

Separators

A Range of Fuel/Oil Separators
for Peace of Mind



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Introduction

Surface water drains normally discharge to a watercourse or indirectly into underground waters (groundwater) via a soakaway. Contamination of surface water by oil, chemicals or suspended solids can cause these discharges to have a serious impact on the receiving water.

The Environment Agency (SEPA) in Scotland have published guidance on surface water disposal, which offers a range of means of dealing with pollution both at source and at the point of discharge from site (so called 'end of pipe' treatment). These techniques are known as 'Sustainable Drainage Systems' (SuDS).

Where run-off is draining from relatively low risk areas such as car-parks and non-operational areas, a source control approach, such as permeable surfaces or infiltration trenches, may offer a suitable means of treatment, removing the need for a separator.

Oil separators are installed on surface water drainage systems to protect receiving waters from pollution by oil, which may be present due to minor leaks from vehicles and plant, from accidental spillage or due to deliberate and illegal tipping into drains.

Effluent from industrial processes and vehicle washing should normally be discharged to the foul sewer (subject to the approval of the sewerage undertaker) for treatment at a sewage treatment works

Separator Standards and Types

A European standard (BSEN 858-1) for the design, sizing (BSEN 858-2) and use of prefabricated oil separators has been adopted. New prefabricated separators should comply with the standard.

Separator Classes

The European standard refers to two 'classes' of separator, based on performance under standard test conditions.

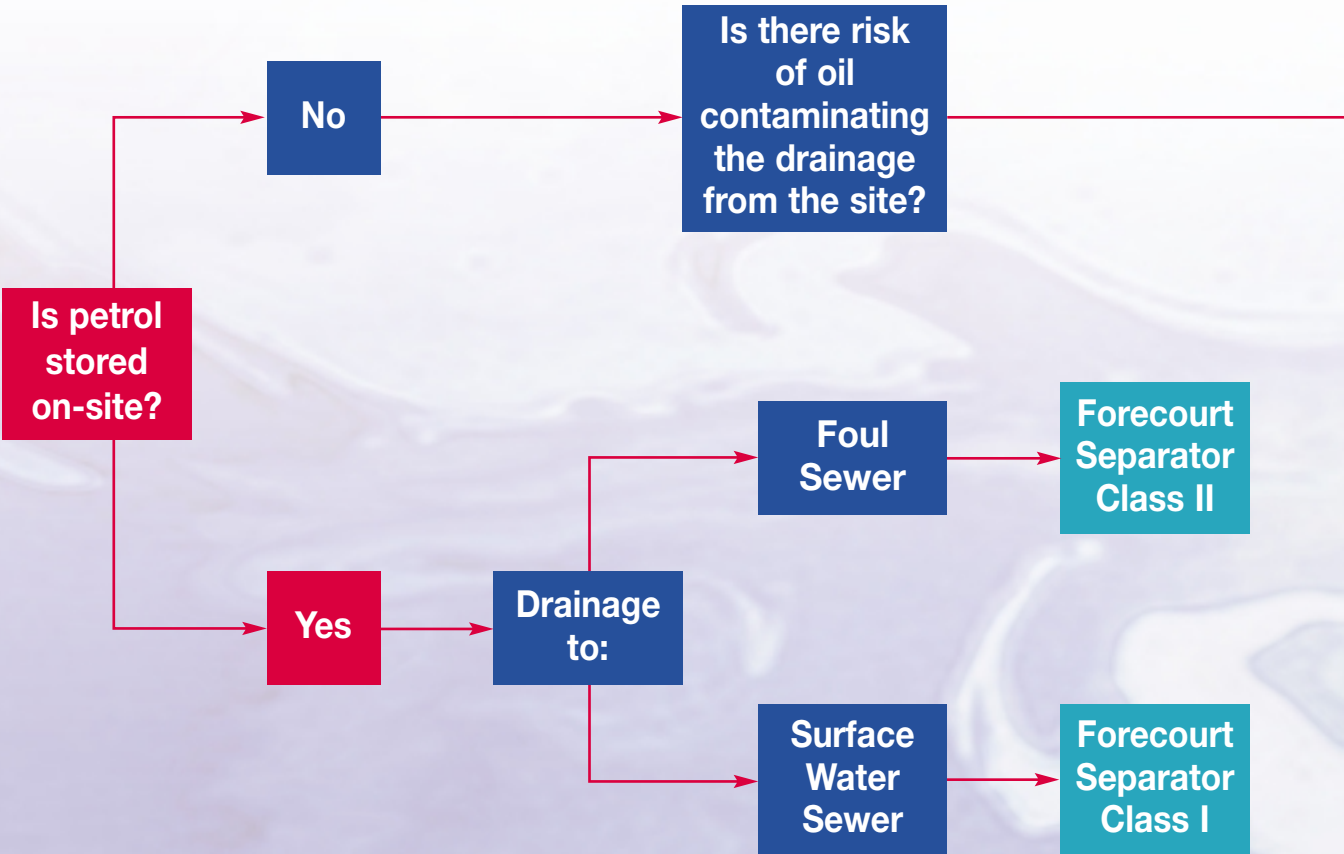
Class I

Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions, should be used when the separator is required to remove very small oil droplets, such as those arising from car park run-off.

Class II

Designed to achieve a concentration of less than 100mg/l of oil under standard test conditions and are suitable for dealing with discharges where a lower quality requirement applies (for example where the effluent passes to foul sewer) and for trapping spillages.

Both classes can be produced as full retention or bypass separators. The oil concentration limits of 5 mg/l and 100 mg/l are only applicable under standard test conditions. It should not be expected that separators will comply with these limits when operating under field conditions.



Full Retention Separators

Full retention separators treat the full flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 50mm/hr. On large sites, some short term flooding may be an acceptable means of limiting the flow rate and hence the size of full retention systems.

Bypass Separators

Bypass separators fully treat all flows generated by rainfall rates of up to 5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

Forecourt Separators

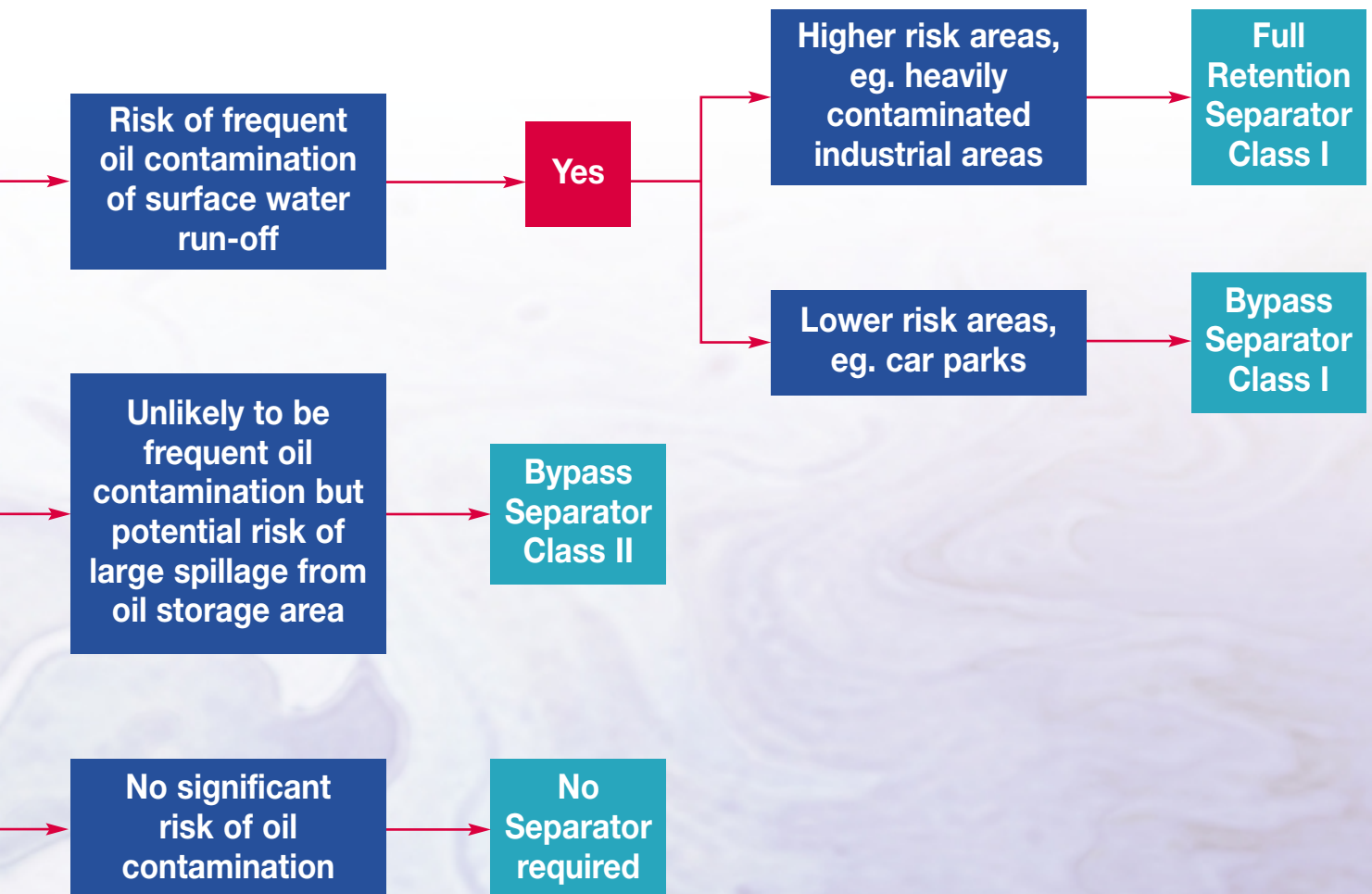
Forecourt separators are full retention separators specified to retain on site the maximum spillage likely to occur on a petrol filling station. They are required for both safety and environmental reasons and will treat spillages occurring during vehicle refuelling and road tanker delivery. The size of the separator is increased in order to retain the possible loss of the contents of one compartment of a road tanker, which may be up to 7,600 litres.

Selecting the Right Separator

The chart below gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways.

For further detailed information, please consult the Environment Agency Pollution Prevention Guideline 03 (PPG 3) 'Use and design of oil separators in surface water drainage systems' available from their website.

Klargester has a specialist team who provide technical assistance in selecting the appropriate separator for your application.



Bypass Separator

NSB Range

Application

Bypass separators are used when it is considered an acceptable risk not to provide full treatment, for very high flows, and are used, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small, e.g.

- Surface car parks
- Roadways
- Lightly contaminated commercial areas

Performance

Klargester are the first UK manufacturer to have the required range certified to NSB in the UK. The NSB code denotes the flow at which the separator operates and is only able to be applied to products which have been independently tested and certified. The British Standards Institute (BSI) have tested the required range of Klargester separators and have certified their performance in relation to their flow and process performance.

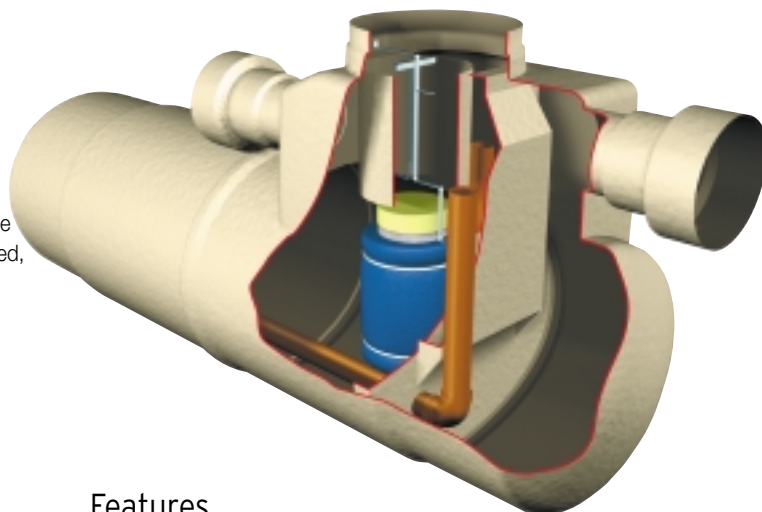
Each bypass separator design includes the necessary volume requirements for:

- Oil separation capacity
- Oil storage volume
- Silt storage capacity
- Coalescer (Class I units only)

The unit is designed to treat 10% of peak flow. The calculated drainage areas served by each separator are indicated according to the formula given by PPG3 $NSB = 0.0018A(m^2)$. Flows generated by higher rainfall rates will pass through part of the separator and bypass the main separation chamber.

Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.

Class II separators are designed to achieve a concentration of 100mg/litre of oil under standard test conditions.



Features

- Light and easy to install
- Independently tested and performance sampled, certified by the BSI
- Class I and Class II designs
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level

To specify a nominal size Bypass Separator, the following information is needed:-

- The calculated flow rate (NS) or the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator
- The required discharge standard. This will decide whether a Class I or Class II unit is required
- The drain invert inlet depth
- Oil alarm system available
- Pipework type, size and orientation

Sizes & Specifications:

Nominal Size	Flow (l/s)	Peak Flow Rate (l/s)	Drainage Area PPG3 (0.0018)	Silt Storage Capacity Litres	Oil Storage Capacity Litres	Length	Dia.	Access Shaft Diameter	Base to Inlet	Base to Outlet Invert	Standard Fall Across Unit	Min. Inlet Invert	Standard Pipework Diameter
NSB3	3	30	1670	300	45	1765	1225	600	1450	1350	100	500	160
NSB4	4.5	45	2500	450	68	1765	1225	600	1450	1350	100	500	200
NSB6	6	60	3335	600	90	1765	1225	750	1450	1350	100	500	200
NSB8	8	80	4445	800	120	3065	1225	750	1450	1350	100	500	225
NSB10	10	100	5560	1000	150	3915	1225	750	1450	1350	100	500	300
NSB12	12	120	6670	1200	180	3915	1225	750	1450	1350	100	500	300
NSB15	15	150	8335	1500	225	3915	1225	750	1450	1350	100	500	300
NSB18	18	180	10000	1800	270	4530	1442	600	1530	1430	100	1000	375
NSB24	24	240	13340	2400	360	3200	2012	600	2110	2010	100	1000	375
NSB30	30	300	16670	3000	450	3945	2012	600	2110	2010	100	1000	450
NSB36	36	360	20000	3600	540	4625	2012	600	2110	2010	100	1000	525
NSB55	55	550	30560	5500	825	5085	2820	600	2310	2060	250	1000	600
NSB72	72	720	40000	7200	1080	5820	2820	600	2310	2060	250	1000	675
NSB84	84	840	46670	8400	1260	6200	2820	600	2310	2010	300	1000	750
NSB96	96	960	53340	9600	1440	7375	2820	600	2310	2010	300	1000	825
NSB110	110	1100	61110	11000	1650	7925	2820	600	2360	2010	350	1000	825
NSB130	130	1300	72225	13000	1950	8725	2820	600	2360	2010	350	1000	900

Full Retention Separator

NS Range

Application

Full Retention Separators are used in high risk spillage areas such as:

- Fuel distribution depots
- Vehicle workshops
- Scrap Yards

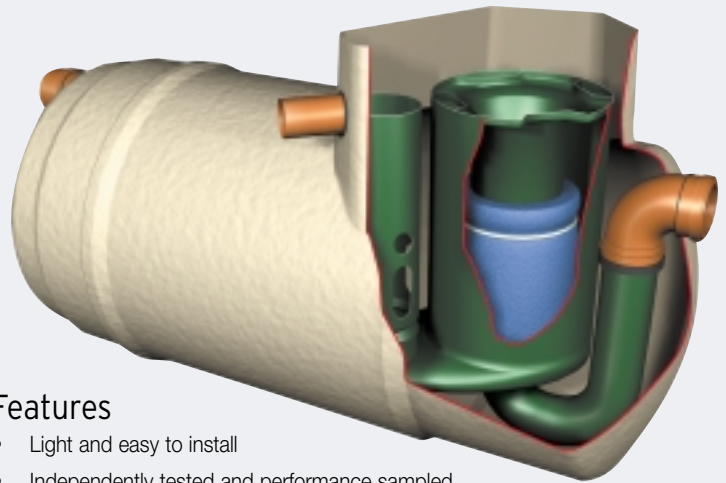
Performance

Klargester are the first UK manufacturer to have the required range certified to NS in the UK. The NS code denotes the flow at which the separator operates and is only able to be applied to products which have been independently tested and certified. The British Standards Institute (BSI) have tested the required range of Klargester separators and have certified their performance in relation to their flow and process performance.

Each Full Retention Separator design includes the necessary volume requirements for:

- Oil separation capacity
- Oil storage volume
- Silt storage capacity
- Coalescer (Class I units only)
- Automatic closure device

Klargester Full Retention Separators treat the whole of the specified flow.



Features

- Light and easy to install
- Independently tested and performance sampled, certified by the BSI
- Class I and Class II designs
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level

To specify a nominal size Full Retention Separator, the following information is needed:-

- The calculated flow rate (NS) or the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator
- The required discharge standard. This will decide whether a Class I or Class II unit is required
- The drain invert inlet depth
- Oil alarm system available
- Pipework type, size and orientation

Sizes & Specifications:

Unit Nominal Size	Flow (l/s)	Drainage Area (m ²) PPG-3 (0.018)	Silt Storage Capacity Litres	Oil Storage Capacity Litres	Length	Unit Dia.	Access Shaft Dimensions	Base to Inlet	Base to Outlet Invert	Min. Inlet Invert	Standard Pipework Diameter
NS3	3	170	300	30	1760	1225	600 x 900	1050	1000	500	200
NS6	6	335	600	60	1760	1225	600 x 900	1050	1000	500	200
NS10	10	555	1000	100	2610	1225	600 x 900	1050	1000	500	200
NS15	15	835	1500	150	3910	1225	600 x 900	1050	1000	500	200
NS20	20	1115	2000	200	3200	2010	600	1850	1800	1000	200
NS30	30	1670	3000	300	3915	2010	600	1850	1800	1000	315
NS40	40	2225	4000	400	4360	2010	600	1850	1800	1000	315
NS50	50	2780	5000	500	5425	2010	600	1810	1760	1000	315
NS65	65	3610	6500	650	6850	2010	600	1810	1760	1000	315
NS80	80	4445	8000	800	5700	2820	600	2500	2450	1000	315
NS100	100	5560	10000	1000	6200	2820	600	2500	2450	1000	315
NS125	125	6945	12500	1250	7365	2820	600	2500	2450	1000	450
NS150	150	8335	15000	1500	8675	2820	600	2550	2450	1000	450
NS175	175	9725	17500	1750	9975	2820	600	2550	2450	1000	450
NS200	200	11110	20000	2000	11280	2820	600	2550	2450	1000	450

Wash Down & Silt Separator Range

Application

This unit can be used in areas such as car wash and other cleaning facilities that discharge directly into a foul drain, which feeds to a municipal treatment facility.

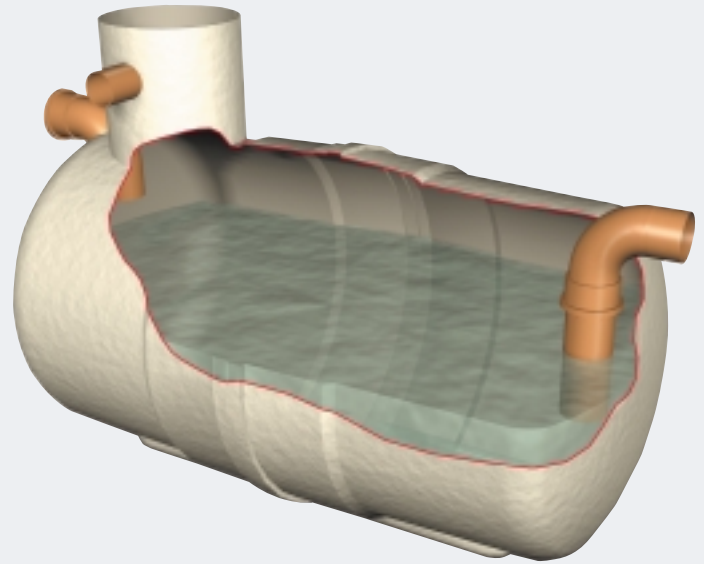
If emulsifiers are present the discharge must not be allowed to enter a NS Class I or Class II unit.

- Car wash
- Tool hire depots
- Truck cleansing
- Construction compounds cleansing points

Performance

Separators serving wash down areas such as car wash and other cleansing facilities must discharge directly into a foul drain, which feeds to a municipal treatment facility.

Such wash down facilities must not be allowed to discharge directly into either surface water or any oil/water separator discharging into a surface water as they utilise emulsifiers, soaps and detergents, which can dissolve and disperse the oils and affect the separation process.



Features

- Light and easy to install
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level

Sizes & Specifications:

Ref.	Total Capacity (Litres)	Max. Rec. Silt	Max. Flow Rate (l/s)	Length	Diameter	Access Shaft Dia.	Base to Inlet Invert	Base to Outlet Invert	Standard Fall Across Unit	Min. Inlet Invert	Standard Pipework Diameter	Approx Empty (Kg.)
W1/012	1200	600	3	1310	1225	460	1150	1100	50	500	160	60
W1/020	2000	1000	5	2210	1225	460	1150	1100	50	500	160	120
W1/030	3000	1500	8	3060	1225	460	1150	1100	50	500	160	150
W1/040	4000	2000	11	3910	1225	460	1150	1100	50	500	160	180
W1/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200

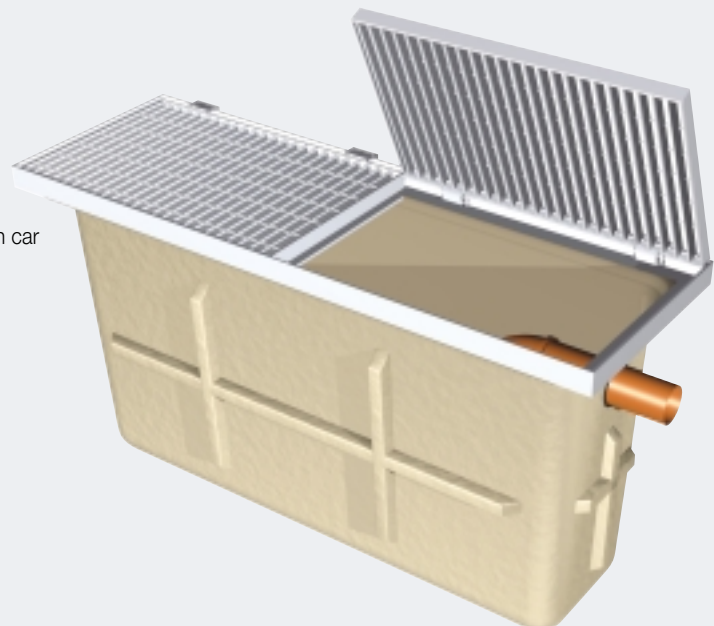
Car Wash Silt Trap

Application

Car Wash silt trap is designed for use before a separator in car wash applications to ensure effective silt removal.

Features

- Galvanised heavy duty cover
- Light and easy to install
- Maintenance from ground level



Forecourt Separator Range

Application

The forecourt separator is designed for installation in petrol filling station forecourts and similar applications. The function of the separator is to intercept hydrocarbon pollutants such as petroleum and oil and prevent their entry to the drainage system, thus protecting the environment against hydrocarbon contaminated surface water run-off and gross spillage.

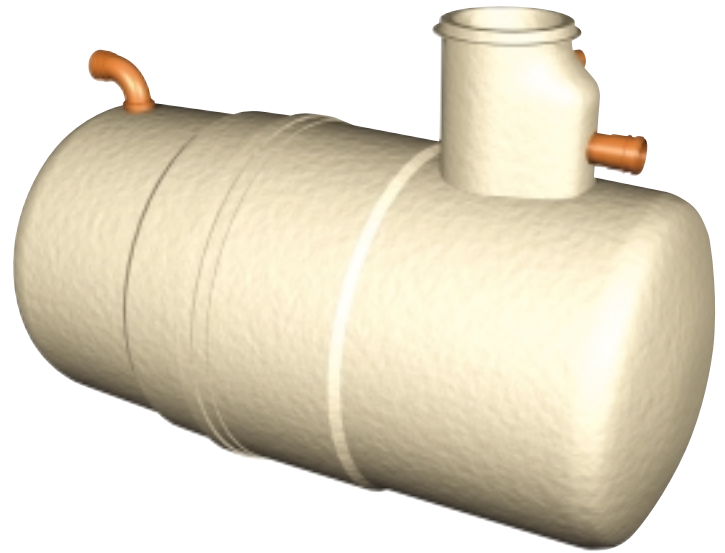
Performance

Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.

In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt. The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, subsequently the separator should be emptied immediately.

Features

- Light and easy to install
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level
- Class I and Class II design



- Oil storage volume
- Coalescer (Class I unit only)
- Automatic closure device
- Oil alarm system available

Installation

The unit should be installed on a suitable concrete base slab and surrounded with a concrete backfill. Structural grade units can also be supplied suitable for installation within a granular backfill (i.e. pea gravel). Please specify unit required when ordering.

If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.

The separator should be installed and vented in accordance with Health and Safety Guidance Note HS(G)41 for filling stations, subject to Local Authority requirements.

Sizes & Specifications:

Enviroceptor Class	Backfill Type	Total Cap. (L)	Drainage Area (M ²)	Max. Flow Rate (l/s)	Length	Diameter	Access Shaft Dia.	Base to Inlet Invert	Base to Outlet Invert	Std. Fall Across Unit	Min. Inlet Invert	Std. Pipe-work	Empty Weight (Kg.)
I	Concrete	10000	720	15	3915	2020	600	2180	2130	50	600	160	620
II	Concrete	10000	720	15	3915	2020	600	2180	2130	50	600	160	620

Alarm Systems

European Standard BSEN858 requires that all separators are to be fitted with an oil level alarm system. Environment Agency Pollution Prevention Guideline PPG3 recommends that an oil level alarm system should be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

Klargester offer a range of alarms for both new and retrofit situations.

Klargester Off-Mains Solutions

- BioDisc® Sewage Treatment Plants
- AirFlow Sewage Treatment Plants
- Sigma SuperSeptic
- HillMaster Package Pump Systems
- Septic Tanks
- Cesspools
- Grease Traps
- Oil/Water Separators
- Silage Effluent Tanks
- Reed Beds
- Rainwater Harvesting



Certified Installers

Strategically located throughout the UK, Klargester Certified Installers are appointed following rigorous selection procedures which assess their installation expertise, reputation and financial status.

These performance criteria, together with their design skills and knowledge of Klargester products are also reviewed on an annual basis to ensure that the highest levels of professionalism are maintained.

Klargester Service

Klargester have a dedicated service division providing maintenance for waste water treatment products. Factory trained engineers are available for site visits as part of a planned maintenance contact or on an 'on-call' basis.

Unique Customer Care

Klargester offers a unique and comprehensive care package both before and after supply. Throughout the UK, our team of service engineers is always on hand to ensure that Klargester products provide their owners with a long and cost-effective life. Call our Customer Care Department for further information.

In keeping with Company policy of continuing research and development and in order to offer our clients the most advanced products, Klargester reserves the right to alter specifications and drawings without prior notice.



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