VIESMANN

VITOLADENS, VITORONDENS

Flue systems for oil condensing boilers

Technical guide

Vitorondens 200-T

Vitoladens 300-C

Vitoladens and Vitorondens flue systems

Vitoladens 300-C
Vitoladens 300-T
Vitorondens 200-T

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Flue systems

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The following requirements regarding design and installation apply to flue systems for condensing combustion equipment:
Prior to starting work on the flue system, your heating contractor should confer with the responsible flue gas inspector [where applicable].

Combustion equipment must be connected to the domestic chimney on the same floor as where 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 **room sealed operation** are TÜV tested with the Vitoladens and Vitorondens as the **structural unit**:
- 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 flues to EN 13384 is required in individual cases
- According to the [German] State Building Regulations, some authorities (e.g. North Rhine-Westphalia) waive the requirement for a tightness test by the flue gas inspector during commissioning [check local regulations]
- A simplified visual inspection by your local flue gas inspector is planned in the future at 2-year intervals
- No additional approval certificate by the flue pipe manufacturer is required

The installation must have a ventilation air aperture of 150 cm^2 or 2 × 75 cm^2 to the outside (in line with FeuVO and CEN/TR 1749).
With the Vitoladens 300-C with rear-ventilated (coaxial) flue system, the ventilation air aperture to the outside is not necessary for room sealed operation.
The plain flue pipe must be type approved by the Deutsches Institut für Bautechnik (DIBt) [Germany] (**open flue operation**).
The flue available as an accessory is CE designated and approved in accordance with EN 14471.

System certification

System certification in accordance with the Gas Appliances Regulation (EU) 2016/426 in conjunction with flue pipes made from PPs by Skoberne:

- Vitoladens 300-C
  - Type BC3B: CE-2456BS104
  - Type J3RB: CE-2456CO106
- Vitoladens 300-T: CE-2456CO107
- Vitorondens 200-T: CE-2456CL102

1.2 Room sealed operation

Vitoladens and Vitorondens up to 53.7 kW can be used for **room sealed operation**.
The Vitorondens 200-T from 67.6 kW can only operate in open flue mode.
No ventilation aperture is required for the Vitoladens 300-C during room sealed operation, as these appliances belong to the appliance types C_{13X} (FR only), C_{33X}, C_{53X}, C_{63X}, C_{83X} and C_{93X}.
A ventilation aperture of at least 1x150 cm² or 2x75 cm² is necessary for using the Vitoladens 300-T and Vitorondens up to 53.7 kW in room sealed operation (in line with FeuVO and CEN/TR 1749).
These appliances belong to the appliance types C_{13} (FR only), C_{33}, C_{53}, C_{63}, C_{83} and C_{93}.
For balanced flue systems tested together with the boiler, some authorities (e.g. North Rhine-Westphalia) waive the requirement for a leak test (positive pressure test) by the flue gas inspector during commissioning and the verification of CE designation.
In this case, we recommend that the heating contractor carries out a simple leak test when commissioning the system. For this it would be sufficient to check the CO_2 concentration in the combustion air at the annular gap of the balanced flue pipe. The flue pipe is deemed to be gas-tight if the CO_2 concentration in the combustion air is no higher than 0.2 % or the O_2 concentration is at least 20.6 %. If higher CO_2 or lower O_2 values are measured, check the flue system for tightness.

In conjunction with the concentric coaxial pipe (balanced flue system), the surface temperature of the boiler and that of the balanced flue system do not exceed 85 °C at any point. Therefore, clearances to combustible components according to CEN/TR 1749 are **not** required.
The flue pipe should be straight and as short as possible. If bends are unavoidable, do not install them directly one after another. The entire flue gas path must be able to be checked and cleaned as required.

Use of external flue gas systems of category C_{63}

For type C_{63}, any approved flue system may be used. These flue systems are not tested together with the boilers and do not have system certification in accordance with the Gas Appliances Regulation (EU) 2016/426.

With type C_{63}, Viessmann boilers may only be operated with the types intended for the relevant products (e.g. C_{33}, C_{53}, C_{83} and C_{93}).
When used, the Viessmann specific specifications from the technical guides regarding the flue system must be observed and appliance-specific information (e.g. max. flue gas temperatures, draughts, mass flow rates and boiler flue connection tolerances) must be observed.

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At the terminal of the flue system, ensure that a maximum reverse flow of flue gas of 10 % is not exceeded, even when it is windy. Wind protection devices for the supply of combustion air and the discharge of flue gas must not be installed on opposite walls of the building. If aluminium flue pipes are used, a condensate trap must additionally be installed above the boiler flue connection to prevent impairments to the heat generator caused by aluminium residues in the condensate. Size the condensate trap in such a way that the condensate returned from the flue system completely bypasses the heat generator.
Install the connection pipes (horizontal routing) with a fall of at least 3° (approx. 50 mm/m) to the boiler. In addition, we recommend using fixing clamps spaced about 1 m apart to support/suspend the connection line.
The balanced flue system is CE designated and approved in accordance with EN 14471: See page 6.

When 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.
According to CEN/TR 1749, 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 flue gas/ventilation air is routed in a balanced flue pipe up to the chimney or shaft. The flue is then routed inside the chimney or shaft to above the roof.
Where no suitable shaft is available, the flue may be routed to the roof through a retrofitted shaft. For this shaft, a test certificate from the building inspectorate or a CE designation corresponding to the design of the shaft is required. In addition, the shaft must have a fire rating of L30 or L90. For appropriate shaft elements, see page 25.

1.3 Open flue operation (type B_{23})

Flue gas is routed through single wall plastic flue pipes (PPs). The flue system is EN 14471 CE designated and approved: See page 6.
Combustion air supply:
- Vitoladens 300-C: Via the annular gap between the flue and the ventilation pipe connection for the boiler flue connection on the Vitoladens. These devices are also approved for type B_{23P} appliances.
- Vitoladens 300-T, Vitorondens 200-T: Directly on the burner casing.

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

The connection piece to the chimney should be as short as possible. Therefore position the oil condensing boiler as close to the chimney as possible.
The flue should be designed to be as straight as possible. If bends are unavoidable, do not arrange these directly one after another. The entire flue gas path must be able to be checked and cleaned as required.
No special protective measures or clearances towards combustible objects, such as furniture, packaging or similar, need to be taken/observed. The surface temperatures of the boiler and the flue system do not exceed 85 °C at any point.

1.4 Fuel oil-resistant flue gaskets

In oil condensing boilers, unburned hydrocarbons in the flue gas condensate may give rise to swelling of the EPDM gaskets employed. In horizontal flue pipes, the black EPDM gaskets must be replaced by brown FKM gaskets according to DIN ISO 1629. See pricelist for appropriate gasket sets.

FPM gaskets must be used even when using flue systems from other manufacturers.

1.5 Flue gas temperature protection

The following Viessmann balanced flue systems for **room sealed operation** are system certified together with the Vitoladens or Vitorondens 200-T up to 53.7 kW:
- Separate ventilation air and flue gas routing
- External routing through a coaxial pipe

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

Measures 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.

1.6 Lightning protection

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

1.7 CE designation for PPs flue systems (rigid and flexible) for the Vitoladens

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

Notifizierte Stelle
Nr. 0036

TÜV SÜD
Industrie Service

Zertifikat der Konformität der werkseigenen Produktionskontrolle

0036 CPR 9184 001
Revision 07

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

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

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

Für Details der Kennzeichnung siehe Seite 2 des Zertifikates

hergestellt von

Skoberne GmbH
Ostendstraße 1
64319 Pfungstadt

im Herstellwerk

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

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

EN 14471:2013 + A1:2015

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

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

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

München, 2016-06-10

Johannes Steiglechner
Leiter Zertifizierungsstelle Bauprodukte (EG)

TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, 80686 MÜNCHEN

TÜV®

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Notifizierte Stelle
Nr. 0036

Seite 2 des Zertifikates Nr.

0036 CPR 9184 001
Rev. 07

Industrie Service

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

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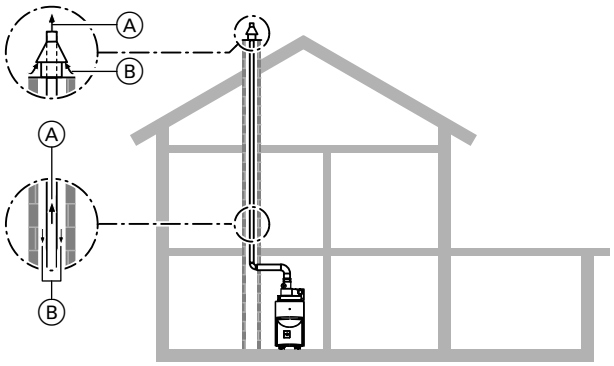
1.8 Flue system installation options for room sealed operation

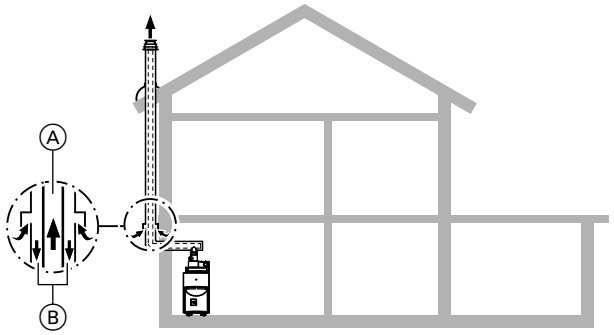
With the Vitoladens 300-C with rear-ventilated (coaxial) flue system, the ventilation air aperture to the outside is not necessary for room sealed operation. For all other heat generators, a ventilation aperture of at least 1x150 cm² or 2x75 cm² is required in the installation room (in line with FeuVO and CEN/TR 1749).

In an installation room with one or more full floors above



Ⓐ Flue gas
Ⓑ Ventilation air

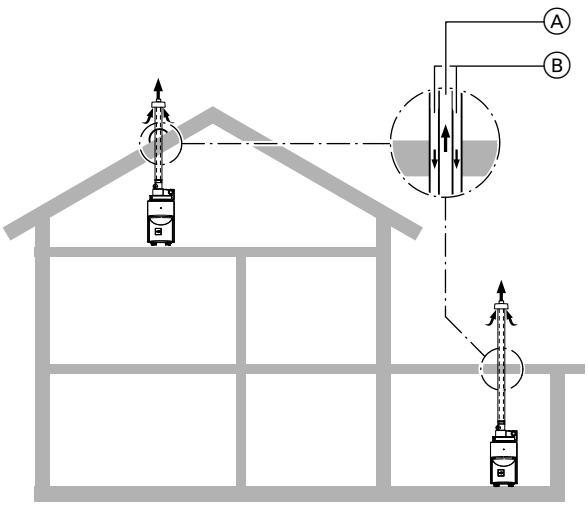
Routing through a shaft (type C_{93} or C_{93X}, according to CEN/TR 1749)
The boiler draws combustion air from the outside through the annular gap inside the shaft (chimney) and expels the flue gas via the flue pipe to above the roof.
The shaft is not part of the standard delivery. For a detailed description, see page 12.
Retrofitted shafts
Installation in a retrofitted shaft, approved by the building inspectorate and made of shaft elements or mineral profiles.
For a detailed description of the shafts, see page 25.



Ⓐ Flue gas
Ⓑ Ventilation air

Routing over external walls
(type C_{53} or C_{53X}, according to CEN/TR 1749)
The boiler draws combustion air from the outside via a horizontal, concentric coaxial pipe on the external wall and expels flue gas to the outside above the roof.
In its vertical section, the external 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 piece.
For a detailed description, see page 19.

In the installation room directly under the roof



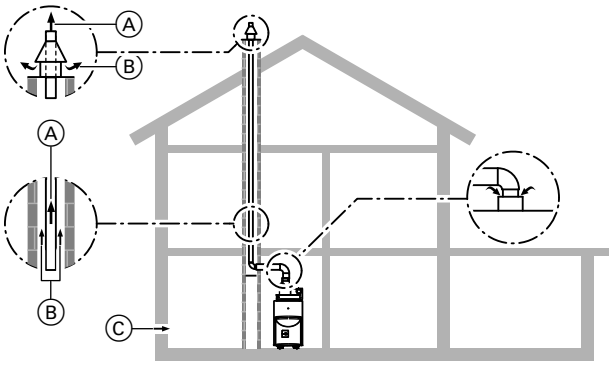
Vertical roof outlet if no shaft is available
(Type C_{33} and C_{33x}, in accordance with CEN/TR 1749)
Direct, vertical roof outlet through flat roof or pitched roof.
The heat generator draws combustion air from the outside via a coaxial pipe and expels flue gas above the roof.
For a detailed description, see page 21.

Ⓐ Flue gas
Ⓑ Ventilation air

1.9 Flue system installation options for open flue operation

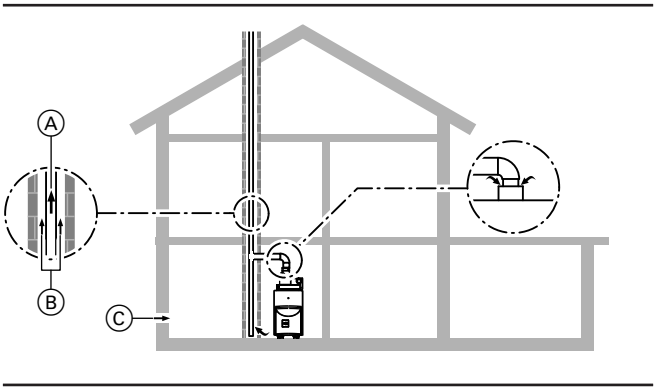
- Ventilation air aperture at rated heating output up to 50 kW: 150 cm² or 2 x 75 cm² cross-section required.
- Ventilation air aperture at rated heating output of more than 50 kW: 150 cm² and 2 cm² for each kW exceeding 50 kW (please follow FeuVO and CEN/TR 1749).

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



Routing through a shaft
(Type B_{23}, to CEN/TR 1749)
The boiler draws combustion air from the installation room and expels flue gas through the flue to above the roof (balanced flow).
For a detailed description, see page 14.

Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air



Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air

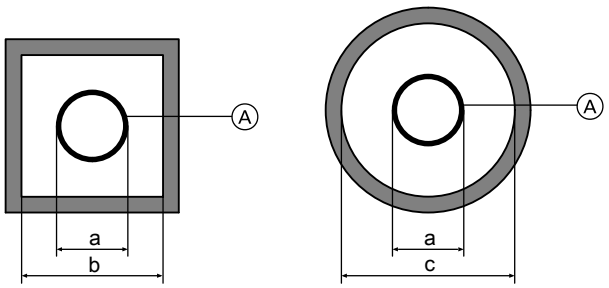
Connection to a moisture-resistant chimney (MR chimney) (Type B_{23}, to CEN/TR 1749)
The boiler draws combustion air from the installation room and expels flue gas through the roof in the moisture-resistant chimney.
For a detailed description, see page 14.

Design and sizing information

2.1 Balanced flue system made from plastic (PPs) for passage through a shaft – room sealed operation (section C_{93} and C_{93X} according to CEN/TR 1749)

For **room sealed operation**, a coaxial flue (internal pipe for flue gas, external pipe for combustion air) is required as a connection piece between the boiler and the shaft.
Up to 35.4 kW:
Internal diameter of flue pipe: Ø 80 mm
Internal diameter of ventilation air pipe: Ø 125 mm
From 42.8 kW:
Internal diameter of flue pipe: Ø 110 mm
Internal diameter of ventilation air pipe: Ø 150 mm
The connection piece is fitted to the boiler flue connection and must contain an inspection port.
For routing through shafts or ducts with longitudinal ventilation which meets the requirements for domestic chimneys to DIN V 18160-1, or have a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2 (max. 2 storeys).
Prior to installation, the relevant flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a flue gas inspector. Loose deposits comprising sulphur and soot must not remain on the inside of the chimney. If this does not work, then you can use a separate flue duct (see page 28).
Close off and seal any other connection apertures with appropriate materials.
This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.
Check prior to installation whether the shaft runs straight from top to bottom or if it is offset (check with mirrors).
If the chimney is offset, we recommend the installation of a flexible flue pipe: See page 16.
In the installation room, at least one inspection port must be provided in the flue system for inspection, cleaning and pressure testing (if required). If the flue 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 unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.
The flue system must be routed to above the roof (protrusion above the roof in accordance with the Landes-FeuVO – check local fire regulations).
Alternative plastic flue pipes approved by the building inspectorate may be used, for example, if a larger pipe diameter is required for longer flue lengths. The performance verification to EN 13384 should then be provided by the respective flue manufacturer.
If flue pipes other than those offered as accessories 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.
Check the flue system for tightness if this test results in a CO_2 content above 0.2 % or an O_2 content lower than 20.6 %.

Internal shaft dimensions



Minimum shaft dimensions to DIN V 18160

System size Ⓐ	External diameter; fem. connection a Ø mm	Minimum internal shaft dimensions b Square or rectangular (short side) mm	 c Round Ø mm
80	94	135	155
80 (flexible, shaft cover PPs)	102	142	162
80 (flexible, shaft cover metal)	116	165	176
110	128	170	190
110 (flexible, shaft cover PPs)	127	167	187
110 (flexible, shaft cover metal)	142	182	202

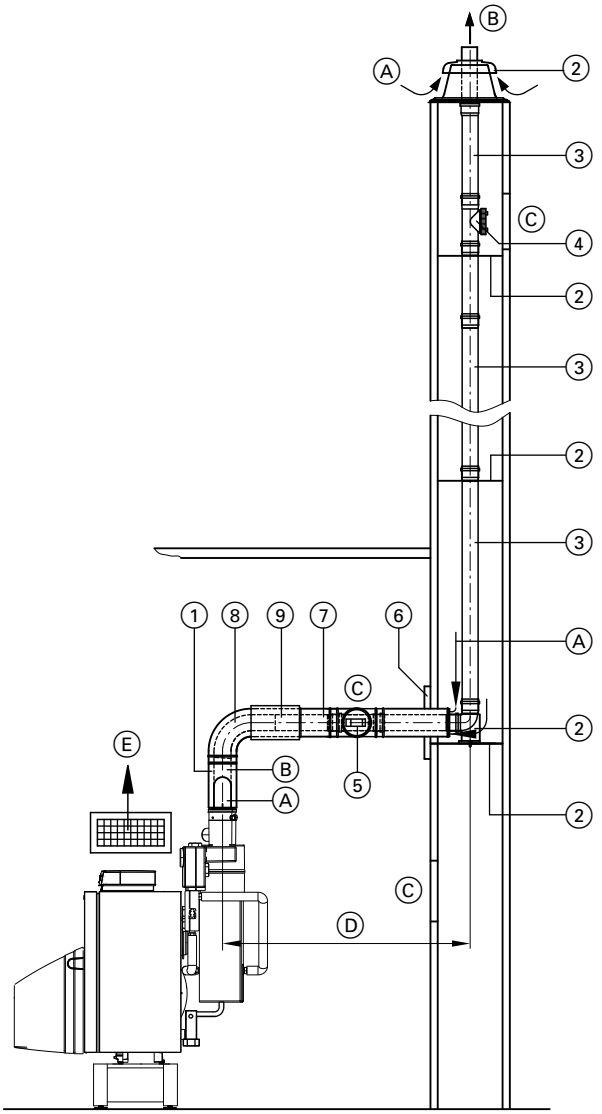
Reduced internal shaft dimensions

System size Ⓐ	External diameter, female connection a Ø mm	Reduced internal shaft dimension b Square or rectangular (short side) mm	 c Round Ø mm
80	94	120	135
110	128	150	165

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

Observe the maximum flue lengths.

Flue pipe, system size 80 and 110 (components) (type C_{93}, according to CEN/TR 1749) for Vitorondens and Vitoladens 300-T up to 53.7 kW



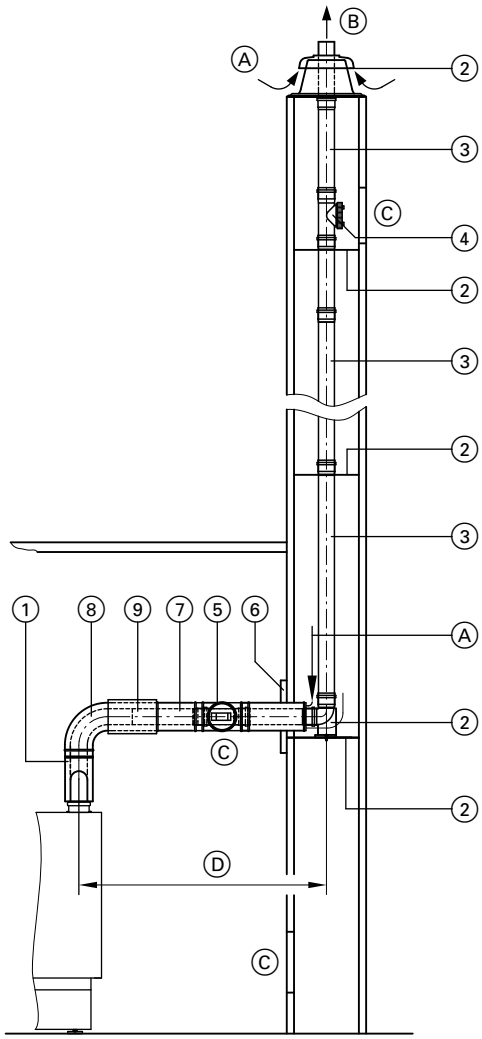
Shown with Vitorondens 200-T

Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Ventilation aperture of at least 1 x 150 cm^2 or 2 x 75 cm^2

Rated heating output (kW)		Up to 35.4	from 42.8
		System size Ø mm	
①	**Boiler flue connection** For room sealed operation and coaxial balanced flue routing (Part of the standard boiler delivery)	80/125	110/150
	Balanced flue pipe With test ports (160 mm long)	80/125	110/150

Rated heating output (kW)		Up to 35.4	from 42.8
		System size Ø mm	
②	**Standard shaft pack (PPs, rigid)** Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (5 pce, max. distance 5 m) or	80	110
	Standard shaft pack (metal/PPs, rigid) For twin flue chimneys; one flue for solid fuel boilers. Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 5 m)	80	110
	Spacers (3 pce, max. distance 5 m)	80	110
③	**Pipe** 1.95 m long (2 pce = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	80	110
	Bend (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	80	110
④	**Inspection piece**, straight (1 pce)	80	110
⑤	**Balanced flue inspection piece**, straight (1 pce)	80/125	110/150
⑥	**Wall bezel**	125	150
⑦	**Balanced flue pipe** 1 m long 0.5 m long	80/125	110/150
⑧	**Balanced flue bend** 87° (1 pce) 45° (2 pce) or	80/125	110/150
	Balanced flue inspection bend 87° (1 pce) or	80/125	—
	Balanced flue inspection tee 87° (1 pce)	—	110/150
⑨	**Balanced flue slide coupling**	80/125	110/150
	Fixing clamp, white (1 pce)	80/125	110/150
	Stainless steel extension, 380 mm long for shaft cover, metal/PPs, rigid	80	110

Flue pipe, system size 80/125 (components) (type C_{93x}, according to CEN/TR 1749) for Vitoladens 300-C



Vitoladens 300-C

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

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

Max. total flue length up to the boiler flue connection

Rated heating output at system temperature 50/30 °C	**kW**	**19.3**	**23.6**	**28.9**
Max. length for system size 80/125	m	15	18	18

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°

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1.5 m

Max. total flue length up to the boiler flue connection

Rated heating output at system temperature 50/30 °C	kW	20.2	24.6	28.6	35.4	42.8	53.7
Max. length for system size Ø 80 mm	m	15	18	18	22	—	—
Max. length for system size Ø 110 mm	m	—	—	—	—	22	22

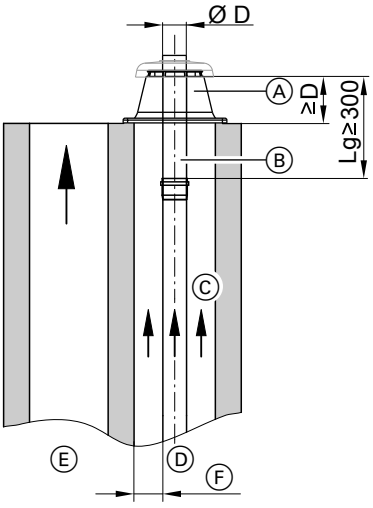
The following components are taken into consideration for the maximum flue lengths:
- Balanced flue connection pipe Ⓓ 1 m long.
- 1 balanced flue bend 87° and 1 support bend 87°
  or
- 2 balanced flue bends 45° and 1 support bend 87°

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1 m

Vitoladens in conjunction with solid fuel boilers

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

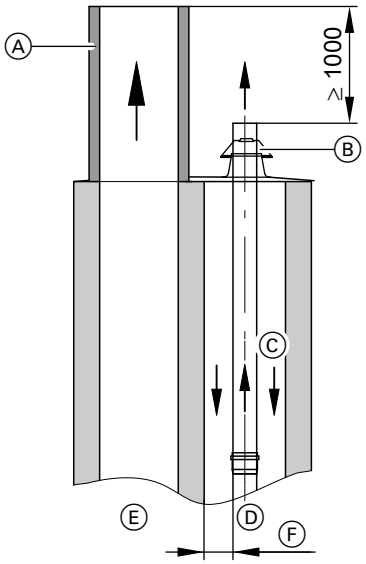
Open flue operation and/or ventilation air not being supplied through the shaft
The terminals of combustible flues in the upper area should be made from non-flammable materials for fire protection reasons. The length of the flue pipe made from non-combustible material in the Lg area protected against heat radiation must be at least 300 mm. The length of the external end pipe of the shaft cover must be no less than external diameter D of the internal flue pipe.
The standard shaft pack (metal/PPs) contains a stainless steel pipe (380 mm long). A stainless steel extension (380 mm long) is available as an additional accessory.



Ⓐ Metal shaft cover
Ⓑ Terminal made from non-combustible material
Ⓒ Secondary ventilation
Ⓓ Vitoladens flue pipe
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum gap according to DIN V 18160: See page 11

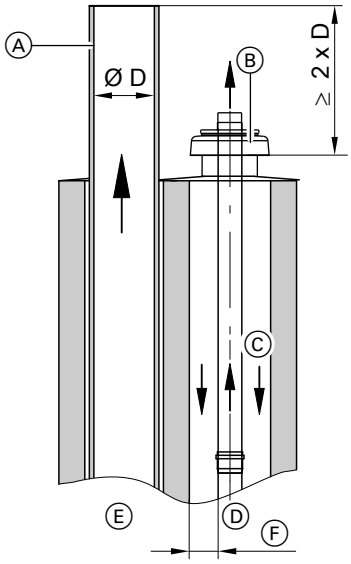
Room sealed operation – the ventilation air is supplied through the shaft
Design the balanced flue terminals so that flue gas will not be drawn into the air shaft in dangerous volumes and that pressure fluctuations due to wind influence affect the balanced flue system as evenly as possible.

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



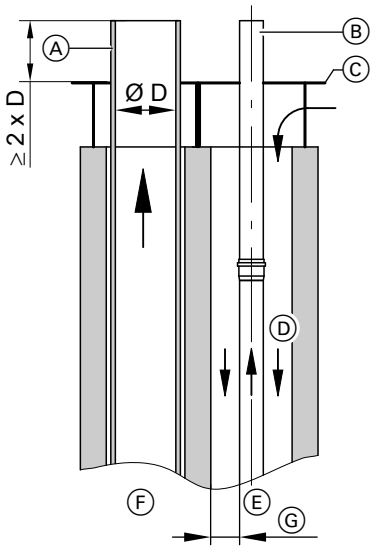
Ⓐ Chimney extension made from soot fire resistant material
Ⓑ Shaft cover, plastic
Ⓒ Ventilation air/secondary ventilation
Ⓓ Vitoladens flue pipe
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum gap according to DIN V 18160: See page 11

■ 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 fire resistant material
Ⓑ Metal shaft cover
Ⓒ Ventilation air/secondary ventilation
Ⓓ Vitoladens flue (rigid or flexible)
Ⓔ Chimney for solid fuel boilers
Ⓕ Minimum gap according to DIN V 18160: See page 11

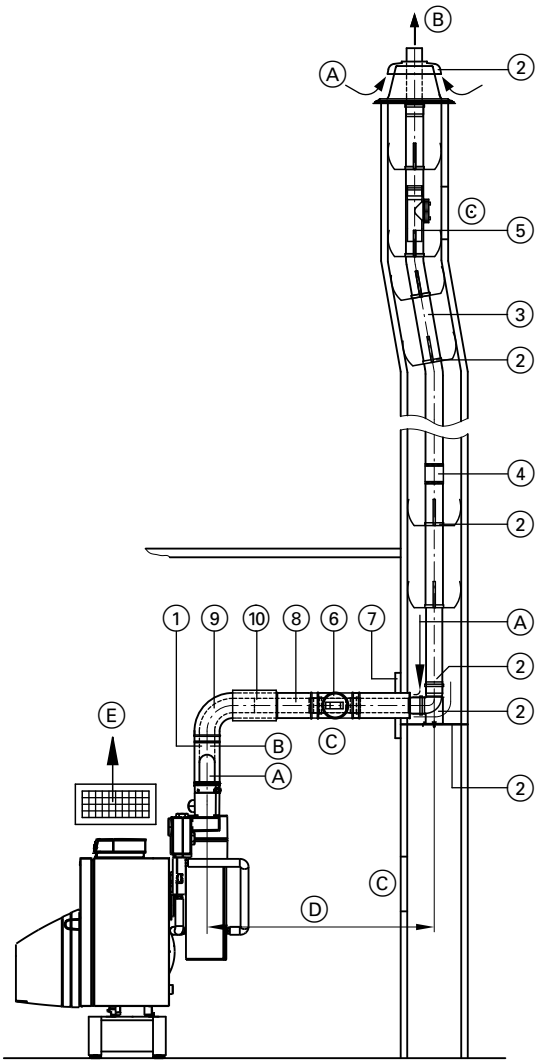
■ If using a common downdraught plate:
The end piece of the flue and the shaft cover must be made from non-combustible material (e.g. metal).



Ⓐ Chimney extension made from soot fire resistant material
Ⓑ Terminal made from non-combustible material
Ⓒ Shaft cover (on site)
Ⓓ Ventilation air/secondary ventilation
Ⓔ Vitoladens flue pipe
Ⓕ Chimney for solid fuel boilers
Ⓖ Minimum gap according to DIN V 18160: See page 11

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 pipe, flexible, system size 80 and 110 (components) (type C_{93}, according to CEN/TR 1749) for Vitorondens and Vitoladens 300-T up to 53.7 kW



Shown with Vitorondens 200-T

Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Connection piece
Ⓔ Ventilation aperture of at least 1 x 150 cm^2 or 2 x 75 cm^2

	Rated heating output (kW)	Up to 35.4	from 42.8
		System size Ø mm	
①	**Boiler flue connection** For room sealed operation and coaxial balanced flue routing (Part of the standard boiler delivery)	80/125	110/150
	Balanced flue pipe With test ports (160 mm long)	80/125	110/150
②	**Standard shaft pack** (PPs, flexible) Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (5 pce, max. distance 2 m) or	80	110
	Standard shaft pack (metal/PPs, flexible) For twin flue chimneys; one flue for solid fuel boilers. Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 2 m)	80	110
	Spacers (5 pce, max. distance 2 m)	80	110
③	**Flue pipe, flexible,** as a roll 12.5 or 25 m	80	110
④	**Connection piece** For connecting residual lengths of the flexible flue pipe	80	110
	Pipe lowering attachment with 25 m cable	80	110
⑤	**Inspection piece**, straight (1 pce) For installation in the flexible flue pipe	80	110
⑥	**Balanced flue inspection piece**, straight (1 pce)	80/125	110/150
⑦	**Wall bezel**	125	150
⑧	**Balanced flue pipe** 1 m long 0.5 m long	80/125	110/150
⑨	**Balanced flue bend** 87° (1 pce) 45° (2 pce) or	80/125	110/150
	Balanced flue inspection bend 87° (1 pce)	80/125	—
	Balanced flue inspection tee 87° (1 pce)	—	110/150
⑩	**Balanced flue slide coupling**	80/125	110/150
	Fixing clamp, white (1 pce)	80/125	110/150
	Stainless steel extension, 380 mm long for shaft cover, metal/PPs, flexible	80	110

Note
The flexible flue may be routed at a maximum angle from vertical of 45°.

Design and sizing information (cont.)

Max. total flue length up to the boiler flue connection

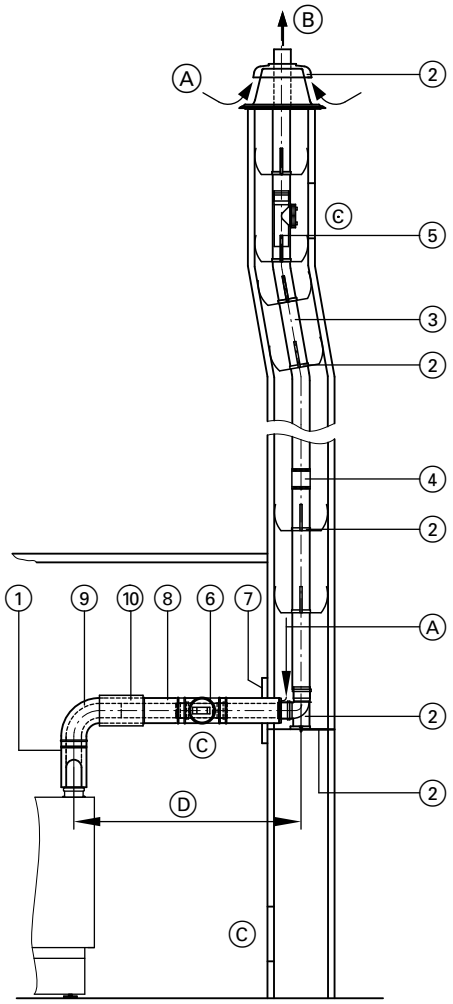
Rated heating output at system temperature 50/30 °C	kW	20.2	24.6	28.6	35.4	42.8	53.7
Max. length for system size Ø 80 mm	m	13	16	16	20	—	—
Max. length for system size Ø 110 mm	m	—	—	—	—	20	20

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

Note
Please observe the specifications for the shaft's internal dimensions (see page 11).

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1 m

Flue pipe, system size 80/125 (components) (type C_{93x}, according to CEN/TR 1749) for Vitoladens 300-C



Vitoladens 300-C

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

		System size Ø mm
①	**Boiler flue connection** (part of the standard boiler delivery)	80/125
②	**Standard shaft pack (PPs, flexible)** Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (5 pce, max. distance 2 m) or	80
	Standard shaft pack (metal/PPs, flexible) For twin flue chimneys; one flue for solid fuel boilers. Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 2 m)	80
	Spacers (5 pce, max. distance 2 m)	80
③	**Flue pipe, flexible,** as a roll 12.5 or 25 m	80
④	**Connection piece** For connecting residual lengths of the flexible flue pipe	80
	Pipe lowering attachment with 25 m rope	80
⑤	**Inspection piece**, straight (1 pce) For installation in the flexible flue pipe	80
⑥	**Balanced flue inspection piece**, straight (1 pce)	80
⑦	**Wall bezel** Ø 125 mm	80
⑧	**Balanced flue pipe** 1 m long 0.5 m long	80
⑨	**Balanced flue bend** 87° (1 pce) 45° (2 pce) or	80
	Balanced flue inspection bend 87° (1 pce)	80
⑩	**Balanced flue slide coupling**	80
	Fixing clamp, white (1 pce)	80
	Stainless steel extension, (metal/PPs, flexible) 380 mm long for shaft cover, metal/PPs, flexible	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**	**19.3**	**23.6**	**28.9**
Max. length for system size 80/125	m	13	16	16

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°

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue connection pipe 0.5 m long: 1 m
- Balanced flue connection pipe 1 m long: 2 m
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1.5 m

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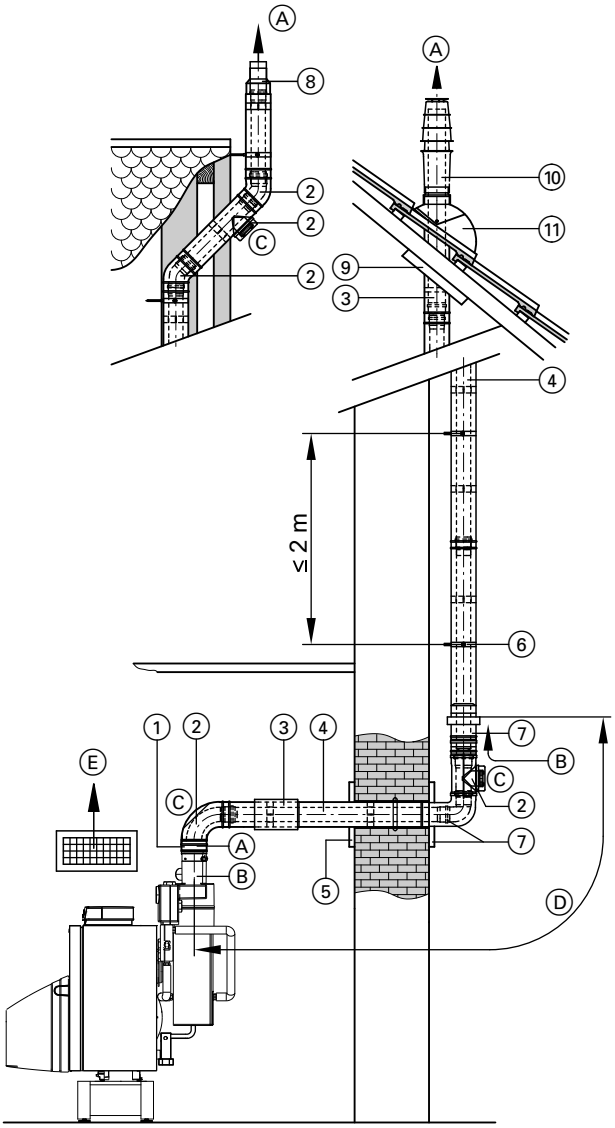
2.2 Balanced flue system made from plastic (PPs) for external routing (components) (type C_{53}, according to CEN/TR 1749) for Vitorondens and Vitoladens 300-T up to 53.7 kW

Vitoladens and Vitorondens up to 53.7 kW may also be connected, without a shaft, to a flue pipe that is routed over an external wall. The combustion air is drawn in via the air inlet piece. Maximum length Ⓓ from the boiler flue connection to the air inlet piece is 2.5 m.

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

Up to 35.4 kW:



Shown with Vitorondens 200-T

Ⓐ Flue gas
Ⓑ Ventilation air
Ⓒ Connection piece
Ⓓ Maximum length to air inlet piece 2.5 m
Ⓔ Ventilation aperture of at least 1 x 150 cm² or 2 x 75 cm²

Internal diameter of flue pipe: Ø 80 mm
Internal diameter of ventilation air pipe: Ø 125 mm
From 42.8 kW:
Internal diameter of flue pipe: Ø 110 mm
Internal diameter of ventilation air pipe: Ø 150 mm

The flue for routing over external walls has been tested in the form of a concentric balanced flue system as a single structural unit with the condensing boiler.

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

	Rated heating output (kW)	**Up to 35.4**	**from 42.8**
		System size Ø mm	
①	**Boiler flue connection** for room sealed operation and coaxial balanced flue routing (Part of the standard boiler delivery)	80/125	110/150
	Balanced flue pipe With test ports (160 mm long)	80/125	110/150
②	**Balanced flue inspection bend** 87° (1 pce)	80/125	—
	Balanced flue inspection tee 87° (1 pce)	—	110/150
	or		
	Balanced flue inspection piece, straight (1 pce)	80/125	110/150
	and		
	Balanced flue bend 87° (1 pce)	80/125	110/150
	Balanced flue bend 45° (2 pce)	80/125	—
	Balanced flue bend 30° (2 pce)	80/125	—
	or		
	Balanced flue inspection piece straight (1 pce)	—	110/150
	and		
	Balanced flue bend 87° (1 pce)	—	110/150
	Balanced flue bend 45° (2 pce)	—	110/150
	Balanced flue bend 30° (2 pce)	—	110/150
③	**Balanced flue slide coupling**	80/125	110/150
④	**Balanced flue pipe** 1.95 m long 1 m long (1 pce) 0.5 m long (1 pce)	80/125	110/150
	or		
	External wall pipe 1.95 m long 1 m long (1 pce) 0.5 m long (1 pce)	—	110/150
⑤	**Wall bezel**	125	150
⑥	**Fixing clamp,** white (1 pce)	80/125	110/150
⑦	**External wall pack** Comprising: – Balanced flue bend – Air inlet piece – Wall bezel	80/125	110/150
⑧	**External wall terminal** for short protrusion above the roof	80/125	110/150
⑨	**Universal cover plate**	80/125	110/150

Rated heating output (kW)		Up to 35.4	from 42.8
		System size Ø mm	
⑩	**Balanced flue roof outlet** Colour: Black or terracotta **Above roof extension** with clamp (brace on site) Colour: Black		
	0.5 m long	80/125	110/150
	1 m long, with bracing clamp	80/125	—
	Colour: Terracotta		
	0.5 m long	80/125	110/150
	1 m long, with bracing clamp	80/125	—

Rated heating output (kW)		Up to 35.4	from 42.8
		System size Ø mm	
⑪	**Universal roof tile** For Roman tiles, pantiles, plain tiles, slate and other types of roof cover Colour: Black or terracotta	80/125	110/150
	Pipe outlet for Klöber roof tile Colour: Black or terracotta (the corresponding Klöber roof tile should be provided on site to match the selected roof outlet)	80/125	—

Max. total flue length

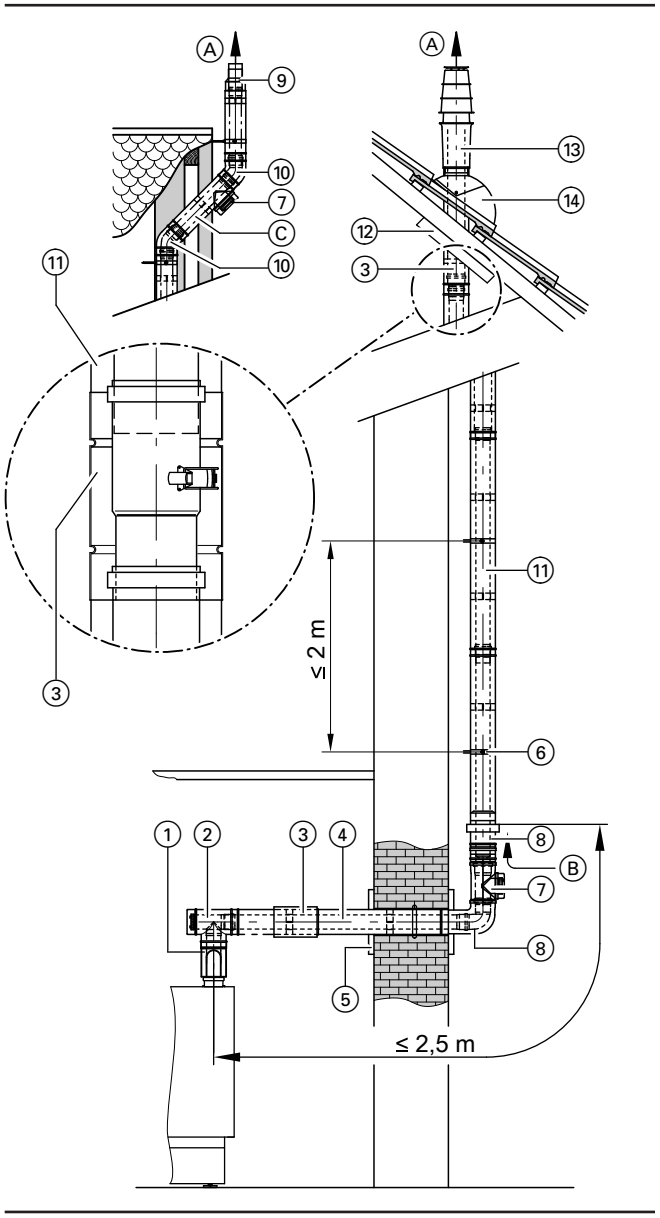
Rated heating output at system temperature 50/30 °C	kW	20.2	24.6	28.6	35.4	42.8	53.7
Max. length for system size Ø 80 mm	m	10	12	15	22	—	—
Max. length for system size Ø 110 mm	m	—	—	—	—	22	22

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

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1 m

2.3 Balanced flue system made from plastic (PPs) for external routing (components) (type C_{53x}, according to CEN/TR 1749) for Vitoladens 300-C

The Vitoladens 300-C can also be connected to a flue pipe on the external wall without a shaft.
The combustion air is drawn in via the air inlet piece. The vertical external pipe provides protection and the static air gap inside it acts as thermal insulation. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.
Internal diameter of flue pipe: Ø 80 mm
Internal diameter of external pipe: Ø 125 mm
Various routing options are available depending on the length of pipe protruding above the roof.
The flue for routing over external walls has been tested in the form of a concentric balanced flue system as a single structural 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)	80/125
②	**Balanced flue inspection bend** 87° (1 pce) or **Balanced flue inspection piece**, straight (1 pce) and **Balanced flue bend** 87° (1 pce) **Balanced flue bend** 45° (2 pce)	80 80 80 80
	Balanced flue bend 30° (2 pce)	80
③	**Balanced flue slide coupling**	80
④	**Balanced flue pipe** 1.95 m long 1 m long (1 pce) 0.5 m long (1 pce)	80
⑤	**Wall bezel** (Ø 125 mm)	80
⑥	**Fixing clamp**, white (1 pce)	80
⑦	**External wall pack** Comprising: – Balanced flue bend – Air inlet piece – Wall bezel	80
⑧	**External wall terminal** (for short protrusion above the roof)	80
⑨	**Universal cover plate**	80
⑩	**Balanced flue roof outlet** (for large protrusion above the roof) Colour: Black or terracotta	80
⑪	**Universal roof tile** Colour: Black or terracotta or **Pipe outlet for Klöber roof tile** For Roman tiles, pantiles, plain tiles, slate and other types of roof cover Colour: Black or terracotta (Provide the corresponding Klöber roof tile on site to match the roof outlet selected for the particular type of roof cover)	

Ⓐ Flue gas
Ⓑ Ventilation air
Ⓒ Elbow in flue for routing over external walls, see page 39

Max. total flue length up to the boiler flue connection

Rated heating output at system temperature 50/30 °C	**kW**	**19.3**	**23.6**	**28.9**
Max. length for system size 80/125	m	10	12	15

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

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Balanced flue bend 45°: 0.5 m
- Balanced flue bend 87°: 1 m
- Balanced flue inspection tee: 1.5 m

2.4 Balanced flue system made from plastic (PPs) for vertical or flat roof routing (components) (type C_{33} according to CEN/TR 1749) for Vitorondens and Vitoladens 300-T up to 53.7 kW

For vertical roof outlet when installing the Vitorondens and Vitoladens 300-T in roof space

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

Note
Condensing boilers with a heating output > 50 kW must be installed in a separate and ventilated installation room.

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Inside buildings, route flues made from combustible materials (if they are not routed through shafts) inside protective pipes made from non-combustible materials or inside comparable protective covers made from non-combustible materials.
They can also be routed behind a jamb wall or a solid wall of a converted attic if the fire protection class of the jamb wall corresponds to that of the ceiling (e.g. B30).
Minimum clearances to combustible materials inside the installation room or in connection with the roof outlet are **not** required.
During the CE approval inspection, it was demonstrated that the Vitorondens and Vitoladens 300-T as well as the balanced flue system do not reach temperatures higher than 85 °C on the surface.

Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guideline: See page 45.

The ceiling opening should have a diameter of at least the specified size:
- System size Ø 80 mm: 130 mm
- System size Ø 110 mm: 150 mm

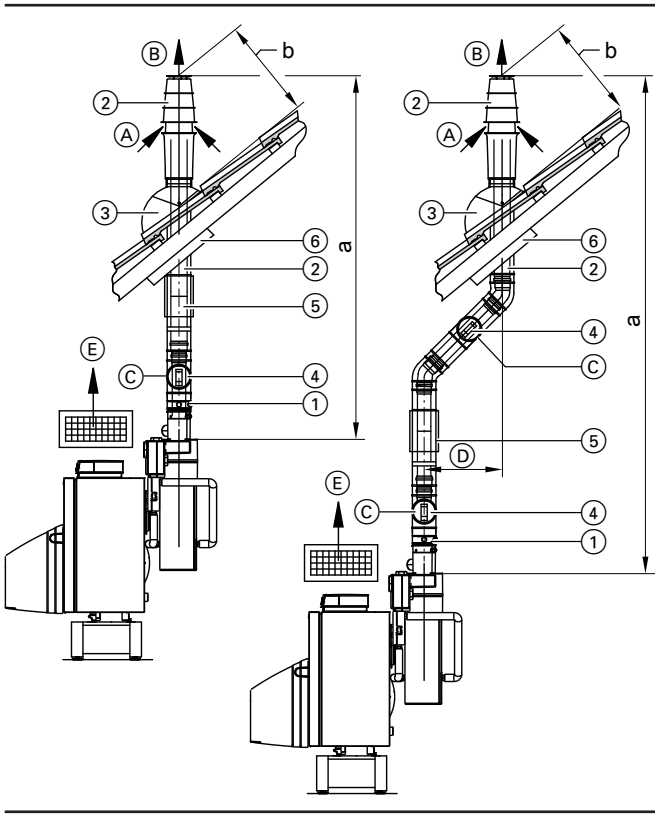
Push the roof outlet into the roof from above and position it on the flat roof collar.
Ensure the installation has been completed before securing the roof outlet on site with a clamp.

Install an inspection port for checking and cleaning the flue inside the installation room.
The vertical roof outlet is system-certified as a coaxial balanced flue with the condensing boiler.
A performance verification to EN 13384 is **not** required.

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

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

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



Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port

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

Max. total flue length

Vitorondens 200-T

Rated heating output	kW	20.2	24.6	28.9	35.4	42.8	53.7
Max. length – system size 80/125	m	6	9	10	10	—	—
Max. length – system size 110/150	m	—	—	—	—	10	10

Vitoladens 300-T

Rated heating output	kW	35.4	42.8	53.7
Max. length – system size 80/125	m	10	—	—
Max. length – system size 110/150	m	—	10	10

2.5 Balanced flue system made from plastic (PPs) for vertical or flat roof routing (components) (type C_{33x} according to CEN/TR 1749) for Vitoladens 300-C

For vertical roof outlet when installing the Vitoladens 300-C in roof space

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

Note

Condensing boilers with a heating output > 50 kW must be installed in a separate and ventilated installation room.

Inside buildings, route flues made from combustible materials (if they are not routed through shafts) inside protective pipes made from non-combustible materials or inside comparable protective covers made from non-combustible materials.
They can also be routed behind a jamb wall or a solid wall of a converted attic if the fire protection class of the jamb wall corresponds to that of the ceiling (e.g. B30).
Minimum clearances to combustible materials inside the installation room or in connection with the roof outlet are **not** required.
During the CE approval inspection, it was demonstrated that the Vitoladens 300-C and the balanced flue system do not reach temperatures higher than 85 °C on the surface.

Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guideline: See page 45.

The ceiling opening should have a diameter of at least the specified size:
- System size Ø 80 mm: 125 mm

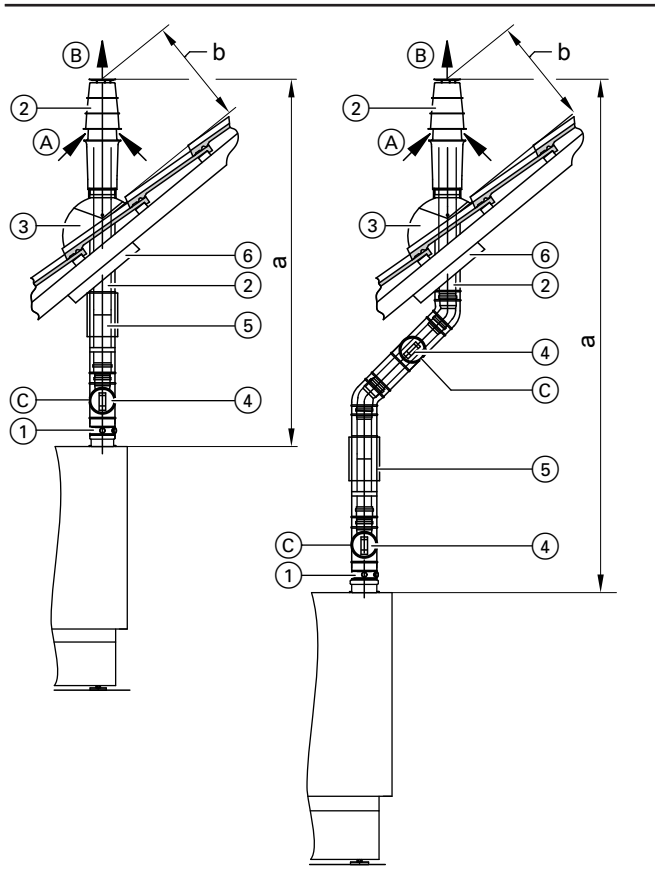
Push the roof outlet into the roof from above and position it on the flat roof collar.
Ensure the installation has been completed before securing the roof outlet on site with a clamp.

Install an inspection port for checking and cleaning the flue inside the installation room.
The vertical roof outlet is system-certified as a coaxial balanced flue with the condensing boiler.
A performance verification to EN 13384 is **not** required.

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

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

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



Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port

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

Max. total flue length

Vitoladens 300-C

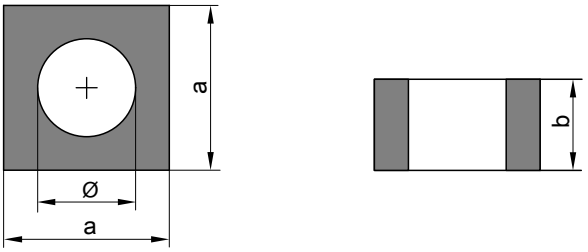
Rated heating output	**kW**	**19.3**	**23.6**	**28.9**
Max. length – system size 80/125	m	6	10	10

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

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

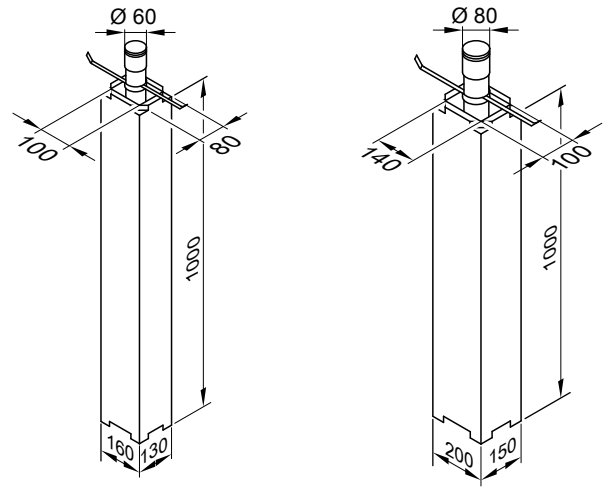
The shaft used must comply with the requirements for domestic chimneys to DIN V 18160-1 or must be generally approved by the building inspectorate [Germany].

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



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

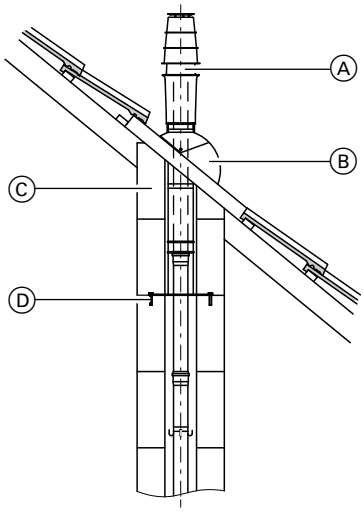
"SKOBIFIXnano" and "SKOBIFIXXs 30" shaft elements from Skoberne (made from foamed ceramics)



Fire rating 30 min.
Skoberne is one of the companies that sells a shaft system made from lightweight concrete or foamed ceramics approved by the building inspectorate [Germany].
Skoberne address:
Skoberne Schornsteinsysteme GmbH
Ostendstraße 1
D-64319 Pfungstadt

Anchoring of the roof outlet in shaft profiles

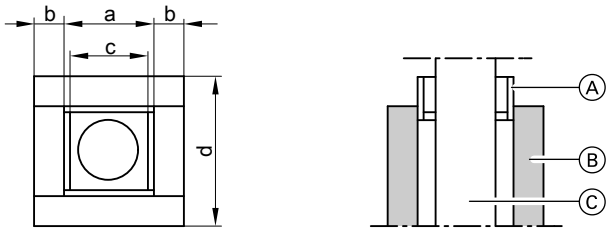
(for shaft outlets shaft up to below the roof skin)



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

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

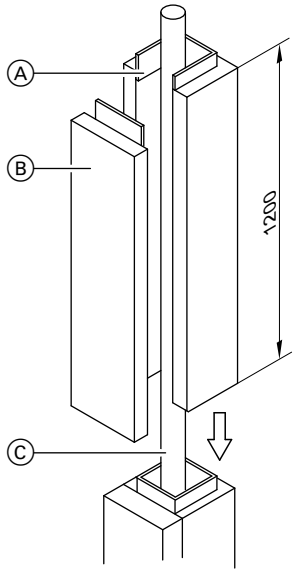
Shaft profiles from Promat



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

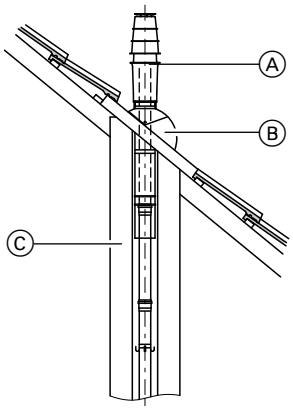
Ⓐ PROMATECT® female connection
Ⓑ PROMATECT® profile
Ⓒ Flue pipe

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



Ⓐ PROMATECT® female connection
Ⓑ PROMATECT® profile
Ⓒ Flue pipe

Roof outlet for shafts with Promat profiles



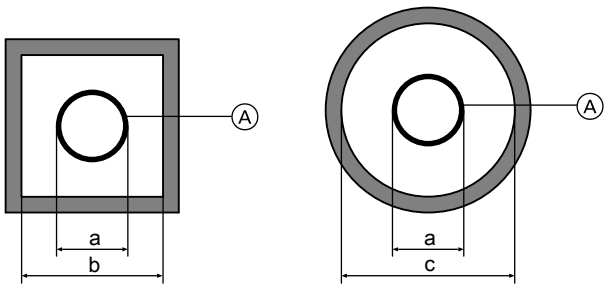
During installation, match the terminal shaft profile to the roof slope.

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

2.7 Flue pipe made of plastic (PPs) for routing through a shaft – open flue operation (model B_{23}, according to CEN/TR 1749)

Open flue operation requires a flue pipe as a connection piece between the condensing boiler and the shaft as well as for routing through the shaft.
Up to 50 kW rated heating output only possible in rooms with a ventilation air aperture with a free cross-section of at least 150 cm² or 2 × 75 cm².
Above 50 kW rated heating output, installation only in rooms with a ventilation air aperture with free cross-section of min. 150 cm² and 2 cm² for each additional kW exceeding 50 kW
Up to 35.4 kW: Internal diameter of flue pipe: Ø 80 mm
From 42.8 kW: Internal diameter of flue pipe: Ø 110 mm
The flue system is connected to the boiler flue connection.
Combustion air is drawn from the boiler installation room.
For routing through shafts or ducts with longitudinal ventilation which meet the requirements for domestic chimneys to DIN 18160-1, or which have a fire rating of 90 minutes (L90), or a fire rating of 30 minutes (L30) for buildings in categories 1 and 2.
Prior to installation, the relevant 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 flue gas inspector. Loose deposits comprising 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 offset (check with mirrors).
If the chimney is offset, we recommend the installation of a flexible flue pipe: See page 16.
Before commissioning the flue system, the responsible flue gas inspector must perform a tightness test.
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 for checking and cleaning as well as for checking the pressure must be provided in the flue system.
If the flue is inaccessible from the roof, a second inspection port must be provided in the attic behind the chimney cleaning hatch.
Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.
The flue system must protrude through the roof (observe the roof protrusion parallel to the roof slope acc. to the Landes-FeuVo).
Alternative flue pipes approved by the DIBt/building inspectorate may be used, for example, if a larger pipe diameter is required for longer flue lengths. In that case, the performance verification to EN 13384 should be provided by the relevant flue pipe manufacturer.

Internal shaft dimensions



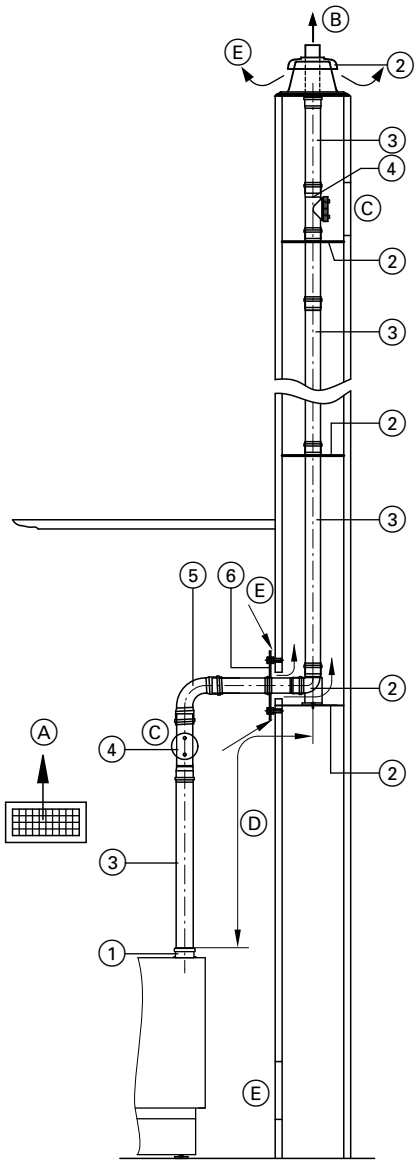
Minimum internal shaft dimensions to DIN V 18160

System size Ⓐ	External diameter; fem. connection a Ø mm	Minimum internal shaft dimensions b Square or rectangular (short side) mm	 c Round Ø mm
80	94	135	155
80 (flexible, shaft cover PPs)	102	142	162
80 (flexible, shaft cover metal)	116	165	176
110	128	170	190
110 (flexible, shaft cover PPs)	127	167	187
110 (flexible, shaft cover metal)	142	182	202

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 pipe, system size 80 and 110 (components) (type B_{23p}, according to CEN/TR 1749)



Shown with the Vitoladens 300-C

Ⓐ Ventilation air aperture
Rated heating output up to 50 kW: 150 cm² or 2 x 75 cm²
Rated heating output over 50 kW: 150 cm² and 2 cm² for each kW exceeding 50 kW
Ⓑ 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	110
②	**Standard shaft pack (PPs, rigid)** Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (5 pce, max. distance 5 m) or	80	110
	Standard shaft pack (metal/PPs, rigid) For twin flue chimneys; one flue for solid fuel boilers Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 5 m)	80	110
	Spacers (3 pce, max. distance 5 m)	80	110
③	**Pipe** 1.95 m long (2 pce = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	80	110
④	**Inspection piece**, straight (1 pce)	80	110
⑤	**Bend** 87° (1 pce) 45° (2 pce)	80	110
⑥	**Vent bezel** (1 pce)	80	110
	Bend (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)	80	110
	Inspection tee 87° (1 pce) **Inspection bend** 87° (1 pce)	80 —	— 110
	Balanced flue air inlet adaptor Ø 80/125 mm 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	110

Max. total length of the flue pipe: 20 m

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

For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

Information regarding Vitorondens 200-T with 107.3 kW
When the sound insulation kit is used, the max. length of the flue pipe is reduced by 2 m.

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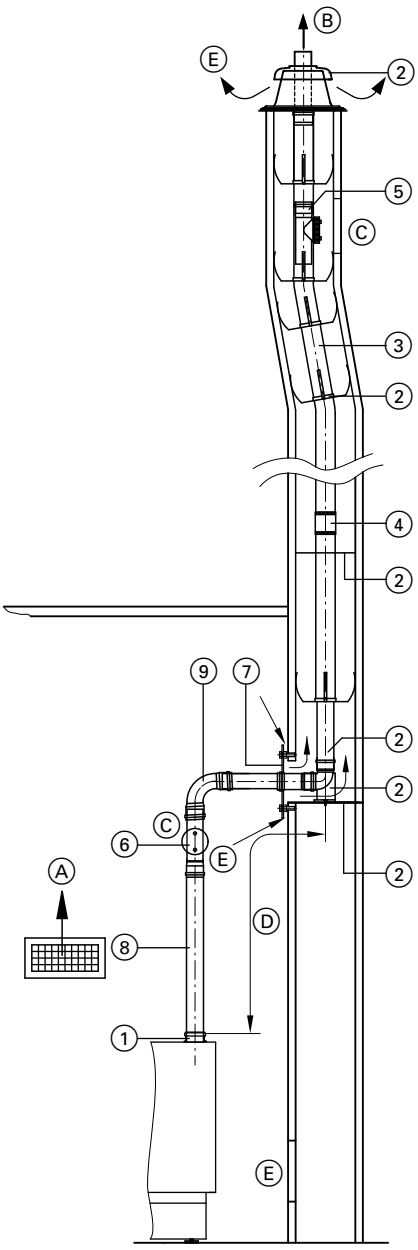
Flue pipe, flexible, system size 80 and 110 (components) (type B_{23p}, according to CEN/TR 1749)



Shown with the Vitoladens 300-C

Ⓐ Ventilation air aperture
Rated heating output up to 50 kW: 150 cm² or 2 x 75 cm²
Rated heating output over 50 kW: 150 cm² and 2 cm² for each kW exceeding 50 kW
Ⓑ 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	110
②	**Standard shaft pack (PPs, flexible)** Comprising: – Support bend – Support rail – Shaft cover (PPs) – Spacers (5 pce, max. distance 2 m) or	80	110
	Standard shaft pack (metal/PPs, flexible) For twin flue chimneys; one flue for solid fuel boilers. Comprising: – Support bend – Support rail – Shaft cover (metal) – Terminal pipe (stainless steel) – Spacers (5 pce, max. distance 2 m)	80	110
	Spacers (5 pce, max. distance 2 m)	80	110
③	**Flue pipe, flexible,** on a drum 12.5 or 25 m	80	110
④	**Connection piece** for connecting residual lengths of the flexible flue	80	110
	Pipe lowering attachment with 25 m rope	80	110
⑤	**Inspection piece**, straight (1 pce) for installation in the flexible flue pipe	80	110
⑥	**Inspection piece**, straight (1 pce)	80	110
⑦	**Vent bezel** (1 pce)	80	110
⑧	**Pipe** 1 m long (1 pce) 0.5 m long (1 pce)	80	110
⑨	**Bend** 87° (1 pce) 45° (2 pce) or	80	110
	Inspection bend 87° (1 pce)	—	110
	Inspection tee 87° (1 pce)	80	—
	Stainless steel extension, 380 mm long for shaft cover, metal/PPs, flexible	80	110

Max. total length of the flue pipe: 18 m

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

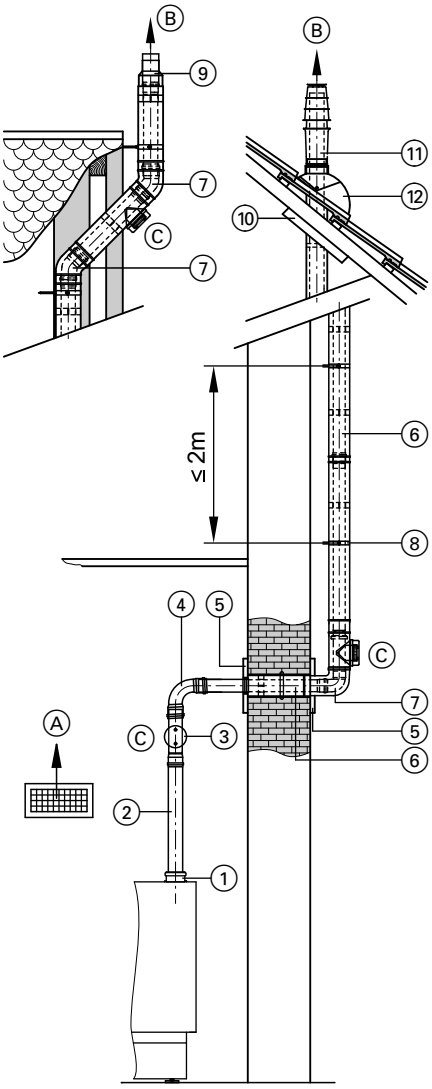
For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

Information regarding Vitorondens 200-T with 107.3 kW
When the sound insulation kit is used, the max. length of the flue pipe is reduced by 2 m.

2.8 Flue pipe made from plastic (PPs) for external routing (type B_{23p}, according to CEN/TR 1749)

The condensing boiler may also be connected, without a shaft, to a flue pipe that is routed over an external wall.
Up to 35.4 kW:
Internal diameter of flue pipe: Ø 80 mm
Internal diameter of external pipe: Ø 125 mm

From 42.8 kW:
Internal diameter of flue pipe: Ø 110 mm
Internal diameter of external pipe: Ø 150 mm



Shown with the Vitoladens 300-C

Ⓐ Ventilation air aperture
Rated heating output up to 50 kW: 150 cm² or 2 x 75 cm²
Rated heating output over 50 kW: 150 cm² and 2 cm² for each kW exceeding 50 kW
Ⓑ Flue gas
Ⓒ Inspection port

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	110
②	**Pipe** 1.95 m long (2 pce @ 1.95 m = 3.9 m) 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	80	110
③	**Inspection piece**, straight (1 pce)	80	110
④	**Bend** 87° (1 pce) 45° (2 pce)	80	110
⑤	**Wall bezel** (1 pce)	80/125	110/150
⑥	**Balanced flue pipe** 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce) or **External wall pipe** 1.95 m long (1 pce) 1 m long (1 pce) 0.5 m long (1 pce)	80/125 —	— 110/150
⑦	**Balanced flue bend** 87° (1 pce) 45° (2 pce) 30° (2 pce) or **External wall bend** 87° (1 pce) 45° (2 pce) 30° (2 pce)	 80/125 80/125 80/125 — — —	 — — — 110/150 110/150 110/150
⑧	**Fixing clamp,** white (1 pce) (balanced flue and external wall pipe)	80/125	110/150
⑨	**External wall terminal** for short protrusion above the roof	80/125	110/150
⑩	**Universal cover plate**	80/125	110/150
⑪	**Balanced flue roof outlet** external wall, with fixing clamp Colour: Black or terracotta **Above roof extension** with clamp (brace on site) Colour: Black 0.5 m long 1 m long, with bracing clamp Colour: Terracotta 0.5 m long 1 m long, with bracing clamp	80/125 80/125 80/125 80/125 80/125	110/150 110/150 — 110/150 —

Rated heating output (kW)		Up to 35.4	from 42.8
		System size Ø mm	
⑫	**Universal roof tile** For Roman tiles, pantiles, plain tiles, slate and other types of roof cover Colour: Black or terracotta	80/125	110/150
	or		
	Pipe outlet for Klöber roof tile Colour: Black or terracotta (Provide the corresponding Klöber roof tile on site to match the roof outlet selected for the particular type of roof cover)	80/125	—

Max. total flue length

Rated heating output at system temperature 50/30 °C	kW	19.3	20.2	23.6	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 110 mm	m	—	—	—	—	—	—	22	22	22	22	22

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

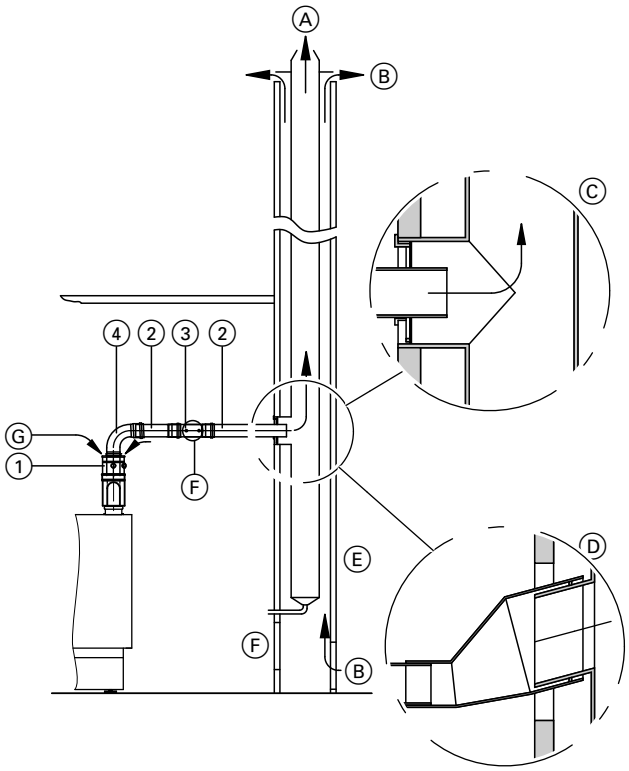
For other bends, tees and straight lengths, subtract the following values from the maximum length:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Bend 45°: 0.3 m
- Bend 87°: 0.5 m
- Inspection tee: 0.3 m

Information regarding Vitorondens 200-T with 107.3 kW
When the sound insulation kit is used, the max. length of the flue pipe is reduced by 2 m.

Connection to a moisture-resistant chimney (MR chimney negative pressure) with a plastic (PPs) flue pipe (type B_{23}, according to CEN/TR 1749)

Vitoladens condensing boilers may be connected to moisture-resistant chimneys according to EN 13384, if the chimney manufacturer can prove their suitability on the basis of the specified flue gas values, taking into account the local conditions (e.g. heating water return temperature, design of the connection piece).
A flue in accordance with Building Regulations, pressure sealed and moisture-resistant, should be used as the connection piece. For this, you can use the plastic (PPs) flue system offered as an accessory to the Vitoladens. Safeguard the unrestricted draining of the condensate from the flue into the boiler through an appropriate fall of at least 3°.

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



Shown with Vitoladens 300-C

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

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

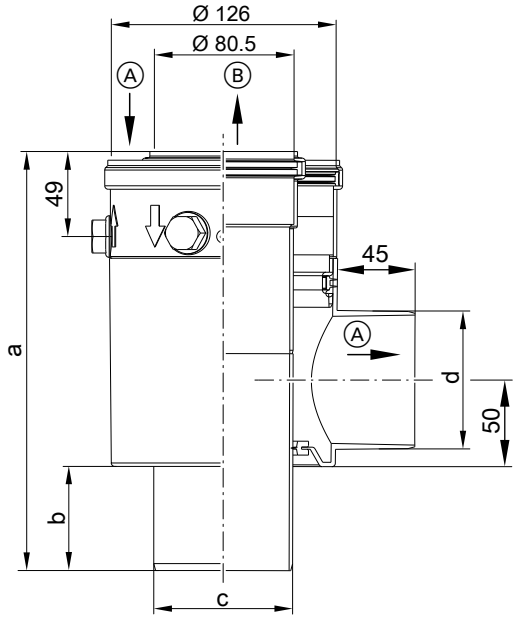
Components for the plastic flue systems

3.1 Balanced flue components

Boiler flue connection
For room sealed operation and coaxial balanced flue routing.

Components for the plastic flue systems (cont.)

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

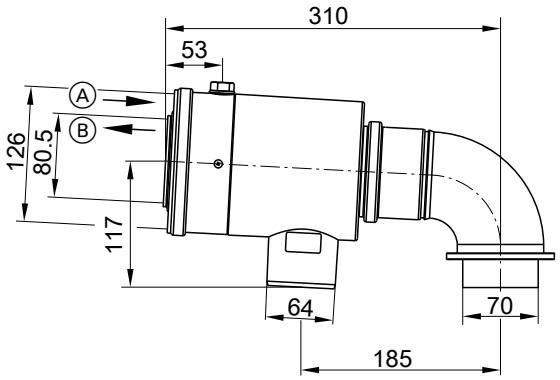


Ⓐ Ventilation air
Ⓑ Flue gas

Boiler	Dimensions [mm]			
	a	b	c	d
Vitoladens 300-T	221.5	40	70	64.5
Vitorondens 200-T	221.5	40	70	64.5

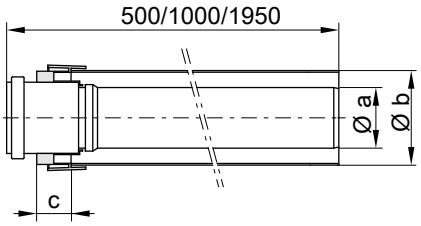
Note
The boiler flue connection is always supplied with the Vitoladens 300-C boiler

Horizontal boiler flue connection
For room sealed 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

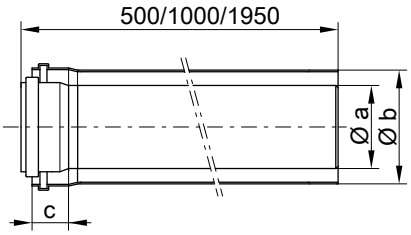


Ⓐ Ventilation air
Ⓑ Flue gas

Balanced flue pipe
These pipes may be trimmed as required.



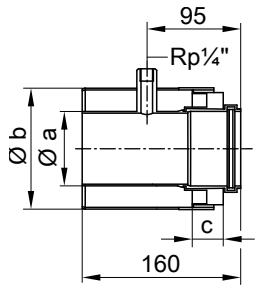
System size Ø 80 mm



System size Ø 110 mm

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

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



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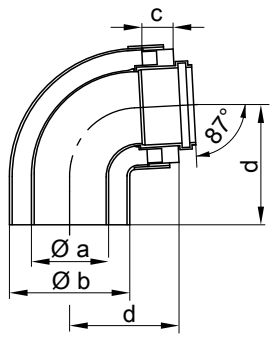
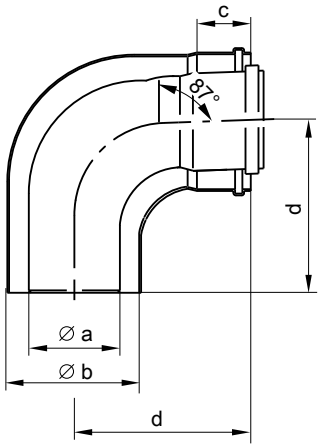
Components for the plastic flue systems (cont.)

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

Balanced flue bend (87°)



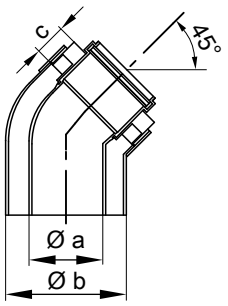
System size Ø 80 mm



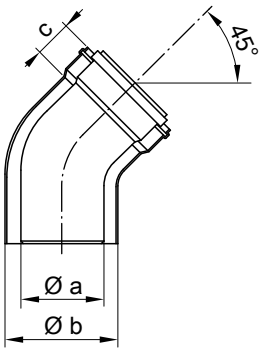
System size Ø 110 mm

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

Balanced flue bend (45°)
Standard pack 2 pce



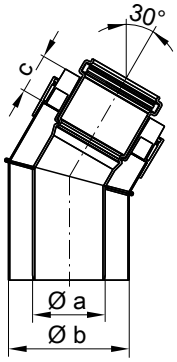
System size Ø 80 mm



System size Ø 110 mm

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

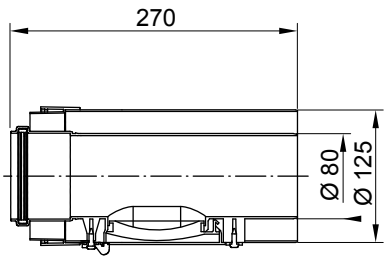
Balanced flue bend (30°)
Standard pack 2 pce



System size Ø 80 mm

System size Ø mm	Dimensions [mm] a	b	c
80	80	125	40

Balanced flue inspection piece (straight)



System size Ø 80 mm

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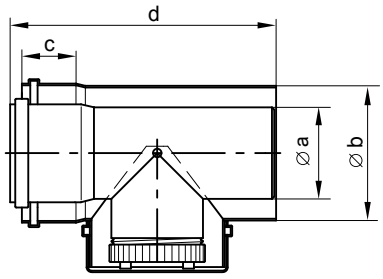
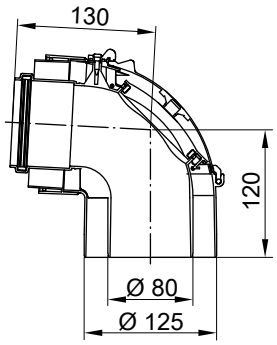


System size Ø 110 mm

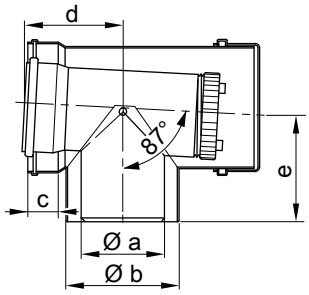
System size Ø mm	Dimensions [mm] a	b	c	d
110	110	150	40	270

Balanced flue inspection bend (87°)



System size Ø 80 mm

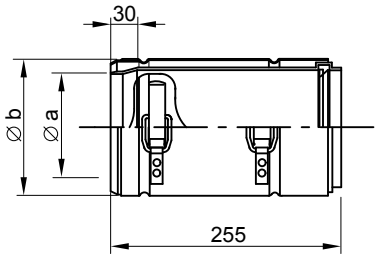
Balanced flue inspection tee (87°)



System size Ø 110 mm

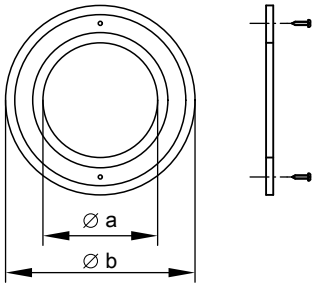
System size Ø mm	Dimensions [mm] a	b	c	d	e
110	110	150	40	130	140

Balanced flue slide coupling



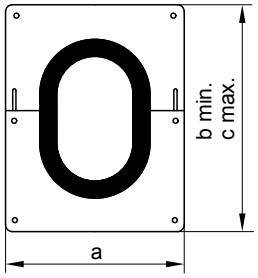
System size Ø mm	Dimensions [mm] a	b
80	80	125
110	110	150

Balanced flue wall bezel



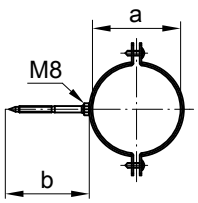
System size Ø mm	Dimensions [mm] a	b
80	130	230
110	152	230

Universal cover plate



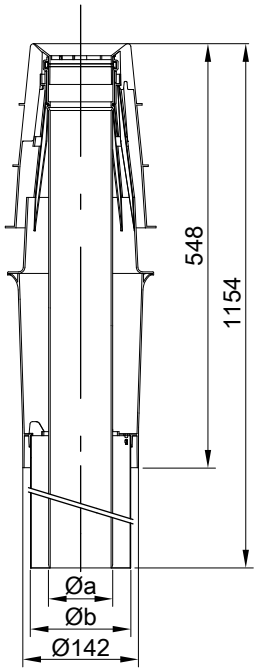
System size Ø mm	Dimensions [mm] a	b	c
80	250	246	310
110	280	280	350

Fixing clamp
For routing over internal or external walls; white.



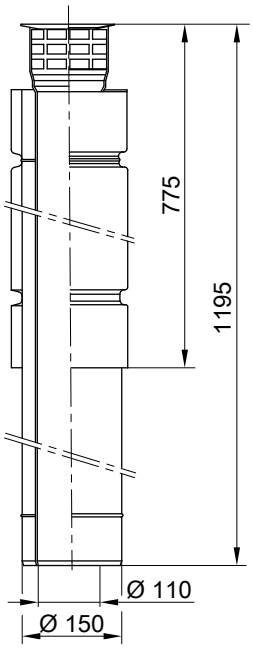
System size Ø mm	Dimensions [mm] a	b
80	125	110
110	150	110

Balanced flue roof outlet
with fixing clamp



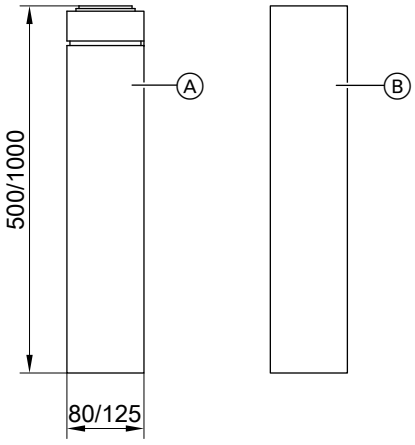
System size Ø 80 mm

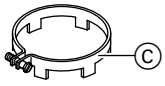
System size Ø mm	Dimensions [mm] a	b
80	80	125



System size Ø 110 mm

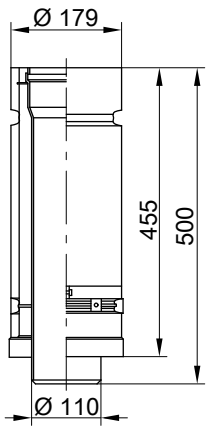
Above roof extension





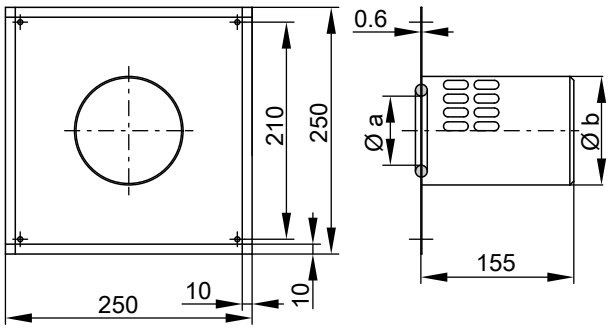
System size Ø 80 mm

Ⓐ Above roof extension
Ⓑ Casing pipe
Ⓒ Bracing clamp



System size Ø 110 mm

Balanced flue air inlet adaptor



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

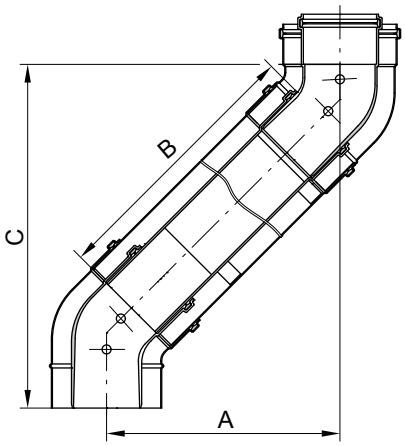
Elbow in the balanced flue pipe

Smallest offset A (2 x 45º balanced flue bend):
- 93 mm for system size Ø 80 mm (C = 223 mm)
- 140 mm for system size Ø 110 mm (C = 328 mm):

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

Offset:
- In excess of 93 mm for system size Ø 80 mm
- In excess of 140 mm for system size Ø 110 mm:

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



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 110 mm

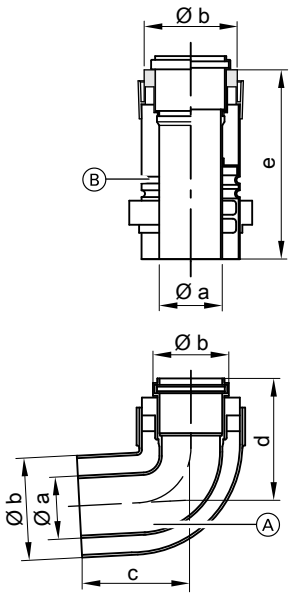
Offset	A (mm)	200	250	300	350	390
Extension	B (mm)	134	205	275	346	403
Installed height	C (mm)	390	438	488	538	578

3.2 Components for routing over external walls

Note
With system size 80/125: the corresponding AZ components are used for outer wall pipe, bend and inspection piece: See page 34.

Components for the plastic flue systems (cont.)

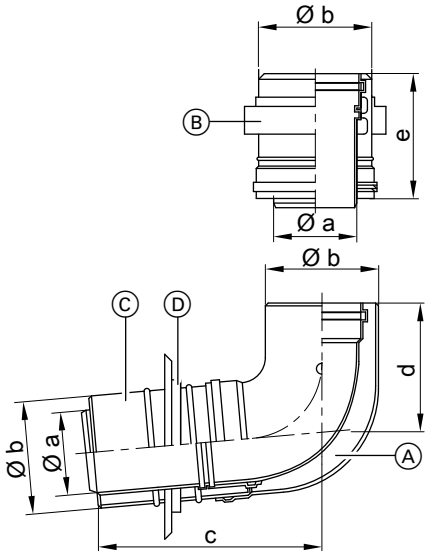
External wall pack



System size Ø 80 mm

Ⓐ External wall bend
Ⓑ Air inlet piece

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

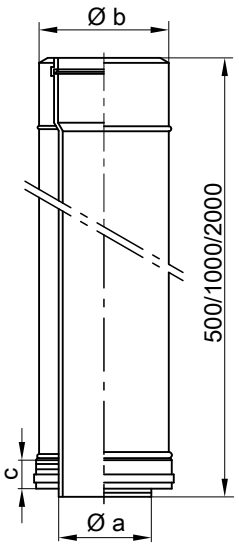


System size Ø 110 mm

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

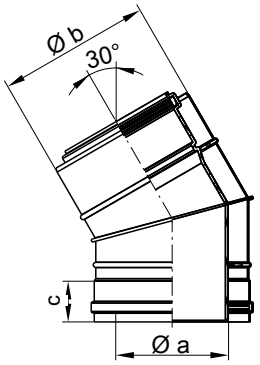
System size Ø mm	Dimensions [mm] a	b	c	d	e
110	110	150	295	170	165

External wall pipe



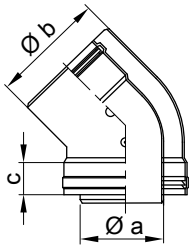
System size Ø mm	Dimensions [mm] a	b	c
110	110	150	40

External wall bend (30°)



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

External wall bend (45°)



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

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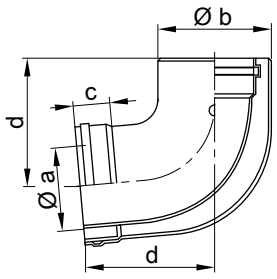
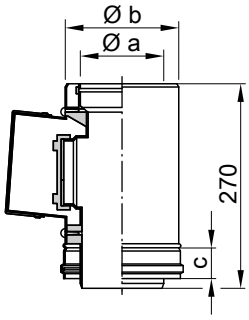
External wall bend (87°)



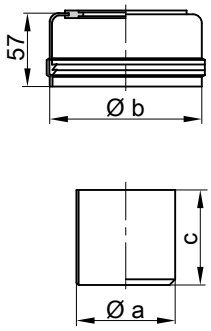
System size Ø mm	Dimensions [mm] a	b	c	d
110	110	150	40	170

External wall inspection piece



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

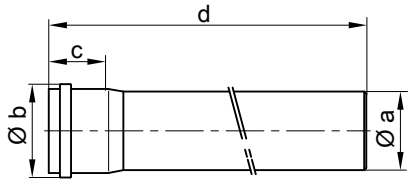
External wall terminal



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

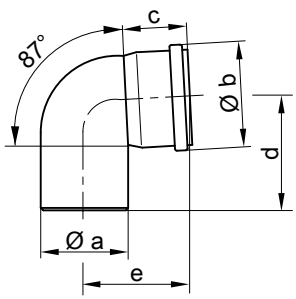
3.3 Single pipe system components

Flue pipe
These pipes may be trimmed as required.



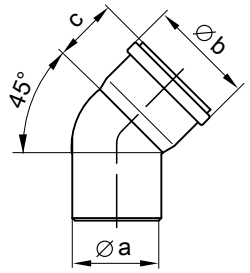
System size Ø mm	Dimensions [mm] a	b	c	d
80	80	94	57	500/1000/1950
110	110	128	72	500/1000/2000

Flue bend (87°)



System size Ø mm	Dimensions [mm] a	b	c	d	e
80	80	94	60	120	130
110	110	128	72	130	130

Flue bend (45°)
Standard pack 2 pce



System size Ø mm	Dimensions [mm] a	b	c
80	80	94	60
110	110	128	72

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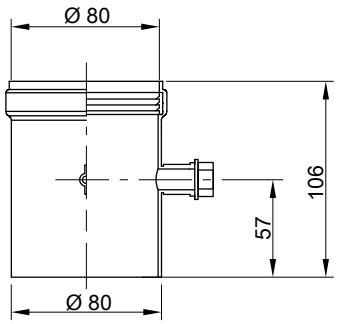
Components for the plastic flue systems (cont.)

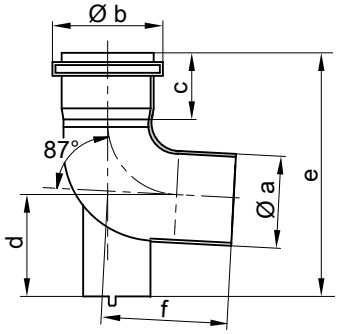
Boiler flue connection
- For the Vitoladens 300-C and 300-T, subject to order, part of the standard boiler delivery.



For open flue or room sealed operation and for parallel flue/ventilation air routing.

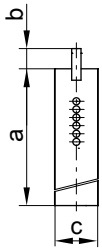
Standard shaft pack
Comprising support bend, support rail, shaft cover and spacers.

Support bend



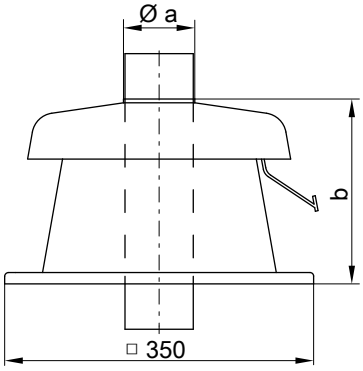
System size Ø mm	Dimensions [mm] a	b	c	d	e	f
80	80	94	60	80	210	120
110	110	128	72	112	245	120

Support rail



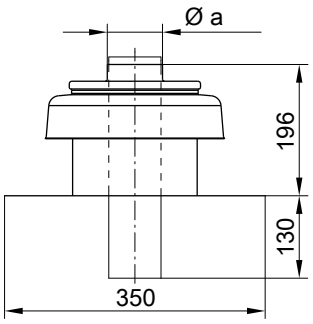
System size Ø mm	Dimensions [mm] a	b	c
80	350	50	50
110	350	50	50

Shaft cover, PPs
Fixing materials are part of the standard delivery.



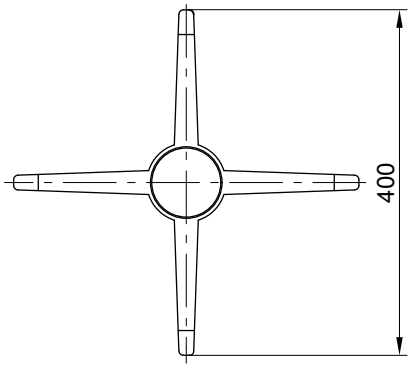
System size Ø mm	Dimensions [mm] a	b
80	80	229
110	111	201

Metal shaft cover
Fixing materials are part of the standard delivery.

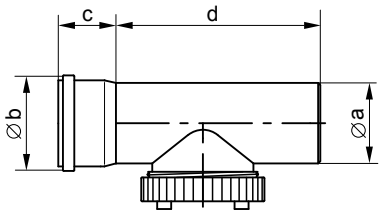


System size Ø mm	Dimensions [mm] a
80	80
110	110

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

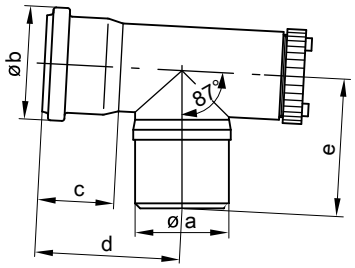


Inspection piece (straight)



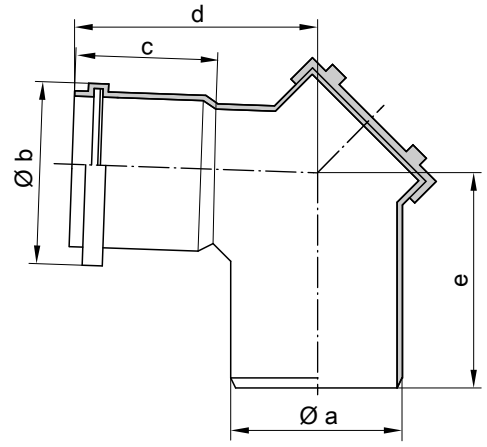
System size Ø mm	Dimensions [mm] a	b	c	d
80	80	94	60	210
110	110	128	72	201

Inspection tee



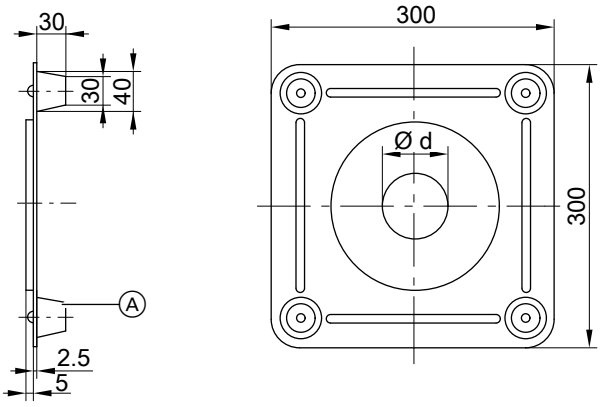
System size Ø mm	Dimensions [mm] a	b	c	d	e
80	80	94	60	142	130

Inspection bend



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

Ventilation bezel



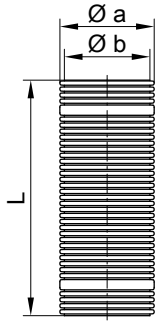
Ⓐ Spacer

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

3.4 Components of the flexible single pipe system for flexible flues

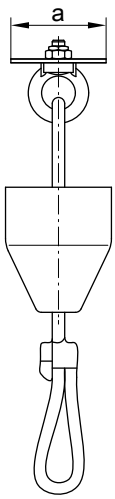
Flue pipe, flexible
Standard pack (length L) 12.5 or 25 m on a roll

Components for the plastic flue systems (cont.)



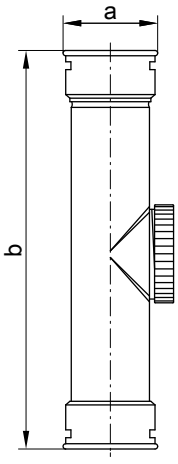
System size Ø mm	Dimensions [mm] a	b
80	88	77
110	113	101

Pipe lowering attachment
With 25 m rope



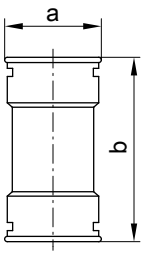
System size Ø mm	Dimensions [mm] a
80	88
110	111

Inspection piece (straight)



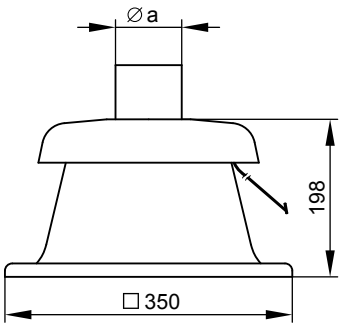
System size Ø mm	Dimensions [mm] a	b
80	102	325
110	127	326

Connection piece



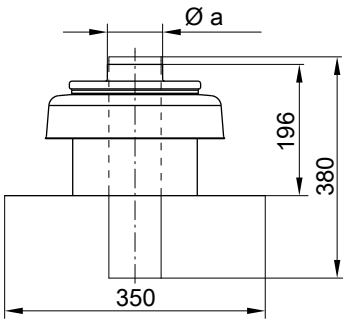
System size Ø mm	Dimensions [mm] a	b
80	102	140
110	127	140

Shaft cover PPs
With terminal



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

Metal shaft cover
Fixing materials are part of the standard delivery.



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

Spacer
Standard pack 5 pce

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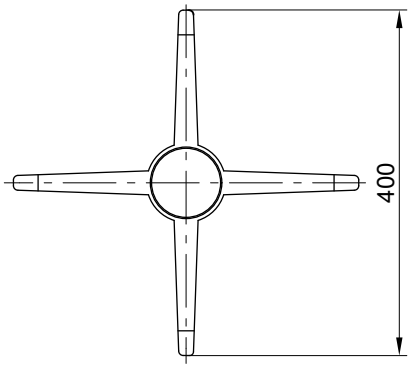
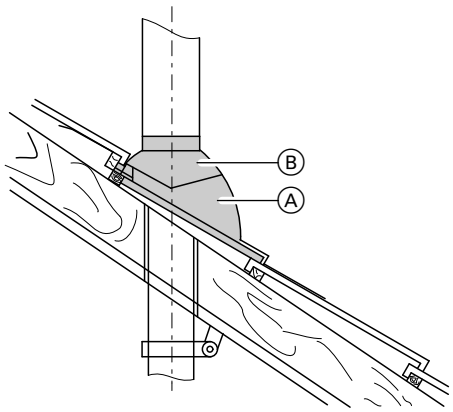
Suitable for internal shaft dimensions 130 × 130 mm to 250 × 250 mm or Ø 150 mm to Ø 300 mm.



System size Ø 80 and 110 mm

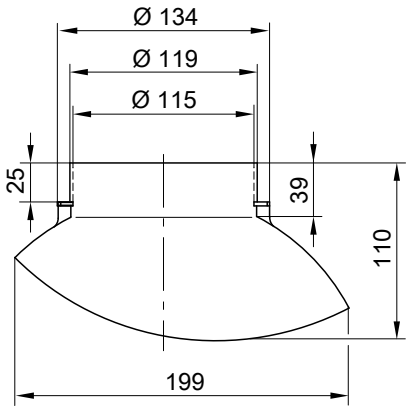
3.5 Roof elements

Universal roof tile
Suitable for roof slopes of 25 to 45°.

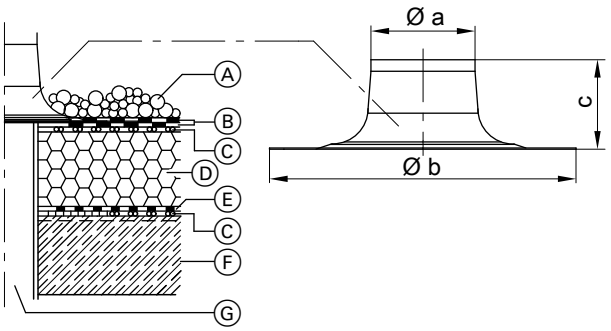


Ⓐ Universal roof tile
Ⓑ Pipe outlet for universal roof tile

Pipe outlet for Klöber roof tile
Suitable for roof slopes of 20 to 50°.



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
80	135	390	250
110	170	470	250

4.1 Notes

Observe all engineering standards of the building authorities and statutory requirements applicable to the installation and operation of this system. In some regions, permits may be required for the flue system and condensate connection to the public waste water system. The local flue gas inspector and water authorities must be informed prior to commencing installation. Condensing boilers must only be operated with specially designed, tested and approved flue systems.

Keyword index

Subject to technical modifications.

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