

**1 cm vacuum insulation  $\hat{=}$  5-8 cm standard insulation**

The Lambda value of 0,007 W/(mK)\* and the U<sub>p</sub>-value of up to 0,14 W/(m<sup>2</sup>K) speak for themselves.

\*as rated value - initial value 0,0043 W/(mK)

VARIOTEC panels  $\Rightarrow$  safety, quality, variety and service

## PRODUCT OVERVIEW for exterior and interior insulation

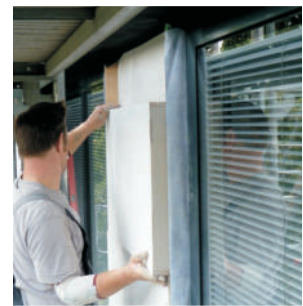
**Balcony, terrace,  
flat roof insulation**



**Façade insulation -  
B1/B2 Fire protection façade with approval**



**Window soffit  
Door or lintel encasing**



**Insulation for venetian  
blinds/roller shutter boxes**



**Ceiling/Internal wall insulation**



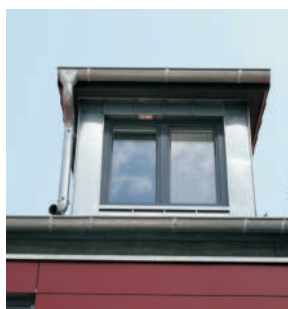
**Surface laying of  
unlaminated panels**



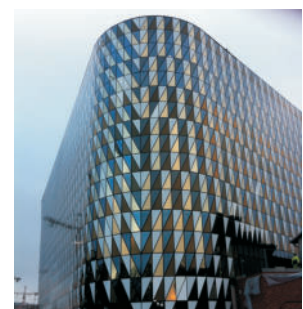
**Internal floor insulation**



**Dormer and bay insulation**



**Post and beam façade**



## General information of VIP/QASA insulation


The vacuum insulation elements from VARIOTEC **constitute an elegant solution to any insulation problem**. On areas where the „conventional“ insulation material is too thick convinces the vacuum insulation with **lower building height**.

The sandwich construction works with an insulation core of vacuum insulation panels (VIP) consisting of evacuated pyrogenic silica, an enclosed mat of fibres and a multilayer high barrier film. The cover layers are adapted to the **external and internal application areas**.

Because of this composition exists nearly no heat conduction. Thus the **extremely thin elements achieve very good insulation values**.

A **VIP insulation of 5 cm achieves an U-value of 0,14 W/(m<sup>2</sup>K) and equates to 25 cm of a conventional insulating material**.

General technical approval



**Deutsches Institut für Bautechnik**

Zulassungsstelle für Bauprodukte und Bauarten  
Bautechnisches Prüfamt

Eine vom Bund und den Ländern  
gemeinsam getragene Anstalt des  
öffentlichen Rechts

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Fax: +49 30 78730-320  
E-Mail: [dibt@dibt.de](mailto:dibt@dibt.de)  
[www.dibt.de](http://www.dibt.de)

**Allgemeine bauaufsichtliche Zulassung**

**Zulassungsnummer:**  
Z-23.11-1779

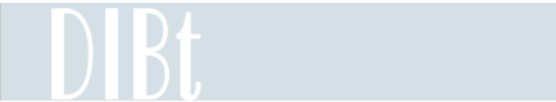
**Antragsteller:**  
Variotec Sandwichelemente GmbH & Co. KG  
Weißmarterstraße 3  
92318 Neumarkt/Oberpfalz

**Zulassungsgegenstand:**  
Vakuum-Wärmedämmplatten aus Kieselsäure  
"QASA-D" und "QASA-N"

**Beitragsschein:**  
vom: 16. November 2017  
bis: 16. November 2022

16.11.2017 III 12-1.23.11-612/17

Der oben genannte Zulassungsgegenstand wird hiermit allgemein bauaufsichtlich zugelassen.  
Diese allgemeine bauaufsichtliche Zulassung umfasst zehn Seiten.



DIBt | Kolonnenstraße 30 B | D-10229 Berlin | Tel.: +49 30 78730-0 | Fax: +49 30 78730-320 | E-Mail: [dibt@dibt.de](mailto:dibt@dibt.de) | [www.dibt.de](http://www.dibt.de)

European technical approval ETA-13/0493



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Eine vom Bund und den Ländern  
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[www.dibt.de](http://www.dibt.de)

**European Technical Approval ETA-13/0493**

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung <small>Trade name</small>	QASA	
Zulassungsinhaber <small>Holder of approval</small>	VARIOTEC GmbH & Co. KG Weißmarterstraße 3-5 92318 Neumarkt/Opf. DEUTSCHLAND	
Zulassungsgegenstand und Verwendungszweck <small>Generic type and use of construction product</small>	Vakuum Isolations Paneele (VIP) mit werkmäßig aufgetragenen Schutzschichten  Vacuum insulation panel (VIP) with factory applied protection layers	
Geltungsdauer: Validity:	vom from bis to	7 June 2013  7 June 2018
Herstellwerk <small>Manufacturing plant</small>	VARIOTEC GmbH & Co. KG Weißmarterstraße 3-5 92318 Neumarkt/Opf. GERMANY	

Diese Zulassung umfasst 8 Seiten  
This Approval contains 8 pages



Europäische Organisation für Technische Zulassungen  
European Organisation for Technical Approvals

## Approval from a VIP core thickness of 20 mm

## Technical information of VIP/QASA insulation

<b>Lambda value</b>	0,007 W/(mK) (as rated value) / 0,0063 W/(mK) acc. to European technical approval ETA-13/0493
<b>VIP core thicknesses</b>	10, 15, 20, 25, 30, 35, 40, 45, 50
<b>Edges</b>	All edges are protected with adhesive tape.
<b>Adjustable edges</b>	XPS/PUR insulation stripes to cut and fit the elements in the edge area, width of the insulation stripes subject to agreement
<b>Supporting core density</b>	190 - 220 kg/m <sup>3</sup>
<b>Supporting core material</b>	Pyrogenic silica with supporting fibres and infrared opacifier
<b>Specific heat capacity</b>	C = approx. 1kJ /(kg K)
<b>Fire behavior</b>	Normally inflammable (building material class DIN 4102-B2, flammable material class B1 deliverable with technical approval)
<b>Compressive stress</b>	At 10% shortening: $\sigma_{10\%} = 190$ kPa
<b>Internal pressure</b>	At the delivery of the panel < 7 mbar
<b>Calculated pressure increase</b>	Approx. 1 mbar / a
<b>Core tolerances</b>	Thickness +1 / -2 mm, length sizes $\pm 2$ mm
<b>Single element test</b>	Each vacuum insulation element will be checked twice with a quality test

## $U_p$ VIP core: (plus covering = total installation thickness)

Calculated values accord. to rated value 0,007 W/(mK)<sup>1</sup>

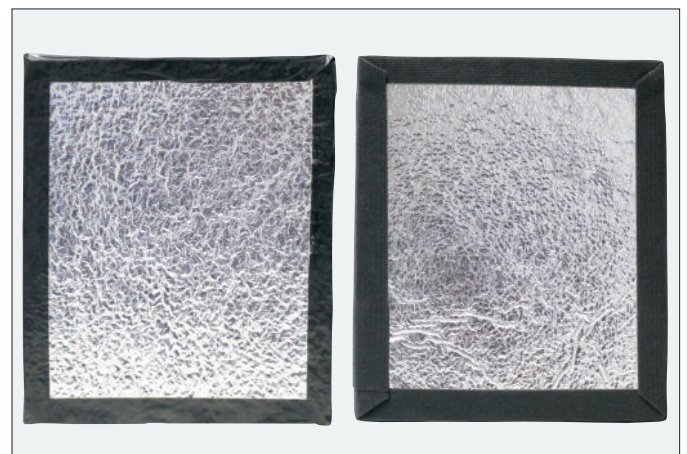
Technical approval number of the DIBt **Z-23.11-1779** national, general technical approval (AbZ).

The additional heat losses caused by thermal bridges in the edge area of the VIP panels are taken into consideration.

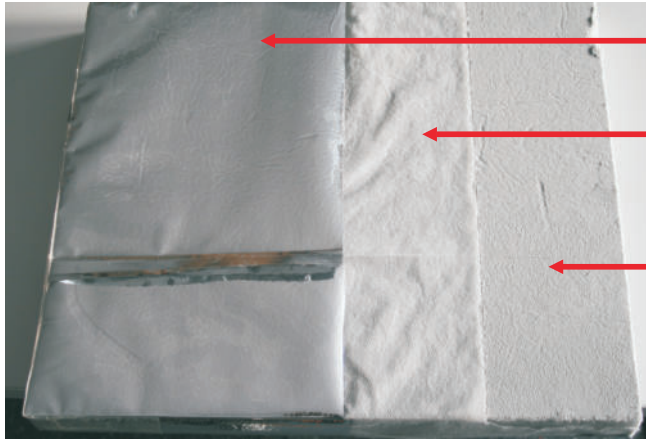
- \* 10 mm VIP core:  $U_p = 0,70$  W/(m<sup>2</sup>K)
- \* 15 mm VIP core:  $U_p = 0,47$  W/(m<sup>2</sup>K)
- 20 mm VIP core:  $U_p = 0,35$  W/(m<sup>2</sup>K)
- 25 mm VIP core:  $U_p = 0,28$  W/(m<sup>2</sup>K)
- 30 mm VIP core:  $U_p = 0,23$  W/(m<sup>2</sup>K)
- 35 mm VIP core:  $U_p = 0,20$  W/(m<sup>2</sup>K)
- 40 mm VIP core:  $U_p = 0,18$  W/(m<sup>2</sup>K)
- 50 mm VIP core:  $U_p = 0,14$  W/(m<sup>2</sup>K)

\* General technical approval from  
a VIP core thickness of 20 mm

<sup>1</sup> Rated value 0,007 W/(m<sup>2</sup>K) - initial value 0,0043 W/(m<sup>2</sup>K)



## Construction of a vacuum insulation panel: What is inside?

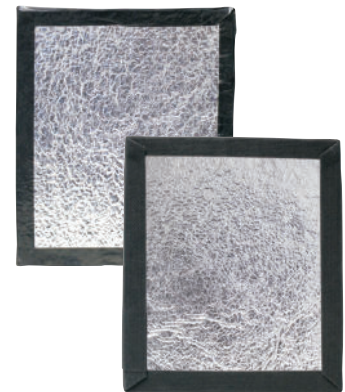


High-barrier film

Fleece cover  
 (dust protection for  
 the sealed seam)

Support core consisting of pyro-  
 generic silica with  
 neutral additives

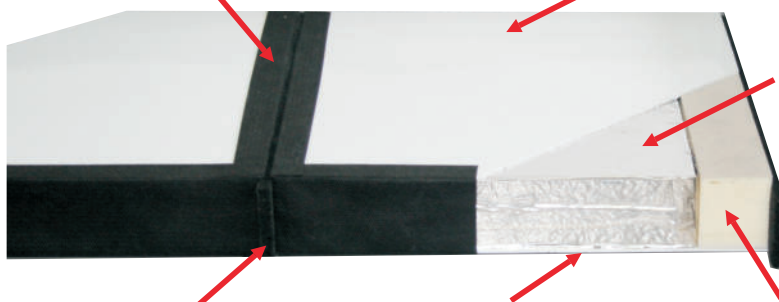
**Unlaminated panel VT-VIP blank (uncoated)  
 with technical approval Z. 23.11.1779**



## Construction of a VIP element laminated on both sides

adhesive tape on the panel joint above – humidity-resistant,  
 open to diffusion and UV durable

covering above e. g.  
 GFK, rubber, XPS



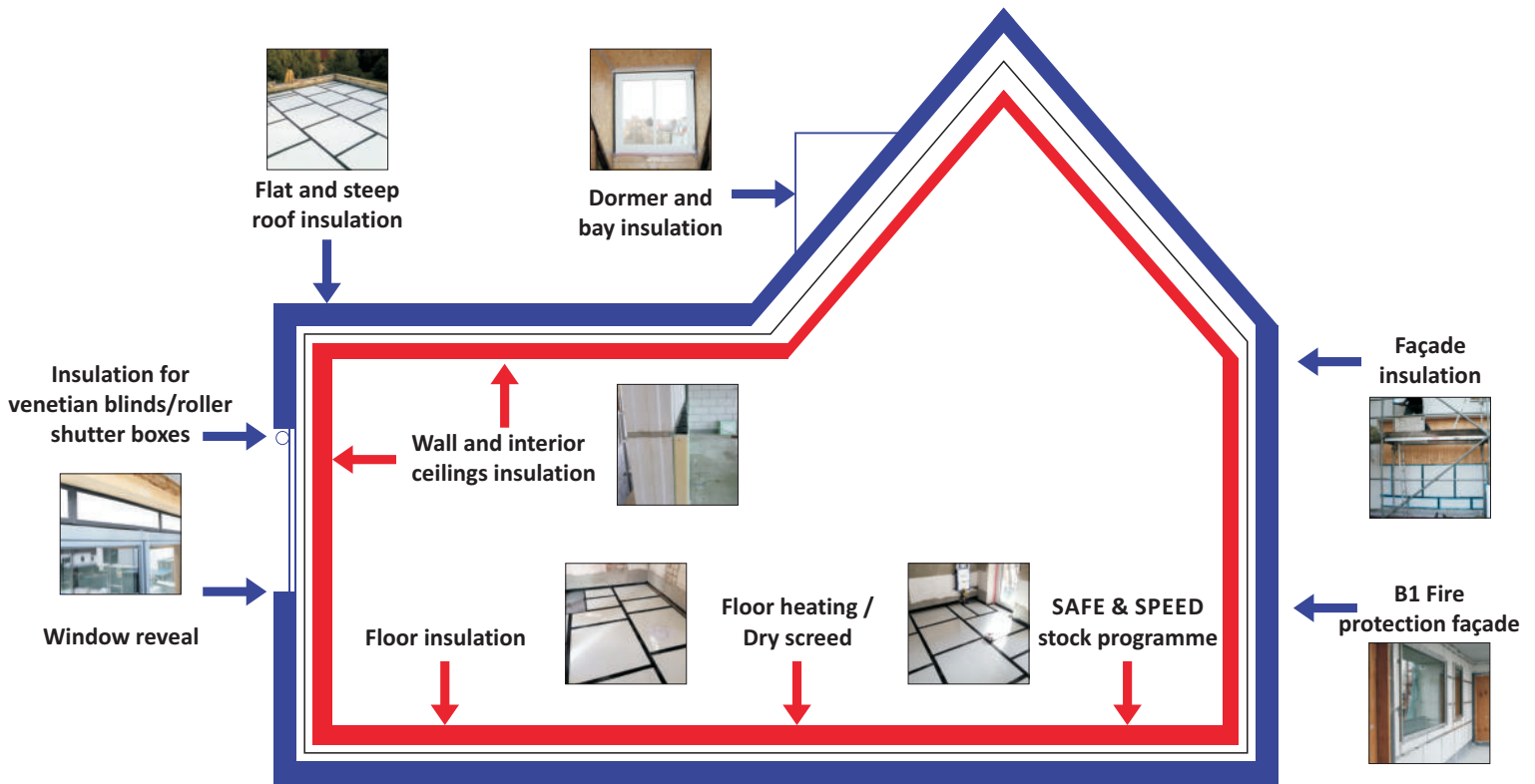
VIP (vacuum insulation panel)

compression tape for sealing  
 of the panel and wall joints

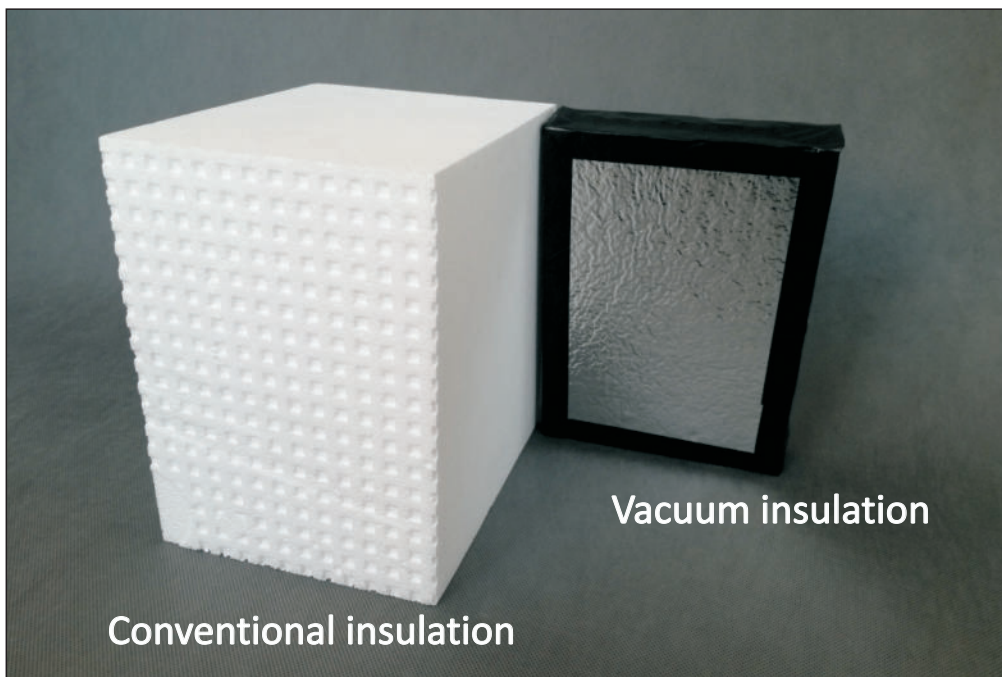
covering below e. g.  
 GFK, rubber, XPS

Cutting area with  
 PUR/XPS edge to adapt

## Operational areas of the VACUUM INSULATION



## Comparison of the insulation thickness of a VIP with conventional insulation

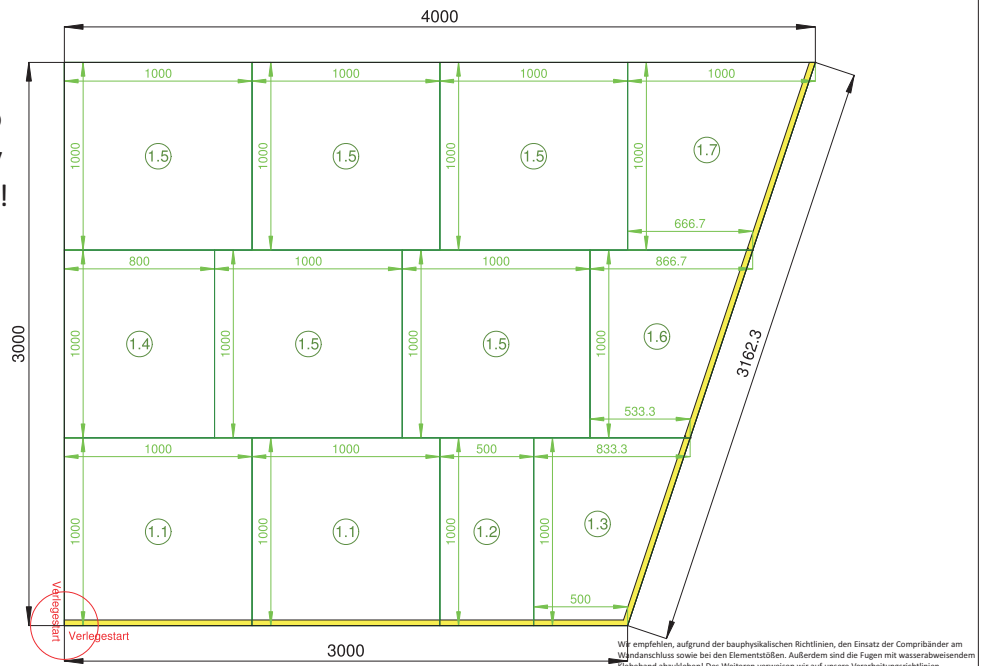


→ **Low construction heights** ↔ **high insulation effect** ←

## Layout drawings with numeration free of charge

**Free layout drawing with numbering!**

Delivered panels are also numbered, consequently an easy laying is possible!



**VT-I-B-GFK-XPS-5 für Nassestrich**

1,5 mm GFK  
20 mm VIP  
5 mm XPS

**Kantenschutz:**

4-seitig reißfestes Klebeband

2 Rollen „Compriband Wandanschluss“ - Wandanschluss  
2 Rollen „Compriband Elementstoß (innen Elemente)“ - innen Elemente

**Flächen:**

Gesamt 13,04 qm (ohne Mindestberechnungsfläche)  
VIP 12,83 qm  
Schaumanteil 0,017

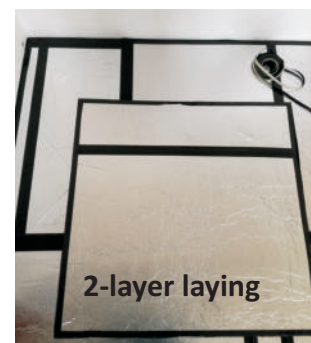
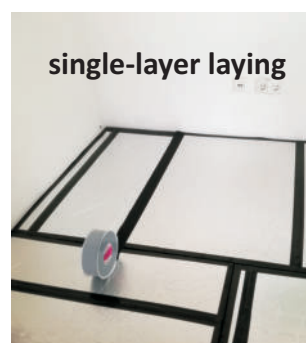
1000 x 500 mm

**Musterverlegeplan**

COM: 000000

Verlegeplan 01 (1)

gez. 00.00.2018 | X. Sutor



→ **Low construction heights** ↔ **high insulation effect** ←

## Product system overview VACUUM INSULATION

VIP core thickness / vacuum insulation **Lambda-value = 0,007 W/(mK):**

\***10 mm** VIP core:  $U_p = 0,70 \text{ W}/(\text{m}^2\text{K})$       **30 mm** VIP core:  $U_p = 0,23 \text{ W}/(\text{m}^2\text{K})$

\***15 mm** VIP core:  $U_p = 0,47 \text{ W}/(\text{m}^2\text{K})$       **35 mm** VIP core:  $U_p = 0,20 \text{ W}/(\text{m}^2\text{K})$

**20 mm** VIP core:  $U_p = 0,35 \text{ W}/(\text{m}^2\text{K})$       **40 mm** VIP core:  $U_p = 0,18 \text{ W}/(\text{m}^2\text{K})$

**25 mm** VIP core:  $U_p = 0,28 \text{ W}/(\text{m}^2\text{K})$       **50 mm** VIP core:  $U_p = 0,14 \text{ W}/(\text{m}^2\text{K})$

\* General technical approval from a VIP core thickness of 20 mm



### Exterior and interior insulation

#### Product type

#### Construction

#### Panel images

#### VT-VIP blank (QASA-N)\*

Versatile refrigeration and construction industry  
e. g. flat roof, floor insulation

Unlaminated vacuum insulation



### External insulation

#### Flat roof insulation

#### Product type

#### Balcony, terrace and flat roof

#### Construction

#### Panel images

#### VT-A-DA-2 R-GGR\*

Standard variant with rubber granulate on both sides

3 mm R-rubber (rubber granulate)  
Vacuum insulation / VIP-core  
3 mm R-rubber (rubber granulate)



#### VT-A-DA-GFK/GGR

Combination robust step, resistant surface, below compensation of small unevennesses

1,5 mm GFK (fiberglass reinforced plastic)  
Vacuum insulation / VIP-core  
3 mm R-rubber (rubber granulate)



#### VT-A-DA-2 GFK

Robust, impact-resistant design with protective layer GFK

1,5 mm GFK (fiberglass reinforced plastic)  
Vacuum insulation / VIP-core  
1,5 mm GFK (fiberglass reinforced plastic)



#### VT-A-DA-2 XPS\*

XPS (Styrodur) design for compensating small unevennesses

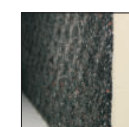
5 mm XPS  
Vacuum insulation / VIP-core  
5 mm XPS



#### VT-A-Trittschall (impact sound)

Thermal insulation with impact sound reduction

1,5 mm GFK (fiberglass reinforced plastic)  
Vacuum insulation / VIP-core  
8/4 mm rubber type outside

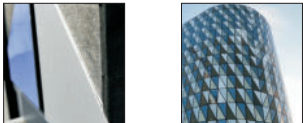


\* Also available as **SAFE & SPPEd stock programme** ... when it has to go fast!

Further **information as well as our request and order form** can be found at [www.variotec.de](http://www.variotec.de)

We are happy to respond to **your individual wishes**, with our designs, **just call us.**

## Product system overview VACUUM INSULATION



Product type	Construction	Panel images
<p><b>VT-A-DA-2 PP-Vlies (mat of fibres)</b> At minimal height on both sides PP fleece (hydrophobic)</p>	<p>0,5 mm PP fleece grey Vacuum insulation / VIP-core 0,5 mm PP fleece grey</p>	
<p><b>External insulation</b> <b>Façade insulation</b></p>		
Product type	Construction	Panel images
<p><b>VT-A-B1 (QASA Firetherm)</b> Insulation system for requirements Fire protection B1 (VHF) System thickness 31-56 mm</p>	<p><b>Construction acc. to approval</b> 3 mm A1 top coat <b>25-50 mm</b> vacuum insulation / VIP-core 3 mm A1 top coat</p>	
<p><b>VT-A-VHF</b> Insulating system for ventilated curtain façade Fire protection B2 (VHF)</p>	<p>1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 5 mm XPS</p>	
<p><b>VT-A-HYDRO</b> Vacuum insulation façade with plaster base board fire protection B2 incl. fastening system</p>	<p>15 mm hydro panel HD Vacuum insulation / VIP-core 10 mm XPS</p>	
<p><b>VT-A-2-ALU/MAX</b> Post and beam Façade insulation, filling</p>	<p>2/3 mm aluminum or Max Exterior Vacuum insulation / VIP-core 2/3 mm aluminum or Max Exterior</p>	
<p><b>Insulation for venetian blinds, roller shutter boxes and soffits</b></p>		
Product type	Construction	Panel images
<p><b>VT-A-ROLL</b> Roller shutters boxes and venetian blinds</p>	<p>1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 5 mm XPS</p>	
<p><b>VT-A-LAIB</b> Insulation for window and door soffits</p>	<p>5 mm XPS (Styrodur) Vacuum insulation / VIP-core 5 mm XPS (Styrodur)</p>	
<p><b>Dormer and bay insulation</b></p>		
Product type	Construction	Panel images
<p><b>VT-A-GAUB</b> Dormer and bay insulation without sight requirement</p>	<p>4 mm plywood* Vacuum insulation / VIP-core 4 mm plywood* *acc. to the manufacturer's specification as standard</p>	

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## Product system overview VACUUM INSULATION

### Fillings



Product type	Construction	Panel images
<b>VT-VIP-Füllung (filling)</b> Fillings of all type	Plywood or other materials Vacuum insulation / VIP-core Plywood or other materials	 

### Internal insulation

### Internal floor insulation

Product type	Construction	Panel images
<b>VT-I-B-GFK-XPS-5</b> for wet and wet heating screed	1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 5 mm XPS (Styrodur)	 
<b>VT-I-B-GFK-XPS-10</b> for dry screed and floor heating system	1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 10 mm XPS (Styrodur)	 
<b>VT-I-B-2 XPS-5</b> XPS (Styrodur) design to compensate small unevennesses	5 mm XPS (Styrodur) Vacuum insulation / VIP-core 5 mm XPS (Styrodur)	 
<b>VT-I-Trittschall (impact sound)</b> Thermal insulation and impact sound reduction	1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 3 mm rubber type inside	 
<b>VT-I-B-OSB (MFP)</b> OSB/MFP Top and bottom XPS (Styrodur)	10 / 22 mm MFP/OSB Vacuum insulation / VIP-core 10 mm XPS (Styrodur)	 

### Internal wall and ceiling insulation

Product type	Construction	Panel images
<b>VT-I-Wand/Decke (wall/ceiling)</b> Wall and ceiling insulation without sight requirement	1,5 mm GFK (fiberglass reinforced plastic) Vacuum insulation / VIP-core 5 mm XPS (Styrodur)	 

Technical drawings (details) as well as tender texts can be found in our download area  
<http://www.variotec.de/start/downloads/vip-qasa-vakuumdaemmung>

Further information as well as our request and order form can be found at [www.variotec.de](http://www.variotec.de)  
 We are happy to respond to your individual wishes, with our designs, just call us.

Inquiry / Order forms: **download at [www.variotec.de](http://www.variotec.de)**

**Inquiry / Order forms for vacuum panels**  
**1 cm vacuum insulation  $\hat{=}$  5-8 cm standard insulation**

**A brief overview of the main application areas:**

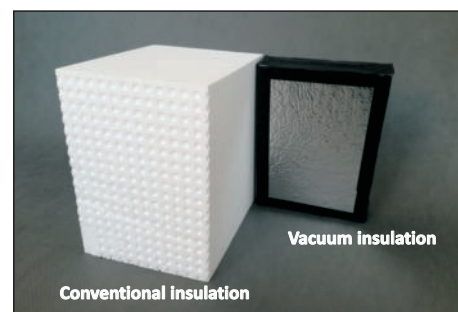
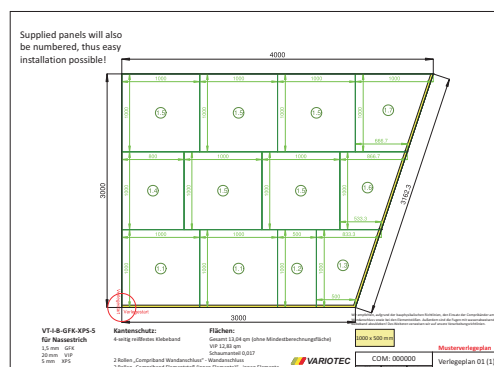
- ✓ Internal floor insulation (also for underfloor heating)
- ✓ Floor panels for impact sound indoors / outdoors
- ✓ Ceiling and internal wall insulation
- ✓ Balcony, terrace and flat roof insulation
- ✓ Dormer and bay insulation
- ✓ Insulation for roller shutter boxes and venetian blinds
- ✓ Window and door soffits
- ✓ B1 fire protection façade with approval
- ✓ Ventilated façade / Façade insulation
- ✓ Post and beam façade
- ✓ Fillings of all type
- ✓ Unlaminated VIP panels (versatile)

**For areas after measurement:**

Please use forms **page 1-7!**

**For individual panels e. g. fillings / roller shutter and venetian blinds:**

Please use forms **page 8-10!**



➡ **Low construction heights** ↔ **high insulation effect** ←

Find out more on our website [www.variotec.de](http://www.variotec.de) or call us:

**QASA/VIP Technology and processing**  
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E-mail: [m.haeberl@variotec.de](mailto:m.haeberl@variotec.de)

**QASA/VIP Inquiries and orders**  
Ms. Schmid: +49 9181 6946-10  
E-mail: [k.schmid@variotec.de](mailto:k.schmid@variotec.de)

## Information service: VIP/QASA VACUUM INSULATION

Please send us the following documentation regarding vacuum insulation to:

Name, first name: .....

Company: .....

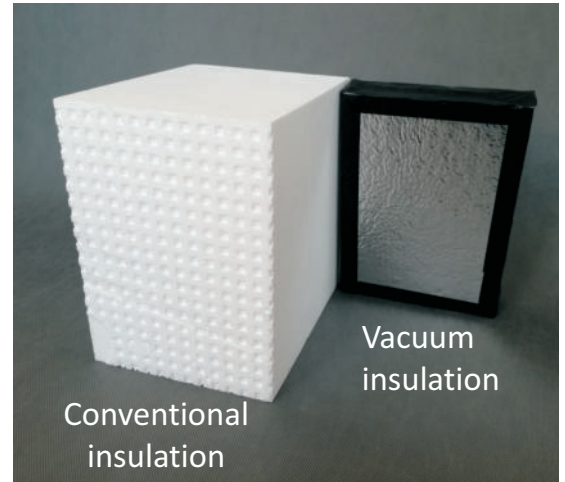
Function: .....

Street: .....

Post code, place: .....

Phone: .....

E-mail: .....



The difference ⇨ Factor 1:5

Please tick and send by e-mail to: [qasa@variotech.de](mailto:qasa@variotech.de) or by fax to: +49 9181 6946-71

- Price overview „Einfach-Sicher-Dämmen“ vacuum insulation  Test certificates
- Product and system overview  SAFE & SPEED „Stock programme“

Data sheet type: \_\_\_\_\_

Texts for invitation to tender and details type: \_\_\_\_\_

Consultation appointment on the ground or in the premises of VARIOTEC

Send documentation by:

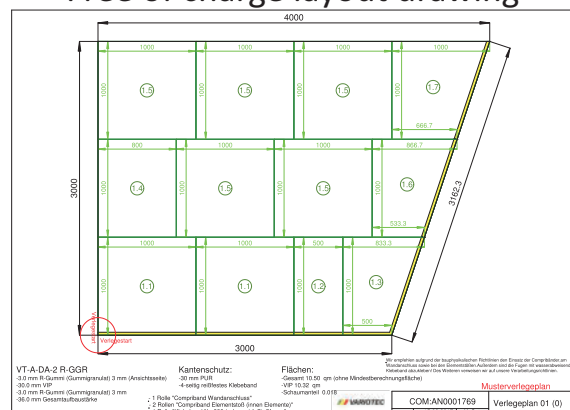
- e-mail: \_\_\_\_\_
- fax: \_\_\_\_\_  post  recall

send form

**QASA/VIP Technology and processing**  
Ms. Häberl: +49 9181 6946-29  
E-Mail: [m.haerberl@variotech.de](mailto:m.haerberl@variotech.de)

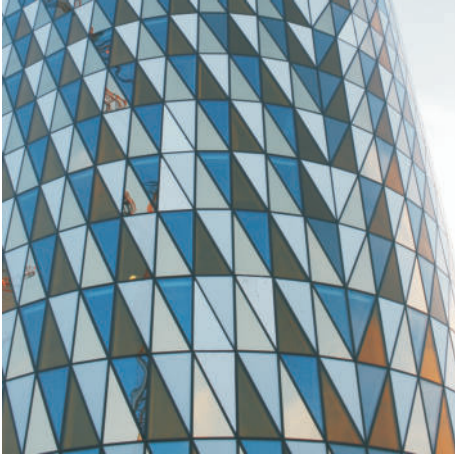
**QASA/VIP Inquiries and orders**  
Ms. Schmid: +49 9181 6946-10  
E-Mail: [k.schmid@variotech.de](mailto:k.schmid@variotech.de)

### Free of charge layout drawing



Technical drawings (details) as well as tender texts can be found in our download area  
<http://www.variotech.de/start/downloads/vip-qasa-vakuumdämmung>

## References



KI Aula Stockholm,  
Architect Gert Winghards



Installed QASA B1 area in Munich,  
Ackermannbogen Architect Werle



Solon AG Adlershof  
Architect Schulte-Frohlinde

## VARIOTEC GmbH & Co.KG WERK 2 - Production of vacuum insulation

