Installation instructions

for contractors

Flue system

for condensing boilers

Flue system

5780 223 GB 10/2015

Dispose after installation.

Safety instructions

Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained

Danger
This symbol warns against the risk of injury.

Please note
This symbol warns against the risk of material losses and environmental pollution.

Note
Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively intended for authorised contractors.

- Work on gas installations must only be carried out by a registered gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.

Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- All current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards
  - (A) ÖNORM, EN, ÖVGW-TR Gas, ÖVGW-TRF and ÖVE
  - (CH) SEV, SUVA, SVGW, SVTI, SWKI, VKF and EKAS guideline 1942: LPG, part 2

Working on the system

- Isolate the system from the power supply (e.g. by removing the separate fuse or by means of a mains isolator) and check that it is no longer 'live'.
- Safeguard the system against reconnection.
- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.

Index

Installation sequence

General installation information

Planning

Prior to installation, check that the maximum possible pipe length will not be exceeded.
Max. possible pipe lengths in relation to the boiler used:


Flue systems technical guide

Flue gas temperature protection

The flue pipes are approved for flue gas temperatures up to 120 °C.

With Viessmann condensing boilers, internal safeguards ensure that the maximum permissible flue gas temperature is not exceeded.

Installation information

- The component overviews for the different types of routing also apply to floorstanding condensing boilers.
- Keep flue gas routes short and with the fewest number of bends possible.
- Route horizontal connection pipes with a fall of ≥ 3° (approx. 50 mm/m) towards the boiler.
- Support horizontal connection pipes at intervals of approx. 1 m.
- To avoid damage and leaks, isolate the flue system from sources of vibration (e.g. ventilation systems).
- Check the gaskets in all female connections are correctly seated.
- Prior to installation, lubricate all gaskets with the lubricating paste provided.
- Only use the special gaskets supplied with the boiler.
- Plug-in female connections in the flue gas path must always point in the direction of flow.
- Only use the components supplied with the Viessmann flue system.
- Push the pipes into each other with a slight twist.
- Balanced flue pipes can be trimmed in their assembled state.

Do not carry out **commissioning** until the following conditions are met:
- Free passage through the flue gas pipes.
- Flue system with positive pressure is gas-tight.
- Apertures for ensuring sufficient combustion air supply are open and cannot be closed off.
- Applicable regulations on installing and commissioning flue systems have been followed.

Danger
Leaking or blocked flue systems or an insufficient supply of combustion air cause life threatening poisoning due to carbon monoxide in the flue gas.

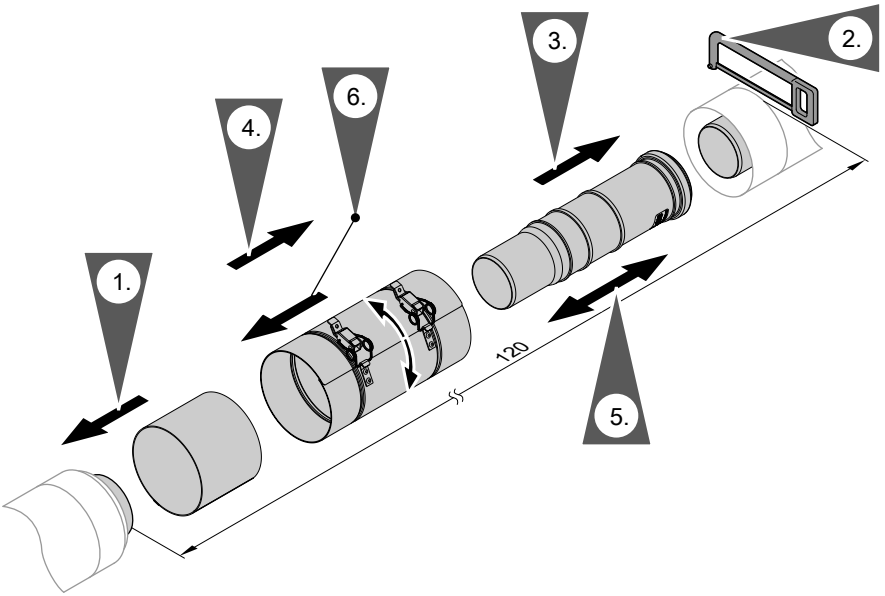
Ensure the flue system functions correctly. Apertures for combustion air supply must not be able to be closed off.

Required tools/equipment

- Rope for lowering the flue system into the shaft (length: chimney height plus 3 m)
- Saw and file for trimming and chamfering the pipe sections
- Power drill for securing the shaft cover and the support rail

Fitting the balanced flue slide coupling

Note
The slide coupling enables a gap of approx. 45 mm to be covered. Prior to installation, compensate for surplus or insufficient length on the incoming pipe.



1. Push the pipe section into the female connection of the incoming balanced flue component.
2. Shorten the ongoing balanced flue pipe to create a gap of 120 mm between the pipe section and the balanced flue pipe.
3. Push the slide coupling onto the ongoing flue pipe.
4. Open the collar and push it over the ongoing balanced flue pipe.
5. Pull the slide coupling out and push it onto the incoming flue pipe.
6. Align the collar and close the toggle fasteners.

Tightness test

After installation, flue systems routed through a shaft must be tested for tightness by the flue gas inspector [check local regulations].

- Pressurised flues which are routed inside buildings and which are not surrounded by combustion air (**open** flue) must be pressure tested.
  For the pressure test, a leak detector is used to pump air into a flue that has been sealed at the top and bottom, until a pressure of **200 Pa** has built. This pressure is maintained while the volume of air leaking out is established.
  A leakage rate of up to 0.006 l/(s x m^2), relative to the internal surface area, is permitted for classifying a flue as sufficiently gas-tight.
- In pressurised flues that are surrounded by combustion air (room sealed), the tightness of the flue can be checked by testing the O_2 content in the combustion air (annular gap test). The flue is considered sufficiently gas-tight if the O_2 content in the combustion air does not deviate from the reference value by more than the following values. The reference value is established following the self-adjustment of the test meter:
  – For flues with general Building Regulations approval 0.4 % by vol.
  – For other flues 0.2 % by vol.

Note
Observe country-specific regulations.

Certification of the balanced flue system

The balanced flue system is CE-designated and approved in accordance with EN 14471 (see flue systems technical guide).

System certification

System certification to EC Gas Appliances Directive EU/2009/142/EC in conjunction with PPs flues offered by Skoberne.

Vitocaldens 222-F	CE-0085CO0306
Vitocrossal 200, type CM2	CE-0085BQ0021
Vitocrossal 300, type CU3	CE-0085BN0570
Vitocrossal 300, type CM3	CE-0085BN0569
Vitocrossal 300, type CT3B, CT3U	CE-0085AQ0257
Vitodens 050-W	CE0085CP0029
Vitodens 100-E, 100-W, 111-W	CE-0085BT0029, CE-0063CQ3356
Vitodens 200-W	CE-0085BR0432, CE-0085CN0050
Vitodens 222-F	CE-0085BU0051, CE-0085CN0050
Vitodens 222-W	CE-0085BR0432, CE-0085CN0050
Vitodens 242-F	CE-0085BU0051, CE-0085CN0050
Vitodens 300-W	CE-0085BR0433, CE-0085CM0463
Vitodens 333-F	CE-0085BU0052, CE-0085CM0463
Vitodens 343-F	CE-0085BU0052, CE-0085CM0463
Vitoladens 300-C	CE-0035BS104, CE-0035CO106
Vitoladens 300-T	CE-0035BO107
Vitoladens 300-W	CE-0035BM112, CE0035CO107
Vitoladens 333-F	CE-0035BM112, CE0035CO107
Vitorondens 200-T	CE-0035CL102
Vitorondens 222-F	CE-0035CL102
Vitosolar 200-F	CE-0085CM0184
Vitosolar 300-F	CE0035CO107
Vitosorp 200-F	CE0085CO0146
Vitotwin 300-W	CE-0085CM0150
Vitovalor 300-P	CE-0085CP0028

Note
Affix the "System certification" and "Flue system ..." labels clearly visible near the flue system or on the boiler.

The labels are supplied with the technical documentation.

Installations requirements

Statutory requirements

The appliance is suitable only for installation in GB and IE and should be installed in accordance with the rules in force. In GB a Gas Safe Registered Installer must carry out the installation. It must be carried out in accordance with the relevant requirements of the:

Gas safety (installation and use) regulations (current issue)

It is in your own interest and safety to ensure that the law is complied with. In addition to the above regulations, this appliance must be installed in accordance with the current IEE Wiring Regulations for electrical installation (BS 7671), local Building Regulations, the Building Standards (Scotland) (Consolidation) Regulations, bye laws of the local water undertaking and Health and Safety Document NO. 635, The Electricity at Work regulations 1989, In Ireland (IE), the installation must be carried out by a Competent Person and installed in accordance with the current edition if I.S.813 "Domestic Gas Installations", The current Building Regulations and references should be made to the current ETCI rules for electrical installation.
It should also be in accordance with the relevant recommendations in the current editions of the following British Standards and Codes of Practice: BS 5449, BS 5546, BS 5440:1, BS 5440:2, BS 6798, BS 7593, BS 6891, IGE/UP/7 and IS 813 for IE.

All Registered installers are required to notify building control when they have installed or exchanged a gas appliance in a residential dwelling, this can be done via Gas Safe.
Gas Safe will then issue either a Building Compliance Certificate (for England and Wales) or a Declaration of Safety (Scotland, Northern Island, Isle of Man or appliances out of the scope of Building Regulations) to the homeowner, which will confirm that the work has been carried out by a competent Gas Safe Registered Installer. This document will be used to form part of the Home Information Pack (HIP).

! **Please note**
Manufacturers instructions must not be taken
in any way as overriding statutory obligations.

Boiler position

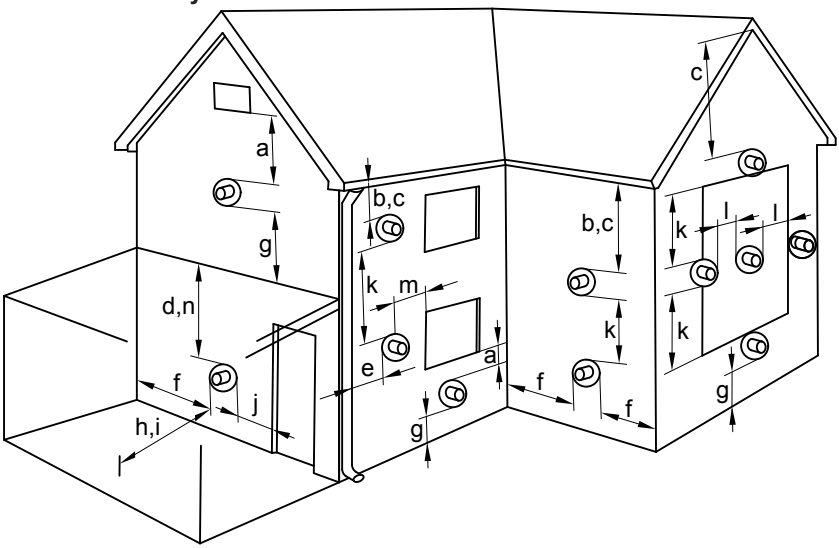
The following limitations must be observed when siting the boiler:

- The boiler is not suitable for external installation. The position selected for the installation should be within the building, unless otherwise protected by a suitable enclosure and must allow adequate space for installation, servicing and operation of the appliance and for air circulation around it.
- The position must allow for a suitable flue system and terminal position. The boiler must be installed on a flat vertical wall capable of supporting the weight of the appliance and any ancillary equipment when full.
- Due consideration should be given to the routing of the condensate drain from the chosen position.
- If the boiler is to be fitted in a timber framed building it should be fitted in accordance with ige/up/7. If in doubt advice must be sought from the Institute of Gas Engineers.
- If the appliance is to be installed in a room containing a bath or shower, any electrical switch or control utilising mains electricity must be so situated that it cannot be touched by a person using the bath or shower. Attention is drawn to the requirements of BS 7671 (the current I.E.E Wiring Regulations) and in Scotland the electrical provisions of the Building Regulations applicable in Scotland.
- A compartment used to enclose the appliance must be designed and constructed specifically for this purpose. An existing cupboard or compartment may be used provided it is modified accordingly. BS 7698:2000 gives details of the essential features of cupboard / compartment design, including airing cupboards. The Vitodens range does not require compartment ventilation.
- Where installation will be in an unusual location, special procedures may be necessary. BS 6798 gives detailed guidance on this aspect.

Installations requirements (cont.)

Flue terminal position

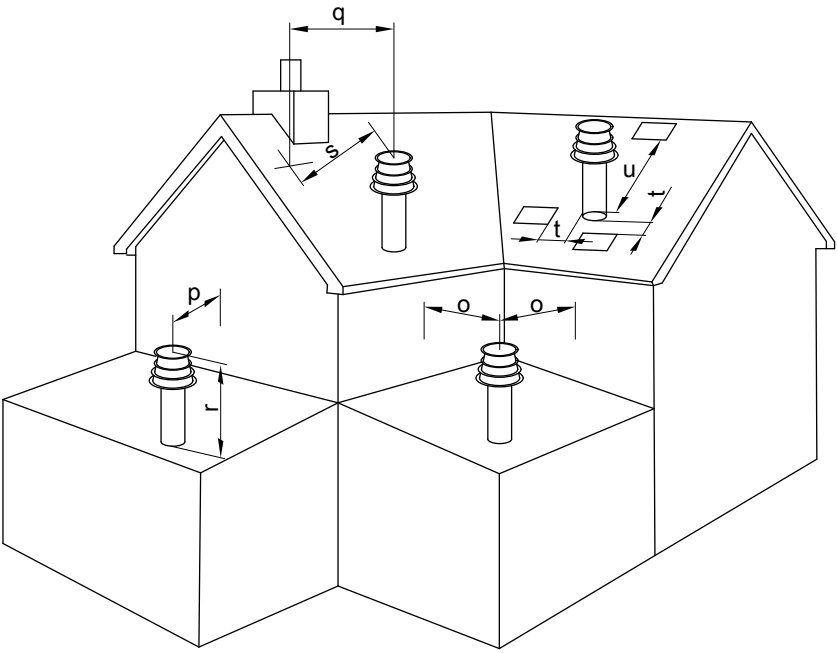
Horizontal flue system



Position		Minimum spacing mm
a	Directly below an opening window, air vent or any other ventilation opening	300
b	Below a gutter drain or soil pipe	75
c	Below eaves	200
d	Below a balcony	200
e	From vertical drain or soil pipes	150
f	From internal and external corners	300
g	Above adjacent ground or balcony level/roof	300
h	From a surface facing the terminal	600
i	Facing terminals	1200
j	From opening door/window	1200
k	Vertically from a terminal on same wall	1500
l	Horizontally from a terminal on same wall	300
m	Adjacent to opening	300
n	Below carport/roof	not recommended

Installations requirements (cont.)

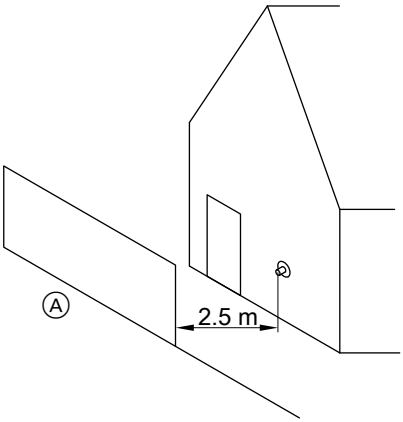
Vertical flue systems



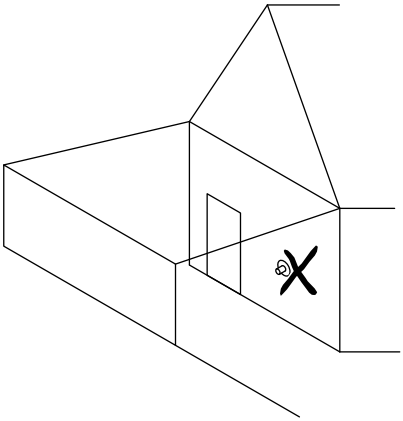
Position		Minimum spacing mm
o	From adjacent wall	300
p	From adjacent opening window	1000
q	From another terminal	600
r	Minimum height	300
s	Minimum distance measured perpendicular to roof covering	400
t	Beside or above an opening rooflight	600
u	Below an opening rooflight	2000

Installations requirements (cont.)

Minimum distance from terminal

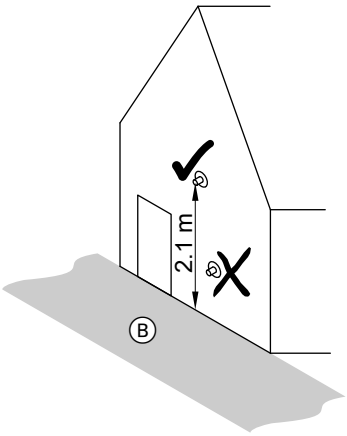


Ⓐ Boundary



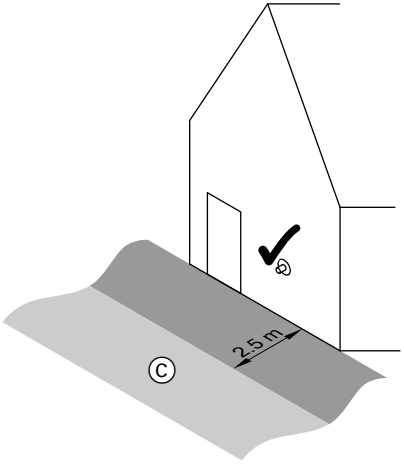
Not under a car port

Installations requirements (cont.)



Avoid access routes and patios

Ⓑ Walkway or patio



Minimum distance to car parking space

Ⓒ Car space

Routing through a shaft

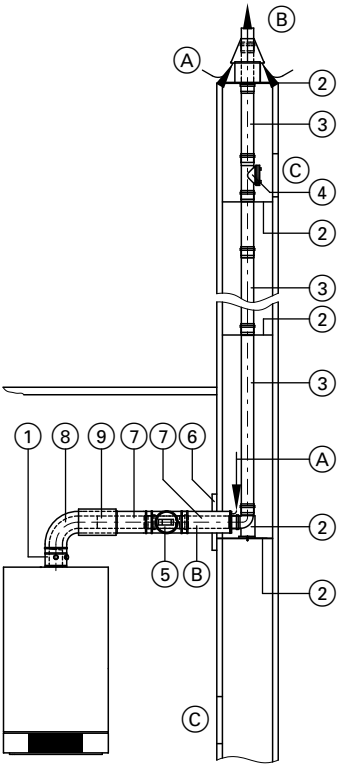
Installation information

Prior to installation, the local flue gas inspector should check that the shaft to be used is suitable and permissible [where applicable].
In the installation room, at least one inspection port must be provided in the flue system for inspection, cleaning and for testing the pressure (if required). If the flue is not accessible from the roof, a second inspection port must be provided behind the chimney cleaning hatch in the attic.

Provide an inspection port at the base of the shaft for inspecting the secondary ventilation. Safeguard the condensate drainage from the flue to the boiler with a fall of at least 3° (approx. 50 mm/m).
The flue system must protrude clear of the roof. Observe 400 mm roof protrusion parallel to the roof slope according to FeuVo [or local regulations].

Rigid flue

Room sealed operation



Ⓐ Supply air
Ⓑ Flue gas
Ⓒ Inspection port

①	**Boiler flue connection**
②	**Standard shaft pack** Comprising: ■ Support bend ■ Support rail ■ Shaft cover ■ Spacers (5 pce)
③	**Flue pipe** 2 m long 1 m long 0.5 m long
	Flue bend (for use in corbelled chimneys) 30° or 15°
④	**Inspection piece,** straight
⑤	**Balanced flue inspection piece,** straight
⑥	**Balanced flue wall bezel**
⑦	**Balanced flue pipe** 1 m long 0.5 m long
⑧	**Balanced flue bend** 87° or 2 x 45° or **Balanced flue inspection tee** or **Balanced flue inspection bend**
⑨	**Balanced flue slide coupling**
	Fixing clamp
	Balanced flue adaptor ∅ 60/100 mm to ∅ 80/125 mm

Maximum flue length

Vitodens 100-W, type WB1B: 10 m

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Routing through a shaft (cont.)

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	26.0	26.0	30.0	35.0
System size 60/100	m	15	15	15	15
System size 80/125	m	25	20	20	20

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60/100	m	20	20	20	15	—	—	—	—
System size 80/125	m	25	25	25	25	20	15	—	—
System size 100/150	m	—	—	—	—	25	20	20	20

Note

For alternative system sizes, a balanced flue adaptor is required.

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

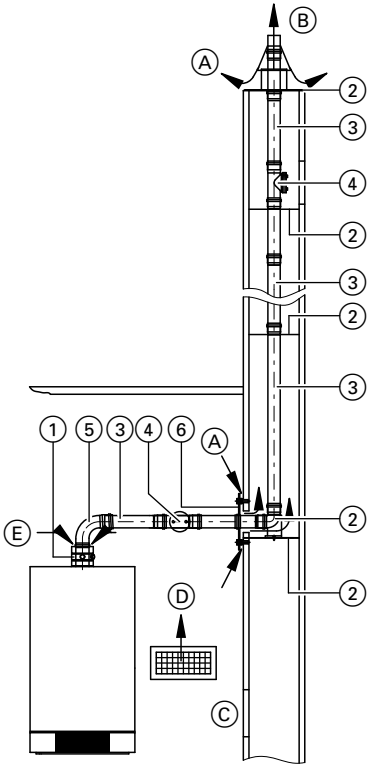
- Balanced flue connection pipe 0.5 m long
- 1 balanced flue bend 87° and 1 support bend 87°
  or
- 2 balanced flue bends 45° and 1 support bend 87°

Subtract other bends, tees and straight lengths 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

Routing through a shaft (cont.)

Open flue operation



①	**Boiler flue connection**
②	**Standard shaft pack** Comprising: ■ Support bend ■ Support rail ■ Shaft cover ■ Spacers (5 pce)
③	**Flue pipe** 2 m long 1 m long 0.5 m long
	Flue bend (for use in corbelled chimneys) 30° or 15°
④	**Inspection piece,** straight
⑤	**Flue bend** 87° or 2 x 45° or **Inspection tee** 87°
⑥	**Ventilation bezel**
	Adaptor ∅ 60 mm to ∅ 80 mm

Ⓐ Secondary ventilation
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Supply air vent
Ⓔ Supply air

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Routing through a shaft (cont.)

Maximum flue length

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	19	26.0	30.0	35.0
System size 60	m	15	15	20	20
System size 80	m	20	20	20	20

Note
For system size 80, an adaptor is required.

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60	m	20	20	20	15	—	—	—	—
System size 80	m	25	25	25	25	20	15	—	—
System size 100	m	—	—	—	—	25	20	20	20

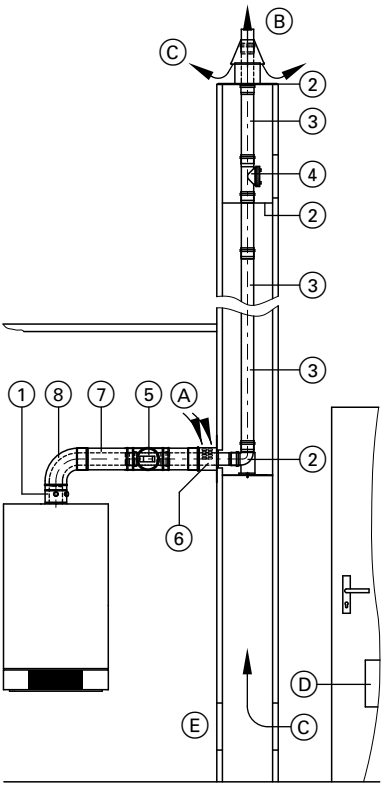
The following components are taken into consideration for the maximum flue lengths:
- Connection pipe 0.5 m long
- 1 flue bend 87° and 1 support bend 87°
  or
- 2 flue bend 45° and 1 support bend 87°

Subtract other bends, tees and straight lengths from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Flue bend 45°: 0.3 m
- Flue bend 87°: 0.5 m
- Inspection tee: 0.3 m

Open flue operation with combustion air supply via interconnected rooms

Only possible with system sizes 60 and 80.
The connection piece to the shaft is constructed as part of the balanced flue system. The combustion air is drawn from the room via an opening immediately by the chimney entry (air inlet adaptor).
An adequate combustion air supply, as specified by the TRGI 2008, must be ensured inside the room by means of an interconnected combustion air supply:
- Minimum volume of the interconnected rooms, 4 m^3 per kW rated heating output
- Vents in the connecting doors: min. 150 cm^2

Routing through a shaft (cont.)

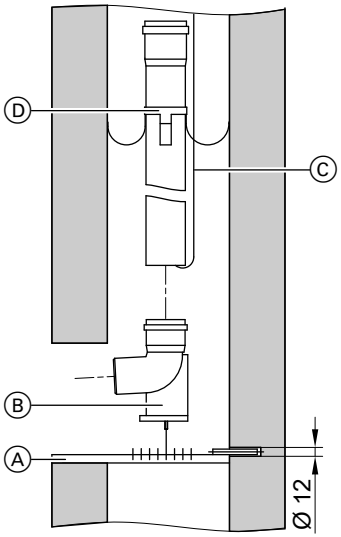


①	**Boiler flue connection**
②	**Standard shaft pack** Comprising: ■ Support bend ■ Support rail ■ Shaft cover ■ Spacers (5 pce)
③	**Flue pipe** 2 m long 1 m long 0.5 m long
	Flue bend (for use in corbelled chimneys) 30° or 15°
④	**Inspection piece,** straight
⑤	**Balanced flue inspection piece,** straight
⑥	**Balanced flue air inlet adaptor**
⑦	**Balanced flue pipe** 1 m long 0.5 m long
⑧	**Balanced flue bend** 87° or 2 x 45° or **Balanced flue inspection tee** or **Balanced flue inspection bend**

Ⓐ Supply air
Ⓑ Flue gas
Ⓒ Secondary ventilation
Ⓓ Aperture for air supply via interconnected rooms
Ⓔ Inspection port

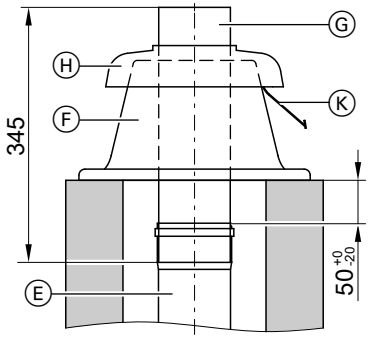
Routing through a shaft (cont.)

Installation

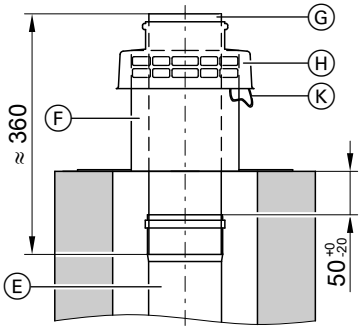


1. Drill a 12 mm ∅ hole into the centre of the rear shaft wall to secure support rail Ⓐ.
2. Insert support rail Ⓐ into the drilled hole, and secure to the front shaft wall with screws or mortar.
3. Position support bend Ⓑ and use the pin to secure it in a hole in the support rail.
4. Attach installation rope Ⓒ to the outside of the lowest vertical pipe section.
5. Subject to shaft size, install a spacer Ⓓ every 2 to 5 m and for each profiled piece (e.g. inspection piece or bend). Bent ends facing up.
6. Apply lubricating paste and push the pipes into each other with a slight twisting motion.
7. Lower the pipes into the shaft using installation rope Ⓒ.
8. Remove the rope and push the lowest pipe into support bend Ⓑ.

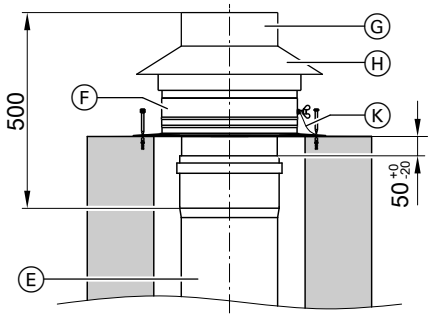
Routing through a shaft (cont.)



System size 60 to 100 mm



System size 125 to 200 mm



System size 250 mm

9. Have highest pipe section Ⓔ end approx. 50 mm below the top edge of the shaft.

10. Secure the lower part of shaft cover Ⓕ.

11. **System size 60 to 100 mm:**
Push on terminal pipe Ⓖ.

Note
For weight reasons, never trim terminal pipe Ⓖ.

System size 125 to 200 mm:
Trim final pipe section Ⓖ (without female connection). The pipe end should be as flush as possible with fitted flue collar Ⓗ.

12. Push on flue collar Ⓗ and fasten safety rope Ⓚ to the base.

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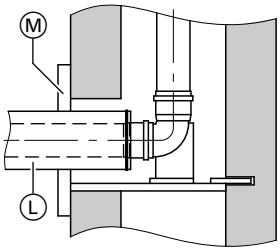
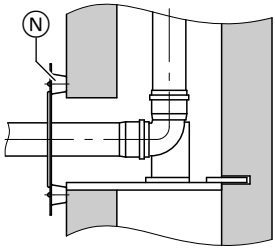
Routing through a shaft (cont.)

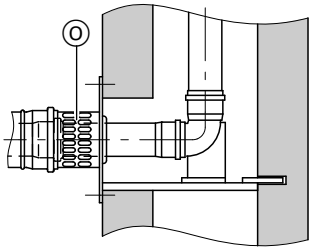
Fitting the connecting pipe



1. Only for **room sealed** operation:
   Trim final ventilation air pipe Ⓛ of the connecting pipe so that it ends level with the internal surface of the shaft wall.



2. **Room sealed** operation:
   Slide balanced flue wall bezel Ⓜ onto the pipe and push it against the shaft opening.
   Open flue operation:
   Slide ventilation bezel Ⓝ onto the pipe and push it against the shaft opening.



Note
The gap created is designed to provide secondary ventilation for the shaft.
No additional ventilation grille is required.

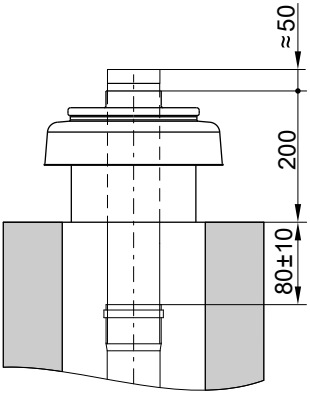
Open flue operation with combustion air supply via interconnected rooms:
Push the flue pipe onto the support bend. Slide on air inlet adaptor Ⓞ and secure it to the shaft.

Fitting a metal shaft cover

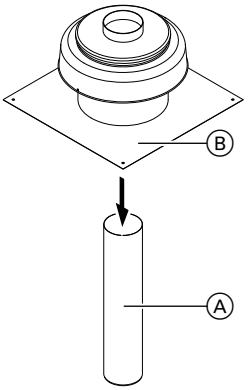
For routing a plastic flue inside a twin flue shaft, in conjunction with a solid fuel boiler.
The metal end piece must protrude into the shaft by a length that is equal to or greater than the flue pipe diameter.

If necessary, use the stainless steel extension which is available as an accessory.

Routing through a shaft (cont.)



1. Have the highest pipe section end approx. 80 mm below the top edge of the shaft.

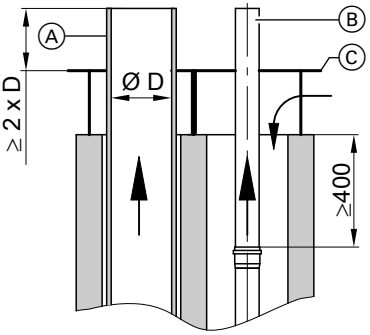


2. Push on metal pipe section Ⓐ. If required, use an extension (accessories).

3. Position shaft cover Ⓑ and secure to the shaft with the fixing materials provided.

Routing through a shaft (cont.)

Stainless steel extension in conjunction with on-site shaft cover

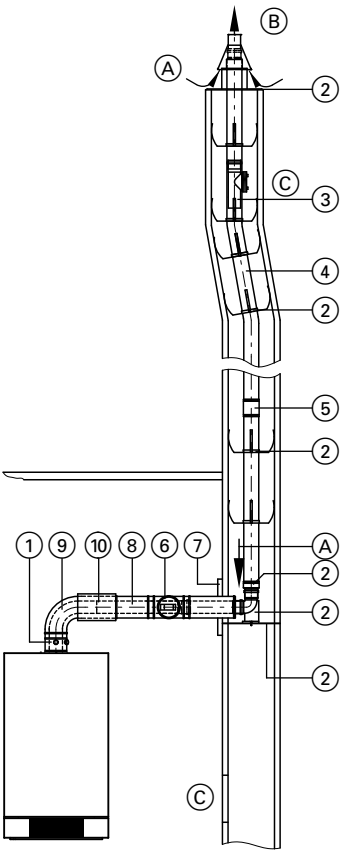


The shaft cover as a shared down-draught plate (chimney cowl) must be provided on site.

Ⓐ Chimney extension made from soot fire resistant material
Ⓑ Stainless steel extension
Ⓒ Shaft cover (on-site)

Flexible flue

Room sealed operation



Ⓐ Supply air
Ⓑ Flue gas
Ⓒ Inspection port

①	**Boiler flue connection**
②	**Standard shaft pack** (flexible) Comprising: ■ Support bend ■ Connection pieces ■ Support rail ■ Shaft cover ■ Spacers (5 pce)
③	**Inspection piece,** straight (for installation in the flexible flue)
④	**Flexible flue**
⑤	**Connection piece** For connecting residual lengths of the flexible flue
	Pipe lowering attachment With 20 m rope
⑥	**Balanced flue inspection piece,** straight
⑦	**Wall bezel**
⑧	**Balanced flue pipe** 1 m long 0.5 m long
⑨	**Balanced flue bend** 87° or 2 x 45° or **Balanced flue inspection tee** or **Balanced flue inspection bend**
⑩	**Balanced flue slide coupling**
	Balanced flue adaptor ∅ 60/100 mm to ∅ 80/125 mm

Routing through a shaft (cont.)

Maximum flue length

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	19	26.0	30.0	35.0
System size 80	m	20	20	20	20

Note
For system size 80, an adaptor is required.

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60	m	18	18	—	—	—	—	—	—
System size 80	m	25	25	25	25	20	15	—	—
System size 100	m	—	—	—	—	22	17	20	20

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

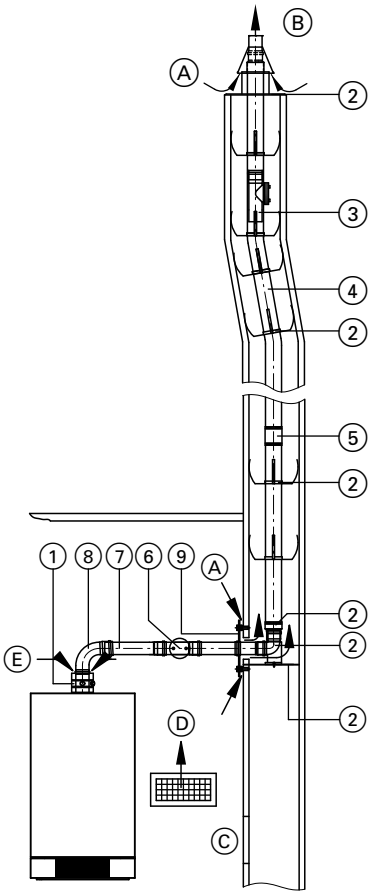
- Balanced flue connection pipe 0.5 m long
- 1 flue bend 87° and 1 support bend 87°
  or
- 2 flue bend 45° and 1 support bend 87°

Subtract other bends, tees and straight lengths from the maximum length using the following values:

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

Routing through a shaft (cont.)

Open flue operation



①	**Boiler flue connection**
②	**Standard shaft pack (flexible)** Comprising: ■ Support bend ■ Connection pieces ■ Support rail ■ Shaft cover ■ Spacers (5 pce)
③	**Inspection piece,** straight (for installation in the flexible flue)
④	**Flexible flue**
⑤	**Connection piece** For connecting residual lengths of the flexible flue
	Pipe lowering attachment With 20 m rope
⑥	**Inspection piece,** straight
⑦	**Flue pipe** 1 m long 0.5 m long
⑧	**Flue bend** 87° or 2 x 45° or **Inspection tee** 87°
⑨	**Ventilation bezel**
	Adaptor ∅ 60 mm to ∅ 80 mm

Ⓐ Secondary ventilation
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Supply air vent
Ⓔ Supply air

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Routing through a shaft (cont.)

Maximum flue length

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	19	26.0	30.0	35.0
System size 80	m	20	20	25	25

Note
For system size 80, an adaptor is required.

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60	m	18	18	—	—	—	—	—	—
System size 80	m	25	25	25	25	20	15	—	—
System size 100	m	—	—	—	—	22	17	20	20

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

Subtract other bends, tees and straight lengths from the maximum length using the following values:
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Flue bend 45°: 0.3 m
- Flue bend 87°: 0.5 m
- Inspection tee: 0.3 m

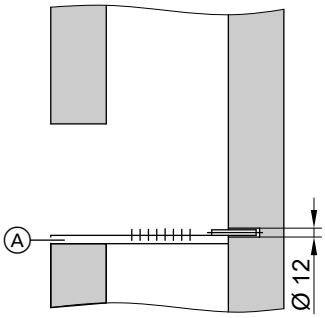
Installation

Danger
To ensure correct function, route the flexible flue at a maximum angle of 45° from the vertical. Never pull the flexible flue pipe over sharp edges during installation.

Note:
- *Always draw the flue pipe in from the top downwards.*
- *Observe flow direction (arrow on components).*
- *Subject to shaft size, install spacers at intervals of max. 2 m.*
- *Insert a spacer before and after each change in direction and each inspection piece.*
- *The flue must not come into contact with the shaft wall.*

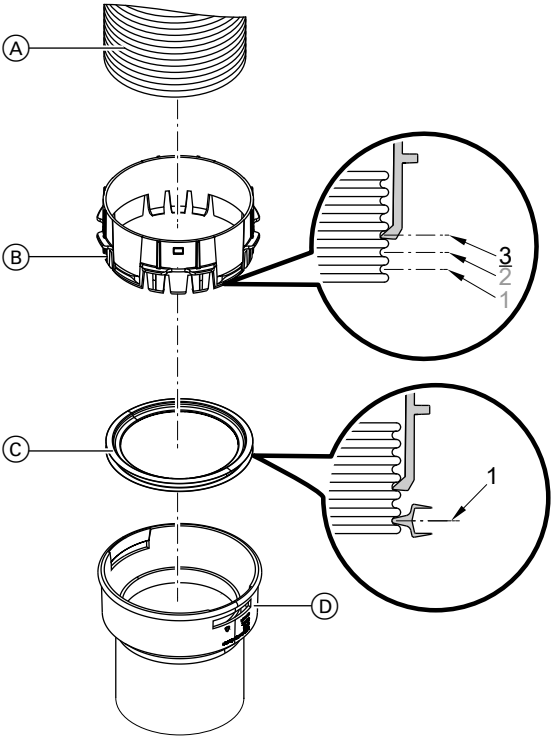
Routing through a shaft (cont.)

Fitting the support rail in the shaft



1. Drill a 12 mm ∅ hole into the centre of the rear shaft wall to secure support rail Ⓐ.
2. Insert support rail Ⓐ into the drilled hole, and secure to the front shaft wall with screws or mortar.

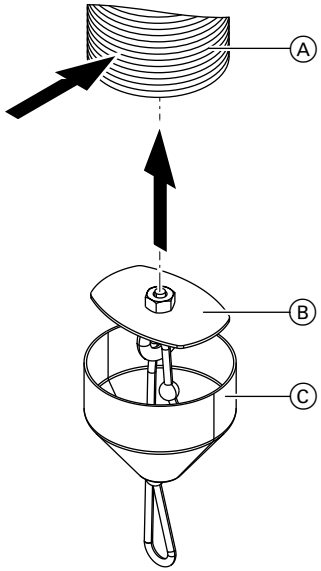
Fitting an inspection piece, connection piece or connector



Routing through a shaft (cont.)

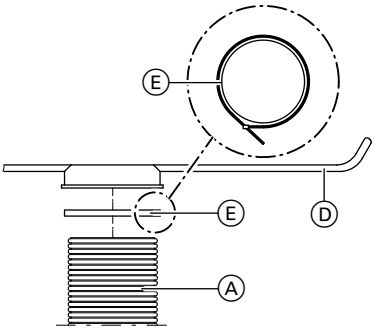
1. Trim flexible flue pipe Ⓐ cleanly at right angles.
2. Click spacer tooth of mounting ring Ⓑ into the 3rd groove of flexible flue Ⓐ.
3. Insert gasket Ⓒ into the 1st groove of flexible flue Ⓐ.
4. Push inspection piece, connection piece or connector Ⓓ onto mounting ring Ⓑ until it clicks into position.

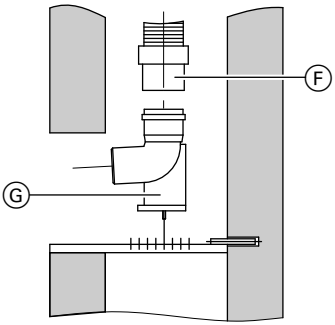
Fitting the pipe lowering attachment and drawing the flexible flue into the shaft



1. Compress the end of flexible flue Ⓐ into a slightly oval shape. Insert plate Ⓑ of the pipe lowering attachment into the 3rd groove of the flue pipe.
2. Push leading cone Ⓒ onto flexible flue Ⓐ. The end of the flue pipe must be completely covered.
3. Secure the rope to the loop of the pipe lowering attachment.

Routing through a shaft (cont.)





4. Slot spacer Ⓓ onto flue Ⓐ (bent ends in flue gas flow direction).

5. Position provided cable ties Ⓔ around the ring of spacers Ⓓ and tighten.

6. Pull flexible flue Ⓐ from the top downwards into the shaft. Never pull the flue over sharp edges.

7. Remove the pipe lowering attachment from the flue.

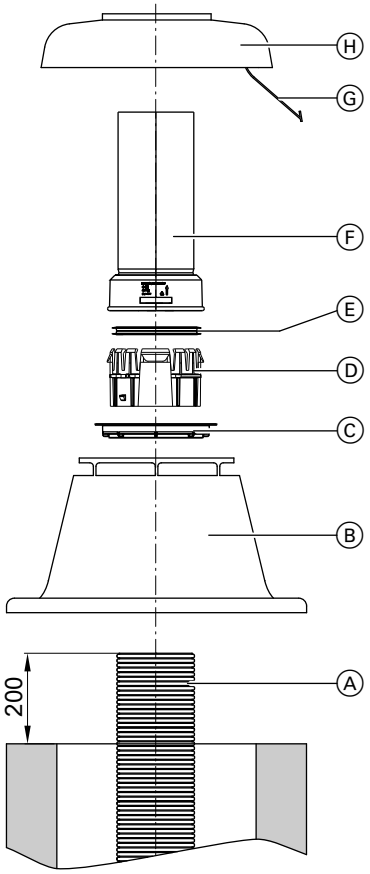
8. Fit connector Ⓕ to flue Ⓐ (see page 30).

9. Position support bend Ⓖ and use the pin to secure it in a hole in the support rail.

10. Coat connector Ⓕ with lubricating paste and push it into support bend Ⓖ.

Routing through a shaft (cont.)

Fitting a plastic shaft cover



1. Route flexible flue Ⓐ through shaft cover Ⓑ.
2. Trim flexible flue Ⓐ 200 mm above the top edge of the shaft.
3. Position base of shaft cover Ⓑ on the shaft and secure.
4. Only for ∅ 60 and 80 mm: Position reducer ring Ⓒ on the base of shaft cover Ⓑ.
5. Click spacer tooth of mounting ring Ⓓ into the 3rd groove of flexible flue Ⓐ. See page 30.
6. Insert gasket Ⓔ into the 1st groove of flexible flue Ⓐ.
7. Push terminal pipe Ⓕ onto mounting ring Ⓓ until it clicks into position.
8. Hook safety rope Ⓖ into the drilled hole in shaft cover Ⓑ.
9. Push cowl Ⓗ over terminal pipe Ⓕ and click into place on shaft cover Ⓑ.

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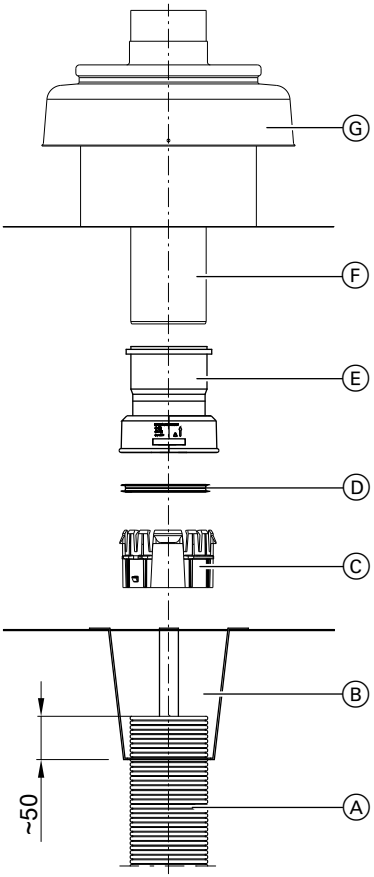
Routing through a shaft (cont.)

Fitting a metal shaft cover



1. Route flexible flue Ⓐ through retainer Ⓑ.
2. Position retainer Ⓑ on the shaft.
3. Trim flue Ⓐ approx. 50 mm above the retaining plate of retainer Ⓑ.
4. Pull flexible flue Ⓐ up far enough to allow mounting ring Ⓒ to be fitted. Click mounting ring Ⓒ into the 3rd groove of flexible flue Ⓐ. See page 30.
5. Insert gasket Ⓓ into the 1st groove of flexible flue Ⓐ.
6. Push adaptor Ⓔ onto mounting ring Ⓒ until it clicks into position.
7. Push terminal pipe Ⓕ into adaptor Ⓔ.
8. Push cowl Ⓖ onto terminal pipe Ⓕ and secure.

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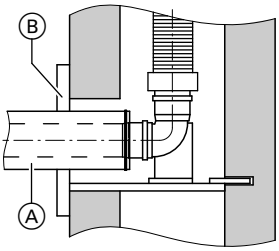
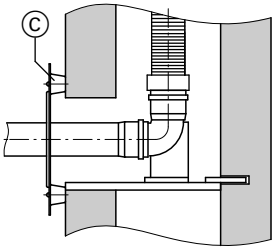
Routing through a shaft (cont.)

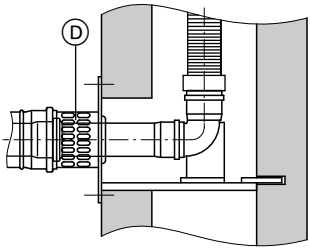
Fitting the connecting pipe



1. Only for **room sealed** operation:
   Trim final ventilation air pipe Ⓐ of the connecting pipe so that it ends level with the internal shaft wall surface.



2. **Room sealed** operation:
   Slide balanced flue wall bezel Ⓑ onto the pipe and push it against the shaft opening.
   Open flue operation:
   Slide ventilation bezel Ⓒ onto the pipe and push it against the shaft opening.

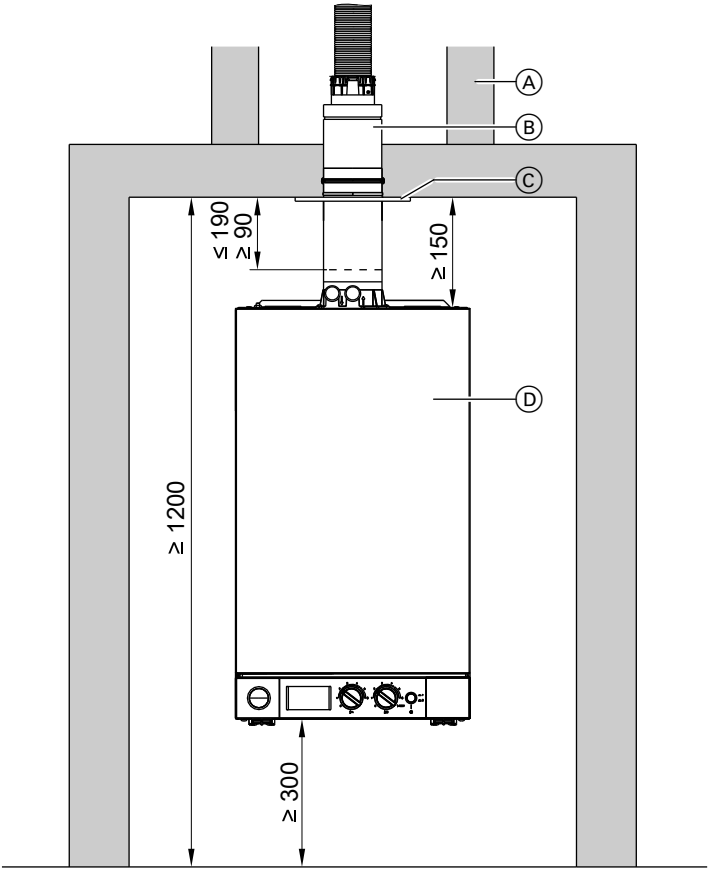


Note
The gap created is designed to provide secondary ventilation for the shaft.
No additional ventilation grille is required.

Open flue operation with combustion air supply via interconnected rooms:
Push the flue pipe onto the support bend, slide air inlet adaptor Ⓓ onto the pipe and secure it to the shaft.

Installation in a disused chimney

Installation requirements



Ⓐ Disused chimney
Ⓑ Balanced flue pipe for connecting the flexible flue
Ⓒ Chimney connection plate
Ⓓ Vitodens

Installation in recesses below disused chimneys. Min. 1200 mm recess height.

Installation in a disused chimney (cont.)

Maximum flue length

Vitodens 100-W, type B1HA and B1KA

Rated heating output	kW	19	26.0	30.0	35.0
System size 80	m	20	20	20	20

Note
For system size 80, an adaptor is required.

Vitodens 200-W

Rated heating output	kW	13	19	26	35
System size 60	m	18	18	—	—
System size 80	m	25	25	25	25
System size 100	m	—	—	—	—

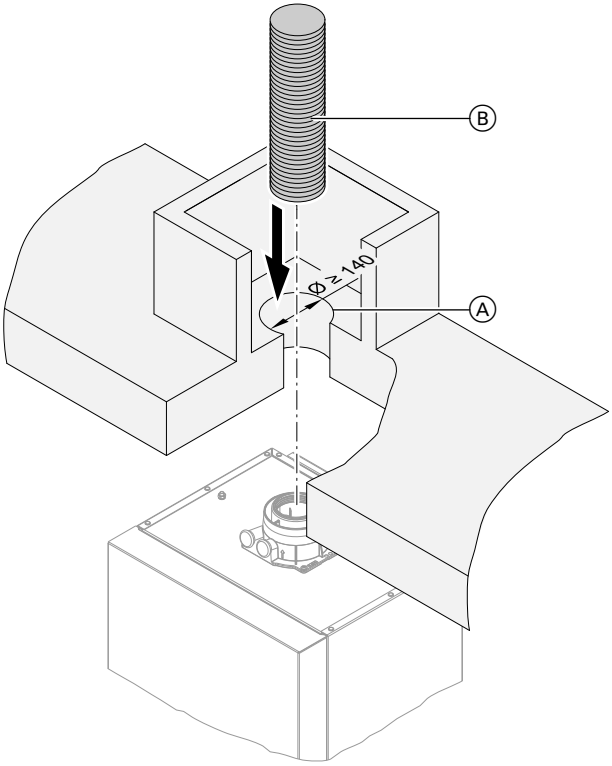
The following components are taken into consideration for the maximum flue lengths:

- Balanced flue connection pipe 0.5 m long
- 1 flue bend 87° and 1 support bend 87°
  or
- 2 flue bend 45° and 1 support bend 87°

Subtract other bends, tees and straight lengths from the maximum length using the following values:

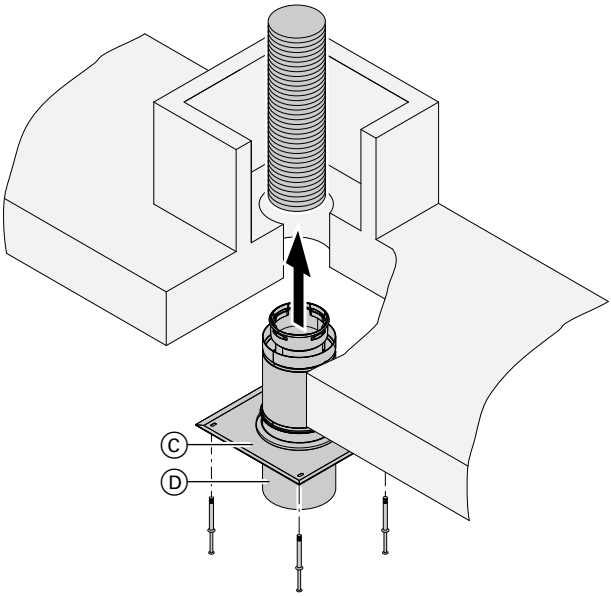
- Connection pipe 0.5 m long: 0.5 m
- Connection pipe 1 m long: 1 m
- Flue bend 45°: 0.3 m
- Flue bend 87°: 0.5 m
- Inspection tee: 0.3 m

Installation



1. Determine the position of the balanced flue terminal and create an aperture Ⓐ, approx. 140 mm ∅, in the shaft floor.
2. Pull flexible flue Ⓑ into the shaft from the top. See page 31.

Installation in a disused chimney (cont.)

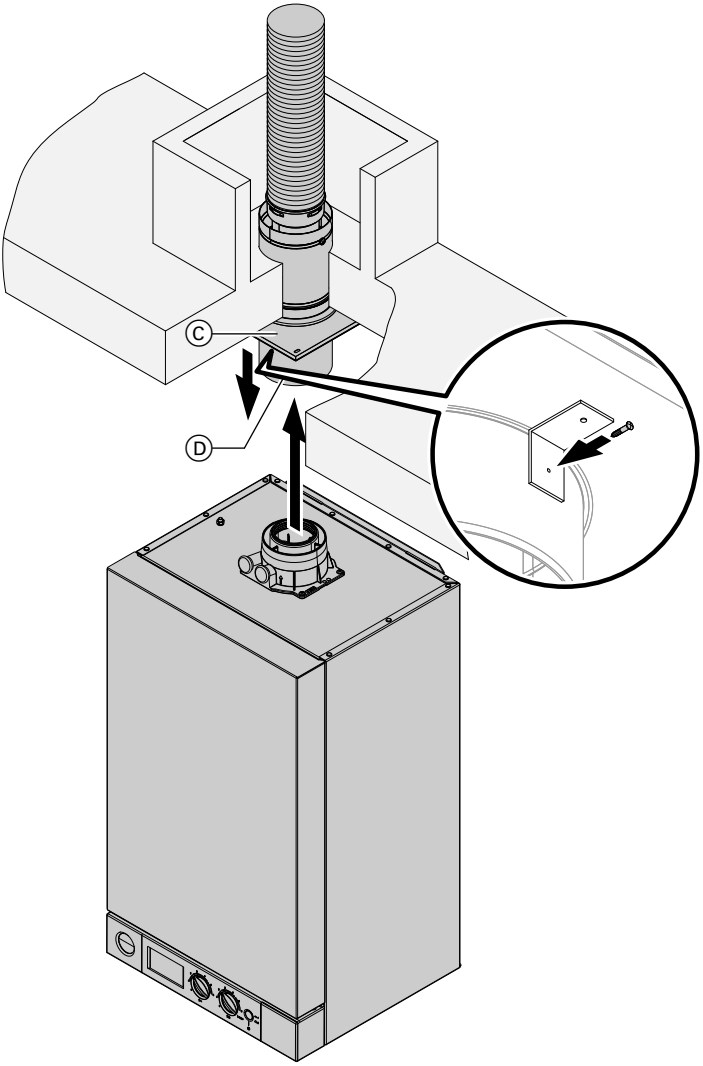


3. Secure flexible flue Ⓑ to chimney connection plate Ⓒ. See page 30.

4. Push chimney connection plate Ⓒ upwards and secure. Do not tighten the screws at this stage, so the chimney connection plate can be aligned when the Vitodens is being fitted.

5. Push balanced flue pipe Ⓓ in chimney connection plate Ⓒ upwards, until approx. 40 mm remain.

Installation in a disused chimney (cont.)



6. Install the Vitodens in the recess.

Vitodens installation and service instructions

Installation in a disused chimney (cont.)

7. Pull balanced flue pipe Ⓓ downwards and push it into the boiler flue connection as far as it will go. Ensure that the gasket is seated correctly in chimney connection plate Ⓒ.

8. Tighten the fixing screws of chimney connection plate Ⓒ.

9. Secure balanced flue pipe Ⓓ to chimney connection plate Ⓒ with the self-tapping screw supplied.

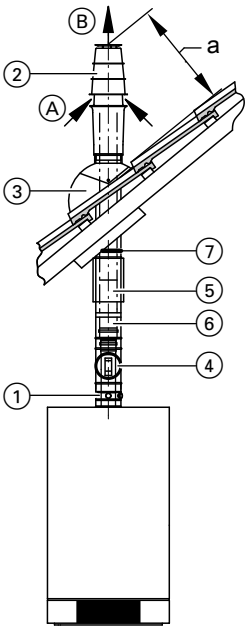
10. Fit the shaft cover. See page 33.

Vertical outlet for pitched or flat roofs

If the balanced flue system is routed through roof spaces that are not used as accommodation, run the flue through an additional metal pipe as protection against mechanical damage (TRGI 2008).

When several roof outlets are installed side by side: Observe a minimum clearance of 1.5 m between outlets and to other building structures (e.g. skylights) in accordance with TRGI 2008.
Observe the required clearance of the flue outlet above the roof (see fig.). If the rated heating output is ≥ 50 kW, an above-roof extension is required (see page 46).

Vertical outlet for pitched or flat roofs (cont.)



Ⓐ Supply air
Ⓑ Flue gas

Rated heating output	kW	≤50	≥50
a (min.)	mm	400	1000

①	**Boiler flue connection**
②	**Balanced flue roof outlet**
③	**Pipe outlets for Klöber roof tiles** Provide a suitable Klöber roof tile on site. or **Universal roof tile** or **Flat roof collar**
④	**Balanced flue inspection piece**, straight
⑤	**Balanced flue slide coupling**
⑥	**Balanced flue bend** 87° or 2 x 45° **Balanced flue pipe** 1 m long 0.5 m long
⑦	**Fixing clamp**
	Balanced flue adaptor ∅ 60/100 mm to ∅ 80/125 mm

Maximum flue length

Vitodens 100-W, type WB1B: 10 m

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	19	26.0	30.0	35.0
System size 60/100	m	10	10	8	8
System size 80/125	m	13	13	11	11

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Vertical outlet for pitched or flat roofs (cont.)

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

Rated heating output	**kW**	**13**	**19**	**26**	**35**	**45**	**60**	**80**	**100**
System size 60/100	m	10	10	10	10	—	—	—	—
System size 80/125	m	13	13	13	11	10	6	—	—
System size 100/150	m	—	—	—	—	13	9	15	15

Note

For alternative system sizes, a balanced flue adaptor is required.

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

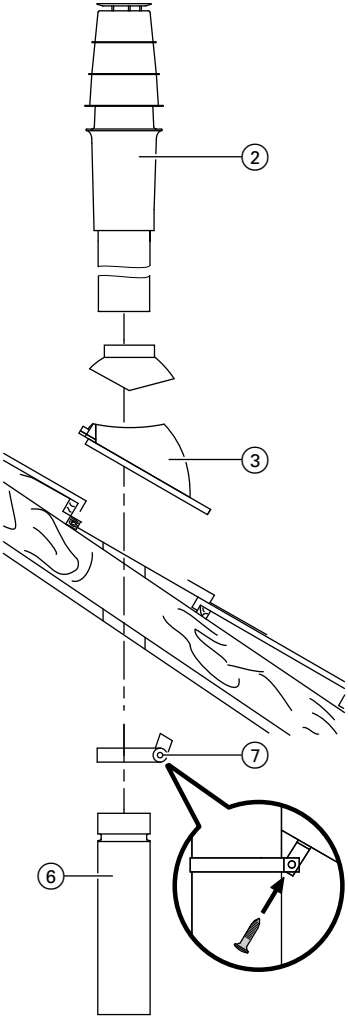
- 2 balanced flue bends 87°

Subtract other bends, tees and straight lengths from the maximum length using the following values:

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

Installation

Balanced flue roof outlet

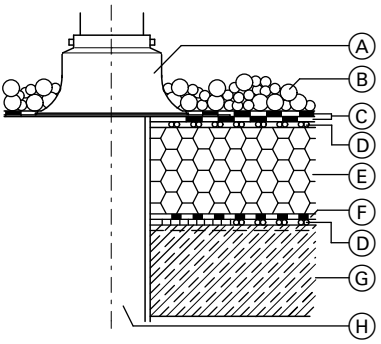


Please note
Ensure the specified minimum lengths above the roof are observed.
Never trim the roof outlet above the roof.

- Install pipe outlets for Klöber roof tiles, universal roof tiles or flat roof collars in accordance with manufacturer's details.
- Integrate the flat roof collar into the roof skin according to the flat roof guidelines.
- Ceiling/roof penetration (min. diameter):
  – 105 mm (system size 60)
  – 130 mm (system size 80)
  – 160 mm (system size 100).
- Secure the roof outlet to the roof structure with a clamp only after installation has been completed.
- Position the roof outlet on the roof tiles or flat roof collar from above.
- Connect the balanced flue connection pipe from below.

Vertical outlet for pitched or flat roofs (cont.)

Roof construction in line with the flat roof directive

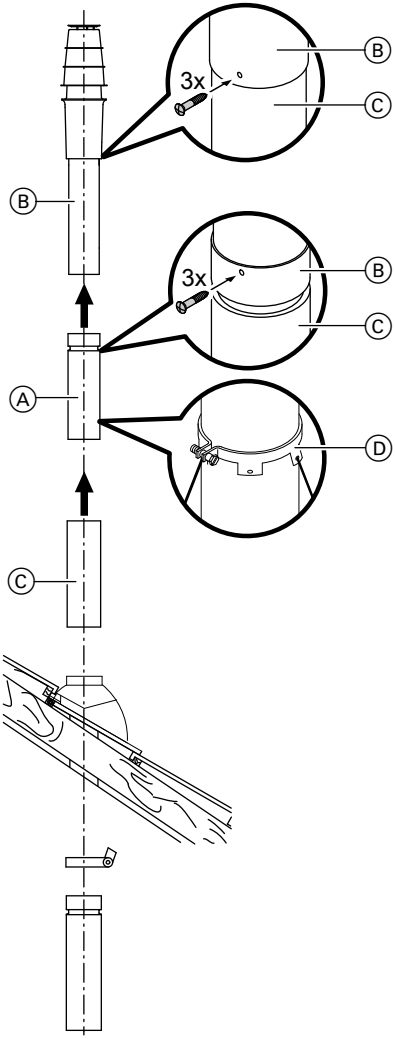


Ⓐ Flat roof collar
Ⓑ Gravel ballast layer
Ⓒ Insulation layer
Ⓓ Aeration layer
Ⓔ Thermal insulation
Ⓕ Insulation
Ⓖ Ceiling
Ⓗ Flue pipe

Vertical outlet for pitched or flat roofs (cont.)

Fitting the above-roof extension

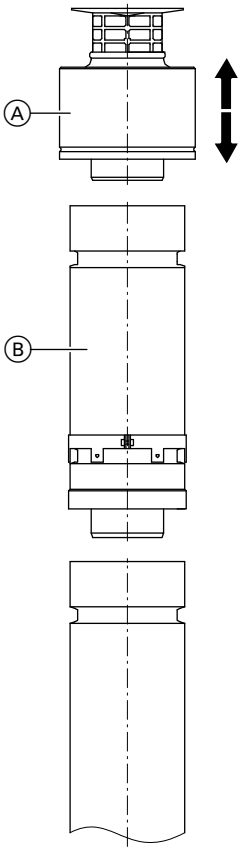
System sizes 60 and 80



1. Push the internal pipe of above-roof extension Ⓐ onto roof outlet Ⓑ and secure with 3 screws provided.
2. Push black pipe section Ⓒ onto roof outlet Ⓑ and secure with 3 screws provided.
3. Push roof outlet Ⓑ with above-roof extension Ⓐ onto the balanced flue.
4. Secure the 1 m above-roof extension with clamp Ⓓ provided and the ropes.

Vertical outlet for pitched or flat roofs (cont.)

System size 100



1. Remove top section Ⓐ of the roof outlet.
2. Slot above-roof extension Ⓑ onto the roof outlet.
3. Slot top section Ⓐ onto above-roof extension Ⓑ.

   Note
   For extensions ≥ 1 m, secure the roof outlet with ropes. The ropes can be fastened to the above-roof extension.

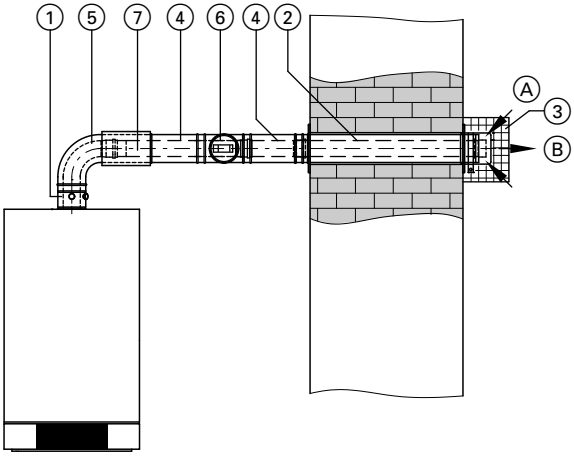
External wall connection

Note
Cannot be used with the Vitocrossal or Vitoladens.

Install an inspection port in the balanced flue for inspection and cleaning.

Recommendation: Use the balanced flue slide coupling to facilitate installation of the balanced flue.
Route the connection piece with a fall of at least 3° (approx. 50 mm/m).

External wall connection (cont.)



Ⓐ Supply air

Ⓑ Flue gas

①	**Boiler flue connection**
②	**Balanced flue external wall connection** (incl. wall bezels)
③	**Grille**
④	Balanced flue pipe 1 m long 0.5 m long
⑤	**Balanced flue bend** 87° or 2 x 45° or **Balanced flue inspection tee** or **Balanced flue inspection bend**
⑥	**Balanced flue inspection piece,** straight
⑦	**Balanced flue slide coupling**
	Fixing clamp
	Balanced flue adaptor ∅ 60/100 mm to ∅ 80/125 mm

Maximum flue length

Vitodens 100-W, type WB1B: 10 m

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External wall connection (cont.)

Vitodens 100-W, type B1HA and B1KA, Vitodens 111-W

Rated heating output	kW	19	26.0	30.0	35.0
System size 60/100	m	10	10	8	8
System size 80/125	m	13	13	11	11

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60	m	10	10	10	8	—	—	—	—
System size 80	m	13	13	13	11	10	6	—	—
System size 100	m	—	—	—	—	13	9	15	15

Note

For alternative system sizes, a balanced flue adaptor is required.

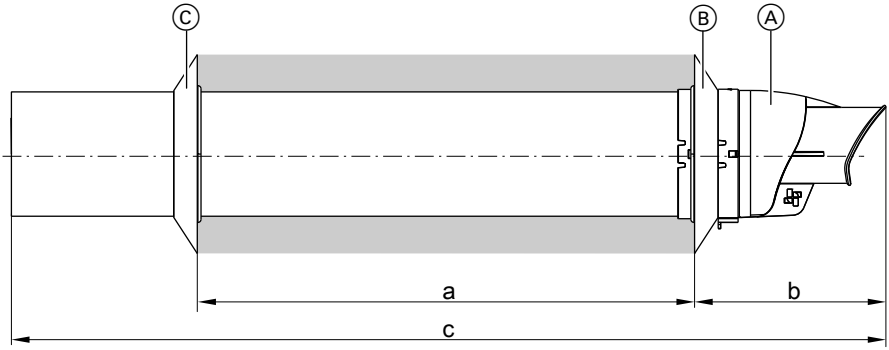
The following components are taken into consideration for the maximum flue lengths:

- 2 balanced flue bends 87°

Subtract other bends, tees and straight lengths from the maximum length using the following values:

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

Installation



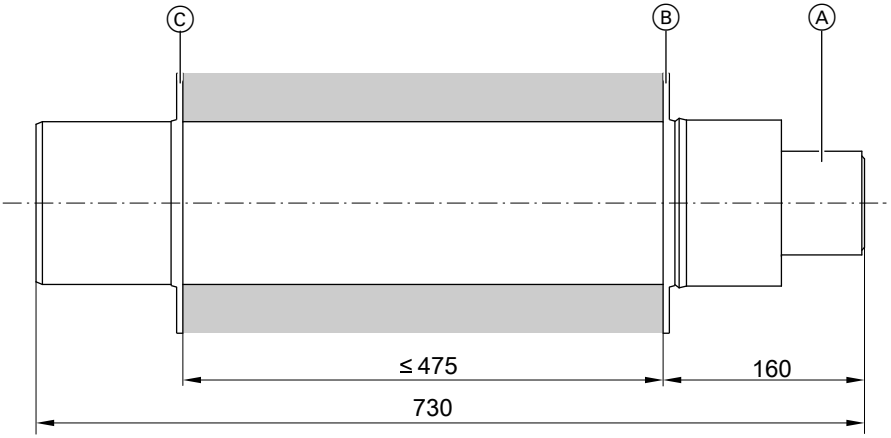
Balanced flue system ∅ 60/100 mm and ∅ 80/125 mm

External wall connection (cont.)

Balanced flue system (∅ mm)	60/100	80/125
a (mm)	≤ 475	≤ 710
b (mm)	155	165
c (mm)	704	952

Telescopic balanced flue external wall connection

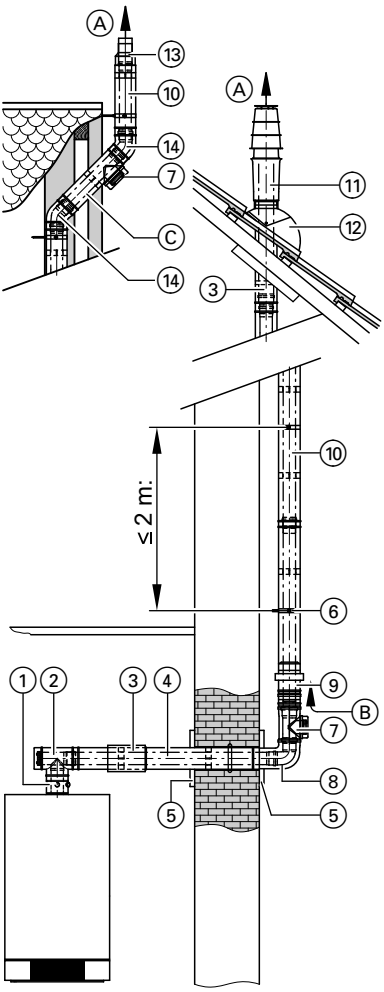
Balanced flue system (∅ mm)	60/100
a (mm)	≥373 - ≤ 533
b (mm)	154
c (mm)	≥617 - ≤ 777



Balanced flue system ∅ 100/150 mm

1. Create an opening in the wall (min. diameter):
   - 105 mm (system size 60)
   - 130 mm (system size 80)
   - 160 mm (system size 100)
2. Insert external wall connection Ⓐ with wall bezel Ⓑ into the wall opening.
3. Slide on internal wall bezel Ⓒ.
4. If the external wall connection is situated ≤ 2 m above ground level near public roads, fit a protective grille (on-site fixing materials).
5. Connect the balanced flue connection pipe from the inside and route with a fall of min. 3° (approx. 50 mm/m) towards the boiler.

Routing over an external wall



Ⓐ Flue gas
Ⓑ Supply air
Ⓒ Elbow in the external wall routing, for short roof overhang

①	**Boiler flue connection**
②	**Balanced flue inspection tee, 87°** or **Balanced flue inspection bend, 87°**
③	**Balanced flue slide coupling**
④	**Balanced flue pipe** 1.95 m long 1 m long 0.5 m long
⑤	**Wall bezel**
⑥	**Fixing clamp**
⑦	**Balanced flue inspection piece,** straight
⑧	**External wall pack** with **Balanced flue bend, 87° or external wall bend, 87°**
⑨	**External wall air inlet section**
⑩	**Balanced flue pipe or external wall pipe** 1.95 m long 1 m long 0.5 m long
⑪	**Balanced flue roof outlet** (for large roof overhang)
⑫	**Universal roof tile** or **Pipe outlet for Klöber roof tiles** Provide a suitable Klöber roof tile on site.
⑬	**External wall terminal** (for short roof overhang)
⑭	**Balanced flue bend, 45° or external wall bend, 45°** or **Balanced flue bend, 30° or external wall bend, 30°** **Balanced flue adaptor** ∅ 60/100 mm to ∅ 80/125 mm

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Routing over an external wall (cont.)

Maximum flue length

Vitodens 100-W

Rated heating output	kW	19.0	26.0	30.0	35.0
System size 60/100	m	20	20	15	15
System size 80/125	m	25	25	20	20

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

Rated heating output	kW	13	19	26	35	45	60	80	100
System size 60/100	m	20	20	20	15	—	—	—	—
System size 80/125	m	25	25	25	20	12	12	—	—
System size 100/150	m	—	—	—	—	17	17	20	20

Note
For alternative system sizes, a balanced flue adaptor is required.

The following components are taken into consideration for the maximum flue lengths:
- 2 balanced flue bends 87°

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

Installation

1. Create an opening in the wall (min. diameter):
   - 105 mm (system size 60)
   - 130 mm (system size 80)
   - 160 mm (system size 100).
2. Insert external wall bend ⑧ with wall bezel ⑤ into the wall opening from the outside.
3. Fit air inlet section ⑨ as near as possible to external wall bend ⑧.
4. Secure interior wall bezel ⑤.
5. Connect the balanced flue connection pipe from the inside and route with a fall of min. 3° (approx. 50 mm/m) towards the boiler.
6. Using external wall clamps ⑥, fit the flue components to the external wall at a consistent distance. Position external wall clamps ⑥ at intervals of max. 2 m.

Routing over an external wall (cont.)

7. **Please note**
Ensure the specified minimum lengths above the roof are observed.
Never trim the roof outlet above the roof.

Roof outlet

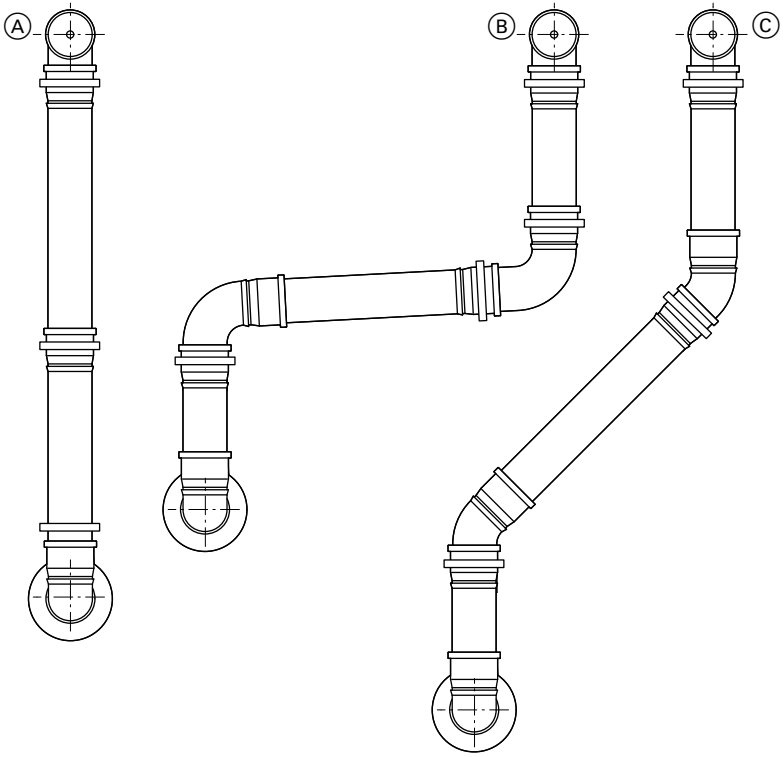
- Use universal tiles or air vent tiles with pipe outlets.
- Position balanced flue slide coupling ③ underneath the roof outlet.
- Install pipe outlets for Klöber or universal roof tiles in accordance with manufacturer's directions.
- Position the roof outlet onto the roof tiles from above.
- Connect the external wall pipe from below.

Elbow in the external wall routing for short roof overhang

- Elbow with 45° bend ⑭: Fit balanced flue inspection piece ⑦.
- Elbow with 30° bend ⑭: Balanced flue inspection piece ⑦ not required.
- Fit external wall terminal ⑬

Plume kit

Routing options



Ⓐ Plume kit standard delivery
Ⓑ Plume kit standard delivery plus:
- 2 bends 87°
- 1 pipe, 1 m long

Ⓒ Plume kit standard delivery plus:
- 2 bends 45°
- 1 pipe, 1 m long

Observe the max. length of the entire balanced flue.
For the standard plume kit, deduct 3 m from the max. permissible pipe length.

When using an additional 87° bend or two 45° bends, reduce the max. length by 1 m.

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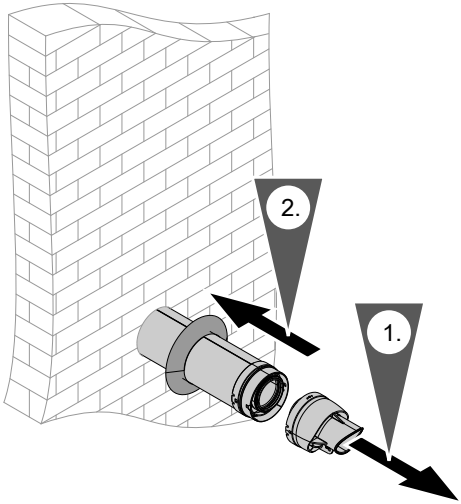
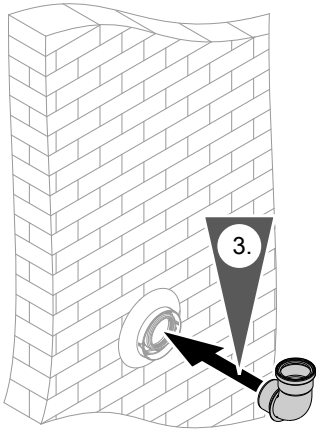
Plume kit (cont.)



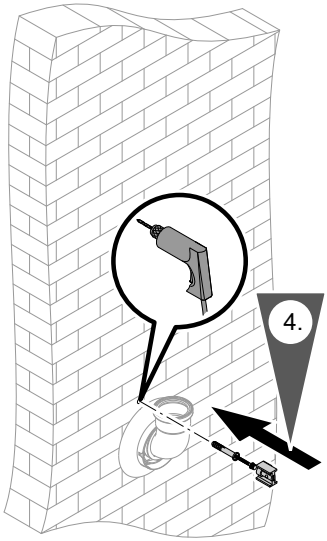
1. Unclip and remove the end piece of the external wall connection.

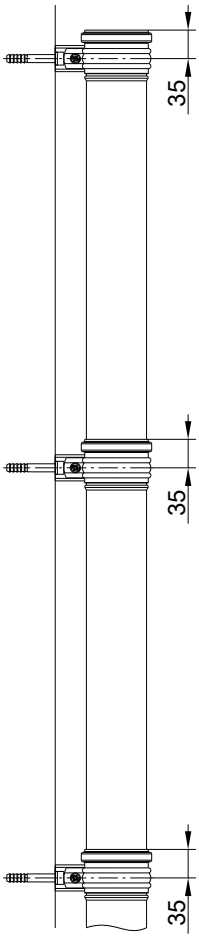
2. Insert the external wall connection into the wall.



3. Insert the flue bend into the external wall connection.

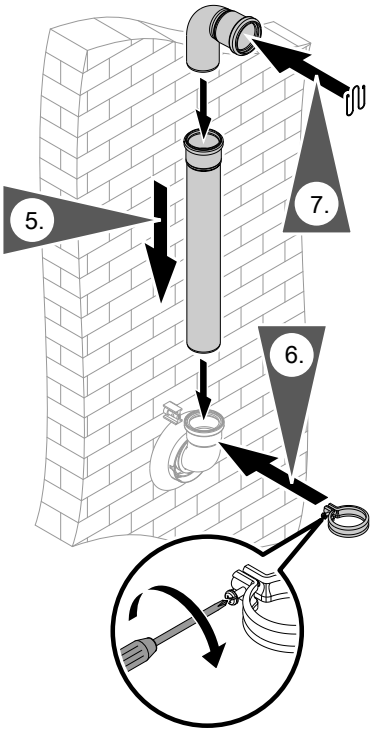
Plume kit (cont.)





4. Attach fixing screws to the wall in accordance with the pipe length.

Plume kit (cont.)



5. Mount flue pipes and bends in line with the chosen method of routing.

6. Position the supplied fixing clamps and secure with the screws.

7. Insert the rodent protection into the uppermost bend.

Note
The rodent protection should be inserted into the end piece of the plume kit.

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5780 223 GB Subject to technical modifications.