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# ACO Technologies plc



## Surface water management systems for permanent way and rail infrastructure



# Introduction to the ACO Group

Throughout the world ACO branded drainage and surface water management systems are recognised for their innovative design, high quality manufacture, environmental excellence and industry leading performance.

Today the ACO Group has a research and production base that reaches across four continents. This unmatched resource pioneers the development of solutions that are tailored to individual applications, meeting the need for high performance, sustainable products that deliver optimum value throughout their operational life.

## ACO Technologies plc

ACO operates as ACO Technologies plc in the United Kingdom. Founded over 25 years ago, the company has grown quickly on a reputation for design innovation and customer service.

There are now four specialist divisions within ACO Technologies that serve every sector of the construction industry, providing solutions for applications as diverse as rail, highways, airports, landscaping, retail, distribution centres and environmentally sensitive projects.



To help architects, designers and contractors meet the legal requirements that now tightly control the way surface water is managed; ACO has created its unique 'Surface Water Management Cycle' – Collect, Clean, Hold, Release – the four core processes now required for the complete and sustainable management of surface water drainage.

For more information please visit [www.aco.co.uk](http://www.aco.co.uk).



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# Constructing a sustainable rail future

A safe, reliable and efficient mixed-rail network will play a vital role in the United Kingdom's economic future.

Recognising that rail strategy needs to focus on balancing the differing needs of network users on both local and national levels, the Government has set long-term objectives in three key areas: increasing the capacity of the railway, delivering a quality service for passengers, and fulfilling rail's environmental potential.

Pressure brought by the increasing volumes of passengers and freight being carried each year highlights the need for significant investment. Meeting the Government's targets will require the upgrade of much of the track and terminal infrastructure in order to secure its sustainable future.

## The role of surface water management

The need to effectively remove surface water from all passenger, vehicle and rolling stock environments is essential if the network is to operate safely and reliably.

Modern surface water management systems that exploit the latest hydraulic mapping design techniques provide 'surface to outlet' solutions that maintain optimum performance throughout their operational life.



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## Introduction to ACO Technologies

For over 60 years, ACO has been pioneering the management of surface water through the development of innovative drainage solutions and support services. This depth of understanding is reflected in the diversity and quality of our products, which cover every aspect of the water management cycle and set the benchmark for performance.

A major part of ACO's portfolio includes manufacturing specialist water management systems for the UK national rail and light rail networks. ACO's high performance product ranges have been used extensively throughout the modern railway environment to overcome significant design challenges and to satisfy demanding aesthetic requirements.

ACO has designed many systems for use at both regional and national level including Ebbsfleet International station, Transport for London and DLR extension upgrades and Manchester Metrolink.

The extensive product range ensures a wide variety of applications can be catered for including the track slab, platforms, station buildings and infrastructure, parking areas, maintenance and storage depots.



### ACO Hydraulic Design Software

Register online for our free, secure online design software to create your drainage designs:

- ▶ All designs are securely stored and easily accessed online
- ▶ Data always up-to-date
- ▶ Proven calculation methodology - more accurate and efficient designs
- ▶ Flexible catchment design
- ▶ Integrated rainfall data
- ▶ Automated product optimisation
- ▶ PDF summary documents



**Register Now - It's Free**  
[www.acodesign.co.uk](http://www.acodesign.co.uk)

## ACO Water Management

The ACO Water Management range provides architects, specifiers and engineers with a complete package of integrated systems suitable for use across the entire spectrum of civil engineering projects.

The ACO Water Management range boasts the widest range of channel collection systems, innovative and award-winning attenuation and infiltration systems, as well as a range of hydrocarbon separators and flow control systems.

Visit [www.aco.co.uk](http://www.aco.co.uk)

## ACO Building Drainage

ACO Building Drainage is a new concept within ACO Technologies and specialises in the development of corrosion resistant drainage systems for internal and external applications.

The technical expertise, global resources and fabrication capacity within our division make it possible for architects, engineers and contractors to realise the highest quality and value when selecting from our standard products, or, when using our bespoke design services.

Visit [www.acobd.co.uk](http://www.acobd.co.uk)



## Assurance

As a major supplier to the rail sector, ACO understands the importance of delivering high performance, sustainable drainage systems. Investment in leading technology, design expertise and rigorous quality management ensure absolute consistency and levels of assurance. Every system ACO manufactures is tested beyond the requirements of the toughest performance standards.



ACO is a registered supplier through Link-up. Link-up is the UK rail industry supplier qualification scheme, providing a single common registration, qualification and audit

process for suppliers to the UK rail industry.

## Use of sustainable materials

ACO's continuous investment in research and development and the drive for innovation push forward the development of new sustainable products and materials. Where possible ACO aims to incorporate as much recycled material or waste material as is practicable during the manufacturing process.

Recently, the company has developed Vienite®, a genuine breakthrough in the development of recycled materials. Vienite® utilises high levels of post consumer recycled waste without compromising strength or performance characteristics. At the end of a product's operational life, Vienite® can be collected, processed and returned to production as a raw material.

The high strength resin-based material is four times stronger than traditional concrete with a compressive strength in excess of 90 N/mm<sup>2</sup> and a flexural strength in excess 22 N/mm<sup>2</sup>.

The material has a low water absorption rate which makes it resistant to freeze thaw attack. Vienite® is also more resistant to chemical and mould attack than traditional polymer concrete.



The nature of this material makes it possible to develop complex shapes and products that can not be achieved with many other materials.



If you need help with specification, design or installation, or just wish to learn more about this and other Surface Water Management products from ACO, contact our free, no obligation ACO Design Services Team who can provide advice and dedicated design support for your project – 01462 816666 or visit [www.aco.co.uk](http://www.aco.co.uk).

# London Underground Fire Performance Assessment



A large number of our products which are manufactured from Vienite concrete have been assessed and tested in accordance with fire performance test criteria as given in London Underground Standard 1-085 'Fire Safety Performance of Materials'. This covers three aspects, combustibility, smoke emission and toxic fume emission. ACO Vienite Polymer Concrete was assessed for fire performance according to these criteria and approved for use in below ground locations.

For more information on this range of products visit: [www.aco.co.uk/rail](http://www.aco.co.uk/rail)



## ACO BIM library

ACO Technologies is the first surface water management manufacturer to launch a BIM offering targeting civils and infrastructure projects. Recognising a growing desire within the sector to gain the same advantages BIM offers construction projects, the BIM offering covers both Water Management and ACO Building Drainage product ranges.

BIM files are available for the entire Water Management: Civils + Infrastructure range, all of which offer project engineers unique advantages in terms of design, hydraulic performance and cost of ownership.

For ACO Building Drainage, BIM files are available for the ACO Decline 125 and ACO Modular systems.



Please visit [www.aco.co.uk/BIM](http://www.aco.co.uk/BIM) to access the files.



**ACO BIM LIBRARY**

Autodesk® Revit  
AutoCAD® Civil 3D®  
IFC

**ACO**  
[aco.co.uk/BIM](http://aco.co.uk/BIM)





# Design support

Surface water management system design can often be a complex task. Success in combining products and processes requires a thorough understanding of how these different elements work together.

ACO has two design services teams who are able to work closely with you through the entire design process to ensure accurate and cost effective product selection is made.

All services are free of charge and without obligation. Here are the services we offer:

- Whole system design, from collection to the attenuation of surface water
- Specification, design and installation advice
- Hydraulic calculations & AutoCAD detailing
- Parts schedules



## Bespoke design service

The specialist design team can cater for bespoke designs or modify traditional ACO ranges to ensure that high performance drainage systems can be supplied to complex or difficult installations.

By exploiting both ACO's UK and European design and manufacturing

capabilities, ACO can deliver cost effective bespoke products to meet any specification.

Using the latest 3D drawing software, initial ideas can be modelled and transformed into concept design proposals in a short space of time. ACO's engineers

are able to offer detailed advice on every aspect of the product design, operational performance, and installation.

Modifications to both UK and European standard product ranges can also be catered for.

**ACO Water Management:**  
Tel: 01462 816666  
Fax: 01462 851081  
Email: [technical@aco.co.uk](mailto:technical@aco.co.uk)

**ACO Building Drainage:**  
Tel: 01462 816666  
Fax: 01462 851490  
Email: [abdtechnical@aco.co.uk](mailto:abdtechnical@aco.co.uk)

## New: ACO Rail Zone



ACO has introduced a dedicated rail zone to its website, offering engineers and contractors working on heavy rail, tram and light rail projects an easy to navigate resource devoted to specialist water management solutions.

For the latest news, case studies and information on ACO's range of water management solutions dedicated to the rail industry visit [www.aco.co.uk/rail](http://www.aco.co.uk/rail)

# ACO Water Management Systems for light rail

The majority of Light Rail Transit systems form part of local, multi-modal transport networks that need to balance a wide range of varying operational demands in order to provide a reliable service.

Managing surface water run-off in this environment where pedestrians, cyclists, passenger and commercial vehicle traffic overlaps with the light rail infrastructure requires a specialist approach. ACO Water Management's dedicated light rail product range has been developed to meet the very specific requirements of this application and has the capability to be adapted to the individual needs of any project.

A brief overview of the ACO Water Management systems suitable for tram and light rail applications is provided below. For more detailed information regarding any of these systems please visit [www.aco.co.uk](http://www.aco.co.uk) or email [technologies@aco.co.uk](mailto:technologies@aco.co.uk)

## ACO TRAMDRAIN 200

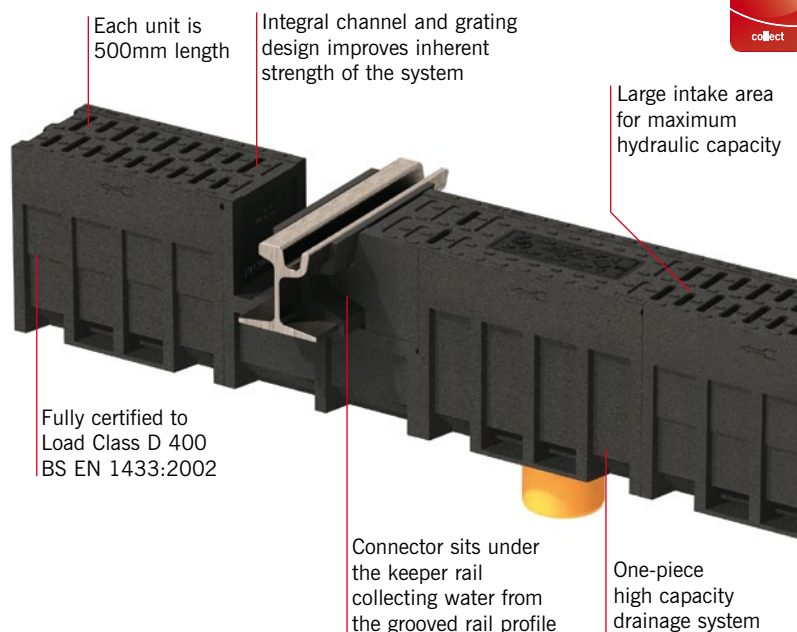
ACO TramDrain 200 is a high capacity drainage system designed to provide efficient surface water drainage to the grooved rail profile and to the 4-Foot and 6-Foot sections of the track slab.

The ACO TramDrain 200 assembly is 260mm wide by 400mm deep, and is designed to suit a wide range of rail profiles and varying track configurations.



ACO TramDrain 200 is manufactured from Vienite®, ACO's sustainable high strength material. The material does not absorb water therefore does not conduct electricity and will provide protection against stray current.

System maintenance is simplified by using ACO TramDrain 200 rodding access units.



### Key benefits

- Provides positive surface water drainage for tram and light rail schemes
- Range of accessories including rail connectors and under-rail drainage culverts
- Integral gratings eliminate the risk of loss, vandalism or vibration



### Project references

- ▶ Greater Manchester Metrolink ▶ Luas, Dublin's light rail tram system





## ACO GROOVED RAILDRAIN

The grooved rail is an area which can be difficult to access and maintain on many tram and light rail applications. ACO's Grooved RailDrain Boxes offer a solution to this problem by providing simple and effective drainage of this area.

The one-piece units can be installed against coated or uncoated rail sections providing a dedicated drainage point to intercept water from the groove in the rail profile. The boxes can also be installed continuously to avoid interference with other services contained within the track slab.



ACO Grooved RailDrain boxes are manufactured from Vienite®, ACO's sustainable high strength material. The material does not conduct electricity and will provide protection against stray current.



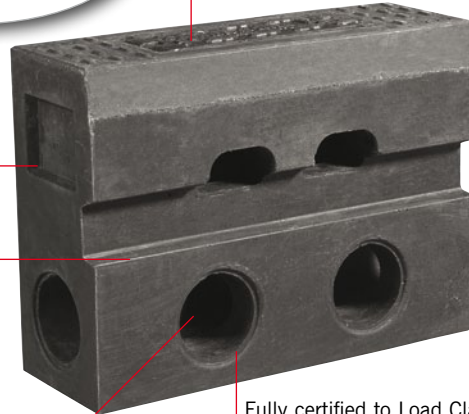
Reversible ductile iron access cover for maintenance and cleaning



Two depths available to suit R159/Ri60 and R41GP track profiles

Each unit is 500mm in length

Optional outlet positions for connection to underground drainage



Fully certified to Load Class D 400 BS EN 1433:2002

### Key benefits

- Suitable for use in twin running track sections (tram/vehicular traffic)
- Reduces the chance of water leakage onto the truck bed
- Designed for use with encapsulated or non-encapsulated rail sections



### Project references

- ▶ Nottingham Express Transit (NET) ▶ Greater Manchester Metrolink

## ACO V100G TRAM

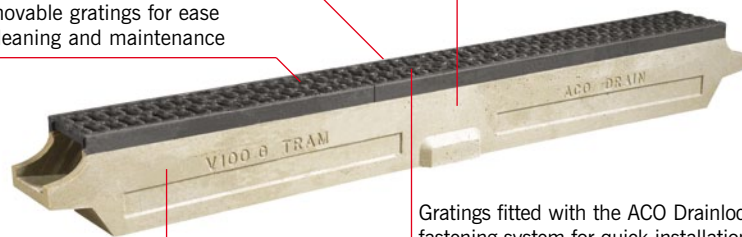
ACO V100G Tram is a shallow channel drainage system designed to drain the 4-Foot and the grooved rail profile. The flexibility of the system ensures the unit can be easily integrated into second stage track slab construction.



Optional security locking mechanism available for added protection

Removable gratings for ease of cleaning and maintenance

Channel manufactured from polymer concrete



Two channel assemblies available

Gratings fitted with the ACO Drainlock™ fastening system for quick installation and to prevent displacement

### Key benefits

- Provides effective surface water drainage of the rail track
- Can easily be integrated into second stage track slab construction
- Designed for use with encapsulated or non-encapsulated rail sections



### Project references

- ▶ Blackpool tram network ▶ Edinburgh Trams



## ACO DERAILMENT CONTAINMENT

ACO Derailment containment channels provide effective surface drainage whilst acting as a wheel trap in the event of a derailment.

The system is installed parallel with the tram track and is fitted with frangible gratings which will collapse if struck by a tram wheel.



Frangible Heelguard™ composite grating

Channel system fitted with composite edge rails



Manufactured from Vienite®, ACO's sustainable high strength material

The channel drainage unit is fitted with composite edge rails and Heelguard™ composite gratings. Both features offer excellent protection against stray current.

A channel assembly with outlet points is also available for connection to underground drainage.

### Key benefits

- Provides effective surface water drainage and derailment containment system
- Suitable for use on bridges, flyovers and anywhere an extra degree of protection is required against de-railed trams
- Gratings collapse if struck by wheel



### Project references

- ▶ Luas, Dublin's light rail tram system
- ▶ Nottingham Express Transit (NET)



## Greater Manchester Metrolink

Greater Manchester's Metrolink is one of the most successful light rail systems in the UK. Owned by GMPTE, the Greater Manchester Passenger Transport Executive, its three lines operate a fleet of more than 32 trams that carry over 20 million passengers every year between Bury, Altrincham and Eccles and Manchester city centre. The Bury and Altrincham lines opened in 1992 followed by the Eccles line in 2000 creating a network of 37 stops covering 37km.



**Project:**  
Greater Manchester Metrolink

**Client:**  
GMPTE

**Brief:**  
Provide effective water management system at busy intersection to prevent standing water damaging track bed and rails



Situated within Metrolink's City Zone, the Shudehill stop is one of the key points on the network providing a link between the trams and the city's bus routes. It lies on a major road intersection at the foot of a steep incline – a feature that gave rise to drainage issues during periods of prolonged rainfall, when surface water running off the surrounding roads would build up and cause problems with standing water around the tracks.

To solve the problem Metrolink's engineers were able to exploit the specialised drainage systems developed by ACO Technic which had proven their effectiveness on tracks with a similar profile used on light rail networks in Nottingham and Dublin.

By using the ACO Grooved RailDrain, ACO TramDrain 200 and ACO S100, the team was able to realise a remedial works scheme for Shudehill that would allow a new localised surface water management system to be introduced without the need to undertake wider and more substantial works across the surrounding roads. Over the section of track that needed attention, this would greatly reduce the project timeframe and lessen the impact on other road users.

ACO Grooved RailDrain boxes were installed in 16 locations where the existing surface water drainage was insufficient to remove run-off from the road surface itself. The units were installed immediately adjacent to these low points in the track to ensure quick removal of all water intercepted by the rail groove.

In locations where the capacity of the existing surface water drainage needed to be increased, runs of ACO TramDrain 200, which are installed perpendicular to the rails and extend across both up and down tracks, have been installed. Further capacity has also been added in the critical section where the tracks run alongside the Shudehill platform with a single 100 metre run of S100 channel.





# ACO Water Management Systems for heavy rail

Carrying ever increasing numbers of passengers faster and more efficiently requires high performance Heavy Rail infrastructure that is capable of meeting the demands of this intense and pressurised environment. The effective removal of surface water from exposed station platforms, car parks, and walkways ensures passengers can move quickly, freely and, above all, safely in any transfer area.

ACO's leading range of surface water management systems are designed using the latest materials and dynamic hydraulic modelling techniques. Any Heavy Rail system that is developed in partnership with ACO forms part of an integrated Sustainable Drainage Solution that considers every aspect of the surface water management cycle: from the four key design stages – collect, clean, hold, release – through to the four core service principles – train, design support, care – which ensure that the system maintains optimum performance throughout its operational life.

A brief overview of the ACO Water Management systems suitable for heavy rail applications is provided below. For more detailed information regarding any of these systems please visit [www.aco.co.uk](http://www.aco.co.uk).

## ACO MULTIDRAIN MD

ACO MultiDrain™ MD is a high quality general purpose channel drainage system designed to provide quick and efficient removal of surface water.

The main channel unit is manufactured from Vienite®, ACO's sustainable high strength material and is available in three channel widths. A choice of constant and sloping channels is also offered to suit varying hydraulic designs.



Wide variety of slotted, intercept, perforated and Brickslot gratings and solid covers available in ductile iron, composite and galvanised and stainless steel

ACO MultiDrain™ MD system is available in three channel widths; 100mm, 150mm and 200mm

Manufactured from Vienite®, ACO's sustainable high strength material



ACO MultiDrain™ MD system is CE marked and fully certified to Load Class D 400\* BS EN 1433:2002



To provide a wider choice of products, an alternative base is available. ACO MultiDrain™ PPD is a high strength channel drainage system manufactured from recycled polypropylene.

The channel forms the main component of the system which can then be combined with one of the many different grating styles to complement the surround environment. ACO MultiDrain™ MD gratings are fitted with ACO Drainlock™, a bar-less locking device which reduces the risk of blockages and improves hydraulic capacity. An additional security locking system is also available.

\*Not suitable for carriageways of roads.

### Applications:

- Station platforms
- Building thresholds
- Piazzas and forecourts
- Taxi drop-off points
- Car parking



### Project references

- ▶ DLR extension upgrades (West India Quay, Mudchute, Crossharbour, South Quay)
- ▶ East London Line (Haggerston, Hoxton and Dalston stations)

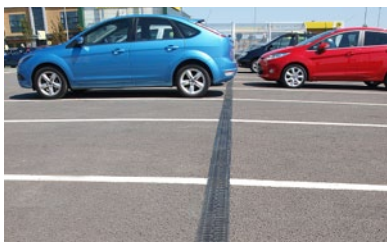
Transport for London  
London Underground  
**APPROVED**



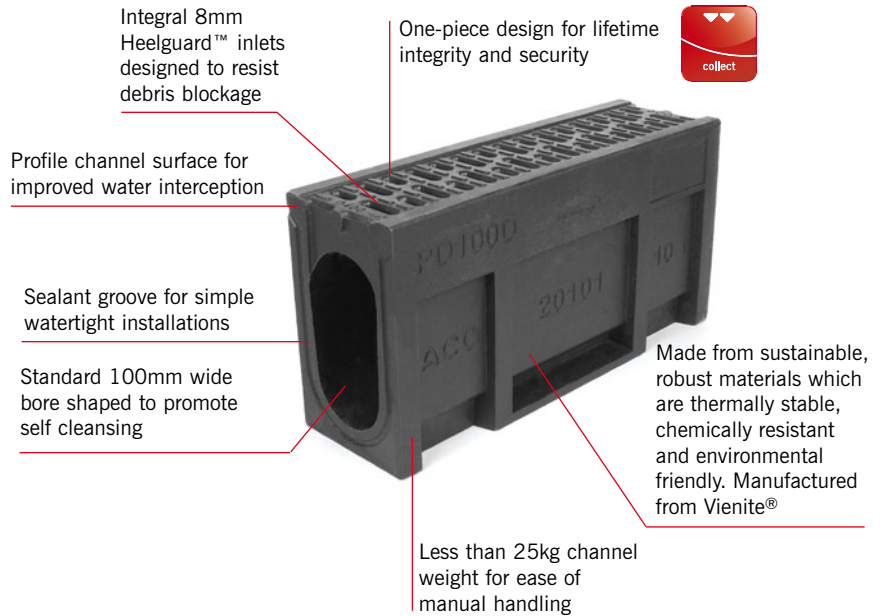
## ACO MULTIDRAIN MONOBLOCK PD100D

ACO MultiDrain Monoblock PD100D is a simple yet versatile channel drainage system for surface water conveyance which has been specifically developed to meet the demands of contractors and clients alike.

Designed to maintain the long term performance and appearance of the installation, its robust one piece construction removes the risks associated with dislodged or stolen gratings.



Specification couldn't be easier as all channels and accessories are certificated to BS EN 1433:2002 load class D 400\*, making the system suitable for a range of light duty pedestrian, landscaped and medium duty applications including town centres, commercial developments and parking areas for cars and HGV's.



### Applications:

- Station platforms
- Piazzas and forecourts
- Car parking

## ACO S RANGE

ACO S Range is a robust channel drainage system designed to provide efficient removal of surface water from applications that are subject to heavy wheel loads.



### Applications:

- Bus pick-up and drop-off zones
- Car parking
- Loading and container yards
- Coach parking
- Maintenance depots

To support a wide variety of catchment depths, hydraulic capacities and applications, the system is available in four channel widths and is offered in constant and sloping depths for optimum performance and system design.

The ACO S100 system has a choice of slotted, heelguard, intercept and solid cover ductile iron gratings to ensure a wide variety of applications is catered for. ACO S150, S200 and S300 channels are supplied complete with slotted ductile iron gratings.



### Project references

- ▶ Ebbsfleet International
- ▶ East London line (Wapping, Shadwell and Dalston stations)

## ACO ROADRAIN

ACO RoadDrain® is a robust one piece channel drainage system. The inherent strength of the system means that it is ideally suited to heavy duty traffic applications.



Manufactured from Vienite®, ACO's sustainable high strength material, the one-piece system is strong and robust in design, and the absence of separate gratings improves the strength of the system and offers superb protection against vandalism or breakages.

ACO RoadDrain® is available in two channel widths: 100mm and 200mm, and has a variety of depths and accessories to suit many design schemes.

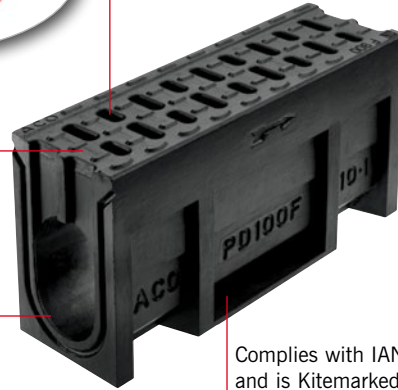


High intake capacity is provided by 15mm slots



Tough and robust channel design

Level or stepped invert units for efficient scheme design



Complies with IAN 117/08 and is Kitemarked to BS EN 1433:2002 D400 for use on trunk roads



### Applications:

- Station road infrastructure
- Maintenance depots
- Loading and container yards



### Project references

- ▶ Ebbsfleet International

## ACO KERBDRAIN

ACO KerbDrain® is an award-winning one-piece combined kerb and drainage system which can be used widely across the rail environment.



Manufactured from Vienite®, ACO's sustainable high strength material, the system conforms to BS EN 1433:2002 Load Class D 400 and carries the BSI Kitemark.

A full range of accessories is available including perforated and flush centre stones, drop kerb assemblies, radius unit and bus stop kerbs to complement many applications.

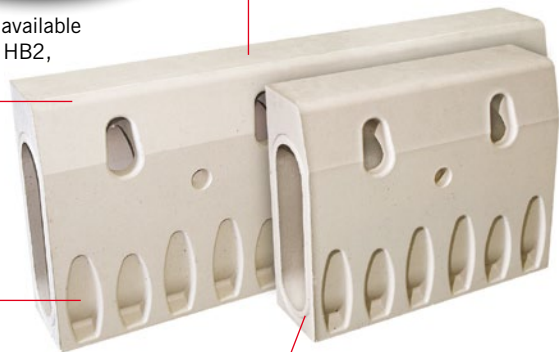


The system is available in a range of depths; 225mm, 280mm, 305mm and 480mm



ACO KerbDrain® is available in a range of HB1, HB2, and splay profiles

Tough and robust channel design



Complies with IAN 117/08 and is Kitemarked to BS EN 1433:2002 D400 for use on trunk roads



### Applications:

- Pick-up and drop-off zones for all types of vehicles
- Buses and coach parking
- Car parking
- Surrounding road infrastructure



### Project references

- ▶ Ebbsfleet International
- ▶ East Midlands Parkway



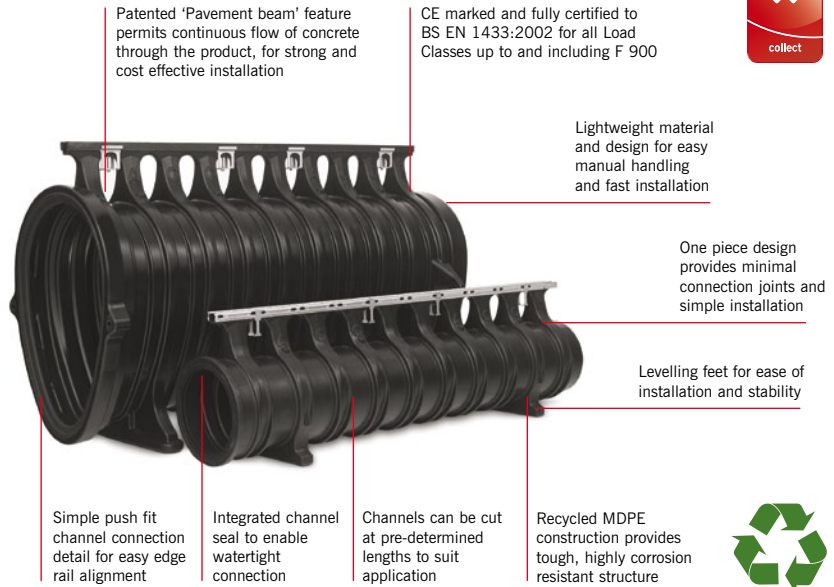
## ACO QMAX

ACO Qmax® has been developed to satisfy the demand for a versatile, high capacity slot drainage system for applications involving small to large catchment areas. For economical system design and installation, ACO Qmax® can cater for a wide range of applications to any load class.



ACO Qmax® is specifically designed to form an integral part of any modern, sustainable surface water management solution. The system provides all necessary components to deliver conveyance, attenuation and source control for effective SuDS drainage schemes and designs.

The ACO Qmax® system has five channel sizes and rail designs ensuring greater system flexibility for engineers and designers to optimise scheme hydraulics.



### Applications:

- Buses and coach parking
- Car parking
- Loading and container yards
- Maintenance depots



### Project references

- ▶ East Midlands Parkway

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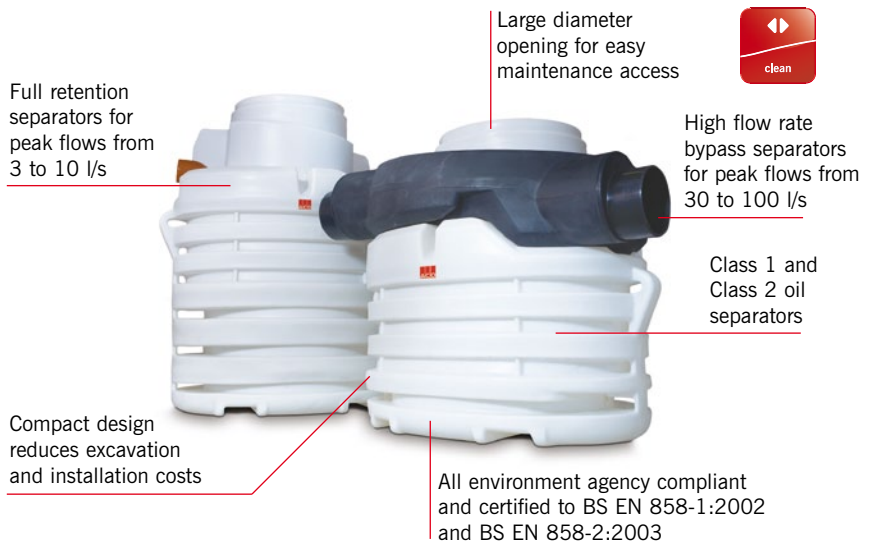
## ACO Q-CEPTOR

ACO Q-Ceptor is an innovative range of bypass and full retention oil separators. Oil separators are installed on sites where there is a risk of accidental spillages or leaks of oil from vehicles, plant and machinery.



ACO Q-Ceptors work by separating oil contamination from water flows. Oil and silt are retained within the separator until they can be removed safely from the site, with the treated water being allowed to discharge.

Manufactured from polyethylene, the innovative single chamber design is extremely compact and robust offering significant advantages in installation and handling costs over traditional GRP products.



### Applications:

- Buses and coach parking
- Maintenance and refuelling areas
- Loading and container yards
- Car parking
- Freight hubs

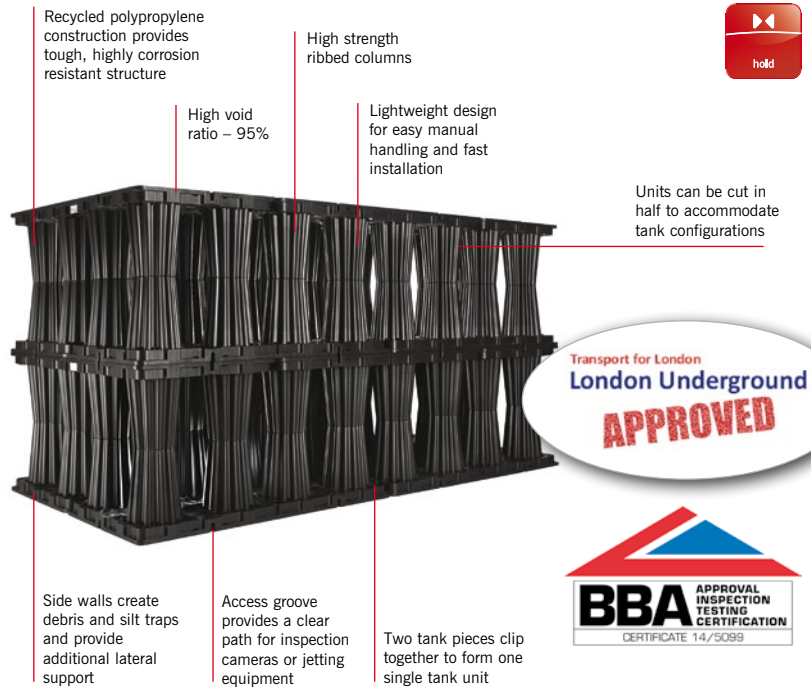
**ACO STORMBRIX**

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



The 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 StormBrix benefits from a patented cell brick and cross bonding feature which provides unparalleled stability in the construction of the tank.



**Applications:**

- Car parking
- Park n Ride schemes



**Project references**

- ▶ Three Bridges Railway Crawley

**ACO Q-BRAKE VORTEX**

The design of a vortex flow control is based on the fluid mechanics principle of the forced vortex, which permits flow regulation without any moving parts.

ACO Q-Brake Vortex utilises the upstream head and discharge to generate a vortex within the structure of the unit.



ACO Q-Brake Vortex is fitted with an integral bypass door which can be opened in the event of a blockage to drain the unit. A stainless steel wire attached to the bypass door is run to cover level and provides control of the bypass door. Once the water level within the manhole subsides the blockage can be cleared.



**Applications:**

- Buses and coach parking
- Car parking
- Maintenance and refuelling areas
- Freight hubs
- Loading and container yards



**Project references**

- ▶ Three Bridges Railway Crawley



# ACO Building Drainage Systems for heavy rail



For more ACO case studies visit [www.acobd.co.uk](http://www.acobd.co.uk).

Our built environment is becoming ever more complex. Applications are becoming more sophisticated and the increasing pressure of regulations and standards make achieving design, performance and financial goals ever tougher.

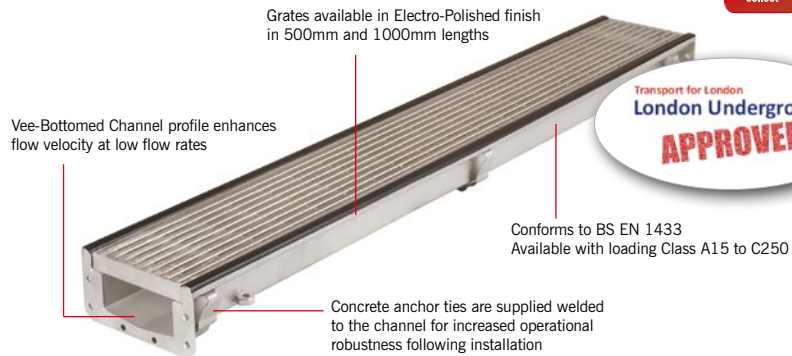
ACO Building Drainage is a new concept within the ACO Group. Our mission: to eliminate design risk, to reduce installed and life cost and to deliver exceptional finish and performance in every product application.

For more detailed information regarding any of our services and products, please visit [www.acobd.co.uk](http://www.acobd.co.uk) or email [abdtechnical@aco.co.uk](mailto:abdtechnical@aco.co.uk)

## ACO MODULAR 125

ACO Modular 125 is a highly durable channel drainage system for internal and external drainage applications. Manufactured in corrosion resistant 304/316 grade austenitic stainless steel that is fully pickle passivated, making the material suitable for rail applications that require a reliable, stylish, and long life performance in very demanding conditions.

ACO Modular 125 lightweight and durable channels sections are easy to install and minimise the risk to construction employees during the installation process. ACO can also provide a wide range of gratings compatible with the system with loading class A15 to C250, and when required will provide a unique grating security locks.



### Key benefits

- Corrosion resistant stainless steel providing long lasting durable systems
- Shallow depth and Vee bottomed profile which improves hydraulic flow enabling self-cleansing
- Aesthetically pleasing stylish designs complete with a wide range of heel friendly gratings



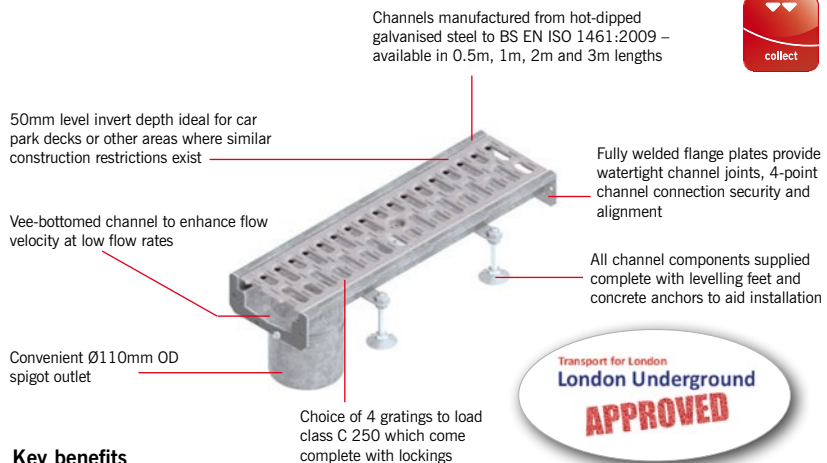
### Project references

- ▶ Docklands Light Railway

## ACO DECKLINE 125

A shallow invert channel drainage system ideally suited to areas such as structural slabs or where excavation depth is limited.

The ACO Building Drainage Deckline 125 galvanised steel channel drainage system is a further development of our current highly successful Deckline channel solution. The highly flexible Deckline 125 system offers improved performance for most applications and is available off the shelf.



### Key benefits

- Grating choices to Load Class C 250 to BS EN 1433
- Vee-bottomed profiled channel for enhanced flow efficiency at low flow rates
- Fully tested and classified to BS EN 1433 - *Drainage Channels for Vehicular & Pedestrian Access*





## Didcot Parkway Station

Due for completion in Spring 2014, the £6.7m redevelopment of Didcot Parkway Station in Oxfordshire has just seen the successful completion of its groundworks - a challenging phase of the project in which ACO's space-saving stormwater attenuation tank, StormBrixx, has played an important role.



### Project:

Redevelopment of Didcot Parkway Station

### Client:

Balfour Beatty / Network Rail

### Brief:

Provide sustainable surface water management which could be installed quickly and with minimal disruption



The project is centred on resolving the station's poor layout, traffic congestion and its vulnerability to flooding. When complete, it will provide an attractive and efficient interchange for public and private transport, ensuring it has the capacity to meet future travel demand as the number of people living and working in the area increases.

Tackling the flooding issue, main contractor Balfour Beatty has installed a sustainable surface water management scheme (developed by Jacobs Engineering Group) that utilises space beneath two of the station's three new car parks to accommodate attenuation tanks with sufficient capacity to hold and safely discharge run-off from across the redesigned pedestrian piazza and forecourt.

"In order to achieve the volume required, we have had to excavate virtually the entire deck area of the two car parks. Restricted by a major trunk road on one side and the rail track embankment on the other, it left very little free space for the groundworkers and tank installers to store equipment" says Balfour Beatty

Site Agent, Tony Mills. "Tight installation schedules added to the challenge. To avoid delays we needed to have all the tank components on-site to allow the build team to work unhindered once the excavation stage was complete.

Key to Balfour Beatty's decision to use ACO StormBrixx is its unique modular design which allows all the tank components to be stacked, transported and stored in just 25% of the space required by conventional crate-based systems. Less cumbersome and easier to handle, StormBrixx produces a stronger more stable structure that can be configured to any size or location, overcoming the construction limitations and drawbacks suffered by traditional tanks.

"Using StormBrixx's not only were we able to hold sufficient stock within the tight space to keep the laying team adequately supplied, but we were also able to reduce transportation costs as both tanks could be loaded onto a single truck. This has the added benefit of significantly lowering the whole logistics operation's carbon emissions."

The two tanks are inter-connected with a single discharge (limited to a maximum 10 litres/second) to an adjacent watercourse. The upstream 'offline' tank has a volume of 297 m3 and only fills if run-off flowrates from its catchment exceed 4 litres/second. The downstream 'online' tank attenuates both the run-off from the offline catchment as well as from its own.

Run-off discharge rates from both catchments are controlled using two ACO Q-Brake Vortex flow control units. The discharge from the online tank first passes through an oil separator before being released into the watercourse.

As the tanks are set up to attenuate stormwater, each is wrapped in a two part membrane that prevents any infiltration into the surrounding sub-soil and eliminates any silt penetrating the tank walls. First a welded geomembrane liner system sits immediately adjacent to the tank walls; this is then encased in a protection fleece which safeguards the integrity of the overall structure.





# Certificate of Registration

## Aco Technologies Plc

Supplier Number: 094698

*are now fully registered as a supplier on Link-up*



*Chris Hornung*

Chris Hornung  
Chief Operating Officer  
Achilles Information Limited

**Registration Expiry Date: 19 July 2014**

*This is not a legal document and cannot be used as such.*



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Version no. 001-01/2011



# Product Code Summary

## Aco Technologies Plc

Supplier Number: 094698

<u>Product Code</u>	<u>Product Name</u>	<u>Status</u>
03.03.01 SMP	Track Drainage	Registered
08.01.14 SMP	External Works (Drainage, Including Surface, Foul & Sewerage Treatment)	Registered
12.02.03 SMP	Tunnel Drainage	Registered
12.90.01 SMP	Materials & Parts (Civils)	Registered



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# Notes

## ACO Technologies plc

- ACO Water Management  
Civils + Infrastructure  
Urban + Landscape
- ACO Building Drainage
- ACO Sport
- ACO Wildlife

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