



















# Low- and medium-voltage products and systems











## Food and beverage global product offering

ABB understands the challenges our customers are facing in the food and beverage processing industry today. We're focused on providing electrical solutions that address the critical issues in every area of your operation, so you can focus on plant sustainability, cost, quality, flexibility, safety and regulatory challenges across the production cycle. Our family of low- and medium-voltage products matches specific application criteria from start to finish inside food processing areas, assuring the quality and reliability of your electrical system throughout your facility, from incoming raw materials through shipping of finished goods.









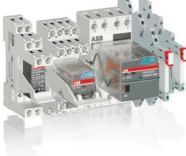


Product / Offering	Benefits and features
<p><b>Metallic flexible conduit systems</b></p> 	<ul style="list-style-type: none"> <li>- Food Grade liquidtight System (IP67,68 &amp; 69K)</li> <li>- Galvanized steel core string packed with Anti-microbial</li> <li>- Highly chemical resistant – extreme temperature jacket</li> <li>- Bacteria level reduced by up to 99% in two hours, with an 80% reduction in the first 15 minutes compared to an unprotected surface</li> <li>- Designed for extreme-temperature environments</li> <li>- Operating temperature range: -50°C to 350°C</li> <li>- Enhanced low fire hazard conduit with stainless steel overbraid</li> </ul>
<p><b>Nylon flexible conduit systems</b></p> 	<ul style="list-style-type: none"> <li>- Provide excellent flexing and fatigue life in extreme operating temperature ranges</li> <li>- Excellent resistance to lubricants &amp; highly corrosive chemicals</li> <li>- Smooth outer layer conduits for food dust</li> <li>- PA / PR conduit systems, polyamide (Nylon) 6, self extinguishing, halogen Free, very high UV resistance</li> <li>- Self extinguishing, haleogen free</li> <li>- Very easy to install conduit fittings with ingress protection ratings IP66/67/68/69K</li> </ul>
<p><b>Explosion proof conduits &amp; fittings</b></p> 	<ul style="list-style-type: none"> <li>- Full range of nylon and metallic cable protection systems</li> <li>- Cable glands</li> <li>- ATEX, IECex, UL/CSA approved</li> <li>- Ongoing R&amp;D program for innovative and high performance products</li> </ul>
<p><b>Liquidtight fittings</b></p> 	<p>Type A liquidtight flexible non-metallic conduit with non-metallic or stainless steel fittings</p> <ul style="list-style-type: none"> <li>- Ideal for continuous flexing or vibration applications</li> <li>- Creates a liquid-, dust- and oil-tight seal</li> <li>- Suitable for operating temperatures from -20° to 60°C</li> </ul> <p>Other fittings available</p> <ul style="list-style-type: none"> <li>- Type B non-metallic</li> <li>- Type C stainless steel or aluminum</li> <li>- ATX high-/low-temperature                             <ul style="list-style-type: none"> <li>- Wire-mesh strain-relief cord and conduit grips</li> <li>- XD expansion/Deflection coupling</li> </ul> </li> </ul>
<p><b>STAR TECK® XP explosion-proof fittings</b></p> 	<p>Form a strong mechanical grip and water and/or oil-resistant termination</p> <ul style="list-style-type: none"> <li>- Provide grounding continuity of cable armor</li> <li>- Patented powergrip grounding ring for easy installation</li> <li>- Designed to accommodate a broad range of cables</li> <li>- Built-in sealing device provides a 3600 seal when enclosure surface is rough or uneven</li> <li>- NEMA 4, 4X (stainless steel), 6P ratings</li> </ul>
<p><b>STAR TECK EXTREME® DIRECTOR™</b></p> 	<ul style="list-style-type: none"> <li>- Fitting adjusts from 90° to 180°</li> <li>- Saves on Installation time by up to 50%</li> </ul>










Product / Offering	Benefits and features
<b>Stainless steel Form 8 and BlueKote® conduit bodies</b> 	<ul style="list-style-type: none"> <li>– Marine-grade Type 316 stainless steel construction in rugged Form 8 design in sizes to 2" and LB, T, TB and LU® shapes</li> <li>– Ferrous Form 7 and Form 8 designs in all popular sizes and shapes with triple-layer, corrosion-resistant BlueKote® finish</li> <li>– UL Listed and CSA Certified</li> </ul>
<b>Explosion proof lighting &amp; enclosures</b> 	<ul style="list-style-type: none"> <li>– Hazardous lighting and emergency lighting: ATEX, IECex approved, LED technology, tubular: anti dust</li> <li>– IP66, IK 08 weatherproof LED tubular fittings</li> <li>– Control boxes, cabinets and junction boxes: ATEX, IECex approved</li> </ul>
<b>Hazlux hazardous location lighting (UL)</b> 	<ul style="list-style-type: none"> <li>– Explosion-proof fixtures for Class I, II and III hazardous locations</li> <li>– Enclosed, gasketed and rated NEMA 4X, IP66 and UL1598 for wet and marine locations</li> </ul>
<b>HazCote® Kynar-coated lighting fixtures</b> 	<ul style="list-style-type: none"> <li>– Enclosed, gasketed, sealed fixtures for adverse, wet and marine locations</li> <li>– Cast aluminum with HazCote® corrosion protection</li> <li>– Silicone-coated safety-glass globe to restrain glass particles in case of breakage</li> </ul>
<b>Ty-Met stainless steel cable ties &amp; tooling</b> 	<ul style="list-style-type: none"> <li>– Ballock, ladder type, releasable, identification, tooling</li> <li>– Strong, safe installation with unique dual-locking mechanism</li> <li>– Coated version: halogen free, non-toxic polyester</li> <li>– Uncoated version: for extreme / high temperature applications: -80°C to +300°C</li> <li>– Corrosion resistant 316 grade stainless steel</li> <li>– UV-resistant, weather &amp; fire-proof, resistant to radiation, chemicals, absolutely fireproof</li> <li>– Strong and easy to apply for safe cable bundling</li> <li>– Ty-Met cutting &amp; tensioning tools</li> </ul>
<b>Detectable systems &amp; tools</b> 	<ul style="list-style-type: none"> <li>– Detectable with metal detectors, X-Ray equipment</li> <li>– Help achieve the HACCP EU directive Bright blue colour helps with visual detection in food &amp; drinks</li> <li>– Nylon (Polyamide) version with metal particles</li> <li>– New: detectable mounting bases</li> <li>– Polypropylene version with particles of metal for floating in liquids (depending on liquid type density)</li> <li>– Ty-Rap® Cable Tie Dispensers and Ergonomic Installation Tools</li> </ul>
<b>Emergency lighting &amp; central battery systems</b> 	<p>ABB offers of a comprehensive portfolio of robust emergency, central battery supply, and monitoring systems. With our optimized lighting optics based on the latest LED technology, we are able to offer lower energy and maintenance costs. (Note: Building and safety standards and products vary by country.)</p>
<b>Cable tray and metal framing</b> 	<p>T&amp;B® cable tray is a cost effective, reliable and adaptable alternative to conduit systems. Additionally, ABB offers a comprehensive line of metal framing and cable tray, including the industry's only 100% plated products, our 1½" modular system, and hundreds of accessories to complete any job.</p>
<b>Wire termination and tools</b> 	<p>A full line that includes insulated and non-insulated terminals, splices, wire joints, disconnects, ferrules, heat-shrinkable terminals, splices and disconnects in imperial and true metric sizes. A complete set of tooling is included.</p>
<b>Heat shrink solutions</b> 	<p>A broad range of heat shrink products with different wall thicknesses (thin, medium, thick), packaging (reels, cut lengths, dispenser boxes, pre-cut bags), shrink ratios (2:1, 3:1, 4:1), different colors, pre-molded parts, with or without glue are offered (dual).</p>
<b>Compression cable lugs and tools</b> 	<p>AWG, IEC and DIN compression connectors, made of the highest-grade materials offering high conductivity/low resistance, meet or exceed all industry standards. Range includes straight and angled connectors and splices, plus a full range of mechanical, pneumatic, and battery operated compression tools.</p>

Product / Offering	Benefits and features
<p><b>Optical safety devices</b></p> 	<p>Optical safety devices are used to detect persons or objects entering a dangerous area. ABB offers a full range of light curtains, light grids and light beams. Integrated muting and local reset reduces the complexity, while alignment help, M12 connectors and a wide range of accessories speeds up installation. In order to reduce downtime there is easy diagnostics with extensive indication, protection of mutual interference with coding and protection against harsh environment with protective tubes and lens shields.</p>
<p><b>Programmable safety controllers and safety relays</b></p> 	<p>ABB offers safety PLCs, safety controllers and safety relays for different size and complexity of machines. The Pluto Safety PLC is powerful, cost effective and flexible with advanced features such as speed monitoring, analogue inputs, AS-i and arithmetic functions. The safety relays have great flexibility and a wide range of input options. They are small and compact with an excellent reliability and safety level.</p>
<p><b>Safety Sensors</b></p> 	<p>ABB offers highest safety level for harsh environments. Eden is a non-contact safety sensor for interlocked doors and safe position sensing. The safety sensor is used to assure that a machine stops when a door or hatch is opened. It can also be used to monitor if a robot is in a fixed position when someone enters the working area of the robot. A non-contact safety sensor consists of two complementary parts that can sense each others presence without mechanical contact. This enables more flexible mounting compared to traditional mechanical switches. Eden is constantly communicating between the two parts and any failure will directly lead to a stop signal.</p>
<p><b>Switches and Locks</b></p> 	<p>ABB has a full range of switches and locks used to control the gates and hatches around hazardous machinery, and to monitor the position of a machine.</p>
<p><b>Industrial Plugs and Sockets</b></p> 	<p>Easy to use, tough and supporting critical power, with safety as the highest priority for a wide range of applications. ABB has the full range of plugs and sockets for use in the harshest environments.</p>
<p><b>Miniature Circuit Breakers (MCBs)</b></p> 	<p>Miniature Circuit Breakers protect installations against overload and short-circuit, guaranteeing reliability and safety for operations. The System pro M compact S200 series are current limiting overcurrent protective devices. They have two different tripping mechanisms, the delayed thermal tripping mechanism for overload protection and the magnetic tripping mechanism for short circuit protection.</p>
<p><b>Residual Current Devices (RCDs)</b></p> 	<p>Residual Current Devices protect people and equipment from the risk of fire. We offer a comprehensive range to cover all the applications in residential, commercial and industrial segments. ABB can offer all the RCD types according to IEC international standards like RCCBs, RCBOs, RCD-blocks, Earth Leakage Relays DIN-Rail and front panels.</p>
<p><b>Surge Protective Devices (SPDs)</b></p> 	<p>The OVR range is designed to protect electrical systems and equipment against transitory surges and impulses caused by lightning and operations on the electrical grid.</p>
<p><b>Modular DIN-Rail Components (MDRCs)</b></p> 	<p>Modular DIN-Rail Components, or MDRC, is a range of components that provide all functions to complete the offering of an electric switchboard (other than line protection and residual current protection) such as measuring, controlling and commanding. They are plugged on a standard DIN-Rail in just one click.</p>
<p><b>Electricity Meters</b></p> 	<p>Managing electrical supply is a priority. Without measuring usage, it is hard to determine efficiency. Measuring an electrical installation can save effort and money. The addition of energy meters for sub-metering and a current measurement system for branch supervision enables the monitoring of energy usage, from the incoming energy all the way down to the last branch.</p>

Product / Offering	Benefits and features
<b>DRAF</b> 	<p>DRAF is an enclosed direct-on-line starter embedding AF technology. It is used for motor starting up to 7, 5 kW and 10 hp and complies with both IEC and UL/CSA standards. Control of stand-alone motors like heat pumps, air conditioning units, small machine tools, irrigation, dairy sheds are typical applications for DRAF. TF42 thermal overload relays for motor protection should be selected separately according to motor's nominal current.</p>
<b>Enclosures</b> 	<p>ABB enclosures are ideal for single family houses, multiple dwellings, commercial buildings, infrastructures and industrial applications in compliance with international standards and community norms.</p>
<b>Cable Distribution Cabinets and Board</b> 	<p>Kabeldon Cable Distribution Cabinets fit well in most environments. They come in various designs and sizes, and perform well even under very tough conditions. At the same time, they satisfy current requirements for long life with undiminished safety and low operating and maintenance costs.</p>
<b>Control and Automation Boards</b> System pro E control 	<p>System pro E control is ABB's range of metal structures for automation. These have been enhanced thanks to the experience gained from working on the most industrialized and technologically advanced world markets. The metal structures conform to the IEC 62208, the IEC 60439-1 and to the new IEC 61439-1-2 Standard. Their performances are the market benchmark: high IP degrees of protection and IK resistance to mechanical impact, which permits installation in most industrial environments. System pro E control includes enclosures in steel sheet powder coated and enclosures in stainless steel AISI 304, allowing for indoor and outdoor installations.</p>
<b>Main Distribution Boards</b> System pro E power 	<p>System pro E power is ABB's solution for main distribution switchgears with rated current up to 6300A and short-circuit current up to 120kA. Meets all plant requirements depending on the type of installation, required degree of protection, and the electrical and mechanical specifications. ABB provides complete solutions for main electric power distribution in infrastructure and industries in accordance with the regulatory framework. In addition, System pro E power guarantees full compatibility with all other ABB products.</p>
<b>Molded Case Circuit Breakers</b> 	<p>ABB's molded case circuit breakers guarantee an extremely high performance level while being progressively smaller in size, simple to install and able to provide increasingly better safety. Our Tmax XT range is complete with four frame sizes: XT1, XT2 up to 160A, and XT3, XT4 up to 250A. Our Tmax T range completes the offering from 320A up to 1600A.</p>
<b>Air Circuit Breakers</b> 	<p>ABB Emax2 is the new benchmark of air circuit-breakers that not only monitors power, but has evolved into a true power manager. It is offered in frame sizes up to 6300A for application in accordance to IEC 60947 and UL 1066 standards with exclusive integrated functions such as the Ekip power controller, generator protection and network analyzer functions. Emax2 is the only breaker that protects electrical circuits and also reduces energy consumption based on the user's needs, thereby leading to massive reductions in energy waste. Emax2 contains the perfect blend of control, connectivity, safety and performance.</p>
<b>AC Switch Disconnectors</b> 	<p>The OT range of switch disconnectors from 16 to 4000A is suitable for diverse applications such as machinery, power distribution and motor control centers. Thanks to a modular design, OT switches are available in different pole configurations. Mounting is possible in any direction and a wide offering of accessories is available.</p>
<b>Transfer Switches</b> 	<p>ABB offers a wide variety of transfer switches from 16 to 3200A, including switches for manual, remote or automatic transfer of loads from one source to another. The switches are designed to be virtually maintenance free across their entire extended lifespan and offer safe and reliable change-over performance.</p>
<b>Enclosed Switches</b> 	<p>Our range of enclosed switches is one of the most complete in the market. Whether you need a main disconnect or a safety switch, you can always find a high quality product that suits your application. Our offering includes enclosed switch disconnectors, switch fuses and safety switches. The enclosures are made of plastic, sheet steel, aluminum or stainless steel.</p>



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<b>Cam Switches</b> 	<p>OC and OL cam switches are suitable for even the most demanding applications. A versatile selection of handles, mounting options, and accessories make it easy to create the perfect solution. With the online configurators, Camweb and Camweb2, users can design their own cam switch with confidence.</p>
<b>Switch Fuses</b> 	<p>OS switch fuses range from 20 to 1250A and are suitable for different types of fuses: DIN, BS, NFC, J and L. OS switch fuses have a modular design and are available in different pole configurations. ABB offers ready and tested type 2 coordination tables for easy and fast selection of motor control devices.</p>
<b>Fusegear</b> 	<p>ABB Fusegear products are designed for an easy, safe and reliable installation and operation in substations, Cable Distribution Cabinets (CDC), distribution boards in Compact Secondary Substations (CSS) and distribution boards in industrial, commercial and residential applications.</p>
<b>EasyLine XLP, Fuse Switch Disconnectors</b> 	<p>EasyLine range of fuse disconnectors ensures high protection and reliable operation in critical power applications, distribution boards, switchboards, and capacitor banks. A wide range of cable terminals and snap-on accessories make the installation easy and fast. EasyLine can be fitted into different distribution systems by means of busbar adapters.</p>
<b>SlimLine XR, Switch Disconnects or Fuse</b> 	<p>The SlimLine XR meets increasing demands in the industry for safe and reliable energy distribution. Thanks to the unique contact design and compact size, the installation is safe, fast and easy. For remote operation and monitoring, SlimLine XR is available with an integrated motor, electronic fuse monitor (EFM) or the new integrated energy monitoring device ITS2.</p>
<b>Installation Contactors</b> 	<p>ESB installation contactors are mainly used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps. They are designed to match the ABB modular DIN-Rail components and can be easily integrated in dedicated panels. EN contactors have a built-in toggle switch for automatic and manual application.</p>
<b>Signal Converters</b> 	<p>ABB's universal signal converters of the CC-range amplify, convert, isolate and measure any type of analog signal to ensure safe and reliable plant processes. Whenever you need 3-way electrical isolation, select an ABB signal converter to protect your process and automation applications from overvoltage.</p>
<b>Measuring and monitoring relays</b> 	<p>ABB's measuring and monitoring relays are designed to not only detect overloads, but also temperature, liquid and other potentially damaging fluctuations. Choose among a large range of high quality products to ensure reliable protection, save cost and avoid unplanned downtime of your processes and equipment by uninterrupted monitoring no matter what environment you operate in.</p>
<b>Interface Relays and Optocouplers</b> 	<p>ABB's interface relays and optocouplers ensure a reliable voltage conversion between process peripherals and higher level control systems. For all sorts of machinery, our relays ensure reliable signal switching and provide electrical isolation for your sensitive electronics such as PLCs. The wide variety of pluggable interface relays with standard or logic sockets can be used for switching AC or DC loads. Suitable for extreme environments, ABB's interface relays offers a range of different coil voltages and plug-in functional modules.</p>
<b>Electronic Timers</b> 	<p>The electronic timers of the CT range have been used in applications worldwide and have proven their excellent functionality in daily use, even under the toughest conditions. Three ranges of electronic timers provide timing functions for all applications. ABB ensures all low voltage timing control needs are met with our wide variety of product options—from economic to highly sophisticated, providing maximum value.</p>
<b>Primary Switch Mode Power Supplies</b> 	<p>The CP range offers the latest technology in a compact construction of power supplies. Modern power supply units are a vital component in most areas of energy management and automation technology. ABB pays the utmost attention to the resulting requirements. Innovation is the key to a substantial enlargement of our power supply product program.</p>

Product / Offering	Benefits and features
<b>Manual Motor Starters</b> 	<p>Manual motor starters are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF and to provide fuseless protection against short-circuit, overload and phase failures. Fuseless protection saves costs, space and ensures a quick reaction under short-circuit condition by switching off the motor within milliseconds. Starter combinations are set up together with contactors.</p>
<b>3-Pole Contactors and Overload Relays for Motor Starting and Power Switching</b> 	<p>ABB 3-pole contactors offer an exhaustive selection of products for simple and extreme applications as well as products with specific purposes. The AF contactor technology revolutionizes how we use contactors and allows use in all parts of the world and in a variety of network conditions. Furthermore, the mini-contactor range offers compact dimensions and specific connection possibilities. The AS contactor is efficient and allows optimization of equipment design. You can choose terminals between screw, spring and ring tongue from our range of products.</p>
<b>4-Pole Contactors for Power Switching</b> 	<p>ABB's AF 4-pole contactor range is a complement to the family of 3-pole AF contactors and motor protection equipment. Unmatched performance in a variety of applications and environments has made the AF contactors well appreciated by customers throughout the world. You can also benefit from the compactness of the 4-pole mini contactors available with 3 connection types.</p>
<b>Terminal blocks</b> 	<p>ABB proposes one of the largest connection offerings on the market with various technologies including screw, PI-Spring, (Push-In and Spring), spring, IDC, plug-gable, stud, etc. These are found in over 8,000 products.</p>
<b>Limit Switches</b> 	<p>Limit switches are electromechanical devices. The contacts are mechanically linked to an actuator. By combining different types of actuators, casings and contacts, our limit switches are perfectly suited to a large variety of applications, whatever the environment.</p>
<b>Motor Controllers</b> 	<p>The intelligent ABB Motor Controllers (Universal Motor Controller, UMC) for motor protection, motor control, fieldbus and Ethernet communication and fault diagnosis. Due to the benefits it provides, the UMC is used worldwide in many segments and in projects with several thousand motor controllers.</p>
<b>Soft Starters</b> 	<p>ABB's soft starters increase a motor's lifetime by protecting it from electrical stresses. They do so by letting you optimize starting currents that with conventional starting methods put lots of stress on the motor. 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 your assembly and startup time by being easy to use and easy to learn. With everything that you need in one unit, from bypass contactor to overload protection, a single soft starter makes for a compact and complete starting solution. Furthermore, with many application specific features, ABB's soft starters can ultimately help you increase productivity. Torque control, pump cleaning and many more features let you do more than simply softstarting.</p>
<b>Pilot Devices</b> 	<p>From the smallest inside component to the outer tough shell, ABB's pilot devices are pieces of engineering ingenuity. They are reliable, flexible, and available worldwide.</p>
<b>Emergency Stops</b> 	<p>An emergency stop device is used to permit anyone to stop machinery if it breaks down or if someone is in danger. ABB offers different types of traditional mushroom type emergency stops and grab wire emergency switches for various types of mounting. Most models are available with high IP rating for harsh environment.</p>