HESS LANGFANG

A member of TOPWERK

Advanced railway sleeper production plants

Flexible. Customized. Innovative.

www.hesslangfang.com

Intelligent & adaptable system solutions according to our customer‘s expectations

We realize your concrete industry project

Langfang HESS Building Materials Machinery Co., Ltd. is part of the global sales and service network of the German TOPWERK GROUP with its members HESS GROUP, SR SCHINDLER, PRINZING PFEIFFER and HESS AAC SYSTEMS. HESS LANGFANG is considered as a strong driving force for successful engineering innovations and unique system solution approaches for all kind of machinery and plants in the concrete industry.

HESS LANGFANG
Our innovative and flexible engineering solutions are highly appreciated by our customers. HESS LANGFANG has a distinct customer focus and our high quality standards and services will fulfil our clients' needs. Discover our outstanding production and service quality, certified by GB/T 19001-2016 & ISO 9001:2015.

Your benefits with us:

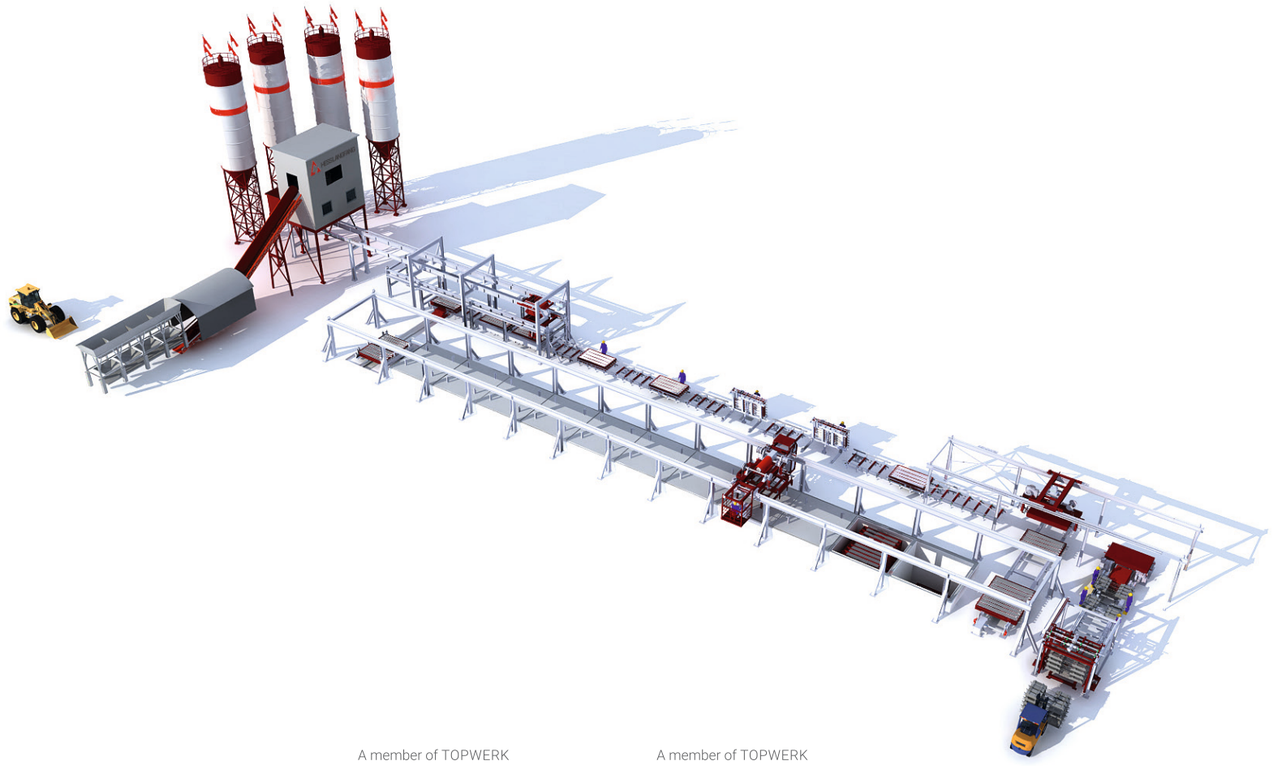
- Wide range of products combined from TOPWERK GROUP
- Tailor-made system solutions
- Focus on quality and customer needs
- High flexibility in engineering and production
- Product quality standard „Made in Germany“
- Modern and expanded production facility – close to Beijing
- Comprehensive services
- A reliable partner – since 1997

Together we develop the optimum **tailor-made solutions** for individual requirements

Being one of the market leaders for high-speed train ballast-less railway track sleeper production lines in China, HESS Langfang with its global sales and service network of the German TOPWERK Group provides tailor-made solutions for its clients worldwide.

Our focus: Flexibility

- Flexible degree of automation – from manual labor-driven to innovative fully automated processes
- Flexible products – besides the variety of different ballasted or ballast-less railway sleepers a wide range of additional products can be produced on our customized process lines



Customized plants

Whether you require a robust and mainly manual production line, targeting lowest investment costs or a fully automated, precise process chain with a focus on safety at work and efficiency as well as sustainable lifecycle costs, we will customize your plant in close cooperation.

You have the target of a wide range of infrastructure installations and do not only need the production of railway track sleepers but also other pre-cast concrete products such as water or cable channels. Based on our experience with production lines of a manifold range of concrete products we will check and design your plant to allow the production of the types of concrete products you require.

With our global network within the TOPWERK group we know regional boundary conditions and provide reliable local services close to your locations all over the world.

Modern efficient & sustainable carousel production lines

Carousel concrete sleeper production line

For ballastless or ballasted track systems for different applications

Carousel or circulation systems are the more efficient and flexible solution compared to the conventional long line systems which are typically using long molds with 2 sleepers in parallel and 4 or 5 sleepers in line. The molds used in our carousel production lines will allow for e.g. 4 to 6 sleepers in parallel. This design leads to the benefits as described in the following.

Increased product quality and accuracy / stability as well as production safety due to:

- smaller size and weight of molds in comparison to traditional long line systems
- automated production and quality control (e.g. exact raw material dosing, vibration control, smooth de-molding process, automated installation and detection systems)
- more homogeneous concrete compaction enabling a higher average density due to reduced remaining cavities
- tighter tolerances can be achieved since deformation occuring during hoisting of long molds with limited product shape control is avoided

Further benefits

- Customized economical solutions for a wide range of projects and different types of products / sleepers (double block sleepers, pre-stressed sleepers, elastic support block for heavy loads, and various other products such as water channels, cover plates, barriers, grids etc.).
- Flexible degree of automated operation from manual up to the application of robot technology incl. wide application of accurate position sensors.
- Adaptability to future requirements (degree of automation, production, capacity).
- Reduced manpower requirement.
- Optimized operating and lifecycle costs due to reduced labor cost.
- Short cycle times down to 3 min. with increased production efficiency / reduced energy consumption per sleeper.
- Compact footprint for the workshop / complete plant.

Major process stations – machines – automation possibilities

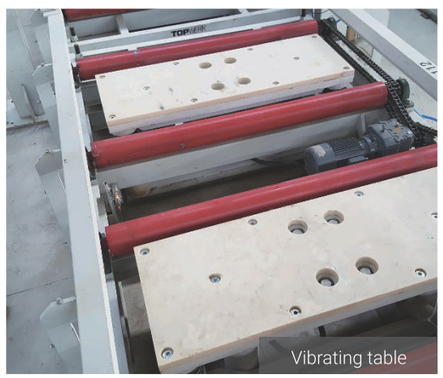
Various process stations and specialized machines for handling and conveying are utilized for the circulation system of the molds within a railway sleeper production line. Starting from the raw material delivery and the subsequent batching and mixing of raw materials in combination with customized storage volumes will be considered before concrete is being handled in the production line.

Casting and vibrating system
Casting of concrete into individual molds can be optimized by automated and precise dosing by discharge screw conveyors combined with a multi-step vibrating treatment to achieve uniform sleeper properties. The high-frequency vibration mode is controlled and optimized depending on the characteristics of the product and mold design with a frequency controlled vibration motor for a homogeneous compacting and to minimize the casting / vibrating and therefore cycle time. The lifting function combines the vibrating table with the roller conveyor for further handling of the molds. Transfer cars and chain conveyors are used to transfer the molds from one roller conveyor line to another.

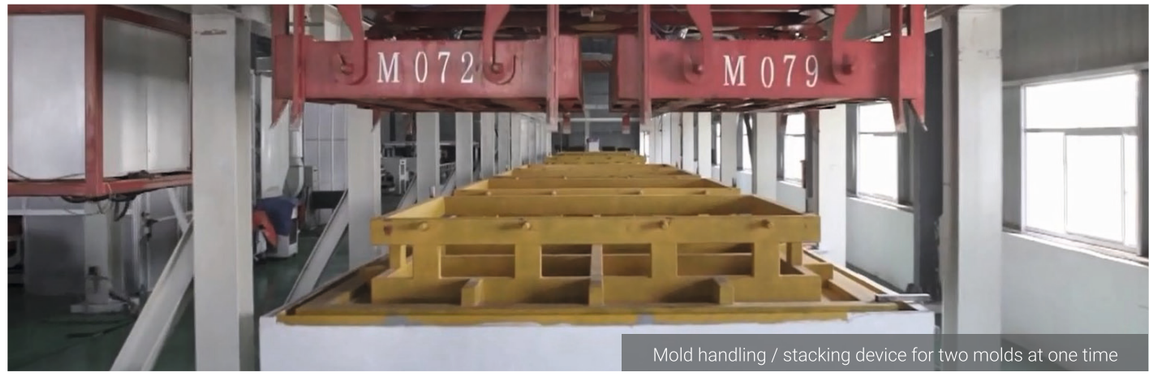
Special mold handling devices
Due to the weight and size of the molds, their handling will either be supported by overhead cranes or by special equipment such as an automatic mold lifting or stacking device with highest positioning accuracy and production efficiency.

The device can handle two molds at a time and can also be used for the handling of the covers of the curing pits. The stacking device will load and retrieve the mold in and out of the curing chambers. Closed and insulated curing chambers allow a defined and accelerated curing process of the concrete sleepers with determined temperature treatment supported e.g. by steam injection. After the curing process the molds will be handled by the mold turning device, equipped with a mold interlocking or clamping system. The mold transfer and rotating process are carried out simultaneously with high precision and efficiency, minimizing the overall time of the de-molding process.

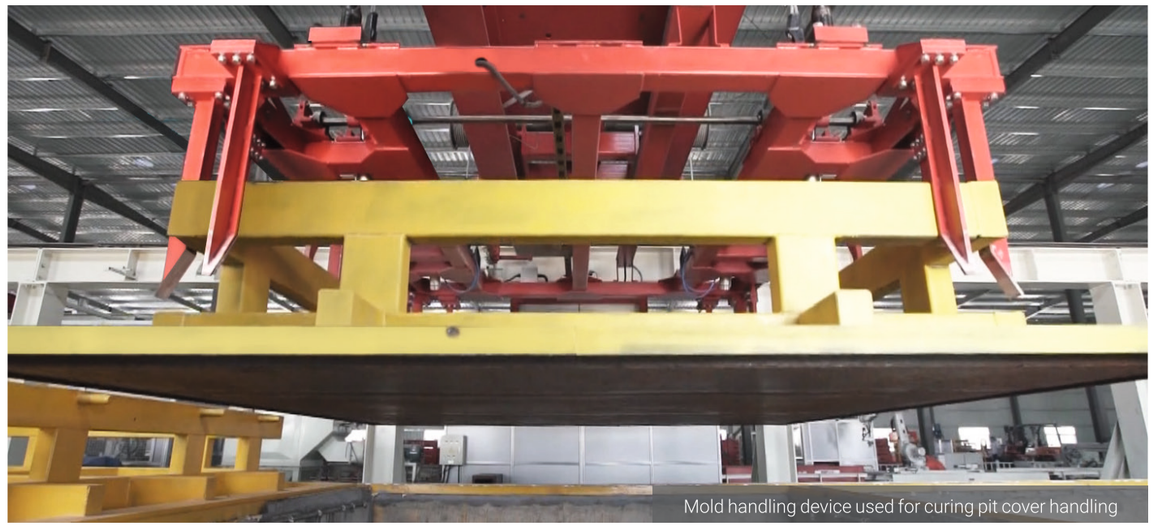

Casting and distributing station

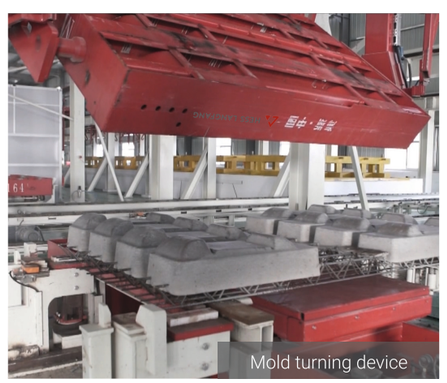


Vibrating table



Mold handling / stacking device for two molds at one time

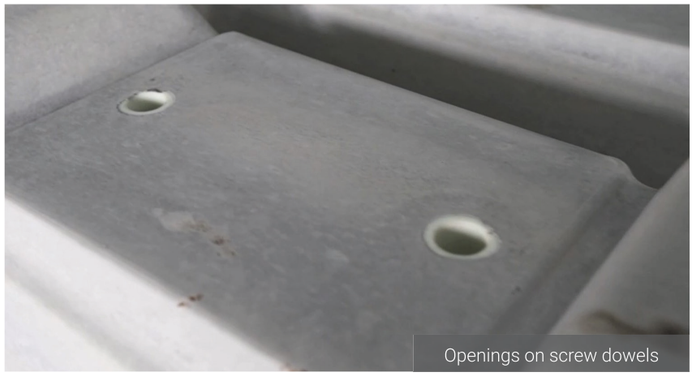

Mold handling device used for curing pit cover handling

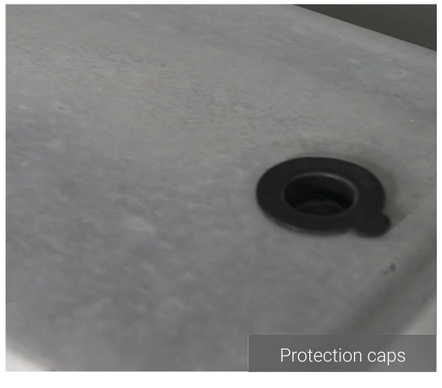

Mold turning device


Placing of molds on the de-molding table

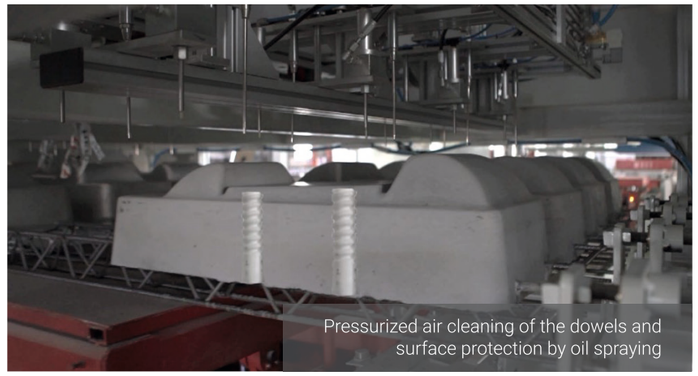
De-molding station
The demolding process is realized by quick response pneumatic cylinders for smooth and rapid operation, combined with an automated transport trolley. With repeated up and down movements the sleepers are separated, controlled by sensors for each sleeper on the support frame. After the separation of sleepers and molds the sleepers will be inspected manually or fully automated. Further treatment such as cleaning of the screw dowels, surface protection by oil spray and closing the opening by protection caps are carried out before transport and stacking in the stockyard.

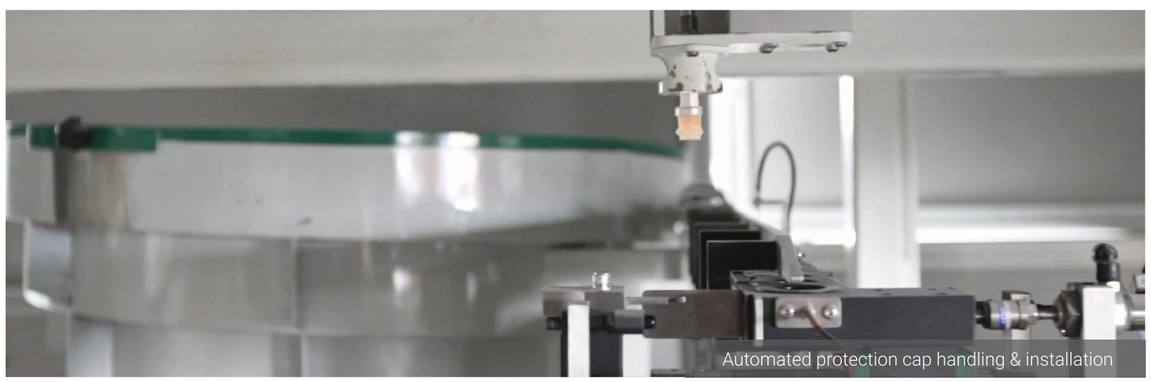
Sleeper handling
For the handling and stacking of the sleepers the sleeper stacking device securely handle and stack various rows and layers of sleepers for storage. The storage in the open or closed stockyard can further be considered as a natural secondary curing process.


Openings on screw dowels


Protection caps


Fullyautomated sleepers surface inspection

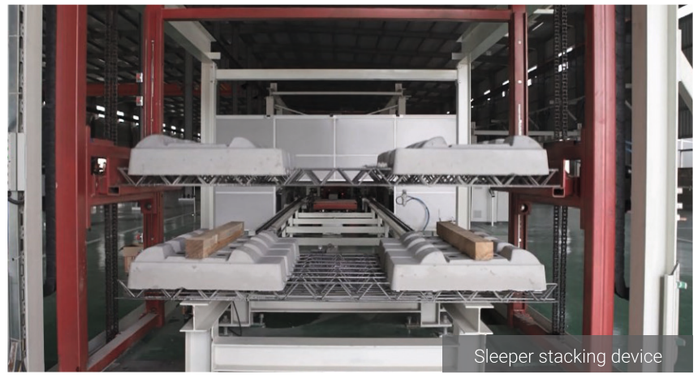

Pressurized air cleaning of the dowels and surface protection by oil spraying


Automated protection cap handling & installation

Mold return line
After receiving the mold from the mold turning device (as specified above), the molds are transported by a series of roller conveyors back to the casting and vibration. The following processes, essential for the concrete product quality, are being carried out on these roller conveyors:

- Mold cleaning
- spraying release agent (oil)
- Installation of embedded parts such as anchors for fastening of rails

The respective stations are normally combined with tilting tables for better reachability e.g. for the cleaning of the molds. Instead of the traditional manual process steps Hess Langfang developed fully automated solutions of these process steps by the application of a series of robots.


Sleeper stacking device

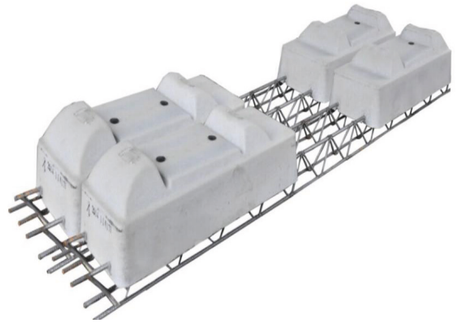

Sleeper handling

Automated handling of steel reinforcements

Automated spraying of release agent / oil

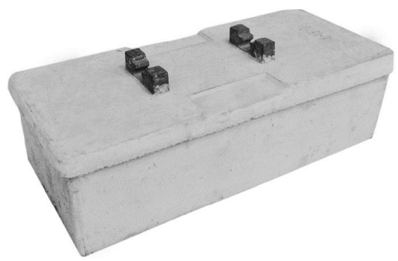
Installation of spiral reinforcements by robots


Installation of screw dowels by robots



Double block sleepers

Pre-stressed concrete sleepers



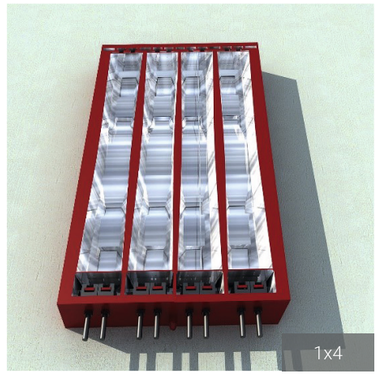
Elastic support blocks

double-block sleepers with rail fastenngs

pre-stressed concrete sleepers

storage of double-block sleepers

mold with elastic support block sleepers



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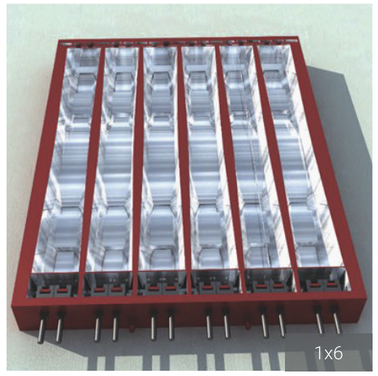

1x6

molds for pre-stressed concrete sleepers

Your partner for railway sleeper production lines

HESS LANGFANG
In 1997 the first mould factory from HESS was established in China. Due to raising demand for HESS machinery in China, HESS LANGFANG was established in 2003. We started to export various machinery to Indonesia in 2005, followed by other countries like Australia, Pakistan, Taiwan and later to Africa, Kenia in 2018 or India in 2019. Nowadays HESS LANGFANG is also service and sales partner for all TOPWERK members.

Your partner since 1997
We listen very carefully to our clients' expectations in order to provide ideal solutions & services

> 100 employees
Our experienced & highly skilled team is providing you the optimum solution for your project

> 150 projects
We ensure individual project execution for highest quality & customer satisfaction

Customized solutions
We adapt the plant design according to your individual requirement

Flexible automation
From manual handling steps to fully automated, robot-supported processing

High product variety
Not only various types of sleepers but also further concrete pre-cast products can be produced

Outstanding quality
Quality standard as 'made-in-Germany' for machinery and products

Diversified pre-cast concrete products & respective molds

A typical example for altnernative pre-cast concrete products are water channels. Other products could be cable troughs, cable trough covers and many more. For the implementation of alternative pre-cast concrete products, the railway sleeper production line will be adapted for the different molds and processing.

Depending on the products, the handling machines such as the mold turning device also need to be modified or additional devices might have to be considered. Nevertheless, major savings compared to an additional production can be achieved.


molds for water channels (product example)


1000mm Trapezoidal water channel during vibration process


Trapezoidal water channels


Retangular water channels


Retangular water channels


Retangular water channels

Global Network

With our global network within the TOPWERK GROUP we know regional boundary conditions and provide reliable local services close to your locations all over the world.

German Headquaters

Regional Hubs

Foundation in 2021

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A member of TOPWERK

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