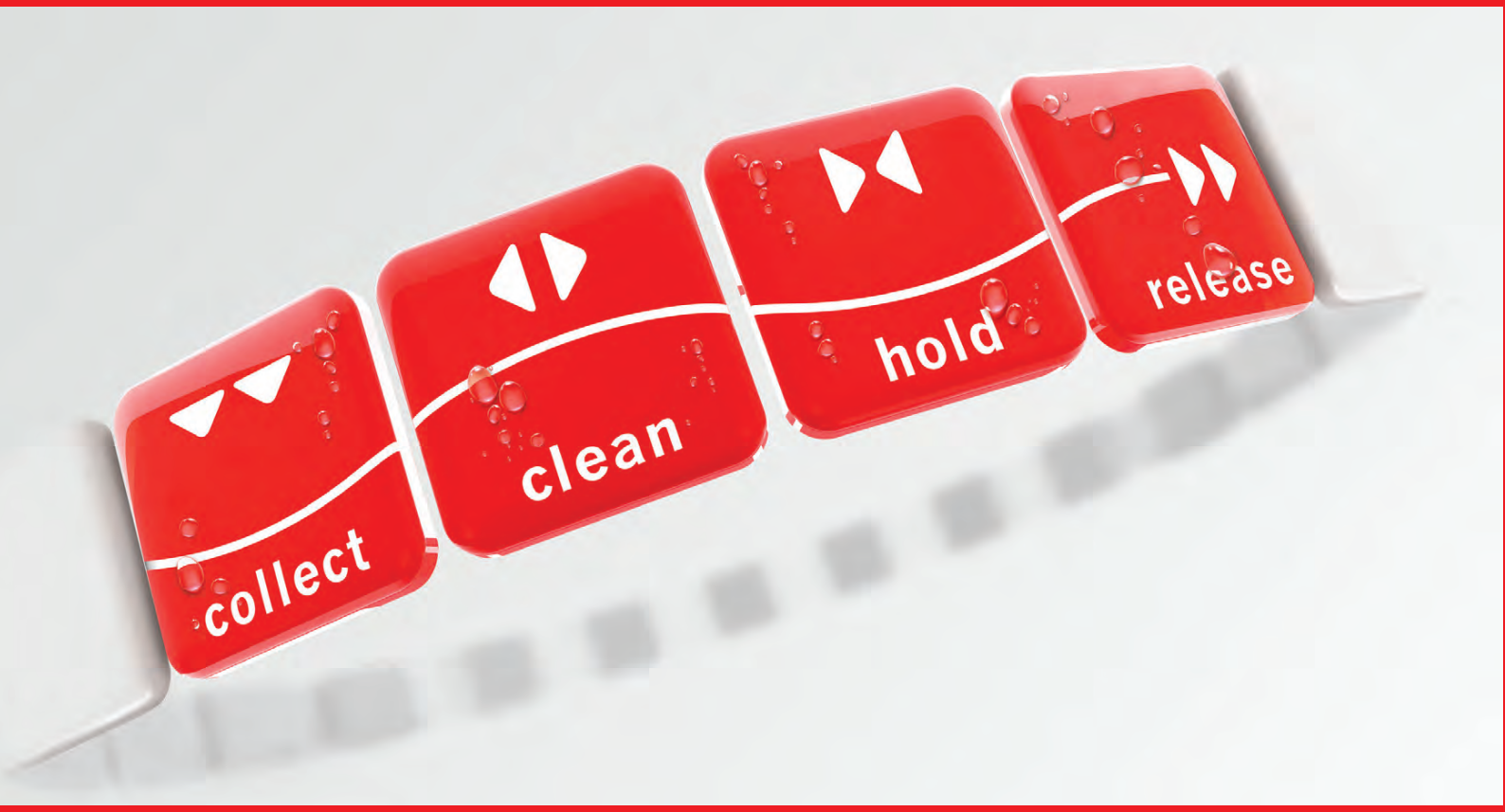
General Product Overview



ACO. The future of drainage.

ACO SYSTEMS and SOLUTIONS Pvt. Ltd.

Your Partner in Water Management Solutions

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Your Partner in Water Management Solutions

ACO
The future of drainage

The ACO system chain provides the drainage solutions for tomorrow's environmental conditions

Increasingly extreme weather must be counteracted by more complex and sophisticated drainage concepts. ACO achieves this with intelligent system solutions which have a dual purpose: protecting people from water, and water from people. 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 ecologically and economically reused in a viable way.

collect

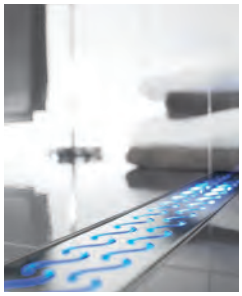
The surface water or the liquids being treated are collected from the surface as quickly and as completely as possible by the drainage system. This part of the ACO system chain guarantees protection, safety and comfort for the people, buildings and traffic routes in the immediate vicinity.

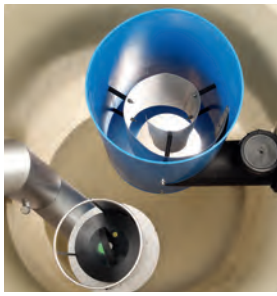
clean

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







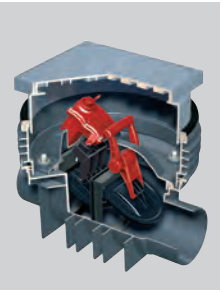
ACO system chain
in action

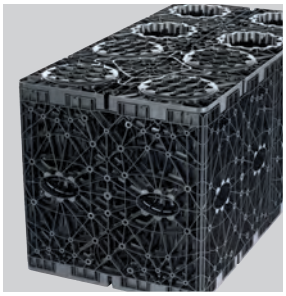
hold

Containers, barriers and valves ensure that the liquids stay within the drainage system where they can be properly controlled. This part of the ACO system chain enhances protection and safety for extreme situations: e.g. heavy rain, flooding or handling hazardous liquids.

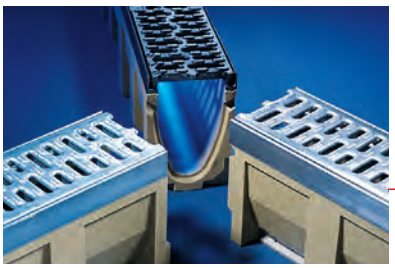
release

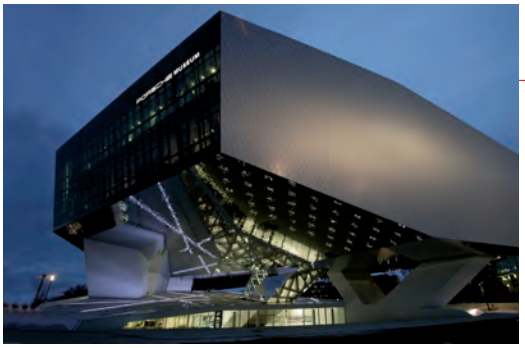
Pumps, lifting plant and pipe systems transfer the collected, treated and controlled water into the downstream systems and processes. This part of the ACO system chain brings the collected, treated and controlled water to the interfaces for further treatment, re-use or release.





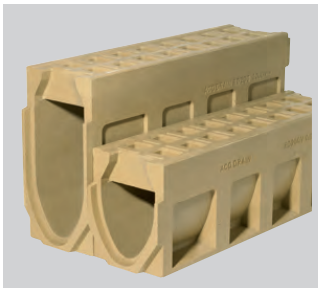

ACO System Solutions Worldwide

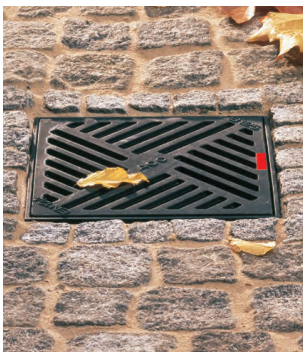




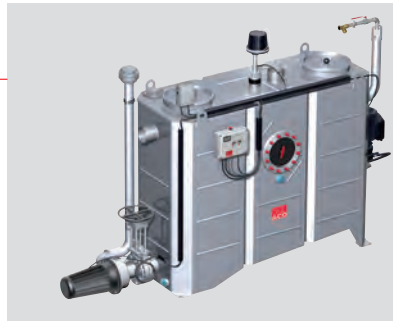
EXTERNAL DRAINAGE

LINE DRAINAGE





BUILDING DRAINAGE



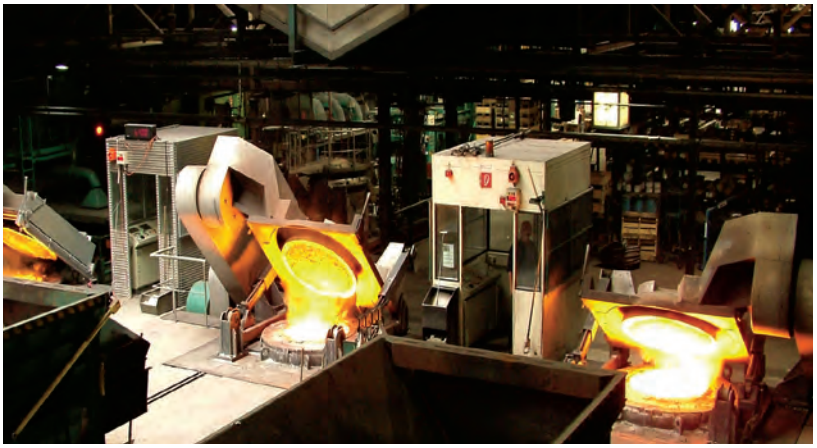
SEPARATOR TECHNOLOGY

SPECIAL BUSINESS FIELDS

High-tech and Craftsmanship – Our Products

We manufacture our products world-wide at 26 modern environmentally compatible production sites. ACO's high quality and productivity is based on the Group's world-wide expertise. In-depth research and development, and manufacturing competence built up over many years, create a solid platform for the processing of our most important materials: polymer concrete, stainless steel, plastic, ductile iron and reinforced concrete.

Polymer Concrete: ACO is easily the world's biggest producer of polymer concrete. The first drainage products made of polymer concrete were launched at the end of the 1960's – they are still in use today and show no signs of damage. 13 of the ACO Group's sites prod-uce the polymer concrete products which laun-ched ACO on the road to success



Ductile iron: we have developed the traditional locations in Kaiserslautern and Aarbergen into high-tech production sites enjoying a high level of competitiveness in the international markets. The Michelbacher Hütte in Aarbergen is one of Germany's oldest foundries, with a history going back to 1652

Stainless steel: stainless steel sheets are processed throughout the ACO Group world-wide. High levels of investment ensure that our production plants are always state of the art, and produce innovative and competitive products

Concrete: we have produced reinforced concrete collectors and pump shafts for underground use for over thirty years. Together with our metal and plastic collectors, this makes us the market leader in Europe

Plastic: many ACO products benefit from the innovations and further developments generated by our plastics manufacturing activities. We process different kinds of plastic including

PVC, polycarbonate, polypropylene and poly-ethylene in three different processes: injection, rotomoulding and extrusion

Commitment to Quality

Our modern, state of the art manufacturing plant produces high quality products which have been used in world wide projects.

- ISO 9001
- EN 1433
- EN 124
- KIWA – Third Party Control
- MPA – Material Testing Institute
- LGA – German Quality Institute
- LET – Quality Association for Drainage Technology
- DIBT – German Institute for Building Technology
- Member of the World Plumbing Council

Quality controls throughout the production process guarantee unchanging standards of high quality you can trust.
We use an integrated quality assurance system underpinned by state-of-the-art computer backed testing equipment to monitor the required standards

The headquarter of the ACO Group
in Rendsburg, Germany

ACO Worldwide

We are present with independent companies in over 40 countries on all continents. We have our own production sites in 14 countries including Australia, the USA and China. At the same time as respecting national cultural differences, the focus of our marketing activities is always the ACO brand with its excellent image, high quality standards and unique competence. ACO Group is the worldwide leader in the manufacture and supply of drainage technology for external and internal applications. With more than 50 years of valuable experience ACO stands for professional drainage, efficient cleaning, and the controlled discharge or reuse of water.

Development in sales in Euro million

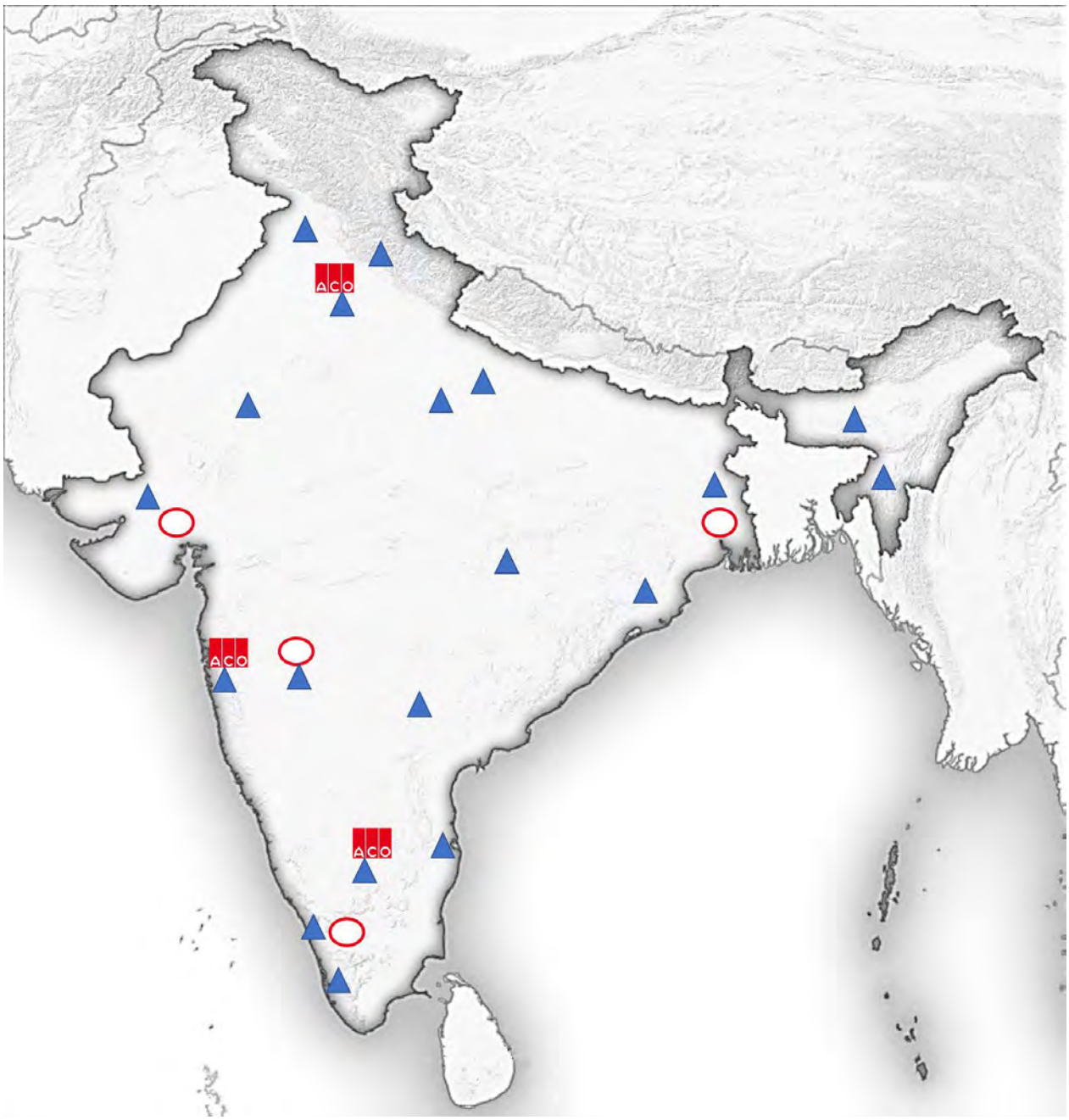
ACO at a glance

- 1946, company founded by Josef-Severin Ahlmann
- 4,000 employees in more than 40 countries (Europe, North and South America, Asia, Australia, Africa)
- 29 production sites in 15 countries
- Sales 2014: Euro 670 million

ACO Academy, Germany, Rendsburg

ACO Czech Republic, Přibyslav

ACO India



ACO Regional Office

ACO Sales Representative

ACO Channel Partner

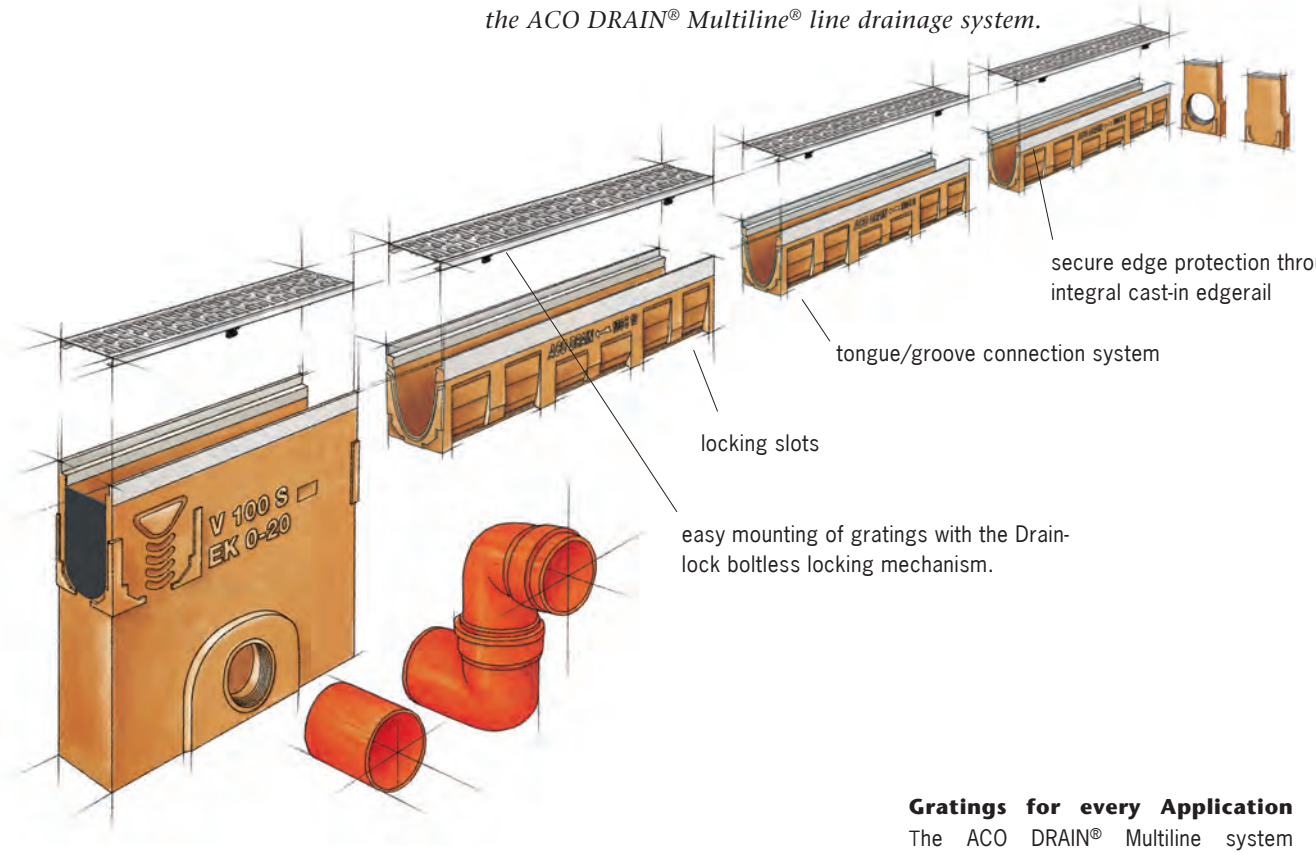
The ACO Group operates as ACO Systems & Solutions Pvt Ltd. in India. From our main office in Bengaluru and our sales offices in New Delhi and Mumbai, our sales organisation supports our Indian customer base providing solutions for all surface water drainage and water management applications. To support architects, designers, developers and contractors in designing the most efficient water management systems, our dedicated team of application engineers are available for training our customers, designing the water management systems, and supporting and advising in the project construction phase.

EXTERNAL DRAINAGE

- Multiline
- Kerb Drain
- Xtradrain
- Euroline
- Slotted Channel
- Monoblock
- Lightpoint
- Qmax
- Hexaline

ACO DRAIN Line Drainage System–
Freedom of Design through Product Versatility

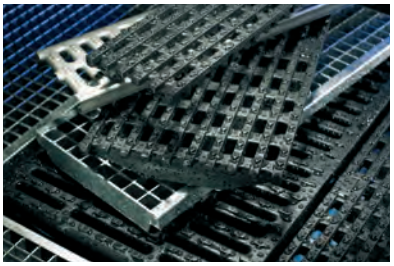
The ACO DRAIN® programme is a genuine modular system: individual, personalised solutions can be combined from a range of channels, gratings and system accessories such as sump boxes – a system which will convince you in terms of technology and economy. Take for example the ACO DRAIN® Multiline® line drainage system.



the sump box can be cut to allow any depth of channel connection.

Traffic-safe locking of all gratings using the Drainlock locking mechanism

Gratings for every Application
The ACO DRAIN® Multiline system solution has a simple range of different gratings suitable for most architectural requirements in terms of aesthetics, functionality and strength. The gratings can be combined as required independent of the channel body and are suitable for all load classes from A 15 to E 600.

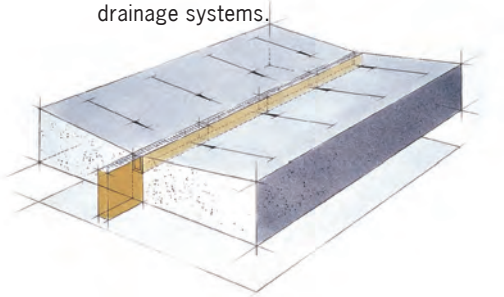


ACO DRAIN® grating range:
Clear, flexible, creative

ACO DRAIN Line Drainage System

Protecting Buildings, Designing Paved Surfaces

Traditionally, point or cast-in-place drainage has been used to provide surface water removal for all types of applications. On face value they often appear to be the cheapest methods around. Certainly material costs can be low. However, when installation, labour and site preparation costs are taken into calculation, significant savings can be made by using precast channel drainage systems.



ACO is the world leader in the design and manufacture of polymer concrete surface drainage systems. ACO DRAIN® surface drainage systems are designed to carry surface water and other liquids efficiently from a paved or hard-surface area to the underground drainage system.

What is Polymer Concrete Polymer concrete is a versatile highly durable mn. It is a mixture of mineral aggregates and resins, which forms a lightweight, corrosion resistant material ideally suited to channel drainage.

- **Strength**

Polymer concrete has approximately four times the compressive strength of conventional concrete at the half the weight of an equivalent section

- **Lightweight for Easy Installation**

ACO products are lighter than equivalent conventional concrete channels, making installation and handling easier. Most components weigh less than 40 kg and can be carried easily

- **Durability and Corrosion Resistance**

Polymer concrete is inherently resistant to a wide range of acids, alkalis, sulphates and detergents. It has an extremely low water absorption rate and is thus unaffected by repeated freeze-thaw cycles and road salts

- **Hydraulic Efficiency**

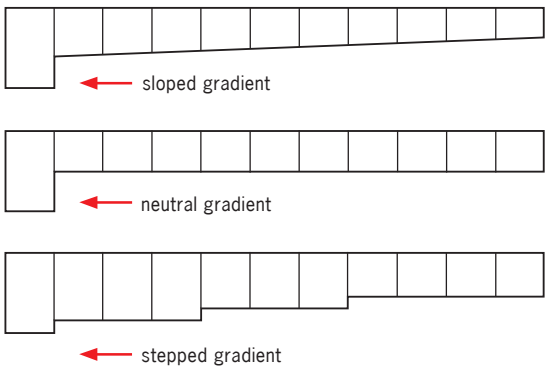
ACO DRAIN® channels are precision moulded with a built-in slope and an ultra smooth finish which encourages efficient hydraulic flow. (Mannings roughness coefficient 0.011). This ensures greater discharge rates than equivalent sized cast-in-place concrete drains

DIN EN 1433 Table of Load Classification

	class A 15 [1]	traffic areas used exclusively by pedestrians and cyclists, and similar areas such as green spaces
	class B 125 [1]	pavements, pedestrian areas and similar surfaces, car parks and parking decks
	class C 250 [1]	kerb areas of streets and pavements
	class D 400 [1]	road traffic lanes, also pedestrian precincts, car parks and similar paved traffic areas (e.g. freeway parking lots
	class E 600 [1]	non-public traffic areas subject to particularly high wheel loads, e.g. industrial traffic lanes
	class F 900 [1]	special areas e.g. aircraft handling areas at civil and military airports

* traffic area classification for drainage channels, construction and testing regulations, conformity labelling and assessment.

[1] Test force in kN



ACO DRAIN® trench drainage systems are suitable for all types of gradients from sloped to neutral and also allow the combination of different gradient types.

Polymer Concrete - The Best Choice for Your Drainage System

The superb properties of ACO polymer concrete reflect its special material composition and state-of-the-art ACO production technology:

Bending tensile strength: > 22 N/mm2

Compressive strength: > 90 N/mm2

Module of elasticity: approx. 25 kN/mm2

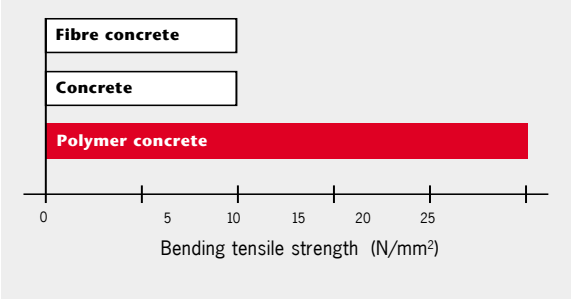
Density: 2.1 – 2.3 g/cm3

Water penetration depth: 0 mm

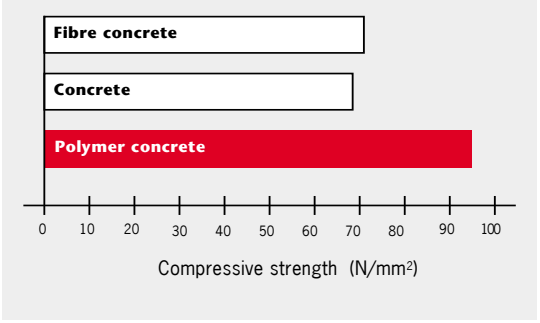
Chemical-resistance: high

Surface roughness: approx. 25 µm

ACO DRAIN® channel units have much higher strengths and lower weights for the same density as comparable concrete products. The low weight of the com-ponents simplifies handling and installati-on, and reduces costs. ACO polymer concrete is watertight. Water dries rapid-ly from the surface. Frost damage is totally excluded. The smooth surface of ACO polymer concrete allows water and dirt particles to run off quickly – making it easy to clean. Polymer concrete is also resistant to aggressive media with-out any need for extra coating and can be used flexibly and permanently even under extreme conditions. (See also ACO polymer concrete resistance catalogue.)



Bending tensile strengths of different materials used in drainage channels.



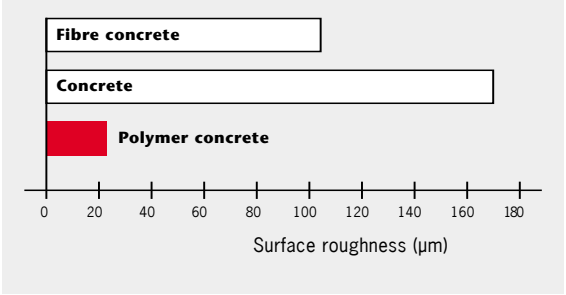
Compressive strength of different materials used in drainage channels.

Durable and recyclable: ACO polymer concrete avoids waste because it can be returned to the production process.

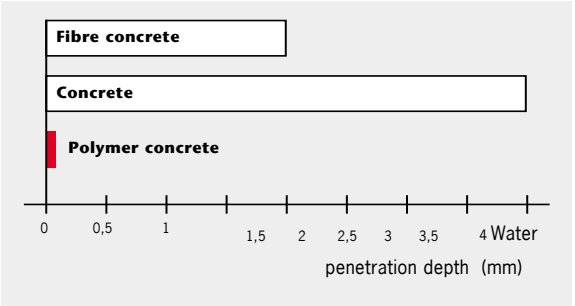
Water penetration depth (DIN 4281) after 72 hours of different materials used for making drainage channels.

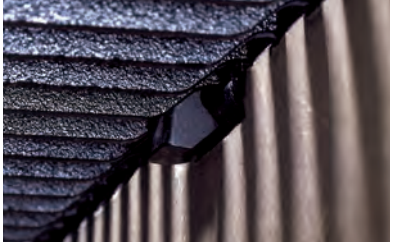
The raw materials used to make ACO polymer concrete have to meet stringent specifications and pass continuous quality controls. In addition to our internal quality controls in accordance with DIN EN 1433, our products are also tested and third-party controlled by KIWA Ger-many. Homologation in accordance with DIN EN 1433 is conducted by MPA Eckernförde and MPA Lübeck.

Normal concrete absorbs water. Because of the local climatic conditions, DIN EN 1433 together with the national tentative standard V 19580 require certification that normal concrete channels meet the highest quality standard "W". Polymer concrete is not required to fulfill these requirements because of its superb material properties!



Average surface roughness of drainage channels made with different materials.





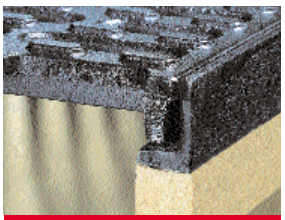
The new boltless Drainlock snap-on locking mechanism has anti-shunt lugs to prevent longitudinal movement, and enables the simple fixing and removal of grates

Polymer Concrete – All Purpose System

ACO DRAIN Multiline

The technical trick is the V-profile. ACO DRAIN® Multiline sets new standards with its channel cross-section. The range is also based on a new idea: a universal channel body can be used for every nominal width and type of edge-rail for load classes A 15 to E 600.

The channel system ACO DRAIN® Multiline:
- nominal widths: 100, 150, 200, 300, 400 and 500
- ductile iron, stainless steel and galvanised steel edge-rails
- for load classes A 15, B 125, C 250, D 400, E 600 EN 1433



Cast iron

Galvanised Steel

Stainless Steel

Line Drainage of the Future

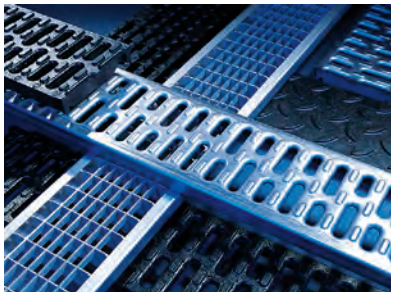
Technical Superiority
The heart of the innovation is the V-profile. This new channel profile improves the drainage capacity and enhances the self-cleaning effect. The new side wall structure and the intelligent distribution of materials considerably increases the load-bearing strength and the overall stability. This results in simpler installation even though the system has an extremely high load-bearing capacity. The ACO DRAIN® Multiline universal system is available with all gradient types which can also be freely combined with one another.

Watertight
The complete tightness of the channel body right up to the top of the edge rails, and the very smooth surface, increase drainage volumes during extreme storms. The ACO safety rebate ensures that the channel body units are connec-ted to one another with a 100 % water-tight seal. The new cast-in lip labyrinth seal ensures that the drainage system can be connected with a watertight seal to the drainage pipe system. ACO DRAIN® Multiline easily complies with DIN EN 1433 specifications with a very large safety margin.

Creative and Versatile
The ACO DRAIN® Multiline V 100 – 500 system solutions have a clearly defined programme of gratings suitable for most architectural requirements in terms of aesthetics, functionality and load bear-ing strength.
The different gratings can be freely com-bined independent of the channel bodies and are available for all load classes from A 15 to E 600.

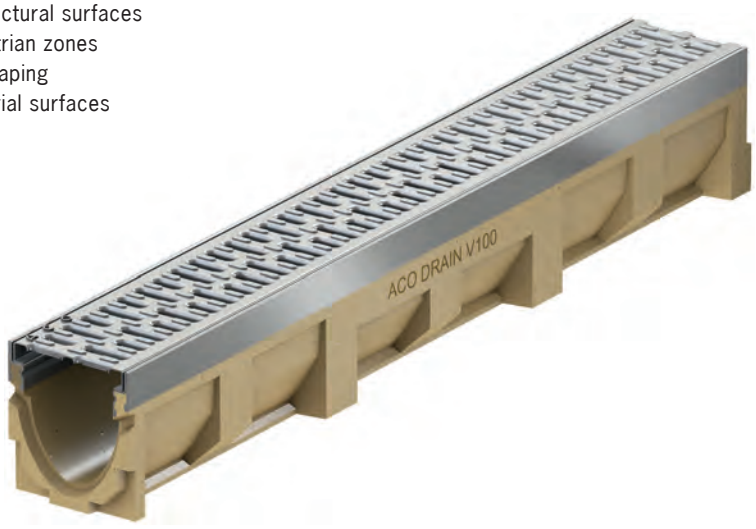
The integrated edge-rails firmly cast-in with the polymer-concrete channel body provide reliable edge protection

Complete watertightness right up to the top means 100 % compliance with the standards



The ACO DRAIN® Multiline V 100 grate range: clear, flexible, creative

Typical Applications
- car parks
- railway platforms
- architectural surfaces
- pedestrian zones
- landscaping
- industrial surfaces



Polymer Concrete – All Purpose System

ACO Euroline

ACO Euroline drainage systems keep entrances, pathways and terraces free of rain and waste water, thus protecting the building fabric.

Typical Applications

- garages
- patios
- drives
- pedestrian areas

The grating covers can be driven over by cars and therefore meet all requirements for draining areas around the house.

Benefits

- channel bodies made from polymer concrete or plastic
- large selection of grating covers
- can be driven over by cars
- screw-free grating lock
- free channel cross-section

Modular System – A Channel for Every Application

ACO Euroline drainage was developed es-pecially for private usage and combines optimum standard with high quality design. The covers can be produced from a range of different materials from galvanised powder painted steel through high-grade steel and cast to plastic. This allows for a wide array of design possibilities. The channel bodies are either made from plastic or polymer concrete. You can create individual solutions for every construction situation using the modular principle.

Plank gratings in galvanised steel, electro polished, powder painted anthracite and terracotta, cast and plastic, slotted frames in galvanised steel and high grade steel, elongated bar grating in high grade steel.

Channel bodies ACO Euroline made from polymer concrete,

The new plastic grating is impressive not only because of its unique appearance, but also because it ensures safety around the home due to its slip resistant surface

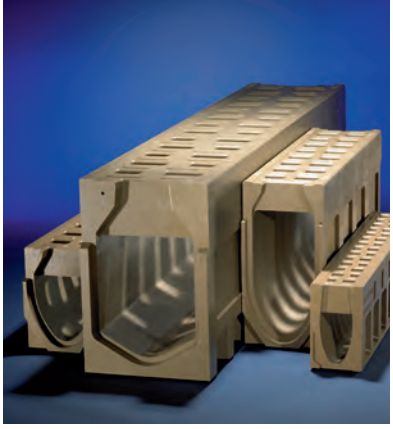
Slotted Top for ACO Euroline – More Stylish looks for your Out-door Areas

The ACO Euroline slotted top replaces the 12 cm wide drainage channel grating with a less than 2 cm wide slot which fits elegantly into the overall look – at the end of your drive, on your patio, or alongside a garage.

Polymer Concrete – All Purpose System

ACO Monoblock

ACO DRAIN® Monoblock is a one-piece polymer concrete drainage system developed as a solution for a range of surface draining applications from load classes C 250 to F 900.



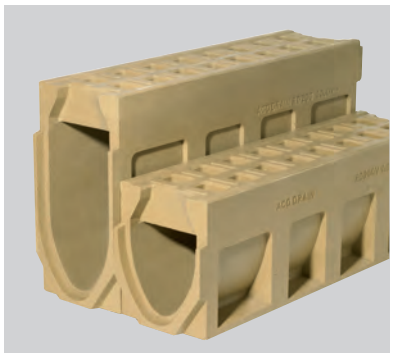
ACO DRAIN® Monoblock system in:
– natural and anthracite black
– nominal widths 100, 150, 200 and 300
– load classes C 250 to F 900

Excellent Material Properties for ACO Monoblock

– light
– age-resistant
– high-strength
– rust-free
– frost, de-icing salt and chemical resistant

Safety, Stability and High Functionality –Thanks to Monocast Construction

The unique monocast construction guarantees extremely high levels of safe-ty and stability in all transport surface drainage applications. The high inflow cross section and the V-profile ensure rapid surface drainage. A simple modu- lar principle with only six system ele-ments quickly and easily provides solutions for a whole range of applications.



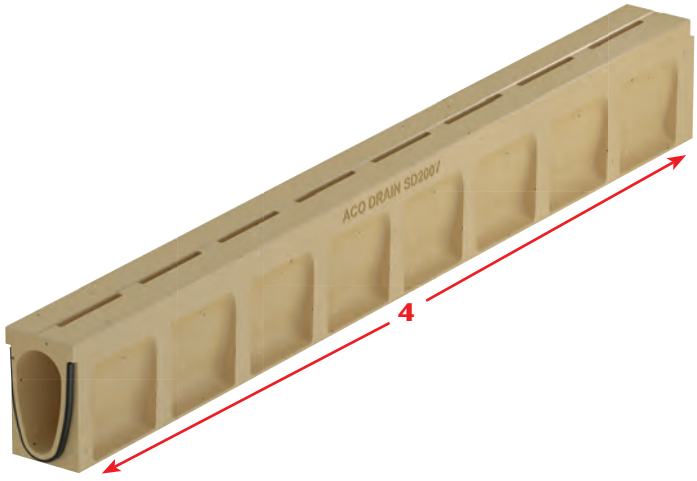
ACO DRAIN® Monoblock RD 200 V

Easy installation and Maintenance

ACO DRAIN® Monoblock is a winner thanks to the simple and minimal use of system components. Bracing elements are not required.
The integrated safety rebate ensures that there are watertight seals between each unit as required by EN 1433 specifications. The channel is simply cleaned by flushing. The 0.5 m element with the removable grating gives free access to the whole drainage trench.

Typical Applications

- line drainage on motorways
- line drainage in inner-city areas
- drainage across traffic lanes
- industrial surfaces
- airports
- container transhipment areas
- motor racing tracks



ACO DRAIN Monoblock SD 200 V

ACO DRAIN® Monoblock SD 200 V is a unique product, offering new possibilities for efficient surface drainage. The latest production methods combined with the tried and tested material, polymer concrete, enable the production of a 4 m long drainage channel made out of a single piece with no loose parts and no adhesive joints. The single cast construction guarantees the maximum safety and stability for all types of drainage in traffic areas, in particular longitudinal drainage on motorways.

ACO Qmax – Large Capacity Slot Drainage Systems

The ACO Qmax line drainage system was developed to satisfy demands for economical high capacity drainage systems for large catchment areas. ACO Qmax has passed independent load tests to class F 900 in accordance with EN 1433.

Typical Applications

- airport surfaces
- distribution centres
- highways
- car parks

ACO Qmax is available in different sizes and lengths providing an effective and economical drainage solution for the application requirement

Qmax Features

ACO Qmax was designed to handle high hydraulic capacities, enable minimum installation times, and be lightweight and yet rigid enough to withstand the rigours of typical construction site handling practice. Manufactured from tough, chemically resistant medium density polyethylene (MDPE), ACO Qmax is light, easy to handle and quick to install. Connecting to pipes is also made easy with the availability of a special side inlet unit.

The ACO Qmax system is a patented design currently available in four sizes for effective and economical drainage of a range of catchment sizes: ACO Qmax 225 can carry flows of around 25 l/s even when laid level (depending on channel length etc.). The largest ACO Qmax 900 can carry flows of around 300 l/s when laid level and considerably more when laid with a gradient.

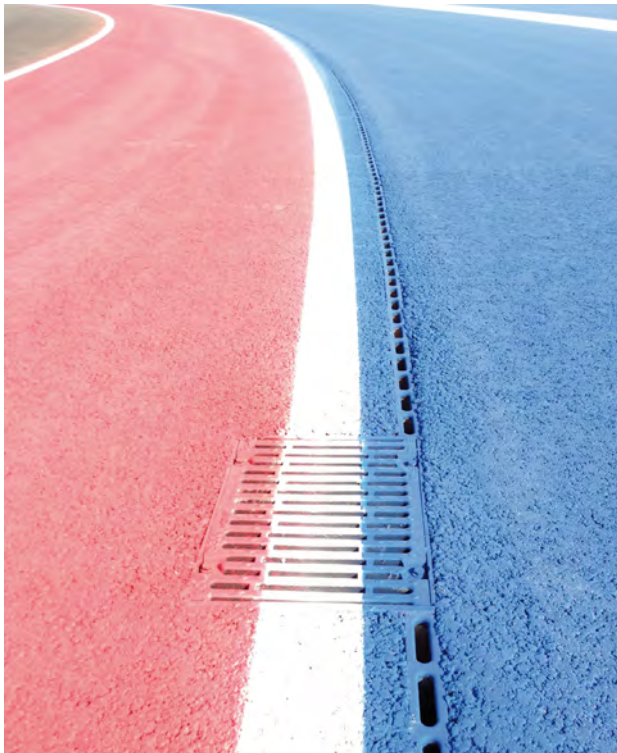
Qmax Flow Regulator

The ACO Qmax system features the first genuine flow management and attenuation control as an integrated part of line drainage solutions. ACO Q-Brake has no loose or moving parts, is compact, and takes up no additional volume being situated within the channel. Its performance is completely laboratory certified.

Formula 1 Race Track in Austin/Texas

On 18 November, the penultimate round of the 2012 F1 championship was held at a brand new circuit built in Austin Texas. The 5.5 km circuit was designed by the world leading architec from Germany.

ACO had supplied 11,766 m of S 100 K, S 200 K, S 300 K, Qmax 225 and 1 petrol separator NS60 to Austin Commercial, the general contractor, during the construction of the circuit.



ACO DRAIN KerbDrain - Combined Drainage & Kerb Systems

A new generation: kerbs with integrated line drainage. KerbDrain stands for the brilliant concept of combining kerbstones with drains, to create one compact unit.

ACO DRAIN® KerbDrain
for parking areas

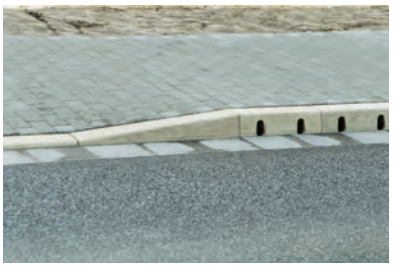
Two Functions – One Solution

Versatile
ACO DRAIN® KerbDrain is an extremely versatile system that can be used wherever drainage is required for paved surfaces, such as car parks, bus stops and traffic calming zones.

Roundabout Application
ACO DRAIN® KerbDrain is ideal for draining roundabouts. It makes it possible to optimally drain the traffic lanes in roundabouts towards the inside or the outside, up to load class D 400.
In addition, KerbDrain can be extended to optimally connect up to existing drainage systems.

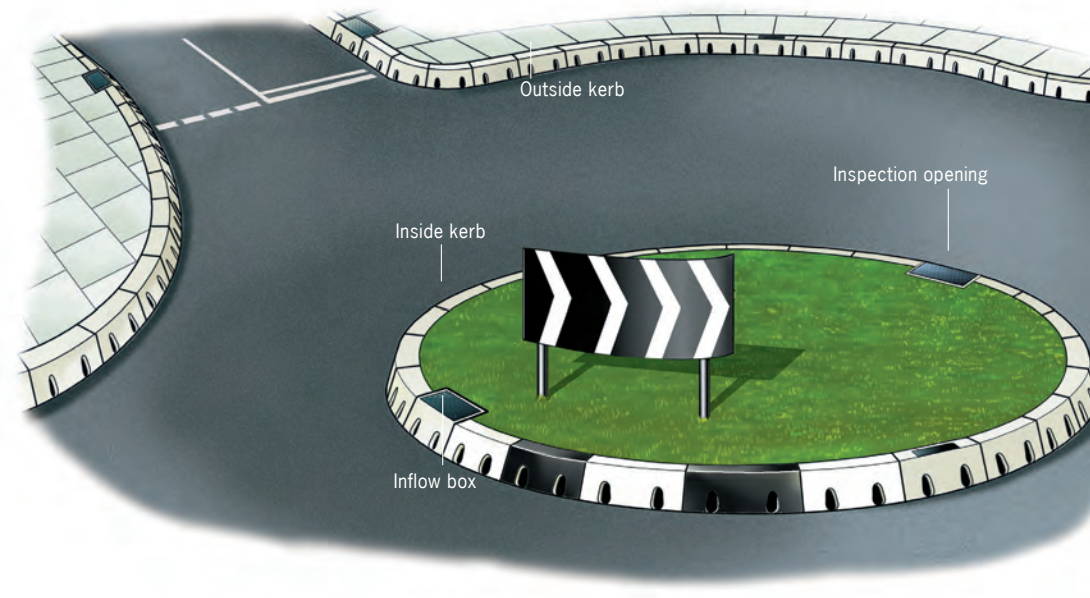
ACO DRAIN® KerbDrain is available in three heights: 480 mm, 305 mm and 255 mm.

ACO DRAIN® KerbDrain showing heights 480 mm and 305 mm



ACO DRAIN® KerbDrain with cambered kerbstones for driveways

Kerbstone and drain in one, ACO DRAIN® KerbDrain

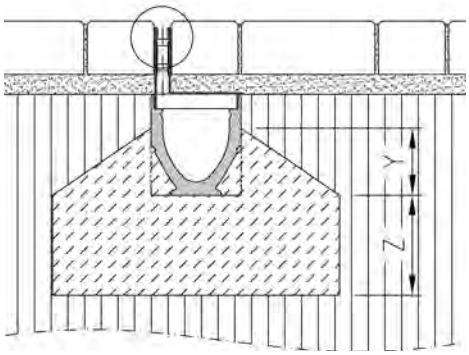


ACO Slotted Channel – Architecturally Attractive Solutions

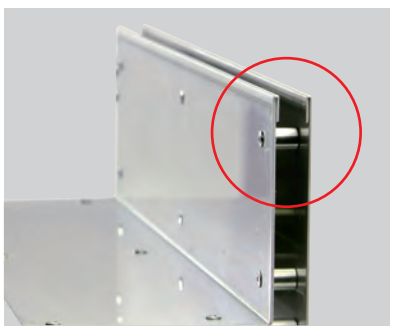
In harmony with all surface coverings

Discreet and inconspicuous, the V 100 S and V 150 S ACO DRAIN® Multiline slotted channel systems open up a new approach to designing open spaces. A narrow slot replaces the grating and forms a clean, unobtrusive line in the paving.

Shanghai central station.
The slot can be offset in harmony with the architectural design of the surface



Installation example



ACO DRAIN Slotted Channel System Multiline

Designing with Clear Lines
The system is also ideal for transitions between two different surfaces. The slotted frame consisting of galvanised steel or stainless steel is compatible with all standard paviors or stone slabs and joins the two surfaces almost seamlessly.
This system is superb for the drainage of façades and optically sophisticated surfaces.

Functionality and Maintenance
Simple cleaning and maintenance with low or high pressure washers. Access openings simplify maintenance of the subsurface polymer concrete or plastic channels with their excellent hydraulic performance.

Slotted channel V 100 S, 1,0 m

Slotted channel XtraDrain, Plastic channel, 1,0 m

Fields of Application

Ideal for use against buildings facades, for level threshold drainage and pedestrian areas thanks to narrow heelsafe slot geometry. Not for carriageways of public roads or motorways.

Professional Solution Designed for

- Commercial developments
- Public areas
- Car parks
- Pedestrian Zones
- Retail developments

Professional Solution Designed for

- Light duty applications
- Landscaping
- Resential areas
- Drive ways

Material Solution

Stainless steel
aesthetics and durability Recommended for use in all applications where high corrosion resistance is required

Hot dip galvanised steel economical solution Recommended for use in all standard applications

Technical Information

Hot dip galvansied and stainless steel solution (grade 304)
Load class up to D400
Slot width 10 mm (heelguard solution)
Compatible with most types of paving material up to a maximum depth of 150 mm depth Solution for discreet and effective drainage when combined with an ACO Drain channel

ACO Lightpoint – Architecturally Attractive Solutions

Lighting and drainage ACO DRAIN® Sideline

ACO DRAIN® Lightline, ACO DRAIN® Sideline, ACO DRAIN® Lightpoint and ACO Eyeleds provide highlights in architectural and open space designs. Public areas, entrance halls and paths become more attractive and more functionally designed. Technical perfection and individual design flexibility provide planners and builders with a wealth of versatile applications.

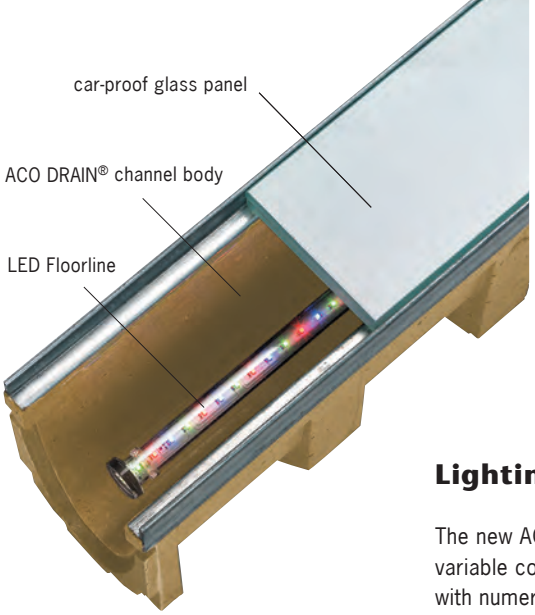
Innovation award
Architecture and Technology.

Innovationspreis Architektur und Technik

Launched with huge success at the 2004 light+building exhibition, INSTA Elektro GmbH presented the new ACO DRAIN® Lightline, which was nominated for the Architecture and Technology award and presented with a special recognition award in the lighting category

Typical Applications

- piazzas
- paths
- entrance halls



Trend-setting lighting and aesthetics in perfect harmony: ACO DRAIN® Lightline for customised use. Car-proof

Lighting instead of Drainage – ACO DRAIN Lightline

The new ACO DRAIN® Lightline with its variable colour effects provides planners with numerous application possibilities in the colour design of open spaces. ACO DRAIN® Multiline channels in combination with LED Floorline and car-proof non-slip glass technology merge perfectly to create an architectural lighting design element.

LED Floorline is available in the standard colours white, blue and green. Other technologies are available for lighting with customised colours and for creating colour effects and sequences.
The ACO DRAIN® Lightline cover panel consists of a safety-glass cover which is non-slip and car-proof, and securely enclosed in a stainless steel frame.

Lighting and Drainage –

ACO DRAIN Lightpoint, Sideline and Eyeleds

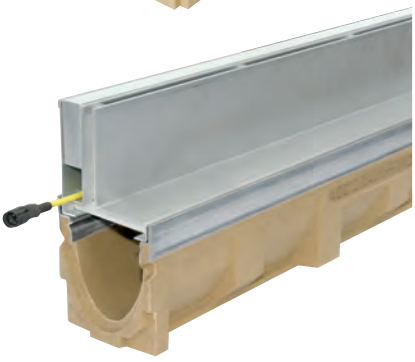
The lightpoint is another way of highlighting the line drainage system. Vehicle-proof to class D 400

ACO DRAIN Lightpoint

The LED Lightpoint is available in various colours (e.g. white, blue). 18 lightpoints can be run from a modular plug-in power supply unit. The lightpoints are interconnected by a simple plug arrangement. The LED Lightpoint is simply inserted into the special opening in the ductile iron grate and fixed into place to retain the drainage function of the grate and the channel.

ACO DRAIN Sideline

For some years now, drainage channels disguised as narrow slots have been upgrading squares and paths, as well as gardens and parks, with their clean lines. Slotted drainage channels have now become even more attractive with the addition of another design dimension: the new ACO Sideline stands out with its sophisticated symbiosis of drainage and LED technology. The enhanced feeling of safety is an important plus point in addition to the highly effective design character.



ACO Eyeleds

Light and expressive – the LED points are installed in a high-strength composite grating. The LED technology creates a powerful lighting effect even though the lights are only 2 cm in diameter. Garage drives, squares, footpaths, pedestrian zones, access routes, boulevards and railway platforms can all be attractively highlighted by ACO Eyeleds. In addition to decorative effects ACO Eyeleds can also improve overall safety in busy areas.

ACO Eyeleds can be combined with either ACO's polymer concrete Multiline system, or plastic channels in the class B 125

Polypropylene - Pedestrian and Light Vehicle Applications

Easy handling right down to the last detail, combined with the highest quality: the new ACO composite drainage channel. Designed with premium composite and capable of withstanding loads to class D 400. A great new drainage channel, especially for applications involving the design of open spaces, and gardening and landscaping – which all benefit from this technically perfect and aesthetic solution for line drainage.

ACO Composite Channel
Manufactured from recycled polypropylene, the high quality, high strength unit is available in three channel widths; 100 mm, 150 mm and 200 mm. As standard channels are manufactured with galvanised steel or composite edge rails - which provide optimum channel protection from vehicular traffic.

It is possible to choose from a range of traditional and discreet slot drainage gratings and solid covers to ensure that a wide variety of applications are catered for. The system's gratings are fitted with ACO Drainlock, a bar-less locking device which reduces the risk of blockages and improves hydraulic capacity.

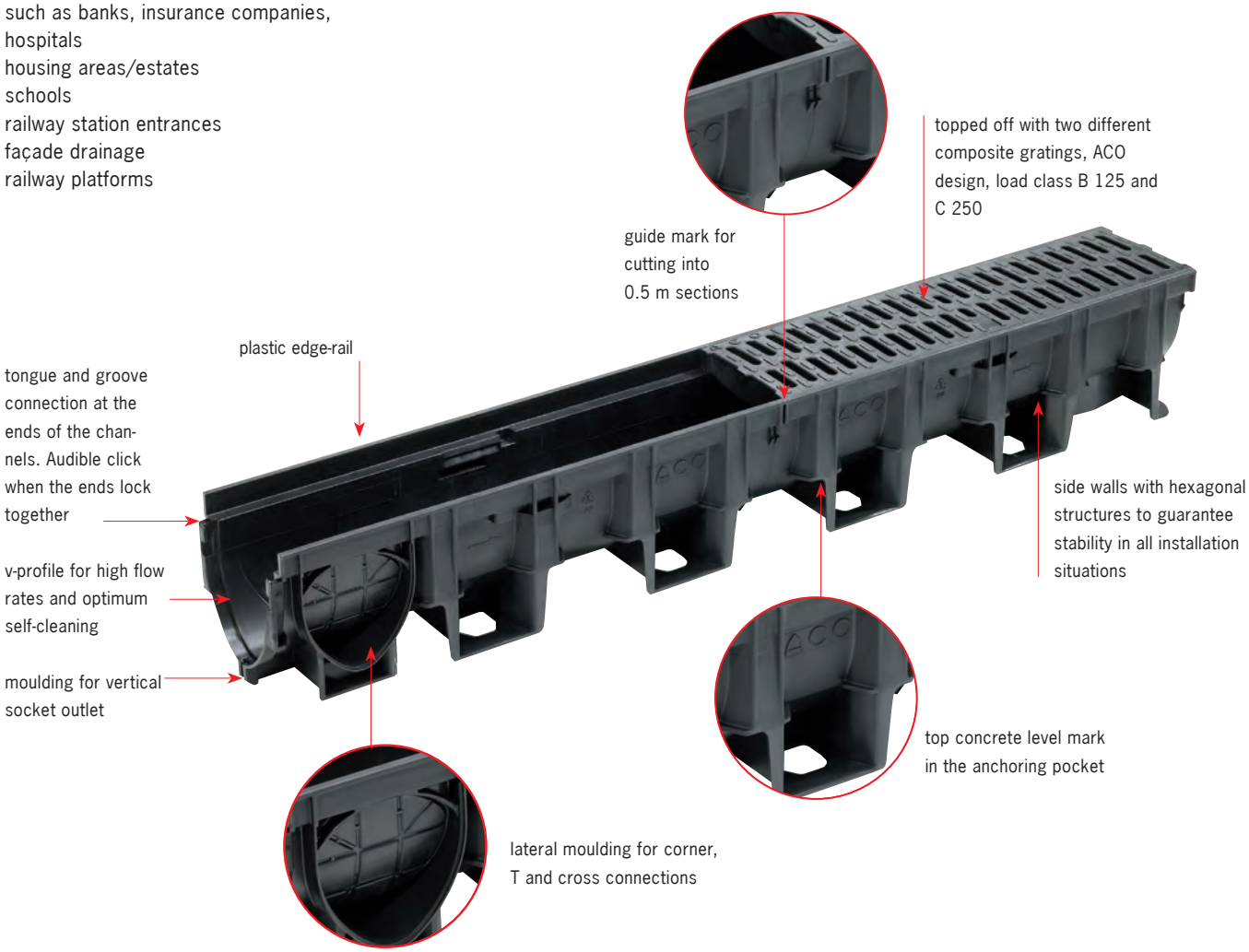
ACO XtraDrain system also has a range of Brickslot gratings to complement installations which require a discreet drainage system. ACO Brickslot gratings are available in galvanised or stainless steel and are suitable for use with the 100 mm and 150 mm wide channels in the ACO XtraDrain range.

Typical Applications

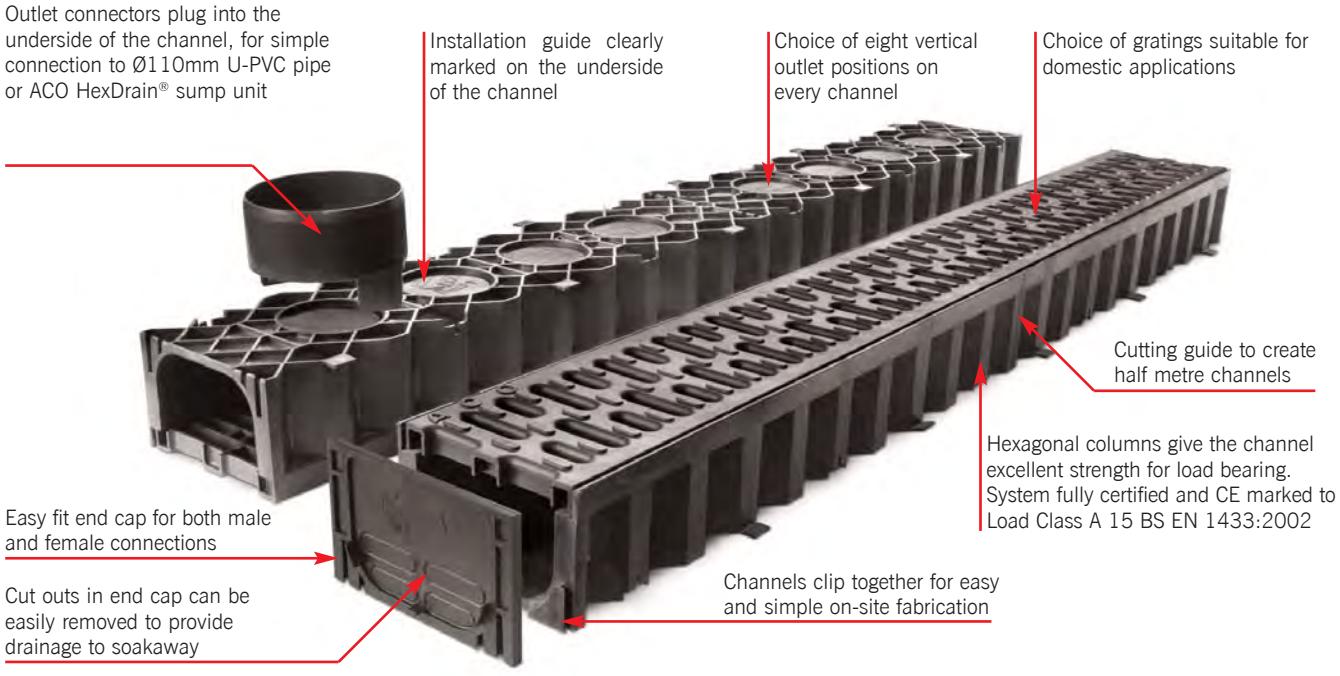
Footpaths, pedestrian areas

- pedestrian precincts
- public and private car parking spaces
- open spaces around business premises such as banks, insurance companies, hospitals
- housing areas/estates
- schools
- railway station entrances
- façade drainage
- railway platforms

ACO Xtradrain



ACO Hexadrain



ACO Point Drainage – Removing Water is a Point not to be Missed

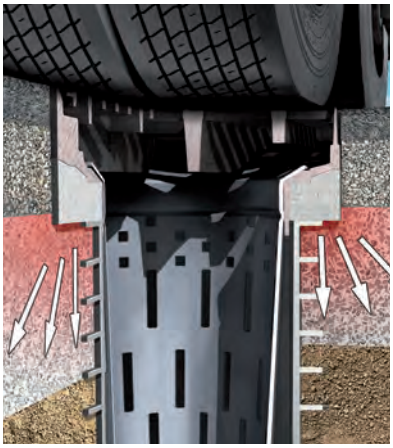
ACO point drainage systems are ideal for surfaces which require point drainage for structural or topographical reasons.

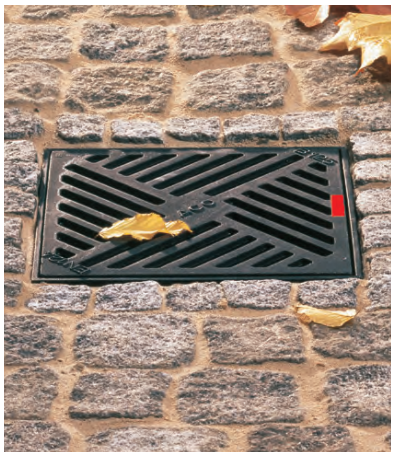
A Range of Surface Drainage Products Engineered Uniquely for Highways, Urban Roads and Bridges

ACO Road Gully Combipoint
A flexible modular system for wet sludge and dry sludge road gully units.

Typical Applications
- kerbs
- traffic lanes
- car parks and industrial surfaces
- school yards
- pedestrian zones

Benefits
- rotatable – for optimal pipe-connection
- telescopic – for flexible height adjustment
- load decoupled – to avoid settling
- no mortar joints, therefore without weakness
- light units – easy handling during installation





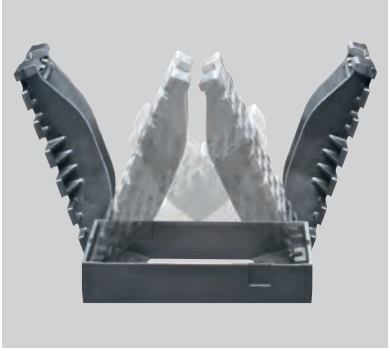
ACO DRAIN Point Drains
Yard drain made of polymer concrete, topside ductile iron frame, inset ductile iron grid and Pointlock boltless locking system for load classes up to B 125.

Typical Applications
- roads, paths, piazzas
- car parks
- railway platforms
- school yards
- industrial areas
- airports

The riser units Multitop are available with a channel or flat profile. Available in two universally applicable dimensions.
300 x 500 channel shape and flat shape.
500 x 500 channel shape and flat shape.
In accordance with EN 124/DIN 1229.
The riser units match all discharge combinations in accordance with DIN 4052.

ACO Riser Units Multitop

The new riser unit designs for class C 250 to D 400 Multitop storm water discharges fea-ture long service lives, easy handling and simple maintenance. The frames and grates are made of ductile iron. The most important detail is the unbreakable maintenance-free double hinge which allows the grid to be folded out to around 115 degrees on either side or completely removed. 4-point vibration absorption integrated within the frame reduces rattling noises. Other features include the low weight of the grate and the easy to operate grate securing system using a boltless non-corroding spring lock for the first time. Because the sys-tem is self-locking, there is no danger of vandalism.



Typical Applications

- kerbs
- traffic lanes
- car parks and industrial surfaces
- school yards
- pedestrian zones

ACO Bridge Discharge System

High specifications are laid down for bridge drainage systems because of the greater risks to traffic and the need to protect expensive infrastructure. Bridge drainage systems also have to match the special features of bridge construction such as reinforced concrete bridges, and special construction measures such as timed shifting when constructing large steel bridges.ACO bridge discharge systems fulfil these requirements:

– they comply with class D 400 in accordance with EN 124
– the grate is firmly fixed into the frame with a hinge
– the grates are locked or bolted to prevent unauthorised opening

bridge discharge for gravel bridges

bridge discharge for steel bridges

bridge discharge for reinforced concrete bridges, HSD-5

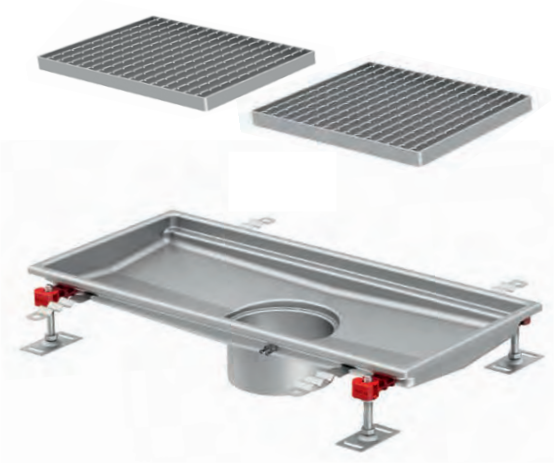
ACO Multidrain channels and various grating options are providing aesthetically pleasing and high performing solutions to this important hub of Gurgaon. The visually subtle solution with the ACO Brickslot gratings provides optimum hydraulic efficiency and enables rapid removal of the surface water. Furthermore, the Brickslot grating system is also completely secure and is not vulnerable to vandalism or coming loose, making it ideal for use in a communal area.

DLF Cyber City, Gurgaon
ACO Secures Efficient Drainage at Gurgaon Hub

BUILDING DRAINAGE

- Hygiene First
- Shower Channel
- Shower Point Drain
- Roof Drain
- Balcony Drain

Industrial/ Kitchen Drainage



HygieneFirst

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.

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 3mm 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

- Easy maintenance
- Less resources required for cleaning
- Less production downtime
- Optimum durability
- Corrosion resistance

Health & Safety Benefits

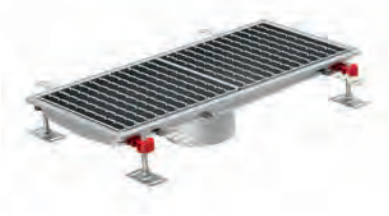
- Slip resistant gratings
- Easy to remove and clean
- No sharp edges

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.

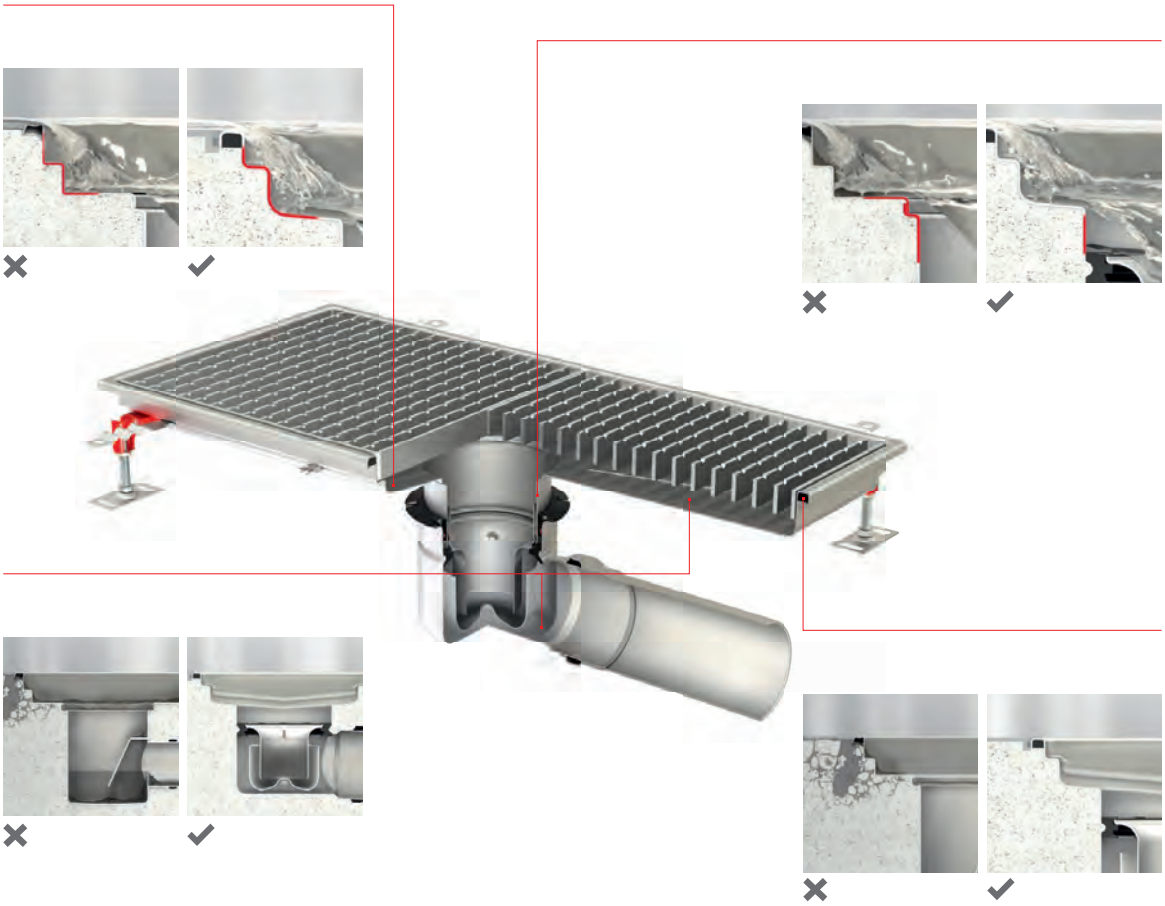
ACO Hygienic Box Channel

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.



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

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



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

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.

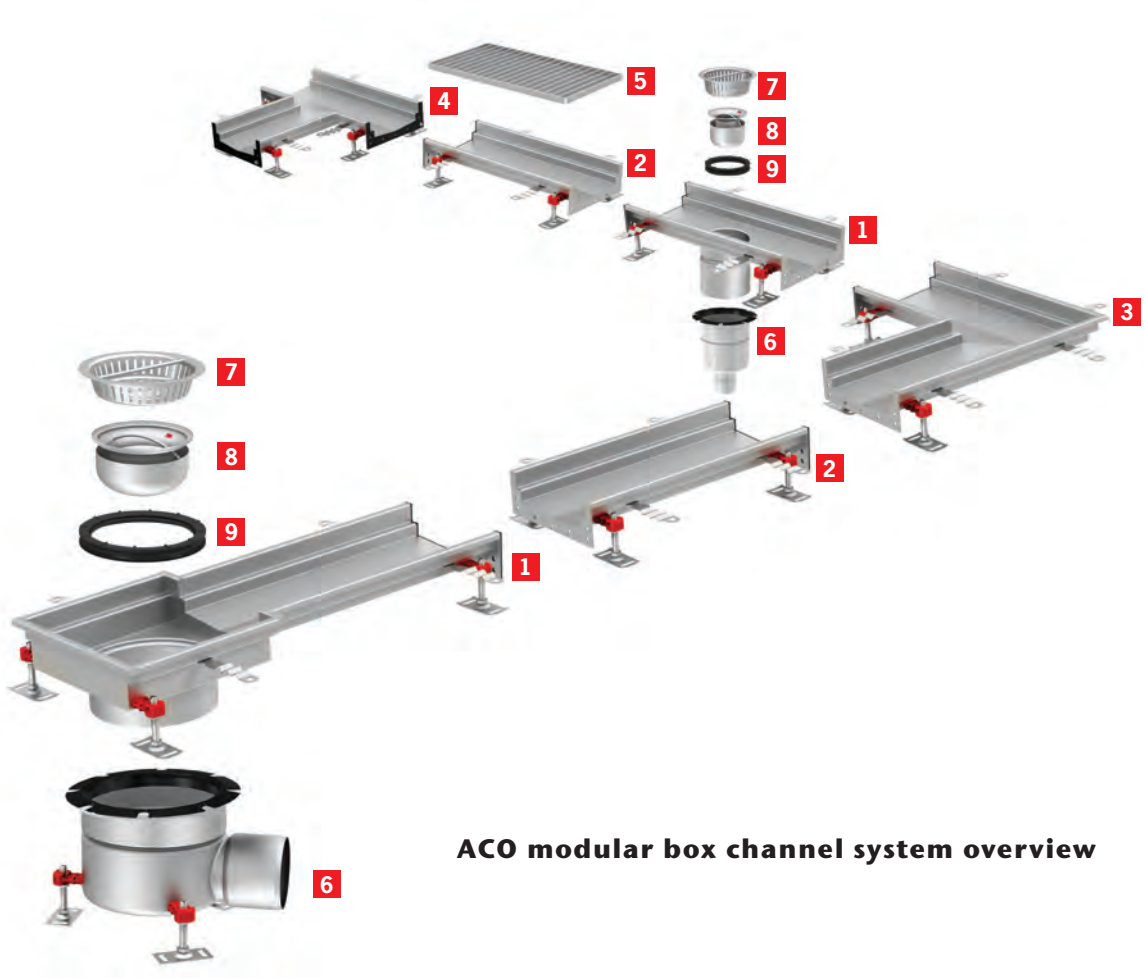
EHEDG is a consortium of equipment manufacturers, food industries, research institutes as well as public health authorities and was founded in 1989 with the aim to promote hygiene during the processing and packing of food products. The principal goal of EHEDG is the promotion of safe food by improving hygienic engineering and design in all aspects of food manufacture.

ACO hygienic drainage fulfills hygienic requirements to prevent harmful bacteria contamination. We apply relevant hygienic design principles reserved for food contact surfaces as recommended by EHEDG.

ACO Modular and Slot Channel

The ACO modular channel range includes channels for all common applications and all common floor types (concrete, tiles, resin or vinyl). Selecting a channel from the range is easy. The unique variability of the whole portfolio makes it easy to choose the right channel according to a specific customer's needs.

Channel´s length, depth and outlet position are just a few of the parameters which can be varied and, regardless of the variations specified, there is no impact on delivery lead times.



ACO modular box channel system overview

Our modular range with standardised 20, 125 and 200 mm 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 modular slot channel system overview

1	Outlet unit	6	Gully
2	Level invert and sloping invert channel	7	Silt basket
3	Corner unit	8	Foul air trap
4	Branch unit	9	Foul air trap support
5	Grating		

ACO Shower Channels

Function and design are combined perfectly in the ACO Showerdrain and the ACO designer gratings. The high-quality stainless steel look of the channel and the gully satisfy sophisticated demands for continuous level floors.

Shower Channels as Design Elements

The Showerdrain is a channel built into the shower floor which beautifully combines form with function.
The Showerdrain is the perfect high quality solution for high-class bathrooms featuring glass fixtures and natural stone floors, as well as public applications where the absence of barriers is an important consideration.
The rigid channel body manufactured from stainless steel has a lateral channel gradient to ensure positive drainage of the water.

Cleaning
The removable foul-air trap is also manufactured from stainless steel and is desi-gned for simple cleaning and the effecti-ve prevention of odours.

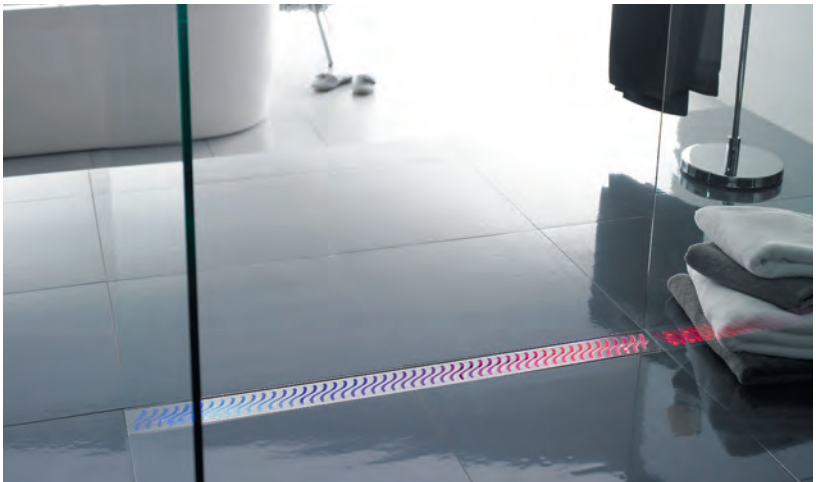
Grating Design
Various grating designs are available in finely polished stainless steel to decorate the visible part of the channel. ACO Showerdrains are available in standard lengths from 700 to 1000 mm. The Showerdrain is an attractive alternative to a conventional shower tray in high-class bathrooms as well as in public areas.

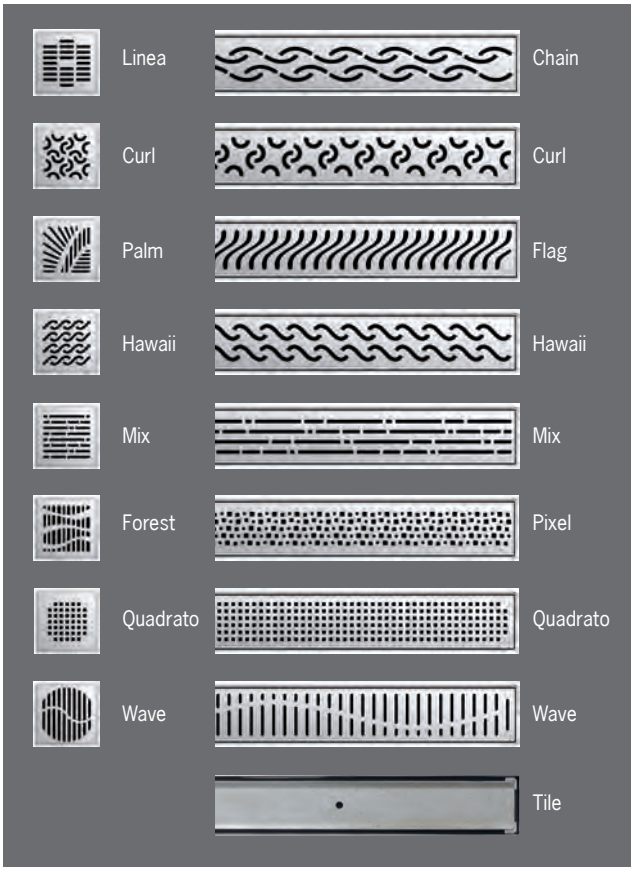
Showerdrain with "wave" designer grating

Simple cleaning with the removable foul-air trap

ACO Showerdrain Lightline – The First Illuminated Shower Channel

The ACO Showerdrain Lightline illuminated shower channel turns a functional part of a shower into an active bathroom design element. Combining function with design, this customised channel is made possible by another innovation: the aqua-sensitive LED lighting. The combination of high quality electro-polished stainless steel gratings, water, and coloured LED lighting, creates a completely new shower environment. This new channel succeeds in combining simple installation and cleaning, with totally elegant design, topped off by stunning opti-cal effects.





ACO Showerdrain in a floor-level shower

ACO Designer Gratings

The ACO stainless steel designer gratings are laser-cut and have an electro polish finish. They are elegant, individual and superbly functional.
The gratings fit the 150 x 150 mm and Ø 136 mm frames and are therefore used as standard with the MEKU or AV-SELECTA PP risers from ACO for the thin mortar bed sealing method.
The risers can be combined with all ACO cast iron and stainless steel gullies in sizes DN 50 and DN 70 an the plastic floor gullies DN 50-100.
ACO designer gratings can also be individually made to customer specifications. In addition to the patterns shown here, any other pattern can be cut out and customised from stainless steel plate.

Left: AV-SELECTA-PP risers for thin mortar bed installation. Right: plastic risers with partially telescopically height-adjustable for optimal adjustment with the flooring.

*Designer gratings are illuminatable in red, blue, green and warm white

ACO Floor Gullies

ACO's product line includes a broad range of height-adjustable floor gullies suitable for any type of floor. Drainage is vertical or horizontal. The ACO modular system has a large number of flexible combination options for every installation situation.

Floor Gullies in Stainless Steel

EG 150 range of Eurogullies are designed as hygienic, quick, simple and economic trapped drainage solutions. Suitable for all floor finishes including cement and resin screeds, ceramic tiles, and flexible vinyl flooring. In solid floors and suspended floors.
Manufactured in austenitic 304-grade stainless steel as standard with guaranteed excellent corrosion resistance. Optional 316-grade stainless steel for very aggressive applications. EG 150 Eurogullies are supplied with gratings as standard which are completely safe for bare feet or stiletto heels. A non-slip or plain mesh grating is available for cement/resin screeds and tile applications.

ACO EG 150 Range for cementitious/ resin screed and ceramic tile application

Typical Applications
- light industrial use
- toilets, washrooms, wet bathrooms
- hotels, apartments
- swimming pools

Plastic Floor Gullies

The plastic floor gullies are part of a modular system allowing various combina-tions in the nominal widths DN 50, DN 70 and DN 100. The perfect solution can therefore always be put together to match each situation and application. All of the risers in the WAL SELECTA DN 50/70 product line can be used with this system.

ACO plastic floor drains
with top sections
and stainless steel design gratings

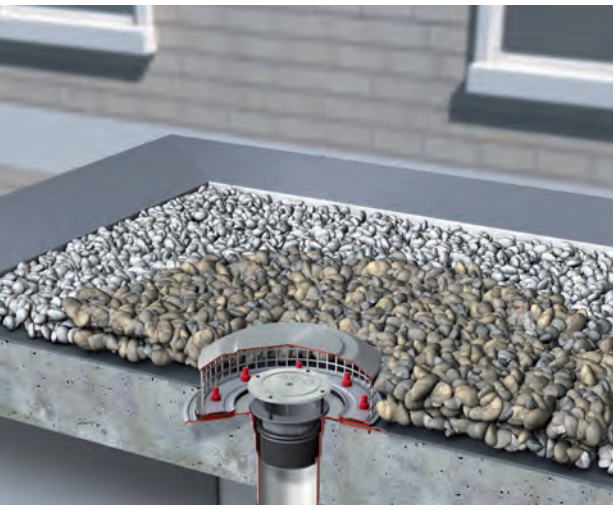
Typical Applications
- bathrooms and toilets, washrooms
- domestic/residential use

Floor Gullies in Cast Iron – ACO Passavant

Cast iron is still the number one for planners, developers and plumbers because of its functionality, reliability and safety in building drainage applications. Floor-level cast iron gullies are:
- non-flammable
- sound insulating
- long lasting
- completely recyclable
- have the same coefficient of expansion as concrete
- in nominal widths DN 50, 70 and 100
- with or without fire protection set

Typical Applications
- technical facilities
- industrial buildings

ACO Gravity and Siphonic Roof Drainage



Flat-roof gullies are installed to drain rain water from roofs, car park decks and terraces. The collected rainwater is drained off via internal drain pipes.

ACO roof gulliies SPIN in cast iron

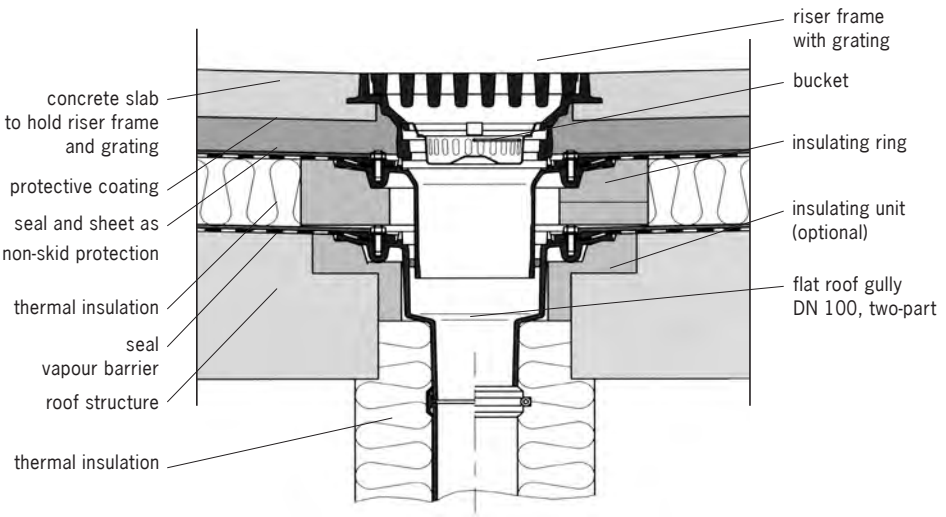
ACO SPIN – Gravity Roof Drainage in Cast Iron and Stainless Steel

Gullies with pressed sealing flanges but without foul-air traps are used for the efficient drainage of roofs.
ACO's modular system for this purpose consists of gullies with nominal widths of DN 70, DN 100, DN 125 and DN 150, in one-part or two-part models, plus accessories.
With the exception of the optional components for green roofs, the components are manufactured from grey iron to EN 1561.

Product Benefits

- variable modular system suitable for different roof constructions
- heatable flat-roof gullies
- gully body with pressed sealing flange for connection to different types of sealing membrane
- non-flammable housing
- good connection between concrete and cast-iron

ACO roof gulliy SPIN in stainless Steel



Installation example: park deck, thermally insulated, with 2-part flat roof gully DN 100

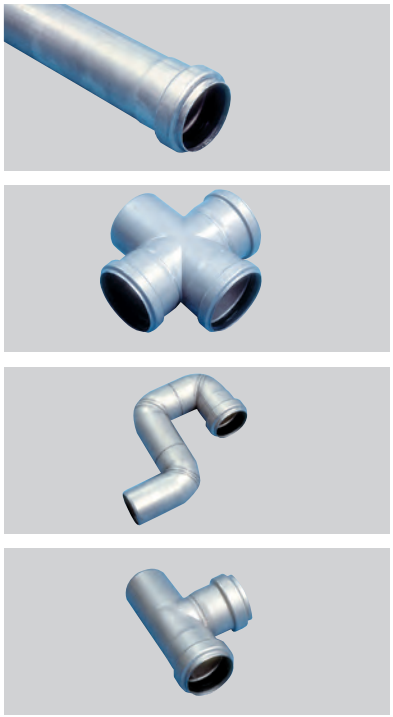
Typical Applications

- flat roofs
- terraces
- hospitals
- shops
- car park deck drainage
- green roof drainage

ACO Pipe/ACO Drains

ACO Pipe Work Systems and Balcony Drains of Stainless Steel and Galvanised Steel

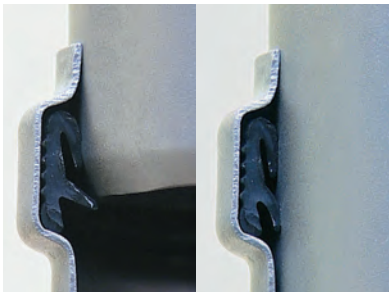
The functional strength and service lives of sewage pipes are being increasingly challenged by the rising level of technology in homes, the growing demands for more housing and sanitation comfort, and the presence of aggressive media in domestic wastewater. ACO rises to this challenge wi-th a complete programme of pipes, fittings and gullies in stainless steel and galvanised steel.



Stainless Steel Pipe System

Manufactured from grade 304 austenitic stainless steel as standard, ACO stainless steel pipe is ideal for most liquids including soil, wastewater, process water and rain water. Grade 316 stainless steel pipes and fittings are optionally available for particularly aggressive industrial drainage applications.
The range is completely compatible with ACO stainless steel floor gullies, channel systems and rainwater drainage products.

ACO Stainless Steel Pipes and Fittings
Available in sizes 50 mm, 75 mm, 110 mm and 160 mm external diameters, with pipes supplied in standard lengths 0.15 m, 0.25 m, 0.5 m, 0.75 m, 1 m, 1.5 m, 2 m and 3 m for optimum practicality and easy assembling. Pipe lengths up to 6 m can also be easily supplied in line with specific customer applications.



ACO PIPE double-lip sealing system
Double-lip seal function principle

Benefits
ACO PIPE stainless steel pipes save on installation costs and long-term care and maintenance

- highly corrosion resistant
- light and easy to handle
- very reliable double-seal joining system
- simple push-fit assembly
- low expnsion co-efficient attractive

Typical Applications

- ACO PIPE stainless steel pipe is the fast alternative to cast iron or PVC pipe systems, and is available in standard pipe sizes with easy to assemble push-on fittings.

Galvanised Steel Pipe System – GM-X

Pipes and fittings made of welded, precision steel pipes, cold-drawn in a single process in accordance with EN 10305-3. Steel is fracture-proof, non-deformable, heat and frost resistant, non-flammable, and has favourable noise characteristics. ACO produces a complete product line of steel pipes and fittings in nominal widths from 40 to 300 mm.

GM-X Drain Pipes
In galvanised steel, internal plastic coated, nominal widths DN 40 to DN 300.

Typical Applications
- domestic wastewater installations: connection pipes, downpipes, collection pipes, groundwater pipes, ventilation water pipes and rainwater pipes.

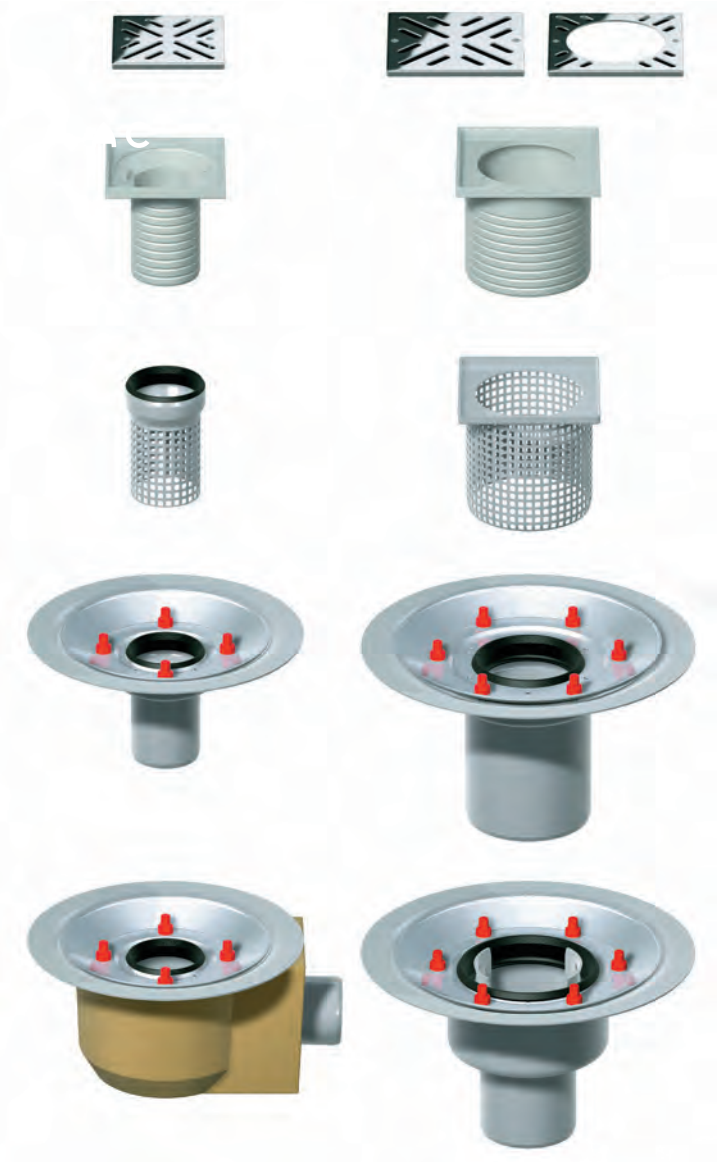
Benefits
- low noise emissions
- extraordinarily low thermal expansion
- fire-resistant in accordance with DIN 4102 and DIN 1986.
- corrosion protected
- shock-proof and impact-resistant

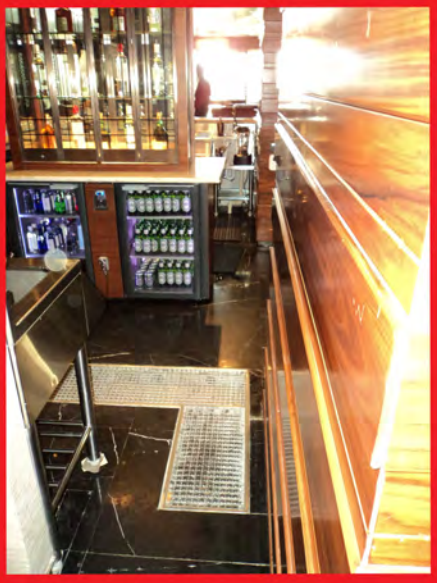
Balcony Drains made of Stainless Steel

Modular Construction
Different solutions are required depending on the installation situation when planning modern balcony and terrace drainage systems. ACO's balcony and terrace product line is therefore intelli-gently designed around a modular sys-tem

Everything starts with the drain bodies: depending on the model, drains with vertical or horizontal outlet sockets can be supplied. And depending on the model, the drain body can be combined with intermediate sections and a range of top section systems which allows the right drainage solution to be created for each application and floor structure.

Typical Applications
- balconies
- terraces

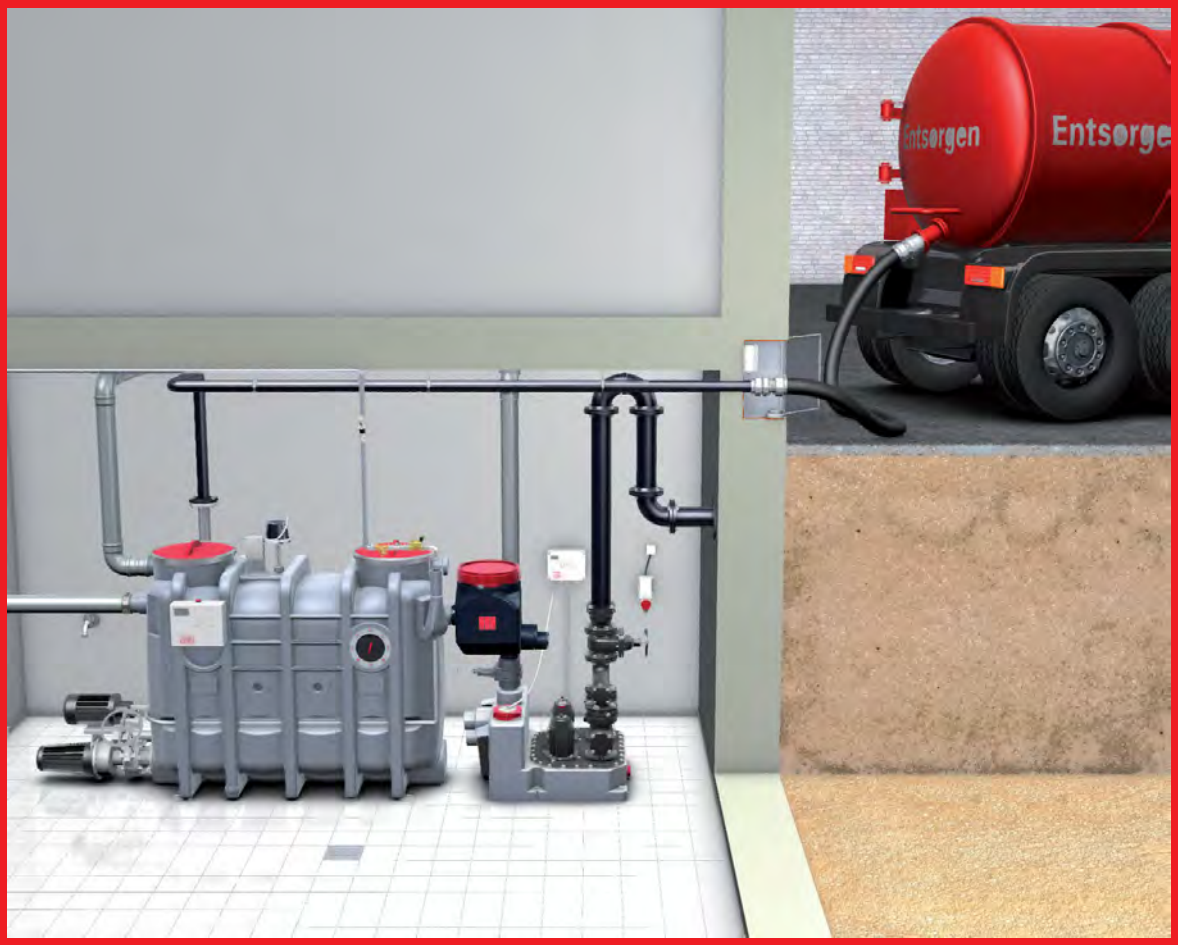




As the largest producer of stainless steel drainage systems ACO has the knowledge, experienc and expertise to offer the optimal drainage solutions for every application. Therefore ACO offer the designer the freedom to choose from a standard range of products as well as custom mad solutions to suit any application.

Empee Hilton, Chennai
ACO provides sustainable water management system

SEPARATOR TECHNOLOGY



- **Grease Separator**
- **Oil Separator**

ACO Grease Separators

Grease separators need to be adaptable and versatile, and be availab-le in various sizes and materials to meet the enormous range of different industrial and commercial needs.

ACO has many years of experience in the production of grease separators. Its comprehensive product line includes free-standing and underground grease separators. Precise engineering and in-depth expertise guarantee fully developed, quality-assured and completely tested products that satisfy all international standards.

The ACO product line has an optimum solution for every application. Free standing grease separators are manufactured from stainless steel or polyethylene. In addition to the two materials, there are also two disposal systems: partial and full disposal. Partial disposal only involves disposal of the grease and solids – this is carried out by ACO's manually operated LIPATOR or the fully-automatic LIPATOMAT. Partial disposal saves water and disposal costs. Full disposal grease separators remove all of the contents.

Underground separators are made of reinforced concrete or polyethylene. The ECO-FPI is the first and only grease separator made of polyethylene with SLW 60 static certification – it therefore requires no concrete strengthening around the cover plate.

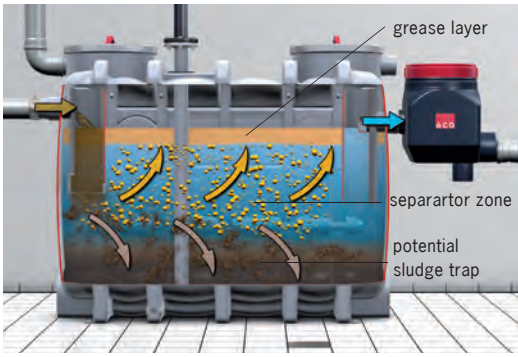
Typical Applications

- meat processing
- kitchens
- restaurants
- grilling, roasting and frying kitchens
- motorway services
- catering facilities

Full Disposal - Above Ground

LIPURAT,oval, automatic or manual control with disposal pump, optional remote control, high pressure internal cleaning, modular construction.

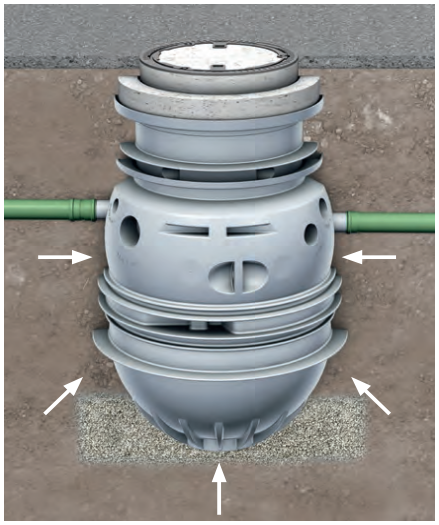
ECO-JET with or without direct vacuum extraction, optional fill sensor, low weight, modular construction



Full-disposal principle

EN 1825 function diagram
Grease separator with no separate sludge trap and separator

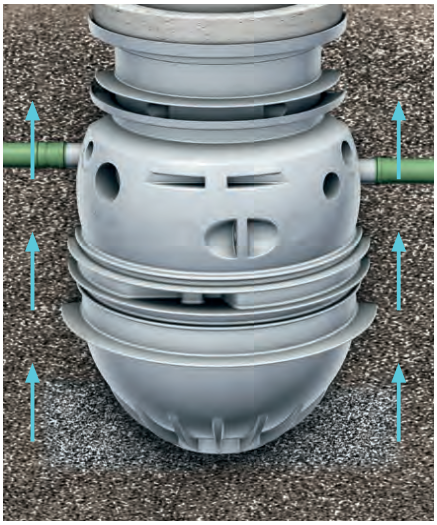
Full Disposal - Under Ground



Structural Stability

Product stability guaranteed for 50 years

- Certified statics have been calculated for the tank system
- The new tank system supplies structural stability for 50 years



Protection Against Upwelling

Protection against maximum ground water level

- Depending on the maximum allowed inlet invert, the separators can be installed in areas with maximum ground water until the ground level surface
- It is not necessary to cast an extensive upwelling protection on site

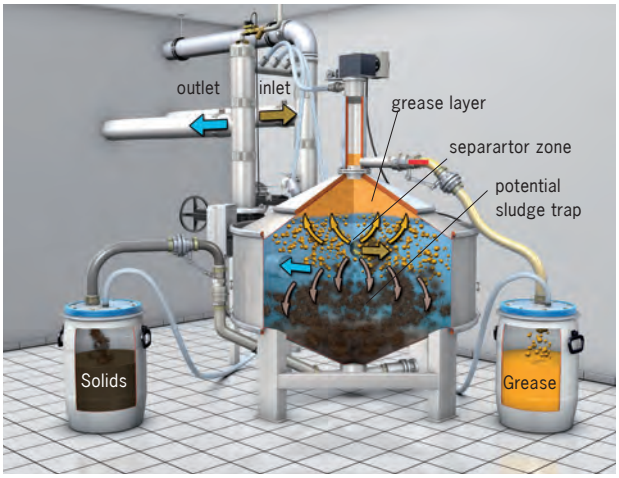
Partial Disposal

The main applications of this type of grease separator are restaurants, canteens and catering operation kitchens.
The grease collects in the upper cone. The sludge sinks to the bottom of the lower cone. The grease is kept fluid by heating the upper cone

Typical Applications

- ships
- areas with difficult access for disposal vehicles
- combined with wet refuse disposal equipment

LIPATOMAT fresh grease separators in stainless steel and programme control for free-standing installation

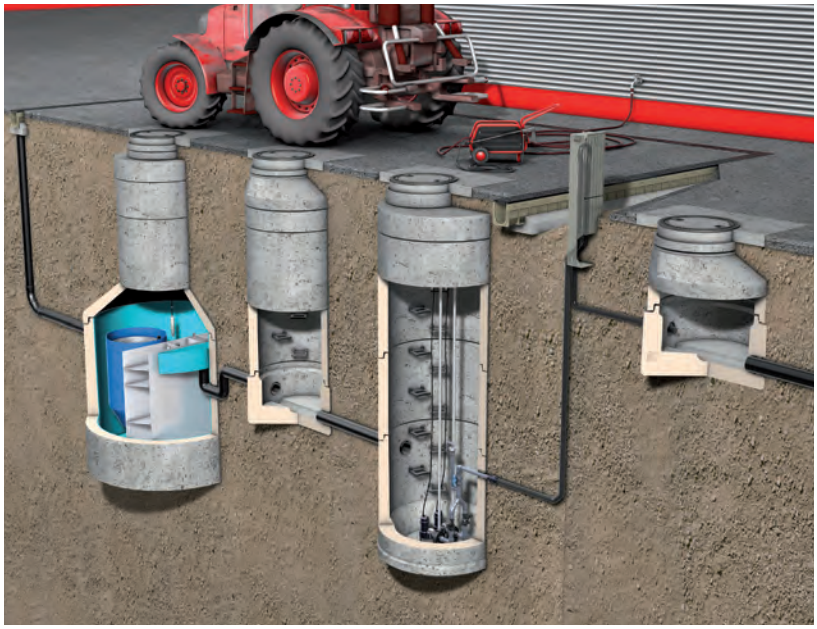


Partial-disposal principle

ACO Petrol Separators in Steel Reinforced Concrete – Compact and Inexpensive to Maintain

ACO has completely upgraded its light-oil separators in response to the new European standard EN 858. This product line now sets new benchmarks for separator technology.

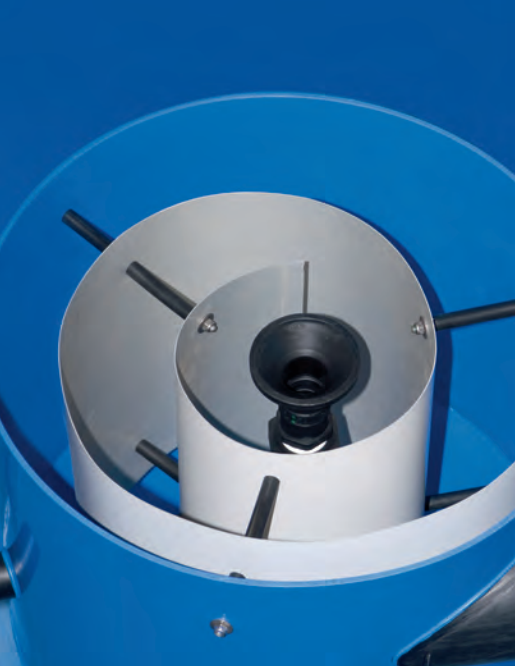
Inflammable or explosive atmospheres can build up in the wastewater piping systems of petrol stations, car washes and vehicle workshops. These hazardous atmospheres must be isolated by separator systems. ACO has four solu-tions available with the ACO Passavant light-oil separators Oleotop, Oleomax, Oleosafe and Oleopass, which all comply with EN 858 and German DIN 1999-100. All light-oil separators built by ACO are class I separators (certified with 5 mg per litre residual hydrocarbons). After removal of the coalescence element, they naturally also comply with all specifications for class II separators (certified for 100 mg per litre residual hydrocar-bons).



Oleotop oil separator with sample unit and lifting plant

Typical Applications

- Petrol stations, car parks
- Car washes, vehicle washes
- Automotive workshops, automotive trade
- Filling areas, unloading zones
- Petroleum storages, maintenance operations
- Transformer stations, power plants
- Industry and commerce



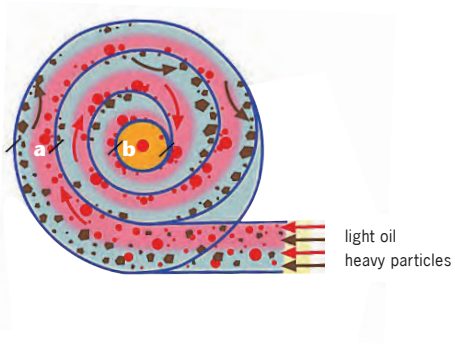
Fast flowing yclone technology is behind the high efficiency f the new Oleotop separators. The light oils are sucked out through a funnel via an oil ejection device and stored in a closed collecting drum

Oleotop
New Filterless Class of Light-Oil Separators

Oleotop filterless separators work with the help of Zentri-Duo cyclone technology. The innovation in this separator: sludge and light oils are separated as soon as they enter the separator tank. Whilst the heavy particles are moved centrifugally towards the outside (a) to the edge of the guide walls where they settle out, light oil flows simultaneously into the centre (b) – in the centripetal direction – towards the inside walls. This double effect to clean the wastewater reduces the sludge trap volume by 50 per cent – so that the total waste water content is also matchingly low. Oleotop systems are ideal, particularly for washing areas, filling stations or decanting areas.

Featuring Low Maintenance and High Reliability

The filterless coalescence unit is almost maintenance free. No operational shut downs for cleaning the coalescence unit, thanks to the self-cleaning capacity of the flowing water.
Follow-up costs are also slashed because the coalescence unit is non-wearing. The unblockable spiral with a free ball passage of at least 60 mm prevents blockage of the coalescence unit (e.g. by fine sludge and/or suspended solids) as well as the resulting rise in water level in the separator. These features en-sure high levels of operational security. In addition, they also significantly minimise the risk of light oil leaking out of the separator – especially because of insufficient servicing.



Separators also available in:

- polymer concrete tank
- separate units, sludge trap/separator
- for installation in already existing tanks
- as a free-standing model in stainless steel and PE-HD

Polymer concrete tank with Oleotop separator

ACO Separator Technology generating greasy wastewater are obliged to ensure that grease and organic oil is effectively removed from the wastewater to avoid deterioration of the sewage pipe system. This applies for instance to kitchens and meat-processing operations.
ACO has decades of experience in supplying the most diverse range of grease separators, lifting plants and complete pumping stations for ground installation and free-standing installation.

Taj Mahal Palace, Mumbai
ACO efficiently separates water from grease

SPECIAL BUSINESS FIELDS

- ACO Sport
- Stormbrixx
- Access Covers
- Manhole Covers
- Grass Grid

ACO SPORT Drainage Systems – for Running Tracks and Sport Facilities

ACO SPORT elements in London. ACO has provided drainage systems for all the Olympic stadiums since the Olympic Games in Munich 1972, with the exception of Moscow

ACO SPORT includes drainage systems and construction elements for sports and recreational facilities, helping them to remain in good playing condition throughout the year.

ACO SPORT slotted channel LW 125 used as drainage system for running tracks

ACO SPORT system elements for hockey pitches

Football Grounds

Pitches in football stadiums are generally covered with real grass. However, many football pitches are covered with infilled artificial turf, to allow them to be used more intensively, for longer, without any deterioration in playability. The infill used in the artificial turf is a mixture of sand and rubber granules. This makes the surface very water-permeable, just like real grass.

The ACO SPORT® shallow channel drainage system has proven ideal for removing surface water from this kind of surface, and from adjacent auxiliary areas. Because of the low (15 mm) depth of these channels, which conforms to DIN 18035, they are safe, drain the water away reliably, and are easy to clean of granules. Because the sides of the symmetrical channel are only slightly off-vertical, it is easy to lay paving stones against it.

Catch basin

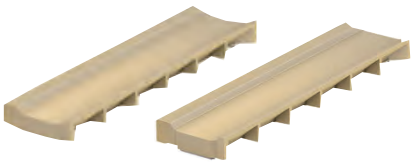
Shallow channel for rectangular sports fields

Sports Pitches, Games Areas and Recreation Grounds

All-weather pitches, small sports surfaces, tennis and volleyball courts and leisure installations also all need to be quickly drained of surface water.

The components used for drainage must also be extremely low-maintenance and sturdy, and must not pose a risk of injury.

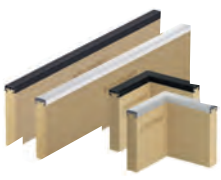
ACO SPORT® shallow channels are the ideal solution, as demonstrated by many decades of use on numerous facilities of this kind. The channel is wide, compact, and securely anchored to the bedding material, meaning it is safe, sturdy, self-cleaning, and presents vandals with no point of attack. For point drainage of the sports surface, a robust stainless steel catch basin, covered with a grating with a small mesh to prevent injuries, is recommended. Concrete edging panels can additionally be used to form a wide border with adjacent areas of vegetation, providing long-term protection to sports surfaces with synthetic coverings. By surrounding these games surfaces with ACO SPORT® elastic perimeter kerbs, additional safety can be provided for users.



Shallow channel

Shallow channel with anchorage groove

Catch basin



Elastic perimeter kerbs

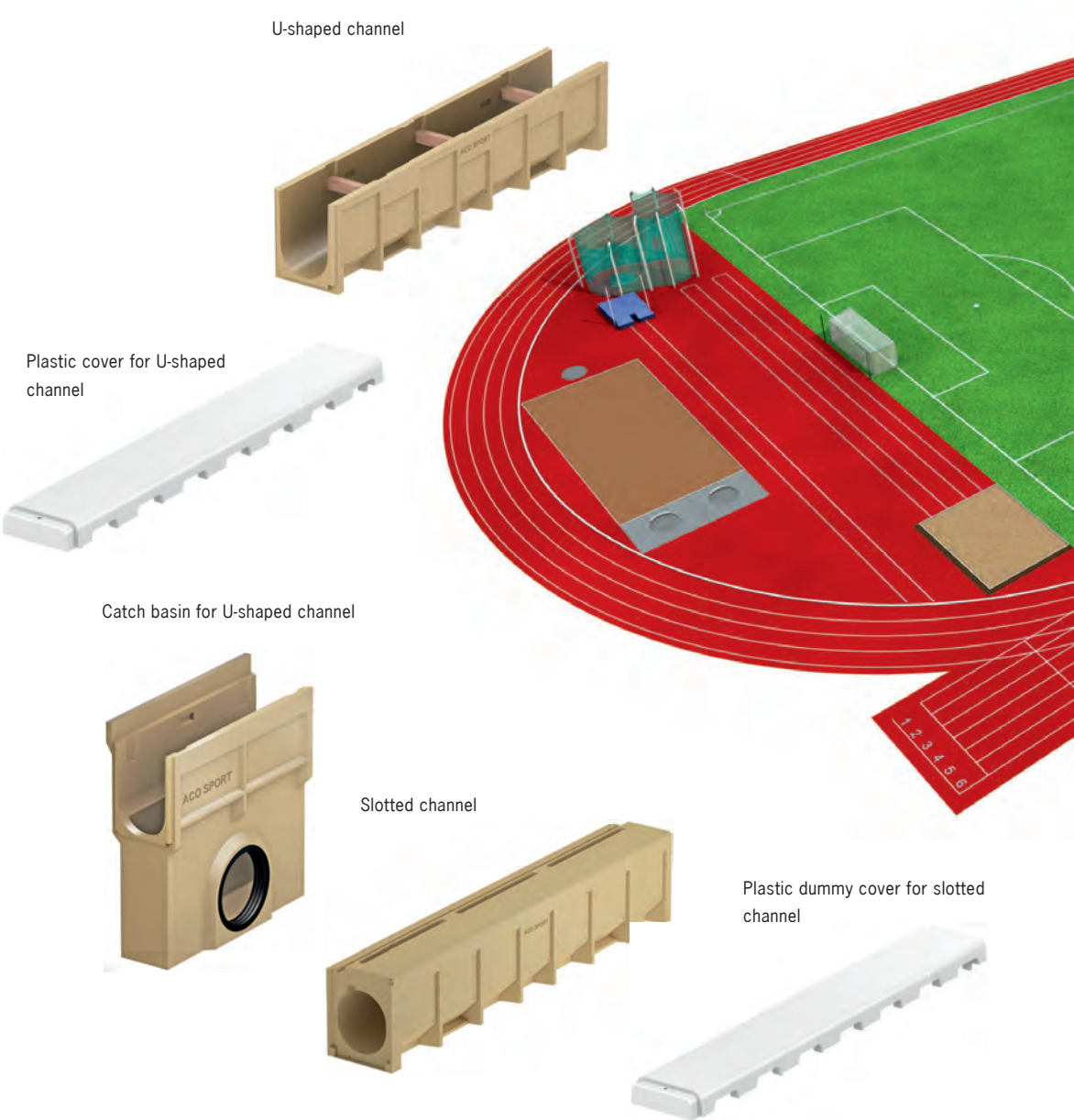
Grass edging panel

Stainless steel point drain

ACO SPORT Construction Elements and Accessories

Type C sports grounds are used for schools and grassroots sports, and play a very important role in regional football competitions.
To ensure that their synthetic tracks comply with the rules for running events – particularly the requirement for a 5 cm-height border around the inside of the running track – the football pitch is positioned 5 cm above the level of the track. As a result the marker, in the form of a covered channel, can be fitted directly to the raised edge of the infield, no longer posing an obstacle that users of the infield need to step over.

The D areas on type C sports grounds, with their regulation incline, are at the same level as the track and are often fitted with a synthetic covering. This allows sports surfaces for field events, or multi-purpose pitches for ball sports, to be created in the D areas.
The ACO SPORT® NW 125 drainage system is made up of both covered and hollow channels. This intelligent system offers rapid surface drainage while at the same time meeting the specific needs of all users of a modern sports facility. In sports grounds with a raised infield, for example, water is drained away via U-shaped channels with sturdy stationary covers that at the same time

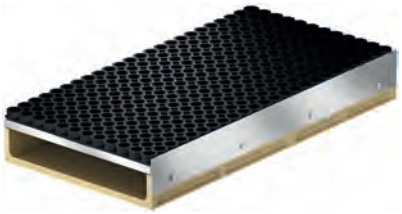


form a 5 cm-high border for the running track. The channels have a 4 cm-high back grass support on the infield side. Water from the running track enters from the side, through the plastic cover with its standard-compliant inlet slots.

In the D areas the running track can be drained via covered U-shaped channels without a back grass support, and also - at selected points - via compact hollow slotted channels, to which a synthetic covering is applied on-site. Through the use of slotted channels, points of access can easily be created between the oval track and the sports surfaces inside it. The required borders for the running track are created by inserting plastic covers into the slots on the top of the channel. These can be easily removed in order to form the access points.

Concrete edging panel

Sand trap



Cable distribution box

Catch basin for slotted channel

Elastic perimeter kerbs

ACO Stormbrixx – Modular Infiltration Systems

The ACO Stormbrixx infiltration system supports the natural water cycle by retaining storm water collected from sealed surfaces in the ground, and releasing it back gra-dually. When used for bulk perco-lation, this means that the storm water is released in moderate quantities back to the ground, and is released where it actually fell. This helps to replenish groundwater levels and reduces the load on sewer systems.

Z-42.1-500

Deutsches Institut für Bautechnik DIBt

NEW Now with DIBt Approval

Plan with Certainty, Thanks to General Building Approval

On 26/4/2013 the German Institute for Building Technology (DIBt) issued general building type approval certificate number Z-42.1-500 to ACO Tiefbau Vertrieb GmbH for the ACO Stormbrixx modular infiltration system, confirming the positive material and product features of the system. This means that our innovative modular infiltration system now offers planners, g contractors and developers an additional level of certainty when installing infiltration and retention systems.

Stability and Solidity of Construction Thanks to Brick bonding

ACO Stormbrixx is a modular infiltration system made from synthetic materials, which on the one hand provides bulk sto-rage of water from storm water and on the other hand is used to provide bulk percolation of the storm water. The ba-sic building blocks are stackable which reduces transport costs and CO2 emis-sions compared to traditional systems. And storage space is cut in half both in storerooms and on building sites.

The basis of the new ACO Stormbrixx system is provided by the basic components 1200 x 600 x 342 mm in size, which are combined on site into an interconnected system of blocks. By laying the individual components in patterns and using an intelligent snap lock system, an exceptional level of structural solidity is achieved for the overall system.

Optimised Logistics and Simple Handling

Both the main bodies and the side panels, as well as the covers for the ACO Stormbrixx infiltration system stack perfectly for ease of transport. The building blocks fit into each other precisely, so reducing the volume to be trans-ported compared to tradi-tional systems, resulting in substantially lower transport costs and CO2 emissions.

Maintenance and Inspection from any Angle

Thanks to the intelligent building block architecture of ACO Stormbrixx, which simply requires an external perimeter to the entire system using simple to erect side panels, the installed infiltration system is accessible for inspection and rinsing. Trough-like spaces between elements make it easy to insert a sewer camera or a rinsing jet. Thanks to built-in integrated or upstream inspection and rinsing shafts, permanent access to the infiltration system is ensured.

Less space needed and easier handling at the construction site

The ACO Stormbrixx open cell structure permits completely free access for CCTV and jetting equipment which allows the whole system, including all the extremities, to be inspected and maintained from just a few access points.

ACO Access Covers – Multiple and Recessed Cover for Shafts and Supply Ducts

ACO has a wide spectrum of high-precision access covers and riser units for all load classes and for the complete range of shaft and sewage structures. The single and series covers use high quality tech-nology to lengthen service lives and reduce operating costs.

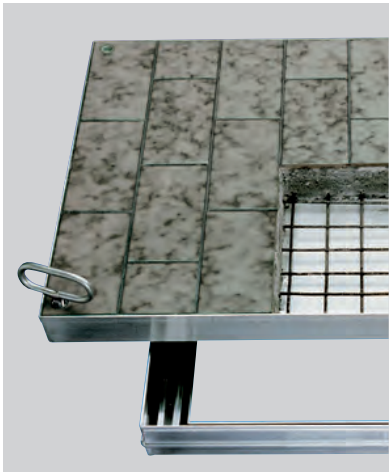
Servokat access covers for emergency exits

Typical Applications

- telecommunication installations
- airports and ports
- railway stations
- tunnels
- bridges
- emergency exits
- water and gas supplies
- control shafts
- water treatment and sewage works

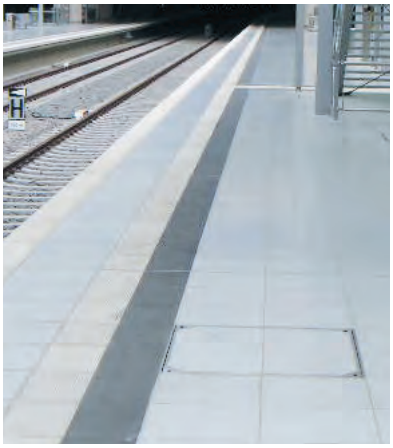
Servokat access covers in stainless steel and galvanised steel. For load classes B 125 and D 400. Standard sizes 600 x 600 up to 1500 x 1500. Other sizes upon request

The **Servokat access covers** with easy opening features are the ideal solution for access shafts which are frequently opened for maintenance and inspection purposes. High quality is guaranteed by the ability to integrate the access cover in a wide range of paved surfaces. Servokat access covers comply with all safety regulations.



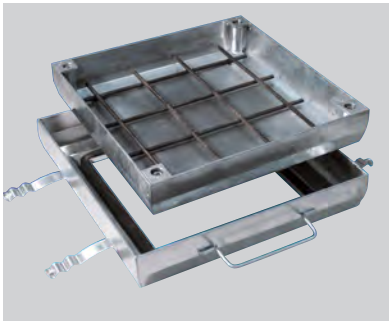
The **recessed access covers** for customised surfaces can be ideally adapted to the local surface covering by inserting the paving required into the lid of the access cover. The cover can be filled with conventional paving and surfa-cing materials (tiles, flagstones, granite, marble, laminated wood, carpets or other materials).

Recessed-access covers in stainless steel. Also available in galvanised steel and aluminium. Suitable for indoors and outdoors. Stan-dard dimensions 300x300 to 1000x1000. Other sizes upon request

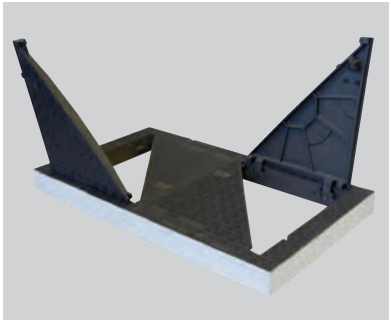


Secant access covers in variable sizes with choice of surfaces. For load classes B 125, D 400 to F 900. Also available as covers filled with concrete and iron

The **Secant access covers** available in various lengths and are a very flexible access cover system because the design and the materials open up an enormous range of applications.



ACO TopTek covers are the ideal solution for secure and discreet covering of shafts in the floor. TopTek covers are manufactured from aluminium alloy, mild steel, hot dip galvanized or stainless steel



TRIGONA – the new cable shaft cover with triangular trap doors. Optimum design, innovative technology and efficient material selection guarantee easy opening and closing of the individually removable trap doors which are rattle-free thanks to the triple-point supporting frame. The weight of each individual door is reduced to less than 25 kg – TRIGONA can therefore be operated by one person without any additional lifting gear. The self-locking door cannot close accidentally. The safety lock and self-cleaning hinges are made of ductile iron to prevent stress corrosion or contact corrosion.

Manhole Covers – Ductile Iron

The brand new concept for manhole covers: MultiTop class D 400 in accordance with EN 124. The fo-cus of the new technical concept is safety, weight and maintenance-friendliness. All are incorporated in the new manhole covers develo-ped by ACO.

Typical Applications

- roads, paths, piazzas
- airports and ports
- control shafts

The new ACO manhole top program with ACO CityTop, ClassicTop and MultiTop

For Tomorrow's Infrastructure –

ACO Manhole Covers CityTop, ClassicTop and MultiTop

Operational safety, durability and cost efficiency are the main criteria defined for hight traffic infrastructure. With the ACO range of manhole covers, top sections and inlet gratings, ACO satisfies all specifications pursuant to DIN EN 124/E DIN 1229. Intelligent product features such as lightweight covers and gratings, boltless locks, damping frame inserts, and hydraulic, optically attracti-ve and technically sophisticated surface designs, underpin the ACO Manhole pro-duct line's high engineering standards.

CityTop Bituplan

Benefits

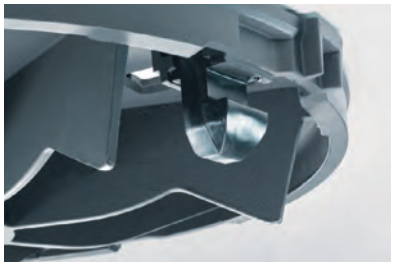
- durability and reliability
- high securing level and long lifetime
- user-friendly and safe in operation

Cover features

- ClassicTop is secured by highest mass per unit area
- CityTop and MultiTop are secured by screwless and maintenance free locking devices
- two anti-theft devices can be installed to prevent theft of CityTop

Frame features

- a cushioning insert is placed in the frame of all ACO manhole tops
- Bituplan frames offer highest load transfer to protect mortar bedding and shaft top
- a mobile entry-facility tool is firmly fixed in Multitop Lift or Bituplan frames



Maintenance-free, boltless, traffic-proof lock made of heavy-duty wear-and-tear resistant plastic in accordance with EN 124

Operation simplified by reducing the cover weight by more than 50 %

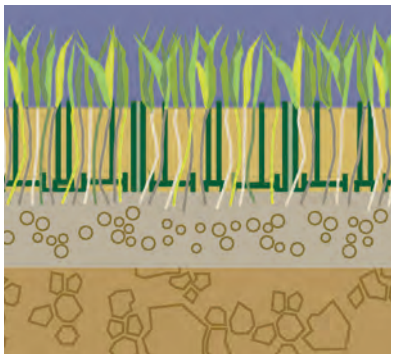
ACO Grass Grid – Pro Nature

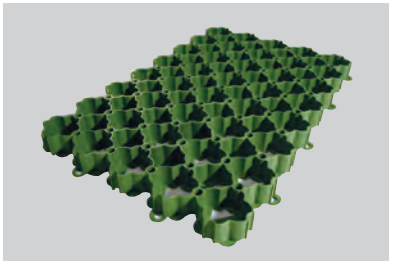
Green areas represent an absolutely vital part of our existence. The sealing off of occasional use traffic areas cut off this livable space.

Park use of grass grid

Parking space reinforced with grass grid

The continual building of towns and construction of paved areas means less and less natural ground drainage. To cope with this, we require bigger and more expensive water treatment systems to deal with the water collected in sewers. Therefore, there is an increasing necessity for large-scale seepage of rainwater back into the gound. Many industrial nations have listened and are attempting to counteract the sealing off of surfaces through building restrictions and regulations for sealed surfaces.





ACO grass grid

ACO grass grid used as large-scale reinforcement of fire rescue access route

Typical Applications

- parking spaces
- domestic driveways

ACO grass grid is made from plastic, provides unsealing of parking lots, yard driveways, terraces, walkways, storage spaces, emergency routes and river bank reinforcements.
These areas will remain green, yet are still load-bearing. Through the use of recycled materials, ACO promotes the en-vironmental issue. When sealed surfaces are required to aid area seepage, the surface drainage systems such as ACO Self® or ACO DRAIN® can be used. ACO grass grid is lightweight, thus easily transported, and for installation they snap together. While regionally varying, many building regulations require a certain amount of “green” area. Using grass grid allows vehicular use of these areas.

ACO Service Chain –
Because Quality Does not Stop with the Product

As the leading manufacturer of drainage solutions, we pride ourselves in particular on being experts in all aspects concerning drainage. We are always happy to put our comprehensive expertise at the service of 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
In the ACO Academy, we share the expertise resource of the global ACO Group with dealers, planners, architects and installers, who place a big priority on quality. We invite you to profit from our expertise.

design: planning and optimisation
The tendering and planning of drainage solutions is associated with many alternatives. But which concept produces the most economical and safest technical solution? We'll help you find the right answer.

support: construction advice and assictance
We provide you with project-related advice and support on your construction site to ensure that no unpleasant surprises occur between the planning and realisatin of a drainage solution.

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

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ACO products provide you with reliable drainage wherever they are used. Versality and quality of ACO products will solve the most mundane problems of every day life, as well as the challenges of major projects.

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International Airport, New Delhi

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reddot award 2015
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