

Data sheet

# VACUSPEED®

ENGLISH

## Modular vacuum insulation system ex stock.

### Description

**VACUSPEED® is a Microporous insulation material which has an extremely low thermal conductivity coefficient giving it very good insulating properties. VACUSPEED® consists of inorganic oxides. The main constituent is fumed silica, the other components are opacifiers for minimizing infrared radiation, and silicates.**

VACUSPEED® is approved by DIBT under the certification number Z-23.11-1662. The approval is valid for construction applications DAD, DZ, DI, DEO, WAB, WAA, WH, WTR and WI according to standard DIN 4108-10, and prefabricated façade panels with insulated glass character.

VACUSPEED® corresponds to the material class B2. The examination of fire behaviour according to DIN 4102-1, May 1998, building material B2; no test certificates H.3-145/07 and H.3-146/07, was issued by the Research Institute for heat protection in Munich.

The foil wrapping of VACUSPEED® is designed to form of a double-middle seam. This allows a good surface quality. As it has no side flaps so the panels can be assembled to form fit into a joint. The core material of VACUSPEED® is not flammable and is classified A1 according to DIN ISO EN 13501-1.

VACUSPEED® is heat sealed in a multilayer vacuum metalised film. The very low internal pressure and the microporous panel core enable it to reach extremely low thermal conductivity values.

### Application

VACUSPEED® was specially developed for applications in vacuum insulation technology. The low density and the specially developed IR opacifiers contained in these grades greatly reduce the thermal conductivity of VACUSPEED® systems.

VACUSPEED® is a version of our well-known vacuum insulation product line: VACUPOR®.

The new VACUSPEED® system was developed to better meet the specific requirements of the building practice. With the smart VACUSPEED® modular system, consisting of seven standardised panel sizes, various surface geometries can be insulated faster and in a more effective way.

## Typical applications

VACUSPEED® is successfully used as insulation material in the following areas:

- Floor insulation
- Terrace insulation
- Flat roof insulation
- Cold storage floor insulation

## Form of delivery

### Standard sizes:

- 1200 mm x 1000 mm
- 1200 mm x 500 mm
- 1000 mm x 600 mm
- 1000 mm x 300 mm
- 600 mm x 500 mm
- 600 mm x 250 mm
- 300 mm x 250 mm

### Standard thicknesses:

- 20 mm, 30 mm and 40mm

## Restrictions on applications

The metallized, multilayer plastic film of the VACUSPEED® must not be damaged by drilling, cutting, milling, nailing, otherwise the internal pressure of the panel will rise and the special properties of the panel will be lost.

## Shelf life

VACUSPEED® has a very long shelf life. Please refer to the pressure rise table: Thermal conductivity as a function of interior pressure.

## Safety directions

VACUSPEED® is not a hazardous substance according to the EU directive 2006/1907/EEC.

Please refer to the material safety data sheet. VACUSPEED® does not use any dangerous decomposition products and according to current knowledge, it does not cause any problems to human health or the environment.

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Physical Properties		
Colour		Silver
Density (kg/m <sup>3</sup> ) <sup>(1)</sup>		170-210
Thermal Conductivity at mean temperature of 22.5°C, (72.5°F) (W/m·K)	@ 1 mbar	≤0.005
	@ ambient pressure	≤0.019
Rated Value (W/m·K)		0.007
Temperature Resistance <sup>(3)</sup>		-50 < T < 120
Maximum Film Projection (mm)		150
Interior Pressure (mbar) <sup>(2)</sup>		≤5
Theoretical Pressure Rise, mbar		-1.0
Maximum Panel Dimensions		
	Length mm	150-1500
	Width mm	150-1000
	Thickness mm	20, 30, 40
Length Tolerances, mm		
	0 to 500	+1.0/-2.0
	501-1000	+1.0/-4.0
	> 1000	+1.0/-6.0
Thickness Tolerances, mm		
	<20	±1.0
	20 to 30	+1.0/-2.0
	>30	+1.0/-3.0
Thermal Shock Resistance	The core material of VACUSPEED® is insensitive to high and low temperature thermal shocks	

### Please note:

- (1) Dependent on board thickness
- (2) Dependent on the panel-size and -thickness, internal pressure can be between 0.5 – 5 mbar.  
The standard internal pressure in the evacuation chamber is < 0.5 mbar.
- (3) The limits are fixed by the barrier film (sealing material) used; constant load: ≤80°C (176°F); short load time with 120°C (248°F):

### Thermal conductivity

Thermal Conductivity as a function of internal pressure.

Gas Pressure (hPa)	U value (W/m <sup>2</sup> K)	(10 <sup>-3</sup> W/m·K)
<10-3	0.187	3.63
0.1	0.188	3.66
1.0	0.193	3.75
10	0.219	4.25
150	0.448	8.70
1000	0.943	18.30

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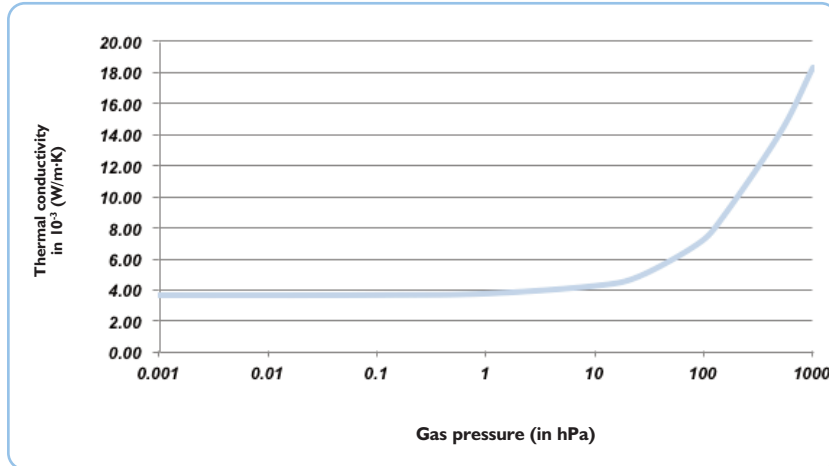
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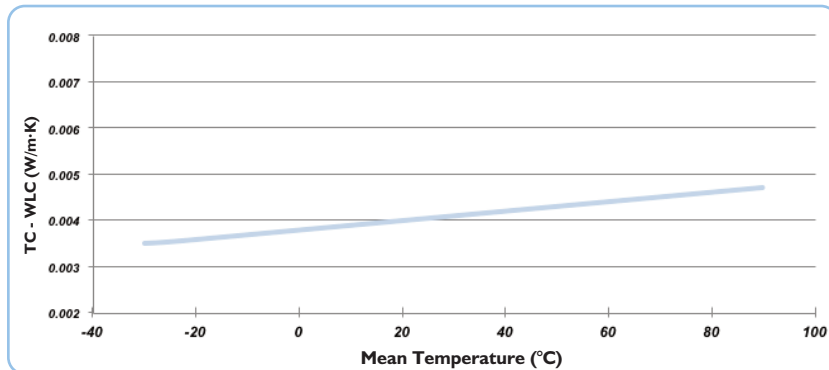
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Data sheet  
**VACUSPEED®**

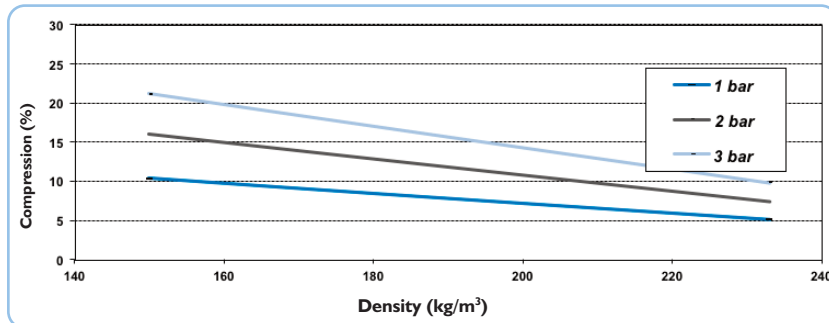
**Thermal Conduct as a function of internal pressure (DIN 52612)**



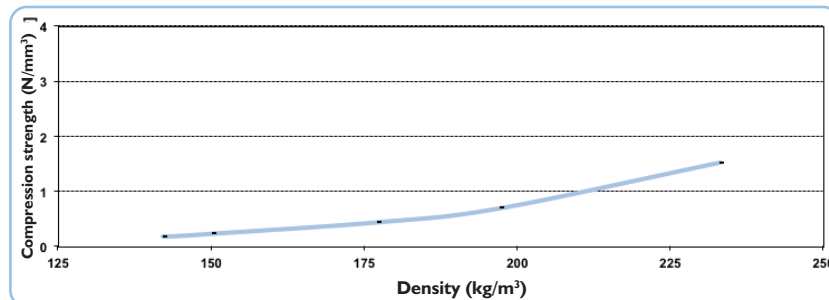
**Thermal Conductivity (Panel Core) DIN 52612**



**Compression Behaviour (Panel Core)**



**Low-temp. Compression Strength**



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