

# EcoShield range Flue Guide

Models covered:

SHW35-245  
SHW46-325  
SHW61-325  
SHW86-410  
SHW116-410  
SHW146-410



## DOCUMENT CONTROL

Article	Language	Version	Modified by
EcoShield flue guide	English	V1.2 January 2023	S Hunt

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## GENERAL

Lochinvar Water Heaters are certified for use on the following flue categories:

Installation type	Category	Description
<b>B23</b>	Open flue	An appliance intended to be connected to a flue that evacuates the products of combustion to the outside of the room containing the appliance. The combustion air is drawn directly from the room.
<b>C13</b>	Closed Flue	An appliance connected to either a concentric or twin-pipe flue system with a Horizontal flue terminal. Both the air inlet and flue exhaust must be in the same pressure zone.
<b>C33</b>	Closed Flue	An appliance connected to either a concentric or twin-pipe flue system with a Vertical flue terminal. Both the air inlet and flue exhaust must be in the same pressure zone.
<b>C53</b>	Closed Flue	An appliance connected to a twin-pipe flue system with a Horizontal or Vertical flue terminal. Both air inlet and flue exhaust may be in different pressure zones.
<b>C63</b>	Closed Flue	An appliance intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of combustion products (i.e. other than that supplied by the water heater manufacturer).

All installations should comply with the requirements of:

1. For appliances up to 70kW net input- BS5440-1:2008- Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases). Specification for installation of gas appliances to chimneys and for maintenance of chimneys.
  - a. Refer to drawing 1 and table 1 for details of terminal locations.
2. For appliances over 70kW net input- IGEM/UP/10 Edition 4 +A: 2016 - Installation of flued gas appliances in industrial and commercial premises, specific attention should be paid to the following sections.
  - a. Refer to drawing 1 and table 1 for details of terminal locations.
  - b. Horizontal terminations shall be located according to the minimum distances given in table 1, and subject to the risk assessment criteria shown in table 2.
  - c. Horizontal flue terminations (other than for fan dilution systems) must not be installed for any single appliance or group of appliances with a total nett input exceeding 333kW net heat input.
  - d. For any single appliance or group of appliances with a total net heat input exceeding 333 kW, the general requirements of IGEM/UP/10 Edition 4 +A: 2016 shall apply and approval must be sought from the Local Authority prior to commencement of the installation.
3. The Clean Air Act for installations exceeding 333kW nett input.

# DRAWING 1 WATER HEATER TERMINAL LOCATIONS

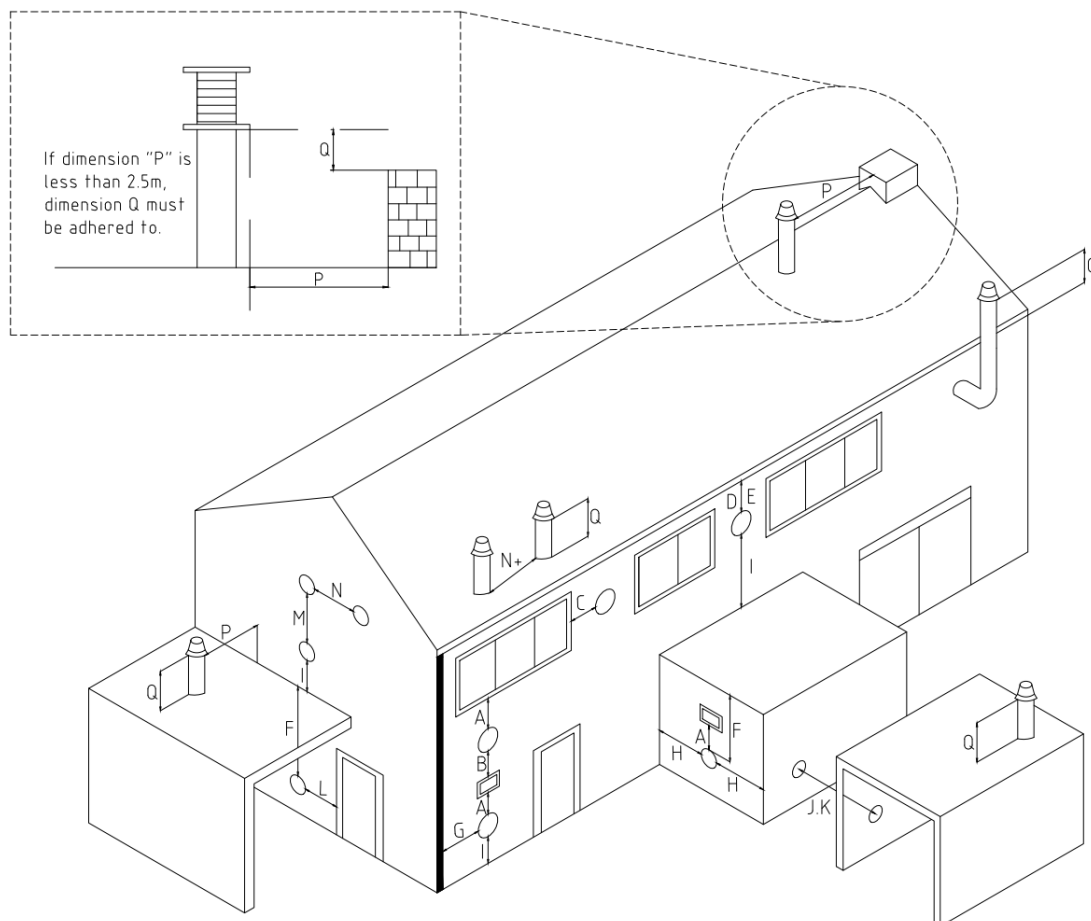


TABLE 1 WATER HEATER TERMINAL LOCATIONS

Location	Description	SHW35-245CE SHW46-325CE SHW61-325CE	SHW86-410CE SHW116-410CE SHW146-410CE
A	Directly below an opening, air brick, opening windows etc.	300	2000
B	Above an opening, air brick, opening windows etc.	300	1000
C	Horizontally to an opening, air brick, opening windows etc.	300	1000
D	Below a gutter or sanitary pipework	75	75
E	Below the eaves	200	200
F	Below a balcony or car port roof	200	200
G	From a vertical drain or soil pipe	150	150
H	From an internal or external corner	300	300
I	Above ground, roof or balcony level	300	300
J	From a surface facing the terminal	600	1000
K	From a terminal facing the terminal	1200	2000
L	From an opening in the car port (e.g. door, window) into the dwelling	1200	1200
M	Vertically from a terminal on the same wall	1500	1500
N	Horizontally from a terminal on the same wall	300	600
N+	Vertically from a terminal on the same roof	300	600
P	From a vertical structure on the roof	300	300
Q	Above intersection with the roof	300	300

The table above should be used in conjunction with the following notes:

- Distances shown ensure the Water Heaters will operate without problems under most conditions, these distances can be reduced in certain circumstances
- The above should be read in conjunction with the latest edition of BS5440-1 and IGEM UP10
- For Water Heater installation above 333kW nett input the table above should not be used, these installations are covered by the clean air act and must comply with its requirements in full, contact your local environmental health team for further guidance

For further guidance please contact Lochinvar Technical support

The table below is an excerpt from IGEMUP10 and should be used in conjunction with that document

Further to the requirements in IGEM/UP/10 Edition 4 +A: 2016 Section 8 under clause 8.7.3.3 and Figure 7 the following risk assessment gives guidance for the positioning of horizontal flues. This form should be completed before work commences and undertaken by a person who is competent to undertake the risk assessment.

Type C appliances with net heat input exceeding 70 kW and not exceeding 333 kW low level flue discharge risk assessment (including net heat input for groups of appliances)							
No.	Regarding the flue position					No	Yes
1	Is the proposed flue termination within the distance in Figure K of a road, path, track, thoroughfare, walkway, property boundary or area, which is used for general public access other than for maintenance purposes?					No	Yes
2	Is the proposed flue termination within the distance in Figure K to a playground, school, yard, seating area, or area where there may be a public gathering					No	Yes
3	If the proposed flue termination enclosed on more than two sides then does it comply with the requirements of Figure 11B?					No	Yes
4	Is the proposed flue termination within the distance in Figure K of a surface or building element that may be affected by corrosion or deterioration from plume condensate?					No	Yes
5	Is the proposed flue position in an area where vehicles could be parked within distances from Figure 12 Line G to the flue?					No	Yes
6	Are there shrubs or trees within minimum distances shown on Figure K of the proposed terminal position?					No	Yes
7	Is the proposed flue termination within a light well?					No	Yes
8	Are the products of combustion from the proposed flue position likely to build up under unfavourable atmospheric conditions, due to poor cross flow of air caused by enclosures or adjacent structures and/or likely to cause nuisance?					No	Yes
9	Is the flue termination position likely to cause a nuisance to adjoining properties?					No	Yes
<b>Building Regulations part J</b>							
10	Is the proposed flue termination less than 300 mm from the boundary of the property, as measured from the side of the terminal to the boundary?					No	Yes
<b>Regarding the Clean Air Act</b>							
11	Is the total output of the individual, or group of flue terminals (if within 5U (see A3.7)), greater than 333 kW net heat input?					No	Yes
<b>General</b>							
12	Are there any other considerations that are required for this risk assessment, see separate sheet.					No	Yes
13	Comments:						
If all answers are Blue then the flue position should be suitable							
If any answer is Orange then the flue position is unsuitable, consider revising the position or type of flue outlet or contact the local Environmental Health officer for assistance and/or approval							

## CONCENTRIC FLUE SYSTEMS

### CONCENTRIC HORIZONTAL SYSTEMS

#### SHHF003 CONCENTRIC HORIZONTAL FLUE ASSEMBLY MODELS - SHW35-245, SHW46-325, SHW61-325

##### COMPONENTS INCLUDED

Item No.	Description	Included
M75256	AIR INLET TRANSITION Ø80mm S/S	1
M121602	TRANSITION PIECE - CUTABLE	1
M84471	SAMPLING POINT Ø80/125mm PP	1
LV310735	CONCENTRIC BEND 90° Ø80/125mm PP	1
LV310757	CONCENTRIC HORIZONTAL TERMINAL - Ø80/125mm PP	1

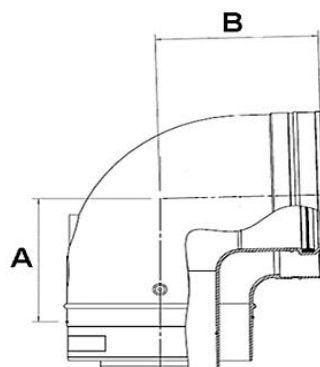
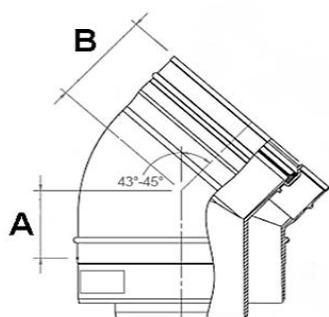
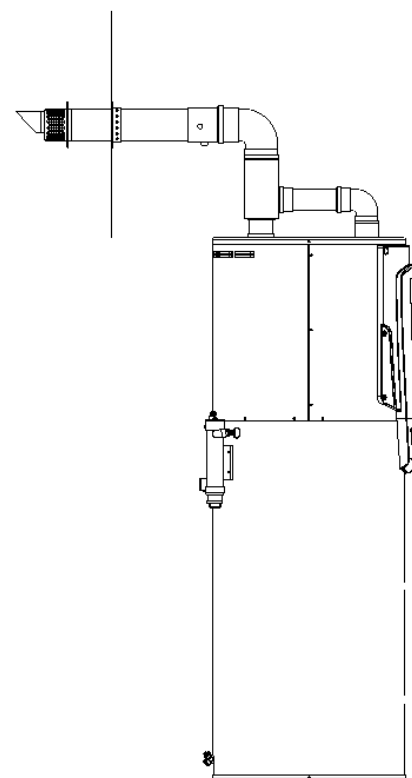
##### Maximum Flue Lengths

Maximum equivalent flue length = 30 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

##### Additional Flue Ancillary Items

Item No.	Description
LV310740	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 250mm
LV310745	CONCENTRIC EXTENSION - Ø80/125mm PP 500mm
LV310742	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 1000mm
LV310743	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 2000mm
LV310744	CONCENTRIC EXTENSION - Ø80/125mm PP TELESCOPIC
LV310734	CONCENTRIC BEND 45° Ø80/125mm PP (A=45mm B=62.5mm)
LV310735	CONCENTRIC BEND 90° Ø80/125mm PP (A=95mm B=110mm)
M84481	WALL CLAMP Ø125mm



**SHHF004 CONCENTRIC HORIZONTAL FLUE ASSEMBLY**  
**MODELS - SHW86-410, SHW116-410, SHW146-410**

**COMPONENTS INCLUDED**

Item No.	Description	Included
M75257	AIR INLET TRANSITION Ø100mm S/S	1
M121605	TRANSITION PIECE	1
M84421	SAMPLING POINT Ø100/150mm PP	1
M84412	CONCENTRIC BEND 90° Ø100/150mm PP	1
LV310758	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1

**Maximum Flue Lengths**

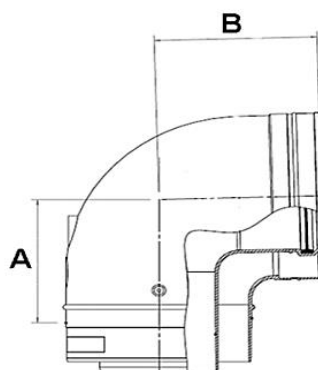
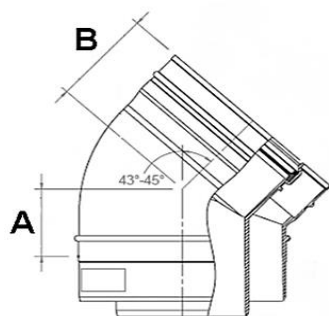
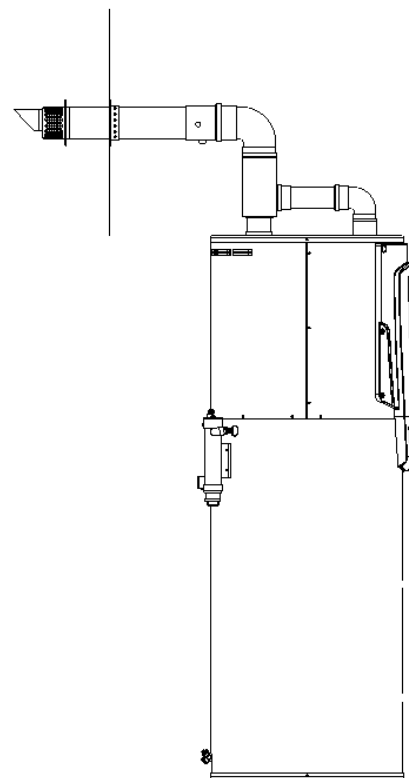
Maximum equivalent flue length = 30 Metres for models SHW86-410, SHW116-410

Maximum equivalent flue length = 13 Metres for models SHW146-410

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

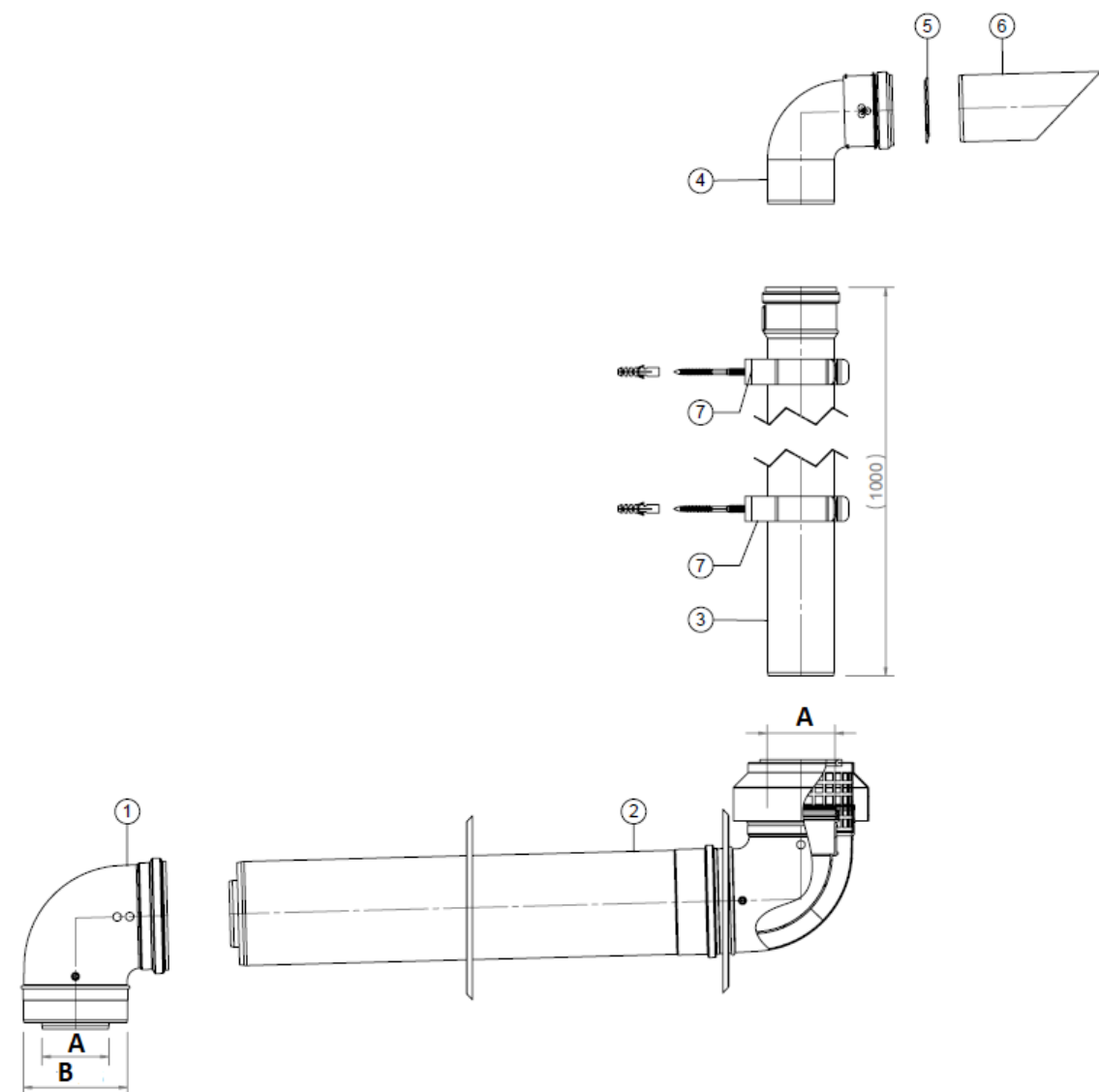
**Additional Flue Ancillary Items**

Item No.	Description
M84405	CONCENTRIC EXTENSION Ø100/150mm PP CUT TO LENGTH 500mm
M84402	CONCENTRIC EXTENSION Ø100/150mm PP FIXED 1000mm
M84412	CONCENTRIC BEND 90° Ø100/150mm PP (A=223mm B=208mm)
M84413	CONCENTRIC BEND 45° Ø100/150mm PP (A=128mm B=128mm)
M84421	SAMPLING POINT Ø100/150mm PP
M87196	WALL CLAMP Ø150mm





## PLUME KIT FOR USE WITH HORIZONTAL CONCENTRIC FLUE



LG800008B PLUME MANAGEMENT KIT Ø80/125mm

No	Description	All models
1	CONCENTRIC BEND 90°-PP	Ø80/125mm
2	CONCENTRIC HORIZONTAL PLUME KIT TERMINAL -PP	Ø80/125mm
3	EXTENSION -PP CUTABLE (1000mm)	Ø80mm
4	BEND 90°-PP	Ø80mm
5	PLUME KIT BIRD GUARD	Ø80mm
6	PLUME KIT FLUE EXIT-PP	Ø80mm
7	WALL CLAMP	Ø80mm
A	INTERNAL DIAMETER	Ø80mm
B	EXTERNAL DIAMETER	Ø125mm



The plume kit **must not be used** to correct an illegal terminal location



The plume kit can only be used as supplied, further extensions are not permitted

## CONCENTRIC FLUE SYSTEMS

### CONCENTRIC VERTICAL SYSTEMS

#### SHVF003 CONCENTRIC VERTICAL FLUE ASSEMBLY MODELS - SHW35-245, SHW46-325, SHW61-325

##### COMPONENTS INCLUDED

Item No.	Description	Included
M75256	AIR INLET TRANSITION Ø80mm S/S	1
M121602	TRANSITION PIECE	1
M84471	SAMPLING POINT Ø80/125mm PP	1
LV310753	CONCENTRIC VERTICAL TERMINAL - Ø80/125mm PP	1

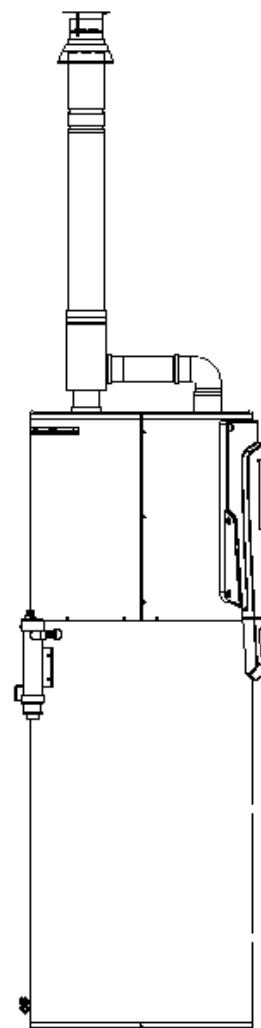
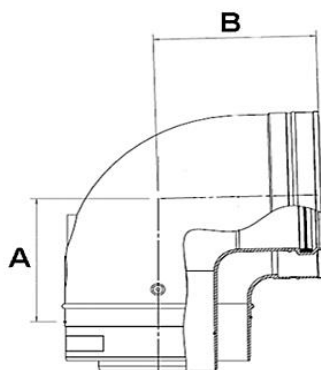
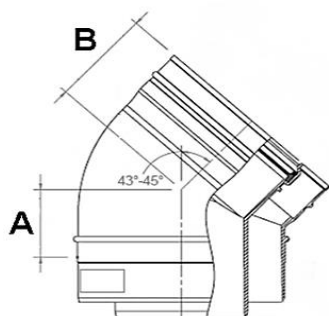
##### Maximum Flue Lengths

Maximum equivalent flue length = 30 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

##### Additional Flue Ancillary Items

Item No.	Description
LV310740	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 250mm
LV310745	CONCENTRIC EXTENSION - Ø80/125mm PP 500mm
LV310742	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 1000mm
LV310743	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED 2000mm
LV310744	CONCENTRIC EXTENSION - Ø80/125mm PP TELESCOPIC
LV310734	CONCENTRIC BEND 45° Ø80/125mm PP (A=45mm B=62.5mm)
LV310735	CONCENTRIC BEND 90° Ø80/125mm PP (A=95 B=110mm)
M84481	WALL CLAMP Ø125mm



**SHVF004 CONCENTRIC VERTICAL FLUE ASSEMBLY**  
**MODELS - SHW86-410,SHW116-410,SHW146-410**

**COMPONENTS INCLUDED**

Item No.	Description	Included
M75257	AIR INLET TRANSITION Ø100mm S/S	1
M121605	TRANSITION PIECE - CUTABLE	1
M84421	SAMPLING POINT Ø100/150mm PP	1
LV310754	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	1

**Maximum Flue Lengths**

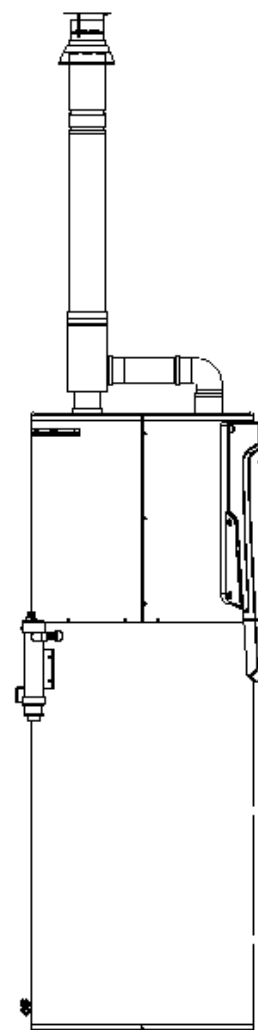
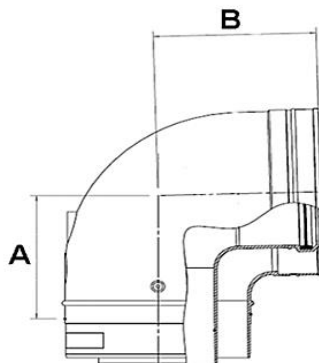
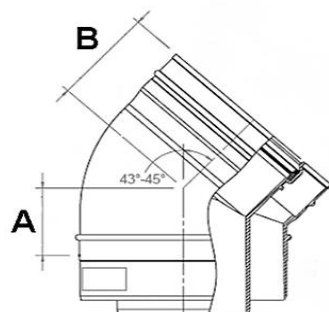
Maximum equivalent flue length = 30 Metres for models SHW86-410, SHW116-410

Maximum equivalent flue length = 13 Metres for models SHW146-410

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

**Additional Flue Ancillary Items**

Item No.	Description
M84405	CONCENTRIC EXTENSION Ø100/150mm Cuttable 500mm
M84402	CONCENTRIC EXTENSION Ø100/150mm PP FIXED 1000mm
M84412	CONCENTRIC BEND 90° Ø100/150mm PP (A=223mm B=208mm)
M84413	CONCENTRIC BEND 45° Ø100/150mm PP (A=128mm B=128mm)
LV306017	SLOPING ROOF FLASHING Ø100/150mm LEAD
LV302509	FLAT ROOF FLASHING ALU
M87196	WALL CLAMP



## TWIN-PIPE FLUE SYSTEMS

### SHTF003 TWIN PIPE FLUE ASSEMBLY MODELS - SHW35-245,SHW46-325,SHW61-325

#### COMPONENTS REQUIRED TO START INSTALLATION

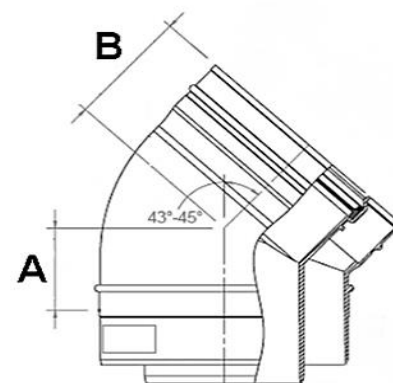
Item No.	Description	Included
M75256	AIR INLET TRANSITION Ø80mm S/S	1
M85279	SAMPLING POINT Ø80mm	1

#### VERTICAL FLUE

LV310753	CONCENTRIC VERTICAL TERMINAL - Ø80/125mm PP	
LV305016	HORIZONTAL AIR INLET Ø80mm	

#### HORIZONTAL FLUE

LV310757	CONCENTRIC HORIZONTAL TERMINAL - Ø80/125mm PP	
LV305016	HORIZONTAL AIR INLET Ø80mm	
M28925	TERMINAL WALL PLATES	



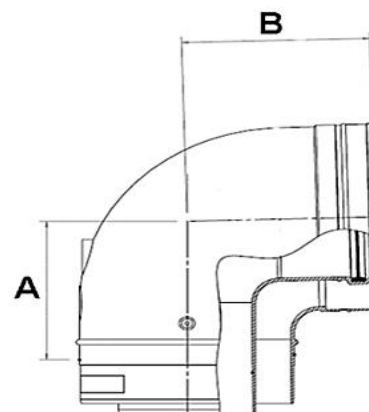
#### Maximum Flue Lengths

Maximum equivalent flue length = 60 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

#### Additional Flue Ancillary Items

Item No.	Description
LV310718	EXTENSION - Ø80mm PP 250mm
M85271	EXTENSION Ø80mm PP 500mm
M85272	EXTENSION Ø80mm PP 1000mm
LV310721	EXTENSION - Ø80mm (2000mm) PP 2000mm
LV310722	EXTENSION - Ø80mm PP TELESCOPIC 500mm
M85292	BEND 45° Ø80mm PP (A=72.5mm B=72.5mm)
M85291	BEND 90° Ø80mm PP (A=80mm B=100mm)
M87191	WALL CLAMP Ø80mm
LV302520	FLAT ROOF FLASHING Ø140mm ALU



**SHTF004 TWIN PIPE FLUE ASSEMBLY**  
**MODELS - SHW86-410,SHW116-410,SHW146-410**

**COMPONENTS REQUIRED TO START INSTALLATION**

Item No.	Description	Included
M75257	AIR INLET TRANSITION Ø100mm S/S	1
M85189	SAMPLING POINT - 100mm	1

**VERTICAL FLUE**

LV310754	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	
LV305039	HORIZONTAL AIR INLET Ø100mm ALU	

**HORIZONTAL FLUE**

LV310758	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	
LV305039	HORIZONTAL AIR INLET Ø100mm ALU	
M28925	TERMINAL WALL PLATES	

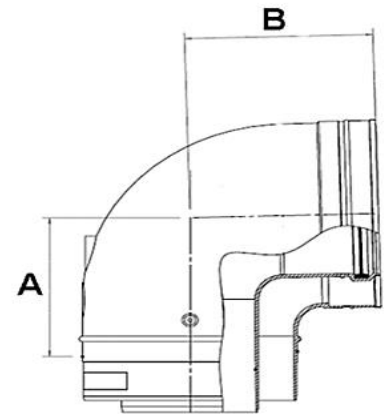
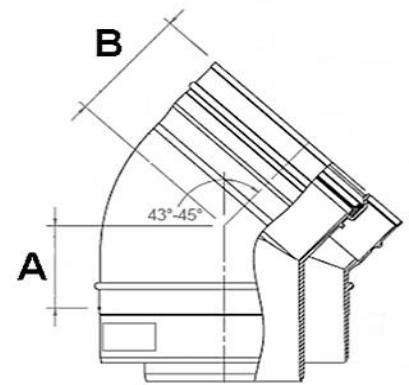
**Maximum Flue Lengths**

Maximum equivalent flue length = 60 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

**Additional Flue Ancillary Items**

Item No.	Description
M85176	EXTENSION Ø100mm PP 500mm
M85177	EXTENSION Ø100mm PP 1000mm
M85181	BEND 90° Ø100mm PP (A=115mm B=115mm)
M85182	BEND 45° Ø100mm PP (A=78mm B=65mm)
M87193	WALL CLAMP Ø100mm



## CONVENTIONAL FLUE SYSTEMS

### SHCF003 TWIN PIPE FLUE ASSEMBLY MODELS - SHW35-245,SHW46-325,SHW61-325

#### COMPONENTS REQUIRED TO START INSTALLATION

Item No.	Description	Included
M75256	AIR INLET TRANSITION Ø80mm S/S	1
M85279	SAMPLING POINT Ø80mm	1
M73039	APPLIANCE AIR INLET GUARD Ø80mm ALU	1

#### VERTICAL FLUE

LV310753	CONCENTRIC VERTICAL TERMINAL - Ø80/125mm PP	
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#### HORIZONTAL FLUE

LV310757	CONCENTRIC HORIZONTAL TERMINAL - Ø80/125mm PP	
M28925	TERMINAL WALL PLATES	

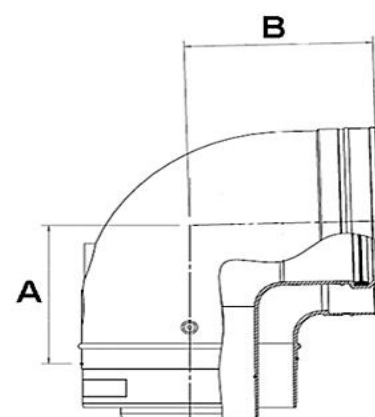
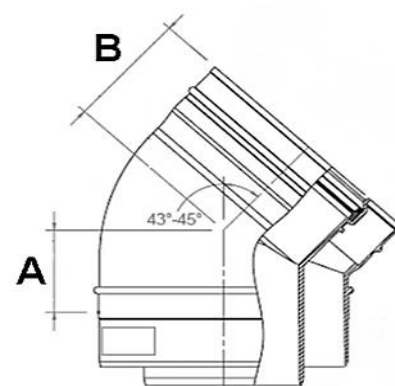
#### Maximum Flue Lengths

Maximum equivalent flue length = 60 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

#### Additional Flue Ancillary Items

Item No.	Description
LV310718	EXTENSION - Ø80mm PP 250mm
M85271	EXTENSION Ø80mm PP 500mm
M85272	EXTENSION Ø80mm PP 1000mm
LV310721	EXTENSION - Ø80mm PP 2000mm
LV310722	EXTENSION - Ø80mm PP TELESCOPIC 500mm
M85292	BEND 45° Ø80mm PP (A=72.5mm B=72.5mm)
M85291	BEND 90° Ø80mm PP (A=80mm B=100mm)
M87191	WALL CLAMP Ø80mm
LV302520	FLAT ROOF FLASHING Ø140mm ALU



**SHCF004 TWIN PIPE FLUE ASSEMBLY**  
**MODELS - SHW86-410,SHW116-410,SHW146-410**

**COMPONENTS REQUIRED TO START INSTALLATION**

Item No.	Description	Included
M75257	AIR INLET TRANSITION Ø100mm S/S	1
M85189	SAMPLING POINT - 100mm	1
M86787	APPLIANCE AIR INLET GUARD Ø100mm	1

**VERTICAL FLUE**

LV31075 4	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	
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**HORIZONTAL FLUE**

LV31075 8	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	
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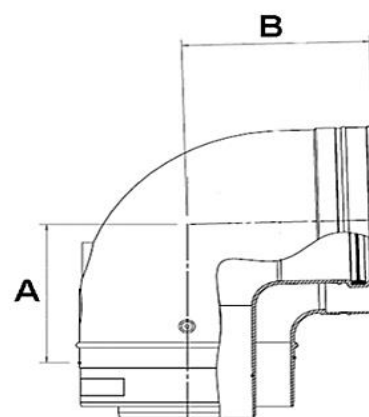
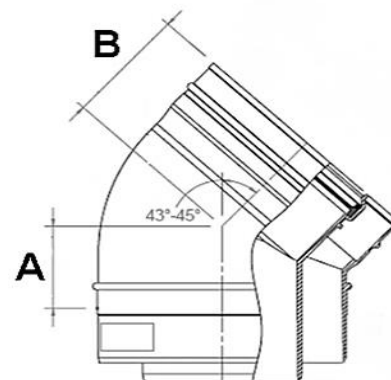
**Maximum Flue Lengths**

Maximum equivalent flue length = 60 Metres

Reduction for each 90 bend = 1 Metre, Reduction for each 45 bend = 0.5 Metre

**Additional Flue Ancillary Items**

Item No.	Description
M85176	EXTENSION Ø100mm PP 500mm
M85177	EXTENSION Ø100mm PP 1000mm
M85181	BEND 90° Ø100mm PP (A=115mm B=115mm)
M85182	BEND 45° Ø100mm PP (A=78mm B=65mm)
M87193	WALL CLAMP Ø100mm



ORDER FORM AND NOTES

Notes-Items to Order		
Item No	No Required	Notes

Contact Lochinvar customer service to order additional flue items on 01295 269981



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8 Lombard Way, The MXL Centre, Banbury, Oxon, OX16 4TJ

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