

An astronaut in a white spacesuit is floating in space, with a curved metallic structure in the foreground and a starry background. The astronaut's helmet and visor are visible on the left side of the frame.

# VIP plus

The flexible vacuum insulation panel

A



## Greiner PURTEC

Greiner PURTEC sets and raises the standards of insulation for warm water tanks. We focus on the requirements of the customers. We still set great store by emphasizing Research and Development activities, testing and patenting new products with better insulation properties. In an era of high energy costs and worldwide issues such as global warming, insulation is becoming more and more important. In order to contribute, we always focus on our customer's needs and new innovative technologies.

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# VIP plus

With VIP plus, we can present an innovative technology to drastically increase the energy efficiency of heating systems, especially hot water storage tanks, with little effort. It is a flexible vacuum insulation panel with exceptionally low thermal conductivity.

This means that small and medium-sized hot water storage tanks, which are foamed directly with PU foam, can be easily upgraded and heat losses can be reduced by up to 50% without significantly changing existing processes.

The superinsulating panel consists of a pyrogenic silica core and is encased in a gas and water vapor-tight composite foil. A self-adhesive mounting film allows easy attachment to the tank.

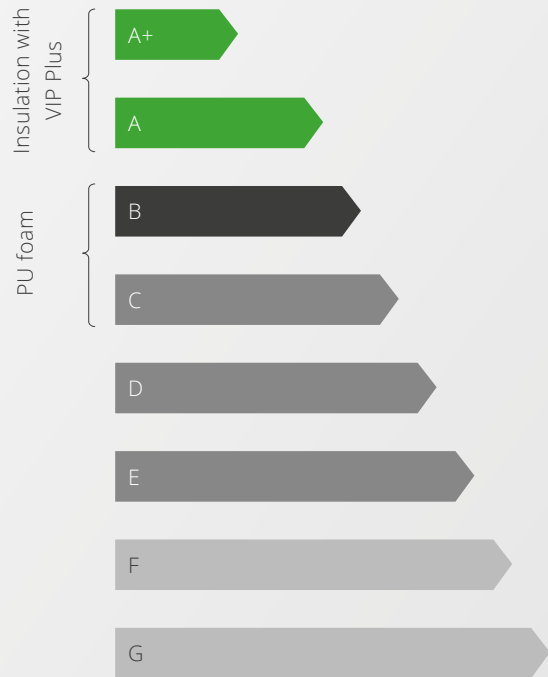


## Why VIP plus

- 1 Highest energy efficiency.  
Exceptionally low thermal conductivity with 0.004 W / mK.
- 2 Simple application.  
No adjustment of your production processes needed.
- 3 Top quality.  
Long life and high efficiency.
- 4 We love our planet and set a sign.  
Environmentally friendly and without harmful substances.
- 5 Easy handling and fast installation.  
Due to self-adhesive film.

## Energy efficiency classes

VIP plus in combination with a conventional PU foam coating makes up to two energy efficiency classes. This means that when foam reaches class C, class A can be achieved with VIP plus.



GRAPH: Energy efficiency classes comparison

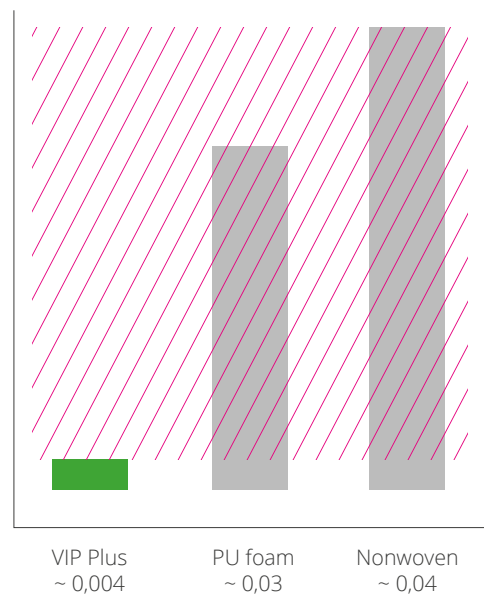
VIP plus significantly increases the energy efficiency of your products.

## Properties of the heat insulation

Vacuum insulation panels are characterized by their exceptionally low thermal conductivity of  $<0.004$  W/mK, which is 10 (!) times lower than conventional insulation materials. This low thermal conductivity can also be guaranteed over a lifetime of more than 15 years.

GRAPH: Comparison of insulating properties (W/mK)

The thermal conductivity of VIP plus is 10 times!



## Space technology by VIP plus

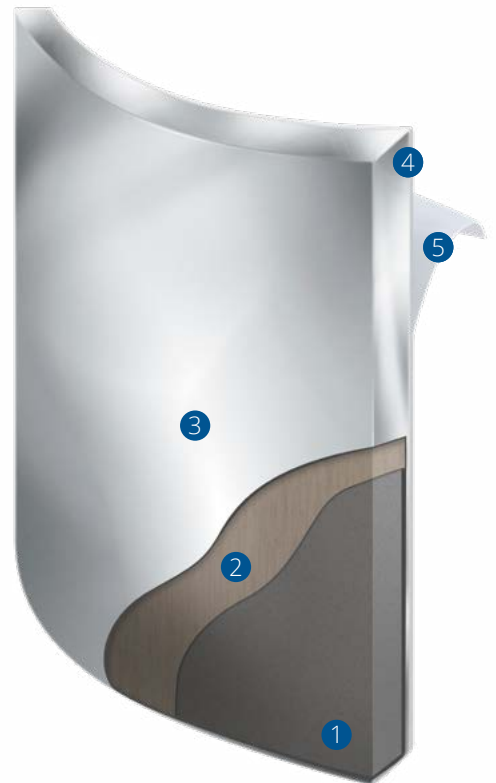
In contrast to conventional insulation or thermal insulation systems, we do not set to large wall thickness, but on reduced thermal conductivity. This is achieved by the vacuum technology, in which an extremely low gas pressure is generated and thus almost no heat transport takes place. For this function to last, the core material consists of silicic acid, which absorbs virtually no gas.

Opacifying to minimize infrared radiation and cellulose fibers to improve mechanical stability complete the core. This is wrapped in a special process with a gas and water vapor-tight plastic composite film, evacuated and sealed.



## Description

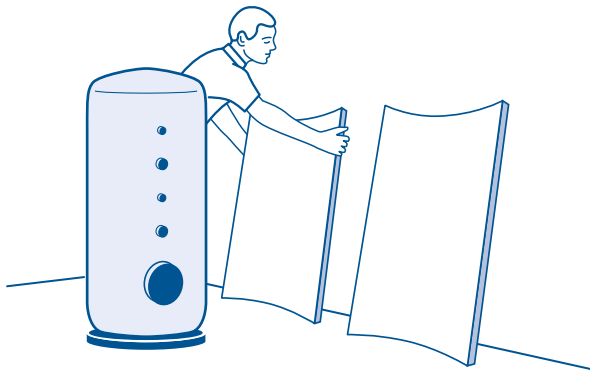
- 1 Silica core.
- 2 Non-woven coating.
- 3 Gas- and water vapor-tight composite foil.
- 4 PE foam as protection of the panel.
- 5 Self-adhesive film for installation.



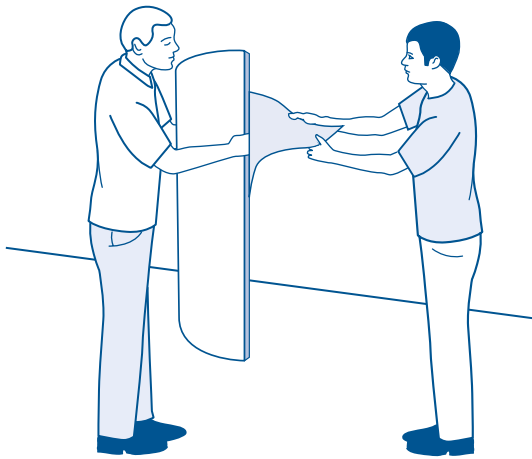
## 4 easy steps

Following four easy steps, one or two technicians can install the panels on a tank in just a few minutes and prepare them for foaming

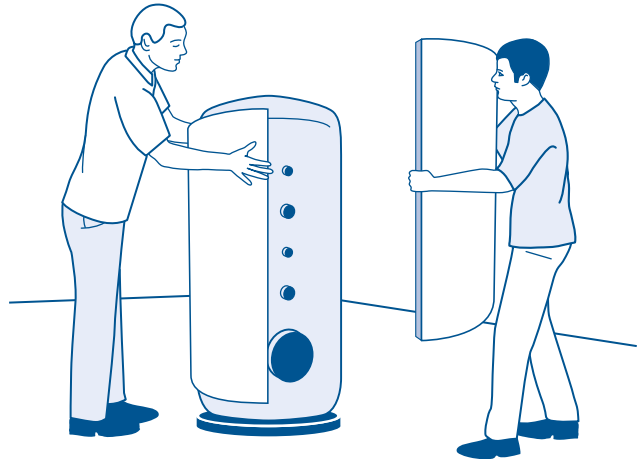
- 1 Prepare panels
- 2 Remove protection of the adhesive film
- 3 Press on panels
- 4 Foam tank and panels



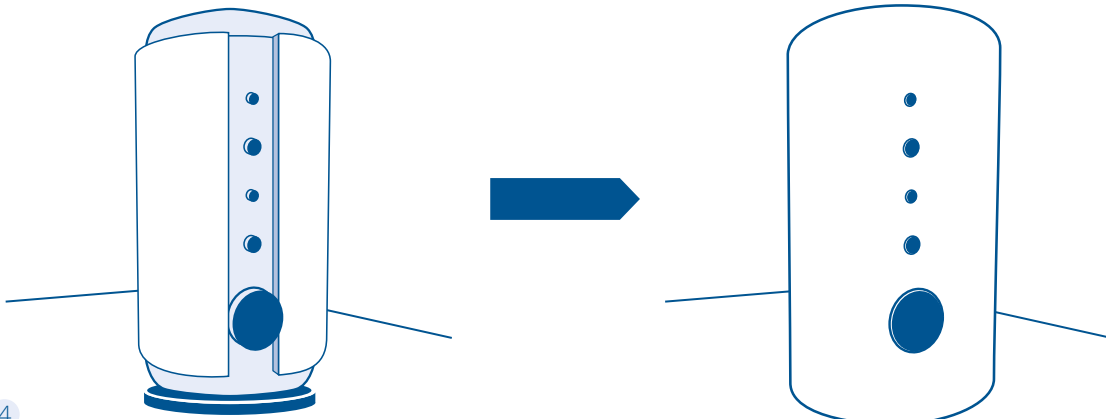
1



2



3



4

## Sustainability, ecology

Due to the low thermal conductivity, the use of VIP plus saves energy and thus resources. And this in a previously unrealizable dimension.

The used materials of the panel are completely harmless: silicic acid is simply explained very fine sand, fleece and foil can be completely recycled.

Silica has high thermal stability, is non-flammable and chemically resistant. Microporous silica is free of organic binders, dust-free and physiologically harmless.

The longevity of VIP plus and the low volume (transport, storage) are the „sustainability addition“ of this forward-looking technology.

### Unique approach from the start

FCKW	free
HFCKW	free
HFKW	free
other halogen gases	free
HBCD	free
unwanted fire inhibitors	free
Isocyanat	free
environment protection	REACH conformal
water stress	harmless
pH	no influence
health influence	none
recyclability	100 %

## Easy to process

When using the panels are a few basic rules too note – then the use is not a problem!

### Basics

Keep the surface clean.

Do not enter with footwear.

Do not drill, screw or nail.

Do not saw or cut.

Protect from moisture and sunlight.

No direct flaming.





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