

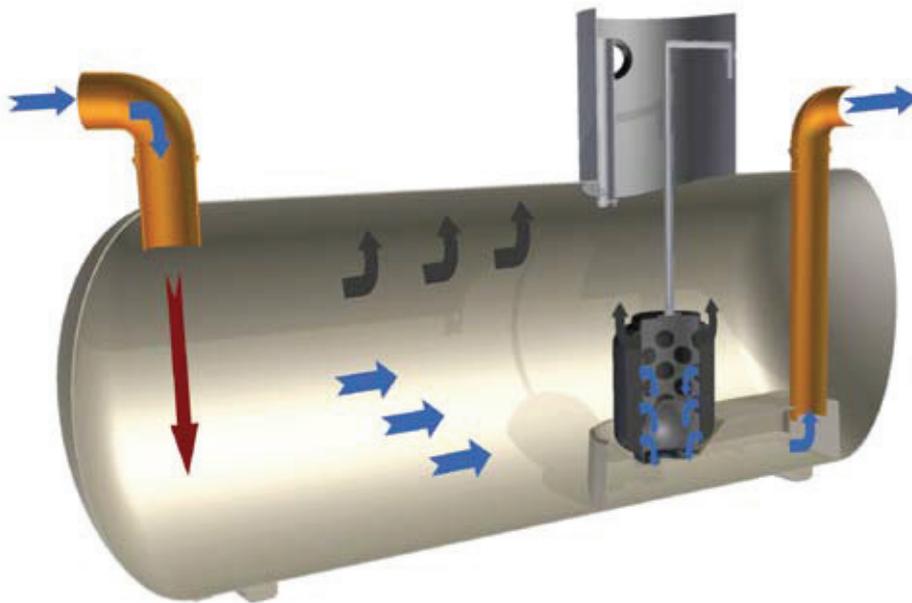
clereflo full retention separator

Full retention separators treat the full flow that can be delivered by a drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 65mm/hr. Full retention separators are used where there is a risk of regular contamination with oil and a foreseeable risk of significant spillages eg vehicle maintenance areas and retail fuel forecourts. All full retention separators have an automatic closure device (ACD) fitted as standard. Compulsory for all PPG3 compliant full retention separators, the ACD prevents accumulated pollutants flowing through the unit when maximum storage level is reached.

PROCESS & PERFORMANCE

Contaminated water enters the separator, the liquid is retained for a sufficient period to ensure that the lighter than water pollutants, such as oils and petrol, separate and rise to the surface of the water and are retained within the separator. Decontaminated water is discharged. Retained oil must be emptied from the separator once the level of oil is reached, or the oil level alarm is activated and the closure device operated.

Separator waste is a "special waste" and should be removed from the separator under the terms of The Waste Management Code of Practice.



KEY
BROWN = Silt
BLUE = Treated flow
BLACK = Oil separation

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/**	2319	40	1010	1650	1290	1240
333	CNS6s/**	3414	600	CNS6/**	3414	60	1010	1650	1290	1240
444	CNS8s/**	3197	800	CNS8/**	3197	80	1210	1850	1475	1425
556	CNS10s/**	3957	1000	CNS10/**	3957	100	1210	1850	1465	1415
833	CNS15s/**	3844	1500	CNS15/**	3844	150	1510	2175	1765	1715
1111	CNS20s/**	5060	2000	CNS20/**	5060	200	1510	2175	1765	1715
1667	CNS30s/**	5639	3000	CNS30/**	5639	300	1880	2560	2030	1980
2222	CNS40s/**	7059	4000	CNS40/**	7059	400	1880	2560	2030	1980
2778	CNS50s/**	4792	5000	CNS50/**	4080	500	2600	3315	2730	2680
3333	CNS60s/**	5673	6000	CNS60/**	4805	600	2600	3315	2730	2680
3889	CNS70s/**	6549	7000	CNS70/**	5529	700	2600	3315	2730	2680
4444	CNS80s/**	7425	8000	CNS80/**	6254	800	2600	3315	2730	2680
5556	CNS100s/**	9177	10,000	CNS100/**	6751	1,000	2600	3315	2730	2680

/** 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.

FEATURES & BENEFITS

- All surface water treated
- Available in Class 1 & 2
- ACD Fitted as standard

APPLICATION AREAS

- Sites with hi-risk of oil contamination
- Fuel storage depots
- Refuelling facilities
- Petrol Forecourts
- Vehicle maintenance areas/workshops





CONDER TANKS
COVERED BY THIS
GUIDE:

- ◆ **All full retention oil/water separators with:**
- **Automatic closure devices**
- **Combined closure and coalescing filter devices**
- **Automatic alarm devices**

Environment Agency*

“Use and Design of Oil Separators in Surface Water Drainage Systems: PPG3”

MAINTENANCE GUIDE

MAI/TAN/SS/6

Jan 2007 REV 6
Sheet 1 of 4

MAINTENANCE GUIDE

INTRODUCTION

The primary function of oil/water separators is to separate oil, petrol, Diesel etc., from waste water and retain the separated liquids. These separated liquids **must** be removed regularly, using a licensed effluent disposal contractor (your contracted service provider), to ensure that the separator operates as efficiently as possible.

The natural oil/water separating process from gravity fed waste water depends on the storage, or ‘dwell’, time within the separator chamber. Guidelines have been established by the *Environment Agency** for minimum ‘dwell’ times, and hence, minimum working volumes for separators. These have been applied in tests carried out by Conder Solutions Ltd which are based on the maximum flowrate into the separator (l/sec). As the working volume reduces by the accumulation of the separated oil, petrol, Diesel etc., so the separating efficiency reduces.

Another major influencing factor on the efficiency of separator systems is sediment. Oil/water separators are usually designed as liquid/liquid separators unless the specification has determined a requirement to store a volume of sediment. This can be accommodated within a combined liquid/sediment separator where the storage volume is increased accordingly. However, if the design of the drainage system can allow the sediment to be separated and stored upstream of the oil/water separator, in catch-pits or sediment separators, the system would function more efficiently. Again, settled sediment **must** be removed regularly to ensure optimum efficiency (ref. *Environment Agency*).

REGULAR MAINTENANCE OF SEPARATOR EQUIPMENT WILL ENSURE IT OPERATES AS INTENDED WITH MINIMUM RISK OF POLLUTION.

MAINTENANCE INSPECTIONS

Separators are used in widely varying circumstances where some will require very frequent maintenance and others will have substantially longer intervals before any maintenance (emptying) is required. However, for every separator regular maintenance **inspections** should be carried out to determine whether or not there is a need to remove the accumulated oil, petrol, Diesel, etc., or sediment. The owner of the Conder separator is entirely responsible for its operation and ensuring that the effluent quality does not breach any Discharge Consent Standards. It is advisable to set up a ‘Service Agreement’ with an effluent disposal contractor who can provide ‘automatic’ and regular maintenance and advise you if any problems with the system occur. The owner is reminded that the existence of a ‘Service Agreement’ does not necessarily transfer responsibility for general maintenance which must be conducted in accordance with this guide.

The *Environment Agency** has determined that separators shall be inspected at least every six months to establish whether or not emptying is necessary, and a log shall be maintained. Additional equipment for separators provided by Conder Solutions Ltd such as an Envirotector will give warning of the accumulation of oil, petrol, Diesel, etc., but should not be used to ‘replace’ regular inspections.

MAINTENANCE PROCEDURES

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1.0 Health and Safety

Section 6(a) of the United Kingdom Health and Safety at Work Act 1974 requires manufacturers to advise their customers on the safety and handling precautions to be observed when installing, operating, maintaining and servicing their products.

The maintenance procedures described here should be read and fully understood by the operator (competent person) before commencing work. Appropriate personal protective equipment should be used (gloves, goggles, waterproof clothing etc.) particularly when handling filters which have been in contact with oil and oily sediment.

Before any work commences always identify the separator and its associated manhole covers, and cone off or erect barriers around the entire area.

DO NOT ENTER THE TANK

2.0 Maintenance immediately following installation (Commissioning the separator)

Sediment and other construction debris can accumulate in the separator during its installation and whilst associated works are in progress. After isolating the separator from the drainage system remove the sediment as follows.

- 2.1 Slowly lift out the combined coalescing filter and automatic closure device assembly. This should be lifted at a rate of 20mm per second (1.2m per minute), until clear of the water, ensuring that most of the residual water is drained from the coalescing filter. This will also reduce the combined overall weight of the assembly.

NOTE: This assembly could weigh up to 55kgs and should be handled by two persons unless a mechanical hoist (recommended) is being used.

Remove this assembly to a place of safe keeping.

- 2.2 Using a licensed effluent disposal contractor (your contracted service provider) empty the entire contents of the separator ensuring complete removal of the sediment. Great care must be taken in and around the filter outlet housing which is situated on the base of the tank under the access turret area, to ensure that it does not become damaged. Using a high pressure hose, wash any remaining residue towards the suction hose.
- 2.3 Move the filter/closure assembly to a convenient position *upstream* of the separator so that any polluted water washed from the filter will be directed back to the separator. Remove the filter from the housing tube and wash the filter using a low pressure hose. Re-fit the filter to the housing tube.



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2.4 Fill the separator with clean water up to the outlet invert level.

2.5 Whilst ensuring that the closure is captive inside the housing tube, and the retaining cap is in place at the top of the tube, slowly lower the filter/closure assembly into the separator until it is firmly located inside the coned seating at the bottom of the tank.

NOTE: Do not lower the filter/closure assembly into the separator *before* it has been filled with water. If you do, the closure will be held in the **closed position** and the separator will not function.

3.0 Incremental maintenance

If, following maintenance inspections, the separator is found to be storing the maximum volume of oil, petrol, Diesel etc., or the maximum volume of sediment, inform your licensed effluent disposal contractor who will arrange for emptying. The following are guidelines only for determining the maximum storage volumes of oil and sediment.

- a) Multiply the maximum flowrate for which the separator has been designed (l/sec) by 15. This will be the maximum storage volume of oil in litres e.g. a PN15 separator is designed for a 15 l/sec flowrate, therefore, can store 225 litres of oil.
- b) Where no specific sediment volumes have been determined for the separator, or where no sediment has been expected to accumulate in the system, the maximum stored depth of sediment should not exceed 20% of the depth of the separator barrel e.g. a 1.8m diameter separator should not store more than 360mm depth of sediment.

3.1 Procedure

Apply the Health and Safety requirements detailed in Section1 before commencing any work.

Isolate the separator from the drainage system either by closing pre-installed valves in the upstream and downstream manholes or by securely fitting proprietary pipeline stoppers.

3.1.1 Slowly lift out the combined coalescing filter and automatic closure device assembly. This should be lifted at a rate of 20mm per second (1.2m per minute), until clear of the water, ensuring that most of the residual water is drained from the coalescing filter. This will also reduce the combined overall weight of the assembly.

NOTE: This assembly could weigh up to 55kgs and should be handled by two persons unless a mechanical hoist (recommended) is being used.

Remove this assembly to a place of safe keeping.



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- 3.1.2** Using a licensed effluent disposal contractor (your contracted service provider) carry out the following:

Remove the oil, petrol, Diesel etc., from the surface of the liquid, leaving as much of the cleaner water as possible in the separator. Remove the sediment from the bottom of the separator taking great care in and around the filter outlet housing on the base to ensure that it does not become damaged, again leaving as much of the cleaner water as possible in the separator.

- 3.1.3** Move the filter/closure assembly to a convenient position *upstream* of the separator so that any polluted water washed from the filter will be directed back to the separator. Remove the filter from the housing tube and wash the filter using a low pressure hose. If the filter has become 'blinded' with sediment or it is too dirty to clean or has become damaged, replace it. Re-fit the filter to the housing tube.

- 3.1.4** Fill the separator with clean water up to the outlet invert level.

- 3.1.5** Whilst ensuring that the closure is captive inside the housing tube, and the retaining cap is in place at the top of the tube, slowly lower the filter/closure assembly into the separator until it is firmly located inside the coned seating at the bottom of the tank.

NOTE: Do not lower the filter/closure assembly into the separator *before* it has been filled with clean water. If you do, the closure will be held in the **closed position** and the separator will not function.

- 3.1.6** Check that the Envirotector alarm probe mounted inside the vent in the turret has not been damaged and that the alarm system is working correctly by operating the test programme described in the *Operational Guide* (OPS/TAN/ALM/2).

- 3.1.7** Replace the manhole covers and remove the cones and/or barriers from the worksite.

REMEMBER - if the alarm system activates due to the accumulation of oil, petrol, Diesel etc., do not delay in contacting your licensed effluent disposal contractor. It may be several days before emptying can be arranged due to the necessity to prepare and present notifiable waste certificates.



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