

Mixing Optimization

Quality

Product consistency is a non-negotiable consumer demand. If a product fails to meet consumer standards they will quickly find an alternative. To maintain quality and consistency, a manufacturer's automation system must be able to compensate for process changes and/or ingredient variability that can impact the finished product.

Agility

Meeting consumer demands requires that companies have the capability to manufacture multiple products on existing production lines. Rapid product line changeovers and system conversions are the key to maintaining the competitive edge. Mixing Optimization is designed to reduce cycle times and make product switchover rapid and easy.

Flexibility

Consumer preferences continually change. Food manufacturers generally experience a 30 percent product changeover each year – creating a steady influx of new product recipes in the manufacturing process. Manufacturers can gain a competitive advantage by ensuring their manufacturing processes are flexible and scalable. Automation systems integrated with production information provide the capability to adapt to changing market requirements and differing environmental conditions.

Financial Performance

Food manufacturers face the dilemma of ensuring customer satisfaction while meeting the company goals for reducing costs and improving efficiencies. To achieve this goal, they are installing automation and information systems in the mixing area to improve production efficiencies, minimize inventories and maximize asset utilization.



Overview

Mixing Optimization represents an opportunity for food manufacturers to realize cost savings and increase revenue. As a crucial step in the manufacturing process, the mixing stage is of vital importance to process yield and ultimately to product quality and consistency. Mixing Optimization enables food manufacturers to maximize throughput, enact rapid changeover, minimize maintenance requirements, and provide complete reporting capabilities, which are all critical to operational success.

Food manufacturers are faced with a variety of challenges in their mixing operations. Because most of the raw materials used in the production are natural ingredients, they can exhibit substantial variability due to geography, climate and storage conditions. The chemistry of natural products can also be particularly complex and variable. Consistent quality is vital in food manufacturing and the variability of ingredients must be accounted for during production to minimize any impacts on the consistency of the finished product.

In addition, product demands change frequently and manufacturers must respond quickly. Since production equipment is limited, the selections of what to produce, at what quantity, and in which production line, become particularly important issues. Food manufacturing plants must produce a wide variety of products each day in the mixing area. Because they typically cannot dedicate vessels for one product; each vessel must be able to prepare any product and do so with minimum changeover time.

Application Profile

**Rockwell
Automation**

Consumers have come to expect, and demand, consistent quality, freshness, taste and appearance in their favored brands as well as a continual stream of product diversity and mix. For manufacturers this means a focus on quality, agility, and flexibility in their mixing operations.

The Solution

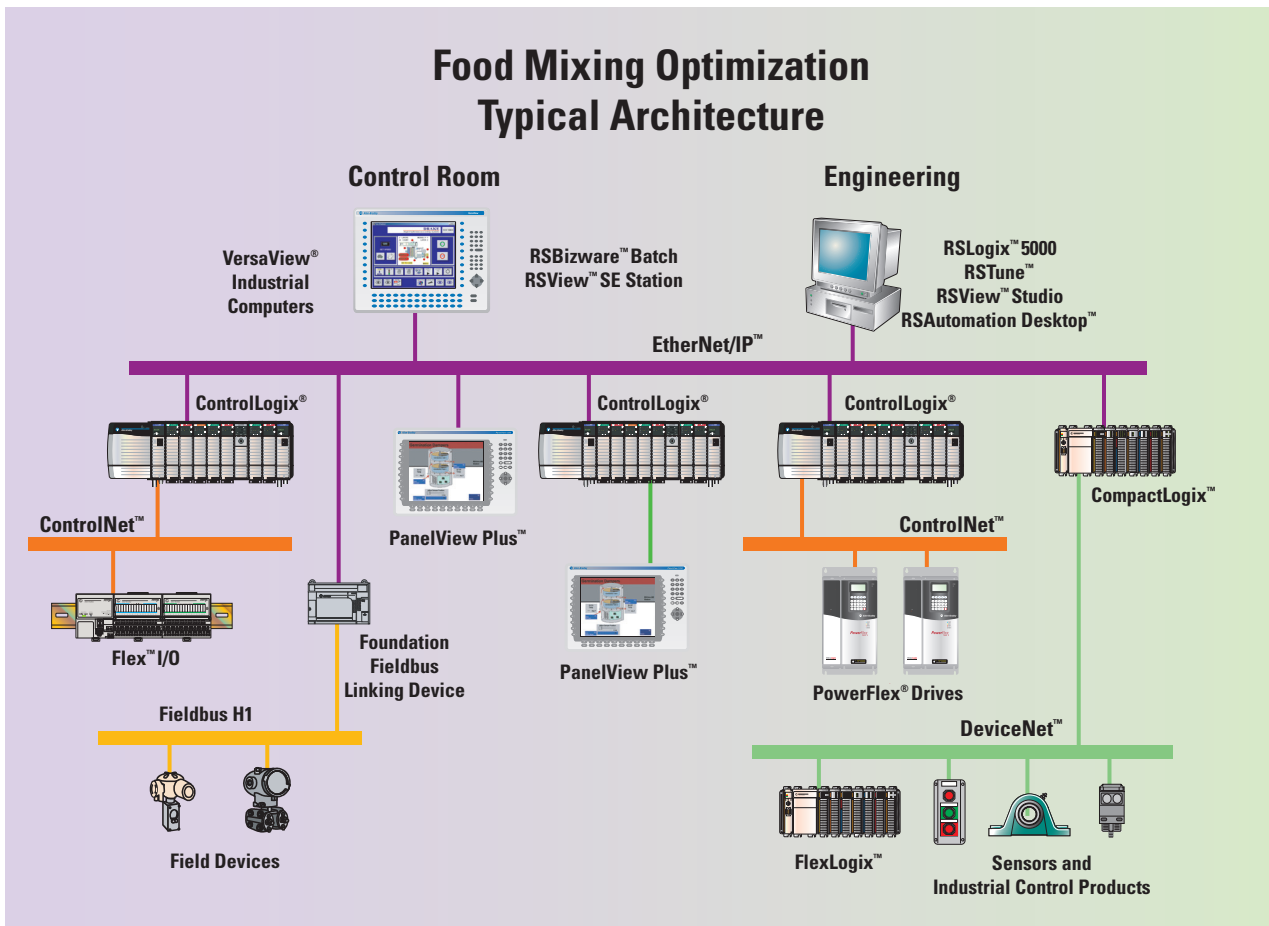
Rockwell Automation's Food Mixing Optimization solution enables food manufacturers to operate and maintain their facility with speed and reliability. Rockwell Automation combines world-class products and industry expertise to deliver an effective solution comprised of hardware, software and services that enable quick deployment, maintainability, and unsurpassed repeatability and reliability.

The FMO solution addresses several manufacturing challenges, including flexible control management, lower cost production, maximized product throughput, production reporting and lower total cost of ownership. The end result is a system that maximizes equipment utilization, reduces complexity, increases quality, and allows for more accurate material inventory management and costing – all resulting in increased profits.

The Food Mixing Optimization solution, designed for ease and efficiency of recipe management and creation, is founded on Rockwell Automation's Integrated Architecture and the RSBizWare suite of software. It leverages the ISA S88.00.01 standard to reduce the complexity and cost of recipe management. Recipe data is stored in industry standard databases and managed through the operator interface. Equipment can be automatically selected for any recipe, reducing material transfer time and freeing operators to focus on optimizing the process. Through FMO, recipe management provides repeatable execution thereby reducing commissioning times and helping to ensure consistency.

Lower Total Cost of Ownership

Because of the many standard features and methodology used in the Food Mixing Optimization solution, the total cost of ownership is considerably less than other alternative solutions. FMO is a modular structure providing ease of product changeover and introduction of new products. This is not only true for recipes but also equipment definition. Adding new equipment is as simple as copy and paste. In fact, adding additional equipment of the existing type requires no recipe modification. Since production reporting is automatic, any changes made to the process result in information being automatically captured, with no custom code updating required.



Key Architecture Components

Logix Platforms – Offering a single control architecture for discrete, drives, motion and process control systems

- Single programming environment with programming language choices for ease of use
 - Ladder, Function Block, Sequential Function Charts (SFC), and Structured Text
- System options to meet processing and design requirements including
 - ControlLogix, CompactLogix, and FlexLogix controllers
 - Flex™ I/O, pulse, discrete, and high resolution analog I/O
 - DeviceNet, ControlNet, EtherNet/IP, and Foundation Fieldbus networks
- Legacy investment preservation through controller and I/O connectivity

ViewAnyWare™ – Combines superior hardware and software visualization platforms to deliver the right information, in the right place, at the right time

- Single HMI design environment across the enterprise, from machine-level control to supervisory stations
- True distributed client/server architecture
- Global Tag database through FactoryTalk™ Live Data

RSBizWare™ Batch – provides efficient, predictable batch processing, consistency between batches, and generation of event information during batch runs

- Built-in recipe functionality to specify, respond, and track batch deviations
- Integrated data repository for Process, Alarms, Batch, and Tracking & Tracing data
- Supporting modular S88 batch functionality for recipes authoring

RSAutomation Desktop™ – provides a single control-system design platform to build, customize, and manage an automation project

- Enables standardization (library management) to reduce deployment and maintenance costs across the Manufacturing Enterprise

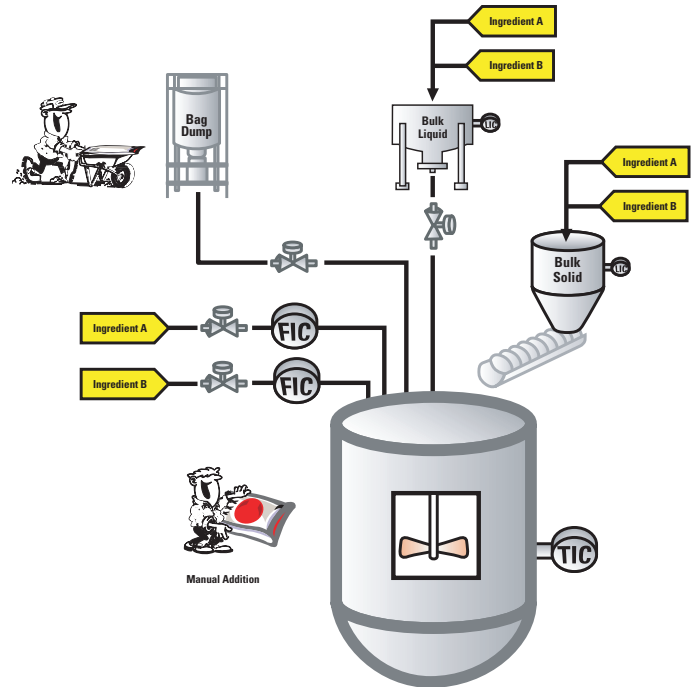
PowerFlex® Drives – for motor control applications ranging from low to medium voltage

Motor Control Centers – provide integrated hardware, software, and communication solutions

Motors – Reliance® wash-down duty AC and DC models

Sensors – a broad selection of non-contact inductive, capacitive, photoelectric and ultrasonic proximity sensors. Plus limit switches, encoders, media, and connection systems.

Industrial Control Products – a full line of relays and timers, push buttons, signaling products, motor starters, power supplies, and many other plant floor devices



Performance Solutions

Rockwell Automation Performance Solutions for Manufacturing address the growing demand for real-time information management throughout the manufacturing floor and better supply chain coordination. They transform production data into actionable information that drives continuous improvement initiatives, provides supply chain visibility, and enables effective collaboration. These scalable information solutions leverage existing investments in automation and data collection to deliver a system to track production operations, provide visibility into the production process, and control operations through the implementation of business rules.

Professional Services and Support

Our Global Manufacturing Solutions organization is the premier provider of productivity and manufacturing solutions and services. GMS provides globally consistent, consolidated service, support and implementation capabilities, while strengthening its broad knowledge of manufacturing, expanding its software application and solution portfolio, and partnering with customers and OEMs to develop focused solutions.

Partner of Choice

Rockwell Automation is uniquely qualified to serve the food industry. Our domain expertise in the food industry provides automation and information solutions for process, continuous, packaging, and hybrid manufacturing environments. Our solutions are built on an information-enabled architecture and focus on the business issues facing the food industry, addressing every phase of food manufacturing operations - from raw material through final shipment to distribution network optimization and management. With Rockwell Automation, companies can meet their cost, quality, flexibility, and regulatory challenges.

For more insights into food industry solutions visit www.rockwellautomation.com/food

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