

ELEMENT

4



Flue Calculation Manual



Preface

Element4 gas fires can be situated in almost any room. These are closed system fireplaces (Balanced Flue fires).

Closed system

Balanced fires do not extract the oxygen for combustion from the living room, but directly from outside via a concentric flue. The flue gases are discharged through the inner flue pipe whilst the fresh air is supplied through the outer pipe. This is done via the natural draught system.

All Element4 gas fires are tested for flue gas discharge through the wall (C11), through the roof (C31) or with flexible exhaust pipes through an existing chimney (C91)

The diameter of the duct can be 150/100 mm or 200/130 mm, depending on the fireplace and the course of the flue gas duct.

Calculation

For the fireplace to function properly, it is important that the flue gas terminal meets the requirements. A Calculation scheme has been created to determine this.

The products of Element 4 are divided into categories, each category has its own possibilities and limitations.

Waste material

The European CE quality mark for Element4 appliances only applies in combination with the drainage systems tested by Element4.

The appliance must therefore be installed with the Metaloterm / OnTop, Poujoulat or Jeremias concentric stainless steel flue system. The use of other concentric stainless steel systems is only permitted if they have the same technical specifications as the aforementioned systems. Only with the use of these materials can Element4 guarantee safe and proper operation.

Power-Fan MKI and MKII

A Power-fan can be used for flue configurations where natural draught will not allow. For detailed installation instructions and operation, please refer to the Power-Fan manual.



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1 Rules for flue gas discharge.

Determine the diameter of the flue gas outlet

The main rule is that you must always run the flue in diameter 200/130mm or 8/5 inches. Furthermore the flue always starts with a minimal vertical length of 0.5 meters or 20 inches on the fireplace.

Exceptions

- If the flue spigot outlet on the fireplace itself has a diameter of 150/100 or 6/4 inch, then corresponding concentric flue may be used.
- If the flue run is only running vertically with no bends then you can use a reducer so you can use 150/100mm or 6/4 inch flue on most Element4 fires – but not all

For Element 4 fireplaces, to not reduce the flue diameter is preferable for optimal operation of the fireplace. Please also note that not every flue can be reduced. The flue categories state whether or not a fire can be reduced.

When reducing the flue, regardless of the position of the reduction, you must adhere to the flue configuration table for a reduced flue (Table 1.3).

Determine Maximum Vertical Length

If you use diameter 200/130 mm or 8/5 inch, your maximum total length is 22 meters / 72 feet. If you have reduced your flue gas outlet in accordance with the above exception rules to diameter 150/100 mm or 6/4 inch, the total maximum permitted vertical length of your flue gas outlet is 11 meters / 36 feet.

Determine Maximum Horizontal Length

To see if the intended flue will work properly, you must first determine the category in which your fire falls. After you have determined which category your fire falls into, search for the corresponding calculation tables.

See **chapter 3** - category distribution.

Each category refers has (in any case) two tables:

- A table for a horizontal terminal.
- A table for a vertical terminal.

You take the table that applies to you. You calculate your total vertical length (TVL) and your total horizontal length (THL). In the table you can read the advice with TVL on the vertical axis and THL on the horizontal axis.

Calculating Total Vertical Length (TVL):

You calculate the Total Vertical Length by adding up all the vertical rises in the course of the flue run.

Calculate Total Horizontal Length (THL):

You calculate the Total Horizontal length by adding up all horizontal sections in the course of the flue run.

Important:

Take notice of all the bends in your flue! Bends provide extra resistance in the system and should therefore be included in the TVL and THL.

There are two types of bends:

- 45° and 90° bends from vertical to horizontal and vice versa. (Type N)
- 45° and 90° bends from horizontal to horizontal (Type Q)



You do not have to include the first 3 N-bends (from vertical to horizontal) in your calculations. The next bends of type N are each counted as 1 horizontal meter in the THL.

For a bend of type Q (horizontal to horizontal):

- 90° bend in the horizontal section counts for 2 horizontal meters or 7 feet in the THG.
- 45° bend in the horizontal section counts for 1 horizontal meter or 3,5 feet in the THG.

Flue sections in a 45° rising pipe:

Rising sections under an angle 45° are calculated both vertically and horizontally.

Explanation results table

Read in the table at the TVL and THL you have determined a

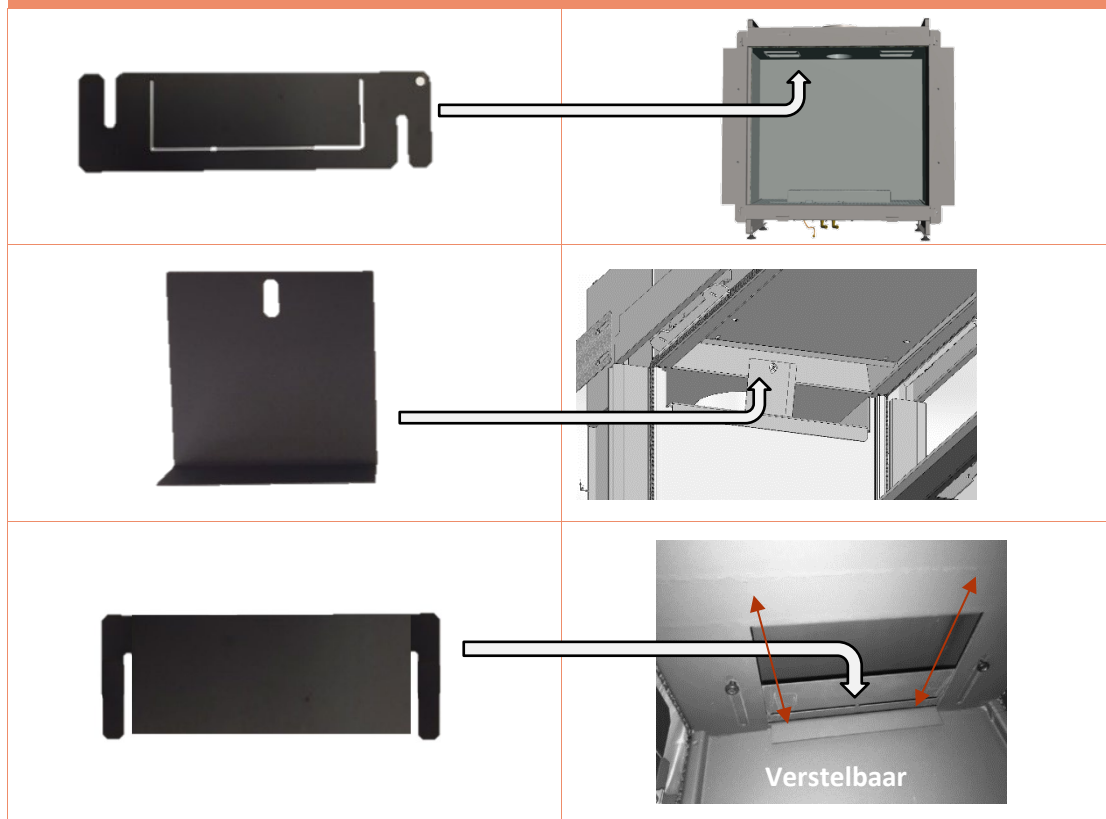
X - The installation is not allowed.

V – The installation is allowed, but there is no need to install a restrictor.

R - The installation is allowed, but a restrictor needs to be fitted.

Depending on the discharge situation, you must use one of the supplied flue gas restrictors. As standard, three flue gas restrictors are supplied with the device (with some exceptions). It is highly dependent on the desired discharge situation which flue gas restrictors must be installed. The exact position of the flue gas restrictors is indicated in the installation manual supplied with the fireplace.

Position of the restrictor plate (differing per fire).



Please note: When the result of the desired flue is an “X”, proper functioning of the fire is not guaranteed. In this case the PowerFan might be a good solution.



2 Flue calculation example

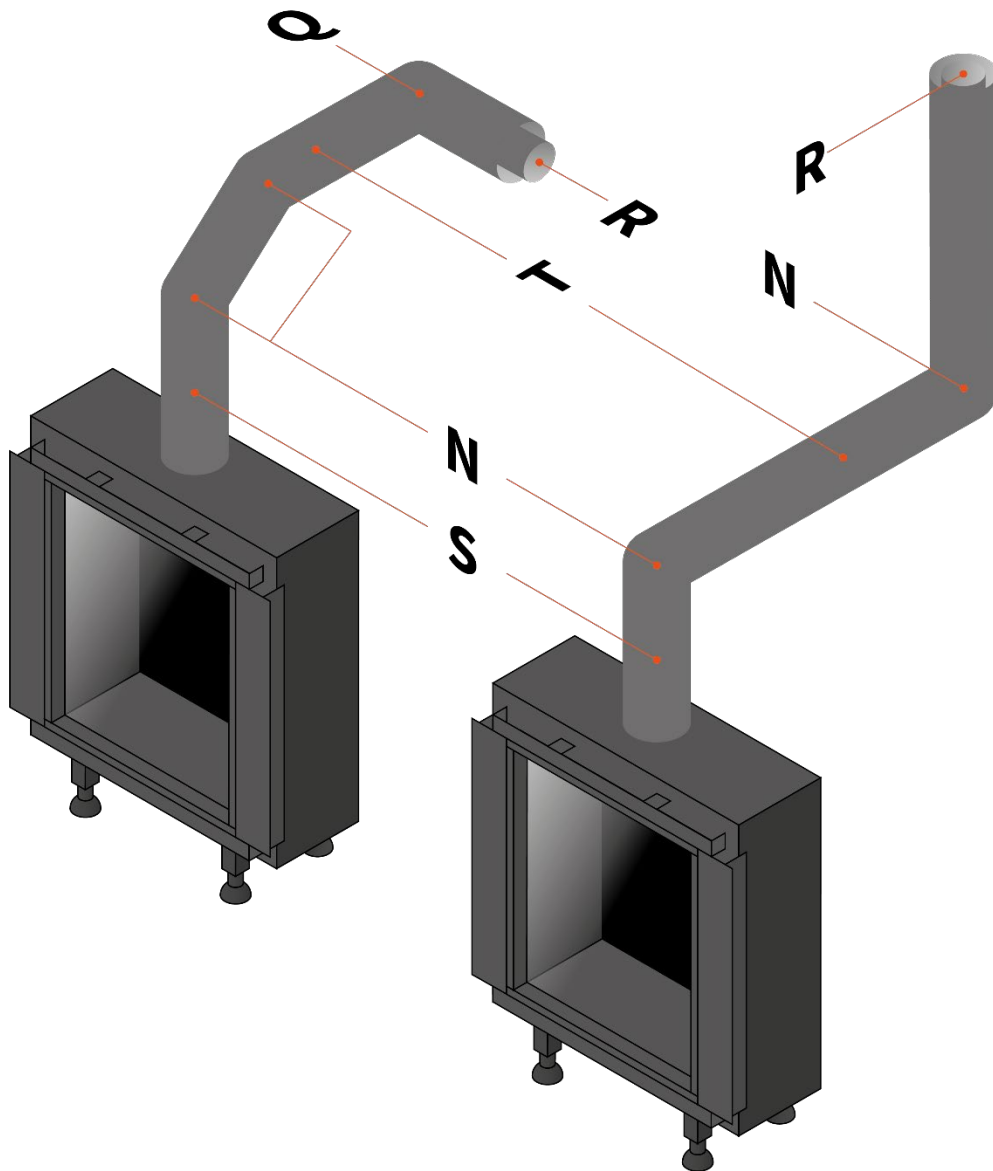
2.1 The six questions of flue calculation

To find out whether the desired flue configuration is possible for your fireplace, the following six questions can be asked:

1. In what category is the fire that is to be installed.
Use the table in chapter 3 as a guideline .
2. What is the desired flue diameter?
Please note that this question is only relevant when one wishes to reduce the flue diameter.
3. Does your flue have a vertical or horizontal terminal?
Depending on the answer choose table 1.1. or 1.2 from the category from question 1.
4. What is the Total Vertical Length?
*Add all the vertical sections of the flue.
Do not forget the extra resistance of the bends to add to the THL.*
5. What is the Total Horizontal Length?
*Add all the horizontal sections of the flue.
Do not forget the extra resistance of the bends.*
6. Which result can be found when all the answers found above are combined?
*Check the cross product of the TVL and THL in the corresponding table.
The different possibilities are **V, X or R***



2.2 Example flue configuration



Horizontal or vertical terminal	R
Bend 45° & 90° vertical to horizontal and vice versa	N
Bend 45° & 90° horizontal to horizontal	Q
Pipe section horizontal	T
Pipe section vertical	S



3 Categories

Name of the device	Spigot diameter		Category
	Metric	Imperial	
Bidore 70	200/130	8 / 5 inches	1
Bidore 100	200/130	8 / 5 inches	1
Bidore 140	200/130	8 / 5 inches	3
Bidore 240H	200/130	8 / 5 inches	5
Bioptica	150/100	6 / 4 Inches	2
Club 140	200/130	8 / 5 inches	3
Club 240	200/130	8 / 5 inches	5
Cupido 50	150/100	6 / 4 Inches	2
Cupido 50 met Real Flame Burner	150/100	6 / 4 Inches	1
Cupido 70	150/100	6 / 4 Inches	2
Cupido 70 met Real Flame Burner	150/100	6 / 4 Inches	1
Lucius 100	200/130	8 / 5 inches	4
Lucius 140	200/130	8 / 5 inches	3
Lucius 240H	200/130	8 / 5 inches	5
Modore 70	200/130	8 / 5 inches	1
Modore 75H	200/130	8 / 5 inches	4
Modore 100	200/130	8 / 5 inches	1
Modore 140	200/130	8 / 5 inches	3
Modore 185	200/130	8 / 5 inches	5
Modore 240	200/130	8 / 5 inches	5
Modore 240H	200/130	8 / 5 inches	5
Optica	150/100	6 / 4 Inches	2
Sky	200/130	8 / 5 inches	2
Sky T	200/130	8 / 5 inches	2
Sky Medium	200/130	8 / 5 inches	2
Summum 70	200/130	8 / 5 inches	1
Summum 100	200/130	8 / 5 inches	2
Summum 140	200/130	8 / 5 inches	4
Tenore 100	200/130	8 / 5 inches	4
Tenore 240	200/130	8 / 5 inches	5
Tenore 240H	200/130	8 / 5 inches	5
Trisore 70	200/130	8 / 5 inches	1
Trisore 100	200/130	8 / 5 inches	1
Trisore 140	200/130	8 / 5 inches	3



3.1 Category 1 (Metric) – Ratio 1:4

The tables below are the same for fireplaces with spigot diameter 200/130 and 150/100. Fires in this category are never to be reduced to ensure a correctly functioning fireplace.

3.1.1 Calculation table horizontal terminal (C11)

11	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
4	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
3,5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V
3	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
2,5	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
2	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
1,5	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X
1	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X
0,5	V	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8		
		Total Horizontal Length																	

3.1.2 Calculation table vertical terminal (C31)

For a vertical terminal a minimal starting length of 0,5m is required and - **Total Vertical Length** is 1 m.

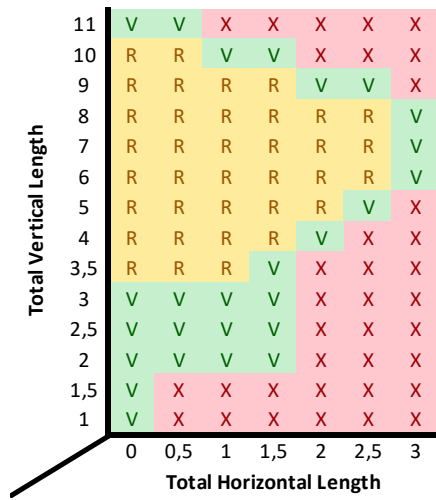
22	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
21	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X
19	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X
18	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X
17	R	R	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X
16	R	R	R	R	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X
15	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	X	X	X
14	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
13	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
12	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
11	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
10	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
9	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
8	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
7	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
6	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
5	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
4	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
3,5	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
3	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
2,5	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
2	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
1,5	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X
1	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X
		0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	
		Total Horizontal Length																	

3.1.3 Calculation table pipe diameter 150/100

Please note: This table is only applicable when flue is reduced. Fireplaces with a 150/100 spigot do not apply to this table, but instead **table 3.1.1** or **3.1.2** is to be used.



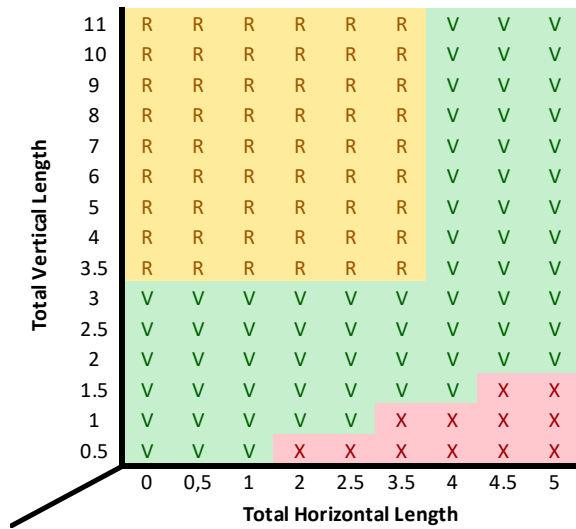
For a vertical terminal a **Total Vertical Length** of at least 2 meter is necessary!



3.2 Category 2 (Metric) - Ratio 1:2.5

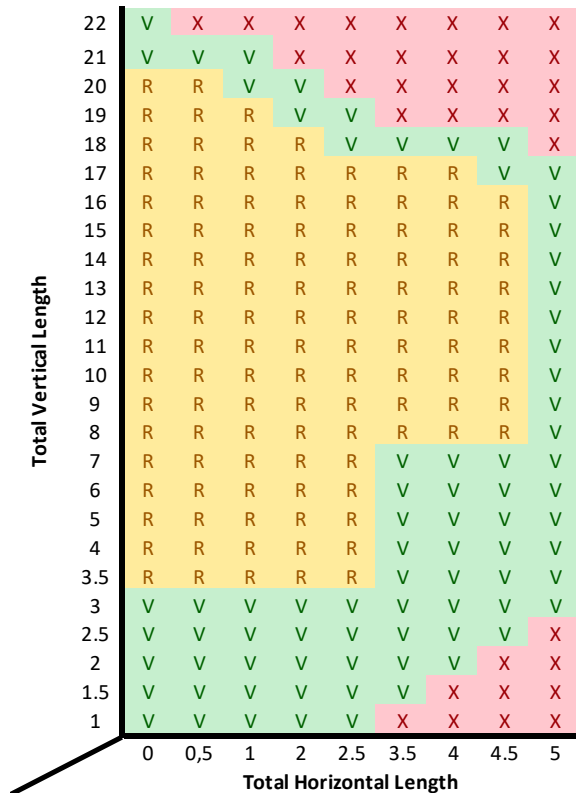
The tables below are the same for fireplaces with spigot diameter 200/130 and 150/100. Fires in this category are never to be reduced to ensure a correctly functioning fireplace.

3.2.1 Calculation table horizontal terminal (C11)



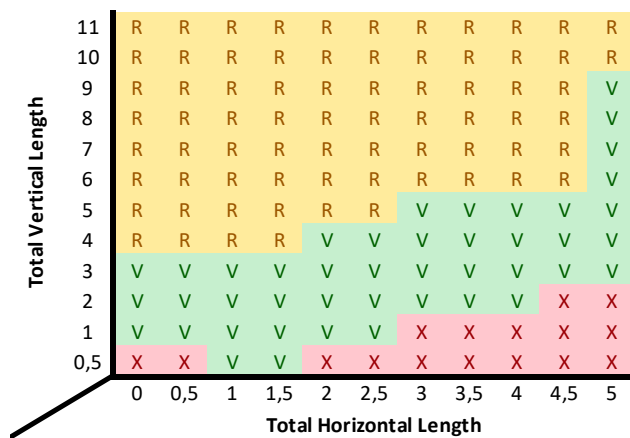
3.2.2 Calculation table vertical terminal (C31) pipe diameter 200/130

For a vertical terminal a minimal starting length of 0,5m and minimal Total Vertical Length of 1 m is required.



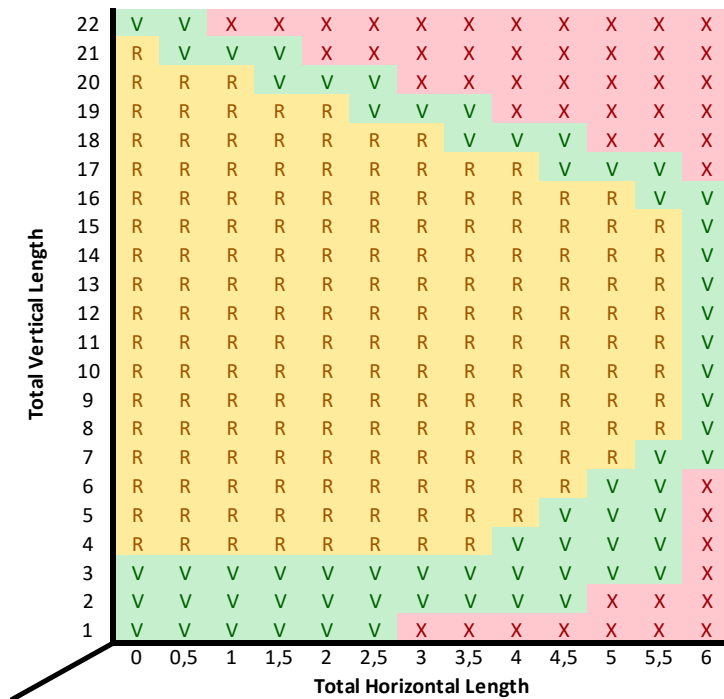
3.3 Category 3 (Metric) – Ratio 1:2

3.3.1 Calculation table horizontal terminal (C11) pipe diameter 200/130



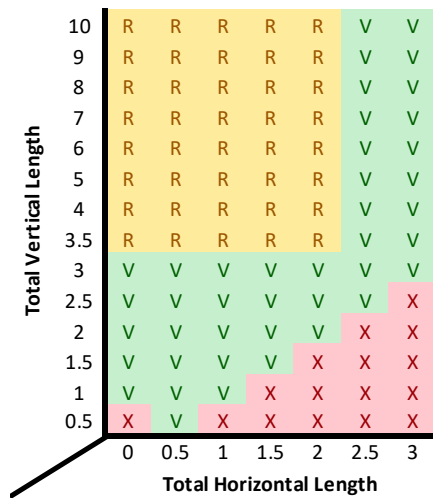
3.3.2 Calculation table vertical terminal (C31) pipe diameter 200/130

For a vertical terminal a minimal starting length of 0,5m and minimal **Total Vertical Length** of 1 m is required.



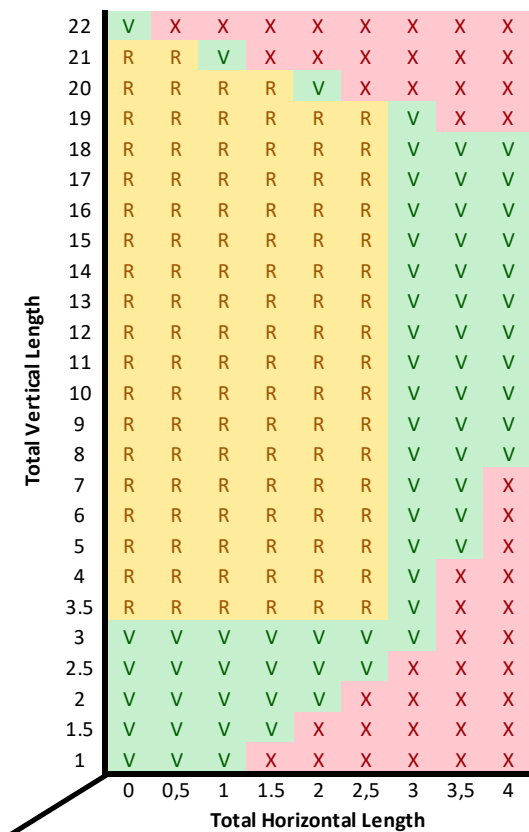
3.4 Category 4 (Metric) – Ratio 1:1

3.4.1 Calculation table horizontal terminal (C11) pipe diameter 200/130



3.4.2 Calculation table vertical terminal (C31) pipe diameter 200/130

For a vertical terminal a minimal starting length of 0,5m and minimal **Total Vertical Length** of 1 m is required.



3.4.3 Calculation table vertical terminal (C31) pipe diameter 150/100

When the **flue is exclusively vertical**, it may be reduced to a diameter 150/100mm flue pipe, given the **Total Vertical Length** is a **minimum of 2 meters**. In this case you do not have to use a restriction plate.

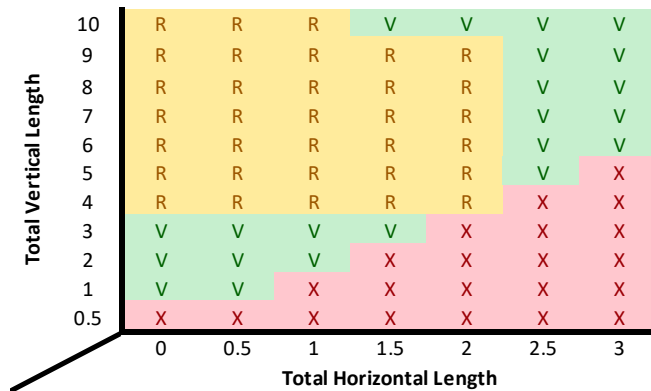


3.5 Category 5 (Metric) – Ratio 2:1

Fires in this category are never to be reduced to flue diameter 150/100mm.

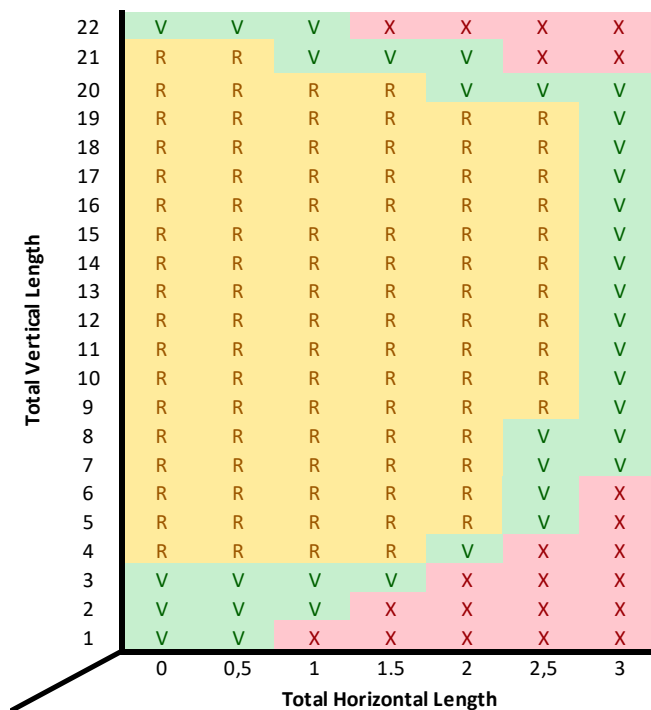
For the Modore /Tenore 240 a restriction plate is never necessary.

3.5.1 Calculation table horizontal terminal (C11) pipe diameter 200/130



3.5.2 Calculation table vertical terminal (C31) pipe diameter 200/130

For a vertical terminal a minimal starting length of 0,5m is required and - **Total Vertical Length** is 1 m.



3.5.3 Calculation table vertical terminal (C31) pipe diameter 200/130

When the flue is exclusively vertical, it may be reduced to a diameter 150/100mm flue pipe Given the Total Vertical Length is a minimum of 2 meters.

In this case you do not have to use a restriction plate.



3.6 Category 1 (Imperial) – Ratio 1:4

The tables below are the same for fireplaces with spigot diameter 8/5 and 6/4. Fires in this category are never to be reduced to ensure a correctly functioning fireplace.

3.6.1 Calculation table horizontal terminal (C11)

36'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
33'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
30'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
27'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
24'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
21'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
18'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
15'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
13'6"	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
12'	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
10'6"	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
6'	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
4'6"	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X
3'	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X
20"	V	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"	18'	19'6"	21'	22'6"	24'			

3.6.2 Calculation table vertical terminal (C31)

For a vertical terminal a minimal starting length of 20" is required and - **Total Vertical Length** is 3'.

72'	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
69'	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
66'	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X
63'	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X	X	X
60'	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X	X	X
57'	R	R	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X	X	X
54'	R	R	R	R	R	R	R	R	R	R	R	V	V	X	X	X	X	X	X
51'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	X	X	X
48'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	X	X	X
45'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
42'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
39'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
36'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
33'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
30'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
27'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
24'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
21'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
18'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
15'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
13'6"	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
12'	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
10'6"	R	R	R	R	R	R	R	R	R	R	R	R	V	V	V	V	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
6'	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
4'6"	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X
3'	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X
	0	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"	18'	19'6"	21'	22'6"	24'		



3.6.3 Calculation table pipe diameter 6/4

Please note: This table is only applicable when flue is reduced. Fireplaces with a 6/4 spigot do not apply to this table, but instead **table 3.1.1** or **3.1.2** is to be used.

For a vertical terminal a **Total Vertical Length** of at least 7 feet is necessary!

36'	V	V	X	X	X	X	X
33'	R	R	V	V	X	X	X
30'	R	R	R	R	V	V	X
27'	R	R	R	R	R	R	V
24'	R	R	R	R	R	R	V
21'	R	R	R	R	R	R	V
18'	R	R	R	R	R	R	V
15'	R	R	R	R	R	V	X
13'6"	R	R	R	R	V	X	X
12'	R	R	R	V	X	X	X
10'6"	R	R	R	V	X	X	X
9'	V	V	V	V	X	X	X
7'6"	V	V	V	V	X	X	X
6'	V	V	X	X	X	X	X
	0	20"	3'	4'6"	6'	7'6"	9'

Total Horizontal Length



3.7 Category 2 (Imperial) - Ratio 1:2.5

The tables below are the same for fireplaces with spigot diameter 8/5 and 6/4. Fires in this category are never to be reduced to ensure a correctly functioning fireplace.

3.7.1 Calculation table horizontal terminal

36'	R	R	R	R	R	R	R	V	V	V	V
33'	R	R	R	R	R	R	R	V	V	V	V
30'	R	R	R	R	R	R	R	V	V	V	V
27'	R	R	R	R	R	R	R	V	V	V	V
24'	R	R	R	R	R	R	R	V	V	V	V
21'	R	R	R	R	R	R	R	V	V	V	V
18'	R	R	R	R	R	R	R	V	V	V	V
15'	R	R	R	R	R	R	R	V	V	V	V
13'6"	R	R	R	R	R	R	R	V	V	V	V
12'	R	R	R	R	R	R	R	V	V	V	V
10'6"	R	R	R	R	R	R	R	V	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	V	V
6'	V	V	V	V	V	V	V	V	V	V	X
4'6"	V	V	V	V	V	V	V	X	X	X	X
3'	V	V	V	V	V	X	X	X	X	X	X
20"	V	V	V	X	X	X	X	X	X	X	X
	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"

3.7.2 Calculation table vertical terminal

For a vertical terminal a minimal starting length of 20" and minimal **Total Vertical Length** of 3' is required.

72'	V	V	X	X	X	X	X	X	X	X	X
69'	R	V	V	V	X	X	X	X	X	X	X
66'	R	R	R	V	V	V	X	X	X	X	X
63'	R	R	R	R	R	V	V	V	X	X	X
60'	R	R	R	R	R	R	R	V	V	V	X
57'	R	R	R	R	R	R	R	V	V	V	V
54'	R	R	R	R	R	R	R	R	R	R	V
51'	R	R	R	R	R	R	R	R	R	R	R
48'	R	R	R	R	R	R	R	R	R	R	R
45'	R	R	R	R	R	R	R	R	R	R	R
42'	R	R	R	R	R	R	R	R	R	R	R
39'	R	R	R	R	R	R	R	R	R	R	R
36'	R	R	R	R	R	R	R	R	R	R	R
33'	R	R	R	R	R	R	R	R	R	R	R
30'	R	R	R	R	R	R	R	R	R	R	R
27'	R	R	R	R	R	R	R	R	R	R	R
24'	R	R	R	R	R	R	V	V	V	V	V
21'	R	R	R	R	R	R	V	V	V	V	V
18'	R	R	R	R	R	R	V	V	V	V	V
15'	R	R	R	R	R	R	V	V	V	V	V
13'6"	R	R	R	R	R	R	V	V	V	V	V
12'	R	R	R	R	R	R	V	V	V	V	V
10'6"	R	R	R	R	R	R	V	V	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	V	V
6'	V	V	V	V	V	V	V	V	V	V	X
4'6"	V	V	V	V	V	V	V	X	X	X	X
3'	V	V	V	V	V	X	X	X	X	X	X
	0	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'



3.8 Category 3 (Imperial) – Ratio 1:2

3.8.1 Calculation table horizontal terminal pipe diameter 8/5 inch

Total vertical Length	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"
36'	R	R	R	R	R	R	R	R	R	R	R
33'	R	R	R	R	R	R	R	R	R	R	R
30'	R	R	R	R	R	R	R	R	R	R	V
27'	R	R	R	R	R	R	R	R	R	R	V
24'	R	R	R	R	R	R	R	R	R	R	V
21'	R	R	R	R	R	R	R	R	R	R	V
18'	R	R	R	R	R	R	R	R	R	R	V
15'	R	R	R	R	R	R	V	V	V	V	V
13'6"	R	R	R	R	V	V	V	V	V	V	V
12'	R	R	R	R	V	V	V	V	V	V	V
10'6"	R	R	R	R	V	V	V	V	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	X	X
6'	V	V	V	V	V	V	V	V	X	X	X
4'6"	V	V	V	V	V	V	X	X	X	X	X
3'	V	V	V	V	X	X	X	X	X	X	X
20"	V	V	X	X	X	X	X	X	X	X	X

3.8.2 Calculation table vertical terminal pipe diameter 8/5 inch

For a vertical terminal a minimal starting length of 20" and minimal **Total Vertical Length** of 3' is required.

Total vertical Length	0	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"
72'	V	V	V	X	X	X	X	X	X	X	X	X
69'	R	V	V	V	X	X	X	X	X	X	X	X
66'	R	R	R	V	V	V	X	X	X	X	X	X
63'	R	R	R	R	R	V	V	V	X	X	X	X
60'	R	R	R	R	R	R	R	V	V	V	X	X
57'	R	R	R	R	R	R	R	R	V	V	V	V
54'	R	R	R	R	R	R	R	R	R	R	V	V
51'	R	R	R	R	R	R	R	R	R	R	R	R
48'	R	R	R	R	R	R	R	R	R	R	R	R
45'	R	R	R	R	R	R	R	R	R	R	R	R
42'	R	R	R	R	R	R	R	R	R	R	R	R
39'	R	R	R	R	R	R	R	R	R	R	R	R
36'	R	R	R	R	R	R	R	R	R	R	R	R
33'	R	R	R	R	R	R	R	R	R	R	R	R
30'	R	R	R	R	R	R	R	R	R	R	R	R
27'	R	R	R	R	R	R	R	R	R	R	R	R
24'	R	R	R	R	R	R	R	R	R	R	R	R
21'	R	R	R	R	R	R	R	R	R	R	R	R
18'	R	R	R	R	R	R	R	R	R	R	R	V
15'	R	R	R	R	R	R	R	R	R	R	V	V
13'6"	R	R	R	R	R	R	R	R	R	V	V	V
12'	R	R	R	R	R	R	R	R	R	V	V	V
10'6"	R	R	R	R	R	R	R	R	R	V	V	V
9'	V	V	V	V	V	V	V	V	V	V	V	V
7'6"	V	V	V	V	V	V	V	V	V	V	V	V
6'	V	V	V	V	V	V	V	V	V	V	X	X
4'6"	V	V	V	V	V	V	V	X	X	X	X	X
3'	V	V	V	V	V	X	X	X	X	X	X	X



3.9 Category 4 (Imperial) – Ratio 1:1

3.9.1 Calculation table horizontal terminal pipe diameter 8/5 inch

Total vertical Length	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"	15'	16'6"
36'	R	R	R	R	R	V	V	V	V	V	V
33'	R	R	R	R	R	V	V	V	V	V	V
30'	R	R	R	R	R	V	V	V	V	V	V
27'	R	R	R	R	R	V	V	V	V	V	V
24'	R	R	R	R	R	V	V	V	V	V	V
21'	R	R	R	R	R	V	V	V	V	V	V
18'	R	R	R	R	R	V	V	V	V	V	V
15'	R	R	R	R	R	V	V	V	V	V	X
13'6"	R	R	R	R	V	V	V	V	V	X	X
12'	R	R	R	R	V	V	V	V	X	X	X
10'6"	R	R	R	R	V	V	V	X	X	X	X
9'	V	V	V	V	V	V	X	X	X	X	X
7'6"	V	V	V	V	V	X	X	X	X	X	X
6'	V	V	V	V	X	X	X	X	X	X	X
4'6"	V	V	V	X	X	X	X	X	X	X	X
3'	V	V	X	X	X	X	X	X	X	X	X

3.9.2 Calculation table vertical terminal pipe diameter 8/5 inch

For a vertical terminal a minimal starting length of 20" and minimal **Total Vertical Length** of 3' is required.

Total vertical Length	0	20"	3'	4'6"	6'	7'6"	9'	10'6"	12'	13'6"
72'	V	V	V	X	X	X	X	X	X	X
69'	R	R	V	V	X	X	X	X	X	X
66'	R	R	R	R	V	V	X	X	X	X
63'	R	R	R	R	R	R	V	V	X	X
60'	R	R	R	R	R	R	V	V	V	V
57'	R	R	R	R	R	R	V	V	V	V
54'	R	R	R	R	R	R	V	V	V	V
51'	R	R	R	R	R	R	V	V	V	V
48'	R	R	R	R	R	R	V	V	V	V
45'	R	R	R	R	R	R	V	V	V	V
42'	R	R	R	R	R	R	V	V	V	V
39'	R	R	R	R	R	R	V	V	V	V
36'	R	R	R	R	R	R	V	V	V	V
33'	R	R	R	R	R	R	V	V	V	V
30'	R	R	R	R	R	R	V	V	V	V
27'	R	R	R	R	R	R	V	V	V	V
24'	R	R	R	R	R	R	V	V	V	V
21'	R	R	R	R	R	R	V	V	V	V
18'	R	R	R	R	R	R	V	V	V	V
15'	R	R	R	R	R	R	V	V	V	V
13'6"	R	R	R	R	R	R	V	V	V	V
12'	R	R	R	R	R	R	V	V	V	X
10'6"	R	R	R	R	R	R	V	V	X	X
9'	V	V	V	V	V	V	V	X	X	X
7'6"	V	V	V	V	V	V	X	X	X	X
6'	V	V	V	V	V	X	X	X	X	X
4'6"	V	V	V	V	X	X	X	X	X	X
3'	V	V	V	X	X	X	X	X	X	X

3.9.3 Calculation table vertical terminal (C31) pipe diameter 150/100

When the flue is exclusively vertical, it may be reduced to a diameter 150/100mm flue pipe, given the **Total Vertical Length** is a minimum of 2 meters. In this case you do not have to use a restriction plate.

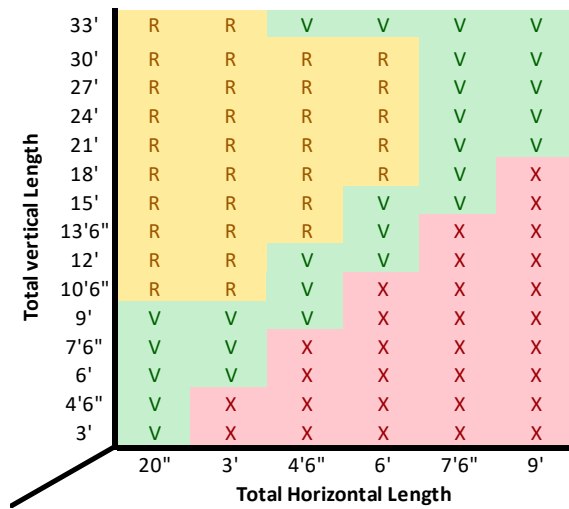


3.10 Category 5 (Imperial) – Ratio 2:1

Fires in this category are never to be reduced to flue diameter 6"/4".

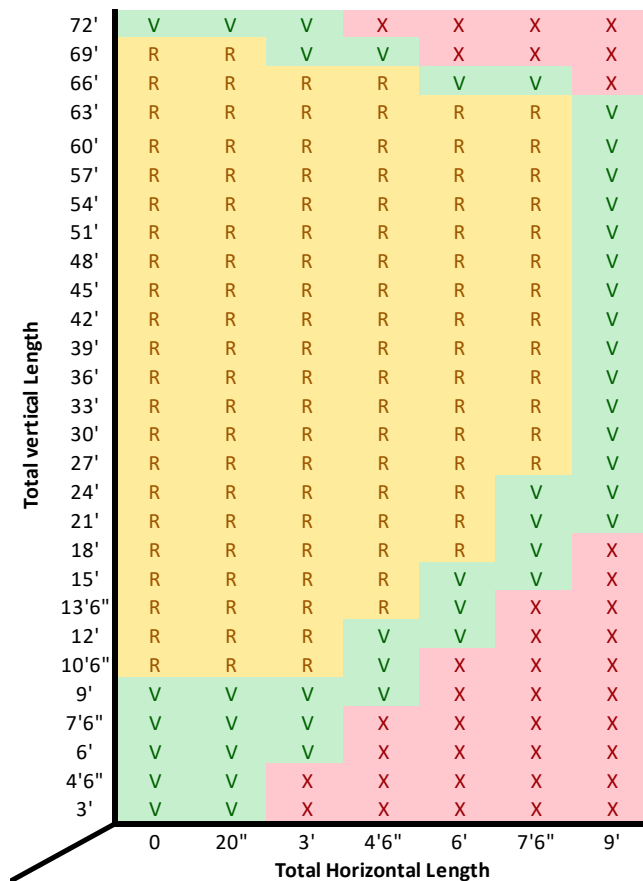
For the Modore /Tenore 240 a restriction plate is never necessary.

3.10.1 Calculation table horizontal terminal pipe diameter 8/5



3.10.2 Calculation table vertical terminal pipe diameter 8/5

For a vertical terminal a minimal starting length of 20" is required and - Total Vertical Length is 3'.



3.10.3 Calculation table vertical terminal pipe diameter 8/5 inches

When the flue is exclusively vertical, it may be reduced to a diameter 6/4 inches flue pipe given the Total Vertical Length is a minimum of 7 feet. In this case you do not have to use a restriction plate.



4 Existing Chimney

All Element4 gas fire places are CE approved with a C91 mark. This means that the fire can be installed with a flexible pipe in an pre-existing chimney, where the chimney is functioning as the air supply in a concentric flue system. The flexible pipe is the exhaust for the flue gasses.

Please note the following

Local rules and legislation is applicable to the installation of your fireplace. Make sure that the use of flexible pipes is permitted in your area before installing the fire or take different precautions. Feel free to contact your installer or Element4 with any questions.

Important

The pre-existing chimney is to be closed on the top and bottom, such that the air supply can only be taken from outside the house. This will ensure a closed system.

A stainless steel flexible pipe with a diameter of 100mm/4" (or 130mm/5") must comply with the CE-norms. This means the pipe should have a temperature resistance of 600°C / 1112°F, which can be seen on the declaration of performance.

The chimney must fulfil the following conditions:

- For flue diameter 150/100mm or 6/4" :
The cross section of the chimney must be a minimum of 150x150 mm or 6x6".
- For flue diameter 200/130 mm or 8/5 inch:
The cross section of the chimney must be a minimum of 200x200 mm or 8x8"
- No more than one fireplace is to be used per chimney.
- The chimney must be cleaned properly before using the fireplace.
- The chimney must be checked for leakage before use.

When the total vertical length is at least 3 meters or 10 feet, an offset of 45° is allowed on the fire.

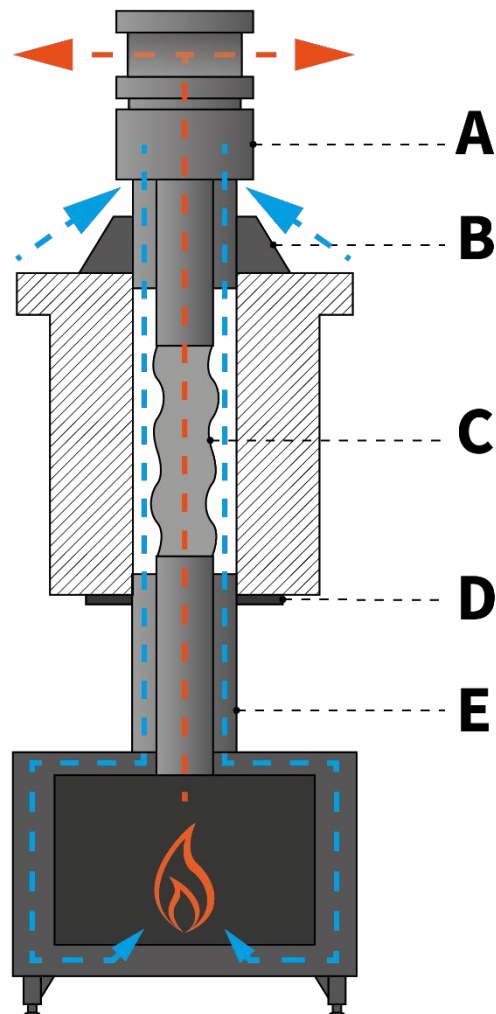


Table for the diagram on the right

A	Roof terminal
B	Roof Plate
C	Flexibel pipe
D	Chimney closing plate
E	Start of the flue (minimum of 0,5m / 20") possible offset of 2 times a 45° bend



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