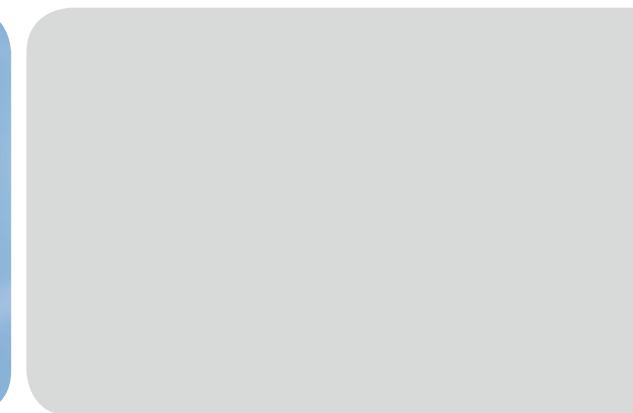


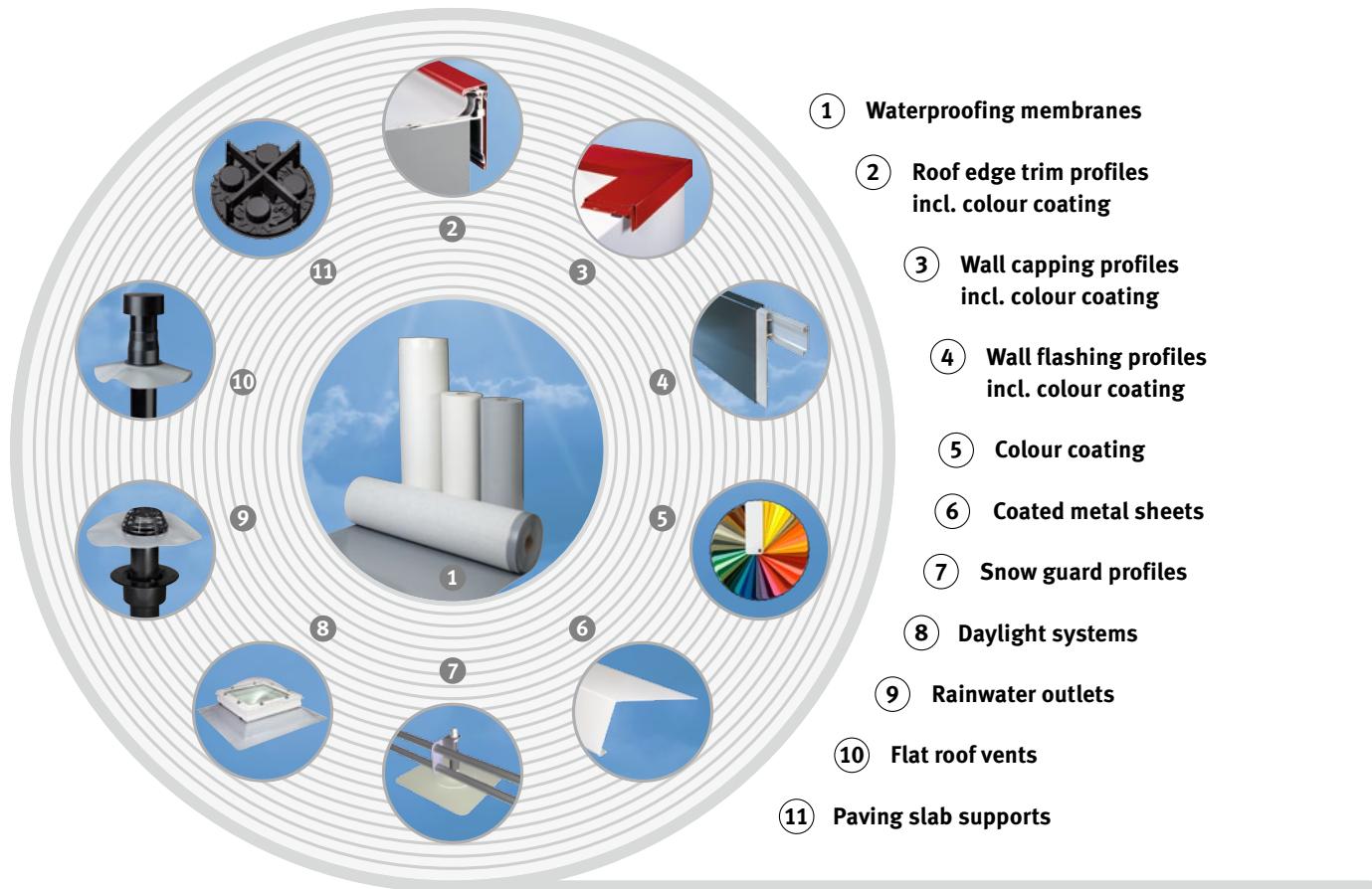
**Flat roof vents**



## alwitra waterproofing system

Flat roof vents are part of the proven alwitra waterproofing system.

This system comprises:



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# Design guide

Excerpts from relevant guidelines and technical rules:

## Design guide on soil vent pipe

DIN 1986 part 100:2008-05

Drainage systems on private ground

### 6.2.2.1 General requirements

Wastewater downpipes, without changes in nominal diameter, should be installed as straight as possible throughout the floors, **protruding over the roof**.

### 6.5 Ventilation of the drainage system

In general, every downpipe has to protrude over the roof.

If a vent opening ends close to a room used by people, it has to be taken up at least 1 m above the window lintel or be installed at a distance of at least 2 m to the side of the window opening.

The vent opening must ... protrude above the roof. The distance from the upper edge of the vent opening **to the roof surface must be at least ... 15 cm**.

As end pipes of vent lines only constructional components must be used to ensure **professional and functional sealing to the roof waterproofing**.

Open ends of vent pipes protruding over the roof should preferably have an open top. Caps are permissible, if the ventilation flow is deviated not more than by 90° and if, at the same time, the outlet cross-section is 1.5 times the vent line cross-section.

## Design guide on cold roof vents

Technical Rules of the German Roofing Trade Association

Information sheet on thermal insulation of roofs and walls

### 4 Ventilated roofs

Open cavities of ventilated roofs must be connected to the open air. They have to have an opening extending over the whole cavity area with unimpeded air flow, with air intake and vented openings. The design must consider sufficient dimensioning of the air intake and vent openings as well as of the height of the ventilated space.

Ventilation at roof openings such as rooflights, roof-mounted structures, roof windows etc. must be ensured.

### 7.2 Ventilated thermal insulation

There is no regulation for the cavity height and the ventilation openings of ventilated roofs with a slope of < 5°. Recommended ventilation cross-sections are shown in the table below.

### Recommended ventilation cross-sections for ventilated thermal insulation and roof slopes < 5°

Minimum ventilation cross-section		
Roof area (ventilation height)	Ventilation openings	
5 cm	≥ 2 % of the overall roof plan area at at least two opposite sides	
Roof slope	Rafter length	Diffusion equivalent cavity height $s_{d,i}$
< 5°	≤ 10 m	≥ 100 m

DIN 4108-3: 2001-07

### 4.3.3.3 Ventilated roofs

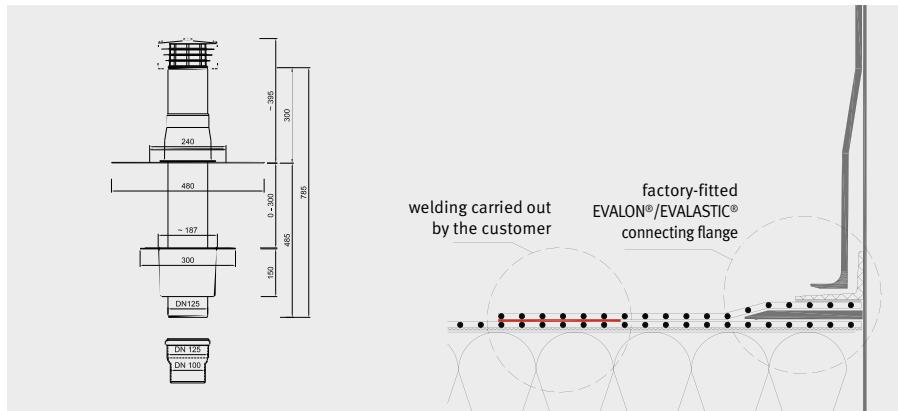
For ventilated roofs with a slope < 5° and a diffusion-inhibiting layer  $s_{d,i,u} > 100$  m below the thermal insulation layer, where the thermal resistance of the constructional layers below the diffusion-inhibiting layer must not exceed 20% of the overall thermal resistance, proof by calculation is not required.

## alwitra soil vent pipe

Wastewater downpipes in the building serving as vent lines must protrude over the roof. The **alwitra soil vent pipe** forms the upper end of vent pipes protruding over low slope roofs with waterproofing of any constructional type up to DN 125 (OD 125). The soil vent pipe consisting of one single pipe extends over the roof build-up without any joints and is connected to the downpipe DN 125 (OD 125) and DN 100 (OD 110) below the roof structure by means of the included reducer. A corresponding reducer (125/75) is available for downpipes DN 70 (OD 75).

The EVALON® or EVALASTIC® connecting flange is fitted to the soil vent pipe in the factory and doubly secured by means of an external air cushion cell (diving bell effect) protecting the connection. The connecting flange can be welded directly to the corresponding roof waterproofing without any auxiliary materials. At the top, the soil vent pipe can be left open. Alternatively, the soil vent pipe can be covered against rain with the included vent cowl or with the optional weather cap.

The lower part made of PP and PP bead foam is installed in the supporting substructure and flashed against the vapour and wind barrier; inserting into the vent pipe ensures air-tightness.



### Technical data:

Material:	PVC pipe with vent cowl and optional weather cap made of PP
Colour:	black, with connecting flange in the colour of the waterproofing membrane
Height above the waterproofing (excl. vent cowl / weather cap):	300 mm
Outer pipe diameter:	125 mm (DN 125)
Outer connecting flange diameter:	480 mm
Outer flange diameter:	240 mm
Ø of screw holes at flange:	210 mm
Flange width lower part:	60 mm
Max. thermal insulation thickness:	300 mm (or 800 mm for SL)
Connection diameter:	125 mm (DN 125) and 110 mm (DN 100), 75 mm (DN 70) optional

## alwitra refurbishment vent 160

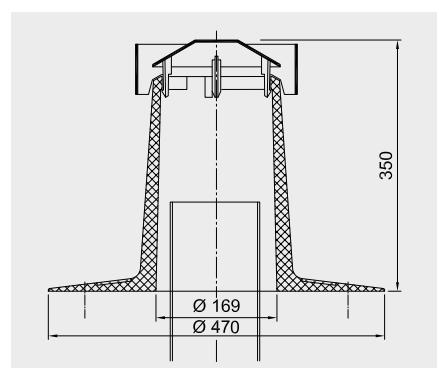
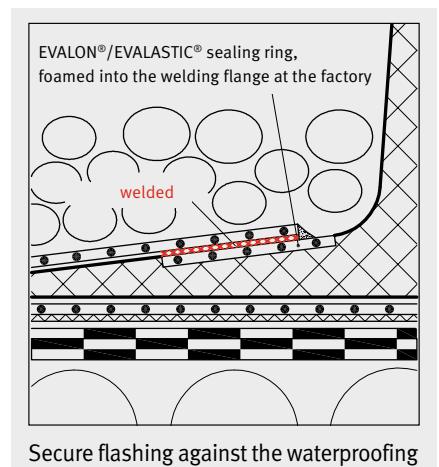
In the case of refurbishment, the thermally insulated **alwitra refurbishment vent 160** offers an easy and reliable possibility of flashing existing vent pipes up to DN 150 (OD160) against the new waterproofing without prior removal.

It is placed over the existing and cut-to-length (if required) vent pipe, it has to protrude at least 15 cm over the new waterproofing (or protection layers), and reliably fastened to the substrate (e.g. with screws in the respective places).

The remaining space between the existing vent pipe and the refurbishment vent is filled with several layers of PUR installation foam and at the top sealed with a permanently elastic sealant, so that any possible condensate will drain off into the existing vent pipe without causing any damage.

The alwitra refurbishment vent 160 is made of CFC free PUR integral foam. At the factory, an EVALON® or EVALASTIC® sealing ring is foamed into the welding flange. The sealing ring ensures permanently reliable flashing against the new roof waterproofing. To this end, a prefabricated EVALON® or EVALASTIC® connecting flange is homogeneously welded to the sealing ring and the adjacent roofing membrane in the same way as the seam connection of the field membranes.

Other roofing membranes can be bonded to the 12 cm wide flange, also with hot bitumen. The vent cowl can be easily fitted and snapped into the pipe collar with four tabs. The vent cross section has a top and lateral cover to protect against heavy rain. Condensate forming on the vent cowl (if any) will drip off without causing any damage, partly into the existing vent pipe.



### Technical data:

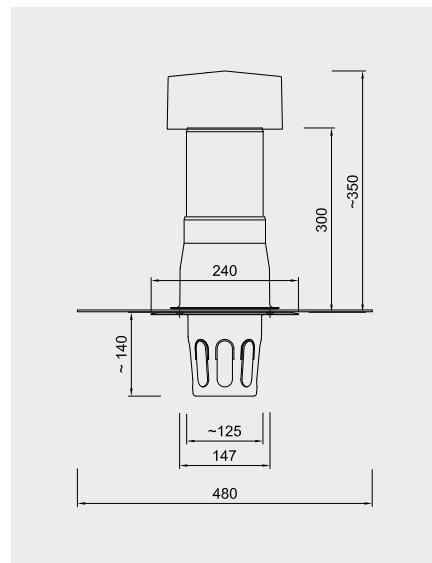
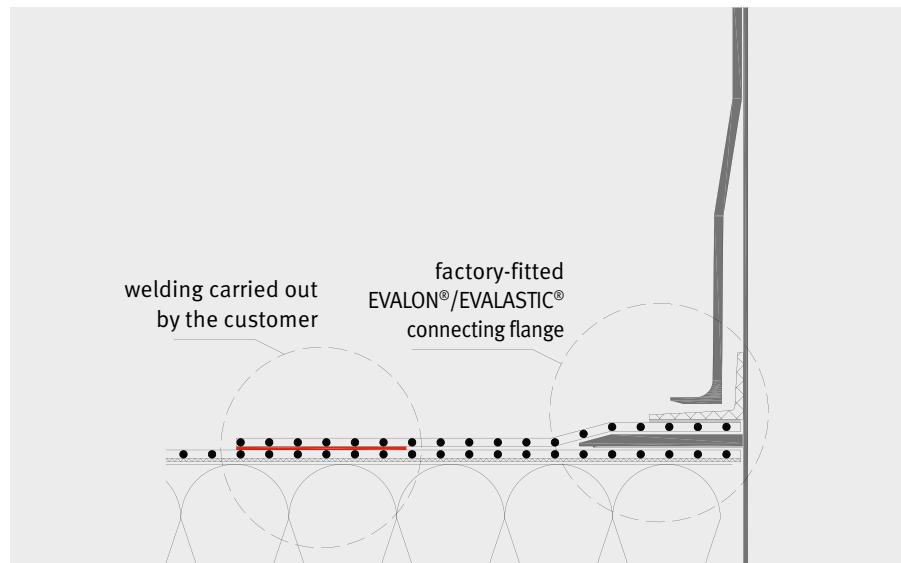
Material:	PUR integral foam, with foamed-in EVALON® or EVALASTIC® sealing ring; PE vent cowl
Colour:	Connecting flange: in the colour of the waterproofing membrane
Height above the waterproofing (excl. vent cowl):	350 mm
Inner diameter:	max. 169 mm (DN 150)
Outer flange diameter:	470 mm
Ø of screw holes at flange:	approx. 375 mm
Flange width:	120 mm
Outer diameter of optional connecting flange:	670 mm

## alwitra cold roof vent

**alwitra cold roof vents** facilitate air circulation in the cavity of ventilated roof structures, so called cold roofs. Only sufficient air exchange over the whole area will ensure long-term functionality of a cold roof.

As with the soil vent pipe, the EVALON® or EVALASTIC® connecting flange is factory fitted to the vent pipe and doubly secured by means of an external air cushion cell (diving bell effect) protecting the connection. It can be welded directly to the corresponding roof waterproofing without any additional materials.

The vent cowl, together with the weather cap, provides rainproof protection of the vent pipe. At the lower end of the vent, a drip pan will collect any condensate, which will eventually evaporate. This is to prevent or reduce moisture penetration of the thermal insulation. Ventilation is provided for by slots regularly arranged around the vent, with a vent cross section of ~ 110 cm<sup>2</sup>.



### Technical data:

Material:	PVC pipe with condensate drip pan, vent cowl and weather cap made of PP
Colour:	black, with connecting flange in the colour of the waterproofing membrane
Height above the waterproofing (excl. vent grate / weather cap):	300 mm
Outer pipe diameter:	125 mm (DN 125)
Outer connecting flange diameter:	480 mm
Outer flange diameter:	240 mm
Ø of screw holes at flange:	210 mm
Flange width lower part:	60 mm
Installation depth from flange:	approx. 140 mm
Vent cross section:	~ 110 cm <sup>2</sup>

## Overview of alwitra flat roof vents

alwitra soil vent pipe 300 (soil vent pipe SL) EVALON® / EVALASTIC®	alwitra refurbishment vent 160 EVALON® / EVALASTIC®	alwitra cold roof vent 125 EVALON® / EVALASTIC®
		
DN 125 and DN 100 For thermal insulation thicknesses up to 300 mm (SL: thermal insulation thickness according to customer specification)	Up to DN 150	DN 125
Optional	Optional	
Reducer 125/75 DN 125 to DN 70 Weather cap	Connecting flange EVALON® (white, light grey, slate grey) EVALASTIC® (light grey)	
		

Installation videos for flat roof vent installation are available at  
<http://alwitra.de/en/videos-english/>





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