



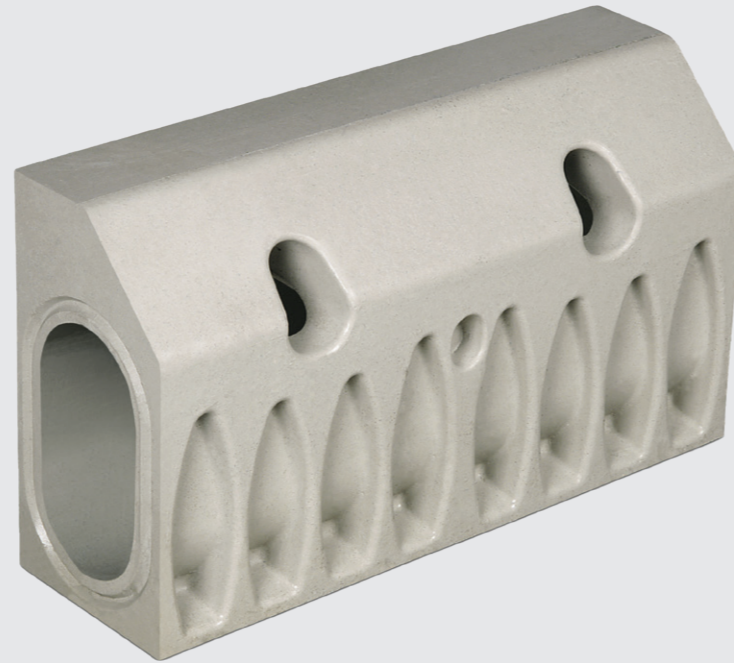
# ACO KerbDrain®

Combined kerb and drainage system

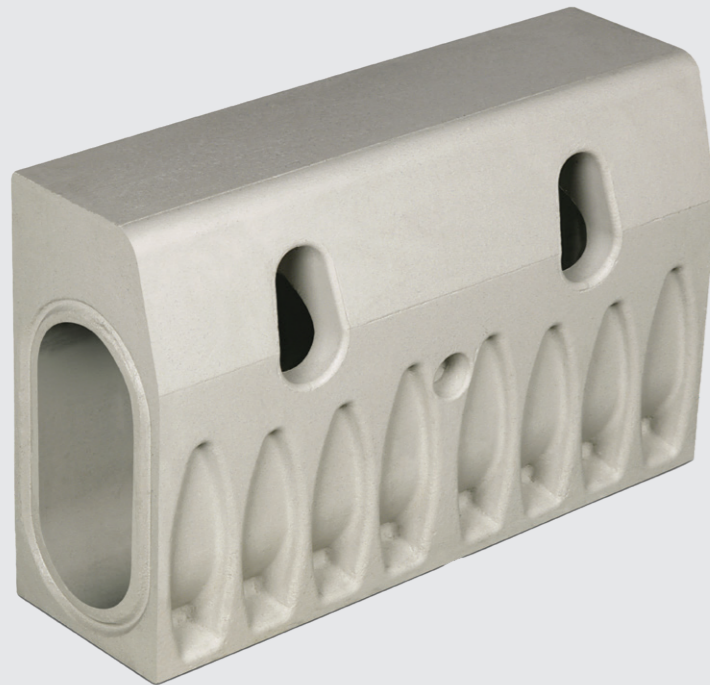
## ACO KerbDrain®

ACO KerbDrain is an award winning combined kerb and drainage system specifically designed and developed to form an integral part of any modern, sustainable surface water management solution. In recognition of ACO KerbDrain's ground breaking one-piece design, the system was awarded the Queen's Award for Enterprise: Innovation in 2001

## ACO KerbDrain® SP280



## ACO KerbDrain® HB305



## ACO KerbDrain® HB405



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# ACO. creating the future of drainage

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 spans 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 and Ireland. Founded over 30 years ago, the company has grown quickly on a reputation for design, innovation and customer service.

There are now two core divisions, ACO Water Management and ACO Building Drainage, 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 stringent legal requirements which 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.

## ACO Water Management

ACO is a world leader in the design, development and implementation of sustainable drainage systems. For over 50 years, this expertise has pioneered unique solutions in award-winning surface water management, high performance stormwater control and hygienic and corrosion resistant building drainage systems. For more information visit [www.aco.co.uk](http://www.aco.co.uk)



**5,000**

5,000 employees in more than 40 countries (Europe, USA, Asia, Australia, Africa)

**900**

Sales 2019: €900 million

**30**

30 production sites in 15 countries



ACO Technologies plc in Shefford



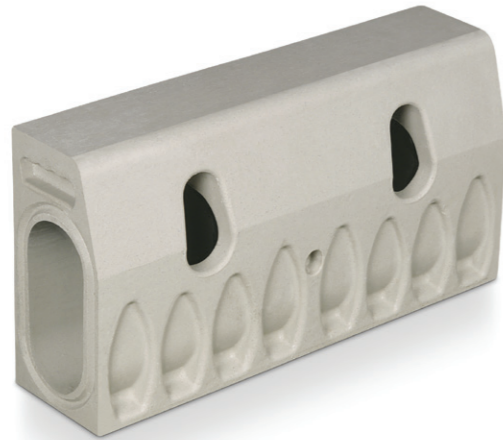
Iver Ahlmann and Hans-Julius Ahlmann, Managing Directors ACO Group



## Water protection and rainwater management

### What is ACO KerbDrain®?

The ACO KerbDrain® combined kerb and drainage system provides versatile and efficient linear drainage for motorways, trunk roads, urban infrastructure and landscaping projects. Its award winning one-piece design, provides quick and easy installation and high impact performance in both SuDS schemes and traditional drainage systems.



ACO KerbDrain® has a range of units to match HB1, HB2 and 45° splayed profiles, in a range of depths, which enable engineers and designers to optimise scheme hydraulics for efficient and economical drainage.

ACO KerbDrain® removes problems associated with incorrectly sited point gullies by ensuring all surface water runoff is safely removed over the entire length of the installation.

The one-piece construction of ACO KerbDrain® and the lightweight properties of Vienite® ensure the system is quick and easy to install, even when a fully watertight installation is required.

Whether you are installing products manually or mechanically to meet HSE guidelines for kerb laying, ACO KerbDrain® provides the optimum solution.



## Why choose ACO KerbDrain®

The ACO KerbDrain® system is CE marked in accordance with the Construction Products Regulation.

Declarations of Performance are available via the CPR Zone on our website ([www.aco.co.uk/DoP.php](http://www.aco.co.uk/DoP.php)), or on request. Please contact ACO Water Management Design Services Team on 01462 816666 for further assistance.



### Product features

- Impact resistance 50% higher than OPC kerb units
- Manufactured from sustainable material
- Certified for all highways applications
- Full range of problem solving components for all sizes
- Capacity choices optimise hydraulic performance
- Award winning one-piece design
- Simple watertight installations
- Safe manual and mechanical handling
- High daily installation rate

ACO KerbDrain® meets the highest levels of certification, performance and quality assurance for combined kerb drainage systems. It is fully certified to Load Class D 400 BS EN 1433:2002 and CE marked, and is 50% more impact resistant than traditional OPC kerb units.

ACO KerbDrain® carries the BSI Kitemark, independently assuring performance and quality and making the system fully compliant with the specification for Highways Works Clause 516 and all Highways England product and certification requirements.

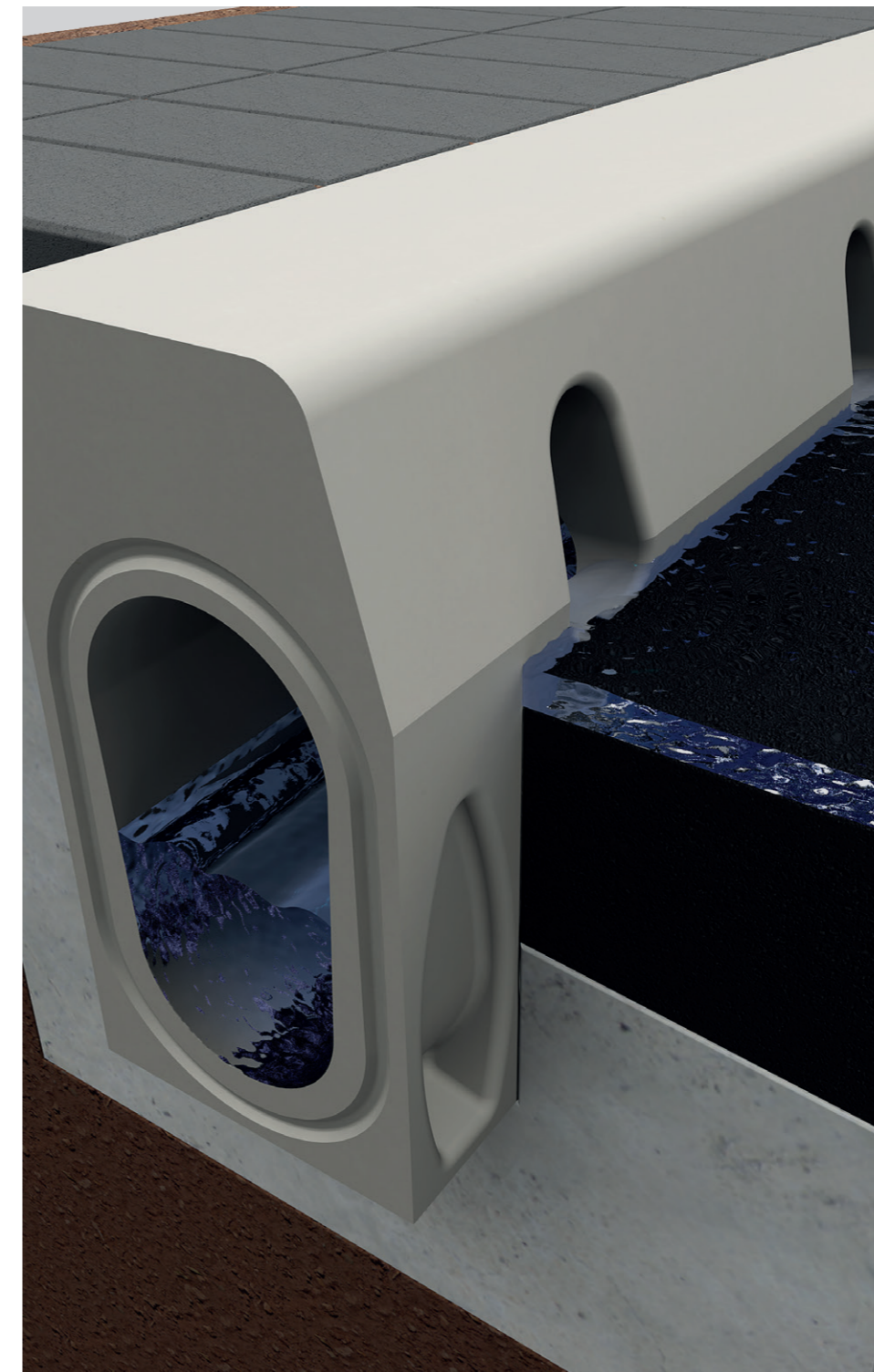
### Kerb profiles

ACO KerbDrain® units are available in half battered (HB) or splayed (SP) profiles to BS EN 1340:2003.



### Problem solving components

Each size of ACO KerbDrain® has its own set of components to complement any highway drainage design. A list of the main components available is shown below, however full details of the parts available can be found in the relevant sections.



Access units



Centre stones



Drop kerb assemblies







Bus stop kerbs

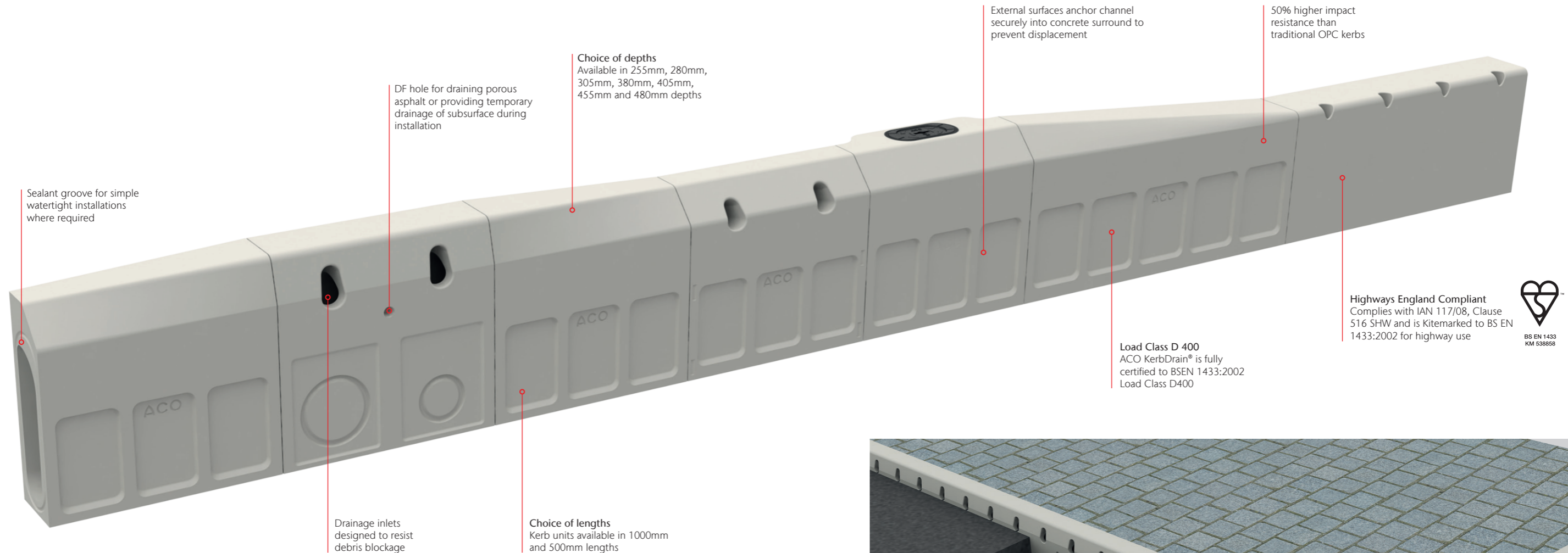


Multifunctional end cap

# ACO KerbDrain® features overview

**Load Classes**

 <b>A 15</b> Pedestrians and cycleways	 <b>B 125</b> Pedestrian precincts, light vehicles, private car parks and drives	 <b>C 250</b> Parking areas, service stations (cars) and slow-moving light commercial vehicles	 <b>D 400</b> Public highways, parking areas for all types of vehicles, distribution yards
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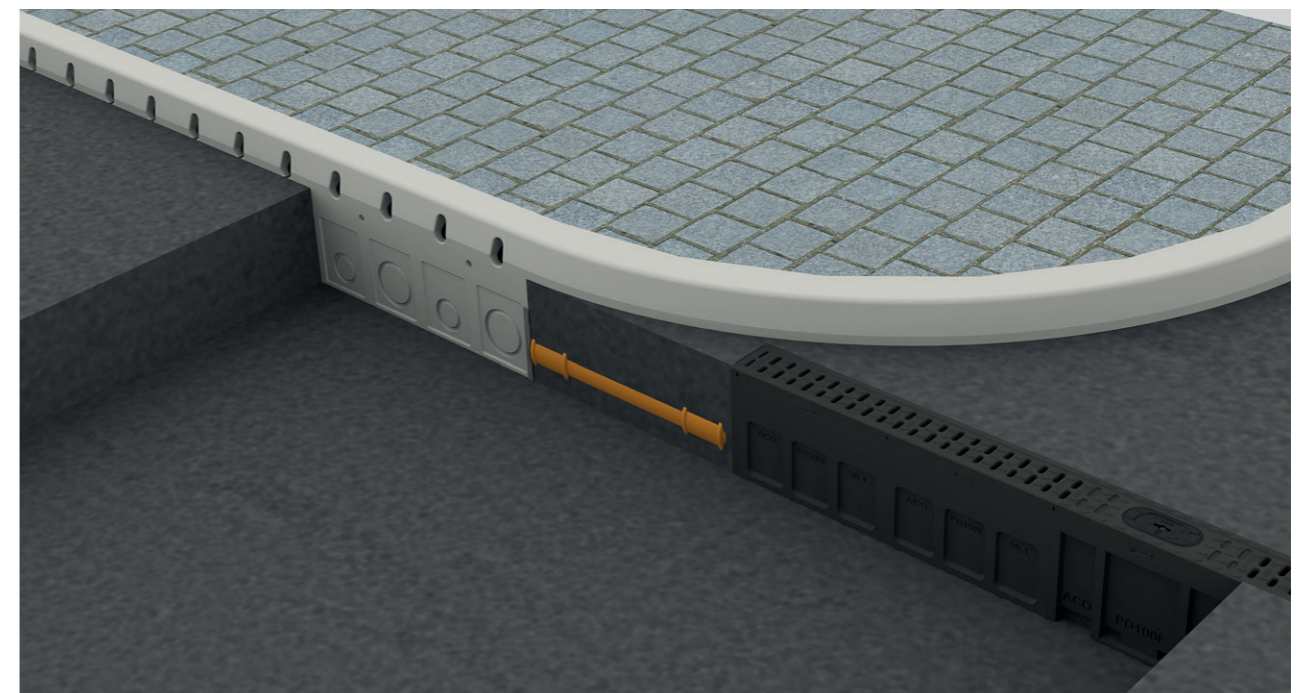


## Modification service

If a modified or bespoke ACO KerbDrain® solution is required to meet specific performance or site conditions, ACO can support and deliver non-standard products ensuring the optimum solution is provided.

For modification enquires please call 01462 816666, or email [technical@aco.co.uk](mailto:technical@aco.co.uk)

Made from sustainable materials  
Thermally stable, chemically resistant, environmentally friendly product manufactured from Vienite® material. For more information on Vienite® see page 20.



# A range of solutions with ACO KerbDrain®



## Pedestrian crossings

**PROBLEM:**

Carriageway and footpath cross-falls create a significant risk of standing water at pedestrian crossings.

**SOLUTION:**

ACO KerbDrain® HB255, HB305 and HB405 offer products such as drop kerbs and flush drainable centre stones to enable efficient and proper drainage of these areas. The photograph shows ACO KerbDrain® HB305 flush drainable centre stones being used to provide drainage and compliance to the DfT 'Guidance on the use of tactile paving surfaces' at a pedestrian crossing.



## Bus stops

**PROBLEM:**

Carriageway cross-falls can lead to standing water and drainage issues at bus stops causing discomfort and inconvenience to pedestrians.

**SOLUTION:**

ACO KerbDrain® offers various (HB305, HB405 and HB480) dedicated transition and bus stop elements which raise the kerb upstand to increase pedestrian safety and improve access to public transport vehicles. ACO bus stop kerbs link to standard ACO KerbDrain® units and provide continuous drainage of the carriageway and bus stop. The photograph shows ACO KerbDrain® HB480 bus stop kerbs and transition kerbs being used to provide drainage at a bus stop, (bus stop kerbs and transition kerbs are also available in HB305 and HB405 ranges).



## Traffic calming and raised pedestrian crossings

**PROBLEM:**

Raised carriageway surfaces forming traffic calming measures or pedestrian crossings can impede or prevent the flow of surface water along the gutter.

**SOLUTION:**

ACO KerbDrain® units without front drainage inlets are available and are referred to as blind units. These blind units prevent construction material entering the ACO KerbDrain® system and provide continuous drainage through the raised carriageway surface. Effective drainage of the carriageway is maintained and the risk of ponding is eliminated. The photograph shows ACO KerbDrain® HB305 blind units being used to provide drainage at a raised traffic calming measure (blind units also available in HB405 and HB480 ranges).



## Roundabouts

**PROBLEM:**

Complex carriageway cross-falls created in the construction of roundabouts can make it extremely difficult to site traditional point gullies correctly to capture standing water which can be hazardous to motorists and cyclists.

**SOLUTION:**

ACO KerbDrain® HB305, HB405 and HB480 ranges have dedicated radius and mitred units for roundabout construction, which can be installed on radii from 6m to 25m. External and internal mitre units are available to ensure efficient drainage of the curved perimeters found at roundabouts. ACO KerbDrain® units have multiple surface water inlets providing continuous linear drainage of the entire carriageway. The photograph shows ACO KerbDrain® HB480 external mitre units being used to provide drainage of a roundabout.



## Tunnels

### PROBLEM:

Installation depths within tunnel construction can be restricted. Yet in the event that high volumes of hazardous liquid are discharged onto the road surface, such as a tanker spillage, rapid collection and containment is paramount for the safety of road users and the environment.

### SOLUTION:

The compact nature of ACO KerbDrain® combined with its high hydraulic capacity makes it ideal for use within the confines of a tunnel. Liquid-tight installations can quickly and efficiently be achieved to ensure that any hazardous liquids entering the ACO KerbDrain® system are contained prior to safe removal. The photograph shows ACO KerbDrain® HB480 kerb units being used to provide drainage of a tunnel.



## SuDS

### PROBLEM:

Providing a Sustainable Drainage System (SuDS) for new and re-developments can present engineers and designers with significant challenges to deal with the quality, quantity and amenity of the surface water runoff. Restrictions of space, local topography or site specific conditions such as high natural water tables can mean that "Soft SuDS" solutions alone are unsuitable.

### SOLUTION:

ACO KerbDrain® can be successfully used in SuDS schemes by allowing engineers and designers to combine the benefits of "hard SuDS" such as combined kerb drainage with traditional "soft SuDS" solutions such as swales, ponds and wetlands. The photograph shows ACO KerbDrain® HB305 kerb and access units being used to provide drainage of a highway in conjunction with a swale.



## T-Junctions

### PROBLEM:

Where side roads adjoin the main carriageway, flow of surface water along the gutter can be impeded or prevented leading to standing water and drainage issues. Surface water runoff from side roads entering the main carriageway can also be a hazard to road users.

### SOLUTION:

The ACO KerbDrain® range provides all the necessary products to effectively drain the road junction, from mitred and radius units for the corners to dedicated junction channels and end caps that provide continuous and effective interception and drainage of surface water flows across the junction. The photograph shows ACO KerbDrain® HB480 external mitre units and HB480 junction channel units being used to provide drainage at a T junction.



## Cycle track

### PROBLEM:

Segregated cycle tracks can cause ponding issues as the space can act like a large trench, and point drainage can be an unnecessary obstacle for skinny tyres or small wheels having to navigate around it, especially if turning.

### SOLUTION:

ACO KerbDrain® can support the creation of truly segregated cycle tracks. ACO KerbDrain® can move water quickly away from the cycleway and doesn't create any additional obstacles to be navigated by the cyclist, leaving a clearer route. The ACO KerbDrain® range includes dropped kerbs that can help with marking entry and exit points for cyclists.



## Design support services

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.

The ACO Design Services Team is able to work closely with you through the entire design process to ensure accurate and cost-effective product selection is made.

Services we offer include (free and without obligation):

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

ACO has embraced the concept of value engineering as an approach to on-site construction that saves both time and money.

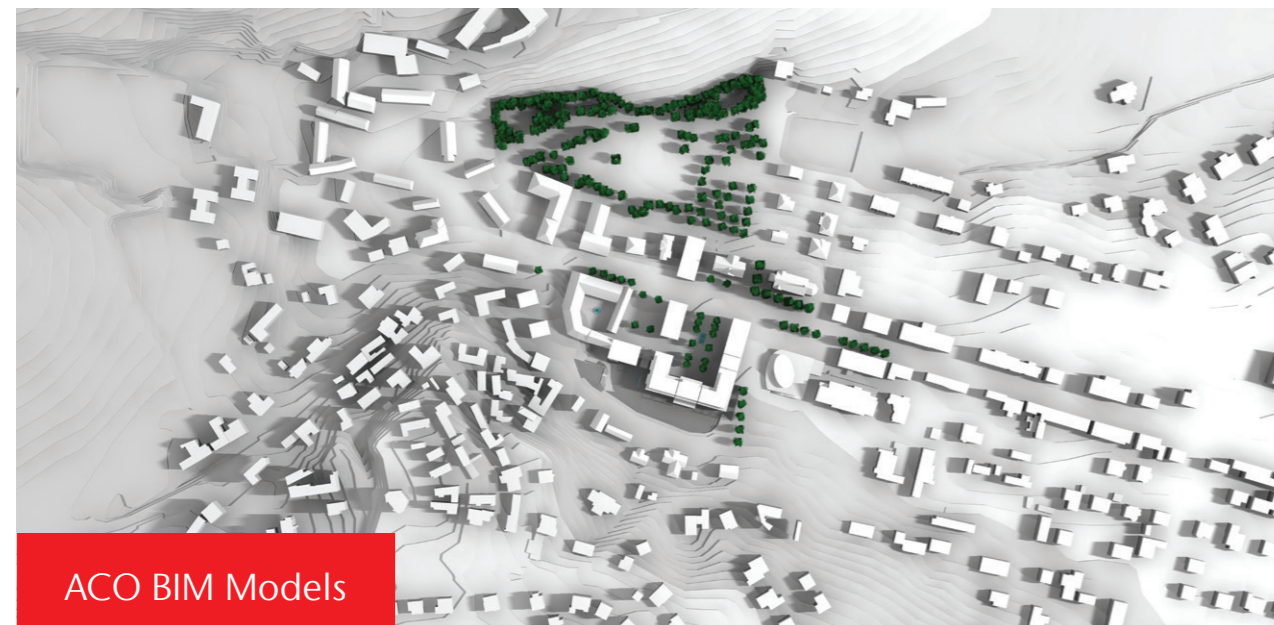
ACO will review any design to minimise the total scheme and life cost of a proposal. The team can suggest the most appropriate range depending on your requirements.

Some ranges like MultiDrain or MonoDrain allow water to be contained and conveyed close to the surface, which accords with the principles advocated for Sustainable Drainage (SuDS Manual, 2015), by removing the need for pumping. Other ranges like Qmax allow attenuation – the storage of large volumes of water during storm events, reducing overall site costs.

For detailed designs using the ACO Hydraulic Design Software, please contact the ACO Water Management Design Services Team.

If manual calculations are preferred to using our QUAD software, hydraulic tables and instructions for manual calculations can be provided.

For design enquiries go to [www.aco.co.uk/design+-support-services](http://www.aco.co.uk/design+-support-services)



ACO BIM Models

BIM is the process of generating and managing data, and developing collaborative behaviours that will unlock new and more efficient ways of working at all stages of the project life-cycle.

These files will help contractors specify and optimise drainage systems in line with the overall benefits of BIM-

enabled working, including faster project delivery, reduced costs, reduced waste and greater project predictability.

Depending on the product range Civil3D, IFC or Revit files are available for download.

[www.aco.co.uk/aco-bim-models](http://www.aco.co.uk/aco-bim-models)

## ACO QuAD Hydraulic Design Software

Try our free design tool



The free-to-use ACO QuAD Hydraulic Design software has unprecedented levels of choice and flexibility built-in, to enable the efficient and accurate hydraulic design of any surface water management scheme.

The hydraulic engine has been robustly tested and is the tool used by ACO's own internal Design Services team in modelling surface water solutions for customers.

ACO QuAD Hydraulic Design software uses differential equations for spatially varied flow that online alternative solutions cannot accurately match. For example the Manning's equation for steady uniform flow does not work with level channels and is grossly inaccurate on shallow gradients.

Here are some of the features it includes:

- Powerful project-based software
- Create catchment models that are fully editable
- PDF summary document output
- Cloud based – All designs are stored securely on our server against your login
- Integrated rainfall data for the whole of the UK

To use the QuAD Hydraulic Design software visit: [www.aco.co.uk/quad-hydraulic-design-2.0](http://www.aco.co.uk/quad-hydraulic-design-2.0)

### QuAD Features Overview

#### Cloud based

The software means increased efficiency providing design resources you need when you need it, allowing you to deploy the same design capability consistently, with the same consistency in results every time.



#### Application

Application selection ensure designers are able to get quick and accurate guidance in selection of the most suitable products based on the type of application the catchment is to cater for.



#### Flexible catchment design

QuAD is designed to support designers in the creation of catchment areas. Supplementary catchment areas can easily be added upstream and downstream of any previously designed channel run.



#### Rainfall assist

Rainfall intensity by location matters in design. QuAD provides a site locator map enabling the most accurate intensity to be input.



#### Product + value optimiser

Optimising the specific channel runs can be done with the optimiser feature selecting the smallest product suitable. Excavation and concrete requirements are also provided.



#### Resilience assessment

By inputting anticipated sedimentation rates and sedimentation density the QuAD software enables the designer to test their suggested maintenance schedules.



#### Attenuation assessments

Calculate the attenuation required for the project and compare it with the storage available in the channel design. Attenuation volume is presented along with suitable options for storage.



#### Secure scheme filing

All designs created by registered users are stored on a secure server and are password protected. Past projects are easily retrieved from the personalised menu.



#### Flexible download format

Output can be generated for all or parts of the project and can be generated in pdf or CSV formats.



#### Fully supported

There is support available either through a query submission or through self-help made possible by the comprehensive Knowledge database.



# Installation detail

## Load class

Installation recommendations shown are ACO minimum recommendations for BS EN 1433:2002 load class requirements.

## Ground conditions

The long term performance of a channel installation to sustain vertical and lateral loads depends upon:

- A) Ground conditions
- B) Stability of the adjacent pavement
- C) A durable concrete bed and surround

The recommended installation detail may require the minimum dimensions to be revised to achieve site specific load class requirements.

## Cutting and jointing

Mitre joints are formed by cutting the channels to the required angle and butting them together with appropriate sealant (e.g. Sikaflex 11FC or similar) or the ACO Repair Kit. Angles can be formed using radius or mitre units or by connecting them using proprietary PVCu pipework attached to ACO inlet/outlet endcaps. For further details please contact ACO Design Services Team.

Note: Where requested ACO can custom manufacture angled units to order.

## Isolation joints

The channel must be isolated from the surrounding environment. An isolation joint must be positioned up to a maximum of 1500mm from the channel wall. Any dowel bars must be located no nearer than 150mm from the channel wall. Other isolation joints in surrounding slab must be continued through the channel. Additional crack control may be required to comply with specifier requirements.

## Block pavements

The channel must be supported laterally. Blocks laid directly against a channel must be laid as a soldier course and restrained from movement by bedding securely on the concrete haunch e.g. by using a polymer modified mortar for bed and perpendicular joints (e.g. RONAFIX mortar mix C or similar). Alternatively, extend concrete haunch up to finished paving level (as depicted in Option 2). Blocks or slabs bedded on sand remote from the channel should be set at a higher level to compensate for possible settlement of the paving in service.

## Watertight installation to BS EN 1433:2002

Where ACO channel joints/fittings and channel/pavement interfaces are to be sealed, an appropriate sealant should be used (e.g. Sikaflex 11FC or similar). Guidance on the necessary surface preparation and/or priming should be sought from the sealant manufacturer.

## Best practice and workmanship

ACO can give guidance with respect to the most suitable methods of installation for each of the products in the ACO KerbDrain® range. ACO KerbDrain® should be installed using acceptable levels of workmanship and according to the National Code of Practice (UK: BS8000: Part 14: 1989) in keeping with EN 1433:2002 (Drainage channels for vehicular and pedestrian areas).

Detailed installation statements and methodologies will vary for all sites as each will have different aspects deserving particular consideration, consequently the relevant approvals should be sought from the consulting engineer and/or the installer.

For further information please contact our Design Services Team (technical@aco.co.uk) or the ACO website [www.aco.co.uk](http://www.aco.co.uk).

## Concrete surround dimensions

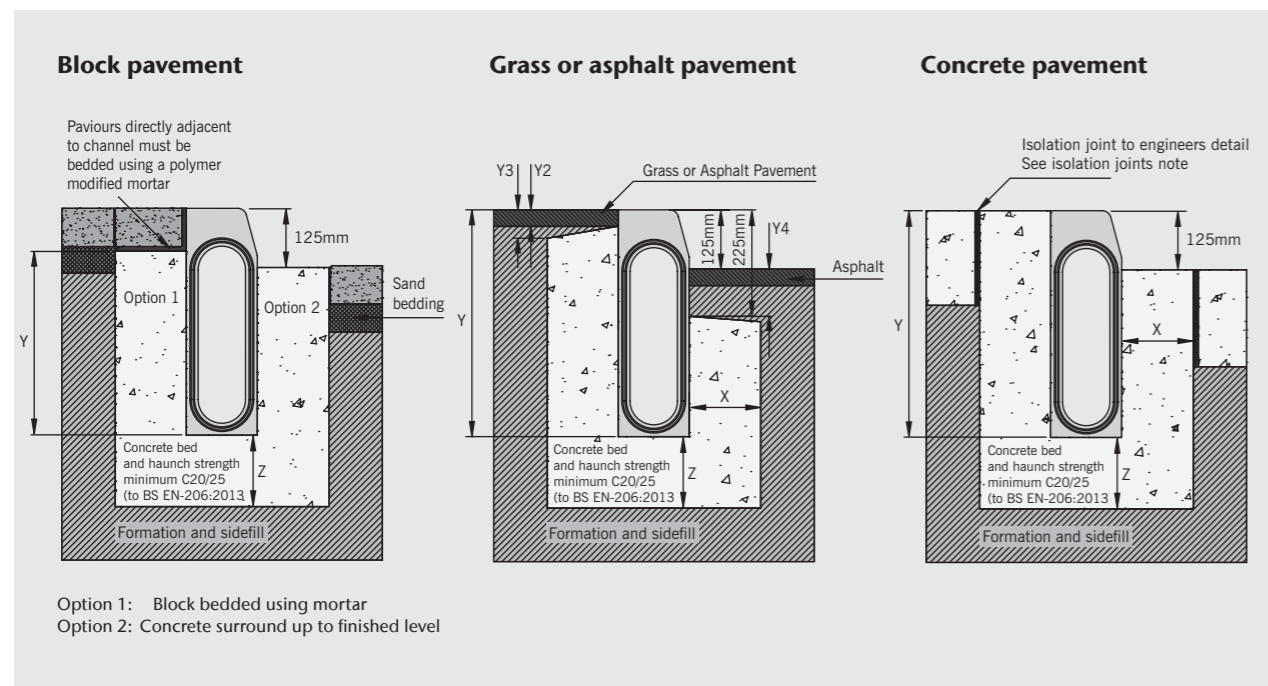
Dimension	Load Class	
	A 15 – C 250	D 400*
X	Min 150mm	Min 150mm
Y	Full channel height (less Y2 where necessary)	
Y2	Max 35mm*	Max 35mm*
Y3	Max 60mm*	Max 60mm*
Y4	No front haunch	Max 100 (HB255 Max 50)
Z	Min 150mm	Min 150mm
Minimum compressive strength to BS EN-206:2013	25 N/mm <sup>2</sup>	25 N/mm <sup>2</sup>

\*Where regular HGV impacts are anticipated (e.g. roundabouts), we recommend that the concrete backing is laid to the top of the ACO KerbDrain® unit. (i.e. Y2=0, Y3=0)



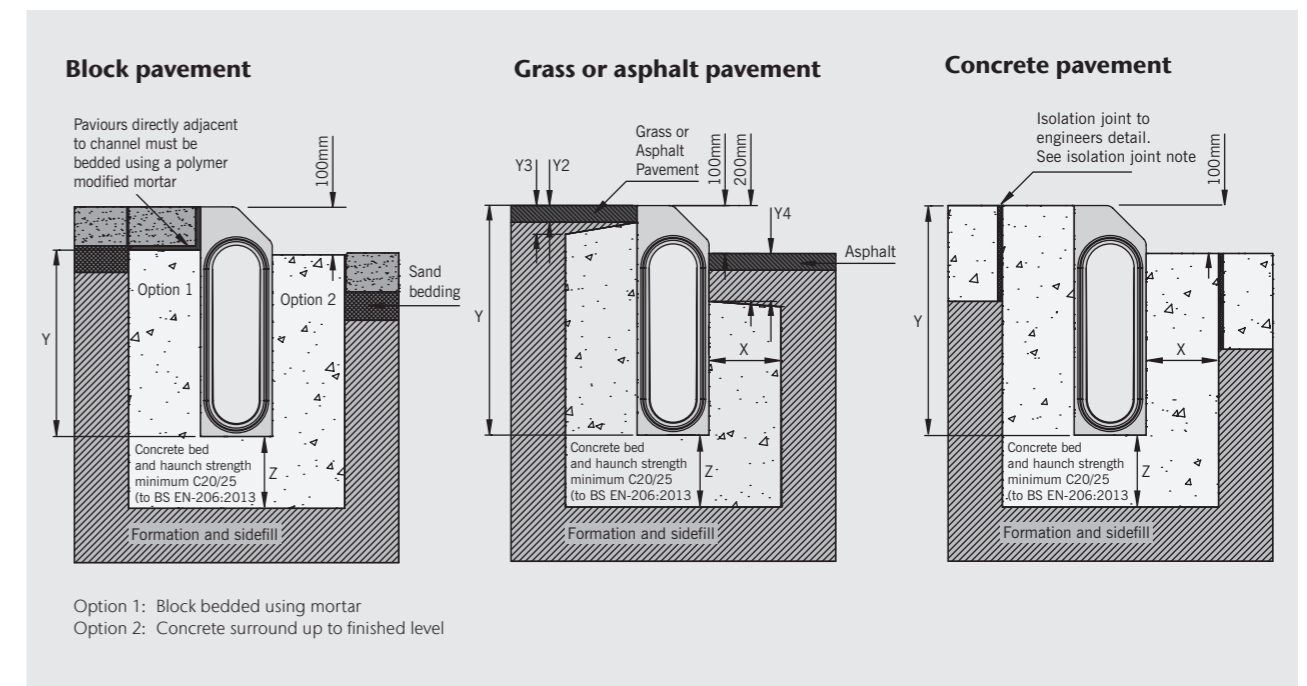
## ACO KerbDrain® half battered units

An electronic version of the ACO KerbDrain® installation detail is available to download from the ACO website. Visit [www.aco.co.uk](http://www.aco.co.uk).



## ACO KerbDrain® splayed units

An electronic version of the ACO KerbDrain® installation detail is available to download from the ACO website. Visit [www.aco.co.uk](http://www.aco.co.uk).



## Material benefits

The correct material selection for products installed in permanent works is extremely important to assure optimum performance throughout its design life.



ACO KerbDrain® is manufactured from Vienite®, ACO's sustainable high strength material. This material offers distinct advantages over other products and materials, addressing key specification and performance requirements for engineers and designers.

### Sustainable use of materials

Efficient use of material resources is a key contributor to sustainability in construction. ACO KerbDrain® has been carefully designed to maximise strength while minimising material use.

- Vienite® combines the mechanical and performance benefits of synthetic resin concrete with high levels of recycled fillers.
- Vienite® is a sustainable material that contains between 5% to 30% by weight post consumer waste previously destined for landfill in the UK
- Vienite® fully conforms to and exceeds all performance requirements as specified by BS EN 1433:2002 for combined kerb drainage units.
- ACO KerbDrain® manufactured from Vienite® holds BSI Kitemark certification as a result of continuing independent verification of material performance by BSI.
- Vienite is recyclable, i.e. it can be collected, processed and returned for re-use as a raw material.

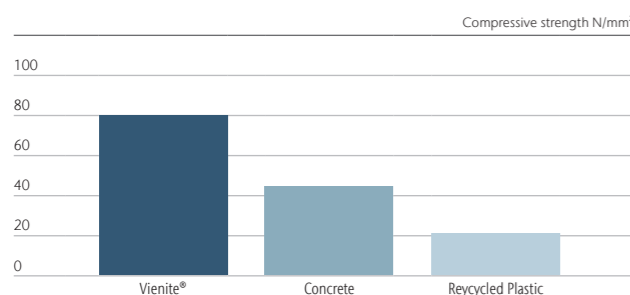
The ACO KerbDrain® range also includes components manufactured from ductile iron and steel which contain between 25% and 90% recycled material.

### Mechanical properties of Vienite®

The following data compares the advantages of Vienite® used to manufacture ACO KerbDrain® with Ordinary Portland Cement (OPC) concrete and recycled plastic composite materials.

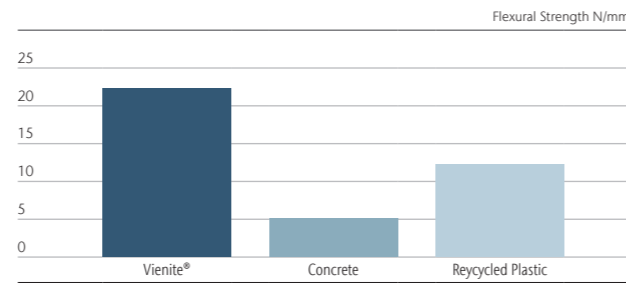
#### Compressive strength

Vienite® has high compressive strength is therefore extremely resistant to service loads.



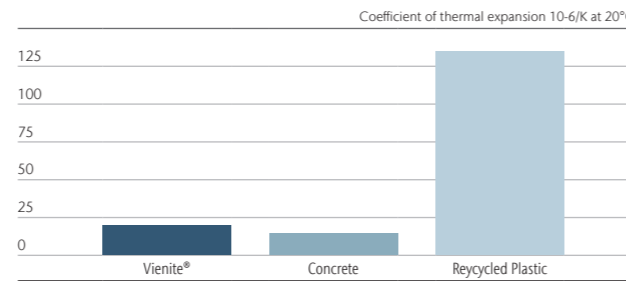
#### Flexural strength

Vienite® has excellent flexural strength making the product resistant to side loads typically encountered during surfacing and installation.



#### Coefficient of thermal expansion

Vienite® has a low coefficient of thermal expansion making it extremely stable, and unlike some materials it will not buckle or distort if subjected to high or low temperatures during service.



#### Impact resistance

ACO KerbDrain's optimised design combined with the nature of Vienite®, makes it highly resistance to damage typically caused during installation or from traffic impacts. ACO KerbDrain® has been proven to be 50% more resistant to impact damage than traditional OPC concrete kerb stones\*.

\* Tested by Birmingham City Laboratories (BCL)

#### Water absorption

Vienite® has low water absorption of only 0.01% by weight which means surface water or liquids are contained within the product until discharge without contaminating surrounding soil or groundwater.

#### Coefficient of friction (Mannings)

Vienite® is extremely smooth having a Mannings coefficient of 0.011 giving enhanced hydraulic performance and resisting the build up of silt and debris.

#### Chemical resistance

Vienite® has high resistance to dilute acids and alkalis and is unaffected by road salts, fuels and oils which are typically encountered during service. For a copy of our full chemical resistance chart for Vienite® please contact our ACO Water Management Design Services Team.

### Model specification clause

The combined kerb drainage system shall be ACO KerbDrain® as supplied by ACO Technologies plc. All materials and components within the scope of the system shall be supplied by this manufacturer. The kerb drainage units shall be fully compliant with BS EN 1433:2002 with Initial Type Test certification issued by a notified body independent of the manufacturer and shall comply with the Manual of Contract Documents for Highway Works: Specification of Highway Works, Clause 516. The kerb drainage units shall be certified by a third party product certification system compliant with BS EN 45011:1998 carried out by an accredited body (UKAS or equivalent), e.g. Kitemark.

The ACO KerbDrain® HB255 units shall be of units of 80mm internal bore and 125mm external width, matching the profile of a standard HB2 kerb stone profile. The ACO KerbDrain® SP280, HB305, SP380, HB405, HB480 and SP455 shall be of 100mm internal bore and 150mm external width matching the profile of standard HB1 or SP kerb stones.

All units shall be of one piece manufacture from Vienite®. Vienite® is a sustainable material that contains between 5% to 30% by weight post consumer waste previously destined for landfill in the UK

The standard units shall be installed with the manufacturer's drop kerbs, centre stones, gullies, access units, radius and mitred units and accessories as required for the scheme. The system shall be installed in accordance with the manufacturer's printed recommendations, and the works carried out as specified on drawings (\*) and in accordance with recognised good practice. Standards of workmanship shall generally be as specified in BS EN 752 and BS8000:Part 14:1989.

\*Please insert drawing no. relevant to the project.

### Highways specification – appendix 5/5

The Appendix 5/5 will need to be completed for each project. A model Appendix 5/5 for ACO KerbDrain® is available from the ACO Water Management Design Services Team.

### NBS specification

ACO KerbDrain® should be specified in section Q10:190. Assistance in completing this clause can be found in ACO Technologies product entries in NBS Source or a model specification can be downloaded from [www.aco.co.uk](http://www.aco.co.uk).

For further assistance, contact the ACO Water Management Design Services Team.



Conformity

The ACO KerbDrain® system is CE marked in accordance with the Construction Products Regulation.

Declarations of Performance are available via the CPR Zone on our website ([www.aco.co.uk/DoP.php](http://www.aco.co.uk/DoP.php)), or on request. Please contact ACO Water Management Design Services Team on 01462 816666 for further assistance.

#### BS EN 1433:2002



# ACO KerbDrain® system overview

ACO KerbDrain® is available in Half Battered (HB) or Splayed (SP) profiles and has a variety of unit depths available for optimum scheme hydraulics.

To summarise the available options, the product selector below displays key features for each of the profiles and unit depths available.

Once product selection has been made based on the features required, the table will direct you to the appropriate page.

- ACO KerbDrain® is:
- Available in Half Battered (HB) or Splayed (SP) profiles
  - Available in a variety of unit depths
  - Manufactured from Vienite® ACO's high strength sustainable material
  - Manufactured from recycled materials

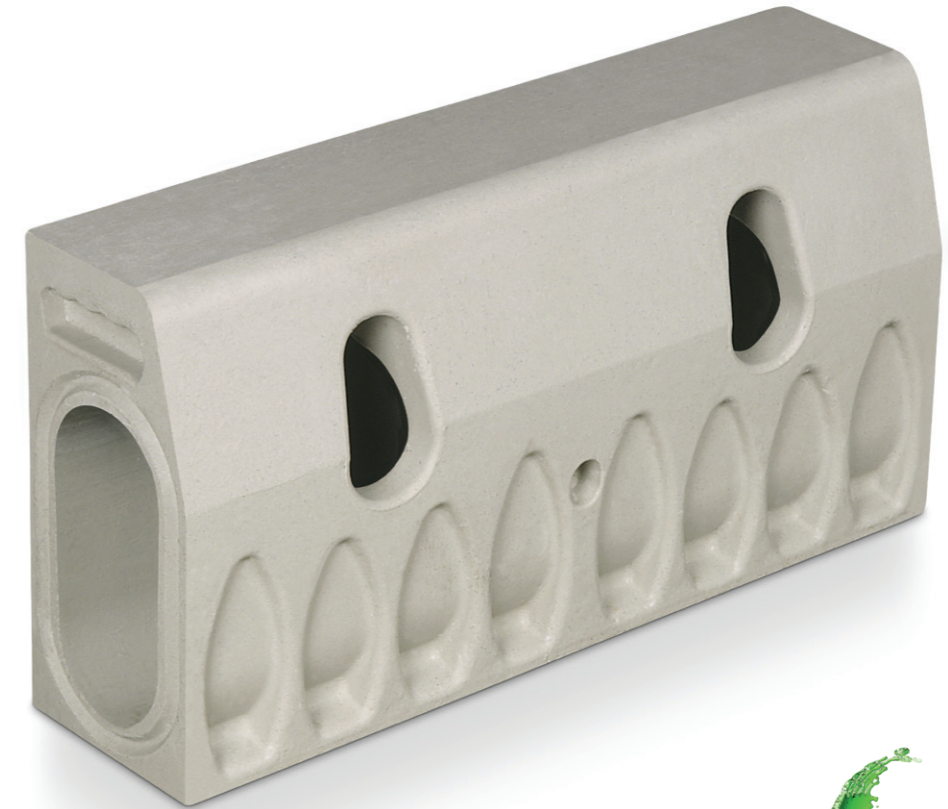


HB PROFILE	HB255	HB305	HB405	HB480
	Page 23	Page 26	Page 36	Page 43
UNIT DEPTH	255mm	305mm	405mm	480mm
HYDRAULIC CAPACITY				
CATCHMENT AREA	154m <sup>2*</sup>	386m <sup>2*</sup>	894m <sup>2*</sup>	1360m <sup>2*</sup>
1M UNIT	✓	✓	✓	✗
TRANSITIONS TO	n/a	SP280	SP380	SP455
PEDESTRIAN CROSSING POINTS	✓	✓	✓	✗
RADIUS / MITRE UNITS	✗	✓	✓	✓
BUS STOP	✗	✓	✓	✓

SP PROFILE	SP280	SP380	SP455
	Page 53	Page 58	Page 63
UNIT DEPTH	280mm	380mm	455mm
HYDRAULIC CAPACITY			
CATCHMENT AREA	386m <sup>2*</sup>	894m <sup>2*</sup>	1110m <sup>2*</sup>
1M UNIT	✓	✓	✗
TRANSITIONS TO	HB305	HB405	HB480

<b>CATCHMENT AREA</b> * EXAMPLE RUN BASED ON 50M LENGTH TO OUTLET	<b>AVAILABILITY</b> ✓ AVAILABLE ✗ NOT AVAILABLE	<b>HYDRAULIC CAPACITY</b> LOW MEDIUM HIGH	<b>LOAD CLASS D 400</b> LOAD CLASS D 400 PUBLIC HIGHWAYS, PARKING AREAS FOR ALL TYPES OF VEHICLES, DISTRIBUTION YARDS
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# ACO KerbDrain® HB255



The ACO KerbDrain® 255 half battered range has a compact size to match a standard HB2 kerb stone. The range is ideal for smaller catchment areas or as a retrofit option in existing kerb installations where drainage or ponding in the highway is a problem.

ACO KerbDrain® HB255 is available in 1m or 0.5m lengths with the following components:

- Access units
- Gully units
- Pedestrian drop kerbs and centre stone
- End caps and unions



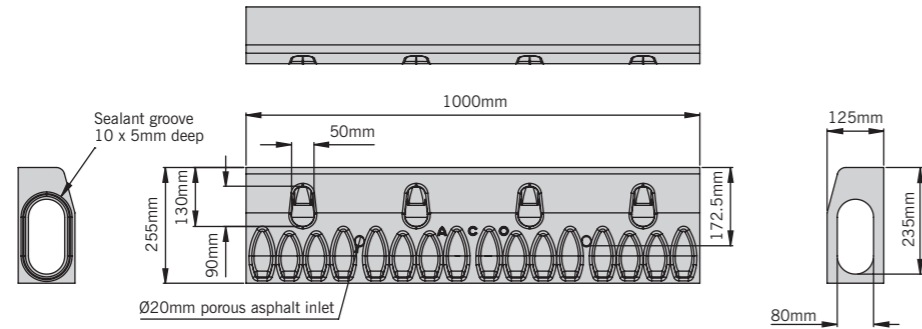
	HB Profile	✓	Kitemarked
255mm	Unit depth	✗	HB to SP transitions
	Hydraulic capacity	✗	Bus stop
154m <sup>2*</sup>	Catchment area	* Example run based on 50m length laid level at 50mm/hr rainfall	
	Load Class		

## ACO KerbDrain® HB255

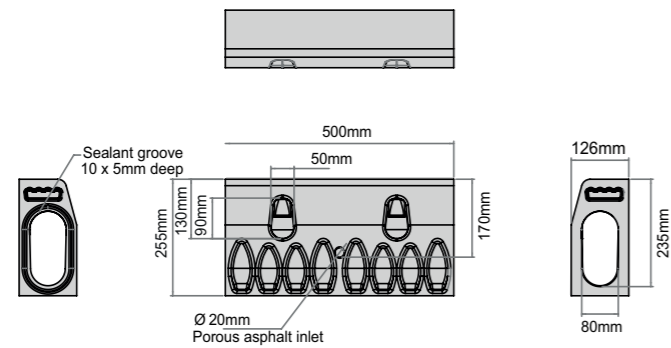
## ACO KerbDrain® HB255

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB255 half battered KerbDrain®</b>						
7950	KerbDrain® HB255 channel 1000mm D 400	1000	125	255	235	37.2
7958	KerbDrain® HB255 channel 500mm D 400	500	125	255	235	18.5

HB255 1000mm unit



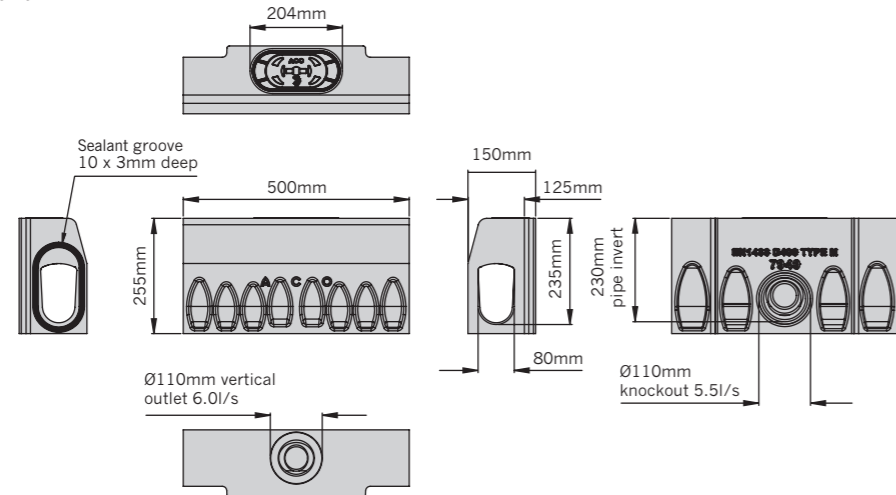
HB255 500mm unit



### HB255 half battered access unit

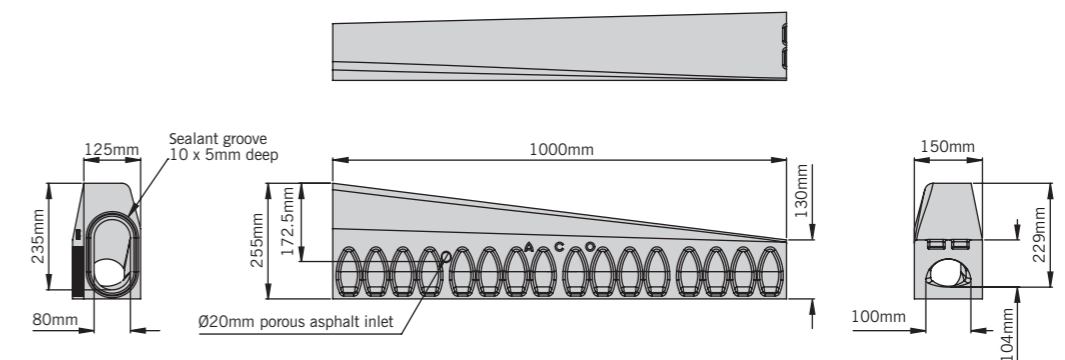
7949	KerbDrain® HB255 access unit 500mm D 400	500	125/150	255	235	22.9
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HB255 500mm access unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB255 half battered flush drainable drop kerb units</b>						
7956	KerbDrain® HB255 left-hand drop kerb 1000mm D 400	1000	125/150	255/130	235/105	38.0
7957	KerbDrain® HB255 right-hand drop kerb 1000mm D 400	1000	125/150	255/130	235/105	38.0

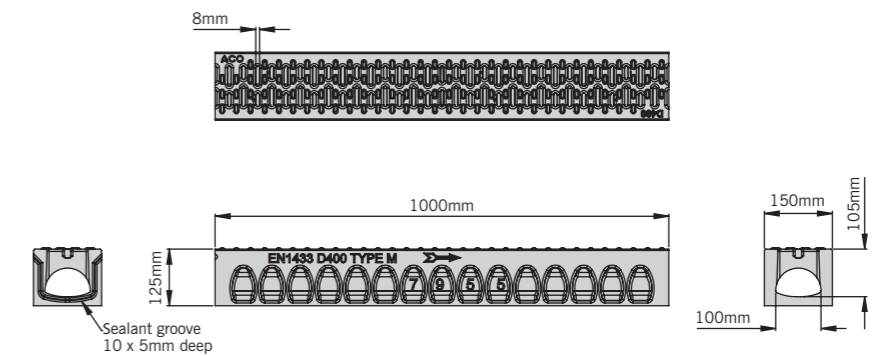
HB255 1000mm unit



### HB255 half battered flush drainable centre stone unit

7955	KerbDrain® HB255 centre stone	1000	150	125	105	24.7
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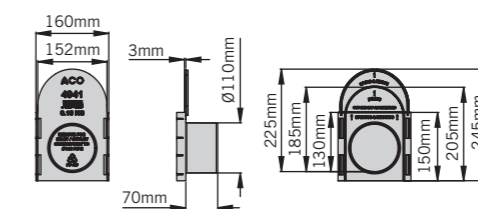
HB255 flush drainable centre stone unit



### HB255 multifunctional end cap

4941	KerbDrain® HB255, SP280 & HB305 Multifunctional end cap	3	160	245	n/a	0.16
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HB255 multifunctional end cap

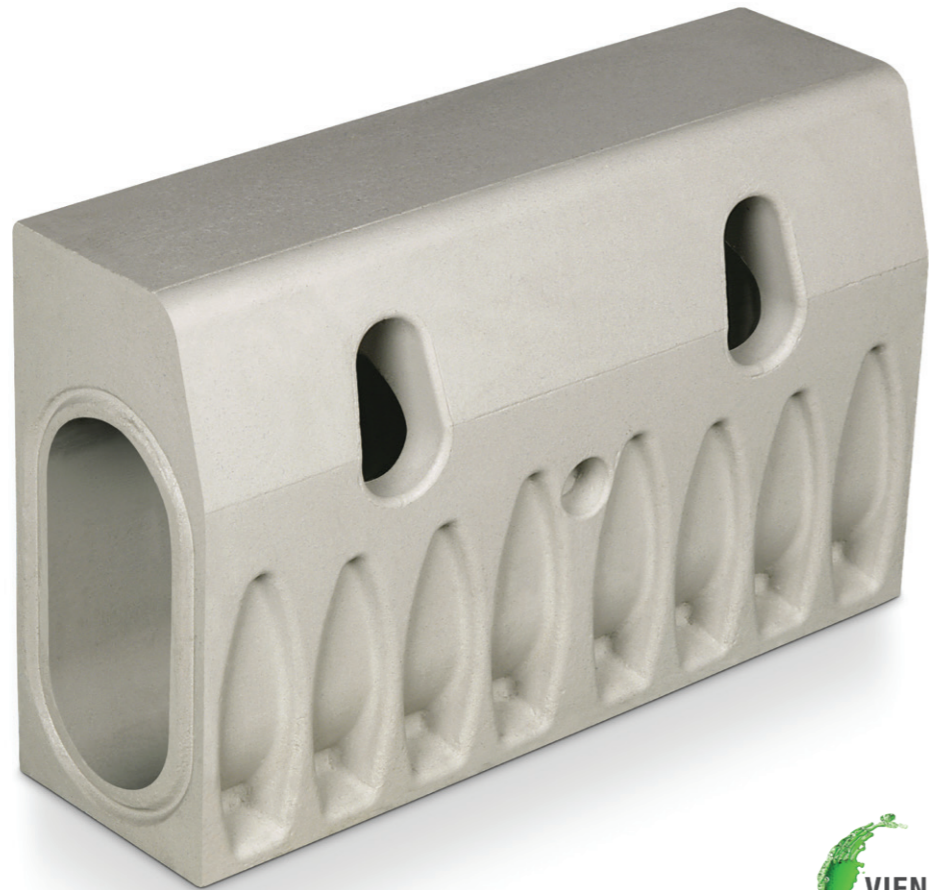


Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. For repair kit information please see page 35. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

# ACO KerbDrain® HB305

## ACO KerbDrain® HB305










The ACO KerbDrain® 305 half battered range has a profile to match a standard HB1 kerb stone. The range is ideal for draining medium size catchments such as urban highways or parking areas. Its wide range of accessories allows ACO KerbDrain® 305 to be used in many urban highway applications.

ACO KerbDrain® HB305 is available in 1m, 0.5m or 0.25m lengths with the following components:

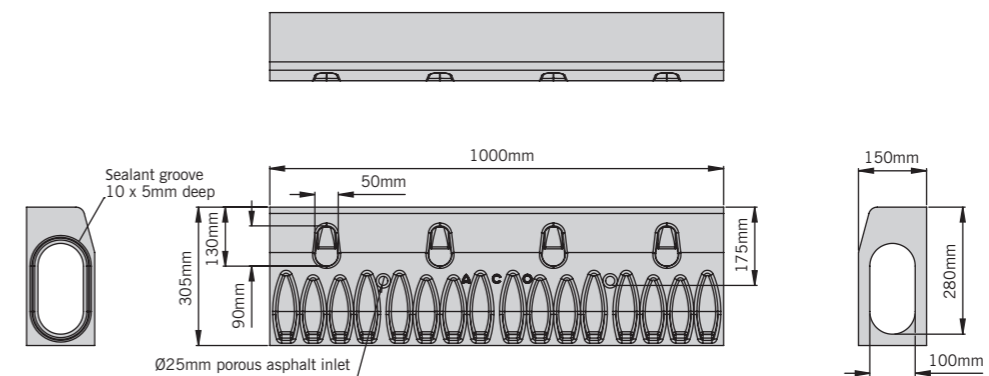
- Access units
- Gully units
- Bus stop kerbs
- Drop kerbs and centre stones for pedestrian and vehicle crossings
- Mitre and radius units
- Quadrant and internal angles
- End caps and unions



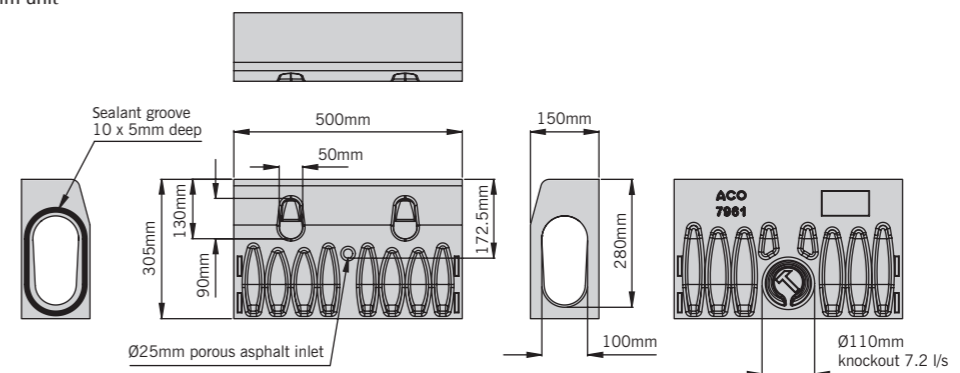
 HB Profile	 Kitemarked
305mm Unit depth	 1m units
 Hydraulic capacity	 HB to SP transitions
386m <sup>2</sup> * Catchment area	 Bus stop
 Load Class	* Example run based on 50m length to outlet

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
7959	KerbDrain® HB305 channel 1000mm D 400	1000	150	305	280	53.1
7961	KerbDrain® HB305 channel 500mm D 400	500	150	305	280	26.2
7972	KerbDrain® HB305 blind channel unit 500mm D 400	500	150	305	280	28.5
7960	KerbDrain® HB305 channel 250mm D 400	250	150	305	280	12

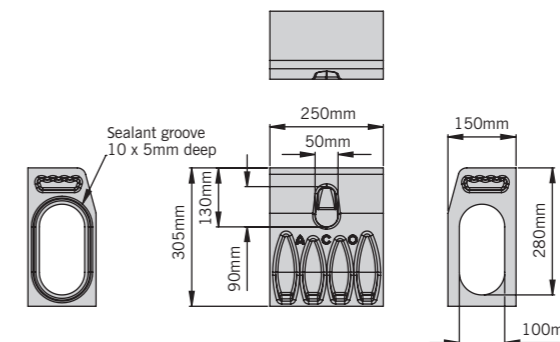
HB305 1000mm unit



HB305 500mm unit



HB305 250mm unit



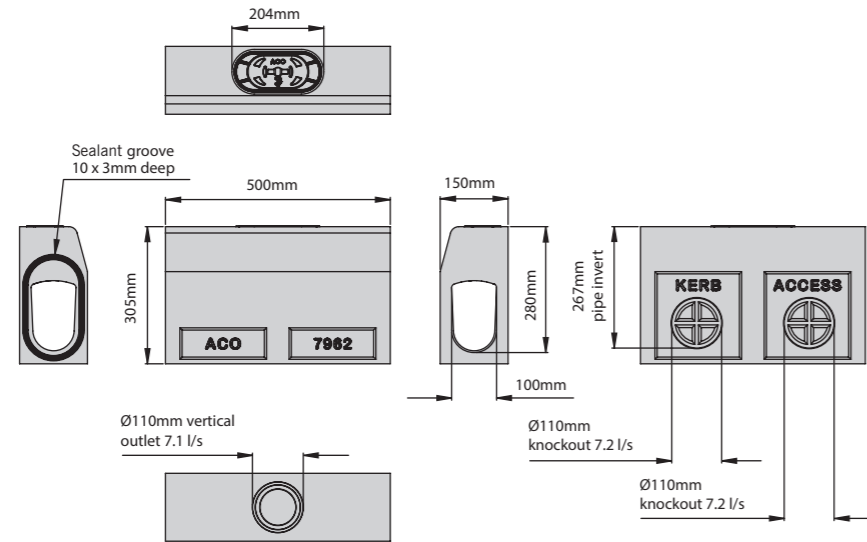
Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50.  
 † Blind units are provided without surface water drainage inlets.

These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB305

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered access unit</b>						
7962	KerbDrain® HB305 access unit 500mm D 400	500	150	305	280	30.0

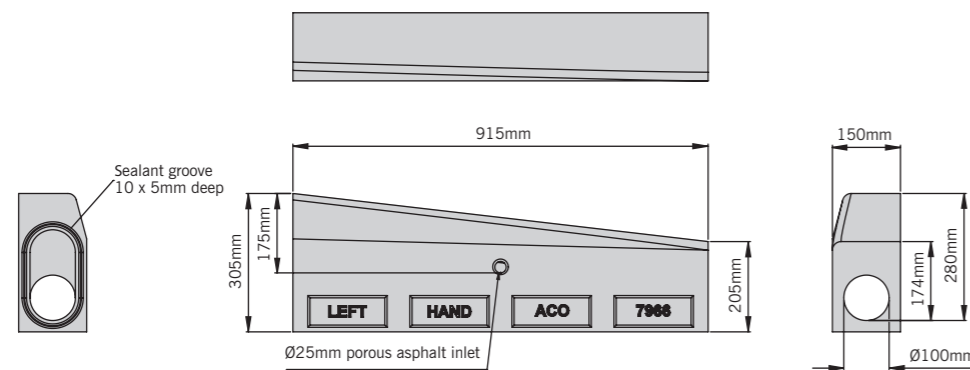
HB305 access unit



### HB305 half battered drop kerb units

7966	KerbDrain® HB305 left-hand drop kerb 915mm D 400	915	150	305/205	280/174	49.5
7967	KerbDrain® HB305 right-hand drop kerb 915mm D 400	915	150	305/205	280/174	49.5

HB305 left-hand drop kerb

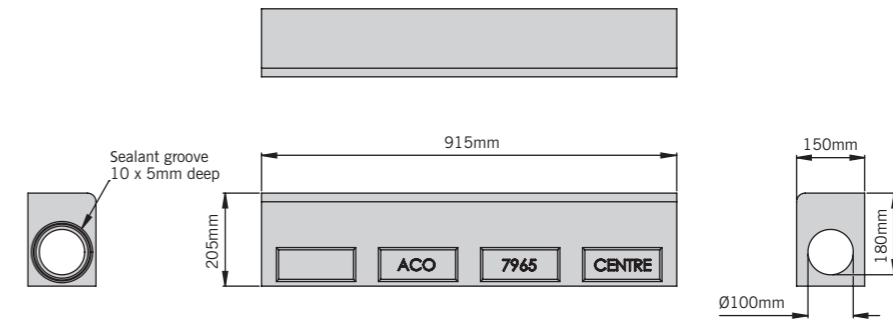


Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB305

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered centre stone unit with 25mm upstand</b>						
7965	KerbDrain® SP280/HB305 centre stone 915mm D 400	915	150	205	180	45.0

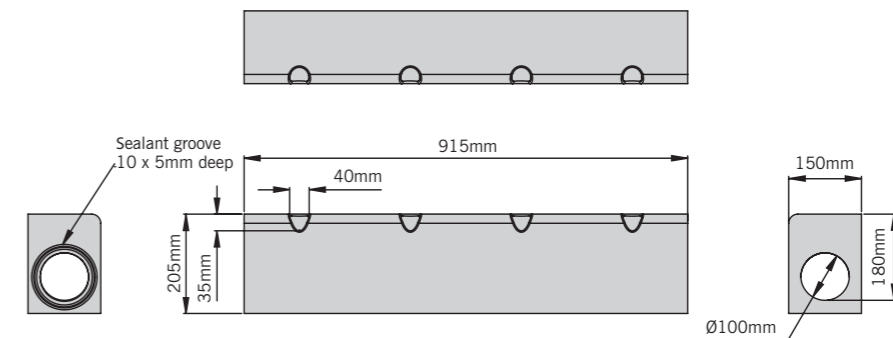
HB305 centre stone with 25mm upstand



### HB305 half battered perforated centre stone unit with 25mm upstand

4982	KerbDrain® SP280/HB305 perforated centre stone 915mm D 400	915	150	205	180	42.9
4997	KerbDrain® Heelguard™ insert for perforated centre stone †	50	-	-	-	0.1

HB305 perforated centre stone with 25mm upstand



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. † Heelguard inserts can be fitted in the inlets of perforated centre stones.

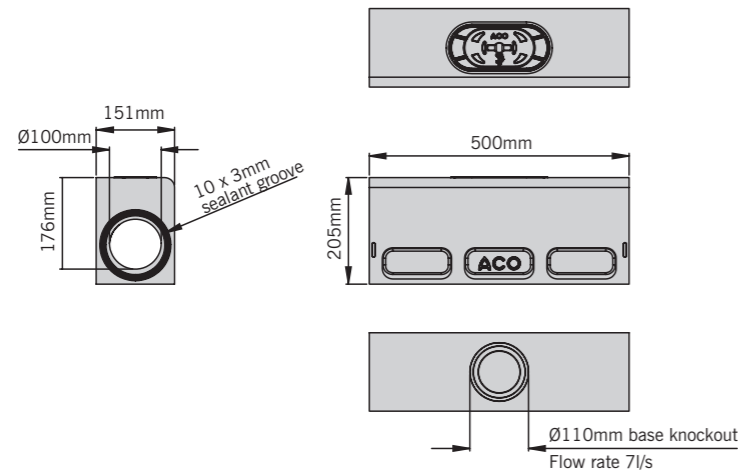
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB305

## ACO KerbDrain® HB305

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 centre stone access unit</b>						
4993	KerbDrain® HB305/SP280 centre stone access unit 500mm D 400	500	151	205	180	21.57

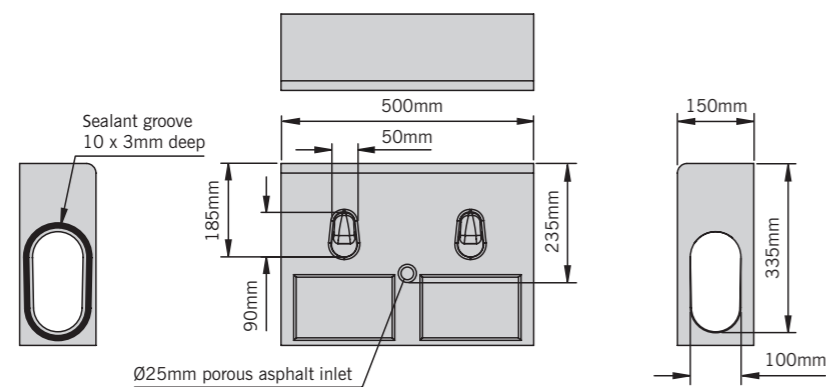
HB305/SP280 centre stone access unit



### HB305 bullnosed bus stop kerb unit with 180mm upstand

4356	KerbDrain® HB305 bus stop kerb channel 500mm D 400	500	150	360	335	36.9
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HB305 bus stop kerb

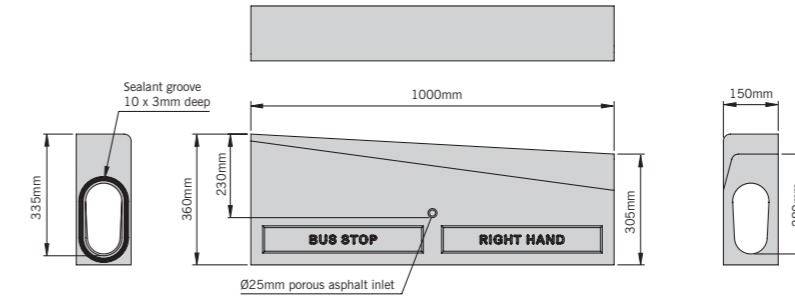


Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50.  
 † Heelguard inserts can be fitted in the inlets of perforated centre stones.

These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered bus stop transition kerb units</b>						
4358	KerbDrain® HB305 bus stop left-hand transition kerb 1000mm D 400	1000	150	360/305	335/280	68.2
4357	KerbDrain® HB305 bus stop right-hand transition kerb 1000mm D 400	1000	150	360/305	335/280	68.2

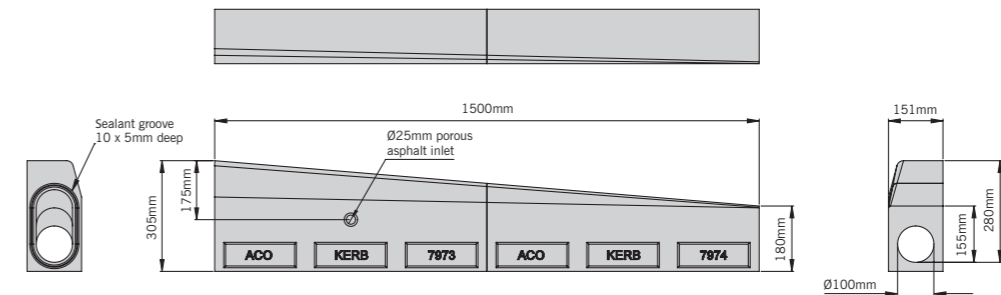
HB305 bus stop transition kerb



### HB305 half battered flush drainable drop kerb units

7995	KerbDrain® HB305 left-hand flush drop kerb assembly 1500mm D 400	1500	151	305/180	280/155	75.5
7996	KerbDrain® HB305 right-hand flush drop kerb assembly 1500mm D 400	1500	151	305/180	280/155	75.5

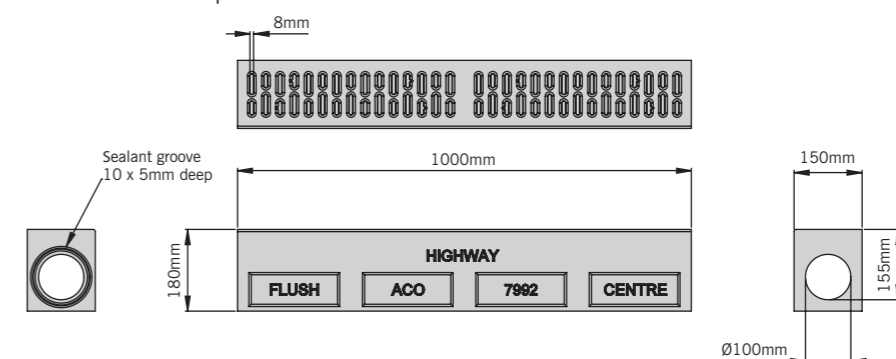
HB305 half battered flush drainable drop kerb unit



### HB305 half battered flush drainable centre stone with 0-6mm upstand

7992	KerbDrain® HB305 flush drainable centre stone 1000mm D 400	1000	150	180	155	36.3
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HB305 half battered flush drainable drop kerb unit



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. For repair kit information please see page 35.  
 These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

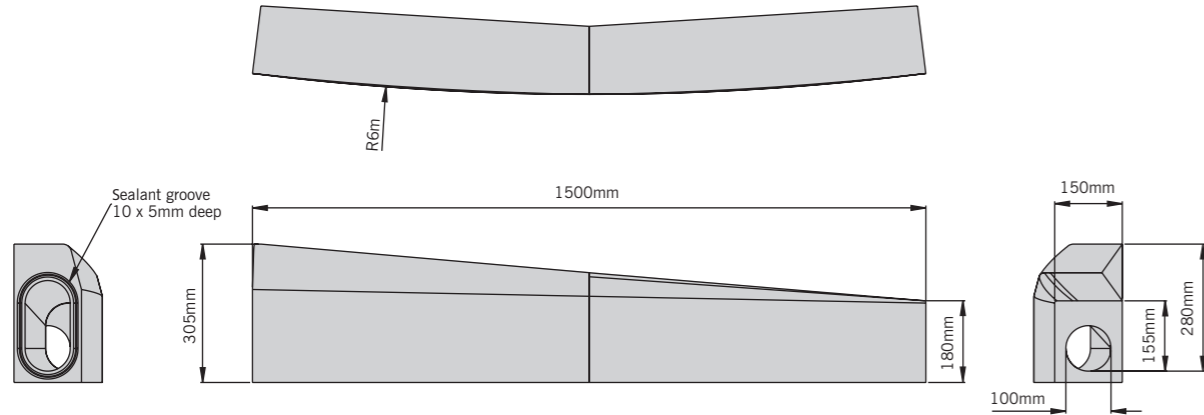


## ACO KerbDrain® HB305

## ACO KerbDrain® HB305

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered flush drainable drop kerb units with 6m external radius</b>						
4998	KerbDrain® HB305 left-hand flush drop kerb 6m radius assembly 1500mm D 400	1500	150	305/180	280/155	77.5
4999	KerbDrain® HB305 right-hand flush drop kerb 6m radius assembly 1500mm D 400	1500	150	305/180	280/155	77.5

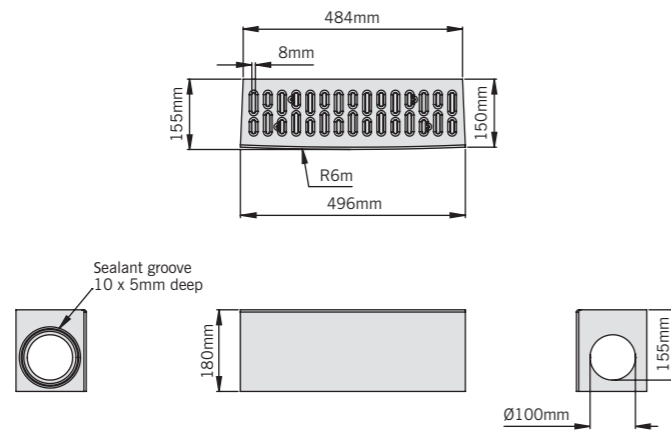
HB305 left-hand drop kerb with 6mm radius



### HB305 half battered flush drainable centre stone with 6m external radius

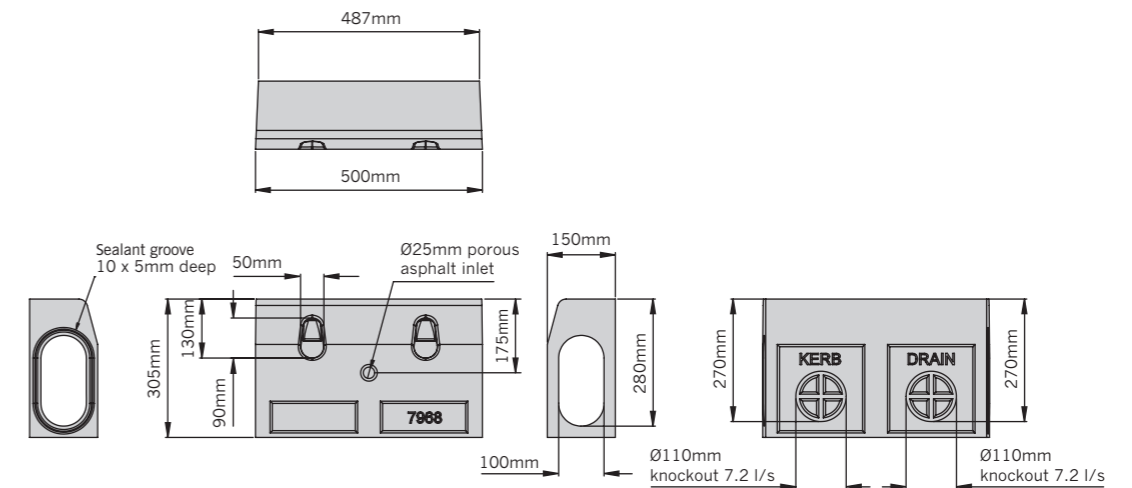
4985	KerbDrain® HB305 flush drainable centre stone 6m radius 496mm D 400	496/484	150	180	155	18.3
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HB305 flush drainable centre stone with 6mm radius



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered mitre units</b>						
7968	KerbDrain® HB305 7-6m external mitre channel 500/487mm D 400	500/487	150	305	280	26.9
7969	KerbDrain® HB305 10-8m external mitre channel 500/490mm D 400	500/490	150	305	280	26.7
7970	KerbDrain® HB305 25-11m external mitre channel 500/493mm D 400	500/493	150	305	280	26.5
7971	KerbDrain® HB305 25-11m internal mitre channel 500/503mm D 400	500/503	150	305	280	26.7

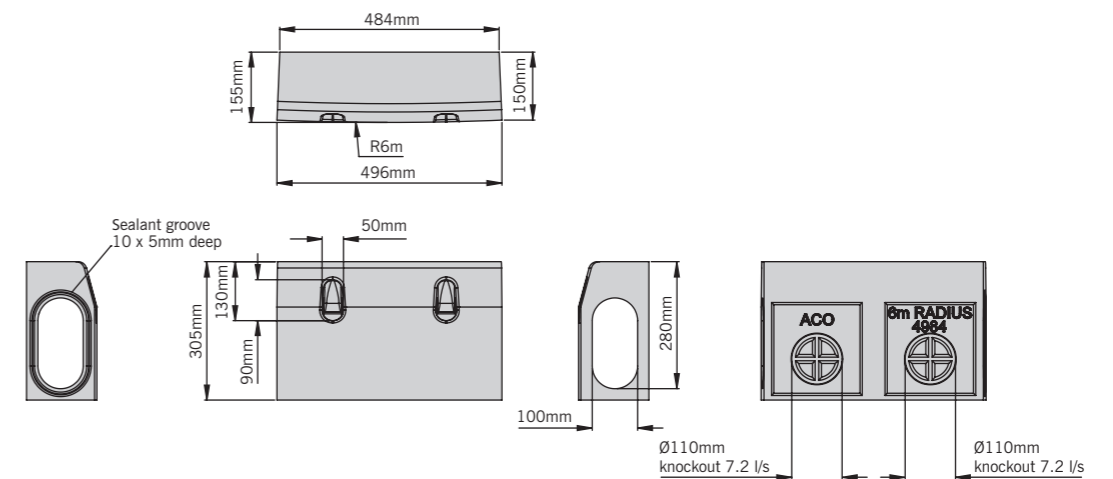
HB305 7-6m external mitre



### HB305 half battered 6m external radius unit

4984	KerbDrain® HB305 6m external radius channel 496mm D 400	496/484	150	305	280	27.8
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HB305 6m external radius unit



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

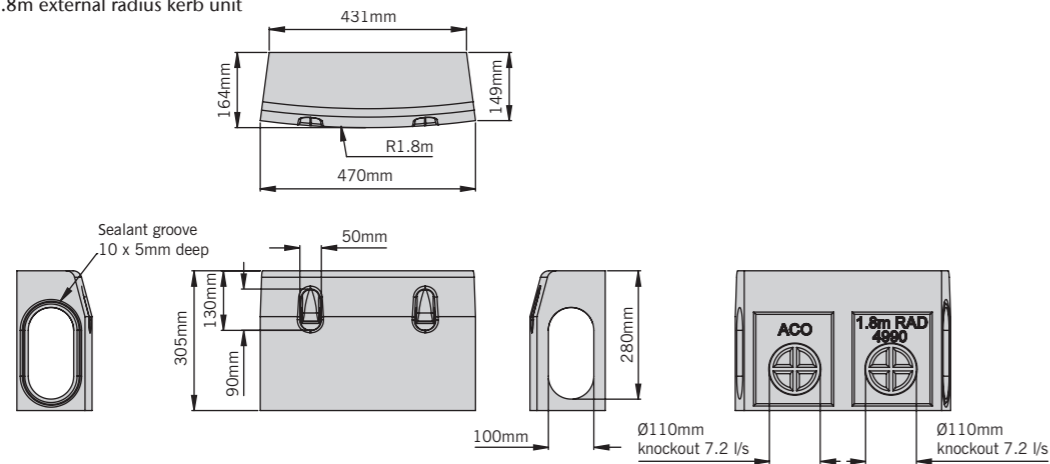
Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB305

## ACO KerbDrain® HB305

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered 1.8m external radius kerb unit</b>						
4990	KerbDrain® HB305 1.8m external radius channel 470mm D 400	470/431	149	305	280	27.0

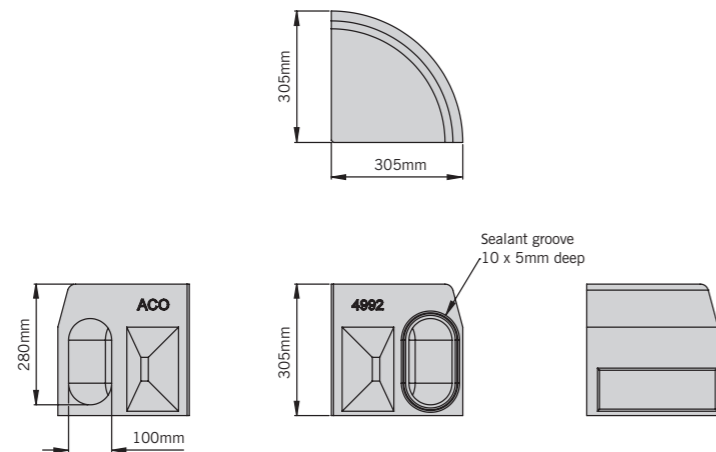
HB305 1.8m external radius kerb unit



### HB305 half battered quadrant unit

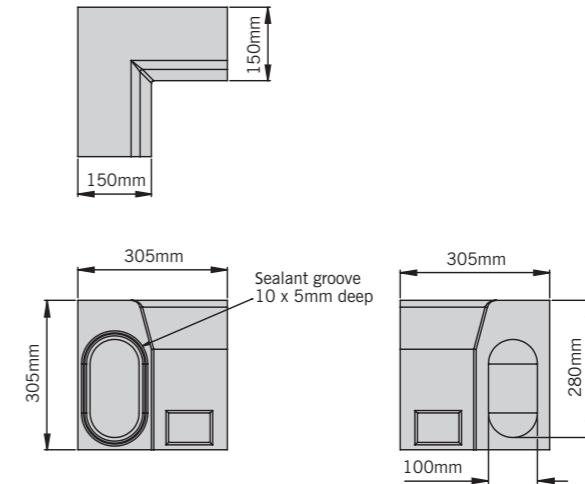
4992	KerbDrain® HB305 external quadrant unit 305mm D 400	305	305	305	280	32.0
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HB305 quadrant unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB305 half battered 90° internal angle unit</b>						
4991	KerbDrain® HB305 internal 90° angle 305mm D 400	305	150	305	280	24.7

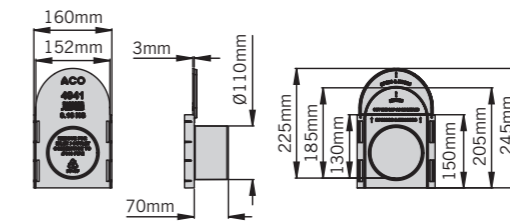
HB305 internal angle



### HB305 multifunctional end cap

4941	KerbDrain® HB255, SP280 & HB305 multifunctional end cap	3	160	245	n/a	0.16
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HB305 multifunctional end cap



Product Code	Description	Weight [kg]
<b>Polymer repair kit</b>		
32599	Polymer concrete repair kit	1

Option for repair kit \*Repair kit includes 0.5kg tin of natural colour polyester concrete repair resin, grey and black pigment, hardener paste, mixing instructions and material safety data sheets.



# ACO KerbDrain® HB405

## ACO KerbDrain® HB405










The ACO KerbDrain® 405 half battered range has a profile to match a standard HB1 kerb stone. The range is ideal for draining large catchment areas and bridges the hydraulic gap between our 305 and 480 half battered ranges allowing for optimised drainage designs.

ACO KerbDrain® HB405 is available in 1m and 0.5m lengths with the following components:

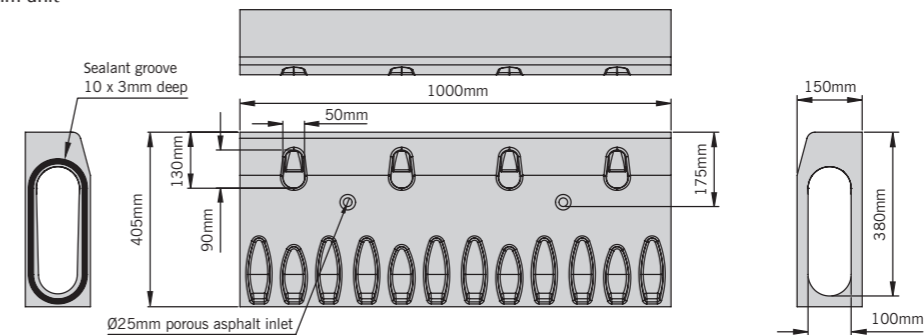
- Access units
- Gully units
- Bus stop kerbs
- Drop kerbs and centre stones for vehicle crossings
- Radius units
- End caps and unions



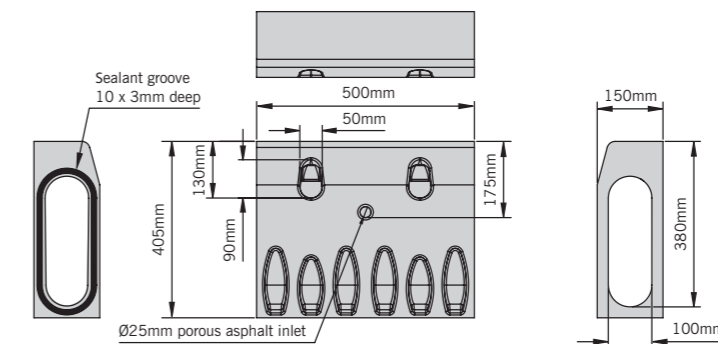
 HB Profile	 Kitemarked
405mm Unit depth	 1m units
 Hydraulic capacity	 HB to SP transitions
894m <sup>2</sup> * Catchment area	 Bus stop
 Load Class	* Example run based on 50m length to outlet

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered kerb units</b>						
4232	KerbDrain® HB405 channel 1000mm D 400	1000	150	405	380	63.5
4231	KerbDrain® HB405 channel 500mm D 400	500	150	405	380	30.9
4230	KerbDrain® HB405 blind channel unit † 500mm D 400	500	150	405	380	32.0

HB405 1000mm unit



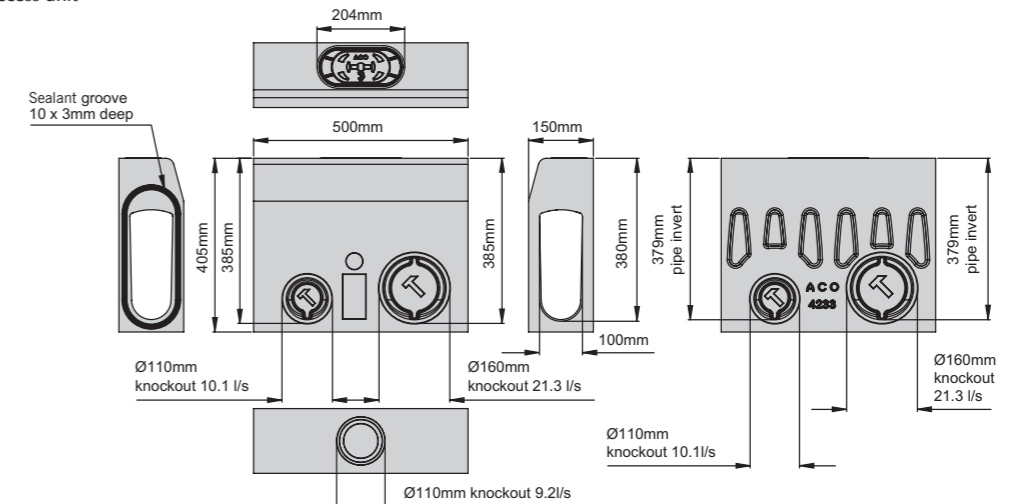
HB405 500mm unit



### HB405 half battered access units

4233	KerbDrain® HB405 access unit 500mm D 400	500	150	405	380	35.0
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HB405 access unit



† Blind units are provided without surface water drainage inlets  
Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50.

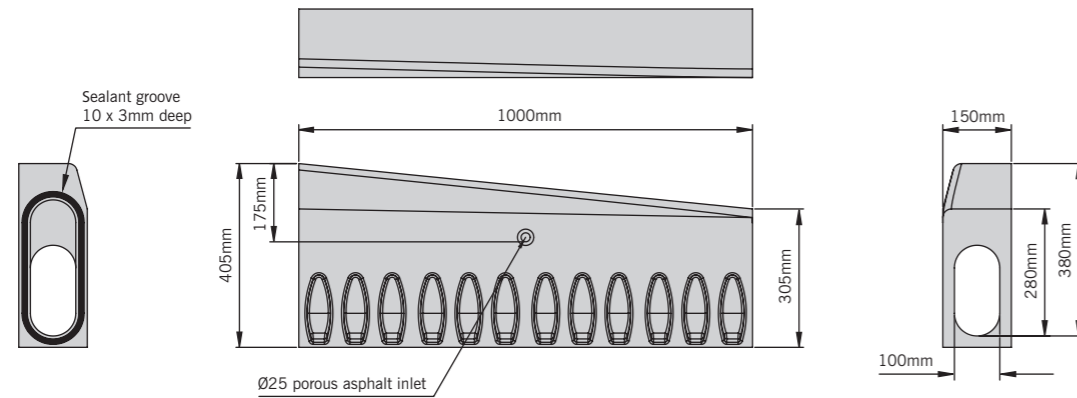
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB405

## ACO KerbDrain® HB405

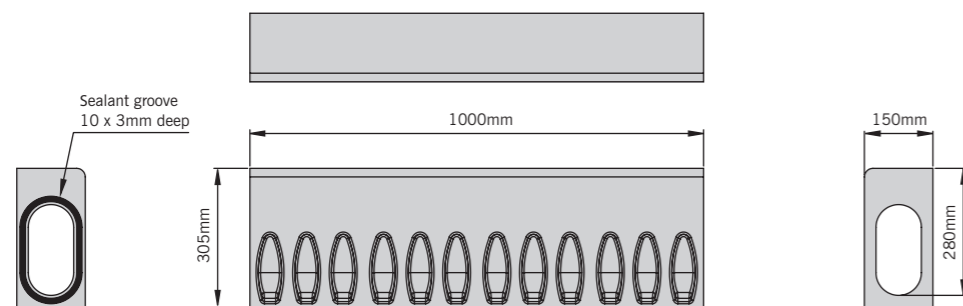
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered drop kerb units</b>						
4234	KerbDrain® HB405 left-hand drop kerb 1000mm D 400	1000	150	405/305	380/280	62.1
4235	KerbDrain® HB405 right-hand drop kerb 1000mm D 400	1000	150	405/305	380/280	62.1

HB405 left-hand drop kerb



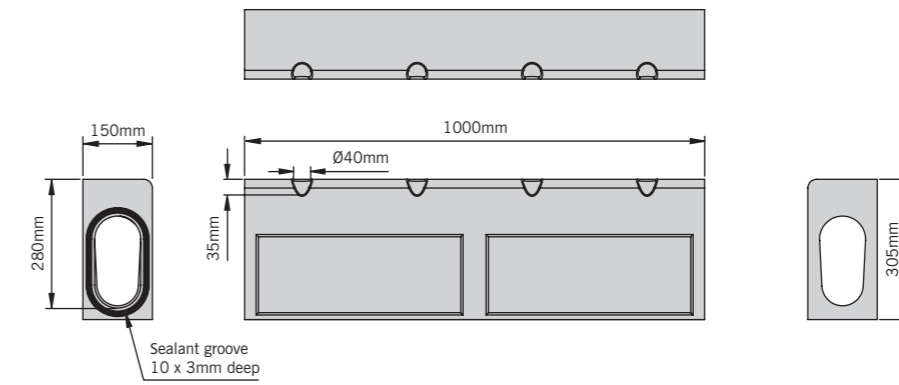
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered centre stone unit</b>						
4236	KerbDrain® HB405/SP380 centre stone 1000mm D 400	1000	150	305	280	60.1

HB405 centre stone



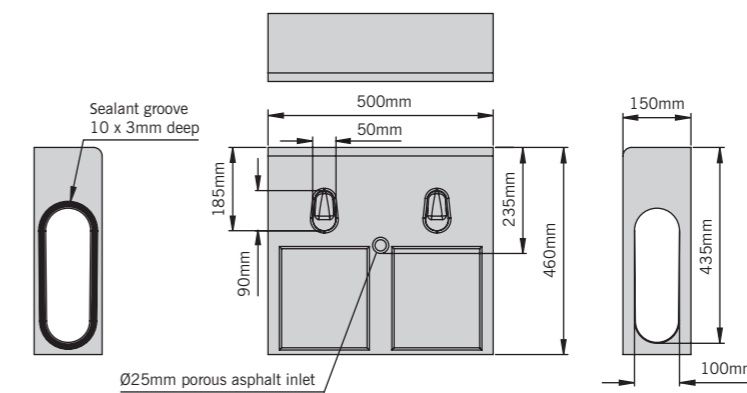
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered perforated centre stone unit with 25mm upstand</b>						
4350	KerbDrain® HB405/SP380 perforated centre stone 1000mm D 400	1000	150	305	280	57.6
4997	KerbDrain® Heelguard™ insert for perforated centre stone	50	-	-	-	0.1

HB405 perforated centre stone with 25mm upstand



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 bullnosed bus stop kerb unit with 180mm upstand</b>						
4359	KerbDrain® HB405 bus stop kerb channel 500mm D 400	500	150	460	435	41.7

KDHB405 bus stop kerb

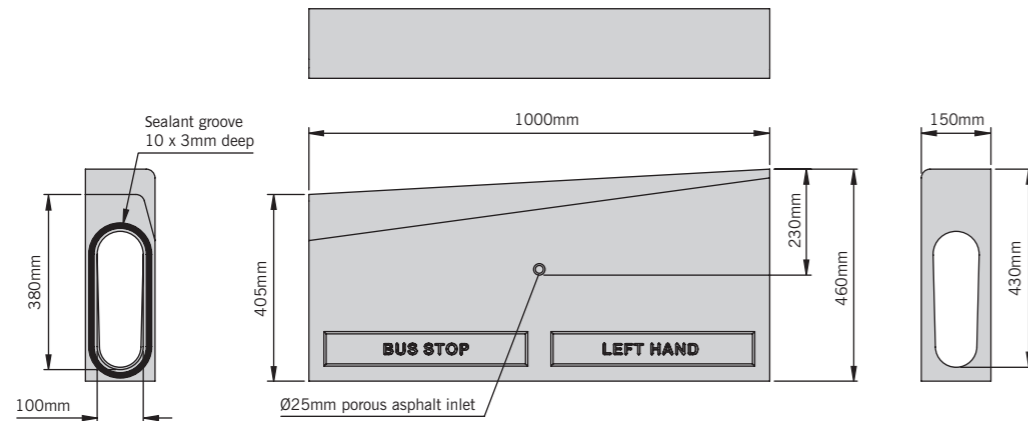


## ACO KerbDrain® HB405

## ACO KerbDrain® HB405

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered bus stop transition kerb units</b>						
4361	KerbDrain® HB405 bus stop left-hand transition kerb 1000mm D 400	1000	150	460	430/380	79.7
4360	KerbDrain® HB405 bus stop right-hand transition kerb 1000mm D 400	1000	150	460	430/380	79.7

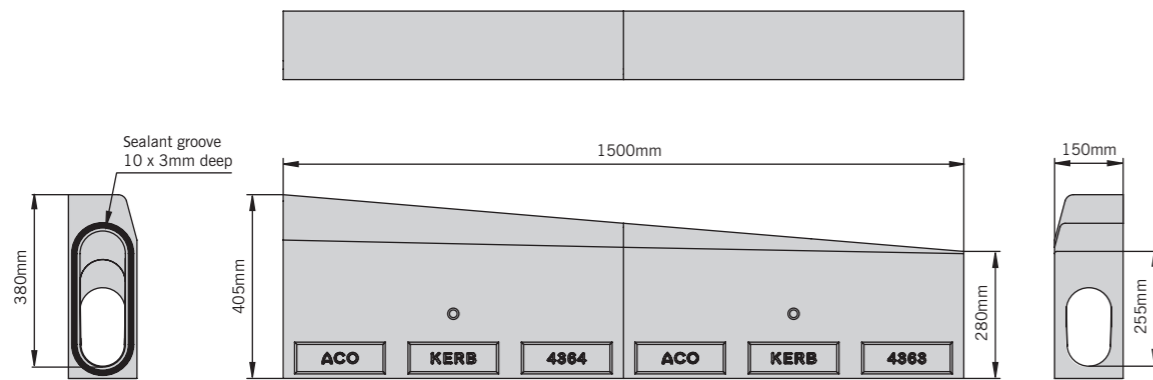
HB405 left-hand bus stop transition kerb



### HB405 half battered flush drainable drop kerb units

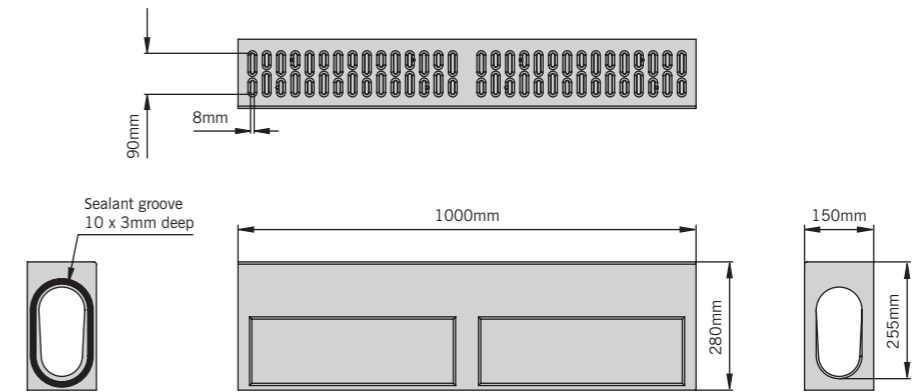
4367	KerbDrain® HB405 left-hand flush drop kerb assembly 1500mm D 400	1500	150	405/280	380/255	96.0
4368	KerbDrain® HB405 right-hand flush drop kerb assembly 1500mm D 400	1500	150	405/280	380/255	96.1

HB405 left-hand flush drainable drop kerb unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered flush drainable centre stone with 0-6mm upstand</b>						
4362	KerbDrain® HB405 flush drainable centre stone 1000mm D 400	1000	150	280	255	46.4

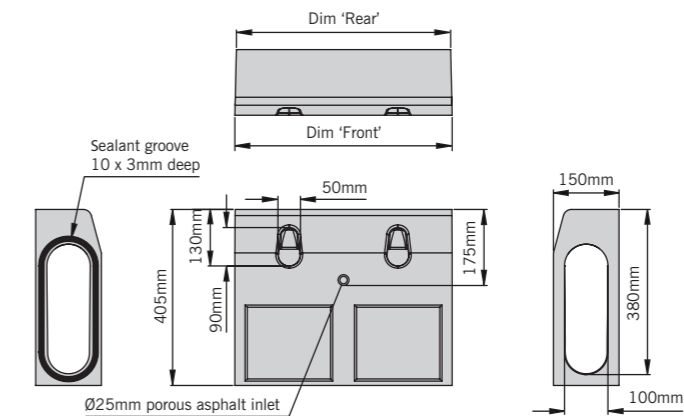
HB405 half battered flush drainable centre stone



### HB405 half battered mitre units

4353	KerbDrain® HB405 7-6m external mitre channel 500/487mm D 400	500/487	150	405	380	31.5
4352	KerbDrain® HB405 10-8m external mitre channel 500/490mm D 400	500/490	150	405	380	31.6
4351	KerbDrain® HB405 25-11m external mitre channel 500/493mm D 400	500/493	150	405	380	31.7
4354	KerbDrain® HB405 25-11m internal mitre channel 500/503mm D 400	500/503	150	405	380	32.0

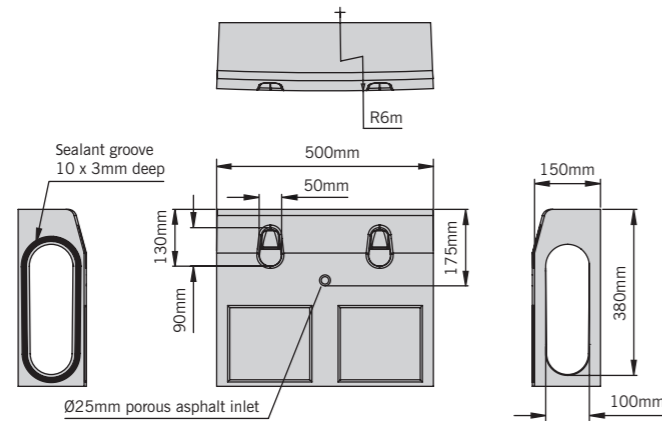
HB405 half battered mitre units



## ACO KerbDrain® HB405

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB405 half battered 6m external radius units</b>						
4355	KerbDrain® HB405 6m external radius channel 496mm D 400	500/496	150	405	380	32.7

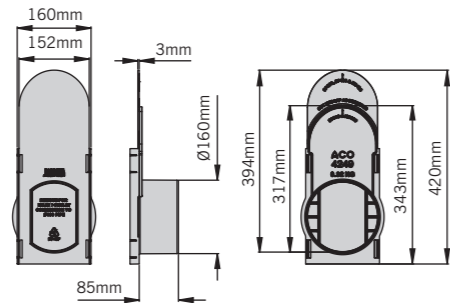
HB405 6m external radius units



### HB405 multifunctional end cap

4249	KerbDrain® SP380, HB405, HB480 & SP455 multifunctional end cap	3	160	420	n/a	0.32
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HB405 multifunctional end cap



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB480



The ACO KerbDrain® 480 half battered range has a profile to match a standard HB1 kerb stone. The range is ideal for draining large catchment areas or applications which require long runs to outlet.

ACO KerbDrain® HB480 is available in 0.5m lengths with the following components:

- Access units
- Gully units
- Bus stop kerbs
- Drop kerbs and centre stones for vehicle crossings
- Mitre units
- Junction channels for road junctions
- End caps and unions



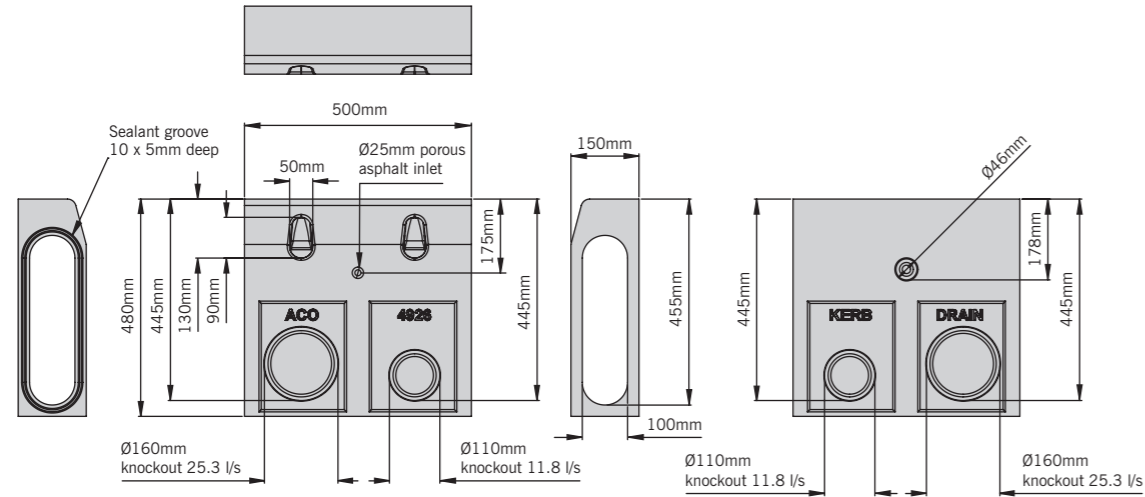
HB Profile	Kitemarked
480mm Unit depth	1m units
Hydraulic capacity	HB to SP transitions
1360m <sup>2</sup> * Catchment area	Bus stop
Load Class	* Example run based on 50m length to outlet

## ACO KerbDrain® HB480

## ACO KerbDrain® HB480

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered kerb units</b>						
4926	KerbDrain® HB480 channel 500mm D 400	500	150	480	455	35.9
4923	KerbDrain® HB480 blind channel unit 500mm D 400	500	150	480	455	36.4

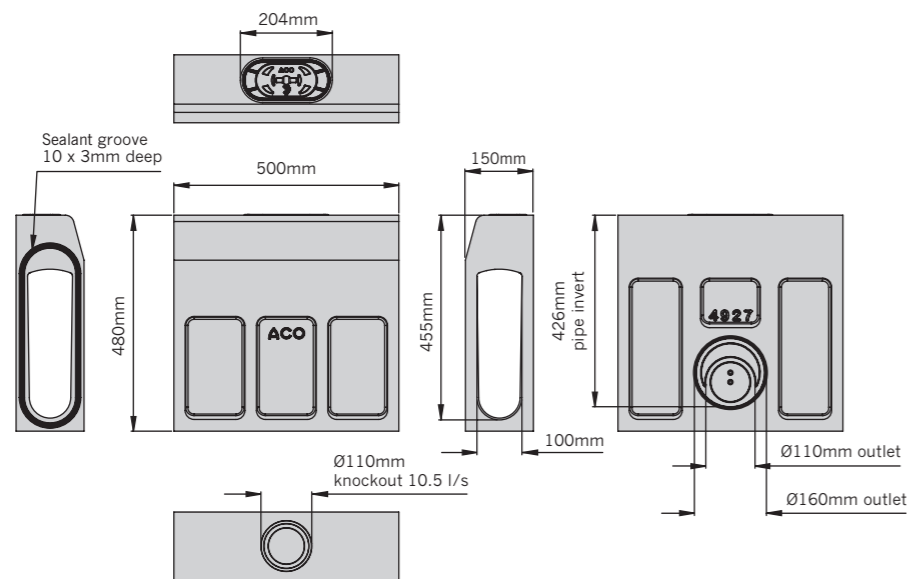
HB480 500mm unit



### HB480 half battered access unit

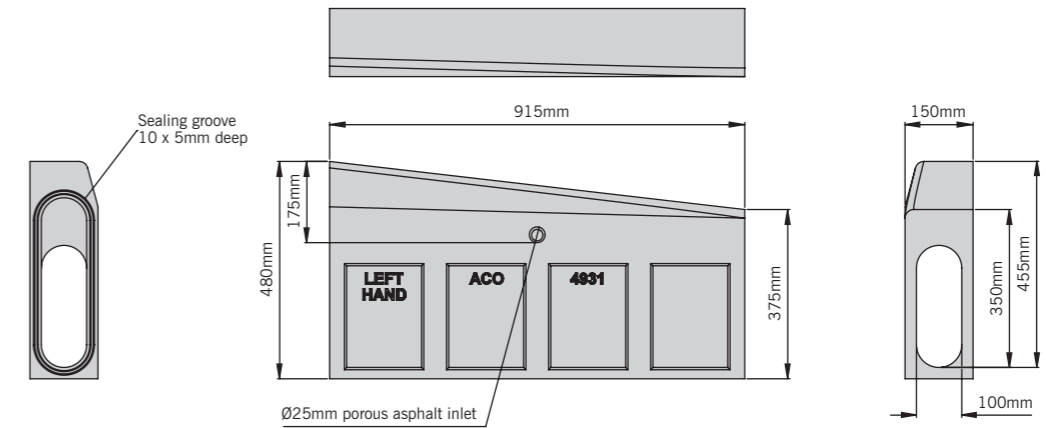
4927	KerbDrain® HB480 access unit 500mm D 400	500	150	480	455	37.4
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HB480 access unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered drop kerb units</b>						
4931	KerbDrain® HB480 left-hand drop kerb 915mm D 400	915	150	480/375	455/350	66.7
4932	KerbDrain® HB480 right-hand drop kerb 915mm D 400	915	150	480/375	455/350	66.7

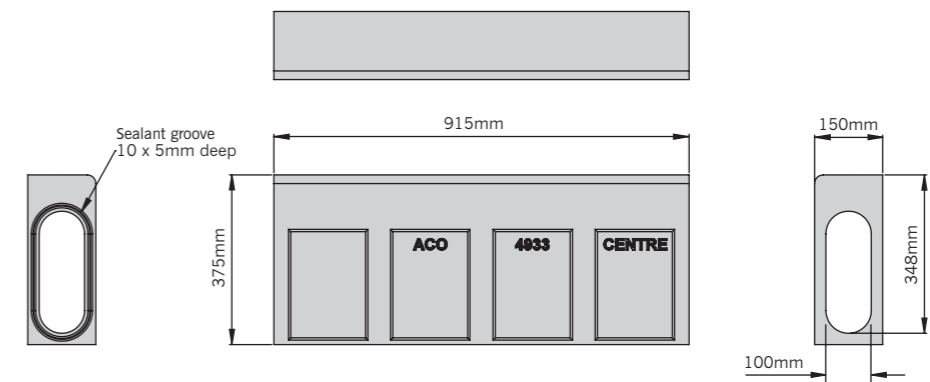
HB480 left-hand drop kerb



### HB480 half battered centre stone unit with 25mm upstand

4933	KerbDrain® HB480 centre stone 915mm D 400	915	150	375	348	59.8
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HB480 centre stone with 25mm upstand

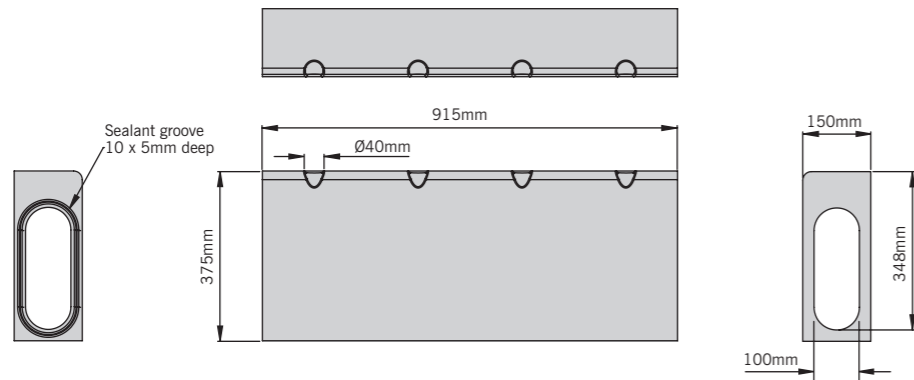


## ACO KerbDrain® HB480

## ACO KerbDrain® HB480

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered perforated centre stone unit with 25mm upstand</b>						
4983	KerbDrain® HB480 perforated centre stone 915mm D 400	915	150	375	348	59.7
4997	KerbDrain® Heelguard™ insert for perforated centrestone	50	-	-	-	0.1

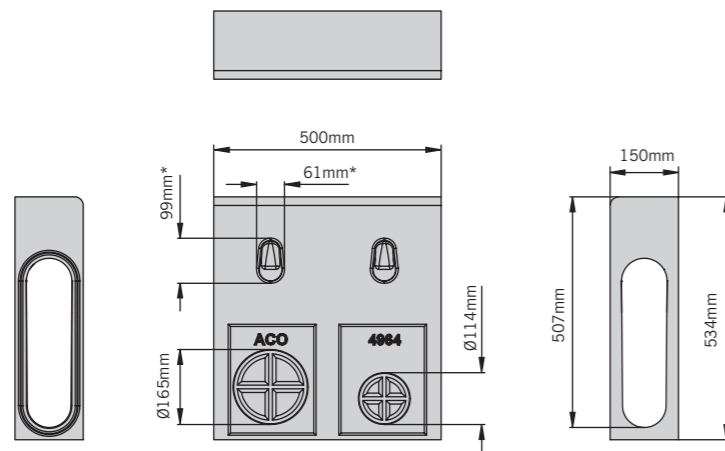
HB480 perforated centre stone with 25mm upstand



### HB480 bullnosed bus stop kerb unit with 180mm upstand

4964	KerbDrain® HB480 bus stop kerb channel 500mm D 400	500	150	534	507	44.9
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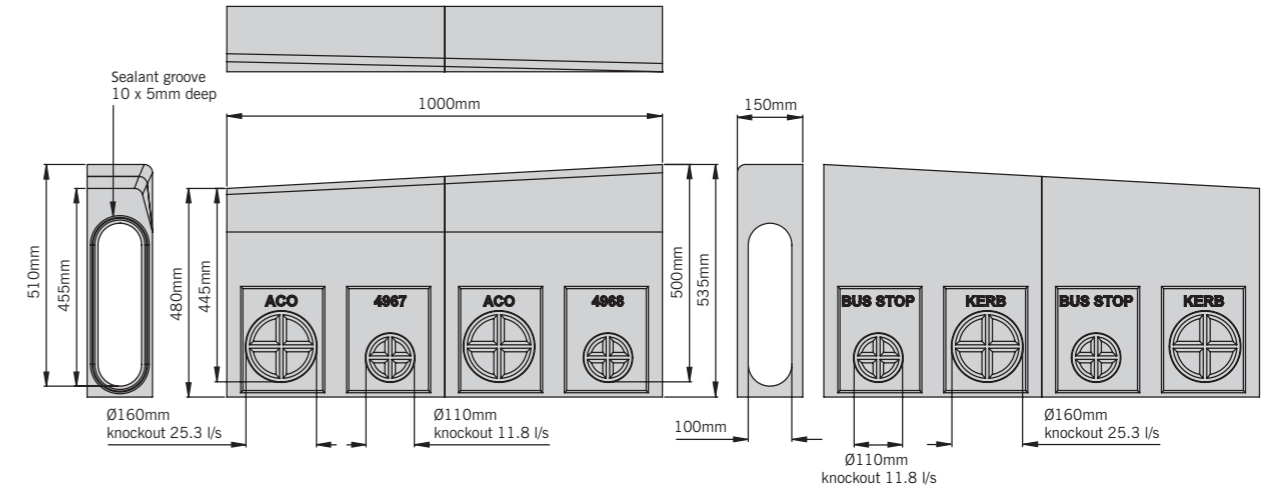
HB480 bus stop kerb



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered bus stop transition kerb units</b>						
4965	KerbDrain® HB480 bus stop left-hand transition kerb 1000mm D 400	1000	150	535/480	455/510	83.4
4966	KerbDrain® HB480 bus stop right-hand transition kerb 1000mm D 400	1000	150	535/480	455/510	83.4

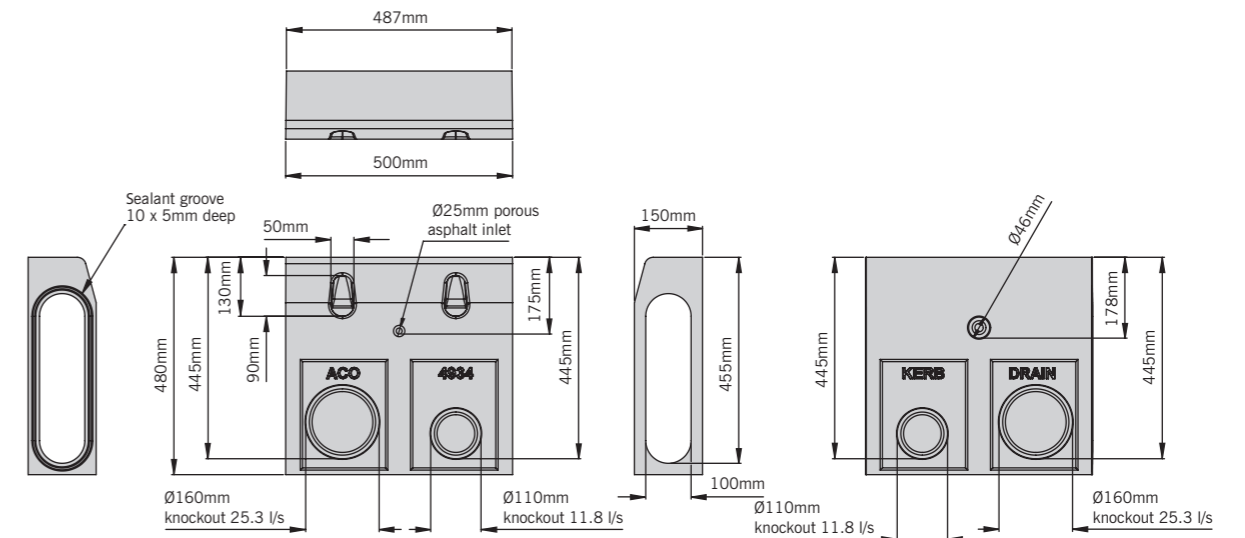
HB480 left-hand bus stop transition kerb



### HB480 half battered mitre units

4934	KerbDrain® HB480 7-6m external mitre channel 500/487mm D 400	500/487	150	480	455	36.2
4935	KerbDrain® HB480 10-8m external mitre channel 500/490mm D 400	500/490	150	480	455	35.7
4936	KerbDrain® HB480 25-11m external mitre channel 500/493mm D 400	500/493	150	480	455	35.2
4937	KerbDrain® HB480 25-11m internal mitre channel 500/503mm D 400	500/503	150	480	455	36.1

HB480 7-6m external mitre



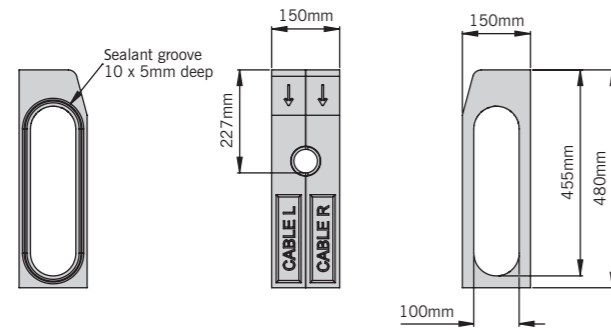
Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.



## ACO KerbDrain® HB480

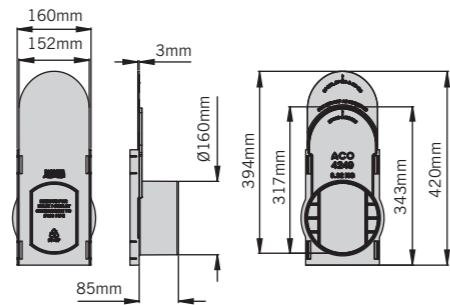
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered cable loop unit</b>						
4943	KerbDrain® HB480 cable loop 150mm D 400	150	150	480	455	12.2

HB480 cable loop unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 multifunctional end cap</b>						
4249	KerbDrain® SP380, HB405, HB480 & SP455 multifunctional end cap	3	160	420	n/a	0.32

HB480 multifunctional end cap

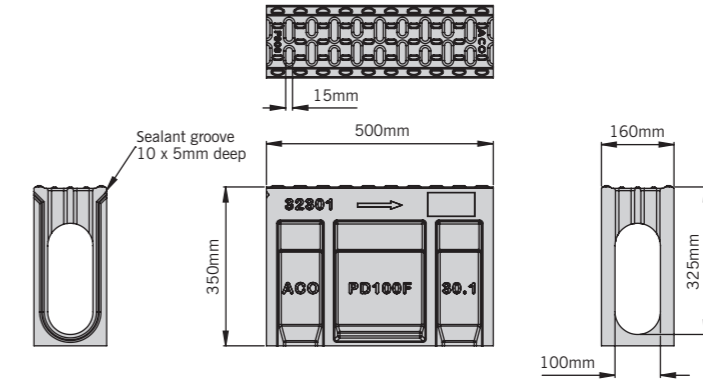


Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® HB480

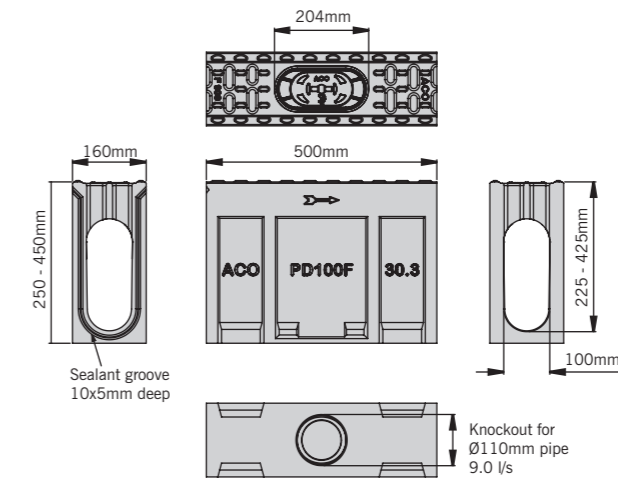
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered junction channel unit - black</b>						
32301	RoadDrain® PD100 F 30.1 channel 500mm F 900	500	160	350	325	26.0

HB480 junction channel unit



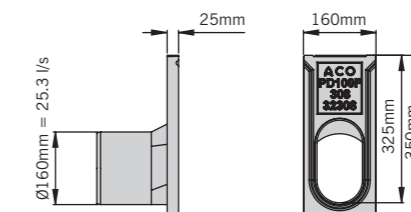
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered junction channel access unit – black</b>						
32303	RoadDrain® PD100 F 30.3 access unit 500mm F 900	500	160	350	325	31.0

HB480 junction channel unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>HB480 half battered junction channel inlet/outlet end cap</b>						
32308	RoadDrain® PD100 F outlet/inlet end cap Ø160mm 350mm deep	25	160	350	325	2.1

HB480 junction channel inlet/outlet end cap



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 50. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

# ACO KerbDrain® half battered gully

## ACO KerbDrain® half battered gully



ACO KerbDrain® half battered gully units provide the outfall connection of the system to traditional underground drainage or road gullies, management of silt, and access for maintenance and cleaning. The gully unit also provides fast and simple connection between any sizes of half battered unit within the ACO KerbDrain® range.

Gullies are supplied with a ductile iron cover and frame and a polymer concrete unit for channel connection. These two components form the top assembly for all ACO KerbDrain® gully options. The ductile iron cover of the top assembly is lockable and for improved safety to road users can be orientated to suit traffic direction.

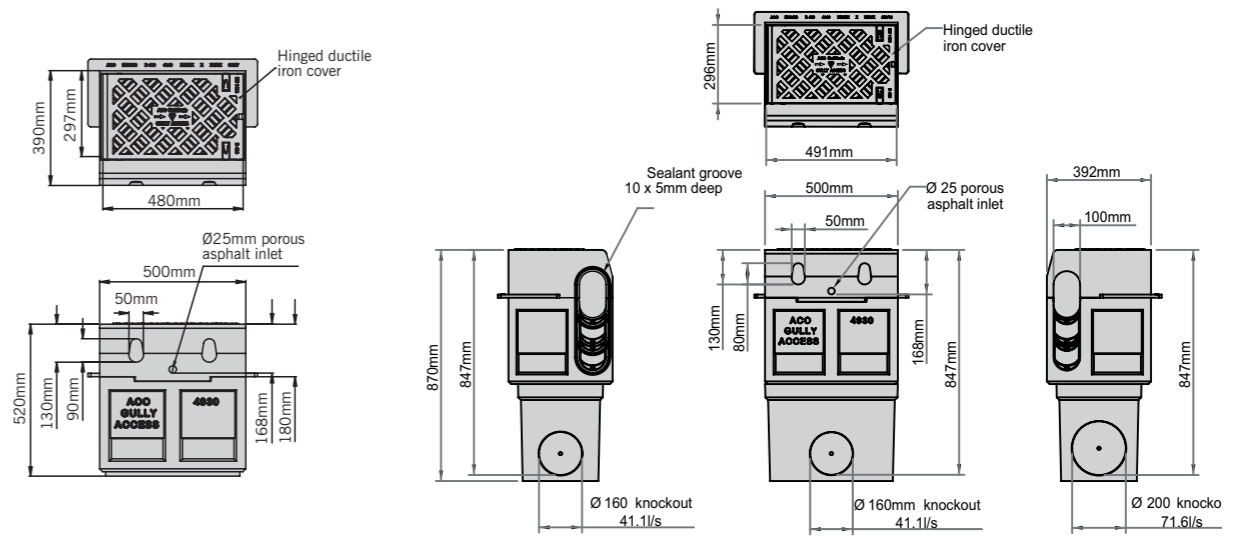
The ACO KerbDrain® gully top assembly can be specified on its own or in conjunction with four Vienite® polymer concrete base options which allow drainage designs to be optimised for silt and hydraulic capacity or outlet connection.

Available gully base options are shallow and deep units, deep unit with roddable foul air trap or Ø450mm road gully connector. Gully base units are provided with outlet connections for Ø160mm, Ø200mm and Ø225mm pipe and supplied with a galvanised steel gully bucket. For full details please see table that follows.

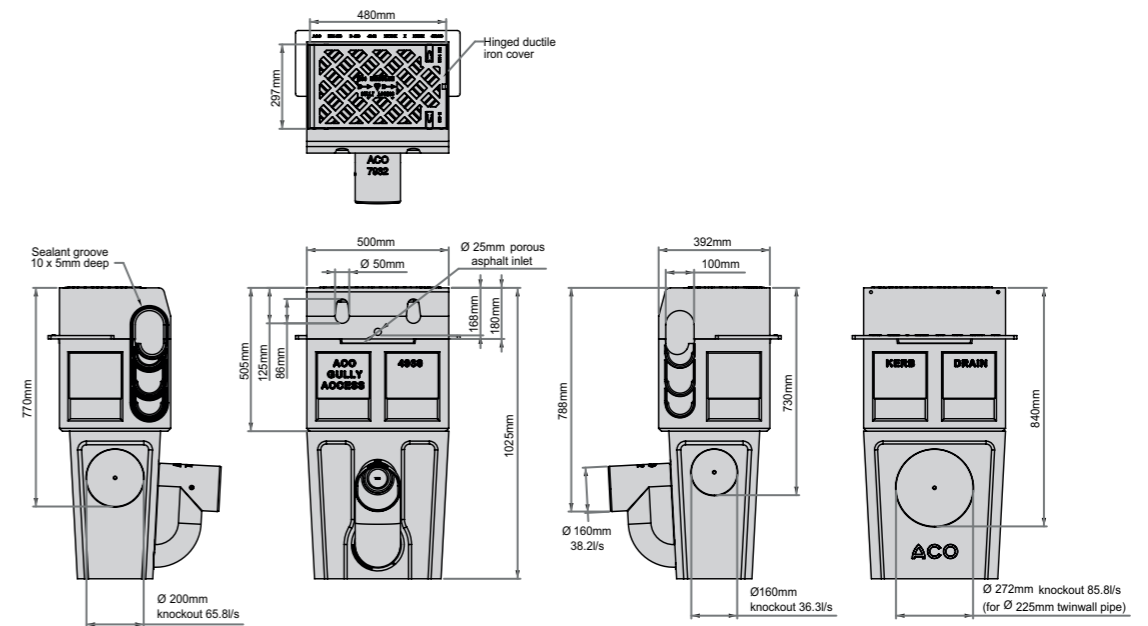
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
4928	KerbDrain® HB gully access top assembly D 400	500	390	520	-	76.8
4182	KerbDrain® HB KD610 gully assembly shallow D 400	500	390	870	847	107.4
4183	KerbDrain® HB KD611 gully assembly deep D 400	500	390	1025	992	124.2
4184	KerbDrain® HB KD612 gully assembly deep with roddable foul air trap D 400	500	390	1025	787	124.5

Top assembly KDHBG

Top and shallow base assembly KDHB610



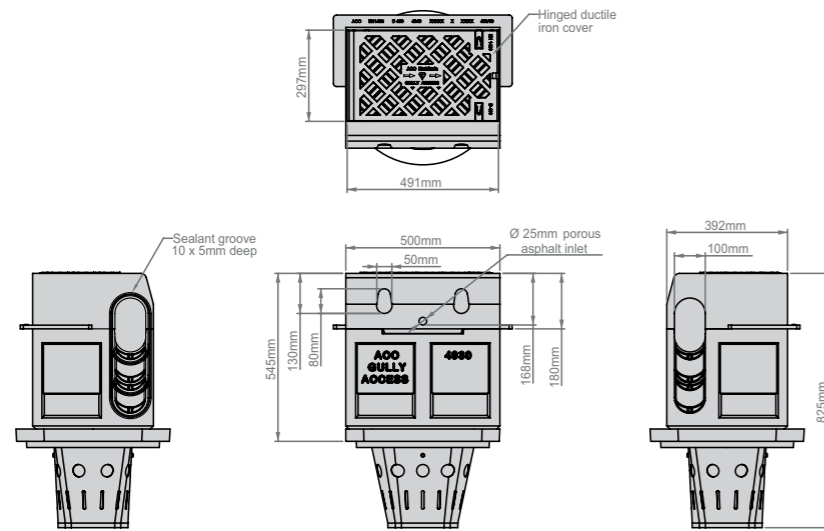
Top and roddable deep base assembly KDHB612RE



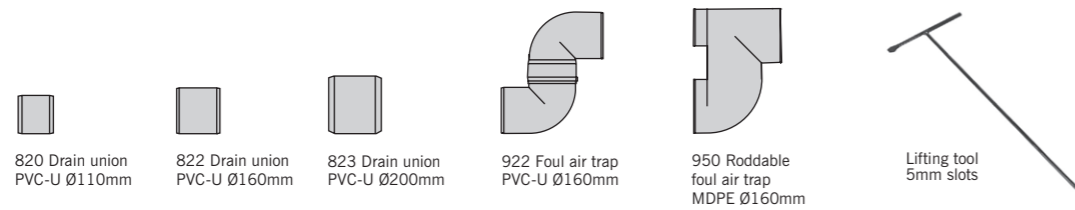
These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® half battered gully

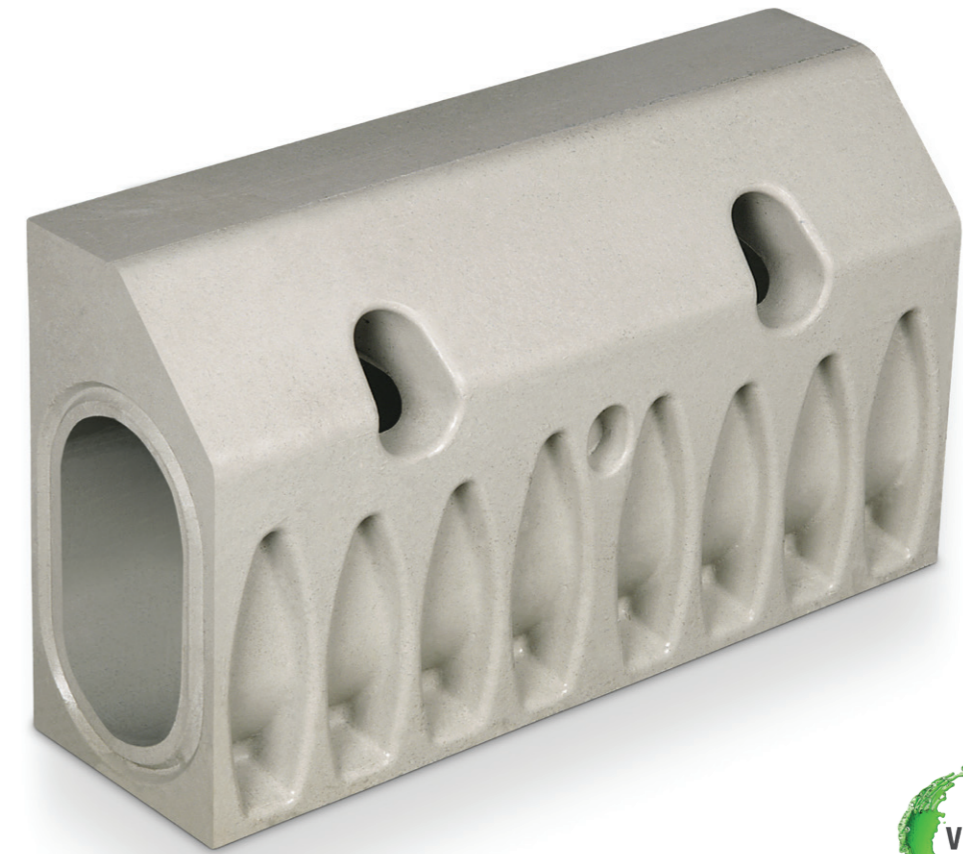
Top and road gully connector KDHB615



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Invert Type	Weight [kg]
<b>ACO KerbDrain® pipe accessories</b>							
0056	820 Drain union PVC-U Ø110mm	100	110	-	-	-	0.1
0058	822 Drain union PVC-U Ø160mm	150	160	-	-	-	0.5
2723	823 Drain union PVC-U Ø200mm	200	200	-	-	-	0.6
2638	922 Foul air trap PVC-U Ø160mm	-	160	-	-	-	1.9
7932	950 Roddable foul air trap MDPE Ø160mm	-	160	-	-	-	0.8
1367	Lifting tool 5mm slots	-	-	-	-	-	0.2



## ACO KerbDrain® SP280



The ACO KerbDrain® 280 splayed range has a profile to match a standard SP kerb stone. The range is ideal for draining medium size catchments such as rural highways and can be easily connected to our 305 half battered range via the use of transition units.

ACO KerbDrain® SP280 is available in 1m or 0.5m lengths with the following components:

- Access units
- Gully units
- Drop kerbs and centre stones for vehicle crossings
- Transition units



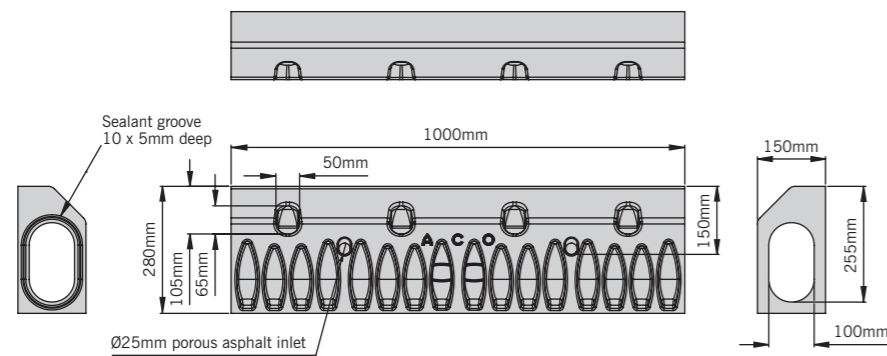
SP Profile	Kitemarked
280mm Unit depth	1m units
Hydraulic capacity	HB to SP transitions
386m <sup>2</sup> * Catchment area	Bus stop
Load Class	* Example run based on 50m length to outlet

## ACO KerbDrain® SP280

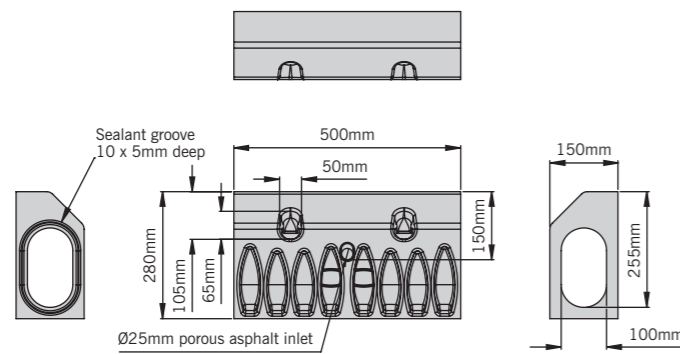
## ACO KerbDrain® SP280

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP280 splayed kerb units</b>						
7930	KerbDrain® SP280 channel 1000mm D 400	1000	150	280	255	44.9
7935	KerbDrain® SP280 channel 500mm D 400	500	150	280	255	22.2

SP280 1000mm unit

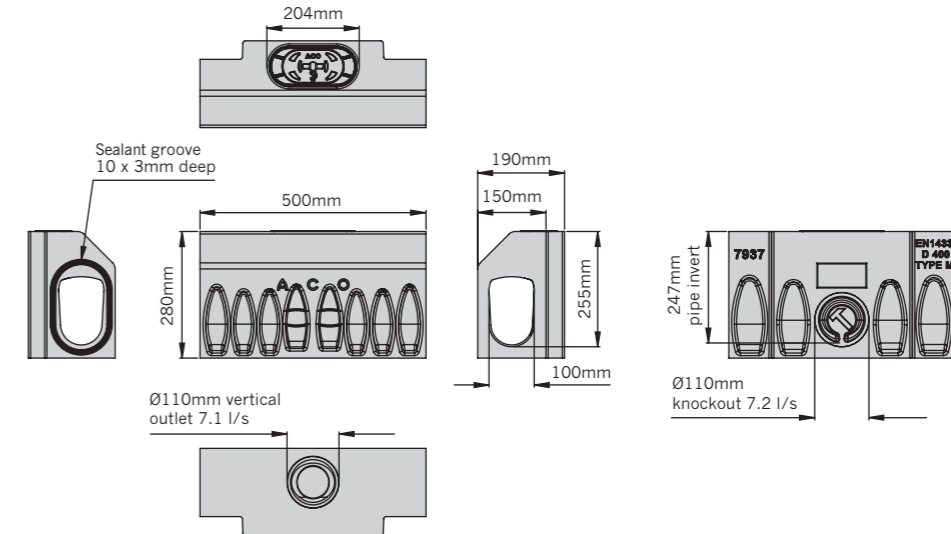


SP280 500mm unit



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP280 splayed access units</b>						
7937	KerbDrain® SP280 access unit 500mm D 400	500	150/190	280	255	29.4

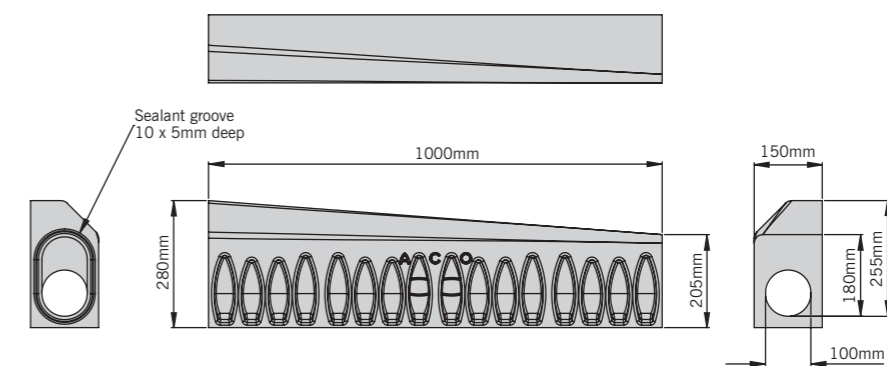
SP280 access unit



### SP280 drop kerb units

7938	KerbDrain® SP280 left-hand drop kerb 1000mm D 400	1000	150	280/205	255	44.6
7939	KerbDrain® SP280 right-hand drop kerb 1000mm D 400	1000	150	280/205	255	44.6

SP280 left-hand drop kerb



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® SP280

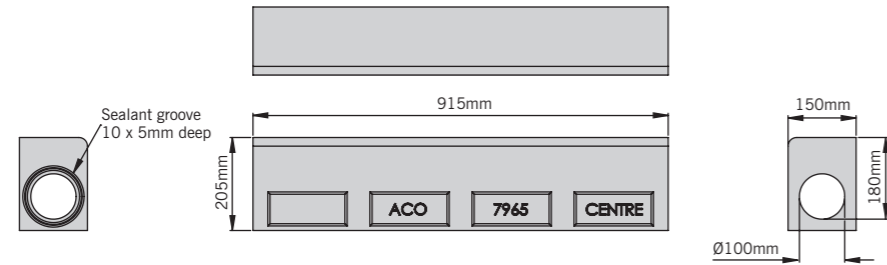
## ACO KerbDrain® SP280

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
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### SP280 splayed centre stone unit with 25mm upstand

7965	KerbDrain® SP280/HB305 centre stone 915mm D 400	915	150	205	180	45.0
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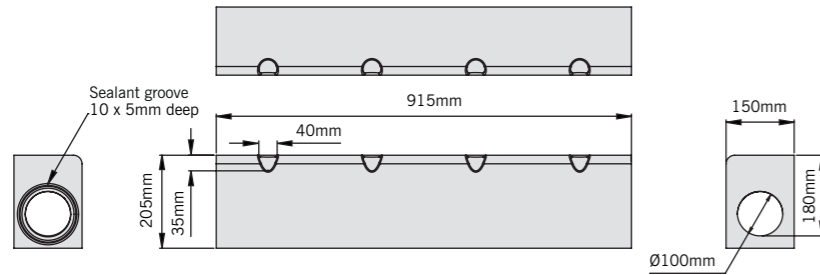
SP280 centre stone with 25mm upstand



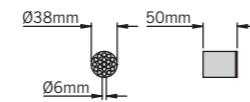
### SP280 splayed perforated centre stone unit

4982	KerbDrain® SP280/HB305 perforated centre stone 915mm D 400	915	150	205	180	42.9
4997	KerbDrain® Heelguard™ insert for perforated centre stone	50	-	-	-	0.1

SP280 perforated centre stone



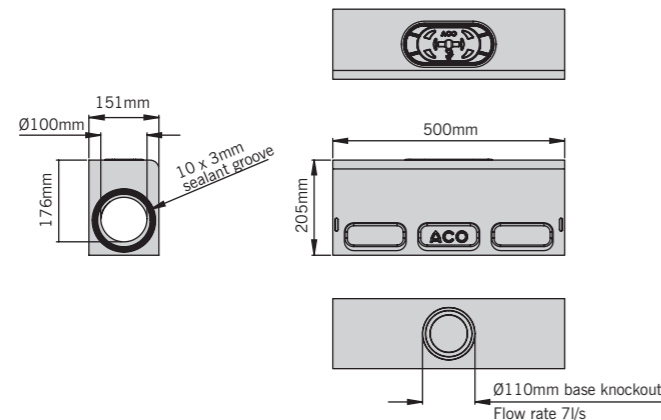
Heelguard insert



### SP280 centre stone access unit

4993	KerbDrain® HB305/SP280 centre stone access unit 500mm D 400	500	151	205	180	21.57
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SP280 centre stone access unit

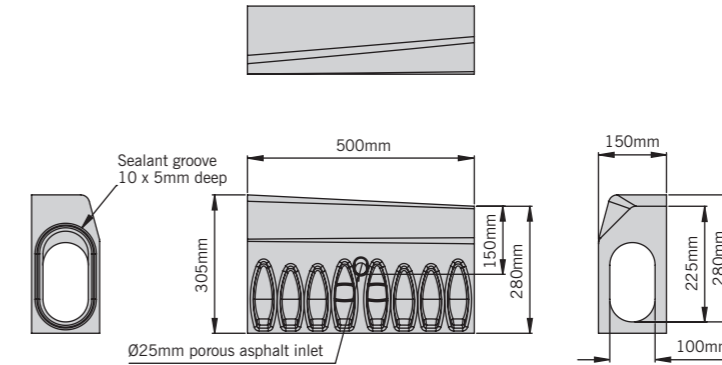


Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
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### SP280 splayed transition units

7941	KerbDrain® SP280 left-hand HB transition unit 500mm D 400	500	150	305/280	280/225	24.6
7940	KerbDrain® SP280 right-hand HB transition unit 500mm D 400	500	150	305/280	280/225	24.6

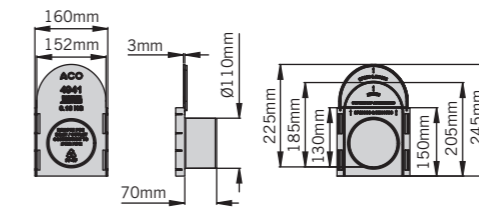
SP280 left-hand transition unit



### SP280 multifunctional end cap

4941	KerbDrain® HB255, SP280 & HB305 multifunctional end cap	3	160	245	n/a	0.16
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SP280 multifunctional end cap



# ACO KerbDrain® SP380

## ACO KerbDrain® SP380










The ACO KerbDrain® 380 splayed range has a profile to match a standard SP kerb stone. The range is ideal for draining larger catchment areas and bridges the hydraulic gap between our 280 and 455 splay ranges allowing for optimised drainage designs. ACO KerbDrain® 380 Splay can be easily connected to our 405 half battered range via the use of transition units.

ACO KerbDrain® SP380 is available in 1m or 0.5m lengths with the following components:

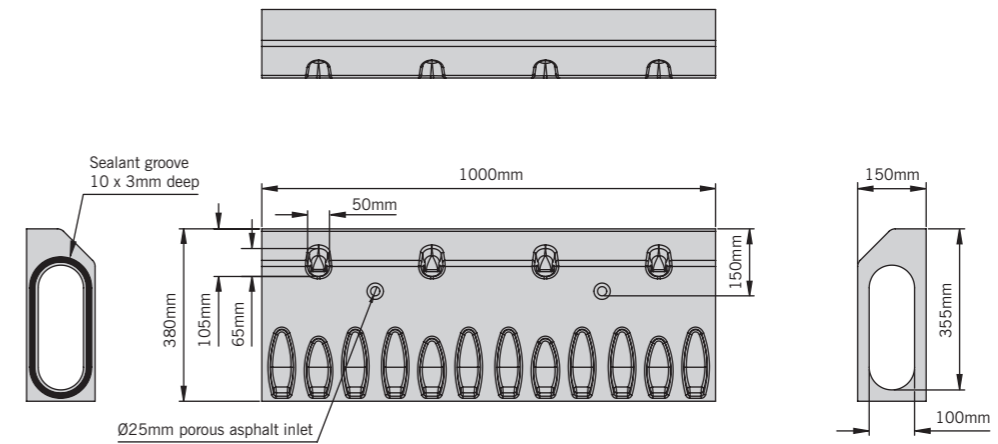
- Access units
- Gully units
- Drop kerbs and centre stones for vehicle crossings
- Transition units
- End caps and unions



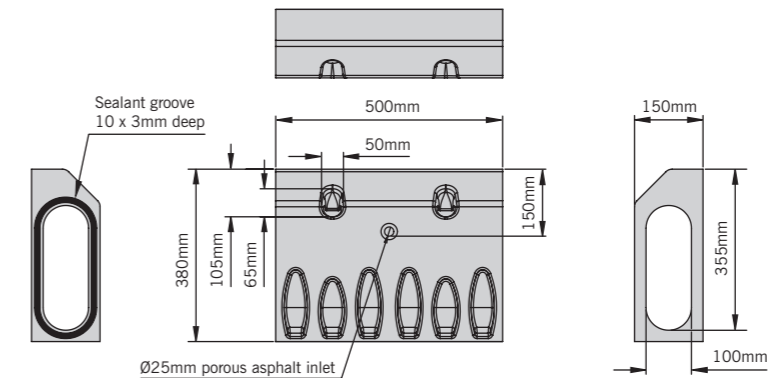
 SP Profile	 Kitemarked
380mm Unit depth	 1m units
 Hydraulic capacity	 HB to SP transitions
894m <sup>2</sup> * Catchment area	 Bus stop
 Load Class	* Example run based on 50m length to outlet

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP380 splayed kerb units</b>						
4241	KerbDrain® SP380 channel 1000mm D 400	1000	150	380	355	59.6
4240	KerbDrain® SP380 channel 500mm D 400	500	150	380	355	29.0

SP380 1000mm unit



SP380 500mm unit



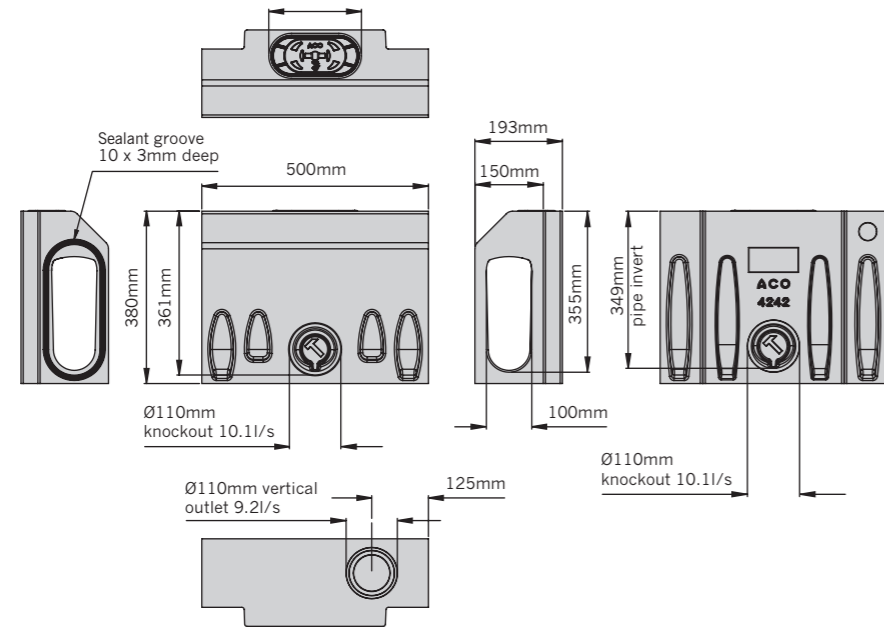
Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® SP380

## ACO KerbDrain® SP380

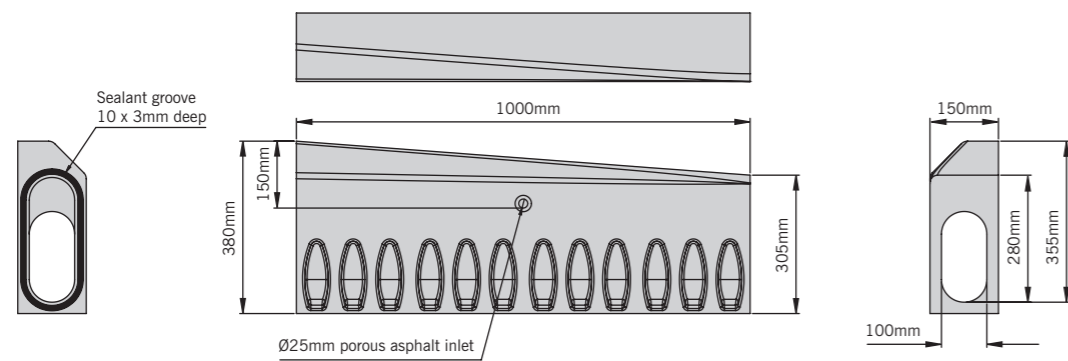
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP380 splayed access units</b>						
4242	KerbDrain® SP380 access unit 500mm D 400	500	150/193	380	355	38.8

SP380 access unit



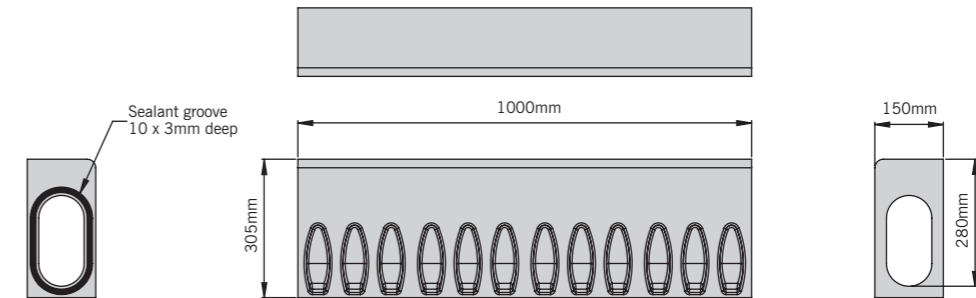
<b>SP380 splayed drop kerb units</b>						
4243	KerbDrain® SP380 left-hand drop kerb 1000mm D 400	1000	150	380/305	355/280	59.5
4244	KerbDrain® SP380 right-hand drop kerb 1000mm D 400	1000	150	380/305	355/280	59.5

SP380 left-hand drop kerb



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP380 splayed centre stone</b>						
4236	KerbDrain® HB405/SP380 centre stone 1000mm D 400	1000	150	305	280	60.1

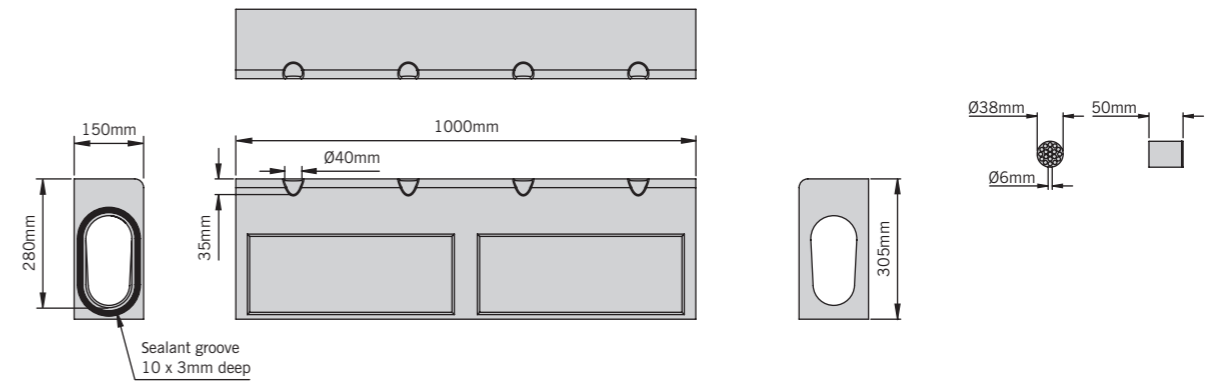
SP380 centre stone



<b>SP380 splayed perforated centre stone unit</b>						
4350	KerbDrain® HB405/SP380 perforated centre stone 1000mm D 400	915	150	305	280	57.6
4997	KerbDrain® Heelguard™ insert for perforated centre stone	50	-	-	-	0.1

SP380 perforated centre stone

Heelguard insert



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

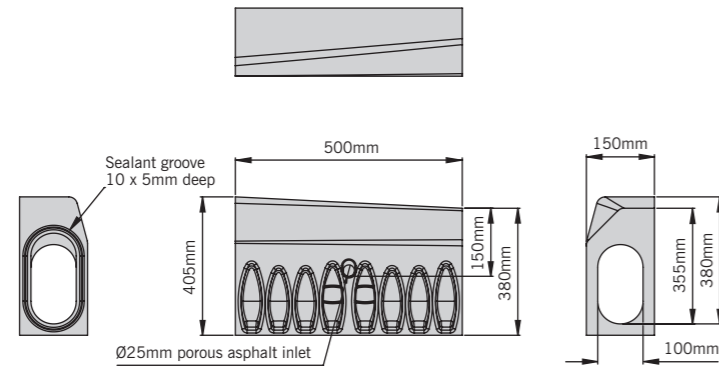
\*\*Transition units are designated LH or RH when viewed from carriageway. This unit allows connection between SP380 and HB405 for continuous drainage. Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68.

These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

## ACO KerbDrain® SP380

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP380 splayed transition units</b>						
4245	KerbDrain® SP380 left-hand HB transition unit 500mm D 400	500	150	405/380	380/355	31.0
4246	KerbDrain® SP380 right-hand HB transition unit 500mm D 400	500	150	405/380	380/355	31.0

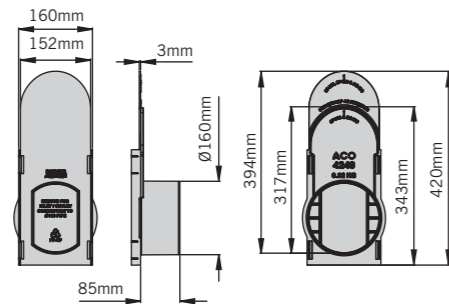
SP380 left-hand transition unit



### SP380 multifunctional end cap

4249	KerbDrain® SP380, HB405, HB480 & SP455 multifunctional end cap	3	160	420	n/a	0.32
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SP380 multifunctional end cap



## ACO KerbDrain® SP455



The ACO KerbDrain® 455 splayed range has a profile to match a standard SP kerb stone. The range is ideal for draining large catchment areas or applications which require long runs to outlet.

ACO KerbDrain® SP455 is available in 0.5m lengths with the following components:

- Access units
- Gully units
- Drop kerbs and centre stones for vehicle crossings
- Perforated centre stone units
- Transition units
- End caps and unions



SP Profile	Kitemarked
455mm Unit depth	1m units
Hydraulic capacity	HB to SP transitions
1110m <sup>2</sup> * Catchment area	Bus stop
Load Class	* Example run based on 50m length to outlet

Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. For repair kit information please see page 35. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

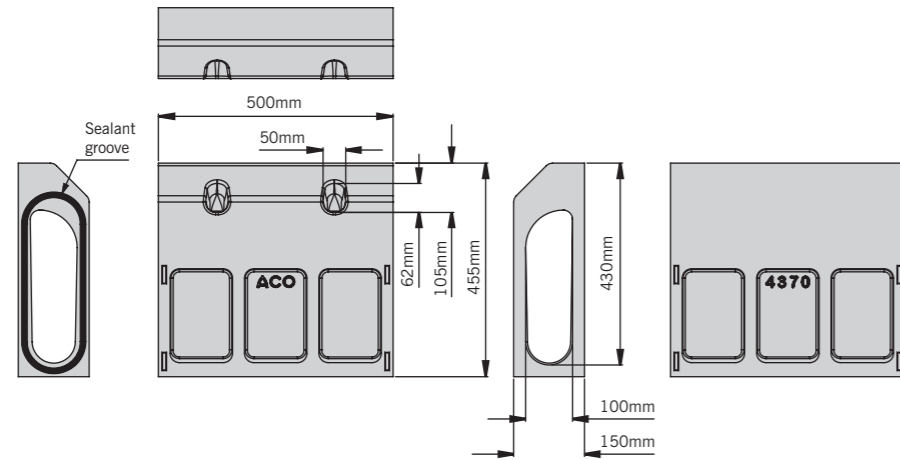


## ACO KerbDrain® SP455

## ACO KerbDrain® SP455

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP455 splayed kerb units</b>						
4370	KerbDrain® SP455 channel unit 500mm D 400	500	150	455	430	34.74

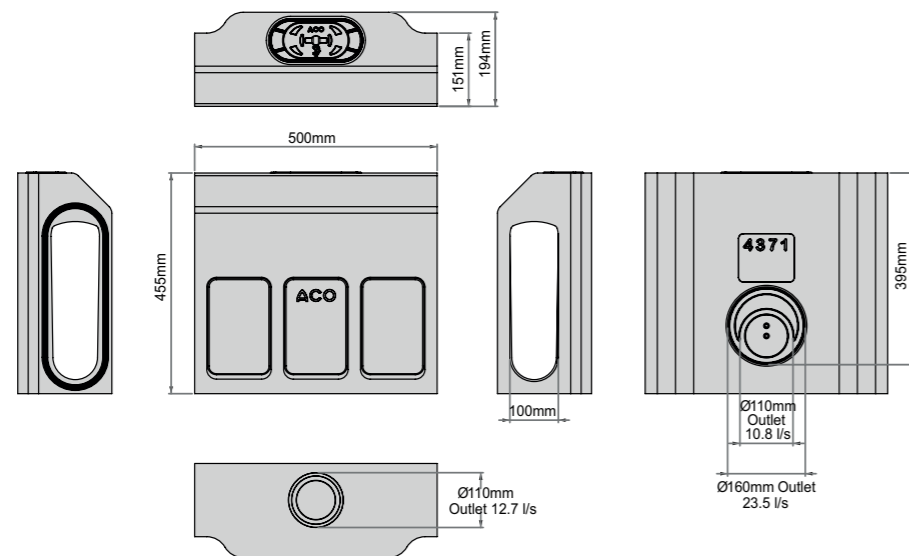
SP455 500mm unit



### SP455 splayed access units

4371	KerbDrain® SP455 access unit 500mm D 400	500	194	455	430	46.21
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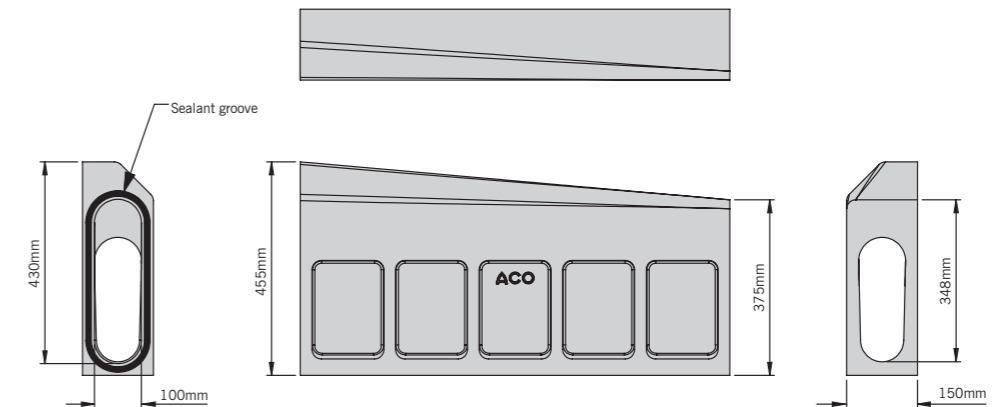
SP455 splayed access units



Note: For details regarding the gully, foul air-traps and drain unions for use with this system please refer to page 68. For repair kit information please see page 35. These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP455 splayed drop kerb units</b>						
4379	KerbDrain® SP455 left-hand drop kerb 915mm D 400	915	150	455/375	429/348	58.33
4378	KerbDrain® SP455 right-hand drop kerb 915mm D 400	915	150	455/375	429/348	59.02

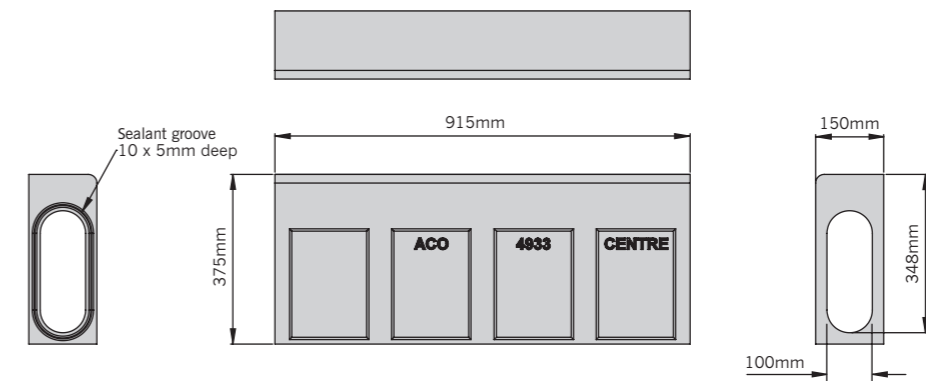
SP455 splayed drop kerb units



### SP455 splayed centre stone

4933	KerbDrain® HB480 centre stone 915mm D 400	915	150	375	348	59.8
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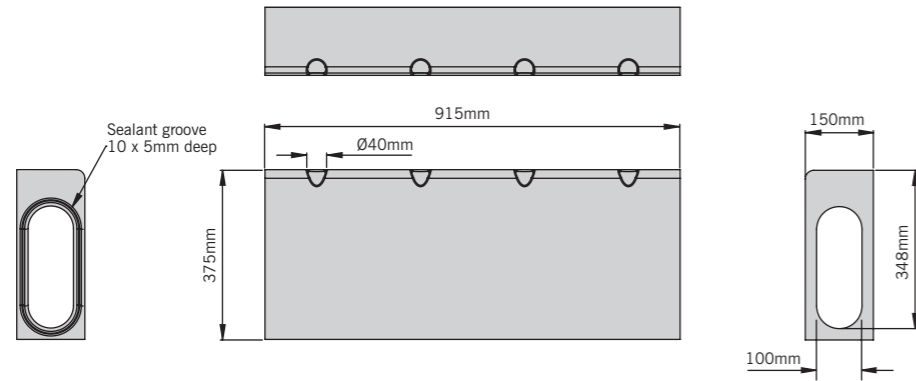
SP455 splayed centre stone



## ACO KerbDrain® SP455

Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>SP455 splayed perforated centre stone unit</b>						
4983	KerbDrain® SP455/HB480 perforated centre stone 915mm D 400	915	150	375	348	59.7
4997	KerbDrain® Heelguard™ insert for perforated centre stone	50	-	-	-	0.1

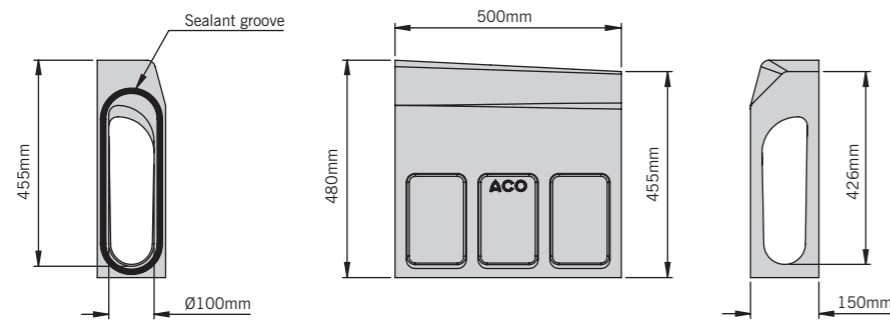
SP455 splayed perforated centre stone unit



### SP455 splayed transition units

4372	KerbDrain® SP455/HB480 left-hand transition unit 500mm D 400	500	150	480/455	455/426	36.19
4373	KerbDrain® SP455/HB480 right-hand transition unit 500mm D 400	500	150	480/455	455/426	36.2

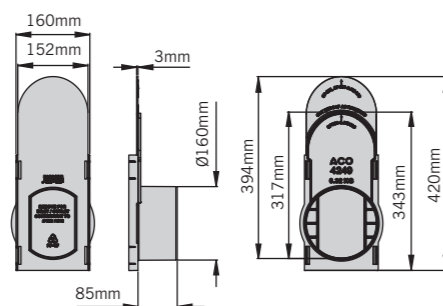
SP455 splayed transition units



### ACO KerbDrain® Multifunctional end caps

4249	KerbDrain® SP380, HB405, HB480 & SP455 multifunctional end cap	3	160	420	394	0.32
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ACO KerbDrain® Multifunctional end caps



## ACO KerbDrain® splayed gully



ACO KerbDrain® splayed gully units provide the outfall connection of the system to traditional underground drainage or road gullies, management of silt, and access for maintenance and cleaning. The gully unit also provides fast and simple connection between any sizes of splayed unit within the ACO KerbDrain® range.

Gullies are supplied with a ductile iron cover and frame and a polymer concrete unit for channel connection. These two components form the top assembly for all ACO KerbDrain® gully options. The ductile iron cover of the top assembly is lockable and for improved safety to road users can be orientated to suit traffic direction.

The ACO KerbDrain® gully top assembly can be specified on its own or in conjunction with four Vienite® polymer concrete base options which allow drainage designs to be optimised for silt and hydraulic capacity or outlet connection.

Available gully base options are shallow and deep units, deep unit with roddable foul air trap or Ø450mm road gully connector. Gully base units are provided with outlet connections for Ø160mm, Ø200mm and Ø225mm pipe and supplied with a galvanised steel gully bucket. For full details please see table that follows.

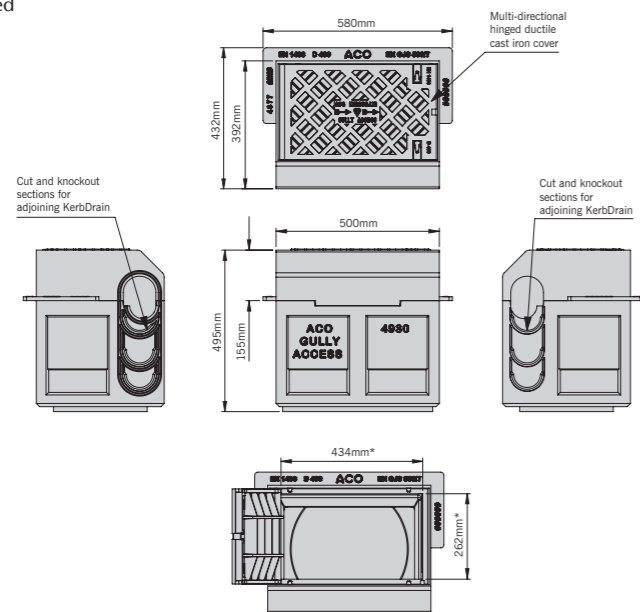
# ACO KerbDrain® splayed gully

# ACO KerbDrain® splayed gully

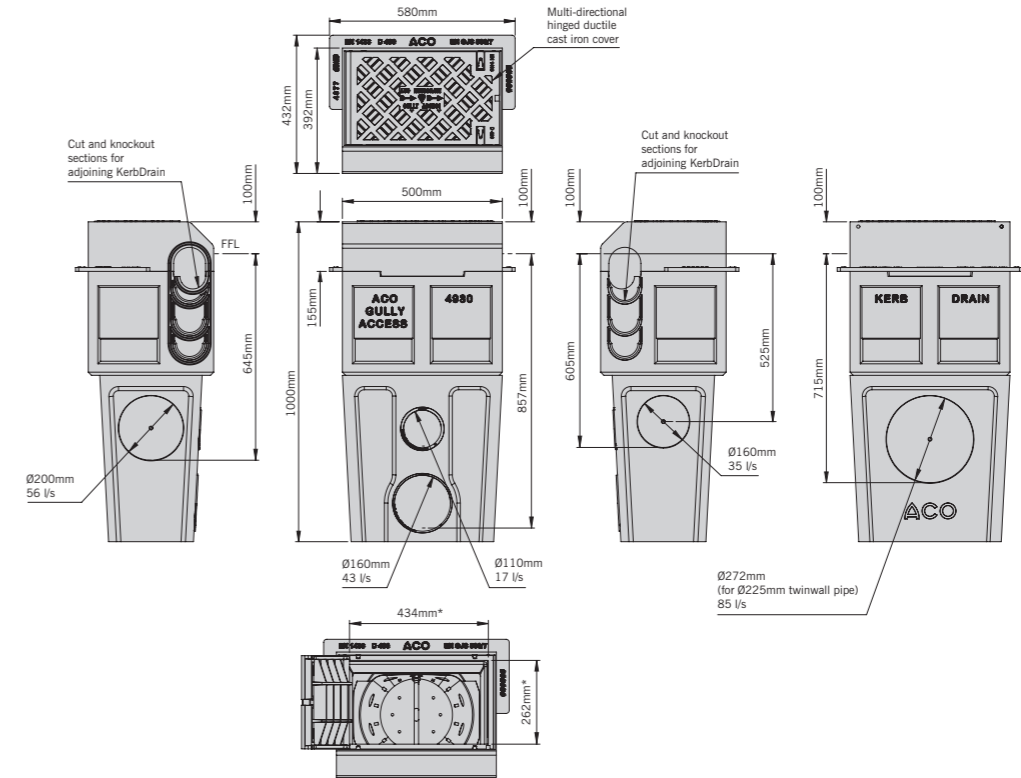
Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]
<b>ACO KerbDrain® splayed gully units</b>						
4380	KerbDrain® splayed gully access top assembly	500	392	495	-	76.7
4381	KerbDrain® splayed gully access top and shallow base assembly	500	392	845	821	110.47
4382	KerbDrain® splayed gully access top and deep base assembly	500	392	1000	957	119.14
4383	KerbDrain® splayed gully access top and foul air trap deep base	500	392	1000	757	119.44
4384	KerbDrain® splayed gully access top and road gully connector assembly	500	392	799*	-	88.41

\* For connection to 450mm diameter road gully

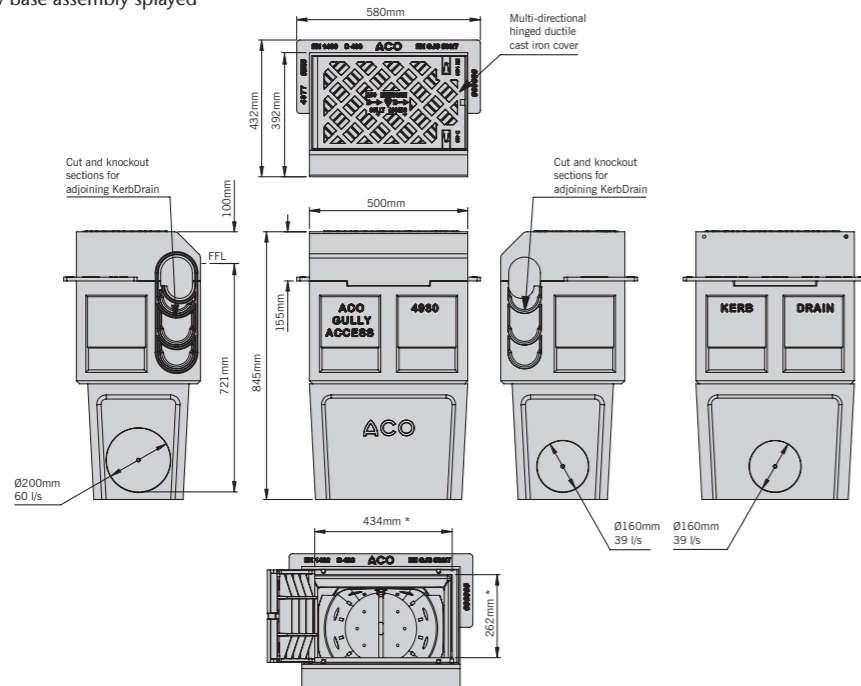
Top assembly splayed



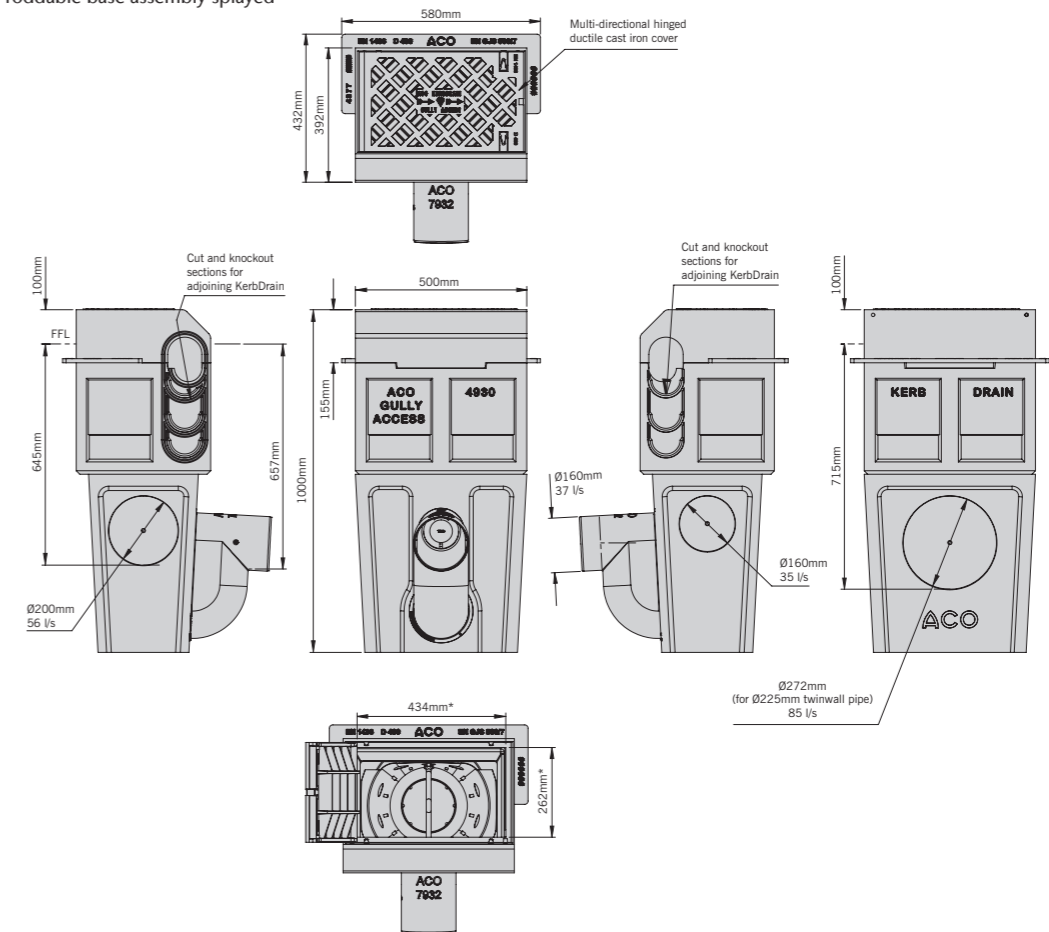
Top and deep base assembly splayed



Top and shallow base assembly splayed

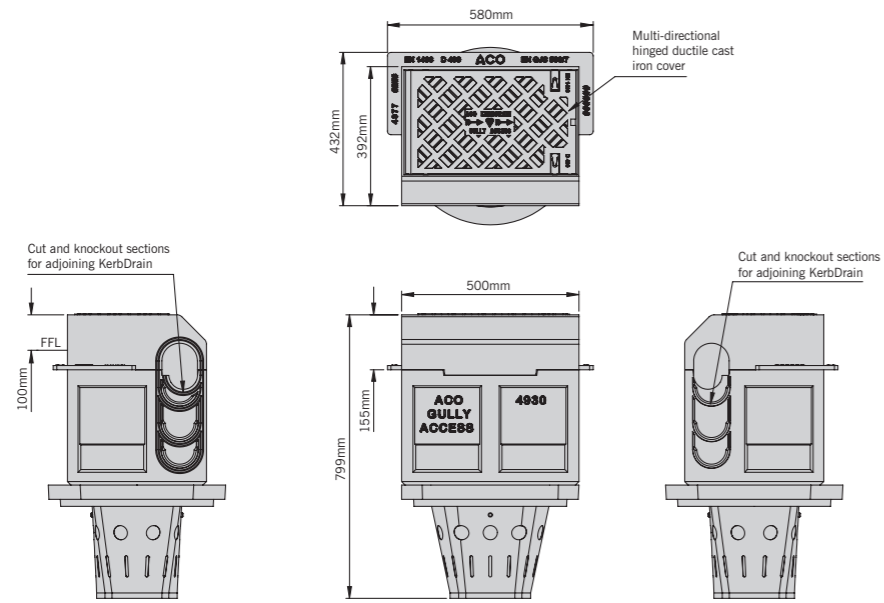


Top and roddable base assembly splayed

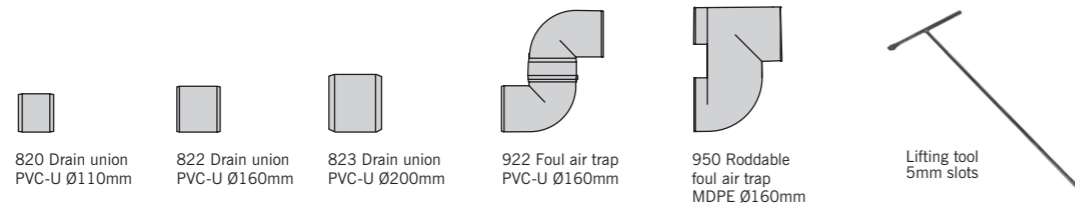


## ACO KerbDrain® splayed gully

Top and road gully connector splayed



Product Code	Description	Length [mm]	Width Overall [mm]	Depth [mm]	Invert Depth [mm]	Invert Type	Weight [kg]
<b>ACO KerbDrain® pipe accessories</b>							
0056	820 Drain union PVC-U Ø110mm	100	110	-	-	-	0.1
0058	822 Drain union PVC-U Ø160mm	150	160	-	-	-	0.5
2723	823 Drain union PVC-U Ø200mm	200	200	-	-	-	0.6
2638	922 Foul air trap PVC-U Ø160mm	-	160	-	-	-	1.9
7932	950 Roddable foul air trap MDPE Ø160mm	-	160	-	-	-	0.8
1367	Lifting tool 5mm slots	-	-	-	-	-	0.2

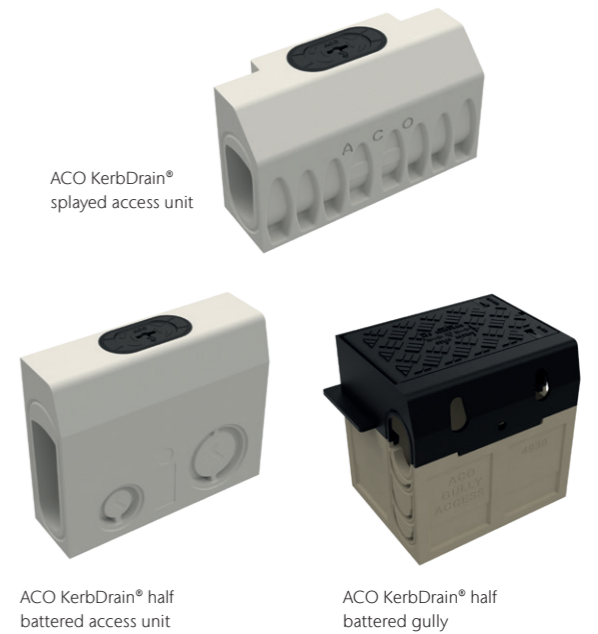


## Maintenance of ACO KerbDrain®

Combined kerb drainage, ACO KerbDrain®, is maintained in very much the same way as grated or monocast systems and can be cleaned with the same jetting equipment.

Access is gained through an access unit or gullies. ACO KerbDrain® gullies provide the outfall connection to different systems and silt management, easily accessed by a ductile iron cover.

Equipment needed: ACO recommend using a recycler combination jetting unit with hydraulic winch, capable of producing pressure from 80 bar (1160 psi) to 150 bar (2176 psi).



### Method

- 1 Remove access unit top.
- 2 Position the jetting unit near the access unit or gully.
- 3 Attach a suitable jetting head and insert into access unit, towards the direction of travel. In this example a 1 inch (25mm) diameter tandem jetting head with forward and backward facing jets was used.
- 4 Introduce a 3-6 inch (75-150mm) suction hose into the adjacent gully/outlet.
- 5 This suction hose will remove the silt/detritus that the jetting hose flushes out.
- 6 Activate the suction hose and jetting hose. A suitable initial jetting pressure is 80 bar or 1160 psi.
- 7 As the jetting head travels up the length of the channel, place boards or tarpaulin over the channel openings to prevent the escape of water (spray back) and protect any vehicles or nearby property. Alternatively reduce the pressure to prevent spray back.
- 8 The jetting head will be propelled to the end of the channel or a determined length. When it reaches the end, increase the pressure to 150 bar (2176 psi).
- 9 Use a hydraulic winch to pull the jetting head backwards toward the access unit. The suction hose previously inserted in the gully/outlet will remove the water and detritus.
- 10 If a reduction of 'spray back' is required reduce the pressure to 80 bar (1160 psi). This pressure will still be sufficient to clean the channel.
- 11 When cleaning is completed, remove hoses and secure all gratings and covers.



## Further Learning

### ACO Professional Development

ACO has recognised that knowledge transfer is fundamental in keeping up-to-date with the latest advancements in surface water management and has a unique training offer that can be accessed online, in-house or at the state-of-art training facility at the ACO Academy.

#### In Company

ACO offers face-to-face professional development sessions. These are carefully designed to last up to 1 hour, so they can be undertaken across a lunch break.



A member of our team will contact you directly to discuss your requirements and will tailor the session to meet your needs.

#### Webinars

ACO has developed a series of webinars that will keep you up to date, bringing you technical expertise as well as more specific product information. Whatever your involvement from specification to installation, there will be a webinar to meet your needs and further your learning.



#### ACO Academy Days

ACO's training facility at its UK head office in Bedfordshire has a theatre-style facility that can hold up to 50 people as well as a number of breakout rooms for small groups.



Professional development training can be combined with more in-depth product training at the on-site learning zone.

#### Seminars

ACO is bringing the experts to you via our programme of regional events, and by sharing information from key influencers within the industry as well as more specific product information. ACO's seminar events will include opportunities to enhance existing knowledge as well as network and discuss thoughts and ideas with other delegates.



[www.aco.co.uk/professional\\_development](http://www.aco.co.uk/professional_development) | email: [ukprofessionaldevelopment@aco.co.uk](mailto:ukprofessionaldevelopment@aco.co.uk)



Case Studies

ACO has operated in the UK for over 30 years and in this time we have worked on ground breaking projects that have pushed the boundaries of surface water management. Our case studies provide bite sized information that counts towards your professional development and can provide inspiration for future projects.

[www.aco.co.uk/case-studies](http://www.aco.co.uk/case-studies)



Colab

Colab is a collaboration of partnerships, bringing together CPD and self-certified content to ensure that knowledge is shared and accessible to the construction industry. Visit our content and CPD partner website: Colab to see more professional development content from partners such as ACO, FutureBuild, CIHT, The Edge, and CIWEM

[www.colab-cpd.co.uk](http://www.colab-cpd.co.uk)

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