



Food & Beverage safety and productivity for **changing consumer expectations and trust**

ABB Safety Series

Food & Beverage

Installation Products Division



**Powering Food & Beverage safety,
productivity and consumer confidence**



ABB Food & Beverage Safety Series

Food & Beverage safety and productivity for
changing consumer expectations and trust.



1 Powering Food & Beverage safety for global consumers

Fire was an early advancement in food and beverage safety, enabling our ancestors to cook items instead of freezing or drying.

Over the past 2 million years, food and beverage preservation and processing methods have continued to evolve. Today, Food & Beverage is one of the largest manufacturing sectors.¹ Consumer expectations for food safety have also broadened beyond simply trusting what they eat and drink is safe.

Today's shoppers are more conscious and consider many factors including:

- **Environmental impact** of food and beverage production
- **Sustainable** and transparent waste management, processing methods and packaging
- **Responsible** agriculture, harvesting and livestock practices
- **Accurate** and clear labeling
- **Quality** of ingredients
- **Eliminating contaminants** that are chemical, microbial or physical and artificial additives and ingredients
- **Compliance** with standards and requirements
- **Options to support** dietary restrictions, taste preferences, and health and wellness
- **Convenient**, portable and prepared meals
- **Traceability** across the entire food production cycle and global supply chain
- **Customer** communications and service
- **Employee training** and cleaning procedures

Part of a series on electrification and safety in Food & Beverage processing

¹ https://www.energy.gov/sites/default/files/2013/11/f4/energy_use_and_loss_and_emissions_food.pdf



2 Focus on safety intensifies

The pandemic changed consumer behaviors and lifestyles. Online ordering and contactless delivery and pick-up services have forced grocers, restaurants and the food industry as a whole to focus on safe shopping, transportation and digital experiences.

It's also been increasingly important for Food & Beverage companies to reassure customers they're implementing proper safety precautions and cleaning practices. At the same time, many food and beverage processors are challenged to step-up production amid a tighter labor market, shifting regulations and supply shortages.

Food & Beverage manufacturers were already working to fulfill diverse dietary preferences and growing demand for a greater variety of convenience and packaged foods, health and wellness options, alternative proteins, and natural and organic products.

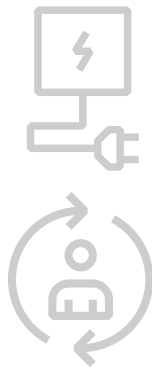
— Consumers expect clear information about ingredients, food sources and **safety practices** from plant-to-plate.

— As an industry that relies heavily on **electrification**, food and beverage processors are seeking **safe, smart and sustainable electrical solutions** and practices to enhance productivity and customer confidence.

Empowered consumers also expect supply chain transparency and to know where their food comes from, whether producers have sustainability initiatives, and the safety of the environment in which items are prepared. These shifting behaviors and expectations are leading many food and beverage processors to look holistically at their operations. We're seeing more consideration given to source-to-socket electrification solutions and systems that will enable faster and safer cleaning, processing, packaging, storage and transportation.



Designing for consumer confidence across the Food & Beverage environment.



3 Electrification

Electrification is fundamental in keeping up with the evolving Food & Beverage industry.

Every touchpoint across food and beverage production is held to high standards of safety, including personnel, practices, preparation and packaging. The ABB Installation Products team works with companies across the food and beverage production spectrum. In a dynamic Food & Beverage industry, top areas we find that can contribute to electrical system failures and cause safety concerns and unscheduled downtime include:

- **Speed and safety** are priorities for food and beverage processors, with greater scrutiny to meet stricter labeling requirements and implement more robust food safety practices.

Consumer demand for new products and more information about ingredients is driving shorter product development cycles, speed of changeovers, and integration and adoption of new technologies. Downtime in an F&B production plant can cost thousands of dollars per line per hour and result in food waste. Overlaying the entire operations are production schedules that plan for minimal downtime, while including added or extended shifts, maintenance, cleaning and sanitation.

- **Continuous operations** can strain systems, components and conditions as more facilities extend production or move to 24/7 operations. Under pressure to optimize production, maximize uptime and ensure on-time delivery, F&B processors need flexible and reliable solutions to adapt to supply fluctuations and demand surges. Choice of materials affects speed and ease of cleaning, performance and lifespan of electrical installations.
- **Harsh production environments** in food and beverage manufacturing environments include corrosion, exposure, liquid ingress, extreme temperatures, and other hazards that can impact efficiency and profitability. Combustible materials and dust accumulation add further risk and where ABB's explosive proof-rated electrical components can help.



It's important to address the critical electrical codes, standards and specifications for a Food & Beverage processing facility outlined by each of the following organizations:



NEMA 1, 12, 3R, 4, 4X

IP69K



Understanding the impact electrical system design has on **reliable and safe** food and beverage manufacturing has led ABB to develop products that are extensively tested and meet industry standards – **solutions** with hygienic properties, offset ability, liquid ingress protection, and that offer chemical and corrosion resistance.



4 Contamination risk & safety

Over decades in the Food & Beverage industry, the ABB Installation Products team has found many food recalls and outages are preventable.

Improving the degree of food safety in a facility can be achieved with proper material selection, ratings and design features that make equipment and components easier to clean, while eliminating places for bacteria, contaminants and food debris to hide.

Opportunities to improve cleanability, detectability, productivity and reduce contamination risk include:

- Corrosion
- Liquid ingress and condensation
- Washdown
- Temperature transitions
- SKU reduction and standardization
- Antimicrobial and hygienic designs in key applications

The shift from upfront expense

to consideration of equipment replacement costs and avoidance of waste is also leading more producers to move to long-term, sustainable solutions.

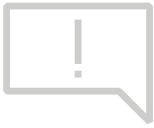
Cleaning and sanitizing practices are top-of-mind for consumers and food and beverage processors.

In food and beverage processing, detection is prevention. ABB has continued to innovate in the F&B industry with solutions such as Ty-Rap™ heat-reactive cable ties that change color to warn of potentially dangerous high temperatures in equipment and distinctive, blue-colored ties that have buoyancy for visual detection in batters and liquids.

Intense pace of change and pressure to modernize can lead to inconsistent practices, fragmented solutions and incomplete risk mitigation approaches. As advances in automation, digital technology and control capabilities are integrated into the production environment, flexible designs need to allow for reconfigurations within a certain area or existing facility footprint. ABB's flexible conduit adjusts as needs change and can help Food & Beverage processors keep operations running smoothly and safely.

Fragmented systems can lead to safety and productivity issues. Under pressure to incorporate technology, some Food & Beverage manufacturers have put in place short-term or disjointed systems. Using proper cable protection and compatible components helps guard against leaks and contaminants. ABB is helping protect this industry with electrical elements – from conduit and cable to fittings and fasteners – that work in concert and help facilities achieve higher levels of safety and productivity.





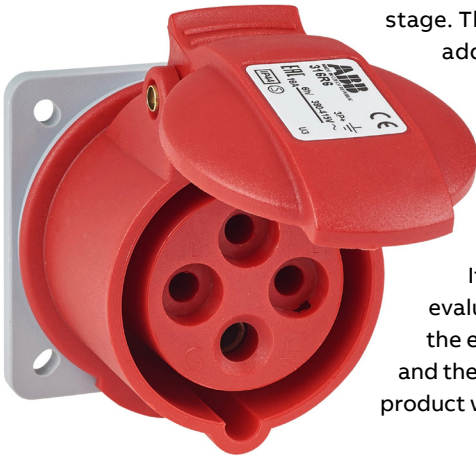
5 Evolving electrification from source-to-socket and plant-to-plate

From automation to digitalization, ABB is working with food and beverage manufacturers around the world to implement safe, smart, and sustainable electrical solutions.

Whether prompted by a recall or threat, identified through a site review, or part of a plan to accelerate production or meet customer needs in a different way, ABB works with manufacturers

across all Food & Beverage segments at any stage. The ABB team can assess and address capacity and cleanliness of existing operations and electrical systems and help implement standards around food safety, people safety and reduction of unscheduled downtime.

It can also help save time when evaluating options because of the extensive testing ABB conducts and the team's knowledge of how a product will perform in an environment.

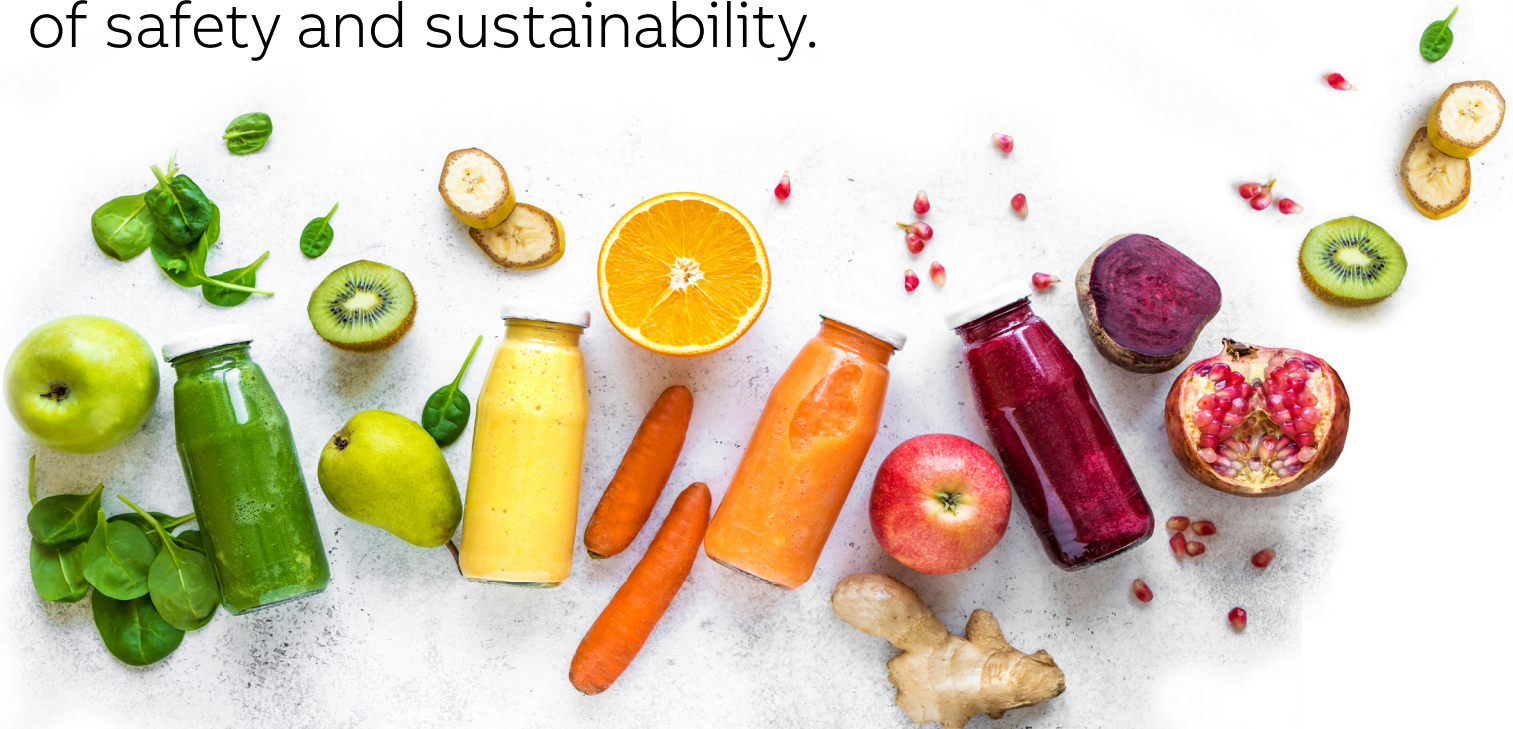


Most often, Food & Beverage producers reach out to ABB about options for a certain area of their facility or to request a fresh review of their operations. The ABB team can assess their current environment and identify existing and potential electrical issues.

This no-cost, **site assessment** includes the following steps:

- 1. Consultation and plant assessment** – ABB assessors review a facility's installation system assets and challenges before conducting a plant walkthrough, which average 2-4 hours per 200,000 sq. ft. The team works with manufacturers across the Food & Beverage processing spectrum including: Agriculture, Bakery and Confectionary, Brewing / Beverage, Dairy, Ingredients, Food Retail, Meat, Poultry and Seafood, Sugar, Aquaculture.
- 2. Findings and recommendations** – If any existing or potential threats to a plant's uptime and profitability are identified, ABB prepares a Final Value Proposition (FVP) document. An FVP outlines key application areas and recommendations, including food safety and facility sustainability. There's no obligation to implement the solutions. These insights can help support new initiatives or be integrated into an organization's existing or updated Food Safety Plan.

Food & Beverage manufacturers are focused on **increasing production**, variety, quality and efficiency, while driving higher standards of safety and sustainability.



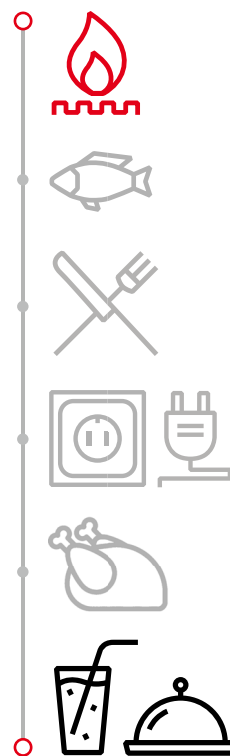
Now we're cooking...

At a time when we can remotely cook a meal with an app and have food delivered within minutes, **people have high expectations** for the food and drinks they consume and the companies involved at every point from plant-to-plate.



Evolving from the earliest processing methods

to electrification and efficiency across the entire Food & Beverage production spectrum.



However it's produced...

... baked, extracted, fried, frozen, pasteurized, seared, smoked, or juiced – food and beverage manufacturers have **electrification solutions** from ABB to enhance the productivity and safety of their operations and the trust and enjoyment of their customers.

Acknowledgments

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ABB Installation Products Inc.

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About ABB Installation Products

ABB Installation Products Division, formerly Thomas & Betts, is a global leader in the design, manufacture and marketing of products used to manage the connection, protection and distribution of electrical power in industrial, construction and utility applications. With more than 200,000 products under more than 38 premium brand names, ABB Installation Products solutions can be found wherever electricity is used.