

FOR BEST CONDITIONS.  
SINCE 1900.

**ROTHO**<sup>®</sup>

**Efficient and  
reliable: Drying  
bricks & tiles  
under the best  
conditions.**

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## **Best conditions for the brick & tile industry.**

**Your success is our motivation.  
Reliability is our job.**

For more than 70 years, ROTHO has been providing high quality solutions for the brick & tile industry. We understand the requirements and the high competitive pressure of brick & tile manufacturers. In order to further increase the efficiency level of our customers' drying systems, we are constantly improving our products and systems.

The production in our own factory in Germany guarantees a high quality standard and great flexibility. With more than 100 years of company experience, we know that success can only be achieved through close partnerships. We take this to heart when dealing with our customers and our employees. We develop our ROTHO systems with the aim of increasing production quantities and quality and to minimize downtimes of the plant. A close relationship with our customers is important to us in order to cooperatively create the best conditions for the brick & tile industry.

## **ROTHO is the reliable partner for drying systems in the brick & tile industry.**

### **For Best Conditions. Since 1900.**

The history of the company, now in its fourth generation, began in the tradition of the metal industry of Siegerland, Germany. At the beginning of the last century, Robert Thomas, the founder of the company, started producing tools and fixture constructions for the local industry. Later, the product range was expanded to include sheet metal products for storage and transport systems.

In the 1950s, ROTHO revolutionized the brick drying market with the introduction of metal drying

supports, replacing wood as the main carrier material. ROTHO thus significantly improved safety and quality in the brickworks. With a presence of more than 70 years in the brick and tile industry, ROTHO stands as a trademark for an internationally-proven, leading system for drying technology today. We see ourselves as a team that develops and implements the best product and system solutions in close cooperation with our partners in the brick and tile industry. The ROTHO development and design teams for drying systems epitomise consistent development of innovative and future-oriented solutions.

The expertise of the ROTHO assembly team, which has grown over decades, provides the secure basis for professional and smooth construction site management worldwide.

## **This is ROTHO**

- Founded around 1900
- Traditional family business in its 4th generation
- Long-standing, solid business relationships defined by its personal atmosphere
- High integrity

- Production in Germany
- Innovative and qualified engineering
- Trendsetting solutions for drying bricks & tiles

## **ROTHO's company history. From then until now.**



### **1897** Foundation

Robert Thomas founds the company as a metal manufacturer for the industrial companies in the Siegerland region.

## **1900** Cookware

Enters the market with high quality sheet metal goods for the kitchen.

## **1920s** Milk cans, wheelbarrows and sheet metal products

ROTHO expands its metal goods production and becomes, among other things, a global player in the manufacture of high-quality milk cans.

## **1950s** Steel laths, pallets and frames for bricks

Enters the market into the brick & tile industry. ROTHO revolutionizes the brick & tile drying process with metal drying supports.

## **1960s** Lightweight design concepts for racks and dryer frames

First lightweight racks for masonry chamber dryers and the first dryer frame in a lightweight design.

## **1970s** Dryer body and roof tile support units

ROTHO expands its range of services in the brick & tile industry with prefabricated dryer bodies made of metal and develops the integrated support unit for roof tiles.

## **1980s** Reversible support units for roof tiles with changeable supporting areas

To accommodate the growing variety of tile models, ROTHO develops reversible support units for roof tiles. In addition, flexible supporting areas are integrated.

## **1990** Quatro<sup>®</sup> Dryer body

First dryer system in a self-supporting modular design. Construction completely free of thermal bridging with a high impermeability.

## **2002** QuickPoint plug-in system for roof tiles

Market launch of the QuickPoint plug-in system for ventilation of the underside of the tile. A fast and flexible adjustment of the support surfaces is possible through „repositioning“.

## **2005** XStream Tile - Rapid dryer for roof tiles

The world's first rapid dryer with impingement flow technology. The air ducts are integrated in the drying support units.

## **2007** StabiloEck drying pallet

The corners of the drying pallet are exceptionally stable due to the latest robot-supported solder welding technology.



## **2008** ROTHO MixAir rotary fans

Reliable rotary fans with especially uniformed air discharge, large jet range and adjustable guide vanes.

## **2009** Concept study: Eco-Dry low energy dryer

Energy saving drying technology using ambient air for roof and masonry tile products.

## **2020** SilentUltra drying pallet

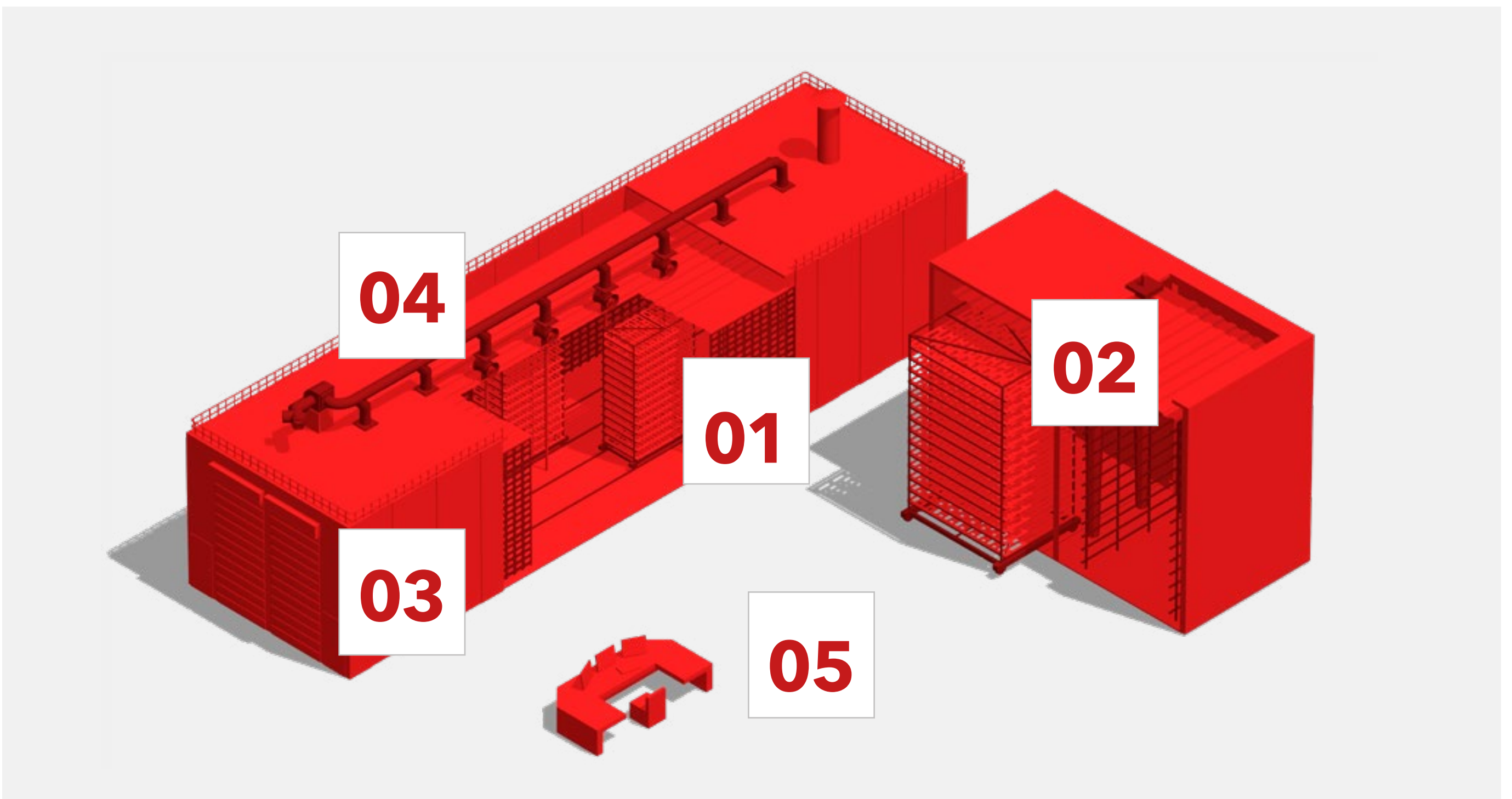
The noise level of this drying pallet for bricks is reduced by an improved design.

## **2021** Aluminium dryer front

Particularly robust, resistant and corrosion protected dryer front made out of aluminium.

# Optimally equipped for the future: With the all-in-one drying systems from ROTHO

- 01** Drying supports
- 02** Dryer frames
- 03** Dryer structures
- 04** Ventilation Systems
- 05** Process / Control Engineering

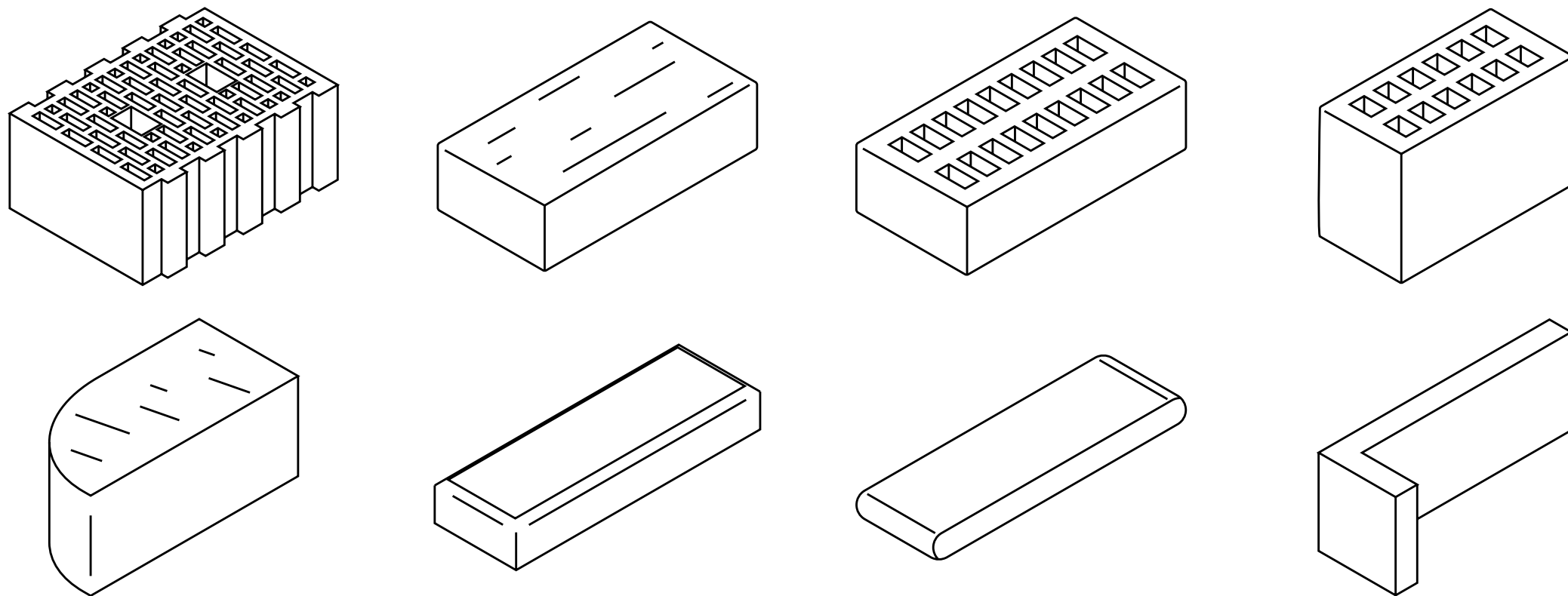


# At ROTHO, the focus is on the brick & tile

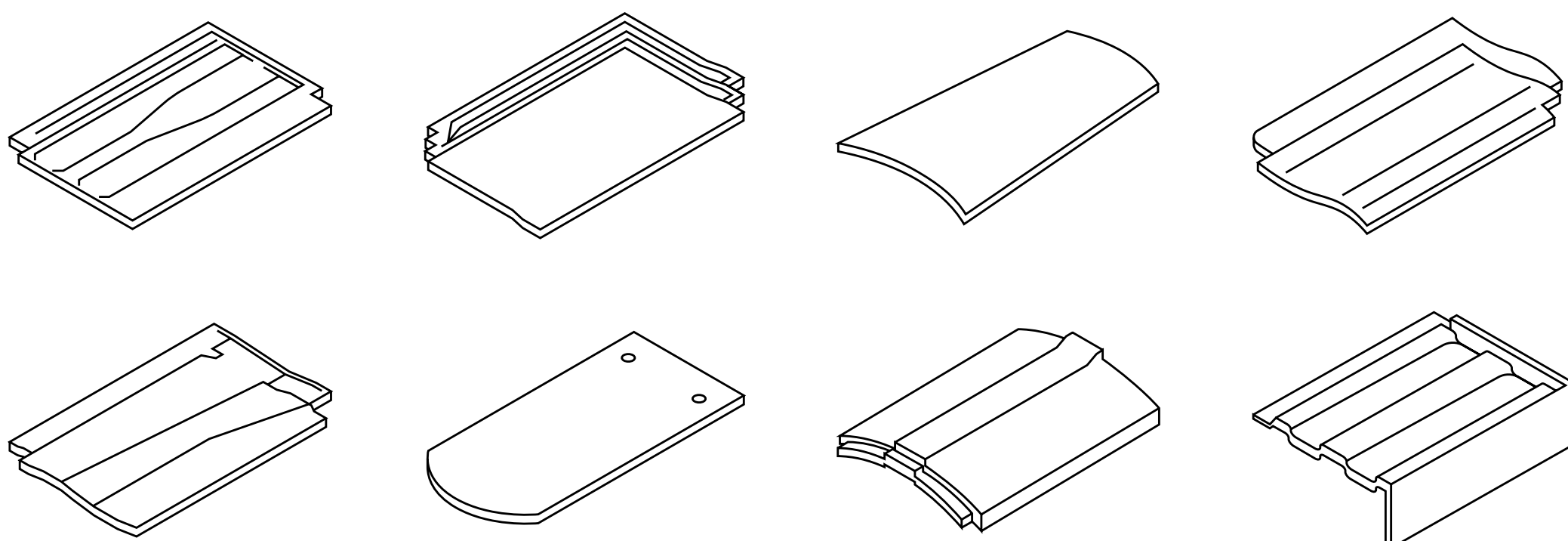
## For a wide range of brick & tile products

Drying bricks and roof tiles perfectly is an art. Every brickyard has its own special requirements and demands. For an optimal design of the drying components and systems, all influencing factors must be taken into account. Based on decades of experience, ROTHO uses the best and most suitable materials, designs and processes for drying each particular type of brick or tile.

## For bricks and clinkers:



## For roof tiles:



# Good work makes for satisfied customers

ROTHO is a plant manufacturer for the concrete and brick & tile industry. That is what we do. Our goal is to improve the performance of our customers, to make their work easier and to provide the best conditions. To give you an idea of our quality, we have asked some of our customers to describe their cooperation with ROTHO.



## **“Ensures the best drying results”**

“In our RÖBEN plants, the highest quality standards apply to the production of our brick and clinker products. Only then can we satisfy the high demands of our customers. ROTHO has also reliably fulfilled this requirement for many years and ensures the best drying results, with durable and precise roof tile and clinker drying support units.”

**- Ralf Borrmann, Röben**



## **“Our partner for decades”**

“ROTHO has been our partner for drying systems for decades. For our current dryer extension we rely on the dryer frames and support units from ROTHO, as well.”

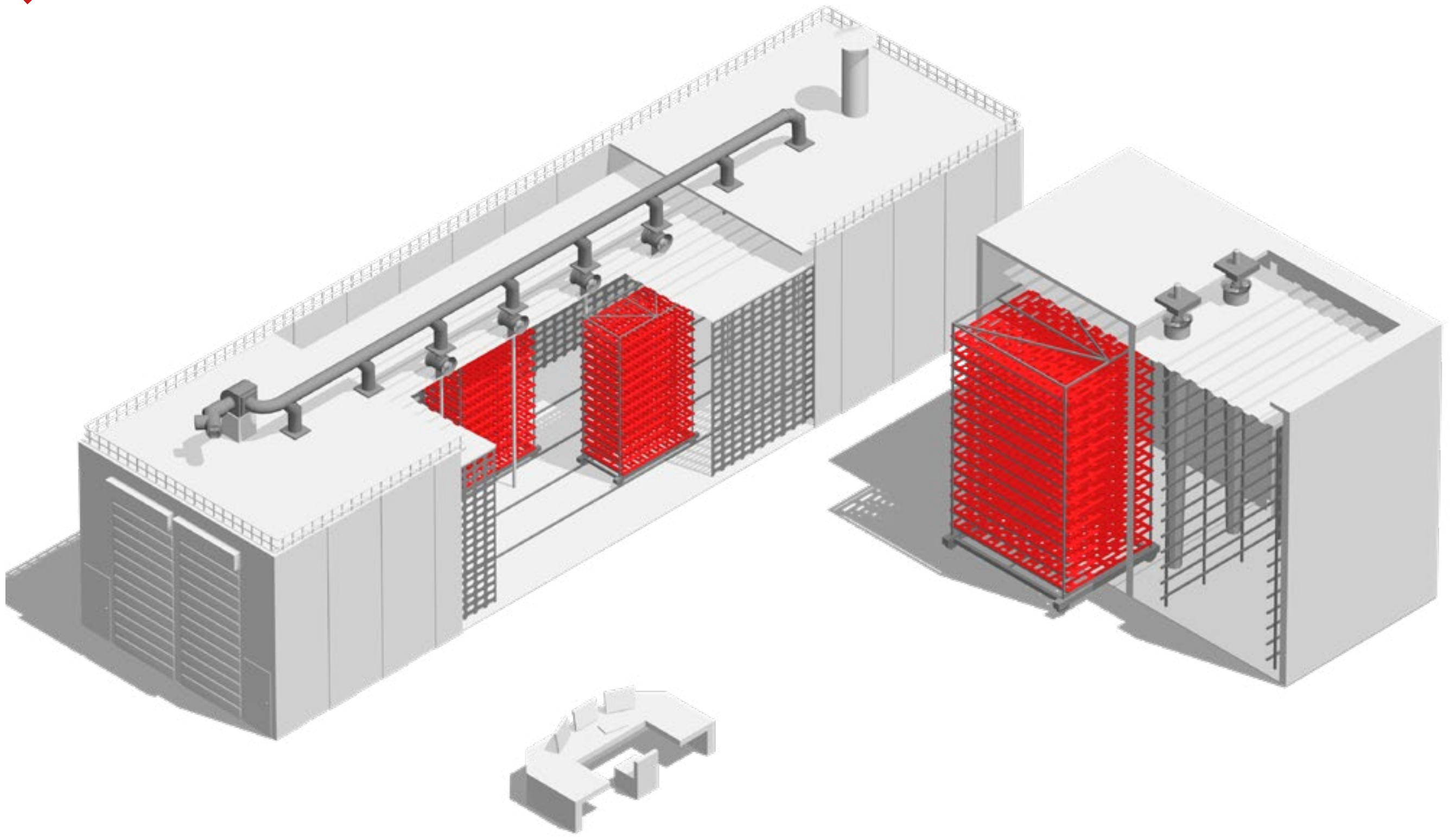
**- Georg Bauer, Leipfinger Bader**



## **„High demands fulfilled“**

“The ROTHO aluminum dryer front fully meets the high demands of August Lücking in terms of corrosion resistance, impermeability and robustness. The cooperation with ROTHO is always professional and reliable.”

**- Claus Lehmann, August Lücking**



# The ROTHO drying system for the brick & tile industry

## The all-in-one drying system for bricks & tiles

For decades, we have been drying bricks quickly and carefully. You benefit from precise planning, holistic thinking, a flexible response and high-quality implementation of your projects. We see the drying process as a whole. We always keep an eye on optimum product quality and maximum efficiency. This begins with the optimum storage of your products on individually designed drying support units and the transport of the products on our precisely running, statically optimised dryer frames.

Our dryer structures set high standards in terms of insulation, precision and rapid assembly thanks to our unique modular design.



The ventilation systems meet every requirement and, in conjunction with the drying support units, ensure optimum ventilation of the products and thus gentle yet rapid drying. Precise control and regulation of the drying process is ensured through high-quality components and a process engineering design optimised for your product.

## **Drying support**

### **Reliable, individual, precise.**

We produce support units on highly flexible production lines, economically and individually for brickyards all over the world. Our structural engineers and designers work with you to develop the optimum functional and structural design. As the drying plants in the brick & tile industry are particularly exposed to high corrosion stresses, a large selection of materials is taken into account under cost/benefit considerations. For this reason we produce our support units in strip galvanised, piece galvanised, duplex coated, aluminium-zinc, zinc-magnesium, aluminium or stainless steel.

### **Product variants:**

Laths, Drying boards, Pallets and frames,  
Large format pallets

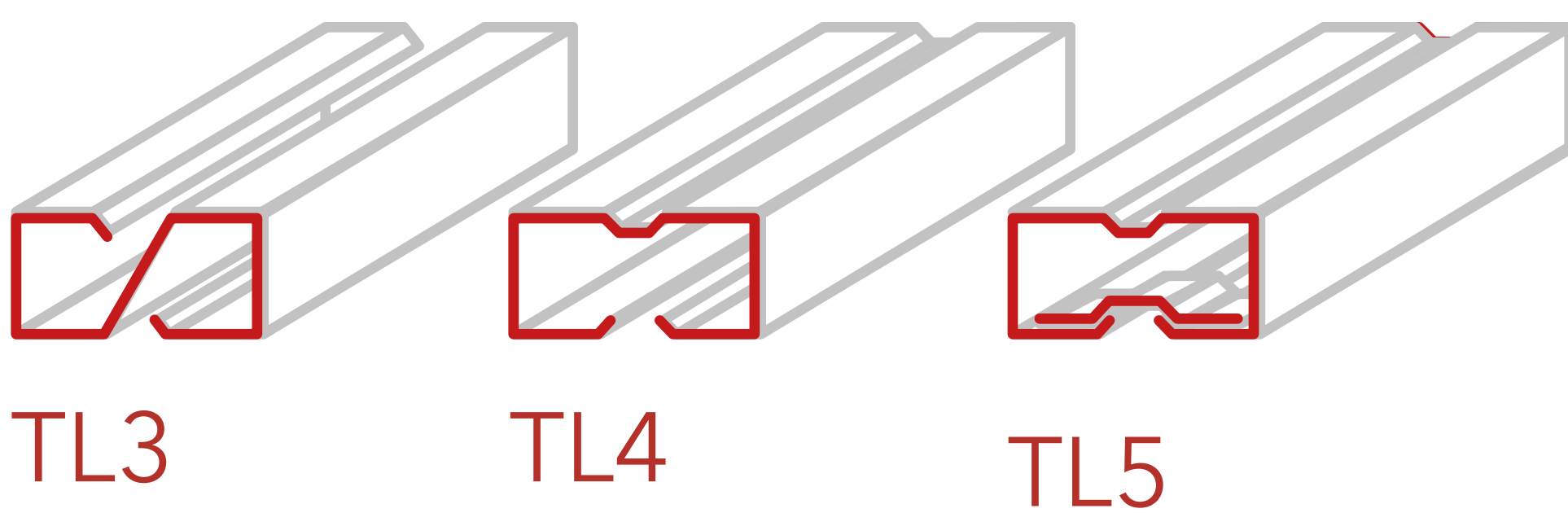
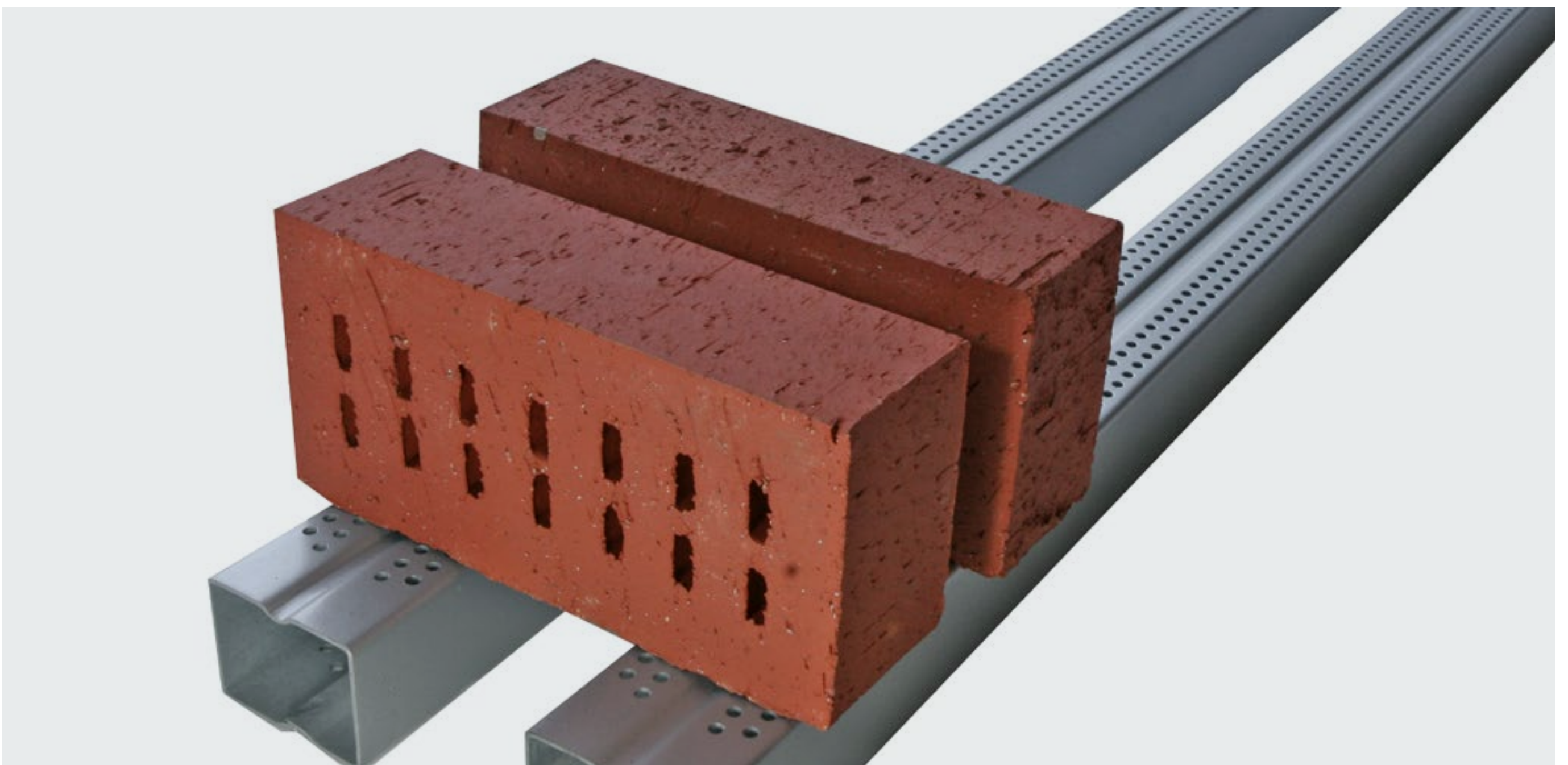
# Drying support for bricks and clinkers

## Product advantages

- Different perforation designs for optimal ventilation
- Cost-optimized basic version up to a high-quality individual version
- Strip galvanized to stainless steel
- Process reliable and dimensionally stable with low dead weight
- Low system load
- Reduced heat absorption
- Weight optimized

## Laths

ROTHO offers all required cross sections, sheet thicknesses and lengths. We either design the specifications exactly to the existing plant requirements or realize an optimized design for new plants. Depending on the requirements, the cross sections are designed to be particularly torsionally flexible or torsionally stiff. Modern production facilities ensure high dimensional accuracy and tight tolerances, which guarantee a trouble-free operation in your production. Versions with a closed top and bottom or with different perforations are available for optimum drying results of the products.



TL3

TL4

TL5

## Drying boards

As with the drying laths, the design and production facilities of the ROTHO drying boards have developed over the decades to meet the increasing quality requirements. The reinforcement profiles on the underside are fastened with automated, surface-friendly projection welding processes to give the highest strength to the joint connections.

The highly stable corners are joined using a solder welding process to form our unique StabiloEck. In the SilentUltra version, we combine maximum ventilation with a noise-optimised construction.



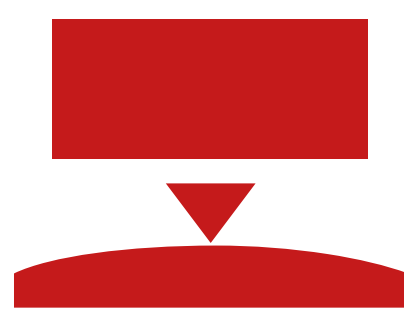
## Ventilation design options



STABILO ECK



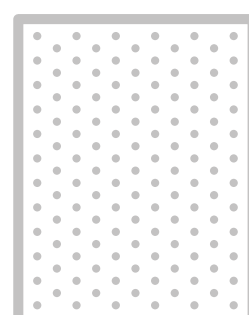
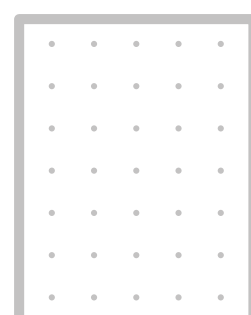
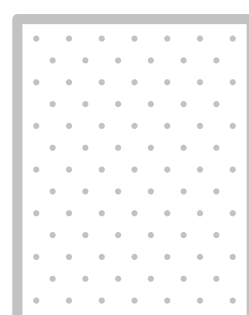
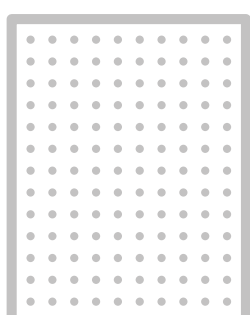
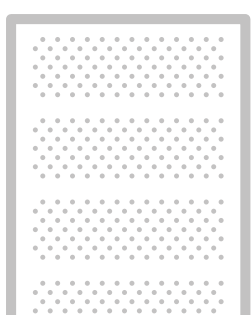
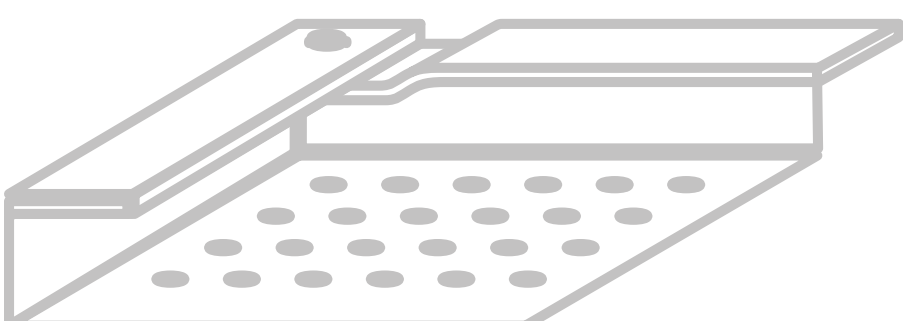
AIR



CURVED



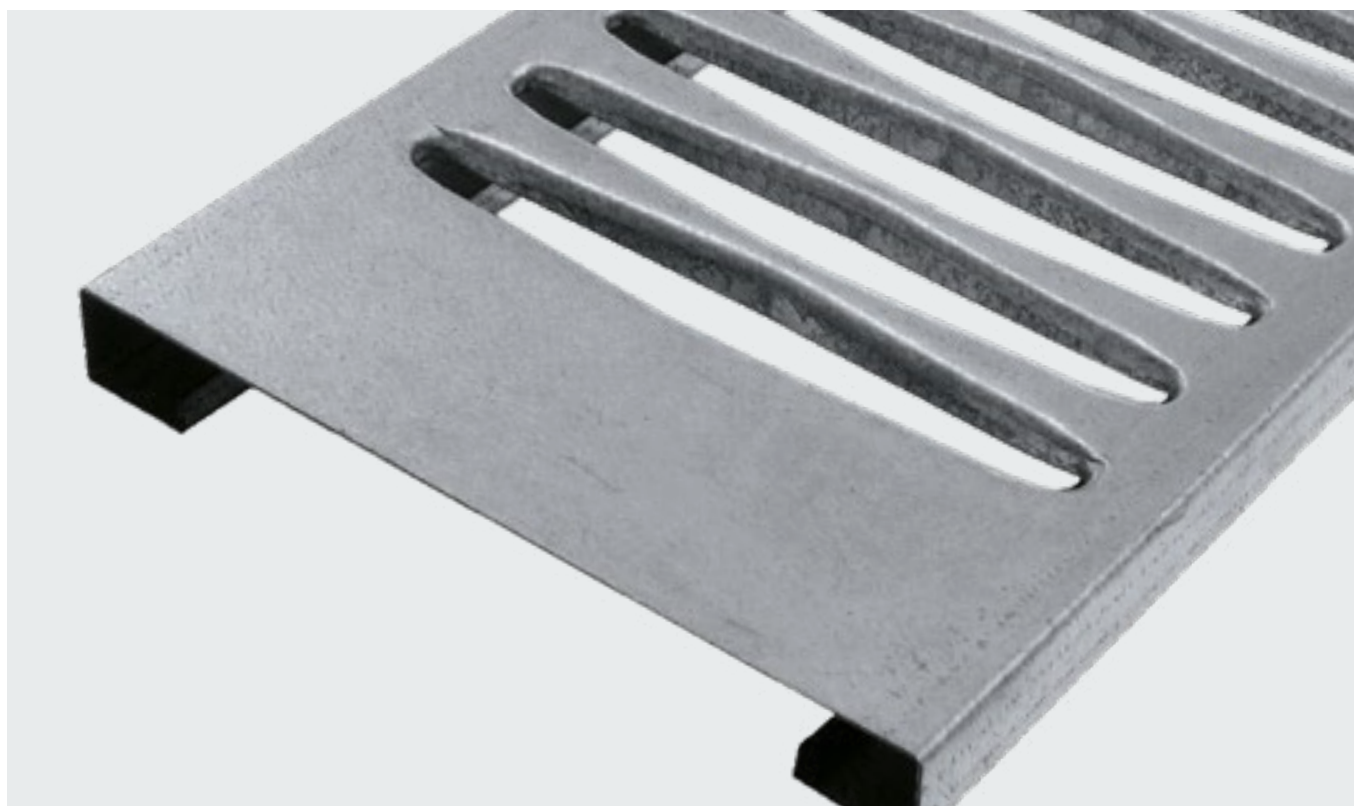
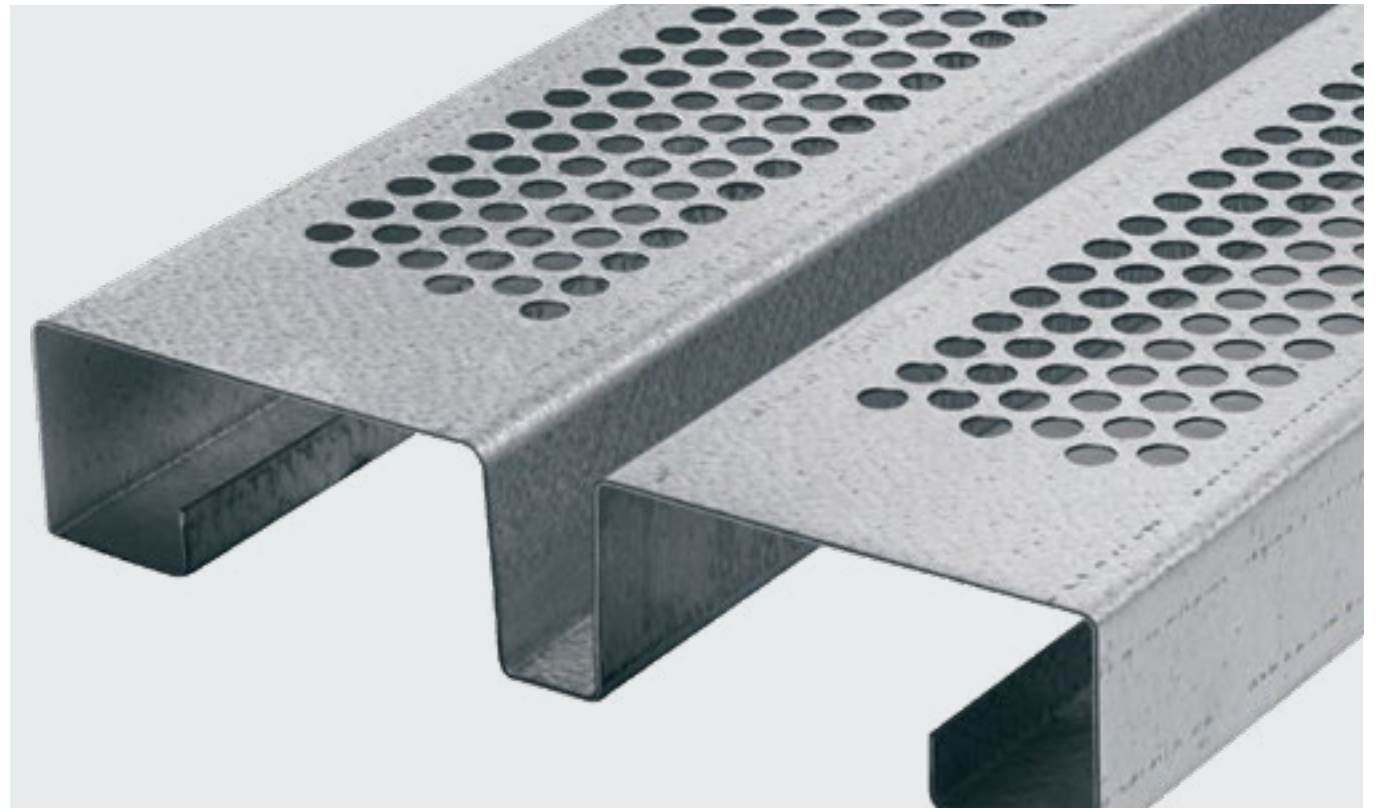
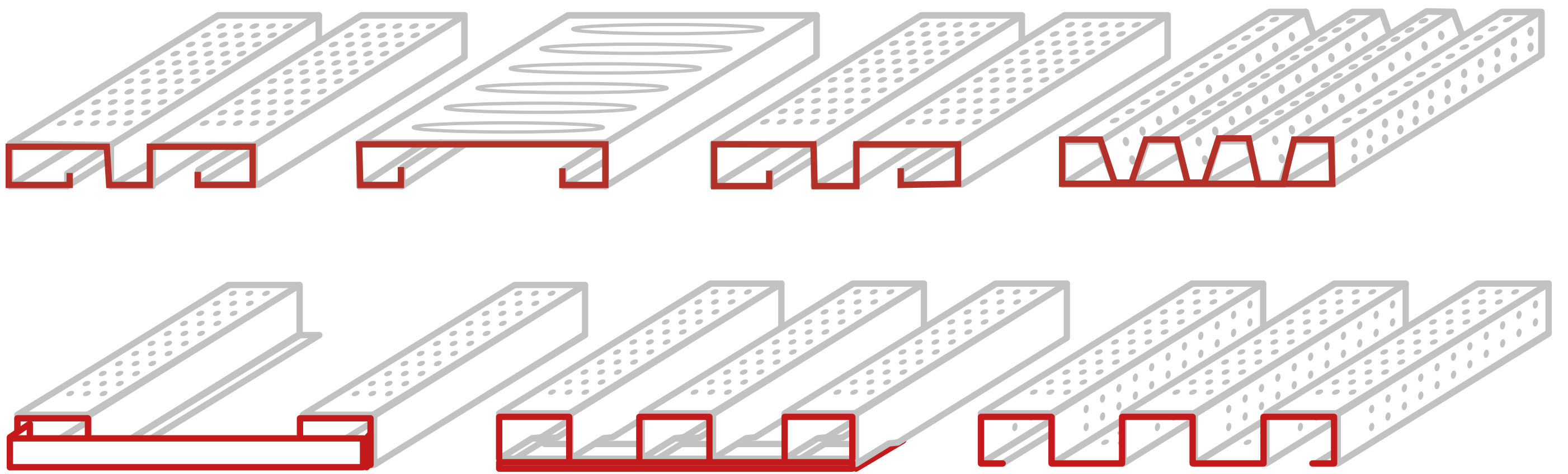
SILENT ULTRA



## Pallets and frames

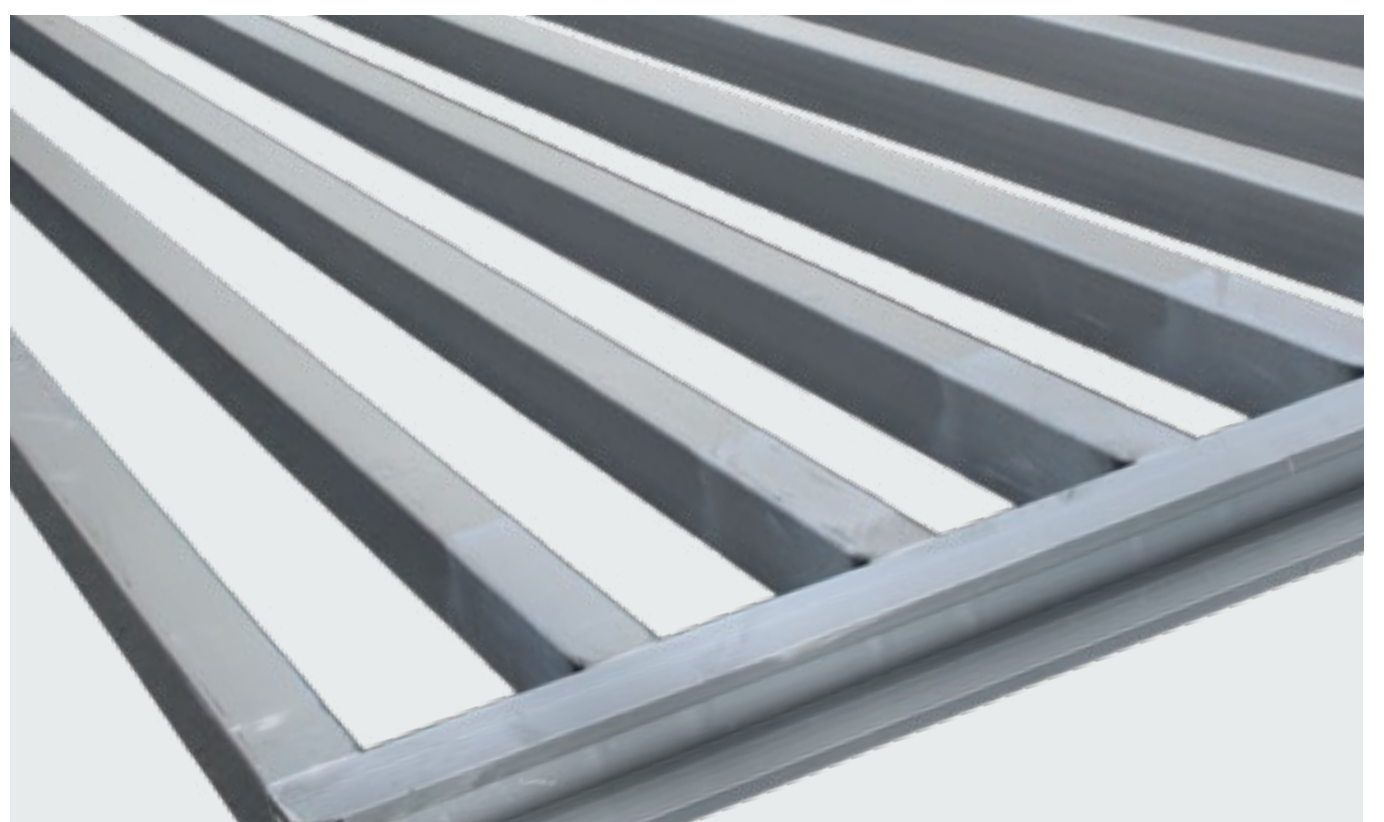
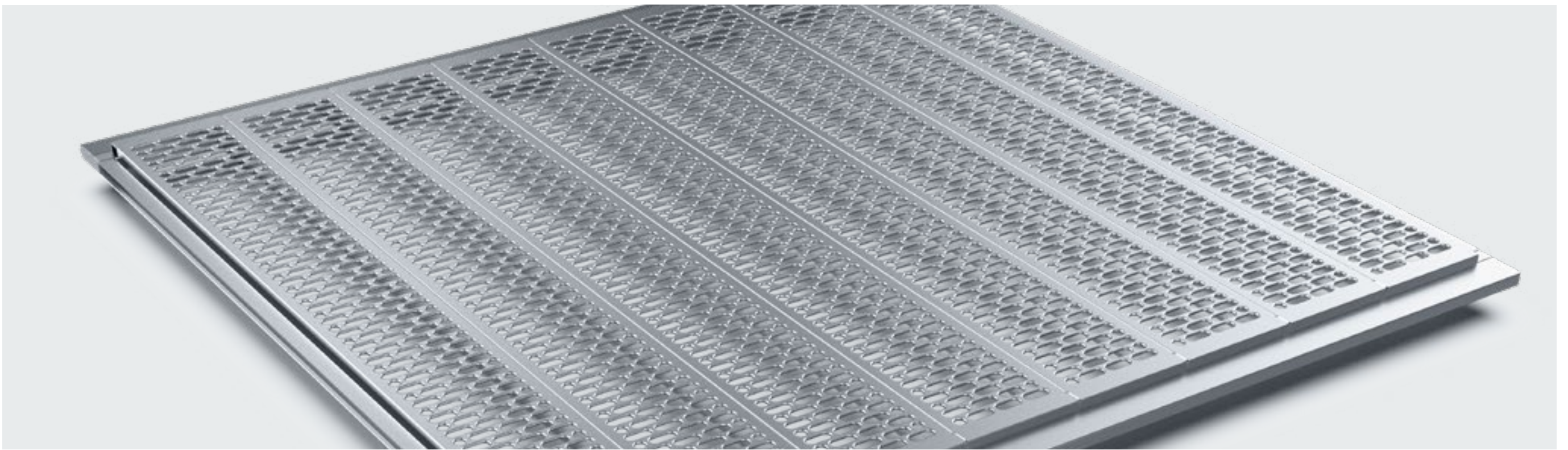
Using individual static calculations, we ensure a particularly high stability with minimal deflection, even with especially heavy and large brick moulds. At the same time, the pallet and frame structures guarantee an optimum and uniform ventilation.

### Design variants



## Large format pallets

ROTHO large format pallets are designed as bar pallets or partial pallets. The materials available include galvanised steel, aluminium or stainless steel. Depending on the drying requirements, various perforation designs can be selected for optimum ventilation of the bricks. By using a special pressing process, the pallet stability can additionally be increased by means of circumferentially embossed perforation edges. ROTHO large format pallets are suitable for the highest loads and are characterised by high surface accuracy.



# ROTHO drying support units for roof tiles

More than 1.5 billion roof tiles each year are dried on ROTHO drying support units in Europe. Each ROTHO drying support unit is an individual product, developed together with our customers. The following requirements are taken into account:

- Tile type (flat and accessory tiles)
- Geometry of the brick models to be dried
- Transport system for the support units
- Operating roof tile press
- Drying concept
- Drying behaviour of the brick (shrinkage and deformation)

All projects are implemented according to the SEC (Save Energy Concept). This concept is based on intelligent design solutions that combine high stability with the lowest possible use of materials. This reduces the energy input during production as well as during operation due to low heat absorption.

In addition, the loads on the system components are minimized. The following two design options are possible:

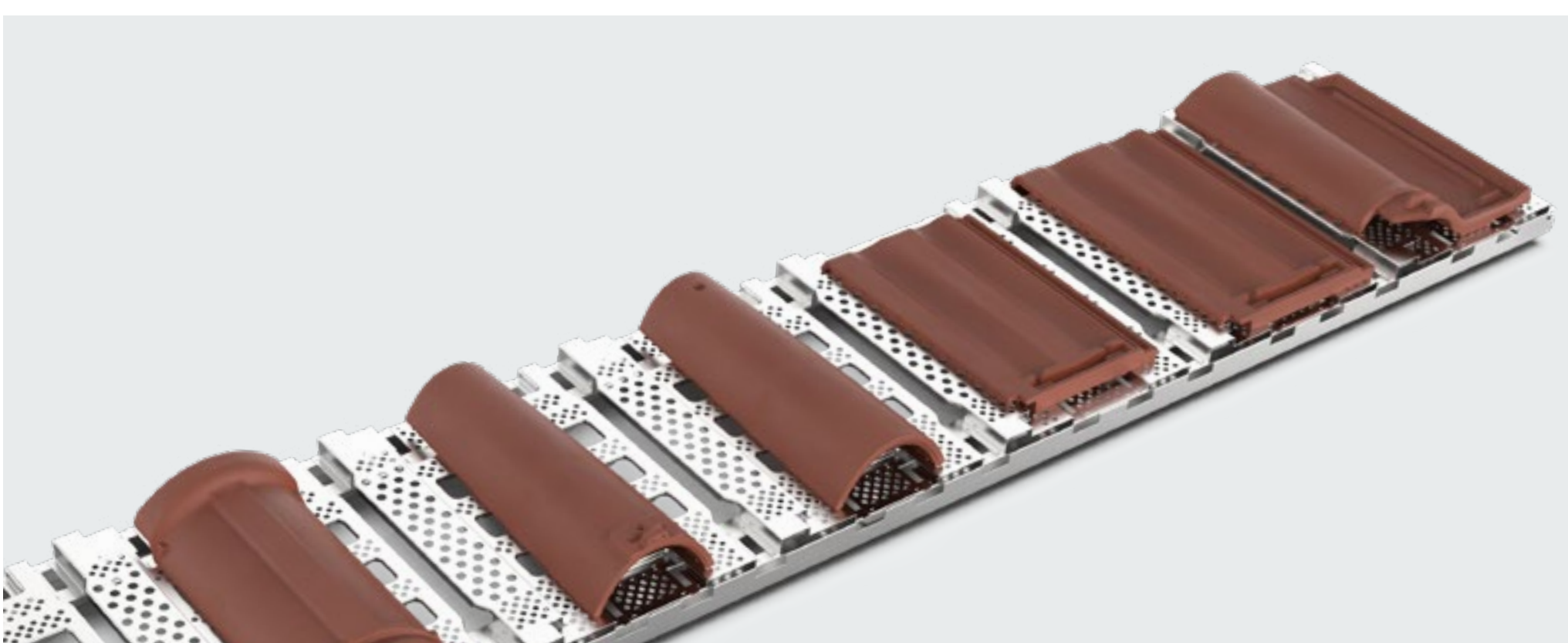
- Placement in dryer frame or rack
- Self-stacking design



**Reversible solutions** available for both variants.

## **Drying support units for roof tiles**

Due to the development of even faster moulding presses, the use of precise drying support units has become unavoidable. At these high cycle speeds, the best quality of the current roof tiles can only be achieved with the help of precise supports. Within the scope of the drying support design, a universal support surface is defined to accommodate all the brick models to be dried. In order to position brick models, which are not matching the support surface, a multifunctional support unit can be designed with sliding and folding support segments. There are almost no limits to the design of the individual support surfaces in terms of ventilation and geometry.



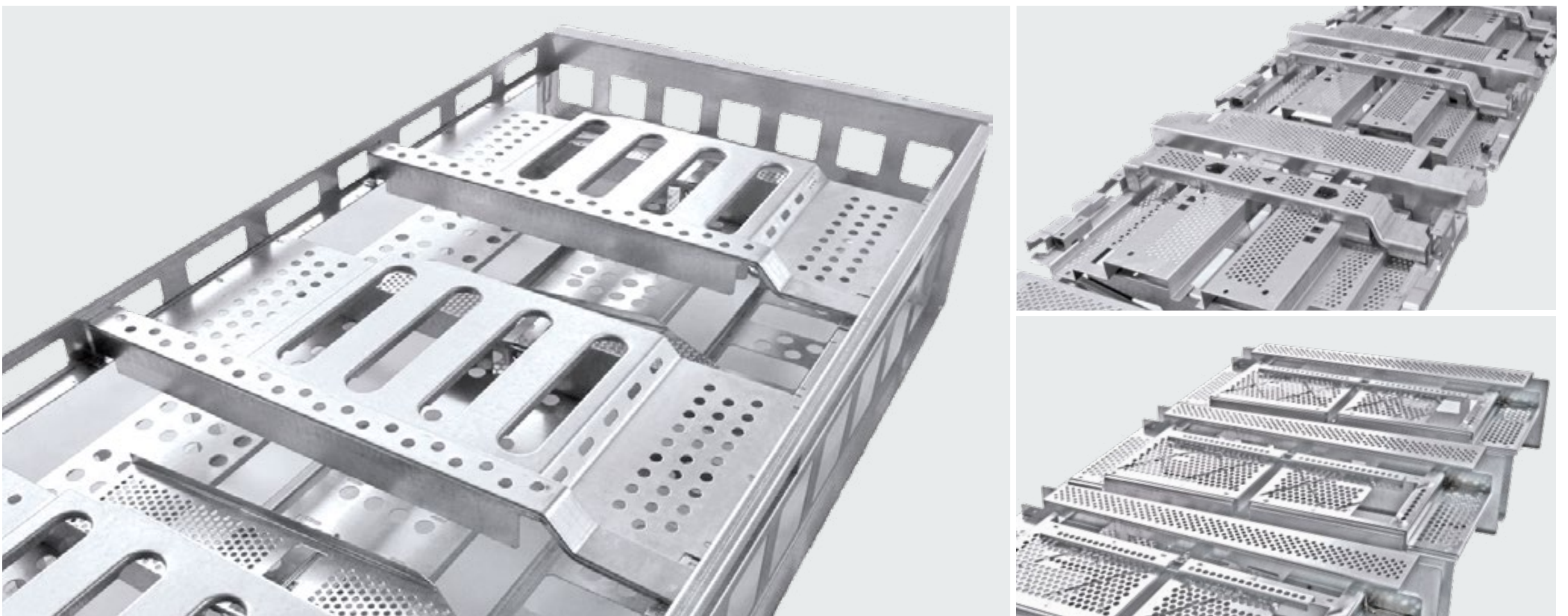


## Drying support units for accessory tiles

In the field of accessory tiles, where very complex geometries and high weights have to be taken into account, a comprehensive knowledge of the drying processes and the shrinkage behaviour of the bricks is of fundamental importance.

Due to the large number of tile types, and at the same time significantly smaller quantities than those of roof tiles, very special designs are used.

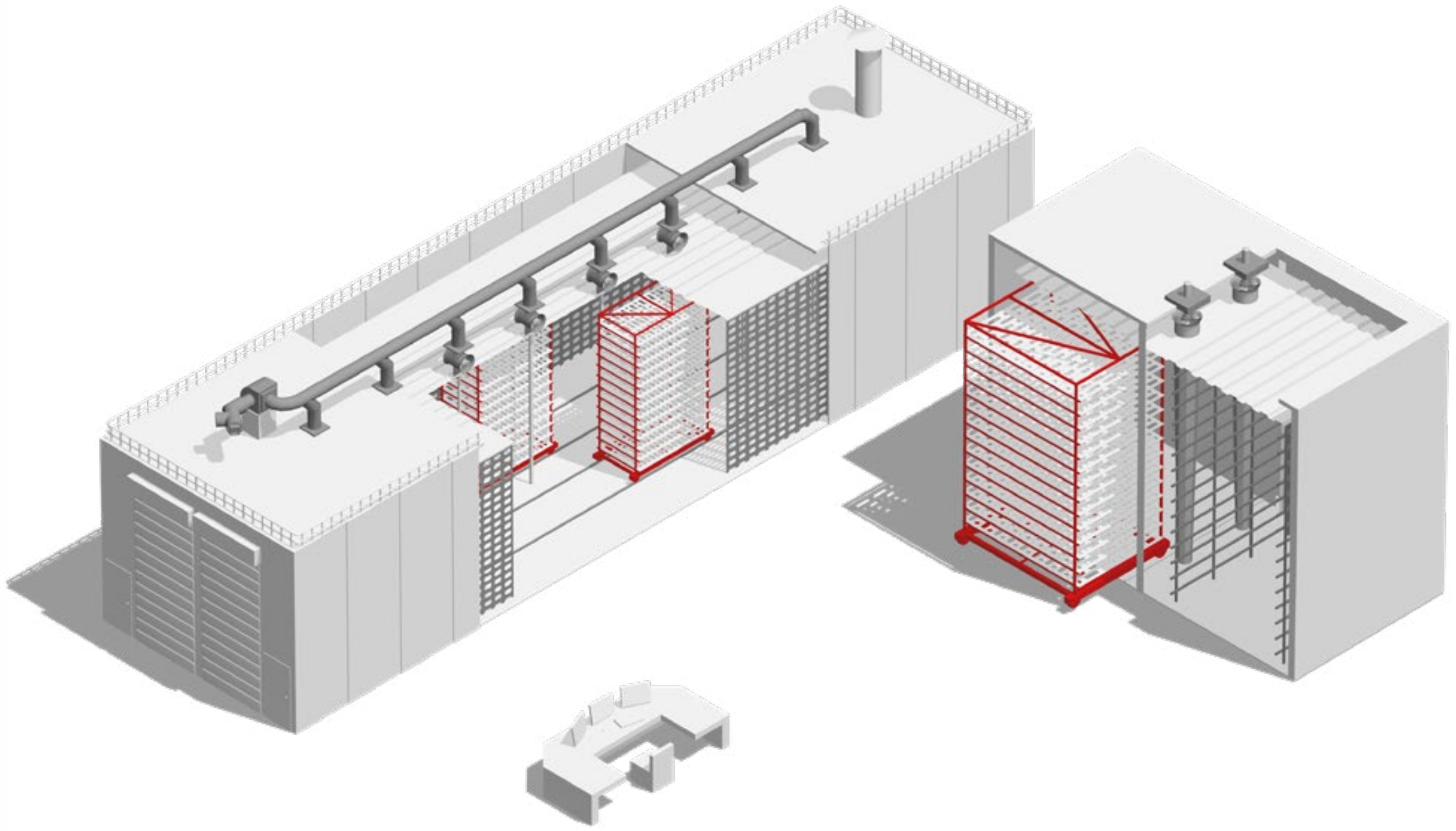
The ROTHO accessory support units bed the various geometries of the undersides of the tiles by repositioning, moving or rotating support segments for a precise fit. These configurations can be adapted manually or by robot.



## Product advantages

- Optimal design configured together with the customer
- Extensive project support based on decades of experience
- High air permeability
- Optimum use of space for maximum number of storage positions
- High dimensional stability with low dead weight through intelligent, constructive solutions (SEC)
- Reduced system load and heat absorption
- High precision of the support surfaces
- Optimal design of the support points for various tile models





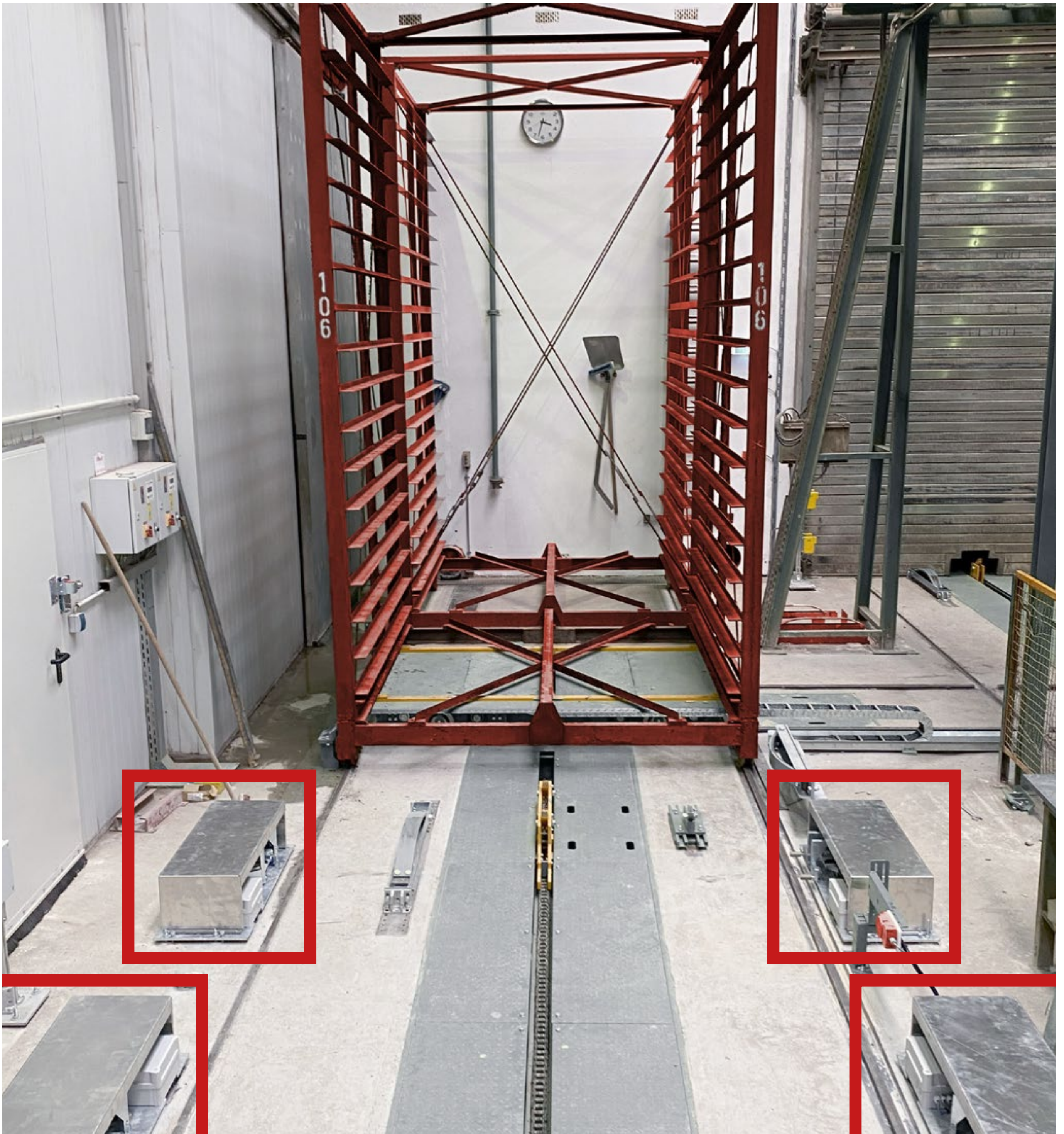
## ROTHO Dryer frames

### Strong design for extreme loads

ROTHO dryer frames are individually configured according to the dryer type, the dimensions of the support units, the static loads and the corrosive stresses. It goes without saying that existing infrastructures are taken into account in the case of replacement investments. In addition to a complete installation, partial segments such as carriage side parts or chassis can be supplied to match the components that are still in working order. System specific components required for the control and interrogation of the frames will be installed according to the customer's wishes.

### System components:

Dryer frames, maintenance units



## **Versatile designs for versatile use**

The selection includes tunnel and chamber dryer frames in box and cantilever designs. Loading is possible in a longitudinal or transverse direction. The range also includes special plateau frames for loading with stackable pallets.

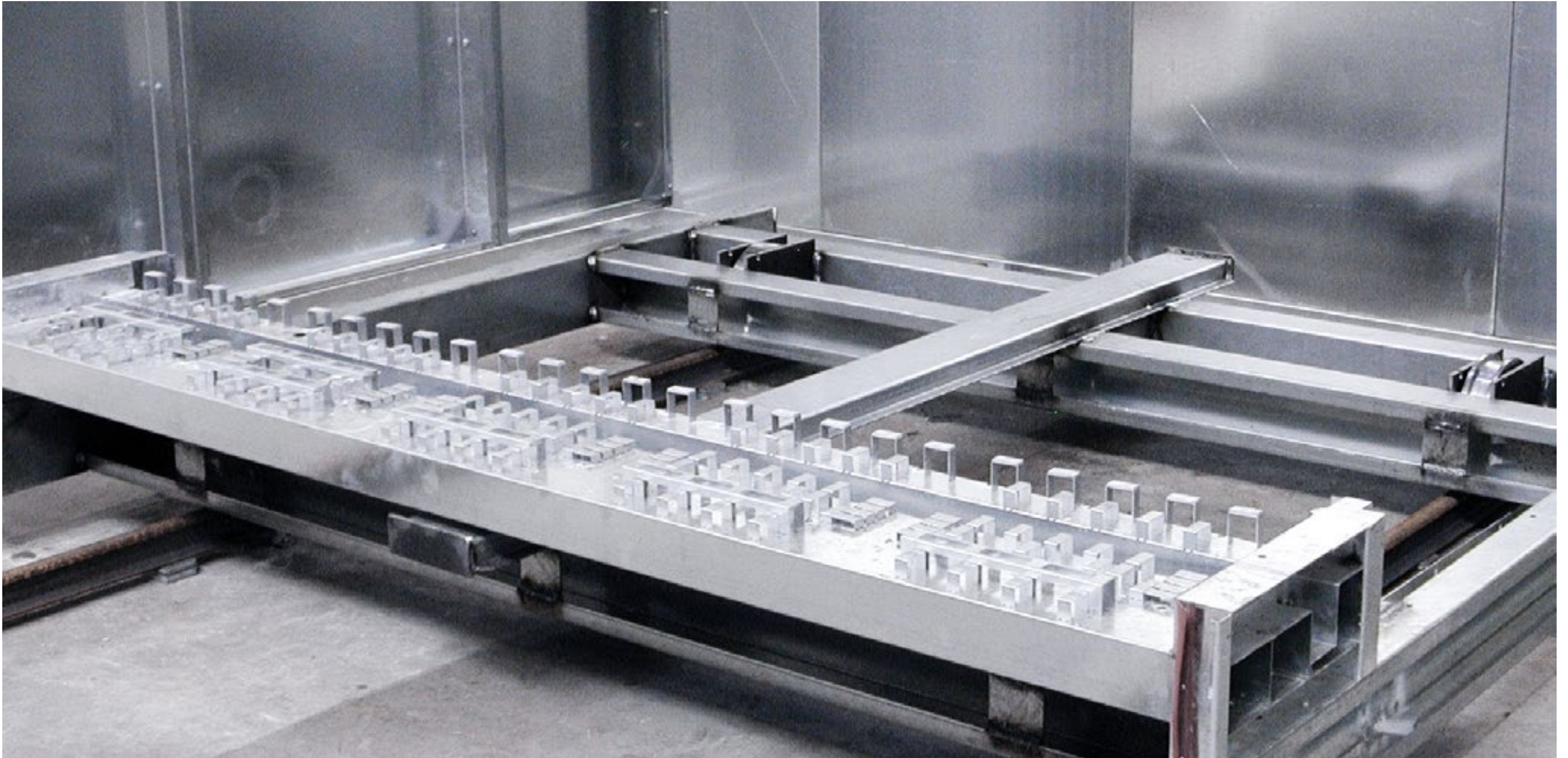
Various **design variants** are available depending on the load and corrosion stress:

- Solid design made of rolled profiles with piece galvanized or organically coated surfaces
- Lightweight design made from energy efficient pre-galvanised sheet metal

In the area of the base frames, which is responsible for the stability of the dryer frames and the directional stability, ROTHO can score with an innovation: The wheel sets are fully integrated into the laser cut support bars.

High manufacturing precision guarantees the exact parallel position of all wheel bearings and thus a fault free and low wear straight run. Wheels that are too large, which would overcompensate for inaccuracies, are no longer needed. This measure together with optimized statics ensure a low weight and thus a long service life of the track system.

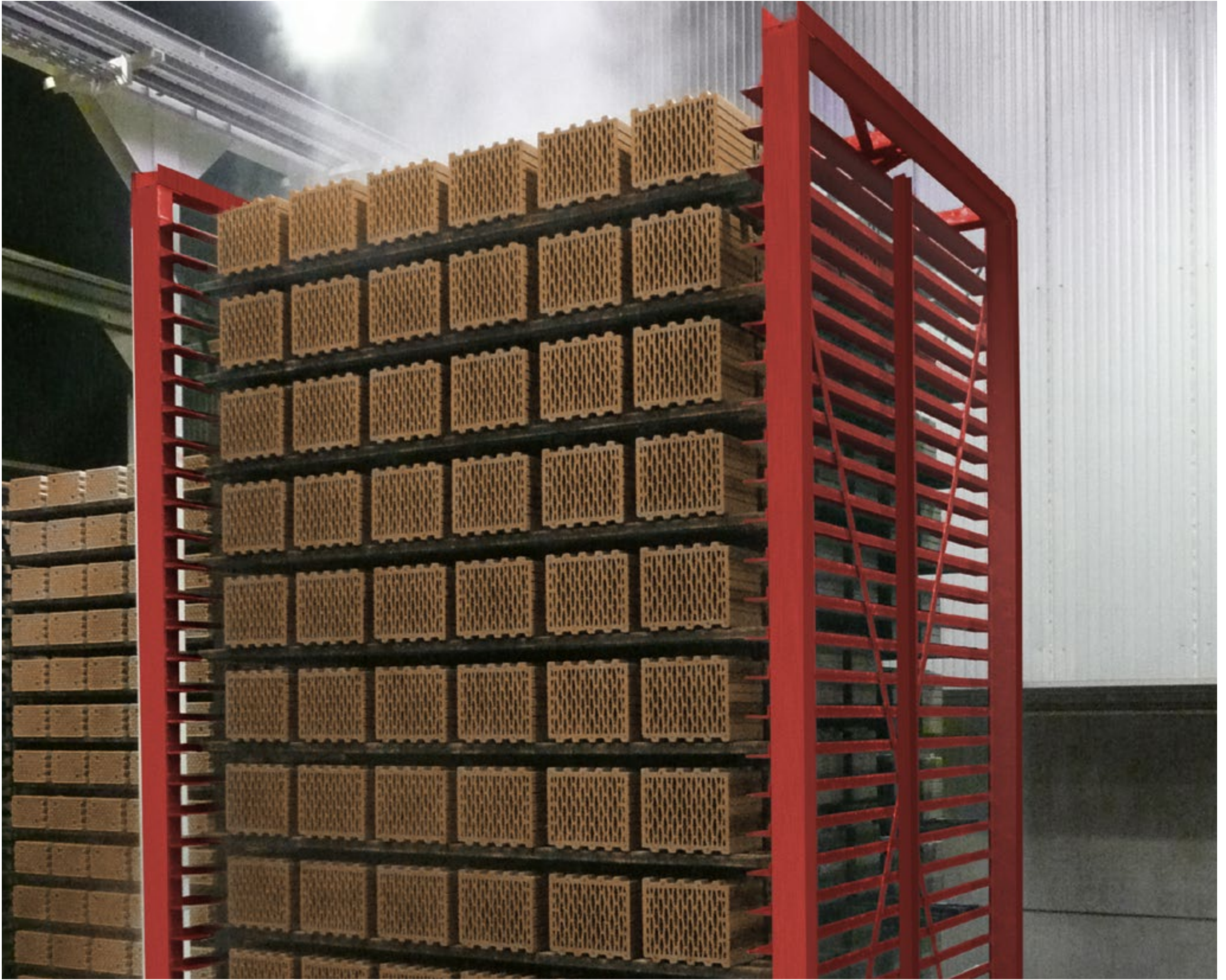
Maintenance of the frames is limited to the lubrication of the wheel bearings.



## **ROTHO Maintenance Unit**

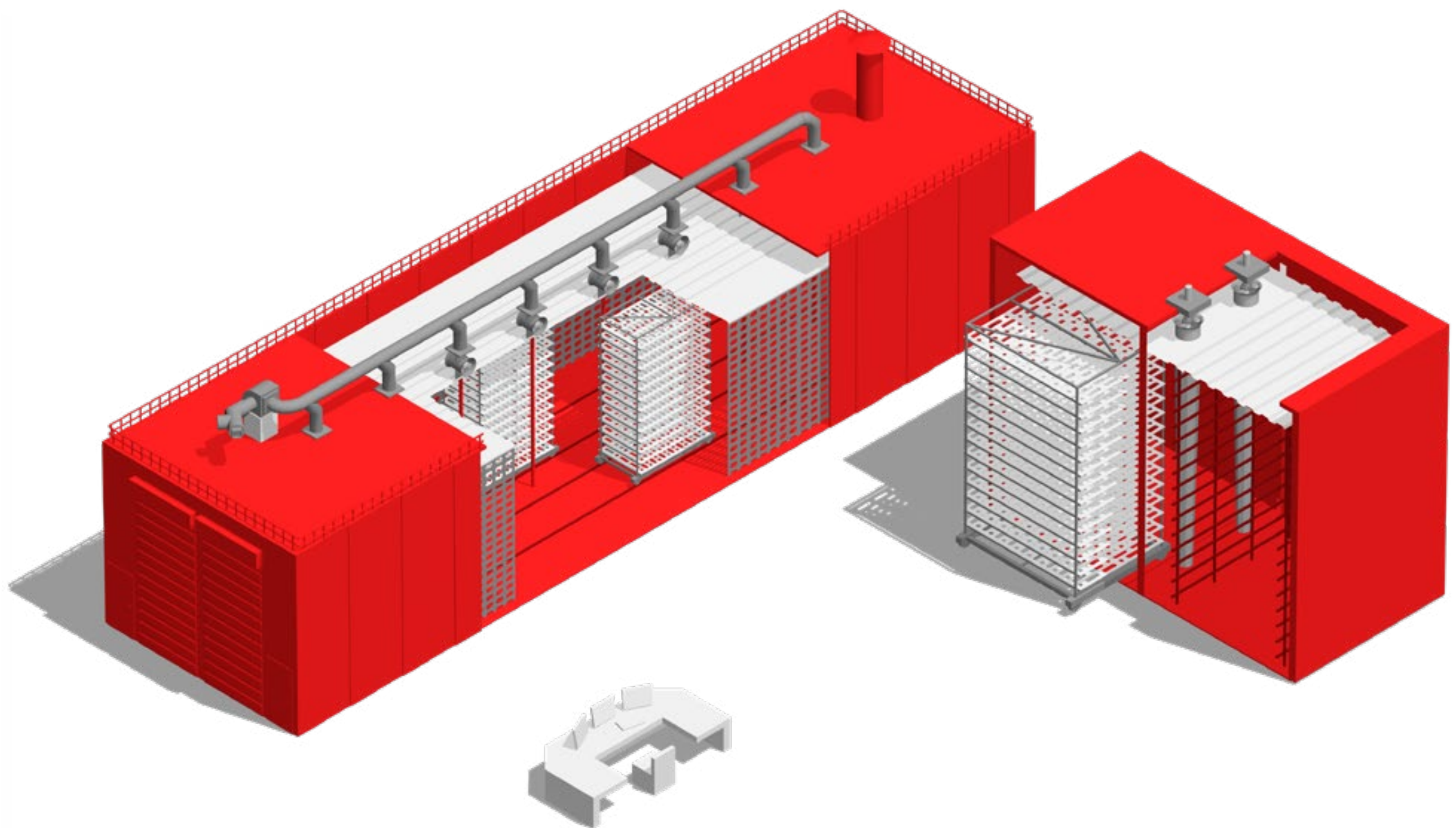
The automatic maintenance unit is used to lubricate the dryer frame bearings according to the specified time parameters. The unit is installed in the area of the regular car circulation, so that no changes to the existing track system are necessary. The lubrication process, frame stop and continuation is fully automatic.

- Automatic operation
- Compliance with lubrication intervals
- Significantly longer service life of the ball bearings



## **Product advantages**

- Almost any load can be achieved
- Perfect straight run
- Low weight
- Minimized heat absorption
- Long service life
- Low maintenance



# ROTHO dryer structures

## ROTHO QUATRO®

### Fast building, safe drying

QUATRO® consists of dryer inner shells that are independent of each other. These are built with wall and ceiling shells. All pipeline connection pieces are tightly welded in our factory. The cavities between the inner chamber shells and the outer cladding are completely filled with insulating material without thermal bridges between them. If necessary, an insulating structure is provided for the floor. QUATRO® thus avoids disturbing influences on the drying process at all times.



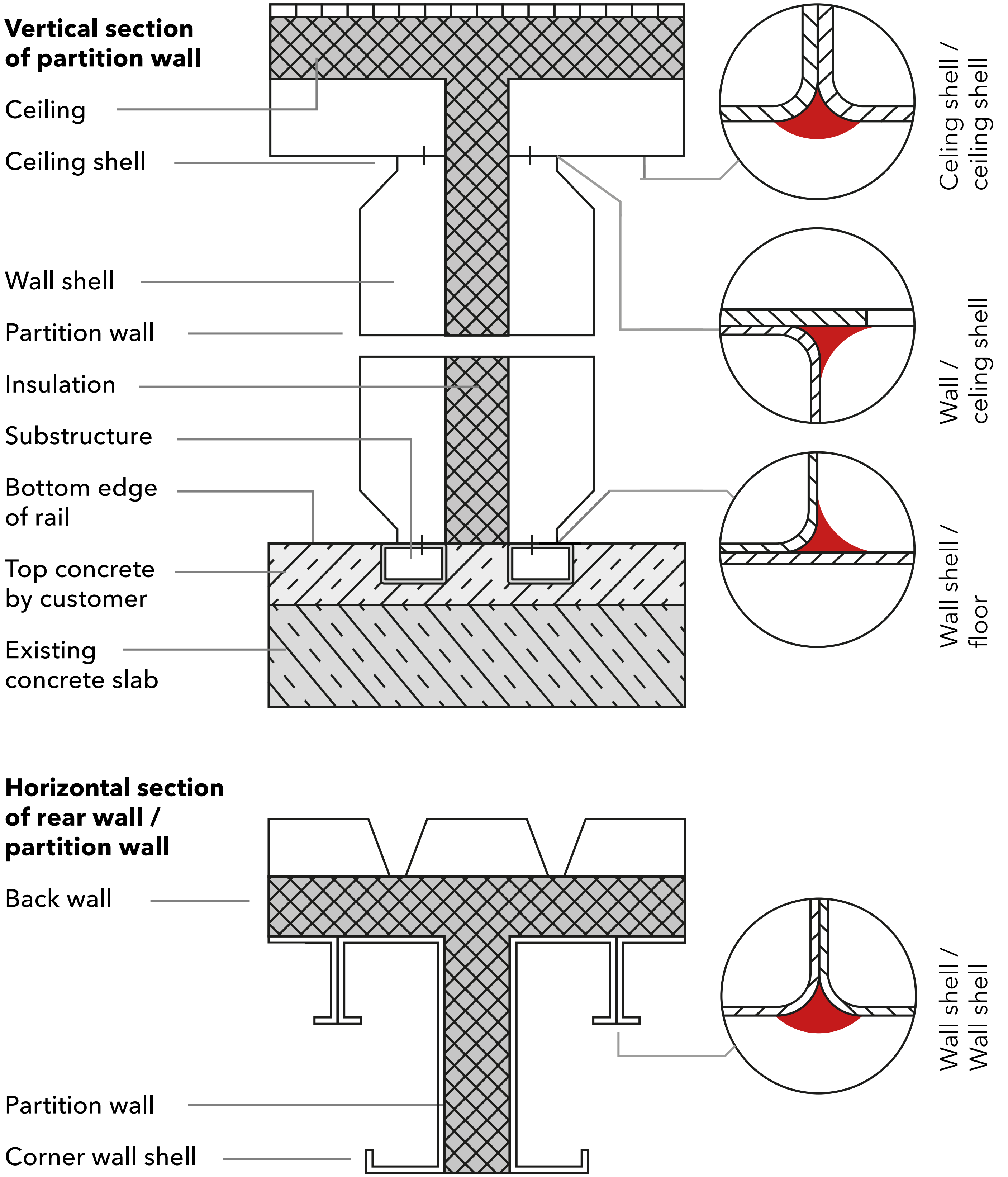
## **QUATRO® variants**

The QUATRO® system is designed for all dryer types and is available with an overall height of up to 10 m. The ceiling shells are self-supporting with a span of up to 11 m. The QUATRO® system is designed to withstand standard loads from installations and superstructures. In addition, a live load of 150 kg/m<sup>2</sup> is permissible. The ceiling covering consists of heavy-duty panels which can be walked on over its entire surface. QUATRO® is compatible with all common ventilation systems.

## **QUATRO® insulation**

The thermal bridge free construction system ensures optimum insulation: k-value 0.4 W/(m<sup>2</sup> K). At an internal temperature of 150°C the standard version results in an outside temperature at the dryer surface of approx. 7°C above the hall temperature. The insulation consists of pressure resistant, hydrophobic mineral insulation panels.

# Assembly and sealing system



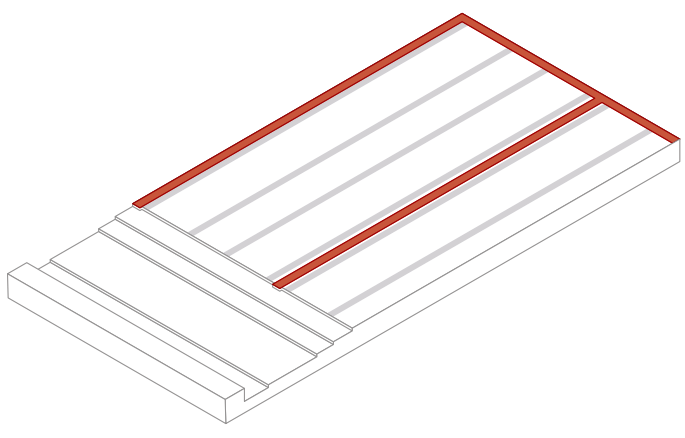
## **ROTHO doors**

Hook-in doors, hinged doors and ventilator aisle doors – incl. hardware sets and lift-out devices.

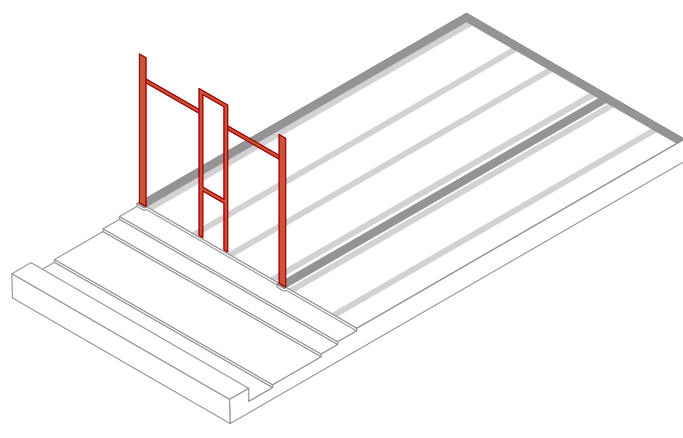
Made of hot-dipped galvanised strip steel, stainless steel or aluminium. Excellent insulation with optimum thermal insulation and special sealing profiles ensure the highest possible energy savings.

### **Product advantages**

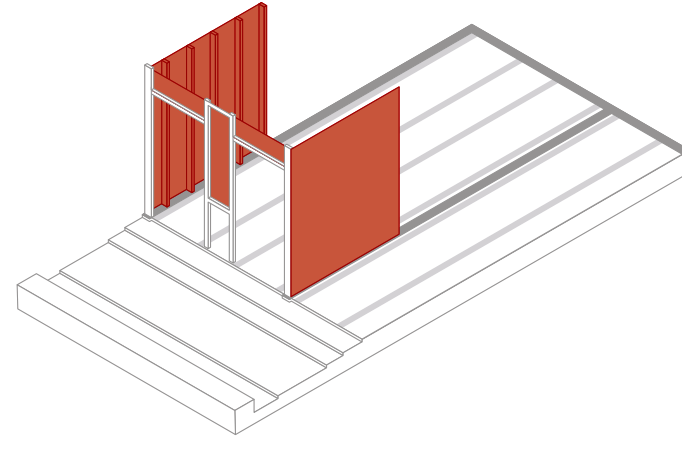
- Low storage heat
- Thermal bridge free construction
- Enormous impermeability
- High temperature resistance:  
Standard version up to 150°C,
- Special design up to 250°C
- Demountable and reusable
- Ceiling can be walked on over the entire surface and can be subjected to high mechanical loads
- High corrosion resistance / condensate free inner surfaces
- Quick assembly
- 5 years warranty



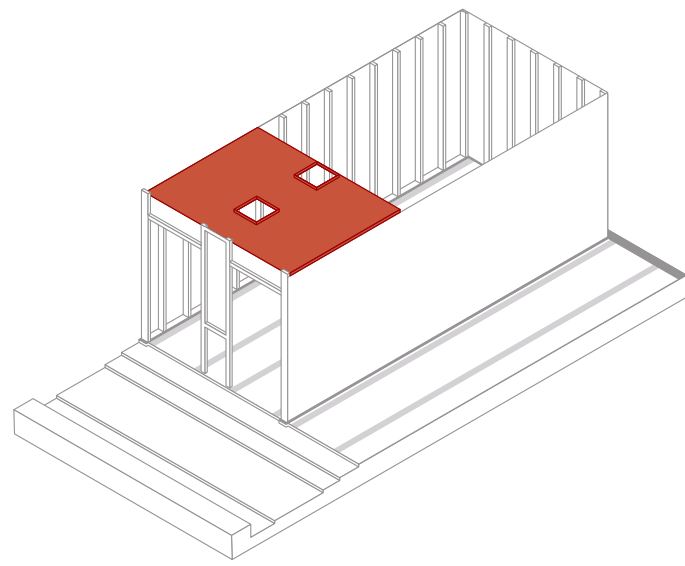
Substructure to floor slab



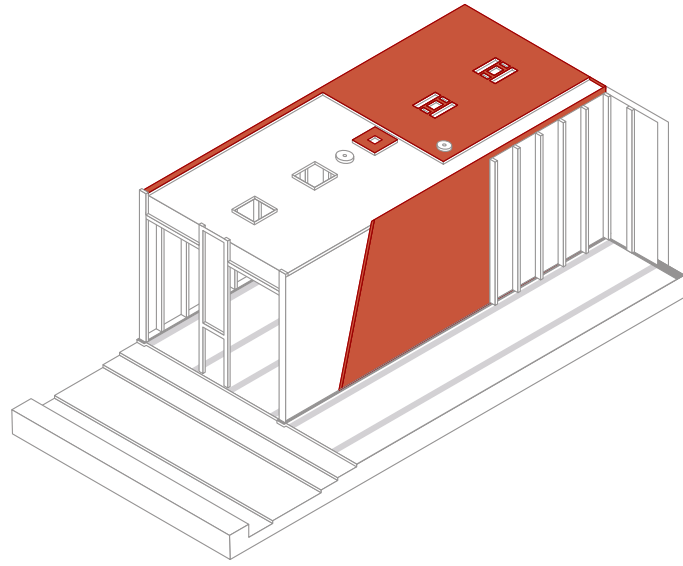
Top concrete and door frame



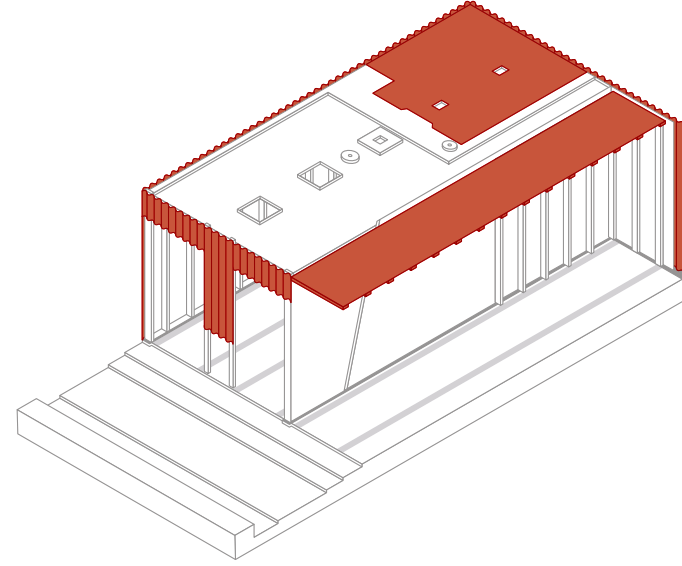
Wall shells



Ceiling shells

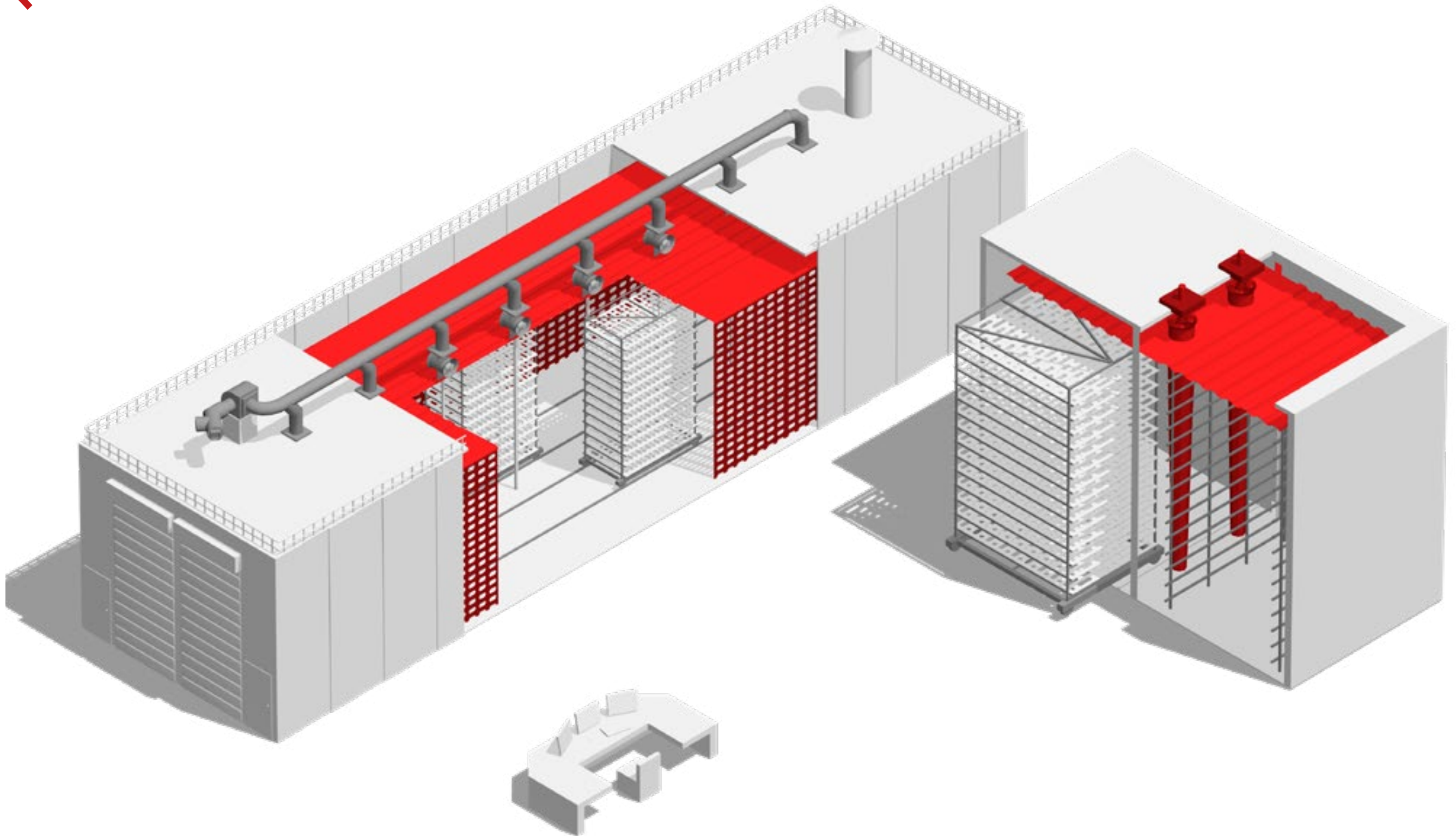


Thermal insulation



Exterior cladding





# ROTHO ventilation systems

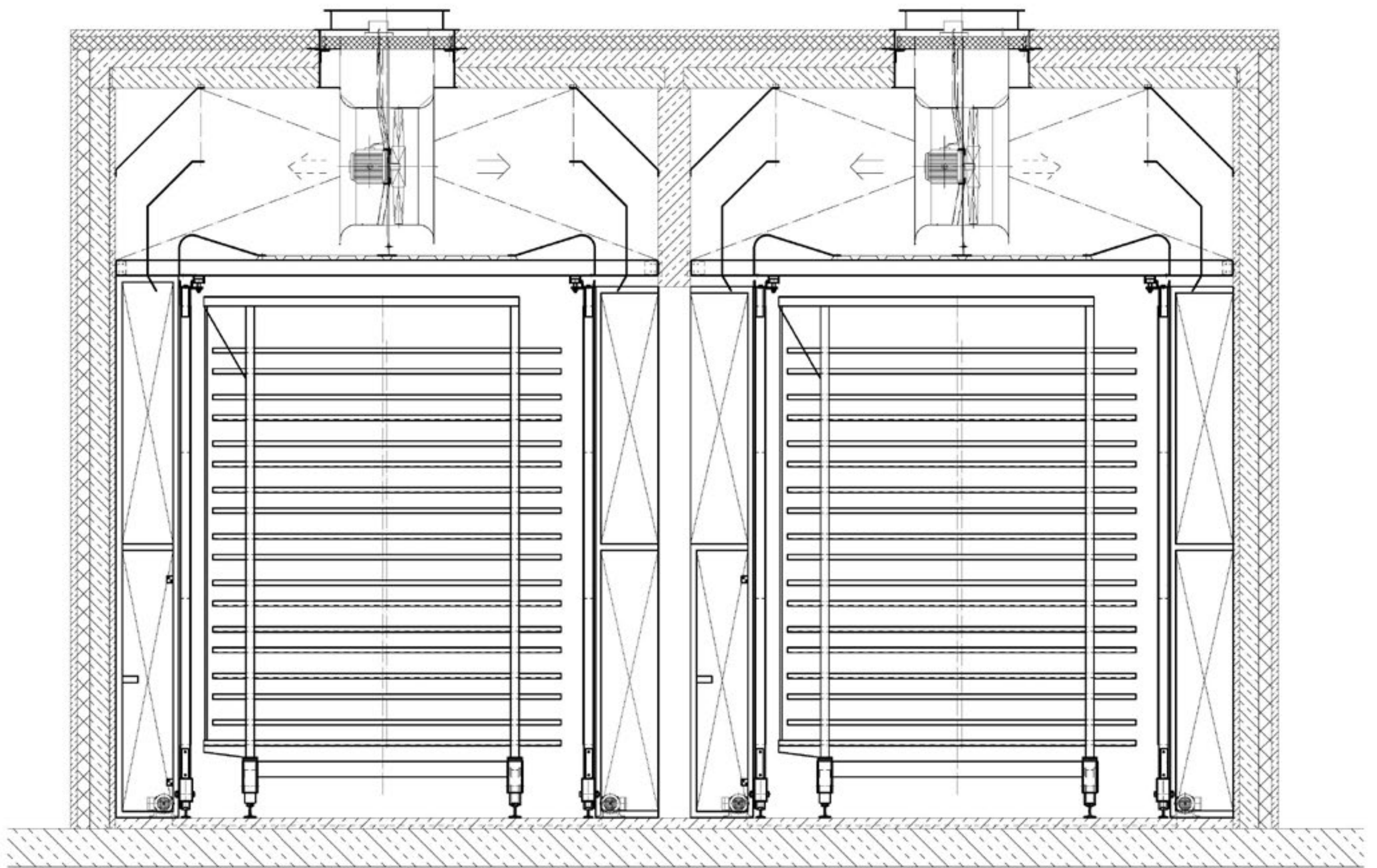
## The best ventilation technology for every brick & tile

ROTHO ventilation systems are optimally matched to ROTHO dryer structures, dryer frames and dryer supports. They can also be integrated into existing systems.

The ventilation systems are crucial for achieving short drying times, a high product quality and low energy consumption values. ROTHO selects the most suitable type of ventilation depending on the general conditions, such as clay mass and brick geometry.

### Product variants:

AirWall nozzle walls, MixAir rotary fan + EcoWheel



## **AirWall nozzle walls**

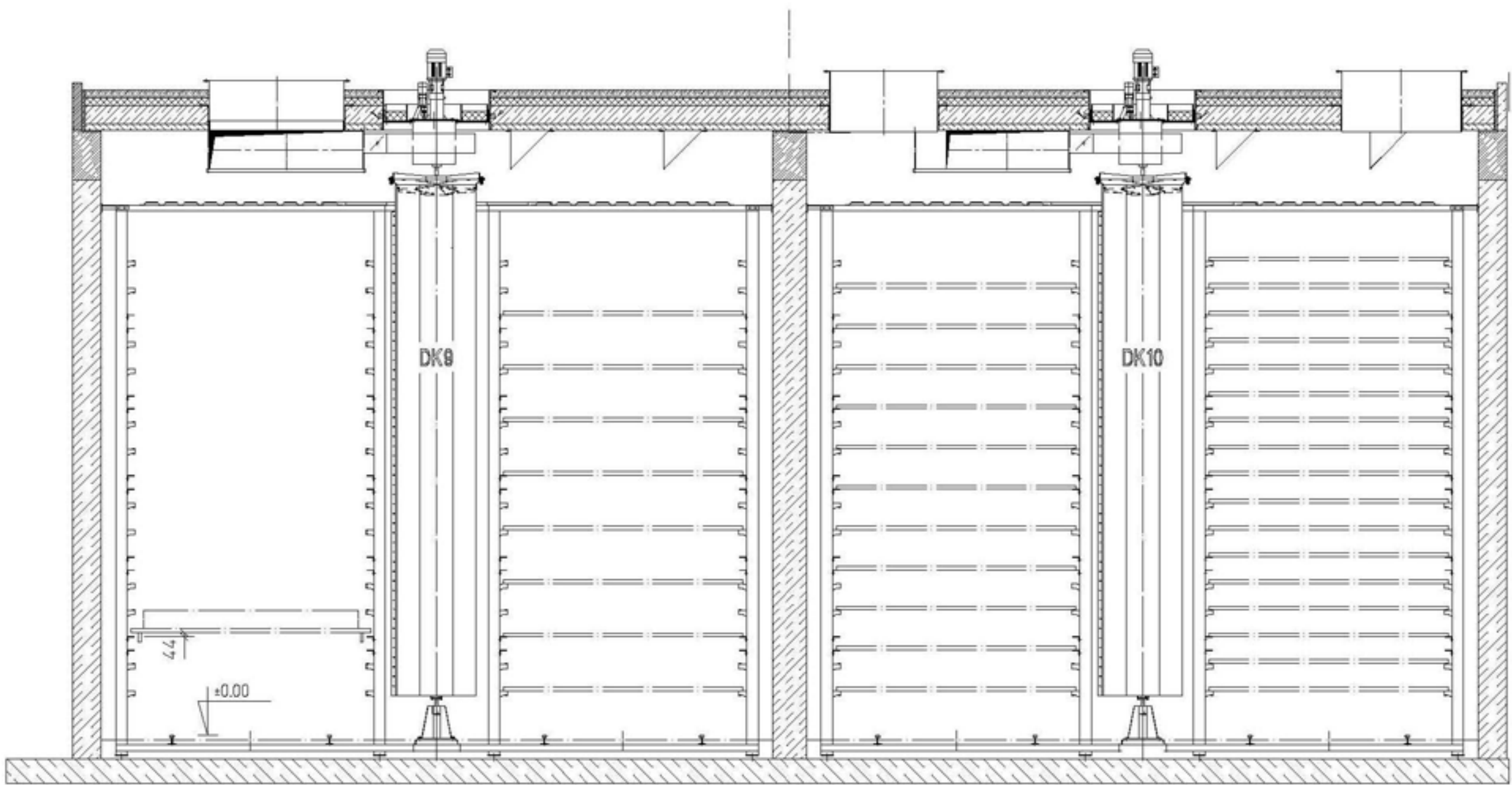
Especially for products with short drying times, such as roof tiles and hollow bricks, slot wall dryers of various designs have proven their worth in recent years. In particular plate shaped products like roof tiles benefit from reversing blowing which reduces curvatures and cracks.

Whether with vertical or horizontal discharge slots, movable, stationary or as a stackable drying support unit with integrated air inlet slots, ROTHO always offers the optimum solution in every case.

In the roof tile sector, dryers with horizontal discharge slots in the slotted wall are generally used for flat tiles. Slotted walls with formed elongated hole nozzles have proven to be a particularly easy to install and mechanically stable system.

For accessory tiles, but also for hollow bricks with delicate perforations, dryers with movable, vertical discharge slots in the slotted wall are mainly used.

- Flexible dryer widths and air speeds
- Low airflow shadows
- Drying time and quality gain due to reversing blowing with vertical discharge slots



## MixAir rotary fan

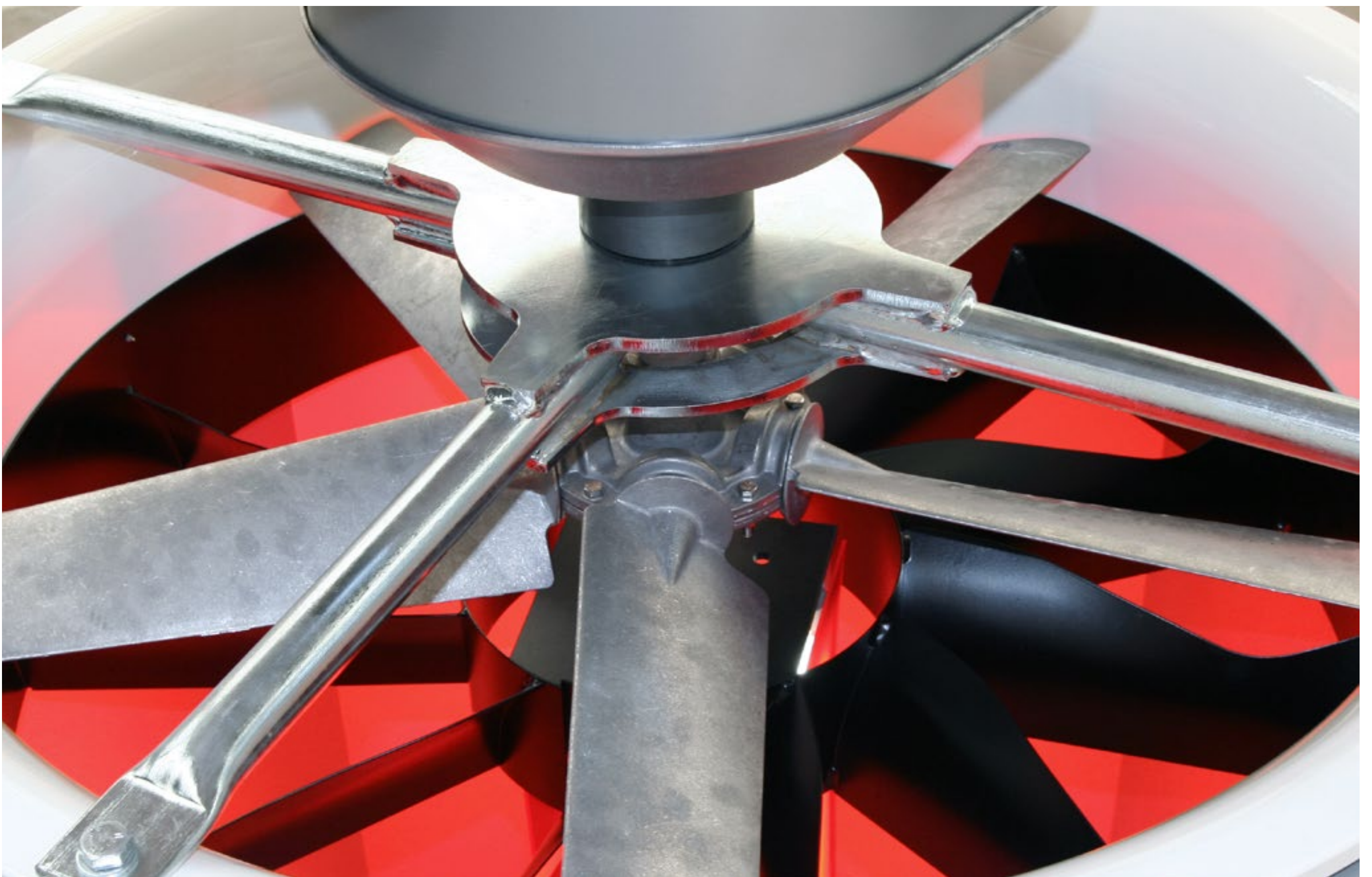
Rotary fans are still used for air circulation in almost all areas of the brick & tile industry. An analysis by the ROTHO research department shows that there is still considerable potential to increase the effectiveness of this technology. The ROTHO MixAir<sup>®</sup> rotary fan combines novel and proven solutions in one unit:



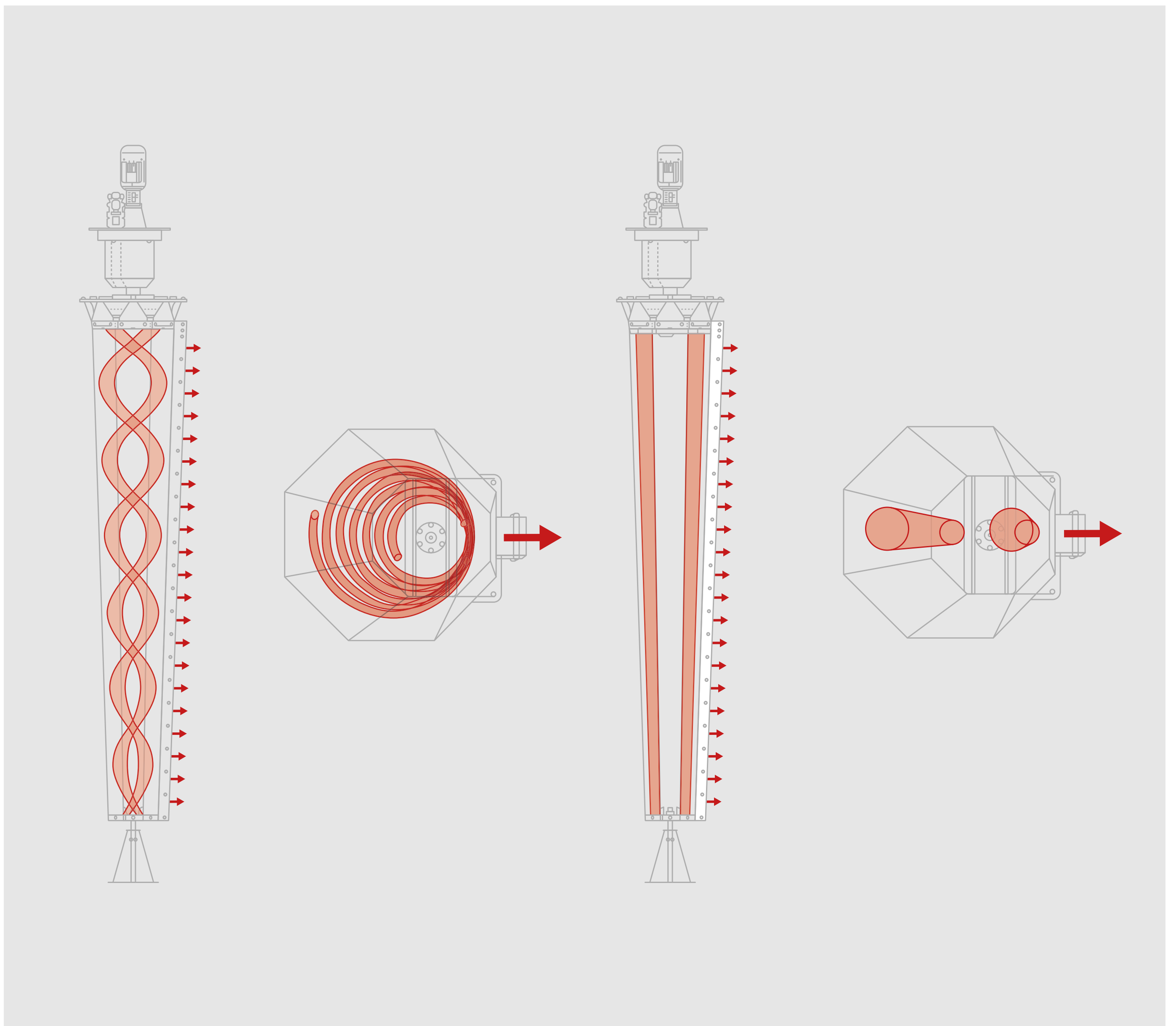
- Up to 25% lower electricity costs with the same circulation capacity
- Easy to maintain and robust
- Particularly uniformed outflow
- Large beam range
- Adjustable guide vanes

### **MixAir rotary fan: EcoWheel guide wheels**

Nowadays, guide wheels are fitted as standard to most rotary fan models. Guide wheels are fixed deflector blades that are placed downstream of the fan impeller and significantly improve the effectiveness of the rotary fans by reducing air turbulence.



- Same volume flow rates with one stage smaller electric motor (30% less power consumption)
- Improved discharge velocity in the lower part of the air distributor
- Longer beam ranges
- ROI less than 2 years

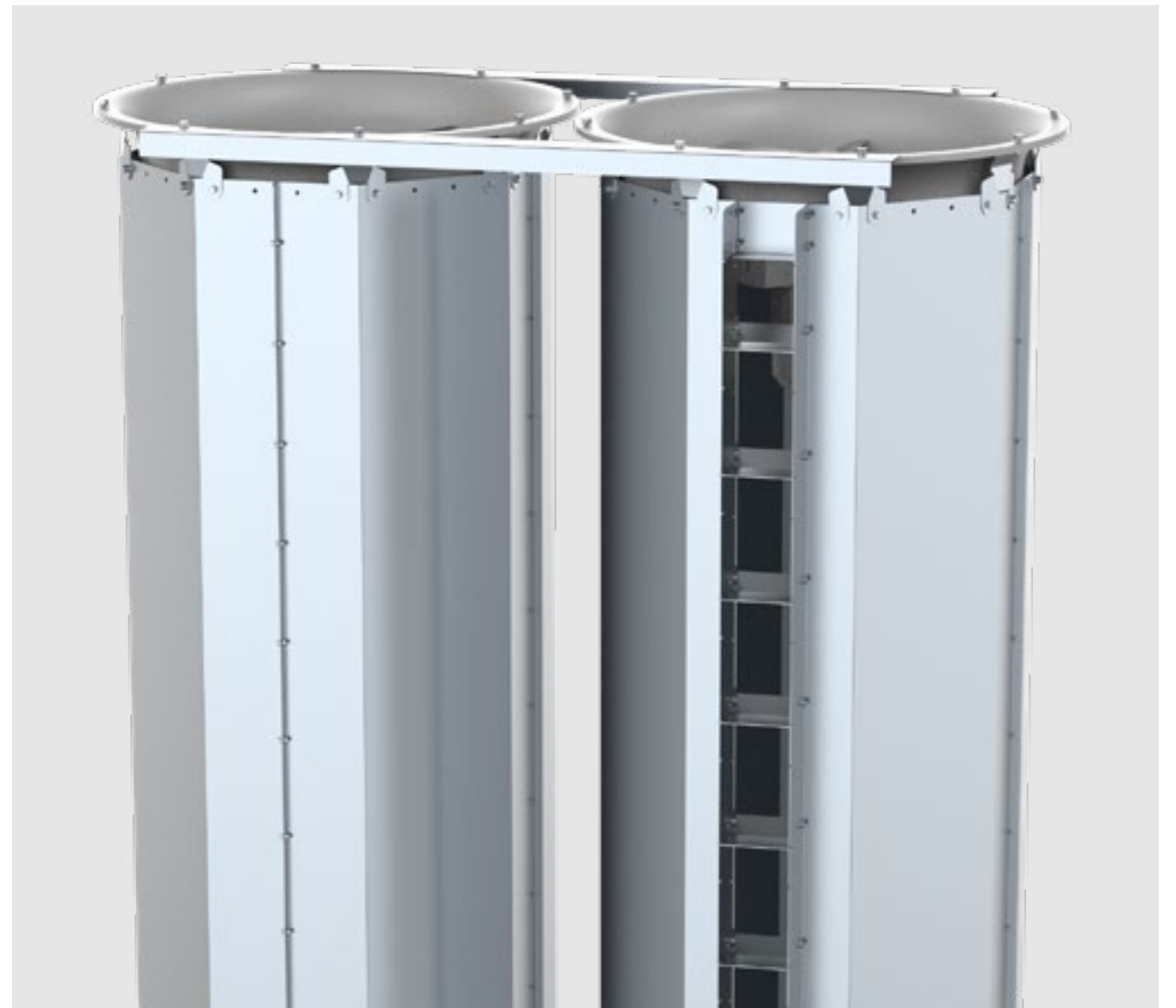


## DriveAir mobile fan

Formerly intended as a replacement for mobile fans or large area fans, this is a cost effective alternative to mobile nozzle walls. The powerful impingement jet, emerging from a vertical nozzle, is well suited for drying bricks through which air can flow, such as hollow bricks or perforated clinkers.

The ROTHO DriveAir air distributor has an integrated fan and is mounted on a carriage which enables it to move back and forth linearly.

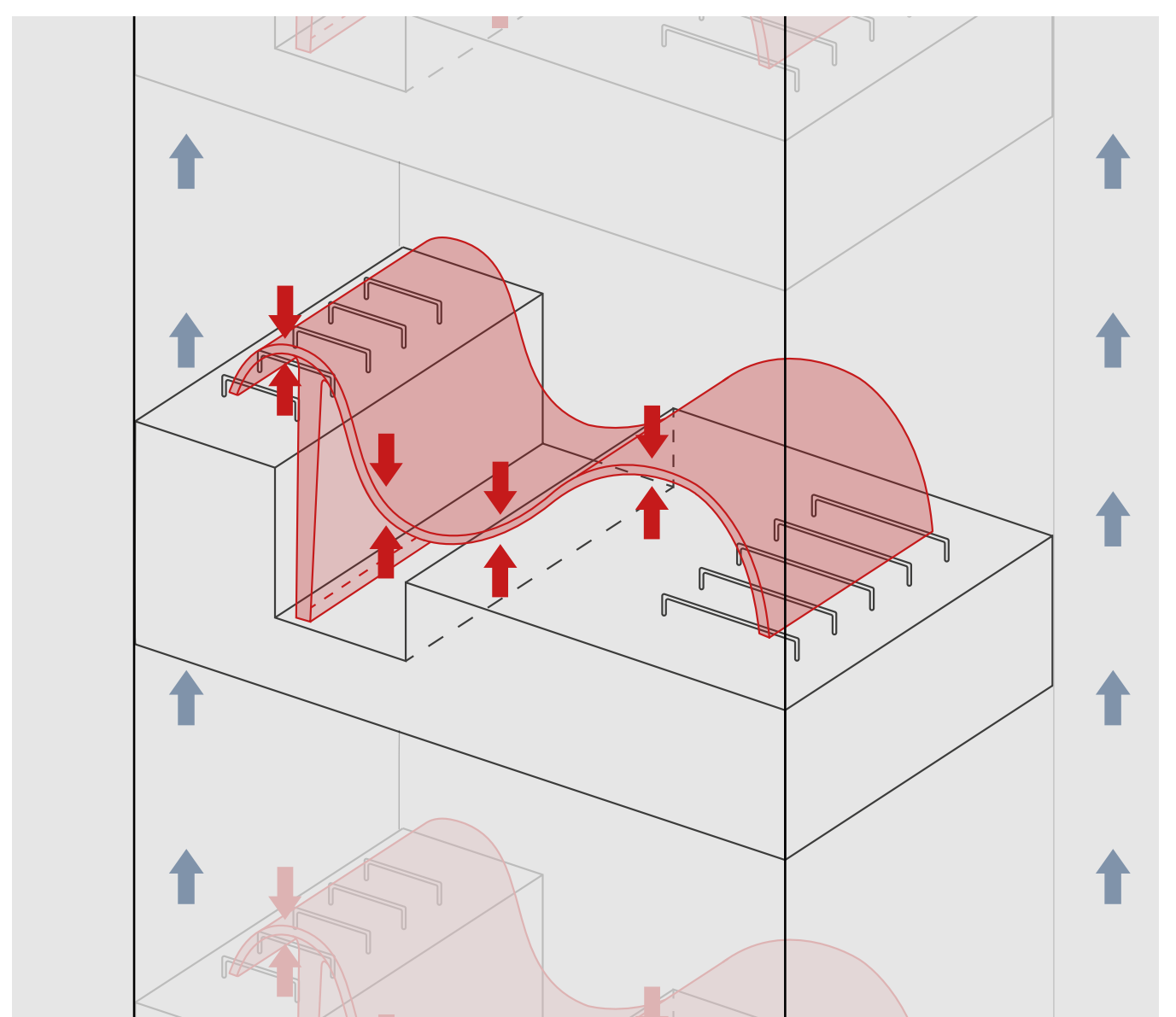
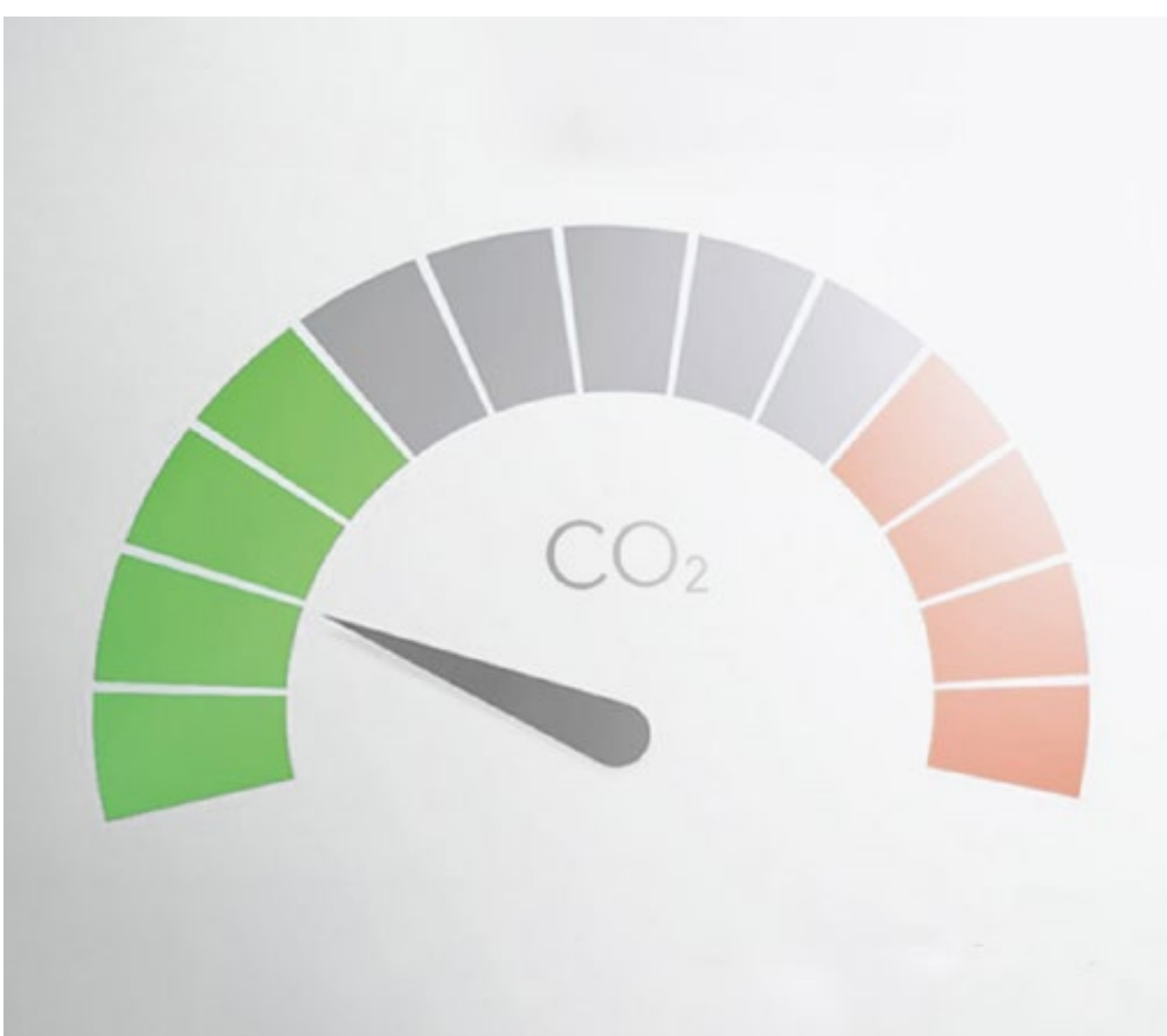
- Higher efficiency compared to old mobile fans
- No temperature stratification
- Low maintenance

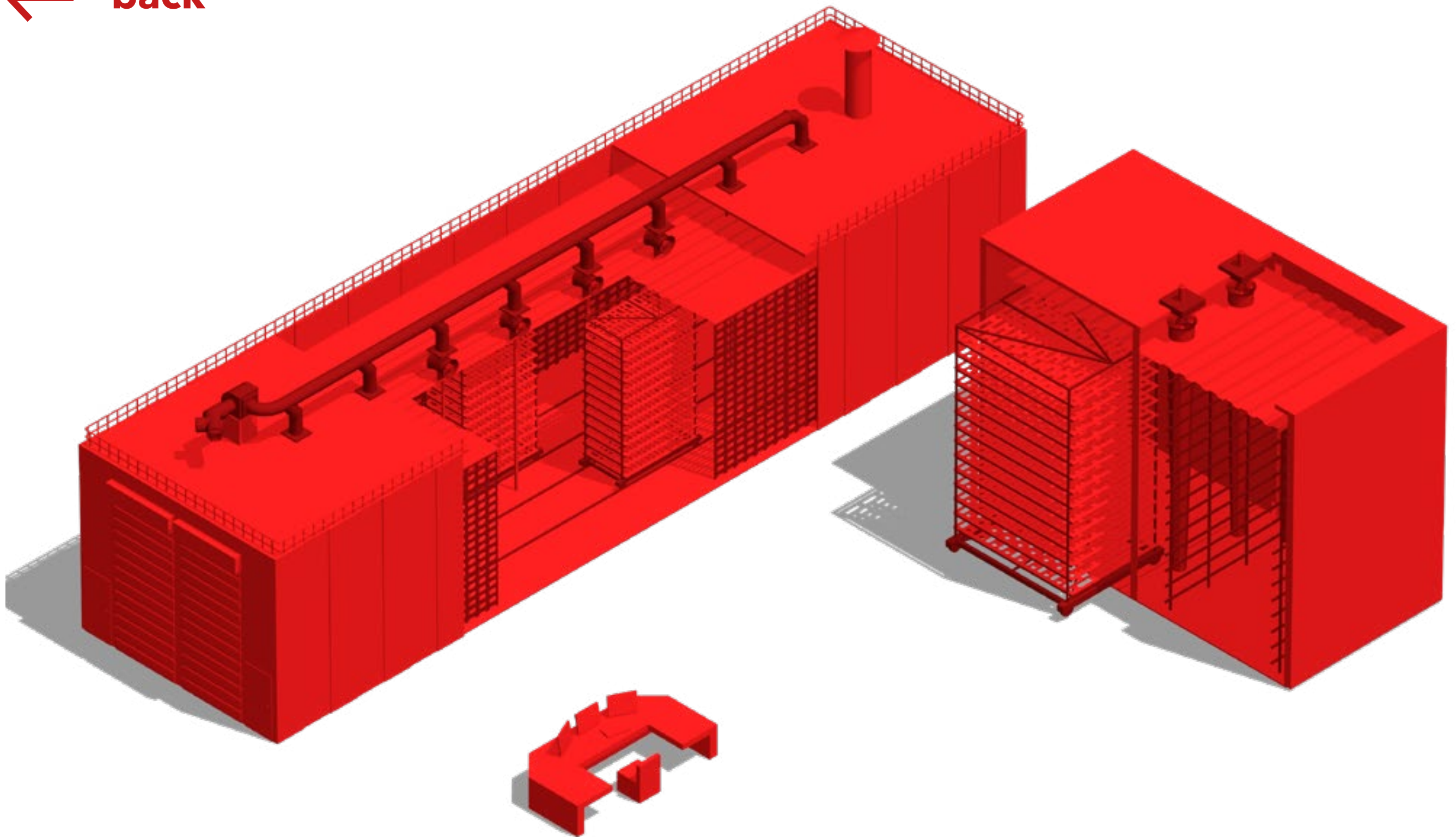


## XStream Tile rapid dryer

The XStream Tile rapid dryer is characterised by a particularly effective method of drying roof tiles. This is made possible by stackable drying support units with integrated ventilation channels. As a result, each roof tile is dried very gently and evenly by means of impact flow. This means that even demanding roof tiles can be produced in the shortest possible time and to the best quality. Due to the resulting short drying times, the XStream Tile has a compact design and low energy consumption.

- Up to 20% lower operating costs and thus reduced CO<sub>2</sub> emissions
- Up to 60% less space required
- Reduction of drying times up to 75%
- Equal treatment of all green bricks in stock
- Targeted ventilation of individual brick sections
- Better drying results for difficult products





# ROTHO Process and Control Engineering

## Modernization offer

Over many decades, ROTHO has acquired extensive knowledge in the field of drying processes in the heavy clay ceramic industry. We are familiar with the various factors influencing the design of drying processes for roof tiles, hollow bricks and clinker bricks. For example, the ventilation and heating systems have a fundamental influence on the quality of the products and the economic efficiency of the process. This knowledge forms the basis of our consulting and modernization services for your drying plant. Depending on the project requirements, we work together with the leading specialists and plant manufacturers in the industry.



## Technical and professional advice

Generation of achievable drying curves in the mobile test dryer

Measurement of airflow profiles in the dryer cross section

Recording of drying curves in the operating dryer

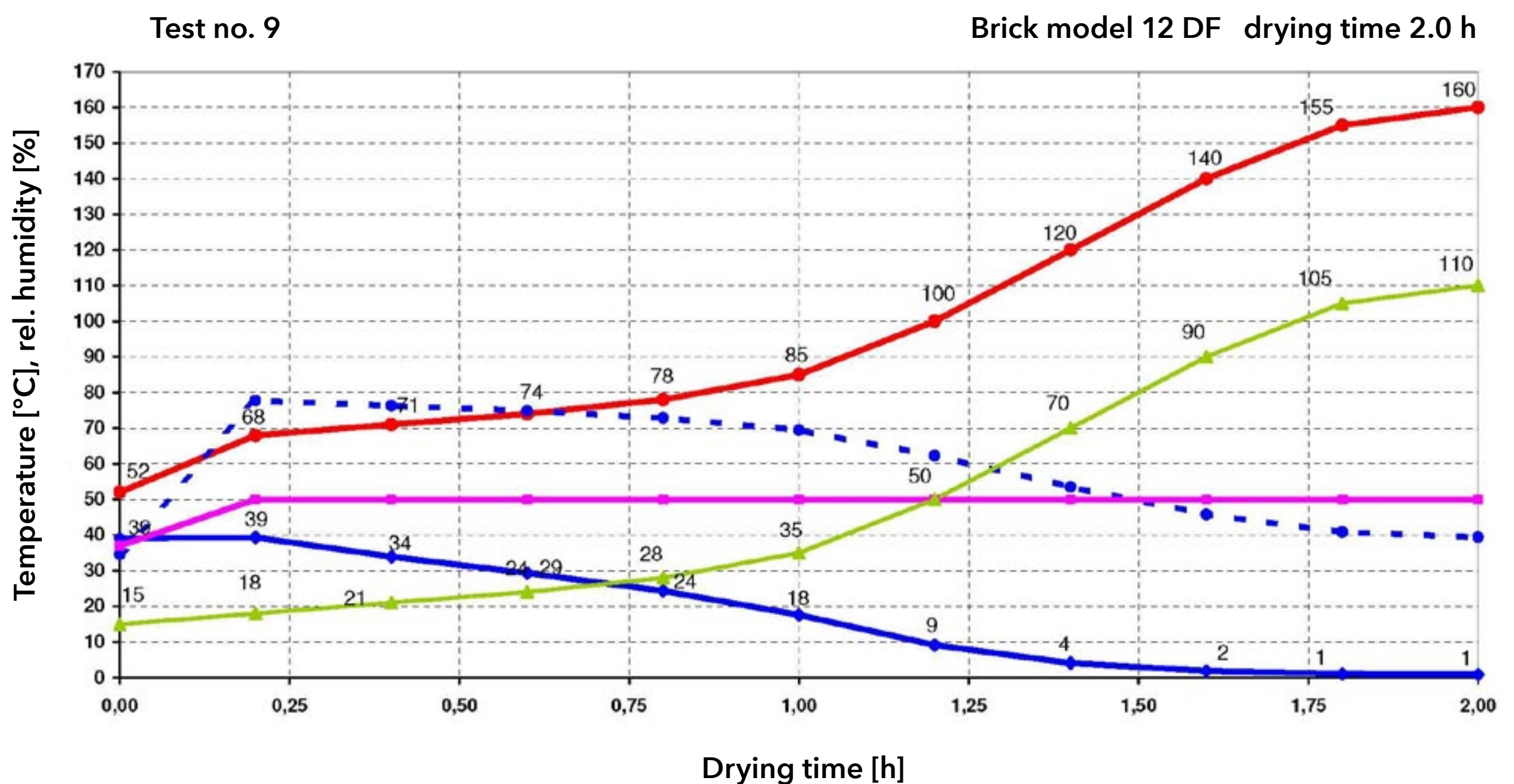
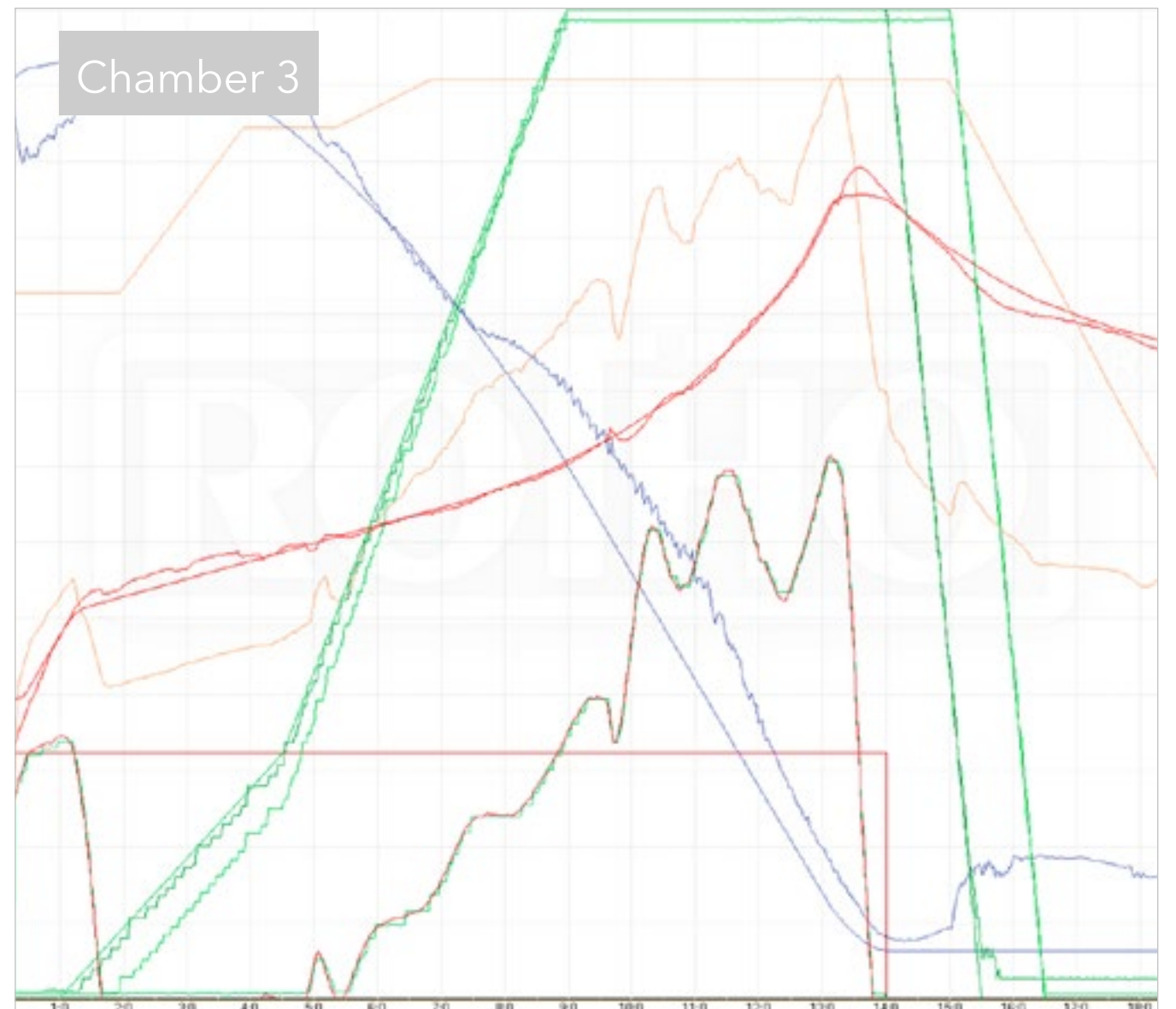
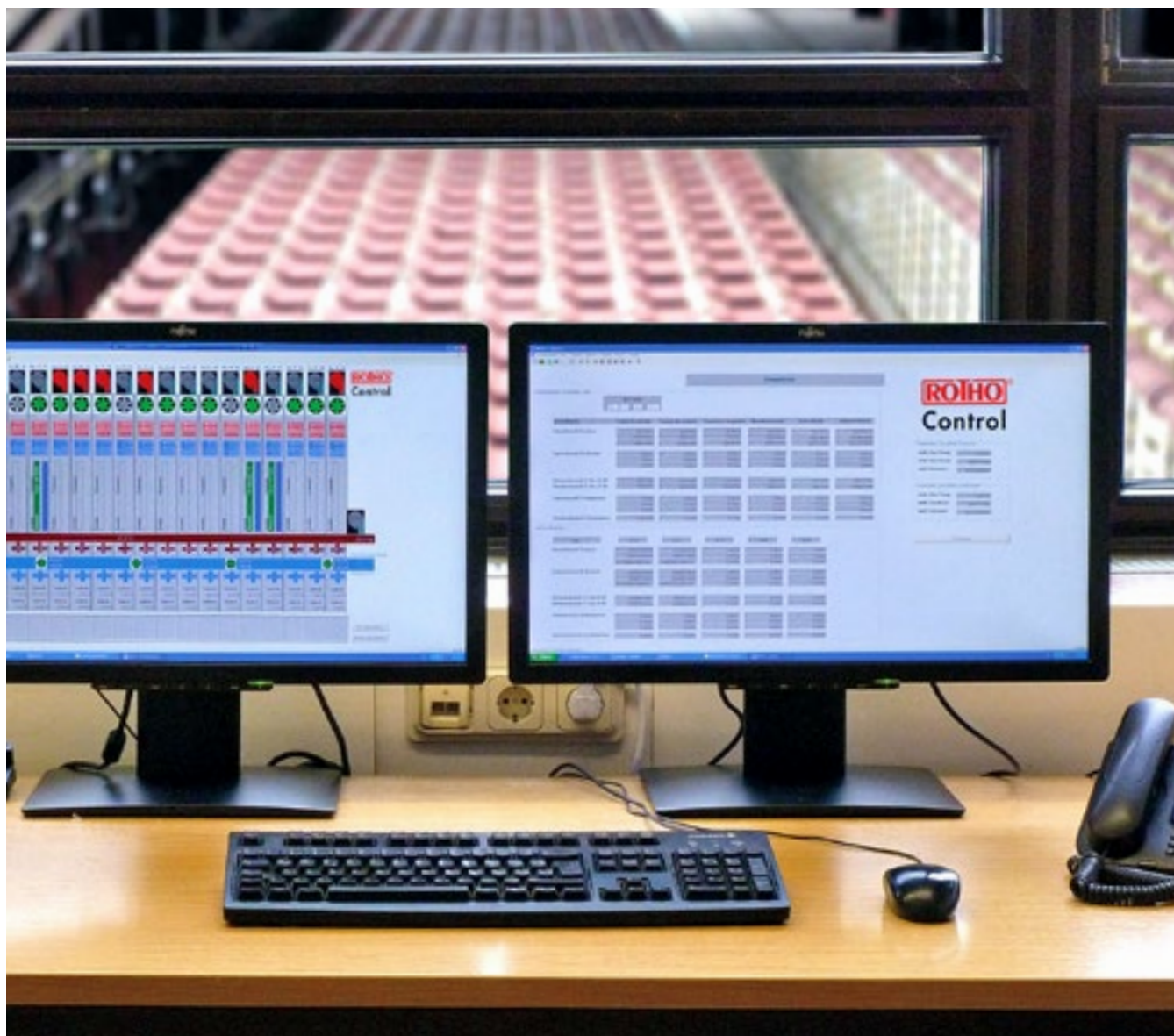
Preparation of energy and mass balances

Indication of improvement potentials for existing plants

Selection of the best drying technology for new plants

## Modernization of drying plants

- Modernisation of obsolete ventilation systems
- Replacement of worn gates, structures, frames and drying supports
- Optimization of air and heat supply
- Energy optimisation
- Cooperation with the leading specialists and plant manufacturers in the industry



# ROTHO Service

- Telephone, email, web-conference and on-site service
- Service contracts
- Spare parts
- Modernization & retro fitting
- Technical training
- Wide range of measurement and analysis tools & services

**service@rotho.de** (Email Service)

**+49 2735/788-788** (Help-Line)



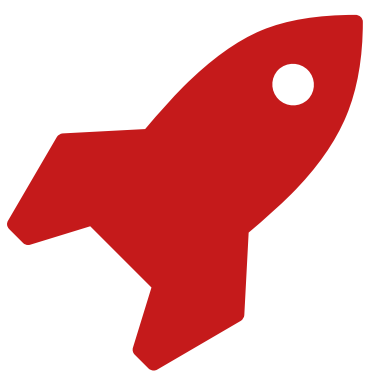


# Trendsetting solutions for the drying of bricks. Made in Germany.



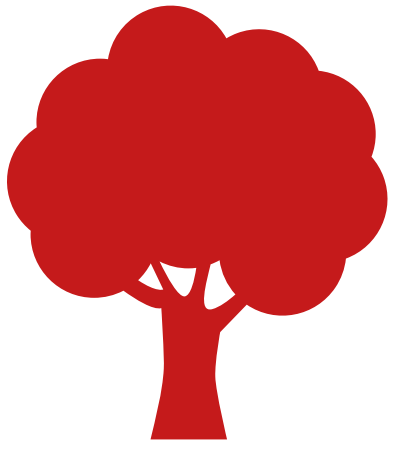
## Experience

The average tenure of our employees is 25 years. This experience is used by our customers in more than 50 countries worldwide, to operate their production plants faster, more efficiently and in a secure environment.



## Innovation

In today's fast-paced, uncertain future, one thing is certain: The amount of data generated, evaluated and used will not decline. On the contrary, the number of sensors and algorithms will continue to rise within brickyards. Even today, ROTHO offers unique and intelligent systems that optimize brickyards using digital tools.



## **Tradition**

Neunkirchen, Siegerland: the home of ROTHO. We know our roots and have been a reliable partner for our customers for more than 100 years. ROTHO customers can be sure that spare parts and service will always be available in the future.



## **Personable**

Together we create the best conditions. Not just for brick & tile products. Reliable and trusting business relationships are even more important in an increasingly digitized world. The ROTHO business model is designed for long-term and sustainable success in close cooperation with our customers. We supply systems and projects that inspire our customers.



**Robert Thomas Metall- und  
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