

TECHmission

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Reference Case: Success Story

Mold Matching System Tyre Industry

("Smart Curing. Superior Uniformity. Enhanced Productivity")

Preface:

The Mold Matching Project automates tyre curing by analyzing RFV/LFV uniformity values and intelligently selecting the optimal curing angle. Through seamless integration of the Building Machine, Uniformity Inspection System, and Curing Machine, the solution enhances tyre quality, reduces defects, and improves manufacturing efficiency.



The Challenge:

In the tyre manufacturing process, selecting the correct curing angle is critical to achieving the desired tyre uniformity and minimizing defects. Traditionally, curing angle selection depended on manual processes and operator expertise, leading to inconsistencies in product quality

Key Problems:

- Manual curing angle selection
- High RFV/LFV variation
- Increased tyre rejection and rework
- Limited production traceability
- Time-consuming data analysis
- Lack of centralized monitoring

Our Solution:



BACKGROUND:

The **Mold Matching System** is an intelligent automation solution that optimizes the tyre curing process by automatically determining the optimum curing angle based on **Radial Force Variation (RFV)** and **Lateral Force Variation (LFV)** values.

The solution integrates the **Building Machine**, **Uniformity Inspection System**, and **Curing Machine** through a centralized **Mold Matching Server**, enabling seamless data exchange and real-time decision-making. Based on tyre uniformity measurements, the system calculates and transmits the appropriate curing angle to the curing machine, eliminating



SOLUTION:

Developed a centralized **Mold Matching System** that integrates the **Building Machine**, **Uniformity Inspection System**, and **Curing Machine**. The solution automatically analyzes **RFV/LFV** values, determines the optimal curing angle, and transmits it to the curing machine in real time, ensuring accurate mold matching and consistent tyre quality.



OUTCOME:

Enabled intelligent, data-driven tyre curing by automating mold matching and cure angle selection. The solution improved tyre uniformity, reduced production defects, minimized manual intervention, enhanced traceability, and increased overall manufacturing efficiency.

- ✓ Improved Tyre Uniformity
- ✓ Reduced Production Defects
- ✓ Enhanced Process Consistency
- ✓ Faster Decision-Making
- ✓ Complete Production Traceability
- ✓ Increased Manufacturing Efficiency

Angle Parameter

Sample Setting Parameter

Default Angle Setting

Offset Angle Setting

Manual Angle

Angle Send

Level Calculation Result

Spotting Management

Sampling Type List

History

Uniformity Result

Uniformity Summary

Not in Building table

Out Summary

Other Setting

Parameter Setting

Running Status

Exit Program

4:15:23 PM

Angle Sending History List

Size Barcode: Building:

Cur Mc: Period: 12/12/2024 4:15:03 PM To: 12/12/2024 4:15:03 PM

Size Barcode	Curing M/C	Building M/C	Curing Date	Cure Angle	Angle type	Angle Date	Sample Kind
4309.F1	C607L	E2	12/12/2024 12:08:26	0	Default	12/11/2024	Level
4309.DE	C607L	E2	12/12/2024 12:24:26	0	Default	12/12/2024	Level
4309.F7	C607L	E2	12/12/2024 12:40:25	0	Default	12/12/2024	Level
4309.D9	C607L	E2	12/12/2024 12:56:24	0	Default	12/12/2024	Level
4309.DF	C607L	E2	12/12/2024 1:12:23 AM	0	Default	12/12/2024	Level
4309.DB	C607L	E2	12/12/2024 1:26:56 AM	0	Default	12/12/2024	Level
4309.DA	C607L	E2	12/12/2024 1:59:39 AM	0	Default	12/12/2024	Level
4309.DH	C607L	E2	12/12/2024 2:06:46 AM	0	Default	12/12/2024	Level
4309.DC	C607L	E2	12/12/2024 2:22:44 AM	0	Default	12/12/2024	Level
4309.DI	C607L	E2	12/12/2024 2:44:29 AM	0	Default	12/12/2024	Level
4309.DJ	C607L	E2	12/12/2024 3:00:30 AM	0	Default	12/12/2024	Level
4309.DG	C607L	E2	12/12/2024 3:16:29 AM	0	Default	12/12/2024	Level
4309.DO	C607L	E2	12/12/2024 3:32:29 AM	0	Default	12/12/2024	Level
4309.FG	C607L	E2	12/12/2024 3:48:28 AM	0	Default	12/12/2024	Level
4309.FA	C607L	E2	12/12/2024 4:04:27 AM	0	Default	12/12/2024	Level
4309.FD	C607L	E2	12/12/2024 4:20:51 AM	0	Default	12/12/2024	Level
4309.FI	C607L	E2	12/12/2024 4:36:50 AM	0	Default	12/12/2024	Level
4309.FB	C607L	E2	12/12/2024 4:52:49 AM	0	Default	12/12/2024	Level
4309.FB	C607L	E2	12/12/2024 5:08:48 AM	0	Default	12/12/2024	Level
4309.F9	C607L	E2	12/12/2024 5:24:47 AM	0	Default	12/12/2024	Level
4309.FC	C607L	E2	12/12/2024 5:40:46 AM	0	Default	12/12/2024	Level

Activate Windows
Go to Settings to activate

Angle Parameter

Sample Setting Parameter

Default Angle Setting

Offset Angle Setting

Manual Angle

Running Status

Angle Send

Level Calculation Result

Spotting Management

Sampling Type List

History

Uniformity Result

Uniformity Summary

Not in Building table

Out Summary

Out Summary (New)

Other Parameter

Other Setting

Parameter Setting

User Management

RFV/LFV Specification

Dashboard

Running Status of Curing Machine

1MC 2MC 3MC 4MC 5MC 6MC 7MC 8MC 9MC 10MC 11MC 12MC 13MC 14MC 15MC

C1 Line

C2 Line

C3 Line

C4 Line

C5 Line

C6 Line

C7 Line

☐ No Matching Machine
 ☐ Manual Mode
 ☐ Best Angle
 ☐ Not Running
 ☐ Sampling
 ☐ Collection

Activate Windows
Go to Settings to activate

