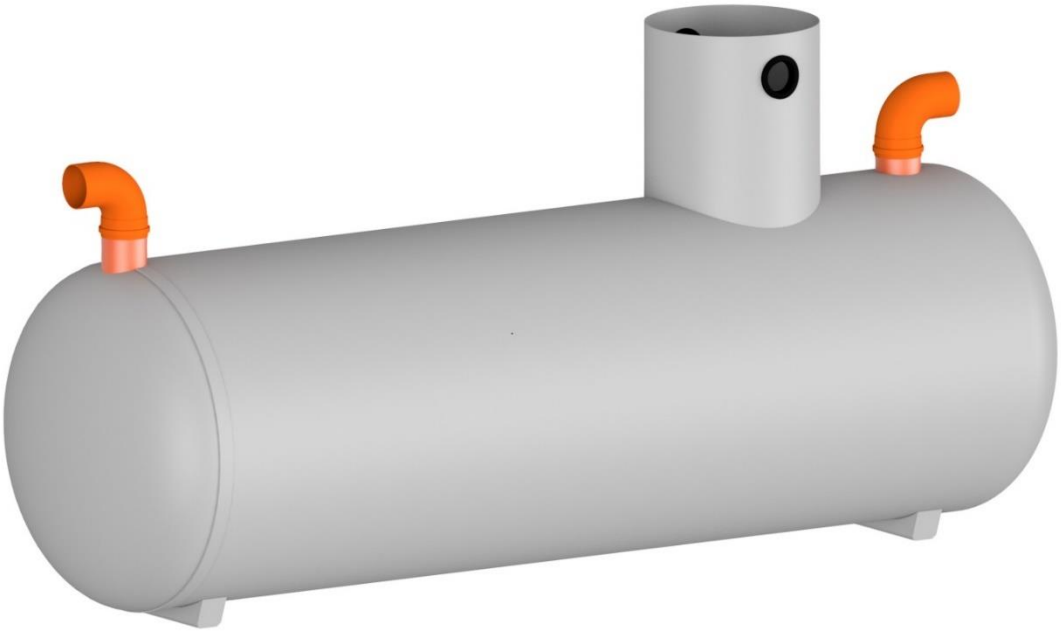
PREMIER TECH

INSTALLATION & SERVICING GUIDE

Full retention separators

REWATEC™



CE

Installation & Servicing Guide

Rewatec CNS
Full Retention Separator

Manual Version OMI014 Rev 0

Created On: 01 June 2022

For Tanks Manufactured June 2022 Onwards

To Safeguard Warranty Please Ensure You Are Using The Latest Installation Manual.

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Installation & Commissioning Checklist

Property Owners Name/Business Name:

Property Address:

City: County: Postcode: Tel:

Installation Agents Name:

Installation Agents Address:

City: County: Postcode: Tel:

Date Installation Carried Out:

TANK MODEL:

TANK SERIAL NUMBER:

This document constitutes guidance only – it is the responsibility of the installing agent to ensure the wastewater treatment plant is installed correctly, fully functional & operating as intended. For assistance please contact Premier Tech Water & Environment +0353 (0) 2251411 / sales.ptwe.ie@premiertech.com

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1. Health & Safety

You must read these warnings carefully before installing or using the equipment. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied.

This document constitutes installation and inspection guidance only – it is the responsibility of the installation company to ensure the wastewater treatment plant is fully functional & operating as intended.

The user's attention is drawn to the following:

1. The appropriate sections of this manual must be read before working on the installation.
2. Installation and servicing must only be carried out by suitably trained or qualified personnel.
3. Normal safety precautions must be taken and appropriate procedures observed to avoid accidents.
4. All works associated with the installation must be adequately risk assessed and all appropriate control measures in place prior to commencement of the works.

Please refer to the relevant Installation for installation specific guidance and instructions. General non-site specific significant hazards that are associated with the operation of a separator include but are not limited to:

- Explosive atmospheres
- Falls from working at height
- Confined space working
- Asphyxiation
- Working near, in, or over water
- Exposure to dangerous substances, chemical and biological
- Being struck by falling objects
- Moving heavy loads
- Slips and trips
- Entrapment or crushing by a workplace vehicle
- Bad working positions, often in confined spaces
- Receiving injuries from hand tools
- Inhalation of dust
- Handling of rough materials
- Loud noise
- Vibration from tools or vibrating machinery

Confined Space

While generally it should not be necessary to enter the separator in accordance with maintenance requirements or in extenuating circumstances entry may become necessary; dangers can arise in the confined space because of the following issues:

- Lack of oxygen where heavier gasses or vapours displace breathable air.
- Poisonous gas, fume or vapour that can remain in the tank even after the system is emptied.
- A sudden filling of the tank where there is a failure of the inlet bung during maintenance that occurs in periods of high rainfall.
- Fire and explosion hazards from flammable vapors and liquids.
- Residues on the inner surface of the tank that can give off fumes/vapors and could also result in poor footing conditions.

- Appoint a supervisor with the responsibility to make sure that the necessary precautions are taken.
- Ensure that individuals involved with the works are competent and in adequate physical condition to complete the works. It may be necessary to seek medical advice on an individual's suitability.
- Isolate all mechanical and electrical equipment serving the tank ensuring that shut off valves are locked off and probes removed from the tank or disconnected as necessary.
- To minimise the build-up of gas, vapors and fumes and to improve footing the tank may be cleaned before commencement of the works.
- Ensure that equipment used by operatives is suitable and does not impact on the individual's ability to enter and exit the tank safely.
- Ensure that all openings to the tank are open and if possible, increase ventilation using forced air/mechanical means to prevent the build-up of

- Hot conditions leading to a dangerous increase in body temperature due to poor ventilation.
- Injuries resulting in falls from a height; the access to the separator is at ground level but they are in excess of 4 meters deep.

You must carry out a suitable and sufficient assessment of the risks for all work activities to decide what measures are necessary for safety. All those involved in the works must be adequately trained in confirmed space and ensure that permit to work and safe systems of work is place for works within the tank and operations around the tank. The following checklist includes essential elements that must be considered when preparing a safe system of work, it is generic, not site specific and must not be considered as an exhaustive list:

toxic gas, vapours and fumes.

- Testing the air may be necessary to check that it is free from both toxic and flammable vapours and that it is fit to breathe with testing being performed by a competent individual.
- Non-sparking tools and specially protected lighting are essential where flammable or potentially explosive atmospheres are likely.
- Breathing apparatus is essential if the air inside the space cannot be made fit to breathe because of gas, fume or vapour present, or lack of oxygen.
- Prepare emergency plans where emergency arrangements will need to cover the necessary equipment, training and rescue operations.
- Rescue harnesses should be provided with lifeline where the lifeline is run back to a point outside the confined space to assist in rescue operations.
- An adequate communications system is needed to enable communication between people inside and outside the confined space and to summon help in an emergency. A suitable competent individual may be required to communicate with anyone inside, raise
- the alarm quickly in an emergency, and take charge of the rescue procedures

2. Rewatec CNS Overview

How do full retention separators work?

Step 1

Contaminated water enters the separator where the liquid is retained for a sufficient period to ensure that the pollutants (such as petrol, diesel or other hydrocarbon types) separate and rise at the surface of the water.

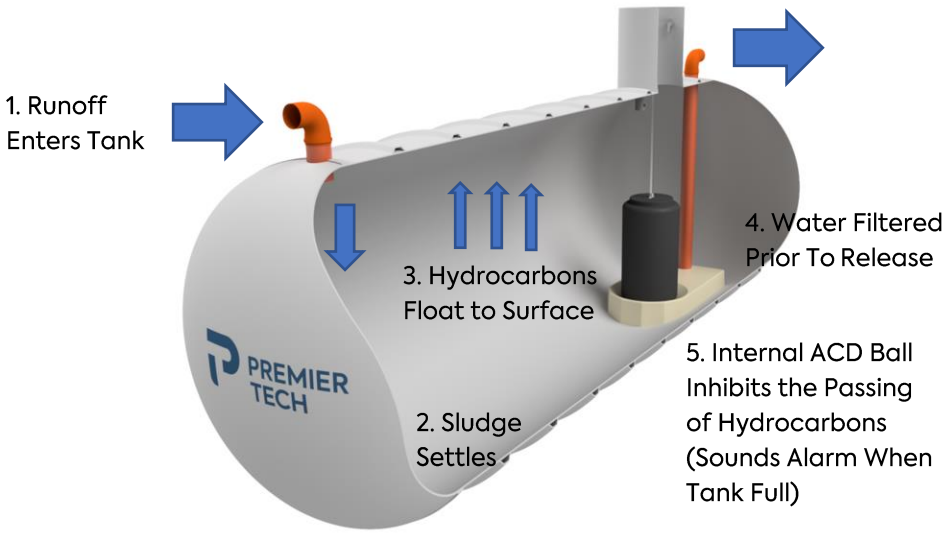
Step 2

The decontaminated water, free of hydrocarbons, passes though the coalescing filter before it is safely discharged from the separator, with the remaining pollutants being retained inside the separator.

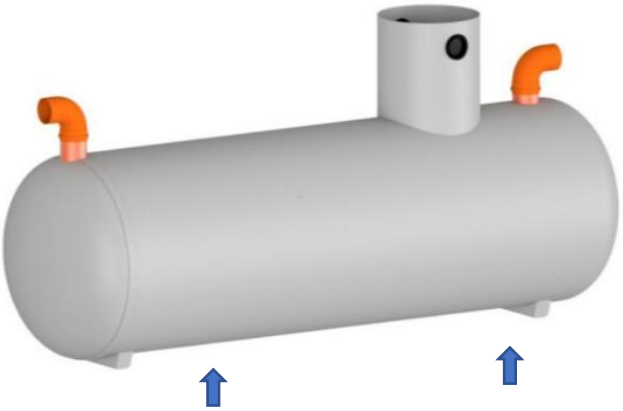
Step 3

Retained pollutants must be emptied from the separator once the level of oil is reached, or the oil level alarm is activated. This waste should be removed from the separator under the terms of the Waste Management Code of Practice.

In the unlikely event of uncontrolled oil build up, hydrocarbons are expected to be retained in the filtration mechanism and enable the automatic closure device preventing from oil spills. All Rewatec full retention separators have an automatic closure device (ACD) fitted as standard. This is compulsory for all compliant full retention separators and prevents accumulated pollutants from flowing through the unit when maximum storage level is reached.



3. Tank Handling



- ☐ Use <u>at least</u> 2 x webbed slings positioned under the tank. (Do NOT use any other item such as rope or chain)

- ☐ Lift using a suitable mechanical device such as a crane or digger.
- ☐ Take care not to damage the tank
- ☐ **DO NOT** lift the tank if it contains water.
- ☐ **DO NOT** subject the unit to sharp impacts.
- ☐ Use the lifting eyes on the top of the unit when lifting the plant.
- ☐ **NEVER** attempt to lift the unit by attaching lifting gear to the inlet/outlet pipe.

WARNING: Failure to comply may result in damage to the unit and/or injury to site personnel. When working in a deep excavation, ensure all necessary safety precautions are taken to provide safe working conditions for site personnel.

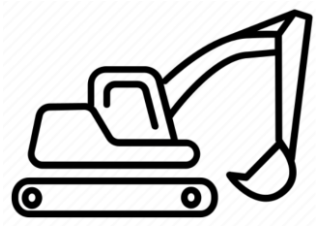
4. Offloading Inspection

The contractor is responsible for off-loading all items of equipment:

- ☐ Check tank for signs of transit damage.
- ☐ Check kiosk for signs of transit damage.
- ☐ Ensure all manway covers are present.
- ☐ Nuts, bolts, washers and other components supplied.
- ☐ Any additional options ordered are present.

5. Locating the Tank & Hole Excavation

The following instructions are offered for guidance only. Premier Tech accept no responsibility for incorrect off-loading or installation.
If you are in any doubt about any aspect of the installation, please contact Premier Tech.



The installation should be carried out in accordance with the requirements of the Construction and Building Regulations.

During the installation, the following minimum equipment will be required:

- Normal construction equipment and plant.
- Concrete to 20 Newton/mm and 30–50 mm slump. (Initially 100 mm)
- Rivets and waterproof mastic for sealing the turret to the sump
- An adequate supply of fresh water to fill the sump at the same rate as backfilling.
- De-watering equipment as necessary.
- Lifting straps or ropes of the correct length and adequate S.W.L

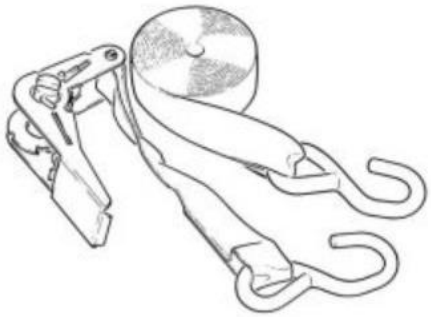
Available from Premier Tech:

- UTG9501 Granular Surround
- UTG9502 Concrete Surround

The lifting procedures as set out in the relevant Installation Guidance in the UTG9501/9502 Document have been developed to ensure the safe handling of the unit. Failure to comply may result in damage to the unit and/or injury to site personnel and invalidation of the product warranty. The installing contractor is responsible for off-loading all items of equipment with due regard to the following:

- Do not lift the tank if it contains water.
- Do not subject the tank to impacts or contact with sharp surfaces.
- Always use lifting slings placed underneath the tank and between the ribs.

- Never attempt to lift the unit by attaching lifting equipment to the pipes or nozzles.
- Ensure that when backfilling the tank there is water within the tank and the water level within the
- tank is never greater than 300mm above the backfill level or less than the backfill level.



Straps (Optional)

To promote stativity, use of belt straps is recommended, especially in the case that the tank would be buried underground. The number of straps that is required is two for every 10m3 (e.g. for CNS100s that is 10m^3 two straps is required) (Details at the UTG9501/9502 document)

During installation, the following equipment will be required:

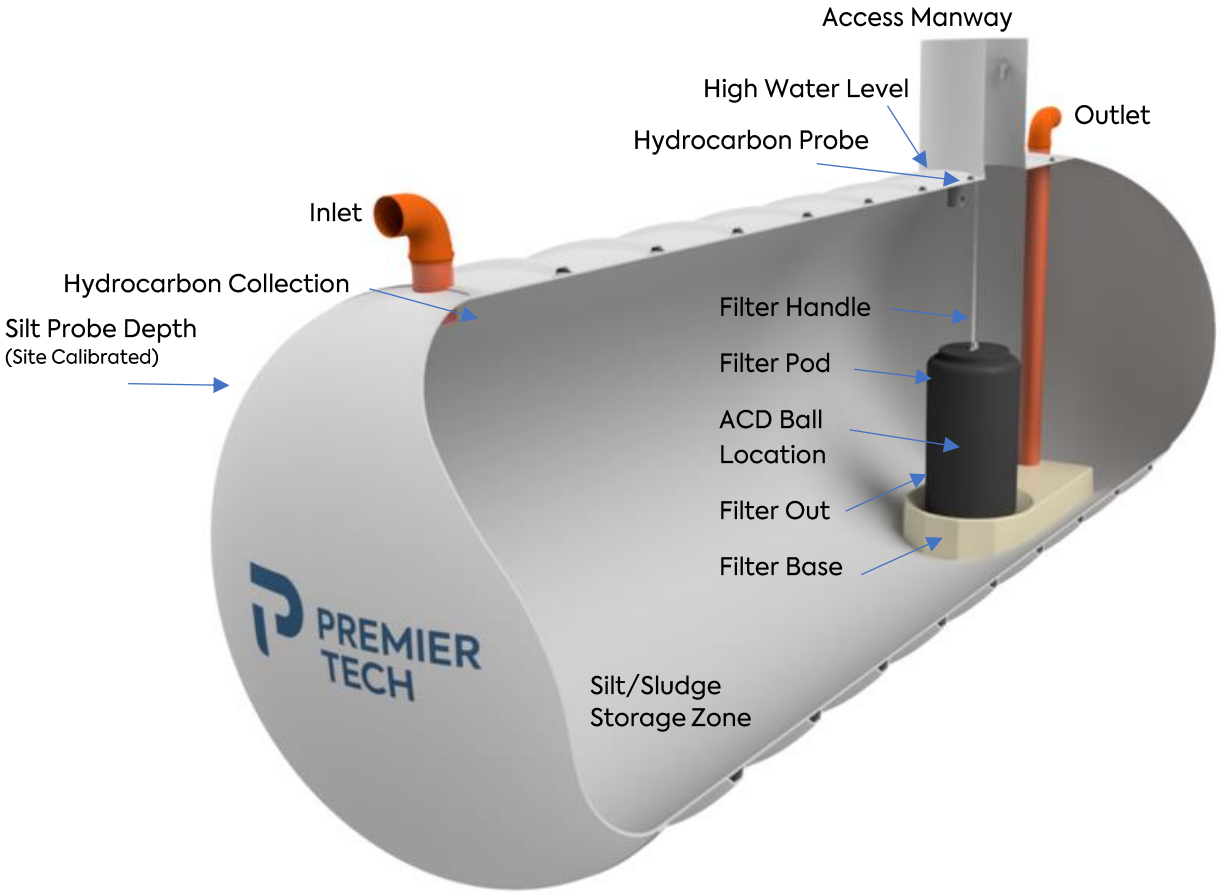
- Construction equipment and plant.
- Concrete with a minimum compressive strength of 20N/mm2 (subject to site specific conditions that may require a stronger concrete) and 30-50 mm slump (initially 100mm).
- Rivets and waterproofing caulking for sealing the turret to the sump. Silicon caulking is only suitable where hydrostatic water pressure is expected to be very low. Use a foil backed butyl flashing tape applied externally over the turret and tank joint where ground water level is high.
- An adequate supply of fresh water to fill the sump at the same rate as backfilling.
- De-watering equipment as necessary.
- Lifting straps or ropes of the correct length and adequate S.W.L.

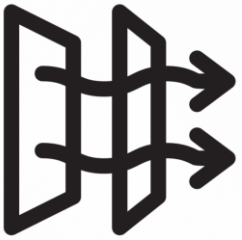
The installation should be carried out in accordance with the requirements of regulations issued by the corresponding regulatory body.

Any deviation from the requirements of the installation instructions could invalidate the product warranty.

6. Connections & Assembly

The separator consists of; inlet and outlet pipework, silt storage volume (where provided), light liquid storage of nominal size x10 litres, coalescing filters on a filter bed connected to the outlet.





Ensure adequate ventilation.

Underground tanks must be vented to prevent the build-up of dangerous and explosive gasses within the tank. The extensions of vent piping above ground should be located where gasses and vapours will be dispersed safely into the atmosphere.

Before installing the tank, attention must be to the provision of adequate ventilation.

As each site is different the following acts as guidance only. Ensuring adequate ventilation is the responsibility of the installer.

Vent termination locations should be chosen with care to ensure ventilation is not inhibited.
Areas to pay attention to include:

- Height and location of surrounding features
- Direction of prevailing winds
- Air currents caused by tall buildings
- Proximity of ducts or other ventilation shafts.
- Vent pipes should be as short as practicable.
- Vent termination should be above 2.4m from the paving level and above 1m from a window or door.
- Vents should be at least 3m horizontally from doors, windows or other openings.
- Vents should be at least 3m from the boundary.
- All vents should be cowled to prevent vermin/birds/animals entering the vent.
- The minimum diameter for a vent pipe should be 100mm.
- Multiple ventilation pipes are required when a tank has multiple access turrets.

Filter and ACD (Automatic Closure Device) Pods

All Rewatec full retention separators have an automatic closure device (ACD) fitted as standard. Each separator is normally shipped with the filter pods located in position within the tank. Although the filter pods are held in position by the lifting and position handle it is possible that the pods may move during transport. As part of the commissioning process each pod will need to be re-seated in position once the separator is filled to its operational level with clean water and the pods can be removed as part of the installation process at the discretion of the installer. Please refer to Maintenance Instructions regarding the correct procedure for removing and installing the filter pods.

Coalescing Filter Pod & ACD

Please read the Health and Safety instruction prior to removal of the coalescing filter pods. Entry into the tank is not required for this operation. There may be a build-up of gas, vapor or fumes once the cover is removed therefore it is recommended that the tank is allowed to vent for several minutes before the filter pods are removed. An explosive atmosphere may exist at or near the manways once the covers are removed; ensure there are no sources of ignition near the system prior to commencing the works.

Filter pod removal is required periodically to facilitate inspection of the filter foam,

checking of the automatic closure device and to clean the device as required. Care must be exercised in any operation involving the coalescing filter pods, the items are robust while in the tank but are reasonable fragile during the removal process and can cause injury to the operator if not extracted correctly. Liquid should be prevented from entering and exiting the separator during maintenance operations and probe calibration.

Ensure that the separator is filled with water prior to removing or installing the filter pod; installing the filter pod in an empty tank will result in the automatic closure device remaining closed. DO NOT extract the filter pod if there is excessive hydrocarbons/light liquid present as it will coat the filter foam and may impair the correct operation of the filter.

Installing The Filter Pod

1. Ensure that the inlet and outlet are adequately blocked to prevent the passage of liquids through the separator.

2. Ensure that the automatic closure device is freely moving within the filter housing.

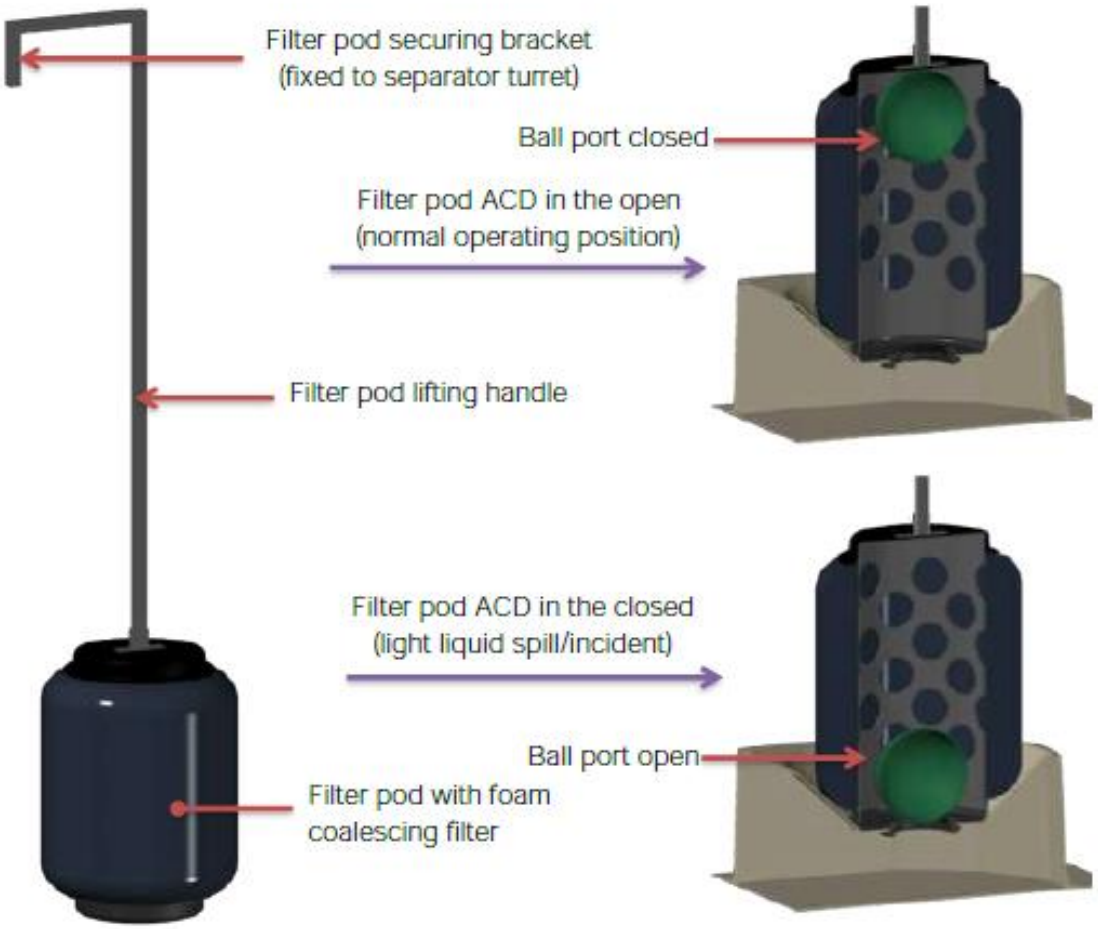
3. Lift the filter housing by the handle (mechanical assistance can be used if necessary) and carefully guide the filter pod past the relevant manway access.
4. Carefully lower the filter pod into the separator; once the filter pod comes in contact with the water surface it is expected that there will be some resistance until all the trapped air has evacuated from the pod housing, do not use excessive force to push the filter pod under the water surface.

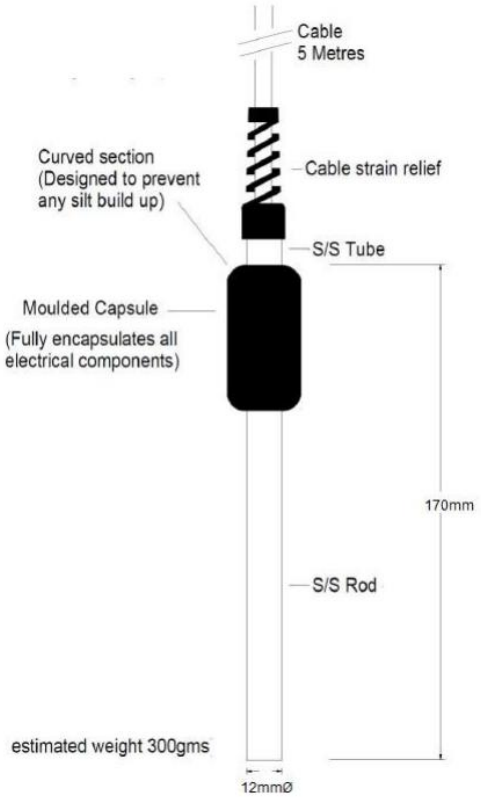
5. Once submerged the filter pod is quire buoyant ad mechanical assistance will no longer be required; remove or disconnect the mechanical lifting device.

6. Once the filter pod is fully submerged carefully lower the pod assembly into the separator until it is firmly located inside the coned seating at the bottom of the tank. To ensure the pod is correctly seated when lowering the pod keep the filter pod handle vertical.

7. Once the filter pod is seated in the filter base housing lock the filter pod in position using the thumb screw in the handle retaining bracket located in the turret.

8. Remove the bungs or open the valves on the separator's inlet and outlet once all of the filter pods are correctly positioned.


Filter pod securing bracket
(fixed to separator turret)
Ball port closed
Filter pod ACD in the open
(normal operating position)
Filter pod lifting handle
Filter pod ACD in the closed
(light liquid spill/incident)
Ball port open
Filter pod with foam
coalescing filter



High Level Oil Probes

The light liquid level probe is a twin output signal probe able to notify the user for the height of the hydrocarbon level in addition with potential spillages.

Junction Box

The probe cables need to be connected in a junction box with those at the control panel. The box will be positioned in the turret and be ATEX certified (IP65). The necessary item should be sealed resistant and able to accommodate at least two inputs and outputs.

Direct Cable System (DCS)

The DCS will be provided by the installer/end-user and is the mechanism that will be in direct communication with the probes to signal potential errors.

The probes operate under gravity and are directly connected to the DCS, hence, no power supply is required.

Separator Alarm (Type 14300)

Alarm Installation, Commissioning & ServicingSupport
Please Contact:

Darcy SpillcareManufacture
Tel: 0845 299 7515
Email: technical@darcy.co.uk

Name and Address of Manufacturer	Darcy Products Limited Unit B7 Chaucer Business Park Watery Lane Kemsing Sevenoaks TN15 6QY

European Directive	94/9/EC
Equipment Name and Type	Separator Monitor Type 14300
Certificate Number	Baseefa 08ATEX0110/2 IECEx BAS 11.0095
Specific Marking of Explosion Protection	[Ex ia Ga] IIC (-20°C ≤ Ta ≤+50°C)
ATEX Directive Marking	Ex II (1) G
Notified Body	Baseefa 1180 Buxton UK
CE Mark with Notified Body Number	CE1180
Harmonised Standards Used	EN 60079-0:2009 EN 60079-11:2012
Serial Number and Year of Manufacture	Displayed underneath the control unit

On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

Peter Bowden (Quality Manager) 09/09/2014

Note: In all cases good, standard electrical practice should be followed, and the installation must conform to the appropriate local code of practice. In essence, the installation must be such that the intrinsic safety is not compromised by: - exposure to risk of mechanical damage, unauthorised modification or interference, exposure to moisture, dust and foreign bodies, excessive heat, invasion of intrinsically safe circuit by other electrical equipment or circuitry. (See Note in installation section)

The standard system is supplied complete with an intrinsically safe control unit together with a high oil probe. The control unit is capable of monitoring up to 3 probe units, displaying their current status via a 2 x 16 display.

The output relay enables this status to be signalled to a remote location or activate a beacon if required.

General Operation

The Control Unit monitors the condition of the connected probe units by checking their condition every 30 minutes[1], their current status is displayed on the display located on the front of the unit.
If an alarm condition is detected, a warning message is displayed followed by notification of the alarm condition detected, e.g. ***HAZARD ALERT* High Oil Alarm**, the output relay becomes de-energised and the internal buzzer is audible.

After the separator has been emptied and refilled with water, the control unit re- scans the probe sensors attached and presuming no alarm condition is detected, **'All Correct'** will be displayed.

If the push button is pressed before the separator has been emptied, or it has been emptied but not refilled with water, then the control simply scans the probe sensor(s) and reverts to the alarm condition.

The unit then gives the option, via the display, to accept/acknowledge the alarm. On doing so, the output relay energises, the buzzer is muted and the display instructs the user to take the appropriate action, e.g. empty the separator.

Please note the output relay is *de-energised* on detection of any alarm condition or mains failure.

Changing Factory Settings

Alarm Type

The factory setting is STD (standard), this is where the output relay de-energises upon fault detection and energises upon acceptance of the fault.

Alarm Type EXT (Extended) allows the relay to remain de-energised until all alarm conditions become normal.

To enter the "Set Up" mode, firstly remove power from the unit. Whilst holding down the Push Switch, power up the unit keeping the Push Switch depressed, after about 10 seconds the screen will display "Set Up", at this point release the Push Switch.

The display will now show Alarm Type: with a flashing cursor over STD, to change this function to EXT, press the Push Switch once.

The unit is factory set to 30 minutes, but in extreme conditions, this can be manually changed from 2 to 60 minutes at one minute intervals. (See Changing Factory Settings)

Check Interval

Whilst still in the Set Up mode, power down and then power up the unit, the flashing cursor will now be next to Check Intvl: - by pressing the Push Switch, the time can be altered in increments of 1 minute between 2 and 60.

To exit the Set Up mode at any time, hold the Push Switch whilst powering down and then power up again before releasing the Switch, this will return to the main screen sequence.

Installation

This product has been designed and certified as being intrinsically safe. It is of paramount importance, that the unit should not be modified in any way and the installation be carried out by an approved installer, in accordance with the Environment Agency guidelines (PPG3). Any deviation from this could invalidate the certification warranty and render the unit unsafe for its intended use.
Upon powering up the unit for the first time, the LCD will display the following message:

Testing the Probe Sensors

The probe interrogation function can be activated at any time by simply pressing the push switch.

Control Unit

Refer to Table 4 on page 7 for required cable specifications.

The control unit must be positioned in a non-hazardous area. For all wiring details, refer to Figure 2, Table 5 and Table 6 on page 9.

HAZARDOUS AREA EQUIPMENT ACTIVATION CODE REQUIRED

The unit will not be able to function without the code which can be obtained by calling Darcy Spillcare on 0845 299 7515

Probes (High Oil & High Liquid Level Probes)

The high oil probe (14005) is supplied pre-installed with the separator tank and simply needs to be connected to the control unit.

If a high liquid probe (14011) is required, this needs to be installed such that the float switch housing is located above the static liquid level. The probe cable can be secured inside the neck of the separator using a probe mounting kit (14050).

Please note the distance above or below the static liquid level will be determined by the type, style and/or size of separator, this information can be obtained from the separator manufacturer. However, as a general *rule of thumb*, the high liquid level probe should be placed 300mm above the static liquid level and the high oil probe 150mm below.

Due to the varying neck lengths (turrets) that occur within each separator, each normal probe unit is fitted with 5 metres of cable.

Silt Probe

The probe is suspended in the separator to a pre-determined depth and the cable can be secured to the neck of the separator using the probe mounting kit (14050).

Cable Distribution Box

It is advisable to connect the probe cables to a cable distribution box which should be fixed near to the top of the separator neck. The probe cable can then be terminated with a waterproof plug (provided with the distribution box). The plug is then connected to the bulkhead socket (provided with the distribution box). A cable must then be laid to connect the distribution box and the control unit. The type of connection cable required will be dependent on the environment it is used in, the route taken and maximum allowable cable capacitance and inductance (see cable parameters in Table 4 on page 7).
After making the connections in the distribution box, it is advisable to spray the terminals with a conformal coating lacquer to prevent moisture ingress before finally sealing them with waterproof putty.

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After making the connections in the distribution box, it is advisable to spray the terminals with a conformal coating lacquer to prevent moisture ingress before finally sealing them with waterproof putty.

Connection to Control Unit

The Probe cable should be fed through the appropriate gland in the bottom right hand side of the control unit and connected to the terminals as instructed. The mains cable, and if used, any beacon or sounder cable, must be fed through the appropriate gland on the bottom left hand side of the control unit and connected to the terminals as instructed.

IMPORTANT NOTE: Under NO circumstances must the control unit casing be drilled to allow cable entry in any area(s) other than those already provided, as this would infringe the certification and therefore safety of the product.

Using a Junction Box

An intrinsically safe junction box should be used where incoming cable sizes have to be reduced to gain entry through the cable glands in the base of the control unit.

IMPORTANT NOTE: Under NO circumstances must mains and probe cable joints be made within the same junction box other than a junction box that is approved Intrinsically safe for such purpose, as this would infringe the certification and therefore safety of the installed system.

Maintenance and Repair

Due to the harsh environments which the probes can be subjected to, it is advised that they are inspected and cleaned with a damp cloth at regular intervals. The control unit does not contain user serviceable parts. For all repairs, contact Darcy Spillcare on 0845 299 7515

Probe Calibration

The hydrocarbon probe level will be reasonably set from the design value and only minor adjustments should be required. Calibrating the silt probe to optimize silt storage is more problematic; the following is a suggested sequence of operation that can be used to determine a suitable operational site desludging frequency:

1. The initial depth for the hydrocarbon probe is set on leaving the manufacturing plant.

2. The silt probe is generally shipped loose with depths set on site based on the separator model and manway access arrangement.
   a. Where the silt probe is located in a manway used to remove filter pods the probe will be set at the filter base depth.
   b. Where the probe is located in an access manway remote from the filter pods the probe is initially set at one third the tank diameter measured from the tank invert.

3. On an alarm event for either the hydrocarbon or the silt storage arrangements should be made for the tank to be desludged and the collected hydrocarbons removed.

4. The depth of sludge/silt in the tank should be determined by taking a dip tape measurement and the value recorded to facilitate calibration of the probe. This will be more critical for case 2b above as the filter base sets the limit for silt probe in smaller units.

5. The volume of each material removed should be recorded for comparison against the rated storage.

6. Where the relevant volume of the material removed is at or near the rated value then the probes should not be adjusted; note it will be easier to obtain finer adjustments

on the hydrocarbon probe.

7. In the event that the volume of hydrocarbon or silt material recovered is less than the rated value then the depth of the probes can be adjusted;

   a. Hydrocarbon probe depth can be increased by approximately 1mm for each 1% difference between the recorded and rated value i.e. recorded storage is 1800 litres which equals 90% of storage → increase the depth of the probe by an additional 10mm. Where volumes recovered are greater than the rated value the depth of the probe must be reduced.

   b. Silt probe depth can be increased by 100mm steps for an in silt storage. Care is to be exercised when increasing the silt storage; it may not be possible to obtain the theoretical maximum silt storage within the tank if the operation of the filters pods will be affected.

8. Once the tank is desludged and the probes adjusted the filter pods should be extracted and inspected for contamination by suspended solids.

9. The process is repeated during the next hydrocarbon or silt alarm event with probes being adjusted as necessary. Once the tank is desludged the filter pods are again inspected.

10. In the event that filter pods are showing signs of increased silt/sludge soiling and/or if there are frequent high-water alarm events without excessive storm events this indicates excessive head-loss across the filter pod foam. The head loss is probably as a result of too much silt storage within the tank fouling the filters and the volume of silt stored should be reduced.

11. Once the separator probes are calibrated optimum de-sludging frequency will be a factor of either the silt storage volume for sites with heavily silted runoff or the hydrocarbon volume for sites with high concentrations of hydrocarbons in the runoff. It
    is expected that hydrocarbon accumulation will be the determining factor for de- sludging operations at the site under consideration.

12. An optimum de-sludging interval occurs when the silt and hydrocarbon both need desludging at the same time; however, it is not considered unreasonable to have to remove materials at different intervals based on the following guide:

    a. On high silt/sludge alarm hydrocarbons should be removed where sludge/silt removal is required to facilitate inspection of the filter pods.

    b. On high oil alarm where sludge levels are at less than 50% of actual tank capacity then hydrocarbons only need be removed and the filter pods checked.

    c. On extended high water alarm collected hydrocarbon should be removed, the tank de-sludged and the filter pods removed for inspection and cleaning as necessary. The foam or filter pod may need repair or replacement.

7. Start-Up & Commissioning

Following the installation process, the tank should already be filled with clean water to the outlet/operational level of the separator. Ensure that the inlet to the separator is temporarily blocked until the unit is commissioned; remove the bung once the plant is commissioned.

1. Remove the filter pod units in accordance with the instructions for Filter Pod Removal and maintenance ensuring the pods are in clean condition and that ACD ball is free to move within its housing

2. Lower the filter pod and ACD into the separator until it is firmly located inside the coned seating on the filter base of the separator.

3. Ensure that the positioning handle is in the bracket fixed to the separator turret and hand-tighten the wing nut to ensure the filter pod remains in position.

4. Ensure that the stilling housing tube for the hydrocarbon level probe is securely fastened to the relevant turret.

5. Set the depth of each probe, which is suspended off from its attached cable, to the correct level clipping or locking the probes in place.

6. It is advisable to connect the probe cables to a cable distribution box which should be fixed near to the top of the separator neck. The junction box must be IP65 rated

7. Remove the bung to the inlet of the separator and ensure all covers are in position.

8. Declaration

The Start-up Commissioning Checklist & Declaration should be completed by the Principle Contractor having control of the site during the installation of the RNS.

Where the Principle Contractor has, sub contracted any part of the works (including the probe installation and commissioning) written declarations must be obtained from each of the relevant Sub- Contractors responsible for those parts of the works in which they were involved and the declarations should be kept with this document.

Start-Up and Commissioning Declaration

It is confirmed that the CNS has been Installed and Commissioned in accordance with local requirements, Building Regulations and any Applicable Regulatory Body requirements.

In addition, prior to bringing the CNS into service the following items are confirmed as having been checked as being operational:

- Each automatic closure device float is free to move within its filter pod housing.
- Each filter pod and the associated automatic closure devices are adequately seated in the filter floor housing.
- Each filter pod positioning handle is locked in place in the restraining bracket.
- A suitably designed ventilation system has been installed to vent any dangerous gasses from the separator without endangering any other installation within the site.
- The high hydrocarbon/oil probe is adequately fixed in place and set at the appropriate height within the tank as set out in the manufacturers' documentation.
- All manway access covers are in place.
- Sub-contractor written declarations have been returned and copies of these declarations are included in the O&M

Checked by: Signature:

Date:

Company name:

Servicing Guide for Professionals

6 Months

Periodic Inspection

The requirements for Separator Maintenance are as set out in EN 858: Part 2: Clause 6 ‘‘Operation, inspection and Maintenance’’.

In accordance with the requirements of EN 858 maintenance of the system will be carried out <u>at least</u> every six months by experienced personnel and shall include the following items.

- **Determination of sludge/silt volume.**
- **Measurement of the thickness of light liquids.**
- **Checking the operation of the automatic closure devices.**
- **Checking the integrity and permeability of the coalescing filter.**
- **Checking the function of the warning devices.**

5 Years

Major Inspection

In accordance with the requirements of EN 858 intervals of at maximum five years the separator system shall be emptied and then submitted to general inspection covering the following items:

- **Water tightness of the system.**
- **Structural Condition.**
- **Condition of internal linings.**
- **Condition/sate of electrical probes**
- **Checking the in-position seating and condition of the automatic closure devices.**

Inspection should be by remote viewing/telemetry systems eliminating hazards associated with man entry into separators. The separator is considered as a confined space and any inspection, where man entry into the tank is proposed, must be carried out in accordance with the requirements of Confined Space Regulations and any national and locally applicable requirements or regulations.

All works or inspections associated with the installation must be adequately risk assessed and all appropriate control measures in place prior to commencement.

In the interests of safety health and welfare at work inspections should be performed remotely wherever and whenever possible. Premier Tech recommend that all inspections are performed remotely using suitable IP, IECEx and ATEX remotely controlled equipment and that person entry into separators is only performed as a last resort and under strict supervision and control.

In the course of normal operation of the separator any hydrocarbon and silt/sludge shall be removed as required. Before removing and replacing the filter pods it is necessary to ensure that any collected hydrocarbons are removed to prevent fouling of the coalescing filter foam when removing the replacing the filter pods. In the event that the hydrocarbon removal frequency is less than the six-month period between the required inspections it is recommended that:

- Collected hydrocarbons are removed from the system.
- The sludge/silt volume is checked and if necessary the separator is desludged.
- The integrity and permeability of the coalescing filter are checked once the hydrocarbons are removed.
- The operation of the automatic closure devices is checked while the filter pods are out of the separator.

Service Agreement

The owner of the Rewatec separator is 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 operation and maintenance manual.

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. Any regulations and requirements for avoiding accidents and the handling of dangerous materials shall be followed and waste disposal should be by a licensed contractor. When working in or near a deep excavation or tanks, ensure all necessary safety precautions are taken to provide safe working conditions for site personnel.

All works or inspections associated with the installation must be adequately risk assessed and all appropriate control measures in place prior to commencement. Premier Tech recommend that all inspections are performed remotely using suitable IP, IECEx and ATEX remotely controlled equipment and that man entry into separators is only performed as a last resort and under strict supervision and control.

Any documentation relating to cleaning and maintenance records shall be kept on site and made available to Premier Tech or any Regulatory Authorities upon request. The records will include the volume of materials removed off of site and should include remarks on specific events for example repairs, accidents, modifications etc.

Liquid should be prevented from entering and exiting the separator during maintenance and inspection operations and probe calibration.

Removing The Filter Pod

1. Ensure that the inlet and outlet to the separator are adequately blocked to prevent the passage of liquids through the separator.

2. Ensure that collected hydrocarbon/light liquid is removed before removing the filter pod.

   Where the operation is part of desludging works de-sludge the plant before removing the filter.

3. Undo the thumb screw on the handle retaining bracket located on the turret.

4. Carefully begin to remove the filter pod by lifting the filter pod handle straight up. The filter pod will be quite buoyant at this point and no mechanical assistance will be required.

5. The rate of rise of the filter pod should be such that there is little resistance experienced as the pod is extracted; occasional surges of liquid to the surface may be encountered as liquid pressure equalizes within the filter.

6. If excessive drag is experienced while extracting the submerged filter reduce the rate of extraction accordingly, i.e. if the operator experiences resistance when lifting the filter pod or there is excessive lateral movement of the filter pod as it is extracted slow down the extraction rate.

7. Once the top of the filter pod is visible at the top water level of the separator there will be reduced buoyancy benefits from the water and the apparent weight of the separator can substantially increase (apparent weight can be up to 55kg while the water drains from the filter pod). A minimum of 2 people or mechanical lifting equipment can be used at this stage to prevent injury to individuals but care must be exercised to prevent damaging the filter.

. The filter pod should be extracted from the water within the separator at a maximum rate of approximately 20mm per second by hand or with the aid of mechanical lifting equipment to facilitate draining of the filter without damaging the filter foam. Note it should take approximately 1 minute to extract each filter pod from the water in the separator.

9. Once the filter pod is clear of the water surface and drained of any liquid the pad can be carefully lifted from the separator, ensure that the filter pod does not snag or get caught up on the manway as it is extracted from the separator.

10. Carefully place the filter pod on a suitable surface disconnecting the mechanical lifting equipment and ensuring there is nothing that can damage the filter foam.

Inspecting & Cleaning The Coalescing Filter

The foam used in the coalescing filter is a primary part of the treatment process and consists of reticulated polyurethane foam based on a polyether with an entirely open cellular network i.e. it does not contain any closed cells. The filter pods may be expected to last between major inspection and maintenance events as set out in BS EN 858; however, this is dependent on the duty on the separator and that the filter pods are adequately inspected and maintained as necessary. Without adequate maintenance, the filter foam may require replacing on an annual basis. It is likely that filters may need replacing in the event that the surface water sewer becomes surcharged. In any event while the filter pods may last up to the 5-year maintenance interval the filter foam should be replaced and usage should not exceed major inspection intervals of 5 years.

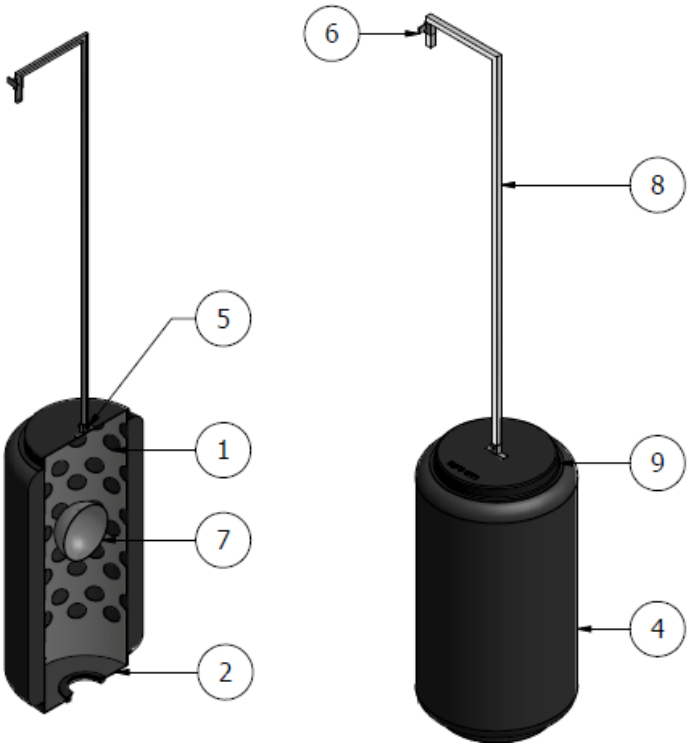
The filter pod coalescing foam should be inspected whenever the coalescing filter pods are removed from the separator. Exercise care when handling and examining the filter for as even a minor tare or rip will render the foam ineffective. The filter foam must not be removed from the filter pod for inspection or cleaning purposes. The following guide is applicable when inspection and cleaning the filter:

1. Initially place the filter pod on a surface standing in the vertical position or suspended from a mechanical lift device. It may be necessary to remove the filter pod extension handle if the pod is unstable in the vertical position when placed on a surface.
2. Perform a cursory inspection of the filter foam examining the material for any obvious signs of damage and any contaminants that may affect or damage the foam and carefully remove and such contaminants (plastic wrapping, twigs, etc.) by hand disposing of the waste to a suitable receptacle.
3. While still in the vertical position and positioned over a suitable catch basin commence cleaning of the filter pod coalescing foam. The catch basin can be located upstream of the separator so that any cleaning waste will pass through the separator once the separator is mad operational again.
4. Cleaning should be performed with a standard low-pressure garden type hose: do not use a power hose as this will damage the coalescing foam. A combination of a spray and direct flow may be required depending on the extent of cleaning required.
5. Suitable detergent may also be used to assist in cleaning the coalescing filter foam. Consult detergent manufactures' data as the suitability for use with the coalescing filter foam.
6. Where emulsifying detergents are used to assist in removing any surface contaminants; ensure that where detergents are used and the waste flows back through the separator that there is sufficient time allowed for the emulsified hydrocarbon material to separate.

7. Once the coalescing filter foam is suitable cleaned perform a detailed visual inspection of the foam for defects. Where serious defects or tears are identified the filter, pod will need to be replaced. Suitable replacements are available from Premier Tech.
8. Where the coalescing filter foam is in adequate condition move the filter pod to a suitable position and onto a suitable surface where it can be laid on the side to examine the automatic closure device (ACD).
9. The chamber housing the ACD should be free of any debris that will prevent the float form moving freely within the housing. Carefully remove any debris that may be encountered.
10. While the ACD hosing may have some fine silt build-up it should not be excessively dirty unless the coalescing filter foam has failed. Light cleaning may be required with a standard low-pressure garden type hose: do not use a power hose
11. The operation of the ACD ball float should be checked by hand by physically rolling the float along the longitudinal axis of the housing.
12. Once the ACD, coalescing filter foam and general condition of the filter pod assembly are checked, cleaned and deemed adequate the filter pod can be put back into service.

The following figure is a typical coalescing filter with ACD. Generally the filter pod assemblies are a consumable item within the separator and will require changing out over time. The standard filter pod assembly is not designed to have the filter foam replaced on site. When replacing the filter pod assemblies please retain the stainless-steel handle and extension handle.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	FT2.5NS-PVC CTR VENT	CTR VENT PIPE
2	1	FT1.8NS-POLY BASE	GRP FILTER BASE
4	1	FT2.5NS-FILTER WRAP	FOAM FILTER WRAP
5	1	FT1.0NS-BRKT1	STAINLESS STEEL BRACKET
6	1	FT1.0NS-BRKT2	STAINLESS STEEL BRACKET
7	1	FT1.0NS-BALL FLOAT	BALL FLOAT
8	1	FT1 CNS HANDLE & EXT.	STAINLESS STEEL FILTER HANDLE
9	1	FT1.8-2.5NS-POLY TOP	GRP FILTER BASE
10	1	16964-150 GROMMET	



Full Retention Separator Technical Specification

Tank

Tank Structure:	Crystic 2-8500PA Glass Reinforced low styrene emission, pre-accelerated, orthophthalic polyester resin
Tank Liner:	Crystic 199 high performance isophthalic polyester resin
Effluent quality	Effluent quality: ≤ 5.0 ppm of hydrocarbons (for influent >5.0)
Maximum temperature	60 °C (refers to lining)

Alarm and Alarm Control Panel IP65 (14300 or 14308)

Manufacturer:	(14308) Darcy Products Ltd, Unit B7 Chaucer Business Park, Watery Lane, Kemsing, Sevenoaks, Kent, TN15 6QY
Replacement/Parts:	(14300) Darcy Products Ltd, Unit B7 Chaucer Business Park, Watery Lane, Kemsing, Sevenoaks, Kent, TN15 6QY
Alarm Control Panel:	Separator Monitor Type
14300 (14308) Certificate Number: Baseefa 08ATEX0110/2 IECEx BAS 11.0095	
Oil Probe (Essential)	High oil/Hydrocarbon probe (14005)
Water level probe (recommended)	High liquid level (14011)
Silt buildup probe, optional subject to local regulations and needs	Silt/sludge (14220)

ACD & Coalescing Filter Pod

Coalescing Filter Foam:	FT-T20 reticulated polyurethane foam based on a polyether Density: 25 kg/m^3 Nominal
ACD Ball	Weighted copper ball of SG 0.95

Typical* Full Retention Separator Model Sizes

Tank Code inc Tank Code inc. Silt. Silt	Area Drained (m2)	Length inc. Silt (mm)	Oil Storage Capacity (L)	Silt Storage Capacity (L)	Ext Diameter (mm)	Base to Inlet Invert (mm)	Base to Outlet Invert (mm)
CNS4S/11	222	2020	40	400	1016	1290	1240
CNS6S/11	333	2636	60	600	1016	1290	1240
CNS8S/11	444	2587	80	800	1200	1474	1425
CNS10S/11	556	3295	100	1000	1200	1465	1415
CNS15S/11	833	3080	150	1500	1500	1765	1715
CNS20S/11	1111	4202	200	2000	1500	1765	1715
CNS30S/11	1667	4250	300	3000	1800	2030	1980
CNS40S/11	2222	5800	400	4000	1800	2030	1980
CNS50S/11	2778	3928	500	5000	2500	2730	2680
CNS60S/11	3333	4525	600	6000	2500	2730	2680
CNS70S/11	3889	5320	700	7000	2500	2730	2680
CNS80S/11	4444	5950	800	8000	2500	2730	2680
CNS100S/11	5556	5880	1000	10000	2500	2730	2680

Indicative maximum transport height = Base to inlet invert height + inlet pipe diameter (Up to a maximum of 4100mm). Available upon enquiry.

Larger sizes from CNS100 up to CNS1000 can be manufactured as a single tank;
Different arrangement/diameters available upon request.

* Typical Rewatec® NS separator sizes and the area drained are determined considering rainfall runoff only with a design rainfall intensity of 65mm/h. Where larger design rainfall intensities are required and/or where trade effluent forms part of the separator influent please contact Premier Tech Technical Department to assess the correct nominal size separator for your specific application.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