



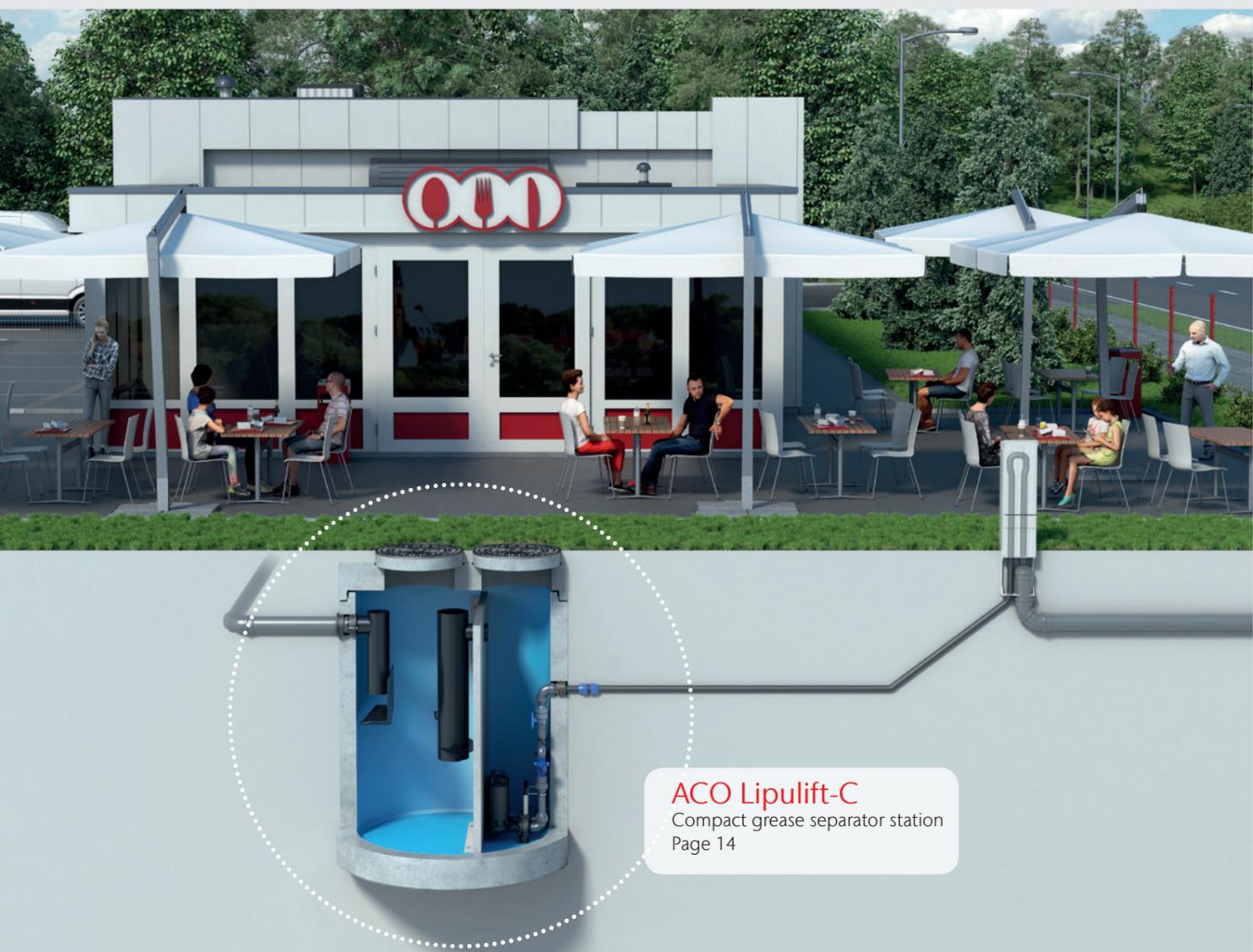
ACO separator for greases and light liquids

ACO Compact Systems:
All in one





ACO Oleolift-C
Compact system
Light liquid separator
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ACO Lipulift-C
Compact grease separator station
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ACO Compact Systems

The new class of compact systems in the separator sector represents a combination of functionality and safety. A standard-compliant generation installed in a very tight space: separator and pump station are both located in one tank with two separate chambers. Pump and backflow loop ensure safety against backflow, liquids in the separation area are reliably separated. The compact design allows optimum use of installation space, reducing excavation and piping.

- All in one**
- Separator
 - Sludge trap
 - Sampling point
 - Pump station
 - Backflow protection

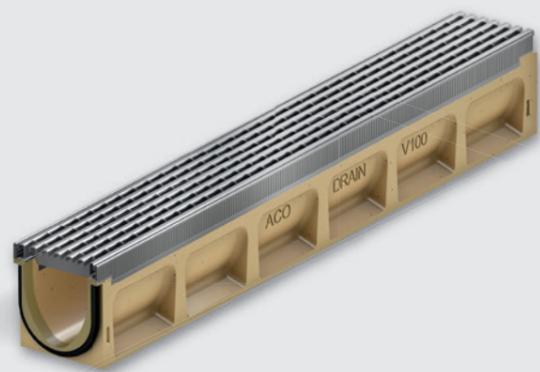
Your question – our answer:
The ACO system chain

The ACO system chain supports you at every stage of drainage, rainwater management and treatment planning.



The ACO system chain creates drainage solutions for the environmental conditions of tomorrow

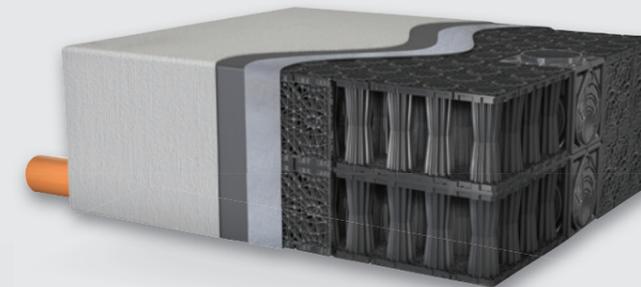
How does surface water management and water protection begin?



How to achieve the right water quality?



How to reduce surface runoff to a natural level?



How to control the discharge rate to the required level?



ACO surface water drainage

- Drainage channels
- Road and yard drains
- Gully tops
- Manhole covers



ACO cleaning systems

- Separators
- Sedimentation and filtration systems



ACO infiltration/attenuation systems

- Control valve shafts
- Infiltration and attenuation systems
- Retention basins made of concrete



ACO control systems

- Flow control systems
- Pump shafts

Light liquids which
are hazardous to water

ACO Oleolift-C

Traffic areas and roads are the transport veins of our society. Especially in connection with the mega trends of drainage - urbanisation, climate change and sustainability - new and smart approaches are required today for handling light liquids.

Light liquids, especially fuels and oils, must never be permitted to enter waterways and soil areas, where they can cause considerable damage to these areas. For this reason, light liquid separators must already be utilised today at various critical locations, such as fuel stations, logistics areas and certain road sections in order to separate fuels and oils.

However, pure separation is usually not sufficient for this purpose. In the event of a rainwater or backflow incident, it must therefore be prevented that fuels can escape from the light liquid separator (refer to EN 858 and DIN 1999-100).



Why backflow protection for light liquid separators?

- Danger to the environment caused by escaping light liquids!
- DIN 1999-100 explicitly demands protection measures to prevent the leakage of light liquids.
- Economic consequences of a leakage (excavated earth, special disposal of the soil, operational failure) will be prevented.

All in one

- Separator
- Sludge trap
- Sampling point
- Pump station
- Backflow protection
- + Emergency system solution

System solution from a single source

Talk to the specialists for backflow protection: ACO

Field of application

Fuel stations



Car washes

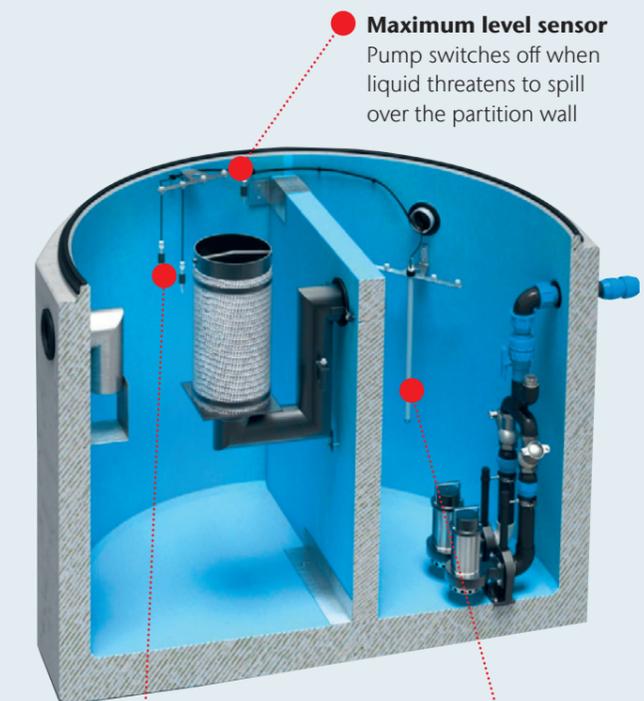


Intelligent sensor control!

Utilising compact integration of the functions in just one tank enables savings for valuable underground space (because one tank is used instead of several), which can be decisive in urban areas, but can also be very practical for reducing the costs resulting from the installation work.

In addition to the integrated backflow protection provided by the pumps in combination with a backflow loop, the Oleolift-C compact system utilises fully automatic sensors to monitor and control the functional parameters for the very first time. This thereby ensures operational reliability even under difficult installation conditions.

Another novelty: the float-free closure. The intelligent sensor control replaces the float and therefore prevents the separator from closing unintentionally while still maintaining full operational safety.



Oil sensor
Measures and records the oil layer thickness and then reports this to the operator

Level sensor
Measures and records heavy rainfall – second Pump will be switched on

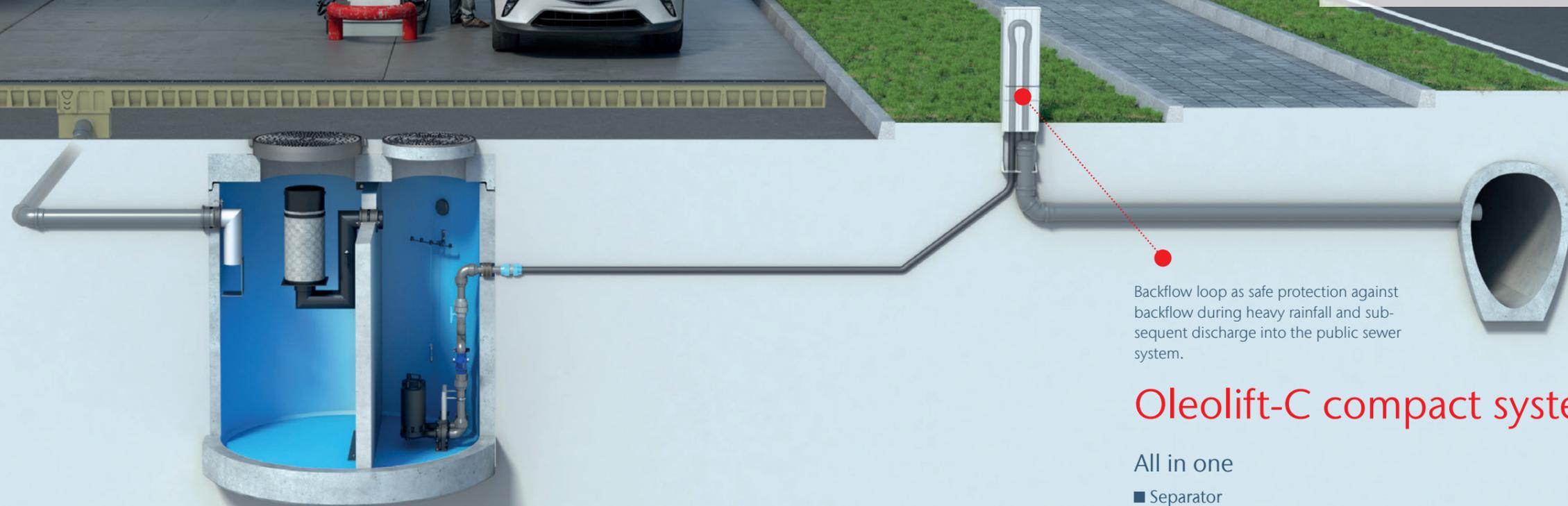


Fuel stations

Requirement:
Reliable separation of light liquids and discharge of the purified water.

Special feature:
No sufficient gradient from the fuel station to the sewage system: fuel station located below backflow level.

Smart solution:
Oleolift-C compact system.



Backflow loop as safe protection against backflow during heavy rainfall and subsequent discharge into the public sewer system.

Oleolift-C compact system

All in one

- Separator
- Sludge trap
- Sampling point
- Pump station
- Backflow protection
- + Emergency system solution

Light liquid separator and pump station

ACO Oleolift-C compact system



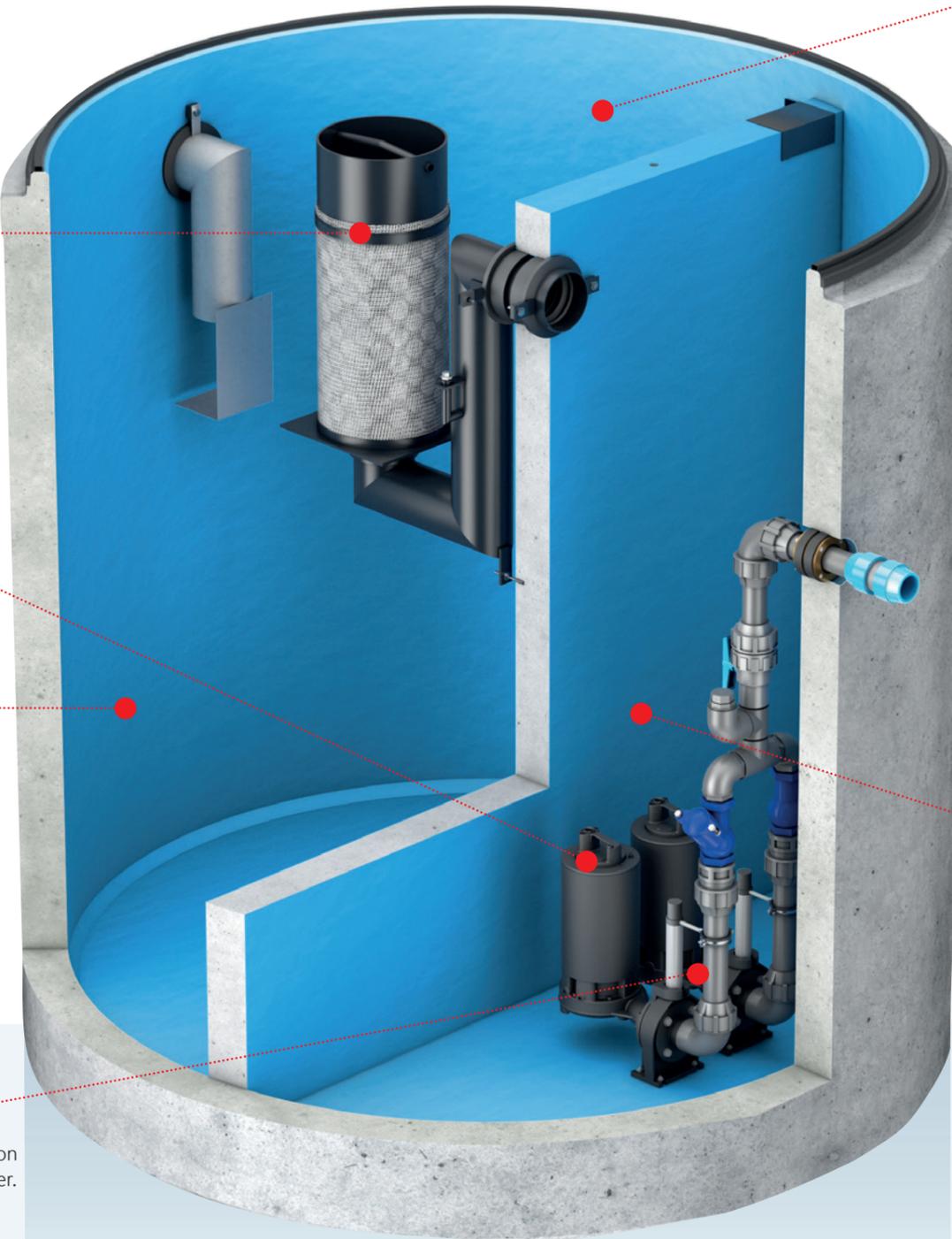
Intelligent sensor control
A high degree of digitalisation creates operational reliability and makes easy installation possible.



ACO product advantages

- Underground installation space is very precious: separator, sludge trap, sampling point, pump station and backflow protection in one
- Fast, space-saving, easy and low-cost installation without intermediate piping
- No step-by-step installation necessary
- Maximum design reliability
- Standard solution in an extremely confined space
- Tried and tested as safe: General national technical approval

Integrated emergency system
In the event of an accident it can be used as an emergency tank.



Innovation
No float, no unwanted wear of the separator.

Backflow protection included
The combination of integrated pumps and a backflow loop prevents light liquids escaping, thus protecting the environment and preventing subsequent costs.

High performance despite compact design
Proven efficiency in the field of light liquid separation

Integrated
Pump station for compensation of gradients towards the sewer.

European standard EN 858 and the supplementary German standards DIN 1999-100

What is in the EN 858?

- Manufacturers can independently determine the conformity of the product with the standard by self-confirmation and subsequently document this with the CE mark.
- The structures involved can be made of concrete, reinforced concrete, metallic materials or plastic, the built-in parts are made of steel or plastic.
- Not regulated, and therefore subject to country-specific standards, are the regulations for third-party inspection and testing, fire protection, structural calculation verification and leaktightness.

These provisions and regulations are regulated in the new, supplementing DIN 1999-100. This states that:

- The function inspections and tests must always be executed by a certified test centre.
- The structures must fulfil the structural calculation requirements for the required traffic load and earth load.
- The inlet socket and outlet socket located inside the separator must be made of non-flammable materials and thereby ensure that no fire can spread.
- The leaktightness of the entire separator system, including the shaft construction, must always be ensured.
- The consideration of the FAME factor when determining the nominal size NS.
- When the inflow to the separator system can be safely interrupted and/or there is a sufficient excess height on the inflow side, then a backflow safety valve according to EN 13564-1, Type 2 and/or Type 3F, or a demonstrably equivalent system is permissible as backflow safety protection. Or:
- When the inflow to the separator system cannot be safely interrupted, then twin lifting stations according to EN 12050-1, EN 12050-2 or twin pump systems according to EN 752 and/or EN 12056-4 with backflow loop must be provided.

What does this mean for planners and users in practical terms?

After a long discussion phase in various European standards committees, one has now reached a consensus at a low technical level which would significantly fall below the German safety standards which have been previously applied to date. When only EN 858 is applicable, every manufacturer will be able to determine the conformity of their own products with the standard in future and subsequently document this by applying the CE mark. Testing and inspection at an approved testing and inspection centre would no longer be required. In defined cases, this can therefore result in dangers for the environment in general, but also for planners and users:

- Uncontrolled exceeding of limit values due to insufficient separator performance
- Damage to the separator basin due to lack of stability and the associated contamination of soil
- Spread of fire to the supply pipes and discharge pipes when plastic fittings and components are used
- Uncontrolled leakage of light liquids due to insufficient leaktightness

Recommendation

In order to be able to guarantee the existing safety standards and for the purposes of practical planning, we hereby recommend that EN 858 Parts 1 and 2 are always implemented in conjunction with DIN 1999-100. This is the only way that planners and operators will be able to reliably protect themselves against damage and possible claims for damages!

Pay attention to the DIBt approval when utilising an LFA. It means tested and inspected safety in planning and execution.

Independent quality testing

ACO Civil Engineering light liquid separators have been tested and inspected by the recognised test centre of LGA Bautechnik GmbH for many years.

Backflow protection is already in demand

First, some background theory: the "backflow level" i.e. the highest possible permissible level of wastewater at all points on a road, helps to assess which protection measures will need to be implemented. Local public authorities set this level in the wastewater byelaws. It must be taken into account when buildings are planned. The road surface level can usually be taken as a rough guideline.

There are also specific situations which require a pump station downstream of a light liquid separator; these situations are described in DIN 1999-100. This is the case when sufficient excess height on the outflow side of the separator system cannot be created and a safe interruption of the inflow is therefore not guaranteed. The necessary pump station can either be positioned in a separate shaft or combined with the separator in one tank.

Status	Excess height on the inflow side	Excess height on the outflow side	Inflow to the separator can be safely interrupted	Additional requirements
1	✓	✓	—	None
2	✓	✗	✓	BS
3	✓	✗	✗	TLS
4	✗	✓	—	WS
5	✗	✗	✓	WS and BS
6	✗	✗	✗	WS and TLS

✓ = ensured
 ✗ = not ensured
 — = not relevant
 BS = Backflow stop
 TLS = Twin lifting station
 WS = Warning system



Wastewater containing vegetable or animal fats

ACO Lipulift-C

Grease separators are used wherever vegetable or animal fats are added to the wastewater.

According to EN 1825 and DIN 4040-100, companies in which wastewater containing grease is produced or occurs are obliged to install grease separators. This serves to retain fats and oils of organic origin from the wastewater so that the public pipes are protected from harmful and nuisance evaporation, materials and substances. Furthermore, during the planning stage, care must be taken to always ensure that the connection of the separator system to the public sewer system taking the EN 12056, EN 752 and EN 1825 standards into consideration. According to these standards, separators must be protected against backflow by a pump station if their static water level is below the backflow level.

Field of application

Motorway service areas



All in one

- Separator
- Sludge trap
- Sampling point
- Pump station
- Backflow protection

Commercial kitchens



Snack shops in pedestrian areas



Ideal for applications in confined spaces

Underground installation space is always scarce and very precious. As cities or towns become more urbanised and densely populated, this aspect can often determine whether a project can be implemented or not. The Lipulift-C compact system solves a variety of planning challenges in a smart way. For example, the integrated pump station makes it possible to compensate for a gradient for discharge. The pump control system enables a maximum volume flow rate to be set for the volume flow to be discharged into the public sewer system. In connection with a backflow loop, it therefore provides reliable protection against backflow incidents which could push back wastewater from the sewer system.





Restaurants

Requirement:

Reliable separation of grease and safe discharge of the purified water. Odours must not be perceived, not even during emptying and filling.

Special feature:

No sufficient gradient from the fuel station to the sewer.
Reduced underground installation space.

Smart solution:

Lipulift-C compact system with direct extraction and high-pressure inner cleaning.



Lipulift-C compact system

All in one

- Separator
- Sludge trap
- Sampling point
- Pump station
- Backflow protection

Grease separator and pump station

ACO Lipulift-C compact system

High performance despite compact design
Proven efficiency in the field of light liquid separation.

Backflow protection included
The integrated pumps, together with a backflow loop, jointly prevent the escape of greasy wastewater, filling up the sewage system and consequential costs.

Perfectly tailored for your application!

Available with extra durable **inliner** or **robust coating** for resistance

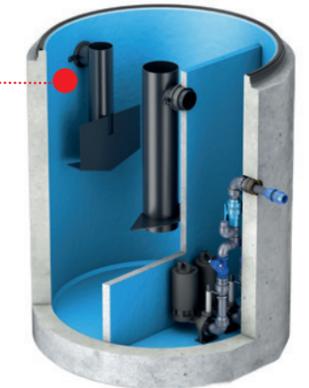
With inliner

With coating

No double piping required
Only one vent stack necessary.

Controlled discharge
The integrated pump makes it possible to set a maximum flow of wastewater which can be discharged into the public sewer system.

Gradient compensation
Pump station for routing into the sewage system



ACO product advantages

- All in one: separator, sludge trap, sampling point, pump station and backflow protection
- Available with resistant inliner or durable resistant coating
- Fast, space-saving, simple and inexpensive installation:
Standard solution in confined spaces
- certified by DIBt

Standards and Service

Take use of our ACO 360° service

Planning and design of separators for greases and light liquids - benefit from the competence of ACO

Demensioning online

Take advantage of the available ACO online demensioning tools to find the applicable size for the separator system.

ACO always supports you

Every project is different and has its own requirements, demands and challenges. Aside from our products, we can also

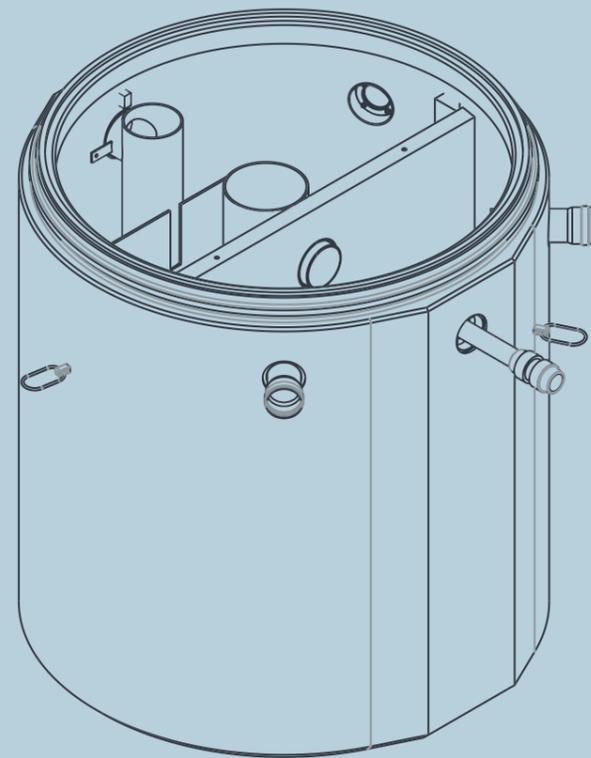
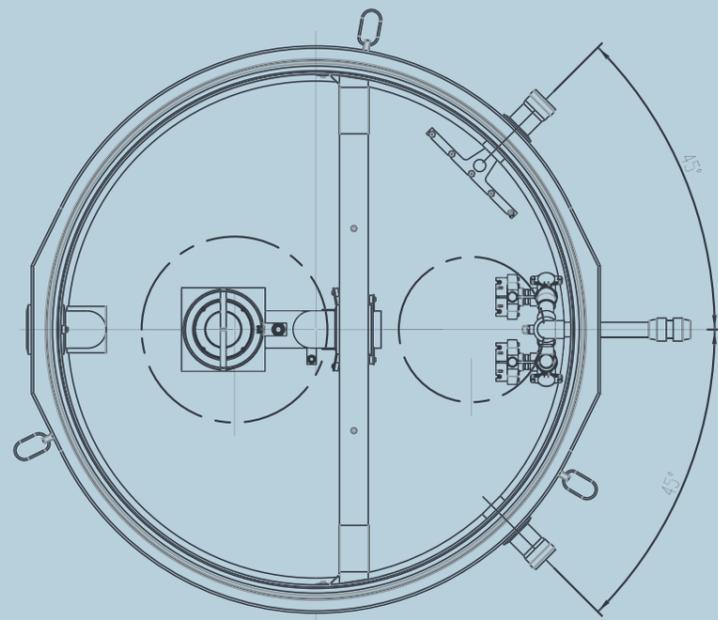
provide you with our know-how and services, so we can jointly develop tailor-made solutions – from planning to support after completion.

Our invitation for you: **askACO**. Together we will find the right answer for your specific drainage task. www.aco.com

The ACO Service professionals always ensure commencing with assembly, general inspection, servicing and maintenance on up to repairs, conversions and modernisations and up to, and including, regular appropriate disposal, — you will always receive everything you require from just one single source with ACO. Three Service Level Agreements with the ACO Service professionals always ensure you maximum operational reliability with calculable costs. Permanently reliable operation of the system can only be guaranteed when proper maintenance is executed at regular intervals; these are specified in the DIN/EN standards listed:

- Grease separator systems Refer to DIN 4040 Part 100 as well as EN 1825-2
- Wastewater lifting plants/ pump stations, refer to DIN 1986 Part 100 and EN 12056
- Backflow safety valves Refer to DIN 1986 Part 3
- Light liquid separator Refer to DIN 1999-100 as well as EN 858-2





Technical details

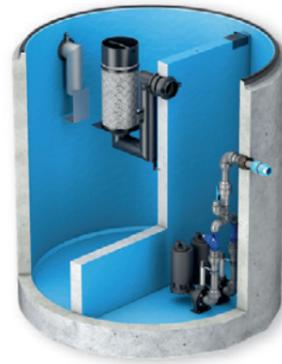
Compact systems

Functional, safe, space-saving: these are the characteristics associated with the standard-compliant new generation of ACO compact systems in the separators sector. The compact system consists of just one tank which has two separate chambers. The separator as well as the pump station are located inside.

Safety against backflow is always ensured by means of a pump and backflow loop, while liquids in the separation area are reliably separated. The functions of separator, sludge trap, sampling point, pump station and backflow protection are thereby combined as a logical additional development.

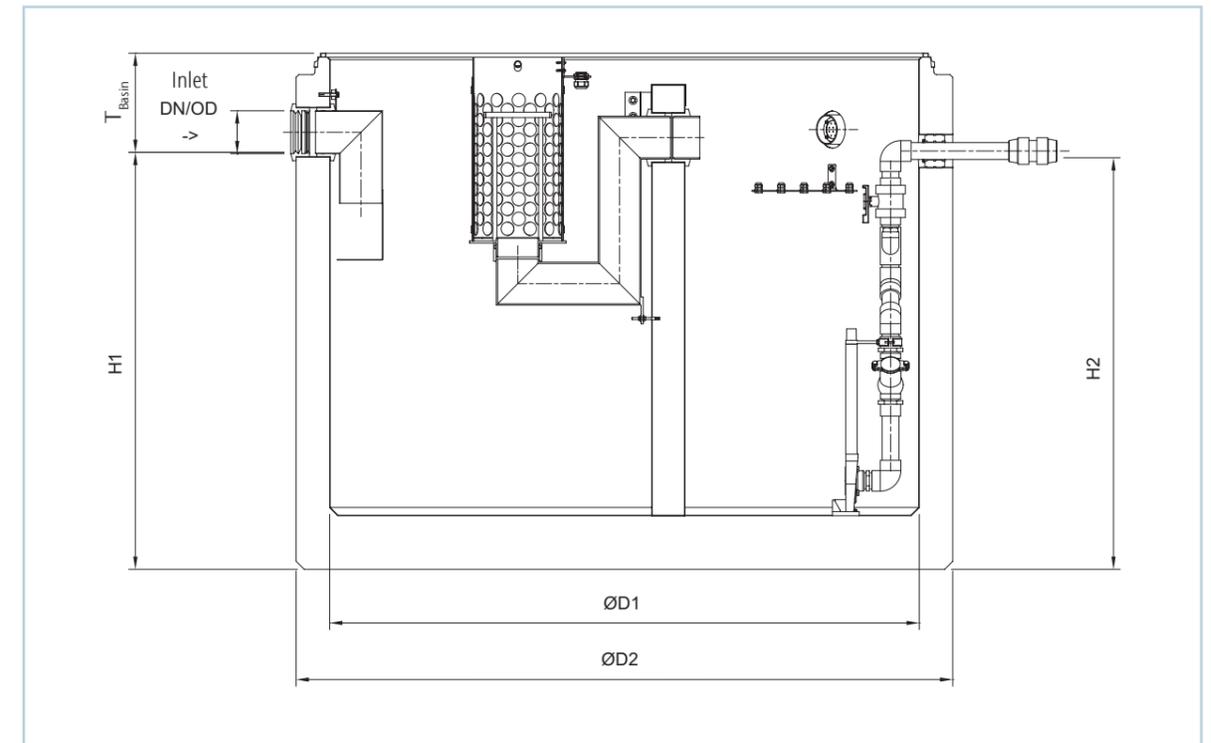
Oleolift-C

- All in one: light liquid separator, sludge trap, sampling point, pump station and backflow protection
- No step-by-step installation necessary
- Fast, space-saving, easy and low-cost installation without intermediate piping
- Maximum design reliability
- Standard solution in an extremely confined space



Nominal size	Inlet DN/OD [mm]	DN/OD pressure line outlet [mm]	Content			External diameter [mm]	T _{Basin} [mm]	Weight of basin [kg]	Pump Article no.	Article no.
			Sludge trap [l]	Oil storage [l]	Total [l]					
NS 3-6	150/160	50/63	600	460	2830	2450	370	6950	2 x 750600	723274
			900	460	2830	2450	370	6950	2 x 750600	723275
			1200	460	2830	2450	370	6950	2 x 750600	723276
			1800	460	2830	2450	370	6950	2 x 750600	723277
			2500	460	2830	2450	370	6950	2 x 750600	723278
NS 6-10	150/160	50/63	2500	520	3930	2450	380	8450	2 x 750600	723280
			3000	520	3930	2450	380	8450	2 x 750600	723281
		100/110	2500	520	3930	2450	380	8610	2 x 750601	723282
3000	520		3930	2450	380	8610	2 x 750601	723283		
NS 10-15	250/250	100/110	4500	1400	6900	3000	780	15550	2 x 715992	723279

Dimensions



Article no.	Dimensions					
	H1 [mm]	H2 [mm]	D1 [mm]	D2 [mm]	T _{Basin} [mm]	T _{maximum} [mm]
723274	1555	1535	2200	2450	370	5370
723275	1555	1535	2200	2450	370	5370
723276	1555	1535	2200	2450	370	5370
723277	1555	1535	2200	2450	370	5370
723278	1555	1535	2200	2450	370	5370
723280	2075	1680	2200	2450	380	5380
723281	2075	1680	2200	2450	380	5380
723282	2075	1655	2200	2450	380	5380
723283	2075	1655	2200	2450	380	5380
723279	2175	1860	2700	3000	780	5780

Cover plate for Oleolift-C

- Manhole cover with maintenance-friendly covers made of iron including operating key, load class D 400 according to EN 124-2, clear width 600-800 mm



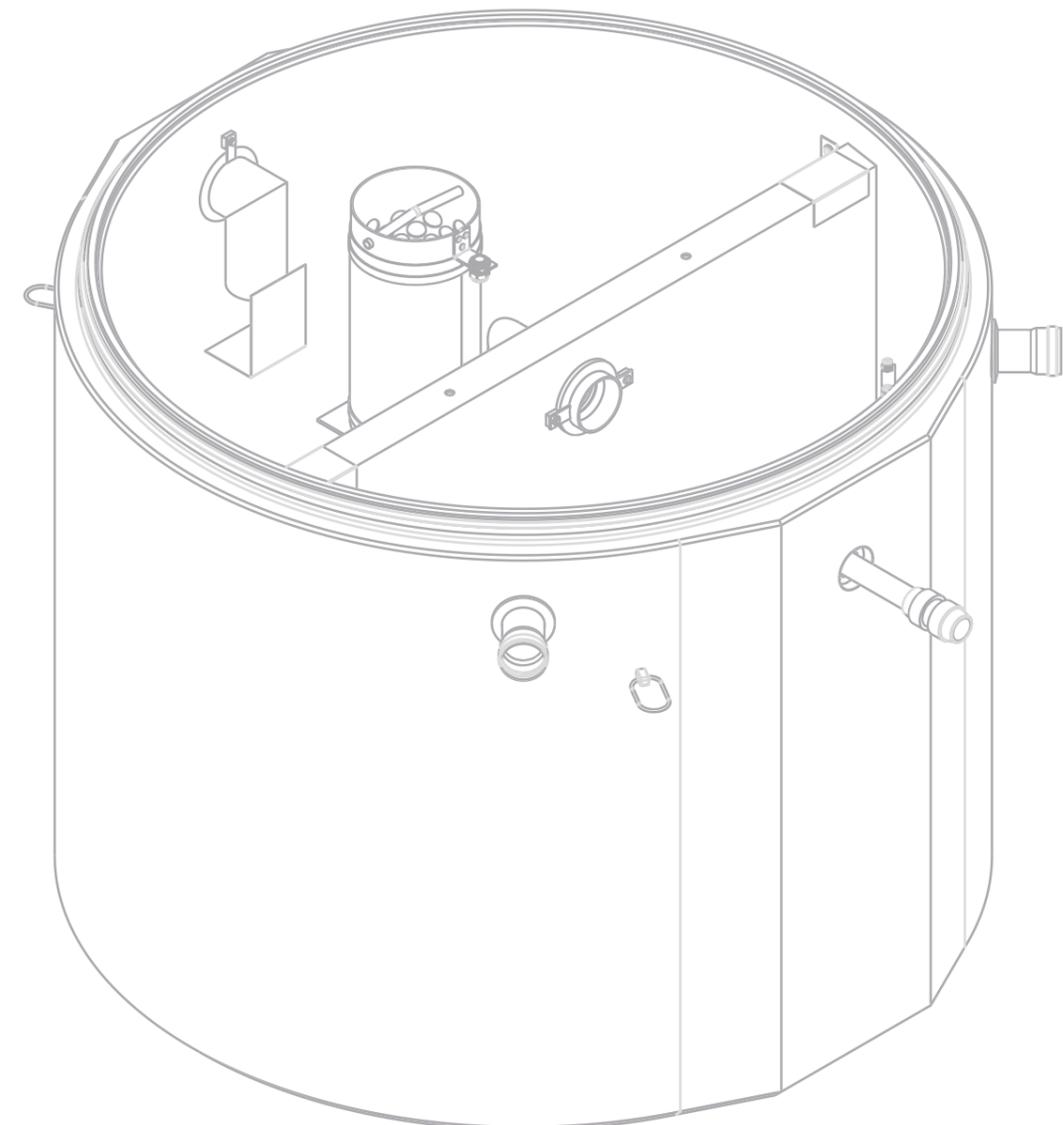
Suitable for	Dimensions		Manhole cover	Weight [kg]	Article no.
	T _{Construction} [mm]	D _{external} [mm]			
Pressure pipe DN 50	365	2440	1 * LW 800 + 1 * LW 600	2200	728037
Pressure line up to DN 100	365	2440	2 * LW 800	2640	728031

Oleolift-C accessories

Description	Weight [kg]	Article no.
Special pumps		
■ DRG 150/2/50 ex	35	750600
■ DRG 200/4/100 ex	42	750601
■ KL-AT-M400/4/80 ex.	93	715992
Pump pull chain including shackle		
■ made of stainless steel, load-bearing capacity 200 kg	15.5	718032
□ Length 4 metres		
□ Length 2 x 4 metres	31.0	718034
Control Unit		
■ Function-relevant and safety-relevant for Oleolift-C in combination with special pumps		
■ Operating voltage: 400 V– frequency: 50 Hz	6.0	
■ Degree of protection: IP 52		
□ Motor protection switch 2x 2.5-4 A		750415
□ Motor protection switch 2x 4-6 A		750414
□ Motor protection switch 2x 6-10 A		750360
Sensor kit for Oleolift-C		
■ Innovative locking mechanism	2.0	750427
■ Accumulation sensor and oil sensor		
Rechargeable battery		
■ To maintain alarm signal in the event of a power failure	0.8	708029
■ 12 V/1,2 aH		
Outdoor cabinet		
■ As empty housing		
■ Dimension: 806 x 2000 x 338 mm WxHxD		
■ With horizontal partition wall		
■ Area above the partition wall: Spare space for a local Multi-Control mono or duo switching device with socket for 230 V and 400 V	40.0	709649
■ Area below the partition wall: Space reserved for a local backflow loop DN 50 -200, with 100 W heater with thermostat		



Description	Weight [kg]	Article no.
Level probe		
□ Consumption 20 mA, 20 m cable	2.0	711891
□ Consumption 20 mA, 50 m cable	3.0	711226
□ Consumption 4-20 mA, 80 m cable	5.0	709571
Protective tube for level probe		
■ Length 1221 mm	1.0	711918



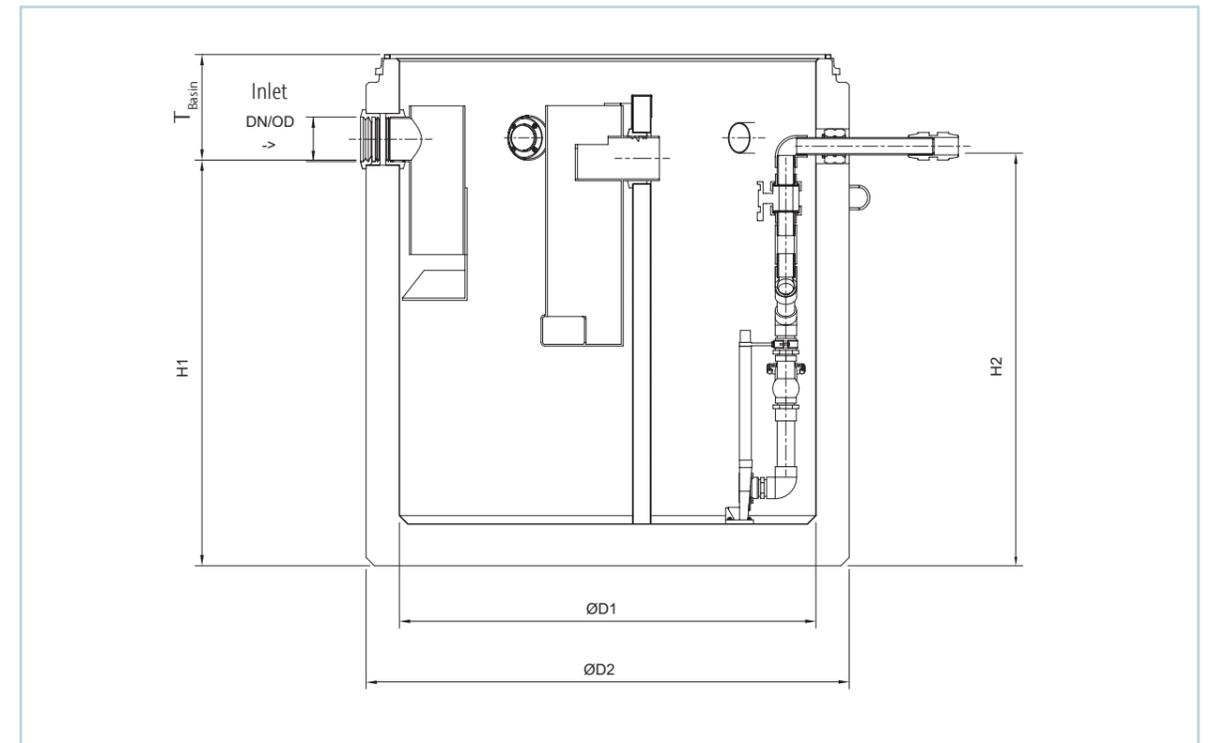
Lipulift-C

- All in one: separator, sludge trap, sampling point, pump station and backflow protection
- No step-by-step installation necessary
- Fast, space-saving, easy and low-cost installation without intermediate piping
- Maximum design reliability
- Standard solution in an extremely confined space



Nominal size	Inlet DN/OD	DN/OD pressure line outlet	Content			External diameter	Weight of basin	Pump Article no.	Design coated Article no.	Design with inliner Article no.
			Sludge trap	Grease store	Total					
			[l]	[l]	[l]	[mm]	[kg]			
NS 2			200	256	1713	1740	3216	2 x 715959	723070	723250
NS 2-4			400	256	1943	1740	3700	2 x 715959	723071	723251
NS 4			800	256	2649	1740	4120	2 x 715959	723072	723252
NS 5.5	150/160	50/63	550	256	2190	1740	3697	2 x 715960	723073	723253
			1100	256	3144	1740	4651	2 x 715960	723074	723254
NS 7			700	505	3318	2070	6453	2 x 715960	723075	723255
NS 10			1400	505	4375	2070	6995	2 x 715960	723076	723256
			1000	699	4303	2070	6997	2 x 715961	723077	723257
NS 10-20	250/250	100/110	4000	1350	9788	3000	15140	2 x 715962	723078	723259

Dimensions



Article no.	Dimensions					
	H1	H2	D1	D2	T _{Basin}	T _{maximum}
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
723070	1120	1195	1500	1740	445	5445
723071	1320	1485	1500	1740	520	5520
723072	1720	1485	1500	1740	365	5365
723073	1460	1485	1500	1740	380	5380
723074	2000	1485	1500	1740	385	5385
723075	1650	1535	1750	2050	595	5595
723076	2090	1535	1750	2050	355	5355
723077	2060	1535	1750	2050	385	5385
723078	2005	1730	2700	3000	960	5960
723250	1120	1225	1500	1740	445	5445
723251	1320	1515	1500	1740	520	5520
723252	1720	1515	1500	1740	365	5365
723253	1460	1515	1500	1740	380	5380
723254	2000	1515	1500	1740	385	5385
723255	1650	1565	1750	2050	595	5595
723256	2090	1565	1750	2050	355	5355
723257	2060	1565	1750	2050	385	5385
723259	2005	1760	2700	3000	960	5960

Cover plate for Lipulift-C

- Manhole covering with maintenance-friendly cover made of cast iron including operating key, load-bearing class D 400 according to EN 124-2, clear opening width 600 mm - 800 mm



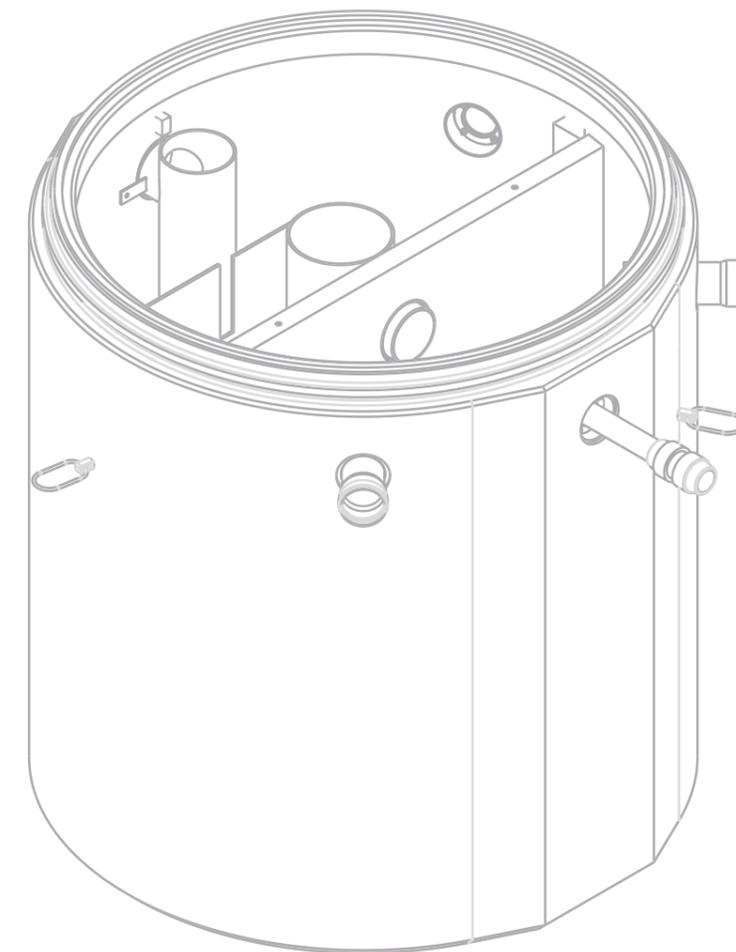
Suitable for	Dimensions			Manhole cover	Weight	Article no.
	T _{Construction}	D ₁	D ₂			
	[mm]	[mm]	[mm]		[kg]	
NS 2 bis 5,5	315	1500	1740	2 * LW 600	1244	728072
NS 7 bis 10	365	1750	2070	2 * LW 600	1970	728073
NS 10-20	365	2100	2340	2 * LW 800	2644	728070

Accessories for Lipulift-C

Description	Weight [kg]	Article no.
Pumps		
■ SAT 100/D	24.0	715959
■ SAT 150/D	27.0	715960
■ SAT 200/D	28.0	715961
■ SAT-Q 300/65/D	52.0	715962
Pump pull chain including shackle		
■ made of stainless steel, load-bearing capacity 200 kg		
□ Length 4 metres	15.5	718032
□ Length 2 x 4 metres	31.0	718034
Control Unit		
■ Switching device for pumps up to 5.5 kW, direct switch-on		
■ Ready to plug in with 1.5 m connection cable	4.0	711890
■ Operating voltage: 400 V- frequency: 50/ 60 Hz		
■ Degree of protection: IP 54		
Rechargeable battery		
■ To maintain alarm signal in the event of a power failure	0.8	708029
■ 12 V/1,2 aH		
Outdoor cabinet		
■ As empty housing		
■ Dimension: 806 x 2000 x 338 mm WxHxD		
■ With horizontal partition wall		
■ Area above the partition wall.: Spare space for a local Multi-Control mono or duo switching device, with socket for 230 V and 400 V	40.0	709649
■ Area below the partition wall: Space reserved for a local backflow loop DN 50 -200, with 100 W heater with thermostat		
Backpressure bell set		
□ Open, 20 m cable	2.0	711885
□ Closed, 40 m cable		717786



Description	Weight [kg]	Article no.
Air bubble injection/Compressor		
■ For air bubble injection in order to avoid blockage through deposits		
■ Version for ACU Multi-Control switching device	0.2	711887
□ 1 x non-return valve		
□ 2 x hose connection		
□ 2 x 6/8 mm, 1 x 4/6 mm and 1 m hose 4/6 mm		
Level probe		
□ Consumption 20 mA, 20 m cable	2.0	711891
□ Consumption 20 mA, 50 m cable	3.0	711226
□ Consumption 4-20 mA, 80 m cable	5.0	709571
Protective tube for level probe		
■ Length 1221 mm	1.0	711918



Every ACO product supports
the ACO system chain



-
- Drainage channels
 - Road and yard drains
 - Gully tops
 - Manhole covers
 - Rainwater treatment
 - Infiltration and attenuation
 - Pump shafts
 - Flow control systems
 - Tree protection
 - Amphibian protection
-

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