

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.

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Plaster and Façade Systems

P363b.de

Product Data Sheet

2017-04

EPS Nut&Feder 034

Façade insulation panels for WARM WALL Basis, Duo, Keramik

Product description

Façade insulation panel made of expanded polystyrene rigid foam acc. to EN 13163. With graphite-coloured additives for improved thermal insulation. Featuring special notch and grooves (Nut&Feder) as well as a mortar pocket to avoid penetration of adhesive mortar into the panel joints.

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 $\lambda = 0.034 \text{ W/(mK)}$
- Resistant to ageing
- Resistant to shrinkage
- Notch and groove design
- Mortar pocket

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 panel materials in timber construction acc. to AbZ Z-33.47-899. Completely flat surfaces are achieved thanks to the secure and quick plug together connections with recessed notch and groove on top. Thus the full thickness of the insulation is available as sanding down is unnecessary. The same spacing of the notch and groove to the front edge of the panel can be used for the purpose of

differing insulation material thicknesses on a wall surface (from insulating material thicknesses from 80 mm). The mortar pocket prevents adhesive mortar penetration into the panel joints and thus prevents unnecessary thermal bridges. 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 ≤ 10 mm can be worked and with adhesively bonded and dowelled WARM WALL systems unevenness up to ≤ 20 mm can be worked.

Preparation

Cover easily-soiled building components before application in accordance with Code of Practice "Abklebe- und Abdeckerarbeiten 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. Preliminary coats/primer must be allowed to dry for at least 12 hours.

Application

Note	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 and masonry:

EPS Nut&Feder 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 ≤ 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 ≤ 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

Note	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"> ■ P321.de "Knauf WARM WALL Basis" ■ P341.de "Knauf WARM WALL Duo" ■ 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.
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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 ≤ 0.08 N/mm²). 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. Further information on the installation of the dowels is available in the Product Data Sheet P389b.de "Knauf Schraubdübel STR U 2G" or P389e.de "Knauf Schlagdübel SZ8 plus". The number of dowels is dependent on the approval considering 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.

Note	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.
Note	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 λ	W/(m·K)	0.034	EN 4108-4
Behaviour of compressive stress with 10% compression σ_{10}	kPa	≥ 60	EN 826
Flexural strength	kPa	≥ 100	EN 12089
Lateral flexural strength	kPa	≥ 100	EN 1607
Shear strength	kPa	≥ 50	EN 12090
Shear modulus	kPa	≥ 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	%	≤ 2	EN 1604
Water absorption	kg/m ²	≤ 0.20	EN 1609
Water vapour diffusion resistance μ	–	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 ² /package	Pcs/package		
EPS Nut&Feder 034 <i>EPS Notch&Groove 034</i>	60	500	1000	4	8	00578101	4003950117312
	80			3	6	00578122	4003950117329
	100			2	4	00578124	4003950117336
	120			2	4	00578127	4003950117343
	140			1.5	3	00578129	4003950117350
	160			1.5	3	00578131	4003950117367
	180			1	2	00578141	4003950117374
	200			1	2	00578142	4003950117381
	220			1	2	00578145	4003950117398
	240			1	2	00578146	4003950117404
	260			1	2	00578220	4003950117411
	280			1	2	00578223	4003950117435
	300			1	2	00578225	4003950117459
	320			0.5	1	00578226	4003950117473
	340			0.5	1	00578228	4003950117497
	360			0.5	1	00578233	4003950117510
	380			0.5	1	00578236	4003950117534
400	0.5	1	00578239	4003950117558			

Elastification (on request)



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