



**Grease Management Solutions
for Commercial Kitchens**



About ACO

Who we are

ACO Building Drainage is the established leader in the provision of hygienic floor drainage systems and FOG management systems for commercial kitchen operators. Each solution is designed to provide maximum reliability, longevity and durability while improving operational continuity, employee health and safety, operational costs and hygiene. We have more than 60 years' experience of designing and manufacturing high performance drainage solutions.

ACO provide the sector with grease management systems designed and manufactured to support the functionality of commercial kitchens both large and small. A systematic approach to the application enables ACO to provide gullies, pipe and lifting stations to ensure that kitchens can be designed for maximum efficiency and performance.

Where we are

Globally ACO has operations in more than 40 countries including the UK and Ireland, and employs more than 4,200 people. As a result, we are fully conversant with international standards, and work extensively with industry bodies to ensure we keep abreast of pending developments and continue to develop advanced solutions to meet current and future requirements.

Why choose us

We work closely with commercial kitchen designers and specialists to create systems that are suited to the specific needs of commercial kitchen operators. When using an ACO solution, you can expect optimum performance - products that are designed to optimise hygiene, operational cost and employee health and safety.



World class manufacturing

Like all ACO products and systems, ACO Building Drainage's grease management solutions are manufactured in world-class manufacturing facilities to ensure consistently high production standards, giving specifiers and end users complete peace of mind.



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Grease Management: The Issues

Drainage is critical to any commercial kitchen operator and foodservice business when it comes to optimising health and safety, operational costs and, of course, hygiene. It also has a vital role to play in the responsible and efficient management / removal of fats, oils and grease (FOG).

A significant problem for kitchen and food preparation areas, FOG impacts upon the performance of a kitchen's internal and external drainage system. It also has a major impact on society causing blockages in the wider sewer system and reducing sewage plant efficiency.

Impact on your business

In the commercial kitchen environment, effective FOG management delivers numerous benefits for the kitchen operator including the prevention of drainage blockages which have the potential to shut down a kitchen, odour control, shorter clean-down time, improved employee safety and a reduction in the time required to undertake cleaning.

In our towns and cities, the growing trend to eat out and the effects of climate change are putting the wider drainage infrastructure under increasing pressure. Effective FOG management has a critical role to play in the protection of our living and working environments, and the creation of healthy cities which suit the changing needs of society. The socially responsible commercial kitchen operator has a key role to play in this process.

To ensure kitchen operators specify the most appropriate BS EN 1825 solution for their foodservice business, ACO Building Drainage provides a wide range of grease management products as well as market-leading specification and design expertise.

Ask the team

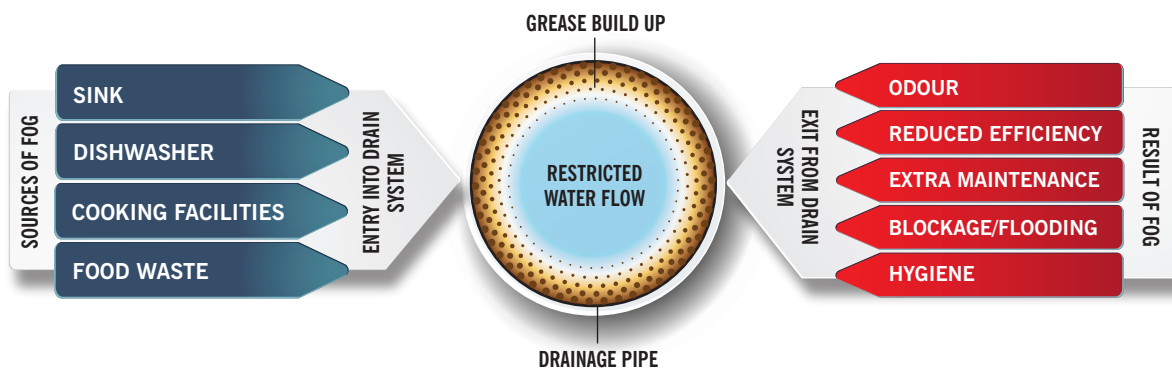
Our team will help you to ensure your grease management system minimises the impact of FOG and maintains operational continuity while minimising operational costs and related downtime, maximising profit and optimising hygiene.



Why Manage FOG

Local impact of FOG

One of the greatest issues faced in commercial kitchens is the accumulation of fats, oils and grease (FOG) in the drainage system.



Note : As FOG cool in the drainage system they can solidify. If untreated, accumulation eventually leads to drainage system failure with potential health hazards within the food preparation area.

FOG & Healthy Urban Environments

The impact of FOG extends beyond commercial kitchen operations, causing key issues for the wider sewer system and impacting on the health of our towns and cities.



Legislation and Regulation

The issue of FOG is being addressed at both a regional and national level. Key regulations to be aware of include the UK's "Water Industry Act (1991)" which states that "the discharge of any material prejudicial to sewer function is illegal".



When to use a Grease Management System

Regardless of whether you operate a sizeable commercial kitchen or are the owner manager of a small catering establishment, FOG can have major impact on your business if you are involved with the preparation of food containing starch, stable emulsions, animal fats or vegetable oils.



FOG and specified output quality

Vegetable and animal fats are separated through the differential density mechanism in the separator, however, some residual fats can remain in the output effluent.



Stable emulsions

Certain FOG may form a stable emulsion, e.g. those created during dairy production processes and are not suitable for treatment in gravity grease separators.



Starch

Certain foods such as potatoes and rice produce high levels of starch. Excessive amounts of starch form an adhesive like gel, especially in turbulent water, potentially blocking or reducing flow in associated pipework.

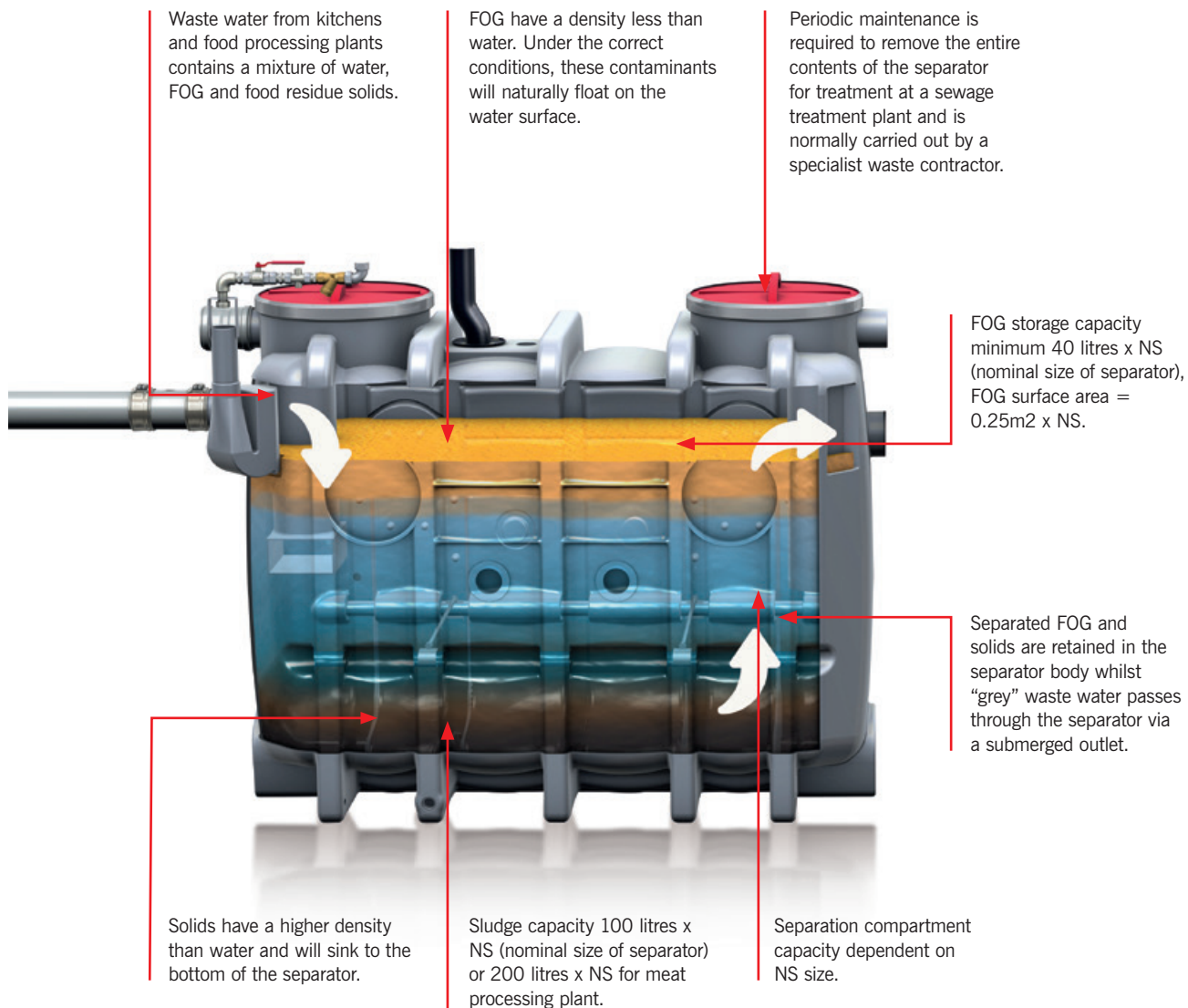
Separator Process Overview

All ACO Grease separators are designed to: BS EN 1825 Part 1: Principles of design, performance and testing, marking and quality control.

Maintenance options available

(according to separator type)

- Pumped outlet connection using Bauer couplings
- Advanced high pressure (175 bar) cleaning system manual or automatic control
- Integrated disposal pump to assist vacuum disposal tanker



ACO Grease Management Solutions

ACO's high performance grease management solutions are specifically designed to help restaurants, hotels, food courts, foodservice enterprises and the wider catering industry prevent the build-up of FOG in commercial kitchen drainage systems and ultimately the main sewer network.

Tailored Solutions

Our range of BS EN 1825 products are designed to suit many applications from large to small foodservice establishments. Product and system design is underpinned by our evidence, research-led approach to product development and specification. In addition, we continue to fund PhD research into the management of fats, oils and grease in the UK. This knowledge is now being used throughout the business to provide a unique level of guidance and support to ACO customers and as the foundation for future product development.

Key Benefits

Improved health and safety

Minimising the risk of injury in the workplace is a priority for any commercial kitchen facility. An effective FOG management system will help eliminate drainage blockages which have the potential to create wet and greasy floor areas and so increase slip hazards for employees. To improve health and safety further, ACO also ensures that every grease management solution is safe and easy to operate and clean. This helps to ensure that the commercial kitchen is an employee-friendly environment.

Operational costs

Cost management is important in any business. To minimise operational costs, ACO grease management systems are designed to reduce associated cleaning costs and related downtime while being cost-effective to operate and maintain.

Hygiene

Hygiene is critical to every food service business and food safety can be compromised by poor drainage and grease management systems. ACO solutions are designed to effectively and safely handle waste water and FOG. Our grease management solutions are designed in accordance with the principles of hygienic engineering and design. In addition, lifting stations ensure the effective removal of waste water from a kitchen premises while backflow valves prevent any waste liquid from flowing back into the kitchen via the drainage.

Serviceability

Our grease management solutions are designed to be easy to service and maintain whether work is undertaken by your own maintenance team or our preferred servicing partner.

Durability

Benefitting from corrosion-resistant MDPE construction, ACO offers a 25 year warranty on the material stability and resistance against greasy waste water. The warranty is valid providing that the separator is installed, commissioned and maintained according to manufacturer's instructions.

Certification

Our range of LIPU series above and below-ground grease separators are certified to BS EN 1825. Lifting station are also manufactured to BS EN 10250-2 standard and support the performance of the grease management units.



Complete Systems

ACO Building Drainage provides a comprehensive range of related and compatible products to complement our grease management solutions including:

- ACO Hygienic Gullies
- ACO Hygienic Drainage Channels
- ACO Modular Channels
- ACO Pipe
- ACO Lifting Stations
- ACO Access Covers

See pages 10 and 11 for more product information.

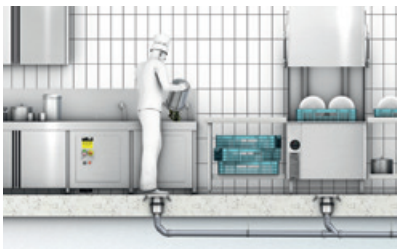
Storage Area



Prep & Production Areas



Wash & Disposal Areas



DRAINAGE MANAGEMENT

- | | | |
|------------------------|-----------------------------|------------------------|
| ■ ACO Hygienic Gullies | ■ ACO Modular Channel | ■ ACO Modular Channels |
| | ■ ACO Hygienic Tray Channel | ■ ACO Pipe |
| | ■ ACO Hygienic Gullies | ■ ACO Hygienic Gullies |
| | ■ ACO Access Covers | ■ ACO Access Covers |

GREASE MANAGEMENT

- | | |
|-----------------------|-----------------------|
| ■ ACO LipuMax | ■ ACO LipuMax |
| ■ ACO LipuJet | ■ ACO LipuJet |
| ■ ACO LipuSmart | ■ ACO LipuSmart |
| ■ ACO Lifting Station | ■ ACO Lifting Station |



ACO Grease Products & Systems

ACO Building Drainage provides a comprehensive and expanding range of grease management solutions to meet the needs of every commercial kitchen operation. All ACO grease separators are manufactured, tested and certified in accordance with BS EN 1825. In addition all separators are individually hydraulically tested to ensure reliability in service.



ACO LipuMax

The ACO LipuMax range of below ground gravity grease separators are designed to efficiently separate fats, oils and grease from waste water and also to ensure a durable and reliable service life of over 50 years.

Using advanced design, materials and manufacturing techniques, roto-moulding technology provides the below ground tanks the structural integrity to withstand the rigours of site handling and installation as well as the hydrostatic forces generated from changing ground water levels.



ACO LipuJet

ACO LipuJet separators are designed for applications where a free-standing grease separator unit is required. Available in a wide range of sizes and specifications, LipuJet grease separators are easy to transport and assemble. LipuJet products come with integrated sludge traps and are manufactured in either stainless steel or polypropylene to suit different customer requirements.



ACO Lifting Station

Lifting stations are specified when the grease separator is installed below the backflow level. Manufactured from stainless steel or polypropylene, ACO lifting stations are designed in accordance with BS EN 12050-2 which requires a twin pump system to improve system reliability.



ACO LipuSmart

ACO LipuSmart combines the functions of grease separation, sampling and lifting plant with a single integrated control system into one product.

Pressure sensors monitor the level of the separator and lifting plant. The plant control unit analyses both sensors and shows the filling level with centimetre precision in the display. If necessary, the pumps are switched on and off or the flood alarm is triggered. The ACO air bubble injection in the separator and the lifting plant prevents the grease layer from hardening in the pneumatic pipe and causing blockages. The flow of the LipuSmart pump equipment was optimised by ACO in collaboration with the Institute for Process Machines and Plant Equipment (IPAT) to ensure optimum pump efficiency.

Associated Products for Commercial Kitchens

ACO provides a wide range of related pipe, gully and drainage solutions for use in your commercial kitchen. A hygienically designed FOG management system minimises the risk of food contamination and optimises cleanability to improve the overall odour-free hygienic performance of your commercial kitchen operation.



ACO Hygienic Gully

ACO hygienic gullies incorporate various hygienic design principles to ensure optimum hygienic performance and cleanability. ACO gullies are available in three sizes to cater for different flow rates and construction requirements including shallow depth applications.



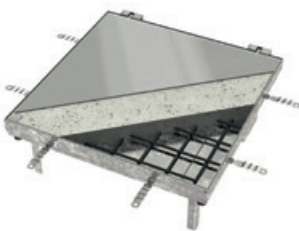
ACO Pipe

The ACO PIPE range gives customers access to high quality stainless steel pipe and fittings in sizes ranging from 40mm to 315mm. ACO's push-fit pipe system is easy-to-install and is fully compatible with ACO's channels and gullies. ACO pipe products are also highly durable and easy to clean.



ACO Hygienic Tray Channel

Designed in accordance with best practice design principles, our hygienically designed tray channel delivers the optimum in hygienic performance. Manufactured from 304 & 316 grade stainless steel, our hygienically designed channel is used in a wide variety of applications where hygiene is of critical importance.



ACO Access Covers

ACO's specialist floor access covers are designed to provide easy access to underlying building services and ducting. Standard and engineered covers are available in aluminium, stainless steel and galvanised steel. Available in a wide range of sizes to meet specific project requirements, ACO Access covers are also fully certified to FACTA specifications.



ACO Modular 125+ Linear Channel

Modular 125+ linear channels are available as an off-the-shelf option, including a wide choice of lengths, inverts and gratings. These can also be modified or manufactured to specifically suit your requirements. All Modular 125+ channels are manufactured in ACO's state-of-the-art facility to guarantee high quality and performance.

Product Selector

To ensure commercial kitchen operators specify the most cost-effective solution for their business, ACO Building Drainage offers a comprehensive range of grease management solutions with additional systems and products being developed for launch in 2019.

Kitchen criteria

Different types and size of commercial kitchen require different grease management solutions, depending on these criteria:

- Number of covers
- Size of your kitchen
- Type of food you prepare
- Equipment used
- Contents of your waste water
- Density of the FOG

Kitchen application

- Hotels
- Restaurants
- Hospitals
- Clinics
- Care Homes
- Factory & Office canteens
- Student refectory
- Fast food establishment
- Large catering establishment

BELOW GROUND UNITS

ACO LipuMax



Choice of sizes
NS2 to NS10*

- Certified to BS EN 1825
- Buoyancy-proof shaft to top edge of manhole cover with no in-situ concreting required (for D 400)
- Compact construction – polyethylene
- Structural stability of the container with proof of stability for 50 years
- Load class up to D 400

ABOVE GROUND UNITS

ACO LipuSmart



Choice of sizes
NS2 to NS10*

- Certified to BS EN 1825
- 4-in-1 complete solution
- Innovative control system for general system
- Optional Bluetooth or Modbus connection
- Container holds 25-year stability verification
- Compact installation dimensions
- Only one vent stack necessary

ACO LipuJet



Choice of sizes
NS2 to NS10*

- Certified to BS EN 1825
- Rugged construction with 25-year stability verification
- Disposal and maintenance cost minimisation due to nominal size range (e.g. NS 5.5 and 8.5)
- Extension stages 2 and 3 with multifunctional filling unit for high pressure internal cleaning and container filling

LIFTING STATION UNITS

ACO Lifting Station



Choice of sizes
NS4 to NS10*

- Certified to BS EN 12050
- Suitable for above & below ground separators
- Large usable tank volumes and various inlet heights
- Energy-saving channel impeller on pump to reduce blockages
- Twin pump system for reliability
- Suitable for waste water containing grease or fat

For specification guidance and technical support that is specific to your commercial kitchen operation, please contact our technical design team (see page 19 for full contact details).

* Any sizes over NS10, please call our technical team on 01462 810421 for assistance and advice.



Installation & Service

At ACO Building Drainage we are committed to supporting our customers with a complete grease management solution that meets your specific needs for your waste management requirements.

In addition to our range of solutions, we have the level of in-house technical expertise required to provide customers with guidance and support at every stage of a project from system specification to design. We can provide support through our preferred installation and service partner who will be able to handle system installation and commissioning and, if required, undertake the ongoing servicing and maintenance of your grease management solution.

Our ability to provide commercial kitchen operators with a complete grease management solution, means the design, installation and maintenance of the system is an easy, stress-free process which has the minimum impact on the business in terms of downtime and sales revenue.

The decision to manage your grease

Ask the team

Whether your drainage system is being blocked on a frequent basis by fats, oils and grease, you're looking to minimise downtime and cleaning time in your kitchen or you are committed to playing your part in the creation of healthy living and working environments in our cities, the decision to manage the FOG output of your business will have a positive impact on you and the wider community.

Our expertise

No obligation guidance and support

Your choice of grease management solution will depend upon the nature and size of your kitchen, the contents of your waste water and the density of the FOG which your system needs to manage. Talk to our in-house technical design team about your specific project requirements and obtain expert guidance and advice about the best grease management solution for your business.

Installation and service

Service partnership

To give you optimum peace of mind and a complete grease management solution, we can put you in touch with our service and installation partner, who can manage your installation, commissioning, maintenance and regular service requirements.



Frequently Asked Questions

FOG is an important issue for foodservice establishments and for society as a whole. To help you understand more about FOG and the solutions available, we've prepared this short Q&A. For project-specific advice and specification guidance, please talk with our in-house technical design team.

What is FOG?

FOG is the abbreviation for the fats, oils and grease which are found in the wastewater produced by kitchens. FOG comprises fats, oil, grease created by food debris, fats and oils used in the cooking process, and the washing of food equipment, utensils and crockery. All kitchens produce wastewater which contains fats, oils and greases (FOG) as well as food debris.

Why do I need to worry about FOG?

FOG causes blockages in kitchen drainage systems, compromises hygiene, creates unpleasant odours, can impact upon employee health and safety, and ultimately can stop your commercial kitchen from operating.

FOG is also becoming a major issue for Britain's sewer network, creating 'fatbergs' and causing blockages. As a result, every foodservice outlet in the country has a legal obligation to "manage effluent content" under the Water Industry Act (1991). Section 111 of The Water Industry Act (1991) gives water companies the power to bring a criminal proceeding against anyone who causes injury or inhibits the free flow of the sewer network.

As FOG is a major cause of sewer blockages, under this Act the water companies have the power to prosecute for FOG contamination and also to recharge any costs incurred to clear blockages.

What is Grease Management?

Grease management refers to the use of a range of products and systems which effectively remove FOG from waste water and so prevent the issues which FOG can cause in a kitchen's drainage system and the wider sewer network.

What grease management solutions are available to prevent FOG from entering my drainage?

A range of solutions are available including grease separators, grease traps and grease recovery units also known as GRUs. It is important to specify the right grease management solution for your business and, to ensure it continues to operate effectively, to conduct ongoing maintenance.

Why are there so many different products and solutions to choose from?

Different types and size of commercial kitchen require different grease management solutions. Your choice of grease management solution will depend on a variety of key specification criteria including the number of covers, size of your kitchen, the type of food you prepare, the equipment used for food preparation, the contents of your waste water, the density of the FOG produced and the space you have available for the installation of a grease management solution.

How can I ensure that I specify the most appropriate grease management solution for my business?

There are numerous sources of impartial information (see page 19, further reading) which will provide you with guidance. ACO has also developed a Product Selector for commercial kitchen operators www.aco.co.uk/commercial-kitchens

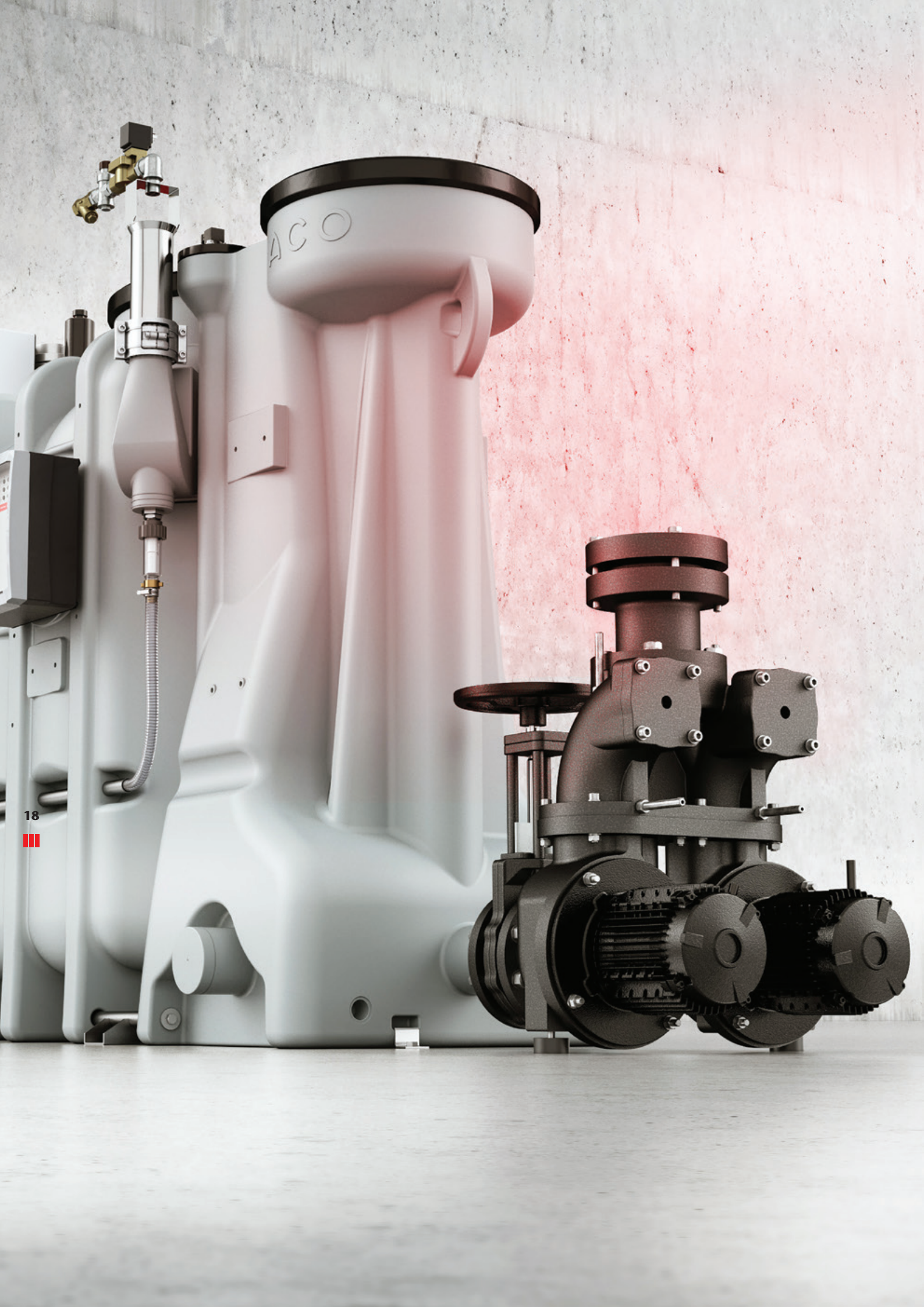
For project-specific guidance, you can also talk with our in-house technical team who help you choose the right grease management solution for your business.

What are the cost implications of fitting a grease trap?

The initial capital cost of the grease management system that you choose will vary enormously depending on what you purchase. It is important to recognise that there will be regular maintenance and service requirements to ensure that the system remains problem free and provides the performance that you expect. It is worth reviewing this aspect before a purchase is made to understand the ongoing costs and requirements.

Will local authorities/water companies provide grants to fit one?

It is unlikely that you will get any financial assistance from either your local authority or the local water company responsible for your sewer. We would suggest that you ask your local water company, local Environmental Health Officer or British Water (www.britishwater.co.uk) for guidance.



Further Reading

Further information and guidance on the management of fats, oils and grease (FOG) can be obtained from the following:

Associations

- Grease Contractors Association (GCA)
- Catering Equipment Suppliers Association (CESA)
- Catering Equipment Distributors Association (CEDA)
- UK FOG Forum / British Water
- Chartered Institution of Building Services Engineers (CIBSE)
- Foodservice Consultants Society International (FCSI) UK and Ireland

Regulations and other literature

- The Water Industry Act (1991)
- Building Regulations Part H1 (S2.21)
- Environmental Protection Act (1990)
- Food Safety Act (1990)
- Water UK Best Management Practice for Catering Outlets

Standards

- **BS EN 1825-1: 2004:** Grease separators - Part 1: Principles of design, performance and testing, marking and quality control
- **BS EN 1825-2: 2002:** Selection of nominal size, installation, operation and maintenance.
- **BS EN 12050:** Wastewater lifting plants for buildings and sites. Lifting plants for faecal-free wastewater

Ask the team

For further guidance and technical advice, contact our in-house technical design team who will be pleased to help you with the specification and design of your grease management system.

ACO Building Drainage specialises in the development of corrosion resistant drainage and grease management systems. Engineered to eliminate design risk, to optimise installation and to minimise lifetime ownership cost, every product in the range delivers exceptional levels of performance, finish and durability.

Email: abdtechnical@aco.co.uk
Telephone: +44 (0)1462 810431



