



**MULTILINE**  
**Polymer Concrete Drain System**



**ACO SYSTEMS and SOLUTIONS Pvt. Ltd.**

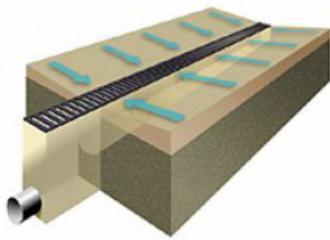
**Your Partner in Water Management Solutions**



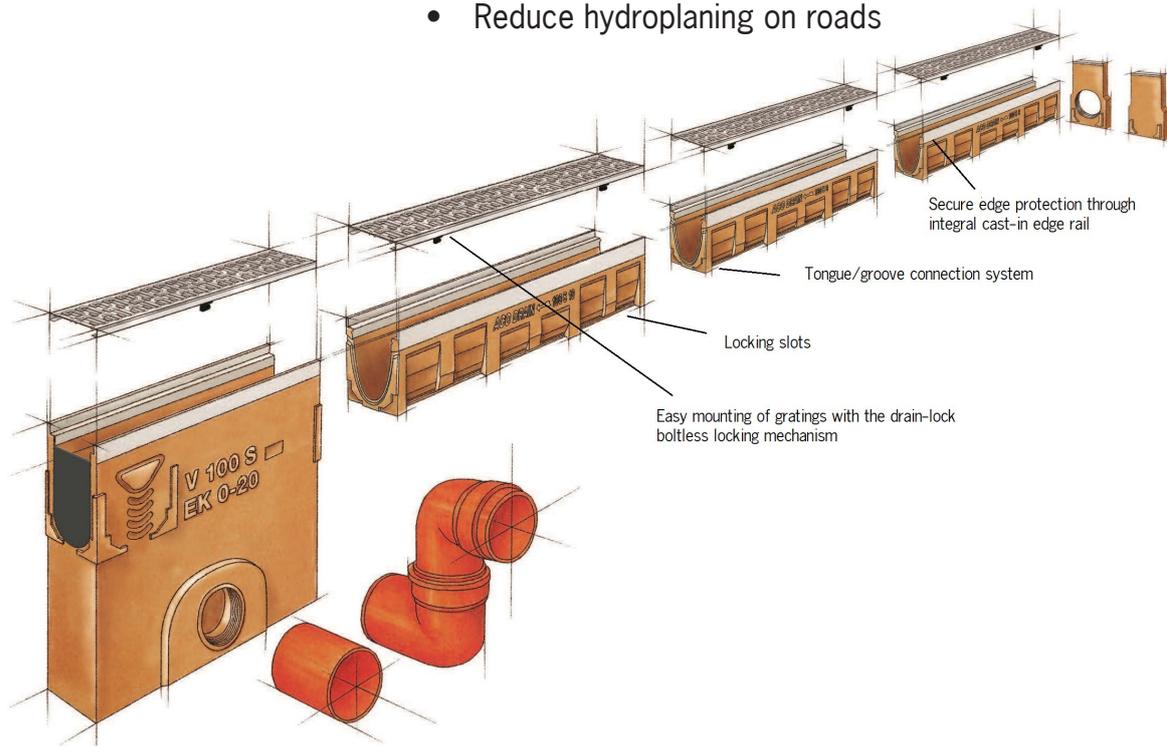
## Benefits of Line Drainage

Surface drainage is important. Whether frequent light rainfall or occasional heavy downpours, surface drainage is necessary. Efficient surface drainage prevents damage to pavements and properties and reduces safety hazards caused by ponding. Surface drainage systems aim to control surface rainfall run-off by slowing its drainage rate, relieving pressure on sewerage systems and mimicking natural drainage as closely as possible.

Surface drainage is designed to:



- Reduce standing water
- Reduce slip hazards and subsequent injury
- Protect and extend life of pavements and roadways
- Protect property from flood damage
- Reduce inconvenience to public users
- Reduce hydroplaning on roads



Line drainage offers many advantages compared to point drain solutions due to the high drainage capacity and easy installation and maintenance. Some further advantages are:

- Neat linear appearance
- Simple grades to design and construct
- Easy to install - shallower excavation and easy grading of pavement
- Continuously intercepts water along its length and provides superior drainage
- Minimal need for underground pipes
- Maintenance is quick and easy as trench is at the surface and easier to access

**What is Polymer Concrete:** Polymer concrete is a versatile highly durable yet lightweight material made from polyester resin binder reinforced by mineral aggregates and fillers.

■ **Strength**

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

■ **Durability**

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

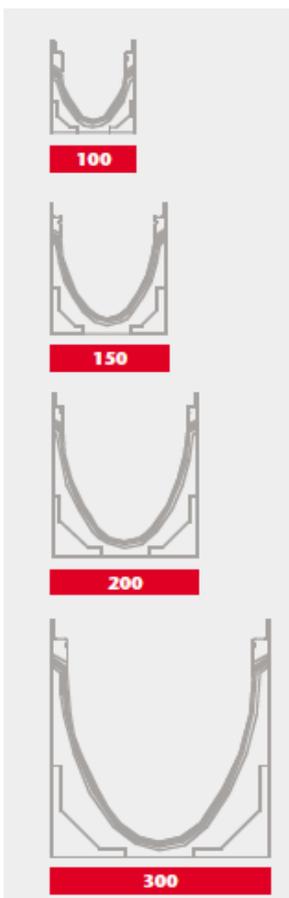
■ **Lightweight for Easy Installation**

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

■ **Hydraulic Efficiency**

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

**System Widths and Load Classification**



class A 15 <sup>1</sup>

traffic areas used exclusively by pedestrians and cyclists, and similar areas such as green spaces



class B 125 <sup>1</sup>

pavements, pedestrian areas and similar surfaces, car parks and parking decks



class C 250 <sup>1</sup>

kerb areas of streets and pavements



class D 400 <sup>1</sup>

road traffic lanes, also pedestrian precincts, car parks and similar paved traffic areas (e.g. freeway parking lots)



class E 600 <sup>1</sup>

non-public traffic areas subject to particularly high wheel loads, e.g. industrial traffic lanes



class F 900 <sup>1</sup>

special areas e.g. aircraft handling areas at civil and military airports

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

<sup>1</sup>) Test force in kN

## Sloped Channels Enhance Water Flow

ACO DRAIN Multiline® drainage systems are suitable for most types of gradients, from sloped to neutral, and allow different gradient types to be combined.

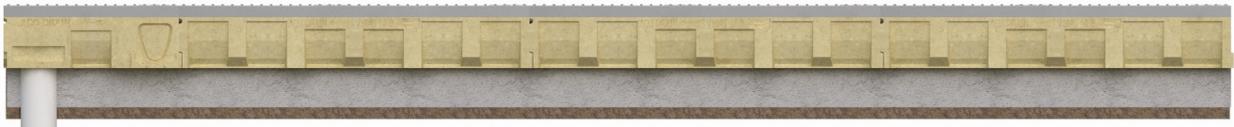
The conditions for complete drainage of the channel drain are best when the system is installed using sloped channels. This speeds up the drainage of the water and boosts the self-cleaning effect. The run-off velocity built up over the first few metres of slope is maintained over the next few metres of the channel drain. This means that for longer drains, only around 20 metres of sloped gradient at the start of the drain are required to achieve the highest drainage performance. The remaining sections of the channel drain can be equipped with stepped or neutral gradients.

Following are the different combinations possible:

### **Neutral channels with no gradient - End outlet**

Typical Application: Ramps, cross road, podiums, landscaping

Maximum recommended length 30 m \*



### **Neutral channels with no gradient - Centre outlet**

Typical Application: Ramps, driveways, podiums, landscaping

Maximum recommended length 60 m \*



### **Continuous Sloped channels - End outlet**

Typical Application: Podium, Basement, landscaping, driveways

Maximum recommended length 20 m \*



\* The mentioned lengths are subjected to the site and local condition. The sloping conditions are applicable only for V 100 and V 150.

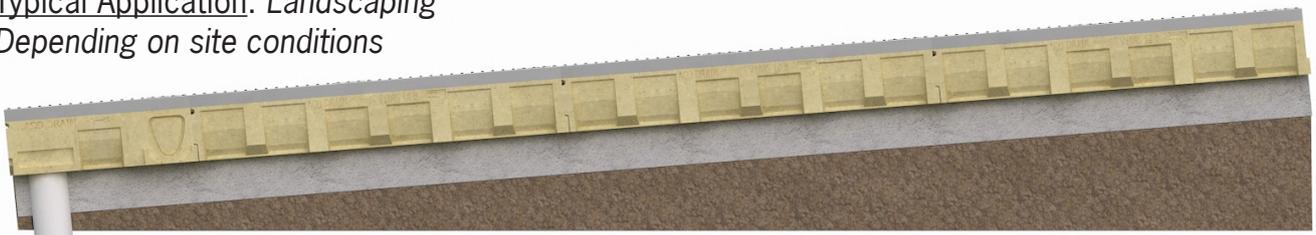
**Continuous Sloped Channel - Centre Outlet**

Typical Application: Podium, Basement, landscaping, driveways  
Maximum recommended length 41 m \*



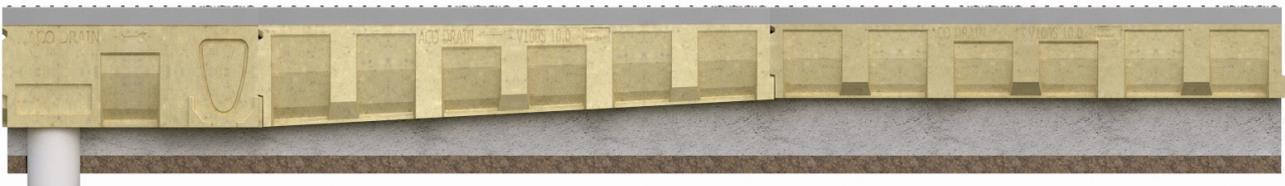
**Constant depth channels installed with site slope - End outlet**

Typical Application: Landscaping  
Depending on site conditions



**Combination of sloped and constant depth channel - End outlet**

Typical Application: Podium, basement, landscaping, driveways, ramps  
Maximum recommended length 140 m \*



**Combination of sloped and constant depth channel - Centre outlet**

Typical Application: Podium, basement, landscaping, driveways, ramps  
Maximum recommended length 280 m \*



\* The mentioned lengths are subjected to the site and local condition. The sloping conditions are applicable only for V 100 and V 150.



**Cast Iron**



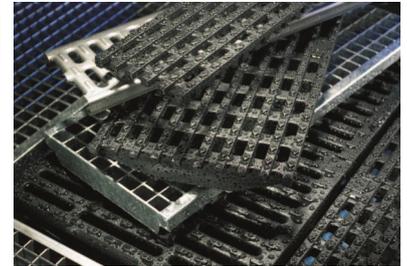
**Stainless Steel**



**Galvanised Steel**

### Gratings for every Application

The three edge-rail versions in cast iron, galvanised steel or stainless steel allow planners to freely select the grating best suited to the visual statement they are looking for in their projects, without the risk of contact corrosion between the gratings and the edge-rails.



ACO DRAIN® grating range:  
Clear, flexible, creative

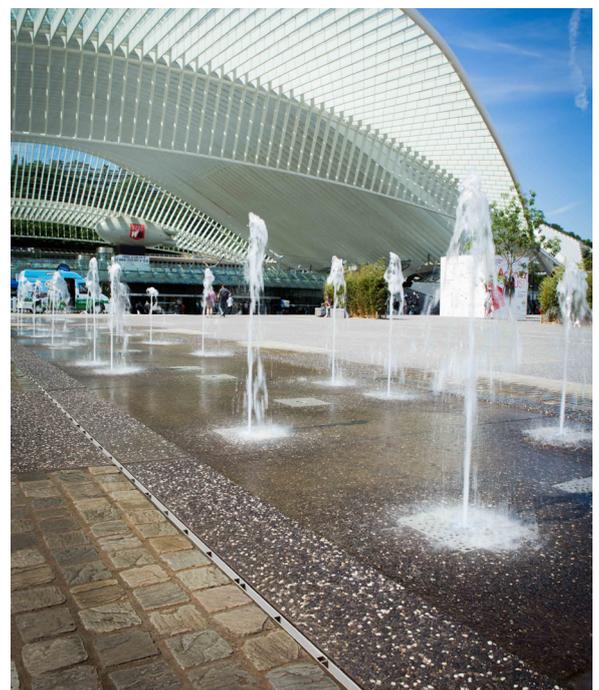


### Designing with Clear Lines

The Multiline system has a range of different gratings suitable for all architectural requirements in terms of aesthetics, functionality and strength.

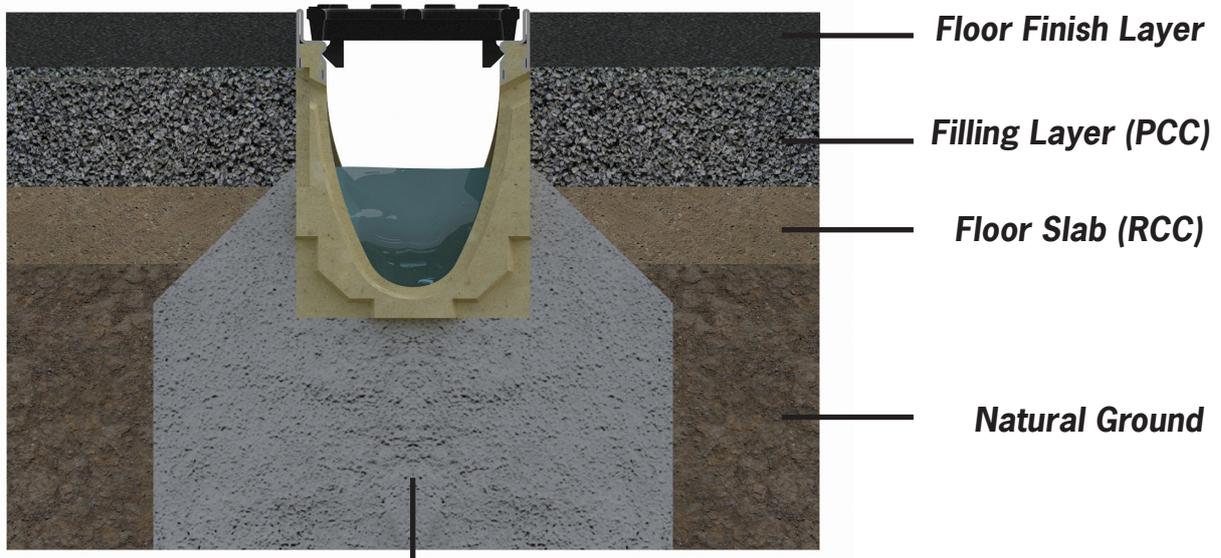
The ACO Brickslot drainage has a range of gratings designed to secure efficient drainage in the most discreet way.

The system is ideal for installation in open city spaces, retail developments and pedestrian areas thanks to the narrow heel safe slot geometry. Once installed the system is totally secure and resistant to vandalism and secures a subtle, discreet and aesthetically pleasing drain system.



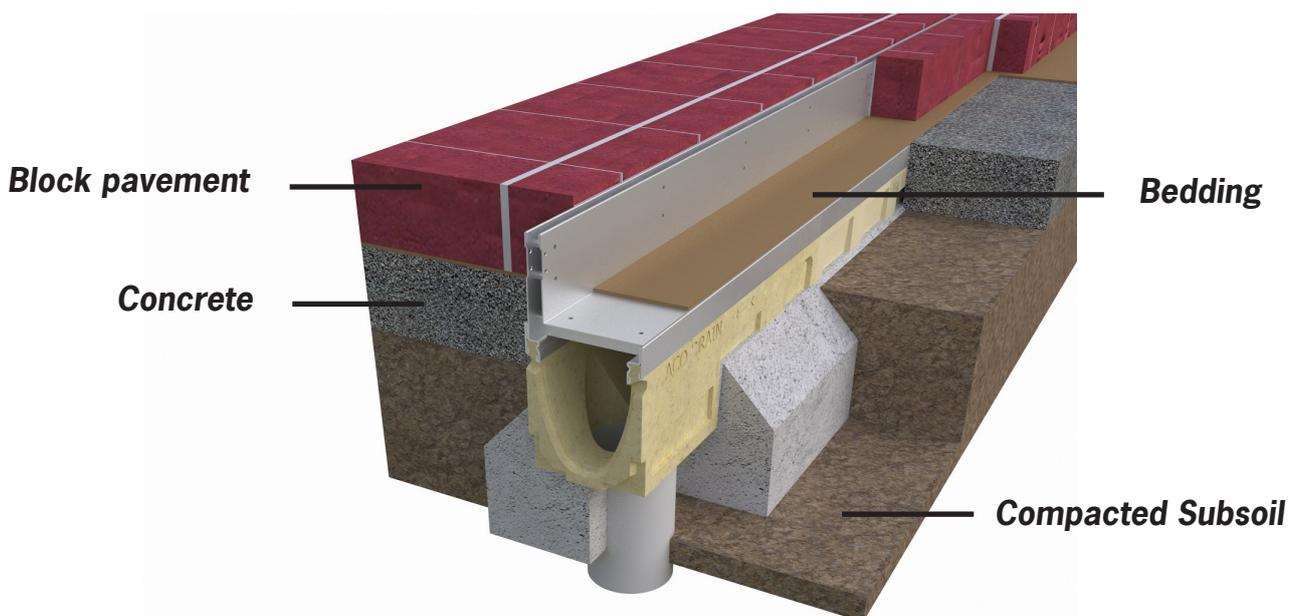
**Installation:**

ACO Multiline drain systems consist of a full range of channels, gratings and sump units. When installed correctly, the system is designed to withstand a variety of loadings classified by EN 1433. Typical equipment to be used for the installation are excavation equipment, string line and laser level, measuring tools, drill, grinder, saw, rubber hammer and the appropriate back-fill material.



**Concrete Support for Drain Channel**

ACO Brickslot system has a range of gratings designed for installations which require discreet slot drainage. Depending on the flow rate, load class and length of the drainage line it is possible to use ACO Brickslot grating for different types of ACO DRAIN channels produced from polymer concrete or a composite material. ACO Brickslots are compatible with the following ACO DRAIN channel bodies.



The above installation images are for illustration, for correct and safe installation the ACO installation recommendations must be followed. Our team of application engineers will support and train on the construction site.

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