

Flour Plant

Key Issues:

- Variable product size
- Weight consistency
- Safety
- Gentle treatment of dough
- Recipe control
- Changeover time
- Simple maintenance
- Track & trace

Equipment Used:

- Variable speed drives
- Servo systems
- HMI
- PLC/Motion controller
- Networks – I/O & MES
- RFID/barcode traceability



Create and maintain the correct environment right from the start

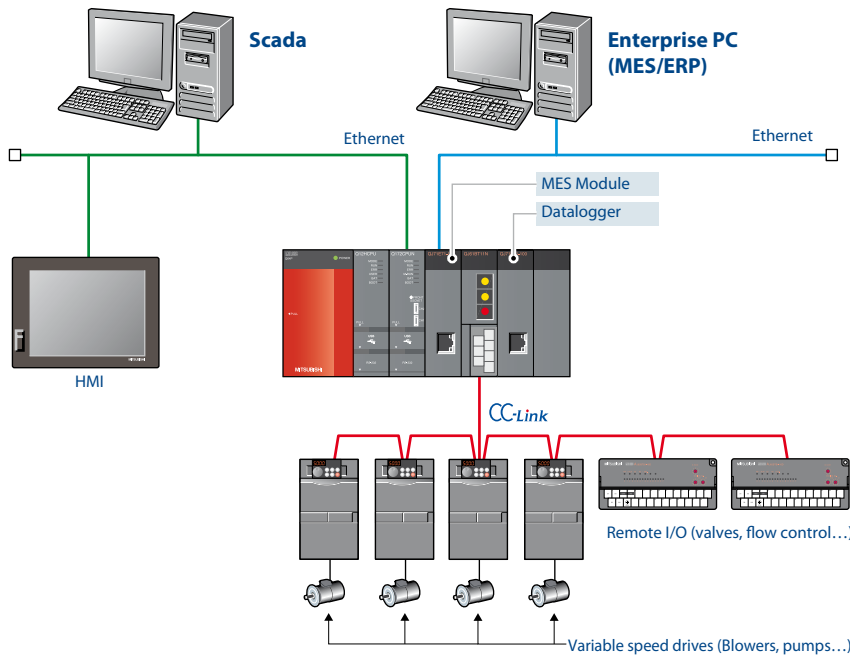
Dough consistency

The baking process begins with the flour plant, it is a critical input into the business. Creating and maintaining the correct environment at this stage of the process ensures consistency of the dough and hence quality of the final product. Accurate batching of the raw ingredients into the mixer stage also maintains consistency and quality from the beginning and leads to improvements in yield.

Process signals are collected from devices such as ultrasonic level sensors, flow meters, bar codes and load cells/weigh scales, which are fed into the control system. Interfacing to these signals is made easy using Mitsubishi's wide range of input and remote networking solutions. Full diagnostic and error detection of the network and signals leads to easy maintenance and accurate secure knowledge of stock levels.

Delivery of the flour into the plant is handled using variable speed drive technology, leading to energy saving and reduced stress on the mechanical components of the plant. Accurate speed control enables precise delivery of the ingredients to the mixer stage.

Inventory control of raw ingredients requires the process to alert when stock levels demand it. Utilising Mitsubishi's non PC based secure IT connectivity technology ensures timely re-ordering and reporting is managed automatically through the control system which links to the inventory management system.



Typical control structure enabling transparency from flour plant to enterprise level

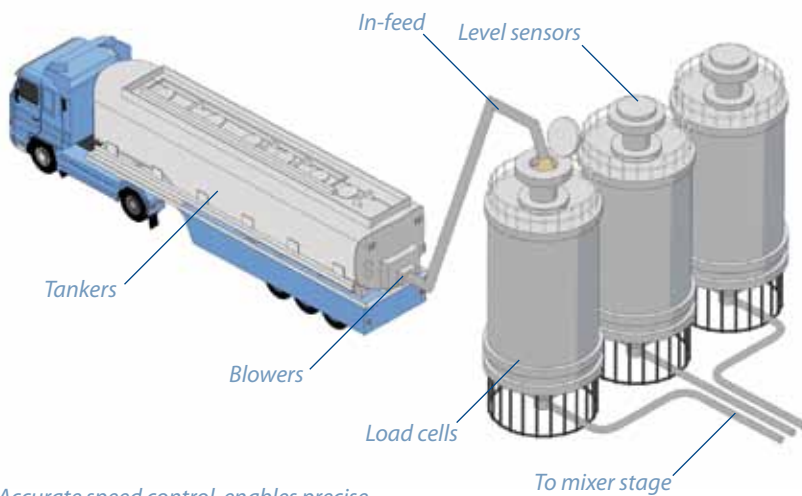


Because control needs to start from the raw materials stage

Meeting regulatory demands

Our IT technology has also enabled bakeries to meet regulatory demands that have forced bakers to produce documented Track and Trace information. Our control systems are able to report this information to higher level systems and give connectivity to ERP and management systems such as SAP™.

Mitsubishi's ERP (Enterprise Resource Planning) tools integrate information from across an entire organisation, including manufacturing, stock levels, sales, etc, with external information. This ensures everybody involved in the business is fully informed of all relevant information, enabling appropriate decision making and ensuring efficiency and productivity.



Accurate speed control enables precise delivery of the ingredients to the mixer stage

Mitsubishi Automation System Solutions:

- Retaining dough quality
- High accuracy control
- Fast changeover enables good product flexibility
- Product weight variance detection and control
- Excellent repeatability
- Batch control/management
- OEE and Lean manufacturing
- Increased yield