

Fuel oil/gas-fired boilers

GT 220 - GT 2200



Installation and Service Manual

Declaration of conformity CE

The appliance complies with the standard model described in declaration of compliance **CE**. It is manufactured and distributed pursuant to the requirements of 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/Adress/Adress : 57 rue d ela gare
Ville, pays Stad, Land/City, Country/Land, Ort : 67580 MERTZWILLER

- déclare ici que les produit(s) suivant(s) : GT 220
- verklaart hiermede dat de toestel(len)
- this is to declare that the following product(s)
- erkl ert hiermit das die Produk(te)

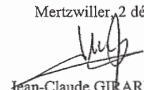
produit (s) par : De Dietrich Thermique
: 57, rue de la Gare
: F-67580 Mertzwiller

r pond/r pondent 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:	92/42/CEE	normes appliqu�es, toegepaste normen:
EEG-Richtlijn:	92/42/EEG	tested and examined to the following norms:
EEC-Directive:	92/42/EEC	verwendete Normen:
EG-Richtlinie:	92/42/EWG	EN 303.1(1999), EN 303.2(1999), EN 304(1993)
	90/396/CEE	EN 303.3(1999)
	90/396/EEG	
	90/396/EEC	
	90/396/EWG	
	73/23/CEE	DIN EN 50165(2001) EN 50165 (1997+A1:2001)
	73/23/EEG	DIN EN 60335-1(2003), EN 60335-1(2002)
	73/23/EEC	
	73/23/EWG	
	89/336/CEE	EN 55014-1(2000+A1:2001)
	89/336/EEG	EN 55014-2(1997+A1:2001)
	89/336/EEC	EN 61000-3-2(2000),
	89/336/EWG	EN 61000-3-3(1995+A1:2001) EN55022 classe B (1998+A1 :2000)
	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)



Mertzwiller, 2 d cembre 2008


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1 Safety instructions


Danger


This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

 Any operation on the installation must be performed by a qualified technician respecting professional regulations and in accordance with this document.


 Before any work, switch off the mains supply to the appliance. Protect the installation against any unwanted restarts.


 For a proper operating of the boiler, follow carefully the instructions.


 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 engineer).


 Work on electrical equipment must be carried out by a qualified professional in compliance with the prevailing regulations.

 Check that the appliance is properly set for the type of gas used.

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


 Check the seal on the gas and water pipe connections.

 We shall not accept any responsibility for any damage and disturbance arising from not following these instructions.


 Incorrect use or unauthorised modifications to the installation or the equipment itself invalidate any right to claim.

1.1 General safety instructions

1.1.1 Fire hazard

 Do not stock products of an inflammable nature close to the appliance.

1.1.2 Risk of intoxication

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

 If you smell flue gases

1. Switch the appliance off
2. Open the windows
3. Evacuate the premises
4. Contact a qualified professional


1.1.3 Risk of being burnt

 Depending on the settings of the appliance:

- The temperature of the flue gas conduits may exceed 60°C

- The temperature of the radiators may reach 95°C
- The temperature of the domestic hot water may reach 65°C









1.1.4 Risk of damage

 Do not stock chloride or fluoride compounds close to the appliance.

 Install the appliance in frost-free premises.

Do not neglect to service the appliance: Contact a qualified professional or take out a maintenance contract for the annual servicing of the appliance.

1.2 Recommendations

-  For a proper operating of the boiler, follow carefully the instructions.
-  Any intervention on the appliance and heating equipment must be carried out by a qualified engineer.
-  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 engineer).
-  Work on electrical equipment must be carried out by a qualified professional in compliance with the prevailing regulations.
-  Check that the appliance is properly set for the type of gas used.
-  Keep to the polarity shown on the terminals: phase (L), neutral (N) and earth $\frac{1}{\text{---}}$.
-  Check the seal on the gas and water pipe connections.
-  We shall not accept any responsibility for any damage and disturbance arising from not following these instructions.

1.3 Liabilities

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

1.3.2 Installer's liability

The installer is responsible for the installation and commissioning of the appliance. The installer is required to observe the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance
- Install the appliance in accordance with the legislation and standards currently in force
- 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

2 About this manual

2.1 Symbols used in the manual



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.

2.2 Abbreviations

- ▶ **DHW:** Domestic hot water.
- ▶ **PPS:** Polypropylene hardly inflammable.
- ▶ **3CE:** Collective conduit for sealed boiler
- Hi:** Lower heating value LHV (Nett)
- Hs:** Higher heating value HHV (Gross)

2.3 Homologations

2.3.1 Certifications

■ In general

CE identification no: 1312BR4657 (Base):

France, Germany, Austria, Belgium, Spain, Italy, Luxemburg, Poland, Portugal, Czech Republic, Slovenia, Switzerland.

■ In particular for Switzerland:

Accreditation no. OFEFP: 293010

Accreditation no. AEAI: 8088

■ Residential buildings

Statutory terms and conditions of 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 conduct in force, particularly:

- Order of 27 April 2009 amending the Order of 2 August 1977 Technical and safety rules applicable to combustible gas and liquefied hydrocarbon installations situated inside residential buildings and their annexes.
- NF P 45-204 standards Gas installation, (formerly DTU 61-1, gas installations: April 1982, addendum no 1: July 1984).

- Local Sanitary Regulations

For appliances connected to the electricity network:

- NF C 15-100 standards Low voltage electrical installation - Rules..

■ Establishments open to the public (Statutory terms and conditions of installation)

The installation and maintenance of the appliance must be carried out in compliance with the statutory texts and rules of the codes of conduct in force, particularly:

Safety regulations against fire and panic in establishments open to the public:

- General regulations:
 - For all appliances: Articles GZ - Installations operating on combustible gases and liquefied hydrocarbons.
 - Then, depending on use: Articles CH-Heating, ventilation, refrigeration, air conditioning and production of steam and domestic hot water.
- Instructions specific to each type of establishment open to the public (hospitals, stores, etc.).

2.3.2 Directive 97/23/EC

Gas and oil boilers with a maximum operating temperature of 110°C and hot water tanks with a maximum operating pressure of 10 bar pertain to article 3.3 of the directive, and therefore, cannot be CE-marked to certify compliance with the directive 97/23 EC.

The boilers and hot water tanks are designed and manufactured in accordance with the sound engineering practice, as requested in article 3.3 of the directive 97/23/EC, it is certified by compliance with the directives 90/396/EC, 92/42/EC, 2006/95/EC and 2004/108/EC.

3 Technical description

3.1 General

Boilers in the **GT 220** range have the following characteristics:

- Autonomous automatic hot water boilers
- Boiler ** CE.
- Connecting to a chimney
- Boiler to be fitted with an independent burner using fuel oil or gas
- **B, B2, X,** or **DIEMATIC 3** control panel

Boilers in the **GT 2200** range have the following characteristics:

- Autonomous automatic hot water boilers
- Boiler ** CE.
- Connecting to a chimney
- Boiler to be fitted with an independent burner using fuel oil or gas
- **B, B2,** or **DIEMATIC 3** control panel
- Domestic hot water production by 160 / 250-litre tank positioned on the floor under the boiler

3.2 Composition of the range

GT 220/2200 B	Boiler with electronic control panel.
GT 220/2200 B2	Boiler with B2 basic electronic control panel for controlling a 2-stage burner.
GT 220/2200 D	Boiler with DIEMATIC 3 electronic control panel
GT 220/2200 D + AD217	Boiler with DIEMATIC 3 control panel for controlling a 2-stage or modulating burner.
GT 220 X	Boiler with X electronic control panel

3.3 Technical specifications

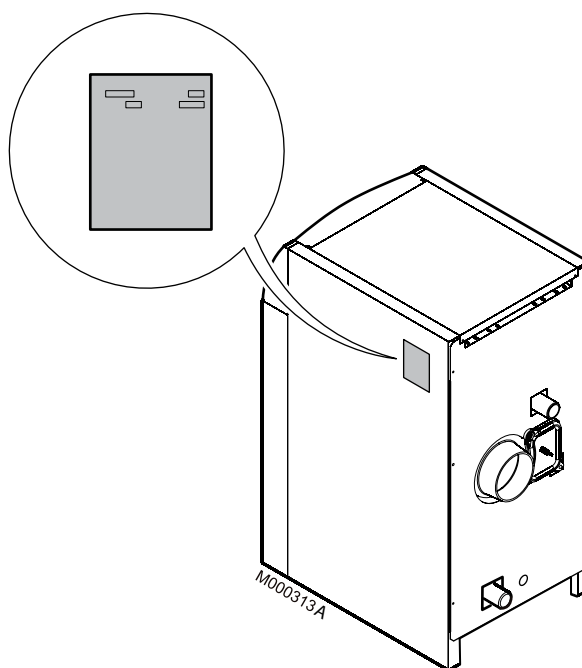
12.5 % on fuel oil and 9.5 % on natural gas

- Flow temperature: 80 °C.
- Return temperature: 60 °C.
- Maximum operating pressure: 4 bar
- Maximum operating temperature: 100 °C
- Boiler thermostat setting: 30 - 90 °C
- Setting the safety thermostat: 110 °C

Boiler type			GT 224 GT 2204 160	GT 2204 250	GT 225 GT 2205 160	GT 2205 250	GT 226	GT 227	GT 228
Nominal output	Pn	kW	50	50	64	64	78	92	100
Useful output range		kW	40-50	40-50	50-64	50-64	64-78	78-92	92-100
Input range		kW	43.2-54.5	43.2-54.5	54.0-69.7	54.0-69.7	69.7-84.8	84.2-100.1	99.6-108.9
LHV efficiency - at 100% Pn (Average temperature: 70 °C)		%	91.7	91.7	91.8	91.8	92.0	91.9	91.8
LHV efficiency - at 30% Pn (Average temperature: 50 °C)		%	93.9	93.9	93.7	93.7	93.6	93.8	94.1
LHV efficiency - at 30% Pn (Average temperature: 40 °C)		%	94.1	94.1	94.3	94.3	94.6	94.6	94.7
Fuel oil burner (Option)	1 stage		M200/1S(1)	M200/1S(1)	M200/1S(1)	M200/1S(1)	M201/2S	M201/2S	M201/2S
	1 stage		M201/2N	M201/2N	M201/2N	M201/2N			
	2 stages						M202/2S(1)	M202/2S(1)	M202/2S(1)
	1 stage (Belgium)		M100/3S	M100/3S	M100/3S(2)	M100/3S(2)			
Gas burner (Option)	1 stage		G200/1S	G200/1S	G200/1S	G200/1S	G200/1S(3)		
	2-stage or modulating						G201/2N(4)	G201/2N	G201/2N
Number of cast iron parts			4	4	5	5	6	7	8
Nominal water flow (Nominal output)	$\Delta T = 20K$	m ³ /h	2.151	2.151	2.754	2.754	3.356	3.959	4.303
Stand-by losses	$\Delta T = 30K$	W	118	118	139	139	160	181	202
Losses through the outer casing	$\Delta T = 30K$	%	95	95	94	94	94	94	89
Auxiliary electrical power (Nominal output - Ex circulating pump)		W	10	10	10	10	10	10	10
Water content		litres	36	36	43	43	50	57	64
Water resistance	$\Delta T = 15K$	mbar*	11.0	11.0	17.8	17.8	26.5	36.7	43.4
Flue gas circuit volume		litres	54	54	68	68	83	97	111
Combustion chamber	Inscribed Ø	mm	309	309	309	309	309	309	309
	Depth	mm	446	446	573	573	700	827	954
	Volume	litres	33	33	42	42	51	60	69
Mass flue gas flow rate	Fuel oil	Kg/h	83	83	106	106	129	152	166
	Gas	Kg/h	91	91	117	117	143	168	183
Pressure in the furnace for nozzle pressure = 0 mbar		mbar	0.2-0.5	0.2-0.5	0.3-0.6	0.3-0.6	0.3-0.8	0.4-0.8	0.6-0.9
Smoke temperature (Boiler temperature =70 °C)		°C	<195	<195	<195	<195	<195	<205	<205
Weight (empty)	GT 220	kg	218	218	257	257	297	336	375
	GT 2200	kg	318	348	357	387	-	-	-
Tank capacity	GT 2200	litres	160	250	160	250	-	-	-
Power exchanged (5) (7)	GT 2200	kW	28	36	28	36			
Specific flow ** (6) (7)	$\Delta T = 30K$	litres per min.	20.5	30	20.5	30			
Flow per hour ** (6) (7)	$\Delta T = 35K$	l/h	690	885	690	885			
Flow in 10 minutes*** (6) (7)	$\Delta T = 30K$	litres per 10 min.	255	385	255	385			
Cooling constant Cr		Wh/ 24h L K	0.26	0.23	0.26	0.23			
Losses through the outer casing (DHW)	$\Delta T = 45K$	kW	78	108	78	108	690	810	690
Auxiliary electrical power (DHW)		kW	80	80	80	80	255	385	255

- (1) Except Belgium
- (2) up to 60 kW
- (3) up to 70 kW
- (4) above 70 kW
- (5) Heat exchanger inlet temperature: 80 °C
Domestic hot water temperature: 45 °C
- (6) DHW setting = 60 °C - Average domestic hot water temperature: 40 °C -
Boiler setting: 80 °C
- (7) Cold water temperature: 10 °C
- * 1 mbar = 10 mmWG = 10 daPa = 100 Pa / 1 K = 1 °C
- ** Specific flow: Minimum average rise in temperature of 30K that the appliance can provide in the course of two successive draw-offs of 10 minutes separated by a stop of 20 minutes.
- *** Draw-off capacity: Hot water flow at which water can be drawn off during a period of 10 minutes at a temperature of 30°C.
Outlet status: Water at 10°C in the boiler.

3.4 Type plate



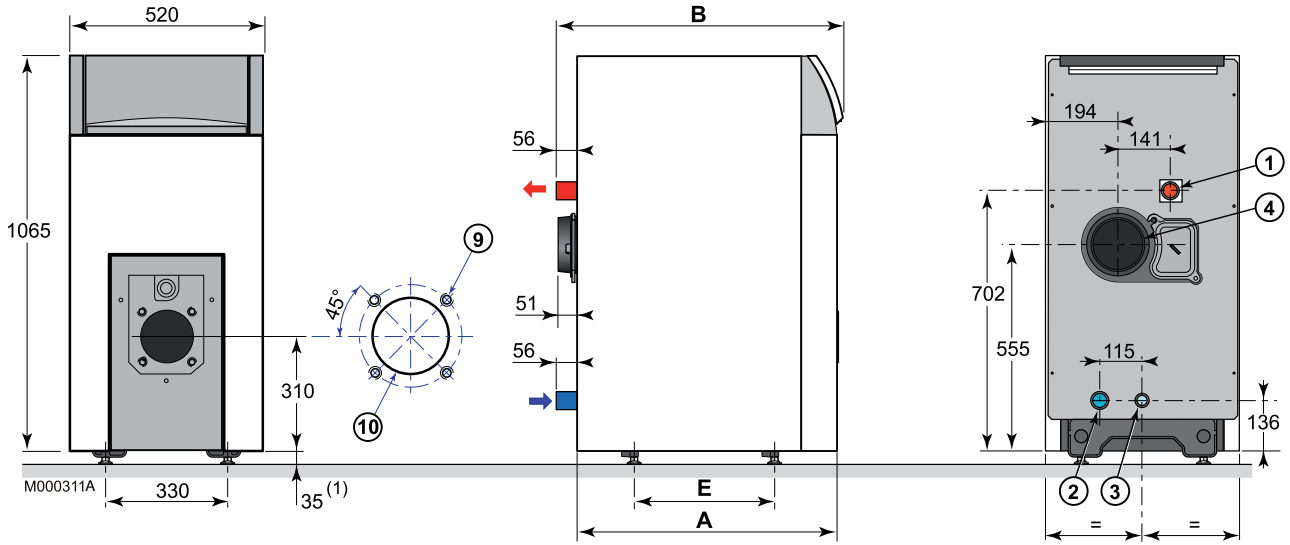
The type plate identifies the product and provides information on:

- The date of manufacture: XX (Year) - XX (Week).
- The serial number.

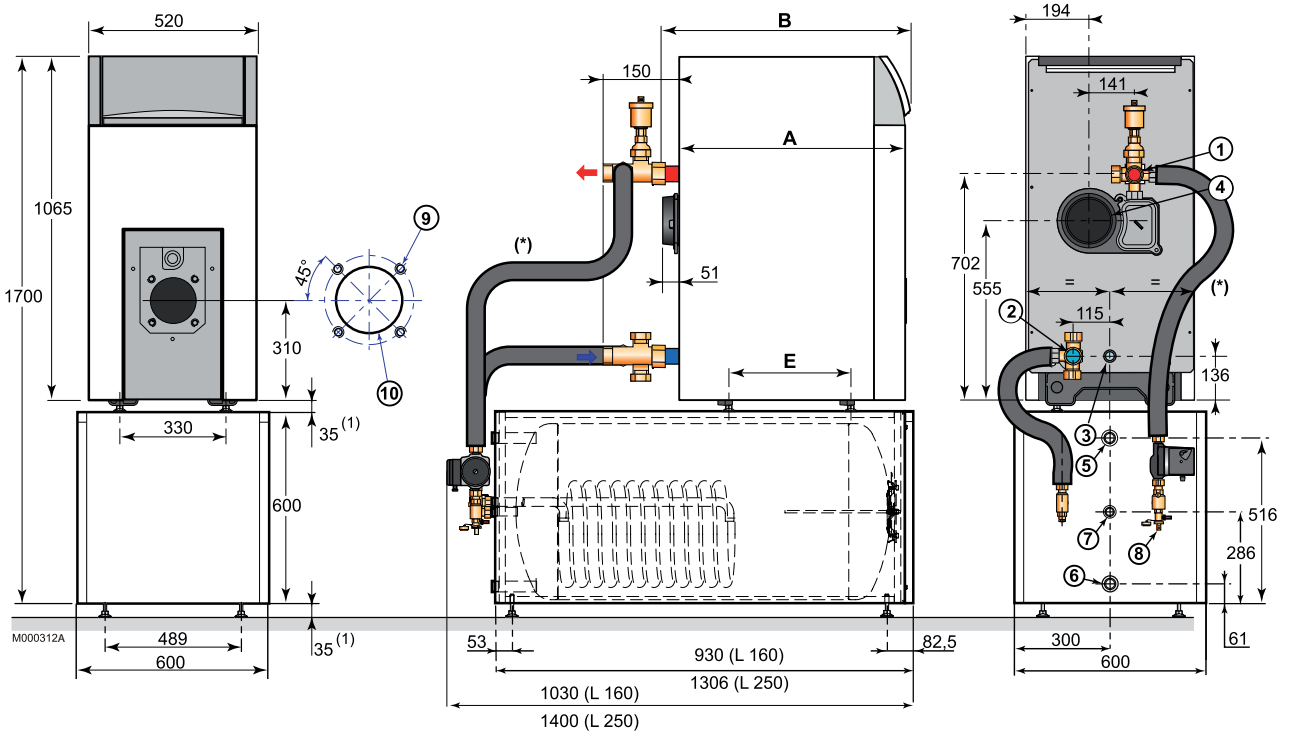
3.5 Main dimensions

3.5.1 Boiler and tank dimensions

• GT 220



• GT 2200



	GT 224	GT 2204/160 GT 2204/250	GT 225	GT 2205/160 GT 2205/250	GT 226	GT 227	GT 228
A	700	700	827	827	954	1081	1208
B	772	772	899	899	1026	1153	1280
④ Ø C	153	153	153	153	180	180	180
① ②	R1 1/4	R1 1/2	R1 1/4	R1 1/2	R1 1/2	R1 1/2	R1 1/2
E	380	380	507	507	634	761	888

(*) Boiler and DHW calorifier connection kit

1. Heating flow
2. Heating return
3. Drainage / filling orifice
Rp 3/4
4. Flue gas nozzle \varnothing C
5. Domestic hot water outlet - G 1
6. Domestic cold water inlet - G 1
7. Domestic hot water circulation loop return - G 3/4

8. Filling and emptying tap
(connection for 14 mm interior diameter pipe)
9. 4xM8 on \varnothing 150 and 4 markings on \varnothing 170
10. Drilling \varnothing 110 - Precut \varnothing 130

R = Thread

Rp = Exterior cylindrical threading, sealed by sheet gasket

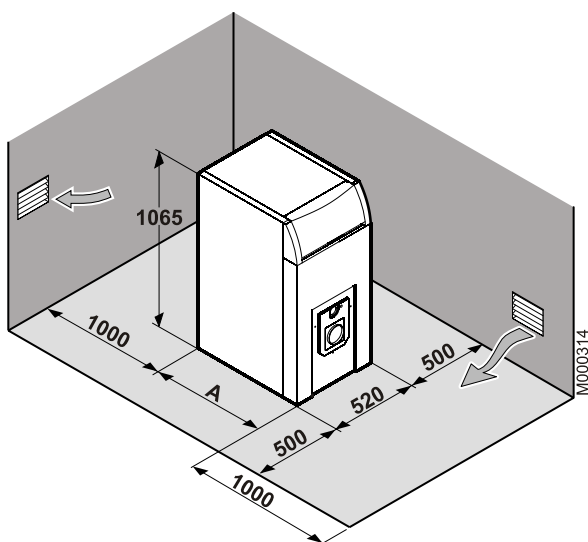
- (1) Adjustable feet: Basic dimension 35 mm. Can be adjusted from 35 mm to 50 mm
- (2) Adjustable feet: Basic dimension 35 mm. Can be adjusted from 35 mm to 40 mm

3.5.2 Installation dimensions

Keep space free around the boiler to ensure good accessibility to the appliance.

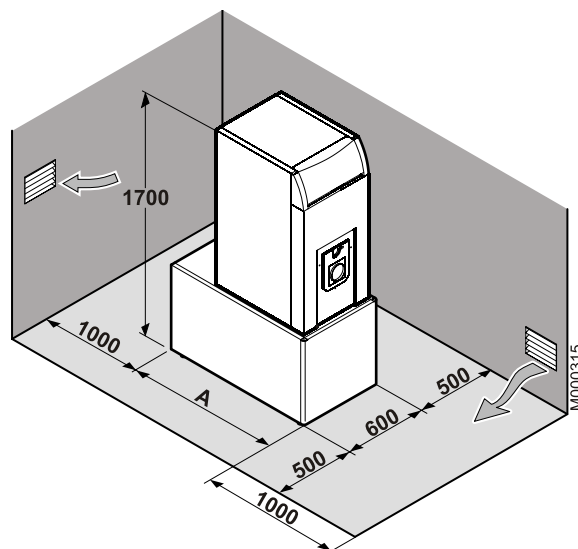
Minimum recommended dimensions (in mm):

• GT 220



Boiler	A (mm)
GT 224	700
GT 225	827
GT 226	954
GT 227	1081
GT 228	1208

• GT 2200



Boiler	A (mm)
GT 2204/160	930
GT 2204/250	1306
GT 2205/160	930
GT 2205/250	1306

3.6 Ventilation

Position the air inlets in relation to the high ventilation vents in order that the air is refreshed throughout the boiler room.

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

3.6.1 If using fuel oil

The minimum cross sections and the emplacement of the fresh air inlet and the air discharge are governed by the order of 21/03/1968 amended by the orders of 26/02/1974 and 03/03/1976.

■ Generator installed in a building for collective use (installations less than 70 kW)

- ▶ The fresh air inlet must:
 - Come out in the lower section of the premises,
 - Have a free minimum cross section calculated on the basis of 0.03 dm² per kilowatt installed output and at least equal to 2.5 dm².
- ▶ The air discharge must:
 - Be located in the upper section of the premises,
 - Rise above the roof (unless using an equivalent system which does not cause a nuisance to neighbours),
 - Have a free cross section (corresponding to 2/3 of that of the air inlet and at least equal to 2.5 dm²).

■ Generator installed in a building for individual use

- ▶ An adequate supply of fresh air must be provided as close as possible to the appliances. Its cross section must be at least 0.5 dm².
- ▶ In the upper section of the premises, an air outlet must ensure effective ventilation.

■ Establishments open to the public

- ▶ New establishment: Refer to the order of 25/06/1980 (installations of more than 20 kW and less than or equal to 70 kW).
- ▶ Existing establishment: Refer to the order of 25/06/1980 (installations less than 70 kW).

3.6.2 If using gas (GT 220 fitted with a forced draught gas-fired burner)

France: the cross section of the aeration vent, which is compulsory in the boiler room in which the boiler is installed, must comply with the DTU 61.1 (P 45 204) standard and, in particular, with the instruction on boiler room layout (Book 1764 April 1982)

Belgium: the cross-section of the aeration vents, which are compulsory in the room in which the boiler is installed, must comply with the NBN D 51.003 standard

Germany: the cross section of the ventilation vents, which are compulsory in the room in which the boiler is installed, must comply with the VDI 2050 form 1 standard and with other prevailing regulations.

Other countries: the cross section of the aeration inlet, which is compulsory in the premises in which the boiler is installed, must comply with the standards in force 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.


4 Installation

4.1 Mounting

 See: Boiler installation instructions.


4.2 Hydraulic connections


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

 **For GT 2200: Before making the connection to the heating installation, carry out the assembly and connection between the boiler and the DHW tank.**


 See: Boiler installation instructions.

4.2.1 Important recommendations for connecting the boiler to the heating circuit


 **There must be no total or partial closing mechanism between the boiler and the safety valves (France: DTU - 65.11, § 4.22 - NF P 52-203).**

 **Heating installations must be designed and implemented to prevent heating circuit water and products contained in it returning to the drinking water system (article 16-7 Departmental Health Regulations). A CB disconnecter (area disconnecter for different uncontrollable pressures) must be installed for filling the heating circuit according to the NF P 43-011 standard.**

Before making the water connections of the heating circuit and domestic hot water tank heat exchanger, it is imperative to rinse the circuits to remove any particles which might damage the components (safety valve, pumps, valves, ...).

 **When using installations with thermostatic protection, only safety valves marked H may be connected, and only to the boiler outlet safety measurement tap. Their drainage capacity must correspond to the boiler's maximum nominal useful output (Germany: DIN EN 12828).**

4.2.2 Connection of the water circuit for domestic use

 See: Domestic hot water calorifier instructions.

4.2.3 Typical systems

The following diagrams are given by way of an example. Other connections may be made.

■ Key to the diagrams

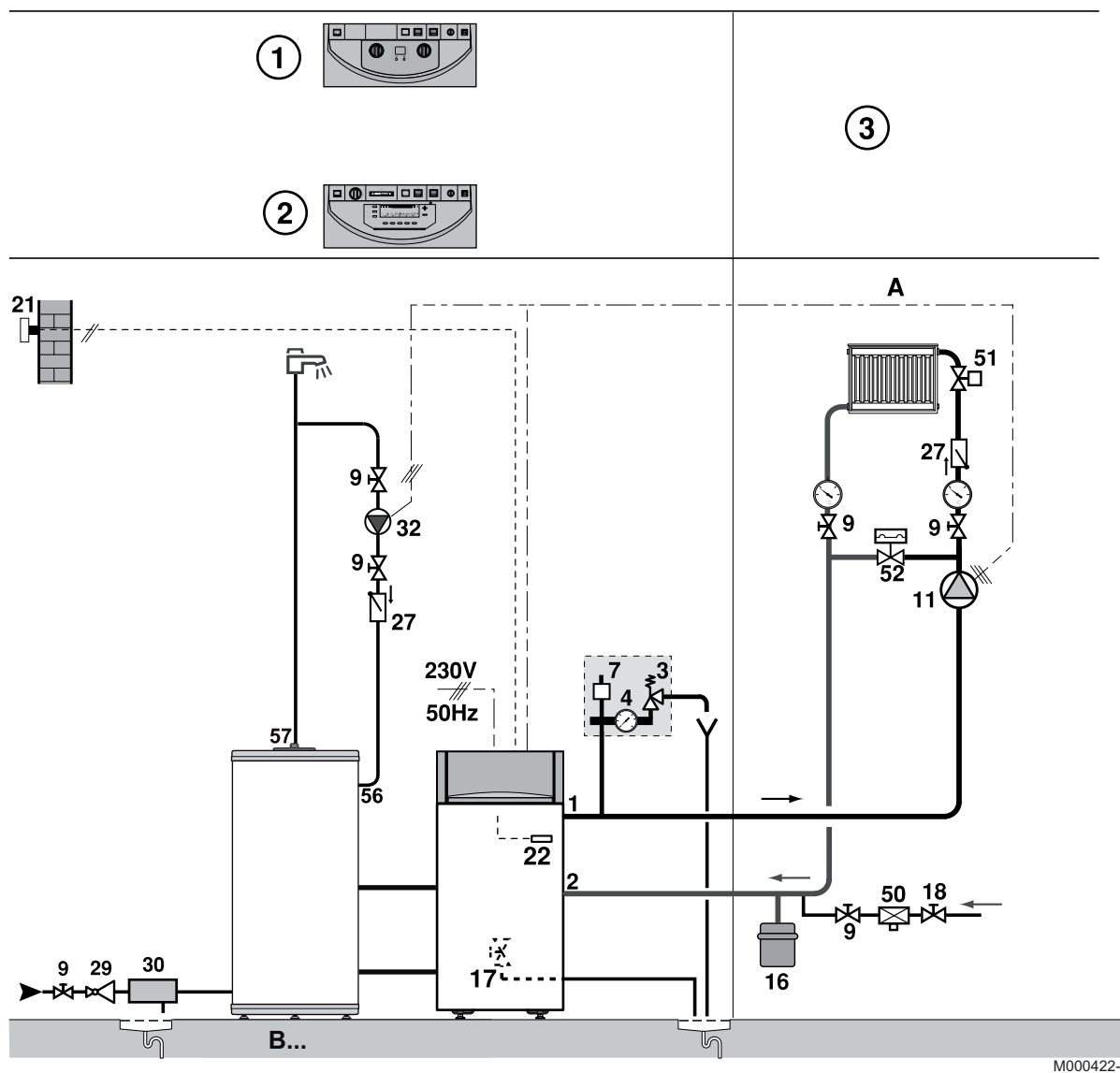
- 1 Heating flow
- 2 Heating return
- 3 3-bar safety valve
- 4 Pressure gauge
- 7 Automatic air vent
- 9 Valve
- 10 3-way mixing valve
- 11 Heating pump
- 16 Expansion vessel
- 17 Draining valve
- 18 Filling the heating circuit
- 21 Exterior temperature sensor
No sensor with panel B/B2/X
Delivered as standard with panel D
- 22 Boiler control sensor
- 23 Mixing valve outlet temperature sensor
- 24 DHW calorifier exchanger primary inlet
- 25 DHW calorifier heat exchanger primary outlet
- 26 DHW load pump
- 27 Non-return valve
- 28 Domestic cold water inlet
- 29 Pressure reducer
- 30 Safety unit calibrated to 7 bar
- 31 Independent domestic hot water tanks
- 32 Domestic hot water loop pump (optional)
- 33 Domestic hot water temperature sensor (Option)
- 44 Thermostat limiting the temperature to 65°C with manual reset for
underfloor heating (France: DTU 65.8, NF P 52-303-1)
- 50 Disconnecter
- 51 Thermostatic valve
- 52 Differential valve
- 56 DHW circulation loop return
- 57 Domestic hot water outlet
- 65 Low temperature circuit (radiators or underfloor heating)
- 75 Pump for DHW use

■ Installation with 1 direct radiator heating circuit (without mixing valve)

Control panels possible for this type of installation:

- **1-stage burner:**
 - B control panel
 - D (DIEMATIC 3) control panel,
- **2-stage burner - Modulating burner:**
 - B2 control panel - (2 stages)
 - D (DIEMATIC 3) control panel + PCB 2-stage burner / modulating burner / 3-way valve - Package AD217 (option).

i Panel B/B2 is fitted as standard to control a second direct circuit (Room temperature thermostats optional).



- ① B/B2 control panel
 ② D (DIEMATIC 3) control panel

- ③ 1-stage burner: Control panel delivered as standard (without optional equipment)
 or
 2-stage burner - Modulating burner: D (DIEMATIC 3) control panel + Package AD217 (option)

■ **Installation with 1 direct heating circuit (radiator) and 1 circuit with mixing valve (radiators or underfloor heating)**

• **1-stage burner:**

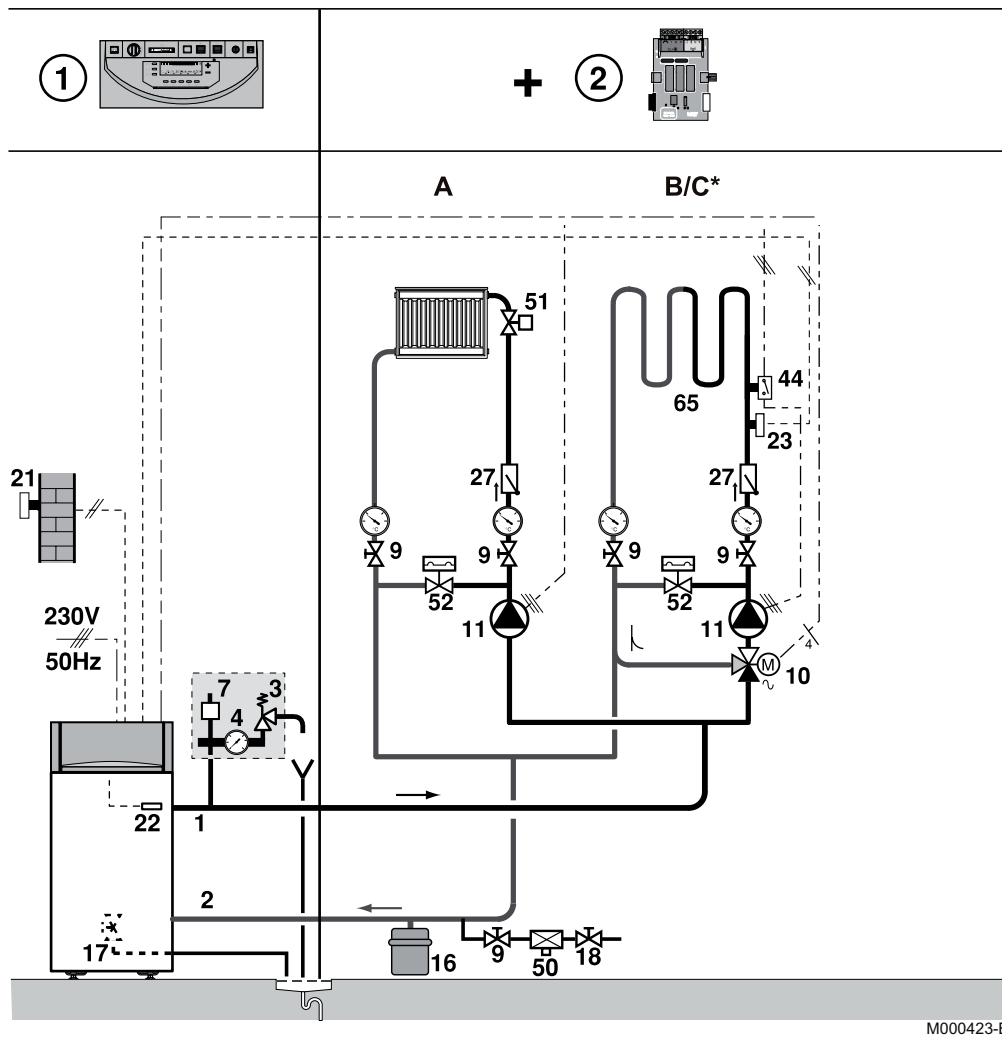
This type of installation must be controlled by the **Diematic 3** panel plus the "mixing valve PCB" option (Package FM 48)

• **2-stage burner - Modulating burner:**

This type of installation must be controlled by the following items:

- **D (DIEMATIC 3)** control panel,
- PCB 2-stage burner / modulating burner / 3-way valve - Package AD217 (option)
- Outlet sensor after 3-way valve - Package AD199 (option)

i Circuit A may not be present.



M000423-B

- ① Control panel delivered as standard ② 1-stage burner: 1 PCB option with outlet sensor FM 48
 or
 2-stage burner / Modulating burner:
 PCB 2-stage burner / modulating burner / 3-way valve - Package AD217 (option) +
 Outlet sensor after 3-way valve - Package AD199 (option)

* 1-stage burner: Circuit B
 2-stage burner / Modulating burner: Circuit C

■ Installation with 1 swimming pool heating circuit and 1 circuit with mixing valve (radiators or underfloor heating)

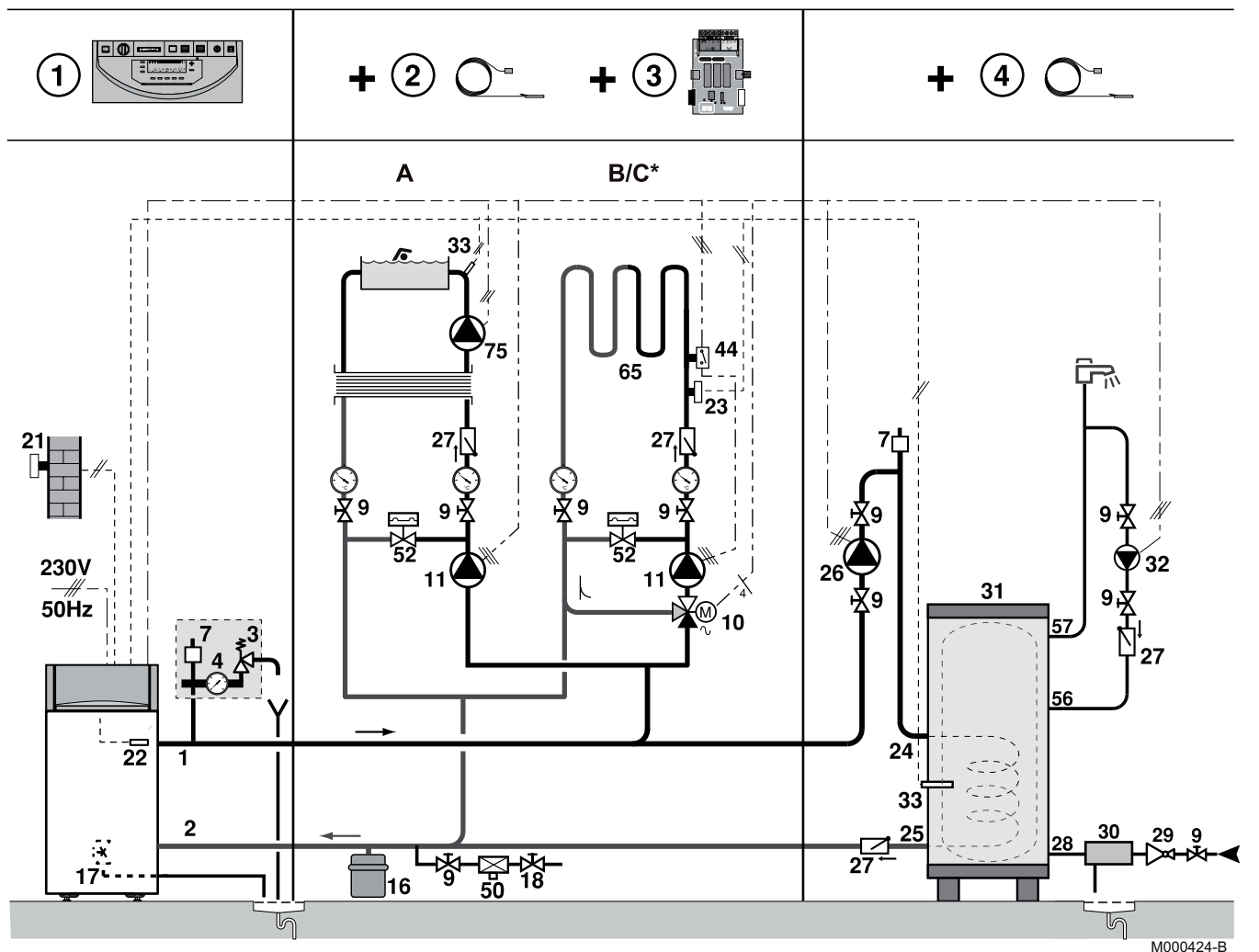
• 1-stage burner:

This type of installation must be controlled by the Diematic 3 panel plus two "DHW sensor" options (package AD 212) and the "mixing valve PCB + sensor" option (Package FM 48)

• 2-stage burner - Modulating burner:

This type of installation must be controlled by the following items:

- D (DIEMATIC 3) control panel,
- PCB 2-stage burner / modulating burner / 3-way valve - Package AD217 (option)
- Outlet sensor after 3-way valve - Package AD199 (option)
- 2 DHW sensor options- Package AD212 (option)



M000424-B

① Control panel delivered as standard

② DHW sensor - Package AD212 (option)

④ DHW sensor - Package AD212 (option)

③ 1-stage burner: 1 PCB option with outlet sensor FM 48
or
2-stage burner / Modulating burner:
PCB 2-stage burner / modulating burner / 3-way valve - (Package AD217)
+ Outlet sensor after 3-way valve - (Package AD199)

* 1-stage burner: Circuit B

2-stage burner / Modulating burner: Circuit C

■ **Heating installation with 1 direct heating circuit (radiator) and 2 circuits with mixing valve (radiators or underfloor heating)**

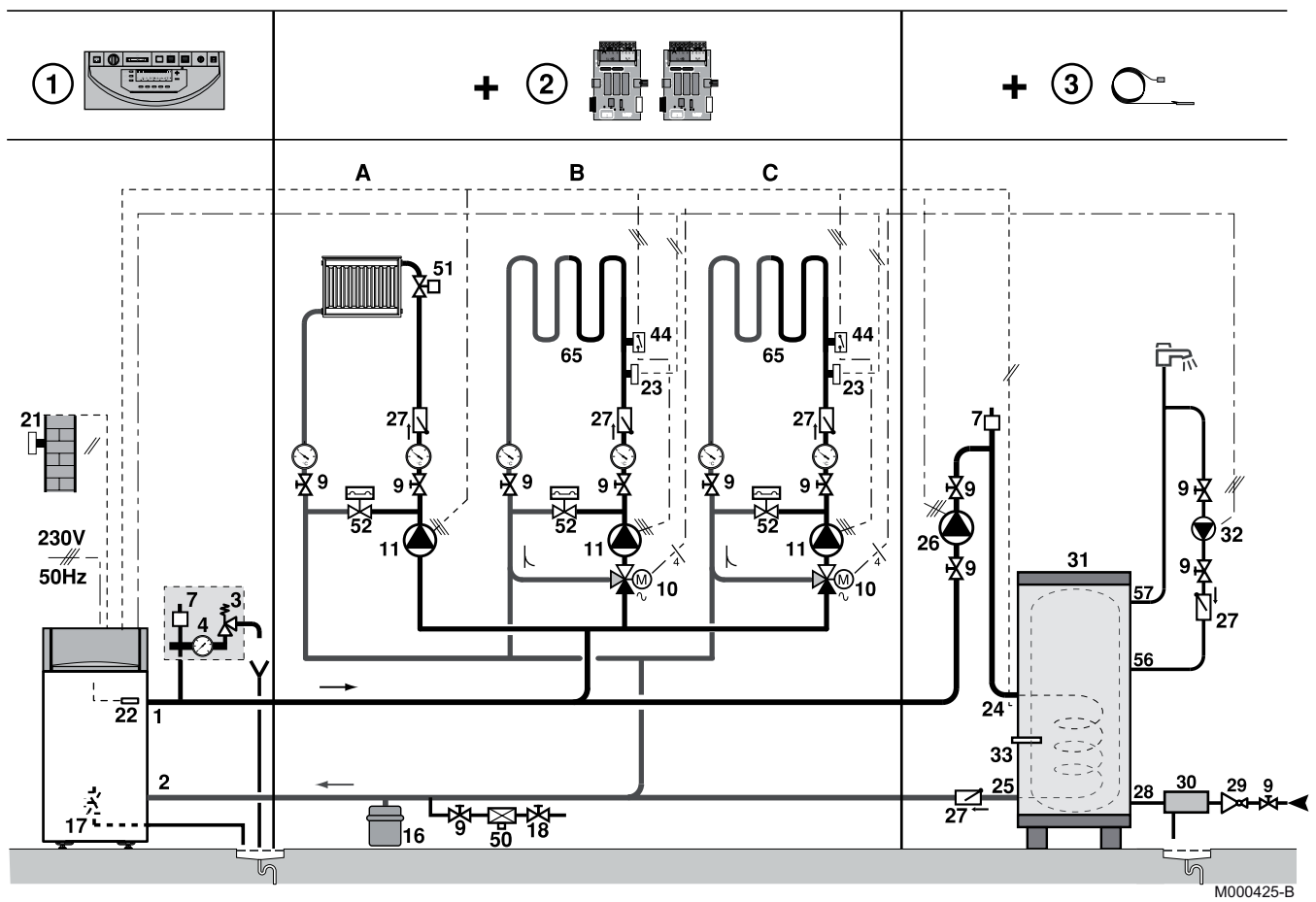
• **1-stage burner:**

This type of installation must be controlled by the Diematic 3 panel plus the two "mixing valve PCB + sensor" options (package FM 48) and the "DHW sensor" option (package AD 212).

• **2-stage burner - Modulating burner:**

This type of installation must be controlled by the following items:

- **D (DIEMATIC 3)** control panel,
- PCB 2-stage burner / modulating burner / 3-way valve - Package AD217 (option)
- Outlet sensor after 3-way valve - Package AD199 (option)
- 1 PCB mixing valve + outlet sensor option - Package FM48 (option)
- 1 DHW sensor option - Package AD212 (option)



① Control panel delivered as standard

② 1-stage burner: 2 PCBs with outlet sensor FM 48
or
2-stage burner / Modulating burner:
PCB 2-stage burner / modulating burner / 3-way valve (Package AD217)
+ Outlet sensor after 3-way valve (Package AD199)
+ 1 PCB mixing valve + outlet sensor option (Package FM48).

③ DHW sensor - Package AD212 (option)

4.3 Chimney connection

Connection must comply with the prevailing local and national regulations.

The high-performance features of modern boilers and their use in specific conditions as a result of the advance in burner technology (e.g. first-stage or low modulation range operation) lead to very low flue gas temperatures.

For this reason:

- Use flue gas pipes designed to enable the flow of condensates which may result from such operating modes in order to prevent damage to the chimney.
- Install a draining tee at the bottom of the chimney.
- Install a draught moderator (recommended).

4.3.1 Flue size

The following table indicates per boiler model the minimum chimney dimensions to be respected to ensure the draught required at the nozzle.

Boiler type	Output	Mass flue gas flow rate (1) (2) (13% CO ₂ on fuel oil)	Smoke temperature (1) (2) (13% CO ₂ on fuel oil)	Chimney: Minimum recommended dimensions	
				Min Ø	Height
	kW	Kg/h	°C	mm	m
GT 224	40-50	83	< 195	150	5
GT 225	50-64	106	< 195	150	5
GT 226	64-78	129	< 195	180	5
GT 227	78-92	152	< 205	180	5
GT 228	92-100	166	< 205	180	5

* 1 Pa = 0.01 mbar

(2): Boiler temperature: 80 °C (Ambient temperature: 20 °C)

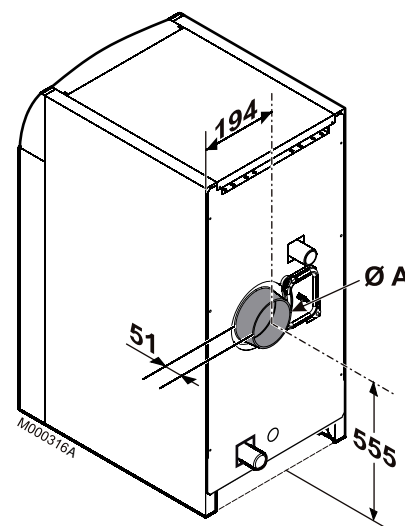
(1): Maximum boiler output

4.3.2 Connection to the flue gas pipe

The appliance must be installed in accordance with the Codes of Practice using a leak proof pipe made of a material capable of withstanding hot combustion gases and any acidic condensation.

The connection between the boiler nozzle and the chimney flue, with a cross section equal to that of the nozzle, must be as direct and as short as possible.

Boiler type	Flue gas discharge pipe Ø A
GT 224 - GT 225	Ø 153
GT 226 - GT 227 - GT 228	Ø 180

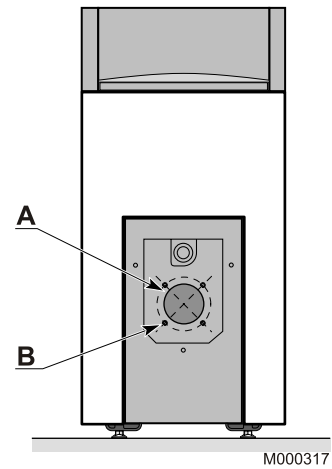


4.4 Connecting the burner

4.4.1 Dimensions for fitting the burner


B = Drilling \varnothing 110, Precut \varnothing 130.

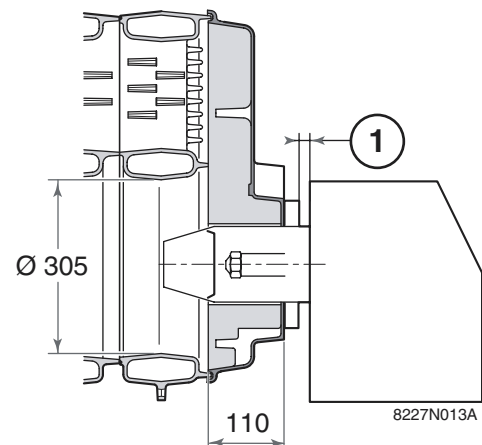
C = 4 x M8 on \varnothing 150, 4 markings on \varnothing 170.



4.4.2 Burner location

 The position of the burner head in relation to the door insulation must be respected. The correct position is guaranteed with De Dietrich burners.


 See: Burner instructions.



4.4.3 Connection, adjustment, commissioning and maintenance

 See: Burner instructions.

4.5 Electrical connections

 See: Control panel instructions.

4.6 Filling the installation with water

■ Heating circuit GT 220 - GT 2200

Fill slowly via the low point on the heating installation:

- Either via the filling and draining valve (see drawing above). In this case, the pipe (internal Ø 14 mm) must be disconnected after filling.
- Or via the disconnecter put in place by the fitter (see mark 50 principle diagrams above).

The installation is bled of air from the top by opening one or more bleed valves. Close the bleed valve(s) when water comes out.


 **Check that connectors are leak tight.**

■ DHW tank exchanger GT 2200

For the bleeding of the DHW tank exchanger to be done correctly, proceed as follows:

- ▶ Unscrew the automatic air vent plug.
- ▶ Turn the anti-thermosiphon valve to open (O).

These elements will be put back into their initial position once the boiler has been commissioned.


 **Check the operation of the heating safety valve.**

4.7 Commissioning



See:

- Control panel instructions,
- Burner instructions,
- Domestic hot water calorifier instructions (L160, L250).


 **The filling, bleeding and leak tightness checks for the DHW (if needed) and heating circuits must be done in compliance with the DHW tank and boiler instructions.**

5 Maintenance

5.1 Checking and cleaning the main components

5.1.1 Water level

Regularly check the level of water in the installation. Top it up, if need be, avoiding the abrupt input of cold water into the hot boiler. If this operation is repeated several times per season, locate the leak and repair it.

 **Do not drain the installation, except in cases of absolute necessity. For example: Several months' absence with the risk of ice in the building.**


5.1.2 Safety devices

Check that the safety devices are operating correctly (particularly the heating circuit valve).

5.2 Boiler

The boiler will only operate efficiently if the exchange surfaces are kept clean.

The boiler must be cleaned as often as necessary and, like the chimney, **at least once a year** or more in accordance with the prevailing regulations and the insurance contract taken out.

 **Cleaning operations are always to be done with the boiler and the electricity supply switched off.**

To access the various parts to be serviced and checked, it is necessary to remove the front panel/cover of the boiler. See drawing opposite.

Cleaning operations: See following pages.

Before cleaning and servicing:

Disconnect the burner cable.

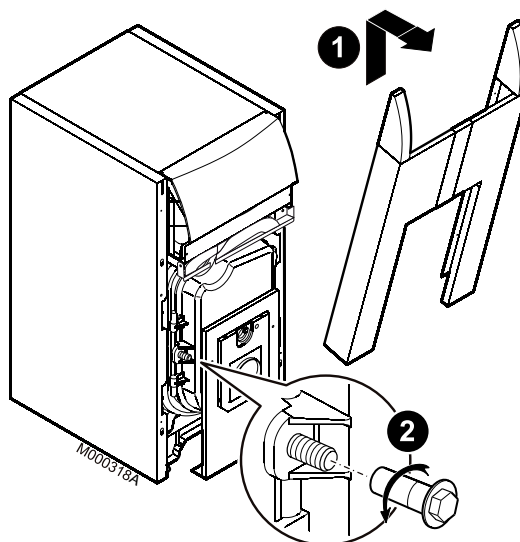
After cleaning and servicing:

- Close the door of the combustion chamber.
- Service the burner.
- Refit the front panel.
- Carry out tests to ensure correct operation and make combustion measurements.

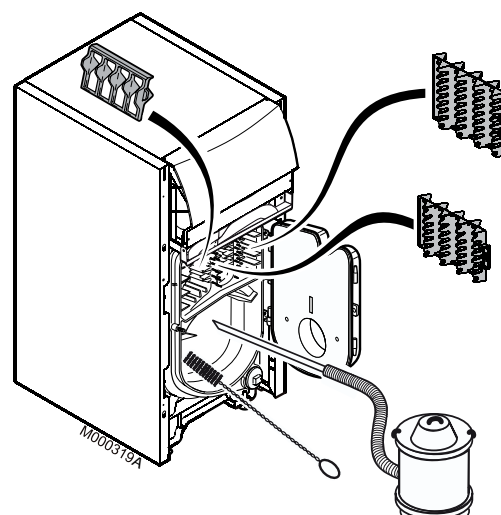
5.2.1 Sweeping the boiler

■ Manual sweeping

- ❶ Remove the front panel.
- ❷ Unscrew the 2 flanged nuts with flat washers. Open the door of the combustion chamber.



- Remove the baffle plates (number variable depending on the boiler model).
- Carefully sweep the flue ways with the brush supplied for that purpose. Also sweep the combustion chamber.
- Remove soot from the bottom of the flue ways and the combustion chamber using a vacuum cleaner with a nozzle with a diameter less than 40 mm.
- Replace the baffle plates.
- Close the door of the combustion chamber.
- Refit the front panel.



■ Chemical sweeping

A. General principle

Boilers are traditionally swept mechanically. There are now chemical sweeping methods which facilitate this maintenance work.

A chemical reagent is applied to the boiler's heating surfaces.

After application, the reaction is completed by igniting the burner. The initial deposits are neutralised and pyrolised. The remaining pulverent residues are easy to remove by sweeping or vacuum cleaning.

B. The products

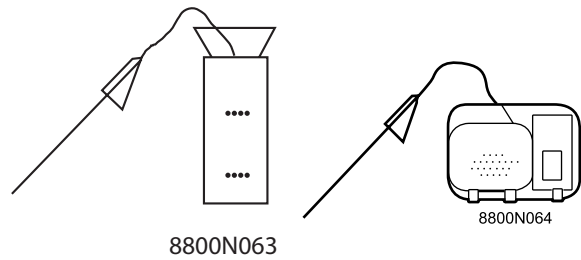
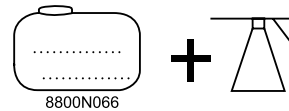
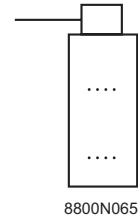
The product must be suitable for boilers with a cast iron body. Various manufacturers offer products in the form of a concentrated liquid or aerosol.

The aerosols are packaged in 0.5 to 1 l spray cans for treating domestic boilers. Refer to the instructions supplied with the product.

The liquid products are available in 1 to 50 l containers. These concentrated liquids are diluted before application with a spray.

Sprays exist in various forms suitable for their intended use:

- Low capacity (2 or 3 l) spray with built-in reservoir for small boilers and moderate frequency. Manual pressurisation of the reservoir.
- 5 l spray with separate reservoir, nozzle and connecting tube. The nozzles enable easy application at the back of the combustion chamber. Manual pressurisation of the reservoir.
- Motor-assisted pressurisation spray with reservoir, nozzle and connecting tube. These sprays are intended for intensive use.

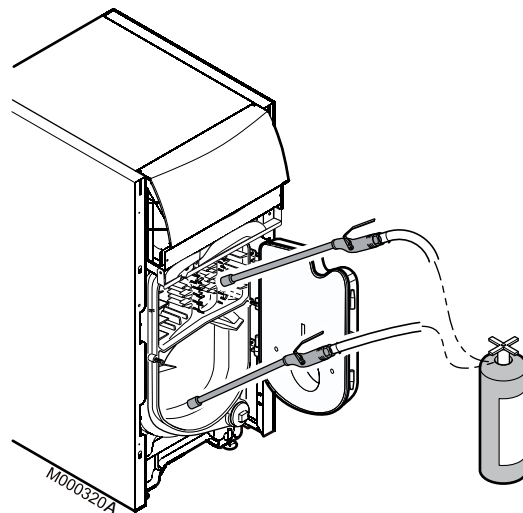


C. Operational mode

The operating mode mentioned corresponds to standard user situations. Refer to the manufacturer's instructions for specific advice on the product used.

Application

- Depending on the product, the boiler must be cold or heated. Refer to the instructions supplied with the product.
- Direct application to the heating surfaces with aerosol sprays.
- The concentrates are diluted in the proportions 1/5 to 1/20 (depending on the product and the condition of the boiler).
- Application with the spray is done in the upper part of the boiler and on the walls of the combustion chamber. Surfaces are dampened but not washed. It is not necessary to use the spray to get between the heating surfaces.
- A volume of one litre of solution is generally used for 1 m² of heating surface (domestic boiler), i.e. 0.05 to 0.2 l of concentrate.

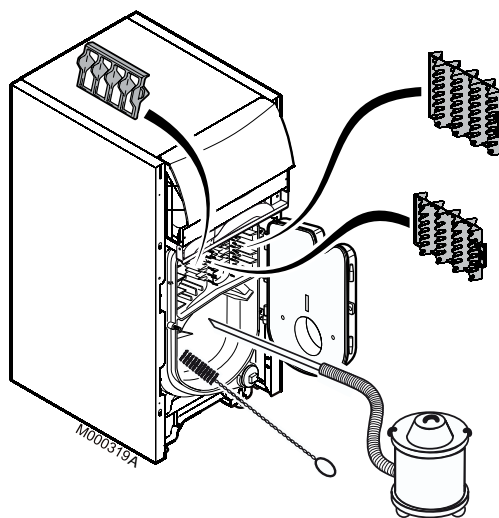


D. Ignition

The burner is ignited after allowing the product time to penetrate for 2 to 5 min. Refer to the instructions supplied with the product.

E. Cleaning


- Remove the baffle plates (number variable depending on the boiler model).
- Light sweeping will remove the pulverent residues remaining after combustion.
The remaining pulverent residues are easy to remove by sweeping or vacuum cleaning.
For certain products, brief application after cleaning has a preventive effect, limiting deposits on the heating surfaces.
- Replace the baffle plates.
- Close the door of the combustion chamber.
- Service the burner.
- Replace the front panel.




5.2.2 Cleaning the casing and the window

- Use a soapy solution and a sponge only.
- Rinse with clean water.
- Dry with a soft cloth or a chamois leather.

5.3 Burner

 See: Burner instructions.

5.4 Domestic hot water tank

 See: Domestic hot water calorifier instructions.

6 Switching off the boiler

■ Precautions to take if there is a danger of frost

Heating circuit:

Use a correctly dosed antifreeze to prevent the heating water freezing. If this cannot be done, drain the system completely. In all cases, consult the fitter.

Domestic hot water circuit:

Drain the domestic water tank and pipes.

■ Precautions to take in the event of prolonged shutdown (one year or more)

- The boiler and the chimney must be swept carefully.
- Close the door of the boiler to prevent the internal circulation of air.
- Remove the pipe connecting the boiler to the chimney and plug the nozzle.

7 Spare parts - GT 220 - GT 2200

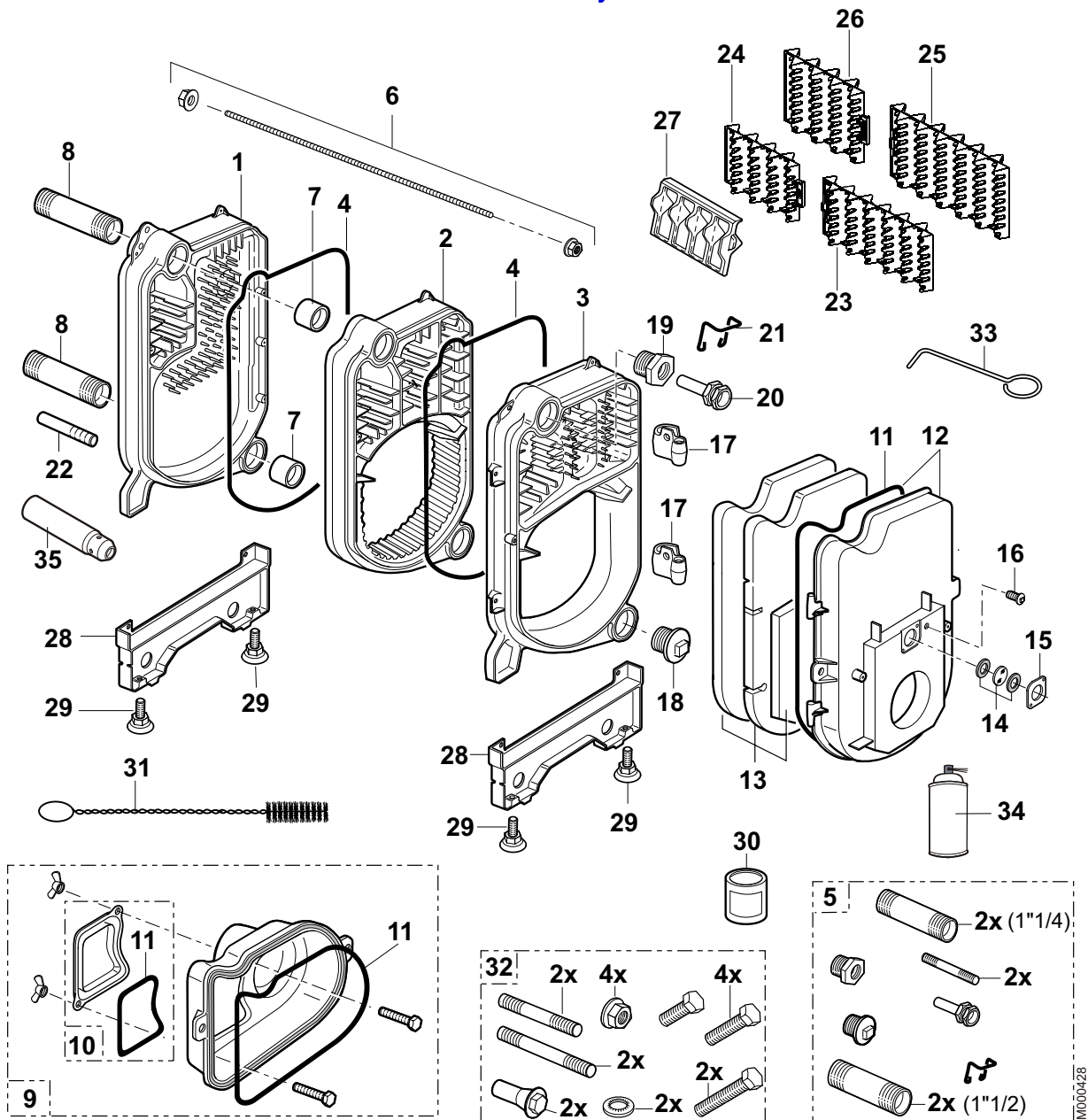


The code number on the list next to the required piece must be stated when ordering replacement parts.

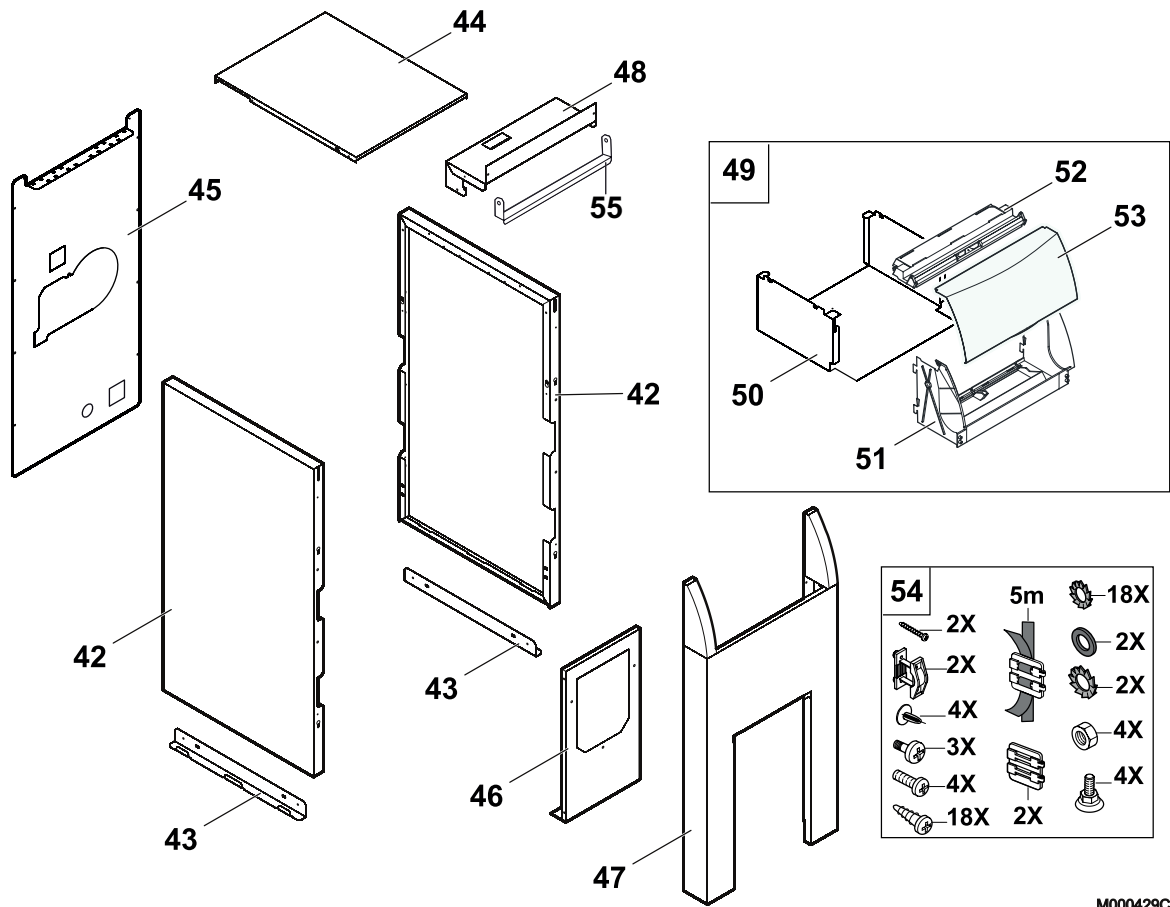
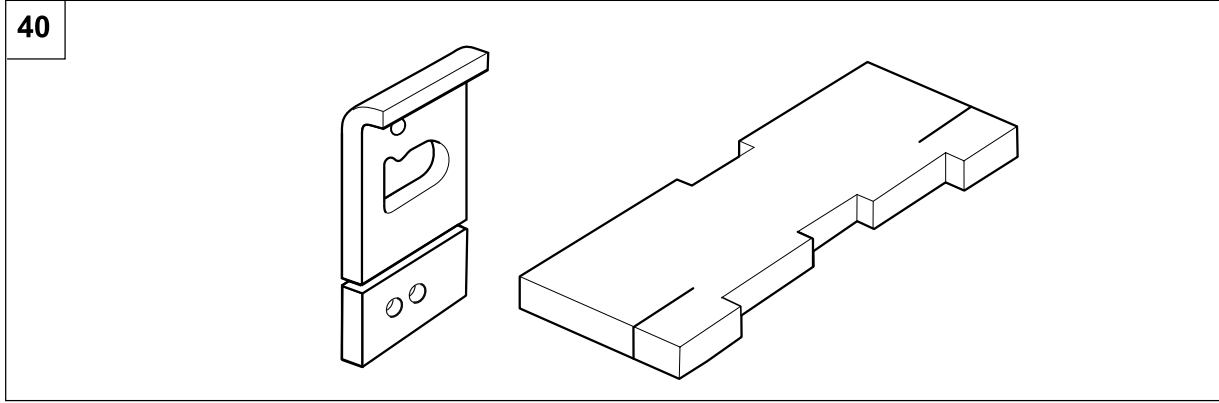
See also:

- Control panel instructions: X,B, B2, E, ER, E1, E1R, D, D + AD217.
- Burner instructions
- Domestic hot water calorifier instructions (GT 2200).

Boiler body



Casing + insulation GT 220



M000429C

Markers	Code no.	Description
Boiler body		
1	8227-5500	Rear section - GT 220
2	200004871	Intermediate section - GT 220
3	8227-5502	Front section - GT 220
4	9508-6036	8 Ø thermocord gasket
5	8227-5503	Pipe kit + Plug
6	8227-5506	Assembly rod 440 mm - M8 - GT 224
6	8227-5507	Assembly rod 580 mm - M8 - GT 225
6	8227-5508	Assembly rod 700 mm - M8 - GT 226
6	8227-5509	Assembly rod 820 mm - M8 - GT 227
6	8227-5510	Assembly rod 1000 mm - M8 - GT 228
7	8336-0507	Painted nipple
8	9754-9135	Water flow/return pipe 1"1/4 - GT 224, GT 225
8	9754-9133	Water flow/return pipe 1"1/2 - GT 226, GT 227, GT 228
9	8227-8503	Nozzle Ø 150 - GT 224, GT 225
9	8227-8504	Nozzle Ø 180 - GT 226, GT 227, GT 228
10	8227-5511	Sweeping trap + Seal
11	9508-6032	Seal ø 10.5 - 1 m
12	8227-8531	Furnace door GT 224, GT 225
12	8227-8532	Furnace door GT 226, GT 227, GT 228
13	8227-5504	Insulation, complete combustion chamber door - GT 224, GT 225
13	8227-5505	Insulation, complete combustion chamber door - GT 226, GT 227, GT 228
14	8015-7700	Sight glass + Gasket
15	9757-0027	Inspection flange
16	9495-0050	Plug 1/4" NR290
17	8227-0201	Hinge
18	9495-0249	Plug 1"1/2
19	9494-8312	Nipple 1"1/2 - 1/2"
20	8500-0027	1/2" sensor tube, length 200
21	9758-1286	Spring for sensor tube
22	9754-9137	Drainage pipe 3/4
23	200004701	Central baffle
24	200005164	Short central baffle - GT 226, GT 227
25	200004702	Right baffle
26	200005165	Short right baffle - GT 226, GT 227
27	8227-0012	Left baffle - Length 375 mm - GT 224, GT 225, GT 226, GT 227
28	8227-0202	Body lifter
29	9786-0646	Adjustable foot M_10x35
30	9530-5027	Putty for nipple
31	9696-0225	nylon brush Ø 70 x 100 - Length 77 mm
31	9696-0226	nylon brush Ø 70 x 100 - Length 120 mm
32	8227-8502	Body screws packet
33	9602-0671	Baffle hook
34	9434-4102	Retouching spray paint - anthracite grey
34	9434-4103	Retouching spray paint - White
35	300014132	Distributing tube - GT 228
Insulation		
40	8227-5490	Complete insulating material for body - 4 sections
40	8227-5491	Complete insulating material for body - 5 sections
40	8227-5492	Complete insulating material for body - 6 sections
40	8227-5493	Complete insulating material for body - 7 sections

Markers	Code no.	Description
40	8227-5494	Complete insulating material for body - 8 sections
Casing		
42	200004624	Side panel - GT 224
42	200021921	Side panel - GT 225
42	200021922	Side panel - GT 226
42	200021923	Side panel - GT 227
42	200004628	Side panel - GT 228
43	200004560	Lower side crossbar - GT 224
43	300028071	Lower side crossbar - GT 225
43	300028072	Lower side crossbar - GT 226
43	300028073	Lower side crossbar - GT 227
43	200004564	Lower side crossbar - GT 228
44	200004571	Top panel - GT 224
44	200004572	Top panel - GT 225
44	200004573	Top panel - GT 226
44	200004574	Top panel - GT 227
44	200004575	Top panel - GT 228
45	200004660	Complete rear panel - up to 12/2011
45	200022006	Complete rear panel - From 01/2012
46	200004664	Panel for furnace door
47	200004663	Complete front panel
48	200004689	Front crosspiece
49	200004691	Complete control panel support
50	300007011	Card cover
51	300007012	Flap
52	300007010	Housing
53	300004580	Control panel bracket
54	200004670	Housing screws packet
55	200015043	Insulation support

Appendix

Information on space heater systems

1 Specific information

1.1 Recommendations


Note

Only qualified persons are authorised to assemble, install and maintain the installation.

1.2 Technical data

Tab.1 Technical parameters for boiler space heaters

			GT 224	GT 225
Condensing boiler			No	No
Low-temperature boiler ⁽¹⁾			Yes	Yes
B1 boiler			No	No
Cogeneration space heater			No	No
Combination heater			No	No
Rated heat output	<i>Prated</i>	kW	50	64
Useful heat output at rated heat output and high temperature regime ⁽²⁾	P_4	kW	50.0	64.0
Useful heat output at 30% of rated heat output and low temperature regime ⁽¹⁾	P_1	kW	15.4	19.7
Useful efficiency at rated heat output and high temperature regime ⁽²⁾	η_4	%	86.5	86.6
Useful efficiency at 30% of rated heat output and low temperature regime ⁽¹⁾	η_1	%	88.8	89.0
Auxiliary electricity consumption				
Full load	<i>elmax</i>	kW	0.300	0.300
Part load	<i>elmin</i>	kW	0.147	0.147
Stand-by	P_{SB}	kW	0.006	0.006
Other characteristics				
Standby heat loss	P_{stby}	kW	0.118	0.139
Emissions of nitrogen oxides	NO _x	mg/kWh	118	110
Technical parameters obtained in association with the following burner:			M100/3S	M201/2S
(1) Low temperature means for condensing boilers 30°C, for low temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet). (2) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.				

Tab.2 Technical parameters for boiler space heaters

			GT 226	GT 227	GT 228
Condensing boiler			No	No	No
Low-temperature boiler ⁽¹⁾			Yes	Yes	Yes
B1 boiler			No	No	No
Cogeneration space heater			No	No	No
Combination heater			No	No	No
Rated heat output	<i>Prated</i>	kW	78	92	100
Useful heat output at rated heat output and high temperature regime ⁽²⁾	P_4	kW	78.0	92.0	100.0

			GT 226	GT 227	GT 228
Useful heat output at 30% of rated heat output and low temperature regime ⁽³⁾	P_1	kW	24.1	28.4	30.9
Useful efficiency at rated heat output and high temperature regime ⁽⁴⁾	η_4	%	86.8	86.7	86.6
Useful efficiency at 30% of rated heat output and low temperature regime ⁽³⁾	η_1	%	89.2	89.2	89.3
Auxiliary electricity consumption					
Full load	el_{max}	kW	0.300	0.300	0.300
Part load	el_{min}	kW	0.147	0.147	0.147
Stand-by	P_{SB}	kW	0.006	0.006	0.006
Other characteristics					
Standby heat loss	P_{stby}	kW	0.160	0.181	0.202
Emissions of nitrogen oxides	NO _x	mg/kWh	110	110	110
Technical parameters obtained in association with the following burner:			M201/2S	M201/2S	M201/2S
(1) Low temperature means for condensing boilers 30°C, for low temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet).					
(2) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.					

**See**

Technical parameters pertaining to the countries listed in paragraph 3.3 of the manual.

**See**

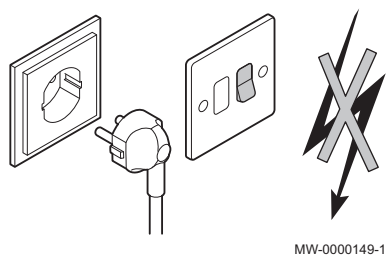
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1.3 Disposal and Recycling

Fig.1 Recycling



Fig.2 Cutting the mains supply

**Warning**

Removal and disposal of the boiler must be carried out by a qualified installer in accordance with local and national regulations.

Proceed as follows to dismantle the boiler:

1. Cut the electrical power to the boiler.
2. Close the fuel supply device upstream of the boiler.
3. Disconnect the cables on the electrical components.
4. Close the water mains.
5. Drain the installation.
6. Remove the air vent hose above the siphon.
7. Remove the siphon.
8. Remove the air/flue gas pipes.
9. Disconnect all pipes on the underside of the boiler.
10. Scrap or recycle the boiler.

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09/09/2015



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