GT 330 - GT 430 - GT 530 - GTU C 330

Control panel B3

Control panel (MD3) to be placed on the boiler (MD140) lateral control panel





Installation and Service Manual



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1 Symbols used

Caution danger

Risk of injury and damage to equipment. Attention must be paid to the warnings on safety of persons and equipment.

Specific information
Information must be kept in mind to maintain comfort.

Reference

Refer to another manual or other pages in this instruction manual.

DHW: Domestic hot water

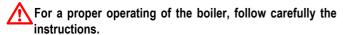


Switch off the power supply before doing the work.



This appliance must be connected to the earth.

2 Important recommendations



Any intervention on the appliance and heating equipment must be carried out by a qualified technician.

The manufacturer is not liable for any improper use of the appliance or failure to maintain or install the unit correctly (the user shall take care to ensure that the system is installed by a qualified fitter).

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

To guarantee protection against the corrosion of domestic hot water calorifiers fitted with a titanium anode (Titan Active System® protection system), always leave the control panel switched on.

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3 Description

Electrical board for heating which includes the production of domestic hot water as a priority.

The control panel is used to control boilers with 1 or 2-stage burners.

The standard delivery of panel B3 includes :

- 1 Control panel B3
- 1 Boiler sensor measuring the temperature in the boiler

The following options can be ordered:

- Flue gas thermometer (Package BP28)
- Hour run meter (Package BG40)
- DHW sensor with Titan Active System® simulation connector for the connection of a domestic hot water calorifier without titanium anode (Package AD212)

3.1 Presentation

Control panel B3 includes:

- 1 Boiler thermostat
- 1 domestic hot water thermostat
- The Titan Active System® function for tank with titanium anode
- 1 electronic thermostat
- 1 Safety thermostat

The boiler thermostat regulates the boiler operating temperature.

The safety thermostat with manual reset ensures that the boiler operates safely.

In the event that there is an abnormal rise in the temperature in the boiler 110° C. Advise your installation engineer.

If domestic hot water is being heated, the domestic hot water thermostat allows the average temperature of the stored domestic hot water to be regulated giving priority to the preparation of domestic hot water.

Whenever there is a demand for domestic hot water, the domestic hot water priority starts the burner and the dhw pump stops the heating pumps. On the summer setting, the boiler temperature is not maintained between two domestic loads. The temperature of the domestic hot water is measured with the dhw sensor.

3.2 Technical characteristics

Electricity supply: 230V (-10%, +10%) - 50 HZ

Value of the water probes (Boiler and Domestic hot water)

Temperature in °C	Resistance in ohm	Temperature in °C	Resistance in ohm
0°C	32 014 Ω	50°C	3 661 Ω
10°C	19 691 Ω	60°C	2 535 Ω
20°C	12 474 Ω	70°C	1 794 Ω
30°C	8 080 Ω	80°C	1 290 Ω
40°C	5 372 Ω	90°C	941 Ω

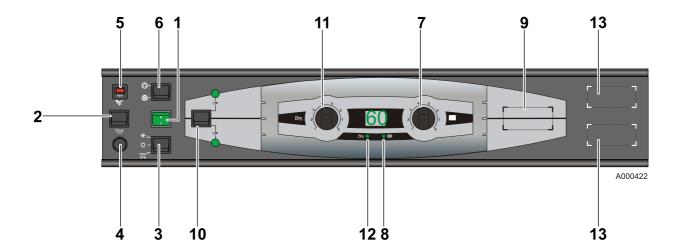
Conformity / Stamp ()

This product complies to the requirements to the European Directives and following standards:

 2006/95/EC Low Voltage Directive Reference Standard : EN 60.335.1

 2004/108/EC Electromagnetic Compatibility Directive Generic standards: EN1000-6-3; EN 61000-6-1

4 Presentation



1. General ON (1) / OFF (0) switch

2. Alarm indicator

This indicator lights up when the burner is on safety (faulty).

3. Switch TEST-STB/操小类

Position 3: DHW + Heating

Position 🌟: DHW

Position TEST-STB: Temporary action to test the safety

thermostat

4. Safety thermostat with manual reset

Set at 110° C

- Timed circuit breaker (10 A) with delayed action and manual reset
- 6. Pump shutdown switch
- 7. Electronic thermostat

Set the boiler temperature between 30° C and 90° C using manual setting.

8. Indicator lights up

Boiler temperature display

- 9. Location for flue gas thermometer (optional)
- 10. Switch for selecting the number of burner stages

When preparing domestic hot water

11. Electronic thermostat

Regulating the storage temperature of domestic hot water between 10° C and 80° C.

12. Indicator lights up

Domestic hot water display

After switching on, the system performs an automatic purge of the accumulator interchanger for one minute by intermittently operating the domestic load pump and the heating pump. This purge sequence is deactivated if the temperature in the accumulator is above 25° C.

13. Location for hour run meter (Option)

5

Commissionning



The first start-up is to be performed by your installation engineer.

Before starting the boiler, check if the installation is filled with water.

Start the boiler in the following order:

- Place the boiler thermostat 7 in the required position.
- When preparing domestic hot water, Place thermostat 11 on the required setting. Setting 6 (approx 60° C) recommended.

This value must always be below the temperature limiter for the domestic hot water load.

- Check that safety thermostat 4 is properly set. Unscrew the safety thermostat cover and press the reset button using a screwdriver.
- Set the On/Off switch to 1.

Assembly, electrical connections and installer's settings

Control panel assembly



Refer to the technical and assembly instructions delivered with the boiler.

Electrical connections



Only qualified professionnals may carry out electrical connections, always with the power off.



As the electrical wiring has been carefuly checked in the factory, the internal connections on the control panel must not be changed in any way.

Electrical connections must match the electrical diagrams delivered with the equipment and comply with the instructions in the manual.

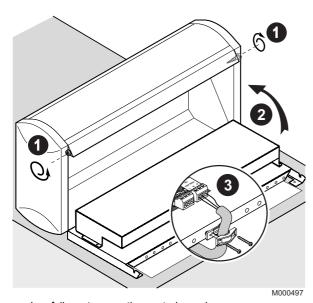
The equipment must have a power supply equipped with a omnipolar switch with an opening distance above 3 mm.

The earth must comply with the NFC 15.100 (France) or the RGPT (Belgium) standards.

6.3 Access to the connection terminal

All connections are made with the terminal boxes designed for that purpose on the back of the boiler's command board.

Control panel



Proceed as follows to open the control panel:

- 1 Loosen the 2 screws located on either side of the front of the panel by two turns.
- Tilt back the control panel.
- Bring the connecting cables to the control panel through the openings located on the rear panel of the boiler and 1 or 2 cable channels, depending upon the type of boiler.

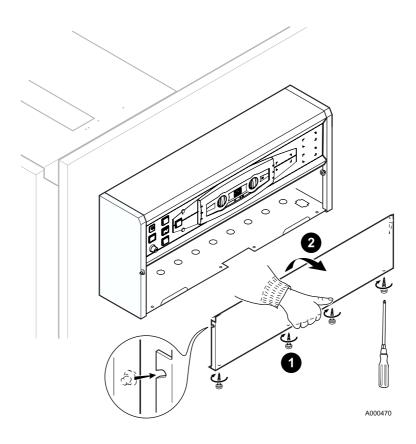
These cables will be fixed on to the control panel with cable clips (supplied in a separate bag).

The available output per outlet is 450 W (with $\cos \varphi = 0.7$) and the inrush current must be lower than 16 A.

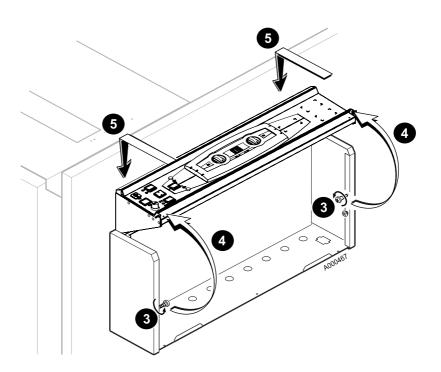
If the charge exceeds one of these values, relay the command using a contactor (fitted outside the control panel).

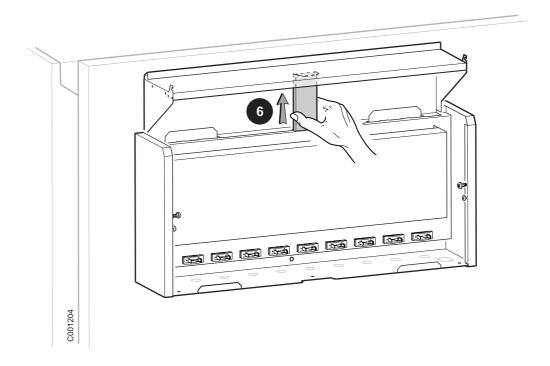
■ Lateral control panel

1

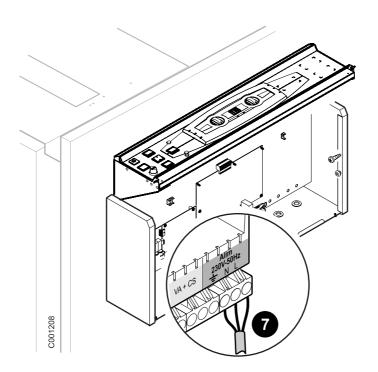


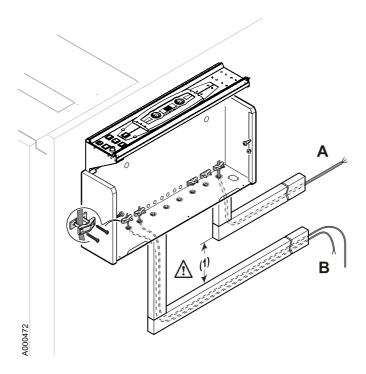
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4

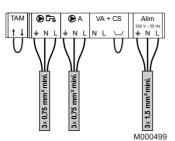




- **A.** 230 V
- B. Very low voltage sensors
- (1) 100 mm

6.4 Electricity supply





Make the electrical connection to the terminals $\frac{1}{2}$, N, L.

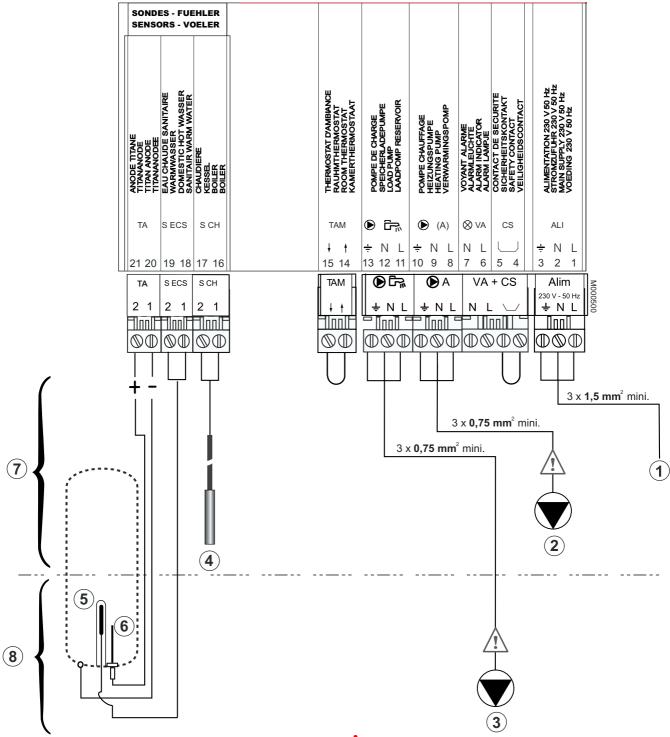
Connection to the mains is done using a 3-wire cable with a cross section of 1.5 mm² on the 3-pin terminal block (terminals $\frac{1}{2}$, N, L).

For other electrical connections, use the 3 wire cable with a diameter of $0.75\ \text{mm}^2$.

The flow controller contact is connected to the terminals (CS) on the VA+CS connector.

Keep to the polarity shown on the terminals : phase (L), neutral (N) and earth $\frac{1}{2}$.

6.5 Basic connections



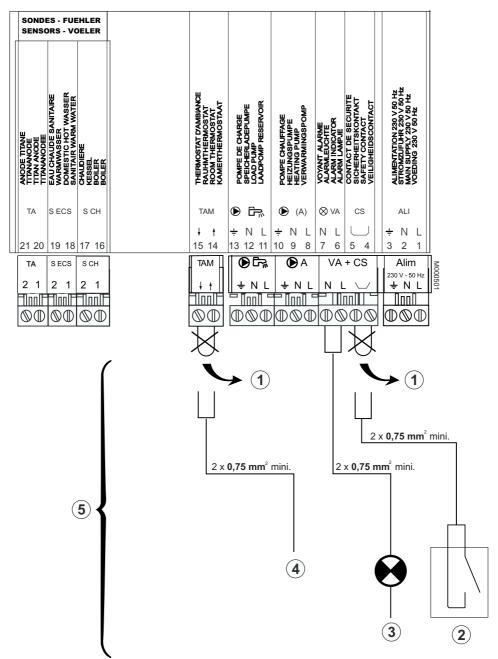
- 1 Power supply 230 V
- 2 Heating pump Circuit A
- 3 DHW pump
- 4 Boiler sensor
- 5 Domestic hot water sensor
- 6 Titane anode
- 7 Boiler with or without accumulator
- 8 Boiler with accumulator

The sensor cables have to be separated from the 230V circuit cables.

In the boiler: use the 2 wire guides on either side of the boiler.

Outside the boiler : Use 2 pipes or cable guides at least 10 cm apart.

6.6 Connecting the options



- 1 Remove bridge
- 2 Safety contact
- 3 Alarm indicator
- 4 Room thermostat
- 5 Boiler with or without accumulator

If only one circuit is used, connect the ambient thermostat to circuit A and do not bridge this connector.

Connection to a flue gas thermostat (TF)

When used in combination with a wood fired boiler: the flue gas thermostat is connected on the terminals (CS) after having removed the existing bridge.

Safety contact connection (CS)

Terminals (CS) after having removed the bridge: allows the connection of a safety device (e.g. low water pressostat, fire safety, ...)

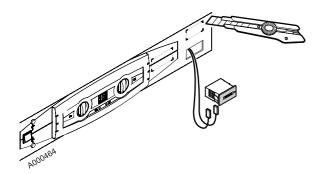


The sensor cables have to be separated from the 230V circuit cables.

In the boiler : use the 2 wire guides on either side of the boiler.

Outside the boiler : Use 2 pipes or cable guides at least 10 cm apart.

6.7 Connecting one or two hour run meters (Package BG40)



One or two optional hour run meters (stage 1 and 2) may be fitted on the front of the control panel.

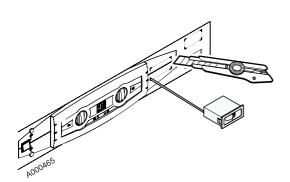
To do so:

- Cut the cover off with a cutter along the edges of the coloured rectangle.
- Pull out the *1 wires standing by in the control panel.
- Connect the wires to the hour run meter (the wires are interchangeable)
 - ▶ Wires marked CH1 for the first stage
 - ▶ Wires marked CH2 for the second stage
- Clip the hour run meter into the control panel

If the burner is a 1-stage burner, the counter displays the burner operating time.

If the burner has 2 stages, the first stage hour run meters displays the total burner operating time and the second hour run meter displays the operating time of stage 2.

6.8 Connecting the flue gas thermometer (Package BP28)



An optional flue gas thermometer may be fitted on the front of the control panel.

To do so:

- Cut the cover off with a cutter along the edges of the coloured rectangle.
- Clip the thermometer into the opening.
- Bring the sensor to the back of the boiler via the cable channel and insert it in the flue gas pipe.

13

6.9 Connecting the burner

Burner cable

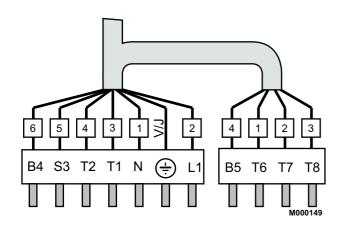


- (1) 7-pin plug for 1-stage burners or stage 1 of 2-stage burners
- (2) 4-pin plug for stage 2 of the burner

The control panel is supplied with the burner power cable.

One end of this cable is fitted with two European 7 and 4 pin sockets and the other with a terminal with male connecting pins.

· Burner side



Burner without plug-in connectors

In this case, the connectors supplied with the burner cable must be rewired.

The diagram shows the wire numbers and the terminals of the burner connectors.

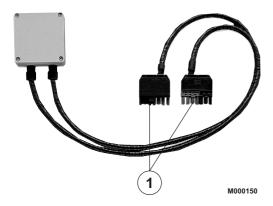
The table below specifies the way in which the cables are to be connected on the burner control box.

Connector terminal -No	Wire No	From	Connection to the burner control box
L1	2	Continuous phase from the safety thermostat	Burner main supply
-	V/J	Earth connection	Earth connection
N	1	Neutral taken after On/Off	Neutral terminal
T1/T2	3/4	Dry contact of the stage 1 boiler thermostat	Insert in the control circuit of boiler stage 1
S 3	5	Burner alarm indicator	Alarm output (phase)
Т6	1	Stage 2 boiler thermostat input	Insert in the control circuit of burner stage 2
T7	2	Stage 2 "boiler off" thermostat output	Connect only if the burner is of the modulating type
T8	3	Stage 2 "boiler on" thermostat output	Insert in the control circuit of burner stage 2
B4	6	Stage 1 On indicator (or hour run meter)	Stage 1 operation monotoring output (phase)
B5	4	Stage 2 On indicator (or hour run meter)	Stage 2 operation monotoring output (phase)

If the electrical characteristics of the burner exceed the following values

- inrush current > 16 A or
- P > 450 W or
- $I > 2 A \cos \phi = 0.7$

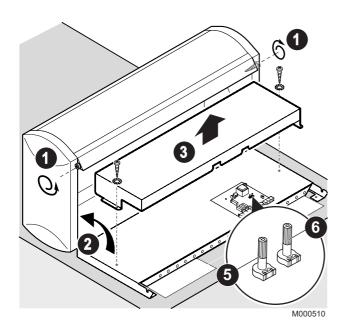
The burner controls must be relayed, e.g. with the relaying kit (package BP51, optional).



① 7-pin plugs for connecting to the control panel and burner connectors.

6.10 Set the domestic hot water load temperature limiter

■ Control panel



• Setting the domestic hot water temperature



The potentiometer (6) on the boiler's flat bar allows the temperature of the boiler to be regulated whilst the hot water is being heated.

The load temperature setting may be between 60 and 90° C (factory setting 75° C).

· Setting the timer for the domestic hot water pump



The potentiometer (5) on the boiler's flat bar allows the timing of the domestic hot water pump to be set.

The timer has a setting range from 0 to 10 minutes (factory setting 4 minutes).

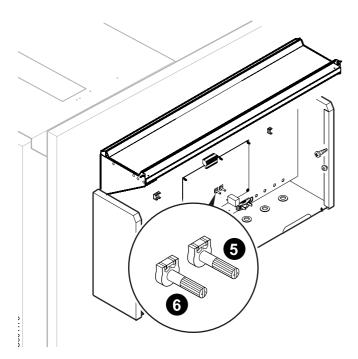
Assembly

When the setting has finished, assemble the protective cover for the bars and the upper panel in the reverse order as disassembly.



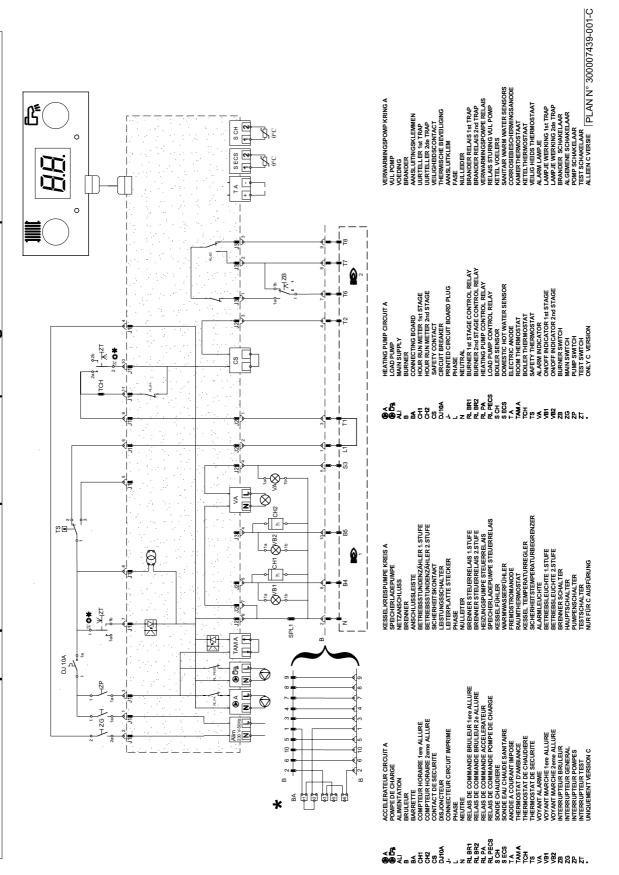
Do not leave out the toothed washers.

■ Lateral control panel



7 Skeleton Diagrams

B3 Schéma de principe - Stromlaufplan - Principle diagram - Principeschema



8 Alarm messages

In the event of a fault, the display may show the following messages:

Message	Faults	Probable causes	Solution	
AL 50	Boiler sensor	The sensor circuit has been broken or short circuited.	Advise the installer. See comments below.	
AL 52	Domestic hot water sensor	The sensor is cut		
AL td	Titane anode	The titanium anode is on an open circuit or the tank is empty.	Check that the titane anode is properly connected or fill the dhw tank.	
AL tc		A short circuit has occurred on the titanium anode or connection reversed.	Check that there is no short circuit or an inversion of the wires of the titane anode.	

Comments

Operation mode in the event of a fault :

AL 50: The installation is stopped.

AL 52: In the event of a fault with the domestic hot water probe, the installation continues to operate, but heating the domestic hot water is no longer guaranteed.

AL td and AL tc: Production of domestic hot water is stopped. This may be reactivated for 24 hours by disconnecting and reconnecting the power supply to the boiler.

There are 2 options:

 With a domestic hot water tank protected by a titane anode: the tank is no longer protected against corrosion. This will mean that the accumulator is no longer protected.

Contact **NECESSARELY** your installation engineer.

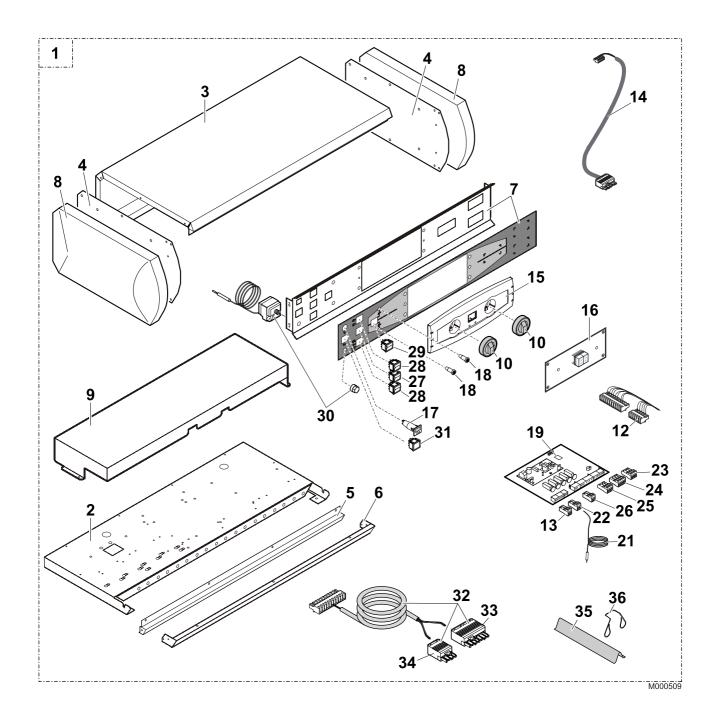
 With a domestic hot water tank protected by a magnesium anode: check that the connector delivered with AD212 package is placed on the sensor p.c.b.. Check that the AD212 container connector, with the 22 kOhm resistance and a 100 nF capacitor, is properly connected to terminals 20 21. i

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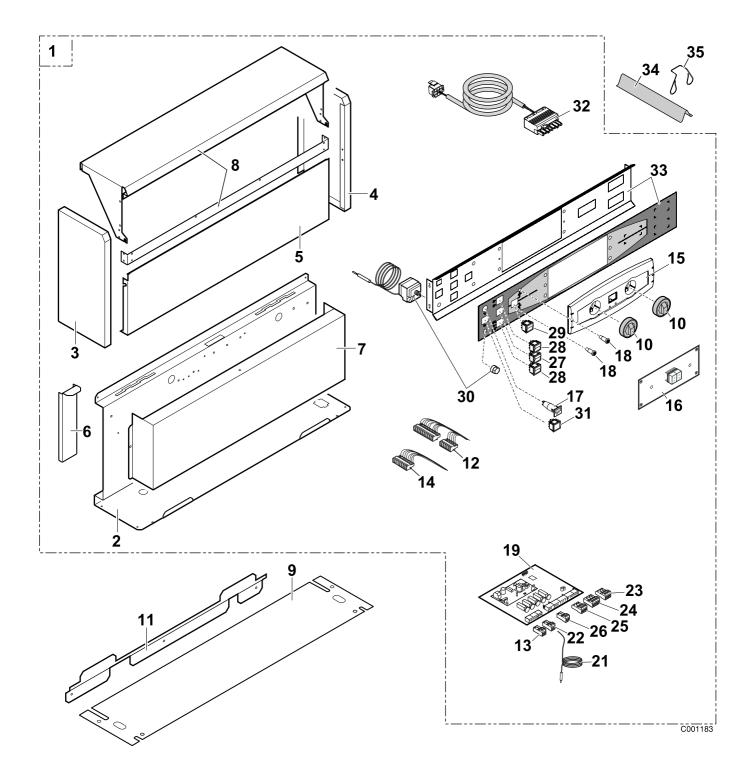
Control panel - Lateral control panel

To order a spare part, quote the reference number next to the part required.

Control panel B3 to be placed on the boiler - GT 330 / GT 430 / GT 530 / GTU C 330

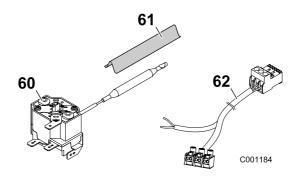


Rep	Code no.	Description
1	100004298	Complete control panel
2	200004469	Painted control panel base
3	8555-0536	Painted control panel cover
4	8555-0537	Painted control panel side plate
5	8555-0538	Painted control panel trim
6	8553-0526	Painted spoiler SP panel
7	200005222	Plastic coated panel
8	9750-9034	Side plate
9	8555-8004	Board guard
10	8218-8973	Setting button
12	200005025	cable form
13	9531-7505	Connector
14	200005026	Burner harness
15	300005133	Module
16	200005084	Basic UC display card
17	9534-0286	Timed circuit breaker (10 A)
18	9521-6281	Round green indicator
19	200004948	Basic relay card
21	9536-2446	KVT sensor 60 l. 1 m
22	300008953	Fitted 2 pts connector, boiler sensor
23	300009075	3 pt power supply connector
24	200006051	4 pt connector AV+SC
25	300009074	Connector 3 pt assembled pump A/VS
26	8575-4920	2 pin fitted TAM connector
27	9532-5027	Green S/S bipolar switch
28	8500-0035	Bipolar switch
29	8500-0034	Test Switch
30	8500-0032	110 °C safety thermostat
31	9521-6220	Red indicator
32	8555-4906	Burner cable
33	9531-7395	7-pin plug
34	9531-7384	4-pin plug
35	9536-5613	Contact spring for pocket
36	9758-1286	Spring for pocket



Rep	Code no.	Description
1	100007509	Complete control panel
2	200009630	Back, lateral control panel
3	200009380	Lateral panel complete left
4	200009381	Side panel, right, complete
5	200009470	Front panel
6	8553-8058	Opening hood
7	8553-8061	Board guard
8	200009631	Front panel support + Cross bar
9	8553-0540	Top panel opening cap
10	8218-8973	Setting button
11	8553-8059	Holding plate
12	200005025	cable form
13	9531-7505	Connector HELLA
14	200009523	Burner harness
15	300005133	Module
16	200005084	Basic UC display card
17	9534-0286	Timed circuit breaker (10 A)
18	9521-6281	Round green indicator
19	200004948	Basic relay card
21	9536-2446	KVT sensor 60 l. 1 m
22	300008953	Fitted 2 pts connector, boiler sensor
23	300009075	3 pt power supply connector
24	20006051	4 pt connector AV+SC
25	300009074	Connector 3 pt assembled pump A/VS
26	8575-4920	2 pin fitted TAM connector
27	9532-5027	Green S/S bipolar switch
28	8500-0035	Bipolar switch
29	8500-0034	Test Switch STB
30	8500-0032	110 °C safety thermostat
31	9521-6220	Red indicator
32	8555-4906	Burner cable
33	200005222	Plastic coated panel
34	9758-1286	Spring for pocket
35	9536-5613	Contact spring for pocket
	_	

Limiting thermostat



Rep	Code no.	Description
60	300004026	50°C limiter thermostat
61	9536-5613	Contact spring for pocket
62	200009170	Cable form boiler pump shutdown CA 400-CA 500

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19/02/08



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