



**Drainage solutions  
for the Wine Industry**



# INSPIRED BY YOUR EXPERIENCE

At ACO, we are committed to ultimate hygienic performance. More than a quarter of a century's experience of researching and collecting data with regard to the waste water management in wine production facilities enables us to understand the challenges you face on a daily basis.

We can ensure you spend the time with wine production rather than poor performing floor or drainage.

When specified in synergy with the whole production environment, drainage systems help you to significantly reduce your daily cleaning costs and ensure you benefit from a reliable and long-lasting floor.

As the future of drainage company, we are committed to raising the standards of the drainage specified in the wine industry. Our commitment is embodied in what we call HygieneFirst which includes ongoing investment in research and development, collaborating with other specialists to deliver leading in-situ performance and ensuring leading best practice recommendations are incorporated into the design of your drainage systems.

## CONTENT

<b>Grape collection areas</b>	<b>04</b>
<b>Fermentation and pressing</b>	<b>06</b>
<b>Maturation</b>	<b>08</b>
<b>Aging and storage</b>	<b>10</b>
<b>Bottling areas</b>	<b>12</b>
<b>Barrel washing</b>	<b>14</b>
<b>Logistics area</b>	<b>16</b>



# 3 KEY FOCUS AREAS

**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 and sufficient capacity**

The specification of inappropriate drainage which has low retention capacity and flow rates can easily result in flooding, endangering health and safety in the workplace, and raising 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.

---



## Grape collection area

# HOW TO ALIGN HEAVY LOADS WITH A SAFE WORKING ENVIRONMENT?

Based on your experiences, we understand how challenging it can be to ensure a safe working environment while operating with heavily loaded forklifts and tractors. The collection area can become more dangerous when the relevant slip resistance and load class have not been specified for the flooring

and drainage. Mud and grapes can make the floor slippery and can block the drainage.

Cracked, slippery and even flooded floors can easily be prevented. However, attention has to be paid to getting the drainage and floor specification right.

On the right we highlight an effective drainage solution that is designed to perform in grape collection areas.

**Heavy loads**

**Mud and dirt**

**Grape spillage**

**ACO product solution:**



**ACO hygienic box channel**

The ACO hygienic box channels provide easily cleanable and fully inspectable drainage solutions that are ideal for applications demanding in cleanability as products are capable of handling large volumes of fluid containing solid particles.



**ACO hygienic gully 218**

ACO hygienic gullies 218 cater for sufficient flow rates and construction requirements including shallow construction depths. Hygienic features ensure easily cleanable and fully inspectable solution.



**ACO silt basket**

For the collection of solid particles, ACO drainage systems can be supplied with an optional silt basket. ACO silt baskets are available in a wide variety of capacities ranging from 0.3 litre to 9.5 litres.



**ACO slot cover grating**

ACO's fully hygienic slot covers fulfil the most stringent cleaning requirements. Slot covers are perfect solutions for places where heavy loads and small wheels are operated.



**ACO hygienic ladder grating**

The ACO hygienic ladder grating portfolio provides an easily cleanable solution. Ladder gratings are suitable for applications with high load classes in combination with solid particles contained in the waste water.



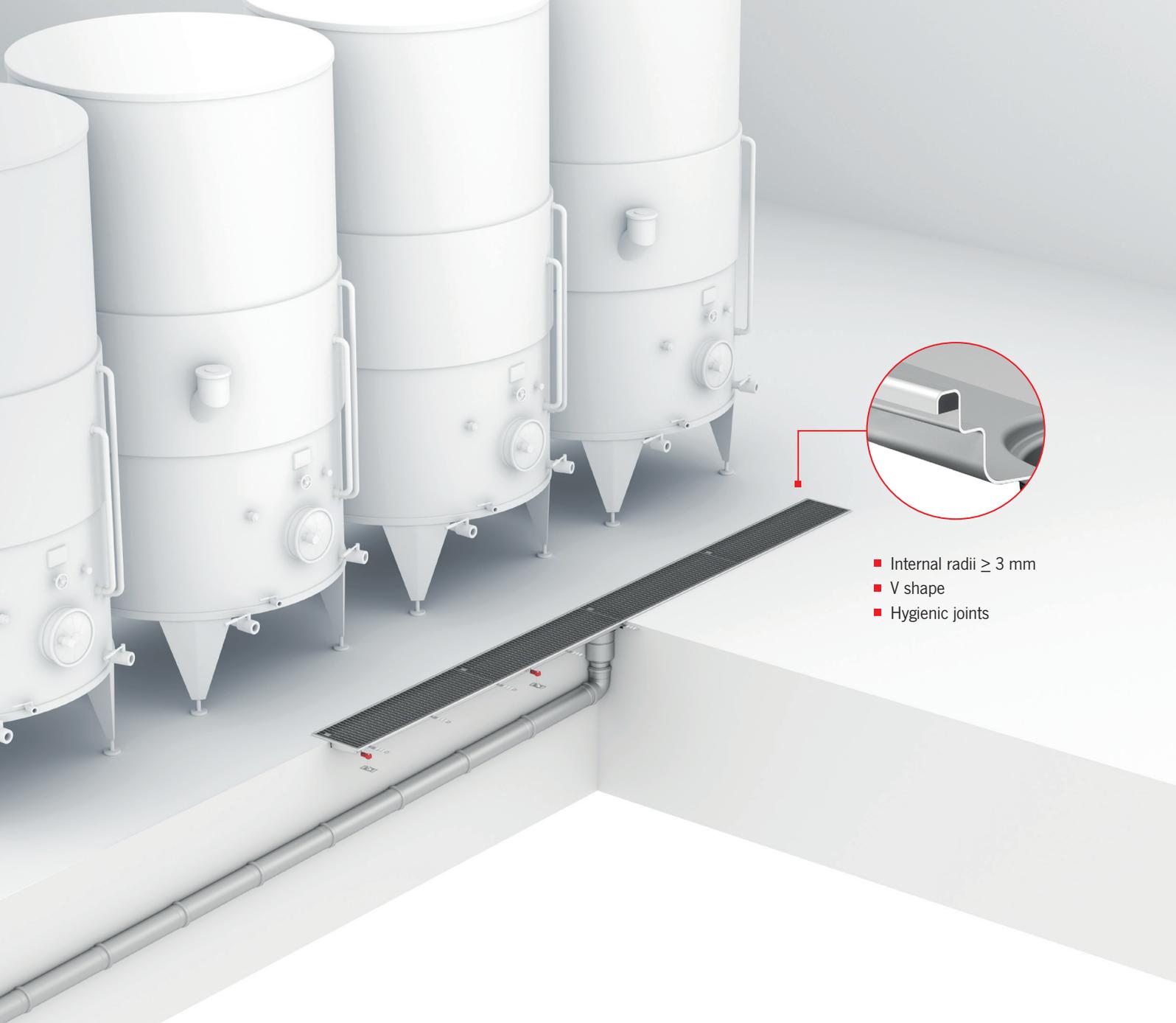
**ACO pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.



**Load class  
N250**





- Internal radii  $\geq 3$  mm
- V shape
- Hygienic joints

## Fermentation and press

# HOW TO QUICKLY CLEAN THE FLOOR WITHOUT COMPROMISING HYGIENE?

It can be challenging to design a drainage system that complies with the rest of your production facility and can handle the large volumes of water coming from fermentation tanks or similar technologies. When they are being cleaned, the waste water has to be drained away smoothly and quickly.

Avoiding puddles on the floor is achievable. Understanding the key factors to consider when specifying the drainage helps.

On the right we highlight an effective drainage solution that is designed to perform in fermentation and press areas.

**Large volumes  
of water and high  
flow rates**

**Hygienic risk**

**Debris from the  
fermentation process**

**ACO product solution:**



**ACO hygienic box channel  
- extra deep**

Extra deep variations of ACO hygienic box channels provide extended flow rates and higher retention capacities without compromising hygiene. Extra deep hygienic box channels are designed to handle waste water from such a demanding technologies like CIP systems or fermentation tanks.



**ACO hygienic gully  
- high capacity**

Hygienic gully in its high capacity variation has a diameter 440 mm and is capable of handling flow rates of more than 20l/s. That makes it suitable for the most demanding applications such as CIPs.



**ACO slot cover grating**

ACO's fully hygienic slot covers fulfil the most stringent cleaning requirements. Slot covers are perfect solutions for places where small wheels are operated.



**ACO frameless ladder grating**

The ACO frameless ladder gratings provide fully hygienic solutions thanks to the robotic welding technology used during the production. Frameless design ensures that no debris is captured between the grating and drainage.



**ACO pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.



**Load class  
M125**





## Maturation

# HOW TO KEEP THE AREA SAFE AND DRY?

In areas where the floor is kept clean and dry in order to prevent accidental slips and falls, and to ensure operators can move easily and safely a space-saving drainage solutions are recommended.

Creating a safe working environment is possible. Having a care of the critical parts of your production will pay off.

On the right we highlight an effective drainage solutions that are designed to perform in maturation areas.

**Low flow rates**

**Slippery floors**

**Floor cracks**

**ACO product solution:**



### **ACO hygienic gully**

ACO hygienic gullies are available in various body 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 are certified according to EN 1253.



### **ACO hygienic box channel - narrow**

Hygienic box channels are available also in 150 mm width. This space-saving solution keeps all hygienic and cleanliness features as all other hygienic box channels from ACO portfolio.



### **ACO modular slot channel**

Thanks to their small widths the ACO slot channels deliver universal and space-saving solutions for all common applications and all common floor types (concrete, tiles, resin or vinyl). The unique variability of the ACO portfolio means channels can be specified to meet each customers' needs.



### **ACO slot cover grating**

ACO's fully hygienic slot covers fulfil the most stringent hygienic requirements. Slot covers are perfect solution for places where small wheels are used. ACO slot covers are certified according to EN 1253-1 and adhere to EN 1672, EN ISO 14159 and EHEDG documents 8, 13 and 44.



### **ACO frameless ladder grating**

The ACO frameless ladder gratings provide fully hygienic solutions thanks to the robotic welding technology used during the production. Frameless design ensures that no debris is captured between the grating and drainage.



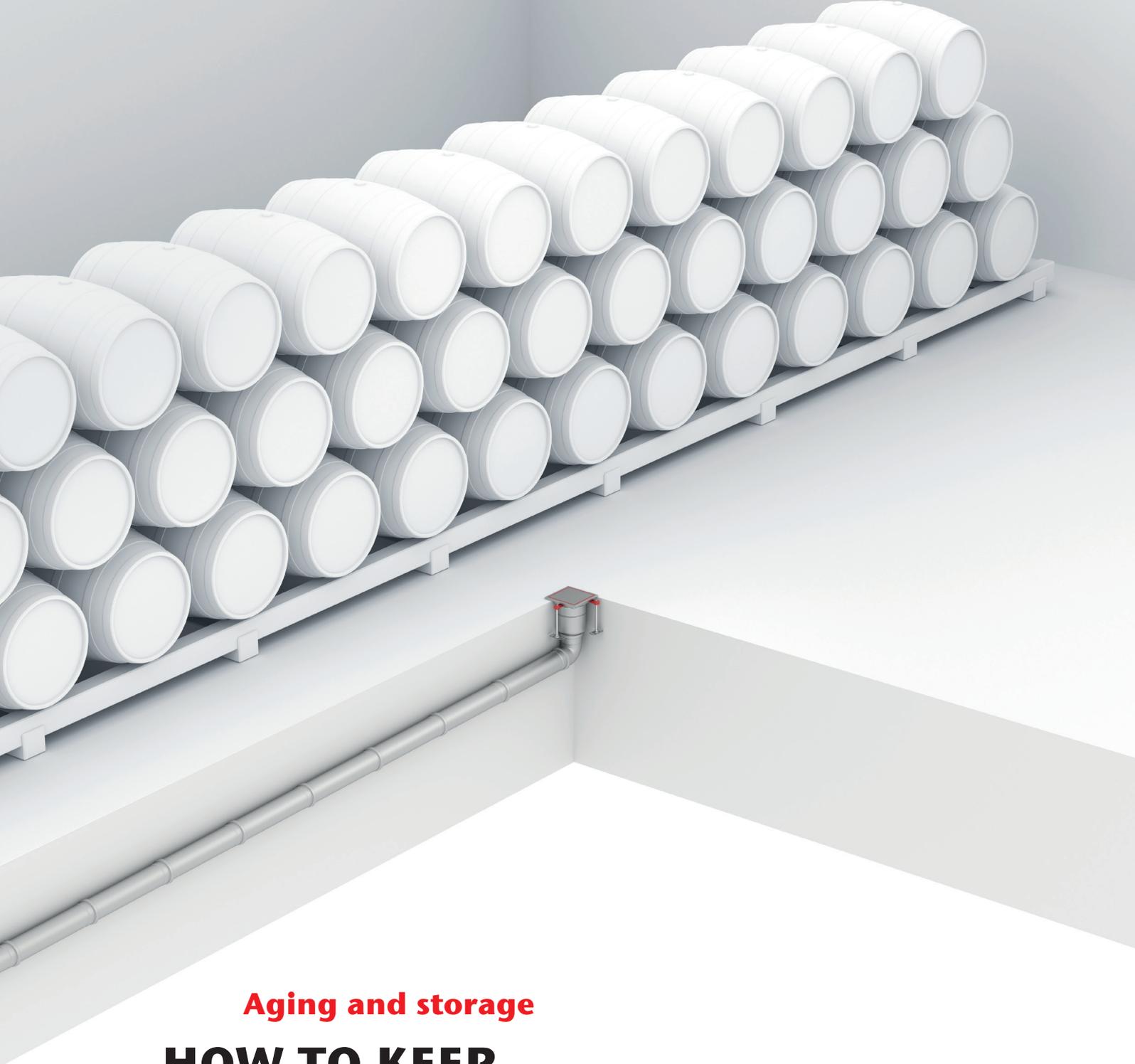
### **ACO pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.



**Load class  
M125**





## Aging and storage

# HOW TO KEEP YOUR BEAUTIFUL BOUQUET?

In areas where handling and packing of liquids takes place on a daily basis, it is essential to specify the use of drainage gullies. Without the use of drainage gullies, it is common for indoor areas that are infrequently washed down to be plagued with unpleasant odours which come from the drainage system. Wooden barrels

can be easily contaminated with this smell and as result, it can destroy the wine, its bouquet and taste.

Annoying odours can be eliminated easily. When designing the storage, do not forget to pay attention to your drainage specification.

On the right side we highlight an effective drainage solution that is designed to perform in storage areas.

**Dry areas**

**Heavy loads**

**Odour contamination**

**ACO product solution:**



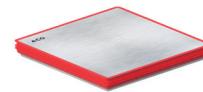
### **ACO hygienic gully**

ACO hygienic gullies are available in various body 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 are certified according to EN 1253.



### **ACO Kerb**

ACO kerb products provide reliable wall protection that prevents walls from impacts, water or chemical ingress, or other damage associated with the traffic and production process. They are suitable for any food processing area. ACO kerbs are available in polymer concrete and stainless-steel variations.



### **ACO odour proof covers**

ACO's odour proof cover hermetically separates the floor surface above the gully from the space within it. It has been designed specifically for use in dry processing areas where controlled wet cleaning take place, and in areas where foul air traps can become dry and so a new form of odour protection is required. Tested and certified according to EN 1253.



### **ACO pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.



**Load class  
M125**





## **Bottling area**

# **HOW TO AVOID CLOGGING OF THE DRAINAGE AND PREVENT FLOODING OF THE ROOM?**

We understand how challenging it can be to get rid of the glass fragments from the floor. The easiest way to do that is to rinse the floor or sweep glass fragments to the drainage. Why not, right? But, if the drainage is incorrectly specified, there is the risk that drains will become blocked.

To maintain the performance of your drainage systems and production facility, it is important to consider how you will use the drainage of a daily basis at the specification stage.

On the right side we highlight an effective drainage solution that is designed to perform in bottling areas.

**Glass fragments**

**Slippery floors**

**Small wheel impacts**

**ACO product solution:**



**ACO hygienic box channel with flexible joint to the floor**

ACO hygienic box channels are available in various body sizes to cater for sufficient flow rates and construction requirements. Flexible joint is a recommended solution which ensures long lasting floor-drainage connection in areas that are subject to thermal shocks.



**ACO glass collector – a custom made solution**

The ACO glass collector helps to deal with excess waste which would eventually end up inside the drainage. The ACO glass collector is available as a custom made solution and needs to be specified by ACO experts.



**ACO frameless ladder grating**

The ACO frameless ladder gratings provide fully hygienic solutions thanks to the robotic welding technology used during the production. Frameless design ensures that no debris is captured between the grating and drainage.



**ACO Kerb**

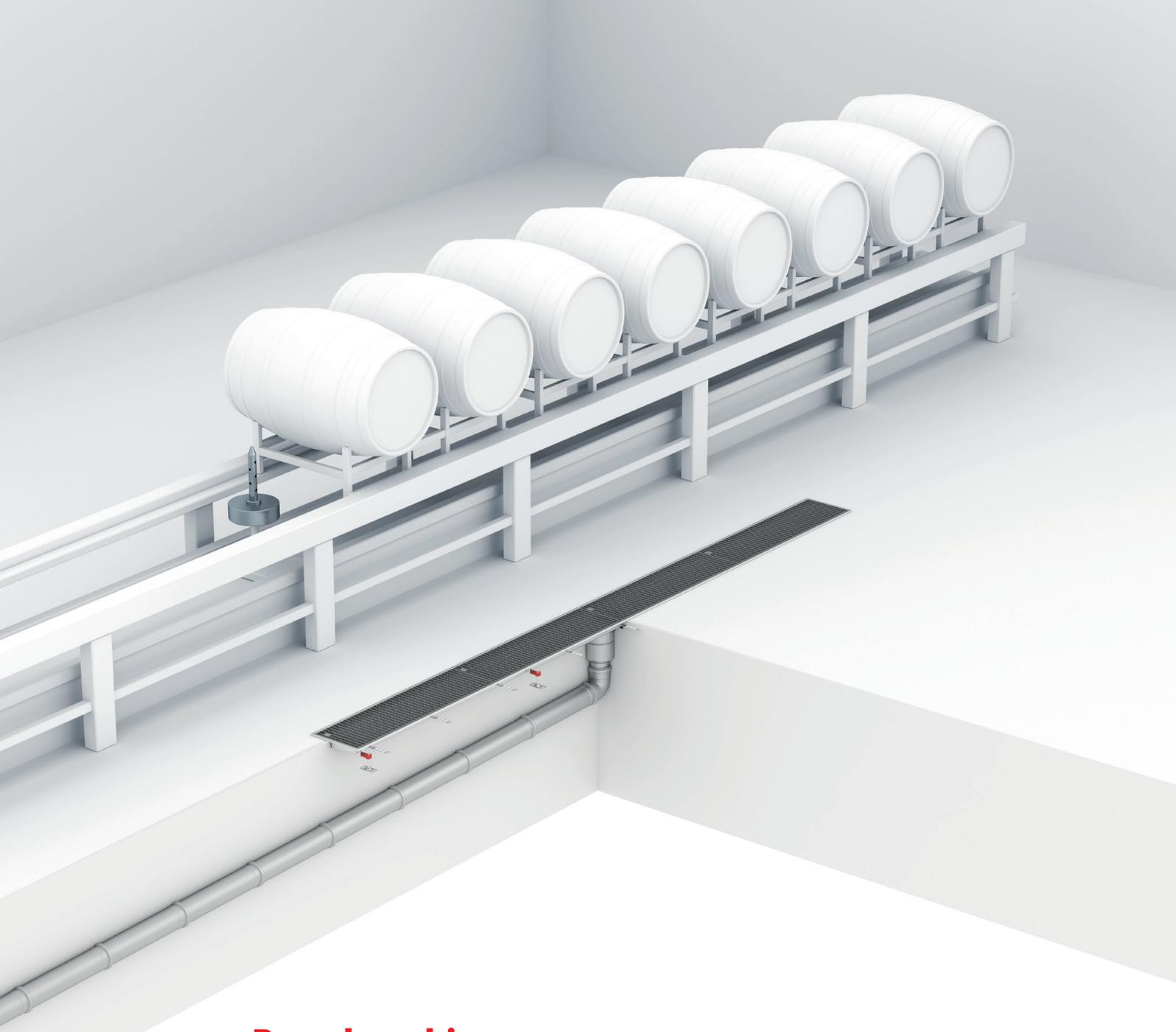
ACO kerb products provide reliable wall protection that prevents walls from impacts, water or chemical ingress, or other damage associated with the traffic and production process. They are suitable for any food processing area. ACO kerbs are available in polymer concrete and stainless-steel variations.



**ACO Pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.





## Barrel washing

# HOW TO PREVENT FLOOR CRACKS IN AREAS WHERE HOT WATER IS USED?

Rooms that are used to clean heavier equipment such as barrels are most often susceptible to floor cracks. Large amounts of high temperature water and sanitizing chemicals flow almost continuously onto the floor and then into the drainage. At the same time, loaded trolleys can damage the area where the floor

connects to the drainage if the floor-drainage connection is not designed properly.

Contamination of barrels can be avoided by paying attention to the amount of hot water used for cleaning as well as limiting traffic loads in this area.

On the right we highlight an effective drainage solution that is designed to perform in barrel washing areas.

**Aggressive chemicals**

**Small wheel impacts**

**Large amounts  
of hot water**

**ACO product solution:**



**ACO hygienic box channel  
- L-profile edge**

ACO hygienic gullies are available in various body sizes to cater for different flow rates and construction requirements. ACO hygienic gullies are certified according to EN 1253. ACO's L-profile edge is a product extension which ensures long lasting floor-drainage connection in areas that are subject to thermal and dynamic shocks.



**ACO hygienic gully 218  
- L-profile edge**

ACO hygienic gullies 218 cater for sufficient flow rates and keep hygienic features for easily cleanable and fully inspectable solution. L-profile ensures reliable floor-drainage connection in the most demanding applications.



**ACO slot cover grating**

ACO's fully hygienic slot covers fulfil the most stringent hygienic requirements. Slot covers are perfect solution for places where small wheels are used. ACO slot covers are certified according to EN 1253-1 and adhere to EN 1672, EN ISO 14159 and EHEDG documents 8, 13 and 44.



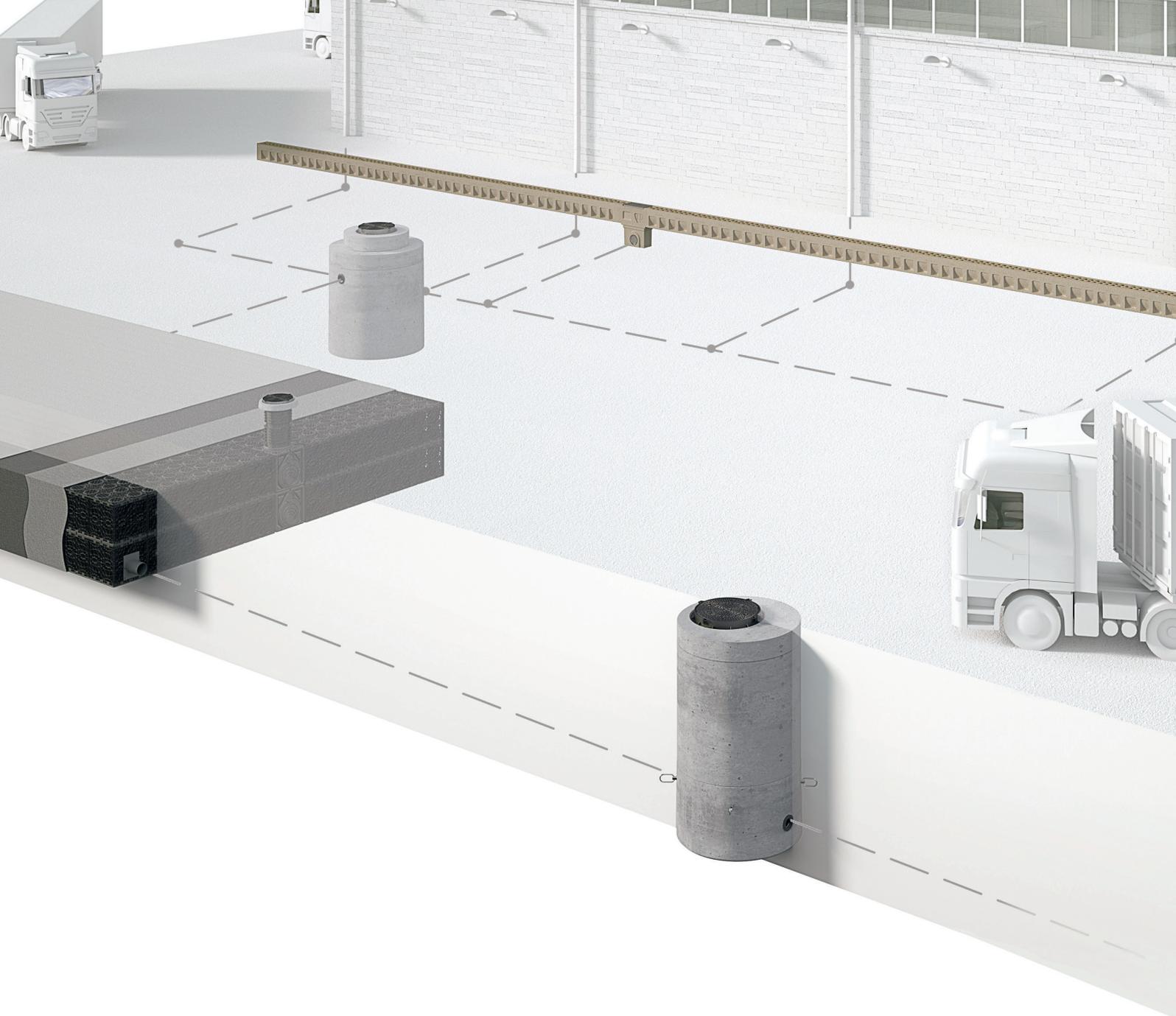
**ACO Pipe**

ACO's stainless steel push-fit pipe system is designed for grey or black water applications. ACO Pipe products offer more than 40 years' product life thanks to the material properties of stainless steel. Easy on-site installation and handling is ensured by a push-fit assembly system and related cutting tools.



**Load class  
N250**





## Winery logistics areas

# HOW TO EFFECTIVELY DRAIN LARGE EXTERNAL AREAS WHICH ARE SUBJECT TO HEAVY LOADS?

In winery's external areas the challenge is to ensure that the drainage systems can withstand the toughest load classes and quickly drain large quantities of rain water containing solid particles. Especially when experiencing heavy rainfall sand and dirt in combination with huge amount of water can easily overload the public sewer.

All the potential risks are easily solvable. Pay attention to the key areas and protect water from people and people from water.

On the right discover solutions that are designed to perform in winery logistics areas.

**Heavy traffic**

**Sand and dirt**

**Heavy rainfall**

**ACO product solution:**



#### **ACO DRAIN® Monoblock**

ACO DRAIN® Monoblock is a drainage system with monolithic design: The channel and cover are produced from polymer concrete in one casting. The result is an extremely stable unit without loose parts. There is also no need for bonded joints. The unique monocast design guarantees maximum safety and stability, even under the extreme loads of large area drainage.



#### **ACO Stormbrixx**

ACO Stormbrixx HD infiltration system is not only suitable for block infiltration but also for the block storage and retention of surface water. The surface water is stored temporarily in the numerous voids in the infiltration system and can then be discharged in a controlled way. In this way, overloading of the sewer network is avoided in case of heavy rainfall.



#### **ACO Sedismart-C**

ACO Sedismart-C is used to separate sediments from surface water and to thus protect the downstream block storage from becoming blocked with sand. The internal body around and through which the surface water to be treated must flow, causes the water in the sludge trap to flow in a rotational pattern. The flowing time is extended and the sedimentation of solids is optimised.

#### **ACO flow restriction systems**



The discharged quantities from the ACO Stormbrixx block storage are adjusted and controlled via the ACO flow restriction manhole, a manhole structure made of reinforced concrete with integrated flow restriction valve for individual reduction of the discharge pipe crosssection. In this way, collected surface water is discharged into the sewer in a controlled way, without overloading it.



**Load class  
D400**



**“ACO DRAINAGE IS AN IMPERATIVE  
FOR RELIABLE AND LONG-LASTING FLOOR.”**

MARIO CVITKOVIĆ, VIBROFLOORS







## A comprehensive and detailed approach to all projects.

**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.



### 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.

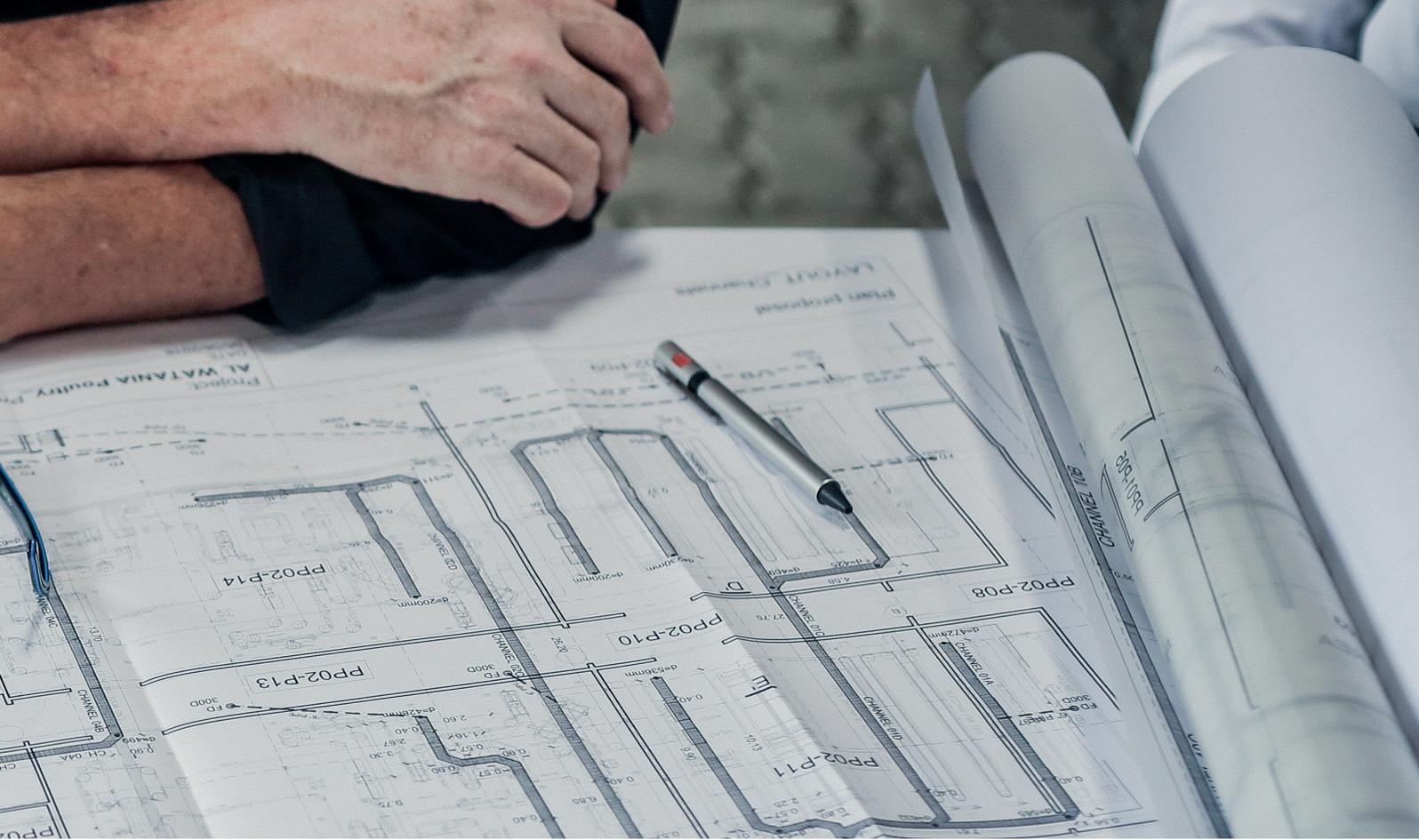


### Installation

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.



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.



train

### Train

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.

## About ACO

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 major 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.





 Stainless Steel production  
 ACO organisation



## ACO Group at a glance

- 1946, company founded by Josef-Severin Ahlmann
- 4,800 employees in more than 40 countries (Europe, America, Asia, Australia, Africa)
- 30 production sites in 15 countries
- Sales 2017: Euro 775 million

**ACO. creating  
the future of drainage**

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



Find out more at **[www.hygienefirst.com](http://www.hygienefirst.com)**