VAKUISOTHERM©

THE SUPERINSULATION COMPANY



ULTRA-HIGH-PERFORMANCE INSULATION
VACUUM INSULATION PANELS
For the construction sector

ENERGY-EFFICIENT - SPACE-SAVING - INNOVATIVE

vaku-isotherm.de

Made in Germany

ABOUT THE COMPANY

In 2005 Vaku-Isotherm GmbH was founded in Seifersbach, a district of the municipality of Rossau. Since August 2011 the production site has been located nearby in Sachsenburg near Frankenberg, in the federal state of Saxony.

The scenic location in the Zschopau valley, the proximity to the motorway, optimal working conditions for the whole team, the increased energy awareness in the construction industry and the resulting higher demands on insulation materials in the high-performance insulation sector make us optimistic about the future.



We specialise in the production of vacuum insulation panels, called VIPs for short, for a wide variety of applications. The focus is on the production of ultra-high-performance insulation materials for the construction industry.

These extremely thin insulation materials, with their fantastic insulating properties, offer the industry completely new possibilities in the design, styling and technical implementation of insulation, especially in the low-energy and passive house sector.

With the latest production techniques we stand for the highest product quality and innovation. Vaku-Isotherm GmbH is a member of the GSH (Güteschutzgemeinschaft Hartschaum e.V.), product group: vacuum insulation.

We are therefore subject to the strictest quality criteria and external monitoring by recognised testing institutes. This ensures that our company's vacuum insulation panels always meet the highest quality standards. In spring 2009 our company was awarded the RAL quality mark.

Our vacuum insulation panels are produced to the highest quality using highly specialised plants and equipment. This is only possible thanks to a committed and skilled team with great experience in thermal insulation technology. Innovative solutions will continue to be in demand on the market.

That is why we are in constant dialogue with our customers in order to meet their wishes and requirements even better. Through this cooperation we are able to develop our products further and to strengthen our market position with great flexibility, short decision-making paths and creative solutions.

We supply our products to the whole of Europe, particularly Austria, Switzerland and Italy.

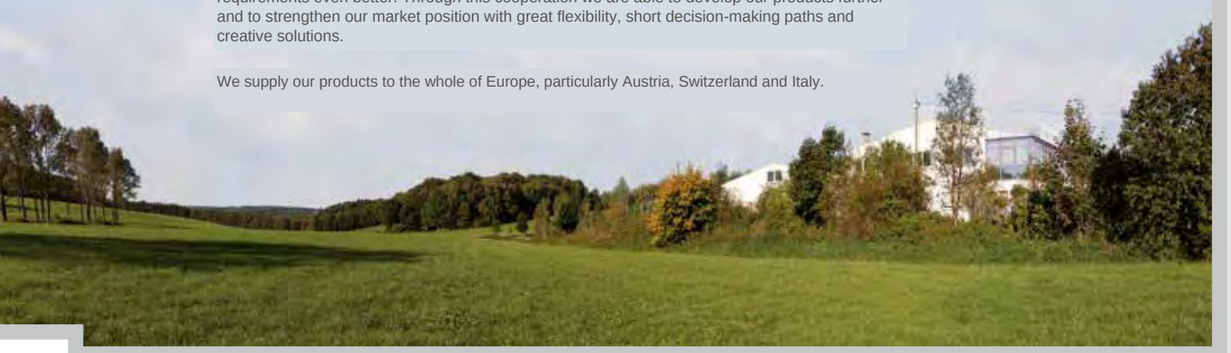


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MICROPOROUS SILICA

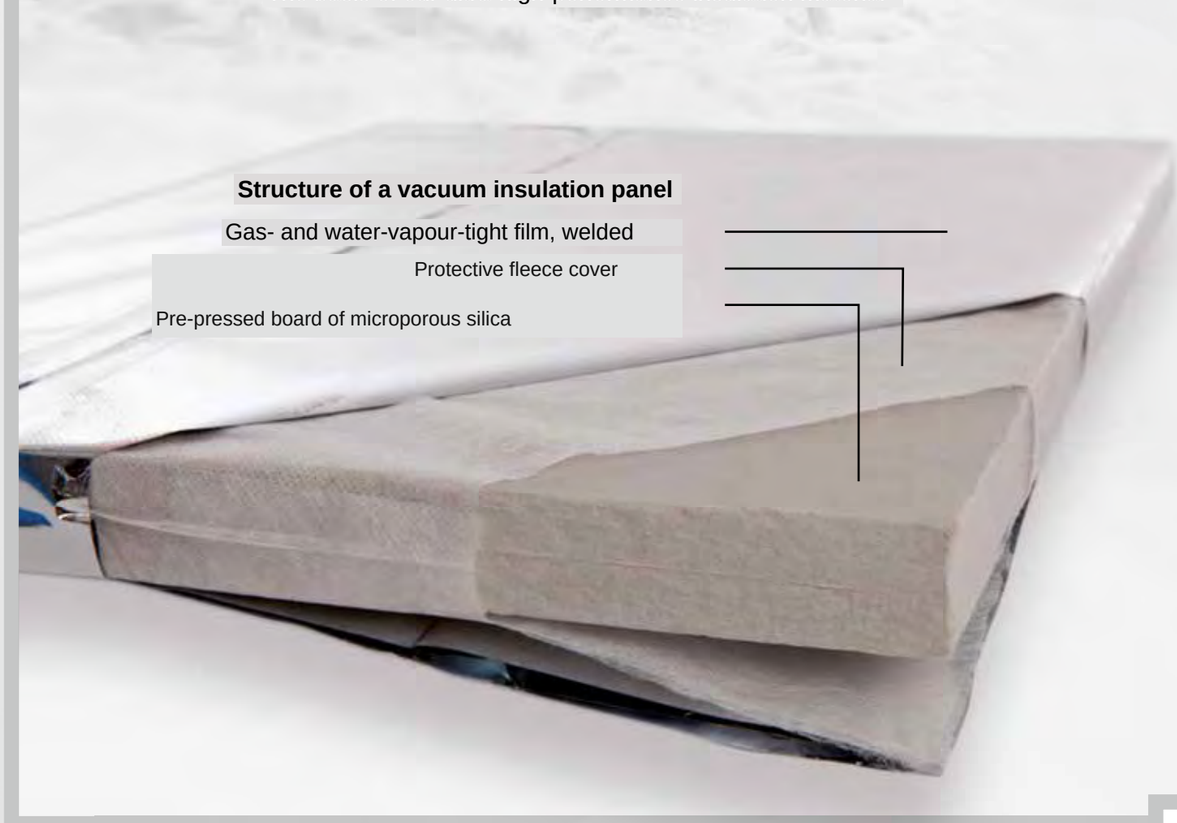
The basis of our ultra-high-performance insulation material

Structure of a vacuum insulation panel

Gas- and water-vapour-tight film, welded

Protective fleece cover

Pre-pressed board of microporous silica



VACUUM INSULATION

ULTRA-HIGH-PERFORMANCE INSULATION, VERY THIN

This highly efficient insulation is suitable for a wide range of insulation applications. Despite its small thickness, even passive house standards can be met.

Where a conventional insulation build-up of 200 - 400 mm would otherwise be required, our company's vacuum insulation panels need only about one fifth of the thickness of conventional insulation materials to achieve comparable insulation values. Specially modified insulation panels offer solutions for almost all insulation tasks in construction, but with a much smaller space requirement.

A vacuum insulation panel (VIP) is a thin ultra-high-performance insulation board that can be compared to a slim coffee pack, because in both cases the contents are vacuum-packed in a metallised barrier film.

The structure is made up as follows:
Pre-pressed boards of microporous silica, wrapped in fleece, are welded under vacuum into a gas- and water-vapour-tight high-barrier film. Even at a rough vacuum of 1 - 10 mbar, the resulting vacuum insulation panel has an extremely low thermal conductivity and therefore a very good insulating effect.

This means: very good insulation does not have to be THICK!





The greatest energy-saving potential lies in residential and commercial buildings. More effective insulation of facades, floors, roofs and terraces can drastically reduce energy consumption figures.

The weak points of many houses become apparent very quickly in a thermographic image and reveal the critical spots, which, as in the neighbouring picture, stand out by their red colour.

Optimal insulation becomes problematic in this example at the reveals and in the dormer area, where conventional insulation materials need too much space. Vacuum insulation offers diverse solutions here, right up to passive house suitability.

U-value of the insulation core vakuVIP B2 (Z-23.11-1851) based on a thermal conductivity of 0.007 W/(m·K) and comparison values of other materials

U-value W/(m²K)	vakuVIP B2 λ 0.007 * VIP thickness in mm	Mineral wool λ 0.04 * Thickness in mm	Polystyrene λ 0.035 * Thickness in mm	PU rigid foam λ 0.03 * Thickness in mm
0.70	10	57	50	43
0.35	20	114	100	85
0.23	30	174	152	130
0.17	40	235	205	176
0.14	50	286	250	214

* Design value (calculated value) of thermal conductivity

The **lower** the heat transfer coefficient **- U -**, the **better** the **thermal insulation property** of the component.

U-value

The heat transfer coefficient (U-value, formerly K-value) is a measure of the heat flow through a single- or multi-layer material when different temperatures are present on both sides. It indicates the power (i.e. the amount of energy per unit of time) that flows through an area of 1 m² when the air temperatures on both sides differ by 1 K under steady-state conditions. Its SI unit is therefore W/(m²K) (watts per square metre and kelvin).

Lambda value

The lambda value describes the thermal conductivity of a building material. It indicates the amount of heat (watts) that passes through the material of 1 m² area and 1 m thickness in one hour at a temperature difference of 1 K.

ECOLOGICAL AND MADE TO MEASURE

IN HARMONY WITH NATURE

In a time of continuing global warming, energy-efficient building and renovation is more important than ever. With vakuVIP products you make a significant contribution to reducing your energy consumption and relieving the environment.

From an ecological point of view, the materials used in vacuum insulation are harmless. The silica used is essentially nothing more than fine sand. The surrounding fleece and the metallised high-barrier film are also fully recyclable and therefore environmentally neutral.

Silica has high thermal stability, is non-combustible and chemically resistant (acids, alkalis, exhaust gases). Microporous silica is free of organic binders, dust-free and physiologically harmless.



MADE-TO-MEASURE PRODUCTION

Vacuum insulation cannot be cut or sawn afterwards, so exact planning in advance is required.

Vacuum panels are "custom-made" products.
Large areas such as floors, walls and sloping roofs can be filled easily with our standard sizes.

The edge areas and any bevels are additionally produced by us to measure.

After receiving the order, we prepare the laying plans from your measurements and produce the required VIP elements to size. Based on existing rafter measurements, floor or wall plans, we can thus determine the optimal size and arrangement of the vacuum insulation panels and pass them directly to production.

You can see an example of a laying plan based on the customer's measurements in the pictures below.

Delivered labelled, the laying plan tells you exactly where each panel is to be installed.

Dimensions and thicknesses / mm:

Standard sizes: 1000 x 600
1000 x 300
600 x 500
600 x 250

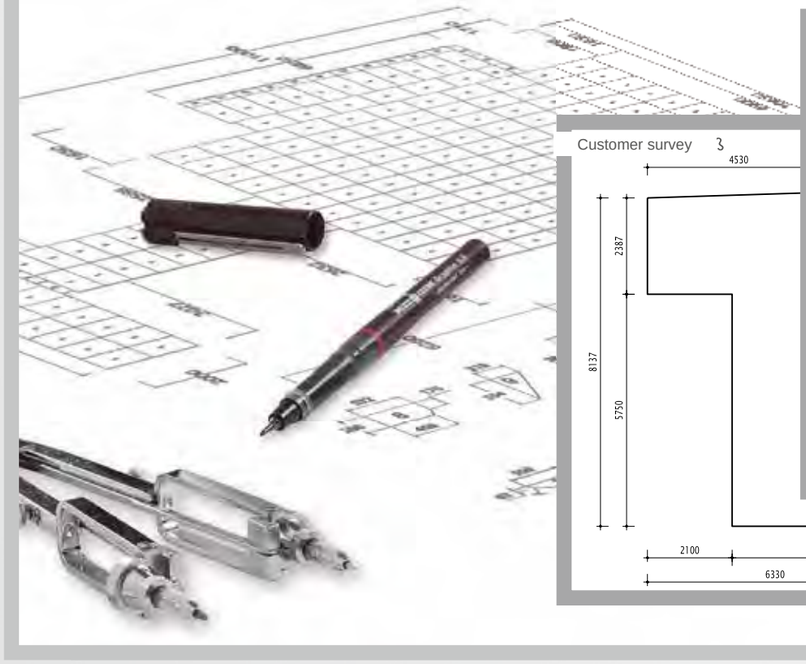
Special formats: possible if technically feasible
Model formats: possible if technically feasible

For panel sizes over 1000 x 600 mm the core consists of several parts.

Possible thicknesses / mm: 10, 15, 20, 25, 30, 35, 40, 45 and 50 (refers to the thickness of the pure VIP component)

Other thicknesses on request

More detailed information on technical details can be found in the product data sheets on the internet or on request.



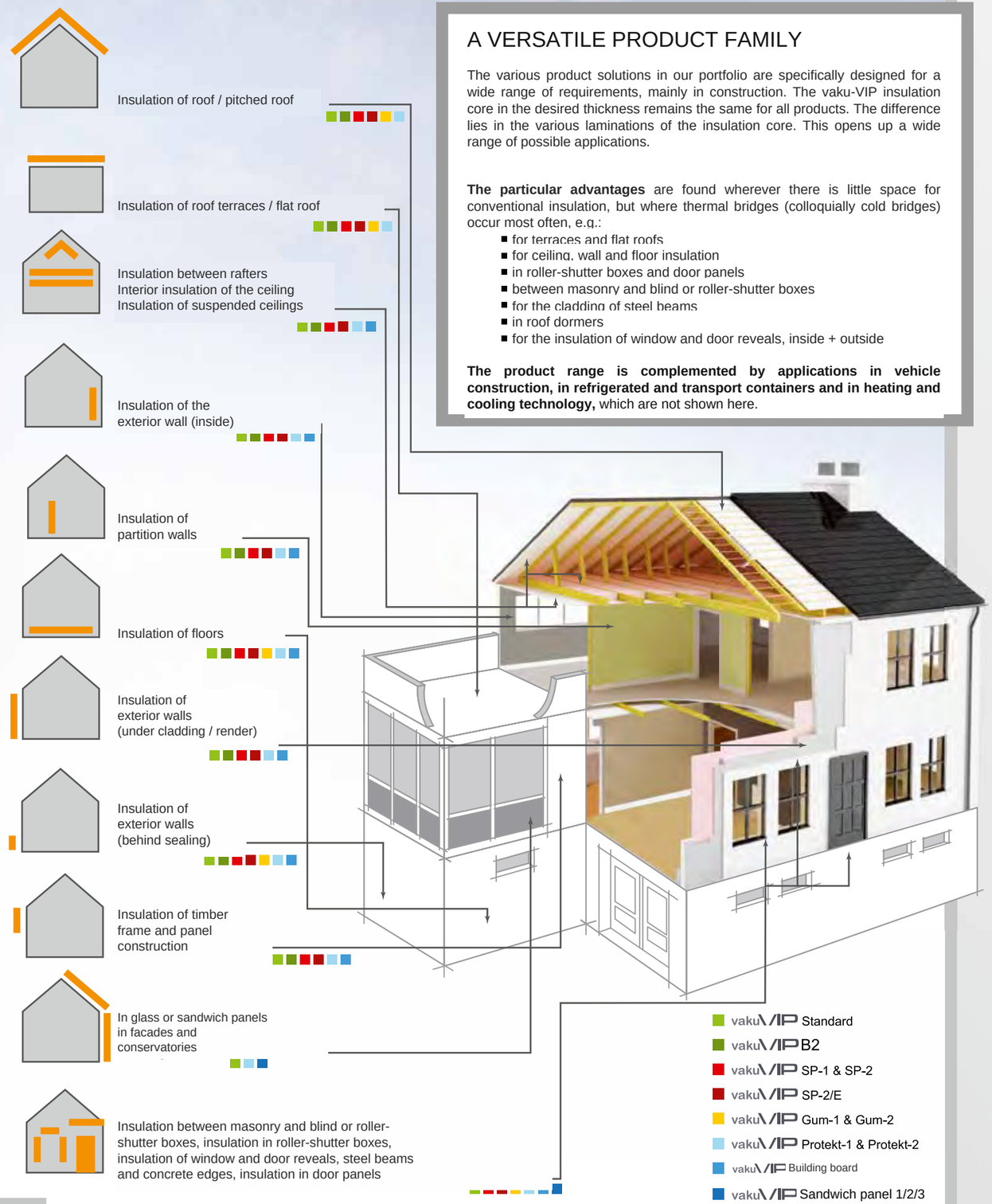
A VERSATILE PRODUCT FAMILY

The various product solutions in our portfolio are specifically designed for a wide range of requirements, mainly in construction. The vaku-VIP insulation core in the desired thickness remains the same for all products. The difference lies in the various laminations of the insulation core. This opens up a wide range of possible applications.

The particular advantages are found wherever there is little space for conventional insulation, but where thermal bridges (colloquially cold bridges) occur most often, e.g.:

- for terraces and flat roofs
- for ceiling, wall and floor insulation
- in roller-shutter boxes and door panels
- between masonry and blind or roller-shutter boxes
- for the cladding of steel beams
- in roof dormers
- for the insulation of window and door reveals, inside + outside

The product range is complemented by applications in vehicle construction, in refrigerated and transport containers and in heating and cooling technology, which are not shown here.



BASIC PRINCIPLES



Keep the surface clean and level

Protect from moisture and sunlight

Do not saw or cut

Do not drill, screw or nail

No direct flame exposure

Do not walk on with shoes

PROCESSING INSTRUCTIONS

vakuVIP is a thermally highly efficient insulation material consisting of a porous core material enclosed in a high-barrier film. The insulating effect is essentially based on the vacuum inside the panels.

vakuVIP must always be handled with care and checked for possible venting before further processing. Complete venting can be recognised by the silvery, shiny film no longer fitting tightly, but only lying loosely on the core. The following points in particular must be observed when further processing vakuVIP:

1. When vakuVIP elements are delivered, they must be checked immediately by visual inspection against the stated optical criteria to ensure they are functional.

2. The silvery shiny cover of the vakuVIP elements must not be mechanically damaged. In particular, sawing, drilling or scratching must be avoided at all costs.

3. The substrate to which the vakuVIP elements are to be applied must be smooth, level and free of edges and burrs.

4. vakuVIP elements must not be exposed to high temperatures, high humidity and / or aggressive gases, either in storage or in use. In particular, permanent humidity above 60% relative humidity and temperatures above 50 °C are to be avoided.

5. During installation and use of vakuVIP elements, they should be exposed to no or only minor mechanical loads.

In particular, point loads and prolonged shaking or pulling on the cover are to be avoided.

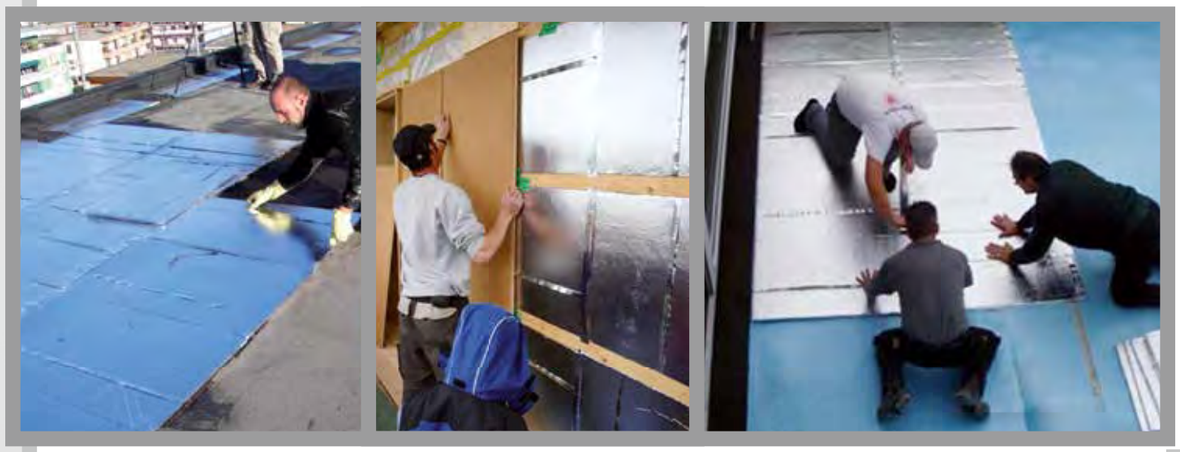
6. In constructions with vacuum panels, care must be taken that they are subjected only to uniform, flat compressive loads; tensile and shear forces on the vakuVIP elements must be ruled out.

7. vakuVIP can be bonded, for example, with polyurethane adhesive or hot melt. Foaming vakuVIP with polyurethane foams is also possible. In all cases, however, care must be taken that the temperatures occurring do not exceed 100 °C, even briefly. In general, solvent-free adhesives should be used! In individual cases tests are advisable and necessary.

8. Note that thermal or cold bridges become apparent to a much greater extent in vakuVIP constructions than in constructions with conventional insulation materials.

9. Since air humidity in particular can condense at cold spots, appropriate vapour barriers must be used in constructions with vakuVIP. Such vapour barriers should also prevent accumulating moisture from forming in the immediate vicinity of the panel. Such accumulations of water are to be avoided.

10. It must be ensured that the persons who process vakuVIP elements are trained in advance. In particular, the processing instructions must be explained, adapted to the individual case.





VAKU VIP B2

BUILDING AUTHORITY APPROVAL

The product vakuVIP B2 holds the general building authority approval for Germany from the German Institute for Building Technology (DIBt Berlin) under number Z-23.11-1851 (of 21.03.2011). The design value of the thermal conductivity for this product has been set at 0.007 W/(m·K). Approved fields of application: DAD, DAA, DZ, DI, DEO, WAB, WAA, WH, WTR and WI according to DIN 4108-10, Part 1.

APPLICATIONS

Floor, roof and wall insulation
Insulation of flat roofs and roof terraces
Use in panels in facade construction
Insulation inserts in doors and panels
Insulation material in transport and storage containers
Optimal space-saving insulation solution for refrigeration units and heat stores
Floor insulation of cold and deep-freeze rooms and cold cells

PERFORMANCE FEATURES

Ultra-high-performance insulation with low density and extraordinarily low thermal conductivity
Insulation solutions are achieved that were not possible before
Vacuum insulation has a high longevity of the vacuum insulation panels
The panel core is non-combustible and is assigned to fire protection class A1

STRUCTURE

Core + film cover

The core of the insulation board consists of a pressed powder whose main component is microporous silica. Further components are opacifiers to minimise infrared radiation and cellulose fibres to improve mechanical stability. The core material is enclosed by Vaku-Isotherm GmbH in a special process in a gas- and water-vapour-tight composite plastic film, evacuated and sealed.



VAKU VIP Standard

APPLICATION

Mainly for insulation not applied in building construction, where a building approval is not required
e.g. refrigeration units, vehicle construction, refrigerated transport boxes...
The lambda value here is 0.005 W/(m·K), everything else as above

PRODUCTS
OUR PRODUCTS

VAKU VIP SP-1 & SP-2



APPLICATIONS

Wall and floor insulation, insulation of window and door reveals,
ceilings, exterior facades, radiator recesses

PERFORMANCE FEATURES

Vacuum insulation panel (VIP) laminated on one or both sides with 10 mm* polystyrene board
Easy processing by bonding with standard polystyrene adhesives

Easy further processing of the surface, e.g. by applying reinforcing mesh and plaster

VAKU VIP SP-2/E



APPLICATIONS

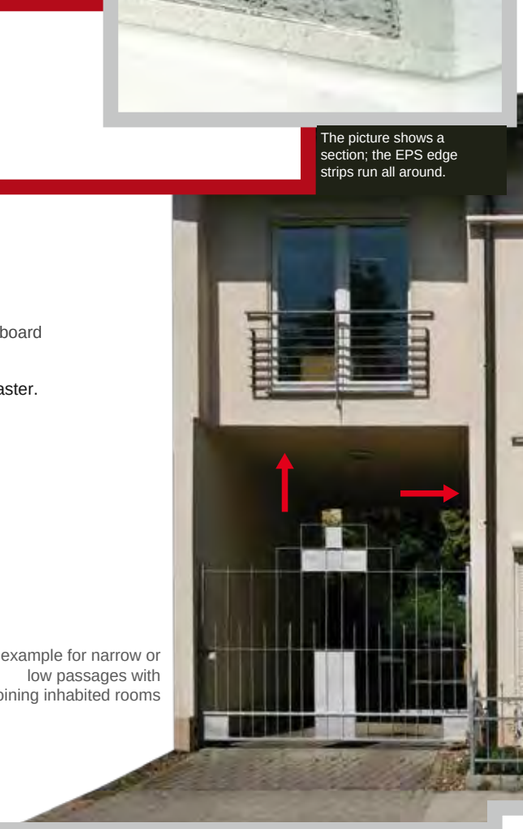
Wall and floor insulation, insulation of window and door reveals, ceilings,
exterior facades, radiator recesses, particularly suitable for insulation of
intermediate and basement ceilings

PERFORMANCE FEATURES

Special advantage of the SP-2/E
The VIP is protected against damage on all sides

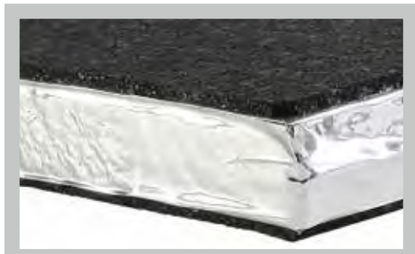
Vacuum insulation panel (VIP) laminated on both sides with 10 mm* polystyrene board
and a 25 mm wide EPS edge strip on all 4 sides at the edge

Easy further processing of the surface, e.g. by applying reinforcing mesh and plaster.
Drilling and screwing are possible in the area of the edge strip



The picture shows a section; the EPS edge strips run all around.

Application example for narrow or
low passages with
adjoining inhabited rooms



VAKU VIP Gum-1 & Gum-2

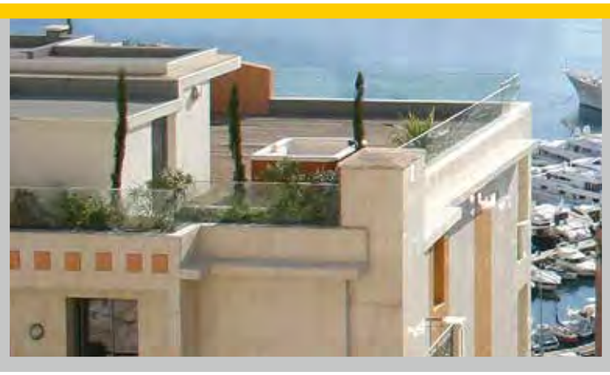
APPLICATIONS

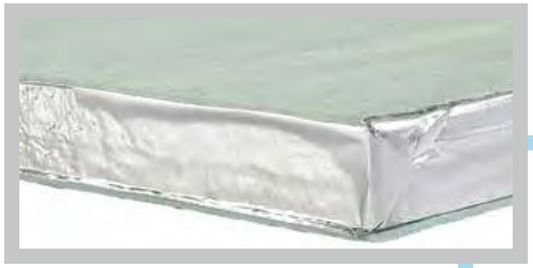
Optimal solution as high-performance floor insulation
Insulation of flat roofs, roof terraces
Floors in cold and deep-freeze stores and in cold cells

PERFORMANCE FEATURES

Vacuum insulation panel (VIP) laminated on one or both sides with 3 mm rubber granulate mat. Processing is thereby made much easier and the VIP can be walked on without problems even during installation. It is a durable insulation solution with high longevity.

Ultra-high-performance insulation enables, for example, a level floor build-up of interior rooms and outdoor floors on terraces with living space beneath.

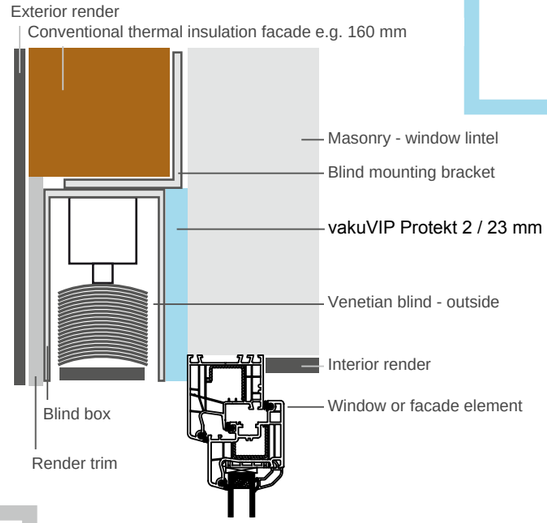




VAKU VIP Protekt-1 & Protekt-2

APPLICATIONS

Also suitable under underfloor heating
Between masonry and roller-shutter, blind or venetian-blind boxes
For door panels
Use in panels in facade construction with glass or coated aluminium cladding



PERFORMANCE FEATURES

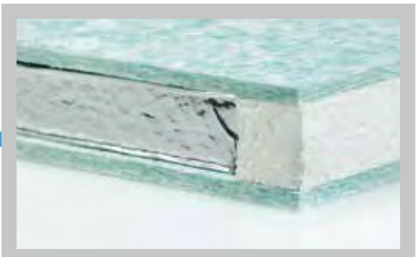
Vacuum insulation panel (VIP) laminated on one or both sides with 1.4 mm decoupling fleece.
The VIP is protected against damage on its surface by the fleece.

Insulation of venetian blind box

In new buildings, venetian-blind boxes are often integrated into the thermal insulation facade. Normally a thermal bridge to the masonry remains, the size of the blind unit. With vakuVIP Protekt-2, at a thickness of only 20 mm, the same U-value is achieved as for the rest of the facade insulation.

PRODUCTS
OUR PRODUCTS

VAKU VIP Building board



The picture shows a section; the EPS edge strips run all around.

APPLICATIONS

Insulation under and between rafters, window and door reveals, exterior facades, radiator recesses, ceiling insulation

PERFORMANCE FEATURES

Vacuum insulation panel (VIP) laminated on both sides with 4 mm recycled plastic board and a 25 mm wide EPS edge strip on all 4 sides at the edge.

Special advantage of the building board:

Moisture-resistant - frost-proof - stable surface

Easy further processing of the surface, e.g. by applying reinforcing mesh and plaster

The VIP is protected against damage on all sides

Low insulation build-up in window and door reveals with maximum insulation values
No extension of the roof overhang is required when insulating facades
Ceiling insulation e.g. in gateways or balconies when living space is above
Drilling and screwing is possible in the area of the edge strip

VAKU VIP Sandwich Panel 1/2/3



The picture shows a section; the EPS edge strips run all around.

APPLICATIONS

Use as a sandwich panel in window and door constructions
For use in glass facades and conservatory construction
As a panel in post-and-rail constructions
Possible combinations of VIP with respective cover layers:
Sandwich panel 1 = glass / glass, sandwich panel 2 = glass / aluminium
Sandwich panel 3 = aluminium / aluminium

PERFORMANCE FEATURES

Ultra-high-performance insulated sandwich panel as a ready-to-install component.

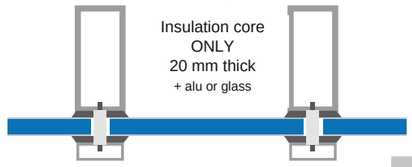
With this solution the panel is just as thick as the rest of the glazing and can therefore be integrated without problems into window, door and facade constructions.
The panel has better insulation values than the insulating glass used. This makes them ideally suited for low-energy or zero-energy solutions in the facade area.

The EPS edge strip inserted between the respective cover layers at the edge enables optimal installation of the sandwich panel and absorbs the desired contact pressure of the seals.
The panel is not translucent!

Conventional facade construction



Same insulation value
with vakuVIP sandwich panel



FOR TERRACES & FLAT ROOFS
VERY LOW BUILD-UP HEIGHT
EXTREMELY GOOD INSULATION
thanks to the ultra-high-performance vacuum insulation core

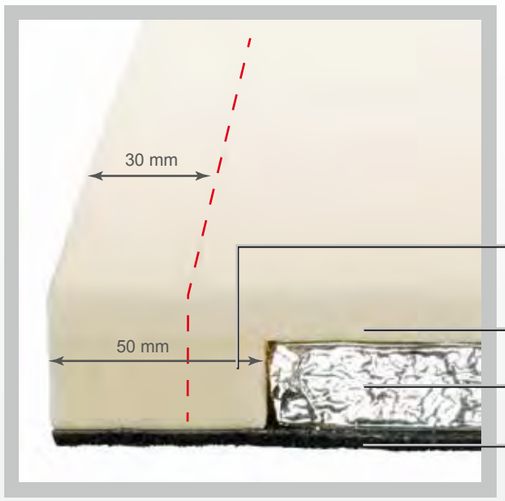
ULTRAVIP

TERRACE INSULATION



The sides marked with the line, without adhesive tape, can be trimmed by up to 30 mm

A sturdy adhesive tape
to protect the VIP edges
on the sides that are not to be trimmed

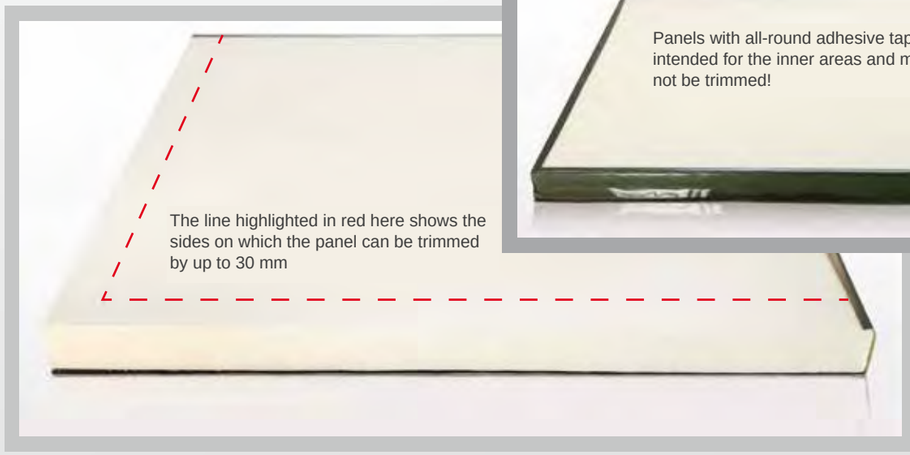


50 mm PUR edge strip
only on the outer edges
of the area to be insulated
for trimming and fitting

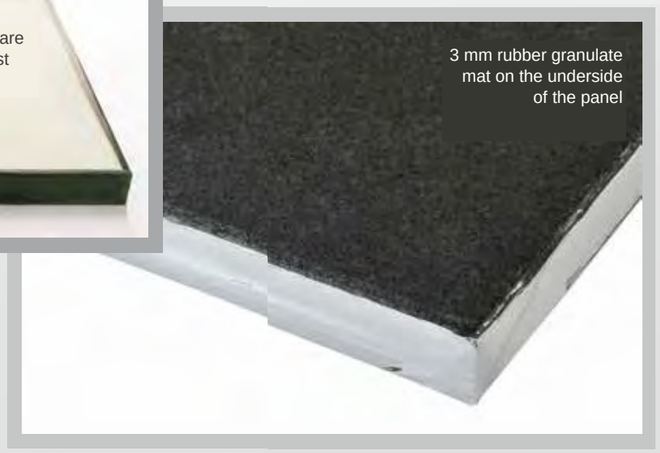
15 mm PUR cover layer
to protect the vacuum insulation core
it is pressure-stable and moisture-resistant

Vacuum insulation core
λ 0.007 W/(m·K)

3 mm rubber granulate mat
to protect against damage from below



Panels with all-round adhesive tape are intended for the inner areas and must not be trimmed!



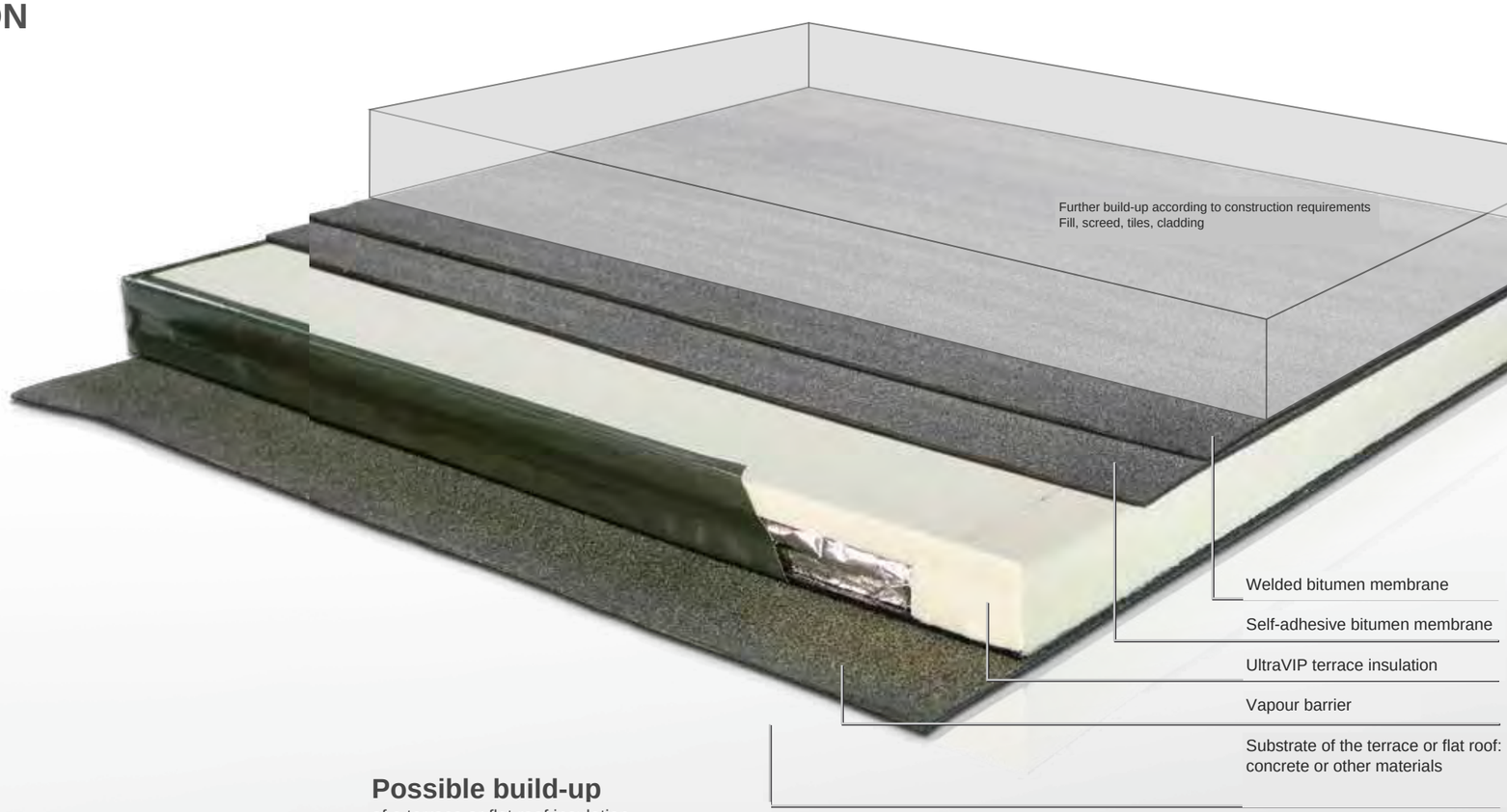
3 mm rubber granulate mat on the underside of the panel

Build-up height & insulation values

UltraVIP terrace insulation is available to you with vacuum panels of different thickness and thus different build-up heights and U-values.

ULTRAVIP Total build-up height in mm Rubber granulate mat - VIP - PUR	VIP thickness in mm λ 0.007 *	U-value VIP W/(m²K) **
38	20	0.35
48	30	0.23
58	40	0.17
63	45	0.15

* Design value (calculated value) of thermal conductivity
****The lower** the heat transfer coefficient **- U -**, the better the **thermal insulation property** of the component.



Possible build-up

of a terrace or flat roof insulation

Before laying the UltraVIP terrace insulation, the prepared vapour barrier must be thoroughly cleaned to rule out pressure points or damage to the vacuum panels.

Comparison of build-up heights with other insulation materials

Here we have shown the U-value of the vacuum insulation core based on a λ value of 0.007 W/(m·K) with comparison values of other insulation materials, to illustrate the low build-up height of UltraVIP terrace insulation.
The VIP within the product has building authority approval.

U-value W/(m²K) entire element	ULTRAVIP λ 0.007 * VIP thickness Total thickness ULTRAVIP Rubber granulate/VIP/PUR / mm	Mineral wool λ 0.04 * Thickness in mm	Polystyrene λ 0.035 * Thickness in mm	PU rigid foam λ 0.03 * Thickness in mm
0.287	20 / 38	139	122	104
0.204	30 / 48	196	171	147
0.158	40 / 58	253	221	190
0.145	45 / 63	282	246	211

* Design value (calculated value) of thermal conductivity

UltraVIP terrace insulation

is actually a combination of our existing products vakuVIP SP-2/E and vakuVIP Gum-1, except that a 15 mm PUR cover layer is used instead of the polystyrene board. Special feature: the 50 mm PUR edge strip at the edge enables the edges to be fitted (trimmed) by up to 30 mm.

We therefore now offer an insulation panel that is produced ready-made by us, especially for the terrace and flat roof sector. It is characterised by the **low thermal conductivity** of 0.007 W/(m·K) of the vacuum insulation core and an **extremely low build-up height of only 38 - 63 mm**.



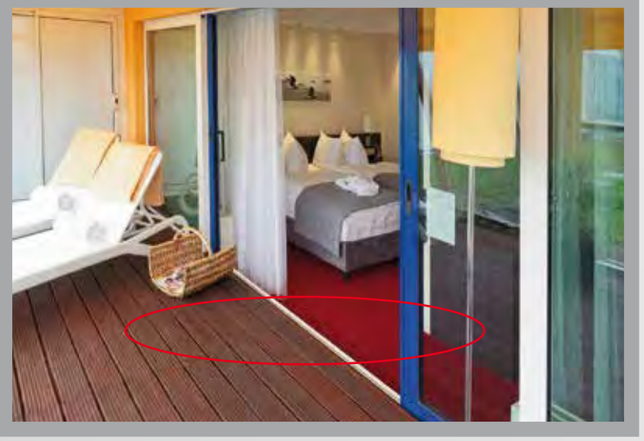
Key points & advantages

The vacuum panels contained in the product are well protected against damage by a rubber granulate mat on the underside (2) and a 15 mm PUR board on the top (3).

- The panels at the edge of the area to be insulated are fitted with 50 mm PUR (4) on the sides facing the outer edge.
  These can be trimmed and adapted up to the line shown on the panel (6) = **30 mm**. Construction tolerances or any measurement errors can thus be compensated without problems.
- **Supplementary PUR compensation pieces** in the thickness of the ordered panels allow flexible adaptation to special circumstances (drainage, downpipes, unevenness, larger dimensional tolerances ...).
- A sturdy adhesive tape (5) at the edge of the panels protects and marks all edges not intended for trimming.
- **Within the area to be insulated, no PUR edge strips are used at the edge of the VIP elements.** This means the high insulation value of the vacuum panels is not reduced by PUR webs over the entire area.
- The vacuum insulation cores contained in the panel are characterised by their **low thermal conductivity** of 0.007 W/(m·K).
- Especially in the terrace area, the **low build-up height of 38 - 63 mm**, with a U-value of the vacuum panels of 0.35 - 0.15 W/(m^{2}K), is a decisive advantage.
- From a build-up height of 58 mm you thus achieve **passive-house-suitable values**.
- The **standard sizes** in the various variants are **quickly available**. **Special formats and sloping elements** are generally possible and are additionally produced and supplemented by us according to a laying plan.



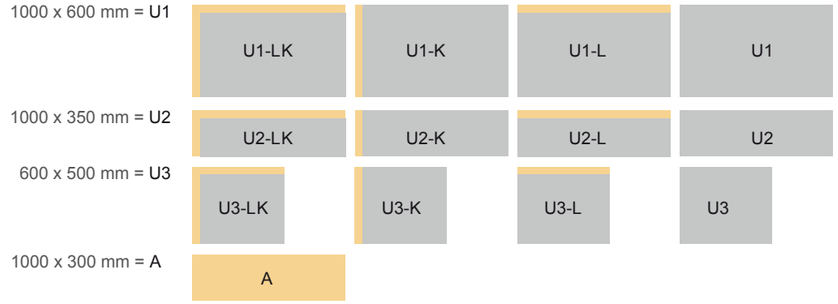
With UltraVIP terrace insulation, **almost the same build-up heights** of floors between interior and terrace are possible, **disturbing steps are eliminated**.



INSULATION
TERRACE INSULATION

ULTRAVIP
TERRACE INSULATION

Standard formats & designations



U1 - U3 = Designation of the standard sizes,
L = 50 mm PUR edge strip on the long side,
K = 50 mm PUR edge strip on the short side,
LK = 50 mm PUR edge strip on the long and short side,
A = Compensation piece, PUR only, in the total thickness of the panels

The areas marked in colour in this way show the PUR edge strips of the panels and the compensation piece

Standard formats can be delivered within 10 working days. When ordering, simply use the designations we have provided. We also need the desired total thickness of the panels - 38 - 48 - 58 - 63 mm.

Special formats & dimensions = S

If you cannot sufficiently cover the area to be insulated with the standard dimensions we offer and the compensation pieces - A, we will also produce UltraVIP terrace insulation for you as a special format / dimension.

The order process is made up as follows:

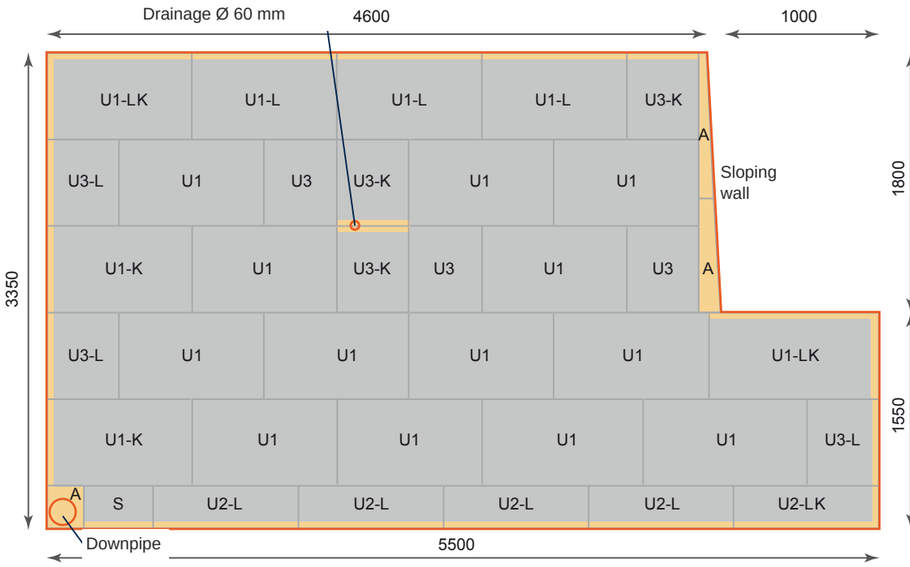
- You send us a dimensioned drawing of the area to be insulated.
- We determine the VIP elements in standard or special format.
- From this we prepare a quotation for you.
- After the order you receive an order confirmation from us with the corresponding laying plan. Using this laying plan, the respective VIP element can easily be assigned on the construction site.
- We also provide the outer edges of the required special formats at the edge with 50 mm PUR strips for trimming, so that you can adapt all the outer panels to any unevenness.

Laying plan

Example of a fictitious roof terrace for which we have shown the grid of UltraVIPs using a laying plan.

The edge area is fitted all round with PUR edge strips and can thus be adapted by up to 30 mm. A PUR compensation piece has been inserted at the drainage and the downpipe, and likewise to compensate for the sloping wall on the right. In addition, a special format is required at the bottom left.

The decisive point, however, is: the major part of the area is laid continuously with UltraVIPs without a PUR edge and thus guarantees a high insulation value over the entire area.



The areas marked in colour in this way show the PUR edge strips of the panels and the compensation piece

ROOF & DORMERS

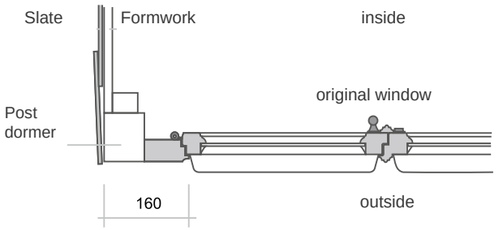
In roofs and dormers, the thickness of the insulation plays a not insignificant role with regard to **the build-up, the structural engineering and the visual effect.**

With an ultra-high-performance insulation from Vaku-Isotherm the thickness of the build-up and the weight are minimised, **insulation values in the low-energy range are achieved effortlessly.**

Especially in the renovation of listed buildings, the thickness of the insulation plays a decisive role.

The differences are very clear in the example of a dormer in a listed building.

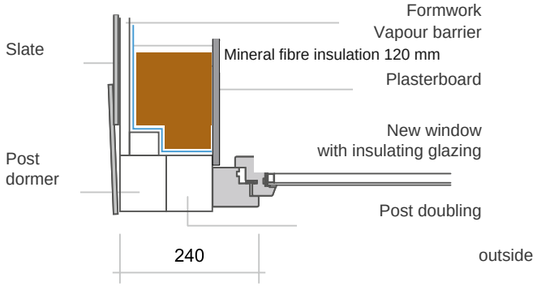
Here the original condition as in the picture on the right





The two graphics below show the installation situations with conventional insulation with a 120 mm insulation build-up and the situation after the use of vakuVIP insulation material.
The difference in visible width is a full 80 mm. The same wall build-up width with a conventional insulation material does not come close to achieving the values of vacuum insulation.

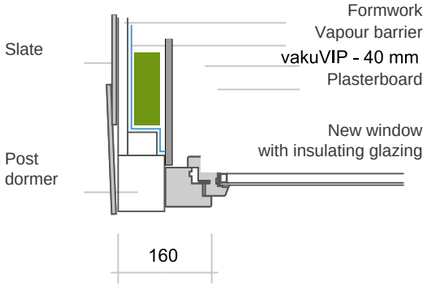
240 mm with mineral fibre insulation



inside

outside

40 mm vakuVIP
which means passive house suitable at this point



EXTERIOR WALL INSULATION

Effective conventional exterior wall insulation should be 150 - 200 mm thick in order to save energy effectively. The house "grows" in width with its insulation, roof overhangs disappear, window reveals become so-called arrow slits, and less light enters the rooms. Reveals are usually insulated half-heartedly and, together with the roller shutter boxes, form the future cold bridges.



Not so with the vakuVIP building board; it achieves comparable results with just 30 mm thickness. Insulated completely including the reveal, even an old building with little space quickly reaches values similar to passive house standard.

Processing is easy. It is bonded to the facade with standard mortar adhesive, dowelled in the area of the all-round EPS edge strip, reinforcing mesh is applied and then plastered. The vakuVIP building board is particularly suitable

for the insulation of gateways, where width and height are often a matter of a few centimetres. Or think of the exterior insulation of overhanging ceilings when inhabited rooms are above: a conventional insulation build-up usually needs too much space here.
This insulation system is therefore particularly recommended for work in the field of monument protection and renovation.

INSULATION DOES NOT HAVE TO BE THICK!

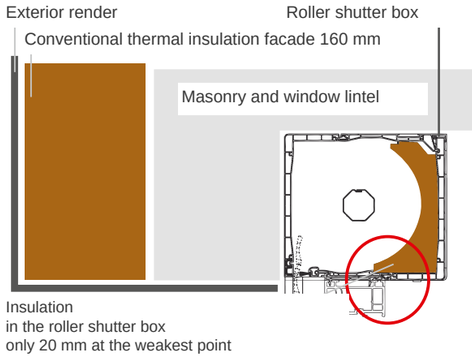
INSULATION
APPLICATIONS

ROLLER SHUTTER BOXES

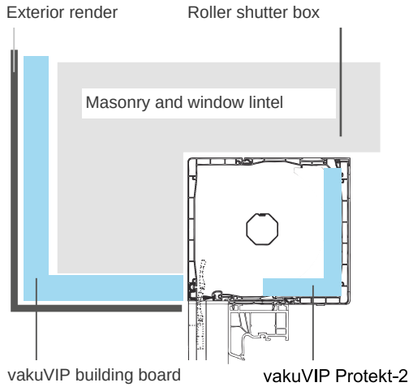
In most thermographic images of houses, the thermal bridges in the area of the roller shutter boxes always catch the eye. If you look at the installation situation (left graphic), this is not surprising. A point arises in the living space which **actually represents an exterior wall, but is insulated with only 20 mm polystyrene.** Lintel and reveal are mostly not insulated here either.

The solution is shown in the right graphic. **The reveal is insulated with the vakuVIP building board 28 mm and in the roller shutter box vakuVIP Protekt-2 with a thickness of 23 mm takes over the function of the exterior wall.**
This creates a continuous insulation system whose values are equal to those of the exterior wall insulation.

Commonly used design



The better alternative



VACUUM INSULATION IN TIMBER CONSTRUCTION AND ON PITCHED ROOFS

Especially in half-timbered renovation or timber-frame construction, there is often little space to integrate effective insulation without permanently affecting the appearance of these houses.

With our vacuum insulation systems you choose a space-saving and energetically very high-quality solution.
We produce the vacuum panels to the grid of your substructure or half-timbering. The VIPs are then integrated into it.
In timber construction, for example, vakuVIP panels are used, which are laid between the substructure battens and then clad with wood or facade boards. (Picture left)

The same space-saving principle can also be applied to pitched roofs. Here the batten grid prevents the insulation from slipping and at the same time provides the fixing point for the planking and the subsequent roofing.
Laying is simple and quick, the result is highly insulated roofs and exterior walls.

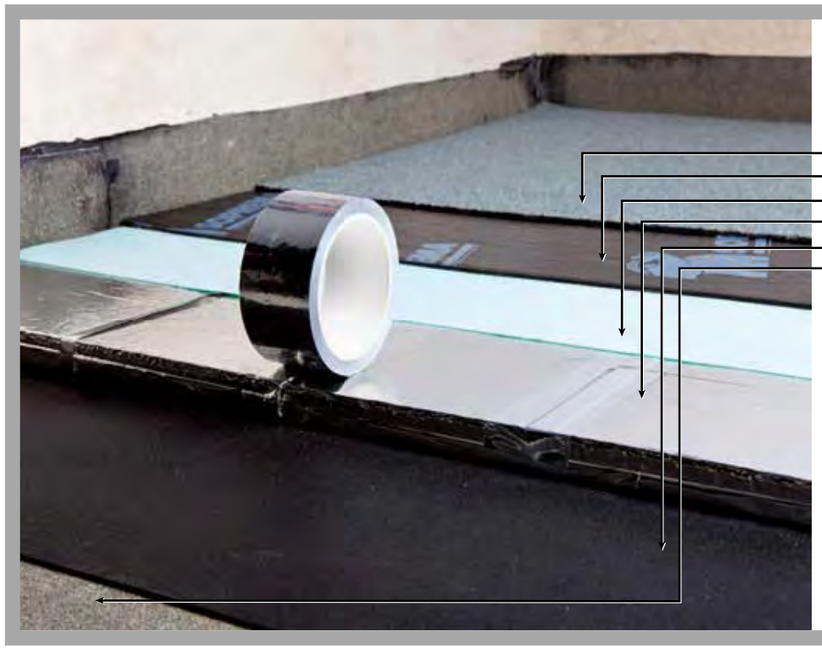




FLAT ROOFS AND TERRACES

Here you see 2 examples of a complete build-up for flat roof and terrace insulation, which are thus highly energy-efficient insulated.

The advantage here too lies in the low build-up height, which brings the decisive advantage especially for terraces with living space beneath. **The height of the interior floor is identical to that of the terrace floor. A level balcony door exit can thus be realised.**

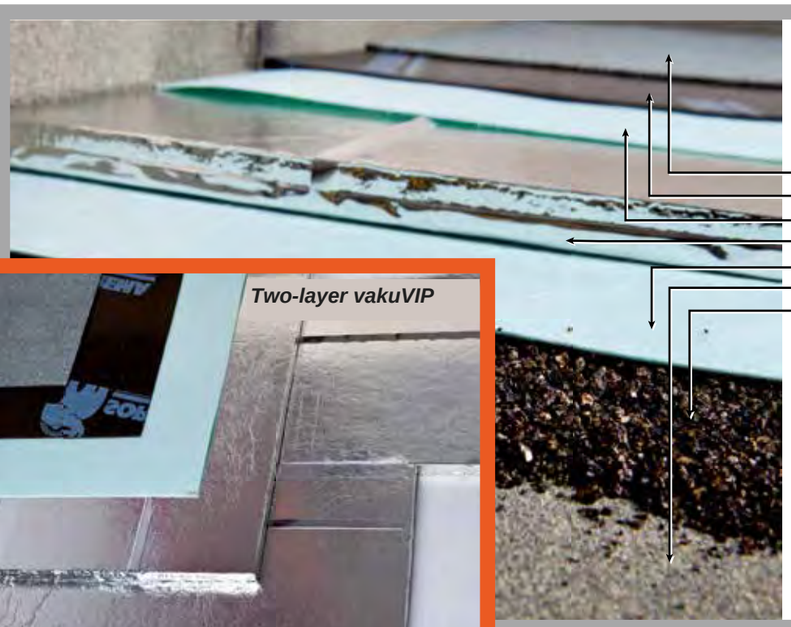


Installation: 1 layer, without fill
Build-up height with 20 mm vakuVIP thickness is approx. 35 mm

The build-up

- Welded bitumen membrane
- Self-adhesive bitumen membrane
- Fleece or building protection mat
- vakuVIP in the intended thickness
- Fleece or building protection mat
- Vapour barrier
- Concrete substrate

To achieve higher insulation values, vakuVIP can also be laid in two layers.
See picture below left.



Two-layer vakuVIP

Installation: 1 layer, with fill
Build-up height with 20 mm vakuVIP thickness is approx. 30 mm, plus the fill

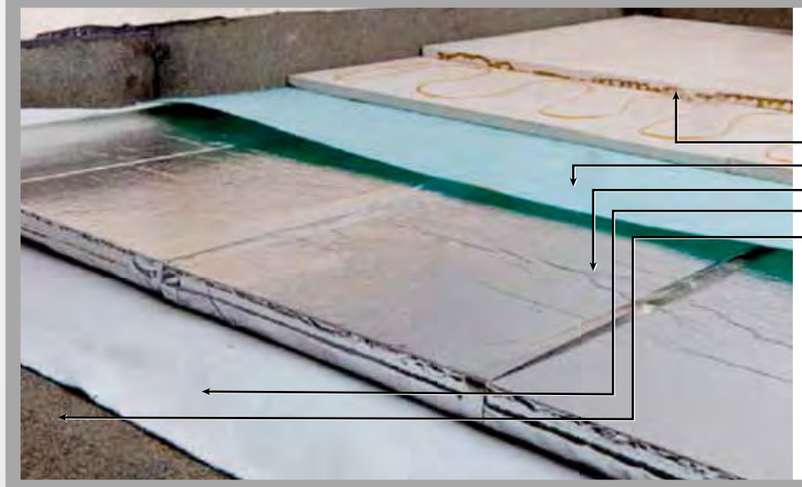
The build-up

- Welded bitumen membrane
- Self-adhesive bitumen membrane
- Fleece or building protection mat
- vakuVIP in the intended thickness
- Fleece or building protection mat
- Vapour barrier
- Fill, e.g. for levelling
- Concrete substrate

To achieve higher insulation values, vakuVIP can also be laid in two layers.
See small picture on the left.

FLOOR BUILD-UP FOR TILES AND PARQUET

Here an example of a floor build-up for interior rooms
Maximum insulation, low build-up.



Build-up height with 20 mm vakuVIP thickness is approx. 50 mm, plus tiles or parquet

The build-up

- Primed, two-layer bonded gypsum fibre board
- Fleece
- vakuVIP in the intended thickness
- Fleece
- Vapour barrier
- Primed concrete substrate

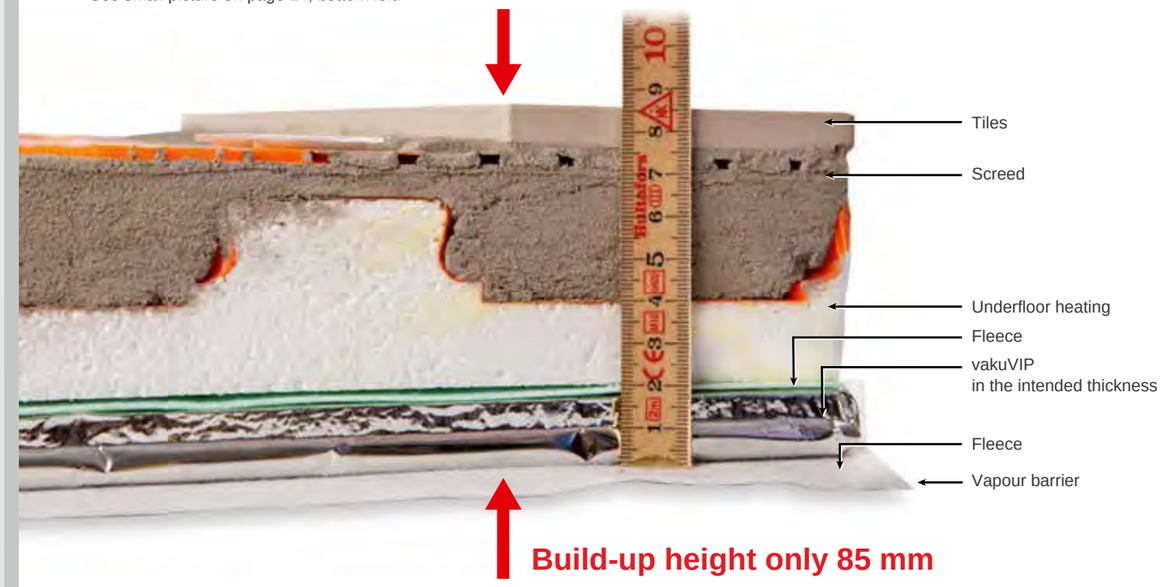
To achieve higher insulation values, vakuVIP can also be laid in two layers.
See small picture on page 14, bottom left.

FLOOR BUILD-UP FOR LIVING SPACES - INCL. UNDERFLOOR HEATING

The construction of underfloor heating with effective insulation quickly becomes very high with conventional insulation systems.

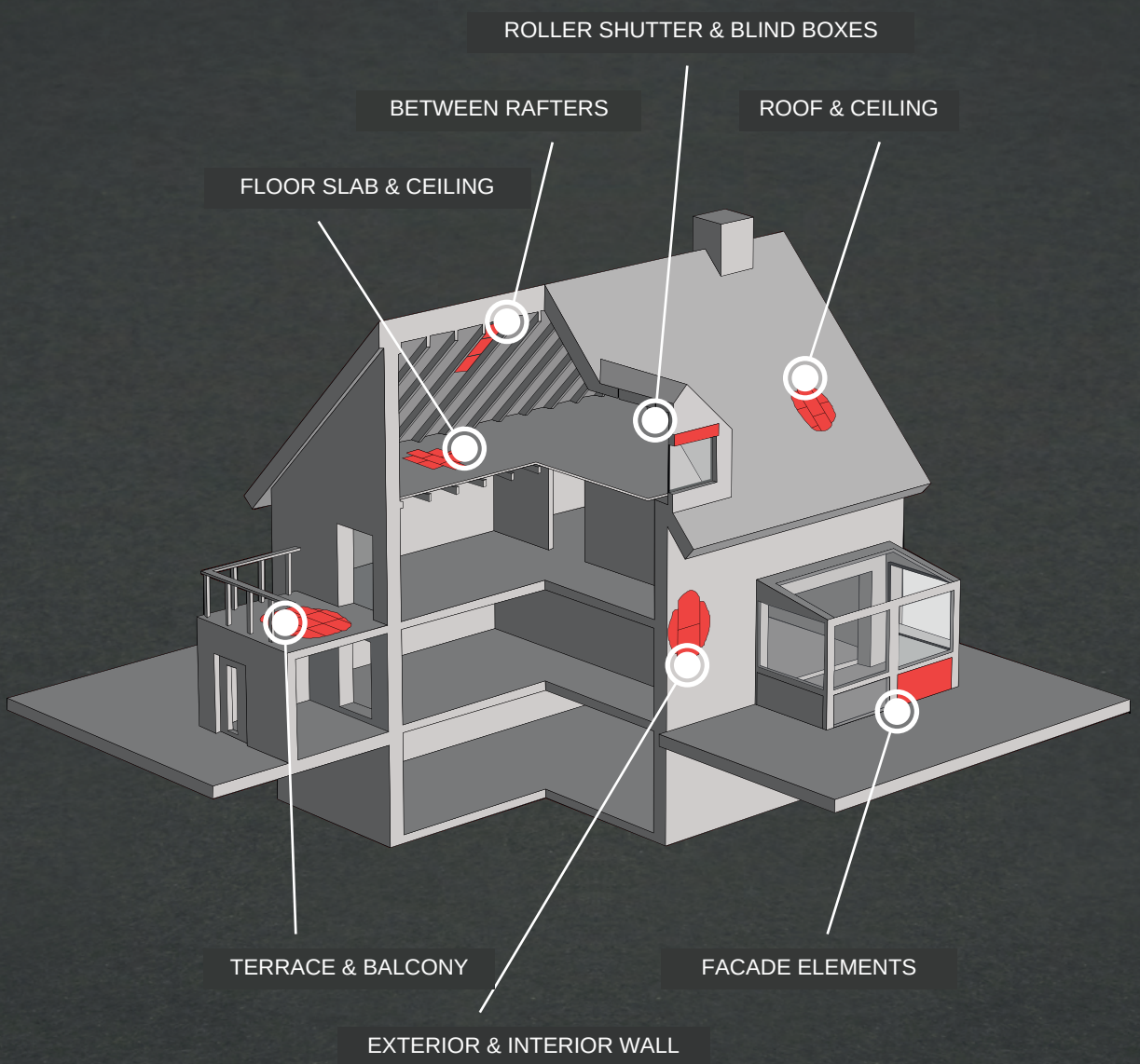
When using 20 mm vakuVIP, the floor build-up with heating system and tile covering is just approx. 85 mm.

To achieve higher insulation values, vakuVIP can also be laid in two layers.
See small picture on page 14, bottom left.



VAKU ISOTHERM ©

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