



ACO Drain

Modular, Commercial-Grade Trench Drain Systems

Product Line Overview



ACO. creating

the future of drainage

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.



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 applied to the trench and grate. There are several US Load Standards relating to larger catch basin grates. ACO uses the EN 1433 standard 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 installation area 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 provides a breeding ground for mosquitoes and potential health concerns - Malaria, SARS, West Nile virus, Zika, etc.

C) USER REQUIREMENTS



User requirements typically affect grates, as they are the exposed part of the trench drain.

Requirements are project specific. Once load 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.

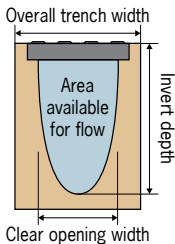


2. Hydraulics

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

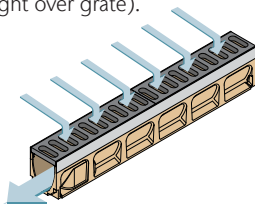


- **Area available for flow (channel width AND depth)** - Right combination avoids unnecessary costs and/or flooding.



- **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).



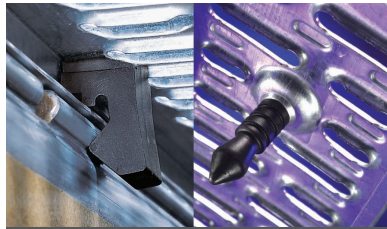
ACO KlassikDrain

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®

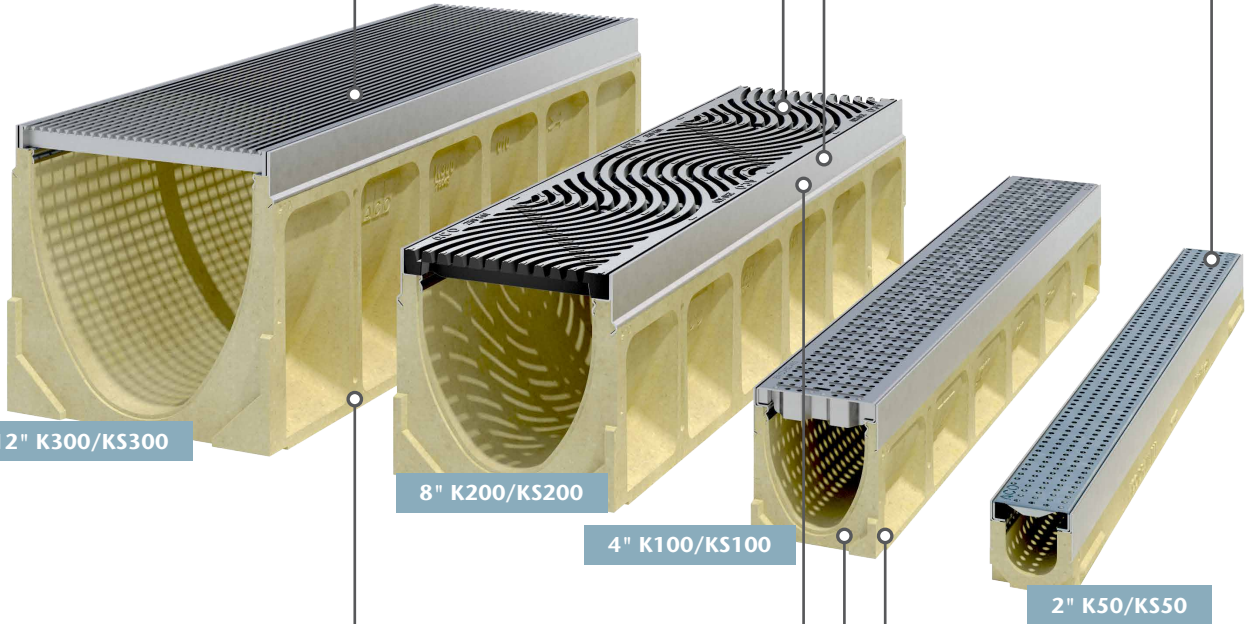
Patented, boltless locking systems provide quick fitting and removal of grates. Helps reduce installation/maintenance time and cost.

Anti-Shunt Lugs

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

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

8" K200/KS200

4" K100/KS100

2" K50/KS50

Polymer Concrete

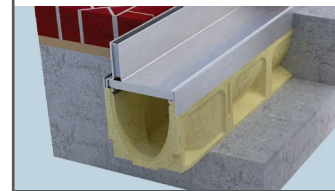
Durable, yet lightweight material made from polyester, a resin binder reinforced by mineral aggregates and fillers. It provides up to four times the compressive strength of cement concrete.

Steel Edge Rail

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

40 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.



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



Anti-Shunt Lugs

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



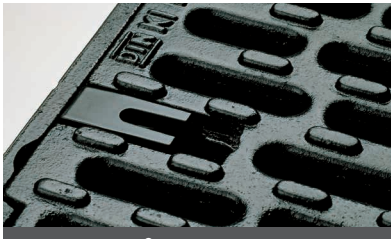
Concrete Anchor Boss

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.



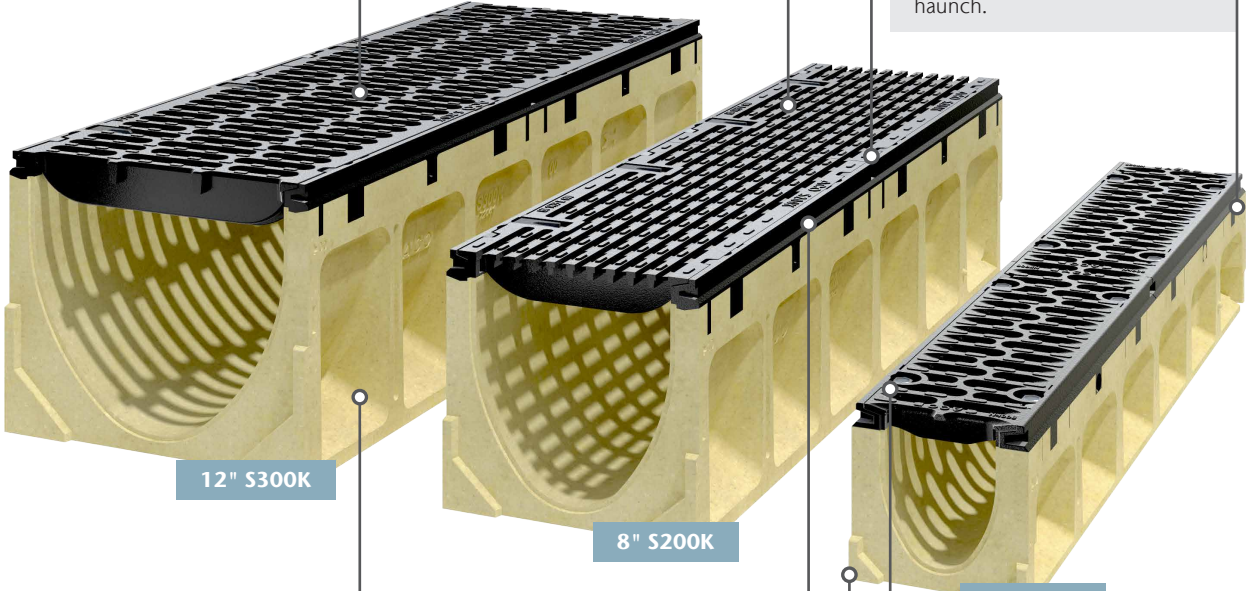
Ductile Iron Grates

Heavy duty ductile iron grates with ADA compliant options available.



PowerLok®

A patented, boltless locking system providing quick fitting and removal of grates. Helps reduce installation/maintenance time and cost.



12" S300K

8" S200K

4" S100K

Polymer Concrete

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.

Ductile Iron Edge Rail

Integrally cast-in edge rail provides maximum strength and protection for channel body. Shock absorbing widgets with M10 stainless steel threads fitted into the edge rail assist with grate fit and aid hanging installation.



4-Bolt Slotted Grate

4-bolt grate option is available on all widths to provide maximum security and stability for heavy duty applications.

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.

ACO SlabDrain

Shallow Depth Trench Drain

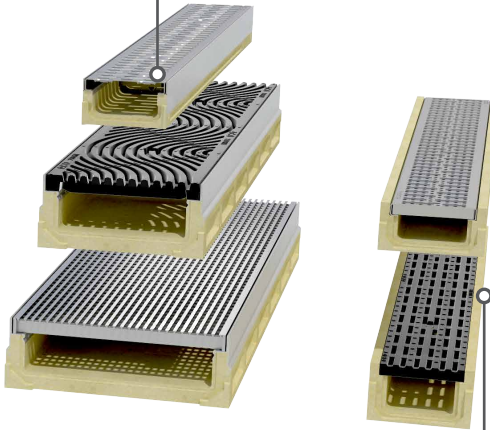


Variety of Locking Grates
Grates available in various materials, loading capabilities and slot styles (including ADA-compliant).*

4" / 8" / 12" HSK Series
4" / 8" / 12" HK Series
4" H Series

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.

Steel Edge Rail
Galvanized or stainless steel rail available on HK channels.



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 1/2" - 13 x 1 1/2" bolts fixing directly into steel frame at 18" (457 mm) intervals.

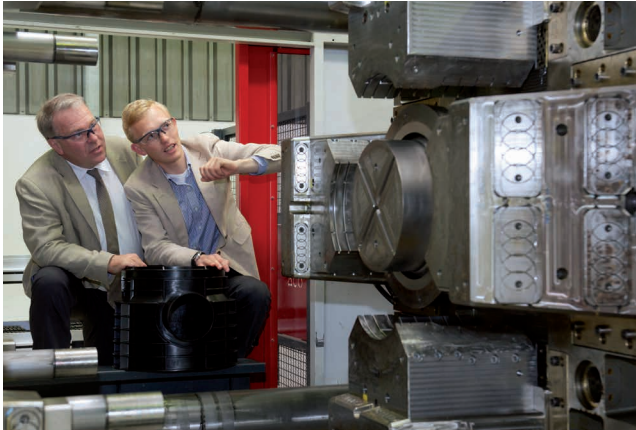
Choice of Grates
In various materials and styles (including ADA compliant) for applications up to Load Class E.

ACO Complimentary Services

ACO has an established Technical Services Department with many years of experience advising on surface drainage.

This free service is offered with no obligation and is supported with extensive, high quality information, brochures and technical documentation.

ACO features a wide variety of digital solutions to assist with your surface water management challenges. Please visit www.askaco.us for further information.



1 Application



Installation Details

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

Material Data

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

Supporting Documentation

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

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 Bill of Materials.

2 Hydraulics



Trench Hydraulics - Hydro

- Hydraulic liquid profiles for individual trench runs
- Liquid depth profiles at design conditions

Trench Hydraulics - Ponding

- Map of temporary ponding
- Approximate duration of any temporary ponding

Grate Hydraulics - GIC

- Grate performance dependent on location with crossfalls

4 Installation Support



Installation Guidance

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

ACO products support the ACO System Chain



Surface Water Management

- ACO Drain - Commercial Trench Drains
- ACO Infrastructure - Heavy Duty Drainage
- ACO Sport - Athletic Venue Drainage
- ACO StormBrixx - Geocellular Tanks
- ACO Aquaduct - Custom Drainage
- ACO Environment - Solid & Oil Separators
- ACO Wildlife - Guidance & Passage
- ACO Self - Garden & Landscape Drainage
- ACO UtilityDuct - Ducting System

Building Drainage

- ACO Stainless - Stainless Trench Drains
- ACO BoxDrain - Stainless Hygienic Floor Troughs
- ACO FloorDrain - Stainless Point Drains
- ACO Pipe - Stainless Push-fit Piping
- ACO ShowerDrain - Bathroom Drainage

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