SECTION

3

SPEL Fuel/Oil/Silt Separators
also SPEL Grease Separators

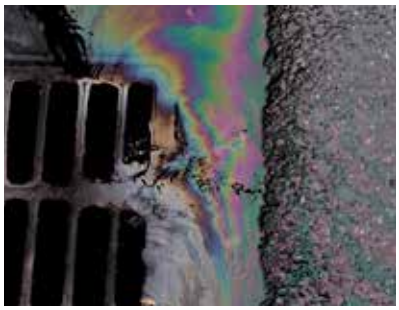
*For **SuDS Treatment Devices - SPEL ESR™ Separators** see **Section 1, SuDS**.*

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3.2	Technical Information
3.3	How to Select and Specify
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SPEL Oil & Grease

Overview

Oil has long been acknowledged as one of the great polluters of both soil and water alike and capturing these spills is still is the forefront of any good drainage design.



Spillages of oil and fuel from industrial sites, filling stations and leaks from cars, trucks, trains and planes, have a cumulative effect that can damage the environment in devastating ways. Highway surface runoff discharge contains pollutants that have accumulated on the carriageway, and if unchecked, will end up in the natural environment. The SPEL Stormceptor® Class 1 By-Pass Separator is designed to treat flows from large catchments such as motorways and airport hard standing, making it ideal for these types of applications. See page 3.4 for more detail.



Petrol station forecourts and indeed any fuel handling facility rank amongst the highest risk environments for oil spills and these need to be protected by a special Forecourt Separator as a minimum. Note: drainage design for these facilities should also reference APEA's Blue Book guidance. The range of SPEL Forecourt Separators covers fuel handling facilities from a small petrol station through to major fuel handling facilities. See Page 3.14 for more detail.



Other high risk industries include sub station transformers, major ports, and any industry handling hydrocarbon-based fluids. Oil spills in any of these sectors can cause catastrophic impact on our environment and it is the responsibility of owner/operators to ensure the correct protection is in place, the law is simple - **'THE POLLUTER PAYS'**. Modern transformers can hold up to 80 tonnes of cooling oil which presents a serious risk in the event of a leak. SPEL's constant development has resulted in a range of specially designed separators for both mineral and synthetic transformer oils with single chamber, two chamber, and National Grid specification systems available. See Page 3.16 for more detail.



Where there is a risk of a water soluble pollutant or the discharge is to a foul sewer, it is possible to install a Class 2 Separator, this applies particularly to any wash down facility where detergents, degreasers or other chemicals are used in the washing process. In some cases, a Class 1 separator may be required, even when discharging to the foul, please check with the relevant authority and/or water company. In most vehicle wash sites, a pre-treatment silt trap is recommended. See Page 3.25 for more detail.



A major challenge for today's sewers is the build up of fat and grease, this is known as FOG (Fat, Oil & Grease), and is the cause of blockages and contamination of the sewer infrastructure. As a result, all food processing facilities are required to treat water prior to discharge with a suitable grease separator that is regularly maintained. SPEL manufactures a comprehensive range of grease trap separators designed for **easy maintenance** and **low running costs.** See Page 3.27 for more detail.

Technical Information

Testing and Independent Accreditation

The highly successful SPEL fuel/oil Separators are depended on across the globe. They are the result of **extensive testing** by **H R Wallingford**, the hydraulics research testing station, for hydrocarbon removal performance against the stringent British/European Standard BS EN 858 -1. The tests required the hydrocarbons introduced into the separator at 5ml/litre to be reduced to a maximum of 5mg/litre in the outlet.

H R Wallingford started testing SPEL Separators in 1999 and the SPEL Stormceptor® class 1 by-pass separator was **the first to achieve accreditation under the standard in the UK.**

The current British Standard is the succession to the well respected Environment Agency document, PPG3.

Hydrocarbon removal performance

All models performed well within the European Standard with an average of **0.64mg/l**.

Since then, the SPEL Stormceptor® Class 1 by-pass and the Puraceptor® Class 1 full retention Separators have advanced in performance and construction as a result of technological advances in design and manufacture. The 'heart' of the SPEL Separators is the unique long life, low maintenance coalescer unit/s which 'polishes' the final effluent after 90% hydrocarbon and silt have been separated out.

Coalescer units comprise a stainless steel basket with a robust and efficient high volume reticulated foam insert. The coalescing process brings the smaller globules of oil into larger and more buoyant forms to separate by gravity. The high volume foam safeguards against blockages and **ensures a long life between servicing.**

The coalescer inserts are easy to clean and simple to replace but rarely require replacing. The unique 'insert' format ensures that **this unit can be extracted complete every time,** compared to other systems where 'wrap around' style units allow the foam to slip off, requiring confined space entry to retrieve.

'Companies who pollute the environment can be hit with unlimited financial penalties from the Environment Agency from today (11 December 2023).' *gov.uk, 'Unlimited penalties introduced for those who pollute environment' (11 December 2023)*



P600 SPEL Puracaeptor Class 1 Full Retention Separator supplied to Co-op, Biggleswade

How to Select and Specify SPEL Oil Separators

Selecting the appropriate type of SPEL Separator

Follow these steps to specify your requirements

Step 1
Determine the type of separator – full retention or by-pass – Class 1 or Class 2 see chart below.

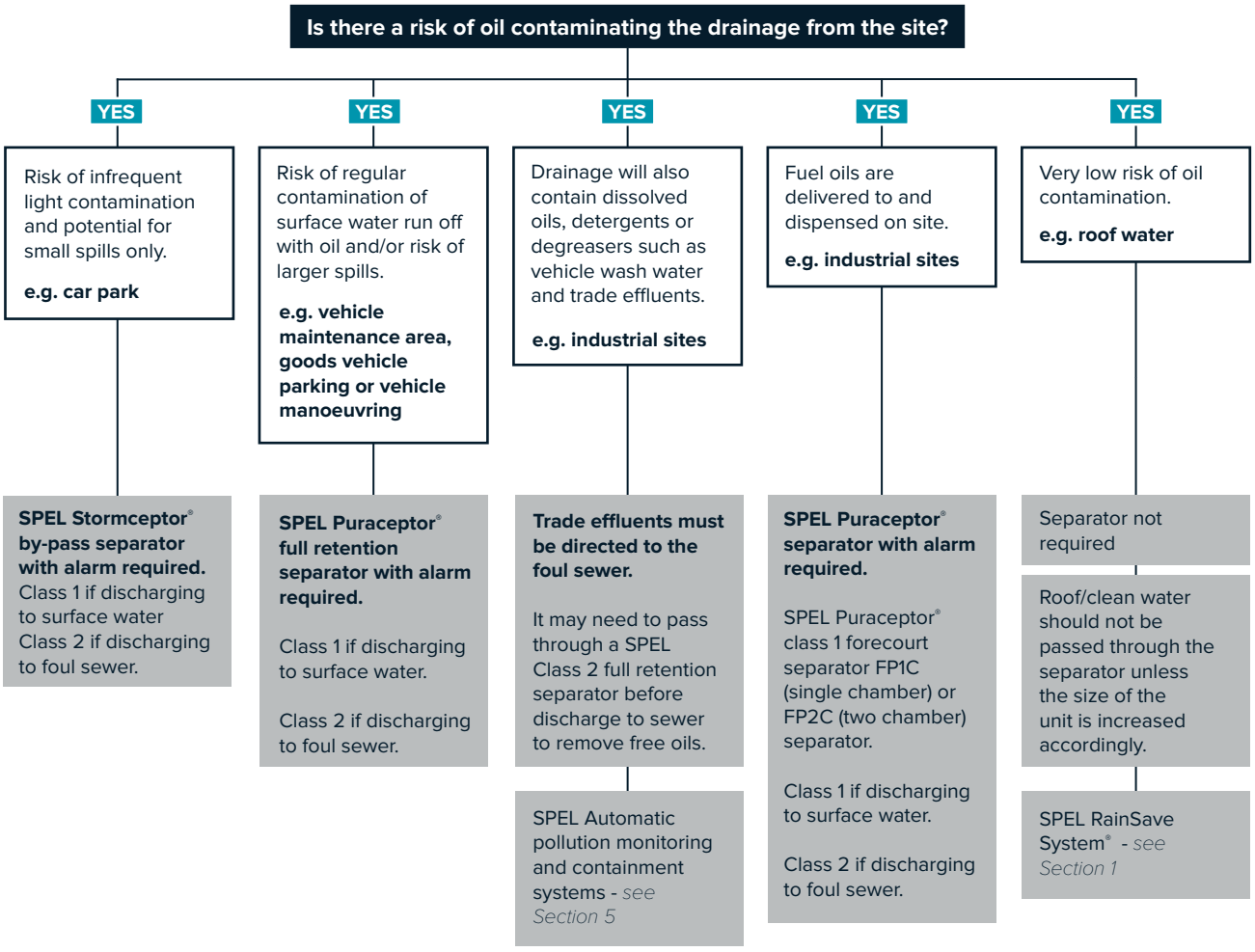
Step 2
Size the unit to the contributing catchment area. This is the SPEL Separator Nominal Size (NS/NSB).

Step 3
Specify whether silt capacity is required integrally or via alternative upstream of the system. SPEL models with integral silt capacities have the 'SC' suffix to model numbers.

Step 4
Cross check the peak flow rate including 'climate change' requirements – e.g. return storm frequency and percentage for climate change.

This flow chart is to aid selection of the most suitable and appropriate type of SPEL Separator for use in surface water drainage systems that discharge to surface water bodies such as rivers and soakaways. However, the appropriate provision on any site will require detailed consideration of the local circumstance and risk factors including:

- The discharge point of your proposed separator.
- The environmental sensitivity of your location.
- Activities on your site.
- Spill control (see APEA Blue Book).



SPEL Stormceptor®

Class 1 Bypass Separators

Overview

SPEL Stormceptors® are the most widely used separators where it is acceptable to treat the first flush and flows up to 6.5mm/hr rainfall. This covers approximately 94% of all rainfall events in the UK. Any excess rainfall is by-passed internally without treatment.

Class 1 By Pass Separators are designed to achieve a discharge concentration of less than 5mg/l of oil under standard test conditions, and should be used when the separator is required to remove small amounts of oil, such as those arising from car park run-off.

These are used when it is considered an acceptable risk not to provide full treatment for storm flows, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small. They are especially suitable for low risk sites with large catchment areas.

Product Range

100 Series
(1.3m internal diameter):
NSB 3
Catchment area: 1,667m²

200 Series
(1.2m internal diameter):
NSB 4 - NSB 15
Catchment area: 2,222m² - 8,333m²

300 Series
(1.8m internal diameter):
NSB 20 - NSB 50
Catchment area: 11,111m² - 27,778m²

400 Series
(2.6m internal diameter):
NSB 60 - NSB 160
Catchment area: 33,333m² - 88,889m²

500 Series
(3.5m internal diameter):
NSB 180 - NSB 250
Catchment area: 100,000m² - 139,000m²

600 Series
(4m internal diameter):
NSB 300 - NSB 800
Catchment area: 167,000m² - 444,000m²

25 YEAR TANK SHELL WARRANTY

50 YEAR TANK SHELL LIFE EXPECTANCY

SPELGuard SERVICING & COMMISSIONING

BS EN 858 CERTIFIED

Applications

Car parks larger than 800m² or with 50+ car parking spaces

Smaller car parks discharging to sensitive environments

Roads

Light industrial

Airport taxiways

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

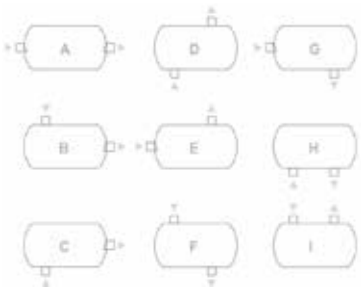
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/ spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available. For connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

SPEL Stormceptor® Class 1 By Pass Separators

Introduction

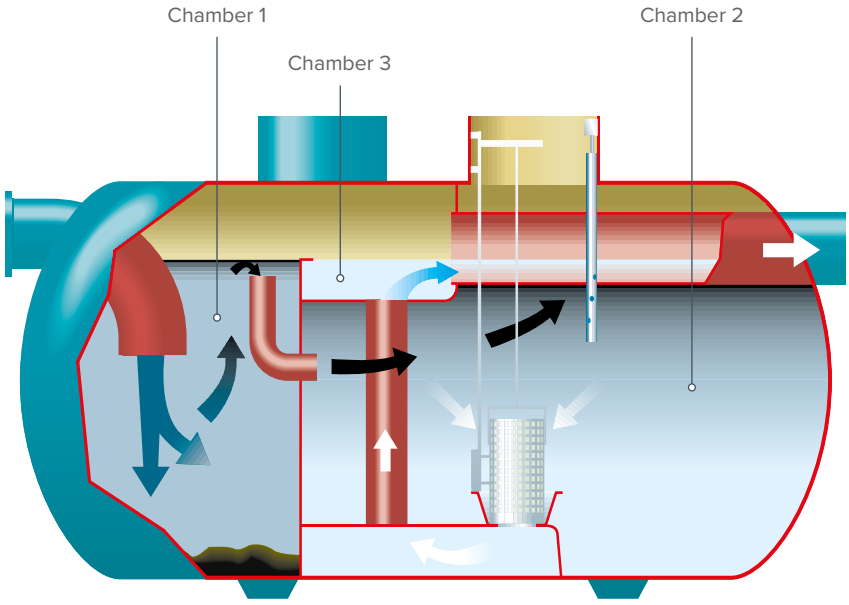
SPEL Stormceptor® is a well proven, high quality system, specially designed and fabricated to provide a very effective means of separating oil/light liquids and silt in stormwater drainage systems, it was also **the first Environment Agency listed class 1 by-pass separator.** The SPEL Stormceptor® 'SC' models are also designed to capture **high volumes of silt.**

The SPEL Stormceptor® is fully certified to BS EN 858 and has been used effectively throughout the UK, Europe and other parts of the world. All SPEL systems are off-site built and have the SPEL 25 Year Warranty.

NSB/Treated Flow Path

The polluted surface water first enters the primary chamber (chamber 1) where silt settles out and is retained. The fuel, oil and other pollutants lighter than water, rise to the surface and are efficiently skimmed off and transferred to the separation chamber (chamber 2).

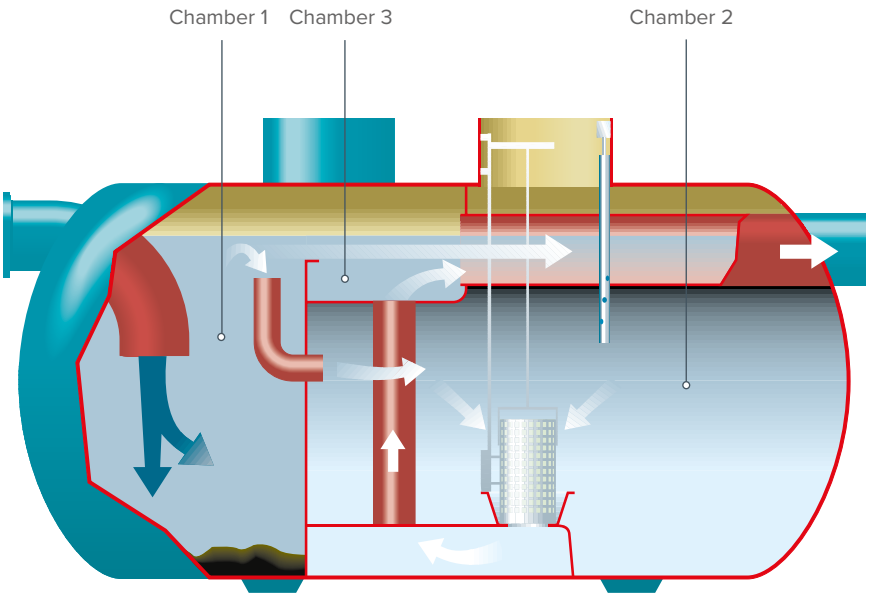
In normal conditions all the flow passes through the separation chamber, where the quiescent conditions allow the pollutants to separate out efficiently. Water from the cleanest zone in the separation chamber flows through a coalescer unit, to remove smaller globules of oil, up to the outlet chamber (chamber 3) and thence to the outlet pipe.



Storm/Peak Flow Path

During a storm the level in the primary chamber rises and the stormwater passes over the weir into the outlet chamber and to the outlet pipe.

The design keeps the turbulence within the separation chamber to a minimum which avoids disturbing the contaminants retained.



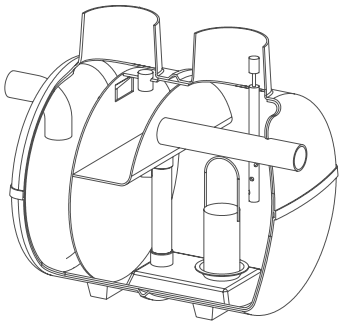
SPEL Stormceptor® By Pass Separators

100 Series (1.3m ø) and 200 Series (1.2m ø), Class 1

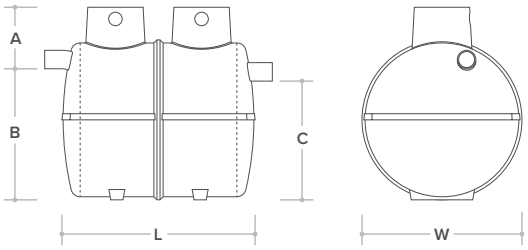
Compliant to the European Standard BS EN 858-1

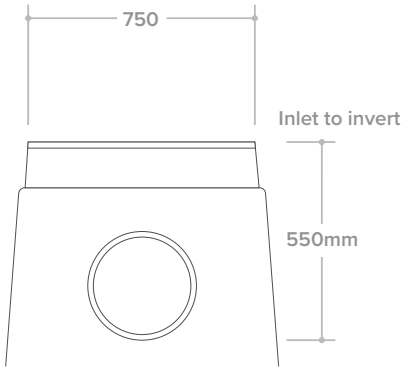
Model	Treated Flow (l/s)	Max. Flow (l/s)	Catchment Area (m^2)	Length (mm)	Internal Diameter (mm)	Oil storage (litres)	Silt storage (litres)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet	Optimum in/out pipe diameter (mm) for orientation*	Number of access shafts Diameter (mm)	
	NSB			L	W	NSB x 15	NSB x 100	A	B	C		450	750*
103 C1/SC	3	30	**1,667**	1,550	1,300	45	300	500	1,015	965	160	2	-
204 C1/SC	4	40	**2,222**	1,870	1,200	60	400	550	1,350	1,300	300	-	1
206 C1/SC	6	60	**3,333**	2,120	1,200	90	600	550	1,350	1,300	300	-	1
208 C1/SC	8	80	**4,444**	2,270	1,200	120	800	550	1,350	1,300	300	-	1
210 C1/SC	10	100	**5,556**	2,930	1,200	150	1,000	550	1,350	1,300	300	-	1
212 C1/SC	12	120	**6,667**	3,570	1,200	180	1,200	560	1,350	1,300	300	-	1
215 C1/SC	15	150	**8,333**	4,240	1,200	225	1,500	560	1,350	1,300	300	-	1

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

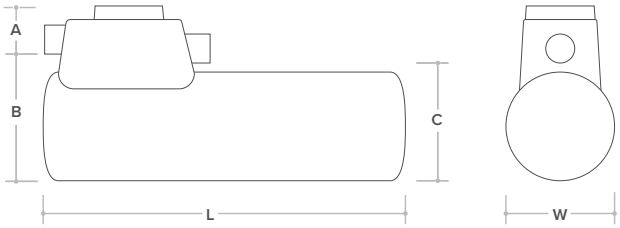


100 Series





200 Series



SPEL Stormceptor® By Pass Separators

300 Series (1.8m ø) and 400 Series (2.6m ø) Class 1

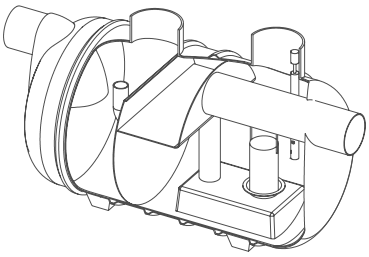
Compliant to the European Standard BS EN 858-1

Model	Nominal Size (NSB)	Peak Flow (l/s)	Catchment Area (m²)	Oil storage (litres)	Silt storage (litres)	Length (mm)	Internal Diameter (mm)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet	Optimum in/out pipe diameter (mm) for orientation*	Number of access shafts A-C** Diameter (mm)			
	Flow (l/s)			NSB x 15	NSB x 100	L	W	A	B	C		450	600	750	900
320 C1/SC	20	200	**11,111**	300	2,000	3,200	1,800	700	1,450	1,350	450	-	2	-	-
325 C1/SC	25	250	**13,889**	375	2,500	3,540	1,800	700	1,450	1,350	450	-	2	-	-
330 C1/SC	30	300	**16,667**	450	3,000	4,420	1,800	700	1,450	1,350	450	-	-	1	1
340 C1/SC	40	400	**22,222**	600	4,000	5,760	1,800	740	1,410	1,310	450	-	1	1	-
345 C1/SC	45	450	**25,000**	675	4,500	6,570	1,800	740	1,410	1,310	450	-	1	1	-
350 C1/SC	50	500	**27,778**	750	5,000	7,060	1,800	740	1,410	1,310	450	-	1	1	-

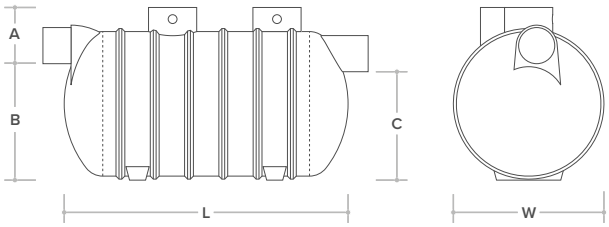
300 Series - models without silt capacity are available if required - details on application

**SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

***D-I configurations available upon request.*



300 Series

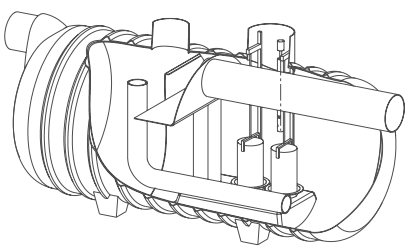


Model	Nominal Size (NSB)	Peak Flow (l/s)	Catchment Area (m²)	Oil storage (litres)	Silt storage (litres)	Length (mm)	Diameter (mm)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet	Optimum in/out pipe diameter (mm) for orientation*	Number of access shafts A-C** Diameter (mm)			
	Flow (l/s)			NSB x 15	NSB x 100	L	W	A	B	C		450	600	750	900
460 C1/SC	60	600	**33,333**	900	6,000	4,400	2,600	950	2,100	2,000	600	-	-	1	1
470 C1/SC	70	700	**38,889**	1,050	7,000	5,250	2,600	950	2,100	2,000	600	-	-	1	1
480 C1/SC	80	800	**44,444**	1,200	8,000	6,170	2,600	950	2,100	2,000	600	-	-	1	1
4100 C1/SC	100	1,000	**55,556**	1,500	10,000	7,400	2,600	1,100	1,950	1,850	750	-	-	1	1
4125 C1/SC	125	1,250	**69,444**	1,875	12,500	9,050	2,600	1,100	1,950	1,850	750	-	-	1	1
4150 C1/SC	150	1,500	**83,333**	2,250	15,000	9,950	2,600	1,100	1,950	1,850	750	-	-	-	2
4160 C1/SC	160	1,600	**88,889**	2,400	16,000	11,830	2,600	1,250	1,800	1,700	750	-	-	1	2

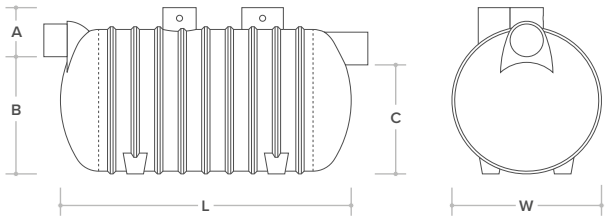
400 Series - models without silt capacity are available if required - details on application.

**SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

***D-I configurations available upon request.*



400 Series



SPEL Stormceptor® By Pass Separators

500 Series (3.5m ø) and 600 Series (4.0m ø) Class 1

Compliant to the European Standard BS EN 858-1

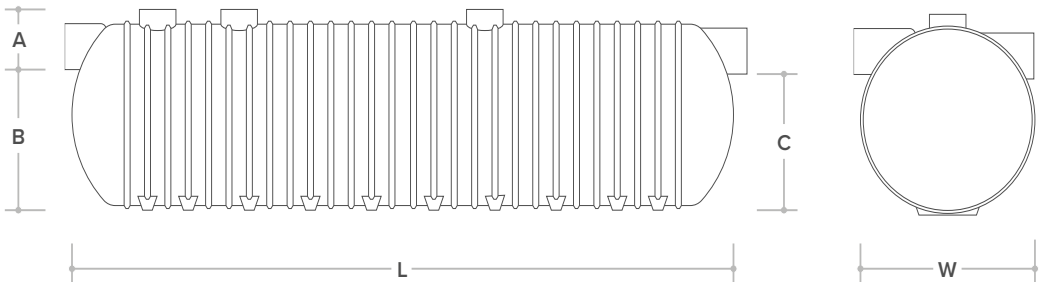
These Stormceptors® are individually designed to meet specific site requirements according to catchment area, class, silt capacity, inlet/outlet connection size and orientation. Please contact our technical department for your specific requirements.

Model	Nominal Size (NSB)	Peak Flow (l/s)	Catchment Area (Hectares)	Oil storage (litres)	Silt storage (litres)	Length (mm)	Internal Diameter (mm)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet	Optimum in/out pipe diameter (mm) for orientation*	Number of access shafts A-C** Diameter (mm)			
	Flow (l/s)			NSB x 15	NSB x 100	L	W	A	B	C		450	600	750	900
5180 C1/SC	180	1,800	**10**	2,700	18000	7,470	3,500	1,185	2,690	2,550	900	-	-	1	2
5200 C1/SC	200	2,000	**11.1**	3,000	20000	8,530	3,500	1,185	2,425	2,325	1,200	-	1	1	2
5250 C1/SC	250	2,500	**13.9**	3,750	25000	10,040	3,500	1,185	2,425	2,325	1,200	-	2	1	2
6300 C1/SC	300	3,000	**16.7**	4,500	30000	10,310	4,000	1,325	2,850	2,675	1,200	-	-	2	2
6350 C1/SC	350	3,500	**19.4**	5,250	35000	11,470	4,000	1,325	2,850	2,675	1,200	-	-	2	3
6400 C1/SC	400	4,000	**22.2**	6,000	40000	12,690	4,000	1,325	2,850	2,675	1,200	-	-	2	3
6500 C1/SC	500	5,000	**27.8**	7,500	50000	15,870	4,000	1,325	2,850	2,675	1,200	-	-	2	4
6600 C1/SC	600	6,000	**33.3**	9,000	60000	18,260	4,000	1,325	2,850	2,675	1,200	-	2	1	4
6700 C1/SC	700	7,000	**38.9**	10,500	70000	22,250	4,000	1,325	2,850	2,675	1,200	-	-	2	5
6500 C1	500	5,000	**27.8**	7,500	Nil	11,910	4,000	1,325	2,850	2,675	1,200	-	1	-	5
6600 C1	600	6,000	**33.3**	9,000	Nil	13,510	4,000	1,325	2,850	2,675	1,200	-	1	-	5
6700 C1	700	7,000	**38.9**	10,500	Nil	16,650	4,000	1,325	2,850	2,675	1,200	-	1	-	6
6800 C1	800	8,000	**44.4**	12,000	Nil	19,890	4,000	1,325	2,850	2,675	1,200	-	-	-	7

Please note that C1 models do not have the full silt storage capacity as recommended in BS EN 858. Alternative silt capacity needs to be designed into the network upstream of the separator. This could include a silt capture tank.

**SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

***D-I configurations available upon request.*



SPEL Puraceptor®

Class 1 Full Retention Separators

Overview

SPEL Puraceptor® oil separators treat 100% of the flow and have been designed and tested to meet the stringent British/European Standard BS EN 858-1. For peace of mind, install SPEL Puraceptors in high risk areas where the maximum hydrocarbon concentration in the outlet must not exceed 5mg/l.

All SPEL Puraceptors (Full Retention Separators) are fitted with a special automatic closure device (ACD) which shuts the separator down when the contained oil exceeds the maximum oil spill capacity.

The 'heart' of SPEL Separators is the unique long life, low maintenance coalescer unit which 'polishes' the final effluent after 90% of hydrocarbons and silt have been separated out.

Product Range

Series 200
(1.2m inside diameter):
NS 4 - NS 10
Catchment area: 222m² - 556m²

Series 300
(1.8m inside diameter):
NS 15 - NS 50
Catchment area: 833m² - 2,778m²

Series 400
(2.6m inside diameter):
NS 65 - NS 280
Catchment area: 3,611m² - 15,555m²

Series 500
(3.5m inside diameter):
NS 300 - NS 500
Catchment area: 16,665m² - 27,775m²

Series 600
(4m inside diameter):
NS 500 - NS 1,000
Catchment area: 27,775m² - 55,550m²

Note: NS 1,000 unit does not have silt capacity



Applications

Fuel storage/handling areas

Refuelling facilities

Vehicle maintenance yards

Heavy industrial areas

Distribution centres

Power/sub stations

Fire training grounds

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

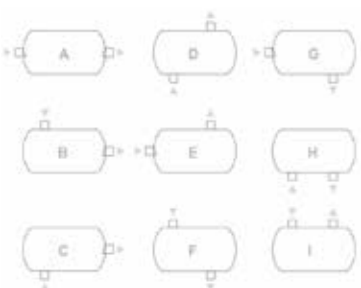
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels.

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available, for connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.

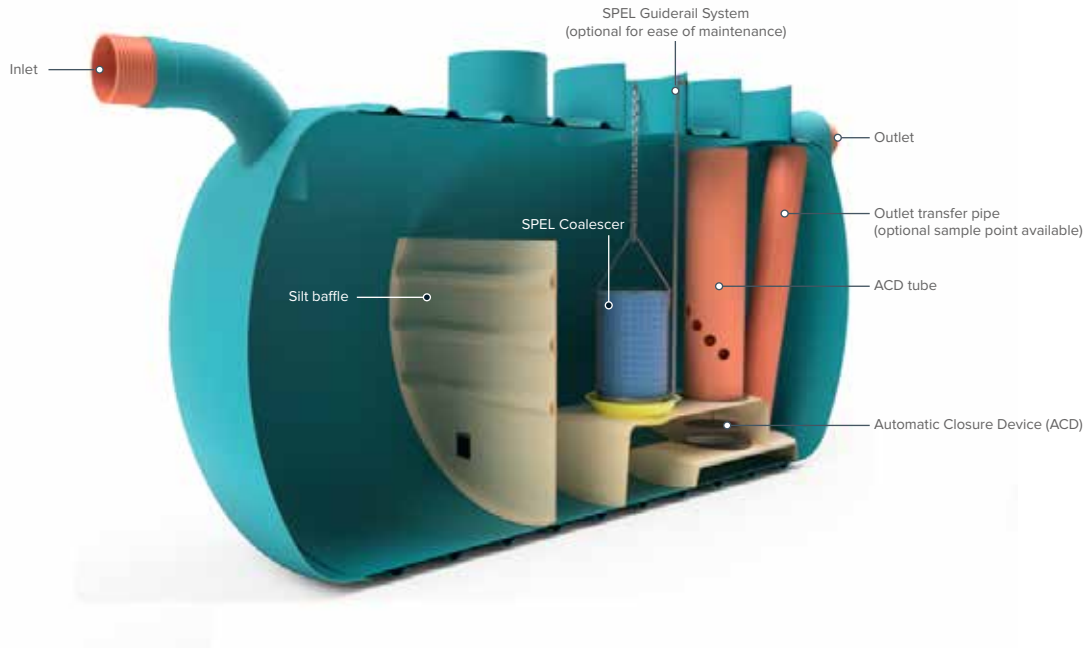


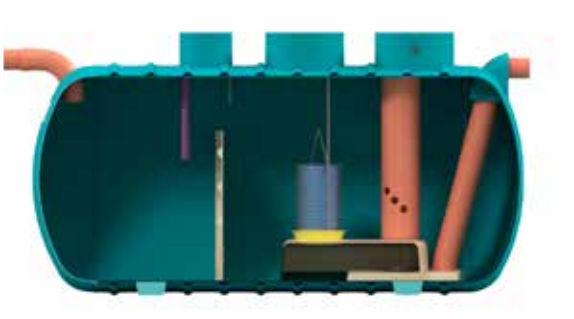
This graphic shows indicative locations only. For accurate location, please contact our technical team.

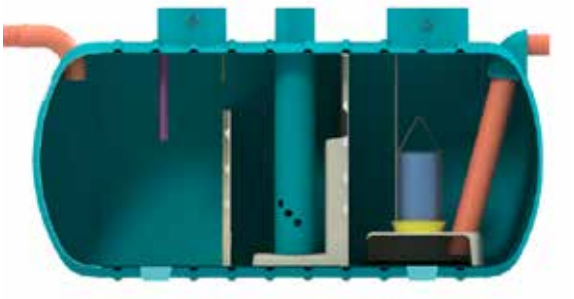
SPEL Puraceptor® Class 1 Single & Two Chamber Separators

Introduction

The SPEL Puraceptor® is a full retention model treating all the flow from the connected catchment area, it is available in two versions, single or two chamber, dependent upon the site application and requirements. See specification detail below. This system benefits from **BS EN 858 testing conducted by HR Wallingford** and the inclusion of the unique SPEL coalescer, ensuring the **highest performance and simple maintenance.**







Class 1 Single Chamber Separator

Operation:

Flow enters the chamber from the inlet pipe, and the separation process begins as the flow moves towards the coalescer. Oil rises to the surface, silt settles out and the cleanest water then enters the coalescer which polishes the flow to a higher level prior to discharge.

The SPEL Puraceptor® benefits from the unique SPEL coalescer which is the heart of all SPEL separation systems. The foam insert is located in a stainless steel basket and delivers high quality water, long life, and ease of maintenance.

The other key component is the fail safe Automatic Closure Device (ACD) which will shut the system down in the event of a catastrophic oil spill.

Class 1 Two Chamber Separator

Operation:

The SPEL Two Chamber Separator is the result of long development with National Grid and has resulted in a system that can substantially reduce maintenance costs.

The Two Chamber unit has all the benefits of the Class 1 Puraceptor® but the addition of a strategically located full height baffle wall protects the unique coalescer from the bulk of the silt load.

The coalescer is mounted in the second chamber (clean zone) where it is more effective as well as being protected. The result is that it will not clog as quickly and this can equate to longer periods between maintenance.

SPEL Automatic Closure Device (ACD)

Overview

The purpose of the Automatic Closure Device (ACD) is to close the separator off automatically when the maximum capacity of light liquid/oil is reached.

The ACD ensures that in the event of a major spillage, pollutants do not pass into the drainage system; it should not be regarded as a substitute for an automatic alarm/monitoring system. The oil alarm and ACD are both required to comply with BS EN 858.

If the tank should fill with light liquid/oil the ACD, which is calibrated for a specific gravity of 0.85, will automatically sink and close off the SPEL Puraceptor®.

Normally routine maintenance would include removing light liquid intercepted within the Puraceptor®. If a SPEL automatic alarm/monitoring system is incorporated, it will automatically indicate when the Puraceptor® should be emptied. Only in an emergency will the Puraceptor® fill to its maximum and activate the ACD.

In such an event the Puraceptor® should be completely sucked out/emptied and the ACD lifted out.

Prior to installation

Prior to installation the ACD retaining tube should be covered with polythene to prevent ingress of concrete etc., which would fall onto the ACD and cause a malfunction.

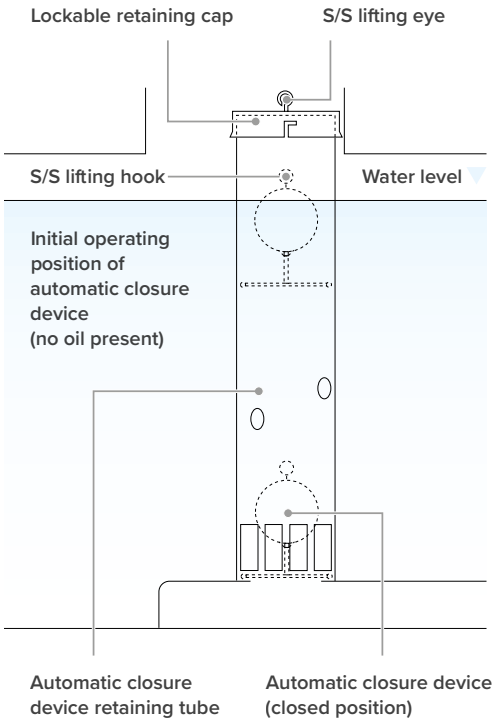
Maintenance

Dependent upon site conditions it is advisable to remove the ACD periodically taking care not to raise it too quickly and damage the plastic/copper float. Clean it from debris/silt to prevent premature closing. Check the seating in the base unit is free of debris/silt that could prevent proper closing in an emergency.

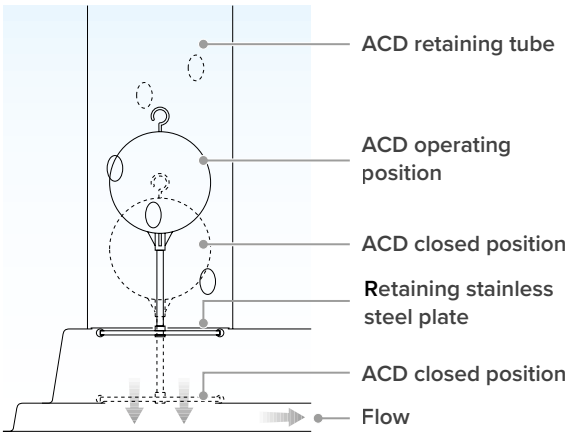
For Installation/Commissioning get in touch with our team: engineers@spelproducts.co.uk

'Companies who pollute the environment can be hit with unlimited financial penalties from the Environment Agency from today (11 December 2023).' *gov.uk, 'Unlimited penalties introduced for those who pollute environment' (11 December 2023)*

Automatic closure device **Type F** (Floating)
SPEL Puraceptor® class 1 separators
(two chamber) & full retention class 2 separators.



Automatic closure device **Type R** (Retained)
SPEL Puraceptor® class 1 separator
(single chamber).



SPEL Puraceptor® Class 1 Full Retention Separators

Single Chamber

Model	Series	Treated Flow (l/s)	Catchment Area (m²)	Oil Storage (litres)	Silt Capacity (litres)	Overall Length* (mm)	Overall Diameter (mm)	Inlet Invert (mm)	Base to Inlet (mm)	Base to Outlet (mm)	Optimum In/Out Pipe Diameter** (mm)	Number of Access Shafts (dia. mm)				
		NS		NS x 10	NS x 100	L		A	B	C		450	600	750	900	1200
P004 1C/SC	200	4	**222**	40	400	1,720	1,225	630	1,110	1,050	160	-	-	1	-	-
P006 1C/SC	200	6	**333**	60	600	2,310	1,225	630	1,110	1,050	160	-	-	1	-	-
P010 1C/SC	200	10	**556**	100	1,000	3,410	1,225	630	1,110	1,050	160	-	-	1	-	-
P015 1C/SC	300	15	**833**	150	1,500	3,200	1,875	350	1,800	1,740	225	1	-	1	-	-
P020 1C/SC	300	20	**1,111**	200	2,000	3,540	1,875	350	1,800	1,740	225	-	1	1	-	-
FP 1C/SC	300	20	**1,111**	200	2,000	4,290	1,875	350	1,800	1,740	225	-	-	1	-	-
P030 1C/SC	300	30	**1,667**	300	3,000	4,420	1,875	390	1,760	1,700	300	-	1	-	1	-
P040 1C/SC	300	40	**2,222**	400	4,000	5,760	1,875	390	1,760	1,700	300	-	1	-	1	-
P050 1C/SC	300	50	**2,778**	500	5,000	7,060	1,875	390	1,760	1,700	300	-	1	-	1	-
P065 1C/SC	400	65	**3,611**	650	6,500	4,860	2,700	425	2,625	2,525	300	-	1	-	2	-
P080 1C/SC	400	80	**4,444**	800	8,000	5,700	2,700	425	2,625	2,525	300	-	1	-	2	-
P100 1C/SC	400	100	**5,555**	1,000	10,000	7,400	2,700	475	2,575	2,475	450	-	1	-	2	-
P125 1C/SC	400	125	**6,944**	1,250	12,500	8,580	2,700	475	2,575	2,475	450	-	-	1	2	-
P150 1C/SC	400	150	**8,333**	1,500	15,000	10,180	2,700	475	2,575	2,475	450	-	-	1	2	-
P165 1C/SC	400	165	**9,166**	1,650	16,500	11,200	2,700	500	2,550	2,450	450	-	2	1	1	-
P200 1C/SC	400	200	**11,110**	2,000	20,000	13,710	2,700	660	2,390	2,290	600	-	2	1	1	-
P250 1C/SC	400	250	**13,888**	2,500	25,000	16,750	2,700	660	2,390	2,290	600	-	2	1	2	-
P280 1C/SC	400	280	**15,555**	2,800	28,000	18,800	2,700	660	2,390	2,290	600	-	1	2	2	-
P300 1C/SC	500	300	**16,665**	3,000	30,000	12,410	3,650	805	3,070	2,970	750	-	1	2	2	-
P400 1C/SC	500	400	**22,220**	4,000	40,000	15,760	3,650	805	3,070	2,970	750	-	2	2	2	-
P500 1C/SC	500	500	**27,775**	5,000	50,000	20,530	3,650	955	2,920	2,820	900	-	2	2	1	1
P500 1C/SC	600	500	**27,775**	5,000	50,000	16,040	4,150	925	3,250	3,150	900	-	2	2	1	1
P600 1C/SC	600	600	**33,330**	6,000	60,000	19,080	4,150	925	3,250	3,150	900	-	2	2	-	2
P700 1C/SC	600	700	**38,888**	7,000	70,000	21,460	4,150	925	3,250	3,150	900	-	3	2	3	-
P800 1C/SC	600	800	**44,440**	8,000	80,000	23,020	4,150	925	3,250	3,150	900	-	3	2	2	1
P900 1C/SC	600	900	**49,846**	9,000	90,000	24,658	4,150	925	3,250	3,150	900	-	3	2	-	3

All of the above models are available without silt capacity, below are selected models for size comparison.
The P1000 model is only available in non silt format.

P050 1C	300	50	**2,778**	500	-	5,070	1875	390	1,760	1,700	300	-	-	-	1	-
P065 1C	400	65	**3,611**	650	-	3,710	2,700	425	2,625	2,525	300	-		-	2	-
P100 1C	400	100	**5,555**	1,000	-	5,250	2,700	475	2,575	2,475	450	-		-	2	-
P125 1C	400	125	**6,944**	1,250	-	6,090	2,700	475	2,575	2,475	450	-	-	-	2	-
P165 1C	400	165	**9,166**	1,650	-	7,960	2,700	500	2,550	2,450	450	-	2		1	-
P250 1C	400	250	**13,888**	2,500	-	11,830	2,700	660	2,390	2,290	600	-	2		2	-
P300 1C	400	300	**16,665**	3,000	-	14,120	2,700	660	2,390	2,290	600	-	2		2	-
P500 1C	500	500	**27,775**	5,000	-	14,340	3,650	955	2,920	2,820	900	-	2	2	1	1
P500 1C	600	500	**27,775**	5,000	-	11,470	4,150	925	3,250	3,150	900	-	2	2	1	1
P700 1C	600	700	**38,888**	7,000	-	15,880	4,150	925	3,250	3,150	900	-	3	2	3	-
P1000 1C	600	1,000	**55,550**	10,000	-	21,407	4,150	925	3,250	3,150	900	-	3	2	1	3

**Overall length subject to inlet/outlet and orientation.*

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

Note: Model FP1C/SC is a special Forecourt separator with 7600 litre spillage holding capacity. ***See Forecourt separator detail on Page 3.14***

SPEL Puraceptor® Class 1 Full Retention Separators

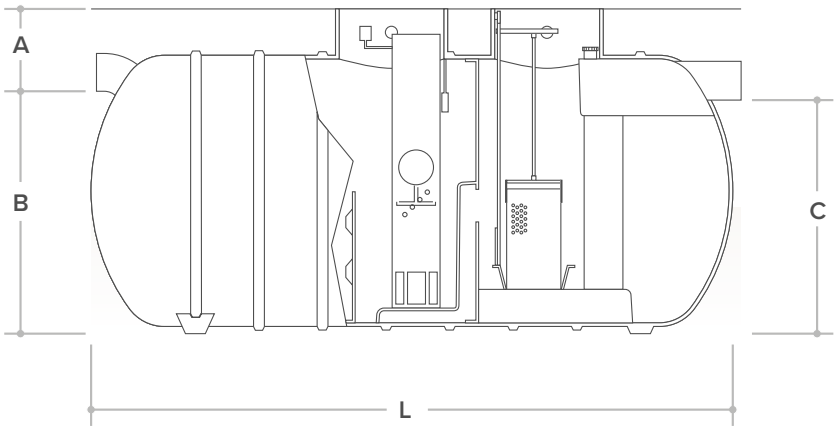
Two Chamber

Model	Series	Treated Flow (l/s)	Catchment area (m^2)	Overall length* (mm)	Overall diameter (mm)	Oil storage (litres)	Silt capacity (litres)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet (mm)	Optimum in/out pipe diameter** (mm)	Number of access shafts (dia. mm)				
		NS		L		NS x 10	NS x 100	A	B	C		450	600	750	900	1200
P006 2C/SC	200	6	**333**	3,050	1,225	60	600	340	1,200	1,140	160	-	1	1	-	-
P010 2C/SC	200	10	**556**	4,690	1,225	100	1,000	340	1,200	1,140	160	-	1	1	-	-
P015 2C/SC	300	15	**833**	4,015	1,875	150	1,500	350	1,800	1,740	225	-	-	2	-	-
P020 2C/SC	300	20	**1,111**	4,015	1,875	200	2,000	350	1,800	1,740	225	-	-	2	-	-
FP 2C/SC***	300	20	**1,111**	5,500	1,875	200	2,000	350	1,800	1,740	225	-	-	2	-	-
P025 2C/SC	300	25	**1,389**	4,290	1,875	250	2,500	350	1,800	1,740	225	-	-	2	-	-
P030 2C/SC	300	30	**1,667**	4,420	1,875	300	3,000	390	1,760	1,700	300	-	-	2	-	-
P035 2C/SC	300	35	**1,944**	5,070	1,875	350	3,500	390	1,760	1,700	300	-	1	2	-	-
P040 2C/SC	300	40	**2,222**	5,760	1,875	400	4,000	390	1,760	1,700	300	-	1	2	-	-
P050 2C/SC	300	50	**2,778**	7,060	1,875	500	5,000	390	1,760	1,700	300	-	1	2	-	-
P065 2C/SC	300	65	**3,611**	9,180	1,875	650	6,500	390	1,760	1,700	300	1	-	2	-	-
P080 2C/SC	400	80	**4,444**	5,700	2,700	800	8,000	425	2,625	2,525	300	1	-	1	1	-
P100 2C/SC	400	100	**5,555**	7,400	2,700	1,000	10,000	475	2,575	2,475	450	1	-	1	1	-
P125 2C/SC	400	125	**6,944**	8,580	2,700	1,250	12,500	475	2,575	2,475	450	1	-	2	1	-
P150 2C/SC	400	150	**8,333**	10,180	2,700	1,500	15,000	500	2,550	2,450	450	1	-	2	1	-
P200 2C/SC	400	200	**11,110**	13,710	2,700	2,000	20,000	660	2,390	2,290	600	-	1	2	1	-
P250 2C/SC	400	250	**13,888**	16,752	2,700	2,500	25,000	660	2,390	2,290	600	-	2	1	2	-
P300 2C/SC	500	300	**16,665**	12,530	3,650	3,000	30,000	675	3,200	3,100	600	-	1	2	-	1
P400 2C/SC	500	400	**22,220**	15,980	3,650	4,000	40,000	675	3,200	3,100	600	-	2	2	2	-
P500 2C/SC	500	500	**27,775**	20,530	3,650	5,000	50,000	955	2,920	2,820	900	-	2	2	1	1
P500 2C/SC	600	500	**27,775**	16,260	4,150	5,000	50,000	925	3,250	3,150	900	-	2	1	1	1
P600 2C/SC	600	600	**33,330**	19,080	4,150	6,000	60,000	925	3,250	3,150	900	-	2	2	3	-
P700 2C/SC	600	700	**38,888**	22,270	4,150	7,000	70,000	925	3,250	3,150	900	-	3	2	3	-
P800 2C/SC	600	800	**44,440**	23,020	4,150	8,000	80,000	925	3,250	3,150	900	-	3	2	2	1
P900 2C/SC	600	900	**50,000**	24,658	4,150	9,000	90,000	925	3,250	3,150	900	-	3	2	1	2

**Overall length subject to inlet/outlet and orientation.*

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

******Note: Model FP2C/SC is a special Forecourt separator with 7600 litre spillage holding capacity. See Forecourt separator detail on Page 3.14***



SPEL Forecourt Separators

Designed for Spill Control

Overview

SPEL Forecourt Separators treat 100% of the flow and have been designed and tested to meet the stringent British/ European Standard BS EN 858-1.

Forecourt separators are sized to ensure the maximum spill risk can be controlled within the separator. Normal road tankers have compartments no larger than 7,600 litres which is the designed spill capacity for a forecourt separator.

All SPEL Forecourt Separators are fitted with a special automatic closure device (ACD) which shuts the separator down when the contained oil exceeds the maximum oil spill capacity.

Larger Forecourt type models are available for larger spill risk areas such as airport fuelling zones.

The 'heart' of SPEL Separators is the unique long life, low maintenance coalescer unit which 'polishes' the final effluent after 90% of hydrocarbons of silt have been separated out.

Product Range

Series 300
(1.2m inside diameter):
NS 20
Catchment area: 1111m^2

Series 400, 500 & 600
2.6m, 3.5m, 4m inside diameter are available for larger NS and spill capacities to suit site requirements.

Contact the technical team for more information:
(01743) 445 200
sales@spelproducts.co.uk



Applications

Petrol station forecourts

Refuelling facilities

Fuel storage sites

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

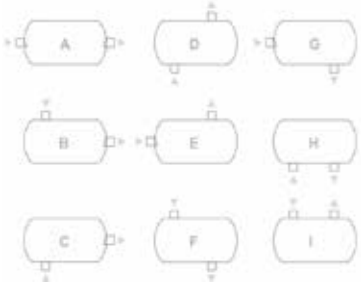
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/ spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available. For connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

SPEL Forecourt Separators

All SPEL Forecourt Separators are designed to comply with the required oil spill capacity of 7,600L

Product Table

Model	Series	Treated Flow (l/s)	Catchment area (m^2)	Overall length* (mm)	Overall diameter (mm)	Oil storage (litres)	Silt capacity (litres)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet (mm)	Optimum in/out pipe diameter* (mm)	Number of access shafts (dia. mm)		
		NS		L		NS x 10	NS x 100	A	B	C		750	900	1200
FP 1C/SC Class 1 Forecourt Separator Single Chamber with Silt Capture	300	20	1,111	4,290	1,875	200	2,000	350	1,800	1,740	225	1	-	-
FP 2C/SC Class 1 Forecourt Separator Two Chamber with Silt Capture	300	20	1,111	5,500	1,875	200	2,000	350	1,800	1,740	225	2	-	-
FS2 SC Class 2 Forecourt Separator Single Chamber with Silt Capture	300	20	1,111	4,290	1,875	200	2,000	350	1,800	1,740	225	-	-	1

Larger spill capacity models available upon request, contact our team for available options.

**SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

'Companies who pollute the environment can be hit with unlimited financial penalties from the Environment Agency from today (11 December 2023).' *gov.uk, 'Unlimited penalties introduced for those who pollute environment' (11 December 2023)*

SPEL Puraceptor® (NG) National Grid Specification

Overview

SPEL Puraceptor® NG separators are designed and approved by National Grid to meet specific substation requirements. These units treat 100% of the flow and have been designed and tested to meet the stringent British/ European Standard BS EN 858-1.

SPEL NG Separators are often proceeded by a SPEL DrainGuard dump tank system - see Section 5 for more information.

Product Range

200 Series
(1.2m inside diameter):
NS 6 - NS 10
Catchment area: 333m² - 556m²

300 Series
(1.8m inside diameter):
NS 15 - NS 65
Catchment area: 833m² - 3611m²

400 Series
(2.6m inside diameter):
NS 65 - NS 200
Catchment area: 3,611m² - 11,110m²

500 Series
(3.5m inside diameter):
NS 300 - NS 400
Catchment area: 16,665m² - 22,220m²

Larger sizes available upon request



Applications

Substations

Transformer Platforms

Electric Switch Gear Terminals

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

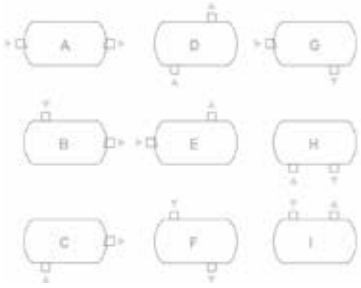
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/ spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available. For connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

SPEL Class 1 National Grid Specification Separators

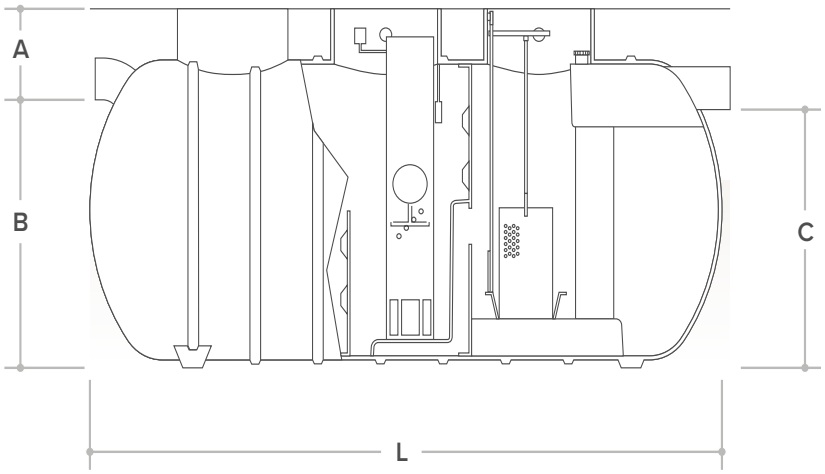
Full retention NG type registered

The National Grid specification separators are the result of extensive collaboration and testing and provide the ideal tool to protect all transformer platforms in the event of an oil spill. The unique Two Chamber design offers longer maintenance intervals and is combined with a number of upgraded internal components specified by National Grid for excellent longevity, these include the SPEL '3L Coalescer Guide Rail System', sampling point, and an ultra high-spec ACD.

Model	Series	Max. Flow NS	Catchment area (m^2)	Overall length* (mm)	Overall diameter (mm)	Oil storage (litres) NS	Silt capacity (litres) NS	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet (mm)	Optimum in/out pipe diameter** (mm)	Number of access shafts (dia. mm)			
				L				A	B	C		450	750	900	1200
P006 2C/SC/NG	200	6	**333**	3,050	1225	60	600	427	1,110	1,050	160	-	1	1	-
P010 2C/SC/NG	200	10	**556**	4,700	1,225	100	1,000	427	1,110	1,050	160	-	3	-	-
P015 2C/SC/NG	300	15	**833**	4,020	1,875	150	1,500	540	1,610	1,550	225	-	3	-	-
P020 2C/SC/NG	300	20	**1,111**	4,020	1,875	200	2,000	540	1,610	1,550	225	-	3	-	-
P025 2C/SC/NG	300	25	**1,389**	4,290	1,875	250	2,500	540	1,610	1,550	225	-	3	-	-
P030 2C/SC/NG	300	30	**1,667**	5,070	1,875	300	3,000	550	1,600	1,500	300	-	2	1	-
P040 2C/SC/NG	300	40	**2,222**	6,570	1,875	400	4,000	550	1,600	1,500	300	-	2	1	-
P050 2C/SC/NG	300	50	**2,778**	8,260	1,875	500	5,000	550	1,600	1,500	300	-	2	1	-
P065 2C/SC/NG	300	65	**3,611**	10,220	1,875	650	6,500	550	1,600	1,500	300	1	2	1	-
P065 2C/SC/NG	400	65	**3,611**	5,470	2,700	650	6,500	665	2,385	2,285	300	1	1	1	-
P080 2C/SC/NG	400	80	**4,444**	6,170	2,700	800	8,000	665	2,385	2,285	300	1	1	1	-
P100 2C/SC/NG	400	100	**5,555**	7400	2,700	1,000	10,000	665	2385	2285	450	1	1	1	-
P125 2C/SC/NG	400	125	**6,944**	9,600	2,700	1,250	12,500	765	2,285	2,185	450	1	2	-	1
P150 2C/SC/NG	400	150	**8,333**	11,200	2,700	1,500	15,000	790	2,280	2,180	450	1	2	-	1
P200 2C/SC/NG	400	200	**11,110**	16,400	2,700	2,000	20,000	940	2,130	2,030	600	2	2	-	1
P300 2C/SC/NG	500	300	**16,665**	12,530	3,650	3,000	30,000	875	3,000	2,900	600	2	2	-	1
P400 2C/SC/NG	500	400	**22,220**	16,330	3,650	4,000	40,000	875	3,000	2,900	600	3	2	2	-

**A minimum oil spill storage volume of 4,000 litres is provided for in all models except P006 and P010 which have 60 and 100 litres of oil spill capacity respectively.*

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*



SPEL Midel Oil Separators

For Midel and Similar Synthetic Transformer Fluids

Overview

The introduction of synthetic cooling oil in transformers has dramatically improved the fire safety record for grid-based substations, these oils are classified as K-class fluids with a high fire point of >300°C to IEC 61039.

While the use of such a fluid reduces fire risk and associated costs, the difference in specific gravity (SG = 0.97 at 20°C) presents challenges for capturing this type of oil in a conventional separator in the event of an oil leak or spill. This has resulted in SPEL conducting extensive testing and redesign to ensure that Midel and similar synthetic oils can be safely and reliably captured in the advanced SPEL Midel Separator.

A further technical advance in the SPEL Midel Oil Separator is the inclusion of a motorised Automatic Closure Device (ACD) which will shut down in the event of a catastrophic spill.

The SPEL Midel Oil Separator range is suitable for sites with a mix of both synthetic and mineral oil transformers.

Product Range

300 Series
(1.8m inside diameter):
NS 6 - NS 10
Catchment area: 333m² - 556m²

400 Series
(2.6m inside diameter):
NS 20 - NS 60
Catchment area: 1,111m² - 3,333m²

500 Series
(3.5m inside diameter):
NS 80 - NS 100
Catchment area: 4,444m² - 5,555m²

Larger sizes available upon request



Automatic Closure Device

SPEL Midel Oil Separators have a closure device by way of a motorised valve actuated by an oil alarm. The alarm will sound and/or message an alarm on site or to a control room and automatically close off the separation chamber from the outlet in the case of a spillage emergency or when the maximum oil capacity has been reached.

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

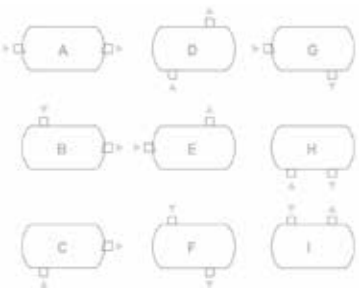
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels.

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available, for connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

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SPEL Products Lancaster Road, Shrewsbury, Shropshire SY1 3NQ

SPEL Midel Oil Separator

Introduction and operation

The SPEL Midel Oil Separator models are designed for **high performance and long service life between maintenance periods, when treating Midel and similar synthetic oils such as Shell Diala S4.**

The Midel range is a two chamber system for enhanced performance and reduced maintenance.

An alarm will sound and/or message an alarm on site or to a control room and automatically close off the separation chamber via the auto closing device, closed by a motorised valve. This is actuated by an oil alarm, closing the outlet in the case of a spillage emergency or when the maximum oil capacity has been reached.

The 'heart' of the separation process is the robust and highly efficient coalescer unit or units. These strong stainless steel units incorporate robust high volume reticulated foam inserts. The inserts efficiently coalesce the finer globules of hydrocarbons for gravity separation and due to their large volume, last for long periods before requiring cleaning. Cleaning is then a simple operation using normal pressure water.



The 'heart' of the SPEL Separators is the unique long life, low maintenance coalescer unit/s

'Companies who pollute the environment can be hit with unlimited financial penalties from the Environment Agency from today (11 December 2023).'
gov.uk, 'Unlimited penalties introduced for those who pollute environment' (11 December 2023)

SPEL Midel Oil Separator Range

The coalescer unit is mounted in the second chamber, providing a coalescence process for the separation of smaller globules of light liquid pollutants before final discharge to the surface water drain.

Being incorporated in the second chamber prevents contamination or blockage of the coalescer insert in water. It can be **simply lifted out for cleaning during routine maintenance.**

Typical applications are:

- Power/substations using Midel and similar synthetic oil transformers.
- Power/substations using Midel and mineral oil transformers. SPEL Midel Oil Separators are suitable for a mix of mineral and synthetic oils.

Features

Tank shell designed in accordance with BS EN 13121

- Filament wound shell – the embodiment of strength and durability – yet lightweight.
- Life expectancy in excess of 50 years.
- Smooth, high gloss internal corrosion resistant surface.
- External 'flow coat' water penetration barrier.
- Robust stainless steel coalescer unit with long life, high volume foam insert and lifting handle.
- Coalescer unit/s in second chamber protected from bulk of oil and silt.
- The M range for Midel and similar synthetic oil have a closure device by way of a motorised valve actuated by an oil alarm.
- Good access to all parts for desludging.
- Sampling point incorporated into outlet.
- Generous access for desludging and servicing of the ACD and coalescer unit/s.
- Sized for working capacity PLUS fuel/oil and silt containment, ensuring optimum performance between maintenance periods.
- Generous sizing extends maintenance free periods and reduces desludging costs.
- Dip pipe inlet for minimum turbulence and to prevent inflammable vapours passing upstream in drainage system.

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SPEL Midel Oil

Product Range

Model	Series	Nominal Size (NS)	Catchment area (m^2)	Overall length (mm)	Overall Diameter (mm)	Oil storage (litres)	Silt capacity (litres)	Inlet Invert (mm)	Base to Inlet (mm)	Base to Outlet (mm)	Optimum Inlet dia.** (mm)
		Flow (l/s)		L							
P006 2C/SC/M	300	6	333	3,200	1,875	60	600	540	1,610	1,550	160
P010 2C/SC/M	300	10	556	5,070	1,875	100	1000	540	1,610	1,550	160
P015 2C/SC/M**	300	15	833	6,570	2,700	150	1,500	550	1,600	1,500	225
P020 2C/SC/M	400	20	1,111	5,250	2,700	200	2000	625	2,425	2,325	225
P025 2C/SC/M	400	25	1,389	6,170	2,700	250	2500	625	2,425	2,325	225
P030 2C/SC/M	400	30	1,667	7,400	2,700	300	3000	625	2,425	2,325	300
P040 2C/SC/M	400	40	2,222	9,930	2,700	400	4000	For details, please contact our Technical Sales Team			300
P060 2C/SC/M	400	60	3,333	13,710	2,700	600	6000				300
P080 2C/SC/M	500	80	4,444	10,040	3,650	800	8000				300
P100 2C/SC/M	500	100	5,555	12,530	3,650	1,000	10,000				450

Larger sizes available upon request

**SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

***Includes 7,600 litre emergency oil spill capacity to capture complete road tanker compartment spillage.*



SPEL Full Retention Class 2 Separators

Overview

SPEL full retention class 2 separators are single chamber units that treat the flow generated by a rainfall of 65mm per hour and are designed to achieve a concentration of less than 100mg/l oil under standard test conditions. They are for dealing with discharges where a lower quality requirement applies, for example, where the effluent passes to a foul sewer.

SPEL full retention class 2 separators are designed to meet the European Standard BS EN 858.

Design and manufacture with reference to BS EN 13121 / BS EN 976 and BS 8301. SPEL full retention separators are filament wound in glass reinforced polyester and have a life expectancy in excess of fifty years

Product Range

Series 200
NS 4 - NS 10
Catchment area: 222m^2 - 556m^2

Series 300
NS 15 - NS 50
Catchment area: 833m^2 - 2778m^2

Series 400
NS 65 - NS 300
Catchment area: 3,611m^2 - 16,665m^2

Series 500 & 600
Sizes/specifications and performance data available on request.



Applications

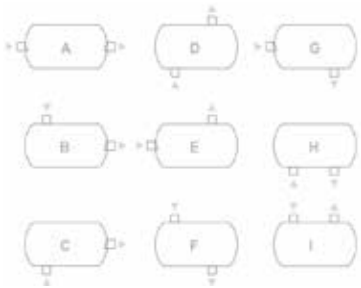
Class 2 separators must discharge to foul subject to consent from local water companies.

These units are often included in vehicle wash drainage systems as they comply to BS EN 858 for Class 2 water quality.

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/ spigot.

400/450mm diameter GRP spigot only. For connecting to site pipework Flex-Seal/Band-Seal or similar flexible couplings can be used.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Specifications

SPEL offer numerous tank shell specifications to accommodate deeper invert levels and/or high ground water.

Double skin/secondary containment systems are available across the SPEL Separator range.

SPEL Full Retention Class 2 Separators

With Silt Capacity

Model	Series	Nominal Size (NB)	Catchment area (m^2)	Oil storage (litres)	Silt capacity (litres)	Overall length* (mm)	Overall diameter (mm)	Inlet Invert (mm)	Base to inlet (mm)	Base to outlet (mm)	Optimum in/out pipe diameter** (mm)	Number of access shafts (dia. mm)		
		Flow (l/s)						A	B	C		450	600	750
FR004 SC	200	4	222	40	400	1,720	1225	630	1,110	1,050	160	-	1	-
FR006 SC	200	6	333	60	600	2,270	1,225	630	1,110	1,050	160	-	1	-
FR010 SC	200	10	556	100	1,000	3,410	1,225	630	1,110	1,050	160	-	1	-
FR015 SC	300	15	833	150	1,500	2,760	1,875	350	1,800	1,740	225	-	-	1
FR020 SC	300	20	1,111	200	2,000	3,200	1,875	350	1,800	1,740	225	-	-	1
FS2 SC	300	20	1,111	200	2,000	4,290	1,875	350	1,800	1,740	225	-	-	1
FR030 SC	300	30	1,667	300	3,000	4,420	1,875	390	1,760	1,700	300	-	-	1
FR040 SC	300	40	2,222	400	4,000	5,760	1,875	390	1,760	1,700	300	-	-	1
FR050 SC	300	50	2,778	500	5,000	7,060	1,875	390	1,760	1,700	300	-	-	1
FR065 SC	400	65	3,611	650	6,500	4,810	2,700	425	2,625	2,525	300	1	1	-
FR080 SC	400	80	4,444	800	8,000	5,700	2,700	425	2,625	2,525	300	1	1	-
FR100 SC	400	100	5,555	1,000	10,000	7,400	2,700	475	2,575	2,475	450	1	1	-
FR125 SC	400	125	6,944	1,250	12,500	8,580	2,700	475	2,575	2,475	450	1	1	-
FR150 SC	400	150	8,333	1,500	15,000	10,180	2,700	475	2,575	2,475	450	1	1	-
FR165 SC	400	165	9,166	1,650	16,500	11,200	2,700	500	2,550	2,450	450	-	2	-
FR200 SC	400	200	11,110	2,000	20,000	13,710	2,700	660	2,390	2,290	600	-	2	-
FR250 SC	400	250	13,888	2,500	25,000	16,750	2,700	660	2,390	2,290	600	-	2	-

Larger sizes available on request

Without Silt Capacity

FR040	300	40	2,222	400	4,020	1,875	390	1,760	1,700	300	-	-	1
FR050	300	50	2,778	500	5,070	1,875	390	1,760	1,700	300	-	-	1
FR065	400	65	3,611	650	3,710	2,700	425	2,625	2,525	300	1	1	-
FR080	400	80	4,444	800	4,400	2,700	425	2,625	2,525	300	1	1	-
FR100	400	100	5,555	1000	5,250	2,700	475	2,575	2,475	450	1	1	-
FR125	400	125	6,944	1250	6,090	2,700	475	2,575	2,475	450	1	1	-
FRI50	400	150	8,333	1500	7,400	2,700	475	2,575	2,475	450	1	1	-
FR165	400	165	9,166	1650	7,960	2,700	500	2,550	2,450	450	-	2	-
FR200	400	200	11,110	2000	9,600	2,700	660	2,390	2,290	600	-	2	-
FR250	400	250	13,888	2500	11,830	2,700	660	2,390	2,290	600	-	2	-
FR300	400	300	16,665	3000	14,120	2,700	660	2,390	2,290	600	-	2	-

Larger sizes available on request

**Overall length subject to inlet/outlet size and orientation*

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

Note: Model FS2SC is a special forecourt unit with 7600 litre spillage holding capacity.

SPEL Wash Down Separators

Overview

SPEL Wash Down Separators are designed for car wash facilities, plant washing, and pressure washing areas. Their primary function is the removal of silt and other gross pollutants from wash-down water prior to it being discharged into the foul drainage network.

Product Range

Series 200
NS 4 - NS 10

Series 300
NS 15 - NS 50

Series 400
NS 65 - NS 300

Series 500 & 600
Sizes/specifications and performance data available on request.



Applications

Car/Van Wash

PSV/HGV Wash

Machinery plant washdown

Wash Down Separators must discharge to foul subject to water company approval.

If BS EN 858 Compliance is required, please refer to SPEL Class 2 Separators on Page 3.21.

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

Shell Specifications

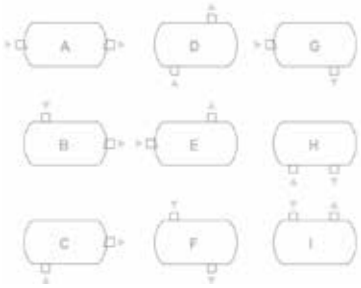
Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels.

Inlet/Outlet Connections

160/225/300mm diameter PVCU socket/spigot.

450, 600, 750, 900 and 1200mm diameter GRP spigot available, for connecting to site pipework via Flex-Seal/Band-Seal or similar flexible couplings.

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

SPEL Wash Down Separators

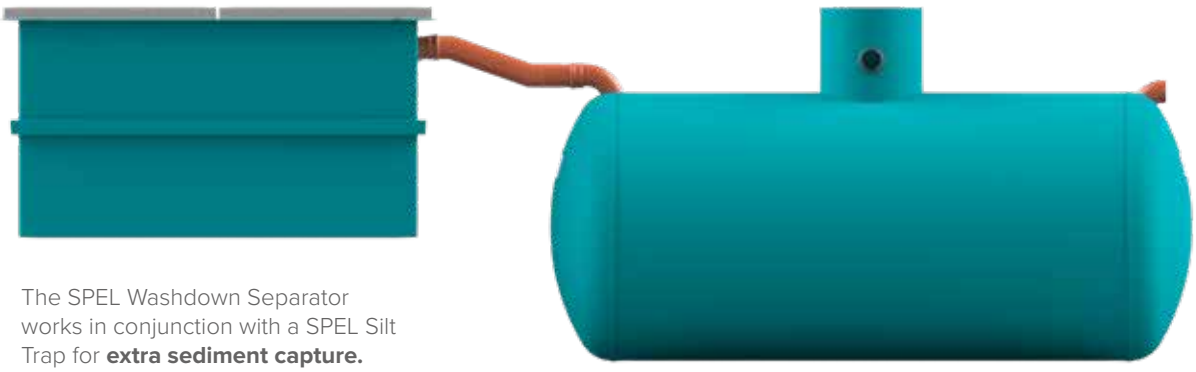
Product Table

Model	Series	Max. Flow* (l/s)	Overall length	Overall diameter (mm)	Silt capacity (litres)	Opt in/out pipe diameter (mm)	Number of access shafts (dia. mm)	Inlet Invert (mm)
WDS 200/1000	200	1.1	1.17	1,200	250	160mm	1 x 600	To suit site requirements
WDS 200/2000	200	2.2	2.05	1,200	500	160mm	1 x 600	To suit site requirements
WDS 200/3000	200	3.3	2.93	1,200	700	160mm	1 x 600	To suit site requirements
WDS 200/4000	200	4.5	3.82	1,200	1,000	160mm	1 x 600	To suit site requirements
WDS 200/5000	200	5.6	4.70	1,200	1,250	160mm	1 x 600	To suit site requirements
WDS 200/6000	200	6.7	5.59	1,200	1,500	160mm	1 x 600	To suit site requirements
WDS 200/7000	200	7.8	6.48	1,200	1,750	160mm	1 x 600	To suit site requirements
WDS 200/8000	200	9	7.36	1,200	2,000	160mm	1 x 600	To suit site requirements
WDS 200/9000	200	10	8.25	1,200	2,250	160mm	1 x 600	To suit site requirements
WDS 200/10,000	200	11	9.13	1,200	2,500	160mm	1 x 600	To suit site requirements
WDS 300/4000	300	5	1.95	1,800	1,000	160mm	1 x 600	To suit site requirements
WDS 300/6000	300	7	2.76	1,800	1,500	160mm	1 x 600	To suit site requirements
WDS 300/8000	300	9	3.54	1,800	2,000	160mm	1 x 600	To suit site requirements
WDS 300/10,000	300	12	4.29	1,800	2,500	160mm	1 x 600	To suit site requirements

**Based on 80% removal using Millisil W4 Test Sediment.*

Note: all Wash Down Separators must be connected to the foul drainage network.

SPEL Vehicle Wash Silt Trap



The SPEL Washdown Separator works in conjunction with a SPEL Silt Trap for **extra sediment capture.**

SPEL Vehicle Washdown Separator

SPEL Vehicle Wash Silt Traps

Overview

All vehicle wash installations, especially with underbody washing facilities send large volumes of silt and grit down the drainage system causing costly blockages.

Whichever type of vehicle washing installation, the SPEL vehicle wash silt trap is essential to pre-treat the run off. Dirty water flows directly into the vehicle wash silt trap where the silt and grit settle out prior to the water passing through the high level outlet to the SPEL Separator and on to the foul drainage system.

Manufactured in glass reinforced plastic (GRP) it is easy to handle, robust and corrosion proof.

Product Range

Silt Trap 800/5
FACTA Class B (5 tonne)
800L Silt Storage

Silt Trap 800/12
FACTA Class D (12 tonne)
800L Silt Storage



Applications

Car/Van Wash
PSV/HGV Wash
Machinery/Plant wash-down areas

Design

All SPEL tank shells carry the SPEL 25 Year Warranty and are ISO 9001 quality checked. The heavy duty, hot dipped galvanised gratings comply with slow moving wheel load bearing requirements of FACTA B (5 tonnes) or FACTA D (12 tonnes).

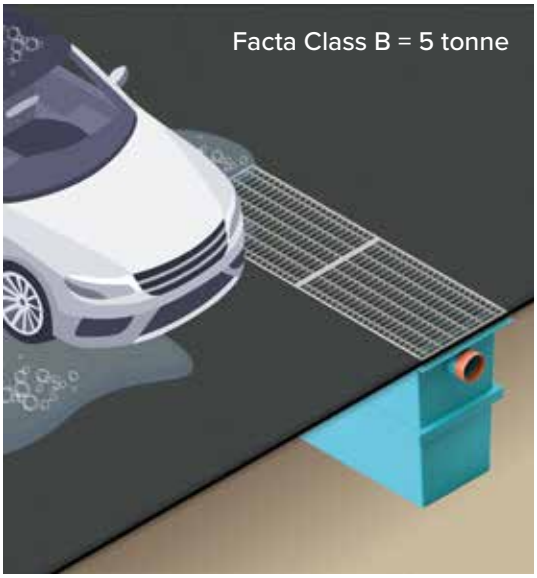
SPEL Vehicle Wash Silt Traps

Whatever the type of vehicle washing installation, **the SPEL Vehicle Wash Silt Trap is essential to pre-treat heavy silt loads** prior to entering the oil separator and drainage network. Dirty water flows directly into the SPEL Silt Trap where the silt and grit settle out prior to the water passing through the high level outlet to the oil separator and foul drainage system.

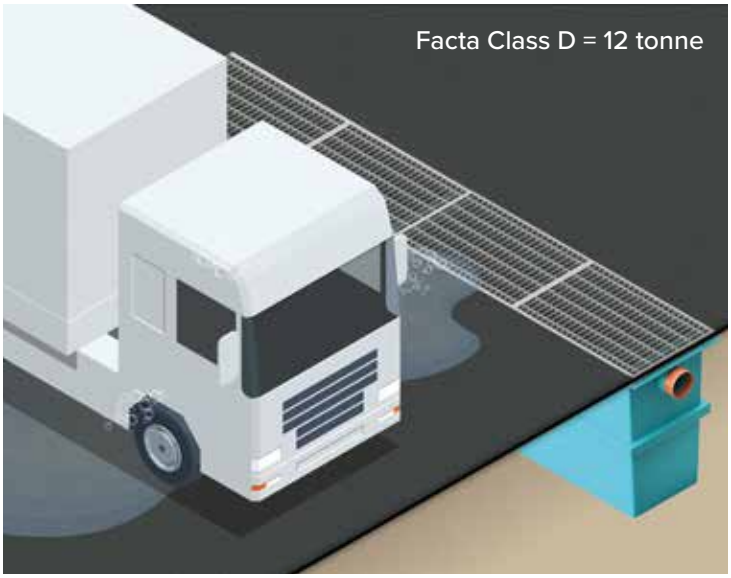
Moulded in glass reinforced plastic (GRP) it is easy to handle, robust and corrosion proof. The heavy duty, hot dipped galvanised gratings comply with slow moving wheel load bearing requirements of FACTA Class B & D gratings (5 or 12 tonnes).

For ease of access and to empty the SPEL Silt Trap the grating is hinged and held open with an integral stay. Silt can then be removed manually or by tanker.

Model	Facta Class	Application	Silt Storage	Overall Length (mm)	Overall Width (mm)	Overall Height (mm)
ST800/5	B (5 tonne)	Cars/Vans	800	2,000	690	1,065
ST800/12	D (12 tonne)	PSV/HGV	800	2,000	690	1,065



Single module unit for cars and vans.

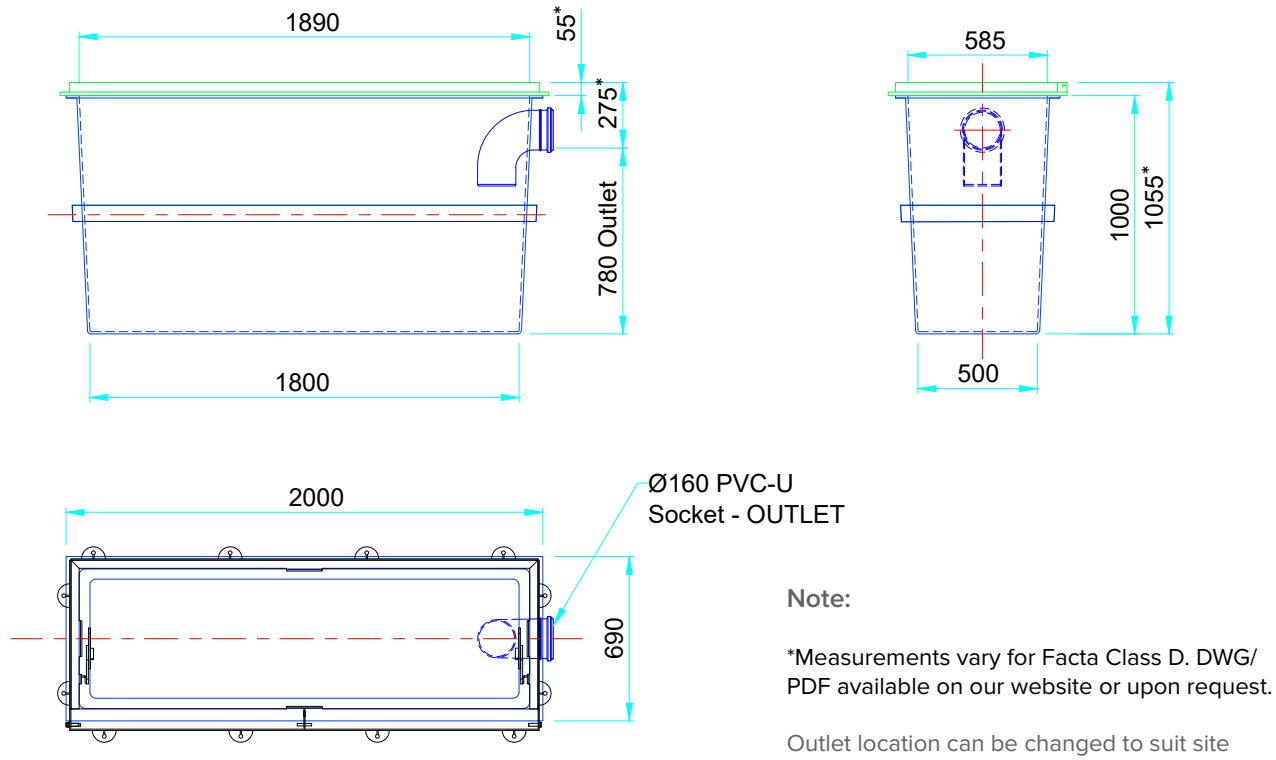


Multiple module unit for HGVs, coaches and large plant.

SPEL Vehicle Wash Silt Traps

Available in Facta Class B and Facta Class D, sizes vary, see detail below:

Facta Class B



Note:

*Measurements vary for Facta Class D. DWG/ PDF available on our website or upon request.

Outlet location can be changed to suit site requirements.

Standard Installation

See Section 7, Page 7.35 for SPEL Silt Trap Installation

SPEL Grease Separators

Overview

SPEL Grease Separators are designed for use wherever it is necessary to capture fats, oils and greases (FOGs) from process water, such as trade effluent or restaurant wash water.

SPEL Grease separators are available from 1,300 litre to 18,200 litre depending on the specific site requirements.

Product Range

100 Series
1,300L
NSG 2
200 Meals/day

200 Series
2,000L - 6,000L
NSG 4-14
400 - 1,400 Meals/day

300 Series
5,860L - 18,200L
NSG 14-40
1,400 - 4,000 Meals/day

Larger/intermediate sizes available, contact our team for more information.

25 YEAR TANK SHELL WARRANTY

IN EXCESS OF 50 YEAR TANK SHELL LIFE EXPECTANCY

SPELGuard SERVICING & COMMISSIONING

Applications

Commercial/large catering kitchens
Fast food preparation plants
Food processing plants
Butchers
Abattoirs
Vegetable oil refineries

Alarm

Dedicated grease trap alarm available.

Shell Design

Designed with reference to BS EN 13121. All tank shells carry the SPEL 25 Year Warranty and life expectancy in excess of 50 years.

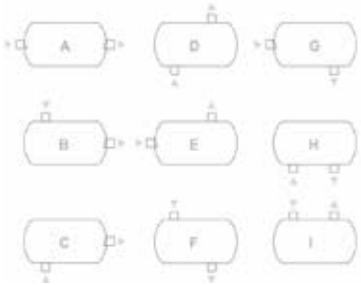
Shell Specifications

Different tank shell specifications are available dependent upon tank invert levels, ground conditions and ground water levels

Inlet/Outlet Connections

Standard pipe size - 160mm diameter PVCU socket/spigot (larger sizes available on request).

The nine inlet/outlet options below are available to assist with design and installation.



This graphic shows indicative locations only. For accurate location, please contact our technical team.

SPEL Grease Separators

Product Table

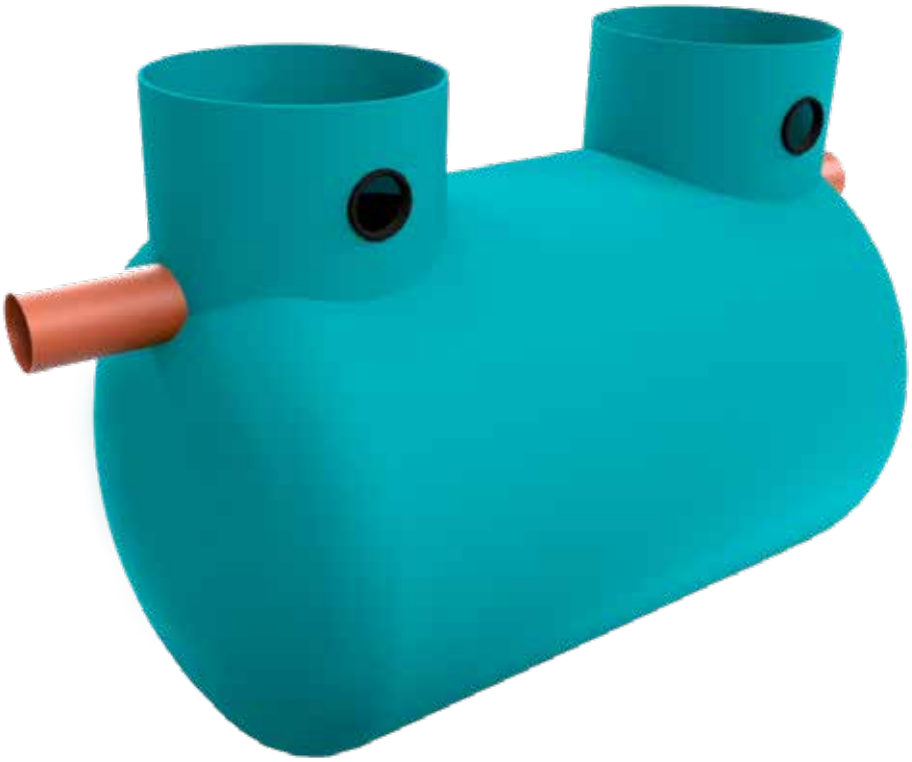
Model	Series	Meals per Day*	Flow l/s (NSG)	Tank Length (mm)	Internal Diameter (mm)	Overall Capacity (L)	Grease Capacity (L)	Inlet Invert (mm)	Base to Inlet (mm)	Base to Outlet (mm)	Optimum in/out Pipe Diameter** (mm)	Number of Access Shafts (dia. mm)
GS200/2000	200	400	4	2,040	1,200	2,000	160	505	1,020	970	160	2 x 600
GS200/3000	200	600	6	2,930	1,200	3,000	240	505	1,020	970	160	2 x 600
GS200/4000	200	900	9	3,810	1,200	4,000	360	505	1,020	970	160	2 x 600
GS200/5000	200	1100	11	4,700	1,200	5,000	440	505	1,020	970	160	2 x 600
GS200/6000	200	1400	14	5,578	1,200	6,000	560	505	1,020	970	160	2 x 600
GS300/5860	300	1400	14	2,690	1,800	5,860	560	538	1,570	1,520	160	2 x 600
GS300/9270	300	1800	18	4,015	1,800	9,270	720	538	1,570	1,520	160	2 x 600
GS300/18200	300	4000	40	7,620	1,800	18,200	1600	538	1,570	1,520	160	2 x 600

**Based on restaurant meals (BS 1825-2)*

***SPEL Separators are designed for a maximum flow (NS/NSB) but can be fitted with larger than the recommended maximum connection size IN/OUT or with the addition of adapters providing the maximum flow (NS/NSB) cannot be exceeded or any increase in the operating level in the SPEL Separator to cause the captured pollutants to escape into the vent connections or through access shaft connections. Any overriding of the above criteria could jeopardise performance to the European Standard BS EN 858-1.*

Larger/intermediate sizes available, contact our team for more information.

'Companies who pollute the environment can be hit with unlimited financial penalties from the Environment Agency from today (11 December 2023).' *gov.uk, 'Unlimited penalties introduced for those who pollute environment' (11 December 2023)*



Oil & Grease Separator Technical accessories

All SPEL Separator Systems have a large range of technical accessories to ease maintenance and monitoring.

Shaft Extensions

All SPEL Separator Systems have a large range of technical accessories to **ease maintenance and monitoring.**



Rectangular Shafts



Stub Access Shafts



Flanged joint stub access shaft with extension shaft

600,750 and 900mm diameter.



Socket joint stub access shaft with extension shaft

600, 750, 900 and 1200mm diameter.

Circular acces shafts are supplied in 450, 600, 700, 900 and 1200mm diameter. Rectangular shafts are supplied in 800, 900 and 1000mm X 1000/1250/1500mm. GRP ladders can be incorporated for more access, complete with stainless steel fixings.

200/300 Series

Shafts can be laminated onto the tank up to a maximum height of 1.2m. Above this height extension shafts can be supplied separately for on-site fitting during installation.

400 Series

Shafts up to 400mm high are laminated onto the tank. Above this height extension shafts can be supplied separately for on-site fitting during installation.

500 Series

Shafts up to 300mm high are laminated onto the tank. Above this height extension shafts can be supplied separately for on-site fitting during installation.

600 Series

Stub access shafts are fitted 100mm high and extension access shafts fitted as 500 series. Above this height extension shafts can be supplied separately for on-site fitting during installation.

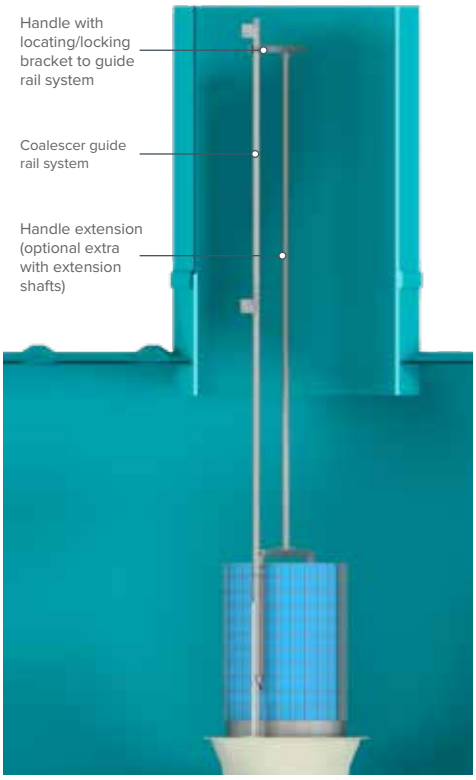
Extension Shafts

These are supplied in 500mm increments and are available in different laminate specs to suit site-specific invert levels and applications.

Technical Accessories

Guide Rails for Coalescers

Note: only applicable to units fitted with the SPEL Coalescer



Normal servicing of the smaller SPEL Separators frequently requires emptying the unit completely. Guide rails provide access for the coalescer units to be taken out, cleaned and returned and guided accurately to their seating positions. However larger SPEL Separators may only require the hydrocarbon pollutants and silt to be removed.

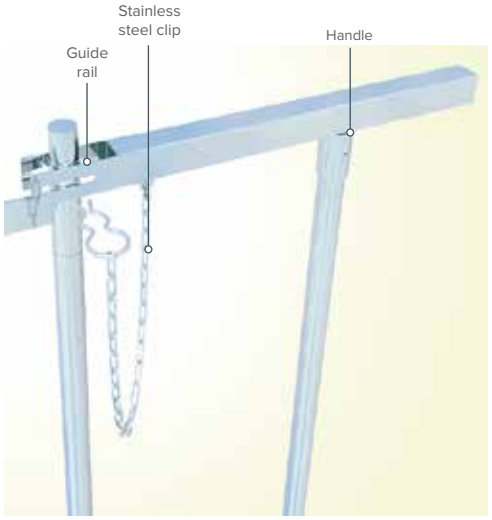
In order to limit the servicing to sucking off the fuel/oil from the top and the silt from the bottom guide rails are required to ensure coalescer units are replaced into their correct positions.

The system is robust, manufactured throughout in stainless steel and the action positive, leaving no doubt the coalescer unit is located properly.

Brackets fixed to the top and bottom of the coalescer unit simply engage the stainless steel guide rail fixed to the top of the stub access shaft. The coalescer is then lowered in the normal way, being guided at the correct angle into the conical base unit which locates the coalescer unit into its final position.

Extension guide rails can be incorporated into SPEL extension shafts to suit (preferably when ordered with the separator).

SPEL coalescer unit lifting/locating/locking system for positive location and security locking



SPEL coalescer units lowered into the separator with the SPEL guide rail system are easily guided into the base unit's conical moulding to automatically sit correctly.

However, when the separator is full of water, debris or silt accumulated over a period, this could prevent the coalescer unit from re-seating correctly after servicing.

The coalescer unit lifting/locating/locking system provides assurance the coalescer unit is seated correctly and can be locked into position to prevent tampering.

The system is particularly suitable in SPEL Separator + Econoskim® systems where the total contents of the separator are not emptied on servicing.

The system comprises a robust stainless steel lifting and lowering handle that locates on the guide rail system. When the coalescer unit is correctly located in the conical seating in the separator, the handle will align with guide rail top bracket i.e.. the handles slotted holes with the top bracket clip locking groove, see diagram.

When aligned the stainless steel clip can be located through the slots and lock into position on the top bracket.

The stainless steel lifting handle can be extended **to suit deep tank inverts** and provide easy access for lifting manually or with the SPEL tripod and hoist.

Technical Accessories

Automatic Alarms/Monitoring Systems

Alarm systems are available for all SPEL separators. These include probes for oil, silt and high level. There are also a range of control panels including solar power, more detail on our alarm systems can be found in Section 8.

Control Panels



Mains Powered Separator Alarms

For silt, oil and high level detection, compatible with the below alarm probes.



idOil Solar with beacon light

Solar Alarms

Available with optional flashing beacon, and GMS/SMS communication, also compatible with the below alarm probes.



GA-1 Grease Alarm

Dedicated alarm system for the full range of SPEL Grease Separators.

Alarm Probes



idOil-OIL oil probe

Detects oil and indicates when the separator's oil storage is full.

This probe is required in order for a treatment device to comply with BS EN 858.



idOil-SLU silt probe

Monitors the silt layer in the oil separator and indicates when the silt layer has reached its maximum level.



idOil-LiQ high liquid level probe

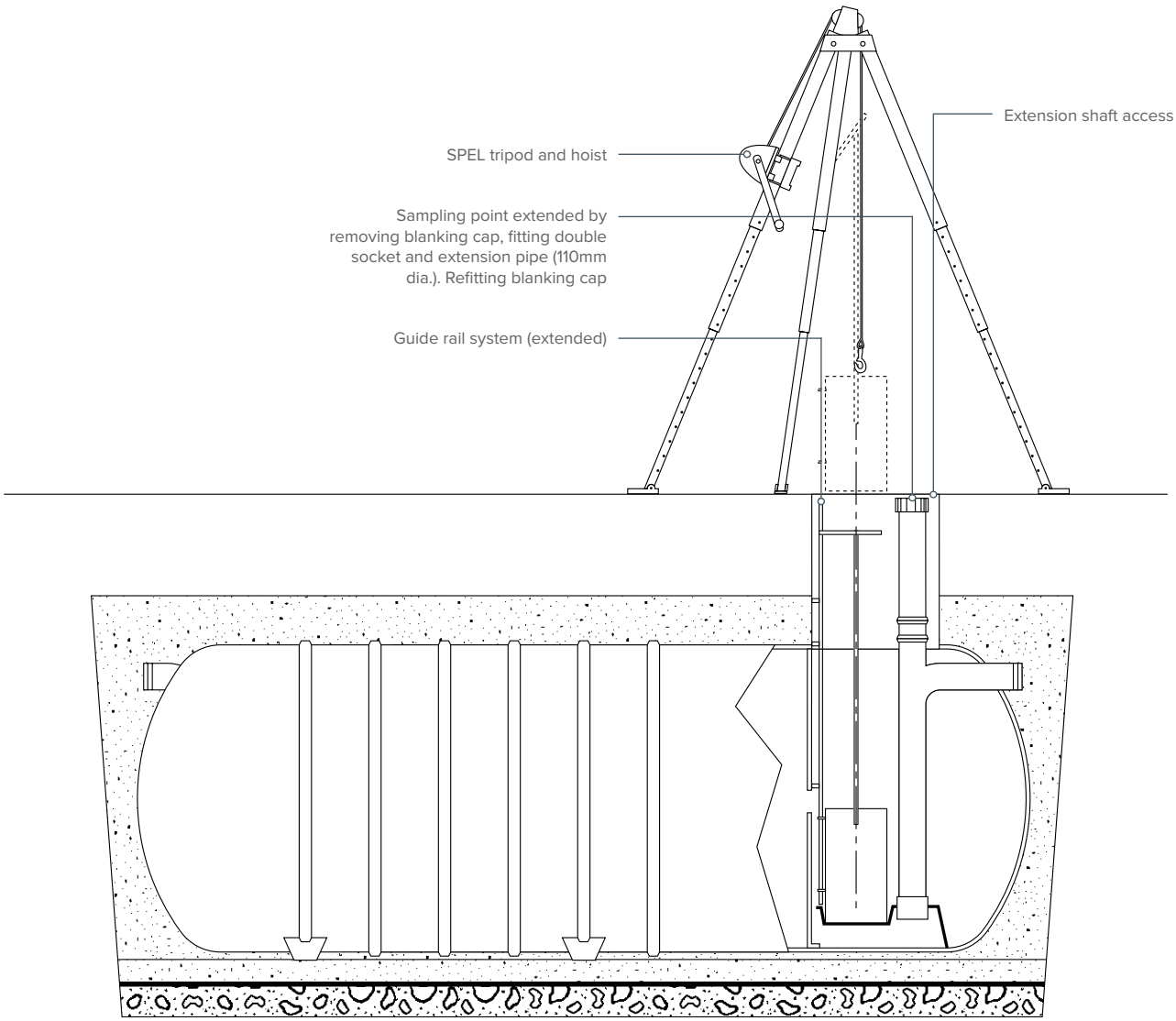
Indicates when the liquid level in the oil separator rises excessively e.g. in an outlet blockage situation.

Kiosks for externally mounted alarm/control panels are available. See Section 9 for further detail.

Technical Accessories

Tripod & Hoist

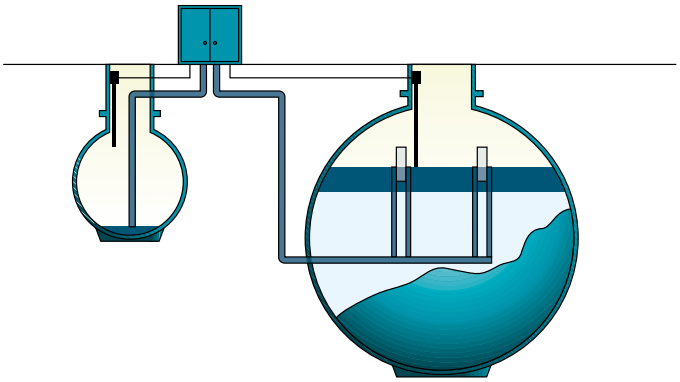
Larger coalescers are very heavy when fully submerged in water and will require a tripod hoist to lift them safely from the tank, SPEL can supply these units where required. This unit can be used to lift any size coalescer and even pumps where fitted.



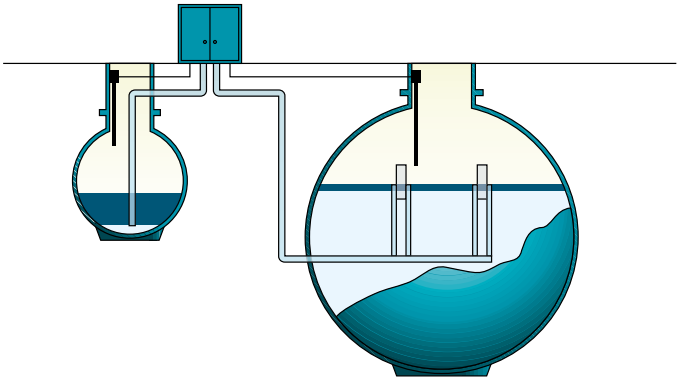
Technical Accessories

SPEL Econoskim®

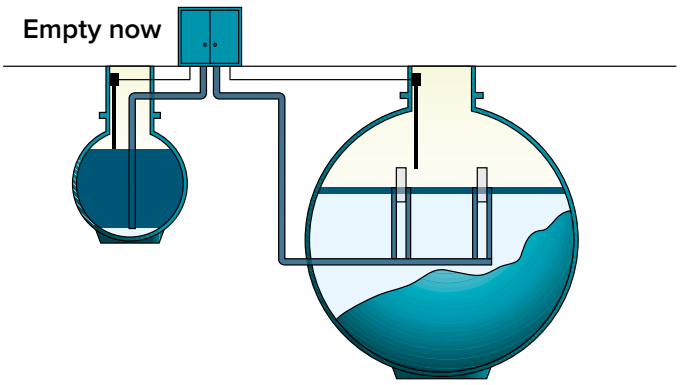
The SPEL Separator + Econoskim® System is a patented system designed to maintain oil separators at peak performance for as long as possible. It does this by skimming the oil from the surface of the separator and transferring it to a separate containment tank for simple collection by a waste oil contractor thus r**educing costs and further protecting the environment.** For more information, refer to SPEL Econoskim® section.



1. When the SPEL constant monitoring system detects the level of fuel/oil pollutants has reached the pre-determined volume, the skimmers are brought into operation, transferring these pollutants from the SPEL separator to the SPEL Tankstor® containment tank. When the transference of light liquid pollutants has been completed, the system automatically stops the skimming process and re-sets.



2. During the skimming cycle a small amount of water is transferred from the SPEL separator into the SPEL Tankstor® containment tank. In order to maximise the capacity of the SPEL Tankstor® containment tank for pollutants, accumulated water is automatically transferred back to the SPEL separator.



3. The process repeats automatically every time pollutants reach the pre-determined volume. When the SPEL Tankstor® containment tank is 90% full, the SPEL constant monitoring system signals ‘EMPTY NOW’ with an audible and visual alarm.