

EFB Boiler range Flue Guide



Models covered:

EFB85
EFB105
EFB125
EFB155

Contents

GENERAL.....	3
Drawing 1 Boiler terminal locations.....	4
Table 1 Boiler terminal locations	4
Table 2 risk assesment	5
Boiler flue information	6
CONCENTRIC FLUE SYSTEMS	7
Horizontal Type C ₁₃	7
Plume Management Kits	8
Vertical Type C ₃₃	9
Concentric Flue Sizing Calculations.....	10
TWIN-PIPE FLUE SYSTEMS TYPE C ₅₃	11
Twin-Pipe Flue Sizing Calculations	12
CONVENTIONAL (EXHAUST ONLY) FLUE SYSTEMS TYPE B ₂₃	14
Conventional Flue Sizing Calculations.....	15
COMMON FLUE SYSTEMS	17
ORDER FORM AND NOTES	18

DOCUMENT CONTROL

Article	Language	Version	Modified by
EFB flue guide	English	V1.5 January 2024	S Addis

GENERAL

Lochinvar CPM Boilers are certified for use on the following flue categories:

Installation type	Category	Description
B23	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.
C13	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.
C33	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.
C43	Closed Flue	An appliance connected to a common air inlet and flue exhaust system, which is designed for more than one appliance. This common system has a single air inlet and flue exhaust and is part of the building not the appliance.
C53	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.
C63	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).
C83	Closed Flue	An appliance connected via one of its ducts to a single or common duct system. This duct system consists of a single natural draught duct (i.e. not incorporating a fan) that evacuates the products of combustion. The appliance is connected via a second of its ducts to a terminal, which supplies air to the appliance from outside the building.

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 BOILER TERMINAL LOCATIONS

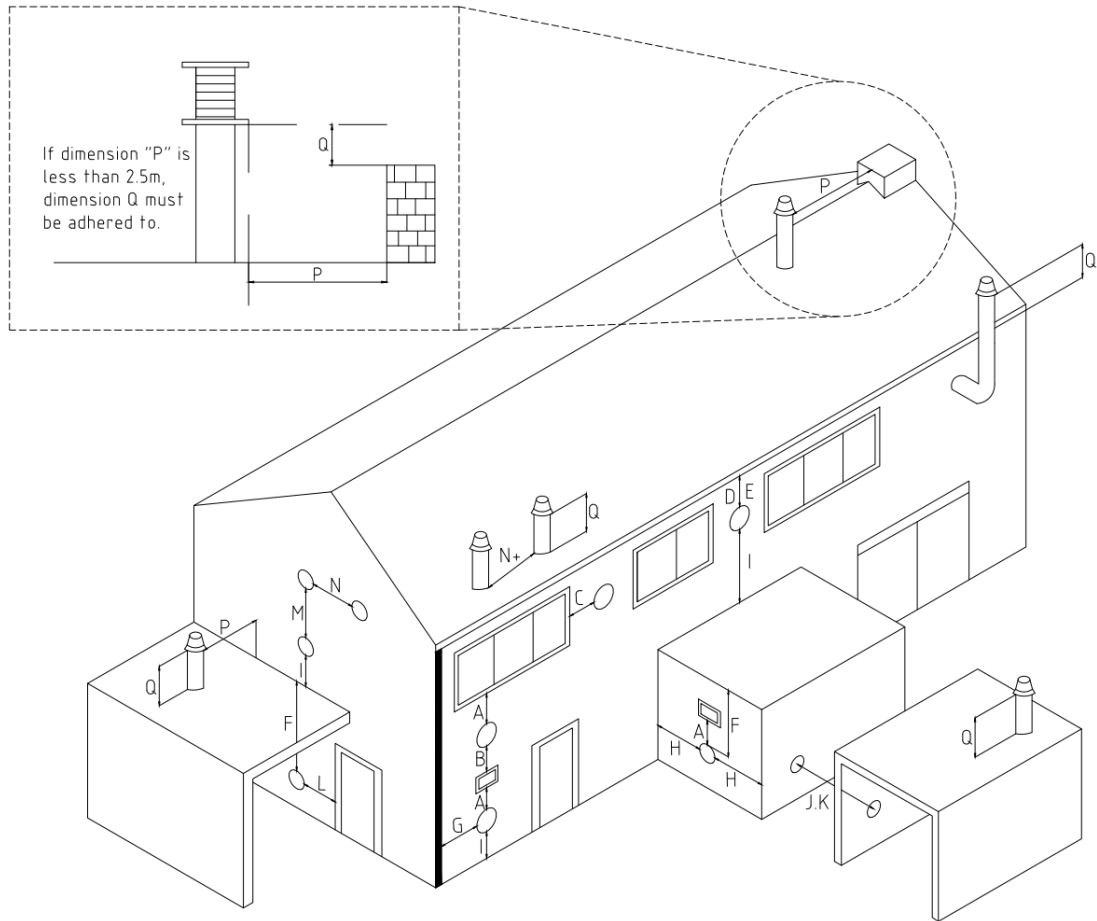


TABLE 1 BOILER TERMINAL LOCATIONS

Location	Description		EFB85	EFB105	EFB125	EFB155
A	Directly below an opening, air brick, opening windows etc.#	mm	2500	2500	2500	2500
B	Above an opening, air brick, opening windows etc.	mm	631	760	896	1092
C	Horizontally to an opening, air brick, opening windows etc.#	mm	666	775	930	1113
D	Below a gutter or sanitary pipework	mm	200	200	200	200
E	Below the eaves	mm	200	200	200	200
F	Below a balcony or car port roof	mm	Not recommended see UP10 risk assesment			
G	From a vertical drain or soil pipe	mm	150	150	150	150
H	From an internal or external corner	mm	1210	1560	2057	2640
I	Above ground, roof or balcony level	mm	300	300	300	300
J	From a surface facing the terminal	mm	1211	1560	2057	2640
K	From a terminal facing the terminal	mm	2176	2468	2883	3370
L	From an opening in the car port (e.g. door, window) into the dwelling	mm	Not recommended see UP10 risk assesment			
M	Vertically from a terminal on the same wall	mm	2500	2500	2500	2500
N	Horizontally from a terminal on the same wall	mm	600	600	900	900
N+	Vertically from a terminal on the same roof	mm	600	600	900	900
P	From a vertical structure on the roof	mm	1500	1500	1500	1500
Q	Above intersection with the roof	mm	324	364	422	489

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

- Distances shown ensure the boiler 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 IGEN UP10
- For boiler 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
Building Regulations part J			
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
Regarding the Clean Air Act			
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
General			
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			

BOILER FLUE INFORMATION

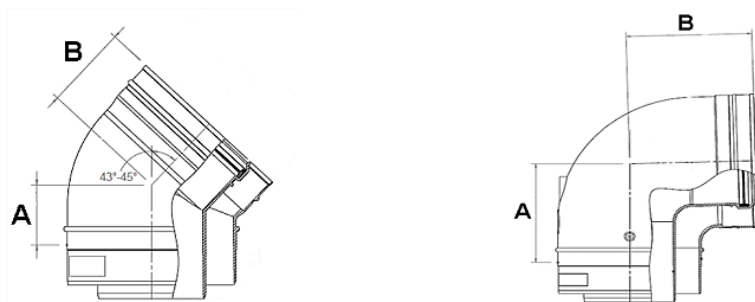
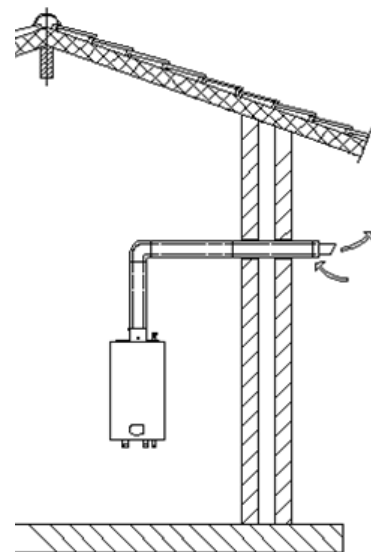
Model Number		EFB85	EFB105	EFB125	EFB155
FLUE DATA TYPE B₂₃					
Nominal flue diameter	mm	100			150
Maximum flue gas temp	°C	90			
Flue gas temperature	°C	60-90			
Flue draught requirements	mbar	-0.03 to -0.1			
Available pressure for the flue system	Pa	200			
Maximum flue gas volume	g/s	28.9	38.6	71.7	86.2
FLUE DATA TYPE C₁₃ & C₃₃					
Nominal flue diameter	mm	100/150			N/A
Flue gas temperature	°C	60-90			
FLUE DATA TYPE C₄₃ & C₅₃					
Nominal flue diameter	mm	100			150
Flue gas temperature	°C	60-90			

CONCENTRIC FLUE SYSTEMS

HORIZONTAL TYPE C₁₃

CPMH003 CONCENTRIC HORIZONTAL FLUE ASSEMBLY MODELS - EFB85, EFB105, EFB125		
COMPONENTS INCLUDED		
Item No.	Description	Included
LV310758B	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1
M84410B	CONCENTRIC BEND 90° Ø100/150mm PP SHORT RADIUS	1
Maximum resistance in the flue system ≤200pa		

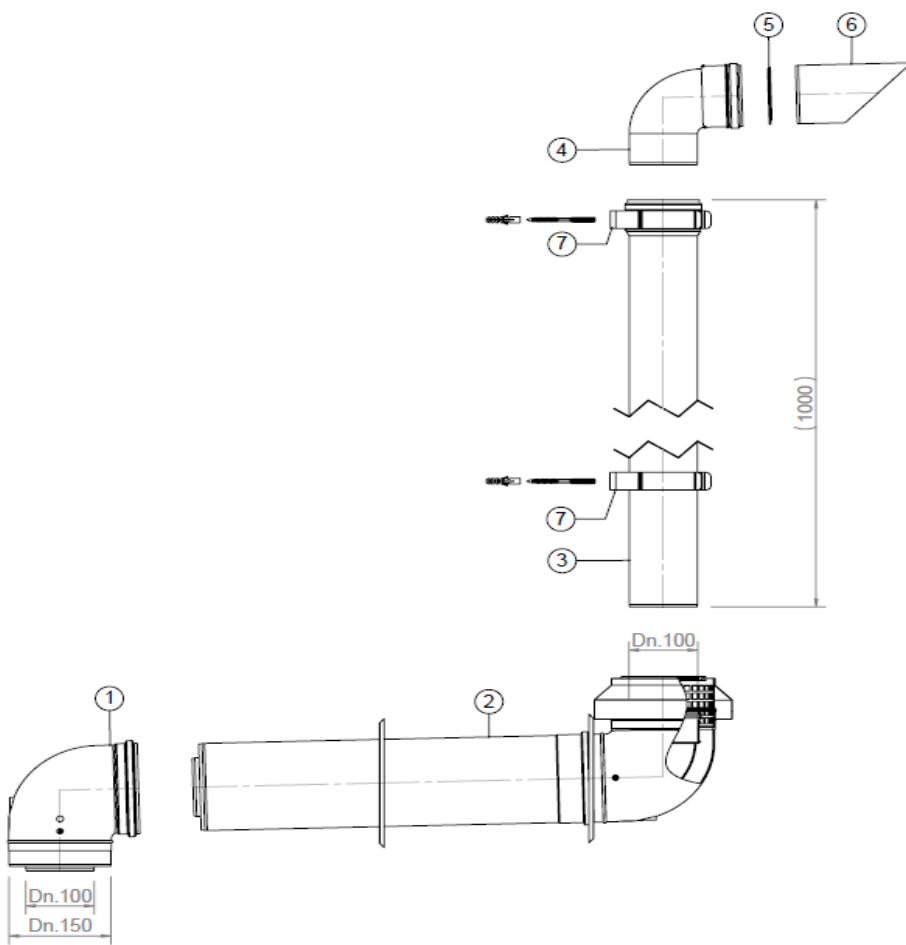
Additional Flue Ancillary Items	
Item No.	Description
M84405B	CONCENTRIC EXTENSION Ø100/150mm Cuttable
M84402B	CONCENTRIC EXTENSION Ø100/150mm PP FIXED
M84412B	CONCENTRIC BEND 90° Ø100/150mm PP (A=223mm B=208mm)
M84413B	CONCENTRIC BEND 45° Ø100/150mm PP (A=128mm B=128mm)
M84421B	SAMPLING POINT Ø100/150mm PP
M87196B	WALL CLAMP Ø150mm



EFB Models 155 are not suitable for Concentric flue installations

For installations where the flue exhaust may present a nuisance plumbing problem but is installed as per IGEM/UP/10 then Lochinvar can offer a plume management kit as below.

LG800009B CONCENTRIC HORIZONTAL PLUME ASSEMBLY MODELS - EFB85, EFB105		
COMPONENTS INCLUDED		
Item No.	Description	Included
1	CONCENTRIC BEND 90° Ø100/150mm PP SHORT RADIUS	1
2	CONCENTRIC EXTENSION Ø100/150mm WITH TERMINAL BEND	1
3	EXTENSION Ø100mm (1000mm) PP (black for external use)	1
4	BEND 90° Ø100mm PP (black for external use)	1
5	SPRING	1
6	FLUE EXHAUST Ø100mm (black for external use)	1
7	WALL BAND Ø100mm (black for external use)	1



The flue terminal location before the Plume kit is fitted must comply with the guidance shown within the EFB Installation manual and the requirements of IGEM/UP/10.



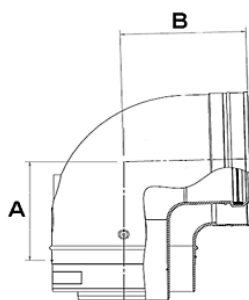
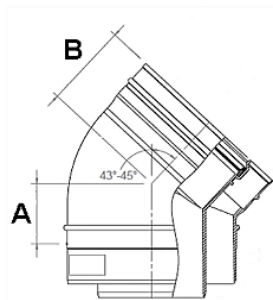
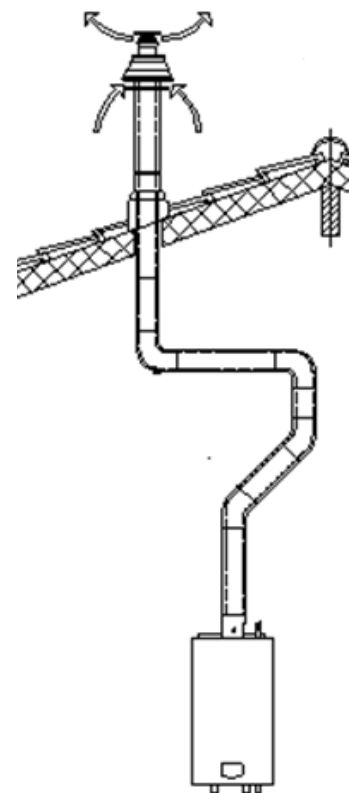
The plume kit cannot be used with models EFB125-EFB155 due to the high resistance within the kit



Due to the high resistance within the plume kit, no further extensions or bends are allowed

CPMV003 CONCENTRIC VERTICAL FLUE ASSEMBLY MODELS - EFB85, EFB105, EFB125		
COMPONENTS INCLUDED		
Item No.	Description	Included
LV310754B	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	1
M84405B	CONCENTRIC EXTENSION Ø100/150mm (500mm) Cuttable	1
M84402B	CONCENTRIC EXTENSION Ø100/150mm (1000mm) PP FIXED	1
Maximum resistance in the flue system ≤200pa		

Additional Flue Ancillary Items	
Item No.	Description
M84405B	CONCENTRIC EXTENSION Ø100/150mm Cuttable 500mm
M84402B	CONCENTRIC EXTENSION Ø100/150mm PP FIXED 1000mm
M84412B	CONCENTRIC BEND 90° Ø100/150mm PP (A=223mm B=208mm)
M84413B	CONCENTRIC BEND 45° Ø100/150mm PP (A=128mm B=128mm)
M84421B	SAMPLING POINT Ø100/150mm PP
M87196B	WALL CLAMP Ø150mm
LV306017B	SLOPING ROOF FLASHING Ø100/150mm (25°-45°) LEAD
LV302509B	FLAT ROOF FLASHING (170mm) ALU



EFB Models 155 are not suitable for Concentric flue installations

Maximum Length – Concentric Flue The resistance of the components within the flue determines the maximum length of the flue system.



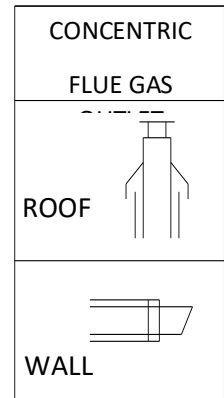
The resistance must not exceed 200 Pa.



The information shown in table below is for the Lochinvar supplied flue system only; other flue system suppliers may have different values.

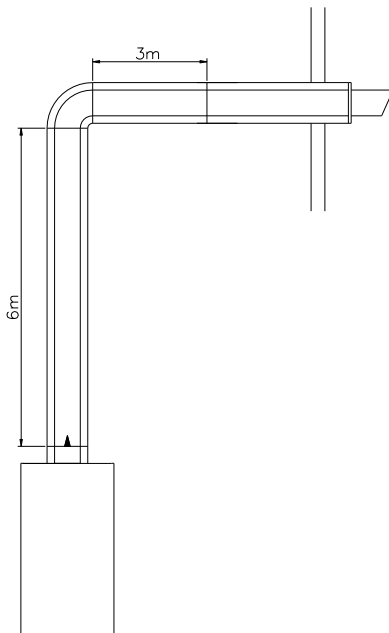
Resistance in the flue system components

Concentric		Boiler	EFB 85	EFB 105	EFB 125	EFB 155
		Item	resistance [Pa]			
flue gas	100/150	Straight tube/m	2.9	4.1	6.2	-
		45° bend	6.4	9.0	13.6	-
		90° bend	10.2	14.5	21.9	-
		roof terminal	31.2	44.3	66.7	-
		wall terminal	10.8	15.3	23.0	-
		adaptor	0.4	0.6	0.9	-
air supply	100/150	Straight tube/m	9.2	13.1	19.7	-
		45° bend	8.1	11.4	17.2	-
		90° bend	11.7	16.6	25.1	-
		roof terminal	43.3	61.4	92.4	-
		wall terminal	43.3	61.4	92.4	-
		adaptor	39.2	55.6	83.8	-



* Never reduce pipe diameters relative to boiler connections

Example: Concentric Horizontal flue system



Calculation example with given lengths: checking resistance

Boiler type:		EFB 85			
FLUE GAS	Diameter: 100/150 mm.		quantity	Pa	Pa total
	Straight tube m	total	9	2.9	26.1
	Bend	90°	1	10.2	10.2
	Concentric terminal	wall	1	10.8	10.8
resistance flue gas outlet:					47.1
AIR SUPPLY	Diameter: 100/150 mm.		quantity	Pa	Pa total
	Straight tube m	total	9	9.2	82.8
	Bend	90°	1	11.7	11.7
	Concentric terminal	wall	1	43.3	43.3
resistance air supply:					137.8
Total resistance flue gas outlet and air supply:					184.9

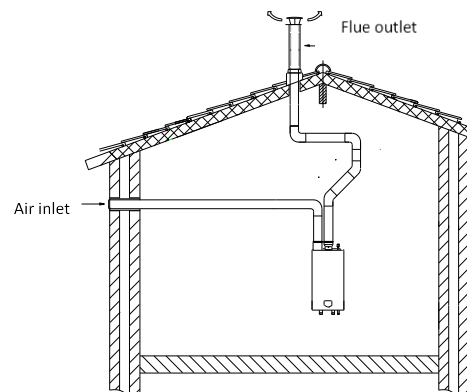
The total resistance is less than 200 Pa.

This flue gas / air supply system is OK.

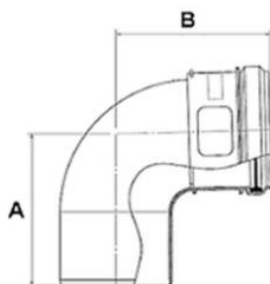
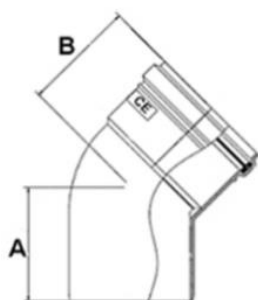
Introduction Twin-Pipe and Conventional Flue Systems

Due to the varying and sometimes complex nature of twin-pipe and conventional flue systems Lochinvar do not offer a standard flue kit for these flue types. The following pages show the flue components available including the items that **MUST BE ORDERED** to start and terminate the system.

TWIN-PIPE FLUE SYSTEMS MODELS - EFB85, EFB105, EFB125		
COMPONENTS REQUIRED TO START INSTALLATION		
VERTICAL FLUE		
Item No.	Description	Number Required
LE04018220	CONCENTRIC TO TWIN PIPE ADAPTER Ø100/150-2X 100	1
LV310754B	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	1
LV305039B	HORIZONTAL AIR INLET Ø100mm ALU	1
HORIZONTAL FLUE		
Item No.	Description	Number Required
LE04018220	CONCENTRIC TO TWIN PIPE ADAPTER Ø100/150-2X 100	1
LV310758B	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1
LV305039B	HORIZONTAL AIR INLET Ø100mm ALU	1
Maximum resistance in the flue system ≤200pa		



Additional Flue Ancillary Items	
Item No.	Description
M85176B	EXTENSION Ø100mm (500mm) PP
M85177B	EXTENSION Ø100mm (1000mm) PP
M85181B	BEND 90° Ø100mm PP (A=115mm B=115mm)
M85182B	BEND 45° Ø100mm PP (A=78mm B=65mm)
M87193B	WALL BAND Ø100mm



EFB Models 155 are not suitable for Twin-pipe flue installations

Maximum Length – Twin-Pipe Flue The resistance of the components within the flue determines the maximum length of the flue system.

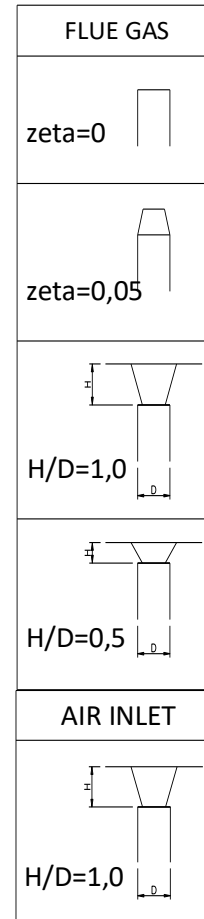


The resistance must not exceed 200 Pa.



The information shown in table below is for the Lochinvar supplied flue system only; other flue system suppliers may have different values.

Twin-pipe		BOILER	EFB 85	EFB 105	EFB 125	EFB 155
		Item	resistance [Pa]			
flue gas	100	straight tube/m	2.8	4	6	-
		45° bend	6.4	9	13.6	-
		90° bend	10.2	14.5	21.9	-
		Flue outlet zeta=0.05	0.5	0.8	1.2	-
		Flue outlet zeta=1.0	10.8	15.3	23	-
		Flue outlet zeta=1.5	16.2	22.9	34.5	-
	130	straight tube/m	0.7	1	1.5	2.2
		45° bend	1.3	1.8	2.7	4
		90° bend	3	4.3	6.4	9.5
		Flue outlet zeta=0.05	0.2	0.3	0.4	0.6
		Flue outlet zeta=1.0	3.6	5.1	7.7	11.4
		Flue outlet zeta=1.5	5.4	7.7	11.6	17.2
	150	straight tube/m	0.4	0.6	0.9	1.3
		45° bend	0.7	0.9	1.4	2.1
		90° bend	1.6	2.2	3.3	4.9
		Flue outlet zeta=0.05	0.1	0.1	0.2	0.3
		Flue outlet zeta=1.0	2	2.8	4.3	6.3
		Flue outlet zeta=1.5	3	4.3	6.4	9.5
		Roof terminal	3.4	4.8	7.3	10.8
		reducer 150 to 130	2.1	3	4.5	6.6
	air supply	100	straight tube/m	3.2	4.6	6.9
45° bend			7.4	10.5	15.7	-
90° bend			11.9	16.8	25.3	-
air inlet zeta=1.0			12.5	17.7	26.7	-
130		straight tube/m	0.8	1.1	1.7	2.5
		45° bend	1.5	2.1	3.1	4.6
		90° bend	3.5	4.9	7.4	11
		air inlet zeta=1.0	4.2	5.9	9	13.3
150		straight tube/m	0.5	0.7	1	1.5
		45° bend	0.8	1.1	1.6	2.4
		90° bend	1.8	2.6	3.9	5.7
		air inlet zeta=1.0	2.3	3.3	5	7.3



* Never reduce pipe diameters relative to boiler connections

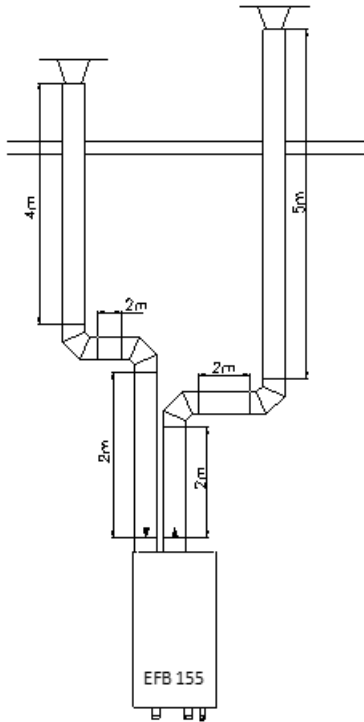


This table may only be used for a single flue/air system for one boiler



Do NOT use this table for common flue systems with cascade boilers.

Example: Twin-Pipe flue system



Calculation example with given lengths: checking resistance

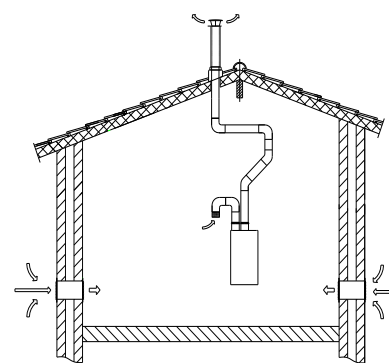
Boiler type:		EFB 125			
Flue gas	Diameter: 100 mm		quantity	Pa	Pa total
	Straight tube /m	total	9	6	54
	Bend	90°	2	21.9	43.8
	Flue outlet	zeta=1.0	1	23	23
	Total resistance flue gas outlet:				120.8
Air supply	Diameter: 100 mm		quantity	Pa	Pa total
	Straight tube /m	total	8	6.9	55.2
	Bend	90°	2	25.3	50.6
	Air inlet	zeta=1.0	1	26.7	26.7
	Total resistance air supply:				132.5
Total resistance flue gas outlet and air supply:					253.3

The total resistance is > than 200 Pa.

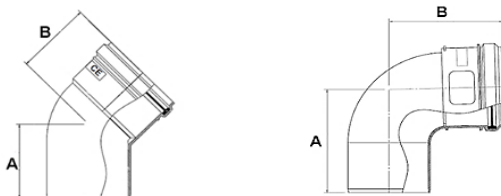
This flue gas/ air supply system is UNSUITABLE. Consider using 150mm flue pipe or altering the flue and air supply route.

CONVENTIONAL (EXHAUST ONLY) FLUE SYSTEMS TYPE B₂₃

CONVENTIONAL FLUE SYSTEMS MODELS - EFB85, EFB105, EFB125		
COMPONENTS REQUIRED TO START INSTALLATION		
VERTICAL FLUE		
Item No.	Description	Number Required
LE022500018	AIR INLET GUARD	1
LV310754B	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	1
Maximum resistance in the flue system ≤200pa		

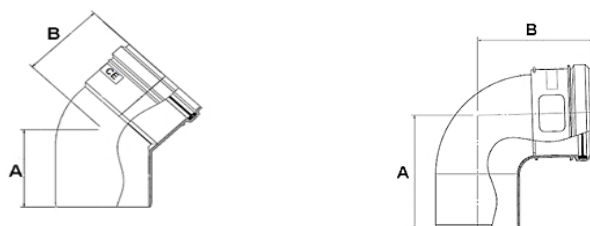


Additional Flue Ancillary Items	
Item No.	Description
M85176B	EXTENSION Ø100mm (500mm) PP
M85177B	EXTENSION Ø100mm (1000mm) PP
M85181B	BEND 90° Ø100mm PP (A=115mm B=115mm)
M85182B	BEND 45° Ø100mm PP (A=78mm B=65mm)
M87193B	WALL BAND Ø100mm
LV306017B	SLOPING ROOF FLASHING Ø100/150mm (25°-45°) LEAD
LV302509B	FLAT ROOF FLASHING (170mm) ALU



CONVENTIONAL FLUE SYSTEMS MODELS - EFB155		
COMPONENTS REQUIRED TO START INSTALLATION		
VERTICAL FLUE		
Item No.	Description	Number Required
M70359B	ROOF TERMINAL - 150MM	1
LE022500019	AIR INLET GUARD	1
Maximum resistance in the flue system ≤200pa		

Additional Flue Ancillary Items	
Item No.	Description
LV310694B	EXTENSION Ø150mm (1000mm) PP Cutable
LV310695B	EXTENSION Ø150mm (2000mm) PP Cutable
LV310664B	BEND 45° Ø150mm PP (A=98mm B=103mm)
LV310665B	BEND 90° Ø150mm PP (A=183mm B=166mm)
M87196B	WALL CLAMP Ø150mm



Maximum Length – Conventional Flue The resistance of the components within the flue determines the maximum length of the flue system.

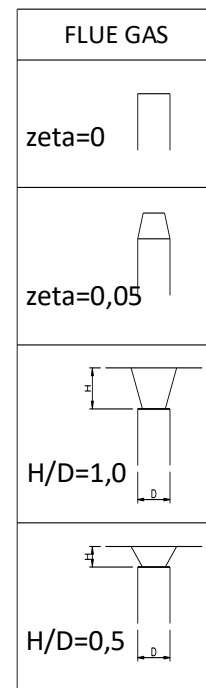


The resistance must not exceed 200 Pa.

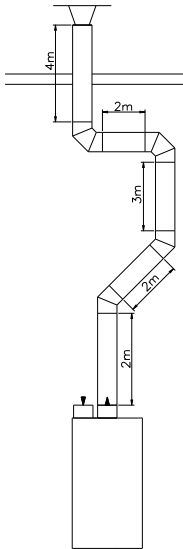


The information shown in table below is for the Lochinvar supplied flue system only; other flue system suppliers may have different values.

Twin-pipe		BOILER	EFB 85	EFB 105	EFB 125	EFB 155
		Item	resistance [Pa]			
flue gas	100	straight tube/m	2.8	4	6	-
		45° bend	6.4	9	13.6	-
		90° bend	10.2	14.5	21.9	-
		Flue outlet zeta=0.05	0.5	0.8	1.2	-
		Flue outlet zeta=1.0	10.8	15.3	23	-
		Flue outlet zeta=1.5	16.2	22.9	34.5	-
	130	straight tube/m	0.7	1	1.5	2.2
		45° bend	1.3	1.8	2.7	4
		90° bend	3	4.3	6.4	9.5
		Flue outlet zeta=0.05	0.2	0.3	0.4	0.6
		Flue outlet zeta=1.0	3.6	5.1	7.7	11.4
		Flue outlet zeta=1.5	5.4	7.7	11.6	17.2
	150	straight tube/m	0.4	0.6	0.9	1.3
		45° bend	0.7	0.9	1.4	2.1
		90° bend	1.6	2.2	3.3	4.9
		Flue outlet zeta=0.05	0.1	0.1	0.2	0.3
		Flue outlet zeta=1.0	2	2.8	4.3	6.3
		Flue outlet zeta=1.5	3	4.3	6.4	9.5
Roof terminal		3.4	4.8	7.3	10.8	
reducer 150 to 130		2.1	3	4.5	6.6	
air supply	100	straight tube/m	3.2	4.6	6.9	-
		45° bend	7.4	10.5	15.7	-
		90° bend	11.9	16.8	25.3	-
		air inlet zeta=1.0	12.5	17.7	26.7	-
	130	straight tube/m	0.8	1.1	1.7	2.5
		45° bend	1.5	2.1	3.1	4.6
		90° bend	3.5	4.9	7.4	11
		air inlet zeta=1.0	4.2	5.9	9	13.3
	150	straight tube/m	0.5	0.7	1	1.5
		45° bend	0.8	1.1	1.6	2.4
		90° bend	1.8	2.6	3.9	5.7
		air inlet zeta=1.0	2.3	3.3	5	7.3



Example: Single flue gas outlet. Air supply from boiler room



Calculation example with given lengths: checking resistance

Boiler type:		EFB 105			
FLUE GAS	Diameter: 100 mm	Number	Pa	Pa total	
	Straight tube m ¹	total	13	4.0	52
	Bend	90°	2	14.5	29
	Bend	45°	2	9	18
	Flue outlet	zeta = 1.0	1	15.3	12.8
	Total resistance flue gas:				111.8

The total resistance is less than 200 Pa.

This flue gas system is OK.

COMMON FLUE SYSTEMS

Applicable only when installer not using the Lochinvar supplied flue system

EFB boilers are certified for use on common (over pressure) flue systems of the following type:

1. C10 (3) Flue gas discharge through individual or shared flue ducting built into the building.
 - a. Air supply inlet and flue gas outlet
 - b. Condensate is not allowed to enter the boiler
 - c. Closed or open air supply from outside or room
2. C12 (3) Flue gas discharge through individual or shared flue ducting built into the building.
 - a. Air supply inlet and flue gas outlet
 - b. Condensate is not allowed to enter the boiler
 - c. Closed air supply from outside

Technical data

Data	Unit	EFB85	EFB105	EFB125	EFB155
Nominal flue diameter	mm	100	100	100	150
Nominal flue gas temp	°C	85	85	85	85
Maximum flue gas temp	°C	90	90	90	90
Minimum flue gas temp	°C	35	35	35	35
Q flue gas volume(high fire)	g/s	45.33	53.66	66.24	80.61
Q flue gas volume(Minimum)	g/s	9.03	10.39	13.84	20.53
CO2 (high fire)	%	8.4	8.4	8.4	8.4
CO2 (low fire)	%	7.9	7.9	7.9	7.9
Available pressure at the boiler flue outlet	Pa	200	200	200	200
Maximum allowable flue gas pressure with one or more boilers firing#	Pa	25	25	25	25

measured at the flue outlet of a non-firing boiler

Flue specification

CE string flue gas material	European standard	Temperature class	Pressure class	Resistance to condensate	Corrosion resistance class	Metal: liner specifications	Soot fire resistance class	Distance to combustible	Plastics: location	Plastics: fire behaviour	Plastics: enclosure
Min. req. PP	EN 14471	T120	P1	W	1		O	30	I of E	C/E	L
Min. req. SS	EN 1856-1	T120	P1	W	1	L20040	O	40			

Safety measures Common Flue Systems

When installing EFB boilers with a common flue system and the combustion air is drawn directly from the room, additional safety measures have to be taken.

Potential hazard

EFB boilers are equipped with a Non-return valve to prevent recirculation of flue gases from a firing boiler through one or more boilers which are not running and are connected with a common flue system. This Non-return valve might leak over time due to pollution, incorrect maintenance or other unexpected cause. When combustion air is drawn from the room, flue gas might enter the room, which could lead to Carbon Monoxide (CO) poisoning.

Safety measures:

To cover this risk additional checks/safety measures should be considered:

1. Combustion and cooling air must be provided as per the requirements shown within the EFB Installation manual and the requirements of IGEM UP10 and BS6644 and the Gas safety regulations.
2. Always use the standard built in EFB cascade manager and ensure power mode 2 is switched on. Power mode 2 is selected at parameter 148.

Additional Safety Advice

1. Consider the use of a CO detector for alarm and as a switching module to switch off all the boilers. The CO alarm system must be in according with national and local standards. See EFB Installation manual for further details.
2. Consider combining all air intake terminals to the boilers; this does not have to be piped to outside air.

Notes-Items to order		
Item No.	No required	Notes

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



8 Lombard Way, The MXL Centre, Banbury, Oxon, OX16 4TJ
Tel: +44(0) 1295 269 981, Fax: +44(0) 1295 271 640, Email: info@lochinvar.ltd.uk
www.lochinvar.ltd.uk