

Another Au2mate case

ALMARAI AL KHARJ, KSA

Almarai new production plant in Al Kharj, Saudi Arabia

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Almarai has identified OEE (Overall Equipment Effectiveness) measurement and ERP integration as a strategic focus area for increasing the productivity at the Almarai production sites. Au2mate has in connection with a new Almarai production plant in Al Kharj supplied a complete MES solution for the filling & packaging area with integration to SAP and OEE measurement at 8 filling & packaging lines + various supporting processes. The solution includes an advanced barcode scanner solution for pallet identification and data tracking & handling.

THE DAIRY

Almarai is one of the largest integrated dairy food companies in the world with an unrivaled reputation, synonymous with delivering excellence and quality across its entire range of products. Currently operating across the gulf region, Almarai employs over 45,000 employees, servicing more than 100,000 retail outlets.

Almarai began in 1977, based in Riyadh, the capital of the Kingdom of Saudi Arabia. Almarai Company network extends throughout the Arabian Peninsula, leading and influencing the agricultural, dairy processing and food distribution industries.

In 2017 Almarai extends their production capacity with a new dairy production plant located in Al Kharj, Saudi Arabia. The product range includes milk, laban & yoghurt in bottles & cups. The production plant is divided into two areas: The processing area & the filling and packaging area. The processing area handles receiving of milk and production of milk, laban & yoghurt. The packaging area includes 8 filling and packaging lines, cooling tunnels, incubations room, pallet & crate washing lines and a cold store.

BACKGROUND

Almarai required a fully automated control & IT solution with for the new production plant with SAP integration, OEE measurement and full traceability.

The following success criteria & focus points were identified in connection with MES solution for the filling & packaging area:

- SAP integration (receiving released orders from SAP and giving production response back to SAP regarding filled/packed material/ amounts and locations)
- OEE package (Overall Equipment Effectiveness) for monitoring and improvement of line performance.
- Plant/line performance reporting
- Track & trace of produced products

The goal for the project was to reduce line waste and downtime while improving Performance, Availability and Quality. This was to be demonstrated by a 5 % improvement of the line OEE.

**COMPLETE MES & OEE SOLUTION
FOR 8 LINES
+ CRATE & PALLET WASHER!**



SCOPE OF SUPPLY

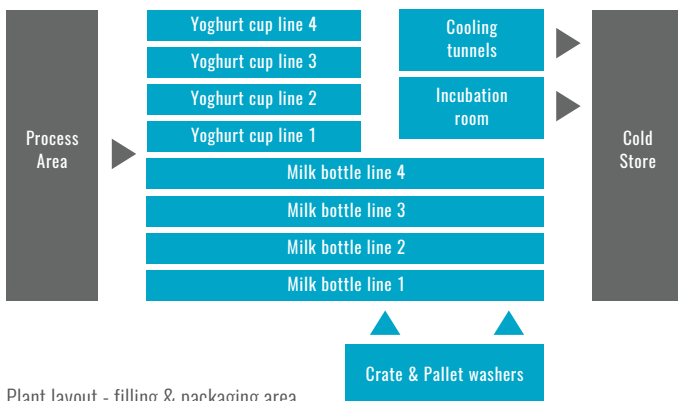
The scope of supply by Au2mate in connection with the MES solution includes among others:

- Project management and coordination with filling line equipment suppliers
- Design and development of Siemens Step 7 application for concentrator PLCs
- Design and development of Wonderware MES & SCADA application
- Design and development of reports in Microsoft reporting services
- Design, supply and installation of control & IT equipment
- Design, supply and installation of network equipment
- Commissioning of MES solution
- Training of Almarai personnel

The contract was signed in June 2016, commissioning started in February 2017 and full production is planned for April 2017.

PROJECT FACTS

- Complete MES & OEE solution for 8 lines + crate & pallet washer
- Integration to SAP (process orders + feedback + maintenance hours/energy consumption)
- Integration to EWM (Finished good)
- Integration to process area/cold store
- Control and execution of work orders
- Extensive reporting (OEE, KPIs, batch and energy etc.)
- Connection to 90 line PLCs
- Barcode readers for track & trace/data storage



Plant layout - filling & packaging area.



TECHNICAL SOLUTION

The installed MES solution for the filling & packaging area is in general based upon:

- MES and SCADA software from Wonderware
- Control equipment from Siemens
- Server equipment from HP
- IT-network equipment from Cisco
- Barcode equipment from Sick

The supplied control and IT equipment includes:

- 13 PLCs
- 21 barcode scanners
- 8 rack servers
- Central network rack and 8 local switch cabinets for network backbone
- 25 operator stations placed in the production area
- 4 large 55" monitors for overview display of OEE data

The MES functionality is based on the following packages from Wonderware:

- System platform as system backbone
- Intouch for user interface
- Performance package for OEE measurement
- Operation package for order handling
- Enterprise Integrator package for integration to SAP & EWM