



Reducing financial risk

Raising the bar on productivity and safety

ABB Safety Series

Food & Beverage Primer

Installation Products Division



Electrical design and cost-cutting
considerations to minimize risk
and downtime across Food & Beverage
processing

Food & Beverage Primer



From automation to ovens, many **Food & Beverage** processors are investing in new technology and equipment to **optimize performance** and hit production targets.

At the same time, the focus on cutting costs and waste has intensified amid inflation pressures and shortages.

There's a lot to consider and procurement processes often involve many different suppliers.

1 Small savings can cost big

With so much at stake and a lot on their plate, procurement and sourcing functions are seeking to balance capital expenditures with inventory, maintenance, labor and other expenses. The focus on controlling overall costs is leading some F&B manufacturers to piece together systems with incorrect products that **can cost much more over time.**

Electrical systems power nearly every aspect of production. Although important in any manufacturing operation, in harsh F&B environments it's critical to match the right solution to the application to protect vital electrical components, panels, enclosures, motors and more. Using disparate electrical systems and untested or improperly rated products may offer small up-front savings that ends up costing more on the back end in terms of big risk and sometimes thousands to millions of dollars, depending on the issue or failure.

Contamination or a food recall can harm more than the bottom line. With the average recall estimated between **\$10 - \$30 million USD** in direct costs, installing properly rated products can help reduce this threat and spiraling related expenses. A recall adds up in costly downtime, maintenance, equipment failure, replacement costs and lost sales, plus the damage to customer trust and brand value. Increased scrutiny, insurance and compliance requirements post incident further challenges recovery.

Day-to-day, many F&B production facilities are operating around the clock and even a brief interruption can be costly – resulting in scrapped product and potentially up to hundreds of thousands of dollars lost per line per hour.

2 Cost-cutting in the right places

Beyond the financial impact of a food recall or outage, using the correct product for the correct application can improve overall equipment effectiveness (OEE), reliability, operational efficiencies, quality, hygiene, safety, and uptime.

Over decades in the Food & Beverage industry, ABB has found many food recalls and outages are preventable. Integrating properly rated solutions that are configured to work well together are easier to install and maintain – saving time and labor.





Innovations in system design and materials also help F&B processors comply with evolving standards and increase the likelihood of identifying and addressing potentially expensive issues early.

Improving hygiene and safety in a F&B environment can be achieved with proper material selection, ratings and design features that eliminate places for bacteria, contaminants and food debris to hide, as well as make cleaning easier. Throughout Food & Beverage processing facilities, cable protection and wire management solutions are an essential part of the entire electrical system.

Factor in demanding production schedules, added and extended shifts, maintenance, cleaning and sanitation, and the incorrect solutions can add up, including equipment failure and unscheduled downtime, lost customers and confidence, and a significant financial impact.



Implementing properly rated **solutions** reduces exposure and unnecessary risk and can pay off in safety, productivity and savings.

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



UL/CSA
NEMA: 4, 4X, 12

IEC 60529 IP66,
IP67, IP68, IP69,
IP69K

As an industry that relies heavily on electrification, smart food and beverage processors that invest in properly rated electrical solutions may realize greater long-term benefits and savings.

The key is to match compatible and cleanable solutions to the zone, assuring they are designed to perform reliably in the specific environment such as safeguarding against temperature transitions, high-pressure and caustic cleaning, liquids, cable damage and contamination.

ABB works with food and beverage partners to integrate solutions that meet required ratings, training and certifications, and to assess and address a wide range of needs including:

- **Continuous** operation and asset optimization
- **Corrosion** and condensation protection
- **Washdown** protection
- **Liquid** and dust ingress
- **Hazardous** locations
- **Temperature** transitions
- **Food safety** and contamination prevention with antimicrobial properties and hygienic designs to resist bacteria
- **People** safety and training
- **Machine** safety

3 Protect your investment and peace of mind

When considering electrical solutions, food and beverage processors are often unsure how a product will perform or impact a process until it is installed. The ABB Installation Products team works with third parties to conduct extensive testing and verify performance in a wide range of applications and environments, enabling F&B processors to avoid a costly trial and error approach and choose proven systems.

Most common are opportunities to improve cleanability, detectability, productivity and reduce contamination risk in key applications. After assessing a facility's electrical systems, ABB outlines solutions that consistently help:

- **Enhance** overall equipment, plant and personal safety
- **Increase** overall equipment effectiveness (OEE)
- **Extend** electrical system service life
- **Improve** sustainability and revenue
- **Cut** electrical system changeover to reduce downtime



4 Strategies that save

Every touchpoint across food and beverage production is held to high standards of quality and safety, from personnel and practices to preparation and packaging. Ensuring all electrical elements, including conduit, cable and wire management, fittings and fasteners, work in concert is how ABB takes the guesswork out of sourcing solutions that enable the highest levels of safety and productivity.

Here are a few examples from the field where smart facility management = financial benefits:

Integrated solutions – A large, prepared meat processor frequently reconfigured its facility and pieced together electrical equipment as it added new lines and technology. An electrical system review helped the team integrate modular systems and compatible solutions to reduce changeover time and improve cleanability, reliability and safety.

Corrosion resistance – A multibillion-dollar prepared frozen food facility installed aluminum in several areas as a lightweight option to save on initial installation labor and material costs.

Within the year, the facility team replaced all the material and installed ABB's Ocal® PVC-coated conduit systems to protect wiring and maximize corrosion-resistance, cleanability and color-coding organization. Stainless steel is also a smart investment that stands up to corrosion, minimizes maintenance and may deliver over a decade of performance for significant savings.

Ingress protection – Facilities producing ready-to-eat products and prepared foods integrated compatible components from ABB, so joints and metals prevent leaks and contaminants and allow cleaning at higher psi and temperatures.

Explosion protection – An ABB Plant Installation assessment at a leading bakery found excessive dust build-up underneath equipment. In addition to the highly combustible accumulation, the removal of numerous electrical covers exposed conductors and magnified the danger. To address the flammable dust challenge, the facility installed ABB's explosive proof-rated electrical components.

As F&B processors consider strategic investments aligned with digitization and production goals, the right electrical solutions will address specific risks and potential vulnerabilities to better connect, protect and power the operation and deliver significant long-term value.



US

ABB Installation Products Inc.

electrification.us.abb.com

Learn more

about reducing expenses and downtime as part of Food & Beverage facility management and download ABB's F&B Preventative Maintenance Walk-through brochure.



Acknowledgments

We thank Brian Barr and our ABB Electrification and ABB Installation Products experts who provided insights and perspectives. We also acknowledge our communications and project team, including Barbara Brokken, Amy Sorkin and Cristy Williams.