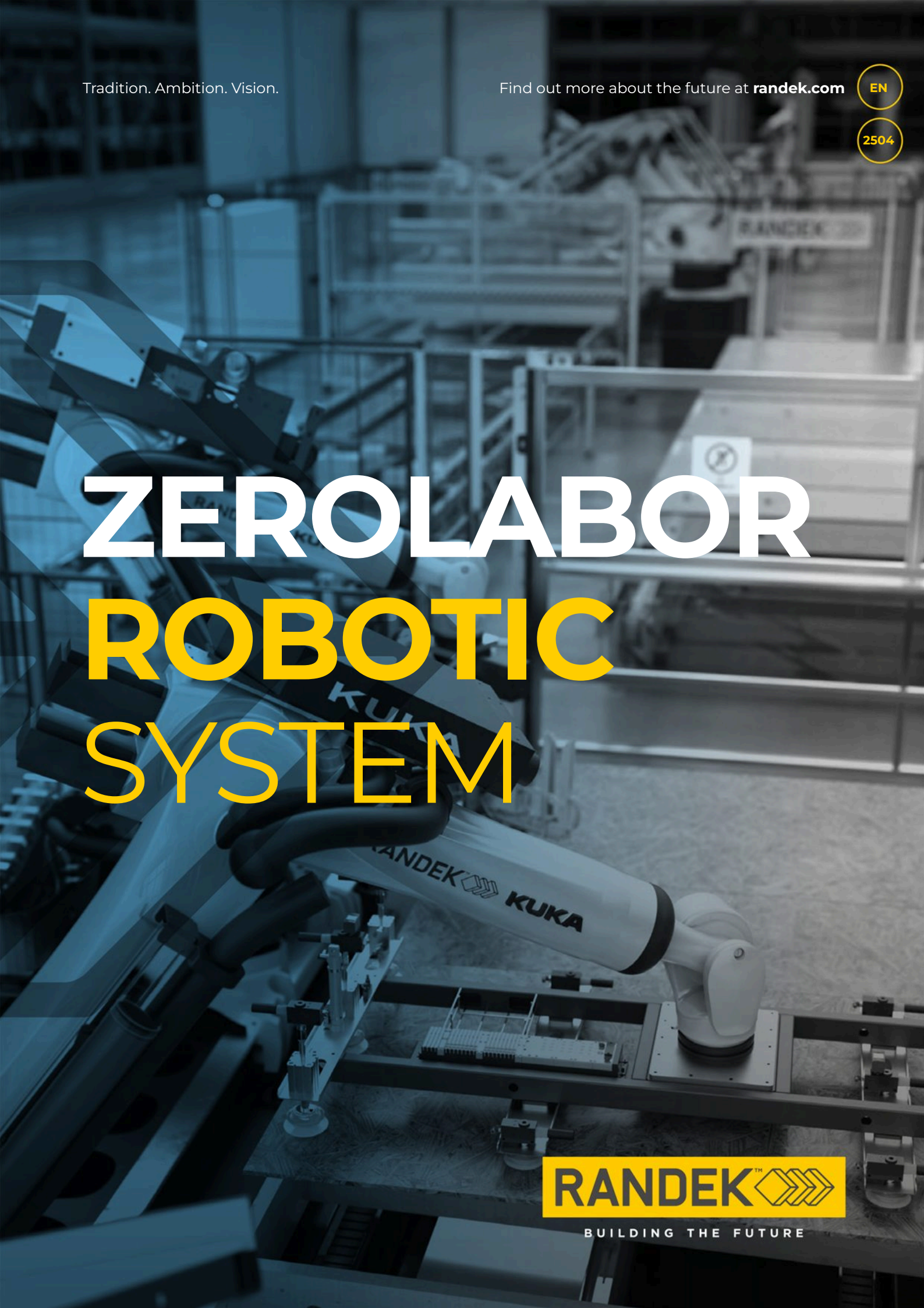
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Find out more about the future at **randek.com**

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ZEROLABOR ROBOTIC SYSTEM



RANDEK™

BUILDING THE FUTURE



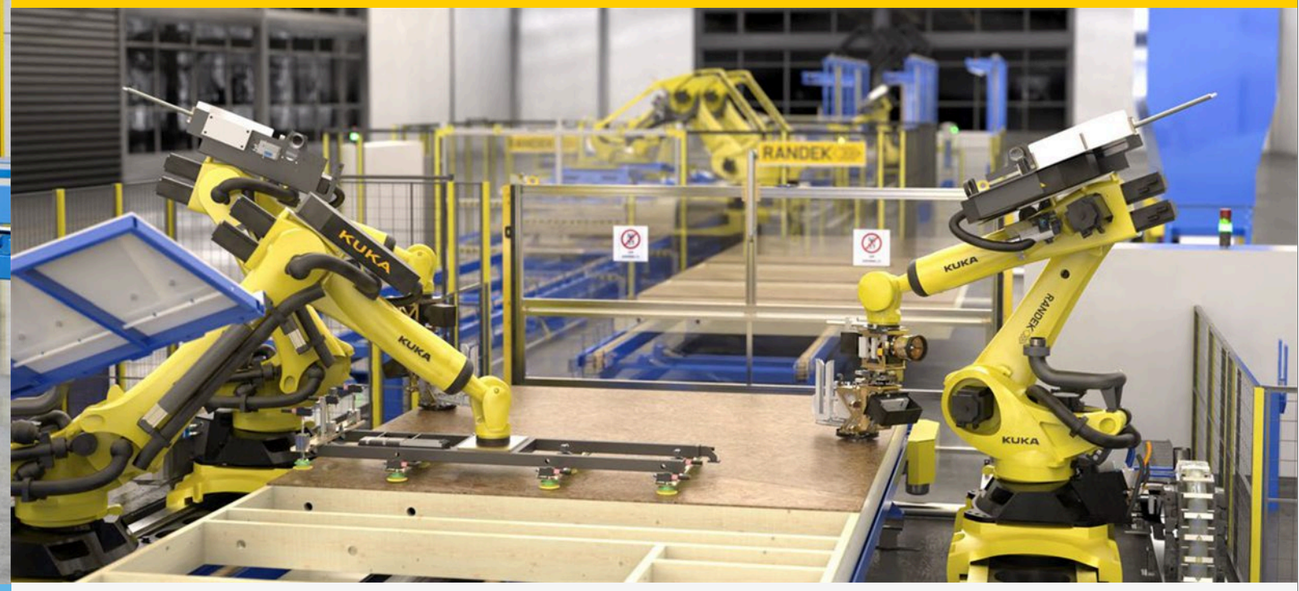
REVOLUTIONIZING ROBOTICS

BRINGING ROBOTICS TO THE OFFSITE CONSTRUCTION INDUSTRY

Randek recognized the lack of industrial robots and the inefficiency in the construction industry early on. Back in 2016, we set out to change the industry in this regard. We introduced the first ZeroLabor system in 2017, which used industrial robots at scale in an offsite factory environment. Today our robotic systems cover a wide range of offsite construction applications, but the common features are that they reduce the physical strain of hard work and significantly reduce manpower costs. Randek's products streamline the construction process while increasing product quality and production output.

ZEROLABOR ROBOTIC SYSTEM

Cutting-edge, data-driven robotic cells that each automate one process. Customizable to meet specific requirements, and added to a Randek line or to a line you already run.



THE PRODUCT **FAMILY**

The ZeroLabor Robotic System Product Family is a family of robotic cells that each automate one process. It has been adapted for seven countries across four continents, with over fifty systems installed worldwide.



ROBOTIC ASSEMBLY



ROBOTIC FRAMING



ROBOTIC SHEATHING



ROBOTIC GLUING



ROBOTIC INSULATION

ZEROLABOR
ROBOTIC SUB-ASSEMBLY

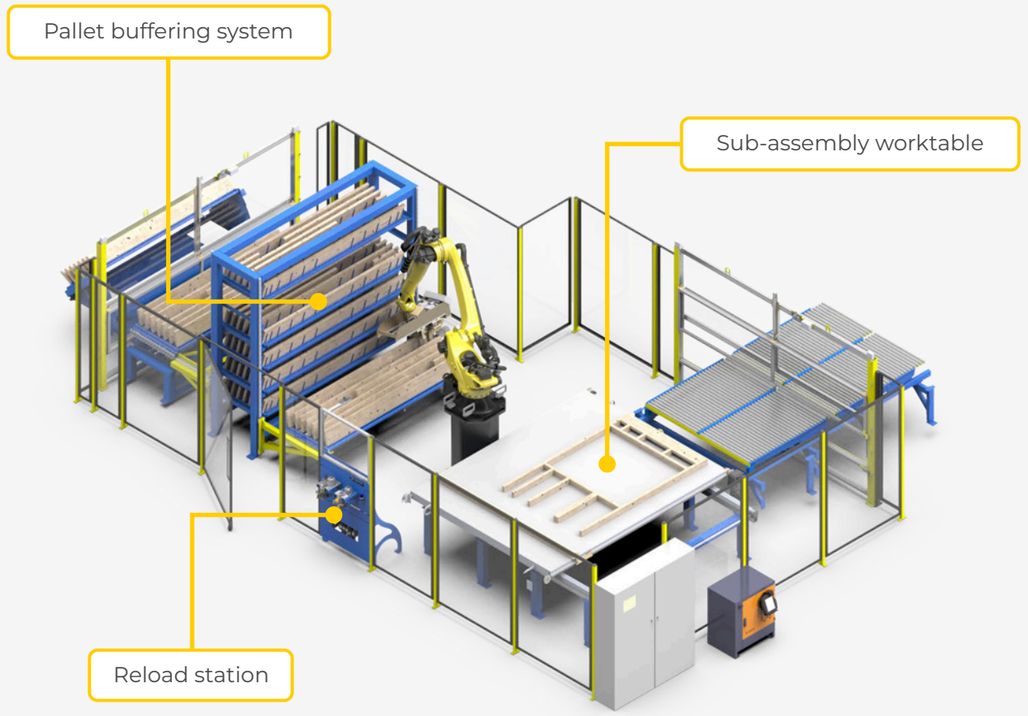
Automated subcomponent assembly

The system is designed to automatically manufacture and assemble complex subcomponents, such as rough openings for doors and windows and multi-studs, in timber wall elements.

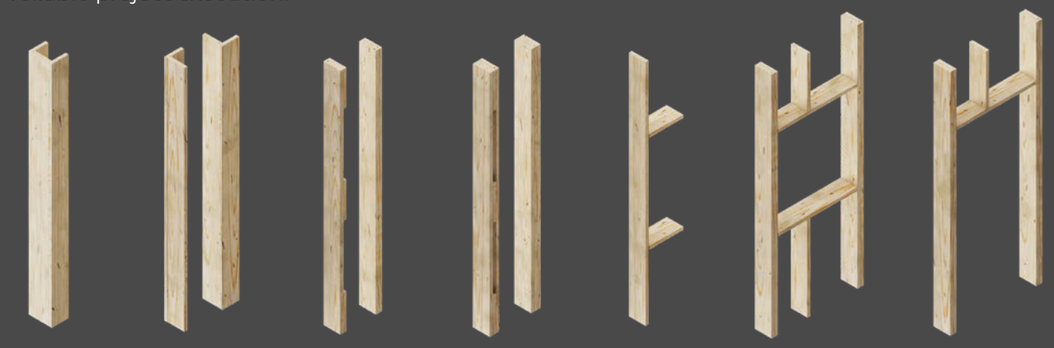
It is a versatile solution that can function as a standalone system or be integrated into larger-scale, high-precision production lines. It boosts productivity and efficiency, maintains consistent quality, and reduces health and safety risks in factory environments.



Whether operating independently or fully integrated into large-scale production lines, the ZeroLabor Robotic Sub-Assembly workflow can be planned in Randek Planner. Additionally, **MyRandek** enables efficient monitoring, tracking and analysis of key production statistics.



Our robotic solution supports a wide range of standardized building techniques, tailored to construction standards around the world, so it adapts to local requirements for efficient and reliable project execution.



ZEROLABOR
ROBOTIC FRAMING

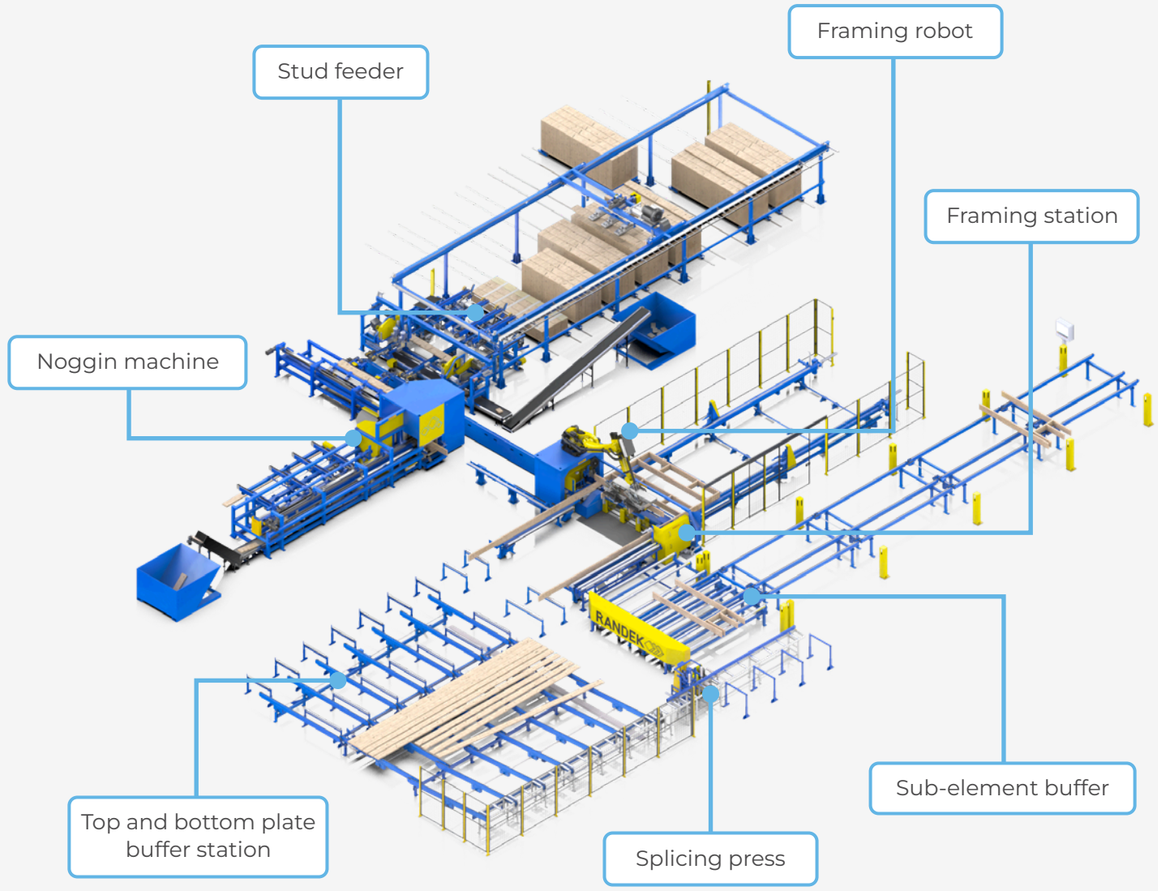
Ensuring frame accuracy

ZeroLabor Robotic Framing provides robotic solutions for the operator's workspace in the production of framing, facilitating the lifting and placement of different studs.

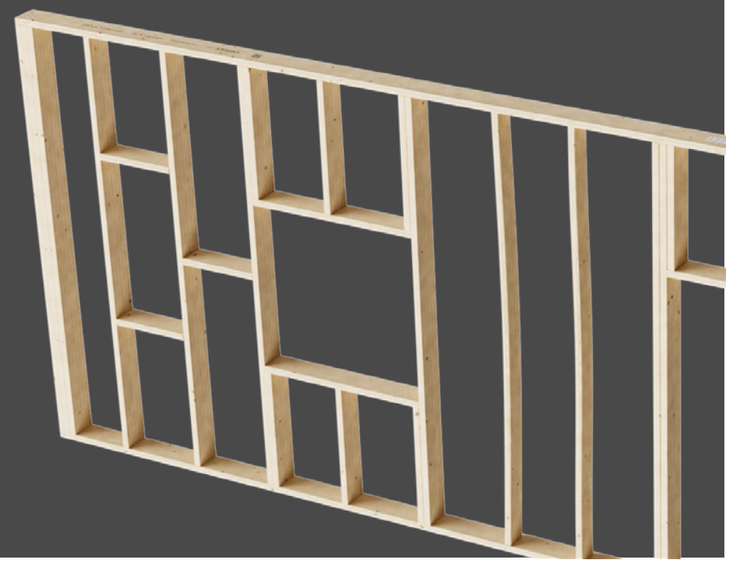
The product is modified and adapted to meet the specific requirements of different markets worldwide.



The stud feeder precisely cuts noggins to the required length and the robot secures them in place, adjusting for stud thickness variations to ensure accurate element dimensions.



Cut and place the noggin, centrally or two pieces evenly spaced.



ZEROLABOR
ROBOTIC SHEATHING

Automates various tasks with ease

Whether producing walls, floors or roof elements, ZeroLabor Robotic Sheathing offers speed and enhanced capabilities.

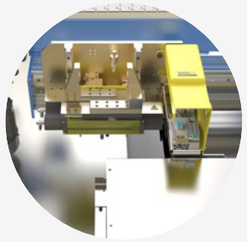
Choose from a configuration of two to five robots.



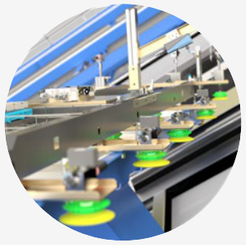
Handles the following processes

The system can sheathe the building element with multiple layers. Recycle bins can separate materials, e.g. OSB and plasterboard in different bins. Also next bigger sheet function, robotic saw tool, separated sheet handling, automatic tool changing on the router, and advanced tongue-and-groove capability.

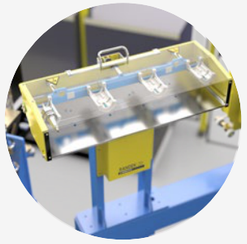
TOOLS



STUD CORRECTOR



SHEET HANDLING



TOOL CHANGER



SAW TOOL



MILLING TOOL



STAPLE GUN



SCREW GUN



NAIL GUN



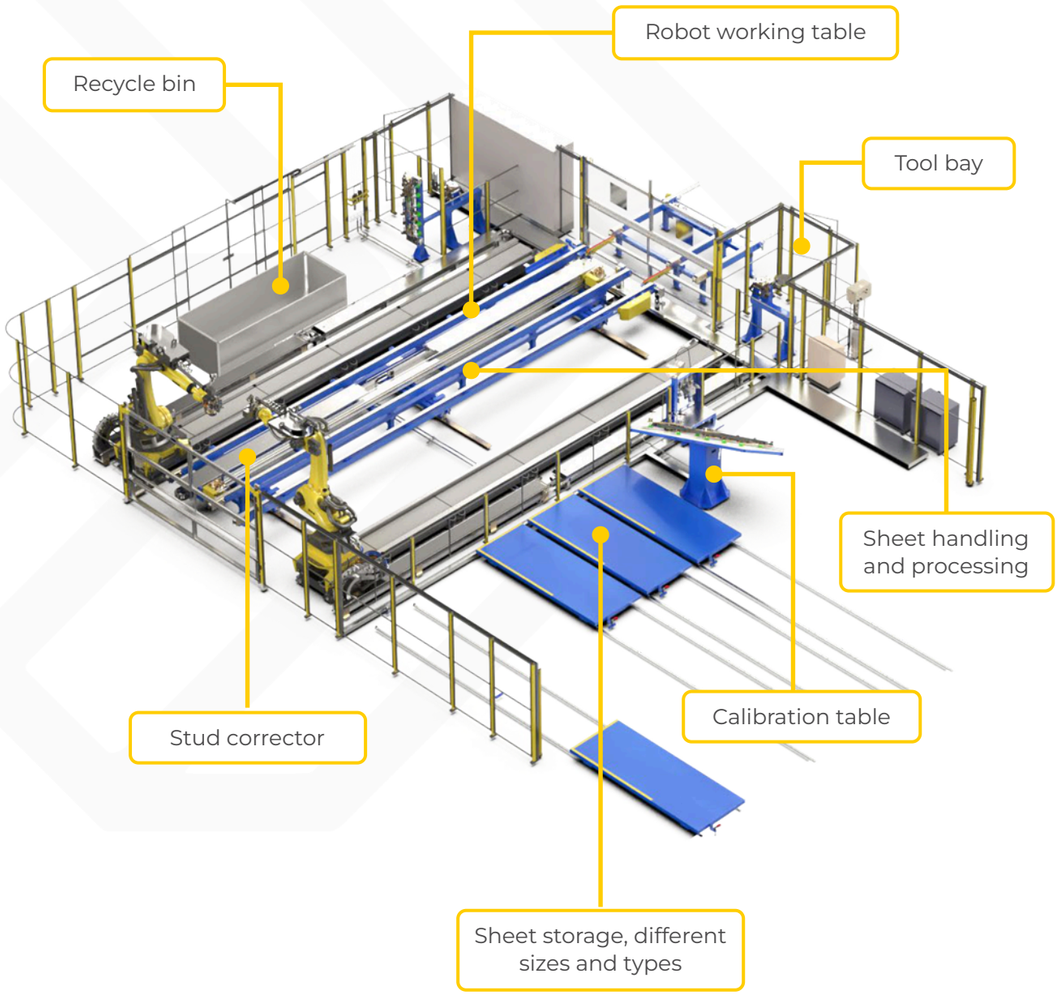
The standard ZeroLabor Robotic Sheathing is the original workhorse for offsite factory-manufactured elements

With an array of tools and great flexibility, it keeps the robots busy handling tough tasks such as sheet laying, fastening and formatting. Once the frame enters the cell, our advanced robot working table squares and corrects the incoming studs for the robots to work effectively.

ZEROLABOR R2
ROBOTIC SHEATHING

Our workhorse, ZeroLabor R2, is a compact and versatile configuration designed to automate your production processes. It integrates into larger production systems, features tongue-and-groove assembly and provides ample space for different sizes and types of sheets.

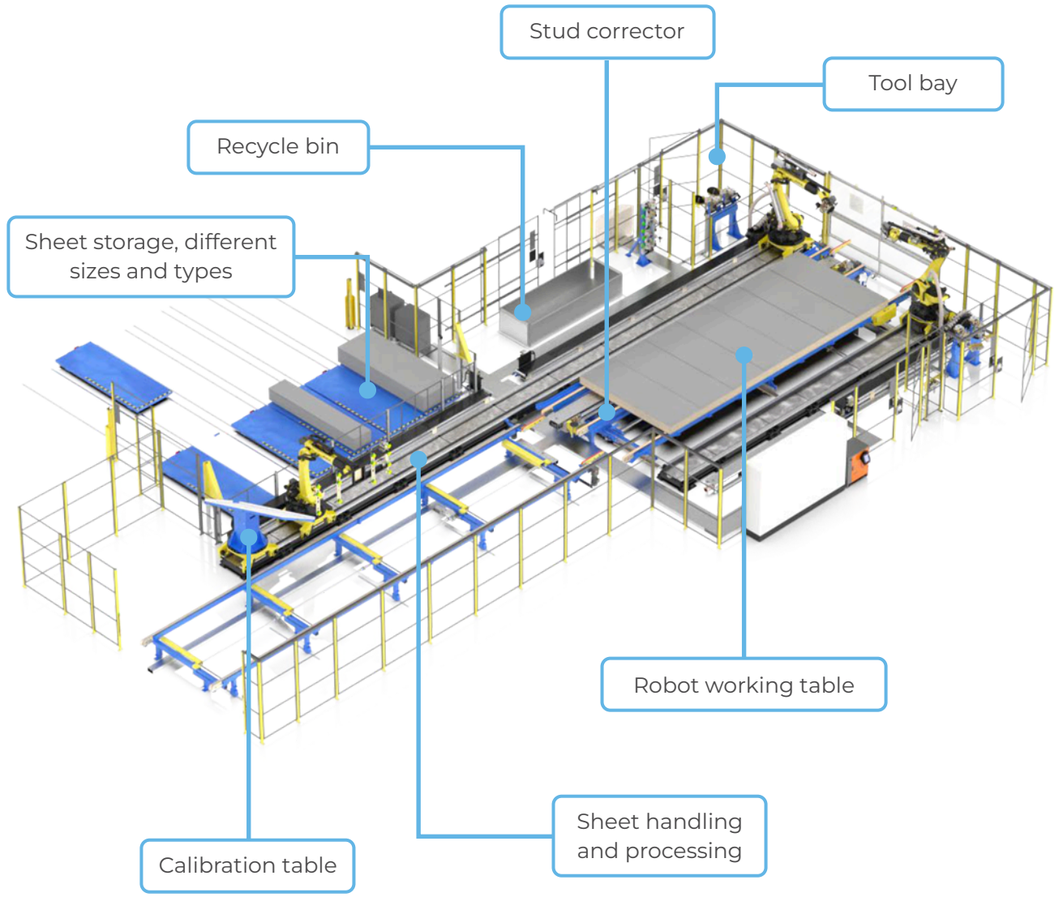
Tools:
Sheathing, sawing, milling, screwing, stapling



ZEROLABOR R3
ROBOTIC SHEATHING

In ZeroLabor R3 one more robot is added, offering even greater capacity with a streamlined tongue-and-groove capability. With this option the sheet storage capacity is also extended.

Tools:
Sheathing, sawing, milling, screwing, stapling



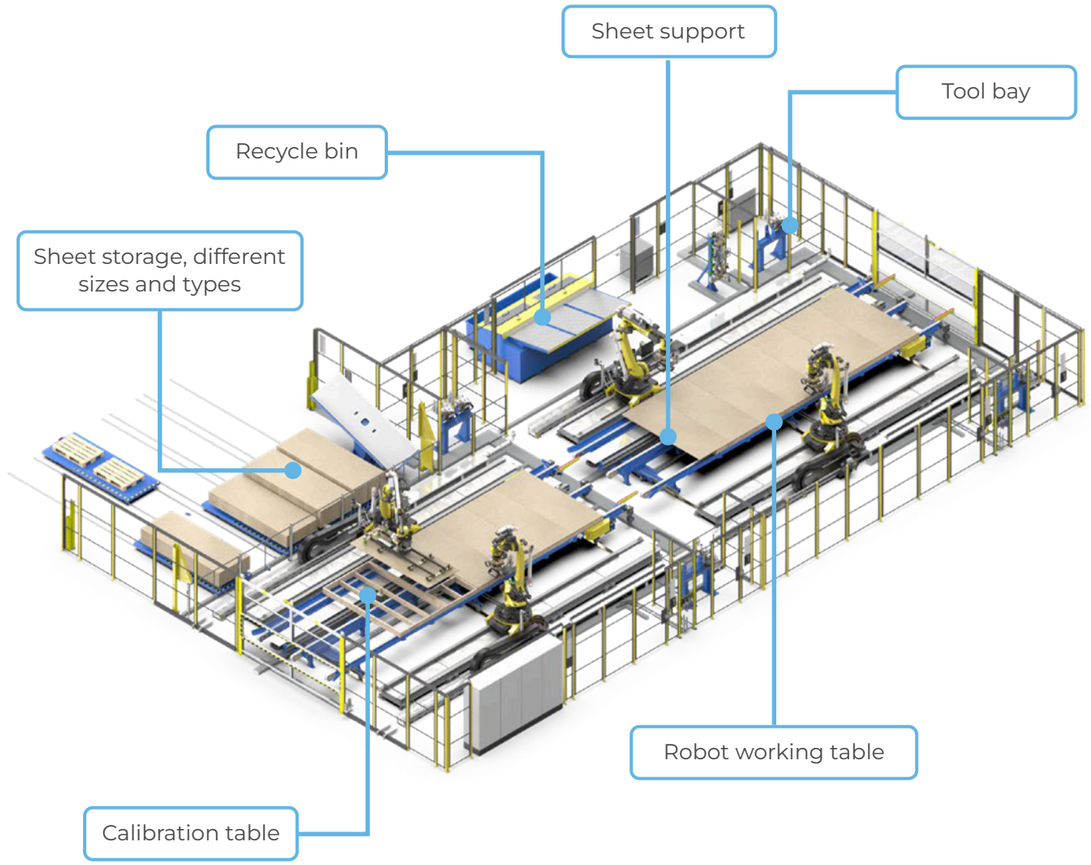
ZEROLABOR R4
ROBOTIC SHEATHING AND PROCESSING

Tools:
Sheathing, sawing, milling, screwing, stapling

ZeroLabor R4 introduces a significant capacity increase for single-layer production while retaining all the features of our versatile ZeroLabor base systems. It is designed to fully automate your production processes, including sheathing, fastening and CNC removal of recyclable materials.

The system integrates into larger production setups and features tongue-and-groove assembly. It provides ample space to accommodate various sizes and types of sheets.

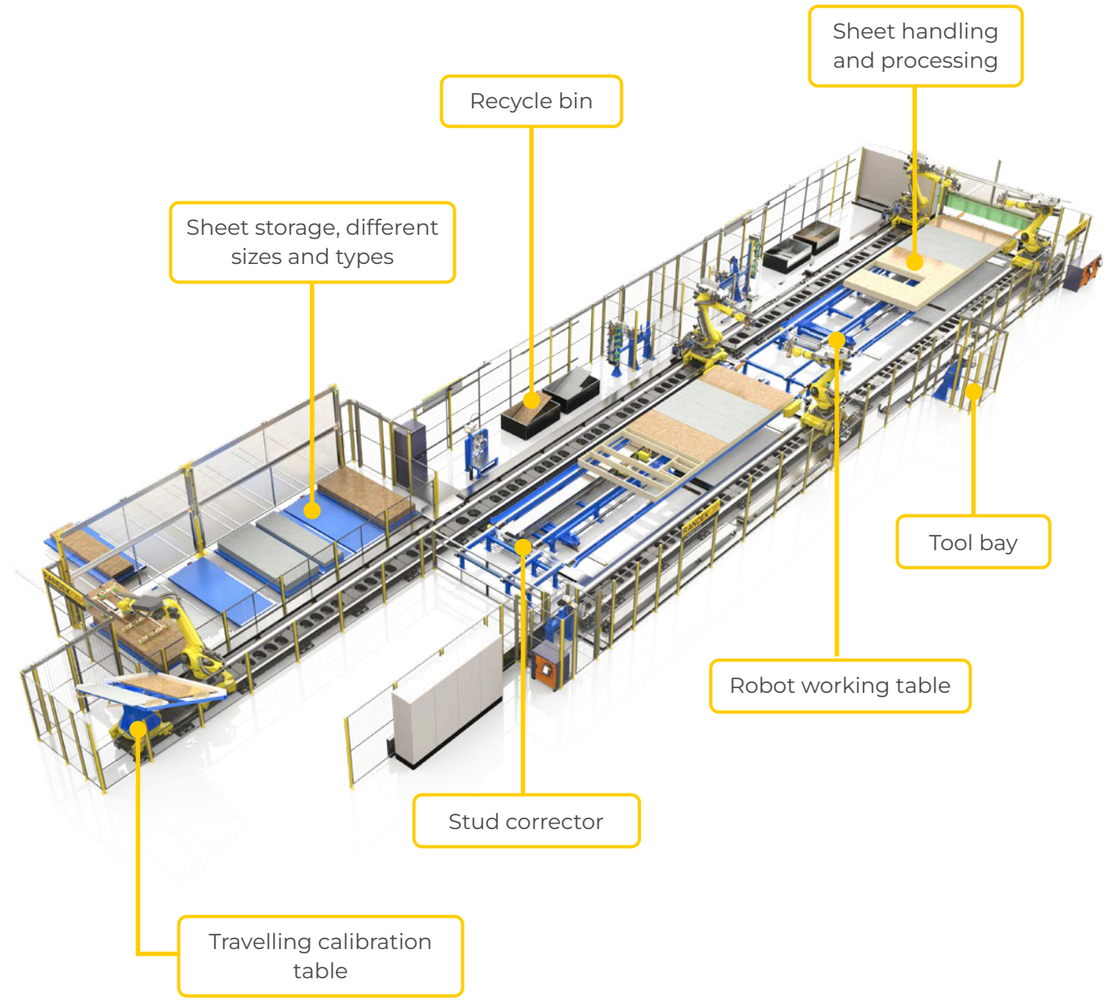
In ZeroLabor R4, two additional robots and a second workstation are added, offering even greater production capacity.



ZEROLABOR R5
ROBOTIC SHEATHING

ZeroLabor R5 has five robots across two workstations. To further increase your production, the two workstations divide and distribute the work processes, accelerating the pace of work and efficiently sheathing multiple layers.

Tools:
Sheathing, sawing, milling, screwing, stapling



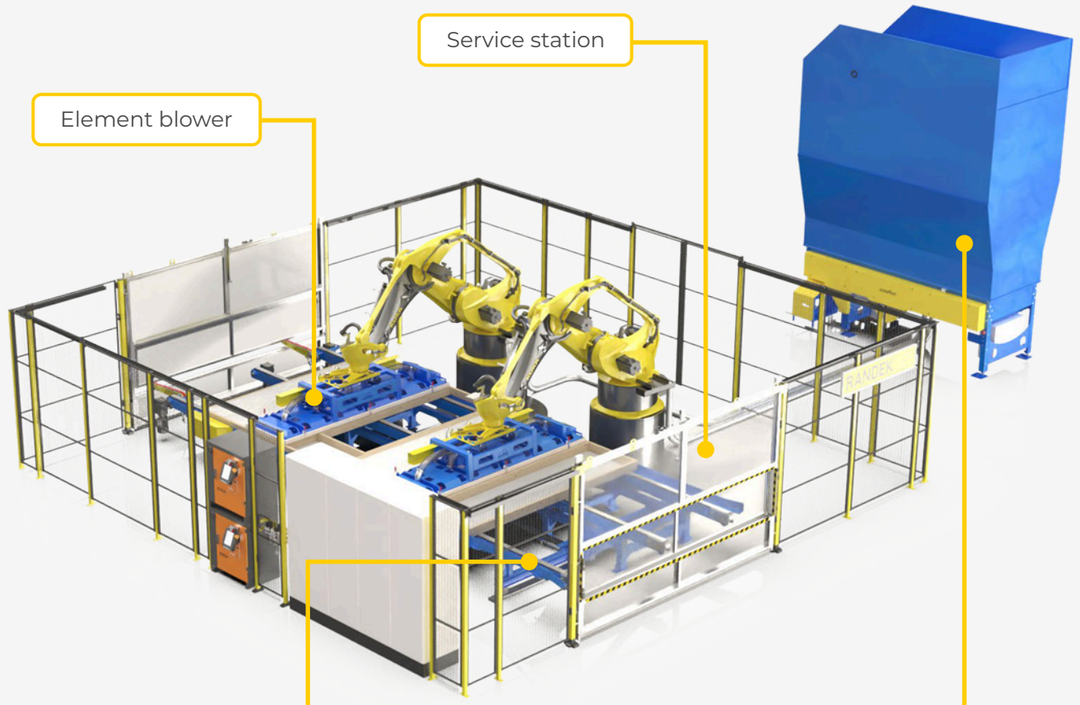
ZEROLABOR
ROBOTIC INSULATION

Application equipment

Our fully automatic ZeroLabor Robotic Insulation lets you increase the efficiency and quality of your insulation process. It becomes more cost-effective and removes the repetitive and strenuous job of fitting the insulation by hand.



Off-element service position

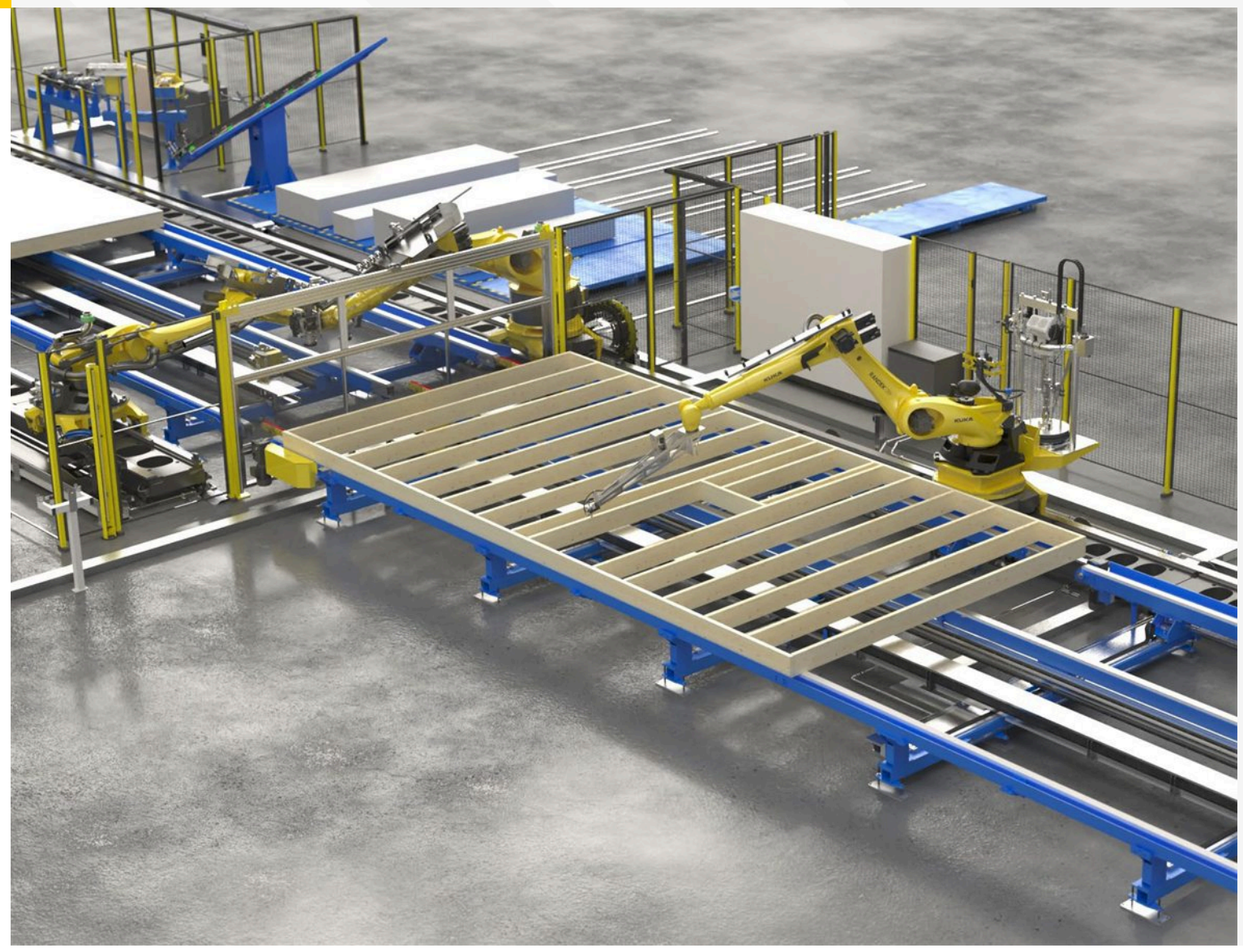


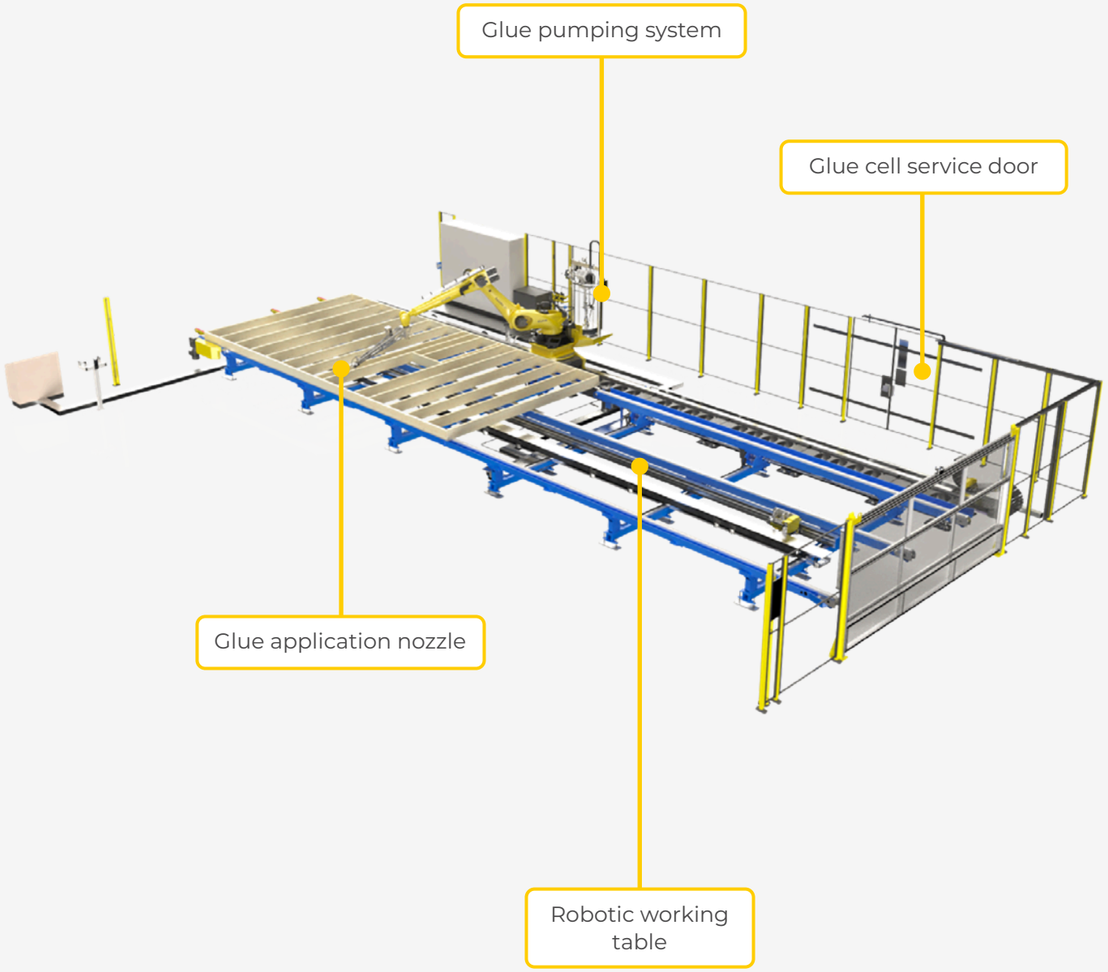
ZEROLABOR
ROBOTIC GLUING

Application equipment

ZeroLabor Robotic Gluing reads CAD data and applies the selected type of glue smoothly, so you can optimize glue quality and quantity.

It significantly reduces health and safety risks in the working environment. The cell is placed in front of a sheathing process, ensuring an optimal workflow.



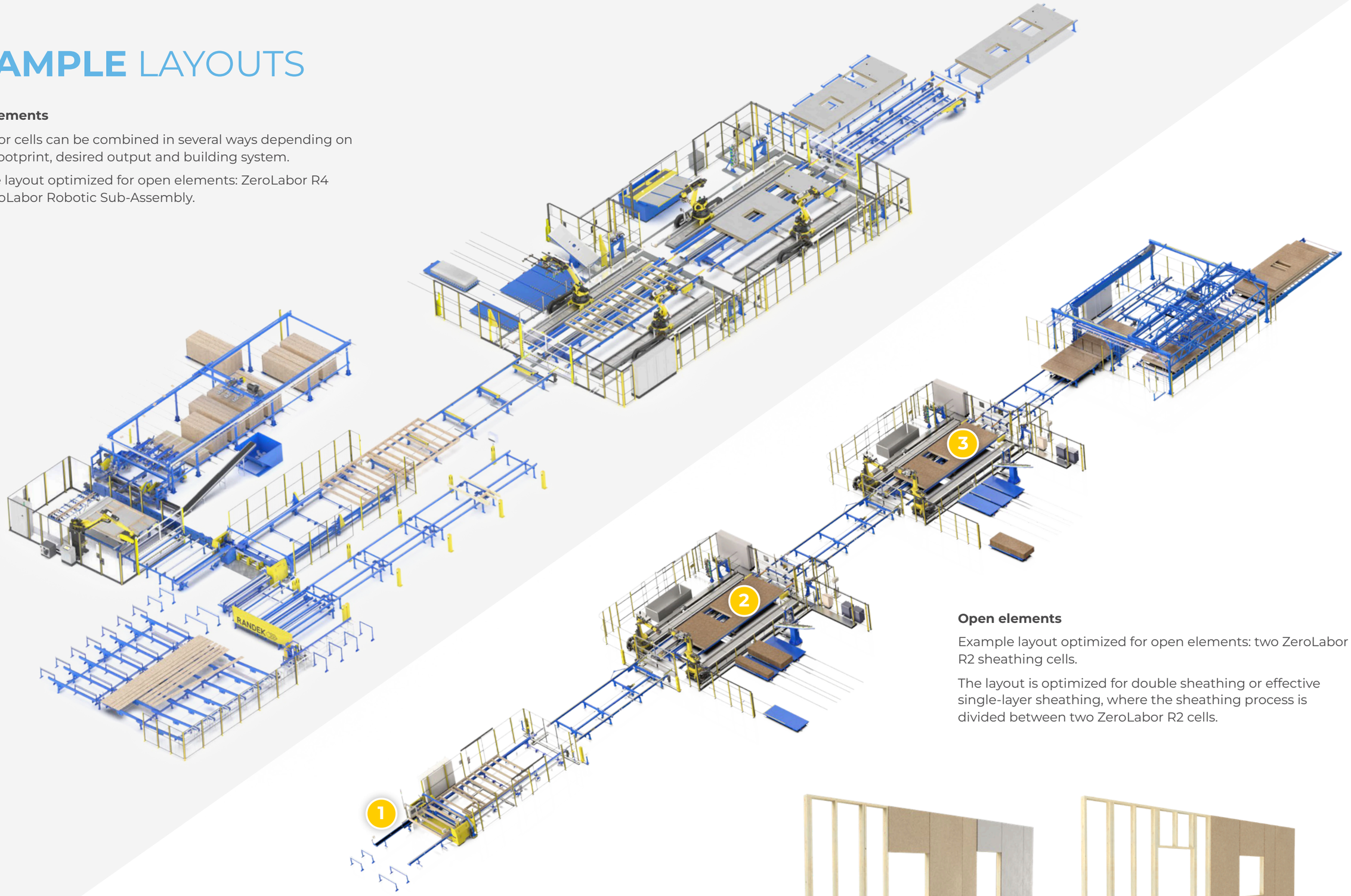


EXAMPLE LAYOUTS

Open elements

ZeroLabor cells can be combined in several ways depending on factory footprint, desired output and building system.

Example layout optimized for open elements: ZeroLabor R4 with ZeroLabor Robotic Sub-Assembly.



Open elements

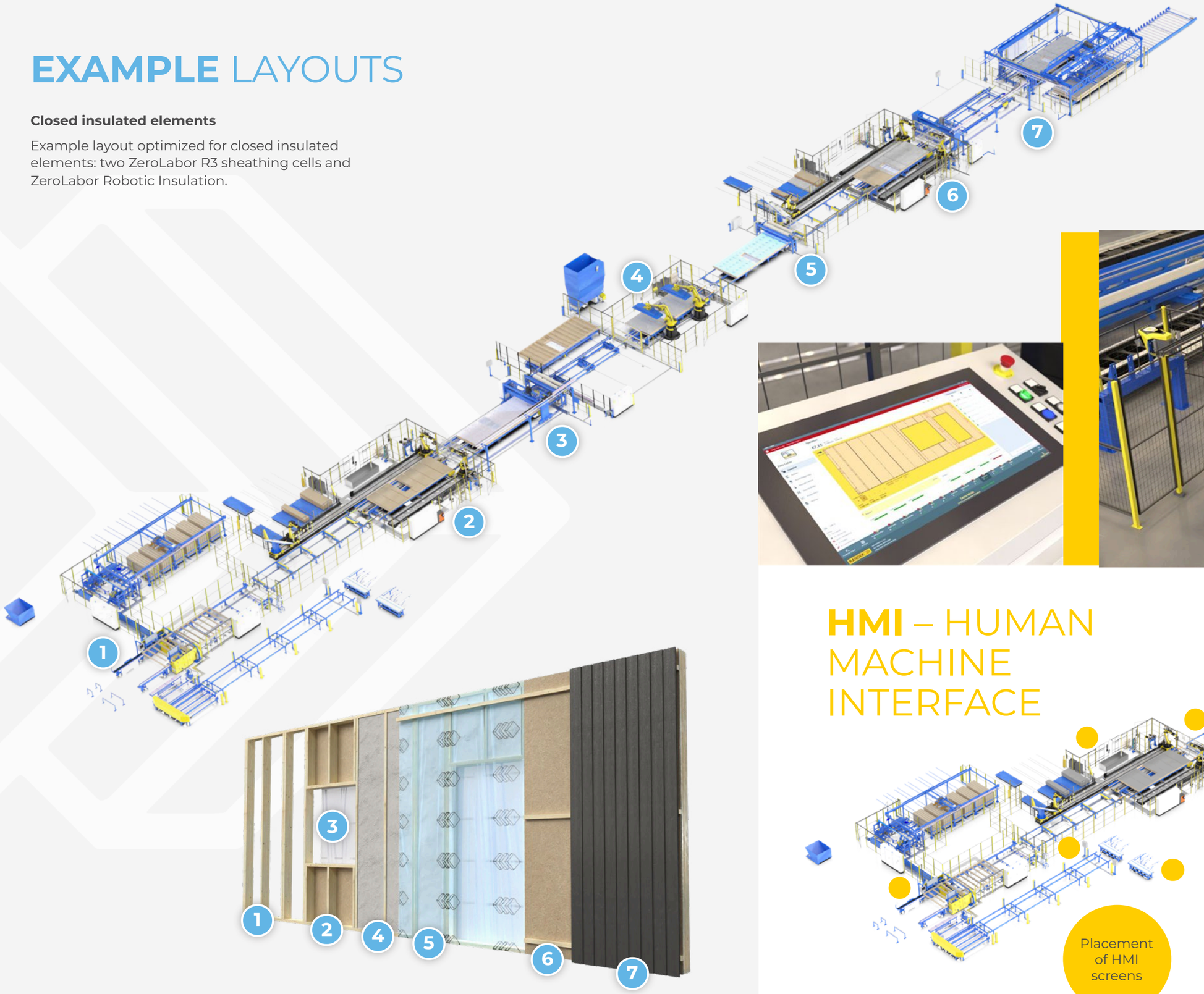
Example layout optimized for open elements: two ZeroLabor R2 sheathing cells.

The layout is optimized for double sheathing or effective single-layer sheathing, where the sheathing process is divided between two ZeroLabor R2 cells.

EXAMPLE LAYOUTS

Closed insulated elements

Example layout optimized for closed insulated elements: two ZeroLabor R3 sheathing cells and ZeroLabor Robotic Insulation.





HMI – HUMAN MACHINE INTERFACE

Placement of HMI screens

Randek's software development department takes a holistic approach to the process flow in the assembly line, from PLC and robot programming to HMI and beyond. This includes production planning and integration with leading CAD vendors, ensuring a high level of automation in data management from the design office to the factory floor.



ZEROLABOR
LIGHT GAUGE STEEL

LGS wall frame sheathing

ZeroLabor sheathes light gauge steel frames the same way as timber: the steel frame is clamped like a timber frame, and the tools follow the material. It provides the same benefits of quality, precision, high output and flexibility.



BRITISH OFFSITE

ZEROLABOR ROBOTIC SHEATHING OF LGS FRAMES. TWO R3 AND ROBOTIC INSULATION. CLOSED ELEMENTS.



British Offsite, United Kingdom: light gauge steel (LGS) panel assembly on a Randek line.

After assessing four systems integrators, British Offsite chose Randek to co-develop a light gauge steel panel line for high-volume production, with capacity for 5,000–6,000 units a year across its factories.

“Together with Randek, we’ve created one of the most automated light gauge steel panel assembly lines in Europe – and one of the largest single production lines in the UK.”

Shaun Weston
Managing Director, British Offsite

“Working together they have quadrupled our production capacity to 10,000 lm – the equivalent of 6,000 homes per year.”

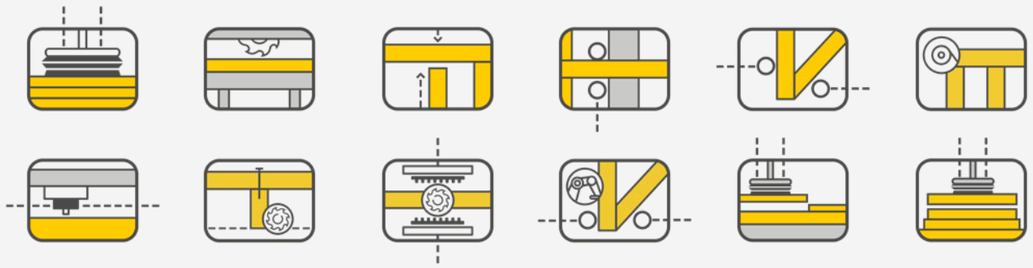
British Offsite

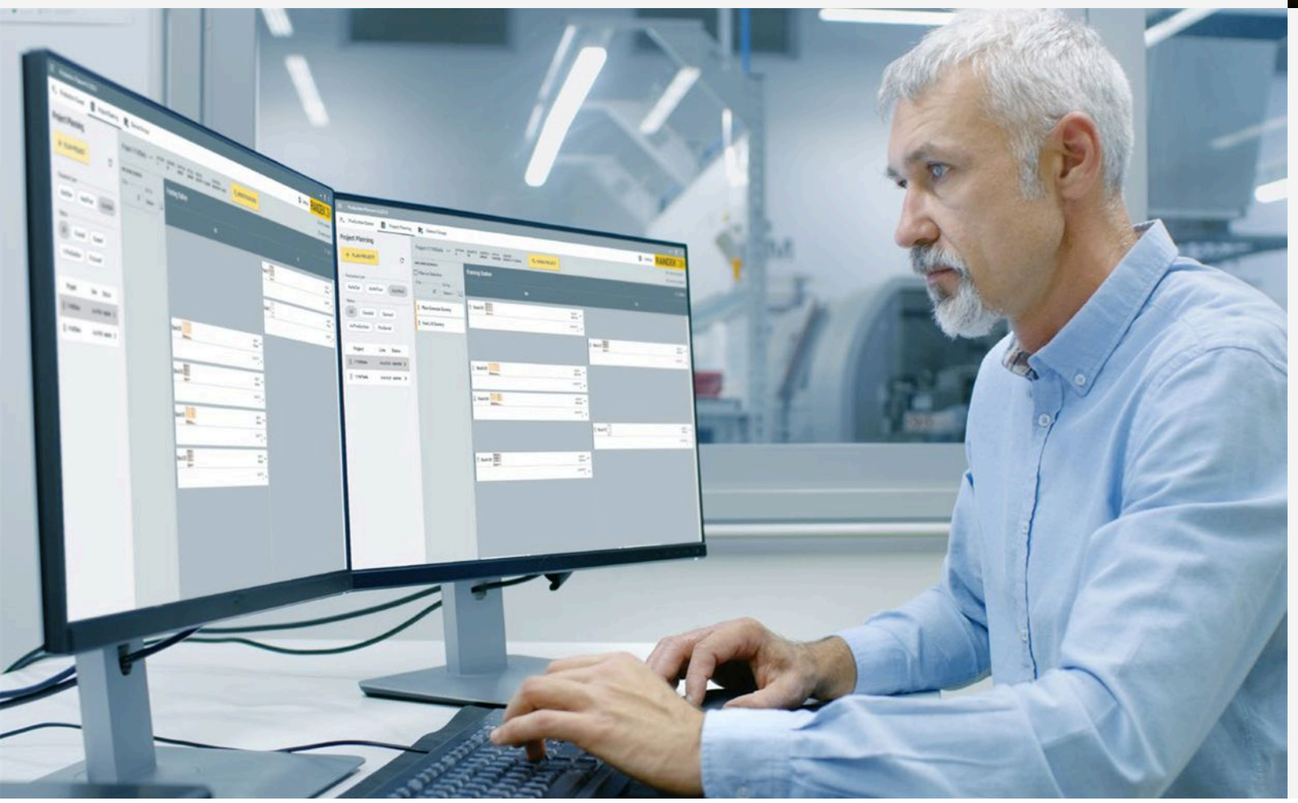
RANDEK PLANNER

Production planning is an important function for all manufacturers, but it varies between companies.

Randek offers easy-to-use planning software for businesses that want to manage their production planning more effectively.

Randek Planner bridges the gap between leading CAD vendors and the production line. Furthermore, Randek API lets ERP or SCADA systems control the planning process via API calls.



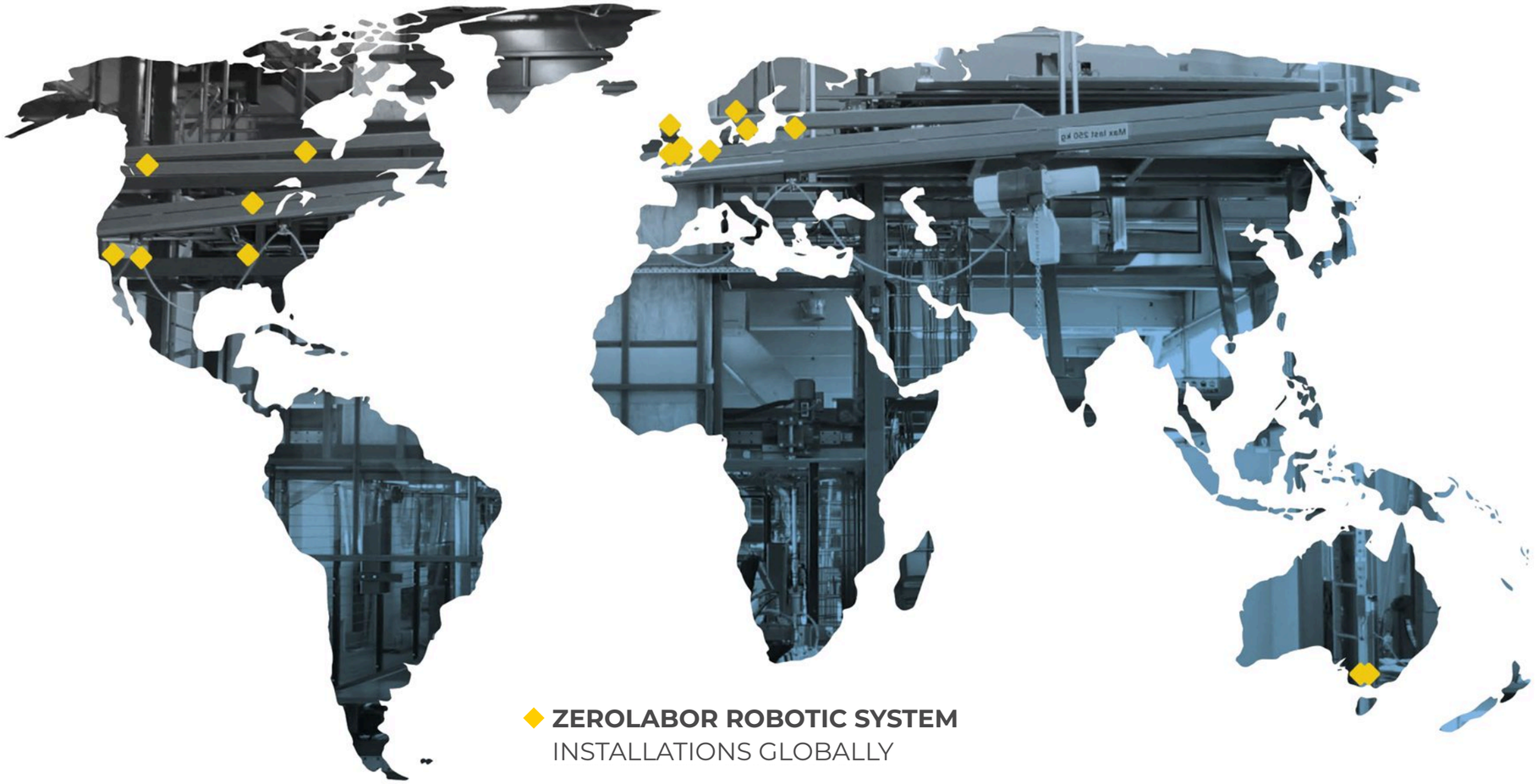




MYRANDEK ADVANCED IIOT PLATFORM

MyRandek, delivered with every Randek system, is a comprehensive Industrial IoT (IIoT) platform for real-time monitoring and KPI tracking. It reads data straight from the machines: live output, stops and losses, and colour-coded timelines that make bottlenecks obvious. **MyRandek** enhances efficiency and productivity.

CUSTOMER COMMENTS



ZEROLABOR ROBOTIC SYSTEM
INSTALLATIONS GLOBALLY

Arcabo, AutoWall Mixed Panels with ZeroLabor R2 and robotic insulation

Arcabo is one of Europe's largest makers of winter-proof modular chalets, with over twenty-five years of expertise.

Arcabo has long used Randek equipment and invested in AutoWall with a ZeroLabor R2. The robotic system is integrated into a wall production line, and several new functions were developed during the project. The robots handle sheets, perform cutouts, remove and sort waste, and handle nailing, screwing and stapling. All automated operations are based on CAD drawings.

"The ZeroLabor Robotic System is the most automated robotic system on the market for the production of wall elements, the system will be a great asset for us in order to increase our growth and profit!"

Rijk Houthuijzen, Managing Director, Arcabo



Kodumaja, AutoWall with ZeroLabor robotic sheathing, exterior walls

Kodumaja mainly builds multi-storey apartment buildings. They specialize in the construction of high-quality timber frame housing, with an effective and future-oriented construction method that conforms to the construction requirements and standards of their strategic markets.

"Before we needed to have many quality checks in production, to eliminate human errors. The ZeroLabor Robotic System is highly automated, we can remove manual operations and quality checks which will increase our productivity dramatically. In general, it is difficult to find workers in the labor market, we need to hire people outside Estonia which is demanding. To have workers not speaking the same language is also challenging. We also struggled with the cost of introduction and training which is a significant cost to consider. We also like the fact that the system is future-proof as tools and functions can be added in the future if needed. The system is flexible if we would change the building system"

Marti Mets, CEO Kodumaja Element OÜ



BoKlok, AutoWall with ZeroLabor robotic sheathing

BoKlok, jointly owned by IKEA and Skanska, chose Randek as a supplier to their modular factory.

Randek delivered a highly automated robotic wall production line for exterior and interior walls. The ZeroLabor concept was further developed to increase the overall capacity and intelligence of the system.

"Randek is an important supplier for us. Our new production line will enable us to double the production rate and we will be able to produce our new multifamily type of houses faster."

Sacha Pardon, Press Officer, BoKlok

SWEDISH QUALITY LASTS

Randek has developed automation for the prefabricated house manufacturing industry since 1943. Today Randek supplies high-performance machines, robotic solutions and complete production lines to house manufacturers in 40 countries on four continents.

PRODUCTS/SYSTEM



SP720 SERIES CUT SAWS

Sturdy, reliable cut saws for house and roof truss manufacturers, with computer-controlled length stops.



WALL, FLOOR AND ROOF LINES

Tailor-made systems for prefabricated walls, floors and roofs. From manual to fully automated.



ROBOTIC SYSTEMS

Randek Robotics develops the ZeroLabor Robotic System: robot cells for sheathing, sub-assembly and insulation.



ROOF TRUSS SYSTEMS

Randek Truss System NT for traditional truss production and the AutoEye System for automated pressing.



BUTTERFLY TABLES

Wall-turning tables, a Randek invention from 1963. From a single manual table to a full line.

RANDEK SERVICES



RANDEK PRE-STUDY



MAINTENANCE



GLOBAL SUPPORT



MYRANDEK

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