

# Vario® Professional Guide COMPACT

Smart Airtightness and Moisture  
Management

## Guaranteed Protection



The Vario® airtightness and moisture management system combines the greatest possible safety with outstanding structural properties. That's our promise to you and your client. With our Vario system guarantee extended to 50 years.

For full information, see [www.isover.de/vario](http://www.isover.de/vario)



### Expertise from the expert for the expert

With this new Vario® Professional Guide COMPACT, we introduce you to all system components and give you many valuable professional tips for professional processing using the Vario® airtightness and moisture management system. The practical guide takes you step-by-step through the complex laying situations that you will encounter on every construction site.

# Reliable protection with the Vario® system

## Lasting value for your customers

Moisture in construction has serious consequences in the long run. If airtightness and moisture management are not reliably ensured, this can result in expensive structural damage - including rotten wooden beams or mould infestation. If damage occurs, this is accompanied not only by unpleasant legal disputes but also by financial burdens.

Work is much more relaxed with the ISOVER Vario® air tightness and moisture management system, which offers reliable protection against structural damage. Not only do we have over 25 years of experience with smart membranes such as the Vario® XtraSafe or the Vario® KM Duplex UV, but we also offer you a range of perfectly coordinated system components of sealants and adhesive tapes for interior and exterior use.

However, the Vario® airtightness and moisture management system is far more than a proven classic. Rather, we continuously invest in its practical development. And so, just in time for the 25th anniversary, numerous system components were once again improved, which made it possible to further optimise both the product properties and the scopes of application of the system.





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So wird gedämmt.



Vario®

Das Komplettsystem.  
Seit 1997.  
Original von ISOVER.

- Klima für

## Professional tips for easy work

### Remove the liner from the adhesive tape

The liner can be easily removed from the adhesive tape with a simple movement of the hand without damaging the adhesive surface.



1 Cut the tape in a straight line. The practical tape measure imprint ensures easy handling.



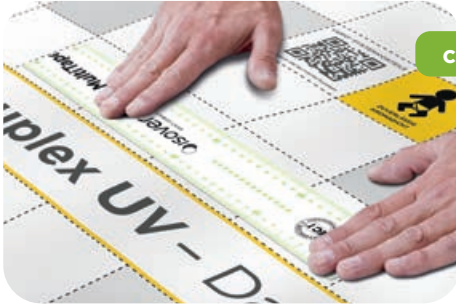
2 Bend the cut edge slightly downwards in a U-shape with one hand without kinking the tape.



3 Run one finger of the other hand over the edge. This allows the adhesive tape to be easily detached from the liner.

## Do not overstretch adhesive tapes

Adhesive tapes, such as the Vario® MultiTape+, must not be overstretched when adhered to the membrane.

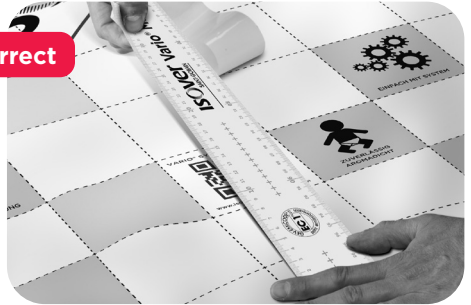


correct

To ensure an airtight finish, apply the tape without tension. The result: the film remains flat, the smart membrane is bonded airtight and thus fully functional.

If the overstretched adhesive tape is stuck onto the membrane, it will contract due to the extra-high adhesive strength of the ISOVER adhesive tapes.

incorrect



incorrect

This consequence of this is that the film creates waves through which air can penetrate. This can lead to water vapour condensation.



## Tear off adhesive tapes by hand

Adhesive tapes should not be torn off by hand. One exception is the specially developed fabric tape, Vario® XtraTape.

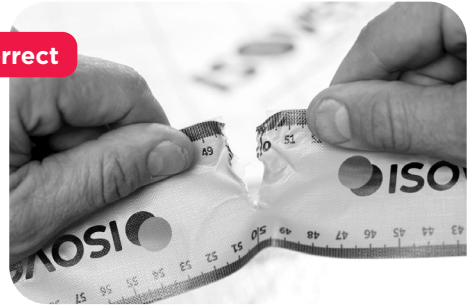


**correct**

Due to its special structure, Vario® XtraTape can be torn without any problems. The result is a cut-like, straight tear-off edge. This is important to ensure a good and safe work result.

Other adhesive tapes such as Vario® MultiTape+ should not be torn by hand as an uneven and overstretched tear-off edge will form. This can prevent airtight bonding of the smart membrane.

**incorrect**



Adhesive tapes with paper backing such as Vario® KB 1 should not be torn either. If they do have to be torn, sufficient overlapping of the tear-out edges should be ensured.

**incorrect**



## Prepare substrate with primer

Porous or sandy substrates often require pre-treatment with a primer, as is also prescribed in the DIN 4108-7 standard. Vario® MultiPrime improves the adhesive strength on all common construction substrates such as plaster, masonry, aerated concrete and softwood fibreboard and is thus ready for strong bonding.



Shake the dispenser bottle vigorously before use. The application quantity can be easily adjusted via the yellow twist cap. **Tip:** fresh primer can be removed with water.



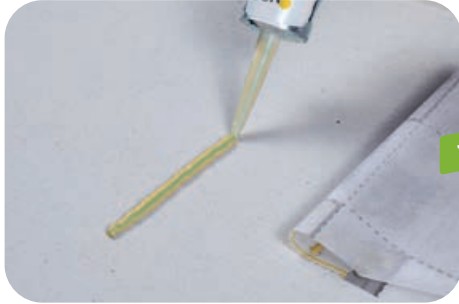
Apply primer evenly using a foam roller or brush. Repeat the process for highly absorbent substrates. The surface is permanently sticky and should be protected from dust until the smart membrane is connected. The primer must be completely absorbed before bonding the connection.



**Tip:** the yellow colouring indicates areas that have already been treated. The rectangular shape ensures stability even on slopes.

## V-shaped sealing of the smart membrane with Vario® DoubleFit+

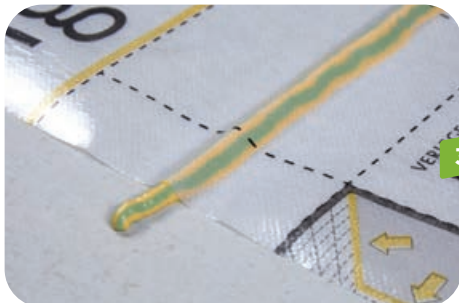
The universally applicable adhesive sealant must not be flattened. It is important to seal the film in a V-shape with two fingers.



Using the cartridge tip that has already been cut into a V-shape (see page 12), apply a voluminous bead of sealant onto the primed surface and place the film over it.



To seal the film in a V-shape, slide two fingers along the sealant bead and apply light pressure to the side of the bead. Sealing is also possible using a wooden template that is pulled over the bead.



In order for the sealant to provide an optimum airtight seal, a bead of sealant must remain under the film, as required by DIN 4108-7.

## Professional tips for indoor use

### Butt bonding in the overlapping area of the smart membrane

After the smart membrane has been applied, the butt joint must also be bonded. Otherwise, there is a risk that dust or construction site dirt will impair effective bonding and thus the protection against moisture damage. To keep moisture out of the construction, the wall connection must be made afterwards.



1 Lay the smart membrane in strips with an overlap of 10 cm, starting from the top.



For this purpose, the film sheets are taped with Vario® KB 1 adhesive tape or Vario® MultiTape+ with a 3 cm overlap. The line marking on the film serves as a guide here. **Tip:** hang the roll of tape over your wrist or use a standard tape dispenser.



To achieve effective corner bonding, carefully press the adhesive tape into the corners with a spatula or a squeegee. To ensure safe application, only peel off as much liner of the adhesive tape as is needed.



4

Finally, roll over all the bonds with a flat rubber roller or squeegee and press the edges especially firmly. Do not use a foam or curved roller.



5

Seal torn staple openings or damage to the film with adhesive tape.



## Metal stud wall with Vario® XtraSafe in the interior insulation

The Vario® Xtra system is also ideal for mounting on metal stud walls. Simply stick the Vario® XtraPatch onto the metal and attach the Vario® XtraSafe smart membrane - installing an airtight layer on metal profiles has never been so easy! Corrections are possible at any time thanks to the Velcro function. Then, create the airtight layer with Vario® XtraTape and Vario® DoubleFit+.



Klettsystem mit  
**PATENT**  
ISOVER Vario® Xtra



Stick the Vario® XtraPatch Velcro strips to the grease-free metal supports every 40 cm. The finger lift makes attachment easier. The strip is flat and does not show later in the construction.



Attach the first Vario® XtraSafe sheet starting from below. Velcro the second sheet of film over the first sheet from above and cut off the overlapping edge to an overlap of 10 cm. Use line marking for this.



The film is immediately fixed by the Velcro strips and cannot slip. Adhere the film sheets with Vario® XtraTape.



Connect the film to the components with Vario® DoubleFit+, then apply the cladding. When attaching the cladding (e.g. plasterboard), ensure that there is a press connection between the parts. The airtight layer does not protrude so that an even substrate is created. **Note:** to ensure a form-fitting press connection, observe the screw spacing specified by the manufacturer.

## Align the substructure with adjusting screws

The substructure must be flat in order to achieve a ripple-free surface for the inner cladding. This is tricky, especially when renovating older roof structures. Particular attention is required here when adjusting the adjusting screw. If the necessary contact pressure of the counter batten on the underside of the rafter is missing, the screw perforation in the smart membrane will no longer be airtight. Such leaks can be avoided by using the Vario® AntiSpike nail sealing tape.





Mark the course of the battens in the area of the rafters on the film. The distance between the battens should not exceed 50 cm. The grid imprint on the film serves as a guide. Then, check the offset of the rafters using a levelling rod.



Cut Vario® AntiSpike with the cutter into approx. 10 cm long strips and stick them centrally over the rafter. If there are many cracks in the construction, lay the nail sealing tape continuously.

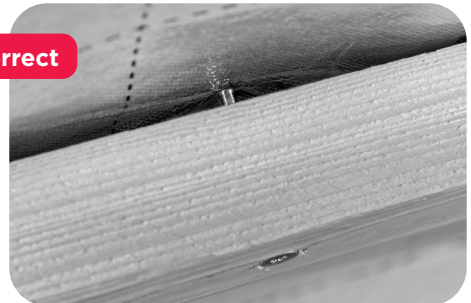


**correct**

Now the battens and adjusting screws can be positioned. The elastic foam tape reliably seals the leak.

Without sealing tape: the batten is aligned but the perforation of the smart membrane is not sealed.

**incorrect**



## Sealing a pipe penetration with the right Vario® components

If a pipe penetrates the vapour control layer, make sure that this area is also airtight. The penetration can be sealed perfectly using a limited amount of material.

### Preparation



1

Materials needed: Remnant piece of pipe with the appropriate diameter (cut on one side to match the pitch of the roof), two pieces of film, template (pipe circumference plus 1 cm equals length of the panel, minus 6 cm equals width of the panel), Vario® MultiTape+, Vario® MultiTape SL+, Vario® DoubleFit+, cutter, pen.



2

Measure and cut four Vario® MultiTape SL+ adhesive tape on the long side of the template.



3

Cut the two pieces of foil to the size of the template using the cutter.



First, create the basic cutting. To do this, tape around all four sides of one of the pieces of foil using half of the tape (thanks to the split liner). Always start by taping the long side. Press on the adhesive tapes with the press roller or squeegee.



a) Place the piece of pipe with the bevelled side in the middle of the film and mark the outline.  
b) Trace the curve inwards approx. 3 cm from the outer edge and cut out the inner outline.



Make segmental cuts by cutting the film up to the pipe marking. This creates cut tabs, which are essential for further sealing.



Wrap the second piece of foil around the pipe and place it overlapping the long side. Cut the foil along the slanted edge.

## Performing the work



8

Firstly, the cutting is attached to the pipe penetration using the Vario® MultiTape SL+ adhesive tape. To avoid having a continuous gap during further assembly, cut one half of the cutting from the **long** side of the pipe marking to the edge so that it can be wrapped around the pipe.



9

Place the prepared cutting with the writing facing the worker at the height of the penetration in the film and place the pipe so that the cut tabs cover the pipe and lie against it. The gap in the base plate then runs **horizontally**. Pull the part with the cut-out curve over the pipe section.



10

Bond the gap.



**11** Attach the cutting to the film by peeling off the outer split liner.



**12** Press on the bonding with a squeegee or hand roller.



**13** The bonding area must be roughened if the airtight layer is sealed to high temperature or sewer base pipes. To do this, mark the lower edge of the second piece of film on the pipe before bonding.



**14** Clean the marked adhesive area with thinner and roughen the surface with sandpaper or using a cutter. This way, an optimal adhesive bond is prepared between the adhesive tape and the pipe.



15

Apply a bead of Vario® DoubleFit+ adhesive sealant that is approx. 1 cm thick around the pipe marking.



16

If a flex connection pipe is sealed, air must be prevented from escaping along the indentations. For sealing, apply plenty of Vario® DoubleFit+ adhesive sealant all around the pipe, filling at least in two of the dents in the spiral.



17

Place the second piece of film around the pipe. Press the second piece of film into the adhesive bead and bond the piece to the cutting.



18

Tape the open film tabs on the front side with Vario® MultiTape+.



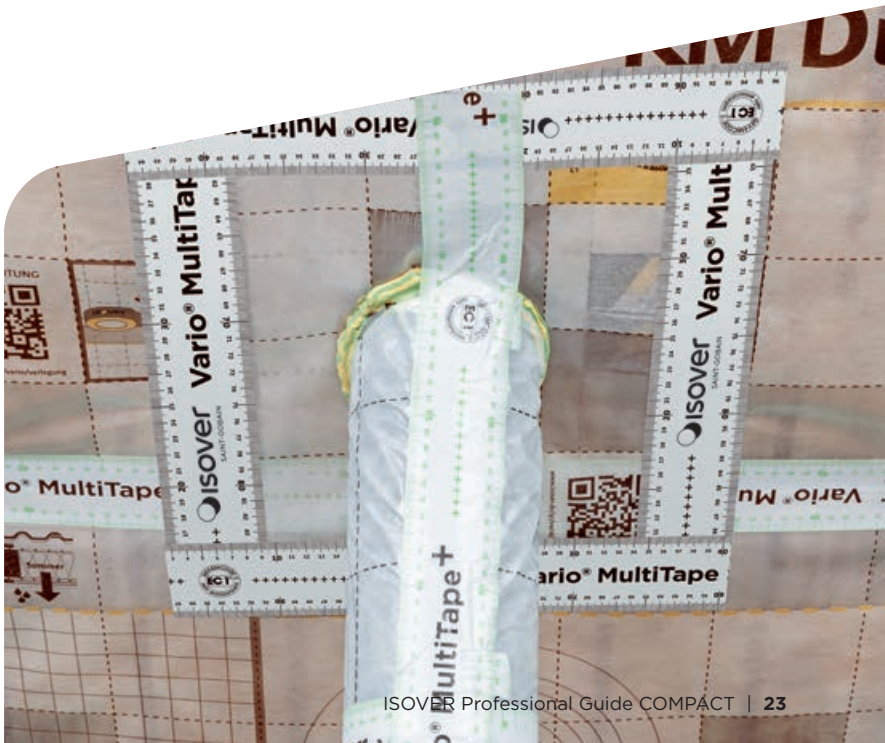
19

Then carefully bond the second piece of film to the bottom edge with adhesive tape. Make sure that the bonding area is roughened.



20

Roll over all tapes with a squeegee or press roller to ensure optimum adhesion.



## Sealing a cable penetration (procedure is identical for multiple cables)

Cable penetrations through the moisture-regulating smart membrane should be avoided or at least minimised as far as possible. Where they are necessary, ensure optimum sealing to safely rule out leaks.





**1** Fill the spaces between the cables with the adhesive sealant Vario® DoubleFit+ to seal them.



**2** Where there are multiple cable penetrations, group all cables together and bundle them together with adhesive tape. Apply plenty of Vario® DoubleFit+ adhesive sealant around the cable bundle to seal it.



**3** With a strip of Vario® MultiTape SL+ adhesive tape, detach the liner of one strip on one side and stick the tape right under the cable bundle. Then, remove the second part of the liner, cut it cable-wide with the cutter and adhere it.

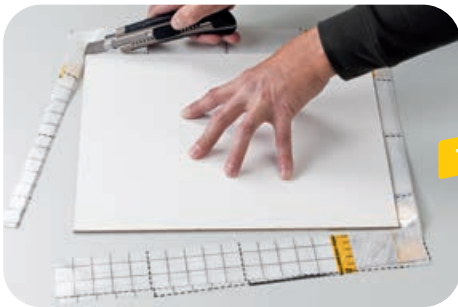


**4** Next, stick another Vario® MultiTape SL+ adhesive tape from above onto the cable bundle or the cable and then proceed as described in 3.

## Beam or waling connection

In order to ensure a reliable airtight connection of the smart membrane to a beam, the smart membrane must be cut to size and be flush with the beam. However, this is not feasible in all structural situations. In cases such as these, sealing with suitable Vario® components is recommended.

### Preparation



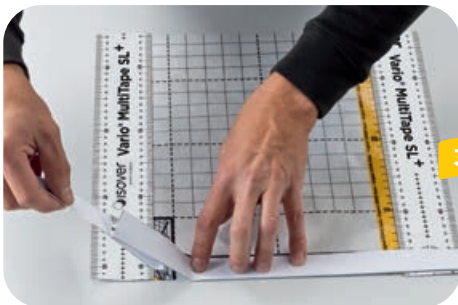
1

For the base plate, cut a sufficiently large rectangle from a scrap piece of film. Using a template can be helpful for this.



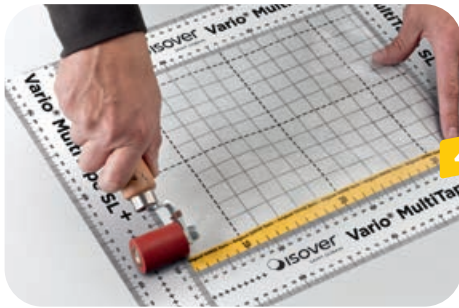
2

Prefold Vario® MultiTape SL+ into suitable strips in the middle, peel off one half of the liner and stick it to the long side of the film. Do the same on the opposite side.



3

For the short sides of the base plate, measure the strips of tape so that they cover the entire width of the film. Peel off one half of the liner and stick it to the edge of the film. Do the same on the opposite side.



4

For optimum adhesion, roll over the adhesive tapes with the press roller/squeegee.

**Tip:** base plates can be prepared in the workshop and brought to the construction site.



5

Place a sufficiently large cardboard template on the beam and transfer the beam dimensions.



6

Place the template with the beam dimensions on the prefabricated base plate and cut the smart membrane in a Y-shape according to the template drawing.



7

Arrange the cut film tabs. The tabs must not protrude more than 3 cm and may need to be shortened accordingly.

## Performing the work



8

Cut the cutting open on the narrow side and pull it over the beams.

**Caution:** The cut tabs must face the room side, i.e. towards the worker.



9

Detach the second liner strip of each Vario® MultiTape SL+ adhesive tape and stick it airtight to the smart membrane.



10

Place a small sealing dot of the Vario® DoubleFit+ adhesive sealant on all beam corners.



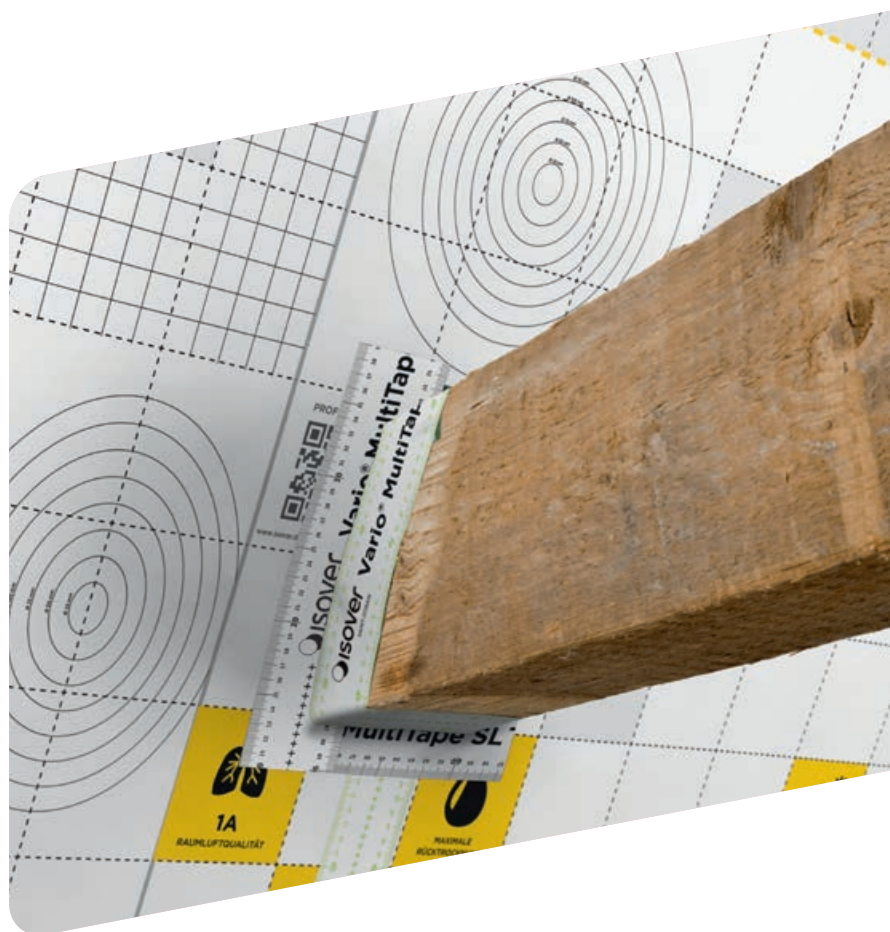
11

Stick the positioned tabs to the beam with individual strips of Vario® MultiTape+. Tape the cut seam too.



12

For optimum adhesion, roll over all adhesive tapes with a press roller or squeegee.



## Beam connection with adhesive tape **A** in a new construction and **B** for cracked beams in an old building

The essential prerequisite for an airtight adhesive tape connection of the Vario® smart membrane to waling, beams or centre purlins is a precisely shaped film cut-out. This means that the foil must be absolutely flush with the beam. Particular care should be taken with old, cracked beams.



## A Beam connection in a new construction



A1

First, stick the Vario® MultiTape SL+ adhesive tape onto the film on the short sides with a tight connection to the beam. Peel off only one liner strip.



A2

Remove the second liner strip of the adhesive tape and stick it to the beam. Use a cutter to cut the adhesive tape at the edges of the beam as shown in the illustration and stick it in place.



A3

Apply some Vario® DoubleFit+ adhesive sealant to all beam edges.



A4

Then, bond the long sides with Vario® MultiTape SL+ as described above. Roll over all adhesive tapes with a press roller/squeegee.

## B Beam connection in old buildings



B1

Make the foil cut-out for the beam connection in the old building X-shaped. When processing, make sure that the film tabs face the room side.



B2

Cut the triangular foil tabs parallel to the roof pitch to a length of 2.5 cm. This ensures airtight bonding with the film and the beam.



B3

Thoroughly clean any dust and dirt off the beams at the bonding point with the steel brush. Pre-treat the substrate with primer.



B4

Fill the beam cracks with plenty of the Vario® DoubleFit+ adhesive sealant. Extend the sealing bead a few centimetres beyond the bonding point for optimal sealing.



**B5**

Place sealing points in all beam corners with the Vario® DoubleFit+ adhesive sealant.



**B6**

Stick the individual film tabs with Vario® Multi-Tape SL+. To do this, stick one of the adhesive strips close to the beam on the film.  
Detach the liner from the second half of adhesive, stick on with the excess, cut into the edges of the beam, fold over and stick on without any creases.



**B7**

Then, stick four additional strips of Vario® MultiTape+ around the beam for secure sealing.

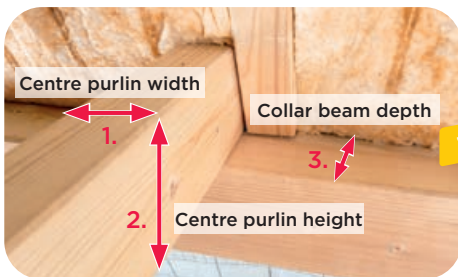


**B8**

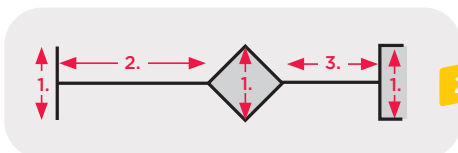
Roll over all adhesive tapes firmly with a squeegee or a rubber roller to ensure optimal adhesion.

## Connection to centre purlin and collar beam with **A** template or **B** film cutting

The connection to the centre purlins is usually made by sticking the film with adhesive tape. In the case of an overlying collar beam, the film must be flush with the beams.



**1** First measure the width and height of the centre purlin and the depth of the collar beam.



**2** Make a template out of strong cardboard according to the drawing.

## A Connection with template



A1

Place the template on the film overhang and cut out. A solid base with a board can make cutting easier.



A2

Then, place the cut film wings of the Vario® XtraSafe flush against the beam.



A3

Use Vario® DoubleFit+ adhesive sealant to make the film wings of the smart membrane airtight on the sides of the beam. Also, place a bead of adhesive with sealant on the underside of the beam.



A4

Attach the film with Vario® MultiTape SL+ to the upper side of the beam so that it is airtight.

## B Connection with film cutting



**B1**

A film cutting facilitates the airtight connection if a quick, rough cut around the beam has already been made.



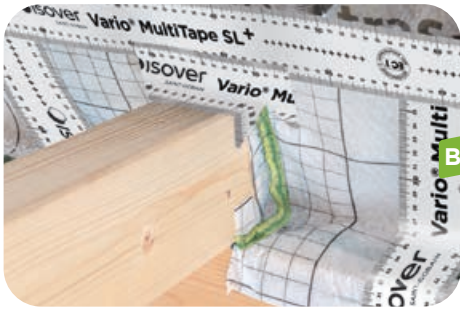
**B2**

For the film cutting, apply Vario® MultiTape SL+ to three sides of a piece of film of sufficient size as already described for other film cuttings. To do this, peel off the split liner on one side. Lay out the template and cut it out.



**B3**

Adjust the film cutting to the beam and place the film wings flush against the beam flanks.



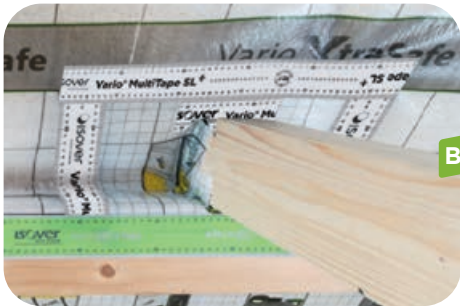
**B4**

Seal the film wings with Vario® DoubleFit+ adhesive sealant and stick them airtight with Vario® MultiTape SL+.



**B5**

A bead of sealant must also be applied on the underside of the beam.



**B6**

The smart membrane is now connected to the centre purlin with the Vario® XtraTape adhesive tape.

## Connection of the smart membrane to a skylight

The airtight connection of the smart membrane to a skylight requires special care to reliably rule out thermal bridges. The decisive factor here is to adapt the smart membrane to the window cut-out using an H-shaped cut and to optimally prepare it for the climate-regulating seal.



**1** Mark the outer edge of each of the upper and lower inner grooves on the rafter.



**2** Extend the measurement from (1.) at right angles to the rafter using an angle bracket. Mark the corner points for the later transition to the lintel/balustrade according to the window manufacturer's specification - in the example here, 8 cm is measured from the inner groove of the frame.



**3** Extend this point horizontally to the upper part of the window.



4 The contour of the insulation wedge is now defined.



5 Proceed in the same way at the balustrade. Here, the connection should be made vertically.



6 Templates are helpful for cutting the respective insulation wedges. The materials needed are: cardboard, pencil, angle bracket, tape measure, cutter, thick marker pen, insulation knife.

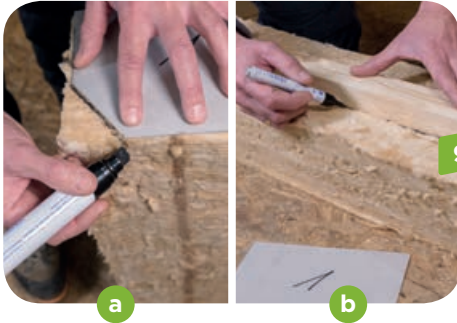


7 So that there is no confusion, number the areas.



8

Transfer the previously marked measurements to the template, label and cut out.



a

b

9

a) Cut the appropriate insulation strip (H×W).  
Place the template and mark the slope with a marker pen.  
b) Transfer the cutting lines onto the long side.



10

Carefully cut along the markings with the insulation knife.



11

Cut the insulation boards (e.g. Integra UMP-032) for the soffit to the maximum possible thickness and fix them in place. Then, take the measurement + clamping allowance (recommendation 1 cm) for the insulation wedge.



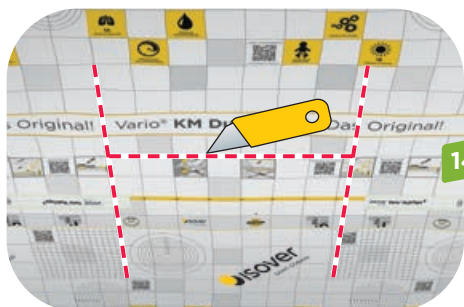
12

Fit the prepared insulation wedge. Do not pinch the film skirt, in this case from the roof window manufacturer. In the picture, the vertical surface faces the worker.



13

Proceed in the same way in the upper part of the roof window.



14

First run the smart membrane completely over the window cut-out and stick the film overlap. Cut the smart membrane in an H-shape (vertically on the long sides and horizontally in the middle) along the opening.



15

Shorten excessively long film tabs (top + bottom) accordingly for better handling.



16

Attach the film material missing from the window sides. To do so, cut two strips with excess length and fasten them, e.g. using a pressure stapler.

It is recommended to position the film joint to be bonded to the rafter (if present). There is better contact pressure here when bonding butt joints.



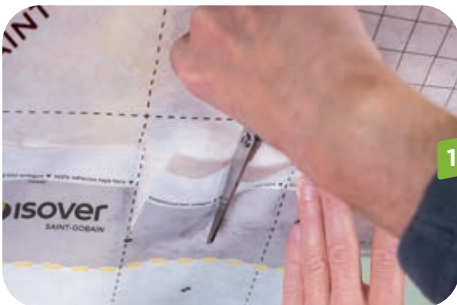
17

At the corner point where the insulation wedge becomes horizontal, make a mark on the front of the film with a marker pen. Cut vertically from the top with scissors.



18

Fold the smart membrane into the soffit without creases and again place a mark at the end of the horizontal line.



19

Remove the film from the soffit and cut again vertically from the top to the mark.



20

Proceed as above with the film skirt on the lower corners of the window. Here the film is only cut vertically from below.



21

First guide the two pieces of film on the broad sides of the smart membrane over the insulation. Then lay the side strips on the soffit without creases. Trim overhanging corners.



22

Fold the pieces of film back slightly on both long sides of the window soffit in the lower corner area and apply a bead of sealant (approx. 8-10 mm) in the overlap area.



a

b

23

a) Also place dots of sealant at the incision points of the corner points.  
b) Tape the overlap with Vario® MultiTape+ to secure the position and protect the waterproofing.



24

In the corners (see 22.), apply a generous amount of e.g. Vario® DoubleFit+ sealant at the lintel and apply along the overlap.



25

Place the smart membrane over it. A small spatula helps with positioning in the corners. Ensure that the corners are clean so that the film is not damaged again when the respective inner soffit is installed later!



26

Also place dots of sealant at the incision points of the corner points.

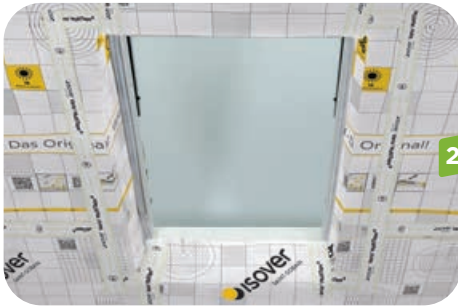


27

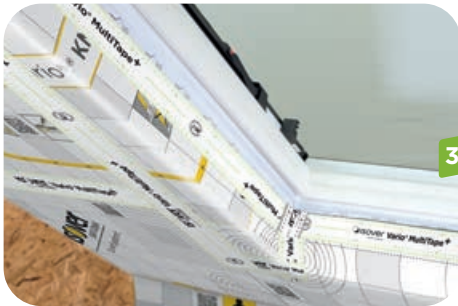
Tape the overlapping edge of the film in the corners with a strip of Vario® MultiTape+. A small spatula or our squeegee is also very helpful here for spreading/pressing on the tape better.



Also, cut a small strip of Vario® MultiTape SL+ to protect the corners. Then, cut in slightly from one side towards the centre and stick over the sealant dots.



Now stick the film strips previously attached lengthwise to the roof surface with Vario® MultiTape+. Position the adhesive tape and press it on with our squeegee.



Clean dust and grease off the film skirt on the window (e.g. with a conventional thinner). Connect to the smart membrane with Vario® MultiTape+. Vario® MultiTape SL+ is a good choice for the corners. Then press on the adhesive tape with our squeegee.\*

\* It is recommended to stick the smart membrane into the window frame groove using adhesive sealant. Connection strips from roof window manufacturers are made of PE sheets and are not permanently UV-resistant. They can be damaged by UV radiation behind glass after just a few days.

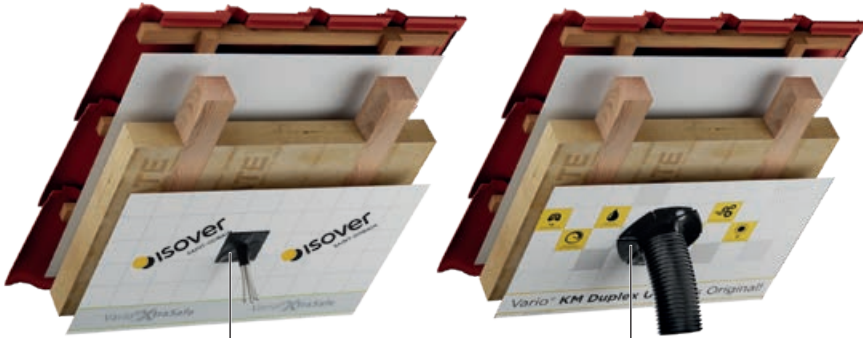


## Universal stretch tape for airtight sealing of penetrations

Vario® Stretch is a highly stretchable adhesive tape that can be used to seal penetrations through the airtight layer (moisture-variable smart membranes, OSB or concrete) very quickly and easily.

The stretch tape is certified class pHA in efficiency by the Passive House Institute and is up to 50% faster to install than standard sealing. It is suitable for ventilation pipes, flexible pipes, empty conduits, cable harnesses or beams. A two-part liner on the back makes flexible sealing even easier.





Cable penetration sealed with Vario® Stretch

Pipe penetration sealed with Vario® Stretch

### Safety for people and buildings

Airtightness of the entire building envelope is essential for long-term humidity protection in energy-efficient buildings such as passive or low-energy houses, and the airtight layer also contributes to safer roof construction and thus increases the occupants' wellbeing. This means that any necessary penetrations must be reliably sealed – which is quick and easy to do with components from the Vario® complete system.

### Efficiency class phA



These step-by-step instructions for professional airtight sealing are a prerequisite for achieving efficiency class phA.

More information is available at [database.passivehouse.com/en/components/list/airtightness\\_system](https://database.passivehouse.com/en/components/list/airtightness_system)



# Sealing a single cable

## Preparation



If cable penetrations are necessary, care must be taken to ensure optimum sealing. This prevents moisture damage reliably.

- 1 The substrate must be prepared with Vario® MultiPrime primer when there is a penetration through a concrete slab, wood-based panel or similar in accordance with DIN 4108-7.

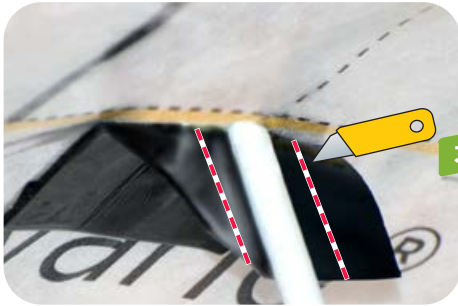
## Performing the work



- 1 Cut two strips of Vario® Stretch about 10 to 15 cm long.  
Remove half of the split liner on the back of one of the strips.



- 2 Apply the adhesive surface close to the cable penetration. The second half will be pointing up.



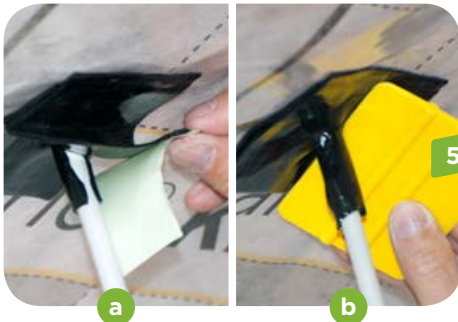
3

Peel off the second half of the liner and cut Vario® Stretch on both sides of the cable using a cutter.



4

Stick the right and left parts firmly to the substrate. To do this, press Vario® Stretch into the corners firmly without damaging it, e.g. using a squeegee. Seal the Vario® Stretch part in the centre that is standing up to the cable tightly.



a

b

5

- a) Stick the second Vario® Stretch adhesive tape close to the cable penetration from the opposite side and proceed as described above.
- b) Press Vario® Stretch firmly and seal it to the cable without gaps on all sides.



**Note:** To achieve Passive House Class A, seal the gaps between the cable and the substrate (airtight layer, OSB, concrete) with Vario® DoubleFit+ adhesive sealant.

Processing steps 1 to 5 must then be carried out exactly as described.



## Sealing multiple cables



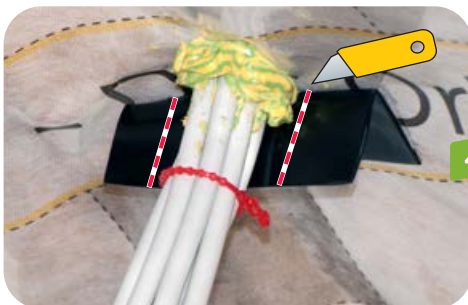
With multiple cable penetrations, first fill the spaces between the cables with Vario® DoubleFit+ adhesive sealant.



Bundle all cables together and secure them with adhesive tape or a cable tie. Apply plenty of Vario® DoubleFit+ adhesive sealant around the cable bundle to seal it.



Cut four strips of Vario® Stretch about 10 to 15 cm long. Remove half of the split liner from one of the strips and stick it to the substrate, close to the cable bundle. The second half will be pointing up. Remove the liner from it.



Cut the Vario® Stretch strip on both sides of the cable bundle with the cutter. Stick the remaining parts on the right and left to the substrate firmly. To do this, press Vario® Stretch into the corners, e.g. using a squeegee. Securely seal the piece of Vario® Stretch that is standing up in the middle to the cable harness.



5

Seal the three remaining sides of the cable bundle airtight with a strip of Vario® Stretch as described above.



6

Finally, press Vario® Stretch firmly into the corners without damaging it, e.g. using a squeegee.



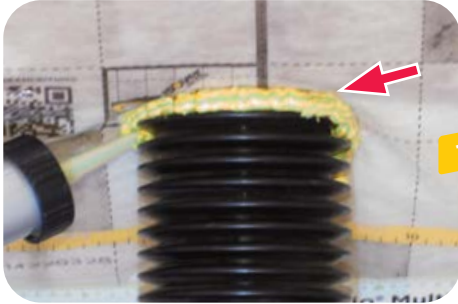
Vario® Stretch is also suitable for angular penetrations, for example beams. The procedure for these is the same as for pipe penetrations, see the following pages.

The substrate must be pretreated if necessary.



# Sealing pipe penetrations

## Preparation



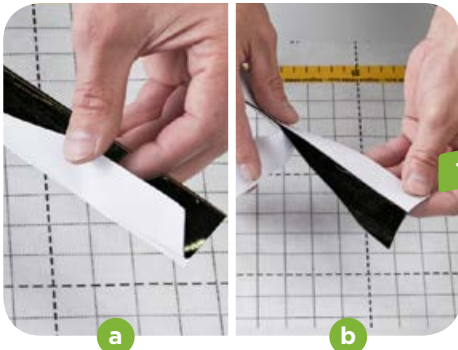
If pipe penetrations are necessary, care must be taken to ensure optimum sealing. This prevents moisture damage reliably.

- 1 To prevent air from escaping along the recesses in flex connection pipes, the circumferential indents of the spiral are sealed with plenty of Vario® DoubleFit+ adhesive sealant.



- 2 Roughen the pipe surface at the bonding point using sandpaper and then clean it with thinner. This ensures optimum adhesion of the adhesive tape.

## Performing the work



- 1 a) When sealing a pipe penetration with a diameter of  $\leq 5$  cm, continue from point 2 as described for cable penetrations with multiple cables. Cut several strips of Vario® Stretch 15 to 20 cm long. Fold a strip of stretch tape lengthways so that the liner is on the outside.

- b) Peel off half of the split liner.



2

Stick the double Vario® Stretch to the pipe and pull off the liner of the second, folded half.



3

Unfold Vario® Stretch and stick it to the substrate. **Stretch** the stretch tape as evenly as possible and press it on firmly without damaging it, e.g. using a squeegee.



4

Stick the next strip of adhesive tape over the strip that has already been attached with an overlap of approx. 2.5 cm. As Vario® Stretch is highly stretchable, the number of strips required is reduced to a minimum.



5

Seal the entire circumference of the pipe well with Vario® Stretch.

## Special plastering tape for airtight connections

The Vario® Bond connection tape can be plastered over and is a fast and secure solution for airtight connection of a smart membrane or vapour barrier to unplastered masonry indoors and outdoors. With a width of 150 mm, window connections are also possible.

This means that the airtight building envelope can be completed and handed over quickly and easily as a cross-trade service. Full-surface bonding with water-resistant special adhesive makes Vario® Bond indispensable, especially in new buildings.

Our processing instructions for the best possible application are available below.



## Wall connection



Remove dust and dirt from the substrate. A primer is recommended for pre-treatment of the substrate in accordance with DIN 4108-7. When working with autoclaved aerated concrete or sandy or absorbent substrates, pre-treat the bonding area with Vario® MultiPrime.



Remove the masking tape (3 cm) from the Vario® Bond and stick it to the Vario® smart membrane.



Slide the Vario® smart membrane upwards to form a relief loop.



Remove the remaining masking tape from the Vario® Bond, stick it over the entire surface and press firmly onto the substrate.

Plaster the fleece throughout at least 3 cm high. Fleece surface is approved for all common plasters.

## Floor connection to masonry



For floor connection with Vario® Bond to masonry on porous substrates or on OSB, pre-treat with Vario® MultiPrime (see page 53 Fig. 1).

In the first step, stick the side with the wider cover strip to the floor. We recommend pre-folding the tape for this purpose.



Then remove the wide masking tape and stick the Vario® Bond on neatly.



Then bond to the masonry by removing the narrower cover strip. With Vario® Bond 150, the centre liner must first be removed for bonding, followed by the outer liner.



Then press Vario® Bond onto the entire surface of the masonry and floor using a squeegee or press roller.

## Window connection

Vario® Bond 150 is suitable for fast and secure window connections. The bonding surfaces must be prepared in advance with a smooth plaster to achieve a smooth bonding surface.



**Application recommendations** and further information on window connections can be found at [isover.de/vario-bond](https://isover.de/vario-bond)



## Connection of the smart membrane in the eaves area

For an optimal connection of the airtight layer in the eaves area, the smart membrane is laid crease-free with a few simple cuts and can then be connected airtight to the eaves. It must be ensured that all adjacent components are dry and free of dust and grease.





1

Use a wire brush to remove dust, dirt and old insulation residue from the beam and eaves in the connection area.



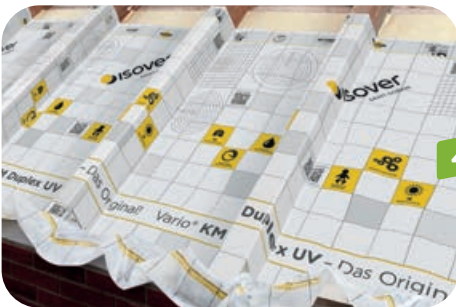
2

Remove any remaining dirt with a Hoover. The connection area must be dry and free of dust and grease. For optimum adhesion, pre-treat the substrate with primer (see page 10).



3

Use the Vario® DoubleFit+ adhesive sealant paste to create a bead in the eaves area and on the rafters.

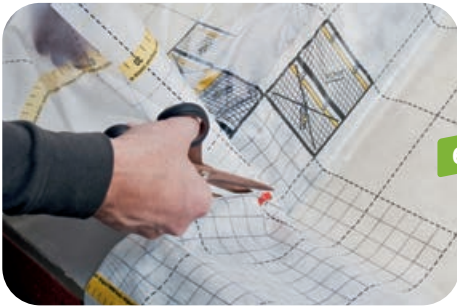


4

Insert Integra UMP-032 into the cavity as nail protection. Lay the smart membrane in a loop around the rafters and fasten with a hand stapler. Since the loop-shaped film lies in folds in the eaves area, it must be cut to ensure crease-free adhesion.



**5** For the incisions, mark the corner points of the rafter on the film.



**6** Cut the Vario® KM Duplex UV smart membrane parallel to the line marking up to the marked points.



**7** Four parallel cuts are required per rafter extending from the rafter edges.



**8** Trim the two outer film tabs to a length of about 3 cm.  
Lay the film around the rafter flanks without any creases and stick it down.



9

Glue all film overlaps with the Vario® DoubleFit+ adhesive sealant. The contact pressure on the rafter (e.g. ZSL bar) must be continuous in order to be able to produce a component that does not require verification in accordance with DIN 4108-3:2018-10.



## Waling connection with **A** insulation wedge or **B** wooden wedge

If waling is available for the bracing of the roof structure or to integrate a ceiling, the Vario® KM Duplex UV cannot simply be laid over them. This is because waling forms acute angles with the rafters, which cannot be sealed without creases. Cavities develop underneath that can cause structural damage due to backflow. Therefore, acute-angled waling is added to form a rectangle that can be glued well and airtight.

### Preparation



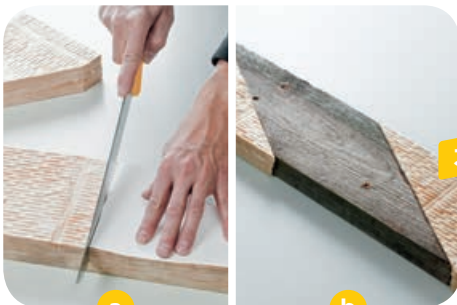
1

First make a template.  
To do this, transfer the angle points of the waling to a prepared cardboard strip cut to rafter height.



2

Connect the marked angle points straight and cut the template along the line with the cutter.



a

b

3

a) Prepare a piece of insulating material (e.g. Integra UMP-032, multilayer, if necessary) in the thickness of the waling and cut to size using the template. Use a suitable tool, e.g. insulation knife, for this.  
b) Waling wedges can be made from both insulation material and wood.

## A Waling connection with insulation wedge



**A1** Screw or nail on the precisely cut insulation wedges as a right-angled addition to the waling.



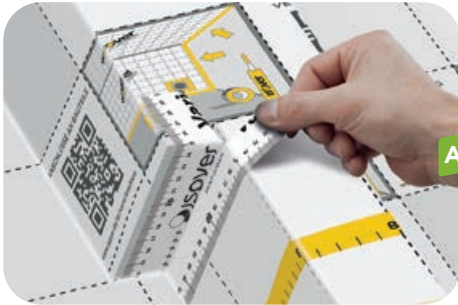
**A2** Lay the film in loops over the rafters and waling and staple to the waling.



**A3** Cut the film horizontally on the lower and upper side of the insulation package.



**A4** The film can now be placed tightly against the rafters and stapled on without any creases.



Seal the open edges airtight with Vario® MultiTape SL+ adhesive tape. To do this, pre-fold a strip of adhesive tape in the middle and stick it to the edge. Cut the overhanging tape along the fold, fold over the strips of adhesive tape and glue.



Proceed with all open edges as described in A5. Then apply Vario® DoubleFit+ adhesive sealant on all corners to seal.

## B Waling connection with wooden wedge



B1

Screw on the precisely cut wooden wedges as a right-angled addition to the waling.



B2

Place a strip of Vario® KM Duplex UV film over the extended waling, wrap it around the top and bottom of the waling and staple to both the rafter and the waling.



B3

Lay the film in a loop over the rafters and the waling added at right angles and fasten using a hand stapler. Cut the film horizontally along the top and bottom edges of the waling.



B4

Press the smart membrane against the rafter flanks and staple it on without creases or fix it with Vario® ZSL. The contact pressure on the rafter (e.g. ZSL bar) must be continuous in order to be able to produce a component that does not require verification in accordance with DIN 4108-3:2018-10.



**B5**

Seal the inner edges with Vario® DoubleFit+.



**B6**

Seal outer edges with Vario® MultiTape SL+. To do this, pre-fold a matching strip in the middle, peel off one half of the liner and glue it to the edge. Cut the tape, peel off the second liner strip and run the tape tightly around the corner.



## Changing the airtight level in uninsulated attics (counter-board sealing)

If the roof is not to be insulated all the way to the top but the top floor ceiling (collar beam layer) forms the end of the insulation, a suitable OSB board is screwed onto the inside of the rafters above the integrating ceiling as a so-called counter-board. The aim is to create a medium to which an airtight connection can be made from both sides with film and adhesive tape. A counter-board sealing such as this can be achieved with Vario® MultiTape+.



Glue board joints from the inside with Vario® MultiTape+. In the event of uneven support of the counter board on the rafter, apply Vario® AntiSpike sealing tape to the areas. Then screw the counter board to the beams from the inside (attic).



Connect the counter board to the smart membrane from the outside. When bonding with Vario® MultiTape+, press the adhesive tape well into the edges with a spatula. For optimum adhesion, roll over the adhesive tape with a press roller/squeegee. If necessary, fill the corners with Vario® DoubleFit+.

## Sealing a pipe penetration through the underlay with suitable Vario® components

Pipe penetrations through the underlay and underlay membranes as well as underlay panels must always be sealed. The waterproof adhesive used in Vario® MultiTape+ or MultiTape SL+ weatherproof adhesive tape is precisely matched to the special surface structure of underlays.



## Preparation



Materials needed:  
Remnant piece of pipe with the appropriate diameter, smaller piece of pipe (both cut on one side to match the pitch of the roof), template (pipe circumference plus 1 cm equals length of panel, minus 6 cm equals width of panel), Integra ZUB, Vario® MultiTape+, Vario® MultiTape SL+, Vario® DoubleFit+, cutter, pen.



Cut the two remaining pieces of the Integra ZUB underlay to the size of the template.



Wrap a cutting of the Integra ZUB underlay sheet around the pipe and fix it overlapping on the long side. Cut off Integra ZUB along the bevelled pipe opening. Release the fixation and put it aside.



Prepare four strips of Vario® MultiTape+ adhesive tape. To do this, place the tube on half the width of the adhesive tape, mark crescents and cut out the curve. Put the adhesive tape aside.



First create the basic cutting. To do this, tape around all four sides of one of the pieces of foil using half of the tape (thanks to the split liner). Always start by taping the long side. Roll over the tapes with the press roller.



Place the piece of pipe (with the diameter of the ventilation pipe) with the bevelled side in the middle of the film and mark the outline. Then trace a small line approx. 3 cm inwards from the outer edge.



Cut out the small outline with the cutter. Then cut tabs from the larger outline towards the centre and fold up.



Roughen the surface at the marked bonding point using sandpaper or a cutter and then clean with thinner. This way, an optimal adhesive bond is prepared between the adhesive tape and the pipe.

## Performing the work



1

Pull the cutting with the cut-out curve over the pipe. Make sure that the tabs are facing upwards. Now apply the Vario® DoubleFit+ adhesive sealant with a bead approx. 1 cm thick all around the outline drawn.



2

Place the prepared sheet (preparation 3) around the pipe from the shorter side and fix the front seam with adhesive tape. Then bond it to the base cutting by sealing with a Vario® DoubleFit+ bead.



3

Seal the front seam of the sheet with Vario® MultiTape+. For optimum adhesion, roll over all adhesive tapes firmly with a squeegee or press roller.



4

Stick the prepared Vario® MultiTape+ adhesive tape (preparation 4) around the pipe from all four sides according to the cut-outs (note the water flow).

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# ISOVER Technology - on-site advice for tradespeople

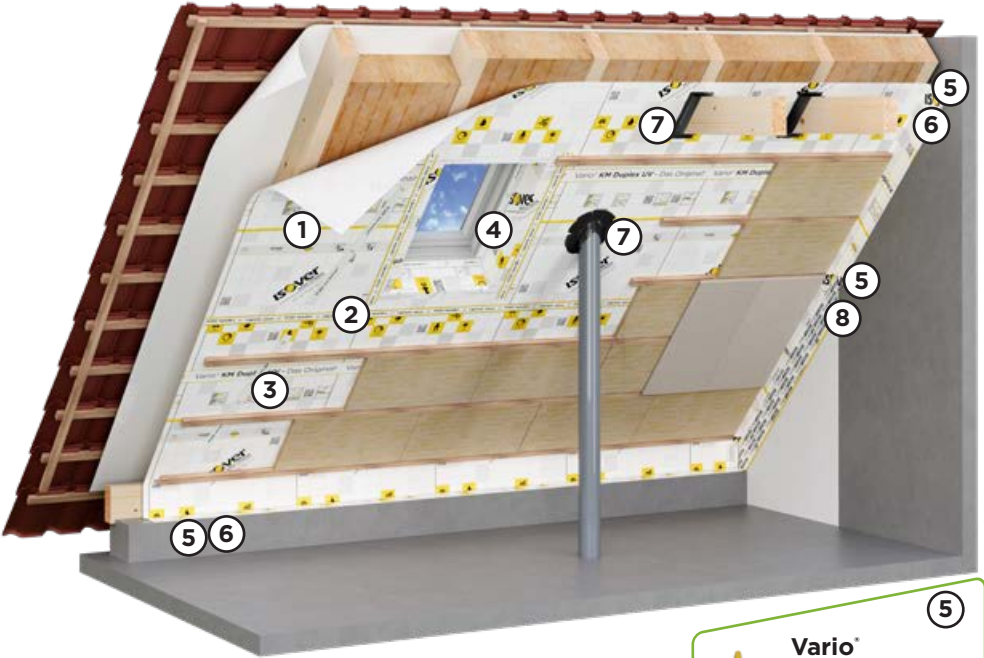
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With ISOVER technicians, you have a unique team of experienced professionals at your disposal for all your questions relating to insulation – directly, quickly and with a high level of competence.



- |                             |               |
|-----------------------------|---------------|
| <b>1 Thorsten Heineking</b> | 0000 000 0000 |
| <b>2 Alexander Oha</b>      | 0000 000 0000 |
| <b>3 Stefan Bäuml</b>       | 0000 000 0000 |
| <b>4 Nico Rockrohr</b>      | 0000 000 0000 |
| <b>5 Sascha Sapper</b>      | 0000 000 0000 |
| <b>6 Hans Ritt</b>          | 0000 000 0000 |

# The Vario® complete system – safety and protection for indoor and outdoor use



①  
**Vario® KM Duplex UV**

②  
**Vario® KB 1**

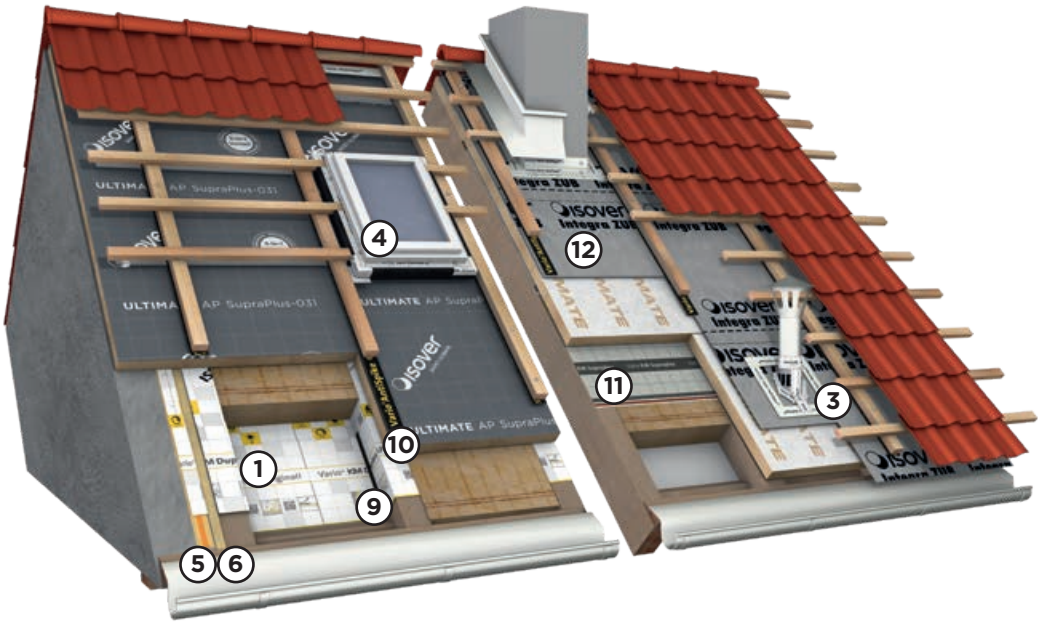
③  
**Vario® MultiTape+**

④  
**Vario® MultiTape SL+**

⑤  
**Vario® MultiPrime**

⑥  
**Vario® DoubleFit+**

⑦  
**Vario® Stretch**



**8**  
**Vario® Bond 100 / 150**

**10**  
**Vario® AntiSpike**

**11**  
**Vario® KM Supraplex - SKS**

**9**  
**Vario® ZSL**

**12**  
**Integra ZUB**

# Vario® adhesive matrix – using Vario® products correctly



- Suitable application
- Use of primer recommended
- Use of primer required

Product	Application		Bonding or overlapping of				
	Outdoor use	Indoor use	Vario® XtraSafe	Vario® KM Duplex UV	Vario® KM Supraplex-SKS	Difunorm	Integra ZUB
<b>Adhesive tapes</b>							
2 Vario® KB 1	■	■	■	■	■	■	■
1 Vario® MultiTape+	■	■	■	■	■	■	■
1 Vario® MultiTape SL+	■	■	■	■	■	■	■
1 Vario® XtraTape	■	■	■	■	■	■	■
Vario® Stretch	■	■	■	■	■	■	■
<b>Adhesive sealant</b>							
Vario® DoubleFit+	■	■	■	■	■	■	■
<b>Connection tape</b>							
Vario® Bond 100	■	■	■	■	■	■	■
Vario® Bond 150	■	■	■	■	■	■	■
<b>Nail seal</b>							
12 Vario® AntiSpike	■	■	■	■	■	■	■



Special stickers indicate the presence of an airtight layer. They warn against the film being accidentally damaged by subsequent work.

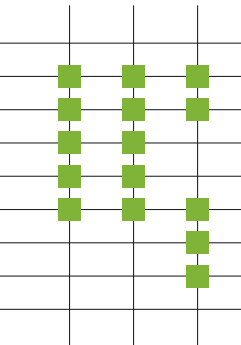
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## penetrations with

Vent pipes, electrical pipes, cables, etc.

sewer base pipes, HT pipes etc. 10

Chimneys, metal, steel etc. 11



- 1 Vario® MultiTape+ / SL+ and Vario® XtraTape are recommended for indoor or outdoor use with looped installation of the vapour control layer and are UV-resistant for up to 6 months.
- 2 Vario® KB 1 adhesive tape is not suitable for outdoor use.
- 3 The moisture-variable and robust Vario® KM Supraplex-SKS smart membrane is laid flat over the rafters or roof boarding and is installed quickly and securely from the outside thanks to integrated self-adhesive tape.
- 10 Before bonding to plastic pipes, the surface must be roughened and then cleaned thoroughly.
- 11 Metal and steel must be degreased before bonding.
- 12 Vario® AntiSpike can be bonded to all ISOVER films. When creating the airtight level, Vario® AntiSpike can be used in combination with adjusting screws. For more detailed information and intended use, please contact the ISOVER and RIGIPS technical advisory service.
- 13 In outdoor areas, a loop-shaped installation of our smart membranes is recommended. Not for use as an underlay or underlay membrane. If you have any questions, please contact ISOVER Technology.



All important **information and notes** on the Vario® adhesive



If you have any **questions about using** Vario® products, please contact our technical advisory



# Vario® adhesive matrix – using Vario® products correctly



- Suitable application
- Use of primer recommended
- Use of primer required

		Outdoor use	Indoor use	Edge connections of the sheets or bonding							
				Planned wood, free of dust and grease	Raw or rough wood <sup>4</sup>	Softwood fibre underlay boards <sup>5</sup>	OSB boards <sup>6</sup>	Chipboard	Smooth concrete, free of dust, grease and oil	Autoclaved aerated concrete with smooth finish	Unplastered masonry <sup>7</sup>
Adhesive tapes	<sup>2</sup>	■	■				■	■			
				■		■	■	■			
				■		■	■	■			
				■	■		■	■			
				■	■		■	■	■	■	■
Adhesive sealant		■	■	■	■	■	■	■	■	■	■
Connection tape		■	■	■	■	■	■	■	■	■	■
				■	■	■	■	■	■	■	■
Nail seal	<sup>12</sup>	■	■	■		■					■
				■		■					■



All important **information and notes** on the Vario® adhesive



If you have any **questions about using** Vario® products, please contact our technical advisory service



to other materials

Material	1	2	4	5	6	7	8	9	12
Plaster, gypsum, etc.	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
PE components such as cladding, etc.	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
PVC components such as windows, etc.	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Bitumen, sanded sheets, etc.	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes

- Vario® MultiTape+ / SL+ and Vario® XtraTape are recommended for indoor or outdoor use with looped installation of the vapour control layer and are UV-resistant for up to 6 months.
- Vario® KB 1 adhesive tape is not suitable for outdoor use.
- The wood must be cleaned and hoovered using a wire brush or similar before working with adhesive tapes. Using Vario® MultiPrime is recommended. Bonding the airtight layer to conventional rough wood does not constitute permanent bonding.
- In the case of softwood fibre underlay boards, the surface must always be pre-treated in accordance with DIN 4108-7 when bonding using adhesive tape. Vario® MultiPrime primer is suitable for this purpose. If the additional measures according to ZVDH require butt bonding of the boards due to the local conditions, the butts can be bonded with Vario® DoubleFit+.
- When using OSB boards to create an airtight layer, it is the responsibility of the worker to clarify whether they are suitable for use and whether the OSB boards must be pre-treated as substrates for bonding in accordance with DIN 4108-7 (e.g. by sanding the surface, applying an adhesive primer, etc.) to enable bonding. All adhesive tapes in our range, such as Vario® KB 1, are generally suitable for use on OSB boards. For gluing OSB board joints, we recommend Vario® MultiTape+/SL+.
- Pre-treat aerated concrete with Vario® MultiPrime to improve adhesion. The plastering work should be carried out directly afterwards. Plaster at least 3 cm wide over the strip.
- Adhesiveness must be tested beforehand.
- Mechanical securing, e.g. pressure bar, is recommended.
- Vario® AntiSpike can be bonded to all ISOVER films. When creating the airtight level, Vario® AntiSpike can be used in combination with adjusting screws. For more detailed information and intended use, please contact the ISOVER and RIGIPS technical advisory service.



Special stickers indicate the presence of an airtight layer. They warn against the film being accidentally damaged by subsequent work.

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