



RIB

MES

Use Case

The key to automated prefabrication



Enhancing Prefabrication Efficiency with RIB MES

1. Challenge

A precast manufacturing company is on a mission to optimize their operations and enhance efficiency by integrating a Manufacturing Execution System (MES), also known as a master computer. This use case outlines the essential stages and advantages of employing the MES within various aspects of the precast manufacturing process, focusing on the improvements in production planning and general shop floor management.

2. The Smart Production Solution:

Introducing RIB MES for Prefabrication: In response to their challenge, the Prefab Plant implements RIB MES to optimize their prefabrication manufacturing. The solution encompassed the following steps:

Installation and Customization:

The expert team from RIB installed and tailored the MES system to perfectly align with the Prefab Plant's unique requirements.

Integration with Manufacturing

RIB MES seamlessly integrated into the existing manufacturing processes, offering real-time monitoring and control for enhanced operational performance.

Testing and Optimization

The RIB MES underwent rigorous testing and fine-tuning to ensure it operated flawlessly, guaranteeing smooth functionality.



3. Technology Details:

(BIM) Data Management:

The MES allows the import and verification of model data, ensuring data integrity before commencing production. The system validates and prepares the BIM data, providing a solid foundation for subsequent manufacturing steps.

Production Planning:

The MES utilizes an algorithm to plan the production of concrete elements from multiple projects on the long beds or tables, determining where and when each element will be produced.

The system optimizes the allocation of resources, ensuring efficient utilization of the available space and equipment.

Work Preparation:

Each work station is equipped with a smart station, a touch screen display that receives instructions and information from the MES. The smart station provides workers at each work station with detailed instructions and relevant data, ensuring accurate and streamlined execution of tasks..

Formwork:

Workers at the designated work station follow the instructions provided on the smart station to mount the formwork accurately. The MES coordinates the sequence and timing of formwork installation based on the production plan.

Embed Mounting:

Workers at the designated work station follow the instructions displayed on the smart station to mount the necessary embeds. The MES ensures the correct placement of embeds at each work station. Quality manager uses the QM module to make sure that the placement is correct and also a picture can be taken and archived in the system.

Reinforcement:

The MES provides workers or robots at the designated work station with the necessary dimensions and placement information for steel reinforcement.

This guidance ensures the correct dimensions and placement of reinforcement, enhancing structural integrity and quality.

Tracking:

The MES issues a unique ID/barcode for each finished element, enabling efficient tracking and status feedback. This enhances traceability, simplifies logistics, and streamlines the retrieval of specific elements when needed.

MES Analytics - Business Intelligence:

Improved decision making, by providing accurate, relevant and timely information. Flexible Dashboard creation to analyze and improve your production key indicators.



4. Benefits and Outcomes

Implementing RIB MES generated a host of benefits for the Prefab Plant:

Improved Efficiency

Streamlined processes and real-time monitoring translated to heightened efficiency and productivity.

Reduced Costs

Automation of manual tasks and early identification of inefficiencies resulted in cost reductions and optimized resource utilization.

Enhanced Quality Control

Real-time monitoring and analysis empowered the Prefab Plant to uphold rigorous quality standards.

Increased Customer Satisfaction

With expedited construction timelines and superior quality, customers experienced unparalleled satisfaction

5. Conclusion

By adopting RIB MES, the Prefab Plant achieved a significant transformation in their prefabrication processes. The technology's real-time monitoring and automation capabilities positioned them as industry leaders, setting new standards for efficiency, cost-effectiveness, and quality control in modern construction.



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