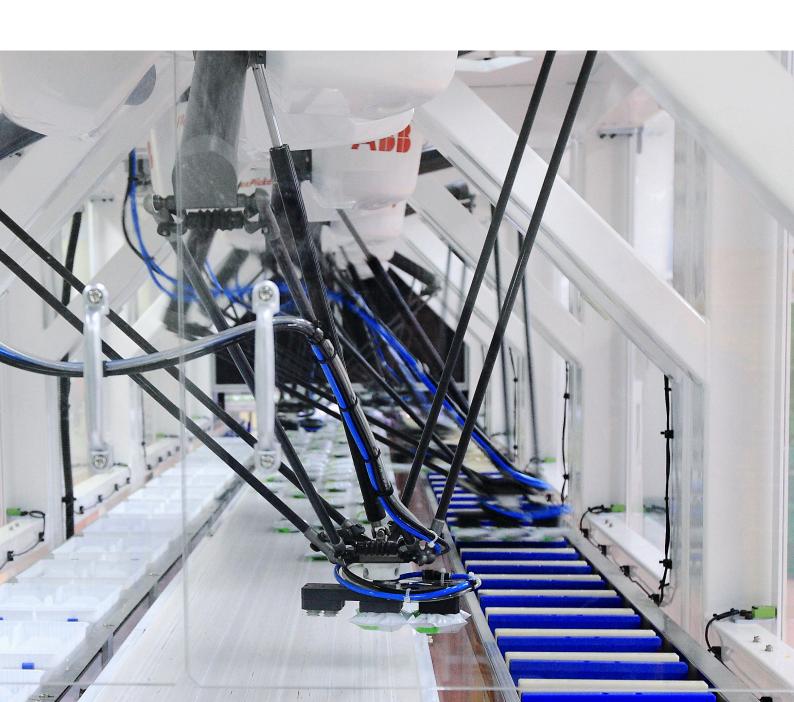


Food and beverage

Plant-wide solutions to optimize productivity, efficiency and uptime

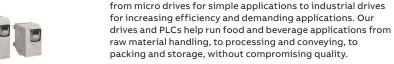


Food and beverage

Plant-wide solutions

ABB understands the challenges our customers are facing in the food and beverage industry. We're focused on providing solutions that address the critical issues in every area of operation, so plant managers and operators can focus on plant sustainability, cost, quality, flexibility, safety and regulatory challenges across the production cycle. Our family of products and systems match specific application criteria from start to finish inside food processing areas, assuring the quality and reliability of food and beverage from power entry to robotic palletizing at the end of the line.

Mechanical, motions & machines Product/offering Benefits and features Suggested applications Pick food products without human contact helping prevent Meat applications contamination and improve food safety. The FlexPicker · Produce applications features motion control, short cycle times and precision Grain processors accuracy. It has the ability to operate at very high speeds in · Bakery applications anything from narrow to wide spaces with very tight · Frozen food applications tolerances. Packing robots · Meat applications State-of-the-art high speed robotic packing technology for minimal human contact in the process to improve food safety. · Dairy applications ABB's packing robots are compact, flexible and fast. These Produce applications robots are applicable to and useful in any food and beverage Bakery applications application. Pet food products Palletizing robots An impressive line of robots that palletize bags, boxes, crates, • Meat applications bottles and more for the food and beverage industry. They are · Dairy applications able to rotate and lift heavy and large products at optimized Produce applications speeds: some are the fastest palletizing robots in the world. Bakery applications Beverage applications **Drives & PLCs** ABB offers a full line of variable frequency drives, ranging · Food processing machinery from micro drives for simple applications to industrial drives Unit handling & conveying for increasing efficiency and demanding applications. Our · Pumps in breweries.



- dairyapplications, etc.
- Grain elevators
- Irrigation
- · Livestock ventilation

Motors, bearings, gearing





Our motor, bearing and gearing products have been engineered to comply with food safety guidelines and recommendations. These sanitary design considerations mean our products provide the ultimate solution for harsh environments.

- Severe washdowns in meat, poultry, dairy, etc.
- · Processing & packaging
- Conveyor lines
- Heavy-duty grain & sugar processing

Electrification

Product/offering

Benefits and features

Suggested applications

MV switchgear



Arc and nonarc resistant, air insulated and gas insulated - ABB • Dry processing facilities offers a wide variety of medium voltage switchgears for safe and reliable power distribution. External influences such as humidity, dust and vermin do not effect the performance of the switchgear.

- · Wet processing facilities
- Sugar processers

LV switchgear



ABB is the world's largest low voltage switchgear original equipment manufacturer. Low voltage switchgears enable safe and reliable power distribution and motor control solutions.

- Warehouses
- Distribution centers
- Bottling lines

Test switches & protection relays



Quick and easy multi-circuit testing of switchboard relays and $\, \bullet \,$ other instruments. These test switches and related test plugs have the features necessary for applications involving the measurement of individual currents and voltages associated with substation instrumentation and protection devices.

- Sugar processing
- Wet processing facilities
- Grain processing
- Warehouses

Capacitors & filters



Full portfolio of low and medium voltage capacitor banks and harmonic filters that enable customers to improve power quality and increase energy efficiency of their electrical distribution networks across their plants, resulting in reduced . Animal processing operational costs.

- Beverage & dairy
- Bakery & confectionary
- Grain processing



Power protection (UPS, AVC) Protect food and beverage facilities from disturbances in the electrical supply. With ABB's power protection in place, food and beverage product quality, safety and production are maximized.

- Grain processing
- **Bottling lines**
- Dairy applications
- · Sterile processes

Miniature circuit breakers



ABB, the inventor of miniature circuit breaker technology, offers the largest selection of current-limiting, compact, DINrail mounted MCBs including solutions for the wind and solar PV markets and for AC and DC applications. ABB's MCBs feature thermal and magnetic trip units which protect against both overcurrent and short circuit faults, in industrial control panels as well as power distribution.

- · Food processing machinery & equipment
- Unit handling & conveying
 - Bottling lines

Soft starters



ABB's soft starters increase a motor's lifetime by protecting it • Pumps in breweries, dairy from electrical stresses. With many built-in motor protection features, your motor is safe in its hands. ABB's soft starters are also installation-friendly and can cut assembly and startup • Unit handling & conveying time by being easy to use and easy to learn.

- applications, etc.
- Grain & sugar processing

Primary switch mode power supply



The CP-C.1 range offers the latest technology in a compact construction of power supplies. Modern power supply units are a vital component in most areas of the food and beverage industry. ABB pays the utmost attention to the resulting requirements. Innovation is the key to a substantial enlargement of our power supply product program.

- · Grain & sugar processing
- · Bottling lines
- · Dairy applications
- · Food processing machinery

Motor Control Centers (MCCs)



Our MCCs are designed for the highest degree of safety and reliability while allowing for the maximum ease of use. MCCs provide food and beverage users with the capability to maximize their uptime in all environments.

- Unit handling & conveying
- Compressors & air handling
- Pumps in breweries, dairy applications, etc.

Condensation solutions



ABB's condensation solutions including type 316 stainless steel drain adaptors and ball valves can be installed in stamped enclosures to drain moisture and ensure food safety. • Severe washdowns in meat,

- · Bottling lines
- Wet processing facilities
- poultry, dairy, etc.

Electrification (continue)

Product/offering

Benefits and features

Suggested applications

Vibration resistant fittings & connectors



Vibration threats are minimized with ABB's Strain Relief Fittings, 90 Degree Fittings, TITE-BITE® Connectors and more. These solutions resist vibration, allow for lateral and axial movement and are available in a variety of materials and temperature ranges.

- Food processing machinery & equipment
- Dairy applications
- Distribution centers
- · Unit handling & conveying

Stainless steel conduits



ABB's stainless steel and sand cast aluminum conduits are perfect for food and beverage applications because of their corrosion resistant properties. Sand cast aluminum is especially lightweight, easy to use and has superior corrosion resistant properties. Our portfolio of products are suitable in • Food processing machinery harsh environments and can even be liquid tight.

- · Bottling lines
- Wet processing facilities
- Severe washdowns in meat, poultry, dairy, etc.

Russellsoll® interconnection systems



Complete line of interconnection systems exceeding ULR and IEC 60 309 and IP67 ratings. Range 20 Amp to 600 Amp, durable brass pins, stainless steel hardware and corrosionresistant housing materials such as PBT. Reliable connections in washdown, corrosive and hazardous environments.

- · Food processing
- Bottling lines
- Wet processing facilities
- Dry processing facilities
- Severe washdowns in meat, poultry, dairy, etc.

SS Cable Tray & SS One Piece Tray



Stainless steel cable tray offers great yield and creep strength • Food processing at high temperatures. It's resistant to chemicals at elevated temperatures and has maximum corrosion resistance. The system's open design eliminates moisture buildup and reduces damage to cable insulation during installation.

- **Bottling lines**
- Wet processing facilities
- Dry processing facilities
- Severe washdowns in meat, poultry, dairy, etc.

Rotary disconnect switches



ABB offers the widest and most compact range of disconnect • Motor lockout/tagout switches in the market. These enclosed manual motor controllers are rotary operated and are suitable for wet and corrosive environments.

- disconnect
- **Bottling lines**
- Wet processing facilities
- · Dry processing facilities
- · Severe washdowns in meat, poultry, dairy, etc.

Heavy duty safety switches



The first maintenance free heavy duty safety switch is designed for a variety of food and beverage applications. Its robust design and maintenance free construction ensure smooth and reliable operations.

- · Main disconnect device
- Wet processing facilities
- Food processing machinery
- Corrosive environments requiring 316 acid proof stainless steel

SRX stainless steel enclosures ABB offers a complete line of NEMA 4X, Type 304 stainless



steel enclosures that provides superior corrosion resistance in • General food processing harsh and washdown environments. These enclosures are ideal for use as control panels for food and beverage processing plants.

- · Milk & dairy processing
- · Bottling lines
- Brewery & wine processing
- Bakeries

Surge protective devices



Surge protective devices are designed to protect against transient surge conditions. Surge events can be caused by lightning or load switching and can cause immediate or intermittent equipment failure. ABB's SPDs are designed to protect a variety of applications including critical power facilities, renewable energy and food and beverage manufacturing from these surge events to ensure the highest level of power quality and reliability.

- Warehouses
- · Distribution centers
- Food processing machinery & equipment
- · Unit handling & conveying
- Bottling lines

Control panels



ABB's control panels offer a wide range of features and functionalities for maximum operability. For example, the SMISSLINE TP's modular IP20 touch proof bus assembly allows • for simple reconfiguration and maintenance, reducing space and installation time. Design changes and future expansion are easily accomplished by connecting additional devices.

- Food processing machinery & equipment
- Unit handling & conveying
- · Bottling lines
- Power distribution panels

Power

Product/offering

Benefits and features

Suggested applications

Substations



ABB's optimized turnkey substations transform and transmit safe and reliable electricity from conventional and renewable power generation plants to food and beverage facilities.

- Bottling lines
- Warehouses
- Sugar processers

Transformers



ABB offers a complete line of both liquid filled and dry type transformers for the food and beverage industry. Our transformers have the specifications that the food and beverage industry require for their sensitive processes.

- · Grain processors
- Distribution centers
- · Bottling lines
- Breweries

Microgrid



Food and beverage facilities require constant, reliable power and ABB's microgrids do just that. We provide a full range of enabling technologies including conventional and renewable power generation, automation, grid stabilization, grid connection, energy storage, control technology, consulting and service for any need.

- Warehouses
- Sugar processing
- Grain processing
- Distribution centers
- Breweries

Industrial automation, measurement & control

Product/offering

Benefits and features

Suggested applications

- Operations Management -Manufacturing Execution System (MES)
- ABB AbilityTM Manufacturing Manufacturing operations management tailored to the food and beverage industry - from incoming raw material to finished product. MES delivers improved levels of operations efficiency, productivity, asset optimization and capacity with full traceability and product genealogy across the supply
- Food manufacturing
- Beverage manufacturing
- Packaging & containers
- Breweries & bottling lines
- Dairy & protein processing Ingredients & confections
- · Sugar refining & processing

Operations Management (MOM) - Process Intelligence



ABB AbilityTM Manufacturing ABB Ability MOM Process Intelligence turns data from your industrial plant into actionable information. It supports users • Dairy & protein processing working with the overall plant operations in the context of data analysis and reporting. It provides decision-making applications to view and analyze data, such as plant performance, create reports, connect to any data source and secure storage of process data. It connects to control systems and accesses historic data.

- · Blending operations
- Ingredients & confections
- Breweries & bottling lines
- Warehouse & distribution

ABB Ability™ System 800xA



ABB Ability System 800xA is a Distributed Control System (DCS) and process automation platform for batch, discrete and continuous process flow environments including a wide range of I/O offering. 800xA provides extended integration to • Beverage manufacturing various industrial, hydraulic and electrical controls, safety systems, instrumentation, asset and device management, data visualization, power management, video surveillance and · Dairy & protein processing telecom systems, temperature and climate control systems, database historians and application systems. It included dedicated libraries for dairy applications, for sugar applications, for routing and CIP (Cleaning-in-place)

- Batch blending operations
- Continuous process flow Food manufacturing
- Breweries & distilleries
- Bottling & fill processing
- · Ingredients & confections

Freelance DCS



Small to medium size (50 ... 1500 IO comfort size), "non-scary" • Continuous process flow DCS, easy to maintain with Formulation and Basic Historian. Freelance combines the advantages of DCS and PLC: the small • Beverage manufacturing footprint of a PLC, together with the full functionality of a DCS. The integrated environment simplifies engineering, commissioning, maintenance and fieldbus management.

- Food manufacturing
- Breweries & distilleries
- Bottling & fill processing
- · Ingredients & confections

Industrial automation, measurement & control (continue)

Product/offering Suggested applications AC500 PLC AC500 Multiple fieldbus opportunities and motion control · Food processing machinery library support the food and beverage applications from raw Unit handling & conveying material handling, to processing. Creating Solutions with PLC, (pick, pack, fill, material HMI and Drives with one engineering tool. handling and labeling) Pumps in breweries, dairy applications, etc. · Grain elevators Mixing/blending · Bottling & fill processing Panel 800 User-friendly, intuitive and ergonomic operator panels for • Batch blending operations process automation systems that combine slim, space-saving • Continuous process flow dimensions with a comprehensive range of advanced Food manufacturing · Beverage manufacturing functions. Breweries & distilleries Bottling & fill processing

CP600 and CP600-eCo, CP600 sanitary design



Control panels with wide range of screen sizes dedicated for machines and systems requiring high operation performance, ease of use, versatile visualization and/or representative

 Unit handling & conveying (pick, pack, fill, material handling and labeling),

· Dairy & protein processing • Ingredients & confections

- Pumps in breweries, dairy applications, etc.
- Grain elevators
- Mixing/blending
- Bottling & filling machines
- Packaging & palletizing machines
- Sanitary design for industrial machines like cutters, mixers, grinders, emulsifiers for manufacturing of meat, poultry, seafood

SCADA



Local process control is enabled by ABB's supervisory control • Blending operations and data acquisition technology. SCADA incorporates remote • Batch blending operations monitoring, maximizing power usage and more, enabling food • Packaging & containers and beverage facilities to operate optimally and efficiently. The control system provides users with a comprehensive view • Grain processing of the plant and can seamlessly consolidate and rationalize plant data.

- Breweries

Packaging

· Bakery applications

Product/offering	Benefits and features	Suggested applications
Sensors & analyzers	ABB offers a full range of flow, pressure, temperature and lever solutions certified for direct contact with food. The high levels of quality and consistency demanded in food and beverage applications call for not only accurate and reliable instrumentation equipment, but safe performance one can depend on.	Pasteurization Boiler houses Water treatment Mixing/blending Control rooms Filling lines Evaporators Cold storage
Recorders & controllers	ABB has a wide variety of both paper and paperless recorders as well as single and dual loop controllers for the food and beverage industry. Our recorders feature both paper circular chart and the latest paperless video-graphic touchscreen technology. Our ControlMaster controllers provide the clearest and easiest to understand displays in the industry. Available in both panel and field mount, making food and beverage process control easy.	 Pasteurizers Retort applications Cold storage/freezers Milk tanks/silo storag Humidity monitoring Carbonation control Packaging
I/O clustering	For communication between controllers throughout food and beverage plants, ABB's I/O clustering solutions enable connectivity for a wide range of process controllers from ABB	 Grain processing

as well as other suppliers. ABB's I/O system is highly modular

and supports industry standard field bus protocols.

Safety and protection

Product/offering JOKAB safety products



Our full line of JOKAB sensors, switches and other safety control devices have been engineered to operate in the harshest environments while complying with and many times • Sugar processers exceeding machine safety standards. We offer machine safety products that are IP69K washdown rated and can be used in a wide temperature range.

Suggested applications · Bottling lines

- Warehouses

AG cable ties



ABB's cable ties are innovative products made of FDAcompliant, fungal inert materials and are blended with bacteria-resistant additives. This new technology will vastly improve safety in food and beverage manufacturing environments making it easier for customers to comply with food safety regulations.

- Sugar processors
- · Wet processing facilities
- Grain processors
- · Warehouses

Other safety & protection products



Other ABB products that provide safety and protection in food and beverage environments include explosion proof lighting and enclosures as well as emergency lighting and central battery systems.

- Warehouses
- Distribution centers
- All F&B facilities from raw material allocation to distribution of the final product

Service

Product/offering

Benefits and features

Benefits and features

Suggested applications

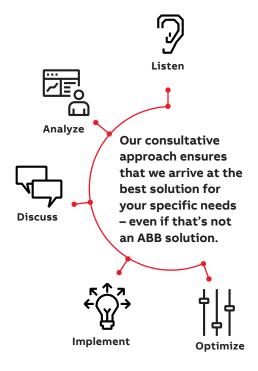


With a global installed base and domain expertise, our services improve operational efficiency, reliability and performance of your systems and equipment across the complete lifecycle while lowering environmental impact. ABB offers Global Support Centers providing 24/7 phone response, monitoring centers and on-line support.

- All F&B facilities including bottling lines, warehouses, sugar processers and more
- ABB can service ABB products and competitor products

Talk to us

Our expertise in every segment, from sugar production to beverage bottling, means we understand that everyone's needs are different. We take the time to get to know your business and unique challenges before providing our recommendations.



Ready to talk?

No matter the challenge, when it comes to food & beverage, we can find the solution, together.



ABB SA

Athens 13th km Athens - Lamia Rd GR 14452 Metamorphossi Tel.: +30 210 2891500 e-mail: abb@gr.abb.com

Thessaloniki 15th km Thessaloniki -N. Moudania Rd GR 570 01 Thermi Tel.: +30 2310 460900 e-mail: abbng@gr.abb.com

abb.gr

© Copyright 2018 ABB. All rights reserved. We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsover for potential errors or possible lack of information in this document. We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.