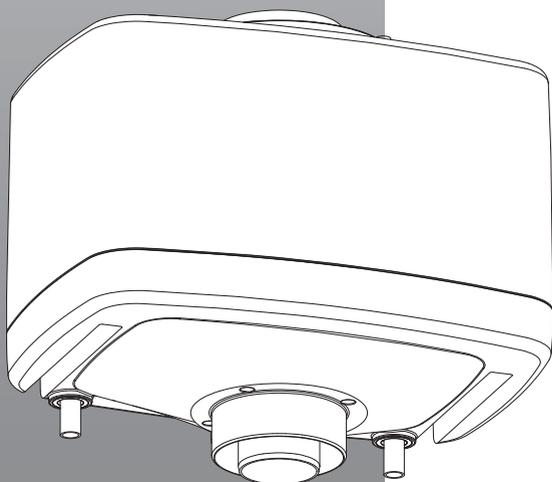


Installation instructions

Passive flue gas heat recovery device

EcoFlo

For use with Greenstar CDi and Si Compact combi natural gas boilers.



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1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings



Safety instructions in this document are framed and identified by a warning triangle which is printed on a grey background.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information



This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Meaning
1.	a numbered step in an action sequence
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents
①	a reference number to identify or refer to a part or item
•	a list entry
–	a list entry (second level)

Table 1

Examples of additional symbols used

A numbered step in an action sequence

A sequence of numbered steps or actions carried out in a specific order to complete a task.

1. First action
2. Second action
3. Third action
- etc.

A step in an action sequence

A sequence of defined actions or steps carried out in order to complete a task.

- ▶ Action
- ▶ Next action
- ▶ etc

A reference to a related part in the document or to other related documents.

To refer the reader to a specific figure/table/section within the manual.

→ e.g. figure 1.

A reference number to identify or refer to a part or item.

In a related figure, items or parts identified by a sequential number.

List entries, first and second levels

- A single component/item
- A component/list, made up of multiple parts/items.
 - Sub component or sublist of main component/list.
 - etc.

1.2 General safety instructions

These installation instructions are intended for gas fitters, plumbers, heating engineers and electricians.

- ▶ Read any installation instructions (boiler, heating controls, etc.) carefully before starting the installation.
- ▶ Observe the safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Record all work carried out.

If you smell gas

A gas leak could potentially cause an explosion. If you smell gas, observe the following rules.

- ▶ Prevent flames or sparks:
 - Do not smoke, use a lighter or strike matches.
 - Do not operate any electrical switches or unplug any equipment.
 - Do not use the telephone or ring doorbells.
- ▶ Turn off the gas at the meter.
- ▶ Open windows and doors.
- ▶ Warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Well away from the building: call the National Gas Emergency Service on 0800 111 999.

Intended use

This unit must only be used as a heat appliance in a sealed hot water heating system for domestic purposes.

Any other use is considered inappropriate. Any damage that results from such use is excluded from liability.

Installation, commissioning and servicing

Installation, commissioning and servicing must only be carried out by a competent, Gas Safe registered engineer.

- ▶ Carry out a gas tightness test after completing work on gas-carrying components.
- ▶ Only use original spares.

Handover to the user

When handing over, instruct the user how to operate the heating system and inform him about its operating conditions.

- ▶ Explain how to operate the heating system and draw the user's attention to any safety-relevant action.
- ▶ Explain that modifications and repairs must only be carried out by an authorised contractor.
- ▶ Advise the user to have the system serviced annually by a competent, Gas Safe registered engineer.
- ▶ Leave the installation instructions with the completed Benchmark Checklist (or a certificate confirming compliance with IS 813, Eire only) and the operating instructions with the user or at the gas meter.

2 General Information

The EcoFlo is a PFGHRD (Passive Flue Gas Heat Recovery Device) designed to help further reduce fuel consumption in conjunction with our Worcester condensing combination wall hung boilers.

This appliance uses the latent heat energy from the flue exhaust gases produced by the condensing combi boiler when it fires, to preheat the domestic cold water. By preheating the domestic cold water before it enters the boiler it reduces the energy needed by the boiler to raise the temperature to the required level.



The EcoFlo unit is listed in SAP in the FGHR database as "Muelink & Grol EcoFlo".



NOTICE:

- ▶ This unit is intended for use with Greenstar CDI & Si Compact combi natural gas fired appliances.

2.1 Standard Package

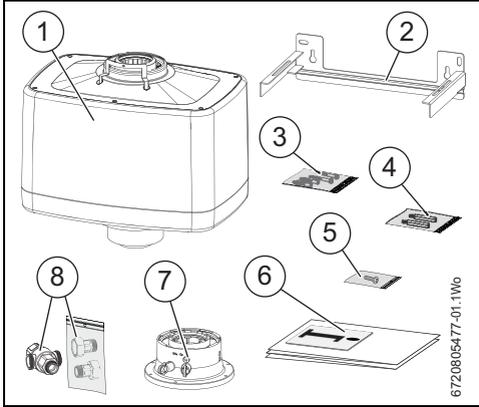


Fig. 1 Standard package contents

- [1] EcoFlo PFGHRD unit
- [2] Support bracket
- [3] Support bracket screws and rawl plugs fixings
- [4] Support bracket long hexagon screws
- [5] Flue support bracket screw
- [6] Installation manual & template
- [7] Adaptor
- [8] Blending valve & connectors

General installation clearances and dimensions

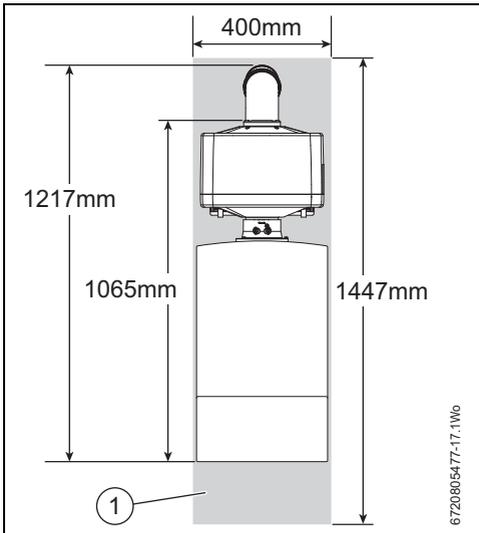


Fig. 2

- [1] Clearance area

2.1.1 Technical data

Technical data - EcoFlo

Description	Unit	
DHW System		
Water connections	mm	15
Maximum water pressure	bar	10 ¹⁾
Minimum mains inlet pressure (working) for operation with Compact combi appliances.	bar	0.25
Minimum mains inlet pressure (working) for maximum flow with Compact combi appliances.	bar	2.2
Weights		
Empty	kg	6.6
Full	kg	9.4
Boiler Applications		
Condensing boilers only		Combi
General		
DHW HE-core		Stainless steel
Inner casing		PP according to EN 14471-1
Outer casing		ABS
Water content	litres	2.8
EcoFlo Flue Outlet		
Flue gas temperature 80/60 °C, rated/minimum load	°C	57/52
Effective flue length reduction	M	3
Maximum flue length (including effective flue length reduction)	M	3
Flue size	mm	60/100

Table 2 Technical data EcoFlo

- 1) If necessary fit a pressure reducing valve

2.1.2 Appliance information

Dimensions

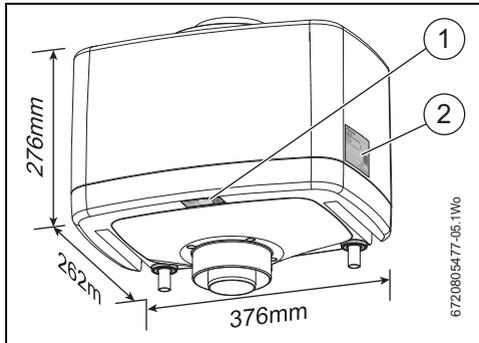


Fig. 3 Dimensions

- [1] Data serial label
- [2] Data label

Domestic water connections

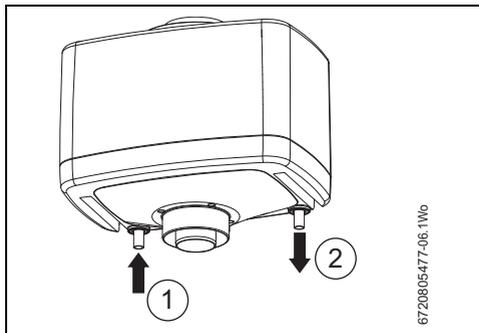


Fig. 4 Inlet & outlet connections

- [1] Inlet connection (blue, remove blanking plug)
- [2] Outlet connection (red, remove blanking plug)

Use in hard water areas:

In areas where temporary water hardness exceeds 150 ppm and chlorides exceed 220ppm, consideration may need to be given to the fitting of a scale prevention device. In such circumstances, the advice of the local water authority should be sought.

Layout example



NOTICE:

- ▶ Non return, back flow prevention devices (including those associated with water meters) fitted to the mains water supply can cause a pressure build up which could damage the boiler, the EcoFlo unit and other household appliances.

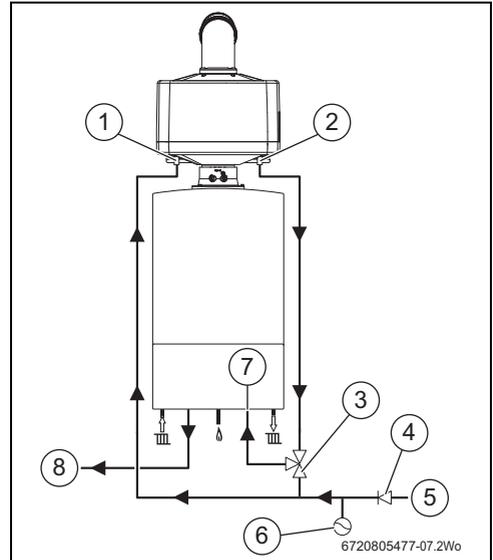


Fig. 5 Example layout

- [1] EcoFlo inlet connection
- [2] EcoFlo outlet connection
- [3] Blending valve (supplied, set at 30 °C)
- [4] Non-return valve (may be present see notice below)
- [5] Cold mains supply
- [6] Mini expansion vessel (required if non-return valve is installed)
- [7] Cold inlet (from the blending valve)
- [8] DHW outlets

Where the mains water supply has a non-return, back flow prevention valve fitted, a mini expansion vessel [6] (part number 7 716 192 105) should be connected to the mains water inlet pipe [5] between the non-return valve [4] and the blending valve [3] as shown above.

2.1.3 Installation and servicing clearances

Clearances of the EcoFlo FGHR unit

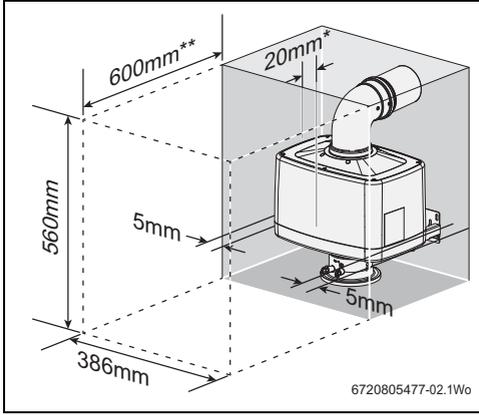


Fig. 6 Clearances

[*] Minimum clearance to removable door

[**] Minimum clearance required for servicing (flue access)

Clearances boiler

The templates provided show the side, bottom and top clearances (grey shaded area) for the installation of the boiler with the EcoFlo.

- ▶ Refer to the Installation Commissioning and Servicing Instructions of the boiler being installed for the full installation and servicing clearances.

Compartments

Follow the requirements of BS6798 and BS5440 Part 2 and note:

- Minimum clearances must be maintained.
- An access door is required to install, service and maintain the boiler and any ancillary equipment.
- If the installation is in an airing cupboard use a non-combustible material to separate the appliances from the airing space.
The material can be perforated up to a maximum hole size of 13mm.

Blending Valve

The blending valve is pre set to 30°C, no user adjustment is necessary. The locking ring and cap should be fitted.

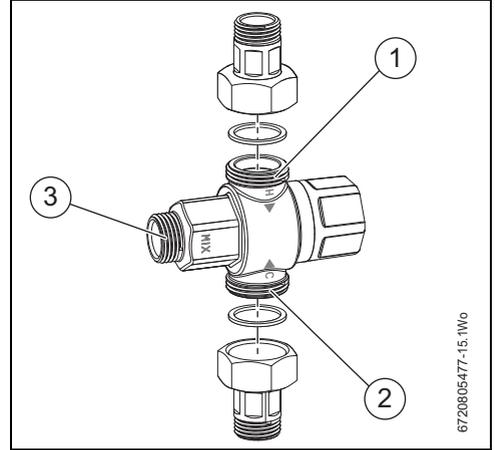


Fig. 7 Blending valve

[1] Hot water in (H)

[2] Cold water in (C)

[3] Blended water out (MIX)

3 Installation

3.1 Template



WARNING: Damage to property!
Damage caused by drilling into pipes, electrical cables, damp proof course or other hazards.

- ▶ Before drilling ensure that there are no obstructions.

- ▶ Select the template from the hardware literature pack.
- ▶ Fix the template onto the wall in the desired position [1].
- ▶ Drill 4 holes [2] for the support bracket.
- ▶ Drill the fixing holes for the boiler.

Rear flue outlet

- ▶ Mark the centre line [3] of the flue to be used; the external diameter of the hole can also be marked if required.
- ▶ If a 100mm diameter flue is to be used, a 125mm diameter hole is required. However, if using the weather sealing collar by pushing it through from inside the property, then a 150mm diameter hole is required to accommodate this.
- ▶ The flue turret of the 100mm flue has an in-built 3° angle.
- ▶ If extensions are to be added then the complete flue must rise at an angle of 3°.
- ▶ Drill the hole, preferably using a core drill.

Side flue outlet

- ▶ Mark from the centre line [4] of the wall mounting template to the wall that the flue will pass through. (see Installation & Servicing manual of the boiler for dimension).
- ▶ Allow for a rise of 52mm per metre length of flue, to give a 3° angle.

Fixing the wall mounting frame and support bracket

- ▶ Remove the wall template.
- ▶ Secure the wall mounting frame and support bracket with appropriate fittings for boiler and EcoFlo weight and wall type.

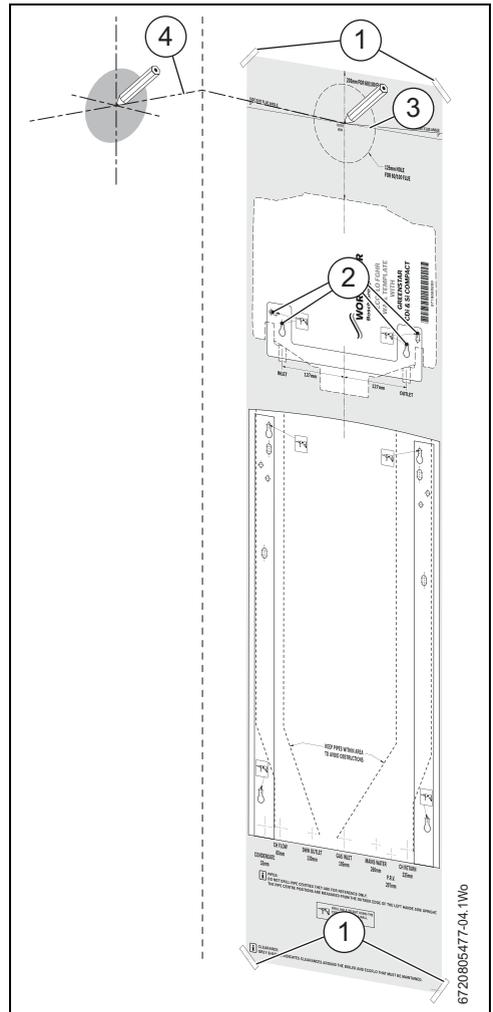


Fig. 8 Marking the flue position

3.2 Boiler installation

- ▶ Hang the boiler following the installation section of the boiler manual.

3.3 EcoFlo fitting

- ▶ Remove wall template.
- ▶ Secure the support bracket to the wall with the appropriate fittings for the unit weight and wall type.

Fitting the adaptor



NOTICE: Flue integrity!

Flue integrity failure if “O” ring seal seatings are disturbed during connection.

- ▶ Take care when making flue connections not to disturb “O” ring seals.

- ▶ Using the 3 screws provided [1], secure the adaptor [2] to the boiler [3].

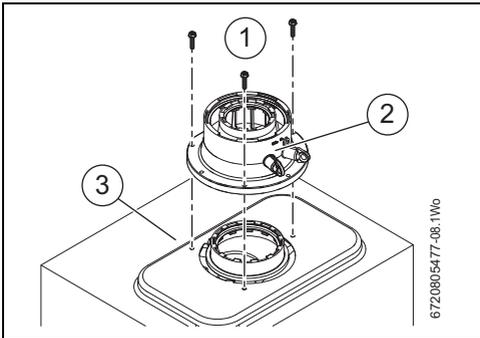


Fig. 9 Adaptor installation

Connecting the EcoFlo to the boiler

- ▶ Mount the EcoFlo on the support bracket and slide into the adaptor.

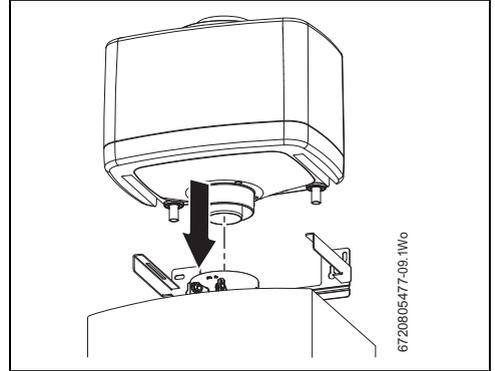


Fig. 10 Fitting EcoFlo

- ▶ Attach the EcoFlo to the support bracket using the included unit fixing screws [1].

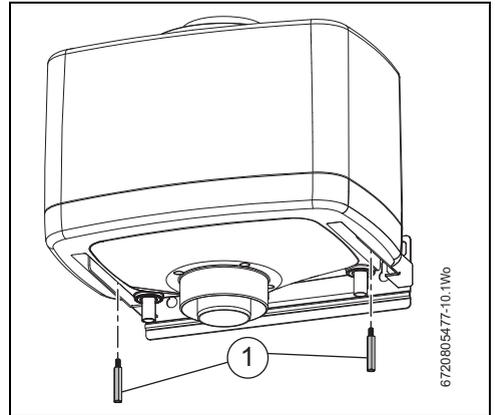


Fig. 11 Securing to support bracket



When connecting to the inlet and outlet water connections, use the correct materials that can be combined with stainless steel.

- ▶ Connect the water pipes. Cold [1] (left, blue) and hot [2] (right, red)
- ▶ The blending valve is installed as per the layout in figure 5, page 5. The blending valve is pre set to 30°C, no user adjustment is necessary. The locking ring and cap should be fitted.



WARNING: Risk of scalding

- ▶ The blending valve must be installed to minimise the risk of scalding from pre-heated hot water.

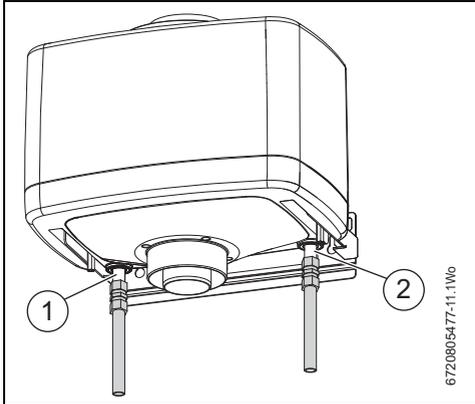


Fig. 12 Water connections

Flue connections



Maximum flue length is 3 metres, this includes the effective flue length reduction of the EcoFlo FGHR unit.



NOTICE: Flue supports

- ▶ Flues require adequate support throughout their entirety. It is advised to support the flue at every one metre and changes of direction. With extended horizontal flues the first support bracket must be within 300mm of the appliance flue adaptor/elbow.



NOTICE: Flue integrity!

Flue integrity failure if "O" ring seal seatings are disturbed during connection.

- ▶ Take care when making flue connections not to disturb "O" ring seals.

Compatible flue kits

- Horizontal flue:
 - Condensfit II 60/100mm diameter horizontal high level flue kit 7 733 600 048.
- Vertical flue:
 - Condensfit II 60/100mm diameter standard vertical flue kit 7 719 002 430.
 - The vertical adaptor in this kit is not required.
- ▶ Fit the flue piece [1] into the EcoFlo unit flue connection point [2].
- ▶ Drill a hole and secure the flue piece [1] to the bracket [3] using the screw [4] provided.

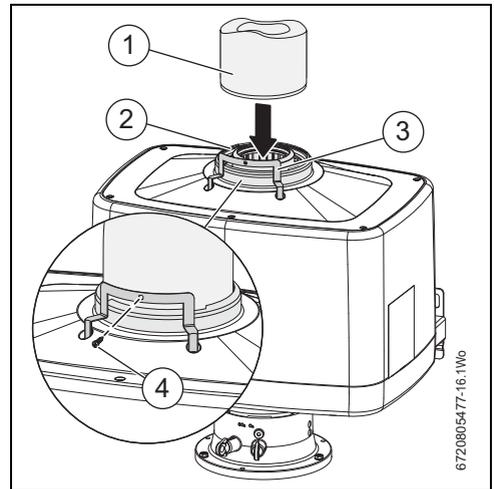


Fig. 13 Flue connection

Flue connection examples

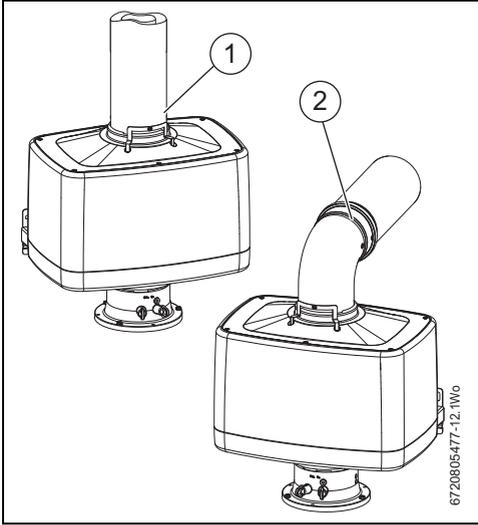


Fig. 14 Example flue options

- [1] Vertical flue option
- [2] Horizontal flue option

3.3.1 Plume management

Effective straight flue length with plume management	
Minimum plume length (M) 500mm	Maximum plume length (L) 3,080mm
Maximum flue length (L) 2,000mm	Maximum flue length (L) 202mm

The lengths for both plume and flue are the effective lengths, which includes the effective length of any bends plus the straight lengths.

The graph (→ figure 15) can be used to calculate:

- **Effective flue length** if a specific effective plume length is required.
- **Effective plume length** if a specific effective flue length is required.

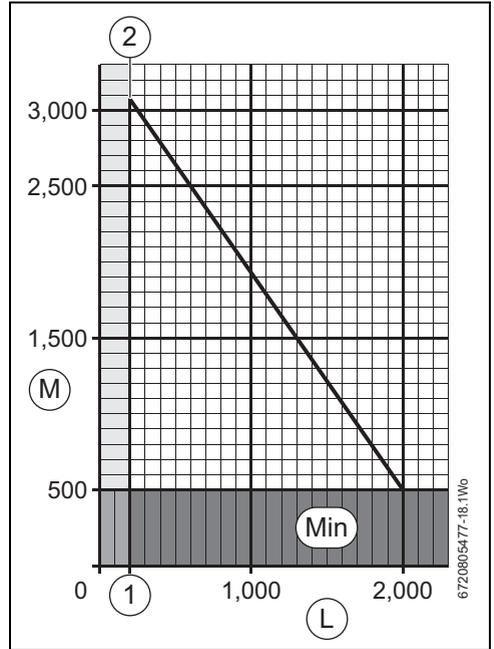


Fig. 15 Effective flue lengths versus plume management lengths

- [Min] Minimum plume kit length 500mm
- [M] Plume management length allowed (mm)
- [L] Effective flue length (mm)
- [1] Minimum flue length 202mm (cut terminal section in elbow)
- [2] Greenstar CDi & Si Compact combi data line

3.4 Commissioning

- ▶ Open the cold water supply and check all connections for leaks.
- ▶ Open the hot water supply and flush the EcoFlo until it is completely filled with water and no noise is audible.
- ▶ The EcoFlo is ready to use.

Notes

4 Servicing

Annual inspection

- ▶ An annual visual check of the EcoFlo must be carried out in addition to the checks stated in the appliance Installation, Commissioning and Servicing Instructions.

5 Replacement of parts

	Support Bracket 8 718 686 858 0
	Thermostatic blending valve 8 718 687 397 0
	Long Hexagon M5 x 8 A/F 8 718 687 408 0
	Literature pack 8 716 116 508 0
	Flue support bracket and securing screw 8 716 117 359

Table 3

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