

ACO Solutions for the Beverage Industry

Ultimate hygienic performance



Beverages

The effective solution for waste water management within the beverage operation

Since decade ago, **HygieneFirst** is a definition of uncompromising hygienic performance. Hygienic drainage is designed and manufactured to the strictest hygienic principles defined by industry leaders to protect our communities. ACO is proud pioneer in leveraging F&B standard and therefore protecting our customers' business continuity from unforeseen consequences caused by bacteria outbreaks.

Today's world keeps changing, setting ourselves new challenges. Growing population and increasing water scarcity has become a top concerns of F&B industry, being challenged by authorities, communities and economical factors to protect our most valuable resource - water. That all while maintaining the high level of hygienic standard. It is time to expand our mission of HygieneFirst even further to reflect other issues relevant to present time.





Note

Any more questions?
askACO – your local
ACO team is proud to offer
experience and service

**[www.buildingdrainage.aco/
service-support](http://www.buildingdrainage.aco/service-support)**

Hygiene First

Uncompromising hygienic drainage

4

ACO. we care for water

ACO Group

6

A comprehensive approach to all projects

ACO Service chain

8

Three key areas

Introduction

10

Effective layout and sufficient capacity

The ACO solution

12

Reliable floor – drainage connection

The ACO solution

14

Cleaning performance

The ACO solution

16

ACO Products

Overview

20

ACO Solutions for
the Beverage Industry
Online information



ACO. we care for water

ACO is a Water-Tech company that protects water. Building on our global drainage expertise that protects people from water, we increasingly see our mission as also protecting water from people.

With the ACO WaterCycle, ACO provides systems that collect and channel, clean, retain and ultimately reuse water. In this way, ACO contributes to the preservation of clean groundwater as a vital resource, and makes a contribution to tomorrow's world. In its Agenda 2030, the UN global community set the improvement of water quality as one of 17 sustainable development goals.

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination by pollutants such as fat and grease, fuels, heavy metals and microplastics.

Today, ACO goes one step further: we accept the challenge of reusing water, and thus establishing a resource-saving cycle. For all products and systems, ACO attaches great importance to durability, reusability and a low carbon footprint. The pursuit of sustainability is an ongoing process that we strive to meet every day.

The ACO Group is a global family business that is one of the world market leaders in the Water-Tech segment. Founded in Schleswig-Holstein in 1946, it operates as a transnational network in over 50 countries. Worldwide, ACO is characterised by a high level of decentralised ownership, and explicit regional market proximity.

www.aco.com



Holder
Iver and Hans-Julius Ahlmann



Headquarters of the ACO Group
in Rendsburg/Büdelisdorf



5.300

employees in more than 50 countries (Europe, North and South America, Asia, Australia, Africa)

1,15 Billion

Euro Sales in 2022

40

production sites in 20 countries



ACO Academy
for practical training

A comprehensive and detailed approach to all projects

Together we tackle every project successfully!

ACO provides its customers with a range of design and installation services to help beverage manufacturers benefit from effective and durable drainage systems.

We evaluate current drainage performance as well as helping you with the specification of drainage and accessories in new facilities. We ensure drainage systems comply with current or planned equipment and traffic within the operation, and assess any other possible risks. In a single report we can supply risk assessments, corrective measures and an action plan for your consideration.

support: Installation

ACO products are designed to minimise assembly time and related costs as well as ease commissioning post installation. The ACO team can be on-hand throughout the installation of your drainage system to provide guidance and best practice advice. A new and revised connection method enables installers to hygienically weld together long sections of drainage channel on site and is perfect for use in hygienically sensitive environments.

design: Specification

At ACO we design high performance drainage systems that meet the specific needs of beverage production facilities. We will make sure that every aspect of your drainage project meets the highest standards including the provision of BIM files for specification.

train: Training and information

We share the global expertise of the ACO Group with dealers, planners, architects and installers, who place a big emphasis on quality. We invite you to profit from our expertise and attend a number of our CPD trainings organized by us.

care: Maintenance support

The ACO team will evaluate the effectiveness of your existing cleaning programme and provide maintenance recommendations through our partners regarding cleaning procedures and chemicals which should be used to keep your drainage system clean.



ACO Service Chain

Questions?

askACO



ACO design and support service

Further information available at: www.buildingdrainage.aco

Follow us on:    



The challenge is to keep the environment clean and to meet food and health and safety regulations.

Drainage system design, as well as the design of drainage features, significantly influences hygienic performance, operational efficiency and costs in beverage production. A correctly designed drainage system also helps to create a safe working environment by preventing accidents in the workplace.



To ensure your operation is as safe and hygienic as possible, it is important to consider **three key areas** when specifying drainage.

1

Effective layout & sufficient capacity

Inappropriate drainage with low retention capacity and flow rates can easily lead to flooding, endangering health and safety in the workplace, and also raises the risk of cross contamination.

2

Reliable floor – drainage connection

High dynamic and thermal loading can cause floor cracks, especially at the point where the drainage connects to the floor.

3

Cleaning performance

The ability to completely clean drainage systems in a way that is practical, efficient and affordable is a key issue affecting maintenance costs and hygienic standards in a beverage production environment.

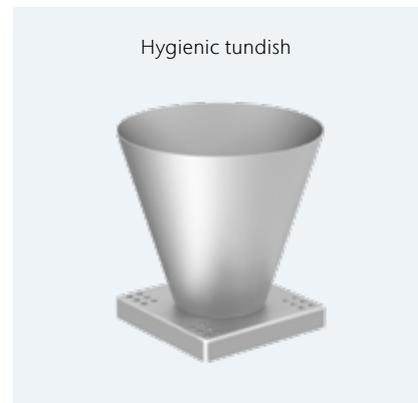
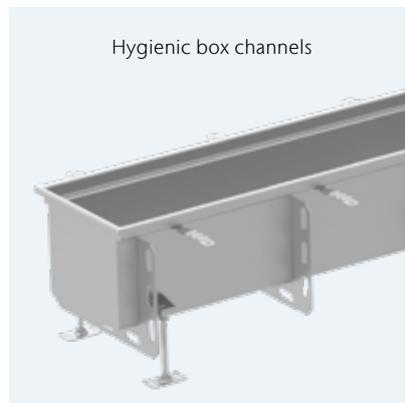


1. Effective layout and sufficient capacity

Technologies like cooling towers, CIP or steam generation are extremely demanding with regard to waste water management. Inappropriate drainage with low retention capacity and flow rates can easily lead to flooding, endangering health and safety in the workplace, and raises the risk of cross contamination.

For such high demanding situations, drainage with sufficient water retention capabilities and flow rates must be used.

The ACO solution

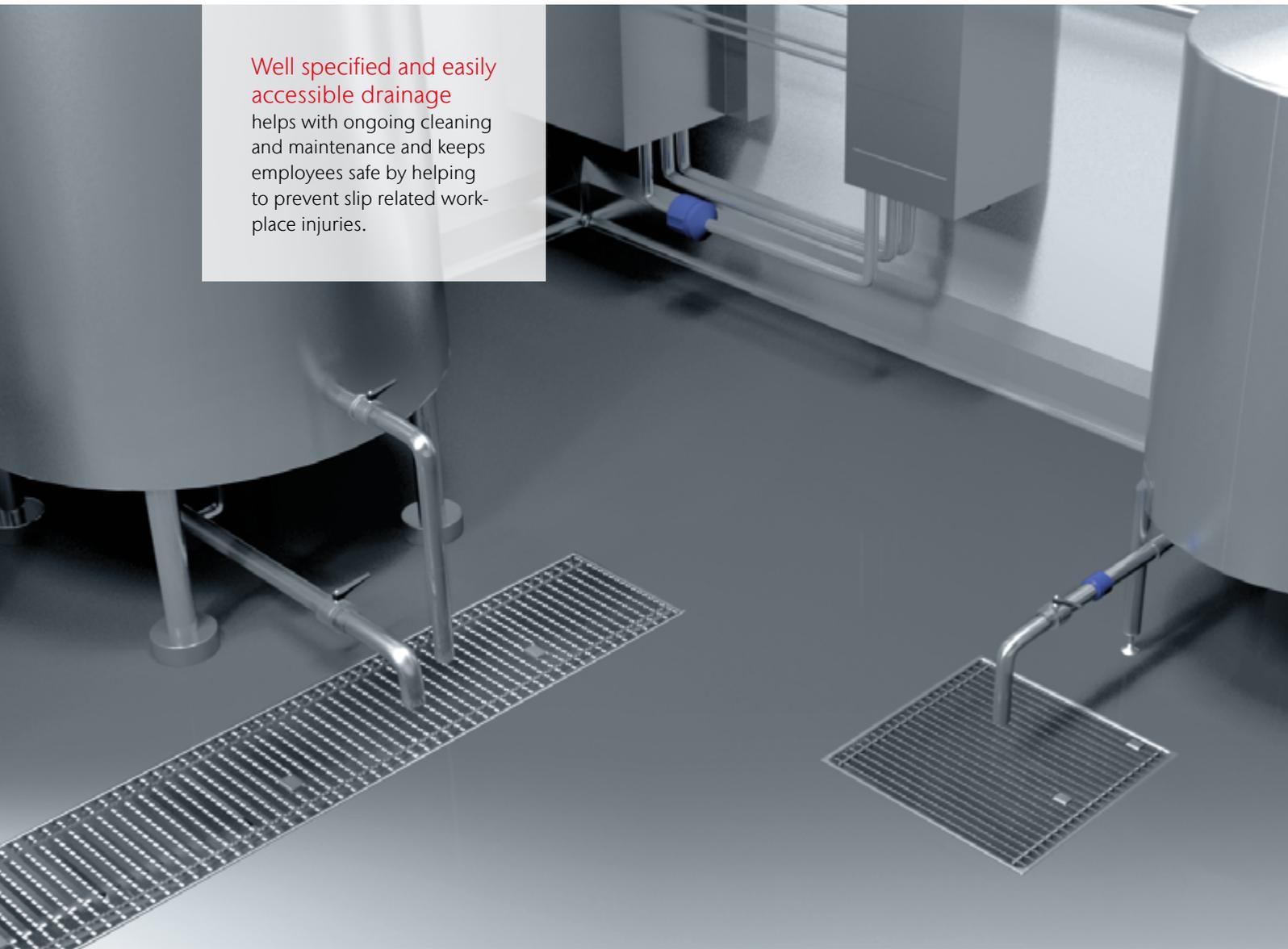


■ Hygienic gullies with high flow rates are part of ACO's standard portfolio. For applications with the biggest CIP capacity, **ACO also can produce customized high-capacity gully solutions.**

■ In addition to ACO's standard hygienic box channel portfolio, customers can specify any customized hygienic channel design, including **hygienic extra deep box channels with high retention capacity.**

■ **The ACO tundish** is used to streamline discharged water directly into a gully.

Well specified and easily accessible drainage helps with ongoing cleaning and maintenance and keeps employees safe by helping to prevent slip related workplace injuries.



CIP flow capacity [m ³ /h]	5	10	15	20	30	40	50	60
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ACO hygienic gully 157

ACO hygienic gully 218

ACO gully - high capacity

recommended gully



2. Reliable floor – drainage connection

High dynamic and thermal loading can cause floor cracks, especially at the point where the drainage connects to the floor.

The floor-drainage connection must be specified with respect to the application. ACO and flooring specialist Sika commissioned a three year study and research program to provide factory and processing operators with clear evidence-based guidance with regard to flooring-drainage connections.

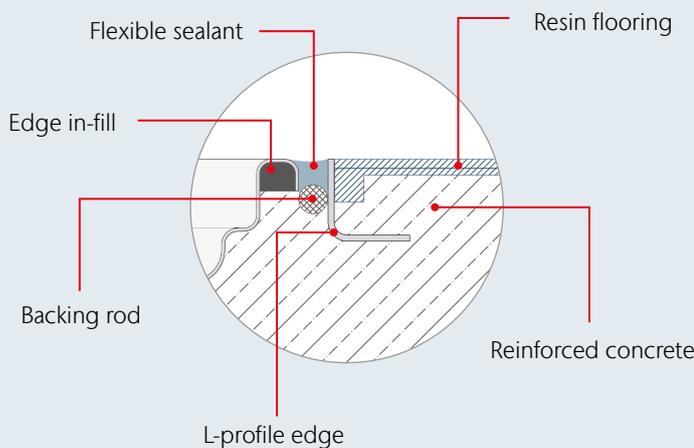
The ACO solution

■ For areas where the drainage has to be resistant to both thermal and dynamic shocks, ACO has tested various floor-drainage connection solutions, which showed promising results. The results of the research led to the development of a cus-

tomised **L-profile edge** solution. It is resistant to both thermal and dynamic shocks and is being incorporated into our product design and manufacturing process.

■ ACO industrial gratings are designed to sustain a range of load classes whilst retaining slip resistance (refer to class R9-R13 as specified in DIN 51130) to ensure safe working conditions.

Typical applications:



Beverage production

Packaging plant

Bottle washing plant

Testing conditions



Thermal shocks
20° - 90°C

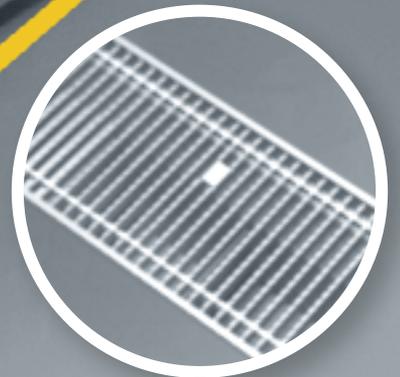


Dynamic shocks
over 100 000 cycles



Load class
L 15 - N 250

ACO Hygienic slot cover is ideal for using in areas where forklifts or trolleys with small wheels are operated.



ACO Hygienic frameless ladder grating is easy to clean with extended slip resistance to increase workplace safety.

For more information on the research, scan the code



3. Cleaning performance

The ability to completely clean drainage systems in a way that is practical, efficient and affordable is a key issue affecting maintenance costs and hygienic standards in a beverage production environment.

Industrial drainage must be designed with cleanability and safe handling in mind. **The research findings of the Fraunhofer Institute IVV Dresden clearly show that the use of ACO's hygienically designed drainage dramatically improves cleanability.**

ACO drainage is manufactured from austenitic stainless steel, grades 1.4301 or 1.4404 according to EN 10088 (304 or 316L according to AISI) resistant to aggressive chemicals used during the cleaning procedures.

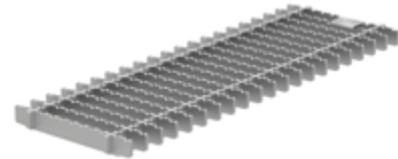
The ACO solution

- The ACO drainage portfolio is designed in accordance with the relevant **hygienic design principles** that are reserved for food contact surfaces by European standards and **EHEDG documents**.

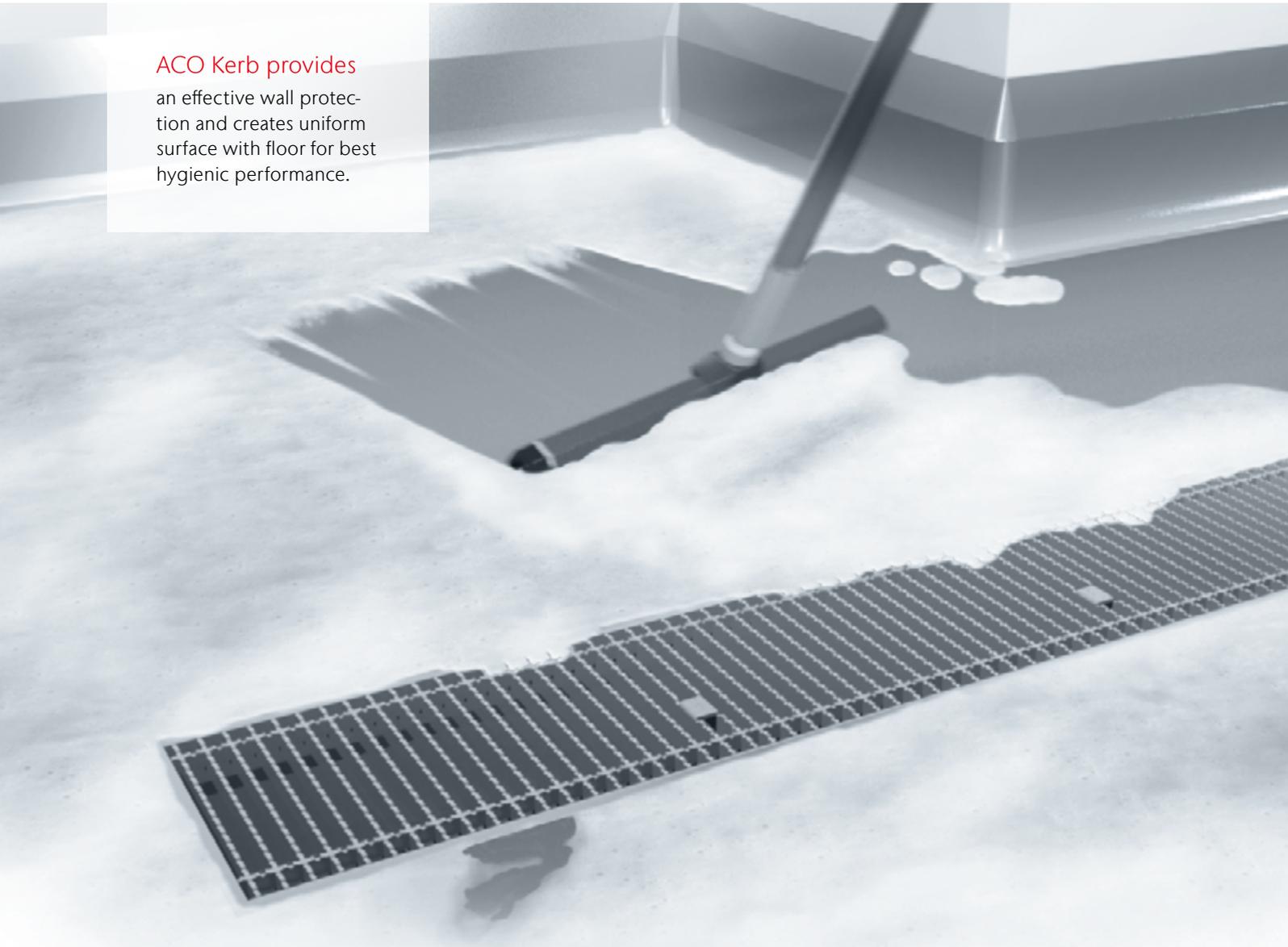
- **ACO frameless ladder** grating provides a unique hygienic and cost effective solution for the best cleaning performance.

- **ACO glass collector** helps to deal with excess waste which would eventually end up inside the drainage. Not only glass, but also labels that get separated from the bottles during the manufacturing process will be stopped by the glass catcher before they can enter the drain.

- **ACO kerb provides** reliable wall protection that prevents walls from impacts, water or chemical ingress, or other damages associated with traffic and production process. It is suitable for any food processing area.



ACO Kerb provides
 an effective wall protection and creates uniform surface with floor for best hygienic performance.



Cleanability test findings*

	ACO hygienic design	Non hygienic design
 Spray cleaning time	8 min	180 min
 Residual soiling (optional)	0%	2%

*Cleanability tested by:  **Fraunhofer** on ACO hygienic box channel 400x800 and current industrial standard equivalent.

For more information
 on the research,
 scan the code







**When it comes
to flooring
within any food
or beverage
operation – it
always pays to do
it once and do it
right...**

William Taunton
Director of Gastrotec SpA

ACO Products



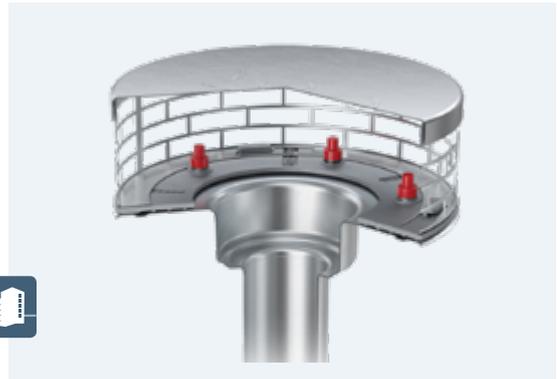
Building Drainage

Floor Drainage



Available in various sizes to cater for sufficient flow rates and construction requirements including shallow construction depths and applications where preventative fire measures are required. ACO hygienic gullies and channels are certified according to EN 1253.

Roof Drainage



Refers to the systematic design and management of rooftop rainwater collection and diversion to ensure the sanitary handling, potential reuse, and safe disposal of rainwater. By integrating components like roof gullies, appropriate roofing materials, and regular maintenance, hygienic roof drainage ensure that water quality is maintained, environmental sustainability is promoted, and potential health or structural issues occurring from improperly managed rooftop rainwater are mitigated.

Pipe System



The stainless steel push-fit pipe system is designed for grey, black and rain water. ACO pipe offers 40+ years product life thanks to its material properties. Easy installation and handling on site is ensured by push-fit assembly system and available cutting tools.

Grease Management



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.



Surface Water Management



Building Materials

Surface Water Management



A unique and patented plastic geocellular storm water management system. Designed for surface water infiltration and storage.

External Drainage



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.

Access Covers



Provide quick and easy access to underground services. Enable any floor finishes to be maintained with minimal interference. Available in different load classes. Access covers are water tight, odour tight and certified according to European standards EN 1253-4 and EN 124.

Stormwater Management



With urban areas experiencing rapid growth and climate change impacts intensifying, effective stormwater management has never been more crucial. ACO Stormclean combines four crucial processes – sedimentation, filtration, adsorption, and precipitation – to ensure bound and dissolved pollutant are removed from stormwater.

Light Liquid Separation



ACO light liquid separators are designed and constructed in compliance with EN 585 standards and undergo rigorous LGA institute laboratory testing. This ensures maximum safety and efficiency during their operations.

External Drainage



The innovative drainage system with unique monocast construction guarantees extremely high levels of safety and stability in all transport surface drainage applications.



ACO. we care for water

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination. We accept the challenge of reusing water, and thus establishing a resource-saving cycle.