

FLUE KIT INSTALLATION MANUAL

EXTERNAL BALANCED FLUE

GREENSTAR OILFIT EXTERNAL

FOR USE WITH THE FOLLOWING GREENSTAR OIL-FIRED BOILER:

GREENSTAR UTILITY 18/25

GREENSTAR DANESMOOR 18/25

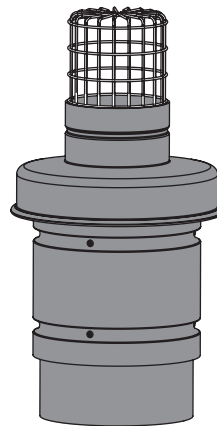
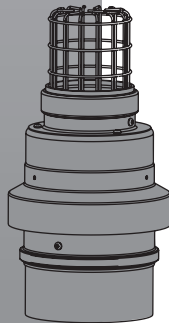
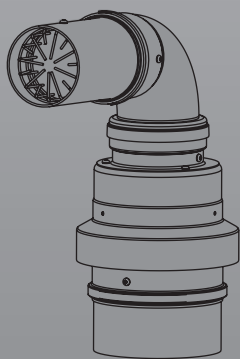
GREENSTAR HEATSLAVE 12/18, 18/25 & 25/32

GREENSTAR HEATSLAVE EXTERNAL 12/18, 18/25 & 25/32

GREENSTAR CAMRAY KITCHEN 12/18, 25/32 & 25/32

GREENSTAR CAMRAY UTILITY & SYSTEM 12/18, 18/25 & 25/32

GREENSTAR CAMRAY EXTERNAL 12/18, 18/25 & 25/32



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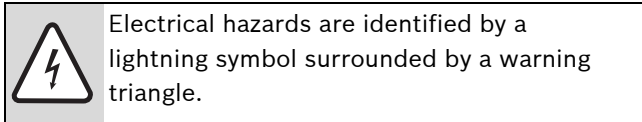
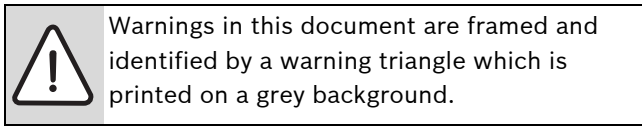
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1 KEY TO SYMBOLS AND SAFETY INSTRUCTIONS

1.1 EXPLANATION OF SYMBOLS

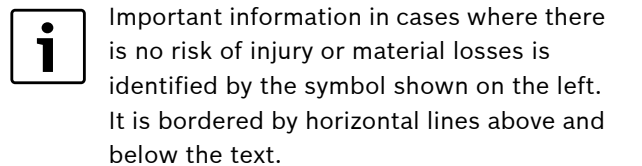
WARNINGS



Keywords indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **NOTE** indicates that material damage may occur.
- **CAUTION** indicates that minor to medium injury may occur.
- **WARNING** indicates that serious injury may occur.
- **DANGER** indicates possible risk to life.

IMPORTANT INFORMATION



ADDITIONAL SYMBOLS

Symbol	Meaning
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents
•	a list entry
–	a list entry (second level)

Table 1

1.2 SAFETY INSTRUCTIONS

OIL SMELLS, LEAKS OR FUMES FROM THE BOILER:

- ▶ Extinguish any naked flames.
- ▶ Open windows and doors (internal models only).
- ▶ Isolate the electrical supply.
- ▶ Isolate the fuel supply to the boiler.
- ▶ Rectify fault.

HEALTH AND SAFETY:

The appliance contains no asbestos and no substances have been used in the construction process that contravene the COSHH Regulations (Control of Substances Hazardous to Health Regulations 1988). Where applicable, the CE mark indicates compliance with relative EU Directives.

COMBUSTIBLE AND CORROSIVE MATERIALS:

Do not store or use any combustible materials (paper, thinners, paints etc.) inside or within the vicinity of the appliance.

The combustion air must be kept clear of chemically aggressive substances which can corrode the appliance and invalidate any warranty.

FITTING AND MODIFICATION:

Fitting the appliance and any controls to the appliance may only be carried out by a competent engineer in accordance with these instructions and the relevant Installation Regulations.

Flue systems must not be modified in any way other than as described in the fitting instructions.

Any misuse or unauthorised modifications to the appliance, flue or associated components and systems could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

SERVICING:

Advise the user to have the system regularly serviced by a competent, qualified engineer (such as OFTEC registered personnel) using approved spares, to help maintain the economy, safety and reliability of the appliance.

2 INSTALLATION AND SERVICING

2.1 INSTALLATION & SERVICING INSTRUCTIONS

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE STARTING INSTALLATION

THESE INSTRUCTIONS ARE APPLICABLE TO THE WORCESTER APPLIANCE MODEL(S) STATED ON THE FRONT COVER OF THIS MANUAL ONLY AND MUST NOT BE USED WITH ANY OTHER MAKE OR MODEL OF APPLIANCE.

THE INSTRUCTIONS APPLY IN THE UK ONLY AND MUST BE FOLLOWED EXCEPT FOR ANY STATUTORY OBLIGATION.

THIS APPLIANCE MUST BE INSTALLED BY A COMPETENT PERSON. FAILURE TO INSTALL CORRECTLY COULD LEAD TO PROSECUTION.

IF YOU ARE IN ANY DOUBT CONTACT THE WORCESTER TECHNICAL HELPLINE.

DISTANCE LEARNING AND TRAINING COURSES ARE AVAILABLE FROM WORCESTER, BOSCH GROUP.

PLEASE LEAVE THESE INSTRUCTIONS WITH THE USER OR WITH THE APPLIANCE AFTER INSTALLATION OR SERVICING.

ABBREVIATIONS USED IN THIS MANUAL:

∅	Diameter
CF	Conventional flue
BF	Balanced flue
SEDBUK	Seasonal Efficiency of Domestic Boilers in the United Kingdom
OFTEC	Oil Firing Technical Association for the petroleum Industry

Table 2

2.2 INSTALLATION REGULATIONS

Failure to install appliances correctly could lead to prosecution.

COMPLYING WITH THE BUILDING REGULATIONS:

The boiler and flue form part of the controlled services for the building. It is law that all controlled services for buildings must comply with building regulations. You must be able to satisfy your Local Authority Building Control Body (**LABC**) that the work carried out concerning the installation and commissioning of the heating appliances has been carried out to a satisfactory standard.

OFTEC operate a competent persons scheme and registered installers are able to certify that their work complies with building regulations.

Under the scheme;

OFTEC must be informed about every installation.

OFTEC will issue a building regulations compliance certificate to the householder and will notify the LABC.

OFTEC provide controlled document forms CD10 and CD11 for use during installation and commissioning respectively.

Other organisations operate self-certification schemes e.g. NAPIT and BESCA Ltd. and it may be possible for installers who are members of these organisations to self certify their work.

Alternatively you must submit a building control notice to the **LABC** before installing any boiler.

The **LABC** will then arrange regular inspection visits during the work to ensure that the installation complies with the regulations.

The appliance must be installed by a competent person. The person installing the appliance should be aware of the Health and Safety at Work Act and take appropriate action to ensure that the regulations are adhered to. In order to give optimum efficiency and trouble free operation the appliance must be commissioned by a qualified **OFTEC** engineer.

The compliance with a British Standard does not, in itself, confer immunity from legal obligations. In particular the installation of this appliance must be in accordance with the relevant requirements of the following British Standards and regulations in respect of the safe installation of equipment.

BS 5410: part 1: Code of practice for Oil Fired Boilers.

The Building Regulations Part J and L1 England and Wales;

Part F and Part J Section III Scotland;

Part L and Part F Northern Ireland.

Local water company bye-laws.

The Control of Pollution (Oil) Regulations.

OFTEC Standards. Where no specific instruction is given, reference should be made to the relevant codes of practice.

3 PRODUCT INFORMATION

3.1 BALANCED HORIZONTAL EXTERNAL FLUE COMPONENTS

80/125MMØ HORIZONTAL EXTERNAL FLUE KIT:

Part Number: 7 716 190 057

1. Terminal assembly
2. 80/125 weather seal
3. External elbow
4. External cabinet flue seal and plate
5. Clamp bracket
6. Drill Pack containing 3.3mm HSS Jobber drill and solvent free grease sachets

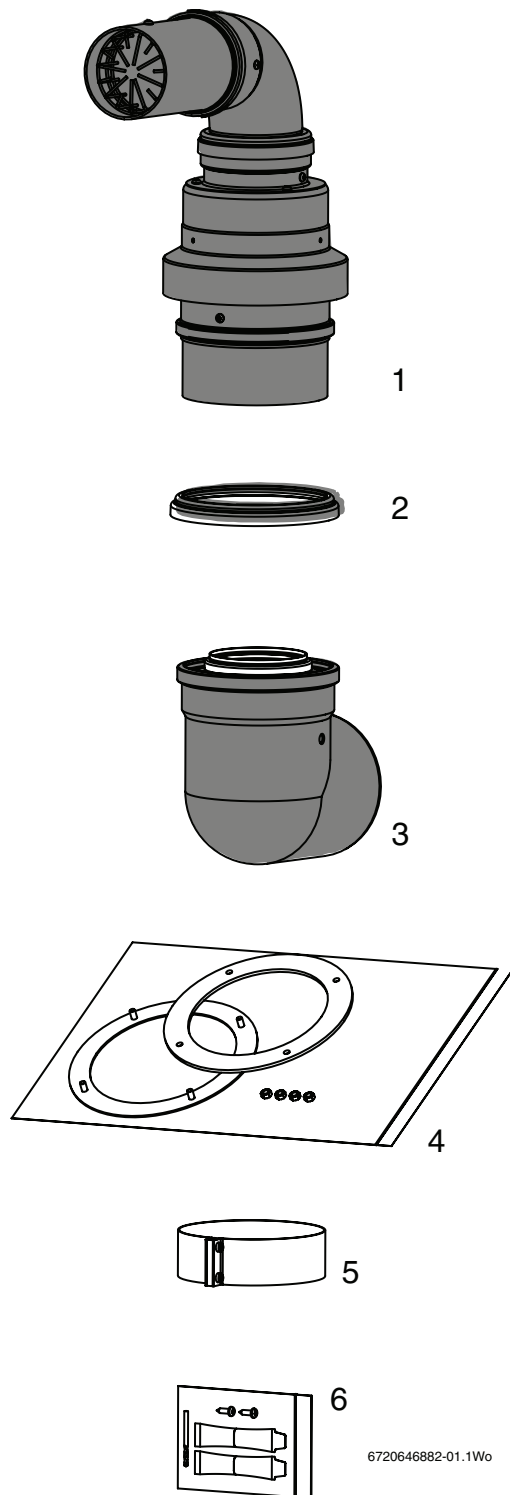


Fig. 1 External flue components

3.2 BALANCED VERTICAL EXTERNAL FLUE COMPONENTS

80/125MMØ VERTICAL EXTERNAL FLUE KIT:

Part Number: 7 716 190 053

1. Terminal assembly
2. 80/125 weather seal
3. External elbow
4. External cabinet flue seal and plate
5. Clamp bracket
6. Drill Pack containing 3.3mm HSS Jobber drill and solvent free grease sachets

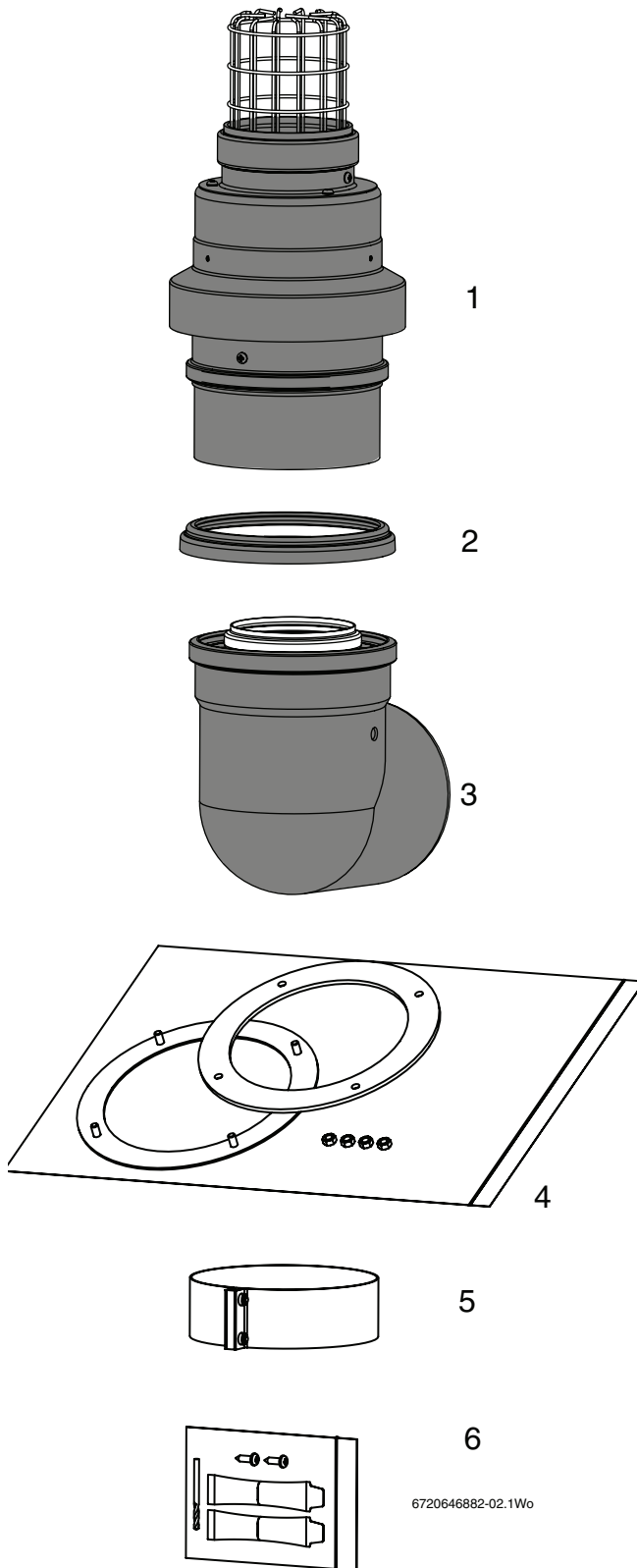


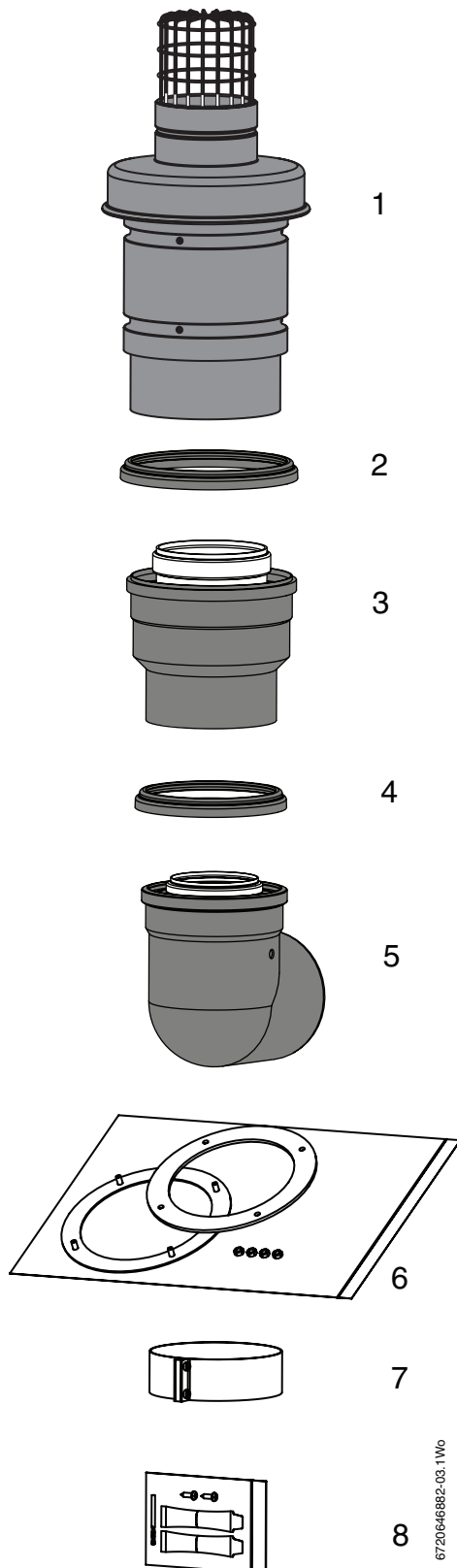
Fig. 2 Vertical flue components 80/125

3.3 BALANCED VERTICAL EXTERNAL FLUE COMPONENTS

100/150MMØ VERTICAL EXTERNAL FLUE KIT:

Part Number: 7 716 190 058

1. Terminal assembly
2. 100/150 weather seal
3. In-line External 80/125 to 100/150mm adaptor
4. 80/125 weather seal
5. External elbow
6. External cabinet flue seal and plate
7. Clamp bracket
8. Drill Pack containing 3.3mm HSS Jobber drill and solvent free grease sachets



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Fig. 3 Vertical flue components 100/150

3.4 EXTENSION COMPONENTS

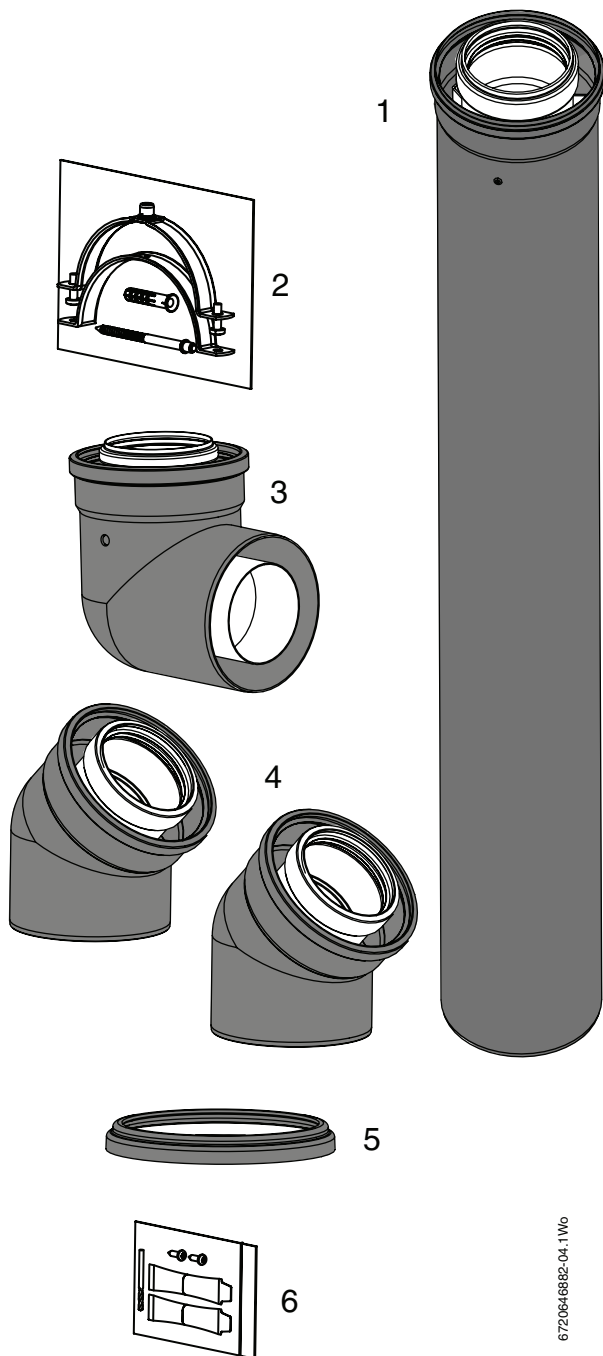


Fig. 4 Extension components

80/125mm Ø 1000mm BALANCED FLUE EXTENSION

Part Number: 7 716 190 054

1. Extension tube
2. Pipe clamp with screws, washers, and wall plugs
5. 80/125 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

80/125mm Ø 600mm BALANCED FLUE EXTENSION

Part Number: 7 716 190 098

1. Extension tube
2. Pipe clamp with screws, washers, and wall plugs
5. 80/125 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

80/125mm Ø BALANCED FLUE 90° ELBOW

Part Number: 7 716 190 055

3. 90° swept elbow
5. 80/125 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

100/150mm Ø BALANCED FLUE 90° ELBOW

Part Number: 7 716 190 096

3. 90° swept elbow
5. 100/150 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

80/125mm Ø BALANCED FLUE 45° ELBOW

Part Number: 7 716 190 056

4. 45° elbow x2
5. 80/125 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

100/150mm Ø BALANCED FLUE EXTENSION

Part Number: 7 716 190 060

1. Extension tube
2. Pipe clamp with screws, washers, and wall plugs
5. 100/150 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

100/150mm Ø BALANCED FLUE 45° ELBOW

Part Number: 7 716 190 061

4. 45° elbow x2
5. 100/150 weather seal
6. Solvent free grease pack containing 2 No. 8 screws and grease sachets

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4 PRE-INSTALLATION

4.1 FLUE TERMINAL POSITIONS

All measurements in millimetres

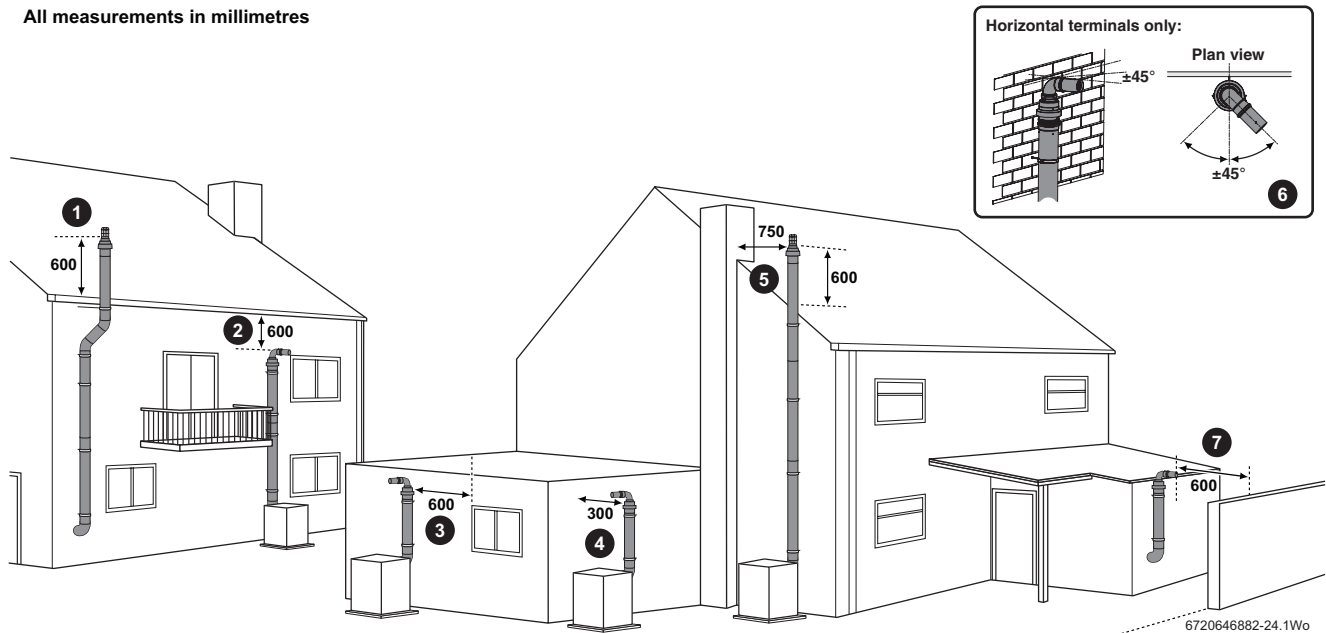


Fig. 5 Flue terminal positions



NOTE:

- ▶ All measurements are the minimum clearances required.
- ▶ The flue must be fitted and terminated in accordance with the recommendations of BS5410
- ▶ Use suitable brackets and fittings to support the flue at approximately one metre intervals and at a change of direction.
- ▶ Terminals must be positioned so to avoid combustion products entering the building.
- ▶ Avoid discharging flue gases into a carport or narrow passageway.
- ▶ In spite of the dimensions given here, the terminal must not be closer than 300mm to combustible material, in the case of a thatched roof double this dimension.
- ▶ Terminals must be positioned so to avoid products of combustion accumulating in stagnant pockets around the building or entering the building.
- ▶ Flue gases have a tendency to plume and in certain weather conditions a white plume of condensation will be discharged from the flue outlet which could be regarded as a nuisance, for example, near security lighting.
- ▶ A protective terminal guard must be fitted if the terminal is 2m or less above a surface where people have access. The guard must be spaced equally (minimum 50mm) around the flue and fixed to the wall with plated screws.
- ▶ Terminals must be at least 1.8m from an oil storage tank unless a wall with of at least 30 minutes fire resistance and extending 300mm wider and higher than the tank is between the tank and the terminal.


KEY TO ILLUSTRATION

1. 600mm above the highest point of an intersection with a roof.
2. 600mm below a gutter, drainage pipe or eaves **without** protection for combustible materials.
-OR-
75mm below a gutter, drainage pipe or eaves **with** protection for combustible materials.
3. 600mm horizontally or vertically to an opening, air brick or opening window.
4. 300mm to an internal or external corner.
5. 750mm between a vertical structure and a flue terminal.
6. The terminal outlet must face directly away from the wall. The outlet can be swivelled through 90° but must not be any closer than 45° to the wall.
7. 600mm to a boundary, unless the discharge will cause a nuisance. BS5410: Part 1 recommends that care is taken when siting terminals in relation to boundaries.

4.2 INTERNAL BOILERS - BALANCED EXTERNAL FLUE OPTIONS

Various flue options are shown opposite, the components used and the effective length of the elbows used. The effective length of the elbows used must be subtracted from the maximum flue length (L) shown in the table below.

To achieve the maximum flue length (L), a flue section will have to be reduced in length. Only flue extensions can be reduced in length by cutting.

 **NOTE:** All horizontal sections must rise from the boiler by 52mm per metre (3°) to allow condensate to drain back to the boiler.

 **NOTE: #**
▶ **Flue damper required.**

CALCULATING THE FLUE LENGTH

Measure the total flue length required, noting that the maximum straight flue length including the terminal is:

Internal Boilers		Maximum effective flue length (L) mm		Flue Ø (mm)
Boiler	Model	High level horizontal*	Vertical**	
Danesmoor models	18/25	5000	12000	80/125
Wall hung Danesmoor	12/18 & 18/25	4000	6000	80/125
Heatslave	18/25	5000	12000	80/125
Heatslave models	12/18 & 25/32	2000	6000	80/125
Camray	18/25	5000#	8000	80/125
		-	10000#	100/150
Camray models	12/18	2000	8000	80/125
	25/32	2000	-	80/125
	-	-	8000	100/150

Flue damper required. Refer to section 5.2.1 for fitting instructions
* from the boiler casing, (the horizontal kit elbow is ignored when calculating the flue length).
** from the boiler casing (the vertical kit elbow is ignored when calculating the flue length) maximum 2 metres of horizontal flue.

Table 3 Maximum flue for internal boilers

Effective length of elbows:

The total straight flue length is reduced for each additional elbow used by:

- 1000mm for each 90° elbow
- 500mm for each 45° elbow

Flue extension lengths:


Horizontal or vertical extensions have an overall length of 1000mm.

But the actual length of the extension when engaged into the sockets within the flue run is 950mm

Flue terminal lengths:

The following lengths form part of the overall maximum flue length.

- Horizontal 80/125mmØ: 305mm (item 1)
- Vertical 80/125mmØ: 185mm + cage (item 5)
- Vertical 100/150mmØ: 270mm + cage (item 6)

 **NOTE:** Vertical flues
▶ For satisfactory flue performance it is recommended that no more than two metres of vertical flue is run horizontally.

FLUE COMPONENTS:

1. Horizontal Terminal Kit 80/125 (including 90° elbow)
2. Straight Flue Extension Kit 80/125
3. 90° Flue Elbow Kit 80/125
4. 45° Flue Elbow Kit 80/125 (2 x 45° elbows)
5. Vertical Terminal Kit 80/125 (including 90° elbow)
6. Vertical Terminal kit 100/150 (including 90° elbow)
7. Straight Flue Extension Kit 100/150
8. 90° Flue Elbow Kit 100/150
9. 45° Flue Elbow Kit 100/150 (2 x 45° elbows)

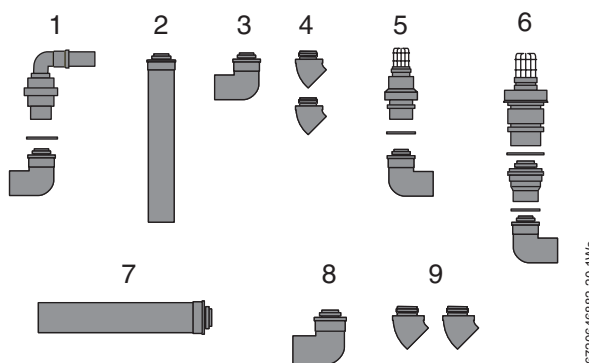
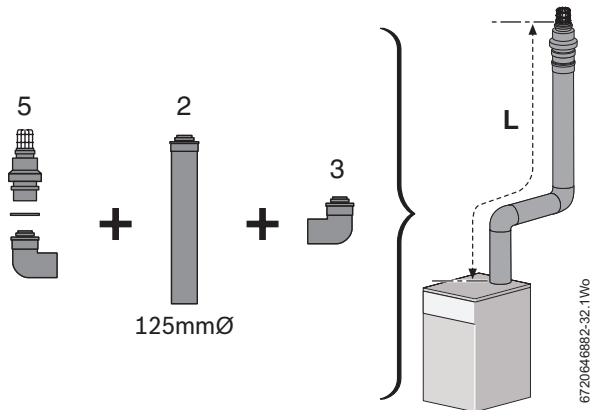


Fig. 6

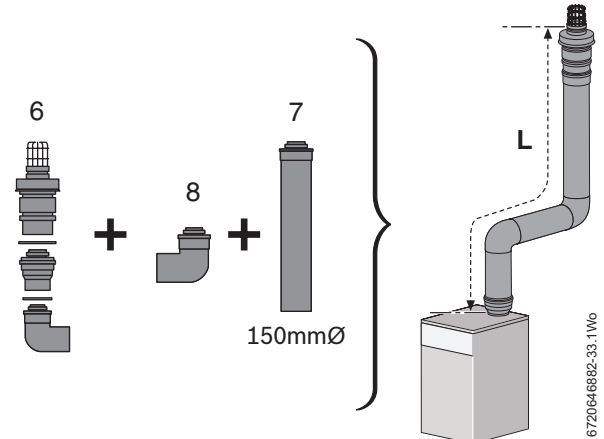
INTERNAL BOILER TERMINAL OPTIONS:

TOP OUTLET 80/125mm Ø



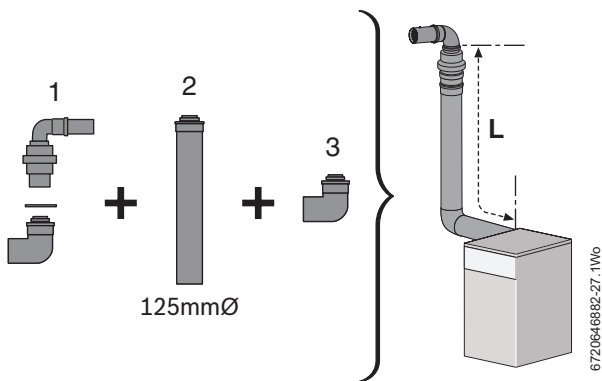
For this flue option: item 3 x 2 = 2000mm.
2000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

TOP OUTLET Camray 18/25 & 25/32 100/150mm Ø



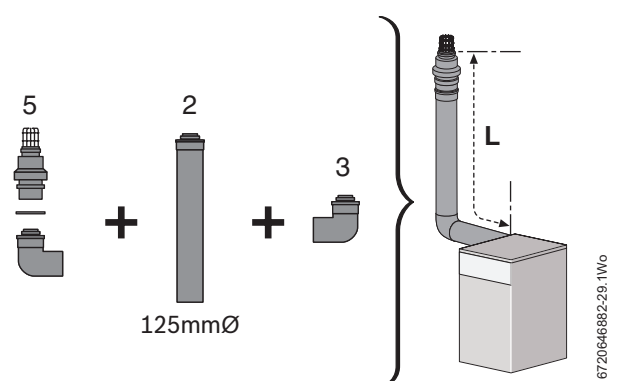
For this flue option: item 8 x 2 = 2000mm.
2000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

SIDE OUTLET - HORIZONTAL



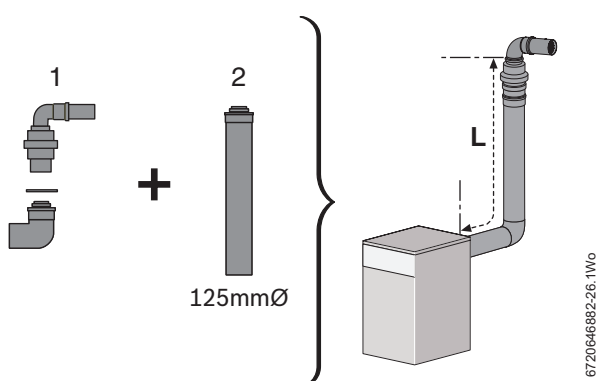
For this flue option: item 3 = 1000mm.
1000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

SIDE OUTLET - VERTICAL



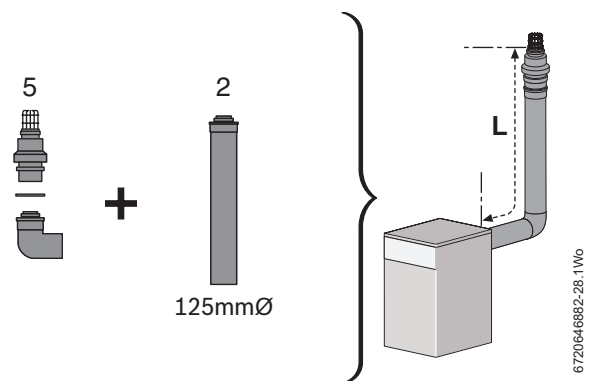
For this flue option: item 3 = 1000mm + horizontal section = 1000mm.
2000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

REAR OUTLET - HORIZONTAL



For this flue option:
Nothing is deducted from the boiler maximum flue lengths stated in table 3

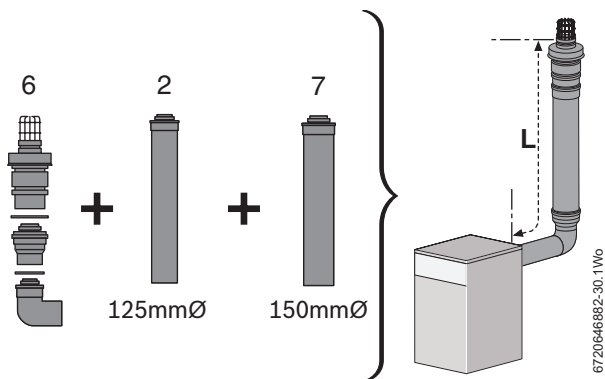
REAR OUTLET - VERTICAL



For this flue option: 1000mm for horizontal section.
1000mm is deducted from the boiler maximum flue lengths stated in table 3 due to the horizontal section of the flue.

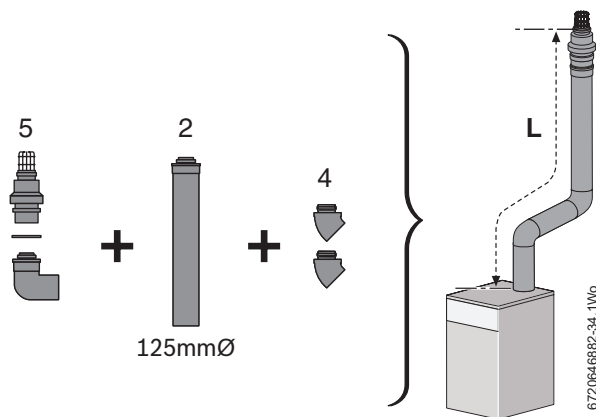
REAR OUTLET - VERTICAL

Camray 18/25 & 25/32 100/150mm Ø



For this flue option: 1000mm for horizontal section. 1000mm is deducted from the boiler maximum flue lengths stated in table 3 due to the horizontal section of the flue.

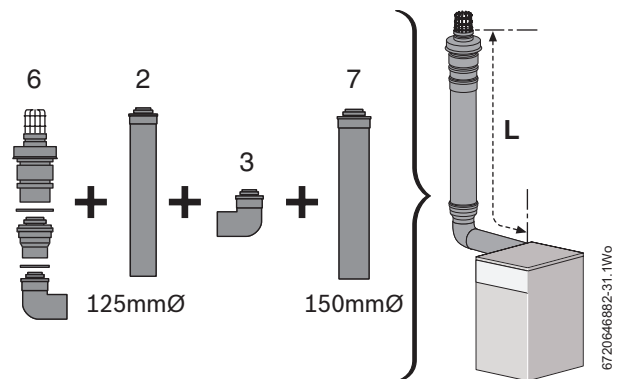
TOP OUTLET - VERTICAL 80/125 Ø



For this flue option: item 4 = 1000mm. 1000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

SIDE OUTLET - VERTICAL

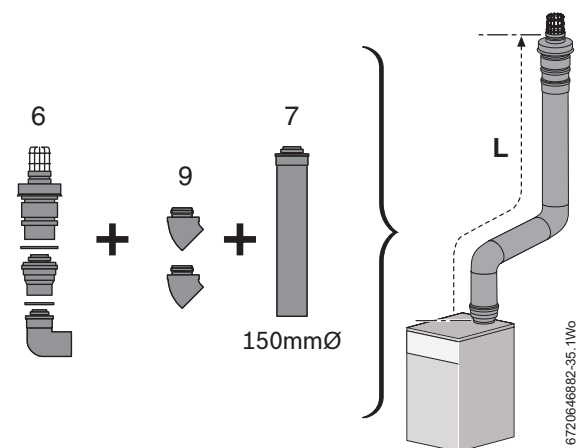
Camray 18/25 & 25/32 100/150mm Ø



For this flue option: item 3 = 1000mm + horizontal section = 1000mm. 2000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

TOP OUTLET - VERTICAL

Camray 18/25 & 25/32 100/150mm Ø




For this flue option: item 9 = 1000mm. 1000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 3

4.3 EXTERNAL BOILERS - BALANCED EXTERNAL FLUE OPTIONS

Various flue options are shown opposite, the components used and the effective length of the elbows used. The effective length of the elbows used must be subtracted from the maximum flue length (L) shown in the table below.

To achieve the maximum flue length (L), a flue section will have to be reduced in length. Only flue extensions can be reduced in length by cutting.

 **NOTE:** All horizontal sections must rise from the boiler by 52mm per metre (3°) to allow condensate to drain back to the boiler.

 **NOTE: #**
 ▶ **Flue damper required.**

CALCULATING THE FLUE LENGTH

Measure the total flue length required, noting that the maximum straight flue length including the terminal is:

External Boilers		Maximum effective flue length (L) mm		Flue Ø (mm)
Boiler	Model	High level horizontal*	Vertical**	
Heatslave External	18/25	5000	11000	80/125
Heatslave External	12/18 & 25/32	2000	5000	80/125
Camray External	18/25	5000#	7000	80/125
		-	9000#	100/150
Camray External models	12/18	2000	7000	80/125
	25/32	2000	-	80/125
		-	7000	100/150

Flue damper required. Refer to section 5.2.1 for fitting instructions
 * from the boiler casing, (the horizontal kit elbow is ignored when calculating the flue length).
 ** from the boiler casing (the vertical kit elbow is ignored when calculating the flue length) maximum 2m of horizontal flue.

Table 4 External boiler maximum flue length

Effective length of elbows:

The total straight flue length is reduced for each elbow used by:

- 1000mm for each 90° elbow (including the terminal bend of the Horizontal Terminal kit)
- 500mm for each 45° elbow

Flue extension lengths:


Horizontal or vertical extensions have an overall length of 1000mm.

But the actual length of the extension when engaged into the sockets within the flue run is only 950mm

Flue terminal lengths:

The following lengths form part of the overall maximum flue length.

- Horizontal 80/125mmØ: 305mm (item 1)
- Vertical 80/125mmØ: 185mm + cage (item 5)
- Vertical 100/150mmØ: 270mm + cage (item 6)

 **NOTE:** Vertical flues
 ▶ For satisfactory flue performance it is recommended that no more than two metres of vertical flue is run horizontally.

FLUE COMPONENTS:

1. Horizontal Terminal Kit 80/125 (including 90° elbow)
2. Straight Flue Extension Kit 80/125
3. 90° Flue Elbow Kit 80/125
4. 45° Flue Elbow Kit 80/125 (2 x 45° elbows)
5. Vertical Terminal Kit 80/125 (including 90° elbow)
6. Vertical Terminal kit 100/150 (including 90° elbow)
7. Straight Flue Extension Kit 100/150
8. 90° Flue Elbow Kit 100/150
9. 45° Flue Elbow Kit 100/150 (2 x 45° elbows)

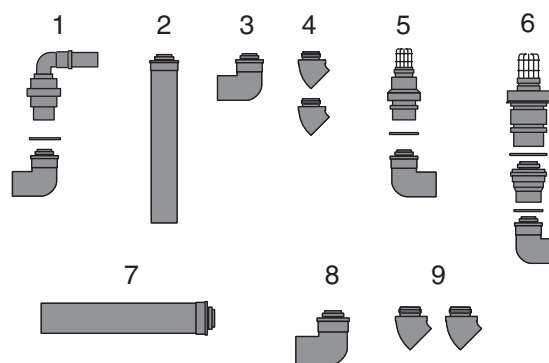
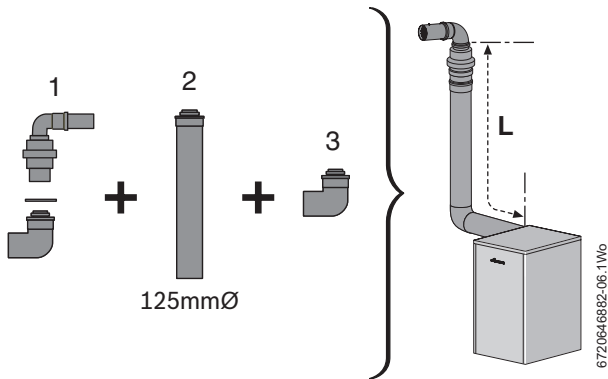


Fig. 7

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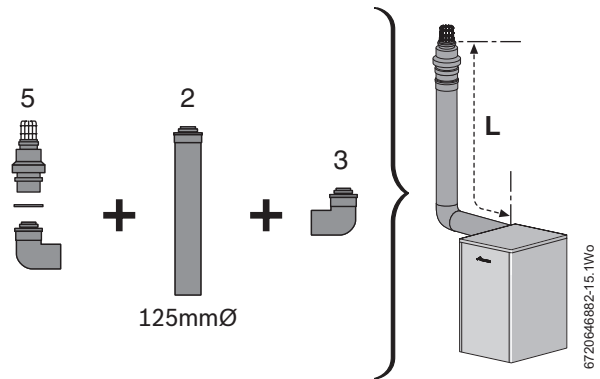
EXTERNAL BOILER TERMINAL OPTIONS:

SIDE OUTLET - HORIZONTAL



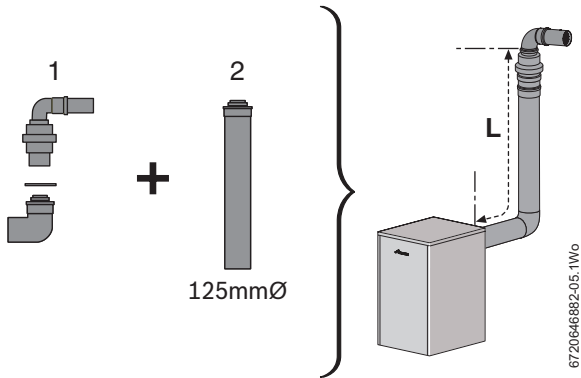
For this flue option: item 1=1000mm + item 3=1000mm
2000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 4

SIDE OUTLET - VERTICAL



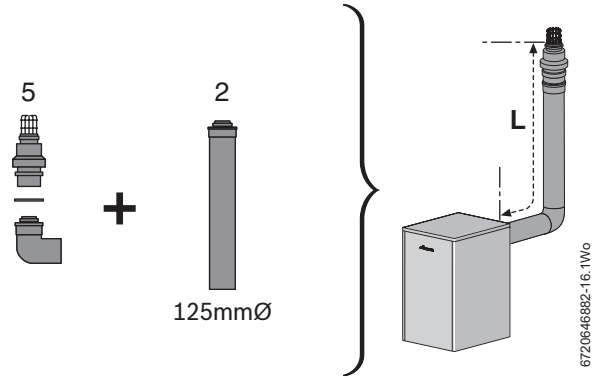
For this flue option: item 3=1000mm
1000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 4

REAR OUTLET - HORIZONTAL



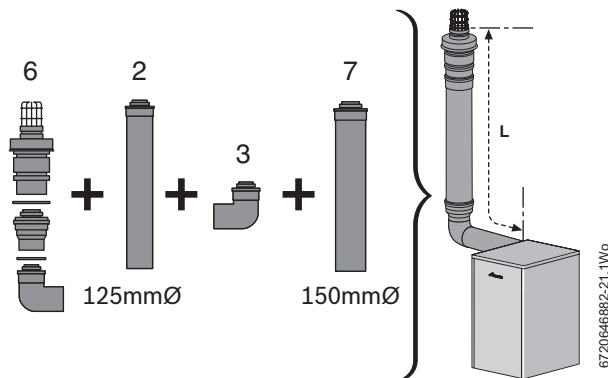
For this flue option:
Nothing is deducted from the boiler maximum flue lengths stated in table 4

REAR OUTLET - VERTICAL



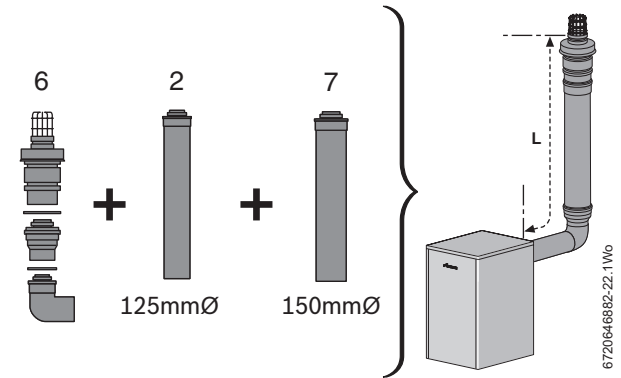
For this flue option:
Nothing is deducted from the boiler maximum flue lengths stated in table 4

SIDE OUTLET Camray 18/25 & 25/32 100/150mm Ø



For this flue option: item 3=1000mm
1000mm of effective length must be deducted from the boiler maximum flue lengths stated in table 4

REAR OUTLET Camray 18/25 & 25/32 100/150mm Ø



For this flue option:
Nothing is deducted from the boiler maximum flue lengths stated in table 4

NOTE: Vertical flues

- ▶ For satisfactory flue performance it is recommended that no more than two metres of vertical flue is run horizontally.

5 INSTALLATION

5.1 BALANCED FLUE MEASURING & CUTTING

All horizontal flue sections must rise at 52mm for each metre away from the boiler to ensure that condensate flows back into the boiler for safe discharge via the condensate waste pipe.

Any internal sections of the flue can be run in either the standard Oilfit (white) or the External Oilfit (black) flue components depending upon the customers requirements. All standard Oilfit and External Oilfit components with the same diameter have the same dimensions and connections and are fully interchangeable.

Only External Oilfit components should be used externally as these incorporate an additional weather seal.

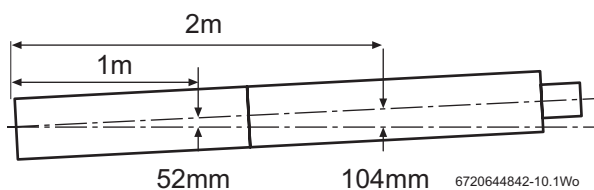


Fig. 8 slope for condensate disposal

MEASURING THE FLUE:

Measure the flue length (L) required from the flue terminal to the outer boiler casing at the required flue outlet position (1*, 2, 3 or 4).

*Flue outlet position 1 is not available on external models.

Add dimension 'X' to the flue length, as shown for flue outlet 1, 2, 3 or 4 in the table opposite (to allow the flue to fit to the outlet/elbow inside the boiler casing).

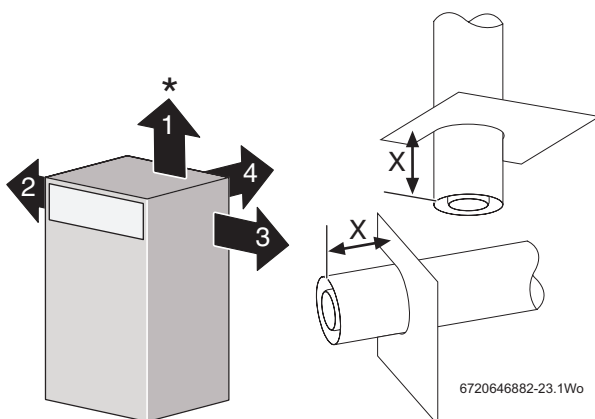


Fig. 9 Boiler terminal options

Flue outlets	LENGTH X (mm)				
	Danesmoor	Heatslave	Camray	Heatslave External	Heatslave External
1	40	40	30	N/A	N/A
2	100	250	100	350	235
3	100	100	100	235	270
4	210	210	270	425	470

REDUCING THE FLUE LENGTH:



Only cut straight extension tubes.

- ▶ Measure and mark the flue extension from the seal end, cut both inner and outer tubes square taking care not to distort the tubes.
- ▶ Remove any burrs and chamfer the outer edges of the tubes to ease connection and prevent seal damage.

1. Required flue section
2. Discarded flue section

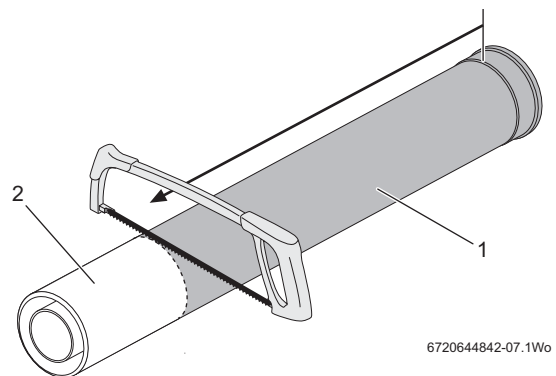


Fig. 10 Shortening a flue extension

5.2 BALANCED FLUE FITTING



To ease assembly of the flue components, grease seals lightly with the solvent free grease supplied. Check all the seals are seated properly in the grooves provided and are in good condition.

- ▶ All flue joints must be sealed to prevent leakage of condensate and flue products.

1. Check seal (6) is located in the groove of the boiler flue outlet (5).

EXTERNAL BOILER MODELS

For all outlets fit the outlet plate and the seal to the appropriate cabinet flue outlet before fitting the flue to the boiler.



NOTE: Flue weight

- ▶ The flue system must be supported throughout the run as the boiler is not designed to take the weight of the flue.

2. REAR OUTLET "4"

- ▶ Loosely fix support bracket/s to support the flue weight.
- ▶ Slide flue clamp (7) onto the flue tube (8).
- ▶ Push-fit the flue (8) into the boiler flue outlet ensuring a good fit to seal (6).
- ▶ Secure flue (8) to boiler outlet with clamp (7).
- ▶ Secure flue support bracket/s.

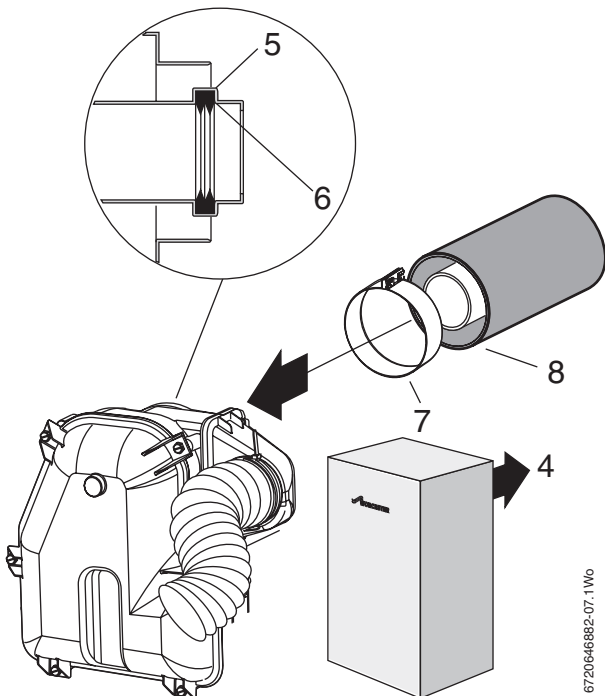


Fig. 11 Rear outlet

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3. OUTLETS "1", "2" AND "3"

- ▶ When connecting a flue elbow directly to the boiler flue outlet, loosen the flue elbow retaining bracket screws (11)** before fitting the flue elbow.
- ▶ Slide flue clamp (7) over the flue elbow (9).
- ▶ Push-fit the flue elbow (9) into the boiler flue outlet ensuring a good fit to seal (6).
- ▶ Rotate flue elbow (9) to outlet position 1*, 2 or 3.
- ▶ Secure flue elbow (9) to boiler outlet with clamp (7) then tighten the bracket screws (11)**.
- ▶ Check the seals are located properly in the grooves of flue elbow (9).

* Position 1, outlet not available on external models.

** items 10 and 11 are not fitted to external models

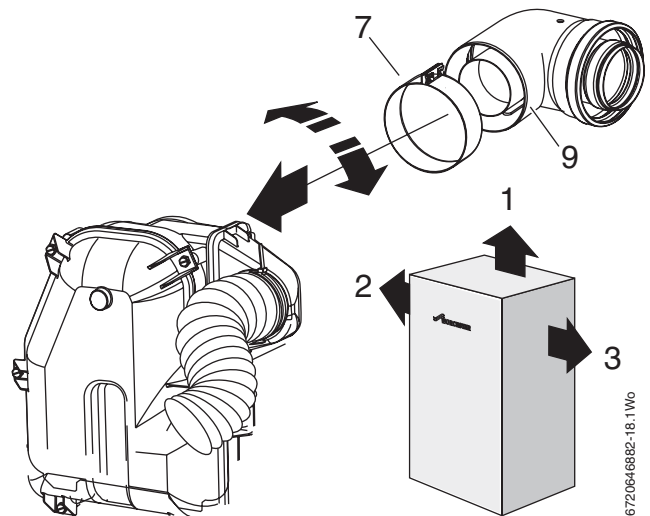


Fig. 12 Side or rear outlet

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NOTE: The retaining bracket must be fitted if a flue elbow is used on the flue outlet, on internal models.

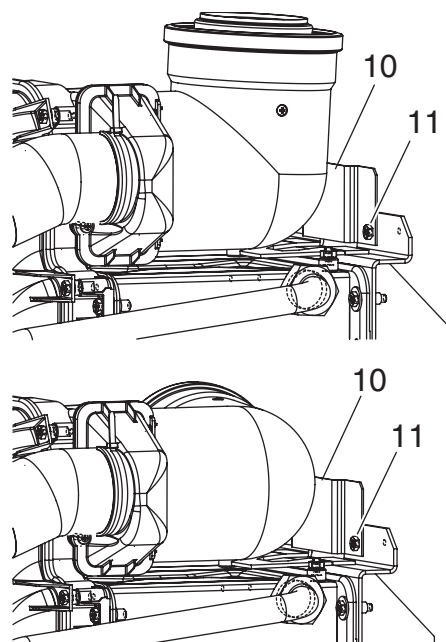


Fig. 13 Flue elbow retaining bracket

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- ▶ Loosely fix support brackets (12) to support the weight.
- ▶ Push-fit flue (8) into elbow (9).

NOTE: Camray 25/32 models using a vertical terminal, the 80/125 to 100/150mmØ vertical adaptor **MUST** be fitted vertically at the lowest point of the vertical section of the flue. Failure to fit the adaptor vertically will cause the condensate pool within the flue and will adversely affect the flue's performance.

- ▶ Secure flue support brackets (12).

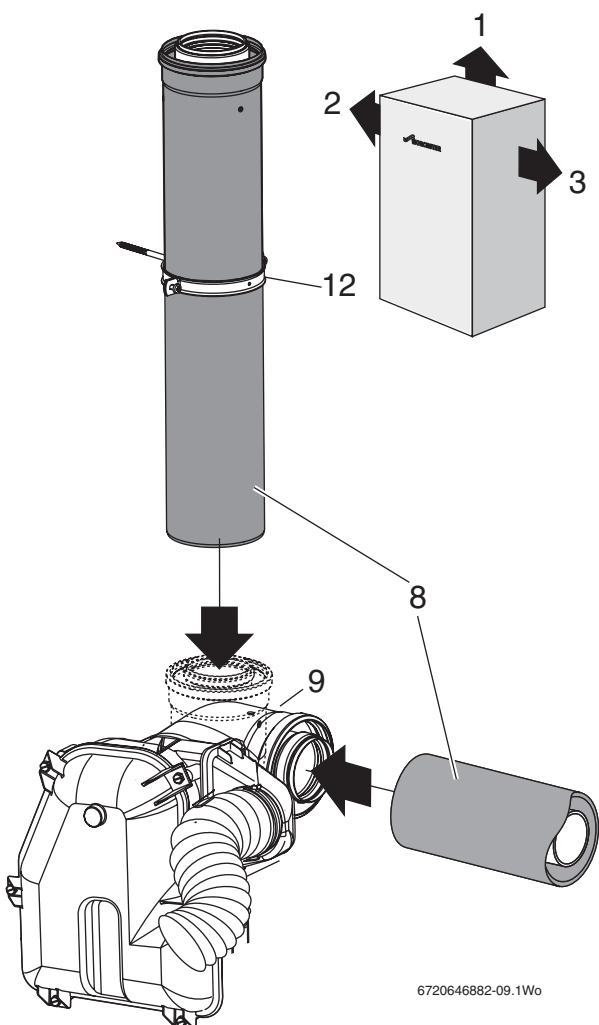


Fig. 14 Flue extension

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- ▶ Drill two holes with the drill provided (180° apart if possible) through the outer flue elbow (9) into the outer flue tube (8) taking care NOT to drill the inner flue tube.
- ▶ Secure with screws supplied.

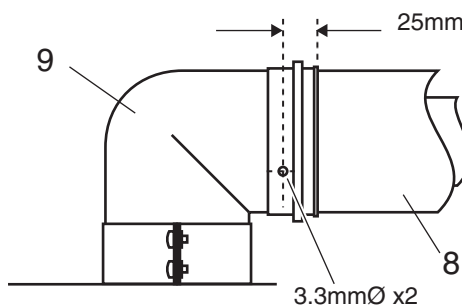


Fig. 15 Securing the extension

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FITTING FLUE ADAPTERS, ELBOWS & EXTENSIONS:

Fit the extensions and elbows together firmly. Orient the extensions and elbows correctly. Drill two holes with the drill provided (180° apart if possible) through the outer flue elbow (9) into the extension outer tube (8) taking care NOT to drill the inner tube.

Secure the flue extension to the elbow(s) with the stainless steel screws provided. Support the flue extensions at regular intervals with the brackets provided.

If a 100/150 flue extension is required the 80/125 to 100/150 adapter must be employed:

The adapter must be mounted vertically at the lowest point on the vertical section. The adapter would be mounted in the 90° elbow.

- ▶ Fit the 80/125 to 100/150 adapter (12) to the elbow.
- ▶ Orient the elbow (9) vertically.
- ▶ Fit the flue extension (13) firmly into the adapter.
- ▶ Secure the elbow (9) to the boiler/flue extension (8).
- ▶ Secure with the stainless steel screws provided.

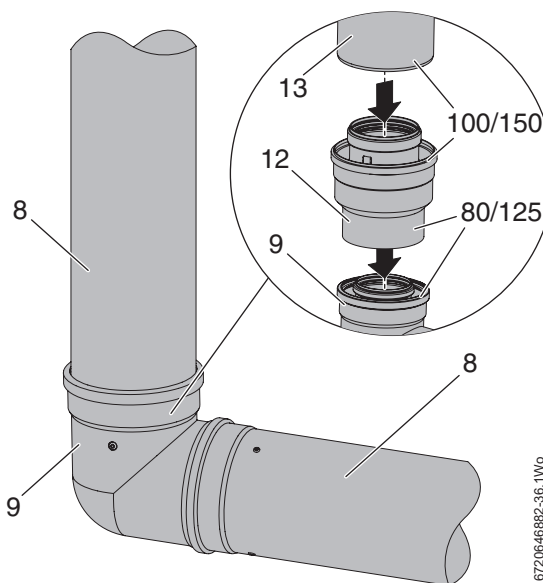


Fig. 16 Flue extension elbows

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5.2.1 FLUE DAMPER

WARNING: Fitting the flue damper

- Failure to fit the flue damper, when required, will effect the performance of the boiler and may cause “lockouts”

i The flue damper is only fitted to the Greenstar Camray 18/25 models and then only according to flue length.

Greenstar Camray 18/25 models	
Flue type	
Vertical 100/150	High level horizontal
Fit a damper at the following effective flue lengths	
All	Greater than 2 metres

Table 5 Damper required

The CO₂ must be readjusted when a damper is used, refer to the relevant Installation Commissioning & Servicing manual for the Camray 18/25 boiler.

18kW	21.5kW	25kW
11%	11.5%	no change

Fit the flue damper into the flue as shown in figure 17. Ensure that the rubber seal is fitted into the inner tube.

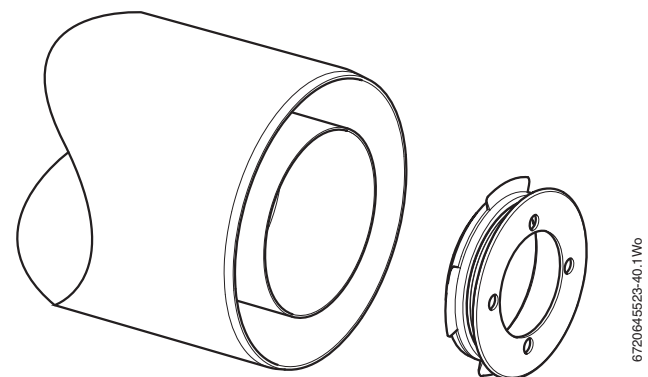


Fig. 17 Flue damper detail

Insert the flue damper into the inner flue tube of the 90° elbow or straight extension and fit the flue as detailed in figure 18 or figure 19 as required.

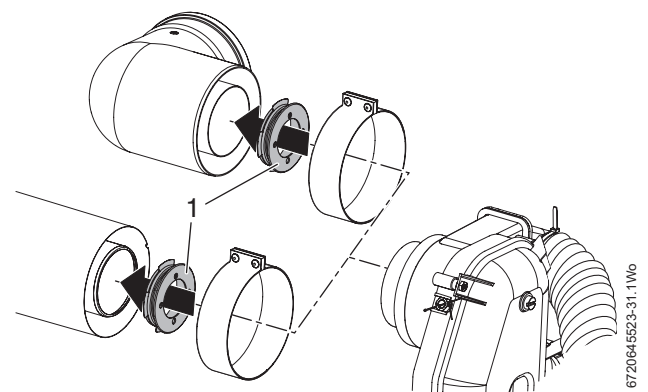


Fig. 18 Flue damper fitting

FITTING AN ELBOW TO THE BOILER OUTLET

1. Ensure that the seal [1] is correctly seated and grease has been applied to ease assembly.
2. Loosen the nuts and bolts securing the retaining bracket [2], but do not remove.
3. Slide the clamping collar [4] over the elbow [3] and mate the elbow to the boiler outlet. Ensuring that the inner tube slides fully into the seal of the boiler outlet.
4. Align the elbow to the direction of the flue path, either left, right or vertically.
5. Position the clamp over the elbow and boiler outlet and tighten firmly.

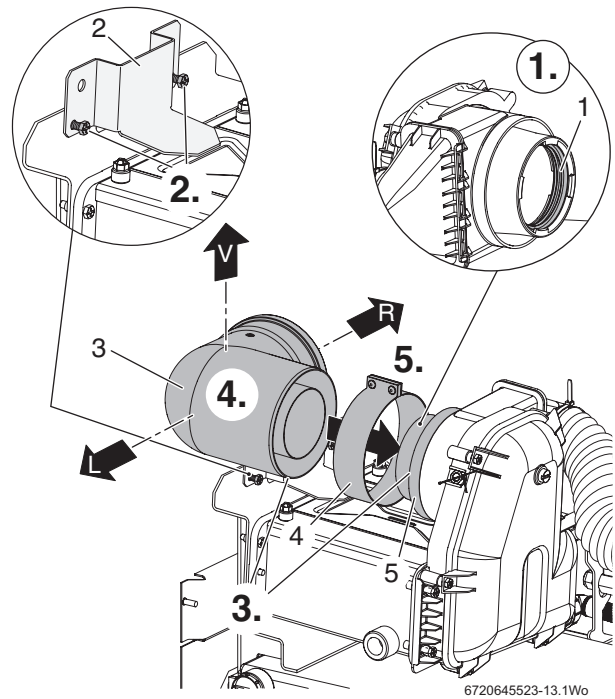


Fig. 19 Flue bend fitting

1. With the elbow in the required position.
2. Re-secure the retaining bracket [1]

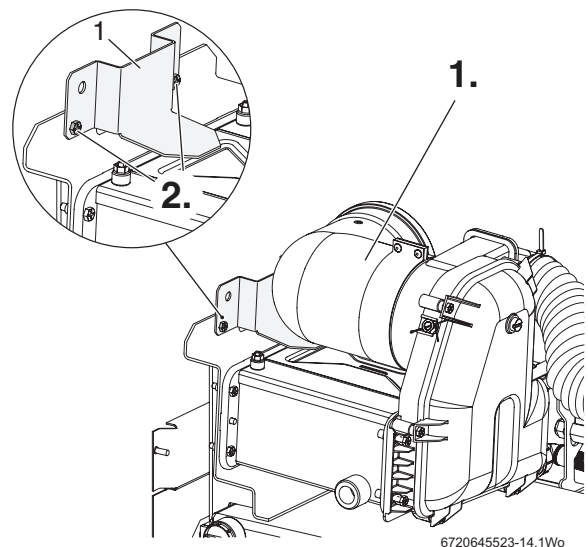


Fig. 20 Securing bracket

5.3 BALANCED FLUE TERMINAL & EXTENSIONS

NOTE: Flue joints

- ▶ To ease assembly of the flue components, grease seals lightly with the solvent free grease supplied.
- ▶ Check all the seals are seated properly in the grooves provided and are in good condition.

- ▶ All flue joints must be sealed to prevent leakage of condensate and flue products.
- ▶ Fit a weather seal onto the bottom of each external section and push the seal up clear of the socket mating area.
- ▶ Fasten the flue supports (12) to the wall, the flue supports should support each extension piece just below the socket. An additional support (supplied) will be needed directly after any elbows.
- ▶ Push fit all extensions together starting at the boiler and working upwards to the terminal, securing the wall clamp (12) on each piece before inserting the next piece.
- ▶ Slide the weather seal onto the top of every socket to form a seal.
- ▶ Each extension must be supported using the wall clamps (12) supplied or a suitable alternative.

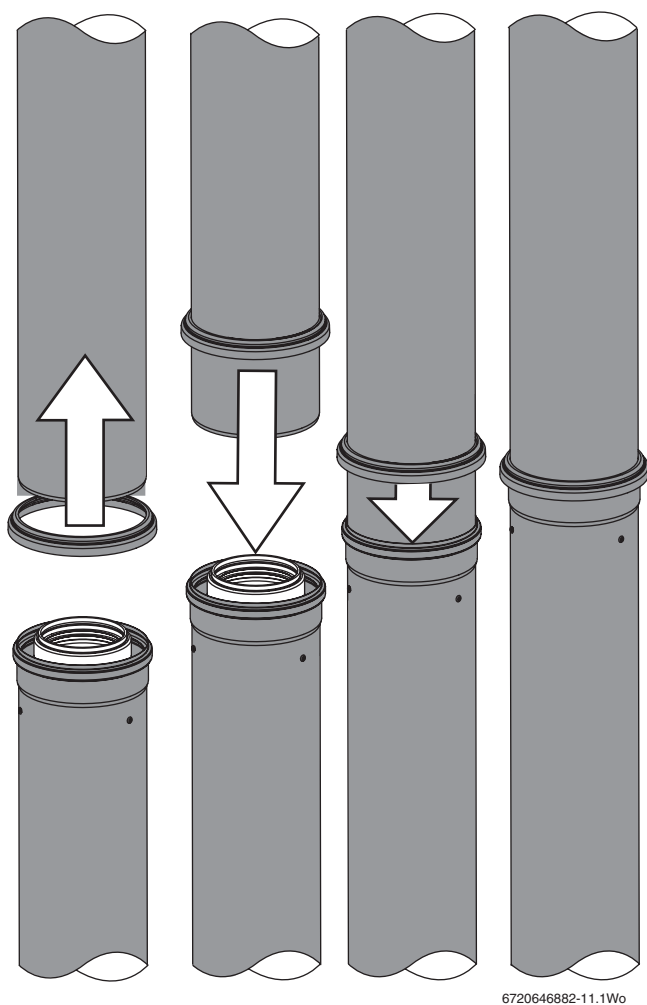


Fig. 21 Flue connection

VERTICAL TERMINALS ONLY:

- ▶ The terminal must extend beyond the roof or wall by 600mm.
- ▶ The terminal must be at least 600mm horizontally from any vertical structure.

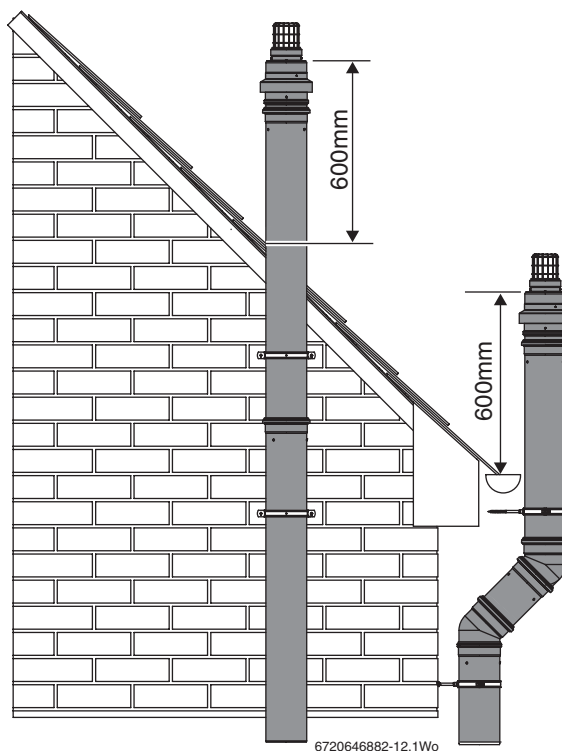


Fig. 22 Vertical terminal detail

- ▶ Each extension must be supported using the wall clamps (12) supplied or a suitable alternative.

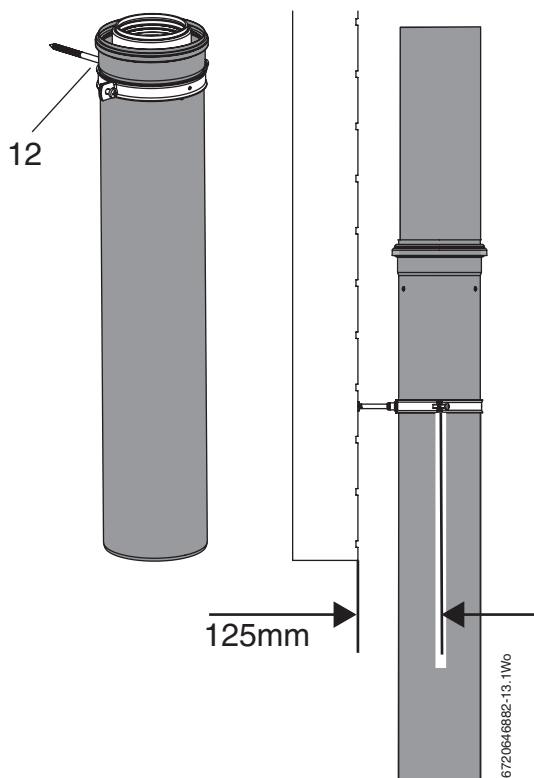
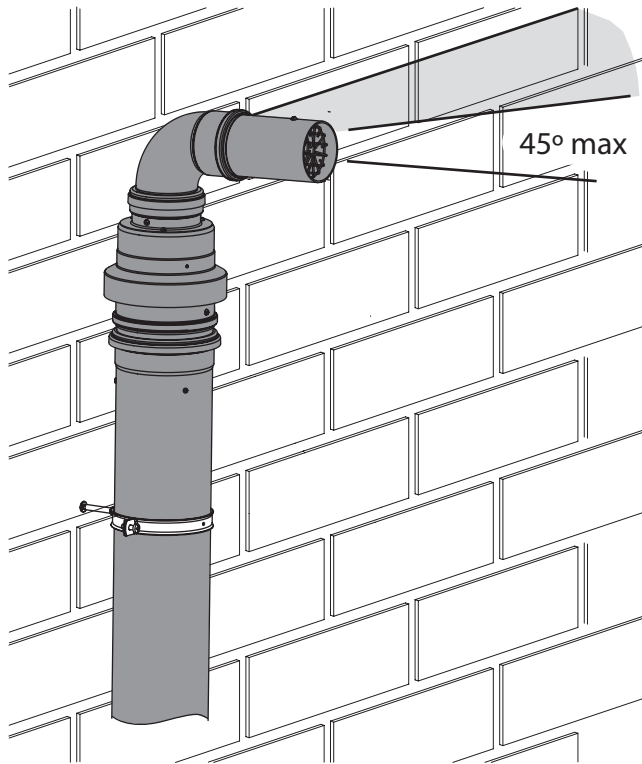


Fig. 23 Flue support

HORIZONTAL TERMINALS ONLY

- ▶ The terminal outlet must face directly away from the wall or no more than 45° from this direction, all flue clearances must be measured from the end of the terminal in the direction the terminal is facing during use.
- ▶ Each extension must be supported using the wall clamps supplied or a suitable alternative.



ALL FLUES

- ▶ Drill two holes with the drill provided (180° apart if possible) through the outer flue tube (8) on each flue joint taking care NOT to drill the inner flue tube and secure with the screws provided.
- ▶ The flue must be sealed to the wall using a suitable sealant where it leaves the building (internal boiler models only).

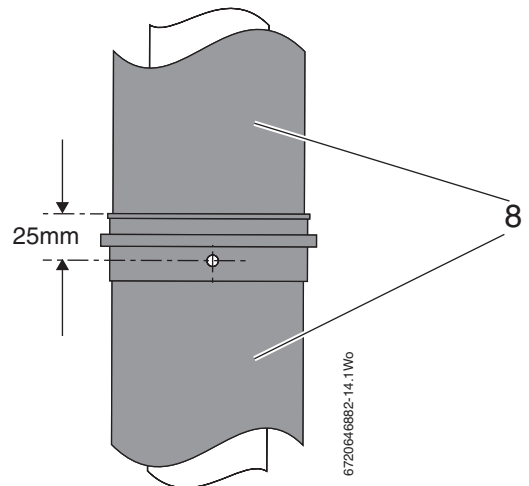
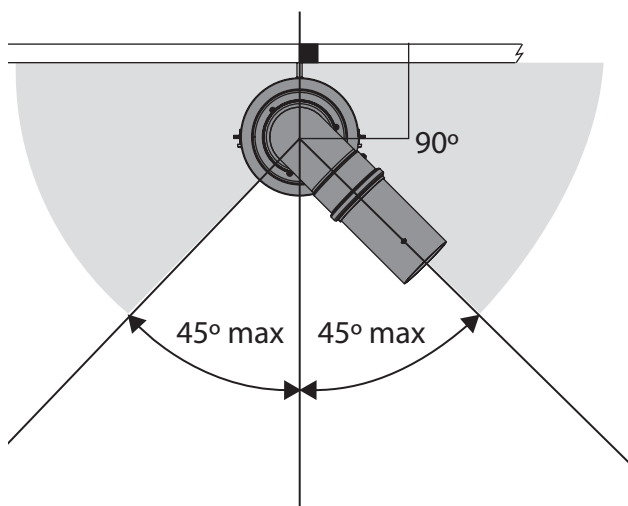


Fig. 25 Flue connection



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Fig. 24 Flue re-direction restriction

NOTES

NOTES

NOTES

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