

| ECOTOP

**HIGH EFFICIENT GREASE
SEPARATION**

PRODUCT OVERVIEW
INSTALLATION MANUAL
OPERATION & MAINTENANCE



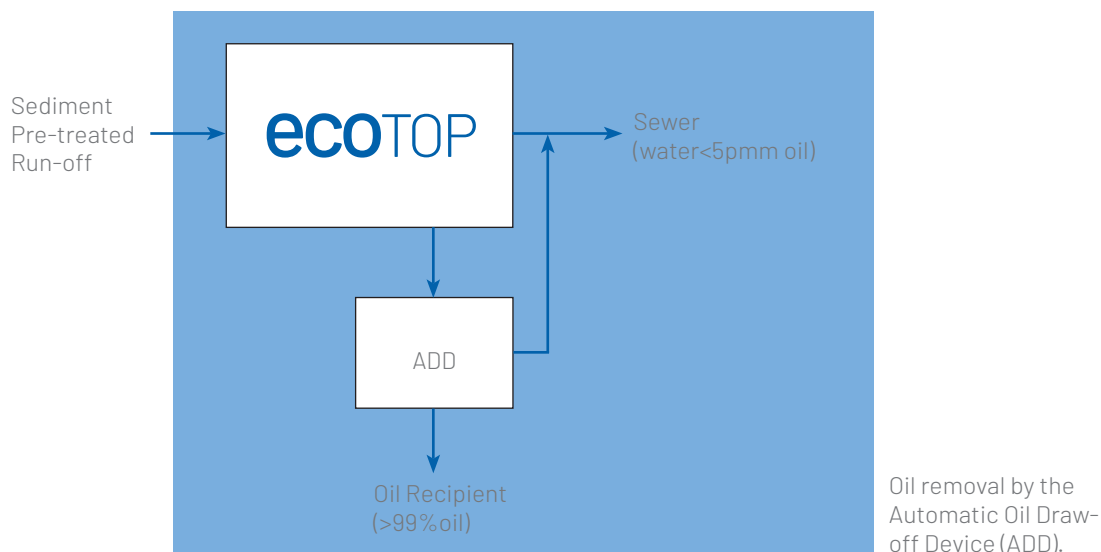
HIGHLY EFFICIENT AND COST SAVING OIL/WATER SEPARATION IS TODAY'S CHALLENGE.

ecoTop is our answer.

Small facilities are frequently hot spots when it comes to treatment of hydrocarbon laden wastewater. The total amount of wastewater generated per day is sometimes too small to justify construction cost for the installation of a below grade oil/water separator. For these applications, an above grade unit provides an acceptable solution.

The Ecotop Oil/Water Separator provides the first substantial cost savings in the form of zero construction site labor. Ecotop is equipped with a removable top panel. This provides full access to all basic elements of the Ecotop system.

Routine cleaning and maintenance are then efficient and cost effective. Annual maintenance cost savings range from 30% to 50% lower than that of conventional separator systems.



TODAY'S ENVIRONMENTAL LEGISLATION IS HARD ENOUGH TO COMPLY WITH.

ecoTop meets tomorrow's standards today.

It's not just the Ecotop's long maintenance intervals and low waste-disposal costs that make it such a good investment, but the fact that it is designed with future standards in mind. Ecotop permanently separates oil from water and allows virtually no oil emulsion formations to develop.

The Ecotop far exceeds the strict European standards (DIN 1999 and EN 858) for performance. The outstanding independent testing certificates (available upon request) demonstrate that Ecotop will provide clean water that exceeds today's environmental standards. Ecotop also allows for tighter, future environmental discharge compliance guidelines to be met with little or no modification to the system.

ecoTop combines high efficiency oil/water separation with mobile flexibility

Closed system, waste stream holding tank capacities are pumped when full. Costs of this type of disposal are charged by the gallon. The majority of this pumped volume is water. With Ecotop, these holding tank wastes can be processed. This then allows for the direct discharge of the separated water and the collection of pure product which minimizes disposal costs!

Ecotop's stainless steel structural dimensions are reduced to provide compact system design while still maintaining the industry's highest level of removal efficiencies. Specially designed coalescing media panels provide a large specific surface to support the separation of small oil droplets. If your oil separation application is variable with numerous holding tanks in various locations or space is too limited for a below grade unit, consider Ecotop as your above grade oil/water separator.

ecoTop's fields of application:

- Transportation
- Gasoline stations, car wash and repair workshops
- Industrial process waste water
- Oil production, oil-removal plants
- Reconditioning of cooling water
- Mobile cleaning of oil-contaminated ground water



ecoTop NS 03 model



ecoTop NS 10 model

ECOTOP AT A GLANCE



30% to 50% annual maintenance cost savings

Removable top panel for full access to all major elements and reduced or no confined space entry requirements for cleaning and maintenance.

Small floor space required

EcoTop is optimized in terms of efficiency and space requirements.

High operational reliability

No external energy supply is required, no electrical parts and constructed only of stainless steel components.

Liquid level sensors

For permanent monitoring of changes in the liquid levels.

Automatic oil draw-off device

This prevents emulsion from being formed and allows >90% concentrations of light liquids to be collected.

Low disposal cost

Only the oil is disposed of, not an oil-water mixture.

An investment that is built to last

Thanks to the use of high grade stainless steel vessels.

5 ppm separation

The outstanding test results achieved at noted testing institutions show that EcoTop will be able to meet even tougher future standards.

WORKING PRINCIPLE

The Ecotop oil/water separator is designed to separate non-emulsified light liquids or low-water-soluble fluids with a specific gravity below 0.95 (gasoline, diesel, heating oils and other mineral oils) from effluent discharge. The residual hydrocarbon concentration in the effluent will not exceed 5 ppm. The Ecotop Oil/Water Separator meets all of the requirements of strict European separation standards (DIN 1999 and EN-858).

A two-step separation process, gravity separation and removal of small oil particles by coalescing media elements, produce high removal efficiencies. The separated oil is automatically removed from the water surface and collected in an internal or external oil recipient.

ecoTop does not separate

- Mechanically or chemically emulsified oils
- Vegetable oil or animal fat
- Solid Grease

The following kind of influent must NOT be treated with the separator:

- Flow rates exceeding the design flow rate of the system.
 - Substances, which could impede proper function (large quantities of suspended particles etc.)
 - Detergents and cleaning agents that form stable emulsions.
 - Wastewater inflows that are still influenced by pump, agitator or vibrator movements.
 - Wastewater containing chlorides
-
- For pH values not within the range from 6 to 8, detailed water analysis need to be provided.

Referring to the independent test results from the German LGA institute, the residual hydrocarbon content in the purified effluent does not exceed 5 mg/l.

Purification Step 1: Gravity Separation

The sediment and solids, pre-treated run-off is gravity fed or pumped (typically with a positive displacement or diaphragm type pump) to the gravity separator through a submerged inlet pipe. The separation process relies on the fact, that light fluids have a lower specific gravity than water and thus float on the water surface.

Purification Step 2: Coalescing Media

In the residual oil media, fine droplets that are too small to be separated by gravity are accumulated into bigger drops that rise to the surface. This coalescing media is made of reticular (i.e. "net-like") soft polyurethane foam. The media-cartridge is very easy to lift out and reinstall once it is cleaned/rinsed with a garden hose. The separated water that leaves the Ecotop has a residual contamination of free petroleum content to less than 5 ppm.



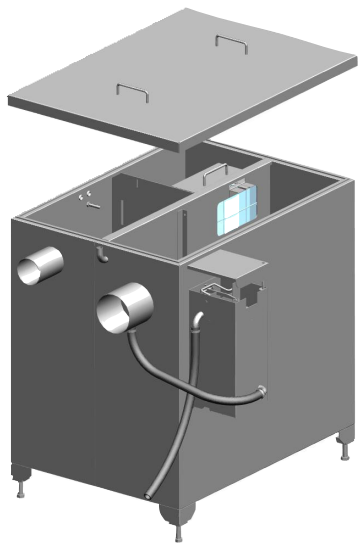
Manual Oil Draw-Off

A standard version of the ecoTop oil water separator is equipped with a manual oil draw-off device. This ball valve is located at the oil water interface and can be opened as soon as an oil layer of 30 mm is reached in the separation chamber. The manual oil draw-off can only be operated during non-operational periods (no influent entering the separator). The accumulated oil can be drained into an external oil drum (not provided).

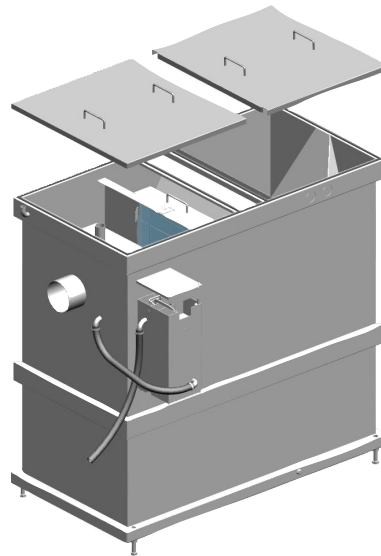
Automatic Oil Draw-Off Device (ADD)

As an option, the patented automatic oil draw-off device (ADD) can be installed. The light fluids are constantly being removed from the water surface and collected in an integrated or external oil recipient. No stable emulsions can be formed. A large amount of the separated light liquid can be recovered without any interrupting the collection cycle of the Ecotop.

The automatic drawoff device will collect the pure petroleum product, and not an oil-water mixture. The costly disposal of large quantities of oil and water mixtures is then eliminated. Facilities that have the ADD actually are paid by waste oil companies that service their Ecotop systems.



ecoTop NS03 side view



ecoTop NS10 side view

OPERATION AND MAINTENANCE

General

The separator must be maintained periodically. All parts of the separator have to be inspected monthly, as well as after all non-routine events. Please report all damages to the system to the manufacturer. To make sure that the separator is maintained properly, a specific person(s) has to be designated to this task. Please use the enclosed maintenance sheet to report maintenance work and other events related to the operation of the system.

Due to the danger of explosion, it is strictly forbidden to smoke or light any flames anywhere near the plant, particularly after the cover has been opened.

Before maintaining the plant, remove the cover and make sure that the plant has been well ventilated. If an authorized maintenance company is contracted to carry out the maintenance and emptying of the system, the relevant maintenance and operating manual must be made available to this company. The substances collected when the plants are emptied may NOT be disposed of to the sanitary sewage system, in standing or flowing water, sewage treatment plants. All collected substances must be disposed of by being taken to designated collection and recycling points.

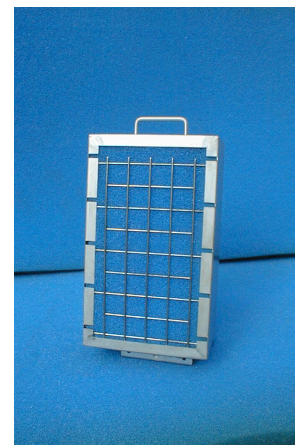
All damage to the plant must be repaired immediately. It is forbidden to make structural changes to the plant, interfere with its mode of action or increase the dimensions of the inlet or designed flow rates.

Cleaning of the media cartridge

The coalescing media cartridge has to be cleaned periodically. Since the maintenance intervals strongly depend on the very application, check the condition of the filter element weekly during the first 60 days of operation.

To detach the filter cartridge from the structure, release the quick lock on top of the cartridge and lift the filter on the handle. The filter media can be cleaned/rinsed with a garden hose. Recycle the wash-water to the separator.

Over time, UV radiation and sun light will degrade the coalescing media. It is, therefore, strongly recommended that the media inside the cartridges not be left outdoors for extended periods of time after cleaning. Some exposure to UV radiation and sunlight will not harm the system.



Removal of accumulated oil

Manual removal of oil

Accumulated oil can just be removed manually when there is no flow through the separator. Turn the handle of the valve 90° counterclockwise to open the valve. Drain oil into an external oil recipient and close the valve before water can enter the tank. During operation of the separator make sure that the manual draw-off is shut.

Automatic oil draw-off device

If your ecoTop separator is equipped with an automatic oil draw-off device, please see our brochure for the ADD.

Liquid level sensors and control alarm panel

General

The implementation of liquid level sensors and their corresponding control/alarm panel is intended to warn that the system is in immediate need of maintenance.

Design

Each sensor and control panel configuration is specific to the application. Equipment is specified and supplied by a manufacture('s) that produce accurate, dependable components.

INSTALLATION AND PUTTING INTO SERVICE

General

For general information on the installation of oil/water separators please refer to DIN 1999 part 2 and part 6.

Location

The separator must be installed above grade and leveled on a solid surface. The chosen location for the system should be as close as possible to the source of waste stream to be treated. When choosing the location, make sure that the separator can easily be accessed for maintenance.

Avoid any pipes or hydraulic structures that may contribute or increase the amount of mechanically emulsified oil, upstream to the separator. When the influent holding vessel requires it to be pumped, only positive displacement, diaphragm or screw type pump should be employed to avoid extreme mechanical emulsification of oil-laden wastewater.

If the separator is installed inside a building, ensure proper venting of the system.

Adjusting the level of the separator

The separator must be leveled on a solid basis, with the adjustable leveling feet.

Pipe connections

The ecoTop system is equipped with stainless steel inlet and outlet pipes, which are prepared for connecting SML-pipes (DN100: Ø110, DN150: Ø160). Alternate pipe types can be connected, by using standard pipe couplers.

The ecoTop unit is designed with an integral, stainless steel venting pipe (Ø25mm).

Please note for all pipe connections: Only stainless steel or plastic pipes may be used! Other pipe types (copper, steel, ...) may only be used if electrically isolated to avoid electrochemical corrosion!

Cleaning

Any material left behind from installation must be removed prior to filling the tanks with fresh water. Especially metal parts need to be removed (electrochemical corrosion!).

Adjusting the level of the separator

The ecoTop oil water separator provides an opening for the drainage of accumulated oil. To install the manual oil draw-off, simply introduce the ball valve into the sleeve of the separator wall.

Make sure that the slot of the ball valve is equipped with an O-ring gasket.



Installation of the automatic oil draw-off device (ADD)

To install the ADD, simply introduce the inlet pipe of the unit into the sleeve of the separator wall. Make sure that the slot of the inlet pipe is equipped with an O-ring gasket. Connect water outlet hose of the ADD to the provided pipe stub of the separator outlet pipe. Let the oil drain into an external oil recipient/oil drum. The ADD comes with a cover and can be vented.



Venting of the separator

The ecoTop is vented to avoid Accumulation of combustibile gases in the inside of the unit. If the system is operated in a closed room, the vent pipe must be extended to outside air.



Putting into service

Before the system is put into service, the unit must be filled with clean water. The system is now ready for operation.

Smoking and the use of open flames in the proximity of the separator are forbidden (particularly in closed areas)!



SCHLÜSSELBAUER 
ECOTECHNIC

Illustrations may differ from the original.
Version 07/2022: Subject to errors, technical changes and typographical errors.

SCHLÜSSELBAUER Ecotechnic GmbH & Co KG
A-4673 Gaspoltshofen, Hörbach 4
Tel. +43 7735 7320-0
support@ecotechnic.at | ecotechnic.at