ACO Modular 125+

Stainless Steel Channel Drainage System

Product Catalogue

Modular 125+ Linear Channel

Stainless steel drainage designed to enable easy system design.

The ACO Modular 125+ linear stainless steel drainage channels are available as an off-the-shelf option, including a wide choice of lengths, inverts and gratings. Our ACO channel drainage system can also be modified to specifically suit your requirements.

All Modular 125+ drainage channels are manufactured in ACO's state-of-the-art facility and are fully pickle passivated to guarantee high quality performance and durability..

ACO. we care for water

ACO is a Water-Tech company that protects water. Building on our global drainage expertise that protects people from water, we increasingly see our mission as also protecting water from people.

With the ACO WaterCycle, ACO provides systems that collect and channel, clean, retain and ultimately reuse water. In this way, ACO contributes to the preservation of clean groundwater as a vital resource, and makes a contribution to tomorrow's world. In its Agenda 2030, the UN global community set the improvement of water quality as one of 17 sustainable development goals.

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination by pollutants such as fat and grease, fuels, heavy metals and microplastics.

Today, ACO goes one step further: we accept the challenge of reusing water, and thus establishing a resource-saving cycle. For all products and systems, ACO attaches great importance to durability, reusability and a low carbon footprint. The pursuit of sustainability is an ongoing process that we strive to meet every day.

The ACO Group is a global family business that is one of the world market leaders in the Water-Tech segment. Founded in Schleswig-Holstein in 1946, it operates as a transnational network in over 50 countries. Worldwide, ACO is characterised by a high level of decentralised ownership, and explicit regional market proximity.

www.aco.com

Holder
Iver and Hans-Julius Ahlmann

Headquarters of the ACO Group
in Rendsburg/Büdelsdorf

5,200

employees in more than 47 countries (Europe, North and South America, Asia, Australia, Africa)

1 Billion

Euro Sales in 2021

37

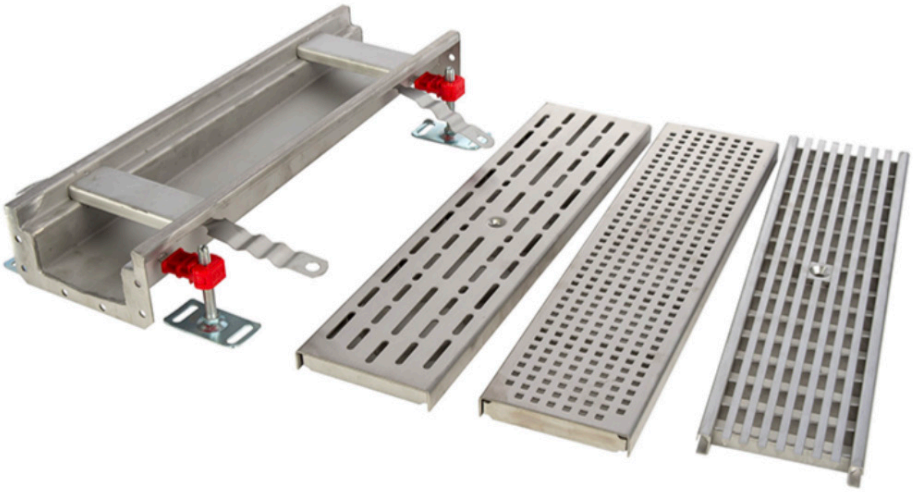
production sites in 18 countries

ACO Academy
for practical training

ACO Modular 125+

STAINLESS STEEL CHANNEL DRAINAGE SYSTEM

The ACO Building Drainage Modular 125 stainless steel linear drainage system takes full advantage of the significant investment in our state-of-the-art manufacturing plant and offers improved performance together with a fully flexible stainless steel drainage system suitable for most applications – off the shelf.



- Significant system advantages include:
- Fully tested and classified to BS EN 1433 – Drainage channels for vehicular and pedestrian areas for enhanced operational confidence.
- Fully pickle passivated (see page 55).
- Vee-bottomed profiled channel for enhanced flow efficiency at low flow rates, for a cleaner, hygienic system.
- Wide range of constant depth and sloping invert channels and accessories.
- Wide variety of invert depths and channel falls to suit most applications.
- Unique optional grating security locks.
- Wide grating choice.
- Lightweight channel sections minimise the risk to construction employees during installation.

Typical Applications

- Food Processing

- Brewing, Bottling and Canning

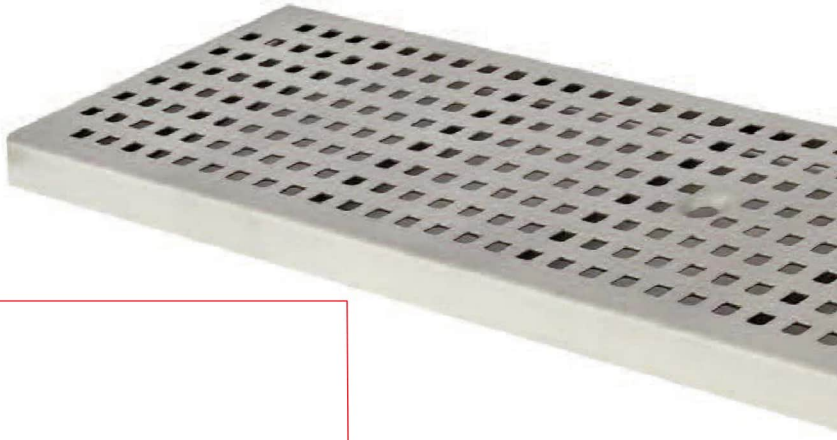
- Retail

- Education and Leisure

- Chemical and Pharmaceutical

- Human and Animal Health Care

Features and benefits

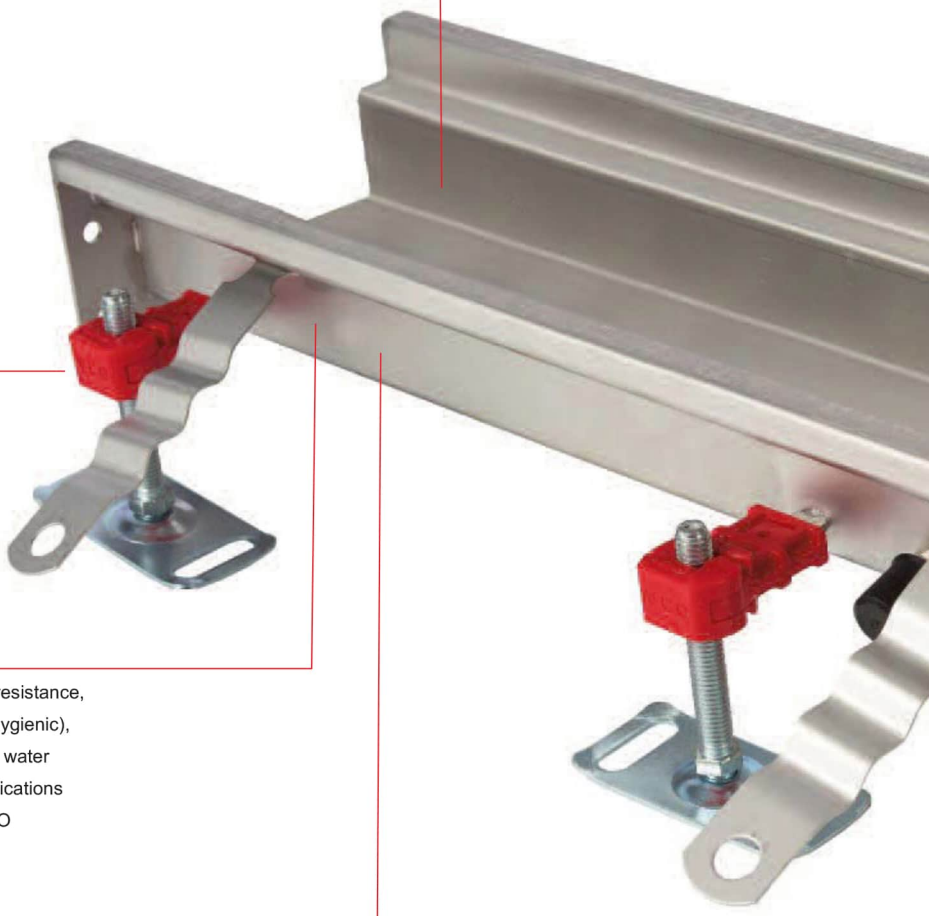


Modular 125+

The 125mm wide, modular channel system for the flexible, off-the-shelf drainage solution.
There are a wide variety of channel options:

- Level or sloping straight
- Level corner units
- Level branch units
- Various outlet options

ACO also offers Modular 125+ specials if a different configuration is required.



Levelling Feet

A plastic clip is designed to allow free movement of the threaded levelling feet. Once the clip is fully secured, a fine adjustment is still possible using a screw driver.

Material

The properties of stainless steel, such as corrosion resistance, non-magnetic, durable and smooth (easy to clean/hygienic), makes it the most suitable material for use in waste water applications. In a high saline environment or in applications where a higher chemical resistance is required, ACO recommends using Stainless Steel, AISI 316.

Pickle passivate

All ACO stainless steel AISI 304 and AISI 316 channels are fully pickle passivated to restore its corrosion resistance and optimum durability.

Outlet Options

There are 2 outlet options available:

1. For direct connection to the waste water pipe (Spigot Outlet)
2. To be used in combination with gullies;
   - Discreet channels
   - One- or two-way gully tops

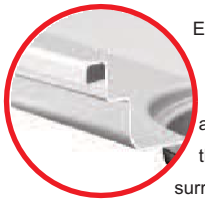
Gratings

A large selection of gratings stainless steel, composite or plastic. Unlocked gratings make it easy to get access to the channel and lockable gratings prevent unauthorised removal.

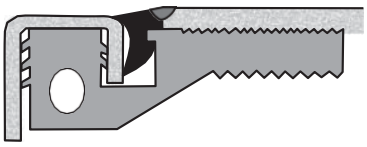
Gratings are classified according the suitability for type of foot travel.

Channel Edge:

The channel comes standard without an edge in-fill. Depending on the required load class or flooring type, an in-fill is used to accommodate the required Load Class.



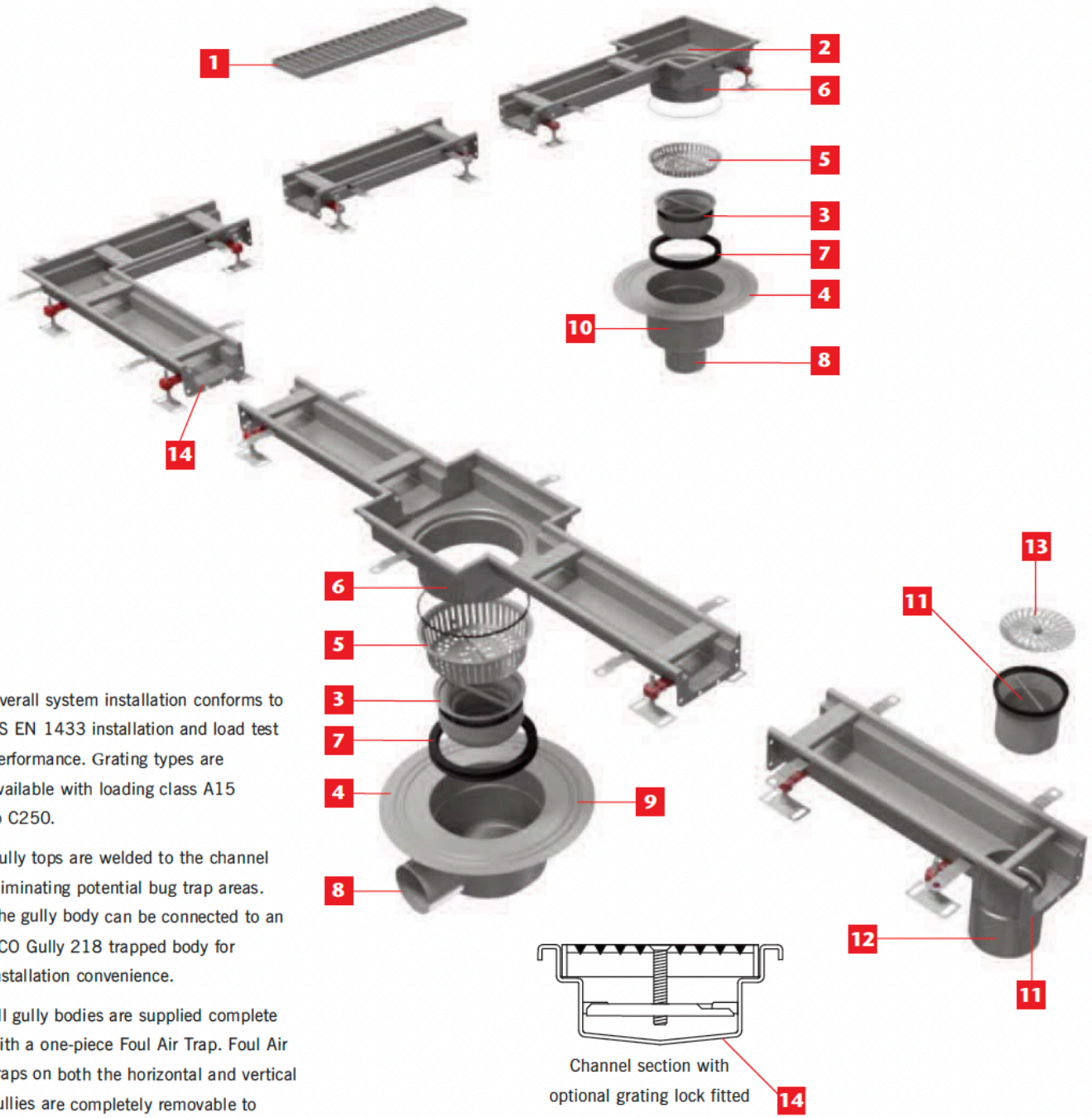
Edge in-fill ensures stable and durable transmission of applied loads between the gully and surrounding floor, which helps minimise the risk of floor cracks that can harbour microorganisms.



ACO Vinyl Seal® is ideal for flexible/vinyl sheet flooring applications. This edge in-fill can be used to create a fully welded system that is watertight and improves hygiene performance by eliminating cumbersome mechanical clamping systems.

Fixings

Channels come complete with neoprene gaskets and fixings.



Channel section with optional grating lock fitted

1 Overall system installation conforms to BS EN 1433 installation and load test performance. Grating types are available with loading class A15 to C250.

2 Gully tops are welded to the channel eliminating potential bug trap areas. The gully body can be connected to an ACO Gully 218 trapped body for installation convenience.

3 All gully bodies are supplied complete with a one-piece Foul Air Trap. Foul Air Traps on both the horizontal and vertical gullies are completely removable to allow easy rodding access to the connecting pipework for cleaning and maintenance. 50mm trap water seal conforms to BS EN 1253.

4 Flow rate up to 6.3 l/s for vertical and for 4.5 l/s for horizontal is available from outlet gullies.

5 An optional silt basket collects debris effectively.

6 Telescopic gully arrangement provides variable invert connection capability.

7 All gullies supplied with integrated seal to gully top.

8 Chamfered spigot outlets provide easy push-fit connection to drainage pipes.

9 All gully bodies available with optional damp proof membrane attachment options.

10 Gullies have deep rounded contours to deter silt build up and make cleaning easier.

11 110mm dia spigot outlets with optional in-line Foul Air Trap provide a 1.2 l/s flow capacity.

12 Spigot outlets can be supplied with a Foul Air Trap which has a water trap depth of 50mm meeting the requirements of BS EN 1253. The Foul Air Trap allows for an optional sieve to be used.

13 Optional sieve for 110mm diameter spigot outlet. Debris basket can be supplied if Foul Air Trap is omitted.

14 Vee-bottomed channel profile enhances flow efficiency at low flow rates for a cleaner, hygienic system.

15 Discreet channel gully outlets provide greater flow than a spigot outlet and also maintain a consistent width to the channel where aesthetic considerations are important.

16 The discreet channel gully can be connected to ACO Gully 157 trapped body for installation convenience.

17 Discreet channel gully flow rates up to 4.5 l/s and 2.8 l/s for vertical and horizontal outlet gullies respectively.

18 Channel and gully tops finished with a brushed 14mm wide edge detail providing an attractive and practical interface with all surrounding floor finishes. All products are compatible with the optional ACO Vinyl Seal® for a fully welded flexible floor attachment solution.

19 Channels are supplied complete with removable spacer bars to aid installation. They are easily removed prior to grating installation.

20 Concrete anchor ties are supplied welded to the channel for increased operational robustness following installation.

21 Levelling feet assist in setting the channel out to finished floor level and provide a convenient concrete anchor.

22 Corner units accommodate standard 500mm grating lengths.

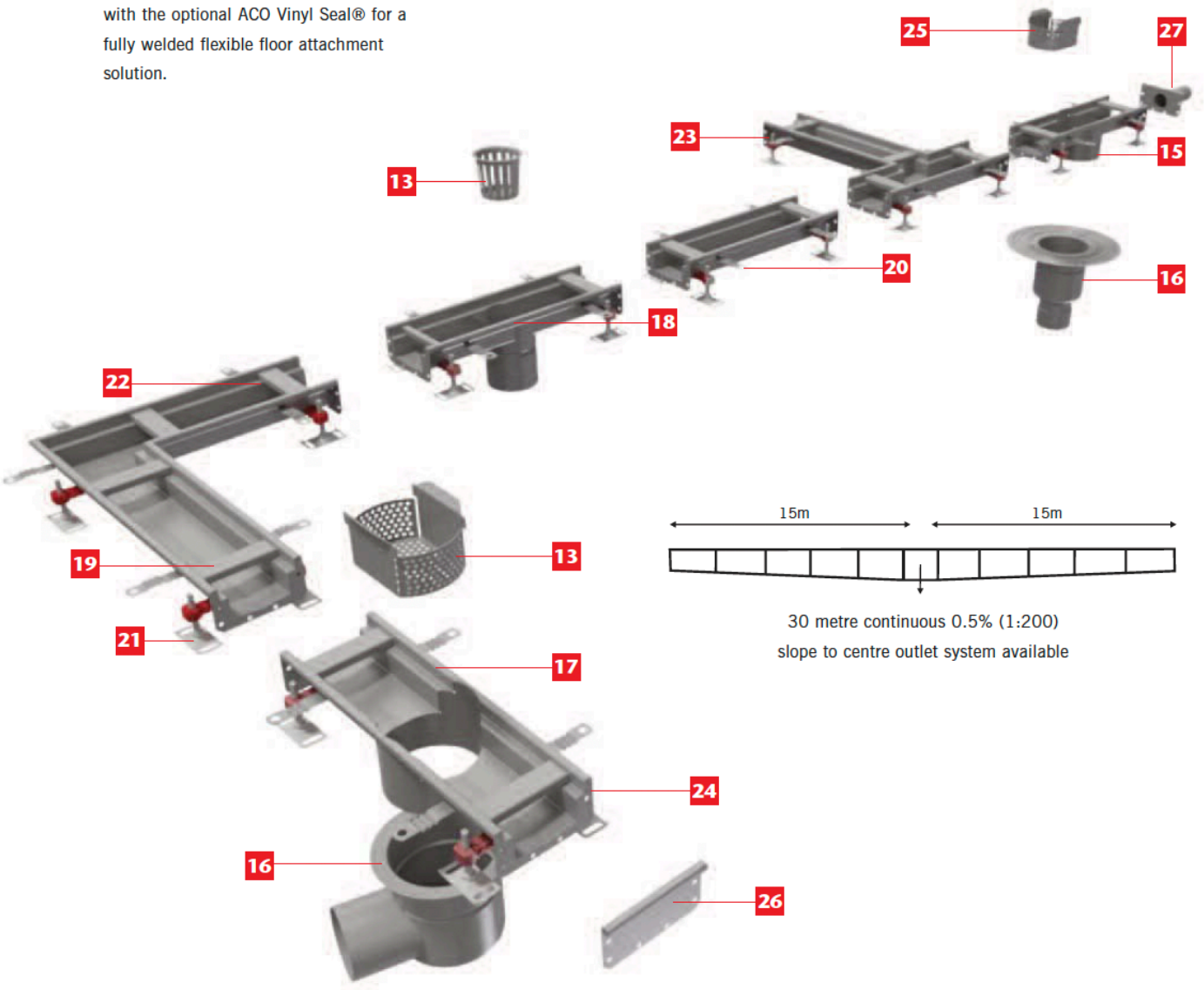
23 Branch units accommodate standard 500mm grating lengths.

24 Flange plates are welded to each channel section and allow multi-point clamping of the neoprene sponge gasket for a waterproof seal.

25 An optional descreet channel silt basket collects debris effectively.

26 Closing end plates available for all level invert channel depths.

27 Outlet end cap available to special order.



30 metre continuous 0.5% (1:200)
slope to centre outlet system available

Channel edge options

Modular 125 channels are available with different edge details to suit varying load requirements and the surrounding floor material.

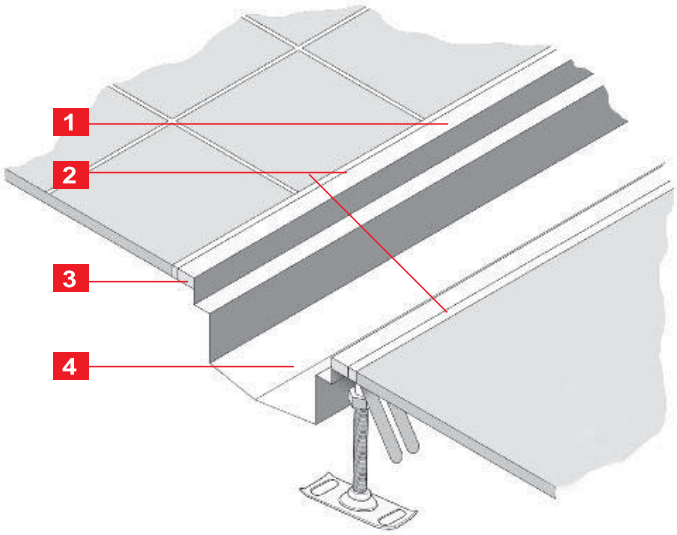
Standard Channel

Suitable for tiled, concrete and epoxy resin floors in pedestrian and light industrial applications. Suitable for Load Class A15 to BS EN 1433.

1. Channel edge
2. Mastic sealant
3. PVC infill
4. Standard channel with vee profile
5. ACO Building Drainage VinylSeal® for welded vinyl sheet flooring

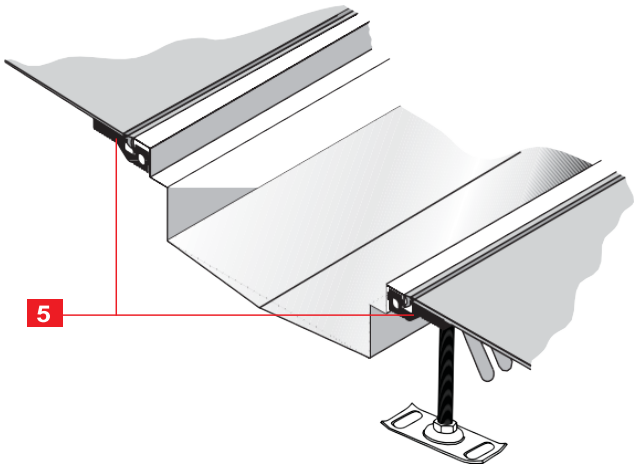
PVC Infill

The underside of the channel can be infilled with a PVC strip to provide additional strength in dense traffic areas. PVC Infill is supplied loose for installation on site. Required for Load Class B125 and above (BS EN 1433).



ACO Vinyl Seal®

Ideal for vinyl/flexible sheet flooring applications. The fully welded system is watertight and improves hygiene performance by eliminating cumbersome mechanical clamping systems.

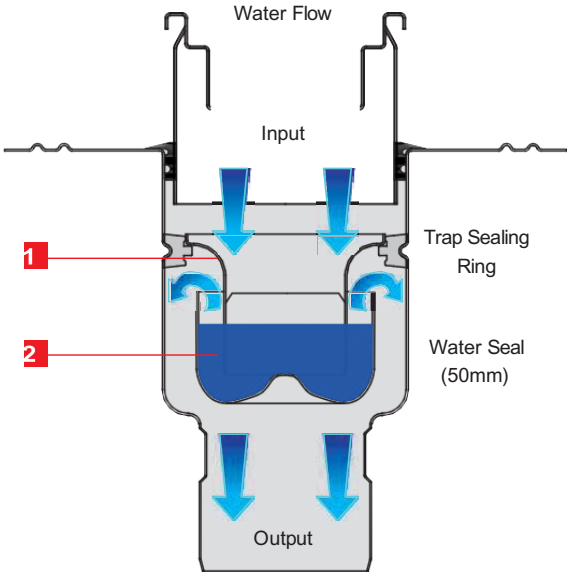


Foul air traps

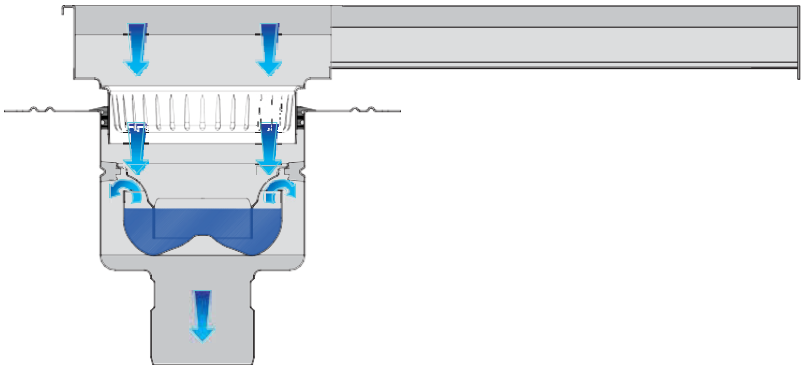
1 Foul Air Traps (FATs) are devices which contain a water seal and prevent gasses and stale air from passing back from stagnant or dirty water within connecting pipework.

2 A water seal level is maintained in the gullies by means of weirs formed by the trap unit fitted into the gully body. (See Diagram)

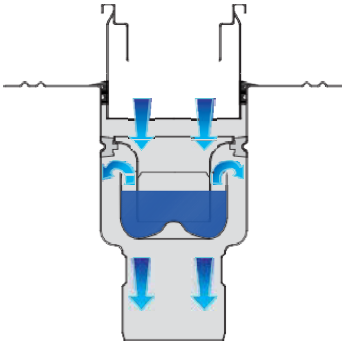
The Foul Air Traps are fully removable to allow for rodding of connecting pipework and easy cleaning of the gully body.



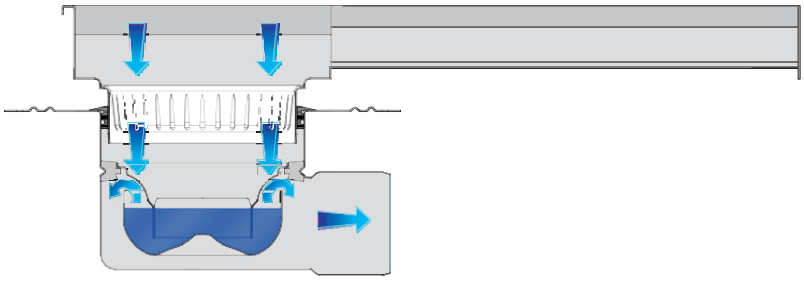
ACO Modular 125+ Vertical Outlet Gully



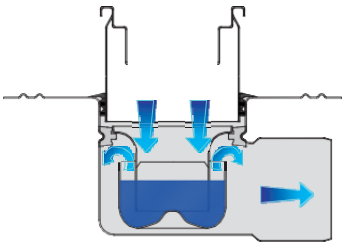
Discreet Channel Vertical Outlet



ACO Modular 125+ Horizontal Outlet Gully



Discreet Channel Horizontal Outlet



3 → Indicates water flows through foul air traps

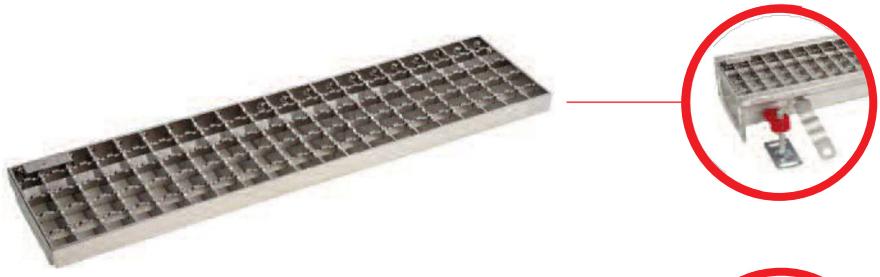
Grating options

Plain Mesh

Load class A15 & C250
Electropolished 304 and
316 stainless steel

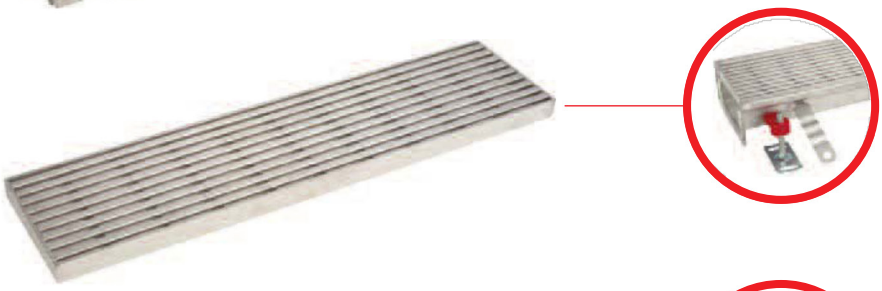
Slip resistant mesh

Load class A15 & C250
Electropolished 304 and 316
stainless steel



Heelsafe

Load class B125
Linished 304 304 and 316
stainless steel
Locking option available

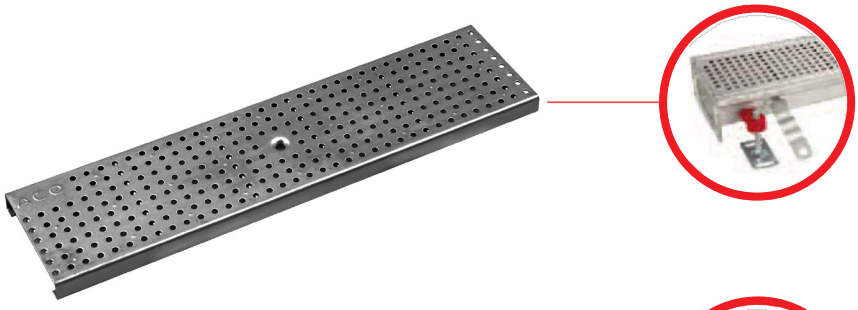


Ladder – reversible plain or slip resistant

Load class C250
Pickle passivated 304 and 316
stainless steel

Perforated

Load class C250
Pickle passivated 304 stainless steel
(not available in 316)
Recess for optional grating
locking provided



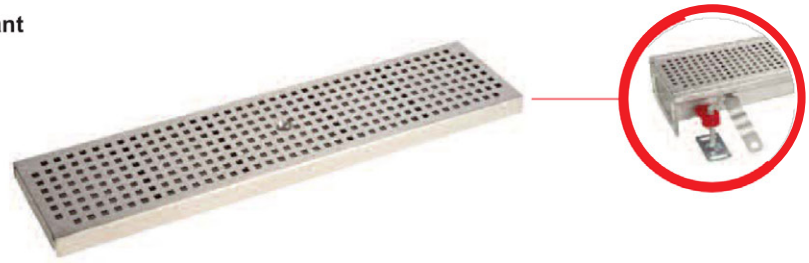
Slotted Locked

Load class A15 & C250
Pickle passivated 304 stainless steel
(not available in 316)
Recess for optional grating
locking provided

Grating Options

Quadrato – plain or slip resistant

Load class A15
Linished 304 and 316 stainless steel
Locking option available

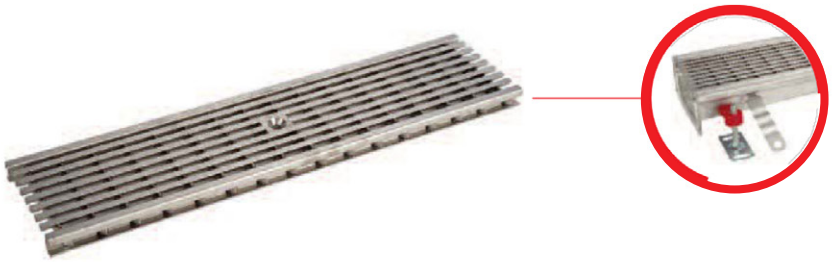


Intercept – plain or slip resistant

Load class A15
Linished 304 and 316 stainless steel
Locking option available

Heelsafe external

Load class B125
Linished 304 stainless steel
(not available in 316)
Recess for optional grate
locking provided



White Plastic

Load class A15
Polyethylene

Composite (black)

Load class C250
Recess for optional grating locking
provided

Note:
All grating designs load tested and certified to BS EN 1433. Declaration of Conformity available on request.
Gratings supplied as standard without locking. Details of grating locking kits available are described on page 43.
Please refer to page 38. for PVC Infill requirement for applications at Load Class B 125.

Load class and wheel loads

The ACO Modular 125+ stainless steel channel drainage system conforms to appropriate European standards in order to provide specifiers and installers with the confidence that products will achieve a known reliable performance.

The ACO Modular 125+ channel drainage system has been tested in accordance with BS EN 1433[1] and complimentary gully systems to BS EN 1253[2].

The table below indicates a practical approximate comparison of Load Classes to aid specifiers select products appropriate to an application.

Application	BS EN 1433 (Drainage Channels) and BS EN 124 (Manhole and Gully Tops)	BS EN 1253 (Gullies for Buildings) EN1253	FACTA	Slow Moving Wheel Load (Tonnes) Pneumatic Tyres	Slow Moving Wheel Load (Tonnes) Solid Tyres
	-	H1.5	-	Non-load bearing	
	A15	K3	A	0.5	N/A
		L15	AA	1.5	N/A
	B125	R50	AAA	2.5	0.5
		M125	B	5.0	0.75
	C250	N250	C	6.5	1.0
	D400	P400	D	11.0	3.0
	E600		E	16.0	5.0

Standards references:

[1]BS EN 1433 - Drainage channels for vehicular and pedestrian areas.

Other useful references:

BS EN 124 - Gully tops and manhole tops for vehicular and pedestrian areas.

FACTA specification via http://www.facta.org.uk/specification.pdf

Specification and product selection

ACO Modular 125+ - Standard Products

The steps below guide customers through ACO Modular 125+ product selection and specification ensuring that all application considerations and aspects of the channel drainage system are covered. The ACO Building Drainage team can also provide a take-off (bill of materials) and estimating service based on your plan details.

ACO Modular 125+ - Customised Products

Occasionally it is necessary to shorten a channel and grating, or provide an outlet or inlet beyond those positions available in our standard product range. All of these modifications are easily accommodated within the ACO Modular 125+ product range and our manufacturing facilities. The ACO Building Drainage team can provide technical assistance and an estimating service based on your plan details using customised product.

Step 1 - Load consideration

Description	Helpful Hints	General Considerations	Page
• Determine appropriate Load Class to BS EN 1433 for the application.	• Always allow for the highest loading and consider future use where possible. • For industrial applications where pallet trucks and fork lift trucks may access the system, assess vehicle wheel loads as these can vary depending on the vehicle.	• Vehicles with solid tyres impart greater stress on gratings compared to pneumatic tyres. • Do not use slip resistant mesh or ladder gratings in vehicle turning areas.	16

Step 2 - Outline plan

Description	Helpful Hints	General Considerations	Page
• Produce a plan of the proposed installation, identifying outlet points and invert depths at outlet points.	• ACO Building Drainage offers a free hydraulic calculation service which can optimise channel depths for a given capacity requirement. • Contact the ACO Building Drainage Design Services Team on 01462 810431 or email abdtechnical@aco.co.uk for further details.	• Built-in fall (sloping invert) channels provide a degree of self-cleansing and should be used where possible. However, level invert or flat channels can function hydraulically where construction depth is restricted.	10 - 11

Description	Helpful Hints	General Considerations	Page
• Select an outlet with an appropriate flow rate which meets any invert restrictions.	• Outlets will be at the lowest part of the system therefore select the deepest possible invert to allow for falls within the channels connected to it. • Horizontal outlets offer shallower outlet points but are not as efficient hydraulically.	• Consider both maintenance facilities and aesthetics.	18

Outlet option 1 - Spigot outlet

Description	Maintenance	Aesthetics	Page
• Ø110mm spigot outlets can be supplied with or without a foul air trap. • If no foul air trap is used a sediment basket can be installed. • If a foul air trap is used a sieve can be fitted.	• Sediment baskets and sieves require periodic removal and cleaning. • Complete cleaning will require removal of the foul air trap. • Note: Jetting or rodding is achieved via the removal of the foul air trap.	• Spigot outlets are not visually intrusive and can be located by visual inspection along a channel run.	20 - 21

Outlet option 2 - Discreet channel gully

Description	Maintenance	Aesthetics	Page
• Ø142mm discreet channel gully provides greater flow rates than spigot outlets. • Flow rate is optimised in the 125mm deep gully.	• Sediment baskets and sieves require periodic removal and cleaning. • Complete cleaning will require removal of the foul air trap. • Note: Jetting or rodding is achieved via the removal of the foul air trap.	• Discreet channel gullies are not visually intrusive and can be located by visual inspection along a channel run.	22

Outlet option 3 - Gully outlet

Description	Maintenance	Aesthetics	Page
• One or two-way gully outlet options with a Ø200mm outlet provide greater hydraulic capacity than discreet channel gullies. • Hydraulic capacity is maximised in vertical orientation.	• Silt baskets and sieves require periodic removal and cleaning. • Complete cleaning will require removal of the foul air trap. • Note: Jetting or rodding is achieved via the removal of the foul air trap. • Gully bodies have rounded bowls to minimise silt build up.	• The gully top is wider than the channel and is therefore identifiable within a channel run. • Gully top grating options do not include standard Slotted, Plastic, Composite, Quadrato or Slotted Intercept grating styles which are available in the ACO Modular 125+ grating range.	27

Step 4 - Adding channels

Description	Helpful Hints	General Considerations	Page
• Start at the outlet position and work back adding channels as appropriate. Where combined falls or sloping falls are required, ensure there is a logical fall to the outlet where the deepest channel sections are positioned.	• ACO Modular 125+ corners and branch units are level inverts and therefore consideration is required when planning channel layouts. • Using longer length channels saves cost, minimises joints and reduces installation time. • Shortening built-in fall channels is possible only at the start of a run. To adjust a built-in fall mid-run, it is necessary to introduce a level invert channel.	• Hydraulic flow can be effected by introducing level invert sections within a sloping channel run.	34 - 35

Step 5 - Adding end plates

Description	Helpful Hints	General Considerations	Page
• Terminate the drainage system with end plates corresponding to the channel invert at ends.	N/A	• The addition of each end plate will increase length of channel run by 14mm.	38

Step 6 - Channel edge options

Description	Helpful Hints	General Considerations	Page
• Select channel edge detail appropriate for the Load Class and flooring finish.	• PVC infill is a low cost option for improving overall channel durability in trafficked areas. • ACO Vinyl Seal® is not suitable for wooden or suspended floors.	• For Load Class B125, PVC infill will be supplied as standard. • Vinyl / flexible sheet flooring can be seamlessly welded to ACO Vinyl Seal®.	38

Step 7 - Select gratings

Description	Helpful Hints	General Considerations	Page
• Confirm correct Load Class for the application and select appropriate gratings style from the ACO Modular 125+ grating range.	• Security lockings can be specified to all gratings at extra cost. • Do not use slip resistant gratings where vehicles are likely to turn on the grate.	• For bare foot areas consider Heelsafe, Quadrato, Intercept or Plastic grating styles. • Consider grating availability for both channel and gully.	39

Step 8 - Material selection

Description	Helpful Hints	General Considerations	Page
• ACO Building Drainage can supply products made from 304 and 316 grades of stainless steel.	• 304 grade stainless steel provides excellent corrosion resistance. • For applications where superior corrosion resistance properties are required under extreme conditions particularly where chlorides are involved, 316 grade is used. • Typical 316 applications are swimming pools, food factories with aggressive cleaning chemicals and chemical/ pharmaceutical industry.	• Selection of the correct grade of material for each application is an important factor in the design process	56

ACO modular box channel 125 standard articles

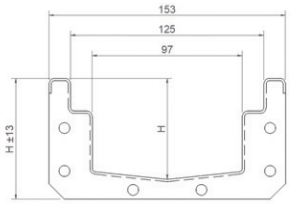
Product information

Modular concept allows specification of standard channel units to surround machinery and fit within existing tiling patterns.

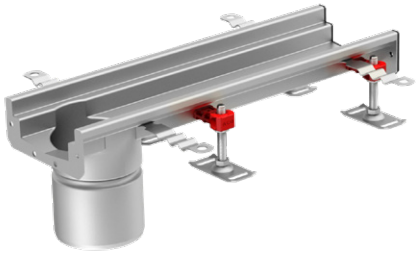
Vee-bottomed (V) profiled channel for enhanced flow efficiency at low flow rates and for improved self cleaning performance.

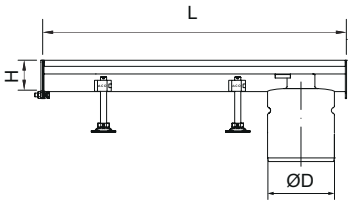
Product benefits

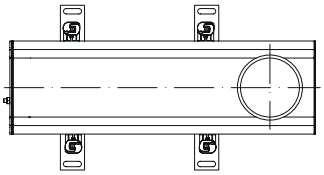
- Fully compliant to EN 1253
- Fully tested and classified to EN 1433
- Available in grades of stainless steel
- Fully pickled and passivated
- Easy and secure telescopic connection with gully
- Cut on demand items available to minimize works on site
- Wide range of gratings for load class up to C 250 (EN 1433)



Spigot end outlets



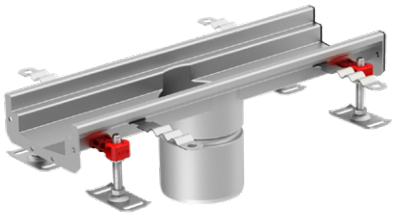


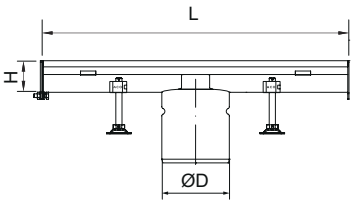


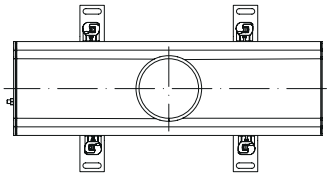
Dimensions		FAT	Outlet diameter	Part number	
L [mm]	H [mm]		øD [mm]	SS 304	SS 316
500	50	EG150 FAT	110	105175	106264
	65			105176	106265
	80			105177	106266
	95			105178	106267
	110			105179	106268
	125			105180	106269
1000	50			105183	106270
	65			105184	106271
	80			105185	106272
	95			105186	106273
	110			105187	106274
	125			105188	106275

Note: Items are equipped with seal and connecting material on one side.

Spigot centre outlets



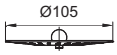
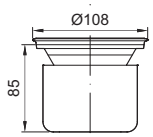
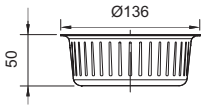




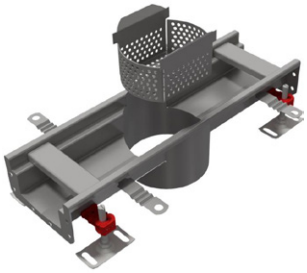
Dimensions		FAT	Outlet diameter	Part number	
L [mm]	H [mm]		øD [mm]	SS 304	SS 316
500	50	EG150 FAT	110	105191	106276
	65			105192	106277
	80			105193	106278
	95			105194	106279
	110			105195	106280
	125			105196	106281
1000	50			105199	106282
	65			105200	106283
	80			105201	106284
	95			105202	106285
	110			105203	106286
	125			105204	106287

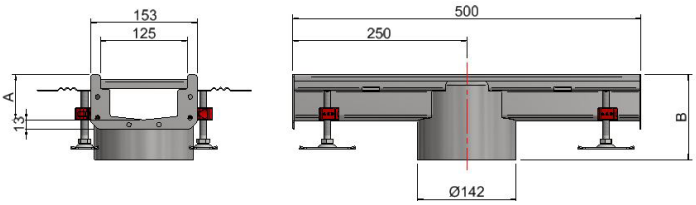
Note: Items are equipped with seal and connecting material on one side.

Spigot outlet accessories

	Description	Used with	Material	Part number
	Sieve ■ Stainless steel	■ ACO modular box channel 125 with outlet 110 mm	SS 304	97235
			SS 316	97285
	Foul air trap ■ Stainless steel ■ Water seal 50 mm	■ ACO modular box channel 125 with outlet 110 mm	SS 304	97217
			SS 316	97267
	Silt basket ■ Stainless steel ■ 0.5 litre capacity	■ ACO modular box channel 125 with outlet 125 and 142 mm	SS 304	21510
			SS 316	21515

Discreet Channel Gullies





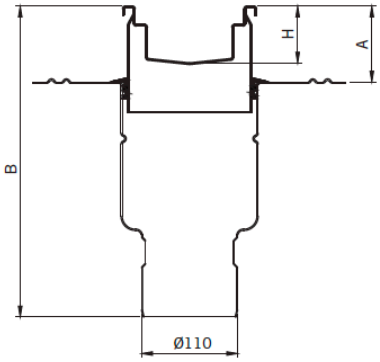
Dimensions		Gully	Part number	
L [mm]	H [mm]		SS 304	SS 316
500	65	Discreet Channel Gully	105381	106288
	95		105382	106289
	125		105383	106290
-	-	Sediment Basket 0.55 litre capacity	105384	105384

Note: Flow rate dependant on horizontal or vertical outlet gully body selection.

Discreet Channel Gully Assembly Inverts

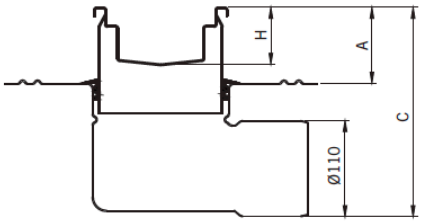
Discreet Channel Gully with Vertical Gully Outlet

	H = 65mm	H = 95mm	H = 125mm
A Min	70	100	130
A Max	115	145	175
B Min	339	369	399
B Max	384	414	444



Discreet channel with Horizontal Gully Outlet

	H = 65mm	H = 95mm	H = 125mm
A Min	90	120	150
A Max	115	145	175
C Min	243	273	303
C Max	268	298	328



ACO Gully 157 for use with Discreet Channel Gully

Product information

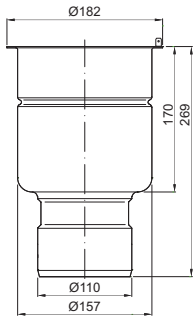
Telescopic gully can be combined either with gully top or ACO channel in most flooring constructions.

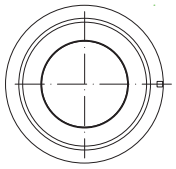
Telescopic solution enables height and rotational adjustment of connected gully top or channel.

Gullies are equipped with flanges for connection of waterproof membrane.

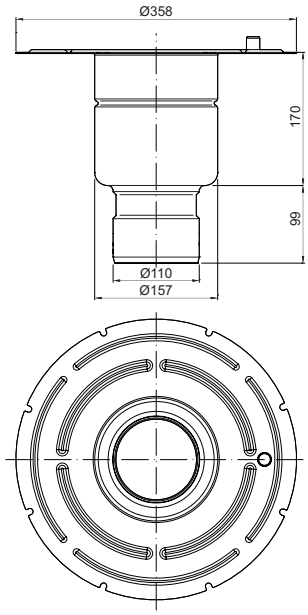
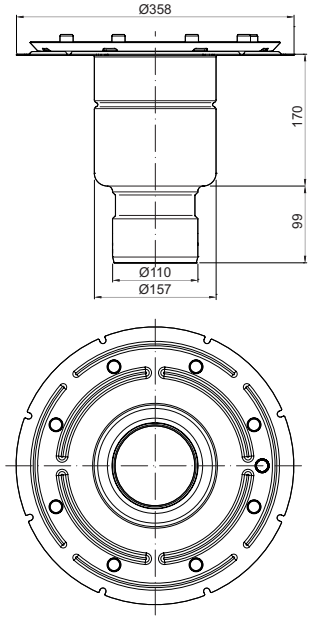
Product benefits

- Hygienic design following EN 1672, EN ISO 14159 and EHEDG document No. 8, 13 and 44
- Fully pickled and passivated
- Fully removable and easily cleanable stainless steel foul air trap (FAT)
- Tested and certified according to EN1253
- Fire tested and certified solution available for classes EI90 – EI 180 (EN 13 501-2)
- Suitable for all floor types including vinyl flooring
- Telescopic friction ring included





Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
Location flange	110	3.5 - 4.4 / 4.5	With FAT	SS 304	408055
				SS 316	408155

	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Adhesive bonding flange	110	3.5 - 4.4 / 4.5	With FAT	SS 304	408057
					SS 316	408157
	Mechanical clamping flange	110	3.5 - 4.4 / 4.5	With FAT	SS 304	408059
					SS 316	408159

ACO Gully 157 for use with Discreet Channel Gully

Product information

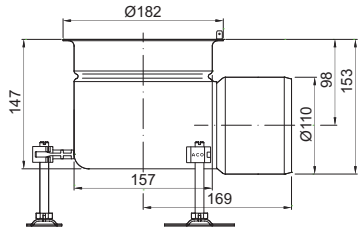
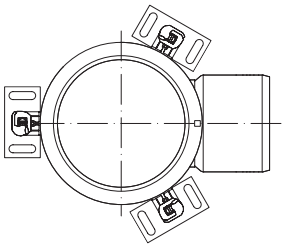
Telescopic gully can be combined either with gully top or ACO channel in most flooring constructions.

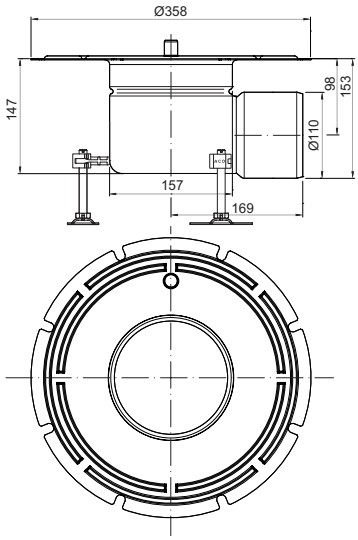
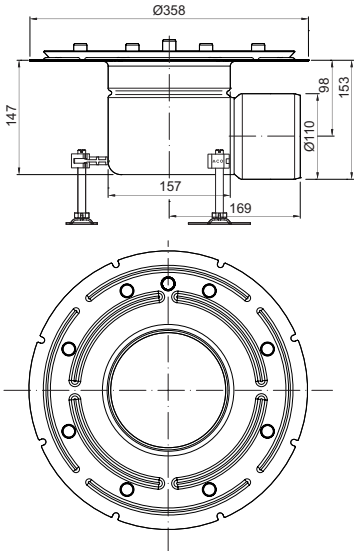
Telescopic solution enables height and rotational adjustment of connected gully top or channel.

Gullies are equipped with flanges for connection of waterproof membrane.

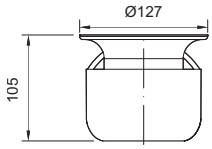
Product benefits

- EN ISO 14159 and EHEDG document No. 8, 13 and 44
- Fully pickled and passivated
- Fully removable and easily cleanable stainless steel foul air trap (FAT)
- Tested and certified according to EN 1253
- Suitable for all floor types including vinyl flooring
- Telescopic friction ring included
- Adjustable EasyFix levelling feet

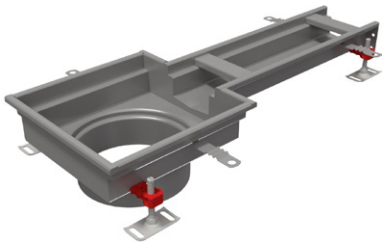
	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Location flange	110	2.8 - 4.4 / 4.5	With FAT	SS 304	408079
					SS 316	408179

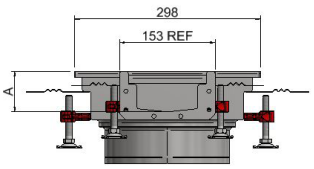
	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Adhesive bonding flange	110	2.8 - 4.4 / 4.5	With FAT	SS 304	408081
					SS 316	408181
	Mechanical clamping flange	110	2.8 - 4.4 / 4.5	With FAT	SS 304	408083
					SS 316	408183

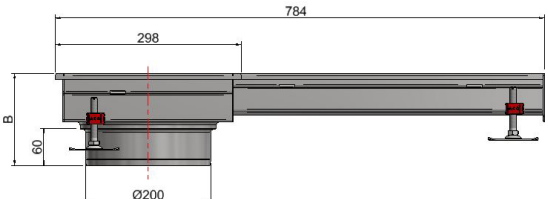
Accessories for ACO hygienic gully 157

	Description	Used with	Material	Part number
	ACO hygienic foul air trap ■ Stainless steel ■ Water seal 50 mml	■ ACO hygienic gully 157 □ Telescopic	SS 304	408200
			SS 316	408210
	ACO friction ring ■ SBR (Styrene-butadiene rubber)	■ ACO hygienic gully 157 □ Telescopic	SBR	408205
	ACO standard foul air trap support ■ NBR (Acryl nitrile-butadiene rubber)	■ ACO hygienic gully 157 □ Fixed height □ Telescopic	NBR	408201

One Way Gully Top

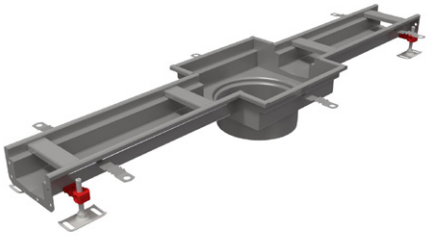


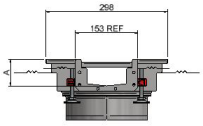


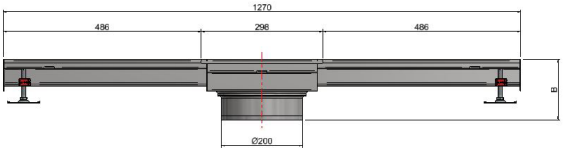


Dimensions		Gully	Part number	
L [mm]	H [mm]		SS 304	SS 316
784	65	One Way Gully Top S/S 304	105375	106291
	95		105376	106292
	125		105377	106293

Two Way Gully Top





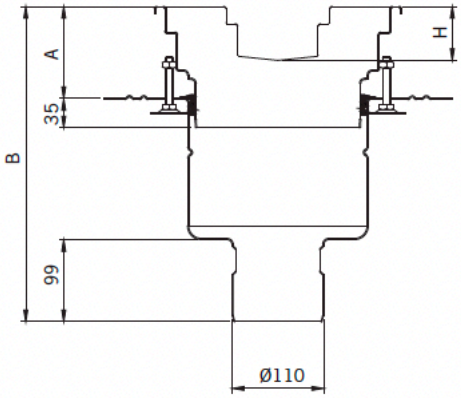


Dimensions		Gully	Part number	
L [mm]	H [mm]		SS 304	SS 316
1270	65	Two Way Gully Top S/S 304	105378	106294
	95		105379	106295
	125		105380	106296

Gully Outlet Assembly Inverts

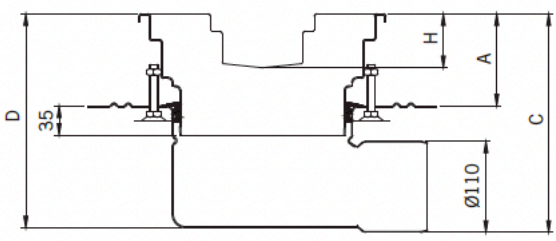
One Way and Two Way Gully Tops with Vertical Gully Outlet

	H = 65mm	H = 95mm	H = 125mm
A Min	96	126	156
A Max	124	154	184
B Min	336	396	426
B Max	394	424	454



One Way and Two Way Gully Tops with Horizontal Gully Outlet

	H = 65mm	H = 95mm	H = 125mm
A Min	96	126	156
A Max	124	154	184
C Min	244	274	304
C Max	272	302	332
D Min	221	251	281
D Max	249	279	309



ACO Gully 218 for use with One Way and Two Way Gully Tops

Product information

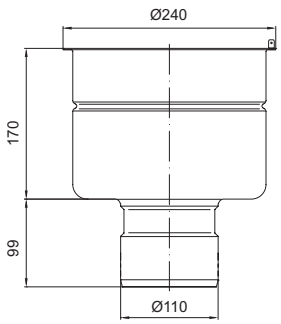
Telescopic gully can be combined either with ACO gully top or ACO channel in most flooring constructions.

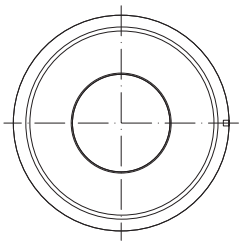
Telescopic solution enables height and rotational adjustment of connected gully top or channel.

Gullies are equipped with flanges for connection of waterproof membrane.

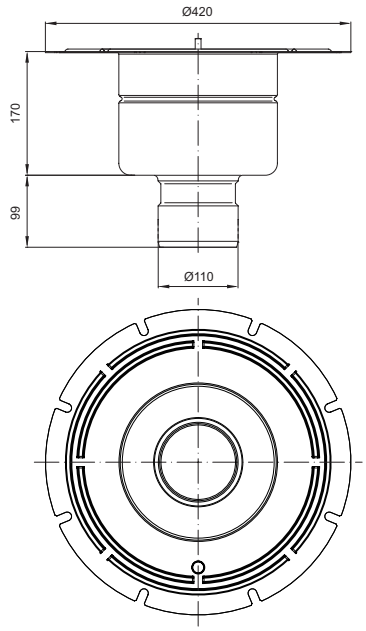
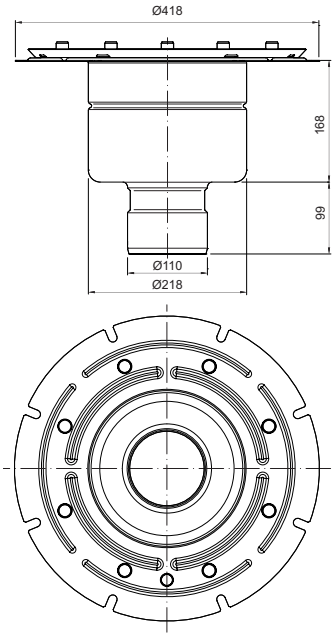
Product benefits

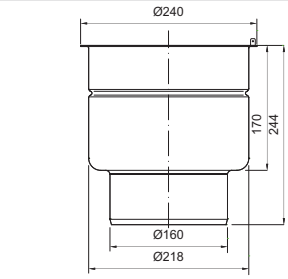
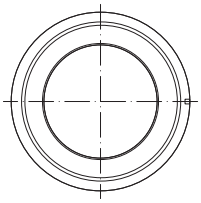
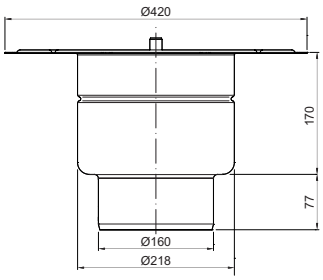
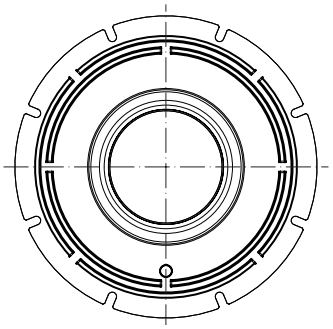
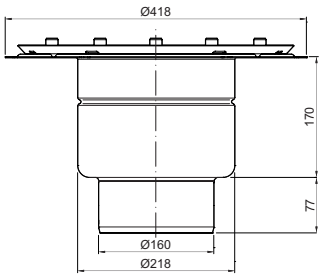
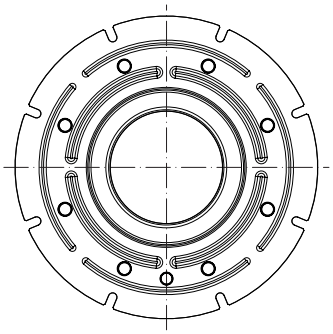
- Hygienic design following EN 1672, EN ISO 14159 and EHEDG document No. 8, 13 and 44
- Fully pickled and passivated
- Fully removable and easily cleanable stainless steel foul air trap (FAT)
- Tested and certified according to EN 1253
- Fire tested and certified solution available for classes EI 90 – EI 180 (EN 13 501-2)
- Suitable for all floor types including vinyl flooring
- Telescopic friction ring included





Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
Location flange	110	5 - 6.2 / 5.5	With FAT	SS 304	408061
				SS 316	408161

	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Adhesive bonding flange	110	5 - 6.2 / 5.5	With FAT	SS 304	408063
					SS 316	408163
	Mechanical clamping flange	110	5 - 6.2 / 5.5	With FAT	SS 304	408065
					SS 316	408165

	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Location flange	160	5 - 6.2 / 5.5	With FAT	SS 304	408067
					SS 316	408167
	Adhesive bonding flange	160	5 - 6.2 / 5.5	With FAT	SS 304	408069
					SS 316	408169
	Mechanical clamping flange	160	5 - 6.2 / 5.5	With FAT	SS 304	408071
					SS 316	408171

ACO Gully 218 for use with One Way and Two Way Gully Tops

Product information

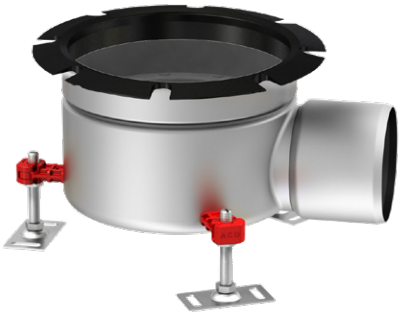
Telescopic gully can be combined either with gully top or ACO channel in most flooring constructions.

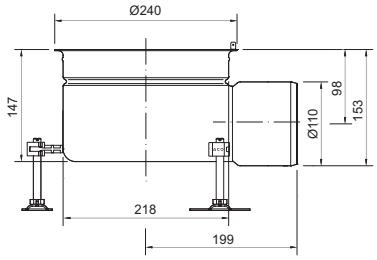
Telescopic solution enables height and rotational adjustment of connected gully top or channel.

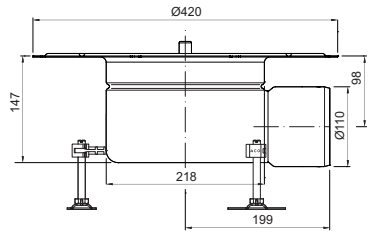
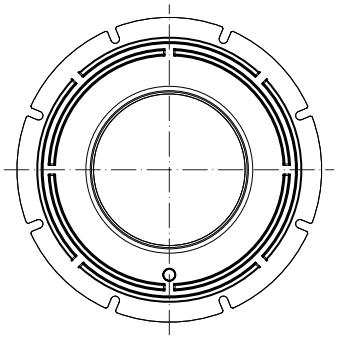
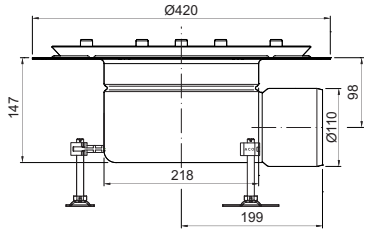
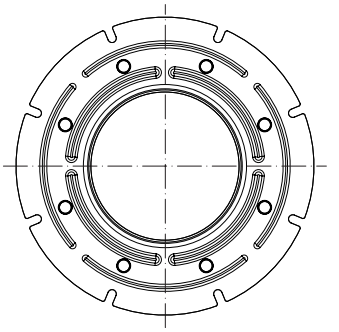
Gullies are equipped with flanges for connection of waterproof membrane.

Product benefits

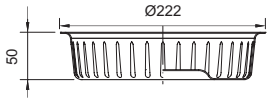
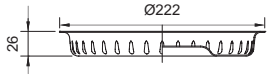
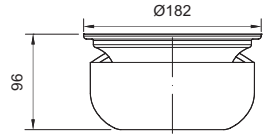
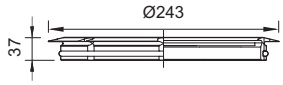
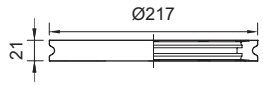
- Hygienic design following EN 1672, EN ISO 14159 and EHEDG document No. 8, 13 and 44
- Fully pickled and passivated
- Fully removable and easily cleanable stainless steel foul air trap (FAT)
- Tested and certified according to EN 1253
- Suitable for all floor types including vinyl flooring
- Telescopic friction ring included
- Adjustable EasyFix levelling feet



	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
	Location flange	110	4.4 - 5.4 / 5	With FAT	SS 304	408085
					SS 316	408185

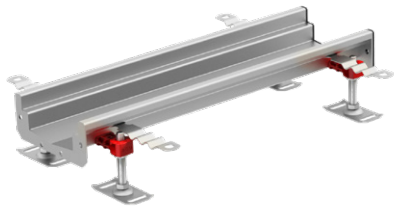
	Type of flange	Outlet diameter ø [mm]	Flow rate EN-1253-1 / Direct [l/m]	Foul air trap	Material	Part number
 	Adhesive bonding flange	110	4.4 - 5.4 / 5	With FAT	SS 304	408087
					SS 316	408187
 	Mechanical clamping flange	110	4.4 - 5.4 / 5	With FAT	SS 304	408089
					SS 316	408189

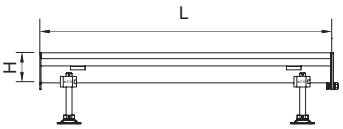
Accessories for ACO hygienic gully 218

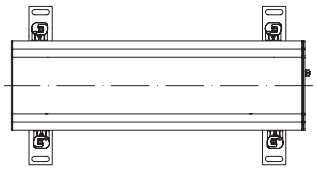
	Description	Used with	Material	Part number
	ACO silt basket ■ Stainless steel ■ 1,4 litre capacity	■ ACO hygienic gully 218, vertical □ Fixed height or telescopic	SS 304	416908
			SS 316	416909
	ACO silt basket ■ Stainless steel ■ 0,7 litre capacity	■ ACO hygienic gully 218, horizontal □ Fixed height or telescopic	SS 304	416910
			SS 316	416911
	ACO hygienic foul air trap ■ Stainless steel ■ Water seal 50 mm	■ ACO hygienic gully 218 □ Fixed height □ Telescopic	SS 304	408220
			SS 316	408230
	ACO friction ring ■ SBR (Styrene-butadiene rubber)	■ ACO hygienic gully 218 □ Telescopic	SBR	408225
	ACO standard foul air trap support ■ NBR (Acryl nitrile-butadiene rubber)	■ ACO hygienic gully 218 □ Fixed height □ Telescopic	NBR	408221

Level invert channels

Level invert channel





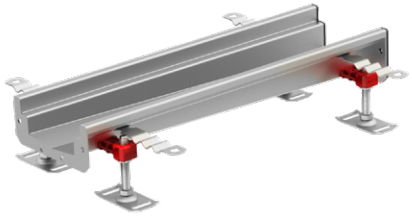


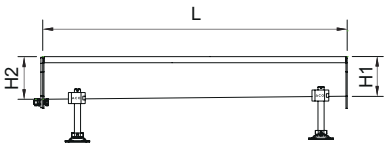
Dimensions		Part number	
L [mm]	H [mm]	SS 304	SS 316
500	50	105119	106200
	65	105120	106201
	80	105121	106202
	95	105122	106203
	110	105123	106204
	125	105124	106205
1000	50	105127	106206
	65	105128	106207
	80	105129	106208
	95	105130	106209
	110	105131	106210
	125	105132	106211
2000	50	105135	106212
	65	105136	106213
	80	105137	106214
	95	105138	106215
	110	105139	106216
	125	105140	106217
3000	50	105143	106218
	65	105144	106219
	80	105145	106220
	95	105146	106221
	110	105147	106222
	125	105148	106223

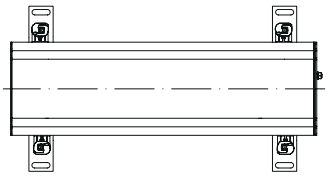
Note: Items are equipped with seal and connecting material on one side.

Sloping invert channels

Sloping invert channel





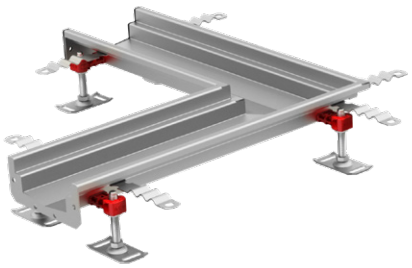


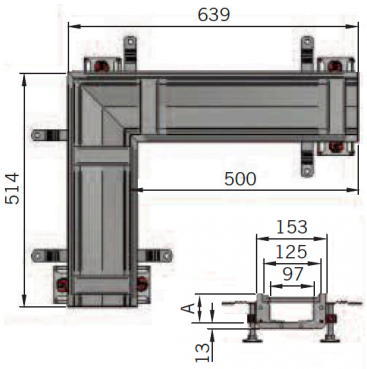
	Dimensions		Part number	
L [mm]	H1 [mm]	H2 [mm]	SS 304	SS 316
500	50	65	105151	106224
	65	80	105152	106225
1000	50	65	105155	106226
	65	80	105156	106227
	80	95	105157	106228
	95	110	105158	106229
2000	50	65	105161	106230
	65	80	105162	106231
	80	95	105163	106232
	95	110	105164	106233
	110	125	105165	106234
3000	50	65	105168	106235
	65	80	105169	106236
	80	95	105170	106237
	95	110	105171	106238
	110	125	105172	106239

Note: Items are equipped with seal and connecting material on deeper side only. When installing make sure each joint has a gasket.

Corner and branch units

Corner unit right-hand

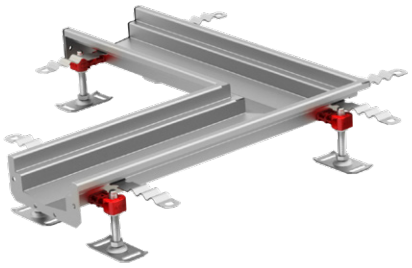


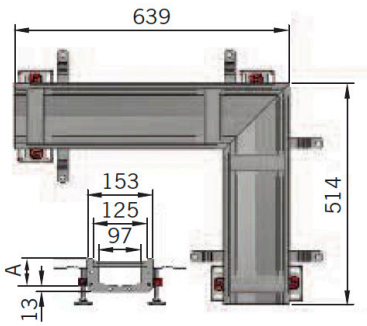


Dimensions		Part number	
L [mm]	H [mm]	SS 304	SS 316
505	50	105207	106240
	65	105208	106241
	80	105209	106242
	95	105210	106243
	110	105211	106244
	125	105212	106245

Note: Items are equipped with seal and connecting material on one side.

Corner unit left hand

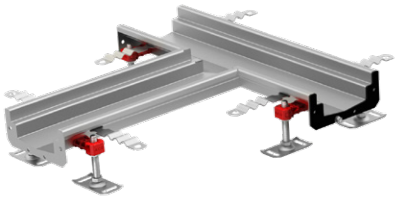


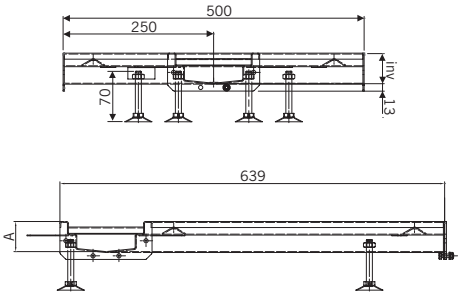


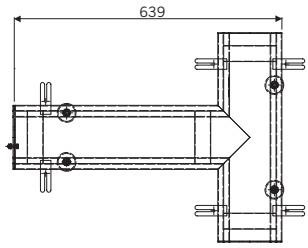
Dimensions		Part number	
L [mm]	H [mm]	SS 304	SS 316
505	50	105214	106246
	65	105215	106247
	80	105216	106248
	95	105217	106249
	110	105218	106250
	125	105219	106251

Note: Items are equipped with seal and connecting material on one side.

Branch unit





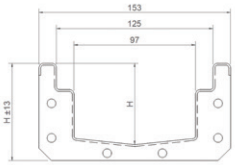


Dimensions		Part number	
L1 [mm]	H [mm]	SS 304	SS 316
500	50	105221	106252
	65	105222	106253
	80	105223	106254
	95	105224	106255
	110	105225	106256
	125	105226	106257

Note: Items are equipped with seal and connecting material on one side.

End plates and PVC infill

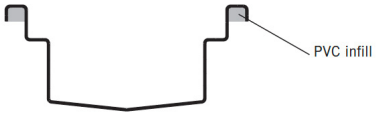
End plate



Dimensions	Part number	
H [mm]	SS 304	SS 316
50	105100	106258
65	105101	106259
80	105102	106260
95	105103	106261
110	105104	106262
125	105105	106263

Note: Items include seal and connecting material.

PVC Infill

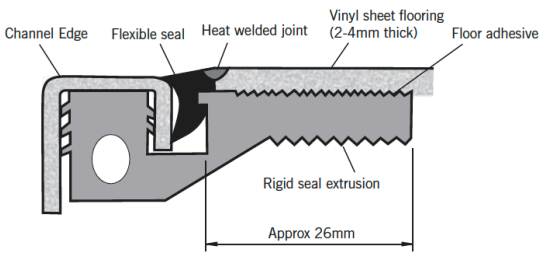


Description	Part number
PVC Infill	45107

PVC Infill can be inserted into the underside of the visible edge of channels and associated component sections to provide additional strength and prevent damage to the visible edge of channels and components PVC Infill is recommended for installations that are subject to wheeled heavy loadings from trolleys or vehicles. This must be included for applications at Load Class B125 and above.
*Double quantity required for each metre of channel (including ends).

Note: PVC Infill supplied loose for installation on site.

ACO Vinyl Seal®



Description	Part number
Flexible PVC Seal	49062
Rigid PVC Extrusion	49061
10” Sheet Plier Grip Wrench	49063

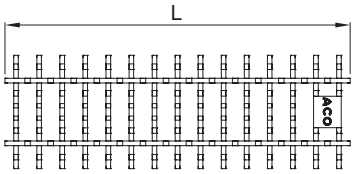
Ideal for vinyl/flexible sheet flooring applications, ACO Vinyl Seal® can be used to create a fully welded system that is watertight and improves hygiene performance by eliminating cumbersome mechanical clamping systems. ACO Vinyl Seal® is not suitable for wooden or suspended floors. *Double quantity required for each metre of channel (including ends).

Gratings for ACO modular box channel 125

Product benefits

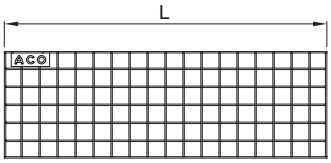
- Fully tested and classified to EN 1433
- Slip resistant gratings available for added user safety
- Load classes A 15, B 125 and C 250

ACO frameless ladder grating



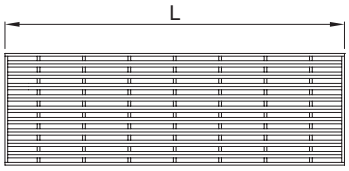
Length [mm]	Load class	Slip resistant	Material	Part number
500	C 250	Yes	SS 304	446276
			SS 316	446277

ACO mesh grating



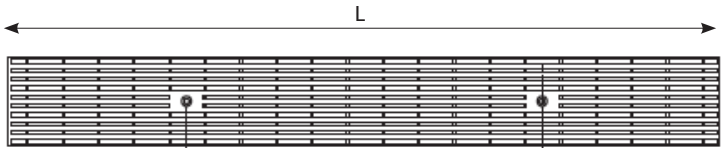
Length [mm]	Load class	Slip resistant	Material	Part number
500	A 15	No	SS 304	21720
			SS 316	21725
		Yes	SS 304	21710
			SS 316	21715
	C 250	No	SS 304	21920
			SS 316	21925
		Yes	SS 304	21910
			SS 316	21915
1000	A 15	No	SS 304	21620
			SS 316	21625
		Yes	SS 304	21610
			SS 316	21615
	C 250	No	SS 304	21820
			SS 316	21825
		Yes	SS 304	21810
			SS 316	21815

ACO heelsafe grating



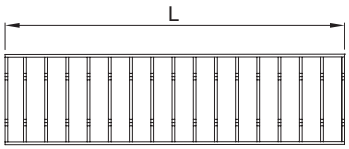
Length [mm]	Load class	Slip resistant	Locking	Material	Part number
500	B 125	No	No	SS 304	96819
				SS 316	401238
1000	B 125	No	No	SS 304	96818
				SS 316	401237
500	B 125	No	Yes	SS 304	402072
				SS 316	406095
1000	B 125	No	Yes	SS 304	402071
				SS 316	406094

ACO heelsafe external locked



Length [mm]	Load class	Slip resistant	Locking	Material	Part number
500	B 125	No	Yes	SS 304	445486
1000				SS 304	445487

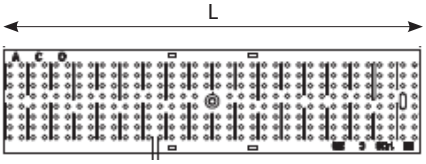
ACO ladder grating



Length [mm]	Load class	Slip resistant	Material	Part number
500	C 250	Yes	SS 304	21740
			SS 316	21745
1000	C 250	Yes	SS 304	21741
			SS 316	21746

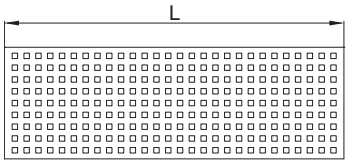
Note: Ladder grate is reversible so it can be either plain or slip resistant.

ACO perforated grating



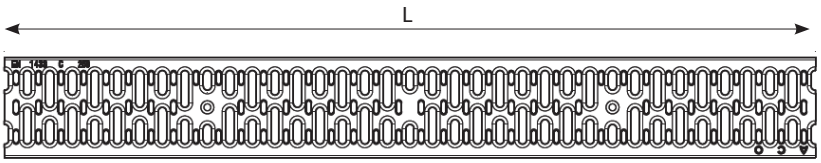
Length	Load class	Slip resistant	Locking	Material	Part number
L [mm]					
500	C 250	No	Yes	SS 304	105505
1000	C 250	No	Yes	SS 304	105504

ACO quadrato grating



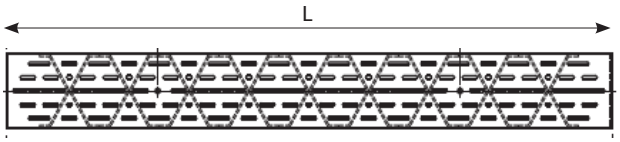
Length	Load class	Slip resistant	With lock	Material	Part number
L [mm]					
500	A 15	Yes	No	SS 304	105842
				SS 316	106302
			Yes	SS 304	105844
				SS 316	106304
1000	A 15	Yes	No	SS 304	105841
				SS 316	106301
			Yes	SS 304	106843
				SS 316	106303
500	A 15	No	No	SS 304	105530
				SS 316	407927
			Yes	SS 304	105528
				SS 316	407925
1000	A 15	No	No	SS 304	105529
				SS 316	407936
			Yes	SS 304	105527
				SS 316	407924

Slotted Locked



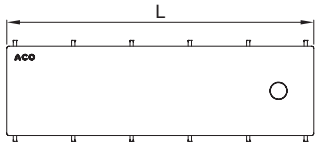
Length L [mm]	Load class	Material	Part number
500	A 15	SS 304	105519
	C 250	SS 304	105521
1 000	A 15	SS 304	105518
	C 250	SS 304	105520

Intercept



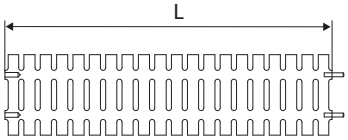
Length L [mm]	Description	Load class	Material	Part number
500	Intercept	A 15	SS 304	105539
			SS 316	106300
1000			SS 304	105538
			SS 316	106299
500	Intercept Locked	A 15	SS 304	105537
			SS 316	106298
1000			SS 304	105536
			SS 316	106297
500	Slip Resistant Intercept	A 15	SS 304	105846
			SS 316	106306
1000			SS 304	105845
			SS 316	106305
500	Slip Resistant Intercept Locked	A 15	SS 304	105848
			SS 316	106308
1000			SS 304	105847
			SS 316	106307

ACO hygienic slot cover



Length L [mm]	Load class	Slip resistant	Material	Part number
500	C 250	Yes	SS 304	445794
			SS 316	445795
1000	C 250	Yes	SS 304	445798
			SS 316	445799

ACO plastic grating



Length L [mm]	Load class	Slip resistant	Material	Part number
500	A 15	No	-	21790
1000	A 15	No	-	21690

ACO black composite grating

Length L [mm]	Load class	Part number
500	C 250	15704

Grating Lockings and Security

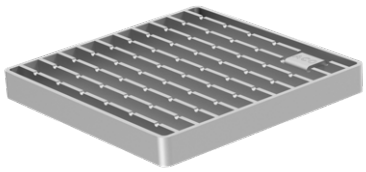
Description	Part number
Standard channel locking kit	26310
Security channel locking kit	26320
Grating locking modification	26340
Standard gully locking kit	26360
Security gully locking kit	26350
Standard hexagon locking wrench 5mm	46876
Security hexagon locking wrench 5mm	46786

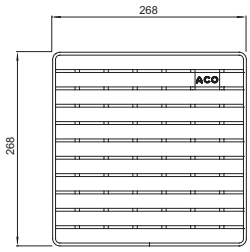
For applications where locked gratings are required, the ACO Modular 125+ channel system can be supplied with factory fitted standard lockings (activated by a standard hexagon wrench) or security locking (activated by a security wrench).

Note: Channel systems required with locking accessory require appropriate grating recess. If locking recess is not standard then grating locking modification will be required. Gully gratings will be modified at the factory for locking as part of gully locking kit. Locking kits include channel gully modification locking bar and fixing. Appropriate standard or security locking wrench to be ordered separately, as per options above.

ACO Gully 218 Gratings for use with One Way and Two Way Gully Tops

ACO hygienic ladder grating

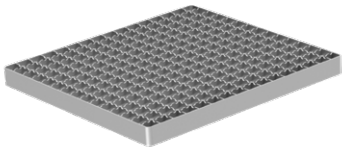


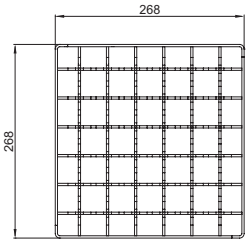


Load class	Slip resistant	Material	Item number
R 50	Yes	SS 304	416916
		SS 316	416917
N 250	No	SS 304	408045
		SS 316	408145

Note: Surface electropolished

ACO mesh grating

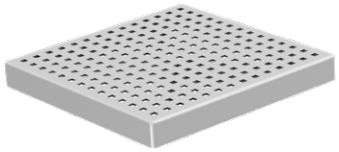


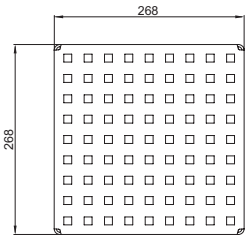


Load class	Slip resistant	Material	Item number
L 15	Yes	SS 304	408034
		SS 316	408134
	No	SS 304	408035*
		SS 316	408135*

Note: Surface electropolished

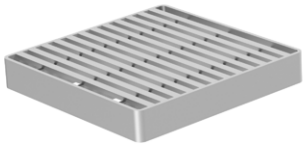
ACO quadrato grating

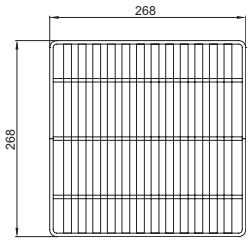




Load class	Slip resistant	Material	Item number
L 15	No	SS 304	408036*
		SS 316	408136*

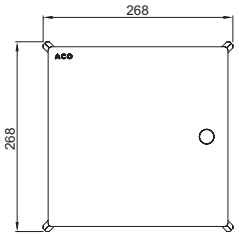
ACO heelsafe grating





Load class	Slip resistant	Material	Item number
L 15	No	SS 304	408040*
		SS 316	408140*

ACO hygienic slot cover



Load class	Slip resistant	Material	Item number
M 125	Yes	SS 304	408039
		SS 316	408139

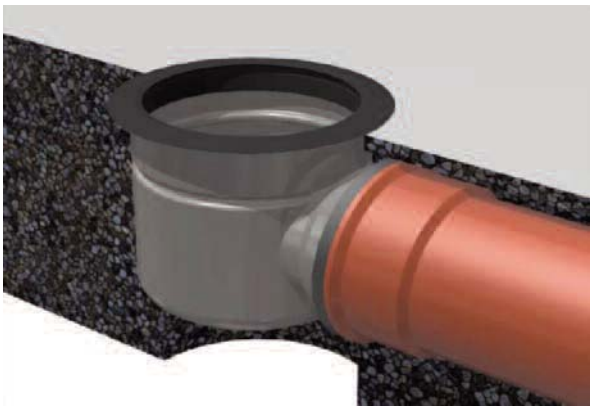
Note: Top surface sandblasted

* Hygienic design following EN 1672, EN ISO 14159 and EHEDG document No. 8, 13, 44 not applied.

Channel and gully installation

(details may vary depending upon application)

Step 1 Prepare for Modular 125+ installation



Modular 125 channels can be used in combination with gullies or directly connected to the installed pipework. The installation can be done in free space or within a trench, which is created by shuttering before the concrete is poured. Important dimensions to be taken into account in preparing for installation:

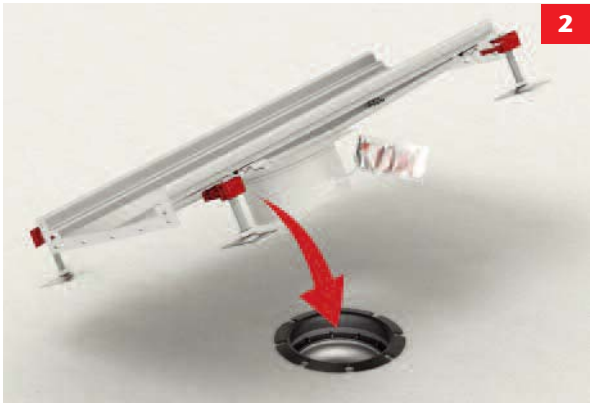
Installations designed for load classes A 15 and B125 allow a minimum of 30 mm of bedding material under the channel. When installing in a trench allow for 100 mm space on either side of the channel to create easy access to the levelling feet.

Installations designed for load class C250 allow a minimum of 200 mm of bedding material under the channel for concrete backfill support. To achieve the required height locally pack the levelling feet with suitable material (engineering bricks or similar). When installing in a trench allow a minimum of 200mm on either side of the channel.

Where it is not possible to provide the depth of surround as described above, a suitable mortar of Strength Class C30/C37 to BS EN 206-1 with a maximum aggregate size of 10mm may be used to support the channel following engineering advice.

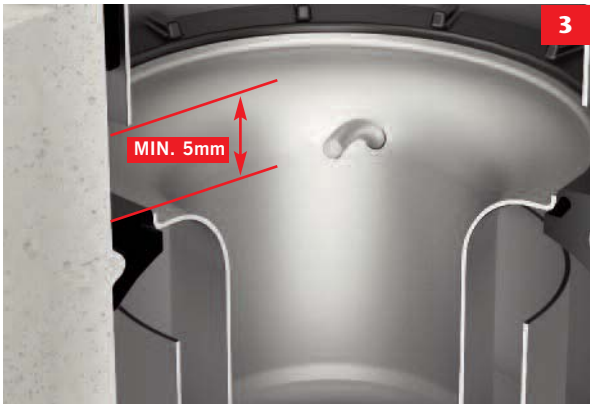
Step 2 Installing the Modular 125+ channel

When using a gully under the modular channel, don't remove the FAT and FAT support ring.

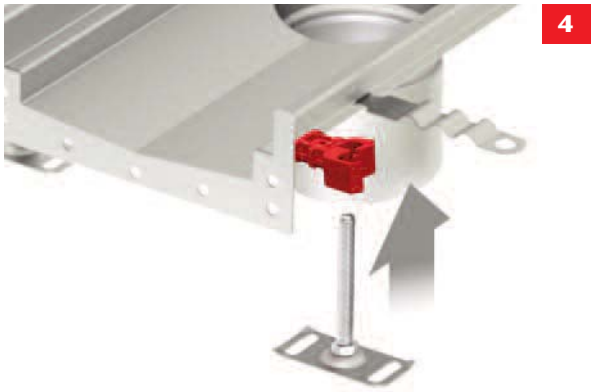


Loosely assemble the Modular channel starting with the outlets.

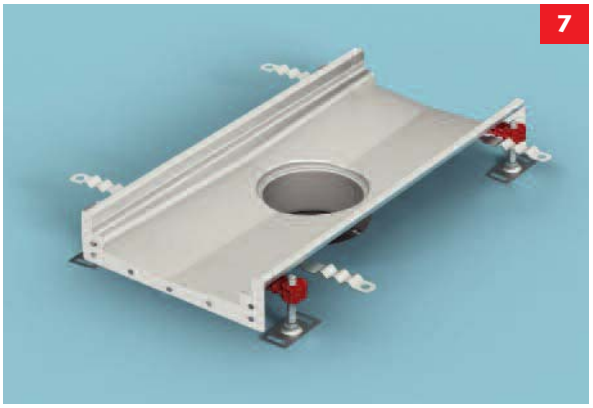
LEAVE SPACER BARS IN PLACE AS THEY PROVIDE STRUCTURAL SUPPORT TO THE CHANNEL WHEN CONCRETED IN



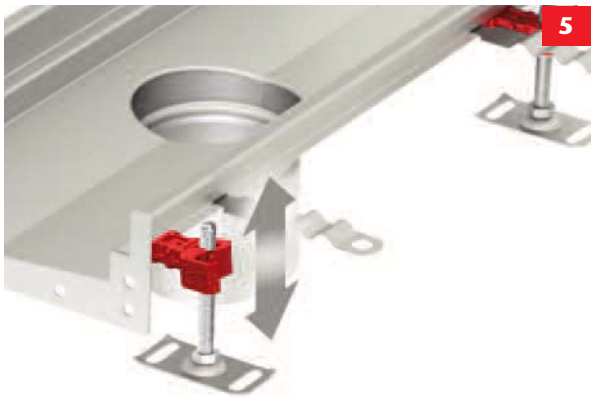
When using an ACO Gully please ensure the distance between the Modular channel outlet and the FAT Support ring is at least 5 mm.



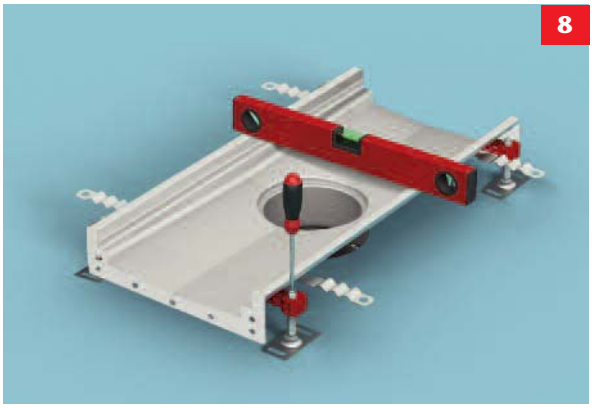
Open the plastic clip if larger height adjustment is required,



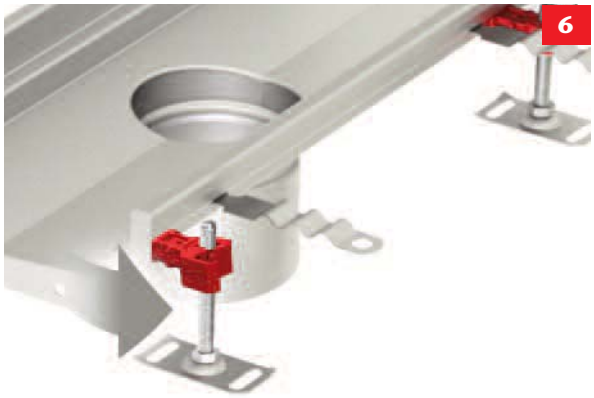
Once the outlet channel placed over the waste water pipe/gully orientate and level the channel in the required position.



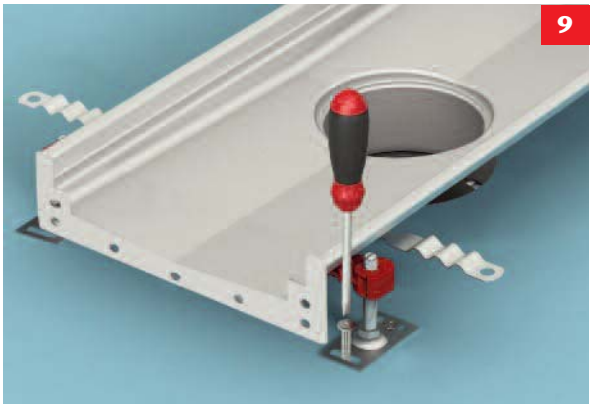
The levelling feet can be moved freely through the plastic clip.



The levelling feet can still be adjusted to accommodate corrections following installation.

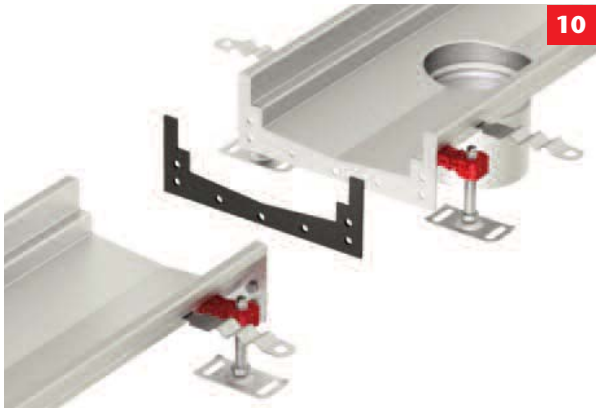


Close the clip when reaching the approximate intended level for the channel. Once the clip is completely closed, a fine adjustment of the levelling feet is possible by using a screwdriver.

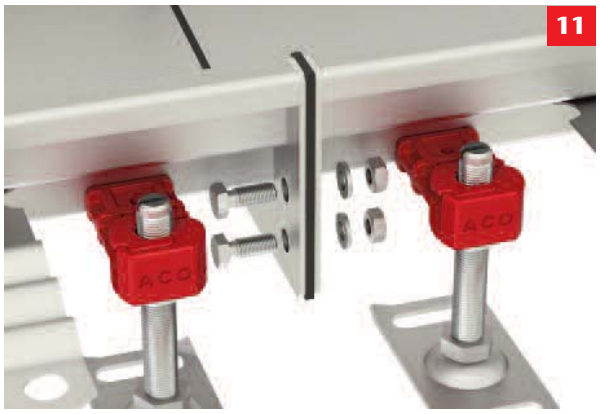


Once channel is in place fasten the levelling feet to the ground.

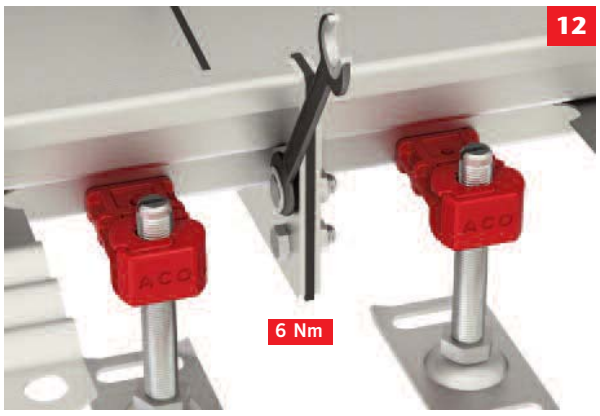
Ensure, if applicable, that the PVC in-fill is fitted or, in the case of vinyl sheet floor covering, the ACO Vinyl Seal edge is installed.



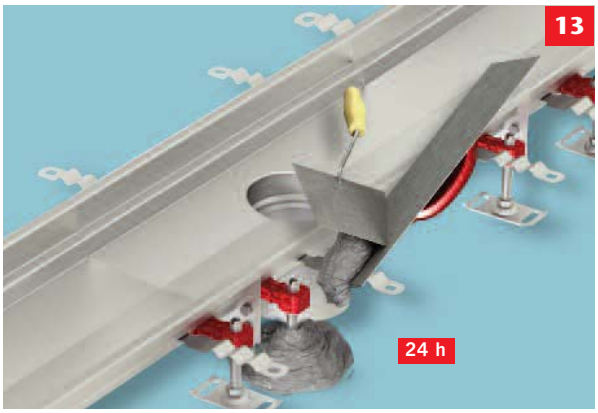
Ensure the gasket is placed in the right position.



Align gasket and end plates of the channels and insert the bolts through the holes. Hand tighten the nuts on the bolts.

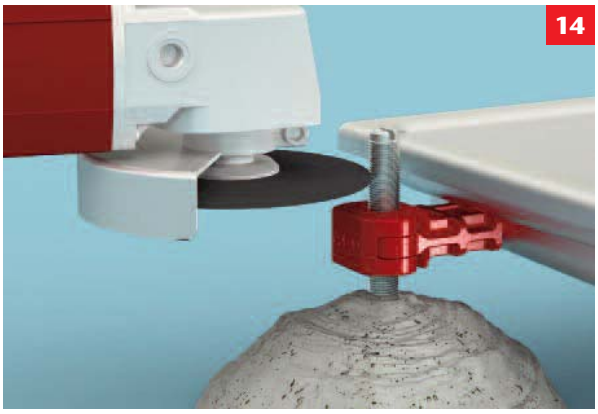


Ensure the position, line and level of the channel before fully tightening all joints.



Weight the channel down or secure the levelling feet to the substrate, preventing the channel from lifting or floating.

Fully extend and twist the channel tangs to ensure good encourage into the surrounding haunching.



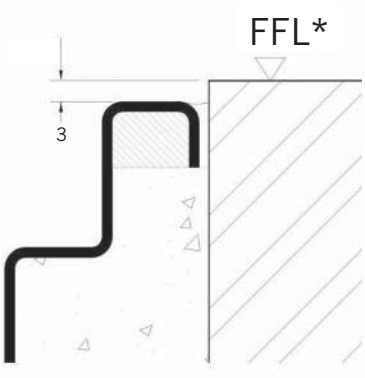
If the threaded post of the levelling feet interferes with the intended floor level cut the post down to appropriate level. Please cover the channel to prevent steel particles cross contaminating the stainless steel, as this can cause corrosion in the future.

When Modular channel is installed in combination with vinyl sheet floor covering using ACO Vinyl Seal **FIT THE ACO VINYL SEAL® PRIOR TO BACKFILLING (See Page 38 and 51)**

For light and medium duty applications (up to load class C250) a suitable mortar of Strength Class 30/37 to BS EN 206-1 with a minimum aggregate size of 10mm should be used.

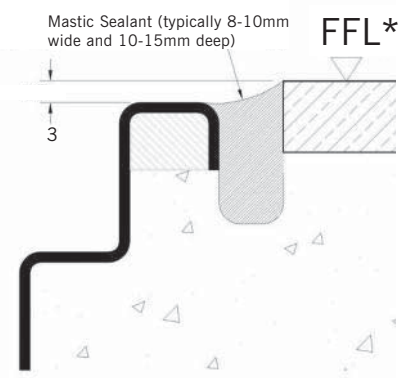
The spacer bars can be removed when the floor finishes are cured.

Floor finishes



Block pavior/ hard standing finish

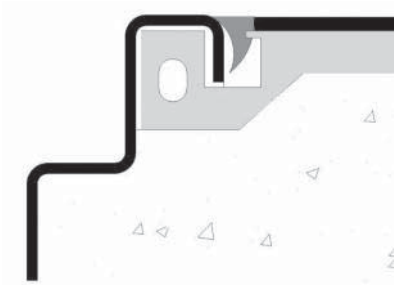
Lay block paviors on 300 mm wide epoxy surround to prevent movement. Set pavior 3 mm maximum above the channel edge.



Tile/resin finish

Lay tiles/resin 3 mm maximum above the channel edge. Leave gap between edge of the channel and floor for mastic sealant of 8-10mm wide and 10-15mm deep.

In some cases it may be necessary to apply a suitable primer to the stainless steel before applying the mastic sealant. The sealant manufacturer's advice should be sought for each individual application.



ACO Vinyl Seal®

See pages 38 for installation of the ACO Vinyl Seal®

Grate installation

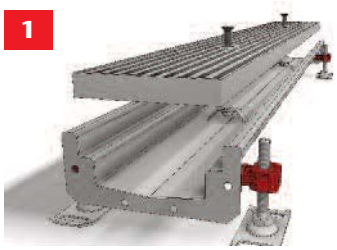
Spacer bars provide rigidity during delivery, site handling and installation. They also prevent narrowing of the grating aperture during concreting.

Spacer bars should be left in position until immediately before the gratings are installed. The spacers are removed by striking them with a sharp horizontal blow using a mallet.

Gratings can be supplied with or without locking feature. Depending on the depth of the channel the locking construction is slightly different:

Lock Modular 125 gratings (50-65 mm depth)

1



Included in supply:
M8 Allen key
ACO Modular 125+ Channel
Grating
2x M8 50mm long bolts per metre of channel

2

Ensure you have been supplied with the correct parts and place channel in the flooring.

3

Position the grating in the channel; this will sit either perfectly flush with the top of your channel or fractionally below.

4

Begin to screw the M8 bolts into the channel, this will tighten the grating in place using an M8 allen key.

5

Fully tighten the grating into the channel, however do not over tighten.

6

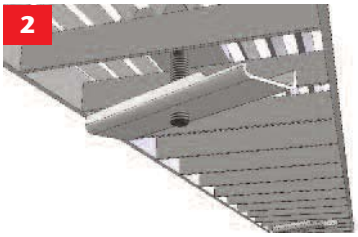
Test to ensure the grating is locked in place.

Lock Modular 125 gratings (65 + mm deep)

1

Included in supply:
M8 Allen key
ACO Modular 125+ Channel
Grating
2x MS 50mm long bolts per metre of channel
2x Locking bar

2

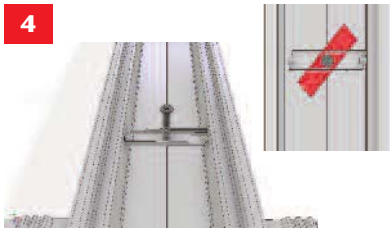


Ensure you have been supplied with the correct parts and place channel in the flooring.

3

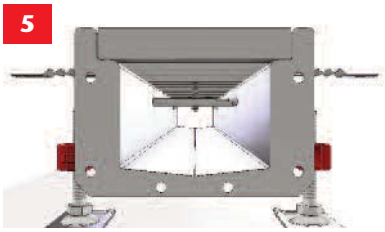
Insert bolt into the grating and screw on locking bar while the grating is outside the channel. Only screw on loose. The locking bar with the lower side has to be in front of the of the higher side when turning clockwise.

4



Place the grating in the channel and begin to tighten the M8 bolts. This will turn the locking bar within the channel and catch on the pins within the channel. The lower side of the locking bar will pass under the pin and the high side will lock against the pin.

5



Fully tighten the grating into the channel and test to ensure the grating does not move.

6

The locking bars should sit securely as seen in the bottom picture on the left, fitting your grating securely in place.

Lock Modular 125 gratings in channel with outlet:

1

Included in supply:
M8 Allen key
ACO Modular 125+ Channel
Grating
1 x M8 50mm long bolts per metre of channel
1 x Locking bar

2

Ensure you have been supplied with the correct parts and place channel in the flooring.

Place grating in channel and insert the locking bar under the pins within the channel. Loosely tighten the locking bar, by hand so it is held in position to be tightened further.

3

Tighten the M8 bolt further using the M8 allen key so the locking bar pulls up against the pins and the side of the channel. This will secure the grating in place.

Fully tighten the grating into the channel and test to ensure the grating does not move.

4

The locking bar should sit securely (in a Z shape) as seen in the bottom picture on the left, fitting your grating securely in place.

CLEANING:

Remove all protective tape from the channel edge and clean the surface with a solvent if necessary to remove any adhesive residue.

Wash and clean the channel (and gully if applicable), empty silt or sediment baskets and refit grates.

ACO Vinyl Seal® installation

Sealing Vinyl Sheet Flooring to Drainage Channels and Gullies

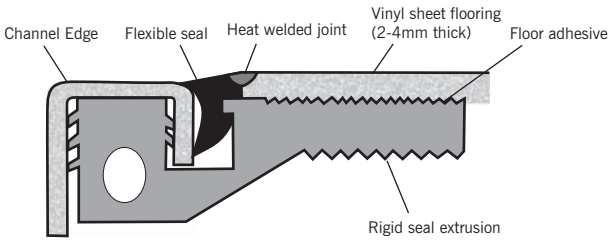
Vinyl/flexible sheet is a common flooring finish in many of the areas where stainless steel drainage channels and gullies are required.

Historically the standard method of joining vinyl/flexible sheet flooring to drainage channels and gullies was by a mechanical clamping system. Although functional, this method can be cumbersome to install and increases the potential for areas of bacterial growth.

In order to overcome the frequently encountered problems of achieving watertight and bacteria free seals, ACO Building Drainage have developed and patented the ACO Vinyl Seal®, a unique solution that enables quick, easy and cost effective installation. It also provides a completely watertight and bacteria free seal.

ACO Vinyl Seal® requires no additional tools or skills other than those required for the professional fitting of vinyl sheet flooring.

ACO Vinyl Seal® is not suitable for wooden or suspended floors. Contact the ACO Building Drainage team on 01462 801421 or email abdestimating@aco.co.uk for assistance.



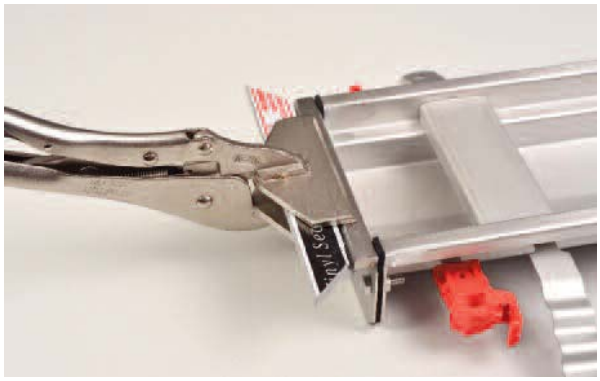
Step 1 Remove Protective Tape

Remove channel protective tape prior to fixing extrusion.

Step 2 Cut Rigid Seal Extrusion

Cut grey rigid seal extrusion to suit ensuring any mitres are cut accurately otherwise pressure points may appear in the finished floor in use.

Step 3 Clip Rigid Seal into Channel



Using Sheet Plier Grip Wrench clip the rigid seal extrusion into the underside of channel.

Step 4 Cut Notches into Rigid Seal

Where there are joint plates in the channel run cut a notch out of the rigid seal extrusion as shown to enable the extrusion to be clipped to the underside of the channel.

Picture shows the rigid extrusion cut and fitted prior to the fitting of the black flexible seal.

Step 5 Position Black Flexible Seal

Insert the black flexible seal in between channel edge and rigid seal extrusion making sure that the curved concave section of the seal faces TOWARDS the channel edge and that the groove in the black flexible seal engages with the notch on the rigid seal extrusion. (It may help to lubricate the flexible seal when inserting using a water soluble soapy solution).

Step 6 Insert Black Flexible Seal

Using the Sheet Plier Grip Wrench, proceed along the channel edge inserting the black flexible seal.

Step 7 Corner Detail

When fitting around a corner, the black flexible seal should be kept in one piece to minimise joints.

Picture shows the rigid seal extrusion and black flexible seal fitted prior to screeding / back filling.

Step 8 Install Channel

Install the channel into the ground ensuring the flooring screed is flush to the top edge of the rigid seal extrusion. Protect the channel and seal assembly from splashes of concrete or screed.

Step 9 Grouting

Grout any voids at connecting PVC joints and mitred corners to ensure a continuous fully supported surface.

Step 10 Prepare Rigid Seal Edge

Prior to laying the vinyl/flexible sheet flooring, peel the protective film from the rigid seal extrusion (a knife may be required to cut the film adjacent to the flexible seal) and ensure all surfaces are clean and dry.

Step 11 Prepare Vinyl/Flexible Sheet

When preparing the vinyl/flexible sheet material and floor surface, apply a compatible adhesive* to the top surface of the rigid seal extrusion taking care not to apply adhesive to the flexible seal. This is to ensure the vinyl sheet floor is reliably anchored over its full area.

*Altrofix 19 two part water resistant eurothane adhesive.

Step 12 Welding

Lay the sheet flooring against the flexible seal edge and prepare the welded joint between the flexible seal and vinyl/flexible sheet flooring as normal by scoring the sheet/seal joint to approximately half the depth of the sheet flooring thickness.

Either in-colour or black welding filler rod may be used to weld the joint. Remove surplus weld material from the joint using a spatula when the welded joint has cooled.

Care and maintenance

Care During Installation

Surface contamination and the formation of deposits must be prevented during installation in order to maintain a durable and hygienic surface. These deposits may be minute particles of iron or rust from other sources used in the building environment. Wire brushes and wire wool **must not** be used to remove marks and cement spillages as this will introduce iron impurities to the material surface. Care must also be taken when storing, erecting or cutting carbon steel near to stainless steel.

Factors Affecting Maintenance

Cleaning before handing over to the client should present no special problems if care during installation has been taken, although more attention may be required if the installation period has been prolonged.

Where surface contamination is suspected, immediate attention to cleaning after site fixing will encourage a trouble free product.

Although robust, all grades of stainless steel will stain and discolour due to surface deposits and therefore can never be accepted as completely maintenance free. In order to achieve maximum corrosion resistance, the surface of the stainless steel must be kept clean. Provided the grade of stainless steel and the surface finish are correctly selected, and cleaning schedules carried out on a regular basis, excellent performance and long service life are assured.

Industrial and even naturally occurring atmospheric conditions can produce deposits which can be corrosive, e.g.: salt deposits from marine conditions.

High humidity environments (e.g. swimming pools) increase the speed of discolouration and therefore require maintenance on a more frequent basis.

Modern processes use many cleaners, sterilisers and bleaches for hygienic purposes which when used in accordance with manufacturers instructions are safe, but if used incorrectly (e.g.warm or concentrated) can cause discolouration and corrosion on the surface of all stainless steel.

Strong acid solutions used to clean masonry and tiling of buildings should never be permitted to come into contact with stainless steel. If this should happen the acid solution must be removed immediately by copious application of water.

Maintenance Programme

Advice is often sought concerning the frequency of cleaning stainless steel and the answer is quite simple: clean the metal when it is dirty in order to restore its original appearance. This may vary from once to four times a year for external applications or it may be once a day for an item in hygienic or aggressive situations (food, beverage, pharmaceutical and chemical applications).

Frequency and cost of cleaning is lower with stainless steel than with many other materials, and will often outweigh the initial higher cost of this superior product.

Cleaning Methods

ACO Modular 125+ system components are easy to clean. Washing with soap or a mild detergent and warm water followed by a clear water rinse is usually adequate. An enhanced aesthetic appearance will be achieved if the cleaned surface is wiped dry.

Precautions

Acid cleaners should be used for cleaning **only** when other methods have proved unsatisfactory. Manufacturers directions should be followed.

Problem	Cleaning Agent	Recommendation
Routine cleaning	Soap or mild detergent and water (e.g.: washing up liquid)	Sponge, rinse with clean water, wipe dry if necessary
Fingerprints	Soap and warm water or organic solvent (e.g.: acetone, alcohol)	Rinse with clean water, wipe dry if necessary
Stubborn stains and discolouration	Mild cleaning solutions (e.g.: Cif, Goddard Stainless Steel Care)	Clean after with soap and water, rinse with clean water and dry, if necessary
Oil and grease marks	Organic solvents (e.g.: acetone, alcohol)	After solvent use clean with soap and water, rinse with clean water and dry, if necessary
Rust and corrosion	Most mild corrosion and staining effects can be removed by the application of commercially available metal polishes. Check manufacturer's details before use	Rinse well with copious amounts of clean water (precautions for acid cleaners should be observed)
Scratches on brushed finishes	Household synthetic fibre scouring pads (e.g.: Scotch Brite fibre pad)	Apply in direction of brushed finish. Clean with soap or detergent as per routine cleaning. Never use ordinary steel wool as iron particles can become embedded in the surface being cleaned and cause corrosion

Stainless steel explained

Stainless steel is the name given to a wide range of steels which have the characteristics of greatly enhanced corrosion resistance over conventional mild and low alloy steels.

The enhanced corrosion resistance of stainless steel essentially comes from the addition of at least 11% chromium, however most stainless steels commonly used contain around 18% chromium. Other significant alloying elements include nickel and for superior corrosion resistant properties, molybdenum.

For ACO Building Drainage applications, the principal properties of stainless steel may be summarised as follows:

- Durable and corrosion resistant in highly aggressive environments.
- Hygienic, easily cleaned surfaces.
- Aesthetically attractive surface finish.
- Good forming and fabrication characteristics.
- Excellent strength and resistance to oxidisation at high temperatures.

All these make stainless steel an obvious first choice material for demanding applications.

Stainless Steel Families

Stainless steel is used across a wide spectrum of engineering applications and this has led to the development of the vast range of different types of stainless steels that are now available.

Austenitic Stainless Steel is the most widely used and encompasses the generic 304 and 316 grades of material. These materials are used in the ACO Building Drainage manufacturing process and are ideal for applications including food processing, leisure, dairy, brewing, pharmaceutical, chemical and petrochemical industries.

304 grade stainless steels contain around 18% chromium and 10% nickel and provides excellent corrosion resistance. For applications where superior corrosion resistance properties are required under extreme conditions particularly where chlorides are involved, 316 grade stainless steels are used and contain around 17% chromium, 12% nickel and 2.2% molybdenum.

Unlike all other grades of stainless steels, austenitic grades are non-magnetic and as a consequence magnetic particles are not attracted to the system surfaces which otherwise would encourage both contamination and corrosion.

Ferritic, Martensitic and bluplex stainless steels are unsuitable for drainage products.

Stainless Steel Corrosion Resistance

The single most important property of stainless steels and the reason for their existence and widespread use, is their natural corrosion resistance. In spite of their name, stainless steels can both ‘stain’ and corrode if used incorrectly.

The reason for the good corrosion properties is due to the formation of a very thin, invisible oxide film that forms on the surface of the material in oxidising environments such as the atmosphere and water.

This film is a chromium-rich oxide which protects the steel from attack in aggressive environments. As chromium is added to a steel, a rapid reduction in the corrosion rate is observed because of this protective film. In order to obtain a compact and continuous passive film, a chromium content of at least 11% is required. Passivity increases fairly rapidly with increasing chromium content up to about 17% chromium.

The most important alloying element is therefore chromium, but a number of other elements including nickel, molybdenum and nitrogen also contribute to the corrosion resistance properties of stainless steels. Other alloying elements may also be added to enhance the corrosion resistance in particular environments.

Stainless steels must oxidise in order to form the passive, chromium-rich oxide film. Stainless steels have a very strong tendency to passivate and only a small amount of oxidising agents are needed for passivation - air and water are sufficient to passivate stainless steels and indeed, this oxide film is spontaneously regenerated when exposed to oxygen. An important factor to note is that the passive film is self-healing, so when the material is cut or machined or, should chemical or mechanical damage occur, the passive film will ‘heal’ or re-passivate in oxidising environments - unlike a painted finish on mild steel.

Selection of the correct grade of material for each application is an important factor in the design process. It is important to note that even 316 grades of stainless steel are not immune to all kinds of chemical attack; use of reducing solutions such as hydrochloric and sulphuric acids particularly when in concentrated and/or hot form, requires careful consideration. See corrosion resistance chart on pages 56 and 57.

Stainless steel finishing processes

A stainless steel finish should appear clean, smooth and faultless. This is obvious when the steel is used for such purposes demanding stringent hygiene or decorative trim applications, but a fine surface finish is also crucial in respect to its corrosion resistant properties.

The corrosion resistance properties of stainless steel are achieved by the spontaneous formation of a very thin chromium-rich oxide layer over the surface of the material. Unfortunately, surface defects and imperfections introduced during the manufacturing process may drastically disturb the self healing process of the passive layer and subsequently reduce the corrosion resistance of the material.

In the manufacturing process it is welding that creates the greatest challenge to corrosion resistance.

Untreated Stainless Steel

After welding stainless steel, a bluish high temperature oxide film can be seen which has substantially inferior corrosion protection properties compared to the original passive layer. Immediately beneath this blue oxide film is a thin layer of chromium depleted metal which makes the metal surface susceptible to corrosion. Post weld treatment is, therefore, very important to restore the corrosion protection properties and is effectively achieved by removing the blue high temperature oxide film and chromium depleted layer to restore the surface of the material. This 'cleaning' is essentially a controlled corrosion process using chemicals, this will restore not only its original corrosion resistance performance but also the high quality aesthetics.

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ACO Pickle Passivation Plant

All ACO Building Drainage products are subjected to specialised treatment to ensure the material retains the maximum resistance to corrosion.

The chemical processing methods used in the ACO Building Drainage process are pickle passivation and electropolishing. ACO resources include the largest pickle passivation plant in Europe.

Pickle Passivation

The standard ACO Building Drainage manufacturing process uses the pickle passivation chemical finishing process to restore the products to their full optimum corrosion resistant state without damaging the surface finish. This is considered the best method for cleaning welded joints.

Pickle Passivation is a two-phase process. Pickling removes both the bluish high temperature oxide film and the chromium depleted layer and is achieved by placing the components in a pickling bath containing a mixture of nitric acid and hydrofluoric acid.

The second phase is passivation and in many ways is similar to the pickling process. During this process the components are placed in a bath containing only nitric acid. This treatment strengthens the passive layer and also removes any iron impurities that may have become embedded in the surface of the stainless steel during the manufacturing process.

This treatment is important where mechanical cleaning of the components has taken place with the use of wire brushes, grinding wheels and files where iron particles from other materials may contaminate the stainless steel surface.

Electropolishing

Electropolishing is ideal for producing a uniform, highly reflective lustre with an extremely smooth finish even on the most complex product contours. This is a well proven method of polishing and is achieved by an electro-chemical process which is essentially the reverse of electroplating.

The components are immersed in a bath of electrolyte containing phosphoric acid where the components become the anode of a direct current electrical circuit. The process is characterised by the selective attack on the surface of the components whereby upstanding roughnesses are preferentially dissolved and will yield a progressively smoother, brighter surface.

For pharmaceutical and food processing industries, bacterial resistance is considerably improved by the electropolishing process.

Certain gratings within the ACO Building Drainage range are electropolished as standard. All stainless steel products can be electropolished if required to special order.

Corrosion resistance chart

Reagent	Stainless Steel 304	Stainless Steel 316	EPDM	Neoprene Gasket	Viton Gasket
Acetic Acid 20%				?	
Acetic Acid 80%				X	
Acetone					X
Alcohol (Methyl or Ethyl)					?
Aluminium Chloride	?	?			
Aluminium Sulphate					
Ammonia Gas (Dry)			~		~
Ammonium Chloride	?	?			
Ammonium Hydroxide					
Ammonium Nitrate					
Ammonium Phosphate					
Ammonium Sulphate	?				
Ammonium Sulphide			~	~	~
Amyl Chloride			X	~	?
Aniline			?	X	
Barium Chloride					
Barium Hydroxide 10%	~	~			
Barium Sulphate					
Barium Sulphide	~	~			
Beer					
Beet Sugar Liquors					
Benzene			X	X	
Benzoic Acid			X		
Bleach -12.5%Active C1	~	~		X	X
Boric Acid					
Bromic Acid	?	?	~	~	~
Bromine Water	X	X	~	X	~
Butane			X		
Calcium Carbonate					
Calcium Chloride	X	?			
Calcium Hydroxide	?				
Calcium Hypochlorite	X	?	?	X	
Calcium Sulphate				~	
Cane Sugar Liquors	~	~			
Carbon Acid	~	~			
Carbon Bisulphide			X	X	
Carbon Dioxide					
Carbon Monoxide					

Reagent	Stainless Steel 304	Stainless Steel 316	EPDM	Neoprene Gasket	Viton Gasket
Carbon Tetrachloride	?	?	X	X	
Caustic Potash				~	
Caustic Soda					
Chloride (Dry)	?	?		X	
Chloride (Wet)	X	X	X	X	?
Chloraocetic Acid	~		?	X	
Chlorobenzene			X	X	
Chloroform	?	?	X	X	
Chrome Acid 50%	X	X	?	X	
Chromic Acid 10%			X	X	
Citric Acid	?				
Copper Chloride	X	X			
Copper Cyanide					
Copper Nitrate			~		
Copper Sulphate					
Cottonseed Oil	~	~	X		
Cresol	~	~	X	X	X
Cyclohexanone	?			X	X
Cyclorexanol	~	~	X		X
Dimethyleanine	~	~	?		
Dionylphalate	~	~	?	X	X
Disodium Phosphate	~	~		X	
Distilled Water					
Ethyl Acetate			?	X	X
Ethylene Chloride			X	X	?
Ethylene Glycol					
Fatty acids (Cb)			X	?	
Ferric Sulphate					
Fluorene Gas (wet)	X	X		X	?
Formaldehyde (37%)					
Formic Acid (90%)	X				?
Freon 12					
Fruit Juices and Pulp	?		~		
Furfural			X	X	X
Gasoline (Refined)			X		
Glucose					
Glycerine					

The corrosion resistance information contained within this table is indicative only.

All data is based on reactions noted at an ambient temperature of 20°C. Higher temperatures will generally reduce the corrosion resistance of the materials.

Please contact ACO Building Drainage if guarantees are required of specific material suitability.

We shall arrange for tests to be undertaken with the reagent to establish the chemical resistance of the materials. Other gasket and sealing ring materials are available. Please contact us for further information.

Recommended

? Suitable. However, contact ACO Building Drainage for further advice.

x Not recommended

~ No data available

Reagent	Stainless Steel 304	Stainless Steel 316	EPDM	Neoprene Gasket	Viton Gasket
Hydrobromic Acid (20%)	X	X		X	
Hydrochloric Acid (40%)	X	X	X		
Hydrocyanic Acid			?		
Hydrogen Peroxide (90%)			X	X	
Hydroquinone	~	~	X		
Hypochlorous Acid	~	~	X	X	
Iodine	X	?	?	X	
Kerosene			X		
Lactic Acid 25%					
Linseed Oil			X		
Liqueurs	~	~	?	X	
Magnesium Chloride	?	?			
Magnesium Sulphate					
Maleic Acid	?	?	X	X	
Methyl Chloride	?	?	X	X	
Methyl Ethyl Ketone	~	~		X	X
Milk					
Minerals Oils	~	~	X		
Muriatic Acid	X	X	?		
Nickel Chloride	?	?			
Nickel Sulphate					
Oils and Fats			?	?	
Oleic Acid				?	
Oleum	~	~	X	X	
Oxalic Acid	?	?		X	
Palmitic Acid 10%	~	~		X	
Perchloric Acid 10%	X	X	?		
Perchloric Acid 70%	X	X	?	X	
Petroleum Oils (Sour)			X		
Phenol 5%			?	X	
Phosphorous Trichloride				X	
Photographic Solutions	?	?			
Picric Acid					
Plating Solutions	~	~	~	X	
Potassium Carbonate					
Potassium Chloride					
Potassium Cyanide					
Potassium Dichromate					
Potassium Hydroxide					
Potassium Permanganate					
Potassium Sulphate					
Propane Gas	~	~	~	?	
Propyl Alcohol	~	~			

Reagent	Stainless Steel 304	Stainless Steel 316	EPDM	Neoprene Gasket	Viton Gasket
Sea Water	X	?			
Sewage	?	?			
Silver Nitrate					
Silver Sulphate					X
Sodium Bicarbonate					
Sodium Bisulphite					X
Sodium Carbonate					
Sodium Cyanide					
Sodium Ferrocyanide	~	~	?		
Sodium Hydroxide					
Sodium Hypochlorite	?		?		
Sodium Sulphate					
Sodium Sulphide	?				
Sodium Sulphite	?				
Sodium Thiosulphate					
Stannous Chloride	?	?	X		
Stearic Acid			?		
Sulphite Liquor	~	~	?		
Sulphurous Acid	?	?	?	X	
Sulphur	?		~		
Sulphur Dioxide (Dry)	?			X	
Sulphur Dioxide (Wet)	?				
Sulphuric Acid 50%	X	X	?		
Sulphuric Acid 70%	X	X	?		
Sulphuric Acid 93%	X	X	?	X	
Tannic Acid					
Tanning Liquors					
Tartaric Acid	~	~	?		
Toluene	~	~	X	X	X
Trichloroethylene			X	X	X
Triethanolamine	~	~			X
Trisodium Phosphate	~	~			
Turpentine			X	X	
Urea					
Urine					
Vinegar					
Water (Fresh)					
Water (Mine)					
Water (Salt)	?	?			
Whisky					
Wines					
Xylene	~	~	X	X	X
Zinc Chloride	X	X			
Zinc Sulphate	?				

Professional Development and Training

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 & Webinars

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.

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.

www.aco.co.uk/professional_development | email: 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

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

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train | design | support | care

Every product from ACO Building Drainage supports the ACO WaterCycle

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

ACO Building Drainage

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