

Noise protection





Large Arc, A10 Motorway Flachau, AT

Leube: Shaping the future

At Leube, we produce building materials and concrete components with the lowest CO₂ emissions in the world. Manufacturing environmentally friendly and at the same time economical concrete products spurs us on every day to look for new solutions in concrete.

When it comes to sustainable noise-protection systems, we partner with the Austrian company Rieder and their decades of experience. Rieder has developed architecturally appealing, acoustically effective, and economical noise-protection solutions for over 40 years. The "Road" and "Rail" systems have been tried and tested for decades, even exceeding the required decibel standards.

We are proud to have developed Rieder's highly specialised expertise in noise protection within the Leube Group since 2020.

You can find out more about the Leube noise-protection system and our concrete components range by visiting www.leube.eu



The cement plant on the Königsseeache river in Gartenau is the backbone of the Leube Group.

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From cement to component

Over the past decades, Leube has transformed itself from a cement manufacturer to a provider of comprehensive concrete solutions for civil engineering. Regardless of whether you require a functional prefabricated product or a customised moulded part, the close cooperation between concrete production and manufacturing plant guarantees the highest product quality as well as flexible production processes.



Production of Leube noise-protection walls at the plant in Maishofen

Sustainability and innovation in action

In the production of Leube prefabricated parts, we combine the quality, aesthetics and economic viability of concrete. Furthermore, sustainability and environmental responsibility are firmly anchored in our corporate culture. Our concrete components have the lowest CO₂ emissions per tonne of cement worldwide. Applied research and ongoing innovation have put us amongst the European leaders in our fields.

Comprehensive project support

As a provider of system solutions, Leube is your contact partner in all project phases, including advice on design and cost-effectiveness, production and technical processing, as well as logistics and assembly.

Leube Betonteile plant in Maishofen, AT



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Landscape featuring Faseton® Wave
A10 Tauern Motorway, Zederhaus, AT

About noise protection



Achieve effective noise protection with Leube

Traffic on the roads and railways is on the rise. Affected people want to be better protected from traffic noise. Leube conducts intensive research into the development of noise-protection solutions. People are always at the heart of our research. In addition to acoustics and constructive engineering, perceptual psychological and medical findings also play a central role.

Experience and worldwide references

To date, approximately two million square metres of Leube noise-protection walls have been installed in Austria, Germany and neighbouring European countries such as Switzerland, France, Italy, Slovenia, Belgium and the Czech Republic. Noise absorbers have also been delivered as far away as China and Jamaica, some 8,000 km away.

Sustainability

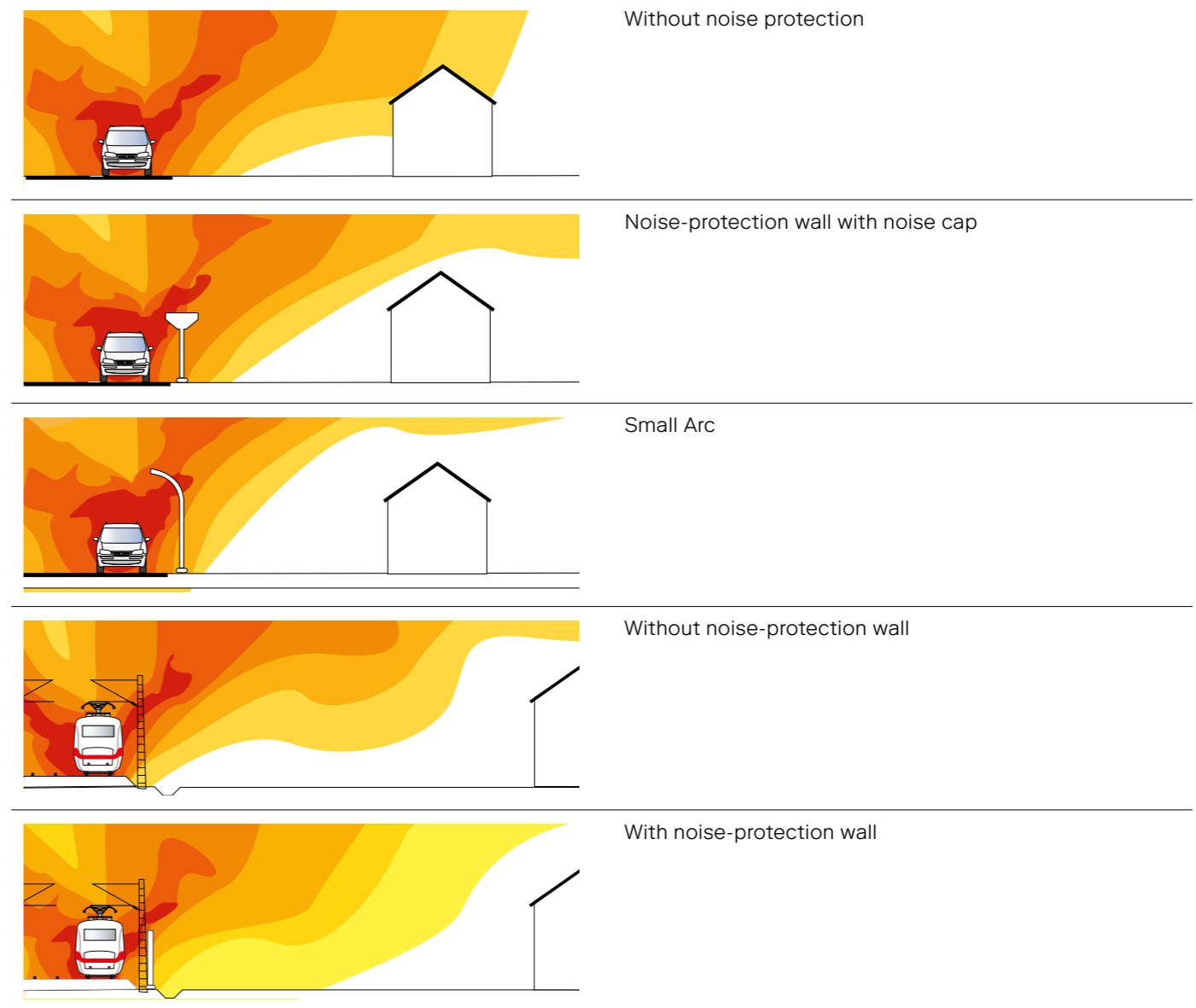
Leube Noise-Protection Walls are made of sustainable woodchip concrete and feature outstanding ecological balance. This proven building material has a tested service life of over 50 years. Due to its very high resistance to external influences such as frost, fire or stone impact, the walls remain maintenance and repair-free for many years.



Highly absorbent platform edge, Vienna Central Station, AT

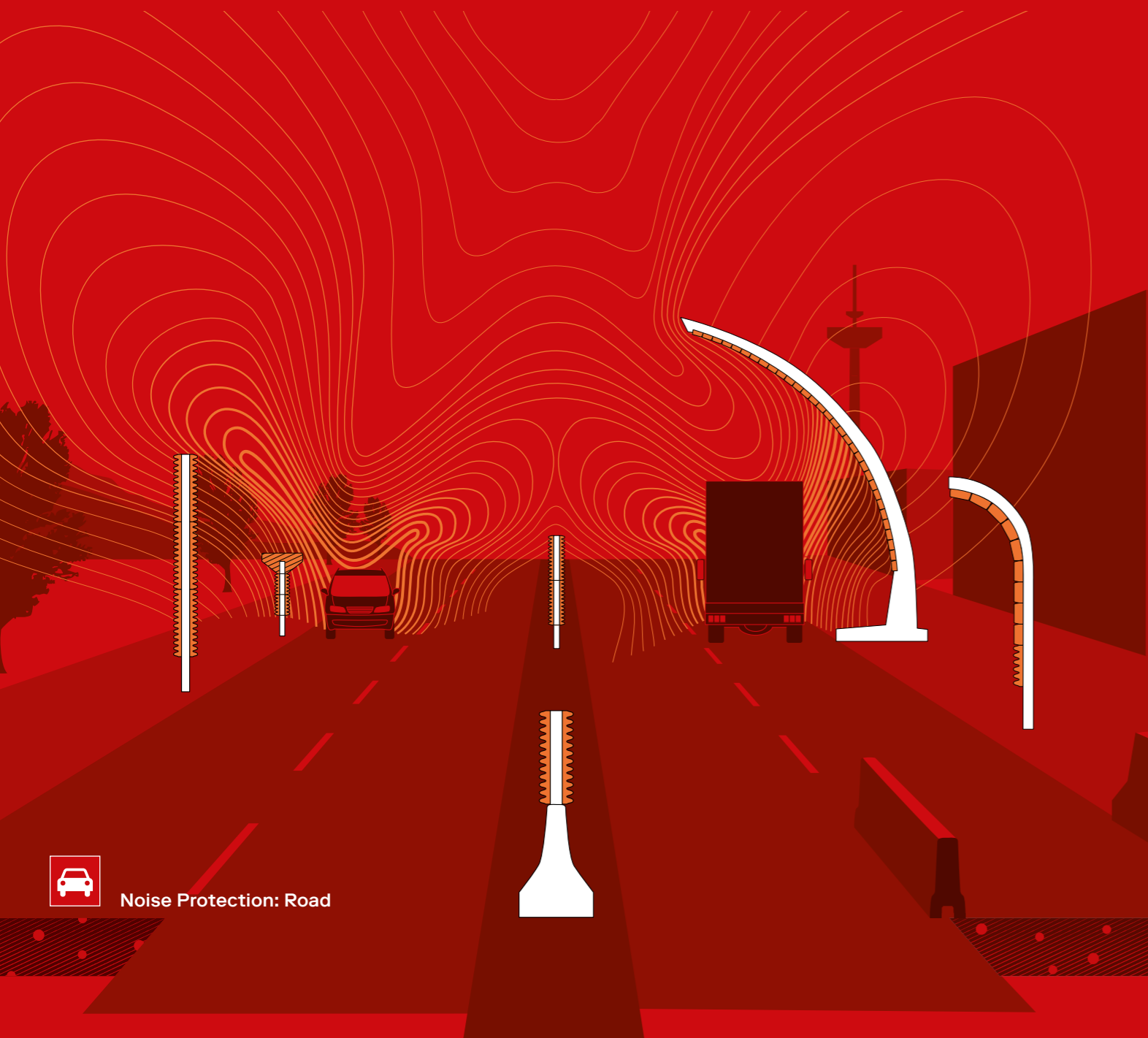
Sound propagation

These schematic diagrams on sound propagation illustrate examples of how noise-protection solutions work on the basis of acoustic calculations.



Noise-protection systems

Depending on the requirements, Leube offers optimised systems to protect people from noise. The "Rail" modular system enables suitable solutions along railway lines such as open-country lines, tunnels, bridges, stations and railway stations. The "Road" product portfolio includes various noise protection measures on motorways, rural roads and in urban areas. The modular components of the systems can be combined as desired. Due to the absolute plannability of costs, Leube noise-protection systems can be implemented in an extremely cost-effective and economical manner.



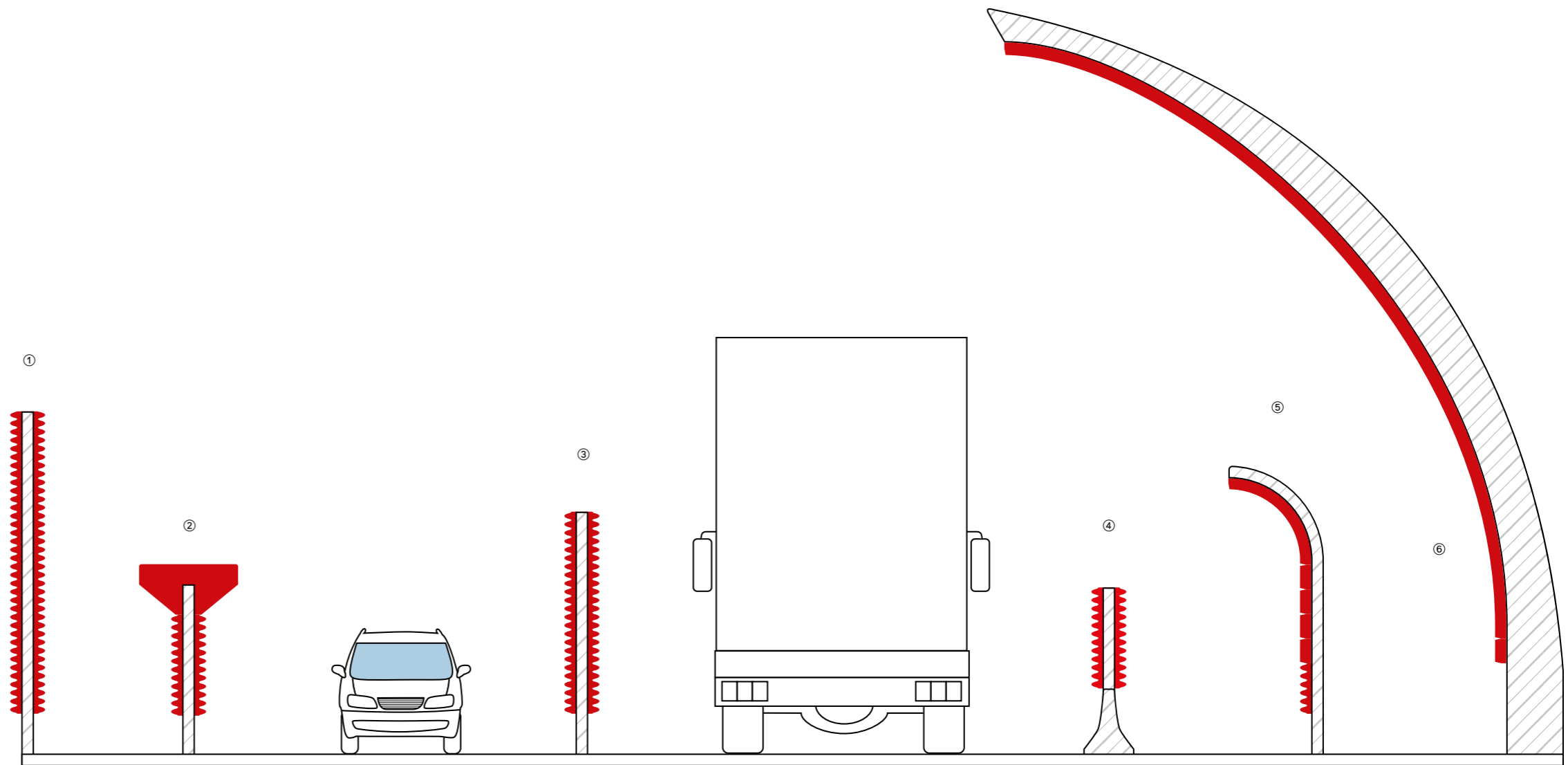


Noise Protection: Road

At Leube, we have developed a variety of noise absorbers for roadways. The modular building blocks of the Leube noise-protection systems for roads can be combined in various ways. Due to the absolute predictability of costs, we are able to offer a highly economically attractive concept in the field of noise protection. Leube offers suitable solutions for noise-free zones for motorways, country roads or urban areas.

Current research focuses on the further development and the enhancement of absorption capacity for noise-protection components and the addition of noise caps with photovoltaic components for motorways.

- ① Noise-protection wall
- ② NPB with noise cap
- ③ Centre-strip system
- ④ Main concrete wall with noise cap
- ⑤ Small Arc
- ⑥ Large Arc





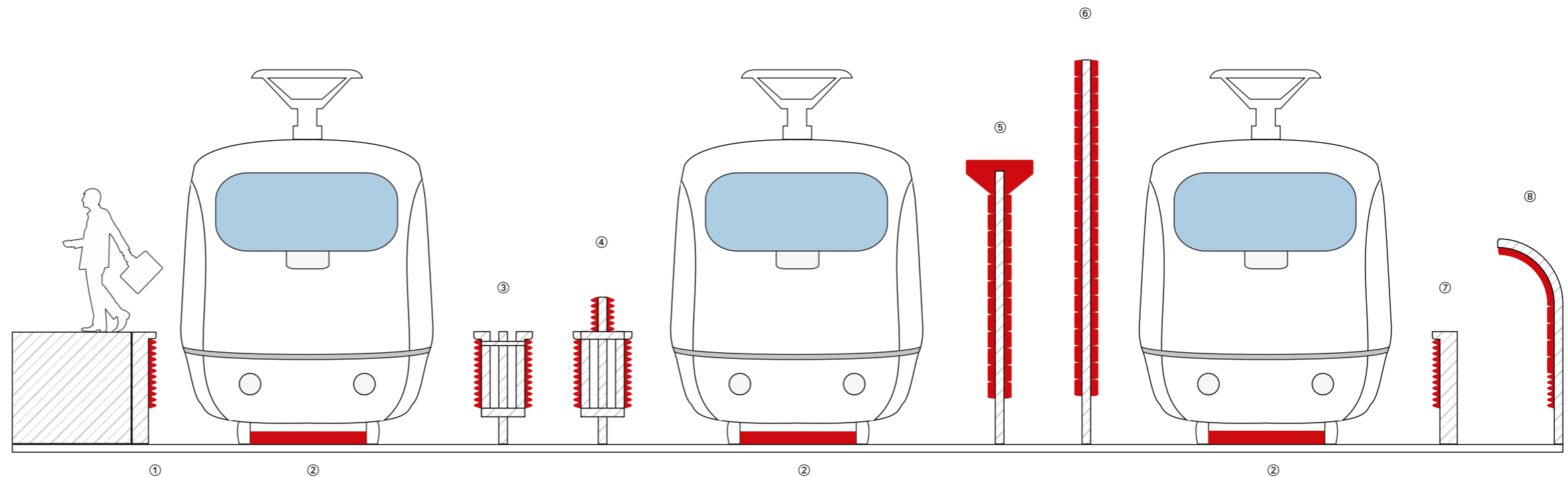
Noise Protection: Rail

At Leube, we offer various systems to protect people from railway noise pollution.

For 40 years, we have been developing suitable solutions for open-country railway lines, tunnels, bridges, stations and railway stations in collaboration with responsible partners from the railway companies (EBA/DB/ÖBB/SSB) as well as architects and traffic psychologists.

In 2016, Leube became the first supplier to receive full approval for their low noise-protection wall. The system approval and user declaration for the Leube noise-protection system on high-speed Deutsche Bahn railway lines with speeds of up to 300 km/h are also available. This approval enables Leube to participate in the expansion of important high-speed lines throughout Europe.

- ① Highly absorbent platform edge
- ② Trapezoid
- ③ Middle wall
- ④ Middle wall with noise cap
- ⑤ NPB with noise cap
- ⑥ Noise-protection wall
- ⑦ Low wall / backside with gabions
- ⑧ Small Arc



Wood chips are the raw material
for Leube's woodchip-concrete absorber.

Faseton®

woodchip-concrete absorber



An innovative building material

The woodchip-concrete absorbers are marketed by Leube under the brand name Faseton®. The open-pored structure and wave-like shape are optimal for sound absorption, as the absorption capacity is dependent upon surface and mass. This means that, in contrast to hard closed surfaces such as aluminium, glass, steel, wood or stone, sound is not reflected.

In the production of woodchip concrete, wood chips are coated with minerals, cement and water. This makes the mineralised woodchip concrete weather and fire resistant. Any production residues, such as milling waste during calibration, are fed back into the production process. During the manufacturing process, more CO₂ is removed from the environment than is released.



Bad Gastein
Railway Station, AT

Manufacturing process

Leube woodchip concrete has a verified durability of 40 – 50 years. The main component of woodchip concrete is wood chips of different sizes. The chips obtained from debarked wood are mixed with cement and water in a complicated manufacturing process and then moulded using stationary machines.

The absorber components can be coloured with iron oxide-based paints or water-soluble paints to meet individual design concepts. Once the components are dry and the surfaces have been treated, complete parts with a load-bearing reinforced concrete layer are made from them in our factory. The absorbers can also be used to clad already finished structures.

Ecology

Leube Noise-Protection Walls are made of sustainable woodchip concrete and feature outstanding ecological balance. Natureplus® has confirmed the high quality of the products in terms of health, environment and function since 2009. Any production residues, such as milling waste during calibration, are fed back into the production process. During the manufacturing process, more CO₂ is removed from the environment than is released.

Benefits of woodchip concrete

Maintenance-free longevity (40 – 50 years)

Construction waste is fully recyclable with no additional costs for hazardous waste

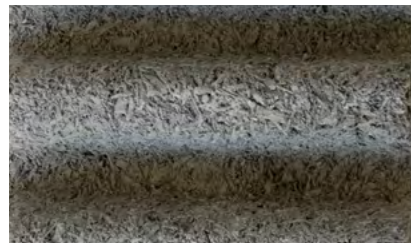
Enormous variety of design possibilities

Great stability especially when it comes to wind and snow loads

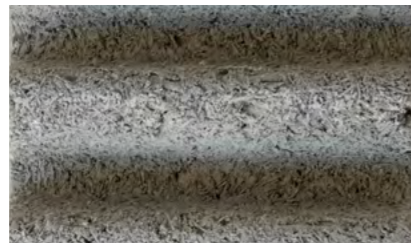
Excellent sound absorption and airborne sound insulation values thanks to the different surface shapes, combined with a solid concrete core.

Design and colours

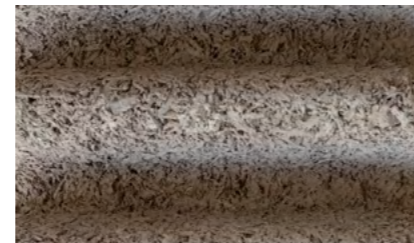
Due to the different absorbers, wall types, backs and colours, we offer a variety of design options. The absorbers can be easily cut, processed and installed horizontally, vertically or at an angle. In its natural colour, woodchip concrete blends harmoniously into the landscape. To set design accents, absorbers are produced in different colours. The percentage of colour pigments in the woodchip concrete mix determines the intensity of the colour.



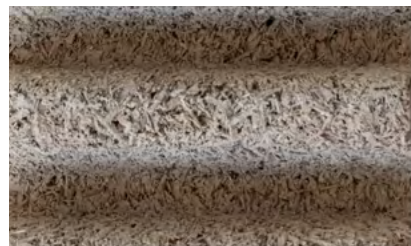
Black 2



Black 1



Dark brown 2



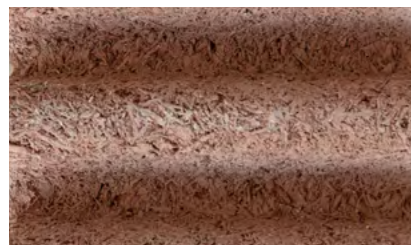
Dark brown 1



Light brown 2



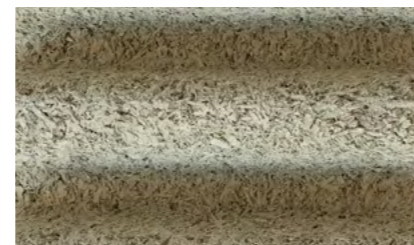
Light brown 1



Red 2



Green 2



Green 1



Yellow 2



Yellow 1



Natural

The Wave shape increases the surface area and thus offers increased sound absorption. The size of the absorber component is 25 × 50 cm.



Woodchip-concrete absorber

We manufacture the sound-absorbing parts of the noise protection panels from woodchip concrete. This meets all requirements for ageing resistance, impact resistance, resistance to frost and antifreeze, colour stability and fire resistance as well as dimensional stability.

Currently, our range has five types of absorbers (Block, Wave, Hollow Wave, Trapezoid and Cluster), which differ in shape and sound absorption properties.

The high weight per unit area of the absorbent wall parts (320-390 kg/m² depending on the type of absorber) guarantees optimum values of the wall system according to EN 1793-2 and 1793-6 standards. With up to 20 dB absorption, noise-protection walls from Leube far exceed the standard 8 dB required by EN 1793-1 (sound absorption). The 25 dB required by EN 1793-2 (airborne sound insulation in diffuse sound fields) is more than satisfied at 51 dB. Leube also meets the latest EN 1793-6 standard for sound insulation (airborne sound insulation in directional sound fields) with high-quality and effective noise protection.

When evaluating sound absorption according to the classification prescribed in the standards, Faseton® Noise-Protection Walls belong to the following categories:

- Block: Class A3 (A4 with upright covering)
- Wave: Class A3 (A4 with upright covering)
- Hollow Wave: Class A5
- Trapezoid: Class A3 or A4 depending on type
- Cluster: Class A5

Product features

No.	Property assessed	Test method	Requested/Declared level
1.	Dimensional tolerance of the length of a panel	EN 13 369	see standards
2.	Resistance to mechanical load (for wind load and dead weight)	EN 1794-1	In full compliance
3.	Sound absorption	EN 1793-1 Prüfnorm ISO 354	
	a) Absorber Block		a) Classification A3 $8 \leq DL_{\alpha} \leq 11$ dB
	b) Absorber Wave		b) Classification A3 $8 \leq DL_{\alpha} \leq 11$ dB
	c) Absorber Hollow Wave		c) Classification A5 $DL_{\alpha} > 15$ dB
	d) Absorber Trapezoid		d) Classification A3 or A4 depending on type
	e) Absorber Cluster	e) Classification A5 $DL_{\alpha} > 15$ dB	
4.	Sound insulation - all variants	EN 1793-2	$DL_R > 34$ dB Classification B4

Absorber assortment

Woodchip-concrete absorbers with versatile design options and different absorption values.



Suitable for Road and Rail systems



Suitable for any design

Faseton® Wave woodchip concrete		10* dB A3 absorber class *12 dB with column cladding	Strength: 114 mm
Faseton® Hollow Wave Woodchip concrete		15* dB A4 absorber class *19 dB with column cladding	Strength: 120 mm
Faseton® Block woodchip concrete		10 dB A3 absorber class	Strength: 70 mm, 90 mm, 110 mm
Faseton® Trapezoid 3 woodchip concrete		10 dB* A3 absorber class *11 dB with column cladding	Strength: 150 mm
Faseton® Trapezoid 4 woodchip concrete		11 dB* A3 absorber class *12 dB with column cladding	Strength: 150 mm
Faseton® Trapezoid 6 woodchip concrete		12 dB* A4 absorber class *13 dB with column cladding	Strength: 150 mm
Faseton® Cluster woodchip concrete		20 dB A5 absorber class	Strength: 160 mm

Faseton® Wave

The continuous 110 mm thickness of the wave structure absorbers gives the noise-protection wall an elegant appearance in both the horizontal and vertical versions. In addition, combinations of vertical and horizontal waves within the components are easy to implement, allowing for good visual variability.



- Vertical or horizontal wave structure
- Possible combinations with structure block
- Good absorption with one-sided or double-sided design
- Long maintenance-free durability (40 – 50 years)
- Colour solutions either by colouring through the absorber or by painting with RAL colours
- Standard dimensions between supports with an axis distance of up to 6 m
- Free-standing walls or wall components as perimeter construction

Road Noise-Protection System with Wave absorbers



Faseton® Block

This system of noise-protection walls is manufactured in absorber thicknesses of 70, 90 and 110 mm. Like the solid form of a block, this type of wall is particularly resistant to mechanical influences.



- Woodchip concrete in vertical block structure
- Absorber(s) on one or both sides
- Long maintenance-free durability (40 – 50 years)
- Colour solutions either by colouring through the absorber or by painting with RAL colours
- Standard dimensions between supports with an axis distance of up to 6 m
- Free-standing walls or wall components as perimeter construction

Different absorber types can be combined with one another.



Faseton® Trapezoid

The Trapezoid system is manufactured with an absorber thickness of 1500 mm.



- Woodchip concrete in vertical or horizontal trapezoid-shaped structure
- Absorber(s) on one or both sides
- Long maintenance-free durability (40 – 50 years)
- Colour solutions either by colouring through the absorber or by painting with RAL colours
- Standard dimensions between supports with an axis distance of up to 6 m
- Free-standing walls or wall components as perimeter construction

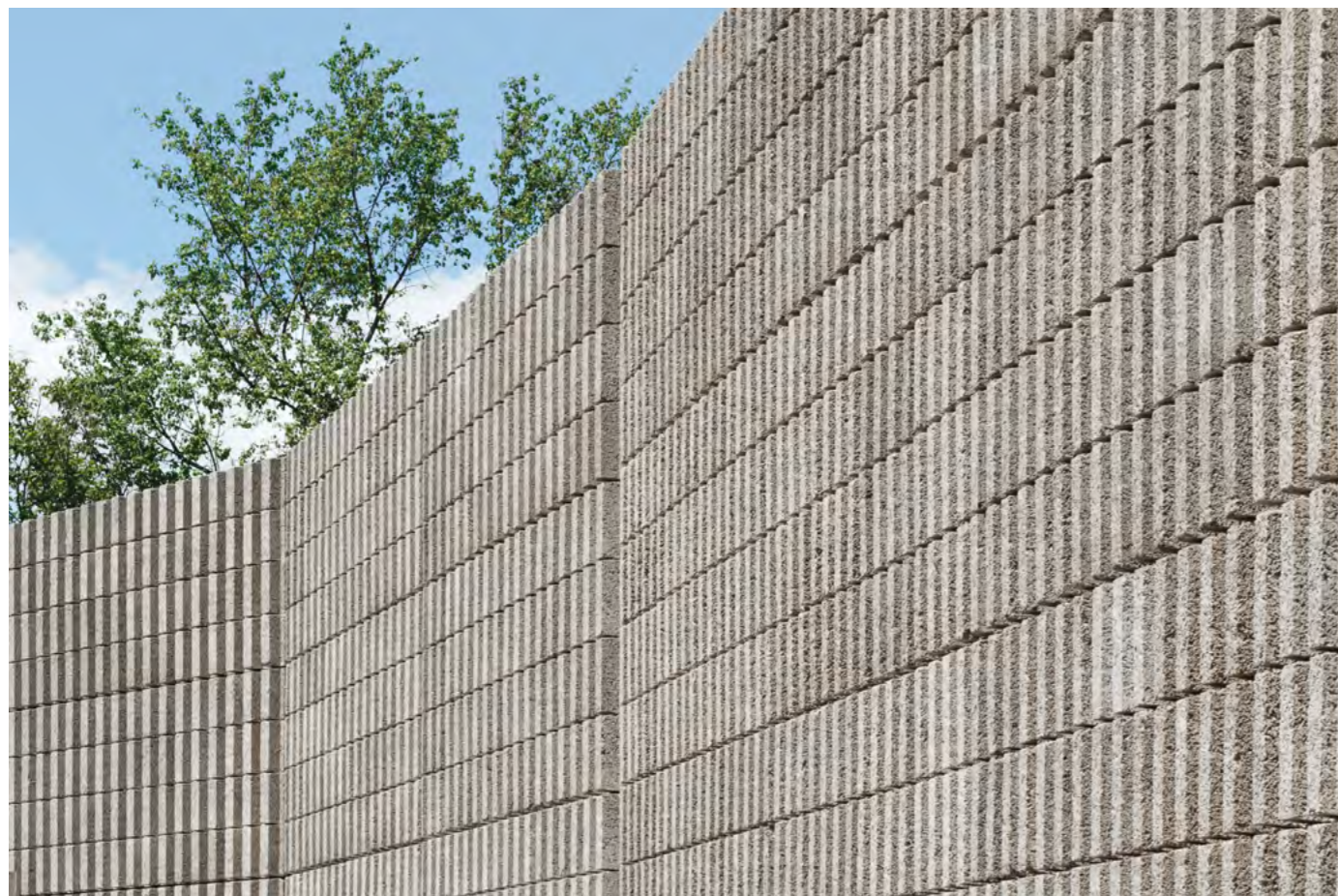
Faseton® Cluster

Absorber thickness of 160 mm.

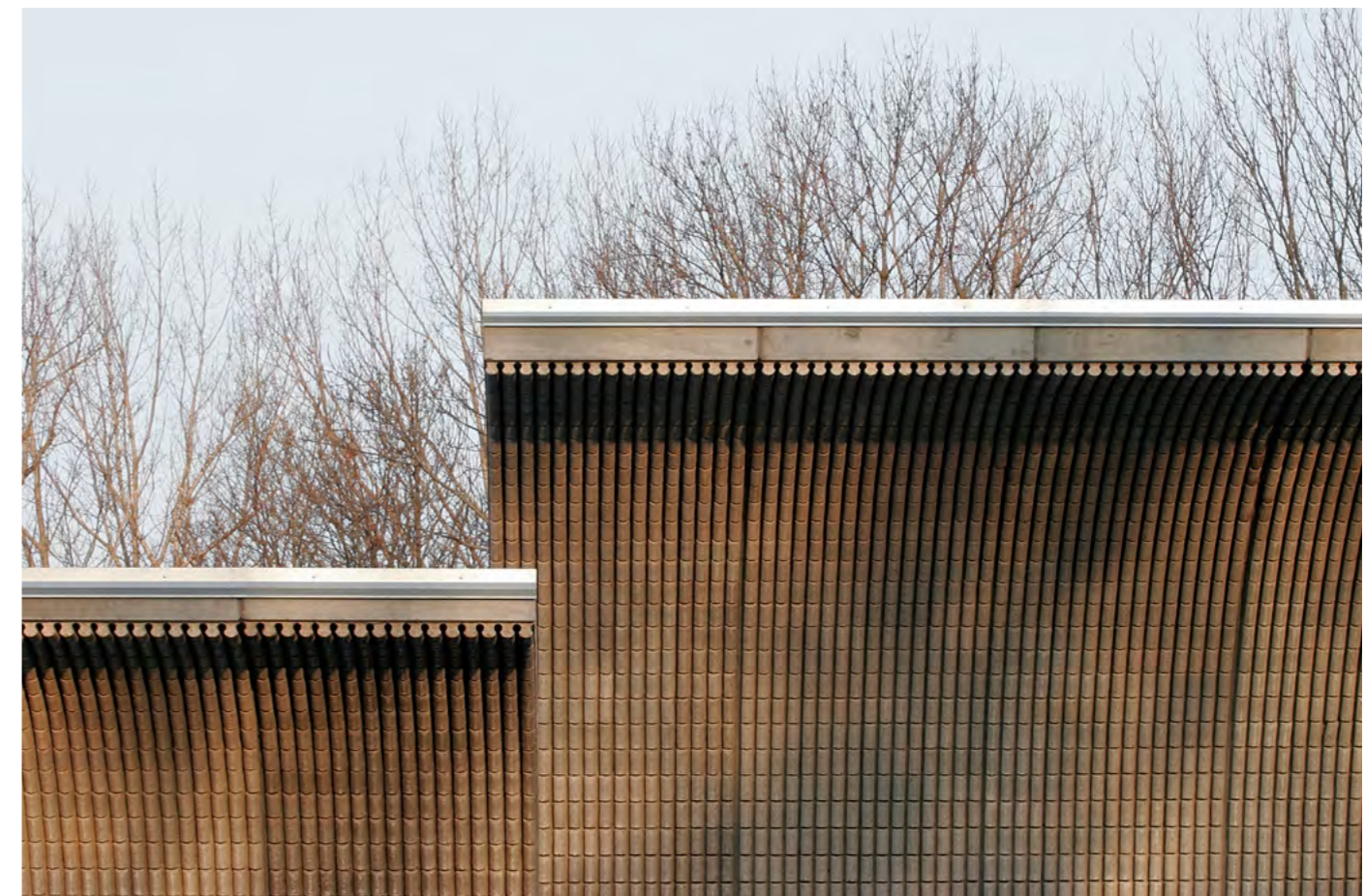


- Vertical or horizontal
- Absorber(s) on one or both sides
- Long maintenance-free durability (40 – 50 years)
- Colour solutions either by colouring through the absorber or by painting with RAL colours
- Standard dimensions between supports with an axis distance up to 6 m
- Free-standing walls or wall components as perimeter construction

Road Noise-Protection System with Trapezoid absorbers



Large Arc with Cluster design on the A22 Donauufer Motorway, Korneuburg, AT



Noise-protection components and dimensions



Structure of the components

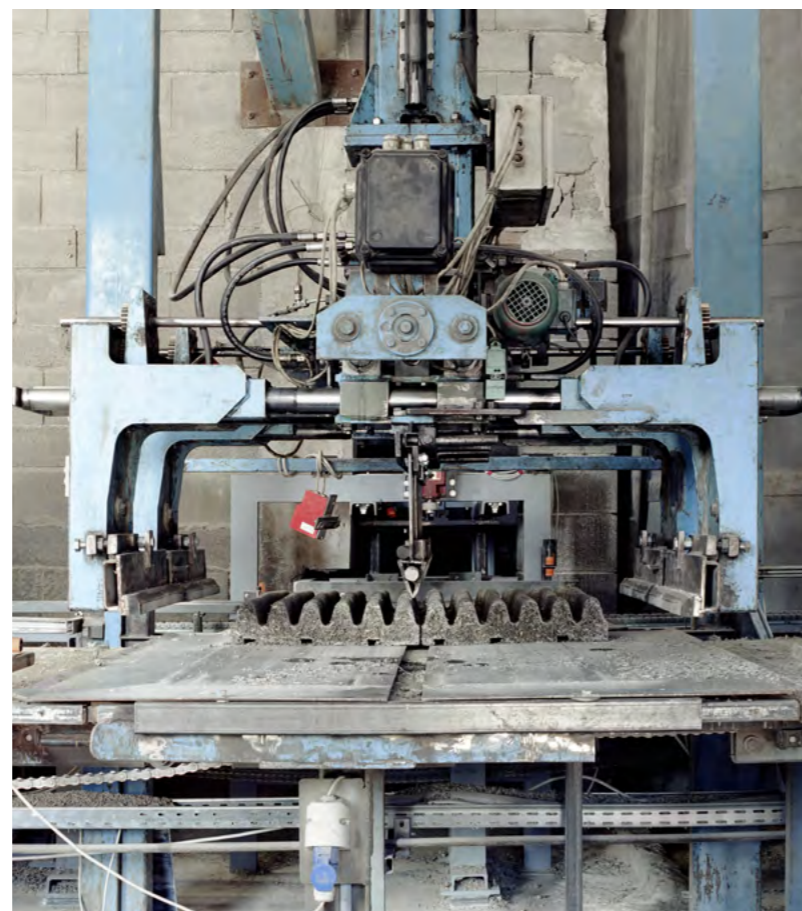
Leube noise-protection walls with Faseton® can be erected with a centre-to-centre distance of the columns of six metres. This measure can be quite variable. For example, parts with a span of up to about 20 metres can be manufactured, i.e. for spanning a bridge.

At Leube, we manufacture absorption components in height increments of 25 (50) centimetres as standard, starting from the module of the woodchip-concrete absorber. Atypical parts can also be produced, as well.

Steel uprights can be used with HEA and HEB profiles, receiving the appropriate surface treatment. These types can be used to construct any curved wall on the foundation side, including right-angled corners. When using steel columns, their flanges can be covered with absorbers.

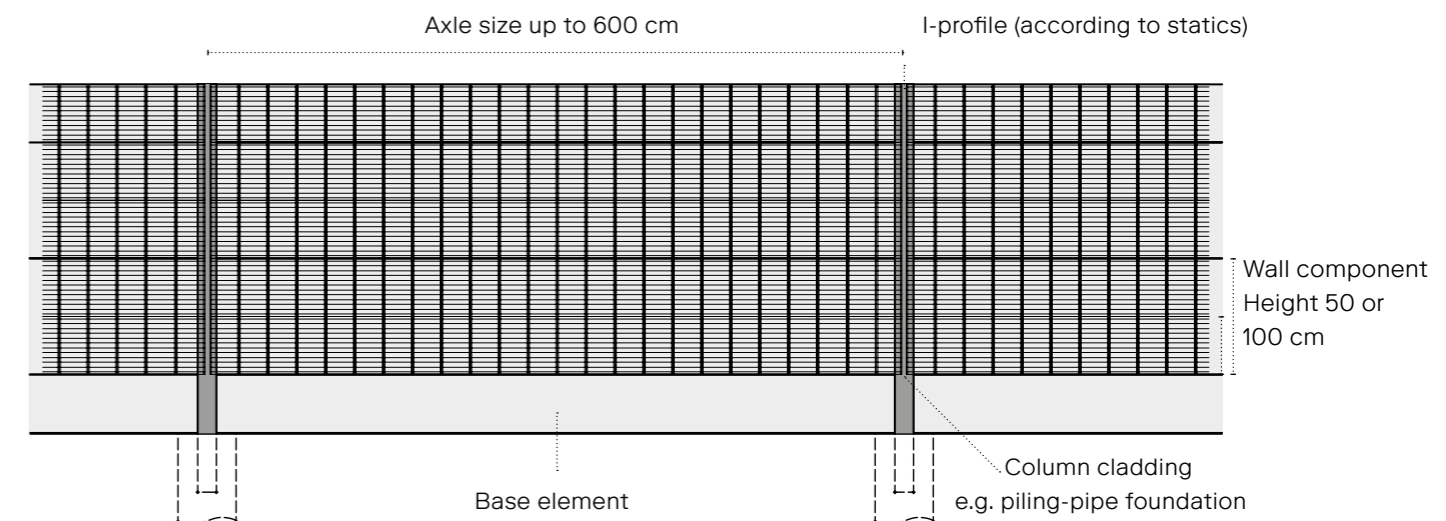
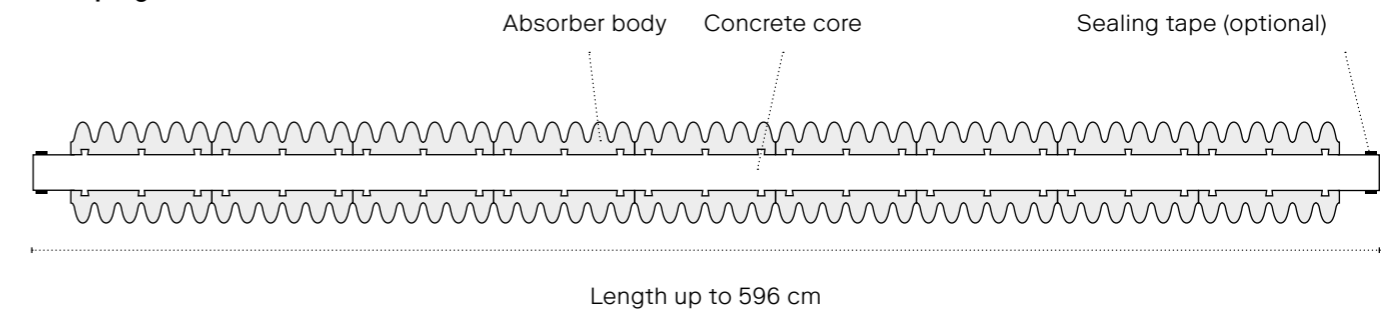
Assembly

The noise-protection components are inserted between the metal supports using suitable lifting equipment. All existing horizontal and vertical joints are sealed to make them opaque and soundproof. This ensures optimal sound insulation.



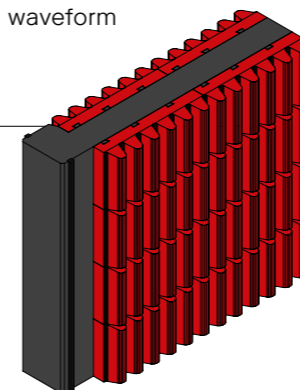
Concrete components plant Maishofen, AT

Clamping detail

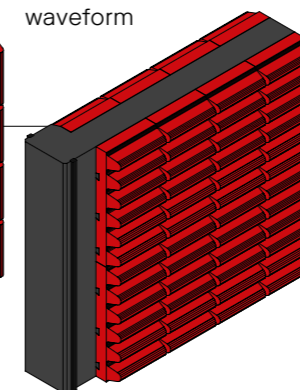


Variants

Vertical waveform

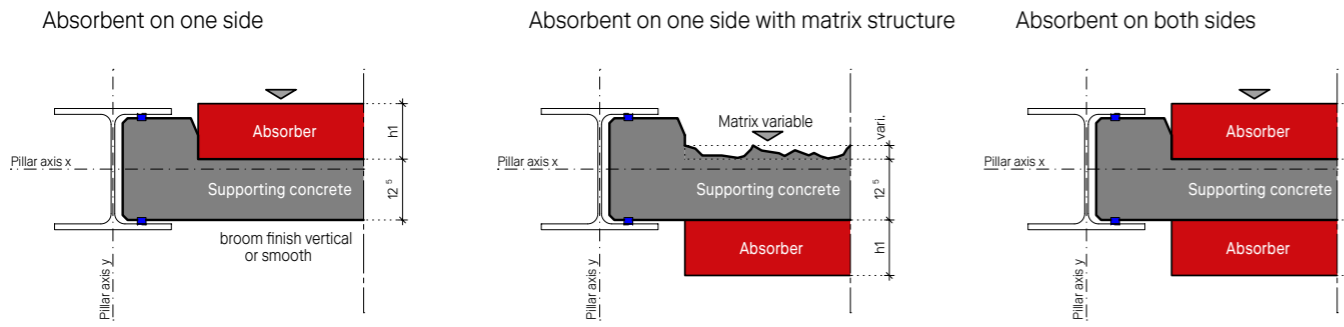


Horizontal waveform



The noise-protection components are inserted between the metal supports using suitable lifting equipment. All existing horizontal and vertical joints are sealed to make them opaque and soundproof. This ensures optimal sound insulation.

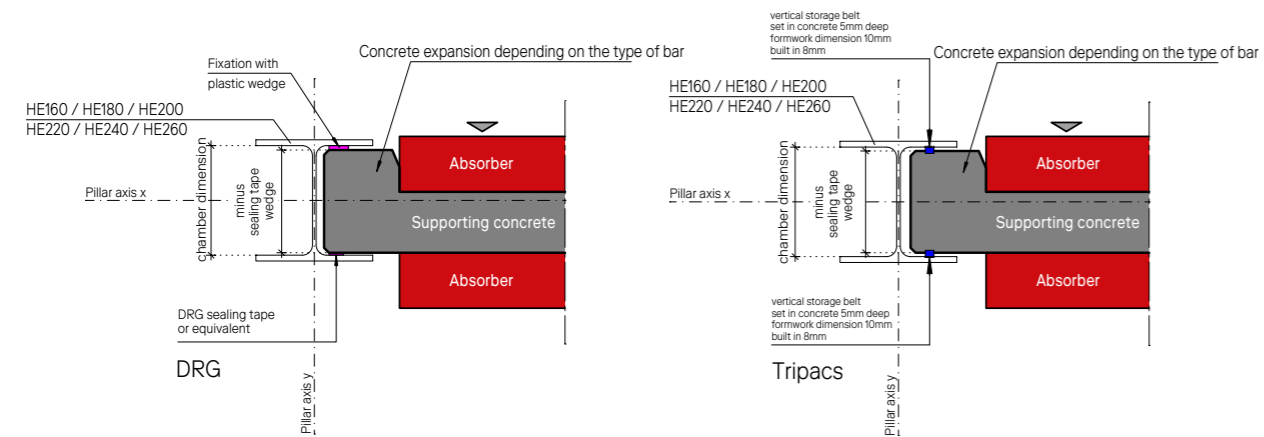
Single or double-sided absorber wall components



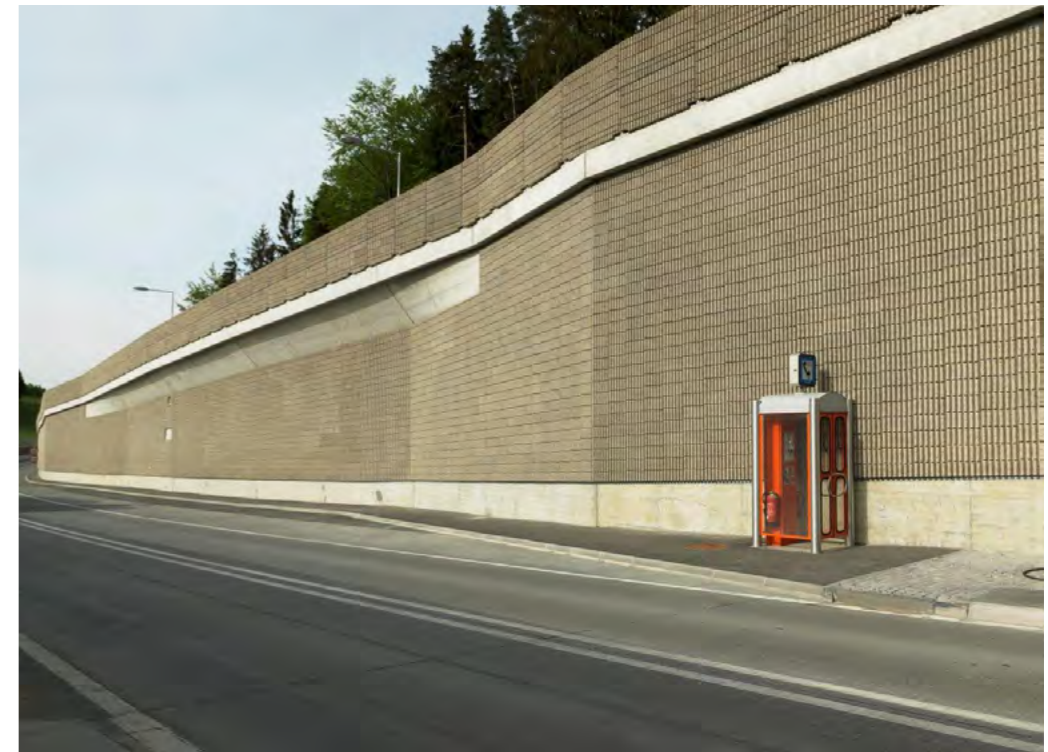
As wall cladding, the Faseton® components can be attached on one side.



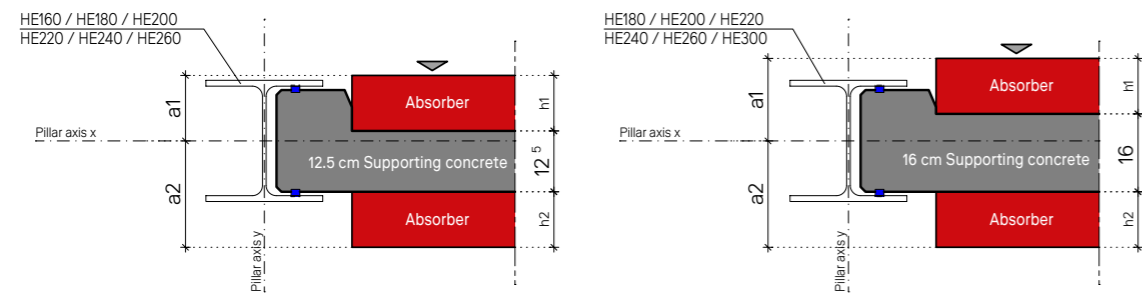
Installation variants



Different installation variants of the Leube noise-protection components



Load-bearing concrete thicknesses



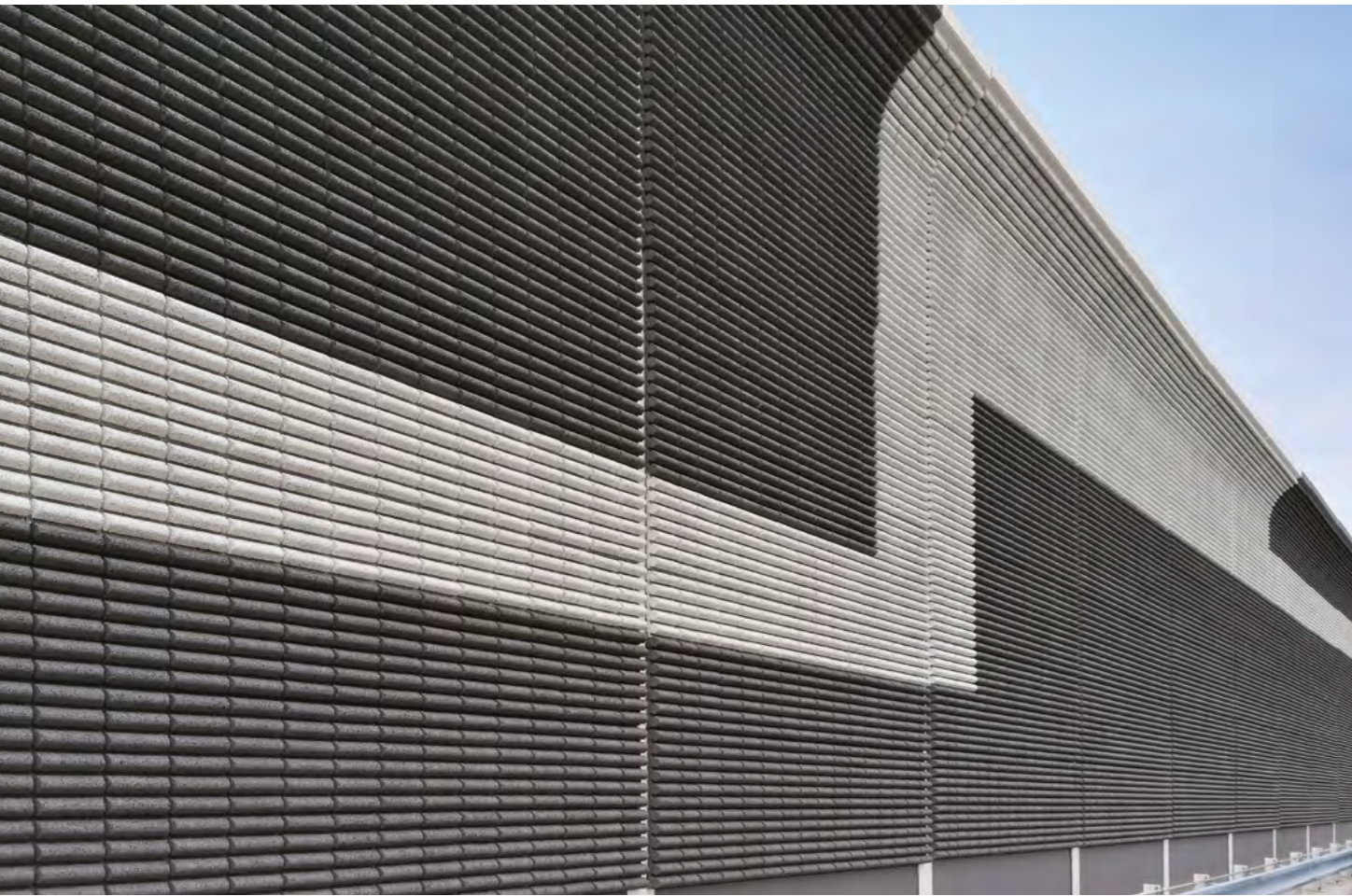
Designs and solutions





Small Arc

Due to the shape of the arch, the bending edge is closer to or above the noise source. As a result, improved sound shielding can be achieved. The standard arch radius of the Small Arc is one metre. Individual arch radii and wall heights can be used to achieve maximum noise protection and cost-effectiveness, depending on the acoustic requirements.



Modern colour concepts for the Small Arc



The Small Arc in connection with glass windows



The Small Arc is used for a wide variety of noise sources.



Large Arc, A22 Donauufer Motorway, Korneuburg, AT

Large Arc – The alternative to tunnel enclosures

Cost areas	Enclosure (Tunnel)	Large Arc
Construction costs per km	min. 20 million euros (2 lanes)	approx. 3.5 million euros
Sound-insulation-level adjustment	not possible	Adjustment of height and arch radius
Operating costs	High costs on an ongoing basis	none
Maintenance	regular	never
Lane expansion	Demolition required	Transfer and extension
Remodelling	after 25 years	after 50 years
Speed limit	80 – 100 km/h	not required



Large Arc

The economical noise-protection solution

Enclosures or tunnel solutions are very effective in shielding against noise. However, due to the tremendous construction and maintenance costs, they are not always the most economical way forward. In creating the "Large Arc," Leube have developed a system that can replace cost and maintenance-intensive enclosures or tunnels. Even after more than 40 years, the Large Arc still satisfies all requirements. In comparison, during the same time period, enclosures, control components, safety technology and ventilation have to be renewed and structural parts renovated.

▀ The power of the Large Arc

The arch shape. The curved, arching shape of these noise-protection walls achieves twice the sound reduction compared to a straight wall of the same height.

Safe. Tunnel enclosures are potential sources of danger. When using the "Large Arc," on the other hand, there is less congestion and no risk of a tunnel fire.

Economical. The construction costs of the "Large Arc" represent just a fraction of the construction costs of a tunnel enclosure.

Maintenance-free. Using the "Large Arc" means that there are no further ongoing maintenance and servicing costs.

Design. Using different colours, shapes and combinations with glass allows for an unobtrusive integration of the noise-protection walls into the landscape.

A great solution for residents. Because the backside of the wall can be custom designed, e.g. with greenery or infill, residents quickly and readily accept the "Large Arc" solution.



The Large Arc replaces costly tunnel solutions.



Low Wall in the train-track area



Low Wall

The "Low Wall" is a noise-protection wall that has been specially developed for sensitive areas of application. One of the main advantages is that residents and train passengers have a clear view of the countryside, towns and the surrounding area. A Low Wall is installed closer to the noise source than conventional noise-protection walls and thus has a direct effect right where the main noise from rail traffic is generated, i.e. directly on the track. For railway lines where several tracks run next to each other, Leube features noise-protection central walls in its range that can be optionally supplemented with noise caps.

Leube is the first supplier to receive full approval for its low noise-protection wall.



Accessibility panels

Leube accessibility plates are a drivable track covering that allows pneumatic tyred vehicles to be used inside the tunnel. This enables effective and rapid deployment in case of an emergency.

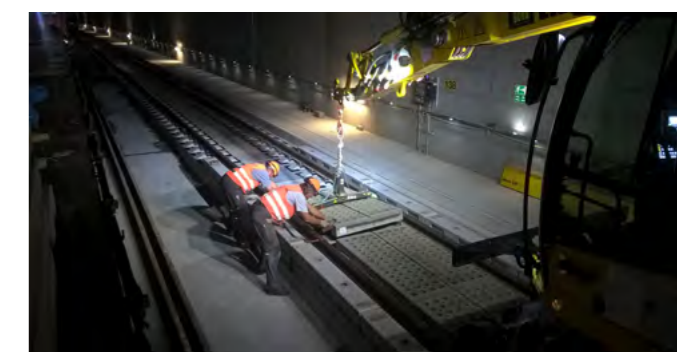


The Rieton track absorber is laid between the tracks.



Rieton track absorber

The Rieton track absorber is composed of aerated concrete, which is installed between or on the outer sides of the railway tracks (only possible with a solid track). In contrast to other noise-protection systems, the noise protection effect here already starts directly at the largest source of emissions, i.e. at the wheels of the train. The absorbers are available in walkable or drivable versions and can be used for both new buildings and renovations. Due to the drivable design, rescue or fire-fighting vehicles can reach the scene of an accident in an emergency without being rerouted. Especially when it comes to tunnels and underground networks, where railway noise is reflected by walls and the direct and reflected indirect noise accumulate, Rieton offers an outstanding solution for sound reduction. Leube is a system provider for RHEDA 2000® and the ÖBB-PORR track support plate. More than 200 km of track have already been equipped with the Rieton system from Leube.



Highly absorbent platform edge

In addition to solutions for open-country lines, Leube also offers noise protection for train stations. The highly absorbent platform edges absorb sound directly at the noise source. The absorbers integrated into the platform edge enable noise protection even in tight spaces.



Highly absorbent platform edge, Vienna Central Station, AT



Noise caps with photovoltaics

With its photovoltaic (PV) noise caps, Leube Betonteile won a "Challenge" from the IÖB (Innovationsfördernde Öffentliche Beschaffung/Innovation Promoting Public Procurement) and ASFINAG (Austrian Autobahn and motorway financing stock corporation).

The use of Leube PV noise caps is impressively simple. The top-most noise-protection wall component is lifted out, the noise cap is pushed in, and the PV system is connected - that's it! Thus, noise-protection walls can be turned into a PV power plant with an output of around 200kWp per kilometre in a remarkably short time without any significant impact on traffic (and significantly more if the wall is aligned appropriately by using the back of the wall).

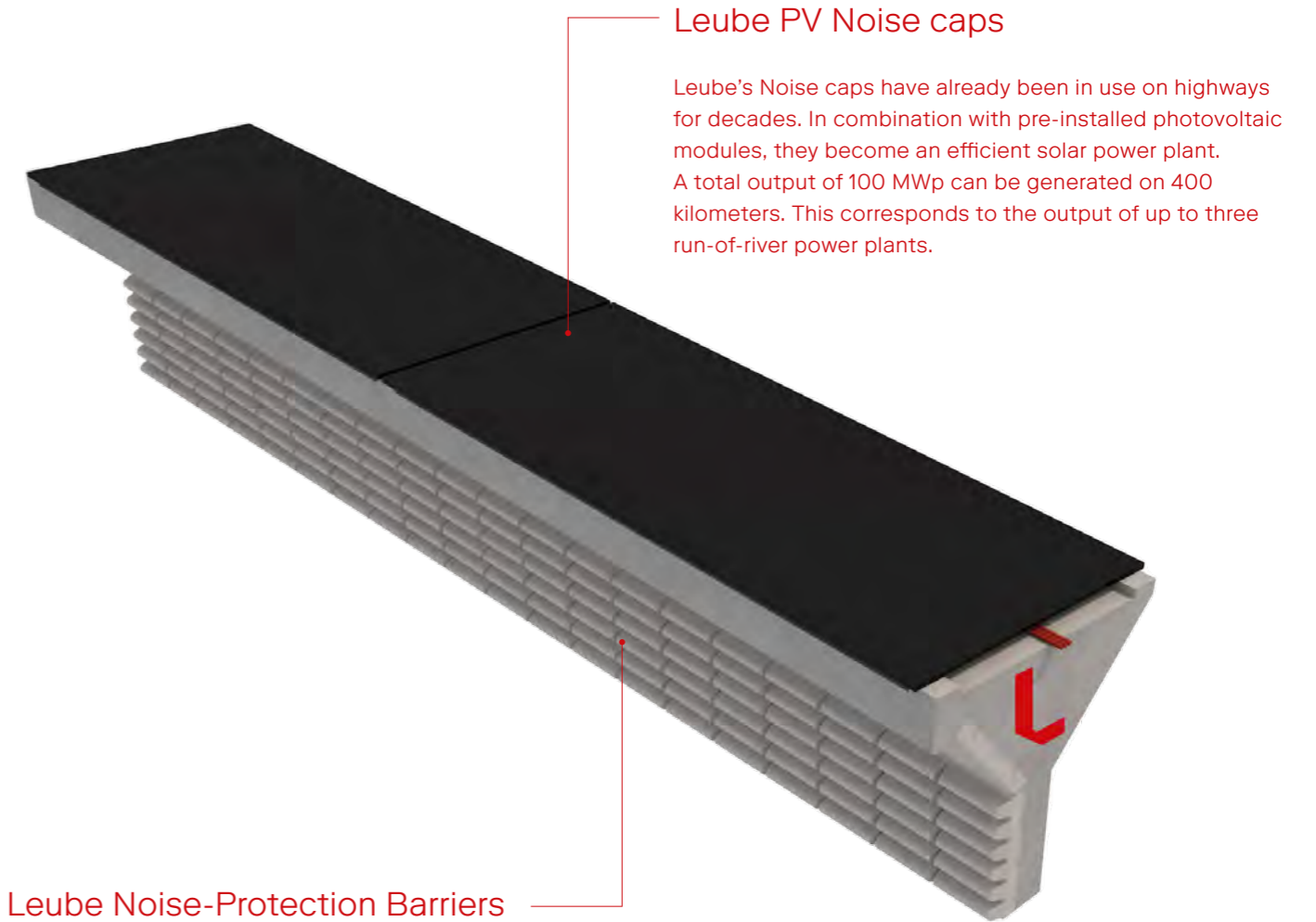


Wave and Noise Cap
A1 West Motorway, Ybbs - Amstetten, AT



First test sections of the innovative power-generation solution

Noise caps in the track area



Leube PV Noise caps

Leube's Noise caps have already been in use on highways for decades. In combination with pre-installed photovoltaic modules, they become an efficient solar power plant. A total output of 100 MWp can be generated on 400 kilometers. This corresponds to the output of up to three run-of-river power plants.

Leube Noise-Protection Barriers

Leube offers noise barriers with photovoltaic modules as a complete solution. However, the individual PV add-on elements can also be mounted on existing (straight) noise barriers from Leube. The installation is very simple, cost-efficient and can be implemented without major traffic disruptions.

Performance and advantages

approx. 200 kWp output per km

approx. 100 MWp output per 400 km

up to 25 % more noise protection

no glare effect

PV modules protected from damage

suitable for new construction and renovation

conceivably simple installation

any wall alignment is efficient

production with PV electricity (climate friendly)

profitable investment

Learn more about how we use the motorway as a solar power plant!



Custom-made products

At Leube, we are able to meet the vast majority of our project partners' requirements.

Due to our in-house production, custom-made products can be implemented relatively quickly.

For example, we produce self-supporting noise-protection components with a span length of up to 20 metres. These are used, for example, when it is not possible to place the components on an existing bridge.

In addition, there are numerous possibilities for combination with glass and metal components. Thus, there are no limits for the planners in terms of shape and colour. Escape exits can also be emphasised in a different colour.

Our team will be happy to advise you on your options.



Cladding of concrete components



Design flexibility in terms of shape and colour

Self-supporting noise-protection walls for bridges up to 20 metres in length



Cladding of door overhangs



Steel U-shapes as a design component, Zirl Railway Station, AT



Wave with milled pattern
A2 Süd (South) Motorway, Edlitz, AT



Straight Wall with Hollow Wave
A1 West Motorway, Steinhäusl, AT



Wall cladding with Wave, Salzburg Main Station, AT



Wave for railway bridge, Vienna Central Station, AT



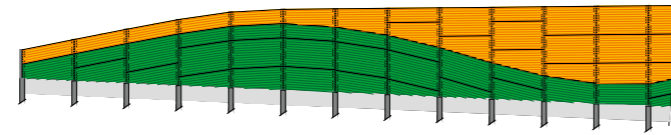
Straight Wall with Hollow Wave
A1 West Motorway, Steinhäusl, AT

Landscape

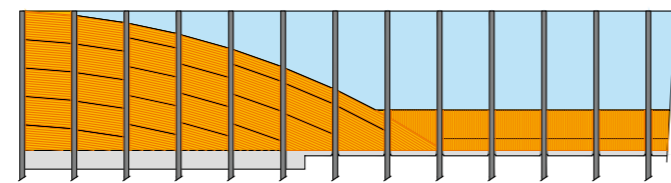
The Landscape Series represents a new generation of noise protection that was developed with architects and traffic psychologists. The system combines functionality and design that blends perfectly into the landscape. With slowly widening windows and quiet contours, the aim is to create a seamless transition between the natural and street spaces. Enabling visual contact with the landscape and the harmoniously changing wall structures helps to reduce stress, mitigate the risk of microsleep, and improve traffic flow. Thanks to various design options, Leube ensures that noise-protection measures can be carried out in a manner that benefits both residents and the environment.

Colour-intensive, eye-catching design of noise-protection walls and matching of form and design to the natural environment.

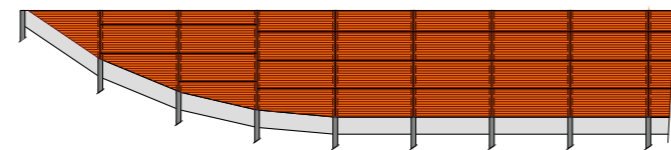
Examples for Landscape wall mounting:



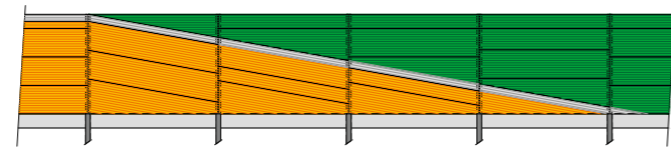
Wine Yellow and Pasture Green Wavy



Wine Yellow and Window Solution



Brown colouring and adaptation to the cut of the terrain.

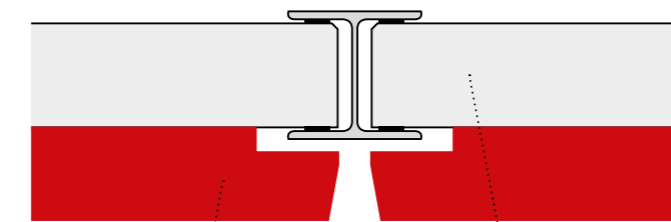


Wine Yellow and Pasture Green tapered-design

Landscape mit window solution, A8 Motorway Bergen, DE



To achieve a continuous, harmonious structure, the steel uprights can also be covered with absorbers.



Absorber body

Concrete core

Landscape with Hollow Wave
A8 Innkreis Motorway, Antiesenhofen, AT



Landscape with Hollow Wave
A8 Motorway, Antiesenhofen, AT



Wall cladding

The individual absorber bodies can be fixed directly to existing walls, e.g. to in-situ concrete walls. This makes absorbers particularly suitable for the wall cladding of underfloor tracks, underground car parks, and tunnel entrances, where a concentration of sound occurs due to multiple reflections.



Cladding of a curved wall with Leube Faseton® Elements

Cladding of a curved wall with Leube Faseton® Elements



Design of the backside

The backsides of the Leube noise-protection systems can also be freely designed. This creates a visually appealing overall image of the noise-protection walls from all sides.



Backside cladding at Altona Railway Station, DE



Backside design of Haltingen Railway Station, DE



Backside design on the motorway

Interior design

Noise protection is playing an increasingly important role indoors as well. Increasingly large, divided office spaces and few sound-absorbing accessories such as carpets, curtains, cushions etc. make interiors unnecessarily noisy. Leube offers innovative solutions for architectural sound absorption in this area as well. Faseton® components are also used in special rooms such as sound studios. Installation is very simple and clean.

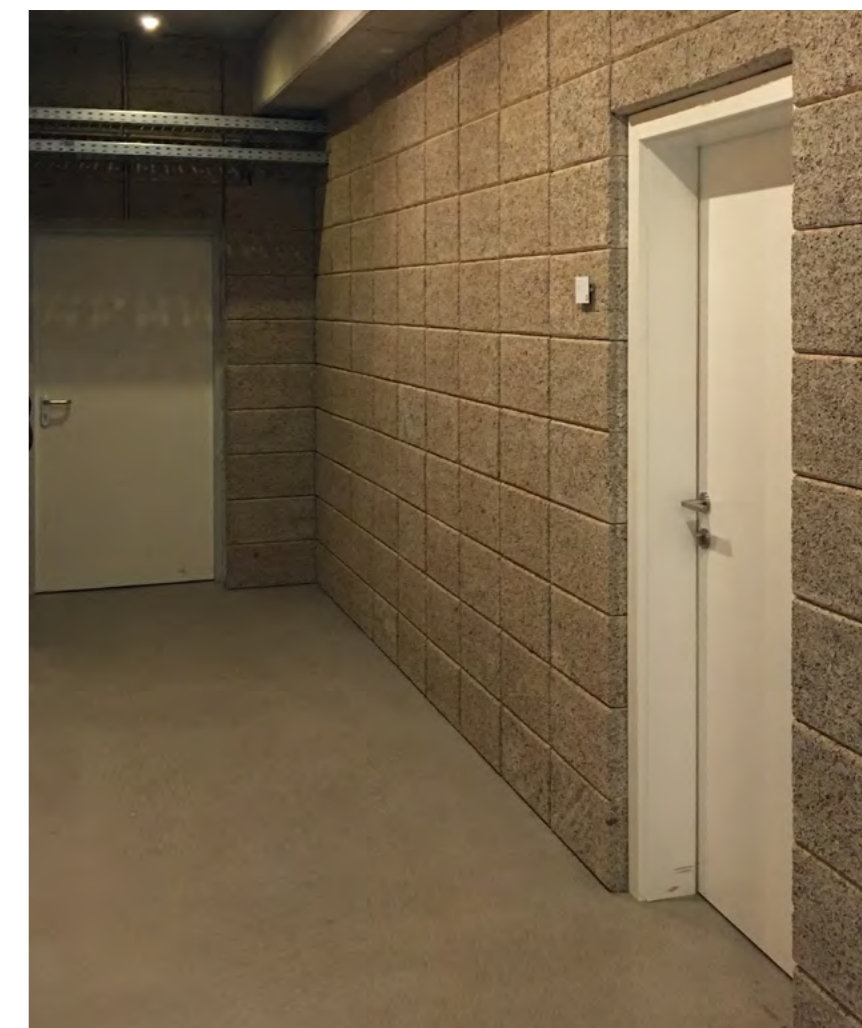


Improved sound absorption in closed rooms

Rieder Campus in Maishofen, Austria



Leube Absorber Elements reduce echoes in corridors.





Noise barrier with trapezoidal absorber, A7 Schweinbach, AT

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40 Years

For more than 40 years, noise protection solutions made of wood concrete from Leube have been used along roads and railroads throughout Europe and overseas.

20 dB

With up to 20 dB absorption, noise-protection walls from Leube far exceed the standard 8 dB required by EN 1793-1 (sound absorption).

3.000.000 ^{m²}

square meters of installed noise barriers

2016

In 2016, Leube became the first supplier to receive full approval for their low noise-protection wall and full approval for the system for high-speed lines up to 300 Km/h.

40–50

Leube noise-protection walls offer many years of durability.

Assortment

The Leube product range includes cement, quicklime, ready-mixed concrete, sands, gravels, crushed stone and granite, as well as noise-protection systems, concrete components and concrete sleepers.

CO₂

During the manufacturing process for Faseton absorber components, more CO₂ is removed from the environment than is released.

For more information about our product range, please visit leube.eu

