



## Fluing and plume management solutions for domestic gas condensing boilers

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In the UK, Buderus is a trading name of BBT Thermotechnology UK Ltd.

Buderus' policy is one of continuous research and development and this may necessitate alterations to this specification from time to time. Therefore before preparing for the installation of the appliance it is important that the instructions issued with the unit are carefully read and adhered to. The statutory rights of the customer are not affected. Photographs shown are used for illustrative purposes only. All information is correct at time of going to press. Buderus reserves the right to alter any information where necessary. E&OE.

# Buderus

8-716-113-585

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Intelligent Heating Solutions

# Buderus

## Flexible fluing options to suit your needs

The correct siting of a domestic boiler is an important consideration for installers and homeowners alike, especially when a condensing boiler is being fitted. The Buderus high efficiency range of gas condensing boilers have been designed with a flue system that allows installers and heating engineers to offer their customers a wide selection of different boiler siting options.



The high quality concentric flue system is very simple to install with either push-fit or speed clamp connections and a variety of accessories enabling boilers to be easily installed in lofts, garages, utility rooms, airing cupboards and kitchens, as well as other more unusual locations around the home. If a suitable internal flue run cannot easily be fitted and plumbing gas from the flue terminal is still an issue, Buderus can also offer installers a plume management kit or plume deflector that can re-direct the plume to avoid a nuisance (see page 10 for more details).

### Contents

Installation regulations and modification	<b>3</b>
Flue terminal positioning	<b>4</b>
Buderus flue kits	<b>5</b>
Vertical fluing options	<b>8</b>
Horizontal fluing options	<b>9</b>
Plume management system options	<b>10</b>
Calculation example	<b>11</b>
Accessories	<b>12</b>



## Installation regulations and modification

### Installation regulations

- The flue system and associated components must be installed only by a competent person in accordance with the installation instructions and current: Gas Safety (Installation & Use) Regulations 1998, Building Regulations, Building Standards (Scotland) (Consolidation), Building Regulations (Northern Ireland), IS 813 (Eire) and any other local requirements
- The relevant standards should also be followed, including:
  - BS5440:1 – Flues and ventilation for gas appliances of rated heating not exceeding 70kW (net) : Flues
  - BS5440:2 – Flues and ventilation for gas appliances of rated heating not exceeding 70kW (net) : Air Supply
  - BS6798 – Installation of gas-fired boilers of rated input up to 70kW (net)
- Failure to install correctly could lead to prosecution.

Where no specific instruction is given, reference should be made to the relevant Codes of Practice.

### Fitting and position

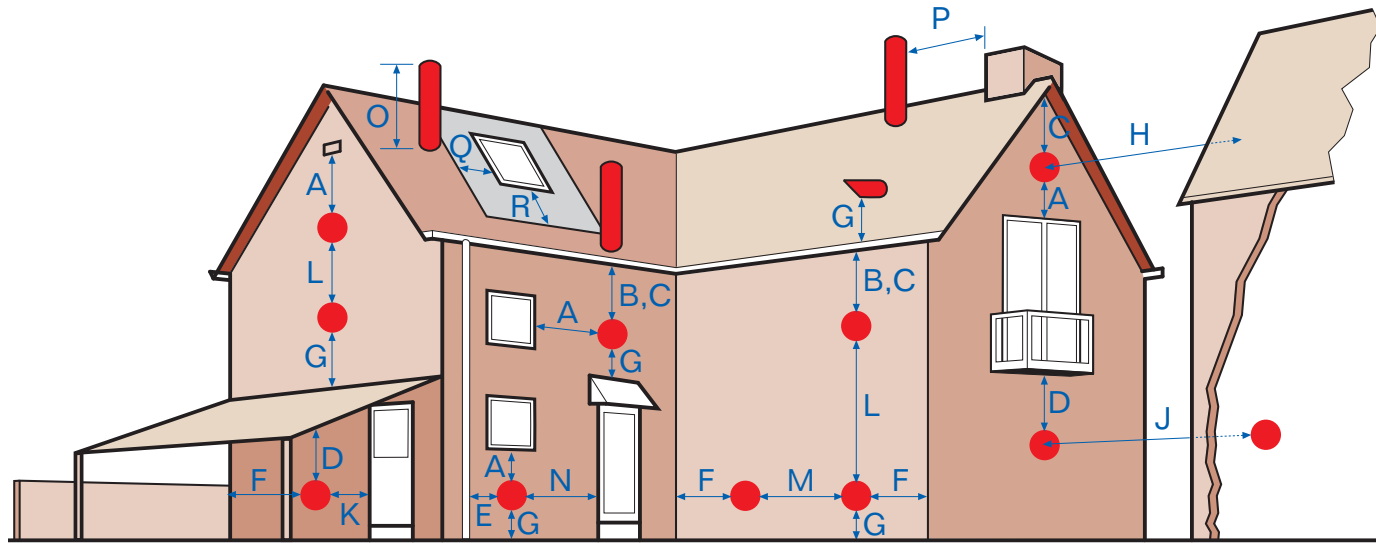
Any misuse or modifications to the flue or associated components other than as described in the instructions could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

- Flue terminal positions must avoid combustion products entering into buildings
- A white plume of condensation will be discharged from the flue outlet in certain conditions. Avoid positions where this could cause a nuisance
- There should be no restriction preventing the safe dispersal of combustion products from the terminal
- The flue must not cause an obstruction
- If a terminal is fitted less than 2 metres above a surface to which people have access, then a guard must be fitted. The terminal guard must be securely fixed to the wall using suitable plugs and corrosion resistant screws. The guard must be symmetrically positioned about the terminal assembly and spaced such that there is a gap of 50mm between the end of the terminal and the guard
- Firmly push each flue section together so the seals fully engage
- Secure the flue run with a minimum of one bracket for each extension, further support may be required in certain installations.



All flues can be cut to length and must be installed with a minimum 30mm fall over a 1m length back to the boiler. This will allow any condensate to drain back into the boiler. Flue support brackets to secure long lengths of horizontal or vertical flue are sold separately. A full list of flue accessories and part numbers is shown on pages 12-13.

## Flue terminal positioning



The flue system must be installed and terminated in accordance with the recommendations of BS 5440:Part 1 and part J of the current building regulations.

A flue system must not terminate in a covered passageway between two buildings to meet minimum building regulations. The plume management kit may be used in this situation, provided:

- i) The passageway has at least two large open and unobstructed sides allowing free uninterrupted airflow through the passageway.
- ii) The air inlet (outer tube of concentric flue) is positioned in accordance with the table below.
- iii) The flue outlet (inner tube of concentric flue) is terminated outside the passageway in free open air and in accordance with the table below.

### Minimum dimensions of flue terminal positions for balanced room sealed flues with fanned draught:

Position	Flue outlet minimum distance	Air inlet minimum distance
A* Directly below, above or alongside opening windows, air vents or other ventilation openings	300mm	150mm
B Below guttering, drain pipes or soil pipes	75mm	75mm
C Below eaves	200mm	150mm
D Below balconies or lowest point of a car port roof. Not recommended.	200mm	150mm
E From a vertical drain pipe or soil pipes	150mm	150mm
F From internal or external corners or adjacent to a boundary	300mm	150mm
G Above adjacent ground, roof or balcony level	300mm	300mm
H** From a surface/boundary facing the terminal	600mm	150mm
J From a terminal facing the terminal	1200mm	1200mm
K From an opening under a car port (e.g. door, window) into the dwelling. Not recommended.	1200mm	150mm
L Vertically from a terminal on the same wall	1500mm	1500mm
M Horizontally from a terminal on the same wall	300mm	300mm
N* Adjacent to opening	300mm	150mm
O Above intersection with roof	300mm	N/A
P From a non combustible vertical structure on the roof	500mm	150mm
Q Alongside or above an opening window, air vent or other ventilation opening on a roof	600mm	N/A
R Below an opening window, air vent or other ventilation opening	2000mm	N/A

\* In addition, the terminal should not be nearer than 150mm to an opening in the building fabric formed for the purpose of accommodating a built-in element such as a window frame.

\*\* Care should be taken to ensure terminal siting does not cause a nuisance to adjacent properties.



**CAUTION**  
Under extreme weather conditions the external flue can experience exceptional cooling resulting in a safe shutdown of the boiler. Therefore it is **NOT** advisable to position the external flue systems in exposed areas, coastal headlands etc where the effects of wind chill are significant.

## Buderus flue kits

### Buderus flue kits

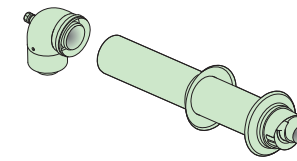
Buderus have developed a comprehensive range of concentric (pipe-in-pipe) flue kits to fit the 500, 600 and 800 gas condensing boiler ranges.

Two different sizes of flue kit are available for either horizontal or vertical flue installations. These include a 60/100mm (4") kit and a 80/125mm (5") kit, as well as a plume management kit. The flue kits and their components are shown below.

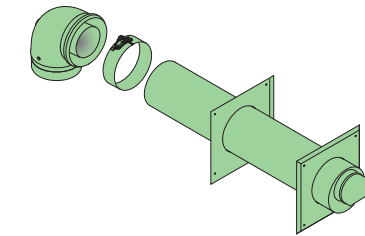
The 800 range of boilers is only available with an 80/125mm (5") horizontal or vertical kit.

Speed clamps are included where necessary in 80/125mm accessories providing a durable seal at each joint.

### Horizontal flue kits



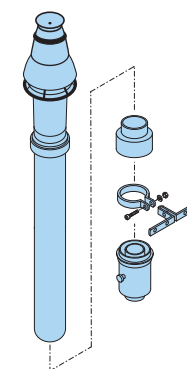
60/100mm standard horizontal flue kit  
7-716-191-106



80/125mm standard horizontal flue kit  
7-716-191-116

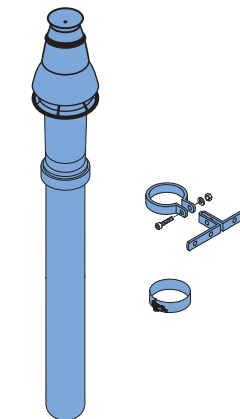
600-28C 60/100mm standard horizontal flue kit  
7-716-191-112

### Vertical flue kits



60/100mm standard vertical flue kit  
7-716-191-105

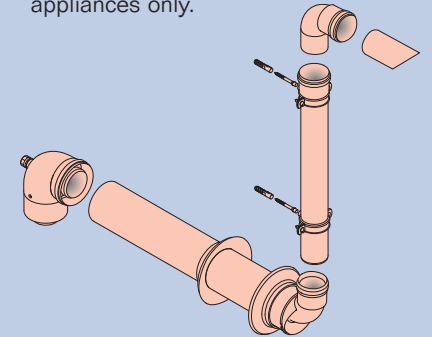
600-28C 60/100mm standard vertical flue kit  
7-716-191-113



80/125mm standard vertical flue kit  
7-716-191-115

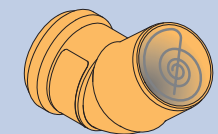
### Plume management options

The Buderus plume management kit should be fitted when the installation of an ordinary flue termination point would contravene regulations. The plume management kit diverts, redirects or repositions the plumbing gasses so that they don't cause a nuisance to neighbouring properties. Available for 500 and 600 appliances only.



60/100mm concentric standard plume management kit  
7-716-191-134

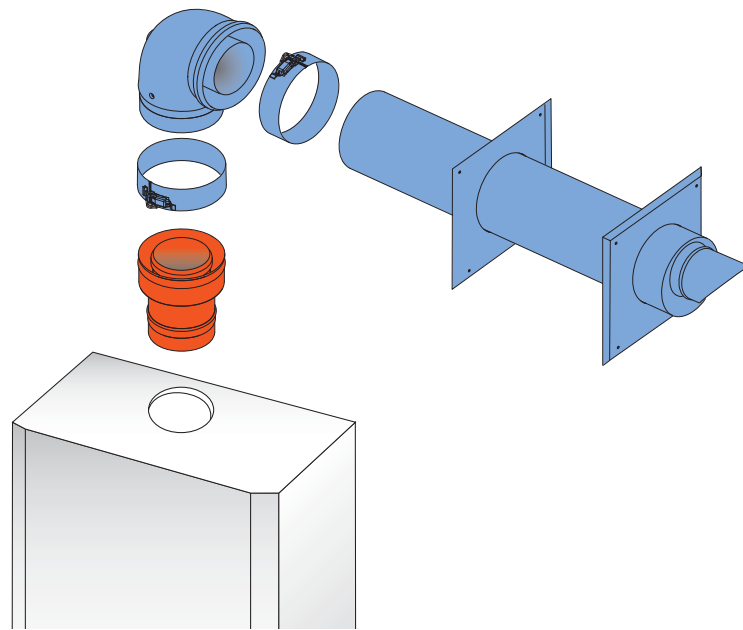
600-28C 60/100mm concentric plume management kit  
7-716-191-135



45° deflector  
(For use with 60/100 horizontal flue kits)  
7-716-191-140

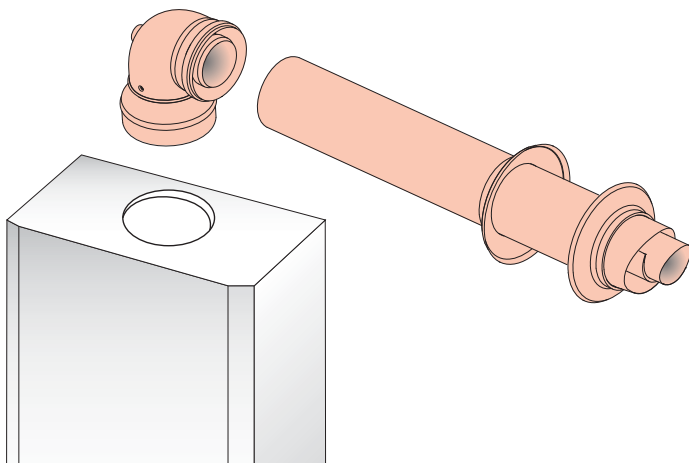
## Buderus flue kits

The 80/125mm flue kits are generally used when longer flue runs are required. A vertical expander (Part No. 7-716-191-121) is available to connect the 80/125mm flue kits to boilers with a 60/100mm flue outlet, as shown below.



### 600 28kW Combi flue kits

The 600 28kW Combi boiler is designed with an 80/125mm take-off as standard to allow for longer flue runs. However, if a 60/100mm flue run is required, then special horizontal or vertical flue kits are available for the 600 28kW Combi. The special kits, as shown below, include an adaptor to reduce the 80/125mm offtake down to 60/100mm. The 600 28kW Combi boiler includes a flue gas test point on the appliance.



## Buderus flue kits

Use the table below to determine which flue kit to use with your boiler. Examples of some common horizontal and vertical flue options are detailed on the following pages.

Flue Diameter	60/100mm			80/125mm		600 28kW Combi 60/100mm		
	Vertical	Horizontal	Plume Management Kit	Vertical	Horizontal	Vertical	Horizontal	Plume Management Kit
Part Number	7-716-191-105	7-716-191-106	7-716-191-134	7-716-191-115	7-716-191-116	7-716-191-113	7-716-191-112	7-716-191-135
500 System	✓	✓	✓	✓*	✓*			
500 Combi	✓	✓	✓	✓*	✓*			
600 System	✓	✓	✓	✓*	✓*			
600 Regular	✓	✓	✓	✓*	✓*			
600-24 Combi	✓	✓	✓	✓*	✓*			
600-28 Combi				✓	✓	✓	✓	✓
800 System				✓†	✓†			

✓\* Use 60/100mm to 80/125mm expander (7-716-191-121) and vertical takeoff with sample point (7-716-191-111).

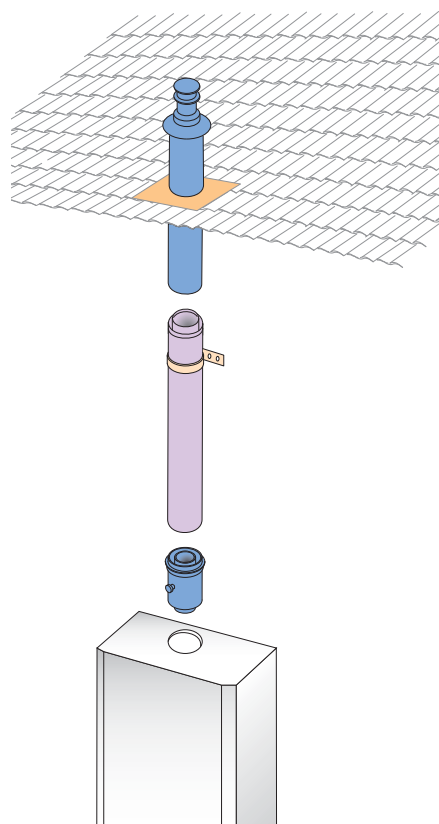
✓† Order 800 series takeoff (7-716-191-122).

Vertical Flue Options

Horizontal Flue Options

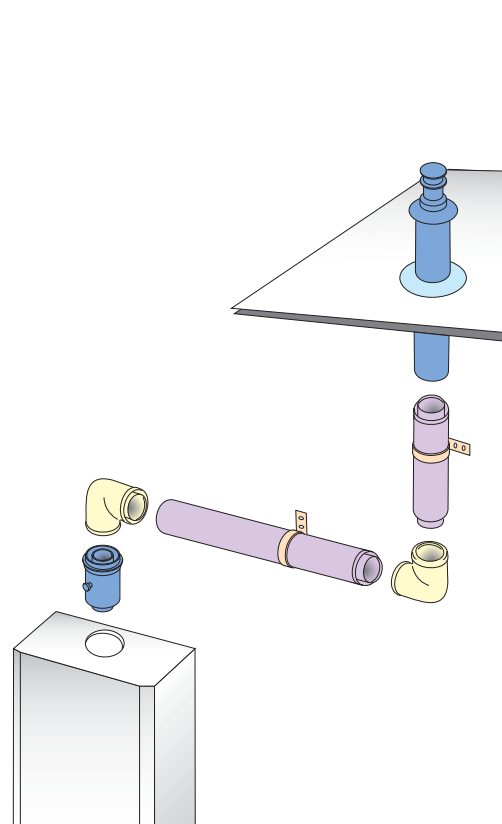
Vertical fluing options

Option 1 – pitched roof



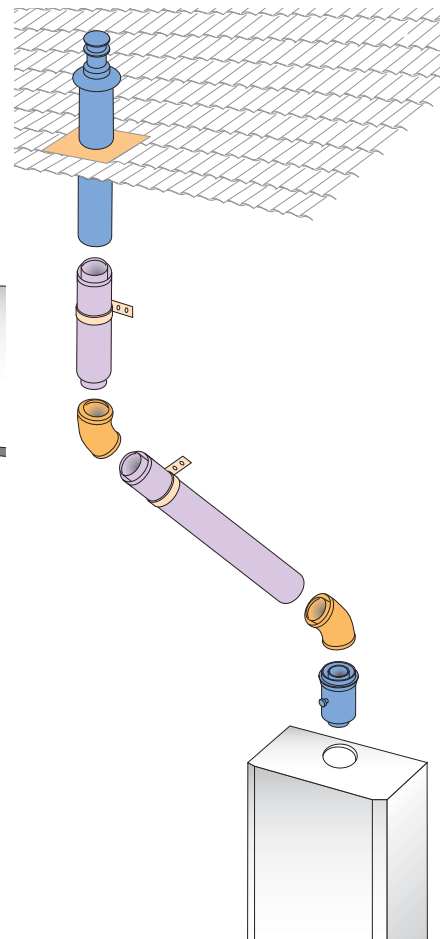
Description	60/100mm	80/125mm
Standard vertical flue kit	7-716-191-105	7-716-191-115
1000mm extension	7-716-191-108	7-716-191-118
Weathering slate (pitched roof)	T-000-087-909	T-000-087-909
Brackets	T-000-082-130	T-000-082-131

Option 2 – flat roof



Description	60/100mm	80/125mm
Standard vertical flue kit	7-716-191-105	7-716-191-115
90° flue bend	7-716-191-109	7-716-191-119
1000mm extension	7-716-191-108	7-716-191-118
90° flue bend	7-716-191-109	7-716-191-119
500mm extension	7-716-191-107	7-716-191-117
Weathering slate (flat roof)	T-000-083-717	T-000-083-717
Brackets	T-000-082-130	T-000-082-131

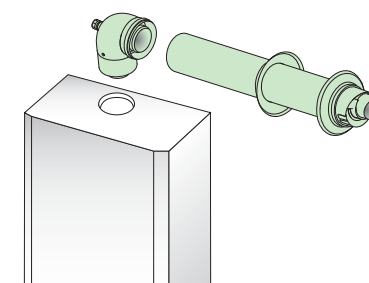
Option 3 – pitched roof 2



Description	60/100mm	80/125mm
Standard vertical flue kit	7-716-191-105	7-716-191-115
45° flue bend	7-716-191-110	7-716-191-120
(2 pieces in box)		
1000mm extension	7-716-191-108	7-716-191-118
500mm extension	7-716-191-107	7-716-191-117
Weathering slate (pitched roof)	T-000-087-909	T-000-087-909
Brackets	T-000-082-130	T-000-082-131

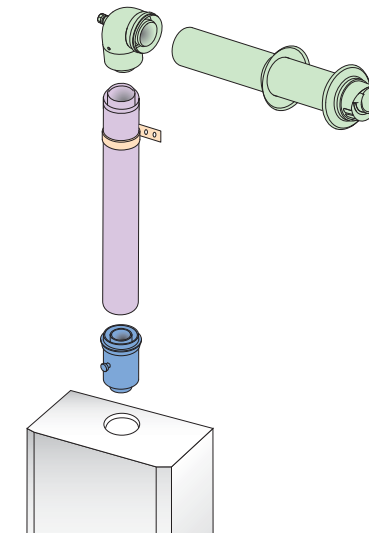
Horizontal fluing options

Option 1



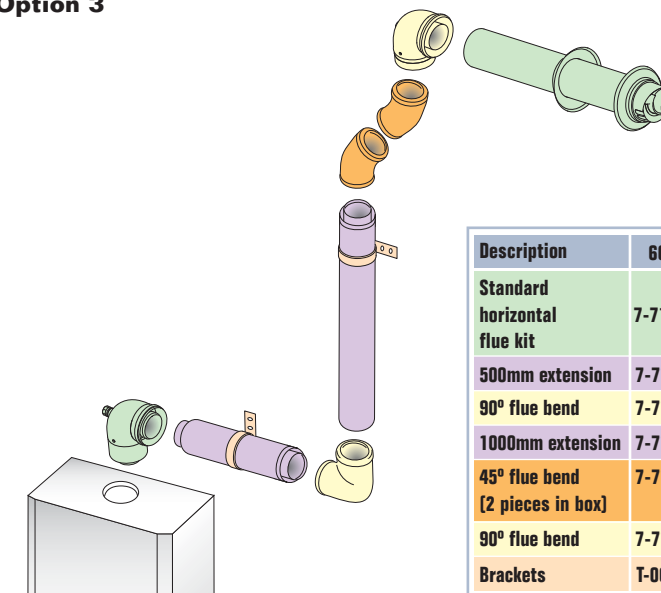
Description	60/100mm	80/125mm
Standard horizontal flue kit	7-716-191-106	7-716-191-116

Option 2



Description	60/100mm	80/125mm
Standard horizontal flue kit	7-716-191-106	7-716-191-116
1000mm extension	7-716-191-108	7-716-191-118
Vertical take off with flue gas sampling point	7-716-191-111	-
Brackets	T-000-082-130	T-000-082-131

Option 3



Description	60/100mm	80/125mm
Standard horizontal flue kit	7-716-191-106	7-716-191-116
500mm extension	7-716-191-107	7-716-191-117
90° flue bend	7-716-191-109	7-716-191-119
1000mm extension	7-716-191-108	7-716-191-118
45° flue bend (2 pieces in box)	7-716-191-110	7-716-191-120
90° flue bend	7-716-191-109	7-716-191-119
Brackets	T-000-082-130	T-000-082-131



Maximum flue lengths

Appliance	Maximum 60/100mm flue length	Maximum 80/125mm flue length
500 range	12m	35m#
600 range	7.5m	20m#
600-28C only	12m	20m
800 range	N/A	14m*
800-60kW only	N/A	9m*

#Order: Vertical takeoff with flue gas test point and 60/100mm to 80/125mm expander 7-716-191-111 and 7-716-191-121.

\* Order 800 series take off: 7-716-191-122.

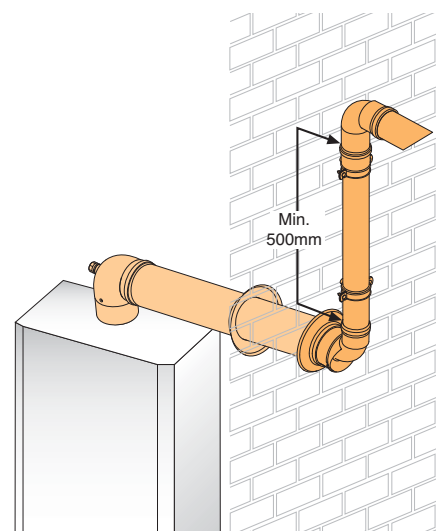
Deductions

Total flue length must be reduced by the distances shown in the table below when adding accessories to the flue system.

Description	Deduction		Outdoor Plume Parts
	60/100mm	80/125mm	
500mm extension	0.5m	0.5m	0.5m
1000mm extension	1.0m	1.0m	1.0m
90° flue bend	1.4m	1.6m	1.4m
45° flue bend	0.7m	0.9m	1.4m

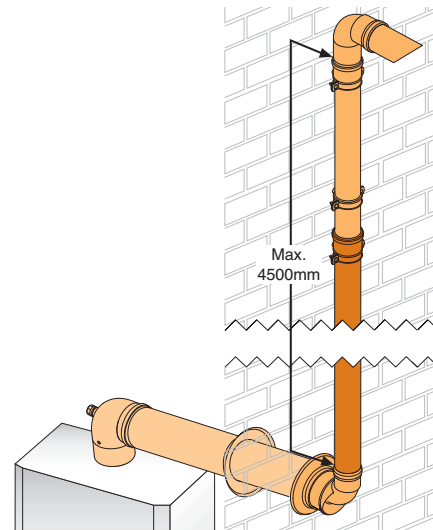
## Plume management options

### Option 1 – Plume management kit



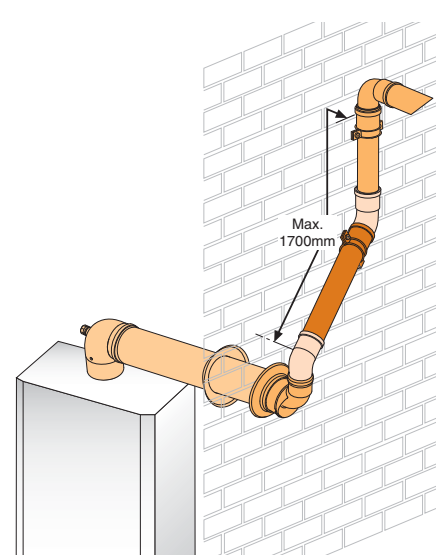
Description	Part number
Plume management kit	7-716-191-134

### Option 2 – Plume management kit + 1m extensions



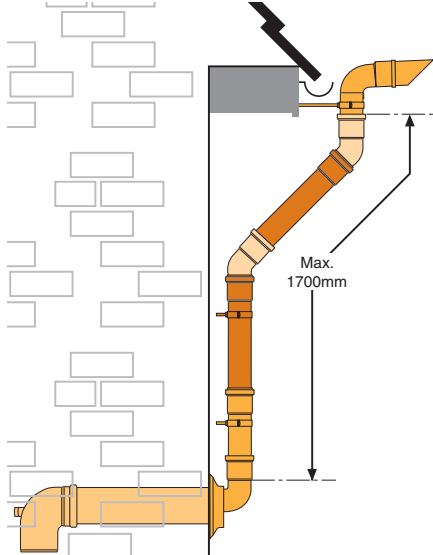
Description	Part number
Plume management kit	7-716-191-134
1000mm extension	7-716-191-136

### Option 3 – Plume management kit + 1m extension + 45° bends



Description	Part number
Plume management kit	7-716-191-134
1000mm extension	7-716-191-136
45° bend (2 pieces included)	7-716-191-139

### Option 4 – Plume management kit + 1m extensions + 45° bends



Description	Part number
Plume management kit	7-716-191-134
1000mm extension	7-716-191-136
45° bend (2 pieces included)	7-716-191-139
1000mm extension	7-716-191-136

### The plume management kit contains:

- 90° concentric takeoff bend
- 600mm air inlet with outdoor 90° bend
- 500mm outdoor extension
- 90° outdoor bend
- Flue outlet and grill
- 2 external brackets
- White rubberised wall seal
- Black rubberised wall seal.

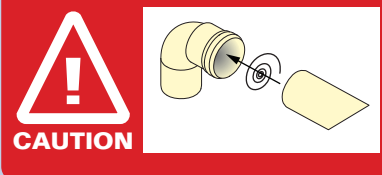
**A horizontal flue kit is not required to install the Buderus plume management kit.**

### Plume management installation

- Minimum actual length of outdoor plume management section = 500mm e.g. Option 1
- Maximum actual length of outdoor plume management section = 4500mm e.g. Option 2
- **DO NOT** rotate the air intake of the plume management kit to create an incline, as this will rotate the rain guard. Instead use a 45° bend 7-716-191-139 (supplied in pairs) as per option 3.

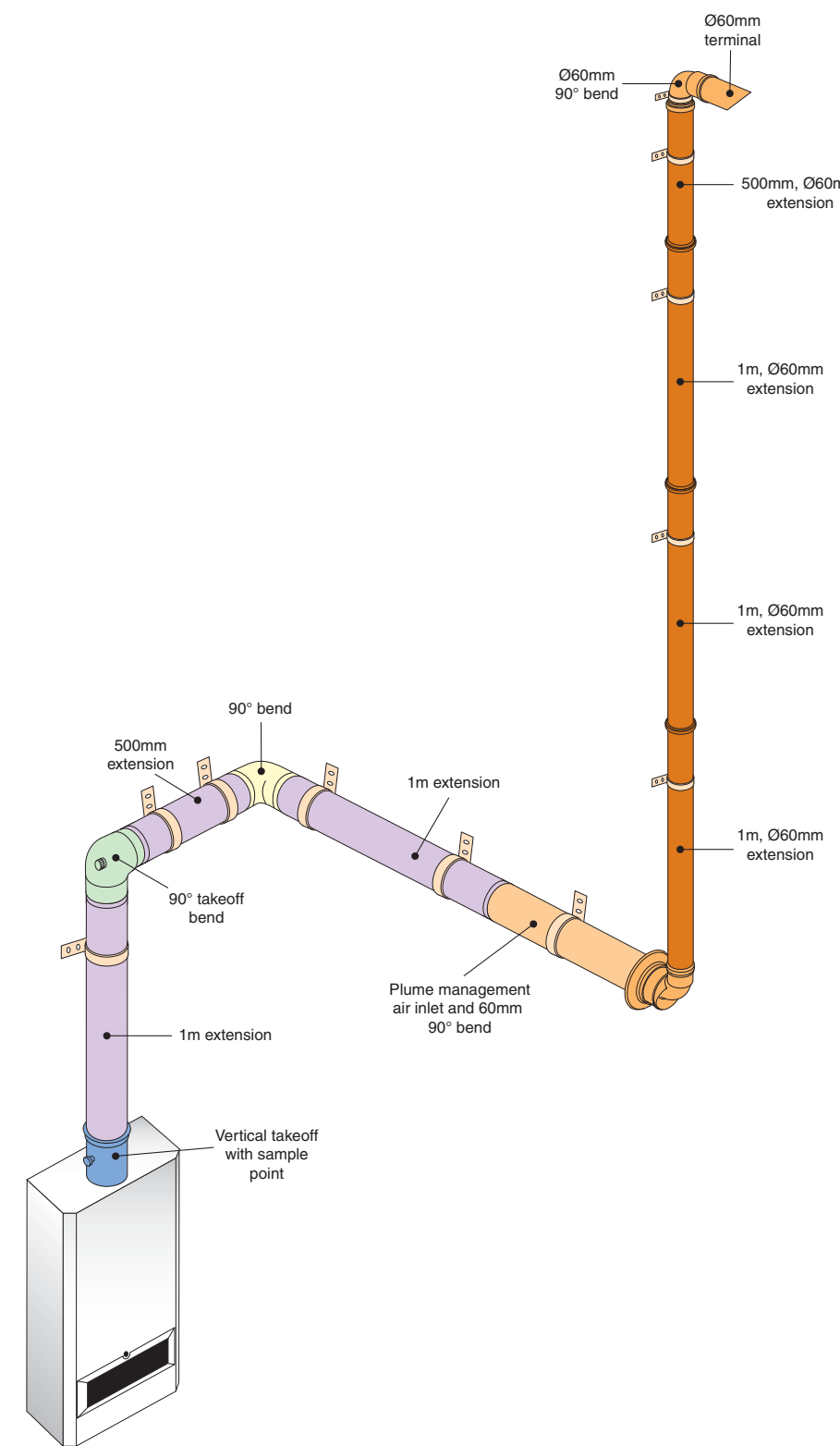


**Remember to install grill**



## Calculation example

The combination of the internal concentric flue and outdoor plume management section should not exceed the maximum equivalent flue length for the appliance.



### Example:

#### 500-28C installed on an inside wall.

- 1) Standard horizontal flue would cause a plumbing nuisance, therefore use plume management kit (page 4 & 5).
- 2) Choose which plume management kit is suitable using matrix (page 7).
- 3) Maximum equivalent flue length for 500 range boiler using 60/100mm flue = 12m (page 9).
- 4) Max length of plume management extensions when using no additional bends 4500mm (option 2 page 10).
- 5) Deductions

Vertical takeoff	0.2m
1m extension	1m
90° takeoff bend	1.4m
500mm extension	0.5m
90° bend	1.4m
1m extension	1m
Plume management air inlet and 60mm 90° bend	1.4m
1m extension	1m
1m extension	1m
1m extension	1m
500mm extension	0.5m
60mm 90° bend	1.4m
<b>Total deductions</b>	<b>11.8m</b>

Total deductions are smaller than the maximum equivalent flue length for the appliance, therefore this flue is O.K.

Total Deductions	Less than or equal to	Maximum Equivalent flue length for 500-28C
11.8m	<	12m

## Accessories

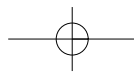
Standard Horizontal Flue Kit	Standard Vertical Flue Kit	Standard Plume Management Kit													
<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-106</td><td>7-716-191-116</td></tr></table>	60/100mm	80/125mm	7-716-191-106	7-716-191-116	<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-105</td><td>7-716-191-115</td></tr></table>	60/100mm	80/125mm	7-716-191-105	7-716-191-115	<table border="1"><tr><th>60/100mm</th></tr><tr><td>7-716-191-134</td></tr></table>	60/100mm	7-716-191-134			
60/100mm	80/125mm														
7-716-191-106	7-716-191-116														
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60/100mm															
7-716-191-134															
600-28C Horizontal Flue Kit	600-28C Vertical Flue Kit	600-28C Plume Management Kit													
<table border="1"><tr><td>7-716-191-112</td></tr></table>	7-716-191-112	<table border="1"><tr><td>7-716-191-113</td></tr></table>	7-716-191-113	<table border="1"><tr><td>7-716-191-135</td></tr></table>	7-716-191-135										
7-716-191-112															
7-716-191-113															
7-716-191-135															
Plume Deflector	1000mm Extension	500mm Extension													
<table border="1"><tr><th>60/100mm</th></tr><tr><td>7-716-191-140</td></tr></table>	60/100mm	7-716-191-140	<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-108</td><td>7-716-191-118</td></tr></table>	60/100mm	80/125mm	7-716-191-108	7-716-191-118	<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-107</td><td>7-716-191-117</td></tr></table>	60/100mm	80/125mm	7-716-191-107	7-716-191-117			
60/100mm															
7-716-191-140															
60/100mm	80/125mm														
7-716-191-108	7-716-191-118														
60/100mm	80/125mm														
7-716-191-107	7-716-191-117														
90° Flue Bend	45° Flue Bend (2 pieces)	Vertical take off with flue gas test point	800 range takeoff with flue gas test point												
<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-109</td><td>7-716-191-119</td></tr></table>	60/100mm	80/125mm	7-716-191-109	7-716-191-119	<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>7-716-191-110</td><td>7-716-191-120</td></tr></table>	60/100mm	80/125mm	7-716-191-110	7-716-191-120	<table border="1"><tr><th>60/100mm</th></tr><tr><td>7-716-191-111</td></tr></table>	60/100mm	7-716-191-111	<table border="1"><tr><th>80/125mm</th></tr><tr><td>7-716-191-122</td></tr></table>	80/125mm	7-716-191-122
60/100mm	80/125mm														
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7-716-191-111															
80/125mm															
7-716-191-122															

Speed clamps are included where necessary in 80/125mm accessories providing a durable seal at each joint.

## Accessories

Vertical Expander	Reducer													
<table border="1"><tr><th>60/100mm to 80/125mm</th></tr><tr><td>7-716-191-121</td></tr></table>	60/100mm to 80/125mm	7-716-191-121	<table border="1"><tr><th>80/125mm to 60/100mm</th></tr><tr><td>7-716-191-141</td></tr></table>	80/125mm to 60/100mm	7-716-191-141									
60/100mm to 80/125mm														
7-716-191-121														
80/125mm to 60/100mm														
7-716-191-141														
Brackets (3 pieces)	Weathering Slate (flat roof)	Weathering Slate (pitched roof)												
<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td>T-000-082-130</td><td>T-000-082-131</td></tr></table>	60/100mm	80/125mm	T-000-082-130	T-000-082-131	<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td colspan="2">T-000-083-717</td></tr></table>	60/100mm	80/125mm	T-000-083-717		<table border="1"><tr><th>60/100mm</th><th>80/125mm</th></tr><tr><td colspan="2">T-000-087-909</td></tr></table>	60/100mm	80/125mm	T-000-087-909	
60/100mm	80/125mm													
T-000-082-130	T-000-082-131													
60/100mm	80/125mm													
T-000-083-717														
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T-000-087-909														
Plume Management 1000mm Extension	Plume Management 90° bend	Plume Management 45° bends (2 pieces)												
<table border="1"><tr><td>7-716-191-136</td></tr></table>	7-716-191-136	<table border="1"><tr><td>7-716-191-138</td></tr></table>	7-716-191-138	<table border="1"><tr><td>7-716-191-139</td></tr></table>	7-716-191-139									
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