



Drainage Management

for the Food & Beverage Industry

ACO Industrial and Commercial Drainage

Hygiene**First**



The ACO system chain provides the drainage solutions to meet the future needs of the Food & Beverage Industry.

Today, when food can be produced in any corner of the world and land on your table, it is important, maybe more than ever before, that food is processed in an environment which is 100% safe. No detail should be missed, therefore it is absolutely essential that every facility where food is processed in anyway is equipped by more complex and sophisticated drainage concepts. ACO achieves this with intelligent system solutions which address optimal food safety, people and water protection. Every ACO product within the ACO system chain therefore safely controls the water as it passes along the chain to ensure that it can be hygienically, economically and ecologically handled in a viable way.



collect:

The surface water or the liquids being treated are collected as quickly and as completely as possible by the drainage system. This part of the ACO system chain guarantees protection, safety and comfort for the people, buildings and traffic routes in the immediate vicinity.



clean:

The collected liquids are treated using integrated physical, chemical or biological processes that ensure they can be discharged into public sewers – the minimum requirement. This part of the ACO system chain creates the conditions for recycling and sustainable use.



hold:

Containers, barriers and valves ensure that liquids stay within the drainage system where they can be properly controlled. This part of the ACO system chain enhances the protection and safety of food, your building and the environment.



reuse:

Pumps, lifting plant and pipe systems transfer the collected, treated and controlled water into the downstream systems and processes. This part of the ACO system chain brings the collected, treated and controlled water to the interfaces for further treatment, re-use or release.



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ACO.

we care for water

The worldwide ACO Group. A strong family you can build on

The ACO Group is a world market leader in drainage technology. Climate change sets us a challenge to react effectively with innovative solutions to new environmental conditions. With its integrated approach, ACO stands for professional drainage, efficient cleaning, and the controlled discharge or reuse of water. Products include drainage channels and drains, oil and grease separators, backflow stop systems, pumps and pressure-water-tight cellar windows and light shafts.

The family-owned company headquartered in Rendsburg/Büdelndorf, Germany, was founded in 1946 on the site of the Carlshütte foundry – Schleswig-Holstein's first industrial company. It still has very strong roots in the region. The innovation strength of the ACO Group is built on intense research and development, and its technical expertise in processing polymer concrete, plastic, cast iron, stainless steel and reinforced concrete.

www.aco.com



Headquarters of the ACO Group
in Rendsburg/Büdelndorf

5,200

employees in more than 47 countries (Europe, North and South America, Asia, Australia, Africa)

1 Billion

Euro Sales in 2021

37

production sites in 18 countries



ACO Academy
for practical training

Holder
Iver and Hans-Julius Ahlmann



Hygiene**First**

As one of the world's leading commercial drainage specialists, ACO Group understands the critical role that drainage plays in a successful commercial food preparation business. We appreciate that food safety, hygiene and cost control are all vital factors yet we also understand that for many, drainage is out of sight and therefore out of mind.

As a result, many drainage systems are not designed well. At best this leads to costly on going cleaning and maintenance, and at worst it can result in food contamination, closure of a facility and the loss – or even closure – of business. As the company that's driving the future of drainage, we are determined to change this by raising the profile of hygienic drainage and improving standards across every part of the process.

Our HygieneFirst philosophy represents our commitment to delivering products that provide ultimate hygienic performance. We design intelligent drainage solutions that minimize operational costs without compromising food safety.





Drainage Management for the Food & Beverage Industry

Food processing facilities are extremely sensitive environments with regard to food safety. As a result, our commitment to hygiene in this environment encompasses every aspect of the drainage process from initial design and installation, through to cleaning and maintenance.

Food safety benefits

Our products not only incorporate the hygienic design principles recommended by EHEDG, they are also the first to apply the EN 1672, EN ISO 14159 standards that are normally reserved for food contact equipment.

They are designed not to harbour bacteria and to minimise the build-up of food particles and debris. Key design features include a sleek slope function, rounded corners with a minimum radius of 3 mm and hygienically designed foul air traps (FATs) which mean that end users benefit from a fully drainable system that has no stagnant odours caused by waste water.

Our products are also designed to connect hygienically with surrounding floors to minimise the risk of bacterial growth throughout the drainage system.

Cost control benefits

Our systems are designed to be easily maintained. They minimise time spent on cleaning and associated cleaning costs thanks to their functional design and cleaning recommendations that have been developed in partnership with premium cleaning agent suppliers.

Disruption is kept to a minimum as systems perform effectively at all times and ACO's advanced manufacturing technologies combined with specialist surface treatment, ensure optimum durability and guarantee corrosion resistance. Our expertise in drainage system design and planning, installation and the creation of hygienic connections to surrounding floor areas also avoids any unnecessary costs.

Health & Safety benefits

ACO drainage systems deliver a number of important health and safety benefits. Our gratings are slip resistant improving safety in high risk areas such as food preparation stations and processing sectors which have heavy water usage. Each component of our drainage systems is easy to remove and clean, and there are no sharp edges to optimise employee safety. We also offer a fire resistant solution which is certified according to EN 1366.



Drainage Management

Hygienic standards in the Food and Beverage Industry are rising. ACO is meeting these changing demands by incorporating hygienic design principles, industry best practice and the guidelines of bodies including the European Hygienic Engineering and Design Group (EHEDG) into the design of its drainage solutions.

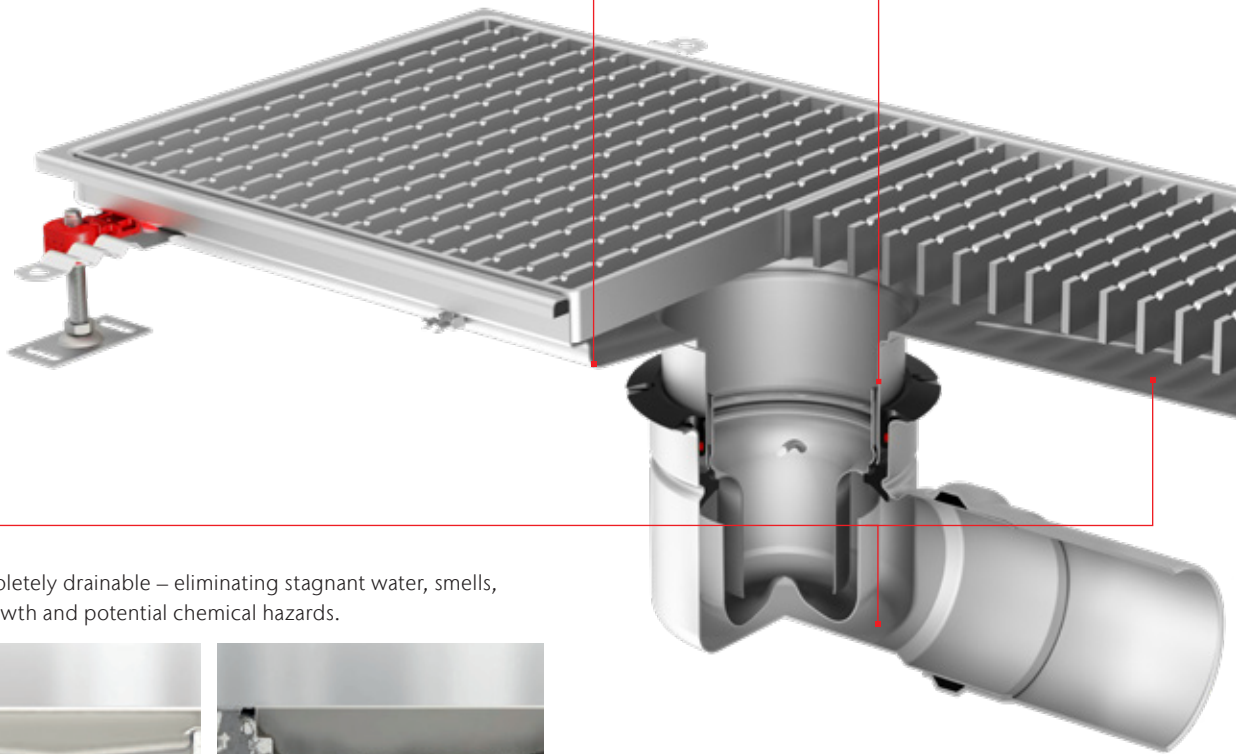
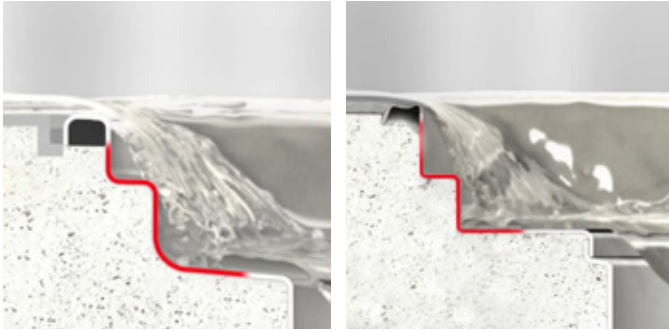
Operational costs are a major factor in business today. Every product and system needs to fulfil its function efficiently throughout its entire lifespan. ACO provides the expertise and quality necessary to provide the perfect balance between high levels of food safety and operational cost.

ACO drainage systems are specifically designed to reduce the build-up of liquids by disposing of water and grease effectively and immediately.

Hygienic Design

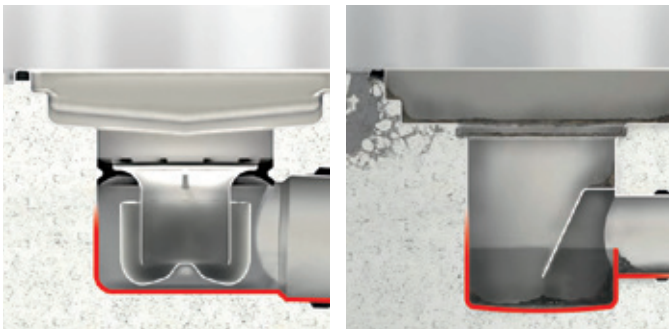
Internal radii

All internal radii equal or larger than 3mm which greatly increases cleaning effectiveness.



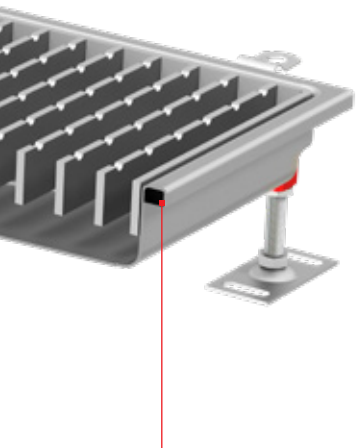
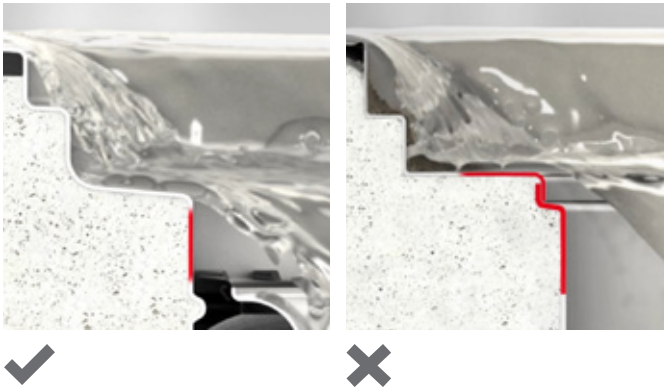
Dry sump

Design, completely drainable – eliminating stagnant water, smells, microbial growth and potential chemical hazards.



Hygienic joints

Deep-drawn body ensures smooth contours eliminating crevices that can nest dangerous bacteria.



Drainage is a critical component affecting the hygienic performance of food production facilities.

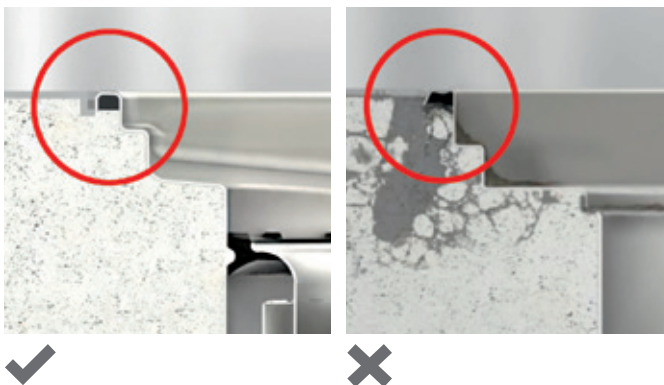
Effective drainage helps mitigate hazards from the external environment and is central to the safe and hygienic operation internally.

Within the food production facility, surface liquids create a potential hazard of microbiological contamination. Liquids may be part of the cleaning process, or may originate from specific equipment discharge points, or be simply the result of accidental spillage.

Proper cleaning of drainage in food processing plants reduces the risk of contamination and spoilage of food during preparation, processing, and storage. ACO drainage systems are designed with all of these requirements in mind. Every detail of our fully hygienic products fulfill and surpass all of EHEDG recommendations. Our channels and gullies not only create support maximum efforts for hygienic environment in food processing facility but also helps to reduce the costs due to savings on staff, detergents and extremely expensive downtime caused by cleaning or repairs.

Edge in-fill

Design ensuring stable and durable transmission between the drainage and surrounding floor and helps to minimize the risk of floor cracks that spur bacteria growth.



Our hygienic drainage is also safe to clean and therefore helps to protect your employees from possible injuries during the cleaning process.

Risk Zone Solutions

Just as any effective operation needs excellent workers, effective tools and reliable machinery, a high quality drainage system is essential for maintaining a successful commercial food production facility.

We follow the recommendations of all main auditing agencies such as IFS, FSSC 22000 and BRC and offer premium drainage systems made specifically for the risk zones within commercial food production.

Whatever your needs, ACO will provide the perfect solution tailored specifically for your facility.



Zones with high risk for food safety.

**Wet production process /
Wet cleaning process**

- Full hygienic design – one piece solution without connections, ladder or cast gratings

- High retention / High flow rate

- Slip resistance - high requirement

**Dry production process /
Wet cleaning process**

- Full hygienic design – one piece solution without connections, ladder or cast gratings

- High flow rate

- Slip resistance - medium requirement

**Dry production process /
Controlled wet cleaning
process**

- Full hygienic design – one piece solution without connections, ladder or cast gratings

- Medium to low flow rate

- Odour proof cover

ACO solution

- ACO hygienic gully
- ACO hygienic box channel



Zones with medium or low risk for food safety.

■ Hygienic design – connections and mesh gratings could be considered if cleaning and sanitation procedures allows

■ High retention / High flow rate

■ Slip resistance - high requirement

■ Hygienic design – connections and mesh gratings could be considered if cleaning and sanitation procedures allows

■ High flow rate

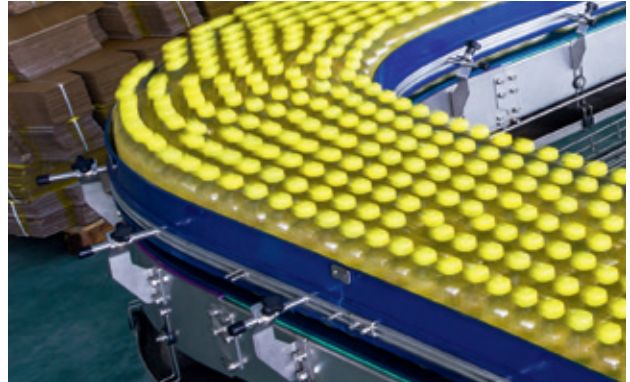
■ Slip resistance - medium requirement

■ Hygienic design – connections and mesh gratings could be considered if cleaning and sanitation procedures allows

■ Medium to low flow rate

■ Odour proof cover

- ACO hygienic gully
- ACO hygienic box channel



Zones without direct risk for food safety.

■ Hygienic design is recommended for easy cleaning and maintenance, combination of products could be considered for easy layout design

■ High retention / High flow rate

■ Slip resistance - high requirement

■ Hygienic design is recommended for easy cleaning and maintenance, combination of products could be considered for easy layout design

■ High flow rate

■ Slip resistance - medium requirement

■ Hygienic design is recommended for easy cleaning and maintenance, combination of products could be considered for easy layout design

■ Medium to low flow rate

■ Odour proof cover

- ACO hygienic gully
- ACO hygienic box channel
- ACO modular box channel
- ACO modular slot channel

Product Overview

ACO offers sustainable, integrated drainage systems designed to protect your business and the environment. Our aim is to constantly improve every aspect of safety, hygiene and functional performance. We believe our systems and services are truly unique, delivering unparalleled benefits to everyone involved in project delivery or subsequent operation.



ACO hygienic gully

The ACO hygienic gully range incorporates hygienic design principles to ensure the optimum hygienic performance. ACO hygienic gullies are available in three body sizes to cater for different flow rates and construction requirements including shallow construction depths and applications where preventative fire measures are required. ACO hygienic gullies are certified according to EN 1253.



ACO modular box and slot channel

Our modular range with standardised widths provides a most versatile system with off-the-shelf availability. Accessories such as corner units and a choice of grating make this system perfect for a wide range of applications. Certified to EN 1433, CE marked.



ACO grease separators

A comprehensive range addresses all size requirements within the EN 1825 specification, with performance at or beyond the Standard's requirement. Certified to EN 1825, CE marked. Separators are tested and certified according to EN 1825 and are CE marked.



ACO hygienic box channel

The ACO hygienic box channel range incorporates hygienic principles to ensure the optimum hygienic performance. The hygienic box channel range is ideal for applications where high standards of hygiene are required as they are capable of handling large volumes of fluid. ACO hygienic box channels are certified according to EN 1253.



ACO pipe

A stainless steel push-fit pipe system designed for grey or black water. ACO pipe offers 40+ years product life thanks to the use of stainless steel. Easy installation and handling on site is ensured by push-fit assembly. ACO pipe is more hygienic, robust and durable when compared to plastic pipes systems for gravity and vacuum drainage.



ACO lifting station

Lifting plants are used when the grease separator is installed below the backflow level. EN 1825 requires a twin pump system to improve overall system reliability.

Factory site

Modern food production facilities are designed to protect food from the risk of environmental hazards. Serious problems are related to potential ingress of surface water into the production facility and/or back up in the sewage system.

ACO solution

ACO Waste Water Management offers the complete portfolio of external polymer concrete drainage, grease separation, backflow devices and attenuation systems.

Factory site products



ACO StormBrixx

is a unique and patented plastic geocellular storm water management system. Designed for surface water infiltration and storage, its versatility allows it to be used in applications across all construction environments as a standalone solution or as part of an integrated sustainable drainage (SUDS) scheme.



ACO Qmax

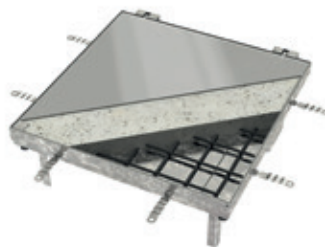
has been developed to satisfy the demand for a versatile, high capacity slot drainage system for a wide range of applications involving small to large catchment areas to any load class. The system is specifically designed to form an integral part of any modern, sustainable surface water management solution requiring effective storage and attenuation while eliminating carry over in storm water conditions.



ACO Monoblock PD/RD

The innovative drainage system which unique monocast construction guarantees extremely high levels of safety and stability in all transport surface drainage applications. Monoblock is poured in polymer concrete as a single piece: no lines of weakness along adhesive joints, producing a much tougher and safer product.

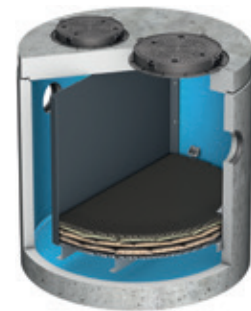
Monoblock RD is specially developed for road construction, like highways and motorways up to load class F 900. Monoblock PD is suitable for use in car parks, traffic and hard landscaped areas from load class A 15 to D 400.



ACO Access covers

Access Covers provide quick and easy access to underground services and enable any floor finishes to be maintained with minimal interference. Access Covers are easy to integrate in the overall design for supply and

drainage installations to close off the end of the structure. Access Covers are available in different loadclasses. They are watertight and odour tight. ACO Access covers are certified according to European standard EN 1253-4 and EN 124.



ACO Heavy metal filter

ACO systems for rainwater treatment, including the metal roof filter, protects infiltration systems from pollution and congestion by deductible solids during the ingress of rainwater from, for example uncoated roof coverings from copper, zinc and lead.

Water discharge requirements are very strict, because the water is classified as a heavily burdened.

The metal roof runoff is purified by ion exchangers. The quality of water after filtration is so high that it can be introduced directly into the infiltration system (drainage trench or soak away), outfall, or into a rainwater using plant. It is also possible to use underground in seepage boxes or a soak away.

ACO Service Chain

As the leading manufacturer of drainage solutions, we pride ourselves in being experts in everything relating to drainage. We are always happy to share our comprehensive expertise with our partners on the selling side, as well as architects, planners and the trades. This not only helps us simplify your working day but also enables us to safeguard the quality and the market leadership of ACO solutions.

train: Information and further education

We share the global expertise of the ACO Group with dealers, planners, architects and installers who prioritise quality. We invite you to profit from our expertise and attend a number of CPD training sessions organized by us.

support: Construction advice and assistance

We provide you with project-related advice and support to ensure that no unpleasant surprises occur between the planning and realisation of a drainage solution.

design: Planning and optimisation

There are many different options when it comes to the specification and design of drainage solutions but which concept produces the most economical, hygienic and safest technical solution? We'll help you find the right answer.

care: Inspection and servicing

ACO products are designed and built for long service. Our customer care services also ensure that ACO continues to satisfy your high quality requirements year after year.



ACO Service Chain

References



From top left to bottom right: **Nestlé Terni Italy** Froneri is a company focused on ice-cream, frozen food and chilled dairy products. This company brings together years of manufacturing expertise and business from Nestlé and R&R, branding delicious dessert treats. Froneri is currently the second largest ice cream manufacturer in the region of Europe and also worldwide the third largest. **Budweiser Xuejin Beer Co., Ltd. (Putian) China** was founded in 2002 with a registered capital of approximately 91.2 million yuan and more than 10,000 employees. It is located in the western part of the Budweiser InBev Food Industrial Park in the Hanjiang District of Putian City in the Fujian Province. **Coca-Cola India** Sri Sarvaraya Sugars limited manufacturer Sugar, Industrial Alcohol, Carbonated and Non-Carbonated Soft Drinks and Bottled Water at its Plants in East Godavari and Khammam Districts of Andhra Pradesh and is an Authorised Bottler of The Coca-Cola Company, U.S.A. **Steinex Czech Republic** meat processing company is a large family business focused on innovations, dynamic development and passion for the future business. Steinhauser family has been working in the meat industry for over five generations. Steinex brand story began in 1994 and since then they not only produce and process the meat, they have also a network of meat stores. Passing the experience from father to son helped them become one of leading local industry's producers. Factory serves the whole CEE region with the sales of 16 million EUR.

Every ACO product supports
the ACO system chain



-
- Floor drainage
 - Bathroom drainage
 - Parking deck drainage
 - Roof drainage
 - Balcony and terrace drainage
 - Pipe systems
 - Wall protection
 - Grease separators
 - Starch separators
 - Light oil separators
 - Process technology
 - Backflow systems
 - Lifting stations
 - Pumping stations
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ACO. we care for water

