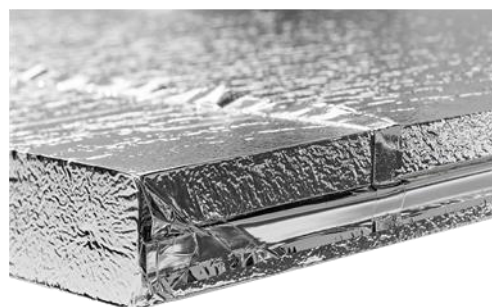


## Technical Data Sheet

### va-Q-vip



## Product Description

va-Q-vip is a microporous insulation material based on fumed silica powder. va-Q-vip elements are unique because of their rectangular edges and corners (va-Q-seam) whereas individual elements can be joined together almost seamlessly. In general rectangular panels are produced but various shapes (trapeze, triangle, corner section) are possible on request. The powdered core material ensures the outstanding insulation ability for the entire service life of the product. The typical fields of application are hot water tanks, logistics (cool boxes, etc.) and the automotive sector.

## Features

- **Enhanced usable room area due to thinner insulation material**
- **Smooth edges and no foil overlaps due to patented va-Q-seam technology**
- **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)

## Properties

<b>Thermal conductivity - initial value @ 10 °C*</b>	≤ 0.0050 W/(m·K) (at delivery) according to DIN EN 12667
<b>Thermal conductivity ventilated @ 10 °C*</b>	0.020 W/(m·K)
<b>U-Value - initial value @ 10°C*</b>	0.25 W/(m <sup>2</sup> ·K) (thickness = 20 mm)
<b>Internal gas pressure @ 20 °C</b>	≤ 5 mbar (at delivery)
<b>Density</b>	180 – 210 kg/m <sup>3</sup> (thickness > 20 mm) according to DIN EN 1602 180 – 250 kg/m <sup>3</sup> (thickness ≤ 20 mm) according to DIN EN 1602
<b>Area density</b>	3.5 – 5 kg/m <sup>2</sup> (thickness = 20 mm)
<b>Temperature resistance</b>	-75 – 100 °C (temporary up to 130 °C)**
<b>Moisture resistance</b>	0 – 70 % rel. humidity (until 50 °C)
<b>Specific heat capacity</b>	0.8 – 1.0 kJ/(kg·K) (at room temperature)
<b>Lifetime</b>	Depending on usage, up to 60 years
<b>Available thickness</b>	5 – 60 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.

\*\*lower and higher application temperatures are possible on request. Please contact us for details.

## Testing standards

Our va-Q-vip panels are subjected to the according to internal test methods to confirm their exceptional properties:

- Accelerated aging tests at 50 °C, 70 % relative humidity and 80 °C (dry)
- Thermal conductivity measurements  $\lambda(T)$ ,  $\lambda(p)$  according to DIN EN 12667
- Long-time monitoring at room conditions  $p(t)$ ,  $\lambda(t)$
- Measurement of the length- and point-related heat transition coefficient (thermal bridge effect,  $\Psi$ -value)

## Measures and tolerances

length l / width w in [mm]	thickness t in [mm]	tolerances: l/w/t in [mm]		
≤ 500	10 - 20	+2/-4	+2/-4	+1mm/-1mm
≤ 500	25 - 60			+5 %/-5 %
> 500 - 1000	10 - 20	+2/-5	+2/-5	+1mm/-1mm
> 500 - 1000	25 - 60			+5 %/-5 %

**Remark:** Please ask for preferred sizes and tolerances.

## Legal Notes/Disclaimer

The data presented in this technical data sheet are in accordance with the present state of our knowledge.

All numbers and features proposed in this data sheet (e.g. lifetime) were determined under test conditions in the laboratory and therefore represent a nonbinding and purely scientific value. There are no guarantees associated with. Only the respectively agreed warranty period and warranty rights apply.

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We reserve the right to change the product values and features. The respective current valid version of this technical data sheet applies and is published on our homepage.

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