




WE SOLVE THERMAL CHALLENGES



# Laboratory Devices

More Value & Efficiency through Vacuum Insulation Panels

A wide-angle photograph of a modern laboratory. The room is brightly lit with recessed ceiling lights. In the foreground, there are white laboratory benches with various glassware and equipment. In the background, there are large white cabinets, possibly for storage or as part of a larger system. The overall atmosphere is clean and professional.

## Highly Efficient Vacuum Insulation Panels for thermal insulation of laboratory devices

- Higher energy efficiency with optimal use of space
- Better device performance even at extreme temperatures
- Customized solutions for many applications
- Full flexibility through individual (3D) shaping
- Technology and manufacturing “Made in Germany”

# About va-Q-tec

va-Q-tec AG is a medium-sized high-tech company. Since the company was founded in 2001, its **energy-efficient, space-saving and environmentally friendly Vacuum Insulation Panels (VIPs)** are the key technology used in all innovative insulation solutions. va-Q-tec also develops and sells other products such

as **high-performance thermal packaging** and air freight containers as well as **hot and cold storage elements (PCMs)**.

va-Q-tec's efficient technology saves valuable energy in areas that are used everyday such as refrigerators and freezers, buildings, technics and industry, automobiles and aircrafts, and for the temperature controlled transport of pharmaceutical products.

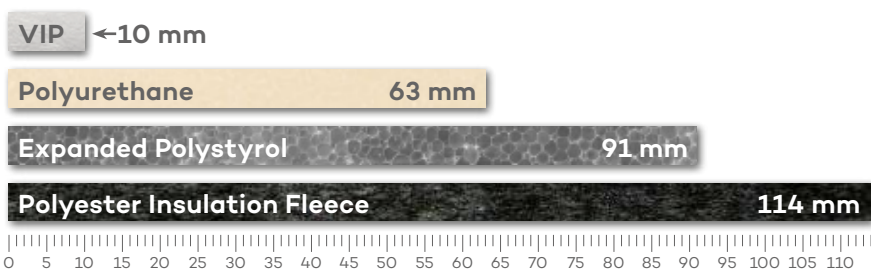


## Our Technology

The applications of va-Q-tec's insulation technology are very diverse. Vacuum Insulation Panels make it possible to keep cold and warm temperatures constant, save space and reduce energy consumption significantly. This creates **more usable space, increases the performance of equipment and reduces the overall costs.**



**Comparison of insulation material thickness at a U-value of  $0.35\text{W}/(\text{m}^2\cdot\text{K})$ :**



# Advantages at a Glance

**Various core materials**  
for customer specific product requirements:

- Silica powder
- Silica board
- Glass fiber
- Polyurethane

**Various film materials**  
with optimized properties for different applications:

- Metallized
- Aluminium
- Hybrid
- Special films

**va-Q-check®**  
to verify the insulation performance  
= 100% outgoing goods inspection



**Barcode label**  
for clear identification  
and traceability

**Optimized production processes**  
allow unique flexibility  
and various forms of VIPs



Vacuum Insulation Panels transfer the insulation principle of a cylindrical thermos flask to flat panels. They are five to **ten times more efficient than conventional insulation materials** offering flexible solutions and solving difficult thermal challenges.



**Super insulation with ultra-thin thickness**



**Outstanding cost and energy efficiency**



**Ultra-high thermal insulation performance**



**More available volume due to low insulation thickness**



**Long lasting product**

**MADE IN GERMANY**

**Highest production standards**



# Our Products

## va-Q-plus®



- Excellent cost-performance ratio
- Great flexibility and ideal for combination with PU foam
- Best insulation performance for silica VIPs

## va-Q-vip®



- Rectangular edges and constant thickness along the entire surface
- No foil overlaps due to the patented va-Q-seam® technology minimizing thermal bridges

## va-Q-pro®



- Highest flexibility in shape and design (3D panel, cut-outs, foldable shapes, etc.)
- Most advanced VIP for demanding installation applications
- Best insulation performance for silica VIPs

## va-Q-steel®



- Withstands extremely low and high temperatures (liquid gas to high temperature ovens)
- All materials used are non-flammable (fire protection class A)
- Tests show almost no aging effect due to extremely low air and water vapor permeability

## Technical Specifications

	va-Q-plus®	va-Q-vip®	va-Q-pro®	va-Q-steel®
Available sizes	Max. 1,950 x 1,000 mm Min. 250 x 170 mm Thickness: 5 - 35 mm	Max. 1,000 x 600 mm Min. 100 x 100 mm Thickness: 5 - 60 mm	Max. 1,800 x 1,020 mm Min. 150 x 150 mm Thickness: 4 - 16 mm	Max. 1,000 x 500 mm Min. 100 x 100 mm Thickness: 5 - 20 mm
Density according to DIN EN 1602 [kg/m³]	160 - 230	180 - 210 (Thickness > 20 mm) 180 - 250 (Thickness ≤ 20 mm)	165 - 230	300 - 420
Temperature range	Cryogenic range and up to: +100 °C short-term +130 °C	Cryogenic range and up to: +100 °C short-term +130 °C	Cryogenic range and up to: +100 °C short-term +130 °C	Up to: -196 °C to +400 °C
Thermal conductivity according to DIN EN12667	$\lambda_{(10\text{ °C})}$ : 0.0035 W/mK	$\lambda_{(10\text{ °C})}$ : 0.005 W/mK	$\lambda_{(10\text{ °C})}$ : 0.0035 W/mK	$\lambda_{(10\text{ °C})}$ : <0.005 W/mK $\lambda_{(200\text{ °C})}$ : <0.008 W/mK
Possible geometries	Rectangular shapes Corner cut-offs Cylindrical	Rectangular shapes Trapezoids Triangles Corner cut-offs	Flat freeform Three-dimensional shapes Foldable shapes Cutouts	Rectangular shapes Trapezoids Polygons Corner cut-offs

If you need other sizes or technical features, please contact us. Our Thermal Engineering Center will provide an individualized solution for you.

Provided technical data are average values which may differ due to actual usage conditions. Please contact us for further details.

# Technical Information

The Vacuum Insulation Panels from va-Q-tec are vacuumed, microporous insulation materials mostly based on fumed silica in pressed or powder form. They are manufactured in **highly sophisticated production processes** "Made in Germany." In addition to the flat standard shapes, which can be joined almost seamlessly using the patented va-Q-seam® technology, three-dimensional shapes, foldable variants, shapes with cut-outs, and other configurations are available. A **wide variety of (3D) shapes** can also be individually customized upon a customer's request.

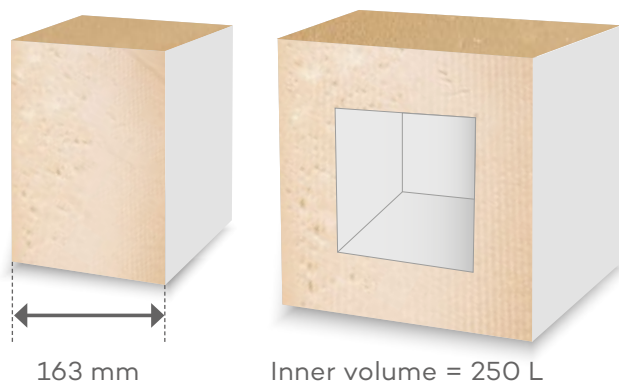
***By using the core material silica, our VIPs have an up to 20 times longer durability than panels with comparable core materials, such as fiberglass.***

The high barrier films used in these panels offer enormous advantages in terms of their technical properties. Thus, they show **excellent performance over time**.

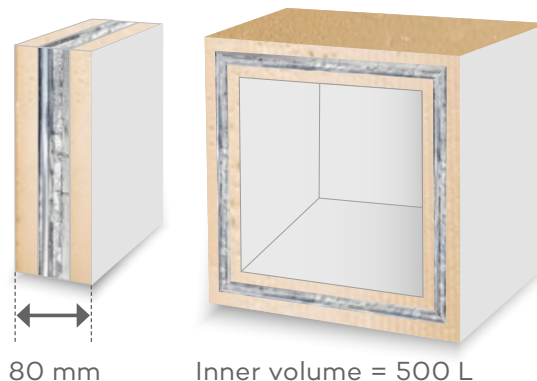
## Comparison of Conventional Insulation (PU) to VIP

With identical external dimensions and insulation performance

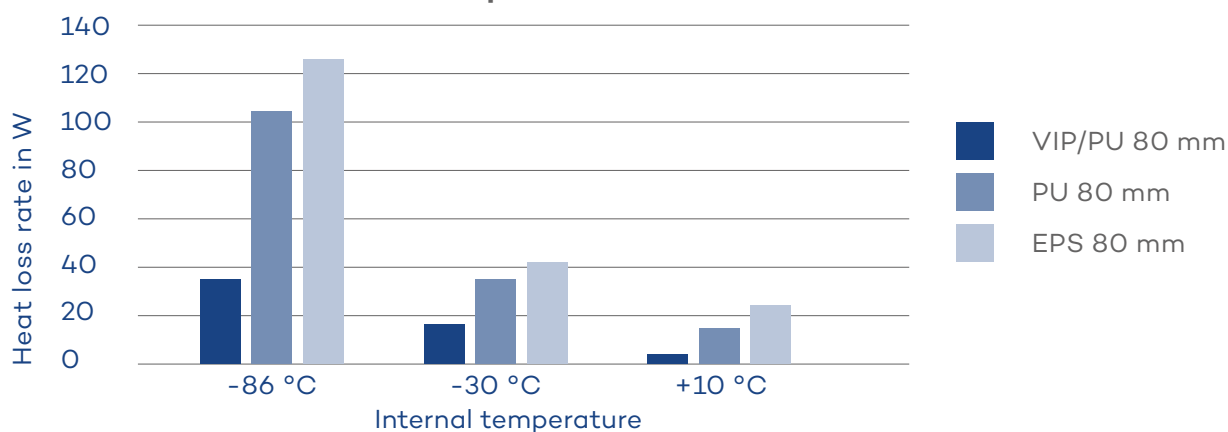
### Conventional Insulation



### VIP/PU Insulation



## Heat losses at an outside temperature of 22 °C with identical dimensions



## Succes Story BINDER GmbH

### About BINDER

BINDER is the leading specialist for simulation chambers for scientific and industrial laboratories. Several thousand of these appliances leave the plant in Tuttlingen each year. The brand image is characterized by cutting-edge technology, innovations, and absolute precision.

### Challenge

The continuous internal temperature of approx. -86 °C in ultra-low temperature freezers demands a high energy input. Standard insulation materials are thick and either take away valuable internal space or increase the overall volume.

### Solution

The usage of VIPs on all six sides allows **thinner walls** while **reducing energy consumption**. In addition, there is no condensation on the outer casing.



***„In other industries, such as the pharmaceutical industry, customers like F. Hoffmann-La Roche AG and kohlpharma GmbH also rely on our key technology!“***

Tobias Bock, Head of Business Unit Technics & Industry

### Specific Advantages for Different Device Classes

Advantages	Ultra Low Temperature Freezers (ULTFs)	Cooling Devices	Incubators	Climate Chambers	Measuring Devices
Performance gain	✓✓	✓	✓	✓✓	✓
Energy efficiency improvement	✓✓	✓✓	✓	✓✓	✓
Usable volume improvement	✓✓	✓	✓✓	✓	✓✓
Condensation reduction	✓✓	✓	N/A	✓	○
Temperature change rate	N/A	N/A	✓	✓✓	✓
Precision improvement	✓✓	✓	✓✓	✓	✓✓
Reduction of total costs	✓✓	✓	✓	✓	○

# Our Support & Quality Management

## Our Support for You

In order to develop and implement the best solution for our customers, we support them from the initial project inquiry to the implementation and monitoring of the series production. For this purpose, we have bundled our years of know-how in our **Thermal Engineering Center (TEC)** that supports our customers in every development phase.



## Our Quality Management

We have implemented a **comprehensive quality management system** to provide our customers with optimum quality at all times. This extends from the selection of components and their validation to the **continuous monitoring** of our manufacturing processes and their documentation. All products are subject to a strict outgoing goods inspection which checks the full thermal insulation performance of the VIPs. To validly and sustainably meet the requirements of a market segment, the components used are explicitly selected for this purpose and our products undergo **realistic and continuous tests**.



Each Vacuum Insulation Panel is tested before shipment using the unique and patented va-Q-check®-system -> **100% outgoing goods inspection**. During this process, the internal pressure of the VIP is checked within seconds to warrant the thermal insulation performance of each Vacuum Insulation Panel.





## Global contacts:

### va-Q-tec AG

Global Headquarters

Alfred-Nobel-Str. 33  
97080 Wuerzburg  
Germany

Tel. +49 931 35 942 0

info@va-Q-tec.com

### va-Q-tec Switzerland AG

c/o PKF Consulting AG  
Lavaterstr. 40  
8002 Zuerich  
Switzerland

Tel. +41 79 620 30 62

switzerland@va-Q-tec.com

### va-Q-tec UK Ltd.

105 Laker Road  
Rochester Airport  
Industrial Estate  
Rochester, Kent. ME1 3QX  
United Kingdom

Tel. +44 1634 86 86 18

uk@va-Q-tec.com

### va-Q-tec USA Inc.

2221 Cabot Blvd W  
Langhorne, PA 19047  
United States of America

Tel. +1 267 512 69 13

usa@va-Q-tec.com

### va-Q-tec Uruguay S.A.

Zonamerica  
Business & Technology Park  
Depositos 336-337  
Ruta 8 Km 17.500 CP 91600  
Montevideo  
Uruguay

Tel. +598 251 829 97

latin.america@va-Q-tec.com

### va-Q-tec Korea Ltd.

13-52, Bukhangro  
120beon-gil, Seo-gu  
Incheon 22853  
South Korea

Tel. +82 32 573 33 36

korea@va-Q-tec.com

### va-Q-tec Japan G.K.

5-13-1 Toranomom  
Minatoku  
7F Toranomom  
40MT building  
Tokyo 105-0001  
Japan

Tel. +81 3 4530 96 80

japan@va-Q-tec.com

### va-Q-tec SG Pte Ltd.

5 Changi North Street 1  
#03-01  
Singapore 498766  
Republic of Singapore

Tel. +65 6817 67 67

singapore@va-Q-tec.com

For questions or appointment requests,  
please contact our experts at:  
[technics@va-Q-tec.com](mailto:technics@va-Q-tec.com)

or directly book a consultation appointment:

