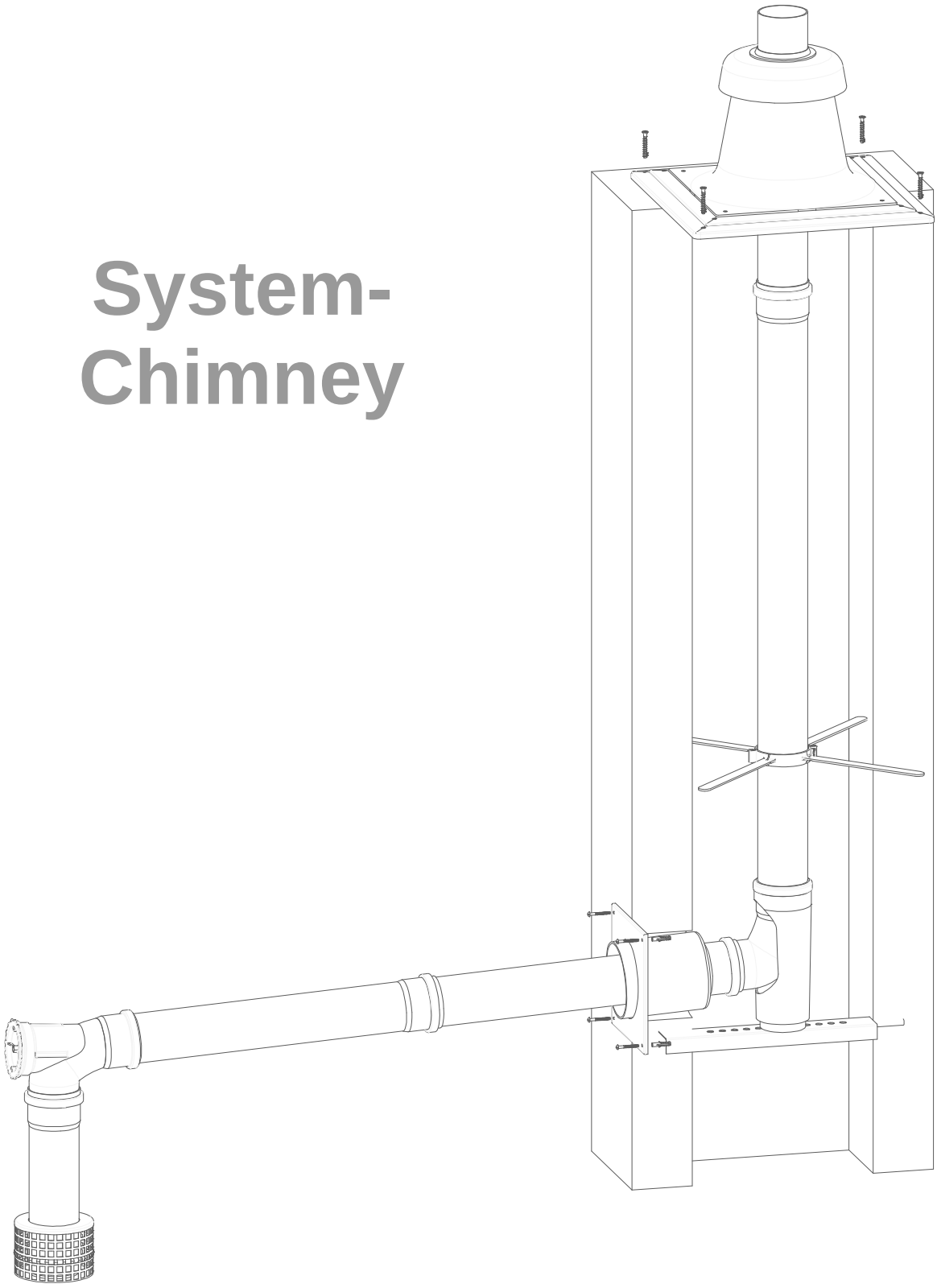
System-Chimney



Installation instructions

CE 0036 CPD 9169 003

6 720 813 402 (2014/10)

1 Preface

These installation instructions were compiled in accordance with the current state of technology and with the greatest care. They serve as a general guideline for the construction and operation of the chimneys of Centrotec Sustainable AG.
If you have any further questions please contact our expert according to the enclosed address details.

2 List of Contents

3 General information

Classification of the system chimney can be found in the declaration of conformity. Attention must be paid to the following specifications:

EN14471 T120 H1 O W 2 O20 I D L
EN14471 T120 H1 O W 2 O00 I D L1
EN14471 T120 H1 O W 2 O00 E D L0
EN14471 T120 H1 O W 2 O00 E D L0

These mean the following:

EN14471:
European standard, according to which was certified

T120:
chimney may be connected to heating appliances, where the flue temperature reaches a maximum of 120°C

H1
the maximum permissible positive pressure in the system chimney may not exceed 5,000 Pa, low-pressure is included

O
the system chimney is not soot-resistant

W
the system chimney may be used for operating under wet and dry conditions

2
heating appliances, which are operated with liquid or gaseous fuels, may be connected

O20 or **O00**
the value behind the O gives the distance to combustible materials in mm, this means that for O20 the minimum distance must be 20 mm

I or **E**
this states the place of installation, I means: use only in buildings, system chimneys marked with E may only be used outside buildings (E includes I with it)

D
specifications of the fire resistance class pursuant to EN13501

L or **L1** or **L0**
L System chimney without cladding (or external pipe)
L1 System chimney with flammable cladding (e.g. plastic external pipe)
L0 System chimney with non-flammable cladding (e.g. metallic external pipe)

4 References to other standards and regulations

When installing and operating the system chimney the following valid standards and regulations, amongst others, must be complied with and adhered to:

- Regulations on supervision of construction
- Statutory provisions
- Works must only be carried out by a registered specialist.
- Compliance with the respective country-specific regulations.
- Clear labelling of the system after completion of the works.

The following standards continue to apply:

- EN13384 Part 1 to 3
  (Calculation procedures for heat and fluid engineering)
- EN14471
  (Chimneys - System chimneys for plastic inner liners – requirements and test methods)

5 Risk guidelines

All components of the chimney are produced and built in accordance with the valid standards, regulations and safety engineering rules.
However, risks to life and limb of the user or of the third party or impairments or damages to real values can arise in the case of improper assembly or handling.

To avoid risks the chimney may be installed and used only

- for the designated use
- in technically perfect condition
- with due regard to all references for assembly and operating instructions
- in compliance with inspection regulations and intervals
- with due regard to current and relevant standards and regulations.

Impairments or dysfunctions of the chimney must be eliminated immediately.

For assembly of the system chimneys we refer you to the valid industrial safety regulations.
These must especially be complied with, unconditionally and at any time, when working on roofs and façades.

6 Warranty and liability

Warranty and liability claims for personal and material damages are excluded, if they are due to one or several of the following reasons:

- Use of the system chimney not in accordance with the regulations.
- Improper assembly, putting into operation.
- Faulty operation or maintenance.
- Non-compliance with the assembly and operating instructions.
- Non-approved structural changes to the unit or to the individual components.
- Installation of components which are not part of the system chimney.
- Improper implementation of repairs.
- Force majeure.
- Subsequent damage, which occurred through further use of the system chimney despite known defects.
- Operation of the system chimney with fireplaces which are not suitable.
- Intentional damage.

7 Instructions to be complied with

When assembling the system chimneys the following points must be complied with:

- Correct fit of the seals
- Complete use of the insertion depth of the pipes and formed parts
- Assembly must be carried out with an incline of at least 3° (5.6 cm/m), so that the condensate produced can flow away in accordance with the regulations.
- Conversions or change to the system components are not permissible without approval by Centrotherm.
- After completion of the system chimney a seal check must be carried out.
- Permissible bend for flexible flue duct: max. 45°

8 Transport and storage

When transporting components or completely or partially assembled system chimneys the following points must be complied with:

- All instructions, which are already stated on the packaging.
- Transport only in the original packaging and in a dry and clean environment.
- In principle it must be ensured that during transportation no damages to the components arise, so that their use and functional safety are maintained.
- During transportation of components, which could have a temperature of below 0°C, these must be warmed up before the start of assembly.

When storing components or completely or partially assembled system chimneys the following points must be complied with:

- Storage only in a dry and clean environment.
- Components must be protected from solar irradiation. Storage is only permissible in a non UV-charged environment.
- Storage of the components in original packaging.
- All guidelines which are stated on the packaging apply to storage of the components.

9 Workmanship

When working with the components or completely assembled system chimneys the following points must be complied with:

- Guidelines enclosed with components must be complied with.
- Standard tools used for heating installation and gas and water installation are normally sufficient for the working.
- Working with components, which can have a temperature of below 0°C, must be avoided.

10 Technical checks

Preparation and planning

Before starting to assemble a system chimney the following points must be prepared and planned:

- Selection of the correct nominal width of a system chimney for the corresponding heating appliance pursuant to the calculation procedures in accordance with EN13384 (Parts 1 to 3).
- Selection of the correct classification of the system chimney to the heating appliance.
- Comparison with existing facts in the case of renovation.
- Check country-specific implementing standards and legislation and include the requirements in the planning.
- Assembly of all necessary components
- Check and take account of necessary revision and inspection components.
- Read and take notice of all assembly guidelines and reference sheets before starting the assembly.

Inspection during assembly

In carrying out the assembly of a system chimney the following points must be complied with:

- Comply with the read and understood assembly guidelines and carry out as described.
- Only pipe lengths can be shortened. No formed parts. A shortened insertion side of a pipe must be manufactured again, like the original length supplied. This must include a straight cut and a bevel, as well as the reproduction of the corrosion protection in the case of concentric components.
- Visual inspection of all components to be assembled for damages during transport.
- Visual inspection of all components to be assembled for completeness (e.g. seals).
- Do not use components already damaged or not complete.

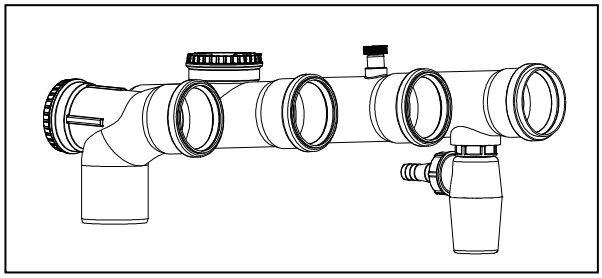
Inspection after assembly

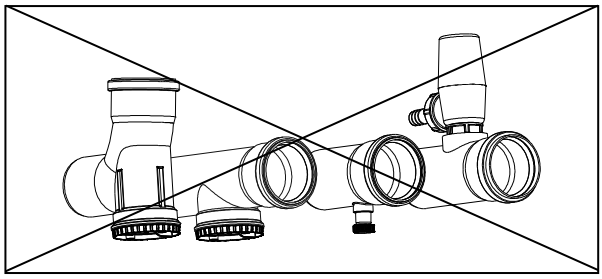
After assembly of a system chimney the following points must be noted:

- Carry out a seal inspection of the whole flue gas tract.
- If the result is negative rectify the results immediately and carry out another seal test.
- If the result is positive the manufacturer’s plate must be filled in and fixed in a visible position onto the system chimney.
- The chimney is put into operation together with the heating appliance.
- Regular cleaning and maintenance in accordance with valid country-specific regulations

11 Position of side outflows

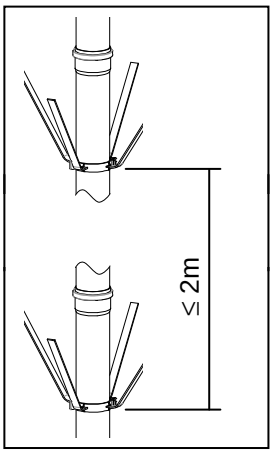
Side outflows of the system chimney such as e.g. measurement or revision openings are in principle to be arranged so that they face upwards. This prevents the accumulation of condensate.
Condensate outlets are an exception to this rule. Due to their function these are assembled with the flow director pointing downwards.

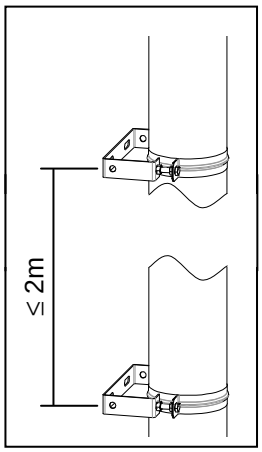




12 Clearances of brackets

All supports such as e.g. wall brackets on the external façade or spacer blocks in a shaft must be assembled in a maximum space of 2m.

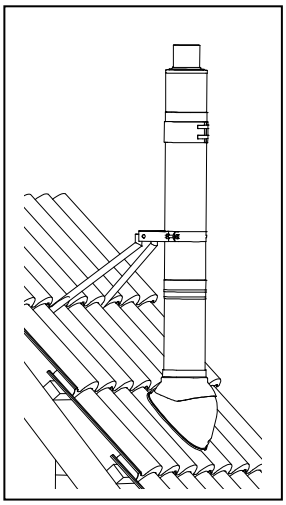


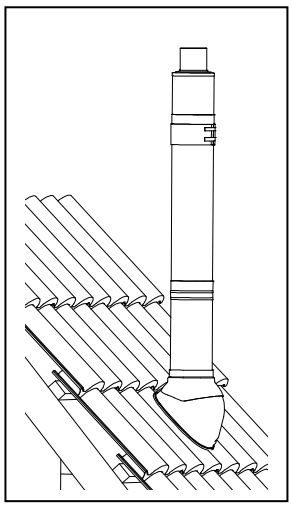


Where there is an bend, additional spacer blocks or wall brackets can be planned before and after the bend, depending on the circumstance.

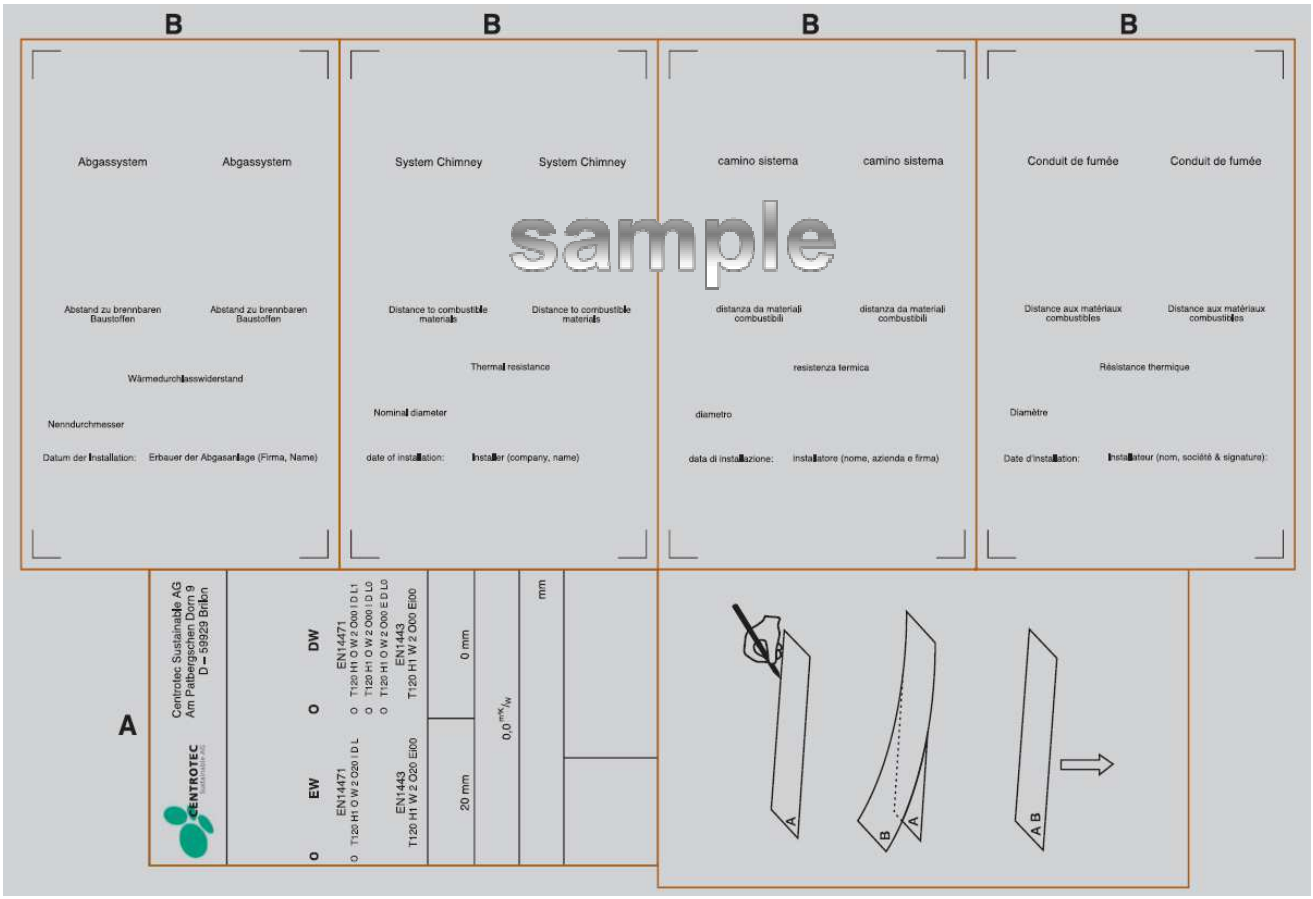
13 Freestanding components

Components, which are assembled freestanding upwards with a length of more than 1.5 m (e.g. roof duct), must, depending on the amount of wind and snow expected, be additionally secured to the building with guys or braces.



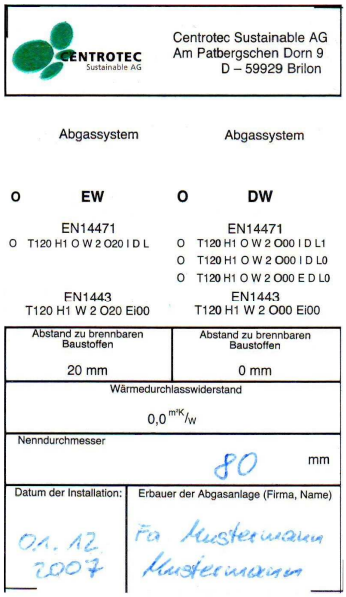


14 Application Manufacturer's plate



The manufacturer's plate depicted above is enclosed with the system chimney. Classification in accordance with the EN can vary depending on the system chimney chosen.
In principal however the following points must be filled in by the installer:

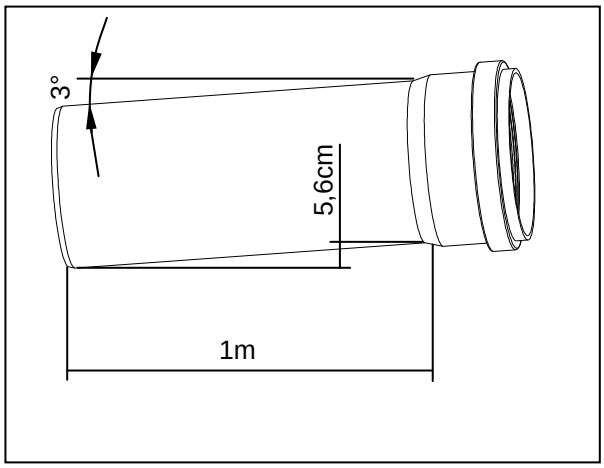
- Mark with a cross the type of system chimney installed
- Nominal diameter of the selected system chimney
- Installation date of the system chimney.
- Constructor of the chimney with full name (legible and with signature)



15 General Assembly

Incline

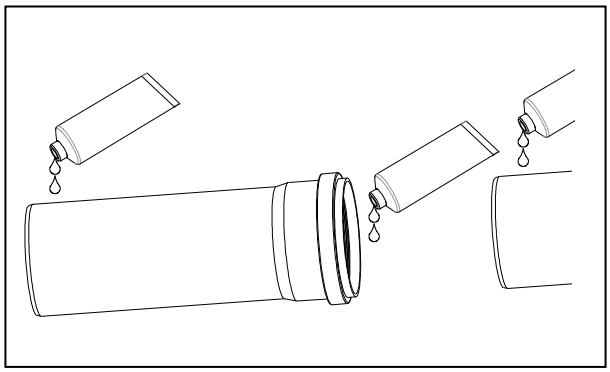
The pipes and formed parts must be laid at an angle of 3° incline to the heating appliance, so that the condensate can flow away in accordance with regulations. When converted, a height difference of 5.6 cm on a meter flue gas tract results from this angle.



5.6 cm

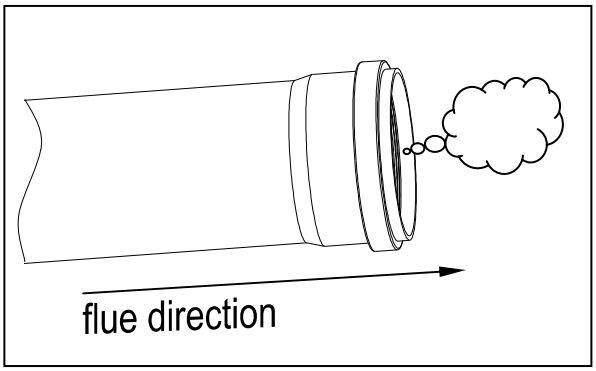
Lubricant

The seals and male parts of the pipes or formed parts must be greased exclusively with CENTROCERIN© lubricant before assembly



Flow direction

The sleeve of the components in contact with the flue must always be in the direction of the flue.



Tools

Standard tools used for heat engineering as well as gas and water installation are normally sufficient for the assembly of the system chimneys.

It must be remembered however that in the case of stainless steel system chimneys only tools which were previously in use for stainless steel must be used. Otherwise, corrosion cannot be excluded.

In addition, the following aids/tools might be necessary:

- Safety equipment for roof workers
- Assembly rope (at least 3m longer than the actual chimney length).

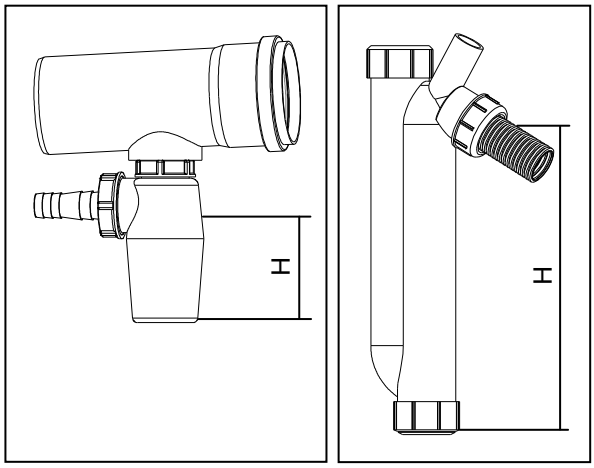
16 Condensate and condensate drain

If condensate is produced when a system chimney is operating and this condensate is supposed to be conducted into the public water system, the local regulations must be absolutely complied with.
A neutralisation unit can be required or prescribed.

The drain for the condensate can be made via

- the fireplaces and / or
- a separate condensate outlet of the system chimney.

If operation of the system chimney in overpressure is as planned, the drain must take place via a siphon.
This siphon must show a back pressure through the contained head of water, which is greater than the operating pressure of the system chimney.
The seal water height (H) of the component is decisive for this.

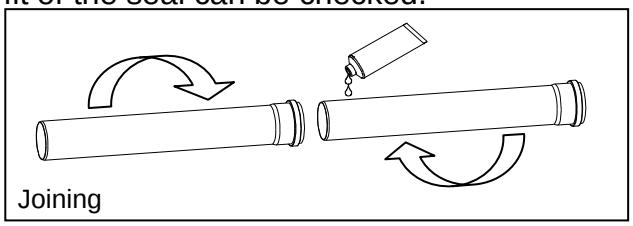


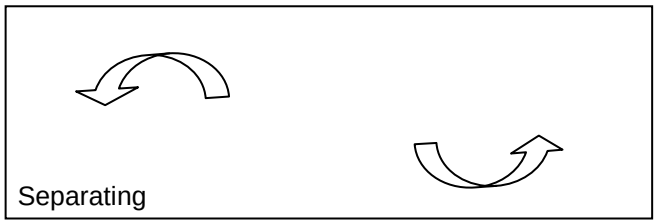
All subsequent drains must have a clearance diameter of at least 12mm and must be protected (if required) from the danger of freezing.

17 Joining, disconnecting, shortening, bevelling

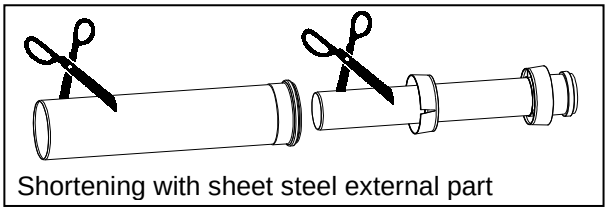
Grease the seals and male parts of the pipes with Centrocerin© lubricant and put together using light rotational movements.

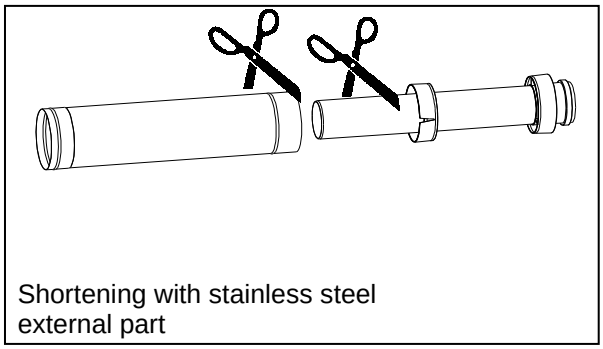
Afterwards, if a selected system chimney is made of translucent material the correct fit of the seal can be checked.

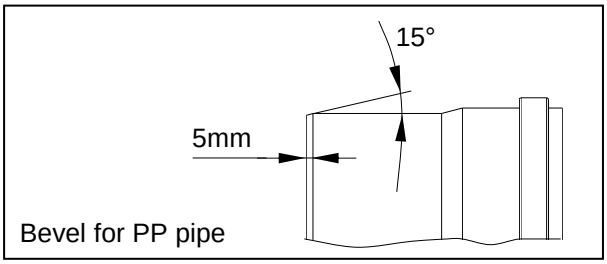

Joining


Separating

Pipes are always shortened on the insertion side. In the case of concentric pipes for the external area, attention must be paid without fail to the changing direction of the sleeve. In principle, always shorten the inner and outer pipe by the same amount.


Shortening with sheet steel external part


Shortening with stainless steel external part

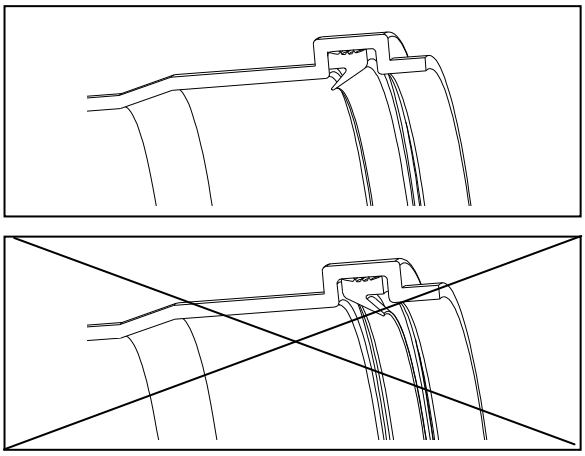


Bevel for PP pipe

18 Seal direction and assembly of seals

Usually the seals have already been inserted in the supplied components.
If visual inspection of the components to be assembled shows that a seal is missing, this must be inserted.
During assembly inspections or due to similar reasons, it may likewise be required to insert seals again.
In doing this the following points must be noted:

- Only use original exhaust seals
- Correct nominal width
- Insertion direction (see diag.)
- Clean seal
- Clean seal chamber
- Even fit of the seal



19 Preliminary works on the shaft

If an existing shaft is supposed to be used for the assembly of the system chimney the following points should be noted:

- Cleaning of the existing shaft before assembly of a system chimney (if there is heavy soiling a concentric system must be used in the shaft).
- Inspection of the existing shaft for the necessary fire resistance duration.
- Check whether the necessary cross-section in the existing shaft is also generally available over the whole length for the system chimney.
- Check whether the existing shaft has a (or several) bend (s).
- Record the exact height as the basis for planning the system chimney (e.g. calculation in accordance with standard EN13384 or assembly of materials).

20 Typical installation variants

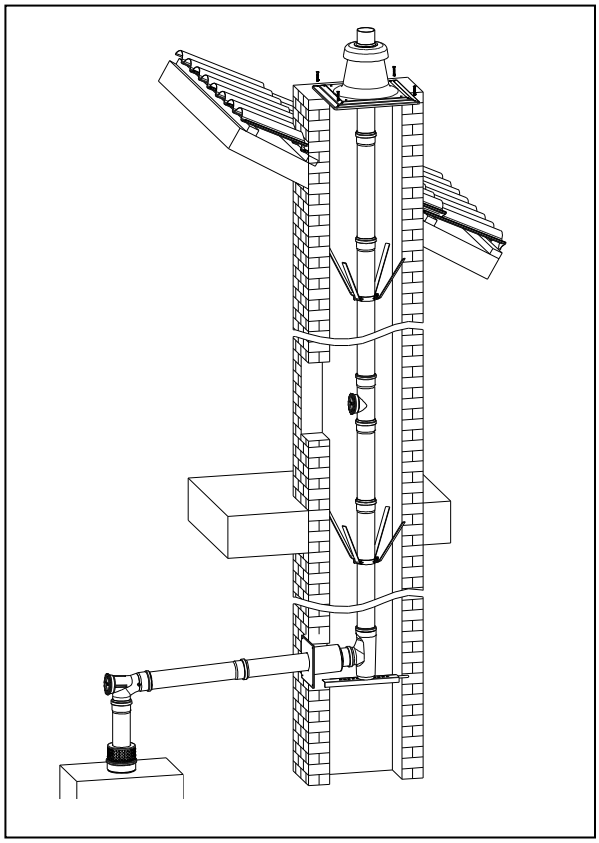


Illustration 1

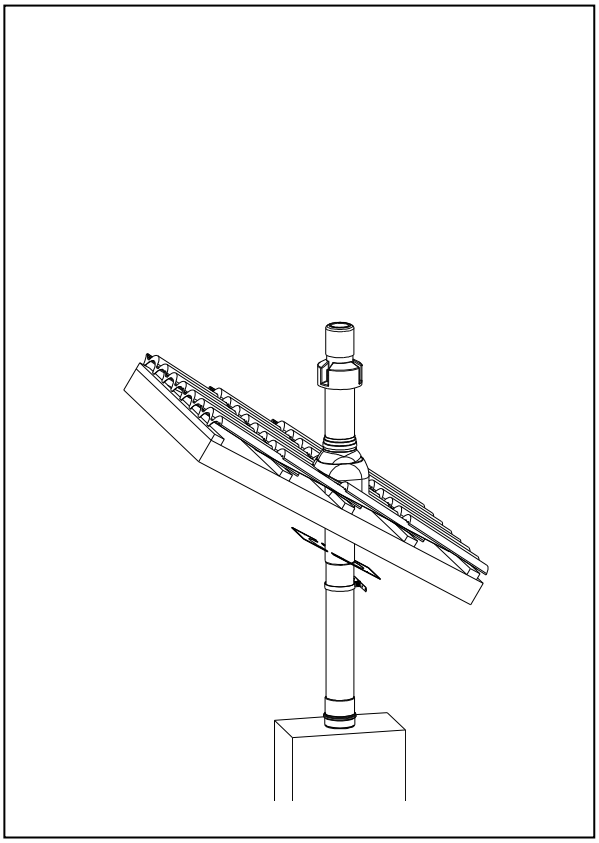


Illustration 2

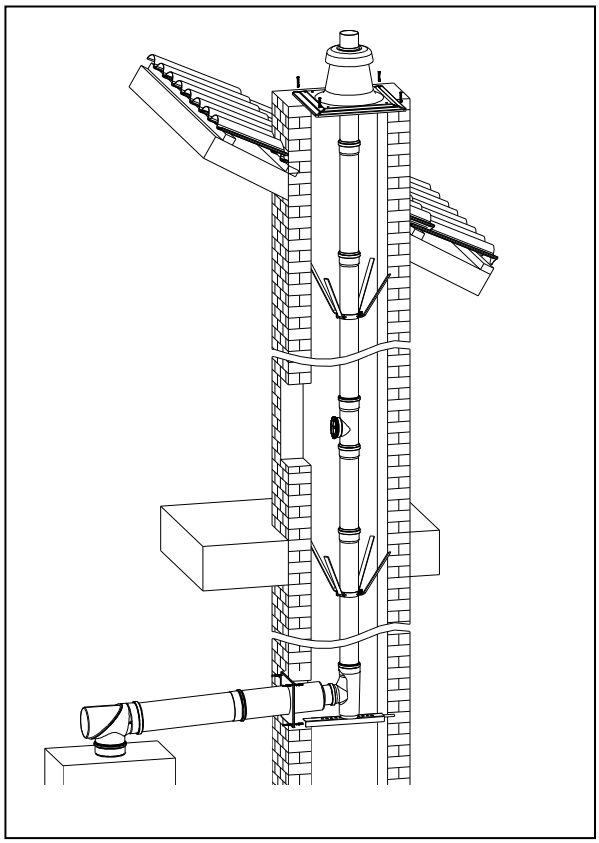


Illustration 3

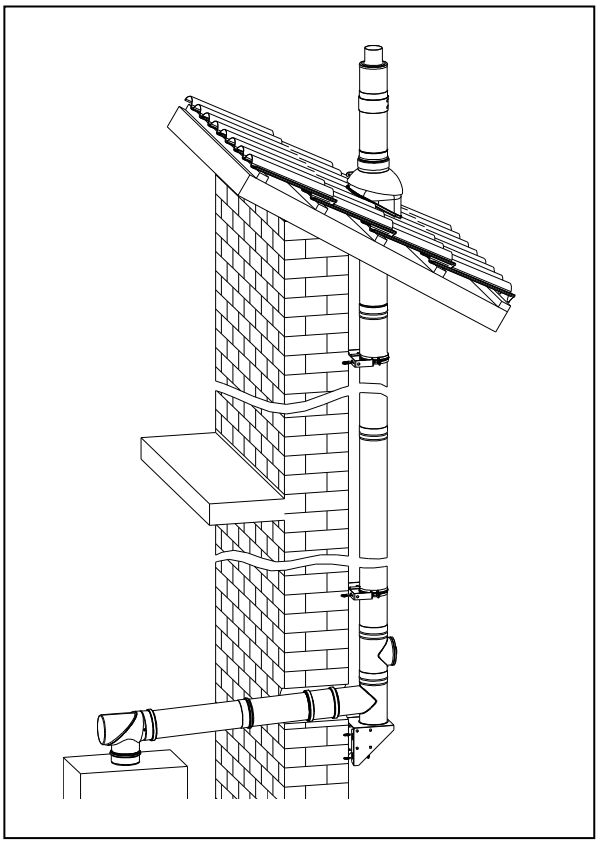


Illustration 4

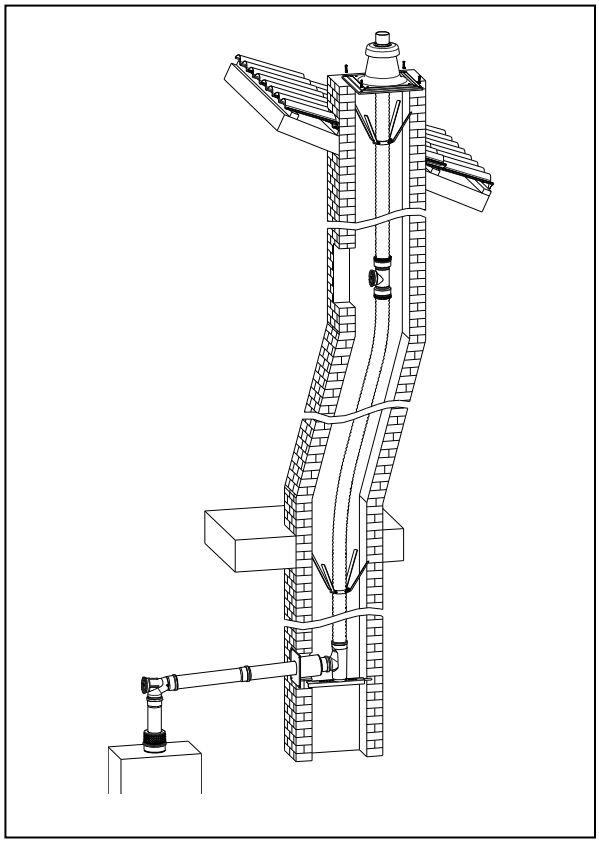


Illustration 5

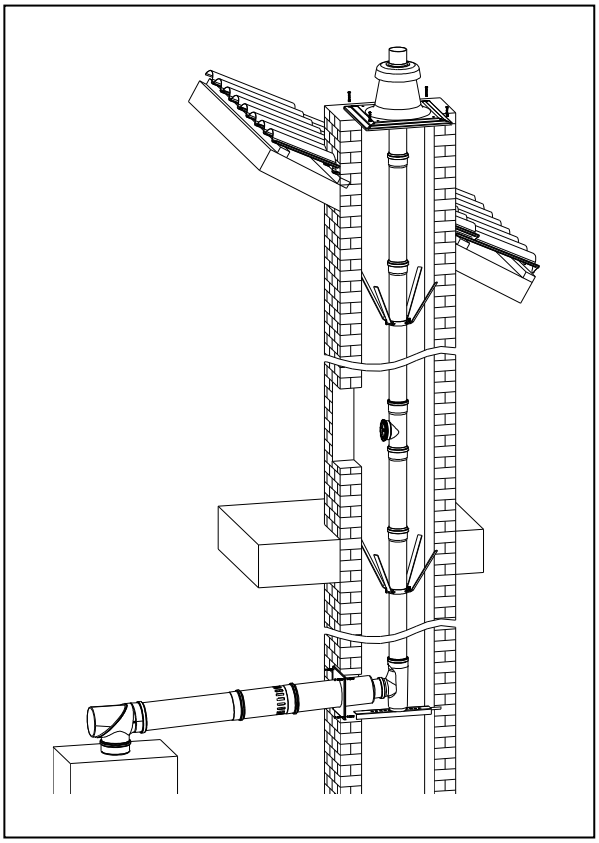


Illustration 6

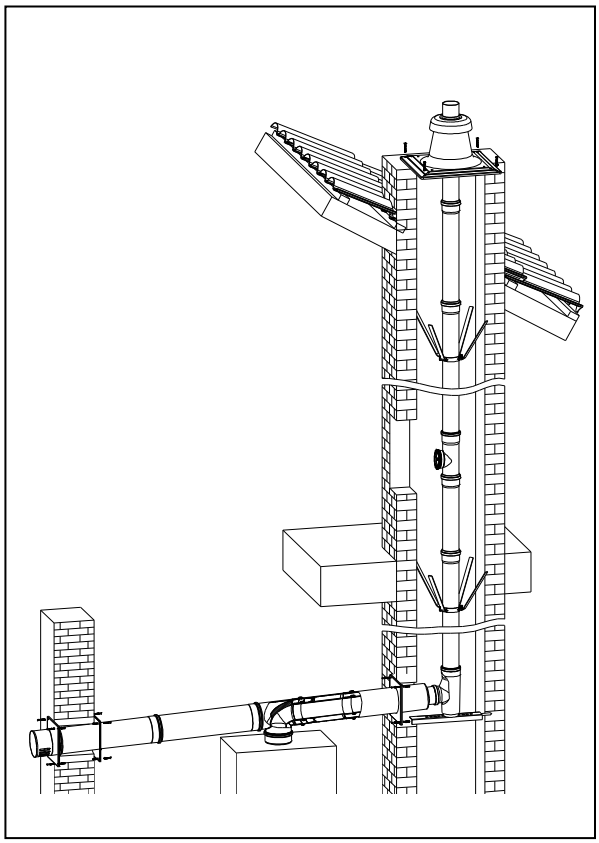


Illustration 7

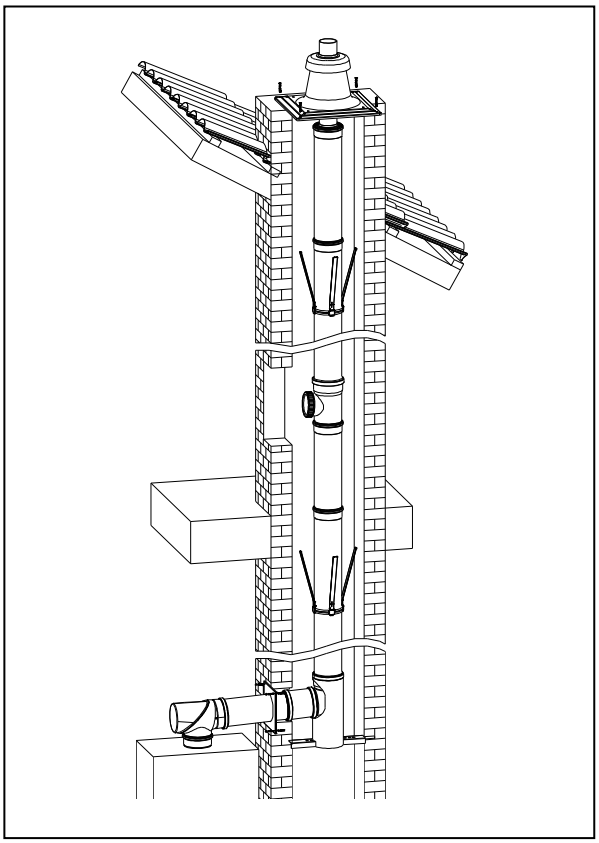


Illustration 8

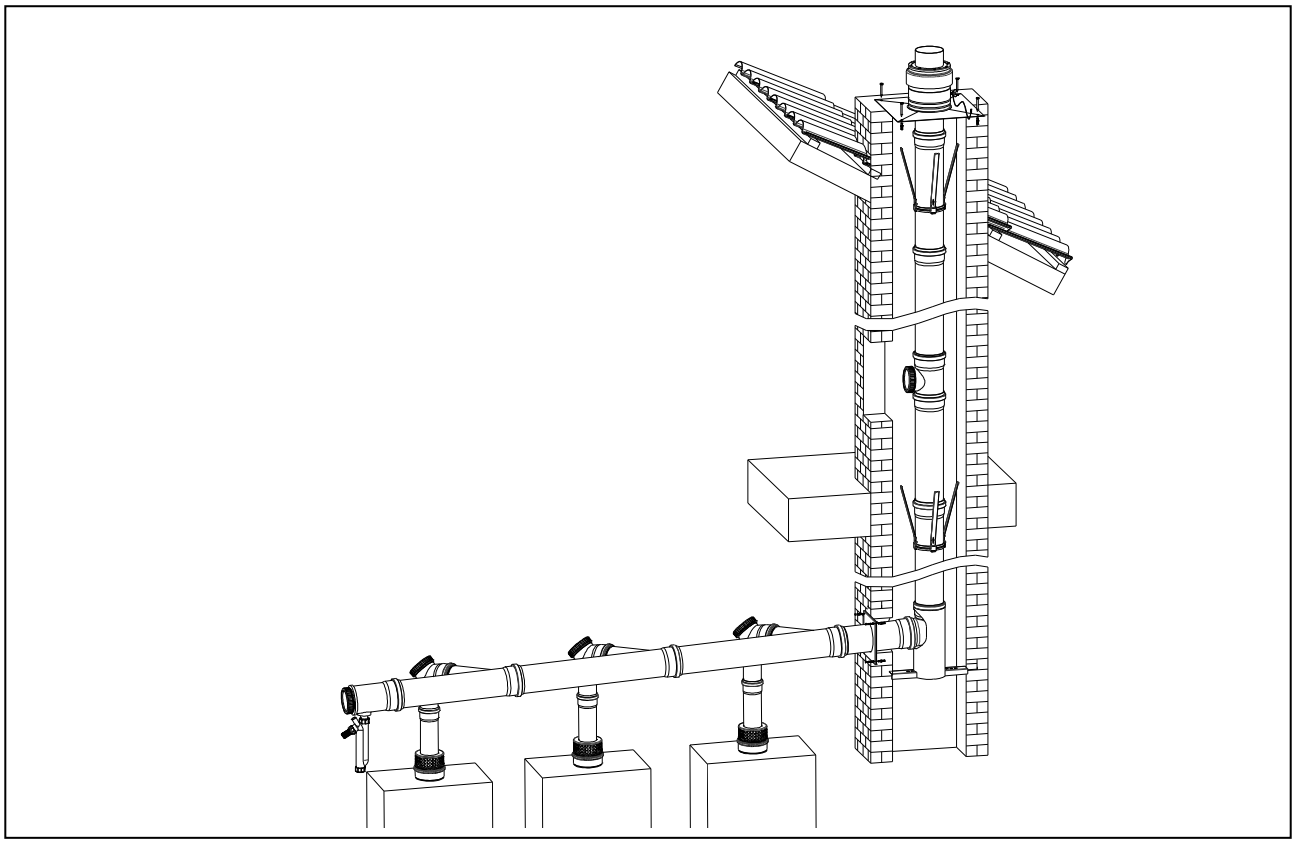


Illustration 9

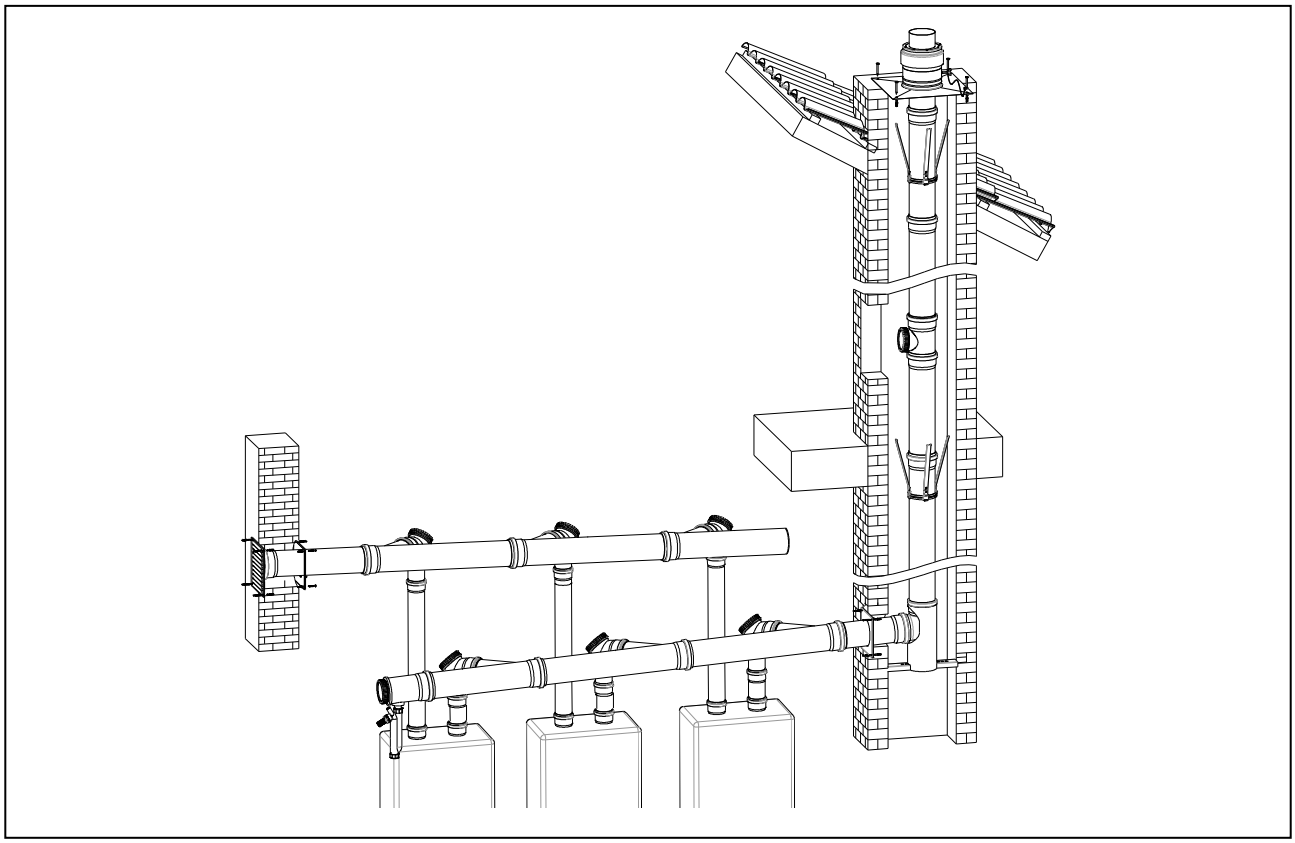


Illustration 10

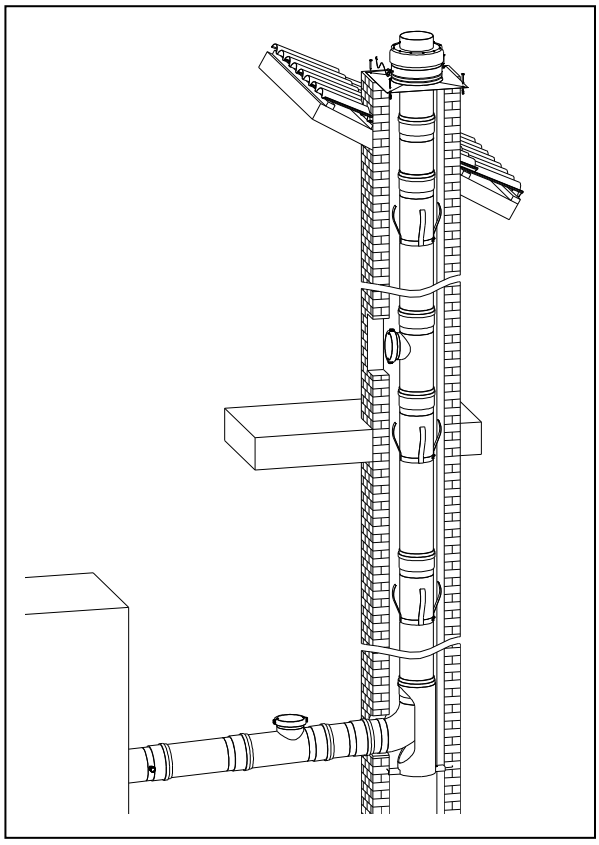


Illustration 11

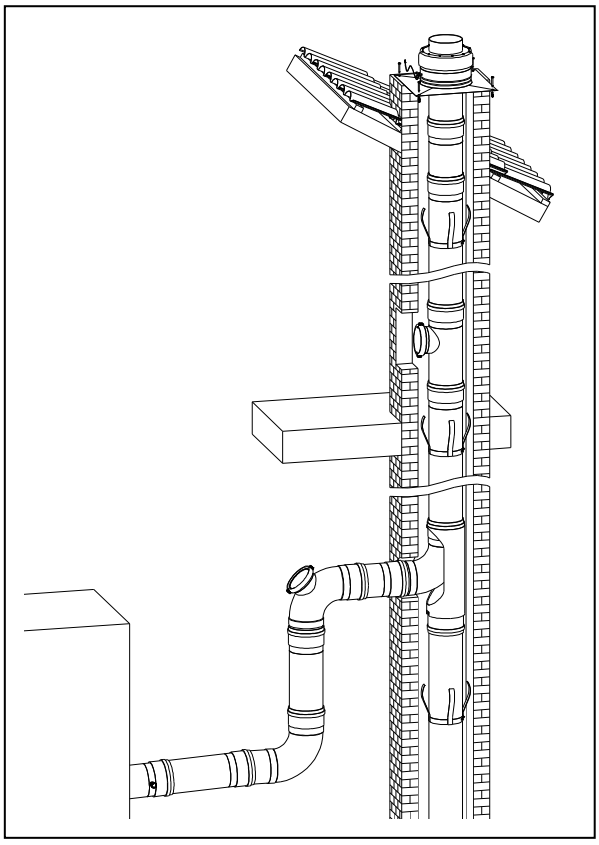


Illustration 12

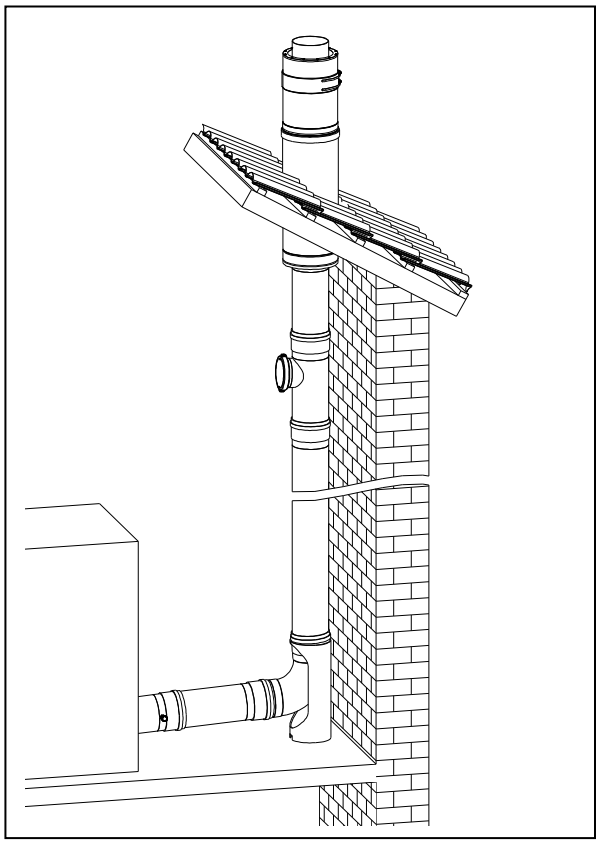


Illustration 13

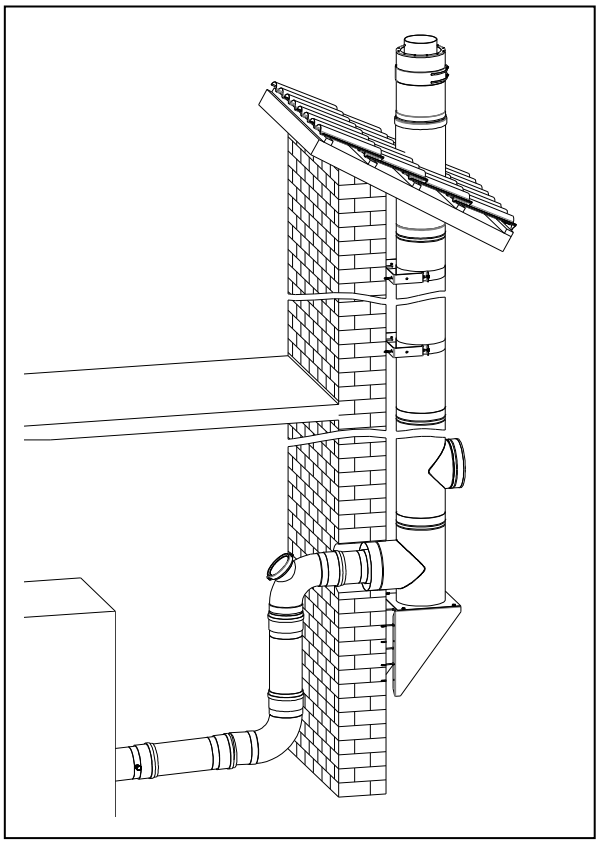


Illustration 14

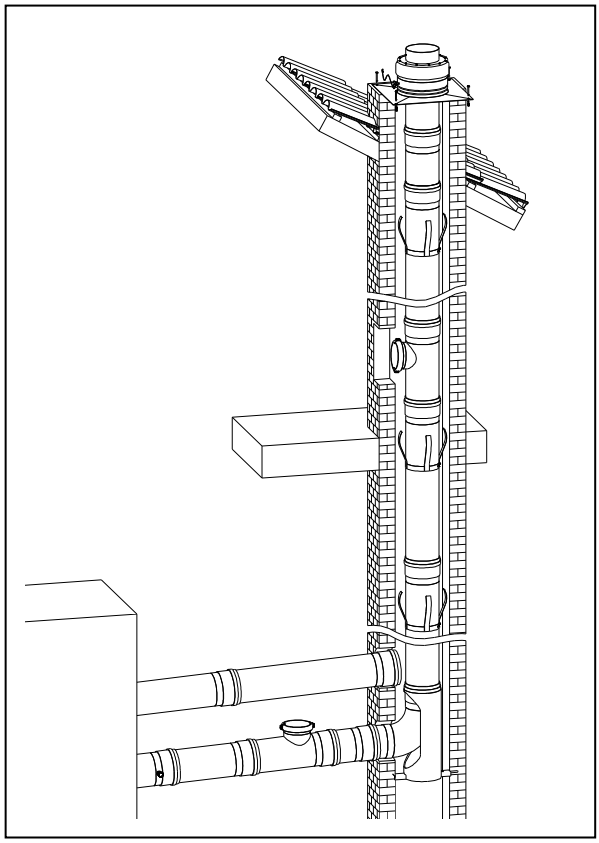


Illustration 15

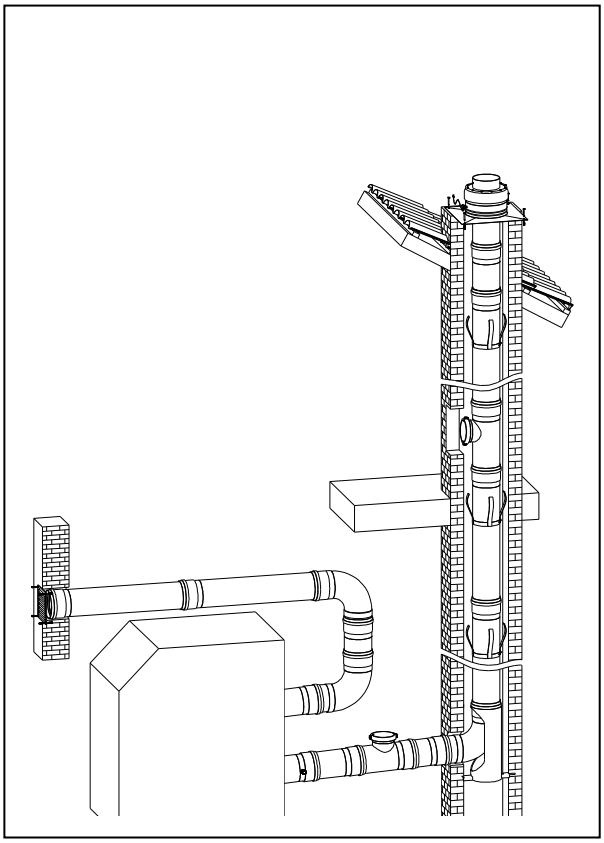


Illustration 16

21 Declaration of conformity and product information EN 14471

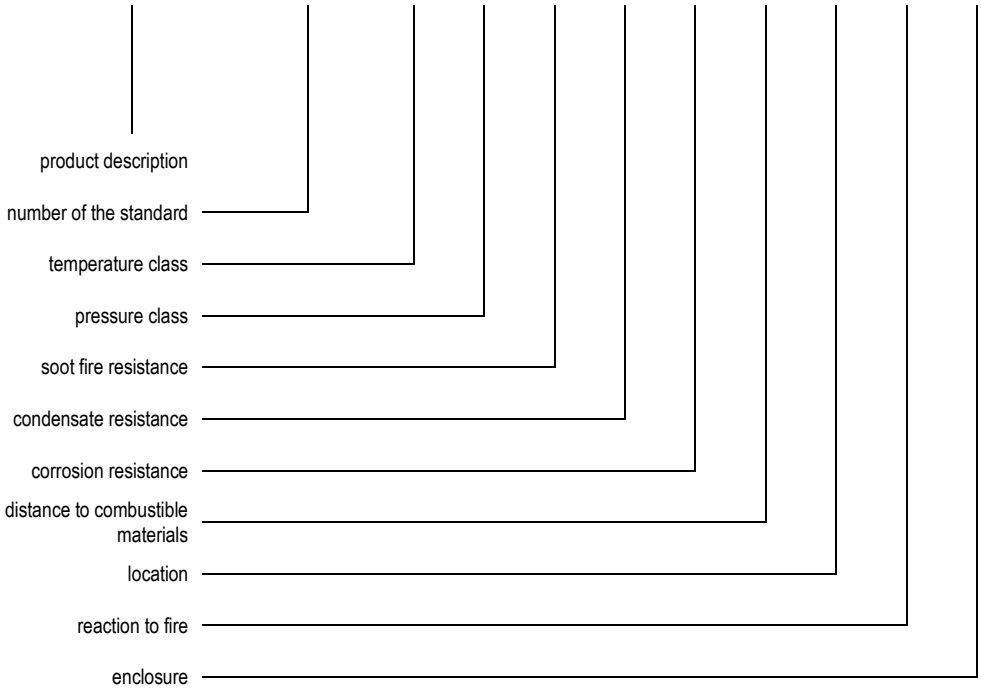
System chimneys with plastic inner liners

Requirements and test methods

Manufacturer identification	**Centrotec Sustainable AG** Am Patbergschen Dorn 9 59929 Brilon, Germany info@centrotec.de www.centrotec.de
Product labelling	**System – Plastic chimney** Types: single walled concentric
Name, Role of the person responsible	**Jacko van der Stege** Managing Director, Centrotherm and Ubbink
Named office	TÜV Industrie Service GmbH Munich
Certificate Number	**CE 0036 CPD 9169 003**

Labelling of accompanying document pursuant to EN 14471 Appendix ZA

0.1	PP System chimney **single walled**	EN 14471	T120	H1	O	W	2	O20	I	D	L	Single walled chimney In contact with flue: PP
0.2	PP System chimney **concentric**	EN 14471	T120	H1	O	W	2	O00	I	D	L1	Double walled chimney In contact with flue: PP Enclosure: Plastic
0.3	PP System chimney **concentric**	EN 14471	T120	H1	O	W	2	O00	E	D	L0	Double walled chimney In contact with flue: PP Enclosure: Steel, Aluminium
0.4	PP System chimney **concentric**	EN 14471	T120	H1	O	W	2	O00	E	D	L0	Double walled chimney In contact with flue: PP Enclosure: stainless steel



section / fitting of PP – system chimney

compressive strength
greatest height:(rigid) 50 m
greatest height (flexible) 30m
wind load
height
above last support
[1.5m]

thermal resistance
0.00 m²K/W

fire resistance
D

tensile flexural strength
true length of the lateral deflection
[1.5 m]
largest pitch:
87°

flow resistance
average roughness
0.5 mm

22 Product information pursuant to EN14471

Clarification of the numbering:
Universally valid details (apply equally to all systems) are given *.0 .
Numbers related to the types (e.g.: *.2) apply as a relevant blanket term for each type. These are as follows:

***.0:** Type, single walled and concentric
***.1:** Type, single walled
***.2:** Type, concentric
***.3:** Type, concentric
***.4:** Type, concentric

lfd. Nr.	Performance parameter and requirement pursuant to EN 14471	Values /Classes	Other information
1.0	measurements inner pipe rigid: Ø-Group 1: DN60 DN75 DN80 DN90 DN100 Ø-Group 2: DN110 DN125 DN160 Ø-Group 3: DN200 DN250 DN315 DN400 Measurements inner pipe flexible: Ø-Group 1: DN58/50 DN83/75 Ø-Group 2: DN110/100 DN160	internal diameter D_1 to be accepted 55 mm 70 mm 75 mm 84 mm 95 mm 105 mm 119 mm 153 mm 192 mm 242 mm 303 mm 386 mm 50 mm 74 mm 100 mm 158 mm	additional measurements see product drawing
1.2	measurements external pipe Ø-Group 1: DN60/100 DN75/125 DN80/125 DN100/150 Ø-Group 2: DN110/160 DN125/186	external diameter D_A 100 mm 125 mm 125 mm 150 mm 160 mm 186 mm	additional measurements see product drawing
1.3	measurements external pipe Ø-Group 1: DN60/100 DN75/125 DN80/125 DN100/150 Ø-Group 2: DN110/160	external diameter D_A 100 mm 125 mm 125 mm 150 mm 160 mm	additional measurements see product drawing

lfd. Nr.	Performance parameter and requirement pursuant to EN 14471	Values / Classes	Other information
1.4	measurements external pipe Ø-Group 1: DN60/100 DN75/125 DN80/125 DN100/150 Ø-Group 2: DN110/160 DN125/185 DN160/225 Ø-Group 3: DN200/300 DN250/350 DN315/400 DN400/500	external diameter D_A 100 mm 125 mm 125 mm 150 mm 160 mm 185 mm 225 mm 300 mm 350 mm 400 mm 500 mm	additional measurements see product drawing
2.0	material, inner pipe: wall thickness (min. thickness): Ø-Group 1: DN60 DN75 DN80 DN90 DN100 Ø-Group 2: DN110 DN125 DN160 Ø-Group 3: DN200 DN250 DN315 DN400	polypropylene 1.5 mm 1.5 mm 1.5 mm 1.5 mm 1.5 mm 2 mm 2.5 mm 3 mm 3.5 mm 3.5 mm 5 mm 6 mm	additional measurements see product drawing
3.1	material, external pipe:	without external pipe	
3.2	material, external pipe:	plastic	additional measurements see product drawing
3.3	material, external pipe:	steel aluminium	
3.4	material, external pipe:	stainless steel	
4.0	thermal insulation	inexistent	
5.0	seal rings flue liners according to EN14241-1 T120 W 2 K2 I		

lfd. Nr.	Performance parameter and requirement pursuant to EN 14471	Values /Classes	Other information
6.0	compressive strength rigid system flexible system	 50 m 30 m	maximum vertical height that can be installed
7.0	tensile loading	n.p.d.	
8.0	wind load	1.5 m	self-supporting height above the last support
9.0	maximum angle for bend	n.p.d.	
10.0	maximum length of excursion	n.p.d.	
11.0	gas tightness	pressure class H1	
12.1	distance to combustible materials	O(20)	2 cm distance, inner liner ventilated over the whole length
12.2	distance to combustible materials	O(00)	0 cm distance from external pipe
12.3	distance to combustible materials	O(00)	0 cm distance from external pipe
12.4	distance to combustible materials	O(00)	0 cm distance from external pipe
13.1	protection against contact	attach in traffic area	
13.2	protection against contact	not required	
13.3	protection against contact	not required	
13.4	protection against contact	not required	
14.0	thermal resistance	0.0 $^{m*K}/_{W}$	
15.0	condensate resistance	W	chimney is operated as planned under wet conditions
16.0	resistance against rain water penetration	conditions are complied with	no insulation available
17.0	flow resistance sections of the chimney - non-defined components - rigid pipes - Flex-pipe DN58/50 - Flex-pipe DN83/75 - Flex-pipe DN110/100	 according to EN13384-1 R=0.5 mm R=0.5 mm R=1.0 mm R=1.3 mm	
18.0	flow resistance formed parts of the chimney	pursuant to EN13384-1 table B.8	
19.0	flow resistance terminals	n.p.d.	European Standard not existing, see “Allgemeine Bauaufsichtliche Prüfzeugnisse“ of TÜV Munich

lfd. Nr.	Performance parameter and requirement pursuant to EN 14471	Values /Classes	Other information
20.0	corrosion resistance	2	
21.0	UV-resistance	fulfilled according to EN14471	free length of the inner liner is <2D and maximum 0.4 m
22.0	dangerous substances appendix ZA	not applicable	
23.0	recycling	according to environmental standards	
24.0	usual installation sketches		see pages 13 to 17
25.0	type of assembly of the components		see page 11
26.0	type of installation of sections and formed parts,		see page 8 and following
27.0	flow direction	sleeve against the direction of the condensate flow	see page 10
28.0	insertion of the seals	installed according to the factory	see page 12
29.0	position of the cleaning and inspection openings	according to respective national standards (D: DIN V 18160-1)	see page 8
30.0	attachment of the chimney label (label)		see page 9
31.0	stipulations / limits for the enclosure		according to national regulations
32.0	minimum clearances between the external walls if the chimney and the inner surfaces of a cladding made from non-flammable materials	1 cm	
33.0	stipulations for tools for works carried out at the construction site (e.g. shortening of pipes)	only tools, which are suitable for working on the respective materials	
34.0	storage conditions for components of the chimney		
35.0	cleaning process or equipment	only processes and equipment, which are suitable for respective materials	
36.0	condensate drain	according to respective national standards (D: worksheet A251 of the Association of Waste water Technology)	
37.0	safety provisions	according to regulations for the prevention of industrial accidents	

23 notes