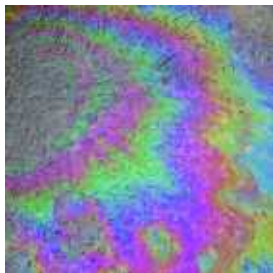


Separators

By-pass and Full Retention separators Class 1 & 2



PRODUCT RANGE



BISON Packaged Sewage Treatment Plants 6-20 P.E.



Clereflo CT35-600 Packaged Sewage Treatment Systems



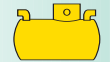
Clereflo M Series Packaged Sewage Treatment Systems (up to 5000 P.E.)



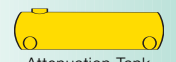
Clereflo MBR Membrane Technology Packaged Sewage Treatment Systems (up to 5000 P.E.)



Packaged Pumping Stations



Class I & II Bypass & Full Retention Oil/Water Separators



Attenuation Tank Storm Water Balancing



General Underground Storage Tanks



Sprinkler Tanks



Above Ground Engineered Vessels

Plus:

Double Walled Tanks

Fuel Tanks

Cesspools & Septics

Rainwater Harvesting Systems

Grease/Oil Separators

Bucket Lift Elevators

Screenpack CSO's

BISON Cell Modular Storage

INTRODUCTION

Pollution prevention is a critical part of any sustainable drainage system and verified fuel/oil separators are an essential requirement in the prevention of watercourse pollution by containing oil and other hydrocarbons that have entered a drainage system.

Separator Standards & Verification

BS EN858-1-2002 is the European Standard for the design, performance, testing, marking and quality control of separators within the EU. All separators must comply with this standard. The most recent list of verified separators for the Irish and UK markets is available at: www.environment-agency.gov.uk.

Separator Classes & Types

There are two types of separator referred to in the European Standard, both having two performance classes:

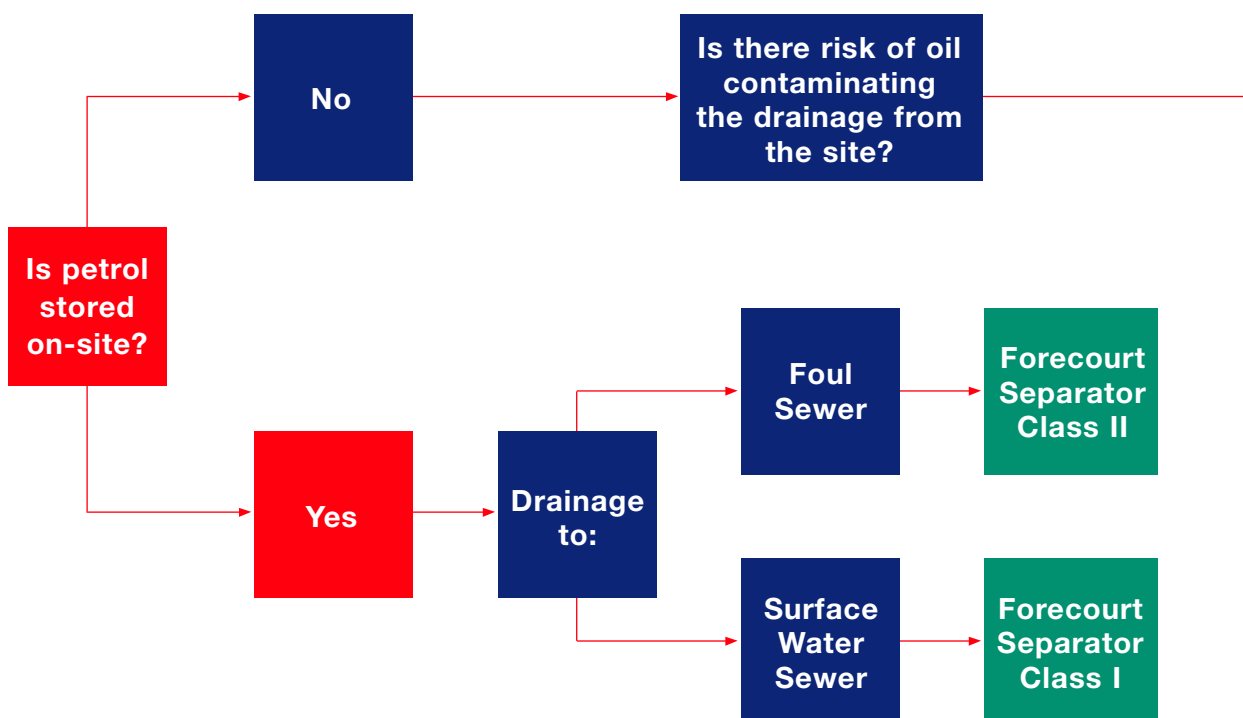
- By-pass - Class 1
- Class 2
- Full Retention - Class 1
- Class 2

Class 1 Models

Generally, incorporating a coalescing filter and are designed to achieve a concentration of less than 5mg/l of oil under standard test conditions. Class 1 must be specified when discharging to surface water drainage systems, water courses or soakaways. Of particular relevance here, is the removal of small oil droplets emanating from car parks, etc.

Class 2 Models

Class 2 separators are designed to achieve an oil concentration of less than 100mg/l under standard test conditions. They are generally suitable for treating discharges where a lower quality is required, such as direct discharge to a foul sewer system.



By-Pass Separators

By-pass separators are designed to treat fully all rainfall events up to 5mm/hr or 99% of all rainfall events. Any rainfall events above this leads to a by-pass of the system of the surplus flows.

Full Retention Separators

Full retention separators are designed to treat the full flow of liquid through the drainage system. This is accepted as a rainfall intensity of up to 50mm/hr.

Full retention separators are particularly relevant for high risk applications, such as petrol filling stations and heavily contaminated industrial areas.

Forecourt Separators

Forecourt Separators are full retention separators and are designed to contain the maximum spillage that is likely to occur, such as the entire contents of one compartment of an oil/fuel tanker. This storage capacity volume is set at 7,600l.

Forecourt separators are an essential infrastructural requirement for all forecourts so as to ensure compliance with both health and safety, and environmental legislation.

Washdown Separators

Washdown separators are generally used in areas such as car wash/truck wash and various cleaning systems that discharge directly into a municipal treatment facility.

Discharges from washdown separators must not be allowed to enter the surface water drainage system or a fuel/oil separator. The likely presence of emulsifiers such as detergents will disperse oils and will reduce the separation efficiency of all separators.

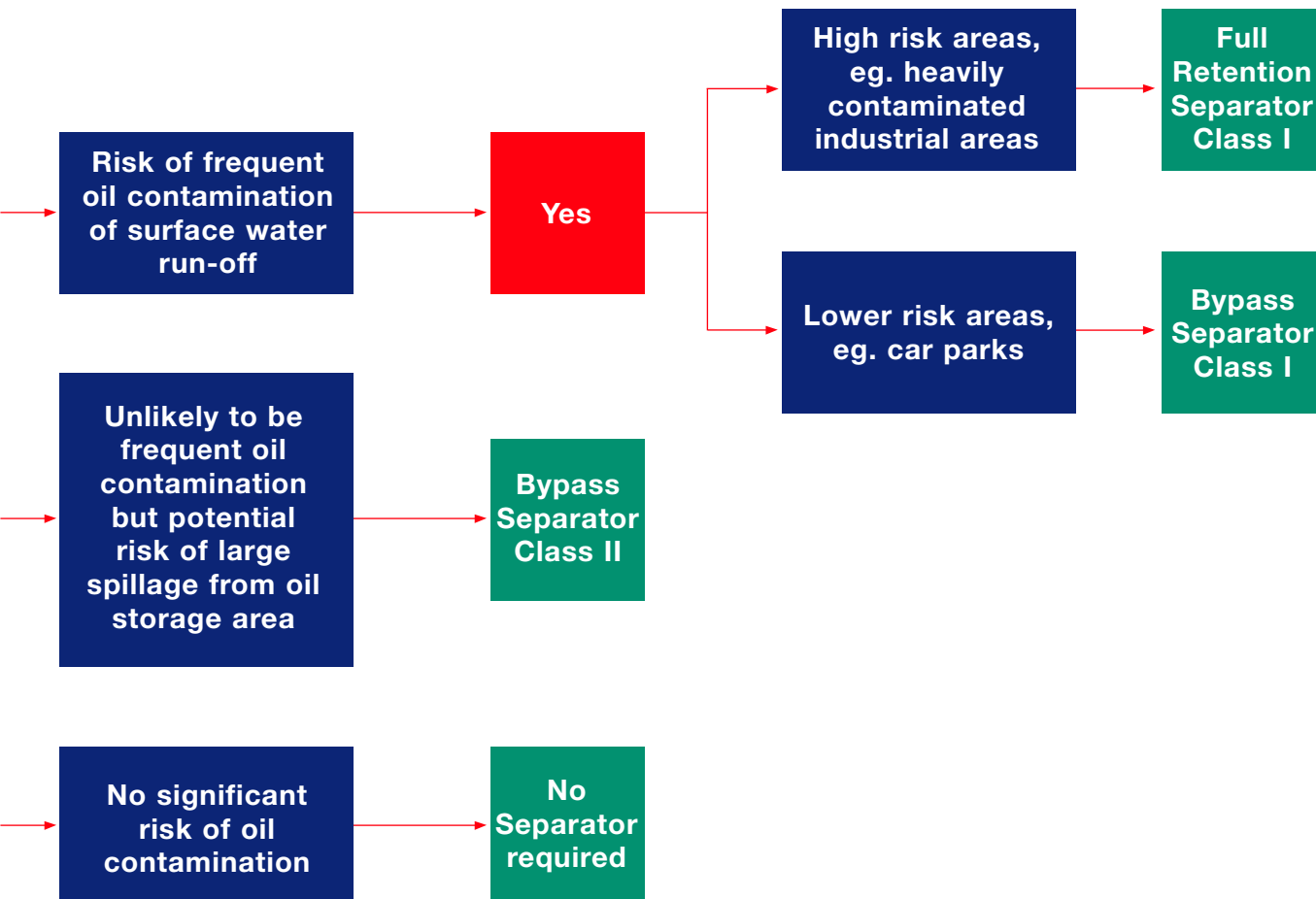
Silt Traps & Sedimentation Units

The use of silt traps are of particular relevance on sites such as car/truck wash, etc where separators on-site may not have sufficient silt capacity.

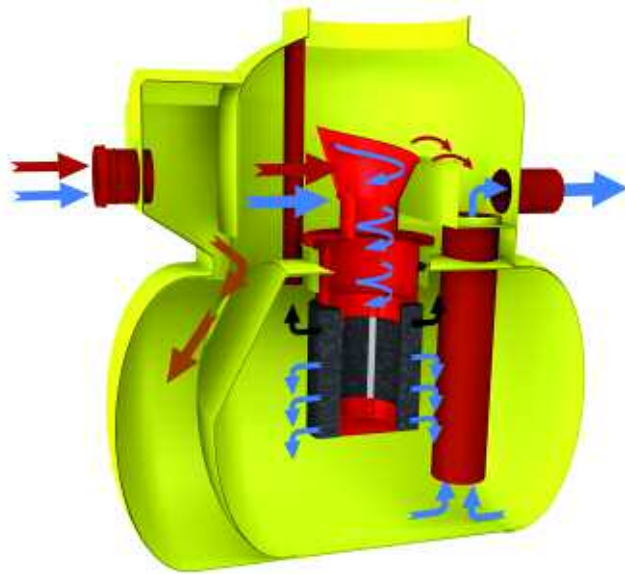
Operating Capacities

The minimum operating capacity of any separator, regardless of the area drained, should not be less than 1,000l. The exception to this requirement is forecourt separators which must have a minimum capacity of 7,600l.

Separators must also provide adequate silt storage capacity, unless preceded by a suitable silt trap.



CNSB Bypass Separator Range



Pollution prevention is a critical part of sustainable drainage systems and verified oil separators are designed to prevent watercourse pollution by containing oil and other hydrocarbons that have entered a drainage system.

EPS Bison's new range of CNSB Bypass Separators are designed and tested in accordance with **BS EN858-1-2** and are proven to effectively separate oil and water under test to less than 1 parts per million and, therefore, protect the environment and public safety. The new CNSB range fulfils all current regulatory requirements for oil separators both in Ireland and the UK.

Features & Benefits

- Innovative design
- Competitively priced
- Small & easy to handle
- Uniquely designed to minimise size of unit
- Major installation cost savings
- Easy to service & maintain
- Fully compliant to the UK's Environment Agency's new PPG3 guidelines
- An Environment Agency verified manufacturer
- Fully tested & verified with a range from CNSB 1.5 to CNSB 1000 (class 1 & class 2)
- Exceeds industry standards
- Full BSI certification
- Silt & non-silt options
- Prevents pollution & reduces risk

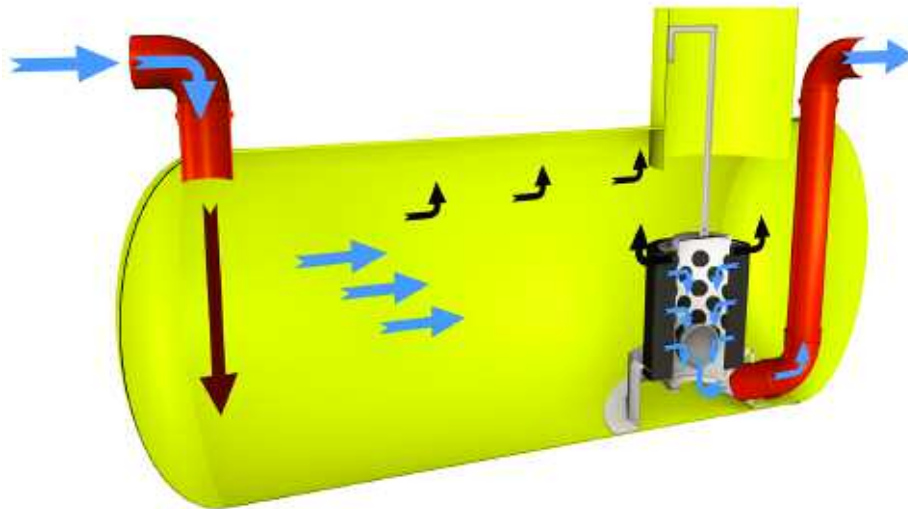
Application Areas

- Carparks
- Roadways & major trunk roads
- Light industrial & goods yards
- Discharge to a sensitive environment

Alarm Systems

Under the new PPG3 guidelines all separators must be provided with an alarm system. This automatic warning device indicates that the separator is in need of immediate maintenance for it to continue to work effectively. A full technical and service package is available which can include product specification, separator & alarm installation, commissioning, oil & silt removal, service and maintenance.

Full-Retention Separators



Pollution prevention is a critical part of sustainable drainage systems and verified oil separators are designed to prevent watercourse pollution by containing oil and other hydrocarbons that have entered a drainage system.

EPS Bison's new range of Full-Retention Separators are designed and tested in accordance with BS EN858-1-2 and are proven to effectively separate oil and water under test to less than 1 parts per million and, therefore, protect the environment and public safety. The new CNS range fulfils all current regulatory requirements for oil separators both in Ireland and the UK.

Features & Benefits

- Class 1 & class 2 Design
- Innovative design
- Competitively priced
- Major installation cost savings
- Easy to service & maintain
- Fully compliant to the UK's Environment Agency's new PPG3 guidelines
- Produced by an Environment Agency verified manufacturer
- Fully tested & verified with a range from CNS 1.5 to CNS 1000 (class 1 & class 2)
- Exceeds industry standards
- Full BSI certification
- Silt & non-silt options
- Prevents pollution & reduces risk

Application Areas

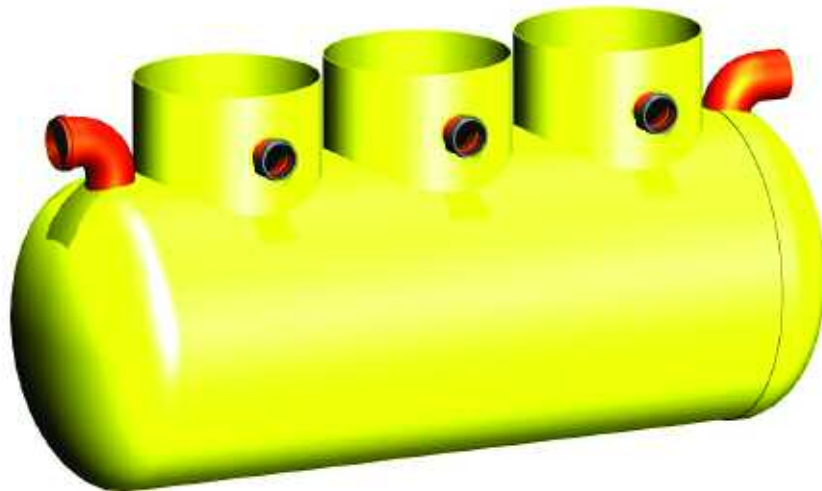
Full-Retention Separators are used in high risk areas such as:

- Fuel stations/depots
- Garages
- Scrap yards
- Heavily contaminated industrial area

Alarm Systems

Under the new PPG3 guidelines all separators must be provided with an alarm system. This automatic warning device indicates that the separator is in need of immediate maintenance for it to continue to work effectively. A full technical and service package is available which can include product specification, separator & alarm installation, commissioning, oil & silt removal, service and maintenance.

Silt and Washdown Separators



Washdown separators are generally used in areas such as car wash/truck wash and various cleaning systems that discharge directly into a municipal treatment facility.

Discharges from washdown separators must not be allowed to enter the surface water drainage system or a fuel/oil separator. The likely presence of emulsifiers such as detergents will disperse oils and will reduce the separation efficiency of all separators.

Features & Benefits

- Wide range of products available from EPS Bison with heavy duty access hatches for easy sediment removal by hand or tanker.
- Light and simple to install
- Silt storage included
- Extension shafts available for deeper inverts
- Access and maintenance from ground level
- Venting provided
- Special 530mm trap available for use with automatic systems under chassis washing. This model is generally installed between the chassis wash arms. For particularly large capacities, larger sedimentation tanks available.

Application Areas

- Car parks
- Roadways & major trunk roads
- Light industrial & goods yards
- Discharge to a sensitive environment

Alarm Systems

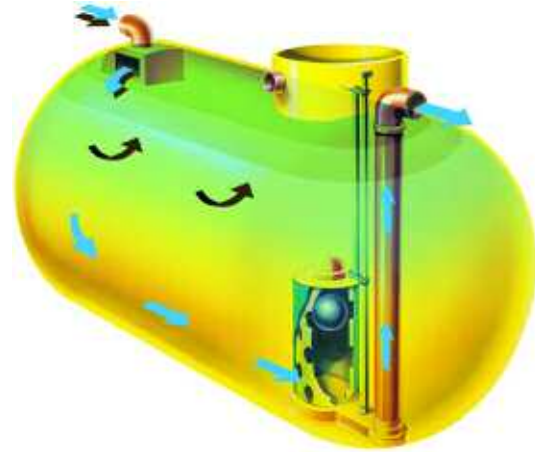
Under the new PPG3 guidelines all separators must be provided with an alarm system. This automatic warning device indicates that the separator is in need of immediate maintenance for it to continue to work effectively. A full technical and service package is available which can include product specification, separator & alarm installation, commissioning, oil & silt removal, service and maintenance.

Forecourt Separators

Forecourt Separators are specifically designed for use on petrol forecourt and other similar commercial fuelling areas. Their design is otherwise similar to the standard full retention range of separators.

Features & Benefits

- Minimum storage capacity of 7600 litres
- Light and simple to install
- Silt storage included
- Class 1 and Class 2 options
- Extension shafts available for deeper inverts
- Access and maintenance from ground level
- Venting provided
- Oil storage included
- Coalescer available (Class 1 unit only)
- Automatic closure device
- Oil alarm system available



Installation

Forecourt separators to be installed on a suitable concrete base and backfilled with suitable concrete surround. Granular surround models also available.

Suitable for installation in a trafficked area provided that a suitable cover slab is designed so as to ensure the structural integrity of the tank. All separators need to be installed and vented as per the relevant health and safety and local authority requirements.

Alarm Systems

Under the new PPG3 guidelines all separators must be provided with an alarm system. This automatic warning device indicates that the separator is in need of immediate maintenance for it to continue to work effectively. A full technical and service package is available which can include product specification, separator & alarm installation, commissioning, oil & silt removal, service and maintenance.

Mains Powered System

This option is best suited to new build situations or sites where installation of the necessary cabling and ducting is straightforward and economical.

Solar Powered System – Flashing Beacon

This option requires no mains power supply or any significant cabling and ducting making it economical for large sites and retro fitting alarms to existing oil separators. A High Intensity Beacon will flash when a problem is detected.

Solar GSM Alarm

The Solar GSM alarm sends a status report of your separator to a mobile phone number of your choice. The status of the GSM alarm can also be tested at any time by simply sending a pre-recorded text message via your dedicated mobile phone.

BYPASS SEPARATOR – CORE RANGE. CLASS 1. TECHNICAL DATA

Larger models up to CNSB 1000 are available

AREA DRAINED (M ²)	TANK CODE INCL. SILT	LENGTH INCL. SILT (mm)	SILT CAPACITY (L)	OIL STORAGE CAPACITY (mm)	DIAMETER (mm)	HEIGHT (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	ACCESS (mm)
1667	CNSB3s/21	1400	300	45	1026	2150	1680	1630	750
2500	CNSB4.5s/21	1785	450	67.5	1026	1825	1220	1170	600
3333	CNSB6s/21	1975	600	90	1026	1825	1220	1170	600
4444	CNSB8s/21	2165	800	120	1026	1825	1220	1170	600
5555	CNSB10s/21	2485	1000	150	1026	1825	1220	1170	600
8333	CNSB15s/21	2670	1500	225	1210	2100	1400	1350	600
11111	CNSB20s/21	3115	2000	300	1210	2100	1400	1350	600
13889	CNSB25s/21	3555	2500	375	1210	2100	1400	1350	600
16667	CNSB30s/21	3520	3000	450	1510	2640	1720	1670	750
22222	CNSB40s/21	4090	4000	600	1510	2640	1720	1670	750
27778	CNSB50s/21	4655	5000	750	1510	2640	1720	1670	750
33333	CNSB60s/21	4415	6000	900	1880	3300	2025	1975	2 x 600
38889	CNSB70s/21	4835	7000	1050	1880	3300	2025	1975	2 x 600
44444	CNSB80s/21	5225	8000	1200	1880	3300	2025	1975	2 x 600
50000	CNSB90s/21	5620	9000	1350	1880	3300	2025	1975	2 x 600
55556	CNSB100s/21	6010	10,000	1,500	1880	3300	2025	1975	2 x 600

NOTE: It is a requirement of PPG3 that you have a silt capacity either in your tank or in an upstream catch pit.

CLEREFLO FULL RETENTION SEPARATOR

AREA DRAINED (M ²)	TANK CODE INCL. SILT	LENGTH INCL. SILT (mm)	SILT CAPACITY (L)	TANK CODE EXC SILT	LENGTH EXC SILT (mm)	OIL STORAGE CAPACITY	DIAMETER (mm)	HEIGHT (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)
222	CNS4s/**	2319	400	CNS4/**	1810	40	1010	1300	1075	1025
333	CNS6s/**	3414	600	CNS6/**	2650	60	1010	1300	1075	1025
444	CNS8s/**	3197	800	CNS8/**	2489	80	1210	1500	1275	1225
556	CNS10s/**	3957	1000	CNS10/**	3073	100	1210	1500	1275	1225
833	CNS15s/**	3844	1500	CNS15/**	2995	150	1510	1800	1550	1500
1111	CNS20s/**	5060	2000	CNS20/**	3929	200	1510	1800	1550	1500
1667	CNS30s/**	5639	3000	CNS30/**	4190	300	1880	2100	1850	1800
2222	CNS40s/**	7059	4000	CNS40/**	5487	400	1880	2100	1850	1800
2778	CNS50s/**	4792	5000	CNS50/**	3778	500	2600	2800	2550	2500
3333	CNS60s/**	5673	6000	CNS60/**	4450	600	2600	2800	2550	2500
3889	CNS70s/**	6549	7000	CNS70/**	5123	700	2600	2800	2550	2500
4444	CNS80s/**	7425	8000	CNS80/**	5795	800	2600	2800	2550	2500
5000	CNS90s/**	8301	9000	CNS90/**	6467	900	2600	2800	2550	2500
5556	CNS100s/**	9177	10,000	CNS100/**	7139	1,000	2600	2800	2550	2500

/** Enter 11 for Class 1 Full Retention Separators /** Enter 12 for class 2 Full Retention Separators

NOTE: It is a requirement of PPG3 that you have a silt capacity either in your tank or in an upstream catch pit.

FORECOURT SEPARATORS

TANK CODE	VOLUME (L)	LENGTH (mm)	DIAMETER (mm)	HEIGHT (mm)	BASE TO INLET (mm)	BASE TO OUTLET (mm)	ACCESS (mm)
ANO/11*	10000	4250	1800	2100	1600	1550	750
LNO/11**	10000	4250	1800	2100	1600	1550	750
ANT/12***	10000	4250	1800	2100	1600	1550	750

*Class 1 Forecourt Separator suitable for discharging to surface water drains **Class 1 Forecourt Separator suitable for installation in granular materials

***Class 2 Forecourt Separator suitable for discharging to foul drains only

TANK CODE	CAPACITY (L)	SILT STORAGE	DIAMETER (mm)	LENGTH (mm)	ACCESS DIAMETER (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)
CWS2/12	2000	1000	1000	2713	600	1240	1190
CWS3/12	3000	1500	1200	2853	600	1375	1325
CWS4/12	4000	2000	1200	3737	600	1375	1325
CWS6/12	6000	3000	1500	3636	600	1725	1675
CWS8/12	8000	4000	1800	3443	600	2030	1980
CWS10/12	10000	5000	1800	4250	600	2030	1980
CWS12/12	12000	6000	1800	5015	600	2030	1980
CWS14/12	14000	7000	1800	5800	600	2030	1980
CWS16/12	16000	8000	1800	6587	600	2030	1980
CWS18/12	18000	9000	2500	4117	600	2725	2675
CWS20/12	20000	10,000	2500	4524	600	2725	2675

SEPARATORS

Sizing Formula

In line with PPG3 and recommended testing procedures the EPS Bison separators shown here have been allocated a "Nominal Size". Use the tables to make your selection. Nominal size is expressed as CNS for full retention separators and CNSB for by-pass separators.

Normal Method

- Multiply the square meterage of the area drained by 0.018 for full retention separators, or by 0.0018 for by pass separators.
- Your resulting CNS/CNSB figure should equate to the maximum treated flow rate in litres per second under test conditions.
- To determine silt capacity (either integral or separate upstream device), multiply your CNS/CNSB by 100.
- Minimum oil storage should not be less than $CNS \times 10$ for full retention with automatic closure devices, or $CNS \times 15$ for those without, or $CNSB \times 15$ for by-pass separators.

Pipework and Access Shafts

- Pipework can be sized to suit each individual site.
- Virtually any size inlet/outlet pipework and orientation can be manufactured.
- Standard sizes are 100 or 150mm uPVC with larger sizes fabricated in GRP.
- All Separators must be vented and a standard 100mm diameter socket is provided in the access shaft. Extended shafts are available to cover any depth of installation - check tables for standard supply.

Maintenance

- EPS Bison provide industry leading Service Contracts for all separators. These are modelled on the requirements detailed in the Environmental Alliance Pollution Prevention Guideline document PPG3 and the European Standard BS EN 858-2.
- The Service Contract is designed to protect assets and eliminate risk, whilst adopting a regime where emptying is only carried out when needed.

Accessories

Automatic Closure Devices

- Compulsory for all PPG3 compliant full retention separators. The ACD prevents accumulated pollutants flowing through the unit when maximum storage level is reached.
- ACD's comprise a floating disc or ball and plate in a cylindrical shaft over the outlet duct which will be balanced to suit the specific gravity of pollutants.
- In major spillages, or when the maximum oil retention capacity is retained, the ACD is forced down over the aperture to prevent discharge.



Coalescing Filters

- This filter (a cylindrical cartridge of open cell material - with handle for easy removal and cleaning) separates residual oil in already separated Oil/Water and ensures discharge quality of less than 5mg/litre of oil in water under test conditions.
- Simple to maintain and replace.

Oil Level Alarms

- A requirement on all PPG3 compliant separators to provide early warning of the need to empty a unit and avoid potentially costly accidental discharge.
- Comprises an electronic or radio linked control with probe placed in the separation chamber. Audible and visual alarms signal when the unit requires emptying.
- Solar powered models with radio links available to avoid hard wiring - gsm monitoring also available.
- Alarms also available for monitoring silt levels and warning of flow back-up in the system.

CAPABILITY AND QUALITY

EPS Bison is presently one of the leading Irish suppliers of GRP tanks and products. Conder products are a European leader in GRP tank design, manufacture, testing and supply.

With over 35 years experience each, together our partnership offers a proven and extensive capability to provide underground storage solutions for all types of commercial, industrial and residential developments.

Our partnership offers:

- Europe's largest automated production facilities
- Turnkey solution from first enquiry through to installation, commissioning and planned servicing
- Innovative design and build experience to strict quality standards - certified to BS EN ISO 9001:2000 and BS EN ISO 14001
- Design & Build - to meet even the most demanding project requirements
- Selected products also manufactured to BS 4994, Cats 1, 2 & 3, EN976 and EN858
- Industry leading state-of-the-art mandrels to create vessels with up to 275,000 litres capacity and from 1m-4m in diameter
- Wide range of industry approvals
- 100s of successful installations
- In-depth technical service and specification support for every project
- Full compliance with the latest environmental and building regulations
- In-house materials testing capability and QA laboratory
- All products supplied with detailed O&M and installation manuals
- All services under one roof - single point of contact for customers
- Full 12 month warranty on all products subject to installation in accordance with our guidelines



NETWORK OF BRANCHES

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Facsimile: 022 31250

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