



ACO Q-Ceptor Oil Separator
Installation Recommendations

These recommendations include for the ACO Q-Ceptor Full Retention Separators and the ACO Q-Ceptor Bypass Separators, and for both Class 1 and Class 2 Separators.

These recommendations indicate the requirements for installation of ACO Q-Ceptor Oil Separators in typical site conditions. The customer should ensure that the requirements for their particular site conditions and anticipated loadings are met, taking Engineering advice where necessary. These recommendations assume that the unit is to be installed with a concrete backfill to the excavation, which will assist in resisting uplift from flotation of the unit. If a backfill of granular material is proposed, Engineering advice should be sought.

ACO Q-Ceptor Oil Separator units are manufactured and supplied in full compliance with BS EN 858-1 and -2 and in accordance with the Environment Agency guidelines PPG3. The customer (or his client) is responsible for ensuring that the installation of the unit is in compliance with any regulatory requirements of the planning authorities, building control, Environment Agency, Water Company, national and European standards, etc.

Installation should only be carried out by an experienced and competent contractor. Electrical work (e.g. alarms) should only be carried out by a suitably qualified electrician.

1. Before installation

- 1.1. Check that the unit is of the correct size, type and class, by reference to the label on the Separator body.
- 1.2. Check that the cover is of the required Load Class and is compliant with BS EN 124.

2. Lifting and off-loading

- 2.1. The Contractor is responsible for the handling of the product. Lift using a forklift through the slots under the base or webbing slings fixed through the lifting holes on the sides of the unit. Do not lift the units using slings around the bypass channel.
- 2.2. Take care that the units do not tip during handling, as the centre of gravity of the units can be quite high. In particular the size NS3 and NSB3 units can easily tip when lifted with slings, and are better lifted with a forklift.
- 2.3. Do not drag, drop or roll the units. Keep the units upright. Store the units on firm level ground. If the units have been partly filled with rainwater, this should be pumped out before lifting.

3. Excavation

- 3.1. Excavation is to be carried out by a competent contractor familiar with the health and safety requirements of deep excavations, employing suitable sheeting and shoring when necessary. Sheeting can usually be removed after placing the backfill and before the concrete hardens. Engineering advice may be necessary.
- 3.2. Excavate a hole to receive the unit, allowing for a minimum of 200mm thickness of concrete below and all around the unit and with sufficient working space for the connection of pipework, ducts and vents. Any unsuitable ground in the base of the excavation is to be removed and replaced (e.g. with hardcore plus a sand blinding

layer). Engineering advice may be necessary.

The minimum excavation dimensions for all sizes of ACO Separator (NS3 to NS10 and NSB3 to NSB10) are 2130mm x 1600mm. The depth will be to suit the pipe connection levels.

- 3.3. The excavation is to be kept free of water, and when necessary suitable pumping equipment should be used to keep the excavation dry.

4. Installation

- 4.1. Check that the levels of the excavation will permit the unit to be installed at the correct level to suit the incoming and outgoing pipework, and that the extension shaft (if required) is of sufficient height to permit the fitting of the cover at the required finished ground level (see also 4.9).
- 4.2. All concrete used in the installation is to be of minimum grade C16/20. Where necessary for high loadings and for trafficked concrete pavements, a higher specification of concrete may be required and this should be detailed in the Client's design and specification. Some ground conditions, such as when sulphates or chemical contamination are present, may require special concrete specifications. Engineering advice should be sought.
- 4.3. Pour a minimum 200mm thickness of concrete onto the base of the excavation, and whilst the concrete is still wet carefully lower the separator unit onto the concrete. Check that the unit is fully supported by the concrete, is level and at the correct height. Check the orientation (i.e. that the inlet and the outlet pipe connections are the right way round). Allow the concrete to harden.
- 4.4. Add 500mm depth of water to the inside of the unit. Carefully place additional concrete to the sides of the unit to a level between 400mm and 500mm above the base of the unit. Ensure good compaction, but do not use vibrating pokers as this would be likely to cause the unit to move in the concrete. Check that the unit is still correctly positioned and level. Check the pipe levels. Allow this concrete to harden.
- 4.5. Add water to fill the unit to the invert of the outlet pipe. Check the pipe levels. Carefully place additional concrete to the sides of the unit to a level just below the outlet pipe level, ensuring there is sufficient room left for the installation of the pipework. Allow this concrete to harden.
- 4.6. Connect the inlet and outlet pipework and vent pipe.
- 4.7. If an extension shaft is required, cut the shaft to the correct length and fit the shaft to the top of the unit. Alternatively, fit the full length extension shaft to the top of the unit, and cut it down to the level of the finished concrete after the concrete backfill (step 4.10) has hardened. Ensure joining surfaces are clean, apply sealant (eg a one-pack polyurethane as Sikaflex 11FC+ or Masterflex 472) with cartridge gun approximately 8-10mm thick to sealing face of separator & completely fill the sealant groove. Position extension shaft and leave sealant to cure before use as per sealant manufacturer's recommendations.
- 4.8. If an extension shaft longer than 1m is required, ACO recommend that a man-access shaft be constructed from precast manhole sections founded on top of the concrete surrounding the main body of the separator. Note that access to the shaft must be controlled and will require a risk assessment by the client.

- 4.9. If an access pipe into the bypass chamber is required, remove the plug from the top of the bypass channel and connect 110mm PVC-U pipework into the seal. This pipework may be run to ground level to terminate in a suitable surface box (e.g. a rodding access unit) or may be connected via a swept bend into a hole cut in the side of the extension shaft.
- 4.10. Install a duct (with drawstrings) for the electrical cabling to the alarm, from the location of the alarm control panel to the separator, led through a suitable hole to the inside of the unit. The duct entry must be either through the wall of the extension shaft or, if there is no extension shaft, through the wall of the access collar at the top of the unit. Seal any gap between the duct and the wall of the unit or extension shaft.
- 4.11. Place further concrete backfill to the unit, in pours of maximum 500mm height allowing the concrete to harden between pours. A minimum 200mm thickness of concrete is recommended around the unit and continued up to a level at least 200mm above the top of the unit. Extension shafts may require temporary strutting to maintain their circular shape during the placing of the concrete surround. Allow the concrete to harden.

5. COMPLETION AND COMMISSIONING

- 5.1. Fitting of the cover and application of surface finishes may be completed now (or could be left until later, according to the Contractor's programme. If the cover is not fitted, ensure that the works are made safe). The details of pavement finishes will vary according to the architectural and engineering design of the project.
- 5.2. If a sampling pump is to be fitted, fix the top hose clamp near to the underside of the cover and attach the hose to the top hose clamp.
- 5.3. Fit the alarm(s). This work is to be carried out by a qualified electrician in accordance with the installation recommendations of the alarm manufacturer. The alarm probes are to be hung at the correct levels, as shown in the table below. There will almost certainly be an oil level probe, and there may be a high liquid level and/or a silt level alarm depending on what alarm kit has been ordered.
- 5.4. The following dimensions are given as the vertical height from the bottom tip of the probe to the bottom of the inside of the tank. (Ensure that the measurement is from the bottom, and is not accidentally taken from the top of the ribs forming the forklift slots).

	Vertical height from the bottom of the tank to the bottom tip of the probe		
Unit Size	Oil level probe	Silt level probe	High level probe
NS3	710 mm	220 mm	1145 mm
NS6	960 mm	395 mm	1545 mm
NS8	1260mm	495 mm	1765 mm
NS10	1260 mm	645 mm	1765 mm
NSB3	770mm	220 mm	1260 mm
NSB6	1000 mm	395 mm	1555mm
NSB8	1285 mm	495 mm	1740mm
NSB10	1220mm	645 mm	1740mm

- 5.5. Ensure any debris is cleared from inside the unit. Top up the unit with clean water.
- 5.6. Fit the float (only required in full retention separators) and ensure that it can slide freely up and down within its guide cage. Note that when the unit includes an

extension shaft, it may not be possible to reach down as far as the float, in which case a boathook or similar hooked pole may be employed to place it.

- 5.7. Fit the coalescing filter (only required in Class 1 separators). Ensure its base is seated flat against the flange. Note that when the unit includes an extension shaft, it may not be possible to reach down as far as the coalescing filter in which case a boathook or similar hooked pole may be employed to place it.
- 5.8. Ensure that the float has floated up off its seating, (and if necessary lift it off its seating so that it is floating).

6. OPERATION

- 6.1. The separator will operate without attention, subject to regular maintenance as recommended below and subject to attention if the alarms should operate. No power supply is required to the unit, and it will continue to operate in a power cut. However power is of course required for the alarms.

7. MAINTENANCE

- 7.1. Keep a detailed log of when the separator is inspected, maintained, emptied and serviced. Also record specific events relating to the separator such as cleaning, repairs, accidents and incidents.
- 7.2. ACO can advise on a suitable Contractor to carry out this work and who can be contracted to carry out all the necessary regular inspections, maintenance and emptying. Emptying should be carried out by a competent contractor and the waste disposed of in accordance with waste regulations to a licensed facility.
- 7.3. The separator should be inspected at least once every six months by a competent person.
Some sites might require more frequent inspections, if found to be necessary from experience.
In addition, the unit must be inspected in the event of an alarm condition being signalled.
The separator should be completely emptied every five years to enable a complete inspection of the integrity of the unit. The unit should be refilled with clean water after inspection.
- 7.4. **Inspection and maintenance**
The inspection should include as a minimum:-
 - Remove the access cover
 - Inspect the integrity of the separator and all moving parts
 - Assess the depth of accumulated oil and silt. It is recommended that the unit be emptied if 50% of the available silt storage is used up, or if 80% of the available oil storage volume is used up. If the accumulated oil or silt volumes exceed 90% of the available storage volumes, the unit must be emptied.
 - Service all electrical equipment such as alarms (in accordance with the recommendations of the alarm system manufacturer)
 - Check the condition of the coalescing filter and clean with a water jet (or replace) as necessary. If cleaning with a water jet, do not use excessive pressure as this might damage the filter. The suggested maximum pressure is 4 bar for a ¾" (19mm) nozzle.
 - Check the condition of the automatic closure device (the float) and clean with a water jet (or replace) as necessary. Lift the float to ensure the float is floating and free to move within its guide.

- Lift any alarm probe(s), clean, check for any damage and replace.

Note that when the unit includes an extension shaft, it may not be possible to reach down as far as the coalescing filter and float, in which case a boathook or similar hooked pole may be employed to lift and replace these items.

7.5. **Emptying**

- Remove the access cover
- To remove the oil, lower the desludging hose into the oil layer and remove the oil
- To remove the silt, lower the desludging hose into the silt layer and remove the silt
- When necessary (and at least once every five years)
 - completely empty the unit
 - clean the whole of the inside of the unit with a pressure hose and empty again
- Carry out all the items listed above under Inspection and Maintenance
- Refill the unit with clean water
- Check the float is properly fitted, and check the float is floating (lift up if necessary)
- Check the coalescing filter is properly fitted
- Refit the access cover.



01278 671927



15th March 2010

INSTALLATION RECOMMENDATION

Contractors are advised to obtain a copy of the full installation recommendations from www.aco.co.uk, or the ACO Design Services department at technical@aco.co.uk or tel 01462 816666.

1. The customer should ensure that the requirements for their particular site conditions are met, taking Engineering advice where necessary. These recommendations assume that the unit is to be installed with a concrete backfill.

2. Lift using a forklift through the slots under the base or webbing slings fixed through the lifting holes on the sides of the unit. Do not lift the units using slings around the bypass channel. Take care that the units do not tip during handling. Do not drag, drop or roll the units. Store the units on firm level ground.

3. Excavate a hole to receive the unit, allowing for a minimum of 200mm thickness of concrete below and all around the unit and with sufficient working space for the connection of pipework, ducts and vents. Any unsuitable ground is to be removed and replaced. Engineering advice may be necessary. The excavation is to be kept free of water.

4. All concrete used in the installation is to be of minimum grade C16/20. Where necessary, a higher specification of concrete may be required. Engineering advice should be sought. Pour a minimum 200mm thickness of concrete onto the base of the excavation, and whilst the concrete is still wet carefully lower the separator unit onto the concrete. Check that the unit is fully supported by the concrete, is level and at the correct height. Check the orientation. Allow the concrete to harden.

5. Add 500mm depth of water to the inside of the unit. Carefully place additional concrete to the sides of the unit to a level between 400mm and 500mm above the base of the unit. Do not use vibrating pokers. Check that the unit is still correctly positioned and level. Allow this concrete to harden.

6. Add water to fill the unit to the invert of the outlet pipe. Carefully place additional concrete to the sides of the unit to a level just below the outlet pipe level, ensuring there is sufficient room left for the installation of the pipework. Allow this concrete to harden.

7. Connect the inlet and outlet pipework, vent pipe and bypass access pipe.

8. If an extension shaft is required, cut the shaft to the correct length and fit the shaft to the top of the unit with sealant 8-10mm thick.

9. Install a duct (with drawstrings) for the electrical cabling to the alarm.

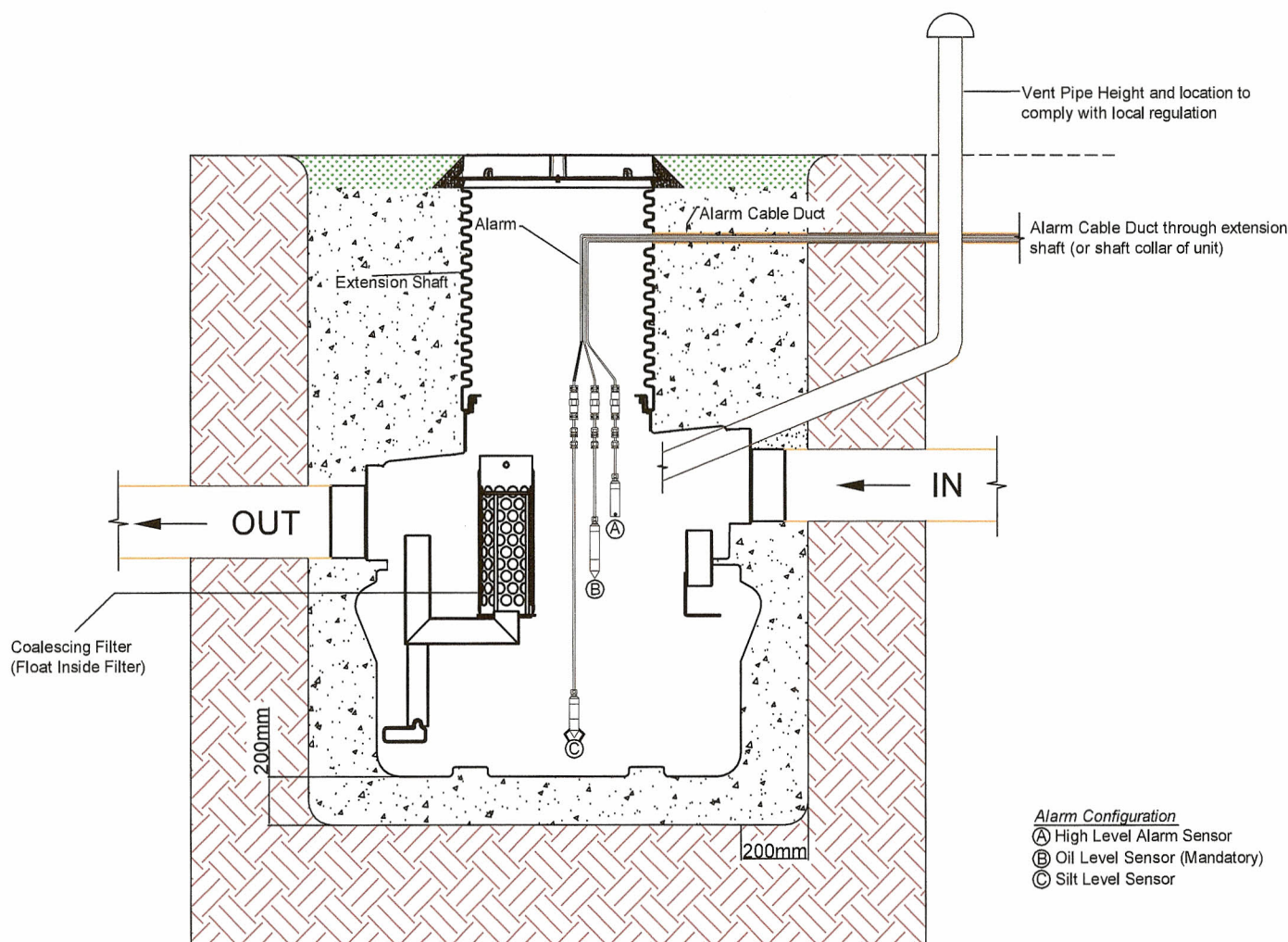
10. Place further concrete backfill to the unit, in pours of maximum 500mm height allowing the concrete to harden between pours.

11. Fit the cover (supplied by others).

12. If a sampling pump is to be fitted, fix the top hose clamp near to the underside of the cover and attach the hose to the top hose clamp.

13. Fit the alarm(s). This work is to be carried out by a qualified electrician. The alarm probes are to be hung at the correct levels, as shown in the detailed installation instructions.

14. Ensure any debris is cleared from inside the unit. Top up the unit with clean water. Fit the float (only required in full retention separators) and the coalescing filter (only required in Class 1 separators). Ensure that the float has floated up off its seating, (and if necessary lift it off its seating so that it is floating).





Alarm Configuration

- (A) High Level Alarm Sensor
- (B) Oil Level Sensor (Mandatory)
- (C) Silt Level Sensor

Bypass Unit Shown (Full Retention Similar)

Supplied
by
Synergy
WASTEWATER TREATMENT
PRODUCTS
Tel: 01278 671927

A	27-04-10	DRAWING ISSUED			AH	JC
Issue	Date	Description			Name	Checked
Scale:		1:5 @ A3		Projection: ISO-E	<div><div></div><div>ACO Business Park Hitchin Road, Sheffield, Bedfordshire, SG17 5TE Tel: 01462 816666 Web: www.aco.co.uk</div></div> <div>Information contained in this drawing is a copyright property of ACO Technologies. Any reproduction in part or whole without written permission of ACO Technologies is prohibited.</div>	
				Unit: mm	ACO	
Date		Name		Checked by		Drawing No.
27-04-10		A Harvey		J Croke		E1-E01-066
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Title: ACO Q-CEPTOR INSTALLATION (SIZES NS3 -NS10 & NSB3 -NSB10)						