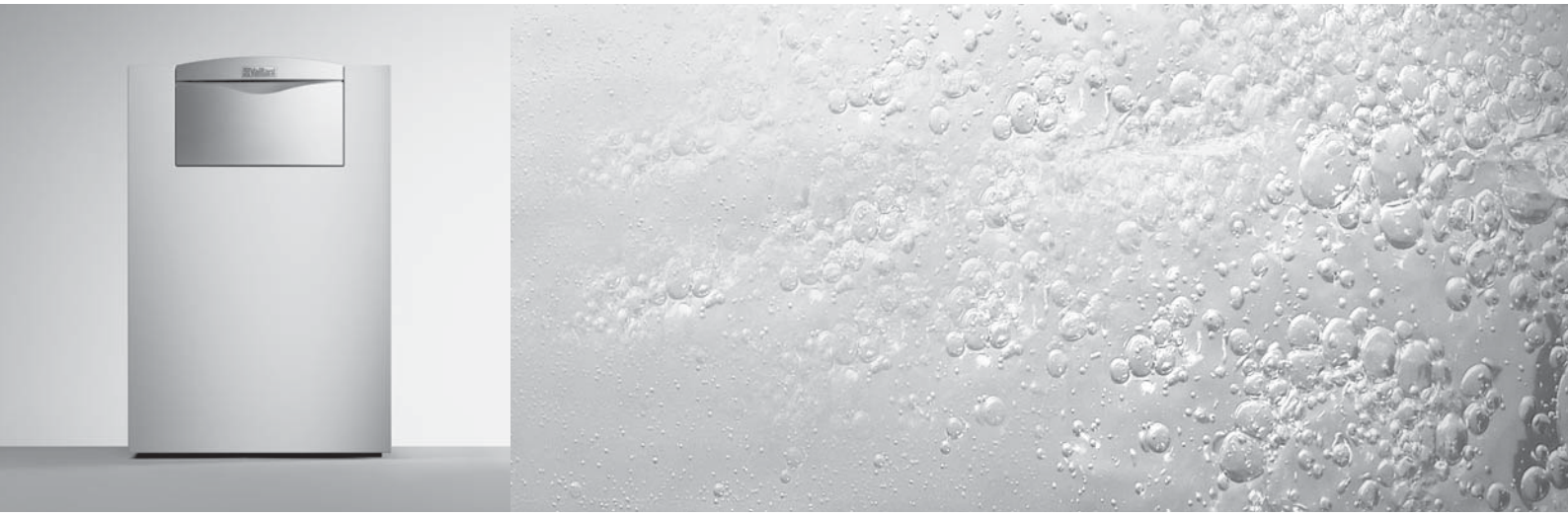
For the heating engineer

Installation Manual

Flue pipe for ecoCRAFT



Modular gas condensing boiler

VKK 806/3-E
VKK 1206/3-E
VKK 1606/3-E
VKK 2006/3-E
VKK 2406/3-E
VKK 2806/3-E

GB

Contents

1 Notes on the documentation

The following information is intended to help you throughout the entire documentation. Further documents apply in combination with this installation manual.
We accept no liability for any damage caused by failure to observe these instructions.

Other applicable documents

For the heating engineer:
Installation instructions ecoCRAFT No. 0020055744

1.1 Lodging and storage of the documents

Pass this installation manual as well as any other applicable documents and auxiliary material if necessary to the system operator, who will store them so that the manuals and auxiliary material are available when required.

1.2 Symbols used

Please observe the safety instructions in this installation manual for the installation of the flue pipes!

Danger!
Immediate risk of serious injury or death!

Caution!
Potentially dangerous situation for the product and environment.

Note
Useful information and notes.

- Symbol for a necessary task

1.3 Applicability of the manual

This installation manual applies exclusively to the Vaillant appliances listed in the other applicable documents.

2 Description of the appliance

2.1 CE label

The ecoCRAFT VKK 806/3-E, VKK 1206/3-E, VKK 1606/3-E, VKK 2006/3-E, VKK 2406/3-E and VKK 2806/3-E gas fired condensing boilers have been certified in accordance with the EU Gas Equipment Directive 90/396/EWG as heating boiler systems with an associated flue gas installation and as a boiler of type C63.

2.2 Intended use

Vaillant gas-fired high efficiency boilers ecoCRAFT VKK 806/3-E, VKK 1206/3-E, VKK 1606/3-E und VKK 2006/3-E, VKK 2406/3-E and VKK 2806/3-E are constructed in accordance with state of the art technology and recognised safety regulations.
The air/flue gas pipe is designed to remove exhaust gas and to supply combustion air. In case of improper non-conventional use of air and exhaust pipes in connection with appliance types, damage can be caused to the health and body of the user and others respectively other devices or material assets can be affected.
The dimensioning of the air/flue gas pipes tested with the respective high efficiency boiler must be carried out by means of the tables in the following chapters.
Any other or additional use is considered to be improper and will relieve the manufacturer or supplier of any responsibility or liability for damage that may result. In such cases the risk is borne solely by the technician carrying out the work and the user. Intended use also includes the observance of the other applicable documents.

3 Safety instructions/regulations

3.1 Safety instructions

Before installing the flue pipes you must inform the local gas supply company and the regional chimney sweep.

Danger!
Danger of poisoning from exhaust gas leakage if installed incorrectly!
The flue gas system may only be installed by a suitably qualified heating engineer. He will also assume responsibility for proper installation. Furthermore, the rules, regulations and guidelines mentioned in this installation manual are to be observed.

Danger!
Risk to life from poisoning as a result of escaping flue gases!
All openings in the flue pipe that can be opened for inspection purposes must be closed before start-up and during operation. The openings may only be opened by a technician.

Danger!
Danger of suffocation!
The room in which the appliance is situated shall be designed and the appliance installed within it as specified in BS 6644.

Caution!
Risk of corrosion in the flue gas installation! The combustion air fed to the unit must be free of chemicals which contain, e.g. fluorine, chlorine or sulphur. Sprays, release or cleaning agents, paints and adhesives can contain such materials which can, in certain circumstances, lead to corrosion when operating the unit, including the exhaust gas installation. The exhaust ducting may only be installed using the corresponding parts from Vaillant.

Caution!
Electronic damage and danger of fire by lightning strike!
If the building is equipped with a lightning conductor system, the flue pipes must be incorporated in the lightning protection system. The vertical ducting must be incorporated in the potential balancing system if it contains metallic components.

Caution!
Malfunction of the unit by obstruction of the flue gas flow!
Make sure that, during the installation process, no swarf, mortar remnants etc. are left in the flue pipes.

Caution!
Malfunctions and water condensate escape as a result of leaks in the exhaust gas route!
The gaskets are sensitive to mineral oil based greases. They must therefore not be greased. Only use water to facilitate the assembly, if required.

Caution!
Danger of fire!
Outside the ducting, the exhaust pipe must be at least 5 cm away from combustible building components.

3.2 Regulations

For installation of the appliance laws, regulations, technical rules and standards must be considered and adhered to ensure the safe installation of your appliance.

3.2.1 Regulations (Great Britain and Eire)

Attention shall be made to the regulations, guidelines and standards in force. In particular reference shall be given to the following regulations, guidelines, standards and rules:

- The electrical connections to the boiler MUST be in accordance with the I.E.E Wiring Regulations, and tested accordingly.
- The Clean Air Act 1993 and the 3rd Edition of the 1956 Clean Air Act.
- The Building Regulations England and Wales, The Building Standards Scotland and any requirements determined by the local authorities within.
- Water supply (water fittings) regulations 1999

Detailed recommendations are also contained in the following documents:
BS 5854 Code of practice for flues and flue structures in buildings.
BS EN 12828 Design for water-based heating systems.
BS 6644 Specification for Installation of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd familygases).
BS 6880 Code of practice for low temperature heating systems of output greater than 45 kW.
Part 1 Fundamental and design considerations.
Part 2 Selection of equipment.
Part 3 Installation, commissioning and maintenance.
BS 6981 Installation of low pressure gas pipework of up to 28 mm in domestic premises.
BS 7074 Application selection and installation of expansion vessels and ancillary equipment for sealed water systems.
Part 1 Code of practice for domestic heating and hot water.
Part 2 Code of practice for low and medium temperature hot water systems.
BS 6700 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

Institute of Gas Engineers Publications
IGE/UP/1 Soundness testing and purging of industrial and commercial gas installations.
IGE/UP/1A Soundness testing and purging of small low pressure industrial and commercial natural gas installations.
IGE/UP/10 Installation of gas appliances in industrial and commercial premises.
Part 1 Flued appliances

4 Tested and approved air/flue pipes - room-sealed

This chapter describes the peripheral conditions under which the ecoCRAFT condensing gas boilers can be fitted to flue pipes supplied by the manufacturers shown in Table 4.1.

4.1 Description

- with flue pipes checked and approved for the gas condensing boiler
- room-sealed operation

4.2 Tested and approved air/flue pipes

The exhaust gas systems used must be clearly and unambiguously identifiable and must be in agreement with one of the certificate numbers given in Table 4.1.
The layout and installation of the flue pipes must be in accordance with the specification and installation manuals provided by the manufacturer of the exhaust gas system. When the exhaust gas system is completely installed it must be marked with the prescribed identification plate.

Flue pipes tested and approved for ecoCRAFT appliances (GB)

Manufacturer	Material	Product designation	Certificate number	Address
				GB
		DW - Alkon	0432 - BPR - 119938/2004	
Schiedel Rite Vent Ltd	Stainless steel	Prima Plus	- EN 1856-2 T200 P1 W V2 L50060 0200 - TUV 0036 CPD 9195 018	Schiedel Rite Vent Ltd Crowther Estate, Washington, Tyne & Wear NE 38 0AQ Tel.: 00441914161150 www.schiedel.co.uk

Table 4.1 Manufacturers of air/flue pipes (GB)

The following describes the four possibilities for flue pipes:
- flue pipes for room sealed operation, combustion air from the duct
- flue pipes for room sealed operation, combustion air through the external wall
- flue pipes for room sealed operation, combustion air and flue gas dispersal above the roof
- flue pipes for room sealed operation, combustion air through the external wall, flue gas pipe on the facade

Caution!
Observe the maximum pipe lengths given in the individual sections. Pipe lengths which are too long will lead to operational malfunction of the condensing boiler.

Caution!
Note whether an increased heat transmission resistance of the exhaust gas pipe is required by running through the cold section. Otherwise it may cause the formation of ice in the exhaust pipe at low temperatures.

Caution!
The air supply must be installed in such a way that no rainwater can enter the boiler. Rainwater ingress can cause a short-circuit of electrical components and can cause corrosion in the unit.

Caution!
Danger of fire!
Outside the ducting, the exhaust pipe must be at least 5 cm away from combustible building components. This does not apply to exhaust gas pipes which permit less separation distance in accordance with their classification.

Caution!
The distance between the flue terminal and the roof must be at least 1 m, to avoid combustion problems caused by wind pressure.

4.3 Air/flue pipe - room sealed, combustion air from the shaft

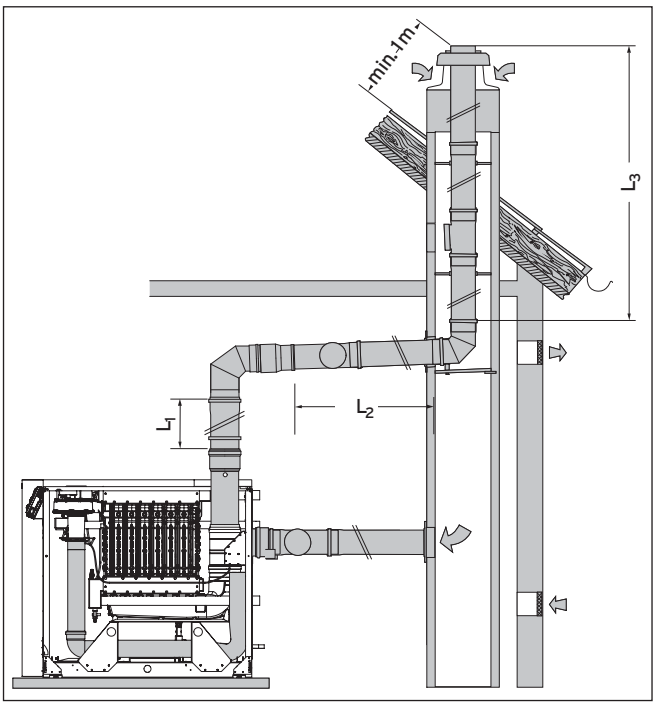


Fig. 4.1 Air / flue pipe - room sealed, combustion air from the shaft

Appliance type	Minimum shaft cross-section	Maximum total pipe length ($L_1 + L_2 + L_3$)			
		DN 130	DN 140	DN 150	DN 200
ecoCRAFT VKK 806/3-E	round: DN+60 mm square DN+40 mm	27.2	34.7	43.6	-
	round: DN+80 mm square: DN+60 mm	30.0	30.0	50.0	-
ecoCRAFT VKK 1206/3-E	round: DN+60 mm square DN+40 mm	10.0	12.4	15.0	-
	round: DN+80 mm square: DN+60 mm	24.0	30.0	44.6	-
	round: DN+100 mm square: DN+80 mm	30.0	30.0	50.0	-
ecoCRAFT VKK 1606/3-E	round: DN+60 mm square DN+40 mm	8.0	9.8	11.8	-
	round: DN+80 mm square: DN+60 mm	18.2	24.3	31.3	-
	round: DN+100 mm square: DN+80 mm	28.4	30.0	50.0	-
ecoCRAFT VKK 2006/3-E	round: DN+60 mm square DN+40 mm	-	-	-	14.1
	round: DN+80 mm square: DN+60 mm	-	-	-	44.9
	round: DN+100 mm square: DN+80 mm	-	-	-	50.0
ecoCRAFT VKK 2406/3-E	round: DN+60 mm square DN+40 mm	-	-	-	9.3
	round: DN+80 mm square: DN+60 mm	-	-	-	28.1
	round: DN+100 mm square: DN+80 mm	-	-	-	50.0
	round: DN+120 mm square: DN+100 mm	-	-	-	50.0
ecoCRAFT VKK 2806/3-E	round: DN+60 mm square DN+40 mm	-	-	-	6.5
	round: DN+80 mm square: DN+60 mm	-	-	-	19.3
	round: DN+100 mm square: DN+80 mm	-	-	-	43.4
	round: DN+120 mm square: DN+100 mm	-	-	-	50.0
Maximum length of horizontal pipes: each 4 m air pipe plus 2 x 87° elbows and 4 m flue gas pipe plus 2 x 87° elbows Minimum diameter of the air supply pipe 150 mm					

Table 4.2 Maximum total pipe length (combustion air from the shaft)

4.4 Air/flue pipe - room sealed, combustion air through the external wall

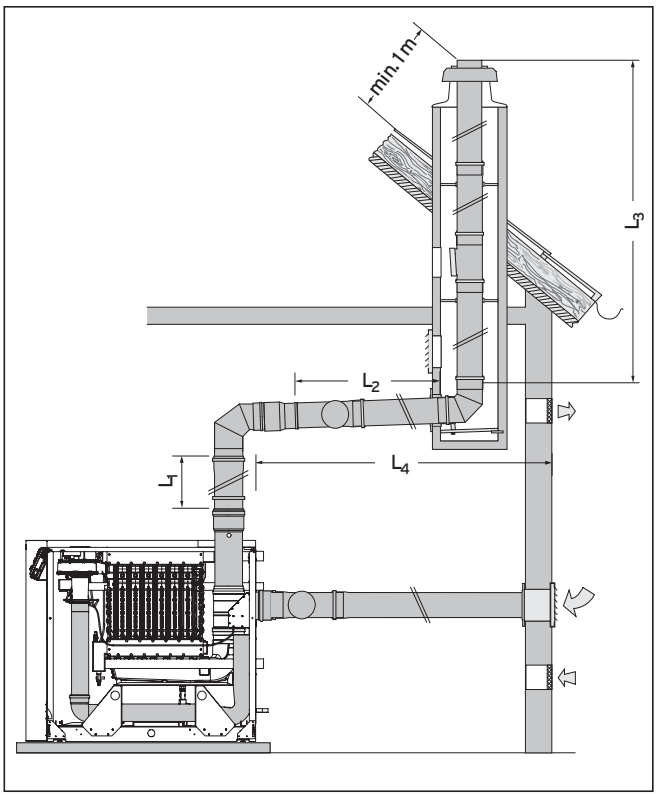
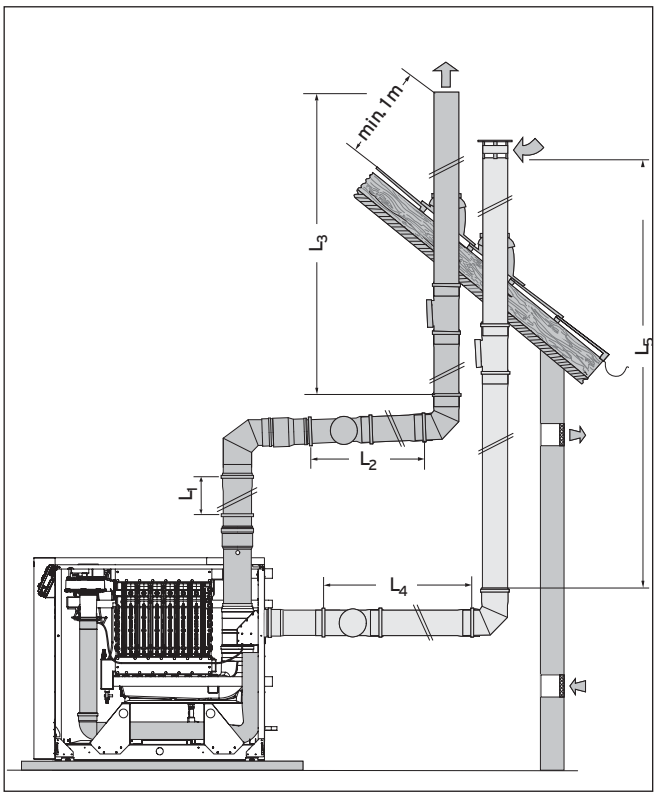


Fig. 4.2 Air / flue pipe - room sealed, combustion air through the external wall

Appliance type	Minimum shaft cross-section	Maximum total pipe length ($L_1 + L_2 + L_3 + L_4$)			
		DN 130	DN 140	DN 150	DN 200
ecoCRAFT VKK 806/3-E	round: DN+60 mm square DN+40 mm	30.0	30.0	50.0	-
ecoCRAFT VKK 1206/3-E	round: DN+60 mm square DN+40 mm	30.0	30.0	50.0	-
ecoCRAFT VKK 1606/3-E	round: DN+60 mm square DN+40 mm	30.0	30.0	50.0	-
ecoCRAFT VKK 2006/3-E	round: DN+60 mm square DN+40 mm	-	-	-	50.0
ecoCRAFT VKK 2406/3-E	round: DN+60 mm square DN+40 mm	-	-	-	50.0
ecoCRAFT VKK 2806/3-E	round: DN+60 mm square DN+40 mm	-	-	-	50.0
Maximum length of horizontal pipes: each 4 m air pipe plus 2 x 87° elbows and 4 m flue gas pipe plus 2 x 87° elbows Minimum diameter of the air supply pipe 150 mm					

Table 4.3 Maximum total pipe length (combustion air through the external wall)

4.5 Air/flue pipe-room sealed, combustion air and flue gas evacuation via the roof



The distance between the air pipe opening and the surface of the roof must be at least 0.5 m in order to avoid functional problems caused by snow.
The opening of the exhaust gas pipe must be at least 0.5 m above the air pipe to avoid functional problems caused by exhaust gas re-circulation.

Fig. 6.3 Air/flue pipe-room sealed, combustion air and flue gas evacuation via the roof

Appliance type	Maximum total pipe length ($L_1 + L_2 + L_3 + L_4$)			
	DN 130	DN 140	DN 150	DN 200
ecoCRAFT VKK 806/3-E	20.0	20.0	20.0	-
ecoCRAFT VKK 1206/3-E	20.0	20.0	20.0	-
ecoCRAFT VKK 1606/3-E	20.0	20.0	20.0	-
ecoCRAFT VKK 2006/3-E	-	-	-	20.0
ecoCRAFT VKK 2406/3-E	-	-	-	20.0
ecoCRAFT VKK 2806/3-E	-	-	-	20.0
Maximum length of horizontal pipes: each 4 m air pipe plus 2 x 87° elbows and 4 m flue gas pipe plus 2 x 87° elbows The air supply pipe has at least the same diameter as the flue gas pipe Minimum thermal resistance of the flue gas pipe in the cold section 0.4 m^2K/W				

Table 4.4 Maximum total pipe lengths (combustion air and flue gas evacuation via the roof)

4.6 Air/flue pipe – room sealed, combustion air through the external wall, flue pipe on the facade

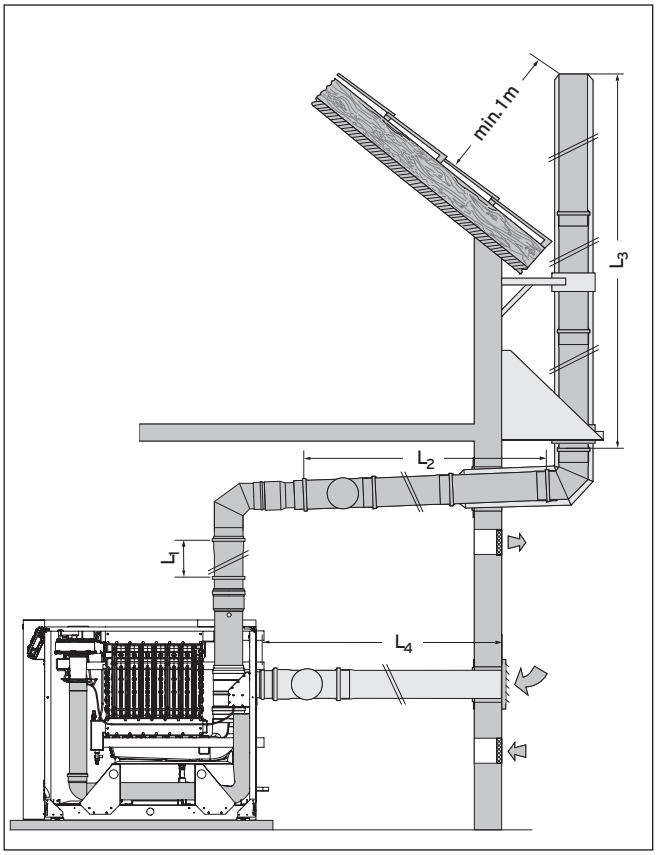


Fig. 6.47 Air/flue pipe – room sealed, combustion air through the external wall, flue pipe on the facade

Appliance type	Maximum total pipe length ($L_1 + L_2 + L_3 + L_4$)			
	DN 130	DN 140	DN 150	DN 200
ecoCRAFT VKK 806/3-E	30.0	30.0	30.0	-
ecoCRAFT VKK 1206/3-E	30.0	30.0	30.0	-
ecoCRAFT VKK 1606/3-E	30.0	30.0	30.0	-
ecoCRAFT VKK 2006/3-E	-	-	-	30.0
ecoCRAFT VKK 2406/3-E	-	-	-	30.0
ecoCRAFT VKK 2806/3-E	-	-	-	30.0
Maximum length of horizontal pipes: each 4 m air pipe plus 2 x 87° elbows and 4 m flue gas pipe plus 2 x 87° elbows Minimum diameter of the air supply pipe 150 mm Minimum thermal resistance of the flue gas pipe in the cold section 0.4 m^2K/W				

Table 4.5 Maximum total pipe lengths (combustion air through the external wall, flue pipe on the facade)

5 Guarantee

Vaillant warranty
Vaillant provide a full parts and labour warranty for this appliance.
The appliance must be installed by a suitably competent person in accordance with the Gas Safety (Installation and Use) Regulations 1998, and the manufacturer's instructions. In the UK 'CORGI' registered installers undertake the work in compliance with safe and satisfactory standards.
All unvented domestic hot water cylinders must be installed by a competent person to the prevailing building regulations at the time of installation (G3).

Terms and conditions apply to the warranty, details of which can be found on the warranty registration card included with this appliance.

Failure to install and commission this appliance in compliance with the manufacturer's instructions may invalidate the warranty (this does not affect the customer's statutory rights).

6 Disposal

Make sure that the flue pipe is handed over to a proper disposal organisation.

☞ **Note**
Please observe the applicable national statutory regulations.

7 Customer service

Vaillant Service
To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

Vaillant Ltd
Vaillant House ▮ Medway City Estate ▮ Trident Close ▮ Rochester ▮ Kent ME2 4EZ
Telephone 01634 292300 ▮ Fax 01634 290166 ▮ www.vaillant.co.uk ▮ info@vaillant.co.uk

0020058722_02 GB 032009 - Subject to alterations