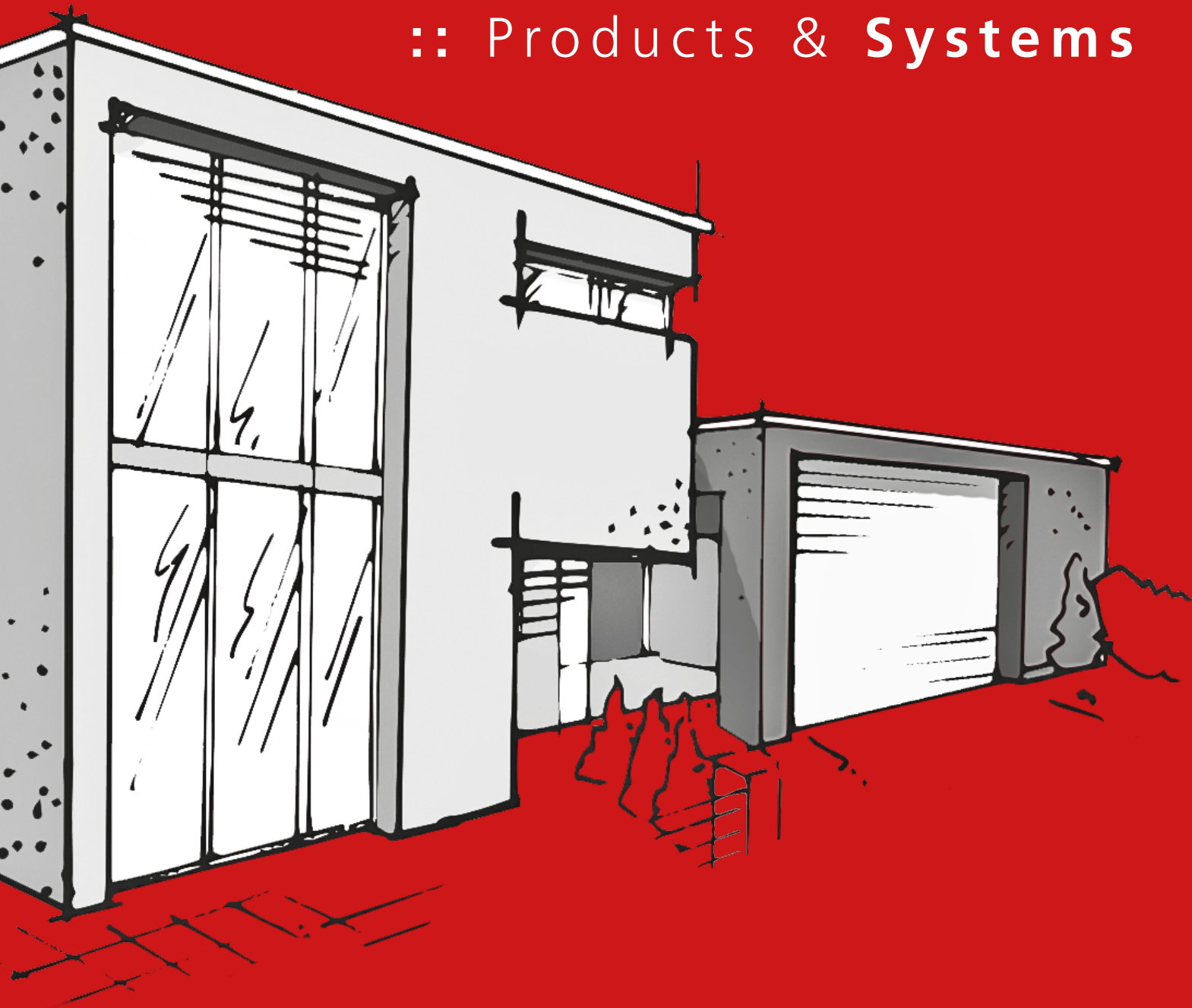


:: Products & Systems



SUSTAINABLE INSULATION

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THERMOFLOC is a brand of the company Peter Seppel Gesellschaft m.b.H. - a ISO-certified medium-sized, family-run company with headquarters in A-9710 Feistritz/Drau.

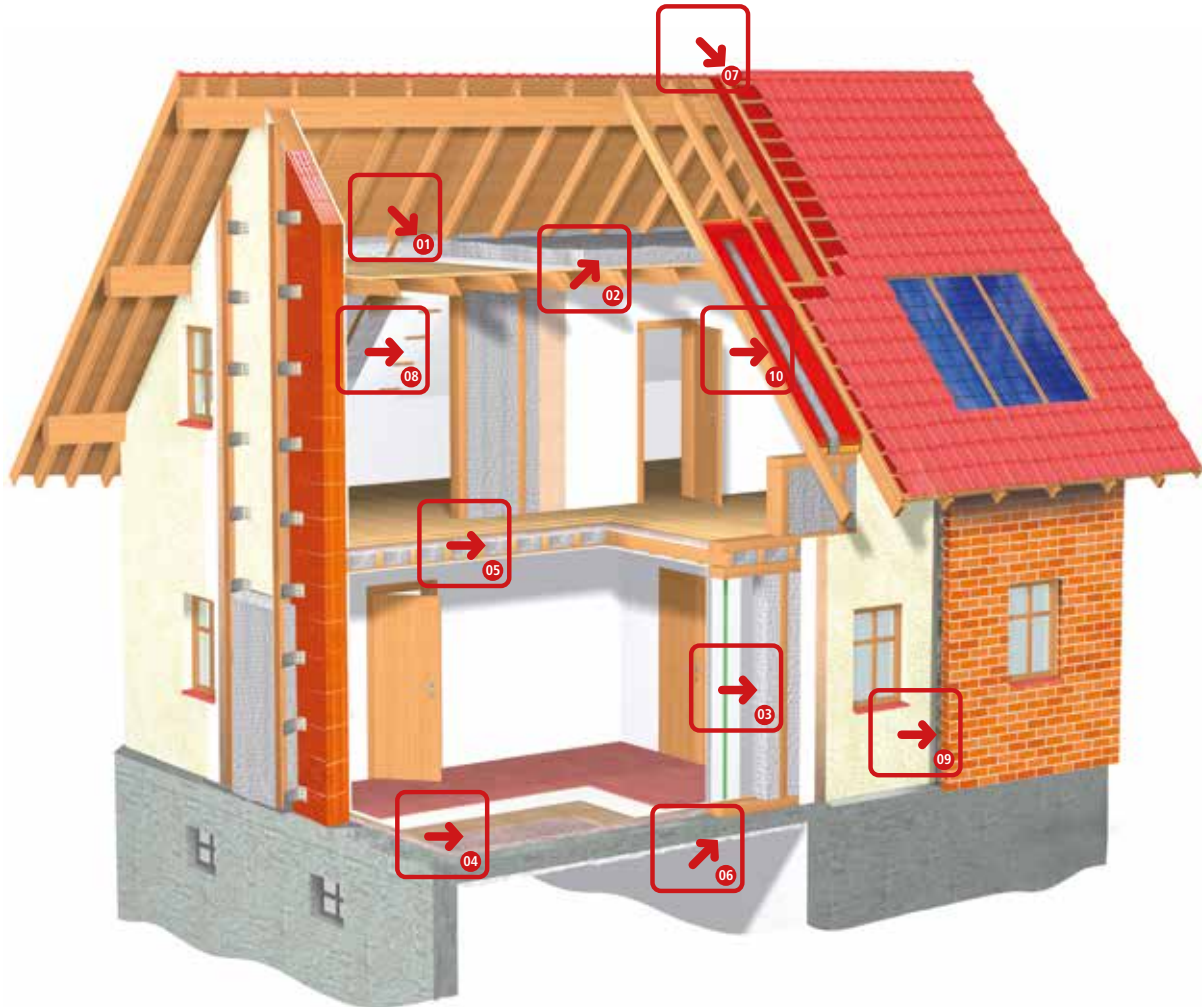
The company Peter Seppel Gesellschaft m.b.H. was founded as a forwarding company in 1929, the business has gradually developed and successfully adapted to the constantly changing social requirements. Meanwhile, the main fields of operation are in the areas of waste management, solid and liquid fuels and THERMOFLOC-insulation materials.

The THERMOFLOC-production line started running in the year 1996. Since the opening of the plant, continuous efforts have been put into improving our cellulose insulation as well as expanding the THERMOFLOC sales structure, so that the THERMOFLOC could develop into one of Europe's leading brands of sustainable insulation.

The THERMOFLOC complete insulation system is built on years of experience and comprises cellulose fibre, membranes and tapes all working together to provide the highest levels of performance. Our reputation is based on a European wide network of sales partners and installers all ensuring the highest quality of workmanship and service and all playing a crucial role in the growth of the THERMOFLOC brand. The THERMOFLOC system provides sustainable insulation solutions throughout the building fabric for new building projects including Passivhaus as well as renovation or retrofitting of existing buildings.



THERMOFLOC INSULATION SYSTEMS Installation at a Glance



- | | |
|--|--|
| 01) THERMOFLOC blown-in insulation for insulating between the rafters in the roof | 06) THERMOFLOC blown-in insulation sprayed onto the underside of cellar ceilings |
| 02) THERMOFLOC blown-in insulation installed as an open layer to insulate between and over joists in loft spaces | 07) THERMOFLOC breather membrane |
| 03) THERMOFLOC blown-in insulation for insulating internal walls | 08) THERMOFLOC vapour control layer for roofs and walls |
| 04) THERMOFLOC insulation pellets as a supporting floor substructure | 09) THERMOFLOC blown-in insulation for insulating external walls |
| 05) THERMOFLOC loose fill for insulating intermediate floors | 10) THERMOFLOC THERMOBAG thermal renovation of roof structures |

SUSTAINABLE BLOWN-IN INSULATION

ECOLOGICAL / SEAMLESS / MINIMUM WASTE



MORE AND MORE BUILDERS RELY ON THERMOFLOC BLOWN-IN INSULATION

THERMOFLOC is efficient, sustainable and cost effective, three reasons why more and more professionals and end users throughout Europe are making THERMOFLOC their first choice of insulation. Suitable for old and new buildings, THERMOFLOC helps create a comfortable indoor environment all year round whilst at the same time helping reduce your heating costs considerably.

The number of projects specifying THERMOFLOC is growing constantly and thousands of builders are now making THERMOFLOC their insulation of choice.

Results speak for themselves which is why end user satisfaction is being translated into greater use and uptake in the market. We constantly strive to improve the performance of our insulation to maximise efficiency and ensure our products offer the lowest impact and healthiest choice. The new generation of THERMOFLOC is 100% borate and ammonia free. THERMOFLOC blown-in insulation used in combination with THERMOFLOC vapour control layer, breather membrane and the adhesive products provides a continuous, efficient insulation system that meets the highest quality requirements.



THERMOFLOC INSULATION SYSTEM

Production/Quality Assurance

ENVIRONMENTAL PRODUCT DECLARATION (EPD) ENVIRONMENT-RELATED INFORMATION OF A PRODUCT

Thermofloc cellulose insulation hold and independent peer reviewed environmental product declaration (EPD) valid from 14.12.2015 and issued by the Institut für Bauen und Umwelt e.V. An EPD is a type III environmental declaration that provides environment-related information from the lifecycle of a product making comparisons between products of the same type possible. An EPD is based on independently verified data from lifecycle assessments,

lifecycle inventories or information datasets. The Thermofloc cellulose insulation EPD conforms to the ISO 14040 and EN 15804 series of standards. Among other things, EPDs can be used to provide data for calculating lifecycle assessments and/or embodied energy and impacts of buildings. This way, the environmental impacts of different variations of the same building can be compared even at the planning stage.



NATUREPLUS[®] CERTIFIED MARK OF QUALITY AND SUSTAINABILITY CERTIFIED FOR SUSTAINABLE AND HEALTHY CONSTRUCTION!

The Naturplus[®] independent expert panel rigorously evaluated the environmental, health and technical properties of THERMOFLOC insulation prior to certification. Only sustainable products with a high renewable raw material content can be certified since it has been shown that these materials have a positive effect on the indoor climate. The strict limits on harmful gas emissions mean

using THERMOFLOC helps prevent the emission of harmful gas from insulation within the building fabric as well as minimising the consumption of fossil energy sources. What's more, these strict limits ensure that no adverse effects on health come from THERMOFLOC. The Natureplus[®] mark also backs up the durability and long service life of the insulation.



RATED "VERY GOOD" FOR MANUFACTURING AND QUALITY ASSURANCE

THERMOFLOC insulation is made from unmixed newspaper with the addition of minerals for preservation and fire protection. The paper is shredded coarsely and then processed into fine, elastic cellulose fibres in a fibre mill. The finished product is packed into PE bags and

palletised. Certified internal and external quality monitoring guarantees that the product meets the highest European quality requirements. This is also documented in a European Technical Approval ETA-05/0186.



BLOWN-IN INSULATION



THERMOFLOC is installed by means of specialist THERMOBLOW blowing machines following THERMOFLOC specifications. The insulation is pumped using hoses under air pressure and filled into voids within the building fabric to create a compacted, uniform and continuous insulation layer.

Our method of installation has considerable advantages for the installer as well as the builder. Benefits include having an uninterrupted insulation layer that is free of thermal bridges. Existing roofs can be insulated later without removing the roof tiles and an insulation layer that is open to diffusion, and ecologically compatible with a cosy atmosphere can be created.



THERMOFLOC INSULATION SYSTEM

sustainable & comfortable

- **Roof insulation**
- **Wall insulation**
- **Ceiling insulation**



A layer of insulation between 20 and 500 mm with a density range between 30 kg/m³ and 60 kg/m³ can be created from one single product. This means there is no need to stock different insulation sizes (which is the case for insulation slabs and rolls). The final density of the installed THERMOFLOC insulation varies depending on the area of application.



A precise amount of insulation is blown into the building component for a particular construction keeping waste to a minimum. Site movements are reduced because workers don't have to move insulation around the site by hand.



Our powerful blowing machines can transport fibre vertically up many floors making THERMOFLOC a very cost and time efficient system for insulating multi-story buildings.

FORM OF DELIVERY



THERMOFLOC-BAGS
for the mobile blow-in system



THERMOFLOC-BIG BALES
for the fixed blow-in system

Detailed information can be found under the item „Blown-in Technology“!

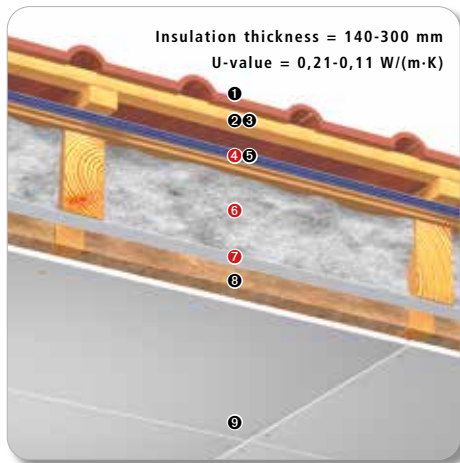
Technical data	Blow-in insulation
Description	THERMOFLOC F - Borate-free, blown-in insulation
Composition	Newspaper fibres, additives < 10%
Approvals / certificates	ETA-05/0186 natureplus 0107-1301-121-1 EPD-PSG-20150321-IBA1-DE CE marking
Fire behaviour (with an installation density of 28 to 60 kg/m ³)	Class E / d ≥ 40 mm
Fire behaviour (with an installation density of 30 to 60 kg/m ³)	Class B-s2,d0 / d ≥ 100 mm
Resistance to mould growth	Class 0
Sound absorption	$\alpha_w = 1,00$ / d ≥ 100 mm
Rated value of thermal conductivity (with an installation density of 28 to 47 kg/m ³)	$\lambda_{D(23,50)} = 0,037$ W/m·K
Rated value of thermal conductivity (with an installation density of 48 to 60 kg/m ³)	$\lambda_{D(23,50)} = 0,038$ W/m·K
Water vapour diffusion resistance	$\mu \leq 1,4$
Metal corrosion	Class CR
Settling	$S_v = 4,4$ % / 28 kg/m ³ $S_d = 0$ % / Class SC 0 / 48 kg/m ³ S_D NPD S_{cyc} NPD
Water absorption	$W_p = 8$ kg/m ² / 30 kg/m ³ $W_p = 28$ kg/m ² / 60 kg/m ³
Critical moisture content	NPD
Flow resistance	≥ 6,1 kPa·s/m ²
Hygroscopic properties	NPD

WIDE RANGE OF PROCESSING
all around a comfortable indoor environment

Roof insulation

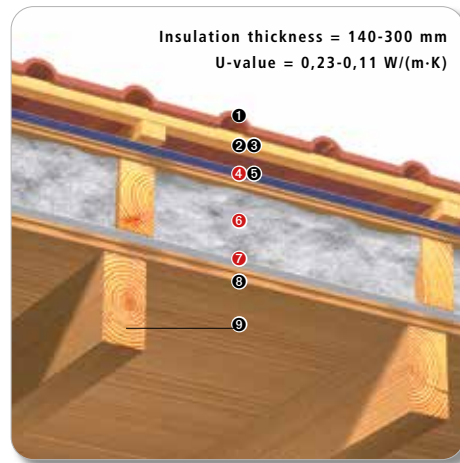


ROOF



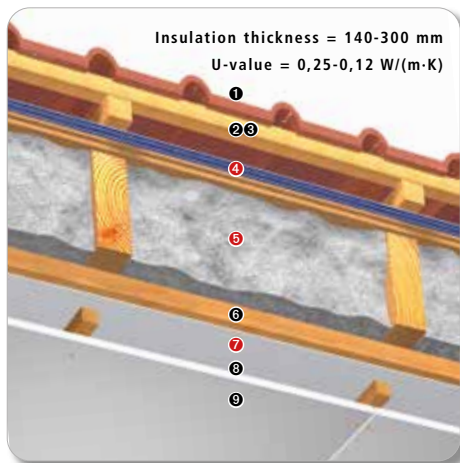
Roof system D1

- 1 Roof tiles
- 2 Battens
- 3 Counter battens
- 4 THERMOFLOC breather membrane
- 5 Roof sheathing
- 6 Rafters/THERMOFLOC blown-in insulation
- 7 THERMOFLOC vapour control layer
- 8 Battens
- 9 Plasterboard



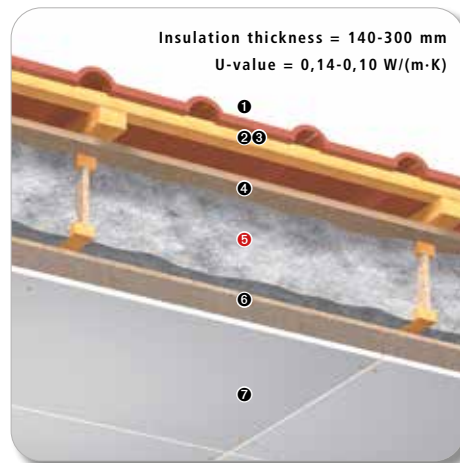
Roof system D5

- 1 Roof tiles
- 2 Battens
- 3 Counter battens
- 4 THERMOFLOC breather membrane
- 5 Roof sheathing
- 6 Rafters/THERMOFLOC blown-in insulation
- 7 THERMOFLOC vapour control layer
- 8 Fireproof sheathing
- 9 Exposed rafters



Roof system D2

- 1 Roof tiles
- 2 Battens
- 3 Counter battens
- 4 THERMOFLOC breather membrane
- 5 Rafters/THERMOFLOC blown-in insulation
- 6 Battens 2-6 cm
- 7 THERMOFLOC vapour control layer
- 8 Battens
- 9 Plasterboard



Roof system D7

- 1 Roof tiles
- 2 Batten 4/5
- 3 Counter batten 5/8
- 4 Bitumen soft fibreboard
- 5 Double web I-Beam/THERMOFLOC blown-in insulation
- 6 Plywood/OSB
- 7 Plasterboard

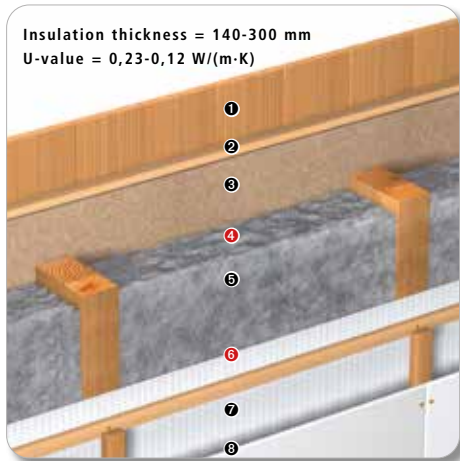
INSULATION FROM FLOOR TO THE ROOF

uninterrupted, ecologically compatible and open to diffusion

Wall insulation

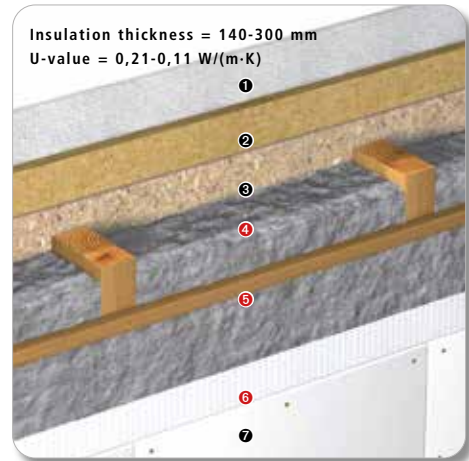


WALL



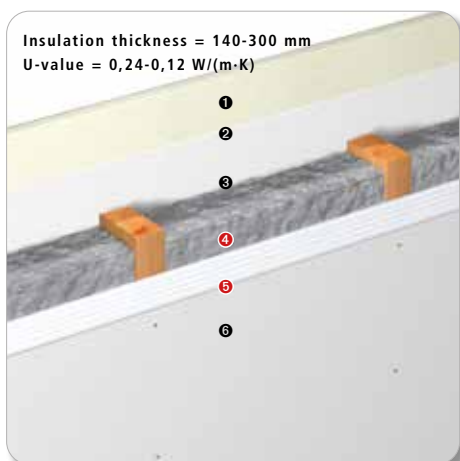
Wall system W1

- ❶ Timber cladding
- ❷ Battens
- ❸ Wood fibre insulation board
- ❹ Stud/THERMOFLOC blown-in insulation
- ❺ Evenly spaced slats
- ❻ THERMOFLOC vapour control layer
- ❼ Battens
- ❽ Plasterboard



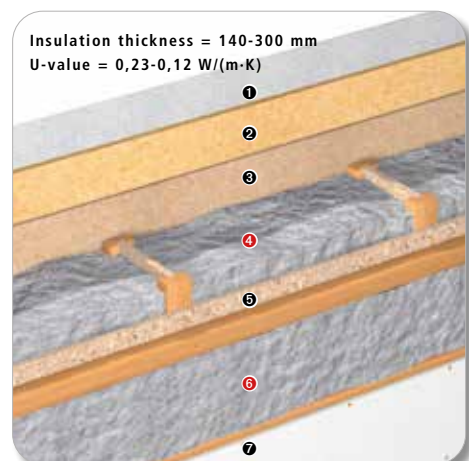
Wall system W2

- ❶ Cement-lime mortar
- ❷ Wood wool lightweight building panel
- ❸ OSB/Plywood
- ❹ Stud/THERMOFLOC blown-in insulation
- ❺ Battens/THERMOFLOC blown-in insulation
- ❻ THERMOFLOC vapour control layer
- ❼ Gypsum fibreboard



Wall system W15

- ❶ Gypsum fibreboard
- ❷ Gypsum fibreboard
- ❸ Gypsum fibreboard
- ❹ Stud/THERMOFLOC blown-in insulation
- ❺ THERMOFLOC vapour control layer
- ❻ Gypsum fibreboard



Wall system W10

- ❶ Cement-lime mortar
- ❷ Wood wool lightweight building panels
- ❸ Soft fibreboard
- ❹ Stud/THERMOFLOC blown-in insulation
- ❺ Battens/THERMOFLOC blown-in insulation
- ❻ Gypsum fibreboard

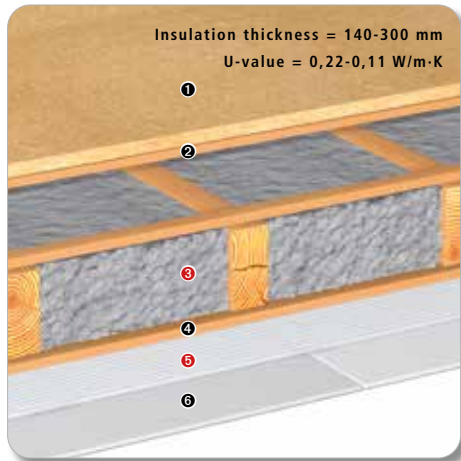
THERMAL AND SOUND INSULATION at the highest level

● ●

Floor insulation Ceiling insulation



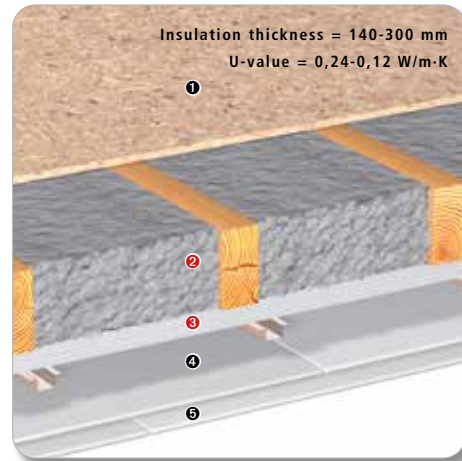
FLOOR



Floor construction DB1

Tie-beam insulation

- ❶ Wood wool board
- ❷ Subfloor/plywood
- ❸ Joists/THERMOFLOC blown-in insulation
- ❹ Evenly spaced slats
- ❺ THERMOFLOC vapour control layer
- ❻ Plasterboard



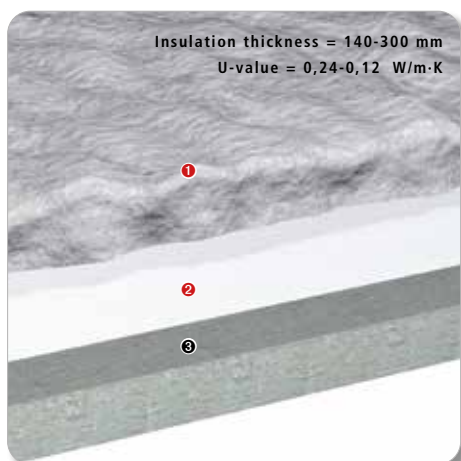
Floor construction DB3

Ceiling

- ❶ OSB/Plywood
- ❷ Joists/THERMOFLOC blown-in insulation
- ❸ THERMOFLOC vapour control layer
- ❹ Spring rails
- ❺ Plasterboard, 2-layer



CEILING



Insulation of a concrete floor

- ❶ Beams/THERMOFLOC blown-in insulation
- ❷ THERMOFLOC vapour control layer
- ❸ Concrete slab

SUMMERTIME THERMAL INSULATION



As our summers get hotter, the topic of “summer-time thermal insulation” is talked about more and more. Temperatures up to 35°C or more in lofts are no longer unusual in the summer. This means a 100-250 m² roof for example can easily reach an extremely high heat output of 300-600 W/m².

Depending on the roof covering, the roof surface temperature can reach 70-90°C. In turn, the heated roof tiles re-radiate part of this heat inwards towards the roof insulation. Through effective use of modern insulating materials with high heat storage capacity such as THERMOFLOC, it is possible to stem this heat flow and prevent overheating of roof spaces.

THERMOFLOC CELLULOSE INSULATION HAS A HEAT STORAGE CAPACITY THAT IS 2.5 TIMES HIGHER THAN OTHER CONVENTIONAL INSULATION.

Compared to mineral insulation, THERMOFLOC blown-in insulation is two to three times denser, increasing the heat storage capacity of the insulation by a factor of 2.5 whilst maintaining a very low thermal conductivity.

Compared to a conventional roof with a vapour barrier, mineral fibre and roof sheathing, roofs insulated with cellulose insulation and wood fibreboard below rafter provide considerably better protection from external heat.

This effect can be seen on the inside of the roof. The less the plasterboard on the inside heats up, the less the inside room heats up as a consequence.

The THERMOFLOC blown-in insulation systems provide a balanced, comfortable and healthy indoor environment all year round.

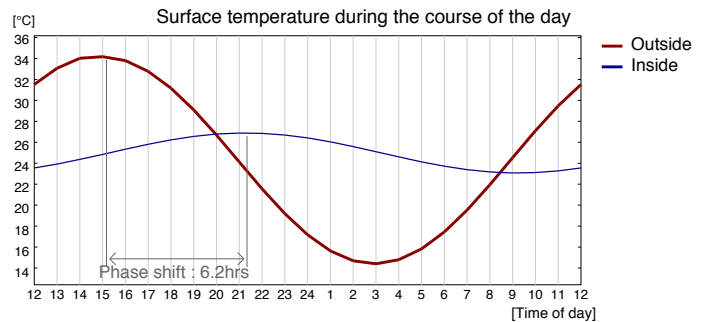
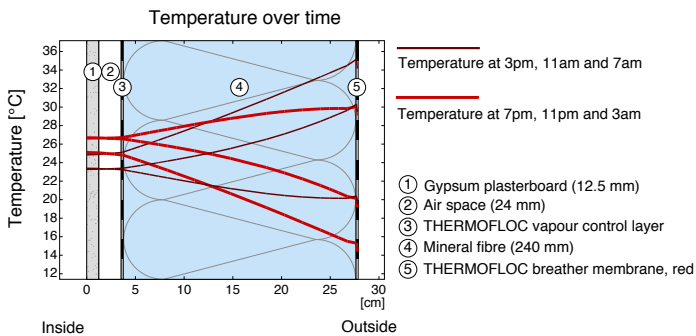
PHASE SHIFT comparison

How long does it take in the summer for heat to penetrate insulation and enter the inside of the house?

- 20 cm mineral wool insulation = 3-4 hours
- 20 cm cellulose insulation = 10-12 hours



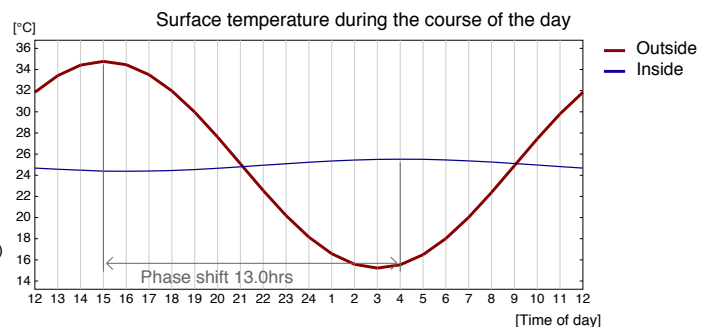
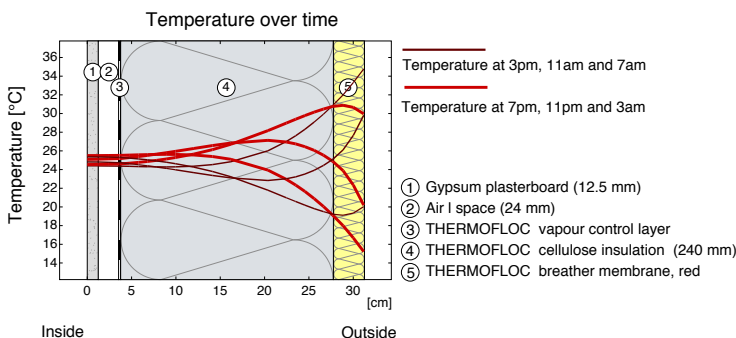
ROOF SYSTEM WITH MINERAL INSULATION



When using mineral insulation, an ambient temperature of 40°C is assumed without taking the heat radiated from the roofing tiles into consideration.

It is shown that the inside temperature of the surface increases by 4.5°C resulting in the interior space warming up. This effect is intensified when heat radiates from the roofing tiles.

ROOF SYSTEM WITH THERMOFLOC INSULATION



When using THERMOFLOC insulation and a wood fibreboard under rafter, it is calculated that the inside temperature reaches its peak later in the night around 3.00 a.m. This happens because the insulation is absorbing heat during the day. After dark, the insulation layer cools continuously radiating some heat which

stabilises the internal temperature meaning there is only a temperature variation of approx. 1.6°C throughout the entire day. As a result, THERMOFLOC insulation can make an active contribution to summertime heat protection helping reduce the use of air-conditioning systems.

MOBILE BLOWN-IN TECHNOLOGY

THERMOFLOC has decades of experience in the field of blown-in technology. Based on our expertise in the practical use of blown-in insulating materials, we have developed several different types of blowing machines. Specialist processing companies in particular appreciate our expertise in blown-in technology as

well as the high quality and efficiency of our machines. All machine versions are characterised by short setup times, manageability and excellent performance. The mechanical relay technology ensures low-maintenance continuous operation. Accessories and spare parts are easily and quickly available.



THERMOBLOW 200

The most cost-efficient and smallest 230 V machine when it comes to blown-in technology. The insulating material compressed in the bags is broken up in material containers and loosened with the help of agitator arms. The loosened insulating material moves into the rotary vane feeder where the air pressure created by 1 blower feeds it into the hoses and then into the cavities to be insulated. This machine type is suitable for processing cellulose and EPS blown-in insulating materials.

THERMOBLOW 300

This machine, like all other THERMOBLOW machines, is characterised by robustness, short setup times and ease of handling. As with the THERMOBLOW 200, the insulating material is poured into the hopper and loosened up by the agitator arms. The insulating material then moves into the rotary vane feeder where the air pressure created by 2 blowers transports it via hoses into the structural components to be insulated. This machine type is also suitable for processing cellulose and EPS blown-in insulating materials.

THERMOBLOW 500

The THERMOBLOW 500 is similar to the THERMOBLOW 300 in terms of dimensions, construction, material preparation and material feed but, in contrast to the THERMOBLOW 300, it has a more powerful drive motor and 2 more powerful blower motors. In addition, the THERMOBLOW 500 can be operated either with lighting current or heavy current and as a result the output can be perfectly adjusted to the project to be carried out. This machine is also only capable of processing cellulose and EPS blown-in insulating materials. An additional blower is needed to process wood fibre, rock wool or glass wool blown-in insulating materials.

OPTIONAL ACCESSORIES for mobile blown-in technology

THERMOBLOW

Note: Product images may differ from the actual product.



Radio remote control



Density test set



Plastic foam for sealing the holes



Blow-in nozzle
25 mm



Blow-in nozzle
35 mm



Rotary nozzle with dust unit
35 mm



Blow-in needle



Hose reel
for up to 100 m



Hose
in the sizes from 1,5" to 3"



Connecting pieces for different hose sizes



Storz coupling clamps
Quick coupling for hoses



Clamps for reliable hose connections



Pressure hose
for water



Water pump



Sprayer set
with water connector



Pressure measuring device



Spare switch
for remote control



50 m cable reel
for radio remote control



Blower



Air filter



Sealing strips



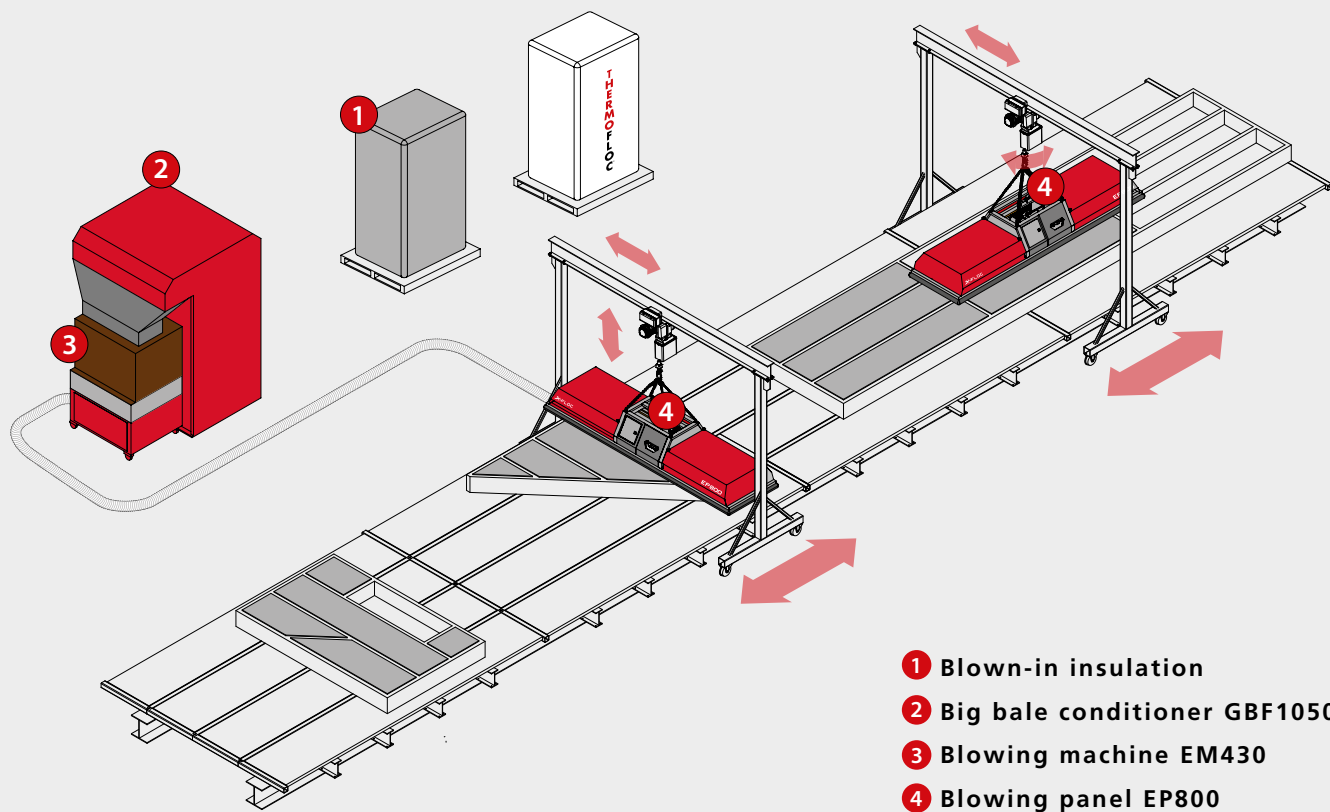
Suction blower
(construction site clean-up)

FIXED FACTORY FILLING SYSTEM

For reasons of cost and quality, more and more manufacturers of timber frame elements, (prefabricated) house manufacturers and carpentry companies are taking the decision to have their frame elements factory-insulated.

With the modular factory filling system of x-floc, comprising the EP800 blowing panel, GBF1050 big bale conditioner and EM430 blowing machine, combined with the THERMOFLOC big bales, the frame elements virtually insulate themselves.

The high level of automation and consistently high processing quality optimize staff deployment and give the products industrial quality. The factory filling system can be adjusted to individual customer requirements and is therefore easily integrated into small companies and fully automated production lines alike.



INSULATION OF TIMBER FRAME ELEMENTS

Efficiency due to automation

The industrial factory filling system is designed for refits, new equipment and integration into existing production processes, thus ensuring an optimum production cycle without interruptions. The system is modular and grows with the requirements of the timber construction company.

●
Roof insulation

●
Wall insulation

●
Ceiling insulation



GBF1050 **BIG BALE CONDITIONER**

The GBF1050 big bale conditioner ensures virtually uninterrupted filling of the blowing machine with the THERMOFLOC cellulose insulation. THERMOFLOC in the form of "big bales" is fed into the big bale conditioner using pallet trucks, forklifts or conveyor belts. The THERMOFLOC big bale is a compressed block of cellulose insulation manufactured in line with the requirements of the factory filling system.

The conditioning machine, consisting of 18 milling blades, removes the big bale layer by layer and conveys the cellulose material, which has already been loosened in this way, into the EM430 blowing machine combined with the big bale conditioner. The intelligent control system and using a large number of sensors on the big bale conditioner and blowing machine ensures a virtually uninterrupted supply of material.

EM430 **BLOWING MACHINE**

Consistently high material throughput using tried and tested material shredders and powerful, durable turbine technology for air generation make the EM430 blowing machine the first choice for factory filling. The four rotating crusher shafts and two shredder shafts of the two-stage bulking machine prepare all loose insulating materials optimally for pneumatic conveying and professional fitting. The large rotary valve conveys the material loosened up in this way into the air flow of the five-stage high-performance turbine which provides the acceleration and transport required for the material.

The factory filling system's controller can of course import all functions and parameters of the blowing machine that are responsible for a successful blowing process.

FACTORY FILLING

Industrial, consistent production processes



EP800 **BLOWING PANEL**

In the basic version, the EP800 blowing panel has five large injection nozzles and four pneumatically-driven material diverters (diameter = 3 inches), which enable material throughputs of up to 1,000 kg/h depending on the blown-in insulation used and the desired installation density. The injection nozzles can be adjusted in height by several centimetres to achieve an optimum injection pattern for each insulating material used. The material diverters can be supplied with the required compressed air in the factory itself or by an air compressor integrated into the blowing panel. A high-quality industrial control system "Made in Germany" and the software developed by x-floc control the EP800 blowing panel (and the other machines in a factory filling system). After positioning the blowing panel on the element which is open on one side, it is only necessary to enter the dimensions (length, width, height) and the insulating material used before the blowing process can be started. The program used in each case (with the blowing parameters individually set within it) and its signal evaluation of the connected measuring sensors ensure that the blowing panel or system is switched off at the right time. For archiving purposes and quality verification, all settings and results used during a blowing process (e.g. the mass of insulating material introduced into the element) are logged in detail.

The EP800 blowing panel seals off the element, which is open on one side, using a replaceable filter foam cover and its own weight to prevent the insulating material from escaping during the blowing process. The sturdy steel structure with sheet steel cladding provides the blowing panel with the necessary robustness to ensure the reliability required in daily use.

The blowing panel is operated via a wireless tablet computer for maximum flexibility. The five injection nozzles can be activated or deactivated individually, enabling expert filling of any element geometry.

Technical data	EP800
Dimensions (L x W x H)	approx. 3000 x 900 x 490 mm
Weight	approx. 300 kg
Electrical connection cable	230 V / 50 Hz / 10 A
Number of injection nozzles	Standard: 5 injection nozzles
Filling process	- Vertical filling nozzles (5 pieces) - Height-adjustable (0-6 cm)
Adjustable filling overhang	-
Handling	Practical handle for manual guidance
Control system	Tablet with touch screen and industrial control system
Communication	Wireless, alternatively wired
Pneumatic connection	External: 6 bar – 8 bar compressed air Optionally with integrated air compressor
Options	Quality assurance with weigh cells Handling system LAN-to-LAN industrial router
Processing capacity	300 - 1000 kg/h depending on insulating material and application



THERMOFLOC-BIG BALES
for the fixed blow-in system

NATURAL LOOSE-FILL INSULATION FOR THE MANUAL PROCESSING

Loose-fill insulation is an insulating material which is loosely poured or compacted. It is used mainly for heat and sound insulation in wooden beam ceilings, under screed slabs or for filling hard-to-reach cavities with insulation that is or is not resistant to compression.

THERMOFLOC offers two product versions as a loose-fill insulating material. On the one hand, THERMOFLOC floor filling as a cellulose insulation that is not resistant to compression and on the other hand, THERMOFLOC insulation pellets as cellulose granules that are resistant to compression.



THERMOFLOC floor filling

as cellulose insulation not resistant to compression

THERMOFLOC insulation pellets

as cellulose granules resistant to compression

BORATE-FREE FLOOR FILLING the do-it-yourself version of insulation



For decades, companies employing specially trained staff to operate blowing machines have been successfully using loose insulating materials made from cellulose fibres to insulate walls, floors, ceilings and roofs.

Peter Seppel Gesellschaft m.b.H. has now obtained a European Technical Assessment (ETA) for the manual processing of THERMOFLOC floor filling so that floors and ceilings can be insulated without the use of blowing machines. This means that now the top floor ceiling and floors can also be insulated manually between the beams of the structure using insulation that is not resistant to compression, without sacrificing the advantages of joint-free thermal insulation. As a result, the advantages of loose insulation made from cellulose fibres can also be brought to bear using the manual process.



FLOOR INSULATION MADE EASY

Jointless insulating layer capable of capillary diffusion

THERMOFLOC floor filling is not only easy to handle but also ingenious. This version of floor filling does not have to be laboriously cut to size first, as the desired insulation thickness is simply tipped in manually and then levelled off flat. So there's no waste. Furthermore, it's possible to calculate the material required in advance. Consumption is approximately 35 kg/m³.

Insulation thickness	Open on concrete ceiling 160 mm	Joists with 11% joist share, 35 mm Heraklith and 15 mm plaster	Material consumption kg/m ²
100 mm	0,35 W/(m ² K)	0,36 W/(m ² K)	3
120 mm	0,29 W/(m ² K)	0,31 W/(m ² K)	3,6
140 mm	0,25 W/(m ² K)	0,27 W/(m ² K)	4,2
160 mm	0,22 W/(m ² K)	0,25 W/(m ² K)	4,8
180 mm	0,20 W/(m ² K)	0,22 W/(m ² K)	5,4
200 mm	0,18 W/(m ² K)	0,20 W/(m ² K)	7
220 mm	0,17 W/(m ² K)	0,18 W/(m ² K)	7,7
240 mm	0,15 W/(m ² K)	0,17 W/(m ² K)	8,4
260 mm	0,14 W/(m ² K)	0,16 W/(m ² K)	9,1
280 mm		0,14 W/(m ² K)	9,8

PROCESSING STEPS



A tub, a drill, a paint stirrer and a rake are required to process the THERMOFLOC floor filling.

The compressed insulating material is broken up into coarse pieces and placed in the tub.



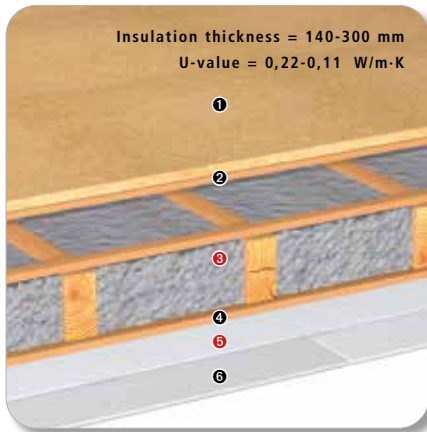
The insulating material is loosened up using a drill and a paint stirrer until a loose fluffy filling is formed. The insulating material is then tipped into the structure and spread out evenly without gaps throughout the structure using a rake.



END-USE FIELDS

Superior insulation x2

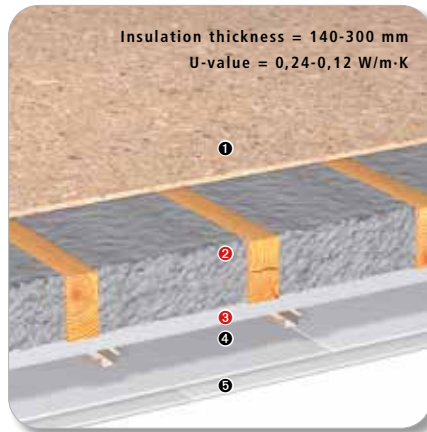
● **Floor insulation** ● **Ceiling insulation** ● **Top floor ceiling insulation**



Floor construction DB1

Tie-beam insulation

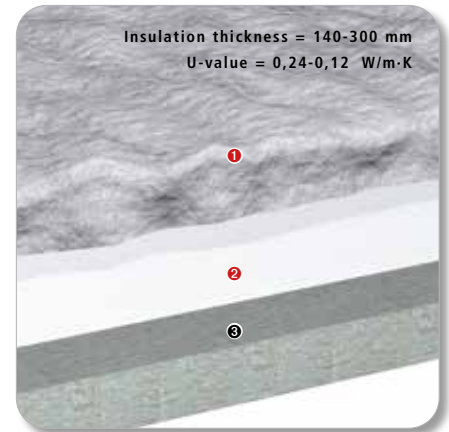
- ❶ Wood wool board
- ❷ Subfloor/plywood
- ❸ Joists/THERMOFLOC blown-in insulation
- ❹ Evenly spaced slats
- ❺ THERMOFLOC vapour control layer
- ❻ Plasterboard



Floor construction DB3

Ceiling

- ❶ OSB/Plywood
- ❷ Joists/THERMOFLOC blown-in insulation
- ❸ THERMOFLOC vapour control layer
- ❹ Spring rails
- ❺ Plasterboard, 2-layer



Insulation of a concrete floor

- ❶ Beams/THERMOFLOC blown-in insulation
- ❷ THERMOFLOC vapour control layer
- ❸ Concrete slab



Technical data	Floor insulation
Composition	Newspaper fibres, additives < 10%
Approvals / certificates	ETA - 18/0816
Installation thickness	33 - 48 kg/m ³
Fire behaviour	Class E ≥ 40 mm
Resistance to mould growth	Class 0
Sound absorption	$\alpha_w = 1,00 / d \geq 100 \text{ mm}$
Rated value of thermal conductivity	$\lambda_{D(23,50)} = 0,038 \text{ W/m·K}$
Water vapour diffusion resistance DIN EN ISO 10456	$\mu \leq 2$
Metal corrosion	Class CR
Settling	$S_v = 7,0 \% / 33,4 \text{ kg/m}^3$ $S_{cyc} = 22,9 \% / \text{Class SH 25}$
Water absorption	$W_p = 26,79 \text{ kg/m}^2 / 45 \text{ kg/m}^3$

INSULATION PELLETS

as a load-bearing floor structure



THERMOFLOC insulation pellets are used as floor filling. The granules are simply poured in to the desired installation depth and then levelled off flat. This means that subfloor structures with an installation height of 30 to 80 mm can be produced quickly.

Due to their high bulk density, they are ideally suited as a load-bearing insulation layer. With THERMOFLOC insulation pellets, you also achieve excellent sound insulation values. Whether concrete ceiling or timber

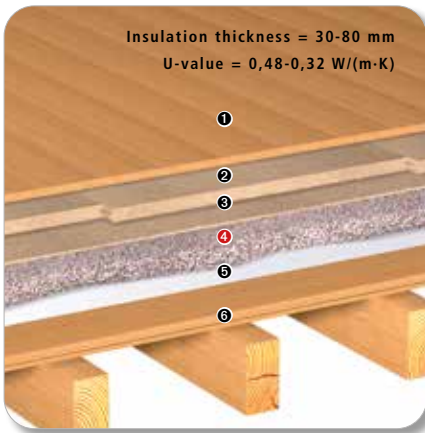
beam ceiling, THERMOFLOC insulation pellets can significantly improve the insulating properties of both types of construction. Insulation pellets can also be used as a levelling fill or as a base for dry screeds.

It's also possible to accurately calculate the material required in advance. A filling depth of 40 mm requires 40 l per m². Our THERMOFLOC insulation pellets are available in 40 l bags, with 36 bags to a pallet.



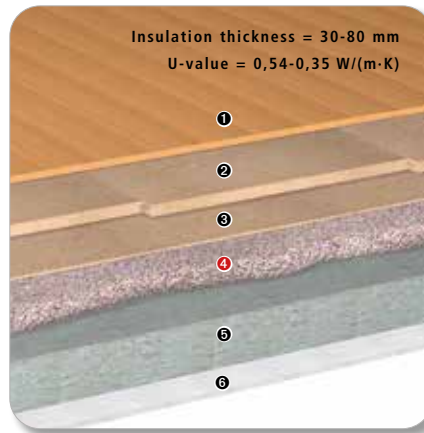
END-USE FIELDS
non-crushable and soundproof

Ceiling insulation **Floor insulation**



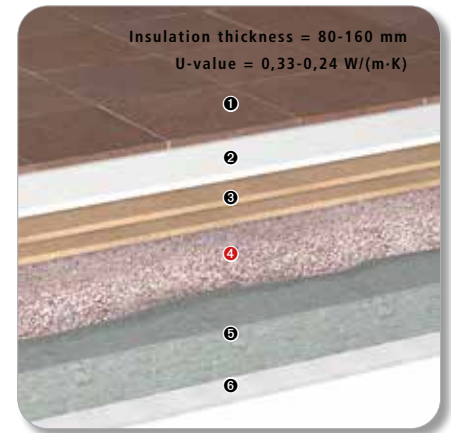
Floor construction DB7
Ceiling

- ❶ Wooden floorboards
- ❷ Soft fibre N+F
- ❸ Soft fibre cover panel
- ❹ THERMOFLOC insulation pellets
- ❺ Trickle protection
- ❻ Fire-resistant panelling



Floor construction DB14
Ceiling

- ❶ Wooden floorboards
- ❷ Soft fibre N+F
- ❸ Soft fibre cover panel
- ❹ THERMOFLOC insulation pellets
- ❺ Concrete ceiling
- ❻ Ceiling plaster



Floor construction DB15
Ceiling

- ❶ Ceramic tiles
- ❷ Gypsum plasterboard
- ❸ Soft wood fibreboard
- ❹ THERMOFLOC insulation pellets
- ❺ Concrete ceiling
- ❻ Ceiling plaster



Technical data	Insulation pellets
Rated value of thermal conductivity	$\lambda_{D(23/50)} = \lambda_D = 0,108 \text{ W/m}\cdot\text{K}$
Construction material class	E
Bulk density (mean value)	$P_b = 455 \text{ kg/m}^3$
Dynamic stiffness, nominal thickness 50 mm (mean value)	$s' = 52 \text{ MN/m}^3$
Dynamic stiffness, nominal thickness 80 mm (mean value)	$s' = 32 \text{ MN/m}^3$
Compressibility for a pour thickness of 80 mm	$c = 5 \text{ mm}$
Impact sound reduction for cement screed	$\Delta L_w = 19,8 - 25,2 \text{ dB}$
Impact sound reduction for dry screed	$\Delta L_w = 15,9 - 20,2 \text{ dB}$
Water vapour diffusion resistance	$\mu = 2,7$



BREATHER MEMBRANE

Roof membranes such as the THERMOFLOC breather membrane, protect the building from driving rain preventing any penetration of moisture into the roof or wall structure. The membrane is UV stable, has a high degree of tear-resistance and is extremely open to vapour diffusion. The breather membrane is installed of the roof supports (rafters) with the upper layer overlapping the one below and secured by concealed

stapling to provide optimal protection against wind and rain. Tiling battens are fixed above the breather membrane which further secures the membrane. Please note that the breather membrane can only be left exposed to the elements for a maximum of three months. The roofing tiles should be put on within two months at the latest.



Art. No. 5271

Technical data	Breather Membrane
Raw material	3-ply polypropylene fibrous lining
Tear strength, long./trans.	335 N/5 cm / 220 N/5 cm
Weight per m ²	166 g/m ²
Elongation at tear, long./trans.	60 % / 80 %
SD value	0,05 m
Fire class	E
Resistance to water penetration	Class W1
Resistance to driving rain	passed (TU Berlin)
Nail pull-out strength, long./trans.	240 N/5 cm / 275 N/5 cm
Roll width	150 cm
Roll length	50 linear metres
Pallet	24 rolls / 1,800 m ²



VAPOUR CONTROL LAYER

Our THERMOFLOC vapour control layer is a vapour-resistant lining and airtight membrane that protects the construction reliably against moisture. It can be used for internal wall and roof applications. The reinforcement of the membrane provides high tear resistance.



Art. No. 5139

Technical data	Vapour control layer
Raw material	Reinforced polypropylene fibrous lining
Weight per m ²	95 g/m ²
Maximum force, long./trans.	290 N/5 cm / 140 N/5 cm
Tear growth resistance, long./trans.	120 N / 130 N
Elongation at tear, long./trans.	30 % / 20 %
Fire class	E
Water vapour permeability	1,3 gr/m ² .d
Resistance to water penetration	Class W1
Roll width	150 cm
Roll length	50 linear metres
Pallet	20 rolls / 1,500 m ²





Art. No. 5321

Technical data	Vapour-proof lining and airtight sheeting with variable sd-value
Composition	Material non-woven / reinforcement / special polymer
Grammage	100 g/m ² ± 5 %
Reaction to fire (euroclass)	E
Resistance against water	W1
Water tightness at 2kPa	passed
Water vapour transmission	sd 0,4 - 100
Tensile force, long.	350 N/50 mm ± 20 N/50 mm
Tensile force, trans.	315 N/50 mm ± 20 N/50 mm
Elongation, long.	20 % ± 5 %
Elongation, trans.	20 % ± 5 %
Tear resistance, long.	350 N ± 25 N
Tear resistance, trans.	375 N ± 25 N
Durability against aging: Water vapour resistance	passed
Durability against alkali: Tensile force, long.	passed
Roll width	150 cm
Roll length	50 linear metres
Pallet	20 rolls / 1.500 m ²



APPLICATIONS:

THERMOFLOC vapour control layer is used on the inside of ventilated and non-ventilated roof constructions and in the walls of timber frame structures. The use of THERMOFLOC vapour control layer eliminates air movement through the structure preventing the penetration of moisture into the thermal insulation.

INSTALLATION INSTRUCTIONS:

THERMOFLOC vapour control layer is fastened to the substructure by means of stapling or gluing. With THERMOFLOC blown-in insulation, you can install the vapour control layer in both a longitudinal as well as transverse direction. Should it be necessary to install it crosswise, the points where adhesive tape is used must be covered with continuous battens to prevent the adhesive tape from becoming detached due to the blown-in pressure. All areas to be stuck down must be free of grease, dust and silicone, and must also be completely dry.

ADHESIVE PRODUCTS

Our adhesive products are specially adapted to the THERMOFLOC system. The adhesive tapes or alternatively the universal glue are used for airtight sealing of the THERMOFLOC vapour control layer and breather membrane. They can also be used for airtight masking of the joints of timber product boards (e.g. OSB boards).



Art. No. 5151

Art. No. 5318

Art. No. 5157

Technical data	Adhesive tape 5 cm	Adhesive tape 6 cm	Adhesive tape 14.6 cm
Raw material	Polyethylene adhesive tape	Polyethylene adhesive tape	Polyethylene adhesive tape
Roll width	5 cm	6 cm	14.6 cm
Roll length	25 linear metres	25 linear metres	25 linear metres
Box	12 rolls	10 rolls	4 rolls
Pallet	60 boxes	60 boxes	60 boxes
The adhesive coating consists of solvent- and emollient-free acrylate.			



Polyethylene universal adhesive tape with acrylate glue is used for airtight sealing of areas where THERMOFLOC vapour control layer are perforated or overlapping.

Art. No. 5170

Technical data	Universal glue
Material	Acrylate glue
Temperature resistance	-20°C to +80°C
Processing temperature from	-10°C to max. +50°C
Characteristic features	Short drying time, high expandability
Box/contents	20 units/310 ml
Pallet	60 boxes
Free of softening agents, solvents and halogen compounds – store frost protected.	



Permanent and elastic acrylate glue for connections of vapour retarders and vapour barriers of all types, also for PE, aluminium and PA on substrates such as plaster, wood, concrete, carpet, edging and so on as per DIN 4108-7 and SIA 180.

THERMOBAG



The THERMOFLOC-THERMOBAG system provides a way to insulate existing roof areas cost-effectively. The only requirement is suitable access to the partitions via the top storey of the building. The THERMOBAG consists of a vapour barrier on the room side (SD value approx. 10 m) with a vapour open (SD value <0.04 m), water impermeable PP membrane on the outside for optimum protection of the thermal insulation.

The THERMOBAG is not a replacement for a functioning sub-roof; rather it protects the installed insulation against weather-related moisture and air flow. Optimum insulation properties can only be achieved through professional installation of insulation at the correct density. An evaluation of the impact of the insulation system on the building physics including condensation risk should be conducted prior to installation.

THERMOFLOC-THERMOBAG – BENEFITS:

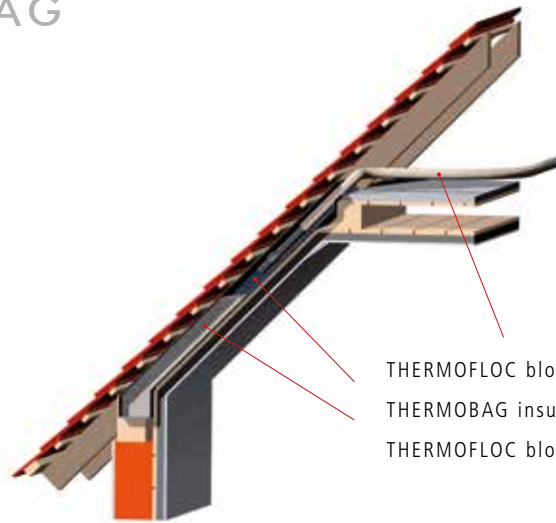
- complicated dismantling of the interior finishing or the roof covering is not required
- measurable improvement to summertime heat protection
- significant reduction in heating bills
- cost-effective renovation method that quickly pays for itself
- installation usually takes one day making it very customer friendly



THERMOFLOC-THERMOBAG

easy & efficient

● **Roof renovation** ● **Roof insulation**



THERMOFLOC blow-in hose
THERMOBAG insulation bag
THERMOFLOC blown-in insulation



Important:

With THERMOBAG, the roof covering and the interior finishing remain untouched!

Cut the THERMOBAG to length and seal on one side. After the prepared THERMOBAGS are cut to the respective compartment lengths, they are folded accordingly and sealed on one side with staples.

Put the THERMOBAG in the compartment space. Carefully and with the help of rods if required, position the empty THERMOBAGS into the optimum position in the compartment space.

Now, the THERMOBAGS can be inflated with THERMOFLOC blown-in insulation until the compartment space is completely filled. Then, the bags are securely sealed with staples and adhesive tape. The rafter insulation is finished. Due to the set size of the compartment space, there are limits to the thickness of the insulation layer. Insulation thicknesses up to 20 cm can be achieved.



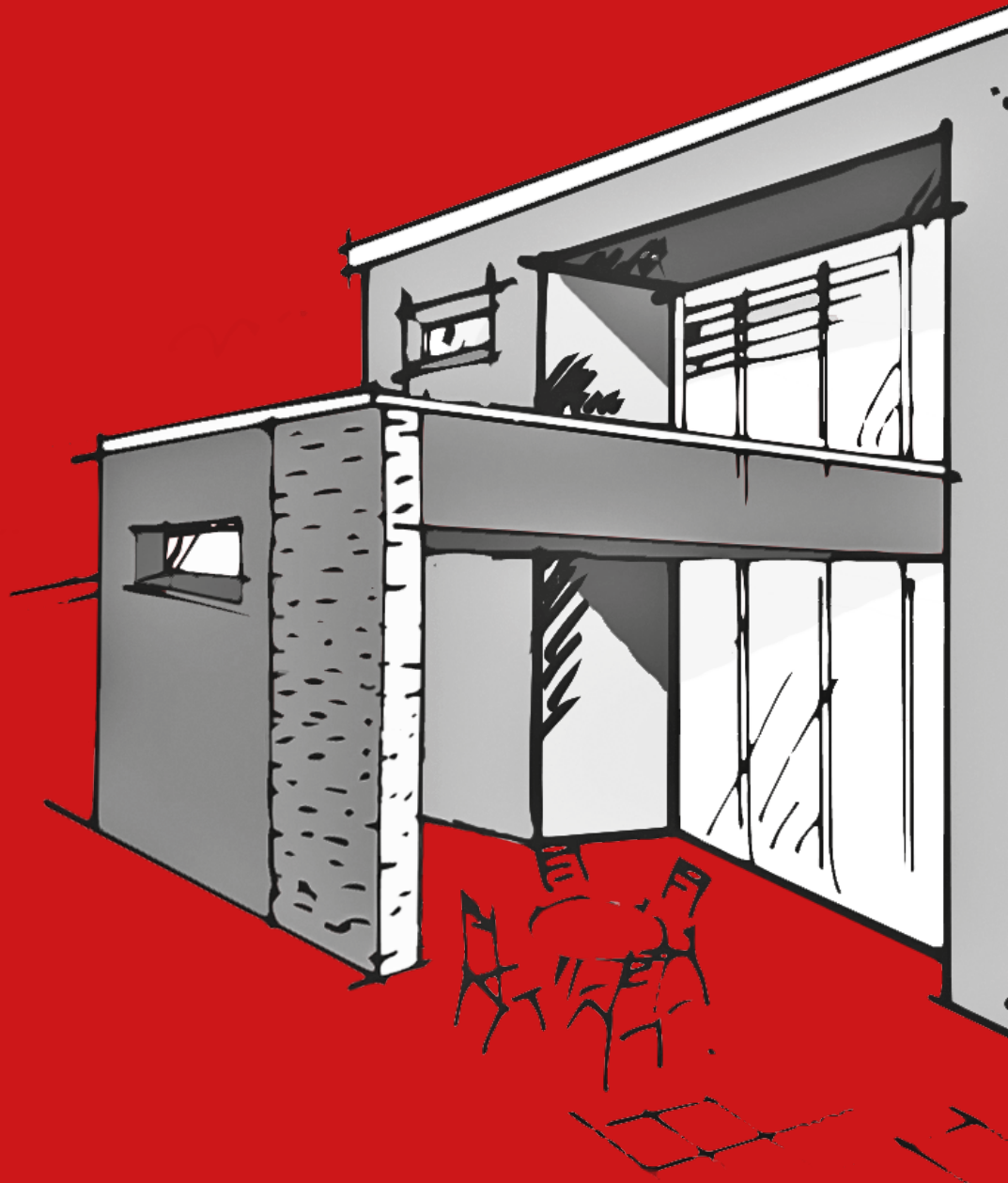
Art. No . 5134



Technical data	Vapour barrier Yellow - Bottom side	Breather membrane Light grey - Top side
Raw material	2-ply polypropylene fibrous lining	3-ply polypropylene fibrous lining
Weight per m ²	100 g/m ²	150 g/m ²
SD value	> 10 m	0,03 m
Fire class according to EN 13501-1	Class E	Class E
Resistance to water penetration	Class W1	Class W1
Maximum force, long./trans.	200 N/50 mm / 210 N/50 mm	280 N/50 mm / 230 N/50 mm
Elongation at tear, long./trans.	60 % / 50 %	60 % / 43 %
Tear growth resistance, long./trans.	190 N / 180 N	210 N / 230 N
Resistance to air passage	< 0,1 m ³ /(m ² h50Pa)	< 0,1 m ³ /(m ² h50Pa)
Dimensional accuracy, long./trans.	< 1 % / < 1 %	< 1 % / < 1 %
Roll width	100 cm	100 cm
Roll length	50 linear metres	50 linear metres
Pallet	15 rolls / 750 m ²	15 rolls / 750 m ²

THERMOFLOC®

Intelligent Insulation System



UK

THERMOFLOC United Kingdom

Eden Renewable Innovations Ltd
Soulands Gate, Dacre
CA11 0JF Penrith
Tel.: +44 17684 862 85
Fax: +44 17684 868 25
enquiries@thermafleece.com
<http://www.thermofloc.com/en>

Peter Seppel Gesellschaft m.b.H. | Bahnhofstraße 79 | A-9710 Feistritz/Drau |
Tel.: +43 4245 6201 | Fax: +43 4245 6336 | office@thermofloc.com | www.thermofloc.com

THERMOFLOC-Partner:

