



Solutions for food and beverage  
Uncompromised hygiene,  
reliability and productivity

# Power and productivity for a better world

ABB is a leader in power and automation technologies that enable utility, industry, transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

Food and beverage manufacturers share similar goals: produce safe, high quality goods in a sustainable and cost efficient way. With increased awareness on how resources like energy and water contribute to overall cost efficiency and sustainability, companies continually search for ways to meet their goals while using resources more efficiently.

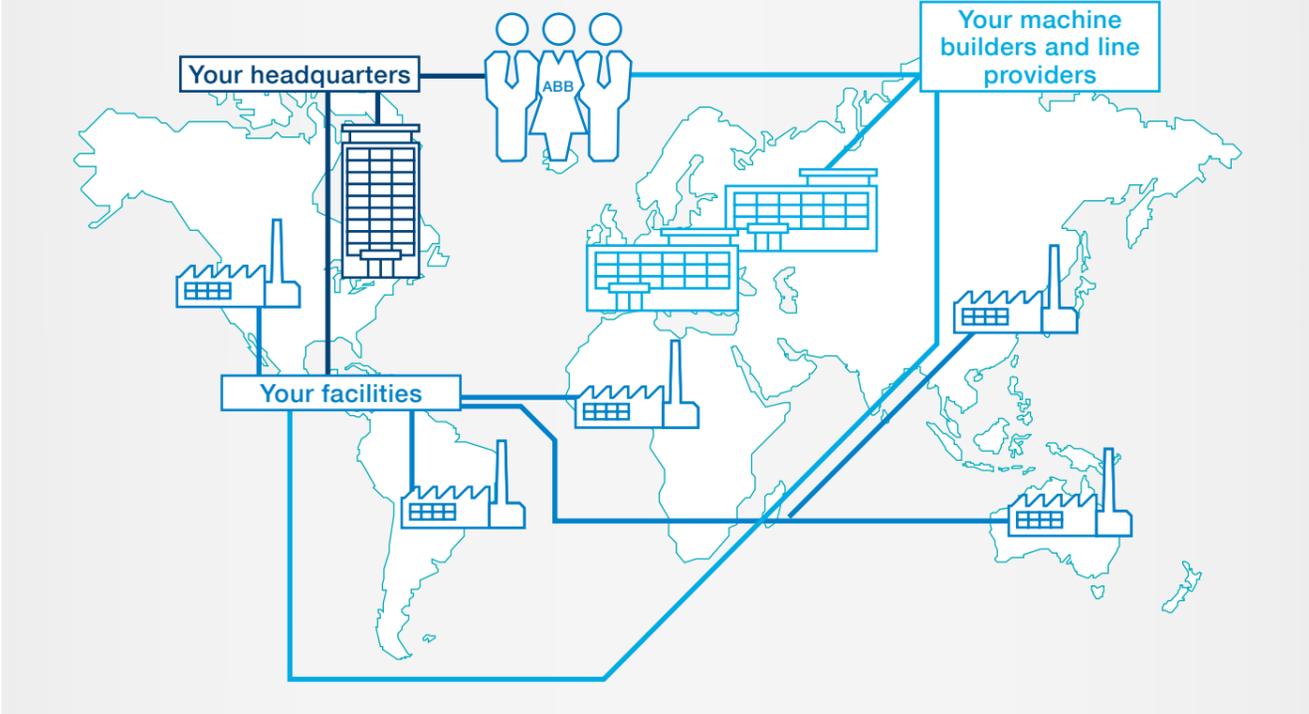
Our broad, leading portfolio of products, solutions, and services help you meet these goals. From improving food quality and safety, running reliable, flexible and scalable manufacturing with optimal asset utilization across the plant, to receiving raw ingredients all the way to end of the line packaging. This helps you remain competitive in a dynamic, consumer driven market.

We help customers achieve the highest process uptime, deploy permanent traceability solutions, ensure uncompromised hygiene, maintain unbroken cold chains, protect worker and machine safety, and improve energy efficiency and water optimization. Our experience comes from working with customers across industries like dairy, meat, beverage, bakery and confectionery, as well as ingredient processing industries like sugar, grain, starch and edible oils.

Competitiveness is highly dependent on the efficiency of the entire value chain. That's why we work closely with distributors, machine builders, and complete line builders, across the globe. We work directly with food and beverage manufacturers, from the local independent manufacturer to the largest global food and beverage companies.



We help orchestrate machine builders, integrators, distributors and production and logistics sites in all corners of the globe to create unique and integrated solutions for your biggest challenges, from food safety to driving down costs in an industry where every cent matters.



As a global company, you can find our sales, service and support offices around the world and benefit from our global engineering and application expertise at a local level.

We work closely with our customers to develop custom products, services and solutions to help standardize their processes across multiple sites and streamline supply chains.

Our unique power and automation offering of products, solutions and services helps you:

- Standardize components and solutions across machines and plants
- Upgrade aging equipment
- Run short change over, flexible production lines
- Improve equipment reliability in harsh environments
- Reduce filling and dosing waste
- Optimize water consumption
- Implement food safety and traceability solutions
- Ensure reliable and safe power supply

**We have seven global R&D centers with more than 8,000 technologists, and invest \$1.5 billion annually on innovation.**

# Food safety

Food safety and traceability are critical for your business. Our solutions, from individual products to enterprise control and manufacturing execution systems, help maintain continuous operation and prevent contamination, from harsh and corrosive areas to potentially explosive environments.

**Our wide range of products are designed to stand up to temperature extremes, harsh environments and frequent high-pressure washdown without dust or liquid ingress or lubricant contamination.**

- Corrosion resistant stainless steel encapsulated motors, bearings and gearing solutions
- Products with hygienic designs and curved surfaces to prevent bacterial growth
- Stainless steel instrumentation, conduit, and electrical fittings
- Metal detectable products like cable ties that reduce contamination risks

- Robots with stainless steel grippers reduce human contact with open food for uncompromised hygiene
- Precise machine and process line controls to help reduce waste and improve product quality
- Power loss ride-through technology keeps processes running during grid faults, protecting equipment and production
- Certified and tested motors and variable speed drives for use in potentially explosive atmospheres
- Building automation systems, variable speed drives and high efficiency motors maintain factory ventilation at required environmental conditions (air temperatures, air flow requirements and humidity levels)

# Traceability

ABB can support traceability along the value chain to ensure consistent food quality, regulatory compliance and build consumer trust.

From raw material sourcing to final product logistics, day-to-day operations require an increasingly complex network of interrelated information flows. Whether you produce in individual lots or across several production sites,

our automation platforms and manufacturing execution systems can provide greater transparency by seamlessly integrating people, systems and equipment across the entire value chain. By ensuring efficient use of all assets in the production cycle while maintaining accurate traceability, we can help you boost output levels and increase manufacturing flexibility.

Average cost of a safety-driven food recall

**\$ 10-30 million**



What is the impact of a food safety recall to a company's reputation?



Revenues

# Asset intensity and total cost of ownership

Operational costs can be 75 percent of the cost structure in food and beverage sites. We help improve your competitiveness by doing more with less in some of the industry's most demanding and energy-intensive applications. We also help lower maintenance burdens while ensuring maximum reliability in your most critical processes.

**We help reduce total cost of ownership (TCO) by:**

**Simplifying supply chains.** Our end-to-end portfolio streamlines your supply chain and standardizes production across multiple sites. This reduces spare part inventories and maintenance complexity.

**Improving electrical system availability.** Even in modern power grids, voltage sags and small disruptions can cause large and costly production problems. We can ensure power protection and quality from substations to active voltage conditioning and UPS systems.

**Keeping pace with the market.** Automation solutions that provide faster change overs and line extensions with lower risk, giving you agility to keep up with shorter cycles and increased product and package variations. From virtual commissioning and simulation to user friendly programming of interoperable, integrated devices with shared application libraries, we help you grow and adapt without compromising productivity or margins.

**Unlocking hidden potential.** Solutions for overall equipment effectiveness (OEE) provide a real time performance

dashboard to optimize production, prioritize improvements and respond faster to issues. Even incremental OEE improvements can have a significant impact on your TCO.

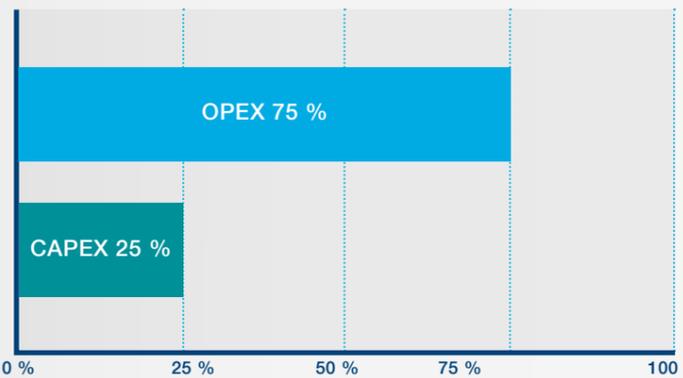
**Earning the most from your assets.** We help you get the most value from your assets, from every machine hour run, to each kilo of raw materials ordered, through every employee's hours, and from each kilowatt of power and liter of water used.

**Improving energy efficiency.** Energy can be a high cost in many electrical and thermal processes, and it is often one of the most controllable costs. There are many opportunities to do more while using less energy, from reducing the consumption of motors, pumps and fans to putting otherwise wasted energy to work. Our energy appraisal experts identify and prioritize energy saving opportunities in your equipment, support systems and buildings.

**Improving machine functional safety.** Our safety offering, from push buttons to process locks to safety control devices, emergency stops and other safety products reduce unplanned process interruptions, improve efficiency and keep production processes free from accidents.

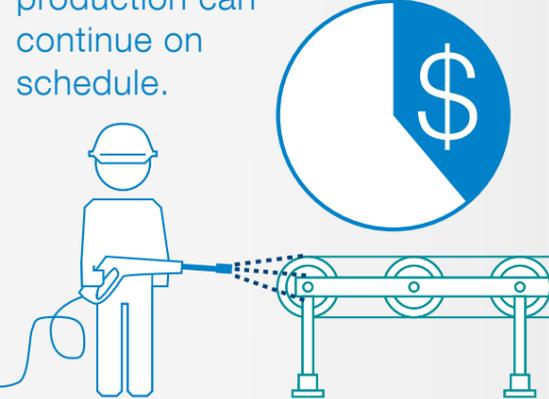
**Total cost of ownership (TCO)**

- Energy and process efficiency, reliability
- Flexibility to adapt to frequent line changes while maintaining quality and productivity
- Cost control in an industry where every cent counts



Category	Percentage
CAPEX	25 %
OPEX	75 %

**One shift a day cleans. Process equipment must withstand the frequent washdowns so that production can continue on schedule.**



# Our offering extends from reliable power to end of the line packaging

**1. Efficient and reliable power chain.** From conventional grid connections to integrating renewables, we offer eco-efficient intelligent power solutions with small footprints.

**2. Power distribution, protection and control.** Medium and low voltage switchgear, transformers, capacitor banks, active filters, power protection and conditioning systems help ensure available, reliable power.

**3. Flexible automation solutions.** From open platform, IEC-61131 compliant programming to scalable control systems to precise and energy-efficient variable speed drives. Our extensive automation solution portfolio includes machine functional safety and safety PLCs, Automation Builder for programming, and connectivity with all automation networks.

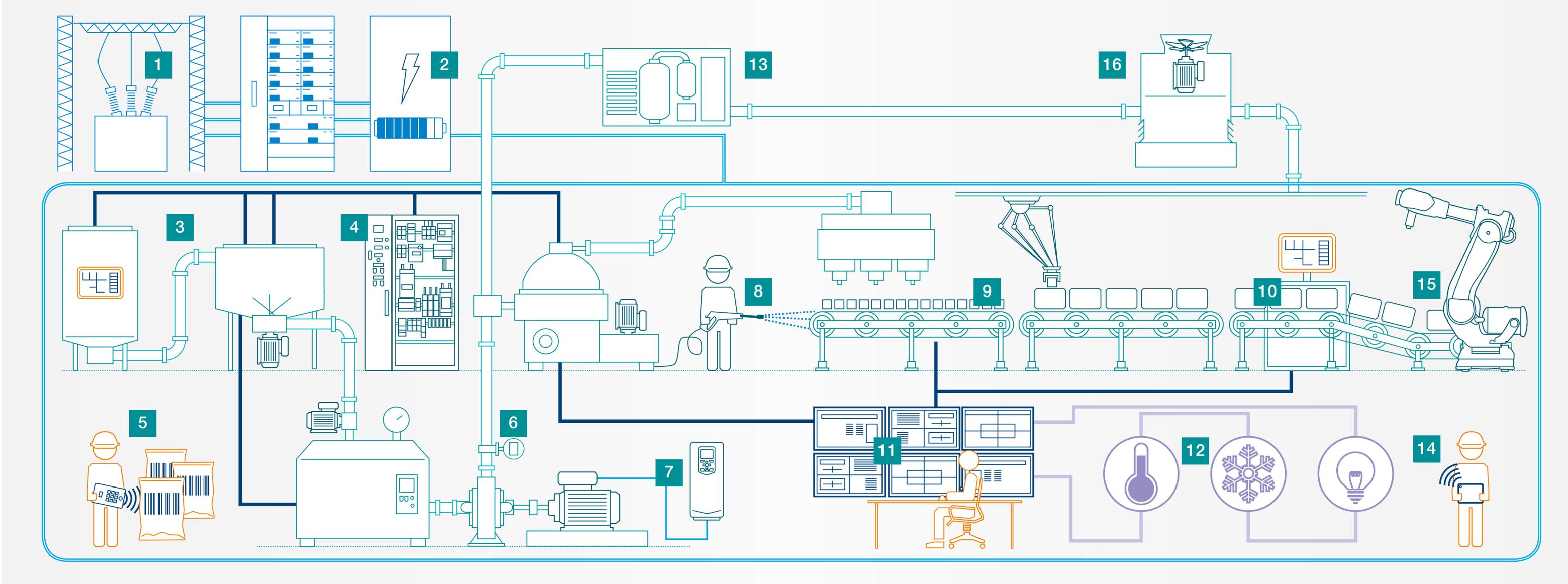
**4. Connect, control and protect.** Electrical distribution solutions including switches, sockets, breakers and arc protection.

**5. Tracking and traceability.** Our solutions enable complete product and process genealogy, from material reception to shipping finished goods. Control and track quality, safety and regulatory compliance, process management and batch control, material flow, accurate weighing and dosing, standard operating procedures and electronic signatures.

**6. Measurement solutions.** Accurate measurement is the starting point for accurate process control. Our flow, pressure, temperature and level solutions provide reliable, accurate data, are certified for direct contact with open food, and easily integrate into your automation network.

**7. Energy efficiency solutions.** Any motor driven application has energy savings potential. From capturing and reusing braking energy, to speed control on pumps and fans, to improving the efficiency of your ventilation, heating and cooling systems, we have solutions to save energy across the plant.

**8. Washdown and corrosion resistant solutions.** Our stainless steel motors, gearing and ball bearing products, instrumentation, wiring, and robotic solutions are designed for long-life and to prevent bacterial growth. They withstand frequent, high pressure clean-in-place and other washdowns. Low maintenance designs with industry leading seals prevent water and dust ingress, and connector cables with the highest protection rating safeguard your mechanical and electrical connections.



**9. Mechanical power transmission solutions.** We offer a full range of food grade products with sanitary designs, industry leading sealing systems, easy installation and removal features, and reliable performance.

**10. Machine functional safety solutions.** We deliver everything from a single safety solution to complete safety systems. Our range of safety products are designed to make your machine safety system easy to build.

**11. Fully integrated enterprise solutions.** Our MES provides functionality to sharpen competitiveness and enable real-time, continuous operational improvements and flexible manufacturing for leaner value chains.

**12. Building automation systems.** Integrate, disseminate and visualize the plant's heating, cooling, ventilation and air conditioning systems, lighting, fire protection and security systems.

**13. Industrial cooling and refrigeration.** Improve compressor, evaporator, condenser, and pump and fan operating efficiency and control using our variable speed drives and high efficiency motors. We also help you recover and use waste heat.

**14. Remote monitoring and predictive maintenance solutions.** Today, our power and automation technology is capable of monitoring and alerting plant engineers and service personnel ahead of time when service is required, preventing costly unplanned downtime.

**15. Packaging automation solutions.** Reduce TCO while improving quality and consistency across one or many production sites. Our solutions provide flexibility for greater and shorter run packaging variations, while increasing output and reducing waste and floor space.

**16. Cooling tower direct drive motor and variable speed drive packages.** An integrated solution that removes the gearbox and driveshaft from cooling towers that reduces energy use, vibration, noise, and maintenance costs.

# Product and solution highlights

## Meat industry

Reliability is critical in environments where cleaning takes one third of the operational time and harsh chemicals are used. We have a number of robust, hygienic solutions for meat applications such as robots that increase production with precise cutting control to maximize yield while eliminating human contact with open food.



Our variable speed drives with IP66/NEMA 4X level of protection withstand high-pressure cleanings.

Motors and mechanical power transmission products are designed for repeated high pressure harsh washdown applications, with industry-leading premium seal and bearing protections and food-safe designs.

Detected easily by X-ray or vision detection systems, our buoyant Ty-Rap metal detectable cable ties help mitigate contamination risks.

FlexPicker robots pick, place and package meats without human contact helping prevent contamination and improve food safety.

## Grain industry

Reliably moving grain while preventing dust explosions ensures continual output. Our offering helps keep process from bucket elevators to screw conveyors moving reliably, safely and efficiently. Upgrading to higher efficiency explosion proof motors alone in a grain mill can help reduce energy by 3% to 5%. Adding variable speed drives helps save up to 30% more on applications like pumps and fans.



Indoor air-insulated switchgear provides secondary distribution solutions with a wide range of options and choice of state-of-the-art protection relays.

Tested and certified motors and drives for potentially explosive atmospheres.

Mechanical power transmission components with seals and ingress protections for harsh duty environments.

Robots for packing and palletizing.

## Sugar industry

Sugar processing is an energy intensive industry that requires precise control and continuous reliability, especially during seasonal production cycles. We help connect independent production processes and suppliers with a distributed control system that provides a single interface to control production. And, we help you do more with less energy, from reusing centrifuge braking energy to replacing cane mill steam turbines with variable speed drives and induction motors. Along with energy savings, these solutions reduce maintenance costs, improve availability and provide precise speed control.



We offer the widest selection of motors and variable speed drives, from large centrifuge motors to regenerative drives, to IE4 synchronous reluctance motors and drive pages that help save energy on processes across the plant.

Our measurement and analytics products include stainless steel flow, temperature, pressure, and level measurement devices.

Total plant automation with scalable solutions for full automation of food and beverage manufacturing processes.

## Dairy industry

In dairy processing, critical timing and power quality ensure the food safety and unbroken cold chain. Solutions like voltage conditioning and power loss ride through keep critical processes running, while our control system solutions provide paperless production, order execution and material management to keep production on schedule. Our DCS systems provide tools like batch execution control and recipe-based CIP control which lets you reduce cycle cleaning times without shutting down production.



Active voltage conditioning and UPS systems ensure power quality for the plant.

Our compact Coriolis flowmeters offer hygienic designs with easy integration and no up or downstream piping requirements.

We offer a wide range of safety sensors, switches, and other safety control devices, with up to IP69K protection and operating temperatures of -40 °C to +70 °C.

Analyze and unlock productivity improvements with availability, performance and quality data from our OEE tool.

# Contact us

For more information please contact your local  
ABB representative or visit:

[www.abb.com/food&beverage](http://www.abb.com/food&beverage)

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