ECOTEC

General catalog





ABOUT US

ECOTEC was founded in 1990 and is part of TEFSA, which comprises a group of leading companies in the provision of solutions for global filtration.

The company was created by professionals with vast experience in environmental protection, and whose goal is to provide innovative solutions in the field of gas and water treatment.

Since its inception, ECOTEC has focused on expanding and improving its solutions by working closely with expert companies in the environmental sector, and in a very special way, by the continuous development of its own technology.

Over the years, ECOTEC has provided innovative solutions in the field of water treatment. It has developed new applications in lamellar settling, lamella cleaning systems, new applications and materials in chain scrapers for sludge removal, aeration systems, and membrane bioreactors, amongst others.

In the field of gas treatment, ECOTEC has invested great effort in recent years to developing new technology for the biological treatment of gas by means of bioscrubber and biotrickling, as these systems provide multiple improvements over conventional technology such as; reduced environmental impact, reduced operational costs and a wide range of potential applications, etc.

While ECOTEC has hundreds of references in operation and has established a solid position within the environmental sector, it is committed to continuous development in order to provide its customers with continuous improvements to its solutions, resulting in a win-win situation at the end of the day.

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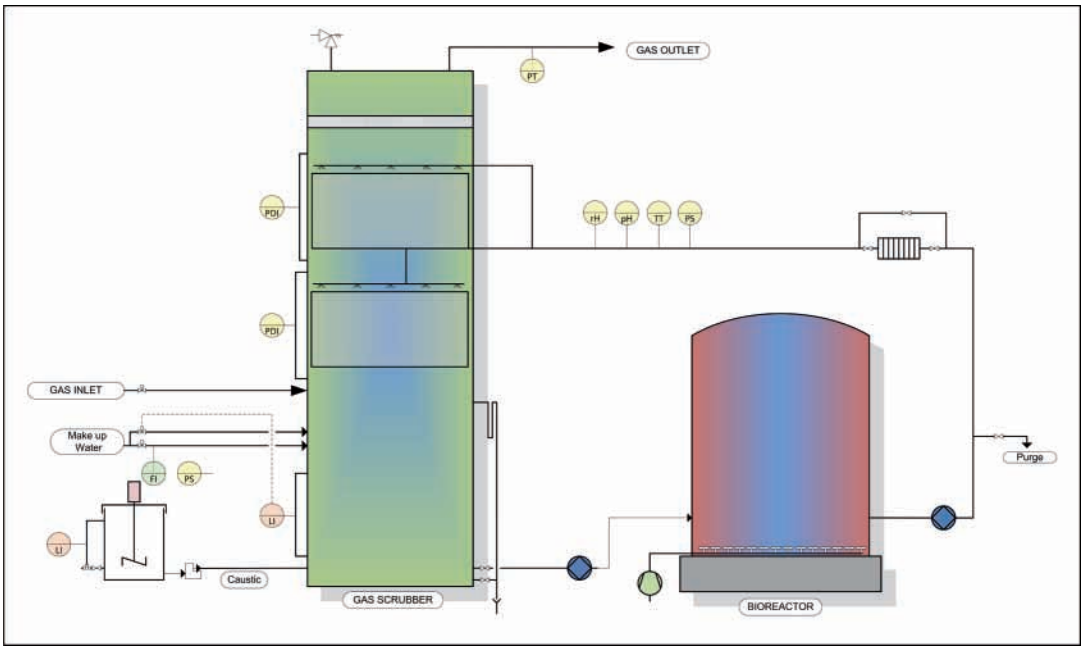
GAS TREATMENT

BIOTECHNOLOGICAL PROCESSES FOR GAS PURIFICATION

BIOSCRUBBER

Bioscrubber systems have proven their efficiency in the treatment of pollutant gases highly soluble in water such as hydrogen sulfide, or certain volatile compounds of low molecular weight.



As opposed to biotrickling filters or conventional biofilters, bioscrubbers have 2 differenciated reactors with a liquid phase in continuous recirculation in between. First stage is a scrubber where the targeted pollutant is dissolved into liquid phase.

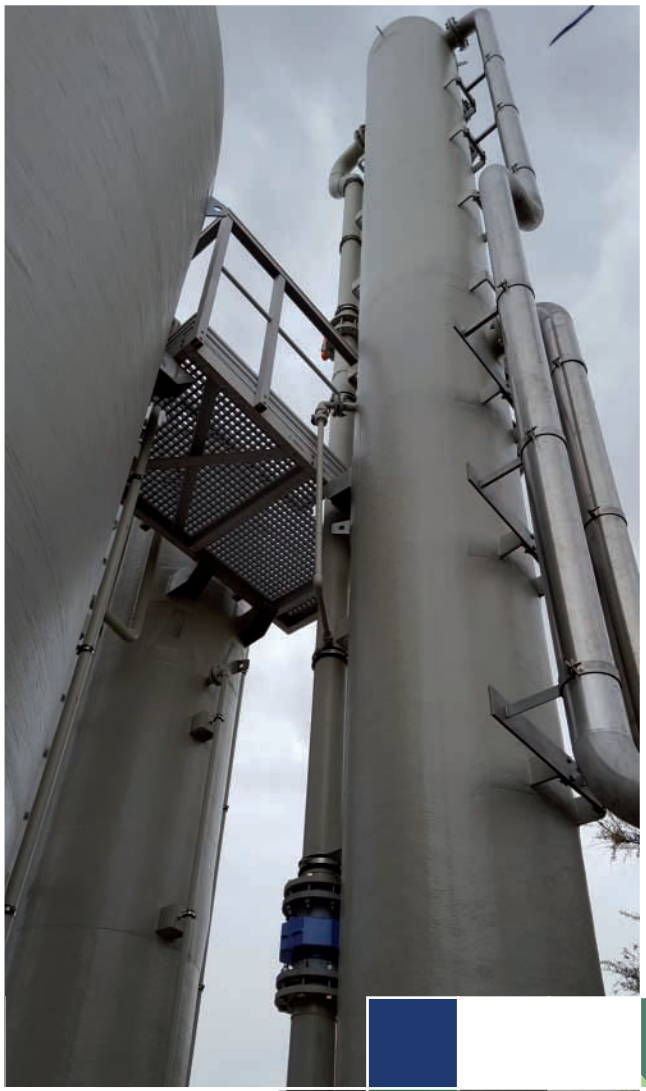
Afterwards, the liquid now enriched with the pollutant is transferred into the second stage, a bioreactor in liquid phase where the biological oxidation of the compounds takes place, so that the liquid returned to the scrubber is regenerated.

• Bioscrubber for Desulphurization

This system allows for the efficient and economical removal of H_2S from biogas at concentrations in the range of the tens of thousands of ppmv and gas flow rates of thousands of m^3 / h.

Bioscrubber comprises a two-stage biological system that allows for the immediate reactive sorption of pollutants in an alkaline medium, obtaining transfer efficiencies higher than 99% and leading to the emission of non-diluted, H_2S-free biogas.

The empty bed residence time of the gas in this scrubber is in the range of seconds, leading to minimal investment costs. Subsequently, the $H_2S(l)$ is channeled to a liquid phase bioreactor, where an aerobic microbial consortium performs its biological oxidation at alkaline pH.



In order to promote optimal performance of the microorganisms, the equipment comprises an advanced air control dosing system, as well as temperature, redox potential, pH and nutrient content control devices. Subsequently, this regenerated water is recycled back to the chemical scrubber.

This biological system has a minimum consumption of reagents (essentially a diluted nutrient solution and NaOH) and water, which means that the operating cost is greatly reduced. As a result of its use a small flow of an acidified liquid effluent, with applications in various industrial sectors without requiring expensive treatment, is generated. All operating parameters are continuously recorded and stored, enabling the effective control of the installation.

• Bioscrubber for VOC's & NH_3 removal

The latest of our development projects is NH_3 removal by means of bioscrubber system, an innovative technology with several potential applications, and with significant advantages compared to traditional NH_3 treatment technologies.

In this case, oxidation that takes place in the bioreactor turns N-ammonium into N-nitrate or N-nitrite, which can be denitrified afterwards.

BIOTRICKLING FILTER for odours, chemical scrubber upgrading, VOC's and NH3

Biotrickling can be used as an alternative to traditional systems (chemical washers and activated carbon filters) for the treatment of an increasing range of pollutants.

ECOTEC has delivered several installations for odour removal as well as chemical scrubber upgrading which are successfully operating for years now. Other applications such as VOC's or NH_3 are currently being developed.

Biotrickling filters can reach higher efficiencies for the removal of pollutant compounds, and also provides the following advantages:

- ✓ Higher efficiencies.
- ✓ Reduced operation costs, which provide short term investment return.
- ✓ No chemical reactive required.
- ✓ Traditional chemical scrubbers can be turned into biotricklings with low investment requirements.
- ✓ The biotrickling/bioscubber technology is capable of treating high pollutant concentrations.

• Biotrickling filter for Desulphurization

This biotrickling application is specifically conceived to remove reduced sulphide compounds contained in the biogas.

Biotrickling technology provides the following advantages:

- ✓ High H_2S removal efficency.
- ✓ Minimum reactive consumption.
- ✓ Reduced operation costs, which provide short term investment return.
- ✓ No waste generated.

Biotrickling filter is feasible for pollutant concentrations up to 10.000 ppm, and it can be used in applications where traditional systems are not suitable due to high running costs.

BIOFILTERS

Biofiltration was ECOTEC's first step into the biological treatment of air. This equipments use organic matter (kept at proper humidity) to allow microbial development which will provide absorption and degradation of odorous compounds.

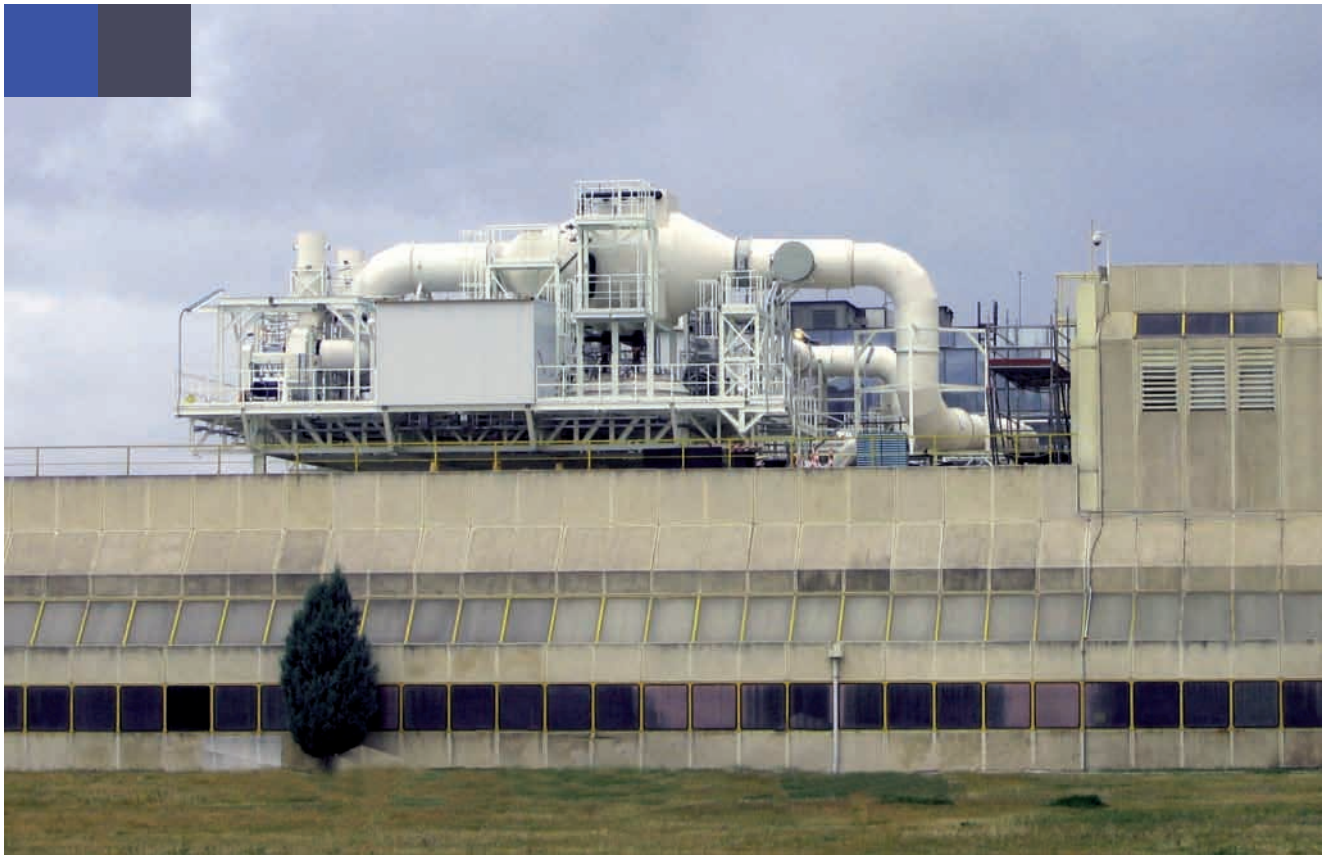
ECOTEC has designed and delivered several biofilters since the early 2000's. Most of them are still operating with excellent performance values, reduced power consumption and low maintenance requirements.

Biofilters can also be installed as an in-line refinement treatment after a biotrickling or chemical scrubber in applications with high pollutant concentrations.

ABSORPTION, NEUTRALIZATION
Physical-Chemical treatments

CHEMICAL SCRUBBER

In most industrial processes where chemical products are produced or handled, gaseous emissions can be generated. These potential emissions of pollutants such as HCl, Cl_2, SO_2, HF, NOx, NH_3, H_2S, etc. must be properly treated and processed before its emission to the atmosphere.



ECOTEC has its own know-how, and long experience in both equipment construction and industrial applications. The use of the most innovative technologies has allowed us to reach emission values that comply with the current legal regulations concerning atmospheric emissions.

Chemical scrubber process is based on physical absorption or chemical reaction of the gaseous pollutants contained in an air stream, with the liquid and gaseous phases at countercourrent flow (in vertical assembly scrubbers) and equicurrent (horizontal assembly scrubbers).

Mass exchange is carried out by means of high specific surface packings (random or structured type depending on the application) which allow to operate with high gas and liquid loads and low pressure drops.

DESORPTION / STRIPPING

ECOTEC has a long experience and multiple successful references of gas desorption installations (stripping).

Gas desorption consists essentially in the removal of the pollutants contained in a liquid stream by means of a countercurrent air stream .

The most common gases suitable for desorption processes are: COVs, NH_3, CO_2, H_2S...

A specific case: NH_3 stripping:

NH_3 stripping is a special name among desorption processes, due to the wide range of potential application fields (leachate, industrial, pig slurry, etc.). ECOTEC has several of these installations successfully in operation for over 20 years now.

These installations are conceived to remove NH_3 contained in some waters. After pH adjustment and by means of countercurrent air, NH_3 desorption takes place in the stripping column.

NH_3 desorbed is neutralized in a second stage in acidic conditions, so that it is not released to the atmosphere, and ammonia sulphate is produced.

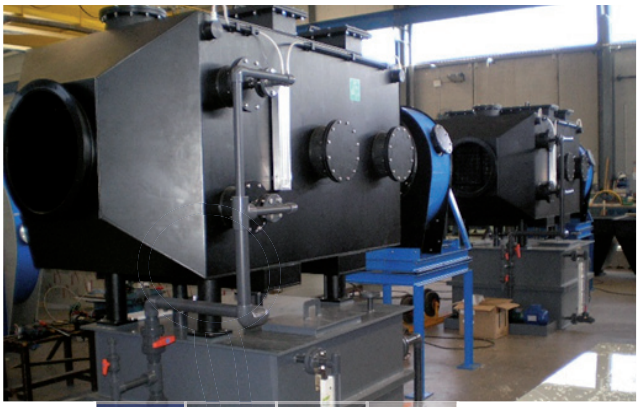
AERODROP® Chrome aerosol washers

In the surface treatment field, galvanic deposition processes of hard chrome do lead to formation of aerosols with a high pollutant value.

The aerosol contains small drops of chromic acid which size and behaviour makes the usual chemical washing systems become inefficient, and requires of alternative treatments.

ECOTEC uses an overexposure of several mesh layers which provides a highly efficient aerosol retention for extra small drop sizes.

AERODROP® can have 2, 3 or up to 5 washing stages installed that combine and add up their effect. The number of stages is chosen in accordance with limit values related to the emission area.



VENTURI

Venturi systems are used for solid particles captation, and also for the washing of medium / high solubility gases. Both physical dillution and chemical reaction are used for the process.

The high-pressure drop WET VENTURI is used for collection of solid particles or liquid vesicles with over 5 micron granulometry. Its efficiency is directly related to L/G value with a total pressure that can eventually reach 6000 Pa.

The system is usually complemented with a cyclonic column and a high efficiency drop separator.

PIPES AND VENTILATION

Ventilation

We plan and execute the installation of ventilation equipment for several application fields:

- ✓ Chemical and pharmaceutical
- ✓ Galvanic and surface treatment
- ✓ Food industry
- ✓ Composting plants, etc.

Components for ventilation

We design and build all necessaryelements for ventilation installations:

- ✓ Air pipes
- ✓ Hoods
- ✓ Butterfly valves for regulation
- ✓ Other specific elements

Materials

PP, PE-EL, PE-HD, PRFV.

WATER TREATMENT

LAMELLA CLARIFIERS

Lamella sedimentation is a cost-effective solution for solid removal in water and sewage treatment processes. Lamella modules in PP or PVC are based on the Parallel plate concept which increases effective surface per square meter footprint, thus reducing tank size and building costs.

ECOTEC lamella modules for clarifiers have proven their efficiency in hundreds of successful applications around the world, where services from design stage to comissioning have been provided.

Main characteristics

- ✓ Equidistant Chevron V-Shape cells, proven to be the most efficient lamella geometry.
- ✓ Maximum channel section for a better performance against fouling.
- ✓ Increase of the sedimentation area by a factor of up to 15 per square meter footprint.
- ✓ Adaptable to several process requirements.
- ✓ High mechanical module strength.
- ✓ Exclussive support system which minimizes effective surface loss and sludge deposits.
- ✓ Simple on site assembly.

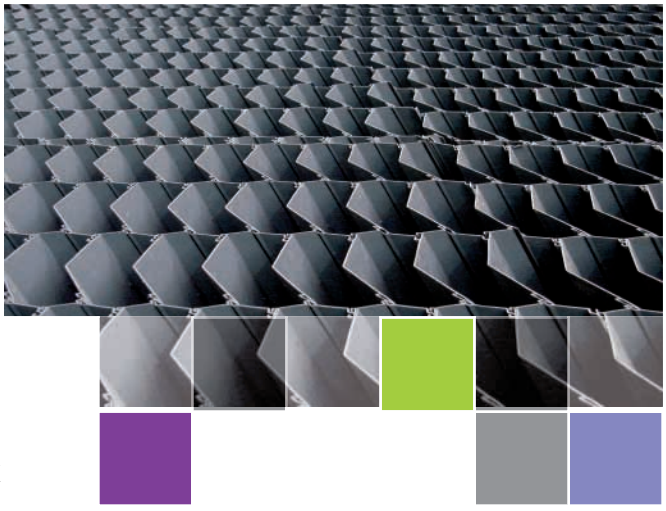
Applications

Drinking water

- ✓ Low solid load
- ✓ Surface Water
- ✓ Underground water
- ✓ Filter backwash

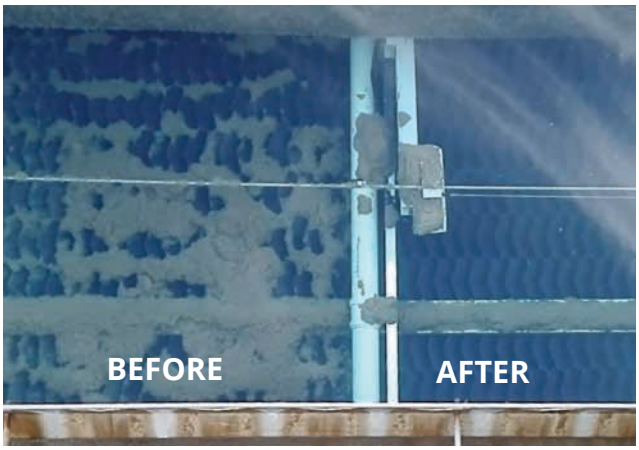
Waste water

- ✓ Aquaculture
- ✓ Tertiary clarification
- ✓ Clarification after fixed bed processes
- ✓ Flocculated water
- ✓ Primary clarification
- ✓ Storm water
- ✓ Activated sludge with low volumetric index



LACES® Lamella cleaning system

LACES® is an automatic patented system designed to clean all lamellar channels installed throughout the surface of clarifiers. These systems can be installed in tanks up to 60m long and 12m wide.



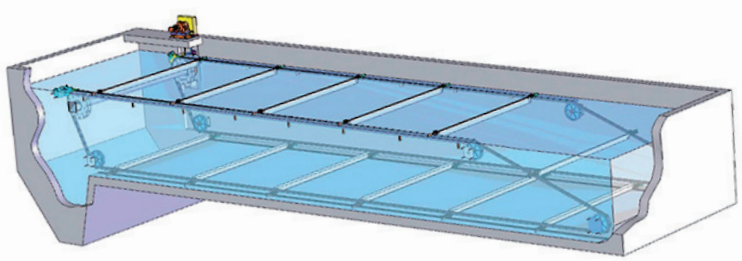
Operational advantages

- ✓ The process does not require manual labour or intervention.
- ✓ The tank does not have to be emptied or shut down
- ✓ It can be accessed and inspected easily as it is placed on top of the lamellar package.
- ✓ Low operation costs

SLUDGE SCRAPERS FOR RECTANGULAR TANKS

FINNCHAIN scraper systems incorporate lightweight and resistant parts in plastic materials, and stainless steel elements in points with maximum mechanical demand. All materials are corrosion-resistant.

The reliability of this equipment, its durability and low maintenance requirements result in considerable savings in operating costs.



PREFABRICATED LAMELLA CLARIFIERS

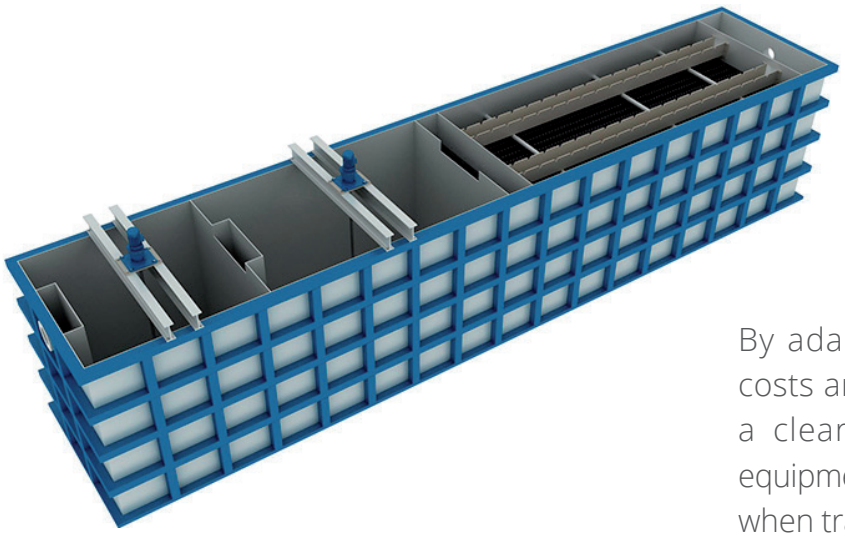
Prefabricated lamellar clarifiers reduce space requirements up to 15 times, which results in cost reductions on civil works, and an installment that is easy and cost-effective.

ECOTEC's equipment is custom-made to adapt to the characteristics of each application. This optimizes performance and space requirements, and reduces the cost of equipment.

The materials ECOTEC works with are plastic (polypropylene, GRP), and metal (carbon steel, stainless steel). One or more chambers such as mixing, coagulation or flocculation can be added to form one single unit.

DLC - Export clarifiers

DLC lamellar clarifiers are a range of standard equipment whose measurements and features have been adapted to fit into open-top shipping containers.



By adapting its dimensions, transport costs are reduced considerably which is a clear advantage over conventional equipment. This is a factor to bear in mind when transporting this type of equipment over large distances.

GRP MODULAR COVERS ECOMOD

Applications

- ✓ Sludge thickeners
- ✓ Settlers
- ✓ Homogenizing tanks
- ✓ Storm tanks
- ✓ Sludge stabilization tanks
- ✓ Channels
- ✓ Archimedes screws

Characteristics

- ✓ Built-in non-corrosive materials
- ✓ Age-resistant
- ✓ Low maintenance
- ✓ Light-weight
- ✓ Reduction of heat transmission
- ✓ Colours according to customer requirements
- ✓ Acoustic insulation

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