



# Construction

More usable space and lower energy consumption through vacuum insulation



## We sustainably produce our brochure:



EU Ecolabel:DE/028/027

By producing our brochure in accordance with the provisions of EU Ecolabel, we emphasize our claim for sustainability. The EU Ecolabel is awarded to products and services that have a lower environmental impact than

comparable products. This allows the identification of environmentally friendlier and healthier products and services.

### Natural paper from sustainably managed forests

The EU Ecolabel places high demands on the entire manufacturing process, including the paper used. The wood fibers used in the paper come from sustainably managed forests. The product meets strict environmental and usability criteria. Certified regional waste disposal companies

ensure resource-saving waste disposal and responsible wastewater policies.

### Low-pollution printing with organic printing inks and varnishes

Our *bonitasprint* print shop uses low-pollution consumables in all printing processes and prints completely alcohol-free. Workflows and processes are constantly optimized in order to make the entire production process as sustainable as possible.

Renewable raw materials

are the basis for organic printing inks and organic varnishes, which are used in our brochure.



### Emission-optimized company building & delivery

The *bonitasprint* company building is powered by electricity from 100% renewable energy sources. For this purpose, the company operates its own photovoltaic system. The waste heat

from the printing machines and compressors is used to supply heat to the company building. Additional heating is obtained from climate-neutral natural gas with emission compensation.

*bonitasprint* has a continuous in-house production chain. The company's own fleet includes electric and natural gas vehicles. This prevents transport-related CO2 emissions. The climate neutrality of these va-Q-tec printed products is also demonstrated by the "climate-neutral printing" logo.

Please collect used paper for recycling.

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# Saving energy for a better tomorrow

How do you ensure that something stays cold or warm – with very limited space? va-Q-tec is a high-tech company that has been pioneering the development of innovative solutions in the insulation industry since 2001 on the basis of energy efficient, space saving and environmentally friendly vacuum insulation panels (VIPs).



In addition to VIPs, va-Q-tec develops and sells other products such as high-performance thermal packaging and airfreight containers as well as heat and cold storage elements (PCMs).

The efficient technology of va-Q-tec's products save expensive energy costs in areas of everyday use: in the transport of pharmaceutical products, in refrigeration and freezer appliances, buildings, technics & industry, as well as in automobiles and aircrafts.

The company has won numerous awards for both its technology and the positive company development. Since 2016 va-Q-tec is listed in the prime standard of the Frankfurt Stock exchange.

## Key drivers defining our context:



### Thermal energy efficiency

Approximately 60% of primary energy consumption in Germany and other industrial countries is used for thermal purposes.



### Globalization of supply chains

Increasing globalization and outsourcing of clinical research and manufacturing creates huge requirements for efficient pharma TempChain packaging.



### Product safety and regulation

By 2024, 32 of the Top 50 best-selling global drug products will require 2 °C to 8 °C temperature controlled storage and handling.



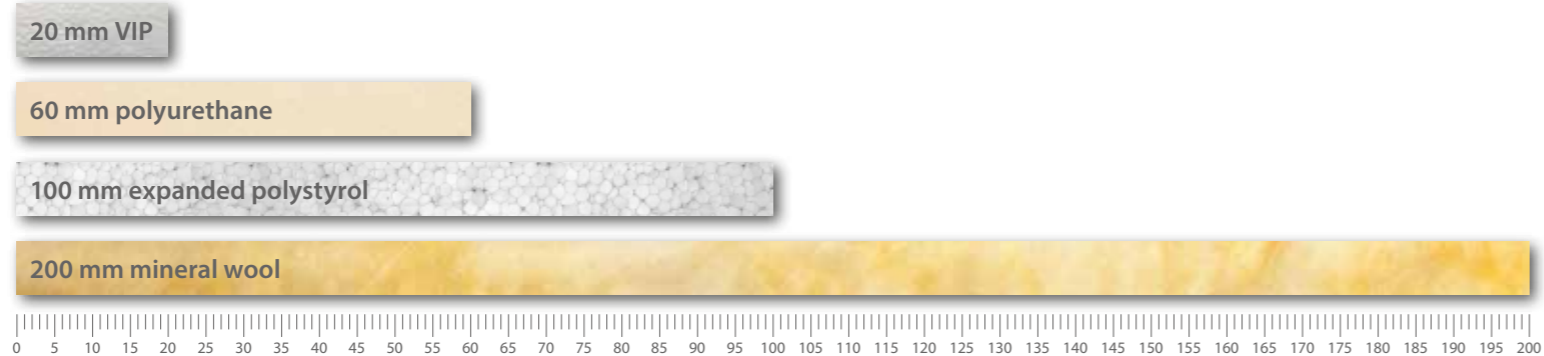


# Technology

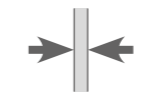
As a pioneer in the vacuum insulation sector, va-Q-tec develops innovative insulation solutions for new constructions and renovations. Based on vacuum insulation panels (VIPs), the products provide a high level of insulation, greatly reduced insulation thickness and modular construction for different sizes and shapes. They are particularly advantageous in locations that offer small space but still require good thermal insulation.

All va-Q-tec products are the result of intensive development. They provide added value to customers and offer solutions for basic social challenges like energy conservation. The high product quality, controlled by the worldwide unique and patented va-Q-check® control system, enables the reliable application of this durable, highly efficient vacuum insulation.

## Insulating material - comparison for a U-value of 0.35 W/(m<sup>2</sup>·K):



Reduction in heating costs and CO<sub>2</sub> emissions



Thin insulation layer increases usable space



Materials are harmless to health and recyclable



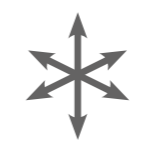
Long term insulation performance



Approved under German construction regulations and ETA

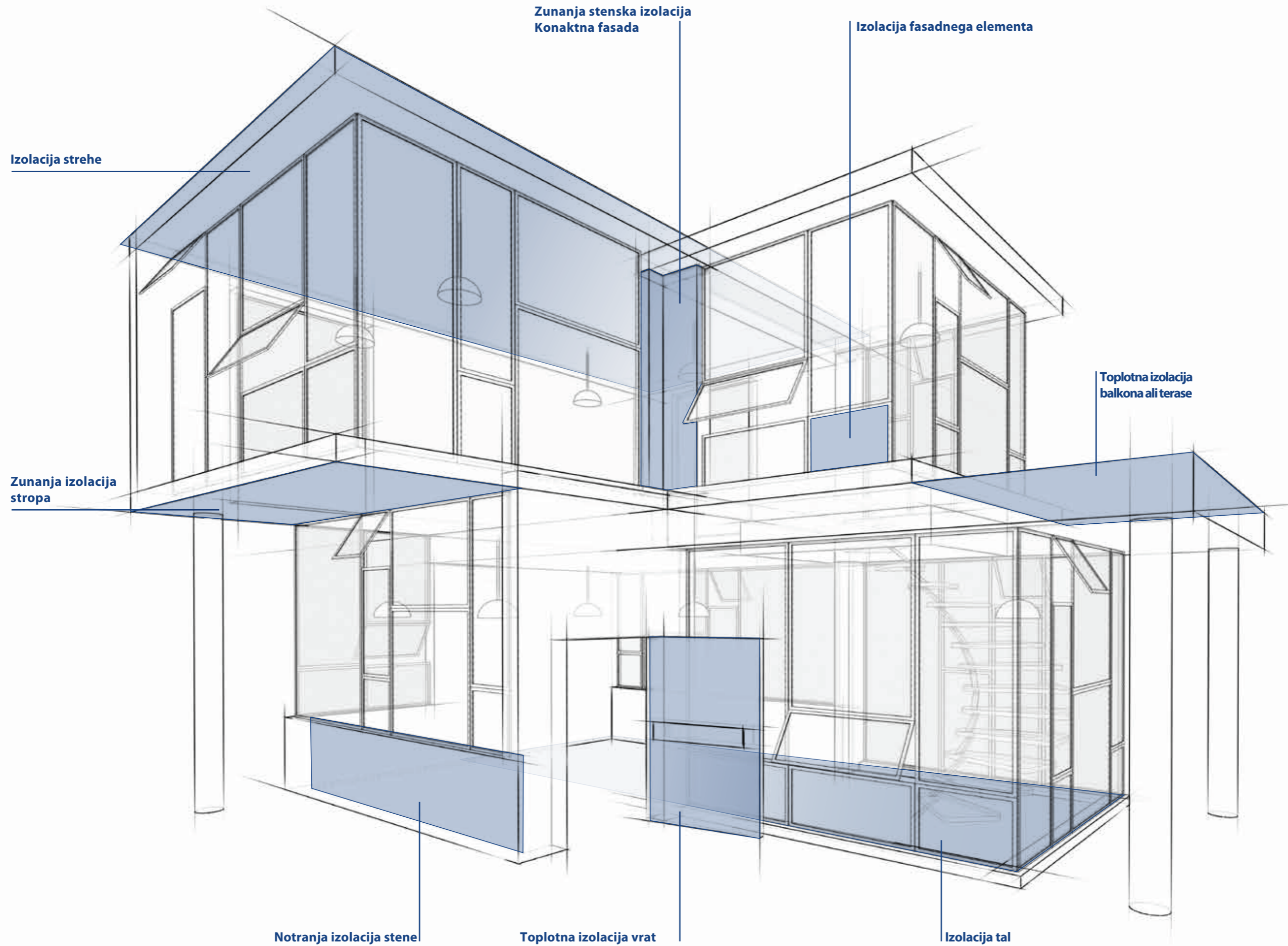


Made in Germany



Flexibility to different shapes









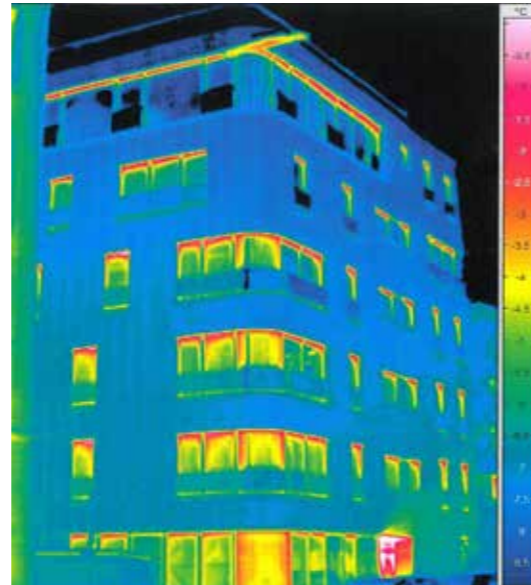
## Facade – new construction

The European directive for energy performance in buildings sets standards for thermal insulation of building envelopes that have a significant impact on useable insulation materials.

The flexibility in exterior insulation provided by VIPs offers a space-saving insulation alternative to conventional insulation and permits more comfortable indoor climate control.

It is important to consider that insulation measures must always be part of overall harmonious energy design.

Other applications for VIPs include the insulation of roller shutter boxes, window reveals or raffstore-niches.



## Facade – renovations

VIPs can also play a role in building renovations by meeting today's energy standards. Since VIPs offer excellent insulation performance even at thin material thickness, the facade's existing appearance can be largely maintained.

Due to the slim design of the panels neither a removal of the roof overhang is necessary, nor does it create unattractive embrasures-look on windows and doors, which can be created by the use of voluminous insulation materials.

Especially for buildings subject to heritage protection, this is often the only way to accomplish energy-saving renovation.







## Balconies & Terraces

The outdoor area is becoming more and more important for building residents, as they represent additional living space. Terraces, in particular, are being used with increased frequency, becoming the center of activity in warmer months.

Living areas are often found beneath terraces, and this can represent a significant architectural challenge in the planning of insulation measures. For example, this area must be professionally insulated, but the necessary construction height for the insulation is not available. In addition, the transition from the exterior area to the living space must remain free of barriers and tripping hazards.

This situation is exactly where VIPs come in. With the thin yet efficient insulation provided by VIPs, it is possible to eliminate height differences that could otherwise create tripping hazards. Nevertheless, they meet all insulation requirements and regulations.



## Wintergarden

Wintergardens are becoming increasingly popular and are retrofitted or planned into new buildings more frequently. A wintergarden enables a life close to nature, separated only by a glass pane, with the feeling of being outdoors. Thanks to modern thermal insulation glazing and insulation materials, using wintergardens year-round has become a reality without the need to sacrifice comfort and coziness. Even in cold wintergardens, VIPs make it possible to extend the use phase beyond the summer months.

VIP installations also result in excellent U-values and meet the requirements of the current European directive. The slim construction also enables a uniform material thickness between insulating glass and other components.

In the renovation of existing wintergarden, VIPs can contribute to the improvement of living conditions.







## Floor applications

In the area of floor application, VIPs offer enormous advantages over conventional insulation materials. These result in versatile use options ranging from private residences to commercial applications such as cold storage rooms.

Due to their low thickness compared to conventional insulation materials, VIPs are an optimal way to insulate thinly but efficiently during renovation. This makes it possible to install insulation in areas of limited height in combination with modern thin-layer floor heating. This provides increased thermal insulation and reduces heating costs.

There are also many advantages in commercial cold room construction through the use of VIPs. The low thickness and outstanding insulation performance eliminates differences in total floor thickness, reducing the need for costly labor. Projects to upgrade or renovate existing supermarket facilities save time and money by installing VIPs.



## Prefabricated buildings & building parts

Especially in prefabricated buildings such as manufactured housing, modular buildings and container constructions, VIPs can be produced in the desired dimension and easily integrated into the manufacturer's production process.

In this way, VIPs also enable the construction of modern slim-construction buildings. Due to low wall thicknesses, other building materials are saved and thus costs are reduced. Other benefits include shortened assembly times and reduced transport volume.





# Application Examples







**Grand Tower, Frankfurt**



**22 Bishopsgate, London**

Living in the city, working around the corner and insulating with vacuum insulations panels: a futuristic triad. In recent years population numbers in many major cities have exploded. This is taking place in an extremely limited area where each square meter of residential or commercial space counts – for each person and for the society as a whole.

This reality is impressively illustrated by the Grand Tower Frankfurt, a prestigious property that is Germany's tallest residential building. With its 401 apartments, the skyscraper rises to a height of 172 meters. It is located in the heart of the financial center at the perimeter of the Europaviertel and the vertical opaque areas of its facade are insulated with va-Q-tec VIPs.

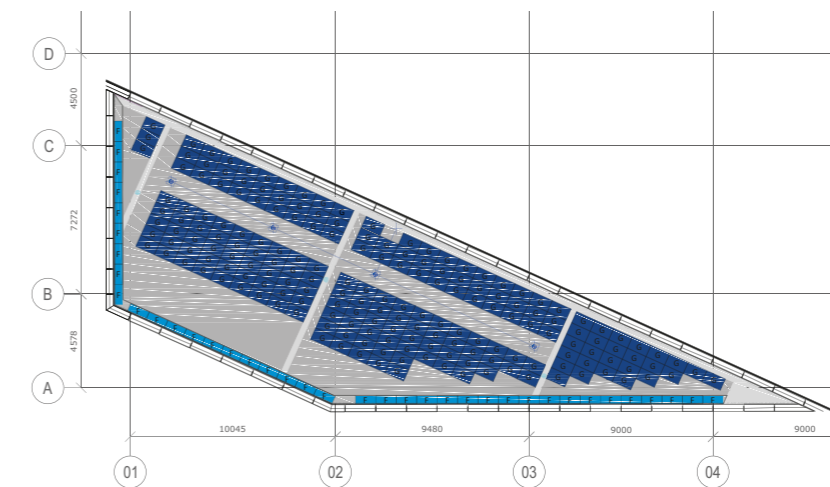
***“By using VIPs, we gained approximately 123 m<sup>2</sup> of residential space – a lucrative return for the investor.”***

*Ronald Ellebrecht, Head of Business Unit Construction*

VIPs with a thickness of 50mm were installed in this case. To achieve the identical insulation performance with conventional insulation materials, a thickness of approximately 250 mm would have been required. This significantly reduced the space utilized by insulation, thus gaining additional living area. A total of approximately 6000 VIPs were installed into the building.

At a height of 278 meters, the new high-rise project 22 Bishopsgate is the tallest structure in London's financial district. This is exceeded only by the 310-meter height of "The Shard" on the opposite bank of the Thames.

The 22 Bishopsgate project, an investment in the billions, will welcome its first tenants sometime in 2020. To achieve maximum energy efficiency in this project, various floors were insulated with approximately 2000 m<sup>2</sup> of va-Q-tec VIPs.











- **Enhanced usable room area due to thinner insulation material**
- **Smooth edges and no foil overlaps due to patented va-Q-seam technology**
- **Various standard sizes on stock**
- **Approved for general construction purposes after Z-23.11-1658 and ETA-17/0926**
- **Long lifetime due to optimized panel design**
- **100 % quality control with the patented gas pressure measurement system (va-Q-check®)**
- **Sustainable product (recyclable core material)**

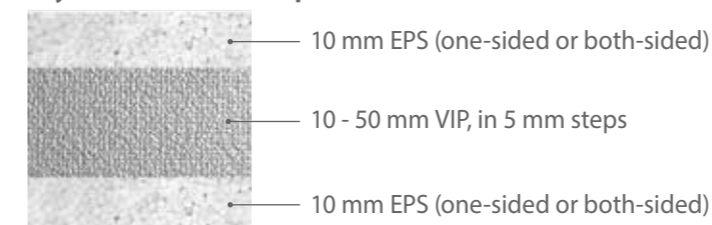
va-Q-vip F is an insulation panel from which air has been evacuated for applications in the construction area. The va-Q-vip F vacuum insulation panel holds general building supervision permits Z-23.11-1658 and ETA-17/0926, issued by "Deutsches Institut für Bautechnik". The core consists of micro-porous silica powder and an opacifier coated with a plastic film that is impervious to gas and water vapor. The va-Q-vip F vacuum insulation panel is normally inflammable ("Baustoffklasse" DIN 4102-B2 / EN13501-1). va-Q-vip F elements are distinguished by their special film fold technology with smooth edges and corners (va-Q-seam). This results in virtually seamless joining of individual elements. In general, rectangular panels are produced. Other panel shapes can be manufactured on request.

Thermal conductivity $\lambda(10\text{ °C})^*$	$\leq 0.0043\text{ W/(m}\cdot\text{K)}$ (thickness $\geq 20\text{ mm}$ , at delivery) after DIN EN 12667
Thermal conductivity - design value incl. aging and edge effects	0.007 W/(m·K) (thickness $\geq 20\text{ mm}$ ) 0.008 W/(m·K) (thickness $< 20\text{ mm}$ )
Thermal conductivity ventilated $\lambda(10\text{ °C})^*$ - design value incl. aging and edge effects	0.020 W/(m·K)
U-Value (VIP) - initial value @ 10 °C*	0.22 W/(m <sup>2</sup> ·K) (thickness = 20 mm)
U-Value - design value incl. aging and edge effects @ 10 °C	0.80 W/(m <sup>2</sup> ·K) (thickness = 10 mm) 0.14 W/(m <sup>2</sup> ·K) (thickness = 50 mm)
Internal gas pressure @ 20 °C	$\leq 5\text{ mbar}$ (at delivery)
Density	180 – 210 kg/m <sup>3</sup> (thickness $\geq 20\text{ mm}$ ) after DIN EN 1602 180 – 250 kg/m <sup>3</sup> (thickness $< 20\text{ mm}$ ) after DIN EN 1602
Area density	3.5 – 5 kg/m <sup>2</sup> (thickness = 20 mm)
Temperature resistance	-75 – 80 °C (temporary up to 120 °C)
Moisture resistance	0 – 70 % rel. humidity (until 50 °C)
Specific heat capacity	0.8 – 1.0 kJ/(kg·K) (at room temperature)
Compressive strength at 10 % compression	$\geq 150\text{ kPa}$ after DIN EN 826 $\geq 100\text{ kPa}$ after DIN EN 826 (version EPS, GGM)
Tensile strength perpendicular to plane	$\geq 30\text{ kPa}$ after DIN EN 1607
Lifetime	Depending on usage, up to 60 years
Fire class	B2 following DIN 4102 E following EN 13501-1**
Standard sizes (l x w)	1000 mm x 600 mm 1000 mm x 400 mm 1000 mm x 300 mm 600 mm x 600 mm 600 mm x 400 mm 400 mm x 300 mm 300 mm x 300 mm
Available thickness	10 – 50 mm, in 5 mm steps

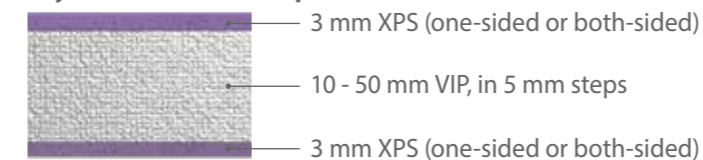
\* Please note terms of service § 6 "Deviation range of the insulation value" in "Special Terms and Conditions of Sale and Delivery, Product: Vacuum Insulation Panels (VIPs)" corresponding to the valid version respectively.

\*\* only for va-Q-vip F without additional lamination

### Layer structure va-Q-vip F-EPS:



### Layer structure va-Q-vip F-XPS:



### Layer structure va-Q-vip F-GGM:







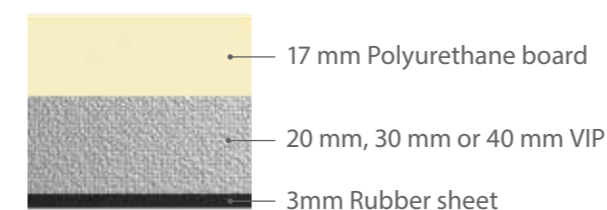
- **Barrier-free traffic areas**
- **Smooth edges and no foil overlaps because of patented va-Q-seam technology**
- **Additional protection against mechanical damage**
- **Various standard sizes on stock**
- **Long lifetime due to optimized panel design**
- **100 % quality control with the patented gas pressure measurement system (va-Q-check)**
- **Sustainable product (recyclable core material)**

va-Q-vip Floor is a microporous insulation material based on fumed silica. Additionally it is laminated by a 17 mm thick PIR layer on top and a 3 mm rubber granulate layer at the bottom. This composition enables an optimized protection of the vacuum core for construction applications. Our va-Q-vip Floor elements are unique because of their smooth edges and corners (va-Q-seam) which enable individual elements to be joined together almost seamlessly. In general rectangular panels are produced but various shapes (trapeze, triangle, corner section) are possible on request. The va-Q-vip Floor was specially developed for the use in floors, flat roofs, balconies and terraces.

Thermal conductivity (VIP) - initial value @ 10 °C*	≤ 0.0043 W/(m·K) (thickness ≥ 20 mm, at delivery) according to DIN EN 12667
Thermal conductivity (VIP) - design value incl. aging and edge effects	0.007 W/(m·K) (thickness ≥ 20 mm)
Thermal conductivity (VIP) ventilated - design value incl. aging and edge effects	0.020 mW/(m·K)
U-Value (VIP) - initial value @ 10 °C*	0.22 W/(m²·K) (thickness = 20 mm)
U-Value (VIP) - design value incl. aging and edge effects	0.18 W/(m²·K) (thickness = 40 mm) 0.35 W/(m²·K) (thickness = 20 mm)
Internal gas pressure @ 20 °C	≤ 5 mbar (at delivery)
Density	180 – 210 kg/m³ according to DIN EN 1602
Area density	3.5 – 5 kg/m² (thickness = 20 mm)
Temperature resistance (VIP)	-70 – 80 °C (temporary up to 120 °C)
Moisture resistance	0 – 70 % rel. humidity (until 50 °C)
Specific heat capacity	0.8 – 1.0 kJ/(kg·K) (at room temperature)
Compressive strength at 10 % compression	≥ 150 kPa according to DIN EN 826
Tensile strength perpendicular to faces	≥ 30 kPa according to DIN EN 1607
Lifetime	Depending on usage, up to 60 years
Fire class (VIP)	B2 according to DIN 4102
Standard sizes (l x w)	1000 mm x 600 mm 1000 mm x 400 mm 1000 mm x 300 mm 600 mm x 600 mm 600 mm x 400 mm 400 mm x 300 mm
Available thickness (overall construction)	40 mm, 50 mm, 60 mm

\* Please note terms of service § 6 "Deviation range of the insulation value" in "Special Terms and Conditions of Sale and Delivery, Product: Vacuum Insulation Panels (VIPs)" corresponding to the valid version respectively.

### Layer structure va-Q-vip Floor:

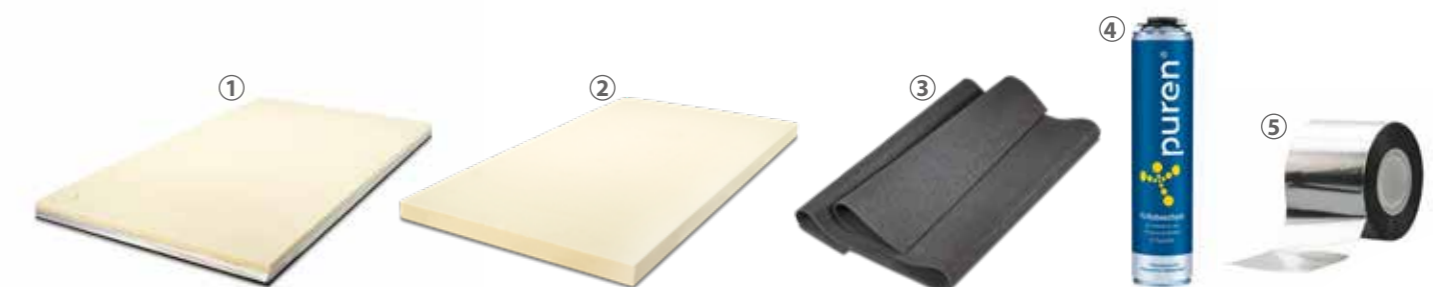


### The complete va-Q-vip Floor\*\* System:

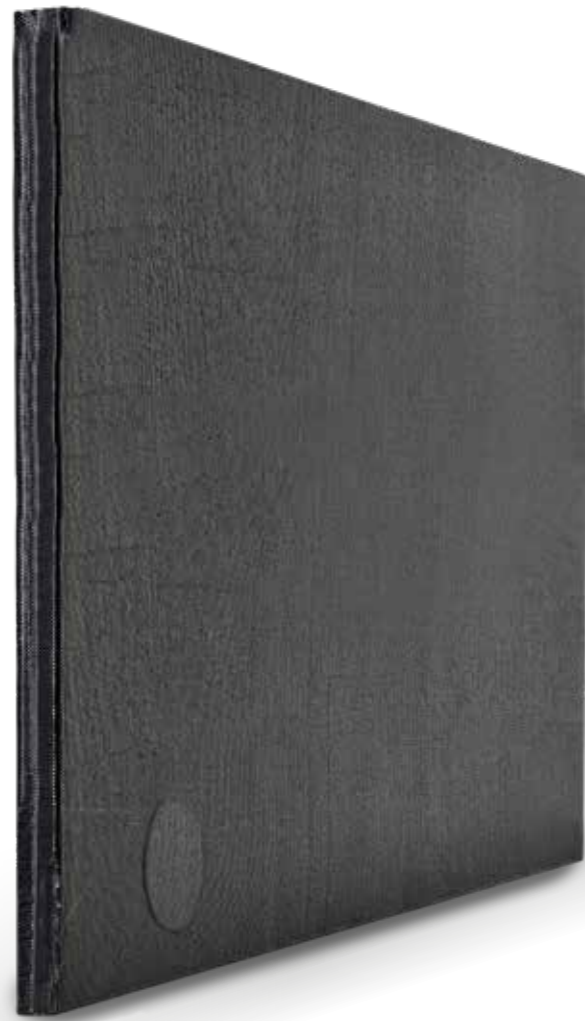
- ① va-Q-vip Floor Element
- ② Insulation board puren PIR NE50
- ③ Rubber sheet
- ④ Single component PU adhesive
- ⑤ Aluminium tape

In addition to the coated vacuum insulation panel, va-Q-vip Floor is supplemented by a cuttable, high-pressure-resistant PIR insulation board which is used for connection and edge areas. The delivery time of all components of the system to the construction site only takes a few days. Rectangular panels are produced in general, but special shapes (trapezoid, triangle, corner sections) are possible on request.

\*\* All products are also available separately.







Thermal conductivity - initial value @ 10 °C*	≤ 0.0043 W/(m·K) (at delivery) according to DIN EN 12667
Thermal conductivity - design value incl. aging and edge effects	0.007 W/(m·K) (thickness ≥ 20 mm) 0.008 W/(m·K) (thickness < 20 mm)
Thermal conductivity ventilated - design value incl. aging and edge effects	0.020 mW/(m·K)
U-Value - initial value @ 10 °C*	0.22 W/(m²·K) (thickness = 20 mm)
U-Value - design value incl. aging and edge effects	0.80 W/(m²·K) (thickness = 10 mm) 0.14 W/(m²·K) (thickness = 50 mm)
Internal gas pressure @ 20 °C	≤ 5 mbar (at delivery)
Density	180 – 210 kg/m³ (thickness ≥ 20 mm) according to DIN EN 1602 180 – 250 kg/m³ (thickness < 20 mm) according to DIN EN 1602
Area density	3.5 – 5 kg/m² (thickness = 20 mm)
Temperature resistance	-75 – 80 °C (temporary up to 120 °C)
Moisture resistance	0 – 70 % rel. humidity (until 50 °C)
Specific heat capacity	0.8 – 1.0 kJ/(kg·K) (at room temperature)
Compressive strength at 10 % compression	≥ 150 kPa according to DIN EN 826
Tensile strength perpendicular to faces	≥ 30 kPa according to DIN EN 1607
Lifetime	Depending on usage, up to 60 years
Fire class	B2 according to DIN 4102
Available thickness	10 – 50 mm, in 5 mm steps

\* Please note terms of service § 6 "Deviation range of the insulation value" in "Special Terms and Conditions of Sale and Delivery, Product: Vacuum Insulation Panels (VIPs)" corresponding to the valid version respectively.

- **Enhanced usable room area due to thinner insulation material**
- **Smooth edges and no foil overlaps due to patented va-Q-seam technology**
- **Approved for general construction purposes according to Z-23.11-1658**
- **Long durability due to optimized panel design**
- **100 % quality control with the patented gas pressure measurement system (va-Q-check®)**
- **Sustainable product (recyclable core material)**

The va-Q-vip B vacuum insulation panel is covered with an additional protective fiberglass fabric that ensures enhanced resistance and problem-free assembly. The normally inflammable va-Q-vip B elements are classified under DIN 4102-B2 and can be installed in buildings in accordance with application area classifications DAD, DAA, DZ, DI, DEO, WAB, WH and WI under standard DIN 4108-10, Table 1 (floor, flat roof, interior applications, ceiling, uppermost story ceilings, exterior insulation behind cladding, wall, insulation in wood frame construction).





## Patented va-Q-check® system

## Thermal consulting

Quality is a top priority of everything we do at va-Q-tec - the capital „Q“ in the middle of our name serves as a reminder hereof. In addition to premium quality service and profound technical consulting, we strive to produce only the very best quality products.

### Quick and precise quality checks

The quality and service life of VIPs depends on the quality of the core material, the barrier foil, and most importantly, on the internal gas pressure. That is why va-Q-tec developed the globally patented quality control system va-Q-check®. It allows for the precise measurement of the internal gas pressure of every individual VIP in seconds. Each va-Q-tec VIP is equipped with a small sensor disc for measurements and a barcode label. These two components allow va-Q-tec to store all information about the VIPs.

An external sensor measures the heat transfer in the panel and within seconds va-Q-check® transmits precise information on the internal gas pressure of the VIPs. The transparent inspection system checks every single box, panel or container before it leaves production. In addition to the high quality materials, the inspection can thus guarantee the quality of the products.

### Advantages of quality controls with va-Q-check®

- Quick and precise quality control
- Significant reduction of non-visible VIP defects
- Vacuum check on site is possible

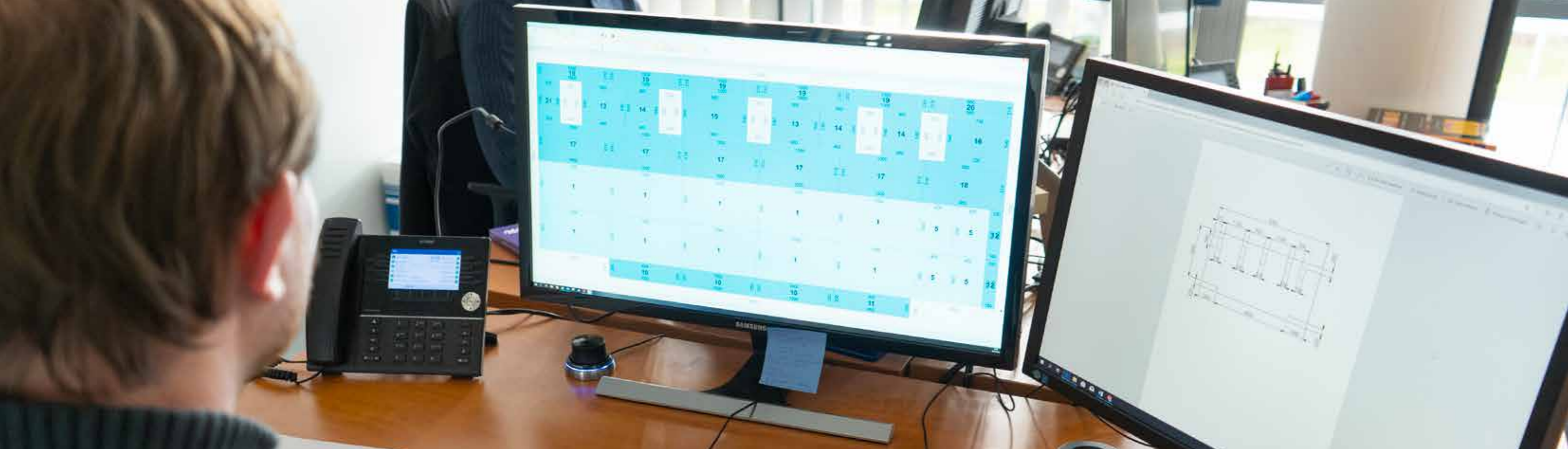


va-Q-tec is specialized in the development and manufacture of high-quality products for thermal insulation. The company offers its customers profound thermal consulting to achieve the best solution for your requirements. va-Q-tec's experts employ the most up-to-date software in predicting, analyzing and assessing the thermal performance of all products. In this way, they can give customers precise recommendations as to which products are most suitable for a specific application.

As a special service, the company offers complimentary consulting at the construction site or on company premises. This results in individualized solutions for each project designed jointly with the customers. They additionally receive valuable tips for the installation of VIPs.





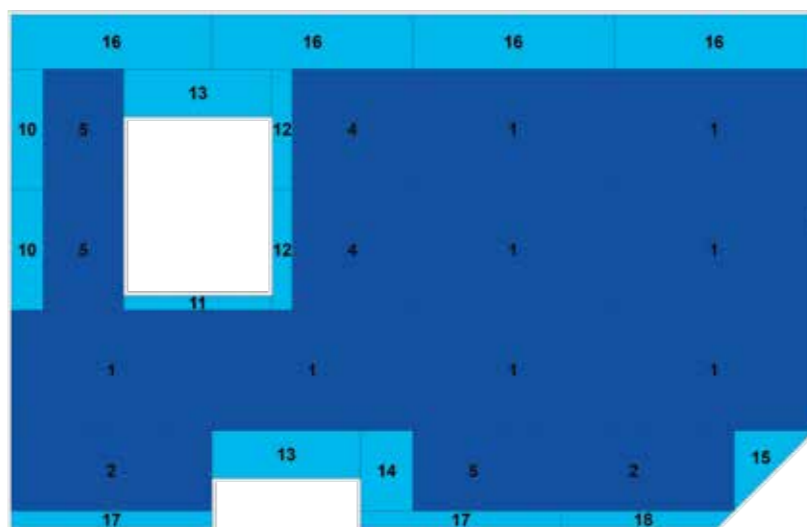


## va-Q-plan System

## U-value calculator

Every project is different, and va-Q-tec assists in the planning of each one. Immediately following placement of the order, the va-Q-plan software is used to create a VIP installation plan for the individual surface to be insulated.

In this process, seven standard formats are preferentially used in order to reduce costs and delivery times as much as possible. In areas where standard-format installation is not possible, special formats are used. With these options, virtually 100% of the surface area can be installed with VIPs. These panels are of course assigned position numbers corresponding to the plan for fast and easy laying. An easy-to-understand list of all parts is also included.



■ Standard dimensions    ■ Special formats

The heat transfer coefficient “U-value” represents the heat transfer through a material as a function of the temperature gradient between the warm and the cold side. The U-value calculator can be used to estimate the heat loss with one or several insulating materials. The unit of the U-value is  $W/(m^2 \cdot K)$  (watts per square meter and per Kelvin) and indicates the heat flow through an area of one square meter with a temperature difference of one Kelvin (= 1°C). The higher the U-value, the worse the insulation effect, the lower the U-value, the better the insulation effect.

Material	Thickness (mm)	U (W/m <sup>2</sup> K)	Total
Material	Thickness	U (W/m <sup>2</sup> K)	Thickness (mm)
Material	Thickness	U (W/m <sup>2</sup> K)	U Value (W/m <sup>2</sup> K)
Material	Thickness	U (W/m <sup>2</sup> K)	U Value (W/m <sup>2</sup> K)
Material	Thickness	U (W/m <sup>2</sup> K)	U Value (W/m <sup>2</sup> K)
Material	Thickness	U (W/m <sup>2</sup> K)	U Value (W/m <sup>2</sup> K)
Material	Thickness	U (W/m <sup>2</sup> K)	U Value (W/m <sup>2</sup> K)

The U-value calculator is for guidance. Heat transfer resistances of the air are not considered.

To learn more about U-value or to calculate your required performance visit: [www.va-q-tec.com/en/u-value-calculator/](http://www.va-q-tec.com/en/u-value-calculator/)





## Inventory and logistics

va-Q-tec offers an extensive stock of VIPs. In the modern and efficient warehouse, a large number of different formats and material thicknesses are available.

The complete va-Q-vip Floor System including insulation board pure PIR NE50 in different versions, rubber sheets, 1-K PU adhesive foam and aluminum tapes is also included in the stock.

This inventory permits orders to be processed and delivered to the desired location within a very short time.



## Special variants

va-Q-tec is the only VIP manufacturer in the world that can produce vacuum panels in a wide variety of two- and three-dimensional shapes. 3D shapes, VIPs with folds, panels with recesses, corner sections or perforations, cylindrical or round - all va-Q-tec panels are tailor-made and adapted to individual needs.

Moreover, cover layers in form of rubber sheets, XPS, PU and EPS are available for building panels; these offer additional protection for the VIP and facilitate the assembly process.





## German building approval and ETA

The vacuum insulation panels are approved under approval number Z-23.11-1658 (va-Q-vip B and va-Q-vip F) and ETA-17/0926 (va-Q-vip F) by the "Deutsches Institut für Bautechnik".

The thermal insulation values of va-Q-vip B and F were measured at 0.007 W/mK for panels 20 mm thick and above. This value already includes ageing and for the thermal bridge effect at the edge joint.

From the very start, a key factor in the positive assessment of va-Q-tec products has been the sophisticated va-Q-tec AG quality system, which is unique in the world. Among other features, it provides the option of precise monitoring at the installation site.

The va-Q-vip B and F vacuum insulation panels meet the requirements of "Baustoffklasse" B2 as defined in DIN 4102-1. The application areas as defined in the standard DIN 4108-10 are DAD, DAA, DZ, DI, DEO, WAB, WH and WI.

The Ü-label issued by "Forschungsinstitut für Wärmeschutz" (FIW) in Munich certifies that the va-Q-vip B and F building products meet the specifications for general building approval.

Production control is regularly carried out both in-house and by the FIW. In this way, va-Q-tec has earned the right to for its va-Q-vip B and F products to feature the Ü-label. This means that a vacuum insulation product with outstanding insulating qualities and proven processing technology is available to the new construction and renovation sector.

Supplemented by the practical experience of our partner companies in planning and execution, these vacuum insulation panels enable officially approved construction designs.



Vacuum insulation panels (VIPs) must always be handled with care. When processing products va-Q-vip B and va-Q-vip F (as well as GGM, EPS and XPS), please observe the following points:

- It is essential that the VIPs are not mechanically damaged. Sawing, drilling and scratching must absolutely be avoided. Prior to laying the panels, they must be visually inspected for any damage. Defective panels must be replaced.
- The surface onto which the VIPs are to be laid must be smooth, even and free of edges and burrs.
- For constructions involving VIPs, care must be taken that these are only subjected to even, flat pressure load. Point loads as well as tensile and shear loads must be avoided.
- VIPs can be glued with products such as 2K polyurethane adhesive, hot melt glue or dispersion adhesive. Care must be taken that the adhesive is kept free from substances containing alkaline, cement or solvents. Tested products include Sikaflex® 111 Stick & Seal (va-Q-vip, va-Q-vip F, va-Q-vip EPS, va-Q-vip XPS), SikaBond® TF plus N (va-Q-vip, va-Q-vip F, va-Q-vip GGM, va-Q-vip B) and puren PU adhesive foam (va-Q-vip Floor)
- The VIPs must not be exposed to high temperatures, high humidity and/or aggressive gases during either storage or application. Permanent moisture higher than 60% relative humidity and temperatures above 80°C should be avoided.
- When laying the panels, it is important to ensure that no moisture from rain or other sources penetrates into the area of the panels.
- va-Q-vip B/F must be processed only by trained personnel. In particular, processing instructions must be adjusted to the individual situation.
- The insulation construction is to be carried out in such a way that the ventilation of individual VIPs does not lead to technical failure of the entire system.
- For floor applications, avoid walking directly on the panels.
- To compensate for dimensional tolerances, an installation gap of 10-20 mm on all sides with adjoining components is recommended. These can be compensated with conventional insulation materials.
- We are happy to provide further assistance in the case of any doubt or additional questions.





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