

C 230-... ECO

FLOOR STANDING GAS CONDENSING BOILER

■ C 230 - 85 to 210 ECO: from 18 to 217 kW for hot water central heating and DHW production with independent calorifier



Heating and DHW production with independent calorifier



Condensing



All natural gases



EC identification No:
0085BS0132

This boiler can be fitted with one of following control panels:

- **Control panel DIEMATIC-m3:** electronic control system for heating operates according to the outside temperature, controls up to 3 circuits with mixing valve + 1 DHW production circuit (depending on installed options).
- **Control panel K3:** is fitted only on a "slave" boiler in association with a boiler fitted with a DIEMATIC-m3 control panel in the case of cascade installation.

Various air/flue gas connection configurations are possible. We offer two types of solution: by vertical forced flue or to a chimney (see page 15).

■ CONDITIONS OF USE

Max working temperature: 90°C
Safety thermostat: 110°C
Max. working pressure: 6 bar
Min. working pressure: 0,8 bar
Power supply: 230 V/50 HZ
Protection index: IP 21

■ HOMOLOGATION

B23 - B23P - C13 - C33 - C43 - C53 - C63 - C83

■ GAS CATEGORY

Natural gases of H/E group, or propane with conversion kit (option)

PRESENTATION

The floor-standing gas condensing boilers C 230-... ECO are fitted and factory tested and delivered fully assembled.

They are particularly compact (only 0.54 m² on footprint, and 200 kg for 217 kW).

They offer high levels of performance:




- Annual operating efficiency up to 109%,
- Efficiency class ★★★★★ CE,

- Very low pollutant emissions:
NOx from 49 to 62 mg/kWh,
- Low noise level:
• from 57 to 63 dB(A) depending on output,
- Low electricity consumption
• from 31 to 317 W max. depending on the output.

THE STRONG POINTS OF THESE BOILERS

- Exchanger in cast aluminium/silicium sections highly resistant to corrosion, with self-cleaning properties linked to the flow of condensates requiring no minimum water flow (operating > 75°C),
 - Cylindrical total premix gas burner with metallic fibre coating, modulating from 18 to 100%,
 - Perfect adaptation of boiler output to the actual needs of the installation,
 - Optimum combustion quality on the full output range thanks to the constant air/gas ratio,
 - Electronic ignition,
 - Ionisation sensor,
 - DIEMATIC-m3 control panel in which the control system is open to all installation configurations, including the most complex (operating in cascade possible for 2 to 10 boilers equipped with K3 control panel). Each of the "slave" boilers can control and manage 3 additional circuits with mixing valve. It is designed to communicate with DIEMATIC VM iSystem control systems and with compatible teleprocessing systems,
 - Optional 2nd return for maximum exploitation of condensation.
- Easy maintenance thanks to:
- Self-cleaning condensing body,
 - Rapid burner access via removable cover,
 - Rapid exchanger access via the inspection hatch.

MODELS AVAILABLE

Boiler	Output ⁽¹⁾ kW	Mcal/h	 DIEMATIC-m3	 K3 ⁽²⁾
 <p>For heating only (DHW production with independent calorifier)</p> <p>C230_G0001A</p>	18 to 93	15.5 to 80.2	C 230-85 ECO DIEMATIC-m3	C 230-85 ECO K3
	24 to 129	20.7 to 111.3	C 230-130 ECO DIEMATIC-m3	C 230-130 ECO K3
	33 to 179	28.5 to 154.3	C 230-170 ECO DIEMATIC-m3	C 230-170 ECO K3
	44 to 217	38.0 to 187.1	C 230-210 ECO DIEMATIC-m3	C 230-210 ECO K3

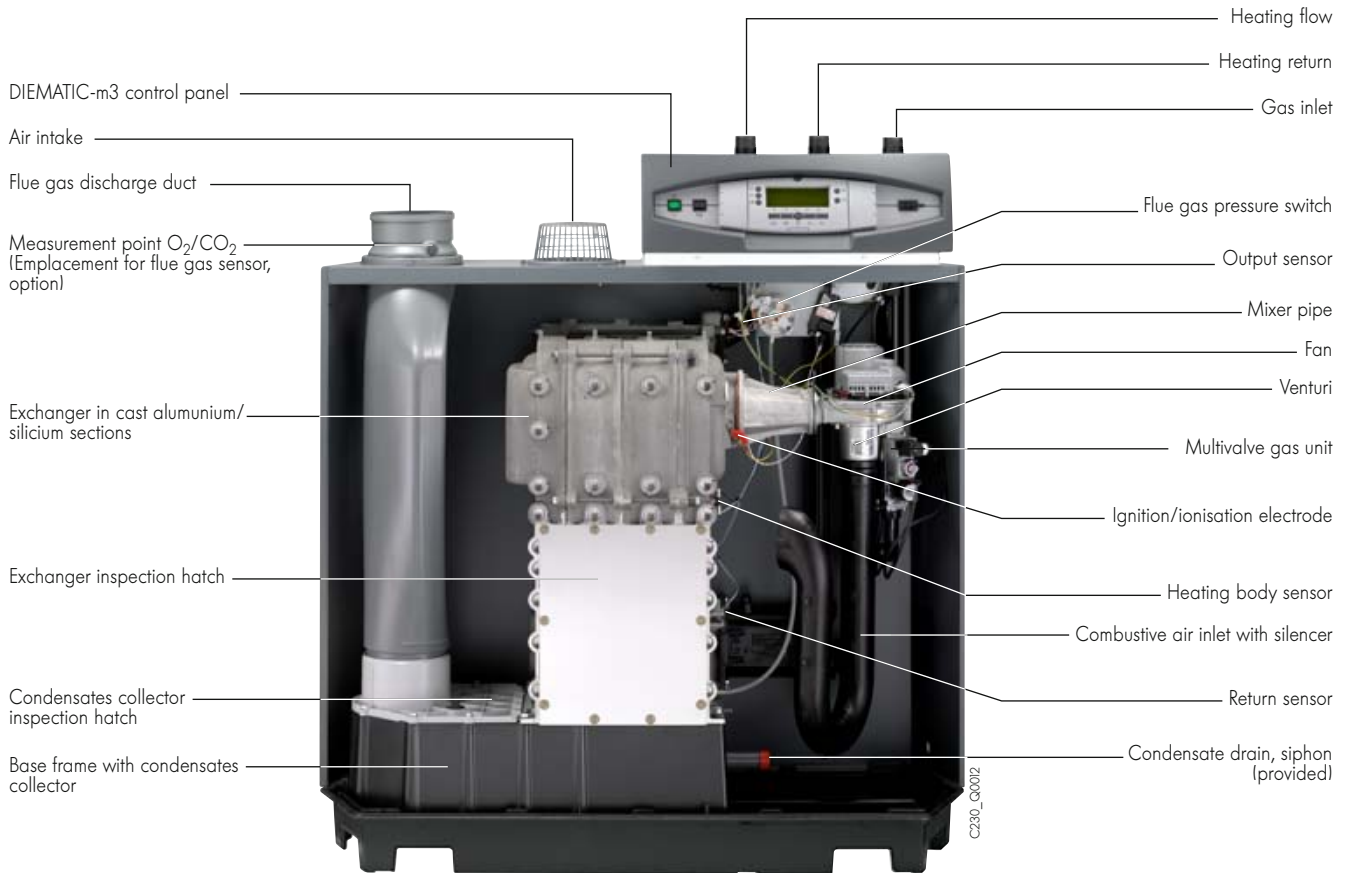
(1) Useful output at 50/30°C.

(2) C 230 ECO K3 models only in combination with models C 230 ECO DIEMATIC-m3 in the case of cascade installations.

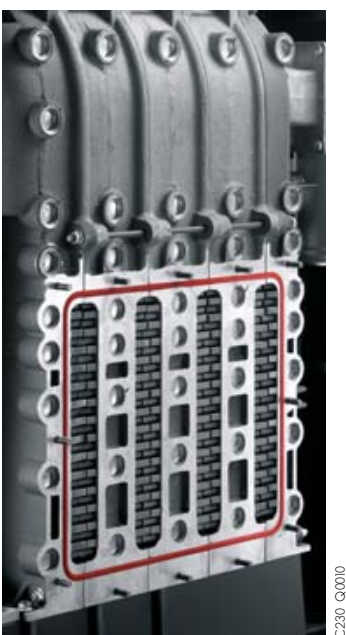
BOILER TECHNICAL SPECIFICATIONS

MAIN COMPONENTS

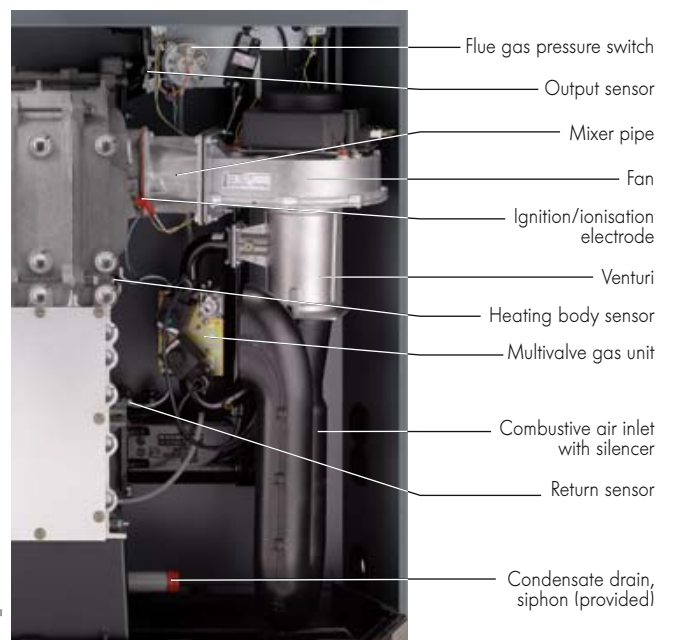
C 230-85 and 130 ECO



Exchanger C 230 ECO without inspection hatch



Gas train C 230 - 170 and 210 ECO

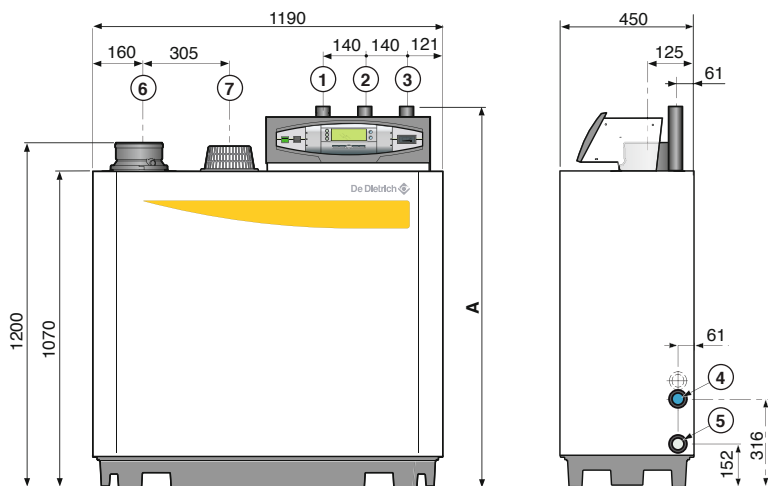


TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Boiler type	C 230-... ECO	85	130	170	210	
Nominal output at 50/30°C (natural gas HI)	kW	93	129	179	217	
Efficiency at ... % output and ...°C water temp.	100% at average temp. 70°C	%	97.4	97.5	97.5	97.6
	100% at return temp. 30°C	%	104.3	104.7	105.2	105.7
	30% at return temp. 30°C	%	107.9	108.1	108.3	108.4
Water flow at $\Delta t = 20$ K	m ³ /h	3.73	5.16	7.14	8.17	
Min nominal output at 50/30°C	kW	18	24	33	44	
Max. nominal output at 80/60°C	kW	87	120	166	200	
Min. nominal output at 80/60°C	kW	16	22	29	39	
Water resistance at $\Delta t = 20$ K and 80/60°C	mbar	165	135	170	180	
Gas flow natural gas H min.-max.	m ³ /h	1.8-9.4	2.4-13.0	3.3-18.0	4.3-21.7	
Gas flow propane min.-max.	kg/h	1.94-6.91	1.94-9.56	3.42-13.21	3.19-15.93	
Flue gas flow rate min.-max.	kg/h	272-149.7	36.7-206.9	49.5-286.0	65.5-344.9	
Max. flue gas temperature at 40/30°C	°C	43	43	43	43	
Flue gas pressure available	Pa	130	130	130	130	
Water content	l	12	16	20	24	
Minimum water flow (operation > 75°C)	m ³ /h	1.12	1.49	2.14	2.59	
Floor area	m ²	0.54	0.54	0.54	0.54	
Net weight	kg	115	135	165	188	

MAIN DIMENSIONS (MM AND INCHES)



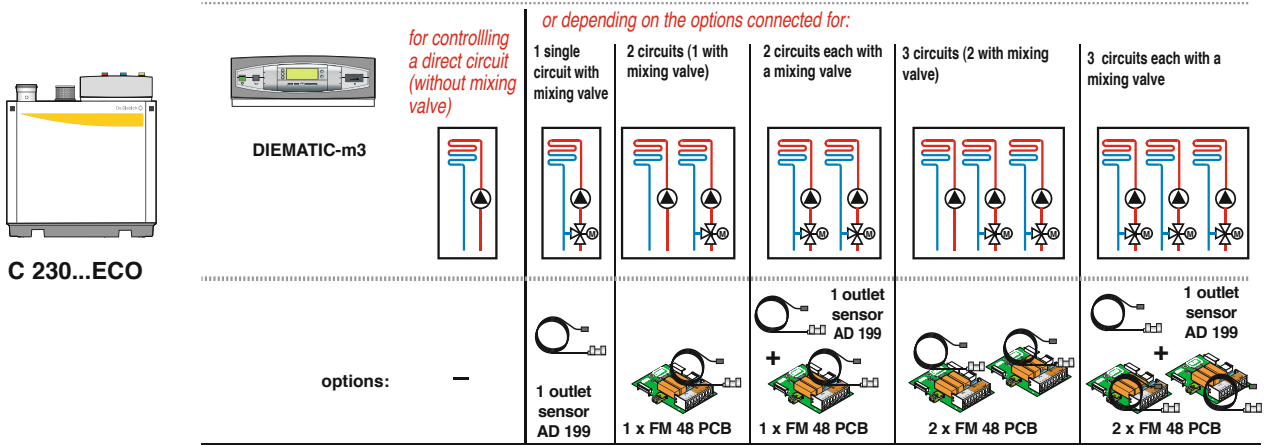
- ① Heating flow
- ② Heating return
- ③ Gas inlet R 1 1/4"
- ④ Filling and drain tap / Connection for second return R 1 1/4"
- ⑤ Condensate drain, siphon provided, for PVC pipe ext. Ø 32 mm
- ⑥ Flue gas nozzle Ø 150 mm
- ⑦ Combustive air inlet

C230_F0001

	A	①	②
C 230-85 ECO	1309	R 1 1/4"	R 1 1/4"
C 230-130 ECO	1309	R 1 1/4"	R 1 1/4"
C 230-170 ECO	1309	R 1 1/4"	R 1 1/4"
C 230-210 ECO	1324	R 1 1/2"	R 1 1/2"

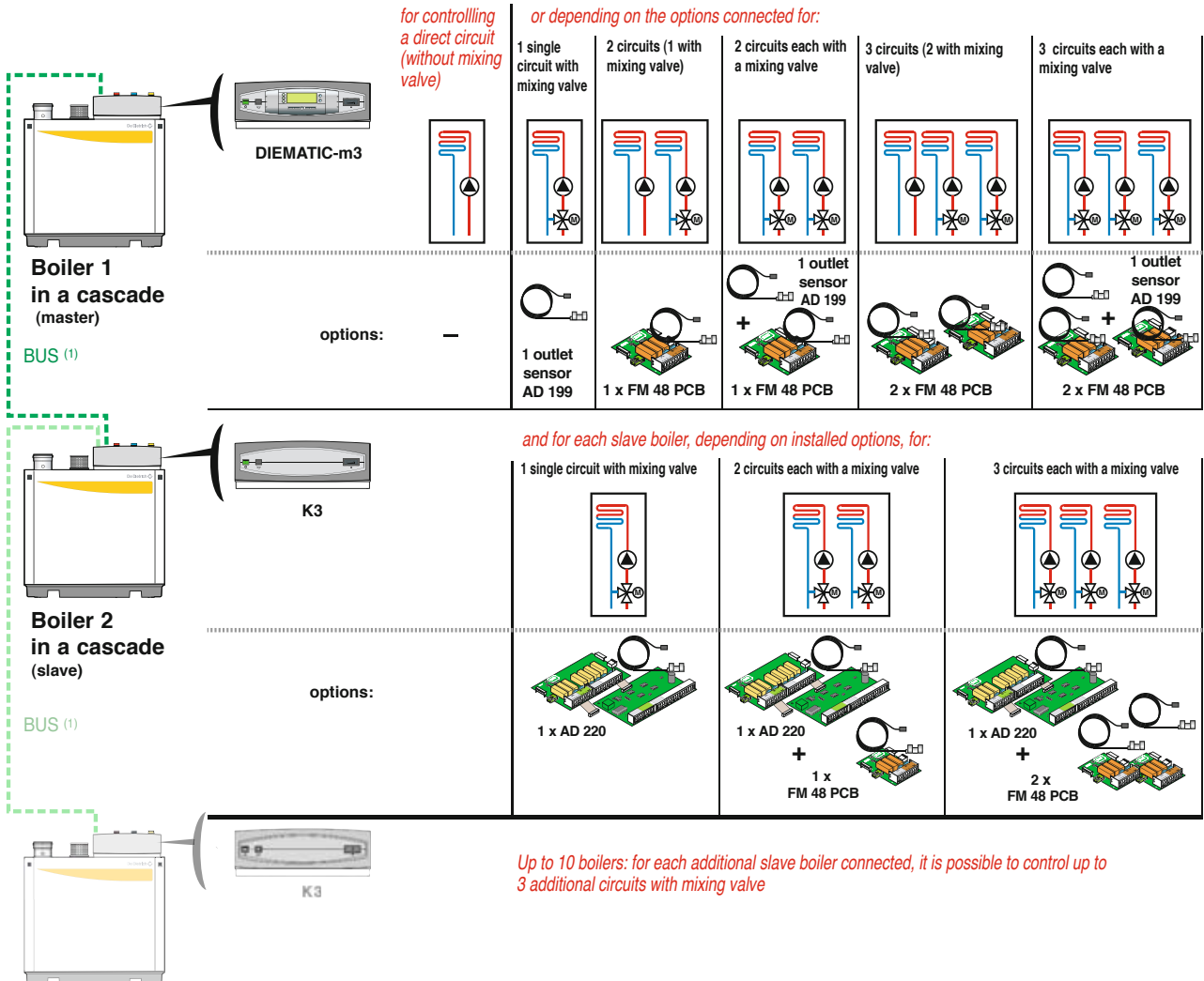
CONTROL PANELS

INSTALLATION WITH ONE BOILER



INSTALLATION WITH BOILERS IN CASCADE (2 TO 10 BOILERS)

2 control panels are required: Panel DIEMATIC-m3 for the master boiler (boiler 1) and control panel K3 for each slave boiler.



(1) BUS cable delivered with control panel K3.

DHW PRODUCTION

The control panel DIEMATIC-m3 includes the management of DHW production and can be completed with DHW sensor AD 212.

THE VARIOUS CONTROL PANELS

DIEMATIC-m3 AND K3 CONTROL PANELS

The **DIEMATIC-m3 control panel** is a very advanced control panel, which includes electronic programmable regulation as standard to modulate the boiler temperature by modulating of the burner according to the outside temperature and the room temperature if a CDI 2 or CDR D. iSystem interactive remote control is connected (optional).

The connection of a room sensor (package AD 244) activate the comfort period start-up optimisation function from the room in which it is installed, without room sensor the anticipation is ensured.

As standard, DIEMATIC-m3 is capable of automatically operating a central heating installation with a direct circuit without mixing valve or a circuit with mixing valve (the flow sensor – package AD 199 – must be ordered separately, however).

By connecting another 1 or 2 “PCB + sensor for 1 valve circuit” options (package FM 48), it is therefore possible to control up to 3 circuits with mixing valve and each of these circuits can be fitted with a CDI 2 or CDR D. iSystem remote control (optional).

Connection of a domestic hot water sensor enables the programming and regulation of a DHW circuit by activating a control system on the load pump; DHW looping can be handled thanks to the auxiliary contact which includes its own programming.

DIEMATIC-m3 also provides antifreeze protection for the installation and the living space if the home is unoccupied and can be programmed 1 year in advance for a period of up to 99 days. Furthermore, the control system includes an “anti-legionella” protection option.

Moreover, in the context of larger installations, it is possible to connect from 2 to 10 boilers in cascade: only the first of these boilers will be fitted with the DIEMATIC-m3 control panel, whilst the others will be fitted with the K3 control panel. Each of these C 230 ECO K3 boilers can in turn be complemented with PCBs (AD 220 + 1 or 2 x FM 48) for controlling up to 3 circuits with mixing valve with or without CDI 2 or CDR D. iSystem remote control.

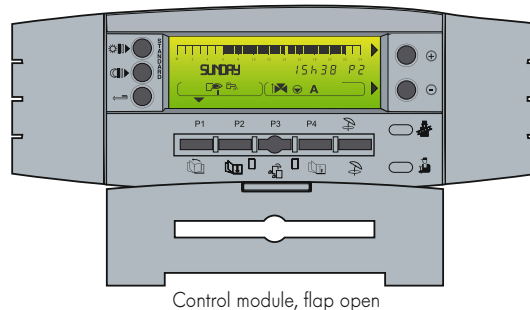
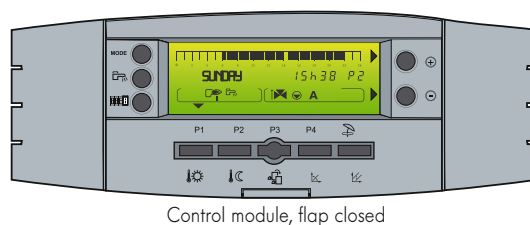
DIEMATIC-m3 control panel



The control module integrated into the DIEMATIC-m3 control panel enables the installer to set the parameters for the entire heating installation, whatever its degree of complexity. It can be used to manage equally well:

- C 230 ECO DIEMATIC-m3 boiler installed on its own,
- or a cascade of boilers in which only the first will be fitted with the DIEMATIC-m3 control panel, all the others being fitted with the K3 control panel.

It also enables the user to programme each of the circuits in the installation independently, including those connected to the slave boilers with K3 control panel in a cascade installation. It makes it possible to select the appropriate operating mode for heating (Auto mode depending on programming, “Day”, “Night” or “Antifreeze” temperature mode, whether temporary or permanent), and for domestic hot water production (Auto, temporary or permanent forced load). It also makes it possible to access the various settings parameters and measurements in the installation to modify them or simply consult them, etc.



THE VARIOUS CONTROL PANELS

K3 control panel



NB: All of the settings and measurement parameters on each of the boilers in cascades fitted with the K3 control panel can be accessed on the DIEMATIC-m3 control panel on the master boiler.

DIEMATIC-m3 AND K3 CONTROL PANELS OPTIONS



GT220_Q001

Flow sensor downstream of the valve - Package AD 199

This sensor is required in installations which have only circuits with mixing valve (no direct

circuit) to connect the first of these circuits to the DIEMATIC-m3 control panel.



8575-Q0036

PCB + sensor for 1 mixing valve - Package FM 48

This is used to control a mixing valve with a 2-direction electrothermal or electromechanical motor. The valve circuit and its circulating pump can be programmed independently.

or 2 additional "PCB + sensor for 1 mixing valve" option(s).

- K3 can also be fitted with these PCBs in addition to the AD 220 PCB required for the first valve circuit connected to a C 230 ECO K3.

Notes:

- In addition to the sensor AD 199 for the first valve circuit, DIEMATIC-m3 can be fitted with 1

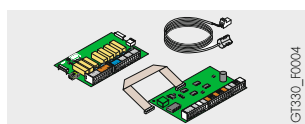


851RQ022

Domestic hot water sensor - Package AD 212

This is used for priority temperature regulation and programming domestic hot water production.

It handles the **boiler sensor function for the C 230 ECO K3** in a modulating cascade installation.



GT330_F0004

Relay PCB + sensors for the first valve circuit on a C 230 ECO K3 - Package AD 220

This PCB is required to connect the first valve circuit with mixing valve to a C 230 ECO boiler with K3 control panel as part of a cascade installation.

NB: 1 "relay PCB + sensors for first valve circuit" per C 230 ECO K3 boiler can be connected.



8575-Q0034

8666-Q172A

AD 251

AD 252

Radio outside temperature sensor - Package AD 251

Boiler radio module (radio transmitter) - Package AD 252

The radio outside temperature sensor can be delivered as optional equipment for systems in which the installation of the external wire connection sensor delivered with DIEMATIC-m3 control panel would be too complex.

If this sensor is used:

- With a wire connection remote control (FM 51 or FM 52), and a radio remote control AD 284, it is necessary to order the "Boiler radio module".



CALENTA_Q0005

8666-Q172A

AD 284

AD 252

CDI 2 interactive remote control - Package FM 51

CDR D. iSystem interactive "radio" remote control (without transmitter/receiver radio) - Package AD 284

Radio boiler module DIEMATIC iSystem (transmitter/receiver) - Package AD 252

These are used to override all instructions from the DIEMATIC-m3 control panel from the room in which they are installed. In addition, they enable the self-adaptability of the heating regime for the circuit concerned (one CDI 2 or CDR D. iSystem per circuit).

In the case of the CDR D. iSystem, the data are transmitted by radio waves from the place where the CDR D. iSystem is installed to the transmitter/receiver box (package AD 252) placed close to the boiler.

THE VARIOUS CONTROL PANELS



8666Q174

Room sensor - Package AD 244

A room sensor is connected to activate the comfort period start-up optimisation function from the room in which it is installed. It is also used to enable the

self-adaptability of the heating curve for the circuit concerned (1 sensor per circuit).



8575Q037

Simplified remote control with room sensor - Package FM 52

The connection of a simplified remote control is used to override certain instructions from the DIEMATIC-m3 control panel from the room in which it is installed: programme override (permanent

comfort or low) and set room temperature override ($\pm 3.5^{\circ}\text{C}$). It is also used to enable the self-adaptability of the heating curve for the circuit concerned (1 remote control per circuit).



8227Q020

BUS connecting cable (length 12 m) - Package AD 134

It is used to make the connection between 2 boilers fitted with the DIEMATIC-m3 control panel in a

cascade installation, or to connect a DIEMATIC VM iSystem control unit.



8199Q063

40 m long BUS connecting cable - Package DB 119

This is intended to replace either the 12 m (delivered with the C 230 ECO K3 boiler) or the

12 m BUS cable (AD 134) when these turn out to be too short.



8801Q018

Dip sensor with tube - Package AD 218

This dip sensor (NTC 147) is delivered with an IP54 junction box and a 1/2" sensor tube, length under head 120 mm. It is used instead of the attachable sensors provided with the PCB and valve options.

It can also be used on the header pipe when connecting 2 boilers in cascade.



8531Q013

Set of 2 sensors for storage tank - Package AD 216

Includes 1 DHW sensor and 1 heating sensor for managing a storage tank with a boiler fitted with a DIEMATIC-m3 control panel.



VM_Q001

DIEMATIC VM iSystem control system - Package AD 281

With the addition of a BUS cable, the DIEMATIC-m3 control panel can be completed with one or more DIEMATIC VM iSystem modules (up to 20), making it possible to control 2 additional hydraulic circuits each.

Each of these circuits may be either:

- a heating circuit with motorised 2-way valve
- or a domestic hot water preparation circuit
- or an auxiliary circuit. See specific instruction booklet for the "DIEMATIC VM iSystem Control System".

BOILER OPTIONS



C210_Q0010

2nd return nozzle - Package GR 5

This package is used to differentiate the low and high temperature return circuits and thus to optimize condensation to the full.



C210_Q0013

Sensor tube for outlet sensor - Package GR 6

This sensor tube is provided to be mounted on heating flow (factory plugged) if an external

regulation is connected (available regulation in boiler room).



C230_Q0004

Gas valve unit sealing control - Package GV 26 (for C 230-170 and C 230-210)

It is adapted to the gas train and checks the tightness of the safety valves during the pre-sweep. If a leak is detected, the boiler goes into safety

shutdown and the fault will be signalled by the DIEMATIC-m3 control panel.



C230_Q0005

Min. gas pressure switch: - Package GV 22 for C 230-85 and C 230-130 - Package GV 25 for C 230-170 and C 230-210

Is set on gas unit and cuts of the boiler if the gas supply pressure is to low. The fault will be signalled by the DIEMATIC-m3 control panel.

BOILER OPTIONS



C230_Q0002

300 mbar pressure regulator

Typ	Gas flowrate max. m ³ /h	Nominal input max. kW	Ø connection	Package
GDJ 25	70	700	Rp 1	AD 245
GDJ 50	140	1400	Rp 2	AD 246

It is fitted to the gas inlet circuit. It is necessary if the gas main supply is at 300 mbar.



C210_Q0009

Air intake filter - Package GR 8

It is fitted to the combustive air inlet and obviates a fall in output if the pre-mix gas burner is clogged owing to it being in a dusty atmosphere.



C230_Q0007

Flue gas thermostat - Package GV 21

This thermostat cut the burner in case of a too high flue-gas temperature.



C230_Q0006A

Motorised flue damper - Package GV 24

Absolutely essential on each boiler with cascade installation connected to a flue piping under pressure (B_{23p}), it avoids the combustion products to return to the boiler when they are stopped. This

valve is fixed directly on the flue gas nozzle. The electrical connection is made via a connector to the connection terminal block on the DIEMATIC-m3 and K3 panels.



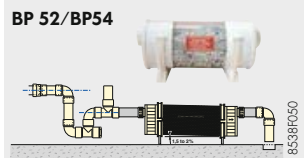
C210_Q0014

DU 13/DU 14

Condensates neutralisation system

- **With pump:** - Package DU 13 (boilers up to 120 kW)
- Package DU 14 (boilers from 120 to 350 kW)

The acidic condensates flow through a tank filled with granules before being discharged into the waste water network.



8538F050

BP 52/BP54

- **Without pump:** - Package BP 52 (up to 19 200 l of condensates)
- Package BP 54 (up to 38 400 l of condensates)

To define the type of neutraliser for the BP range, it should be considered that 1 litre of condensates is the equivalent of around 1 m³ of gas consumed.

Neutralisation granules: - for DU 13 and DU 14: ref. 9422-5601 - 10 kg
- for BP 52 and BP 54: ref. 9422-5600 - 5 kg

An annual check of the system, particularly the effectiveness of the granules, by measuring the

pH is necessary. If need be, the granules must be replaced.

Propane conversion kit: - for C 230-85 and C 230-130: package GV 23
- for C 230-170 and C 230-210: package GV 27

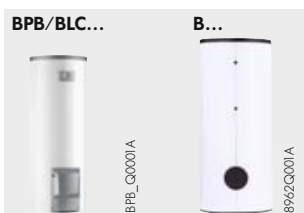
The package GV 23 contains a set with diaphragm and gaskets.

The package GV 27 contains a propane gas-unit with venturi.



MCA_Q0038

Disconnecting cylinder 120/180-2" - package GV 47



8962Q001A

BPB/BLC...

B...

DHW production

De Dietrich BPB/BLC/B... series independent DHW tanks with a capacity of 650 to 1000 litres can be used for domestic hot water production for individual and collective residences as well as for industrial and commercial premises. They are lined with food quality standard high quartz content

vitrified enamel and protected by a magnesium anode for BPB/BLC... and B 650, and "correx[®]" imposed current for B 800 and B 1000. The specifications and performances of these tanks are given in the price catalogue and the technical booklets.

INFORMATIONS REQUIRED FOR INSTALLATION

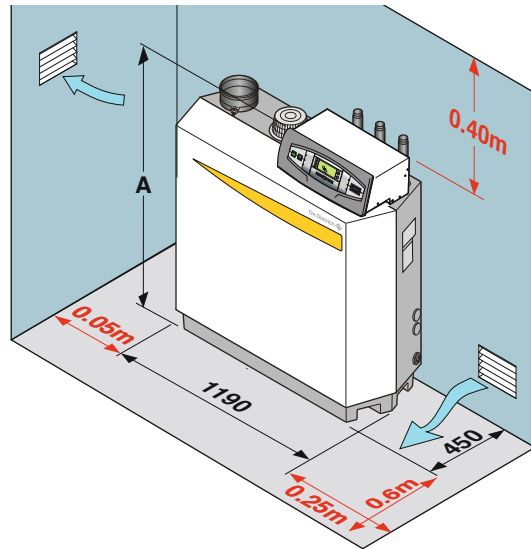
STATUTORY INSTRUCTIONS ON INSTALLATION AND MAINTENANCE

The installation and maintenance of the appliance must be carried out by a qualified professional in compliance with the statutory texts of the codes of practice in force.

INSTALLATION IN BOILER ROOMS

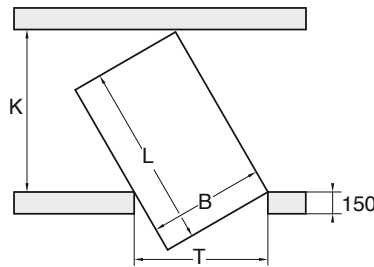
The dimensions shown in red are the minimum recommended dimensions for providing adequate access around the boiler.

Note: for installations with several boilers in cascade, these same dimensions should be respected for each boiler.



Overall boiler dimensions

Boiler type	L (mm)	B (mm)	A (mm)
C 230-85 ECO	1190	450	1309
C 230-130 ECO	1190	450	1309
C 230-170 ECO	1190	450	1309
C 230-210 ECO	1190	450	1324



Minimum door (T) and corridor (K) widths necessary for clearance of the boiler

(these are minimum calculated values)

$$K = \frac{B}{T} \times L \quad \text{and} \quad T = \frac{B}{K} \times L$$

Example: Calculation of the min. width of a corridor (K) necessary for the clearance of a C 230-... ECO boiler through a door width T = 800 mm

$$K = \frac{450 \times 1190}{800} = 670 \text{ mm minimum}$$

Boiler room ventilation

The cross-section of the boiler room ventilation (through which combustible air is taken in) must comply with the prevailing standard.



In order to avoid damage to boilers, it is necessary to prevent the contamination of combustion air by chloride and/or fluoride compounds, which are particularly corrosive. These compounds are present, for example, in aerosol spray cans, paints, solvents, cleaning products, washing powders/liquids, detergents, glues, snow clearing salts, etc.

It is therefore necessary:

- To avoid sucking in air discharged from premises using such products: hairdressers, dry cleaners, industrial premises (solvents), premises containing refrigeration systems (risk of leaking refrigeration fluid), etc.
- To avoid the storage of such products close to boilers.

Please note that, if the boiler and/or its peripherals become corroded by chloride and/or fluoride compounds, our contractual warranty cannot be invoked.

C230_F0010A

C330 encmbrement

INFORMATIONS REQUIRED FOR INSTALLATION

GAS CONNECTION

Compliance with prevailing instructions and regulations is mandatory. In all cases, a sectional valve is fitted as close as possible to the boiler. A filter should be fitted to the gas supply inlet immediately after the sectional valve.

The pipe diameters must be defined in accordance with prevailing specifications.

Gas storage bottles

Gas storage bottles are one of the solutions employed to correct the problem of the "min" or "max" pressure switches fitted to the gas burners being tripped unnecessarily. This kind of tripping is

Gas supply pressure:

- 20 mbar on natural gas H,
- 300 mbar on natural gas H with pressure regulator, available as optional equipment.

related to the inertia of the fluid - regulator system, which causes vacuums and overpressures in the gas mains pipe when the burners start up or shut down.

ELECTRICAL CONNECTION

This must comply with the prevailing standard.

The boiler is protected by a 4 A circuit breaker located behind the control panel. It must be powered by an electrical circuit comprising an omnipole switch with an opening distance > 3 mm.

Notes:

- The sensor cables must be separated from the 230 V circuits by at least 10 cm,
- In order to protect the pump antifreeze and cleaning functions, we recommend not switching off the boiler at the mains switch.

INFORMATIONS REQUIRED FOR INSTALLATION

HYDRAULIC CONNECTIONS

Important

The principle of a condensation boiler is to recycle the energy contained in the water vapour in the combustion gases (latent vaporisation heat). Consequently, to achieve an annual operating efficiency in the order of 109%, it is necessary to size the heating

surfaces in such a way as to obtain low return temperatures, below the dew point (e.g. underfloor heating, low temperature radiators, etc.) during the entire heating period.

Connection to the heating circuit

C 230-... ECO boilers must only be used in closed circuit heating installations. The central heating systems must be cleaned to eliminate the debris (copper, strands, brazing flux) linked to the installation of the system and deposits that can cause malfunctions (noise in the system, chemical reaction between metals). More particularly, if fitting a boiler to an existing installation, it is strongly recommended that

you clear sludge out of the system before installing the new boiler. After carrying out this work, particular monitoring of the installation may be necessary both in respect of the water in the network and the quality of the water used for topping it up in order to be in full control of the consequences. Suitable filters may be necessary in some cases.

Requirements on heating water:

- Total hardness: TH < 25°F
- Mains pH: pH < 9

Water treatment

If the installation requires water treatment: consult us, particularly for:

- water treatment which complies with the use of materials used in the construction of the boiler, the aluminium heating body, the pH of the water must not exceed 9.

- the precautions to be taken to prevent the formation and localisation of oxygen in the water in the installation.
- antifreeze products: ensure that these are compatible with aluminium and, if need be, with other components in the installation

Maximum/minimum water flow

The maximum difference in temperature between flow water and return water, and the speed at which the flow temperature increases, are restricted by the boiler's microprocessor ($\Delta T = 45^\circ\text{C}$); consequently, the boiler does not need a minimum flowrate provided that it operates at a maximum temperature of 75°C .

If the maximum temperature exceeds 75°C , it is necessary to respect the following minimum flowrates:

Minimum water flowrate:

For the C 230-85 ECO	$Q_{\text{mini}} = 1.1 \text{ m}^3/\text{h}$
For the C 230-130 ECO	$Q_{\text{mini}} = 1.5 \text{ m}^3/\text{h}$
For the C 230-170 ECO	$Q_{\text{mini}} = 2.1 \text{ m}^3/\text{h}$
For the C 230-210 ECO	$Q_{\text{mini}} = 2.6 \text{ m}^3/\text{h}$

Maximum water flowrate:

Flow speeds in the heating body which are too high reduce the transfer of heat. Therefore, it is necessary to restrict the water flow to the value obtained using the following formula:

$$Q_{\text{max}} (\text{m}^3/\text{h}) = \text{Nominal useful output} / 9.3$$

Condensates discharge

It must be connected to the waste water discharge system. The connection must be removable and the flow of condensates visible. The connections and pipes must be in corrosion-resistant material.

Condensates neutralisation stations are available as optional equipment.

INFORMATIONS REQUIRED FOR INSTALLATION

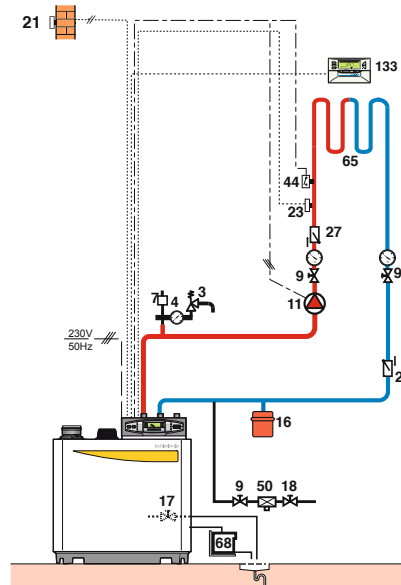
INSTALLATION DIAGRAMS

The examples presented below cannot cover the full range of installation scenarios which may be encountered. Their purpose is to draw the attention to the basic rules to be followed. A certain number of control and safety devices are represented but, in the last resort, it is up to the experts, consultant engineers and design departments to make the final decision on the control and safety devices to be used in the boiler room, depending on its specificities.

In all events, it is necessary to abide by the codes of practice and the local and national regulations in force.

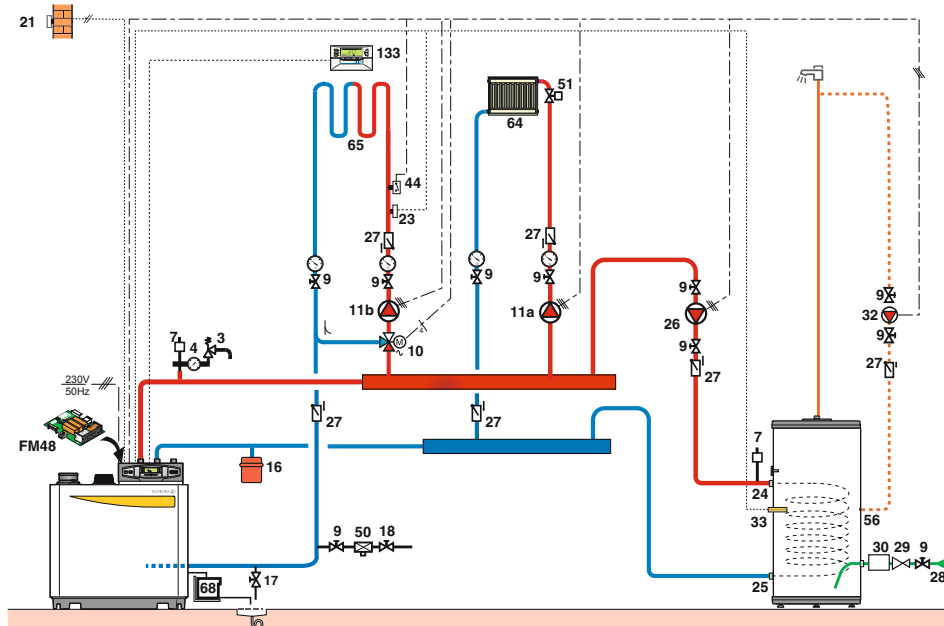
Note: For the connection of domestic hot water, a sleeve made of steel, cast iron or any other insulating material must be interposed between the hot water outlet and this pipework to prevent any corrosion to the spot welds, if the distribution pipework is made of copper.

Installation of a C 230-... ECO with 1 underfloor heating circuit



C230_F001

Installation C 230-... ECO with 1 direct "radiator" circuit + 1 circuit with mixing valve + 1 DHW production circuit

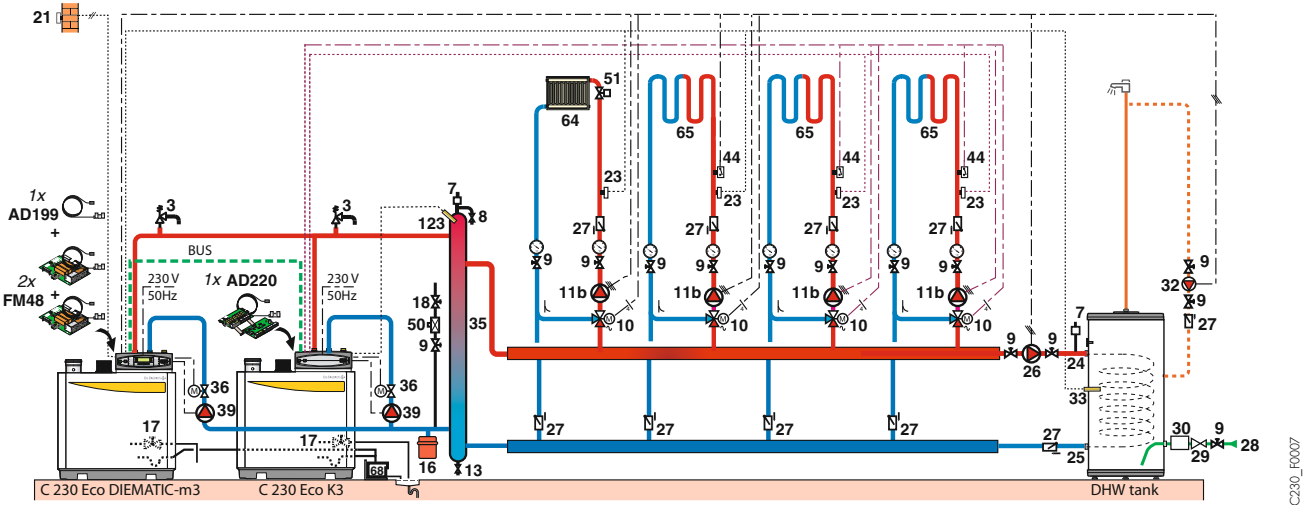


C230_F002

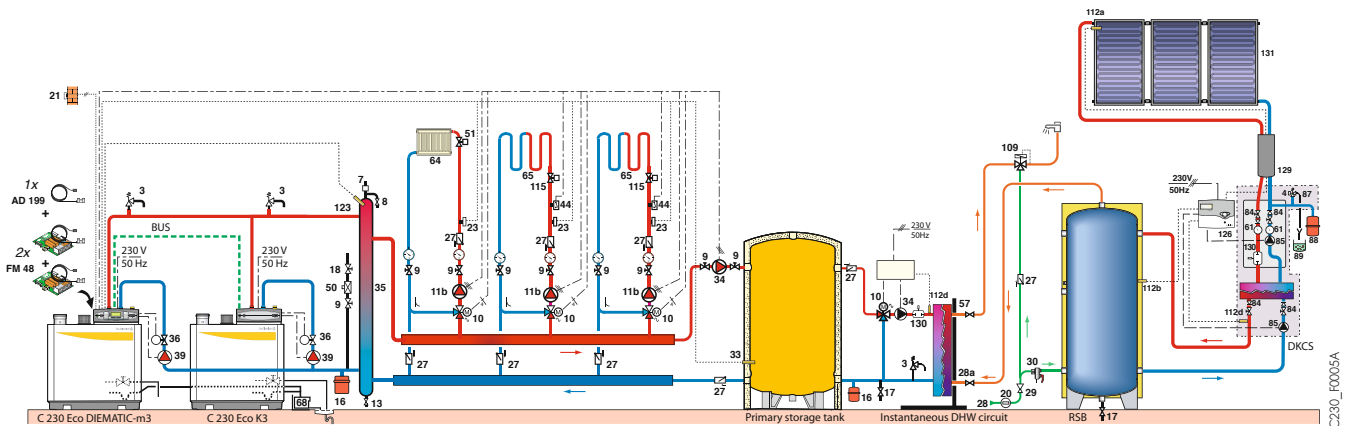
See captions on page 14

INFORMATIONS REQUIRED FOR INSTALLATION

Installation of 2 x C 230-... ECO boilers in cascade (type 1 primary circuit with injection pumps) with 4 circuits with mixing valve + 1 DHW production circuit all behind a disconnecting cylinder



Installation of 2 x C 230-... ECO boilers in cascade, with primary pump, with 3 circuits with mixing valve + 1 instantaneous domestic hot water circuit with primary storage and solar preheating



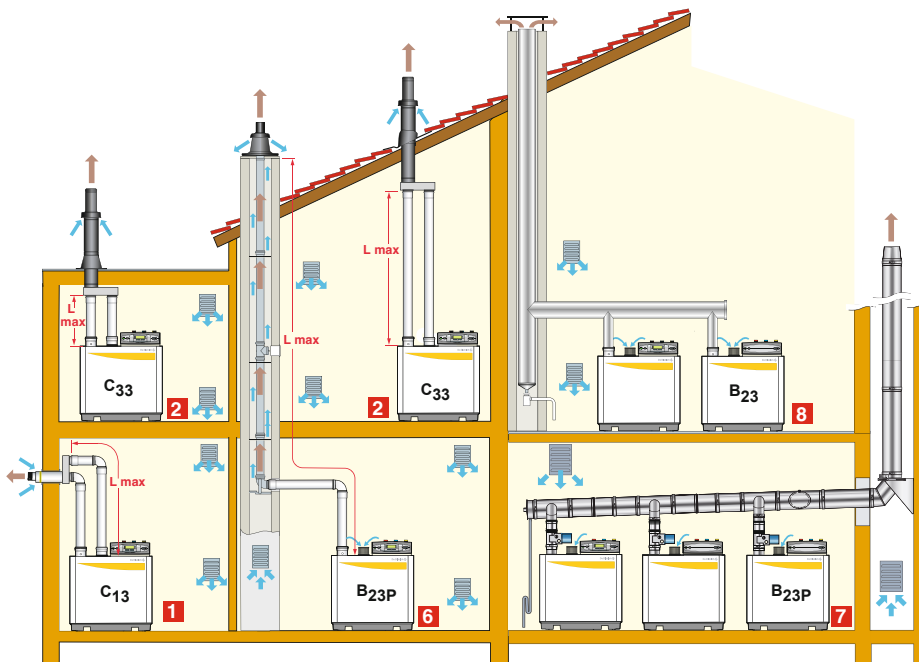
Key

- | | | |
|---|---|---|
| 1 Heating flow | 27 Non-return valve | 85 Solar primary circuit pump (to connect on DIEMASOL regulation) |
| 2 Heating return | 28 Domestic cold water inlet | 87 Safety valve sealed and calibrated to 3 bar |
| 3 Safety valve 3 bar (not delivered) | 28a Preheated domestic water inlet | 88 Solar expansion vessel |
| 4 Pressure gauge (delivered) | 29 Pressure reducer | 89 Receptacle for heat transfer fluid |
| 7 Automatic air vent (not delivered) | 30 Sealed safety device calibrated to 7 bars* | 109 Thermostatic mixing valve for domestic hot water |
| 8 Manual air vent | 32 (Optional) DHW loop pump | 112a Collector sensor |
| 9 Valve | 33 DHW temperature sensor | 112b Solar tank sensor |
| 10 3-way mixing valve | 34 Primary pump | 112d Thermal plate exchanger flow sensor |
| 11 Heating pump | 35 Disconnecting cylinder | 115 Thermostatic distribution valve per zone |
| 11a Electronic pump with automatic setting for direct heating circuit | 36 Motorised isolating valve | 123 Cascade flow sensor (to connect to the slave boiler) |
| 11b Heating pump for circuit with mixing valve | 44 65°C limiter thermostat with manual reset for underfloor heating | 126 DIEMASOL solar regulator |
| 13 Flush valve | 50 Disconnector | 129 Duo-tube |
| 16 Expansion tank | 51 Thermostat valve | 130 Degasser with manual purge (Airstop) |
| 17 Drainage valve | 57 Domestic hot water outlet | 131 Flat/tube collector bank |
| 18 Heat circuit filling | 64 Radiator circuit (gentle heat radiators, for example) | 133 Interactive remote control |
| 20 Water meter | 65 Low temperature circuit (underfloor heating, for example) | * Mandatory, in compliance with safety directives: we recommend hydraulic safety units with membranes |
| 21 Outside temperature sensor | 68 Condensates neutralisation system | |
| 23 Flow temp. sensor downstream of mixing valve | 76 Diaphragm safety valve sealed and calibrated at 6 bar | |
| 24 Primary inlet on the DHW tank exchanger | 84 Stop valve with releasable non-return valve | |
| 25 Primary outlet on the DHW tank exchanger | | |
| 26 Domestic water load pump | | |

INFORMATIONS REQUIRED FOR INSTALLATION

AIR/FLUE GAS CONNECTION

For the use of the air/flue gas connection pipes and the rules on installation, see details of the various configurations in the current product catalogue.



- 1 Configuration C₁₃:** Air/flue gas connection by means of separate air and flue gas pipes to a concentric horizontal terminal (wall outlet). Attention: configuration banned in establishments open to the public.
- 2 Configuration C₃₃:** Air/flue gas connection by means of separate air and flue gas pipes to a concentric vertical terminal (roof outlet).
- 6 Configuration B_{23P}:** Connection to a flue gas conduit under pressure, the combustive air being drawn from the boiler room.
- 7 Configuration B_{23P}:** For cascade installation, combustive air taken from the boilers room. The compulsory flue dampers are to order separately (Package GV 24).
- 8 Configuration B₂₃:** Connection of a boiler alone or of boilers in cascade to a moisture-insensitive flue gas conduit under vacuum, the combustive air being drawn from the boiler room.

C230_F0008C

Table of maximum air/flue gas pipe lengths admissible according to boiler type

Type of air/flue gas connection	Maximum length of the connecting pipes L max in m					
		C 230-85 ECO	C 230-130 ECO	C 230-170 ECO	C 230-210 ECO	
Separate air and flue gas connected to a horizontal terminal	C ₁₃	Ø 150 mm Alu	50	37	16	14
		Ø 160 mm PPS	50	37	16	14
Separate air and flue gas pipes connected to a vertical terminal	C ₃₃	Ø 150 Alu	50	37	16	14
		Ø 160 mm PPS	50	37	16	14
Connection to a chimney (combustive air taken from the premises)	B _{23P}	Ø 110 mm PPS	27	8	-	-
		Ø 110 mm PPS flex	14,5	4	-	-
		Ø 150 mm Alu	50	50	45	27
		Ø 160 mm PPS	50	50	50	43

Installation

- C 230-... ECO boilers are C_{13x} and C_{33x} approved. The type of connection we propose (separate air and flues gas pipes on the boiler outlet) shows an installation in configuration C₁₃ and C₃₃ and ventilation of the boiler room is imperative.
- As the connections of the chimney flues (type B_{23P}) are pressurised, they must be installed either outdoors, or in an indoor ventilated brick sheath.
Ventilation must be ensured:
 - by an opening located in the lower section, taking air either from the ventilated common areas or directly from the outside, and,
 - by an opening located in the upper section coming out outside.

- The minimum cross-section of the air vacuum and the openings to be provided must be 100 cm² (free section). The removable parts of this sheath must enable the inspection of the flue gas pipe along its entire length.
- The boiler must be connected pursuant to prevailing provisions, i.e. with pipes intended to evacuate pressurised flue gases. They must not allow any flue gas leakage and be resistant to corrosion.
 - Appliances must be installed in such a way that their relative position in relation to the special evacuation device cannot be modified even after maintenance work.
 - The appliance and its connection pipe must remain accessible with a view to maintenance and repair.

TECHNICAL DESCRIPTION

C 230 ECO

Floor standing gas condensing boiler,
total premix modulating gas burner.

Brand: De Dietrich
Model: C 230-____ ECO for heating only
Useful output: ____ kW
Used gas: natural L – H or propane
Water content: ____ litres
Safety thermostat: 110°C
Gas pressure: 20/25 mbar
Gas flow (natural gas): ____ m³/h
Power supply: 230 V/ 50 Hz
Max. operating temperature: 90°C
Max. operating pressure: 6 bar
Protection index: IP 21
Flue gas pressure available: ____ Pa

Footprint: 450 (L) x 1190 (l) mm
Gas inlet: R 1 1/4"
Ø Flue gas nozzle: 150 mm
Ø Combustion air inlet: 150 mm
Ø Heating flow/return: R 1 1/4"
Ø Condensate draining: 32 mm
Net weight: ____ kg

The boilers are delivered in 2 packages:

- Boiler tested in factory
- Control panel DIEMATIC-m3 or panel K3

DESCRIPTION

- Complies with the requirements of European Directives.
- Classification: B₂₃, B_{23P}, C₁₃, C₃₃, C₄₃, C₅₃, C₆₃, C₈₃
- Operating efficiency up to 109%; efficiency class ★★★★★CE
- Heat exchanger in cast aluminium-silicium sections highly resistant to corrosion, with self-cleaning properties linked to the flow of condensates requiring no minimum water flow by operating < 75°C
- Cylindrical total premix gas burner with metallic fibre coating. Very low pollutant emissions, NO_x from 49 to 62 mg/kWh (class 1 - EN 297 PrA2)
- Modulating from 18 to 100%
- Perfect adaptation of the boiler output to the actual needs of the installation (between 18 and 100%).
- Low noise level: from 57 to 63 dB(A) depending on output
- Electronic ignition
- Condensate drain, siphon provided.
- DIEMATIC-m3 control panel: an advanced control panel which includes electronic programmable regulation according to the outside temperature to control up until 3 circuits mixing valve, enables the programming and regulation of a DHW circuit and the connection from 2 to 10 boilers in cascade.
- Control panel K3: is fitted only on a « slave » boiler in association with a boiler fitted with a DIEMATIC-m3 control panel in the case of a cascade installation.

Boiler options

- 2nd return pipe
- Flue gas thermostat
- Motorised flue damper
- Conversion kit GPL
- Sensor tube for outlet sensor
- Gas valve unit sealing control
- Air intake filter
- Mini gas pressure switch
- 300 mbar pressure regulator
- Condensates neutralisation system (boilers until 120 kW)
- Condensates neutralisation system (boilers from 120 to 350 kW)
- Condensates neutralisation system (boilers from 350 to 1300 kW)
- Neutralisation granules 10 kg.

Control panel options

- Sensor for mixing valve
- Flue gas temperature sensor
- PCB + sensor for 1 circuit with mixing valve
- PCB + sensor for 1st mixing valve circuit for panel K3
- DWH sensor
- Interactive remote "radio" control CDR D. iSystem
- Interactive remote control CDI 2
- Simplified remote control with room sensor
- PCB + sensor for mixing valve
- Telemonitoring vocal module
- Bus cable connection 12 m
- Bus cable connection 40 m for wall brack
- Bus cable connection RX 10
- Dip sensor DIEMATIC 3, -m3.

DE DIETRICH THERMIQUE

Simplified Share Company with registered capital of 22 487 610 €
57, rue de la Gare - F-67580 MERTZWILLER
Tel. +33 (0)3 88 80 27 00 - Fax +33 (0)3 88 80 27 99
www.dedietrich-heating.com

De Dietrich 

