



# ***Melueste Rautio***

***A patented, absorbing noise barrier system***  
***Design • Manufacturing • Installation***



**RAUTIO**



***Design • Manufacturing • Installation***

***M. Rautio Oy  
is an expert in  
noise barriers***

Our company has over 20 years of experience with noise barriers. High-quality materials, innovative solutions and precise implementation form the basis for the long life-span of our noise barriers. Over the years, we have designed and implemented over 50 noise barrier projects across Finland.

Our comprehensive service includes design work, work planning, drawings, the delivery of parts, on-site installation, and the completion of final documentation.







## ***Sound absorption***

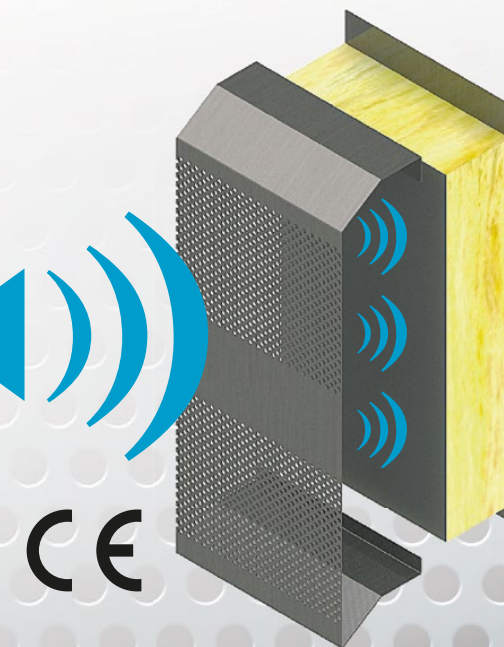
Our noise barrier solution is based on our patent-ed, absorbing and CE-approved noise barrier cassette and its frame structure – Melueste Rautio.

The noise barrier cassette facade is often cladded with mesh or battening. This gives the noise barrier an architecturally sound and finished appearance.

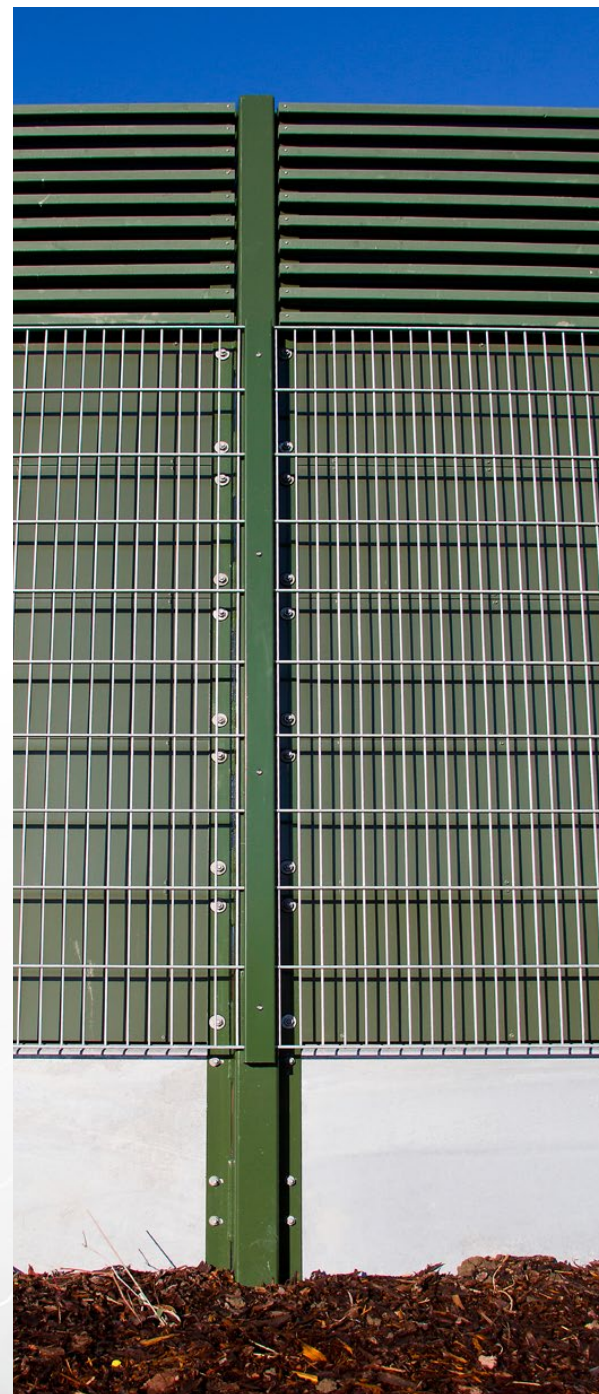
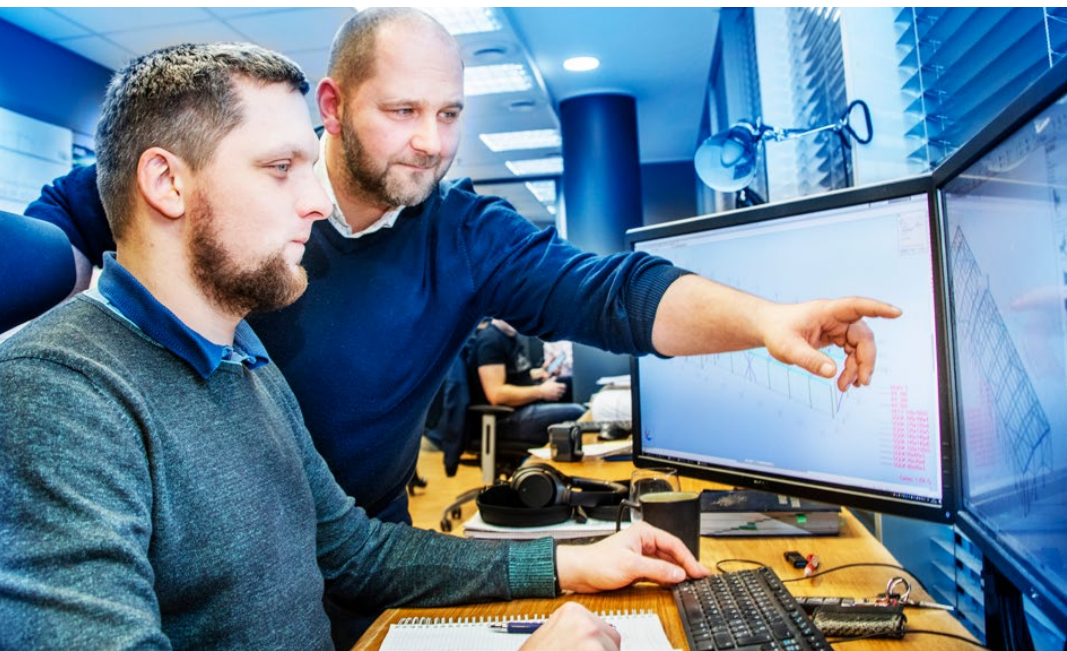
Melueste Rautio noise barriers are eco-friendly and recyclable, very low-maintenance, quick to install, and competitive in price.

The Melueste Rautio noise barrier system complies with current structural and appearance requirements for noise barrier construction (the EN 14388 standard).

In accordance with EN 1793-2, the Melueste Rautio noise barrier has an air sound absorption class of B3. The sound absorption of the noise barriers comes under class A3 as determined in the EN 1793-1 standard.







## ***Design***

Our design team designs all structures from foundations to surface materials and colour finishing according to the customer's requirements.

With years of experience, our design team can ensure the most efficient, cost-effective, and visually appealing solutions for the given environment.

Each project is managed from start to finish in such a way that the customer can follow the progress of the project through one contact person.

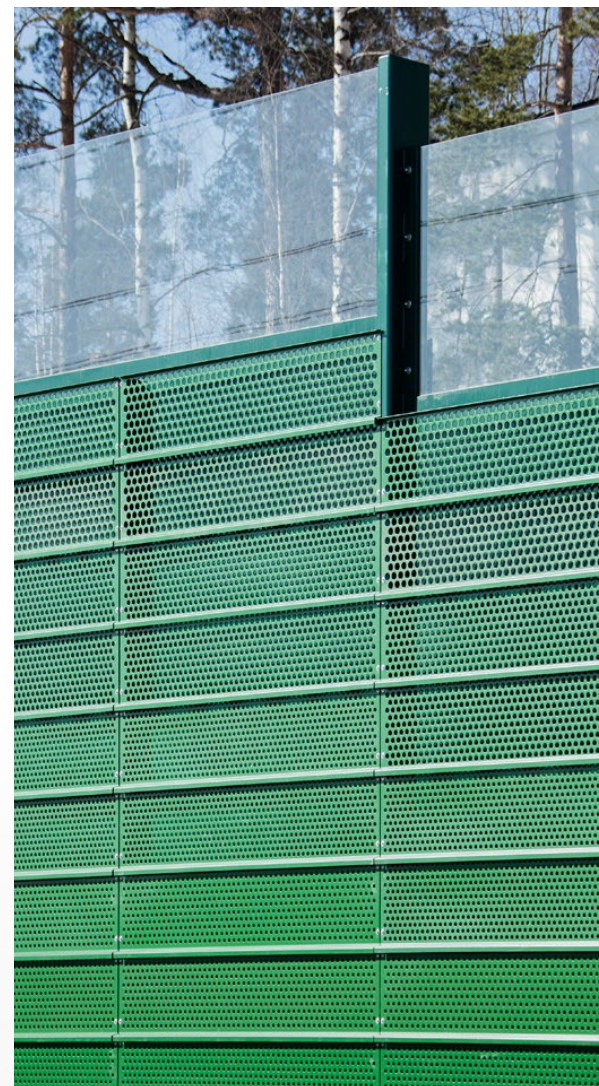
The Melueste Rautio noise barrier is designed in accordance with European standards and the national requirements of the destination country. The dimensions of the noise barrier poles depend on the local wind load, the length of the pole and the general ploughing load.

EN 14388, Eurocode 3 - EN 1993

## ***Frame structure***

The noise barrier's frame system consists of rectangular poles (hollow section) and anti-noise cassettes that are attached between them. The most commonly used interval between poles is 4 metres. The cassettes and steel base are fastened with screw-mounting to the flange on the frame pole, so that the cassettes do not put excessive weight on the cassettes below. This ensures that the barriers remain straight throughout their intended service life.





## ***Installation and maintenance***

The Melueste Rautio system is designed to be as maintenance-free as possible. All parts are designed and manufactured to be easily replaced. If necessary, even single noise barrier cassettes, battens, or mesh can be removed and replaced – even if they are located in the middle of a wall section!

Due to its modular design, the Melueste Rautio noise barrier is quick to install. The poles are attached to the foundations with bolt fastenings and the cassettes are fastened with bolts to the flanges of the poles. Facade mesh and/or wooden battens are fastened with stainless steel screws to the poles and cassettes so that it is possible to replace them, if necessary. A single batten is also easy to replace, as they are individually screwed to the fastening brackets.

## ***Foundation***

The Melueste Rautio noise barrier's fixed weight has been minimized to avoid placing a heavy vertical load on the foundations. This is used in the design of the foundation, allowing the poles of the noise barrier to be mounted on a single driven pile. The dimensions of the driven piles depend on the prevailing ground parameters and the height of the barrier.

## ***Equipment***

Melueste Rautio noise barriers can be equipped with emergency and entrance doors, vehicle gates and detachable element sections, to name just a few examples. Noise barriers built in the vicinity of live train and metro tracks are designed and built to be earthed.





## ***Environmental impact and recyclability***

The environmental friendliness of our noise barrier systems is based on fully recyclable materials and the careful design of structures and production processes. In the wooden parts of the facades, we prefer painted spruce, the life cycle of which can be prolonged with water-soluble and environmentally friendly industrial paint treatments.

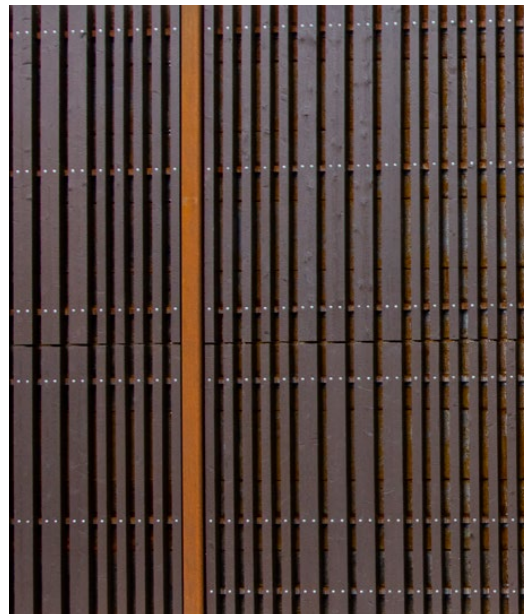
Painted wood becomes energy waste, while chemicals used for impregnation turn waste wood into hazardous waste. In addition, modern impregnated wood materials require maintenance just like ordinary wood.

In addition to surface-treated wood, untreated larch can be used for the battens. Larch wood is inherently decay-resistant and ideal for applications where impregnating substances must be avoided.

The long service life of the barriers also contributes the environmental friendliness of the noise barrier system. In addition to having a long service life, our noise barriers also require little maintenance compared to building solutions made completely from wood. The Melueste Rautio noise barrier system is also a competitive solution in terms of life-cycle costs.







## ***Structure and materials***

In the design phase, we take the utmost care in selecting the materials to be used. Structures made of weatherproof steel (Cor-Ten® or similar) can be used to build a frame structure that is maintenance-free and eco-friendly, with the longest life cycle possible. The planned service life can also be obtained with hot-dip galvanizing and painted structures. We prefer to use industrially painted wood battens and/or mesh in facade cladding to give the noise barrier the desired architectural appearance and graffiti protection.

Wooden cladding can be installed vertically or horizontally. The wooden cladding is left detached from the steel cassette, ensuring good ventilation for the wood, and extending the service life as much as possible.

Facade mesh is built with a self-supporting structure, such as three-wire mesh. The mesh is positioned so that the outer surface is at level with the pole's outer edge. The mesh can be hot-dip galvanized or powder-coated in the desired colour shade.

The Melueste Rautio noise barrier can also include transparent components. The use of transparent components is common, for example, in rail noise barriers, in which wall sections above 1.6m can be transparent. This allows passengers to enjoy the scenery from the train. Transparent parts may be hard-coated polycarbonate, tempered and laminated glass, or acrylic designed for noise protection.







# **Melueste Rautio**

**A patented, absorbing noise barrier system**  
**Design • Manufacturing • Installation**

**Urakointiasennus M. Rautio Oy**

Vierivainiontie 5  
FI-85100 Kalajoki  
Finland

**[www.mrautio.fi](http://www.mrautio.fi)**

**Inquiries and sales:**

Markku Rautio  
[markku.rautio@mrautio.fi](mailto:markku.rautio@mrautio.fi)

Tapio Helin  
[tapio.helin@mrautio.fi](mailto:tapio.helin@mrautio.fi)

ISO 9001:2015  
BUREAU VERITAS  
Certification



**RAUTIO**