



ACO Drain®

Modular, Commercial-Grade,
Grated Trench Drain Systems

Product Line Overview



The ACO Group

Founded in 1946, the ACO Group is a world leader in drainage technology. Climate change sets us a challenge to react effectively with innovative solutions to new environmental conditions. With its integrated approach, ACO provides systems for professional surface water drainage, efficient cleaning, and the controlled discharge or reuse of water.

Products include:

- surface water drainage
- oil, sediment, heavy metal and grease separators
- detention, retention and infiltration systems
- flow control release products

Major innovative strengths of the ACO Group are its continuous research & development and technical expertise in the processing of polymer concrete, plastics, cast iron, stainless steel and cement concretes.

ACO in the USA

ACO, Inc. was founded in Ohio, 1978. Since then, continuous growth in the USA has seen the company expand and build manufacturing facilities in Mentor, OH, and Casa Grande, AZ. The company has further locations in Phoenix, AZ, and Fort Mill, SC. Today, ACO USA has sales personnel across the country and an extensive distribution network through all states, the Caribbean and Central America.

ACO Drain®

ACO Drain is the market leading modular trench drain system manufactured at the company's modern facilities in Arizona and Ohio.

ACO Drain offers the most comprehensive range of trench drain solutions for every application. ACO Drain products are offered in a variety of widths, depths, and load ratings, with grates to suit. In conjunction with a comprehensive, quality product range, ACO supports its business with extensive stocking distributors, technical sales support and world-class customer service.

ACO. we care for water



Product Selection Guide

Trench drains capture and carry surface water. Failure is typically more critical if the product physically fails rather than functionally fails. If channel sizing is incorrect, the result will be either; short term ponding (channel too small) or lower flow velocity/sedimentation in the channel (channel too big).

It is a priority to address where, and how, the product is used to ensure correct load rating and materials are selected for long service life.

In applications where flood damage or personal risk are of concern, then it is prudent to focus on hydraulic requirements of the project. ACO offers several hydraulic support services to accurately determine correct channel, outlet sizing and layout.

Refer to ACO Drain Technical Handbook for more comprehensive information.



1. Application

A number of issues relating to where the drain is used are critical to address. Incorrect product choice can lead to product failure, remediation costs, possible litigation, or over-engineered solutions.

A) Loading



Loading refers to any kind of traffic or load being applied to the trench and grate. There are several US Load Standards relating to larger catch basin grates. ACO uses the EN 1433 standard which is specifically written for trench drains of different widths.

Loading is categorized into several load classes (light, medium and heavy). Choosing the correct solution is determined by:

- Type of traffic - pedestrians, cars, trucks, forklift, aircraft, etc.
- Wheel loads - Include vehicle, weight of load being carried and type of tire (solid or pneumatic).
- Unusual traffic - e.g. dumpsters/snow plows being dragged across trench etc.
- Frequency - occasional versus frequent use may also affect product choice.

B) Site Requirements



Specifics of the installed environment may drive, or limit, the choice of trench drain and grate.

- Installation restrictions such as limited down times may require trench drains that are quick to install.
- Limited construction depth may demand a shallow trench drain system.
- Corrosive liquids may influence channel and grate material choices.
- Non-metallic trench drains may be required for factors other than chemical resistance - non-magnetic explosive environments (sparking) may be required in certain industrial applications.
- Environmental needs such as sustainable drainage, low Impact development (LID) or leadership in energy & environmental design (LEED) qualification may be a determining factor in certain applications.
- Sloped trench drains may be required to eliminate standing water, which can provide a breeding ground for mosquitoes and potential health concerns - Malaria, SARS, West Nile virus, Zika, etc.

C) User Requirements



User requirements typically affect the grate, as that is the exposed part once trench drain is installed.

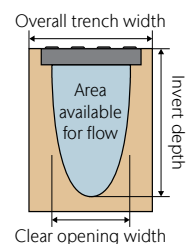
Requirements are project specific and once loading requirements are met, grate choice typically relates to aesthetics, legal or safety concerns.

- Aesthetics - intake shape (slots, holes or other shapes) and material (iron, stainless, plastic) can be chosen to complement surrounding landscape.
- Legal requirements typically relate to ADA compliance, heel safety and bicycle safety needs.
- Safety requirements typically refer to grate lockings and special surfaces (slip-resistance). ACO recommends all grates are locked in place, especially in high load areas. Some applications may require multiple locks per grate or security lockings. On occasion, monolithic trench drains may be required for maximum grate security - See ACO Infrastructure product line.



2. Hydraulics

The amount of liquid a trench drain needs to collect and discharge in a given time period determines size.

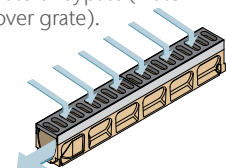


- Area available for flow (channel width AND depth) - Right combination avoids unnecessary costs and/or flooding.

- Slope increases velocity providing a more efficient trench. Slope is added in 3 ways:
 - Sloping invert channels
 - Constant depth channels and ground slope
 - Combination of both

- Outlet size AND position:
 - Avoid restricting flow with small pipes.
 - Central outlets may enable fewer outlets.

- Grate intake - Open area (calculated by size and quantity of the openings) and slot design affect how much water gets into trench, and rate of bypass (water flowing straight over grate).



ACO KlassikDrain

General Purpose Trench Drain



Wide Choice of Grates

Various materials and styles (including ADA compliant) for applications from Load Class A to Load Class E.



DrainLok & QuickLok®

Patented, boltless locking systems provide quick fitting and removal of grates. Helps reduce installation/maintenance time and cost.

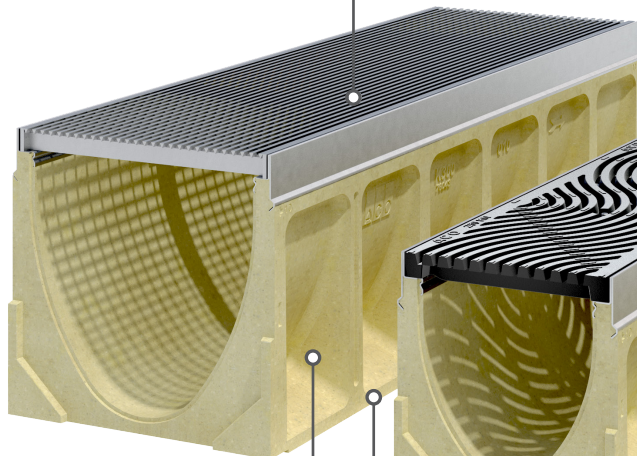


EcoPanel

Storm water trench drain cover constructed from permeable UV stable resin-bonded aggregate in a galvanized steel frame.

MiniKlassik K50

2" internal width, constant depth system for high profile, aesthetic applications where a barrier is required to separate wet and dry areas.



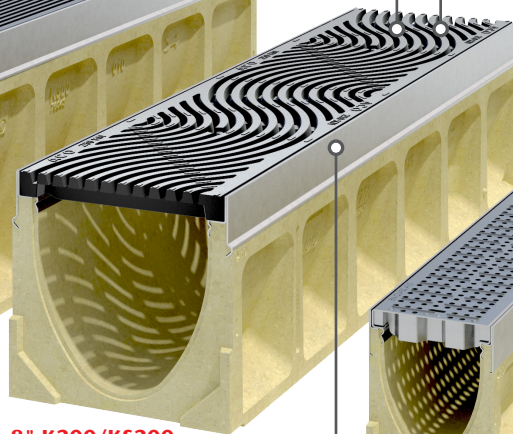
12" K300/KS300*

Polymer Concrete

A durable yet lightweight material made from polyester—a resin binder reinforced by mineral aggregates and fillers. It provides up to four times the compressive strength of cement concrete.

Sloped (0.5%) Channel Units

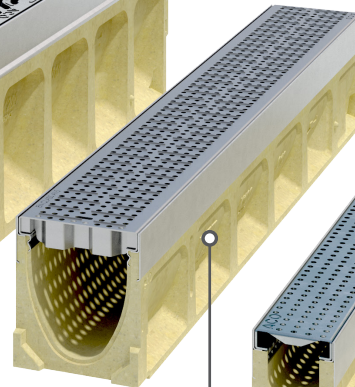
Meter long units provide 131'-3" continuous slope - equates to 1/17" fall per linear foot. Constant depth units can be used to extend run lengths.



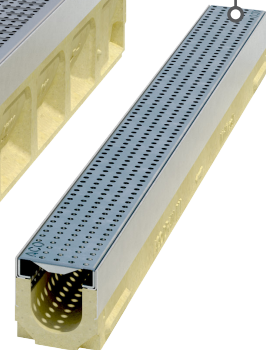
8" K200/KS200

Integral Steel Edge Rail

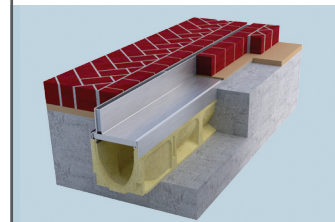
Integrally cast rails provide additional strength and protect channel body from damage. Stainless steel edge rail also available.



4" K100/KS100



2" K50/KS50



Brickslot 100 & 200

Discreet drainage solution for use with brick or stone pavers. Available as standard, Heel Resistant and Twinslot versions.

ACO PowerDrain

Heavy Duty Trench Drain



Ductile Iron Grates

Heavy duty ductile iron grates with ADA compliant longitudinal (Load Class E*) or slotted (Load Class F) designs available.



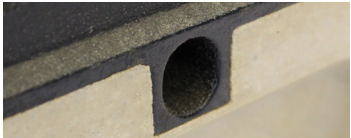
PowerLok®

A patented, boltless locking system that allows for quick fitting and removal of grates, helping reduce installation/maintenance time and cost.



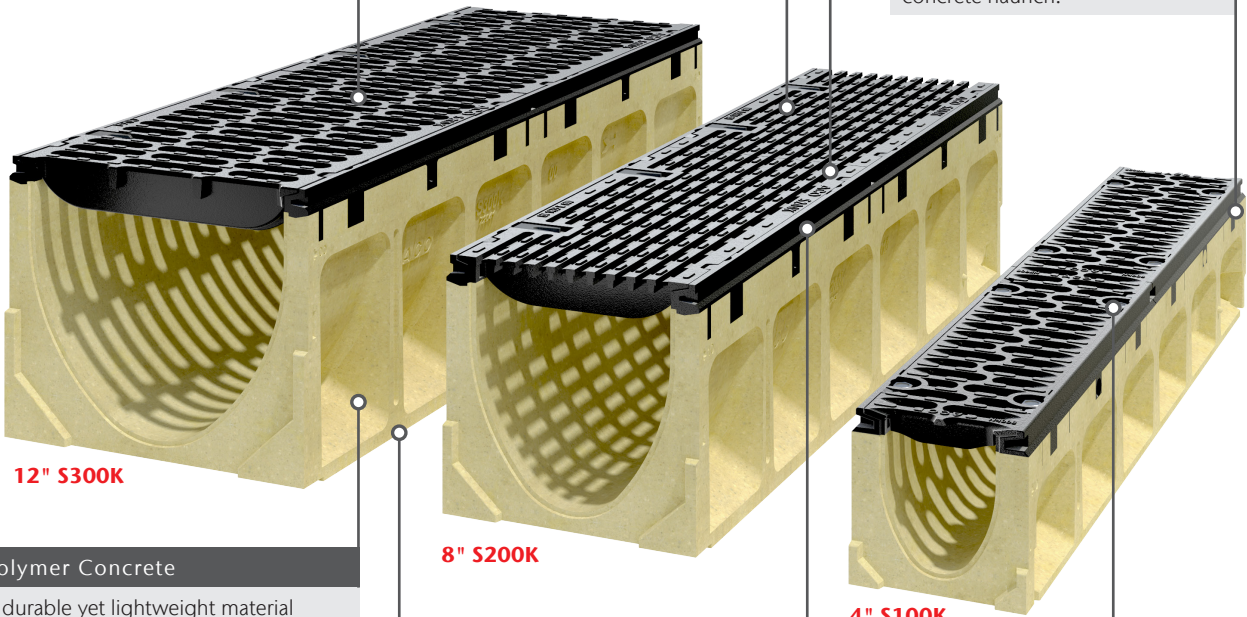
Anti-Shunt Lugs

Protrusions in edge rail fit into recesses on the grate to prevent longitudinal movement.



Concrete Anchor Boss

A drill-through hole in the ductile iron edge rail enables a concrete anchor (4 per meter) to be attached for extra embedment into concrete haunch.



12" S300K

8" S200K

4" S100K

Polymer Concrete

A durable yet lightweight material made from polyester—a resin binder reinforced by mineral aggregates and fillers. It provides up to four times the compressive strength of cement concrete.

Sloped (0.5%) Channel Units

Meter-long units provide 131'-3" continuous slope, which equates to 0.06" fall per linear foot. Multiple constant depth units can be used to extend sloped run lengths.

Ductile Iron Edge Rail

Integrally cast-in rail provides maximum strength and protection for channel body. Shock absorbing wickets with M10x30 stainless steel threads are fitted into the rail to assist grate fit and aid hanging installation.



4-Bolt Slotted Grate

4-Bolt (M10x30) grate option is available on all widths to provide maximum security and stability for super heavy duty applications.

*S100K ADA grates rated to Load Class F.

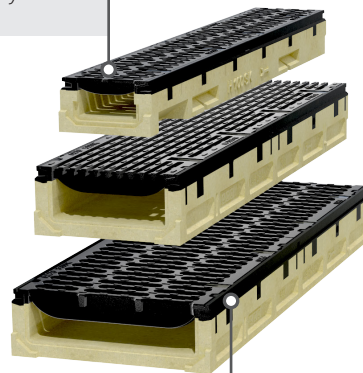
ACO SlabDrain

Shallow Depth Trench Drain

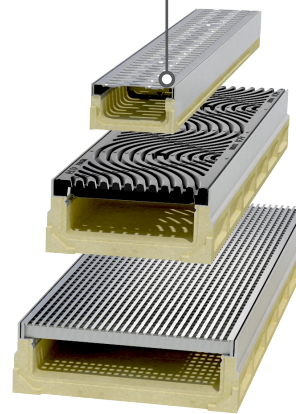


Variety of Locking Grates

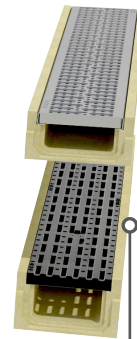
Grates available in various materials, loading capabilities and slot styles (including ADA-compliant).*



**4"/8"/12"
HSK Series**



**4"/8"/12"
HK Series**



4" H Series

Steel Edge Rail

Galvanized or stainless steel rail available on HK channels.

Integrally Cast-In Ductile Iron Edge Rail

Provides maximum strength and protection for HSK channel bodies. Edge rail incorporates anti-shunt lugs that fit into recesses in grate to prevent longitudinal movement.

H100 Polymer Concrete Edge

Ideal for situations where metals cannot be used.

*H100 - Grates Load Class A to Load Class C (25 tons).
H100SK/H200SK/H300SK - Grates Load Class A to Load Class F and 200,000 lbs.

ACO FlowDrain

FRP Trench Drain

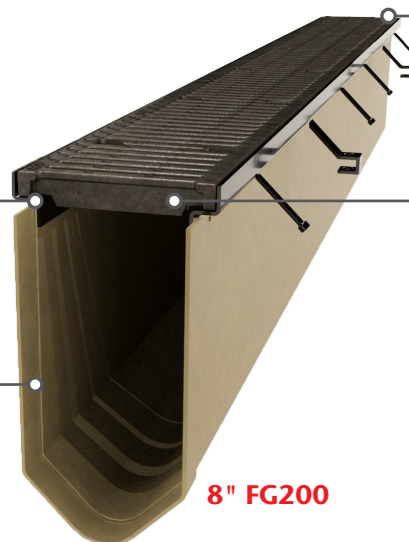


Choice of Steel Frame

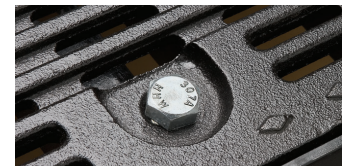
Provides grate support and protects channel edge from damage. Available in black coated, galvanized and stainless steel.

Fiberglass

A lightweight material that is made from polyester resin binder reinforced by glass matting and fibers.



8" FG200

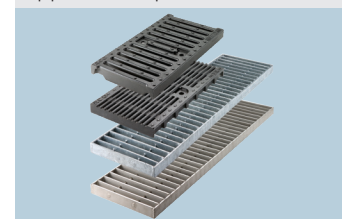


Bolted Grates

FG200 grates are lockable with two ½" - 13 x 1½" bolts fixing directly into steel frame at 18" (457 mm) intervals.

Choice of Grates

In various materials and styles (including ADA compliant) for applications up to Load Class E.





Every project brings its own requirements and challenges. In addition to our products, ACO offers you our knowledge and services to jointly develop tailor-made solutions from planning to after-sales support.

With our extensive network of sales and support representation, ACO strives to ensure that the needs of your project are professionally and efficiently met.

1 Application



Installation Details

- Advice on application load class
- Load test certificates
- Installation section details

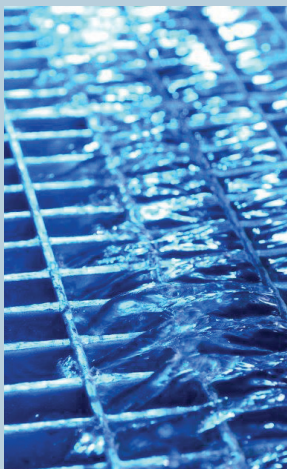
Material Data

- Material coupons (samples) for on site testing
- Material test reports (available upon request)

Supporting Documentation

- Industry standards/requirements and 3rd party test data, where relevant

2 Hydraulics



Trench Hydraulics - Hydro

- Sizing and outlet spacing recommendations
- Liquid depth profiles at design conditions

Trench Hydraulics - Ponding

- Hydraulic recommendations showing the effect of ponding

Grate Hydraulics - GIC

- Grate performance data dependent on location with crossfalls

3 Trench Layout



Trench Layout Documents

- Plan layouts of trench runs (CAD)
- Section layouts of trench runs showing modular sequence of channel units
- Bill of Materials (BOM) - fully itemizing parts and pieces
- Drain Scheduler - displays trench drain runs in profile and plan views, produces each run showing positions of accessories, outlets, junctions, etc. and creates a BOM.

4 Installation Support



Installation Guidance

- Installation section details by product type, pavement type and loading type
- Consultation on specific installation concerns

ACO. we care for water

ACO, Inc.

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