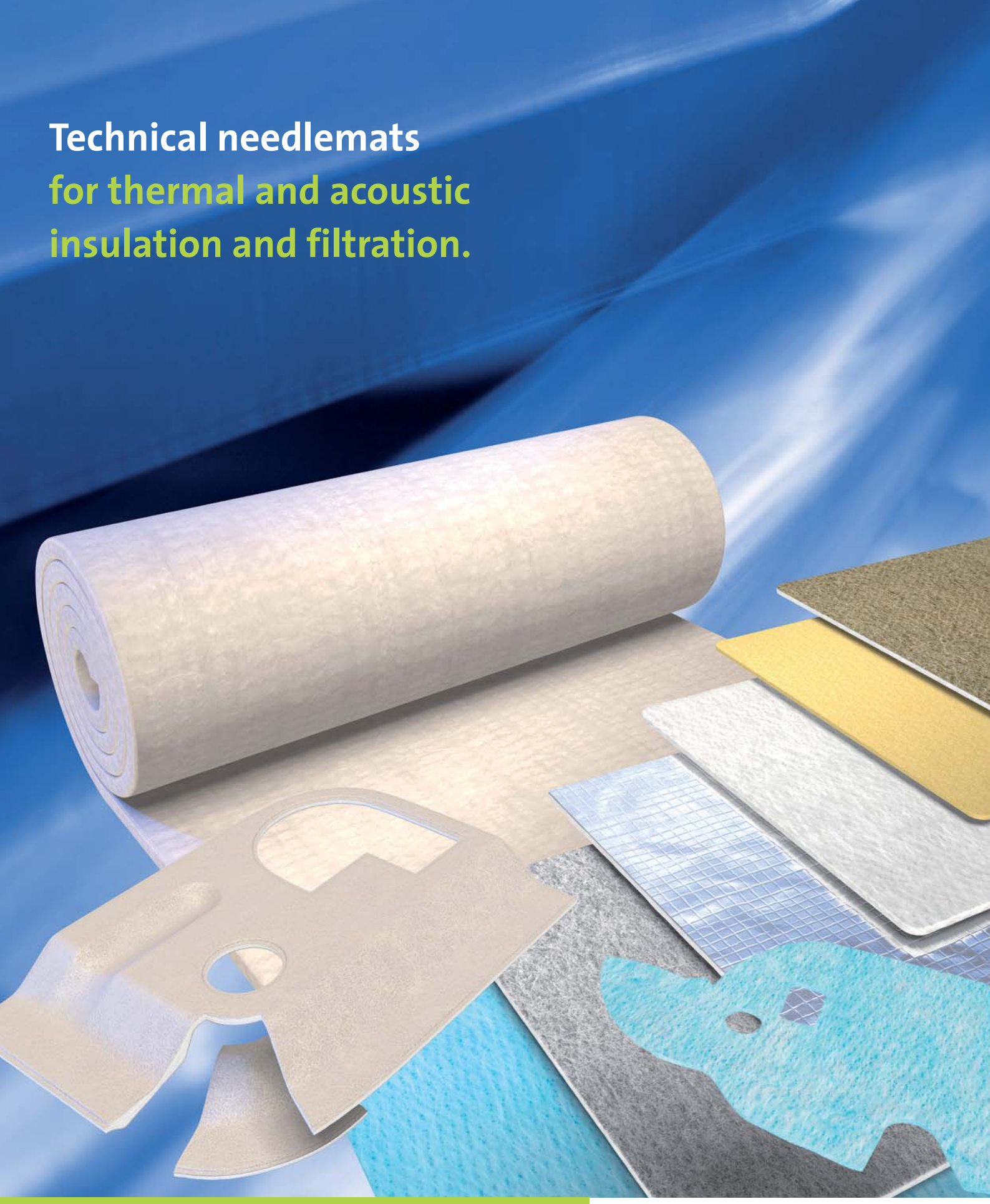
Technical needlemats
for thermal and acoustic insulation and filtration.



GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

Frenzelit

creating hightech solutions

Technical needlemats

As a comprehensive supplier of systems for gaskets, insulation and technical textiles, we help to make sure our customers maintain and increase their competitive edge.

We have been involved in the area of textiles that withstand high temperatures for more than 60 years now: development, testing, sampling, production - we give our customers active support throughout the process chain as an all-round manufacturer of textile insulation.

Your advantage: you benefit not only from our extensive material know-how but also from our decades of experience in international application engineering.

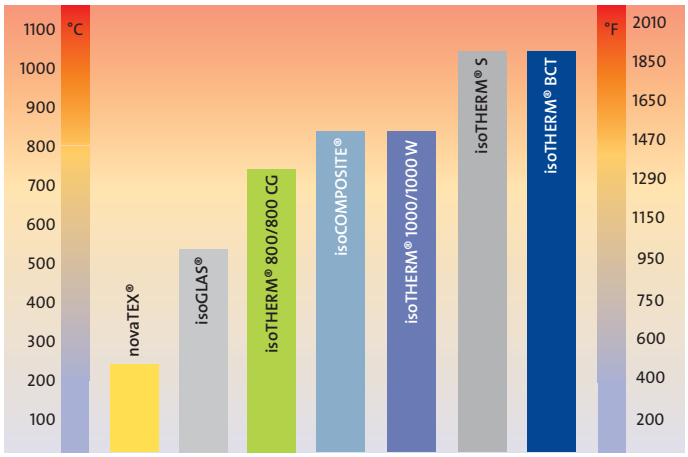
Innovations made by Frenzelit

Continuous improvement is essential in order to remain competitive. In research and development. In testing and implementing new technologies. And where the time factor is concerned. So we liaise with our customers to develop solutions that set standards for others. Short implementation times, clear customer orientation, perfect support - these are the outstanding features of „innovations made by Frenzelit“.

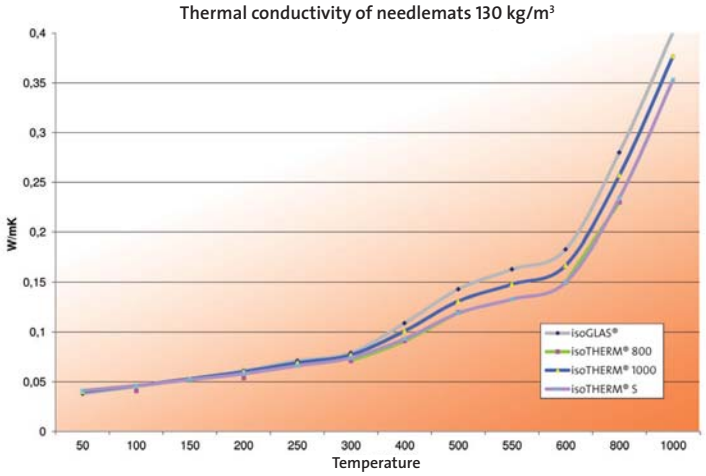
Application areas

Careful selection and optimum processing of our raw materials make sure that technical needlemats from Frenzelit have consistently high insulation properties - whether they are supplied in rolls, punched or cut into 3D and 2D shapes by water jets.
Our technical needlemats are used not only in the insulation field but also in many other areas. The product line chosen is determined according to the insulation capacity required and the application temperature.





Summary of the application temperature limits of Frenzelit needlemats

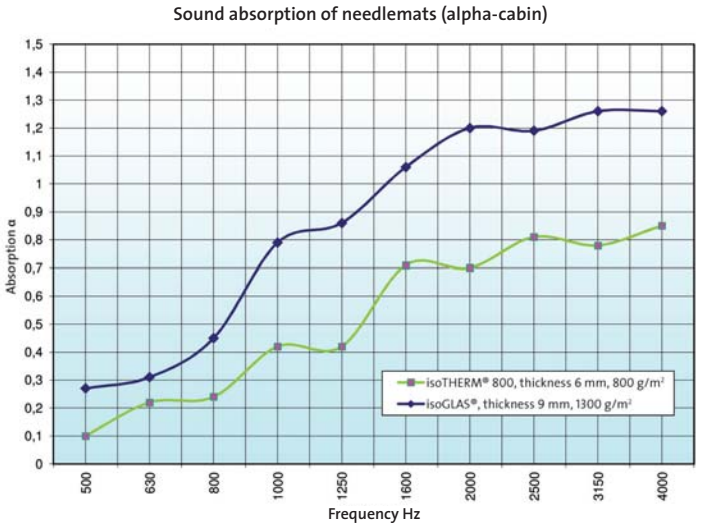


Comparison of the thermal conductivity of Frenzelit needlemats

Long-term functional stability

Glass fibres that are harmless to health are the basic material we always use for high-temperature applications. The fibre diameter of **at least 6 µm** is considerably **higher than the WHO respirability limit**. The fibres do not contain any toxic components either and they are easy on the skin (no REACH classification is necessary). The insulation materials are manufactured using our shot-free and glass bead-free technology. The continuous fibres used for this purpose are shot-free and therefore guarantee maximum quality without any faults.

There are eight technical needlemat product lines in total. With different temperature limits. And with numerous product types - so there is always one that is the perfect choice for any application.



Absorption graphs for isoGLAS® and isoTHERM® 800 needlemats

Product lines

isoTHERM® BCT

Application temperature limit
1050 °C (1100 °C for a short time)

Product made from high-performance fibres with an SiO_2 content of at least 94 %.

Low thermal conductivity, low smoke and odour as well as flexible, easily processed final material characteristics are the outstanding properties of this product.

- Non-combustible
- Shot-free & glass bead-free

isoTHERM® S

Application temperature limit
1050 °C (1100 °C for a short time)

Special SiO_2 glass fibres that withstand high temperatures are the basic material for these products.
Their characteristic properties are low thermal conductivity, minimum heat storage and absolute incombustibility.

isoTHERM® S is easy on the skin, is absolutely harmless to health and has excellent chemical resistance properties.

- Incombustible (ap. for fire category A1 according to DIN 4102)
- Shot-free & glass bead-free

isoTHERM® 1000
(Colour blue)
isoTHERM® 1000 W
(Colour off-white)

Application temperature limit
850 °C (1000 °C for a short time)

The basic material is produced by a chemical refinement process. The components that melt at a low temperature are eliminated from E-glass fibres in this process, so that the temperature resistance level is increased.

isoTHERM® 1000 has extremely textile properties, is very easy on the skin and is classified as absolutely harmless to health.

- Non-combustible
- Shot-free & glass bead-free

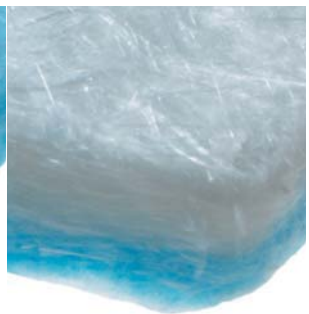
isoCOMPOSITE®

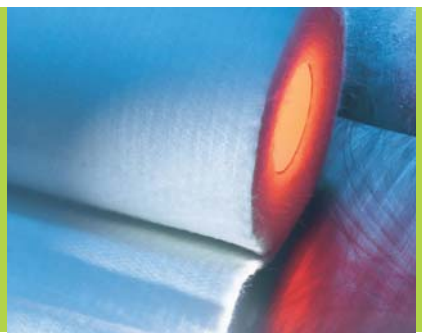
Application temperature limit
850 °C (1000 °C for a short time)

A specific combination of isoTHERM® 1000 and isoGLAS® needlemats is the basic material for this mat.

It is an extremely efficient and economic heat insulation material.

- Non-combustible
- Shot-free & glass bead-free





isoTHERM® 800 CG

Application temperature limit
750 °C (850 °C for a short time)

Product based on special glass that has extremely textile properties even at high temperatures.

isoTHERM® 800 and 800 CG are absolutely harmless to health, resist high temperatures and have good chemical resistance properties.

- Shot-free & glass bead-free

isoGLAS®

Application temperature limit
550 °C (650 °C for a short time)

E-glass is the basic material. Texturing guarantees a large storage volume and thus good insulation properties.

isoGLAS® mats are extremely textile and harmless to health.

- Incombustible (ap. for fire category A1 according to DIN 4102)
- Shot-free & glass bead-free

isoGLAS® GN

Application temperature limit
550 °C (650 °C for a short time)

Needlemat based on low-sizing glass fibres that develop particularly little smoke and odour and practically no formaldehyde, loss on ignition < 0,15 %.

isoGLAS® GN has been developed for applications in cooking stoves, ovens, commercial kitchens and smokehouses. No advance heating is required.

- Non-combustible
- Shot-free & glass bead-free

isoTECH needlemats

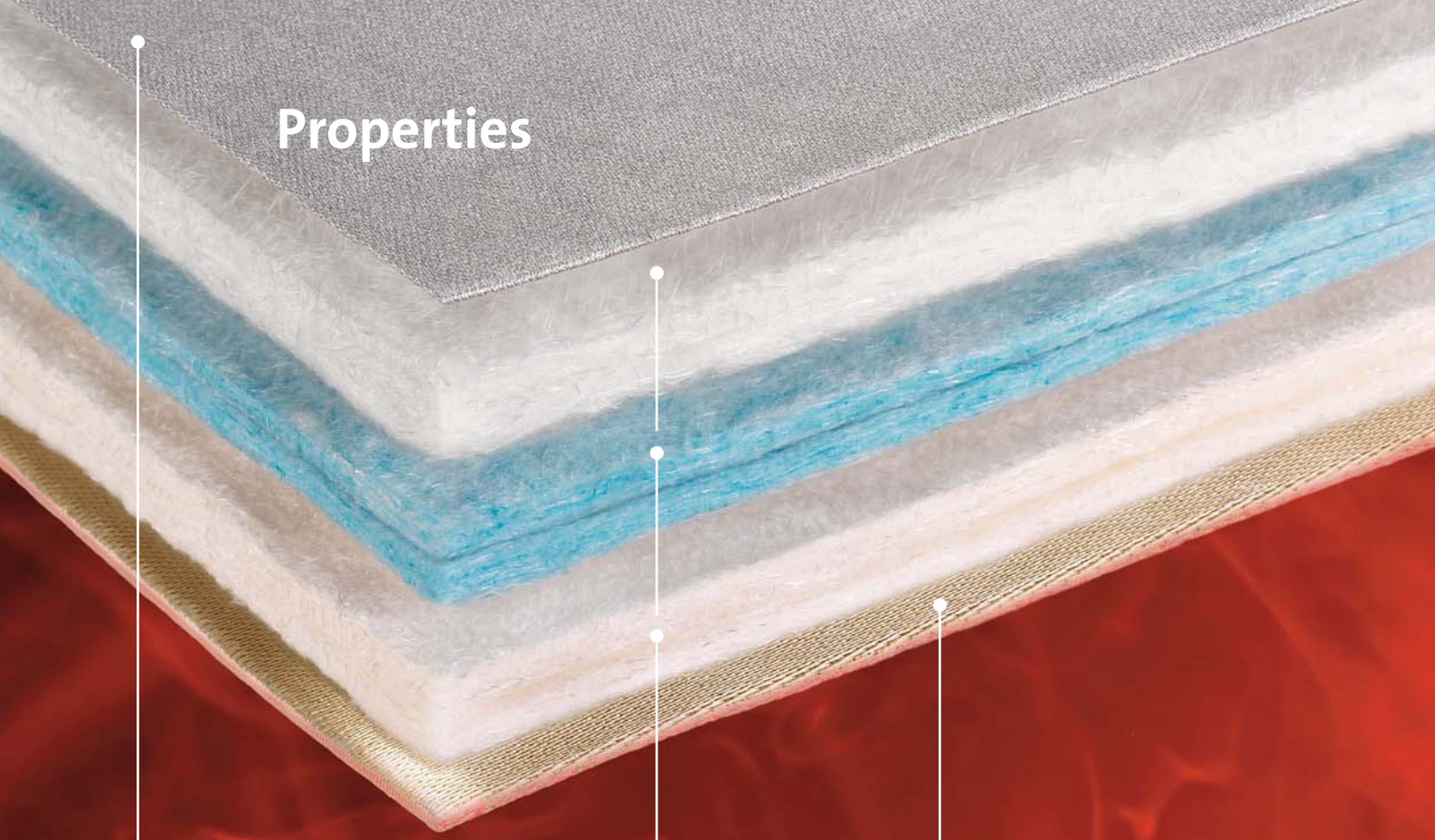
High-performance fibres made - for example - from meta-aramide, para-aramide, polyester, viscose FR, polyimide, polypropylene and carbon are the basis for this generation of innovative needlemats - either in combinations or alone, depending on the application.
isoTECH needlemats are developed in close co-operation with our customers for specific applications - so they are always a solution that meets your requirements perfectly. Their thickness and weight depend on the fibre used in each case.

Do you have any questions about your application?

The technical textiles information service will help you:

textile@frenzelit.de

Properties



Cover fabrics
isoGLAS® or isoTHERM®

Specially finished with, for example, Mtex®, Alufix, silicone, depending on the requirements (abrasion resistance, resistance to weathering, UV resistance, low emissivity, hydrophobicity, oleophobicity, suitability for fire protection applications, low fire toxicity, washability)

Inner fabrics
isoGLAS® or isoTHERM®

Reinforced with stainless steel wire if necessary (greater wear protection, mechanical strength for better insulation integrity, run-flat properties, high heat resistance)

Insulation materials made from needlemat
isoGLAS® or isoTHERM®

Depending on the temperature requirements: highly effective insulation properties, high temperature resistance, vibration resistance, no shot content, low heat flux and thus low heat loss, low thermal conductivity, high heat resistance

Our needlemats can be supplied in these forms:

- Rolls
- Cut to size
- Shaped parts

Application areas

Automotive	Insulation Heat shielding Rear-window shelves Panelling Soundproofing Wagon manufacturing
Heating and air conditioning	Heating system production Heatproofing production Tiled and chimney heating stove insulation
Energy industry	Solar collectors
Machine manufacturing and plant engineering	Turbine insulation Insulation pillows Expansion joints External insulation of boilers Soundproofing
Electrical appliance industry	Night storage heaters Electric cookers Ovens Gas cookers Fire protection in cable ducts
Safety engineering	Fire protection Fire barriers Fire protection covers Fire door insulation Roll-down doors

Cut to size

There is a choice of 7 standard needlemat materials for insulation solutions in different temperature ranges up to 1100°C. Additional alternatives are produced to customers' individual specifications wherever needed. The basic designs required are created in the CAD system (e.g. from dwg, dxfoder or jpeg files) and are then manufactured accuratly, right down to the smallest detail - using either our punching or our water jet cutting equipment.

Moulded

A perfect fit in the third dimension too: appropriate tooling is used to produce finished, moulded 3D parts from isoTHERM® SG insulation material based on isoTHERM® needlemat and special chemistry. Dimensional stability and exact dimensions not only facilitate the installation of insulation materials. In addition to this, they in particular guarantee maximum possible functionality.

Product types

isoTHERM® BCT

Thickness: 3 - 25 mm
Weight: 350 - 4300 g/m²

All needlemat qualities have a density of 130 - 160 kg/m³

isoTHERM® S

Thickness: 3 - 25 mm
Weight: 350 - 4300 g/m²

isoTHERM® 1000/1000 W

Thickness 1000: 6, 10, 12 mm
Thickness 1000 W: 3 - 25 mm
Weight 1000: 700, 1400 g/m²
Weight 1000 W: 350 - 4300 g/m²

isoCOMPOSITE®

Thickness: 10 - 75 mm
Weight: 1800 - 10000 g/m²

isoTHERM® 800/800 CG

Thickness: 3 - 25 mm
Weight: 350 - 4300 g/m²

isoGLAS®

Thickness: 3 - 75 mm
Weight: 300 - 10000 g/m²

isoGLAS® GN

Thickness: 3 - 75 mm
Weight: 300 - 10000 g/m²

isoTECH-Nadelvliese

Thickness: up to 25 mm
Weight: 100 - 2000 g/m²

Different grades, versions and dimensions as well as finished parts are available on request.

Coating/lamination and needlemat reinforcement

Coating, lamination or reinforcement with scrim (up to 9 mm thick): finishing processes can be used to adapt the properties of our needlemats so that they satisfy your specific requirements.

The options available are:

• Scrim to 9 mm thickness	
• Vermiculte coating	700 °C
• Alufix coating	200 °C
• Aluminium foil lamination	650 °C
• Aluminium lattice foil lamination	650 °C

Good for people and the environment.

From research and development to manufacturing at our factory and use of the product by the customer: quality assurance and a responsible attitude to resources and the environment are central features of all we do - throughout the life cycle of every single product.
The Frenzelit Technical Textile Division has obtained certification of its compliance with the requirements not only of ISO 9001 and ISO/TS 16949 but also of ISO 14001 and also complies with marine work safety association Module D. This means complete transparency in all areas and therefore guarantees maximum safety and security - for our employees, for the environment and for our customers.

Quality management

ISO 9001

ISO/TS 16949

Marine work safety association Module D

Environmental management

ISO 14001

BLUEcoMPETENCE Alliance Member
Partner of the Engineering Industry Sustainability Initiative

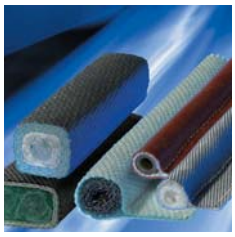
Further sealing and insulating products from Frenzelit:

Technical woven fabrics and tapes
for sealing and insulation

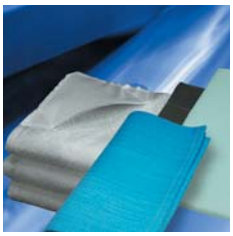
Technical cords and braids
for sealing and insulation

novaSEAL®
Boiler and tank rings

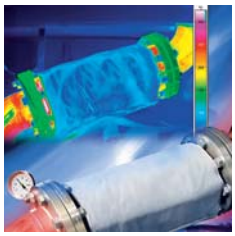
Tadpole tapes, wound packings and layered tapes
for sealing applications



Acoustic solutions
for acoustic and thermal insulation



Blankets
to protect people and property



Engineered textile solutions
for thermal and acoustic insulation

GASKETS
TECHNICAL TEXTILES
EXPANSION JOINTS
INSULATION
NEW MATERIALS

Frenzelit Werke GmbH
P.O. Box 11 40
95456 Bad Berneck
Germany
Phone +49 9273 72-0
Fax +49 9273 72-344
info@frenzelit.de
www.frenzelit.com

Frenzelit
creating hightech solutions

AT/I/03.14/01/ML