value, correct the gas/air ratio using the adjustment screw **A** on the gas valve unit.

- Turn the screw A anticlockwise to obtain a lower CO_2 value.
- Turn the screw A clockwise to obtain a higher CO_2 value.

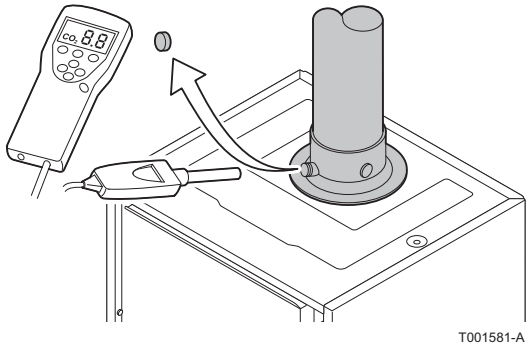
8. Check the flame through the flame inspection window.

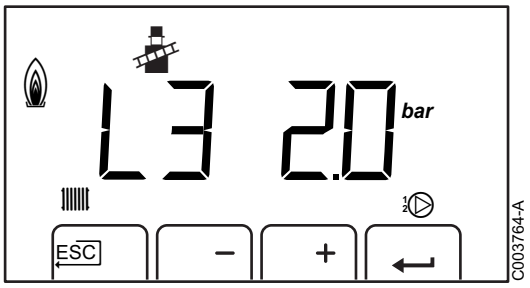
The flame must be stable and blue in colour with orange particles around the edge of the burner.

O_2/CO_2 control and setting values for gas H (G20) at full load				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
EGC 25	5,2 ± 0,4	8,8 ± 0,2	5,2 ± 0,5	8,8 ± 0,3

O_2/CO_2 control and setting values for propane (G31) at full load					Diameter of the gas diaphragm (x.xx)
Boiler type	**Setting value**		**Checking value**		**Fit the gas restrictor in the gas block**
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**	**Ø mm**
EGC 25	5,2 ± 0,3	10,3 ± 0,2	5,2 ± 0,5	10,3 ± 0,3	4,00

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



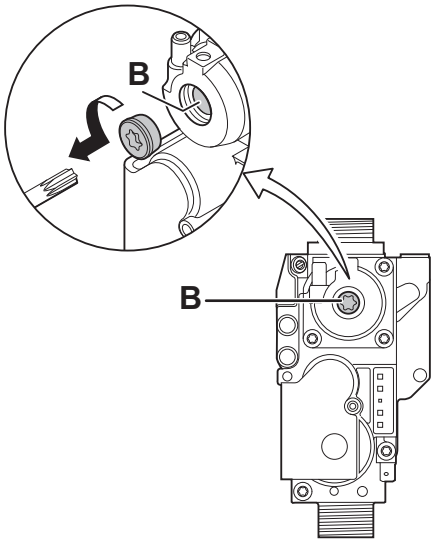


1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

WARNING

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

3. Remove the cover from the sealed chamber.
see chapter: "Removing the cover from the sealed chamber", page 47
4. Set the boiler to part load. Press the **[-]** key several times until L3 is displayed on the screen.
5. Measure the percentage of O_2 or CO_2 in the flue gases.



6. If this rate does not match the required value, correct the gas/air ratio using the adjustment screw B on the gas valve unit.

- Turn the screw B anticlockwise to obtain a lower CO_2 value.
- Turn the screw B clockwise to obtain a higher CO_2 value.

7. Check the flame through the flame inspection window.

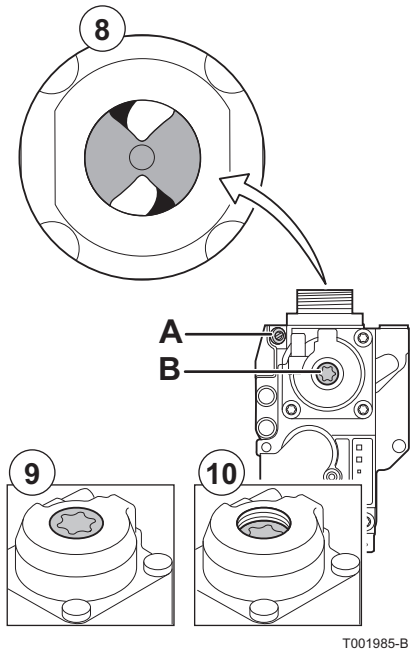
The flame must be stable and blue in colour with orange particles around the edge of the burner.

O_2/CO_2 control and setting values for gas H (G20) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
EGC 25	5,9 ± 0,4	8,4 ± 0,2	5,9 ± 0,4	8,4 ± 0,2

O_2/CO_2 control and setting values for propane (G31) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
EGC 25	5,8 ± 0,3	9,9 ± 0,2	5,8 ± 0,3	9,9 ± 0,2

Repeat the high speed test and the low speed test as often as necessary until the correct values are obtained without having to make additional adjustments.

5.4.4. Basic setting for the gas/air ratio



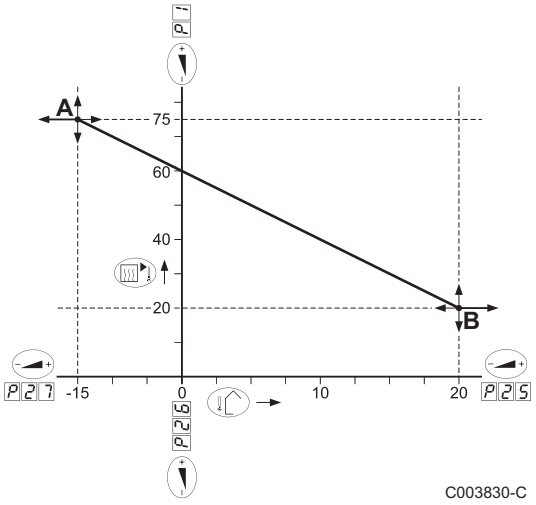
T001985-B

If the gas/air ratio is out of adjustment, the gas valve unit has a basic setting. To do this, proceed as follows:

1. Switch off the boiler electrical power supply.
2. Close the gas valve on the boiler.
3. Remove the air inlet flue on the venturi.
4. Unscrew the top connection on the gas valve unit.
5. Disconnect the connector located under the fan.
6. Release the 2 clips holding the fan/mixing elbow unit in place on the heat exchanger.
7. Completely remove the fan/mixing elbow unit.
   For steps 3 to 7 inclusive, see chapter: "Checking the burner and cleaning the heat exchanger", page 68
8. Turn the setting screw **A** on the gas valve unit to modify the position of the restrictor.
9. Turn the setting screw **B** on the gas valve unit anticlockwise until it matches the front panel.
10. Turn the setting screw **B** on the gas valve unit by 6 turns clockwise.
11. Follow the procedure in reverse to re-assemble all of the components.

5.5 Checks and adjustments after commissioning

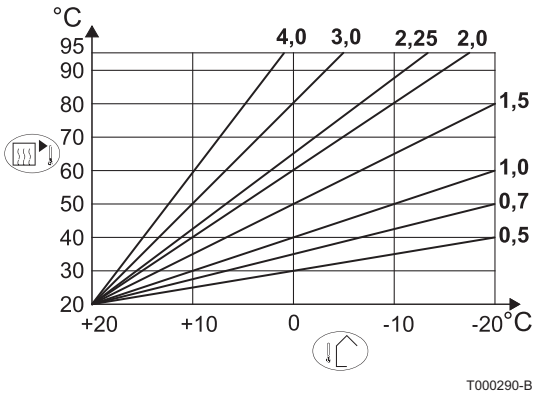
5.5.1. Heating curve setting



C003830-C

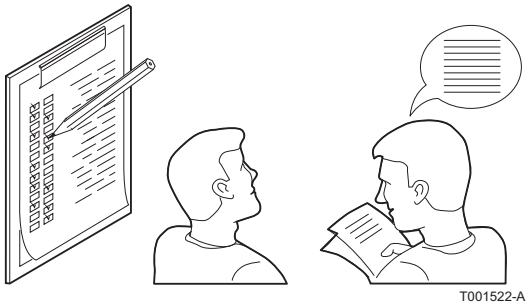
If an outside temperature sensor is connected, the heating curve must be adjusted.

Set point	Parameter	Description of the set points	Adjustment range	Factory setting
A	P1	Maximum outlet temperature	20 to 90 °C	80 °C
	P27	Minimum outside temperature	-30 to 0 °C	-15 °C
B	P25	Maximum outside temperature	0 to 30 °C	20 °C
	P26	Minimum flow temperature	0 to 90 °C	20 °C



Examples of correspondence of the setting heating curve/ temperatures				
Slope	P1	P25	P26	P27
0.5	40	20	20	-20
0.7	50	20	20	-20
1	60	20	20	-20
1.5	75	20	20	-17
2	75	20	20	-8
2.25	75	20	20	-4
3	75	20	20	2
4	75	20	20	6

5.5.2. Finalizing work



1. Remove the measuring equipment.
2. Put the flue gas sampling plug back in place.
3. Refit the front panel.
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. Checking the hydraulic pressure. If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1,5 and 2 bar).
9. Tick the gas category used on the data plate.
10. When installation has been completed, affix the data plate provided in the instructions bag to the casing of the appliance in a position where it can be seen
11. Explain the operation of the installation, the boiler and the regulator to the users.
12. Inform the user of the periodicity of maintenance work to be carried out. Input the service date and the contact details of the installer.
13. Give all the instruction manuals to the user.

Commissioning of the boiler is now complete.

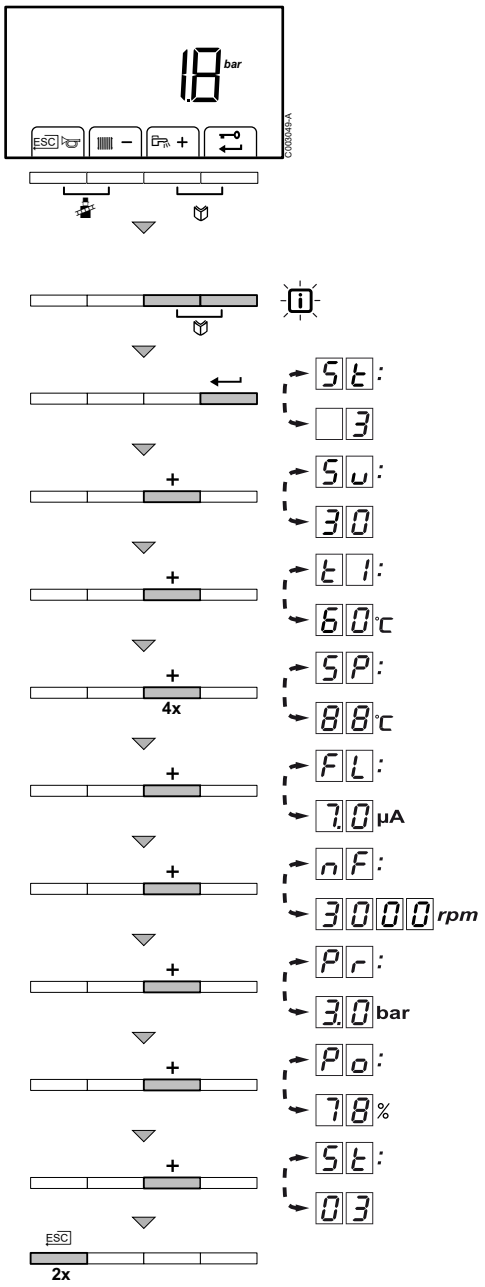
The various boiler parameters are preset in the factory. These factory settings are suitable for the most common heating systems. For other systems and situations, the parameters can be modified.

5.6 Reading out measured values

5.6.1. Reading out measured values

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

- St = State.
- Su = Sub-status.
- t1 = Flow temperature (°C).
- t2 = Return temperature (°C).
- t3 = DHW tank temperature (°C).
- t4 = Outside temperature (°C).
- t5 = Solar boiler temperature (°C).
- t6 = Solar panel temperature (°C).
- SP = Internal set point (°C).
- FL = Ionization current (µA).
- nF = Fan speed in rpm.
- Pr = Water pressure (bar (MPa)).
- Po = Supplied relative heat output (%).



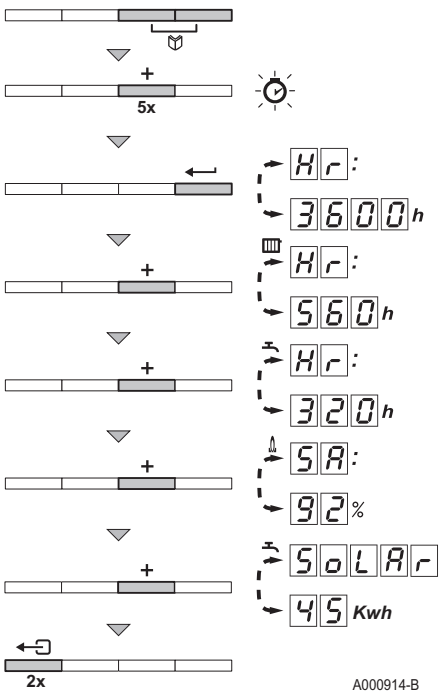
The current values can be read as follows:

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, t6.
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

The following values can be displayed:

- Hr = Number of hours' operation of the boiler.
- Hr / = Number of hours' operation of the boiler in heating mode.
- Hr / = Number of hours' operation of the boiler in DHW mode.
- SA = Percentage of successful start-ups.
- SoLAr / = Solar kWh.



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. The display shows . SoLAr and the solar Kwh 45 Kwh (for example) are displayed alternately.
7. 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	Reversal valve control in heating position
		3	Start pump
		4	Check on the burner start-up conditions
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	Burner for central heating operation	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Temperature protection gradient level 1 (Modulate down)
		34	Temperature protection gradient level 2 (Part load)
		35	Temperature protection gradient level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start

State St		Sub-status Su	
4	DHW mode running	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Temperature protection gradient level 1 (Modulate down)
		34	Temperature protection gradient level 2 (Part load)
		35	Temperature protection gradient level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner stop
		41	Post ventilation
		42	Close flue gas damper/external gas valve
		43	Post-sweeping
		44	Stop fan
6	Boiler stop (End of heat demand)	60	Post-circulation of the heating pump
		61	Pump off
		62	Reversal valve control in DHW position
		63	Start anti-hunting
8	Control stop	0	Wait for burner start
		1	Anti-hunting
9	Blocking	XX	Shutdown code XX see chapter "Error messages (Sub-status 9)", page 69
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.

5.7.1. Parameter descriptions

Parameter	Description	Adjustment range	Factory setting EGC 25
P1	Flow temperature: T_{SET}	20 to 90 °C	80
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	2
P8	Brightness of display lighting	0 = Low 1 = High	1
P17	Maximum fan speed (Heating)	G25 (Gas L)(1) (x100 rpm)	53
		G20 (Gas H) (x100 rpm)	56
		G31 (Propane) (x100 rpm)	53
P18	Maximum fan speed (DHW)	G25 (Gas L)(1) (x100 rpm)	59
		G20 (Gas H) (x100 rpm)	63
		G31 (Propane) (x100 rpm)	59
P19	Minimum fan speed (Heating+DHW)	G25 (Gas L)(1) (x100 rpm)	18
		G20 (Gas H) (x100 rpm)	18
		G31 (Propane) (x100 rpm)	18
P20	Minimum fan speed (offset)	Do not modify	50
P21	Start speed	Do not modify (x100 rpm)	25
P22	Minimum water pressure	0 - 3 bar (MPa)(x 0,1bar (MPa))	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	Maximum outside temperature	0 to 30 °C (Only with an outside temperature sensor)	20

(1) Do not modify these factory settings unless absolutely necessary. For example, for modification of the boiler for: G20 (H gas) or G31 (propane), high pressure systems, WTW coupling or CLV overpressure
(2) Factory setting depends on installation type
(3) The parameter is only displayed if the SCU-S191 and the solar control system are present
(4) The parameter is only displayed if the SCU-S191 is present
(5) The parameter is only displayed if the solar control system is connected

Parameter	Description	Adjustment range	Factory setting EGC 25
P26	Minimum flow 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	Minimum pump speed for central heating operation Setting the pump speed	1 to 10	2
P29	Maximum pump speed for central heating operation Setting the pump speed	1 to 10	6
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	0
P32	Set point increase for calorifier	0 to 20 °C	20
P33	DHW cut-in temperature DHW sensor	from 2 to 15°C	6
P34	3-way valve rest position	0 = Heating 1 = DHW	0
P35	Boiler type	1 = Boiler self-standing or Boiler with SL / SSL type domestic hot water tank 2 = Boiler with HL / SHL type domestic hot water tank	1 or 2 (2)
P36	Shutdown input function (BL)	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 (RL)	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
P43	Live/neutral inversion	0 = Stop 1 = Start	0
P44	Maintenance message	Do not modify	0
P45	Service operating hours	Do not modify	175
P46	Service burning hours	Do not modify	30
P47 (3)	Maximum drop in the DHW set point when the solar pump is running at 100%	0 to 30 °C	5
P48 (4)	Activation of the Titan Active System® function	0 = No 1 = Yes	1
P49	Minimum loading time after burner start-up in DHW mode	10 to 255 seconds	80

(1) Do not modify these factory settings unless absolutely necessary. For example, for modification of the boiler for: G20 (H gas) or G31 (propane), high pressure systems, WTW coupling or CLV overpressure
(2) Factory setting depends on installation type
(3) The parameter is only displayed if the SCU-S191 and the solar control system are present
(4) The parameter is only displayed if the SCU-S191 is present
(5) The parameter is only displayed if the solar control system is connected

Parameter	Description	Adjustment range	Factory setting EGC 25
S.o.01 (5)	Desired domestic hot water temperature in the DHW circuit	20 to 80 °C	55
S.o.02 (5)	Temperature difference that the solar pump tries to maintain between the solar DHW sensor and the panel	100 (x 0.1) to 200 (x 0.1 For example: 215 = 21.5°C	100
S.o.03 (5)	Temperature of the panel above which the solar pump starts up. The pump does not operate if the temperature of the solar tank is higher than 80°C	100 to 125 °C	100
S.o.04 (5)	Minimum operating duration of the solar pump at 100% on start-up	1 to 5 min	1
S.o.05 (5)	Minimum speed of the solar pump	50 to 100 %	50
S.o.06 (5)	Set to 1 if tubular collectors are used	0 = No 1 = Yes	0
S.o.07 (5)	Maximum flow rate of the solar pump ☞ See chapter: Maximum flow rate of the solar pump	0 to 20 l/min	6.7
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0
dF and dU	Factory setting	To return to the factory settings or if replacing the PCU PCB, enter values dF and dU from the nameplate in parameters dF and dU	X Y

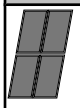
(1) Do not modify these factory settings unless absolutely necessary. For example, for modification of the boiler for: G20 (H gas) or G31 (propane), high pressure systems, WTW coupling or CLV overpressure
(2) Factory setting depends on installation type
(3) The parameter is only displayed if the SCU-S191 and the solar control system are present
(4) The parameter is only displayed if the SCU-S191 is present
(5) The parameter is only displayed if the solar control system is connected

■ Maximum flow rate of the solar pump (if connected)

In order for the regulator to calculate the quantity of heat produced by the installation (parameter kWh), input parameter S.o.07. The parameter S.o.07 is equal to the flow in litres per minute in the solar circuit.
Establish the S.o.07 value with the help of the table below, according to the configuration of the installation and the number or surface area of collectors.
When the flow is input incorrectly, the display kWh will also be incorrect.

The quantity of heat (kWh value) can only be used for checks carried out for personal reasons.

Flat solar collectors				
Solar panel installation	Area (m^2)	Number of panels	Flow rate (l/h)	Flow rate (l/min)
	3...5	1 or 2	400	6,7
	6...8	3 or 4	300	5,0
	8...10	4 or 5	250	4,1

Flat solar collectors				
Solar panel installation	**Area (m^2)**	**Number of panels**	**Flow rate (l/h)**	**Flow rate (l/min)**
	8...10	2x2	750	12,5
	12...15	2x3	670	11,2
	16...20	2x4	450	7,5
	12...15	3x2	850	14,2
	18...23	3x3	800	13,4
	24...30	3x4	650	10,9
	16...20	4x2	1200	20,0
	24...30	4x3	850	14,2

5.7.2. Modification of the user-level parameters

Parameters P8 to *2 can be changed by the user.

For the user settings, refer to the user instructions.

CAUTION

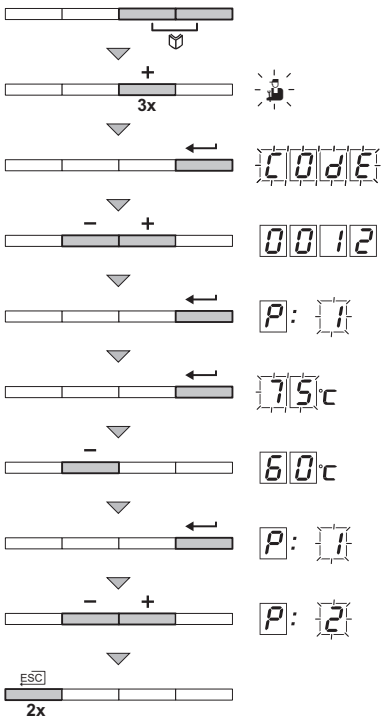
Modification of the factory settings may be detrimental to the functioning of the appliance.

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.



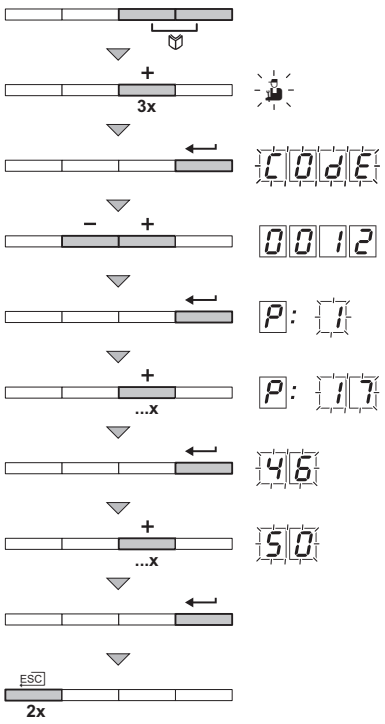
C003059-A

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 75°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.

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

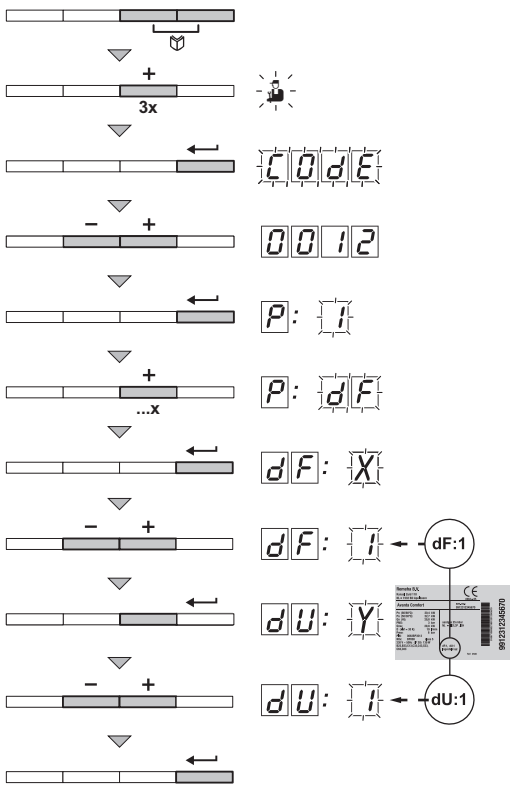
The speed can be changed using parameter P17. To do this, proceed as follows:



C003060-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. Use the **[+]** key to increase the speed of rotation from 46 to 50, for example.
8. Confirm the value with the ⏎ key.
9. Press the ⮌ key 2 times to return to the current operating mode.

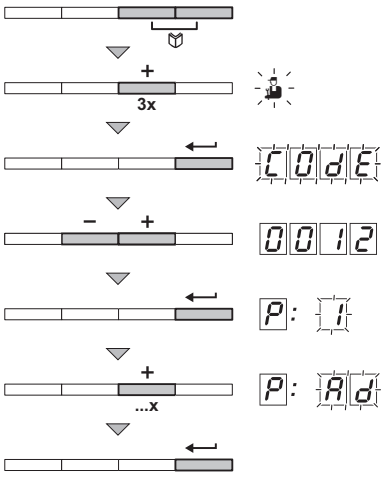
5.7.5. Return to the factory settings Reset Param



C003061-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 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



C003062-A

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.

6 Switching off the appliance

6.1 Installation shutdown

CAUTION

Do not switch off the boiler.

If the central heating system is not used for a long period, we recommend proceeeding as follows:

- Press key until **OFF** is displayed.
- Press key until **OFF** is displayed.

6.2 Antifreeze protection

When the heating water temperature in the boiler is too low, the integrated boiler protection system 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 circulation pump continues to run for a short time.
- If the water temperature in the storage tank is less than 4°C, it is reheated to its set point.

7 Checking and maintenance

7.1 Standard inspection and maintenance operations

CAUTION

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

7.1.1. Checking the hydraulic pressure

The hydraulic pressure must reach a minimum of 0,8 bar. 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).

7.1.2. Checking the expansion vessel

1. Remove the cover from the sealed chamber.
see chapter: "Removing the cover from the sealed chamber", page 47
2. Check the expansion vessel and replace it if necessary.

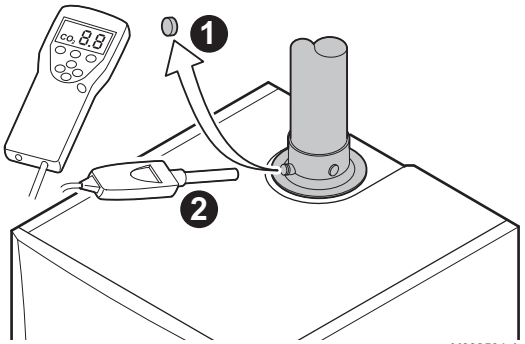
7.1.3. Checking the ionization current

See chapter: "Reading out measured values", page 55

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

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

7.1.5. 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. See chapter: "Setting the air/gas ratio (Full load)", page 50. The boiler is now operating at full load. Measure the percentage of CO_2 and compare this value with the checking values given.
4. Set the boiler to part load. See chapter: "Setting the air/gas ratio (Part load)", page 51. The boiler is now operating on part load. Measure the percentage of CO_2 and compare this value with the checking values given.

7.1.6. Checking and closing the automatic air vent

1. Switch off the boiler electrical power supply.
2. Close the main gas inlet valve.
3. Remove the front panel.
4. Tilt the control panel into the high position.
5. Remove the cover from the sealed chamber.
   see chapter: "Removing the cover from the sealed chamber", page 47
6. If any leaks are detected, replace the air vent.
7. Close the plug on the automatic air vent.

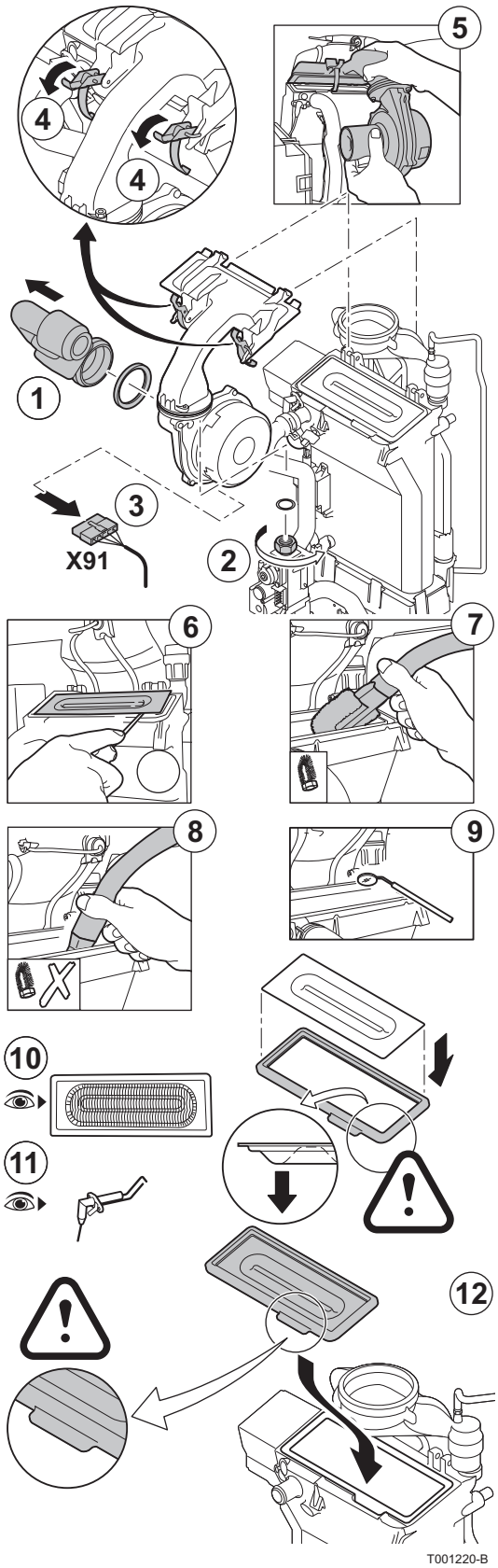
7.1.7. Checking the safety valve

1. Check whether there is any water in the safety valve flow pipe.
2. If any leaks are detected, replace the safety valve.

7.1.8. Checking the siphon

1. Remove the cover from the sealed chamber.
   see chapter: "Removing the cover from the sealed chamber", page 47
2. Remove the siphon and clean it.
3. Fill the siphon with water.
4. Put the siphon back in place.

7.1.9. 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. Unscrew the top connection on the gas valve unit.
3. Disconnect the connector located under the fan.
4. Release the 2 clips holding the fan/mixing elbow unit in place on the heat exchanger.
5. Completely remove the fan/mixing elbow unit.
6. Tilt the burner and remove it, along with the heat exchanger gasket.
7. Use a vacuum cleaner fitted with a special endpiece (accessory) to clean the top part of the heat exchanger (combustion chamber).
8. Thoroughly clean with the vacuum cleaner again without the top cleaning brush on the endpiece.
9. Check (using a mirror, for example) whether any dust can still be seen. If so, hoover it up.
10. The burner does not require any maintenance, it is self-cleaning. 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.
11. Checking the ignition electrode / ionization sensor. The gap must be between 3,5 and 4 mm.
12. To re-assemble, perform the above actions in reverse order.

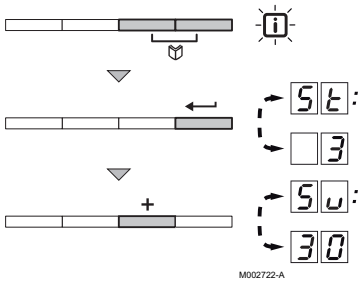
CAUTION

- 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).

13. Open the gas inlet valve and restore the mains supply to the boiler.

8 Troubleshooting

8.1 Error messages (Sub-status 9)



To display the current error code, proceed 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. The display shows Su and the current error value (30, for example) alternately.

Code	Description	Checking / solution
Su:00	The PSU PCB is incorrectly configured	Parameter error on the PSU PCB ▸ Revert to the factory settings: See chapter "Return to the factory settings Reset Param", page 64
Su:01	Maximum flow temperature exceeded	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves)
Su:02	The increase in flow temperature has exceeded its maximum limit	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
		Sensor error ▸ Check that the sensors are operating correctly ▸ Check whether the boiler sensor has been correctly fitted
Su:07	Maximum difference between the flow and return temperature exceeded	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
		Sensor error ▸ Check that the sensors are operating correctly ▸ Check whether the boiler sensor has been correctly fitted
Su:08	The **RL** inlet on the PCU PCB terminal block is open	Parameter error ▸ Revert to the factory settings: See chapter "Return to the factory settings Reset Param", page 64
		Bad connection ▸ Check the wiring
Su:09	Live/neutral inversion	Parameter error ▸ Check the parameter P.43 ▸ Revert to the factory settings: See chapter "Return to the factory settings Reset Param", page 64

Code	Description	Checking / solution
SU:10 SU:11	The **BL** inlet on the PCU PCB terminal block is open	The contact connected to the **BL** inlet is open ▸ Check the contact on the **BL** inlet
		Parameter error ▸ Check the parameter **IN.BL**
		Bad connection ▸ Check the wiring
SU:13	Communication error with the SCU PCB	Bad connection ▸ Check the wiring
		SCU PCB not installed in the boiler ▸ Install an SCU PCB ▸ Perform the automatic detection function
SU:14	The water pressure is lower than 0,8 bar	Not enough water in the circuit ▸ Top up the installation with water
SU:15	Gas pressure too low	▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check whether the gas pressure control system has been correctly fitted ▸ Replace the gas pressure control system if need be
SU:16	The SU PCB is not recognised	Wrong SU PCB for this boiler ▸ Replace the SU PCB
SU:17	The parameters saved on the PCU PCB are impaired	Parameter error on the PCU PCB ▸ Replace the PCU PCB
SU:18	The PSU PCB is not recognised	Wrong PSU PCB for this boiler ▸ Replace the PSU PCB
SU:19	The boiler has not been configured	The PSU PCB has been changed ▸ Revert to the factory settings: ☞See chapter "Return to the factory settings Reset Param", page 64
SU:21	Communication error between the PCU and SU PCBs	Bad connection ▸ Check that the SU PCB has been correctly put in place on the PCU PCB ▸ Replace the 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
SU:28	An HL tank is detected whilst the boiler cannot control it. This message disappears after 10 seconds if the boiler can control the HL tank	▸ Wait for 10 seconds to see whether the error persists
SU:29	Communication error between the PCU and SCU-s191 PCBs	Bad connection
SU:30	Communication error between the SCU-s191 PCBs and the solar control system	Bad connection

Code	Description	Checking / solution
Sω:31	The TAS is in open circuit	▸ Bad connection ▸ No water in the DHW tank Remarks: Domestic hot water production is stopped but may nevertheless be restarted for 72 hours after the boiler is switched off. The tank is no longer protected. If a tank without Titan Active System® is connected to the boiler, check that the TAS simulation connector is fitted to the SCU-s191 PCB.
Sω:32	The TAS is short circuited	▸ Bad connection Remarks: Domestic hot water production is stopped but may nevertheless be restarted for 72 hours after the boiler is switched off. The tank is no longer protected. If a tank without Titan Active System® is connected to the boiler, check that the TAS simulation connector is fitted to the SCU-s191 PCB.
Sω:33	The header sensor in the solar control system is defective	▸ Bad connection ▸ Sensor fault
Sω:34	The sensor in the solar tank is defective	▸ Bad connection ▸ Sensor fault

8.2 Message history

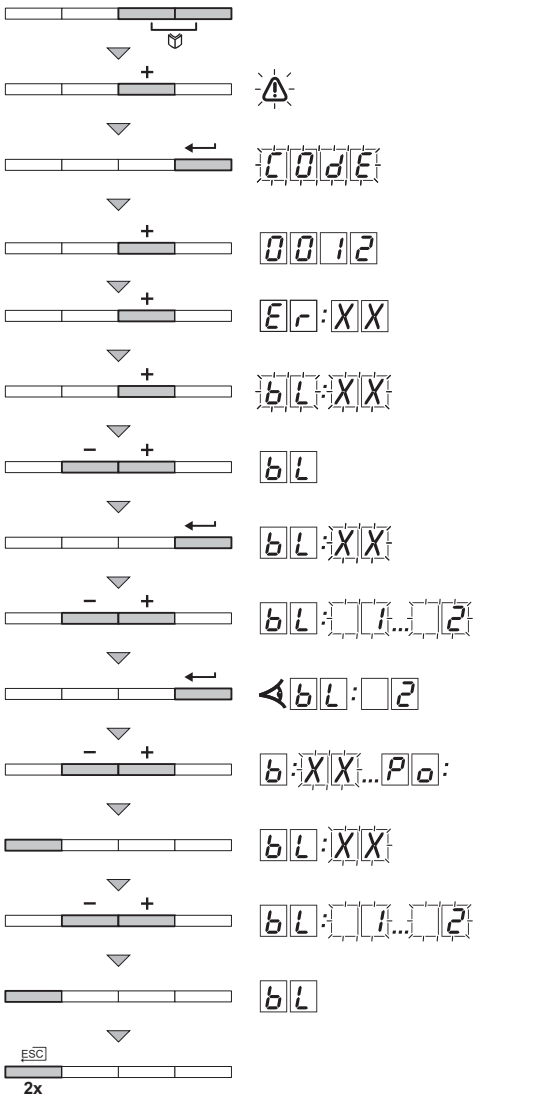
The boiler control is equipped with an error memory. The last 16 errors encountered are recorded in this memory.

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

- Number of times that the error occured: (n□:XX).
- The flow temperature (t1:XX) and the return temperature (t2:XX) when the error occured.

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

8.2.1. Reading the memorised messages



M002723-B

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. Confirm using key ⟵. bL:XX is displayed with XX flashing = Number of errors occurring, For example 2.
6. The **[-]** or **[+]** keys are used to scroll through the last 16 errors.
7. Press the ⟵ key to display the details of the error.
8. Press the **[-]** or **[+]** key to view the following information:
   n:1 = Number of times that the error occured.
   Hr = Number of hours' operation of the PCU board.
   St = Status.
   Su = Sub-Status.
   t1 = Flow temperature (°C).
   t2 = Return temperature (°C).
   t3 = DHW tank temperature (°C).
   t4 = Outside temperature (°C) (If present).
   SP = Operating temperature (°C).
   FL = Ionization current (µA).
   nF = Fan speed in rpm.
   Pr = Water pressure (bar (MPa)).
   Po = Instantaneous output.
9. Press the ⮌ key to interrupt the display cycle. bL:XX is displayed with XX flashing = Last error which occured.
10. Press 2 times on the key ⮌ to exit the error memory.

8.3 Faults (type code Exx)

In the event of an operating fault, the control panel flashes and displays a code.

1. Make a note of the code displayed.
   The code is important for the correct and rapid diagnosis of the type of failure and for any technical assistance that may be needed.
2. Press the key. If the code is displayed again, switch off the boiler and then switch it back on.

Code	Cause of the fault	Description	Checking / solution
E00	PCU	PSU PCB not connected	Bad connection ▸ Check the wiring between the PCU and PSU PCBs
			PSU PCB faulty ▸ Replace the PSU PCB
E01	PCU	The safety parameters are incorrect	Bad connection ▸ Check the wiring between the PCU and PSU PCBs
			PSU PCB faulty ▸ Replace the PSU PCB
E02	PCU	The boiler flow sensor has short-circuited	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
E03	PCU	The boiler flow sensor is on an open circuit	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
E04	PCU	Boiler temp too low	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
E05	PCU	Boiler temperature too high	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

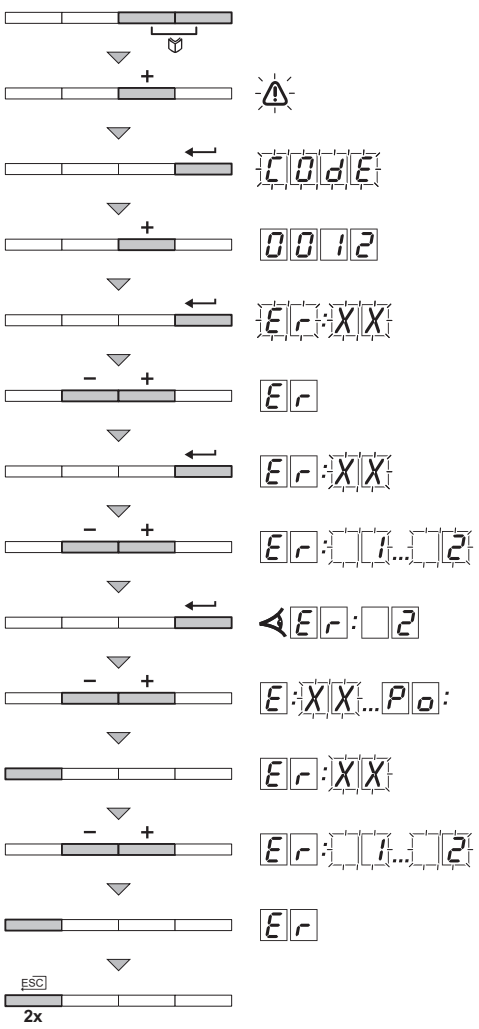
Code	Cause of the fault	Description	Checking / solution
E06	PCU	The return temperature sensor has short-circuited	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
E07	PCU	The return temperature sensor is on an open circuit	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
E08	PCU	Return temperature too low	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
E09	PCU	Return temperature too high	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

Code	Cause of the fault	Description	Checking / solution
E10	PCU	Difference between the flow and return temperatures insufficient	Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			Bad connection ▸ Check that the sensor has been correctly fitted
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the heating pump is operating correctly
E11	PCU	Difference between the flow and return temperatures too great	Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
			Bad connection ▸ Check that the sensor has been correctly fitted
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the heating pump is operating correctly
E12	PCU	Maximum boiler temperature exceeded (STB thermostat maximum)	Bad connection ▸ Check the wiring between the PCU PCB and the STB ▸ Check that the SU PCB is correctly in place ▸ Check the electrical continuity of the STB ▸ Check whether the STB has been correctly fitted
			Sensor fault ▸ Replace the STB if necessary
			No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

Code	Cause of the fault	Description	Checking / solution
E14	PCU	5 burner start-up failures	No ignition ▸ Check the wiring between the PCU PCB and the ignition transformer ▸ Check that the SU PCB is correctly in place ▸ Check the ionization/ignition electrode ▸ Check the earthing ▸ SU PCB faulty: Change the PCB ▸ Transformer defect: Replace the transformer
			Ignition arc, but no flame formation ▸ Vent the gas flues ▸ Check that the gas valve is fully opened ▸ Checking the gas 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 the wiring on the gas valve unit ▸ SU PCB faulty: Change the PCB
			Presence of the flame but insufficient ionization (<3 µA) ▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check the ionization/ignition electrode ▸ Check the earthing ▸ Check the wiring on the ionization/ignition electrode
E16	PCU	Detection of a parasite flame	Ionization current present even though there is no flame Ignition transformer defective ▸ Check the ionization/ignition electrode
			Gas valve defect ▸ Check the gas valve and replace if necessary
			The burner remains very hot: CO_2 too high ▸ Set the CO_2
E17	PCU	Internal error on the SU board	Bad connection ▸ Check that the SU PCB is correctly in place
			SU PCB faulty ▸ Inspect the SU PCB and replace it if need be
E34	PCU	The fan is not running at the right speed	Bad connection ▸ Check the wiring between the PCU PCB and the fan
			Fan defective ▸ Check for adequate draw on the chimney connection ▸ Replace the fan if need be
E35	PCU	Flow and return reversed	Bad connection ▸ Check that the sensor has been correctly fitted
			Sensor fault ▸ Check the Ohmic value of the sensors ▸ Replace the sensor if necessary
			Water circulation direction reversed ▸ Check the circulation (direction, pump, valves)

Code	Cause of the fault	Description	Checking / solution
E36	PCU	The flame went out more than 5 times in 24 hours while the burner was operating	No ionization current ▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Checking the gas 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
E37	PCU	Communication failure with the SU PCB	Bad connection ▸ Check whether the SU PCB has been correctly fitted into the connector on the PCU PCB ▸ Change the SU PCB
E38	PCU	Communication failure between the PCU and SCU PCBs	Bad connection ▸ Check the wiring between the PCU and SCU PCBs ▸ Perform the automatic detection function
			SCU PCB not connected or faulty ▸ Replace the SCU PCB
E39	PCU	The **BL** inlet is open	Bad connection ▸ Check the wiring
			External cause ▸ Check the device connected to the **BL** contact
			Parameter incorrectly set ▸ Check the parameter **IN.BL**
E40	PCU	HRU/URC unit test error	Parameter incorrectly set ▸ Check the parameters
			Bad connection ▸ Check the wiring
			External cause ▸ Suppress the external cause

8.4 Failure history



C003068-B

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 **[-]** or **[+]** keys are used to display the list of errors.
6. Confirm using key ↵. Er:XX is displayed with XX flashing = Number of errors occurring, For example 02.
7. The **[-]** or **[+]** keys are used to scroll through that last 16 errors.
8. Press the ↵ key to display details of the errors.
9. Press the **[-]** or **[+]** key to view the following information:
   - n:1 = Number of times that the error occured.
   - Hr = Number of hours' operation of the PCU board.
   - St = Status.
   - Su = Sub-Status.
   - t1 = Flow temperature (°C).
   - t2 = Return temperature (°C).
   - t3 = DHW tank temperature (°C).
   - t4 = Outside temperature (°C) (If present).
   - SP = Operating temperature (°C).
   - FL = Ionization current (µA).
   - nF = Fan speed in rpm.
   - Pr = Water pressure (bar (MPa)).
   - Po = Instantaneous output.
10. Press the ⮌ key to interrupt the display cycle. Er:XX is displayed with XX flashing = Last error which occured.
11. Press 2 times on the key ⮌ to exit the error memory.

8.5 Parameter and input/output check (mode tests)

8.5.1. Control system sequence

Control system sequence		
Status	**Sub-status**	**Operation**
0	0	Boiler stopped
1	1	Anti-short cycle activated
	2	Reversal valve opening
	3	Start-up of the boiler pump
	4	Awaiting burner start-up

Control system sequence		
Status	**Sub-status**	**Operation**
2	10	Open gas valve (External)
	11	Fan start-up
	13	The fan switches to the burner start-up speed
	14	Check RL signal (Function not active)
	15	Burner on switch request
	17	Pre-ignition
	18	Ignition
	19	Check flame presence
	20	Awaiting further action to unsuccessful ignition
3 / 4	30	Burner lit and free modulation on the boiler instruction
	31	Burner lit and free modulation on a limited instruction, equal to a return temperature of +25°C
	32	Burner ignited and free modulation on the boiler set point but output restricted
	33	Burner lit and descending modulation following too large a rise in temperature on the exchanger (4 K in 10 seconds)
	34	Burner lit and minimum modulation following too large a rise in temperature on the exhanger (7 K in 10 seconds)
	35	Burner off following too large a rise in temperature on the exchanger (9 K in 10 seconds)
	36	Burner lit and ascending modulation to guarantee a correct ionization current
	37	Heating: Burner lit and minimum modulation after a burner start-up lasting 30 seconds DHW production: Burner lit and minimum modulation after a burner start-up lasting 100 seconds
	38	Burner lit and modulation fixed higher than the minimum after burner start-up lasting 30 seconds, if the burner was off for more than 2 hours or after powering up
5	40	The burner will stop
	41	The fan switches to post-sweeping speed on the burner
	42	The external gas valve closes
	43	Post-sweeping
	44	Stop fan
6	60	Post-operation of the boiler pump
	61	Stop boiler pump
	62	Reversal valve closure
	63	Start anti short cycle
8	0	Stand-by
	1	Anti-short cycle activated
9	--	Blockage: The sub-status shows the error value
10	--	Blocking
16	--	Antifreeze protection
17	--	Bleed

9 Spare parts

9.1 General

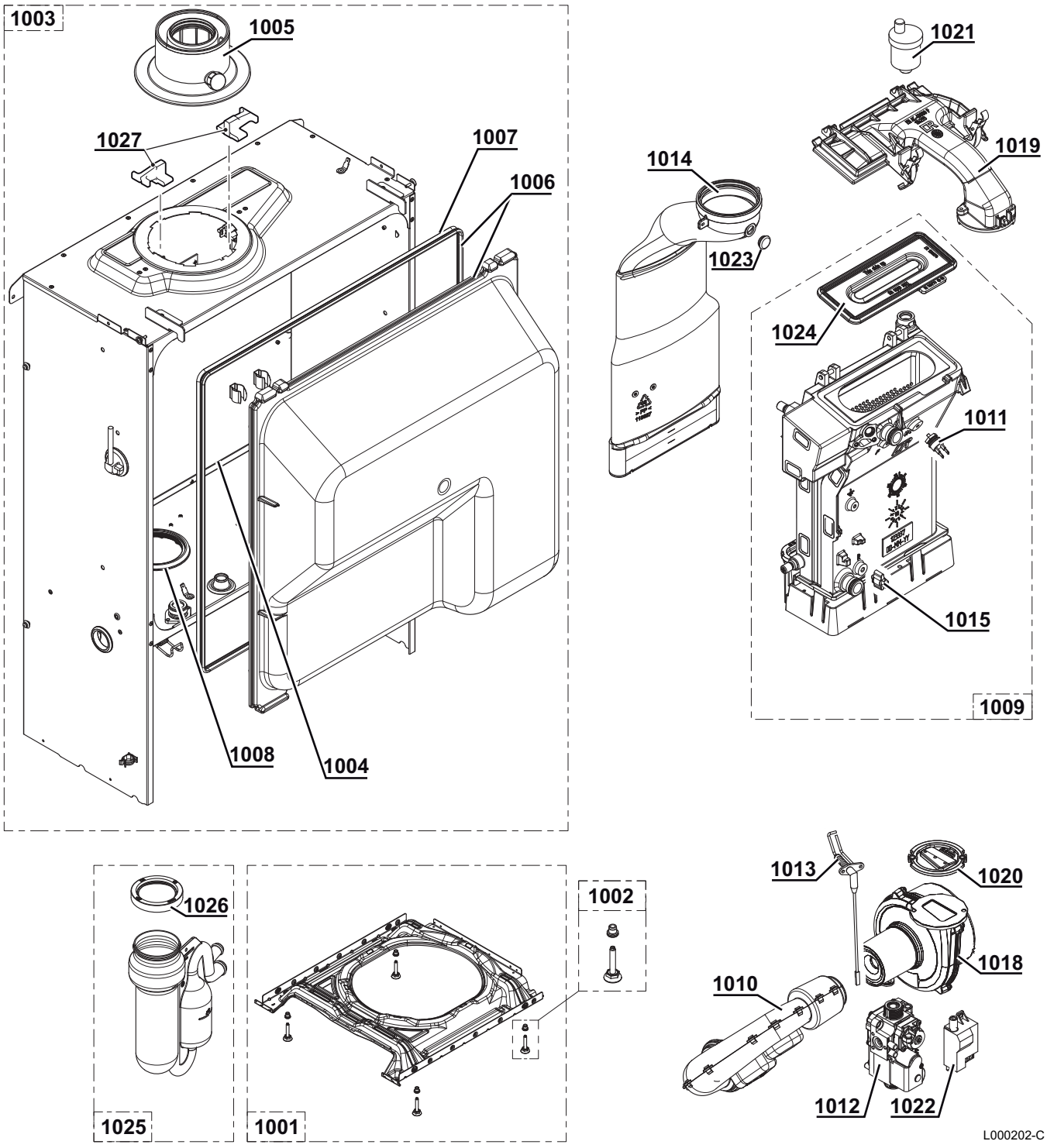
When it is observed subsequent to inspection or maintenance work that a component in the appliance needs to be replaced, use only original spare parts or recommended spare parts and equipment.

To order a spare part, give the reference number shown on the list.

9.2 Spare parts

Spare parts list reference: 300026083-002-02

9.2.1. Casing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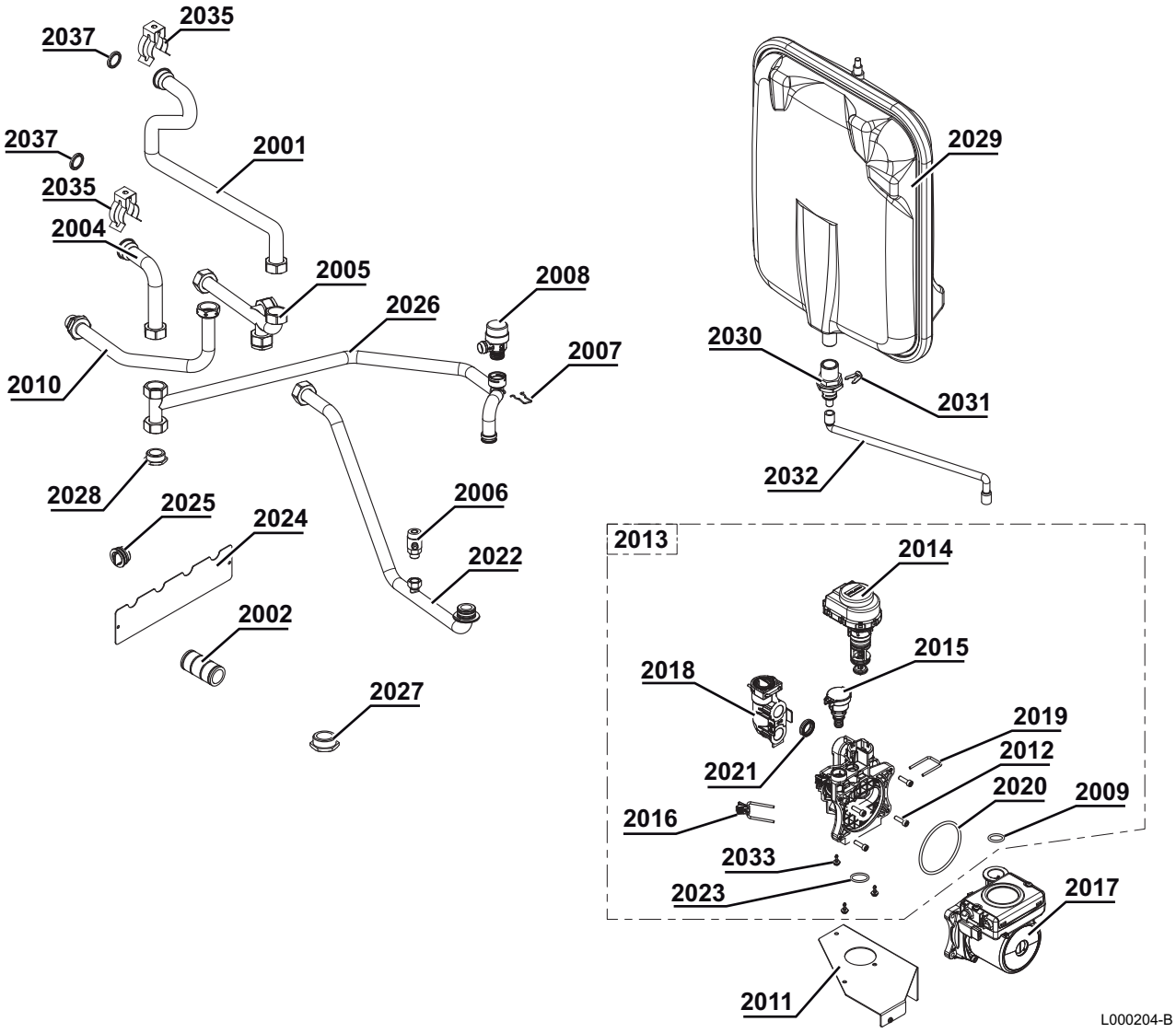
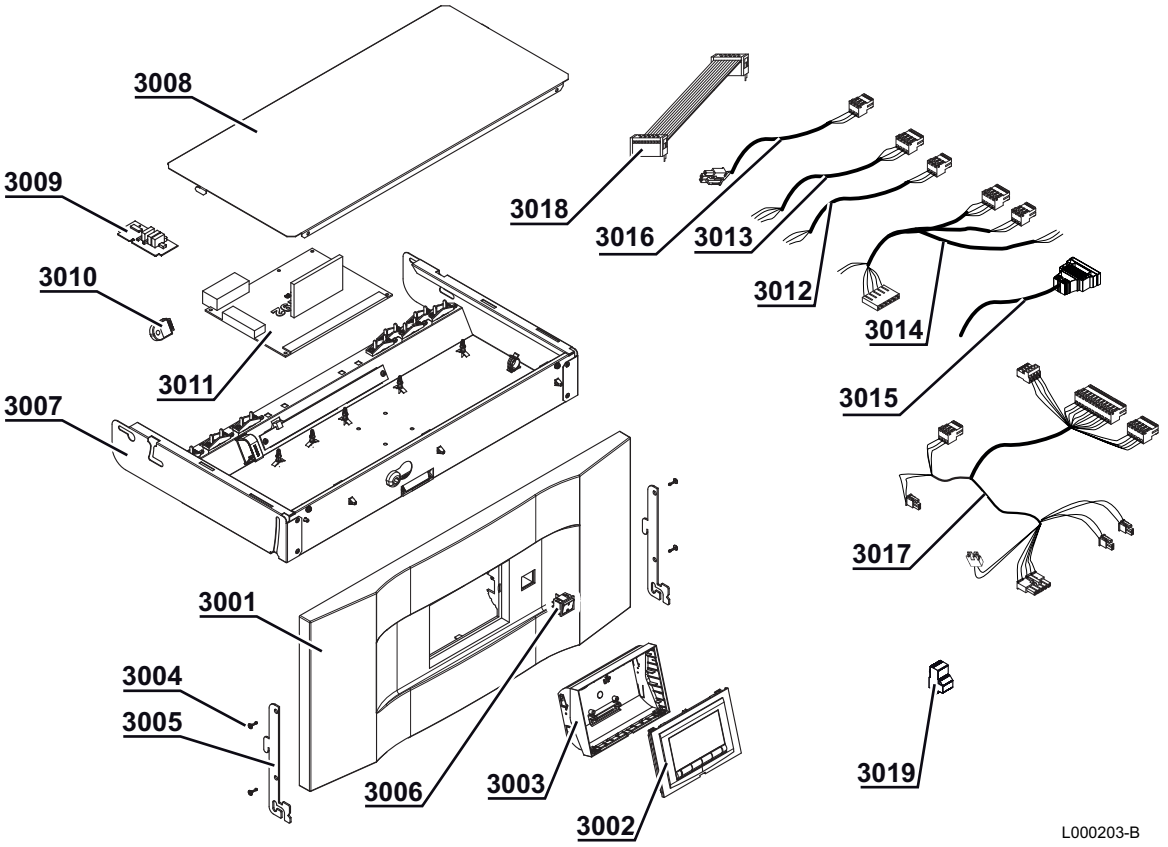
L000202-C

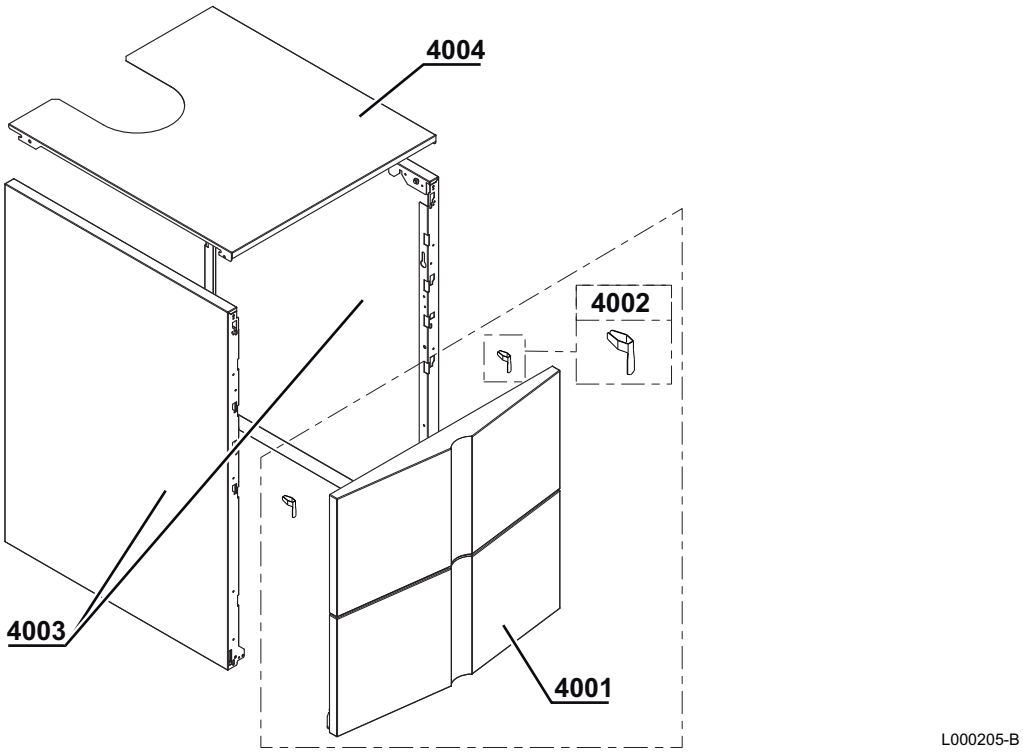
9.2.2. Water unit



9.2.3. Control panel



9.2.4. Casing



9.2.5. Spare parts list

Markers	Code no.	Description
Exchanger - Casing		
1001	200018958	Complete base frame
1002	300024451	Adjustable foot M8-45
Casing		
1003	200018959	Leak proof box
1005	S62768	Flue gas nozzle 60/100
1006	200018975	Complete cover
1007	300024870	Hood seal
1008	300024391	Chamber - siphon gasket
1009	200018960	Heating body
1010	S100911	Silencer
1011	S101005	HL temperature sensor
1012	S101507	Gas valve VK4115V E1054 4
1013	S100890	Ignition/ionization electrode
1014	S100854	Flue gas evacuation pipeØ 80 mm
1015	S101003	NTC temperature sensor
1018	S100878	Fan RG 118- R19.5x1
1019	S100882	Gas / air mixing part
1020	S100881	83 mm gasket with flap
1021	85000023	3/8" automatic air bleed valve
1022	S100572	Ignition transformer
1023	S100850	Flue gas measuring point (x5)
1024	S100879	Burner - 198 mm
1025	300024610	Complete siphon
1026	S100906	Siphon gasket
Water unit - Circulation pump		
2001	300026383	Exchanger flow pipe
2004	300026381	Exchanger return pipe
2005	300024415	Flow distributor pipe
2006	94902000	Drain cock
2007	S100835	Pin spring 16 mm (10x)
2008	S100829	3.5-bar safety valve
2009	S59597	18x2.8 O-ring (10x)
2010	300024413	Gas inlet pipe G1/2"
2011	300024447	Pump bracket
2012	S59141	Screw M5x18 (15x)
2013	S100822	Water unit, right + 3-way valve + Pressure sensor
2014	S100823	Motor + 3-way valve insert
2015	S100821	Pressure sensor
2016	S100832	26 clip with lever (10x)
2017	300024624	3-speed heating pump 15-60
2018	S100827	cleat fitting
2019	S100813	Clip 26 (10x)
2020	S100815	76x4 O-ring (5x)
2021	S100810	25.2x17 O-ring (20x)
2022	300025159	Return pipe under complete pump
2023	S100816	22x22.5 O-ring (10x)

Markers	Code no.	Description
2024	300025174	Pipe holding plate
2025	300025173	Plug
2026	300025162	Return pump pipe - complete exchanger
2027	94950154	Male plug G1"
2028	300000021	Male plug G3/4"
2029	300028666	Expansion vessel 12 litres
2030	300024509	1/2" junction
2031	S100814	Clip 10.3 (5x)
2032	300024428	Expansion vessel hose
2033	S100825	Screw K50x12(20x)
2034	200021826	20,3x2,62 (10x) O-ring
2035	114341	Exchanger connection clip
2037	114256	20.3x2.62 O-ring
Control panel		
3001	300024402	Command strip
3002	300023602	Display plate
3003	300024405	Tilting control system bracket ADV
3004	200019769	EJOT KB35X10 screw kit (10x)
3005	300024464	Hook
3006	300024488	White bipolar switch
3007	200019187	Complete board support
3008	300025092	Card cover
3009	S103300	Plate SU-01
3010	7601744	Board PSU01
3011	200018121	PCU-192 control board
3012	300024876	Power supply cable
3013	S300024878	PCU cable - General switch 230 V
3014	300024880	cable form 230 V
3015	300024881	3-way valve cable
3016	300024882	Pump cable
3017	300024883	cable form 24 V
3018	300024885	10-pin ribbon cable
3019	300025621	2 pin connector fitted
Casing		
4001	200019181	Front panel + Spring
4002	200019786	Spring kit for front panel (10x)
4003	200019179	Side panel
4004	300024448	Top panel

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