VILPE® solutions for flat roofs

VILPE®
Innovative and Easy

WWW.ALUROOFING.CO.UK

info@aluroofing.co.uk
hollie.sherry@aluroofing.co.uk
phil.brown@aluroofing.co.uk

Alu Roofing

ALIPAI Low Pressure Air Vents

There is always some moisture in roof structures for various reasons. Moisture is generated by the diffusion of water vapour generated when the building is in use. Moisture within the structure is generated by convection. Some moisture is transferred into the structures from the outdoor air. The moisture in structures after the building is completed is caused by faults in storage or protection of the building materials.

Water content in some building materials:
- concrete: ~80 kg/m^3
- lightweight concrete: 80-180 kg/m^3
- timber: 20 kg/m^3

If the roof is not ventilated, moist air from inside the building rises to the roof and becomes condensed on the internal surface of the felt, causing moisture in the thermal insulation. In winter, the moisture freezes and the thermal insulation loses its insulating properties, resulting in a significant rise in heating costs. In summer, bubbles and cracks appear in the roofing. Excessive moisture promotes the growth of fungi, moulds and micro-organisms. Alipai ventilates the roof structures and ensures efficient removal of moisture.

With Alipai low pressure air vents, the thermal insulation remains dry, the air quality in the rooms is improved and heating costs become lower.

Production materials

Alipai vents are made from noncorrosive, weatherproof and impact proof, recyclable polypropylene plastic (PP), which is black throughout. The plastic is also UV protected. The material is chemically neutral and endures continuous exposure to temperatures from -30°C to + 80°C, temporarily from -40°C to +120°C.

Applications

Alipai low pressure air vents are available for the low-pitched,inclined and ridge sections of low-pitched roofs.

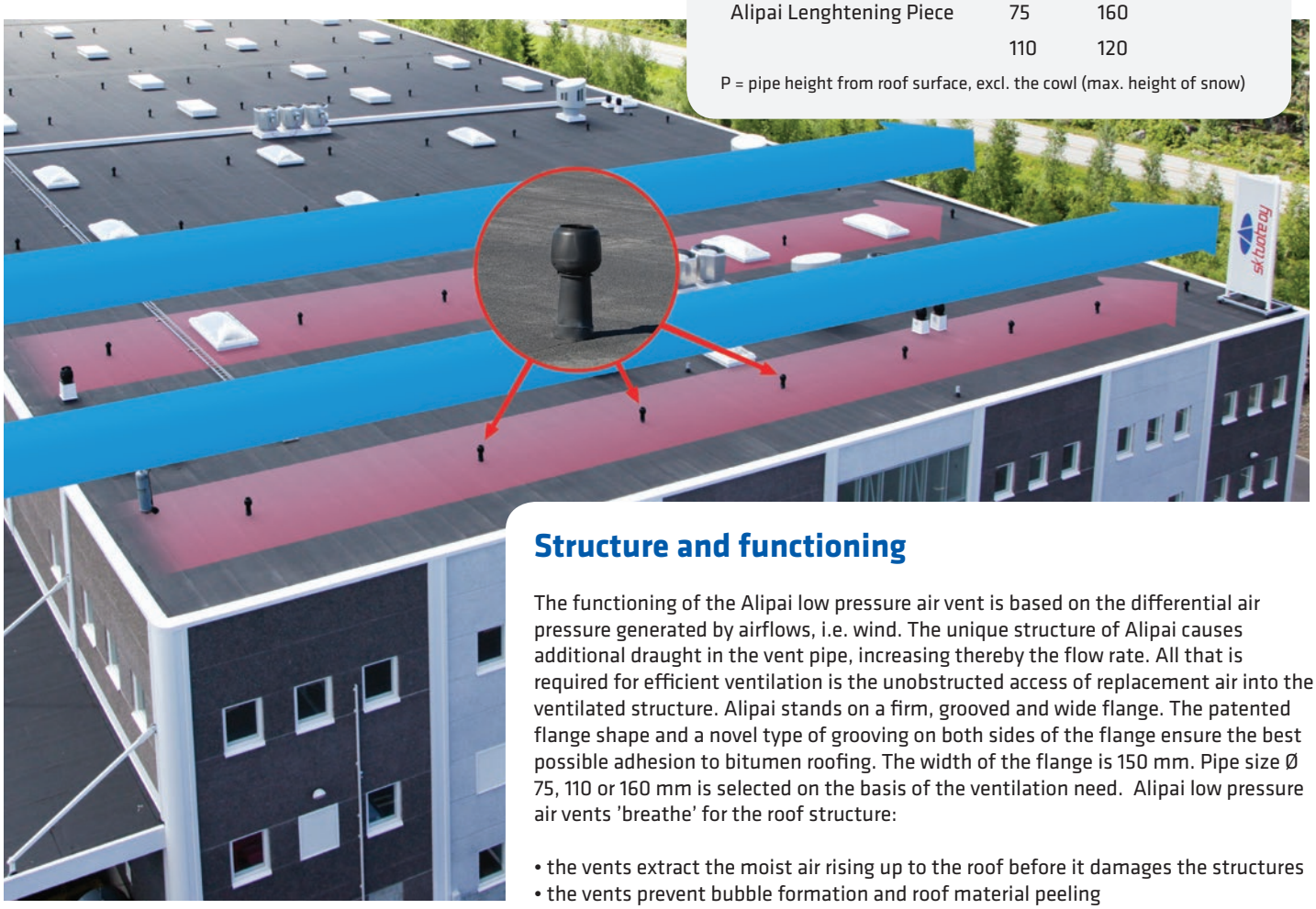
Alipai Ridge low pressure air vents are intended for the ridges of low-pitched roofs. The angle of the flange makes it possible to install the low pressure air vent to the ridge, ensuring improved ventilation of the roof. The flange is installed, following exactly the shape of the ridge, whereby the installation is tight and durable.

Alipai Insulated low pressure air vent minimises the freezing risk of roof structures in moist and severe winter conditions.

Standard sizes

Product	Ø mm	Height
Alipai	75	390 (P = 300)
	110	460 (P = 320)
	160	530 (P = 450)
Alipai Insulated	110	610 (P = 470)
Alipai Ridge 27°	75	480 (P = 380)
	110	450 (P = 310)
	160	500 (P = 430)
Alipai Ridge 14°	110	460 (P = 320)
Alipai Low-Pitched/	110	680 (P = 550)
Inclined	160	640 (P = 490)
Alipai Lenghtening Piece	75	160
	110	120

P = pipe height from roof surface, excl. the cowl (max. height of snow)



Structure and functioning

The functioning of the Alipai low pressure air vent is based on the differential air pressure generated by airflows, i.e. wind. The unique structure of Alipai causes additional draught in the vent pipe, increasing thereby the flow rate. All that is required for efficient ventilation is the unobstructed access of replacement air into the ventilated structure. Alipai stands on a firm, grooved and wide flange. The patented flange shape and a novel type of grooving on both sides of the flange ensure the best possible adhesion to bitumen roofing. The width of the flange is 150 mm. Pipe size Ø 75, 110 or 160 mm is selected on the basis of the ventilation need. Alipai low pressure air vents 'breathe' for the roof structure:

- the vents extract the moist air rising up to the roof before it damages the structures
- the vents prevent bubble formation and roof material peeling
- the vents extract the condensate from the lower waterproofing surface

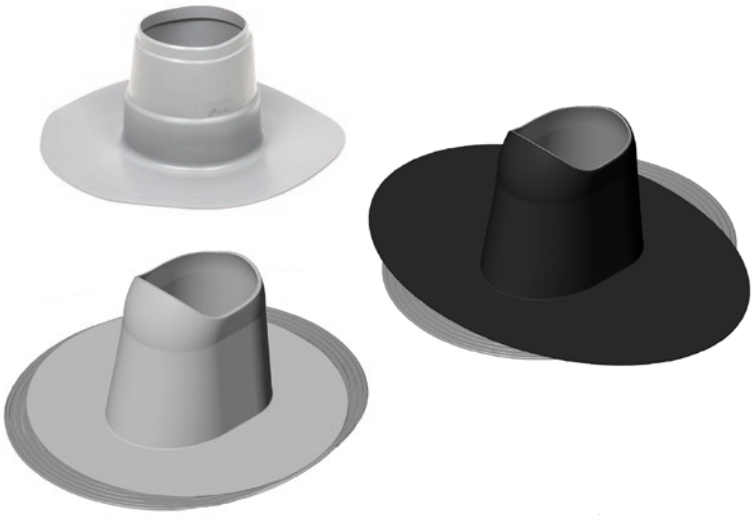
Installation

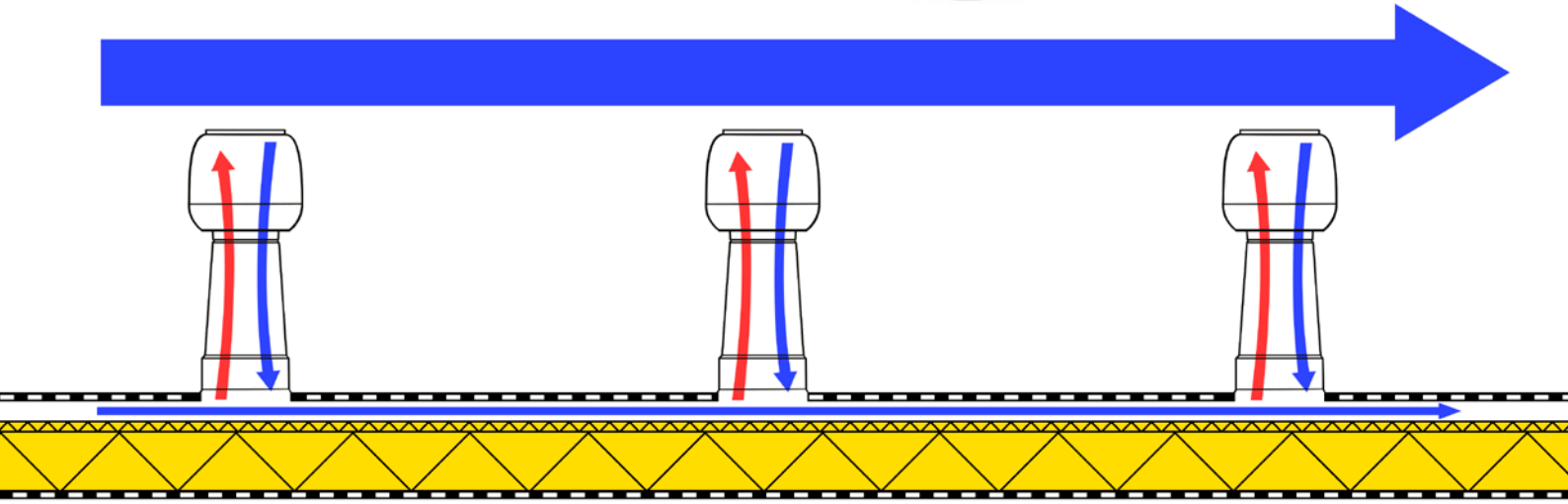
- Alipai low pressure air vents are installed on the roof in rows, about 1 unit/75 m^2 (Alipai -75), 100 m^2 (Alipai-110) and 150 m^2 (Alipai-160). The lowpressure air vents are installed in every 10 meters at max. The air vents should not be installed at the bottoms of roof valleys. A HEVAC engineering office can make a specific design, especially for the ventilation of extremely wet premises, providing the number of low pressure air vents that are needed, together with their positions.
- If the insulation material contains ventilation grooves, the roof ventilation will be more efficient with Alipai low pressure air vents. Thermal insulation materials with ventilation grooves are installed on the roof so that the grooves are pointing at the ridge. A ventilation groove is also cut under the whole row of low pressure air vents, so that the cut groove will meet the ready ventilation grooves in the thermal insulation. If any pipes, roof outlets or similar are installed on top of ventilation grooves, bypass grooves should be cut in the thermal insulation to allow the air to flow. On large roofs with diverse sloping, the ventilation grooves for low pressure air vents are positioned on the crests and also in the sloping spouts to achieve more uniform ventilation.
- Cut a hole with the size of the pipe diameter of the Alipai air vent into the hard thermal insulation at the installation point of the air vent.

BITUMEN ROOFINGS:

- The flange of Alipai low pressure air vent is always installed between two bitumen plies (base felt).
- Install the Alipai on top of the base felt, and in case of a single-ply bitumen roofing install under the Alipai air vent flange a separate piece of the roofing that is 300 mm larger than the external dimension of the Alipai air vent.
- Pour hot bitumen (max. temperature 240°C) from a can on top of the base felt, on an area with the size of the Alipai air vent flange. Press the flange of the Alipai air vent evenly into the bitumen, making sure that the hole in the flange would be aligned with the hole cut in the base felt and the insulation. In case of an underlay of tongue-and-groove boards, we recommend fixing the flange of the Alipai air vent to the boards with felt roofing nails in every 10 cm from the outer edge.
- Place the base felt on the flange of the low pressure air vent and fix it by gluing with hot bitumen.
- When installing the top felt, cut it as precisely as possible at the foot of the pipe section of the Alipai air vent, and fix it to the flange of the Alipai air vent by gluing with hot bitumen or by heating the felt with gas.
- Secure the joint between the Alipai pipe and the roofing with rubber bitumen glue.

ACCESSORIES FOR INSTALLATION ON PVC OR EPDM ROOFINGS:





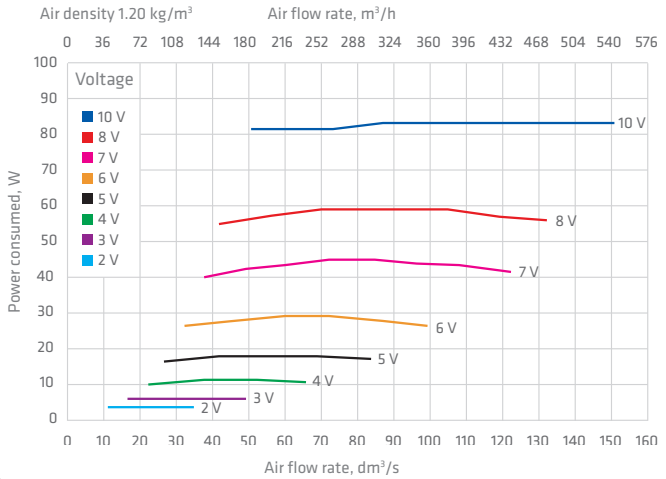
Using VILPE® ECo110S roof fan to boost moisture removal

There is always some moisture in roof structures for various reasons. Moisture is generated by the diffusion of water vapour generated when the building is in use. Moisture within the structure is generated by convection. Some moisture is transferred into the structures from the outdoor air. The moisture in structures after the building is completed is caused by faults in storage or protection of the building materials.

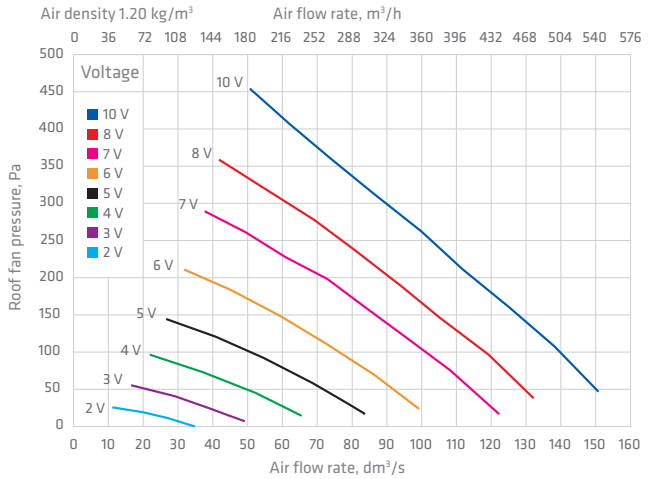
Electrical details

Fan type	ECo110
Power Input	83 W
Current	0.75 A
Nominal Voltage	230 V / 50 Hz
Speed	3200 r/min
Speed Controller	Potentiometer inside the cowl of the roof fan

Electrical performance values



Flow performance values



Structure and functioning

When a ECo110 roof fan is used to increase the moisture extraction it ventilates the roof by acting as an air exhaust and creating a low pressure area within the roof, causing the nearby regular Alipai air vents to act as air intakes.

This can be used to increase the ventilation and remove moisture in situations where the ventilation caused by natural airflow is not deemed to be sufficient.