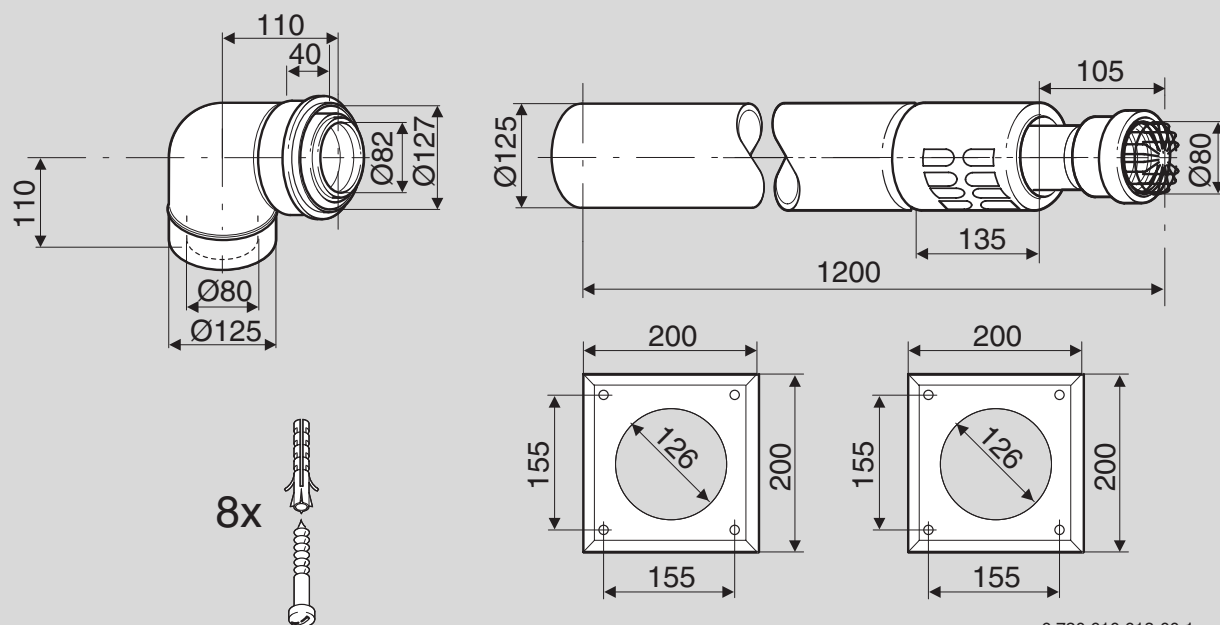


# AZB 806/1

Horizontal Flue Gas Ducting

Ø 80/125 mm

7 719 002 071



6 720 610 613-00.1o

**for Gas Condensing Boilers:**

**ZWB 7-29 CC1**

**ZB 7-28 CS1**

**ZSBR 7-28 ICS1**

**ZWBR 8-30 ICC2**

**ZBR 8-35 ICS1**

**ZWBR 11-37 ICC2**

**ZWB 7-27 HE combi**

**ZB 7-27 HE system**

**ZWBR 7-28 HE plus**

**ZWBR 11-35 HE plus**



## Contents

<b>Safety instructions</b>	<b>3</b>
<b>Symbols</b>	<b>3</b>
<b>1 Use</b>	<b>4</b>
1.1 General	4
1.2 Gas condensing boilers	4
1.3 Combination with flue duct kits	4
1.4 Standard specifications	5
<b>2 Flue pipe lengths</b>	<b>6</b>
2.1 General	6
2.2 Equivalent pipe length	6
<b>3 Minimum Fitting space requirements for gas condensing boiler</b>	<b>7</b>
<b>4 Examples of installation for outside wall (C<sub>13x</sub>)</b>	<b>8</b>
4.1 Straight flue duct	8
4.2 Flue ducting with two 45°-elbows	10
4.3 Flue ducting with one 90°-elbow	11
4.4 Straight flue ducting with two 90°-elbows	12
4.5 Flue ducting with more than two elbows	13
<b>5 Mounting</b>	<b>14</b>
5.1 Notes on fitting	14
5.2 Room-sealed air/flue ducting with exit through outside wall	14

## Safety instructions

Proper functioning of this product is only guaranteed if these installation instructions are correctly followed. Subject to alteration. Installation must be carried out by an approved installer. Installation of the boiler must be carried out in accordance with the appropriate installation instructions.

### If you smell fumes from the appliance

- ▶ Switch off appliance.
- ▶ Open windows and doors.
- ▶ Inform your heating engineer.

### Fitting and modifications

- ▶ Fitting of the appliance or any controls to the appliance may only be carried out by a competent engineer in accordance with the Gas Safety (Installation and Use) Regulations 1998.
- ▶ Flue systems must not be modified in any ways other than as described in the fitting instructions.

## Symbols



**Notes** are identified by the symbol shown on the left. They are bordered by horizontal lines above and below the text.

# 1 Use

## 1.1 General

The installation of a gas condensing boiler must be in accordance with the relevant British Standard, the relevant Building Regulations and any local rules.

The surface temperature of the fresh air duct is below 85°C. Therefore no minimum distances to combustible building materials are necessary. The regulations can deviate, however, and might prescribe minimum distances to combustible materials.

### Flue ducting to C<sub>13x</sub>:

The flue gas accessory is part of CE approval when discharging flue gas according to C<sub>13x</sub>. For this reason, only the original flue gas accessories may be used.

## 1.2 Gas condensing boilers

The AZB 806/1 can be used in conjunction with the following gas condensing boilers:

Gas condensing boilers	Prod.-ID-No.
ZWB 7-29 CC1	CE 0085 BL 0507
ZB 7-28 CS1	
ZSBR 7-28 ICS1	
ZWBR 8-30 ICC2	
ZBR 8-35 ICS1	
ZWBR 11-37 ICC2	
ZWB 7-27 HE combi	
ZB 7-27 HE system	
ZWBR 7-28 HE plus	
ZWBR 11-35 HE plus	

Table 1

## 1.3 Combination with flue duct kits

The AZB 806/1 can be combined with the following flue duct kits:

Flue duct kits
AZB 807, elbow 90°
AZB 808, extension 990 mm
AZB 814, elbow 45°

Table 2

## 1.4 Standard specifications

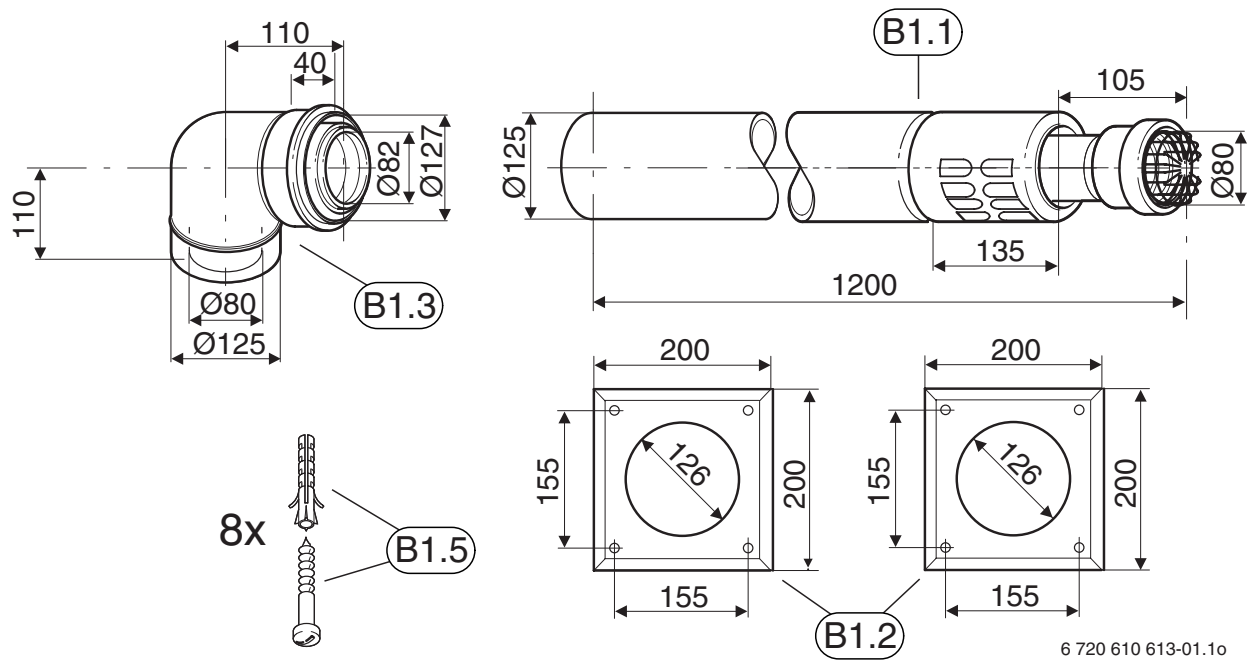


Fig. 1

- B1.1:** Flue terminal assembly
- B1.2:** Cover plates
- B1.3:** Flue turret
- B1.5:** Screws and wall plugs

## 2 Flue pipe lengths

### 2.1 General

The sum of the straight vertical and horizontal pipe lengths ( $L_{\text{vert}}$ ,  $L_{\text{horiz}}$ ) and the equivalent lengths of the elbows makes the equivalent length of the flue ducting,  $L_e$ . This equivalent pipe length must be less than the maximum equivalent pipe length.

### 2.2 Equivalent pipe length

The equivalent pipe length,  $L_e$ , is calculated from the sum of the straight lengths of the flue ducting ( $L_{\text{horiz}}$ ) and the equivalent lengths of the elbows. The flue turret (on gas condensing boiler) is included in the maximum lengths. The equivalent length of every additional elbow must be included.

The overall equivalent pipe length must be less than the maximum equivalent pipe length:  $L_e \leq L_{e,\text{max}}$ .

For horizontal flue ducting to  $C_{13x}$  the following equivalent lengths apply:



Horizontal flue ducting to $C_{13x}$	$L_{e,\text{max}}$ [m]	Equivalent lengths of additional elbows	
		 [m]	 [m]
<b>Boiler</b>			
ZWB 7-29 CC1 ZB 7-28 CS1 ZSBR 7-28 ICS1 ZWB 7-27 HE combi ZB 7-27 HE system ZWBR 7-28 HE plus ZWBR 8-30 ICC2 ZBR 8-35 ICS1	13	2	1
ZWBR 11-37 ICC2 ZWBR 11-35 HE plus	10		

Table 3 Pipe lengths for  $C_{33x}$

$L_{e,\text{max}}$ : maximum equivalent pipe length

### Example: ZWB 7-29 CC1

For a horizontal flue system with a length of 5 m and two 45°-elbows, the equivalent pipe length is calculated as follows:

	Length/ Number		Sectional equivalent length		Total
<b>Straight length <math>L_{\text{horiz}}</math></b>	5 m	x	1	=	5 m
<b>Elbow 90°</b>	0	x	2 m	=	0 m
<b>Elbow 45°</b>	2	x	1 m	=	2 m
Equivalent pipe length $L_e$					7 m
Maximum equivalent length $L_{e,\text{max}}$					13 m
$L_e \leq L_{e,\text{max}}$					o.k.

Table 4

At 7 m, the equivalent pipe length is shorter than the maximum equivalent overall length of 13 m. This flue system is therefore acceptable.

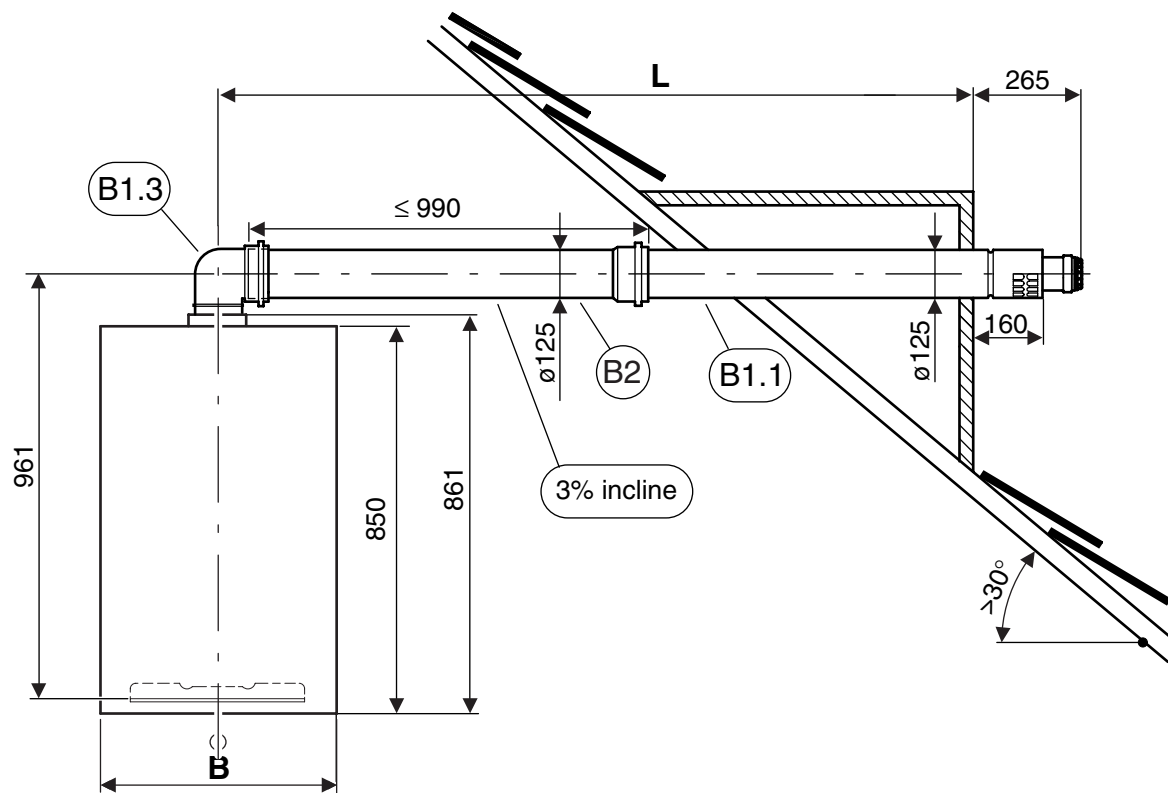


## 4 Examples of installation for outside wall (C<sub>13x</sub>)

### 4.1 Straight flue duct (Fig. 3, Fig. 4, Fig. 5)

	B	C	L	
			without extension	with extension
ZWB 7-29 CC1 ZB 7-28 CS1 ZWB 7-27 HE combi ZB 7-27 HE system	440 mm	≥ 5 mm	≤ 995 mm	≤ 13 m
ZSBR 7-28 ICS1 ZWBR 7-28 HE plus ZWBR 8-30 ICC2 ZBR 8-35 ICS1	512 mm	≥ 100 mm		≤ 13 m
ZWBR 11-37 ICC2 ZWBR 11-35 HE plus				≤ 10 m

Table 7



6 720 610 613-03.1a

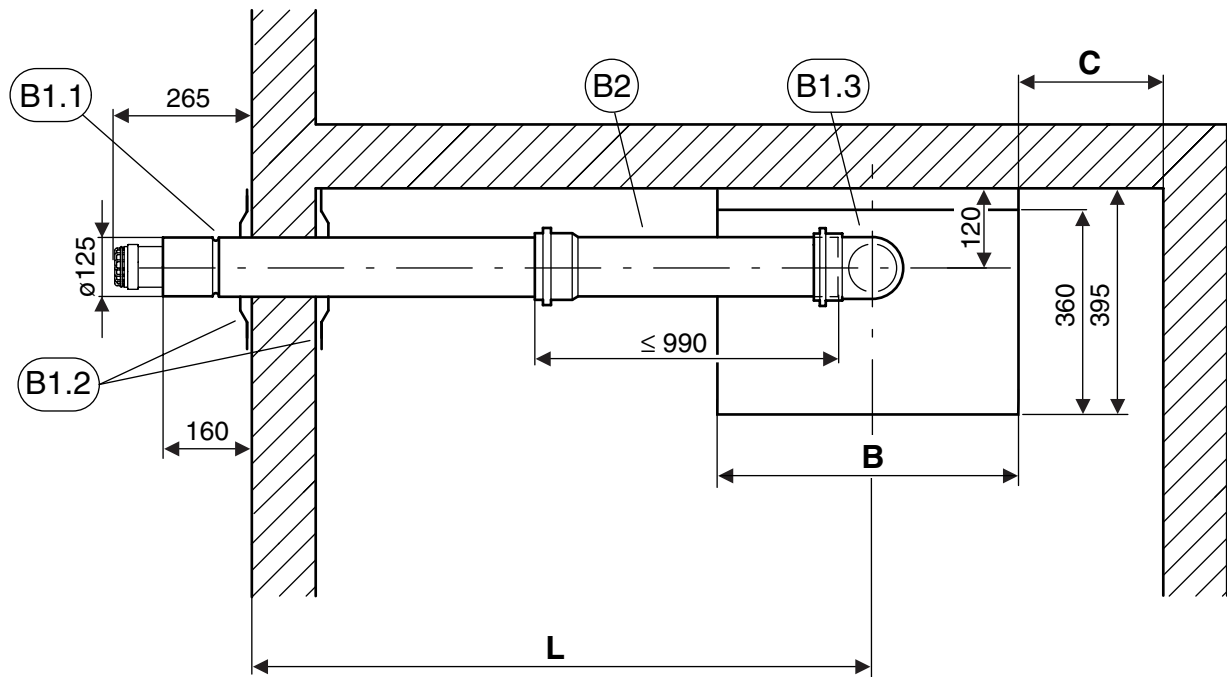
Fig. 3

Key to Fig. 3, Fig. 4 and Fig. 5:

B1: AZB 806/1

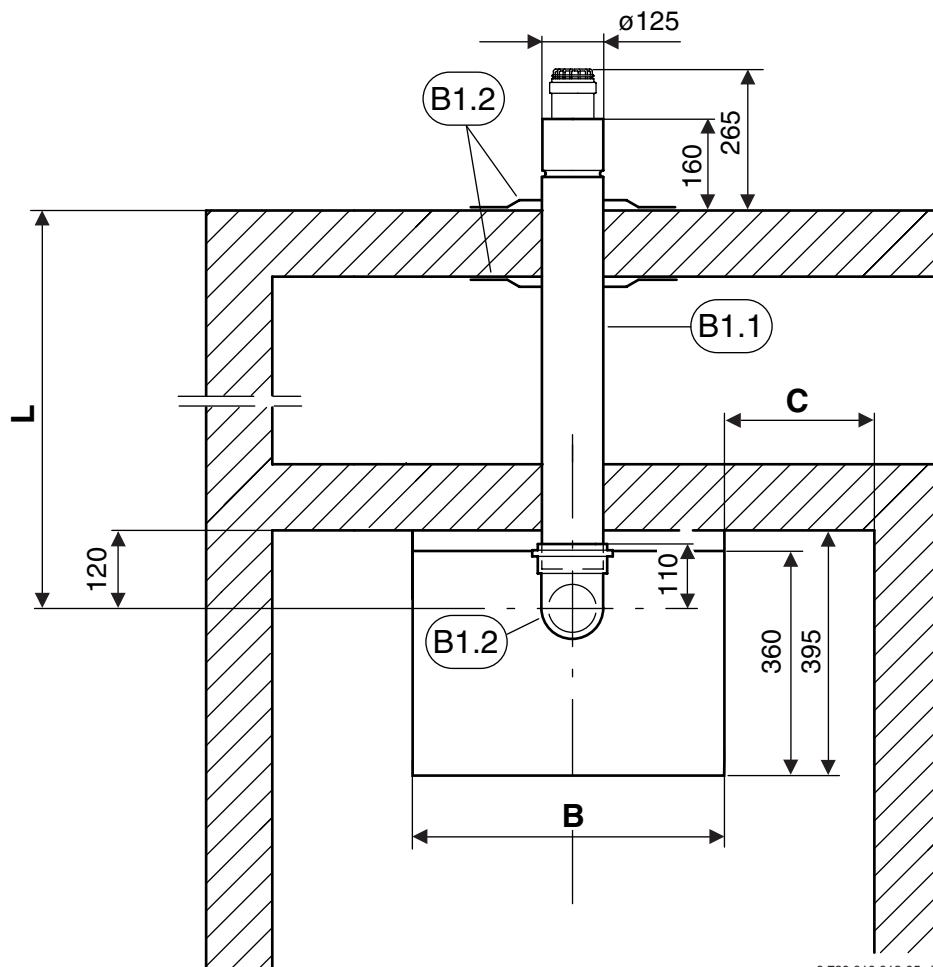
B2: AZB 808





6 720 610 613-04.1o

Fig. 4



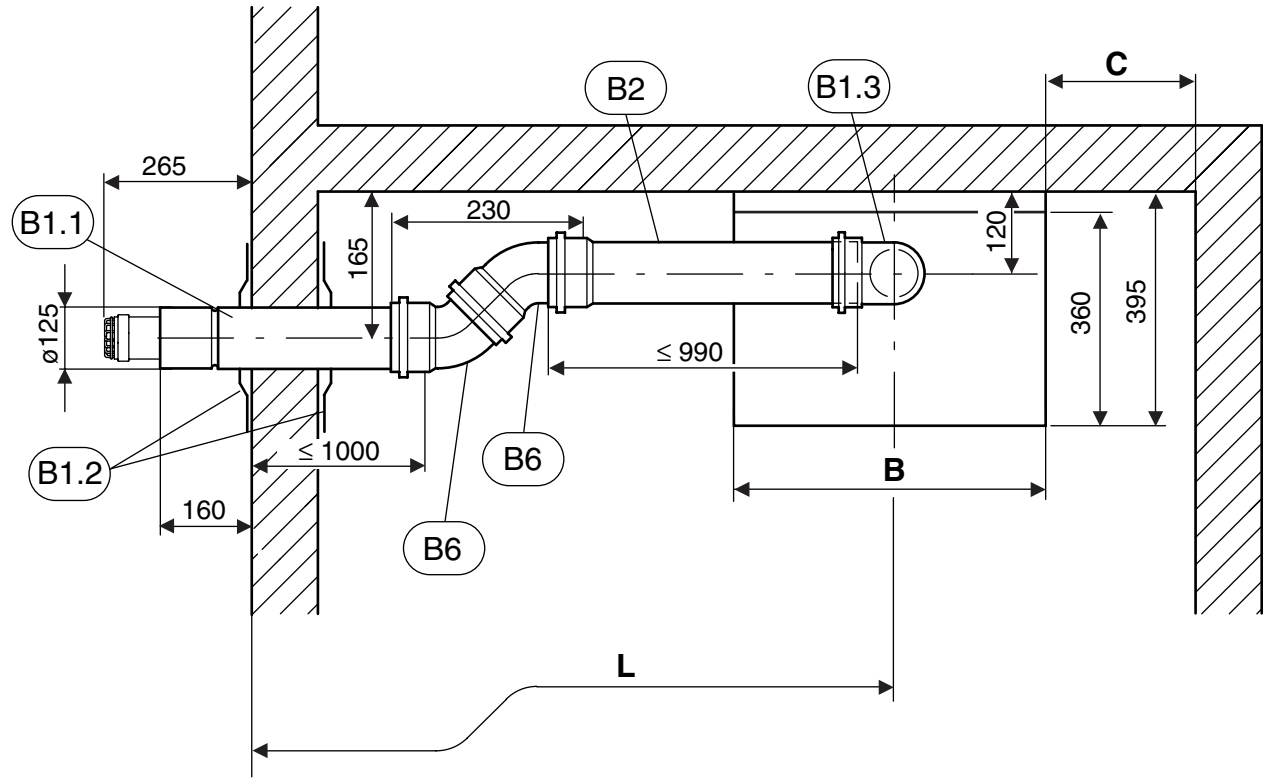
6 720 610 613-05 .1o

Fig. 5

4.2 Flue ducting with two 45°-elbows

	B	C	L	
			without extension	with extension
ZWB 7-29 CC1 ZB 7-28 CS1 ZWB 7-27 HE combi ZB 7-27 HE system	440 mm	≥ 5 mm	≤ 1150 mm	≤ 11 m
ZSBR 7-28 ICS1 ZWBR 7-28 HE plus ZWBR 8-30 ICC2 ZBR 8-35 ICS1	512 mm	≥ 100 mm		≤ 11 m
ZWBR 11-37 ICC2 ZWBR 11-35 HE plus				≤ 8 m

Table 8



6 720 610 613-06.1o

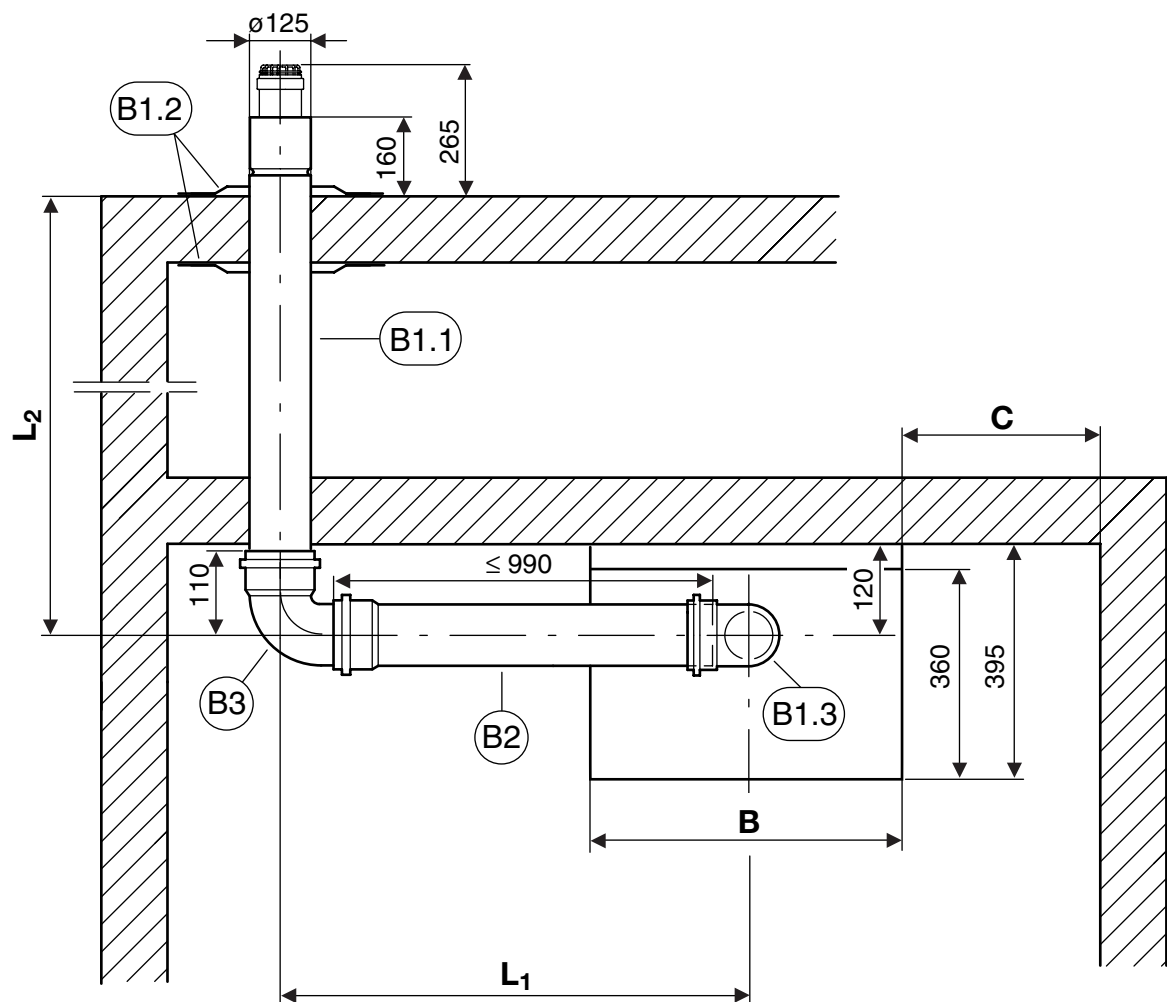
Fig. 6

- B1: AZB 806/1  
B2: AZB 808  
B6: AZB 814

### 4.3 Flue ducting with one 90°-elbow

	B	C	L		$L = L_1 + L_2$
			without extension	with extension	
ZWB 7-29 CC1 ZB 7-28 CS1 ZWB 7-27 HE combi ZB 7-27 HE system	440 mm	$\geq 5$ mm	170 mm	$\geq 290$ mm	$\leq 11$ m
ZSBR 7-28 ICS1 ZWBR 7-28 HE plus ZWBR 8-30 ICC2 ZBR 8-35 ICS1	512 mm	$\geq 100$ mm			$\leq 11$ m
ZWBR 11-37 ICC2 ZWBR 11-35 HE plus					$\leq 8$ m

Table 9



6 720 610 613-07.1a

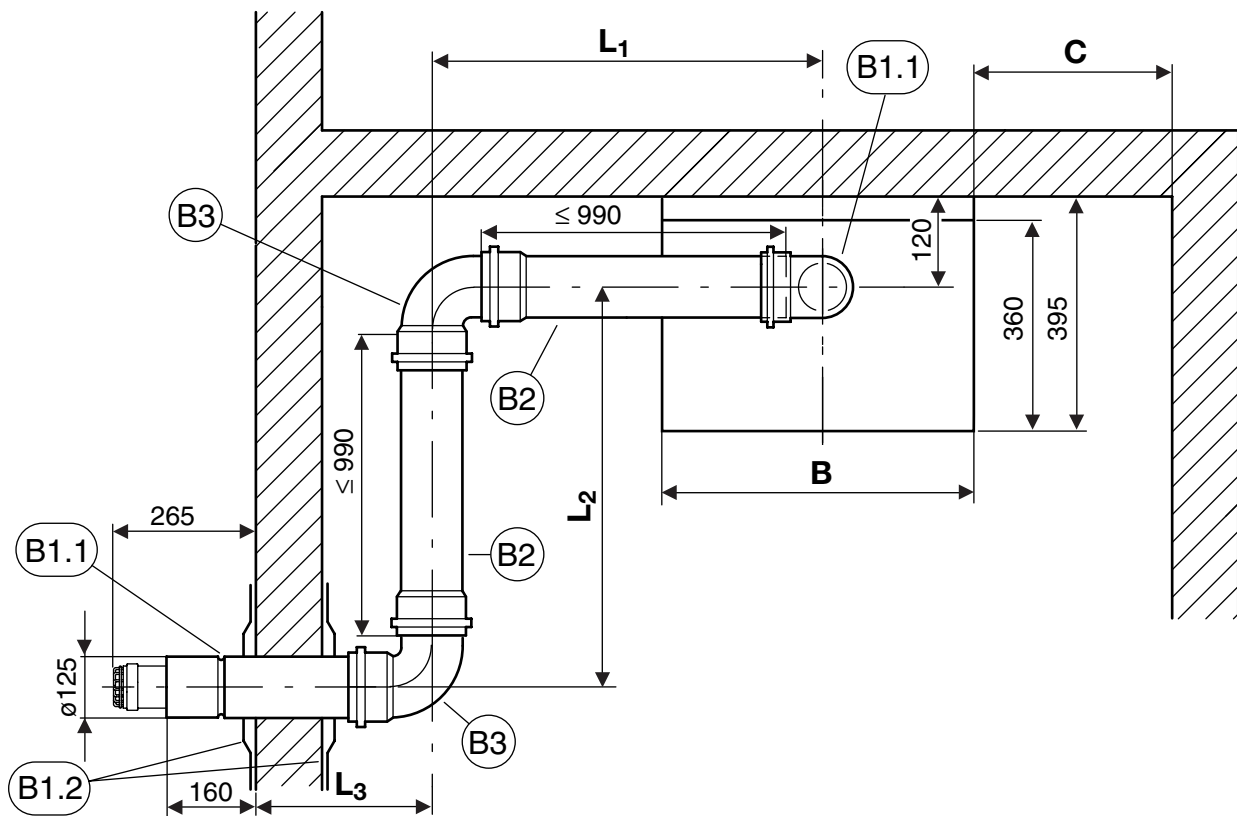
Fig. 7

- B1: AZB 806/1  
 B2: AZB 808  
 B3: AZB 807

#### 4.4 Straight flue ducting with two 90°-elbows

	B	C	$L_1, L_2$		$L = L_1 + L_2 + L_3$
			without extension	with extension	
<b>ZWB 7-29 CC1</b> <b>ZB 7-28 CS1</b> <b>ZWB 7-27 HE combi</b> <b>ZB 7-27 HE system</b>	440 mm	$\geq 5$ mm	170 mm	$\geq 290$ mm	$\leq 9$ m
<b>ZSBR 7-28 ICS1</b> <b>ZWBR 7-28 HE plus</b> <b>ZWBR 8-30 ICC2</b> <b>ZBR 8-35 ICS1</b>	512 mm	$\geq 100$ mm			$\leq 9$ m
<b>ZWBR 11-37 ICC2</b> <b>ZWBR 11-35 HE plus</b>					$\leq 6$ m

Table 10



6 720 610 613-08.1a

Fig. 8

B1: AZB 806/1

B2: AZB 808

B3: AZB 807

## 4.5 Flue ducting with more than two elbows

The calculations for checking the flue duct situation are performed according to the rules explained in section 2.

### Example: ZWB 7-29 CC1

For a horizontal flue system with a length of 4 m, four 45°-elbows and two 90°-elbows, the equivalent pipe length is calculated as follows:

	Length/ Number		Sectional equivalent length		Total
<b>Straight length <math>L_{\text{horiz}}</math></b>	4 m	x	1	=	4 m
<b>Elbow 90°</b>	2	x	2 m	=	4 m
<b>Elbow 45°</b>	4	x	1 m	=	4 m
Equivalent pipe length $L_e$					12 m
Maximum equivalent length $L_{e,\text{max}}$					13 m
$L_e \leq L_{e,\text{max}}$					o.k.

Table 11

At 12 m, the equivalent pipe length is shorter than the maximum equivalent overall length of 13 m. This flue system is therefore acceptable.

### Example: ZWBR 11-35 HE plus

For a horizontal flue system with a length of 4 m, two 45°-elbows and two 90°-elbows, the equivalent pipe length is calculated as follows:

	Length/ Number		Sectional equivalent length		Total
<b>Straight length <math>L_{\text{horiz}}</math></b>	4 m	x	1	=	4 m
<b>Elbow 90°</b>	2	x	2 m	=	4 m
<b>Elbow 45°</b>	2	x	1 m	=	2 m
Equivalent pipe length $L_e$					10 m
Maximum equivalent length $L_{e,\text{max}}$					10 m
$L_e \leq L_{e,\text{max}}$					o.k.

Table 12

At 10 m, the equivalent pipe length is equal the maximum equivalent overall length of 10 m. This flue system is therefore acceptable (borderline case).

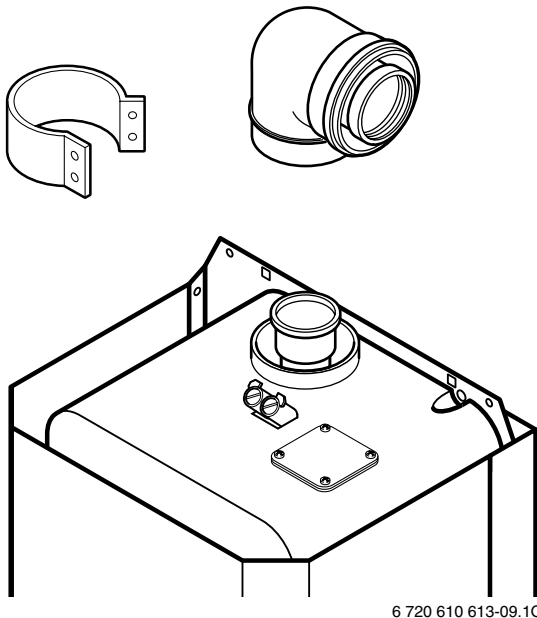
## 5 Mounting

### 5.1 Notes on fitting

- The horizontal flue duct (AZB 806/1) can be extended at any point between the heat exchanger and the flue terminal assembly (B1.1) using the flue duct kits AZB 807, 808 or 814.
- The maximum permissible flue/air duct length depends on the type of gas condensing boiler and the number of elbows in the air/flue pipe. For details of how to calculate it, refer to section 2, page 6 onwards.
- Every additional horizontal extension AZB 808 must be supported by a bracket with rubber band.
- The horizontal air/flue duct should be fitted with an upward incline of 3% (3 cm per metre) in the direction of flow of the flue gases.
- In damp rooms, the air pipe should be insulated.

### 5.2 Room-sealed air/flue ducting with exit through outside wall

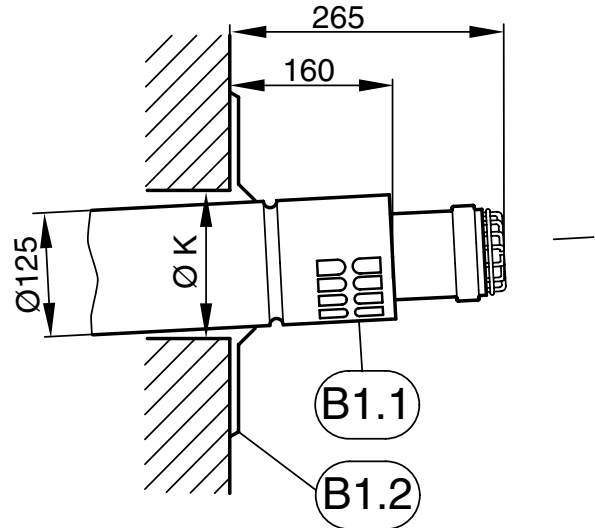
- ▶ Apply a thin layer of solvent-free grease (e.g. Vaseline) to the seals on the joints.
- ▶ Fit flue turret (B1.3) onto flue socket on boiler and push fully home, twisting the elbow slightly at the same time.
- ▶ Secure the flue turret with the bracket supplied.



6 720 610 613-09.10

Fig. 9

- ▶ Calculate length of the flue terminal assembly (B1.1) taking account of the distance from the outside wall to the end of the flue pipe.



6 720 610 488-14.10

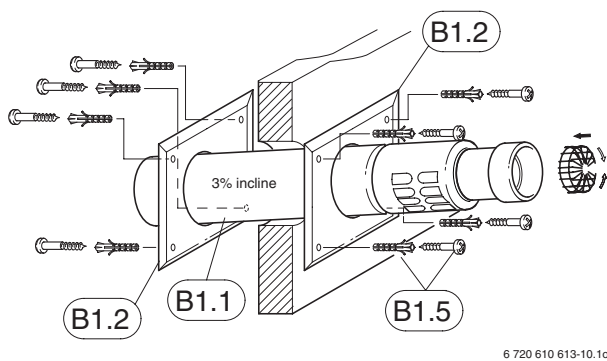
Fig. 10

- ▶ Smooth off rough edges of cut end.
- ▶ Calculate the required diameter of the hole in the wall according to the wall thickness (see minimum fitting space requirements, page 7 onwards).
- ▶ Make the hole in the wall remembering to allow for the required 3% incline of the air/flue pipe.
- ▶ Fit interior cover plate (B1.2) to the flue terminal assembly (B1.1).



If the flue/air ducting from a wall-mounted boiler has no forward offset, the cover plate (B1.2) will have to be trimmed.

- ▶ Pass flue terminal assembly (B1.1) through the hole in the wall and push into the end of the flue turret, twisting the pipe slightly as you do so.  
**The air-intake slots on the flue terminal must face downwards.**
- ▶ Fit the external cover plate (B1.2) onto the flue terminal assembly (B1.1).
- ▶ Mark and drill fixing holes for the two cover plates (B1.2).
- ▶ Fix cover plates using screws and wall plugs (B1.5).
- ▶ Fit protective grille into end of flue terminal (B1.1), compressing it slightly.



6 720 610 613-10.1a

Fig. 11



Worcester Heat Systems Ltd.  
Cotswold Way  
Warndon  
Worcester WR4 9SW  
Great Britain

[www.thermotechnik.com](http://www.thermotechnik.com)