

# CONSTRUCTING

INVENTIVE SOLUTIONS TO GUIDE YOU INTO

# THE FUTURE



→ BEST CHANCES

# WELCOME TO THE FUTURE



The global demand for high-quality, energy-efficient and cost-effective residential, commercial and industrial buildings is growing. Precast concrete construction provides the solution. Affordable, fast and versatile in design, high quality and sustainability also sets it apart from other building methods. For the manufacturers who rely on it, it offers the best prospects for the future. Whether as a company who is starting up or as an established producer: we will provide you with advice and support to make the best of it.

  
Wolfgang Weckenmann

  
Martin Schatz

## Worldwide experience and complete product range

Our product range extends from rugged, reliable production units through fully automatic high-performance plants with robot technology to single moulds, formwork profiles and magnets. We already support and guide our customers on the road to digitalisation.

## New paths in research and development

Weckenmann has been introducing many unique innovations and setting worldwide standards for the industry for more than 60 years. For our customers, we continue to develop proven products and services on an individual basis, but we also take completely new paths in research and development and are satisfied only when our solution is perfect and sustainable for the future. This is driven by the special ingenuity, the creative enthusiasm and perseverance typical of our origins.

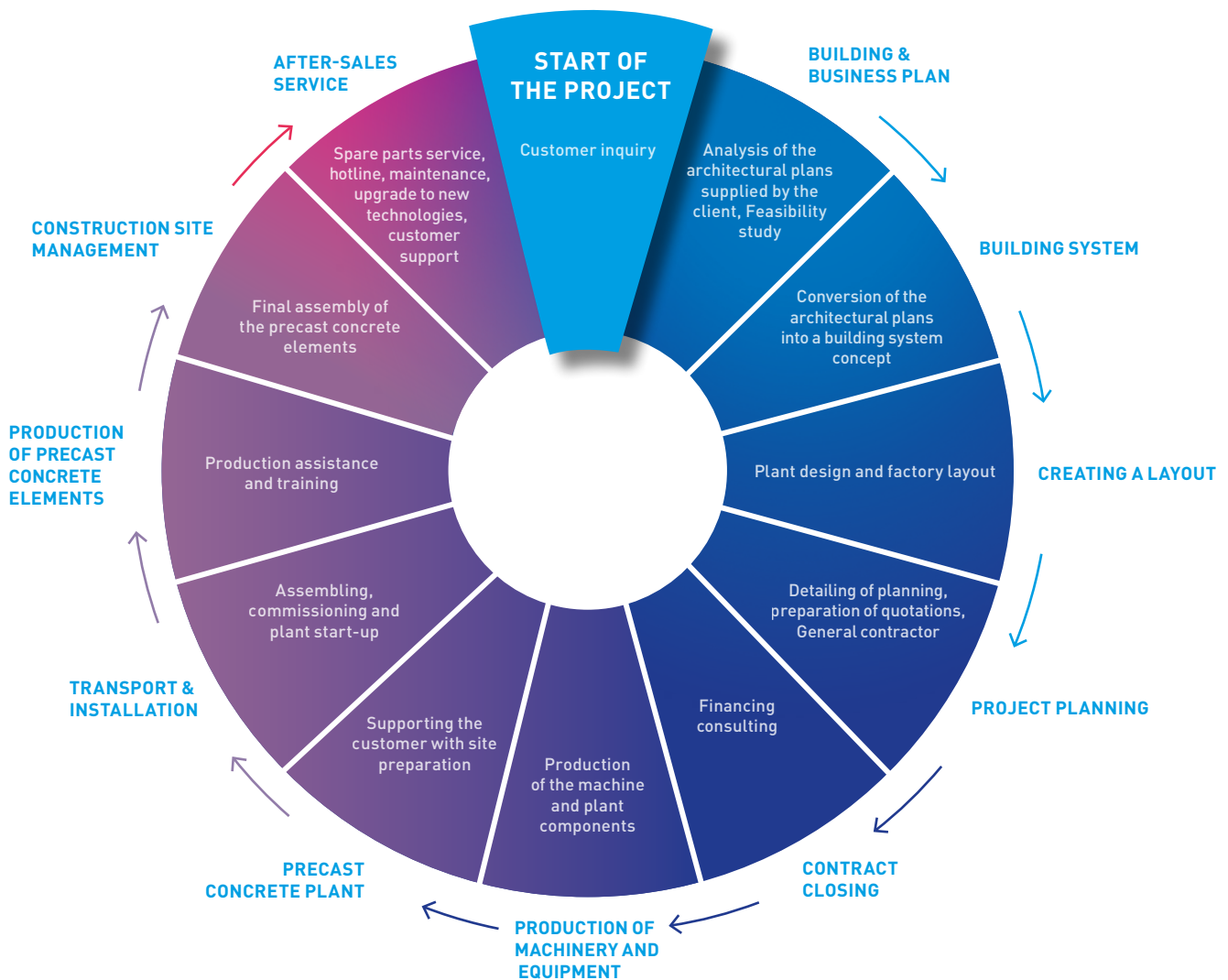
Talk to us about your objectives and we will join forces with you to turn your dreams into successful reality.

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➔ INDIVIDUALLY TAILORED SOLUTIONS

# INGENUITY, KNOW-HOW ...

Weckenmann is one of the most sought-after partners among precast concrete manufacturers worldwide. We join forces with our customers to develop the best possible individually tailored solutions for cost-efficient production processes as well as efficient procedures and deliver the perfect machines, components and complete systems.



## Full service from A to Z

Our experienced experts will assist you with literally all questions concerning precast concrete construction: from conception, plant planning, product and process development to project management, financing, imple-

mentation and training right through to the finished factory. As a long-term and reliable partner, we offer you worldwide further services even after handing over the keys.

# ... AND TECHNOLOGY

## Ready for digitalisation with WAvisionplus

The future of manufacturing is automated. Especially Weckenmann has developed a consistently structured, modular control solution especially for precast concrete production. The new generation of the master computer system enables an automated display of all production-relevant information for a workstation, relieves the user through a digital display and supports having complex processes in view. In addition to the detailed information

display on production units and elements, **WAvisionplus** offers various reporting options for monitoring and optimising the circulation process. The modules can be combined individually as required or used as a complete package.

In this way, **WAvisionplus** enables consistent, efficient production control, monitoring and process analysis.



**WAV**visionplus

### ProductionManager

- Efficient production planning and order management
- Automatic or manual occupancy of the pallet by drag and drop
- Automatic generation of production-relevant working papers, occupancy-specific data sheet and labels
- 3D Viewer of the elements

### ProductionControl

- Visualization and monitoring of the circulation stations
- Occupancy overview curing chamber
- A Trouble Shooting Assistant for process monitoring, error analysis and troubleshooting
- Webflow offers visualization options for process monitoring on all common mobile devices

### ProductionAnalyzer

- Automated display of all production-relevant information about the respective workplace
- A detailed view of the production units and / or elements via zoom function
- Real-time information sharing in the production process
- Reporting of production-relevant key performance indicators



# INTERCONNECTED

EXPERTISE AND WORLDWIDE EXPERIENCE  
FOR TAILOR-MADE AND PERFECT

# SOLUTIONS

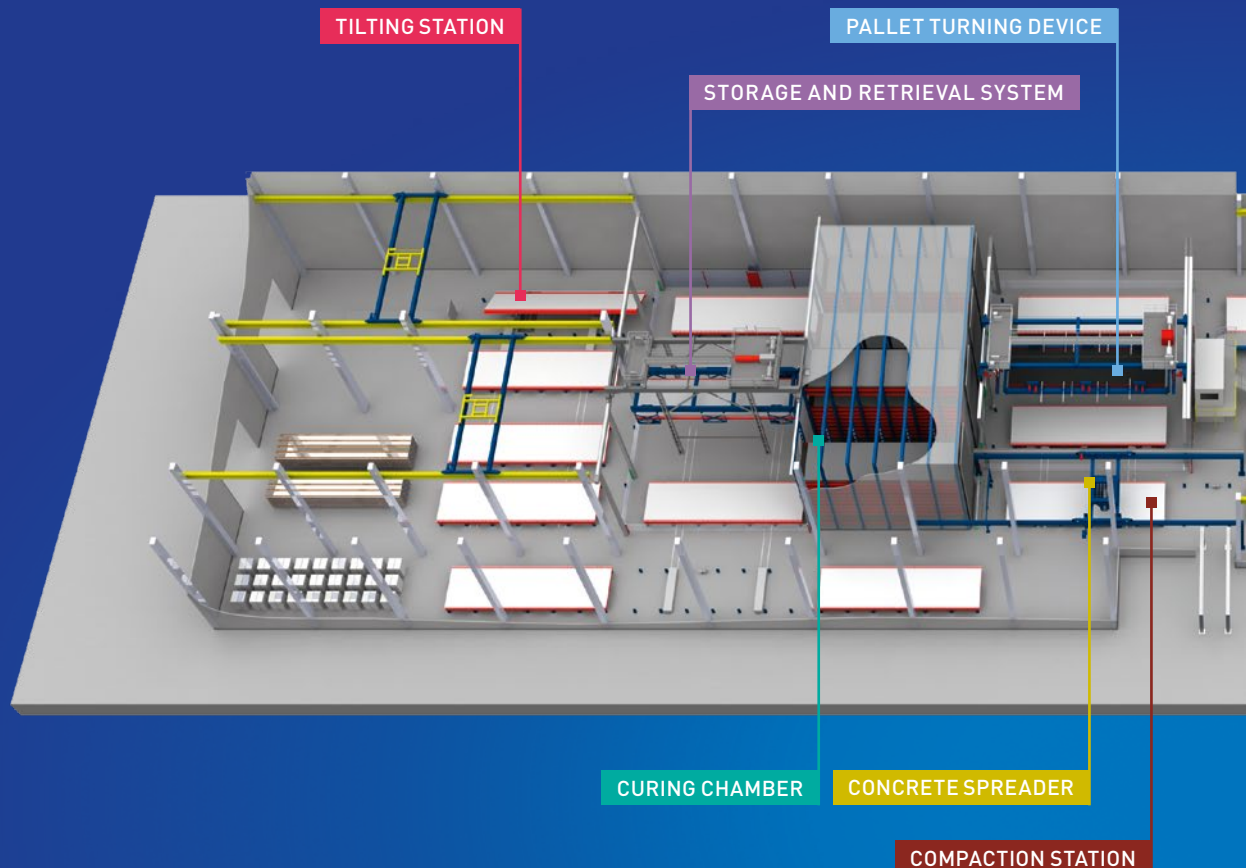
We are in our element to do the thinking ahead for you to implement your projects successfully and efficiently. We develop the plant solution that best meets your needs and activities, your commercial and functional demands, your specific conditions and the respective market requirements in cooperation with you.

→ DIVERSITY IN DESIGN AND USE

# PALLET CIRCULATION SYSTEMS

## FOR A WIDE RANGE OF APPLICATIONS

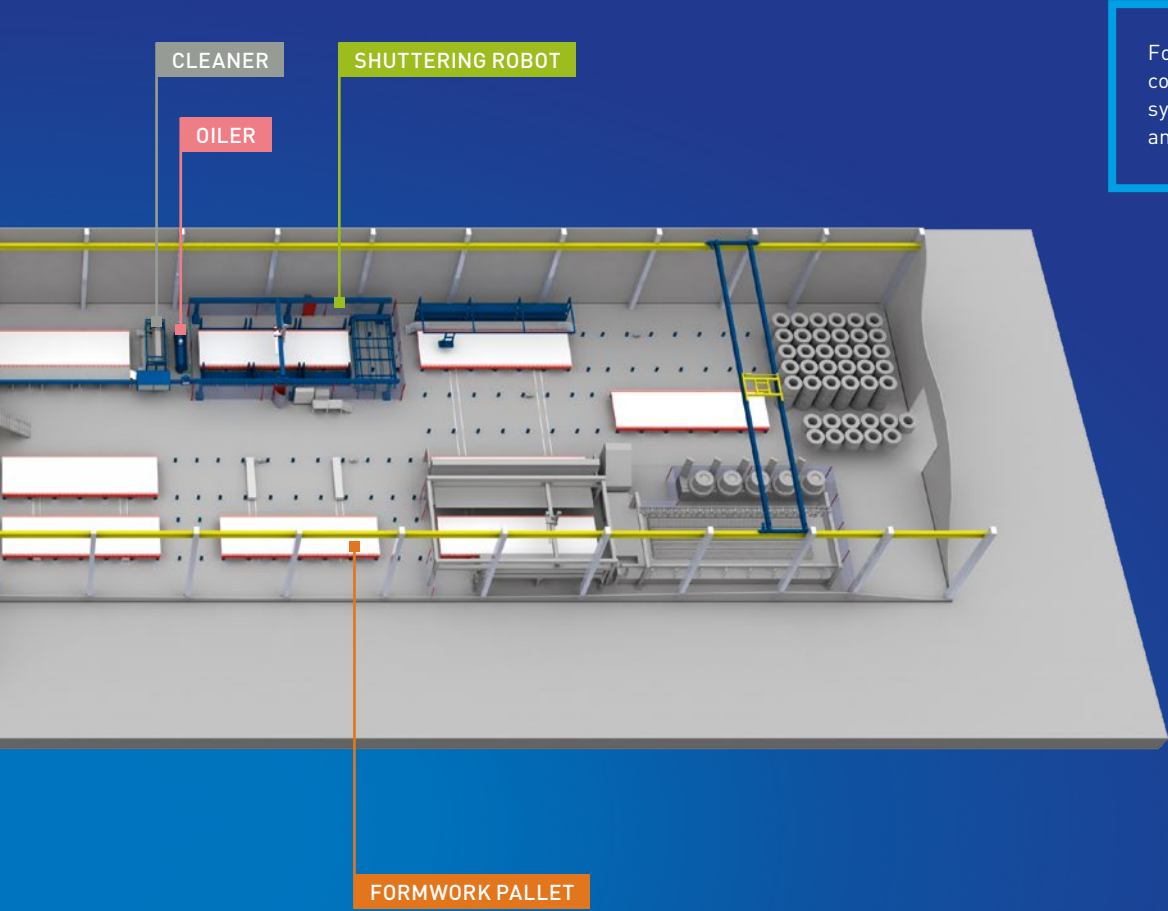
Pallet circulation systems allow production with optimal material flow. They are equipped with the latest machine and control technology and ensure predictable, efficient and cost-efficient processes as well as high productivity.







This concept is based on the principle of specialised workstations, in which the shuttering pallets are moved from one processing station to the next. This approach provides a **predictable and controlled workflow**. The circulation system offers all possibilities: from purely manual operation to a high degree of automation with fully automated robot technology.



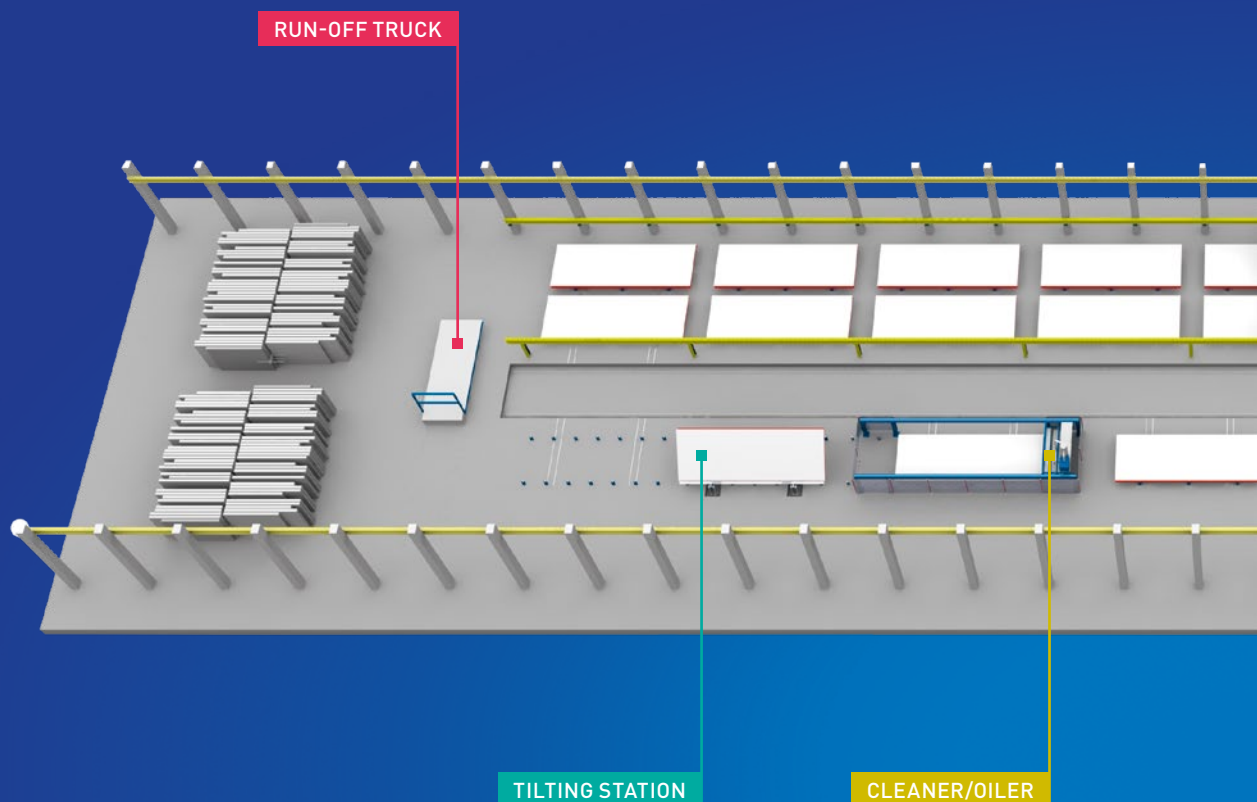
For **DETAILS** on the individual components of a pallet circulation system, please refer to pages 12 and 13.



→ MAXIMUM FLEXIBILITY

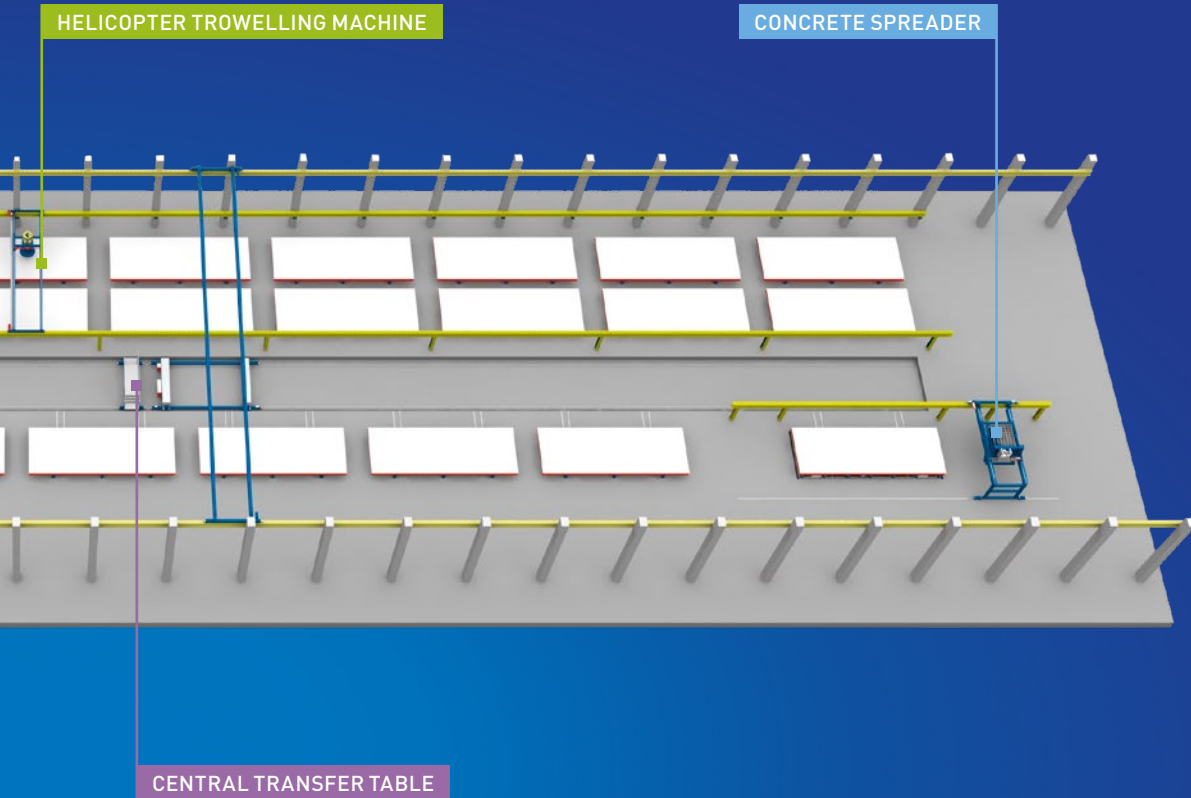
# CENTRAL TRANSFER TABLE SYSTEMS FLEXIBLE AND INDIVIDUAL

Central transfer table systems for the production of solid and sandwich walls that combine the strengths of a pallet circulation system with the flexibility of production on individual formwork tables.





This concept is ideally suited for the **production of complex precast concrete parts** that require a different amount of work. The system provides the formwork tables to the workstations with exact timing. The pallets are transported on a mobile platform. The system can be controlled both manually and in fully automated mode.



→ COMPREHENSIVE AND RELIABLE

# COMPONENTS OF A CIRCULATION SYSTEM

Until the formwork pallets are filled with concrete to the desired form and thickness, they have to go through various stations of a circulation system until they are completed. This holistically controlled and precisely plannable manufacturing system consists according to the needs and requirements in terms of capacity and products of the following components.



**CURING CHAMBER** for heat-insulated, controlled and space-saving **curing of concrete elements**. If necessary, this process can also be accelerated by built-in air conditioning/heating.

**STORAGE AND RETRIEVAL SYSTEM** automatically stores the formwork pallets in the curing chamber or retrieve them again after curing.

**TILTING STATION** lifts and tilts formwork pallets with finished wall or facade elements to a **vertical position for transportation**.



**TURNING DEVICES** for the **manufacture of double walls with two shells**. They are equipped with vacuum-handling technology or pallet interlocking and are characterised by **high precision and a high level of efficiency**. The pallet turning devices are equipped with vacuum-handling or pallet clamping technology. The clamping arms remain on the device and this facilitates the work of the operator considerably.



**PALLET TRANSPORTATION** to transport the pallets within the circulation system, the transportation technology at **Weckenmann comprises the complete range of individual handling technologies**. Depending on the design of the material flow concept, individual workstations are networked through friction wheels, cross lifting trucks, central transfer tables, central sliding stages or by a combination of these components.

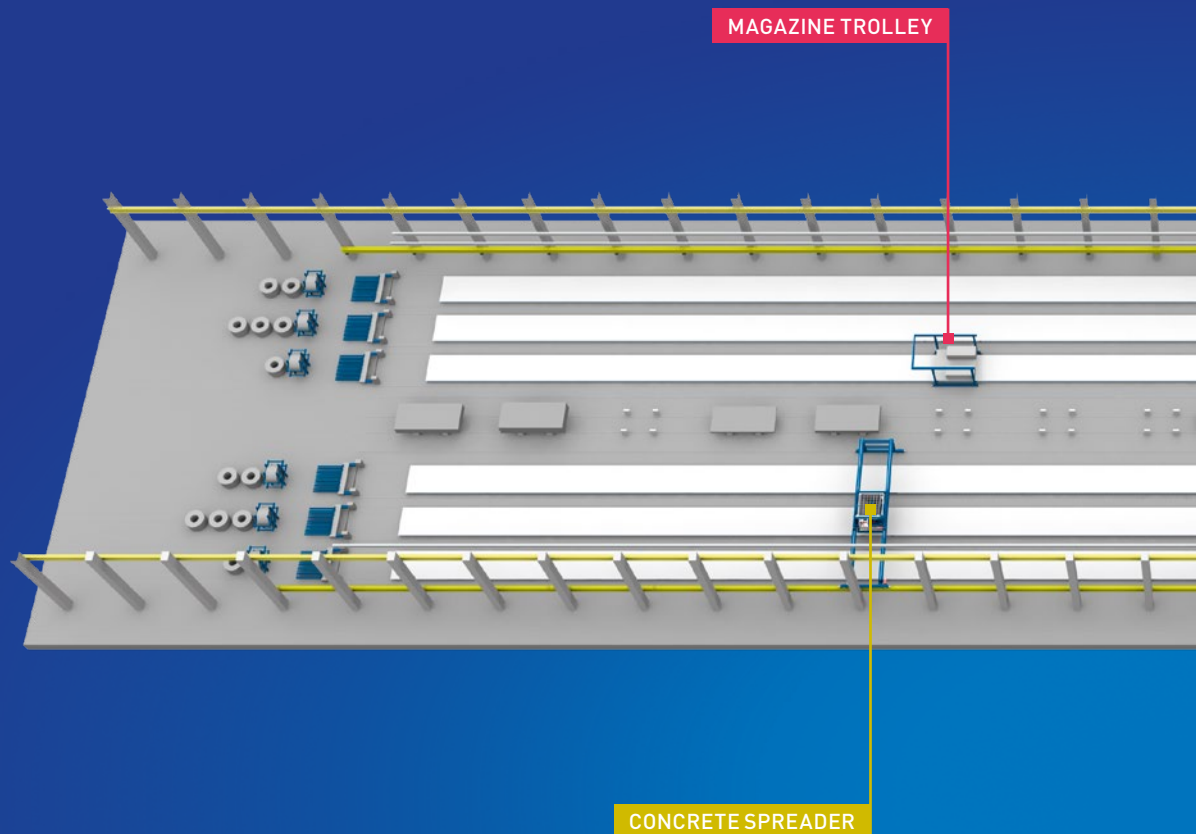
**FORMWORK PALLET** is used in conjunction with circulation systems as movable moulds. The premium-quality formwork surfaces **guarantee high-quality final products**. Weckenmann supplies formwork pallets **including individually adjustable side rails**.

→ ALWAYS PERFECTLY ADAPTED

# STATIONARY PRODUCTION

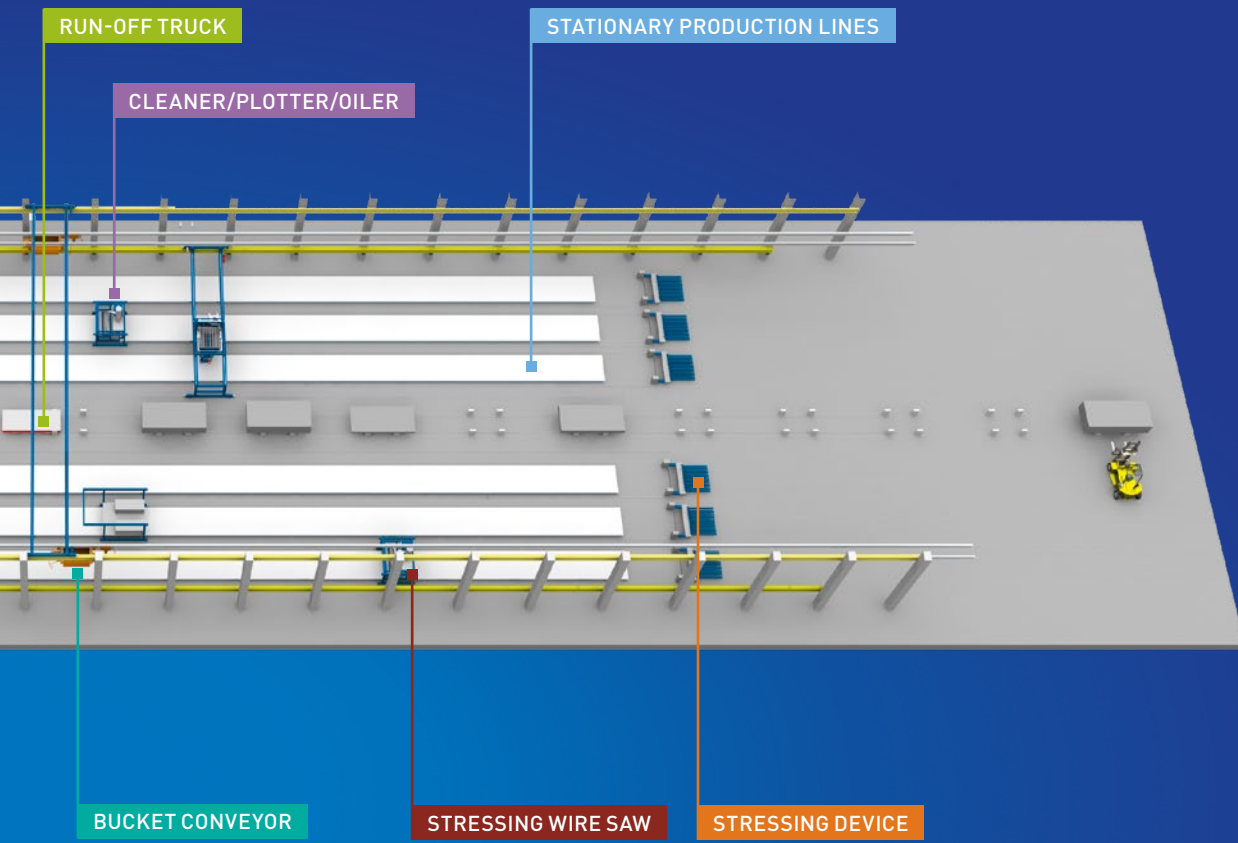
## PROVEN, VERSATILE, COST-EFFICIENT

Although stationary production plants have a lower output per hour than circulation systems, they allow more flexible production schedules. This makes this adaptable concept with its customisable manufacturing cells particularly suitable as an entry-level solution for the production of precast concrete parts, but also for manufacturers who produce a wide range of parts with different formwork concepts.





Production lines have proven themselves in the production **of both reinforced and prestressed flat precast elements** such as floor slabs, facades or linear elements. We also supply different side rail types, integrated heating and high-frequency vibrators.





**CASTING BEDS** are perfectly suited to produce prestressed floor slabs economically and efficiently. The consistent design and **individual optimisation of the production lines** are the alpha and omega in this regard. Our support for our customers already starts with the planning stage to ensure efficient processes all the way from concrete supply to loading for transport.



**BATTERY MOULDS** simplify the production process of **vertically fabricated wall and slab elements** with smooth formwork surfaces on both sides. This compact equipment is available **for both stationary and mobile use**.



**TILTING TABLES** have a supporting function in **the horizontal manufacturing of walls, facades and special elements**. The production tables have premium-quality formwork surfaces and high-frequency vibrators that compact the concrete perfectly. Again, **the side rails can be individually customised**. As a result it ensures products of exceptional quality which can be lifted using integrated tilt hydraulics or with an overhead crane for transportation.



**VOLUME MOULDS** are recommended for the manufacture of **three-dimensional precast concrete parts** such as lift shafts, ventilation shafts or other modular products.



**STAIRCASE FORMWORK** is used for the **production of stairs in fair-faced concrete quality**. They are produced horizontally in an individual mould or pallet circulation system or vertically in an individual mould or battery mould. Weckenmann produces staircase moulds accurately and **tailor-made to customer specification and requirements** of the respective application.



**MOULDS FOR DRIVEN PILES** can be used in circulation systems or stationary production facilities **for the production of top-quality reinforced or prestressed driven piles**.



**COLUMN/BEAM MOULDS** with hydraulic and manual adjustment. They were developed **for the production of structural precast concrete parts** such as columns, beams and trusses.



**COMBINED FORMWORK** are hydraulically adjustable moulds **for the production of columns and beams**. TT panels can be manufactured using additional moulds.



→ THE OBVIOUS SOLUTION

# MOBILE PRODUCTION UNIQUE, INNOVATIVE, SUSTAINABLE

Mobile manufacturing plants are compact, transportable precast concrete plants making them the ideal solution for production near the construction site, for example, if the transport infrastructure is not suitable or if the available production area does not permit the construction and operation of a local production plant. This just-in-time production solution is innovative, energy-efficient and particularly sustainable, as transport costs are drastically reduced.

## MOBILE BATTERY MOLD: MBM®

Mobile manufacturing plants are compact, transportable precast concrete plants making them the **ideal solution for production near the construction site**, for example, if the transport infrastructure is not suitable or if the available production area does not permit the construction

and operation of a local production plant. This just-in-time production solution is **innovative, energy-efficient and particularly sustainable**, as transport costs are drastically reduced.



→ WELL THOUGHT-OUT THROUGHOUT THE WHOLE PROCESS LINE

# MACHINERY AND EQUIPMENT TECHNICAL SOPHISTICATION, COMPATIBLE, EFFICIENT

A product is only as good as the sum of its properties — and the technology with which it is produced. Weckenmann develops and builds modern machines and equipment for the production of precast concrete. All the equipment along the entire process chain are manufactured using the latest technology and are compatible with each other, so that the individual parts mesh perfectly. The result of this sophisticated technology: efficient production of top-quality products from A to Z.

## Highest quality and dimensional accuracy

This principle to a large extent also applies to precast concrete parts. Therefore at the beginning of a production programme it is crucial, that the geometrical data, in other words layout, is safely transferred from the planning department to the performing machine. After the data transfer, shuttering and reinforcement follow the concreting and curing.

**PLOTTER** transfer the CAD data at a 1:1 scale to the formwork table in the shortest possible time and without any errors. All production data is visible to position the shuttering profiles. **This allows measurement errors and so production errors to be avoided.**

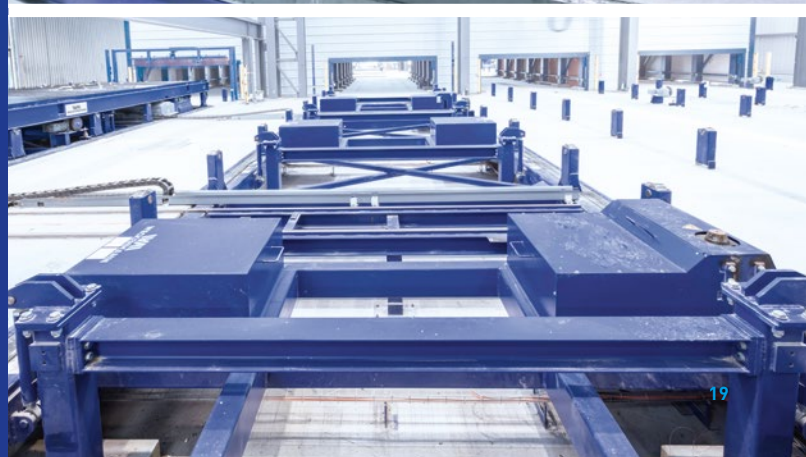
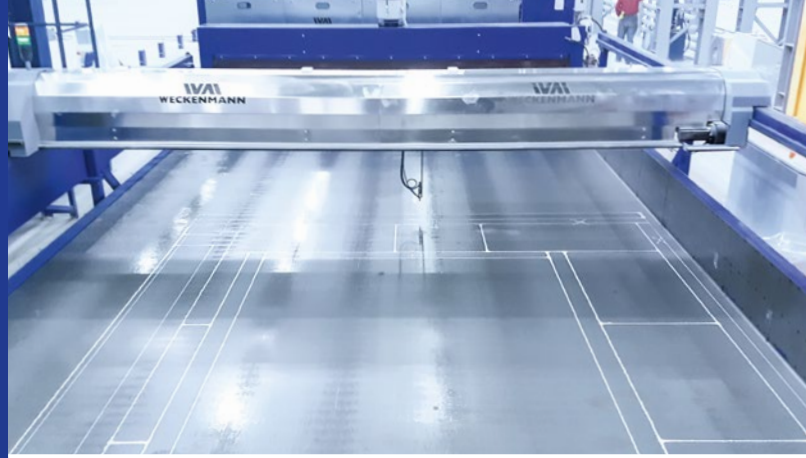
**SHUTTERING ROBOTS** provide the **automated handling of formwork profiles and mounting parts.** In addition to **shuttering**, high-performance robots also handle the **storing and demoulding** of shuttering profiles, thereby guaranteeing a **precise and error-free formwork process.** As the inventor and supplier of the world's first shuttering robot, Weckenmann offers sophisticated technology and this already in the third generation of robots.

**CONCRETE SPREADERS** are performance-enhancing equipment for the **quick and precise dosing** of different concrete qualities, whether in manual or automatic mode. The concrete is discharged via screw conveyors or spiked roller slide technology. Our customers worldwide find the **rugged and durable technology** convincing.

**SURFACE TREATMENT**  
With the use of **screeds and helicopter trowelling** machines, the best results are achieved depending on the requirements of the concrete surfaces. Individually adapted to the needs of the customer.

**COMPACTION** of concrete in the mould can be done using different yet also combinable technologies as needed. This **high-frequency technology** – permanently installed or magnetically fixed with **MagVib** – provides the energy required at an optimal level and at reduced noise levels. **Low-frequency compaction uses** shaking technology. This process produces high compaction energy in virtual silence.

**Both compaction techniques can also be combined in one installation** to always be able to use the most suitable method for different concrete mix and the many different types of precast concrete parts.



→ THE RIGHT SOLUTION FOR EVERY DEMAND

# TRANSPORTATION TECHNOLOGY PERFECTLY ORGANISED

The smooth and rational material flow in the precast concrete plant requires detailed tailor-made solutions. Only an optimally organised transport chain can ensure that the entire production process run efficiently, and that the quality of the results is assured.

## LIFTING DEVICES

allow floor slabs to be **lifted quickly and without damage** and to be **demoulded carefully**, and to **safely turn** the first shells of the double wall on a vacuum turning device or turning table.

## RUN-OFF-TRUCKS

with or without transport frames take care of the **transportation of precast concrete parts to the storage or loading area.**

## BUCKET CONVEYORS

guarantee **fast and automatic concrete transport**. They connect the mixing plant and the concrete spreader and reach almost every point in the precast concrete plant by individually operating on the production line with curves and gradients.



## → COMPLETE CARE PROGRAMME

# CLEANING AND CARE SIMPLY CLEAN

are of the shuttering profiles and tables that maintains their quality takes place at the end of the production chain. To keep them ready and functioning over a long period of time, Weckenmann has developed machines for cleaning:

### CLEANERS AND OILERS

provide **clean formwork surface and form oil application**. An important condition for the maintenance of product quality during the entire operation time of the plant, because dirt and soiling result in defective products. They maintain the high quality of the formwork surfaces and ensure **consistent product quality for many years**. Supplemented by a plotter, space-saving combination devices are created that automatically carry out the successive work steps.

### FORMWORK TRANSPORTATION AND CLEANING

Formwork profiles play an important role in the production of precast concrete parts. They need to be well cared for to ensure their proper functioning. This includes **cleaning and oiling after each use**. This is done automatically with a formwork cleaner/oiler in conjunction with a conveyor belt that connects the demoulding station with the shuttering area.



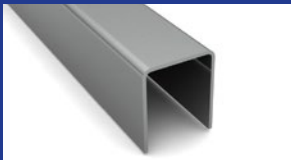
➔ PERFECT FROM A TO Z

# FORMWORK PROFILE SYSTEMS AND MAGNETS

## INDIVIDUAL, ROBUST, DURABLE

Formwork systems play an essential role in the production of flat and structural concrete elements. They provide the form, define the product quality and make production programs flexible. Their adaptability is a key factor for the efficiency and profitability of production. For this reason, the Weckenmann range includes a large number of sophisticated formwork components that guarantee quality and cost-efficiency.

### A-SERIES



Cost-efficient profiles of special steel for the manufacturing of floor slabs and double walls.



### M-SERIES



Formwork profiles for the manufacturing solid elements and sandwich panels, slabs and facades in standard thicknesses.



### M-BASIS/M-TOP-SERIES



Formwork profiles for the manufacturing of solid and sandwich elements, slabs and facades in changing heights.



### X-UNI-SERIES



Magnetic system for wooden formwork for the manufacturing of solid elements, sandwich panels, slabs and facades in variable dimensions.



### X-MULTI



Modular system consisting of magnet boxes, connecting rails (X-MULTI Angles) and raising elements (X-MULTI Risers). In combination with wood planking, X-MULTI enables to design a magnetically fixable shuttering system that is variable in length and height.



### X-QUICK



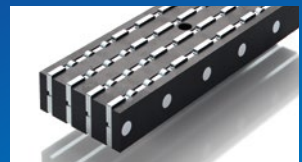
For infinitely variable length adaption of formwork profiles in the production of floor slabs and double walls with magnet fastening as a replacement for polystyrene profiles.

### MAGNETBOXES

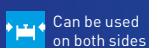


Supplementary components for quick and secure fixing of formwork profiles and built-in sections.

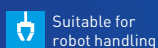
### ACCESSORIES



Wide range of accessories as variable solutions for specific requirements in the formwork sector.



Can be used on both sides



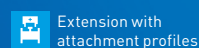
Suitable for robot handling



Magnetbox attachment



Integrated switchable magnets



Extension with attachment profiles



Wooden planking

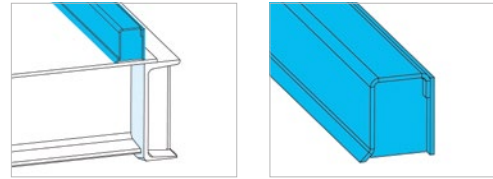
# PALLET SIDE RAILS

The extensive range contains products for every application, which can be individually adapted.

## FLOOR SLAB / DOUBLE WALL

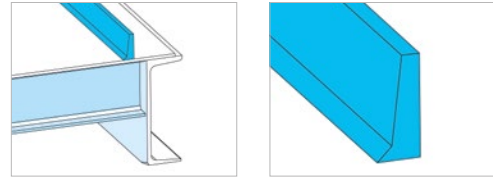
### folded

Welded side rail made of folded special sheet metal. Optionally with/without draught angle and bottom triangular chamfer.



### solid

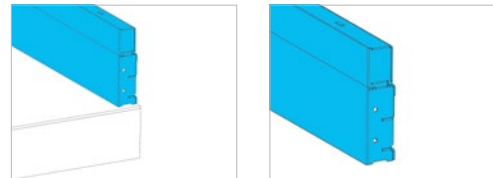
Welded, solid milled side rail profile. Optionally with/without draught angle and bottom triangular chamfer.



## SOLID WALL / SANDWICH WALL

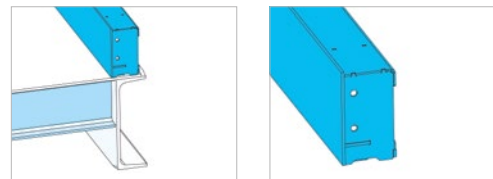
### with attachment formwork profile

Welded-on or bolted-on side rail as a rigid box profile. The quick-to-install attachment formwork profile allows the wall thickness to be individually adjusted. Profiling of the longitudinal side as per customer requirements possible.



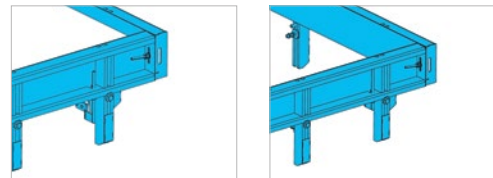
### welded / bolted

Welded-on or bolted-on side rail as a rigid box profile. Profiling of the longitudinal side as per customer requirements possible.



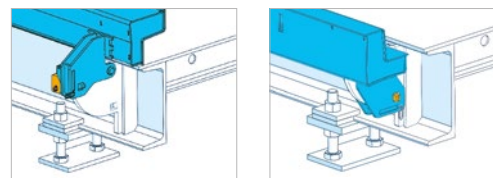
### height-adjustable side rail

Infinitely variable, vertically adjustable side rail system, optionally with steel or wooden planking. The side form can be fastened or opened using a screw connection.



### hingeable side rail

Rigid side rail system as a rigid box profile in fold-down design for trouble-free demoulding. Profiling of the longitudinal side as per customer requirements possible.



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