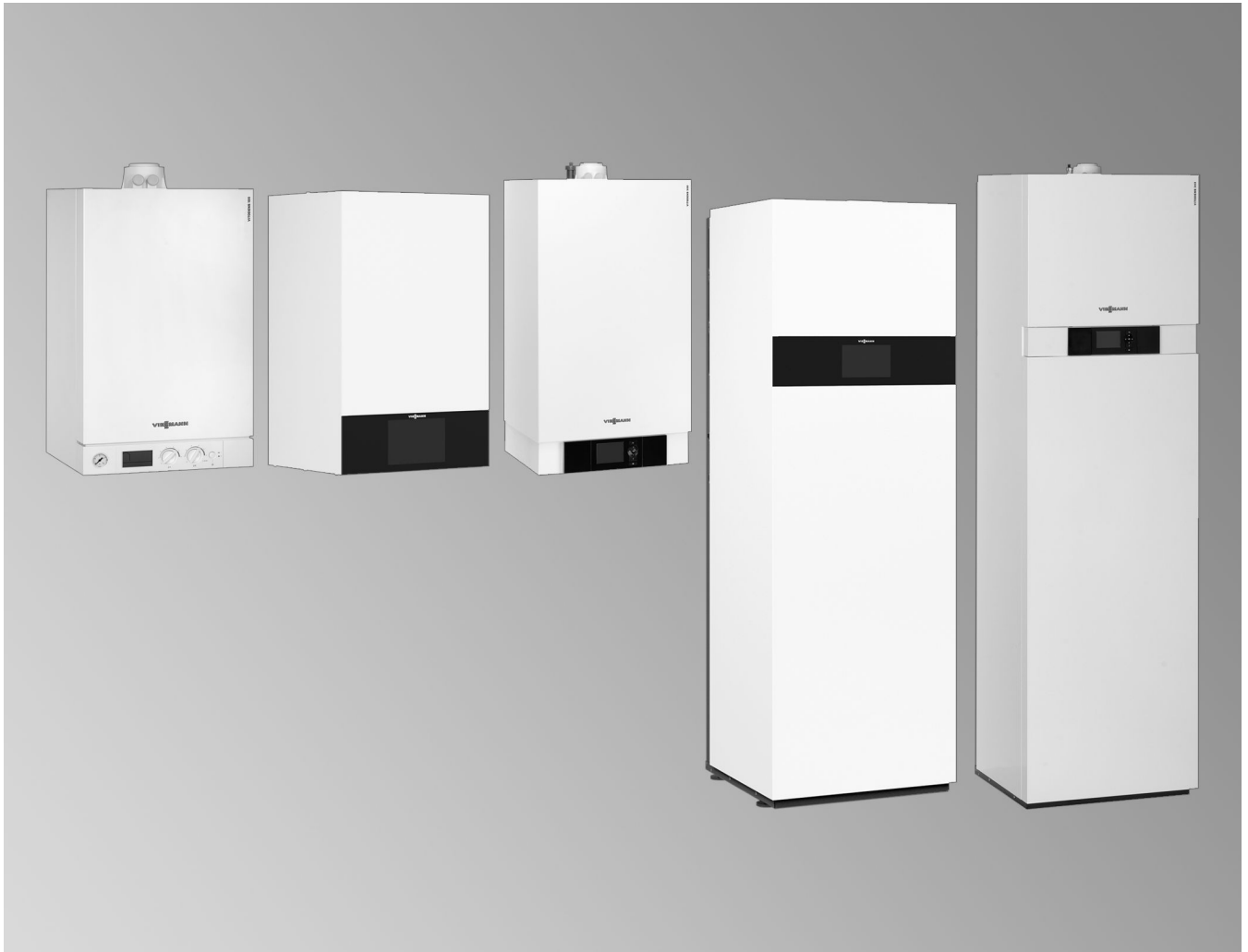


Technical guide



Vitodens flue systems

Index

<b>1. Flue systems</b>		
1. 1	Flue systems .....	4
	■ System certification .....	4
1. 2	Room sealed operation .....	4
	■ Use of third party flue systems of type C <sub>63</sub> /C <sub>63x</sub> .....	5
1. 3	Open flue operation .....	5
1. 4	Flue gas high limit safety cut-out .....	5
1. 5	Lightning protection .....	5
1. 6	CE designation for PPs flue systems (rigid and flexible) for the Vitodens .....	6
1. 7	Flue system installation options for room sealed operation .....	8
	■ Inside occupied rooms (living space) with one or more full storeys above .....	8
	■ In occupied rooms (living space) immediately below the roof or with only the roof space above .....	9
	■ In the installation room, with ventilation air supplied through the external wall .....	9
	■ Several Vitodens in the living space or in living spaces .....	10
1. 8	Flue system installation options for open flue operation .....	10
	■ In the installation room (non-living space) with one or more full floors above .....	10
	■ Special version: Open flue operation and installation location in the living space with combustion air supply via interconnected rooms (rated heating output ≤ 35 kW) .....	11
	■ Flue gas header for several Vitodens 100-W, 200-W, 222-W, 222-F and 242-F – positive pressure .....	11
	■ Flue gas header for several Vitodens – negative pressure .....	12
<b>2. Design and sizing information for connection on the flue gas side</b>		
2. 1	Boiler allocation — balanced flue pipe size .....	12
2. 2	Installing flue pipes .....	12
	■ Installation and position of inspection ports .....	13
2. 3	Plastic (PP) balanced flue system for routing in a shaft – for room sealed operation (type C <sub>93x</sub> to CEN/TR 1749) .....	13
	■ Internal shaft dimensions to DIN V 18160 .....	13
	■ Flue, system size 60, 80 and 110 (components) (type C <sub>93x</sub> to CEN/TR 1749) .....	15
	■ Vitodens in conjunction with solid fuel boilers .....	16
	■ Flue, flexible, system size 60, 80 and 110 (components) (type C <sub>93x</sub> according to CEN/TR 1749) .....	18
2. 4	Plastic (PPs) balanced flue system for vertical roof outlets through a pitched or flat roof (type C <sub>33x</sub> to CEN/TR 1749) .....	19
	■ For vertical roof outlets when the Vitodens is installed in attics .....	19
	■ Vertical flat roof outlet .....	19
2. 5	Plastic (PPs) balanced flue system for external wall connection (type C <sub>13x</sub> to CEN/TR 1749) .....	21
	■ Max. total length of the flue pipe .....	21
2. 6	Plastic (PP) balanced flue system for separate ventilation air and flue gas routing (type C <sub>93x</sub> to CEN/TR 1749) .....	22
2. 7	Plastic (PPs) balanced flue system for routing over external walls (type C <sub>53x</sub> to CEN/TR 1749) .....	23
2. 8	Plastic (PPs) balanced flue system for routing through a lightweight shaft .....	25
	■ "UNIFIX" shaft profiles from Skoberne (made from aerated concrete) .....	25
	■ "SKOBIFIXnano" and "SKOBIFIXs 30" shaft elements from Skoberne (made from foamed ceramics) .....	26
	■ Anchoring for roof outlets with shaft profiles .....	26
	■ Shaft profiles from Promat .....	26
	■ Roof outlet for shafts with Promat profiles .....	27
2. 9	Plastic (PPs) flue gas/ventilation air system for routing multiple pipes through a shaft .....	27
	■ Layout examples .....	28
2.10	Plastic (PPs) balanced flue system (connection line) for connecting multiple flues to a single balanced flue system .....	28
	■ Balanced flue system, negative pressure (type C <sub>43x</sub> to CEN/TR 1749) .....	29
	■ .....	29
2.11	Plastic (PPs) flue pipe for routing through a shaft – open flue operation (type B according to CEN/TR 1749) .....	33
	■ Internal shaft dimensions .....	34
	■ Flue, system size 60, 80 and 110 (components) (type B <sub>23</sub> /B <sub>33</sub> to CEN/TR 1749) ..	35
	■ Flexible flue, system size 60, 80 and 110 (components) (type B <sub>23</sub> according to CEN/TR 1749) .....	37
	■ Special version: Open flue operation with combustion air supply via interconnected rooms for Vitodens up to 35 kW (type B <sub>33</sub> to CEN/TR 1749) .....	38

	<ul style="list-style-type: none"> <li>■ Connection to a moisture-resistant chimney (MR chimney negative pressure) with a plastic (PPs) flue pipe (type B<sub>23x</sub>, according to CEN/TR 1749) ..... 39</li> <li>■ Multi boiler systems with flue systems under positive pressure (open flue operation) ..... 40</li> <li>■ Multi boiler systems with flue systems under negative pressure ..... 47</li> </ul>	
<b>3. Flue system components</b>	<ul style="list-style-type: none"> <li>3. 1 Balanced flue system components ..... 47</li> <li>3. 2 Components for routing a flue over an external wall ..... 52                             <ul style="list-style-type: none"> <li>■ External wall components for multiple connections ..... 54</li> </ul> </li> <li>3. 3 Single pipe system components ..... 54</li> <li>3. 4 Components for multiple connections to a balanced flue system – positive pressure for Vitodens 200-W, 222-W and 222-F, 19 to 26 kW ..... 58</li> <li>3. 5 Components of the flexible single pipe system for flexible flues ..... 59</li> <li>3. 6 Components for multi boiler systems ..... 61                             <ul style="list-style-type: none"> <li>■ Flue gas header ..... 61</li> </ul> </li> <li>3. 7 Roof elements ..... 62</li> </ul>	
<b>4. Keyword index</b>	.....	63

## 1.1 Flue systems

The following requirements regarding design and installation apply to flue systems for condensing combustion equipment:

**Prior to starting work on the flue system, your heating contractor should confer with the responsible flue gas inspector [where applicable].**

Gas combustion equipment must be connected to the domestic chimney on the same floor as where it is installed (no transition through separating ceilings).

Here, differentiation is required as to whether the condensing boiler should be installed in the **living space** (occupied rooms) or in the **non-living space** (installation room).

Siting the Vitodens in the **living space** is feasible, subject to the flue inside the living space being routed inside a protective pipe and being surrounded by ventilation air (balanced flue system, **room sealed** operation).

As a special case, installation in the living space is also feasible for **open flue** operation, provided a connection piece with secondary ventilation up to the shaft (operation with interconnected room air supply) is provided (see page 38).

### System certification

System certification to Gas Appliances Regulation 2016/426/EU in conjunction with PPs flues from Skoberne

Vitodens 100-W	CE-0063CQ3356
Vitodens 111-W	CE-0063CQ3356
Vitodens 200-W	CE-0085CN0050
Vitodens 222-F	CE-0085CN0050
Vitodens 222-W	CE-0085CN0050
Vitodens 242-F	CE-0085CN0050
Vitodens 300-W	CE-0085CM0463
Vitodens 333-F	CE-0085CM0463
Vitodens 343-F	CE-0085CM0463

The aforementioned conditions are generally met with the flue systems (accessories) that are CE designated together with the Vitodens.

The following Viessmann balanced flue systems for **room sealed** operation are tested to DVGW and CE designated with the Vitodens:

- Vertical roof outlet
- External wall connection
- Horizontal roof outlet
- External routing through a coaxial pipe

Benefits:

- No calculated performance verification for flues to EN 13384 is required in individual cases
- Simplified visual inspection by the local flue gas inspector every 2 years
- No additional approval certificate by the flue pipe manufacturer is required

In **non-living space**, the flue pipe in the installation room may also be routed without secondary ventilation. However, in that case the installation room would require an adequately sized ventilation air aperture to the outside (according to TRGI 2008).

Rated heating output up to 50 kW:

150 cm<sup>2</sup> or 2 × 75 cm<sup>2</sup>

Rated heating output above 50 kW (e.g. Vitodens 200-W from 60 kW or multi boiler system):

150 cm<sup>2</sup> plus 2 cm<sup>2</sup> for each kW above 50 kW

Ⓐ The country-specific regulations (which may include the TR Gas and ÖVGW guidelines) apply to the installation of this appliance.

The plain flue pipe must be type approved by the Deutsches Institut für Bautechnik (DIBt) [Germany] (**open flue** operation).

The flue available as an accessory is CE designated and approved in accordance with EN 14471.

## 1.2 Room sealed operation

The sealed combustion chamber of Vitodens gas condensing boilers enables their use in **room sealed** operation. These boilers are categorised as equipment type C<sub>13x</sub>, C<sub>33x</sub>, C<sub>14(3)x</sub>, C<sub>53x</sub>, C<sub>63x</sub>, C<sub>83x</sub> or C<sub>93x</sub> according to CEN/TR 1749 ("x" only applies to DE).

A **joint approval** for the Vitodens and balanced flue system applies to this type of equipment (except for C<sub>63x</sub>).

The tightness test (overpressure test) by the flue gas inspector during commissioning as well as the verification of the "General Building Regulations approval" by the DIBt may be omitted for this type of construction.

The combustion air is supplied and the flue gas extracted through one coaxial pipe (balanced flue system). The combustion air is supplied through the annular gap between the external aluminium ventilation air pipe and the flue. Flue gases are extracted through the internal plastic pipe (PPs).

For balanced flue systems tested together with the wall mounted gas boiler, there is no requirement for a tightness test (positive pressure test) during commissioning by the flue gas inspector.

In this case, we recommend that your heating contractor carries out a simple tightness test during the commissioning of your system. For this it would be sufficient to check the CO<sub>2</sub> concentration in the combustion air at the annular gap of the balanced flue pipe. The flue pipe is deemed to be gas-tight if the CO<sub>2</sub> concentration in the combustion air is no higher than 0.2 % or the O<sub>2</sub> concentration is at least 20.6 %. If higher CO<sub>2</sub> or lower O<sub>2</sub> values are established, check the flue system for tightness by pressure testing.

The flue pipe should be designed as short and straight as possible. If bends are unavoidable, do not install them directly one after another. It must be possible to test and clean the entire flue gas path as required.

In accordance with the FeuVo [check local fire regulations], a ventilation air aperture is required in the installation room for a total rated heating output of 100 kW or more. This also applies to equipment types that have been tested for leaks (...).

In conjunction with the coaxial pipe (balanced flue system), the surface temperature of the Vitodens and that of the balanced flue system do not exceed 85 °C at any point. Therefore, clearances to combustible components according to TRGI are **not** required.

## Flue systems (cont.)

Install the connection pipes (horizontal routing) with a fall of at least 3° (approx. 50 mm/m) to the boiler. In addition, we recommend using fixing clamps spaced about 1 m apart to support/suspend the connection line.

The balanced flue system is CE designated and approved in accordance with EN 14471: See page 6.

The boiler casing creates a system that is sealed against its surroundings. Any leaks caused by escaping flue gas are returned via the combustion air, thereby preventing flue gas from entering the living space.

When siting the Vitodens in a cellar or basement, an existing chimney or shaft of adequate size may be used for routing the balanced flue (type C<sub>14(3)x</sub> and C<sub>93x</sub>).

According to CEN/TR 1749, flues that bridge several floors must be routed inside a shaft with a fire rating of at least 90 minutes, and for buildings in categories 1 and 2, a fire rating of at least 30 minutes. The flue gas/ventilation air is routed in a balanced flue pipe up to the chimney or shaft. The flue pipe is then routed inside the chimney or shaft to above the roof.

Where no suitable shaft is available, the flue may be routed to the roof through a retrofitted shaft. For this shaft, a test certificate from the building inspectorate or a CE designation corresponding to the design of the shaft is required. In addition, the shaft must have a fire rating of L30 or L90.

### Use of third party flue systems of type C<sub>63</sub>/C<sub>63x</sub>

Any approved flue system can be used for type C<sub>63</sub>/C<sub>63x</sub>. A system test of these flue systems with Viessmann heat generators has not been carried out, so there is no system certification in accordance with Gas Appliances Regulation (EU) 2016/426.

When implementing type C<sub>63</sub>/C<sub>63x</sub> with Viessmann heat generators, the following specifications must be observed and complied with:

- Viessmann design specifications for types C<sub>13x</sub>, C<sub>14(3)x</sub><sup>\*1</sup>, C<sub>33x</sub>, C<sub>53x</sub>, C<sub>83x</sub> and C<sub>93x</sub>
- Appliance-specific details of Viessmann heat generators, e.g. max. draughts, flue gas temperatures, mass flow rates, boiler flue connection tolerances
- Reverse flow of flue gas at the terminal of the flue system, even when it is windy: ≤ 10 %
- Wind protection devices for the supply of combustion air and the discharge of flue gas must not be installed on opposite walls of the building.

### Flue pipes

- Flues made from plastic (PPS):  
Measures inside the equipment ensure that the flue gas temperature of 110 °C will never be exceeded. Flues made from plastic (PPS) with an approval for flue gas temperatures up to max. 120 °C (type B) can therefore be used.
- Flues made from aluminium:  
Aluminium residues in the condensate can impair the function of the heat generator. A condensate trap must therefore be additionally installed above the boiler flue connection. The condensate trap must allow the condensate returned from the flue system to completely bypass the heat generator.

## 1.3 Open flue operation

(Type B<sub>23</sub> and B<sub>33</sub>)

Flue gas is routed through single wall plastic flue pipes (PPs). The flue system is CE designated and approved in accordance with EN 14471: See page 6.

The combustion air is supplied via the annular gap between the flue pipe and the ventilation air connection on the boiler flue connection of the Vitodens.

Install the connection pipes (horizontal routing) with a fall of at least 3° (approx. 50 mm/m) to the boiler. In addition, we recommend using fixing clamps spaced about 1 m apart to support the connection line. The connection piece to the chimney should be as short as possible. Therefore position the Vitodens as close to the chimney as possible.

The flue pipe should be designed to be as straight as possible. If bends are unavoidable, do not install them directly one after another. It must be possible to test and clean the entire flue gas path as required.

In accordance with the FeuVo [check local fire regulations], a ventilation air aperture is required in the installation room.

No special protective measures or clearances towards combustible objects, such as furniture, packaging or similar, need to be taken/observed. The surface temperatures of the Vitodens and the flue system do not exceed 85 °C at any point.

## 1.4 Flue gas high limit safety cut-out

According to CE designation to EN 14471 the plastic flue pipe (PPs) can be used for flue gas temperatures of up to 120 °C (type B). Measures inside the equipment ensure that the flue gas temperature of 110 °C will never be exceeded.

A flue gas high limit safety cut-out is therefore not required.

## 1.5 Lightning protection

If a lightning protection system is installed, any metallic flue system should be included in the lightning protection scheme.

1.6 CE designation for PPs flue systems (rigid and flexible) for the Vitodens

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ CERTIFICADO ◆ CERTIFICAT

Notifizierte Stelle  
Nr. 0036



Industrie Service

**Zertifikat der Konformität  
der werkseigenen Produktionskontrolle**

**0036 CPR 9184 001**  
Revision 07

Gemäß der Verordnung (EU) Nr. 305/2011 des Europäischen Parlaments und des Rates vom 9. März 2011 (Bauproduktenverordnung - CPR) gilt dieses Zertifikat für das Bauprodukt

**System-Abgasanlage mit einer Innenschale aus starren  
und flexiblen Rohren und –Formstücken aus PP  
Ausführungen**

<b>Ohne Außenschale, starr</b>	<b>EN 14471</b>	<b>T120 H1 W 2 O20 XXX</b>
<b>Kunststoff- Außenschale, starr</b>	<b>EN 14471</b>	<b>T120 H1 W2 O00 LI E U1</b>
<b>Metall. Außenschale, starr</b>	<b>EN 14471</b>	<b>T120 H1 W2 O00 LE E U0</b>
<b>Mineral. Außenschale, flexibel</b>	<b>EN 14471</b>	<b>T120 H1 W2 O00 LE E U0</b>

*Für Details der Kennzeichnung siehe Seite 2 des Zertifikates*

hergestellt von

**Skoberne GmbH**  
**Ostendstraße 1**  
**64319 Pfungstadt**

im Herstellwerk

**Werk 1      Werk 2      Werk 3      Werk 4      Werk 5**

Dieses Zertifikat bescheinigt, dass alle Vorschriften über die Bewertung und Überprüfung der Leistungsbeständigkeit beschrieben im Anhang ZA der harmonisierten Norm

**EN 14471:2013 + A1:2015**

entsprechend System 2+ angewendet werden und dass die werkseigene Produktionskontrolle alle darin vorgeschriebenen Anforderungen erfüllt.

Die Feststellung des Produkt-Typs anhand einer Typprüfung ist dokumentiert im Bericht: TÜV SÜD Industrie Service GmbH, A 1614-00/06, A 1614-02/09, A 1614-03/09, A 1614-04/09, A 1614-05/10, A 1614-06/10, A 1614-07/10, A 1614-09/12 und A 1614-14/16.

Dieses Zertifikat wurde erstmals am 2007-02-27 ausgestellt und bleibt gültig, solange sich die in der harmonisierten Norm genannten Prüfverfahren und/oder Anforderungen der werkseigenen Produktionskontrolle zur Bewertung der Leistung der erklärten Merkmale nicht ändern und das Produkt und die Herstellbedingungen im Werk nicht wesentlich geändert werden.

München, 2016-06-10

\_\_\_\_\_  
Johannes Steiglechner  
Leiter Zertifizierungsstelle Bauprodukte (EG)

TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, 80686 MÜNCHEN



Notifizierte Stelle  
Nr. 0036

Seite 2 des Zertifikates Nr.

0036 CPR 9184 001  
Rev. 07



Systemabgasanlage mit einer Innenschale aus starren und flexiblen Rohren und Formstücken aus PP	EN 14471
ohne Außenschale	
DN 80 - DN 110, schwarz	T120 H1 W2 O20 LE E U
DN 60 - DN 250, weiß, grau	T120 H1 W2 O20 LI E U
starr, mit Kunststoffaußenschale ≤ DN 80, weiß	T120 H1 W2 O00 LI E U1
starr, mit metallischer Außenschale ≤ DN 250 weiß, grau, schwarz	T120 H1 W2 O00 LE E U0
flexibles Rohr mit mineralischem Schacht DN 60 - DN 110	T120 H1 W2 O00 LE E U0

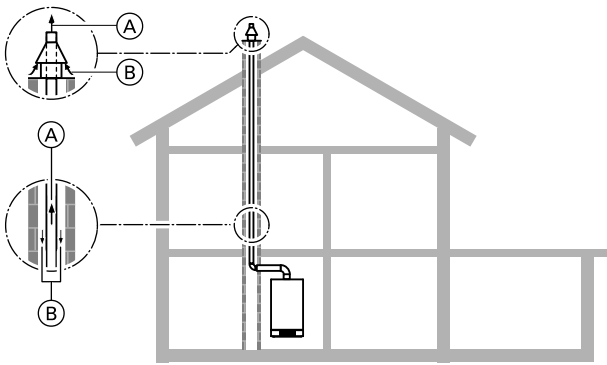
TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, 80686 MÜNCHEN



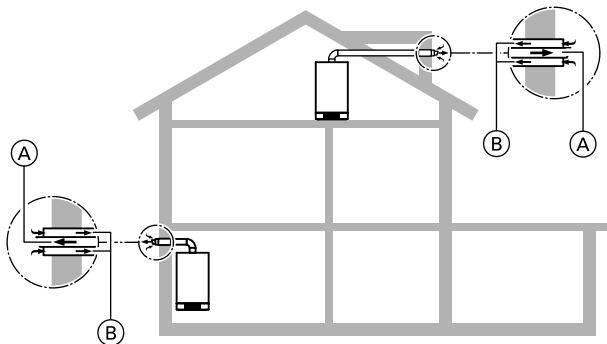
### 1.7 Flue system installation options for room sealed operation

In accordance with the FeuVo [check local fire regulations], a ventilation air aperture is required in the installation room for a total rated heating output of 100 kW or more.

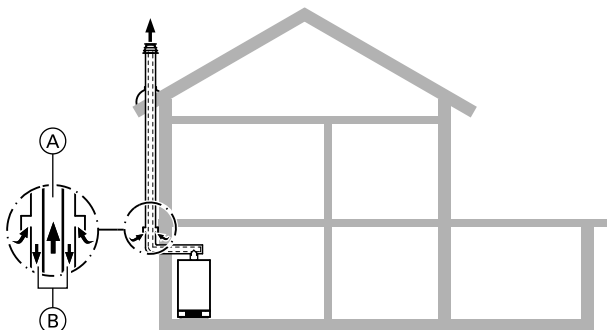
#### Inside occupied rooms (living space) with one or more full storeys above



- (A) Flue gas
- (B) Ventilation air



- (A) Flue gas
- (B) Ventilation air



- (A) Flue gas
- (B) Ventilation air

#### Routing through a shaft (type C<sub>93x</sub>, to CEN/TR 1749)

The boiler draws combustion air from the outside through the annular gap inside the shaft (chimney) and expels the flue gas via the flue pipe to above the roof. For condensing boilers > 50 kW the installation room **must** be ventilated even for **room sealed** operation. The shaft is not part of the standard delivery. For a detailed description, see from page 13.

#### Retrofitted shafts

Installation in a retrofitted shaft approved by the building inspectorate [Germany] consisting of individual shaft elements (e.g. as supplied by SIMO, Wienerberger or Skoberne) or including mineral profiles (e.g. from Promatect). For a detailed description of shafts, see page 25.

#### External wall connection

##### Only for existing flues with exemption rights (Type C<sub>13x</sub>, to CEN/TR 1749)

Permissible up to a rated heating output of 11 kW for central heating or 28 kW for DHW heating.

In accordance with the FeuVo, issue 1999 [check local fire regulations], an external wall connection is only permissible in individual cases where flue gas routing by other means is not appropriate for technical or economic reasons.

The heat generator draws combustion air from the outside via a coaxial pipe in the external wall and expels flue gas to the outside through the external wall. For a detailed description, see page 21.

#### Horizontal roof outlet

##### (Type C<sub>13x</sub>, to CEN/TR 1749)

No limit for rated heating output.

The heat generator draws combustion air from the outside via a coaxial pipe in the dormer and expels flue gas to the outside through the dormer.

#### Routing over external walls

##### (Type C<sub>53x</sub>, to CEN/TR 1749)

The heat generator draws combustion air from the outside via a horizontal, coaxial pipe in the external wall and expels flue gas to the outside above the roof.

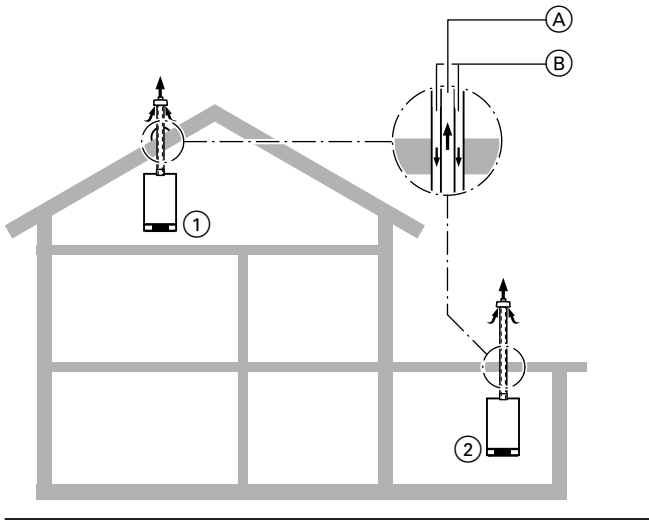
In its vertical section, the external pipe of the coaxial pipe acts as thermal insulation thanks to its static air gap. The combustion air is supplied via the balanced flue air inlet piece.

For a detailed description, see page 23.



## Flue systems (cont.)

In occupied rooms (living space) immediately below the roof or with only the roof space above



- (A) Flue gas
- (B) Ventilation air

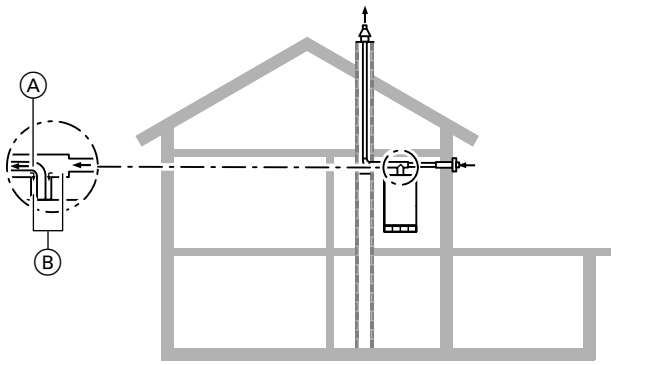
### Vertical roof outlet if no shaft is available (Type C<sub>33x</sub>, to CEN/TR 1749)

(Various options)

- ① Direct, vertical roof outlet through a pitched roof
- ② Direct, vertical roof outlet through a flat roof

The heat generator draws combustion air from the outside via a coaxial pipe and expels flue gas to the outside above the roof. For a detailed description, see page 19.

In the installation room, with ventilation air supplied through the external wall



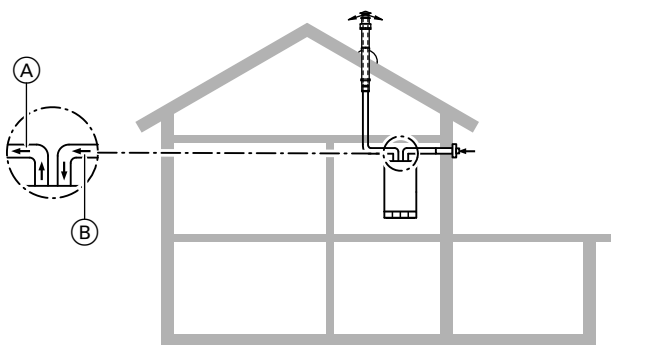
- (A) Flue gas
- (B) Ventilation air

### Separate ventilation air and flue gas routing (Type C<sub>83x</sub>, to CEN/TR 1749)

The boiler draws combustion air from outside via a separate supply pipe routed through the external wall, and expels flue gas to the outside via a shaft leading through the roof.

The connection piece to the chimney is designed as a coaxial pipe. This balanced flue system is used if the existing chimney is unsuitable for routing combustion air due to its dimensions or characteristics (deposits).

For a detailed description, see page 22.

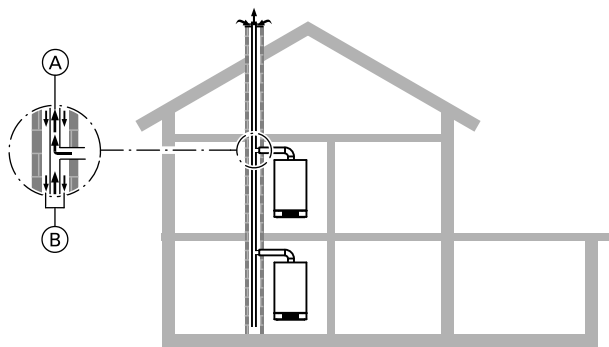


- (A) Flue gas
- (B) Ventilation air

### Parallel ventilation air and flue gas routing (Type C<sub>83</sub>, to CEN/TR 1749)

The boiler draws combustion air from outside via a separate supply pipe routed through the external wall, and expels flue gas to the outside via flue pipe leading through the roof.

### Several Vitodens in the living space or in living spaces



- (A) Flue gas
- (B) Ventilation air

#### Installation on different floors with a common balanced flue system

(Type C<sub>14(3)x</sub>, to CEN/TR 1749)

Operation with negative pressure:

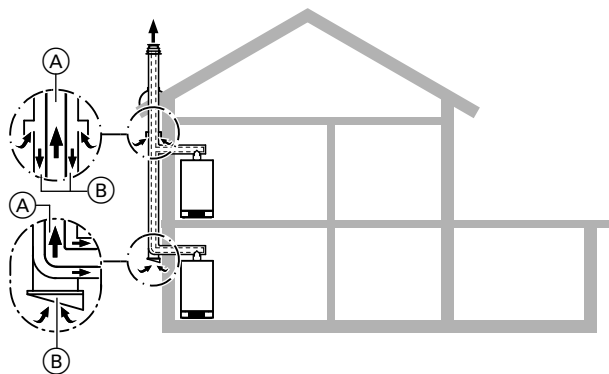
Balanced flue system required.

Operation with positive pressure:

Balanced flue system for multiple connections.

Several boilers draw combustion air from the outside through the annular gap of the balanced flue system and expel flue gas to the outside through a common shaft in the roof.

For a detailed description, see page 29.



- (A) Flue gas
- (B) Ventilation air

#### Installation on different floors with a common balanced flue header on the external wall

(Type C<sub>14(3)x</sub>, to CEN/TR 1749)

Balanced flue system for multiple connections on the external wall.

Several boilers draw combustion air from the outside through the annular gap of the balanced flue header and expel flue gas to the outside through the roof outlet of the balanced flue header.

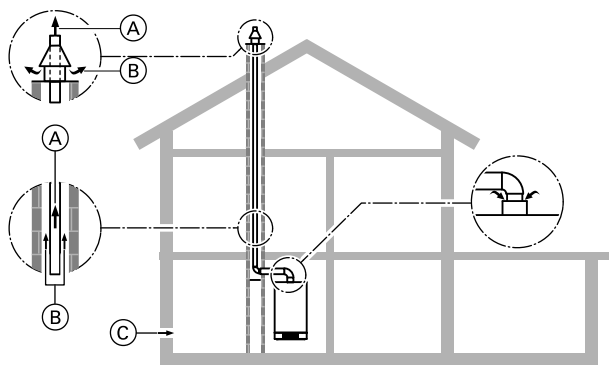
For a detailed description, see page 29.

## 1.8 Flue system installation options for open flue operation

Separate ventilation air aperture 150 cm<sup>2</sup> or 2 × 75 cm<sup>2</sup> cross-section required.

- (A) For installation in Austria, observe the relevant safety regulations of the ÖVGW-TR Gas (G1) 1985, ÖVGW-TRF (G2), ÖNORM, ÖVGW, ÖVE and regional regulations.

### In the installation room (non-living space) with one or more full floors above



- (A) Flue gas
- (B) Secondary ventilation
- (C) Ventilation air

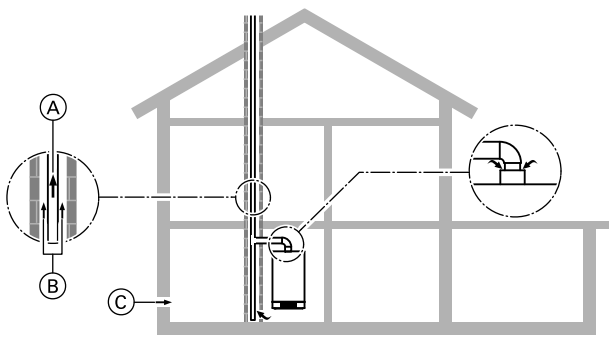
#### Routing through a shaft

(Type B<sub>23</sub>, to CEN/TR 1749)

The boiler draws combustion air from the installation room and expels flue gas through the flue to above the roof (balanced flow).

For a detailed description, see page 33.

## Flue systems (cont.)

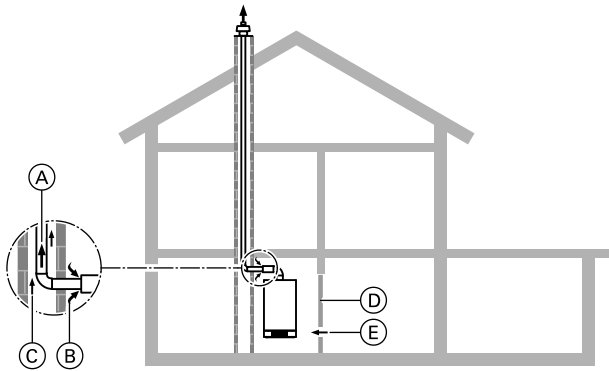


- (A) Flue gas
- (B) Secondary ventilation
- (C) Ventilation air

### Connection to a moisture-resistant chimney (MR chimney) (Type B<sub>23</sub>, to CEN/TR 1749)

The boiler draws combustion air from the installation room and expels flue gas through the roof in the moisture-resistant chimney. For a detailed description, see page 39.

### Special version: Open flue operation and installation location in the living space with combustion air supply via interconnected rooms (rated heating output ≤ 35 kW)



- (A) Flue gas
- (B) Ventilation air
- (C) Secondary ventilation
- (D) Door
- (E) Interconnected air supply

#### Routing through a shaft

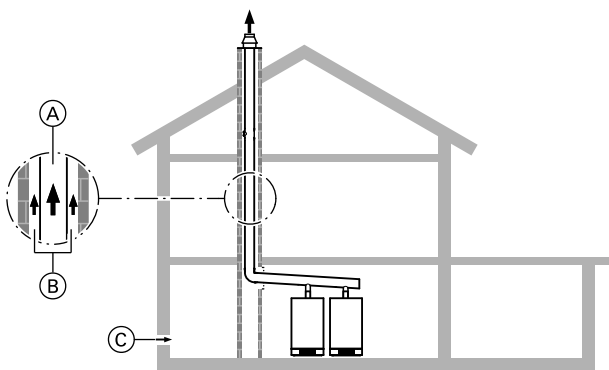
or

### Connection to a moisture-resistant chimney (Type B<sub>33</sub>, to CEN/TR 1749)

The boiler draws combustion air from the living space through a coaxial pipe with ventilation air apertures upstream of the shaft inlet, and expels flue gas either through a flue or a moisture-resistant chimney in the roof (combustion air supply via interconnected rooms in accordance with TRGI).

For a detailed description, see page 38.

### Flue gas header for several Vitodens 100-W, 200-W, 222-W, 222-F and 242-F – positive pressure



- (A) Flue gas
- (B) Secondary ventilation
- (C) Ventilation air

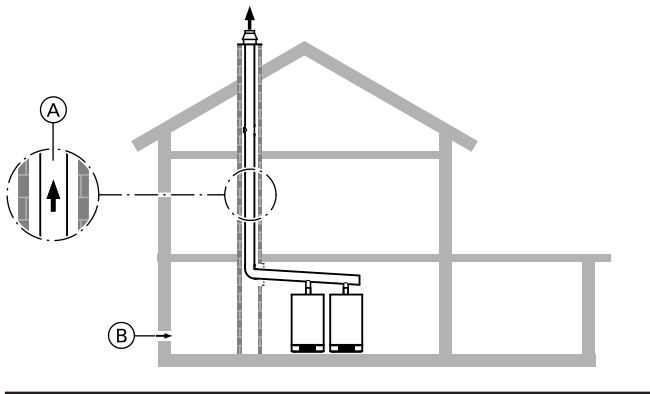
#### Type B<sub>23</sub>, to CEN/TR 1749

Several boilers in the same room draw combustion air from the outside through vents and expel flue gas to the outside through a common flue pipe in the roof.

For a detailed description, see page 40.

## Flue systems (cont.)

### Flue gas header for several Vitodens – negative pressure



#### Type B<sub>23</sub>, to CEN/TR 1749

Several boilers in the same room draw combustion air from the outside through vents and expel flue gas to the outside through a common flue pipe in the roof.

For a detailed description, see page 47.

- (A) Flue gas
- (B) Ventilation air

## Design and sizing information for connection on the flue gas side

### 2.1 Boiler allocation — balanced flue pipe size

All details regarding length and cross-section in the following tables are only valid in connection with the balanced flue components offered in the Viessmann pricelist.

The specified system sizes are nominal diameters. Actual component dimensions may differ.

	Nominal diameter in mm		Actual internal diameter in mm	
	Flue pipe	Ventilation air pipe	Flue pipe	Ventilation air pipe
– Vitodens 100-W and Vitodens 111-W – Vitodens 200-W up to 35 kW, Vitodens 222-W and Vitodens 242-F – Vitodens 300-W, Vitodens 333-F and Vitodens 343-F	60	100	60.5 +0.3	98.6 +0.3
– Vitodens 200-W, 49 to 60 kW – Vitodens 200-W, 69 to 150 kW	80 110	125 150	80.5 +0.8 111 +1/-0.3	126 ±0.5 151 +0.8/-0.3

### 2.2 Installing flue pipes

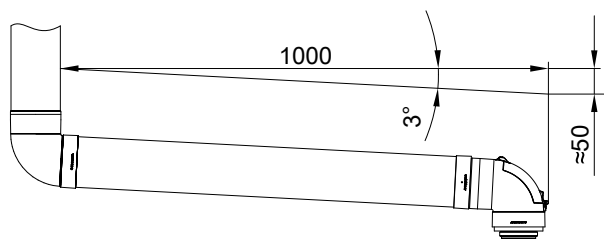
When designing and installing the flue pipe, a fall of at least 3° towards the boiler must be maintained.

The required fall is the same if using an 87° boiler flue connection bend or 87° inspection tee.

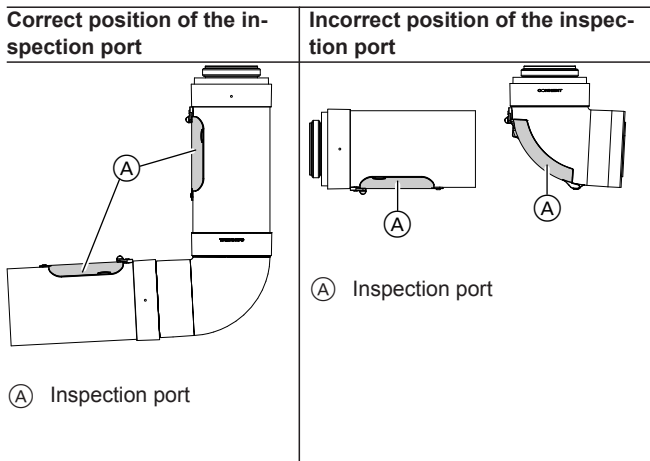
The required fall of 3° also corresponds to a height differential of approx. 50 mm over a length of 1 m.

If the required fall is not maintained, condensate will not drain off fully and residue will remain in the joints. This will lead to an increase in acid concentration and possible damage to the gaskets.

For this reason, the flue must also never be designed and installed with a fall leading away from the boiler.



### Installation and position of inspection ports



Design the inspection ports to ensure that no condensate can collect around them. Collected condensate would lead to an increase in acid concentration and possible gasket damage. Install the inspection pieces with the port at the top/in the upper section.

### 2.3 Plastic (PP) balanced flue system for routing in a shaft – for room sealed operation (type C<sub>93x</sub> to CEN/TR 1749)

For **room sealed operation**, a coaxial flue (internal pipe for flue gas, external pipe for combustion air) is required as a connection piece between the Vitodens and the shaft.

The connection piece is fitted to the boiler flue connection and must contain an inspection port.

#### Note

Gas condensing boilers with a total rated heating output greater than 100 kW may only be installed in rooms that provide ventilation air apertures to the outside; see page 33.

For routing through shafts or ducts with longitudinal ventilation which meets the requirements for chimneys to DIN V 18160-1, or have a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2 (max. 2 storeys).

Prior to installation, the relevant flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.

Ventilation air ducts with which oil or solid fuel boilers were previously used must not contain any sulphur or soot deposits on the inner surfaces of the chimney. Sulphur and soot deposits cause faults. If thorough cleaning is not possible, a balanced flue pipe must be laid through the shaft. Alternatively, a separate balanced flue can be routed. Viessmann accepts no liability for damages caused by a failure to observe these stipulations.

Close off and seal any other connection apertures with appropriate materials.

This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.

Check prior to installation whether the shaft runs straight from top to bottom or if it is offset (check with mirrors).

If the chimney is offset, we recommend the installation of a flexible flue: See page 18.

In the installation room, at least one inspection port must be provided in the flue system for inspection, cleaning and pressure testing (if required). If the flue pipe is inaccessible from the roof, a second inspection port must be provided in the attic behind the chimney cleaning hatch. For further information, see the FeuVO [check local fire regulations]

Provide an inspection port at the base of the shaft for checking the secondary ventilation. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

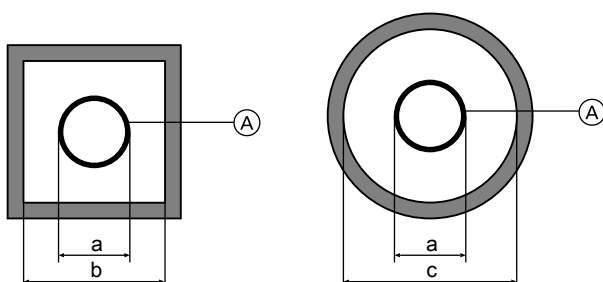
The flue system must be routed to above the roof (protrusion above the roof in accordance with the Landes-FeuVO – check local fire regulations).

Alternative CE designated flue pipes may be used, e.g. if a larger pipe diameter is required because of greater flue lengths. The performance verification to EN 13384 should then be provided by the respective flue manufacturer.

If flue pipes other than those offered as accessories (certified as a system with the Vitodens) are used, the flue system must be checked for tightness by the flue gas inspector prior to commissioning.

This may be carried out, in accordance with the flue system approval certificate, by measuring the CO<sub>2</sub> or O<sub>2</sub> value inside the annular gap. Check the flue system for tightness if this test results in a CO<sub>2</sub> content above 0.2 % or an O<sub>2</sub> content lower than 20.6 %.

### Internal shaft dimensions to DIN V 18160



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## Design and sizing information for connection on the flue gas side (cont.)

### Minimum internal shaft dimensions

System size <sup>(A)</sup>	External diameter, female connection a  Ø mm	Minimum internal shaft dimension	
		b Square or rectangular (short side) mm	c Round Ø mm
		60 (rigid)	73
60 (flexible, shaft cover PPs)	72	112	132
60 (flexible, shaft cover metal)	87	140	147
80 (rigid)	94	135	155
80 (flexible, shaft cover PPs)	102	142	162
80 (flexible, shaft cover metal)	116	165	176
110 (rigid)	128	170	190
110 (flexible, shaft cover PPs)	127	167	187
110 (flexible, shaft cover metal)	142	182	202

### Reduced internal shaft dimensions

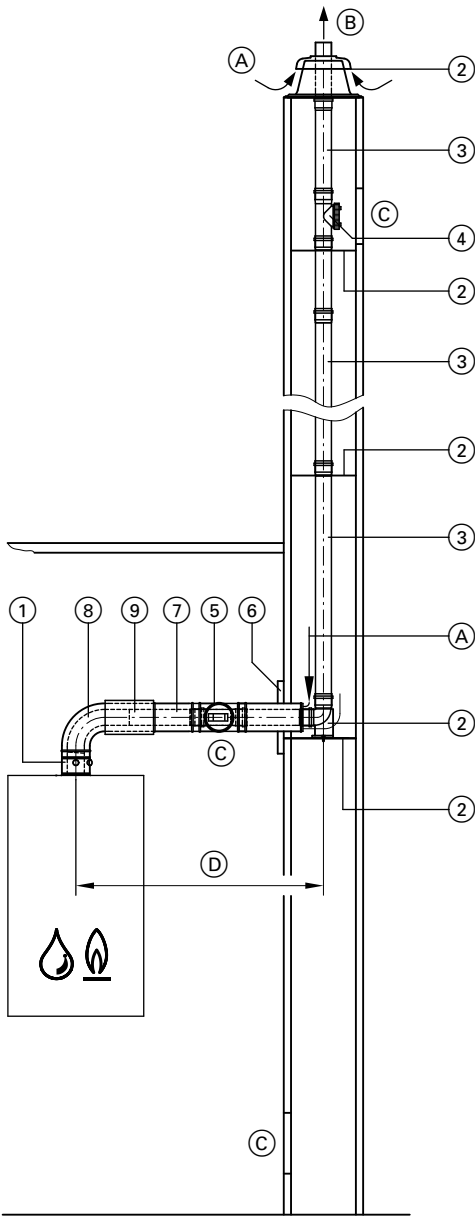
System size <sup>(A)</sup>	External diameter, female connection a  Ø mm	Reduced internal shaft dimensions	
		b Square or rectangular (short side) mm	c Round Ø mm
		60 (rigid)	73
80 (rigid)	94	120	135
110 (rigid)	128	150	165

Minimum dimension of shafts in which a flue may be used without separate calculation to EN 13384 (positive pressure operation).

**Observe the maximum flue lengths.**

## Design and sizing information for connection on the flue gas side (cont.)

### Flue, system size 60, 80 and 110 (components) (type C<sub>93x</sub> to CEN/TR 1749)



- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port
- (D) Connection piece

	System size Ø mm		
	60	80	110
① <b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
② <b>Standard shaft pack</b> (PPs, rigid) Comprising: – Support bend – Support rail – Shaft cover – Spacers (5 pce, max. distance 5 m) or <b>Standard shaft pack</b> (metal/PPs, rigid) For twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 5 m)	60	80	110
<b>Spacers</b> (3 pce, max. distance 5 m)	60	80	110
③ <b>Flue pipe</b> 1.95 m long (2 pce @ 1.95 m = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	60	80	110
<b>Flue bend</b> (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	60	80	110
④ <b>Inspection piece</b> , straight (1 pce)	60	80	110
⑤ <b>Balanced flue inspection piece</b> , straight (1 pce)	60	80	110
⑥ <b>Balanced flue wall bezel</b>	60	80	110
⑦ <b>Balanced flue pipe</b> 1 m long 0.5 m long	60	80	110
⑧ <b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Balanced flue inspection tee</b> 87° (1 pce) <b>Balanced flue inspection bend</b> 87° (1 pce)	60	80	110
⑨ <b>Balanced flue slide coupling</b>	60	80	110
<b>Fixing clamp</b> , white (1 pce)	60	80	110
<b>Stainless steel extension</b> , 380 mm long for shaft cover, standard shaft pack (metal/PPs, rigid)	60	80	110
<b>Balanced flue adaptor</b> – Ø 80/125 mm to Ø 60/100 mm	60	80	—
– Ø 60/100 mm to Ø 80/125 mm	60	80	—
– Ø 80/125 mm to Ø 110/150 mm	—	80	110

#### Max. total flue length up to the boiler flue connection

##### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60/100	m	15	15	15	15
Max. length – system size 80/125* <sup>3</sup>	m	25	20	20	20

\*<sup>3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

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## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
Max. length – system size 60/100	m	20	20	15	15
Max. length – system size 80/125 <sup>*3</sup>	m	25	25	25	25

### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
Max. length – system size 80/125	m	20	15	—	—	—	—
Max. length – system size 110/150	m	25 <sup>*2*3</sup>	20 <sup>*2*3</sup>	20	20	8	5

The following components are taken into consideration for the maximum flue lengths:

- Balanced flue connection pipe (D) 1 m long.
- 1 balanced flue bend 87° and 1 support bend 87° or
- 2 balanced flue bends 45° and 1 support bend 87°

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m

- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1 m

#### Note

Observe the specifications regarding internal shaft dimensions (see page 13).

For information on routing type C6, see page 4.

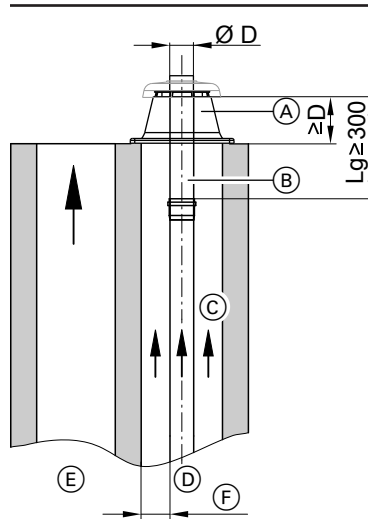
## Vitodens in conjunction with solid fuel boilers

Routing a plastic flue adjacent to a shaft at risk of chimney fire from soot (e.g. 2-draught chimney with wood burning stove) is generally permitted. Depending on the design of the chimney top and the operation of the condensing systems (open flue or room sealed), fire regulations specify different measures. Design the balanced flue terminals so that flue gas will not be drawn into the air shaft in dangerous amounts and that pressure fluctuations due to wind influence affect the room sealed balanced flue shaft as evenly as possible. For the required steps, see the following sections:

### Open flue operation and/or ventilation air not being supplied through the shaft

The terminals of combustible flues in the upper area should be made from non-flammable materials for fire protection reasons. The length of flue pipe made from non-combustible materials, situated in area L<sub>g</sub> and protected from thermal radiation, must be at least 300 mm. The length of the external terminal pipe of the shaft cover must correspond, as a minimum, to external diameter D of the internal flue pipe.

The standard shaft pack (metal/PPs) contains a stainless steel pipe (380 mm long). A stainless steel extension (380 mm long) is available as an additional accessory.



- (A) Metal shaft cover
- (B) End piece made from non-combustible material
- (C) Secondary ventilation
- (D) Vitodens flue pipe
- (E) Chimney for solid fuel boilers
- (F) Minimum clearance to DIN V 18160, reduced minimum clearance or maximum clearance to EN 14471 (see page 14)

### Room sealed operation – the ventilation air is supplied through the shaft

Design the balanced flue terminals so that flue gas will not be drawn into the air shaft in dangerous volumes and that pressure fluctuations due to wind influence affect the balanced flue system as evenly as possible.

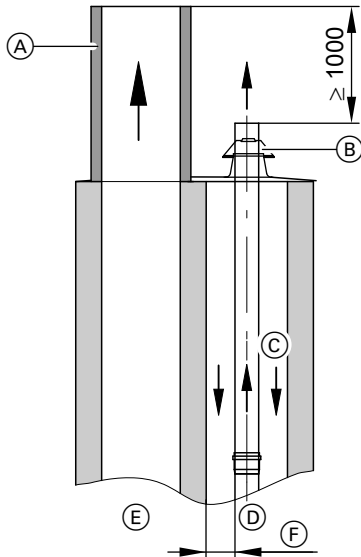
<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

### ■ When using a plastic shaft cover:

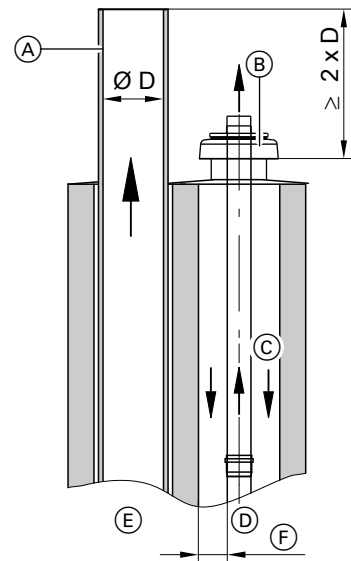
The chimney for solid fuel must stand at least 1000 mm proud of the Vitodens flue. For the chimney extension, only use components that are resistant to soot fires.



- (A) Chimney extension made from soot fire resistant material
- (B) Plastic shaft cover
- (C) Ventilation air/secondary ventilation
- (D) Vitodens flue pipe
- (E) Chimney for solid fuel boilers
- (F) Minimum clearance to DIN V 18160, reduced minimum clearance or maximum clearance to EN 14471 (see page 14)

### ■ When using a metal shaft cover:

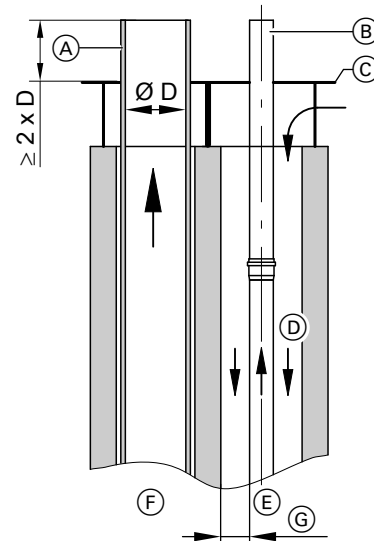
The chimney for solid fuel boilers must stand at least  $2 \times \varnothing D$  proud of the Vitodens flue. For the chimney extension, only use components that are resistant to soot fires.



- (A) Chimney extension made from soot fire resistant material
- (B) Metal shaft cover
- (C) Ventilation air/secondary ventilation
- (D) Vitodens flue (rigid or flexible)
- (E) Chimney for solid fuel boilers
- (F) Minimum clearance to DIN V 18160, reduced minimum clearance or maximum clearance to EN 14471 (see page 14)

### ■ When using a common draught plate:

The end piece of the flue and the shaft cover must be made from non-combustible material (e.g. metal).



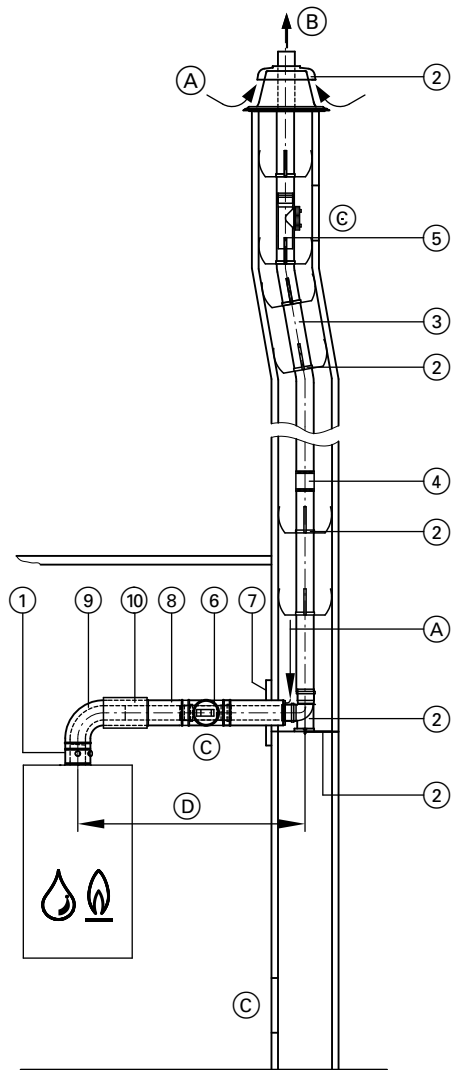
- (A) Chimney extension made from soot fire resistant material
- (B) End piece made from non-combustible material
- (C) Shaft cover (on site)
- (D) Ventilation air/secondary ventilation
- (E) Vitodens flue pipe
- (F) Chimney for solid fuel boilers
- (G) Minimum clearance to DIN V 18160, reduced minimum clearance or maximum clearance to EN 14471 (see page 14)

The metal end piece and shaft cover are part of the standard shaft pack (metal/PPs).

## Design and sizing information for connection on the flue gas side (cont.)

The standard shaft pack (metal/PPs) is available as an accessory.

### Flue, flexible, system size 60, 80 and 110 (components) (type C<sub>93x</sub> according to CEN/TR 1749)



- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port
- (D) Connection piece

**Note**  
The flexible flue pipe may be routed with at a max. angle from vertical of 45°.

	System size Ø mm		
	60	80	110
(1) <b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
(2) <b>Standard shaft pack</b> (PPs, flexible) Comprising: – Support bend – Support rail – Shaft cover – Spacers (5 pce, max. distance 2 m)	60	80	110
<b>Standard shaft pack</b> (metal/PPs, flexible) for twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 2 m)	60	80	110
<b>Spacers</b> (5 pce, max. distance 2 m)	60	80	110
(3) <b>Flue pipe, flexible</b> , as a 12.5 or 25 m roll	60	80	110
(4) <b>Connection piece</b> for connecting residual lengths of the flexible flue	60	80	110
(5) <b>Inspection piece</b> , straight for installation in the flexible flue pipe	60	80	110
<b>Pipe lowering attachment</b> with 25 m rope	60	80	110
(6) <b>Balanced flue inspection piece</b> , straight (1 pce)	60	80	110
(7) <b>Balanced flue wall bezel</b>	60	80	110
(8) <b>Balanced flue pipe</b> 1 m long 0.5 m long	60	80	110
(9) <b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Balanced flue inspection tee</b> 87° (1 pce) <b>Balanced flue inspection bend</b> 87° (1 pce)	60	80	110
(10) <b>Balanced flue slide coupling</b>	60	80	110
<b>Fixing clamp</b> , white (1 pce)	60	80	110
<b>Stainless steel extension</b> , 380 mm long for shaft cover, standard shaft pack (metal/PPs, flexible)	60	80	110
<b>Balanced flue adaptor</b> – Ø 80/125 mm to Ø 60/100 mm	60	80	—
– Ø 60/100 mm to Ø 80/125 mm	60	80	—
– Ø 80/125 mm to Ø 70/110 mm	—	80	—
– Ø 80/125 mm to Ø 110/150 mm	—	80	110

Max. total flue length up to the boiler flue connection with flexible flue pipe

#### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 80/125*2*3	m	20	20	20	20

\*2 Alternative system size. Balanced flue adaptor must be ordered separately.

\*3 Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
Max. length – system size 60/100	m	18	—	—	—
Max. length – system size 80/125 <sup>*2*3</sup>	m	25	25	25	25

### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
Max. length – system size 80/125	m	20	15	—	—	—	—
Max. length – system size 110/150	m	22 <sup>*2*3</sup>	17 <sup>*2*3</sup>	20	20	8	5

The following components are taken into consideration for the maximum flue lengths:

- Balanced flue connection pipe (D) 1 m long.
- 1 balanced flue bend 87° and 1 support bend 87°  
or
- 2 balanced flue bends 45° and 1 support bend 87°

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m

- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1 m

#### Note

Observe the specifications regarding internal shaft dimensions (see page 13).

For information on routing type C6, see page 4.

## 2.4 Plastic (PPs) balanced flue system for vertical roof outlets through a pitched or flat roof (type C<sub>33x</sub> to CEN/TR 1749)

### For vertical roof outlets when the Vitodens is installed in attics

The roof outlet may only be used where the ceiling of the living space also forms part of the roof or only the roof structure is located above the ceiling (pitched attic).

#### Note

Install condensing boilers with a heating output > 50 kW in a separate and ventilated installation room (in accordance with the FeuVO – check local fire regulations) (Vitodens 200-W from 60 kW).

Run flues made from combustible materials inside buildings (if they are not routed through shafts) inside protective pipes made from non-combustible materials or inside comparable protective covers made from non-combustible materials.

They can also be routed behind a jamb wall or a solid wall of a converted attic if the fire protection class of the jamb wall corresponds to that of the ceiling (e.g. B30).

Minimum clearances to combustible materials inside the installation room or in connection with the roof outlet are **not** required.

As part of the CE approval test it was verified that surface temperatures on the Vitodens and its balanced flue system do not exceed 85 °C at any point.

Install an inspection port for checking and cleaning the flue pipe inside the installation room.

The vertical roof outlet has been certified together with the Vitodens condensing boiler as a coaxial balanced flue system.

A performance verification to EN 13384 is **not** required.

#### Note

When routing through a suspended ceiling, an additional sealing collar is required. The sealing collar can be requested from the appropriate regional quotation centres.

### Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guidelines (see page 62).

The ceiling opening should have a diameter of at least the specified size:

- System size Ø 60 mm: 105 mm
- System size Ø 80 mm: 130 mm
- System size Ø 110 mm: 160 mm

Push the roof outlet into the roof from above and position it on the flat roof collar.

Ensure the installation has been completed before securing the roof outlet on site with a clamp.

When installing several vertical roof outlets adjacent to each other, maintain minimum clearances of 1.5 m between outlets and towards other components, in accordance with FeuVO [check local fire regulations].

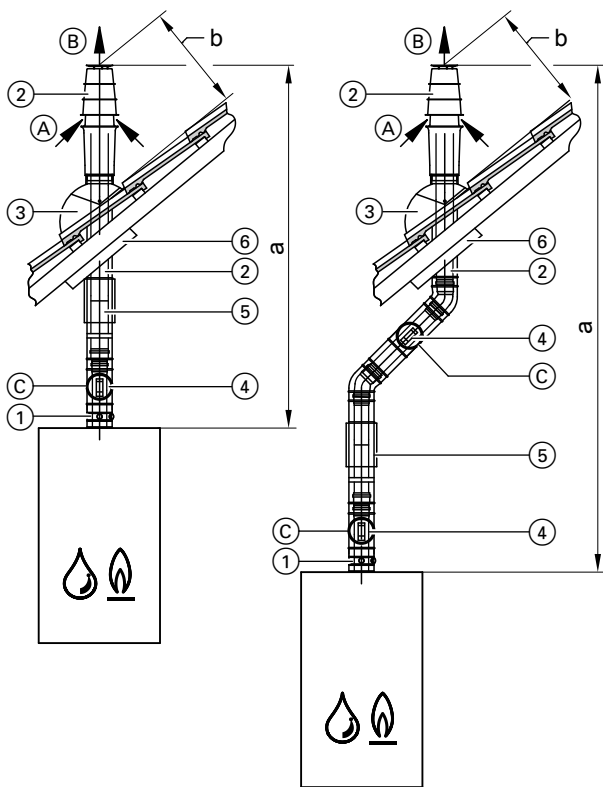
#### Note

Separate above roof extensions are available if the length of 400 mm above the roof and perpendicular to the roof surface prove insufficient because of specific regulations (see table below). Approval with the flue system is ensured.

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)



- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port

	System size Ø mm		
	60	80	110
① <b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
② <b>Balanced flue roof outlet with fixing clamp</b> Colour: Black or Colour: Terracotta <b>Above roof extension with clamp</b> (brace on site) Colour: Black 0.5 m long 1 m long, with bracing clamp Colour: Terracotta 0.5 m long 1 m long, with bracing clamp	60 60 60 60	80 80 80 80	110 — 110 —
③ <b>Universal roof tile</b> – For Roman tiles, pantiles, plain tiles, slate and other types of roof cover – Colour: Black or terracotta or <b>Flat roof collar</b> or <b>Pipe outlet for Klöber roof tiles</b> Colour: Black or terracotta Provide the corresponding Klöber roof tile on site to match the roof outlet selected for the particular type of roof cover.	60 60 60	80 80 80	110 110 —
④ <b>Balanced flue inspection piece, straight</b> (1 pce)	60	80	110
⑤ <b>Balanced flue slide coupling</b>	60	80	110
⑥ <b>Universal cover plate</b>	60	80	110
<b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce)	60	80	110
<b>Balanced flue pipe</b> 1 m long 0.5 m long	60	80	110
<b>Fixing clamp, white</b> (1 pce)	60	80	110
<b>Balanced flue adaptor</b> – Ø 80/125 mm to Ø 60/100 mm – Ø 60/100 mm to Ø 80/125 mm – Ø 80/125 mm to Ø 110/150 mm	60 60 —	80 80 80	— — 110

### Max. total length of the flue pipe

#### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60/100	m	10	10	8	8
Max. length – system size 80/125 <sup>*2*3</sup>	m	13	13	11	11

#### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
a Max. length – system size 60/100	m	10	10	10	10
a Max. length – system size 80/125 <sup>*2*3</sup>	m	13	13	11	11
b Min.	mm	400	400	400	400

#### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
a Max. length – system size 80/125	m	10	6	—	—	—	—
a Max. length – system size 110/150	m	13 <sup>*2*3</sup>	9 <sup>*2*3</sup>	15	15	8	5
b Min.	mm	400	1000	1000	1000	1000	1000

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

2 x 87° balanced flue bends are taken into consideration for the maximum flue lengths.

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1 m

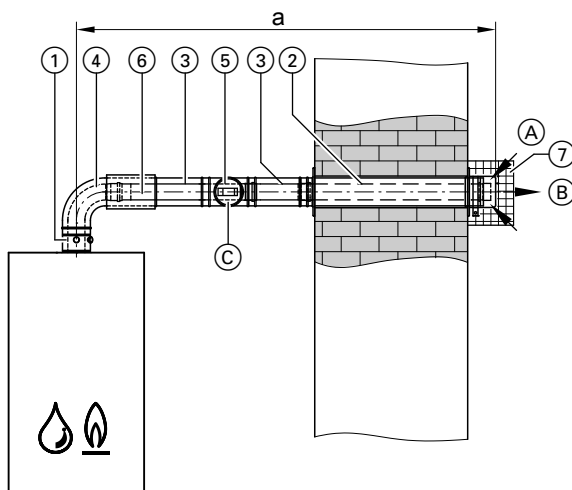
### 2.5 Plastic (PPs) balanced flue system for external wall connection (type C<sub>13x</sub> to CEN/TR 1749)

As part of the CE approval test it was verified that surface temperatures on the Vitodens and its balanced flue system do not exceed 85 °C at any point.

**Observe the design information to CEN/TR 1749, in particular the arrangement/position of the wall terminal.**

Install the connection line with a fall of at least 3° to the boiler. Install an inspection port in the flue for checking and cleaning the flue pipe.

The external wall connection has been certified as a coaxial balanced flue system with the Vitodens condensing boiler. A performance verification to EN 13384 is **not** required.



- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port

	System size Ø mm		
	60	80	110
① Boiler flue connection (part of the standard boiler delivery)	60	80	110
② Balanced flue external wall connection (incl. wall bezels)	60	80	110
③ Balanced flue pipe 1 m long 0.5 m long	60	80	110
④ Balanced flue bend 87° (1 pce) 45° (2 pce) or Balanced flue inspection bend 87° (1 pce)	60	80	110
⑤ Balanced flue inspection piece, straight (1 pce)	60	80	110
⑥ Balanced flue slide coupling	60	80	110
⑦ Grille Required if the combustion air inlet and flue outlet are positioned up to 2 m above ground level in public or private thoroughfares	60	80	110
Fixing clamp, white (1 pce)	60	80	110
Balanced flue adaptor – Ø 80/125 mm to Ø 60/100 mm – Ø 60/100 mm to Ø 80/125 mm	60 60	80 80	— —

#### Max. total length of the flue pipe

##### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60/100	m	10	10	8	8
Max. length – system size 80/125 <sup>*2*3</sup>	m	13	13	11	11

##### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
a Max. length – system size 60/100	m	10	10	8	8
a Max. length – system size 80/125 <sup>*2*3</sup>	m	13	13	11	11

##### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
a Max. length – system size 80/125	m	10	6	—	—	—	—
a Max. length – system size 110/150	m	13 <sup>*2*3</sup>	9 <sup>*2*3</sup>	15	15	8	5

2 x 87° balanced flue bends are taken into consideration for the maximum flue lengths.

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1 m

### 2.6 Plastic (PP) balanced flue system for separate ventilation air and flue gas routing (type C<sub>83x</sub> to CEN/TR 1749)

The Vitodens may be operated in **room sealed** mode and with separately routed flue gas and ventilation air, subject to the flue system meeting the following conditions:

- Connection to a chimney that is unsuitable for providing the combustion air supply because of deposits.
- Connection to a moisture-resistant chimney.

The combustion air is then supplied through a separate ventilation air pipe that is routed separately from the flue gas.

**Observe the design information according to CEN/TR 1749.**

Internal diameter of flue pipe: Ø 60 or 80 mm

Internal diameter of external pipe: Ø 100 or 125 mm

Internal diameter of ventilation air pipe: Ø 100 mm

Max. pipe length:

- Connection piece: 3 m
- Ventilation air pipe: 4 m

Max. number of bends (flue pipe and ventilation air pipe):

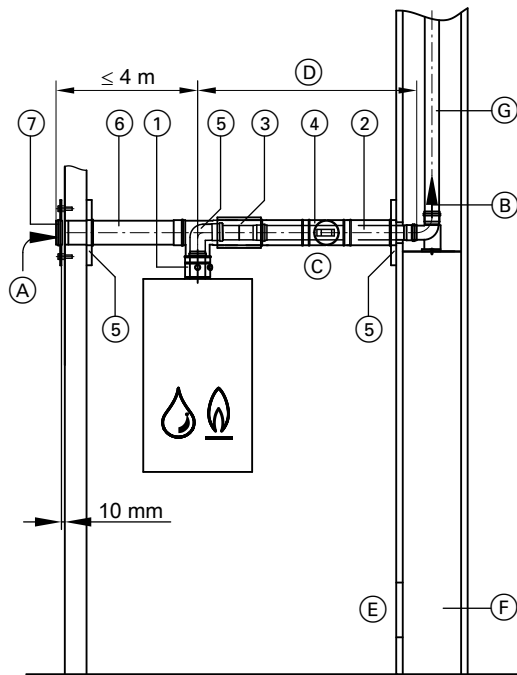
- 87°: 2 pce each
- or
- 45°: 3 pce each

Install an inspection port in the flue for checking and cleaning the flue pipe. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

As part of the CE approval test it was verified that surface temperatures on the Vitodens and its balanced flue system do not exceed 85 °C at any point.

The flue system for separate ventilation air and flue gas routing has been certified as a system with the Vitodens condensing boiler.

A performance verification to EN 13384 for the ventilation air side and the connection pieces is **not** required.



- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port
- (D) Connection piece
- (E) Ventilation aperture
- (F) Shaft F90/L90 or F30/L30
- (G) Flue pipe

#### Note

Where the flue pipe is routed through an existing chimney or shaft (not moisture-resistant), use the flue pipe components according to page 15.

		System size Ø mm	
①	Boiler flue connection (part of the standard boiler delivery) and Balanced flue adaptor Ø 80/125 mm to Ø 60/100 mm	60/100	80/125
	Balanced flue pipe 1 m long 0.5 m long	60	80
②	Balanced flue bend 87° (1 pce) 45° (2 pce)	60	80
	Balanced flue slide coupling	60	80
③	Balanced flue inspection piece, straight (1 pce)	60	80
	Balanced flue tee C 8 with wall bezels	60	80
④	Ventilation air pipe Ø 100 mm 1 m long (may be trimmed to size) 0.5 m long (may be trimmed to size) Ventilation air bend Ø 100 mm 87° (1 pce) 45° (2 pce)		
	Ventilation air damper		
	Fixing clamp, white (1 pce) (balanced flue pipe)	60	80



## Design and sizing information for connection on the flue gas side (cont.)

Max. total flue length up to the boiler flue connection

### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60/100	m	15	15	15	15
Max. length – system size 80/125 <sup>*2*3</sup>	m	25	20	20	20

### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	19	26	30	35	45	60
Max. length – system size 60/100	m	20	20	15	15	—	—
Max. length – system size 80/125	m	25 <sup>*2*3</sup>	25 <sup>*2*3</sup>	25 <sup>*2*3</sup>	25 <sup>*2*3</sup>	20	15

The following components are taken into consideration for the maximum flue lengths:

- Connection pipe (D) 1 m long.
- 1 bend 87° and 1 support bend 87°  
or
- 2 bends 45° and 1 support bend 87°

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- 45° bend: 0.3 m
- 87° bend: 0.5 m
- Inspection tee: 0.5 m

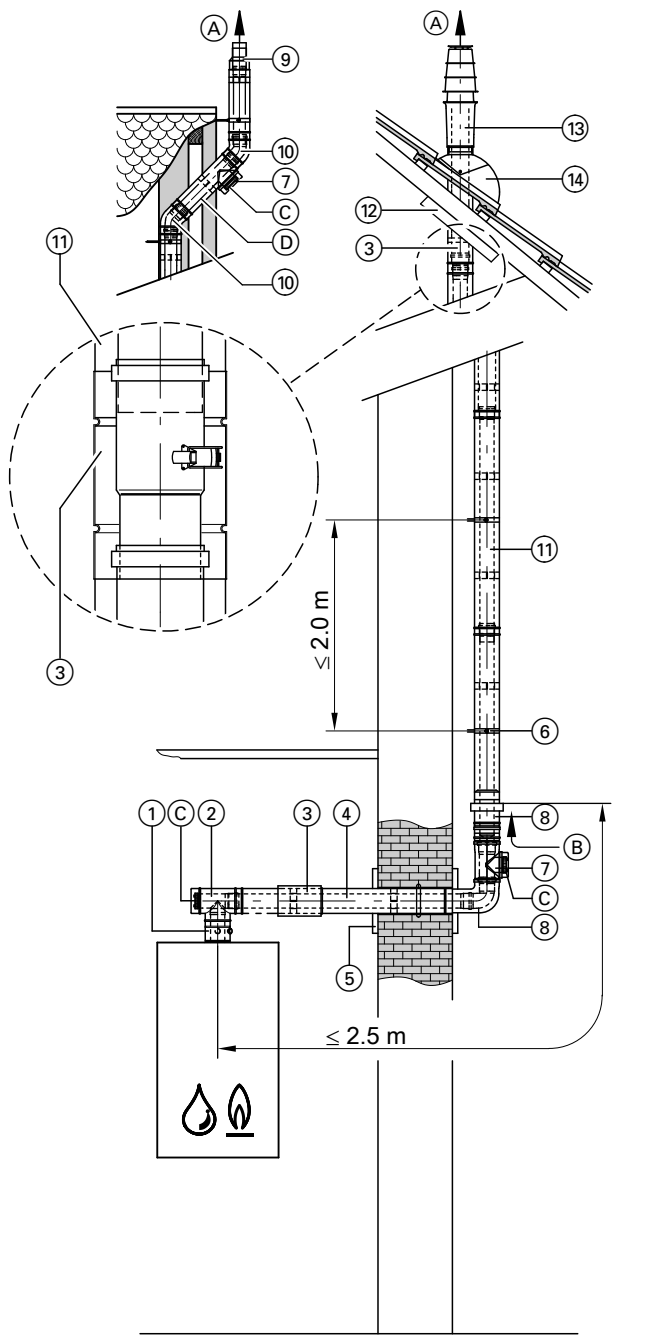
## 2.7 Plastic (PPs) balanced flue system for routing over external walls (type C<sub>53x</sub> to CEN/TR 1749)

The Vitodens may also be connected, without a shaft, to a flue pipe that is routed over an external wall.

The combustion air is drawn in via the air inlet piece. The vertical external pipe provides protection and the static air gap inside it acts as thermal insulation. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

The external routing has been certified as a coaxial balanced flue system with the Vitodens condensing boiler. A performance verification to EN 13384 is **not** required.

## Design and sizing information for connection on the flue gas side (cont.)



- (A) Flue gas  
 (B) Ventilation air  
 (C) Inspection port  
 (D) Elbow in flue for routing over external walls, see page 51

		System size Ø mm		
		60	80	110
①	<b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
②	<b>Balanced flue inspection tee</b> 87° (1 pce)	—	—	110
	<b>Balanced flue inspection bend</b> , 87° (1 pce) or	60	80	—
	<b>Balanced flue inspection piece</b> , straight (1 pce) and	60	80	110
	<b>Balanced flue bend</b> 87° (1 pce)	60	80	110
③	<b>Balanced flue slide coupling</b>	60	80	110
④	<b>Balanced flue pipe</b> 1.95 m long (1 pce)	60	80	110
	1 m long (1 pce)			
	0.5 m long (1 pce)			
⑤	<b>Wall bezel</b>	60	80	110
⑥	<b>Fixing clamp</b> , white (1 pce)	60	80	110
⑦	<b>Balanced flue inspection piece</b> , straight (1 pce) or	60	80	—
	<b>External wall inspection piece</b> , straight (1 pce)	—	—	110
⑧	<b>External wall pack</b> Comprising: – Balanced flue bend – Balanced flue air inlet piece – Wall bezel	60	80	110
⑨	<b>External wall terminal</b> for short protrusion above the roof	60	80	110
⑩	<b>Balanced flue bend</b> 87° (1 pce)	60	80	—
	45° (2 pce)	60	80	—
	30° (2 pce)	60	80	—
	or			
	<b>External wall bend</b> 87° (1 pce)	—	—	110
	45° (2 pce)	—	—	110
	30° (2 pce)	—	—	110
⑪	<b>Balanced flue pipe</b> 1.95 m long (1 pce)	60	80	—
	1 m long (1 pce)	60	80	—
	0.5 m long (1 pce)	60	80	—
	or			
	<b>External wall pipe</b> 1.95 m long (1 pce)	—	—	110
1 m long (1 pce)	—	—	110	
0.5 m long (1 pce)	—	—	110	
⑫	<b>Universal cover plates</b>	60	80	110
⑬	<b>Balanced flue roof outlet</b> External wall with fixing clamps (for large protrusion above the roof) Colour: Black or terracotta			
	<b>Above roof extension</b> with clamp (brace on site) Colour: Black			
	0.5 m long	60	80	110
	1 m long	60	80	—
	Colour: Terracotta			
	0.5 m long	60	80	110
1 m long	60	80	—	

\*3 Alternative system size. Balanced flue adaptor must be ordered separately.

\*2 Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

		System size Ø mm					System size Ø mm		
14	<b>Universal roof tile</b>	60	80	110					
	– For Roman tiles and tiled roof cover. Colour: Black or terracotta								
	– For plain tile, slate and other roof cover. Colour: Black or terracotta	60	80	110					
	<b>Pipe outlet for Klöber roof tiles</b>	60	80	—					
	Colour: Black or terracotta								
	Provide the corresponding Klöber roof tile on site to match the roof outlet selected for the particular type of roof cover.								
		<b>Balanced flue adaptor</b>							
		– Ø 80/125 mm to Ø 60/100 mm			60	80	—		
		– Ø 60/100 mm to Ø 80/125 mm			60	80	—		
		– Ø 80/125 mm to Ø 110/150 mm			—	80	110		

### Max. total length of the flue pipe

#### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60/100	m	20	20	20	20
Max. length – system size 80/125 <sup>*2*3</sup>	m	25	25	25	25

#### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
Max. length – system size 60/100	m	20	20	15	15
Max. length – system size 80/125 <sup>*2*3</sup>	m	25	25	20	20

#### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
Max. length – system size 80/125	m	12	12	—	—	—	—
Max. length – system size 110/150	m	17 <sup>*2*3</sup>	17 <sup>*2*3</sup>	20	20	18	15

2 x 87° balanced flue bends are taken into consideration for the maximum flue lengths.

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

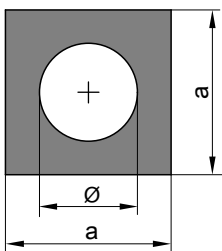
- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1 m

## 2.8 Plastic (PPs) balanced flue system for routing through a lightweight shaft

A space saving shaft for reduced temperature requirements may be retrofitted if no shaft is available where the Vitodens is installed in the living space with one or more full storeys above.

The shaft used must comply with the requirements for domestic chimneys to DIN V 18160-1 or must be generally approved by the building inspectorate [Germany].

### "UNIFIX" shaft profiles from Skoberne (made from aerated concrete)



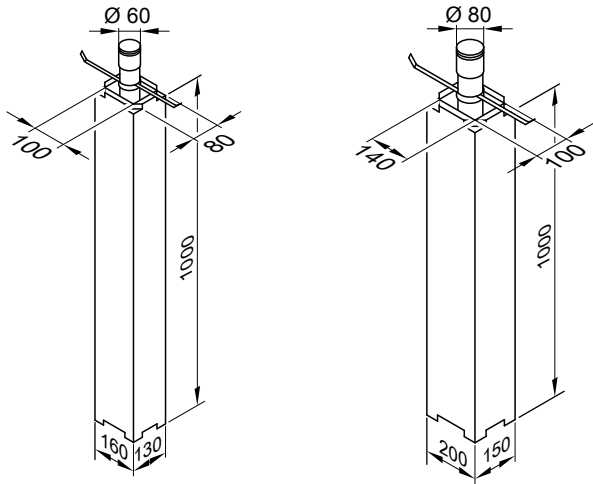
Ø mm	a mm	b mm	Fire rating
165	240	500	90 min
210	300	500	90 min
240	360	249	90 min
280	400	249	90 min

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

### "SKOBIFIXnano" and "SKOBIFIXs 30" shaft elements from Skoberne (made from foamed ceramics)



Fire rating 30 min.

Skoberne is one of the companies that sells a shaft system made from breeze concrete or foamed ceramics approved by the building inspectorate [Germany].

Skoberne address:

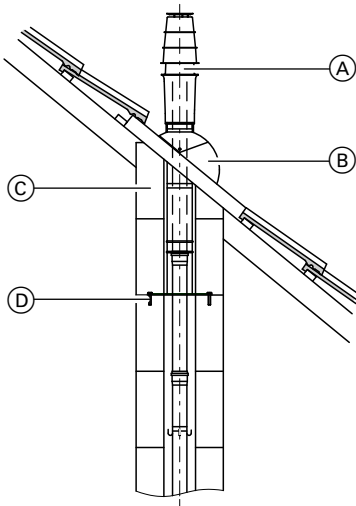
Skoberne Schornsteinsysteme GmbH

Ostendstrasse 1

D-64319 Pfungstadt

### Anchoring for roof outlets with shaft profiles

Where the shaft is run up to the roof skin

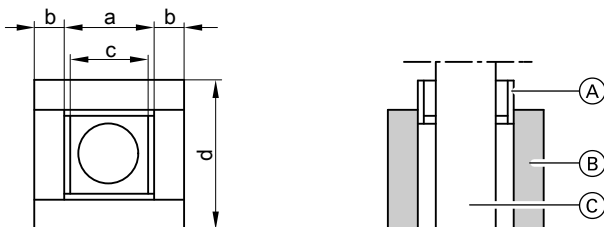


Available from Skoberne:

- (A) Roof outlet
- (B) Universal roof tile
- (C) Terminal shaft profile
- (D) Anchoring of the roof outlet

During installation, match the terminal shaft profile (C) to the roof slope.

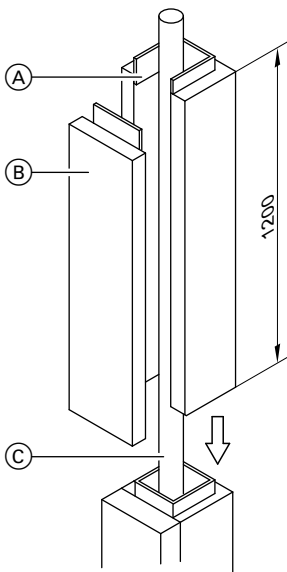
### Shaft profiles from Promat



System size Ø mm	a mm	b mm	c mm	d mm	Fire rating
80	140	25	128	190	30 min
	140	40	128	220	90 min
110	180	25	168	230	30 min
	180	40	168	260	90 min

- (A) PROMATECT® female connection
- (B) PROMATECT® profile
- (C) Flue pipe

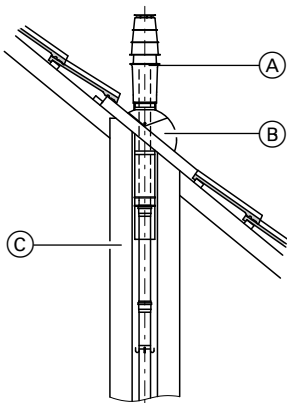
## Design and sizing information for connection on the flue gas side (cont.)



Promat is one of the companies that sells a shaft system made from calcium silicate fire-resistant plates approved by the building inspectorate [Germany].  
Promat address:  
Promat GmbH  
Postfach 109 564  
D-40835 Ratingen

- (A) PROMATECT® female connection
- (B) PROMATECT® profile
- (C) Flue pipe

## Roof outlet for shafts with Promat profiles



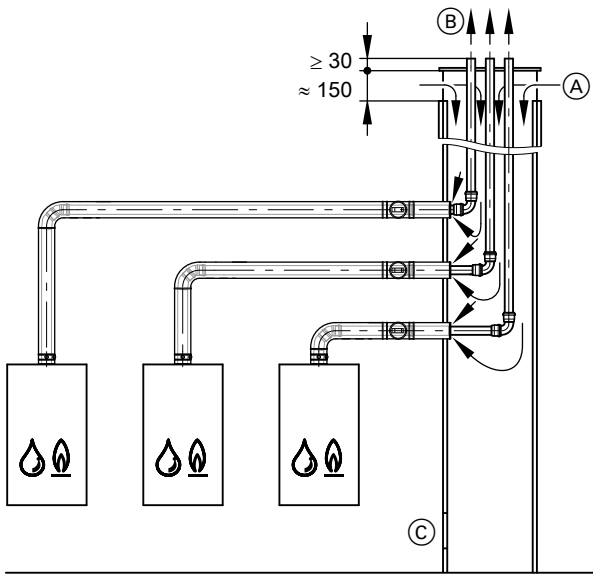
During installation, match the terminal shaft profile to the roof slope.

- (A) Vertical coaxial roof outlet
- (B) Universal roof tile
- (C) Lightweight shaft made from PROMATECT® mineral fibre profiles

## 2.9 Plastic (PPs) flue gas/ventilation air system for routing multiple pipes through a shaft

There is an option of routing several flues in room sealed operation through a common, sufficiently sized shaft. For this, the Vitodens condensing boilers must be installed in the same living space. For reasons of fire protection, the installation and connection on different levels or in different rooms is not possible. The flues and the shaft covers must be professionally supported inside/on the shaft, on site. For balanced flue components from the Vitodens to the common shaft, see page 15.

2

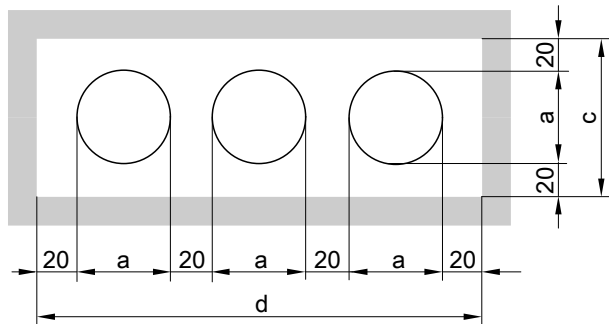
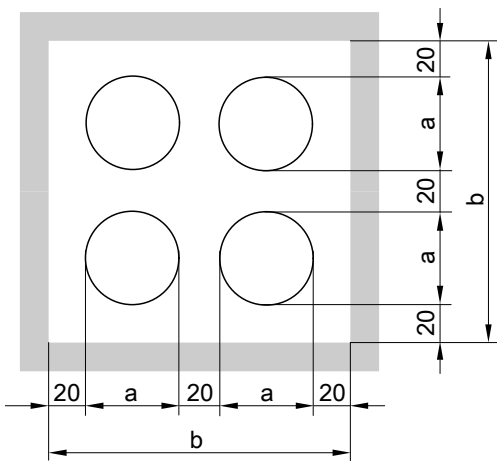


- (A) Ventilation air
- (B) Flue gas
- (C) Inspection port

**Layout examples**

Minimum clearances of the individual flues to DIN V 18160-1:

- In square/rectangular shafts: 20 mm
- In round shafts: 30 mm



System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	73	206	113	299
80	94	248	134	362
110	128	316	168	464

**Note**

According to the approval certificate, internal shaft dimensions smaller than those shown in the table may also be used, provided this is allowed under performance verification to EN 13384.

**2.10 Plastic (PPs) balanced flue system (connection line) for connecting multiple flues to a single balanced flue system**

Vitodens condensing boilers meet the safety requirements of DIN 3368-6. A general building regulations approval for connection to balanced flue systems is therefore not required.

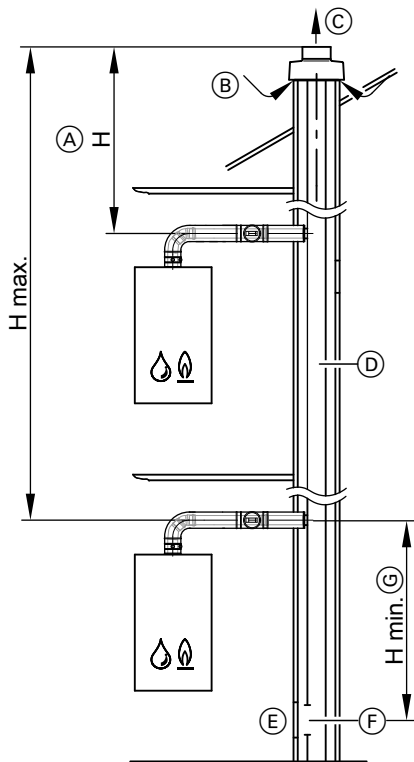
Each condensing boiler in a multiple connection flue system or multi boiler system with flue gas cascade requires an additional external back draught safety device in the flue gas connection.

When connecting 2 condensing boilers to one chimney on the same floor, the connection piece inlets should be separated by at least 300 mm.

Design and calculations for balanced flue systems with multiple connections are carried out by the relevant manufacturer.

## Design and sizing information for connection on the flue gas side (cont.)

### Balanced flue system, negative pressure (type C<sub>43x</sub> to CEN/TR 1749)



Balanced flue systems for negative pressure can be obtained from the following manufacturers:

- eka Edelstahlkamin GmbH  
D-95369 Untersteinach
- Jeremias  
Schornstein Systeme  
Opfenrieder Str. 12  
D-91717 Wassertrüdingen
- Plewa-Werke GmbH  
D-54662 Speicher/Eifel
- Schiedel GmbH & Co, Hauptverwaltung  
Lerchenstrasse 9  
D-80995 Munich
- Wienerberger GmbH  
Oldenburger Allee 26  
D-30659 Hannover

- (A) Effective chimney height relative to the highest positioned Vitodens
- (B) Ventilation air
- (C) Flue gas
- (D) Balanced flue system (see below for manufacturers)
- (E) Inspection port
- (F) Pressure compensation aperture
- (G) Minimum clearance to DIN V 18160, paragraph 9.3.1  
Check with the flue system manufacturer

### Balanced flue system, positive pressure – multiple connections with Vitodens 100-W and 111-W up to 35 kW, 200-W, 222-W and 222-F up to 26 kW (type C<sub>14(3)x</sub> to CEN/TR 1749)

System for room sealed operation, specifically developed for Vitodens 100-W, 111-W, 200-W, 222-W and 222-F.

For connecting multiple flues to a single balanced flue chimney (balanced flue system, positive pressure)

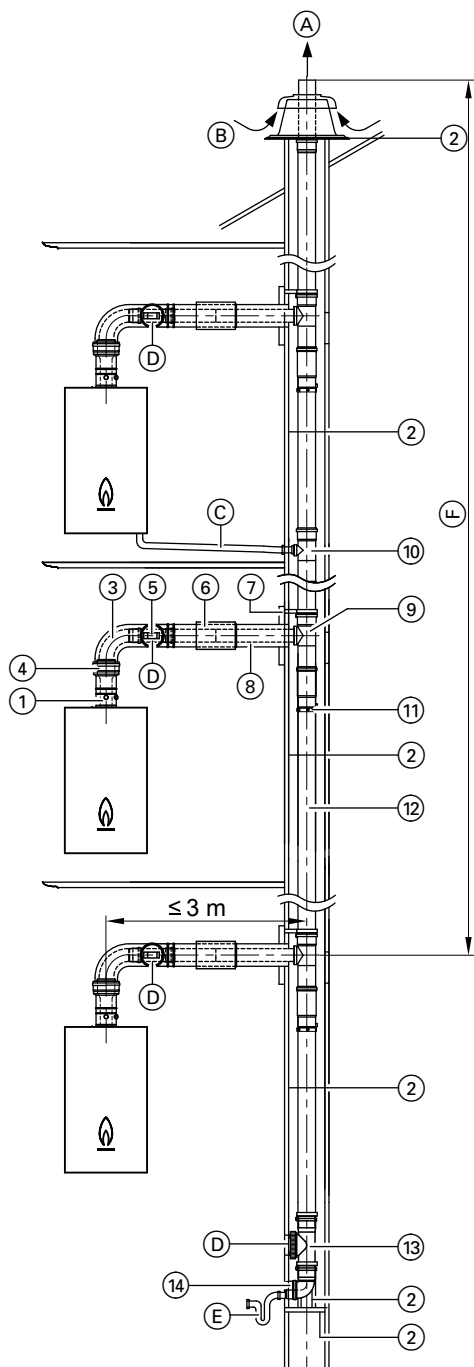
Minimum shaft cross-section:

- Square: 175 × 175 mm
- Round: Ø 195 mm.



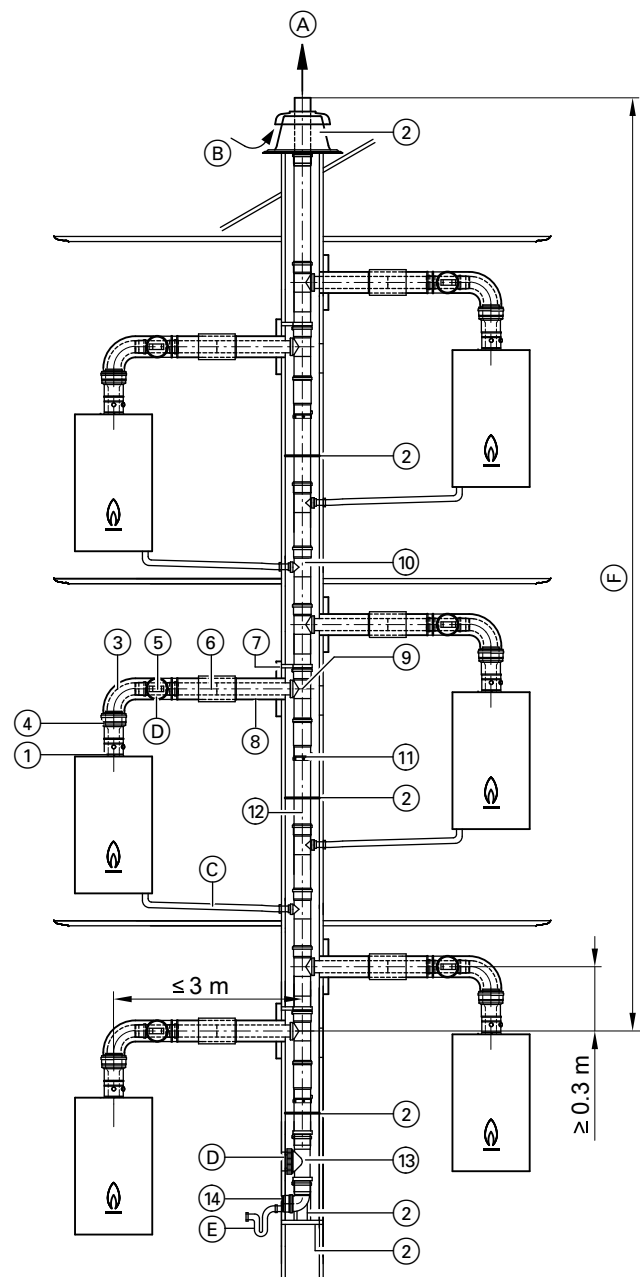
**Design and sizing information for connection on the flue gas side (cont.)**

2



1 boiler per floor

- (A) Flue gas
- (B) Ventilation air
- (C) Condensate drain into vertical flue pipe
- (D) Inspection port
- (E) Condensate drain with trap (on site)
- (F) Max. flue pipe length (vertical)



2 boilers per floor

- (A) Flue gas
- (B) Ventilation air
- (C) Condensate drain into vertical flue pipe
- (D) Inspection port
- (E) Condensate drain with trap (on site)
- (F) Max. flue pipe length (vertical)

## Design and sizing information for connection on the flue gas side (cont.)

		System size Ø mm	
①	<b>Boiler flue connection</b> (part of the standard boiler delivery)	80	—
	<b>Back draught safety device</b> For installation in the boiler Must be ordered separately for every boiler	—	—
②	<b>Standard shaft pack</b> (PPs, rigid) Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (3 pce)	—	110
	<b>Spacers</b> (3 pce)	—	110
③	<b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Balanced flue inspection bend</b> 87° (1 pce)	80 80	— —
④	<b>Balanced flue adaptor</b> Ø 60/100 to Ø 80/125	80	—
⑤	<b>Balanced flue inspection piece</b> , straight (1 pce)	80	—
⑥	<b>Balanced flue slide coupling</b>	80	—
	<b>Fixing clamp</b> , white (1 pce) (balanced flue pipe)	80	—
⑦	<b>Wall bezel</b>	80	—
⑧	<b>Balanced flue pipe</b> 1 m long 0.5 m long	80 80	— —

		System size Ø mm	
⑨	<b>Connecting assembly, multiple connections</b> Comprising: – Inspection pipe Ø 110 – Flue gas connection Ø 80 – Fixing clamp – Spacer – Long fem. connection Ø 110	—	110
⑩	<b>Connecting assembly, condensate drain</b> Comprising: – Branch 87° Ø 40 – Fixing clamp – Long fem. connection Ø 110	—	110
⑪	<b>Connecting clamp</b> required for every joint in the shaft	—	110
⑫	<b>Flue pipe</b> 2 m long (2 pce @ 2 m = 4 m) 2 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	— — — —	110 110 110 110
	<b>Flue bend</b> (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	— —	110 110
⑬	<b>Inspection piece</b> , straight (1 pce)	—	110
⑭	<b>Condensate drain connection</b> (eccentric) Reduction from Ø 110 mm to Ø 40 mm	—	110

### Flue pipe lengths – Vitodens 100-W and 111-W

Up to 6 boilers with the same rated heating output can be connected to one flue system. The flue pipe lengths detailed below are confirmed with the relevant CE designations. If you observe these length specifications you will not need to make a separate flue pipe length calculation.

#### 1 boiler per floor – system size 110 mm

Number of boilers	2	3	4	5	6
<b>Rated heating output (kW)</b>	<b>Flue pipe length (m)</b>				
19	25	25	25	25	25
26	25	25	25	22	19
30	25	25	24	18	16
35	25	25	20	16	15

#### 2 boilers per floor – system size 110 mm

Number of boilers	2	4	6
<b>Rated heating output (kW)</b>	<b>Flue pipe length (m)</b>		
19	15	15	15
26	15	15	14
30	15	15	11
35	15	15	9

### Flue pipe lengths – Vitodens 200-W, 222-W and 222-F

Up to 6 boilers with the same rated heating output can be connected to one flue system.

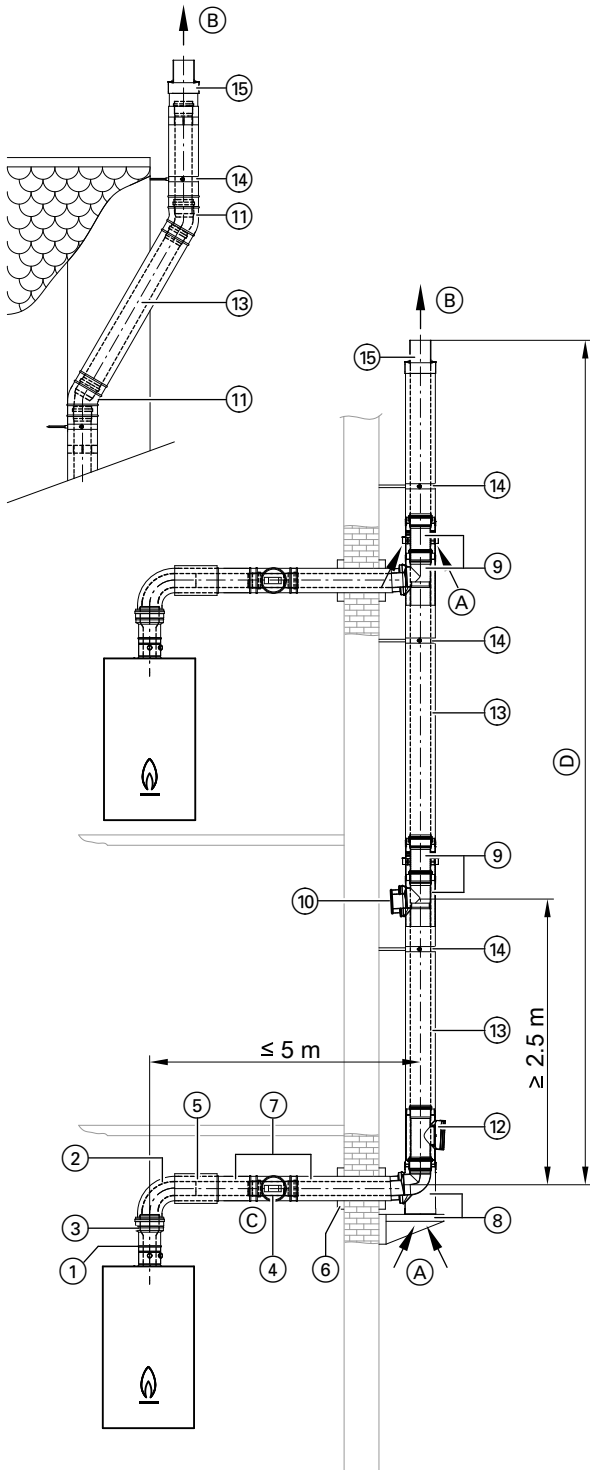
**Max. flue pipe length** 3 m horizontal (connection piece) and vertical:

- 1 boiler per floor: 25 m
- 2 boilers per floor: 15 m

These flue pipe lengths are confirmed with the relevant CE designations. If you observe these length specifications you will not need to make a separate flue pipe length calculation.

## Design and sizing information for connection on the flue gas side (cont.)

**Common balanced flue header on the external wall – multiple connections with Vitodens 100-W, 200-W, 222-W and 222-F up to 26 kW (type C<sub>14(3)</sub>x to CEN/TR 1749)**  
 System for room sealed operation, specifically developed for Vitodens 100-W, 200-W, 222-W and 222-F.  
 Balanced flue header Ø 110/160 mm



1 boiler per floor

- (A) Ventilation air  
 (B) Flue gas

- (C) Inspection port  
 (D) Max. flue pipe length (see the following pages)

		System size Ø mm	
①	<b>Boiler flue connection</b> (part of the standard boiler delivery)		
	<b>Back draught safety device</b> For installation in the boiler Must be ordered separately for every boiler	—	—
②	<b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Balanced flue inspection bend</b> 87° (1 pce)	80	—
③	<b>Balanced flue adaptor</b> Ø 60/100 to Ø 80/125	80	—
④	<b>Balanced flue inspection piece, straight</b> (1 pce)	80	—
⑤	<b>Balanced flue slide coupling</b>	80	—
	<b>Fixing clamp, white</b> (1 pce) (balanced flue pipe)	80	—
⑥	<b>Wall bezel</b>	80	—
⑦	<b>Balanced flue pipe</b> 1.95 m long 1 m long 0.5 m long	80	—
⑧	<b>Connecting assembly, multiple connections, base</b>  Comprising: – Connection, multiple connections – Mounting bracket	—	110
⑨	<b>Connecting assembly, multiple connections, upper floor</b>  Comprising: – Connection, multiple connections – Air inlet piece	—	110
⑩	<b>Dummy cover</b> For subsequent connection of a heat generator	80	110
⑪	<b>Balanced flue bend</b> 87° (1 pce) 45° (2 pce) 30° (2 pce)	—	110
⑫	<b>Balanced flue inspection piece, straight</b> (1 pce)	—	110
	<b>Balanced flue slide coupling</b>	—	110
⑬	<b>Balanced flue pipe</b> 2 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	—	110
⑭	<b>Wall clamp, adjustable</b>	—	110
	<b>Fixing clamp, white</b> (balanced flue pipe)	—	110
⑮	<b>End piece, balanced flue header</b> For installation without roof outlet	—	110
	<b>Universal cover plate</b> For balanced flue roof outlet	—	110
	<b>Wall bezel</b> For flat roof outlet	—	110
	<b>Balanced flue roof outlet with fixing clamp</b> Colour: Black or Colour: Terracotta	—	110

## Design and sizing information for connection on the flue gas side (cont.)

	System size Ø mm	
Above roof extension with clamp (brace on site) 0.5 m long Colour: Black or Colour: Terracotta	—	110
1 m long Colour: Black or Colour: Terracotta	—	110

### Note

The base connecting assembly for multiple connections must be installed at the interface to the last heat generator. If an additional heat generator is to be subsequently installed below the already installed base connecting assembly for multiple connections, move the connecting assembly accordingly.

### Flue pipe lengths – Vitodens 100-W and 111-W

Up to 6 boilers with the same rated heating output can be connected to one flue system. The flue pipe lengths detailed below are confirmed with the relevant CE designations. If you observe these length specifications you will not need to make a separate flue pipe length calculation.

Number of boilers	2	3	4	5	6
Rated heating output (kW)	Flue pipe length (m)				
19	25	25	25	25	25
26	25	25	25	22	19
30	25	25	24	18	16
35	25	25	20	16	15

### Flue pipe lengths – Vitodens 200-W, 222-W, 222-F and 242-F

Up to 6 boilers with the same rated heating output can be connected to one flue system.

**Max. flue length:** 25 m vertically and 5 m horizontally (connection piece)

These flue pipe lengths are confirmed with the relevant CE designations. If you observe these length specifications you will not need to make a separate flue pipe length calculation.

## 2.11 Plastic (PPs) flue pipe for routing through a shaft – open flue operation (type B according to CEN/TR 1749)

Open flue operation requires a flue pipe as a connection piece between the Vitodens and the shaft as well as for routing through the shaft.

**Installation only in rooms with a ventilation air aperture with an open cross-section of at least 150 cm<sup>2</sup> or 2 × 75 cm<sup>2</sup> (according to CEN/TR 1749).**

### Note

Install the Vitodens 200-W, from 60 kW, and multi boiler systems in accordance with the FeuVO [check local fire regulations] in a separate installation room with a suitable ventilation air aperture. The cross-section must be at least 150 cm<sup>2</sup> and should be 2 cm<sup>2</sup> larger for each kW above 50 kW rated heating output. This cross-section may not be split over more than 2 vents (FeuVO and CEN/TR 1749 – check local fire regulations).

The flue system is connected to the boiler flue connection. The combustion air is drawn from the installation room via the annular gap in the boiler flue connection.

For routing through shafts or ducts with longitudinal ventilation which meet the requirements for domestic chimneys to DIN V 18160-1, or which have a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2.

**(A) For installation in Austria, observe the relevant safety regulations of the ÖVGW-TR Gas (G1) 1985, ÖVGW-TRF (G2), ÖNORM, ÖVGW, ÖVE and regional regulations.**

Prior to installation, the relevant flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.

Close off and seal any other connection apertures with appropriate materials.

This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.

Check prior to installation whether the shaft runs straight from top to bottom or if it is offset (check with mirrors).

If the chimney is offset, we recommend installing a flexible flue pipe (see page 37).

The relevant flue gas inspector should check the flue system for tightness prior to commissioning (where applicable).

In the case of **open** flue operation, this can **only** be done by means of a pressure test.

Inside the installation room, at least one inspection port must be provided in the flue system for checking and cleaning as well as for checking the pressure.

If the flue pipe is inaccessible from the roof, a second inspection port must be provided in the attic behind the chimney cleaning hatch.

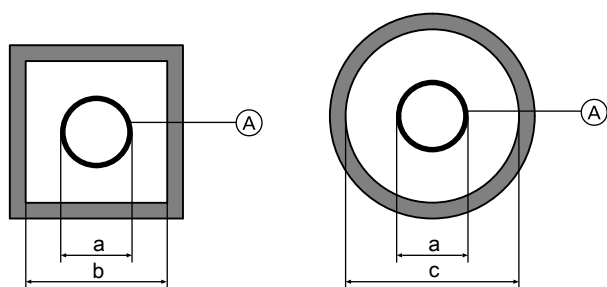
Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

The flue system must protrude above the roof line. Observe the roof protrusion parallel to the roof slope in accordance with the Landes-FeuVO [check local fire regulations].

Alternative CE designated flue pipes may be used, e.g. if a larger pipe diameter is required for longer flue lengths. In that case, the performance verification to EN 13384 should be provided by the relevant flue pipe manufacturer.

## Design and sizing information for connection on the flue gas side (cont.)

### Internal shaft dimensions



### Minimum internal shaft dimensions

System size <sup>(A)</sup>	External diameter, female connection a  Ø mm	Minimum internal shaft dimension	
		b Square or rectangular (short side) mm	c Round Ø mm
60 (rigid)	73	113	133
60 (flexible, shaft cover PPs)	72	112	132
60 (flexible, shaft cover metal)	87	140	147
80 (rigid)	94	135	155
80 (flexible, shaft cover PPs)	102	142	162
80 (flexible, shaft cover metal)	116	165	176
110 (rigid)	128	170	190
110 (flexible, shaft cover PPs)	127	167	187
110 (flexible, shaft cover metal)	142	182	202
125 (rigid)	145	185	205
160 (rigid)	184	224	244
200 (rigid)	227	267	287
250 (rigid)	273	313	333

Max. number of bends:

■ 87°: 3 pce

or

■ 45°: 3 pce

or

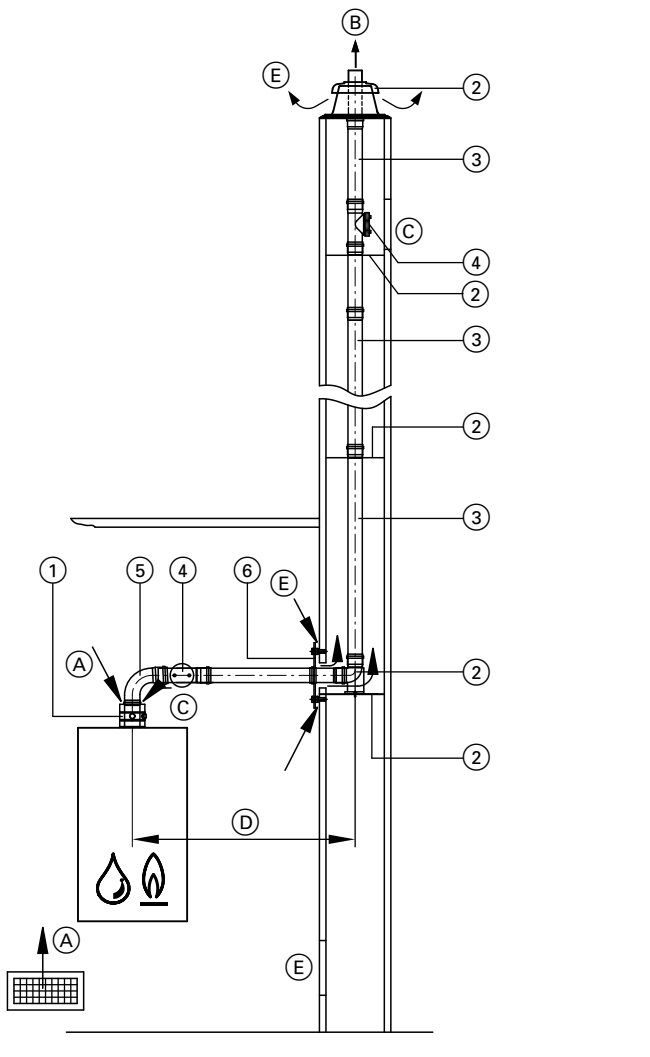
■ 30°: 4 pce

or

■ 15°: 4 pce

## Design and sizing information for connection on the flue gas side (cont.)

### Flue, system size 60, 80 and 110 (components) (type B<sub>23</sub> /B<sub>33</sub> to CEN/TR 1749)



- (A) Ventilation air  
For sizing the ventilation air aperture, see page 33
- (B) Flue gas
- (C) Inspection port
- (D) Connection piece
- (E) Secondary ventilation

	System size Ø mm		
	60	80	110
① <b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
② <b>Standard shaft pack</b> (PPs, rigid) Comprising: – Support bend – Support rail – Shaft cover – Spacers (5 pce, max. distance 5 m) or <b>Standard shaft pack</b> (metal/PPs, rigid) For twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 5 m)	60	80	110
<b>Spacers</b> (3 pce, max. distance 5 m)	60	80	110
③ <b>Flue pipe</b> 1.95 m long (2 pce @ 1.95 m = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	60	80	110
④ <b>Inspection piece</b> , straight (1 pce)	60	80	110
⑤ <b>Flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Inspection tee</b> 87° (1 pce) or <b>Inspection bend</b> 87° (1 pce)	60	80	110
⑥ <b>Ventilation bezel</b> (1 pce)	60	80	110
<b>Flue bend</b> (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	60	80	110
<b>Stainless steel extension</b> , 380 mm long for shaft cover, standard shaft pack (metal/PPs, rigid)	60	80	110
<b>Adaptor</b> – Ø 60 mm to Ø 80 mm – Ø 80 mm to Ø 110 mm	60 –	80 80	– 110

#### Max. total length of the flue pipe

##### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 60	m	15	15	15	15
Max. length – system size 80 <sup>*2*3</sup>	m	20	20	20	20

##### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
Max. length – system size 60	m	20	20	15	15
Max. length – system size 80 <sup>*2*3</sup>	m	25	25	25	25

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<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
Max. length – system size 80	m	20	15	—	—	—	—
Max. length – system size 110	m	25 <sup>*2*3</sup>	20 <sup>*2*3</sup>	20	20	20	20

The following components are taken into consideration for the maximum flue lengths:

- Connection pipe (D) 1 m long.
- 1 bend 87° and 1 support bend 87°  
or
- 2 bends 45° and 1 support bend 87°

- 45° bend: 0.3 m
- 87° bend: 0.5 m
- Inspection tee: 0.5 m

#### Note

Observe the specifications regarding internal shaft dimensions (see page 34).

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m

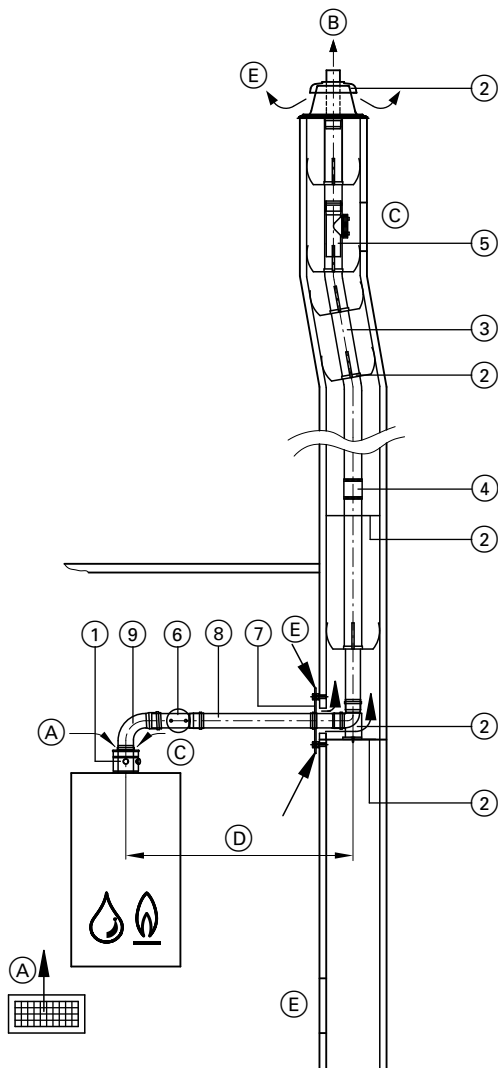
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\*2 Alternative system size. Balanced flue adaptor must be ordered separately.

\*3 Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)

### Flexible flue, system size 60, 80 and 110 (components) (type B<sub>23</sub> according to CEN/TR 1749)



- (A) Ventilation air  
Ventilation air aperture, min. 150 cm<sup>2</sup> or 2 × 75 cm<sup>2</sup>
- (B) Flue gas
- (C) Inspection port
- (D) Connection piece
- (E) Secondary ventilation

	System size Ø mm		
	60	80	110
① <b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
② <b>Standard shaft pack</b> (PPs, flexible) Comprising: – Support bend – Support rail – Shaft cover – Spacers (5 pce, max. distance 2 m)	60	80	110
<b>Standard shaft pack</b> (metal/PPs, flexible) For twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 2 m)	60	80	110
<b>Spacers</b> (5 pce, max. distance 2 m)	60	80	110
③ <b>Flue pipe, flexible</b> , as a 12.5 or 25 m roll	60	80	110
④ <b>Connection piece</b> for connecting residual lengths of the flexible flue	60	80	110
⑤ <b>Inspection piece, straight for installation in the flexible flue pipe</b> <b>Pipe lowering attachment</b> with 25 m rope	60	80	110
⑥ <b>Inspection piece, straight</b> (1 pce)	60	80	110
⑦ <b>Ventilation bezel</b> (1 pce)	60	80	110
⑧ <b>Flue pipe</b> 1 m long (1 pce) 0.5 m long (1 pce)	60	80	110
⑨ <b>Flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Inspection tee</b> 87° (1 pce) or <b>Inspection bend</b> 87° (1 pce)	60	80	80 — 110
<b>Stainless steel extension</b> , 380 mm long for shaft cover, standard shaft pack (metal/PPs, flexible)	60	80	110
<b>Adaptor</b> – Ø 60 mm to Ø 80 mm – Ø 80 mm to Ø 110 mm	60 —	80 80	— 110

#### Note

The flexible flue pipe may be routed with at a max. angle from vertical of 45°.

#### Max. total length of the flue pipe

#### Vitodens 100-W and 111-W

Rated heating output	kW	19	26	30	35
Max. length – system size 80 <sup>*2*3</sup>	m	20	20	25	25

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<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

<sup>\*3</sup> Alternative system size. Balanced flue adaptor must be ordered separately.



## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 200-W, 222-F, 222-W and 242-F

Rated heating output	kW	11	19	25	32
Max. length – system size 60	m	18	—	—	—
Max. length – system size 80 <sup>*2*3</sup>	m	25	25	25	25

### Vitodens 200-W, from 49 kW

Rated heating output	kW	49	60	80	99	120	150
Max. length – system size 80	m	20	15	—	—	—	—
Max. length – system size 110	m	22 <sup>*2*3</sup>	17 <sup>*2*3</sup>	20	20	20	20

The following components are taken into consideration for the maximum flue lengths:

- Connection pipe (D) 0.5 m long.
- 1 bend 87° and 1 support bend 87°  
or
- 2 bends 45° and 1 support bend 87°

- 45° bend: 0.3 m
- 87° bend: 0.5 m
- Inspection tee: 0.5 m

#### Note

Observe the specifications regarding internal shaft dimensions (see page 34).

If fitting other bends, tees or straight lengths, subtract the following values from the maximum length:

- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m

### Special version: Open flue operation with combustion air supply via interconnected rooms for Vitodens up to 35 kW (type B<sub>33</sub> to CEN/TR 1749)

The Vitodens may also be installed in the living space and be operated in open flue mode, subject to the following conditions being met:

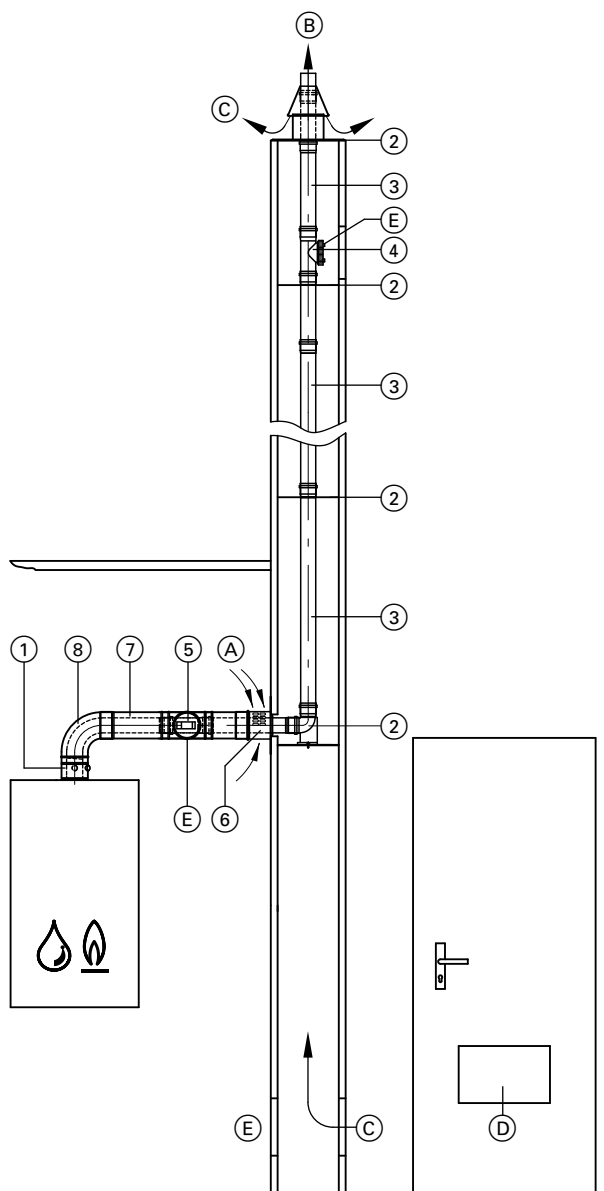
- The shaft connection piece is constructed as a balanced flue pipe and the combustion air is drawn directly from the room via an aperture at the chimney inlet (air inlet adaptor, see page 51).
- An adequate combustion air supply must be ensured inside the room by means of an interconnected combustion air supply:
  - Minimum volume of the interconnected rooms, 4 m<sup>3</sup> per kW rated heating output
  - Vents in the connecting doors min. 150 cm<sup>2</sup>

When routing through shafts, the same conditions apply as for the routing of flue systems through a shaft, see page 33.

**For calculation of the max. total flue pipe length, see page 35.**

<sup>\*2</sup> Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)



- (A) Ventilation air
- (B) Flue gas
- (C) Secondary ventilation
- (D) Aperture for interconnected room air supply (min. 150 cm<sup>2</sup>)
- (E) Inspection port

		System size Ø mm	
①	<b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80
②	<b>Standard shaft pack</b> (PPs, rigid) Comprising: – Support bend – Support rail – Shaft cover – Spacers (5 pce, max. distance 5 m) or <b>Standard shaft pack</b> (metal/PPs, rigid) For twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 5 m)	60	80
	<b>Spacers</b> (3 pce, max. distance 5 m)	60	80
③	<b>Flue pipe</b> 1.95 m long (2 pce @ 1.95 m = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	60	80
	<b>Flue bend</b> (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	60	80
④	<b>Inspection piece, straight</b> (1 pce)	60	80
⑤	<b>Balanced flue inspection piece, straight</b> (1 pce)	60	80
⑥	<b>Balanced flue air inlet adaptor</b> 80/125 mm Ø (type B <sub>33</sub> to CEN/TR 1749)	60	80
⑦	<b>Balanced flue pipe</b> 1 m long 0.5 m long	60	80
⑧	<b>Flue bend</b> 87° (1 pce) 45° (2 pce) or <b>Balanced flue inspection bend, 87°</b> (1 pce)	60	80
	<b>Stainless steel extension, 380 mm long</b> for shaft cover, standard shaft pack (metal/PPs, rigid)	60	80

### Connection to a moisture-resistant chimney (MR chimney negative pressure) with a plastic (PPs) flue pipe (type B<sub>23x</sub>, according to CEN/TR 1749)

Vitodens condensing boilers may be connected to moisture-resistant chimneys to EN 13384, provided the chimney manufacturer can verify their suitability based on the stated flue gas values and taking local conditions into consideration (e.g. heating water return temperature, design of the pipe connection piece, etc.).

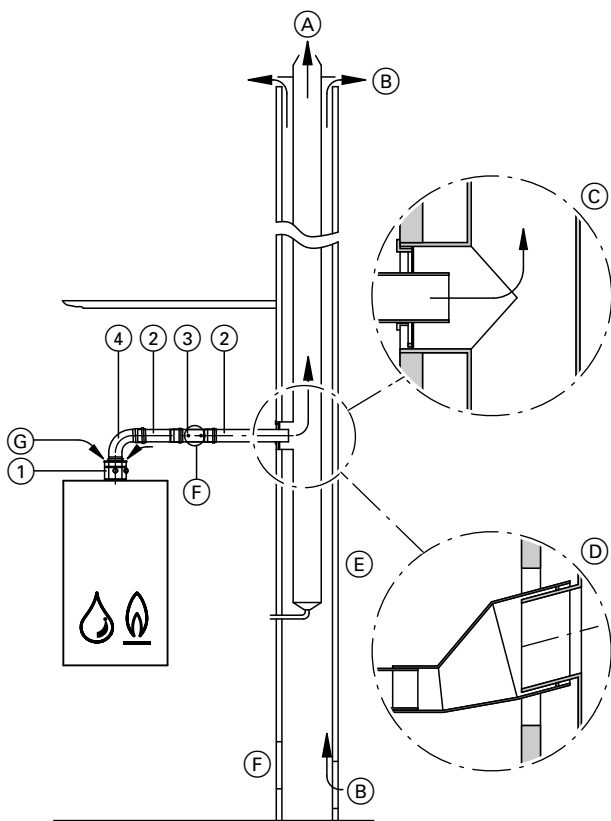
The connection piece must consist of a moisture-resistant flue pipe that has been approved by the building inspectorate. For this, you can use the plastic (PPs) flue system offered as an accessory to the Vitodens. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

The adaptor from the flue pipe to the MR chimney must be purchased from the chimney manufacturer.

\*3 Alternative system size. Balanced flue adaptor must be ordered separately.

\*2 Alternative system size. Balanced flue adaptor must be ordered separately.

## Design and sizing information for connection on the flue gas side (cont.)



- (A) Flue gas
- (B) Secondary ventilation
- (C) For example: Flue outlet adaptor from Schiedel or Wienerberger
- (D) For example: Flue outlet adaptor from Plewa
- (E) Moisture-resistant chimney
- (F) Inspection port
- (G) Ventilation air

		System size Ø mm		
①	<b>Boiler flue connection</b> (part of the standard boiler delivery)	60	80	110
②	<b>Flue pipe</b>			
	1.95 m long (2 pce @ 1.95 m = 3.9 m)	60	80	110
	1.95 m long (1 pce)	60	80	110
	1 m long (1 pce)	60	80	110
	0.5 m long (1 pce)	60	80	110
③	<b>Inspection piece, straight</b> (1 pce)	60	80	110
④	<b>Flue bend</b>	60	80	110
	87° (1 pce)			
	or			
	<b>Inspection tee</b>	60	80	—
	87° (1 pce)			
	or			
	<b>Inspection bend</b>	—	—	110
	87° (1 pce)			

### Multi boiler systems with flue systems under positive pressure (open flue operation)

#### Vitodens 100-W, 111-W, Vitodens 200-W, Vitodens 222-W, 222-F and 242-F

The following gas condensing boilers with the same rated heating output may be connected to a common flue pipe under positive pressure:

- Max. 4 Vitodens 100-W and 111-W up to 35 kW
- Max. 4 Vitodens 200-W, 222-W, 222-F and 242-F up to 26 kW
- Max. 6 Vitodens 200-W, 49 to 99 kW

The max. output is 594 kW. The Vitodens 100-W, 111-W, 200-W, 222-W, 222-F and 242-F multi boiler systems with common flue systems under positive pressure are designed for open flue operation (type B).

#### Installation requirements

##### Combustion air apertures

Gas equipment with a total rated heating output in excess of 50 kW must be provided with combustion air apertures leading to the outside. The cross-section must be at least 150 cm<sup>2</sup> and should be 2 cm<sup>2</sup> larger for each kW above 50 kW rated heating output. This cross-section may not be split over more than 2 vents (observe the FeuVO and CEN/TR 1749 – check local fire regulations).

#### Example:

Vitodens 200-W, 3 × 80 kW  
 Total rated heating output 240 kW  
 $150 \text{ cm}^2 + ((240 \text{ kW} - 50 \text{ kW}) \times 2 \text{ cm}^2/\text{kW}) = 530 \text{ cm}^2$   
 or  $2 \times 265 \text{ cm}^2$ .

The combustion air apertures should measure at least 530 cm<sup>2</sup> or 2 × 265 cm<sup>2</sup>.

#### Installation clearances

For straightforward installation, we recommend a clearance of approx. 100 to 150 mm between the gas condensing system boilers. For Vitodens 200-W multi boiler systems, 49 to 99 kW, in conjunction with a hydraulic cascade, this clearance must be 100 mm.

#### Flue gas back draught safety device

The flue gas back draught safety device is installed in the boiler (mixing shaft) (Vitodens up to 35 kW). In the delivered condition of the Vitodens 200-W from 49 kW, the flue gas back draught safety device is already installed.

When the boiler is operational, the diaphragm of the flue gas back draught safety device is lifted by the positive pressure of the variable speed fan, which opens the path into the boiler mixing shaft. When the boiler is not in use, the flue gas back draught safety device closes the mixing shaft, which prevents the flue gas passing back into the boiler.

## Design and sizing information for connection on the flue gas side (cont.)

### Approval

The gas condensing boilers Vitodens 100-W, Vitodens 111-W, Vitodens 200-W, Vitodens 222-W, 222-F and 242-F are tested and certified together with the flue system. The flue pipe is CE designated.

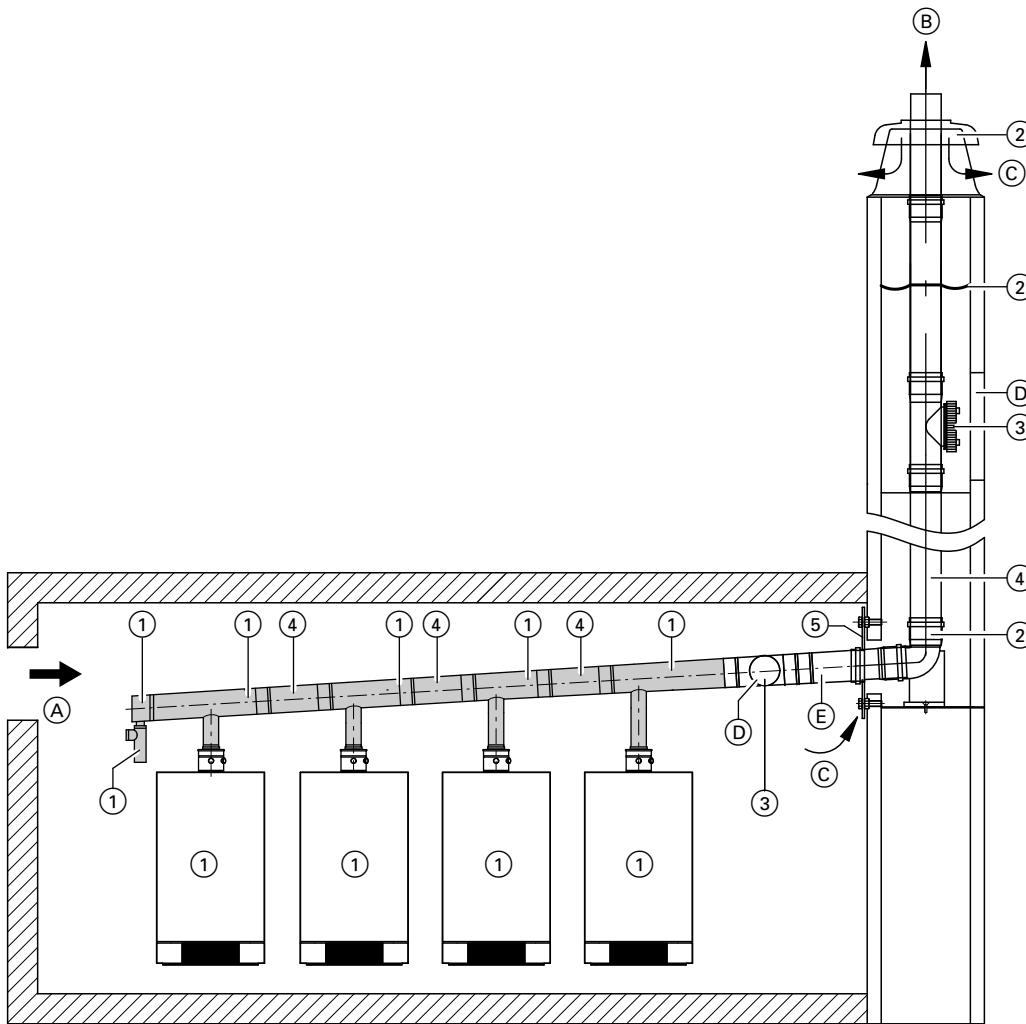
### Inspection port

The FeuVO [check local fire regulations] requires the installation of an inspection port inside the installation room. Use an inspection port appropriate for the selected flue pipe diameter.

### Components and pipe lengths

#### Vitodens to 35 kW

DE: Up to 26 kW



- (A) Ventilation air
- (B) Flue gas
- (C) Secondary ventilation

- (D) Inspection port
- (E) Connection pipe

#### Standard delivery, flue gas cascade:

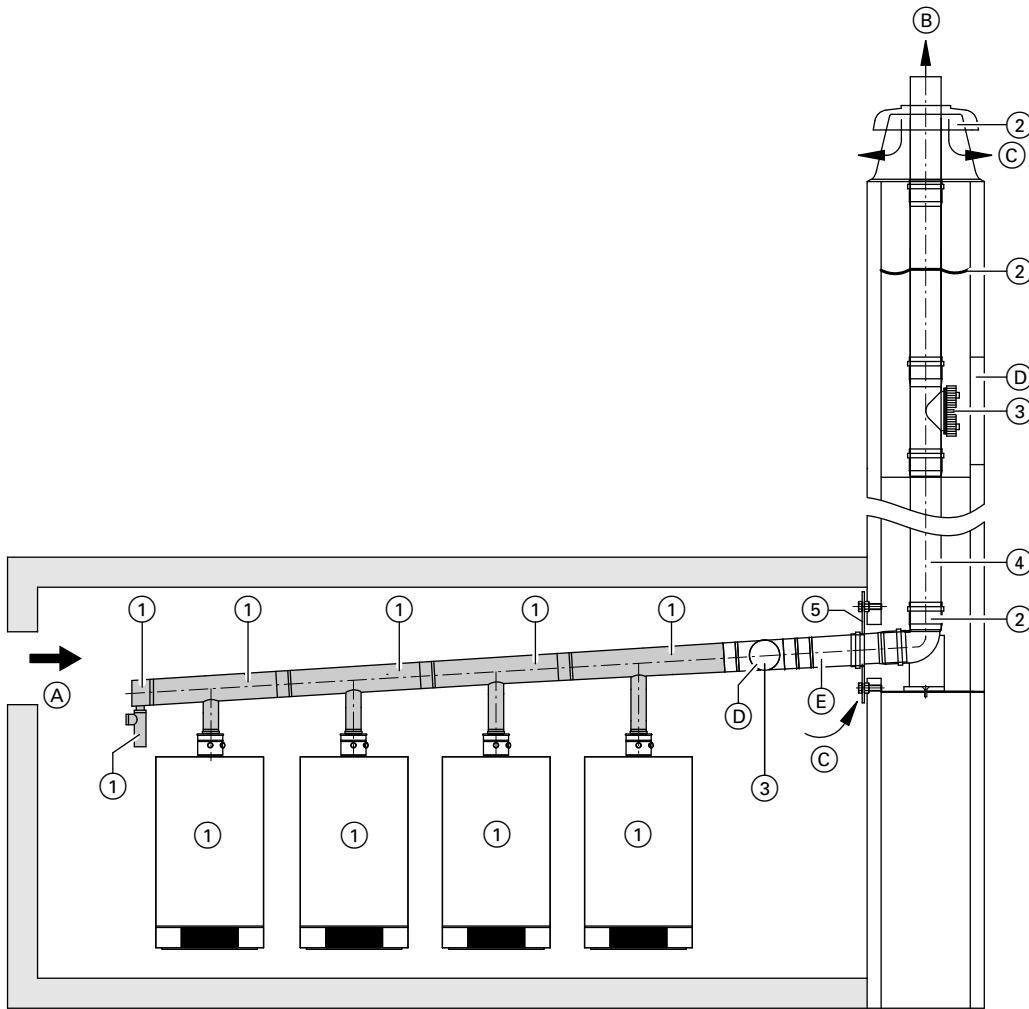
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|---|---|
| ① | <b>Flue gas cascade</b> Ø 110 or 160 mm<br>– Back draught safety device for each boiler<br>– Flue gas header<br>– End piece with trap and condensate hose |
| ② | <b>Standard shaft pack</b> Ø 110 or 160 mm<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover<br>– Spacers (3 pce, max. distance 5 m)    |

- |   |   |
|---|---|
| ③ | <b>Inspection piece</b> Ø 110 or 160 mm   |
| ④ | <b>Flue pipe</b> Ø 110 or 160 mm<br>2 m long (2 pce = 4 m long)<br>2 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) |
| ⑤ | <b>Ventilation bezel</b> Ø 110 or 160 mm  |

The inspection piece and all other flue gas accessories should be ordered specifically for each system.

## Design and sizing information for connection on the flue gas side (cont.)

Vitodens 200-W from 49 kW



- (A) Ventilation air
- (B) Flue gas
- (C) Secondary ventilation

- (D) Inspection port
- (E) Connection pipe

### Standard delivery, flue gas cascade:

- (1) **Flue gas cascade** Ø 160, 200 or 250 mm
  - Back draught safety device (installed in the boiler in the delivered condition)
  - Flue gas header
  - End piece with trap and condensate hose

### Further accessories (from Ø 200 mm see Vitocrossal 300 pricelist):

- (2) **Standard shaft pack** Ø 160, 200 or 250 mm
  - Comprising:
  - Support bend
  - Support rail
  - Shaft cover
  - Spacers (3 pce, max. distance 5 m)

- (3) **Inspection piece** Ø 160, 200 or 250 mm

- (4) **Flue pipe** Ø 160, 200 or 250 mm
  - 2 m long (2 pce = 4 m long)
  - 2 m long (1 pce)
  - 1 m long (1 pce)
  - 0.5 m long (1 pce)

- (5) **Ventilation bezel** Ø 160, 200 or 250 mm

The inspection piece and other flue gas accessories should be ordered specifically for the system (Ø 200 and 250 mm, see pricelist for flue system for Vitocrossal).

### Max. total length of the flue pipe

#### Vitodens 100-W and 111-W, inline formation

Rated heating output	kW	2 x 19	3 x 19	4 x 19	2 x 26	3 x 26	4 x 26
Max. total length of the flue pipe							
- System size 110 mm	m	25	25	25	25	25	23

## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 100-W and 111-W, inline formation

Rated heating output	kW	2 x 30	3 x 30	4 x 30	2 x 35	3 x 35	4 x 35
Max. total length of the flue pipe							
- System size 110 mm	m	25	25	15	25	25	10

### Vitodens 200-W, 222-W, 222-F and 242-F up to 26 kW, inline formation

- System size 110 mm: 25 m
- System size 160 mm: 30 m

### Vitodens 200-W from 49 kW, inline formation

Rated heating output	kW	2 x 49/60	2 x 80/99	3 x 49/60	3 x 80/99	4 x 49/60	4 x 80/99	5 x 49/60	5 x 80/99	6 x 49/60	6 x 80/99
Max. length of horizontal connection pipe (between flue gas header and shaft)											
- System size 160 mm	m	4	—	4	—	—	—	—	—	—	—
- System size 200 mm	m	—	4	—	4	4	4	—	—	—	—
- System size 250 mm	m	—	—	—	—	—	—	4	4	4	4
Max. pipe length inside the shaft											
- System size 160 mm	m	26	—	26	—	—	—	—	—	—	—
- System size 200 mm	m	—	26	—	26	26	26	—	—	—	—
- System size 250 mm	m	—	—	—	—	—	—	26	26	26	26
Max. total length of the flue pipe											
- System size 160 mm	m	30	—	30	—	—	—	—	—	—	—
- System size 200 mm	m	—	30	—	30	30	30	—	—	—	—
- System size 250 mm	m	—	—	—	—	—	—	30	30	30	30

### Vitodens 200-W from 49 kW, block formation

Rated heating output	kW	4 x 49/60	4 x 80/99	6 x 49/60	6 x 80/99
Max. length of horizontal connection pipe (between flue gas header and shaft)					
- System size 200 mm	m	4	—	—	—
- System size 250 mm	m	—	4	4	4
Max. pipe length inside the shaft					
- System size 200 mm	m	26	—	—	—
- System size 250 mm	m	—	26	26	26
Max. total length of the flue pipe					
- System size 200 mm	m	30	—	—	—
- System size 250 mm	m	—	30	30	30

#### Note

The flue gas parameters for single boilers can be used for the flue system calculation (see Vitodens technical guide).

The pressure drop of the flue gas back draught safety device has already been taken into account and does not have to be factored into the calculation.

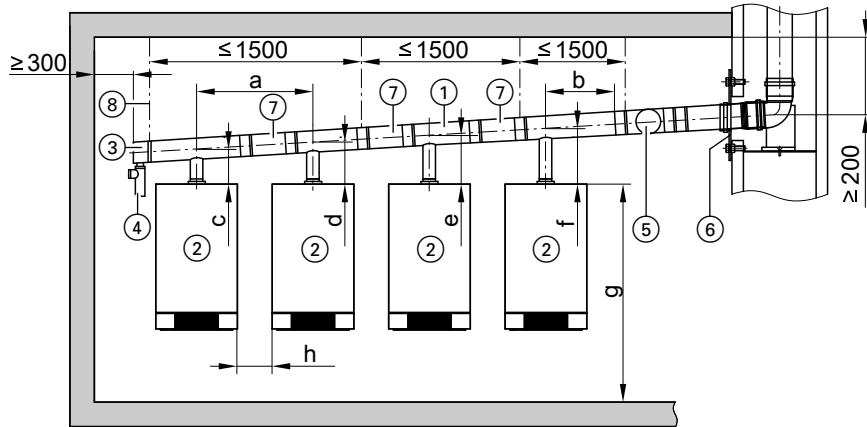
The maximum operating pressure according to DVGW G 635 is not taken into account.

## Design and sizing information for connection on the flue gas side (cont.)

### Siting and dimensions

#### Inline formation — 2 to 4 boilers up to 35 kW

DE: Up to 26 kW



- |                                   |  |
|-----------------------------------|--|
| ① Flue gas header                 | ⑤ Inspection piece   |
| ② Back draught safety device      | ⑥ Ventilation bezel  |
| ③ End piece with condensate drain | ⑦ Flue gas header extension (only for Vitodens 222-W, 222-F and 242-F) |
| ④ Trap with hose                  | ⑧ Brackets with suitable fixing materials                              |

#### Note

- Back draught safety device ② is installed in each boiler.
- For Vitodens 222-W with the shaft positioned on the left, insert an additional flue gas header extension ⑦ upstream of the end piece with condensate drain ③.

Header Ø mm	a mm	b mm	c mm	d mm	e mm	f mm	g* <sup>4</sup> mm	h mm
<b>110</b>								
– Vitodens 100-W	580	280	153	183	213	243	1700	180
– Vitodens 111-W	700	280	133	170	207	244	1700	100
– Vitodens 200-W up to 26 kW	580	280	153	183	213	243	1700	130
– Vitodens 222-W	700	280	133	170	207	244	1700	100
– Vitodens 222-F and 242-F	700	280	133	170	207	244	—	100
<b>160</b>								
– Vitodens 200-W up to 26 kW	580	215	255	285	315	345	1700	130
– Vitodens 222-W	700	215	234	271	308	345	1700	100
– Vitodens 222-F and 242-F	700	215	221	258	295	332	—	100

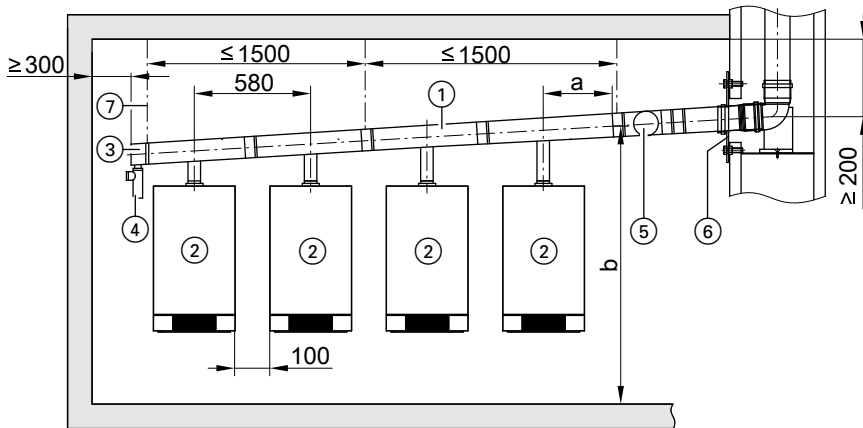
Route the flue gas header with a fall of at least 3°.

The vertical pipes must be trimmed accordingly.

\*<sup>4</sup> Recommendation for installation height.

## Design and sizing information for connection on the flue gas side (cont.)

Inline formation — 2 to 6 boilers from 49 kW



- |  |   |
|--|---|
| ① Flue gas header Ø 160, 200 or 250 mm   | ④ Trap with hose                          |
| ② Back draught safety device (installed) | ⑤ Inspection piece Ø 160, 200 or 250 mm   |
| ③ End piece with condensate drain        | ⑥ Ventilation bezel                       |
|  | ⑦ Brackets with suitable fixing materials |

### Note

In the delivered condition of the Vitodens 200-W from 49 kW, the back draught safety device ② is installed in the boiler.

Header Ø mm	a		b			
	mm	mm	mm	mm	mm	mm
<b>Number of boilers</b>		<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>160</b>						
– Vitodens 200-W, 49 - 60 kW	215	2019	2049	–	–	–
<b>200</b>						
– Vitodens 200-W, 49 - 60 kW	404	–	–	2082	–	–
– Vitodens 200-W, 80 - 99 kW	404	2022	2052	2082	–	–
<b>250</b>						
– Vitodens 200-W, 49 - 60 kW	404	–	–	–	2114	2144
– Vitodens 200-W, 80 - 99 kW	404	–	–	–	2114	2144

### Note

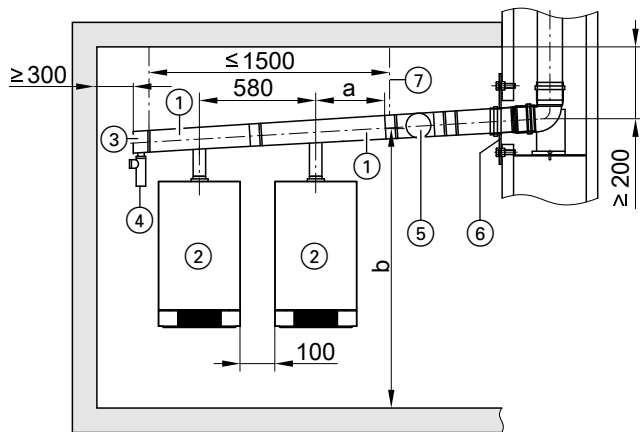
In conjunction with a low loss header, height dimension "b" may be reduced by 150 mm and in conjunction with a cascade module adaptor by 300 mm. For this, the suspension profiles are installed accordingly. For installation directly onto a wall, these dimensions should also be adhered to.

Route the flue gas header with a fall of at least 3°. The boiler flue connections must be trimmed accordingly.



## Design and sizing information for connection on the flue gas side (cont.)

### Vitodens 49 - 99 kW, block formation



#### Note

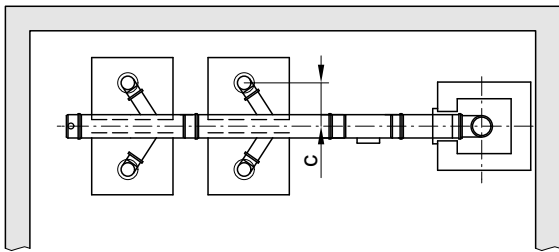
In the delivered condition, back draught safety device (2) is installed in the boiler.

Header Ø mm	a mm	b mm		c mm
<b>Number of boilers</b>		<b>2x2</b>	<b>2x3</b>	
200				
- Vitodens 200-W, 49 - 60 kW	502	1997	-	340
- Vitodens 200-W, 80 - 99 kW	-	-	-	-
250				
- Vitodens 200-W, 49 - 60 kW	-	-	2004	-
- Vitodens 200-W, 80 - 99 kW	532	1999	2029	422

#### Note

In conjunction with a low loss header, height dimension "b" may be reduced by 150 mm and in conjunction with a cascade module adaptor by 300 mm.

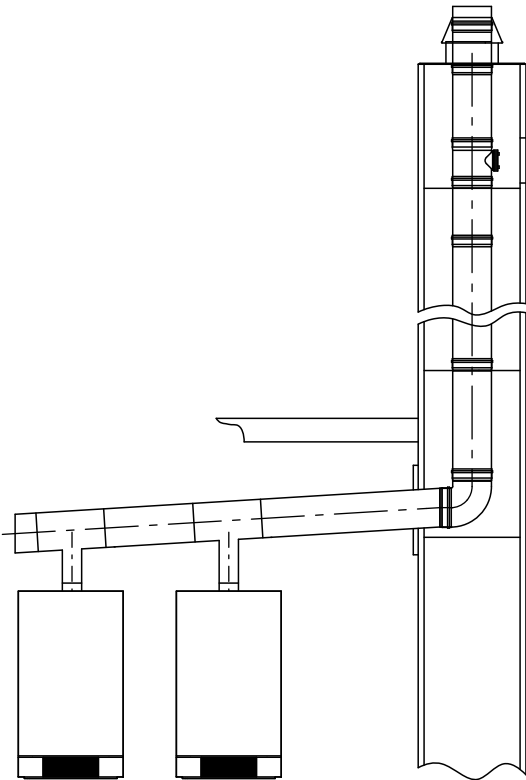
Route the flue gas header with a fall of at least 3°. The deflector bends must be trimmed accordingly.



- ① Flue gas header Ø 200 or 250 mm
- ② Back draught safety device (installed)
- ③ End piece with condensate drain
- ④ Trap with hose
- ⑤ Inspection piece Ø 200 or 250 mm
- ⑥ Ventilation bezel
- ⑦ Brackets with suitable fixing materials

## Design and sizing information for connection on the flue gas side (cont.)

### Multi boiler systems with flue systems under negative pressure



Size to EN 13384.

For flue gas headers in the negative pressure range, see the Viessmann Vitoset pricelist.

For flue systems for multi boiler systems under positive pressure, see page 40.

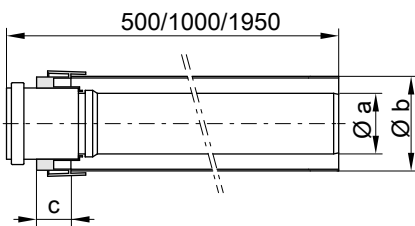
3

## Flue system components

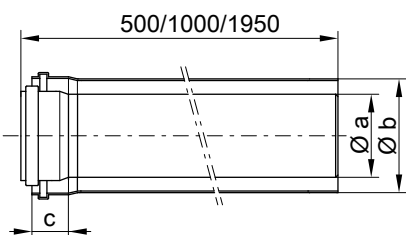
### 3.1 Balanced flue system components

#### Balanced flue pipe

These pipes may be trimmed as required.



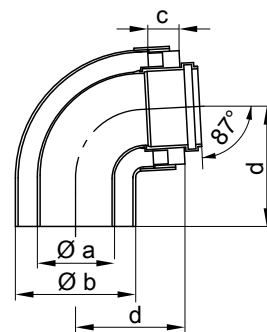
System size Ø 60 and 80 mm



System size Ø 110 mm

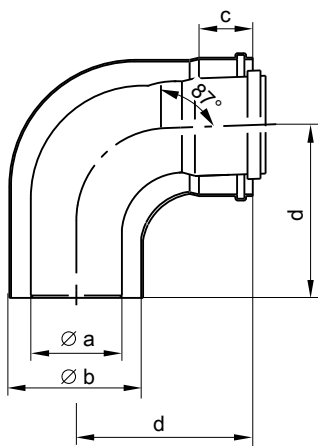
System size Ø mm	Dimensions [mm]		
	a	b	c
60	60	100	40
80	80	125	40
110	110	150	40

#### Balanced flue bend 87°



System size Ø 60 and 80 mm

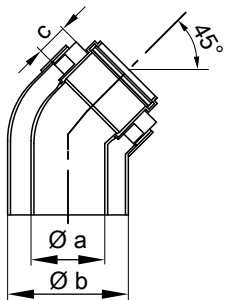
## Flue system components (cont.)



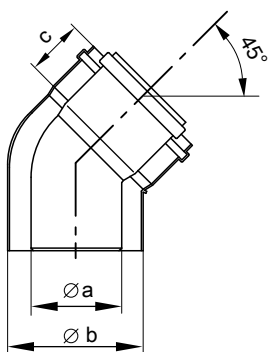
System size Ø 110 mm

System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	60	100	40	110
80	80	125	40	120
110	110	150	40	170

**Balanced flue bend 45°**  
Standard pack 2 pce



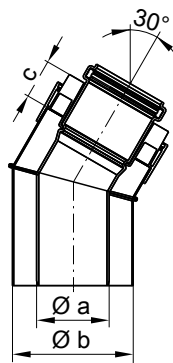
System size Ø 60 and 80 mm



System size Ø 110 mm

System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	60	100	40	40
80	80	125	40	40
110	110	150	40	40

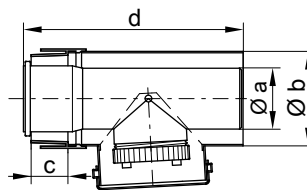
**Balanced flue bend (30°)**  
Standard pack 2 pce



System size Ø 60 and 80 mm

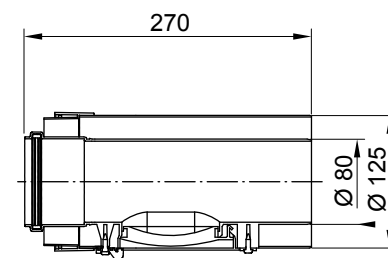
System size Ø mm	Dimensions [mm]		
	a	b	c
60	60	100	40
80	80	125	40
110	110	150	40

**Balanced flue inspection piece, straight**

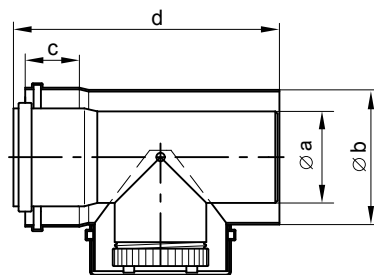


System size Ø 60 mm

System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	60	100	40	250



System size Ø 80 mm

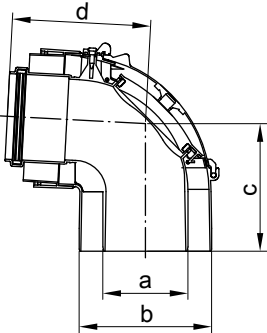


System size Ø 110 mm

## Flue system components (cont.)

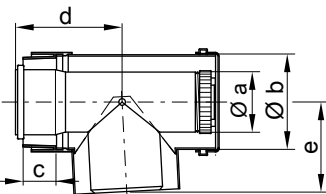
System size Ø mm	Dimensions [mm]			
	a	b	c	d
110	110	150	40	273

Balanced flue inspection bend 87°; system size Ø 60 and 80 mm



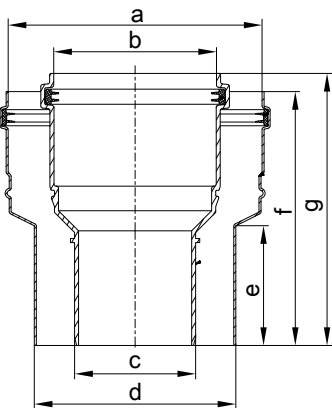
System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	60	100	100	130
80	80	125	120	130

Balanced flue inspection tee 87°, system size Ø 110 mm



System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
110	110	150	40	120	140

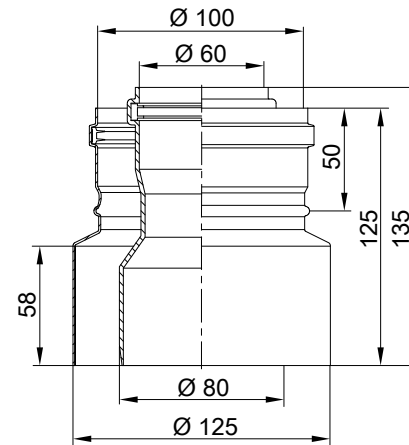
Balanced flue adaptor (extension)



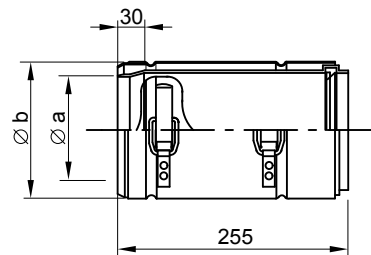
System size Ø mm	Dimensions [mm]						
	a	b	c	d	e	f	g
From 60/100 to 80/125	125	80	60	100	60	126	135
From 80/125 to 110/150	150	110	80	125	60	155	165

Balanced flue adaptor (reducer)

From system size Ø 80/125 mm to Ø 60/100 mm.

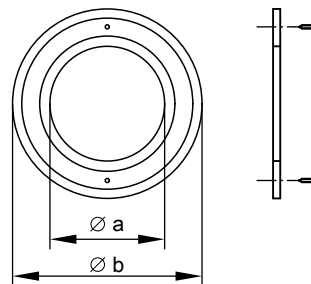


Balanced flue slide coupling



System size Ø mm	Dimensions [mm]	
	a	b
60	60	100
80	80	125
110	110	150

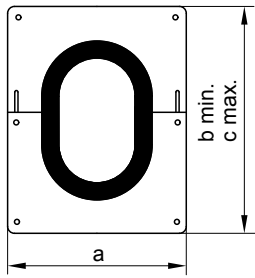
Balanced flue wall bezel



System size Ø mm	Dimensions [mm]	
	a	b
60	102	194
80	130	230
110	155	230

## Flue system components (cont.)

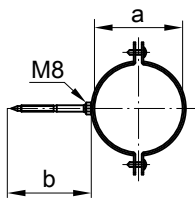
### Universal cover plate



System size Ø mm	Dimensions [mm]		
	a	b	c
60	250	246	310
80	250	246	310
110	280	286	350

### Fixing clamp

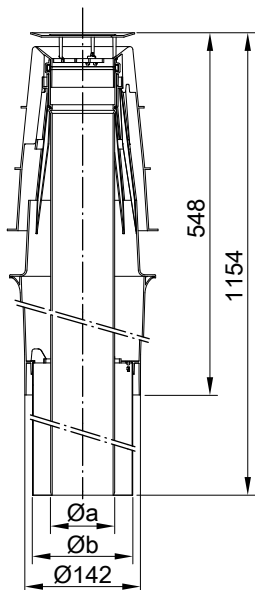
For routing over internal or external walls; white.



System size Ø mm	Dimensions [mm]	
	a	b
60	100	100
80	125	100
110	150	100

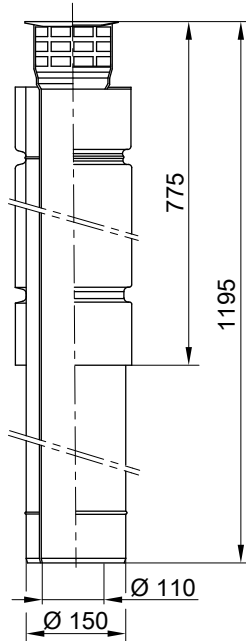
### Balanced flue roof outlet

With fixing clamp.



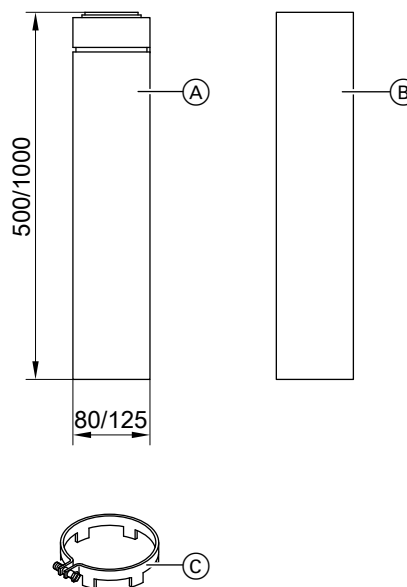
System size Ø 60 and 80 mm

System size Ø mm	Dimensions [mm]	
	a	b
60	60	100
80	80	125



System size Ø 110 mm

### Above roof extension

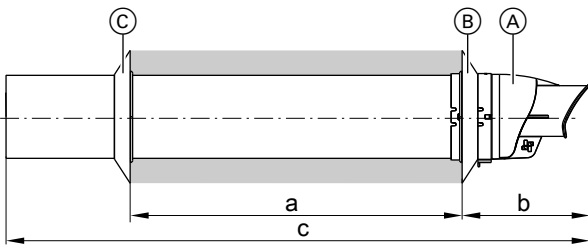


- Ⓐ Above roof extension
- Ⓑ Casing pipe
- Ⓒ Bracing clamp

## Flue system components (cont.)

### Balanced flue external wall connection (incl. wall bezels)

For system size  $\varnothing$  60/100 mm and  $\varnothing$  80/125 mm.



- (A) External wall connection
- (B) External wall bezel
- (C) Internal wall bezel

Balanced flue system ( $\varnothing$ mm)	60/100	80/125
a (mm)	$\leq 475$	$\leq 710$
b (mm)	155	165
c (mm)	704	952

### Elbow in the balanced flue pipe

Small offset A ( $2 \times 45^\circ$  balanced flue bend):

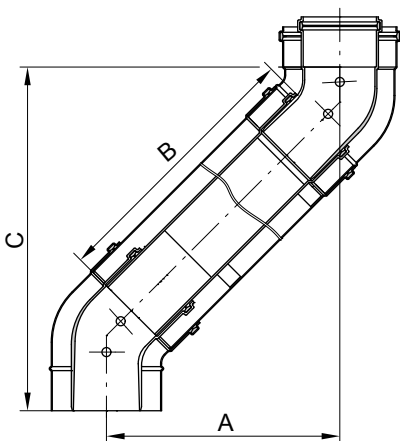
- 74 mm for system size  $\varnothing$  60 mm (C = 174 mm)
- 93 mm for system size  $\varnothing$  80 mm (C = 223 mm)
- 140 mm for system size  $\varnothing$  110 mm (C = 328 mm):

Push two  $45^\circ$  balanced flue bends into each other and into the balanced flue pipe.

Offset:

- In excess of 74 mm for system size  $\varnothing$  60 mm
- In excess of 93 mm for system size  $\varnothing$  80 mm
- In excess of 140 mm for system size  $\varnothing$  110 mm:

Depending on the offset (dimension A), insert a balanced flue extension (dimension B) between the two  $45^\circ$  balanced flue bends.



### System size $\varnothing$ 60 mm

Offset	A (mm)	150	200	250	300	350	390
Extension	B (mm)	153	224	295	372	436	487
Installed	C (mm)	250	300	350	400	450	490

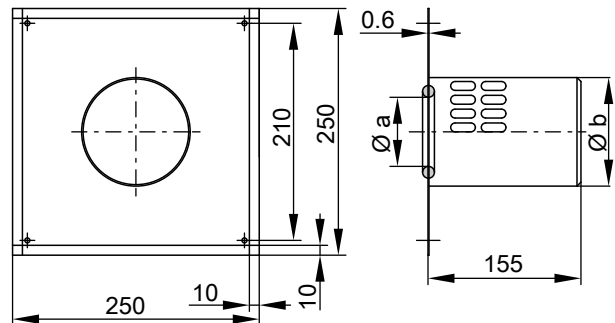
### System size $\varnothing$ 80 mm

Offset	A (mm)	150	200	250	300	350	390
Extension	B (mm)	123	194	265	335	406	463
Installed	C (mm)	280	330	380	430	480	520

### System size $\varnothing$ 110 mm

Offset	A (mm)	200	250	300	350	390
Extension	B (mm)	134	205	275	346	403
Installed	C (mm)	390	438	488	538	578

### Balanced flue air inlet adaptor

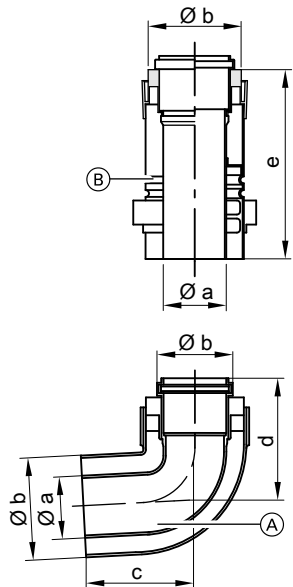


System size $\varnothing$ mm	Dimensions [mm]	
	a	b
60	60	100
80	80	125

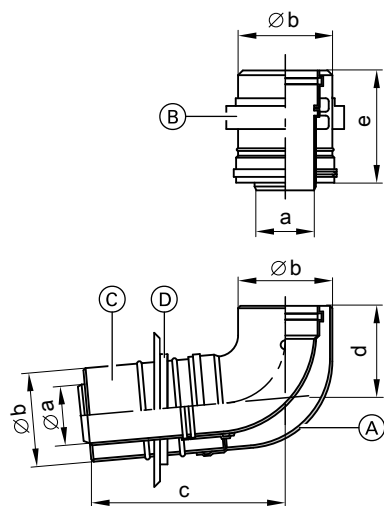
### 3.2 Components for routing a flue over an external wall

#### External wall pack

External wall bend (A) with air inlet piece (B), twin female connection (C) and wall bezel (D).



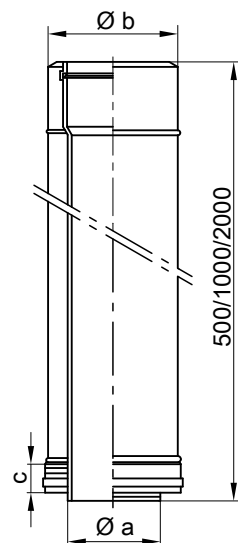
System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
60	60	100	110	110	250
80	80	125	120	120	250



System size Ø 110 mm

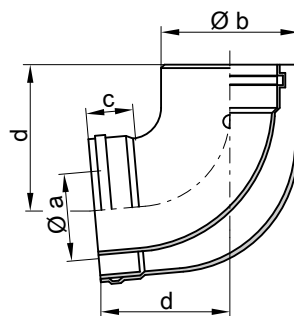
System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
110	110	150	295	170	165

#### External wall pipe



System size Ø mm	Dimensions [mm]		
	a	b	c
60 <sup>*5</sup>	—	—	—
80 <sup>*5</sup>	—	—	—
110	110	150	40

#### External wall bend, 87°

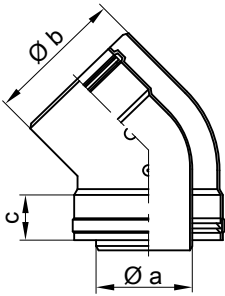


System size Ø mm	Dimensions [mm]			
	a	b	c	d
60 <sup>*5</sup>	—	—	—	—
80 <sup>*5</sup>	—	—	—	—
110	110	150	40	170

<sup>\*5</sup> Use balanced flue components (see page 47).

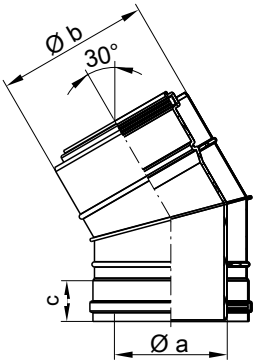
## Flue system components (cont.)

### External wall bend, 45°



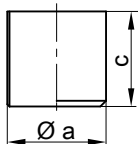
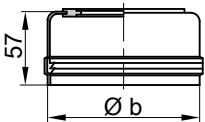
System size Ø mm	Dimensions [mm]		
	a	b	c
60 <sup>*5</sup>	—	—	—
80 <sup>*5</sup>	—	—	—
110	110	150	40

### External wall bend, 30°



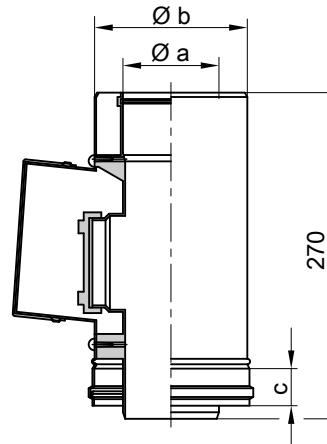
System size Ø mm	Dimensions [mm]		
	a	b	c
60 <sup>*5</sup>	—	—	—
80 <sup>*5</sup>	—	—	—
110	110	150	40

### External wall end piece



System size Ø mm	Dimensions [mm]		
	a	b	c
60	60	100	110
80	80	125	110
110	110	152	85

### External wall inspection piece



System size Ø mm	Dimensions [mm]		
	a	b	c
60 <sup>*5</sup>	—	—	—
80 <sup>*5</sup>	—	—	—
110	110	150	40

5414641

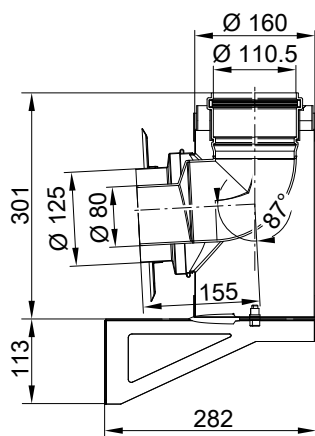
<sup>\*5</sup> Use balanced flue components (see page 47).



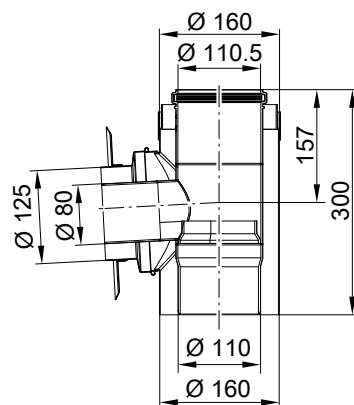
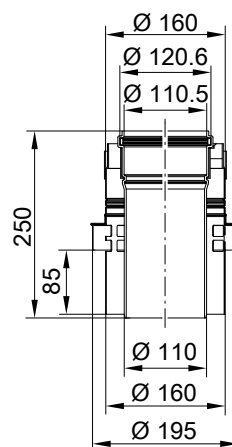
## Flue system components (cont.)

### External wall components for multiple connections

Connecting assembly, external wall multiple connections, base



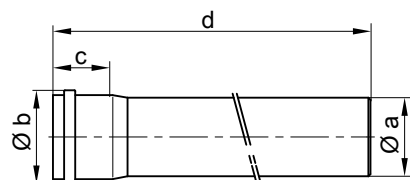
Connecting assembly, external wall multiple connections, upper floor



### 3.3 Single pipe system components

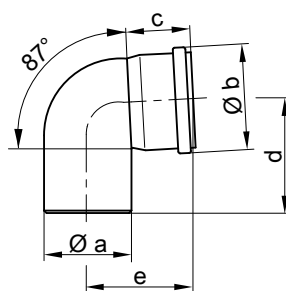
#### Flue pipe

These pipes may be trimmed as required.



System size Ø mm	Dimensions [mm]			d
	a	b	c	
60	60	73	58	500/1000/1950
80	80	94	57	500/1000/1950
110	110	128	72	500/1000/2000
125	125	145	75	500/1000/2000
160	160	184	83	500/1000/2000
200	184	227	122	500/1000/2000
250	250	273	103	500/1000/2000

#### Flue bend 87°

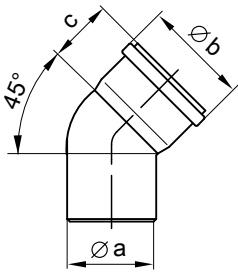


System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
60	60	73	55	110	120
80	80	94	60	120	130
110	110	128	72	130	130
125	125	145	75	150	150
160	160	184	83	170	170
200	200	227	122	350	310
250	250	273	103	402	390

## Flue system components (cont.)

### Flue bend (45°)

Standard pack 2 pce.

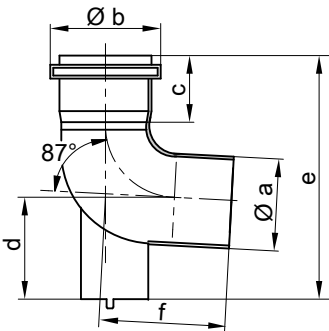


System size $\varnothing$ mm	Dimensions [mm]		
	a	b	c
60	60	73	55
80	80	94	60
110	110	128	72
125	125	145	75
160	160	184	83
200	200	227	122
250	250	273	103

### Standard shaft pack

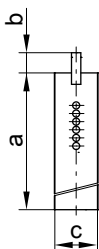
Comprising support bend, support rail, shaft cover and spacers

#### Support bend

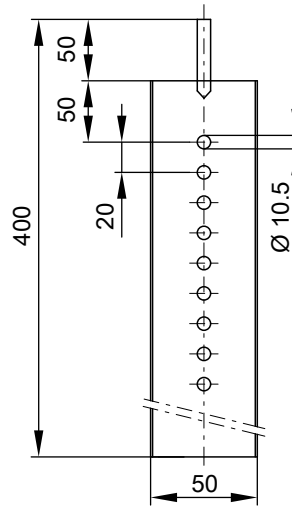
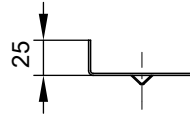


System size $\varnothing$ mm	Dimensions [mm]					
	a	b	c	d	e	f
60	60	73	55	60	180	110
80	80	94	60	80	210	120
110	110	128	72	112	245	120
125	125	145	75	120	264	147
160	160	184	83	137	296	163
200	200	227	122	153	490	310
250	250	273	103	326	670	385

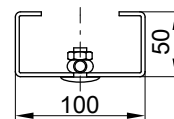
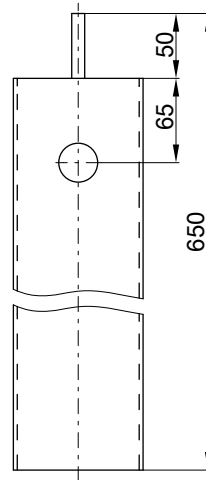
#### Support rail



System size $\varnothing$ mm	Dimensions [mm]		
	a	b	c
60	350	50	50
80	350	50	50
110	350	50	50
125	400	50	50
160	400	50	50



System size 200

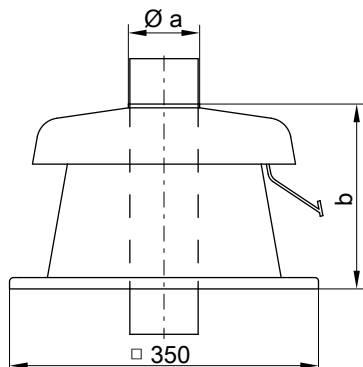


System size 250

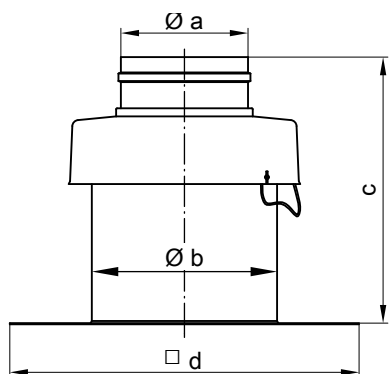
## Flue system components (cont.)

### Shaft cover, PPs

Fixing materials are part of the standard delivery.

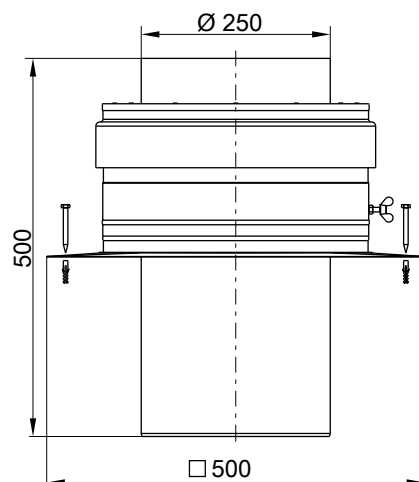


System size Ø mm	Dimensions [mm]	
	a	b
60	60	198
80	80	229
110	111	201



System size 125, 160 and 200

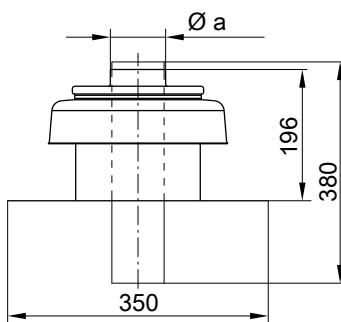
System size Ø mm	Dimensions [mm]			
	a	b	c	d
125	126	185	257	350
160	161	228	258	350
200	202	260	261	280



System size 250

### Metal shaft cover

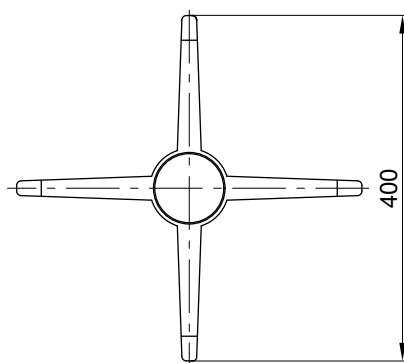
Fixing materials are part of the standard delivery.



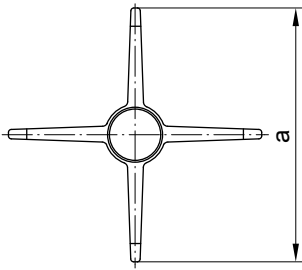
System size Ø mm	Dimensions [mm]	
	a	
60	60	
80	80	
110	110	

### Spacer

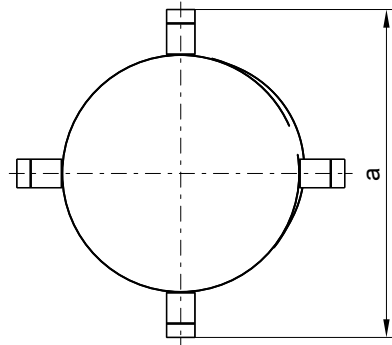
Standard pack 3 pce (suitable for internal shaft dimensions 130 × 130 mm to 250 × 250 mm or Ø 150 mm to Ø 300 mm).



## Flue system components (cont.)



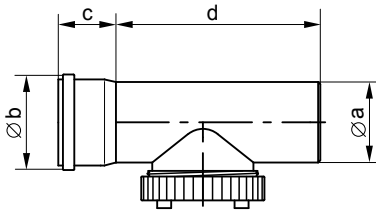
System size 200



System size 250

System size Ø mm	Dimensions [mm]	a
200		734
250		751

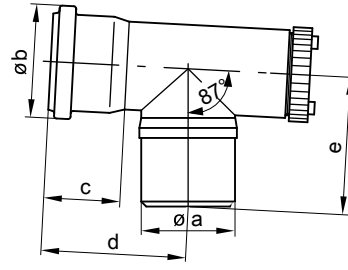
Inspection piece (straight)



System size Ø mm	Dimensions [mm]			
	a	b	c	d
60	60	73	55	195
80	80	94	60	210
110	110	128	72	201
125	125	145	75	180
160	160	184	83	205
200	200	227	122	300
250	250	273	103	600

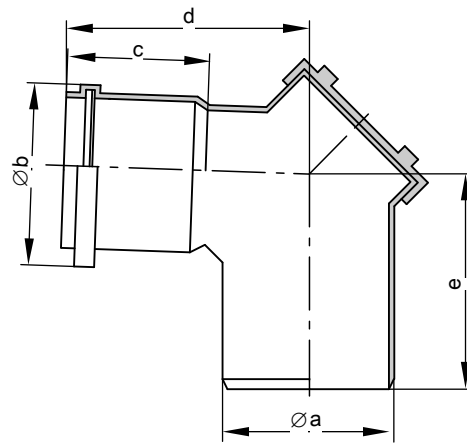
Inspection tee

System size Ø 60 and 80 mm



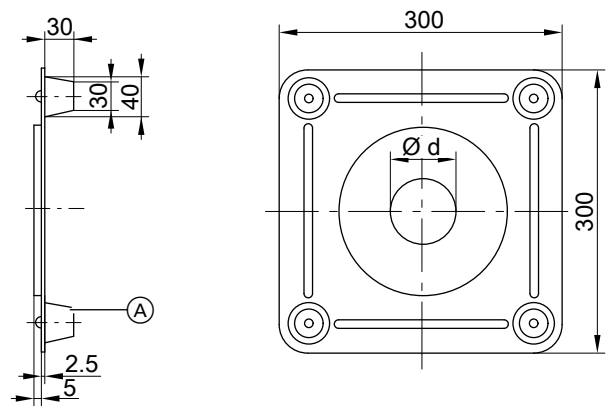
System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
60	60	73	55	130	100
80	80	94	60	142	130

Inspection bend



System size Ø mm	Dimensions [mm]				
	a	b	c	d	e
110	110	128	72	143	142
125	125	145	75	148	148
160	160	184	83	159	163
200	200	227	122	350	310
250	250	273	103	390	410

Ventilation bezel

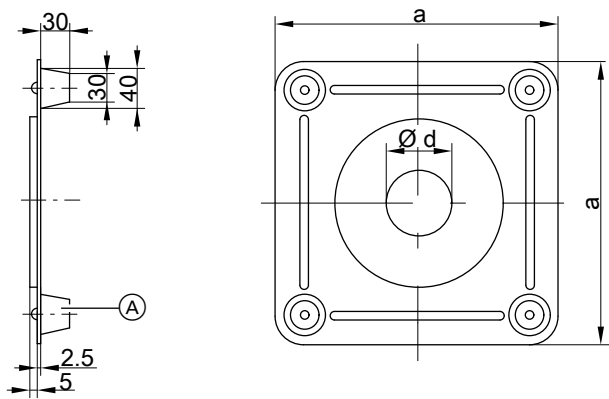


(A) Spacer

## Flue system components (cont.)

System size Ø mm	Dimensions [mm]	Ø d
60		60
80		80
110		110
125		125
160		160

System size Ø mm	Dimensions [mm]	Ø d
200	400	200
250	400	250

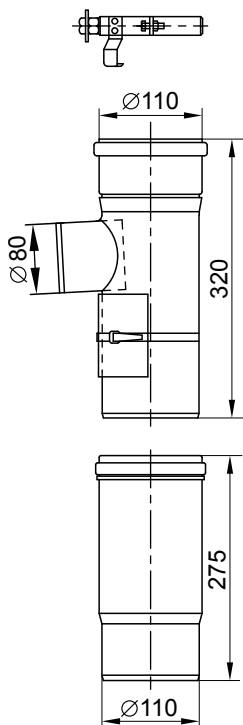


(A) Spacer

### 3.4 Components for multiple connections to a balanced flue system – positive pressure for Vitodens 200-W, 222-W and 222-F, 19 to 26 kW

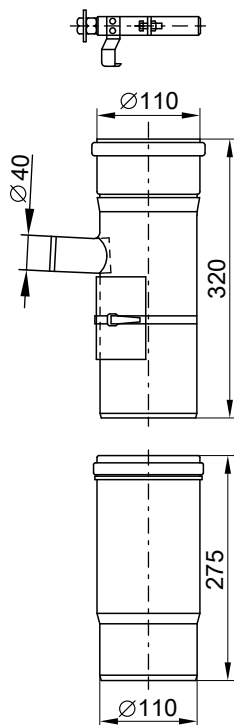
#### Connecting assembly, multiple connections

Connection tee with long fem. connection and fixing clamp



#### Connecting assembly, condensate drain

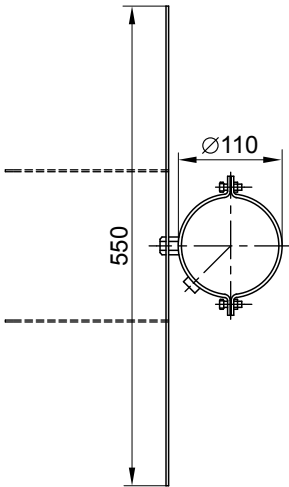
Connection tee with long fem. connection and fixing clamp



## Flue system components (cont.)

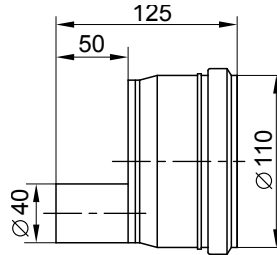
### Fixing clamp

For securing the flue pipe horizontally inside the shaft



### Condensate drain connection

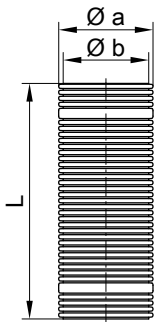
Reduction from  $\varnothing$  110 mm to  $\varnothing$  40 mm



## 3.5 Components of the flexible single pipe system for flexible flues

### Flue pipe, flexible

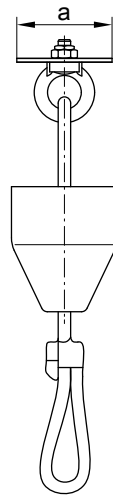
Standard pack (length L) 12.5 or 25 m on a roll



System size $\varnothing$ mm	Dimensions [mm]	
	a	b
60	58	50
80	88	77
110	113	101

### Pipe lowering attachment

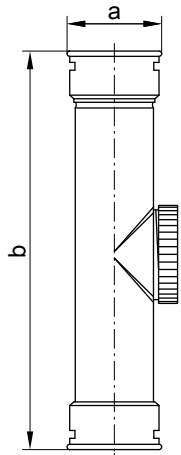
With 25 m rope



System size $\varnothing$ mm	Dimensions [mm]	
	a	
60	56	
80	88	
110	111	

## Flue system components (cont.)

### Inspection piece (straight)

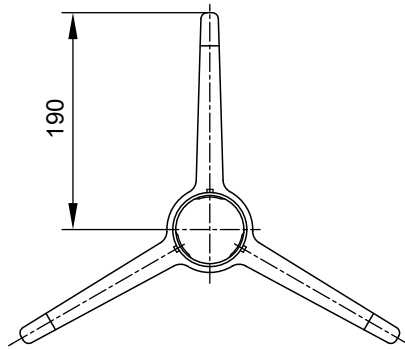


System size Ø mm	Dimensions [mm]	a
60		60
80		80
110		110

### Spacer

Standard pack 5 pce

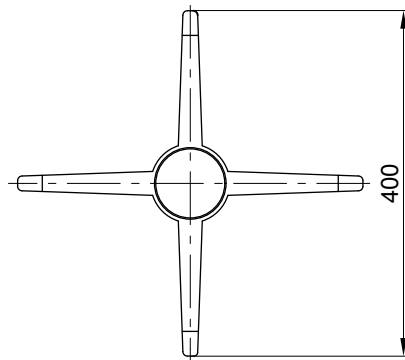
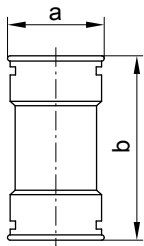
Applicable to internal shaft dimensions 130 × 130 mm to 250 × 250 mm or Ø 150 mm to Ø 300 mm



System size Ø 60 mm

System size Ø mm	Dimensions [mm]	
	a	b
60	72	310
80	102	325
110	127	326

### Connection piece

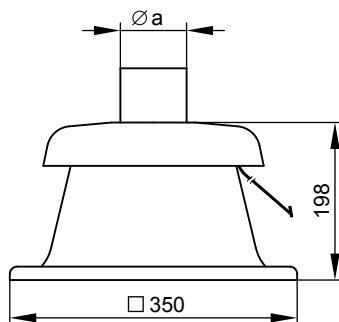


System size Ø 80 and 110 mm

System size Ø mm	Dimensions [mm]	
	a	b
60	72	140
80	102	140
110	127	140

### Shaft cover

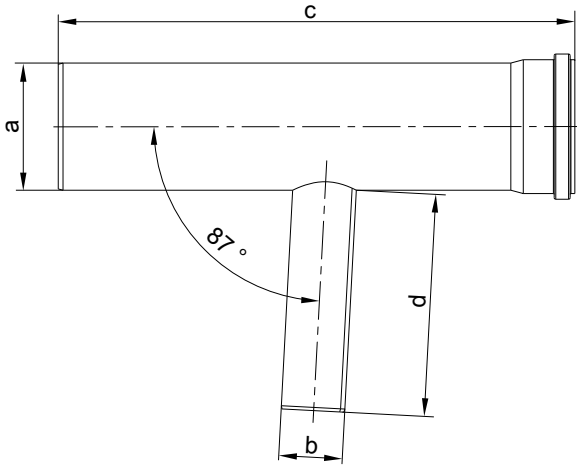
With end piece



### 3.6 Components for multi boiler systems

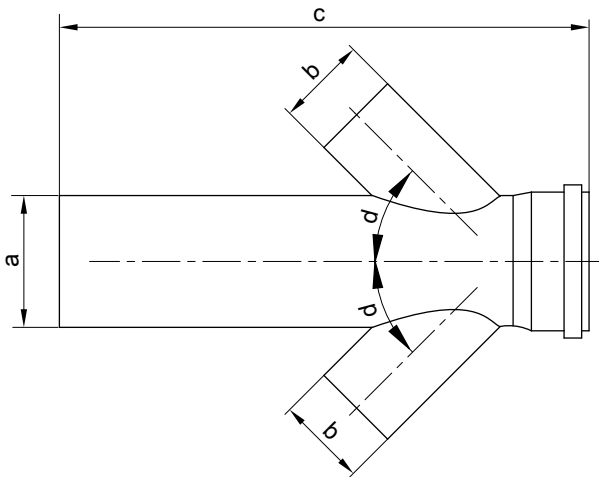
#### Flue gas header

##### Inline formation



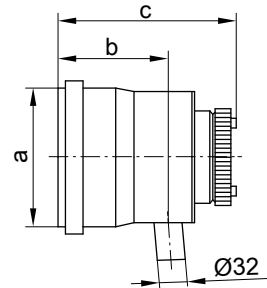
System size Ø mm	Dimensions [mm]			d
	a	b	c	
110	110	60	630	160
160	160	80	650	280
200	200	80	680	280
250	250	110	790	280

##### Block formation



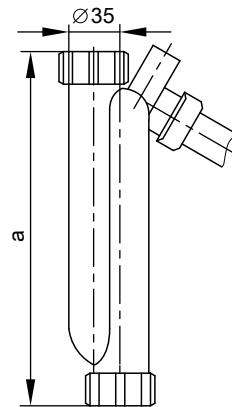
System size Ø mm	Dimensions [mm]			d
	a	b	c	
160	160	80	650	45°
200	200	110	680	45°
250	250	110	675	42°

##### End piece with condensate drain



System size Ø mm	Dimensions [mm]		
	a	b	c
160	160	115	195
200	200	115	195
250	250	339	431

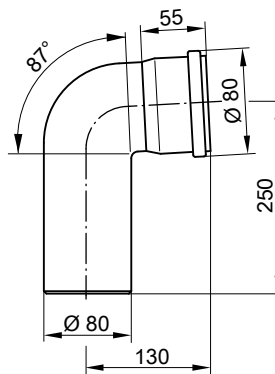
##### Trap with drain hose



Rated heating output kW	Dimensions [mm]	
	a	
15 – 60	248	
80 – 150	300	

##### Flue bend (87°)

Only for Vitodens 200-W, 222-W and 222-F up to 35 kW

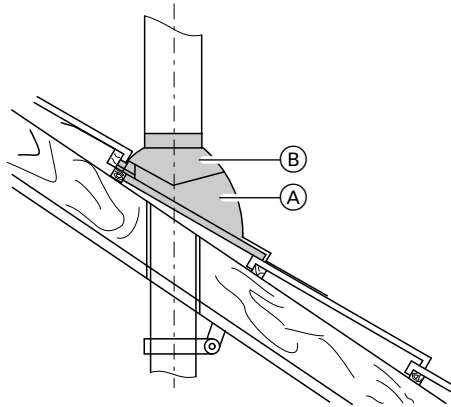




### 3.7 Roof elements

#### Universal roof tile

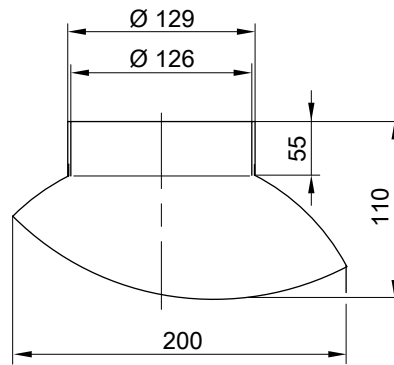
Suitable for roof pitches of 25 to 45°



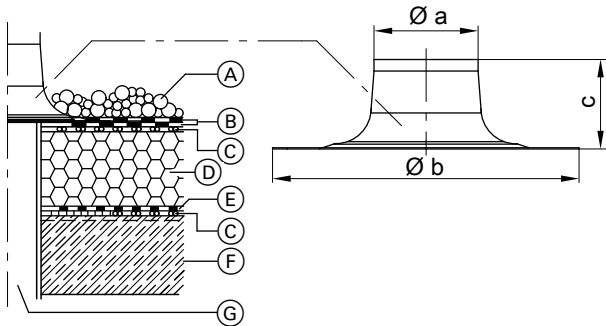
- (A) Universal roof tile
- (B) Pipe outlet for universal roof tile

#### Pipe outlet for Klöber roof tiles

Suitable for roof pitches of 20 to 50°



#### Flat roof collar



- (A) Gravel ballast layer
- (B) Insulation layer
- (C) Ventilation layer
- (D) Thermal insulation
- (E) Insulation
- (F) Ceiling
- (G) Vertical coaxial roof outlet

System size Ø mm	Dimensions [mm]		
	a	b	c
60	135	390	250
80	135	390	250
110	170	470	250
160	170	450	254
200	220	500	254

## Keyword index

<b>A</b>	
Approval by the building inspectorate [Germany].....	6
Approval certificate.....	6
<b>B</b>	
Balanced flue chimney.....	29
Balanced flue system.....	13
<b>C</b>	
Cascade flue system.....	40
<b>E</b>	
External wall connection.....	21
<b>F</b>	
Flue gas header.....	11
Flue gas high limit safety cut-out.....	5
Flue systems	
– For open flue operation.....	5
– For room sealed operation.....	4
Flue systems for multiple connections.....	29
<b>I</b>	
Installation options.....	8
<b>L</b>	
Lightning protection.....	5
<b>M</b>	
Moisture-resistant chimney.....	39
<b>O</b>	
Open flue operation.....	5, 27, 38
<b>R</b>	
Roof outlet, vertical.....	19
Room sealed operation.....	4, 13
<b>S</b>	
Shaft dimensions.....	13, 34
System certification.....	4
<b>T</b>	
Types	
– Open flue.....	10
– Room sealed.....	8
<b>V</b>	
Vertical roof outlet.....	19

Subject to technical modifications.

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