



Diversey



F&B



Efficiency is in our nature
Diversey Engineering Solutions

DIVERSEY
ENGINEERING
SOLUTIONS

Ensuring operational efficiency

Manufacturers in the Food & Beverage industry are facing an increasing number of challenges. Changing consumer habits, legislation demanding greater process integrity and traceability, and improvement of on-shelf availability mean that market pressures are making efficient engineering and logistics ever more important. Reducing costs, increasing service levels and speeding up order processing time, while maintaining the quality of products provided, is the ultimate key to success.

Expertise for changing needs

Our comprehensive portfolio of engineering solutions ranges from ready-to-use standard equipment to consultation, design and the installation of integrated systems, to the complete refitting and overhaul of existing systems on-site.

We are able to respond quickly and efficiently to all your engineering needs, offering full project management for the design and installation of hygiene and sanitation systems like CIP, complete hygiene centres for cold aseptic filling, automated external filler cleaning, automated conveyor cleaning and

central and de-central foam stations: reducing time for cleaning to give more time to productivity.

- Less downtime
- Increased operational efficiency
- Increased level of hygiene
- Higher level of safety and security on-site
- Fully- or semi-automated processes
- Manpower savings
- Lower consumption of resources
- Lower consumption of chemicals

Equipment & Solutions

- Shur-Graph
- X-Concept
- Dosing and Allocation
- Entryway Control
- Fogging Systems
- UV Systems
- Open Plant Cleaning - OPC
- External Filler Cleaning - EFC
- Clean in Place - CIP
- Clean Out of Place - COP
- Door Foamers
- Track Treatment
- Bulk Storage, Chemical Consumption
- Management & Chemical Room Design
- On-Site Biocide Generation
- Caustic Recovery

Services

- Added value services
- Engineering support
- Data and Remote Monitoring
- Knowledge-Based Services

Equipment & Solutions

A complete range of solutions for your plant

Standard Equipment, ready to use, monitoring and servicing

Diversey has decades of experience developing the equipment that is vital for the correct cleaning and sanitation of Food & Beverage plants. Our equipment has been tested to withstand the rigours of heavy usage and our complete post-sales service programme will ensure the smooth running of your day-to-day equipment needs. From standardized hose nozzles, that reduce water consumption, to more complex cleaning devices for Open-Plant- Cleaning (OPC), Diversey Engineering knows your standard equipment needs for maximum hygiene results.

High-tech equipment, ready to implement

Diversey is a leader in the definition and execution of technology standards for hightech equipment for many years. Standardized high-tech equipment, defined by the different technology levels needed on site, will be delivered pre-installed at customer plants and ready to implement. Diversey equipment is built to the highest standards of hygiene, design and durability and covers all areas of your plant:

- Shur-Graph
- X-Concept
- Dosing and Allocation
- Entryway Control
- Fogging Systems
- UV Systems

Knowledge that provides synergies

Our strength and competence comes from application expertise, system engineering and field experience. The synergies derived from this combination are provided by Advanced Engineering Solutions for customers. Diversey experts will check your plant to undertake a full study of your specific advanced engineering requirements. We will design engineering solutions based on a deep understanding of your needs and a full analysis of the processes that affect the core areas of your business. Diversey's advanced engineering solutions are based on innovative, state-of-the-art processes that use the best and proven practices to create customized solutions, excellent hygiene standards and more efficient cleaning processes.

- Open Plant Cleaning (OPC)
- External Filler Cleaning (EFC)
- Cleaning in Place (CIP)
- Clean Out of Place (COP)
- Track Treatment
- Bulk Storage, Chemical Consumption
- Management & Chemical Room Design
- On-Site Biocide Generation
- Caustic Recovery





X-Concept

The X-Concept system allows for continuous online control, data logging, and processed based evaluation. Alarms and error message sharing ensures that relevant management levels are notified automatically upon irregularities. Superior data collection provides clear evaluation and process improvement solutions. The X-Concept system is highly flexible and is capable of monitoring many applications. Diversey's X-Concept consists of three levels of process control and monitoring:

X-Controller

Diversey's X-Controller is a microprocessor control unit specifically designed to control different applications of Diversey products. Each X-Controller can operate independently or on a network and comes equipped with 7 application software packages:

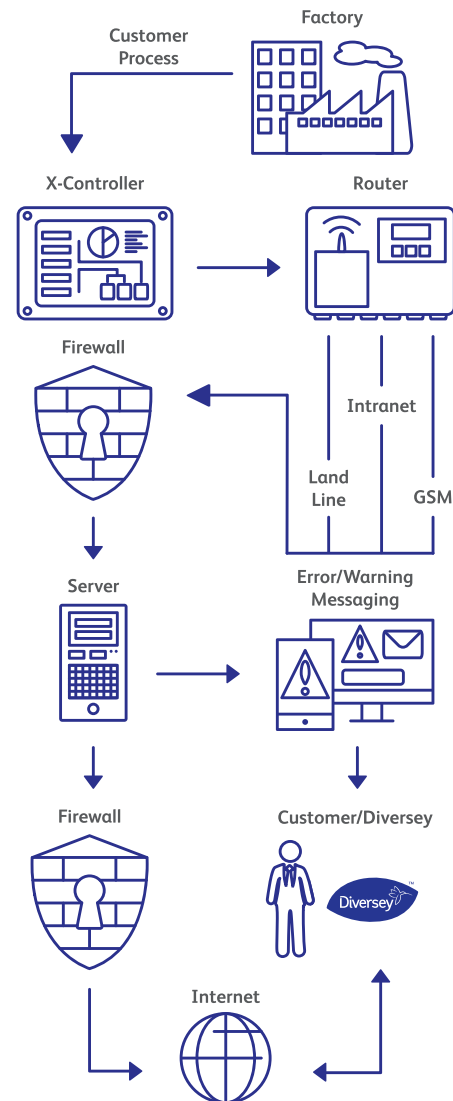
- EFC – External Filler Cleaning
- CIP – Cleaning in Place
- DOS – Chemical dosing applications (Pasteurizer, Bottle washer, etc)
- LUB – Dry and Wet conveyor lubrication
- SG`12 – Data-logger
- DM - DivoMask - bottle scuffing masking
- DF - DryFormance - conveyor lubrication

X-Portal

When combined with the X-Controller, the XPortal provides remote reporting and monitoring to your operation's processes. Customizable home screens, data logging, automation, and notifications allow users to quickly generate reports and access accurate information.

X-Service

Wouldn't it be great to have an extra set of eyes to help evaluate and interpret the data your processes generate every second? Diversey's X-Service utilizes the knowledge of our application specialists to process raw data and send customized reports to help you optimize your facility.



Shur-Graph

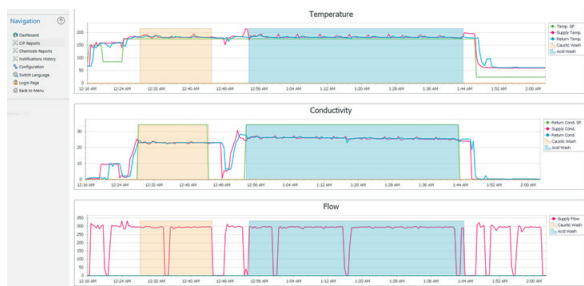
Shur-Graph CIP reporting software records a plant's CIP cycles and displays the data in illustrative reports. CIP cycles can be searched and compared to historical reports by selecting a date range in the calendar of archived reports, ensuring each step of your CIP process is consistent. Shur-Graph records up to 20 analog signals, with data being further refined by specific equipment, cycle type, or other criteria. Shur-Graph's digital CIP approval process gives clients the option to authorize users to confirm and further document the cleaning of equipment.

Data insights:

- **Paperless recording:** CIP cycle data is archived and can be printed on any network printer after the cycle is complete.
- **Automatic CIP cycle identification:** The unit can read information from a PLC to identify program type as well as equipment ID and Step descriptions.
- Recording of up to 20 analog process variables (flow, temperature, conductivity, pH, etc.).
- Real-time graphical display available on network PCs. (optional)
- Graphs can be viewed using the desktop client application, through a browser on any network of VPN PC, or through secure portal.

Regulatory Compliance:

- Reporting client utility offers an authorized user to confirm CIP cycle compliance with permanent comments for later review by QC management or inspector.
- All CIP cycle data is encrypted for integrity.
- Compliant with FDA 21 CFR part 11 Specification.



Dosing and Allocation

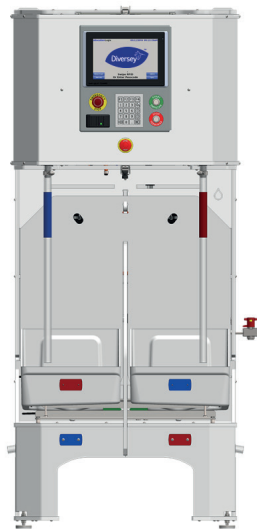
Pumps and Chemical Transfer

Safely transfer and dispense chemical with Diversey's line of chemical transfer pumps. Each air-operated diaphragm pump can dispense at up to 3.5 gal/min 13.2 l/min) and comes with an air regulator with filter. The modular design can be expanded to accommodate the multiple chemicals your operation requires. Tool-free pump changes are quick and easy thanks to quick-change pump bracket.



ALX

The ALX-PRO Chemical Allocation System offers sanitation managers the ability to control and record chemical consumption. ALX-PRO units allow authorized users to log in to dispense chemicals via time or weight-based methods. The units integrate with the CleanIntel website that acts as a centralized location for all reporting. The ALX is equipped with expandable outputs, making the unit flexible for expansion and multiple applications. Solenoid valve output devices simply daisy-chain together for plug and play installation and replacement. Available as single 2-way valves for adding water and four 3-way valves for controlling large AODD pumps.





Entryway Control

Effective personal hygiene cannot be underestimated, especially in production environments where the risk of contamination poses great danger. Diversey's portfolio of entryway solutions can mitigate and reduce these risks. To prevent the risk of contamination, Diversey offers several levels of intervention: from sterilization baths to complete hygiene entrances. Our products and installations are produced entirely in-house and are used throughout the food processing industry.



Sanitizer Fogging

Environmental cleaning and sanitizing play a pivotal role in maintaining a hygienic food processing facility. To counteract contamination in environmental areas and surfaces that are difficult to sanitize, equipment like an atomizer or fogger can help to make sanitizing environmental areas easier through distributing the sanitizer through the air by atomization.

Mobile:

Cost efficient and ideal for smaller rooms, mobile fogging units are a great solution for operations that have several rooms that do not need to be fogged at the same time.

Fixed:

Fully automatic, fixed fogging systems ensure repeat sanitation standards. Diversey fixed fogging systems include automated dilution and programmable fogging event options that allow for pre-set date and time to fog rooms, even if you are not there.

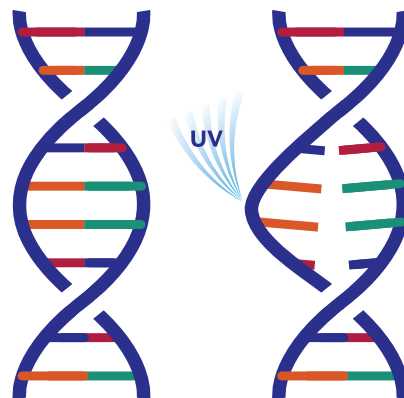
UV Sanitation Systems

Diversey's Aurora UV sanitation system introduces continuous sanitation, even during production, enabling increased shelf life for your product. Aurora combines Ultraviolet light technology with specially designed equipment to enable its safe use in processed food environments.

Absorbed UV light induces 6 types of damages in the DNA, the most common of which contributes to microorganisms inactivation (the microorganism cannot reproduce themselves). These DNA disruptions give the UV light spectrum its disinfectant properties.

Two systems are available for air sanitation – ceiling bowels to be fitted in front of an existing fan and the forced air tunnel systems. UV lamps can be fitted inside existing air ducting or supplied with an incorporate a fan to circulate air flow in an open environment. For surface sanitation, Aurora UV units are suspended over the area and products to be disinfected. For food manufacturing applications shatterproof UV lamps can be used to avoid any accidental breakages.

UV action on DNA



Advanced Engineering Solutions

Customized solutions

From concept creation to support, to P&ID drawings, isometrics, layout and codings, our customized solutions will be able to achieve better control of the cleaning process, ensure better hygiene results in a reliable way and optimization of resources and chemical consumption:

Open Plant Cleaning Solutions (OPC)

Open Plant Cleaning (OPC) is a necessity in the food and beverage industries to ensure consistent hygiene standards are maintained and food safety is not compromised. The average food processing plant attributes 65% of the cost of OPC to labor and time. Through Diversey's manual, automatic, and mobile OPC engineering solutions, facilities are able to optimize their cleaning process, unlocking 30% or more cleaning time and resource requirement.

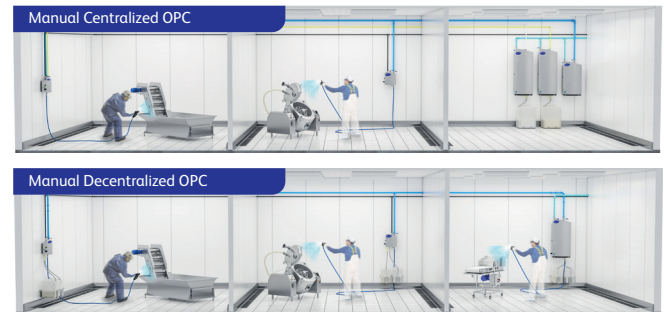
Mobile OPC:

A flexible, cost efficient way to perform rinsing, foaming, and sanitation. Whether you choose the pneumatically driven, pressure-less manual foamer or the semi-automatic, boosted pressure Voyager, Diversey has the portable OPC option right for you.



Manual OPC:

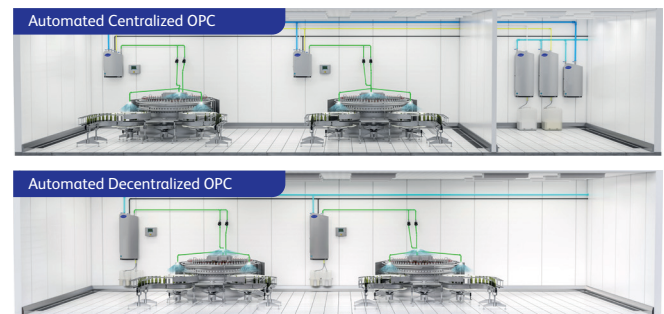
Manually foam, rinse and sanitize using Diversey's highly adaptable wall mounted satellite OPC units. Wall mounted satellite units are offered as either centralized (chemicals are pre-diluted in a chemical room and centrally distributed to each satellite) or decentralized (concentrated chemicals at each satellite).



Automated OPC:

Ensure consistent, optimized OPC results on a day to day basis. Centralized or decentralized, automated OPC is the best option for the optimal cleaning of beverage carousel fillers, poultry or fish chillers, spiral freezers, or conveyors.

Automated OPC parameters (such as cleaner and sanitizer application time, contact time, pre-rinse and rinse time and usage concentrations) are all controlled by a PLC ensuring repetitive and track-able results.





External Filler Cleaning (EFC)

The filler area is a critical control point in beverage production. Diversey's Automated Exterior Filler Cleaning (EFC) modular system ensures effective cleaning, even in areas where access is restricted, reducing the risk from micro-organisms, soil accumulation or other residual contaminants. Our products, application expertise and control systems give you the highest standards of filler hygiene and assured product quality protection.

Clean in Place (CIP)

The clean in Place (CIP) method is used for enclosed equipment such as long pipelines, and large processing and storage tanks. CIP saves a great amount of time since equipment does not have to be taken apart or re-assembled. It is controlled automatically so there is more consistency. More aggressive chemicals can be used for cleaning in CIP due to the low chance of worker contact. Diversey's staff of CIP specialists will work with you to design, optimize and validate your CIP systems to ensure that your cleaning events are as effective and efficient as possible.

CIPTEC

Understanding where CIP optimization opportunities exist begins with collecting data from the washes. CIPTEC sensor data is combined with additional CIP parameters such as conductivity, flow and temperature enable a full analysis of the different phenomena happening during each wash-cycle and the discovery of anomalies causing variance.

Clean Out of Place (COP)

Not every piece of process equipment can be cleaned in place. If equipment has to be taken apart in order to be cleaned, it can be Cleaned Out of Place (COP). Parts are placed into a large tank which circulates the detergent solution around the parts. These tanks utilize the same detergents used in CIP and can be manually operated or fully automated. Diversey engineers are well versed in finding, fitting and designing the best COP system for your operation.



Door Foamers

Diversey's automatic entryway systems offer the most effective and consistent method of introducing a rich layer of foam sanitizer to the floor of the entryway. Fresh solutions are applied at prescribed intervals to assure complete coverage and sanitizer efficacy.

CIPTEC CASE STUDY



Location:
Dairy plant producing 200 million litres annually

Challenge:
Optimising the CIP process to unlock additional capacity.

Solution:
6,600 CIP hours returned to production time.



TIME

6,600
hours reduction
in CIP time



WATER

87m
gallons water &
effluent saving



PRODUCTIVITY

10k
gallons product
recovery saving



ENERGY

1,900
MWh energy &
electric saving



COST

\$591k
total annual cost
saving

Track Treatment

It is essential to choose the right track treatment concept for your needs. Track lubrication helps to minimize power consumption, reduce noise, enhance line efficiency, make the working environment safer by preventing falling bottles and significantly improve lifespan of your conveyor. Furthermore, correct track treatment ensures economical handling of vital resources and improved production time.

Diversey engineering will integrate a flexible track treatment system into your production line, securing optimal effectiveness and hygiene as well as keeping down running and maintenance costs.

Wet lubrication:

Time tested, reliable, and effective; wet lubrication is the standard track treatment solution for your specific needs. Diversey's portfolio of wet lubricants clean as they rapidly lubricate conveyor chains. The wet lubricant portfolio is safe on glass, cans, and PET bottles.

Dry lubrication:

Save water, reduce waste, and increase safety through Diversey's line of dry lubricants. No dilution is necessary when using dry lubricants, helping improve running costs and resource consumption. Dry lubricants eliminate the need for drip trays and produces no unsightly, possibly dangerous, foam or cascading solution.

Hybrid lubrication:

Significant water, labor, and chemical savings can be achieved through Diversey's semi-dry track treatment solutions. Hybrid, or semi-dry, conveyor lubrication fuses wet and dry track treatment technologies, resulting in highly efficient and effective lubrication. Hybrid lubrication utilizes the same dosing and application systems as wet lubrication, making installation painless, with minimal interruption to production.

DryFormance™

With Diversey DryFormance, your conveyor lubrication system becomes one less thing for you to think about. A Diversey DryFormance installation provides the full management of your conveyor lubrication system and includes; servicing, lubricant, spare parts and maintenance, all built into one monthly service charge. Our specialists will audit your current conveyor lubrication system, including a review of all conveyors, measuring the CoF and motor temperatures to understand the methodology of the line, its characteristics and define the areas where we will deliver real benefits.

Following the audit, a full Diversey DryFormance proposal will be generated outlining the system required, the operational benefits you can expect to achieve and the return on your investment. On agreement of the project Diversey DryFormance engineers will install and commission the new conveyor lubrication system to a schedule that minimizes impact to your production schedule.





Bulk Storage, Chemical Room Design & Chemical Consumption Management

Diversey's chemical inventory management system ensures that your operation always has the cleaning and sanitation resources necessary for production. Our team of engineering specialists will help you select the sensors right for your operation to monitor cleaning events, flow, and chemical concentration. This data provides a story of consumption and allows operators to track bulk tank levels remotely. Monitoring systems are highly customizable, allowing operators to create alerts/alarms for cleaning and consumption anomalies. Diversey's chemical inventory management systems add an extra layer of assurance, insight, and supervisory control to your operation. Safe, efficient dosing and allocation begins with proper chemical storage and chemical room design. Diversey's engineering team optimizes chemical layout and design to protect users and enhance efficiency.

On-Site Biocide Generation

Diversey's on-site ClO₂ generation technology is safe to operate, sustainable, and ensures the highest sanitation efficacy against microbiology and biofilms. On-site biocide generation simplifies logistics and translates to operational savings as the disinfectant is produced on-demand. This efficient production ensures that all active principles are not degraded over time and without the creation of undesired, harmful by-products generated in chlorine dioxide use. Diversey's ClO₂ generators are available in a variety of sizes to accommodate to your process needs.

Caustic Recovery

Caustic Recovery Management (CRM) is an advanced process that allows food and beverage manufacturers to recover, store, treat, and reuse a significant amount of the caustic detergent used during cleaning and sanitation. CRM systems provide savings in chemical use, water consumption, effluent and energy usage.



Services

Added Value Services

Supporting engineering processes

Diversey adds value to engineering installations by providing a full post-installation service and a long-term partnership approach for process efficiency analysis, enhancing and improving operational excellence on site. With Knowledge Management, Diversey offers professional training, expert advice and consultancy to work closely with customers to cover enhancements in engineering solutions, application procedures and hygienic results.

Better data, better support, better efficiency.

In today's ever competitive world, food and beverage manufactures need access to key performance data to continually improve process and remain competitive. Diversey engineering not only provides manufactures with the tools and resources necessary to collect key production metrics, but also provides industry experience and support to interpret this data into meaningful, actionable improvements. Diversey's engineering team can assist you with:

- Preventative measures
- Remote Monitoring
- Technical Support
- TCS and Instillation

Knowledge-Based Services

Diversey's Management Information Systems analyses the correct use of products to provide real-time data and reporting. Diversey-Knowledge Based Services provide optimization, validation and traceability for the key hygiene processes within your facility. The result is a full data management service that will make a real difference to your business.

Using these tools, Diversey is able to add value to customers by providing knowledge and experience where it matters.

- Hygiene Academy
- Data Analysis
- Knowledge Based Services:
 - AquaCheck, SteamCheck, AirCheck, CIPCheck, OPCCheck, LubeCheck, BWCheck, FillerCheck, CIPTec, DryFormance





Diversey's purpose is to protect and care for people every day. Diversey has been, and always will be, a pioneer and facilitator for life. We constantly deliver revolutionary cleaning and hygiene technologies that provide total confidence to our customers across all of our global sectors, including: cleaning products, systems and services that efficiently integrate chemicals, machines and sustainability programs. This makes us unique among leading global hygiene and cleaning companies. Everything we do has our customers' needs at its heart and is based on the belief that cleaning and hygiene are life essentials. With over 95 years of expertise, we safeguard our customers' businesses, contributing to productivity improvements, lower total operating costs and brand protection.

Diversey is headquartered in Fort Mill, SC, USA.
For more information, visit www.diversey.com or follow us on social media.

