VIESMANN

# VITOLADENS, VITORONDENS

Flue systems for oil condensing boilers

## Technical guide


Vitoladens 300-W

Vitoladens 300-C

## Vitoladens and Vitorondens flue systems

Vitoladens 300-C
Vitoladens 300-T
Vitoladens 300-W
Vitoladens 333-F
Vitorondens 200-T
Vitorondens 222-F

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# Index



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## Index (cont.)

## Flue systems

1

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 flue gas inspector responsible [where applicable].**

Combustion equipment must be connected to the domestic chimney stack on the same floor as the one on which it is installed (no transition through separating ceilings).
We recommend installation in a separate room.

### Structural unit

The aforementioned conditions are generally met when one of the flue systems (accessories) listed below is used.
The following Viessmann balanced flue systems for **balanced** flue operation are tested to DVGW [standard] as a **single technical unit** with the Vitoladens, similar to gas condensing boilers:
- Vertical roof outlets
- Separate ventilation air and flue gas routing
- External routing through a coaxial pipe

Advantages of single structural units:
- No calculated performance verification for flue pipes to DIN EN 13384 is required for individual cases
- According to the Landesbauordnung, some Federal States (e.g. North Rhine-Westphalia) do not require a tightness test to be carried out during commissioning by the flue gas inspector [check local regulations]
- Envisaged for the future is a simplified visual inspection by the flue gas inspector on a biennial basis
- No additional approval certificate by the flue pipe manufacturer is required

The flue pipe may also be routed through the **installation room** without secondary ventilation. However, the installation room must then provide a vent to the outside of at least 150 $cm^2$ or 2 × 75 $cm^2$.
The plain flue pipe must be type approved by the Deutsche Institut für Bautechnik (DIBt) [Germany] (**open** flue operation).
The flue available as an accessory is CE-designated and approved in accordance with DIN EN 14471.

### System certification

System certification similar to DVGW-VP 113 and EC Gas Appliances Directive 90/396/EEC in conjunction with PPs flue pipes offered by Skoberne:
- Vitoladens 300-C: CE-0035BS104
- Vitoladens 300-T: CE-0035BO107
- Vitoladens 300-W: CE-0035BM112
- Vitoladens 333-F: CE-0035BM112
- Vitorondens 200-T: CE-0035CL102
- Vitorondens 222-F: CE-0035CL102

General building approval:
Approval certificate Z-43.11-153

## 1.2 Balanced flue operation

The Vitoladens and Vitorondens are suitable for **balanced** flue operation.
Vitorondens 200-T from 63 kW can only operate in open flue mode.
The Vitoladens 300-W and 333-F are categorised as $C_{33x}$, $C_{53x}$, $C_{63x}$ or $C_{83x}$.
The Vitoladens 300-C, Vitoladens 300-T, Vitorondens 200-T up to 54 kW and Vitorondens 222-F are categorised as appliances type $C_{53}$, $C_{63}$ or $C_{83}$.
In accordance with TRÖI 2009, a **joint approval** for the Vitoladens, Vitorondens and the balanced flue system applies to this type of equipment.
For balanced flue systems tested together with the boiler, some authorities waive the requirement for a tightness test (overpressure test) during commissioning by the flue gas inspector and the verification of CE designation.
If this applies, we recommend that your heating engineer carries out a simple tightness test during the commissioning of your system. For this it is sufficient to check the $CO_2$ concentration in the combustion air at the annular gap of the balanced flue pipe. The flue is considered sufficiently gas-tight if the $CO_2$ concentration in the combustion air is no higher than 0.2 %, or if the $O_2$ concentration is at least 20.6 %. If higher $CO_2$ or lower $O_2$ values are captured, check the flue system for tightness.
In conjunction with the concentric coaxial pipe (balanced flue system), the surface temperature of the boiler or that of the balanced flue system will never exceed 85 ºC. Therefore, clearances to combustible components according to TRÖI are **not** required.

The CE-designated flues from the Viessmann range can be used in equipment type $C_{63}$.
Use a condensate trap above the boiler flue connection if an aluminium flue pipe is installed. Install the connecting lines with a fall of at least 3° to the boiler.
The balanced flue system is CE-designated and approved in accordance with DIN EN 14471 (see page 6).
If installing the boiler in a basement or on a lower floor, an existing chimney or shaft of sufficient size may be used for routing the balanced flue pipe.
According to TRÖI 2009, flue pipes 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 balanced flue gas/ventilation air is routed in a balanced flue pipe up to the chimney or shaft. The flue pipe is routed inside the chimney or shaft to above roof level.
Where no suitable shaft is available, the flue may be routed to the roof through a retrofitted shaft. For this shaft, a Building Regulations test certificate 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.

## 1.3 Open flue operation (type B23)

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

Supplying combustion air:

- Vitoladens 300-C: Via the ventilation air connector on top of the boiler
- Vitoladens 300-T, Vitorondens 200-T, 222-F: Direct on the burner casing
- Vitoladens 300-W and 333-F: By the annular gap between the flue pipe and ventilation air inlet on the boiler flue connection of the Vitoladens.



## 1.4 Flue gas temperature protection

The following Viessmann balanced flue systems for **balanced** flue operation are tested to the DVGW standard as a single technical unit with the Vitoladens or Vitorondens 200-T up to 54 kW, as with gas condensing boilers:

- Vertical roof outlet (only Vitoladens 300-W and 333-F)
- Separate ventilation air and flue gas routing
- External routing through a coaxial pipe

If a different flue is used, ensure connection in accordance with the guidelines for the approval of flue systems for low temperature flue gas. For the Vitoladens, these are plastic flue pipes type B (max. permissible flue gas temperature 120 °C).

Features inside the equipment ensure that the max. permissible flue gas temperature is not exceeded.
An additional 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 certification for the PPs flue systems (rigid and flexible) for the Vitoladens

1

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

# ZERTIFIKAT

TÜV SÜD Industrie Service

**0036 CPD 9184 001**
**Revision 03**

Gemäß der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 über die Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedsstaaten für Bauprodukte (Bauproduktenrichtlinie), ergänzt um die Richtlinie 93/68/EWG des Rates vom 22. Juli 1993 wird bestätigt, dass für die

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

**Ausführungen**

| | |
|---|---|
| **starr, ohne Außenschale** | **EN 14 471 T120 H1 O W 2 O20 XXX** |
| **starr, mit Kunststoffaußenschale** | **EN 14 471 T120 H1 O W 2 O00 XXX** |
| **starr, mit metallischer Außenschale** | **EN 14 471 T120 H1 O W 2 O00 XXX** |
| **flexibles Rohr mit mineralischem Schacht** | **EN 14 471 T120 H1 O W 2 O00 E E L0** |

**für Details der Klassifizierung siehe Seite 2**

hergestellt von

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

in den Herstellwerken

| | |
|---|---|
| **Skoberne GmbH** | **Arkema GmbH** |
| **Ostendstraße 1** | **Am Bahnhof** |
| **64319 Pfungstadt** | **25630 Ehringshausen** |

- eine **erstmalige Typprüfung**, durchgeführt von TÜV SÜD Industrie Service GmbH, Bericht Nr. 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 und A 1614-09/12 sowie
- eine **werkseigene Produktionsüberwachung**

vorliegt.

Die benannte Stelle TÜV SÜD Industrie Service GmbH hat die Erstprüfung des Werkes und der werkseigenen Produktionsüberwachung durchgeführt und führt weiterhin die ständige Überwachung, Beurteilung und Abnahme der werkseigenen Produktionsüberwachung durch.

Dieses Zertifikat bestätigt, dass alle Anforderungen für die Zertifizierung der werkseigenen Produktionsüberwachung entsprechend Anhang ZA der Norm

**EN 14 471: 2005-08**

erfüllt werden.

Das Zertifikat wurde erstmalig am 2007-02-27 ausgestellt und ist gültig, solange die genannte Norm, die Herstellbedingungen und die werkseigene Produktionsüberwachung nicht wesentlich geändert sowie die Bedingungen des Zertifizierungsvertrags eingehalten werden.

München, 2012-02-06

J. Steiglechner

TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, D-80686 MÜNCHEN TÜV®

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Seite 2 des Zertifikates Nr.
**0036 CPD 9184 001**
Rev. 03

Industrie Service

| | |
|---|---|
| System-Abgasanlage | EN 14 471 |
| starr, ohne Außenschale | |
| ≤ DN 250, weiß, grau | T120 H1 O W 2 O20 I E L |
| ≤ DN 160, schwarz | T120 H1 O W 2 O20 E E L |
| starr, mit Kunststoff-außenschale | |
| ≤ DN 80, weiß | T120 H1 O W 2 O00 I E L1 |
| starr, mit metallischer Außenschale | |
| ≤ DN 250, weiß, grau, schwarz | T120 H1 O W 2 O00 E E L0 |
| flexibles Rohr mit mineralischem Schacht | |
| DN 60, DN 80, DN 110 | T120 H1 O W 2 O00 E E L0 |

TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, D-80686 MÜNCHEN

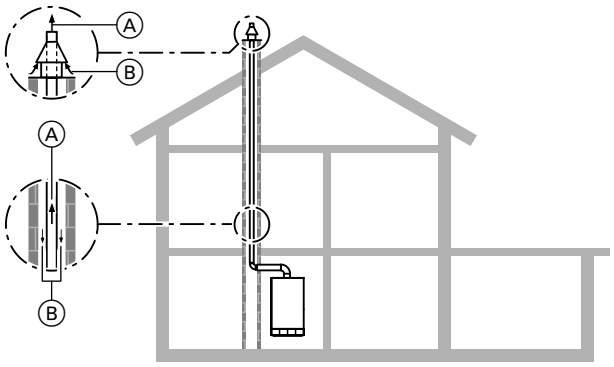
## 1.7 Flue installation options for balanced flue operation

No separate vents required in the installation room.

## Flue systems (cont.)

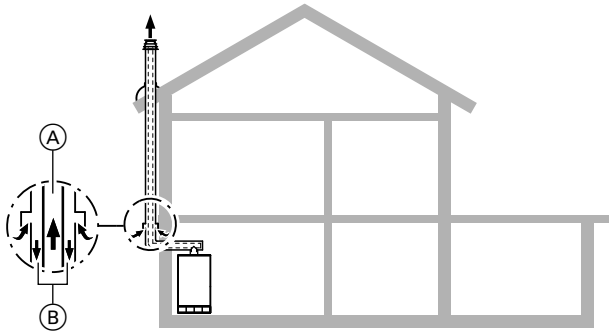
Shown with the Vitoladens 300-W.

### In an installation room with one or more full storeys above




**Routing through a shaft (type $C_{63x}$ or $C_{63}$, to TRÖI 2009)**
The boiler draws combustion air from the atmosphere through the annular gap inside the shaft (chimney) and expels the flue gas via the flue pipe above roof level.
The shaft is not part of the standard delivery. For a detailed description, see pages 26 to 28.
**Retrofitted shaft**
For installation into a retrofitted, Building Regulations-approved shaft made of shaft elements or mineral profiles.
For a detailed description of shafts, see page 18.

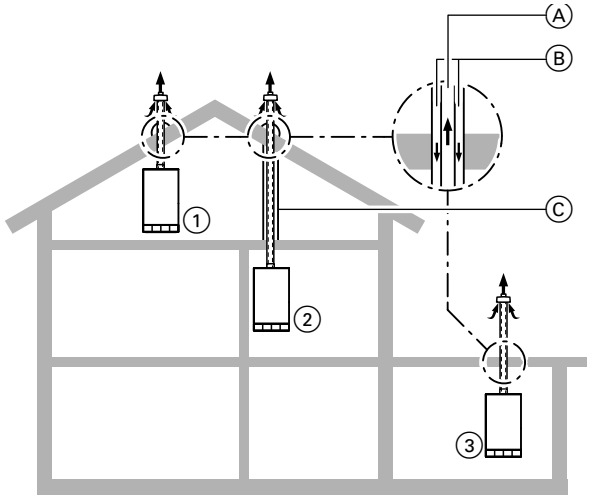
Ⓐ Flue gas
Ⓑ Ventilation air




**Routing over external walls**
**(type $C_{53x}$ or $C_{53}$, to TRÖI 2009)**
The boiler draws combustion air from the atmosphere via a horizontal, concentric coaxial pipe on the external wall and expels flue gas to the atmosphere via the roof.
In its vertical section, the outside pipe of the concentric coaxial pipe acts as thermal insulation thanks to its static air gap.
The combustion air is supplied via the balanced flue air inlet.
For a detailed description, see page 29.

Ⓐ Flue gas
Ⓑ Ventilation air

### In an installation room immediately below the roof or with only the roof space above




**Vertical outlet, if no shaft is available**
**(type $C_{33x}$, to TRÖI 2009)**
(various options)
① Direct, vertical roof outlet through a pitched roof
② Indirect, vertical roof outlet through a pitched roof with protective pipe inside the attic space (if not converted) or fire protection brickwork (if attic converted)
③ Direct, vertical roof outlet through a flat roof
The boiler draws combustion air from the atmosphere and expels flue gas to the atmosphere via a concentric coaxial pipe through the roof.
For a detailed description, see page 32.

Ⓐ Flue gas
Ⓑ Ventilation air
Ⓒ Protective pipe against mechanical damage

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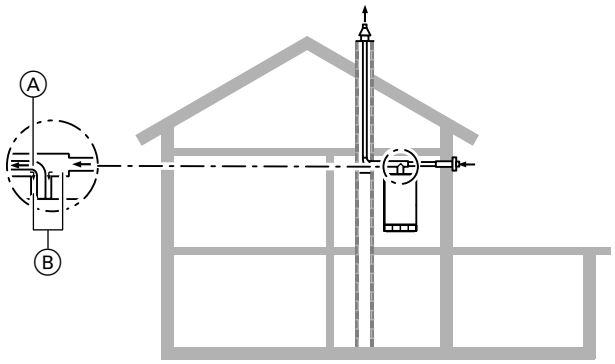
### In an installation room with ventilation air supplied through the external wall



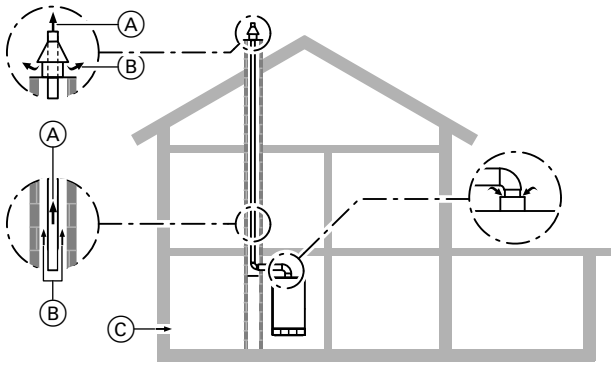

**Separate ventilation air and flue gas routing (type $C_{83x}$, to TRÖI 2009)**
The boiler draws combustion air from outside via a separate supply pipe routed through the external wall, and expels flue gas to the atmosphere via a shaft leading through the roof.
The connection piece to the chimney is 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 31.

Ⓐ Flue gas
Ⓑ Ventilation air

## 1.8 Flue installation options for open flue operation

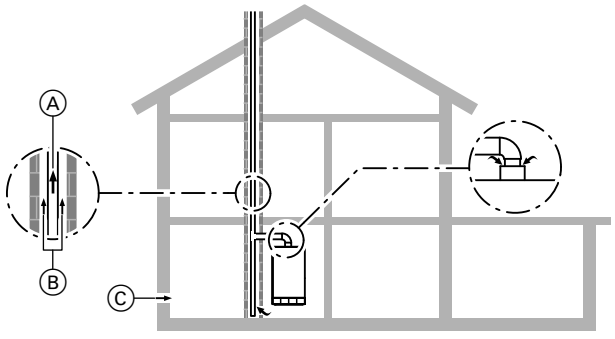
(Separate ventilation air aperture with 150 $cm^2$ or 2 × 75 $cm^2$ cross-section required)
Shown with the Vitoladens 300-W.

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




**Routing through a shaft (type $B_{23}$, to TRÖI 2009)**
The boiler draws combustion air from the installation room and expels flue gas through the flue via the roof (balanced flow).
For a detailed description, see page 34.

Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air




**Connection to a moisture-resistant chimney (MR chimney) (type $B_{23}$, to TRÖI 2009)**
The boiler draws combustion air from the installation room and routes flue gas through the moisture-resistant chimney via the roof.
For a detailed description, see page 37.

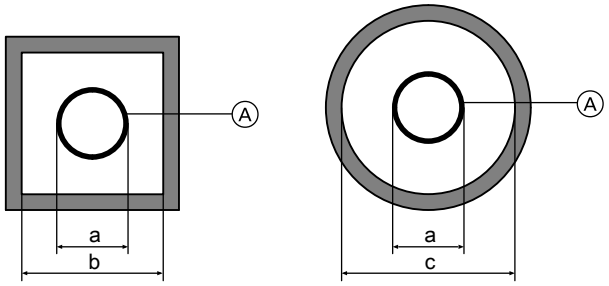
Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air

## 2.1 Plastic (PPs) balanced flue system for routing through a shaft with balanced flue operation (type $C_{63}$ to TRÖI 2009)



For **balanced flue** operation, a coaxial flue (internal pipe for flue gas, external pipe for combustion air) is required as a connection piece between the boiler and the shaft.
Up to 35.4 kW:
Internal flue diameter: Ø 80 mm
Internal diameter, ventilation air pipe: Ø 125 mm
From 42.8 kW:
Internal flue diameter: Ø 100 mm
Internal diameter, ventilation air pipe: Ø 150 mm
The connection piece is fitted to the boiler flue connection and must provide an inspection port.
For installation through shafts or channels with longitudinal ventilation which meet the requirements for domestic chimney stacks to DIN V 18160-1, or with 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 flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits comprising sulphur and soot must not remain on the inside of the chimney. If this is not possible, the ventilation air can be routed separately (see page 31).
Close off and seal any other connection apertures with appropriate materials.
This does not apply to any cleaning or test apertures that are provided with chimney cleaning covers and to which an appropriate test mark has been affixed.
Check prior to installation whether the shaft runs straight from top to bottom or if it is corbelled (check with mirrors).
If it is corbelled, we recommend the installation of a flexible flue pipe (see page 28).
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 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.
Provide an inspection port at the base of the shaft for checking the secondary ventilation. Safeguard the draining of the condensate from the flue pipe to the boiler with a fall of at least 3°.
The flue system must be routed to above the roof (protrusion above the roof according to local regulations).
Alternative plastic flue pipes with Building Regulation approval may be used, for example, if a larger pipe diameter is required because of greater flue length. The performance verification to EN 13384 should then be provided by the respective flue manufacturer.
If flue pipes other than those offered as accessories 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 $CO_2$ or $O_2$ value inside the annular gap. If this test results in a $CO_2$ content of more than 0.2 % or an $O_2$ content below 20.6 %, check the flue system.

### Internal shaft dimensions




**Minimum shaft dimensions to DIN V 18160**

***Note***
*According to the approval certificate, internal shaft dimensions smaller than shown in the table may also be used for balanced flue operation, if this is indicated by the performance verification to DIN EN 13384.*

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Minimum internal shaft dimension<br>b<br>square or rectangular (short side)<br>mm | <br>c<br>round<br>Ø mm |
|---|---|---|---|
| 80 | 94 | 135 | 155 |
| 80 (flexible) | 100 | 140 | 160 |
| 100 | 128 | 170 | 190 |
| 100 (flexible) | 125 | 165 | 185 |

**Reduced internal shaft dimensions**

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Reduced internal shaft dimension<br>b square or rectangular (short side)<br>mm | c round<br>Ø mm |
|---|---|---|---|
| 80 | 94 | 120 | 135 |
| 100 | 128 | 150 | 165 |

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



## Flue, system size 80 and 100 (components) (type $C_{63x}$ to TRÖl 2009)

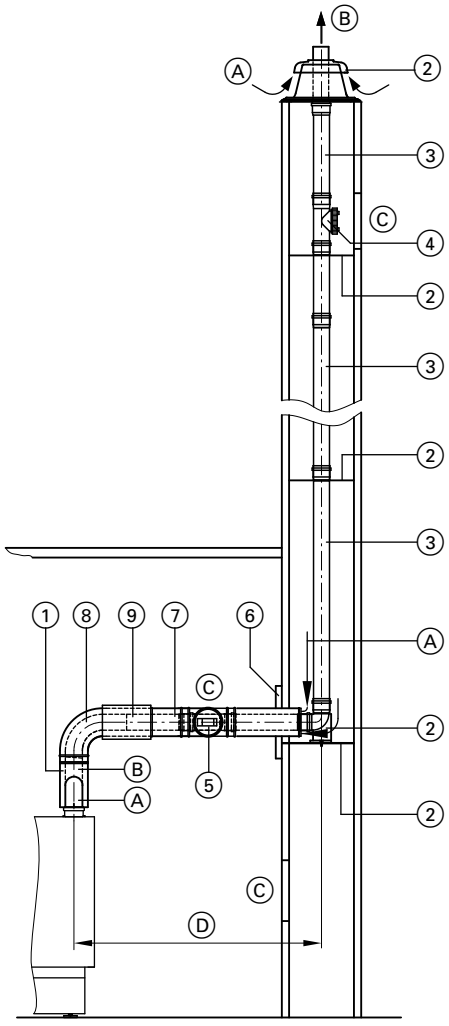



Illustration with the Vitoladens 300-C

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

| | Rated heating output (kW) | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection**<br>For balanced flue operation and coaxial balanced flue routing<br>(Part of the standard boiler delivery) | 80/125 | 100/150 |
| | **Balanced flue pipe**<br>With test ports (160 mm long) | 80/125 | 100/150 |
| ② | **Standard shaft pack (PPs, rigid)**<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. clearance 5 m)<br>or | 80 | 100 |
| | **Standard shaft pack (metal/PPs, rigid)**<br>For twin flue chimneys; one flue for solid fuel boilers<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. clearance 5 m) | 80 | 100 |
| | **Spacers** (3 pce, max. clearance 5 m) | 80 | 100 |
| ③ | **Pipe**<br>1.95 m long (2 pce = 3.9 mm)<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80 | 100 |
| | **Bend** (for use in corbelled chimneys)<br>30° (2 pce)<br>15° (2 pce) | 80 | 100 |
| ④ | **Inspection piece,** straight (1 pce) | 80 | 100 |
| ⑤ | **Balanced flue inspection piece**, straight (1 pce) | 80/125 | 100/150 |
| ⑥ | **Wall bezel** | 125 | 150 |
| ⑦ | **Balanced flue pipe**<br>1 m long<br>0.5 m long | 80/125 | 100/150 |
| ⑧ | **Balanced flue bend**<br>87° (1 pce)<br>45° (2 pce)<br>or | 80/125 | 100/150 |
| | **Balanced flue inspection bend** 87°<br>(1 pce)<br>or | 80/125 | — |
| | **Balanced flue inspection tee** 87°<br>(1 pce) | — | 100/150 |
| ⑨ | **Balanced flue slide coupling** | 80/125 | 100/150 |

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| | **Fixing clamp,** white (1 pce) | 80/125 | 100/150 |
| | **Stainless steel extension,** 380 mm long for shaft cover, metal/PPs, rigid | 80 | 100 |

**Max. total length of the flue up to the boiler flue connection**

| Rated heating output at system temperature 50/30 °C | kW | 19.3 | 20.2 | 23.5 | 24.6 | 28.9 | 35.4 | 42.8 | 53.7 | 67.6 | 85.8 | 107.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. length for system size Ø 80 mm | m | 15 | 15 | 18 | 18 | 18 | 22 | — | — | — | — | — |
| Max. length for system size Ø 100 mm | m | — | — | — | — | — | — | 22 | 22 | 22 | 22 | 22 |

The following components are taken into consideration for the maximum flue lengths:
- Balanced flue connection pipe Ⓓ 0.5 m long.
- 1 balanced flue bend 87° and 1 support bend 87°
  or
- 2 balanced flue bends 45° and 1 support bend 87°

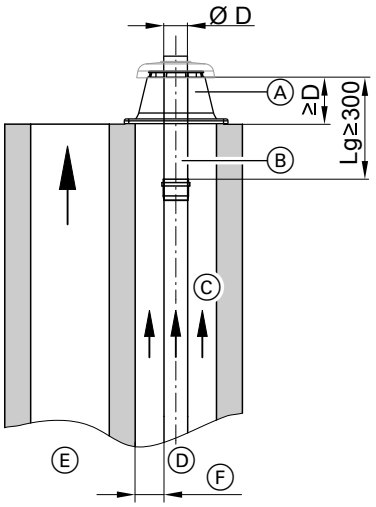
Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1.5 m

***Note***
*Observe the specifications regarding internal shaft dimensions (see page 10).*

## Vitoladens in conjunction with solid fuel boilers

Routing a plastic flue adjacent to a shaft at risk of chimney fire from soot (e.g. two draught chimney with wood burning stove) is generally permitted. Subject to the design of the chimney top and the operation of the condensing systems (open or balanced flue), 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 balanced flue shaft as evenly as possible.
For the essential steps, see the following sections:

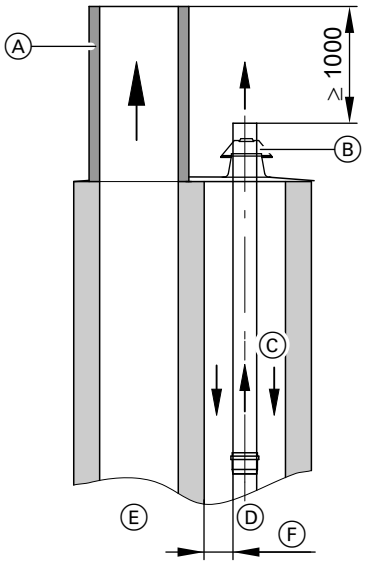
**Open flue operation or if the ventilation air is not supplied through the shaft**
For fire safety reasons, the top sections of flammable flue terminals should not be made from flammable materials. The length of the flue pipe made from non-combustible materials in the section protected from heat radiation Lg must be at least 300 mm long. The length of the external terminal pipe of the shaft cover must be at least equivalent to the external diameter D of the internal flue pipe.
The standard shaft pack delivery (metal/PPs) includes a stainless steel pipe (380 mm long). A stainless steel extension (380 mm long) is available as an additional accessory.




Ⓐ Metal shaft cover
Ⓑ End piece made from non-combustible material
Ⓒ Secondary ventilation
Ⓓ Vitoladens flue
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum clearance to DIN V 18160 (see page 10)

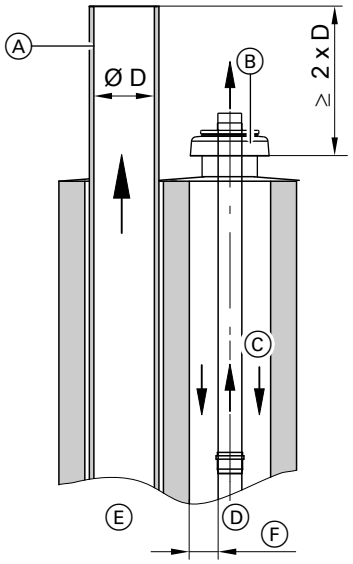
**Balanced flue operation – ventilation air is supplied through the shaft**
Design the balanced flue terminals so that flue gas will not be drawn into the air shaft in dangerous amounts and that pressure fluctuations due to wind influence affect the balanced flue system as evenly as possible.

■ When using a plastic shaft cover:
The chimney for solid fuel boilers must stand at least 1000 mm proud of the Vitoladens flue. For the chimney extension, only use components that are resistant to soot fires.



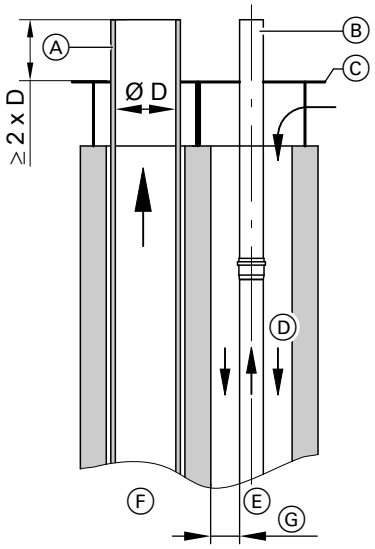

Ⓐ Chimney extension made from soot-resistant and fire-resistant material
Ⓑ Plastic shaft cover
Ⓒ Ventilation/secondary ventilation
Ⓓ Vitoladens flue
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum clearance to DIN V 18160 (see page 10)

■ When using a metal shaft cover:
The chimney for solid fuel boilers must stand at least 2 x Ø D proud of the Vitoladens flue. For the chimney extension, only use components that are resistant to soot fires.




Ⓐ Chimney extension made from soot-resistant and fire-resistant material
Ⓑ Metal shaft cover
Ⓒ Ventilation/secondary ventilation
Ⓓ Vitoladens flue (rigid or flexible)
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum clearance to DIN V 18160 (see page 10)

■ When using a common downdraught plate:
The flue end piece and the shaft cover must be made from non-combustible material (e.g. metal).




Ⓐ Chimney extension made from soot-resistant and fire-resistant material
Ⓑ End piece made from non-combustible material
Ⓒ Shaft cover (on-site)
Ⓓ Ventilation/secondary ventilation
Ⓔ Vitoladens flue
Ⓕ Chimney for solid fuel boilers
Ⓖ Minimum clearance to DIN V 18160 (see page 10)

The metal end piece and shaft cover are part of the standard shaft pack (metal/PPs).
The standard shaft pack (metal/PPs) is available as an accessory.

## Flue, flexible, system size 80 and 100 (components) (type $C_{63x}$ to TRÖl 2009)



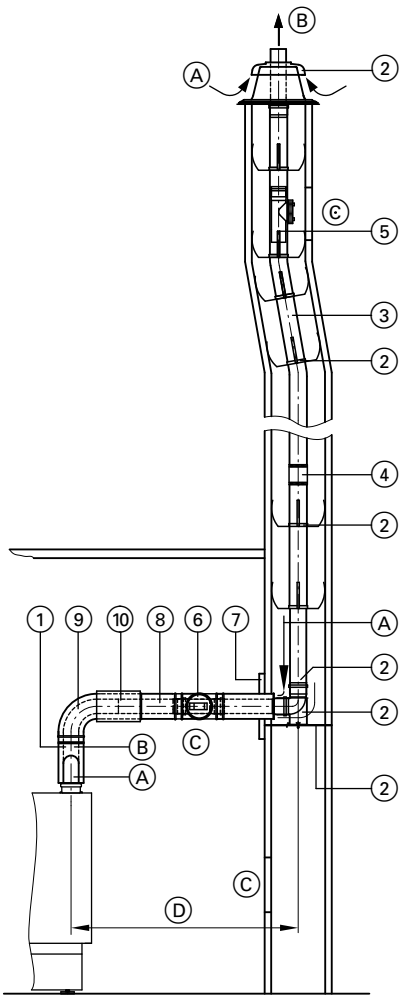



Illustration with the Vitoladens 300-C

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

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection**<br>For balanced flue operation and coaxial balanced flue routing<br>(Part of the standard boiler delivery) | 80/125 | 100/150 |
| | **Balanced flue pipe**<br>With test ports (160 mm long) | 80/125 | 100/150 |
| ② | **Standard shaft pack** (PPs, flexible)<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. clearance 2 m)<br>or | 80 | 100 |

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| | **Standard shaft pack (metal/PPs, flexible)**<br>For twin flue chimneys; one flue for solid fuel boilers.<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. clearance 2 m) | 80 | 100 |
| | **Spacers** (5 pce, max. clearance 2 m) | 80 | 100 |
| ③ | **Flue pipe, flexible,** as a roll<br>12.5 or 25 m | 80 | 100 |
| ④ | **Connection piece**<br>For connecting residual lengths of the flexible flue pipe | 80 | 100 |
| | **Pipe lowering attachment** with 25 m rope | 80 | 100 |
| ⑤ | **Inspection piece,** straight (1 pce)<br>For installation into the flexible flue pipe | 80 | 100 |
| ⑥ | **Balanced flue inspection piece**, straight (1 pce) | 80/125 | 100/150 |
| ⑦ | **Wall bezel** | 125 | 150 |
| ⑧ | **Balanced flue pipe**<br>1 m long<br>0.5 m long | 80/125 | 100/150 |
| ⑨ | **Balanced flue bend**<br>87° (1 pce)<br>45° (2 pce)<br>or<br>**Balanced flue inspection bend** 87° (1 pce)<br>**Balanced flue inspection tee** 87° (1 pce) | 80/125<br><br><br><br>80/125<br><br>— | 100/150<br><br><br><br>—<br><br>100/150 |
| ⑩ | **Balanced flue slide coupling** | 80/125 | 100/150 |
| | **Fixing clamp,** white (1 pce) | 80/125 | 100/150 |
| | **Stainless steel extension,** 380 mm long for shaft cover, metal/PPs, flexible | 80 | 100 |

***Note***
*Install the flexible flue with a maximum offset of 45° from the vertical.*

**Max. total length of the flue up to the boiler flue connection**

| Rated heating output at system temperature 50/30 °C | kW | 19.3 | 20.2 | 23.5 | 24.6 | 28.9 | 35.4 | 42.8 | 53.7 | 67.6 | 85.8 | 107.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. length for system size Ø 80 mm | m | 13 | 13 | 16 | 16 | 16 | 20 | — | — | — | — | — |
| Max. length for system size Ø 100 mm | m | — | — | — | — | — | — | 20 | 20 | 20 | 20 | 20 |

The following components are taken into consideration for the maximum flue lengths:
- Balanced flue connection pipe Ⓓ 0.5 m long.
- 1 balanced flue bend 87º and 1 support bend 87º
  or
- 2 balanced flue bends 45º and 1 support bend 87º

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bends 45º: 0.5 m
- Balanced flue bends 87º: 1 m
- Balanced flue inspection tee: 1.5 m



## 2.2 Plastic (PPs) flue gas/ventilation air system for separate ventilation air and flue gas routing (type $C_{83}$ to TRÖI 2009)

The Vitoladens may be operated with separately routed flue gas and ventilation air in **balanced** flue mode, 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 pipe.
**Observe the design information to TRÖI 2009, point 5.6.**
Up to 35.4 kW: Internal diameter, balanced flue pipe: Ø 80 mm
From 42.8 kW: Internal diameter, balanced flue pipe: Ø 100 mm
Max. pipe length:
- Ventilation air pipe from the back edge of the boiler: 14 m

Max. number of bends
- Flue pipe
  - 87º: 2 pce
    or
  - 45º: 3 pce
- Ventilation air pipe
  - 87º: 4 pce
    or
  - 45º: 6 pce

Max. pressure drop in the air supply pipe: 35 Pa.
Combustion air temperature at the burner: min. 5 ºC/max. 30 ºC.
Install an inspection port for checking and cleaning the flue pipe.

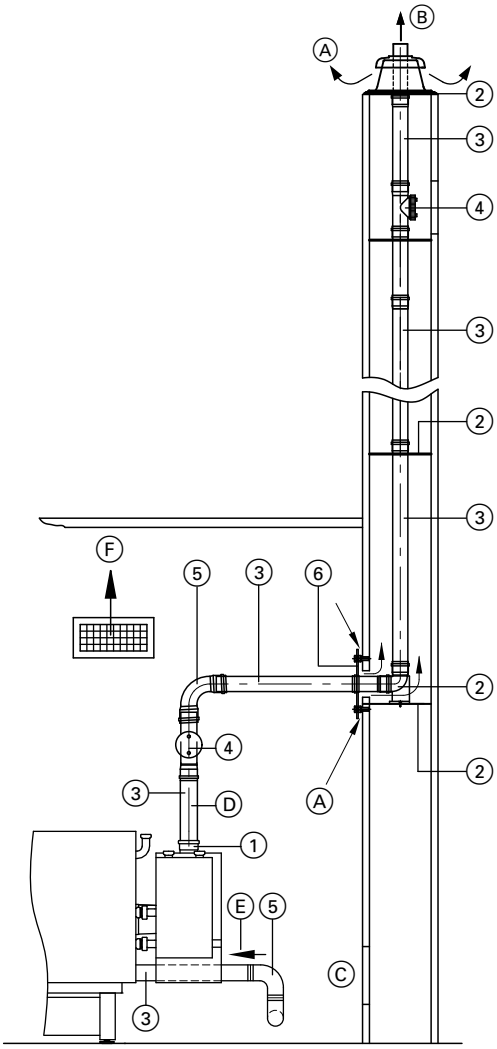



Illustration with the Vitoladens 300-T

Ⓐ Secondary ventilation
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Ventilation air
Ⓕ Ventilation air aperture, min. 150 cm² or 2 × 75 cm²

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection** (part of the standard boiler delivery) | 80 | 100 |
| ② | **Standard shaft pack (PPs, rigid)**<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. clearance 5 m)<br>or | 80 | 100 |
| | **Standard shaft pack (metal/PPs, rigid)**<br>For twin flue chimneys; one flue for solid fuel boilers<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. clearance 5 m) | 80 | 100 |
| | **Spacers** (3 pce, max. clearance 5 m) | 80 | 100 |
| ③ | **Pipe**<br>1.95 m long (2 pce = 3.9 m)<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80 | 100 |
| ④ | **Inspection piece,** straight (1 pce) | 80 | 100 |
| ⑤ | **Bend**<br>87° (1 pce)<br>45° (2 pce) | 80 | 100 |
| ⑥ | **Ventilation bezel** (1 pce) | 80 | 100 |
| | **Bend** (for use in corbelled chimneys)<br>30° (2 pce)<br>15° (2 pce) | 80 | 100 |
| | **Inspection tee** 87° (1 pce)<br>**Inspection bend** 87° (1 pce) | 80<br>— | —<br>100 |
| | **Ventilation air damper** | 80 | 100 |
| | **Stainless steel extension,** 380 mm long for shaft cover, metal/PPs, rigid | 80 | 100 |

**Max. total length of the flue pipe up to the boiler flue connection when routing through a shaft: 20 m**

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

## 2.3 Plastic (PPs) balanced flue system for routing over external walls (type $C_{53}$ to TRÖl 2009)

The Vitoladens may also be connected, without 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 outer pipe acts as protection and as thermal insulation thanks to its static air gap.
Up to 35.4 kW:
Internal flue diameter: Ø 80 mm
Internal diameter, ventilation air pipe: Ø 125 mm
From 42.8 kW:
Internal flue diameter: Ø 100 mm
Internal diameter, ventilation air pipe: Ø 150 mm
The flue for routing over external walls has been tested as a concentric balanced flue system as a single technical unit with the Vitoladens condensing boiler.
A performance verification according to EN 13384 is **not** required.

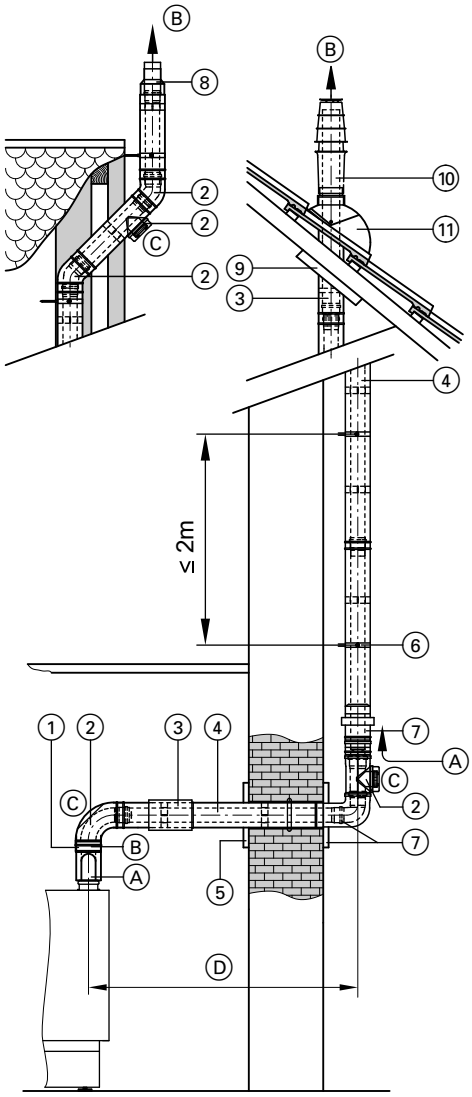



Illustration with the Vitoladens 300-C

Ⓐ Flue gas
Ⓑ Ventilation air
Ⓒ Connection piece
Ⓓ Maximum length, external wall flue

| | Rated heating output (kW) | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection**<br>For balanced flue operation and coaxial balanced flue routing<br>(Part of the standard boiler delivery) | 80/125 | 100/150 |
| | **Balanced flue pipe**<br>With test ports (160 mm long) | 80/125 | 100/150 |
| ② | **Balanced flue inspection bend** 87°<br>(1 pce) | 80/125 | — |
| | **Balanced flue inspection tee** 87°<br>(1 pce)<br>or | — | 100/150 |
| | **Balanced flue inspection piece**, straight<br>(1 pce)<br>and | 80/125 | 100/150 |
| | **Balanced flue bend** 87° (1 pce) | 80/125 | 100/150 |
| | **Balanced flue bend** 45° (2 pce)<br>or | 80/125 | — |
| | **Inspection piece for flues routed over external walls**, straight (1 pce)<br>and | — | 100/150 |
| | **Balanced flue bend** 87° (1 pce) | | 100/150 |
| | **Balanced flue bend** 45° (2 pce) | | 100/150 |
| ③ | **Balanced flue slide coupling** | 80/125 | 100/150 |
| ④ | **Balanced flue pipe**<br>1.95 m long<br>1 m long (1 pce)<br>0.5 m long (1 pce)<br>or | 80/125 | 100/150 |
| | **External wall pipe**<br>1.95 m long<br>1 m long (1 pce)<br>0.5 m long (1 pce) | — | 100/150 |
| ⑤ | **Wall bezel** | 125 | 150 |
| ⑥ | **Fixing clamp,** white (1 pce) | 80/125 | 100/150 |
| ⑦ | **External wall pack**<br>Comprising:<br>– Balanced flue bend<br>– Air inlet piece<br>– Wall bezel | 80/125 | 100/150 |
| ⑧ | **External wall terminal**<br>For a short roof overhang | 80/125 | 100/150 |
| ⑨ | **Universal cover plate** | 80/125 | 100/150 |
| ⑩ | **Balanced flue roof outlet**<br>Colour: black or terracotta | 80/125 | 100/150 |
| | **Above-roof extensions,**<br>0.5 or 1.0 m long available on request | 80/125 | 100/150 |
| ⑪ | **Universal roof tile**<br>For Roman tiles, pantiles, plain tiles, slate and other types of roof<br>Colour: black or terracotta | 80/125 | 100/150 |
| | **Pipe outlet for Klöber roof tiles**<br>Colour: black or terracotta (provide the corresponding Klöber tile on site to match the roof outlet selected for the particular type of roof) | 80/125 | — |

### Max. total length of the flue pipe

| Rated heating output at system temperature 50/30 °C | kW | 19.3 | 20.2 | 23.5 | 24.6 | 28.9 | 35.4 | 42.8 | 53.7 | 67.6 | 85.8 | 107.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. length for system size Ø 80 mm | m | 10 | 10 | 12 | 12 | 15 | 22 | — | — | — | — | — |
| Max. length for system size Ø 100 mm | m | — | — | — | — | — | — | 22 | 22 | 22 | 22 | 22 |

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

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1.5 m

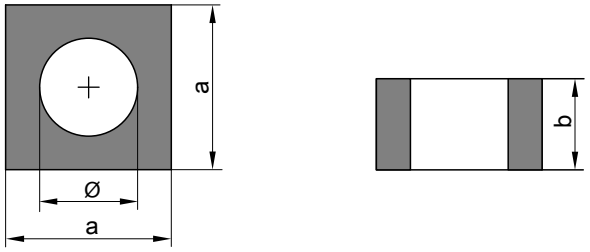


## 2.4 Plastic (PPs) balanced flue system for routing through a lightweight shaft

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

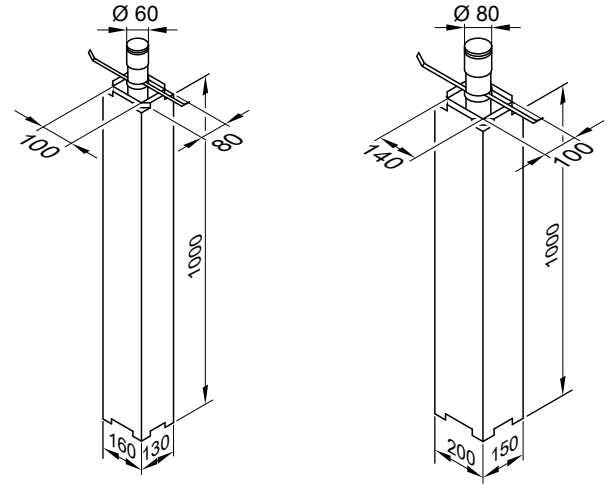
The shaft used must comply with the requirements for domestic chimneys to DIN V 18160-1 or must be generally approved by the building inspectorate.

### Shaft modules "UNIFIX" offered by 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 |

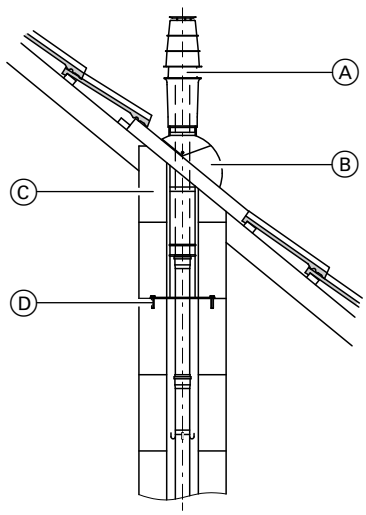
### "SKOBIFIXnano" and "SKOBIFIXXs 30" shaft profiles offered by Skoberne (made from foamed ceramics)




Fire rating 30 min.
Skoberne offer a shaft system made from breeze concrete or foamed ceramics with general Building Regulations approval [Germany].
Address for Skoberne:
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)

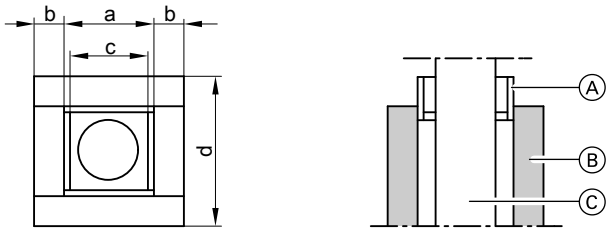



Available from Skoberne:
Ⓐ Roof outlet
Ⓑ Universal roof tile
Ⓒ Terminal shaft profile
Ⓓ Anchoring of the roof outlet

During installation, match terminal shaft profile Ⓒ to the roof pitch.

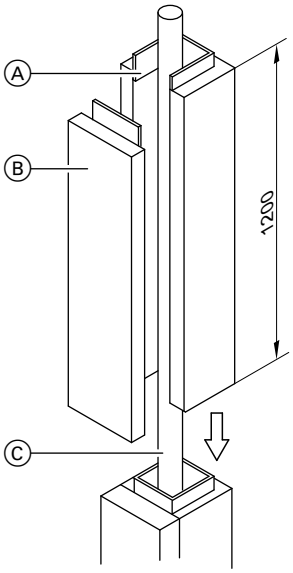


## Promat shaft profiles




Ⓐ PROMATECT® female connection
Ⓑ PROMATECT® profile
Ⓒ Flue

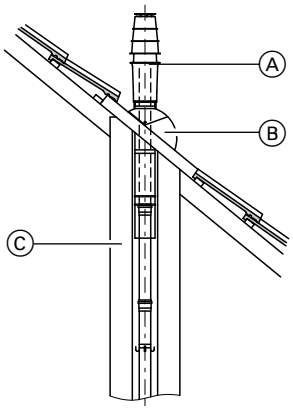
| System size Ø mm | a mm | b mm | c mm | d mm | Fire rating |
|---|---|---|---|---|---|
| 80 | 140 | 25 | 128 | 190 | 30 min |
| | 140 | 40 | 128 | 220 | 90 min |
| 100 | 180 | 25 | 168 | 230 | 30 min |
| | 180 | 40 | 168 | 260 | 90 min |




Ⓐ PROMATECT® female connection
Ⓑ PROMATECT® profile
Ⓒ Flue

Promat offer a shaft system made from calcium silicate fire barriers with general Building Regulations approval [Germany].
Address for Promat:
Promat GmbH
Postfach 109 564
D-40835 Ratingen

### Roof outlet for shafts with Promat profiles




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

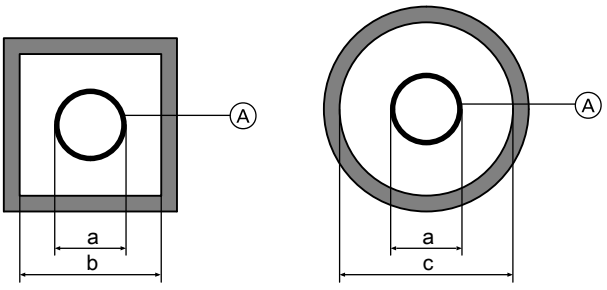
Ⓐ Vertical coaxial roof outlet (balanced flue system)
Ⓑ Universal roof tile
Ⓒ Lightweight shaft made from PROMATECT ® mineral fibre profiles

## 2.5 Plastic (PPs) flue pipe for routing through a shaft with open flue operation (type B to TRÖI 2009)

**Open** flue operation requires a flue pipe as the connection piece between the Vitoladens and the shaft as well as for the routing through the shaft.
**The installation room must provide a ventilation air aperture with an unrestricted cross-section of at least 150 cm² or 2 × 75 cm².**
Up to 35.4 kW: Internal flue diameter: Ø 80 mm
From 42.8 kW: Internal flue diameter: Ø 100 mm
The flue system is connected to the boiler flue connection.
The combustion air is drawn from the boiler installation room.
For installation through shafts or channels with longitudinal ventilation meeting the requirements for domestic chimney stacks to DIN V 18160-1, or with a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2.
Prior to installation, the flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits of sulphur and soot must not remain on the inside of the chimney.
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 corbelled (check with mirrors).
If it is corbelled, we recommend the installation of a flexible flue pipe (see page 36).
The local flue gas inspector should check the 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 draining of the condensate from the flue pipe **to the boiler** with a **fall of at least 3°.**
Route the flue system to above the roof (observe the roof protrusion parallel to the roof inclination according to local regulations).
Alternative flue pipes with Building Regulation approval may be used, for example, if a larger pipe diameter is required because of greater flue length. In that case, the performance verification to EN 13384 should be provided by the relevant flue pipe manufacturer.

### Internal shaft dimensions



## Design and sizing information for the Vitoladens 300-C, -T, and Vitorondens 200-T, 222-F (cont.)

**Minimum internal shaft dimensions to DIN V 18160**

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Minimum internal shaft dimension<br>b<br>square or rectangular (short side)<br>mm | <br>c<br>round<br>Ø mm |
|---|---|---|---|
| 80 | 94 | 135 | 155 |
| 80 (flexible) | 100 | 140 | 160 |
| 100 | 128 | 170 | 190 |
| 100 (flexible) | 125 | 165 | 185 |

Max. number of bends:
- 87°: 3 pce
  or
- 45°: 3 pce
  or
- 30°: 4 pce
  or
- 15°: 4 pce

The annular gap must be at least 3 cm wide at the shaft inlet.

### Flue, system size 80 and 100 (components) (type $B_{23}$ to TRÖI 2009)

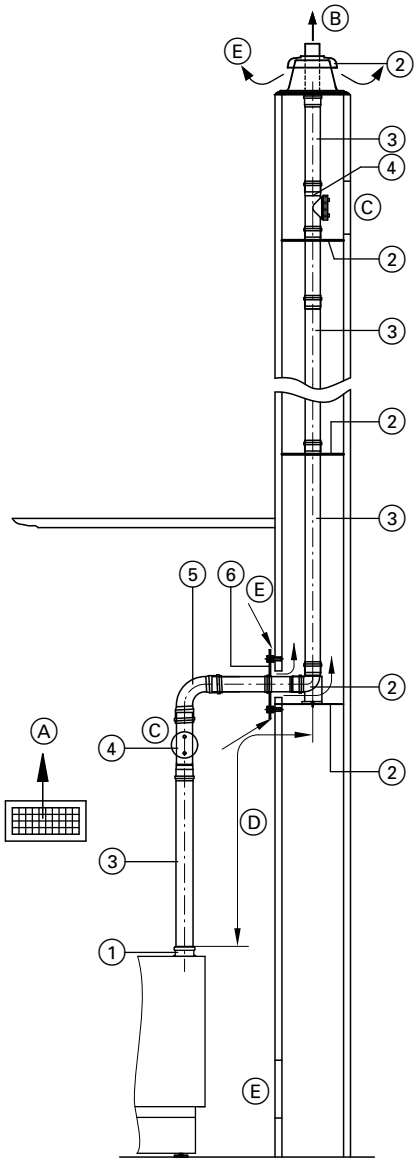



Illustration with the Vitoladens 300-C

Ⓐ Ventilation air aperture, min. 150 cm² or 2 × 75 cm²
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece = ¼ of the vertical length or max. 3 m
Ⓔ Secondary ventilation

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection** (part of the standard boiler delivery) | 80 | 100 |
| ② | **Standard shaft pack (PPs, rigid)**<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. clearance 5 m)<br>or<br>**Standard shaft pack (metal/PPs, rigid)**<br>For twin flue chimneys; one flue for solid fuel boilers<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. clearance 5 m) | 80<br><br><br><br><br><br>80 | 100<br><br><br><br><br><br>100 |
| | **Spacers** (3 pce, max. clearance 5 m) | 80 | 100 |
| ③ | **Pipe**<br>1.95 m long (2 pce = 3.9 m)<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80 | 100 |
| ④ | **Inspection piece,** straight (1 pce) | 80 | 100 |
| ⑤ | **Bend**<br>87° (1 pce)<br>45° (2 pce) | 80 | 100 |
| ⑥ | **Ventilation bezel** (1 pce) | 80 | 100 |
| | **Bend** (for use in corbelled chimneys)<br>30° (2 pce)<br>15° (2 pce) | 80 | 100 |
| | **Inspection tee** 87° (1 pce)<br>**Inspection bend** 87° (1 pce) | 80<br>— | —<br>100 |

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| | **Balanced flue air inlet adaptor**<br>Ø 80/125 mm<br>For installing the boiler with a balanced flue pipe up to the shaft inlet in an installation room where the combustion air is supplied via interconnected rooms | 80 | — |
| | **Stainless steel extension,** 380 mm long for shaft cover, metal/PPs, rigid | 80 | 100 |



**Max. total flue length: 20 m**

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

## Flue, flexible, system size 80 and 100 (components) (type $B_{23}$ to TRÖl 2009)

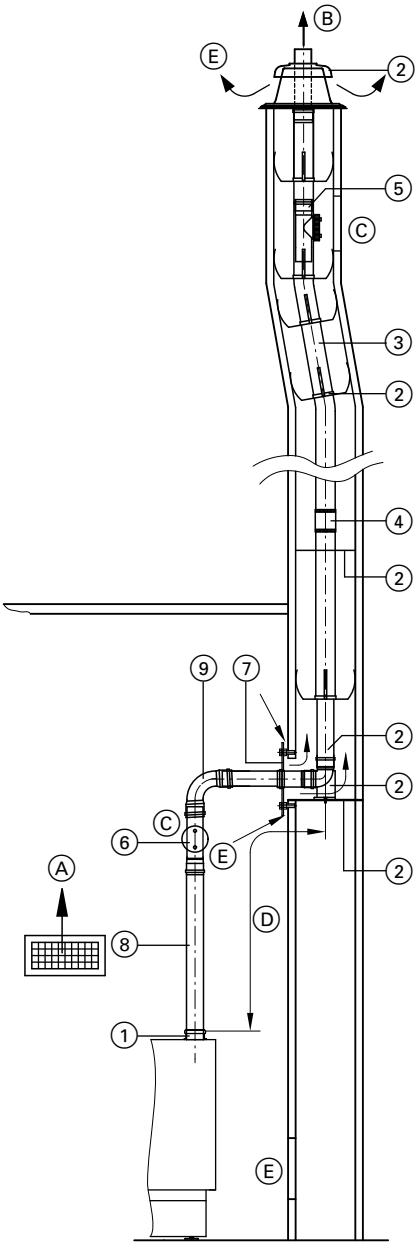



Illustration with the Vitoladens 300-C

Ⓐ Ventilation air aperture, min. 150 cm² or 2 × 75 cm²
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece = ¼ of the vertical length or max. 3 m
Ⓔ Secondary ventilation

***Note***
*Install the flexible flue with a maximum offset of 45° from the vertical.*

| Rated heating output (kW) | | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection** (part of the standard boiler delivery) | 80 | 100 |
| ② | **Standard shaft pack (PPs, flexible)**<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. clearance 2 m)<br>or | 80 | 100 |
| | **Standard shaft pack (metal/PPs, flexible)**<br>For twin flue chimneys; one flue for solid fuel boilers.<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. clearance 2 m) | 80 | 100 |
| | **Spacers** (5 pce, max. clearance 2 m) | 80 | 100 |
| ③ | **Flue pipe, flexible,** as a 12.5 or 25 m roll | 80 | 100 |
| ④ | **Connection piece** for connecting residual lengths of the flexible flue | 80 | 100 |
| | **Pipe lowering attachment** with 25 m rope | 80 | 100 |
| ⑤ | **Inspection piece**, straight (1 pce) for installation into the flexible flue | 80 | 100 |
| ⑥ | **Inspection piece,** straight (1 pce) | 80 | 100 |
| ⑦ | **Ventilation bezel** (1 pce) | 80 | 100 |
| ⑧ | **Pipe**<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80 | 100 |
| ⑨ | **Bend**<br>87° (1 pce)<br>45° (2 pce)<br>or | 80 | 100 |
| | **Inspection bend** 87° (1 pce) | — | 100 |
| | **Inspection tee** 87° (1 pce) | 80 | — |
| | **Stainless steel extension,** 380 mm long for shaft cover, metal/PPs, flexible | 80 | 100 |

**Max. total flue length: 18 m**

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

## 2.6 Plastic (PPs) flue pipe for routing the flue over external walls (type $B_{23}$ to TRÖl 2009)

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

## Design and sizing information for the Vitoladens 300-C, -T, and Vitorondens 200-T, 222-F (cont.)

Up to 35.4 kW:
Internal flue diameter: Ø 80 mm
Internal diameter, external pipe: Ø 125 mm
From 42.8 kW:
Internal flue diameter: Ø 100 mm
Internal diameter, external pipe: Ø 150 mm

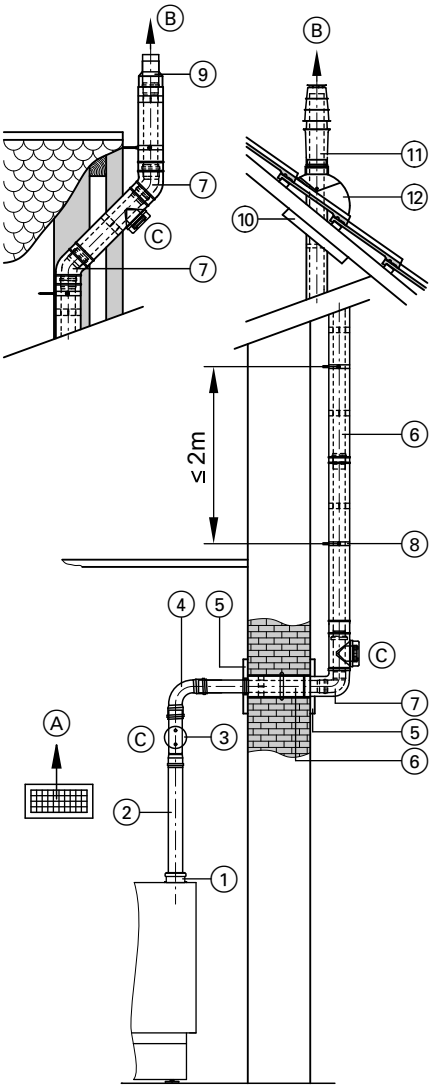



Illustration with the Vitoladens 300-C

Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port

| | Rated heating output (kW) | up to 35.4 | from 42.8 |
|---|---|---|---|
| | | System size Ø mm | |
| ① | **Boiler flue connection**<br>(Part of the standard boiler delivery) | 80 | 100 |
| ② | **Pipe**<br>1.95 m long (2 pce of 1.95 m = 3.9 m)<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80 | 100 |
| ③ | **Inspection piece,** straight (1 pce) | 80 | 100 |
| ④ | **Bend**<br>87° (1 pce)<br>45° (2 pce) | 80 | 100 |
| ⑤ | **Wall bezel** (1 pce) | 80/125 | 100/150 |
| ⑥ | **Balanced flue pipe**<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce)<br>or<br>**External wall pipe**<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 80/125<br><br><br><br><br>— | —<br><br><br><br><br>100/150 |
| ⑦ | **Balanced flue bend**<br>87° (1 pce)<br>45° (2 pce)<br>or<br>**External wall bend**<br>87° (1 pce)<br>45° (2 pce) | <br>80/125<br>80/125<br><br><br>—<br>— | <br>—<br>—<br><br><br>100/150<br>100/150 |
| ⑧ | **Fixing clamp,** white (1 pce)<br>(For balanced flue and pipe for routing over external walls) | 80/125 | 100/150 |
| ⑨ | **External wall terminal**<br>For a short roof overhang | 80/125 | 100/150 |
| ⑩ | **Universal cover plate** | 80/125 | 100/150 |
| ⑪ | **Balanced flue roof outlet** outside wall, with fixing clamp<br>Colour: black or terracotta<br>**Above-roof extensions,**<br>0.5 or 1.0 m long<br>are available upon request | 80/125 | 100/150 |
| ⑫ | **Universal roof tile**<br>For Roman tiles, pantiles, plain tiles, slate and other types of roof<br>Colour: black or terracotta<br>or<br>**Pipe outlet for Klöber roof tiles**<br>Colour: black or terracotta<br>(provide the corresponding Klöber tile on site to match the roof outlet selected for the particular type of roof) | 80/125<br><br><br><br>80/125 | 100/150<br><br><br><br>— |

### Max. total length of the flue pipe

| Rated heating output at system temperature 50/30 °C | kW | 19.3 | 20.2 | 23.5 | 24.6 | 28.9 | 35.4 | 42.8 | 53.7 | 67.6 | 85.8 | 107.3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. length for system size Ø 80 mm | m | 15 | 15 | 18 | 18 | 18 | 22 | — | — | — | — | — |
| Max. length for system size Ø 100 mm | m | — | — | — | — | — | — | 22 | 22 | 22 | 22 | 22 |

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 2 bends 87°
  or
- 3 bends 45°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

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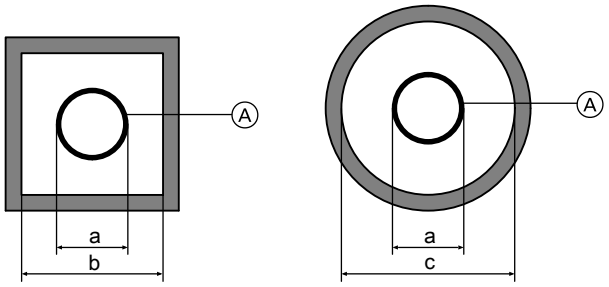
## 3.1 Plastic (PPs) balanced flue system for routing through a shaft with balanced flue operation (type $C_{63x}$ to TRÖI 2009)

For **balanced flue** operation, a coaxial flue (internal pipe for flue gas, external pipe for combustion air) is required as a connection piece between the boiler and the shaft.
Internal flue diameter: Ø 60 or 80 mm
Internal diameter, ventilation air pipe: Ø 100 or 125 mm
The connection piece is fitted to the boiler flue connection and must provide an inspection port.
For installation through shafts or channels with longitudinal ventilation meeting the requirements for domestic chimney stacks to DIN V 18160-1, or with 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 flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits (in particular sulphur and soot deposits) must not remain on the inside of the chimney. If this is not possible, the ventilation air can be routed separately (see page 31).
Close off and seal any other connection apertures with appropriate materials.
This does not apply to any cleaning or test apertures that are provided with chimney cleaning covers and to which an appropriate test mark has been affixed.
Check prior to installation whether the shaft runs straight from top to bottom or if it is corbelled (check with mirrors).
If it is corbelled, we recommend the installation of a flexible flue pipe (see page 28).
In the installation room, at least one inspection port must be provided in the flue system for inspection and cleaning as well as for testing the pressure (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.
Provide an inspection port at the base of the shaft for checking the secondary ventilation. Safeguard the draining of the condensate from the flue pipe to the boiler with a fall of at least 3º.
The flue system must be routed to above the roof (protrusion above the roof according to local regulations).
Alternative plastic flue pipes with Building Regulation approval may be used, for example, if a larger pipe diameter is required because of greater flue length. The performance verification to EN 13384 should then be provided by the respective flue manufacturer.
If flue pipes other than those offered as accessories (which are approved with the Vitoladens as one technical unit) 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 $CO_2$ or $O_2$ value inside the annular gap. If this test results in a $CO_2$ content of more than 0.2 % or an $O_2$ content below 20.6 %, check the flue system.



### Internal shaft dimensions




**Minimum shaft dimensions to DIN V 18160**

***Note***
*According to the approval certificate, reduced clearances may also be selected, if this is indicated by the performance verification to EN 13384 (not applicable to flexible flue pipes).*

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Minimum internal shaft dimension<br>b<br>square or rectangular (short side)<br>mm | <br>c<br>round<br>Ø mm |
|---|---|---|---|
| 60 | 73 | 113 | 133 |
| 60 (flexible) | 64 | 104 | 124 |
| 80 | 94 | 135 | 155 |
| 80 (flexible) | 100 | 140 | 160 |

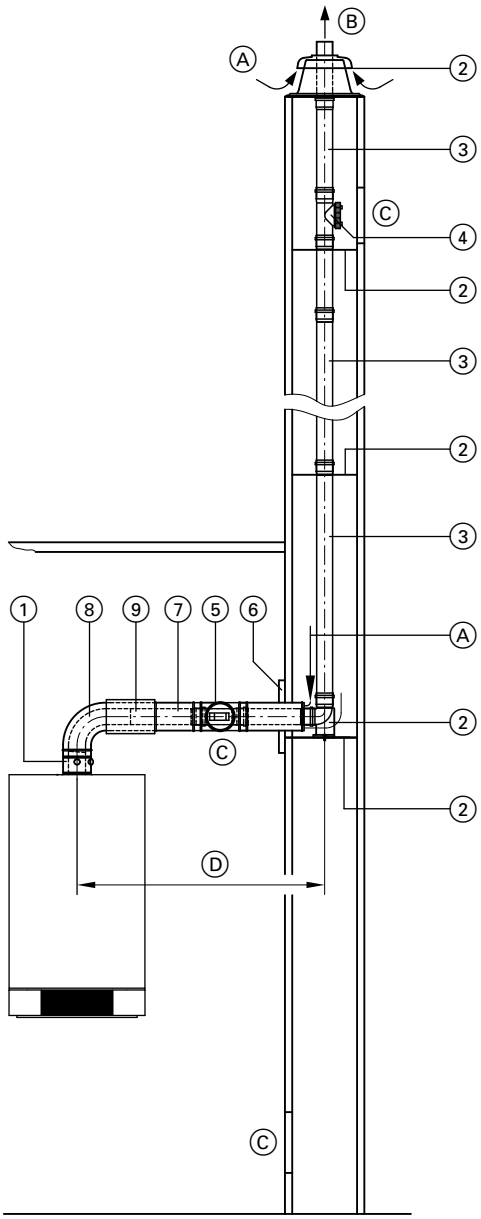
## Design and sizing information for the Vitoladens 300-W and 333-F (cont.)

**Reduced internal shaft dimensions**

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Reduced internal shaft dimension<br>b square or rectangular (short side)<br>mm | c round<br>Ø mm |
|---|---|---|---|
| 60 | 73 | 112 | 112 |
| 80 | 94 | 120 | 135 |

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

### Flue, system size 60/100 and 80/125 (components) (type $C_{63x}$ to TRÖI 2009)




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

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

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## Design and sizing information for the Vitoladens 300-W and 333-F (cont.)

**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length for system size 60/100 | m | 16 | 9 |
| Max. length for system size 80/125 | m | 7 | 11 |

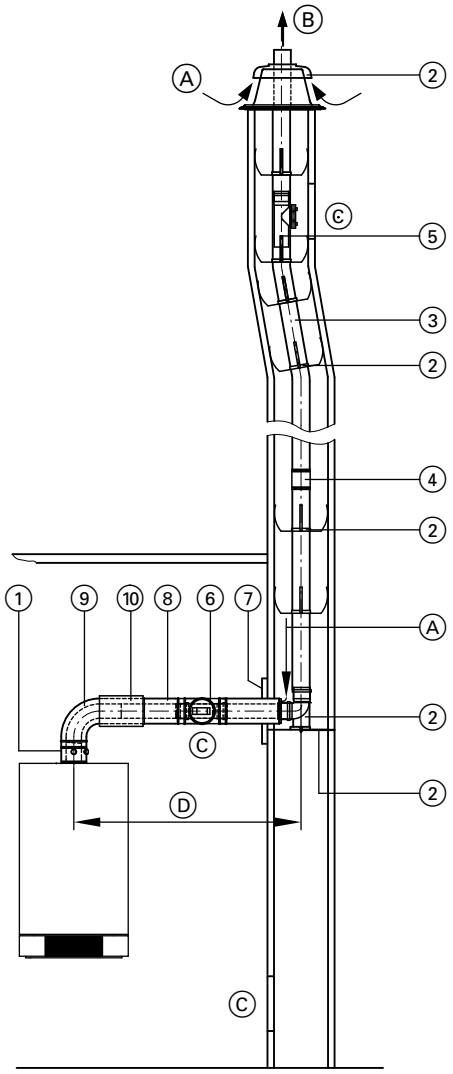
The following components are taken into consideration for the maximum flue lengths:
- Balanced flue connection pipe Ⓓ 0.5 m long.
- 1 balanced flue bend 87° and 1 support bend 87°
  or
- 2 balanced flue bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- 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: 1.5 m

### Vitoladens in conjunction with solid fuel boilers

See page 12.

### Flue, flexible, system size 60/100 and 80/125 (components) (type $C_{63x}$ to TRÖI 2009)




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

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

***Note***
*Install the flexible flue with a maximum offset of 45° from the vertical.*

**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length for system size 60/100 | m | 16 | 9 |
| Max. length for system size 80/125 | m | 7 | 11 |

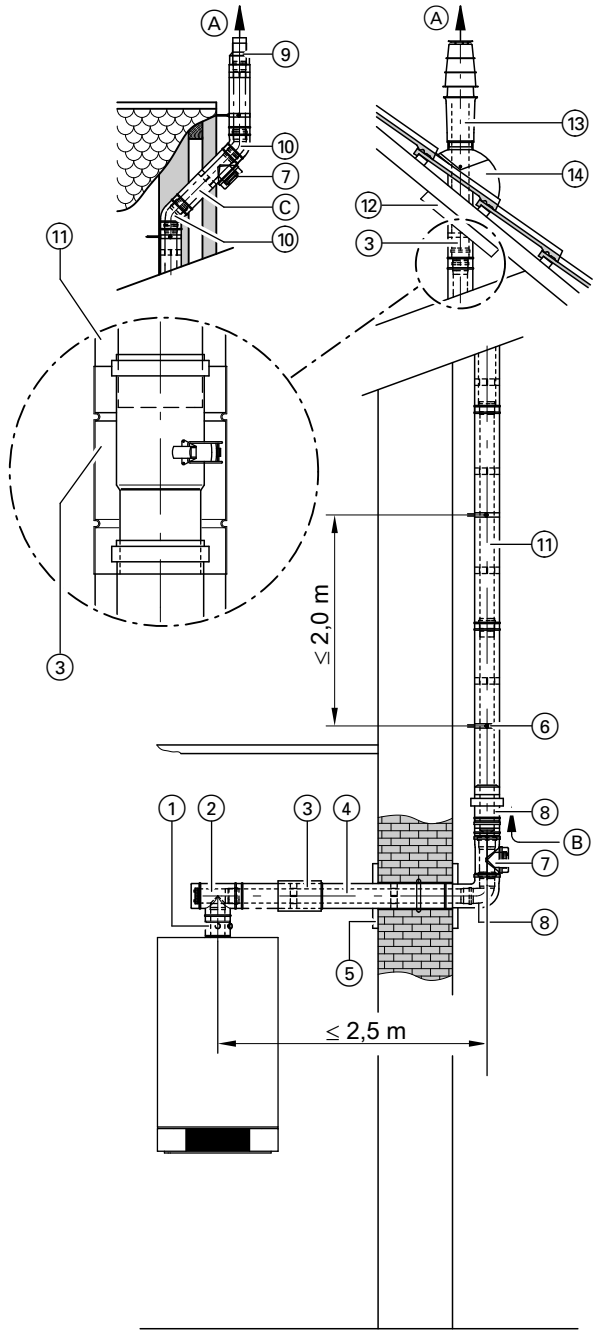
The following components are taken into consideration for the maximum flue lengths:
- Balanced flue connection pipe Ⓓ 0.5 m long.
- 1 balanced flue bend 87° and 1 support bend 87°
  or
- 2 balanced flue bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- 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: 1.5 m

## 3.2 Plastic (PPs) balanced flue system for routing flues over an external wall (type $C_{53x}$ to TRÖI 2009)

The Vitoladens may also be connected, without 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 outer pipe acts as protection and as thermal insulation thanks to its static air gap.
Internal flue diameter: Ø 60 or 80 mm
Internal diameter, external pipe: Ø 100 or 125 mm

Various routing options are available subject to the length of pipe protruding above the roof.
The flue for routing over external walls has been tested as a concentric balanced flue system as a single technical unit with the Vitoladens condensing boiler.
A performance verification according to EN 13384 is **not** required.




| | | System size Ø mm | |
|---|---|---|---|
| ① | **Boiler flue connection** (part of the standard boiler delivery)<br>and<br>**Balanced flue adaptor**<br>Ø 80/125 mm to Ø 60/100 mm | 60/100<br><br>60 | 80/125 |
| ② | **Balanced flue inspection bend** 87° (1 pce)<br>or<br>**Balanced flue inspection piece**, straight (1 pce)<br>and<br>**Balanced flue bend** 87° (1 pce)<br>**Balanced flue bend** 45° (2 pce) | 60<br><br>60<br><br>60<br>60 | 80<br><br>80<br><br>80<br>80 |
| ③ | **Balanced flue slide coupling** | 60 | 80 |
| ④ | **Balanced flue pipe**<br>1.95 m long<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 60 | 80 |
| ⑤ | **Wall bezel** (Ø 125 mm) | 60 | 80 |
| ⑥ | **Fixing clamp**, white (1 pce) | 60 | 80 |
| ⑦ | **External wall pack**<br>Comprising:<br>– Balanced flue bend<br>– Air inlet piece<br>– Wall bezel | 60 | 80 |
| ⑧ | **External wall terminal** (with low protrusion above the roof) | 60 | 80 |
| ⑨ | **Universal cover plate** | 60 | 80 |
| ⑩ | **Balanced flue roof outlet**<br>(For a large roof overhang)<br>Colour: black or terracotta | 60 | 80 |
| ⑪ | **Universal roof tile**<br>Colour: black or terracotta<br>or<br>**Pipe outlet for Klöber roof tiles**<br>For Roman tiles, pantiles, plain tiles, slate and other types of roof<br>Colour: black or terracotta<br>(provide the corresponding Klöber tile on site to match the roof outlet selected for the particular type of roof) | | |

Ⓐ Flue gas
Ⓑ Ventilation air
Ⓒ Elbow in the external wall flue, see page 42

**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length for system size 60/100 | m | 18 | 9 |
| Max. length for system size 80/125 | m | 14 | 19 |

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

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1.5 m

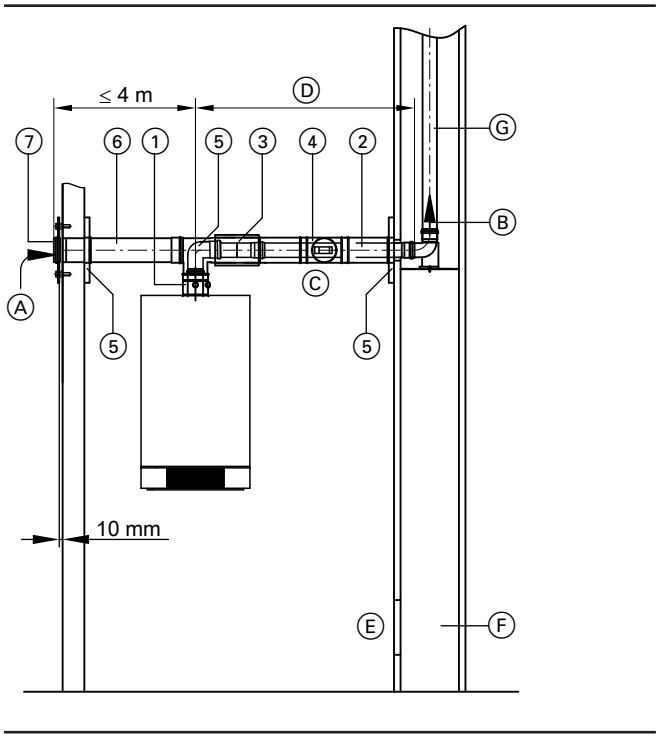
## 3.3 Plastic (PPs) flue gas/ventilation air system for separate ventilation air and flue gas routing (type $C_{83x}$ to TRÖl 2009)

The Vitoladens may be operated with separately routed flue gas and ventilation air in **balanced** flue mode, 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 pipe.
**Observe the design information to TRÖl 2009, point 5.6.**
Internal flue diameter: Ø 60 or 80 mm
Internal diameter, external pipe: Ø 100 or 125 mm
Internal diameter, ventilation air pipe: Ø 125 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 for checking and cleaning the flue pipe.
As part of the CE approval test, it was verified that no surface temperatures on the Vitoladens or its balanced flue system will exceed 85 °C.
The flue system for separate ventilation air and flue gas routing has been tested as a single technical unit with the Vitoladens condensing boiler.
A performance verification according to EN 13384 for the ventilation air side and the connection pieces is **not** required.




Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Ventilation aperture
Ⓕ Shaft L90 or L30
Ⓖ Flue

| | | System size Ø mm | |
|---|---|---|---|
| ① | **Boiler flue connection** (part of the standard boiler delivery)<br>and<br>**Balanced flue adaptor**<br>Ø 80/125 mm to Ø 60/100 mm | 60/100<br><br>60 | 80/125 |
| ② | **Balanced flue pipe**<br>1 m long<br>0.5 m long | 60 | 80 |
| | **Balanced flue bend**<br>87° (1 pce)<br>45° (2 pce) | 60 | 80 |
| ③ | **Balanced flue slide coupling** | 60 | 80 |
| ④ | **Balanced flue inspection piece**, straight (1 pce) | 60 | 80 |
| ⑤ | **Balanced flue tee C 8** with wall bezels | 60 | 80 |
| ⑥ | **Ventilation air pipe** Ø 100 mm<br>1 m long (may be trimmed to size)<br>0.5 m long (may be trimmed to size)<br>**Ventilation air bend** Ø 100 mm<br>87° (1 pce)<br>45° (2 pce) | | |
| ⑦ | **Ventilation air damper** | | |
| | **Fixing clamp**, white (1 pce) (balanced flue pipe) | 60 | 80 |

***Note***
*Where the flue pipe is routed through an existing chimney or shaft (not moisture-resistant), use flue pipe components according to page 26.*

**Max. total length of the flue up to the boiler flue connection**

| Rated heating output at system temperature 50/30 °C | kW | 12.9/19.3 | 16.1/23.5 |
|---|---|---|---|
| Max. length for system size 60/100 | m | 18 | 9 |
| Max. length for system size 80/125 | m | 23 | 23 |

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

## 3.4 Plastic (PPs) balanced flue system for vertical routing through a pitched or flat roof (type $C_{33x}$ to TRÖI 2009)

### For vertical roof outlet

Use the vertical roof outlet only in single storey buildings.
If the balanced flue system is routed through roof spaces that are not used as accommodation, run the balanced flue pipe through an additional metal pipe as protection against mechanical damage (TRÖI 2009, point 5.6.1.2).
It may 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 around the roof outlet are **not** required.
As part of the CE approval test, it was verified that no surface temperatures on the Vitoladens or its balanced flue system will exceed 85 °C.

Internal flue diameter: Ø 60 or 80 mm
Internal diameter, ventilation air pipe: Ø 100 or 125 mm
Max. number of 45° bends: 2 pce
If the number of bends differs, for each 45° bend, deduct or add 0.3 m from/to the maximum extended pipe length.
Install an inspection port for checking and cleaning the flue pipe inside the installation room.
The vertical roof outlet has been tested as a concentric balanced flue system as a single technical unit with the Vitoladens condensing boiler.
A performance verification according to EN 13384 is **not** required.



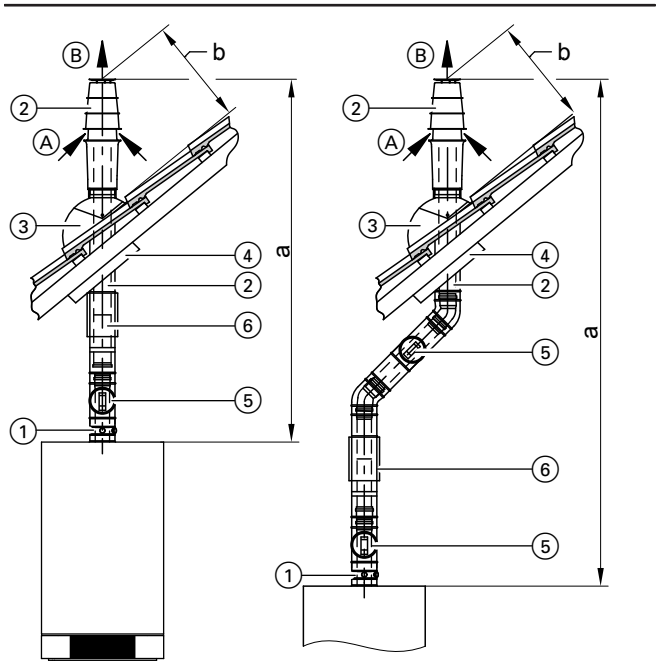
### Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guidelines (see page 49). Push the roof outlet into the roof from above and position it on the flat roof collar.

***Note***
*The ceiling opening should have a diameter of at least 130 mm. Secure the roof outlet on site with a clamp only after the installation has been completed.*

If installing several vertical roof outlets adjacent to each other, maintain minimum clearances of 1.5 m between each outlet and from other components in accordance with local regulations.

5822 452 GB




Ⓐ Ventilation air
Ⓑ Flue gas

| | | System size Ø mm | |
|---|---|---|---|
| ① | **Boiler flue connection** (part of the standard boiler delivery)<br>and<br>**Balanced flue adaptor**<br>Ø 80/125 mm to Ø 60/100 mm | 60/100<br><br><br>60 | 80/125 |
| ② | **Balanced flue roof outlet** with fixing clamp<br>Up to 4 m total flue pipe length<br>– Colour: black<br>– Colour: terracotta<br>From 4 m total flue pipe length<br>– Colour: black<br>– Colour: terracotta | <br><br>–<br>–<br><br>60<br>60 | <br><br>80<br>80<br><br>80<br>80 |
| | **Above roof extension** with clamp (brace on site)<br>Colour: black<br>0.5 m long<br>1 m long, with bracing clamp<br>Colour: terracotta<br>0.5 m long<br>1 m long, with bracing clamp | <br><br>60<br>60<br><br>60<br>60 | <br><br>80<br>80<br><br>80<br>80 |
| ③ | **Universal roof tile**<br>Colour: black or terracotta<br>or<br>**Flat roof collar**<br>**or**<br>**Pipe outlet for Klöber roof tiles**<br>Colour: black or terracotta (provide the corresponding Klöber tile on site to match the roof outlet selected for the particular type of roof) | | |
| ④ | **Universal cover plate** | 60 | 80 |
| ⑤ | **Balanced flue inspection piece**, straight (1 pce) | 60 | 80 |
| ⑥ | **Balanced flue slide coupling** | 60 | 80 |
| | **Balanced flue bend**<br>87° (1 pce)<br>45° (2 pce) | 60 | 80 |
| | **Balanced flue pipe**<br>1 m long<br>0.5 m long | 60 | 80 |
| | **Fixing clamp**, white (1 pce) | 60 | 80 |

**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length a for system size 60/100 | m | 15 | 9 |
| Max. length a for system size 80/125 | m | 7 | 11 |
| b (min.) | mm | 400 | 400 |

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

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Balanced flue bends 45°: 0.5 m
- Balanced flue bends 87°: 1 m
- Balanced flue inspection tee: 1.5 m

***Note***
*Separate above-roof extensions are available (see table) if the length of 400 mm above the roof line and vertical to the roof surface is insufficient because of specific requirements.*
*Approval is ensured as part of the flue system.*

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

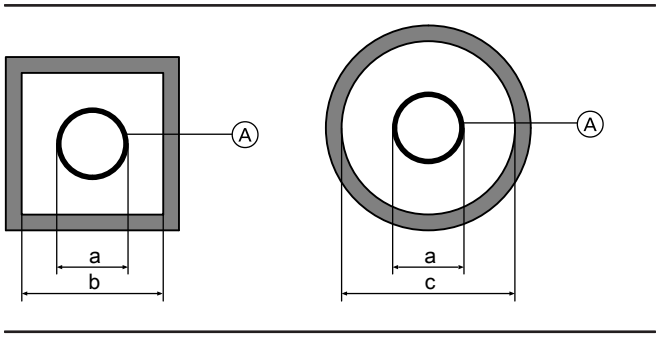
See page 18.

## 3.6 Plastic (PPs) flue pipe for routing through a shaft with open flue operation (type B to TRÖI 2009)

**Open** flue operation requires a flue pipe as the connection piece between the Vitoladens and the shaft as well as for the routing through the shaft.
**The installation room must provide a ventilation air aperture with an unrestricted cross-section of at least 150 cm² or 2 × 75 cm².**
Internal flue diameter: Ø 60 or 80 mm
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 installation through shafts or channels with longitudinal ventilation meeting the requirements for domestic chimney stacks to DIN V 18160-1, or with a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2.
Prior to installation, the flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits (in particular sulphur and soot deposits) must not remain on the inside of the chimney.
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 corbelled (check with mirrors).
If it is corbelled, we recommend the installation of a flexible flue pipe (see page 36).
The local flue gas inspector should check the 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 draining of the condensate from the flue pipe **to the boiler** with a **fall of at least 3°.**
Route the flue system to above the roof (observe the roof protrusion parallel to the roof inclination according to local regulations).
Alternative flue pipes with Building Regulation approval may be used, for example, if a larger pipe diameter is required because of greater flue length. In that case, the performance verification to EN 13384 should be provided by the relevant flue pipe manufacturer.



### Internal shaft dimensions



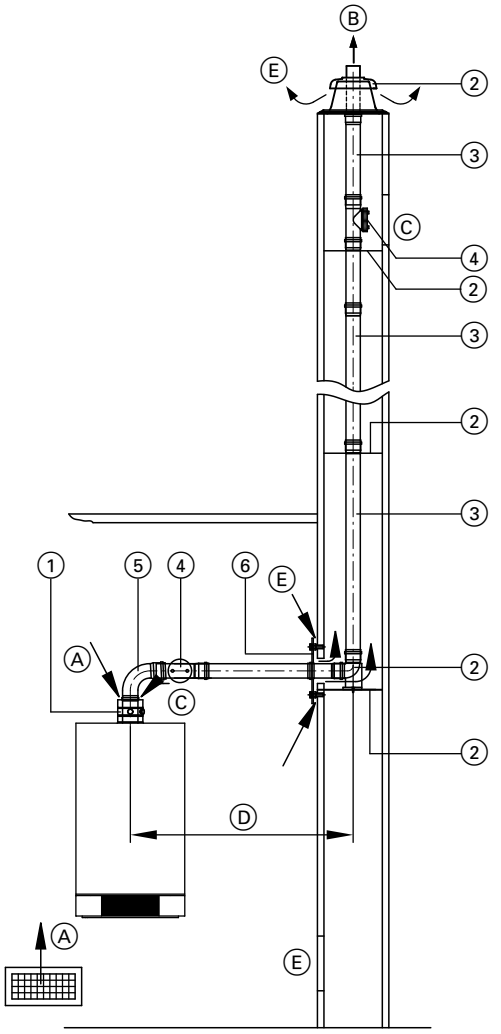

**Minimum shaft dimensions to DIN V 18160**

| System size Ⓐ | External diameter; female connection a<br>Ø mm | Minimum internal shaft dimension<br>b<br>square or rectangular (short side)<br>mm | <br>c<br>round<br>Ø mm |
|---|---|---|---|
| 60 | 73 | 113 | 133 |
| 60 (flexible) | 64 | 104 | 124 |
| 80 | 94 | 135 | 155 |
| 80 (flexible) | 100 | 140 | 160 |

Max. number of bends
- 87°: 3 pce
  or
- 45°: 3 pce
  or
- 30°: 4 pce
  or
- 15°: 4 pce

The annular gap must be at least 3 cm wide at the shaft inlet.

### Flue, system size 60 and 80 (components) (type $B_{23}$ to TRÖI 2009)




Ⓐ Ventilation air
Ventilation air aperture, min. 150 cm² or 2 × 75 cm²
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Secondary ventilation

| | | System size Ø mm | |
|---|---|---|---|
| ① | **Boiler flue connection** (part of the standard boiler delivery)<br>and<br>**Balanced flue adaptor**<br>Ø 80/125 mm to Ø 60/100 mm | 60/100<br><br>60 | 80/125 |
| ② | **Standard shaft pack (PPs, rigid)**<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (PPs)<br>– Spacers (5 pce, max. distance 5 m)<br>or<br>**Standard shaft pack (metal/PPs, rigid)**<br>For twin flue chimneys; one flue for solid fuel boilers<br>Comprising:<br>– Support bend<br>– Support rail<br>– Shaft cover (metal)<br>– Terminal pipe (stainless steel)<br>– Spacers (5 pce, max. distance 5 m) | 60<br><br><br><br><br><br>60 | 80<br><br><br><br><br><br>80 |
| | **Spacers** (3 pce, max. distance 5 m) | 60 | 80 |
| ③ | **Pipe**<br>1.95 m long (2 pce @ 1.95 m = 3.9 m)<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) | 60 | 80 |
| ④ | **Inspection piece**, straight (1 pce) | 60 | 80 |
| ⑤ | **Bend**<br>87° (1 pce)<br>45° (2 pce) | 60 | 80 |
| ⑥ | **Ventilation bezel** (1 pce) | 60 | 80 |
| | **Flue bend** (for use in corbelled chimneys)<br>30° (2 pce)<br>15° (2 pce) | 60 | 80 |
| | **Inspection tee**<br>87° (1 pce) | 60 | 80 |
| | **Balanced flue air inlet adaptor**<br>Ø 80/125 mm<br>For installing the boiler with a balanced flue pipe up to the shaft inlet in an installation room where the combustion air is supplied via interconnected rooms | 60 | 80 |
| | **Stainless steel extension**<br>(Metal/PPs, rigid)<br>380 mm long for shaft cover, metal/PPs, rigid | 60 | 80 |

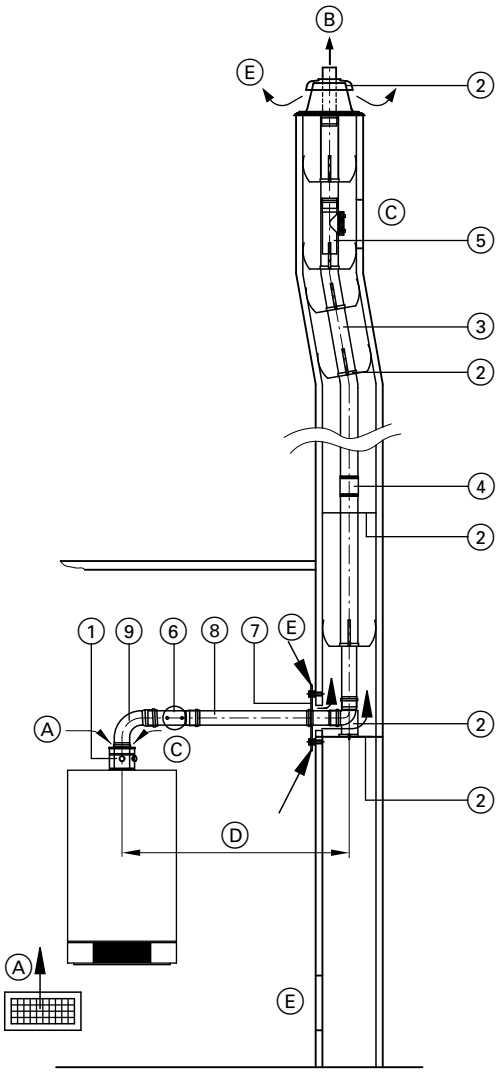
**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length for system size 60/100 | m | 16 | 9 |
| Max. length for system size 80/125 | m | 23 | 23 |

The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

### Flue, flexible, system size 60 and 80 (components) (type $B_{23x}$ to TRÖl 2009)




Ⓐ Ventilation air
Ventilation air aperture, min. 150 cm² or 2 × 75 cm²
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Secondary ventilation

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

***Note***
*Install the flexible flue with a maximum offset of 45° from the vertical.*

**Max. total length of the flue up to the boiler flue connection**

| **Rated heating output at system temperature 50/30 °C** | **kW** | **12.9/19.3** | **16.1/23.5** |
|---|---|---|---|
| Max. length for system size 60/100 | m | 15 | 9 |
| Max. length for system size 80/125 | m | 21 | 21 |

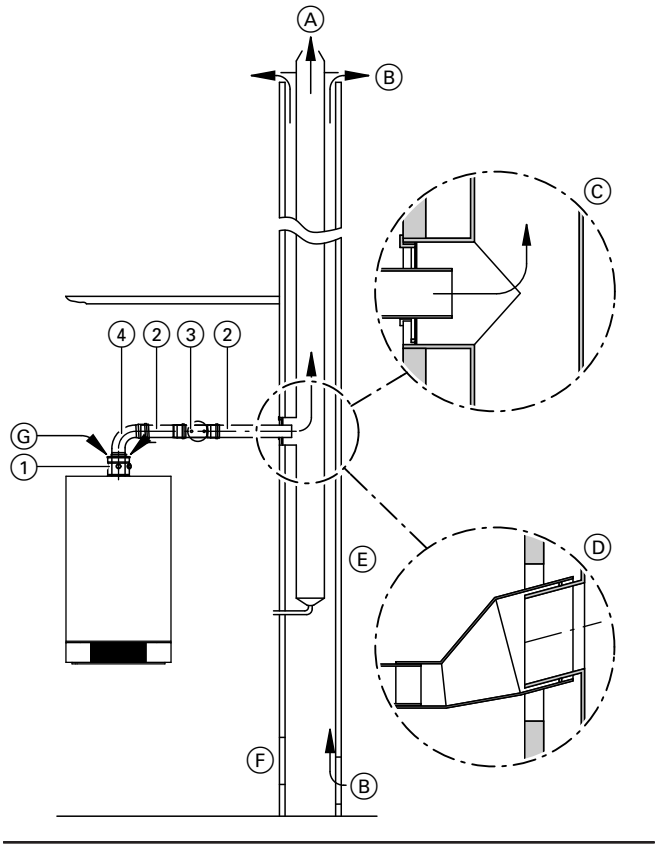
The following components are taken into consideration for the maximum flue lengths:
- Connection pipe Ⓓ 0.5 m long.
- 1 bend 87° and 1 support bend 87°
  or
- 2 bends 45° and 1 support bend 87°

Subtract other bends, tees and extension pieces from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

### Connection to a moisture-resistant chimney (MR chimney negative pressure) with a plastic (PPs) flue pipe (type $B_{23}$ to TRÖI 2009)

Vitoladens condensing boilers may be connected to **moisture-resistant chimney stacks** to EN 13384, if the chimney manufacturer can verify their suitability based on the specified flue gas values and in consideration of local conditions (e.g. heating water return temperature, design of the connection piece, etc.).

A flue pipe that is pressure sealed, moisture-resistant and approved by the building inspectorate should be used as the connection piece. The plastic (PPs) flue system offered as an accessory to the Vitoladens may be used for this purpose.
The adaptor from the flue pipe to the MR chimney must be purchased from the chimney manufacturer.




| | |
|---|---|
| ① | **Boiler flue connection** (part of the standard boiler delivery) |
| ② | **Flue pipe**<br>1.95 m long (1 pce)<br>1 m long (1 pce)<br>0.5 m long (1 pce) |
| ③ | **Inspection piece**, straight (1 pce) |
| ④ | **Flue bend**<br>87° (1 pce)<br>45° (2 pce) |
| | **Inspection tee**<br>87° (1 pce) |

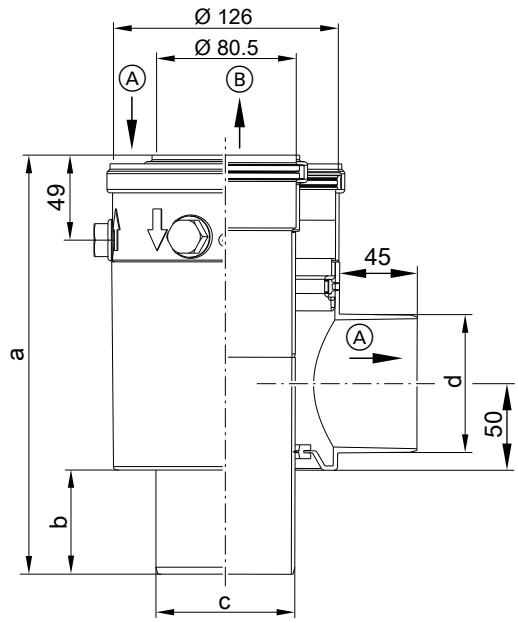
Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ For example: Plug-in adaptor by Schiedel
Ⓓ For example: Plug-in adaptor by Plewa
Ⓔ MR chimney
Ⓕ Inspection port
Ⓖ Ventilation air

## Components of the plastic flue systems

### Balanced flue components

**Boiler flue connection**
For balanced flue operation and coaxial balanced flue routing.

- Included in the standard delivery for the following boilers, subject to the type of order:
  – Vitoladens 300-C
  – Vitoladens 300-T
  – Vitorondens 200-T
  – Vitorondens 222-F

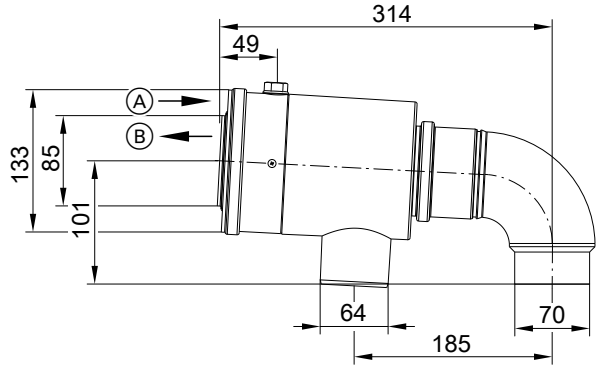



Ⓐ Ventilation air
Ⓑ Flue gas

| Boiler | Dimensions [mm] | | | |
|---|---|---|---|---|
| | a | b | c | d |
| Vitoladens 300-C | 241.5 | 60 | 80 | 80 |
| Vitoladens 300-T | 221.5 | 40 | 70 | 64.5 |
| Vitorondens 200-T | 221.5 | 40 | 70 | 64.5 |
| Vitorondens 222-F | 221.5 | 40 | 70 | 64.5 |

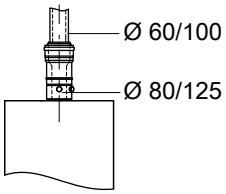
- For the Vitoladens 300-W and 333-F, the boiler flue connection is fitted to the boiler in the delivered condition.
  For flue system Ø 60/100 mm, the balanced flue adaptor (part no. 7373 239 ) must be ordered separately.

**Horizontal boiler flue connection**
For balanced flue operation and coaxial balanced flue routing. Installation only in connection with the flue gas silencer supplied with the boiler.
Subject to order, the following are included in the standard delivery of the Vitorondens 200-T up to 35 kW:
- Boiler flue connection
- Flue bend 87°
- Ventilation air hose

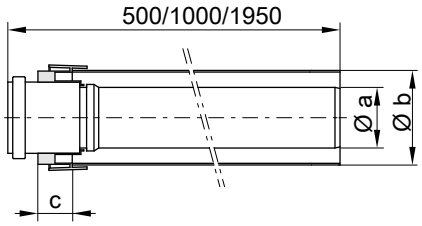



Ⓐ Ventilation air
Ⓑ Flue gas

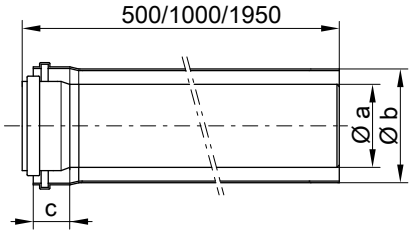
**Balanced flue adaptor**
For system size 80/125 to system size 60/100.




**Balanced flue pipe**
(these pipes may be trimmed as required)



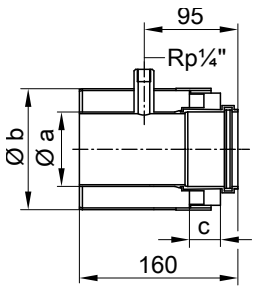

System size Ø 60 and 80 mm




System size Ø 100 mm

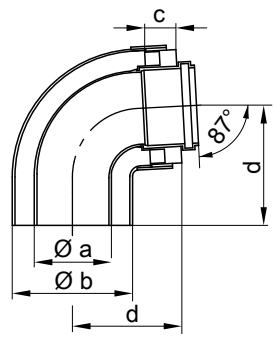
| System size Ø mm | Dimensions [mm] | | |
|---|---|---|---|
| | a | b | c |
| 60 | 60 | 100 | 40 |
| 80 | 80 | 125 | 40 |
| 100 | 110 | 150 | 40 |

**Balanced flue pipe**
With connection for a flue gas temperature sensor.

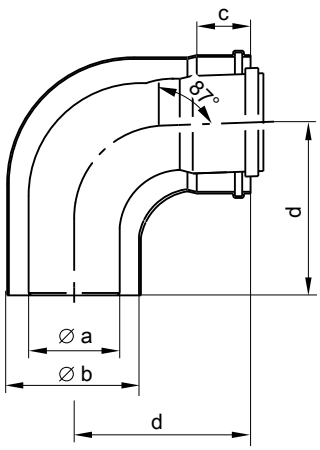



| System size Ø mm | Dimensions [mm] | | |
|---|---|---|---|
| | a | b | c |
| 60 | 60 | 100 | 40 |
| 80 | 80 | 125 | 40 |
| 100 | 110 | 150 | 40 |

**Balanced flue bend (87°)**



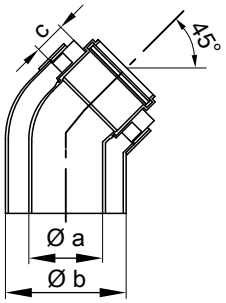

System size Ø 60 and 80 mm



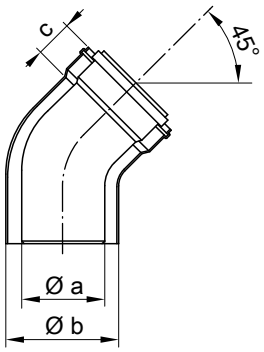

System size Ø 100 mm

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

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



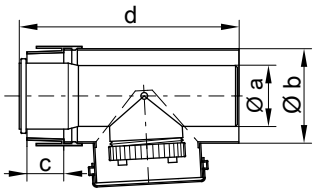

System size Ø 60 and 80 mm




System size Ø 100 mm

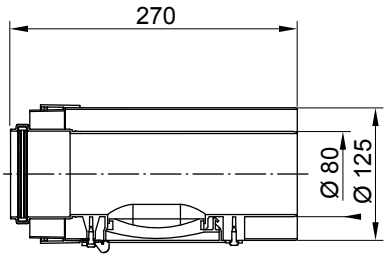
| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 60 | 60 | 100 | 40 |
| 80 | 80 | 125 | 40 |
| 100 | 110 | 150 | 40 |

**Balanced flue inspection piece (straight)**

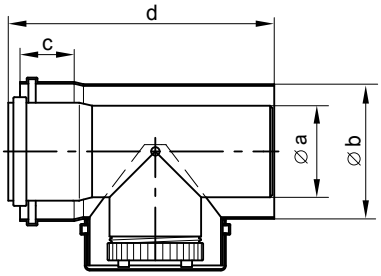



System size Ø 60 mm

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




System size Ø 60 and 80 mm

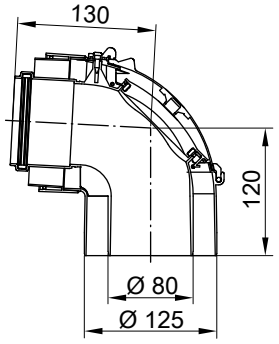



System size Ø 100 mm

## Components of the plastic flue systems (cont.)

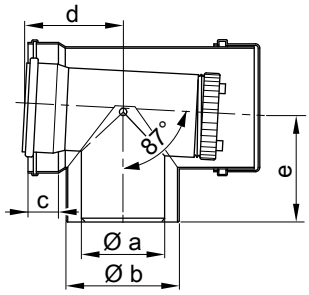
| System size Ø mm | Dimensions [mm] a | b | c | d |
|---|---|---|---|---|
| 100 | 110 | 150 | 40 | 270 |

**Balanced flue inspection bend (87º)**




System size Ø 60 and 80 mm

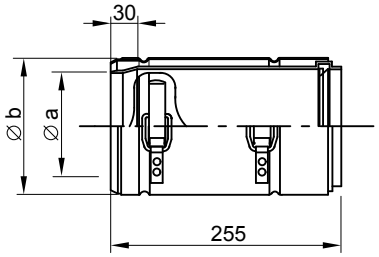
**Balanced flue inspection tee (87º)**




System size Ø 100 mm

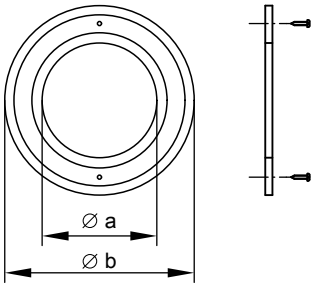
| System size Ø mm | Dimensions [mm] a | b | c | d | e |
|---|---|---|---|---|---|
| 100 | 110 | 150 | 40 | 130 | 140 |

**Balanced flue slide coupling**



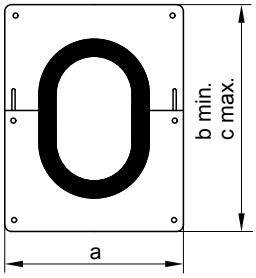

| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 60 | 100 |
| 80 | 80 | 125 |
| 100 | 110 | 150 |

**Balanced flue wall bezel**



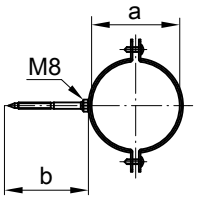

| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 102 | 194 |
| 80 | 130 | 230 |
| 100 | 152 | 230 |

**Universal cover plate**




| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 60 | 250 | 246 | 310 |
| 80 | 250 | 246 | 310 |
| 100 | 280 | 280 | 350 |

**Fixing clamp**
For routing over internal or external walls, white.

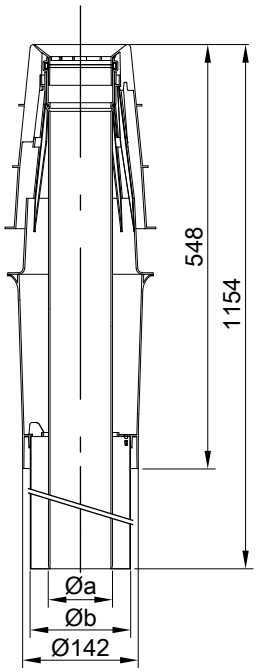



| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 100 | 100 |
| 80 | 125 | 100 |
| 100 | 150 | 100 |

**Balanced flue roof outlet**
With fixing clamp

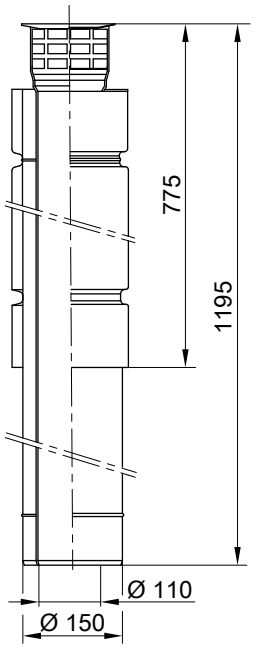
4

5822 452 GB



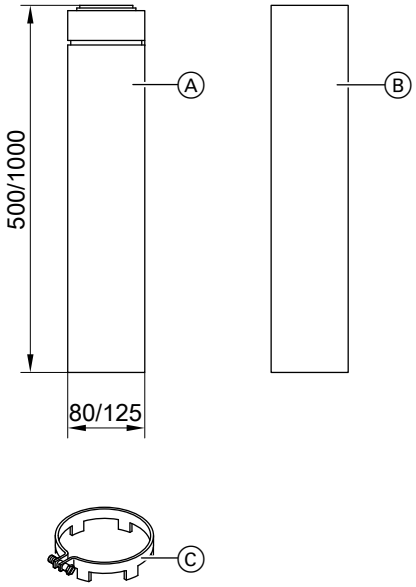

System size Ø 60 and 80 mm

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



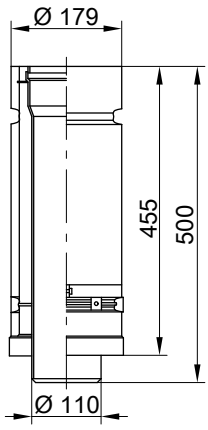

System size Ø 100 mm

**Above roof extension**



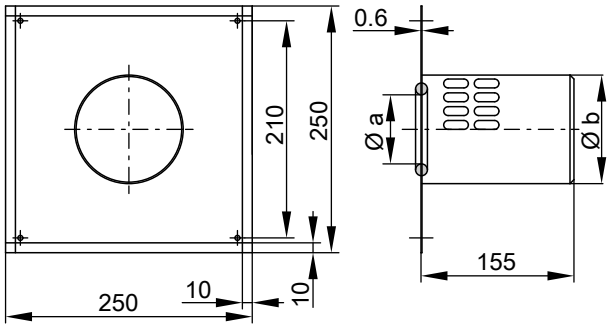

System size Ø 80 mm

Ⓐ Above roof extension
Ⓑ Casing pipe
Ⓒ Bracing clamp




System size Ø 100 mm

**Balanced flue air inlet adaptor**




4

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

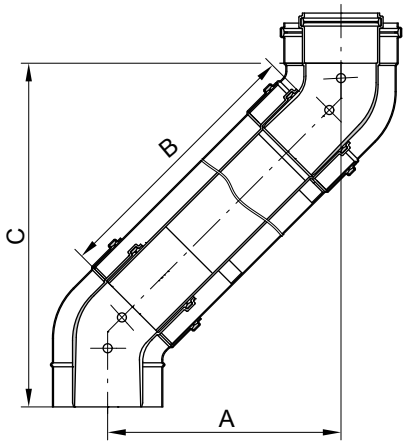
**Elbow in the balanced flue pipe**

Smallest offset A (2 x 45° balanced flue bend):
- 74 mm for system size Ø 60 mm (C = 174 mm)
- 93 mm for system size Ø 80 mm (C = 223 mm)
- 140 mm for system size Ø 100 mm (C = 328 mm):

Push two 45° balanced flue bends into each other and into the balanced flue.

Offset:
- In excess of 74 mm for system size Ø 60 mm
- In excess of 93 mm for system size Ø 80 mm
- In excess of 140 mm for system size Ø 100 mm:

Subject to the offset (dimension A) between both 45° bends, insert a balanced flue extension (dimension B).




**System size Ø 60 mm**

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

**System size Ø 80 mm**

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

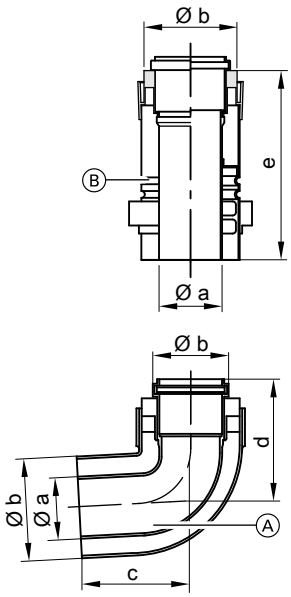
**System size Ø 100 mm**

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

### Components for external wall installation

***Note***
*For system size 60/100 and 80/125: For a flue routed over an external wall, suitable bends and inspection pieces, the corresponding balanced flue components are used (see page 37).*

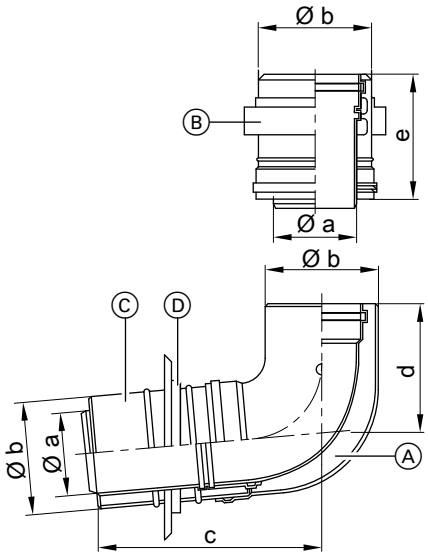
**External wall pack**




System size Ø 60 and 80 mm

Ⓐ External wall bend
Ⓑ Air inlet piece

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

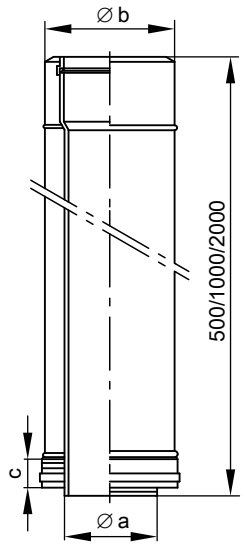



System size Ø 100 mm

Ⓐ External wall bend
Ⓑ Air inlet piece
Ⓒ Twin female connection
Ⓓ Wall bezel

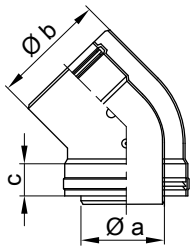
| System size Ø mm | Dimensions [mm] a | b | c | d | e |
|---|---|---|---|---|---|
| 100 | 110 | 150 | 295 | 170 | 165 |

**External wall pipe**



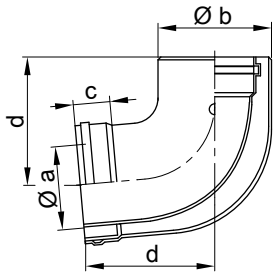

| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 100 | 110 | 150 | 40 |

**Balanced flue bend (45°)**




| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 100 | 110 | 150 | 40 |

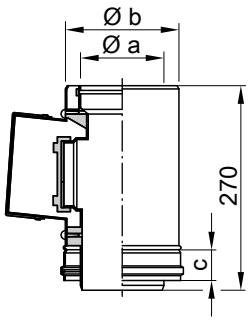
**Balanced flue bend (87°)**



## Components of the plastic flue systems (cont.)

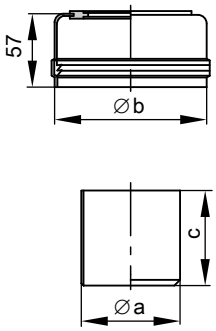
| System size Ø mm | Dimensions [mm] a | b | c | d |
|---|---|---|---|---|
| 100 | 110 | 150 | 40 | 170 |

**External wall inspection piece**




| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 100 | 110 | 150 | 40 |

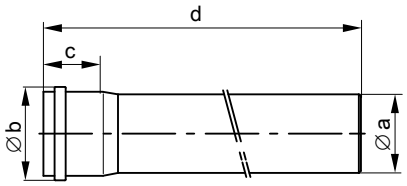
**External wall end piece**




| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 100 | 110 | 152 | 85 |

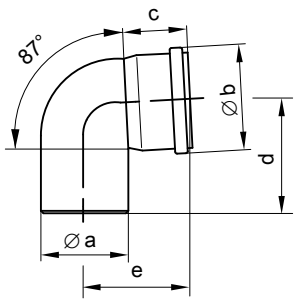
## Single pipe system components

**Flue pipe**
(These pipes may be trimmed as required)



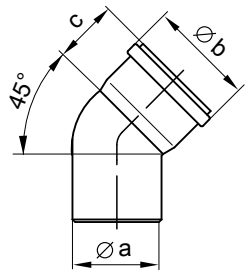

| System size Ø mm | Dimensions [mm] a | b | c | d |
|---|---|---|---|---|
| 60 | 60 | 73 | 58 | 500/1000/1950 |
| 80 | 80 | 94 | 57 | 500/1000/1950 |
| 100 | 110 | 128 | 72 | 500/1000/2000 |

**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 |
| 100 | 110 | 128 | 72 | 130 | 130 |

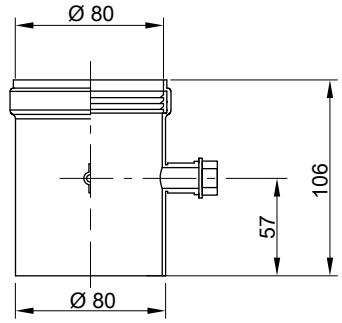
**Flue bend (45°)**
Standard pack 2 pce




| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 60 | 60 | 73 | 55 |
| 80 | 80 | 94 | 60 |
| 100 | 110 | 128 | 72 |

**Boiler flue connection**

- For the Vitoladens 300-C and 300-T, subject to order part of the standard delivery of the boiler.




- For the Vitoladens 300-W and 333-F, the boiler flue connection is fitted to the boiler in the delivered condition.
  For flue system Ø 60/100 mm, the balanced flue adaptor (part no. 7373 239 ) must be ordered separately.

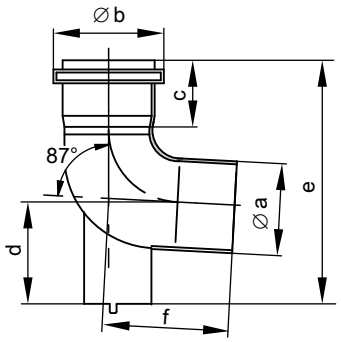
For open or balanced flue operation and parallel balanced flue routing.

5822 452 GB

## Components of the plastic flue systems (cont.)

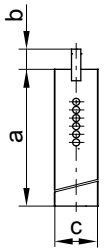
**Standard shaft pack**
Comprising support bends, support rail, shaft cover and spacer.

**Support bend**



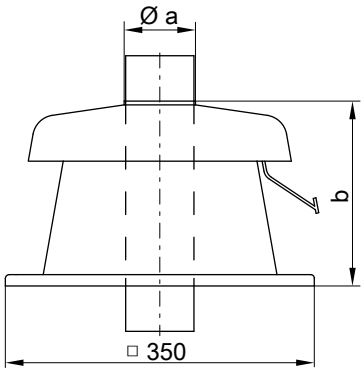

| System size Ø mm | Dimensions [mm] a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| 60 | 60 | 73 | 55 | 60 | 180 | 110 |
| 80 | 80 | 94 | 60 | 80 | 210 | 120 |
| 100 | 110 | 128 | 72 | 112 | 245 | 120 |

**Support rail**



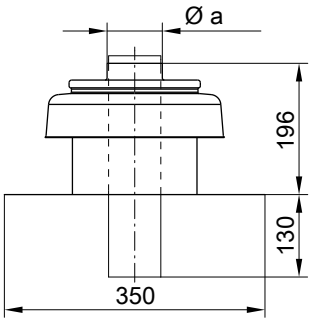

| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 60 | 350 | 50 | 50 |
| 80 | 350 | 50 | 50 |
| 100 | 350 | 50 | 50 |

**Shaft cover, PPs**
(Fixing material is part of the standard delivery)



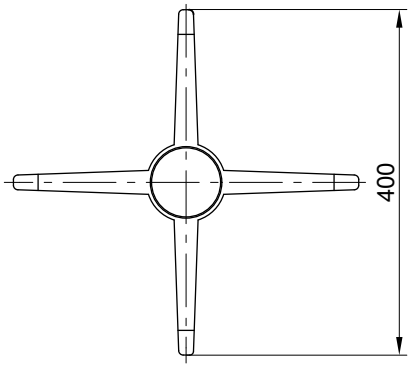

| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 60 | 198 |
| 80 | 80 | 229 |
| 100 | 111 | 201 |

**Metal shaft cover**
(Fixing material is part of the standard delivery)

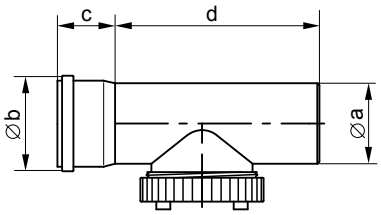



| System size Ø mm | Dimensions [mm] a |
|---|---|
| 80 | 80 |
| 100 | 110 |

**Spacers**
Standard pack 3 pce (applicable to internal shaft dimensions 130 × 130 mm to 250 × 250 mm or Ø 150 mm to Ø 300 mm)



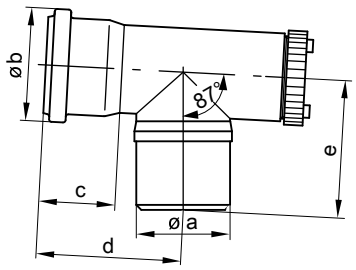

**Inspection piece (straight)**




| System size Ø mm | Dimensions [mm] a | b | c | d |
|---|---|---|---|---|
| 60 | 60 | 73 | 55 | 195 |
| 80 | 80 | 94 | 60 | 210 |
| 100 | 110 | 128 | 72 | 201 |

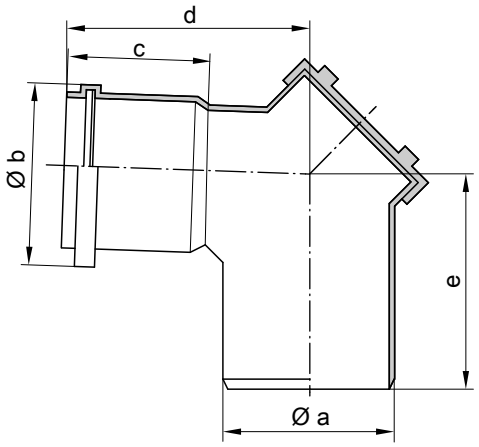
## Components of the plastic flue systems (cont.)

**Inspection tee**



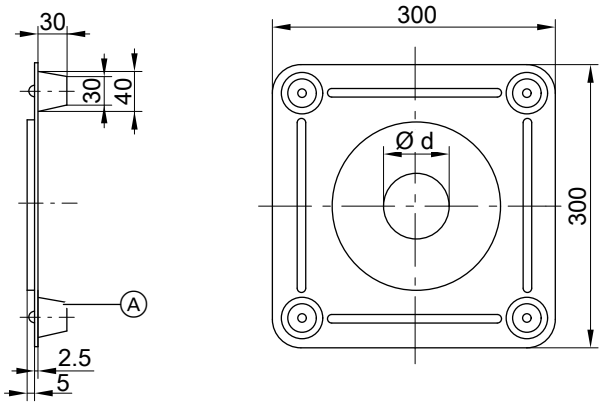

| System size Ø mm | Dimensions [mm] a | b | c | d | e |
|---|---|---|---|---|---|
| 60 | 60 | 73 | 55 | 130 | 100 |
| 80 | 80 | 94 | 60 | 142 | 130 |

**Inspection bend**




| System size Ø mm | Dimensions [mm] a | b | c | d | e |
|---|---|---|---|---|---|
| 100 | 110 | 128 | 72 | 143 | 142 |

**Vent bezel**

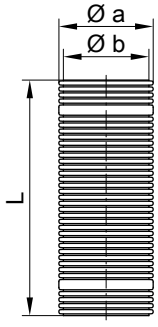



Ⓐ Spacers

| System size Ø mm | Dimensions [mm] a |
|---|---|
| 80 | 80 |
| 100 | 110 |

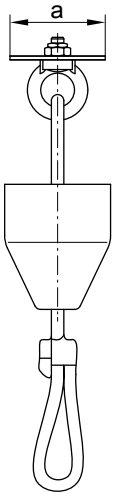
## Components of the flexible single pipe system for a flexible flue

**Flue pipe, flexible**
Standard pack (length L) 12.5 or 25 m on a roll




| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 58 | 50 |
| 80 | 88 | 77 |
| 100 | 113 | 101 |

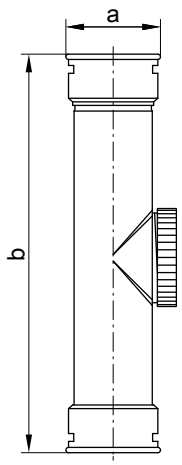
**Pipe lowering attachment**
With 25 m rope.



## Components of the plastic flue systems (cont.)

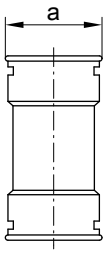
| System size Ø mm | Dimensions [mm] a |
|---|---|
| 60 | 56 |
| 80 | 88 |
| 100 | 111 |

**Inspection piece (straight)**



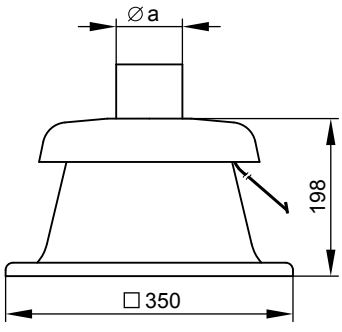

| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 72 | 310 |
| 80 | 102 | 325 |
| 100 | 127 | 326 |

**Connection piece**



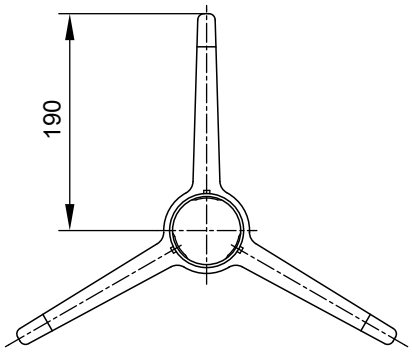

| System size Ø mm | Dimensions [mm] a | b |
|---|---|---|
| 60 | 72 | 140 |
| 80 | 102 | 140 |
| 100 | 127 | 140 |

**Shaft cover**
With end piece

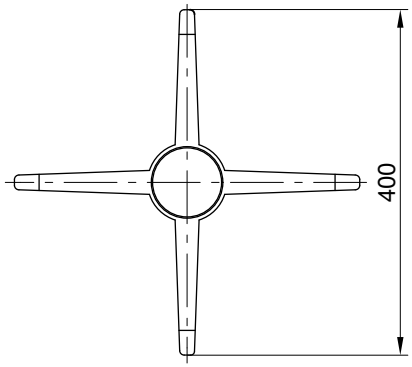



| System size Ø mm | Dimensions [mm] a |
|---|---|
| 60 | 60 |
| 80 | 80 |
| 100 | 110 |

**Spacers**
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

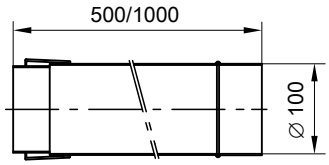



System size Ø 80 and 100 mm

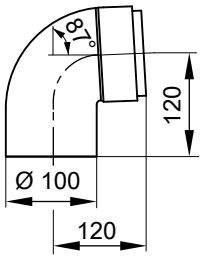
4

### Components for separate ventilation air and flue gas routing — Vitoladens 300-W and 333-F

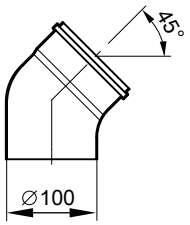
**Ventilation air pipe**
These pipes may be trimmed as required.



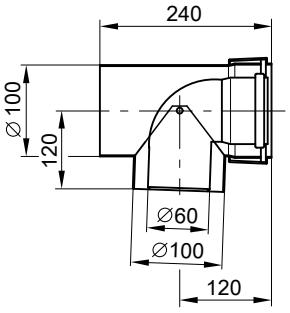

**Ventilation air bend (87º)**




**Ventilation air bend (45º)**
Standard pack 2 pce

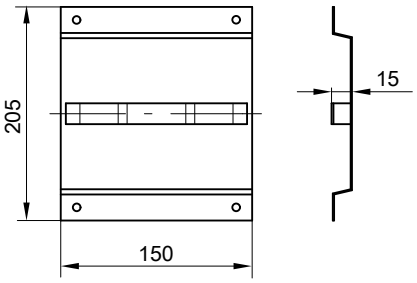



**Balanced flue tee C 8**



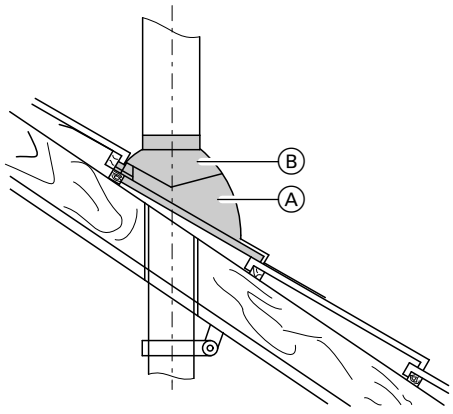

System size Ø 60 mm

**Ventilation air damper**

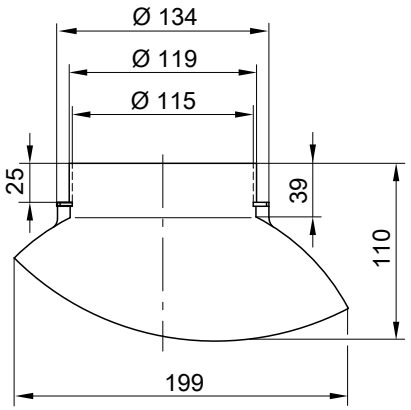



### Roof elements

**Universal roof tile**
Suitable for roof pitches of 25 to 45°.



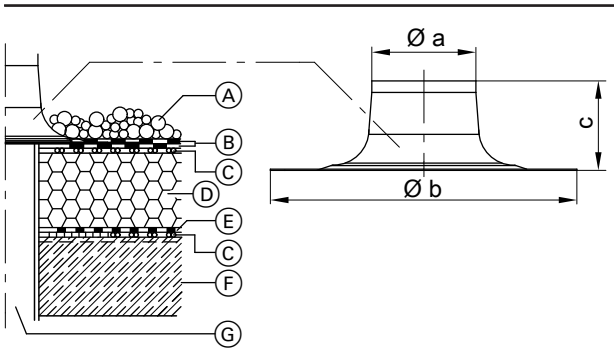

**Pipe outlet for Klöber roof tiles**
Suitable for roof pitches of 20 to 50°.




Ⓐ Universal roof tile
Ⓑ Pipe outlet for universal roof tile

## Components of the plastic flue systems (cont.)

**Flat roof collar**




Ⓐ Gravel ballast layer
Ⓑ Insulation layer
Ⓒ Aeration layer
Ⓓ Thermal insulation
Ⓔ Insulation
Ⓕ Ceiling
Ⓖ Vertical coaxial roof outlet

| System size Ø mm | Dimensions [mm] a | b | c |
|---|---|---|---|
| 60 | 135 | 390 | 250 |
| 80 | 135 | 390 | 250 |
| 100 | 170 | 470 | 250 |

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## Keyword index



5822 452 GB

Subject to technical modifications.

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