



**Improve Throughput,
Sustainability, and Quality**

Fluid Control and Pneumatics for Dairy Applications

Proven automation solutions and local expertise to help you overcome your toughest challenges.





Changing consumer preferences, minimizing waste while also keeping food safety at the forefront is increasingly a challenge for dairy producers.

Delivering a wide range of fluid control and pneumatic solutions that meet today's most challenging dairy demands

From building new plants, to expanding current facilities, dairy producers are increasingly turning to OEMs, integrators and automation solutions experts to take advantage of new technologies and maximize their return on investment. As your single-source supplier of automation technologies, Emerson combines an extensive product portfolio with industry expertise to help you optimize your dairy production process. We work seamlessly with OEMs, integrators and dairy producers to ensure your project meets your deadline and budget—all while achieving the highest levels of reliability and safety.

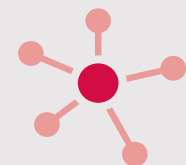
Equipment needs to run more efficiently, be designed with modularity and last longer. You need to be able to respond quickly to customer trends and appetites—increasing the pressure to achieve higher levels of capacity, sustainability, minimized downtime, and maximize the ways raw milk can be used.



Food safety is critical. Dairy products must adhere to strict regulations regarding consumer safety. To help you comply with new and existing regulations, our range of products are hygienic by design—keeping consumers safe while accelerating your competitive advantage.



Rely on suppliers with in-depth product and industry knowledge. Our extensive product offering and application expertise allows us to recommend the best fluid control and pneumatic technologies across your dairy operation.



Fluid Control and Pneumatic Expertise Across Dairy Processing, Packaging, and Utilities

Emerson offers innovative fluid control and pneumatic technologies for all facets of the dairy industry—from milking systems, to cheese processing and packaging equipment. Our wide range of products includes solenoid and air-operated valves, intelligent control systems, air preparation products and integrated enclosure solutions for use in various processing zones.



Manage your equipment to run intelligently and efficiently

- Reduce waste in milking stations, dairy processing, packaging, utilities—and more
- Move from reactive to proactive maintenance using integrated diagnostics
- Troubleshoot your devices by capturing real-time status and diagnostic information

Switching to Emerson's automation technologies has greatly improved our product consistency and enabled us to optimize our process and reduce overall downtime through actionable data.
– Plant Manager, Large Dairy Plant



Ensure and improve product and process quality

- Products that handle some of the industries most aggressive wash-down procedures
- Hygienic-by-design technologies meet the most stringent regulatory requirements
- Integrated enclosures protect components and minimize contamination

Consumer Safety is a priority for us. We use an aggressive IP69K wash-down procedure to ensure a sanitary processing environment. Emerson was able to provide fluid control technologies that meet this harsh requirement.
– Emerson Dairy Customer



Reap the benefits of a single supplier who can deliver application and product knowledge

- Choose from a wide range of reliable, long-lasting fluid control and pneumatic technologies, immediately available and ready for delivery
- Local product and application expertise to solve your unique dairy challenge
- Technologies that are designed and tested to meet the demands of your dairy operation

Our business is about providing best-in-class on time delivery of dairy industry equipment. We chose Emerson for their expert design and customization, along with their ability to go above and beyond our needs.
– Engineer, Dairy Equipment Manufacturer

With Emerson, you can overcome your dairy process and packaging challenges



Fluid Milk Processing



Cheese Processing



Yogurt Processing



Butter Processing



Clean-In-Place



Thermoforming



Cup Filling



Handling

While the underlying principles involved in dairy processing have essentially remained the same over the years, the processes have become more specialized and refined, as a result the equipment has evolved. Get greater control over your dairy operations from smart pneumatic systems to reliable fluid control, ensuring batch-to-batch repeatability all the while maintaining quality at the forefront with Emerson's range of proven technologies.



Monitoring Solutions

Receive clear, actionable data over your entire dairy process. Minimize troubleshooting and downtime by capturing real-time equipment statuses and diagnostics. [Learn more.](#) ▶ p5

Fluid Control Valves

Exercise greater temperature control of media flow in dairy process tanks. Maintain product quality, consistency and accuracy—all while eliminating manual processes. [Learn more.](#) ▶ p7

Valve Systems

Actuate a variety of valves across food, splash and non-contact zones. Reduce response times, save energy and improve process accuracy in hazardous and sanitary environments. [Learn more.](#) ▶ p9

Motion Control

Automate motion control packaging throughout your dairy plant with a wide range of cylinders and air preparation products for food, splash and non-contact zones. [Learn more.](#) ▶ p11

Proactive Monitoring

From modular fieldbus platforms, to smart pneumatics monitors, our proactive and condition monitoring technologies extract real-time, actionable data from your dairy processing equipment—improving the efficiency of your overall operation. These solutions integrate highly flexible, distributable architectures and easy-to-read graphic displays that indicate equipment status and diagnostics, enabling you to detect and resolve device issues early. This proactive, rather than reactive, strategy minimizes the risks associated with equipment failure, data loss and machine downtime—all while reducing your energy consumption and improving batch to batch accuracy.



What's your opportunity?

- Drive productivity and efficiency with actionable data
- Effectively plan maintenance with predictive maintenance capabilities
- Improve sustainability by optimizing energy consumption



Use real-time, actionable data to drive the productivity of your dairy operation. Connect with an Emerson expert.

Retrieving real-time data from your dairy processing equipment is important. Transforming that data into actionable, proactive strategies will help you more effectively plan maintenance and reduce machine downtime. Emerson experts can help.



Services offered...

- Technology and application support delivered by experienced global representatives
- A global network of engineers to resolve issues onsite
- Local experts and on-demand technical support available

Featured Monitoring Solutions

AVENTICS™ Smart Pneumatics Monitor (SPM)



Perform batch to batch monitoring and retrieve reliable information on actuator wear and energy efficiency without involving machine control—minimizing your downtime and lowering overall operating costs.

- Pre-installed analysis modules
- Leakage detection for improved energy efficiency
- Local data collection independent of the controller
- Compatibility with Internet of Things (IoT)-relevant communication interfaces

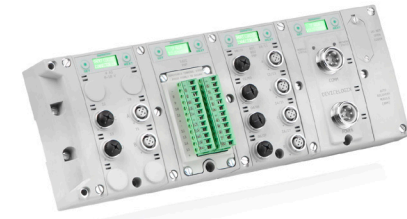
AVENTICS Control Module



Perform real-time, localized monitoring of air-operated valves and I/O devices by integrating the AES communication interface. These modular devices are simple to assemble, install, commission and maintain. Take full advantage of what pneumatics has to offer - compatible with AV03 / AV05 valve systems.

- Highly flexible, distributable architecture
- Up to 60% smaller and 70% lighter thanks to fewer parts, optimized design, and high-tech polymers
- Variety of industry protocols, including IO-Link (AES) CANopen®, DeviceNet™, EtherCAT® and more
- IP65 / NEMA 4 protection

AVENTICS Control Module With Integrated LED Display



The Series G3 with discrete I/O product line is a completely modular system. All of the G3 electronic modules plug together via mechanical clips, allowing easy assembly and field changes. This makes the system highly distributable. The G3 electronics interfaces with the highly modular Series 500 Directional Control Valves.

- Innovative Graphic Display is used for easy commissioning, visual status & diagnostics
- Power connector allows output power to be removed while inputs and communication are left active; IP65 / NEMA 4 Protection
- Auto Recovery Module (ARM) protects configuration information during a critical failure

Featured Monitoring Solutions

AVENTICS 580 CHARM



Integrate your pneumatic systems and process control on one network. Devices provide a single connection to DeltaV™ S-series hardware and are equipped with Electronic Marshalling—a tightly integrated solution for I/O and pneumatic valve systems.

- Graphic display provides visual status and diagnostics
- Up to 128 valves per manifold
- No internal wiring—simplified assembly
- Variety of industry protocols, including CANopen®, DeviceNet™, EtherCAT® and more

TopWorx™ Valve Controllers



TopWorx T-Series discrete valve controllers for position monitoring and control of automated on/off valves.

- Suitable for rotatory and linear application
- Integrated solutions including network bus, sensors and pilot valves
- Certified for use in all hazardous areas.
- Low profile design reducing overall height and footprint
- Direct mounting feature eliminates expensive mounting brackets
- Available in Stainless Steel (TXS) and Aluminum (TXP)

TopWorx Proximity Sensors



GO™ Switch, the all in one proximity sensor and limit switch.

- Proximity triggering with ferrous metal and magnetic targets - no exposed moving parts
- Extended sensing with use of target magnets
- Immune to electrical noise, weld fields, and radio frequency interference
- Consume no power to operate eliminating leakage current and voltage drops
- All-metal housings with contacts potted and sealed from the environment
- Operating temperatures ranging -50 °C to +204 °C (-58 °F to +400 °F)



For more information, visit www.Emerson.com/Food-Beverage

Fluid Control

With the right valve technologies, you can achieve reliable and precise fluid control across your Dairy operation. Temperature control plays a vital role in controlling the quality and shelf life of dairy products requiring an array of jacketed tanks and heat exchanger systems. Our range of valves feature rugged constructions for use with a variety of media, as well as industry-compliant seals, watertight enclosures and stainless steel bodies that minimize contamination in food-contact zones. Pairing our high-quality valves with automation technologies like our modular bus communication platforms lets you monitor process parameters such as temperature, level and flow with even greater precision and control. You'll even receive alerts if variable or unsafe conditions arise.



What's your opportunity?

- Ensure batch to batch quality and consistency
- Reduce labor intensity and manual processes with automation and valve selection
- Accurately monitor process temperatures with greater precision



Integrate rugged, industry-compliant valves and automation systems to achieve precise temperature control of heating and cooling tanks. Connect with an Emerson expert.

Precise temperature control of process media is critical. The right combination of valves and proactive monitoring technologies will keep your batches on spec and reduce error-prone manual processes. Emerson experts can help.



Services offered...

- Local support during commissioning, startup and operation
- A global network of engineers to resolve issues onsite
- On-demand technical support available 24/7

Featured Fluid Control Valves

ASCO™ Series 290 Angle Body Valves



Series 290 valves achieve high flow rates while satisfying stringent food and beverage industry requirements. Available in direct acting, motorized, and proportional.

- Angled seat design achieves high flow
- Anti-waterhammer design
- Stainless steel body for food contact
- Rugged construction for use with aggressive media
- The Series 290 FB complies with FDA CFR-21 & (EC) 1935-2004 for auxiliary processing in sanitary environments

ASCO Series X290 6-Port Valves



Control feed and return flows while reducing your installation time and overall bill of materials. A single Series X290 valve is designed to handle both hot and cold flows - ideal for temperature control applications requiring the use of glycol.

- With this design, you can use one valve to control both hot and cold media supply and return flows per tank—reducing installation time, piping and wiring complexity
- Direct acting operating eliminating the chance of media plugging
- Handles back pressure eliminating the need for check valves
- Mountable in any position

ASCO Series 273 Pneumatic Pinch Valves

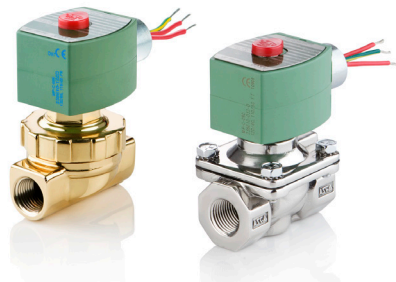


These pinch valves are ideal for fluid control in single-use applications across dairy production. The improved design provides better safety to operators and enables accelerated setup, in turn, reducing costs and making unscheduled maintenance simple.

- Innovative pinch design for proper tube retention
- High-quality design offers reliable and repeatable pinching force with no damage to the flexible tubing
- Built in safety guard to prevent exposure to moving parts during all stages of the process
- Manual override allows easy install/removal of soft tubing

Featured Fluid Control Valves

ASCO General Service Solenoid Valves



Designed for liquid, corrosive and air/inert gas service, these high-flow solenoid valves feature a wide range of pressure ratings, sizes and resilient materials.

- Industry-proven, reliable solenoid technology offering long service life and low internal leakage
- Offered in lead-free design
- Select models feature low-power coil design
- Specified for hot water service up to 98°C (210°F)

ASCO Lead-Free Solenoid Valves



Wide range of lead-free valves provide many solutions to meet the latest low-lead requirements of the United States Federal Safe Drinking Water Act.

- Lead-free brass bodies and bonnets for SDWA compliance
- Composite and stainless steel constructions
- Tested and certified by NSF International
- Proven, reliable designs for demanding hot water applications

ASCO Series 551 Direct Mount In-line Spool Valves



Mountable in any position, these compact pilot operated spool valves are designed to operate equally well in high-cycle or low-cycle use.

- Direct NAMUR interface to mount directly onto an actuator, making installation easier and more efficient.
- Watertight and explosion-proof options
- Single- and dual-solenoid constructions
- Easily convertible from 3/2–5/2 with flow plate design



For more information, visit www.Emerson.com/Food-Beverage

Valve Systems for Processing and Packaging

Actuate a variety of valves and actuators from food contact to auxiliary process valves using our comprehensive piloting solutions. Certified for hazardous and sanitary environments, our pilot valves feature durable, hygienic designs that minimize corrosion while withstanding high-pressure washdown and aggressive cleaning chemicals in a range of dairy processes, including pasteurization, evaporation, clean in place (CIP) systems and micro-filtration. When paired with fieldbus electronics, pneumatic valve systems even integrate position detection and diagnostic capabilities—leading to accurate, reliable piloting every time.



What's your opportunity?

- Reliably actuate process valves across hazardous and sanitary environments
- Reduce energy expenditure and lower costs with low-power valve features
- Improve piloting accuracy using compatible fieldbus systems



From sensing to instrumentation, Emerson is your unique partner for all valve piloting solutions. Connect with an expert.

Depending on your environment, the best piloting solution for your dairy operation combines direct and remote piloting options that are conventionally wired or connected to a fieldbus system. Emerson experts can help.



Services offered...

- Local support during commissioning, startup and operation
- A global network of engineers to resolve issues onsite
- On-demand technical support available 24/7

Featured Valve Systems

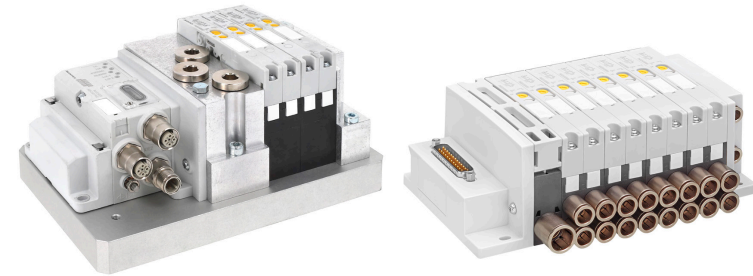
AVENTICS CL03 Clean Line Pneumatic Directional Control Valves



CL03 valves handle high-pressure washdown up to 100 bar (1,450 psi)—eliminating the need to mount valve systems in a separate cabinet. Their fiber-reinforced polyamide material also withstands aggressive cleaning chemicals.

- IP69K rating
- Hygienic, modular design facilitates cleaning
- Pressure regulation improves energy efficiency
- Serial communication options enable diagnostics
- Available as standalone valves or as part of a valve system

AVENTICS AV Series Systems

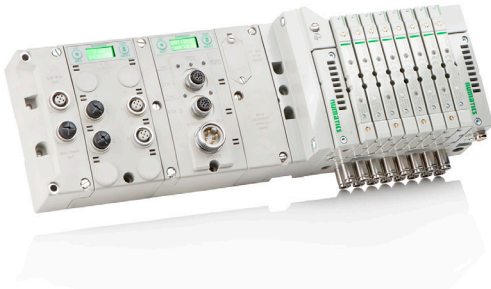


Advanced Valve (AV) systems offer a complete automation solution for a wide variety of applications. Notable features include pressure zone separation, manual override, EP pressure regulator integration, low power consumption—and more.

- Easy mounting, available as bottom ported version for easy assembly in an enclosure
- Light, compact design
- Valve functions: 2x 2/2, 2x 3/2, 5/2 and 5/2
- Connectivity: single, multipole, fieldbus or I/O link

Featured Products

AVENTICS Series 500 Valve Systems



Valve systems feature high flow rates in compact, energy-efficient packages. Each modular unit is compatible with fieldbus electronics, as well as leading industrial and Ethernet protocols.

- IP65 rating
- Solenoid or pilot actuated
- Modular design facilitates configuration
- Compatible with G3 and 580 Fieldbus Electronics
- Flexible mounting eliminates tubing and connections

Featured Solutions

Integrated Enclosure Solutions



Stainless steel integrated enclosures safeguard directional and fluid control valves, G3 fieldbus electronics and Filter Regulators and Lubricators (FRLs) while eliminating complex tubing routing and bulkhead fittings.

- NEMA washdown-rated
- Panel mount saves installation time and reduces wiring complexity
- Engineering services include concept, design, validation, and certification



For more information, visit www.Emerson.com/Food-Beverage

Motion Control

Automate motion control processes throughout your dairy plant with corrosion-resistant cylinders and other air preparation products. Rated for splash zones and food processing areas, these motion control components are hygienic by design—featuring smooth, durable surfaces that facilitate cleaning, eliminate pocket areas and prevent food contamination. Cylinders, FRLs and valve systems are available as standalone units, or you can seamlessly integrate them—simplifying your fluid automation setup and creating a sanitary, washdown-rated solution for a variety of dairy processing environments.



What's your opportunity?

- Automate motion control processes with FDA- and ISO-approved components that facilitate cleaning and minimize contamination



Satisfy the dairy industry's strict hygienic requirements with motion control components rated for food, splash and non-contact zones. Connect with an Emerson expert.

Depending on your environment, the best piloting solution for your dairy operation combines direct and remote piloting options that are conventionally wired or connected to a fieldbus system. Emerson experts can help.

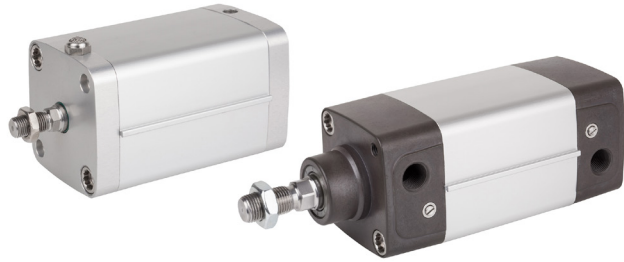


Services offered...

- Local support during commissioning, startup and operation
- A global network of engineers to resolve issues onsite
- On-demand technical support available 24/7

Featured Motion Control Products

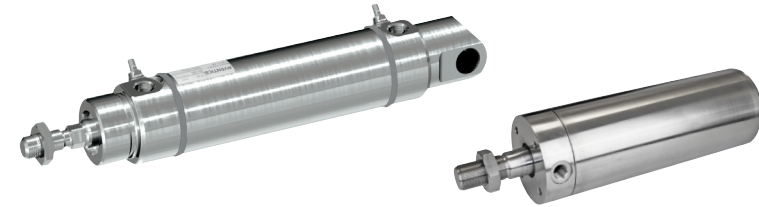
AVENTICS CleanLine Cylinders



CCL-IC and CCL-IS air cylinders feature a smooth, clean profile that eliminates pocket areas where dirt and contaminants can collect. Units are ideal for dust-off or washdown applications.

- Hygienic design facilitates cleaning
- Units include magnetic piston
- Anodized aluminum head and cap
- CCL-IC is ISO 21287 compliant; CCL-IS is ISO 15552 compliant
- Optional ATEX / heat resistance

AVENTICS ICS-D2 and ICS-CP Cylinders



These double-acting, round cylinders feature pneumatic adjustable cushioning and are corrosion-resistant for use in dairy processing applications, such as cheese production.

- Units include magnetic piston
- Stainless steel construction
- ISO 6431 compliance
- Hygienic design facilitates cleaning
- Food zone approved

Featured Motion Control Products

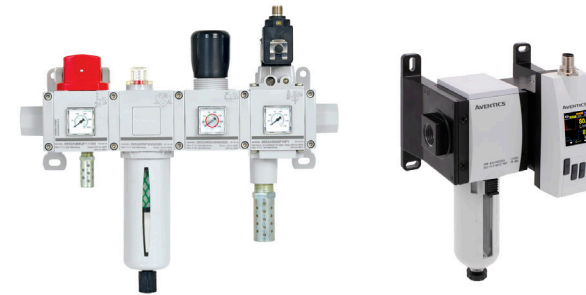
AVENTICS Non-Contact Transport (NCT) Systems



An alternative to grippers, NCT units utilize airflow to lift small objects without touching the surface. Unlike vacuum cups, they work well with objects having porous or rough surfaces.

- Lifting force up to .9 kgs (2 lbs)
- Maintenance free—no moving parts
- No separate vacuum generator required
- Polymer version available for food applications

AVENTICS Air Preparation Filter Regulator Lubricators (FRL)



FRLs remove particles, oil and mist—ensuring air-operated valves run efficiently. They also feature high flow characteristics relative to their size, resulting in a lower pressure drop.

- Compact, modular packages
- Available in port sizes 1/8"–1"
- Lower pressure drop delivers energy savings
- Available with integrated IIoT-ready sensor to monitor air consumption in pneumatic systems, optimizing energy consumption, preventing machine downtime, and reducing costs.







For more information, visit www.Emerson.com/Packaging

Get Started & Go Further



Emerson delivers time-tested and innovative fluid automation solutions for the dairy industry to help you optimize your production and packaging process while achieving the highest levels of reliability and quality. Contact us now for world-class technologies and services that can maximize your dairy operation. Getting started is easy.

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V7751-en-us / Printed in the U.S.A. / 03-20



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