Press Information

“Invisible” soundproofing from specialists

Clearwall HS and Clearwall: Peace and Transparency

Among the most serious sources of noise in day-to-day life are road and rail traffic. Traffic noise disturbs my sleep at night, that’s what one in five citizens say. With one in six, according to the statistics, it leads to damage to health. And the increasing density of traffic is accelerating this unfortunate trend. So towns, districts and transport operators have to effectively block noise. But besides the technology, the appearance of a soundproofing screen also plays a major part. Purely functional opaque soundproofing installations with “tunnel vision” are not popular with citizens. They would much rather have discreet, transparent solutions.

R. Kohlhauer GmbH from Gaggenau has been developing and building efficient soundproofing systems for over 15 years. With its **Clearwall® HS System** and a laminate version, besides the renowned soundproofing product used as a vertically structured system, town planners and architects now have two more transparent soundproofing elements available to them.

Used in quantity, it absorbs noise by predefined levels. In contrast to traditional opaque soundproofing screens, a Clearwall HS element makes very little impression on the town since it is almost “invisible.” Its transparent panes do not shut out road and rail users but instead let them participate in the life of the town. With this system, this South German manufacturer is presenting a horizontally structured system solution with a transparent, noise-absorbing screen for the first time.

No unsightly bracings

The heart of this soundproofing element is a transparent insert. It is made of acrylic, silicate glass or Soundgard Top in pane thicknesses of 12 to 20 mm, with the flush surround of a rubber seal. A highly-absorbent frame (at least 4 dB noise absorption) surrounds the transparent insert. This has allowed R. Kohlhauer GmbH to achieve the greatest possible transparency in the structure. No unsightly bracings interrupt the transparent surface. Clearwall HS is available in system sizes of about 3.96 x 1.00 m.

The absorbent material made of mineral fibre is set in its surrounding frame, protected beneath the specially moulded perforated metal sheet. With a chosen density of 100 kg/m³, for one thing optimum noise absorption is achieved and for another the element remains easy to handle thanks to its low weight.

The absorbent material is surrounded by a protective layer made of glass fibre lamination. A three millimetre-thick frame made of rectangular aluminium profiles protects the absorbent material from mechanical effects such as stone impacts or vandalism.

Perforated surfaces absorb noise

For protection against corrosive substances such as salt used on roads in the winter, Kohlhauer engineers selected seawater-resistant aluminium as the material for the frame. The surface perforation proportion of 61 percent in the frame element means that the sound waves can penetrate the absorbent material and be absorbed there. The perforated surfaces also give this component a light appearance.

Test results have shown that, according to the ZTV-LSW (Additional Technical Contract Terms and Conditions and Guidelines for Soundproofing Screens), the Clearwall HS element has a sound reduction index of min. 30 dB and sound absorption of at least 4 dB. According to DIN EN 1793-1 (Soundproofing Installations along Roads – Test procedure to determine acoustic properties), the screen is classified in Group A2. With an absorbent plinth element or other measures, absorption can be increased so as to reach a Group A3 level.

Great variety of designs

Besides the nominal technical values, the HS soundproofing element is impressive with its variety of designs. As an open, aesthetic building material it creates an atmosphere of wellbeing. It can be used in various colours and in combination with concrete, wooden or aluminium protective screens. With its transparent soundproofing systems Kohlhauer gives the architect a great deal of room for manoeuvre in design. Bird protection is of course taken care of by variable grilles and a variety of colours and a permanent anti-graffiti system on both sides protects the surface from unsightly scrawls. This reduces maintenance costs to a minimum.

Whereas traditional soundproofing screens throw shade and deep shadow on the road or rail, this transparent soundproofing screen ensures a constant light situation and therefore greater safety. And with an open view of the surrounding landscape, road users can avoid suffering a tiring tunnel effect.

Specially for railway lines too

But it’s not just along roads but in particular also along railway lines that Clearwall HS is the first choice and it meets all the ZTV-LSW requirements for soundproofing screens and the standards of Deutsche Bahn AG. The slender construction can be used flexibly along railway lines and in the immediate vicinity of stations. The modular structure permits combination with all the usual
transparent materials such as acrylic, glass and polycarbonate as well as horizontal combinations with wood, concrete or aluminium.
Special surface coatings guarantee anti-graffiti protection. Emergency and service doors can be incorporated, as can photovoltaic elements.

Installation over concrete plinths

Clearwall is always installed over a 100 cm-high absorbent concrete plinth and the transparent panes are installed directly on the plinth. But alternatives with regard to the choice of materials and the installation height provide flexibility. The innovative elements have a beautiful appearance with a transparent and at the same time noise-absorbing system. Thanks to innovative laminate technology that is vertically arranged, the system achieves absorption levels of 4-8 dB. The required rigidity in the direction of travel is achieved by means of the solid, narrow supports and the wall-like arrangement of the panes. The conclusion: this legally protected integral solution offers a new product for a new market.

Photos: Sample screen, R. Kohlhauer GmbH, Gaggenau