

#### Note on English translation / Hinweise zur englischen Fassung

This is a translation of the technical data sheet valid in Germany.

All stated details and properties are in compliance with the regulations of the German standards and building regulations. They are only applicable for the specified products, system components, application rules, and construction details in connection with the specifications of the respective certificates and approvals.

Knauf Gips KG denies any liability for applications outside of Germany as this requires changes acc. to the respective national standards and building regulations.

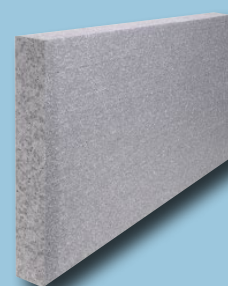


#### Plaster and Façade Systems

## P361b.de

Product Data Sheet

2017-03



# EPS Standard 034

Façade insulation panels for WARM WALL Basis, Duo, Keramik

#### Product description

Façade insulation panel with square edges made of expanded polystyrene rigid foam acc. to EN 13163. With graphite-coloured additives for improved thermal insulation.

Quality types as stipulated by the German BFA: Façade insulation board EPS 034 WDV / WAP

Designation key: EPS – EN 13163 – T1 – L2 – W2 – S2 – P3 – DS(70,-)2 – BS100 – DS(N)2 – TR100

#### Storage

Store in a dry place. Protect against direct sunlight and mechanical damage.

#### Quality

In compliance with EN 13163, the product is subject to initial type testing and continuous factory production control and bears the CE marking. The product is compliant with all demands of the DIN 4108-10 and the Fachverband Wärmedämm-Verbundsysteme e.V. (German association for external thermal insulation composite systems).

#### Properties and added value

- EPS acc. to EN 13163
- Application type WAP in acc. to DIN 4108-10
- Building material class B1 (not easily flammable) acc. to DIN 4102-1
- Thermal conductivity  $\lambda = 0.034 \text{ W/(m}\cdot\text{K)}$
- Resistant to ageing
- Resistant to shrinkage

#### Field of application

Insulation board for Knauf WARM WALL systems Basis acc. to AbZ (National Technical Approval) Z-33.41-81, Z-33.43-82, Duo acc. to AbZ Z-33.49-981, Keramik acc. to AbZ Z-33.46-424 as well as on board materials in timber construction acc. to AbZ Z-33.47-899. Can be used for all building heights where the use of not easily flammable ETICS systems are approved based on the respective state building codes. This generally applies up to the high-rise building limit. Not for application in contact with soil and splash water zone.

## Application

### Substrate and pretreatment

Substrate	Pretreatment
Unstable coatings	Remove completely
Render hollows and cavities	Remove completely and fill with a suitable render, take the drying times into account
Concrete, paint coats, old render	Clean with a high-pressure water cleaner until dust-free and allow to dry completely
Chalking or sanding surfaces	Solidify surface by applying Knauf Grundol primer

On adhesively bonded WARM WALL systems, unevenness up to  $\leq 10$  mm can be worked and with adhesively bonded and dowelled WARM WALL systems unevenness up to  $\leq 20$  mm can be worked.

### Preparation

Cover easily-soiled building components before application in accordance with Code of Practice "Abklebe- und Abdekarbeiten für Maler- und Stuckateurarbeiten" issued by the Bundesverband Ausbau und Fassade. Protect weather-exposed surfaces from precipitation and direct sunlight (by hanging nets with a fine mesh around the scaffolding). All substrates must be stable, dry, even and free of grease and dust as well as free of any residual substances that may reduce the adhesion. Test the stability and compatibility of existing coats (old plasters and paint coats) before application of adhesive. Pretreat in accordance with the table above. Allow preliminary/primer coats to dry for at least 12 hours before continuing work.

### Application

<b>Note</b>	Avoid penetration of adhesive mortar into the insulation panel joints. Open joints or skips up to 5 mm can be sealed using Speedero adhesive foam. Joint widths $> 5$ mm are filled with equivalent insulation material.
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### Application of adhesive by hand

#### Bonding of the insulation panels on concrete or masonry

EPS Standard 034 is adhesively bonded using SM300, SM700 Pro, Sockel-SM, Duo-Kleber, Lustro or Pastol (up to 300 mm insulation thickness) onto the existing substrate from the bottom to the top as a flush aligned, flat and offset-free bonded application. Corner grooving is unnecessary with insulation material thicknesses  $\leq 200$  mm. The adhesive is generally applied using an edge ribbon and dab bonding method. The panel has a bead of adhesive mortar applied all around the perimeter of the panel edge as well as dabs of adhesive mortar in the centre of the panel so that at least 40 % of the panel has adhesive applied to it (min. 60% with WARM WALL Keramik). Full surface adhesive application can also be undertaken with an even surface. The adhesive mortar is applied for this purpose on the entire surface of the insulation panel with a notched trowel.

#### Bonding of the insulation panels on board materials

Wooden-based exterior wall components and board materials must have a wood and board moisture level  $\leq 20$  %. The adhesive bonding is undertaken with Pastol (organically bonded adhesive and basecoat mortar with lightweight aggregates) on board materials acc. to AbZ Z-33.47-899. Use a notched trowel to apply a full surface trowelled layer of approx. 2 kg Pastol per  $m^2$  onto the substrate or onto the insulation panels and immediately press it into the fresh mortar (slide the board lightly to and fro) and push in. The maximum insulation material thickness is 200 mm in this case.

### Application of adhesive by machine

#### Machine applied adhesive for insulation panels on concrete and masonry

With machine applied adhesive, spray apply the mounds of adhesive at spacings  $\leq 100$  mm on the substrate, the adhesive bonding must cover  $\geq 60$  % of the surface. The perimeters will have a continuous strip of adhesive applied to ensure that back ventilation is not possible. Slide the insulation panels immediately into the fresh adhesive (slide the board lightly to and fro) and push in.

### Plinth connection

The connection to the plinth can be applied free of thermal bridges by using the Sockel-Abschlussprofil Peri plinth profile or the Knauf plinth connection profile made of aluminium. Apply plinth insulation boards to the splash water and plinth area.

### Dowelling

<b>Note</b>	Further technical information and details concerning fire protection measures, application and dowelling can be found in the System Data Sheets <ul style="list-style-type: none"> <li>■ P321.de "Knauf WARM WALL Basis"</li> <li>■ P341.de "Knauf WARM WALL Duo"</li> <li>■ P329.de "Knauf WARM WALL Keramik" as well as AbZ Z-33.47-899 (Knauf WARM WALL systems with EPS insulation materials on board materials in timber construction) and should be observed.</li> </ul>
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#### Dowelling of the insulation panels on concrete or masonry

Depending on the WARM WALL system, dowelling must be applied to take account of the wind suction as well as the non-stable substrate (e.g. painted substrate with bond strength  $\leq 0.08$  N/mm<sup>2</sup>). The adhesive must be hardened sufficiently before application of the dowels. Apply dowelling below or on top of the mesh reinforcement flush with the surface using Schlagdübel SZ8 plus dowels or Schraubdübel STR U 2G dowels. Recessed dowel installation is possible using Schraubdübel STR U 2G dowels under the mesh reinforcement. See Product Data Sheet for further information on dowel installation.

P389b.de "Knauf Schraubdübel STR U 2G" or P389e.de "Knauf Schlagdübel SZ8 plus". The number of dowels is dependent on the approval taking into consideration the EN 1991-1-4 in conjunction with the EN 1991-1-4/NA.

#### Insulation panel dowelling on wood-based board materials

For wooden substrates, insulation materials should be generally additionally constructively fixed with at least 4 Schraubdübel H or STR H dowels per  $m^2$ .

### Application temperature / climate

Do not apply material below  $+5$  °C and above  $+30$  °C. The substrate must be frost-free.

### Application time

Avoid long drying and delay times without a mesh reinforcement as after about 2 weeks UV damage to the surface of the panels will result that will need to be removed.

<b>Note</b>	Grey insulation panels must always be protected against sunlight in order to avoid deformation of the insulation panels due to the influence of heating, e.g. by scaffold coverings.
<b>Note</b>	Create connections to other constructional components using suitable connection profiles or joint sealing tape as a driving-rain proof seal for the insulation material.

**Technical data**

Description	Unit	Value	Standard
Building material class	–	B1	DIN 4102-1
Reaction to fire	Class	E	EN 13501-1
Rated value of thermal conductivity $\lambda$	W/(m·K)	0.034	EN 4108-4
Behaviour of compressive stress with 10% compression $\sigma_{10}$	kPa	$\geq 60$	EN 826
Flexural strength	kPa	$\geq 100$	EN 12089
Lateral flexural strength	kPa	$\geq 100$	EN 1607
Shear strength	kPa	$\geq 50$	EN 12090
Shear modulus	kPa	$\geq 1000$	EN 12090
Dimensional stability under normal climatic conditions	%	$\pm 0,2$	EN 1603
Irreversible length change	%	$\leq 0,15$	EN 1603
Dimensional stability under defined temperature and moisture conditions	%	$\leq 2$	EN 1604
Water absorption	kg/m <sup>2</sup>	$\leq 0.20$	EN 1609
Water vapour diffusion resistance $\mu$	–	20/100	DIN 4108-4
Specific heat capacity $c_p$	J/(kg·K)	1450	DIN 53765
Thermal length change coefficient	1/K	$5 - 7 \times 10^{-5}$	–

The stated technical data were evaluated acc. to the respective test standards. Deviations under site conditions are possible.

**Product range**

Description	Thickness mm	Width mm	Length mm	Packaging unit		Material number	EAN
				m <sup>2</sup> /package	Pieces/ package		
EPS Standard 034	40	500	1000	6	12	00551853	4003950117107
	50			4.5	9	00551857	4003950117114
	60			4	8	00551858	4003950117121
	80			3	6	00551859	4003950117138
	100			2	4	00551860	4003950117145
	120			2	4	00551861	4003950117152
	140			1.5	3	00551863	4003950117169
	160			1.5	3	00551871	4003950117176
	180			1	2	00551873	4003950117183
	200			1	2	00551875	4003950117190
	220			1	2	00551877	4003950117206
	240			1	2	00551879	4003950117213
	260			1	2	00551881	4003950117220
	280			1	2	00551883	4003950117237
	300			1	2	00551885	4003950117244
	320			0.5	1	00551888	4003950117251
340	0.5	1	00551890	4003950117268			

## Product range (continued)

Description	Thickness mm	Width mm	Length mm	Packaging unit		Material number	EAN
				m <sup>2</sup> /package	Pieces/ package		
EPS Standard 034	360	500	1000	0.5	1	00551891	4003950117275
	380			0.5	1	00551894	4003950117282
	400			0.5	1	00551895	4003950117299

*Elastification (on request)*



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