

CPM Boiler range

Flue Guide



Models covered:

CMP58

CPM77

CPM96

CPM116

CPM146

CPM176

Does not include CPM-SP range



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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- BS5440-1:2023- 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.

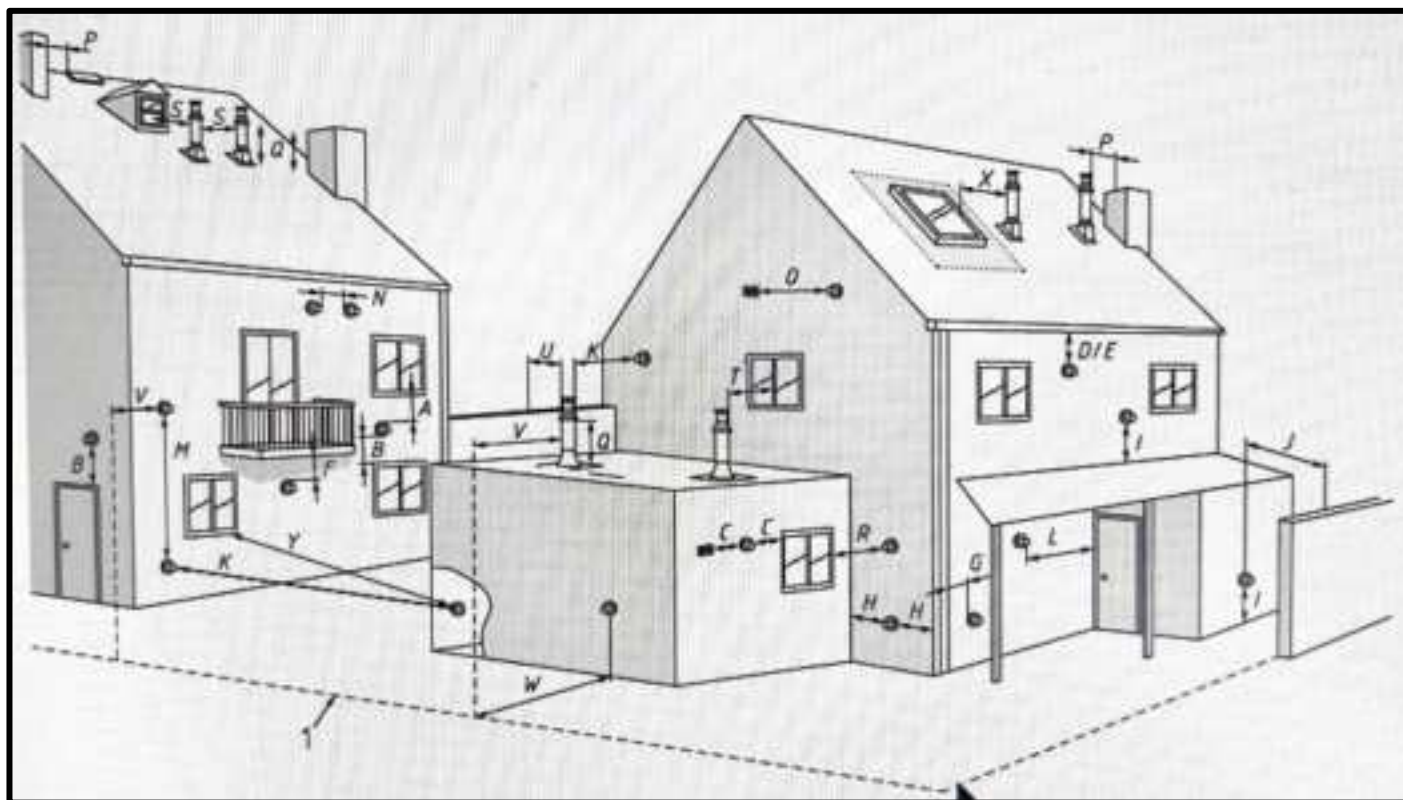


TABLE 1 BOILER TERMINAL LOCATIONS ACCORDING TO BS5440-1-2023

Location	Description		CPM58
A	Directly below an opening, air brick, opening windows etc.	mm	300
B	Above an opening, air brick, opening windows etc.	mm	300
C	Horizontally to an opening, air brick, opening windows etc.	mm	300
D	Below a gutter or sanitary pipework	mm	75
E	Below the eaves	mm	300
F	Below a balcony or car port roof	mm	200
G	From a vertical drain or soil pipe	mm	150
H	From an internal or external corner	mm	300
I	Above ground, roof or balcony level	mm	300
J	From a surface facing the terminal	mm	600
K	From a terminal facing the terminal	mm	1200
L	From an opening in the car port (e.g., door, window) into the dwelling	mm	1200
M	Vertically from a terminal on the same wall	mm	1500
N	Horizontally from a terminal on the same wall	mm	300
O	Horizontally from a mechanical air inlet on the same wall	mm	1000
P	From a vertical structure on the roof	mm	N/A
Q	Above intersection with the roof	mm	300
R	Diagonally across from an opening into a building on a different wall	mm	600
S	Vertical terminal from another vertical terminal	mm	600
T	Vertical terminal adjacent to an opening into a building	mm	1500
U	Vertical terminal from a wall	mm	500
V	Terminal alongside a boundary	mm	300
W	Terminal facing a boundary	mm	600
X	Adjacent to an opening into a building on a pitched roof	mm	*
Y	Terminal facing an opening into a building	mm	2000

* Contact Lochinvar technical support for help.

TABLE 2 RISK ASSESSMENT ACCORDING TO BS5440-1-2023

Further to the requirements in BS5440-1:2023 Annex D and Figure C.8, table C.1 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 not exceeding 70kW Low level flue discharge risk assessment (including net heat input for groups of appliances)			
No.	Regarding the flue position	No	Yes
1	Will the flue terminal contravene the positions set out in table C.1 for room sealed chimney outlets?	No	Yes
2	Will the terminal be sited in a position that will likely allow products of combustion to build up (e.g., enclosed by adjacent structures)?	No	Yes
3	Is the termination in a light well?	No	Yes
4	Is the termination within a carport without two unobstructed sides?	No	Yes
5	Will the termination be in an area that might have combustible material in the vicinity?	No	Yes
6	Will the termination be in an area that might have hazardous material in the vicinity (e.g., petrochemicals)?	No	Yes
7	Will the termination be sited within a covered walkway?	No	Yes
8	Are there any restrictions stopping the fitting of a terminal guard if required?	No	Yes
9	Will the termination discharge over a boundary?	No	Yes
10	Is a plume management kit required to circumvent the termination distances as required in table C.1?	No	Yes
No.	Nuisance considerations	No	Yes
11	Is the termination sited over a pathway that is likely to cause nuisance (e.g., head height or plumbing towards users)?	No	Yes
12	Is the termination likely to cause a nuisance to neighbours?	No	Yes
No.	Chimney/flue routes	No	Yes
	Will the flue be installed in a void that will not be able to satisfy a full visual inspection?	No	Yes
	Are there any restrictions that will prevent the flue from being supported throughout its entire length?	No	Yes
	Do the flue materials contravene building regulations (e.g., high risk buildings)?	No	Yes
	Will the flue route pass through any fire protected areas without the ability to maintain its protection?	No	Yes
	Will the flue pass through another dwelling?	No	Yes
	Is the flue likely to be damaged due to its route/location (e.g., materials stored on it in a plantroom or storeroom)?	No	Yes
	Does the flue affect the integrity of the structure it is in (e.g., lintels, cavity trays, barriers, or membranes)?	No	Yes
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			

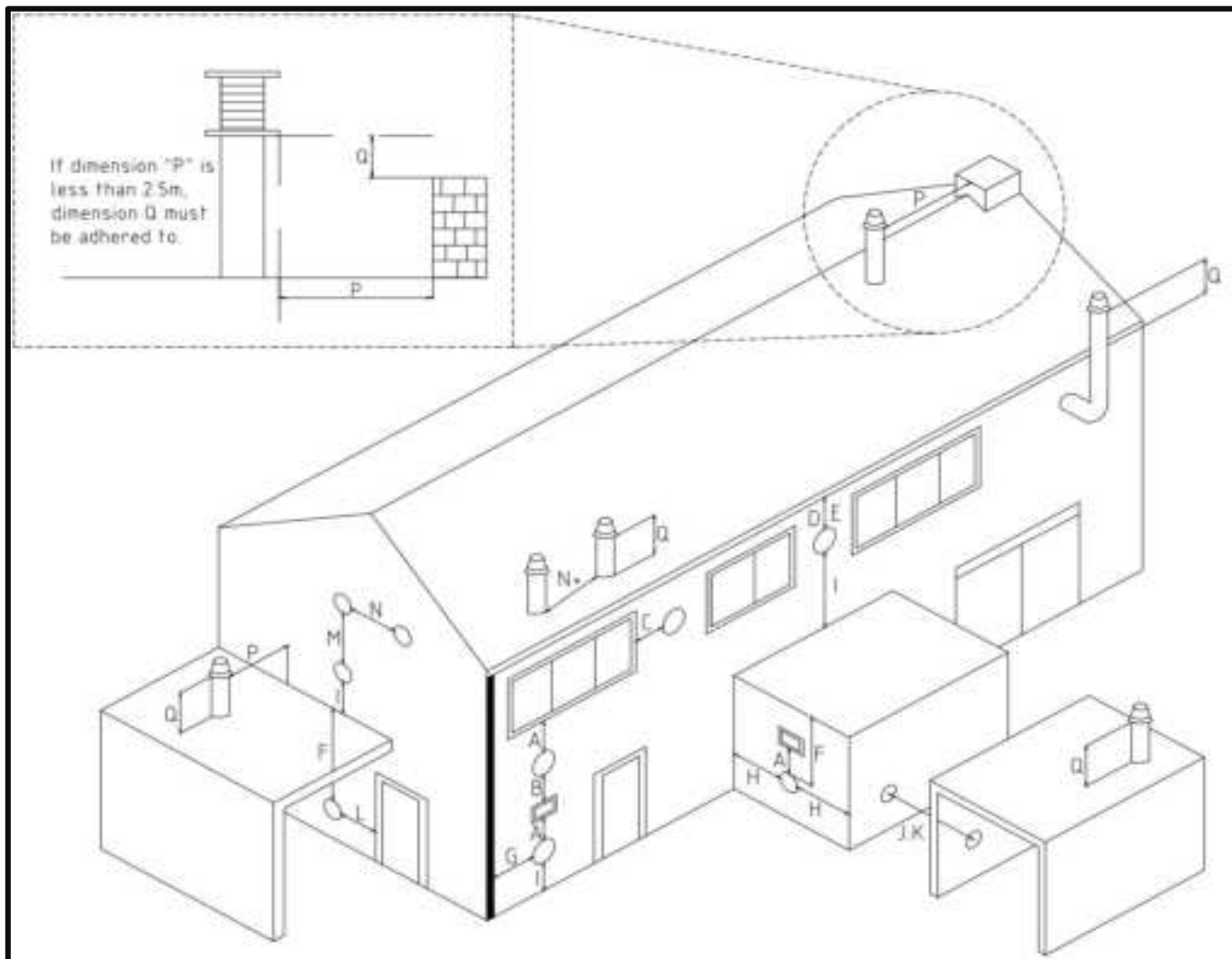


TABLE 3 BOILER TERMINAL LOCATIONS ACCORDING TO IGEM/UP/10 EDITION 4 +A: 2016

Location	Description		CPM77	CPM96	CPM116	CPM144	CPM175
A	Directly below an opening, air brick, opening windows etc.#	mm	2500	2500	2500	2500	2500
B	Above an opening, air brick, opening windows etc.	mm	631	760	896	1092	1294
C	Horizontally to an opening, air brick, opening windows etc.#	mm	631	760	896	1092	1294
D	Below a gutter or sanitary pipework	mm	200	200	200	200	200
E	Below the eaves	mm	200	200	200	200	200
F	Below a balcony or car port roof	mm	Not recommended see UP10 risk assessment				
G	From a vertical drain or soil pipe	mm	150	150	150	150	150
H	From an internal or external corner	mm	1099	1513	1948	2573	3220
I	Above ground, roof or balcony level	mm	300	300	300	300	300
J	From a surface facing the terminal	mm	1100	1514	1948	2573	3220
K	From a terminal facing the terminal	mm	2083	2429	2792	3314	3855
L	From an opening in the car port (e.g. door, window) into the dwelling	mm	Not recommended see UP10 risk assessment				
M	Vertically from a terminal on the same wall	mm	2500	2500	2500	2500	2500
N	Horizontally from a terminal on the same wall	mm	600	600	900	900	n/a*
N+	Vertically from a terminal on the same roof		600	600	900	900	n/a*
P	From a vertical structure on the roof	mm	1500	1500	1500	1500	1500
Q	Above intersection with the roof	mm	311	359	409	481	556

*Please contact Lochinvar technical support for guidance on CPM175 termination.

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 IGEM 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

Table 4 risk assessment

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							

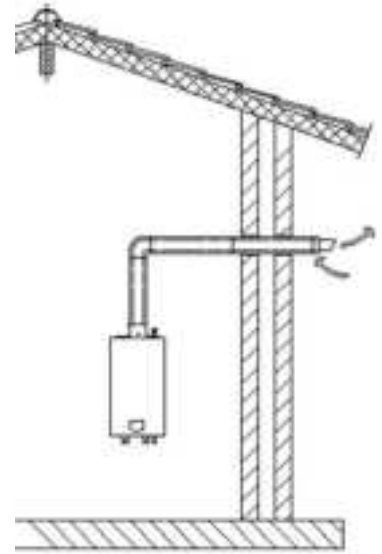
BOILER FLUE INFORMATION

Model Number		CPM58	CPM77	CPM96	CPM116	CPM144	CPM175
FLUE DATA TYPE B ₂₃							
Nominal flue diameter	mm	80		100		130	
Maximum flue gas temp	°C	95					
Flue gas temperature	°C	85-95					
Flue draught requirements	mbar	-0.03 to -0.1					
Available pressure for the flue system	Pa	200					
Maximum flue gas volume	g/s	5.59 to 28.9	6.52 to 38.6	7.69 to 47.9	11.6 to 57.7	15.2 to 71.7	20.1 to 86.2
FLUE DATA TYPE C ₁₃ & C ₃₃							
Nominal flue diameter	mm	80/125		100/150			
Maximum flue gas temp	°C	95					
FLUE DATA TYPE C ₄₃ & C ₅₃							
Nominal flue diameter	mm	80		100		130	
Maximum flue gas temp	°C	95					

CONCENTRIC FLUE SYSTEMS

HORIZONTAL TYPE C₁₃

CPMH001 CONCENTRIC HORIZONTAL FLUE ASSEMBLY MODELS - CPM58, CPM77				
Item No	Description	Included	CPM58	CPM77
LV310757	CONCENTRIC HORIZONTAL TERMINAL - Ø80/125mm PP	1	44.8	80.1
M28925B	TERMINAL WALL PLATES	1	-	-
LV310735	CONCENTRIC BEND 90° Ø80/125mm PP	1	16.1	28.7
Maximum resistance in the flue system ≤200pa		Total	60.9	108.8

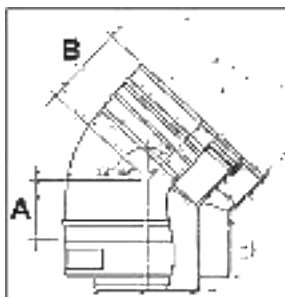


Additional Flue Ancillary Items		
Item No.	Description	Dimensions
LV310740B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	250mm
LV310745B	CONCENTRIC EXTENSION - Ø80/125mm PP	500mm
LV310742B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	1000mm
LV310743B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	2000mm
LV310744B	CONCENTRIC EXTENSION - Ø80/125mm PP TELESCOPIC	240mm-360mm
LV310734B	CONCENTRIC BEND 45° Ø80/125mm PP	See Drawing Below
LV310735B	CONCENTRIC BEND 90° Ø80/125mm PP	See Drawing Below
M84481B	WALL CLAMP Ø125mm	N/A

CPMH003 CONCENTRIC HORIZONTAL FLUE ASSEMBLY MODELS - CPM96, CPM116				
Item No	Description	Included	CPM96	CPM116
LV310758B	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1	58	84
M84410B	CONCENTRIC BEND 90° Ø100/150mm PP SHORT RADIUS	1	23.6	34.2
Maximum resistance in the flue system ≤200pa		Total	81.6	118.2

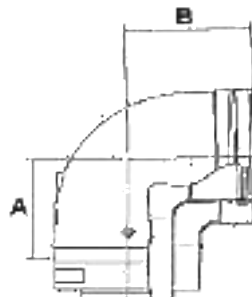
CPMH004 CONCENTRIC HORIZONTAL FLUE ASSEMBLY MODELS - CPM144			
Item No	Description	Included	CPM144
LV310758B	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1	129.9
E61-001-172B	CONCENTRIC CONVERSION KIT	1	-
M84410B	CONCENTRIC BEND 90° Ø100/150mm PP SHORT RADIUS	1	52.9
Maximum resistance in the flue system ≤200pa		Total	182.8

Additional Flue Ancillary Items		
Item No.	Description	Dimensions
M84405B	CONCENTRIC EXTENSION Ø100/150mm Cuttable	500mm
M84402B	CONCENTRIC EXTENSION Ø100/150mm PP FIXED	1000mm
M84412B	CONCENTRIC BEND 90° Ø100/150mm PP	See Drawing Below
M84413B	CONCENTRIC BEND 45° Ø100/150mm PP	See Drawing Below
M84421B	SAMPLING POINT Ø100/150mm PP	115mm
M87196B	WALL CLAMP Ø150mm	



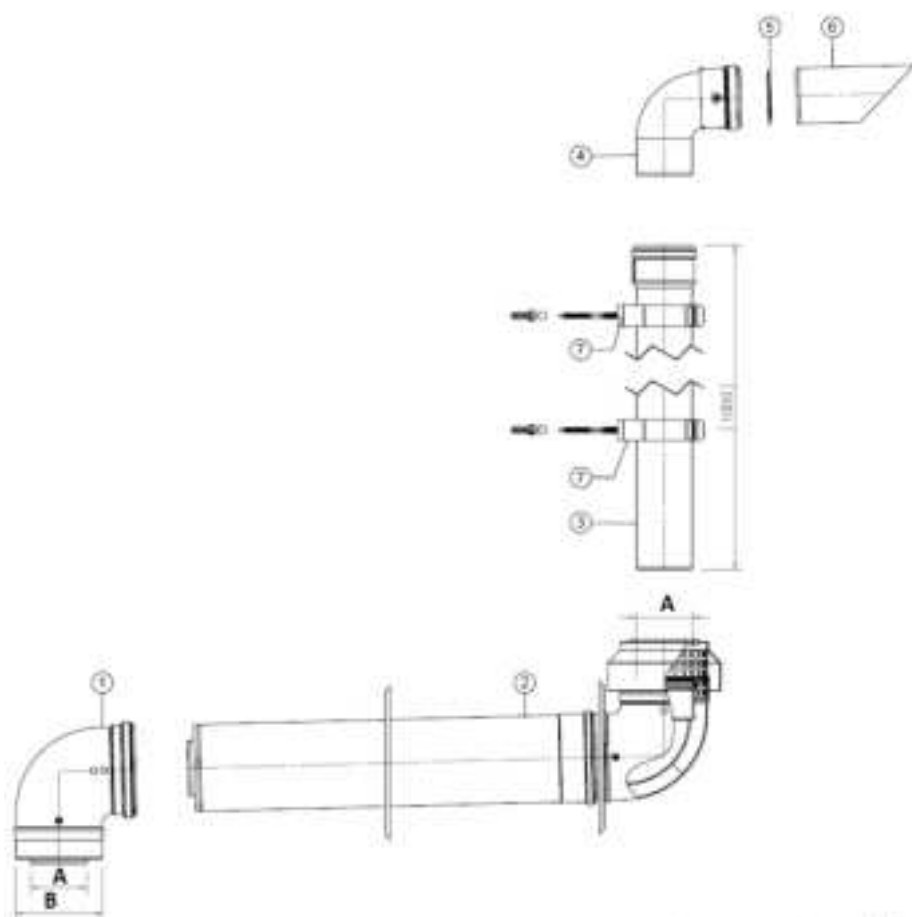
CPM58-77
A=45mm
B=62.5mm

CPM96-175
A=128mm
B=128mm



CPM58-77
A=95mm
B=110mm

CPM96-175
A=223mm
B=208mm



PLUME MANAGEMENT KITS	
LG800008B	PLUME MANAGEMENT KIT Ø80/125mm
LG800009B	PLUME MANAGEMENT KIT Ø100/150mm

No	Description	CPM58	CPM77	CPM96	CPM116	CPM144	CPM175
1	CONCENTRIC BEND 90°-PP	Ø80/125mm	Ø80/125mm	Ø100/150mm	Ø100/150mm	N/A	N/A
2	CONCENTRIC HORIZONTAL PLUME KIT TERMINAL -PP	Ø80/125mm	Ø80/125mm	Ø100/150mm	Ø100/150mm	N/A	N/A
3	EXTENSION -PP CUTABLE (1000mm)	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
4	BEND 90°-PP	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
5	PLUME KIT BIRD GUARD	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
6	PLUME KIT FLUE EXIT-PP	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
7	WALL CLAMP	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
A	INTERNAL DIAMETER	Ø80mm	Ø80mm	Ø100mm	Ø100mm	N/A	N/A
B	EXTERNAL DIAMETER	Ø125mm	Ø125mm	Ø150mm	Ø150mm	N/A	N/A



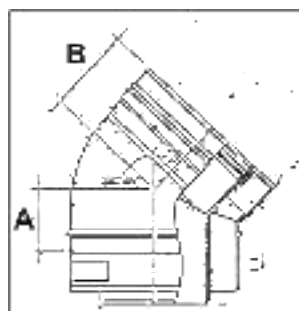
The plume kit must not be used to correct an illegal terminal location

CPMV001 CONCENTRIC VERTICAL FLUE ASSEMBLY MODELS - CPM58, CPM77				
Item No	Description	Included	CPM58	CPM77
LV310753	CONCENTRIC VERTICAL TERMINAL - Ø80/125mm PP	1	61.5	109.8
LV310745B	CONCENTRIC EXTENSION - Ø80/125mm PP (500mm)	1	5.1	9.05
LV310742B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED (1000mm)	1	10.2	18.1
Maximum resistance in the flue system ≤200pa		Total	76.8	136.95

Additional Flue Ancillary Items		
Item No.	Description	Dimensions
LV310740B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	250mm
LV310745B	CONCENTRIC EXTENSION - Ø80/125mm PP	500mm
LV310742B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	1000mm
LV310743B	CONCENTRIC EXTENSION - Ø80/125mm PP FIXED	2000mm
LV310744B	CONCENTRIC EXTENSION - Ø80/125mm PP TELESCOPIC	240-360mm
LV310734B	CONCENTRIC BEND 45° Ø80/125mm PP	See Drawing Below
LV310735B	CONCENTRIC BEND 90° Ø80/125mm PP	See Drawing Below
M87195B	WALL CLAMP Ø130mm	N/A
LV302520	FLAT ROOF FLASHING Ø140mm ALU	N/A

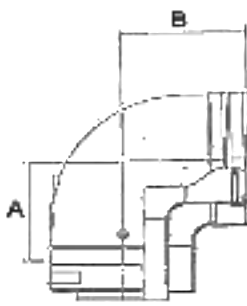
CPMV003 CONCENTRIC VERTICAL FLUE ASSEMBLY MODELS - CPM96, CPM116				
Item No	Description	Included	CPM96	CPM116
LV310754B	CONCENTRIC VERTICAL TERMINAL Ø100/150mm PP	1	80	115.9
M84405B	CONCENTRIC EXTENSION Ø100/150mm (500mm) Cuttable	1	6.5	9.45
M84402B	CONCENTRIC EXTENSION Ø100/150mm (1000mm) PP FIXED	1	13	18.9
Maximum resistance in the flue system ≤200pa		Total	99.5	144.25

Additional Flue Ancillary Items		
Item No.	Description	Dimensions
M84405B	CONCENTRIC EXTENSION Ø100/150mm Cuttable	500mm
M84402B	CONCENTRIC EXTENSION Ø100/150mm PP FIXED	1000mm
M84412B	CONCENTRIC BEND 90° Ø100/150mm PP	See Drawing Below
M84413B	CONCENTRIC BEND 45° Ø100/150mm PP	See Drawing Below
M84421B	SAMPLING POINT Ø100/150mm PP	115mm
M87196B	WALL CLAMP Ø150mm	



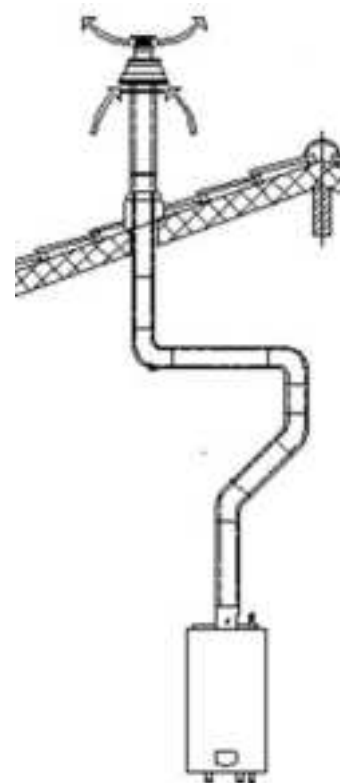
CPM58-77
A=45mm
B=62.5mm

CPM96-175
A=128mm
B=128mm



CPM58-77
A=95mm
B=110mm

CPM96-175
A=223mm
B=208mm



Concentric flue is unable to be used with CPM175

CONCENTRIC FLUE SIZING/CALCULATIONS

Item	Resistance in Pa					
	CPM 58 80/125	CPM 77 80/125	CPM 96 100/150	CPM 116 100/150	CPM 144 100/150	CPM 175 100/150
Wall terminal	44.8	80.1	58	84	129.9	188
Roof terminal	61.5	109.8	80	115.9	179.2	259.3
Straight tube (m)	10.2	18.1	13.0	18.9	29.2	42.2
45° Elbow	8.6	15.4	15.5	22.4	34.7	50.2
90° Elbow	16.1	28.7	23.6	34.2	52.9	76.5
Plume kit	10	10	20	25	n/a	n/a

To be used for Lochinvar supplied M&G flue system components resistance only

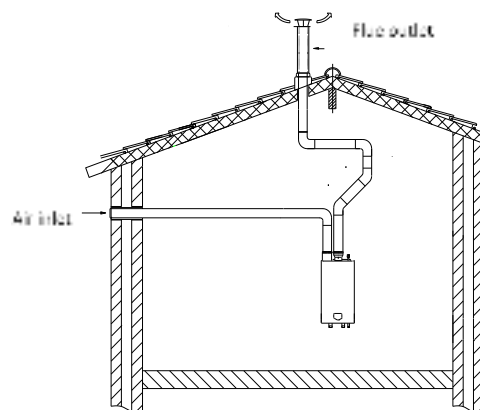
Use the table below to calculate the total flue system resistance

Item	Quantity	Resistance	Total
Wall terminal			
Roof terminal			
Straight tube (m)			
45° Elbow			
90° Elbow			
Plume kit			
Total Resistance (Pa)			



Total calculated system resistance must be less than 200pa

CPM TWIN-PIPE FLUE ASSEMBLY MODELS CPM58, CPM77				
Vertical Flue				
Item No	Description	No Required	CPM58	CPM77
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
LV305016	HORIZONTAL AIR INLET Ø80mm	1	-	-
M28925B	TERMINAL WALL PLATES (PAIR)	1	-	-
M85283	EXPANDER Ø80mm - Ø100mm PP	1	-	-
LM410084992	EXPANDER Ø100mm - Ø130mm PP	1	-	-
Maximum resistance in the flue system 200pa		Total	38.8	38.8



CPM TWIN-PIPE FLUE ASSEMBLY MODELS CPM58, CPM77				
Horizontal Flue				
Item No	Description	No Required	CPM58	CPM77
LV310757B	CONCENTRIC HORIZONTAL TERMINAL Ø80/125mm PP	1	29.86	53.4
LV305016	HORIZONTAL AIR INLET Ø80mm	1	-	-
M28925B	TERMINAL WALL PLATES (PAIR)	1	-	-
Maximum resistance in the flue system ≤200pa		Total	29.86	53.4

Additional Flue Ancillary Items		
Item No.	Description	Dimensions
LV310718B	EXTENSION - Ø80mm PP CUT TO LENGTH	250mm
M85271B	EXTENSION Ø80mm PP CUT TO LENGTH	500mm
M85272B	EXTENSION Ø80mm PP CUT TO LENGTH	1000mm
LV310721B	EXTENSION - Ø80mm PP CUT TO LENGTH	2000mm
LV310722B	EXTENSION - Ø80mm PP TELESCOPIC	240-360mm
M85292B	BEND 45° 80mm PP	See Drawing Below
M85291B	BEND 90° 80mm PP	See Drawing Below
M87191B	WALL CLAMP Ø80mm	N/A

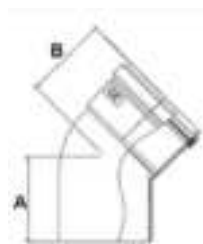
CPM TWIN-PIPE FLUE ASSEMBLY MODELS CPM96, CPM116				
Vertical Flue				
Item No	Description	No Required	CPM96	CPM116
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
LV305039	HORIZONTAL AIR INLET Ø100mm	1	-	-
M28925B	TERMINAL WALL PLATES (PAIR)	1	-	-
LM410084992	EXPANDER Ø100mm - Ø130mm PP	1	-	-
Maximum resistance in the flue system 200pa		Total	38.8	38.8

CPM TWIN-PIPE FLUE ASSEMBLY MODELS CPM96, CPM116				
Horizontal Flue				
Item No	Description	No Required	CPM96	CPM116
LV310758B	CONCENTRIC HORIZONTAL TERMINAL Ø100/150mm PP	1	38.66	56
LV305039B	HORIZONTAL AIR INLET Ø100mm ALU	1	-	-
Maximum resistance in the flue system ≤200pa		Total	38.66	56

Additional Flue Ancillary Items		
Item No.	Description	Dimensions
M85176B	EXTENSION Ø100mm PP CUT TO LENGTH	500mm
M85177B	EXTENSION Ø100mm PP CUT TO LENGTH	1000mm
M85181B	BEND 90° 100mm PP	See Drawing Below
M85182B	BEND 45° 100mm PP	See Drawing Below
M87193B	WALL BAND (100mm)	n/a

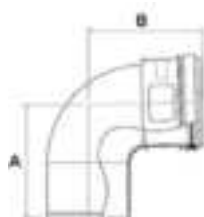
CPM TWIN-PIPE FLUE ASSEMBLY MODELS CPM144, CPM175				
Vertical Flue				
Item No	Description	No Required	CPM144	CPM175
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
LV307178	HORIZONTAL AIR INLET Ø130mm ALU	1	-	-
Maximum resistance in the flue system ≤200pa		Total	38.8	38.8

Additional Flue Ancillary Items		
Item No	Description	Dimensions
M70242	EXTENSION Ø130mm PP	1000mm
M70251	BEND 90° PP	130mm
M70252	BEND 45° PP	130mm
M87195	WALL CLAMP	130mm



CPM58-
CPM77
A=72.5mm,
B=72.5mm

CPM96-
CPM116
A=78mm,
B=65mm



CPM58-
CPM77
A=110mm,
B=110mm

CPM96-
CPM116
A=78mm,
B=65mm

Item	Size (mm)	Resistance (Pa)					
		CPM 58	CPM 77	CPM 96	CPM 116	CPM 144	CPM 175
Straight tube (per metre)	80	4.6	8.2	X	X	n/a	n/a
Straight tube (per metre)	100	1.3	2.3	3.5	5.0	n/a	n/a
Straight tube (per metre)	130	0.3	0.6	0.9	1.2	1.9	2.8
45° Elbow	80	4.2	7.6	X	X	n/a	n/a
45° Elbow	100	2.9	5.1	7.9	11.5	n/a	n/a
45° Elbow	130	0.6	1.0	1.6	2.3	3.5	5.1
90° Elbow	80	10.1	18.0	X	X	n/a	n/a
90° Elbow	100	4.6	8.3	12.7	18.4	n/a	n/a
90° Elbow	130	1.4	2.4	3.7	5.4	8.4	12.1

To be used for Lochinvar supplied M&G air inlet system components resistance only

Item	Size (mm)	Resistance (Pa)					
		CPM 58	CPM 77	CPM 96	CPM 116	CPM 144	CPM 175
Straight tube (per metre)	80	4.0	7.1	X	X	n/a	n/a
Straight tube (per metre)	100	1.1	2.0	3.0	4.4	n/a	n/a
Straight tube (per metre)	130	0.3	0.5	0.7	1.1	1.7	2.4
45° Elbow	80	3.7	6.5	X	X	n/a	n/a
45° Elbow	100	2.5	4.4	6.8	9.9	n/a	n/a
45° Elbow	130	0.5	0.9	1.4	2.0	3.0	4.4
90° Elbow	80	8.7	15.6	X	X	n/a	n/a
90° Elbow	100	4.0	7.1	11.0	16.0	n/a	n/a
90° Elbow	130	1.2	2.1	3.2	4.7	7.2	10.5
Vertical exhaust terminal		61.5	109.8	80	115.9	179.2	259.3
Vertical single terminal		-	-	-	-	38.8	38.8

To be used for Lochinvar supplied M&G flue exhaust system components resistance only

Use the table below to calculate the flue system resistance.

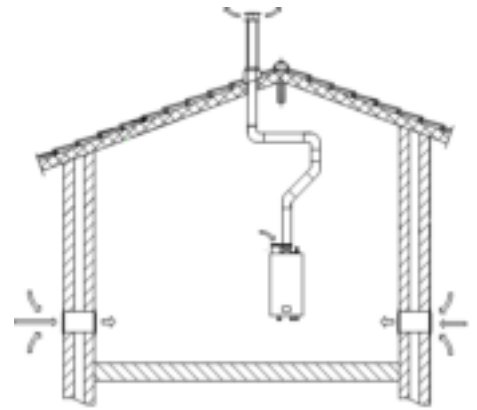
Flue exhaust	Item	Quantity	Resistance	Total
	Straight tube (m)			
	45° Elbow			
	90° Elbow			
	Concentric Vertical terminal			
Total Resistance flue exhaust (Pa)				
Air Inlet	Item	Quantity	Resistance	Total
	Straight tube (m)			
	45° Elbow			
	90° Elbow			
	Air Inlet			
	Total Resistance air inlet (Pa)			
Total Resistance air inlet and flue exhaust (Pa)				



Total calculated system resistance must be less than 200pa

CONVENTIONAL (EXHAUST ONLY) FLUE SYSTEMS TYPE B₂₃

CPM CONVENTIONAL FLUE ASSEMBLY MODELS CPM58, CPM77				
Item No	Description	No Required	CPM58	CPM77
LV305030B	APPLIANCE AIR INTAKE GUARD Ø80/125mm	1	10.8	19.2
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
M85283	EXPANDER Ø80mm - Ø100mm PP	1	-	-
LM410084992	EXPANDER Ø100mm - Ø130mm PP	1	-	-
Maximum resistance in the flue system ≤200pa		Total	51.8	92.4



Additional Flue Ancillary Items		
Item No.	Description	Dimensions
LV310718B	EXTENSION - Ø80mm PP CUT TO LENGTH	250mm
M85271B	EXTENSION Ø80mm PP CUT TO LENGTH	500mm
M85272B	EXTENSION Ø80mm PP CUT TO LENGTH	1000mm
LV310721B	EXTENSION - Ø80mm PP CUT TO LENGTH	2000mm
LV310722B	EXTENSION - Ø80mm PP TELESCOPIC	240-360mm
M85292B	BEND 45° 80mm PP	See Drawing Below
M85291B	BEND 90° 80mm PP	See Drawing Below
M87191B	WALL CLAMP Ø80mm	N/A

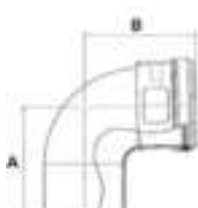
CPM CONVENTIONAL FLUE ASSEMBLY MODELS CPM96, CPM116				
Item No	Description	No Required	CPM96	CPM116
LV304872B	APPLIANCE AIR INTAKE GUARD Ø100/150mm	1	11.6	16.8
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
Maximum resistance in the flue system ≤200pa		Total	64.9	94.06

CPM CONVENTIONAL FLUE ASSEMBLY MODELS CPM144, CPM175				
Item No	Description	No Required	CPM144	CPM175
M81660	APPLIANCE AIR INLET GUARD Ø130mm	1	8.7	12.6
LM410084006	VERTICAL TERMINAL - 130MM PP	1	38.8	38.8
Maximum resistance in the flue system ≤200pa		Total	47.5	51.4

Additional Flue Ancillary Items		
Item No	Description	Dimensions
M70242	EXTENSION Ø130mm PP	1000mm
M70251	BEND 90° PP	130mm
M70252	BEND 45° PP	130mm
M87195	WALL CLAMP	130mm



CPM58-CPM77
A=72.5mm, B=72.5mm
CPM96-CPM116
A=78mm,
B=65mm



CPM58-CPM77
A=110mm,
B=110mm
CPM96-CPM116
A=78mm,
B=65mm

Item	Size (mm)	Resistance (Pa)					
		CPM 58	CPM 77	CPM 96	CPM 116	CPM 144	CPM 175
Straight tube (per metre)	80	4.0	7.1	X	X	n/a	n/a
Straight tube (per metre)	100	1.1	2.0	3.0	4.4	n/a	n/a
Straight tube (per metre)	130	0.3	0.5	0.7	1.1	1.7	2.4
45° Elbow	80	3.7	6.5	X	X	n/a	n/a
45° Elbow	100	2.5	4.4	6.8	9.9	n/a	n/a
45° Elbow	130	0.5	0.9	1.4	2.0	3.0	4.4
90° Elbow	80	8.7	15.6	X	X	n/a	n/a
90° Elbow	100	4.0	7.1	11.0	16.0	n/a	n/a
90° Elbow	130	1.2	2.1	3.2	4.7	7.2	10.5
Vertical single terminal		-	-	-	-	38.8	38.8

To be used for Lochinvar supplied M&G air inlet system components resistance only

Use the table below to calculate the flue system resistance.

Item	Quantity	Resistance	Total
Straight tube (m)			
45° Elbow			
90° Elbow			
Concentric Vertical terminal			
Total Resistance flue exhaust (Pa)			



Total calculated system resistance must be less than 200pa

In general, boilers are certified with their own purpose supplied Concentric or Twin Pipe flue systems, C63 certified appliances allow the installer to use other flue systems when installing the boiler however, they must be of a suitable minimum standard as per table below.

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 material	Plastics:	Plastics: fire behaviour	Plastics:
min. eis PP	EN 14471	T120	P1	W	1	n/a	O	30	I of E	C/E	L
min. eis RVS	EN 1856-1	T120	P1	W	1	L20040	O	40	n/a	n/a	n/a

Material	Boiler	d _{nom}	D _{outside}	d _{inside}	L _{insert}
SS	CPM58-CPM77	80	80 +0,3/ -0,7	81 +0,3/ -0,3	50 +2/ -2
SS	CPM96-CPM116	100	100 +0,3/ -0,7	101 +0,3/ -0,3	50 +2/ -2
SS	CPM144-CPM175	130	130 +0,3/ -0,7	131 +0,5/ -0,5	50 +2/ -2
PP	CPM58-CPM77	80	80 +0,6/ -0,6		50 +20/ -2
PP	CPM96-CPM116	100	100 +0,6/ -0,6		50 +20/ -2
PP	CPM144-CPM175	130	130 +0,9/ -0,9		50 +20/ -2



Aluminium flue pipe must not be used on this appliance as it may lead to premature failure of the heat exchanger and will invalidate the warranty.

COMMON FLUE SYSTEMS

Lochinvar can supply a PP common flue header see separate guide available at www.lochinvar.ltd.uk

Alternatively the installer can use a flue installation specialist to design and supply a separate flue system under the flue designation C63 using the specifications shown on page 13 and information in the table below.

Any installations using flue type C63 must be designed and installed in compliance with any local Building or planning regulations, but as these systems use a flue system not supplied by Lochinvar, Lochinvar cannot comment / advise or provide support on the design of this type of flue system. To design such a flue system, the installer/contractor must consult a specialist flue supplier who will be responsible for the design and installation of the separate flue system. When designing the type C63 flue system, the instructions in the Installation Manual, provided with the boiler, must be taken into account. Lochinvar will provide pressure loss figures for the specific units, but other than that, Lochinvar cannot provide support on Common Flue requests because flue certification is limited to the certified categories in the table on page 2. Lochinvar cannot accept any responsibility for Flue system design.

	CPM 58	CPM 77	CPM 96	CPM 116	CPM 144	CPM 175
Available pressure at the flue gas outlet	200Pa	200Pa	200Pa	200Pa	200Pa	200Pa
Flue Gas Mass Rate (G20) 96% (g/sec)	22.6	29.8	37.1	45.1	55.6	67.3
Flue Gas Mass Rate (G20) 25% (g/sec)	5.7	7.5	9.3	11.3	13.9	16.8
Flue Gas Mass Rate (G31) 96% (g/sec)	23.2	30.6	38.8	46.2	57	69
Flue Gas Mass Rate (G31) 25% (g/sec)	5.8	7.7	9.7	11.6	14.3	17.3



The CPM boiler range does not have an internal Non Return Valve (NRV) as such any flue must be designed on zero or negative pressure unless a suitable NRV is fitted and if necessary interlocked to the appliance. Non Return Valves are included with the Lochinvar common flue header.

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

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