

# ACO Building Drainage Products

Grease Separators



## ACO PASSAVANT

*Technical Handbook and Product Catalogue*



**Below ground gravity grease separators**

**Above ground gravity grease separators**



## The ACO Group

Founded in 1946, the ACO Group manufactures products for the building and construction industry.

ACO was established in Australia in 1993 and is Australasia's leading manufacturer of drainage products.

ACO has extensive experience in manufacturing and supplying a diverse range of drainage systems throughout Australia and overseas.

## ACO Passavant

ACO Passavant grease separators are manufactured in accordance with EN1825 and are compliant to numerous Australian water authority and council regulations.



ACO Pty Ltd, Head Office at Emu Plains NSW Australia

### Areas of application

- Hotels
- Restaurants
- Cafeterias
- Canteens
- Food courts
- Roadhouse eateries
- Butchers
- Slaughterhouses
- Meat and sausage factories
- Animal carcass processors
- Hospital kitchens
- Food preserving factories
- Cooking oil refineries
- Ready-made meal producers
- Barbecue, frying and grilling kitchens
- Chips production
- Peanut roasters

## ACO. creating the future of drainage

### System Chain

ACO is a global leader in water management, with products to collect, clean, hold and release water; addressing all phases of the water cycle and supporting water sensitive urban design.

ACO Passavant focuses on products that address the 'clean' phase of the water cycle.



### Service Chain

To support ACO's extensive product range, ACO provides full support from design conception to final installation.

Customer service includes project specific design services, field support and installation advice. Product training and up to date professional education seminars provide designers with the latest product information.



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ACO Passavant is a range of gravity grease separators designed for separating Fats, Oils and Grease (FOG) from commercial kitchen and food processing wastewater.

### Range

- Below ground gravity grease separators – Lipumax
- Above ground gravity grease separators – EcoJet

### Benefits

- Compliant to various Australian water authorities and councils
- Tough, one-piece rotational moulded construction manufactured from durable polyethylene with excellent corrosion resistance
- Available for applications up to Load Class D210kN, AS3996: *Access covers and grates*
- Single point of access for below ground applications
- Designed and manufactured to EN1825: *Grease separators*



# 1. Why Fats, Oils and Grease need management

## The impact of Fats, Oils and Grease

The accumulation of Fats, Oils and Grease (FOG) in a drainage system creates problems for commercial kitchens, food processing facilities and downstream infrastructure.

### Effects of FOG on a building's plumbing

Commercial kitchens and food processing facilities generate Fats, Oils and Grease from cooking processes. FOG enters the drainage system via sinks, dishwashers and drainage outlets. Accumulated FOG may create odours, compromise hygiene, reduce pipework efficiency and cause pipe blockages, resulting in flooding and costly maintenance.

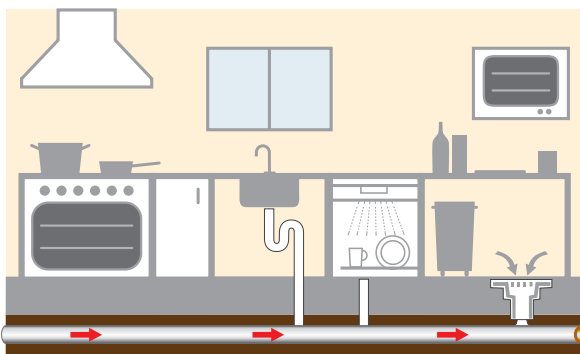
### Effects of FOG on sewage infrastructure and the environment

Untreated FOG has damaging effects on sewer infrastructure and wastewater treatment plants. The accumulation of FOG may cause surcharge and environmental watercourse pollution; blockages can cause serious community health risks.

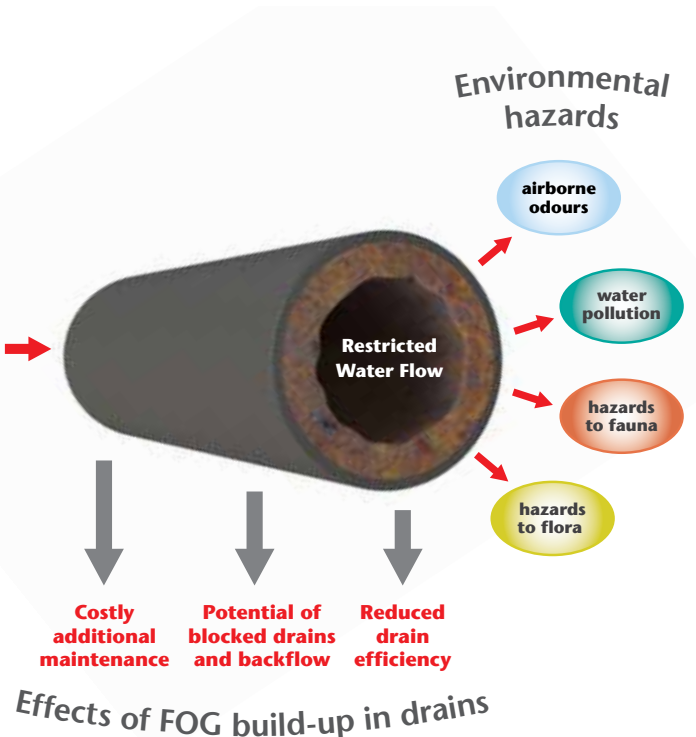
### Legislation and regulatory requirements

Pollution resulting from FOG is a major concern for water authorities and local councils in Australia. Grease separators are a method of extracting FOG from wastewater.

Water authorities and local councils require grease separators to be installed in commercial kitchen and food processing facilities. These governing bodies regulate the use of these products for the protection of the local sewer infrastructure. Lack of compliance may result in legal ramifications. Refer to page 9 for more information.



Sources of FOG  
Wastewater enters the drainage system



## The grease separator process

Vegetable and animal fats are effectively and easily separated in a gravity grease separator. Gravity grease separators operate on the principle of differential density where Fats, Oils and Grease (FOG) are less dense than water and float; food solids are more dense than water and sink.

The relative density of different materials:

**Fats, Oils and Grease** < 1  
**Water** = 1  
**Food Solids** > 1

Contaminated water enters the grease separator and after a period of time, separation occurs. The clean water, suitable for the sewer infrastructure, is subsequently discharged from the outlet.

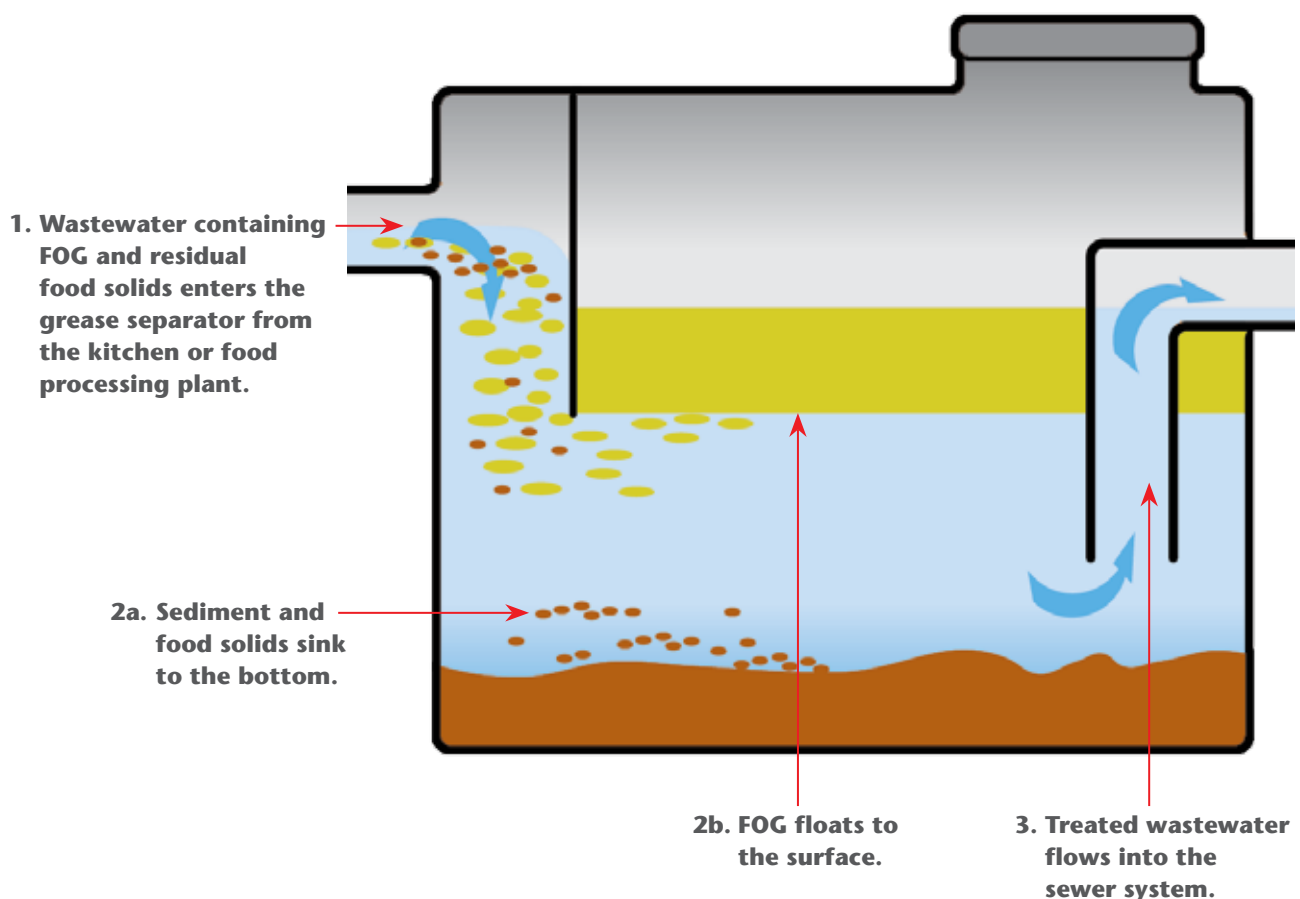
## Grease separator applications

Some areas where gravity grease separators are installed:

- hotels, restaurants and hospital kitchens
- cafeterias, food courts and canteens
- butchers and meat processing facilities
- food preserving factories and ready-made meal producers

Stable emulsions such as milk, other dairy products and wastewater containing excessive amounts of starch are **not suitable** for gravity grease separation.

The ACO Group provides a range of separators to specifically manage the separation of stable emulsions and starch waste products. Contact ACO for further information.



## 2. ACO's below and above ground grease separators

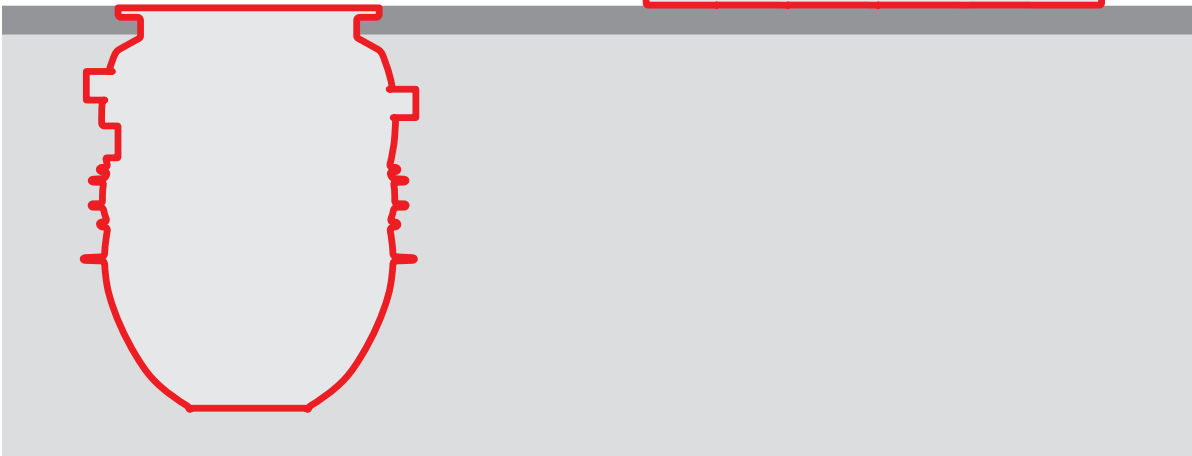
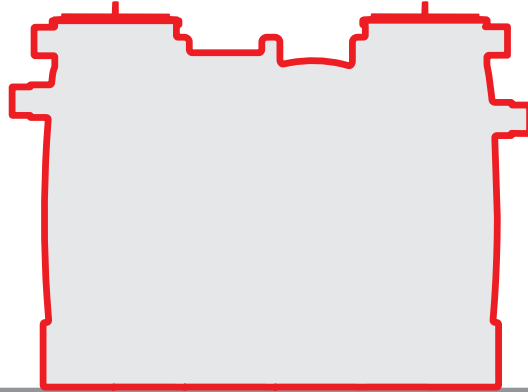
ACO's range of below and above ground grease separators are designed to cater for various applications.

ACO's below ground grease separators are purposefully engineered for load bearing applications.

### Considerations for selection

Consider the following when choosing the most appropriate grease separator for the application:

- the location of existing pipework
- the available space for the grease separator
- building and construction constraints
- ease of access for waste disposal and maintenance



## 3. Specification considerations

Choosing the correct grease separator for the application is essential to prevent wastewater related problems and product failures. The key factors to consider are summarised below and covered in more detail on the following pages.

### Construction materials

Various materials are used to manufacture grease separators that will affect the performance and design life of the product.

ACO Passavant grease separators are manufactured from lightweight polyethylene and glass reinforced plastic assisting workplace health and safety.

For more detailed information, see page 8.



### Regulations

There are local and international regulations that govern the specification of below and above ground grease separators.

Below ground grease separators require access covers for maintenance and must comply with load class regulations.

For more detailed information, see page 9.



ACO EcoJet NS10 (2000 litres) Septimus Roe Square, Perth, WA

### Buoyancy

Buoyancy in high water table areas must be considered at the specification stage for below ground grease separators.

ACO's Lipumax grease separators are specifically engineered for below ground installations.

For more detailed information, see page 14.



### Access for maintenance

Grease separators need to be serviceable. ACO's range of grease separators have dedicated access points for regular servicing and maintenance. ACO's Lipumax below ground grease separators have the advantage of a single access point, see page 15.





## Construction materials

Various materials are used to manufacture grease separator bodies. The material chosen for the grease separator will affect its durability and design life.

The most common materials used for the manufacture of grease separators are described below.

### Rotational Moulded Polyethylene



EcoJet and Lipumax-P grease separators are manufactured from rotational moulded polyethylene. Polyethylene is a lightweight, flexible and robust material that facilitates handling and installation.

Polyethylene is durable and has excellent chemical and corrosion resistance properties. Polyethylene does not require re-lining and is suitable for installations in acidic and alkaline soils.

Polyethylene is significantly more impervious than other materials, ensuring no leaching of wastewater which is a requirement when installed in sensitive environments.

### Glass Reinforced Plastic



Lipumax-G grease separators are manufactured from glass reinforced plastic. The material is a strong yet lightweight for easy installation. The smooth surface is easy to clean and corrosion resistant.

### Cement Concrete



Precast concrete grease separators have thick walls to provide structural integrity. They are heavy, cumbersome and difficult to transport requiring higher installation costs as cranes and specialist equipment are needed to excavate and install the grease separator.

Cement concrete is a porous material and can absorb water up to 3% by weight. Concrete grease separators require regular maintenance and re-lining to prevent groundwater contamination.

In corrosive environments concrete is prone to deterioration, particularly in alkaline soils. The concrete surface is rough making it hard to clean and the air pockets provide cavities for vegetation growth.

### Glass Reinforced Concrete



Glass reinforced concrete is a mixture of cement, fine aggregate, chemical admixtures, glass fibres and water. The material is lightweight but is brittle, prone to cracking and porous.

Glass reinforced concrete grease separators require regular maintenance and re-lining to prevent groundwater contamination. In aggressive environments the material is prone to deterioration, particularly in alkaline soils.



## Regulations

### Australian standards

The Australian Standard, AS 4494: *Discharge of commercial and industrial liquid waste to sewer*, states that the receiving water authority has the power to regulate the use and design of grease separators in their jurisdiction.

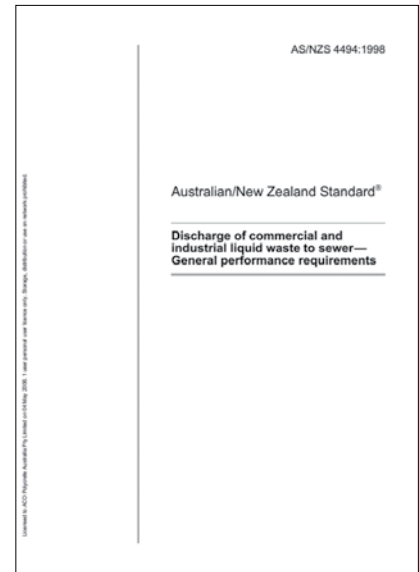
Local water authorities have specific regional requirements. They recommend the size of the grease separator, the total volume of wastewater to be held in retention and approve the installation of the grease separator.

To ensure the longevity of the installation, water authorities usually provide a conservative estimate for the volume of wastewater to be treated.

### Additional state based water authority requirements

Some water authorities require additional design requirements; for example, extra height above the grease separator maintenance opening and the inclusion of baffle caps.

For the latest water authority requirements, visit: [www.acopassavant.com.au/approvals](http://www.acopassavant.com.au/approvals)



### International standards

ACO's range of grease separators are designed and manufactured in Europe in accordance with EN 1825: *Grease separators*. ACO Australia believes that this is the most appropriate internationally recognised performance based standard.

The European Standard specifies nominal size (NS), sizing methods, principles of design, performance requirements and quality control.

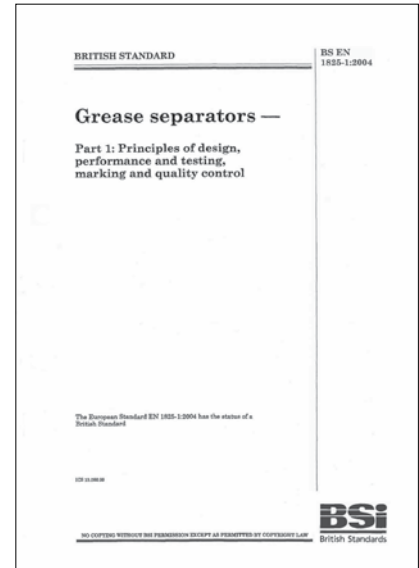
"This Standard applies to separators for the separation of greases and oils of vegetable and animal origin from wastewater by means of gravity and without any external energy". *Extract from EN1825. (Clause: EN1825-1: 2004 – Scope)*

EN1825 specifies a wastewater quality requirement of a maximum 25mg/L concentration of hydrocarbons. This ensures that a grease separator can effectively separate Fats, Oils and Grease (FOG) from wastewater, before discharging it into the sewer system.

### ACO grease separator design life

The longevity of the grease separator is very important to ensure that it performs for the life of the application.

ACO's grease separators comply with German Standard DIN 4040-100 and ISO 19001. These standards state that products must be designed to endure 25 years, above ground and withstand 50 years, below ground.



## 4. EcoJet – Above ground grease separators



### Features and benefits

EcoJet above ground grease separators are designed to provide efficient separation of Fats, Oils and Grease (FOG).

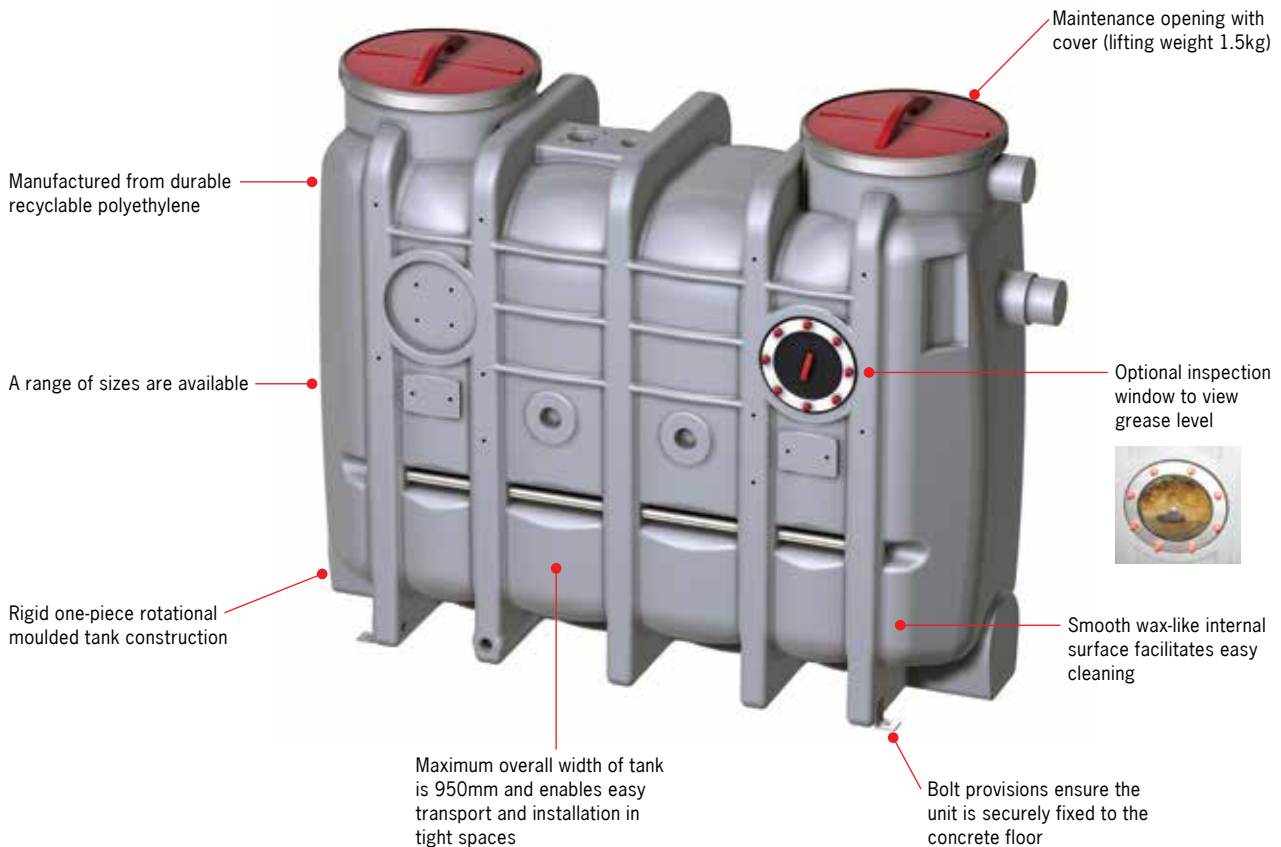
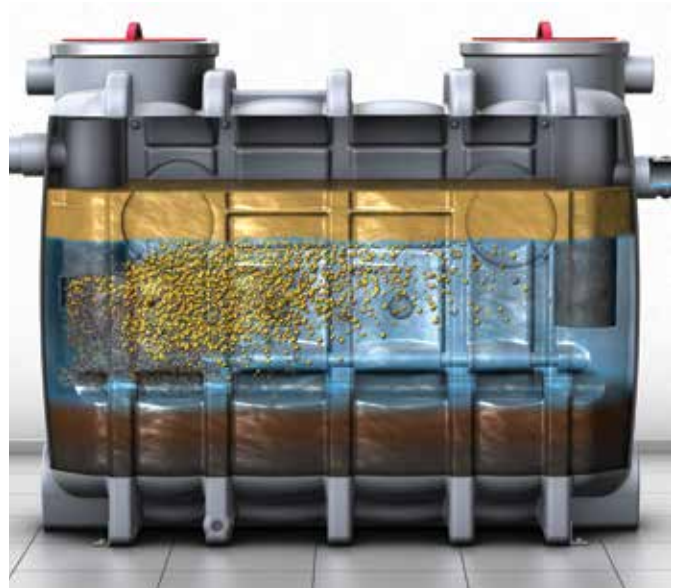
They have been engineered for easy installation in awkward and tight spaces and can be manoeuvred through narrow staircases and door openings.

### Strength and durability

- Rigid one-piece rotational moulded tank provides structural strength
- Certified design life for 25 years
- Excellent corrosion resistance properties
- Manufactured from polyethylene for use inside buildings

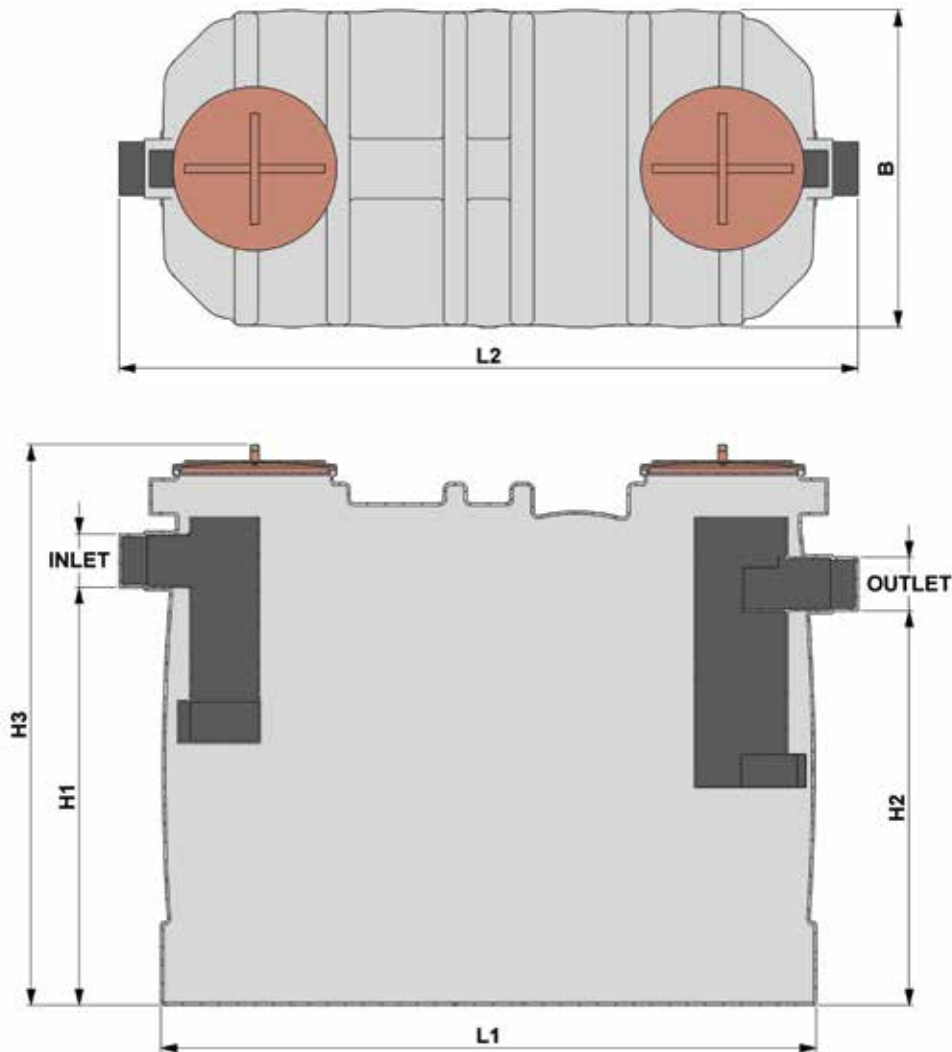
### Certified for high performance

- Approved by various Australian water authorities and councils
- German designed and manufactured to EN1825
- Available in a range of sizes to suit project specific hydraulic requirements





**Product detail**



**EcoJet parts table**

Part No.	Description	Capacity (L)	Weight Empty (kg)	Inlet/Outlet	H1	H2	H3	L1	L2	B
142088	EcoJet 630L	630	80	110	1055	985	1500	1450	1650	700
142089	EcoJet 830L	830	95	110	1055	985	1500	1760	2000	700
142090	EcoJet 1000L	1430	170	160	1250	1180	1700	1760	2000	950
142091	EcoJet 1500L	1600	187	160	1250	1180	1700	1960	2200	950
142093	EcoJet 2000L	2000	220	160	1250	1180	1700	2450	2690	950

Note: All dimensions are in mm.

**EcoJet accessories table**

Part No.	Description	Weight (kg)
0170.31.05	EcoJet extension shaft*	12.0
142103	Baffle caps to suit NS 3-4	0.1
142104	Baffle caps to suit NS 5.5-10	0.1

\* Two required for all Queensland Urban Utilities applications.



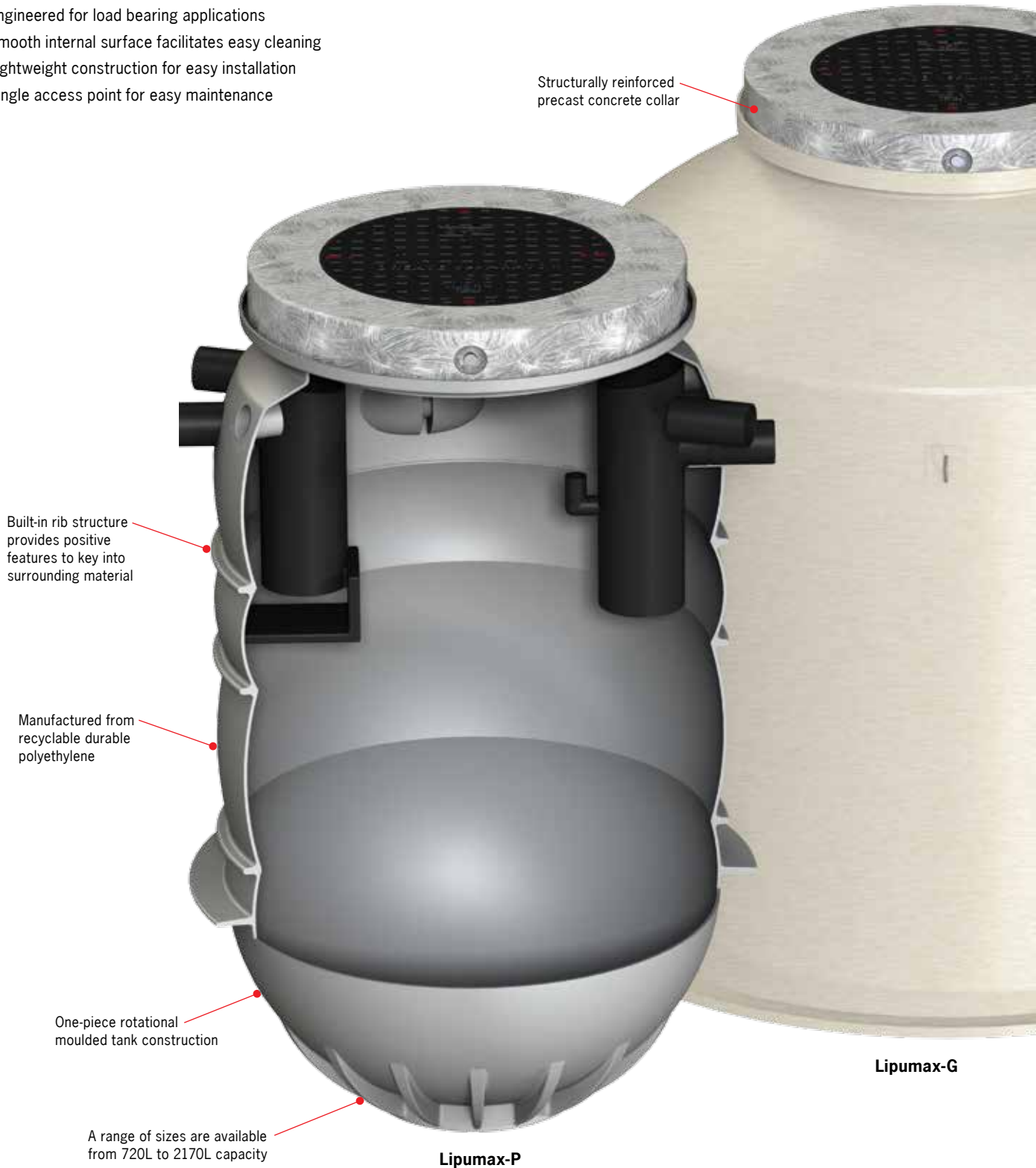
## 5. Lipumax – Below ground grease separators



### Features and benefits

Lipumax below ground gravity grease separators are designed to provide efficient separation of Fats, Oils and Grease (FOG) with a durable and long service life.

- Engineered for load bearing applications
- Smooth internal surface facilitates easy cleaning
- Lightweight construction for easy installation
- Single access point for easy maintenance





## Strength and durability

- NATA certified access cover assembly with reinforced precast concrete collar
- Rigid tank construction provides structural strength
- Independently certified for 50 years product stability



## Certified for high performance

- Approved by numerous Australian water authorities and councils
- German engineered to EN1825: Grease separators
- Access covers are available for Class B 80kN and Class D 210kN
- Access covers are certified to AS 3996
- Optional load distribution plate and riser tube is available



## Resistance to buoyancy

- Resists hydrostatic forces generated from changing ground water levels
- Lipumax-P has a built-in rib structure to key into the surrounding material
- Ovoid body design allows for the surrounding material to be compacted around and above the grease separator to prevent floating
- Load distribution plate is available for additional weight for high water table areas, see page 14



## Buoyancy

ACO's Lipumax grease separators are specifically designed for below ground installations and are engineered with features to help prevent buoyancy.

Buoyancy is described as the upward force exerted by fluids and weight (gravity) is the downward force produced by an object. A body's ability to key in to the surrounding soil produces friction which in turn also acts to resist buoyancy.

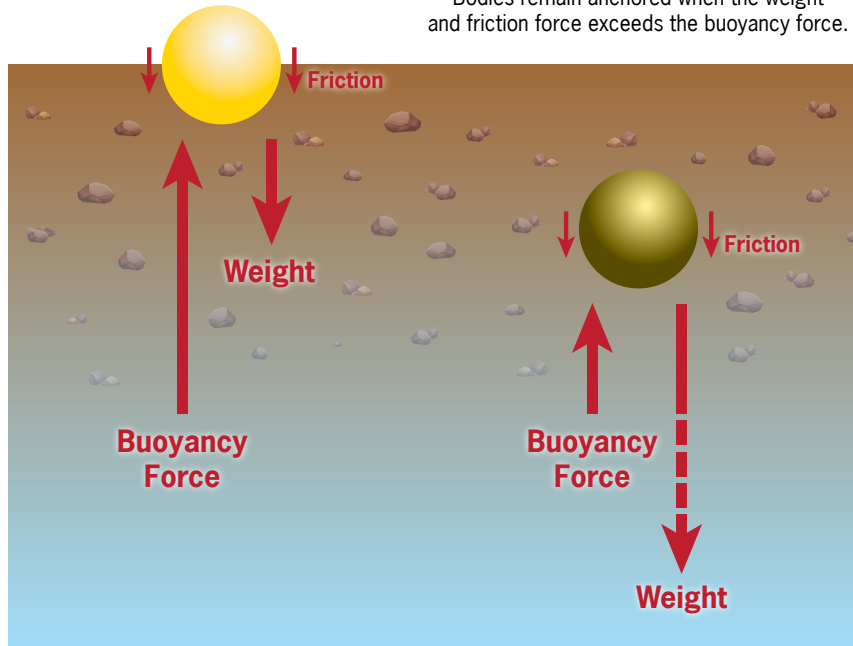
Buoyancy exists in soils where there is a high water table and has the potential to cause an installed grease separator body to float.

The Lipumax-P body features ribs to key into the surrounding material and allows for soil to be compacted around and above the body. The precast concrete collar adds weight that acts as an anchor to prevent uplift.

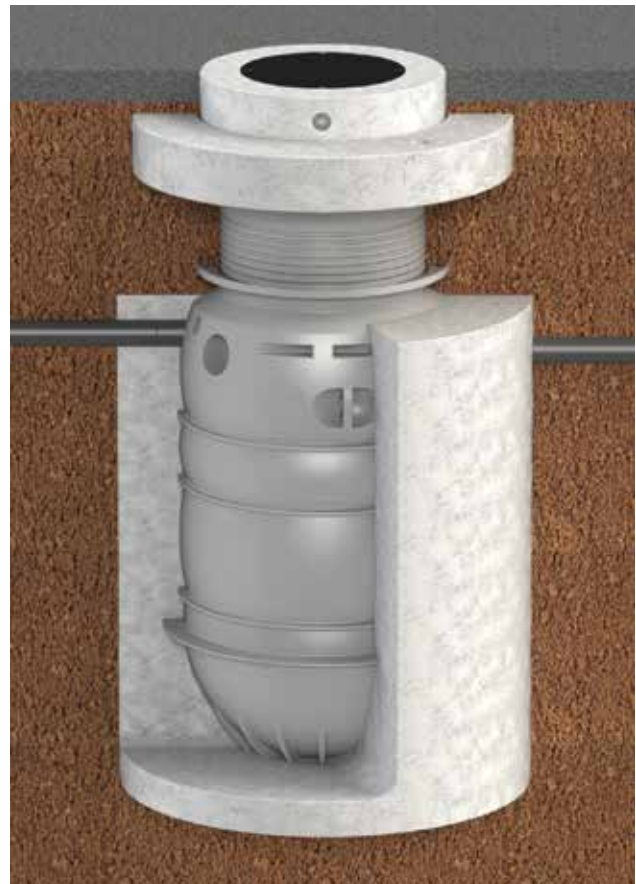
If buoyancy is a concern, ACO recommends using the load distribution plate and/or cast in situ concrete encasement to provide additional weight to the separator body. For more information, see page 17.

**Float**  
Bodies float when the buoyancy force exceeds the weight and friction force of an object.

**Anchor**  
Bodies remain anchored when the weight and friction force exceeds the buoyancy force.



*Buoyancy must be addressed when installing below ground grease separators in high water tables.*



*In high water table environments, weight must be added to the structure by a load distribution plate and/or concrete encasement.*





## Access for maintenance

### Location for grease separators

Install the grease separator as close as possible to the source of the grease to minimise the sediment build-up in long runs of pipe. However, to ensure food hygiene standards are maintained, grease separators **should not** be installed in close proximity to food preparation areas in kitchens and processing facilities.

Position the grease separator in a location that enables waste management vehicles to easily access and service the separator. Prior to the installation, contact the grease removal contractor to obtain a written agreement that the grease separator is serviceable.

Lipumax below ground grease separators require trafficable covers to enable access for maintenance. The access covers must comply with specific load class regulations.



### Options for access covers and precast collars

Below ground grease separators require a removable cover for access and maintenance purposes. Grease separators with multi-part access covers are cumbersome, costly and time consuming to install and are difficult to access for maintenance.

Lipumax is designed with a single access point for quick and easy maintenance. ACO has a choice of access covers and reinforced precast concrete collars.



Cover and precast concrete collar



Cover and precast concrete collar with optional load distribution plate

### Load Class selection criteria

Load Class Standards are recommendations only and there are a number of other factors to consider when selecting the grease separator.

**Type of traffic** – The weight of loads trafficking the grease separator, for example forklifts, trolleys and maintenance trucks.

**Wheel type** – Solid tyres exert more stress than pneumatic tyres and heavily loaded trolleys can also intensify the load, requiring a heavy duty access cover.

**Frequency and speed of traffic** – Frequent and fast traffic can intensify the load.

**Position of cover** – If the access cover is positioned at the bottom of a ramp or where traffic will be turning and/or braking, the cover will be subjected to extreme forces.

#### Load Class B (80kN AS 3996)



Suitable for areas open to light traffic, with a wheel load up to 2,670kg.

#### Load Class D (210kN AS 3996)



Suitable for areas open to heavy traffic, with a wheel load up to 8,000kg.

Lipumax below ground grease separators are available with a choice of AS 3996 Load Class B and D compliant gas and water tight access covers. The covers are encased in precast concrete collars.

For Class D applications, ACO offers an optional reinforced concrete load distribution plate to help distribute the applied load. A riser tube is also available to protect the pipework from excessive load stress. For structurally designed reinforced slabs and pavements, the riser tube and precast load distribution plate can be omitted. For more information, see page 17.

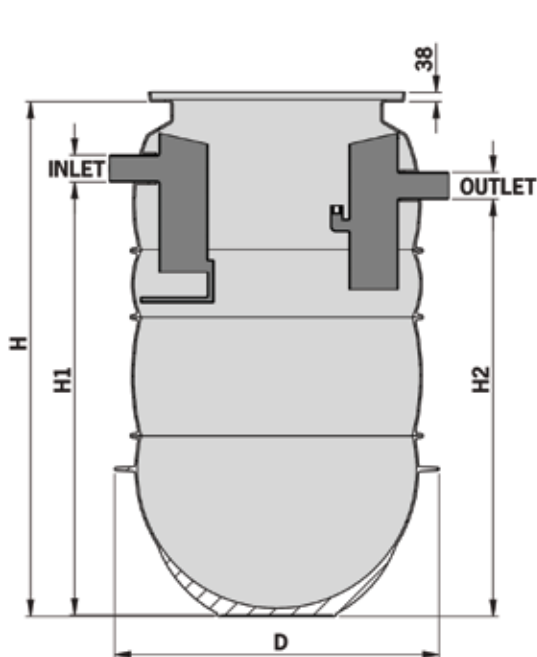


ACO in Australia has been supplying the market with access covers for over 15 years and has experience in providing solutions for a wide range of applications.

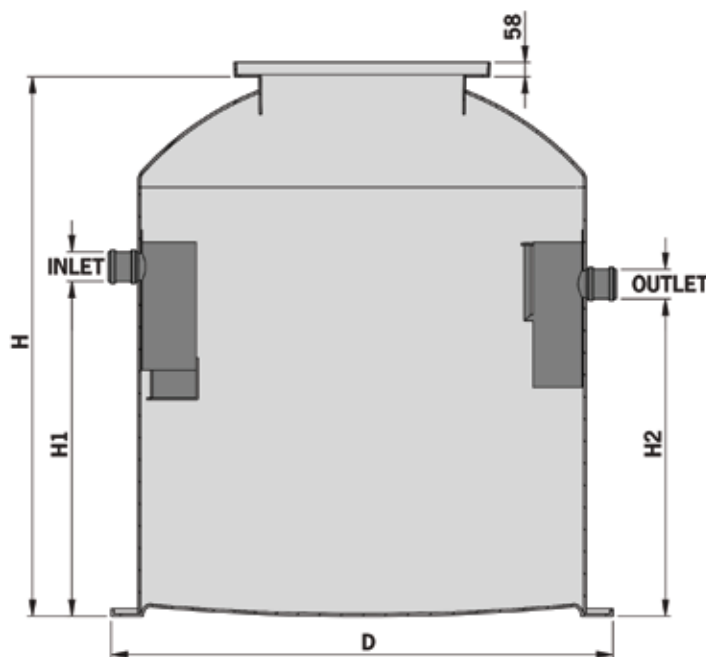
ACO has gained NATA accreditation (No. 15193) for its testing laboratory and can provide NATA certified test reports for load tests carried out to AS 3996.



## Product detail



Lipumax-P



Lipumax-G

## Lipumax parts table

Part No.	Description	Capacity (L)	Weight Empty (kg)	Inlet/Outlet	H	H1	H2	D
142094	Lipumax-P 720L	720	63	110	1349	1022	952	1320
142095	Lipumax-P 1000L	1465	93	110	2101	1774	1704	1320
142096	Lipumax-P 1500L	1675	108	160	2308	1956	1886	1320
142098	Lipumax-P 2000L	2170	125	160	2790	2438	2368	1320
142960	Lipumax-G 3000L	3000	283	110	2192	1365	1295	2040
142961	Lipumax-G 4000L	4000	302	110	2529	1630	1560	2040
142962	Lipumax-G 5000L	5000	456	110	2479	1410	1340	2440

Note: All dimensions are in mm.

## Lipumax accessories table

Part No.	Description	Weight (kg)
142350	Riser tube	22.0
142105	Baffle cap to suit 110 Ø inlet/outlet	0.1
142106	Baffle cap to suit 160 Ø inlet/outlet	0.1



Cover assemblies

**SAKU® Lightweight access cover**

- Thermoplastic access covers are lightweight (8.3kg)
- Lightweight access cover facilitates easy installation and minimises lifting injuries
- EPDM rubber seal ensures odours are contained, without needing grease
- WSAA appraised (WSA PS-293)
- Meets Class B AS 3996: Access Covers and Grates
- Manufactured from polypropylene to meet Class B, AS 3996
- Water tight and gas-tight to AS 3996

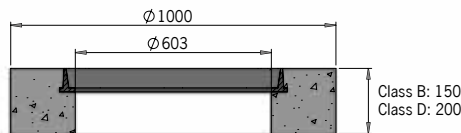


**Rhinocast® Ductile iron access cover**

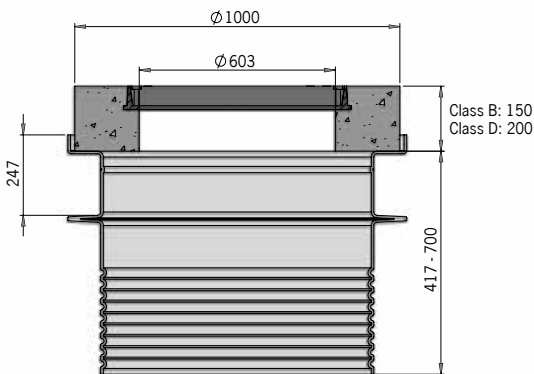
- Ductile iron solid top access cover with slip resistant square surface pattern
- Strong reinforced ribbed cover to meet Class D, AS 3996
- Water-tight and gas-tight to AS 3996 Slip rated for pedestrian safety
- Durable and resistant to corrosive environments



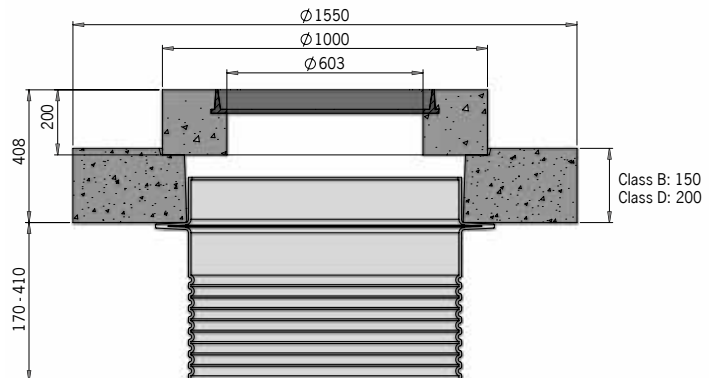
**Cover and collar**



**Cover, collar and riser tube**



**Cover, collar, riser tube and load distribution plate**



Note: All dimensions are in mm.

Cover assemblies table

Cover Type	Cover and collar		Cover, collar and riser tube		Cover, collar, riser tube and load distribution plate	
	Part No.	Weight (kg)	Part No.	Weight (kg)	Part No.	Weight (kg)
SAKU® Class B	142296	149	142780	171	–	–
Rhinocast® Class B	142120	215	142781	237	–	–
Rhinocast® Class D	142099*	366	142782	388	142299*	1121

Note: \*To suit engineered slab detail, see page 19 for more information.

Cover assemblies accessories table

Part No.	Description	Weight (kg)
84306	SAKU short handled lifting key	0.1
84654	Rhinocast short handled lifting key	0.1
84854	Rhinocast long handled lifting key	0.1



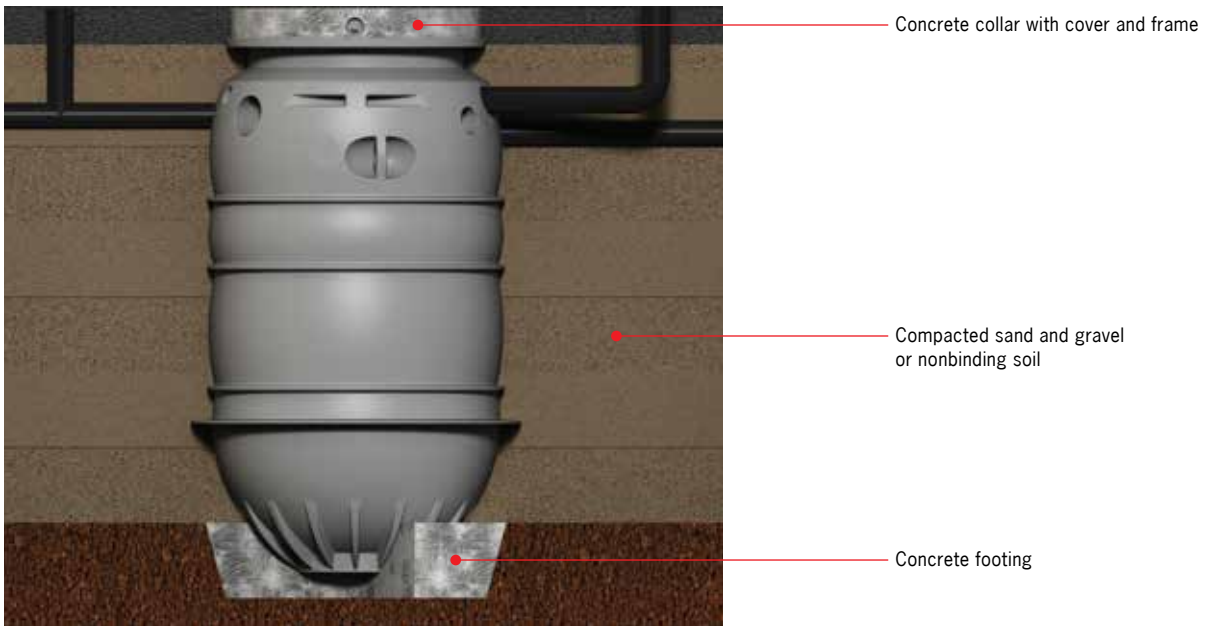


## Lipumax installation

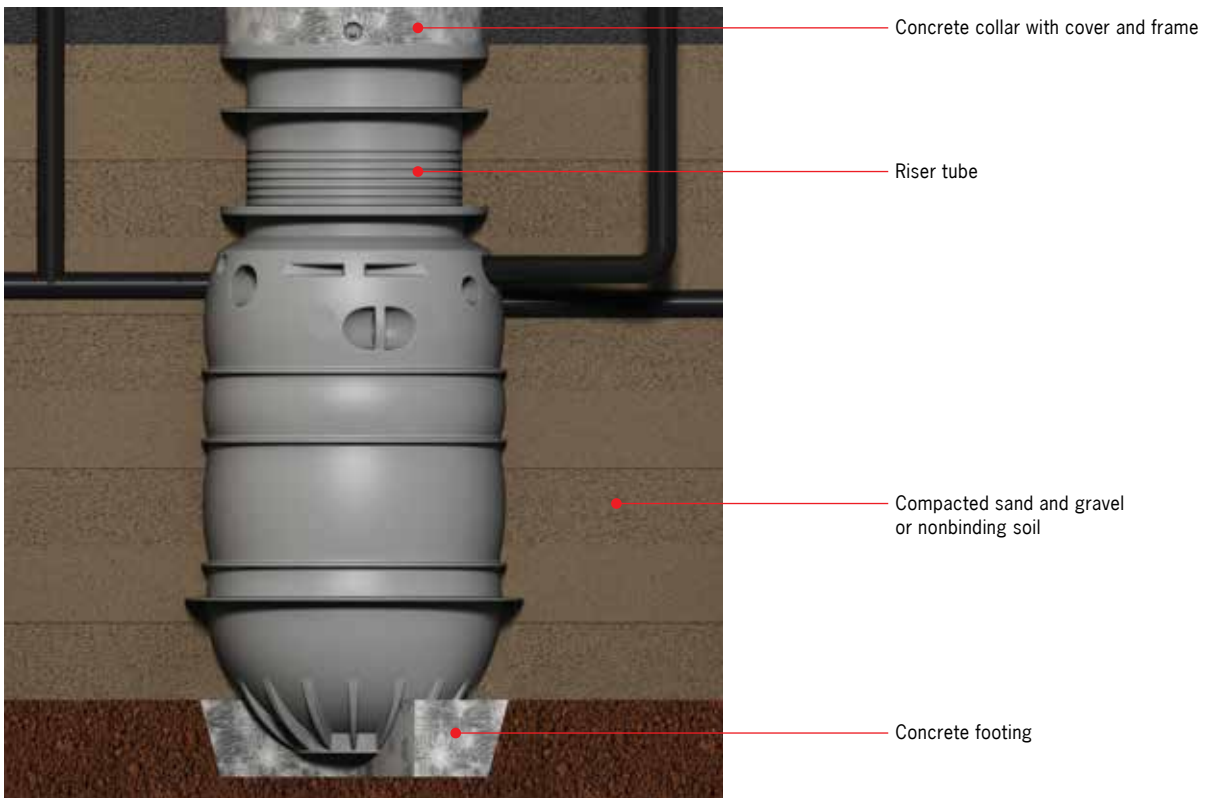
Lipumax below ground grease separators require a gas and water tight access cover compliant to AS 3996 for maintenance. ACO offers a range of Class B and Class D access cover options with integral precast concrete collars.

For comprehensive installation information: [www.acopassavant.com.au/installation](http://www.acopassavant.com.au/installation)

### Class B non-structural installation

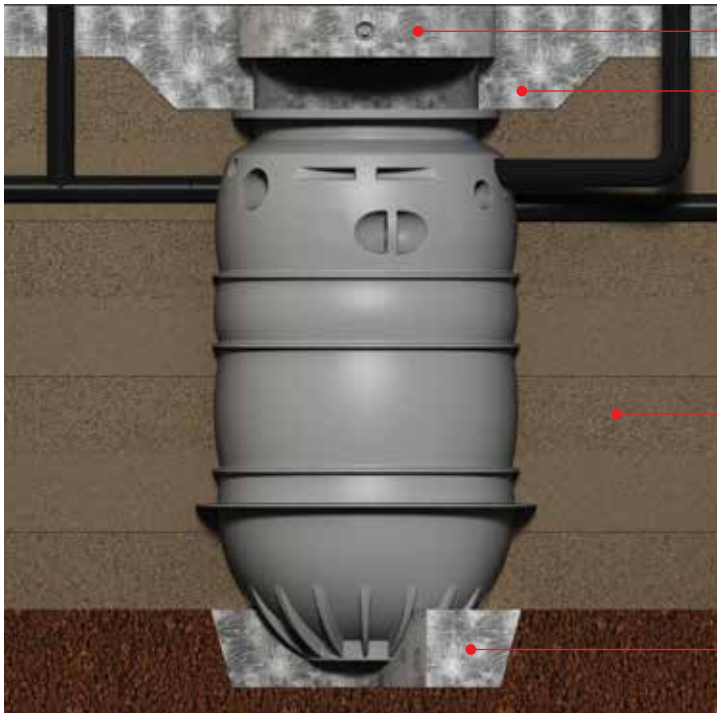


### Class B non-structural installation with riser tube





## Class D structural installation



Concrete collar with cover and frame

Engineered slab

Compacted sand and gravel  
or nonbinding soil

Concrete footing

**Note:** The collar is supported by cast in-situ reinforced concrete to engineers detail, NOT the separator body.

## Class D non-structural installation



Concrete collar with cover and frame

Load distribution plate

Riser tube

Compacted sand and gravel  
or nonbinding soil

Concrete footing

## 6. Grease separator automation



ACO's Lipumax-P and EcoJet grease separators are available with various levels of automation. These levels of automation allow for easier waste disposal, reduced cleaning operations and minimise odours during maintenance. These advantages contribute to a more hygienic environment. Contact ACO for more information.

### Automation Stage 1

- Disposal via direct-suction pipe
- Cleaning via open lid



### Automation Stage 2

- Disposal via direct-suction pipe
- Cleaning with internal high-pressure jets
- Inspection window



### Automation Stage 3

- Programmed disposal via direct-suction pipe
- Programmed cleaning with internal high-pressure jets
- Inspection window







## 7. ACO's specialist grease separator range

The ACO Group has been selling grease separators for more than twenty years. The designs have evolved to overcome a wide range of challenges, such as remote environments, awkward spaces, large capacity options and locations where fire resistance is paramount.

### Partial disposal grease separator

Grease separators operating on the partial disposal method, discharge the FOG and sludge into two separate containers that are eventually collected and replaced. The treated wastewater is then released to the sewer system. This method of grease removal is useful for situations where service vehicles have difficulty accessing the site.

The Neumayer III Research Station in Antarctica uses the partial disposal method to collect and dispose of FOG and sludge waste sustainably in an ecologically sensitive environment.



### Split design grease separator

ACO has designed grease separators with the ability to be split into two parts. This flexible design enables the grease separator to be installed in applications that have narrow and restricted access, for example tight stairwells. These separators are specially designed for easy transportation and assembly.



### Stainless steel grease separator

Stainless steel grease separators are required for applications where fire resistance is important, for example shipping and airport applications. ACO offers these grease separators in a rectangular and round design. Geneva Airport has installed two Lipurat NS 25 grease separators.



### Large capacity grease separators

OXL above ground grease separators are designed for large scale projects, such as shopping centres and flight catering applications. They vary in size up to NS 30, totalling 7200 litres capacity.



## 8. Sizing and maintenance

### Sizing calculation methods

Australian water authorities recommend guidelines based on the total volume of liquid to be held in retention and grease separators are sized accordingly.

EN1825 uses three methods to calculate the required size for a grease separator. The following methods calculate the Nominal Size (NS). The NS (e.g. NS 7) is an approximate maximum flow rate in litres per second permitted to enter the grease separator (i.e. 7L/s).

#### 1. Number of meals per day

This method uses the number of meals made in a day to calculate the volume of wastewater to be treated.

#### 2. Hydraulic load


This method is based on the maximum flow rate discharged from the kitchen equipment, e.g. dishwashers, tilting kettles and vegetable wash units.

#### 3. Meat processing units

This method is based on the number of animals processed per week.

Calculations can be made using the ACO Passavant online sizing tool: [www.acopassavant.com.au/en/product-support/en-1825-sizing-calculator/](http://www.acopassavant.com.au/en/product-support/en-1825-sizing-calculator/)

#### ACO Passavant - Sizing Tool



### ACO support services

ACO's Technical Services department offers obligation free advice to ensure the correct product is chosen.

Extensive research and development, both independently and in conjunction with leading academic institutions and research bodies, is the cornerstone of ACO's success.

Revit and DWG file extension formats are available to assist planning, specification and installation.

For more information visit: [www.acopassavant.com.au](http://www.acopassavant.com.au)

### Frequency of maintenance

A regular cleaning and disposal procedure is critical for the ongoing efficiency of the grease separator. The maintenance is recommended to be provided by a specialist waste management contractor. The service frequency is stipulated in the maintenance agreement with the local water authority and will depend on the volume of FOG that is generated in a specified time period.



**Do not** connect the following fixtures to the grease separator:

- toilets
- macerators
- stormwater drains
- drains containing grease and oil of mineral origin

### Waste disposal and cleaning procedure

Before waste disposal and cleaning of the grease separator is undertaken, all kitchen operations must stop. The entire contents of the grease separator must be removed via the maintenance opening(s) with a suction hose to the disposal truck.

When emptied, the tank must be cleaned manually using a high pressure hose to remove all the residual FOG from the inside walls of the grease separator. Scraping may also be required. The cleaning water must also be removed from the grease separator.

Finally, the grease separator must be refilled with water to two thirds of the volume of the separator from an on-site water supply.

### Operation logbook

An operation logbook should be maintained in compliance with the local water authority requirements and include:

- completed inspections
- maintenance work
- disposal service history



## 9. ACO global installations

ACO's grease separators are installed in a wide range of applications in major construction projects around the world.

The range includes complete disposal grease separators, partial disposal grease separators and special solution grease separators.

Location	Separator
<b>Australia</b> – Bathurst Harness Track, NSW	1 x Lipumax NS 4
<b>Australia</b> – Bankstown Harness Track, NSW	1 x Lipumax NS 10
<b>Australia</b> – St Brendans Catholic School, NSW	1 x Lipumax NS 10
<b>Australia</b> – Orange Regional Museum, NSW	1 x Lipumax NS 10
<b>Australia</b> – New Brighton Golf Club, NSW	2 x Lipumax NS 10
<b>Australia</b> – Manning Community Centre, WA	2 x Lipumax NS 10
<b>Australia</b> – Kiosk 5 Elizabeth Quay Perth, WA	1 x Lipumax NS 7
<b>Australia</b> – CBC Fremantle Catholic School, WA	1 x Lipumax NS 4
<b>Australia</b> – Fiona Stanley Hospital, WA	1 x EcoJet NS 10
<b>Australia</b> – Gloria Jeans, North Lakes, QLD	1 x Lipumax NS 4
<b>Australia</b> – Kenmore Shopping Centre, QLD	1 x Lipumax NS 7
<b>Australia</b> – Mackay Early Learning Centre, QLD	1 x Lipumax NS 4
<b>India</b> – Aloft Hotel, Bangalore	1 x Hydrojet NS10
<b>Germany</b> – Frankfurt Airport, Frankfurt	1 x Hydrojet NS 7
<b>Germany</b> – International Airport, Berlin	1 x Hydrojet NS10 3 x Hydrojet NS 7 3 x Hydrojet NS15 1 x Hydrojet NS 3 2 x Hydrojet NS 2
<b>Austria</b> – International Airport, Vienna	2 x Lipurat NS 7 12 x Hydrojet NS2 9 x Hydrojet NS 4
<b>Abu Dhabi</b> – New York University	1 x Hydrojet NS 7
<b>Abu Dhabi</b> – International Airport	1 x Hydrojet NS5.5
<b>Dubai</b> – Palace Hotel	1 x Hydrojet NS 4
<b>Dubai</b> – Emirates Flight Catering	2 x Hydrojet NS25
<b>Dubai</b> – Le Royal Meridien Beach Resort Hotel	2 x Hydrojet NS 7
<b>Dubai</b> – Dubai Mall	10 x Lipatomat NS 10
<b>Geneva</b> – Geneva Airport	2 x Lipurat NS25
<b>Shanghai</b> – South Railway Station	7 x Lipator NS 10
<b>Antarctic</b> – Neumayer III Research Station	1 x Lipator NS 2
<b>Cruise liner</b> – AIDA Diva	1 x Lipatomat NS 15
<b>Singapore</b> – Breadtalk	4 x Hydrojet NS 10
<b>Singapore</b> – Marina Bay Financial Centre	1 x Lipator NS 7 2 x Lipator NS 15 2 x Lipator NS 10
<b>Singapore</b> – Business Hub at Changi	2 x Hydrojet NS 4 1 x Hydrojet NS 5.5
<b>Singapore</b> – Phoenix Hotel	1 x Lipatomat NS 7 1 x Lipatomat NS 10
<b>Singapore</b> – National Art Gallery	2 x Hydrojet NS 10





## ACO Building Drainage Products

- **ACO Wexel**  
Cast floor and roof drains
- **ACO Stainless**  
Industrial stainless steel linear drainage systems
- **ACO Food**  
Stainless steel drainage systems for food and beverage applications
- **ACO Gully**  
Stainless steel floor gullies
- **ACO Pipe**  
Stainless steel push-fit waste pipes
- **ACO BuildLine**  
Drainage for thresholds, balconies and green roofs
- **QuARTz by ACO**  
Bathroom linear drains and floor wastes
- **ACO Passavant**  
Grease separators

ACO Technical Service Department provides product selection advice to ensure the product meets specification and installation criteria.

Contact ACO for information relating to ACO's Surface Water Management and Utility Enclosure Solutions.

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