Food & Beverage manufacturing solutions
Automation products and systems that satisfy your hunger for success

Basic needs and challenges

It's easier now – but food and beverage manufacturers still face challenges.

The need to eat remains one of mankind's most basic driving forces, and finding the means to secure an adequate supply of food has challenged us since our evolution began. Today, a vast global industry takes care of this requirement. But challenges still remain for the world's Food & Beverage sector.

Consumer and retailer expectations are increasing
We want quality food that looks appetizing, tastes good and is safe and nutritious. Healthy eating is an integral part of our modern lifestyle and trends change very quickly!

Price constraints are hardening
If they also are to stay healthy, manufacturers need smoothly-running 24/7 operations, integrated and highly reliable yet still with great flexibility. Costs need reducing whenever possible, but getting quality-approved products on to supermarket shelves just when consumers want them cannot be put at risk.

Regulatory demands are more stringent
Authorities are starting to apply 'pharmaceutical' thinking to food and beverages. Full traceability from raw material to specific batches of final product delivered to specific locations is a clear example of the way things are moving.

Automated, fully-integrated manufacturing solutions

ABB automation solutions help food and beverage manufacturers fill retailers' shelves with quality, value-for-money products that are tasty and nutritious, and that meet stringent regulatory requirements.

The portfolio of integrated automation products and systems supplied by ABB's global network of skilled staff or our experienced ABB Value Providers helps the Food & Beverage sector meet these demands – and many others as well. For example:

– Securing reliable processing plus increased manufacturing flexibility
– Meeting price competition, launch innovative products and enter new markets
– Working to industry standards and Good Automated Manufacturing Practices

Regardless of what control systems you use today, or whether you're expanding current manufacturing or building a new plant, ABB will help you enjoy the taste of success. Bon appétit.

MES solutions optimize manufacturing from incoming raw material to finished product

ABB's Collaborative Production Management suite cpmPlus enables higher plant efficiency and productivity as well as greater visibility and flexibility throughout the complete production process. As a key component of our offering, Manufacturing Execution Systems (MES) cpmPlus integrates the complete chain of events and equipment involved in the physical production flow, as well as the full range of processes that enable timely and correct decision making.

From process operators to business managers, and from the production line to the supermarket shelf, the MES solution improves collaboration at all levels and provides information to help optimize the complete manufacturing process.
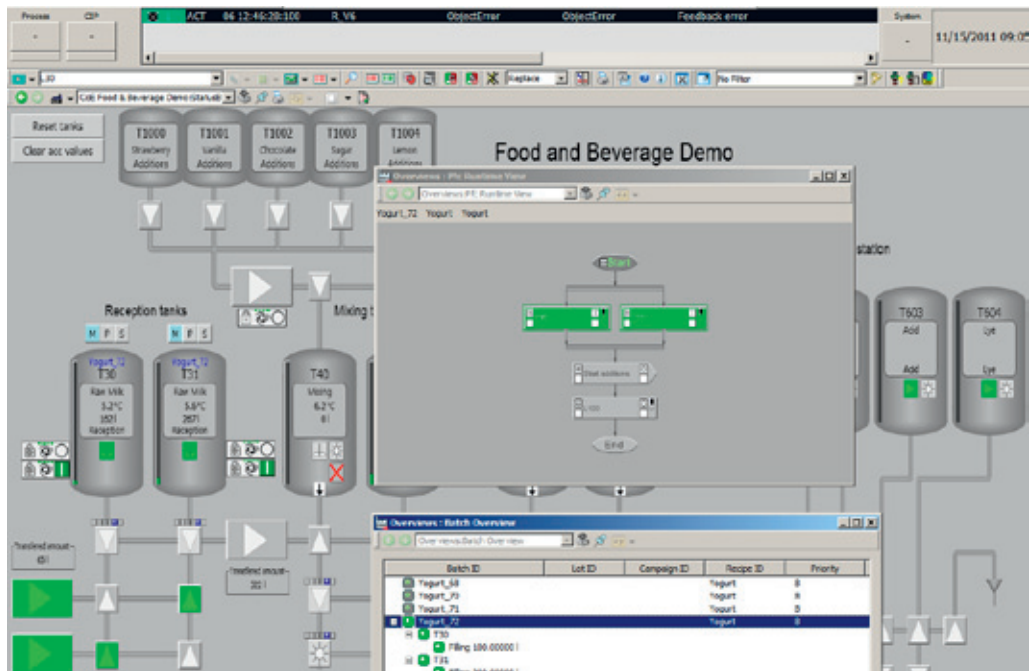
Full integration and visibility
ABB's manufacturing execution solution offers a wide range of sophisticated functionality that addresses the needs of your industry and enables productivity, quality and continuous improvements.

cpmPlus also enables vertical integration between business and manufacturing systems. This provides true interoperability between production entities plus a fully scalable MES implementation. cpmPlus comprises several key modules that boost operational reliability, visibility and flexibility, as well as food quality and safety.

Highlights include:

– Production management for effective, flexible and reliable execution of manufacturing instructions
– Material management for full transparency and track-and-trace capabilities
– Quality management functions to recognize and respond to quality challenges
– Electronic work instructions and Standard Operating Procedures (SOPs) for bringing consistency to manual operations
– Downtime management to increase plant performance and productivity
– Performance monitoring and visibility into real-time operations, KPI and OEE calculations, etc.

Production Management is a system extension to System 800xA.

Complete production package with precise control

In System 800xA, batch production management itself is a complete package built up of Recipe Management, Resource Management, Batch Execution Supervision, and Data Collection, Reporting & Analysis. This takes care of all key production management functions. It configures recipes and procedures as well as batch equipment, schedules, monitors and controls batches and campaigns, automatically allocates resources between batches at run-time, and collects and stores batch historical information, for example.

This is the same type of robust solution as is applied in the pharmaceutical sector. As the food and beverage industry is moving increasingly towards the more stringent manufacturing found in the drug business, System 800xA Production Management solutions will meet your needs both for today and for the future.

Tracking and traceability along the whole supply chain

A further example of the more regulated approach now being implemented in Food & Beverage is greater accountability regarding tracking and tracing solutions. Not only should raw materials, intermediate products and finished goods be traceable from production via distribution and onto the end-retailers' shelves, this information should also be available in minutes and retrievable years later.

cpmPlus once again provides the answer. The seamless integration it delivers allows automatic data collection from processing equipment and the control system. Linking up with your Enterprise Resource Planning (ERP) system extends the tracking capabilities to encompass the whole supply chain.

Moreover, cpmPlus not only permits the capture of scanned traditional universal product code (UPC) barcodes, it also captures data from radio frequency identification (RFID) tags, also called smart labels. RFID tags track the location of products from the time they are made to the moment consumers place them in their shopping carts. As well as helping you continuously improve your logistics, they reduce the likelihood of an external recall and minimize its impact if one takes place.

Integrated automation control solutions are the main ingredient of success

If ABB were in the restaurant business, integration would be included in every dish we served. Integration is the recipe for success in food and beverage manufacturing. Without it, control solutions risk being fragmented, with separate systems handling different tasks and operators struggling with incomplete process overviews of what's happening in the plant.

Operators love integration – it gives them the insight to do a better job

Next time you order a control solution, insist on integration with everything. It's the key to living up to the tough requirements of food and beverage manufacturing – high final product quality and safety, processing simplicity plus flexibility, tight cost control yet a high level of customer service, and full awareness of product whereabouts.

And your operators will welcome your initiative as well. With a first-class process overview plus fast and easy access to all the information they need, they work proactively to run processes with new levels of efficiency.

Key integration examples include:

– Integrated information for greater operator effectiveness
– Integrated engineering for generating cost-effective solutions
– Integrated and unified fieldbus networks for seamless control
– Integrated controller platforms for flexible evolution pathways
– Integrated overviews for common visualization and plant-wide collaboration
– Integrated proactive alarm management with alarm metrics continuously calculated for optimized function and analysis

ProBase – the automation solution designed for Food & Beverage

In addition to general integration solutions like those listed above, ABB has a complete automation solution designed specifically for the food and beverage sector. Known as ProBase, it is a leading automation platform in use with large and small manufacturers the world over.

ProBase includes standardized functions for advanced product transfer (routing) between process units like the tanks and lines commonly found in food and beverage manufacture. Motors, valves, signals, etc., are treated as process objects. All essential features for smooth and secure production are also built in, e.g. alarm handling and propagation between units, and queue handling for online production changes.

Control software to track the entire production process (product ID and volume, critical parameters, routing, etc.) helps plants comply with international standards such as Regulation (EC) No. 178/2002.

Consistent quality and rapid throughput

The System 800xA platform combination lets food and beverage producers boost efficiency and flexibility, yet still secure product safety and quality. 800xA equips its users with the tools to achieve compliancy with key regulations and guidelines, e.g. 21 CFR Part 11. Engineers and maintenance staff gain real-time access to process data, asset information and other essential input. The result is consistent product quality with maintained rapid product throughput, plus greater flexibility for a faster response to market demands.

Batch solutions S88 – a favorite recipe

This ABB recipe management and batch control software package is a favorite of many producers. Built to ISA S88 and IEC 61512 standards, Batch solutions S88 provides engineering tools for recipes, equipment and control, especially in the early 'wet end' of processes. Process and batch operational status is easily accessible through integrated batch scheduling, control and reporting.

Product portfolio with a well-developed taste for precise and reliable control

The Food & Beverage sector has many different sized companies, from enormous breweries and new green-field plants to smaller and more specialized operations. In many cases, although their products are still delicious, their processing equipment is approaching (or has passed) its sell-by date. A fresh upgrade would be very welcome.

Used in thousands of plants

ABB's way of meeting everyone's need for better automation solutions is a product portfolio engineered to control and improve production processes in a broad range of markets. The products and systems described here are well-proven in many thousands of food and beverage plants throughout the world.
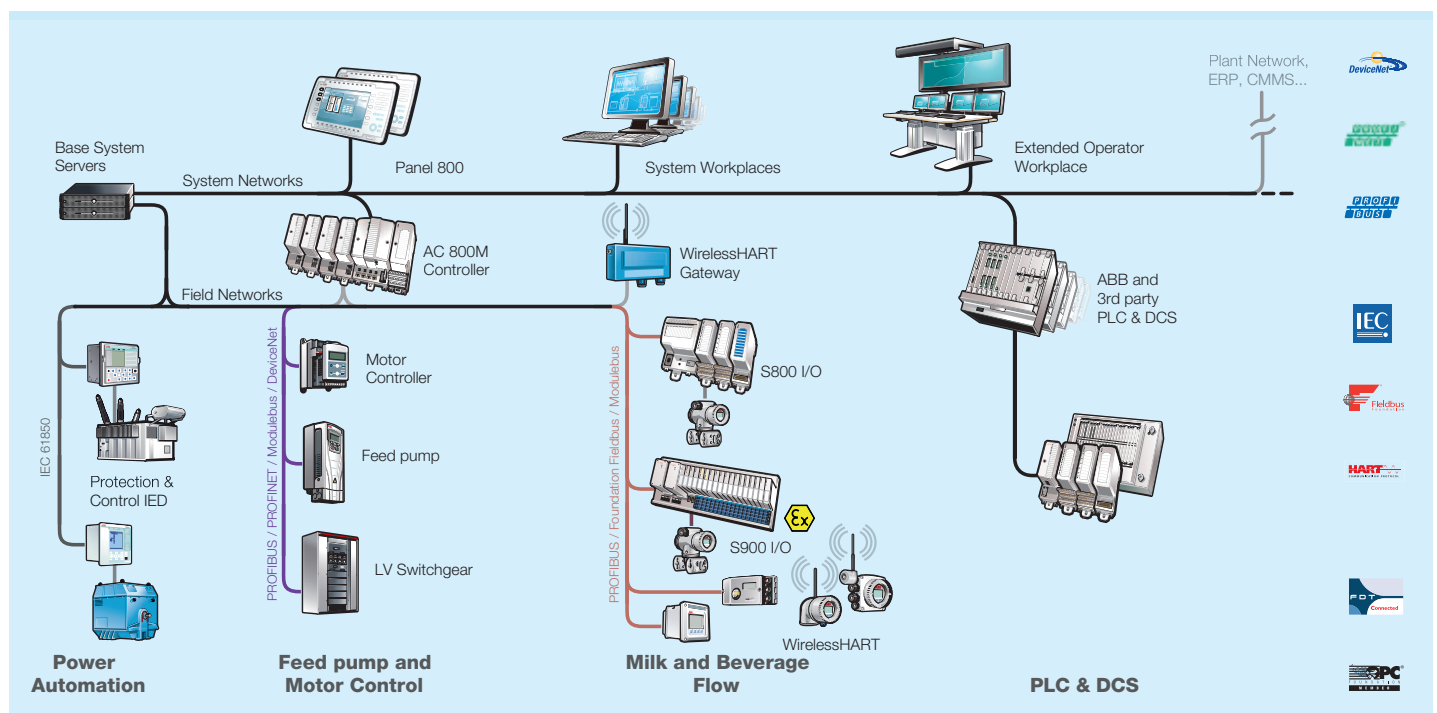
Extended Automation System 800xA

This award-winning automation platform integrates the information flow from all aspects of production into a single 'all-in-one' interface that feeds operators with all the information they need to make the right decisions at the right time.

Features like Information Management, Batch Management, Collaborative Production Management (CPM) and Asset Management enhance productivity and let users optimize plant manufacturing and maintenance to the maximum. In addition, full redundancy capabilities secure 24/7 availability!

– Easy operation
– Single-source entry keeps all information in one environment
– High adaptability for individual environments
– Integration of process and power control in one system
– Seamless flow of information
– Software solutions for engineering efficiency
– ProBase, PCDeviceLibrary, PCEquipmentLibrary (batch solutions)

System 800xA automation platform creates a flexible and collaborative control world. Full integration of systems, applications and devices makes actionable information instantly available to plant operators.

Compact 800

Compact 800 is a range of control products used as stand-alone components or combined solutions to create cost-effective control for a wide range of food processing needs.

Compact 800 products are built with openness in mind. They are based on standards that ensure they can be combined with others on the automation market. Compact HMI 800, AC 800M controllers with Compact Control Builder, Panel 800, S800L I/O and S800 I/O all play key roles in customizing control solutions.

– Ideal for smaller stand-alone installations
– Scalable, cost-effective design
– Fault tolerance for maximum plant availability
– Open architecture reduces lifecycle costs
– Extensive set of libraries includes food industry applications
– Optional redundancy
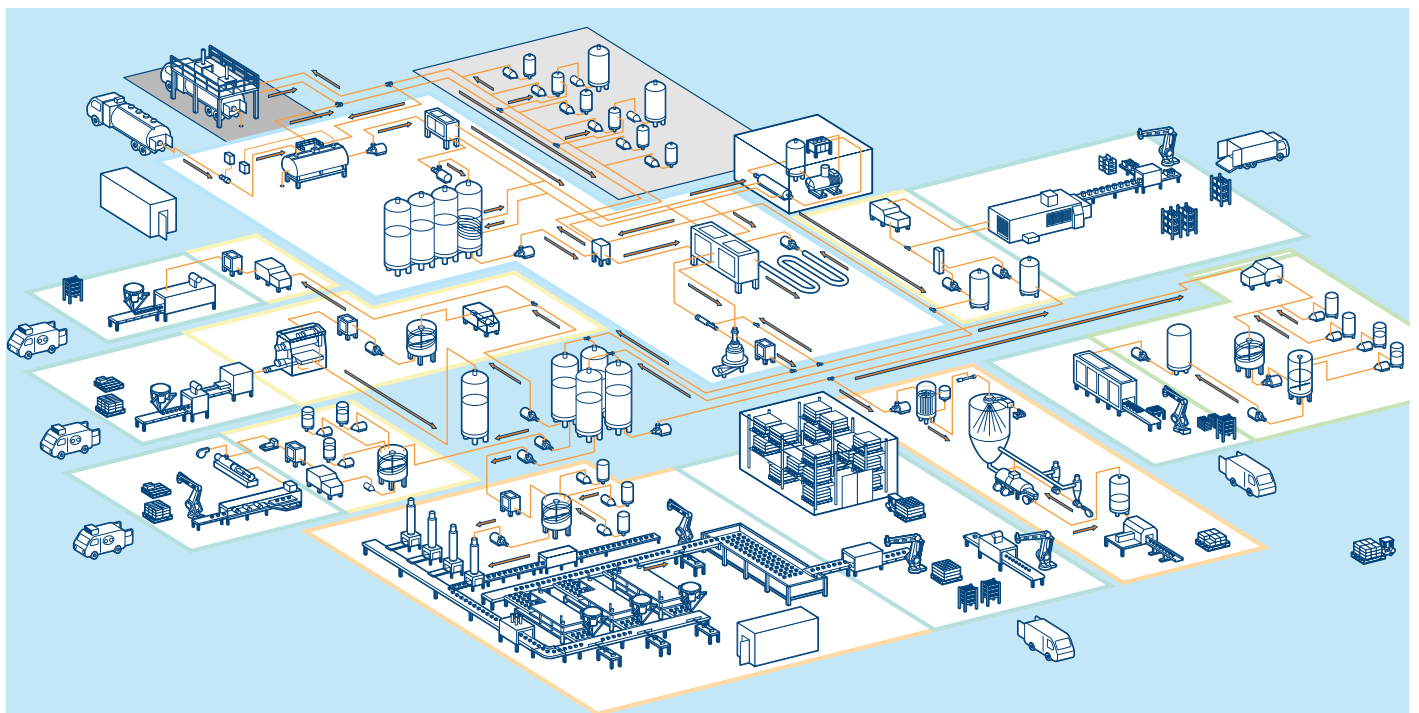– High integration level of panels
– Supports all program languages

Freelance

Offering PLC size and price with the functionality of a DCS, Freelance distributed process control system combines the best of both worlds. Its integrated environment facilitates engineering, commissioning, maintenance and fieldbus management. The intuitive operator interface enables easy operation and diagnostics of the entire system. Furthermore, its control system allows the integration of all common fieldbuses. Users simply select the one they want - FOUNDATION Fieldbus, PROFIBUS, or HART.

Freelance is proven in more than 14,000 applications – many in Food and Beverage.

– Easy to set up configuration and process control (including fieldbuses, field devices and visualization)
– High reliability: proven function blocks for all types of applications mean less testing
– Convenient implementation of future modifications or improvements
– Integrated HMI – single database
– Includes simple recipe control with S88 function blocks
– Easy back-up functionality

ABB control systems and products improve production processes in many thousands of food and beverage plants throughout the world.

Savour the delights of ABB's Food & Beverage manufacturing solutions

Consumers have a special relation to food. The reasons are not hard to understand. From being just a means of survival, food is now part of our lifestyle – something to savour and share – backed up by a huge marketing industry spending a great deal of money to entice us to try just their new dish or health drink.

Faster and more flexible supply

Manufacturers must stay alert. Paramount to their success is the requirement for stable, disruption-free processing that consistently delivers fresh, high-quality products with profit margins that satisfy themselves and the big retailing chains.

Industry standards and legislation, including FDA regulations and Good Automated Manufacturing Practices, plus stringent product tracking and tracing cannot be ignored. Yet rapid response to changing consumer demographics and tastes is also essential for launching new products onto local or global markets. The need for faster and more flexible supply lines is thus intensifying

Evolution through enhancement

ABB control solutions meet all these needs – even if your plant isn't equipped with the very latest technologies. Our product portfolio helps you become more efficient and more profitable.

Extended Automation System 800xA, Compact 800 and Freelance all have a long heritage in food and beverage manufacturing. Their scalability and modular approach let users engineer control solutions according to needs. From a small library application or process solution, the control scope can be expanded to larger and more advanced automation configurations.

In an industry driven by consumer taste as well as by technical innovation, our solutions help you:

– Ensure reliable and cost-effective 24/7 production
– Introduce faster and more flexible supply lines
– Meet demands for track and trace and regulatory compliance
– Increase visibility in manufacturing
– Optimize lead-times and synchronize new product releases with marketing campaigns
– Improve the services that your customers demand of you

The never-ending flow of recipe books and TV shows bears witness to the role that food now plays in our lives. ABB control products and solutions help manufacturers meet both retailer and consumer demands for fresh and appetizing products.

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