Get Savvy on how Emerson can optimize your Spirits Operations

Complete Solutions for the Distilled Spirit Industry
Proven automation solutions and local expertise to help you overcome your toughest challenges.

EMERSON™

Spirit Upstream Process	Tanks & Terminals	Distillation	Maturation	Bottling	Energy	Water	Electrical

Get Savvy on How to Optimize Your Spirit Operations

In today's highly competitive and rapidly evolving Spirits Industry, there is a need to strive continually to improve production throughput and flexibility, reduce product costs and meet aggressive sustainability targets. By teaming with Emerson, you'll gain the tools and insights to maximize your production capacity, reduce your production costs and associated product losses, and achieve a step change in reaching your sustainability targets.

Solutions for your Spirit Operation

Maximize Your Production Capacity
A lack of flexibility and excessive amounts of planned and unplanned downtime can prevent you from maximizing your production, subjecting you to higher operating costs. Emerson's solutions help you overcome these challenges by shortening your changeover time, increasing the effectiveness of your planned downtime, and reducing the frequency, impact and duration of unplanned events.

Reduce Production Costs
Product losses, rising labor costs and inefficient energy usage can erode your operation's profitability. Emerson's solutions help you reduce these production costs with advanced automation technologies that provide enhanced insight into your processes for assured product quality, more efficient operations and improved energy management.

Meet Your Sustainability Goals
Inefficient processes and/or insufficient equipment can impede your sustainability efforts by causing your operations to use too much water, produce excess waste, and increase your carbon footprint. Emerson's solutions provide enhanced insight into your operations for increased efficiency throughout your production process so that you can meet your sustainability goals.

Measurable Improvements

From enhancements to facility expansion, through to a new build, spirit producers are turning to engineering firms, consultants, integrators and automation solutions experts to maximize the return on investment and make use of the most recent technology advances to get a competitive edge in the market. Emerson offers a complete portfolio of software, product, solutions and services, along with deep expertise to support your Spirit Operations:

• Blending and cleaning solutions
• Motion control for packaging
• Smart diagnostics that reduce downtime
• Process sensing technologies
• Monitoring and diagnostics of pneumatic machinery
• Reliable valves
• Mass balance solutions
• In-line quality control and analytical devices
• Leak detection solutions
• Workforce effectives
• Smart Wireless solutions
• Energy management
• LED lighting and electrical solutions
• Extensive service and support
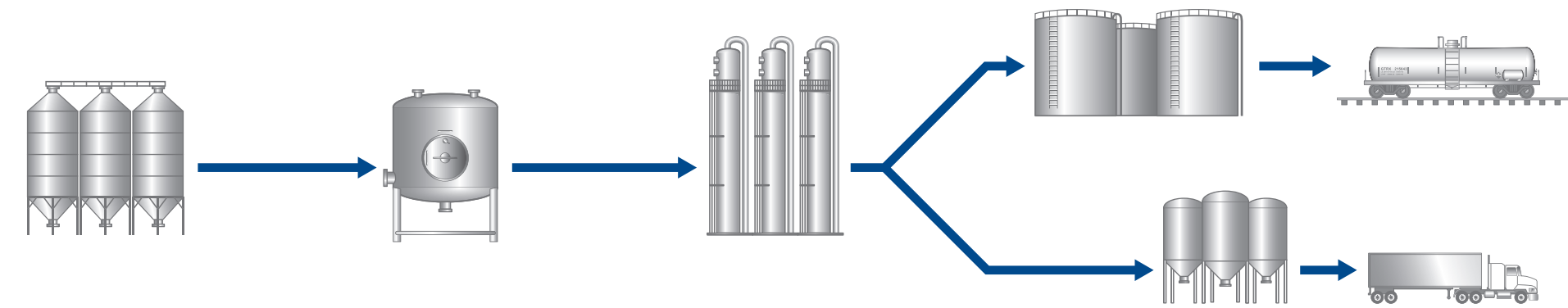
APPLETON™   **ASCO**™   **AVENTICS**™   **BRANSON**™

DELTAV™   **KEYSTONE**™   **MICRO MOTION**™   **ROSEMOUNT**™

Ethanol Production

Grains

The **Rosemount 2500 Solids Level Switches** offer a range of bulk solids point level measurement. They are compact in size, which is ideal for installation in any size vessel or silo. This time-proven and trusted technology is suitable for operations in the most challenging environments, including high temperature, pressure and dust.

Overcome the challenge of measuring large grain silos with a **Rosemount 5408 Non-Contacting Radar** solution. Advanced surface tracking ensures the level reading is correct and the air purging system avoids blockage of the antenna.

Additives

By starting the fermentation process using a **Micro Motion Coriolis Flow Meter**, you can eliminate the lag time between lab sample and enzyme addition, which can affect starch exposure, and ensure a constant enzyme feed by measuring in-line the additives to the fermenter.

The advantage? Maximize enzyme utilization and reduce costs.

Fermentation

Improve the alcohol yield during the fermentation process by regulating temperature changes with the **Rosemount or ASCO Fermentation** solution, whichprovides precise and real-time fluid control to manage the recirculation system.

Precision temperature control solutions prevent overheating and improve throughput during the fermentation process.

Utilize the **Rosemount 3051S Electronic Remote Sensor (ERS™) System** for monitoring specific gravity changes during fermentation

Distillation

Optimize the heating control of the distillation columns with a high precision in-line **Micro Motion Compact Density Meter.**

Obtain direct and in-line alcohol concentration measurement throughout the distillation process with **Micro Motion Coriolis Flow Meter** technology.

Maximize distillation production with the most reliable and complete instrumentation and control offering, including **Keystone valves.**

Ethanol

Simplify regulatory reporting and reduced operating costs compared to manual sampling with **Micro Motion Coriolis Flow Meter** solutions.

Control quality real-time to address compliance with local, regional and international standards.

Ensure optimal tank capacity utilization, reliable overfill prevention and accurate inventory management with the **Rosemount Level** solution.

By-Products

Enable real-time level data, eliminate manual measurements, prevent over-spill andidentify potential structure breach from the open air basins with the **Rosemount Level** solution**.**

Measure distillation by-product accurately for billing purposes using the **Rosemount Magnetic Flow Meter.**

Shipping

Emerson offers**In-Line Alcohol Concentration** measurement solutions to meet quality and regulatory compliance. The information can easily be integrated into a PLC and made available to an ERP to meet fiscal transfer.

Predictive Maintenance

View predictive diagnostics, calibration test results, performance alerts and more from one application with the **AMS Device Manager.**

Faster device configuration and commissioning.

Full data integrity and traceability with an audit trail for all the configurations

Reduce calibration time.

Rosemount 2500 Solids Level Switches

The Rosemount 2500 Solids Switch range offers the complete choice of point level measurement for bulk solids. Four different technologies are available: Rotating paddle, vibrating rod, vibrating fork, and capacitance. The switches provide flexible measurement of powders, grains, and pellets and their compact size makes them ideal for installation in all sizes of vessels and silos.

Keystone Model OptiSeal F14-F17 Butterfly Valve

A resilient and proven valve for general purpose applications in spirit operations. The body locating holes ease installation and centering between the flanges, rounded polished disc edge gives full concentric sealing, lower torques, longer seat life and bubble-tight shut-off. No flange gaskets required. With no need to remove the actuator during seat replacement, the butterfly valve is suited for the spirit industry.

Micro Motion ELITE CMFS Coriolis Flow Meter with 5700 Transmitter

A compact, drainable meter delivering superior measurement accuracy and reliability to monitor in-line concentration measurement. Offering simple integration through scalable transmitter platforms, easily confirm calibration when it's time to re-zero the meter with zero verification and with Smart Meter Verification; obtain in-situ verification without external tools or process shutdown.

Rosemount 848T Wireless Temperature Transmitter

Rosemount 848T Wireless Temperature Transmitter accepts up to four independently configurable inputs, dramatically reducing installation and operational costs per point through the use of a smart, reliable and secure wireless network. Additionally, the field-hardened enclosure allows for installation close to any process, even in hazardous areas.

ASCO 290 Angle Seat Valve for Fluid Control

ASCO 290 Angle Seat Valve for Fluid Control provides high-quality fermentation process control by precisely regulating fluid. This fermentation tank cooling and heating solution also controls micro-oxygenation of fermenting room vats to aid stabilization, maturation, and molecular mixing.

Micro Motion Compact Density Meter

The highest level of in-line precision density and temperature measurement for real-time concentration measurement. The technology features simple system integration, a drainable design, and health diagnostics.

Rosemount 8705 Wireless Magnetic Flow Meter

Rosemount 8705 Wireless Magnetic Flowmeter, an all-welded construction with a robust hermetic seal that protects against moisture and other contaminants. Adding the wireless option makes it simple to integrate with EtherNet/IP and ideal for hard to reach and remote installation locations.
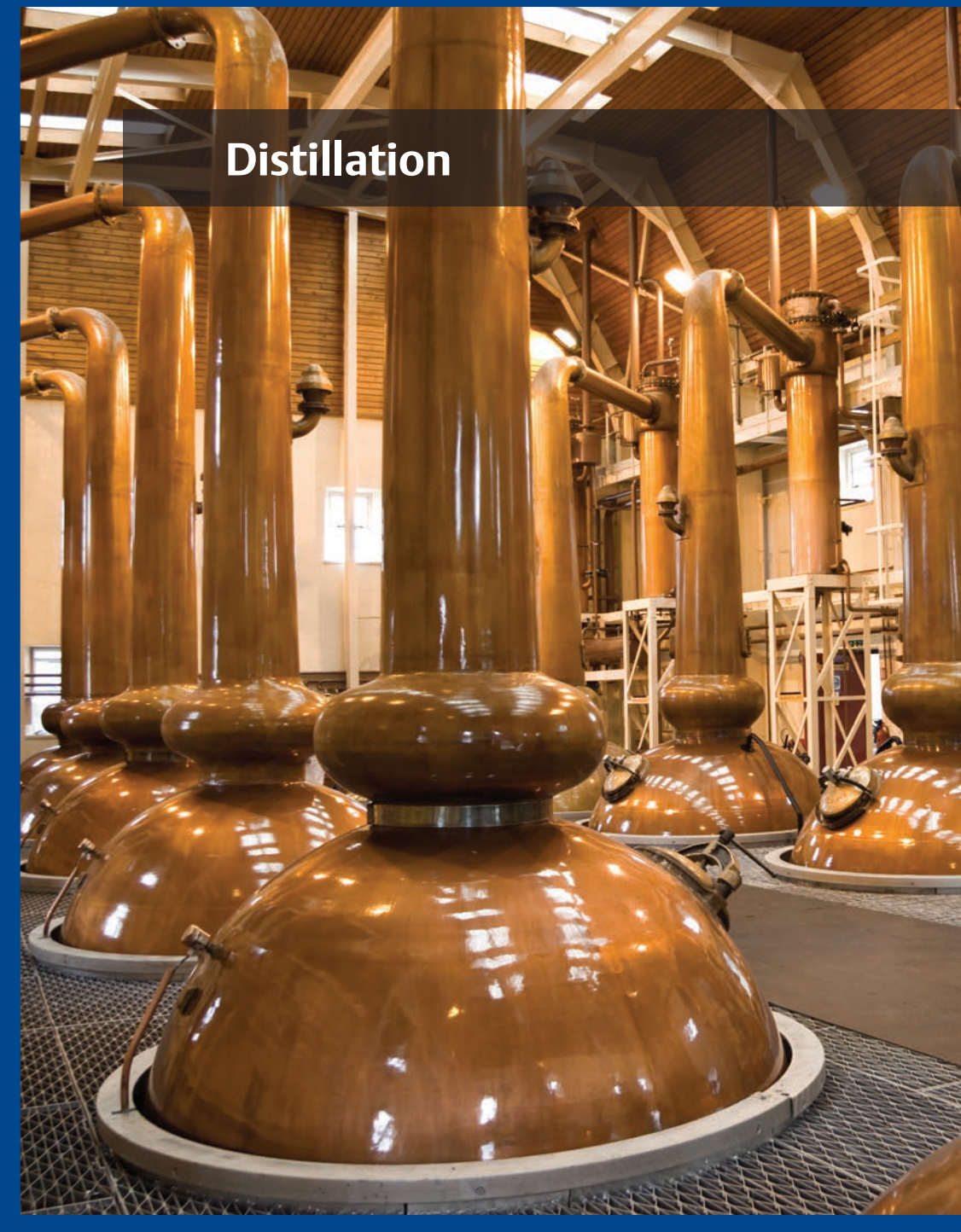
AMS Device Manager

AMS Device Manager helps avoid unnecessary downtime with a window into the health of intelligent field devices. It gives your maintenance and operations personnel the ability to work smarter. Plant staff can respond fast and make informed decisions on whether to maintain, extend the calibration interval or replace field devices. In addition, the simple **AMS Trex Device Communicator** handheld device delivers a modern user experience in a rugged and intrinsically safe package, suitable for hazardous areas.

Additional products
• Micro Motion Fork Density Meter
• Rosemount 5408 Level Transmitter—Non-Contacting Radar
• Rosemount 3308 Wireless Level Transmitter—Guided Wave Radar
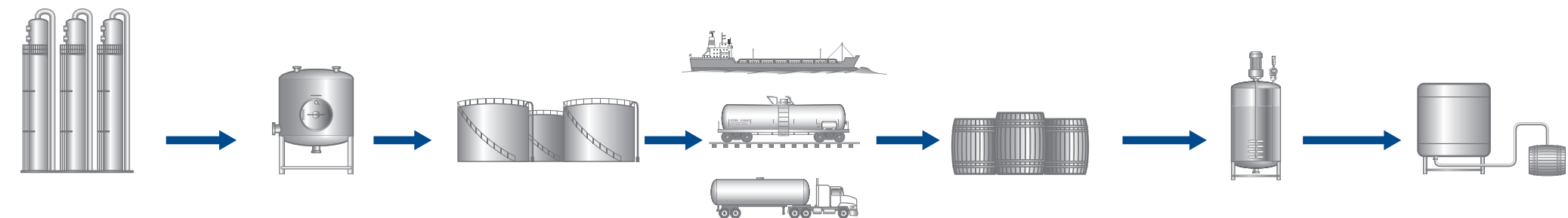• Rosemount 5900C Radar Level Gauge

Distillation

Maturation

Distillation & Maturation

Distillation

Maximize production with the most reliable and complete instrumentation and control offering for distillation.

The **Rosemount Vortex Flow Meter** solution regulates steam and water into the distillation process, maximizing yield, minimizes waste and allows for consistent control of these utilities.

Obtain direct and in-line alcohol concentration measurement throughout the distillation process.

Flavoring

Achieved consistent, and repeatable quality of flavoring with low flow precision measurement with a **Micro Motion Coriolis Flow Meter.**

Eliminate manual sampling processes, which can affect the final product quality.

Enable cost-effective stocking of your flavoring ingredients with the **Rosemount 1408H Non-Contacting Radar**.

Inventory

Mass balance of alcohol inventory in multiple location with a **Micro Motion Coriolis Flow Meter.**

Enable greater visibility in your tanks by installing the **Rosemount 5408 Non-Contacting Radar** for level measurement.

Get improved control over terminal traffic by managing the operations and workflow for loading trucks and vessels with **Syncade Logistics** software system and a direct feed into your enterprise resource planning (ERP).

Eliminate manual operator adjustments or errors.

Shipping

Emerson offers **In-Line Alcohol Concentration** measurement solutions to meet quality and regulatory compliance. The information can easily be integrated into a PLC and made available to an ERP to meet fiscal transfer.

Leak Detection

Identify leaking casks before they are introduced into the maturation process with the **Rosemount Leak Detection** solution.

Proactively identify and eliminate excess losses.

Can be operated as a single device or fully integrated into the workflow.

Blending

Minimize waste and ensure accurate product blend before cask filling.

Proven blending solutions for batch or continuous feed that combine instrumentation and robust control, and simple integration, like the **Fisher GX Control Valve and Actuator System**.

Cask Filling

Accurately measure density and mass of each cask being disgorged and filled to identify and record alcohol inventory with a **Micro Motion Coriolis Flow Meter.**

Fill and empty casks with precision, faster, saving time and reducing maintenance.

Data easily integrates into cask filling systems and inventory management systems.

Rosemount 8800 Series Vortex Flow Meters

A unique design and features isolate sensors to eliminate breaking process seals for flow and temperature sensor replacement. A gasket-free, non-clog meter body eliminates potential leak points, resulting in maximum process availability and fewer unscheduled shutdowns.

Fisher GX Control Valve and Actuator System

A resilient and proven valve for general purpose applications in spirit operations. The body locating holes ease installation and centering between the flanges, rounded polished disc edge gives full concentric sealing, lower torques, longer seat life and bubble-tight shut-off. No flange gaskets required. With no need to remove the actuator during seat replacement, the butterfly valve is ideally suited for the spirit industry.
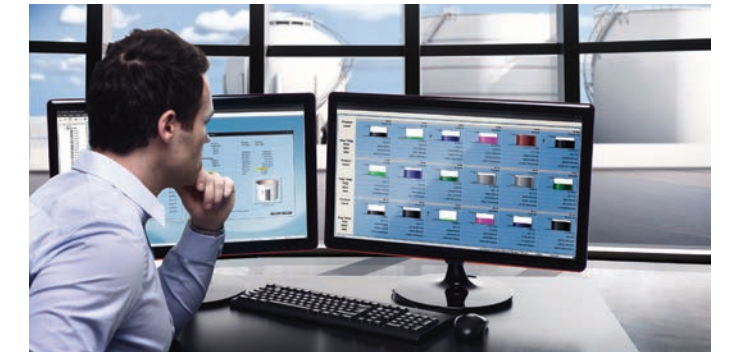
Micro Motion ELITE CMFS Coriolis Flow Meter with 5700 Transmitter

A compact, drainable meter delivering superior measurement accuracy and reliability to monitor in-line concentration measurement. Offering simple integration through scalable transmitter platforms, easily confirm calibration when it's time to re-zero the meter with zero verification and, with Smart Meter Verification, obtain in-situ verification without external tools or process shutdown.

Micro Motion Fork Density Meter

Provides continuous, real-time density and concentration measurement in fermentation tanks. Features include the verification of meter health along with internal diagnostics, and support multiple simultaneous protocols for simple integration.

Contact us now for world-class technologies and services that can maximize your return on investment. Visit **www.Emerson.com/FoodandBeverage**

Rosemount Non-Contacting Radar Level Transmitters

The Rosemount 5408 Level Transmitter Non-Contacting Radar (left) provides easy to use continuous level measurement of both liquids and solids in any application. Two-wire FMCW technology maximizes radar signal strength to produce a robust and reliable measurement. The Rosemount 1408H Level Transmitter Non-Contacting Radar (right) provides continuous liquid level measurement in most applications. Featuring Fast Sweep technology that combines FMCW and smart algorithms that provide 40 times more information compared to legacy technologies, it provides accurate and reliable measurement signals.

Rosemount Tank Gauging System

Ensure accurate level, temperature, and pressure measurements for alcohol inventory control, movement and overfill prevention, securing efficient operations. The operator overview is made visible with the **Rosemount TankMaster** software, a powerful yet easy-to-use Windows and Web-based package.

Syncade Logistics

Syncade Logistics provides the additional feature of automated terminal management. This software provides the platform to efficiently manage the operations and workflows for loading and unloading of trucks and ships. Transactions are easily accounted for and reconciled with book inventory, delivering confidence in stock accuracy, and all data is linked with the Enterprise Resource Planning (ERP) system.
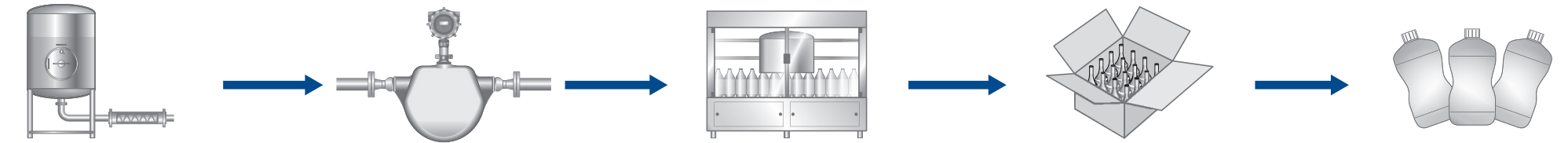
Rosemount CT4215 Leak Detector

Rosemount CT4215 Leak Detector is an in-line mobile system that tests for leaks in casks, bottles or cases of spirit. Unidentified leaks can lead to lost profits and/or process rework. Rosemount's modular solution is an easy-to-use and install system. The Quantum Rosemount Laser technology offers high-speed detection and notifies the operators instantaneously to ensure products leave the facility at the highest quality standards, and waste is reduced to a minimum.

Blending to Bottling

Blending

Turnkey in-line blending solutions that shorten cycle times and increase the effective capacity of your blending system with **Emerson's Flow Blending and Transfer solutions.**

Achieve consistent, and repeatable quality of flavoring with low flow precision measurement with a **Micro Motion Coriolis Flow Meter.**

Optimized process design allows for more compact systems.

Eliminate the need for intermediate tanks to reduce inventory and shorten CIP cycle.

Alcohol %

Emerson offers I**n-Line Alcohol Concentration** measurement solutions to meet quality and regulatory compliance relevant to alcohol concentration measurement.

Installed before the bottling line to accurately measure the alcohol concentration.

Information can easily be integrated into a PLC to stop the bottling line in case there are measured variations.

Bottling Automation

Improve high-speed in-line fill systems with high accuracy and repeatability with a **Micro Motion Filling Mass Transmitter** optimized with onboard valve control and overshoot corrections for sub-second fills.

Ensured reliability from design to build of bottling lines with robust **Emerson's AVENTICS Pneumatics** solutions.

Easier installation and lower cost of ownership.

Pneumatic solutions also available for labeling and printing, packaging, case packing and palletizing.

PACSystem RX3i CPE330 motion combined with PAC servo-motion provide high-speed Multi-Axis coordinated solutions for bottling applications to increase throughput, improve yield and reduce costs.

Optimize the filling process and prevent dry runs with **Rosemount Level** solutions.

Leak Detection

Identify leaking bottles and/or cases with the **Rosemount Leak Detection** solution.

Spot leaks in bottles and cases to improve quality and safety by rejecting those damaged after bottling and before they leave the facility.

Can be fully integrated into the workflow.

Single-Serve

Fill an unmet need in the spirits industry for a small, unbreakable, easy-carry, easy-open, pocket-size bottle of spirits.

Fits on-the-go lifestyle and "single-serve" portions.

The **Branson 2000Xd Ultrasonic Welder** proven solution eliminates potential leaks by using an ultrasonic sealing process to seal through alcohol safely without triggering the flash point of alcohol.

The solution can be fully integrated into a filling line.

Featured Products from Final Blending to Bottling

Flow Blending & Transfer Business

- Emerson has acquired deep experience with in-line blending
- Skid mounted with dedicated component flow loops discharge header having an in-line mixer
- No mixing tanks needed
- Less tankage, piping, valves, wiring, etc. required
- Single unit for blending a wide range of volumes
- Experience and flexibility in working with local integrators

Micro Motion Compact Density Meter

Provides the highest level of in-line precision density and temperature measurement for real-time concentration measurement. The technology features simple system integration, a drainable design, and health diagnostics.

Micro Motion Filling Mass Transmitter

A compact, lightweight, integral mount, high-speed mass filling transmitter that accurately measures alcohol, making it ideal for high-speed, precision measurement in a filling machine.

Rosemount 248 Wireless Temperature Transmitter

A cost-effective and reliable wireless solution for process monitoring. Coupled with the self-organizing network, this transmitter delivers single-point temperature measurement data, even in hard to reach locations on a filling machine.

PACMotion High-Speed Servo Solutions

PACMotion Servo Motion Control provides easy to use, end-to-end solutions with high-speed motion, tighter control, and simple integration. Key benefits also include scalability, and flexibility.

Featured Products from Final Blending to Bottling

ASCO Fluid Control and AVENTICS Pneumatic Solutions

ASCO Fluid Control and AVENTICS Pneumatic Solutions provide the widest array of fluid control and pneumatic solutions for beverage bottling and packaging. Valve systems come with practical, high-end features such as digital displays to make commissioning and fault diagnosis easier, and are suitable for hazardous areas. The compact, modular valves offer the highest flow rate for their size, helping you to reduce machine footprint and lower costs.

Rosemount CT4215 Leak Detector

Rosemount CT4215 Leak Detector is an in-line system that tests for leaks in bottles or cases of spirit. Unidentified leaks can lead to lost profits and/or safety concerns. Rosemount's modular solution is an easy-to-use and install system. The Quantum Rosemount Laser technology offers high-speed detection and notifies the operators instantaneously to ensure products leave the facility without bottle or cases leaking.

Branson 2000Xd Ultrasonic Welder

Branson 2000Xd Ultrasonic Welder is suited for single serve spirit flexible packaging. The 2000Xd welder includes Branson's most advanced weld modes and settings, including energy, distance, peak power, and time modes. Digital amplitude, as well as Branson's patented amplitude profiling, provide the control necessary for fine-tuning critical applications.

ASCO General Purpose Solenoid Valves

ASCO General Purpose Valves are designed to meet the high cycling demands of beverage bottling lines. Couple them with spring-return and double acting cylinders for use throughout the bottling process. Plus, the new 0.55 W models are perfect for networks with low power limitations.
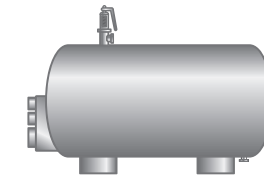
Additional products
- Integrated Valve Solutions - Panels or Enclosures
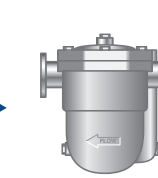
Energy, Water, Utilities & Electrical

Boilers

Optimization of energy consumption starts with having an accurate and appropriate flow measurement.

The measurement of the demineralized feed water flow to optimize the boiler with the **Rosemount 8750W Utility Magnetic Flow Meter** along with temperature and pressure measurements for the amount of fuel going into the boilers is critical.

Option of a faster deployment using EtherNet/IP solutions, reducing cabling costs and installation time.

Ensure safe and efficient operation by installing **Rosemount 5300 Guided Wave Radar with Dynamic Vapor Compensation** for accurate level measurement readings.
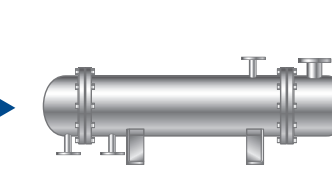
Steam Loss

Steam traps are typically not maintained regularly and even if inspected every year, steam leakage can occur.

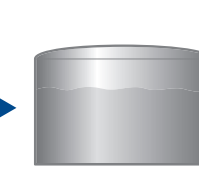Cumulative cost of such leakage is large, especially for critical traps with high leakages.

With the **Rosemount 708 Wireless Acoustic Transmitter with Steam Trap Monitor**, a simple pipe clamp-on device, leaking traps are detected early to minimize the wastage of steam hence reduce the cost.

Heat Exchangers

Measure inlet and outlet of heat exchangers with non-intrusive **Rosemount 648 Wireless Temperature Transmitter** and **Rosemount Wireless Pressure Gauge**, an ideal solution for hard to reach measurement locations.
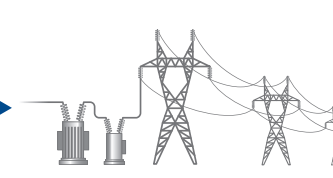
Temperature measurements of steam, cold water and process medium provides the information to understand the heat exchanger's performance. Monitoring trending of these parameters enables performance monitoring.
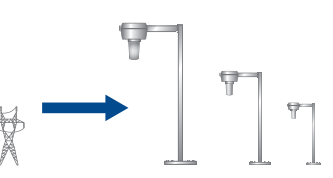
Water

Control of water and steam quality with EtnerNet/IP ready solutions from source to point of use with flow measurement for cooling towers, and water recovery and treatment including efficient fiscal measurement with the **Rosemount 8750W Magnetic Flow Meter.**

Measure the water quality parameters for optimal process control, including pH conductivity low-level dissolved oxygen and chlorine with the **Rosemount Analytical 1056.**

Electrical

Protecting lighting, power and heat trace circuits in classified locations is a challenge. Innovative **Appleton PlexPower** power distribution panelboards are quicker and easier to install, operate, and maintain delivering substantial savings over traditional cast and bolted panelboards.
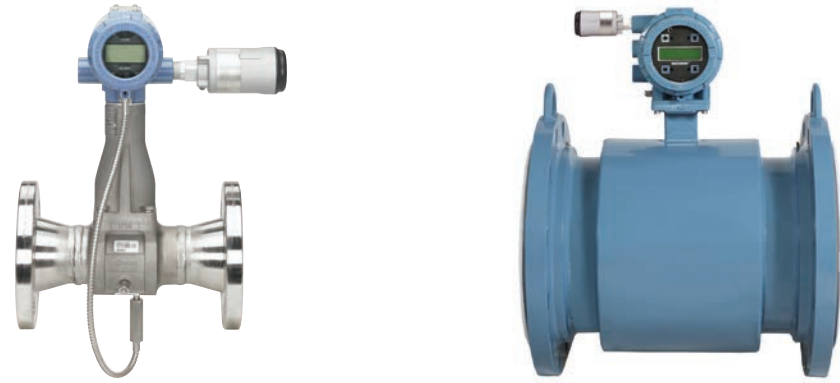
Lighting

Lighting is also key in creating a comfortable and safe work environment. Achieving this can be complex due to unique work spaces, bad light color, shadows, glare, and inconsistent illumination. **Appleton Mercmaster LED**luminaires can deliver a tailored lighting solution for any mounting height or level of illumination in demanding harsh and hazardous environments.

Rosemount 8750W Utility Magnetic Flow Meter + Rosemount 8600 Utility Vortex Flow Meter

Rosemount 8750W Utility Magnetic Flowmeter and the Rosemount 8600 Utility Vortex Flowmeter are optimized for general purpose and utility applications including clean fluids, steam and utility water. Installation is easy. Adding the wireless option, makes it ideal for hard to reach and remote installation locations, and simple integration with EtherNet/IP.

Rosemount 648 Wireless Temperature Transmitter

A fully wireless temperature transmitter providing stability for monitoring. When combined with Rosemount X-well™ Technology and the Rosemount 0085 Pipe Clamp sensor, this transmitter can provide accurate measurement of process temperature via an in-transmitter thermal conductivity algorithm, eliminating the need for a thermowell or process penetration, significantly reducing installation time and costs.

Rosemount 708 Wireless Acoustic Transmitter with Steam Trap Monitor

Featuring ultrasonic acoustic event detection that mounts externally, this device provides a cost-effective installation and allows visibility into steamtraps and pressure relieve valves by accurately communicating acoustic level and temperature data as well as device data, event status and leak detection.

Rosemount Wireless Pressure Gauge

A robust design with industry-proven sensor technology to resist common traditional gauge failures. This pressure sensor provides up to 10 years of maintenance-free operation and replaces mechanical components for more reliable readings and a higher overpressure limit.

Emerson Wireless 1410 Gateway

Specifically engineered to meet smaller network requirements of remote operations, this compact gateway with EtherNet/IP connectivity also maintains exceptional security and flexibility. Connects simply with host systems and data applications, and its small size and DIN-Rail mount capability make it an ideal solution for limited cabinet space.

Rosemount Analytical 1056

Measures up to two water quality parameters for optimal process control, including pH conductivity of low-level dissolved oxygen and chlorine.

Rosemount 1208A Non-Contacting Flow and Level Transmitter

• Compact and robust all-plastic design
• 80 GHz Fast Sweep Technology to maximize reliability and accuracy without any dead zone
• Easy to install and commission
• 4-20 mA outputs and IO-link connectivity
• Maintenance-free solution unaffected by any process conditions

Appleton PlexPower

Appleton PlexPower breaks away from traditional panelboard design by transferring flame path protection from the enclosure to individual circuit breaker housings. Housings provide explosion protection for standard off-the-shelf breakers, eliminating the need for expensive special breakers, and a heavy cast and bolted enclosure allowing for simpler, faster maintenance. Lighter, compact materials, fewer long cable runs and modular design construction reduce upfront installation time and cost.

Appleton Mercmaster LED

Appleton Mercmaster LED Low Profile Series Luminaires have a compact, lightweight, low-profile design suited for low mounting heights. Six standard mounting hood designs allow for mounting in any location and four different globe options, clear and diffused polycarbonate, clear glass, or prismatic glass refractor, enable customization to the application requirements.

Get started

With the most complete automation solutions expertise and offering suite for the industry, Emerson is the supplier of choice to simplify and scale your Spirit Operations.

Getting started is easy. Just contact us now for world-class technologies and services that can maximize your return on investment.

Visit **www.Emerson.com/FoodandBeverage**

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