



INSTALLATION & USER MANUAL

POWERVERNT



Rev #032423

PLEASE LEAVE THIS MANUAL WITH THE FIREPLACE FOR FUTURE REFERENCE



www.europeanhome.com

PREFACE

Congratulations on the purchase of your Element 4 Powervent. The Powervent is designed to safely discharge vent gases.

The Powervent makes it possible to use long horizontal stretches and even down-flow configurations.

Read this manual carefully and instruct your customer about the operation and maintenance/inspection of the Powervent. Leave this manual with the device for future references.

The Powervent may only be installed by a qualified installer / dealer in accordance with the applicable guidelines at the time of installation.

DECLARATION

Hereby we declare that the product released by Element4 meets the essential requirements due to its design and construction.

Product

Vent gas fan

Type

Powervent

Applicable EC directives and specifications

BSEN 613: 2001 + A1: 2008

ANSI Z21.50 Edition: 2014/02/01 ED: 7; Err. 2015

CSA 2.22 Edition: 2014/02/01

CSA P.4.1: 2015 Ed.3

In connection with the ETL inspection, the Powervent should only be sold as a set and not as individual parts.

This declaration loses its validity when changes to the device are made without written permission of Element4. You can request a copy of the test certificate via info@element4.nl.



Jan Kempers
CEO

EUROPEAN HOME WARRANTY POWERVERNT

European Home warrants this product against defects in materials and workmanship for a period of TWO (2) YEARS from the date of original retail purchase.

If a defect exists, European Home will, at its option, either

1. Provide needed components using new or refurbished replacement parts or
2. Exchange the product with one which is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product.

A replacement product/part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes the property of European Home. All warranty claims must be submitted through the dealer from which you purchased the product. Check with your dealer in advance for any costs to you when arranging a warranty call. Shipping and/or delivery charges for parts are not covered by this warranty.

Nothing in the above shall be deemed to imply that this warranty shall apply to work which has been abused or neglected or shows evidence of changes or modifications by others with or without permit, damages caused by the acts of God, building settlement or moving, fire or vandalism. In addition, installation of this product that varies from the requirements stated in the instruction manual will void the warranty.

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1 INSTALLATION

1.1 Delivery check

Note: Check the Powervent for transport damage before first use and report any damage to your supplier immediately.

Make sure the following parts are included:

- Powervent
- Powervent module
- Powervent module connection cables
- 120 volt connection cable
- Adapter / splitter
- Installation manual

1.2 Installation Points

Note: The Powervent must be accessible at all times for service and inspection. It should be mentioned here that the regular service hatch of Element 4 (BDLE4) is not sufficient for the size of the Powervent. The installer must make a provision for this themselves. **Figure 1.1.**

It is recommended that the Powervent be placed in a room that is large enough for the Powervent to be removed

Avoid extreme, wind-sensitive positions for the vent termination, since this can lead to unexpected shutdowns of the system (See also **CHAPTER 2**).

NB: A minimum distance of 7 feet / two meters from the fireplace is required to prevent the fan from malfunctioning.

The Powervent does not require any additional maintenance, but an annual inspection is recommended. Provide the installation with removable connections on the Powervent. This facilitates the disassembly of the motor or circuit board.

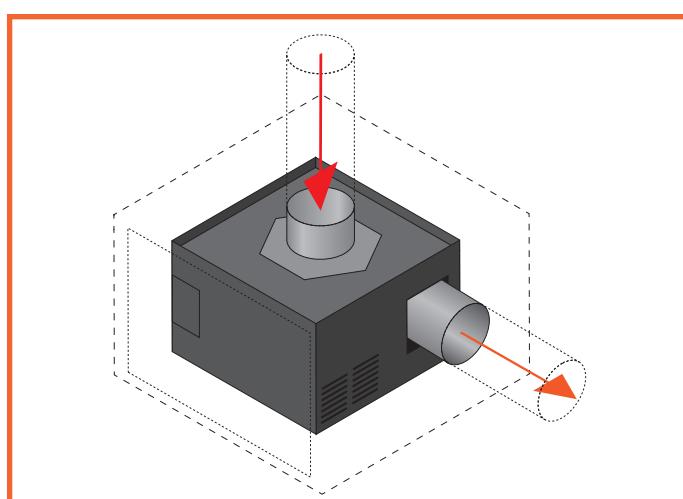


Figure 1.1 - Service area around the Powervent

1.3 Assembly

The Powervent has three mounting brackets. For the Powervent to function properly, it makes no difference how the outlet is positioned (**Figure 1.2**).

Make sure the Powervent brackets are not tightened too tightly to prevent resonance of the casing, for unnecessary noise.

Note: Preferably use rubber vibration dampers (not supplied by Element4) between the Powervent and the wall to prevent resonance.

The inside of the fan is equipped with rubber suspension for more flexibility.

1.3.1 Mounting Powervent Module

The module ensures that communication can occur between the fireplace and Powervent. The cable required for this is supplied with the Powervent. See **Figure 1.3**.

When the Powervent is not connected to the receiver of the fireplace, it will function as a regular fan when connected to the socket. It is therefore important to check that the Powervent is correctly connected. When the fire is off, the fan must also be off.

1.3.2 Assembly of venting

Ensure that all connections of the individual vent parts are closed. Leakage will adversely affect the operation of the Powervent and cause the fire to switch off.

Note: Element4 cannot be held liable for leaks of venting poured into concrete or buried venting.

1.3.3 Power connection

The Powervent is equipped with a service plug. For the power supply, a 120VAC - 60Hz wall socket must be mounted within a range of 3'3" / 1 meter from the Powervent.

1.3.4 Powervent cable

The cable must not come into contact with the venting. The standard length is 65'7.5"/20 meters, this can be replaced by a longer cable.

1.4 Venting material

The Powervent can be connected with the following brands of venting.

Concentric

5"/8" (120/200mm) round metal concentric vent pipe by the following manufacturers:

- Duravent
- Selkirk
- ICC Industrial Chimney
- Hart & Cooley Inc.
- Olympia Chimney Supply Inc.

Single walled or B Vent

Between splitter and Powervent, 4" (100mm) round metal single wall or B vent flue pipe (either flexible or ridgid) is acceptable.

Note: Different manufacturers will have different distances to combustible material, review those manuals before installing.

The following manufacturers:

- Duravent
- Selkirk
- ICC Industrial Chimney
- Hart & Cooley Inc.
- Olympia Chimney Supply Inc.

Ensure that the vent materials meet the requirements for the conditions of use in this manual.

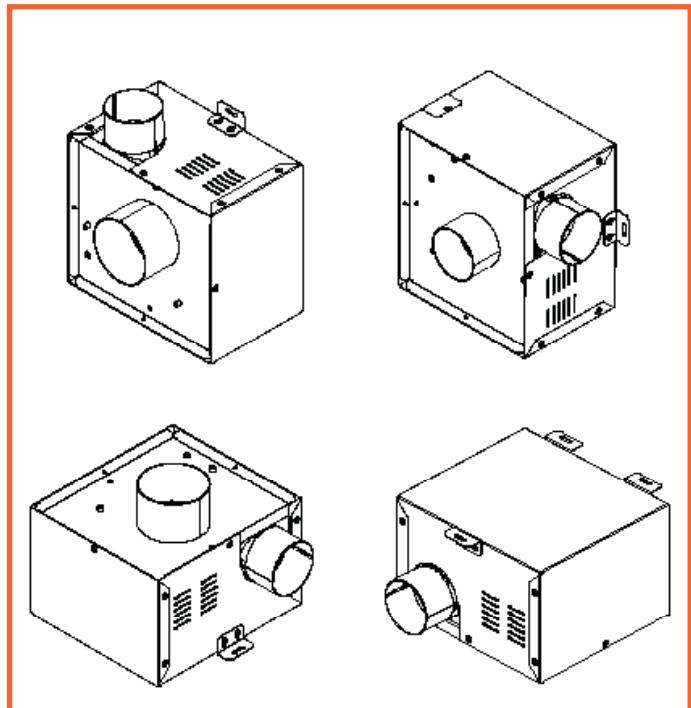


Figure 1.2 - Mounting possibilities PV

Single walled

Between Powervent and termination

A PelletVent Pro Ravelli Adapter by Duravent is needed on the exhaust port of the Powervent to adapt the 80 mm powervent outlet to 3" exhaust venting. Afterwards you can run 3" venting or adapt it to 4" using a tapered or step 3-4 adapter from Duravent.

Duravent FasNSeal must be used for all exhaust venting and terminations after the Powervent

Please note: There are 3 different types of FasNSeal vent pipe with different distances to combustibles. Please review the manufacturers manual for distances to combustible materials.

- FasNSeal Flex
- FasNSeal
- FasNSeal W2

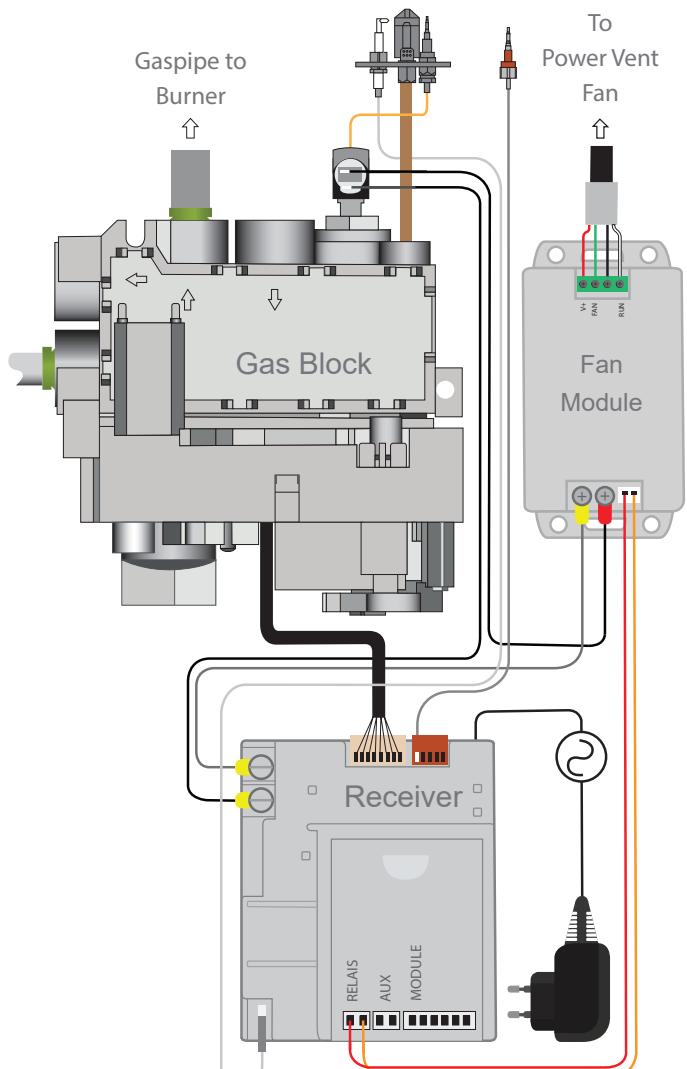


Figure 1.3 - Connection scheme Powervent

1.5 Terminals

For the proper functioning of your Powervent, the supply of air and the exhaust of combustion gases must not be impeded. You can terminate either horizontally (by means of a wall terminal) and vertically (by means of a roof terminal).

Note: Due to the mechanical discharge of the vent gases, it is not necessary for the combustion air supply and the exhaust gas terminals to end up in the same pressure range.

The termination position must at all times comply with local regulations regarding nuisance and ventilation openings.

1.5.1 Distance between terminations

When opening into the same horizontal termination area, the following distances must be observed, with regard to the terminations of combustion air and exhaust discharge. (see also **figures 1.4** and **-1.5**);

D_h = Horizontal distance = at least 12" / 30 cm

D_v = Vertical distance = minimum 6" / 15 cm,

whereby a partition must be used to prevent mixing of combustion air (blue arrow) and vent gases (red arrow).

In the case of a vertical termination, both for air supply ($\varnothing 4"$ /100mm) and exhaust ($\varnothing 3.15"$ /80mm) one must create a feed-through with approved venting as shown in **figures 1.6** and **Figure 1.7**, where **A** is air inlet, **B1** and **B2** are exhaust pipes and **C** is the possible concentric flue used before splitting.

The distance between inlet and exhaust terminal must be 1 foot / 30 cm apart and the exhaust terminal must be situated higher than the inlet by also 1 foot / 30 cm.

1.5.2 Supply of combustion air

The supply of combustion air may only come from outside. You must take into account a thermal bridge. The combustion air supply may be carried out in PVC.

Important note:

Never terminate exhaust vent under the combustion air supply when both terminals are on the same wall.

Make sure that both terminations are at least 12" / 30 centimeters from ground level and that there is no way to block the openings.

For all distances regarding termination, please see **CHAPTER 2**.

NOTE: Local codes or regulations may require different clearances than the ones mentioned in the next chapter.

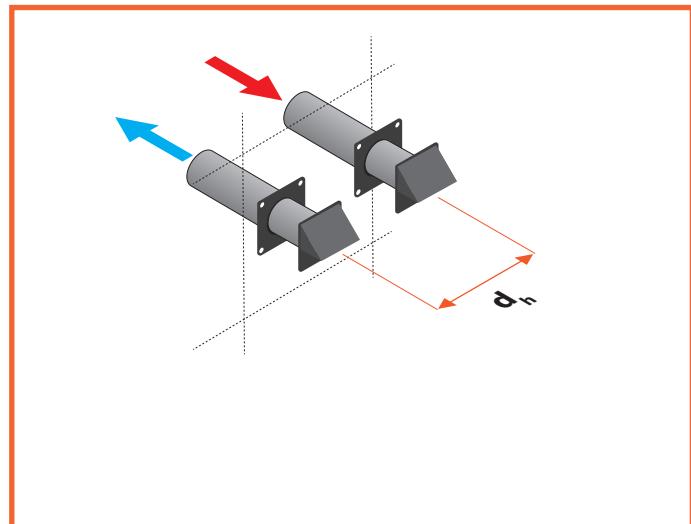


Figure 1.4 -Horizontal distance between terminals

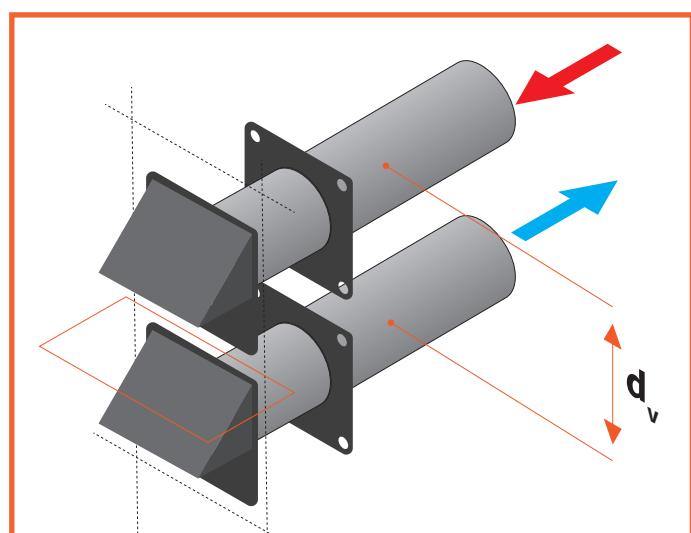


Figure 1.5 - Vertical distance between terminals

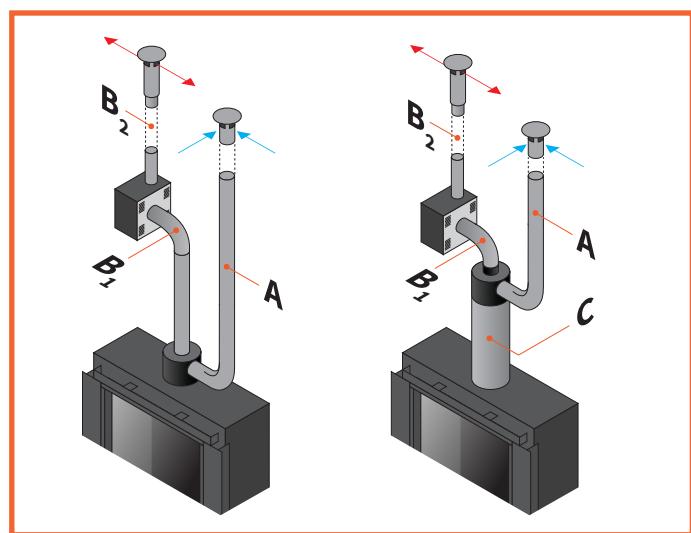


Figure 1.6 - Vertical terminals

1.6 Fire Safety

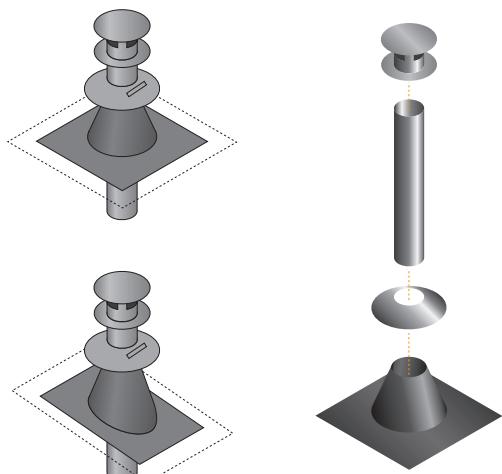


Figure 1.7 - Roof terminal supplies

NOTE: Location of the vent termination must not interfere with access to the electrical service.

1.6.1 Installation of the Powervent

Always provide a free space around the Powervent with a minimum of 4"/100mm. Take extra account of distance with regard to combustible materials and ventilation. When the Powervent is placed in an enclosure, the necessary ventilation openings must be made in the enclosure (See Figure 1.8).

Note: Provide the enclosure with at least 2 air openings with a free passage of 4.0 inch²/100mm² per opening

1.6.2 Venting material

Single-walled venting material must always be covered with non-combustible building materials. In all other cases, concentric venting material must always be used. Concentric venting material can also be used, whereby the outer casing serves as an insulation and ventilation option for the inner pipe.

Refer and adhere to the concentric venting manufacturer for required clearances from combustible materials.

Note: Please make sure that no heat bridges can occur by brackets around the concentric or single-tube material.

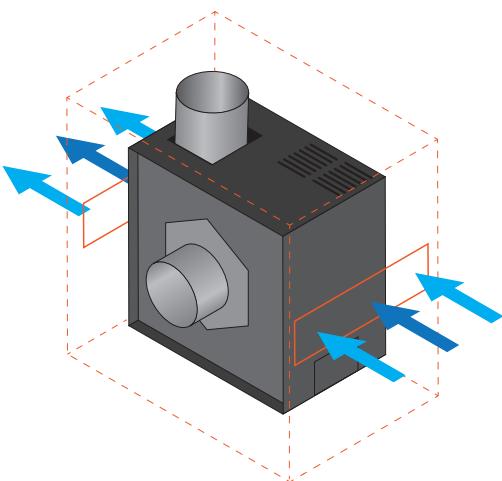


Figure 1.8 - Ventilation around PowerFan MkII

2 LOCATION OF TERMINALS

	CLEARANCE	U.S. MINIMUM		CANADIAN MINIMUM	
		INCHES	MM**	INCHES	MM*
A	Clearance above the grade, a veranda, porch, deck, or balcony.	12	305	12	305*
B	Clearance to window or door that may be opened.	24	610	24	610
C	Clearance to permanently closed window.	9	229	12	305
D	Vertical clearance to ventilated soffit located above the termination within a horizontal distance of 2 ft. (61 cm) from the center line of the termination.	18	458	18	458
E	Clearance to an unventilated soffit.	12	305	12	305
F	Clearance to an outside corner.	24	610	24	610
G	Clearance to an inside corner.	24	610	24	610
H	Clearance to each side of centerline of gas meter/regulator assembly.	36	915	36	915
I	Clearance to a service regulator vent outlet.	36	915**	36	915*
J	Clearance to non-mechanical air supply inlet into building or the combustion air inlet to any other appliance.	9	228**	12	305
K	Clearance to mechanical (powered) air supply inlet.	36	915**	72	1830
L	Clearance above a paved sidewalk or paved driveway located on public property.	84	2134**	84	2134
M	Clearance under veranda, porch, deck or balcony.	12	305 (4)	12	305 (4)
N	Maximum Depth of Alcove	36	915**	36	915*
O	Clearance to Termination (Alcove)	6	152**	6	152*
P	Minimum Width of Alcove	36	915*	36	915*
Q	Clearance to Combustible Above (Alcove)	18	458**	18	458*
R	Minimum horizontal distance between air supply inlet and terminal.	9	228	12	305
S	Distance horizontal terminal to soffit	6	152	6	152
T	Distance horizontal terminal to top of exterior wall	18	458	18	458

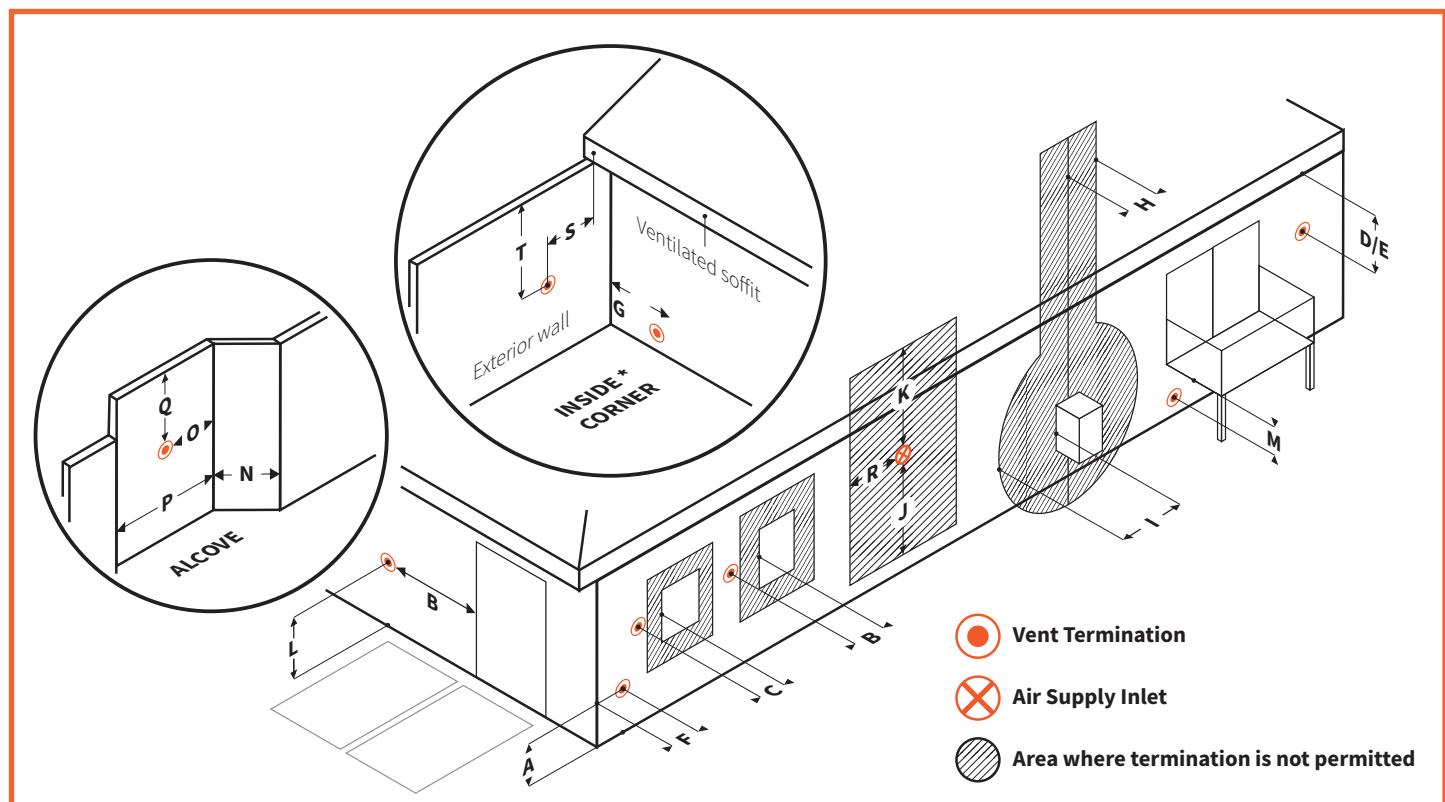


Figure 2.1 - Wall terminal location

3 VENT SYSTEM

3.1 Vent configurations

The Powervent is a very flexible solution for difficult vent configurations for all Element4 fireplaces. By making use of a separate air supply and exhaust, you can achieve the desired vent configuration in many ways.

In this chapter, different options are explained on how the vent configuration can be carried out.

The following applies to all vent configuration options in **chapter 3.2** (see also accompanying figures 3.2 to 3.8):

- **A** = Combustion air supply channel
Pipe diameter **A** is Ø4" / Ø100 mm
- **B₁** = Vent gas outlet
Pipe diameter **B₁** is Ø4" / Ø100 mm
- **B₂** = Vent gas outlet
Pipe diameter **B₂** is Ø3.14" / Ø80 mm
- **C** = Concentric channel
Diameter is Ø5"/8" or Ø200/130 mm
Ø4"/6" or Ø150/100 mm

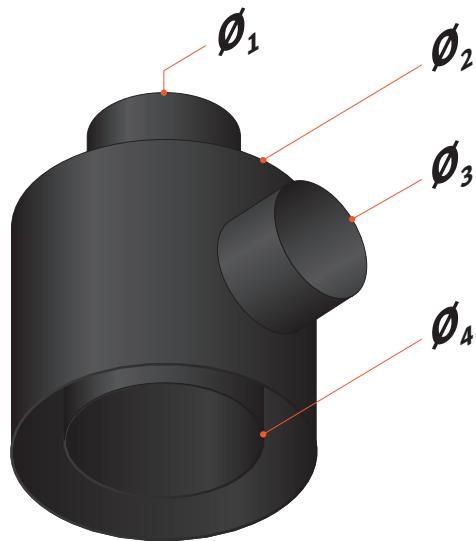


Figure 3.1 - Splitter 200/130

Splitter 200/130		
	Inches ("")	Millimeters (mm)
Ø ₁	Ø 4"	Ø 100 mm
Ø ₂	Ø 8"	Ø 200 mm
Ø ₃	Ø 4"	Ø 100 mm

Table 3.1 - Splitter / Adapter Measurements

Note: In the event that a Powervent is installed on a fireplace with a Ø4"/6" or Ø100/150mm vent connection, the vent must be increased to Ø5"/8" or Ø130/200mm using the supplied splitter. (Image 3.1 and table 3.1)

(1) = Termination area 1

(2) = Termination area 2

Chapter 3.3 explains how the above-mentioned lengths can be calculated for each vent configuration.

Because not every vent configuration is completely straight, elbows must often be used. When the Powervent is used, the vent configuration is often a special case. **Chapter 3.4** explains the effect of the elbows and also of a negative vent on the length of your vent configuration.

In **chapter 3.5** you will find a calculation method for calculating the vent configuration. Where necessary, you can always consult the manufacturer in exceptional situations.

* In conformance with the current CAN/CGA B149 Gas Installation Code

** In conformance with the current ANSI Z223.1/ NFPA 54 National Fuel Gas Codes

A vent shall not terminate directly above a sidewalk or paved driveway which is located between two single family dwellings and serves both dwellings

(4) Permitted ONLY if veranda, porch, deck or balcony is fully open on a minimum of two sides below the floor.

3.2 Configurations

With the Powervent, the venting of the fireplace can be constructed in two ways, directly with separate air supply and exhaust and with a (partially) concentric structure.

Below is a more detailed explanation of the different mounting systems.

3.2.1 Configuration 1

Separate air supply and exhaust directly on the fireplace.

Combustion air and exhaust are split directly on the fireplace by means of the included splitter. The combustion air can be individually guided with a rigid or flexible tube to the desired terminal area. Venting for exhaust gases must be made with approved rigid vent pipe. Both can terminate in the same area, but they can also end into different areas. See also **figures 3.2 to 3.4** for different variations of this mounting system.

Components

In system 1 we recognize the following components:

A = Supply of combustion air

B = Vent exhaust where **B₁** is the part before the Powervent and **B₂** is the part after.

(1) = Terminal area 1

(2) = Terminal area 2

3.2.2 Configuration 2

(partial) concentric vent configuration.

In this vent configuration the vent (partially) is carried out with a regular concentric tube, after which the vent is split by means of the included splitter. The combustion air can use a rigid or flexible tube to the terminal area. Exhaust gases must be made with approved rigid vent pipe. This can be the same discharge area for both terminals, but both can also lead to a different areas. See **figures 3.5 to 3.9** for different variations of this vent configuration.

Components

In system 2 we recognize the following components

A = Supply of combustion air

B = Vent exhaust, where **B₁** is the part before the Powervent and **B₂** is the part after.

C = Concentric tube Ø5"/8" or Ø130/200mm (or Ø4"/6" or Ø100/150mm)

(1) = Terminal area 1

(2) = Terminal area 2

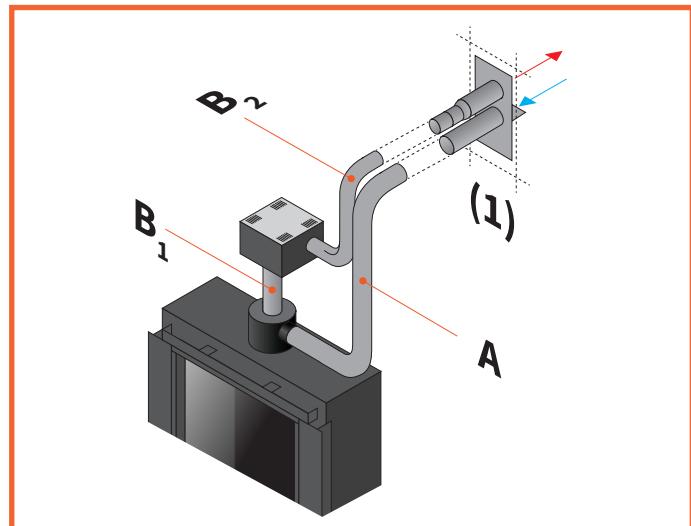


Figure 3.2 - Splitter directly on the fireplace and with horizontal termination in the same area

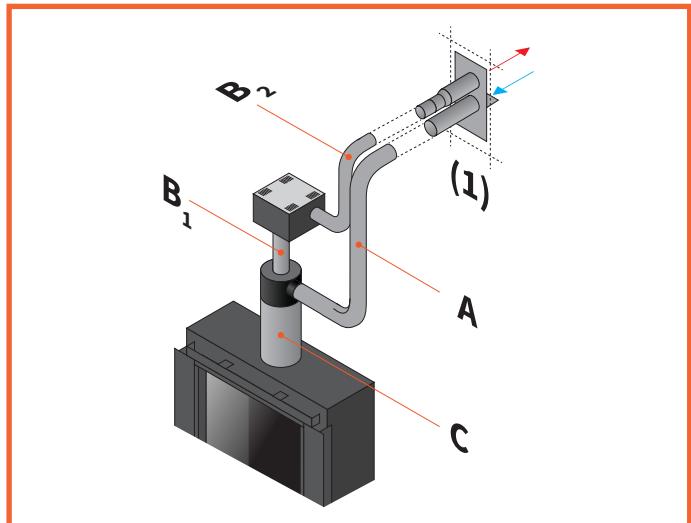


Figure 3.5 - (Partial) concentric vent configuration with horizontal termination in the same area

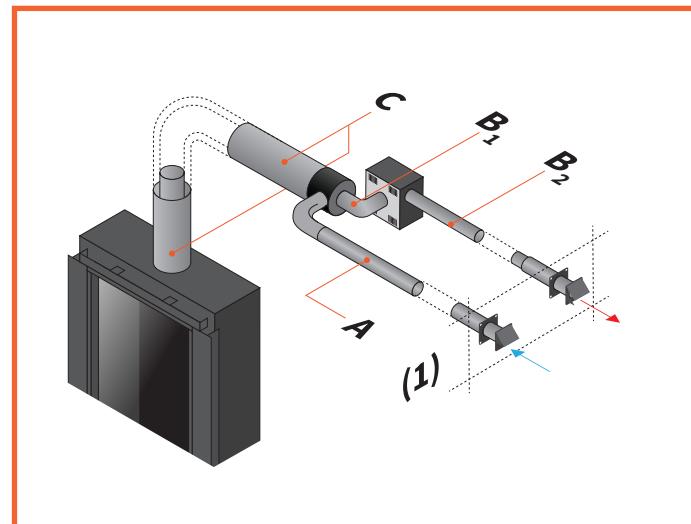


Figure 3.8 - (Partial) concentric vent configuration with horizontal termination in the same area (II)

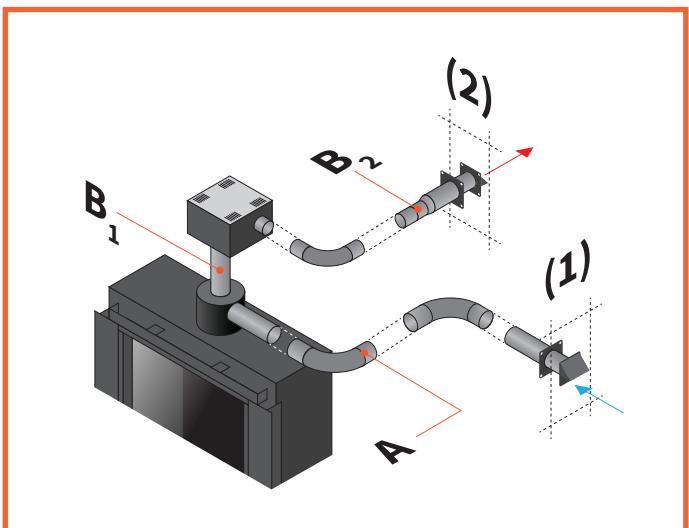


Figure 3.3 - Splitter directly on the fireplace and with horizontal terminaation in a different area

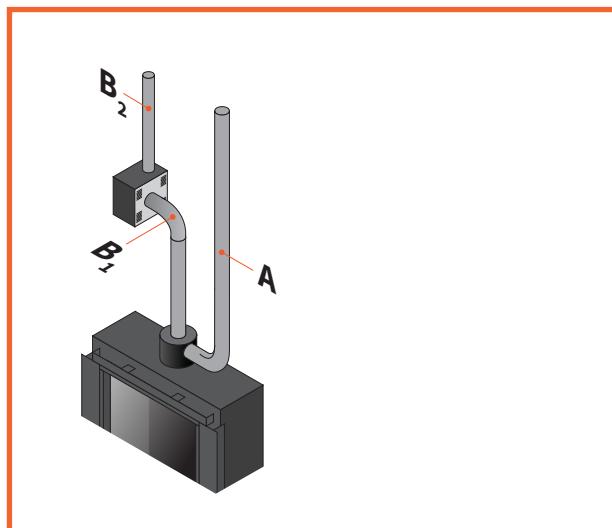


Figure 3.4 - Roof termination with direct split at adapter

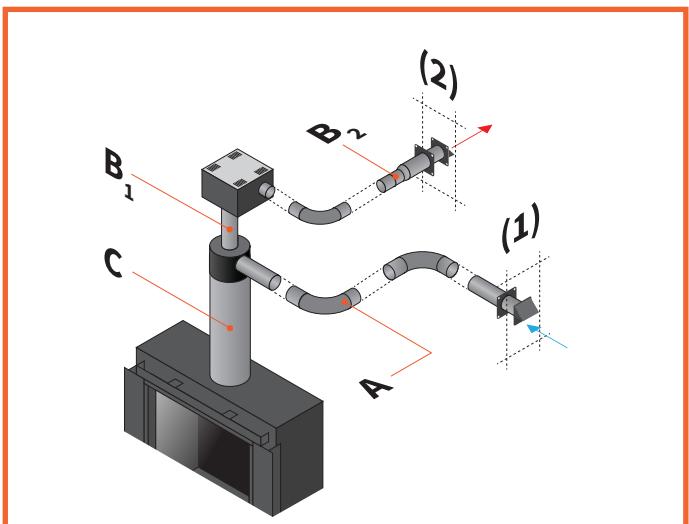


Figure 3.6 - (Partial) concentric vent configuration with horizontal termination in a different area

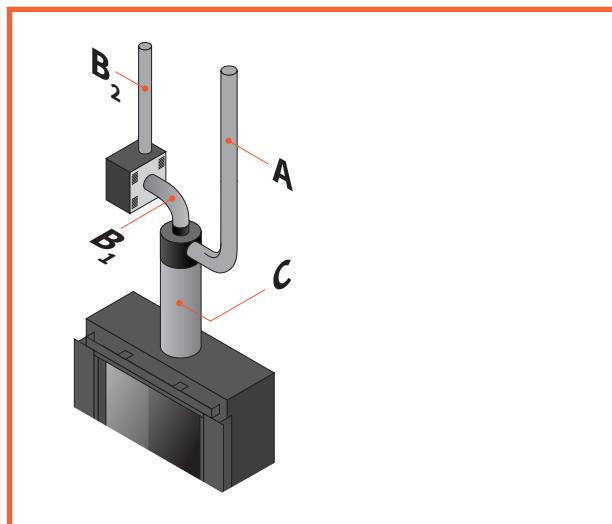


Figure 3.7 - Roof termination with (partial) concentric vent

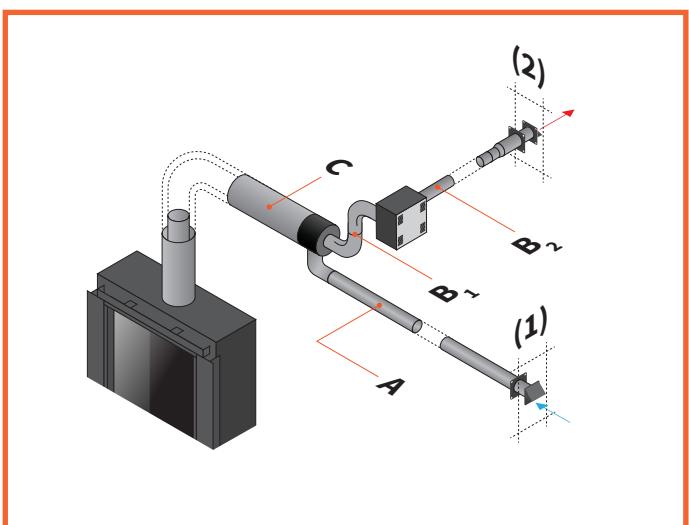


Figure 3.9 - (Partial) concentric vent configuration with horizontal termination in a different area (II)

3.3 Calculating the length of the vent

3.3.1 Vent configuration - type 1

Immediate split combustion air and exhaust (See figure 3.10)

When combustion air and exhaust are split directly on the fireplace, the total combined length of both may cover 130 feet /40 meters with the following requirements per part:

L = max. 65 feet or 20 m

D = min. 7 feet or 2.0 m

And

(1) = Termination

3.3.2 Vent configuration - type 2

(Partly) Concentric tube

When working with a concentric venting before the combustion air and exhaust, the total combined length of both can be 98 feet/ 30 meters. In figure 3.11 to 3.13. You will see three options that fall under type 2.

Each option is explained further below

Vent configurations - type 2.1

Maximum length of the concentric tube Ø5"/8" (200/130mm)
(Figure 3.11)

In this vent configuration, the vent configuration is carried out almost completely concentrically, with the air supply and exhaust being split just before the termination. Figure 3.11 serves as a reference for the minimum and maximum lengths for this venting configuration where:

K = max. 98 feet or 30 meters

And

(1) = Terminal

In this configuration the length of the vent before the Powervent must be at least 7 feet / 2 meters or prevent possible damage to the Powervent

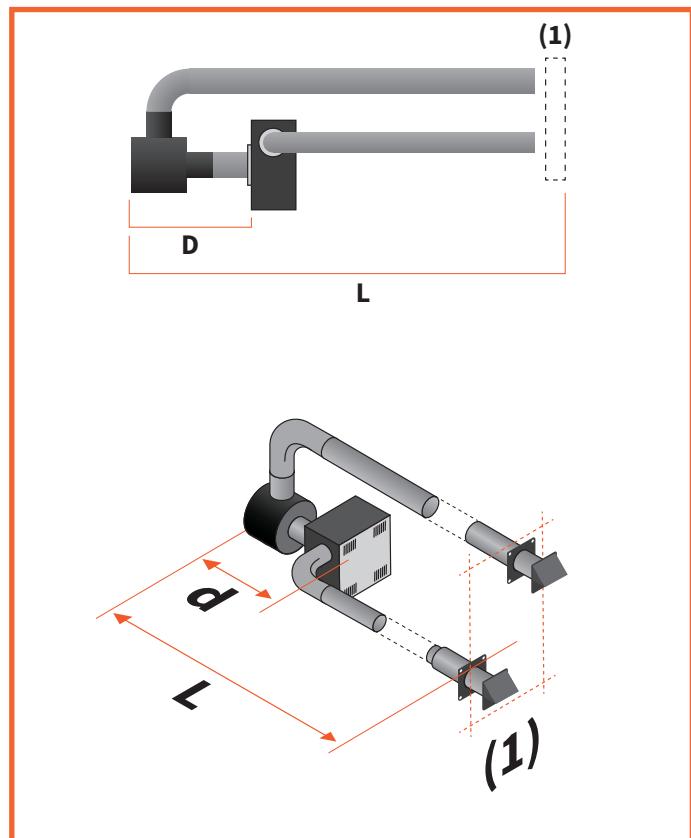


Figure 3.10- Vent configuration - type 1

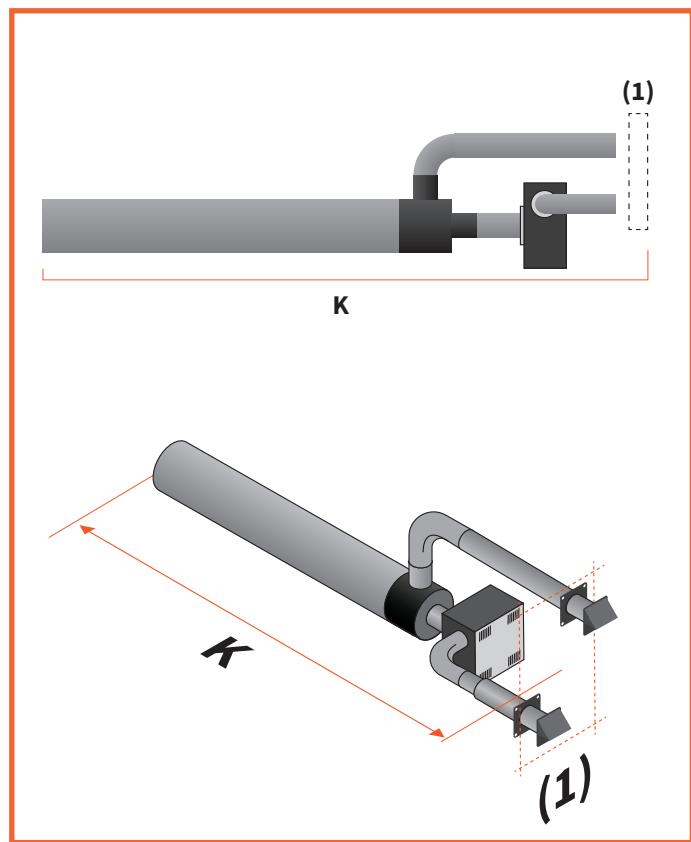


Figure 3.11 - Vent configuration - type 2.1

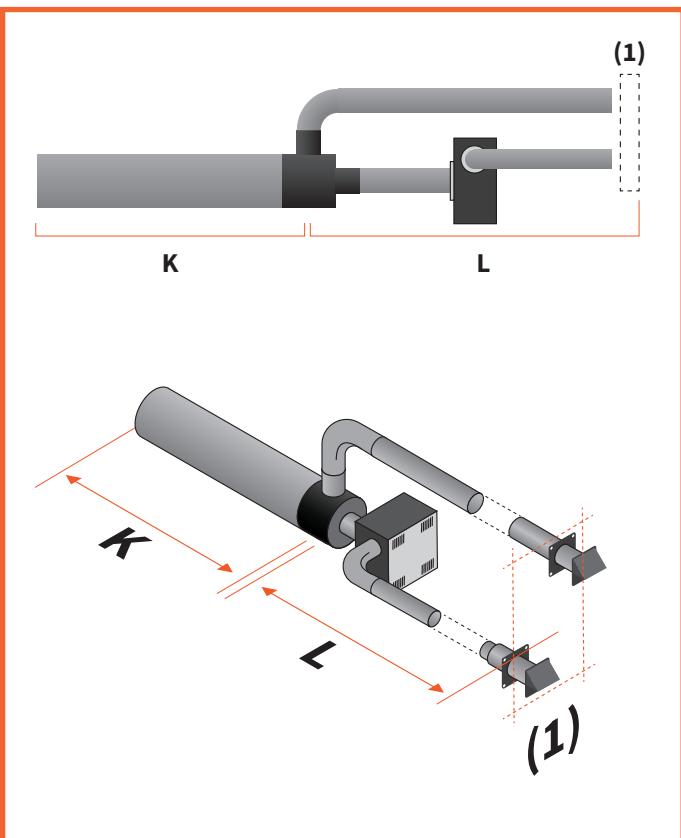


Figure 3.12 - Vent configuration - type 2.2

Vent Configuration - type 2.2

Partial concentric vent - size $\text{Ø}5\text{''}/8\text{''}$ (130/200mm)
(See figure 3.12)

In this configuration, part of the vent is executed concentrically, after which the combustion air and exhaust are split and terminated separately. **Figure 3.12** serves as a reference for the minimum and maximum lengths for this configuration where:

K + L = Total vent length

at which

K = max. 98 feet / 30 meters

L = $65 - \frac{2}{3} \cdot K$ feet or $20 - \frac{2}{3} \cdot K$ meters

And

(1) = Terminal

Method

First calculate the length of the concentric part of the vent. Don't forget to include the extra resistance of elbows and any negative vent lengths. Then read in table 3.2 the maximum length of your split combustion air and exhaust.

Vent Configuration - type 2.3

(Partial) Concentric vent - vent size $\text{Ø}4\text{''}/6\text{''}$ ($\text{Ø}100/150\text{mm}$)
(See Figure 3.13)

In this configuration, (a part of) the vent is executed concentrically in $\text{Ø}4\text{''}/6\text{''}$ ($\text{Ø}100/150\text{mm}$), after which the combustion air and exhaust are split and terminate separately.

Note: This venting configuration should be seen as if the fireplace is being split directly.

If the $\text{Ø}4\text{''}/6\text{''}$ ($\text{Ø}100/150\text{mm}$) vent is used, it must be enlarged before it can be connected to the splitter.

Figure 3.13 serves as a reference for the maximum lengths for this venting configuration where;

M = max. 65 feet / 20 meters

And

(e) = Enlarger

(1) = Terminal

In this configuration, the length of the vent before the Powervent must be at least 7 feet / 2 meters to prevent possible damage to the Powervent.

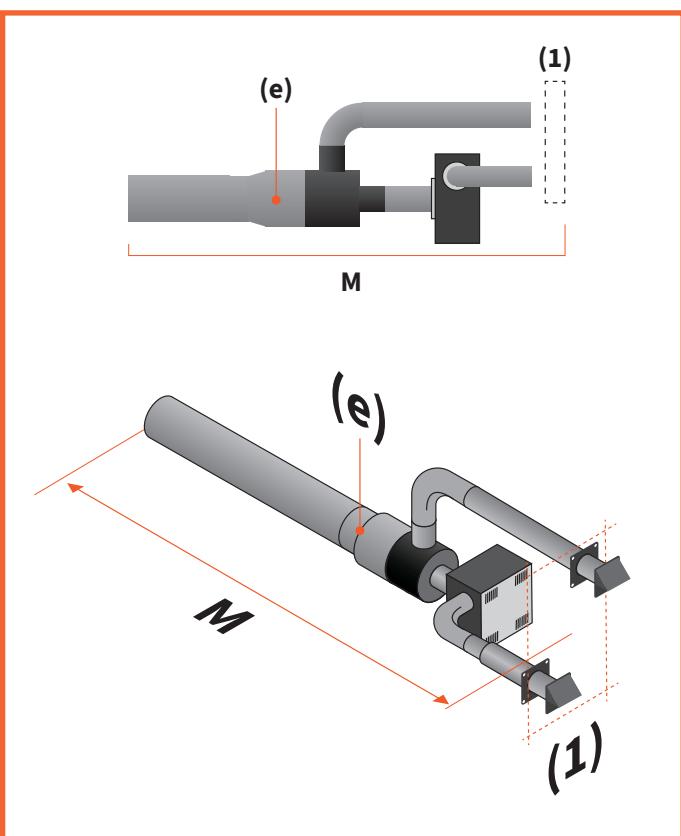


Figure 3.13 - Vent configuration - type 2.3

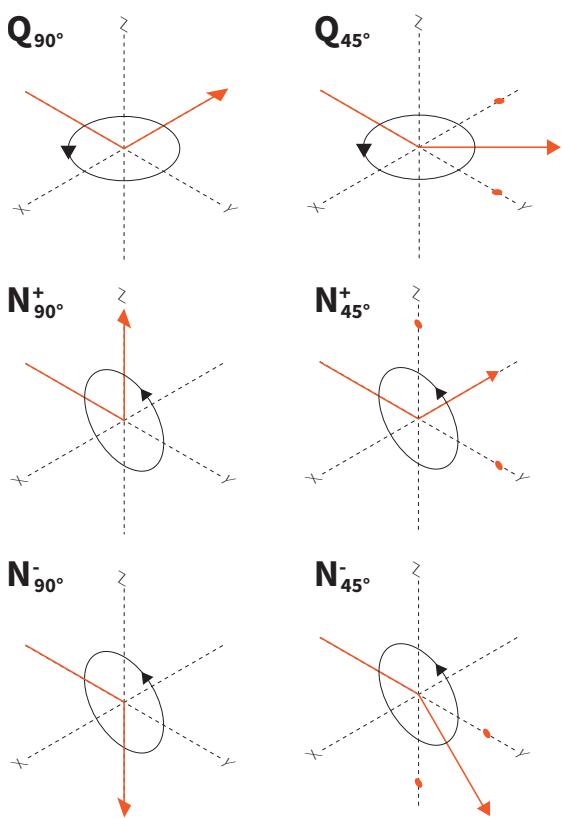


Figure 3.14 - Elbow directions for extra resistance calculation

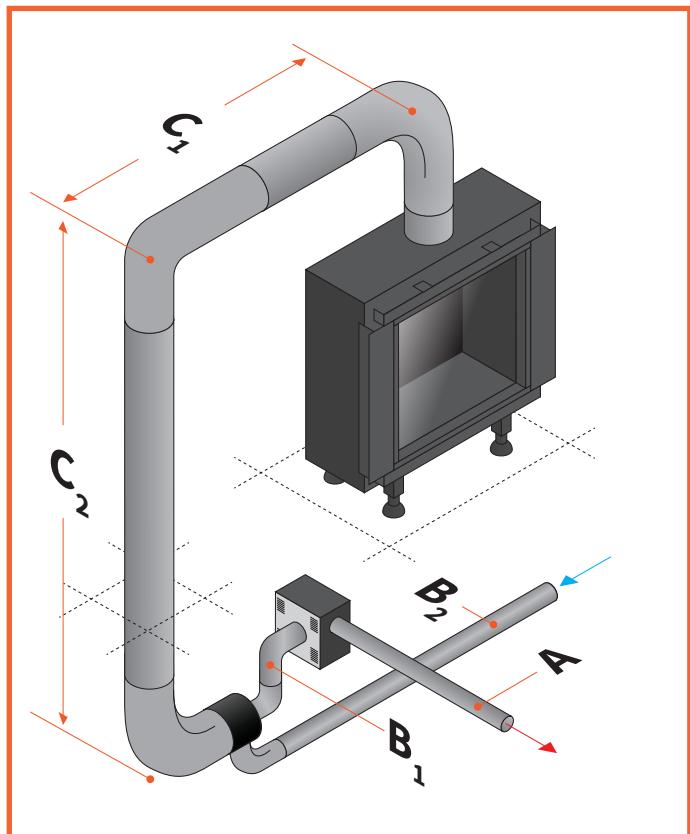


Figure 3.15 - Example setup of negative vertical venting

3.4 Extra resistance in the channel

As with a regular, non-mechanical vent configuration, adding elbows in the vent configuration of the Powervent also provides extra resistance. These elbows must be taken into account by counting them as an extra vent length.

There are two types of elbows that may occur in a vent configuration.

- **N-elbows**
Curves from the vertical plane to the horizontal plane or
Curves from the horizontal to the vertical.
- **Q-elbows**
Curves in the horizontal plane

With these two elbows, there are three configurations that can offer extra resistance to your vent (Figure 3.14).

- **Q-elbows** (both **90°** and **45°**) are calculated as a 20"/0.5 meter exhaust length.
- Positive **N-elbows** (both **90°** and **45°**) are calculated as a 10"/0.25 meter exhaust length.

After a negative **N**-elbow, that is, an **N**-elbow after which the vent goes down vertically (**N⁻**), the entire exhaust length must be counted twice until it bends again to the horizontal plane or rises again. (Figure 3.15.)

So for **C₂**, every meter counts for 7 feet / 2 meters.

The calculated extra resistance of the elbows applies to all superstructure systems.

3.5 Sample vent configuration calculation

Step 1

Consider which vent configuration is required

Step 2

Calculate the length of the desired concentric part (**C**) of your configuration.

Note: Do not forget to include the elbows and negative vent in your calculation.

Step 3 - option a

Then calculate the desired lengths from air supply to the splitter (**A**) and exhasut from the splitter (**B₁**) and (**B₂**). For your convenience, always choose the longest of both. So you only have to calculate the length once.

Imperial

Enter the formula "**L** = 65 - 2/3 * **K**" to see how long your combustion air and exhaust can be.

- **K** is the length of your concentric part.

- **L** is the maximum length of the combustion air and exhaust.

Metric

Enter the formula "**L** = 20 - 2/3 * **K**" to see how long your combustion air and exhaust can be.

Step 3 - option b

Check whether the lengths for the combustion air - and the exhaust from the splitter are permitted with the desired concentric length, by reading **table 3.2** or **table 3.3** the maximum length of the remaining air supply / vent gas exhaust (**L**) corresponding to the desired concentric length (**K**).

If **L** is less than or equal to the desired length, you can install your vent configuration without any problems.

Step 4

Add **K** and **L** to determine the full length of your vent.

For **K** and **L** together, this distance may never be longer than 98 feet / 30 meters and the Powervent should be always minimum of 7 feet / two meters away from the fireplace (distance **B₁**).

K	L	K	L	K	L
0 m	20 m	10,5 m	13 m	20,5 m	6,25 m
1 m	19,25 m	11 m	12,5 m	21 m	6 m
1,5 m	19 m	11,5 m	12,25 m	21,5 m	5,5 m
2 m	18,5 m	12 m	12 m	22 m	5,25 m
2,5 m	18,25 m	12,5 m	11,5 m	22,5 m	5 m
3 m	18 m	13 m	11,25 m	23 m	4,5 m
3,5 m	17,5 m	13,5 m	11 m	23,5 m	4,25 m
4 m	17,25 m	14 m	10,5 m	24 m	4 m
4,5 m	17 m	14,5 m	10,25 m	24,5 m	3,5 m
5 m	16,5 m	15 m	10 m	25 m	3,25 m
5,5 m	16,25 m	15,5 m	9,5 m	25,5 m	3 m
6 m	16 m	16 m	9,25 m	26 m	2,5 m
6,5 m	15,5 m	16,5 m	9 m	26,5 m	2,25 m
7 m	15,25 m	17 m	8,5 m	27 m	2 m
7,5 m	15 m	17,5 m	8,25 m	27,5 m	1,5 m
8 m	14,5 m	18 m	8 m	28 m	1,25 m
8,5 m	14,25 m	18,5 m	7,5 m	28,5 m	1 m
9 m	14 m	19 m	7,25 m	29 m	0,5 m
9,5 m	13,5 m	19,5 m	7 m	29,5 m	0,25 m

Table 3.2 - Permitted lengths for combustion air supply and exhaust L at concentric stretch K (Metric)

K	L	K	L	K	L
0,0 ft	65 ft	36 ft	41 ft	69 ft	19 ft
3 ft	63 ft	39 ft	39 ft	72 ft	17 ft
6 ft	61 ft	43 ft	36 ft 4 in	75 ft	15 ft
10 ft	58 ft 4 in	46 ft	34 ft 4 in	78 ft	13 ft
13 ft	56 ft 4 in	49 ft	32 ft 4 in	82 ft	1 ft
16 ft	54 ft 4 in	53 ft	29 ft 8 in	85 ft	8 ft
20 ft	51 ft 8 in	56 ft	27 ft 8 in	88 ft	6 ft
23 ft	49 ft 8 in	59 ft	25 ft 8 in	92 ft	3 ft 6 in
26 ft	47 ft 8 in	62 ft	23 ft 6 in	95 ft	1 ft 6 in
29 ft	45 ft 6 in	65 ft	21 ft 6 in	98 ft	0 ft
33 ft	43 ft				

Table 3.3 - Permitted lengths for combustion air supply and exhaust L at concentric stretch K (Imperial)

3.5.1 Example

Step 1

See the desired setup in **Figure 3.16** and **Table 3.4**. The first part of the venting is designed concentrically, after which the combustion air and exhaust are split. The supply is discharged directly via a wall termination. The exhaust must exit vertically through a roof.

Step 2

- Add all **K** stretches for the total concentric part.
- Count **K₃** double because it goes down.
- Don't forget to add the two positive **N⁺** turns. You may neglect the negative turns **N⁻**; these are already included in the negative vertical length.

Imperial

- $K_1 + K_2 + 2 * K_3 + K_4 + 2 * N^+$
So
 $3'4" + 3'4" + 2 * 13'2" + 13'2" + 2 * 10" = 47'10" \text{ max}$

Metric

- $K_1 + K_2 + 2 * K_3 + K_4 + 2 * N^+$
So
 $1m + 1m + 2 * 4m + 4m + 2 * 0.25m = 15m$

Step 3

Now you know the length of the concentric part. Enter this in the formula as stated in

Metric : $L = 20 \text{ m} - 2/3 * 15 \text{ m} = 10 \text{ m}$

Imperial : $L = 65 \text{ ft} - 2/3 * 46 \text{ ft} = 34 \text{ ft } 4\text{in}$

Or

read **L** from **table 3.2** at "**K** = 15m"

or from **table 3.3** from the closest (lower) value, i.e. "**K** = 46 ft".

For **K** = 15 m, the value **L** = 10 or For **K** = 46 ft, the value **L** = 34ft 4in

Because the exhaust is longer than the combustible air, calculated from the splitter, we check whether this length meets the maximum permitted length.

- $L_1 + L_2 + L_3 + L_4 + L_5 + 2 * N^+$
So $0.25m + 0.25m + 6m + 0.5m + 0.5m + 2 * 0.25m = 8m$
or $10\text{in} + 10\text{in} + 20\text{ft} + 20\text{in} + 20\text{in} + 2 * 10\text{in} = 26\text{ft } 8\text{in}$

The desired length is less than the maximum permitted length, so this setup was approved.

Step 4

Add **K** and **L** together to check that the full length of the vent is no more than 98 feet / 30 meters,

- $15 \text{ m} + 8 \text{ m} = 22\text{m}$
- $46 \text{ ft} + 26\text{ft } 8\text{in} = 72 \text{ ft } 8\text{in.}$

Both examples above are acceptable.

Also check if the Powervent is at least 7 ft / 2 meters away from the fireplace. If so you can install the Powervent without any problems.

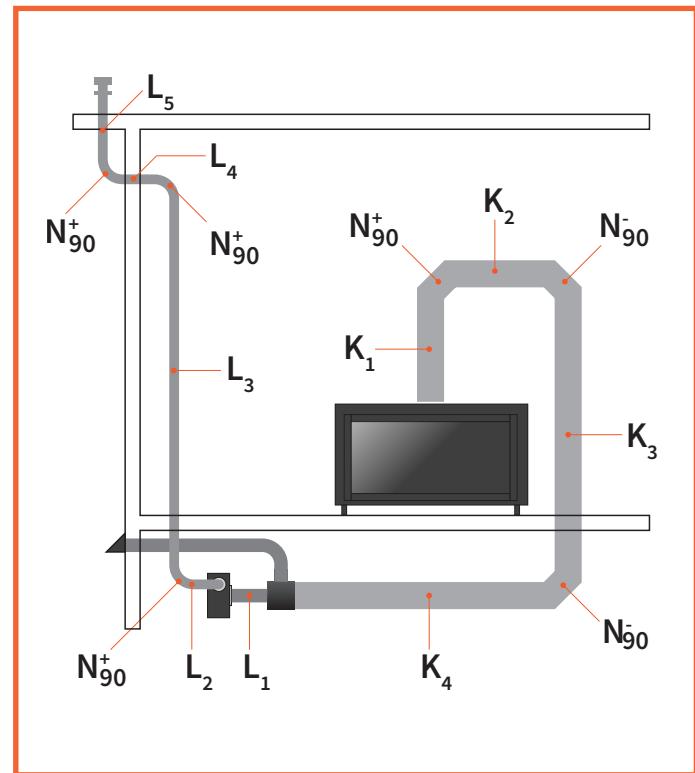


Figure 3.16 - Example setup negative vent

K₁	$3'4" / 1m$	L₁	$10" / 0,25m$	N⁺	$10 " / 0,25m$
K₂	$3'4" / 1m$	L₂	$10" / 0,25m$	N⁻	-
K₃	$13'2" / 4m$	L₃	$20' / 6m$		
K₃	$13'2" / 4m$	L₄	$20" / 0,5m$		
		L₅	$20" / 0,5m$		

Table 3.4 - Values for Figure 3.16

3.6 Condensation

If the entire vent configuration is more than 49 feet / 15 meters or if it is expected that condensation will otherwise occur in the venting, e.g. when a large horizontal venting stretch is present (H_z in figure 3.17) a condensate drain must be installed in the system, as supplied by the companies mentioned in chapter 1.4.

In these cases always ensure a (minimum) 3° course, approximately 0.5 inch per foot or 50 mm per linear meter, on the horizontal parts of the vent, so that the water can flow away at any time.

The condensate can be collected in, for example, a siphon cup or a condensate collector (T-shaped) with tap, as shown in figures 3.17 and 3.18, parts (1) and (2) respectively. Place the traps / catcher at every lowest point in the vent and before the outlet of the Powervent. Under no circumstances should the Powervent be the lowest point of the vent configuration, to prevent problems and damage to the fan.

Note: The siphon cup getting dry can cause vent gases to escape. To stop this from happening, there are liquid-free traps.

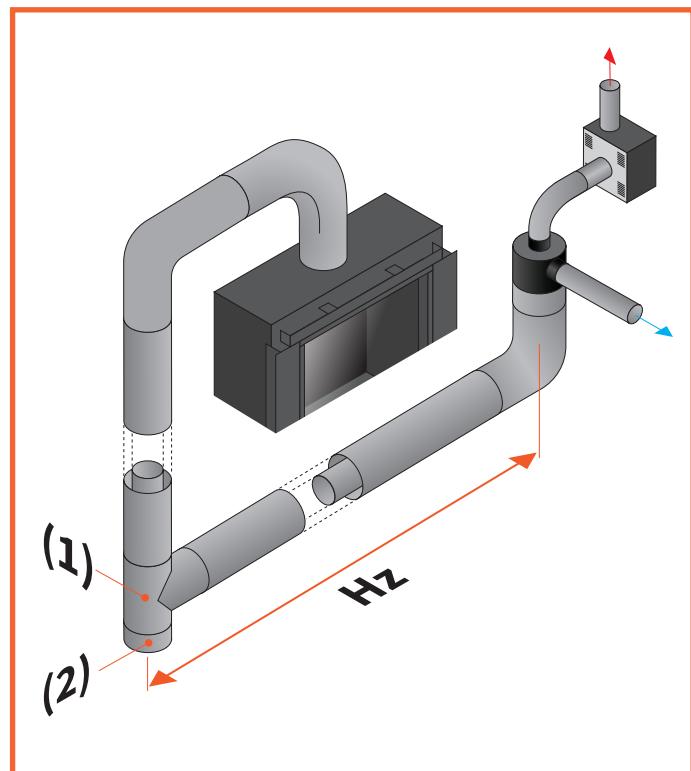


Figure 3.17 - Example of condensation tap for Hz

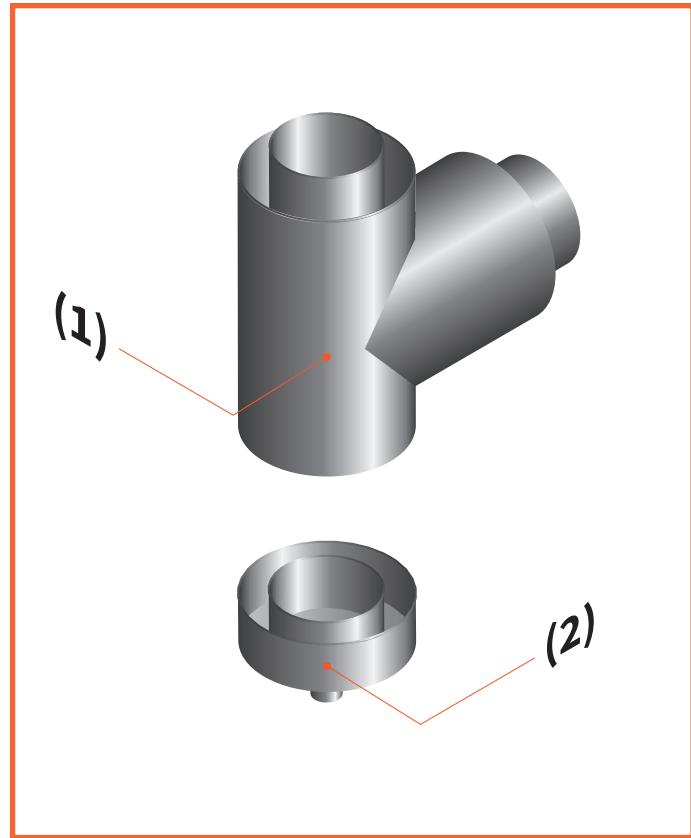


Figure 3.18 - Parts necessary for condensation tap

4 ADJUSTING THE POWERVENT

The setting of the Powervent is done with the speed controller. With this controller you can set the resistance of the motor. The lower the resistance, the faster the motor runs. This controller and the indicator lights are located on the Powervent itself. A cover must be removed for this. Make sure that this cover can be reached at all times (See Figure 4.1)

4.1 Set initial position

See Figure 4.2

- Position 0 - Motor runs slowly.
- Position 4 - Starting position for new install
- Position 12 - Motor is running at full power

4.2 Start

When the fireplace is started, the fan runs at high speed for 5 seconds, after which a signal is sent to the Powervent and the speed drops audibly. In this position the 2 green LED lamps are lit and one is flashing. Start with the fan speed at 4 and increase the speed until you reach the highest setting while still green.

LED is blinking

The fan checks the system for correct operation for 60 seconds. If the system works properly, the blinking stops and the LED stays green

LED flashes red

If the green light does not stop blinking or changes to red, increase the fan speed by 1 step and observe the waiting time of 60 seconds again.

Please note

To increase the fan speed:

- Turn the speed control clockwise.

To reduce the fan speed:

- Turn the speed control counterclockwise.

4.3 Fine-tuning

When the flames are satisfactory, increase the speed (if desired) by one more step to take account of extreme weather conditions such as wind. This prevents the fire from being switched off preventively, which is experienced which could shut the fireplace off.

Note: Only after 20 minutes can you assess the flames correctly. Take this time into account for the first installation. The fan can switch off before the 20 minutes have elapsed.

WARNING

ISOLATE SUPPLY BEFORE CARRYING OUT ANY WORK OR
ADJUSTMENTS.

All electrical work must be performed by a suitably qualified person.

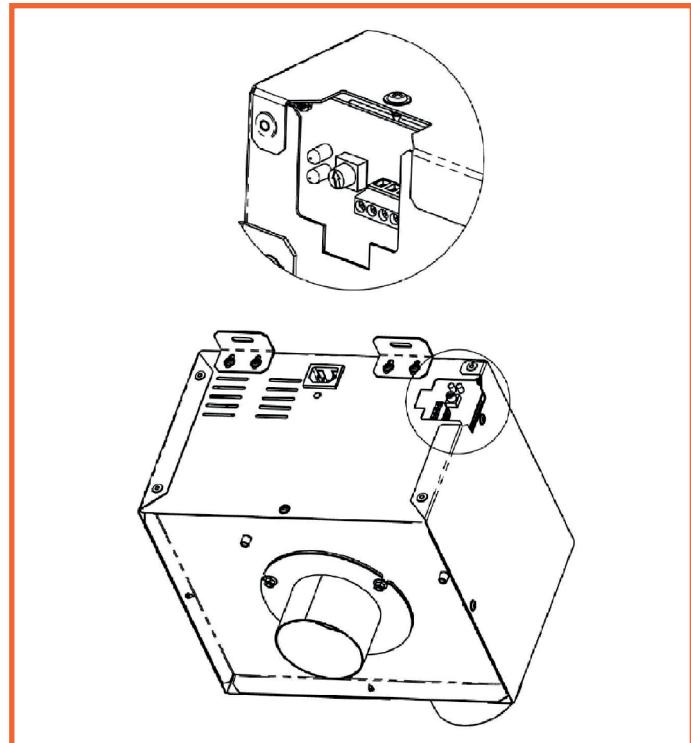


Figure 4.1 - Powervent service cover

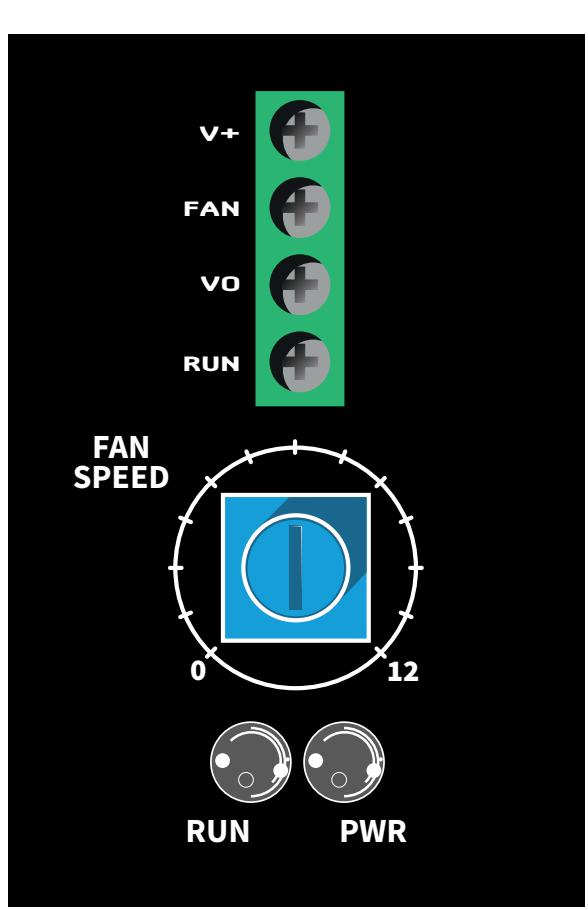


Figure 4.2 - Powervent Fan Speed Control

5 FUNCTION OF THE REMOTE

By pressing the "Start button" (top left button) the fireplace and the Powervent will start simultaneously.

Note: The thermostat and pilot flame function are canceled with installations in combination with a Powervent. All other functions on the remote will function normally, as described in the user action. See the user- and installation manual for the fireplace.

Figure 5.1 shows an example of a ten-button remote for Element4 fireplaces. The thermostat function (third button from the left) will not be operational with the Powervent installed.

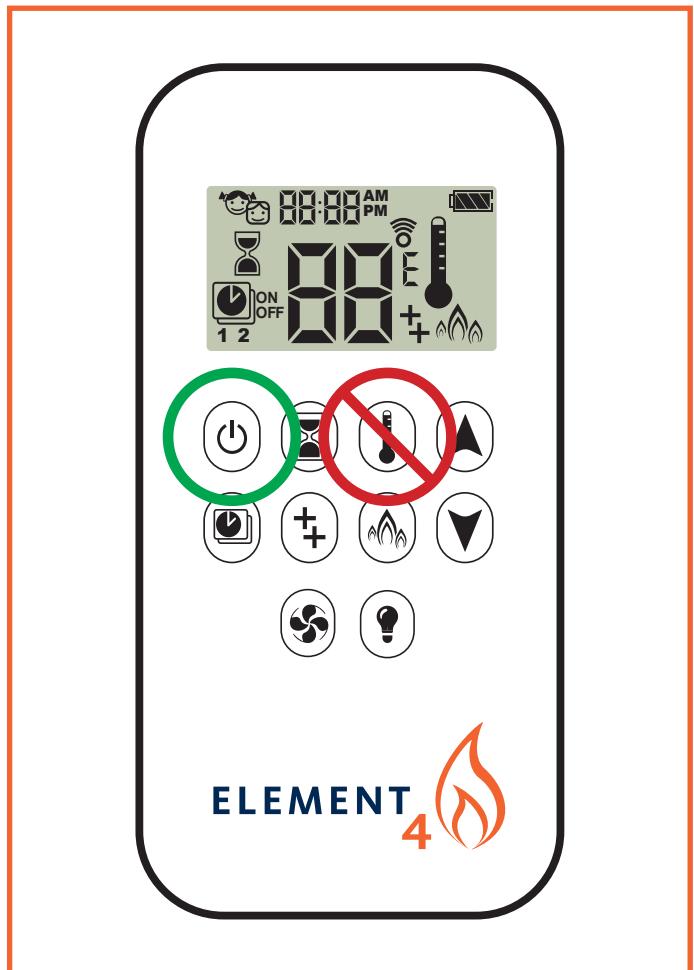


Figure 5.1 - Element4 - Ten button remote

6 TECHNICAL DATA

The following specifications apply to every Element4 Powervent

	Imperial	Metric
Applicable for fireplaces	≤ 90k BTU/hr	≤ 25Kw
Power Supply	230V	
Air flow	5.890 ft ³ /hr	165 m ³ /hr
Noise level		≤ 38dB at 1 meter distance
Inlet current	120V 60Hz	
Max. output pressure	0.4A	
Max. flue temperature	30 Pa	842 °F 450° C

7 TECHNICAL DRAWINGS

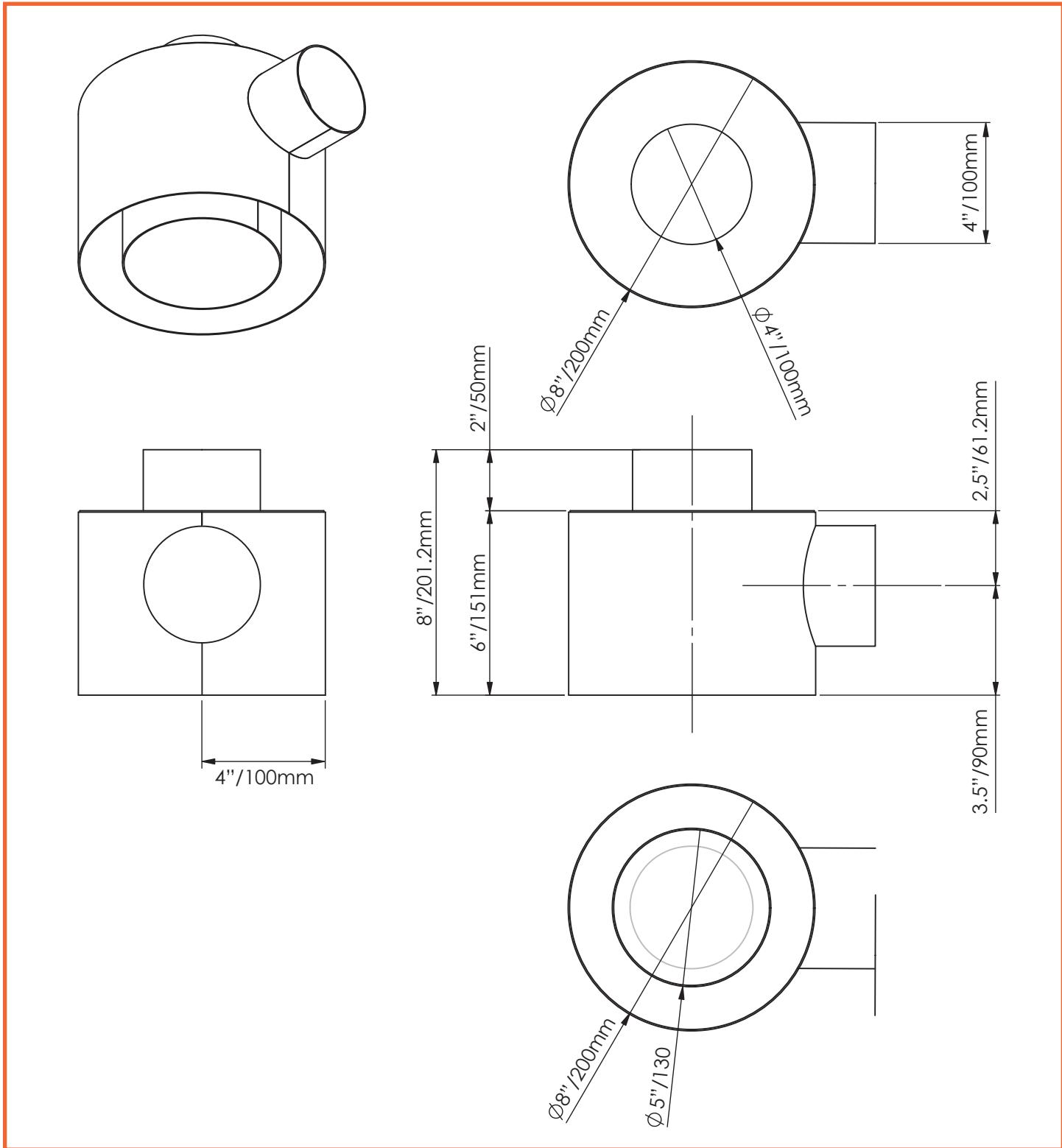


Figure 7.1 - Splitter/ Adapter Dimensions

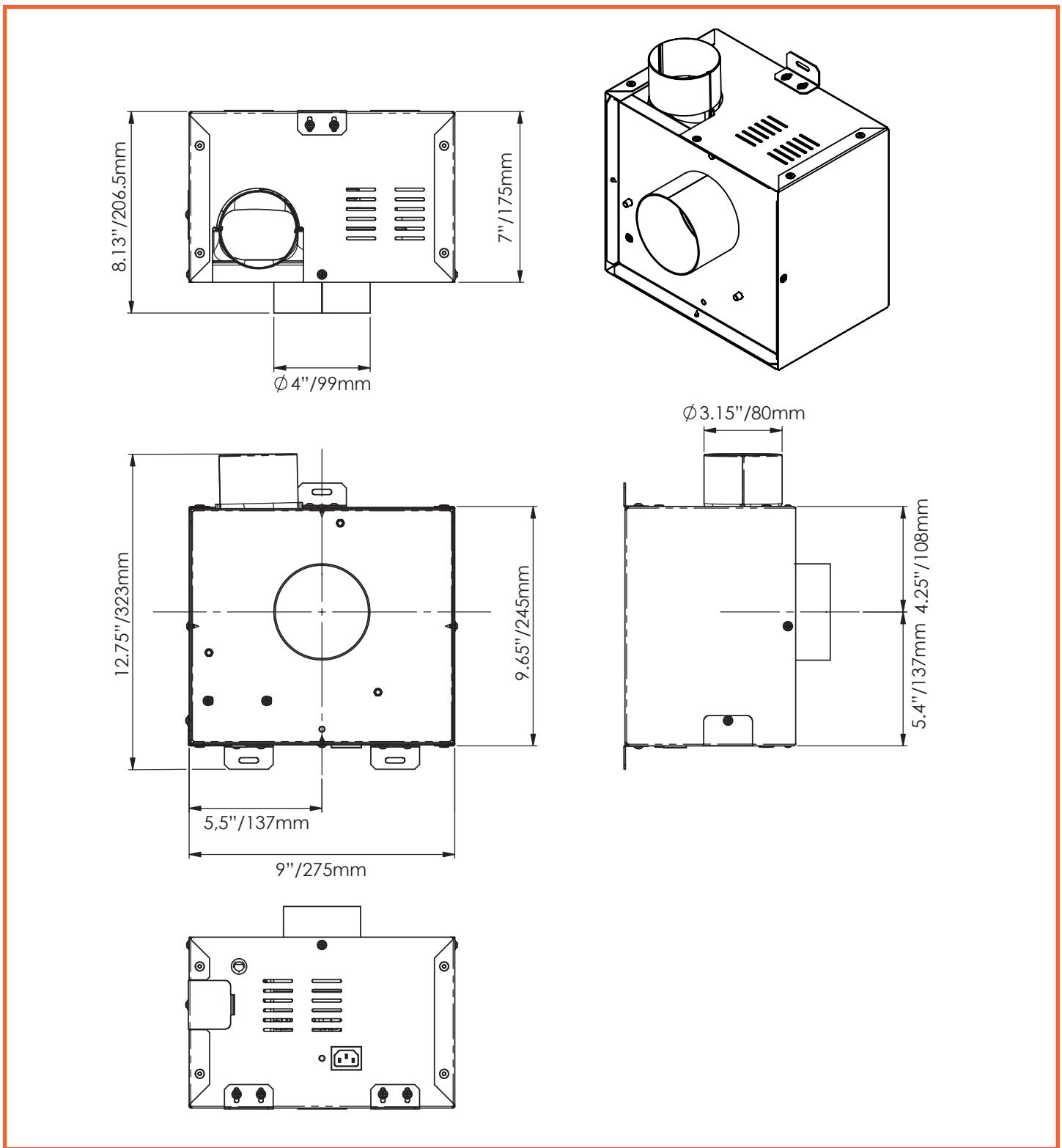


Figure 7.2 - Powervent Dimensions



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