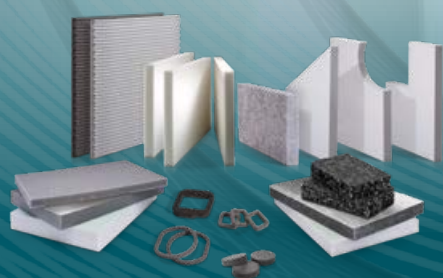


Version:
03/2023



Innovative Technical Acoustics

**HANNO products for industrial sound,
thermal and vibration insulation**



HANNO



Silence,
at last!



"I see something, which you don't see."

Invisible and yet indispensable – HANNO's sealing insulation systems are true hidden talents.

HANNO Products for Industrial Applications



For many decades, HANNO has been developing and producing sound insulation, sealants and sealing tapes for use in industry, building construction, drywall construction and many other areas.

Highly effective products for sound insulation and sound absorption

Industrial noise is increasingly generated. Noisy machines and production processes are often unavoidable. Sound insulation and soundproofing ensure that the negative consequences of noise do not occur or do not occur as strongly: Sound cannot spread unhindered, and the acoustics are adapted to human demands. Many requirements already result from the standards and the health regulations of the employers' trade associations (BG).

HANNO offers many individual products for sound protection and sound insulation for different requirements and applications.

Quality and reliability

Our self-image includes not only reliable, punctual delivery but also compliance with the highest quality production standards. To ensure this, we maintain our own Research & Development Department with its own laboratories and test facilities. Here, we run regular checks and search for new, innovative sealing and insulating materials. The guiding principles for development are the constantly changing requirements from the market and the expectations of our customers. The result: Best possible individual solutions.

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What is sound protection?

We are constantly surrounded by sources of noise: Machines in production plants, driving noises from cars, lorries and rail vehicles, even in offices there is often no peace and quiet. Noise disturbs concentration, distracts us and even endangers our health at high levels. That is why sound insulation is so important.

There are numerous sound insulation measures to keep noise levels low. They always aim to reduce the transmission of sound from a source to a receiver (often in accordance with legal requirements). It starts with ("Mickey Mouse") earmuffs and extends to the enclosure of loud production equipment.

HANNO offers materials and sound insulation systems that absorb, dampen or insulate sound or support sound decoupling. There are differences between designed and retrofit sound insulation: Designed sound insulation measures are already developed in the planning stage and installed during construction. Retrofit sound insulation improves the situation of existing structures.

What is sound insulation?

Sound insulation restricts the transmission of sound between two sound-conducting bodies. This is done in buildings, for example, by acoustically separating ceiling components to reduce impact sound. This acoustic decoupling is most impressive in sound studios.

The same principle applies for vehicle parts and machines when – for example, by using a suitable insulating material – the noise generated by a moving component does not pass through to another component. Depending on the specific application, structure-borne sound insulating materials or materials that insulate airborne sound may be considered.

What are sound dampening and sound absorption?

If insulation alone does not sufficiently reduce noise, sound absorption and damping come into play. Special materials absorb the sound energy and convert it into heat. To do this, highly porous surfaces are used which do not reflect the sound (as is the case with very smooth, so-called sound-reflecting surfaces), but absorb it. Such sound insulation measures influence the room acoustics. Here, the planners look at ceilings, walls, floors and even objects (furniture) to determine the optimum interaction of sound-reflecting and sound-absorbing surfaces for this space – from offices, to meeting rooms – right up to concert halls.

Differentiation between structure-borne sound and airborne sound

Sound travels as mechanical waves – through air or solid bodies. In the air, this happens at around 340 metres per second. The human ear can perceive airborne sound (above a certain sound pressure level) at frequencies of between 20 and 20 000 Hertz. If the sound pressure is above 100 dB(B), most



HANNO comprises not only the company headquarters in Laatzen near Hanover (see picture) but also other international locations in Switzerland and the United States.

people experience it as pain. Structure-borne sound, on the other hand, penetrates solid bodies, for example through vibrations in buildings, vehicles and machines.

The propagation of sound in solids depends on their density and the sound frequency. Humans perceive structure-borne sound as vibration at very low frequencies. It becomes audible when the solid-borne sound is transmitted to the air and becomes airborne sound.

Product requirements for sound protection and sound insulation

Insulating, absorbing or damping: That is the core task. Often the products have to fulfil additional properties. These requirements can be:

- Thermal insulation
- Cold insulation
- Fire resistance
- Temperature resistance
- Durable elasticity
- Resistance to ageing
- Resistance to hydrolysis
- Good foam recovery properties
- Hydrophobic and oleophobic properties
- Fiber-free
- UV resistance
- Low density
- Hygienically clean

The application range is just as broad. Listed are some typical applications – and where you can find the right HANNO solution:

- Automotive industry (see page 8)
- Rail vehicles (see page 10)
- Machinery construction (see page 12)
- Household appliances (see page 12)
- Energy technology (see page 14)
- Air-conditioning units and ventilation systems (see page 14)
- Room acoustics (see page 16)
- Medical technology (see page 18)
- Packaging, storage and transport (see page 19)

You can find even more information and technical data at **www.hanno.com**.



Quiet thanks to HANNO: Ventilation units run more quietly with the right sound insulation



Product Overview

		Products	Features/characteristics	See page	Automotive industry	Rail vehicles	Machinery, equipment and apparatus engineering	HVAC and renewable energy	Room acoustics	Medical technology	Packaging storage and transport
Raw foam	Polyether	HW 30 sfl	With coating also available as Protecto 20/Pruvtec (PU skin), Protecto 50 (polyester viscose fleece), Protecto 51 (PP fleece), Protecto 60 (aluminium foil), other foam densities on request	26	●		●	●		●	
		HW 36 B2	Optimised fire behaviour (B2, UL94), with PU skin also available as Protecto 20 B2	26			●	●			
		HW 37 dbl	DBL 5450.10, fogging according to DIN 75201 < 1 mg and emissions according to VDA278	26	●						
		HW 30 TS	Very high quality foam for sealing applications, low-emission	26	●		●	●		●	
	Polyester	HW 7 sfl	Good UV resistance	26	●						
		HW 40 S	Very high-quality foam for sealing applications, low fogging, soft elastic	26	●						
		PPI 20, PPI 45, PPI 60	Filter foams with 20 – 60 pores per inch	26	●						
	Compos-ite foam	V 12, V 16, V 18, V 20	Very high densities up to approx. 200 kg/m³ possible, very good acoustic properties	26			●	●			●
Multi-layer elements	PU foam and heavy layer	Protecto plus 55, plus 65 and plus 75	Structure-borne sound insulation and airborne sound absorption in one product, raw foam HW 30 sfl with bitumen-impregnated wool felt board pf 810 (plus 55), pf 820 with dimpled foam (plus 65) and pf 820 smooth foam (plus 75), various thicknesses available	22 – 23			●	●			
		Protecto plus 85	Structure-borne sound absorption and airborne sound absorption in one article, raw foam HW 30 sfl with bitumen foil (pf 830), various thicknesses available	22 – 23			●	●			
Permanently elastic foam	Impregnated	BG1 and BG2	Precompressed sealing tape for connection and movement joints between different building components, driving rain proof and flame retardant acc. to DIN 4102 -1 B1 (BG1) and EN 13501 -1 class E (BG2)	24	●		●	●			
		DF 50 and DF 80	Densities 50 kg/m³ and 80 kg/m³, also suitable for outdoor applications	27	●						
		EL 1	Permanently electrostatically conductive < 10^5 Ohm	27							●
		Redusoft DI 80 and DI 150	Densities 80 kg/m³ and 150 kg/m³, permanently elastic, sealing (depending on compression rate), breathable, very good fire behaviour	24	●		●				
		Redusoft DI 150 FR	Permanently elastic, sealing (depending on compression rate), breathable, excellent fire behaviour (EN 45545*)	24		●					
Heavy layers	Bitumen	Protecto pf 810 and pf 820	Bitumen impregnated wool felt cardboards with 1 kg/m² or 2 kg/m² surface weight	20	●		●	●			
		Protecto pf 830 and pf 840	Bitumen foil with 5 kg/m² or 10 kg/m² surface weight	20	●		●	●			
	Bitumen-free	Protecto pf 1000	Bitumen-free heavy layer with 2 kg/m² and 4 kg/m² surface weight	20	●						
PE foam	Con-nect-ed	HW 50 KA and KT	KA (physically cross-linked), KT (chemically cross-linked)	28	●		●	●			●
	Non-cross-linked	HW 50 SuperDry	Very good acoustic properties, good fire behaviour (EN 45545*), available as UV-resistant version	28		●	●	●			
Melamine resin foam	Hydrophobic and oleophobic adj.	Tect	Very good fire behaviour, very high temperature resistance, available as AL 18 and AL 18 tp (aluminium coating), Tect-V (surface made of polyester viscose fleece), Tect-PU (PU skin), hydrophobic and oleophobic adjustable	20 – 21		●		●	●	●	
		Tect-UF	Ultra-flexible melamine foam, very good fire behaviour, very high temperature resistance, available as AL 18, hydrophobic and oleophobic adjustable	20 – 21		●		●		●	
		Tect-F-free	Like Tect, but fluorine-free hydrophobic (not oleophobic!)	20 – 21		●		●		●	
Cellular rubber	EPDM	EPDM-L	Can be used with acids/alkalis in usual concentrations, water vapour up to 100 °C, seawater, alcohol, ozone, silicone oil, etc.	25	●		●	●		●	
		Cellular rubber ZG V	Flame retardant, highly elastic, high water vapour diffusion resistance, very low thermal conductivity	25	●			●			
		Cellular rubber ZG NE	Hydrolysis-resistant, depending on concentration can be used with acids, alkalis, alcohol, silicone oils	25	●			●			
Fleece	PET fleece	Fiber 20–30	Good fire behaviour*, available as AL 18, hydrophobic and oleophobic adjustable	29		●		●			
See page					8	10	12	14	16	18	19

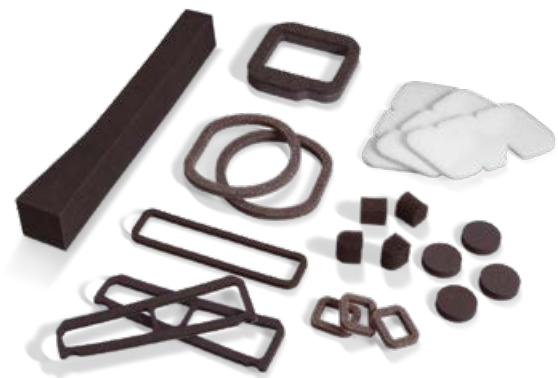
Automotive Industry

Experience Silence

HANNO advantages:

- Quiet driving experience
- Rattle and splash protection protects sensitive components
- Noise damping increases safety and concentration
- Optimum acoustics for enjoying music while driving

HANNO offers many highly effective solutions significantly reducing structure-borne noise in passenger and commercial vehicles.



Many years of experience ensure the highest level of know-how

Sound insulation and soundproofing play a major role in vehicles to ensure pleasant, stress-free journeys. HANNO's solutions reduce the noise inside the vehicle, reduce the sound emission to the outside, reduce the penetration of structure-borne noise and – for some the most important function – optimise the acoustics for multimedia technology.

Close cooperation with leading vehicle manufacturers leads to tailor-made solutions for the complex challenges in the automotive industry:

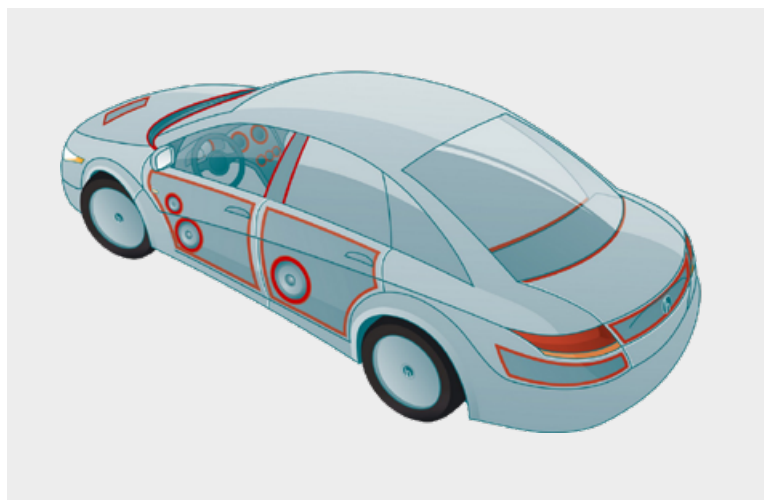
- Rattle protection
- Sealing against splash water
- Sealing against unwanted air drafts
- Damping of vibrations
- Acoustic measures

HANNO also offers the right sealing and damping solutions for commercial vehicles – from garbage trucks to motorhomes, buses and construction machinery.

HANNO products for the automotive industry

We particularly recommend these products for soundproofing, sealing and thermal insulation in motor vehicles:

- Hanno®-HW 30 sfl (page 26)
- Hanno®-HW 37 dbf (page 26)
- Hanno®-Redusoft (page 24)
- Hannoband®-BG1 and BG2 (page 24)



Everything from a single source: HANNO products for door insulation, parcel shelf, loudspeakers, radiator grille, dashboard, bulkhead and pillars



Hanno®-HW 30 sfl and HW 37 dbf



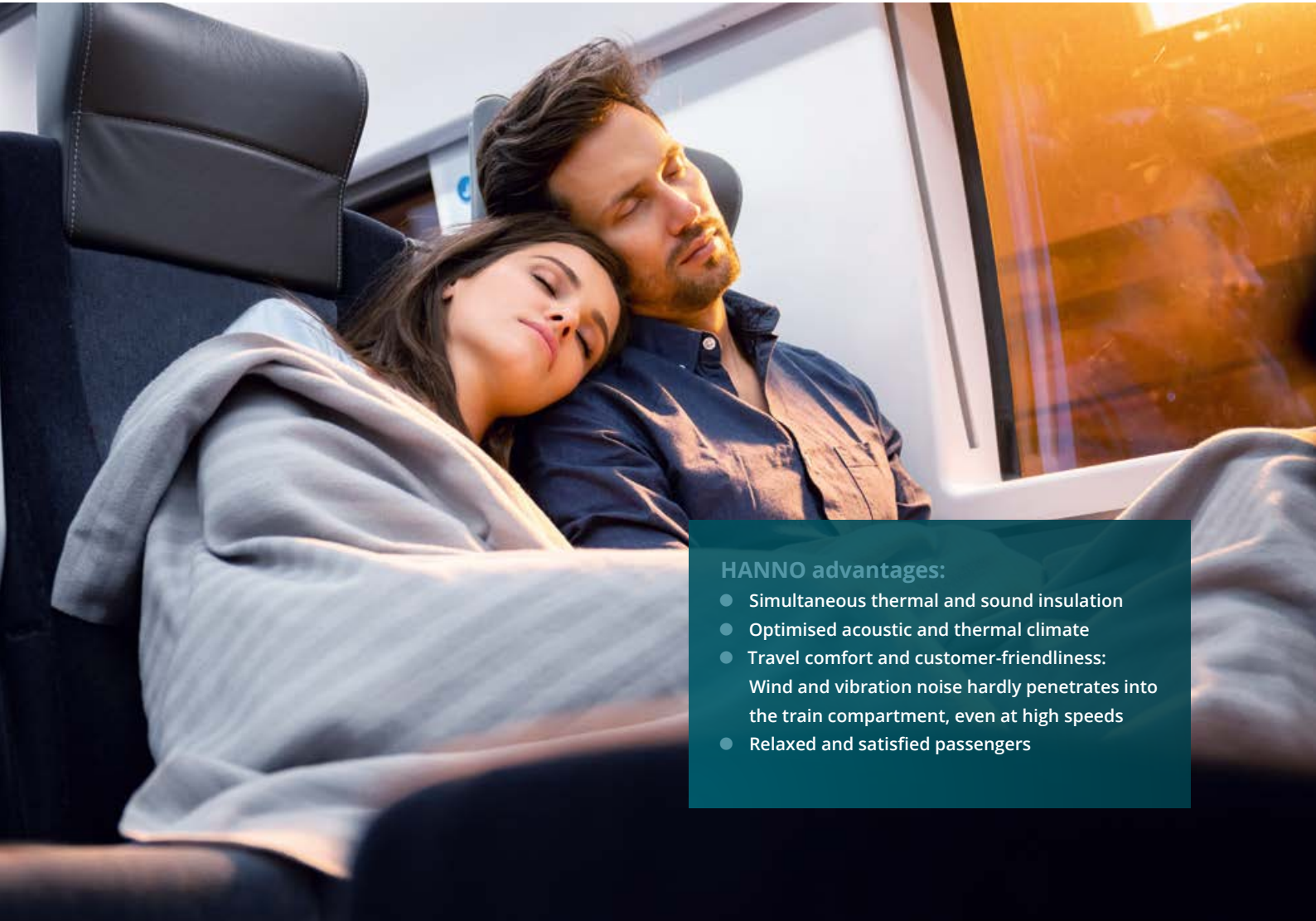
Hanno®-Redusoft



Hannoband®-BG1 and BG2

Rail Vehicles

Relaxed Travelling on Long and Short Journeys



HANNO advantages:

- Simultaneous thermal and sound insulation
- Optimised acoustic and thermal climate
- Travel comfort and customer-friendliness:
Wind and vibration noise hardly penetrates into the train compartment, even at high speeds
- Relaxed and satisfied passengers

Highly effective sound, thermal and vibration damping ensures quietness in rail vehicles – and thus relaxed passengers.



No rattling, no shaking, no clattering, no droning

In earlier times, constant vibrating or loud travelling noises made train travel a burden. Due to the increasing travel speeds, the demands on noise protection have even increased. Nevertheless, today perfect sound and vibration damping insulation and sealing materials are available for a quiet train journey.

HANNO products for rail vehicles

Pleasant rail travel thanks to HANNO: Our sound-absorbing and sound-insulating products keep noise in rail vehicles low. For safety and to comply with the special requirements of fire protection, these products are flame retardant.

We particularly recommend the following products for soundproofing, sealing and thermal insulation in rail vehicles:

The very lightweight products **Hanno®-Tect** and **Hanno®-Fiber** are convincing in terms of fire protection: The materials have an exceptionally low flammability.

Acoustic seals from the **Hanno®-Redusoft** product range are particularly durable and remain permanently elastic for years even when compressed.

→ **Hanno®-Tect products (page 20)**

→ **Hanno®-Redusoft DI 150 FR (page 24)**

→ **Hanno®-Fiber (page 29)**



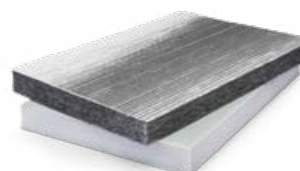
HANNO manufactures die-cut foam parts for noise protection and thermal insulation in trains and trams.



Hanno®-Tect products



Hanno®-Redusoft DI150 FR



Hanno®-Fiber

Machinery and Appliances

Very Quiet – Thanks to HANNO

HANNO advantages:

- Low-noise equipment with suitable sound insulation improves health and well-being
- Protection against excessive noise pollution in factories
- Comfort and relaxation in your own home

With sound insulation materials from HANNO, machines and appliances run much more quietly.



Mechanical engineering

HANNO specialists help to avoid sound bridges as early as the development phase. Particularly where different types of components and materials are joined, sound often reaches the surface. HANNO products decouple this sound effectively and help to avoid rattling noises.

Too much noise can be largely avoided by machine encapsulation – for reduced airborne sound and a more pleasant working environment.

Special foams – insensitive to acids or resistant to lubricating oils – permanently seal machine parts even where they are exposed to particular stresses. HANNO dampens:

- CNC machining centres
- Punching, cutting, milling and turning machines
- Transport systems
- Compressors, blowers
- Server and switch cabinets

Household appliances

HANNO offers the complete product range for quietness in the household: The vacuum cleaner runs pleasantly quietly, escaping air is effectively freed from particles by HANNO foams. Even coffee machines can be insulated to prevent them from making too much noise. HANNO makes it quieter:

- Coffee machines
- Washing machines and tumble dryers
- Dishwasher
- Extractor hoods
- Vacuum cleaners

For machines and appliances we especially recommend the following products:

→ **Hanno®-Protecto products (page 22)**



HANNO products decouple components and thus prevent structure-borne noise from being transmitted. As a result, machines and appliances run much more quietly.



Hanno®-Protecto products

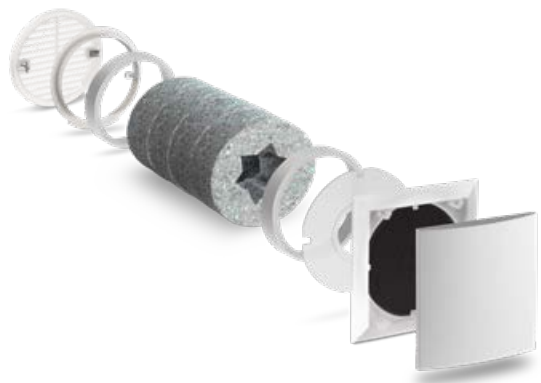
HVAC and Renewable Energies

For a Peaceful Climate

HANNO advantages:

- Sound insulation allows dense construction
- Flexibility in urban and building planning
- Increased quality of living
- Air purification from dust

Silent ventilation and dust-free air – HANNO products are effectively used in air conditioning, heating and ventilation systems. This creates a feel-good atmosphere without disturbing noise.



Renewable energies

Wind turbines, heating pumps, generators and aggregates are potential sources of noise. Provided with sound-absorbing material, this disturbing noise can be effectively reduced. In many cases, there are also thermal insulation requirements.

In HVAC equipment

Well sound-insulated air-conditioning units and ventilation systems perform their daily service almost unnoticed. Even with fans, where airborne noise cannot be avoided, quieter operation is possible with suitable insulation materials. HANNO products minimise airborne sound and insulate the transmission of structure-borne sound.

For particularly challenging applications, our HANNO acoustic team develops and tests custom-made products.

Hanno®-HW 50 SuperDry is ideally suited for acoustic applications in outdoor, damp and wet areas, while **Hanno®-Filter-Foams** keep dust out of the air. Materials from the **Hanno®-Protecto series** dampen occurring noise to a high degree.

- Hanno®-HW 50 SuperDry (page 28)
- Hanno®-Raw-Foam (page 26)
- Hanno®-Filter-Foam (page 26)
- Hanno®-Protecto products (page 22)



HANNO standard materials are suitable for low noise construction of wind turbines, power generators or heating systems.



Hanno®-HW 50 SuperDry



Hanno®-Raw-Foam



Hanno®-Filter-Foam



Hanno®-Protecto products

Room Acoustics

Nothing Gets Past HANNO!



HANNO advantages:

- Optimum room acoustics
- Unblemished sound experience
- Undisturbed communication and understanding

HANNO offers optimal solutions for the right sound insulation and pleasant acoustics in work spaces, production facilities, offices, sound studios, concert halls and schools.



Foams for rooms

Cinema or theatre acoustics for your work spaces? Even noises at room volume (from 55 dB (A)) disturb many people; at 65–75 dB (A), like the noise level of a vacuum cleaner, stress quickly develops.

However, the requirements for acoustics differ greatly from place to place: Offices, concert halls and sound studios need completely different solutions for floors, walls, ceilings and the building construction and acoustic materials installed there. Correctly dimensioned and installed, sound-absorbing surfaces ensure reduced sound levels. This minimises reverberation times and thus promotes speech comprehension. In many cases, room acoustics can also be improved retroactively.

Optimised room acoustics can reduce stress and thus ensure – at the workplace – more efficient and healthier work, as well as better decision making.

For effective sound insulation in industrial halls, offices, sound studios, schools, etc., we suggest our proven **Hanno®-Tect-Panels** as baffle absorbers. These are characterised by a high degree of efficiency and can be installed quickly and easily, even as retrofit.

→ **Hanno®-Tect baffle absorbers (page 20)**



Hanno®-Tect baffle absorbers



^ Hanno®-Tect panels covered with printed fabric to improve room acoustics

✓ Hanno®-Tect baffle absorbers can be suspended from the ceiling



Medical Technology

Hygienic, Low-emission, Safe, Quiet



Patients recover faster when they peace in mind. During quieter times (e. g. at night) we perceive noises that are being masked during the day. HANNO products ensure the highest possible noise reduction so that patients can rest and recover.

Medical devices emit sounds in different frequencies depending on their design. Sound insulation must therefore be precisely matched to achieve the greatest possible effect. HANNO offers an extensive range of suitable sound insulation made of acoustic foams, which convert the sound waves into heat after penetrating the absorbers and dissipate them. This way, the volume is reduced and the overall noise level is significantly lowered.

HANNO products help with:

- Suppression of vibrations by increasing the weight of the unit enclosure and decoupling it from the environment
- Airborne sound insulation in all frequency ranges

We particularly recommend:

→ **Hanno®-Protecto products (page 22)**



HANNO products are used in many medical applications, such as ECGs, ventilators, autoclaves, patient supports, positioning aids and moulded pads.



Hanno®-Protecto products

Packaging, Transport and Electronics

Always Arrives Safely With HANNO!

Packaging protection from HANNO

Technical devices, porcelain, glass – there are many products which need special protection during transit. We have developed the Hanno®-Raw-Foams to provide optimum protection for goods being transported. The pressure-resistant and shock-absorbing foams help sensitive goods reach their destination safely. With their high resilience and flexibility, they enable goods to be cushioned with a perfect fit.

All Hanno®-Raw-Foams are also available self-adhering and can be ordered as cut-to-size and die-cut parts.

→ Hanno®-Raw-Foam (page 26)

→ Hanno®-Composite-Foam (page 26)

Durable ESD transport protection for sensitive electronic components

Filigree electronic components must be particularly well protected during transport. Electrostatic discharges pose a high risk: These can easily cause damage to the sensitive technology. The soft-elastic foams with cushioning effect provide lasting protection against electrostatic and mechanical damage.

→ Hanno®-EL 1 (page 27)



Hanno®-EL 1 absorbs shocks during transport – and ensures that sensitive electronic components do not become charged.



Hanno®-Raw-Foam



Hanno®-Composite-Foam



Hanno®-EL 1

Hanno[®]-Tect

Versatile Sound and Thermal Insulation

Lightweight, sound-absorbing and thermally insulating – Hanno[®]-Tect is versatile with its properties. The exceptionally low flammability also ensures a high level of fire safety.

Hanno[®]-Tect is available in many product variants, for example as Tect-AL with additionally laminated aluminium foil. Or as Tect-o-phob being oleophobic and hydrophobic. New: Hanno[®]-Tect-F-free. Reliably sound-absorbing, hydrophobic and completely PFAS-free.

Hanno[®]-Tect suspension panels provide sound insulation, for example in buildings, open-plan offices, industrial and factory halls, banks and insurance companies, sound studios, schools and kindergartens, residential homes, boats and music rooms.

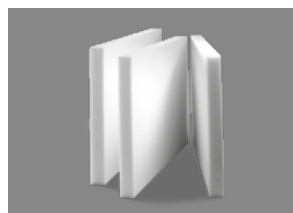
Typical applications

- Refrigeration and Air Conditioning
- Rail vehicles
- Room acoustics
- Medical technology



Properties

- Light weight of 7 – 10 kg/m³
- Thermal conductivity 0.035 W/mK
- Good sound absorption
- Available hydrophobic/oleophobic
- Ultra-flexible version available
- Free of fibers
- Flame retardant (temperature-resistant up to 150 °C)
- EN 45545, DIN 4102 B1*



* Detailed information on fire behaviour can be found in our technical data sheets: www.hanno.com/en/products/technical-data-sheets-installation-instructions



Further product information:

Technical data, installation instructions and info
(<https://www.hanno.com/en/tect>)

Product overview

Available as block/sheet material

Name	Density approx. (kg/m³)	Colour	Features and characteristics
Tect	9	light grey/white	Completely open-celled, permanently temperature-resistant up to 150 °C
Tect-AL 18	9	light grey	Completely open-celled, laminated with aluminium foil
Tect-AL 18 tp	9	light grey	Completely open-celled, permanently temperature-resistant up to 150 °C, laminated with an aluminium foil
Tect-UF	7	grey	Completely open-celled, permanently temperature-resistant up to 150 °C
Tect-V	10	light grey/black	Largely open-celled, laminated with a fleece surface
Tect-PU	10	light grey/black	Largely open-celled, coated with a PU skin
Tect-UF AL 18	7	grey	Completely open-celled, temperature-resistant, laminated with an aluminium foil
Tect-G+-phob	10	light grey	Completely open-celled, hydrophobic, oleophobic
Tect-F-free	10	light grey	Completely open-celled, hydrophobic without PFAS, permanently temperature-resistant up to 150 °C
Tect-G+-phob AL 18	10	light grey	Completely open-celled, hydrophobic, oleophobic, laminated with an aluminium foil
Tect-o-phob	7	grey	Completely open-celled, hydrophobic, permanently temperature-resistant up to 150 °C
Tect-o-phob AL 18	7	light grey	Completely open-celled, hydrophobic, oleophobic, laminated with an aluminium foil
Tect-o-phob dry	7	grey	Completely open-celled, hydrophobic, permanently temperature-resistant up to 150 °C, nubbed structure enables improved moisture transport



Free from fluorine!

The new Hanno®-Tect-F-free is reliably sound-absorbing, hydrophobic and completely PFAS-free. That's good for you, good for the environment and good for safe rest areas.



**We'll become fluorine free.
Because green alone is not enough.**

Hanno®-Protecto

Noise Abatement

Highly absorbent special foams: This is our Hanno®-Protecto product group. The surfaces are designed to solve a wide range of problems. For example, the aluminium lamination is suitable even for applications with temperatures reaching over 100 degrees Celsius.

For particularly high damping, one surface can be coated with a skin. Hanno®-Pruvtec can also be used to make the surface covering waterproof. At HANNO, we also implement special combinations that are precisely tailored to your specific noise problem.

Typical applications

- Extraction systems/ventilation technology
- Refrigeration and air conditioning
- Medical technology
- Automotive industry and commercial vehicles
- Caravans and motor homes
- Rail vehicles
- Household appliances
- Capsules and superstructures
- Woodworking machines

Hanno®-Protecto pf

Sound deadening materials for housing and capsule surfaces

Protecto pf 810 and Protecto pf 820 are bitumen-impregnated insulation materials made of recycled paper. These materials help stabilise all kinds of metals and plastics while reinforcing them and adding weight. This leads to a sound deadening effect and the transit sound is dampened. This successfully prevents the spread of airborne sound. Bitumen-elastomer compounds like Protecto pf 830 offer a heavy weight and excellent flexibility – even at low temperatures.



Properties

- Open-cell PU foam
- Highly absorbent
- Broad selection of surfaces
- Optimal adhesive coating for problematic substrates



Features of Protecto pf

- Cardboards or foils of 1 – 10 kg/m³
- Reinforced with added weight
- Good adhesion even for overhead bonding (preliminary testing required)
- Dampens structure-borne sound
- Also available bitumen-free



Further product information:
Technical data, installation instructions and info
(<https://www.hanno.com/en/protecto>)

Hanno®-Protecto plus

Highly-effective combination of Protecto pf and Protecto

When combined structure-borne and airborne sound become a problem, Protecto plus is the solution.

Protecto plus consists of self-adhesive panels made of a variety of different material combinations. In addition to a broad range of stock products, we also manufacture custom solutions tailored to the customer's frequency spectrum – for the best possible effectiveness.



Product overview

Name	Density approx. (kg/m ³ or kg/m ²)	Colour	Features and characteristics
Protecto 20	26	anthracite	As HW 30 sfl also available with PU-skin, wipeable and in medical grey
Protecto 20 B2	33	anthracite	As HW 36 B2 also available with PU-skin, wipeable and in medical grey
Protecto 50	26	black	As HW 30 sfl also available with polyester viscose fleece as surface
Protecto 51	26	anthracite	As HW 30 sfl also available with PP spunbond as surface
Protecto 60	26	anthracite, silver	As HW 30 sfl and additionally coated with aluminium foil
Protecto plus 55	–	black	Structure-borne sound absorption and airborne sound absorption in one product, raw foam HW 30 sfl, bitumen-impregnated wool felt board pf 810
Protecto plus 65	–	black	Structure-borne sound absorption and airborne sound absorption in one product, raw foam HW 30 sfl, nubbed structure, bitumen-impregnated wool felt board pf 820
Protecto plus 75	–	black	Structure-borne sound absorption and airborne sound absorption in one product, raw foam, Proteco 20, bitumen impregnated wool felt board pf 820
Protecto plus 85	–	black	Structure-borne sound absorption and airborne sound absorption in one product, base foam, Proteco 20, bitumen foil pf 830
Protecto pf 810	1	black	Loss factor 0.08 (at 20 °C on 1 mm sheet steel)
Protecto pf 820	2	black	Loss factor 0.10 (at 20 °C on 1 mm sheet steel)
Protecto pf 830	5	black	Loss factor 0.12 (at 20 °C on 1 mm sheet steel)
Protecto pf 840	10	black	Dissipation factor > 0.3 (20 °C on 1 mm sheet steel)
Protecto pf 1000 tkv-2	2	grey	Structure-borne sound insulation
Protecto pf 1000 tkv-4	4	grey	Structure-borne sound insulation

Hanno®-Redusoft

Permanently Elastic PU Foams

Hanno®-Redusoft is resistant to hydrolysis and remains permanently elastic for years even when compressed. This makes Redusoft an excellent choice for dust, moisture and sound insulation.

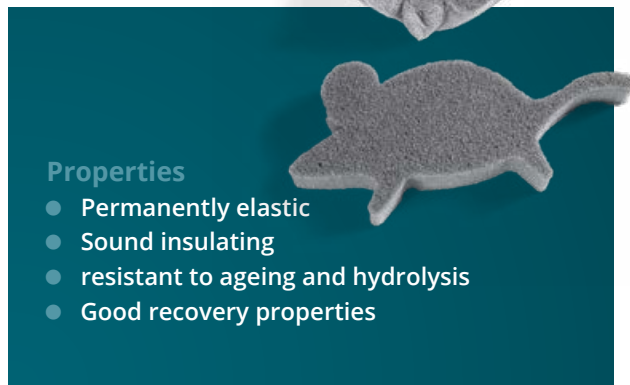
Impregnated with modified acrylate dispersions, Hanno®-Redusoft has improved properties compared to conventional PU foams.

Typical applications

- Automotive industry
- Commercial vehicles
- Harvesters
- Caravans and motor homes

Hannoband®-BG1 and BG2

The permanently elastic sealing tapes Hanno-band®-BG1 or BG2 are resistant to ageing and hydrolysis.



Properties

- Permanently elastic
- Sound insulating
- resistant to ageing and hydrolysis
- Good recovery properties



Product overview

Name	Density approx. (kg/m³)	Colour	Features and characteristics
Redusoft DI 80	80	black	Permanently elastic, sealing (depending on degree of compression), breathable, very good fire properties
Redusoft DI 150	150	black	
Redusoft DI 150 FR	150	black	Permanently elastic, sealing (depending on degree of compression), breathable, excellent fire behaviour (EN 45545*)
Hannoband®-BG1 and BG2	–	black, grey, light grey	Pre-compressed sealing tape for connection and movement joints between different building components, driving rain-proof

* Detailed information on fire behaviour can be found in our technical data sheets: www.hanno.com/en/products/technical-data-sheets-installation-instructions



Further product information:
Technical data, installation instructions and info
(<https://www.hanno.com/en/redusoft>)

Hanno[®]-Cellular Rubber

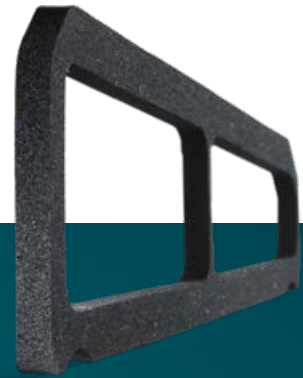
Flexible and Elastic

Our closed-cell, soft-elastic cellular rubber is particularly suitable for elastic sealing of various types. HANNO offers a wide range of qualities for various applications. The temperature resistance of Hanno[®]-Cellular Rubber ranges from -40 to +120 degrees Celsius, depending on the quality.

We can produce (almost) any shape through custom manufacturing.

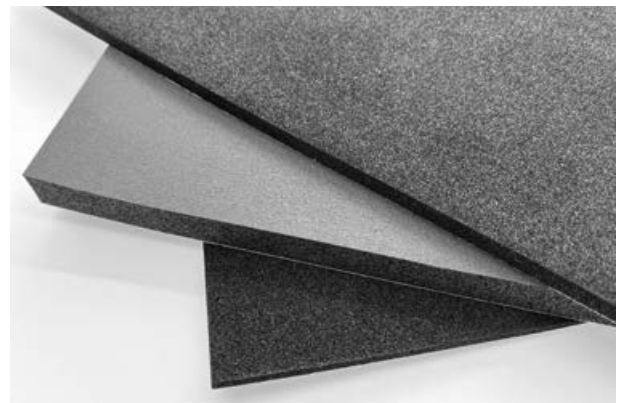
Typical applications

- Automotive industry
- Commercial vehicles
- Harvesters
- Caravans and motor homes
- Medical and sanitary technology
- Aeronautical engineering
- Ventilation and air-conditioning technology



Properties

- Suitable for elastic seals
- Available in many different shapes
- Fire retardant
- Highly elastic
- High water vapour diffusion resistance
- Low thermal conductivity
- Hydrolysis-resistant, depending on concentration usable with acids, alkalis, alcohol, silicone oils



Product overview

Name	Density approx. (kg/m³)	Colour	Features and characteristics
EPDM-L	110 – 150	black	Not suitable for oils, greases and fuels
EPDM-SC 110	110	black	Flame retardant, highly elastic, high water vapour diffusion resistance, very low thermal conductivity
Cellular rubber ZG V	–	black	Flame retardant, highly elastic, high water vapour diffusion resistance, very low thermal conductivity
Cellular rubber ZG NE	155 – 205	black	Hydrolysis-resistant, depending on concentration usable with acids, alkalis, alcohol, silicone oils



Weitere Produktinformationen:
Technische Daten, Montageanleitungen und Infos
(<https://www.hanno.com/en/cellular-rubber>)

Hanno[®]-Raw-Foam

Prepared for all Cases

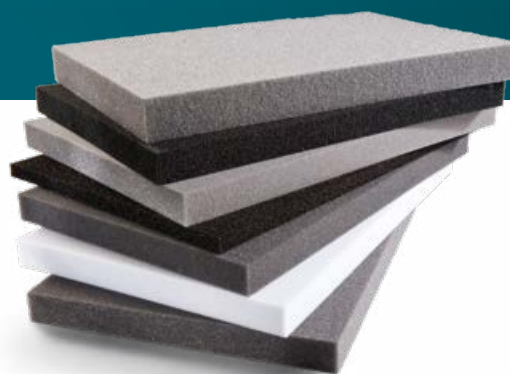
HANNO's raw foams are ideal for technical problem solutions in the field of automotive, machine and equipment construction. They have a good UV-resistance (polyester foam) respectively a good hydrolysis resistance (polyether foam).

Typical applications

- Sealing, insulation
- Rattle protection
- Filler
- Sound absorber

Properties

- Outstanding elasticity with good padding and resilience
- Resistant to petrol vapours and mineral oil spray
- A range of special varieties are available
- Self-adhesive option, punchable and cuttable



Hanno[®]-HW 30 TS

Sealing foam made of polyether, with high closed cell content. Low-emission, hydrolysis-resistant, halogen-free and self-extinguishing.

Product overview

Name	Density approx. (kg/m³)	Colour	Features and characteristics
Polyether foams			
HW 30 sfl	25.5	anthracite	With coating also available as Protecto 20/Pruvtec (PU skin), Protecto 50 (Pyron fleece), Protecto 51 (PP fleece), Protecto 60 (aluminium foil), other foam densities on request
HW 36 B2	33	anthracite	Optimised fire behaviour (B2, UL94), with PU skin also available as Protecto 20 B2
HW 37 dbl	28	anthracite	DBL 5450.10, fogging according to DIN 75201 < 1 mg
HW 30 TS	33	anthracite	Very high-quality foam for sealing applications, low-emission
Polyether foams			
HW7 sfl	23	grey	Good UV resistance
HW 40 S	40	anthracite	Very high-quality foam for sealing applications, low fogging, soft elasticity
PPI 20 FR	36	black	Filter foams with 20–60 pores per inch
PPI 45/E	32	black	
PPI 60	30	black	
Composite foam			
V 12, V 16, V 18, V 20	–	mottled	Very high densities up to approx. 200 kg/m³ possible, very good acoustic properties



Further product information:
Technical data, installation instructions and info
(<https://www.hanno.com/en/foam>)

Hanno[®]-EL 1

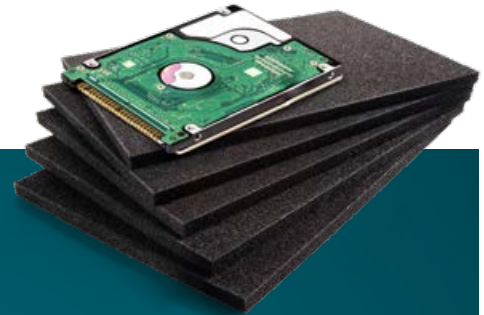
Durable ESD Transport Protection

Sensitive components in the electronics industry require special protection for shipping. In addition to impacts, electrostatic discharges can also cause damage.

The soft-elastic Hanno[®]-EL 1 foam prevents mechanical damage. The foam is impregnated throughout and is permanently electrostatically conductive, with stable surface resistance for years.

Typical applications

- Electronics packaging



Properties

- Outstanding elasticity with good padding and resilience
- Resistant to petrol vapours and mineral oil spray



Product overview

Name	Density approx. (kg/m³)	Colour	Features and characteristics
Permanently elastic, impregnated foams			
EL 1	20–30	black	Permanently electrostatically conductive < 10 ⁵ Ohm



Further product information:

Technical data, installation instructions and info
(<https://www.hanno.com/en/hanno-el-1-esd-transportation-protection>)

Hanno[®]-PE-Foam

Polyethylene Foam with many Application Possibilities

Our Hanno[®]-PE-Foam is characterised by particularly high hydrolysis resistance and chemical resistance. Thanks to a wide range of delivery forms, it can be used as a sealing material almost everywhere.

Typical applications

- Sealing, insulation

Properties

- very good hydrolysis resistance
- very good chemical resistance
- delivered in panels, as cut pieces or as punched sections, and is self-adhesive

Hanno[®]-HW 50 KA

The versatile sealing material Hanno[®]-HW 50 KA with flexible foam structure is suitable for various applications. The physically cross-linked version has thermoplastic properties. The product group has a high processing flexibility and can thus be used in a very wide range of sealing systems.



Hanno[®]-HW 50 SuperDry

Hanno[®]-HW 50 SuperDry has been developed for applications in damp and wet areas. The closed-cell, coarse-cell polyethylene foam is preferably used in commercial vehicles, rail vehicles, sound insulation capsules for machines and systems as well as refrigeration and air-conditioning technology and is also available UV-stabilised.



Product overview

Name	Density approx. (kg/m³)	Colour	Features and characteristics
PE foam			
HW 50 KA	33	anthracite	physically cross-linked
HW 50 KT	30	black	chemically cross-linked
HW 50 SuperDry	30	anthracite	Non-cross-linked, very good acoustic properties, good fire behaviour (EN 45545*), available as UV-stabilised version

* Detailed information on fire behaviour can be found in our technical data sheets: www.hanno.com/en/products/technical-data-sheets-installation-instructions



Further product information:

Technical data, installation instructions and info
(<https://www.hanno.com/en/pe-foam>)

Hanno[®]-Fiber

Versatile All-rounder made of Polyester Fleece

The innovative sound and insulation product Hanno[®]-Fiber is ideally suited for various industrial applications. The polyester fiber weave with varying densities (depending on the application) is available self-adhesive and with an additional aluminium foil.

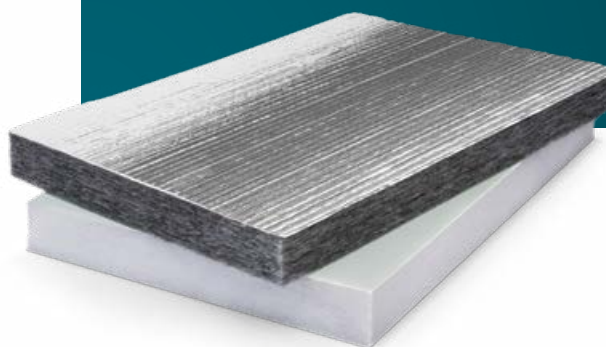
These well-rounded products offer outstanding properties that make them perfect for many other industrial applications as well.

Typical applications

- Automotive industry
- Refrigeration and air conditioning
- Commercial vehicles
- Harvesters
- Caravans and motor homes
- Rail vehicles

Properties

- Densities of 20–30 kg/m³
- Very good sound and thermal insulation properties
- Hydrophobic/oleophobic customisable
- good fire behaviour*
- optionally available self-adhesive and laminated with an aluminium foil



Product overview

Name	Density approx. (kg/m ³)	Colour	Features and characteristics
Fiber 20–30	20–30 kg	white or grey (depending on the type)	Good fire behaviour*, available as AL 18, hydrophobic and oleophobic adjustable

* Detailed information on fire behaviour can be found in our technical data sheets: www.hanno.com/en/products/technical-data-sheets-installation-instructions



Further product information:
Technical data, installation instructions and info
(<https://www.hanno.com/en/fiber>)

Responsibility

Research and development – highest quality and safety are our standard

Reliability and an up to date quality management system – besides warranties and product liability, we offer our customers the necessary safety when dealing with our products.

HANNO's quality management system is certified according to IATF 16949:2016 with integrated ISO 9001:2015 as well as the environmental policy based on DIN 14001. Our process-oriented approach and identification with clear procedures enable us to avoid errors and closely monitor cost-benefit identification.

Regular in-house and externally monitored quality controls and inspections go far beyond the legally required standard. Due to high-quality, non-blended basic materials, a consistently high quality is guaranteed for all HANNO products.

With innovative products on a high performance level, our research and development reacts to the requirements of our customers and translates them into technical possibilities. Test certificates from independent institutes additionally guarantee our product and process safety.



Modern laboratories and elaborate testing equipment maintain our high quality standards

Externally monitored quality controls and tests are carried out regularly



Sustainability & compliance

As a global mid-sized company, we fulfill comprehensive standards of compliance and corporate social responsibility (CSR). Among our duties we count the avoidance and disposal of waste as well as the careful use of energy and all resources – this is what drives us to act. The safe handling of the materials we use serves the health of our employees and the environment.

Corresponding company and employee guidelines are part of HANNO's CSR. As a member of the Fachverband Schaumkunststoffe, HANNO aligns itself with the compliance and conduct rules published on our websites as well as to the Code of Conduct of the Verband der Nord-Westdeutschen Textilindustrie e. V.



Find out more here:
<https://www.hanno.com/en/company/company-mission>

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HANNO Products for Building Construction

More than just sound insulation: HANNO also offers a comprehensive range of products for sealing joints in window and facade construction.

Sealing tapes for construction joints

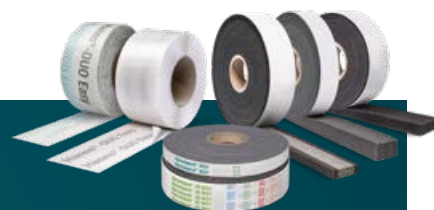
For facade sealing and window construction, HANNO offers a range of pre-compressed joint sealing tapes. We offer suitable versions for a wide range of requirements. Each sealing tape is certified by an adequate test centre – for highest safety.

3E joint sealing system and other products

The Hanno®-Triple-Layer Joint Sealing System ensures tested joint sealing of windows suitable for passive houses – for reduced heating costs and long-term assured joint quality. Flashing tapes for window installation and a special insulation for roller shutter boxes complete the product portfolio.



You can find the construction catalogue here: <https://www.hanno.com/en/service/downloads>



Hidden Talents

HANNO – The Specialist in Joint Sealing and Sound Insulation

Hanno Werk GmbH & Co. KG, headquartered in Laatzen near Hanover, Germany, has its core competences in construction joint sealing and industrial seals, technical sound insulation for the automobile and mechanical engineering industry and also in the improvement of room acoustics and sound insulation.

The product portfolio comprises the well-recognized and proven Hannoband® to seal window and façade joints, highly effective industrial stamping parts as well as effective acoustic tiles for room acoustics.



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